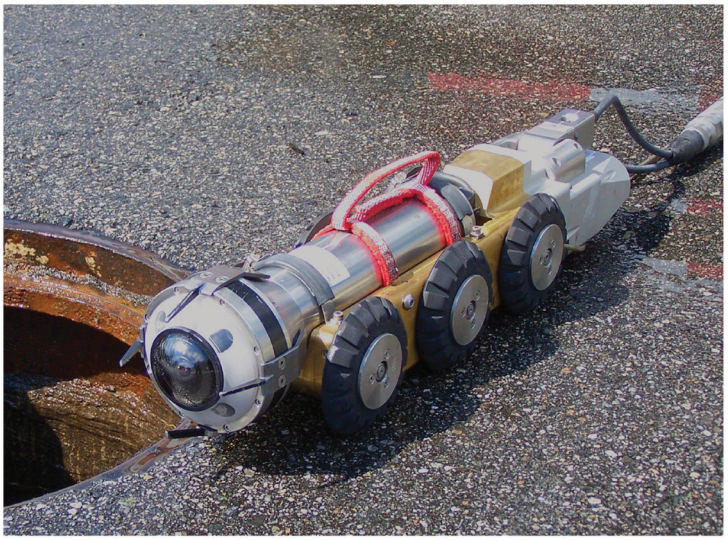
GO THE DISTANCE GO THE DISTANCE GO THE DISTANCE GO THE DISTANCE









CUES
PARTS CATALOG

800.327.7791 | salesinfo@cuesinc.com www.cuesinc.com

DUC
DIGITAL UNIVERSAL CAMERA



IMPROVE THE OPERATIONAL, ENVIRONMENTAL, AND FINANCIAL PERFORMANCE OF YOUR WASTEWATER SYSTEM TODAY!

The CUES Digital Universal Camera (DUC) is a semi-autonomous, high resolution, digital CCTV, side-scanning camera designed for rapid and detailed condition assessment of your wastewater system. When used in conjunction with CUES asset-based Granite XP decision support software, you can inspect and assess 5000 feet or more per day, increasing your revenue, while reducing your expenses. The system can be retrofitted to any industry standard multi-conductor truck or trailer-mounted system.

- The CUES Digital Universal Camera system produces a continuous hemispherical scan of internal pipe conditions in 6-60" pipe.
- The Digital Universal Camera operates at a constant speed in 6"-60" pipe without the need to stop or pan and tilt.
- Simply drive the unit on cruise control to the remote manhole or through multiple manholes for maximum efficiency.
- Rapid condition assessment via flat representation of the pipe; move the mouse to the area of interest, simply click, and the corresponding video appears; review and assign observations 5-10 times faster than traditional sequential video review.



The D.U.C. will outperform any autonomous robotic system. Call your CUES representative today!

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PARTS CATALOG

P/N 960919, Revision 7

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FYI

CUES® equipment is designed to be easy to use during day to day operation. However, it is powered electrically and thus must be operated with care and safety.
PLEASE READ THE INFORMATION ON SAFETY AND MAINTENANCE EVEN IF THE SYSTEM IS SET UP BY SOMEONE ELSE.

Care was taken in the design of this product and in the production of this document and related materials. However, CUES® makes no warranty for the use of its products and assumes no responsibility for any errors or omissions in this document or for incidental or consequential damages resulting from the use of the products or the information contained in this document. Specifications may change without notice.

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We would be pleased to hear from you. If you see any errors or desirable extensions or improvements, please write us at the following address, C/O Operator's Manuals:
CUES® Corporate Office 3600 Rio Vista Avenue Orlando, Florida 32805

More locations to serve you!

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909-923-2091 FAX

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CUES ® MidWest
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Fax: 909-923-2051

CUES® toll free hot line for
Customer Service and ordering parts:
800-854-CUES (800-854-2837)

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CUES STANDARD 12 MONTH WARRANTY

CUES ("CUES") warrants that all parts, components, and equipment manufactured by CUES shall be free from defects in material and workmanship under normal use and service for which it was intended for a period of twelve (12) months from the date of shipment of materials by CUES to the purchaser. CUES' obligation under this warranty is limited, at CUES' option, to replacing or repairing, free of charge, any defective materials returned, freight prepaid, to the CUES designated service facility. For all warranty claims, the materials must be returned in accordance with CUES Material Return Policy.

Major items of equipment, such as vehicles, generators, etc., furnished, but not manufactured by CUES, will be covered only under the warranty of the third party manufacturer of such equipment. Expendable parts, such as light bulbs, fuses, connectors, etc., are excluded from this warranty.

Purchaser must notify CUES of a breach of warranty not later than the last day of the warranty period; otherwise, such claims shall be deemed waived.

CUES does not warrant the materials to meet the requirements of the safety codes of any federal, state, municipal or other governmental or administrative jurisdiction. Purchaser assumes all risk and liability whatsoever resulting from the use of its products, whether used singly or in combination with other products, machines or equipment.

This Warranty shall not apply to any materials, or parts thereof, which have; (a) been repaired or altered by anyone other than CUES without CUES' written consent; (b) been subject to misuse, abuse, negligence, accident, or damage; (c) not been installed or operated in accordance with CUES' printed instructions, or; (d) been operated under conditions exceeding or more severe than those set forth in the specifications of design tolerance of the equipment.

THIS WARRANTY AND THE OBLIGATION AND LIABILITIES OF CUES HEREUNDER ARE EXCLUSIVE AND IN LIEU OF (AND PURCHASER HEREBY WAIVES) ALL OTHER WARRANTIES, GUARANTEES, REPRESENTATIONS, OBLIGATIONS, OR LIABILITIES, EXPRESSED OR IMPLIED, ARISING BY LAW OR OTHERWISE, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, REGARDLESS WHETHER OR NOT OCCASIONED BY CUES' NEGLIGENCE.

CUES SHALL NOT BE LIABLE FOR ANY LOSS OR DAMAGE RESULTING, DIRECTLY OR INDIRECTLY, FROM THE USE OR LOSS OF USE OF THE MATERIALS, OR FOR SPECIAL, INDIRECT, OR CONSEQUENTIAL DAMAGES, ECONOMIC LOSSES, LOSS OF PROFITS, LOSS OF BUSINESS, OR LOSS OF BUSINESS OPPORTUNITY. Without limiting the generality of the foregoing, this exclusion from liability embraces Purchaser's expenses for downtime or for making up downtime, damages to property, and injury to or death of any persons.

CUES neither assumes nor authorizes any person (including employees, agents, or representatives of CUES) to assume for it any other liability, guarantee, or warranty in connection with the sale or use of the materials, and no oral agreements, warranties, or understandings exist collateral to or affecting this warranty.

This warranty shall not be extended, altered, modified, or waived except by a written instrument signed by CUES.

CUES POLICY ON RETURNING MATERIALS

To ensure the orderly return of CUES products from our customers and to assure proper credit and warranty replacements handled in a timely manner, CUES has implemented a MATERIAL RETURN AUTHORIZATION (MRA) SYSTEM. Please read and follow the instructions below to ensure your MRA is handled properly and efficiently:

1. Once it is determined that a CUES product needs to be returned, call the CUES Parts Department in Orlando at 1-800-327-7791.
2. CUES will provide an MRA number by phone and ask a few questions.
3. CUES will then mail or fax the MATERIAL RETURN AUTHORIZATION (MRA) FORM with the MRA number, or include it with the replacement parts, if applicable.
4. Follow all instructions on the MRA Form. Make 2 copies - one for your records and the other will be used as a packing list.
5. Place an MRA sheet in with the parts that are shipped back to CUES along with a copy of the original packing slip or invoice, if possible. Send only the parts originally agreed upon with your Parts Representative. Any deviations/changes will require an additional MRA.
6. Make sure to include a copy of the MRA form for a packing slip.
7. Write the MRA number on the outside of the box.
8. Please take care in packing the parts that are to be shipped back to CUES. Parts must be individually protected from each other and appropriate packing material must be used to prevent damage during shipping.
9. Freight on the material returned is to be prepaid by the customer. Depending on the warranty determination, CUES, at its' option, may credit freight charges both ways.
10. *The parts must be returned to CUES within 5 days of receipt of the MRA for credit to be granted.*

Under normal circumstances, a warranty determination can be made within 30 days, and if under warranty, the part will be replaced at no charge. A credit will be issued if you have already received a replacement part. No credits will be issued until CUES receives the defective part.

*********NOTE*********

CUES will not warrant look-alike parts sold by competitors and reserves the right to charge a restocking fee.

CUES shall not be liable for any loss or damage resulting, directly or indirectly, from the use of the materials, or for special, indirect, or consequential damages, economic losses, loss of profits, loss of business, or loss of business opportunity.

Without limiting the generality of the foregoing, this exclusion from liability embraces purchaser's expenses for downtime or for making up downtime, damages to property, and injury to or death of any persons.

CUES neither assumes nor authorizes any person (including employees, agents, or representatives of CUES) to assume for it any other liability, guarantee, or warranty in connection with the sale or use of the materials, and no oral agreements, warranties, or understandings exist collateral to or affecting this warranty.

This warranty shall not be extended, altered, modified, or waived except by a written instrument signed by an authorized CUES representative.

CUES MATERIAL RETURN AUTHORIZATION

Cust #:	Name:	Contact:	Date: 4/21/2004

Original SO #: N/A	SO Orig:	Dated:	New SO #:	S.O. To Be Credited:

Return For:	Reason:	Territory	Prod. Ref. Cd: 51200	Orig:

Explanation:

	Items Returned
1	
2	
3	
4	
5	
6	

To ensure your MRA is handled properly and efficiently, please follow the instructions below.

1. Ship parts back within five (5) business days of receiving your MRA number. Parts ordered in error are subject to a restocking fee.
2. Send only the parts originally agreed upon with your customer service representative. Any deviations will require an additional MRA.
3. Make a copy of this sheet and keep the original for your records. Use the copy as a packing slip.
4. Write the MRA number on the outside of the box.
5. Parts must be individually protected from each other (original packaging would be best) and appropriate packing material must be used to prevent against damage during shipping.
Note: If parts are not well protected and arrive at our facility damaged in any manner, we will automatically reject them and return them to you without credit.

PARTS WILL BE RETURNED TO CUSTOMER AT CUSTOMER EXPENSE WITHOUT AN MRA NUMBER DOCUMENTED ON BOX. CUES IS NOT RESPONSIBLE FOR SHIPMENT FROM CUSTOMER TO CUES.

Use this section as a Packing Slip.

Please remember to write the MRA number on the box.

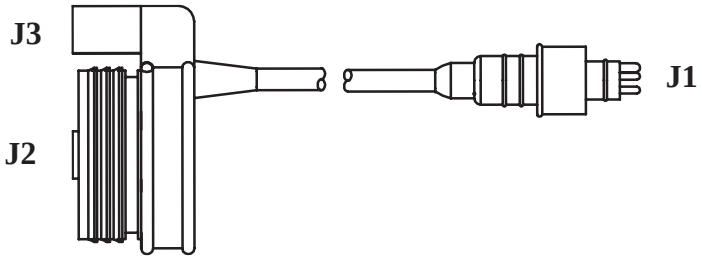
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XXXX

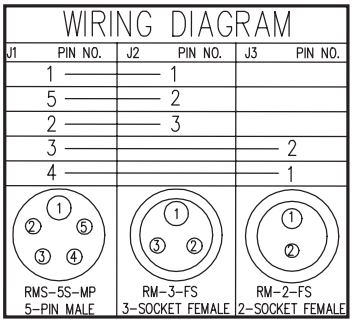
Return To:

Cues
3600 Rio Vista Avenue
Orlando, Fl. 32805
(407) 849-0190
FAX (407) 425-1569
WATS 800-327-7791

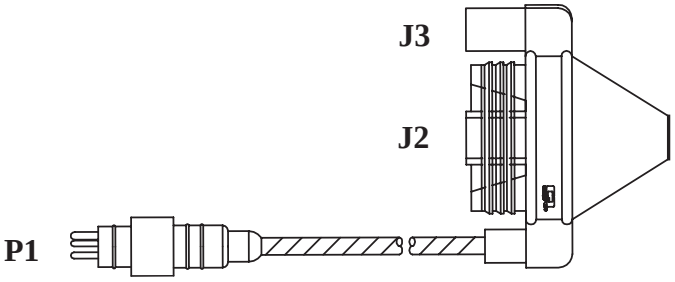
Y-ELIMINATORS & TEST CABLES - MULTI CONDUCTOR

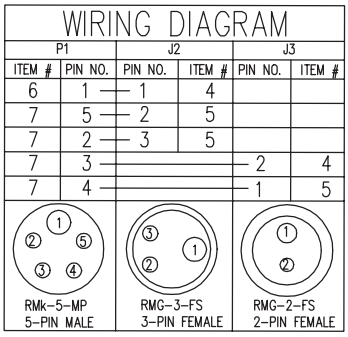
Y ELIMINATOR,FLAT,W/TAP,F/RVC M/C, P/N: MC417



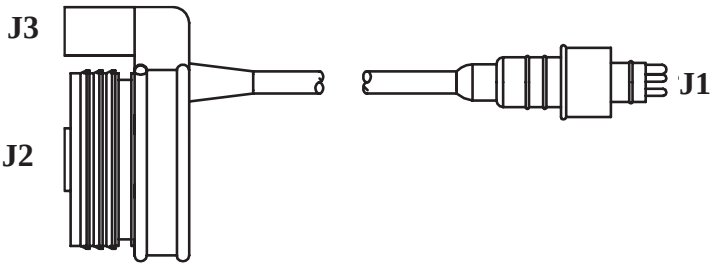


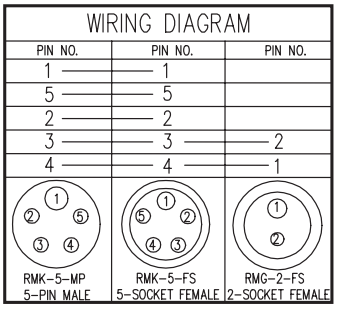
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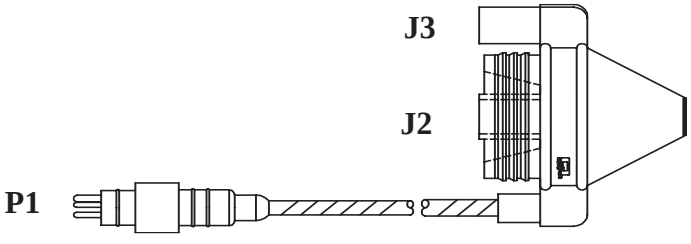


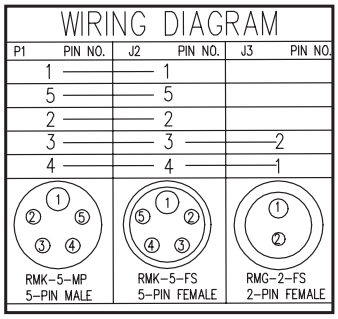
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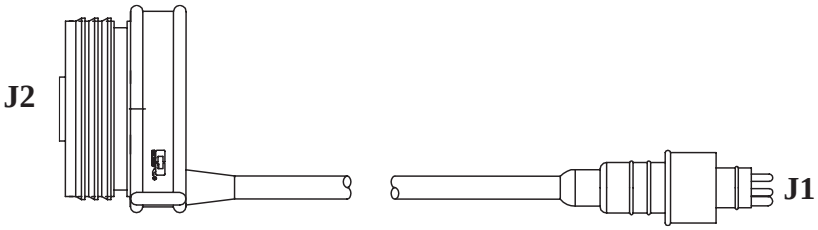
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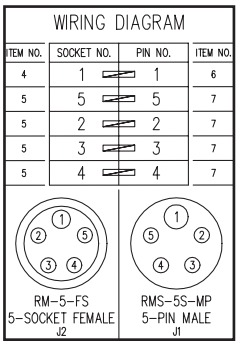




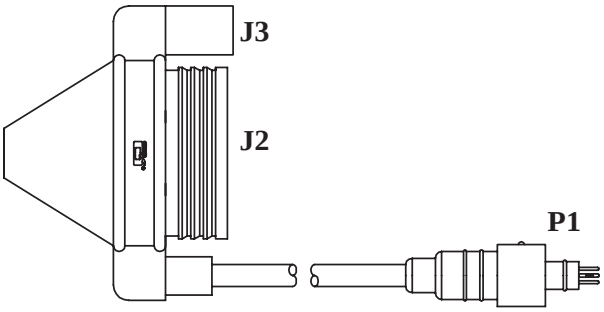
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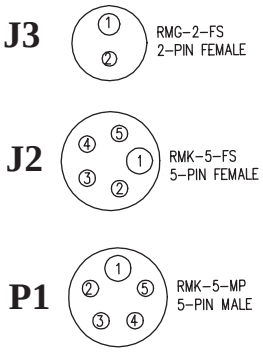
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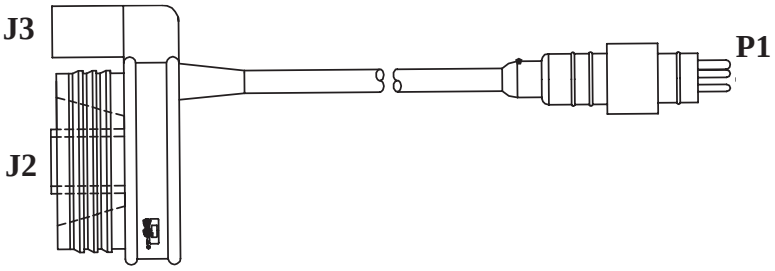


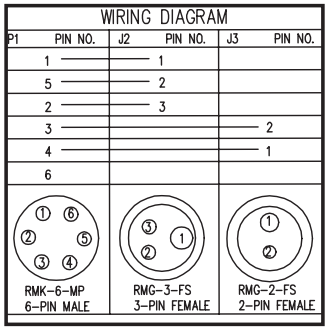
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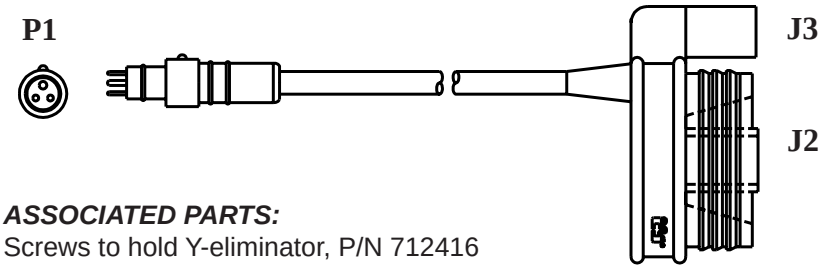
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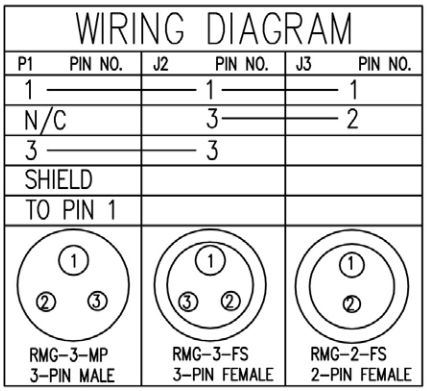




Y-ELIMINATORS & TEST CABLES - SINGLE CONDUCTOR

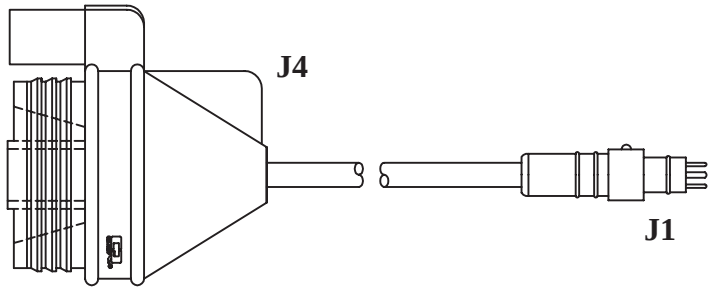
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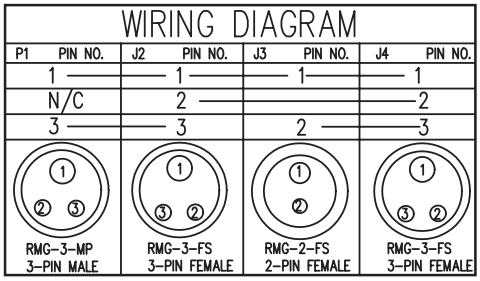




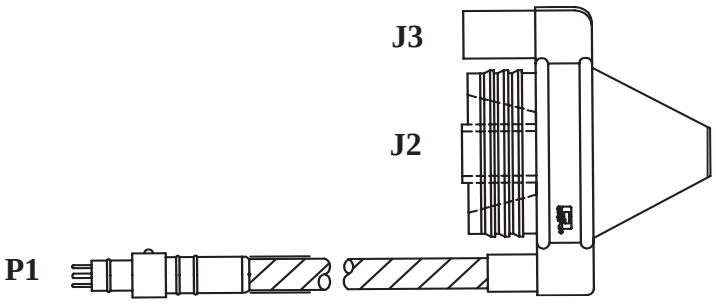
ASSOCIATED PARTS:
Screws to hold Y-eliminator, P/N 712416

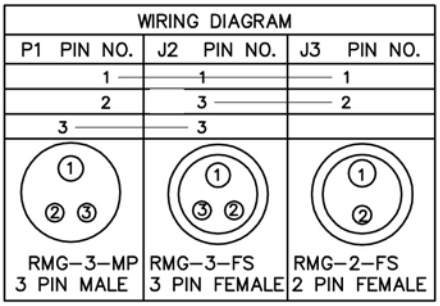
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Dummy Plug, Shorting, 3-pin M, P/N: 160656





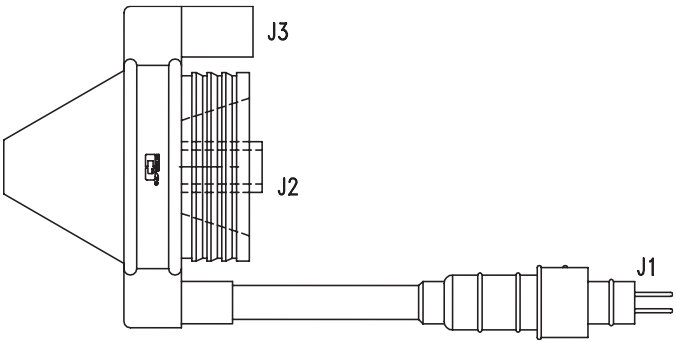
Y ELIMINATOR,TV/SEAL,S/C,W/TAP, P/N: 770104

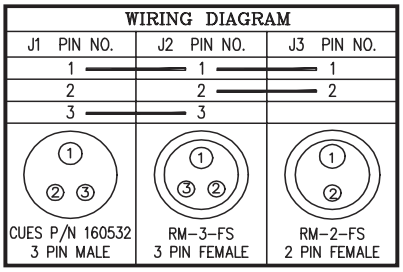




Y-ELIMINATORS & TEST CABLES - SINGLE CONDUCTOR

Y ELIMINATOR,S/C,CUTTER,CAM FIRST, P/N: KC011

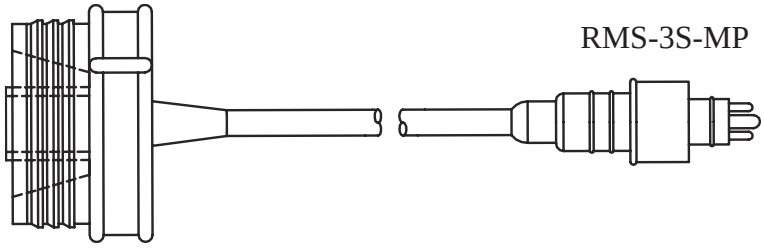


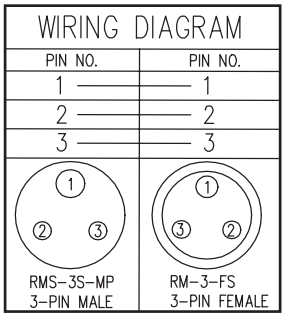


Y ELIMINATOR,S/C,P&T,FLAT,SHORTY, P/N: MC317

RM-3-FS

RMS-3S-MP



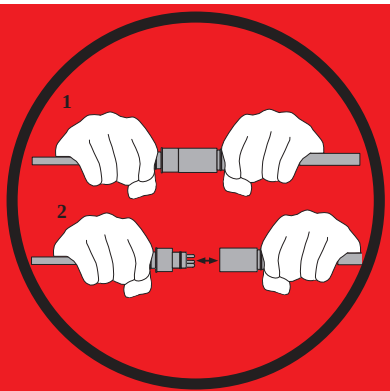


PIPE RANGER Y-ELIMINATORS AND ADAPTERS

IMPORTANT CABLE INSTRUCTIONS!



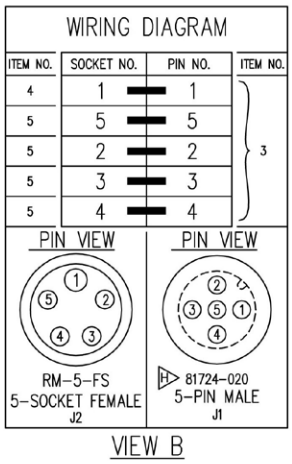
Do not bend or flex when plugging or unplugging the cable connectors !



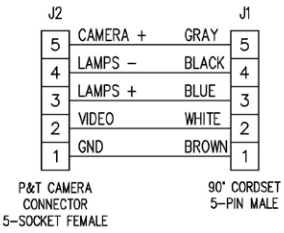
1 Firmly grasp connectors, not cables!
2 Pull apart as shown to prevent internal connector damage!

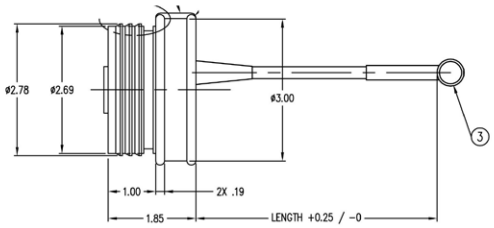
IMPORTANT NOTE:
It is recommended to apply a thin coat of Dow Corning DC111 (CUES P/N 940700) prior to plugging connectors together.

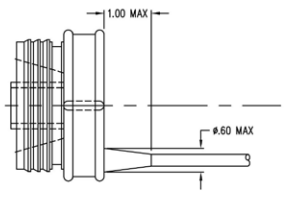
Y ELIMINATOR,M/C,SHORT,W/O TAP,PR, P/N WT049

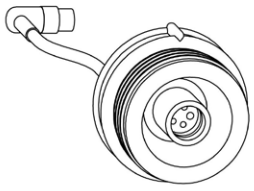


PART NUMBER	LENGTH (+.25 / -0)
WT049	4.40
WT049-1	5.25



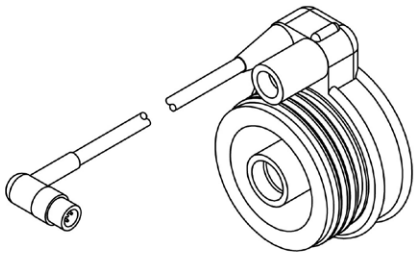


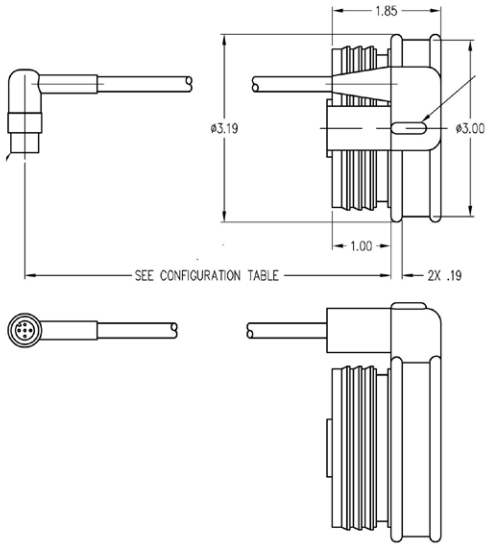




PIPE RANGER Y-ELIMINATORS AND ADAPTERS

Y ELIMINATOR,M/C,W/TAP,F/LIFT,PR, P/N WT311

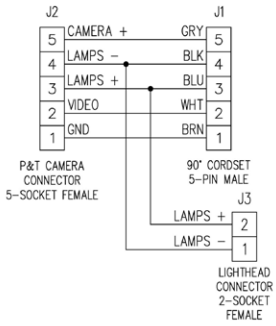




WIRING DIAGRAM

PIN NO.	PIN NO.	PIN NO.
1	1	
5	5	
2	2	
3	3	2
4	4	1

81724-020 5-PIN MALE J1 | RMK-5-FS 5-SOCKET FEMALE J2 | RMG-2-FS 2-SOCKET FEMALE J3



Y ELIMINATOR,S/C,SHORT,W/O TAP,PR, P/N WT058

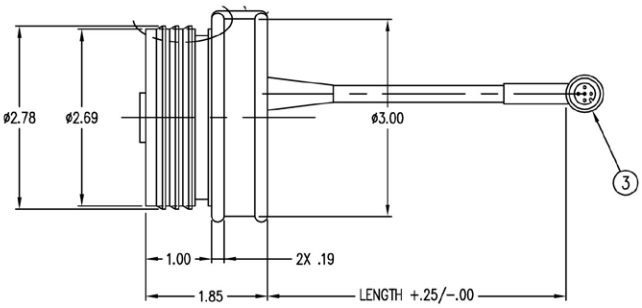
WIRING DIAGRAM

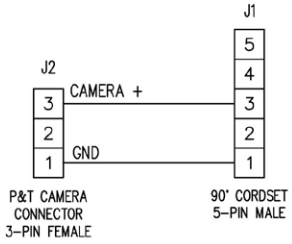
ITEM NO.	SOCKET NO.	PIN NO.	ITEM NO.
4	1	1	
	2	2	
5	3	3	3
		4	
		5	

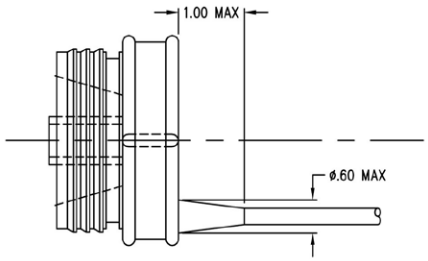
PIN VIEW — RM-3-FS 3-SOCKET FEMALE J2

PIN VIEW — 81724-020 5-PIN MALE J1

VIEW B



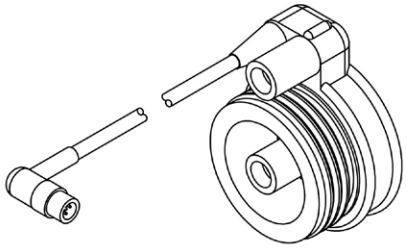


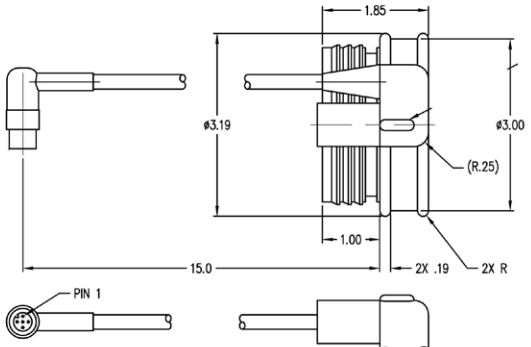


PART NUMBER	LENGTH (+.25 / −0)
WT058	4.40
WT058-1	5.25

PIPE RANGER Y-ELIMINATORS AND ADAPTERS

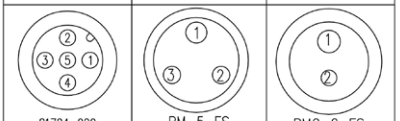
Y ELIMINATOR,S/C,W/TAP,F/LIFT,PR, P/N WT066





WIRING DIAGRAM

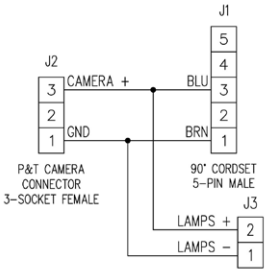
PIN NO.	PIN NO.	PIN NO.
1	1	1
2	2	
3	3	2
4		
5		



81724-020
FACE VIEW
5-PIN MALE
J1

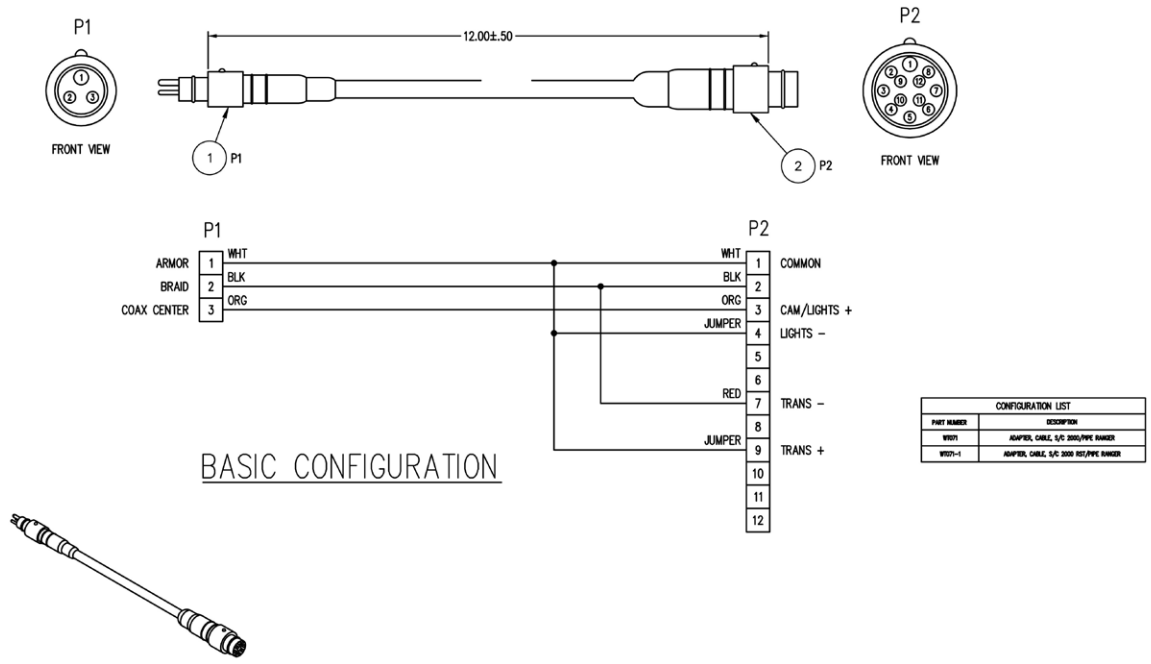
RM-5-FS
FACE VIEW
3-SOCKET FEMALE
J2

RMG-2-FS
FACE VIEW
2-SOCKET FEMALE
J3



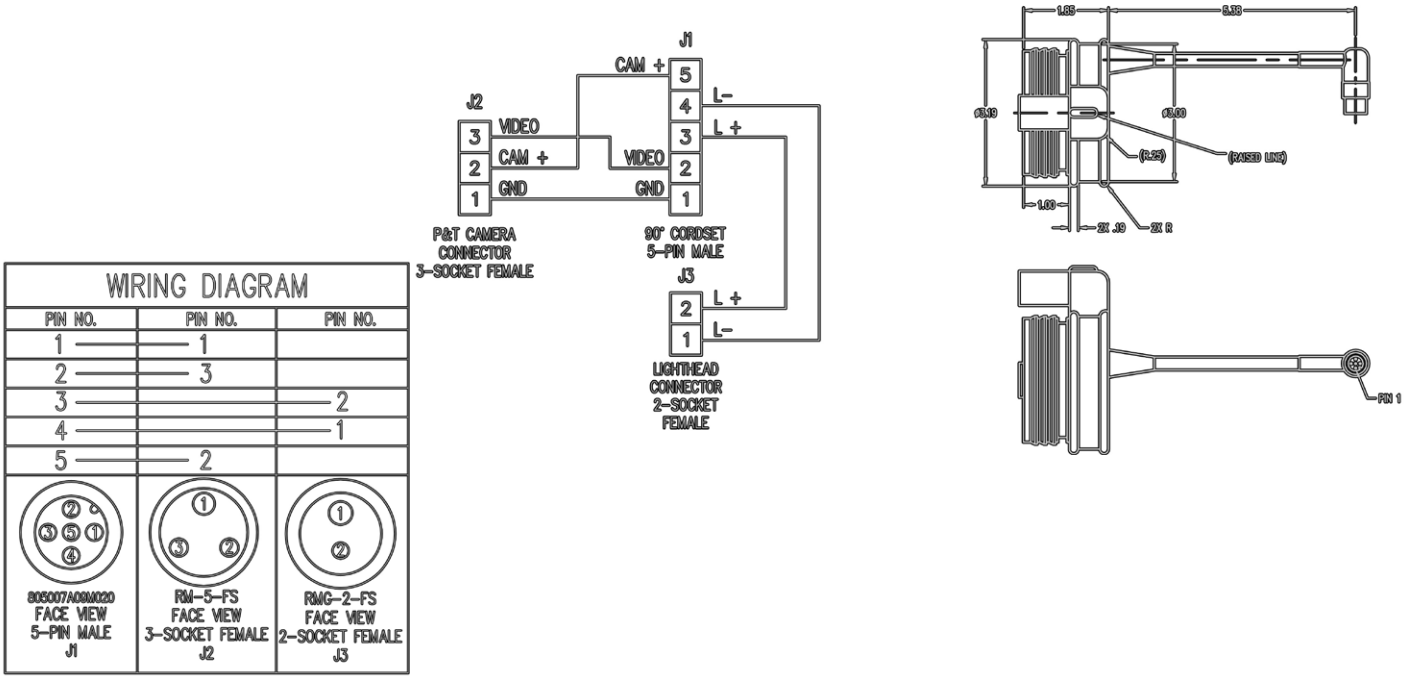
PIPE RANGER Y-ELIMINATORS AND ADAPTERS

ADAPTER,CABLE,S/C 2000,PIPE RANGER, P/N WT071



Y ELIMINATOR,M/C SHORT,RVC+CVC,PR, WT105

Y-eliminator, 90 degree w/tap, Long, M/C, WT105-1

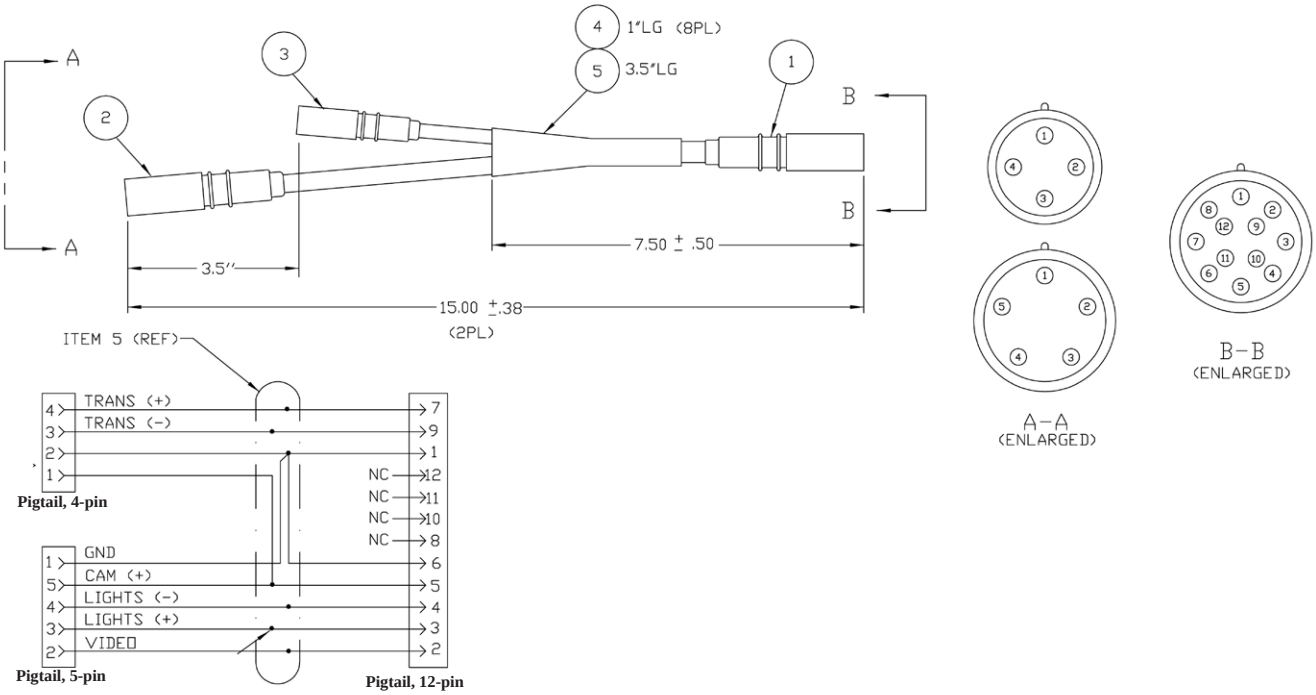


TEST CABLES

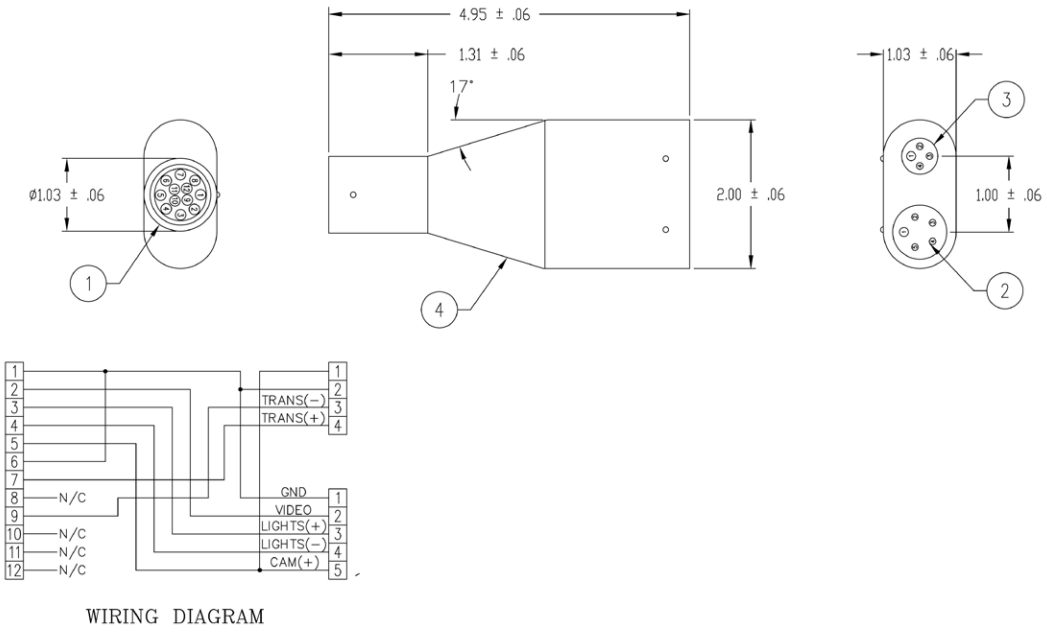
TYPE	P/N	DESCRIPTION
INSPECTOR GENERAL:		
Cable Assy, Test, Iggy/PSCam,w/CX1	SM345	
Test Cable, Iggy/ProScout Cam	SM343	Old camera with Orange 5-pin pigtail
Test Cable Assy, Iggy/Camera	SM342	PCU with Std. 5 + 4 pigtails
Test Unit, Diagnostic, Truck	TB301	Operation Indicator Lights
TRUCK PCU / CAMERA:		
Cable Assy, Test 1210 PCU/Well Camera	SW063	1210 = Single Conductor
Cable, Test, 1208 PCU/Camera	7133671	M/C PCU to Straight-line camera
Cable, Test, 1210 PCU/Camera	7133831	S/C PCU to Straight-line camera
Cable, Test, M/C P&T 5-PIN	713394	M/C PCU to a P&T camera
Test Unit, Diagnostic, Truck	TB301	Operation Indicator Lights
Test Cable,M/C,5-PIN to OZIII Camera	MZ306	
PROSCOUT:		
Cable Assy, Test Mini-Master Scout	0350450	
Test Unit, Diagnostic, ProScout	TB302	Operation Indicator Lights
Test Cable, CX1 Cam To ProScout PCU	PM314	
Test Cable Assy, ProScout PCU/Camera	PC309	ProScout to old camera with Orange 5-pin pigtail
M/C TEST CABLES:		
Cable, Test, M/C, PCU/Camera	7133671	
Cable, Test, M/C, PCU/P&T Camera	713394	
Test Cable For IGGY	SM342	
Test Unit, F/M/C 4/5, Breakout	TB304	In-line meter reading
Test Unit, F/M/C 12 Pin, Breakout	TB305	In-line meter reading
Cable, Test, For M/C Transducer	0304500	
TEST CABLE,M/C,5-PIN TO MML CAMERA	MZ306	
S/C TEST CABLES:		
Cable, Test, S/C, PCU/Camera	7133831	
Cable,Test, For S/C Shorty System	MC302	
LIS:		
Cable Assy, Test LIS Simulator	030553	
Cable Assy, Test Push, LIS	030549	
CUTTER:		
Cable Assy, Test, Cutter	8909	
Test Unit, Diagnostic, Cutter	TB303	Operation Indicator Lights
ULTRA SHORTY:		
Cable, Test, for **SINGLE CONDUCTOR** Shorty System	MC302	S/C Shorty System

ADAPTERS

Cable Assy, 12 pin to 5&4, P/N: 1650120

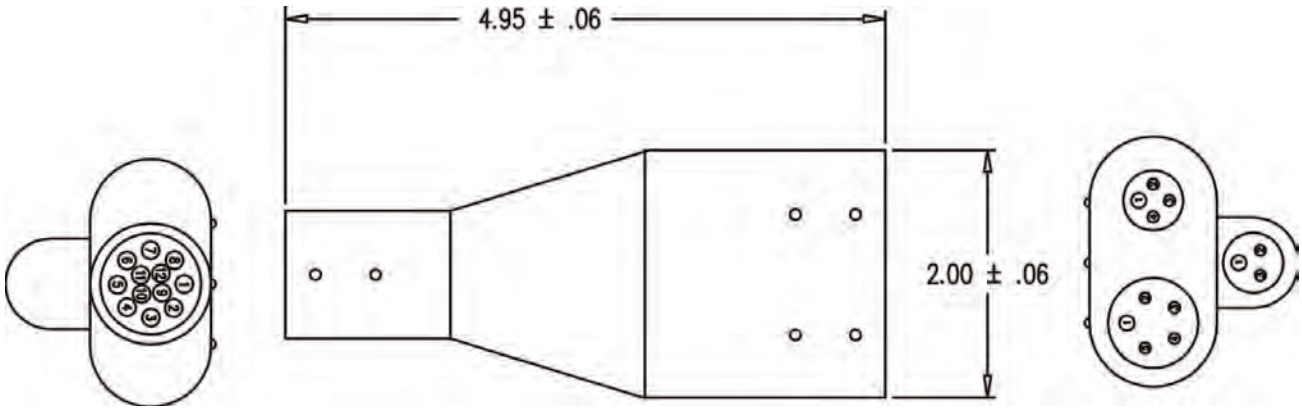


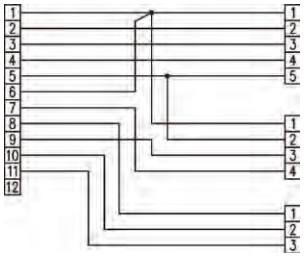
Adapter Cable Assy, Molded 12/5/4, P/N: TR317



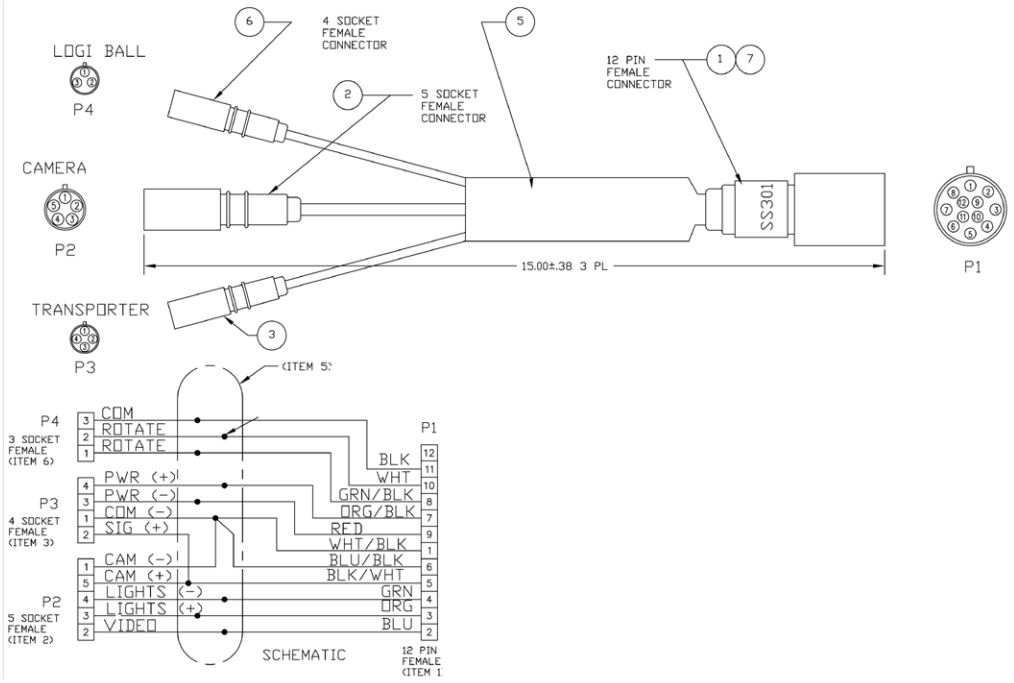
ADAPTERS

Cable Assy,12/5/4/3,Blue,Logiball, P/N: SS311



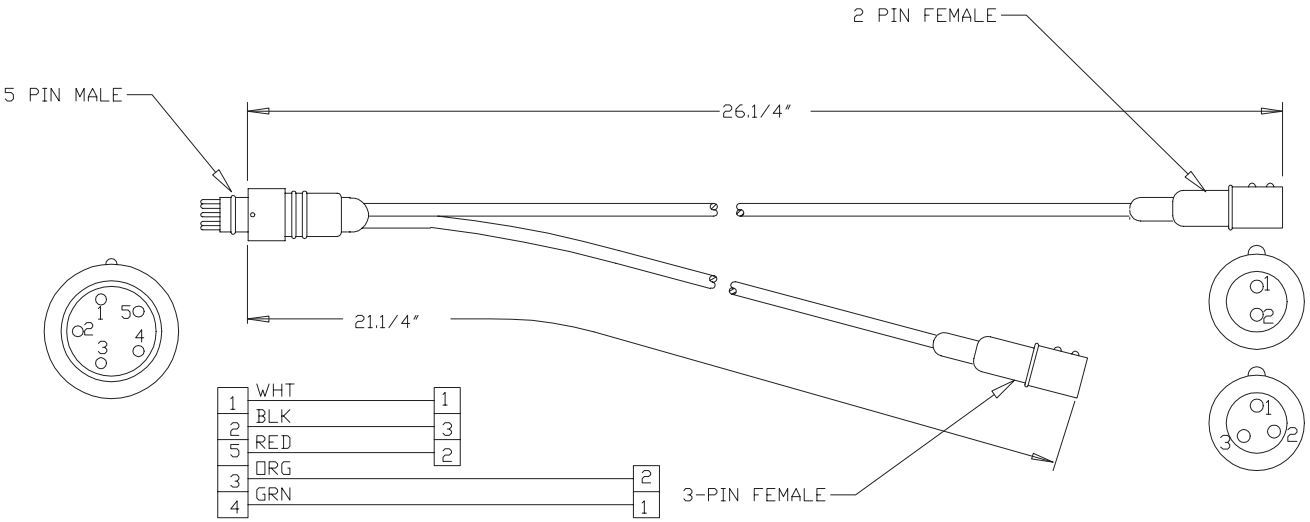


Cable Assy, 12 to 5/4/3,M/C, P/N: SS301

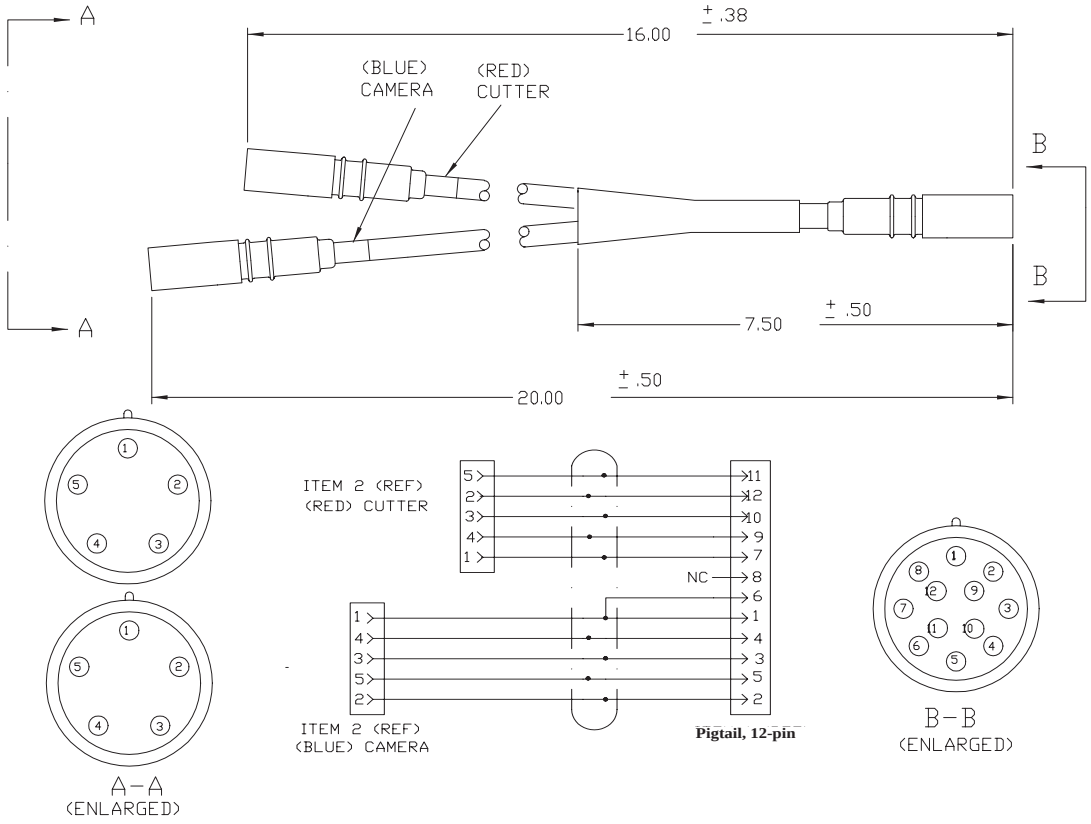


ADAPTERS

Cable,Y,5-Pin To 2&3 Pin, P/N: 160550

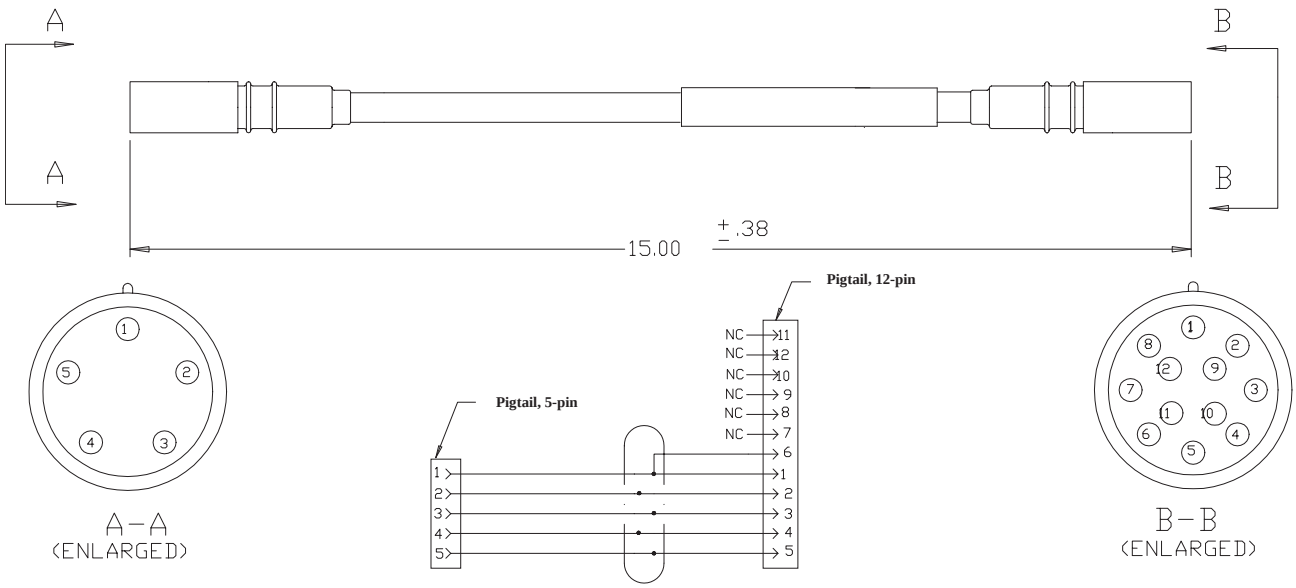


Cable Assy,12-Pin To 5+5-Pin Female, P/N: 1650110

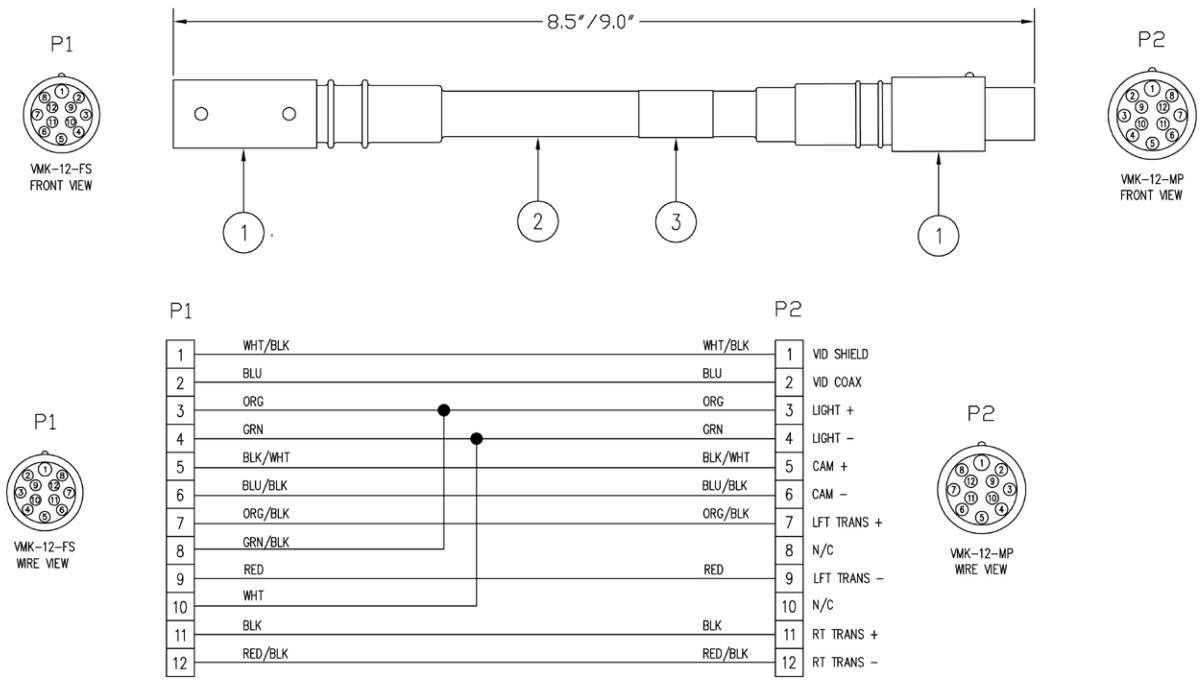


ADAPTERS

Cable Assy,12pin To 5pin Female, P/N: 1650100

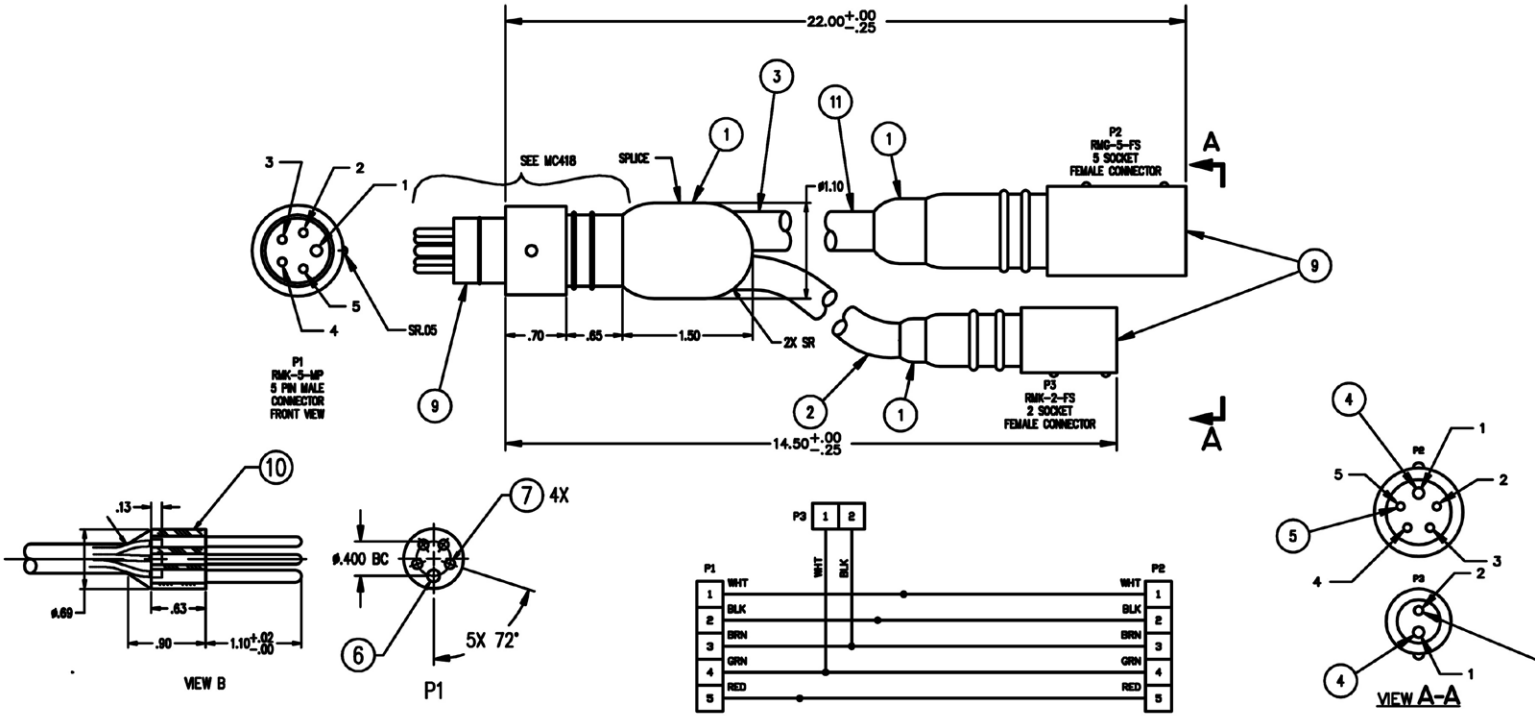


Cable Assy,12M / 12F / SMM for Pitometer Truck, P/N TM349



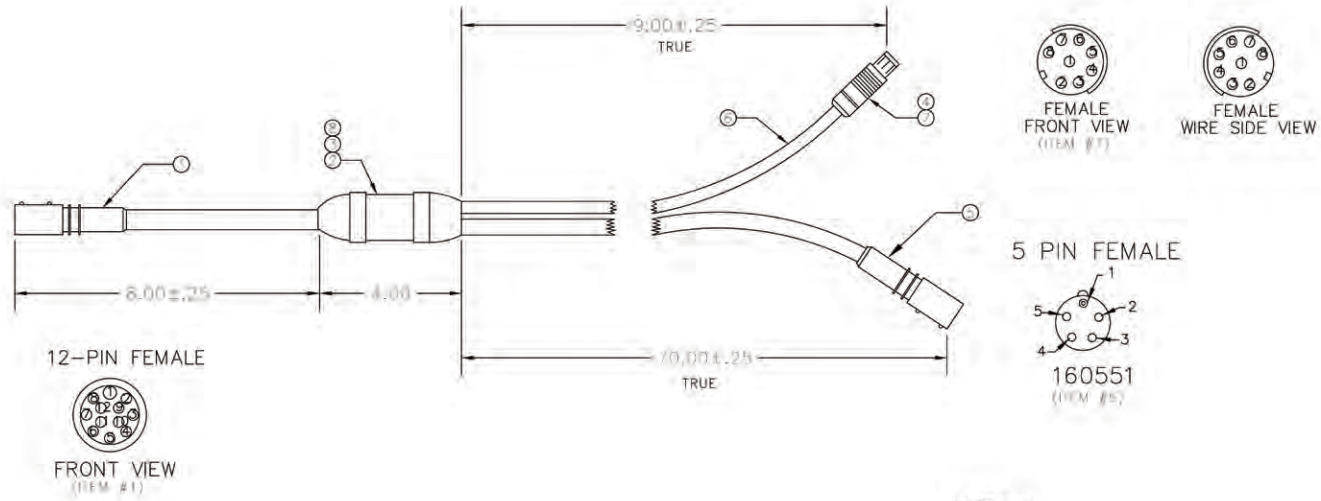
CAMERA CABLES & Y-ELIMINATORS

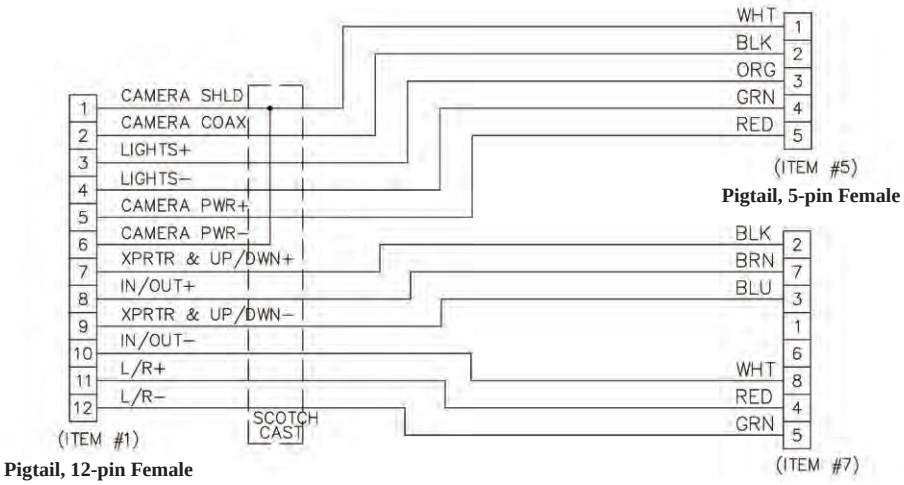
Cable,Y,F/P&T W/Aux Lighting, 5-pin M to 5 to 2, P/N: 770099



CUTTER CABLES, MULTI-CONDUCTOR

DIMENSIONS:	"A"	"B"	P/N
	9.00" +/- .25"	70.00" +/- .25"	KC010 - Camera First
	70.00" +/- .25"	9.00" +/- .25"	KC014 - Cutter First





Pigtail, 12-pin Female

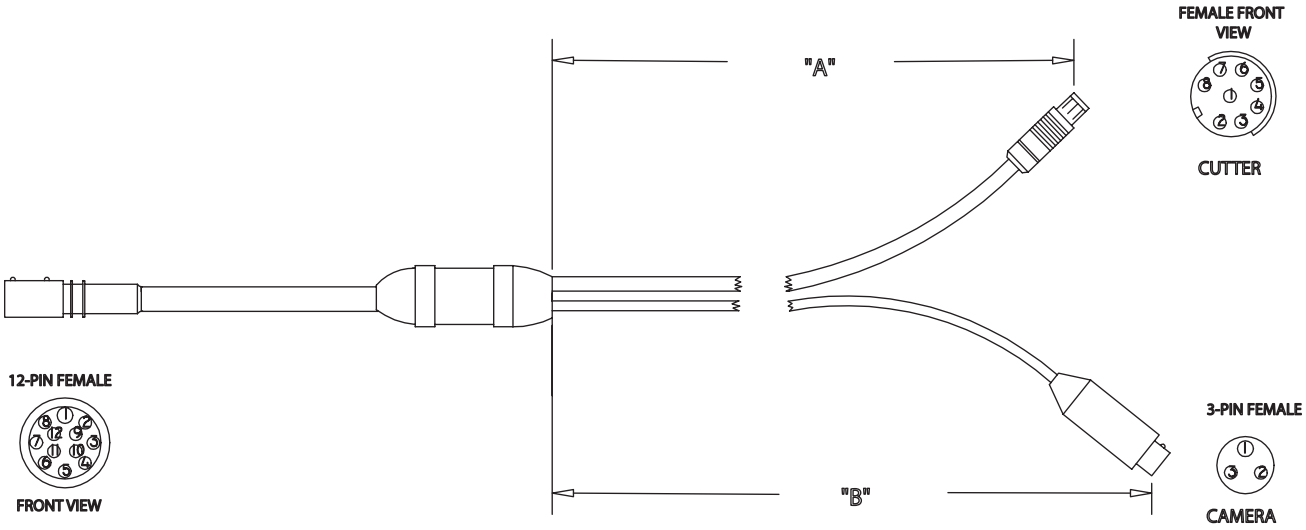
Pigtail, 5-pin Female

8-pin Fischer Female Connector

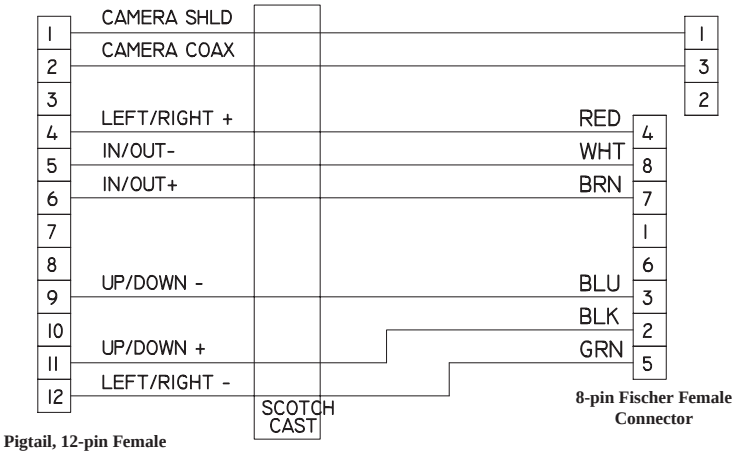
KC010 - Camera First 3-piece Version (All 3 pieces must be purchase initially)	
Adapter Cable, Yellow, 12/5/6, Cutter	KC301
Cable Assy, 6P / 8P Fischer, 15.25" Lg, Ct	KC302
Cable Assy, 5M / 5F, 76.25" Lg, Camera	KC303
KC014 - Cutter First 3-piece Version (All 3 pieces must be purchase initially)	
Adapter Cable, Yellow, 12/5/6, Cutter	KC301
Cable Assy, 6P / 8P Fischer, 76.25" Lg	KC305
Cable Assy, 5M / 5F, 15.25" Lg, Camera	KC304

CUTTER CABLES, SINGLE-CONDUCTOR

DIMENSIONS:	"A"	"B"	P/N
	9.00" +/- .25"	70.00" +/- .25"	713625 - Camera First
	70.00" +/- .25"	9.00" +/- .25"	KC016 - Cutter First



Pigtail, 5-pin Female



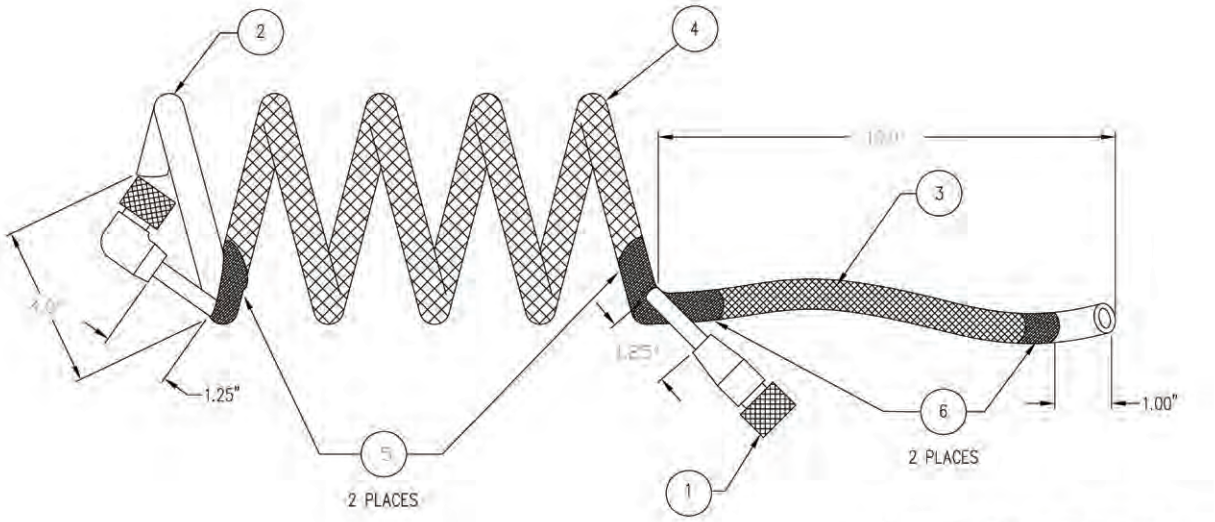
Pigtail, 12-pin Female

8-pin Fischer Female Connector

713625 - Camera First 3-piece Version (All 3 pieces must be purchase initially)	
Adapter Cable, Yellow, 12/5/6, Cutter	KC301
Cable Assy, 6P / 8P Fischer, 15.25" Lg, Ct	KC302
Cable Assy, 5M / 3F, 76.25" Lg, S/C Camera	KC311
KC016 - Cutter First 3-piece Version Not Available At This Time	

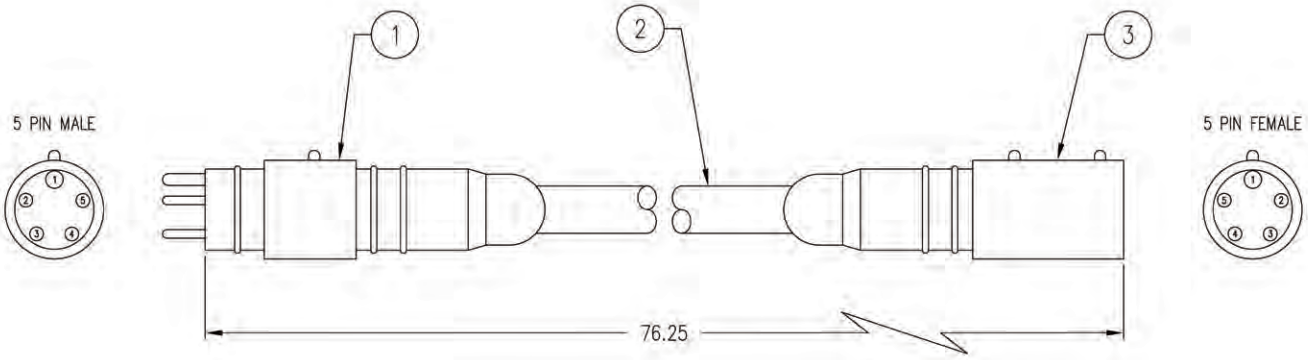
CUTTER CABLES

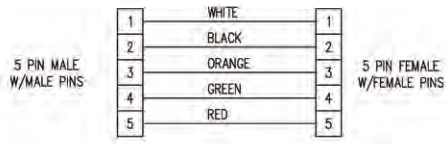
Cable/Hose Assy,K. Cutter, P/N: KC018



6	4"	TUBE, SHRINK, BLACK 3:1 RATIO-1/2"	712572
5	4"	TUBE, SHRINK, BLACK 3/4	712579
4	81"	TUBE, EXPANDABLE 1/2 NYLON	165005
3	9"	TUBE, EXPANDABLE 3/8 NYLON	015021
2	83.5"	HOSE, AIR, COILED	8931
1	1	CABLE, POWER QUICK DISCONNECT	KC017

Cable Assy,5m/5f,76.25"Lg,Cutter, P/N: KC303

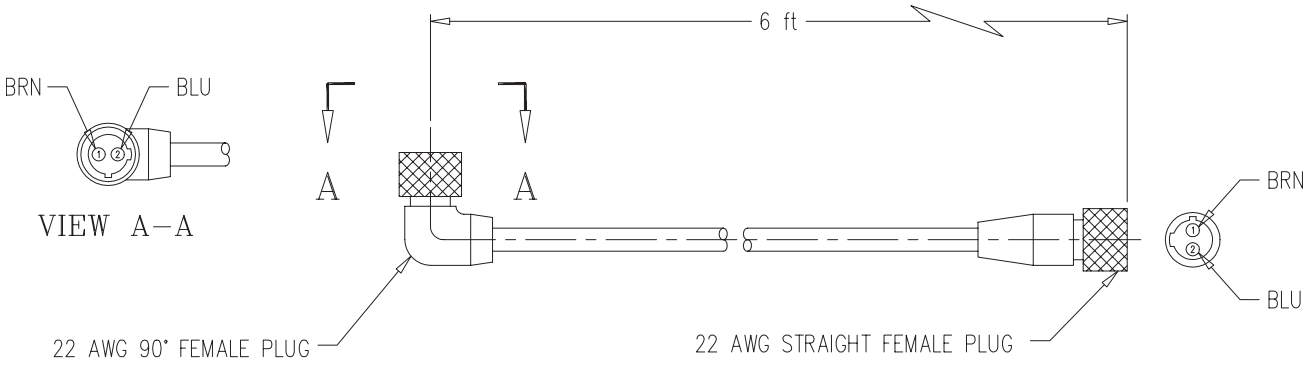




3	1	CONNECTOR, FEMALE, 5-PIN 3H	RMK-5-FS
2	6'	CABLE, 5-PIN, 16 AWG TYPE SO	16/5 SO
1	1	CONNECTOR, MALE, 5-PIN, 3H	RMK-5S-MP

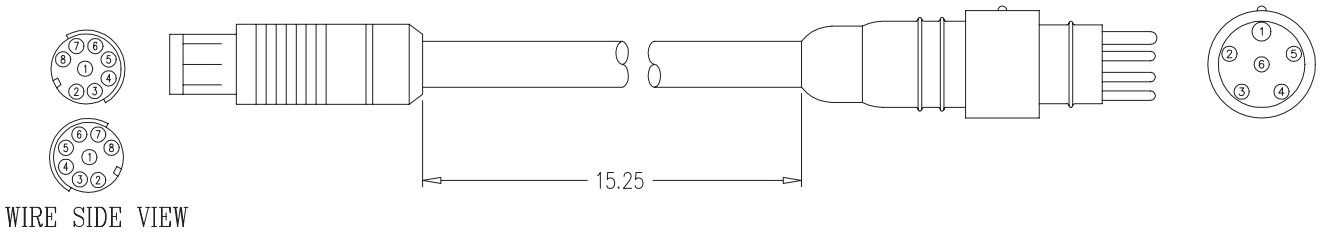
CUTTER CABLES

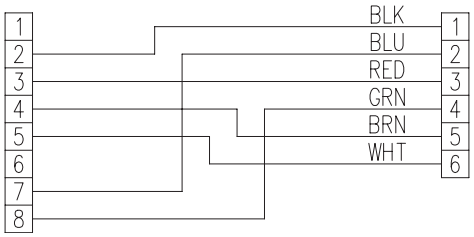
Cable,Power Quick Disconnect, P/N: KC017



* Used in KC018 Cable / Hose Assembly
on P/N 8963 UP / Down Assembly

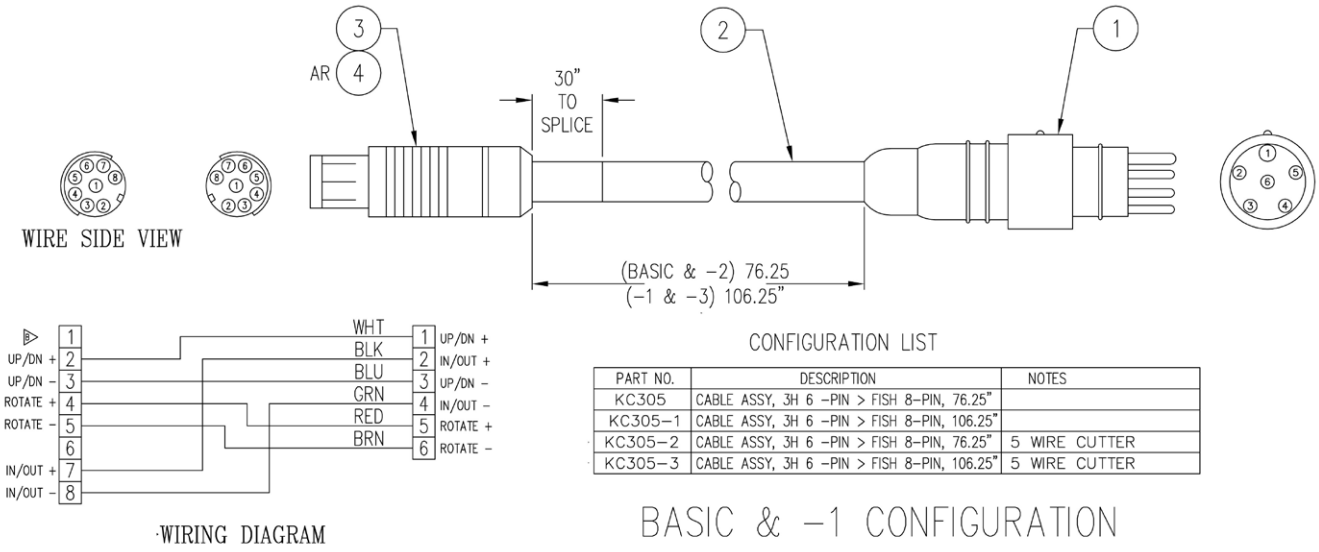
Cable Assy,6p/8pfischer,15.25"Lg,Ct, P/N: KC302





CUTTER CABLES

Cable Assy,6p/8pfischer,76.25"Lg, P/N: KC305, Basic and -1 Configurations

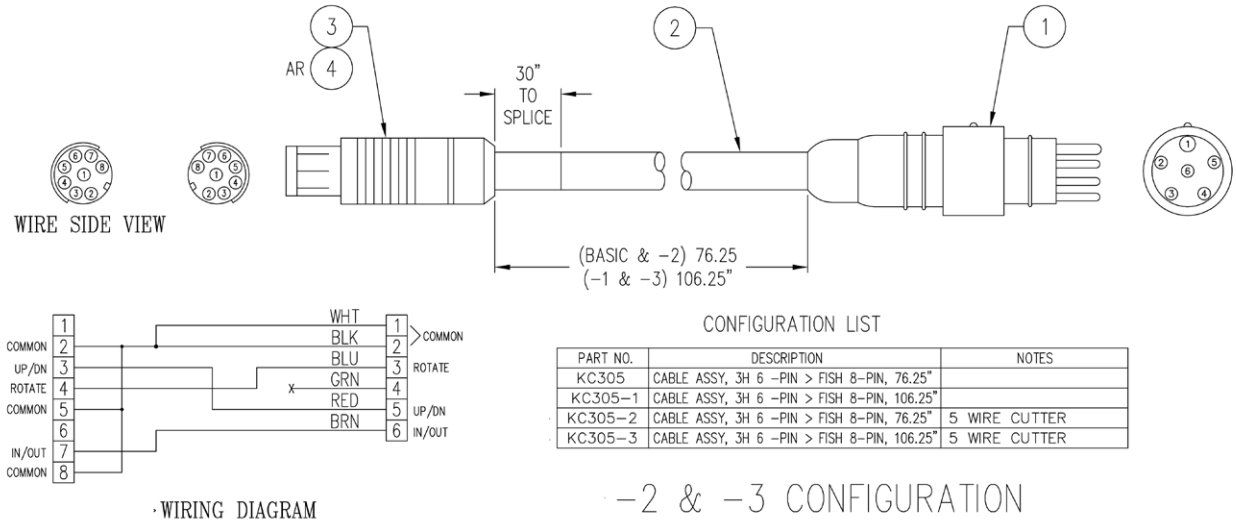


CONFIGURATION LIST

PART NO.	DESCRIPTION	NOTES
KC305	CABLE ASSY, 3H 6 -PIN > FISH 8-PIN, 76.25"	
KC305-1	CABLE ASSY, 3H 6 -PIN > FISH 8-PIN, 106.25"	
KC305-2	CABLE ASSY, 3H 6 -PIN > FISH 8-PIN, 76.25"	5 WIRE CUTTER
KC305-3	CABLE ASSY, 3H 6 -PIN > FISH 8-PIN, 106.25"	5 WIRE CUTTER

BASIC & -1 CONFIGURATION

Cable Assy,6p/8pfischer,76.25"Lg, P/N: KC305, -2 and -3 Configurations



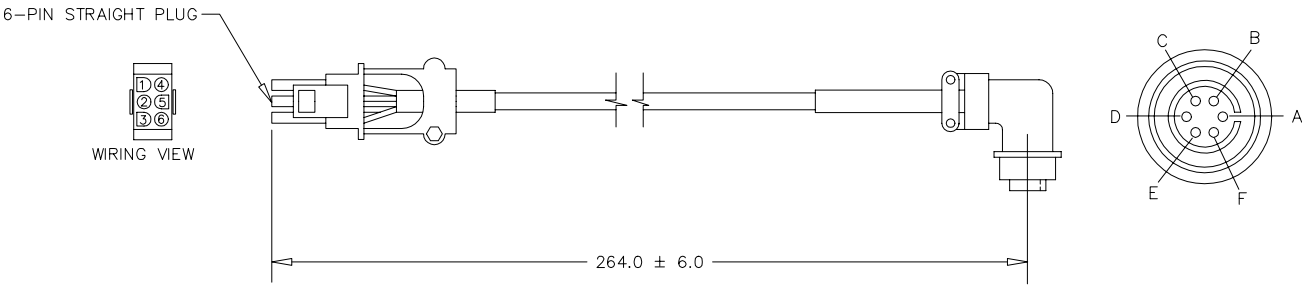
CONFIGURATION LIST

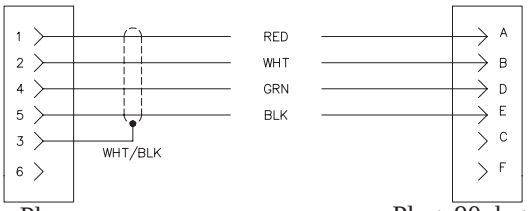
PART NO.	DESCRIPTION	NOTES
KC305	CABLE ASSY, 3H 6 -PIN > FISH 8-PIN, 76.25"	
KC305-1	CABLE ASSY, 3H 6 -PIN > FISH 8-PIN, 106.25"	
KC305-2	CABLE ASSY, 3H 6 -PIN > FISH 8-PIN, 76.25"	5 WIRE CUTTER
KC305-3	CABLE ASSY, 3H 6 -PIN > FISH 8-PIN, 106.25"	5 WIRE CUTTER

-2 & -3 CONFIGURATION

FOOTAGE METER CABLES

Cable,Ftgmtr To Titlers,22ft, P/N: 7133892

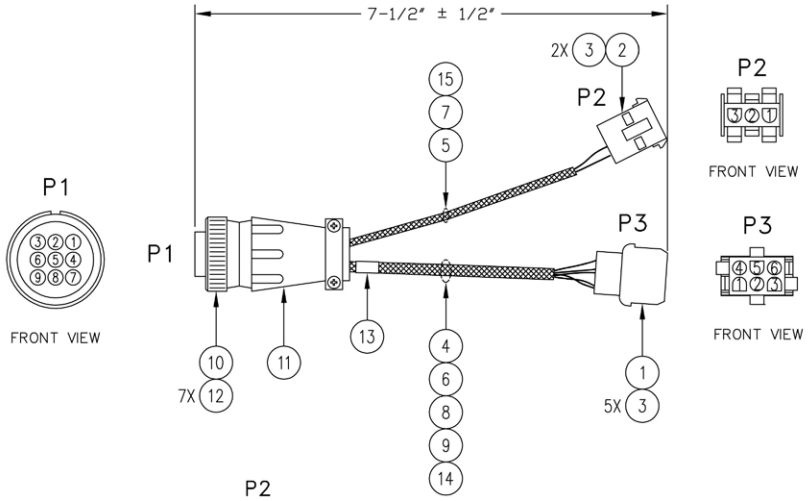


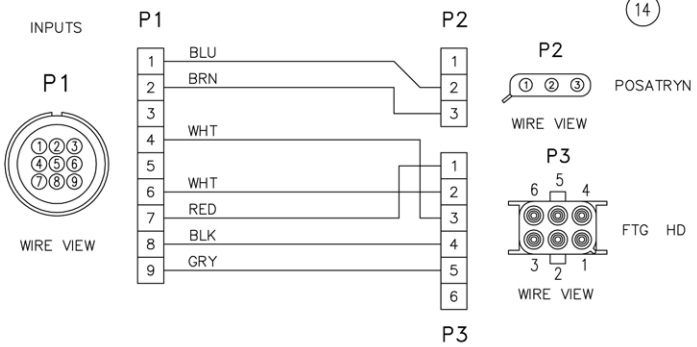


Plug, Straight,6-pin

Plug, 90 degree Elbow, 6-pin

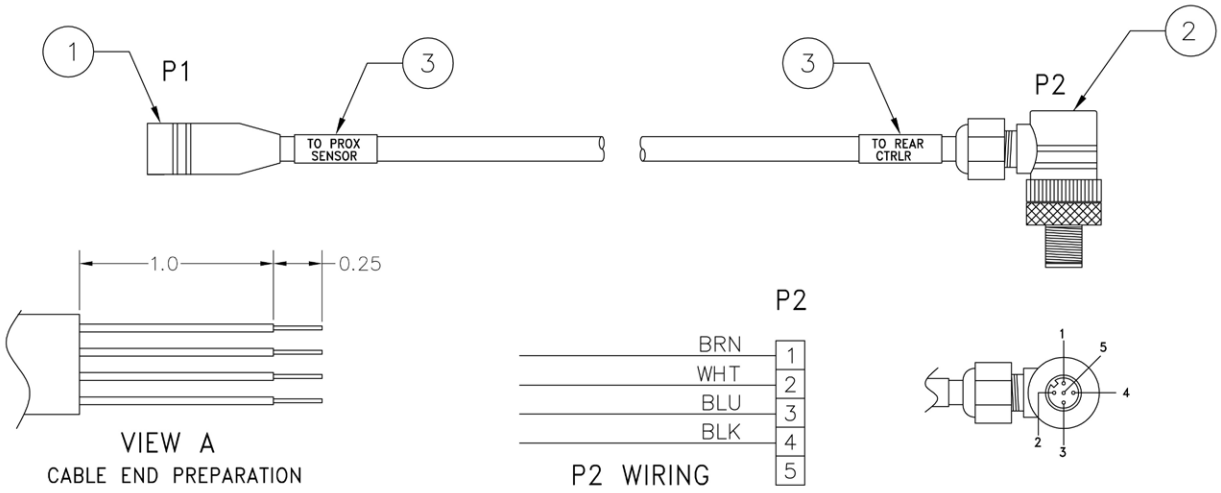
Cable,Y,F-Meter,Titler And Posatryn, P/N: 713375





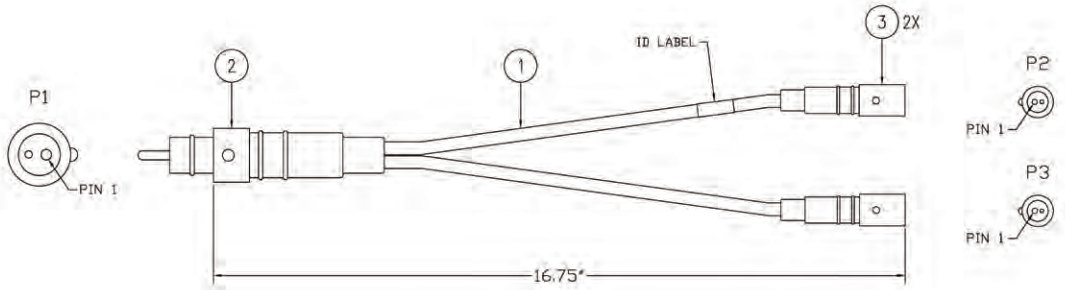
FOOTAGE METER CABLES

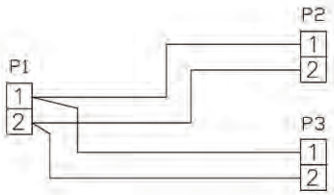
Cable, Power Payout Prox Sensor, RL362



LIGHTHEAD CABLES

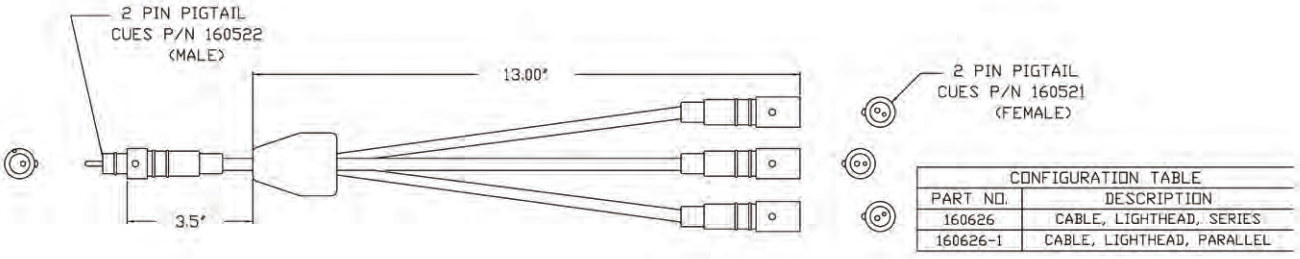
Cable,Lghthd,Hpl 8 & 10 16.75", P/N: 160627





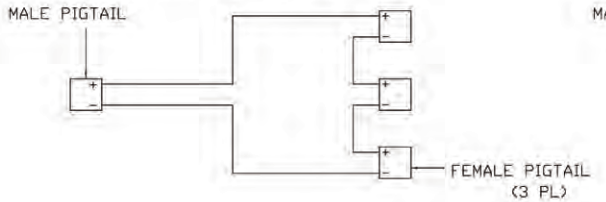
WIRING DIAGRAM

Cable,Lighthead Hpl 6+, P/N: 160626

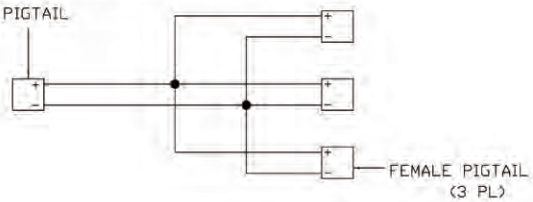


CONFIGURATION TABLE	
PART NO.	DESCRIPTION
160626	CABLE, LIGHTHEAD, SERIES
160626-1	CABLE, LIGHTHEAD, PARALLEL

WIRING DIAGRAM: BASIC CONFIG

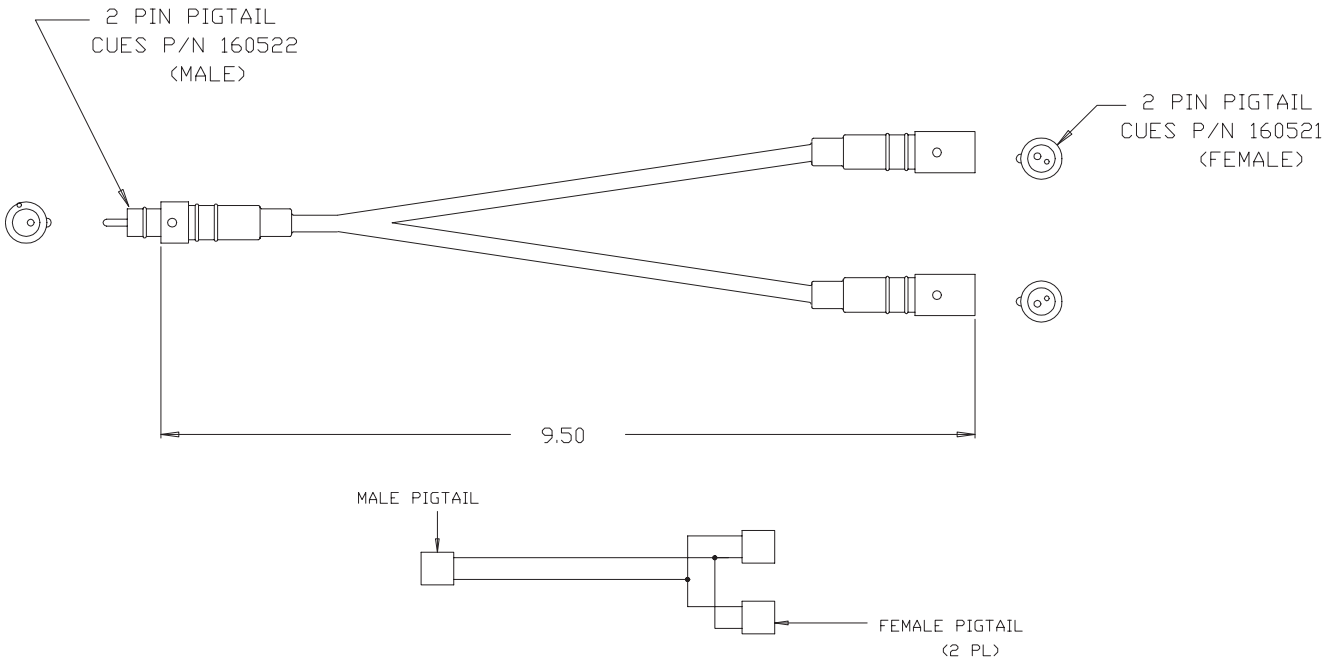


WIRING DIAGRAM: -1 CONFIG

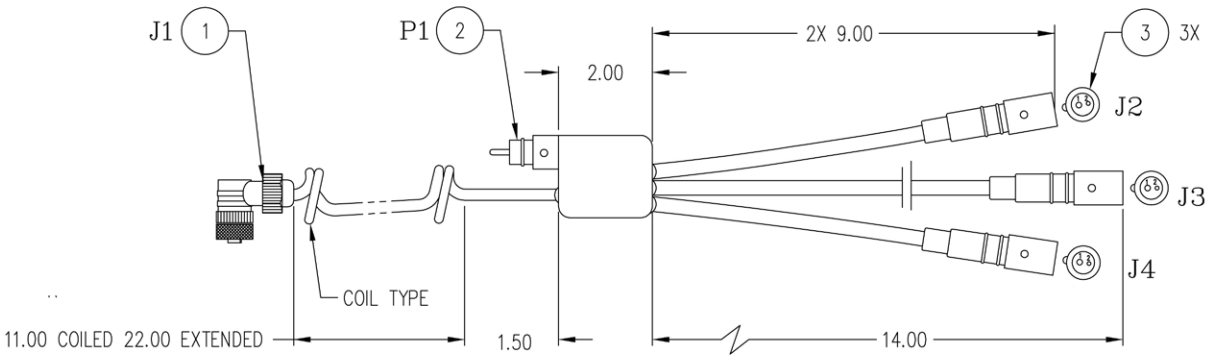


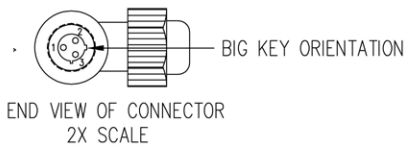
LIGHTHEAD CABLES

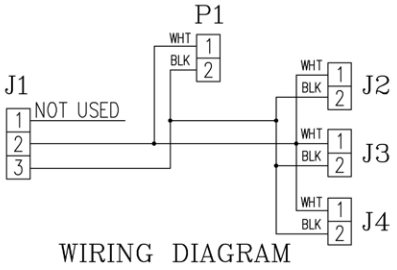
Cable,Lighthd,Hpl 8 & 10 Short 9.5", P/N: MC022



Cable,Lights/Powerlift,MM, P/N: TM320
For non-steerable units only...if using a Steerable Mudmaster, refer to TM356

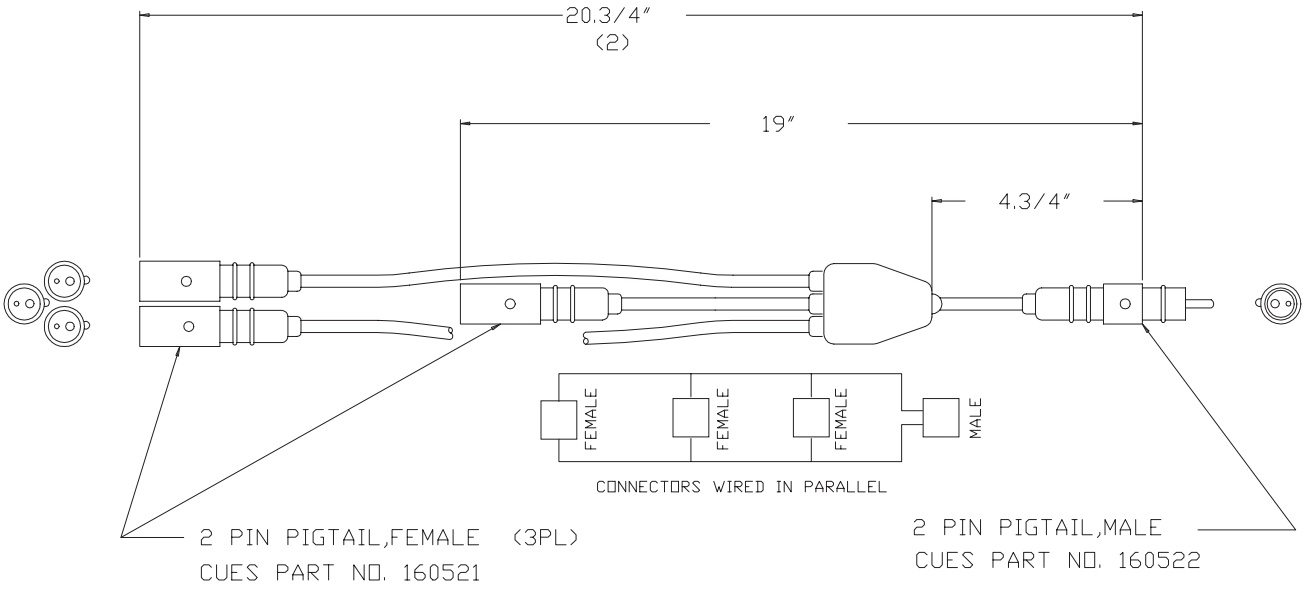






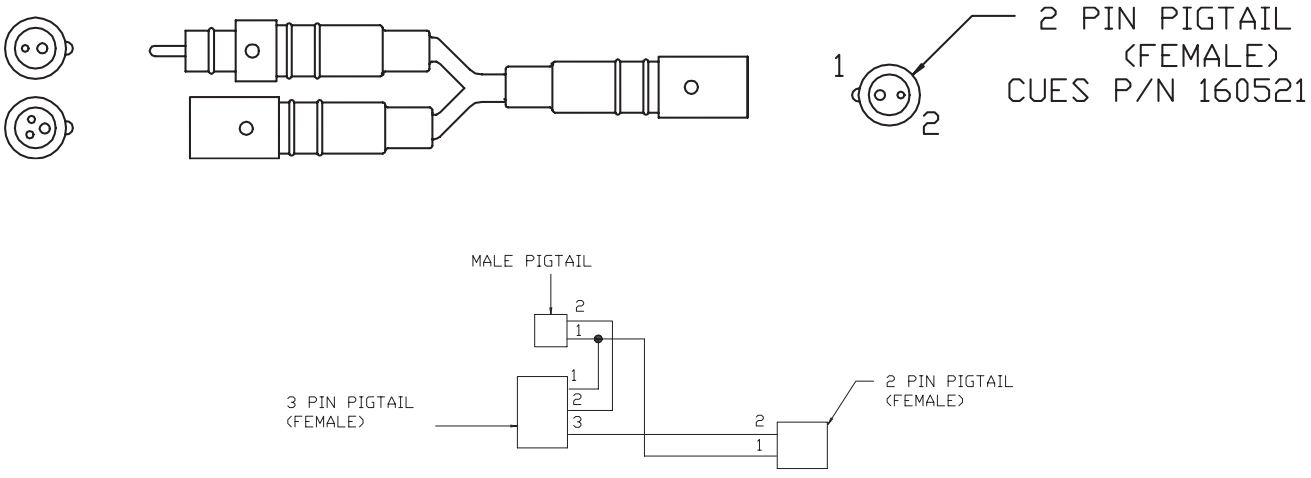
LIGHTHEAD CABLES

Cable Assy,Trilight, P/N: 160604

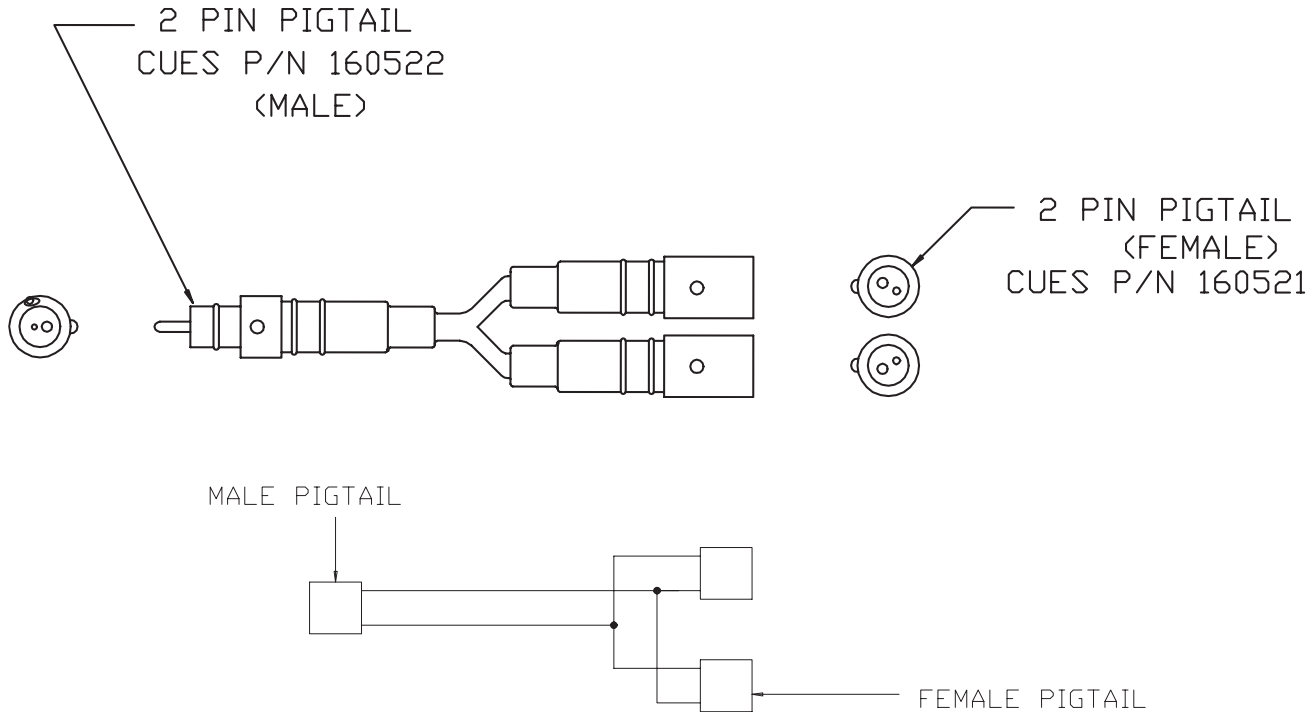


SPLITTER CABLES FOR LIGHTHEADS
(for HPL6+ and some S/C users)

Splitter F/Lighthead & Transporter w/ Y-Eliminator, P/N: 160602

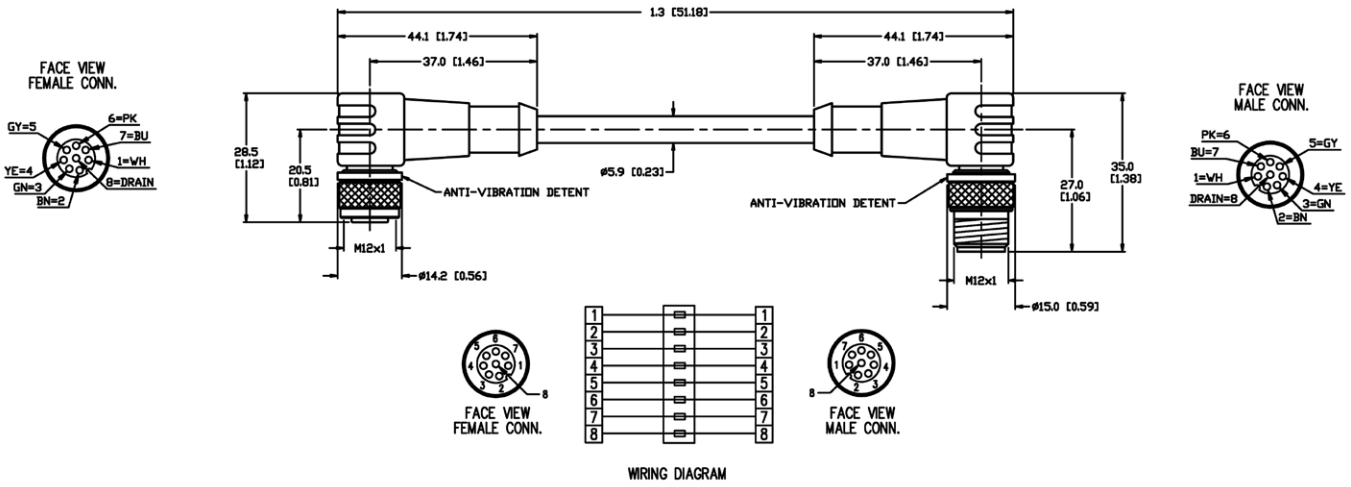


Splitter F/Lighthead & TRNDCR Y Eliminator 9", P/N: 160630

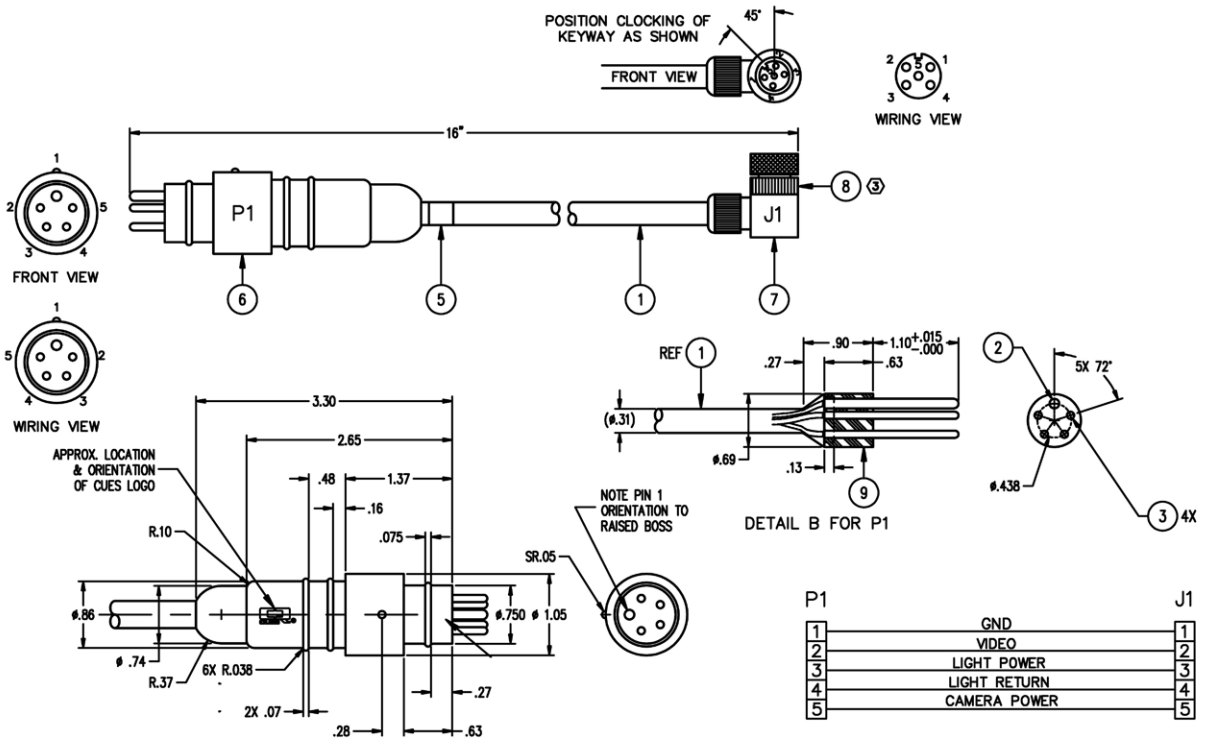


PORTABLE MINI SYSTEM CABLES

Cable Assembly, Elect. PNL/LCD, MiniPush20/20, P/N CM017

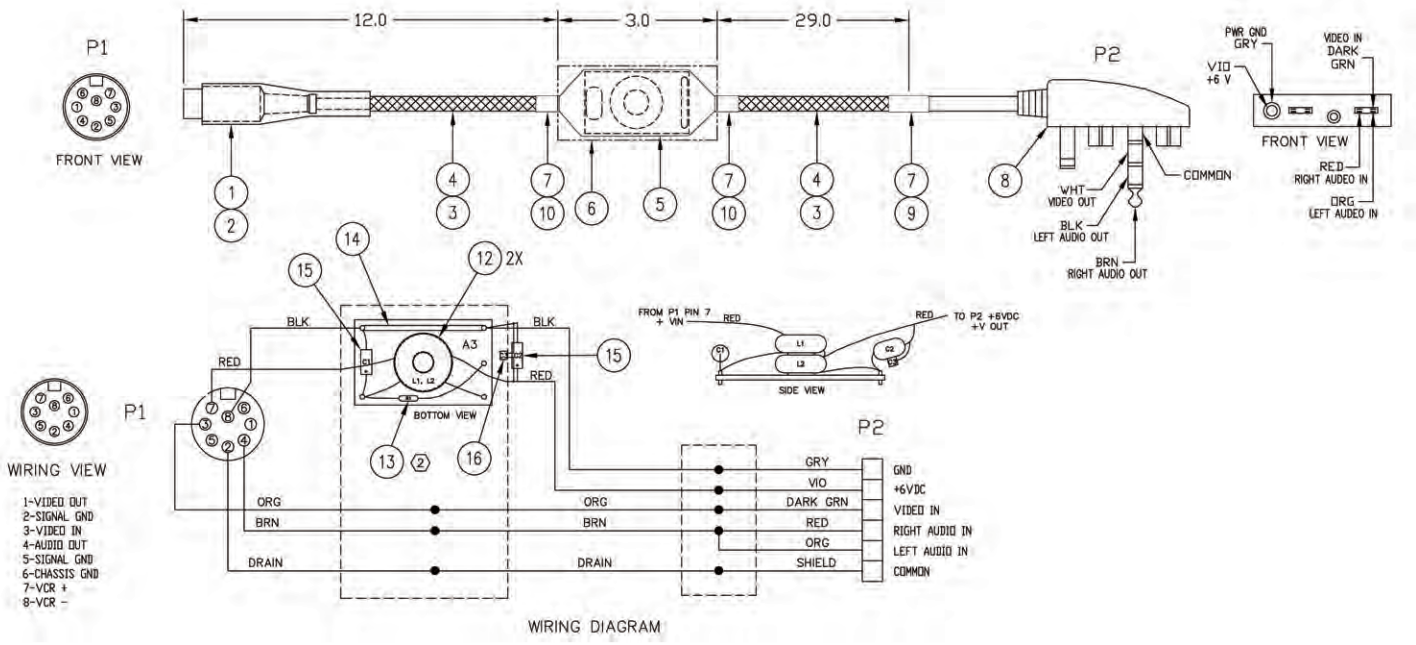


Adapter, MiniPush to Multi-conductor, P/N CM024



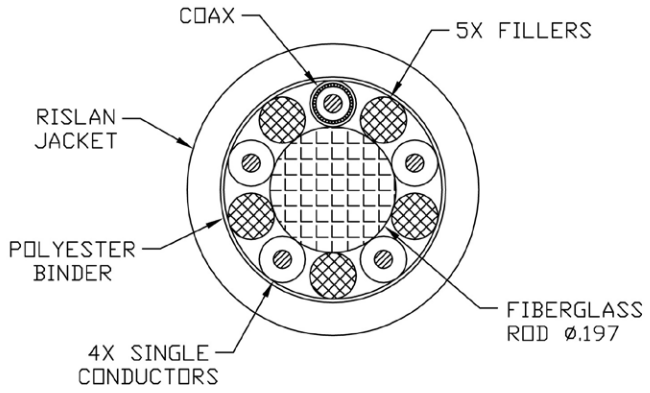
PORTABLE MINI SYSTEM CABLES

CABLE,AUD/VID,ARCHOS DVR,MP20/20, P/N CM053



WIRING DIAGRAM

CABLE,PUSH,5 COND,.445 OD,.197 ROD, P/N CM012



COAX:
1. CENTER CONDUCTOR: AWG 24 (19 X .127) B/C
2. CENTER CONDUCTOR: DC RESISTANCE 23.2 Ω/1000 FT
3. DIELECTRIC: FEP
4. SHIELD: BARE COPPER BRAID
5. OPERATING VOLTAGE: 450V
6. CHARACTERISTIC IMPEDANCE: 40Ω +/- 10%
7. JACKET: TPE
8. TEST VOLTAGE CONDUCTOR/CONDUCTOR: 2500VDC, CONDUCTOR/SHIELD: 1500VDC

SINGLE CONDUCTOR WIRES:
1. OPERATING VOLTAGE: 1000VDC
2. WIRE GUAGE: 22 AWG
4. CONDUCTOR: (19 X .15MM) BARE COPPER
5. INSULATION: TPE
6. COLORS: BROWN, RED, ORANGE, YELLOW
7. TEST VOLTAGE CONDUCTOR/CONDUCTOR: 3000VDC

FILLERS: 5X

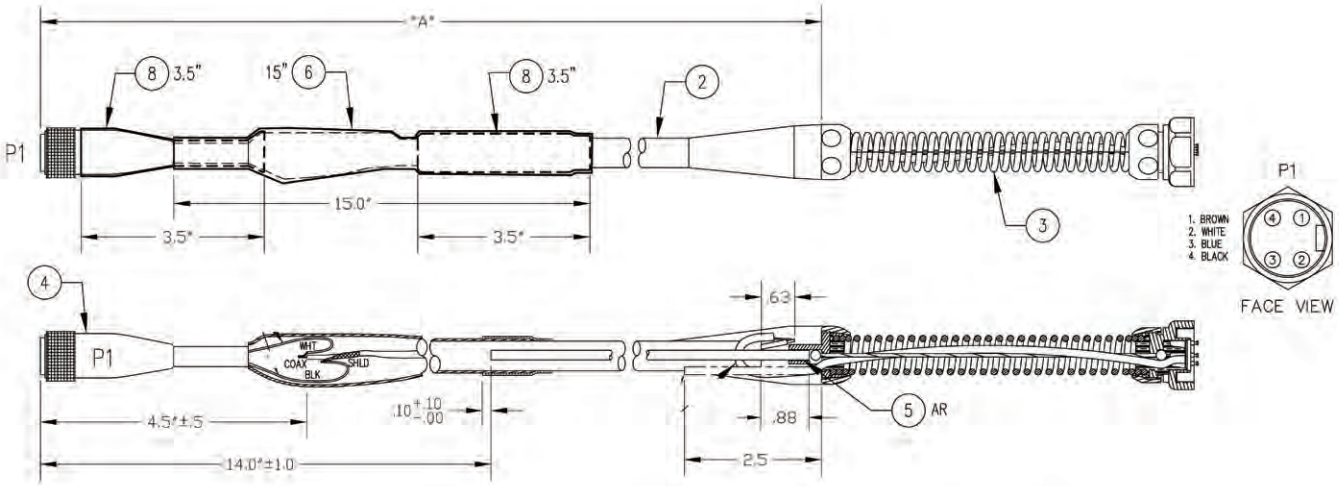
PUSH ROD: FIBERGLASS Ø.197

OUTER JACKET:
1. MATERIAL: RILSAN PA11, BLUE, PRINTED WITH BLACK LETTERS. "DATE CODE" & "CUES 800-327-7791"

CABLE SPECIFICATIONS:
1. OPERATING TEMPERATURE: -20°C TO +80°C, [-4°F TO +176°F]
2. WEIGHT: 85LB/1000FT.
3. BEND RADIUS: 9 INCHES MINIMUM
4. CABLE DIAMETER: Ø.445

PORTABLE MINI SYSTEM CABLES

Cable Assembly, Push MiniPush 20/20, P/N CM302



CABLE CHART

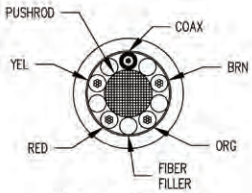
CM012-6	300'
CM012-5	270'
CM012-4	250'
CM012-3	200'
CM012-2	150'
CM012-1	100'
DASH NO.	DIM. "A"

CONFIGURATION TABLE

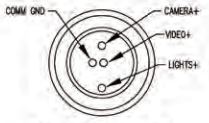
PART NO.	DESCRIPTION
CM302-5	CABLE ASSY, PUSH, 250', MINI PUSH SYS
CM302-4	CABLE ASSY, PUSH, 150', MINI PUSH SYS
CM302-3	CABLE ASSY, PUSH, 300', MINI PUSH SYS
CM302-2	CABLE ASSY, PUSH, 270', MINI PUSH SYS
CM302-1	CABLE ASSY, PUSH, 200', MINI PUSH SYS
CM302	CABLE ASSY, PUSH, 100', MINI PUSH SYS



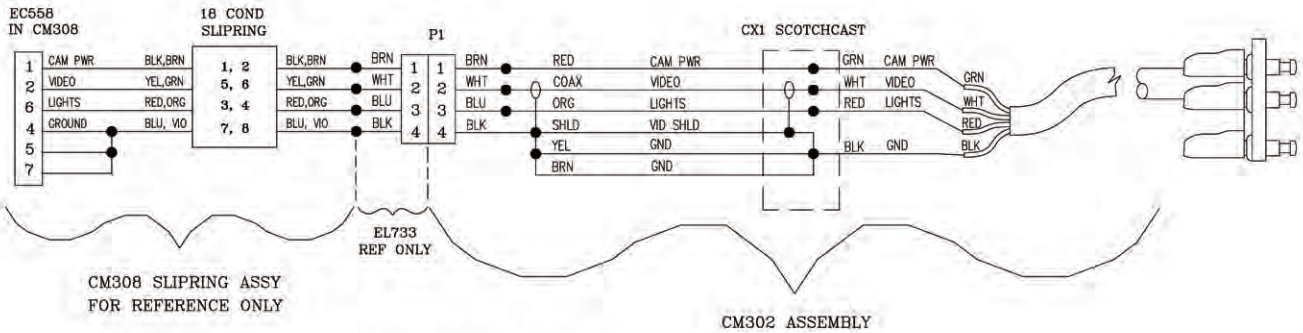
P1
(FACE VIEW)



CM012 PUSH CABLE



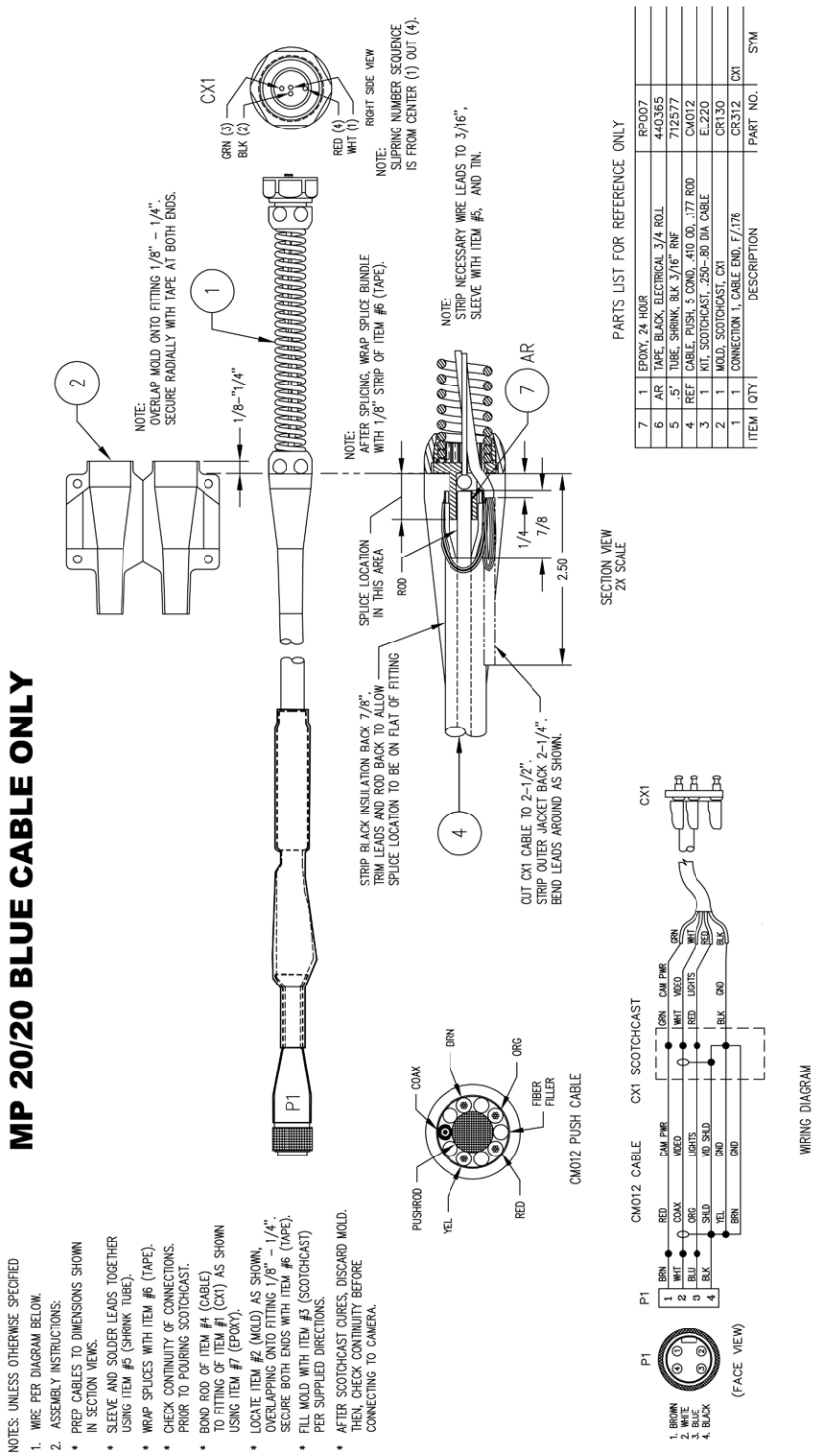
CX1 FRONT VIEW



WIRING DIAGRAM

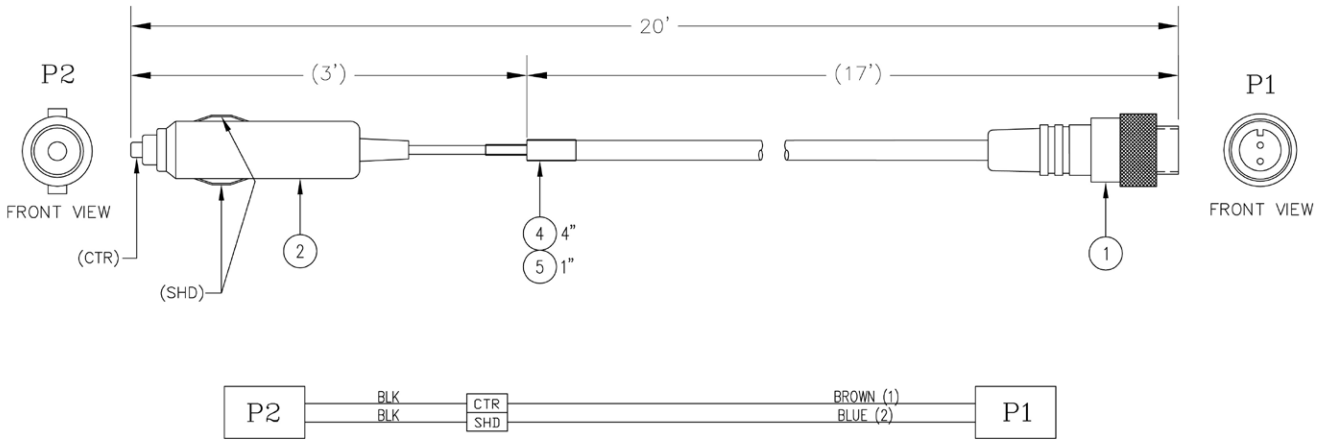
PORTABLE MINI SYSTEM CABLES

Instruction Sheet, Cable End, CX1, MiniPush 20/20, P/N CM302-INST



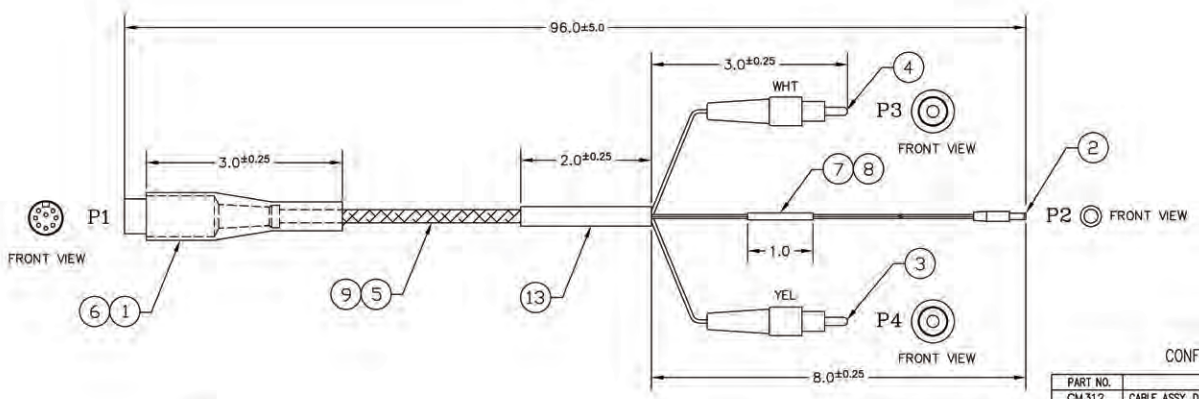
PORTABLE MINI SYSTEM CABLES

Cable Assembly, 12v Adapter, MiniPush 20/20, P/N CM309



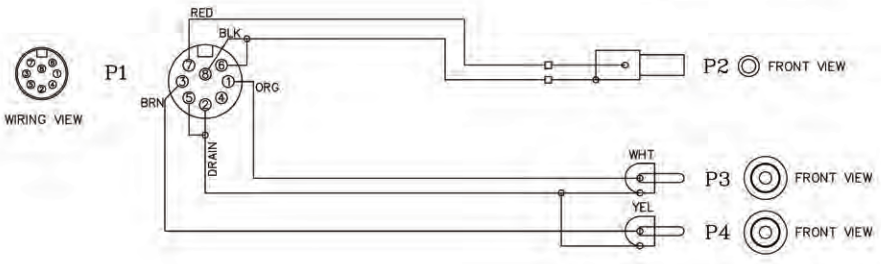
ITEM	QTY	DESCRIPTION	PART NO.	SYM
6	0	DELETED	----	
5	1"	TUBE, SHRINK, BLACK 1/8"	712789	2 PCS.
4	4"	TUBE, SHRINK, BLACK 1/4" SCL	712587	
3	0	DELETED	----	
2	1	POWER CORD, 8', LIGHTER SOCKET ADAPTER	EC906	P2
1	1	PIGTAIL, 2-PIN MINI, FEMALE STR.	EC824	P1

Cable Assembly, DIN to 12VDC, MiniPush 20/20, P/N CM312



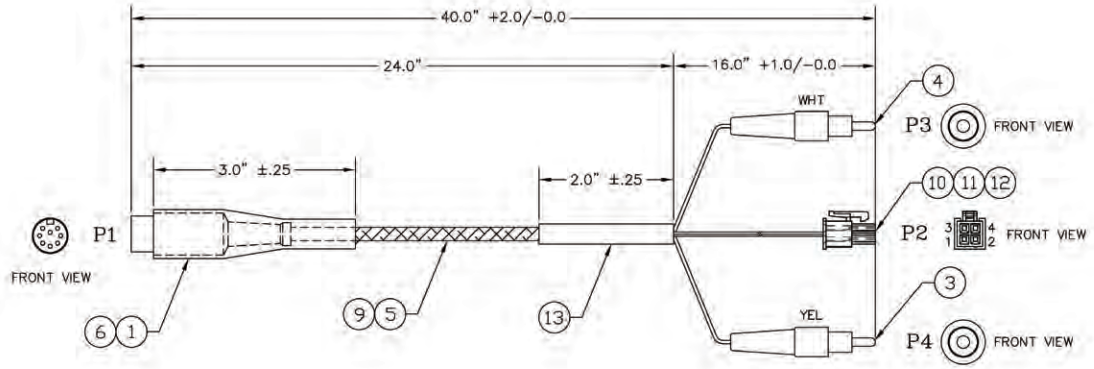
CONFIGURATION LIST

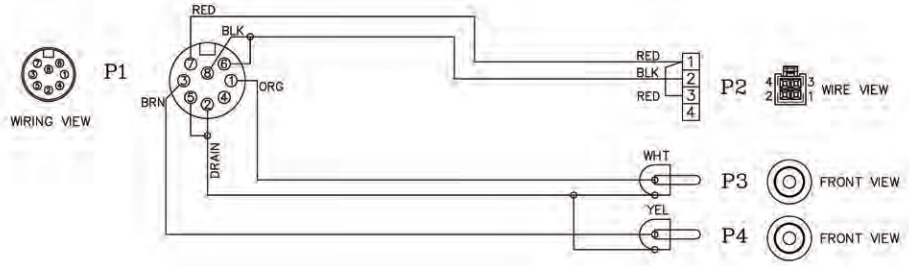
PART NO.	DESCRIPTION	NOTES
CM.312	CABLE ASSY, DIN TO 12VDC, VCR, MP20/20	BASIC
CM.312-1	CABLE ASSY, 12VDC VCR TO MP20/20	-1
CM.312-2	CABLE ASSY, 40", DIN TO 12VDC, VCR, MP20/20	-2
CM.312-3	CABLE ASSY, DIN TO 12V VCR/ARCHOS, MP20/20	-3



PORTABLE MINI SYSTEM CABLES

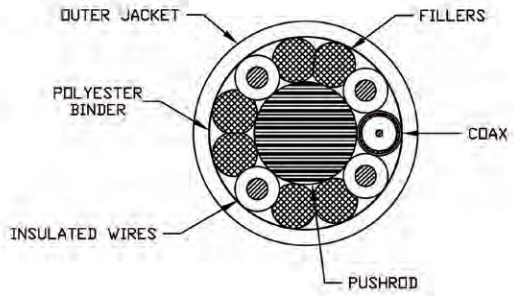
Cable Assembly, DIN to 12VDC, MiniPush 20/20, P/N CM312-1





–1 CONFIGURATION

Grey Mini TV Cable, .250 Diameter, P/N: CR005



TECHNICAL DATA

COAX:
1. TYPE: ECX 32371. OPERATING VOLTAGE: 450VDC
3. TEST VOLTAGE CONDUCTOR/CONDUCTOR: 2500VDC
4. TEST VOLTAGE CONDUCTOR/SHIELD: 1500VDC
5. OPERATING TEMPERATURE: -30°C TO +90°C, (-22F TO +194F).
6. CHARACTER IMPEDANCE: 75 OHM = 10%
7. CAPACITANCE APPROX.: 56.2 PF/M (17.1 PF/FT.) = 10%
8. ATTENUATION APPROX.: 7.2 DB/100M (22 DB/100FT.) = 10% AT 10 MHZ.

INSULATED WIRES:
1. OPERATING VOLTAGE: 600VDC
2. TEST VOLTAGE CONDUCTOR/CONDUCTOR: 3000VDC
3. WIRE GUAGE: 18 AWG
4. CONDUCTOR: (19X .254MM) BARE COPPER
5. INSULATION: TPE
6. COLORS: GREY, BROWN, ORANGE, RED

FILLERS: AS REQUIRED FOR ROUNDNESS

PUSH ROD: FIBERGLASS [6.0MM (Ø.236)]

BINDER: POLYESTER

OUTER JACKET:
1. MATERIAL: RILSAN PA11, GREY PRINTED WITH BLACK LETTERS "CUES"

WEIGHT: 183G/M = 123LB/1000FT.

BEND RADIUS: 40 X DIAMETER

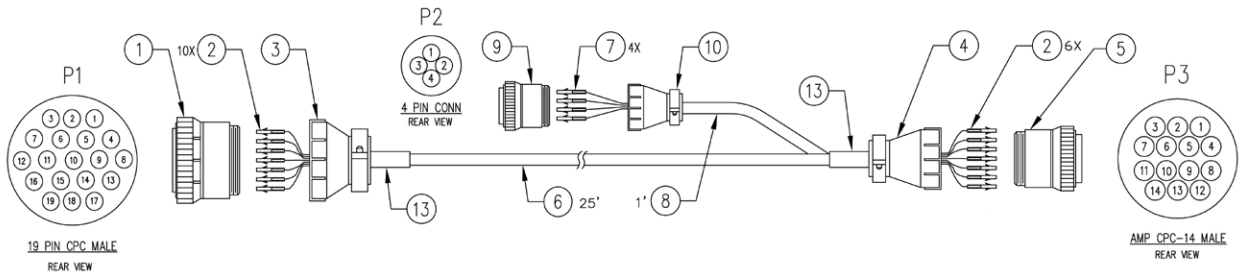
CABLE DIAMETER: 13.1MM=Ø.517

PORTABLE MINI SYSTEM CABLES

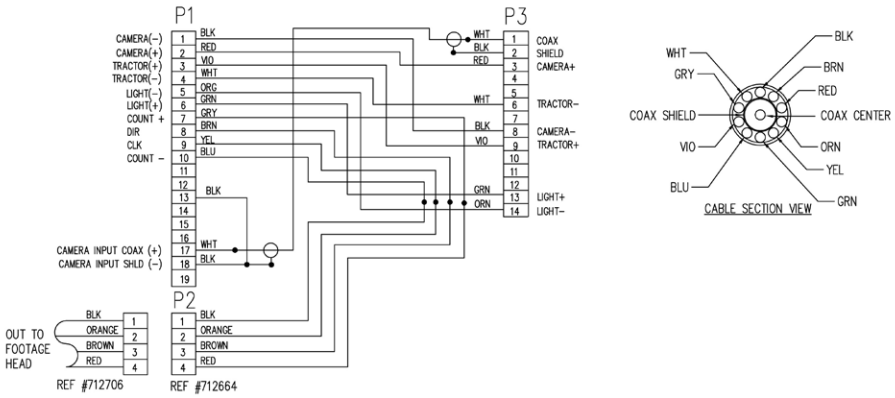
Cable, Umbil, Coiler/Footagehead/IGGY, P/N: CR123

CONFIGURATION LIST

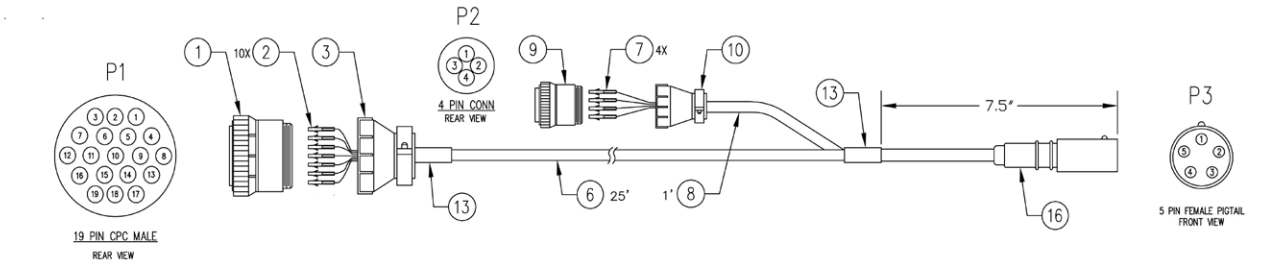
PART NO.	DESCRRIPTION	NOTES
CR123	CABLE ASSY, COILER/IGGY/PCU/FOOTAGE HEAD	SHT 1
CR123-1	CABLE ASSY, COILER/IGGY/PCU/FOOTAGE HEAD/TRANSLATOR/PS3	SHT 2

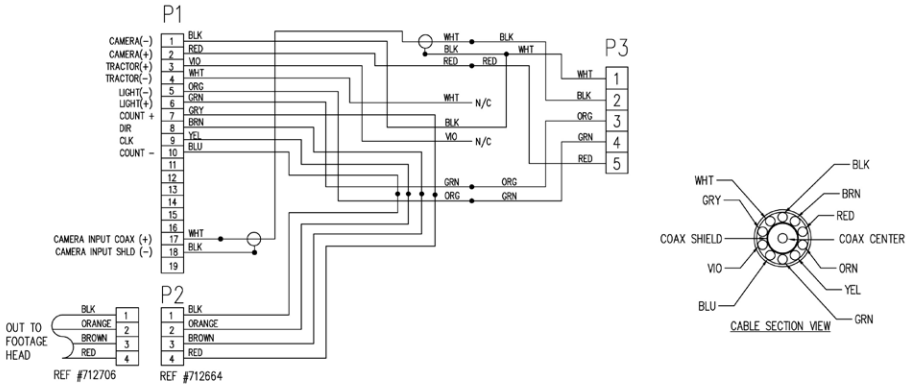


BASIC CONFIGURATION ONLY



Cable, Umbil, Coiler/Footagehead/IGGY, P/N: CR123-1

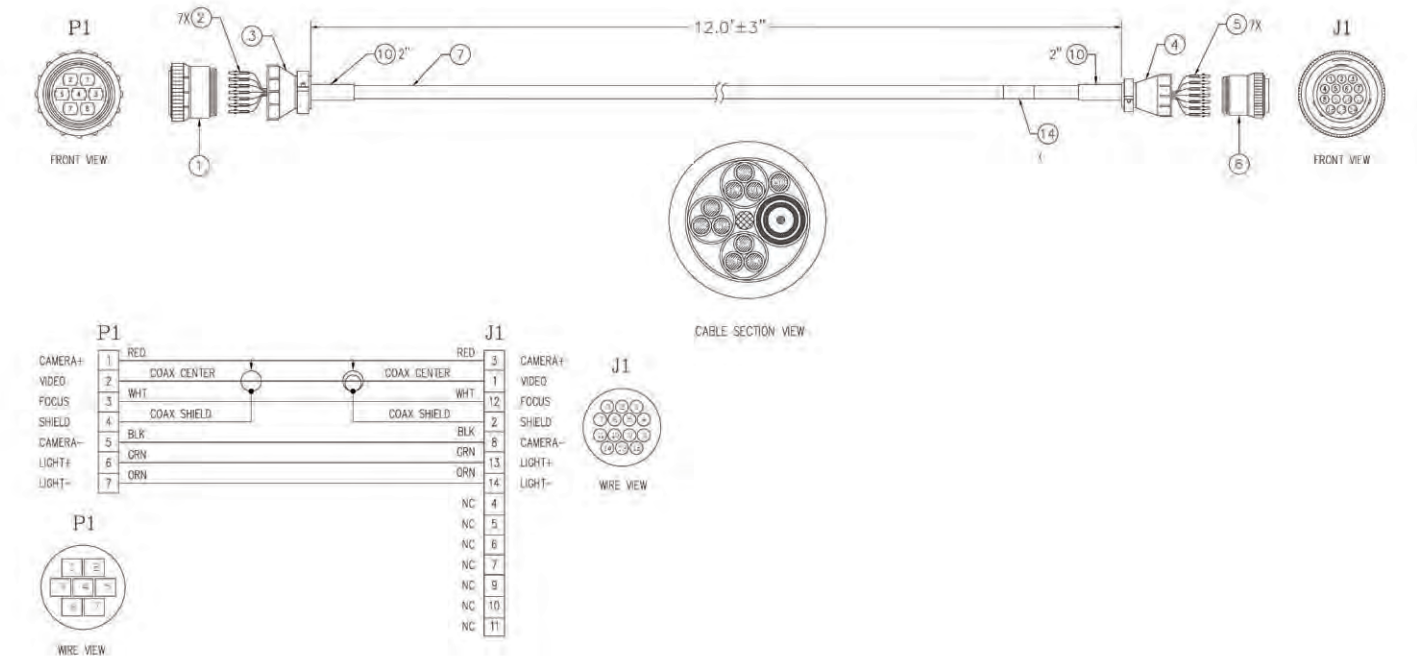




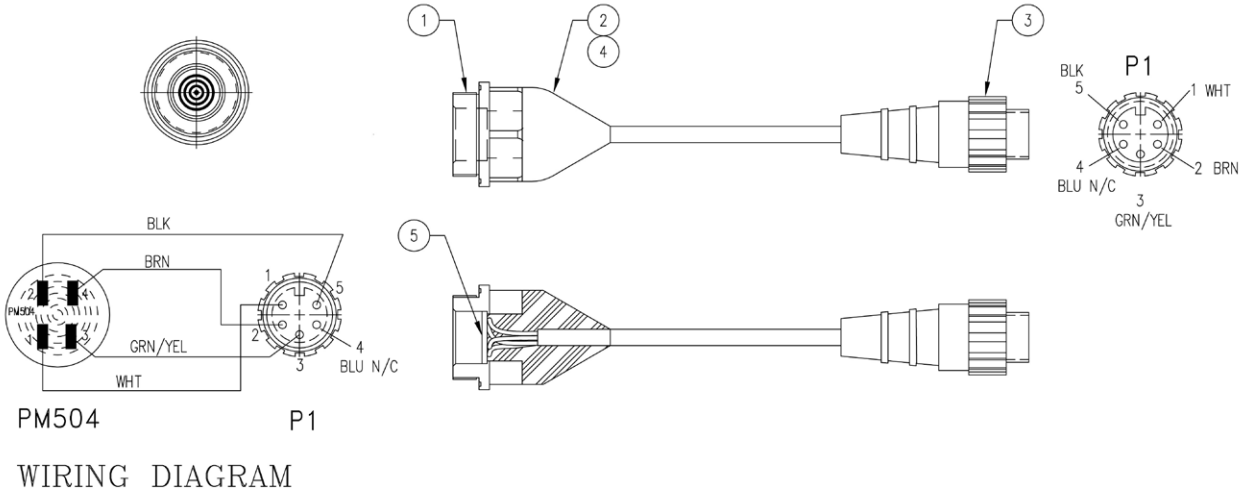
-1 CONFIGURATION ONLY

PORTABLE MINI SYSTEM CABLES

Cable,Umbil,12',Coiler/Proscout, P/N: CR303

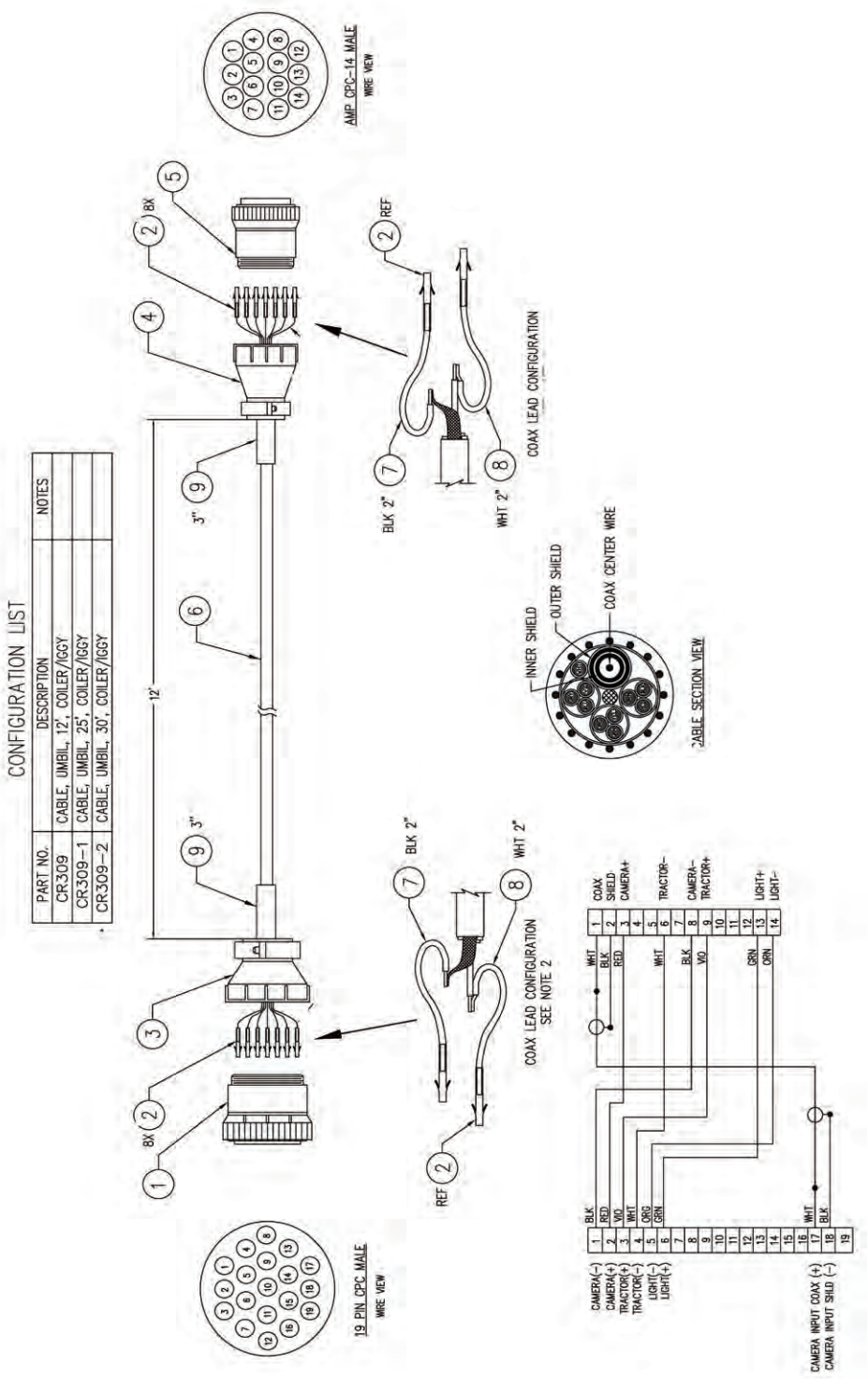


Adapter Assy, Coiler CX1, Test Box, P/N: CR319



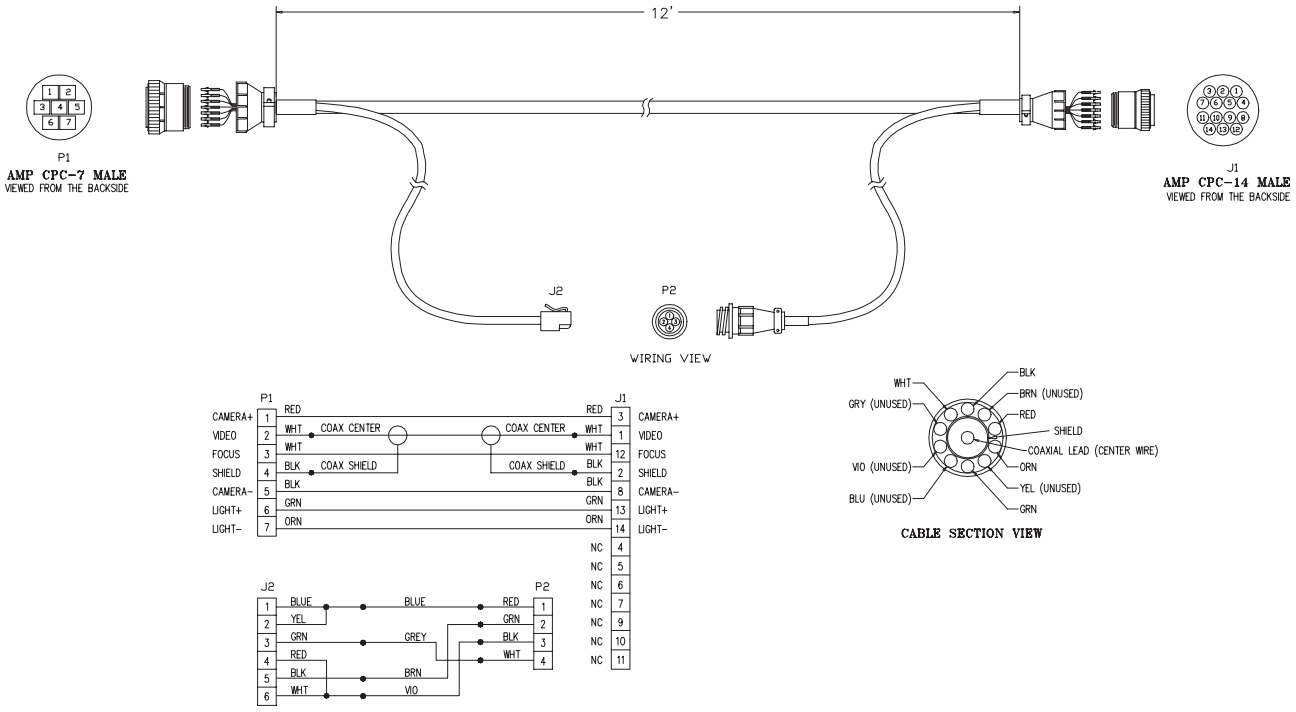
PORTABLE MINI SYSTEM CABLES

Cable, Umbil,12',Coiler/Iggy, P/N: CR309

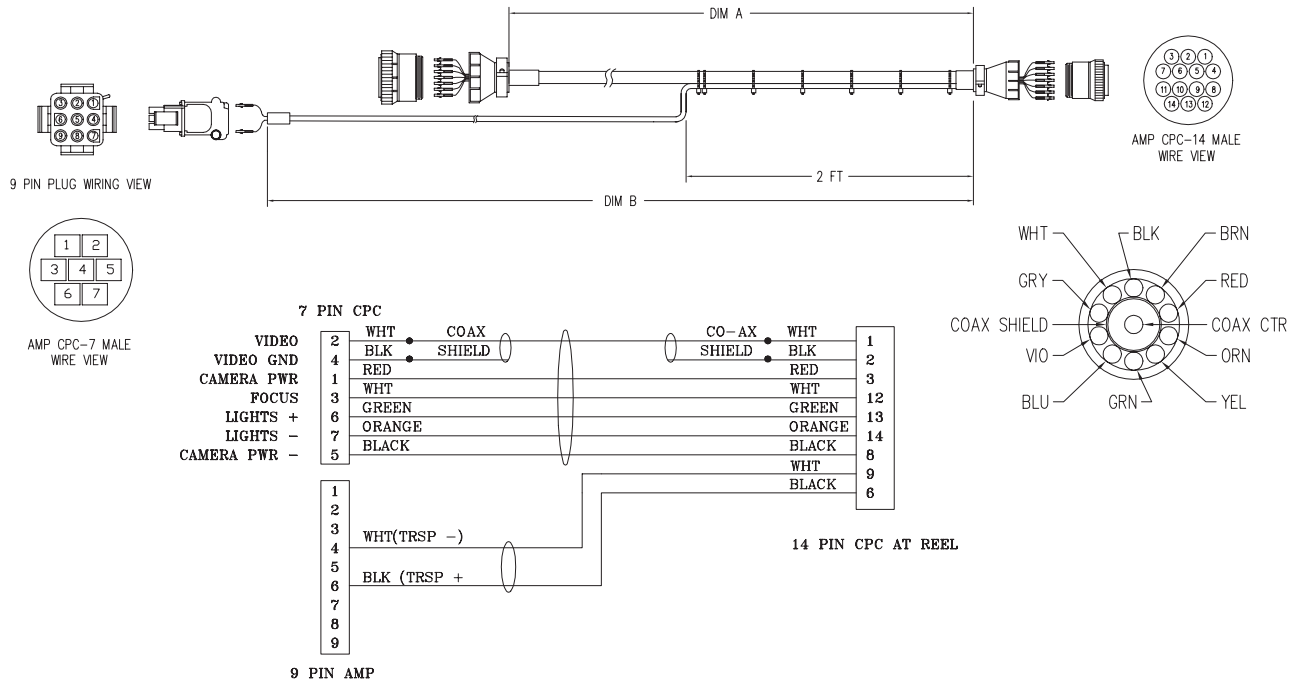


PORTABLE MINI SYSTEM CABLES

Cable, Umbil, Coiler/Footage, Proscout, P/N: CR322

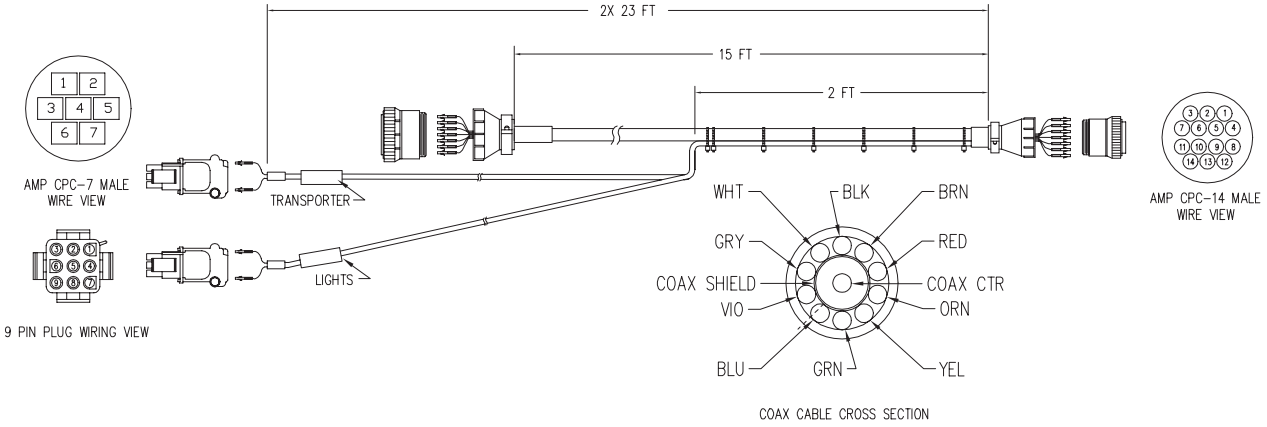


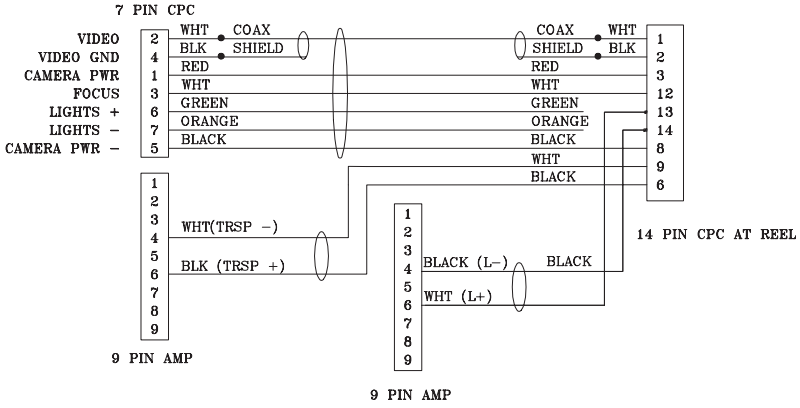
Cable, Umbilical, Dolly/PS with Transp, 4', P/N: DS304
Cable, Umbilical, Dolly/PS with Transp, 30', P/N: DS304-2



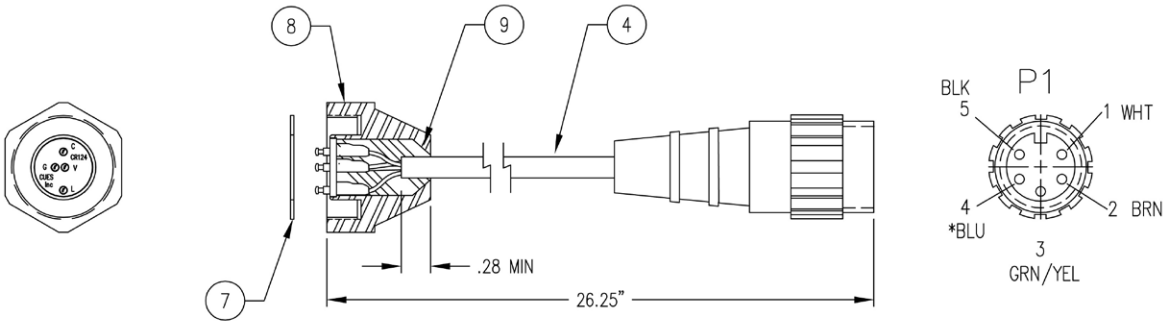
PORTABLE MINI SYSTEM CABLES

Cable, Umbilical, Dolly, with LT & Trans, 15', P/N: DS308
Cable, Umbilical, Dolly, with LT & Trans, 30', P/N: DS308A



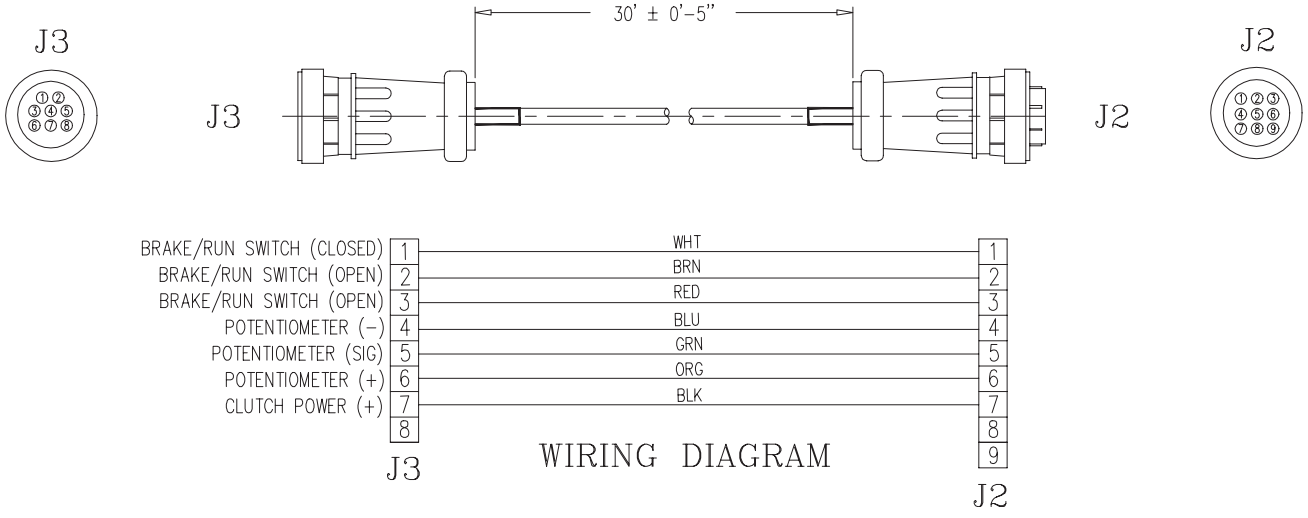


Cable Assy,F/Cx1-Ps1&2,Orn 5 Pin, P/N: PM311

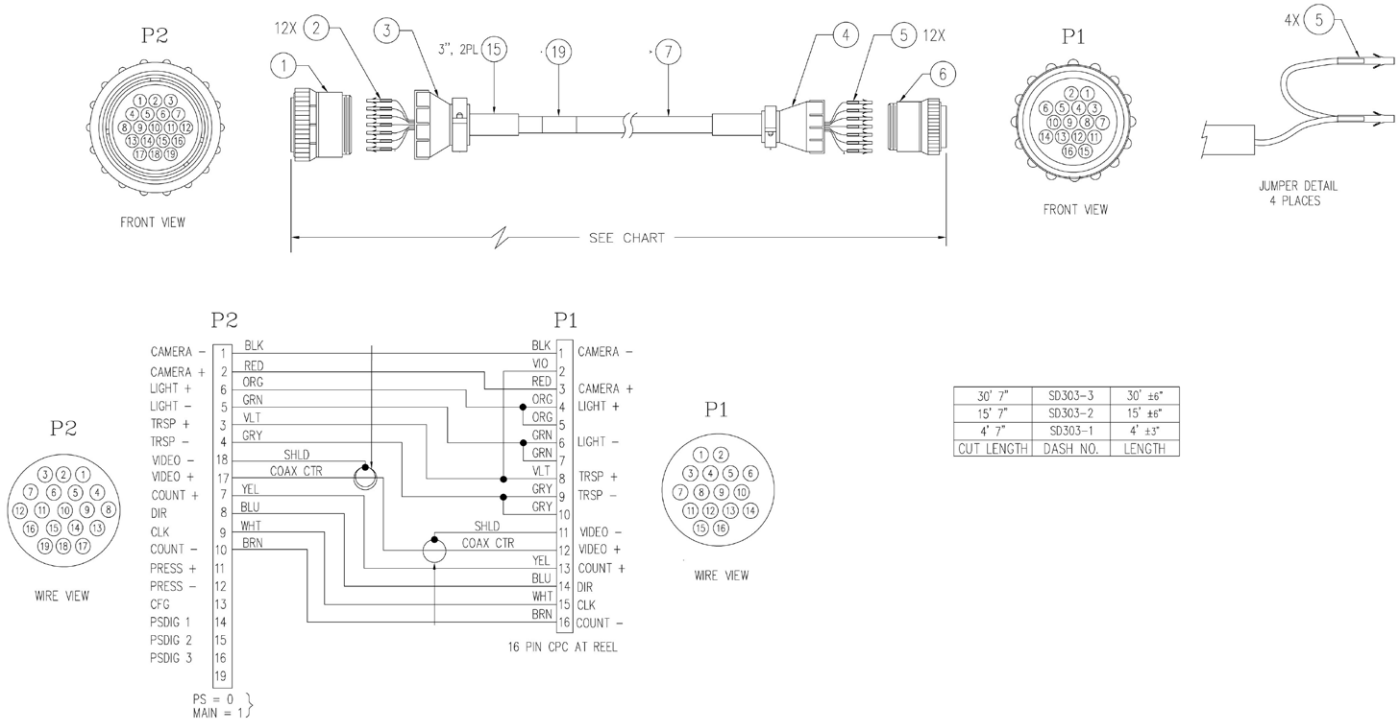


PORTABLE MINI SYSTEM CABLES

Cable Assy, Interconnect, Clutch, IGGY, P/N: SD317



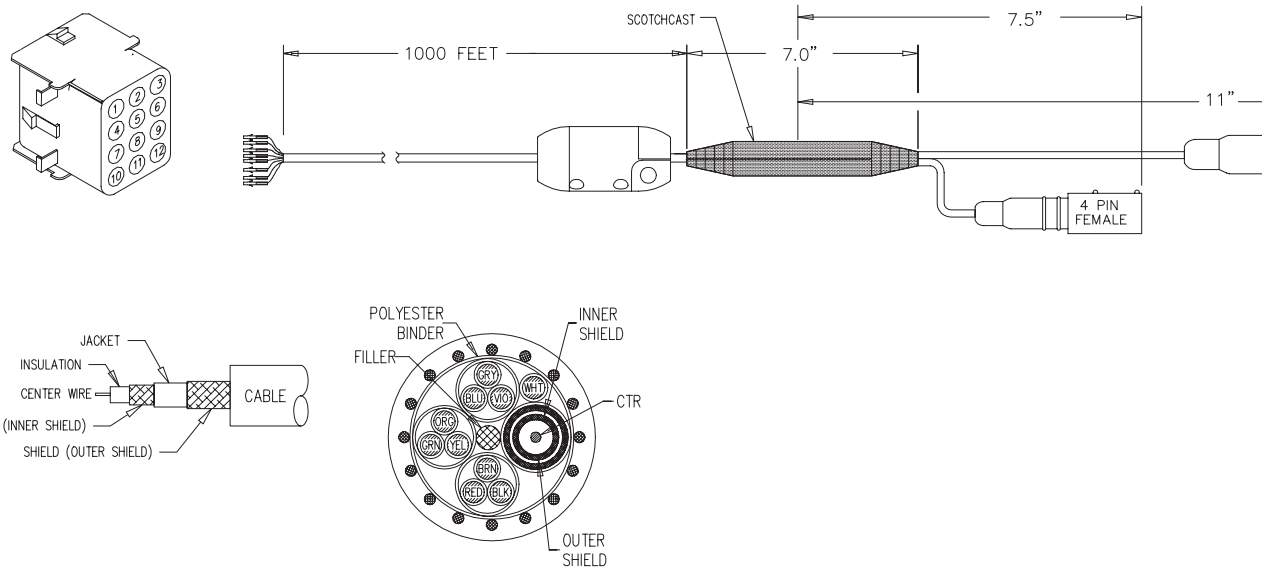
Cable,Umbilical,4',Dolly,Iggy, P/N: SD303-1
Cable,Umbilical,15',Dolly,Iggy, P/N: SD303-2
Cable,Umbilical,30',Dolly,Iggy, P/N: SD303-3



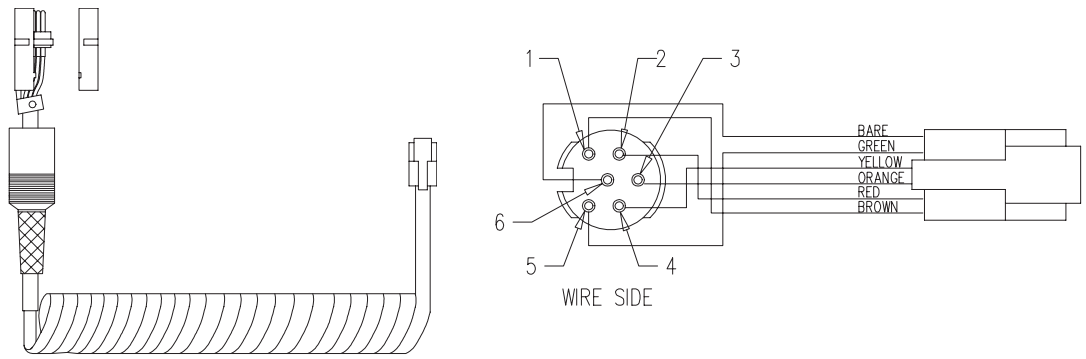
30' 7"	SD303-3	30' ±6"
15' 7"	SD303-2	15' ±6"
4' 7"	SD303-1	4' ±3"
CUT LENGTH	DASH NO.	LENGTH

PORTABLE MINI SYSTEM CABLES

Cable Assy, IGGY 1000' w/ends, P/N: SM201

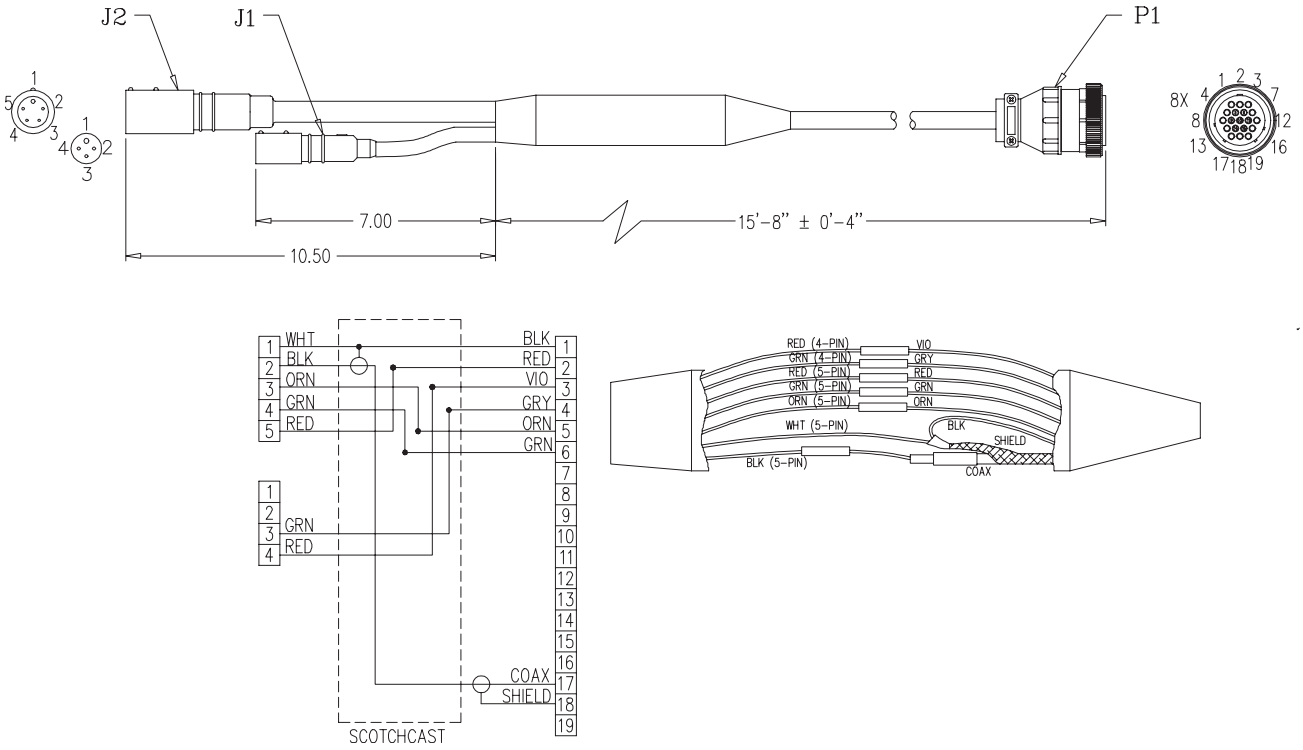


Cable Assy,Hand Command,Iggy, P/N: SM337

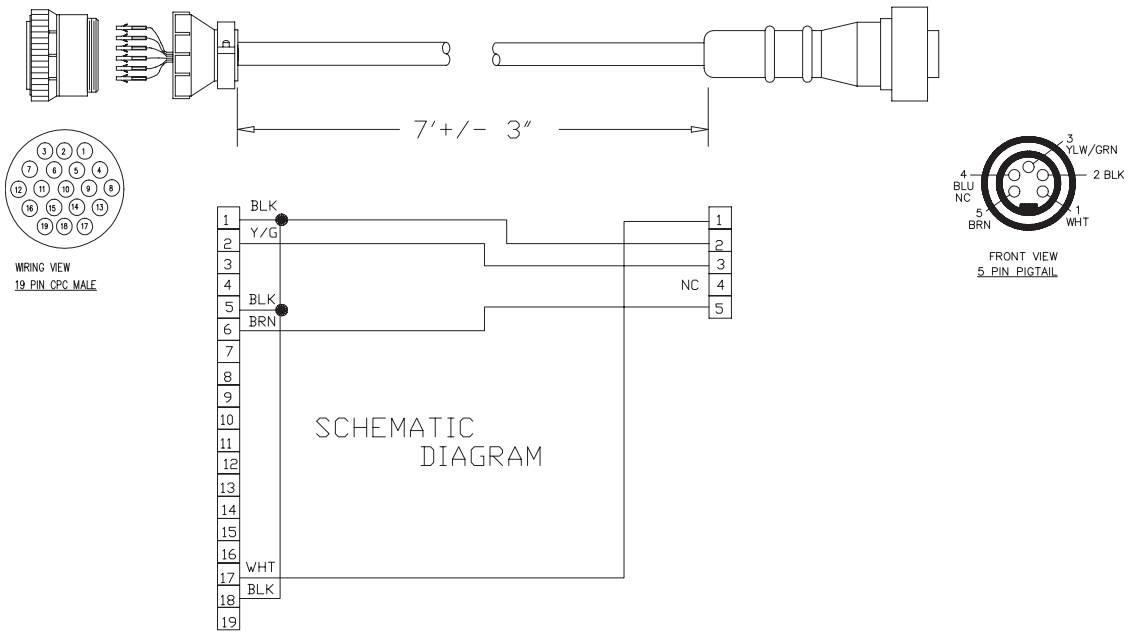


PORTABLE MINI SYSTEM CABLES

Test Cable Assy, IGGY/Camera, P/N: SM342

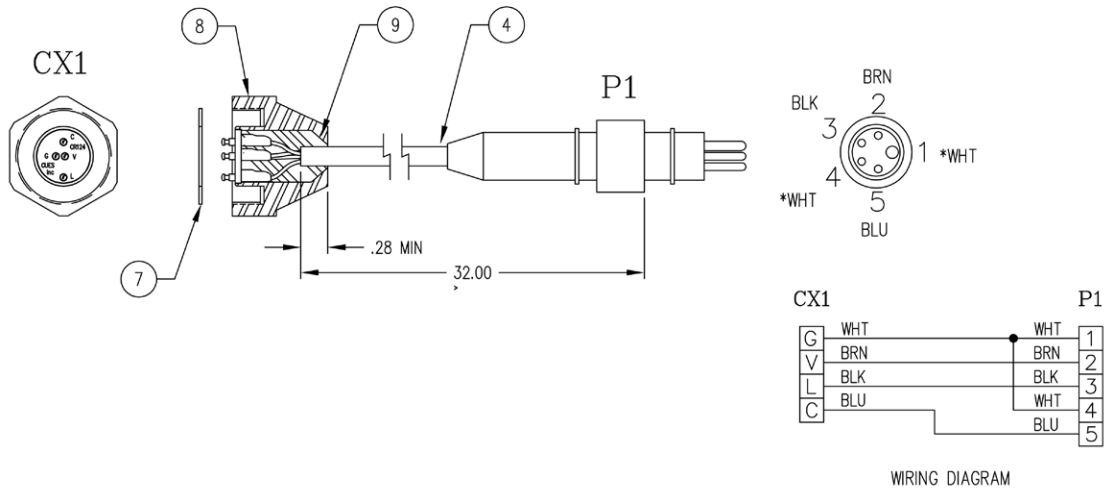


Test Cable, IGGY/Proscout Cam, P/N: SM343



PORTABLE MINI SYSTEM CABLES

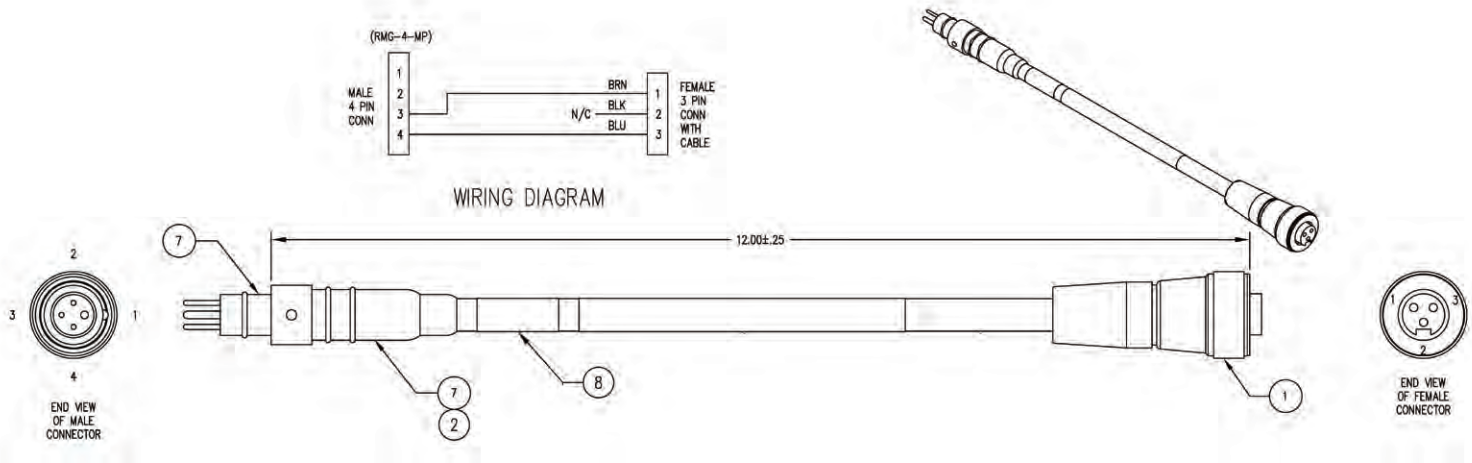
Cable Assy,F/Cx1-Ps2,Blk 5pin, P/N: TK302



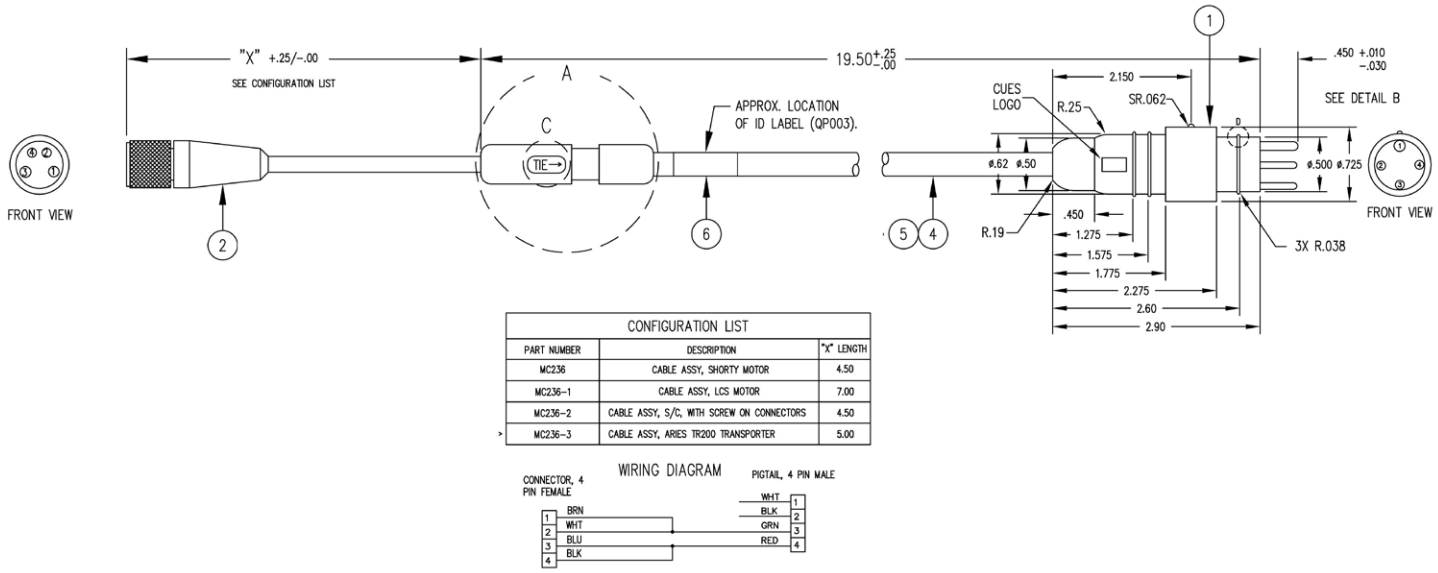
WIRING DIAGRAM

TRANSPORTER CABLES

Cable Assy, Metal Sleeve 4 -pin (yellow), P/N: 712818



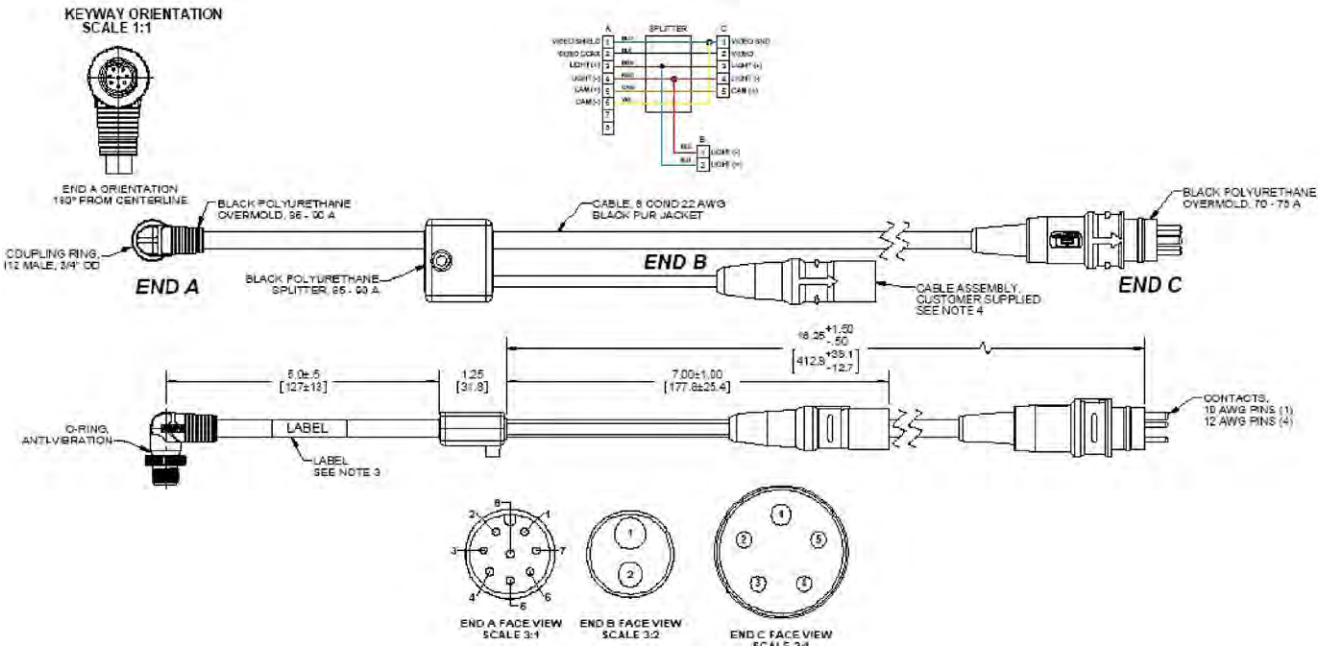
Cable Assy,Motor&Xmsm,Shorty, P/N: MC236



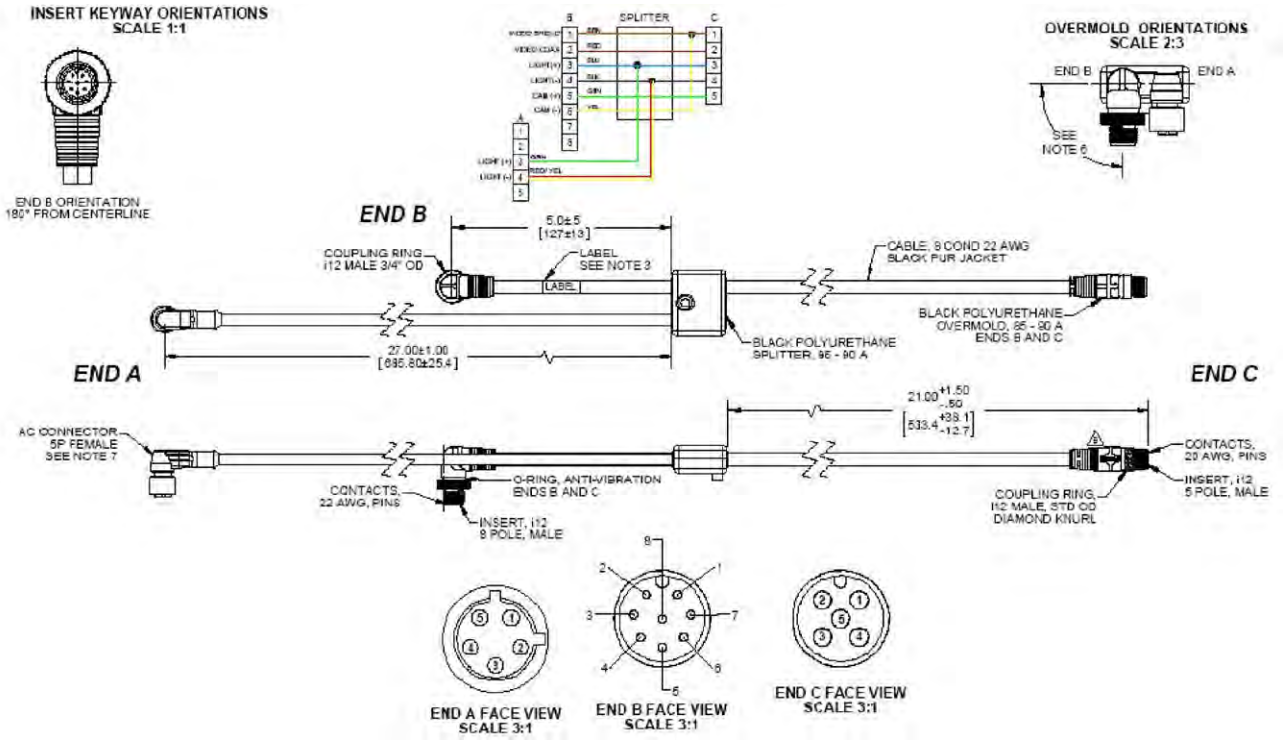
CONFIGURATION LIST		
PART NUMBER	DESCRIPTION	"X" LENGTH
MC236	CABLE ASSY, SHORTY MOTOR	4.50
MC236-1	CABLE ASSY, LCS MOTOR	7.00
MC236-2	CABLE ASSY, S/C, WITH SCREW ON CONNECTORS	4.50
MC236-3	CABLE ASSY, ARIES TR200 TRANSPORTER	5.00

TRANSPORTER CABLES

CABLE ASSY,5P>8P,OZIII-US 21,SKID, P/N MZ341 (Replaces obsolete P/N MZ310)

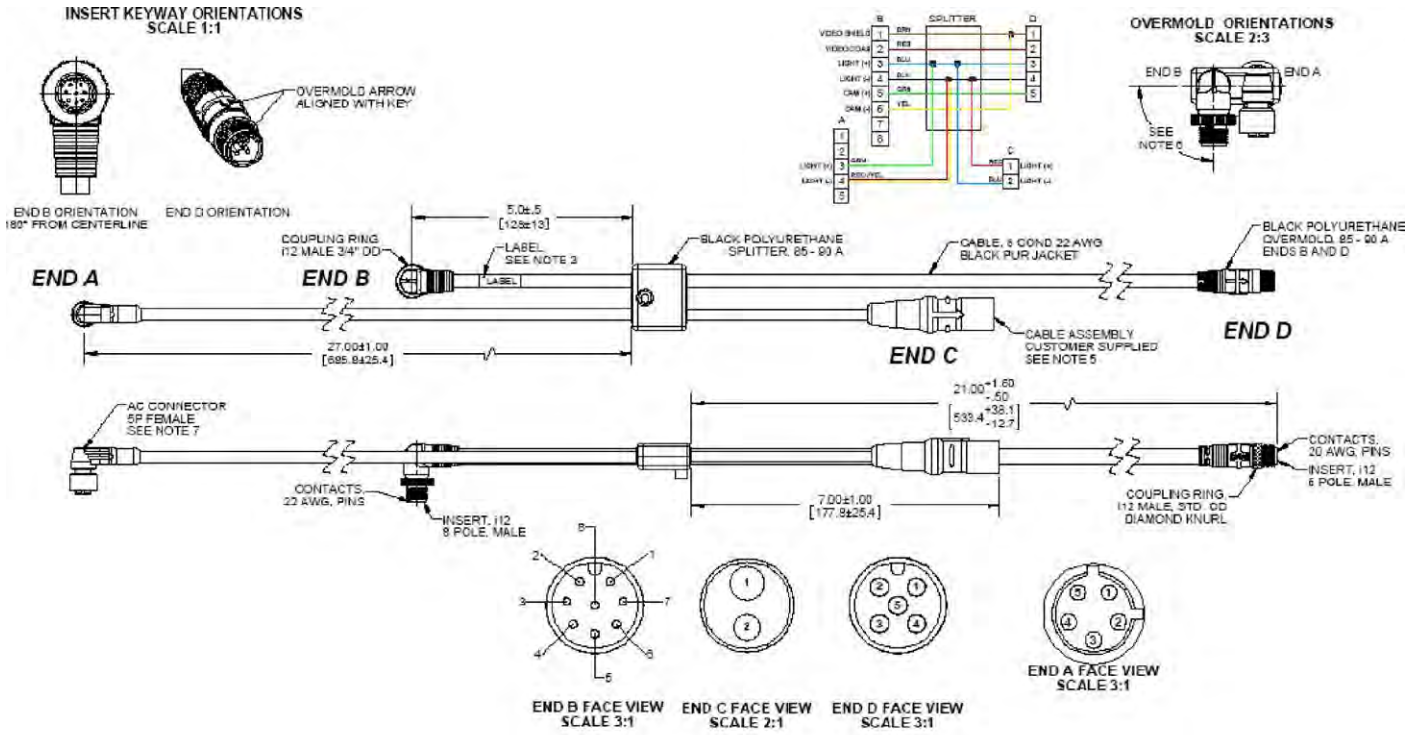


CABLE ASSY,OZ3 ADP>PR/SPR PLIFT, P/N MZ346-2 (Replaces obsolete P/N MZ312)



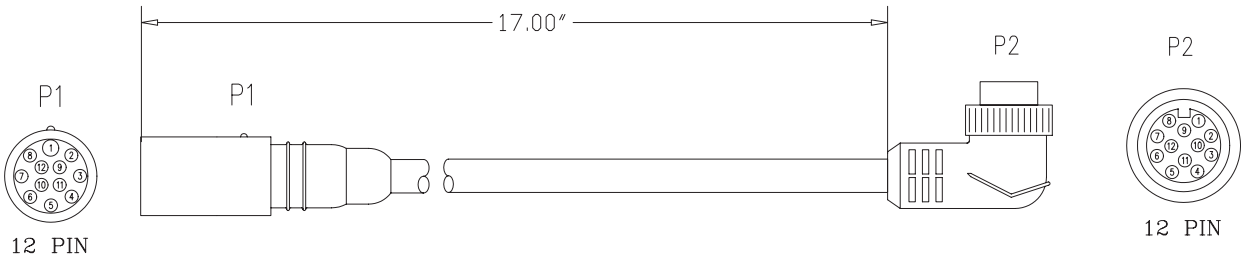
TRANSPORTER CABLES

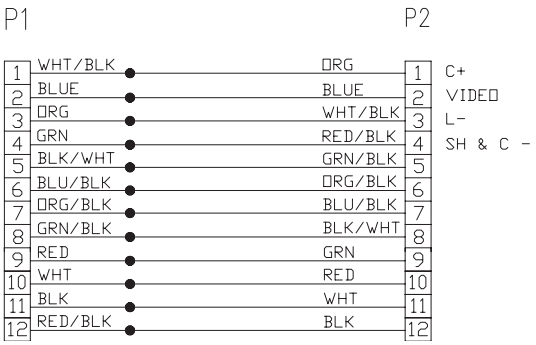
CABLE ASSY,OZ3 ADP>PR/SPR PLFT LGT, P/N MZ346-3 (Replaces obsolete P/N MZ313)



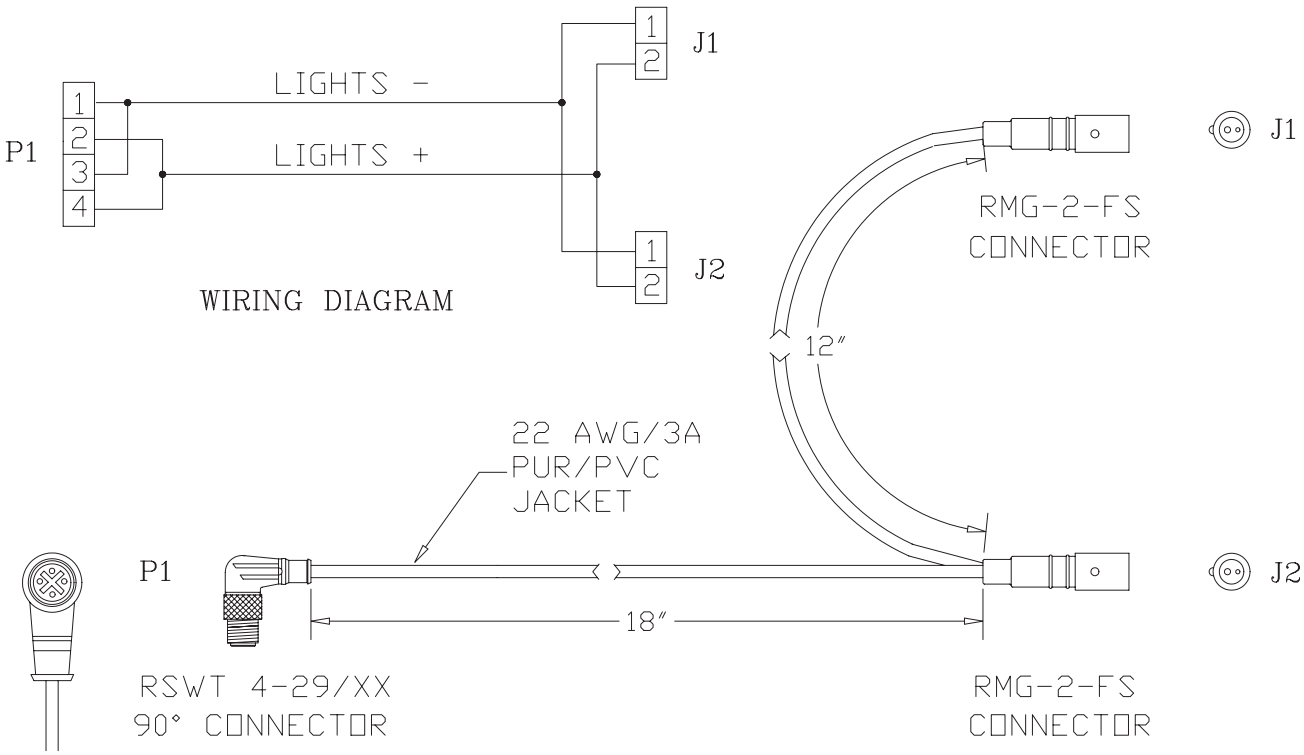
TRANSPORTER CABLES

Cable Assy, 12 P-M to BH, Rover, P/N: RT311



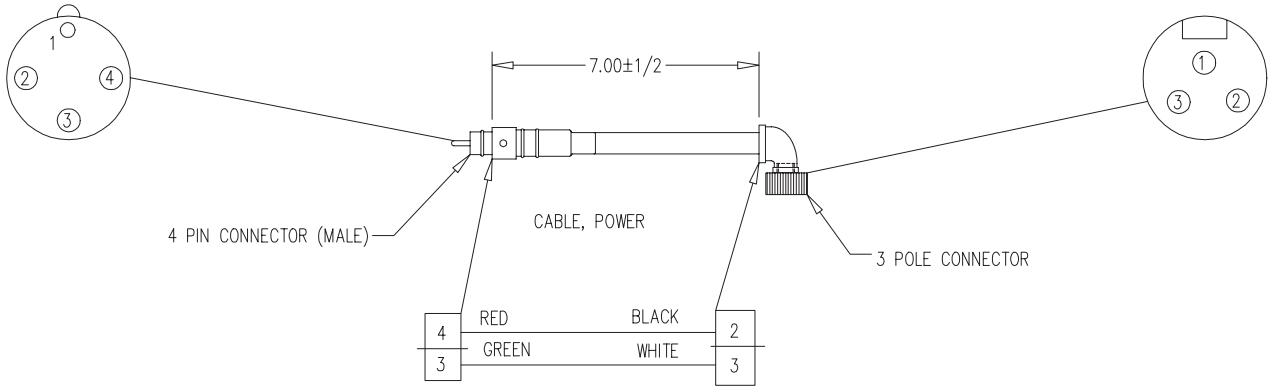


Cable, Lights, Rover, P/N: RT330

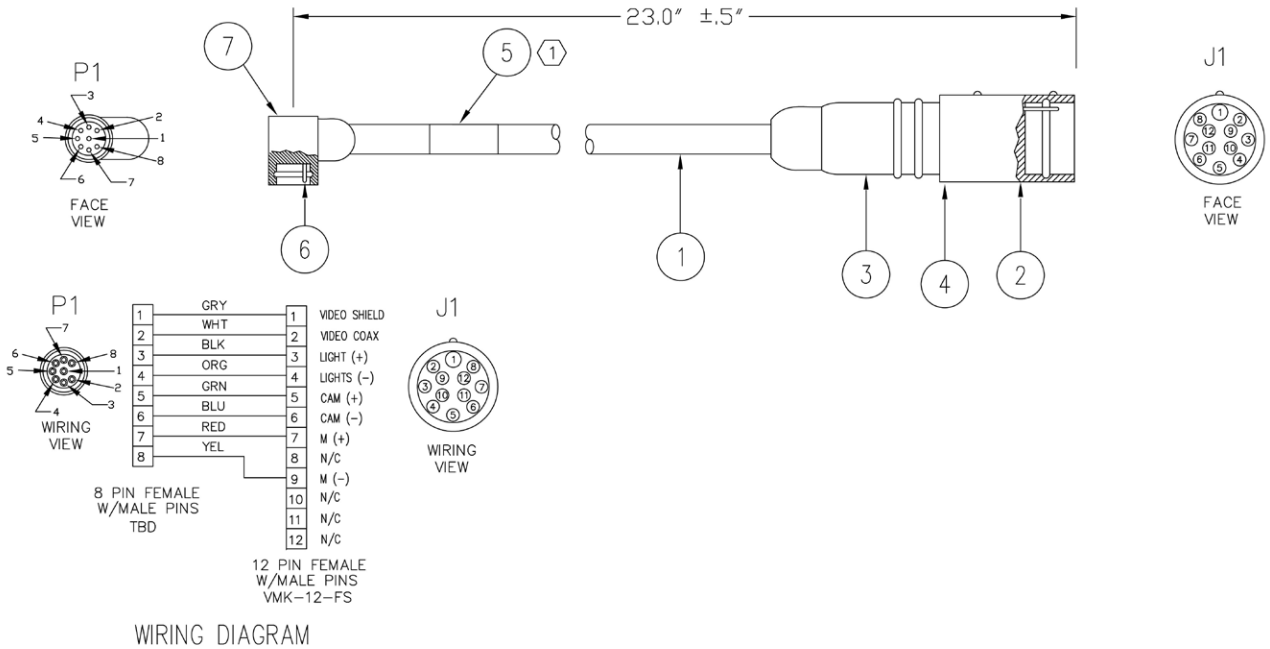


TRANSPORTER CABLES

Cable,Power Mudmaster, P/N: TM044



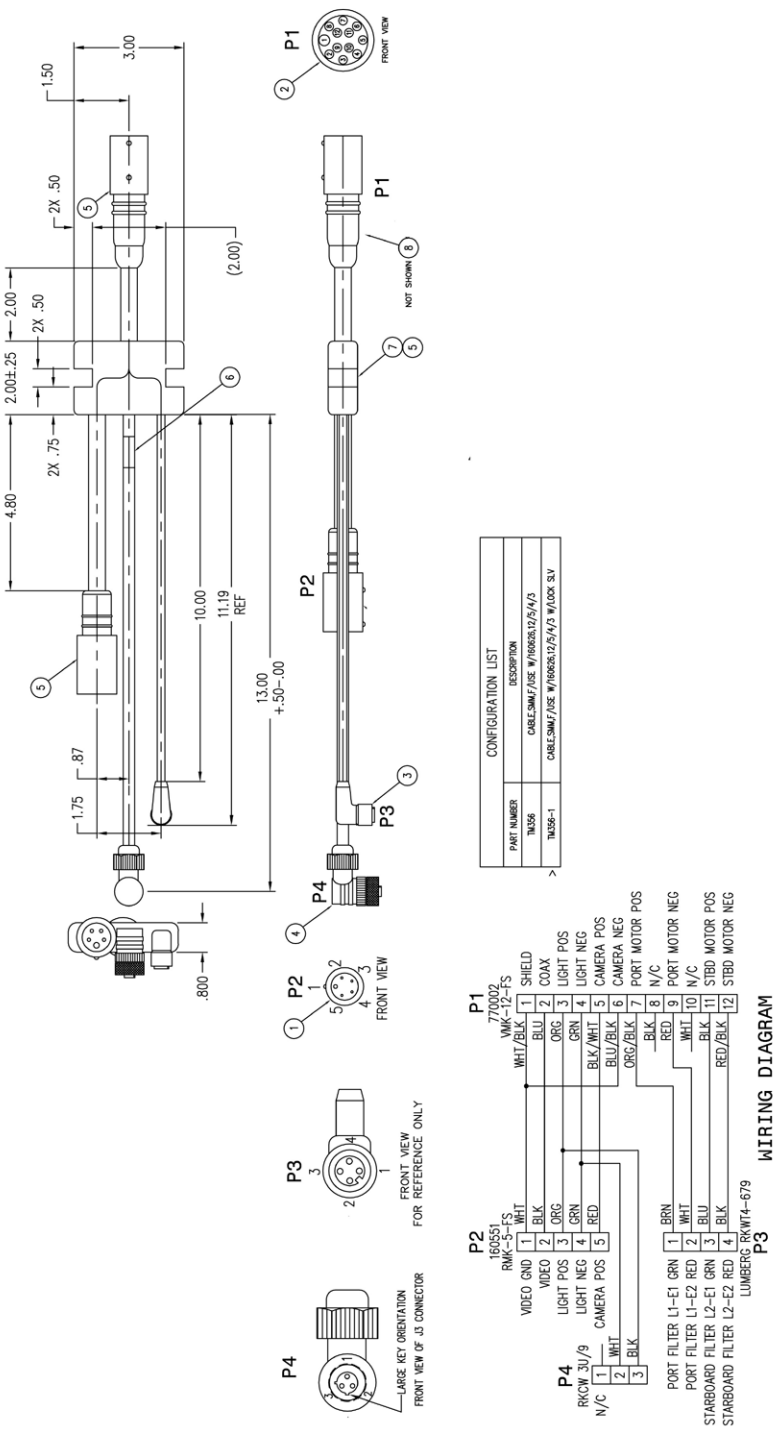
Cable Assy, 12 Pin to 8 Pin, Tracked Transporter, P/N TX307



WIRING DIAGRAM

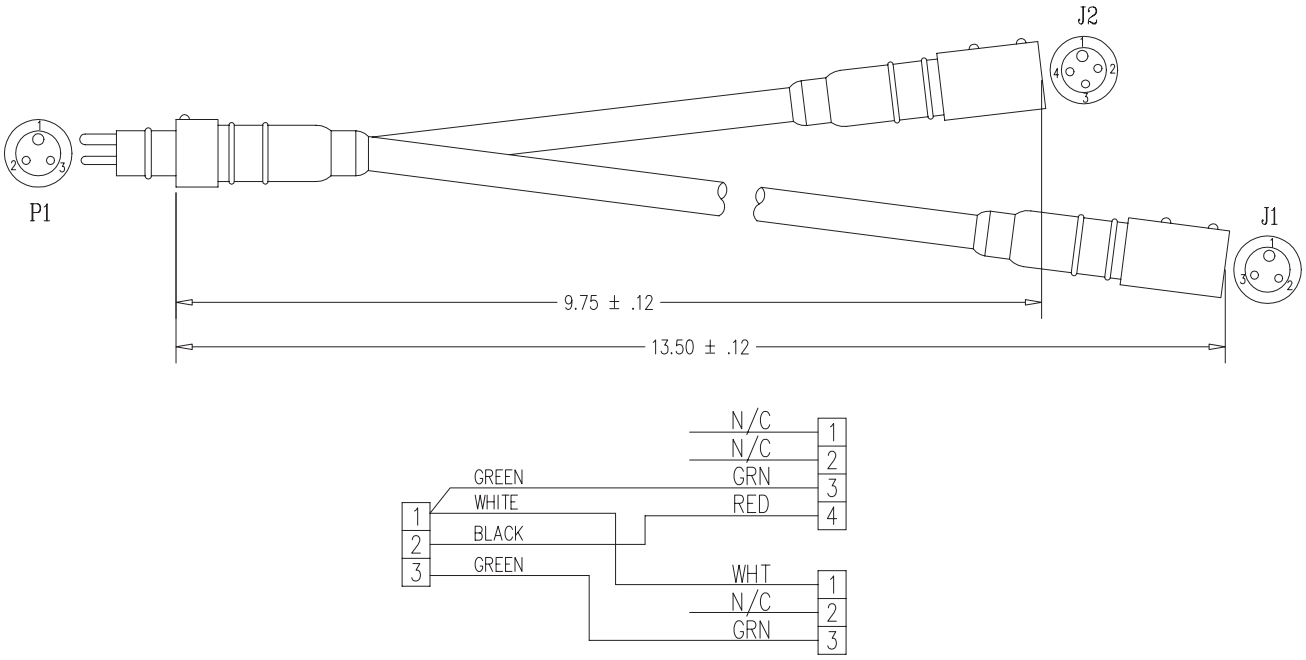
TRANSPORTER CABLES

CABLE,SMM,F/USE W/160626-1,12/5/4/3, P/N TM356

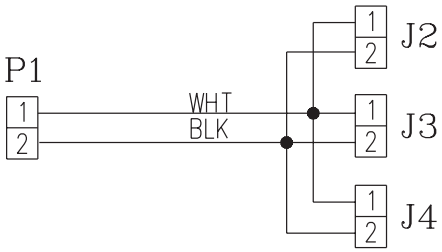


TRANSPORTER CABLES

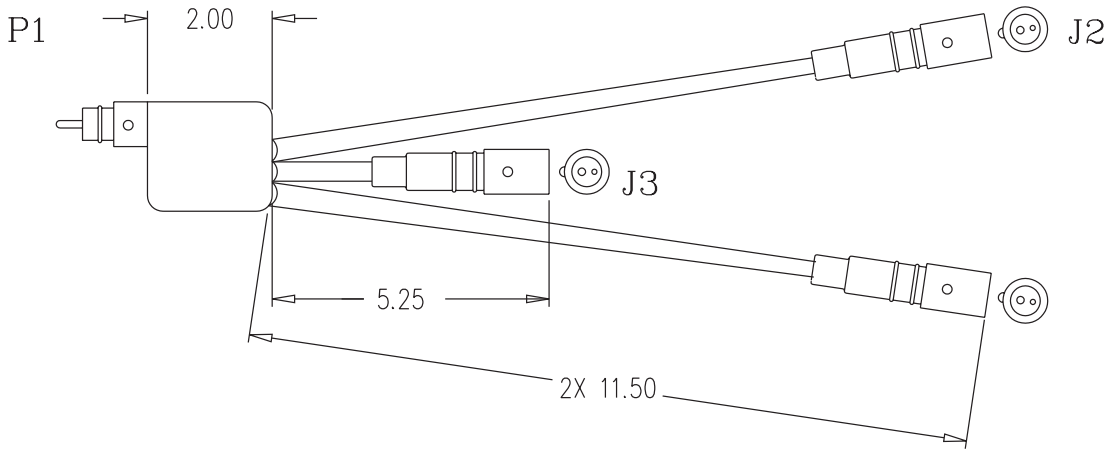
Cable Assy,3to3/4,S/C/Shorty, P/N: TR554



Cable, Lights, Manual Lift, Mudmaster, P/N: TM341



WIRING DIAGRAM



TV CABLE

Cable, M/C, Steel Armored, Blue	030554
Cable Assy, Steel Armored, M/C, 1000', w/12 pin	030551
Cable Assy, Steel Armored, M/C, 1000', w/5&4	0305541
Cable Assy, Steel Armored, M/C, 850' w/pos	KC315

Cable, S/C COLOR, .250	030577
CABLE,S/C COLOR .250,1000'	03057710
CABLE,S/C COLOR .250,1500'	03057715
CABLE,S/C COLOR .250,2000'	03057720
CABLE,S/C COLOR .250,2500'	03057725
CABLE,S/C COLOR .250,3000'	03057730
Cable Assy, S/C TV, 3000' w/ends	030062
Cable Assy, S/C TV, .250, 1000', w/ends	030522
Cable Assy, S/C TV, .250, 1500', w/ends	030058
Cable Assy, S/C TV, .250, 2000'	030512
Cable Assy, S/C TV, .250, 2500', w/ends	030061
Cable Assy, S/C Shorty, 1500'	TR547A
Cable Assy, S/C Shorty, 2000'	TR547

Cable, S/C Plus	030056
Cable Assy, S/C Plus, 1000', w/ends	030507
Cable Assy, S/C Plus, 1500' w/ends	030506
Cable Assy, S/C Plus, 2000', w/ends	030504

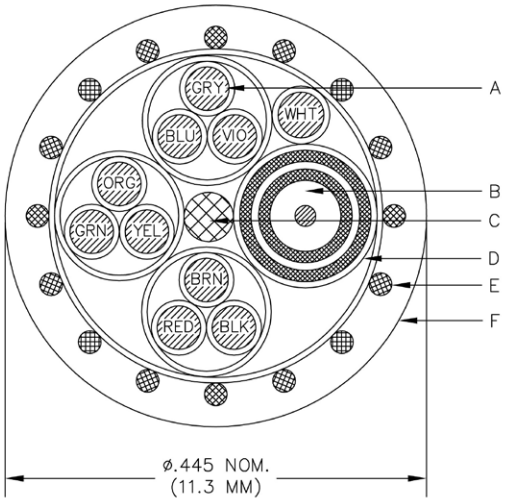
Cable, M/C, Gold	EL115
CABLE,10 COND,1COAX,18AWG,GOLD	EL115
CABLE,10COND.1COAX,18AWG,GLD,500'	EL11505
CABLE,10COND,1COAX,18AWG,GOLD 600'	EL11506
CABLE,10COND,1 COAX,18AWG.GOLD,650'	EL115065
CABLE,10 COND,1COAX,18AWG,GOLD,700'	EL11507
CABLE,10COND,1COAX,18AWG,GOLD,750'	EL115075
CABLE,10 COND,1COAX,18AWG,GOLD 800'	EL11508
CABLE,10COND,1COAX,18AWG,GLD,1000'	EL11510
CABLE,10COND,1COAX,18AWG,GLD,1200'	EL11512
CABLE,10COND,1COAX,18AWG,GOLD,1300'	EL11513
CABLE,10COND,1COAX,18AWG,GLD,1500'	EL11515
CABLE,10COND,1COAX,18AWG,GLD,1650'	EL115165
CABLE,10COND,1COAX,18AWG,GLD,1800'	EL11518

TV CABLE

Cable, M/C, Gold *continued*	
CABLE,10COND,1COAX,18AWG,GLD,2000'	EL11520
CABLE,10 COND,1 COAX,18AWG,GLD,2200	EL11522
CABLE,10COND,1COAX,18AWG,GLD,2500'	EL11525
CABLE,10COND,1COAX,18AWG,GLD,2600'	EL11526
CABLE,10COND,1COAX,18AWG,GLD,3000'	EL11530
CABLE,10COND,1COAX,18AWG,GLD,4000'	EL11540
Cable Assy, Gold, M/C, 2500', w/5&4	RL327
Cable Assy, Gold, M/C, 600', w/5&4	TR567
Cable Assy,M/C Gold 600' W/12 Pin	TR567A
Cable Assy, Gold, 11 Cond, 1000', w/12 pin	TR700
Cable Assy, Gold, 11 Cond, 1500', w/12 pin	TR70015
Cable Assy,M/C Gold 1500' 5+4,Smm	TR787
Cable Assy,M/C Gold 1000',W/12pin	305490
Cable Assy, Gold, M/C, 500', w/5&4	030549A
Cable Assy, Gold, 1000', w/12 pin	030549X
Cable Assy, Gold, 1200', w/5&4	0300526
Cable Assy, Gold, 2000', w/5&4	0305999
Cable Assy, Gold, 1500'	0305556
Cable Assy, Gold, 2000', w/12 pin	030549F
Cable Assy, Gold, 500', w/5&4	03054SS
Cable Assy, Gold, MM 2000'	0305412
Cable Assy, Gold, 1300', w/5&4	03054PS
Cable Assy, Gold, M/C, 1000', w/12 pin	0305490
Cable Assy, Gold, M/C, 1000', Mudmaster	0305411
Cable Assy,M/C Gold 1200' Mudmaster	305413
Cable Assy, Gold, M/C, 1500' Mudmaster	0305416
Cable Assy, Gold, M/C, 4000', w/5 pin	0305401
Cable Assy,M/C Gold W/5+4 1500'	305497
Cable Assy, Gold, M/C, 700' w/ 12 pin	03054A
Cable Assy, Gold, M/C, 1000', w/4&3	030549D
Cable Assy, Gold, M/C, 1200', w/4&3	030549H
Cable Assy,M/C Gold W/5+4 1300'	030549G
Cable Assy, Gold, M/C, 1500', w/4&3	030549B
Cable Assy, Gold, M/C, w/5&4	0305496
Cable Assy,M/C Gold W/5+4,1800'	0305496-1
Cable Assy,M/C Gold W/5+4,1000' Mtl	0305496-10
Cable Assy,M/C Gold W/5+4 800'	0305496A
Cable Assy, Gold, M/C, 1500', w/5&4	0305497
Cable Assy, Gold, M/C, 1200', w/5&4	03054B

TV CABLE

Cable, M/C, Gold *continued*	
Cable Assy,M/C Gold 1200',W/12pin	0305490-1
Cable Assy,M/C Gold 1300',W/12pin	0305490-2
Cable Assy,M/C Gold 1500',W/12pin	0305490-3
Cable Assy,M/C Gold 1800',W/12pin	0305490-4
Cable Assy,M/C Gold 2000',W/12pin	0305490-5
Cable Assy,M/C Gold 500',W/12pin	0305490-6
Cable Assy,M/C Gold 600,W/12pin,Mtl	0305490-17
Cable Assy,M/C Gold W/5+4 1500' Mtl	0305497-10



TECHNICAL DATA:

1. OPERATING VOLTAGE:	600V
2. TEST VOLTAGE CONDUCTOR/ CONDUCTOR:	3000V/DC
3. TEST VOLTAGE CONDUCTOR/SHIELD:	2000V/DC
4. OPERATING TEMPERATURE:	−50°C TO +125°C[−58F TO+257F] (3000 HRS.) −50°C TO +90C[−58F TO+194F] (20000 HRS.)
5. WEIGHT:	160 G/M = 107.5 LB/1000 FT.
6. WORKING STRENGTH:	500 LBS.

CUES GOLD TV CABLE, EL115

CUES Gold Cable is the most durable Multi Conductor TV cable available from any manufacturer. The cable is covered by a Kevlar armor impregnated Rilsan Nylon-11 composite jacket (Rilsan). The jacket offers a lower coefficient of friction than other jacket coverings, such as polyurethane, thereby reducing drag and further increasing its resistance to wear.

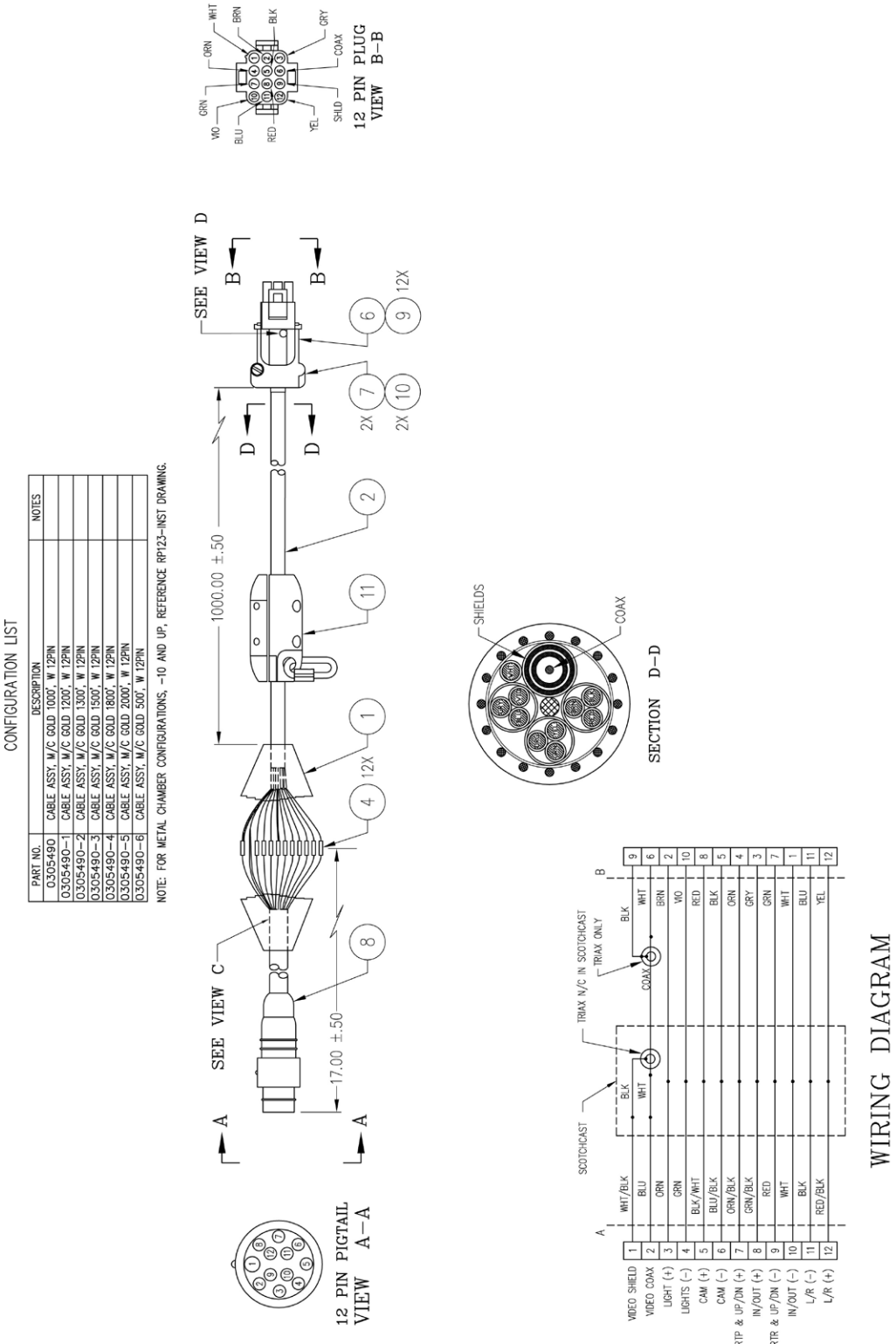
Internally, all of the conductors, including the coax, spiral in a serpentine pattern for the length of the cable. This means that the coax is the same length as the other conductors in the cable and will not break as the cable is placed under load. In other TV cables, the coax runs down the center of the cable, making it the shortest conductor and the first to break when the cable is stretched.

The cable also includes two (2) wire mesh coverings around the coax; one to act as a return ground and one to act as a true shield wire. Because all TV cables act as antennas, this shield wire is necessary to protect the video signal from outside RF noise sources and reduces "crosstalk" between the coax and outer conductors by 40db, providing a clearer signal.

For more information or to receive a cable sample, contact Cues Sales at 1-800-327-7791.

GOLD TV CABLE

Gold TV Cable, M/C, with 12-pin, P/N: 0305490



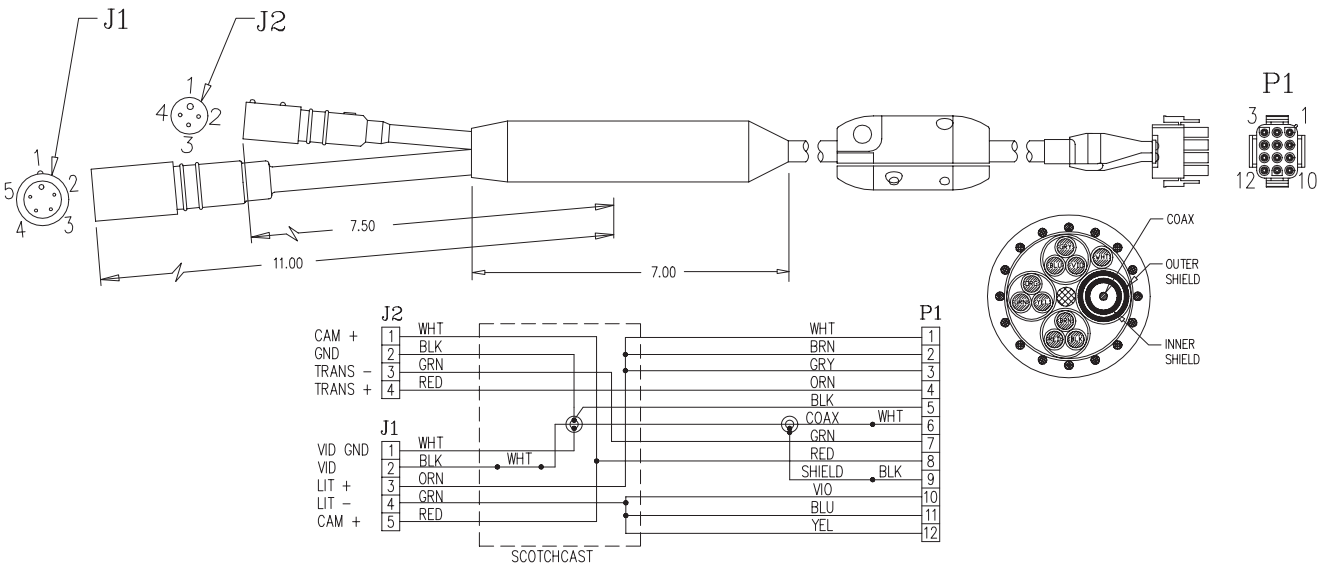
CONFIGURATION LIST

PART NO.	DESCRIPTION	NOTES
0305490	CABLE ASSY, M/C GOLD 1000', W 12PIN	
0305490–1	CABLE ASSY, M/C GOLD 1200', W 12PIN	
0305490–2	CABLE ASSY, M/C GOLD 1300', W 12PIN	
0305490–3	CABLE ASSY, M/C GOLD 1500', W 12PIN	
0305490–4	CABLE ASSY, M/C GOLD 1800', W 12PIN	
0305490–5	CABLE ASSY, M/C GOLD 2000', W 12PIN	
0305490–6	CABLE ASSY, M/C GOLD 500', W 12PIN	

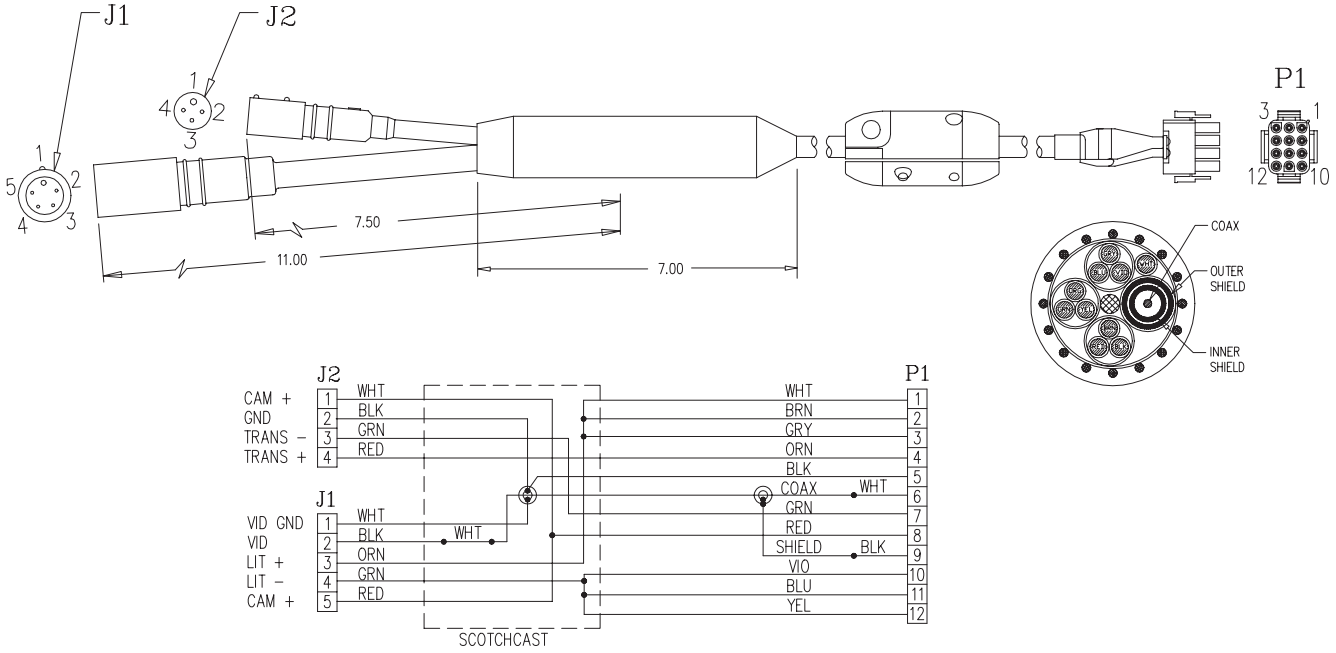
NOTE: FOR METAL CHAMBER CONFIGURATIONS, –10 AND UP, REFERENCE RP123–INST DRAWING.

GOLD TV CABLE

Gold TV Cable, M/C, with 5&4, 1500', P/N: 0305497

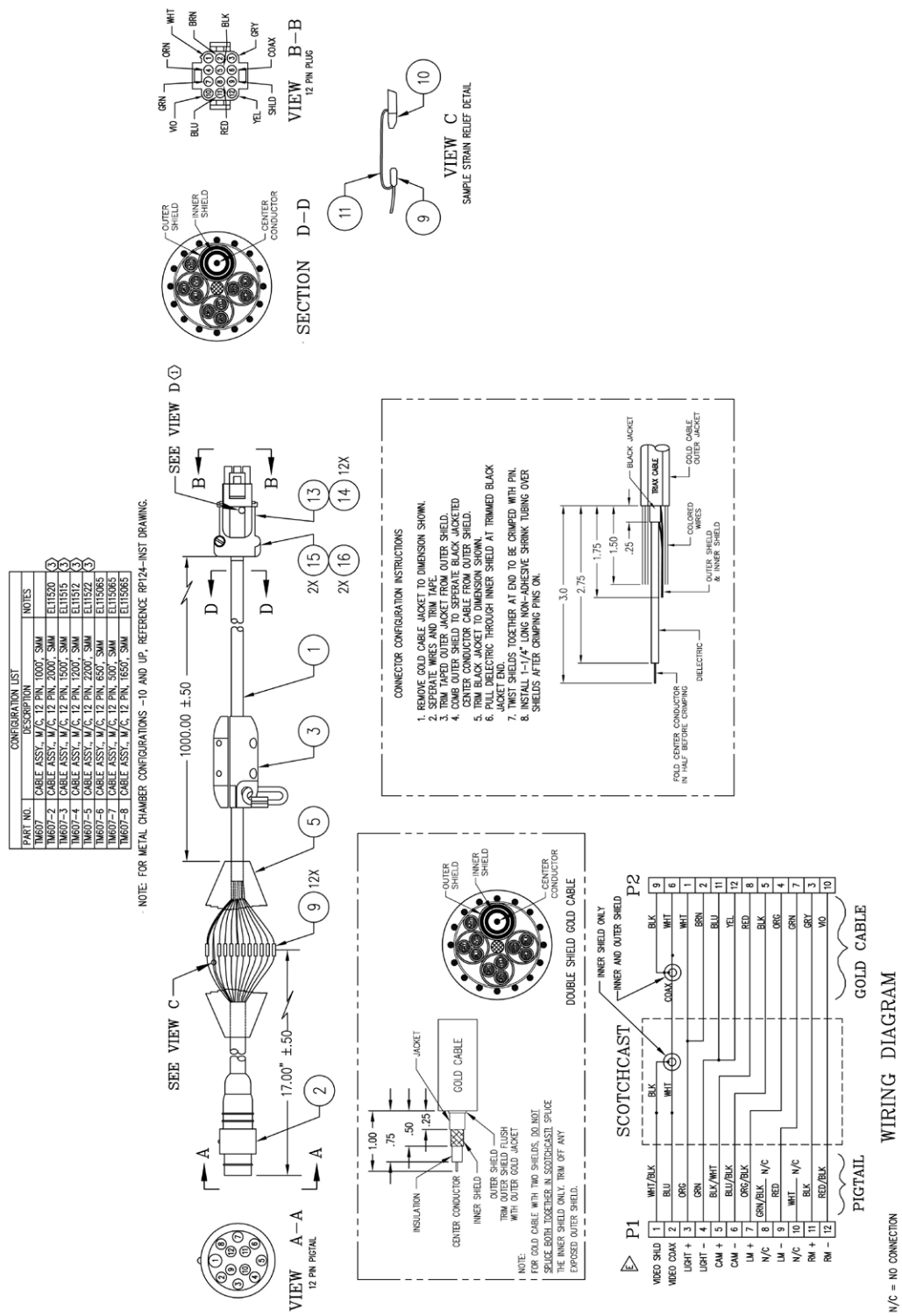


Gold TV Cable, M/C, with 5&4, P/N: 0305496
Gold TV Cable, M/C, with 12 pin, 1000', P/N: 0305496-10



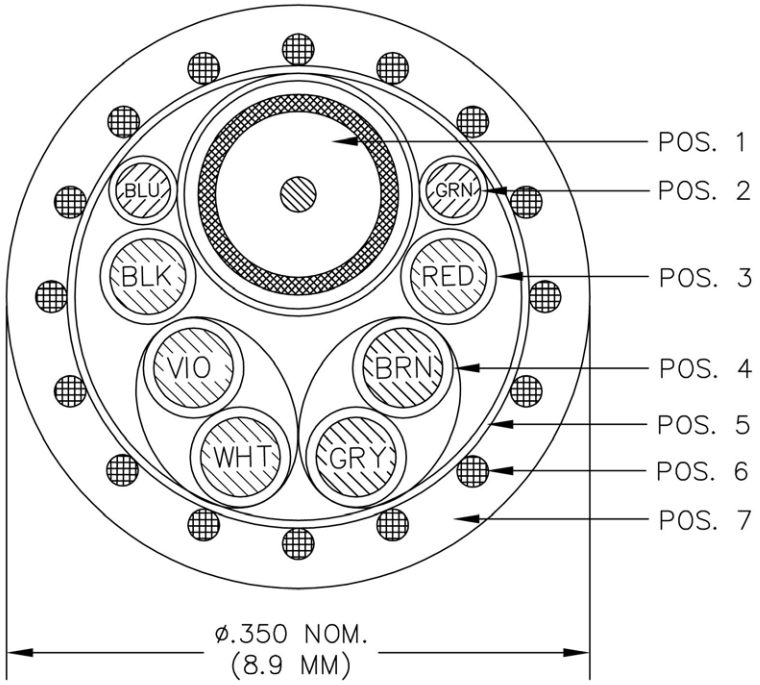
GOLD TV CABLE

Gold TV Cable, ,M/C,12PIN,1000',SMM, TM607



PLATINUM CABLE

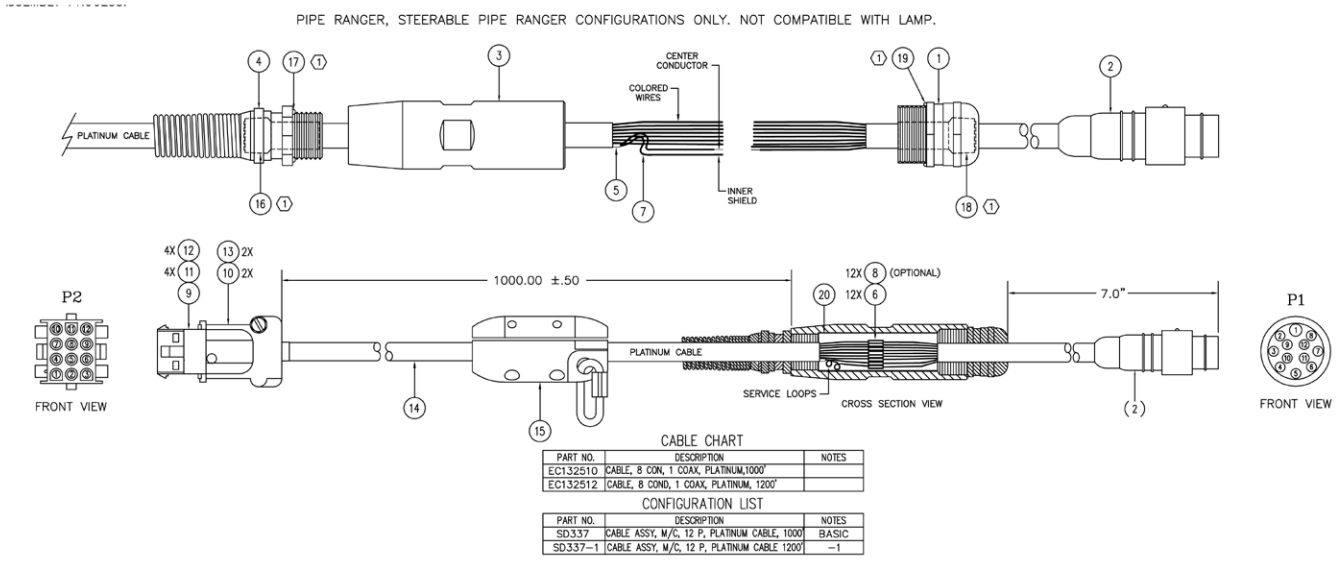
CABLE,8COND,1 COAX,PLATIUM	EC1325
CABLE,8 CON,1 COAX,PLATINUM,500'	EC132505
CABLE,8 CON,1 COAX,PLATINUM,1000'	EC132510
CABLE,8 COND,1 COAX,PLATINUM,1200'	EC132512



Platinum TV Cable, 8 Conductor, 1 Coax, P/N: EC1325

PLATINUM CABLE

CABLE ASSY,M/C,12P,IGGY,PLTNM,1000', P/N SD337



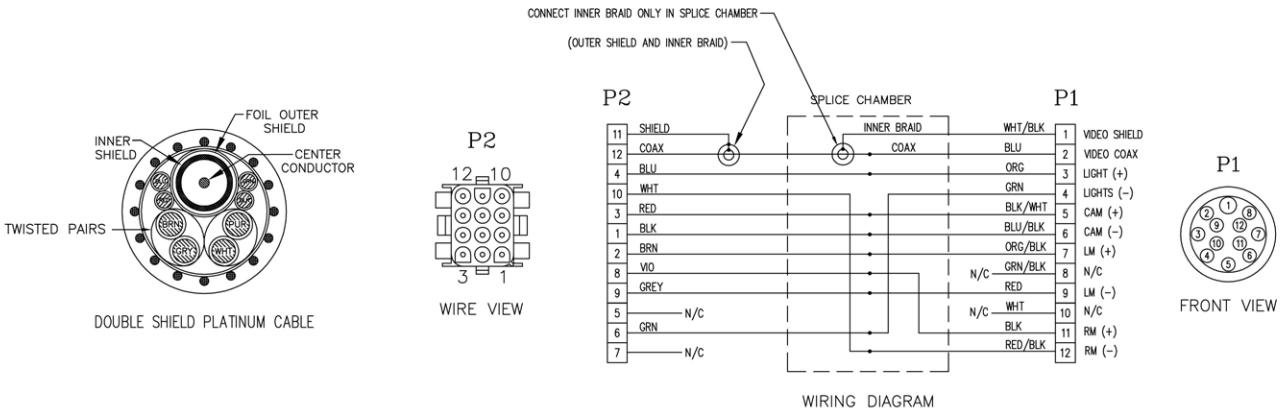
CABLE CHART

PART NO.	DESCRIPTION	NOTES
EC132510	CABLE, 8 CON, 1 COAX, PLATINUM,1000'	
EC132512	CABLE, 8 COND, 1 COAX, PLATINUM, 1200'	

CONFIGURATION LIST

PART NO.	DESCRIPTION	NOTES
SD337	CABLE ASSY, M/C, 12 P, PLATINUM CABLE, 1000'	BASIC
SD337-1	CABLE ASSY, M/C, 12 P, PLATINUM CABLE 1200'	-1

PIPE RANGER, STEERABLE PIPE RANGER CONFIGURATIONS ONLY. NOT COMPATIBLE WITH LAMP.



PLATINUM CABLE

CABLE ASSY,M/C,12P,IGGY,PLTNM,1000', P/N SD337 continued



FIGURE 13



FIGURE 14



FIGURE 9



FIGURE 10



FIGURE 11



FIGURE 12



FIGURE 5

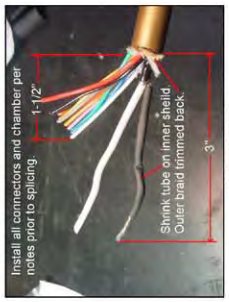


FIGURE 6



FIGURE 7



FIGURE 8

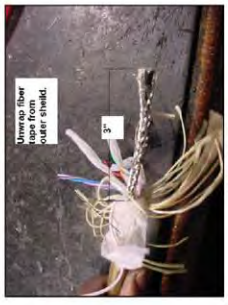


FIGURE 1



FIGURE 2



FIGURE 3

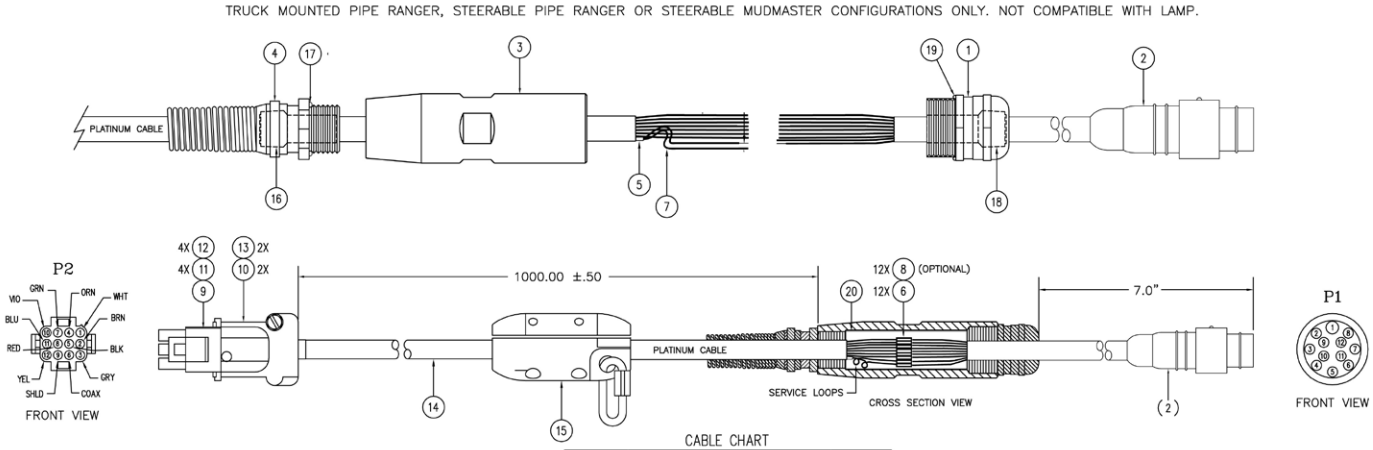


FIGURE 4

PLATINUM CABLE

CABLE ASSY,M/C,12P,IGGY,PLTNM,P/N WM305

TRUCK MOUNTED PIPE RANGER, STEERABLE PIPE RANGER OR STEERABLE MUDMASTER CONFIGURATIONS ONLY. NOT COMPATIBLE WITH LAMP.



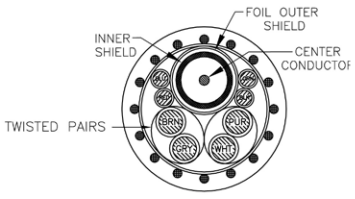
CABLE CHART

PART NO.	DESCRIPTION	NOTES
EC132510	CABLE, 8 CON, 1 COAX, PLATINUM,1000'	
EC132512	CABLE, 8 COND, 1 COAX, PLATINUM, 1200'	

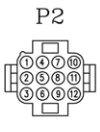
CONFIGURATION LIST

PART NO.	DESCRIPTION	NOTES
WM305	CABLE ASSY, M/C, 12 P, PLATINUM CABLE, 1000'	BASIC
WM305-1	CABLE ASSY, M/C, 12 P, PLATINUM CABLE 1200'	-1

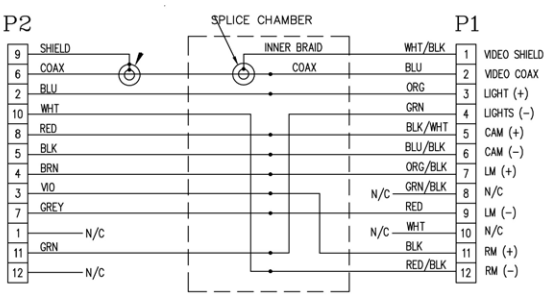
TRUCK MOUNTED PIPE RANGER, STEERABLE PIPE RANGER OR STEERABLE MUDMASTER CONFIGURATIONS ONLY. NOT COMPATIBLE WITH LAMP.



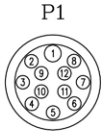
DOUBLE SHIELD PLATINUM CABLE



WIRE VIEW



WIRING DIAGRAM



FRONT VIEW

PLATINUM CABLE

CABLE ASSY,M/C,12P,IGGY,PLTNM,P/N WM305 continued



FIGURE 13



FIGURE 14



FIGURE 9



FIGURE 10



FIGURE 11



FIGURE 12



FIGURE 5



FIGURE 6



FIGURE 7



FIGURE 8

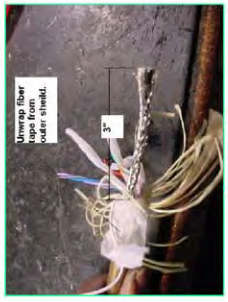


FIGURE 1



FIGURE 2



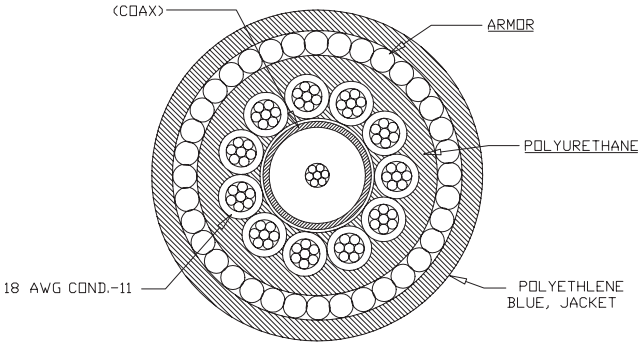
FIGURE 3

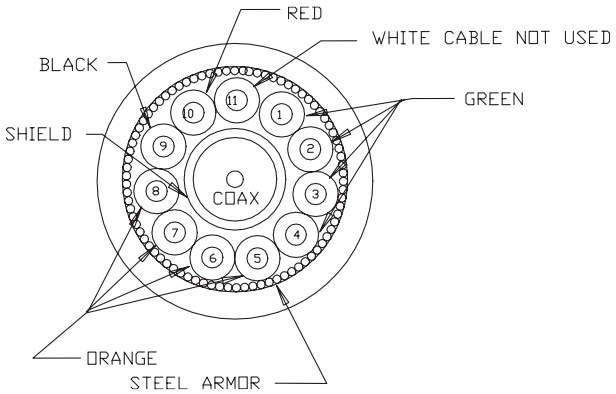


FIGURE 4

BLUE STEEL-ARMORED CABLE

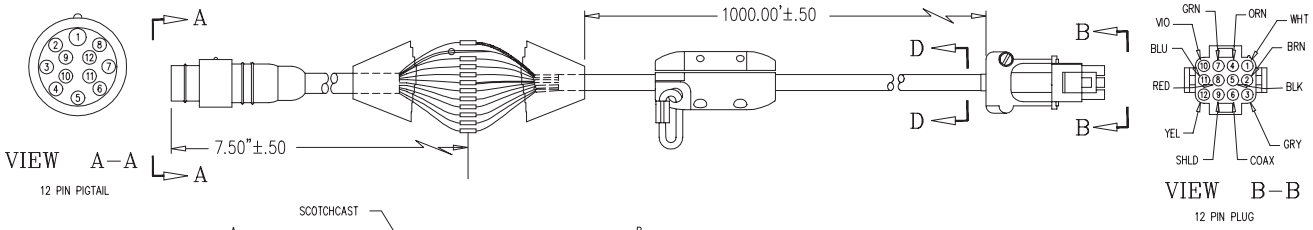
Multi-Conductor, Blue Steel Armor, P/N: 030554

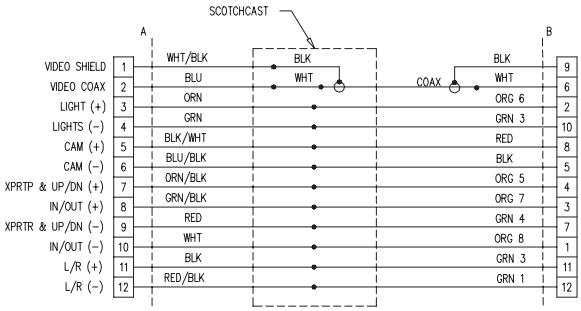


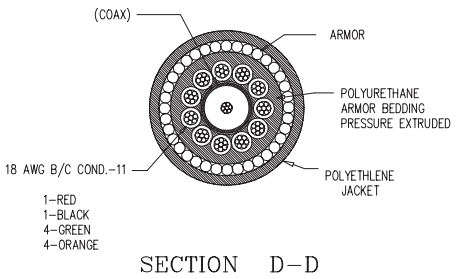


NOTES:
1. .585" MIN. - .598" MAX.
2. 5,000 POUNDS BREAKING STRENGTH.
3. 1,000 POUNDS MAXIMUM LOAD.
4. 269 LBS./MFT WEIGHT IN AIR.
5. 9" RECOMMENDED MIN. BEND RADIUS.
6. 20 PF/FT. COAX CAPACITANCE @ 1 MHZ.
7. 75 OHMS COAX IMPEDANCE @ 1 MHZ.
8. 9.1 DB/MFT. COAX ATTENUATION @ 10 MHZ.

Cable Assy, Steel Armored, M/C, 1000', w/12-pin, P/N: 030551

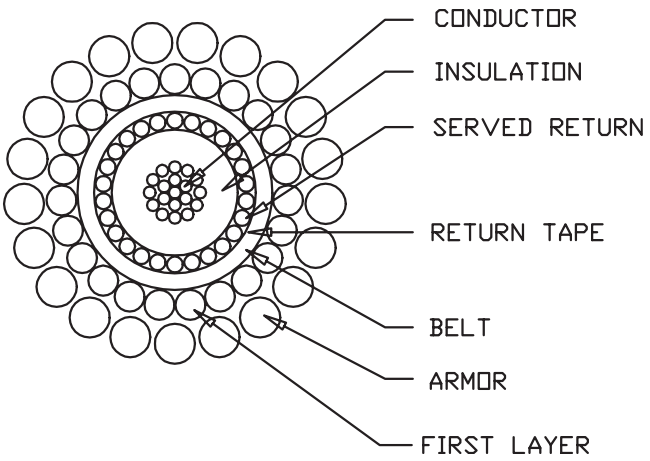




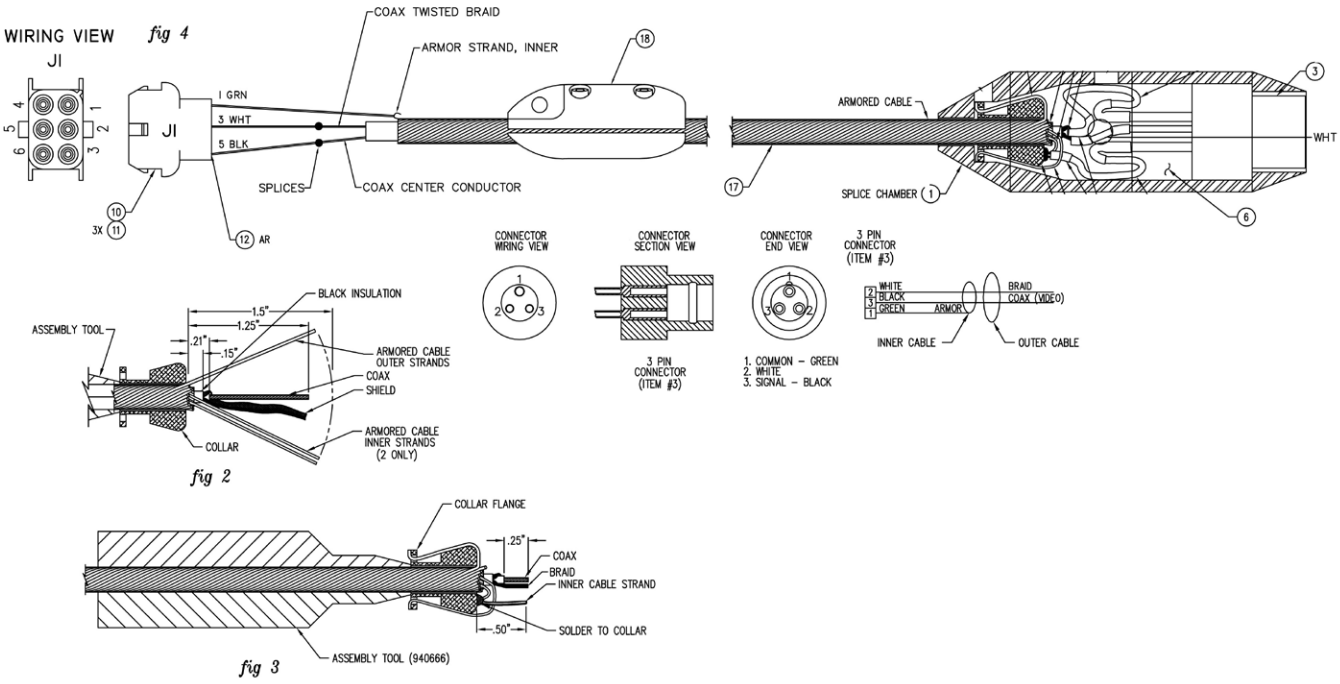


SINGLE-CONDUCTOR .250 CABLE

Single-Conductor, .25" Diameter, P/N: 030577

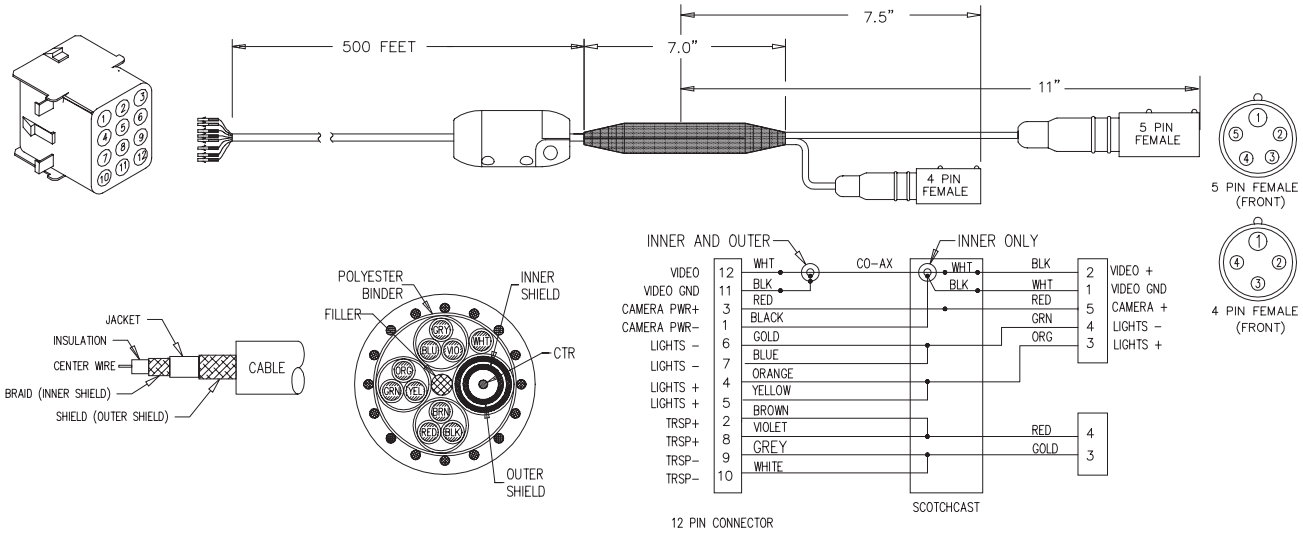


Cable Assy, S/C Shorty, 2000', P/N: TR547



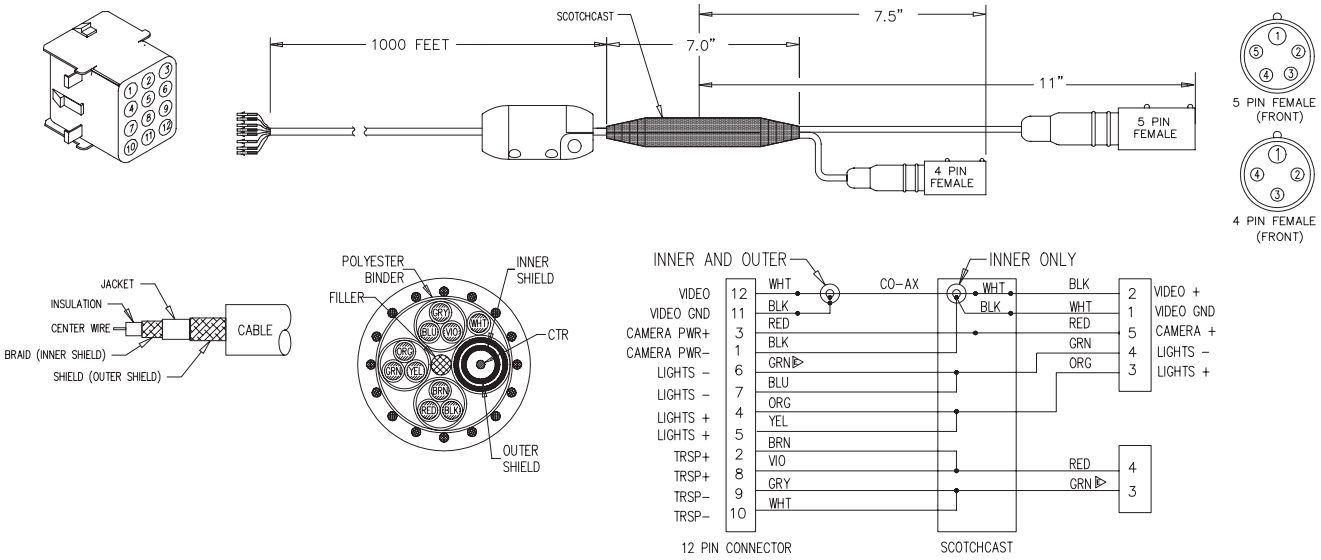
INSPECTOR GENERAL TV CABLES

Cable Assy,Iggy 500' W/Ends, P/N: SM200



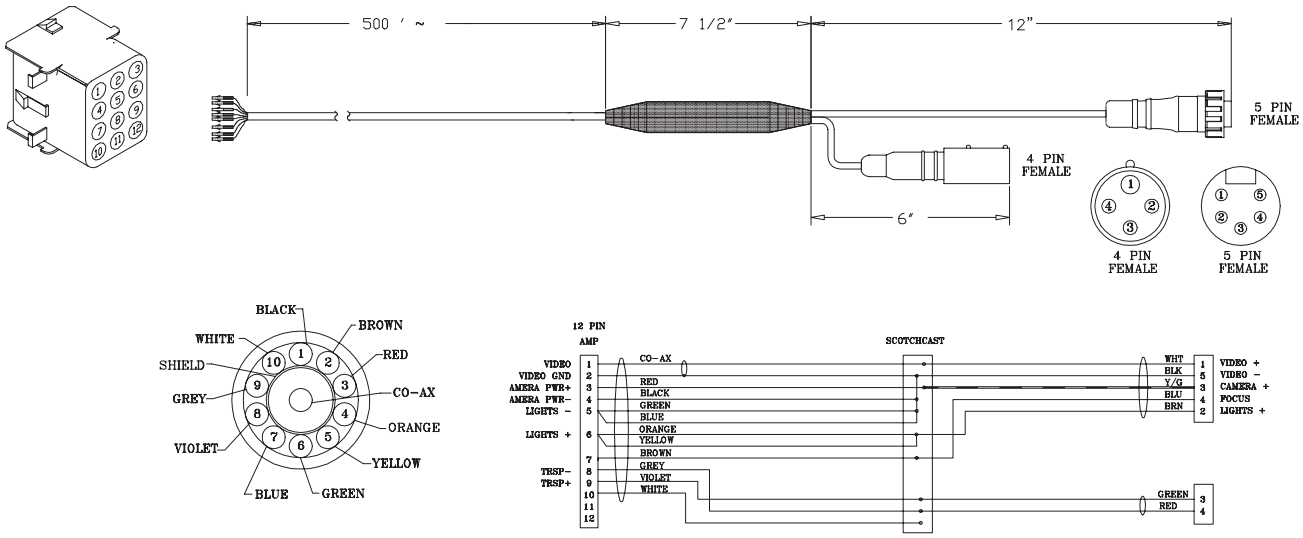
Cable Assy,Iggy 1000' W/Ends, P/N: SM201

Cable Assy, Iggy 1000', 12-pin, P/N SM201B (not shown)

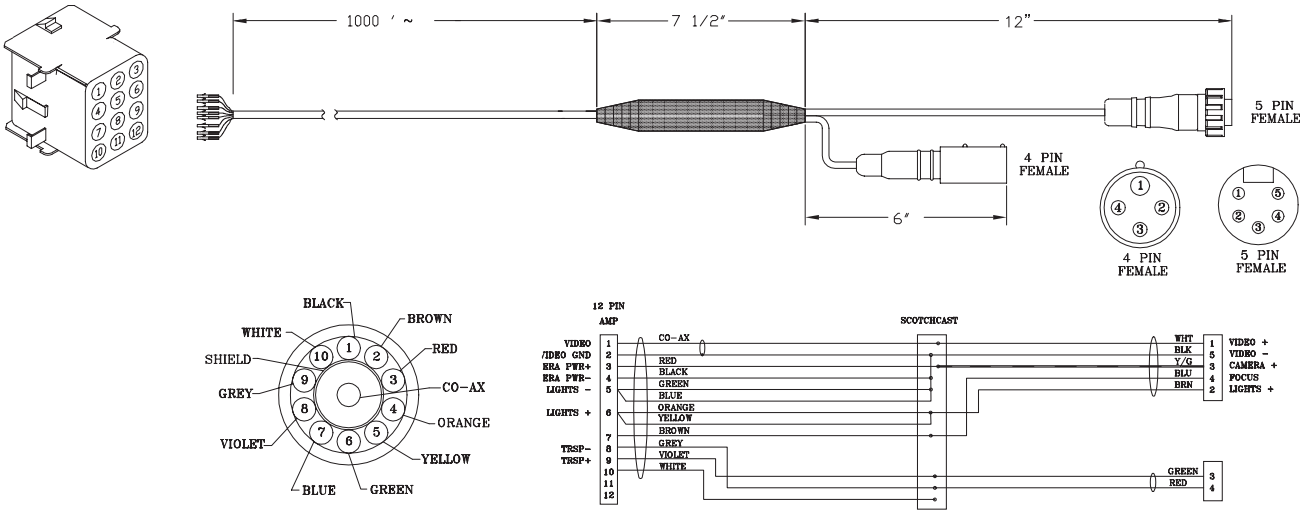


PROSCOUT MAINLINE TV CABLES FOR DOLLY

Cable Assy, PS Dolly, 500' w/Ends, P/N: DS305

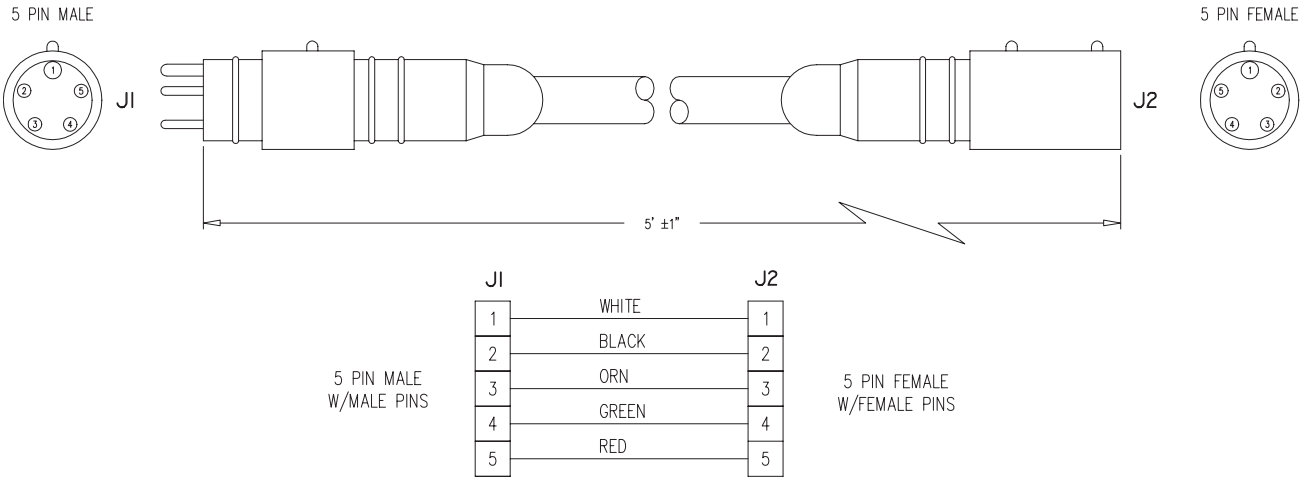


Cable Assy, PS Dolly, 1000' w/Ends, P/N: DS306

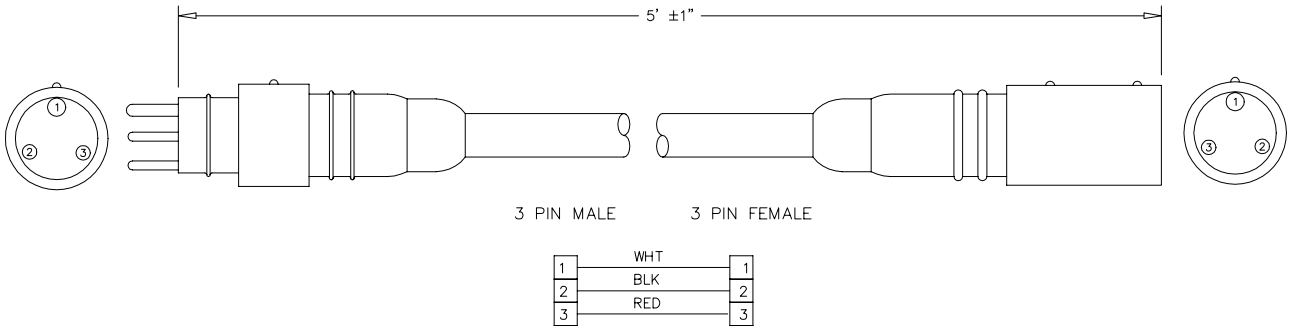


EXTENSIONS

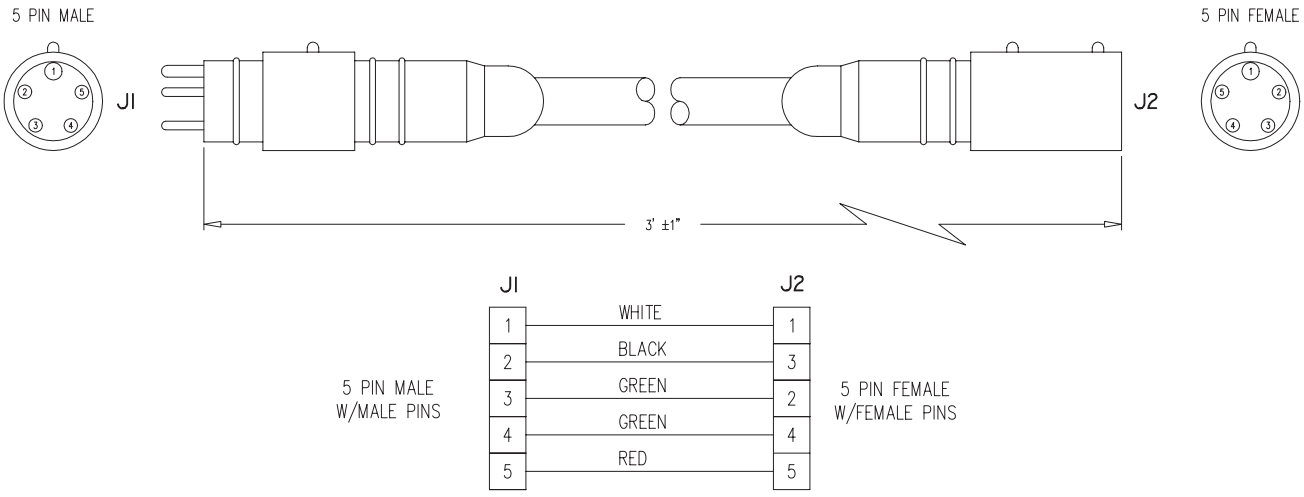
Cable,5ft Ext 5pin M To 5pin F, P/N: 713395



Cable,5ft Ext 3pin M To 3 Pin F, P/N: 160556

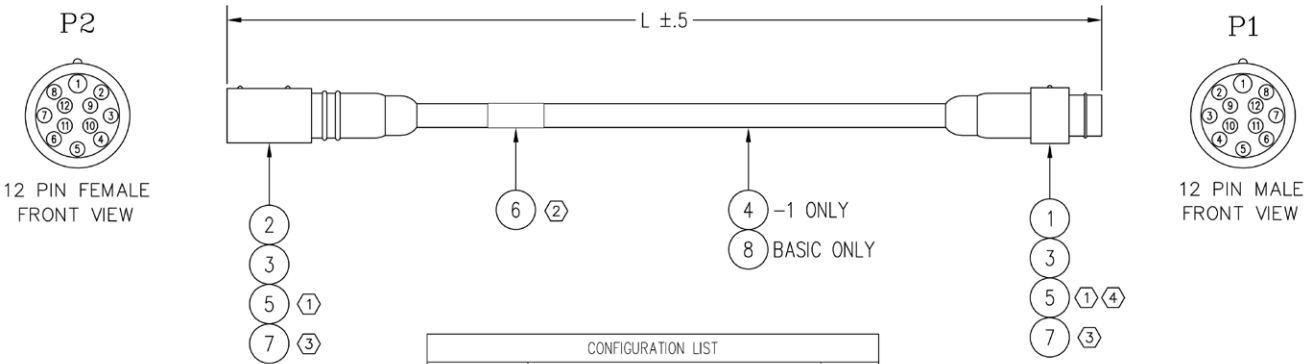


Cable,3'ext 5-Pin Male/Female, P/N: 7133961



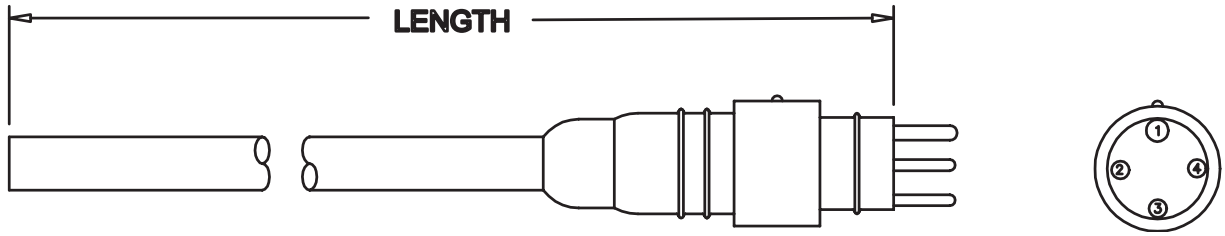
EXTENSIONS

ADAPTER CABLE,12P FEM-12P MALE,2FT, 770003



CONFIGURATION LIST		
PART NUMBER	DESCRIPTION	LENGTH "L" IN INCHES
770003	ADAPTER CABLE, 12P FEM-12P MALE, 2FT	24
770003-1	ADAPTER CABLE, 12P FEM-12P MALE, 19 INCH	19

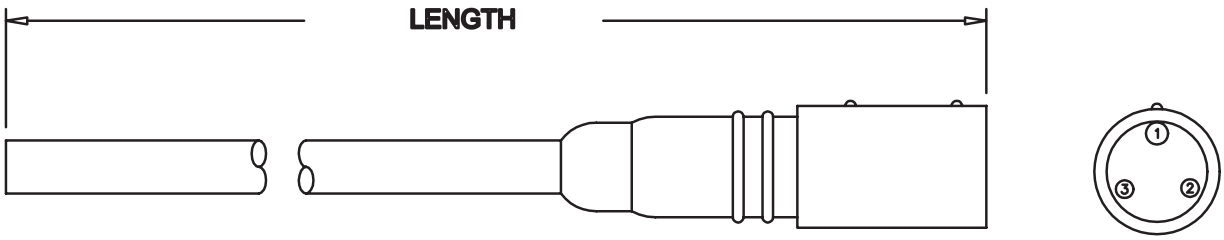
MALE PIGTAILS



4-pin MALE

DESCRIPTION	P/N	LENGTH (inches)
Pigtail,2-Pin Male	160522	24 +/- 1
Pigtail,3-Pin Male	160532	24 +/- 1
Pigtail,3-Pin,M>F F/S/C Scissor	770117	16 +/- .25
Pigtail,4-Pin Male 5'	160539	5 +/- 1
Pigtail,Male,4-Pin	160537	18 +/- 1
Pigtail,5-Pin Male	160552	20 +/- 1
Pigtail,5-Pin Male Gl20k5p-M	EC117	
Pigtail,5-Pin,M>F F/M/C Scissor	770116	19 +/- .25
Pigtail,5p-M,Small Dia Cable,Koala	TK044	36
Pigtail,6-Pin Male F/Mini Scout	160560	18 +/- 1
Pigtail,7pin Male,90,3',Brad H.	EL953	
Pigtail,8pin-Male Right Angle,2mlg	EC281	
Pigtail,12-Pin Male 90,3',Brad H.	EL927	
Pigtail,12-Pin Male,Lumberg	RT120	
Pigtail,12pin,Male,Bradh 47408	EC302	
Pigtail,12pin,Male,W/Female Pin	770001	10 +/- 1
Pigtail,Cable 6-Pin To Mini-Cam	160558	12

FEMALE PIGTAILS

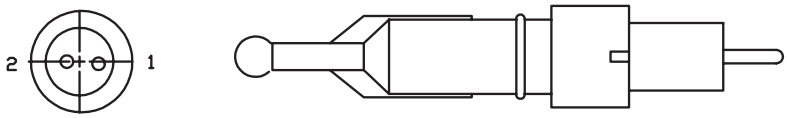


3-pin FEMALE

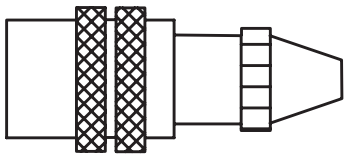
DESCRIPTION	P/N	LENGTH (inches)
Pigtail,2-Pin Female	160521	32 +/- 1
Pigtail,2p-F,32"Lg,Rover	160521R	
Pigtail,3-Pin Female	160531	18 +/- 1
Pigtail,3-Pin Female Bh	715088	
Pigtail,3-Pin,M>F F/S/C Scissor	770117	16 +/- .25
Pigtail,3pin Pico,Female,Rev Sex	EC217	
Pigtail,4-Pin Female	160534	12 +/- 1
Pigtail,4-Pin Female Polyurethane	160565	18 +/- 1
Pigtail,5-Pin Female	160551	43 +/- 1
Pigtail,5-Pin Male Gl20k5p-M	EC117	
Pigtail,5-Pin,M>F F/M/C Scissor	770116	18 +/- 1
Pigtail,Reel,5pin,Female/Proscout	7129	
Pigtail,Micro,5pin,F,Str.,22awg,15m	EL732	
Pigtail,6-Pin Female Small	160555	
Pigtail,Cable 6-Pin Female	160561	18 +/- 1
Pigtail,Cable 6-Pin To Mini-Cam	160558	12
Pigtail,8-Cond Slipring 1200	7308660	
Pigtail,12 Pin,Female,W/Male Pins	770002	30 +/- 1
Pigtail,12-Cond Slipring 1200	7308680	
Pigtail,12-Pin Female,90,3',Brad H.	EL928	
Pigtail,12-Pin Female,Lumberg	RT119	
Pigtail,Reel,5pin,Female/Proscout	7129	

DUMMY PLUGS

MALE:



FEMALE:



DESCRIPTION	P/N
Dummy Plug,2-Pin Female	1606230
Dummy Plug,2-Pin Male	160523
Dummy Plug,3-Pin Male	160533
Dummy Plug,4-Pin Male	160536
Dummy Plug,5-Pin Male	160553
Dummy Plug,6-Pin Male	160545
Dummy Plug,F/Transporter Cable	160013
Dummy Plug,Female W/Male Pins(12)	MS035
Dummy Plug,Shorting,3-Pin Male	160656

Camera Identification Sheet

The following pictures are for identification purposes only. For camera lightheads, please refer to the Lightheads section. If you have any questions or need more information regarding your CUES Camera, please contact CUES Customer Service at 1-800-327-7791.

PHOTO	DESCRIPTION	P/N
	CAMERA ASSY,NTSC,OZ,M/C CAMERA ASSY,PAL,OZ,M/C CAMERA ASSY,NTSC,OZ,S/C2000 CAMERA ASSY,NTSC,OZ,S/C 2000 NPR CAMERA ASSY,NTSC,90°,OZ CAMERA ASSY,PAL,OZ,M/C,INCL CAMERA,OPT ZOOM,NTSC,INCL(23.5KHZ)	OZ330 OZ330-1 OZ330-2 OZ330-3 OZ330-4 OZ330-5 OZ331
	CAMERA ASSY,M/C,OZIII CAMERA ASSY,M/C,OZIII,PAL CAMERA ASSY,M/C,OZIII,PAL,LED CAMERA ASSY,S/C,OZ III,PAL CAMERA ASSY,M/C,OZIII,SONDE CAMERA ASSY,OZIII,M/C,SONDE,LED&LSR CAMERA ASSY,M/C,OZIII,SONDE,LED CAMERA ASSY,M/C,SONDE,NONZOOM CAMERA ASSY,S/C,OZIII,SONDE CAMERA ASSY,M/C,OZIII,INCLINOMETER CAMERA ASSY,M/C,OZIII,INCLIN,LED CAMERA ASSY,M/C,OZIII,INCL,LED,NOZM CAMERA ASSY,M/C,OZIII,SOND/INCLIN CAMERA ASY,M/C,OZ3,SND/INCL/LED/LSR CAMERA ASY,S/C,OZ3,SND/INCL/LED/LSR CAMERA ASSY,M/C,OZIII,SND/INCL/LED CAMERA ASSY,M/C,OZIII,PAL,SONDE CAMERA ASSY,M/C,OZ3,PAL,INCL CAMERA,OZ3,M/C,PAL,SND,INC,LED/LSR CAMERA ASSY,M/C,OZIII,LED&LASER CAMERA ASSY,M/C,OZIII,LED CAMERA ASSY,M/C,OZIII,LED,NONZOOM CAMERA ASSY,S/C,OZIII,LED CAMERA ASSY,M/C,OZIII,NON-ZOOM CAMERA ASSY,S/C,OZIII	MZ300 MZ300-1 MZ300-1L MZ300-1SC MZ300-2 MZ300-2D MZ300-2L MZ300-2NZ MZ300-2SC MZ300-3 MZ300-3L MZ300-3LNZ MZ300-4 MZ300-4D MZ300-4DSC MZ300-4L MZ300-5 MZ300-6 MZ300-7D MZ300-D MZ300-L MZ300-LNZ MZ300-LSC MZ300-NZ MZ300-SC

Camera Identification Sheet

The following pictures are for identification purposes only. For camera lightheads, please refer to the Lightheads section. If you have any questions or need more information regarding your CUES Camera, please contact CUES Customer Service at 1-800-327-7791.

PHOTO	DESCRIPTION	P/N
	CAMERA ASSY,M/C,OZ II	CZ300
	CAMERA ASSY,S/C,OZ II	CZ300-1
	CAMERA ASSY,M/C,PAL,INCL,OZ II	CZ300-10
	CAMERA ASSY,M/C,PAL,INCL,LED,OZ II	CZ300-10L
	CAMERA ASSY,M/C,PAL,INCL,LED,NON-ZM	CZ300-10LNZ
	CAMERA ASSY,M/C,PAL,INC,LED,SND,OZ2	CZ300-10LS
	CAMERA ASSY,M/C,PAL,INCL,NON-ZOOM	CZ300-10NZ
	CAMERA ASSY,M/C,PAL,INCL,SONDE,OZII	CZ300-10S
	CAMERA,M/C,PAL,INCL,LSR DIO,SND,OZ2	CZ300-10SD
	CAMERA ASSY,M/C,LSR,OBS>CZ300-D	CZ300-11
	CAMERA ASSY,M/C,LSR DIODE,OZII,PRTO	CZ300-11P
	CAMERA ASSY,S/C,LED,OZ II	CZ300-1L
	CAMERA ASSY,S/C,LED,NON-ZOOM	CZ300-1LNZ
	CAMERA ASSY,S/C,LED,NO-ZM,SND,OZII	CZ300-1LS
	CAMERA ASSY,S/C,NON-ZOOM	CZ300-1NZ
	CAMERA ASSY,S/C,SONDE,NON-ZOOM	CZ300-1NZS
	CAMERA ASSY,S/C,SONDE,OZ II	CZ300-1S
	CAMERA ASSY,M/C,W/INCL,OZII	CZ300-2
	CAMERA ASSY,M/C INC,LSR DIODE,OZII	CZ300-2D
	CAMERA ASSY,M/C,W/INCL,LED,OZ II	CZ300-2L
	CAMERA ASSY,M/C,W/INCL,LED,NON-ZOOM	CZ300-2LNZ
	CAMERA ASSY,M/C,INCL&SND,LED,NONZM	CZ300-2LNZS
	CAMERA ASSY,M/C,W/INCL&SND,LED,OZII	CZ300-2LS
	CAMERA ASSY,M/C,W/INCLIN,NON-ZOOM	CZ300-2NZ
	CAMERA ASSY,M/C,INCL&SND,NON-ZOOM	CZ300-2NZS
	CAMERA ASSY,M/C,W/INCL & SND,OZII	CZ300-2S
	CAMERA ASSY,M/C W/INCL,SND,LSR,OZII	CZ300-2SD
	CAMERA ASSY,S/C,W/INCL,OZ II	CZ300-3
	CAMERA ASSY,S/C,W/INCL,LED,OZ II	CZ300-3L
	CAMERA ASSY,S/C,W/INCL,LED,NON-ZOOM	CZ300-3LNZ
	CAMERA ASSY,S/C,W/INCL&SND,LED,OZII	CZ300-3LS
	CAMERA ASSY,S/C,W/INCLIN,NON-ZOOM	CZ300-3NZ
	CAMERA ASSY,S/C W/INCL,SND,OZII	CZ300-3S
	CAMERA ASSY,S/C,NPR,OZ II	CZ300-4
	CAMERA ASSY,S/C,NPR,LED,OZ II	CZ300-4L
	CAMERA ASSY,S/C,NPR,LED,NON-ZOOM	CZ300-4LNZ
	CAMERA ASSY,S/C,NPR,NON-ZOOM	CZ300-4NZ
	CAMERA ASSY,M/C,90°,OZ II	CZ300-5
	CAMERA ASSY,M/C,LSR,90°,MOVED PIN	CZ300-5D360
	CAMERA ASSY,M/C,90°,LED,OZ II	CZ300-5L
	CAMERA ASSY,M/C,90°,LED,NON-ZOOM	CZ300-5LNZ
	CAMERA ASSY,S/C,NON-ZOOM,SND,OZII	CZ300-5LS
	CAMERA ASSY,M/C,90°,NON-ZOOM	CZ300-5NZ
	CAMERA ASSY,M/C,90°,OZ II PROTOTYPE	CZ300-5P
	CAMERA ASSY,M/C,90°,SONDE,OZ II	CZ300-5S
	CAMERA ASSY,S/C,90°,OZ II	CZ300-6
	CAMERA ASSY,S/C,90°,LED,OZ II	CZ300-6L

Camera Identification Sheet

The following pictures are for identification purposes only. For camera lightheads, please refer to the Lightheads section. If you have any questions or need more information regarding your CUES Camera, please contact CUES Customer Service at 1-800-327-7791.

PHOTO	DESCRIPTION	P/N
	CAMERA ASSY,S/C,90°,LED,NON-ZOOM	CZ300-6LNZ
	CAMERA ASSY,S/C,90°,LED,SONDE,OZII	CZ300-6LS
	CAMERA ASSY,S/C,90°,NON-ZOOM	CZ300-6NZ
	CAMERA ASSY,S/C,90°,SONDE,OZII	CZ300-6S
	CAMERA ASSY,M/C,PAL,OZ II	CZ300-7
	CAMERA ASSY,M/C,PAL,LED,OZ II	CZ300-7L
	CAMERA ASSY,M/C,PAL,LED,NON-ZOOM	CZ300-7LNZ
	CAMERA ASSY,M/C,PAL,LED,SONDE,OZII	CZ300-7LS
	CAMERA ASSY,M/C,PAL,NON-ZOOM	CZ300-7NZ
	CAMERA ASSY,M/C,PAL,SONDE,OZII	CZ300-7S
	CAMERA ASSY,M/C,PAL,LSR DIO,SND,OZ2	CZ300-7SD
	CAMERA ASSY,S/C,PAL,OZ II	CZ300-8
	CAMERA ASSY,S/C,PAL,LED,OZII	CZ300-8L
	CAMERA ASSY,S/C,PAL,LED,NONZOOM	CZ300-8LNZ
	CAMERA ASSY,S/C,PAL,LED,SONDE,OZII	CZ300-8LS
	CAMERA ASSY,S/C,PAL,NON-ZOOM	CZ300-8NZ
	CAMERA ASSY,S/C,PAL,SONDE,OZII	CZ300-8S
	CAMERA ASSY,S/C,NPR,INCL,OZ II	CZ300-9
	CAMERA ASSY,S/C,NPR,W/INCL,LED,OZII	CZ300-9L
	CAMERA ASSY,S/C,NPR,INCL,LED NONZM	CZ300-9LNZ
	CAMERA ASSY,S/C,NPR,W/INCL,NONZM	CZ300-9NZ
	CAMERA ASSY,M/C,LASER DIODE,OZII	CZ300-D
	CAMERA ASSY,M/C,LED,NON-ZOOM	CZ300-LNZ
	CAMERA ASSY,M/C,SONDE,LED,OZII	CZ300-LS
	CAMERA ASSY,M/C,SONDE,NON-ZOOM	CZ300-NZS
	CAMERA ASSY,M/C,SONDE,OZII	CZ300-S
	CAMERA ASSY,M/C,LSR,SND,OZII	CZ300-SD
	CAMERA ASSY,M/C,LED,OZ II	CZ300L
	CAMERA ASSY,M/C,NON-ZOOM	CZ300NZ

Camera Identification Sheet

The following pictures are for identification purposes only. For camera lightheads, please refer to the Lightheads section. If you have any questions or need more information regarding your CUES Camera, please contact CUES Customer Service at 1-800-327-7791.

PHOTO	DESCRIPTION	P/N
	CAMERA,P&T,M/C,NTSC,NIGHTOWL,OBS HOUSING ASSY,CAMERA,PTII,NIGHTOWL CAMERA,P&T,S/C,NTSC,NIGHTOWL CAMERA,P&T,S/C,PAL,NIGHTOWL CAMERA,P&T,S/C,INCL.(23.5KHZ),OBS CAMERA,P&T,S/C,NPR,NIGHTOWL,OBS CAMERA,P&T,M/C,PAL,NIGHTOWL CAMERA,P&T,M/C,PAL,W/INCL,NIGHTOWL CAMERA,P&T,M/C,PAL,W/INCL.(23.5KHZ) CAMERA,P&T,M/C,NTSC,INCLI-5%,OBS CAMERA,P&T,M/C,NTSC,INCLI.(23.5)OBS CAMERA,P&T,M/C,PAL,INC,5% CAMERA,P&T,M/C,PAL,INC,(23.5KHZ)	NO300 NO302 NO310 NO311 NO312-1 NO320 NO330 NO340 NO340-1 NO351 NO351-1 NO351A NO351A-1
	CAMERA, PROSCOUT, PS2, OBS	PM304
	CAMERA, PROSCOUT, SW3 1/3/8 B/W, OBS	BW304
No Picture Available At This Time	CAMERA ASSY,REAR VIEW,CPR CAMERA ASSY,REAR VIEW,LAMPII CAMERA ASSY,REAR VIEW,P-LIFT,CPR CAMERA ASSY,REAR VIEW,SPR,NTSC CAMERA ASSY,REAR VIEW,SPR,PAL CAMERA ASSY,REAR VIEW,SMM,NTSC CAMERA ASSY,REAR VIEW,SMM,PAL	WM325 WM325-1 WM345 WS311 WS311-1 WS311-2 WS311-3

Camera Identification Sheet

The following pictures are for identification purposes only. For camera lightheads, please refer to the Lightheads section. If you have any questions or need more information regarding your CUES Camera, please contact CUES Customer Service at 1-800-327-7791.

PHOTO	DESCRIPTION	P/N
	CAMERA ASSY,SELF UPRIGHTING,NTSC CAMERA ASSY,NON ROTATE,NTSC CAMERA ASSY,SELF UPRIGHTING,PAL CAMERA ASSY,SLF UPRGHT,NTSC,22X24MM CAMERA ASSY,SLF-UP,NTSC,SND,22X24MM CAMERA ASSY,SLF UP,HI-PWR,NTSC,SND CAMERA ASSY,NON-ROT,NTSC,SND,HI-PWR CAMERA ASSY,SLF UP,HI-PWR,NTSC,SND CAMERA ASSY,SELF UP,HI-PWR,PAL,SND	SR300 SR300-2 SR300-4 SR300-6 SR300-7 SR300-8 SR300-9 SR300-9P SR300-10
	CAMERA, PS2,w/CX1, PROSCOUT PLUS, OBS	PM400
	CABLE ASSY,WELL CAMERA/LIGHT,M/C CAMERA ASSY,RVC,M/C,VERSA-WELL CAMERA ASSY,RVC,M/C,PAL,VERSA-WELL KIT, RVC, DOME	SW104 SW201 SW212 950131
No Picture Available At This Time	CAMERA, PROSCOUT, SW3 B/W w/CX1 CAMERA,PROSCOUT,SW3,B/W,W/CX1,PAL CAMERA, PROSCOUT, SW2 B/W w/CX1 CAMERA, PROSCOUT, PS1 CAMERA, PS1,w/CX1, PROSCOUT PLUS CAMERA, PROSCOUT, SW2 B/W CAMERA, PROSCOUT, PS3, NTSC CAMERA, PROSCOUT, Sonde, PS3	BW403 BW403P BW402 PL307 PL401 BW300 PS310 PS315

Controller Identification Sheet

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PHOTO	DESCRIPTION	P/N
	CONTROLLER,DUAL CUTTER,1000' CONTROLLER,DUALCUTTER,220V,1000' CONTROLLER,DUALCUTTER,1500' CONTROLLER,DUALCUTTER,220V,1500'	GK349 GK349-1 GK349-2 GK349-3
	CONTROLLER,P&T/NO,M/C,DSKMNT,NCP	310207
	CONTROLLER, FRONT/REAR SWITCH, LAMP	LT354
	CONTROLLER,CAMERA,S/A,OZ,M/C CONTROLLER,CAMERA,S/A,OZ,M/C(220V) CONTROLLER,CAM,S/A,S/C,OZII&III,220 CONTROLLER,CAMERA,S/A,OZ,S/C 2000 CONTROLLER,CAMERA,S/A,OZ II&III,S/C CONTROLLER,CAMERA,S/A,OZ,M/C,90° CONTROLLER,CAMERA,S/A,M/C,OZII&III CONTROLLER,CAM,S/A,M/C,OZII PROTOTY CONTROLLER,CAM,S/A,S/C2000,OZII&III CONTROLLER,CAM,S/A,S/C,OZII PROTOTY CONTROLLER,CAM,S/A,M/C,90°,OZII&III CONTROLLER,CAM,S/A,M/C,90°OZII,PRO. CONTROLLER,CAM,SA,S/C2K,90,OZII&III CONTROLLER,CAM,S/A,OZII&III,M/C,220	OZ302 OZ302-1 OZ302-10 OZ302-2 OZ302-3 OZ302-4 OZ302-5 OZ302-5P OZ302-6 OZ302-6P OZ302-7 OZ302-7P OZ302-8 OZ302-9
No Illustration Available At This Time	CONTROLLER,DSKMNT,M/C,OZII&OZIII CONTROLLER,DSKMNT,S/C,OZII&OZIII CONTROLLER,DSKMNT,M/C,OZ CONTROLLER,DSKMNT,S/C,OZ CONTROLLER,DSKMT,M/C,90°,OZII&OZIII CONTROLLER,DSKMT,S/C,90°,OZII&OZIII	MZ320 MZ320-1 MZ320-2 MZ320-3 MZ320-4 MZ320-5

Controller Identification Sheet

The following pictures are for identification purposes only. If you have any questions or need more information regarding your CUES controller, please contact CUES Customer Service at 1-800-327-7791.

PHOTO	DESCRIPTION	P/N
	CONTROLLER,TRNS,M/C,DKMT,110V,RESET CONTROLLER,TRNS,M/C,DKMT,220V,RESET CONTROLLER,TRNS,M/C,110V,SEP. AC/DC	MC320 MC320-1 MC320-2
	CONTROLLER,TRANS,M/C,S/A,110V,RESET CONTROLLER,TRANS,M/C,S/A,220V,W/RES	MC321 MC321-1
	CONTROLLER,P&T/NO,M/C,S/A,NCP CONTROLLER,P&T/NO,S/C,STAND ALONE	750198 750198S
	CONTROLLER,DESK-REEL & WINCH ASSY	750202
	CONTROLLER, MUDMASTER	TM059

Controller Identification Sheet

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PHOTO	DESCRIPTION	P/N
	CONTROLLER,STEERABLE MUDMASTER,1K CONTROLLER,STEERABLE MUDMASTER,1.5K CONTROLLER ASSY,SSM,.5K (220) CONTROLLER,STEERABLE MUDMASTER,2K CONTROLLER ASSY,SMM,1K,(220V) CONTROLLER ASSY,SMM,1.5K,(220V) CONTROLLER ASSY,SMM,2K,(220V) CONTROLLER,STEERABLE MUDMASTER,1.2K CONTROLLER ASSY,SMM,1.3K CONTROLLER ASSY,SMM,1.8K CONTROLLER ASSY,SMM,650'	TM603 TM603-1 TM603-10 TM603-2 TM603-3 TM603-4 TM603-5 TM603-6 TM603-7 TM603-8 TM603-9
No Illustration Available At This Time	CONTROLLER,DSKMNT,M/C,OBS>MZ320 CONTROLLER,DMT,SC,P&T/N,OBS>MZ320-1 CONTROLLER,DSKMNT,M/C,OBS>MZ320-2 CONTROLLER,DSKMNT,S/C,OBS>MZ320-3 CONTROLLER,DSKMT,M/C,90,OBS>MZ320-4 CONTROLLER,DSKMT,S/C,90,OBS>MZ320-5	CZ320 CZ320-1 CZ320-2 CZ320-3 CZ320-4 CZ320-5
No Illustration Available At This Time	CONTROLLER,S/A,M/C,P&T/NO/OZ CONTROLLER,S/A,S/C2000,P&T/NO/OZ CONTROLLER,S/A,M/C,90°,P&T/NO/OZII CONTROLLER,S/A,S/C,90°,P&T/NO/OZII CONTROLLER,S/A,220V,M/C,P&T/NO/OZII CONTROLLER S/A,SC2K,P&T/NO/OZII,NPR	CZ321-2 CZ321-3 CZ321-4 CZ321-5 CZ321-6 CZ321-8
	CONTROLLER,ASSY,KOALA TRANSPORTER	TK018

Controller Identification Sheet

TRUCK:	
CONTROLLER ASSY,TV REEL,W/CLUTCH	RL328
CONTROLLER ASSY,TV/SEAL,(N) 220V	SS344
CONTROLLER,TV CABLE REAR	491200-1
CONTROLLER,TV/SEAL REEL,(N) SS,115V	SS339
CONTROLLER,TV/SEAL,2 TV REEL	SS339-1
CONTROLLER,TRKMNT,K2,110V,PROTO	MD316-P
CONTROLLER ASSY,RL,K2,OBS>MD316-2	MD316
CONTROLLER ASSY,RL,TRUK>K2,110V,BLK	MD316-2
CONTROLLER ASSY,RL,TRK MNT,220V,BLK	MD316-3
ZOOMMASTER:	
CONTROLLER,NTSC/PAL/ZM-ENHANCER II	ZM350
REELS:	
CONTROLLER ASSY,REEL/WINCH,220V	TR381
CONTROLLER,DESK F/TV REEL(G)	750190
CONTROLLER,REEL 1200 REEL W/LIGHT	3100210
CONTROLLER,ASSY,F/H REELS	310206
CONTROLLER ASSY,WINCH,WALL MOUNT	RL378
CONTROLLER ASSY,REMOTE WINCH,HAND	RL379
CONTROLLER,REAR,RL,W/PAYOUT	RL380
CONTROLLER ASSY,REAR,RL,PYOUT&CLTCH	RL380-1
CONTROLLER,REAR,REEL,PAYOUT,BLACK	RL380-2
CONTROLLER,FRONT,RL/WINCH,PAYOUT	RL381
CONTROLLER,FRNT,RL/WINCH/CLTCH,OBS	RL381-1
CONTROLLER,REELMOUNT,CUTTER	RL010
CONTROLLER,2TV/CUTTER REEL W/FRONT	RL010-1
CONTROLLER ASSY,TV REEL,W/CLUTCH	RL328
CONTROLLER ASSY,TV/REEL,DUAL STACK	TR492
CONTROLLER ASSY,TV/HSE RL,TRKMNT,K2	MD690
CONTROLLER ASSY,TV/HSE RL,TRKMNT,K2	MD690-1
CONTROLLER,REM,HSE,TV/HSE,TRKMT,K2	MD691
WINCH:	
CONTROLLER ASSY,110V,WINCH LIS	LT014
CONTROLLER ASSY,220V,WINCH LIS	LT014-1
CONTROLLER,ELECT WINCH 220V	7501881
CONTROLLER,DESK,RL/WCH,/F/CLUTCH	RL322
CONTROLLER,RL/WCH,CLTCH,PAYOT,PROTO	RL322-1P
CONTROLLER,DESK-REEL & WINCH ASSY	750202
CONTROLLER,FRNT,RL/WINCH,W/CLTCH	RL381-1
CONTROLLER,FRONT,RL/WINCH,PAYOUT	RL381
CONTROLLER,REMOTE,ELECT WINCH	7501861

Controller Identification Sheet

MISCELLANEOUS	
CONTROLLER,MOTOR,110/115VAC 10AMP	310021
CONTROLLER,MOTOR,220V 10AMP	310031
CONTROLLER,P&T/NO,S/C,DESKMOUNT	310207S
CONTROLLER,TRANSP.,"OBS.USE MC320"	750185
CONTROLLER,TRANSP.OBS.USE MC321	750191
CONTROLLER,TRANSPORTER S/C,DESKMNMT	750195
CONTROLLER,P&T/NO,M/C,S/A,NCP	750198
CONTROLLER,P&T/NO,S/C,STAND ALONE	750198S
CONTROLLER ASSY,HAND,PCU,K2	MD300
CONTROLLER ASSY,LOGITECH WIRELESS	MD603
CONTROLLER ASSY,LOGITECH WIRED	MD604
CONTROLLER ASSY,LGITEC,WL,F710,OBS	MD629
CONTROLLER,NPR,REAR	NP303
CONTROLLER ASSY,CAMERA,QZ2	QE320
CONTROLLER ASSY,F/HANNAY PWR RL	TR1358
CONTROLLER ASSY,TRANS,PENDENT	TR603
CONTROLLER ASSY,HAND,REAR,S/C 2000	TR638

ADDITIONAL TRANSPORTERS	
CONTROLLER ASSY,LIFT,M/C,PR	WT326
CONTROLLER ASSY,LIFT,S/C,PR	WT326-1
CONTROLLER,TRAN,M/C DKMT,FT PD,220V	MC322-1
CONTROLLER,TRAN,M/C,DKMT,FT PD,110V	MC322
CONTROLLER,TRANS,F/FTSWTCH,S/C 2000	TR652
CONTROLLER,TRANSPORTER S/C,DESKMNMT	750195
CONTROLLER,TRANSPORTER,M/C S/A	TG002
CONTROLLER,TRANSPORTER,ROVER	RC001
CONTROLLER,ASSY,KOALA TRANSPORTER	TK018
CONTROLLER,FOOT TRANSPORTER	712307
CONTROLLER,S/C III,TRANSPORTER	SC305
CONTROLLER,S/CIII,CAM & STR TRACTOR	SC302
CONTROLLER,SA S/C TRANSPORTER	750137

Controller Identification Sheet

CUTTERS	
CONTROLLER,CURRAHEE II	BT300-2
CONTROLLER,CUTTER REEL,DESKMOUNT	RL011
CONTROLLER,CUTTER,DUAL(USE GK349)	KC049
CONTROLLER,DUAL CUTTER,1000'	GK349
CONTROLLER,DUAL,CUTTER,220V	KC049-1
CONTROLLER,DUALCUTTER,1500'	GK349-2
CONTROLLER,DUALCUTTER,220V,1000'	GK349-1
CONTROLLER,DUALCUTTER,220V,1500'	GK349-3
DOLLY	
SPEED,CONTROLLER,ASSY,DOLLY	SD350
LIS/LAMP:	
CONTROLLER, FRONT/REAR SWITCH, LAMP	LT354
CONTROLLER,RL,FRNT/REAR SWTCH,LAMP	LT394-2
CONTROLLER,RL,FRONT/REAR,LM2,BLK	LT394-3
CONTROLLER,FRNT/REAR SWTCH,LMP,220V	LT354-1
CONTROLLER,FRT/REAR SWTCH,>1000'LMP	LT354-2
CONTROLLER,REMOTE,ELECT WINCH	7501861

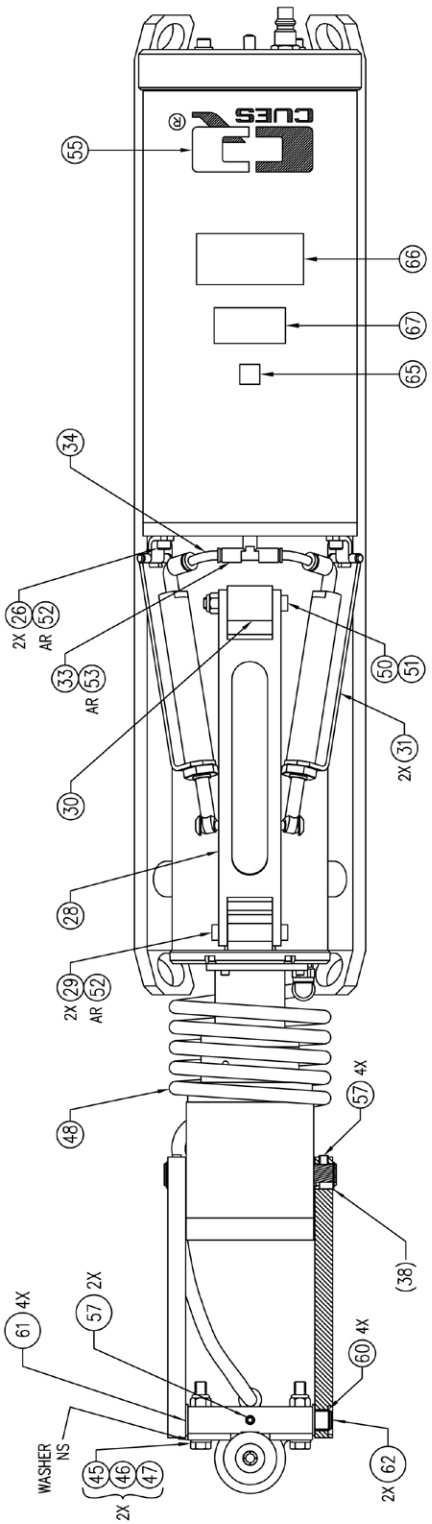


Figure 1a. Assembly Cutter, Giant Kangaroo, GK400

Giant Kangaroo

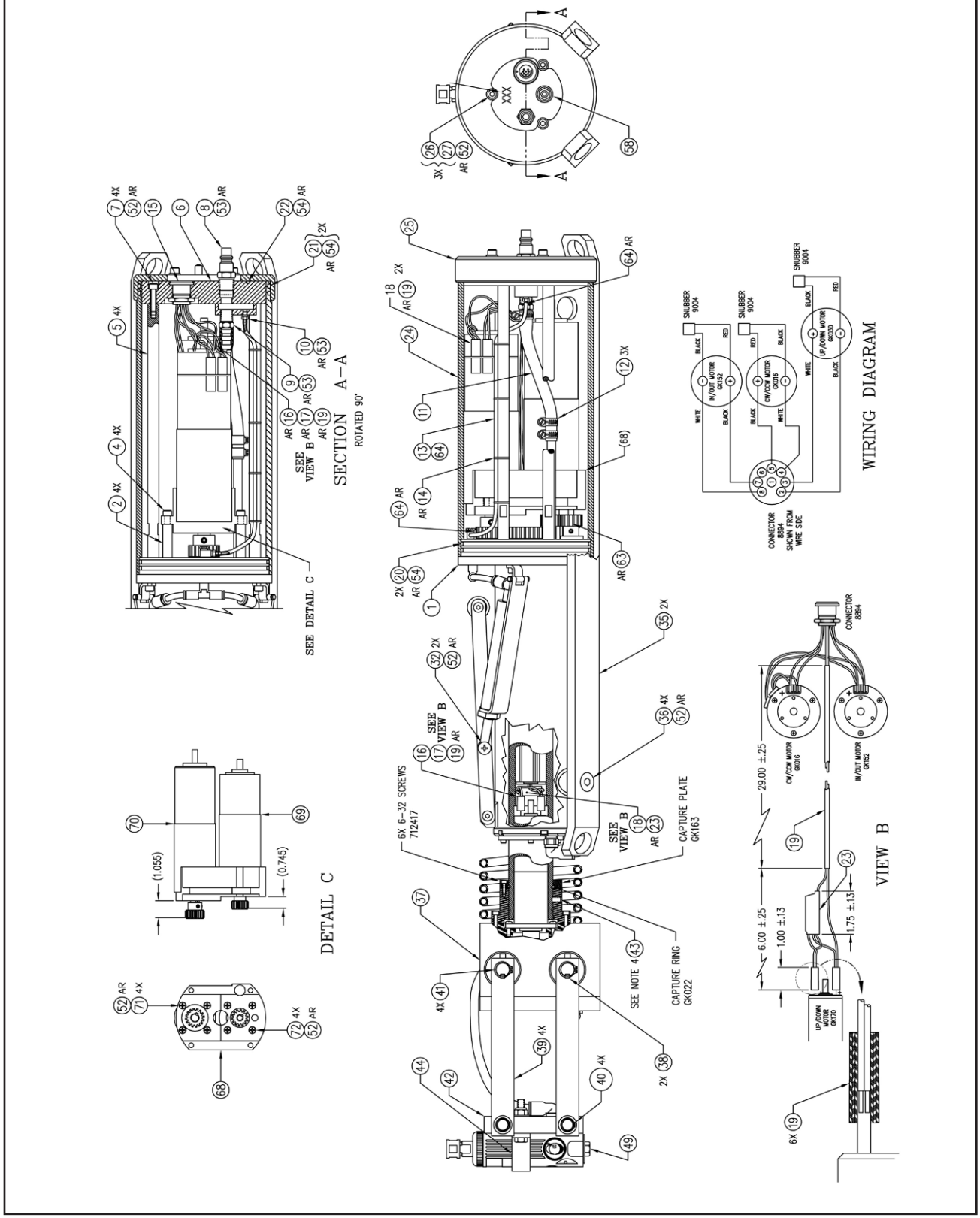


Figure 1b. Assembly Cutter, Giant Kangaroo, GK400

Assembly Cutter, Giant Kangaroo (See Fig. 1) Rev. J, P/N GK400			
Item #	Description	P/N	Qty
1	Housing Assy,Linear Drive	GK110	1
2	Standoff,Motor Mount	GK048	4
4	Screw,Cap,Skt Hd,1/4-20x3/4,Sst	101022	4
5	Standoff,Housing Mount	GK049	4
6	Plate,End	GK045	1
7	Screw,Cap,Skt Hd,1/4-20x1,Sst	101065	4
8	Fitting,Brass,Air,3/8"Npt	220492	1
9	Pushlock,Brass 3/8hx1/4mpt	114322	1
10	Fitting,Barbed	8824	1
11	Hose,Rubber,3/8id,250 Lb	10030	1
12	Clamp,Worm Scr,Sst,#6 .312wide 5/8	120602	3
13	Tubing,Black Flexible	8804	1
14	Mro-Cable	440309	1
15	Receptacle,8-Pin,Electric Connector	8894	1
16	Wire,#20 Black Stranded 600v	713317	3
17	Wire,#20 White Teflon 19 Stranded	161646	3
18	Snubber,Assy,F/Cutter	9004	3
19	Tube,Shrink,Black 3/16"Rnf	712577	1
20	O-Ring,2-254 Buna	HW799	2
21	O-Ring,2-255 Buna	HW800	2
22	O-Ring,2-154 Buna	HW801	1
23	Tube,Shrink,Black 3/8"Rnf	712586	1
24	Rear Tube,Giant Cutter	GK042	1
25	Plate,End	GK044	1
26	Screw,Cap,Skt Hd,1/4-20x5/8,Sst	101024	5
27	Washer,Flat,1/4"Sst	101736	3
28	Level,Brake	GK050	1
29	Screw,Shldr,(.313)	8807	2
30	Pad,Brake	GK066	1
31	Air Cylinder/Hinge Assy	GK058	2
32	Screw,Truss,1/4-20x3/4 Phil Sst	712449	2
33	Fitting,Tee,Quick Disconnect,5/32	HW791	1
34	Tubing,Plastic Black 5/32"	220683	1
35	Skid,Giant Kangaroo	GK057	2
36	Screw,Flat,Skt Hd,7/16-20x.75 Sst	HW763	4
37	Cutter Head Assy,Gcutter,New	GK414	1
38	Key,3/16 Sqr X .350 Lg	GK177	2
39	Arm,Elevator,Gk,New	GK173	4
40	Ring,Retaining External 1/2"	97501	4

Giant Kangaroo

Assembly Cutter, Giant Kangaroo (See Fig. 1) Rev. J, P/N GK400			
Item #	Description	P/N	Qty
41	Ring,Retaining,External,5/8"	97510	4
42	Plate,Mount,Air,Motor,Gk,New	GK172	1
43	Screw,Set,1/4-20x3/8 Nylock	101050	3
44	Clamp,Air Motor,Dia 1.610	GK036	1
45	Bolt,Hex,5/16-18x1 3/4 Gr5	101108	2
46	Washer,Flat,5/16 Sst	101741	2
47	Nut,Lock Nylon Insert 5/16-18plated	101143	2
48	Hose,Coiled	8931	5.84
49	Air Motor,Assembly	GK101	1
50	Screw,Shldr,Skt Hd,5/16x1 1/2 Lg	100508	1
51	Nut,Lock W/Nyl Ins 1/4-20 Sst	HW030	1
52	Mro-Removable Lck,Nd 121200-50,Blue	440061	1
53	Mro-Seal.Hgh Press,Nd 440400-50,Brn	445091	1
54	Mro-Lubricant,O-Ring 2 Oz Tube	439986	1
55	Label,Cues,2x4"	962036	1
56	Mro-Permanent Lock,Nd 140500-50,Red	440060	1
57	Screw,Set,1/4-20x1/4 Stl	100998	4
58	Valve,Purge,P&T	CP063	1
60	Bearing,Du,1/2x3/8,#08du06	HW439	4
61	Bearing,Thrust,Du,1/2id,#G06du	HW440	4
62	Shaft,Mount Plate,Gk,New	GK171	2
63	Mro-Grease,Heavy Duty Redman	440030	1
64	Mro-Adhes.Instant,Nd 310035-28,Clr	440094	1
65	Label,Lasertab Marker, .560 X .560	CS222	1
66	Label,Lasertab Marker,3.00 X 1.90	CS223	1
67	Label,Etl Mark,2" X 1"	CS224	1
68	Mount,Motor,Gk	GK047	1
69	Motor Assy,In/Out,Gk	GK402	1
70	Motor Assy,Rotational,Gk,New	GK403	1
71	Screw,Metric,Flat,Phil,M5x20mm,Ss	HW944	4
72	Screw,Metric,Flat,Phil,M5x25mm,Ss	HW943	4

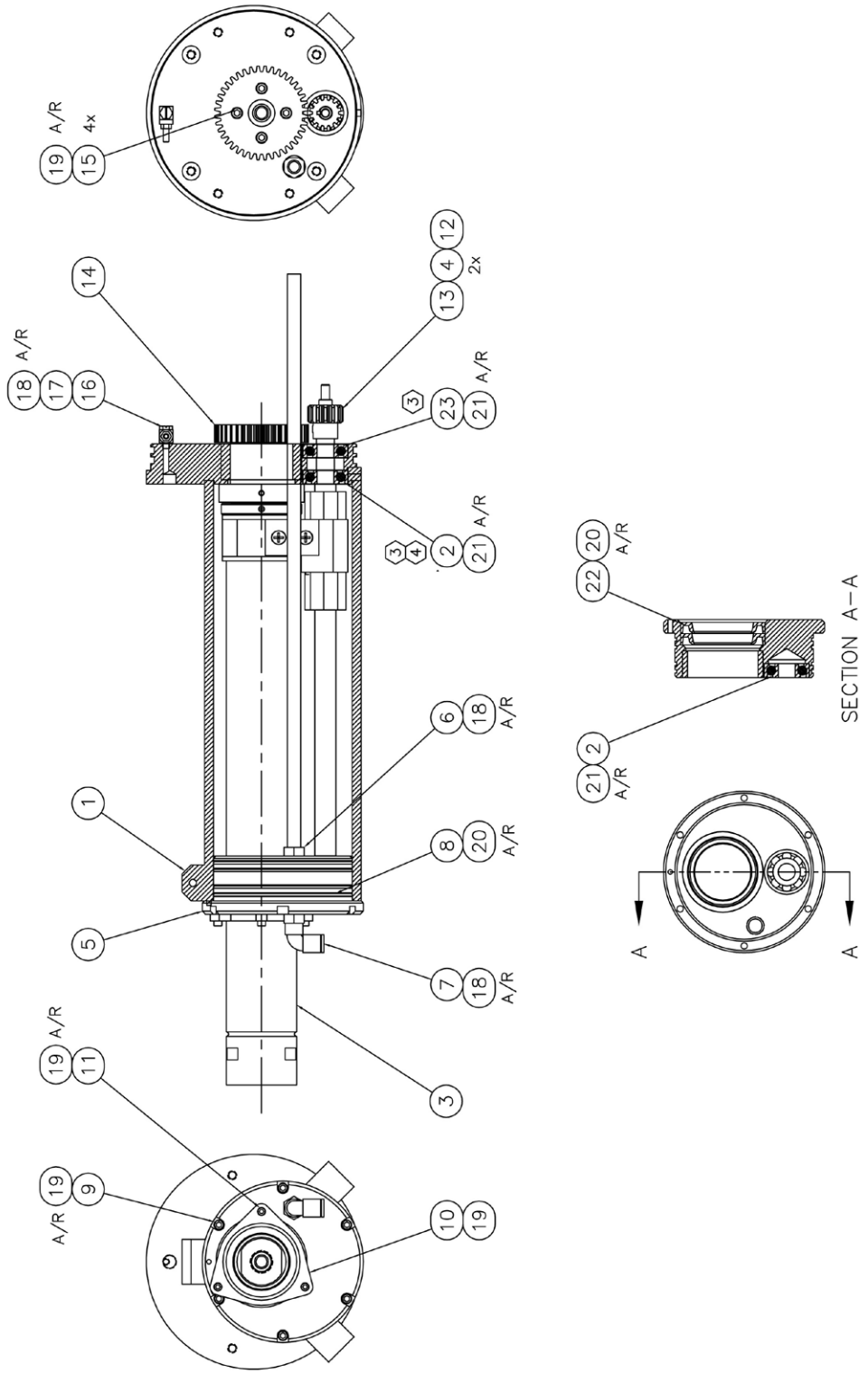


Figure 2. Housing Assembly, Linear Drive, GK110

Giant Kangaroo

Housing Assembly, Linear Drive (See Fig. 2) Rev. F, P/N GK110			
Item #	Description	P/N	Qty
1	Housing,Linear,Gk	GK041	1
2	Bearing,Anglr Cntct,12mm Idx32mm Od	HW1274	2
3	Linear Drive Assy,Giant Cutter	GK109	1
4	Keystock,3/32x.5 Long	8872	1
5	Front Plate,Linear Housing	GK043	1
6	Air Tube Assy	GK122	1
7	Fitting,Swivel,Male,90deg.1/4npt	HW430	1
8	O-Ring,2-044 Buna	HW802	4
9	Screw,Cap,Skt Hd,8-32x1/2,W/Nylo,Ss	101620	6
10	Plate,Retaining,Front Seal	GK046	1
11	Screw,Cap,Skt Hd,6-32x3/8,W/Nylo,Ss	101621	3
12	Screw,Set,10-32x1/8 Sst	101027	2
13	Gear,In/Out,Modified,Gk	GK149	1
14	Gear,Driven,Rotational,Gk,New	GK155	1
15	Screw,Cap,Skt Hd,10-32x3/4,Sst	100121	4
16	Fitting,Swivel	8823	1
17	Fitting,Barbed	8824	1
18	Mro-Seal.Hgh Press,Nd 440400-50,Brn	445091	1
19	Mro-Removable Lck,Nd 121200-50,Blue	440061	1
20	Mro-Lubricant,O-Ring 2 Oz Tube	439986	1
21	Mro-Superlube,3 Oz	HW039	1
22	Seal,Oil	GK121	2
23	Bearing,Ball,12mmx32mmx10mm Thk,Opn	HW1275	1

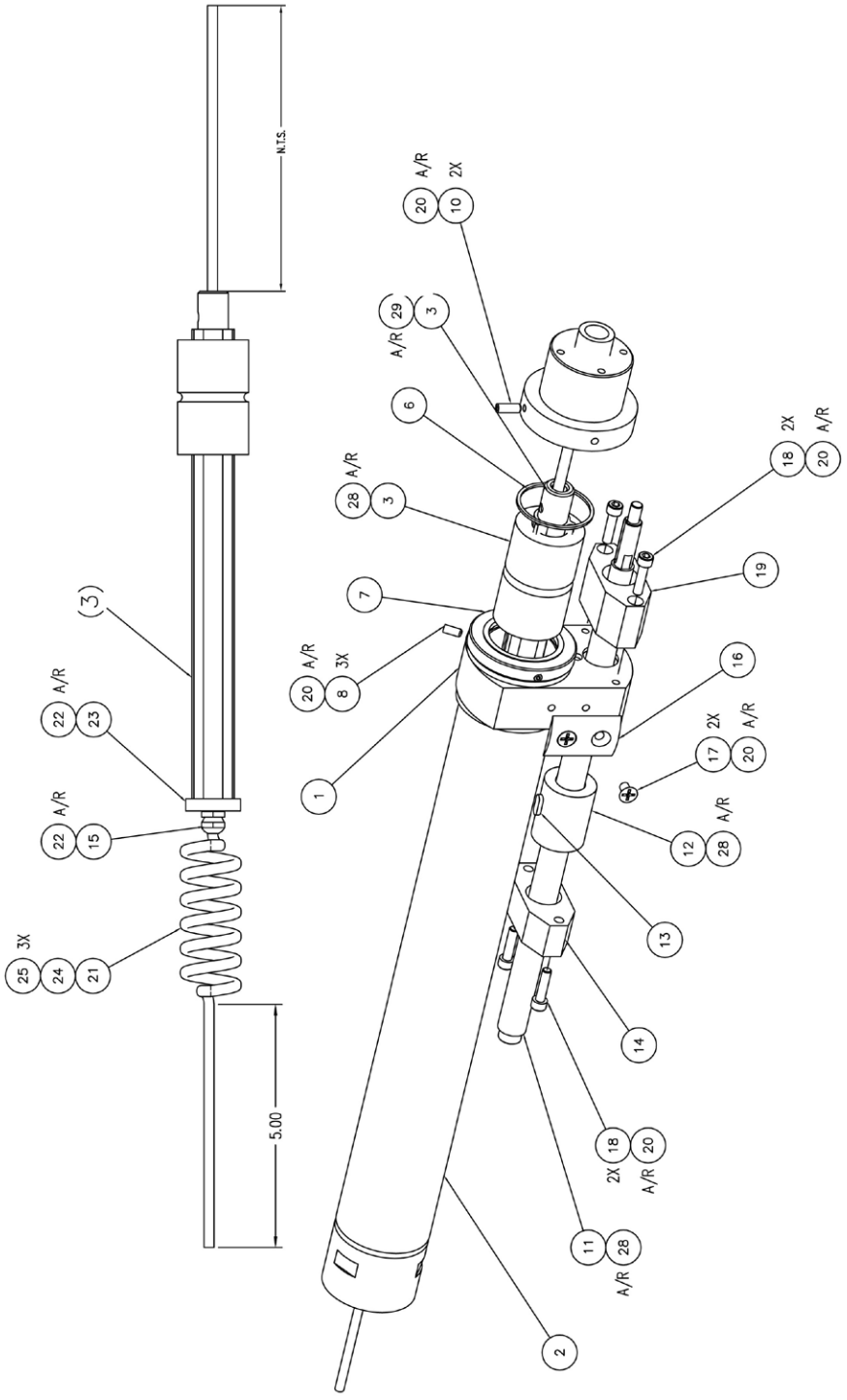


Figure 3. Linear Drive Assy, Giant Cutter, GK109

Giant Kangaroo

Linear Drive Assy, Giant Cutter (See Fig. 3) Rev. H, GK109			
Item #	Description	P/N	Qty
1	Carriage,Assy,Cutter	GK111	1
2	Shaft,Linear Rotational	GK019	1
3	Shaft Assy,Nut,Key Linear,Drive,Mod	GK055	1
6	Ring,Retaining,N5000-145	HW789	1
7	Collar,Linear Drive	GK054	1
8	Screw,Set,8-32x3/8 Sst	HW198	3
9	Mount,Gear,Driven,Rotational	GK056	1
10	Screw,Set,10-32x1/2 Sst	103042	2
11	Leadscrew,Modified,Gk	GK154	1
12	Nut,Ball Screw,16x5	HW787	1
13	Key,Nut,Ball Screw	GK131	1
14	Plate,Retaining,Ball Screw Nut	GK132	1
15	Strain Relief,Liquid Tight,10mm	HW1349	1
16	Plate,Guide	GK067	1
17	Screw,Flathead,10-32x5/16 Phil Sst	101426	2
18	Screw,Cap,Skt Hd,10-32x3/4,Sst	100121	4
19	Stop,Rear,Carriage,Gk,New	GK157	1
20	Mro-Removable Lck,Nd 121200-50,Blue	440061	1
21	Wire,#20 Black Stranded 600v	713317	1
22	Mro-Permanent Lock,Nd 140500-50,Red	440060	1
23	Stop Washer,Ball Spline,Gk,New	GK156	1
24	Wire,#20 White Bu	713326	1
25	Tube,Shrink,Black 3/16"Rnf	712577	3
28	Mro-Grease,Lithium,Artic Cat	CS218	1
29	Mro-Ret.Comp,.015gp,Nd541200-50,Grn	CS092	1

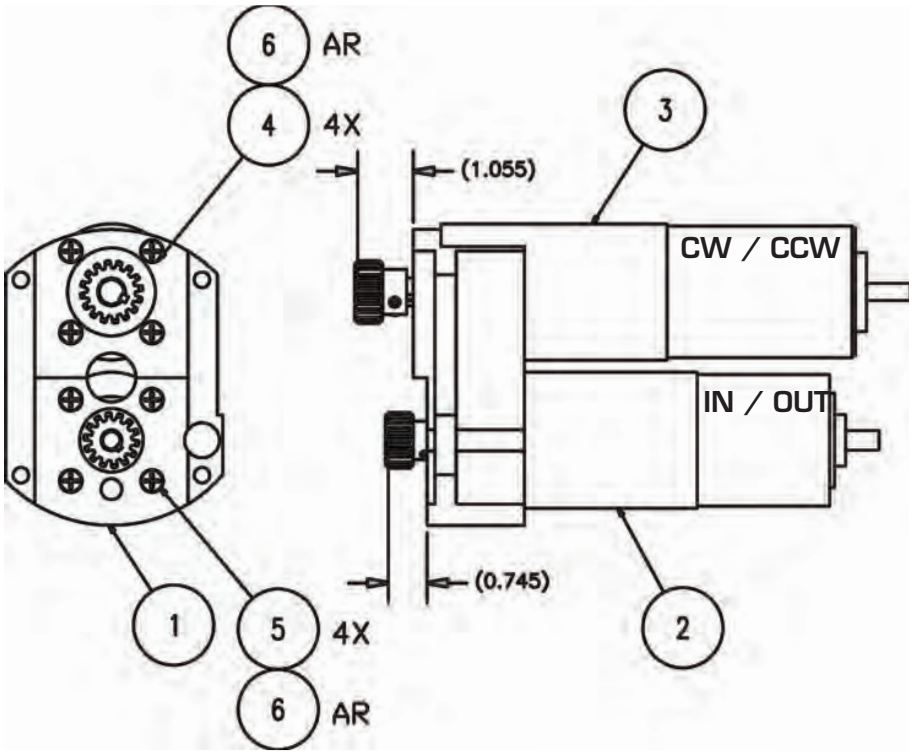
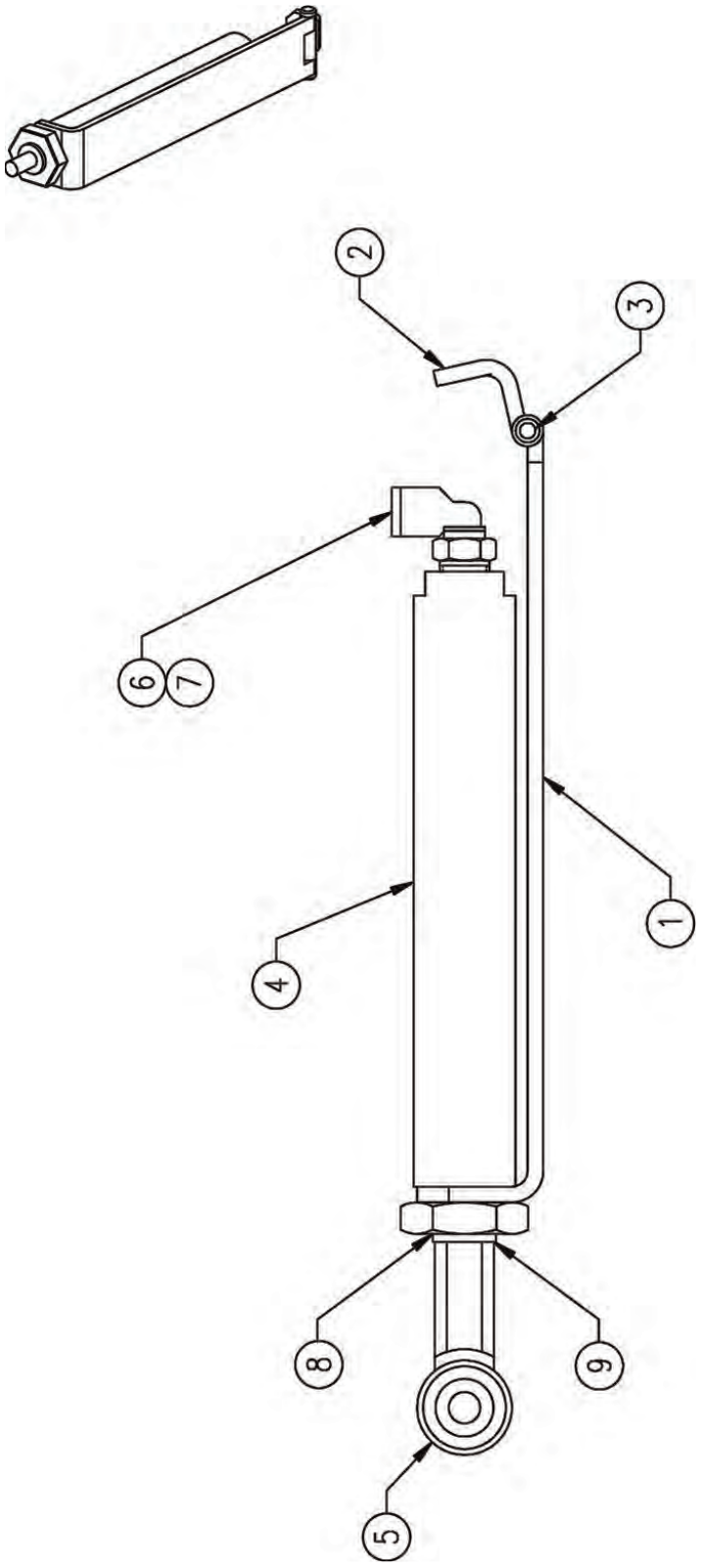


Figure 4. Motor Mount Assembly, GK401

Motor Mount Assy, Giant Cutter (See Fig. 4) Rev. A, GK401			
Item #	Description	P/N	Qty
-1	Mount, Motor, Gk	GK047	1
-2	Motor Assy, In/Out, Gk, New	GK402	1
-3	Motor Assy, Rotational, Gk, New	GK403	1
-4	Screw, Metric, Flat, Phil, M5x20mm, SS	HW944	4
-5	Screw, Metric, Flat, Phil, M5x25mm,SS	HW943	4
-6	MRO-Perma MM-115-035 Threadlock Bl	440061	1
EL312 - L & R + In & Out Motor EL281 - Up/down Motor			

Giant Kangaroo



Air Cylinder/Hinge Assembly (See Fig. 5) Rev. A, GK058			
Item #	Description	P/N	Qty
-1	· Hinge Bar, Air Cylinder, Brake	GK053	2
-2	· Hinge Plate, Air Cylinder, Brake	GK052	2
-3	· Pin, Spring, 1/8 X 1 Carbon Steel	097548	2
-4	· Air Cylinder, G.Cutter	GK117	2
-5	· Ball Joint, Air Cylinder	GK118	2
-6	· Elbow, 90 Degree, Quick Disconnect	HW806	2
-7	· MRO-Loctite 545 Hydraulic	445091	2
-8	· MRO-Loctite 242 Med Blue MM-115-042	440061	2

Figure 5. Air Cylinder/Hinge Assembly, GK058

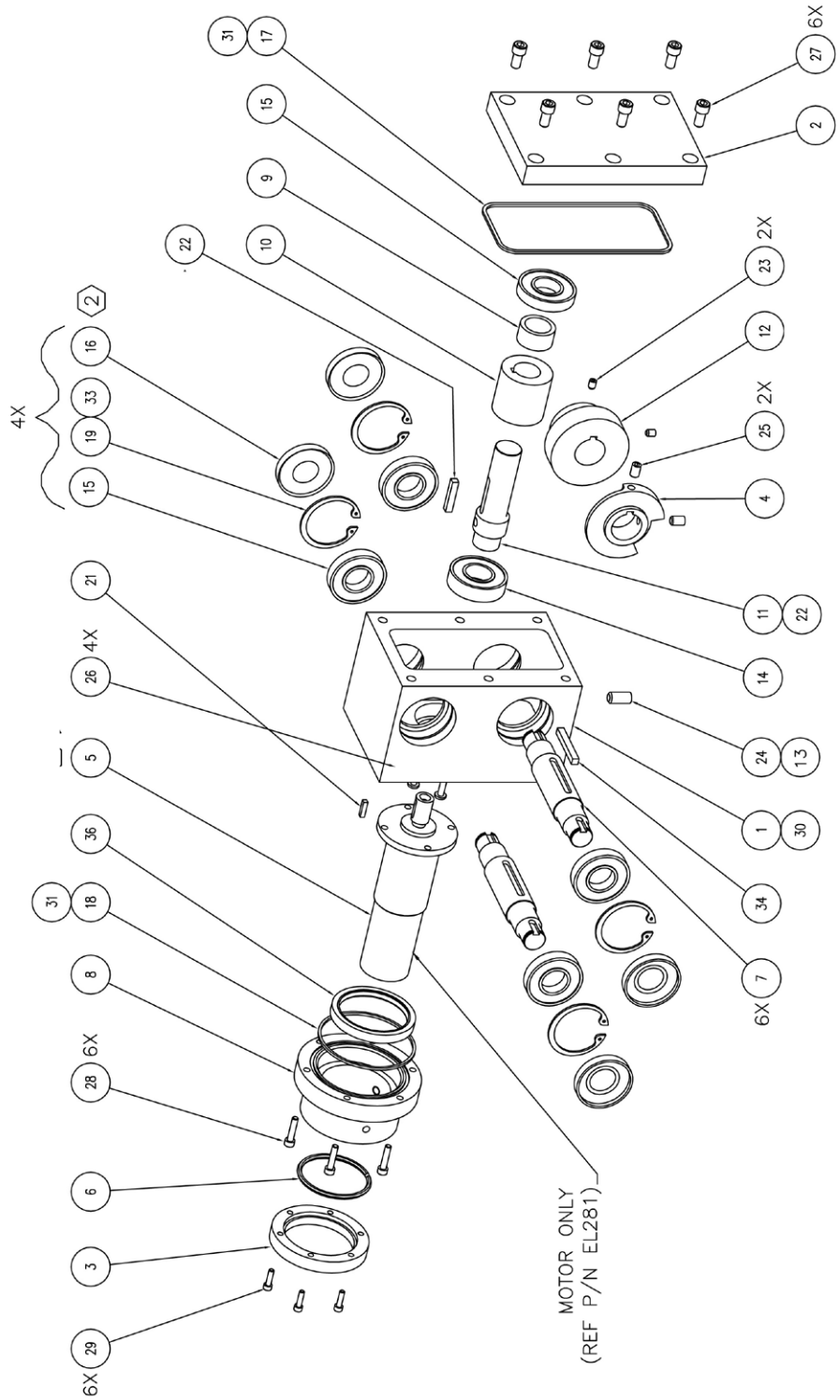


Figure 6. Cutter Head Assembly, Giant Cutter, GK414

Giant Kangaroo

Cutter Head Assy, Giant Cutter (See Fig. 6) Rev. J, GK414			
Item #	Description	P/N	Qty
1	Housing,Cutter,Head,Gk,New	GK161	1
2	Cover,Plate,Housing,Gk,New	GK164	1
3	Plate,Capture,Gk,New	GK163	1
4	Stop,Rotation,Gk,New	GK167	1
5	Motor/Gearbox Assy,Up/Down,989:1	GK405	1
6	Retaining Ring,Cutter Head	GK022	1
7	Shaft,Lift,Gk	GK165	2
8	Neck,Housing,Gear,Gk,New	GK169	1
9	Spacer,Worm,Gk	GK166	1
10	Worm,Quad,10dp	HW433	1
11	Shaft,Drive,Worm,Gk,New	GK168	1
12	Gear,Worm,20t,10db,Keyed	GK178	1
13	Mro-Wicking,Nd 150012-50,Green	440082	1
14	Bearing,Ball,3/4x1-5/8x7/16	HW437	1
15	Bearing,Ball,3/4x1-5/8x5/16	HW442	5
16	Seal,Single Lip,1-5/8x3/4x1/4	HW441	4
17	O-Ring,Buna,2-046	HW435	1
18	O-Ring,Ep 2-038	130141	1
19	Ring,Internal,N5000-162	HW436	4
20	Mro-Lubricant,O-Ring 2 Oz Tube	439986	1
21	Keystock,1/8"Sq X1/2lg,Zinc Plated	8874	1
22	Key,Square,3/16x1"Lg	TM658	1
23	Screw,Set,10-32x1/4 Sst	101000	2
24	Screw,Set,5/16-18x5/8 Steel	101100	1
25	Screw,Set,1/4-20x3/8 Knurl Plated	101052	2
26	Screw,Pan,8-32x1/2 Phil Sst	712876	4
27	Screw,Cap,Skt Hd,1/4-20x1/2,Sst	101001	6
28	Screw,Cap,Skt Hd,#8-32 X 3/4 Sst	HW809	6
29	Screw,Cap,Skt Hd,6-32x1/2,Sst	712417	6
30	Mro-Grease,Heavy Duty Redman	440030	1
31	Mro-Superlube,3 Oz	HW039	1
32	Mro-Removable Lck,Nd 121200-50,Blue	440061	1
33	Mro-Seal.Hgh Press,Nd 440400-50,Brn	445091	1
34	Key,3/16 Sqr X 1.50lg	GK176	1
36	Seal,Oil	GK121	1

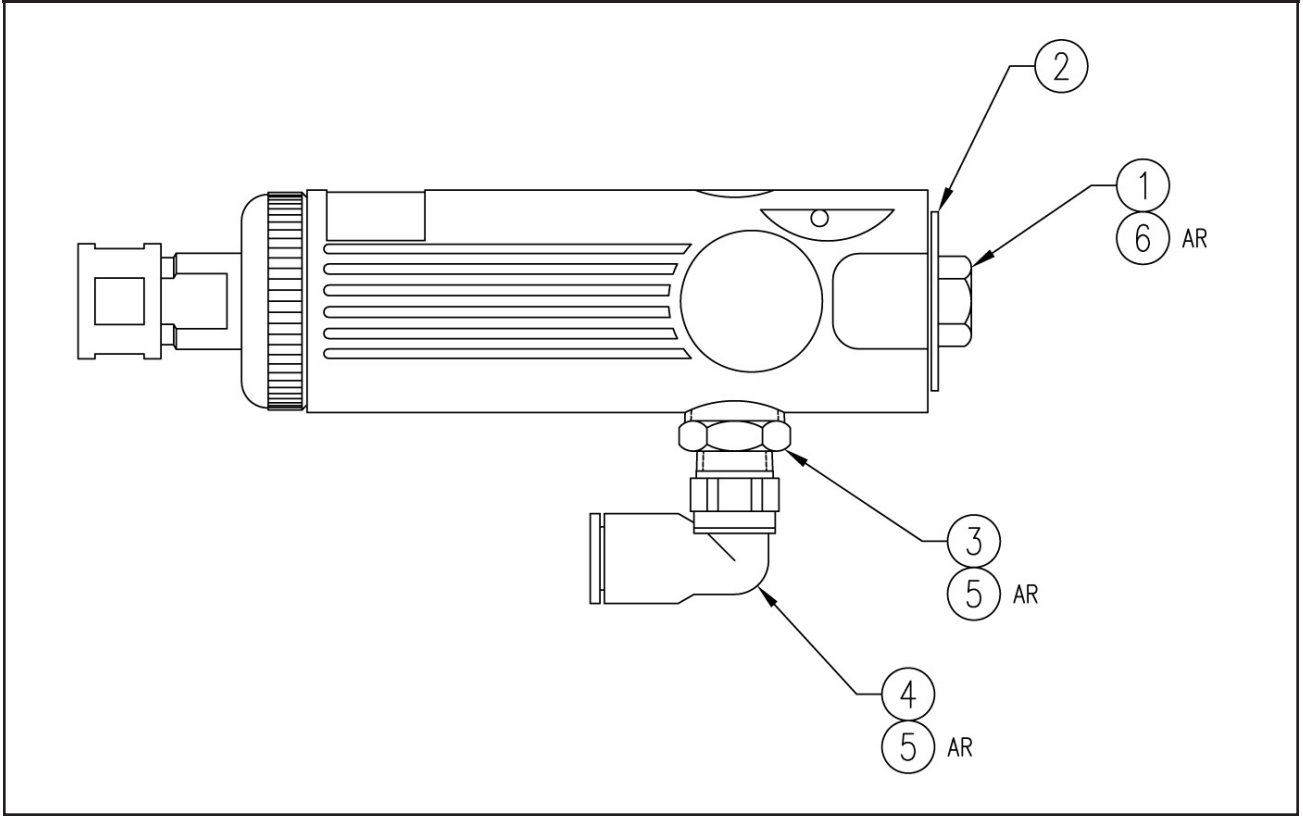


Figure 7. Air Motor Assembly, GK101

Air Motor Assembly (See Fig. 7) Rev. C, GK101			
Item #	Description	P/N	Qty
0001	BOLT,HEX,3/8-16X1 1/4 GR5 PL	101206	1
0002	WASHER,FENDER,MODIFIED	GK105	1
0003	BUSHING,3/8X1/4 RDC SST SCH40 T-304	113121	1
0004	FITTING,SWIVEL,MALE,90DEG.1/4NPT	HW430	1
0005	MRO-SEAL.HGH PRESS,ND 440400-50,BRN	445091	1
0006	MRO-REMOVABLE LCK,ND 121200-50,BLUE	440061	1
0007	MOTOR,AIR STRGT,25K-RPM,90PSI,1/2HP	GK103	1

Kangaroo

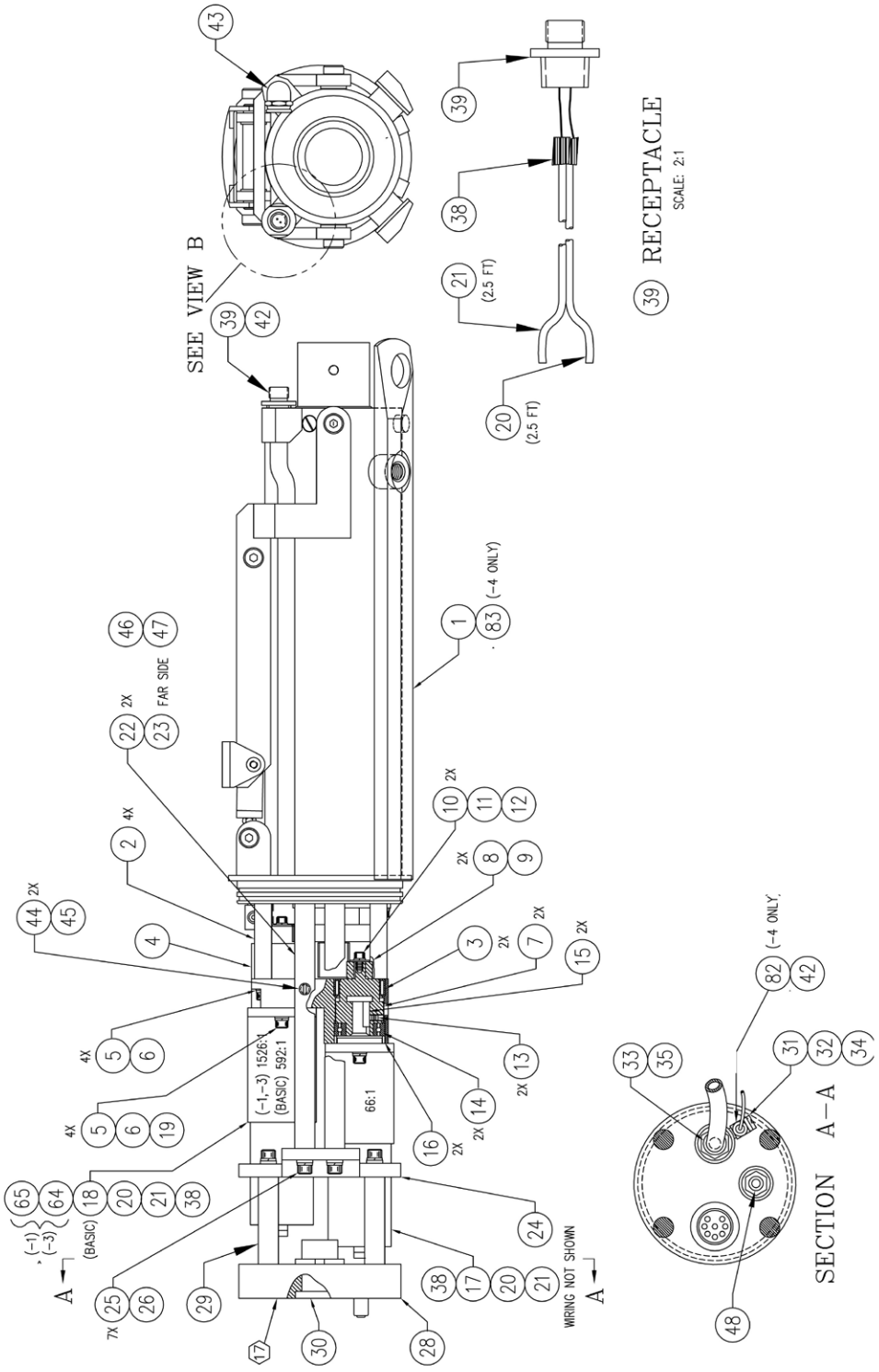


Figure 8a. KANGAROO Cutter Assembly, 9001LP

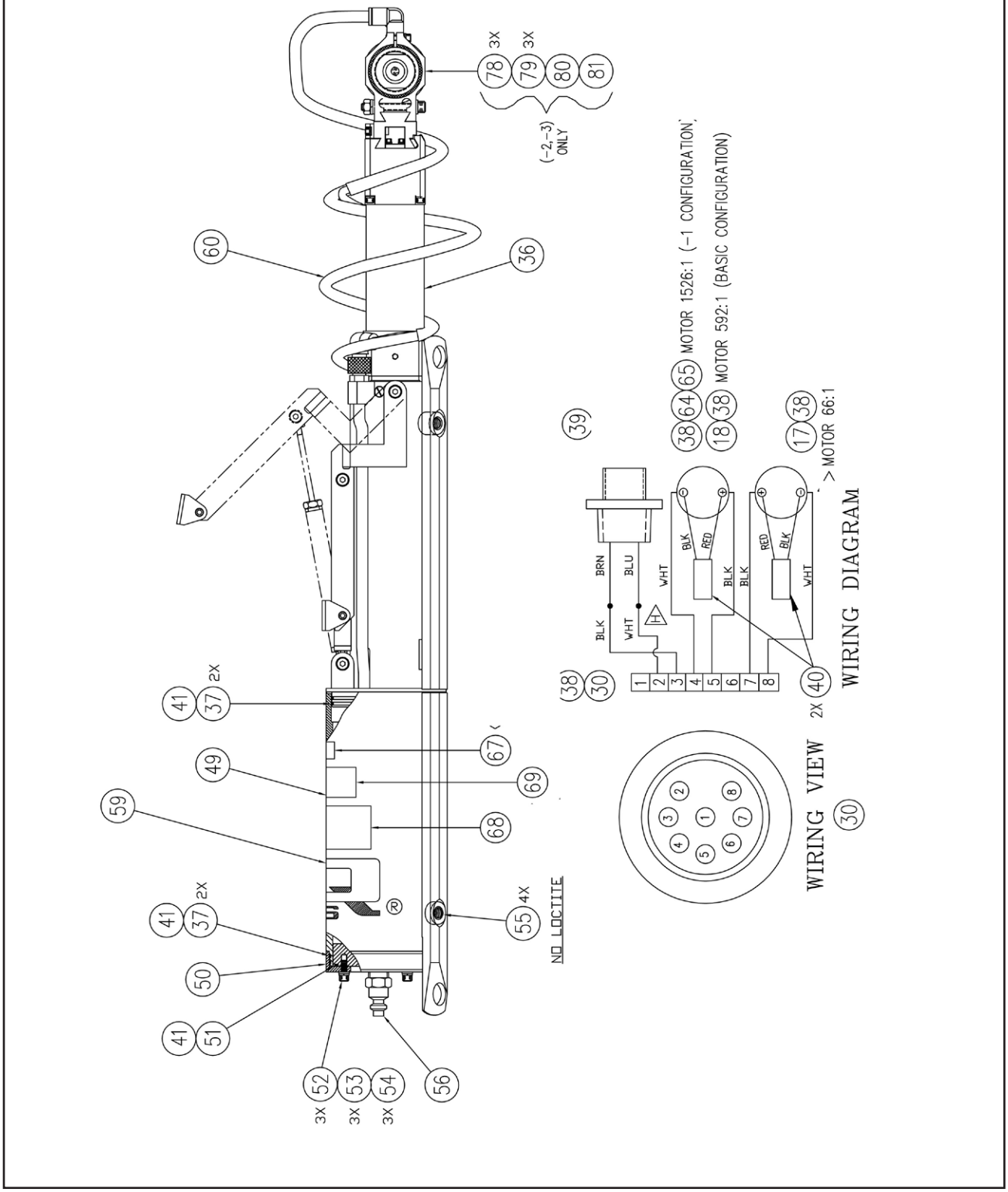


Figure 8b. KANGAROO Cutter Assembly, 9001LP

Kangaroo

Cutter Assy, Kangaroo, Low Profile (See Fig. 8) Rev. V, 9001LP			
Item #	Description	P/N	Qty
0001	BALLSCREW CYL. ASSY,KCUTTER	KC310	1
0002	STANDOFF,M/F,MODIFIED	8851	4
0003	BEARING,COUPLER EXTENSION	8875	2
0004	MOUNT,MOTOR	8939	1
0005	SCREW,CAP,SKT HD,8-32X1/2,SST	101025	8
0006	WASHER,SPLIT LOCK,#8 SST	101738	8
0007	EXTENSION,MODIFICATION,CUTTER	8744	1
0008	CLUTCH,GEAR	8973	2
0009	KEYSTOCK,1/16X.375 LONG	8855	2
0010	SCREW,CAP,SKT HD,6-32X1/4,SST	103060	2
0011	WASHER,SPLIT #6 SST	100150	2
0012	WASHER,FLAT,#6 SST	100173	2
0013	SCREW,SET,6-32X1/4 SST	100099	1
0014	BEARING,TORQUE COUPLER	8986	1
0015	KEYSTOCK,1/8"SQ X1/2LG,ZINC PLATED	8874	1
0016	SPACER,BEARING	8897	1
0017	GEARMOTOR ASSY,Ø8MM,MICROMO SUBST	KC324	1
0018	MOTOR/GEAR BOX ASSY,CW/CCW,592:1	8959	1
0019	WASHER,FLAT,#8 SST(RED OD .304)	100177	4
0020	WIRE,#20 WHITE BU	713326	4
0021	WIRE,#20 BLACK STRANDED 600V	713317	4
0022	STANDOFF,M/F MACHINED	8829	2
0023	STANDOFF,M/F MACHINED	8828	1
0024	MOUNT,REAR MOTOR	8833	1
0025	SCREW,CAP,SKT HD,1/4-20X3/4,SST	101022	7
0026	WASHER,SPLIT LOCK,1/4"SST	101740	7
0027	CABLE,TOW,TRANSPORTER& K-CUTTER,27"	120504	2
0028	END CAP	8831	1
0029	STANDOFF,MACHINED	8852	4
0030	RECEPTACLE,8-PIN,ELECTRIC CONNECTOR	8894	1
0031	FITTING,SWIVEL	8823	1
0032	FITTING,BARBED	8824	1
0033	CONNECTOR,STRAIGHT,3/8TUBE,MINI LCK	HW1082	1
0034	TUBING,BLACK FLEXIBLE	8804	0.83
0035	HOSE,COILED	8931	0.67
0036	UP/DOWN AXIS ASSY	8963	1
0037	O-RING,BALLSCREW HOUSING,2-043,EP	8801	4
0038	TUBE,SHRINK,BLACK 1/8"	712789	1
0039	RECEPTACLE,1/4-18 NPT(2POLE)	162546	1

Cutter Assy, Kangaroo, Low Profile (See Fig. 8) Rev. V, 9001LP			
Item #	Description	P/N	Qty
0040	SNUBBER,ASSY,F/CUTTER	9004	2
0041	MRO-LUBRICANT,O-RING 2 OZ TUBE	439986	1
0042	MRO-SEAL.HGH PRESS,ND 440400-50,BRN	445091	1
0043	CONNECTOR,90°,3/8 TUBE,PUSH LOCK	HW1081	1
0044	SCREW,SET,10-32X1 SST	712453	2
0045	NUT,JAM,10-32,SST	8799	2
0046	SCREW,SET,1/4-20X1 SST	101047	1
0047	NUT,HEX,SST,1/4-20	101040	1
0048	VALVE,PURGE,P&T	CP063	1
0049	HOUSING,LOW PROFILE,REAR MOTOR	KC075	1
0050	FLANGE,END CAP	8748	1
0051	O-RING,END CAP,2-042,EP	8825	1
0052	SCREW,CAP,SKT HD,10-32X1/2,SST	102001	3
0053	WASHER,SPLIT #10 STL	100152	3
0054	WASHER,FLAT,#10 SST	100140	3
0055	PLUG,THREADED 7/16-20,SKID MOUNT	HW915	4
0056	FITTING,BRASS,AIR,3/8"NPT	220492	1
0057	MRO-TIE,CABLE,14"X3/16"X1/6"	440306	1
0058	MRO-TIE,CABLE,3/32"X4",WHT/CLR	440307	4
0059	LABEL,CUES,2X4"	962036	1
0060	CABLE/HOSE ASSY,K. CUTTER	KC018	1
0061	MRO-REMOVABLE LCK,ND 121200-50,BLUE	440061	1
0062	CABLE,TOW,CUTTER 39.5" LENGTH	KC087	2
0063	RING-D,CHAIN,TOW CABLE,3/16"SS	712799	5
0067	LABEL,LASERTAB MARKER, .560 X .560	CS222	1
0068	LABEL,LASERTAB MARKER,3.00 X 1.90	CS223	1
0069	LABEL,ETL MARK,2" X 1"	CS224	1
0073	WRENCH,.9HP AIR MOTOR	KC092	2
0084	MRO-GREASE,HEAVY DUTY REDMAN	440030	1
0087	MANUAL, KANGAROO/GIANT KANG CUTTER	960971	1

Kangaroo

PART NO.	DESCRIPTION	NOTES
KC310	BALLSCREW CYLINDER ASSY, KANGAROO CUTTER	BASIC
KC310-1	BALLSCREW CYL. ASSY W/O AIR BRAKE, K. C.	-1

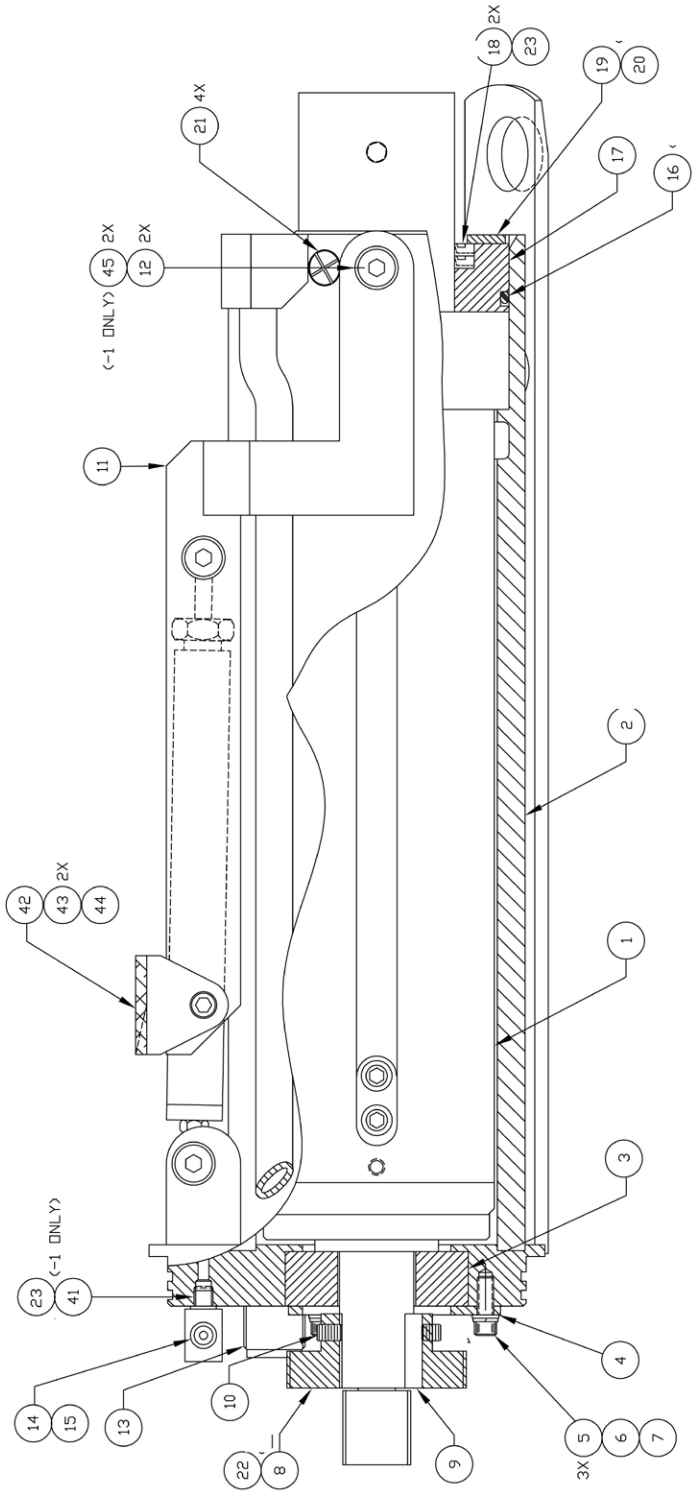


Figure 9a. Ballscrew Cylinder Assembly KC310

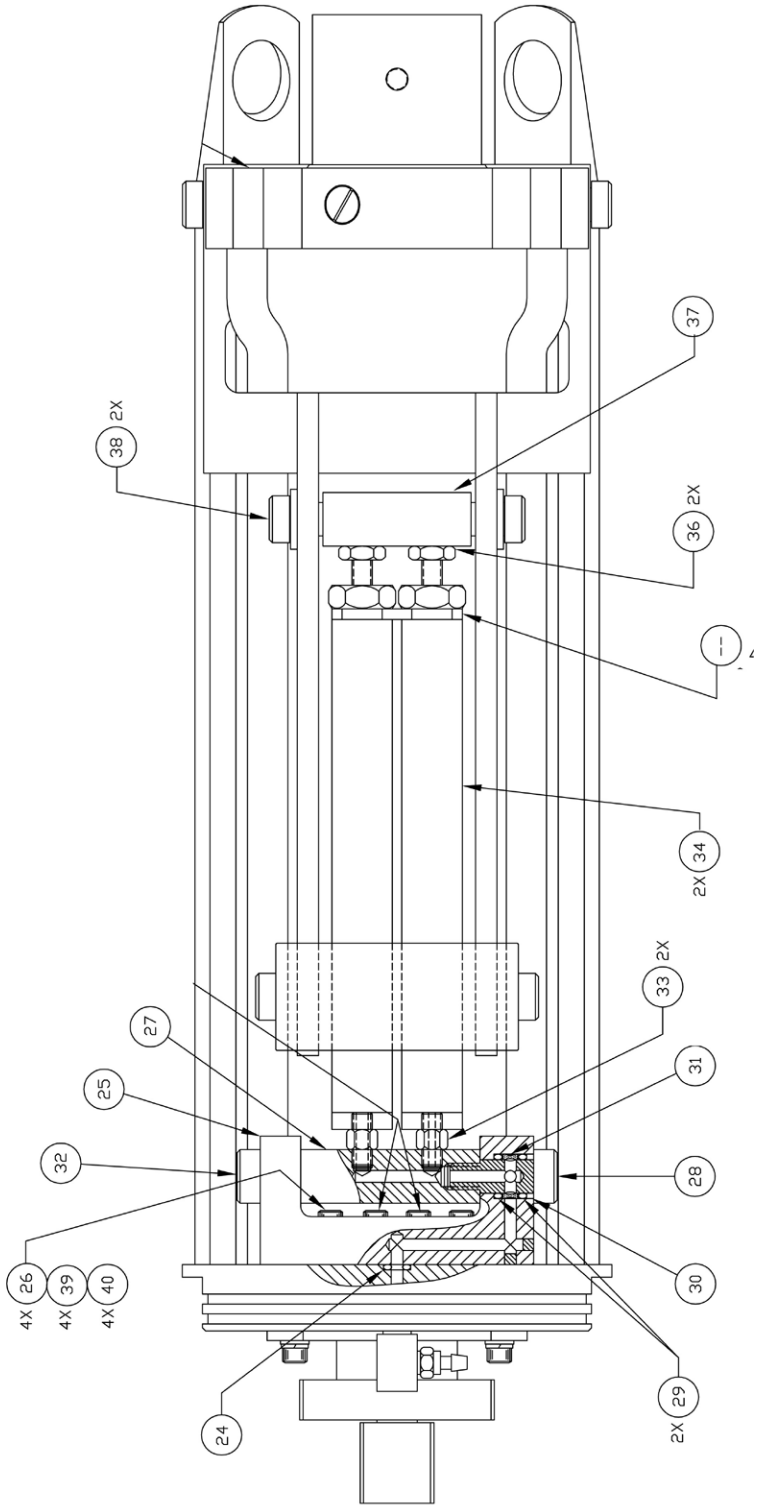


Figure 9b. Ballscrew Cylinder Assembly KC310

Kangaroo

Ballscrew Cylinder Assembly (See Fig.9) Rev. N, KC310			
Item #	Description	P/N	Qty
1	Cylinder Shaft Assy	8962	1
2	Housing,Ballscrew	KC076	1
3	Flange,Rotational Bearing	9000	1
4	Retainer,Bearing	8944	1
5	Screw,Shcs,8-32x3/8 Sst	100448	3
6	Washer,Flat,#8 Sst(Red Od .304)	100177	3
7	Washer,Split Lock,#8 Sst	101738	3
8	Gear,Cw/Ccw Driven	8971	1
9	Keystock,3/16x.625 Long	8873	1
10	Screw,Set,8-32x1/4 Sst	100147	2
11	Clamp/Bearing Assy	8775	1
12	Screw,Shldr,(.500)	8815	2
13	Connector,Straight,3/8tube,Mini Lck	HW1082	1
14	Fitting,Swivel	8823	1
15	Fitting,Barbed	8824	1
16	O-Ring,Rear Housing	8933	1
17	Ring,In/Out Shaft Seal	8827	1
18	Seal,Hallite Wiper	8932	2
19	Retainer,In/Out Shaft Seal	8826	1
20	Screw,Flat,4-40x1/4 Phil	712402	4
21	Screw,Flat,8-32x3/8 Phil Sst	100146	4
22	Mro-Ret.Comp,.015gp,Nd541200-50,Grn	CS092	1
23	Mro-Seal.Hgh Press,Nd 440400-50,Brn	445091	1
24	O-Ring,(Manifold)	8798	1
25	Manifold,Clamp	8822	1
26	Screw,Cap,Skt Hd,6-32x1/2,Sst	712417	4
27	Pin,Pivot	8821	1
28	Screw,Manifold Pivot	8814	1
29	O-Ring,(Clamp Pivot)	8805	2
30	Seal,Bearing	8812	1
31	Spacer,O-Ring	8813	1
32	Screw,(.375)Shoulder	8808	1
33	Nipple,Air Cylinder Pipe	8772	2
34	Cylinder,Air	8997	2
36	Nut,Jam,10-32,Sst	8799	2
37	Clamp,Pivot Pin	8819	1
38	Screw,Shldr,(.313)	8807	2
39	Washer,Split #6 Sst	100150	4
40	Washer,Flat,#6 Sst(Red Od .267)	100178	4
42	Contact,Pivot	8718	1
43	Screw,Shldr,8-32,.1255 Shoulder	109115	2
44	Safety Walk,Black Mdm Gr 6inx60ft	10550	0.001

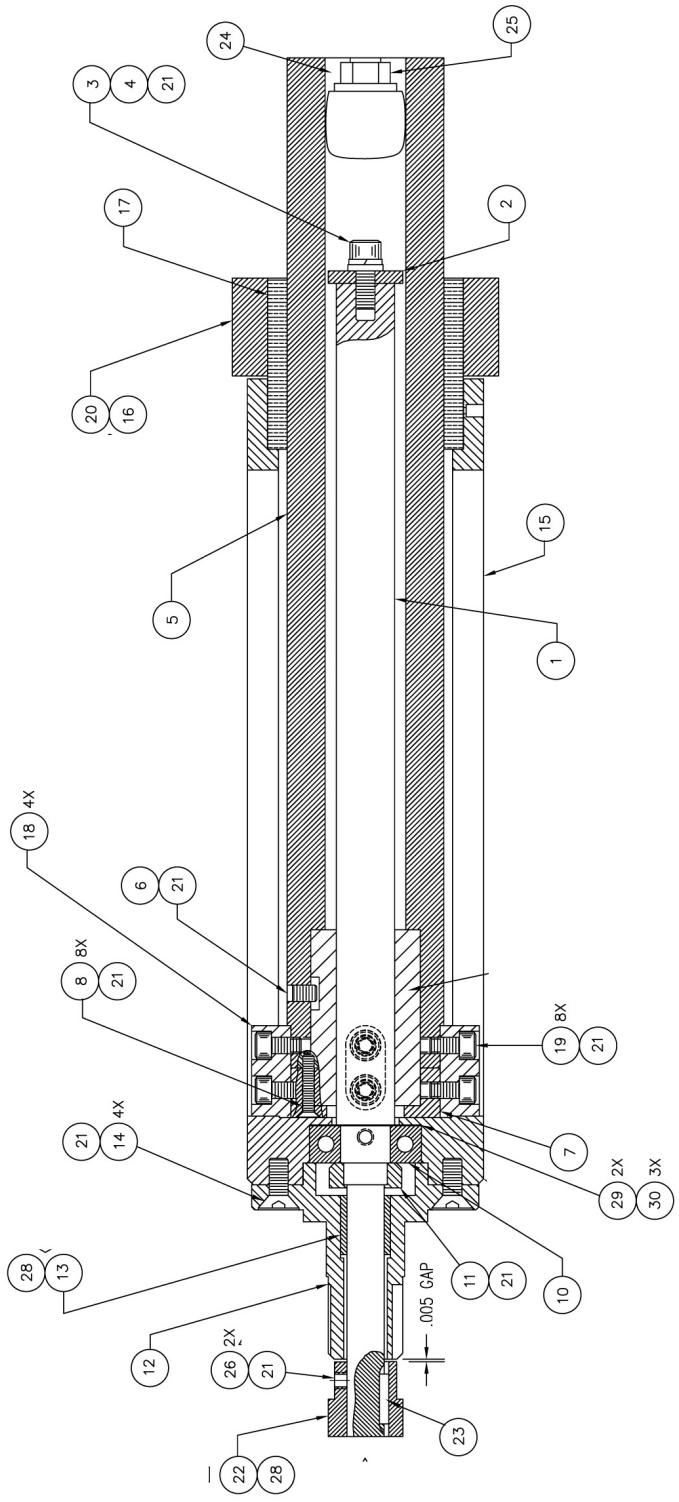


Figure 10. Cylinder Shaft Assembly, 8962

Kangaroo

Cylinder Shaft Assy (See Fig. 10) Rev. P, 8962			
Item #	Description	P/N	Qty
1	Ballscrew Assembly	8978	1
2	Washer,Thrust,Ball Screw	8947	1
3	Washer,Split Lock,#10 Sst	101739	1
4	Screw,Cap,Skt Hd,10-32x1/2,Sst	102001	1
5	Shaft,Cylinder	8964	1
6	Screw,Set,8-32x1/4 Sst	100147	1
7	Cylinder,Stop	8946	1
8	Screw,Flat,4-40x5/8 Phil Sst	100060	8
10	Screw,Ball,Rotational Bearing	8998	1
11	Nut,Retaining	8750	1
12	Flange, For Bearing And Shaft	8940	1
13	Bearing,Shaft,Ball Screw	8996	1
14	Screw,Flat,10-32x1/2 Sst	103052	4
15	Cylinder/Bearing Housing,Weldment	KC323	1
16	Mro-Grease,Heavy Duty Redman	440030	1
17	Bearing, Thrust	8950	1
18	Rail Guide	8942	4
19	Screw,Shcs,8-32x3/8 Sst	100448	8
20	Bearing,Assembly Rotational	8969	1
21	Mro-Removable Lck,Nd 121200-50,Blue	440061	1
22	Gear,Modified,In-Out Driven	8970	1
23	Keystock,3/32x.5 Long	8872	1
24	Mro-Form A Gasket Hi-Temp	445063	1
25	Plug,Expansion.Modified	8782	1
26	Screw,Set,8/32x1/8,Cut Pt,Ss	HW413	1
27	Mro-Grease,Lithium,Artic Cat	CS218	1
28	Mro-Ret.Comp,.015gp,Nd541200-50,Grn	CS092	1
29	Shim,1.125od X .750id X .002thk,Sst	HW1044	2
30	Shim,.750id X 1.125od X .005thk,Sst	HW1045	3

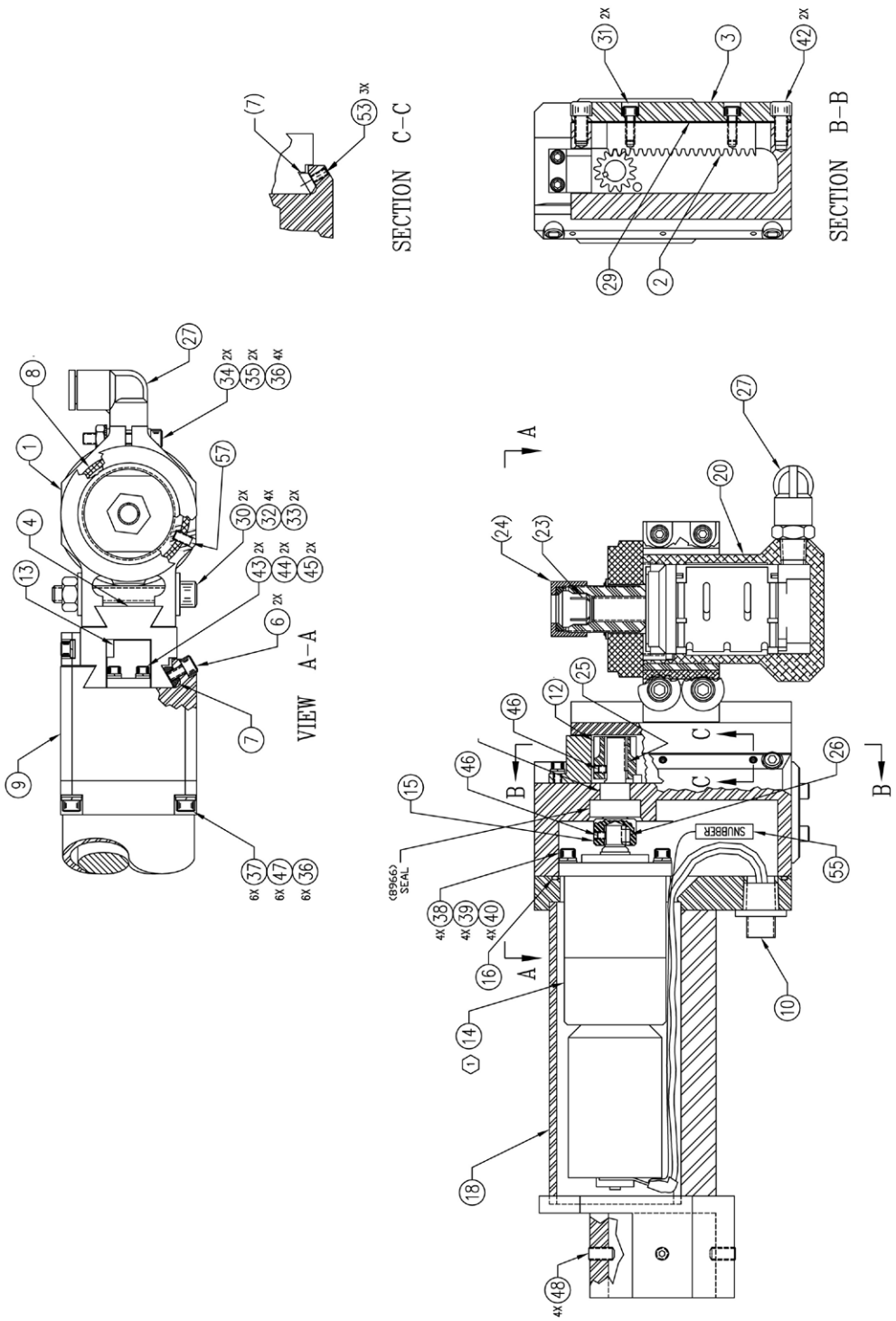


Figure 11a. UP/DOWN Axis Assembly, 8963

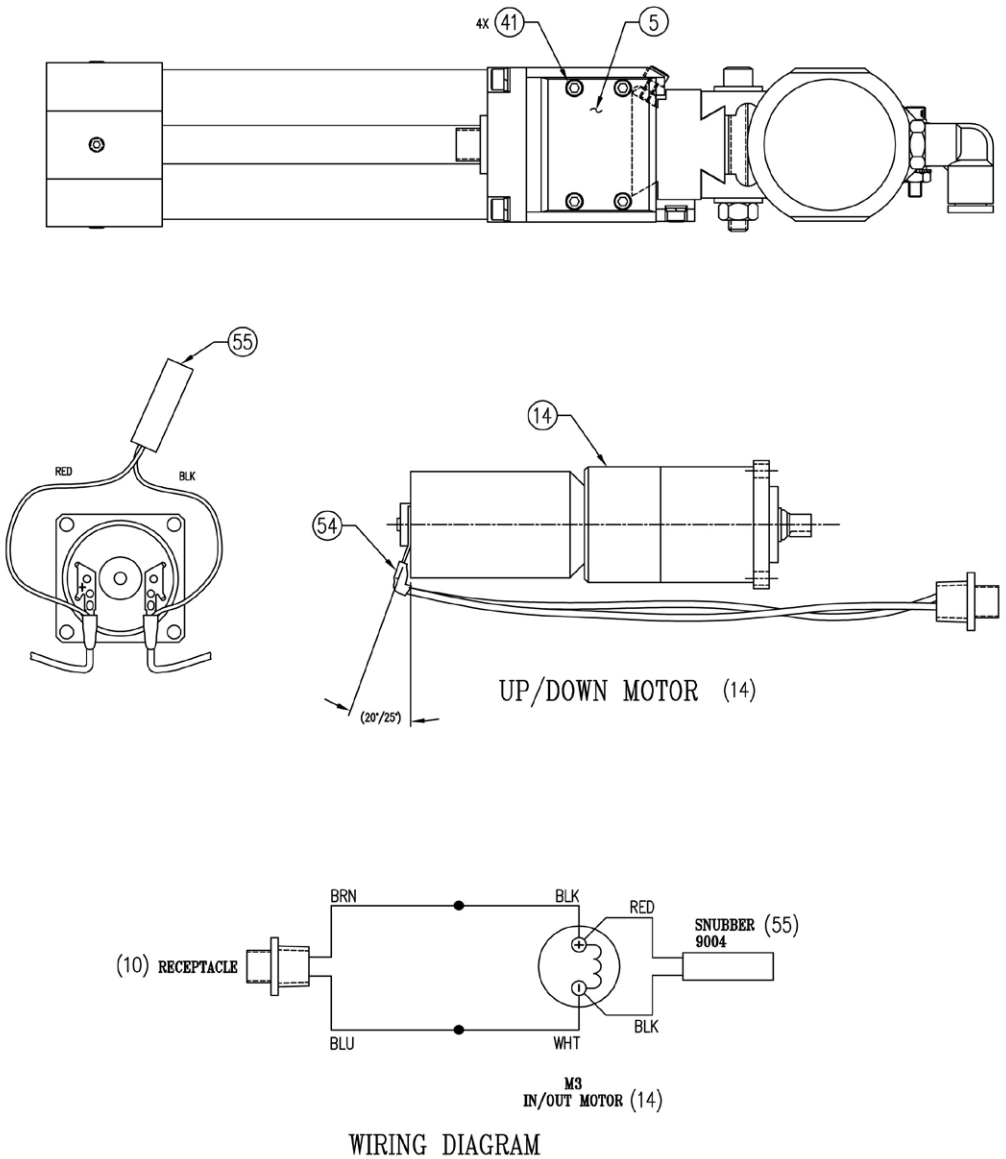


Figure 11b. UP/DOWN Axis Assembly, 8963

Kangaroo

UP/DOWN Axis Assembly (See Fig. 11) Rev. R, 8963			
Item #	Description	P/N	Qty
1	Clamp,Air Motor	8994	1
2	Dovetail Rack,Modified	8992	1
3	Mount,Dovetail Rack	8990	1
4	Slide,Dovetail	8989	1
5	Stop,Dovetail Slide	KC025	1
6	Screw,Cap,Skt Hd,8-32x1/4,Sst	100142	2
7	Plate,Pressure	8984	1
8	Compression Pad,.9hp Air Motor	KC091	1
9	Carriage,Dovetail	8979	1
10	Receptacle,1/4-18 Npt(2pole)	162546	1
11	Mro-Solder,Sn63,.025 Dia	CS041	1
12	Gear,Dovetail Slide	8972	1
13	Block,Stop	8968	1
14	Motor/Gearbox Assy,Up/Down,246:1	8957	1
15	Shaft,Extension,Up/Down Motor	8956	1
16	O-Ring,Up/Down Motor	8955	1
17	Mro-Superlube 14.5 Oz	429793	1
18	Housing,Up/Down Axis Motor	8948	1
20	Air Motor Assy,.9hp,Kangaroo Cutter	KC089	1
25	Keystock,1/16x.375 Long	8855	1
26	Keystock,1/8"Sq X .188lg	8854	1
27	Connector,90°,3/8 Tube,Push Lock	HW1081	1
29	Spacer,Rack	8766	1
30	Screw,Shcs,1/4-20x1 7/8 Sst	100449	2
31	Screw,Cap,Skt Hd,6-32x3/8,W/Nylo,Ss	101621	2
32	Washer,Flat,1/4"Sst	101736	4
33	Nut,Lock W/Nyl Ins 1/4-20 Sst	HW030	2
34	Screw,Cap,Skt Hd,8-32x7/8,Sst	103067	2
35	Nut,Lock Nylon Ins,Sst,8-32	112532	2
36	Washer,Flat,#8 Sst(Red Od .304)	100177	10
37	Screw,Cap,Skt Hd,8-32x1/2,Sst	101025	6
38	Screw,Cap,Skt Hd,6-32x1/2,Sst	712417	4
39	Washer,Split #6 Sst	100150	4
40	Washer,Flat,#6 Sst(Red Od .267)	100178	4
41	Screw,Pan,6-32x5/16 Phil Sst	101088	4
42	Screw,Cap,Skt Hd,10-32x3/8,Sst	103030	2
43	Screw,Cap,Skt Hd,4-40x3/8,Black	100061	2
44	Washer,Split #4 Sst	100170	2
45	Washer,Flat,#4 Sst(Red Od .209)	101737	2

Kangaroo

UP/DOWN Axis Assembly (See Fig. 11) Rev. R, 8963			
Item #	Description	P/N	Qty
46	Screw,Set,4-40x1/8 Sst	100050	2
47	Washer,Split Lock,#8 Sst	101738	6
48	Screw,Set,10-32x3/8 Skt Sst	101602	7
49	Mro-Removable Lck,Nd 121200-50,Blue	440061	1
50	Mro-Seal.Hgh Press,Nd 440400-50,Brn	445091	1
51	Mro-Adhes.Instant,Nd 310035-28,Clr	440094	1
52	Mro-Permanent Lock,Nd 140500-50,Red	440060	1
54	Tube,Shrink,Black 1/8"	712789	1
55	Snubber,Assy,F/Cutter	9004	1
56	Mro-Sealant,Pourable Translucent	445066	1
57	Screw,Set,6-32x1/4 Sst	100099	1
61	Mro-Grease,Heavy Duty Redman	440030	1
62	Mro-Ret.Comp,.015gp,Nd541200-50,Grn	CS092	1

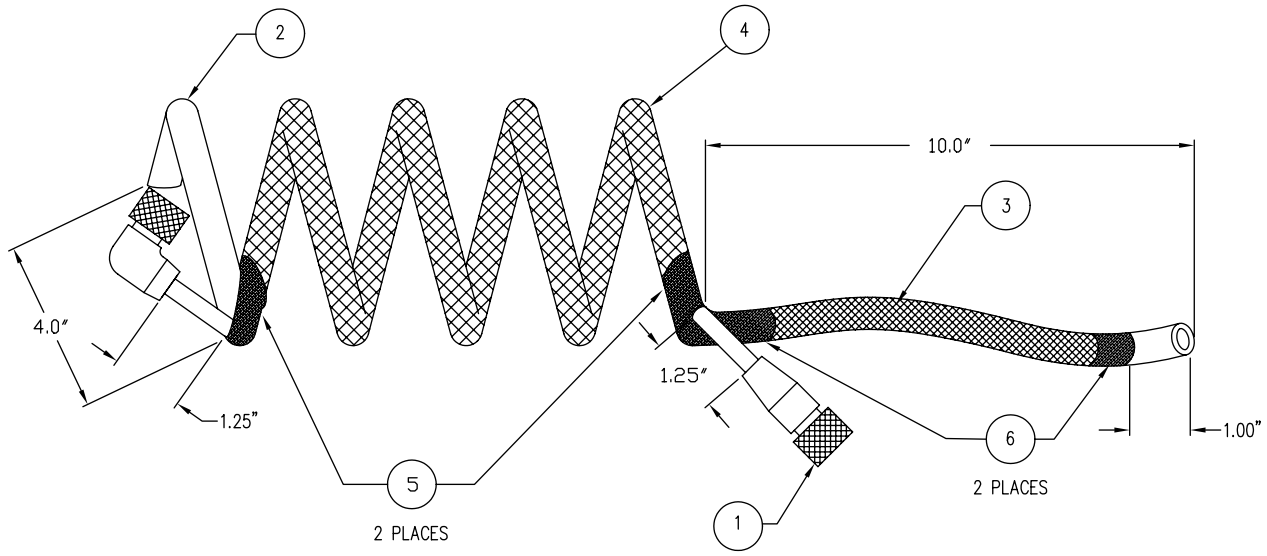


Figure 12. Cable/Hose Assembly, K. Cutter, KC018

Cable/Hose Assy, K. Cutter (See Fig. 12) Rev. C, KC018			
Item #	Description	P/N	Qty
-1	· Cable, Power Quick Disconnect	KC017	1
-2	· Hose, Air, Coiled	8931	7
-3	· Tube, Expandable 3/8 Nylon	015021	1
-4	· Tube, Expandable 1/2 Nylon	165005	7
-5	· Tube, Shrink, Black 3/4 ADH	712579	1
-6	· Tube, Shrink, Black 3:1 Ratio 1/2"	712572	1

GRANITE XP
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GXP version 1.0, 1.1

INSTALLATION KITS	UPDATE KITS
GX955 KIT, GRANITE XP OFFICE GX501 GX907 INSTRUCTIONS, GRANITE XP INSTALLATION GX903 GUIDE,QUICK REFERENCE,GRANITE XP GX904 CARD,QUICK REFERENCE,GRANITE XP GX501 SOFTWARE,GRANITE XP OFFICE GX901 GXP, USER MANUAL HARD COPY GX909 INSTR,VIEW & INSTALL COLLECTED DATA GX911 GUIDE,WINCAN COMPATIBILITY MODES GX912 GUIDE,QUICK,GXP SYNCHRNIZ&REPLICATE	**GX951 KIT, GRANITE XP OFFICE GX501 UPDATE** GX906 INSTRUCTIONS, GRANITE XP UPDATE GX903 GUIDE,QUICK REFERENCE,GRANITE XP GX904 CARD,QUICK REFERENCE,GRANITE XP GX501 SOFTWARE,GRANITE XP OFFICE
GX956 KIT,GRANITE XP INSPECT GX502 GX907 INSTRUCTIONS, GRANITE XP INSTALLATION GX903 GUIDE,QUICK REFERENCE,GRANITE XP GX904 CARD,QUICK REFERENCE,GRANITE XP GX901 GXP, USER MANUAL HARD COPY GX909 INSTR,VIEW & INSTALL COLLECTED DATA GX911 GUIDE,WINCAN COMPATIBILITY MODES GX912 GUIDE,QUICK,GXP SYNCHRNIZ&REPLICATE GX502 SOFTWARE,GRANITE XP INSPECTION	**GX952 KIT,GRANITE XP INSPECT GX502 UPDATE** GX906 INSTRUCTIONS, GRANITE XP UPDATE GX903 GUIDE,QUICK REFERENCE,GRANITE XP GX904 CARD,QUICK REFERENCE,GRANITE XP GX502 SOFTWARE,GRANITE XP INSPECTION
GX957 KIT, GRANITE XP ENGINR GX503 GX907 INSTRUCTIONS, GRANITE XP INSTALLATION GX903 GUIDE,QUICK REFERENCE,GRANITE XP GX904 CARD,QUICK REFERENCE,GRANITE XP GX901 GXP, USER MANUAL HARD COPY GX909 INSTR,VIEW & INSTALL COLLECTED DATA GX911 GUIDE,WINCAN COMPATIBILITY MODES GX912 GUIDE,QUICK,GXP SYNCHRNIZ&REPLICATE GX503 SOFTWARE,GRANITE XP ENGINEERING	**GX953 KIT, GRANITE XP ENGINR GX503 UPDATE** GX906 INSTRUCTIONS, GRANITE XP UPDATE GX903 GUIDE,QUICK REFERENCE,GRANITE XP GX904 CARD,QUICK REFERENCE,GRANITE XP GX503 SOFTWARE,GRANITE XP ENGINEERING
GX958 KIT, GRANITE XP VIEWER GX504 GX909 INSTRUCTIONS, VIEW & INSTALL COLLECTED DATA GX504 SOFTWARE,GRANITE XP VIEWER	**GX954 KIT, GRANITE XP VIEWER GX504 UPDATE** GX906 INSTRUCTIONS, GRANITE XP UPDATE GX903 GUIDE,QUICK REFERENCE,GRANITE XP GX904 CARD,QUICK REFERENCE,GRANITE XP GX504 SOFTWARE,GRANITE XP VIEWER GX909 INSTRUCTIONS, VIEW & INSTALL COLLECTED DATA
GX961 KIT,HANSEN INTERFACE GX511 SOFTWARE,HANSEN INTERFACE GXP GX979 KIT,GRANITE XP DOCUMENTATION GX529 SOFTWARE,GRANITE XP ENGINEERING	**GX960 KIT,GRANITE XP HANSEN MODULE** GX510 SOFTWARE,HANSEN SEWER MODULE GX910 GUIDE,QUICK REF,HANSEN,GRANITE XP

Asset Inspection & Decision Support Software for the Water Industry

GXP version 2.0

INSTALLATION KITS	UPDATE KITS
GX967 KIT, GRANITE XP OFFICE V2 GX530 GX530 SOFTWARE,GRANITE XP OFFICE V2 GX971 KIT, GRANITE XP DOCUMENTATION V2	**GX962 KIT, GRANITE XP OFFICE V2 GX530 UPDATE** GX530 SOFTWARE,GRANITE XP OFFICE V2 GX917 INSTRUCTIONS, GRANITE XP UPDATE V2 GX918 GUIDE,QUICK REFERENCE,GRANITE XP V2
GX968 KIT,GRANITE XP INSPECT V2 GX531 GX531 SOFTWARE,GRANITE XP INSPECTION V2 GX971 KIT, GRANITE XP DOCUMENTATION V2	**GX963 KIT,GRANITE XP INSPECT V2 GX531 UPDATE** GX531 SOFTWARE,GRANITE XP INSPECTION V2 GX917 INSTRUCTIONS, GRANITE XP UPDATE V2 GX918 GUIDE,QUICK REFERENCE,GRANITE XP V2
GX969 KIT, GRANITE XP ENGINR V2 GX529 GX529 SOFTWARE,GRANITE XP ENGINEERING V2 GX971 KIT, GRANITE XP DOCUMENTATION V2	**GX964 KIT, GRANITE XP ENGINR V2 GX529 UPDATE** GX529 SOFTWARE,GRANITE XP ENGINEERING V2 GX917 INSTRUCTIONS, GRANITE XP UPDATE V2 GX918 GUIDE,QUICK REFERENCE,GRANITE XP V2
GX970 KIT, GRANITE XP VIEWER V2 GX528 GX528 SOFTWARE,GRANITE XP VIEWER V2 GX971 KIT, GRANITE XP DOCUMENTATION V2	**GX965 KIT, GRANITE XP VIEWER V2 GX528 UPDATE** GX528 SOFTWARE,GRANITE XP VIEWER V2 GX917 INSTRUCTIONS, GRANITE XP UPDATE V2 GX918 GUIDE,QUICK REFERENCE,GRANITE XP V2
GX961 KIT,HANSEN INTERFACE GX511 SOFTWARE,HANSEN INTERFACE GXP GX529 SOFTWARE,GRANITE XP ENGINEERING V2 GX971 KIT, GRANITE XP DOCUMENTATION V2	**GX960 KIT,GRANITE XP HANSEN SEWER MODULE** GX510 SOFTWARE,HANSEN SEWER MODULE GXP GX910 GUIDE,QUICK REF,HANSEN,GRANITE XP
GX971 KIT, GRANITE XP DOCUMENTATION V2 GX914 MANUAL,OPERATION,GRANITE XP V2 GX918 GUIDE,QUICK REFERENCE,GRANITE XP V2 GX916 INSTR.SHT,GRANITE XP INSTALLATION V2 GX909 INSTR,VIEW & INSTALL COLLECTED DATA GX973 GUIDE, GRANITE XP DATA TRANSFER GX913 USER GUIDE, GRANITE XP / GPS MODULE GX919 USER GUIDE, GRANITE XP / ESRI MODULE GP900 UDER GUIDE, WIRELESS MAPPING STICK	**GX966 KIT,GRANITE XP HANSEN STORM MODULE** GX526 SOFTWARE,HANSEN STORM MODULE GXP GX910 GUIDE,QUICK REF,HANSEN,GRANITE XP
GX972 KIT, GRANITE XP EVALUATION V2 GX532 SOFTWARE,GRANITE XP EVALUATION V2 GX917 INSTRUCTIONS, GRANITE XP UPDATE V2 GX918 GUIDE, QUICK REFERENCE, GRANITE XP V2	

GRANITE XP
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GXP version 3.0

INSTALLATION KITS	UPDATE KITS
GX981 KIT, GRANITE XP ENTERPRISE V3 GX540 GX540 SOFTWARE,GRANITE XP ENTERPRISE V3 GX979 KIT, GRANITE XP DOCUMENTATION V3	**GX981-1 KIT, GRANITE XP ENTERPRISE V3 GX540 UPDATE** GX540 SOFTWARE,GRANITE XP ENTERPRISE V3 GX978 INSTRUCTIONS, GRANITE XP UPDATE V3
GX983 KIT,GRANITE XP INSPECTION V3 GX543 GX543 SOFTWARE,GRANITE XP INSPECTION V3 GX979 KIT, GRANITE XP DOCUMENTATION V3	**GX983-1 KIT,GRANITE XP INSPECTION V3 GX543 UPDATE** GX543 SOFTWARE,GRANITE XP INSPECTION V3 GX978 INSTRUCTIONS, GRANITE XP UPDATE V3
GX982 KIT, GRANITE XP ENGINEERING V3 GX541 GX541 SOFTWARE,GRANITE XP ENGINEERING V3 GX979 KIT, GRANITE XP DOCUMENTATION V3	**GX982-1 KIT, GRANITE XP ENGINEERING V3 GX541 UPDATE** GX541 SOFTWARE,GRANITE XP ENGINEERING V3 GX978 INSTRUCTIONS, GRANITE XP UPDATE V3
GX984 KIT, GRANITE XP VIEWER V3 GX544 GX544 SOFTWARE,GRANITE XP VIEWER V3 GX979 KIT, GRANITE XP DOCUMENTATION V3	**GX984-1 KIT, GRANITE XP VIEWER V3 GX544 UPDATE** GX544 SOFTWARE,GRANITE XP VIEWER V3 GX978 INSTRUCTIONS, GRANITE XP UPDATE V3
GX961 KIT,HANSEN INTERFACE GX511 SOFTWARE,HANSEN INTERFACE GXP GX529 SOFTWARE,GRANITE XP ENGINEERING V2 GX979 KIT, GRANITE XP DOCUMENTATION V3	**GX960 KIT,GRANITE XP HANSEN SEWER MODULE** GX510 SOFTWARE,HANSEN SEWER MODULE GXP GX910 GUIDE,QUICK REF,HANSEN,GRANITE XP
GX979 KIT, GRANITE XP DOCUMENTATION V3 GX921 MANUAL,OPERATION,GRANITE XP V4 GX975 GUIDE,INSTALLATION,GRANITE XP VER3 GX909 INSTR,VIEW & INSTALL COLLECTED DATA GX978 INSTR.SHT,GRANITE XP UDPATE V3	**GX966 KIT,GRANITE XP HANSEN STORM MODULE** GX526 SOFTWARE,HANSEN STORM MODULE GXP GX910 GUIDE,QUICK REF,HANSEN,GRANITE XP
GX980 KIT,GRANITE XP EVALUATION V3 GX542 SOFTWARE,GRANITE XP EVALUATION V3 GX978 INSTRUCTIONS,GRANITE XP UPDATE V3	

GRANITE XP
Asset Inspection & Decision Support Software for the Water Industry

GXP version 4.0

INSTALLATION KITS	UPDATE KITS
GX985 KIT, GRANITE XP ENTERPRISE V4 GX551 GX551 SOFTWARE,GRANITE XP ENTERPRISE V4 GX990 KIT, GRANITE XP DOCUMENTATION V4	**GX985-1 KIT, GRANITE XP ENTERPRISE V4 GX551 UPDATE** GX551 SOFTWARE,GRANITE XP ENTERPRISE V4 GX923 INSTRUCTIONS, GRANITE XP UPDATE V4
GX986 KIT,GRANITE XP INSPECTION V4 GX552 GX552 SOFTWARE,GRANITE XP INSPECTION V4 GX990 KIT, GRANITE XP DOCUMENTATION V4	**GX986-1 KIT,GRANITE XP INSPECTION V4 GX552 UPDATE** GX552 SOFTWARE,GRANITE XP INSPECTION V4 GX923 INSTRUCTIONS, GRANITE XP UPDATE V4
GX987 KIT, GRANITE XP ENGINEERING V4 GX553 GX553 SOFTWARE,GRANITE XP ENGINEERING V4 GX990 KIT, GRANITE XP DOCUMENTATION V4	**GX987-1 KIT, GRANITE XP ENGINEERING V4 GX553 UPDATE** GX553 SOFTWARE,GRANITE XP ENGINEERING V4 GX923 INSTRUCTIONS, GRANITE XP UPDATE V4
GX988 KIT, GRANITE XP INSPECTION LITE V4 GX554 GX554 SOFTWARE,GRANITE XP INSPECTION LITE V4 GX990 KIT, GRANITE XP DOCUMENTATION V4	**GX988-1 KIT, GRANITE XP INSPECTION LITE V4 GX554 UPDATE** GX554 SOFTWARE,GRANITE XP INSPECTION LITE V4 GX923 INSTRUCTIONS, GRANITE XP UPDATE V4
GX989 KIT, GRANITE XP VIEWER V4 GX555 GX555 SOFTWARE,GRANITE XP VIEWER V4 GX909 INSTR,VIEW & INSTALL COLLECTED DATA GX923 INSTRUCTIONS, GRANITE XP UPDATE V4	**GX989-1 KIT, GRANITE XP VIEWER V4 GX555 UPDATE** GX555 SOFTWARE,GRANITE XP VIEWER V4 GX923 INSTRUCTIONS, GRANITE XP UPDATE V4
GX992 KIT,HANSEN INTERFACE GXP V4 GX511 SOFTWARE,HANSEN INTERFACE GXP GX553 SOFTWARE,GRANITE XP ENGINEERING V4	**GX960 KIT,GRANITE XP HANSEN SEWER MODULE** GX510 SOFTWARE,HANSEN SEWER MODULE GXP GX910 GUIDE,QUICK REF,HANSEN,GRANITE XP
GX990 KIT, GRANITE XP DOCUMENTATION V4 GX921 MANUAL,OPERATION,GRANITE XP V4 GX922 GUIDE, INSTALLATION GRANITE XP V4 GX923 INSTRUCTIONS, GRANITE XP UPDATE V4 GX909 INSTR,VIEW & INSTALL COLLECTED DATA	**GX966 KIT,GRANITE XP HANSEN STORM MODULE** **GX526 SOFTWARE,HANSEN STORM MODULE GXP** **GX910 GUIDE,QUICK REF,HANSEN,GRANITE XP**
GX991 KIT,GRANITE XP EVALUATION V4 GX556 SOFTWARE,GRANITE XP EVALUATION V4 GX923 INSTRUCTIONS,GRANITE XP UPDATE V4	

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GXP version 5.0

INSTALLATION KITS	UPDATE KITS
GX930 KIT, GRANITE XP ENTERPRISE V5 GX570 GX570 SOFTWARE,GRANITE XP ENTERPRISE V5 GX925 KIT, GRANITE XP DOCUMENTATION V5	**GX930-1 KIT, GRANITE XP ENTERPRISE V5 GX570 UPDATE** GX570 SOFTWARE,GRANITE XP ENTERPRISE V5 GX926 INSTRUCTIONS, GRANITE XP UPDATE V5
GX931 KIT,GRANITE XP INSPECTION V5 GX571 GX571 SOFTWARE,GRANITE XP INSPECTION V5 GX925 KIT, GRANITE XP DOCUMENTATION V5	**GX931-1 KIT,GRANITE XP INSPECTION V5 GX571 UPDATE** GX571 SOFTWARE,GRANITE XP INSPECTION V5 GX926 INSTRUCTIONS, GRANITE XP UPDATE V5
GX932 KIT, GRANITE XP ENGINEERING V5 GX572 GX572 SOFTWARE,GRANITE XP ENGINEERING V5 GX925 KIT, GRANITE XP DOCUMENTATION V5	**GX932-1 KIT, GRANITE XP ENGINEERING V5 GX572 UPDATE** GX572 SOFTWARE,GRANITE XP ENGINEERING V5 GX926 INSTRUCTIONS, GRANITE XP UPDATE V5
GX933 KIT, GRANITE XP INSPECTION LITE V5 GX573 GX573 SOFTWARE,GRANITE XP INSPECTION LITE V5 GX925 KIT, GRANITE XP DOCUMENTATION V	**GX933-1 KIT, GRANITE XP INSPECTION LITE V5 GX573 UPDATE** GX573 SOFTWARE,GRANITE XP INSPECTION LITE V5 GX926 INSTRUCTIONS, GRANITE XP UPDATE V5
GX934 KIT, GRANITE XP VIEWER V5 GXIII GX574 SOFTWARE,GRANITE XP VIEWER V5 GX909 INSTR,VIEW & INSTALL COLLECTED DATA GX926 INSTRUCTIONS, GRANITE XP UPDATE V5	**GX934-1 KIT, GRANITE XP VIEWER V5 GXIII UPDATE** GX574 SOFTWARE,GRANITE XP VIEWER V5 GX926 INSTRUCTIONS, GRANITE XP UPDATE V5
GX935 KIT,HANSEN INTERFACE GXP V5 GX511 SOFTWARE,HANSEN INTERFACE GXP GX572 SOFTWARE,GRANITE XP ENGINEERING V5	**GX960 KIT,GRANITE XP HANSEN SEWER MODULE** GX510 SOFTWARE,HANSEN SEWER MODULE GXP GX910 GUIDE,QUICK REF,HANSEN,GRANITE XP
GX925 KIT, GRANITE XP DOCUMENTATION V5 GX927 MANUAL,OPERATION,GRANITE XP V5 GX928 GUIDE, INSTALLATION GRANITE XP V5 GX926 INSTRUCTIONS, GRANITE XP UPDATE V5 GX909 INSTR,VIEW & INSTALL COLLECTED DATA	**GX966 KIT,GRANITE XP HANSEN STORM MODULE** GX526 SOFTWARE,HANSEN STORM MODULE GXP GX910 GUIDE,QUICK REF,HANSEN,GRANITE XP



Granite XP GPS Backpack Mapping Kit

P/N GP312

Granite XP GPS Backpack Mapping Kit

P/N GP312

Item #	Description	P/N	Qty
1	Gps,Proxr Backpack,Trimble	GP009	1
2	Gps,1ft Antenna Pole,Trimble	GP010	1
3	Receiver,Gps,Wireless	EC1384	1
4	Adapter,Usb To Serial	DP614	1
5	Guide,User,Gps Mapping Backpack	GP901	1



Granite XP Wireless GPS Mapping Stick with Receiver

P/N GP311 & GP311-1

Granite XP GPS Mapping Stick Kit with Receiver, P/N GP311			
Item #	Description	P/N	Qty
1	Mapping Stick,Wireless Gps	GP301	1
2	Software,Gps Module Gxp	GX524	1

Granite XP GPS Mapping Stick Kit without Receiver, P/N GP311-1			
Item #	Description	P/N	Qty
1	Mapping Stick,Wirles Gps,W/O Recvr	GP301-1	1
2	Software,Gps Module Gxp	GX524	1

Granite XP Wireless GPS Mapping Stick with Receiver

P/N GP301

Item #	Description	P/N	Qty
1	Receiver,Gps,Wireless	EC1384	1
2	Modem,Rf,Xstream-Pkg	EC1383	2
3	Switch,Spdt,Snap-In Rocker	EC1496	1
4	Bracket,Mntg,Rf Modem Enclosure	GP003	1
5	Holder,Indicator,Led,T-1 3/4"	EL078	1
6	Led,7000 Mcd,Light Board	BW112	1
7	Washer,Hose Rubber	109302	2
8	Pole Prism,8.5',Quick Release,Seco	GP001	1
9	Label,Logo 2.5"	962029	1
10	Mro-Mount,Cable Tie	505147	1
11	Tube,Shrink,Black 3/32"	712595	1
12	Mro-Tie,Cable,3/32"X4",Wht/Clr	440307	1
13	Label,Id,Cable Marker	CS185	1
14	Screw,Truss,10-32x5/8 Phil Sst	712450	4
15	Plate,Metal,Bottom,Wireless,Gps	GP007	1
16	Standoff,4-40 Thrd,F/F,¼Hex.875l,Al	HW377	4
17	Screw,Flat,4-40x 3/8 Phil Sst	100055	4
18	Cover,Plastic,Wireless,Gps	GP008	1
19	Power Jack,Mini,2.5mm P X5.5mm Opng	EC1498	1
20	Battery Pack,Li Lon 11.1 V 2400 Ma	GP005	1
21	Boot,Switch,Splash Proof	EC1497	1
22	Screw,Pan,4-40x1/2 Phil Sst	HW246	4
23	Washer,Flat,#4 Sst	100171	4
24	Case,Watertight,Modified	GP002-1	1
25	Mro-Tape,Dbl Side,Adh,.5"X.005,Poly	CS239	1
26	Resistor,Cf,680 Ohm 1/4w 5%	700046	1
27	Connector,6pin,F,Softshell,770355-1	EC269	1
28	Receptacle,6pin,Male,770356-1	EC236	1
29	Receptacle,3pin-F,770333-1	EC261	2
30	Connector,3pin-M,770331-1	EC262	2
31	Contact,Female,24-18,794016-1	EC237	9
32	Pin,Contact,Male,Amp 794017-1	EC211	9
33	Wire,#20 Black Stranded 600v	713317	1
34	Wire,#20 Red Bu	713319	1
35	Wire,#20 Orange Bu	713320	1
36	Wire,#20 White/Red Bu	713329	1
37	Power Plug,Mini,2.5mmx5.5mmx9.5mm	EC1499	1
38	Charger,F/Gp005,Li Lon 11.1v	GP006	1

Granite XP Wireless GPS Mapping Stick without Receiver, P/N GP301-1

Item #	Description	P/N	Qty
1	Receiver,Gps,Wireless	EC1384	1
2	Modem,Rf,Xstream-Pkg	EC1383	2
3	Switch,Spdt,Snap-In Rocker	EC1496	1
4	Bracket,Mntg,Rf Modem Enclosure	GP003	1
5	Holder,Indicator,Led,T-1 3/4"	EL078	1
6	Led,7000 Mcd,Light Board	BW112	1
7	Washer,Hose Rubber	109302	2
8	Pole Prism,8.5',Quick Release,Seco	GP001	1
9	Label,Logo 2.5"	962029	1
10	Mro-Mount,Cable Tie	505147	1
11	Tube,Shrink,Black 3/32"	712595	1
12	Mro-Tie,Cable,3/32"X4",Wht/Clr	440307	1
13	Label,Id,Cable Marker	CS185	1
14	Screw,Truss,10-32x5/8 Phil Sst	712450	4
15	Plate,Metal,Bottom,Wireless,Gps	GP007	1
16	Standoff,4-40 Thrd,F/F,¼Hex.875l,Al	HW377	4
17	Screw,Flat,4-40x 3/8 Phil Sst	100055	4
18	Cover,Plastic,Wireless,Gps	GP008	1
19	Power Jack,Mini,2.5mm P X5.5mm Opng	EC1498	1
20	Battery Pack,Li Lon 11.1 V 2400 Ma	GP005	1
21	Boot,Switch,Splash Proof	EC1497	1
22	Screw,Pan,4-40x1/2 Phil Sst	HW246	4
23	Washer,Flat,#4 Sst	100171	4
24	Case,Watertight,Modified	GP002-1	1
25	Mro-Tape,Dbl Side,Adh,.5"X.005,Poly	CS239	1
26	Resistor,Cf,680 Ohm 1/4w 5%	700046	1
27	Connector,6pin,F,Softshell,770355-1	EC269	1
28	Receptacle,6pin,Male,770356-1	EC236	1
29	Receptacle,3pin-F,770333-1	EC261	2
30	Connector,3pin-M,770331-1	EC262	2
31	Contact,Female,24-18,794016-1	EC237	9
32	Pin,Contact,Male,Amp 794017-1	EC211	9
33	Wire,#20 Black Stranded 600v	713317	1
34	Wire,#20 Red Bu	713319	1
35	Wire,#20 Orange Bu	713320	1
36	Wire,#20 White/Red Bu	713329	1
37	Power Plug,Mini,2.5mmx5.5mmx9.5mm	EC1499	1
38	Charger,F/Gp005,Li Lon 11.1v	GP006	1

GRANITE XP
Asset Inspection & Decision Support Software for the Water Industry

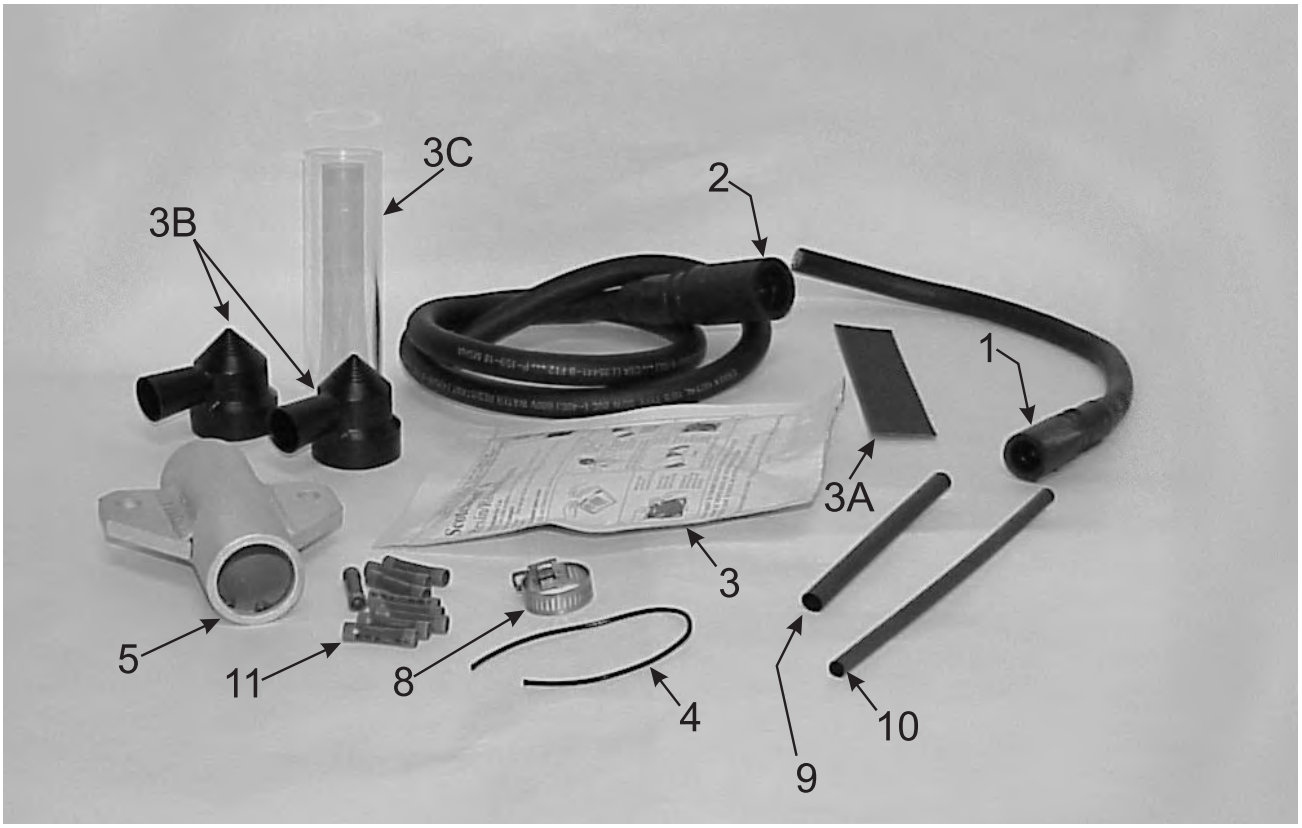
GRANITE XP OPTIONAL MODULES	
GX505	SOFTWARE,INCLINOMETER MODULE GXP
GX506	SOFTWARE,MANHOLE-NODES MODULE GXP
GX507	SOFTWARE,LATERAL MODULE GXP
GX508	SOFTWARE,GROUTING MODULE GXP
GX510	SOFTWARE,HANSEN SEWER MODULE GXP
GX511	SOFTWARE,HANSEN INTERFACE GXP
GX513	SOFTWARE,WINCAN EXPORT MODULE GXP
GX515	SOFTWARE,PACP MODULE GXP
GX516	SOFTWARE,WRC MODULE GXP
GX518	SOFTWARE,WRC1 MODULE GXP
GX523	SOFTWARE,FLEXIDATA-PACP MODULE GXP
GX524	SOFTWARE,GPS MODULE GXP
GX525	SOFTWARE,ESRI GIS MODULE GXP
GX526	SOFTWARE,HANSEN STORM MODULE GXP
GX533	SOFTWARE,GBA MASTER SER-CUES IMPORT
GX534	SOFTWARE,SCHEDULER MODULE GXP
GX545	SOFTWARE,SCORING MODULE INSPECTION
GX546	SOFTWARE,SONAR MODULE GXP
GX557	SOFTWARE,DIG PROCESSING MOD,GXP,DUC
GX559	SOFTWARE,DIG PROCESS VIEWER,GXP,DUC

GRANITE XP SUPPORT PLANS	
GX520	SOFTWARE,ENHANCED SUPPORT PLAN
GX537	SOFTWARE,RE-ENROLLMENT FEE,SUPPORT
GX538	CONSULTING,1H,HELP DESK,SUPPORT
GX548	SOFTWARE,FULL POINT UPGRADE,GXP
GX549	SOFTWARE,DECIMAL POINT UPGRADE,GXP

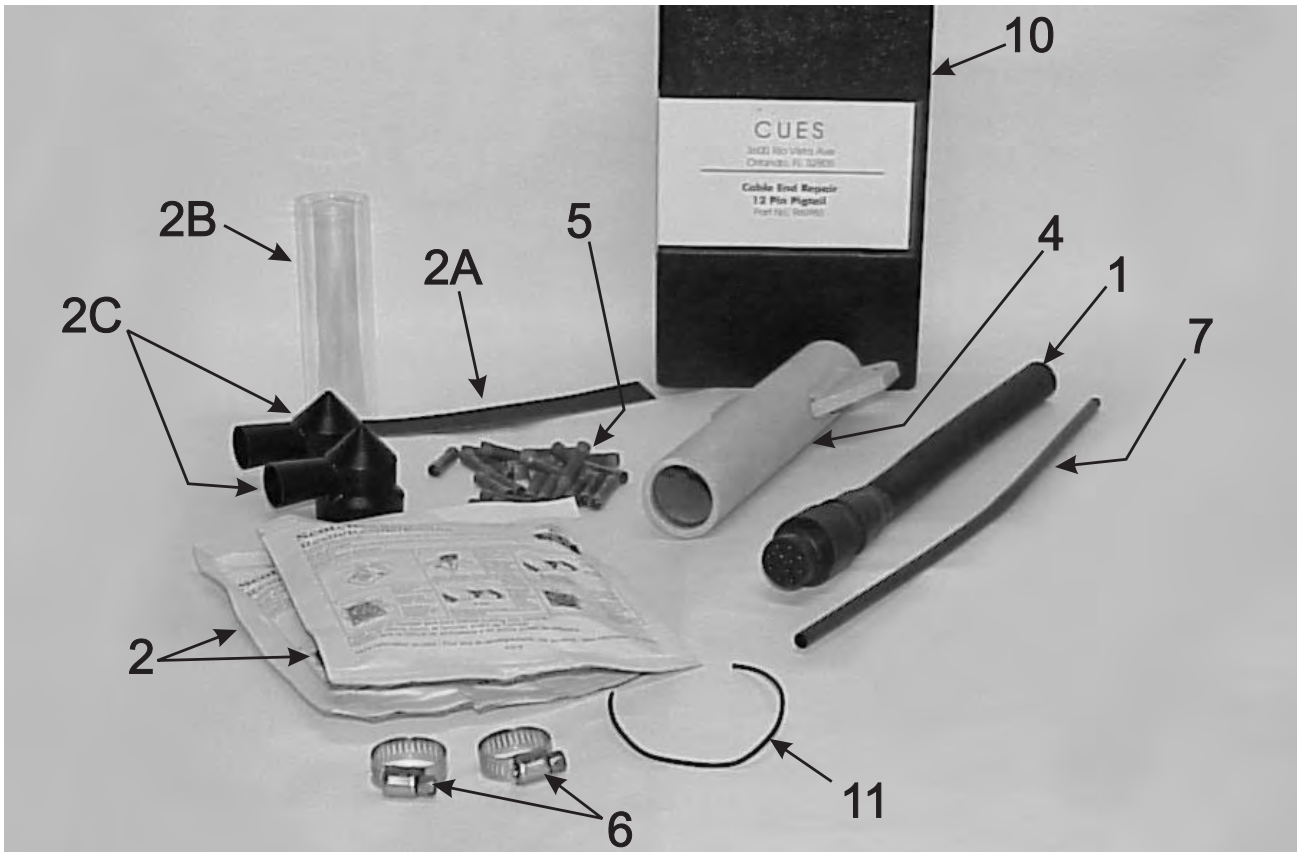
GRANITE XP
Asset Inspection & Decision Support Software for the Water Industry

GRANITE XP CONSULTING	
GX521	CONSULTING,1H,PROFESSIONAL SERVICES
GX521-T	CONSULTING,TRAVEL EXPENSE

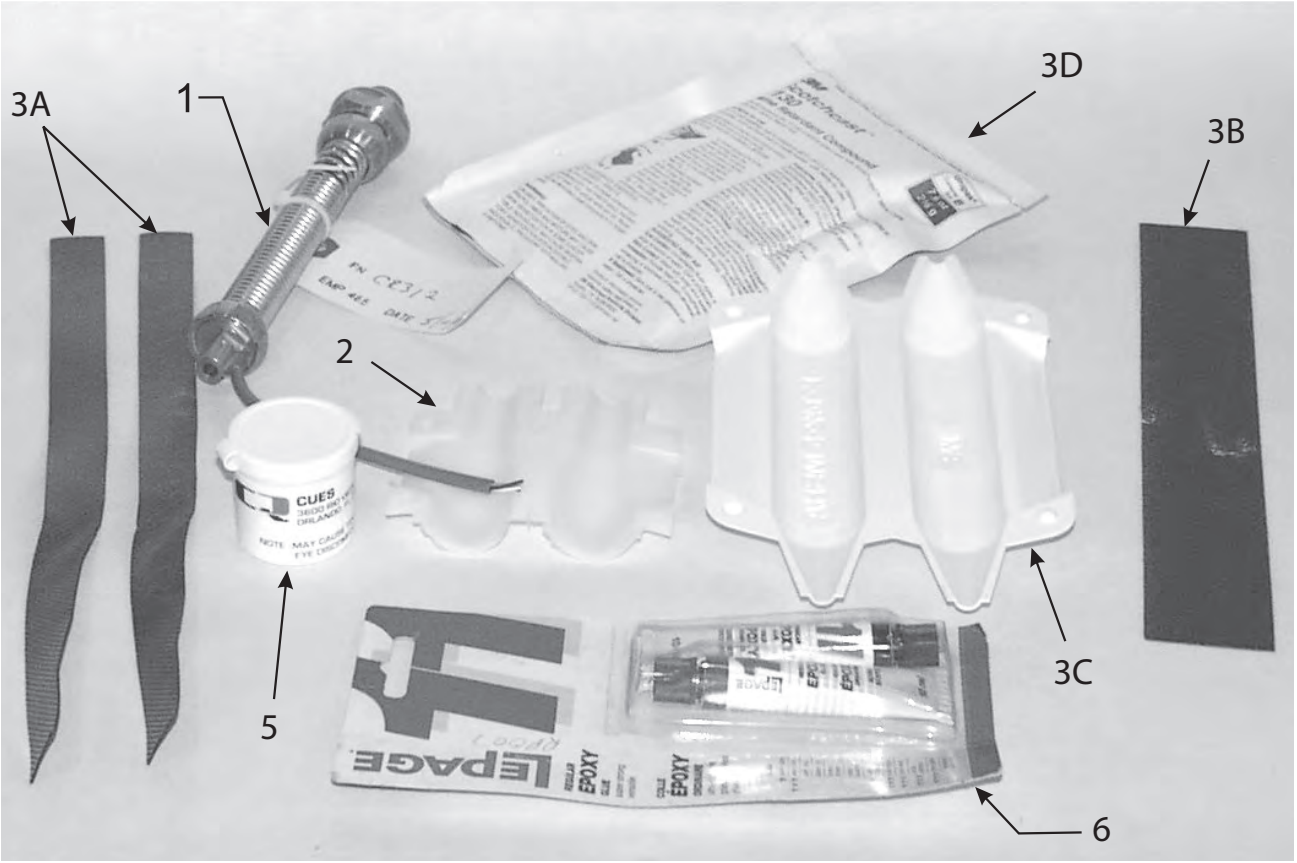
GRANITE XP ADDITIONAL SOFTWARE	
DP608	SOFTWARE,ARCVIEW 9.0 W/ARCMAP,ESRI
GX519	SOFTWARE,MPEG-2 DECODER,ELECARD
GX527	SOFTWARE,STD.ARCGIS ENGINE RUNTIME
GX535	SOFTWARE,MPEG4 DECODER,DIVX PLYR
GX536	SOFTWARE,CD/DVD REC,NERO,V7
GX558	SOFTWARE,WINDOWS 7 PROFESSIONAL 64
GX560	SOFTWARE,ESRI,ARCVIEW 10



Repair Kit (for steel armor TV cable (blue) w/POS), 9501230		
Item #	Description	P/N
-1	Pigtail, 4-Pin Female	160534
-2	Pigtail, 5-Pin Female	160551
-3	Kit, Scotchcast, Splice, #82-A, Steel Armor	950100
	3a - Sandpaper Strip, N/A, Order NHA	
	3b - End Cap, N/A, Order NHA	
	3c - Plastic Splice Chamber (Not Used)	
-4	Wire, #20 Black Stranded 600V	713317
-5	Splice Chamber, Cable, M/C Steel Armor	1202150
-6	Instruction Sheet, TV/TV Seal, M/C Scotch	9609250
	(Not Shown)	
-8	Clamp, Worm, SCR, SST, #6 .312 Wide	120602
-9	Tube, Shrink, Black, 1/4" RNF	712576
-10	Tube, Shrink, Black, 3/16" RNF	712577
-11	Connector, Butt, 16-14	160022
	N/A - Not Available NHA - Next Higher Assembly	



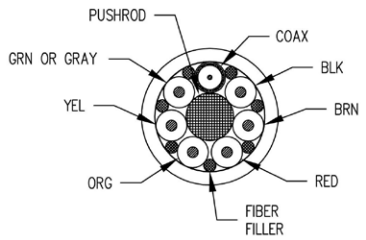
Repair Kit (cable end repair for LIS), 950200		
Item #	Description	P/N
-1	Pigtail, 12-Pin, Male w/ Female Pin	770001
-2	Kit, Scotchcast Splice, #82 -A, Steel Armor	950100
	2a - Rubber Tape, N/A, Order NHA	
	2b - Plastic Splice Chamber (Not Used)	
	2c - End Cap, N/A, Order NHA	
-3	Resin Splicing, #4, SCT Steel Armor	950098
-4	Splice Chamber, Cable, M/C, Long	120218
-5	Connector, Butt, 16-14	160022
-6	Clamp, Worm, Screw, SST, #6, .312 Wide	120602
-7	Tube, Shrink, Black, 3/16" RNF	712577
-10	Video, TV Cable Repair, w/12 Pin	960983
-11	Wire, #20 Black Stranded 600V	713317
	N/A - Not Available NHA - Next Higher Assembly	



Repair Kit (to repair CX1, end of push cable (.176) on coiler, for ProScout or Inspector General), CR314		
Item #	Description	P/N
-1	Kit, Connection 1, Cable End for .176	CR312
-2	Mold, Scotchcast, CX1	CR130
-3	Kit, Scotchcast, .25 - .80 Diameter Cable	EL220
	(A) - Tape Strip (2 ea) N/A Order NHA	
	(B) - Sandpaper Strip, N/A, Order NHA	
	(C) - Mold, N/A, Order NHA	
	(D) - Scotchcast Resin	
-4	Instruction Sheet, CX1 for .176 Cable	CR141
-5	Grease, Anti-Seize	420797
-6	Epoxy, 24 Hour	RP007
-7	TUBE,SHRINK,BLACK 3/16"RNF (not shown)	712577
-8	MRO-TAPE,ELECTRICAL (not shown)	440365
-9	INSTR.SHT,CABLE END,CXI,MP 20/20 (not shown)	CM302-INST
	N/A - Not Available NHA - Next Higher Assembly	

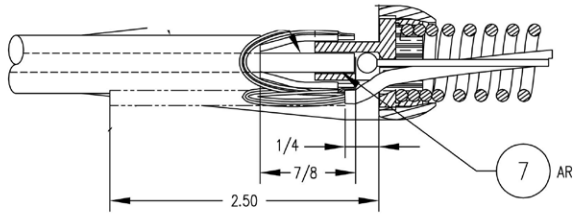
Kit P/N CR314

CR141 Instruction sheet CX1 for .176 Cable

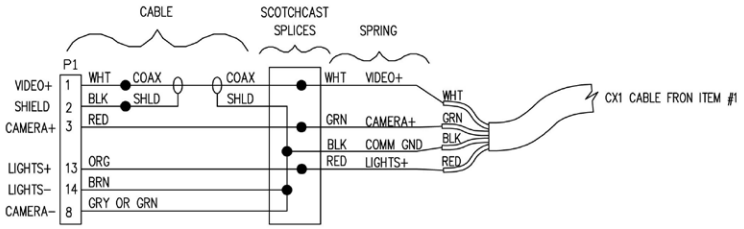


BLK CABLE CR010

RIGHT SIDE VIEW
2X SCALE



SECTION VIEW
2X SCALE

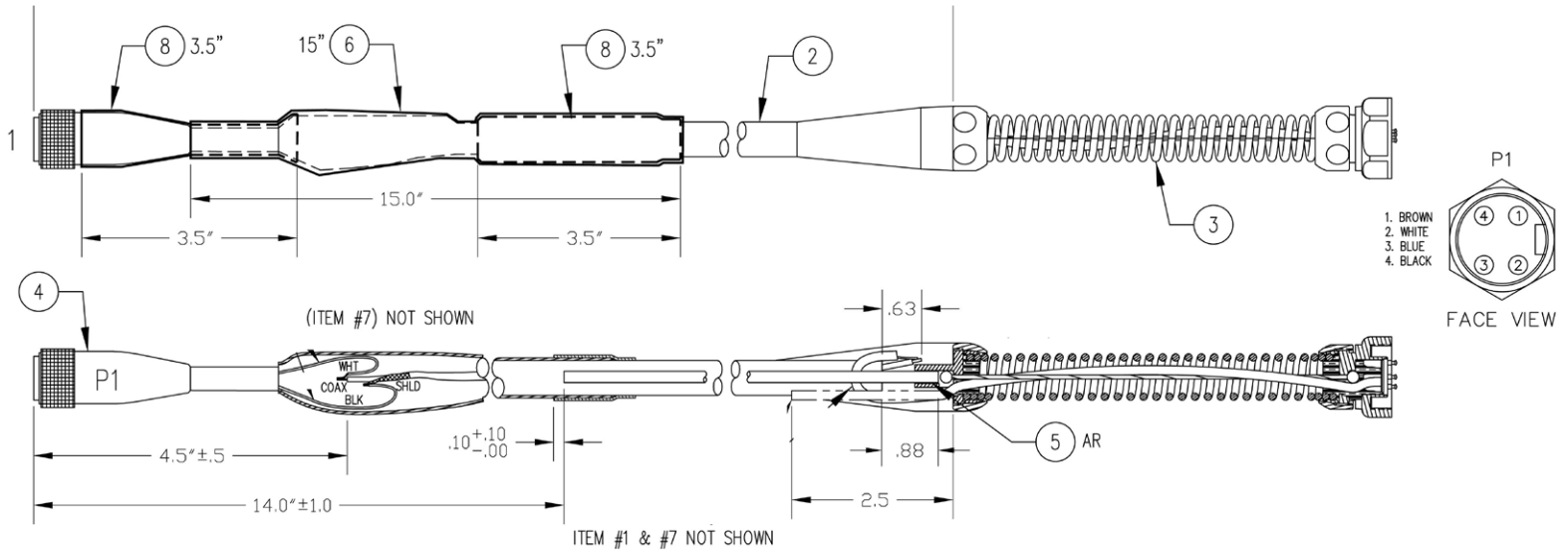


ITEM	QTY	DESCRIPTION	PART NO.	SYM
7	1	EPOXY, 24 HOUR	RP007	
6	AR	TAPE, BLACK, ELECTRICAL 3/4 ROLL	440365	
5	.5'	TUBE, SHRINK, BLK 3/16" RNF	712577	
4	REF	CABLE, MINI, 8 COND .176	CR010	
3	1	KIT, SCOTCHCAST, .250–.80 DIA CABLE	EL220	
2	1	MOLD, SCOTCHCAST, CX1	CR130	
1	1	CONNECTION 1, CABLE END, F/.176	CR312	

"The Standard of the Industry"

Kit P/N CR314

CM302 Instruction sheet Cable End CX1 for MP 20/20 - Page 1 of 3



CABLE CHART

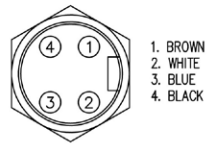
CM012-6	300'
CM012-5	270'
CM012-4	250'
CM012-3	200'
CM012-2	150'
CM012-1	100'
DASH NO	DIM "A"

ITEM	QTY	DESCRIPTION	PART NO.	SYM
8	7"	TUBE, SHRINK, BLK 1/2" SCL	712581	
7	4"	TUBE, SHRINK, BLK 3/16" RNF	712577	
6	15"	TUBE, SHRINK, BLACK 3:1 RATIO-1/2"	712572	
5	1	MRO-EPOXY, 24 HOUR LEPAGE	RP007	
4	1	PIGTAIL, MICRO, 4-PIN-F, STR, 22AWG, 2M	EL734	P1
3	1	KIT, CX1, CABLE END, F/.176	CR314	
2	AR	CABLE, PUSH, 5 COND, .410 OD, .177 ROD	SEE CHART	
1	AR	MRO-TAPE, FIBER ELECTRICAL	440351	

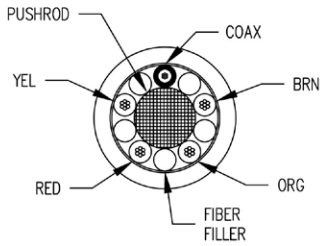
CONFIGURATION TABLE	
PART NO.	DESCRIPTION
CM302-5	CABLE ASSY, PUSH, 250', MINI PUSH SYS
CM302-4	CABLE ASSY, PUSH, 150', MINI PUSH SYS
CM302-3	CABLE ASSY, PUSH, 300', MINI PUSH SYS
CM302-2	CABLE ASSY, PUSH, 270', MINI PUSH SYS
CM302-1	CABLE ASSY, PUSH, 200', MINI PUSH SYS
CM302	CABLE ASSY, PUSH, 100', MINI PUSH SYS

Kit P/N CR314

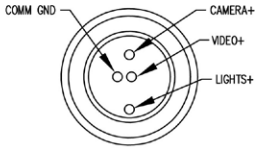
CM302 Instruction sheet Cable End CX1 for MP 20/20 - Page 2 of 3



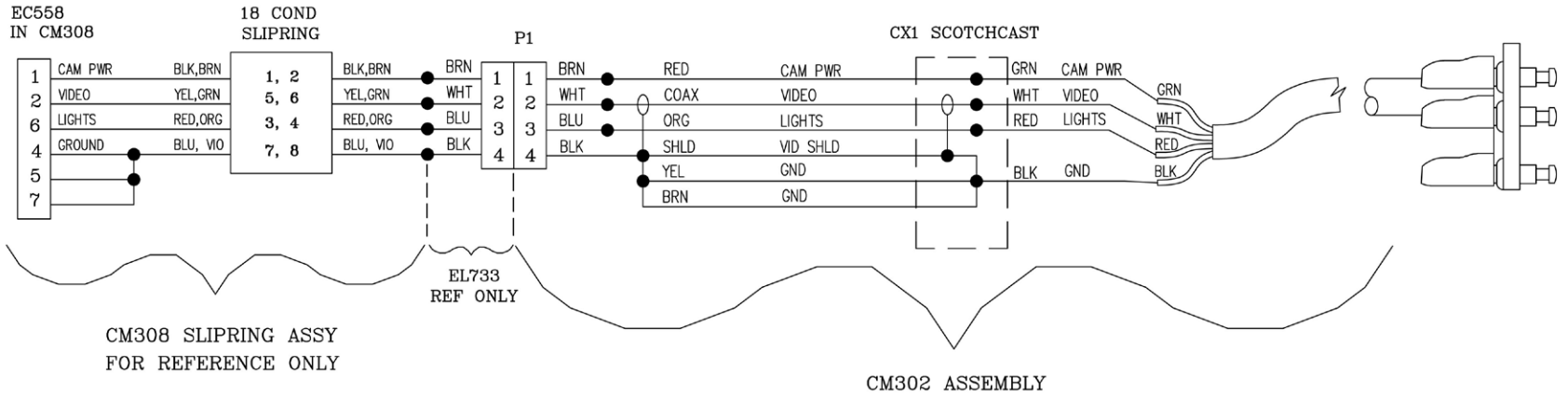
P1
(FACE VIEW)



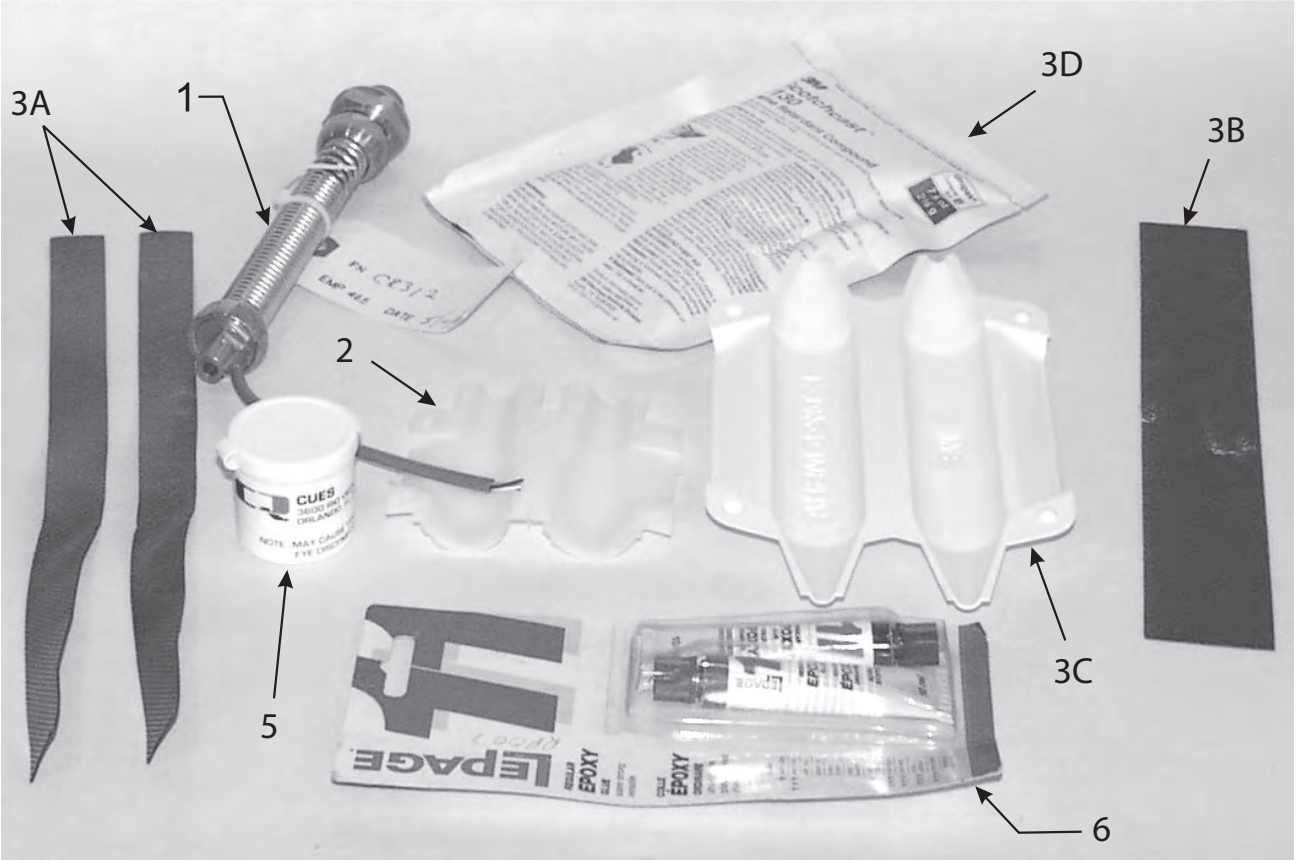
CM012 PUSH CABLE



CX1 FRONT VIEW



WIRING DIAGRAM



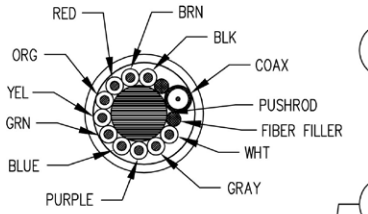
Repair Kit (to repair CX1, end of push cable (.250) on coiler, for ProScout or Inspector General), CR315		
Item #	Description	P/N
-1	Connection 1, Cable End for .250	CR316
-2	Mold, Scotchcast, CX1	CR130
-3	Kit, Scotchcast, .25 - .80 Diameter Cable	EL220
	(A) - Tape Strip (2 ea) N/A Order NHA	
	(B) - Sandpaper Strip, N/A, Order NHA	
	(C) - Mold, N/A, Order NHA	
	(D) - Scotchcast Resin	
-4	Instruction Sheet, CX1 for .250 Cable (not shown)	CR142
-5	Grease, Anti-Seize 1 oz.	420797
-6	Epoxy, 24 Hour	RP007
	N/A - Not Available NHA - Next Higher Assembly	

Kit P/N CR315

CR142 Instruction sheet .176 Cable End CX1

ASSEMBLY INSTRUCTIONS:

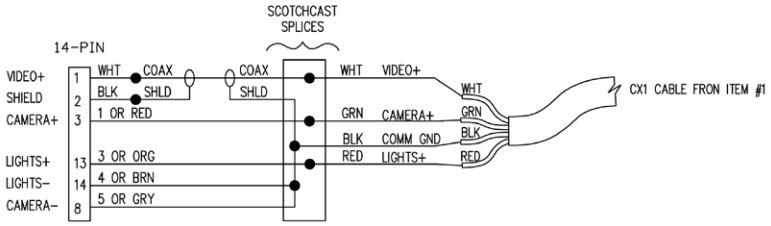
* PREP CABLES TO DIMENSIONS SHOWN IN SECTION.
* SLEEVE AND SOLDER LEADS TOGETHER USING ITEM #5 (SHRINK TUBE).
* WRAP SPLICES WITH ITEM #6 (TAPE).
* CHECK CONTINUITY OF CONNECTIONS BEFORE POURING SCOTCHCAST.
* BOND ROD OF ITEM #4 (GREY CABLE) TO FITTING OF ITEM #1 (CX1) AS SHOWN USING ITEM #7 (EPOXY).
* LOCATE ITEM #2 (MOLD) AS SHOWN, OVERLAPPING ONTO FITTING 1/8" – 1/4". SECURE BOTH ENDS WITH ITEM #6 (TAPE).
* FILL MOLD WITH ITEM #3 (SCOTCHCAST) PER SUPPLIED DIRECTIONS.
* AFTER SCOTCHCAST CURES, DISCARD MOLD. THEN, CHECK CONTINUITY BEFORE CONNECTING TO CAMERA.



GREY CABLE CR005

SECTION VIEW
2X SCALE

RIGHT SIDE VIEW
2X SCALE



WIRING DIAGRAM

ITEM	QTY	DESCRIPTION	PART NO.	SYM
7	1	EPOXY, 24 HOUR	RP007	
6	AR	TAPE, BLACK, ELECTRICAL 3/4 ROLL	440365	
5	.5'	TUBE, SHRINK, BLK 3/16" RNF	712577	
4	REF	CABLE, MINI, 11 COND .250 GREY	CR005	
3	1	KIT, SCOTCHCAST, .250–.80 DIA CABLE	EL220	
2	1	MOLD, SCOTCHCAST, CX1	CR130	
1	1	CONNECTION 1, CABLE END, F/.250	CR316	

MC223



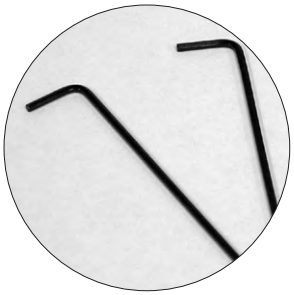
Lifting Loop

940660



Pop Rivet Tool

CS127



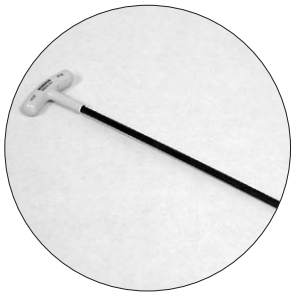
Allen Wrench

940599



Spare Parts Container

CS054



"T" Handle Allen Wrench

097790 / HW1078



097790 - RIVET,POP,SST,3/32X5/16
HW1078 - RIVET,3/32 X 1/8 SS

MC206



Round Cleat - 2 Hole

940207



Chain Lubricant

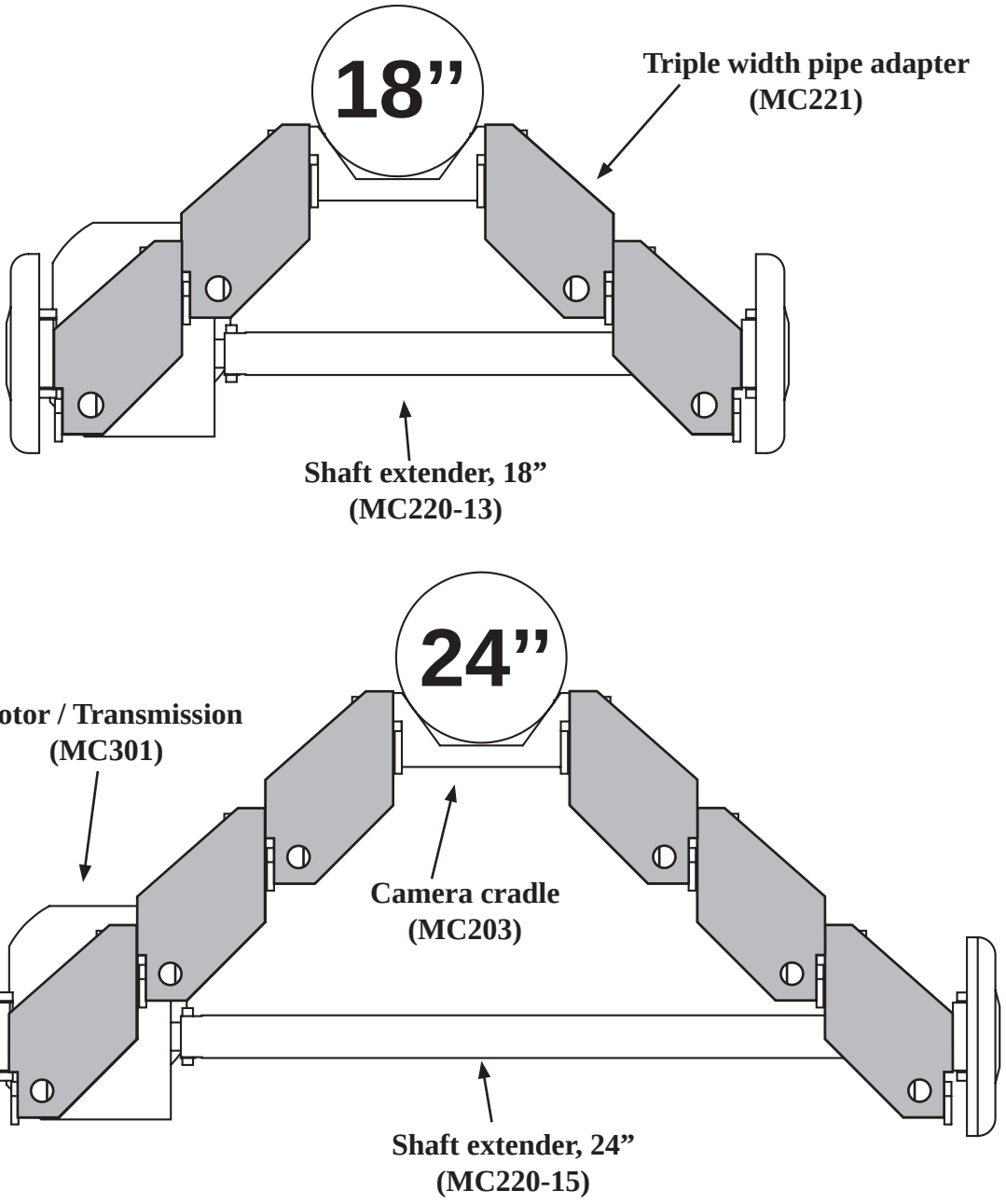
MC226



Master Link for MC207 Chain

KITS

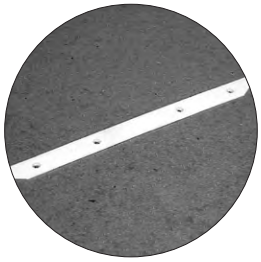
Kit, Accessories, Shorty II & Ultra Shorty - MC224



P/N	Description	Qty
MC220-13	SHAFT,EXTENDER,DRIVE,18”PIPE	1
MC220-21	SHAFT,EXTENDER,DRIVE,21”PIPE	1 (not shown)
MC220-15	SHAFT,EXTENDER DRIVE,24”PIPE	1
MC221	ADAPTER ASSY, TRIPLE WIDTH,USII	4

Kit, Extension, for 18” -24” Pipe Shorty II MC218

MC009



Wearstrip, Side

MC220-1



Shaft, Extender Drive, 8" Pipe

HW768



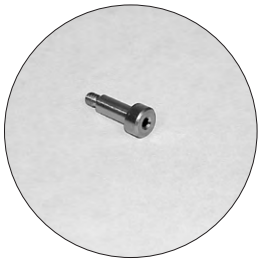
Screw, used for single & triple width adaptors

MC220-3



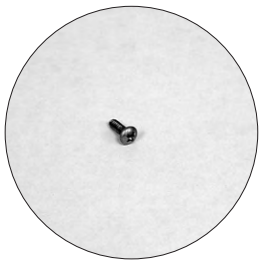
Shaft, Extender Drive, 10" Pipe

HW772



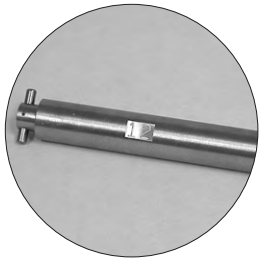
Screw, used for tow cable brass weldment

HW774



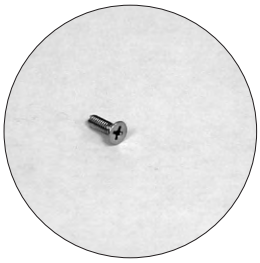
Screw, for wearstrips

MC220-5



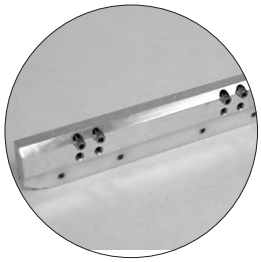
Shaft, Extender Drive, 12" Pipe

103062



Screw, used for tow cables in single or triple width adapters

MC222



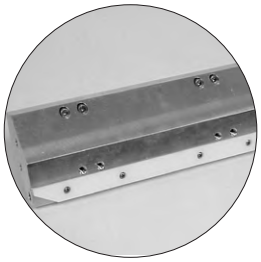
Adapter, Single Width, for Ultra Shorty or Shorty II

MC220-7



Shaft, Extender Drive, 15" Pipe

MC221



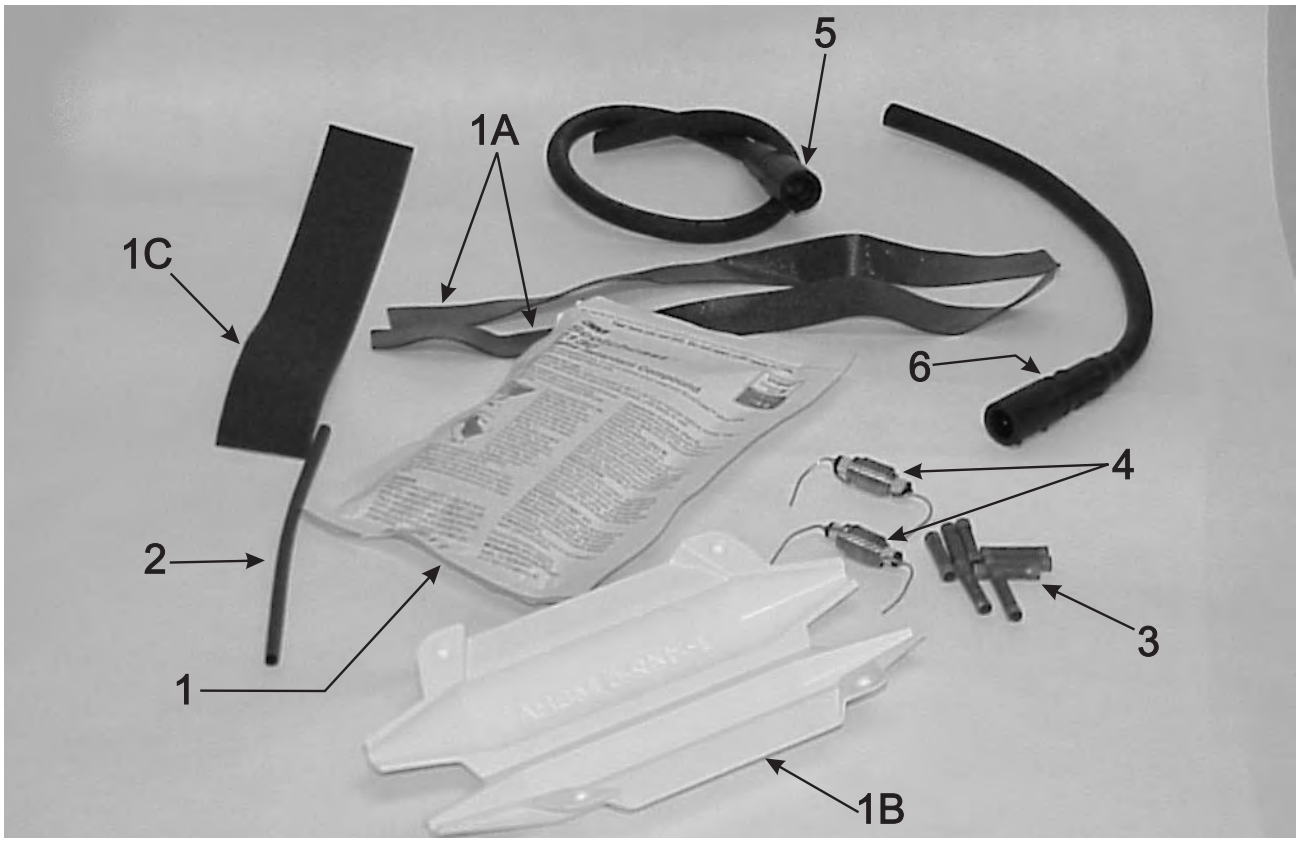
Adapter, Triple Width, for Ultra Shorty or Shorty II

KITS

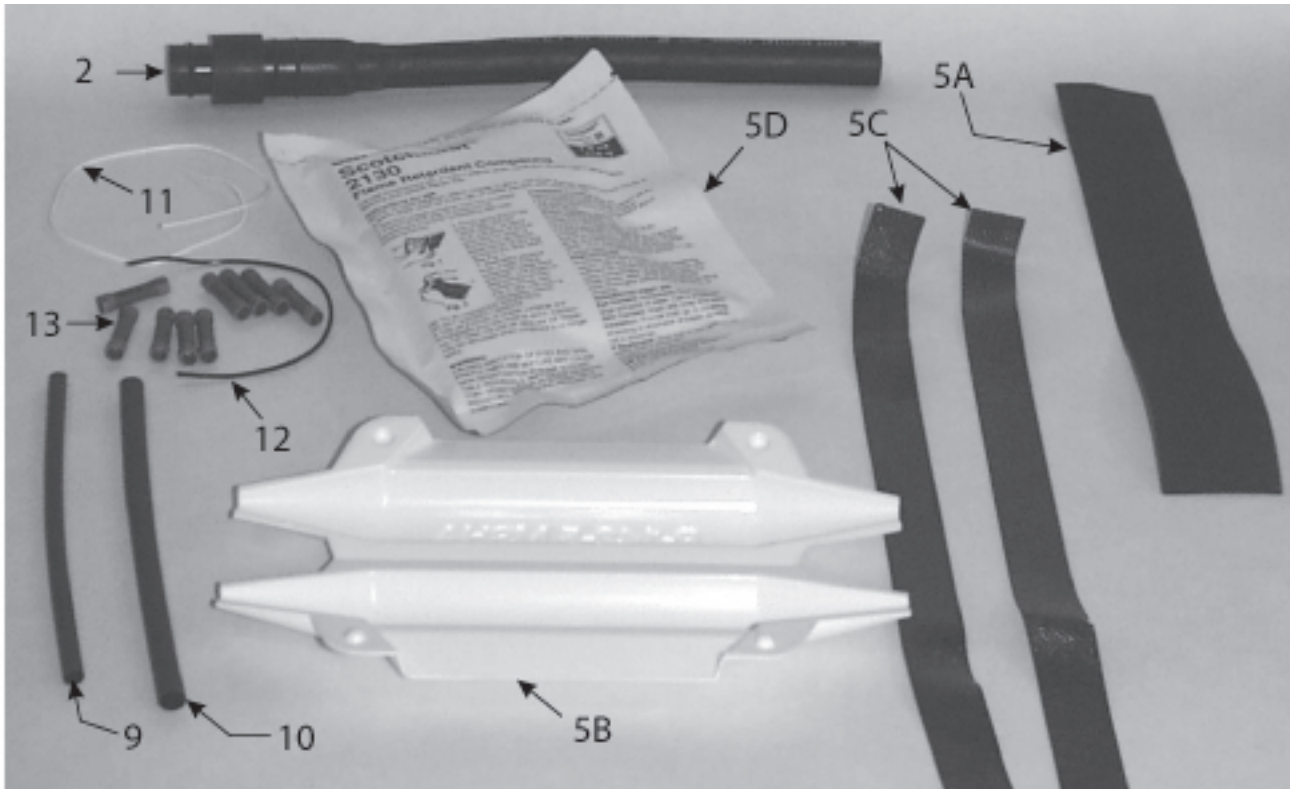
Kit, Extension, for 8" - 15" Pipe, Shorty II & Ultra Shorty, MC219



Repair Kit, 4/5 Pin, Scotchcast EL220 (for Green/Gold TV Cable & Inspector General Dolly Cable), RP102		
Item #	Description	P/N
-1	Connector, Butt, 16-14	160022
-2	Pigtail, 5-pin Female	160551
-3	Pigtail, 4-pin Female	160534
-4	Tube, Shrink, Black, 1/4" RNF	712576
-5	Tube, Shrink, BLack, 3/16" RNF	712577
-6	Wire, #20, Black, Stranded 600V	713317
-7	Kit, Scotchcast, .25 - .80 Diameter Cable	EL220
	7a - Sandpaper Strip, N/A, Order NHA	
	7b - Mold, N/A, Order NHA	
	7c - Rubber Tape (2 ea) N/A Order NHA	
	7d - Scotchcast Resin	
-8	Wire, #20, White, BU	713326
	N/A - Not Available NHA - Next Higher Assembly	



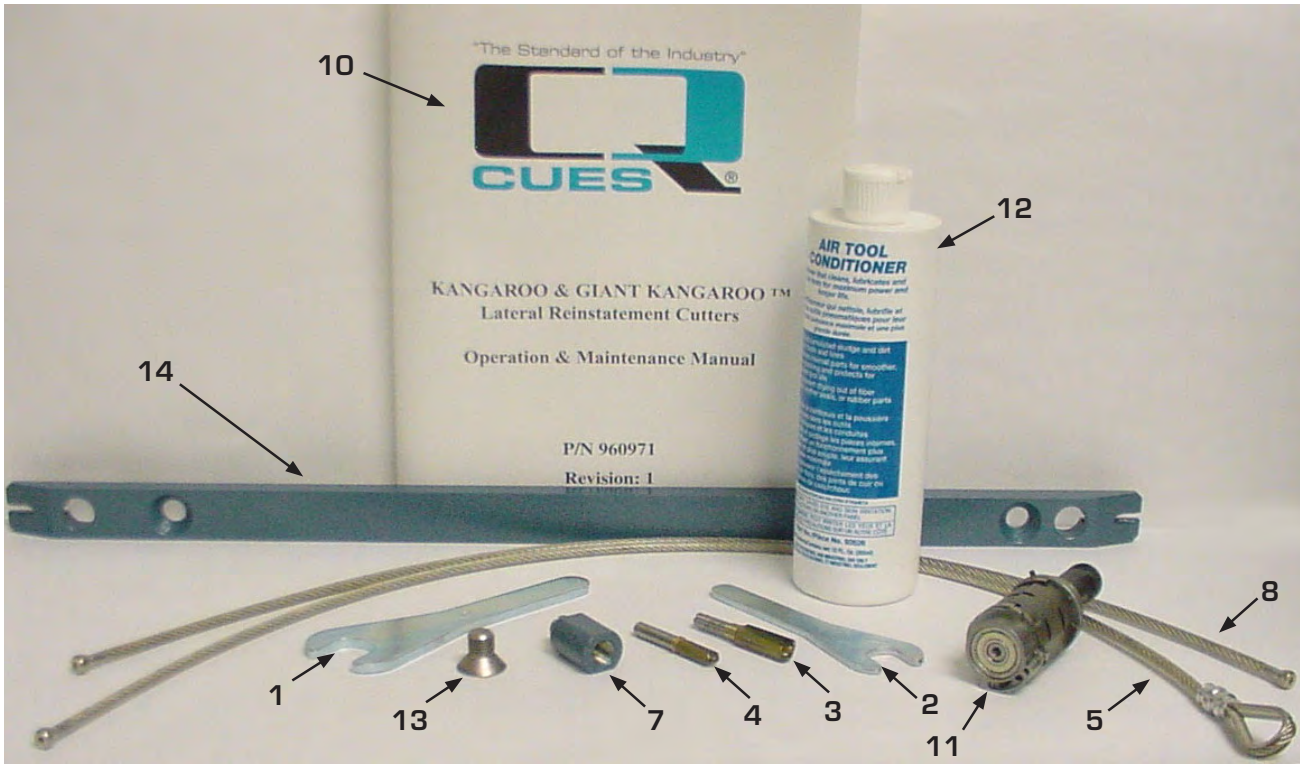
Repair Kit, RP106 (4/3, for single conductor plus cable)		
Item #	Description	P/N
-1	Kit, Scotchcast, .25 - .80 Diameter Cable	EL220
	1a - Rubber Tape (2 ea) N/A Order NHA	
	1b - Mold, N/A, Order NHA	
	1c - Sandpaper Strip, N/A, Order NHA	
	1d - Scotchcast Resin	
-2	Tube, Shrink, Black, 3/16" RNF	712577
-3	Connector, Butt, 16-14	160022
-4	Choke, Hash, 68 UHY @5A	711497
-5	Pigtail, 3-pin Female	160531
-6	Pigtail, 4-pin Female	160534
-7	Instruction Sheet, for RP106, 4/3 Kit	RL206
-8	Wire, #20, Black Stranded (not shown)	713317
	N/A - Not Available NHA - Next Higher Assembly	



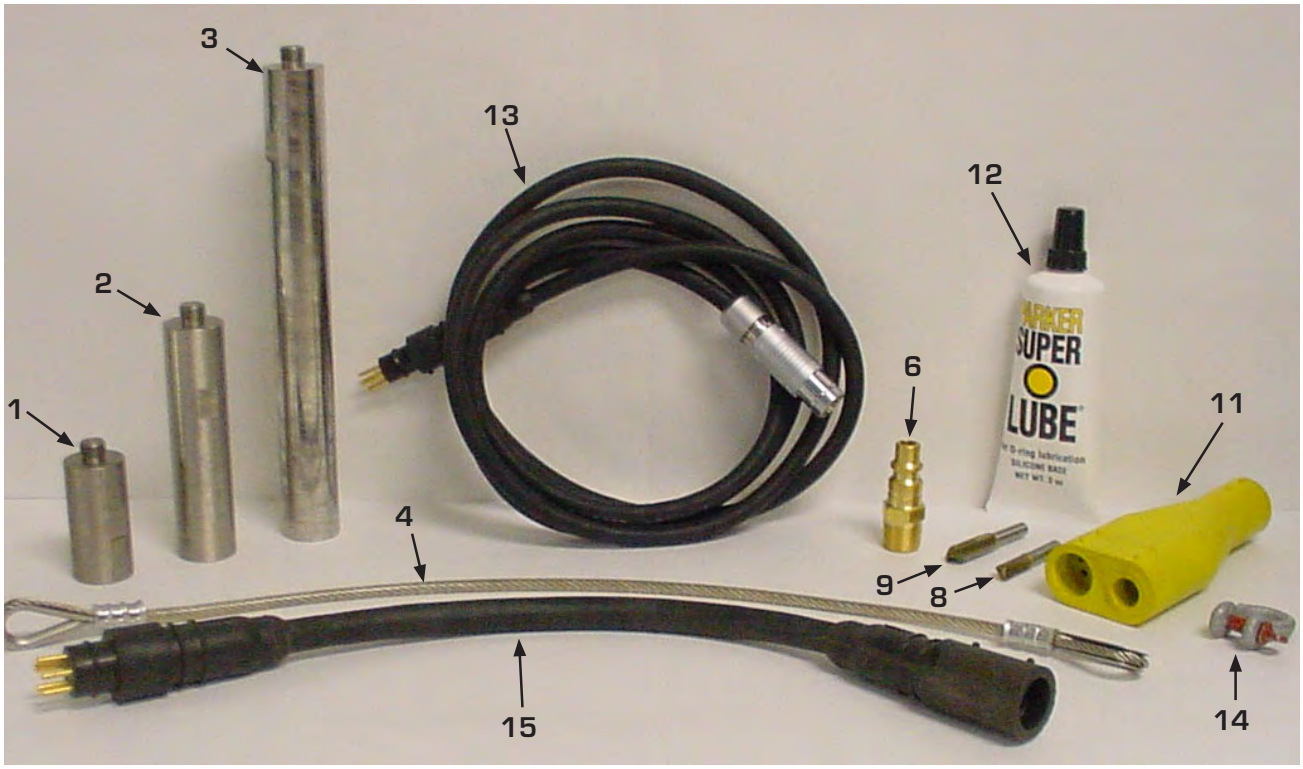
Repair Kit, 12 pin Scotchcast EL220 (for Steerable Mudmaster), RP107		
Item #	Description	P/N
-1	INSTRUCTION SHEET,REPAIR KIT,SMM (not shown)	TM608
-2	Pigtail, 12 pin Male, w/Female Pin	770001
-3	INSTR.SHT,CABLE,2K,SMM/LOGI/AUXLGHT (not shown)	TM634
-4	INSTRUCTION SH.,12PIN,RED,SMM (not shown)	TM640
-5	Kit, Scotchcast, .25 - .80 Diameter Cable	EL220
	a - Sandpaper Strip, N/A, Order NHA	
	b - Mold, N/A, Order NHA	
	c - Rubber Tape (2 ea) N/A Order NHA	
	d - Scotchcast Resin	
-8	MRO-TAPE,ELECTRICAL (not shown)	440365
-9	Tube, Shrink, Black, 3/16" RNF	712577
-10	Tube, Shrink, Black, 1/4" RNF	712576
-11	WIRE,#20 WHITE BU	713326
-12	Wire, #20, Black, Stranded 600V	713317
-13	Connector, Butt, 16-14	160022
	N/A - Not Available NHA - Next Higher Assembly	



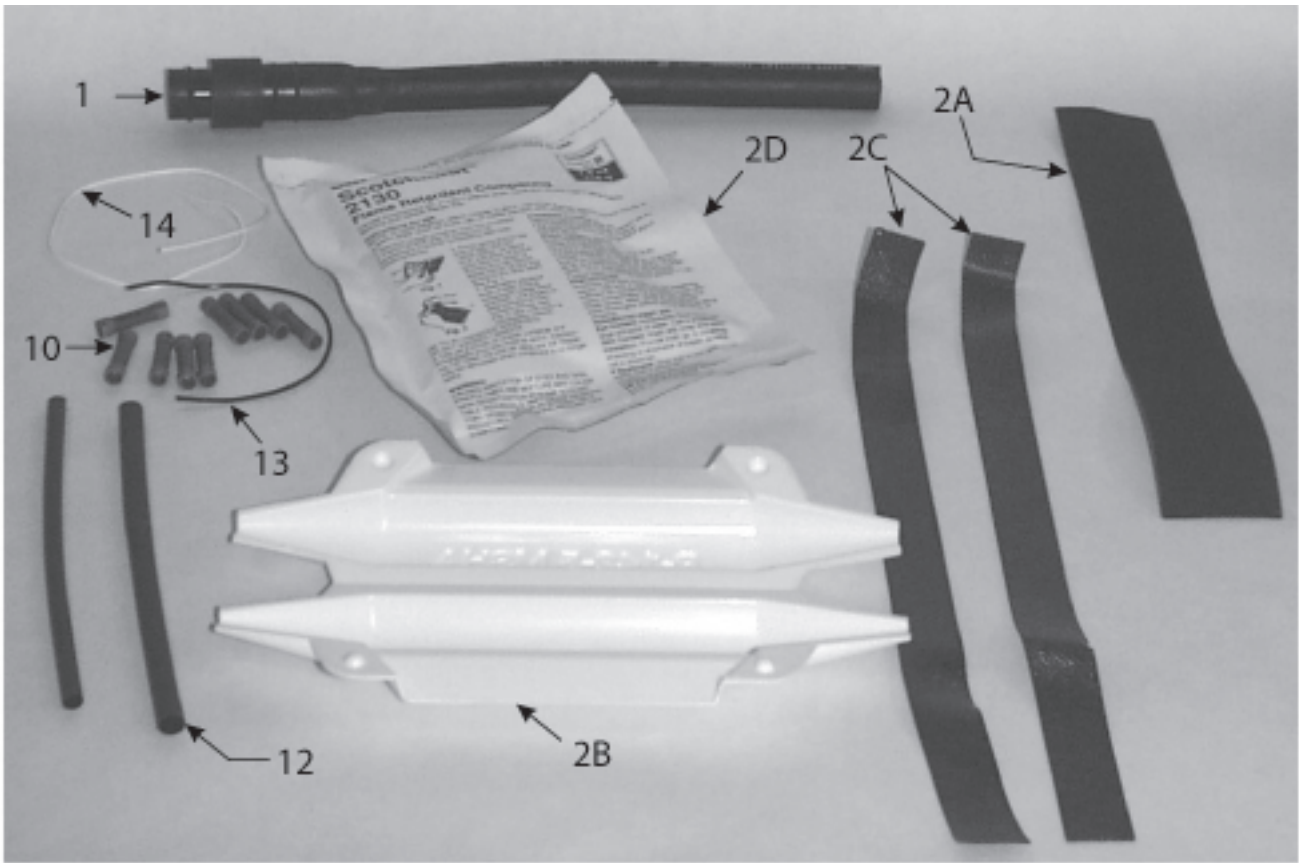
Repair Kit, TV Cable (for single conductor TV cable, 2000'), TR559		
Item #	Description	P/N
-1	Splice Chamber, Cable, S/C	120216
-2	Collar, Cable End, S/C	120217
-3	Connector, Insert, 3 pin Female	160530
-5	Tube, Shrink, Black, 1/4" RNF	712576
-6	Resin, Splicing #4, SCT Stl Arm	950098
-7	Wire, #18, Black	161636
-8	Wire, #18, White	161638
-9	Wire, #18, Green	161637
-10	CONN,RECEPT,W/6-PINS	712607
-11	Pin, Brass, for Wire Size 20-14	712612
-12	Tube, Shrink, Black, 3/4" ADH	712579
-13	Tool, Funnel Plastic, 55mm	940020
-14	Instruction Sheet, Cable, S/C, Shorty (not shown)	TR558
-15	Clamp, Worm, Screw, SST, #4, 5/16" Wide	120601



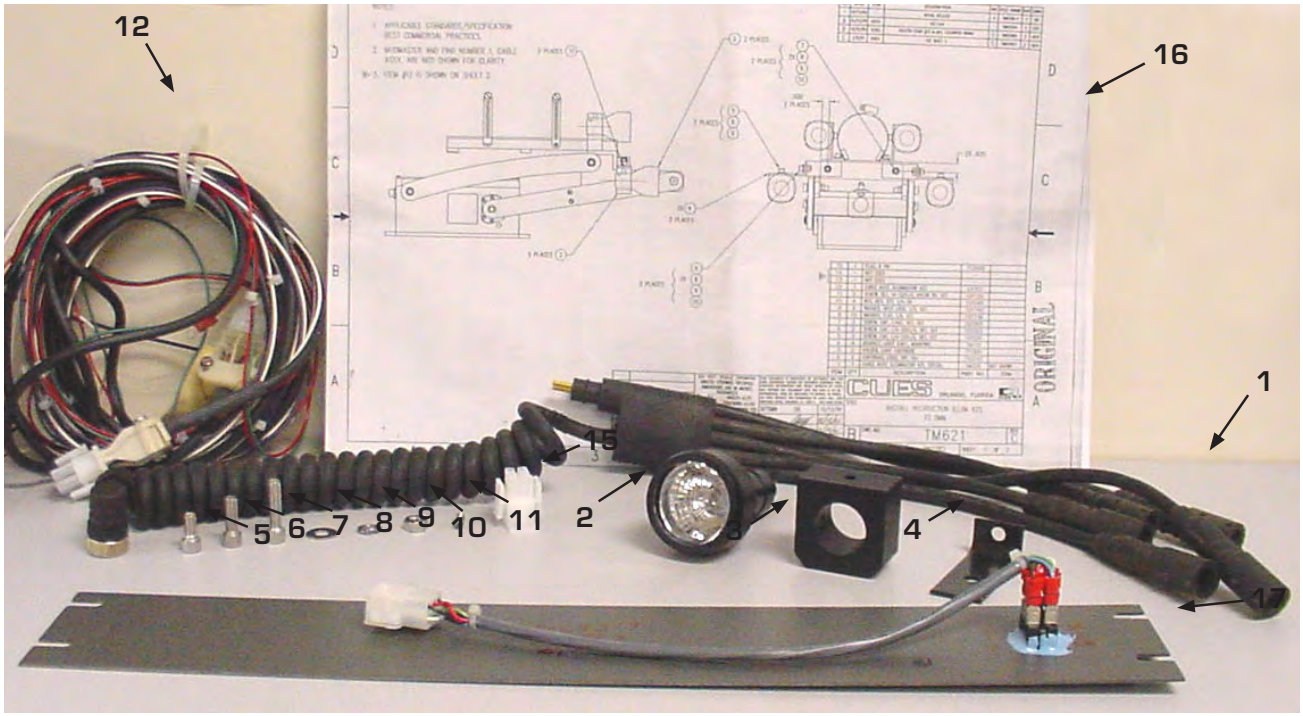
Accessories Kit, Kangaroo Cutter, 9007			
Item #	Description	P/N	Qty
- 1	Collet Wrench 3/4”	8768	1
- 2	Collet Wrench 9/16”	8769	1
- 3	Bit,Router,3/8”	8749	6
- 4	Bit,Router,1/4”	8753	6
- 5	Cable,Tow (27”packer, 39.5”) Kangaroo Cutter	120163	2
- 7	Standoff,Skid	8785	8
- 8	Cable,Tow,18” Packer	120118	2
- 10	Manual, Kangaroo/Giant Kang Cutter	960971	1
- 11	Motor,Air 8”	8871	1
- 12	Mro-Conditioner,Air Tool	440070	1
- 13	Screw,Fh,7/16-20x.625,82deg Ss	8796	4
- 14	Skid,Rail F/Cutter	8719	2
- 15	Cable Assy,Test,Cutter (not shown)	8909	1
-16	BRUSH,WIRE,CNTRLD FLARE,Ø3/4XØ.020 (not shown)	KC086	6



Accessories Kit, Giant Kangaroo Cutter, GK136			
Item #	Description	P/N	Qty
- 1	Spacer,Skid,2"Long	GK004	4
- 2	Spacer,Skid,4"Long	GK005	4
- 3	Spacer,Skid,8"Long	GK006	4
- 4	Cable,Tow,Assy,18"Giant Kangaroo	GK017	4
- 5	Cable Assy,Cont/Slipring/Sol,Cutter	8958	1 (Not Shown)
- 6	Fitting,Brass,Air,3/8"Npt	220492	1
- 8	Bit,Router,3/8"	8749	3
- 9	Bit,Router,1/4"	8753	3
- 10	Cable Assy,Test,Cutter	8909	1 (Not Shown)
- 11	Adapter Cable,Yellow,12/5/6,Cutter	KC301	1
- 12	Mro-Lubricant,O-Ring 2 Oz Tube	439986	1
- 13	Cable Assy,6p/8pfischer,76.25"Lg	KC305	1
- 14	Clevis,3/16"	120426	4
- 15	Cable Assy,5m/5f,15.25"Lg,Cutter	KC304	1
-16	BRUSH,WIRE,CNTRLD FLARE,Ø3/4XØ.020 (not shown)	KC086	3



Kit Repair, 12p, Scotchcast, LIS, RP104			
Item #	Description	P/N	Qty
- 1	Pigtail,12pin,Male,W/Female Pin	770001	1
- 2	Kit,Scotchcast,.25"-.80 Dia Cable	EL220	1 (Not Shown)
	a - Sandpaper Strip, N/A, Order NHA		
	b - Mold, N/A, Order NHA		
	c - Rubber Tape (2 ea) N/A Order NHA		
	d - Scotchcast Resin		
- 3	Tube,Shrink,Black 1/4"Rnf	712576	0.5
- 10	Connector,Butt 16-14	160022	24
- 11	Clamp,Worm Scr,Sst,#6 .312wide 5/8 (not shown)	120602	2
- 12	Tube,Shrink,Black 3/16"Rnf	712577	1
-13	WIRE,#20 BLACK STRANDED 600V	713317	1
-14	WIRE,#20 WHITE BU	713326	1

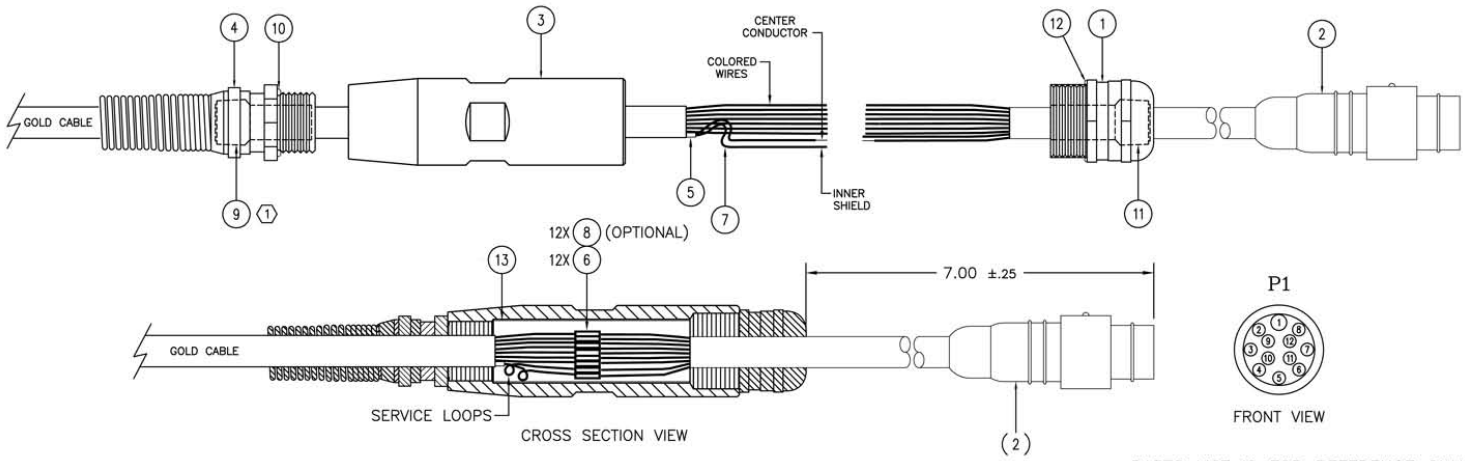


Kit, Illuminator 425, f/SMM, LH316			
Item #	Description	P/N	Qty
- 1	Cable Assy,5light Special Illum.425	TM326	1
- 2	Cartridge,Light Hpl 10+	750142	2
- 3	Light,Cartridge Holder	711891	2
- 4	Bracket,Light Cart.Mounting	TM110	4
- 5	Screw,Cap,Skt Hd,1/4-20x1/2,Sst	101001	2
- 6	Screw,Cap,Skt Hd,1/4-20x3/4,Sst	101022	2
- 7	Screw,Cap,Skt Hd,1/4-20x1,Sst	101065	2
- 8	Washer,Flat,1/4"Sst	101736	10
- 9	Washer,Split Lock,1/4"Sst	101740	6
- 10	Nut,Hex,Sst,1/4-20	101040	4
- 11	Screw,Set,10-32x1/4 Nylon Tip Sst	101120	2
- 12	Cable Assy,Illum 425 To Term Strip	LH307	1
- 15	Plug,6-Pin	712606	1
- 16	Instructions,Ill425/Smm	TM621	1
- 17	Panel Assy,Ill425/1208pcu	LH319	1

P/N RP123

Instruction sheet, Repair, Truck 12-pin Metal, Steerable Pipe Ranger with LAMP, Cutter, Gold Cable

TRUCK MOUNTED CUTTER OR STEERABLE PIPE RANGER WITH LAMP CONFIGURATIONS ONLY. NOT COMPATIBLE WITH STEERABLE MUDMASTER.



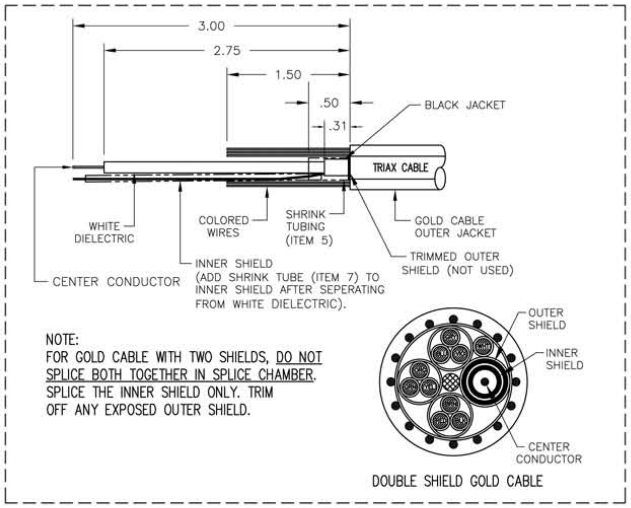
PARTS LIST IS FOR REFERENCE ONLY

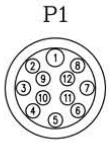
ITEM	QTY	DESCRIPTION	PART NO.	SYM
13	1	MYLAR, INSULATING, 3" X 3", SPLICE CHAMBER	(RP019)	
12	1	O-RING, BUNA, F/HW1454 STRAIN RELIEF	(HW1510)	REPLACEMENT PART
11	1	GROMMET, RUBBER, F/HW1454 STRAIN RELIEF	(HW1508)	REPLACEMENT PART
10	1	O-RING, BUNA, F/HW1333 STRAIN RELIEF	(HW1511)	REPLACEMENT PART
9	1	GROMMET, RUBBER, F/HW1333 STRAIN RELIEF	(HW1509)	REPLACEMENT PART
8	12	BUTT SPLICES, 22-18 AWG, SMALL	(160023)	
7	1	TUBE, SHRINK, BLACK 3/32"	(712595)	AR
6	1	TUBE, SHRINK, BLACK 1/8"	(712789)	AR
5	1	TUBE, SHRINK, BLACK 3/16" RNF	(712577)	AR
4	1	STRAIN RELIEF FITTING, 1/2" NPT, LIQUID TIGHT	(HW1333)	
3	1	CHAMBER, SPLICE, MAINLINE, M/C 12P PIGTAIL	(RP017)	
2	1	PIGTAIL, 12 PIN, MALE, W/FEMALE PINS	(770001)	P1
1	1	STRAIN RELIEF CONN., 3/4" NPT, LIQUID TIGHT	(HW1454)	

P/N RP123

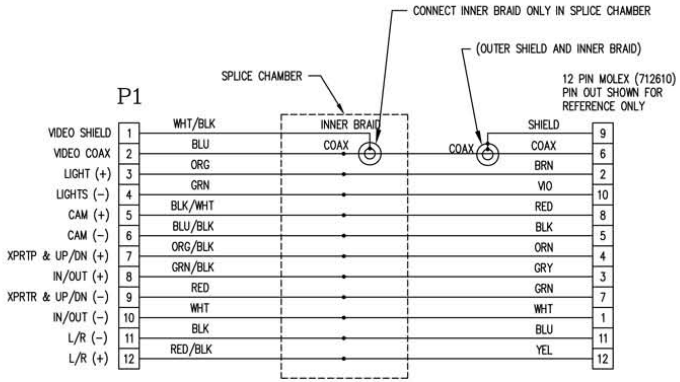
Instruction sheet, Repair, Truck 12-pin Metal, Steerable Pipe Ranger with LAMP, Cutter, Gold Cable

TRUCK MOUNTED CUTTER OR STEERABLE PIPE RANGER WITH LAMP CONFIGURATIONS ONLY. NOT COMPATIBLE WITH STEERABLE MUDMASTER.





FRONT VIEW



WIRING DIAGRAM 12 PIN
PIGTAIL TO GOLD CABLE

"The Standard of the Industry"

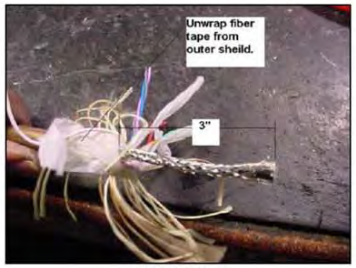


FIGURE 1

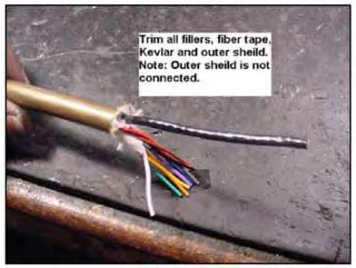


FIGURE 2

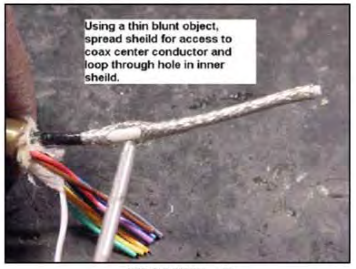


FIGURE 3



FIGURE 4



FIGURE 5

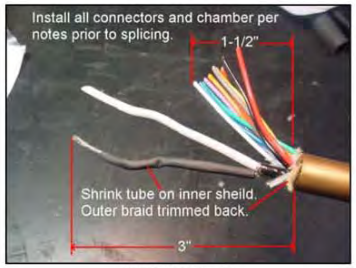


FIGURE 6

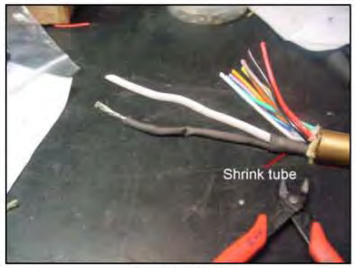


FIGURE 7

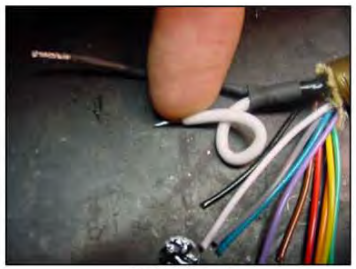

FIGURE 8



FIGURE 9

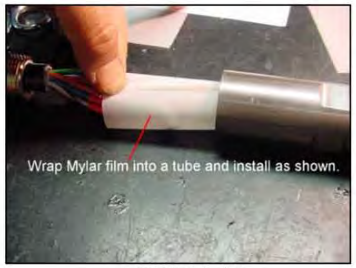


FIGURE 10



FIGURE 11



FIGURE 12



FIGURE 13



FIGURE 14

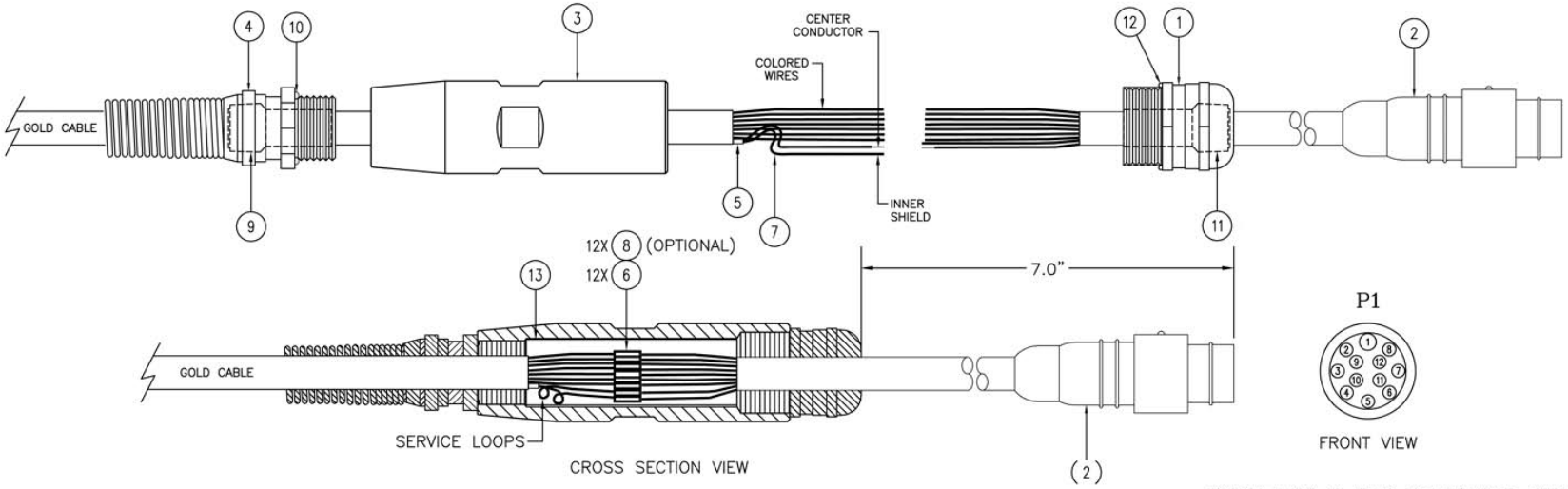
P/N RP123

Instruction sheet, Repair, Truck 12-pin Metal, Steerable Pipe Ranger with LAMP, Cutter, Gold Cable

P/N RP124

Instruction sheet, Repair, Truck 12-pin Metal, Pipe Ranger, Steerable Pipe Ranger, Steerable Mudmaster Only, Gold Cable

TRUCK MOUNTED PIPE RANGER, STEERABLE PIPE RANGER OR STEERABLE MUDMASTER CONFIGURATIONS ONLY. NOT COMPATIBLE WITH LAMP.



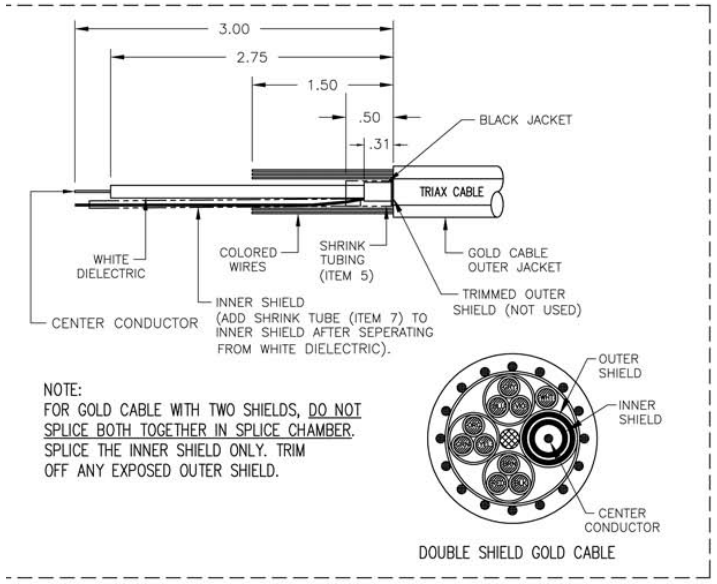
PARTS LIST IS FOR REFERENCE ONLY

ITEM	QTY	DESCRIPTION	PART NO.	SYM
13	1	MYLAR, INSULATING, 3" X 3", SPLICE CHAMBER	(RP019)	
12	1	O-RING, BUNA, F/HW1454 STRAIN RELIEF	(HW1510)	REPLACEMENT PART
11	1	GROMMET, RUBBER, F/HW1454 STRAIN RELIEF	(HW1508)	REPLACEMENT PART
10	1	O-RING, BUNA, F/HW1333 STRAIN RELIEF	(HW1511)	REPLACEMENT PART
9	1	GROMMET, RUBBER, F/HW1333 STRAIN RELIEF	(HW1509)	REPLACEMENT PART
8	12	BUTT SPLICES, 22-18 AWG, SMALL	(160023)	
7	1	TUBE, SHRINK, BLACK 3/32"	(712595)	AR
6	1	TUBE, SHRINK, BLACK 1/8"	(712789)	AR
5	1	TUBE, SHRINK, BLACK 3/16" RNF	(712577)	AR
4	1	STRAIN RELIEF FITTING, 1/2" NPT, LIQUID TIGHT	(HW1333)	
3	1	CHAMBER, SPLICE, MAINLINE, M/C 12P PIGTAIL	(RP017)	
2	1	PIGTAIL, 12 PIN, MALE, W/FEMALE PINS	(770001)	P1
1	1	STRAIN RELIEF CONN., 3/4" NPT, LIQUID TIGHT	(HW1454)	

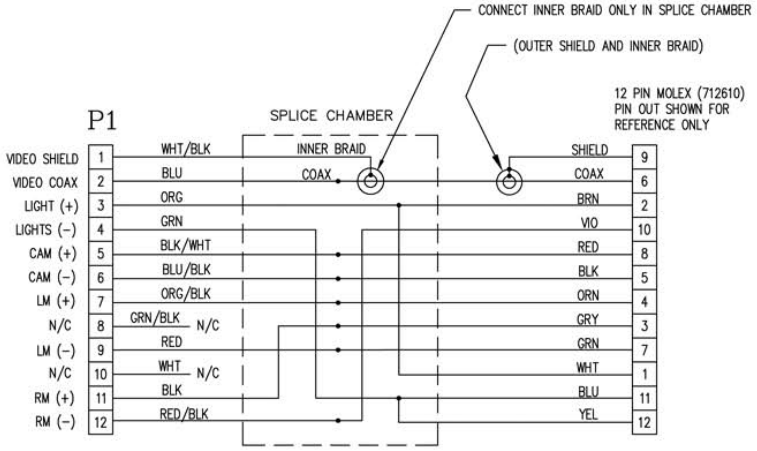
P/N RP124

Instruction sheet, Repair, Truck 12-pin Metal, Pipe Ranger, Steerable Pipe Ranger, Steerable Mudmaster Only, Gold Cable

TRUCK MOUNTED PIPE RANGER, STEERABLE PIPE RANGER OR STEERABLE MUDMASTER CONFIGURATIONS ONLY. NOT COMPATIBLE WITH LAMP.







WIRING DIAGRAM 12 PIN PIGTAIL TO GOLD CABLE

P/N RP124
Instruction sheet, Repair, Truck
12-pin Metal, Pipe Ranger,
Steerable Pipe Ranger, Steerable
Mudmaster Only, Gold Cable
Page 3 of 3

FIGURE 1

FIGURE 2

FIGURE 3

FIGURE 4

FIGURE 5

FIGURE 6

FIGURE 7

FIGURE 8

FIGURE 9

FIGURE 10

FIGURE 11

FIGURE 12

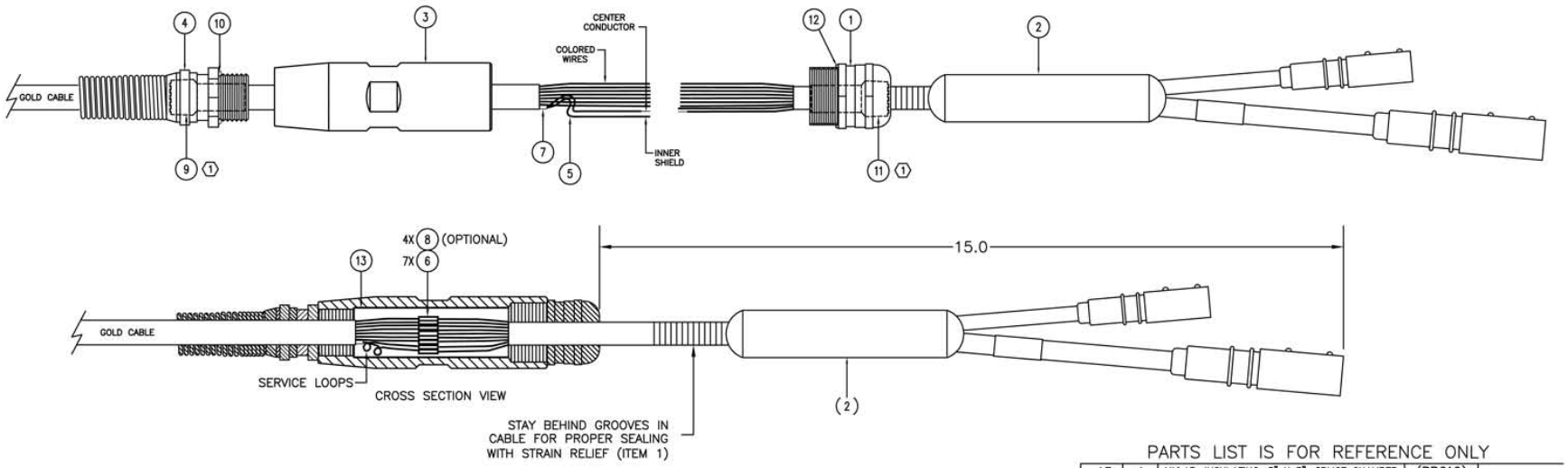
FIGURE 13

FIGURE 14

P/N RP125

Instruction sheet, Repair, Truck, 5/4 Pin, Metal, Gold Cable

STANDARD TRUCK MOUNTED 5 AND 4 PIN CONFIGURATIONS ONLY. NOT COMPATIBLE WITH INSPECTOR GENERAL.

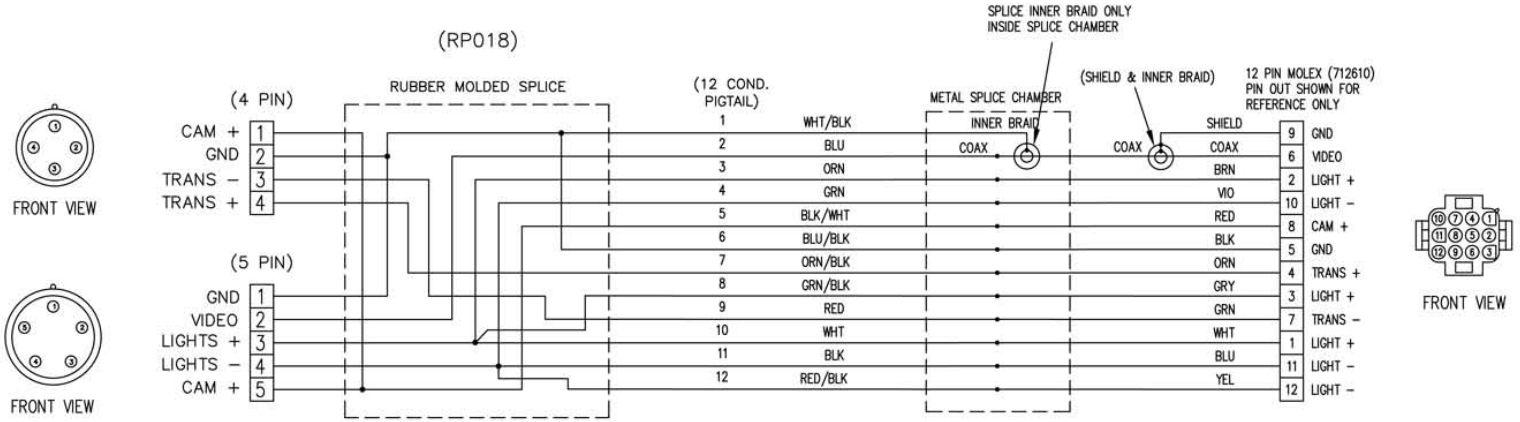


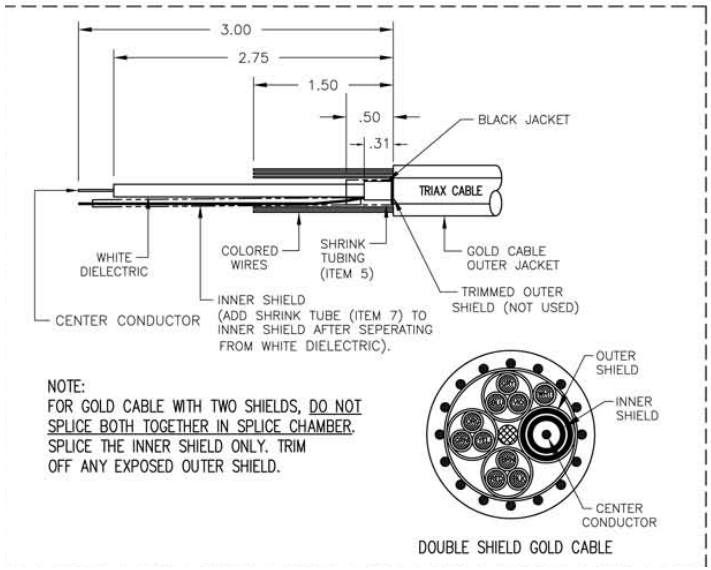
PARTS LIST IS FOR REFERENCE ONLY

ITEM	QTY	DESCRIPTION	PART NO.	SYM
13	1	MYLAR, INSULATING, 3" X 3", SPLICE CHAMBER	(RP019)	
12	1	O-RING, BUNA, F/HW1454 STRAIN RELIEF	(HW1510)	REPLACEMENT PAR
11	1	GROMMET, RUBBER, F/HW1454 STRAIN RELIEF	(HW1508)	REPLACEMENT PAR
10	1	O-RING, BUNA, F/HW1333 STRAIN RELIEF	(HW1511)	REPLACEMENT PAR
9	1	GROMMET, RUBBER, F/HW1333 STRAIN RELIEF	(HW1509)	REPLACEMENT PAR
8	12	BUTT SPLICES, 22-18 AWG, SMALL	(160023)	
7	1	TUBE, SHRINK, BLACK 3/32"	(712595)	AR
6	1	TUBE, SHRINK, BLACK 1/8"	(712789)	AR
5	1	TUBE, SHRINK, BLACK 3/16" RNF	(712577)	AR
4	1	STRAIN RELIEF FITTING, 1/2" NPT, LIQUID TIGHT	(HW1333)	
3	1	CHAMBER, SPLICE, MAINLINE, M/C 12P PIGTAIL	(RP017)	
2	1	PIGTAIL ASSY, TRUCK, 5/4 PIN, METAL SPL CHAMBER	(RP018)	
1	1	STRAIN RELIEF CONN., 3/4" NPT, LIQUID TIGHT	(HW1454)	

P/N RP125

Instruction sheet, Repair, Truck, 5/4 Pin, Metal, Gold Cable





WIRING DIAGRAM, 12 COND PIGTAIL WITH
5 & 4 CONNECTORS TO GOLD CABLE.
FOR STANDARD TRUCK MOUNTED SYSTEMS ONLY.
NOT COMPATIBLE WITH INSPECTOR GENERAL.

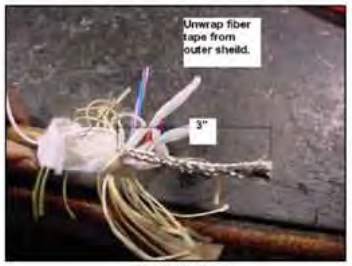


FIGURE 1



FIGURE 2



FIGURE 3



FIGURE 4



FIGURE 5

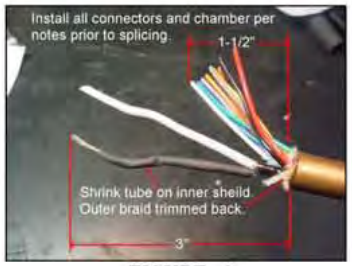


FIGURE 6



FIGURE 7


FIGURE 8



FIGURE 9



FIGURE 10



FIGURE 11



FIGURE 12



FIGURE 13



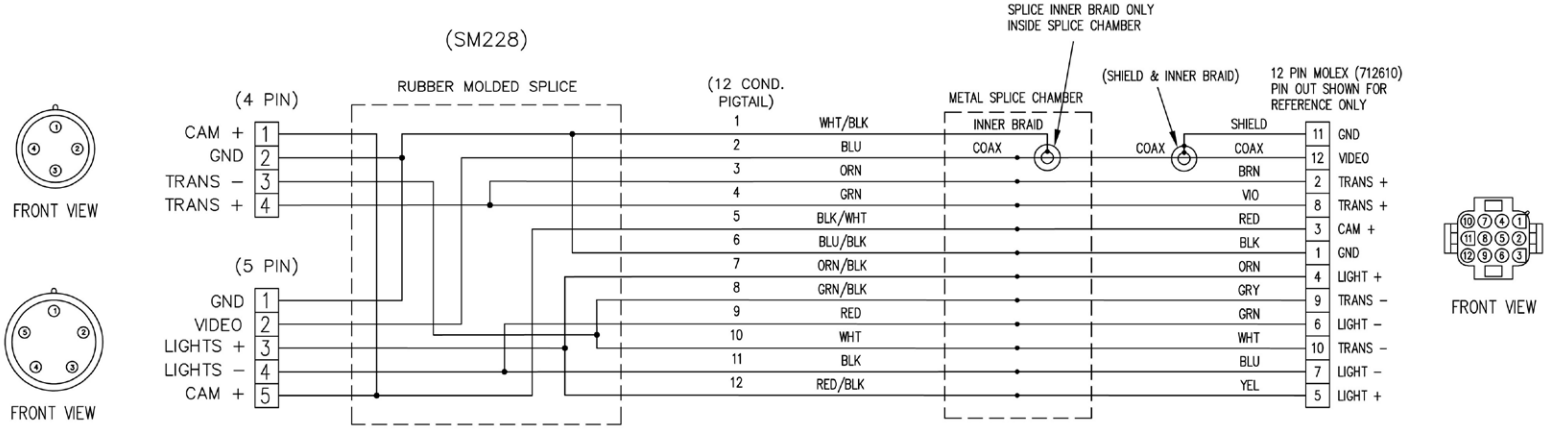
FIGURE 14

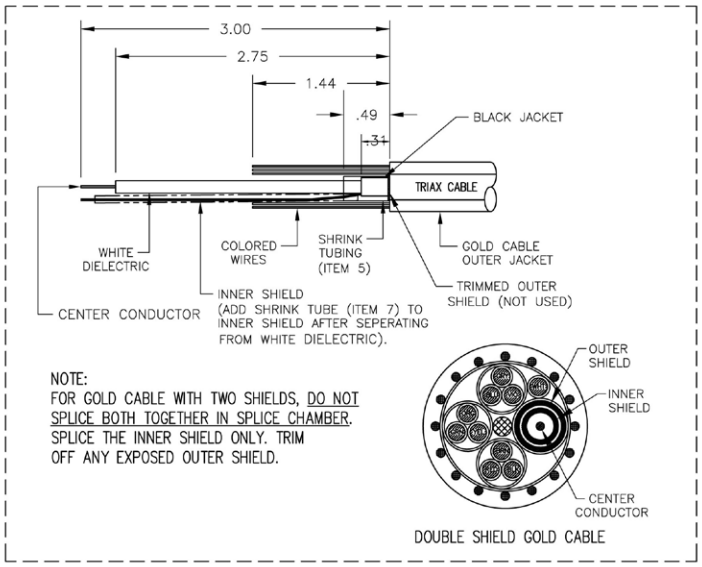
P/N RP125

Instruction sheet, Repair, Truck, 5/4 Pin, Metal, Gold Cable

P/N RP126

Instruction sheet, Repair, IGGY, 5/4 Pin, Metal, Gold Cable

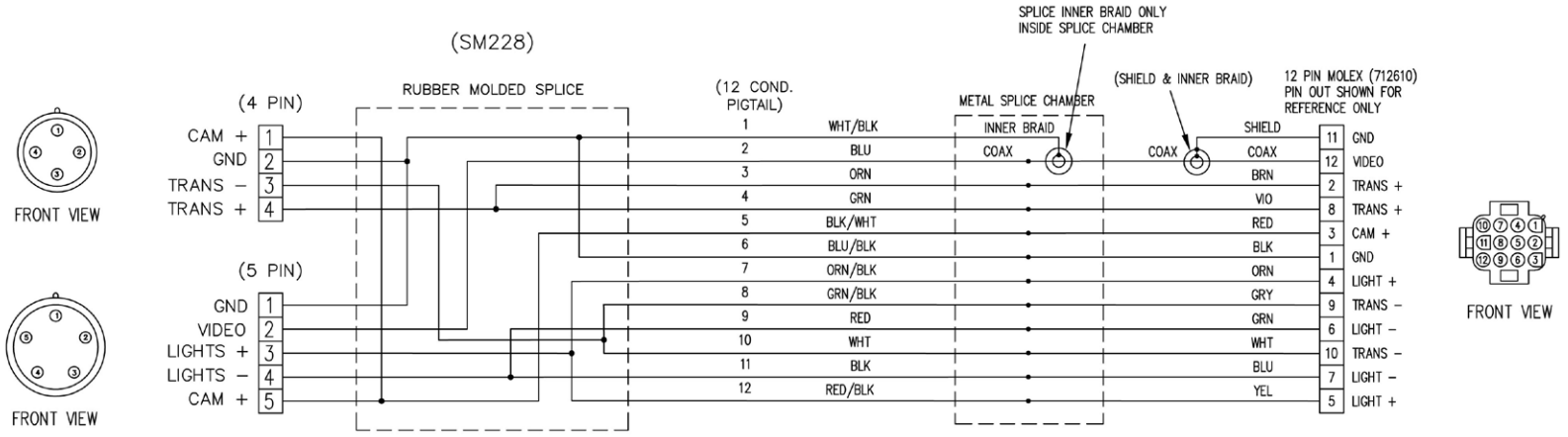


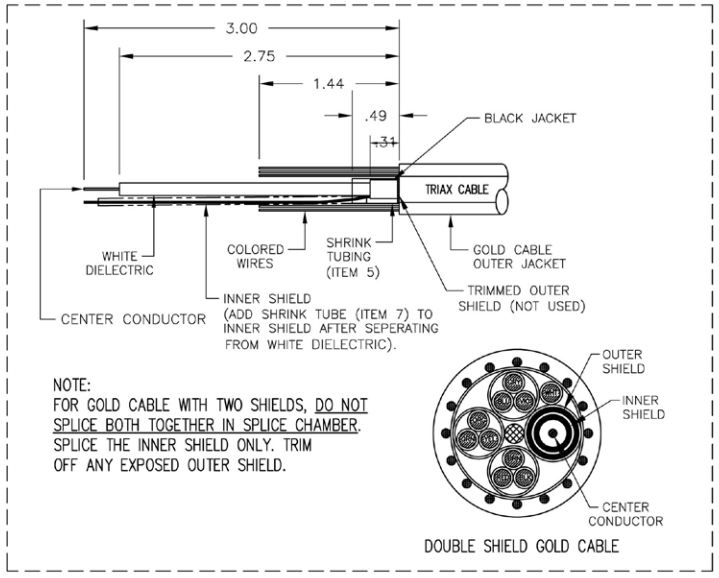


WIRING DIAGRAM, 12 COND PIGTAIL WITH 5 & 4 CONNECTORS TO GOLD CABLE. FOR INSPECTOR GENERAL ONLY. NOT COMPATIBLE WITH STANDARD TRUCK MOUNTED SYSTEMS.

P/N RP126

Instruction sheet, Repair, IGGY, 5/4 Pin, Metal, Gold Cable





WIRING DIAGRAM, 12 COND PIGTAIL WITH 5 & 4 CONNECTORS TO GOLD CABLE. FOR INSPECTOR GENERAL ONLY. NOT COMPATIBLE WITH STANDARD TRUCK MOUNTED SYSTEMS.

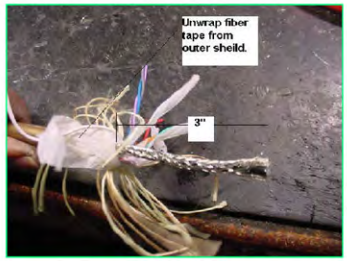


FIGURE 1



FIGURE 2

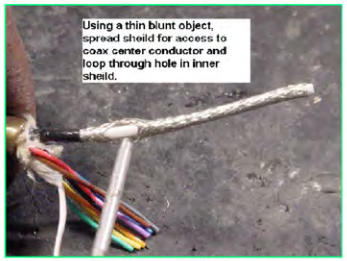


FIGURE 3

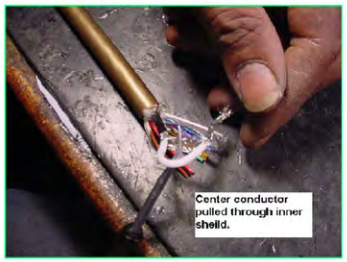


FIGURE 4



FIGURE 5

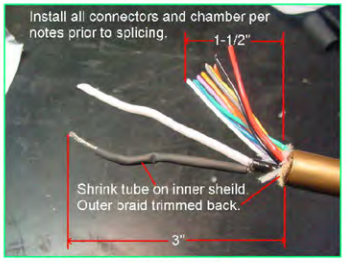


FIGURE 6



FIGURE 7

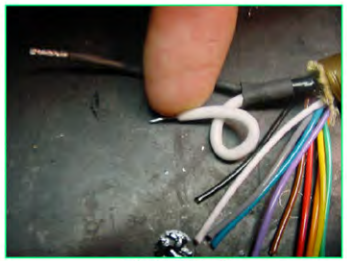

FIGURE 8



FIGURE 9

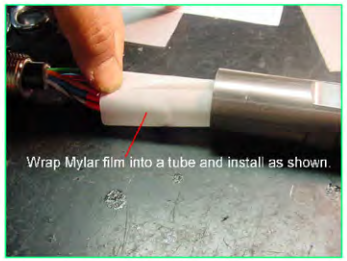


FIGURE 10



FIGURE 11



FIGURE 12



FIGURE 13



FIGURE 14

P/N RP126

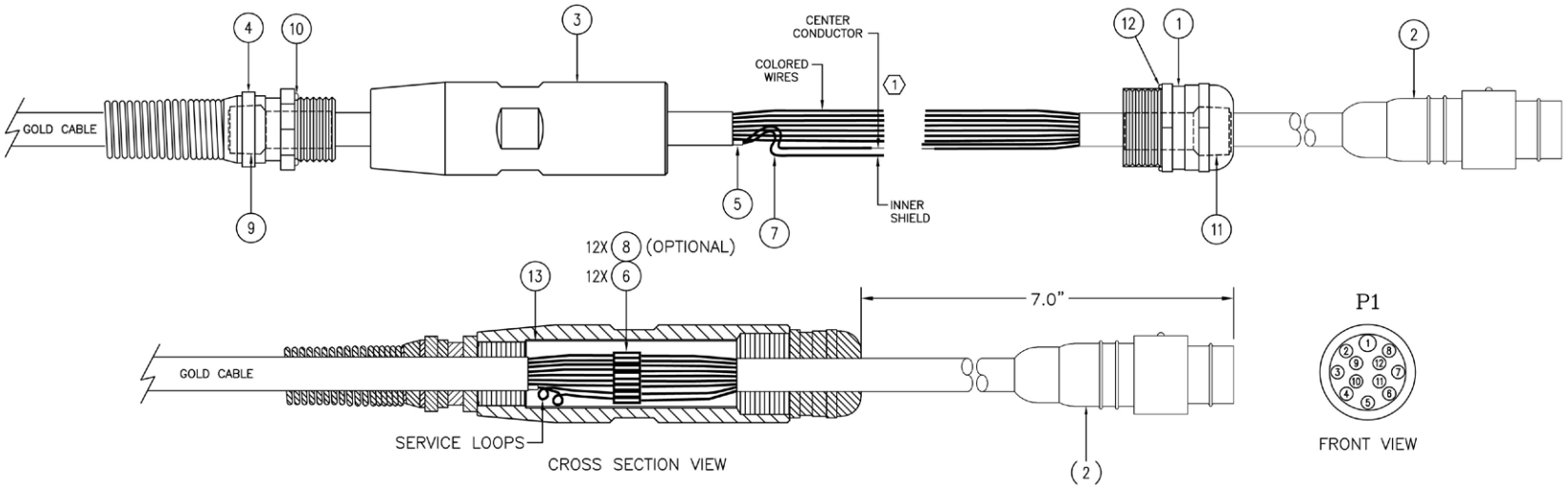
Instruction sheet, Repair, IGGY, 5/4 Pin, Metal, Gold Cable

"The Standard of the Industry"

P/N RP127

Instruction sheet, Repair, IGGY, 12 Pin, Metal, Pipe Ranger, Gold Cable

INSPECTOR GENERAL PIPE RANGER CONFIGURATION ONLY. NOT COMPATIBLE WITH INSPECTOR GENERAL LAMP, STEERABLE PIPE RANGER OR STEERABLE MUDMASTER.



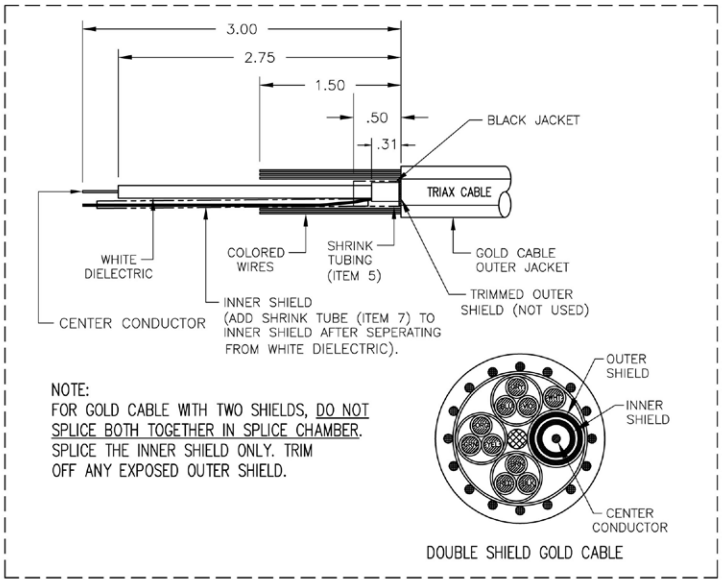
PARTS LIST IS FOR REFERENCE ONLY

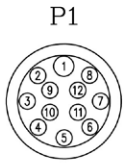
ITEM	QTY	DESCRIPTION	PART NO.	SYM
13	1	MYLAR, INSULATING, 3" X 3", SPLICE CHAMBER	(RP019)	
12	1	O-RING, BUNA, F/HW1454 STRAIN RELIEF	(HW1510)	REPLACEMENT PART
11	1	GROMMET, RUBBER, F/HW1454 STRAIN RELIEF	(HW1508)	REPLACEMENT PART
10	1	O-RING, BUNA, F/HW1333 STRAIN RELIEF	(HW1511)	REPLACEMENT PART
9	1	GROMMET, RUBBER, F/HW1333 STRAIN RELIEF	(HW1509)	REPLACEMENT PART
8	12	BUTT SPLICES, 22-18 AWG, SMALL	(160023)	
7	1	TUBE, SHRINK, BLACK 3/32"	(712595)	AR
6	1	TUBE, SHRINK, BLACK 1/8"	(712789)	AR
5	1	TUBE, SHRINK, BLACK 3/16" RNF	(712577)	AR
4	1	STRAIN RELIEF FITTING, 1/2" NPT, LIQUID TIGHT	(HW1333)	
3	1	CHAMBER, SPLICE, MAINLINE, M/C 12P PIGTAIL	(RP017)	
2	1	PIGTAIL, 12 PIN, MALE, W/FEMALE PINS	(770001)	P1
1	1	STRAIN RELIEF CONN., 3/4" NPT, LIQUID TIGHT	(HW1454)	

P/N RP127

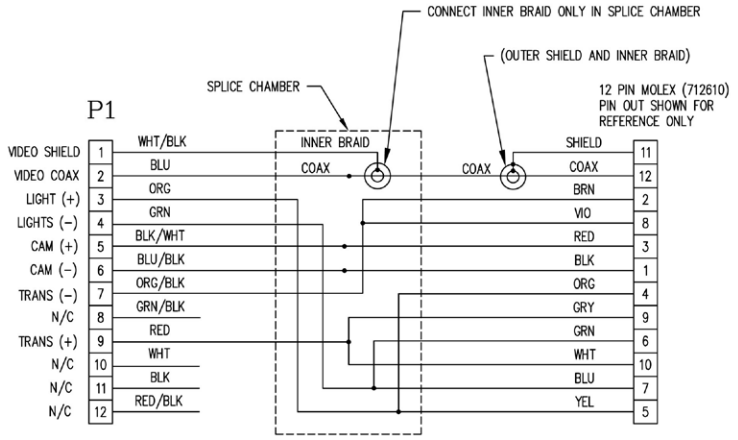
Instruction sheet, Repair, IGGY, 12 Pin, Metal, Pipe Ranger, Gold Cable

INSPECTOR GENERAL PIPE RANGER CONFIGURATION ONLY. NOT COMPATIBLE WITH INSPECTOR GENERAL LAMP, STEERABLE PIPE RANGER OR STEERABLE MUDMASTER.





FRONT VIEW



WIRING DIAGRAM 12 PIN
PIGTAIL TO GOLD CABLE

"The Standard of the Industry"

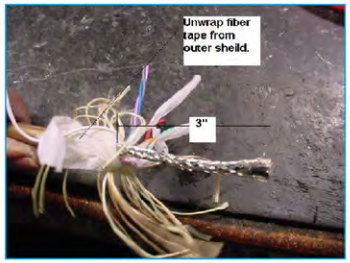


FIGURE 1

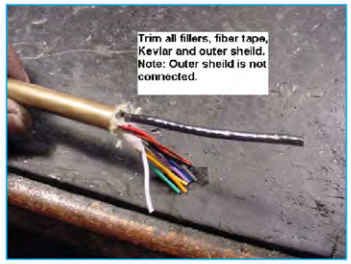


FIGURE 2

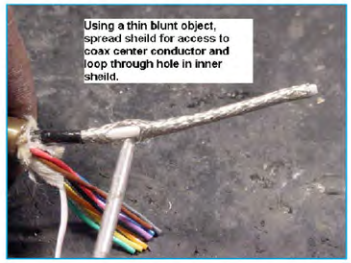


FIGURE 3



FIGURE 4



FIGURE 5

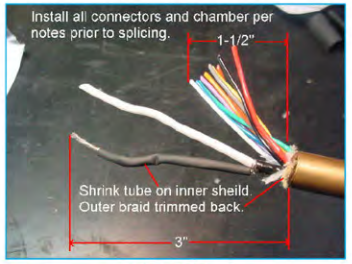
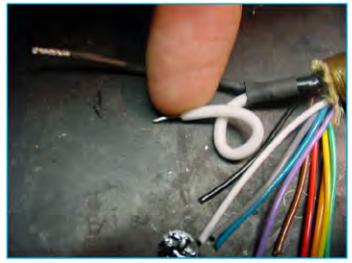


FIGURE 6



FIGURE 7


FIGURE 8

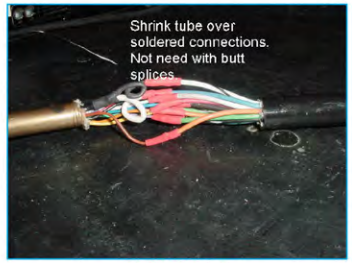


FIGURE 9

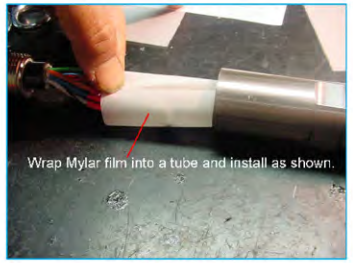


FIGURE 10



FIGURE 11



FIGURE 12



FIGURE 13



FIGURE 14

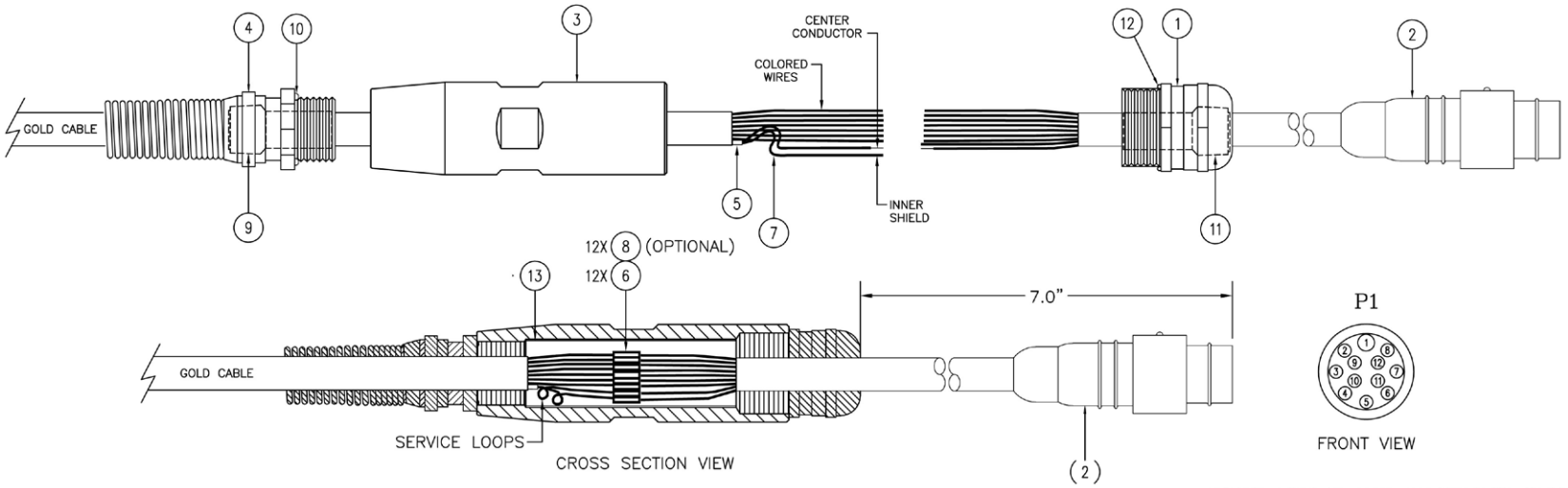
P/N RP127

Instruction sheet, Repair, IGGY, 12 Pin, Metal, Pipe Ranger, Gold Cable
Page 3 of 3

P/N RP128

Instruction sheet, Repair, IGGY, 12 Pin, Metal, Steerable Pipe Ranger, Steerable Mudmaster, Gold Cable

INSPECTOR GENERAL STEERABLE PIPE RANGER OR STEERABLE MUDMASTER CONFIGURATIONS ONLY. NOT COMPATIBLE WITH INSPECTOR GENERAL LAMP AND PIPE RANGER.



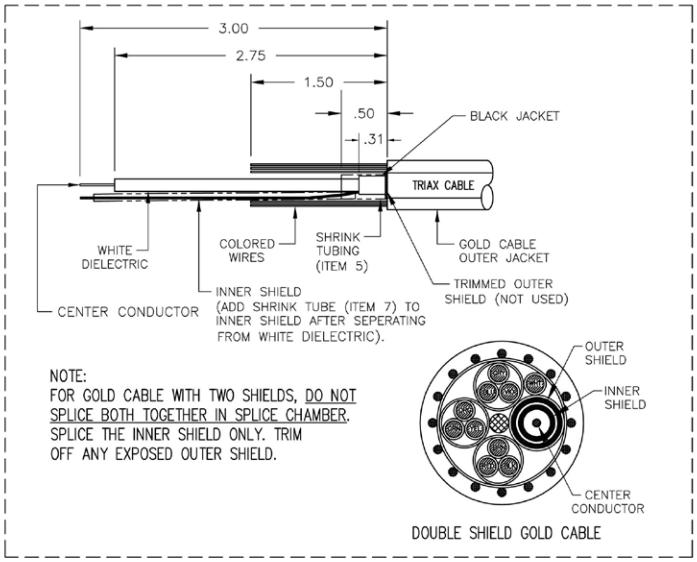
PARTS LIST IS FOR REFERENCE ONLY

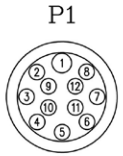
ITEM	QTY	DESCRIPTION	PART NO.	SYM
13	1	MYLAR, INSULATING, 3" X 3", SPLICE CHAMBER	(RP019)	
12	1	O-RING, BUNA, F/HW1454 STRAIN RELIEF	(HW1510)	REPLACEMENT PART
11	1	GROMMET, RUBBER, F/HW1454 STRAIN RELIEF	(HW1508)	REPLACEMENT PART
10	1	O-RING, BUNA, F/HW1333 STRAIN RELIEF	(HW1511)	REPLACEMENT PART
9	1	GROMMET, RUBBER, F/HW1333 STRAIN RELIEF	(HW1509)	REPLACEMENT PART
8	12	BUTT SPLICES, 22-18 AWG, SMALL	(160023)	
7	1	TUBE, SHRINK, BLACK 3/32"	(712595)	AR
6	1	TUBE, SHRINK, BLACK 1/8"	(712789)	AR
5	1	TUBE, SHRINK, BLACK 3/16" RNF	(712577)	AR
4	1	STRAIN RELIEF FITTING, 1/2" NPT, LIQUID TIGHT	(HW1333)	
3	1	CHAMBER, SPLICE, MAINLINE, M/C 12P PIGTAIL	(RP017)	
2	1	PIGTAIL, 12 PIN, MALE, W/FEMALE PINS	(770001)	P1
1	1	STRAIN RELIEF CONN., 3/4" NPT, LIQUID TIGHT	(HW1454)	

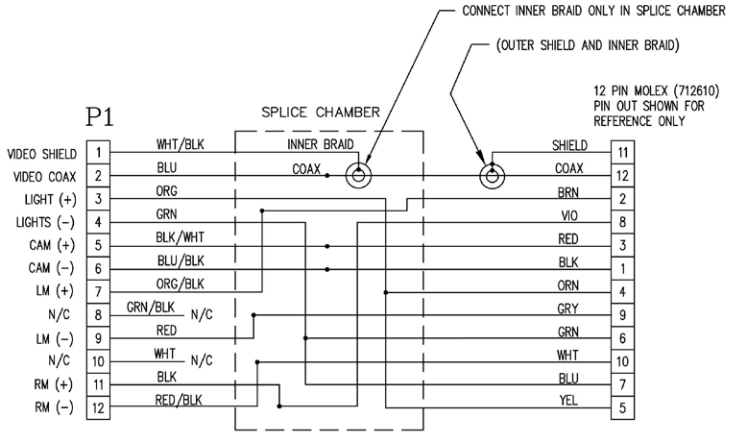
P/N RP128

Instruction sheet, Repair, IGGY, 12 Pin, Metal, Steerable Pipe Ranger, Steerable Mudmaster, Gold Cable

INSPECTOR GENERAL STEERABLE PIPE RANGER OR STEERABLE MUDMASTER CONFIGURATIONS ONLY. NOT COMPATIBLE WITH INSPECTOR GENERAL LAMP AND PIPE RANGER.







WIRING DIAGRAM 12 PIN
PIGTAIL TO GOLD CABLE

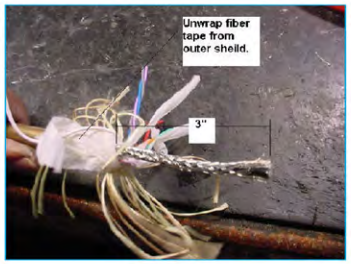


FIGURE 1



FIGURE 2

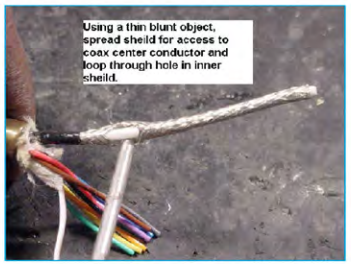


FIGURE 3

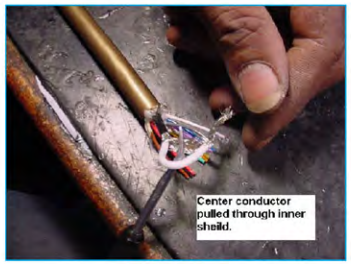


FIGURE 4



FIGURE 5

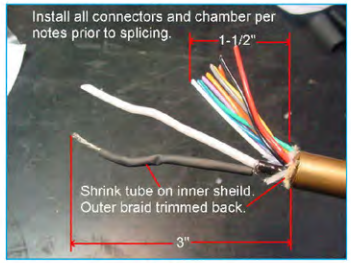
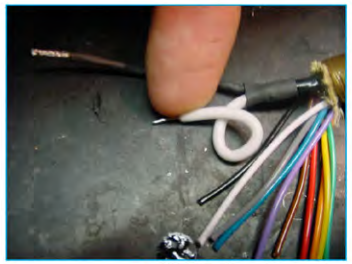


FIGURE 6



FIGURE 7


FIGURE 8

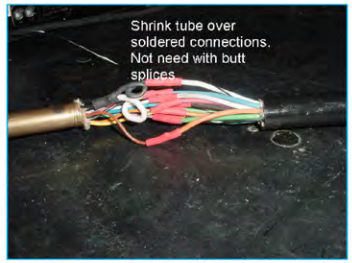


FIGURE 9

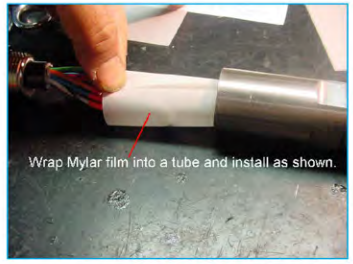


FIGURE 10



FIGURE 11



FIGURE 12



FIGURE 13



FIGURE 14

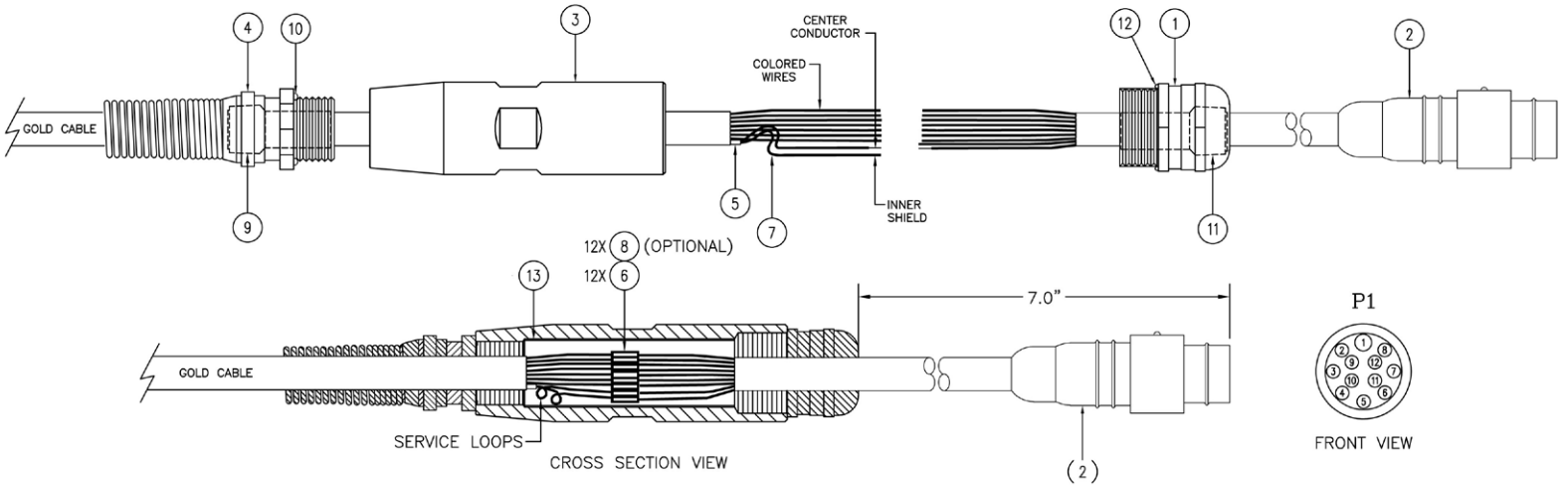
P/N RP128

Instruction sheet, Repair, IGGY, 12 Pin, Metal, Steerable Pipe Ranger, Steerable Mudmaster, Gold Cable

P/N RP129

Instruction sheet, Repair, IGGY, 12 Pin, Metal, LAMP, Gold Cable

INSPECTOR GENERAL LAMP CONFIGURATION ONLY. NOT COMPATIBLE WITH INSPECTOR GENERAL PIPE RANGER, STEERABLE PIPE RANGER OR STEERABLE MUDMASTER.



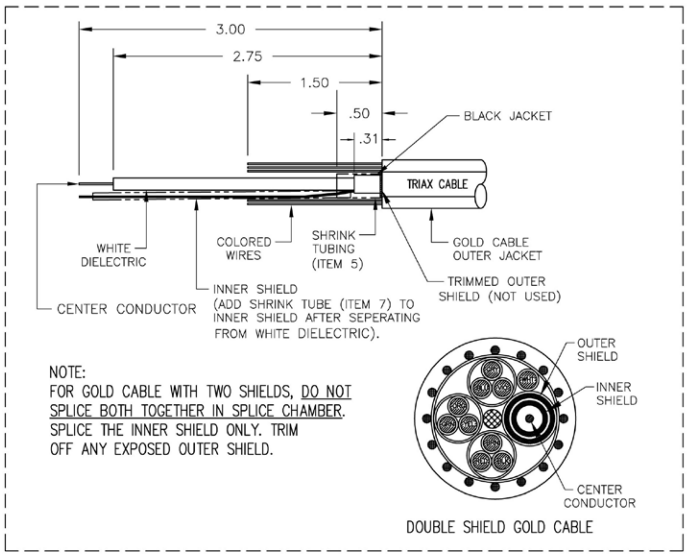
PARTS LIST IS FOR REFERENCE ONLY

ITEM	QTY	DESCRIPTION	PART NO.	SYM
13	1	MYLAR, INSULATING, 3" X 3", SPLICE CHAMBER	(RP019)	
12	1	O-RING, BUNA, F/HW1454 STRAIN RELIEF	(HW1510)	REPLACEMENT PART
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10	1	O-RING, BUNA, F/HW1333 STRAIN RELIEF	(HW1511)	REPLACEMENT PART
9	1	GROMMET, RUBBER, F/HW1333 STRAIN RELIEF	(HW1509)	REPLACEMENT PART
8	12	BUTT SPLICES, 22-18 AWG, SMALL	(160023)	
7	1	TUBE, SHRINK, BLACK 3/32"	(712595)	AR
6	1	TUBE, SHRINK, BLACK 1/8"	(712789)	AR
5	1	TUBE, SHRINK, BLACK 3/16" RNF	(712577)	AR
4	1	STRAIN RELIEF FITTING, 1/2" NPT, LIQUID TIGHT	(HW1333)	
3	1	CHAMBER, SPLICE, MAINLINE, M/C 12P PIGTAIL	(RP017)	
2	1	PIGTAIL, 12 PIN, MALE, W/FEMALE PINS	(770001)	P1
1	1	STRAIN RELIEF CONN., 3/4" NPT, LIQUID TIGHT	(HW1454)	

P/N RP129

Instruction sheet, Repair, IGGY, 12 Pin, Metal, LAMP, Gold Cable
Page 2 of 3

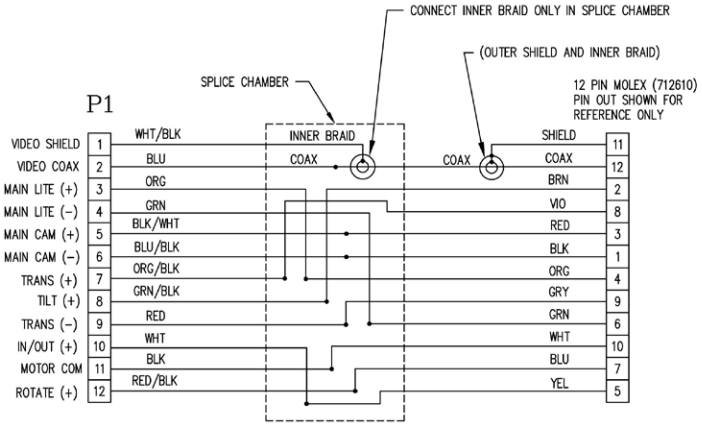
INSPECTOR GENERAL LAMP CONFIGURATION ONLY. NOT COMPATIBLE WITH INSPECTOR GENERAL PIPE RANGER, STEERABLE PIPE RANGER OR STEERABLE MUDMASTER.



DOUBLE SHIELD GOLD CABLE



FRONT VIEW



WIRING DIAGRAM 12 PIN
PIGTAIL TO GOLD CABLE

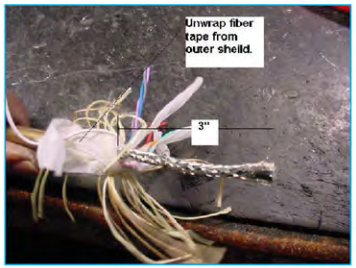


FIGURE 1



FIGURE 2

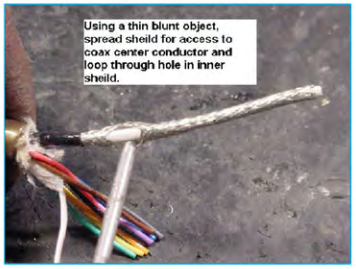


FIGURE 3

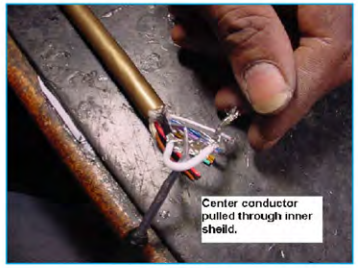


FIGURE 4



FIGURE 5

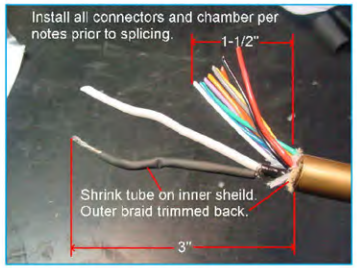


FIGURE 6



FIGURE 7

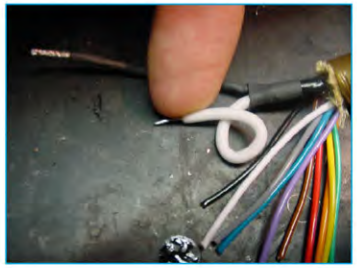


FIGURE 8

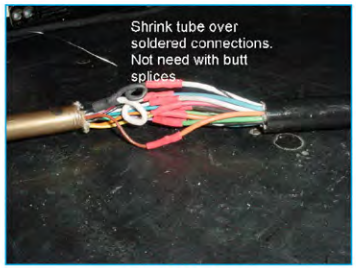


FIGURE 9

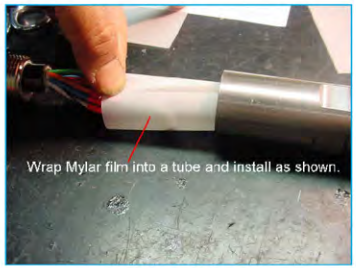


FIGURE 10



FIGURE 11



FIGURE 12



FIGURE 13



FIGURE 14

P/N RP129

Instruction sheet, Repair, IGGY, 12 Pin, Metal, LAMP, Gold Cable

LAMP

CONFIGURATION LIST	
PART NO.	DESCRIPTION
LT350	LAMP, SELF PROPELLED ASSY, NTSC
LT350-1	LAMP, SELF PROPELLED ASSY, PAL
LT350-2	LAMP, SELF PROPELLED ASSY, NTSC, SONDE
LT350-3	LAMP, SELF PROPELLED ASSY, PAL, SONDE
LT350-4	LAMP, SELF PROPELLED, NTSC, SELF UPR, NON SONDE
LT350-5	LAMP, SELF PROPELLED, NTSC, SELF UPR, WITH SONDE
LT350-6	LAMP, SELF PROPELLED, NTSC, NPR CIRCUIT PROTECTION

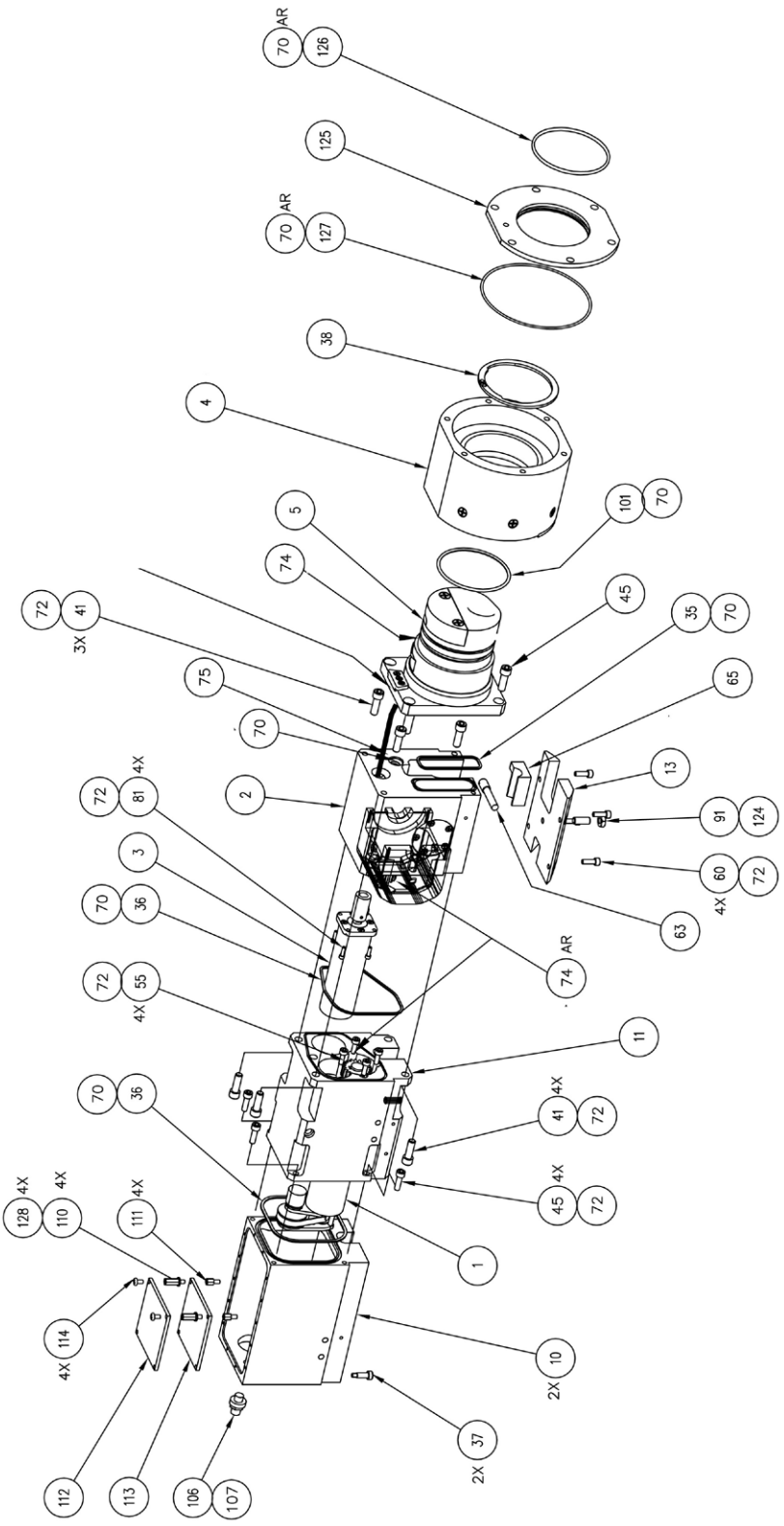


Figure 1a: *LAMP Assembly, LT350*

LAMP

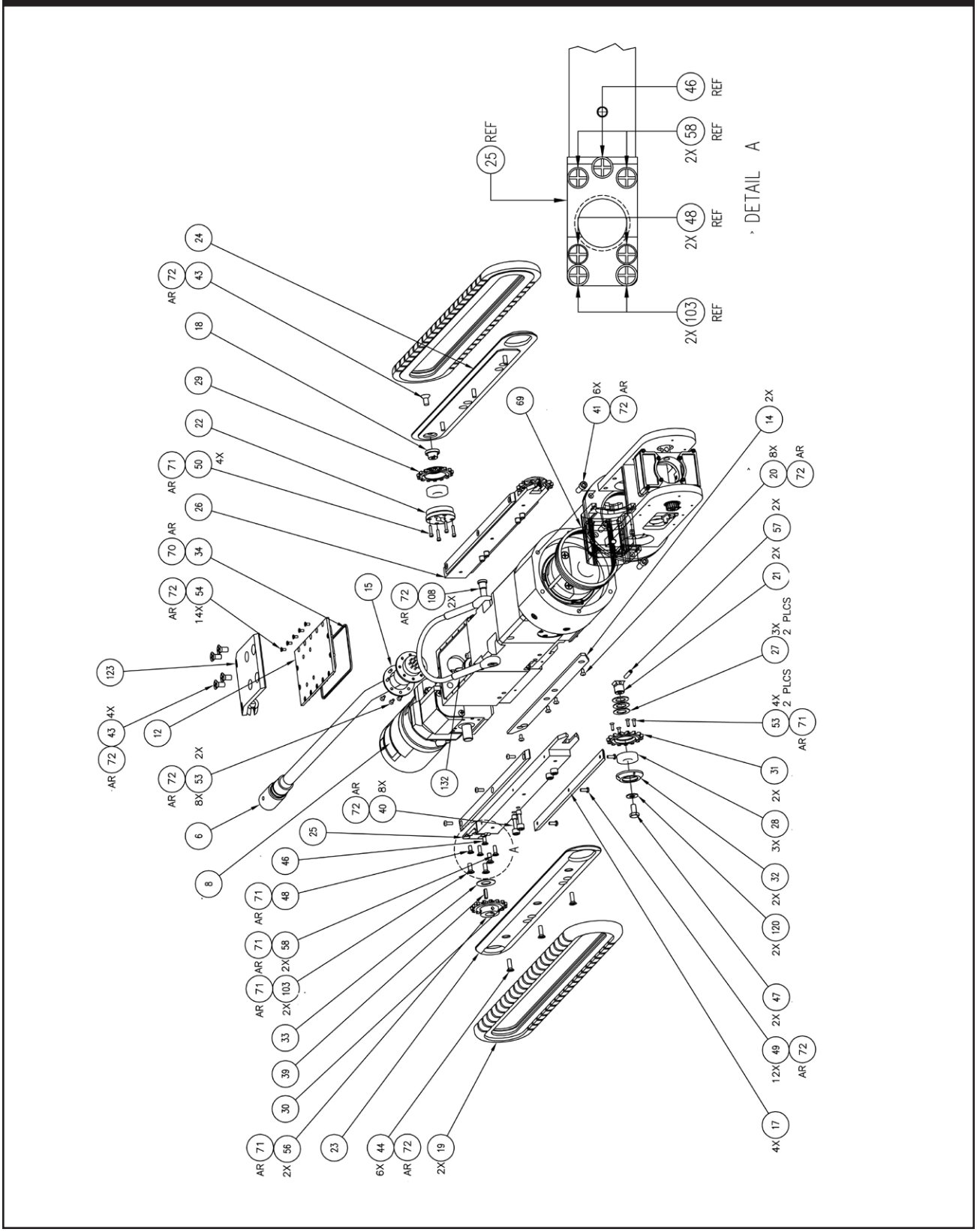


Figure 1b: *LAMP Assembly, LT350*

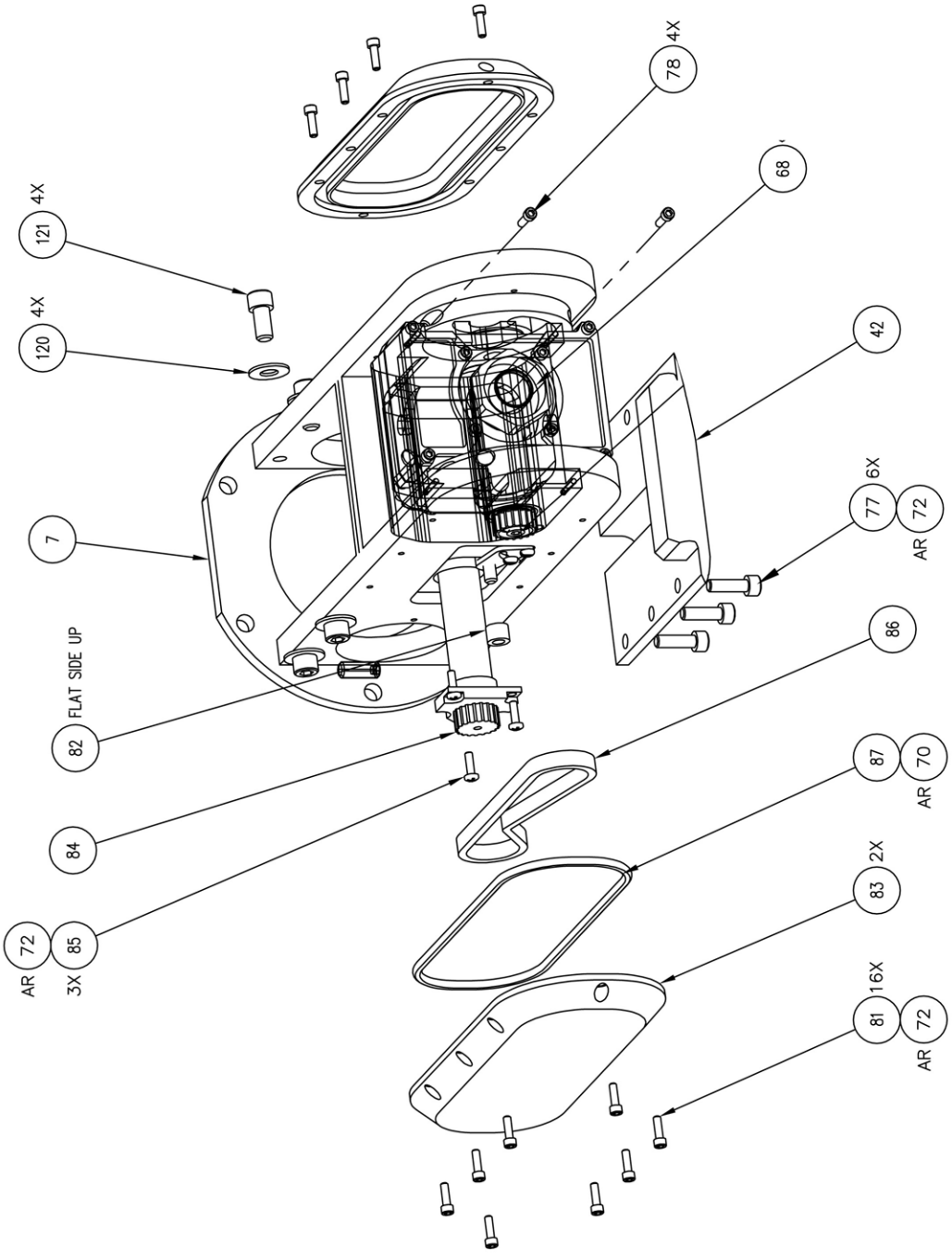


Figure 1c: *LAMP Assembly, LT350*

LAMP

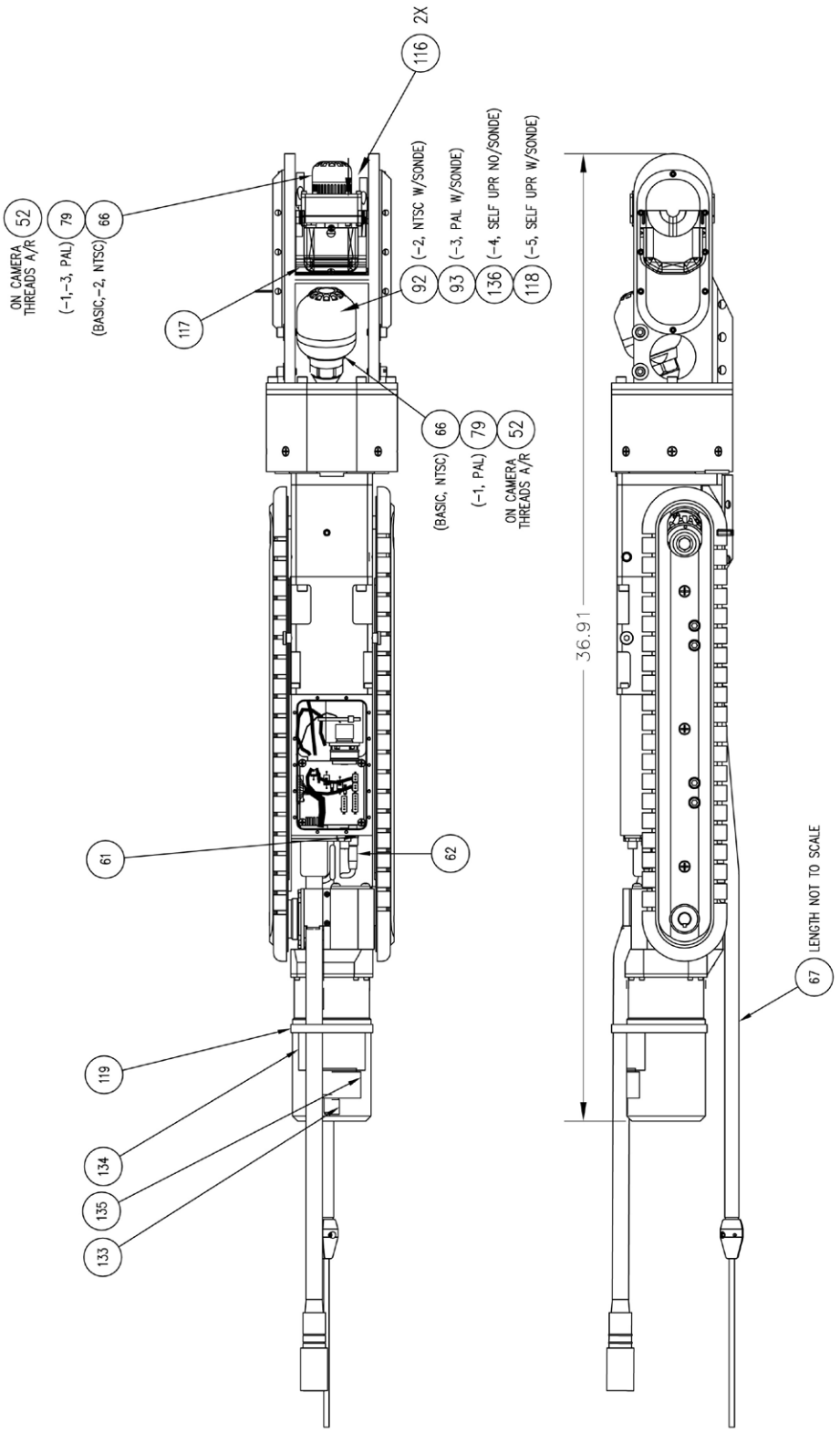


Figure 1d: *LAMP Assembly, LT350*

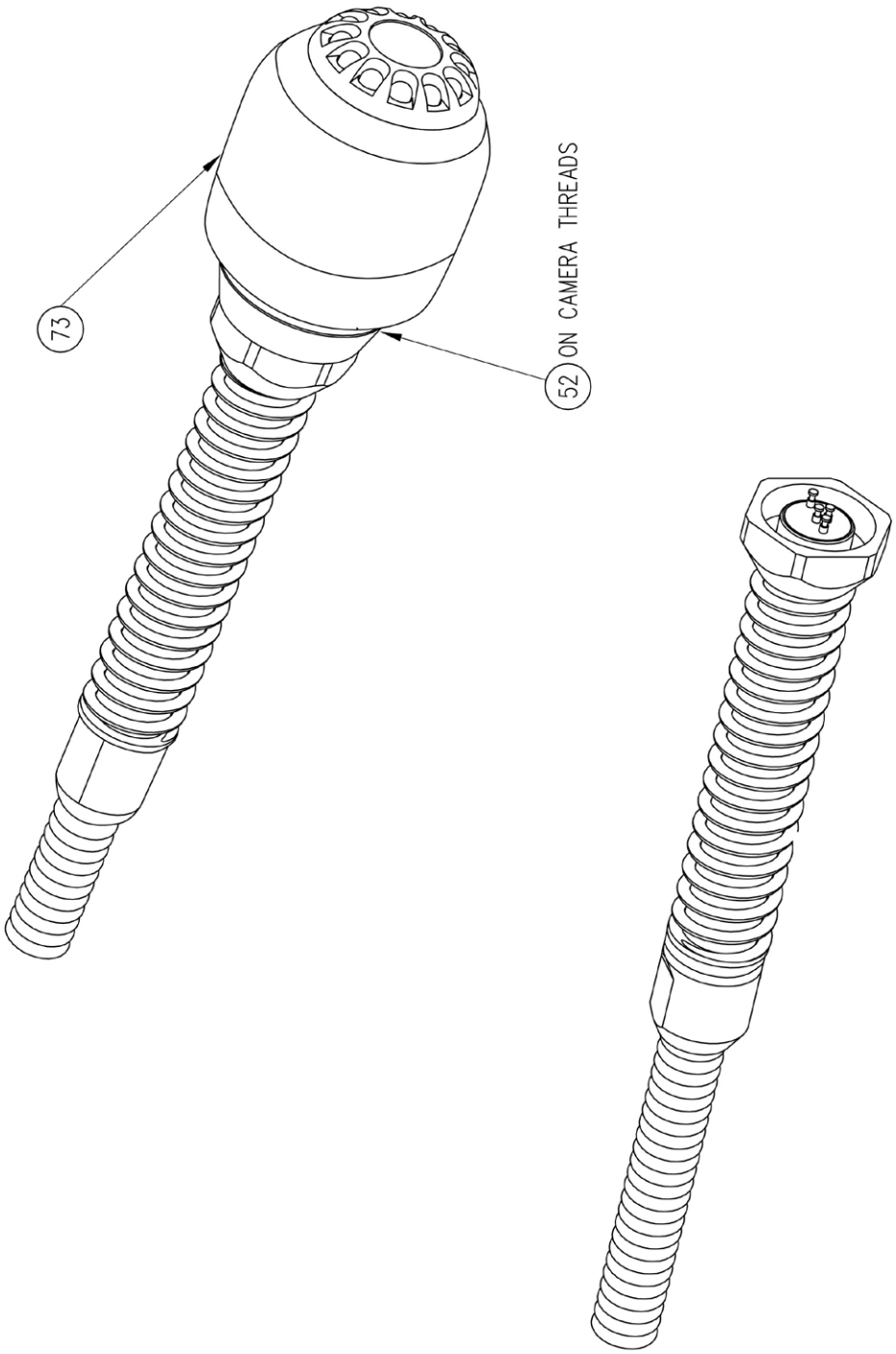


Figure 1e: *LAMP Assembly, LT350*

LAMP

Lateral and Mainline Probe (LAMP), See Figure 1, Rev. AC, LT350			
Item #	Desription	P/N	Qty
0001	MOTOR ASSY,W/ENCODER,PUSH CBL,LMP	LT338	1
0002	DRIVE BLOCK ASSY,LAMP	LT307	1
0003	MOTOR ASSY,ROTATE,W/8MM SHAFT,LMP`	LT343	1
0004	RING ASSY,ROTATIONAL,LAMP	LT310	1
0005	HUB ASSY,W/8MM SHAFT,LAMP	LT342	1
0006	CABLE ASSY,12PIN,LAMP	LT312	1
0007	FORK,ASSEMBLY,LAMP	LT327	1
0008	TRANS/MTR,FWD/NEU/REV,U-SHORTY 21	MC301-1	1
0009	CABLE,TOW,F/WTRIII & USIII,54"	120165	2
0010	BLOCK,REAR,LAMP	LT120	1
0011	BLOCK,MOTOR MOUNT,LAMP	LT121	1
0012	LID,REAR BLOCK,LAMP	LT122	1
0013	SKID,BOTTOM,W/RELIEF	LT263	1
0014	WEARSTRIP,SIDE,LAMP	LT127	2
0015	FLANGE,SCREW,CABLE,LAMP	LT137	1
0017	WEARSTRIP, TOP AND BOTTOM	MC003	4
0018	SPINDLE,DRIVE SPROCKET COUPLING	MC272	1
0019	TRACK ASSY,RND CLEAT, 47 CNT SHORTY	MC208	2
0020	SCREW,PAN HD,6-32 X 1/4,BRASS,PHIL	HW1224	8
0021	SPINDLE,IDLER SPROCKET	MC267	2
0022	COUPLING,TRANSMISSION,FWC	MC273	1
0023	PLATE,OUTER,STARBOARD,ULTRA	MC239	1
0024	PLATE,OUTER,PORT SIDE,ULTRA	MC240	1
0025	PLATE,MOTOR MTG,SPROCKET,ULTRA	MC241	1
0026	PLATE,PORT SIDE,SPROCKET,ULTRA	MC242	1
0027	WASHER,1/2IDX7/8ODX1/32THK,SST	HW267	6
0028	BEARING,SEALED.5BX1.125ODX.312THK	HW018	3
0029	SPROCKET,DRIVE,#35,15T,FWC	MC270	1
0030	SPROCKET,35P 15T 1/2B	300432	1
0031	SPROCKET,35P,15T,FACE MOUNT	MC268	2
0032	HUB,IDLER SPROCKET	MC269	2
0033	SPACER,SPROCKET-TRANSPORTER	305071	1
0034	O-RING,BUNA,2-046	HW435	1
0035	O-RING,2-031,EP	130152	1
0036	O-RING,UP/DOWN MOTOR,2-041,EP	8955	2
0037	SCREW,CAP,SKT HD,8-32X5/8,SST	100141	2
0038	RETAINING RING,EX,2-3/4 SHAFT,SST	HW461	1
0039	KEYSTOCK,1/8"SQ X1/2LG,ZINC PLATED	8874	1
0040	SCREW,CAPTIVE,1/4-20X.84LG,416SST	HW900	8

Lateral and Mainline Probe (LAMP), See Figure 1, Rev. AC, LT350			
Item #	Desription	P/N	Qty
0041	SCREW,CAP,SKT HD,1/4-20X3/4,SST	101022	14
0042	SKID,FORK,LAMP	LT136	1
0043	SCREW,FLATHEAD,1/4-20X1/2 PHIL SST	103079	5
0044	SCREW,FLAT,10-32X5/8 PHIL SST	103045	6
0045	SCREW,CAP,SOC HEAD,10-32X5/8,SST	HW134	5
0046	SCREW,FLAT,10-32X1/2 SST	103052	1
0047	SCREW,CAP,HX,1/4-28X3/8,SS,NYL PLT	HW1069	2
0048	SCREW,FLAT,8-32X3/8 PHIL SST	100146	2
0049	SCREW,PAN,6-32X3/8 PHIL BRASS	HW774	12
0050	SCREW,CAP,SKT HD,4-40X1/2,SST	105061	4
0052	GREASE,ANTI SEIZE 8 LB	420797	0.008
0053	SCREW,FLAT,4-40X5/16,SS	HW266	16
0054	SCREW,FLAT,4-40X1/4 PHIL	712402	14
0055	SCREW,CAP,SKT HD,M4-0.7X12MMLG,SST	HW953	4
0056	SCREW,SET,10-32X3/16 SST	103038	2
0057	SCREW,SET,8-32X1LG,LOK,CONEPT	HW769	2
0058	SCREW,8-32X1/2 FL,PH,SS	103062	2
0059	JUMPER ASSY,F/LT405&LT406,LAMP	LT622	1
0060	SCREW,CAP,SKT HD,8-32X1/2,SST	101025	4
0061	RECEPTACLE,4PIN,FEMALE,BULKHEAD	EC428	1
0062	CABLE,4PIN,POWER,MOTOR & TRANS,LAMP	EC429	1
0063	AXLE,ROLLER,GUIDE,LAMP	LT111	1
0065	WEARSTRIP ASSY,PSH CBL,SHRT,AL.BRNZ	LT264-1	1
0066	CAMERA,W/SEALED LEDS,NTSC,PS3	PS310	1
0067	CABLE ASSY,PUSH,80FT,LMP,0.24 ARMOR	LT603	1
0068	CABLE ASSY,CAMERA,MAINLINE,LAMP	LT316	1
0069	CABLE,6COND,BELDEN #83506 RED	EC433	5.5
0070	MRO-LUBRICANT,O-RING 2 OZ TUBE	439986	1
0071	MRO-PERMANENT LOCK,ND 140500-50,RED	440060	1
0072	MRO-REMOVABLE LCK,ND 121200-50,BLUE	440061	1
0073	BALL,CENTERING,PS3 CAM. 2.25" DIA.	LT258	1
0074	MRO-GREASE,MOBIL 1 SYNTHETIC	CS419	1
0075	TUBE,SHRINK,BLACK 1/4"SCL	712587	0.5
0077	SCREW,CAP,SKT HD,10-32X1/2,SST	102001	6
0078	SCREW,CAP,SKT HD,4-40X3/8,SS W/NYLO	101622	4
0080	RING-D,CHAIN,TOW CABLE,3/16"SS	712799	2
0081	SCREW,CAP,SKT HD,4-40X3/8,SST	100054	20
0082	BEARING,NEEDLE .187X.343X.25 W	300391	1
0083	COVER,FORK,LAMP	LT131	2

LAMP

Lateral and Mainline Probe (LAMP), See Figure 1, Rev. AC, LT350			
Item #	Desription	P/N	Qty
0084	DRIVE ASSY,SEALED,LAMP	505148-1	1
0085	SCREW,PAN,4-40X1/4 SLOTTED SST	712401	3
0086	BELT,TIMING,3MMX225MM,75TEETH	HW465	1
0087	O-RING,2-243,BUNA,4.11 IDX.125	HW504	1
0089	RECEPTACLE,6PIN,MOLEX .079CTN	EL634	1
0090	CONTACT	715087	6
0091	SCREW,SET,SOCKET,1/4-28X5/8, PLK,SS	HW600	1
0094	TUBE,SHRINK,BLACK 1/8"	712789	1
0099	SCREW,SET,1/4-20X5/8 SST	101054	3
0101	O-RING,2-756,EP	SW044	1
0103	SCREW,FLATHEAD,10-32X5/16 PHIL SST	101426	2
0106	VALVE,PURGE,P&T	CP063	1
0107	MRO-SEAL.HGH PRESS,ND 440400-50,BRN	445091	1
0108	STUD,LIFT,LAMP	LT172	2
0110	STANDOFF,6-32,¼HEX X ½"LG,M/F,AL	HW354	4
0111	STANDOFF,HEX,M/F,6-32X¼"LG,SS	HW485	4
0112	PCB,INTERCONNECT,LAMP,TOP	LT405	1
0113	PCB ASSY,FOOTAGE ENCODER,LAMP,LOWER	LT406	1
0114	SCREW,PAN,6-32X1/4 PHIL SST	712416	4
0116	CAP,FORWARD,CAMERA,LAMP	LT201	2
0117	CAP,REAR,EXTENDED,CAM.MAINLINE,LAMP	LT249	1
0118	CAMERA ASSY,SLF UP,HI-PWR,NTSC,SND	SR300-13	1
0119	MRO-TIE,CABLE,14"X5/16"BLACK	440305	1
0120	WASHER,FLAT,1/4"SST	101736	6
0121	SCREW,CAP,SKT HD,1/4-20X1/2,SST	101001	4
0122	MANUAL,LATERAL/MAINLINE PROBE(LAMP)	LT900	1
0123	SKID,REAR BLOCK,LAMP	LT253	1
0124	NUT,JAM,¼ X 28,SS 18-8	HW641	1
0125	SEAL,HUB,LAMP	LT285	1
0126	O-RING,2-148 BUNA	HW1042	1
0127	O-RING,2-044 BUNA	HW802	1
0128	WASHER,FLAT,NYLON.14IDX.312ODX.047T	104999	4
0129	MRO-GASKET MAKER,FASTGASKET,BLK	445067	1
0132	CABLE,LIFT,MODIFIED,LAMP	LT289-1	1
0133	LABEL,LASERTAB MARKER, .560 X .560	CS222	1
0134	LABEL,LASERTAB MARKER,3.00 X 1.90	CS223	1
0135	LABEL,ETL MARK,2" X 1"	CS224	1

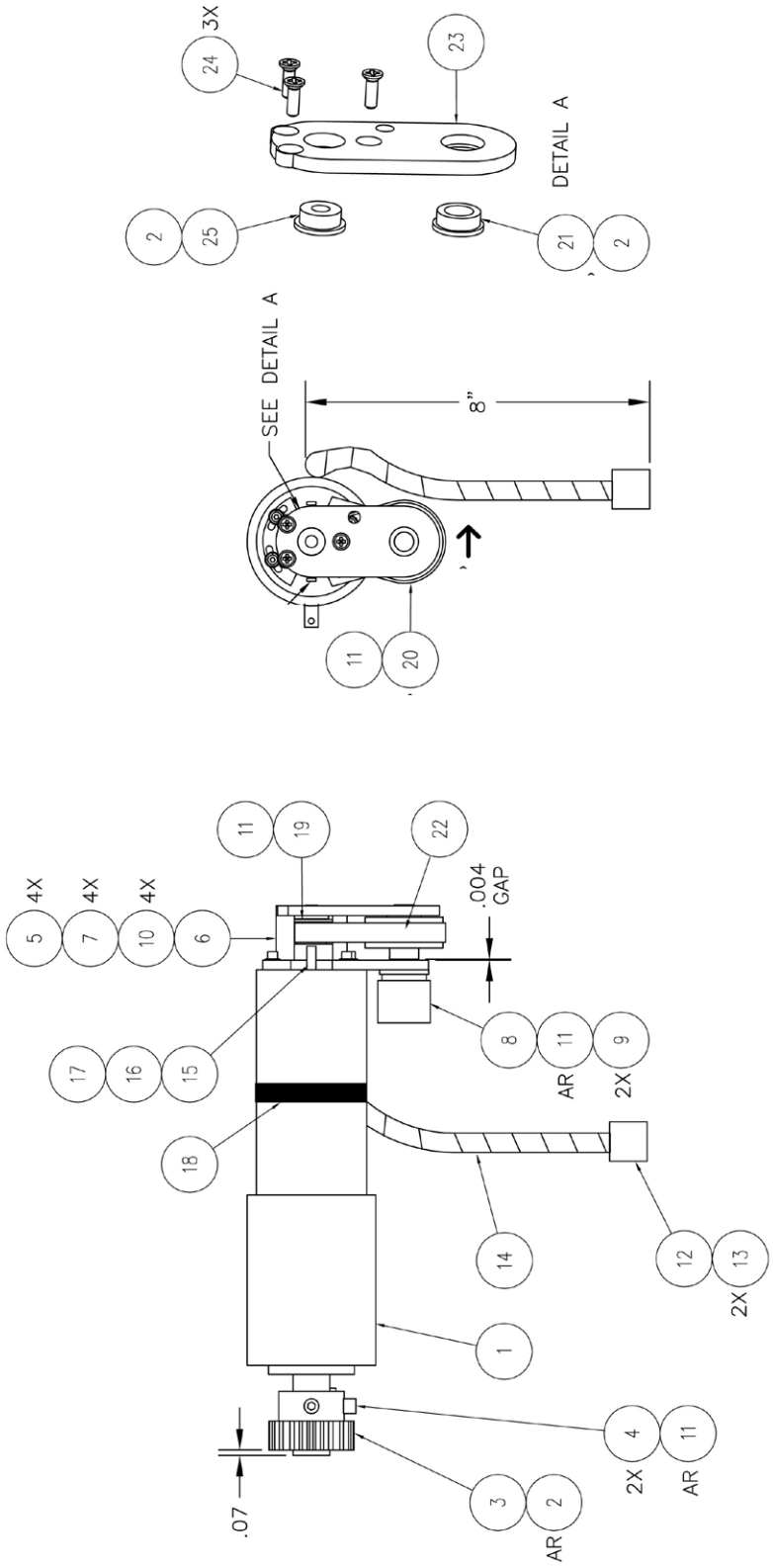


Figure 2: *Motor Assy, w/Encoder, Push Cable, LT338*

LAMP

Motor Assembly, w/Encoder, Push Cable, See Figure 2, Rev. F, LT338			
Item #	Desription	P/N	Qty
0001	MOTOR/GEARBX,MAXON,42V,26:1,W/FLAT	LT101-1	1
0002	MRO-RET.COMP,.015GP,ND541200-50,GRN	CS092	1
0003	GEAR,SPUR,DRIVEN,20T,20DP	LT102	1
0004	SCREW,SET,10-32X1/4 SST	101000	2
0005	WASHER,LOCK,M2,2.4MMID X 4.4MMOD,SS	HW623	4
0006	BRACKET,W/STANDOFFS,ENCODER,LAMP	LT257	1
0007	WASHER,FLAT,M2,2.2MMID X 5MMOD,SS	HW624	4
0008	ENCODER,1CPR,LAMP	EC425	1
0009	SCREW,FH,M2 X 6,.4MM P,SS	HW628	2
0010	SCREW,CAP,SKT,M2 X 6MM LG,SS	HW557	4
0011	MRO-REMOVABLE LCK,ND 121200-50,BLUE	440061	1
0012	HOUSING,2-PIN,2MM	712864	1
0013	CONTACT	715087	2
0014	TUBING,SPIRAL WRAP BLK POLY 1/8"	220709	6
0015	WIRE,#24 BLACK TEFLON	713335	0.5
0016	WIRE,#24 RED TEFLON	713337	0.5
0017	TUBE,SHRINK,BLACK 1/8"	712789	0.2
0018	MRO-TIE,CABLE,7",CLEAR	440309	1
0019	PULLEY,2.03 PITCH,16 TEETH	HW524	1
0020	PULLEY/SHAFT ASSY,ENCODER,LAMP	LT339	1
0021	BEARING,.250ID X.375OD,FLANGED,SS	HW626	1
0022	BELT,2.03 PITCH,59 TEETH	HW525	1
0023	PLATE,BEARING COVER,ENCODER,LAMP	LT256	1
0024	SCREW,FH,M2.5 X 8MM LG,PHIL,SST	HW733	3
0025	BEARING,4MMIDX9MMODX4MM T,FLANGE,SS	HW625	1

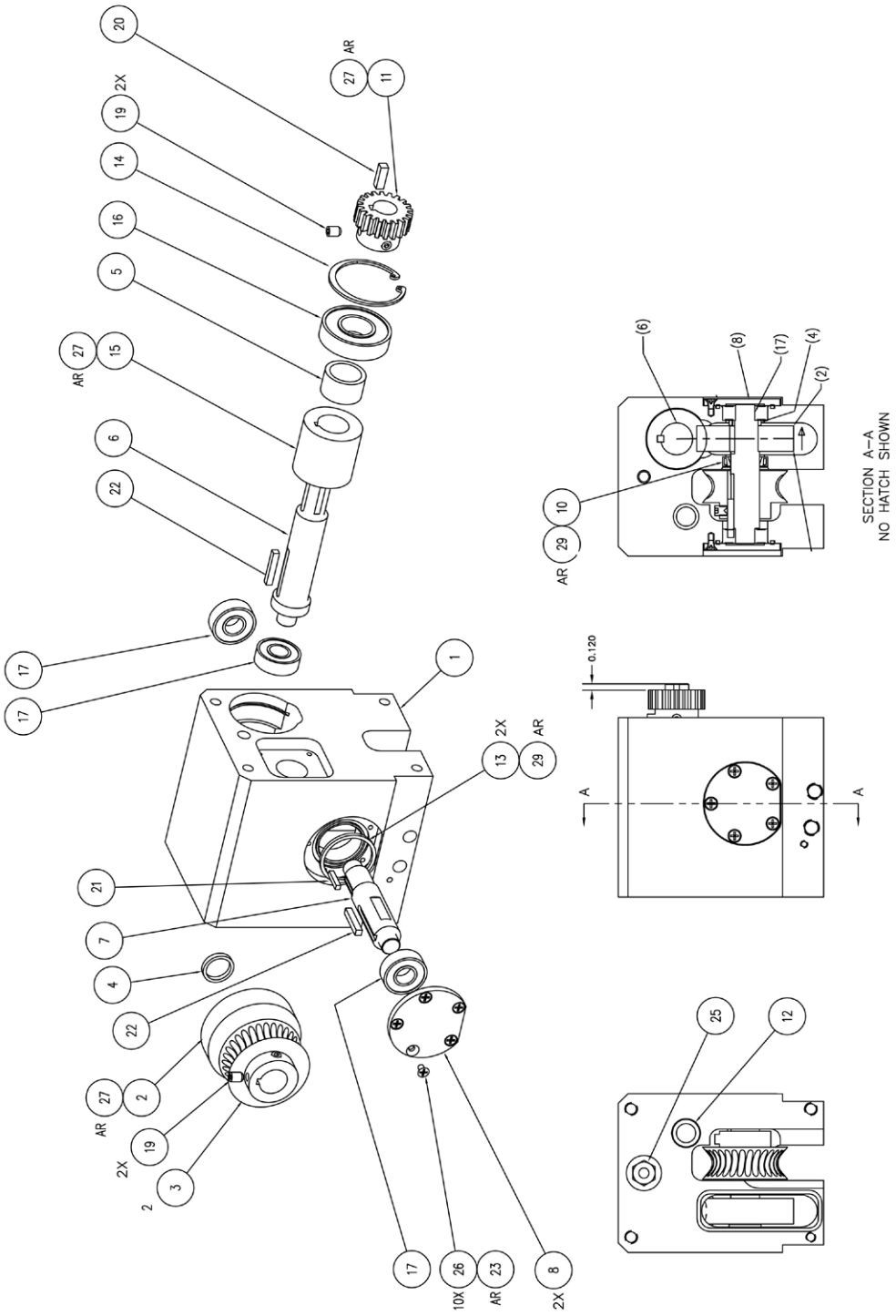


Figure 3: *Drive Block Assy, LAMP, LT307*

LAMP

Drive Block Assy, LAMP (See Fig. 3) Rev. J, LT307			
Item #	Desription	P/N	Qty
1	Block,Drive,F/Wearstrip,Lamp	LT251	1
2	Worm Gear,20t,Modified	LT104	1
3	Wheel,Push Cable,Lamp	LT105	1
4	Spacer,Shaft,Push Wheel,Lamp	LT106	1
5	Spacer,Shaft,Worm,Lamp	LT107	1
6	Shaft,Drive,Worm,Lamp	LT108	1
7	Shaft,Drive,Push Wheel,Lamp	LT109	1
8	Cover,Bearing,Drive Wheel	LT126	2
9	Mro-Seal.Hgh Press,Nd 440400-50,Brn	445091	1
10	Seal,Lip,9/16x7/8x3/16	HW448	1
11	Gear,Spur,Driven,20t,20dp	LT102	1
12	Seal,Rotate Shaft,3/8x9/16x3/32	HW450	2
13	O-Ring,2-022 Buna	712565	2
14	Retaining Ring,Int,1-3/8 Bore,Sst	HW452	1
15	Worm,Quad,Boston H1607	HW445	1
16	Bearing,Ball,5/8x1-3/8x11/32,Sealed	HW446	1
17	Bearing,Ball,Sld,3/8 Idx7/8 Odx9/32	300282	3
18	Mro-Ret.Comp,.015gp,Nd541200-50,Grn	CS092	1
19	Screw,Set,10-32x1/4 Sst	101000	4
20	Keystock,4mm Sqr X ½",Sst	LT125	1
21	Keystock,3/32x.5 Long	8872	1
22	Keystock,1/8"X1/8"X3/4",Sst	HW078	2
23	Mro-Removable Lck,Nd 121200-50,Blue	440061	1
25	Strain Relief,Liquid Tight,8mm	HW463	1
26	Screw,Flat,4-40x1/4 Phil	712402	10
27	Mro-Grease,Mobil 1 Synthetic	CS419	1
28	Spacer,Shaft Push Wheel (Longer)	LT106-1	1
29	Mro-Superlube,3 Oz	HW039	1

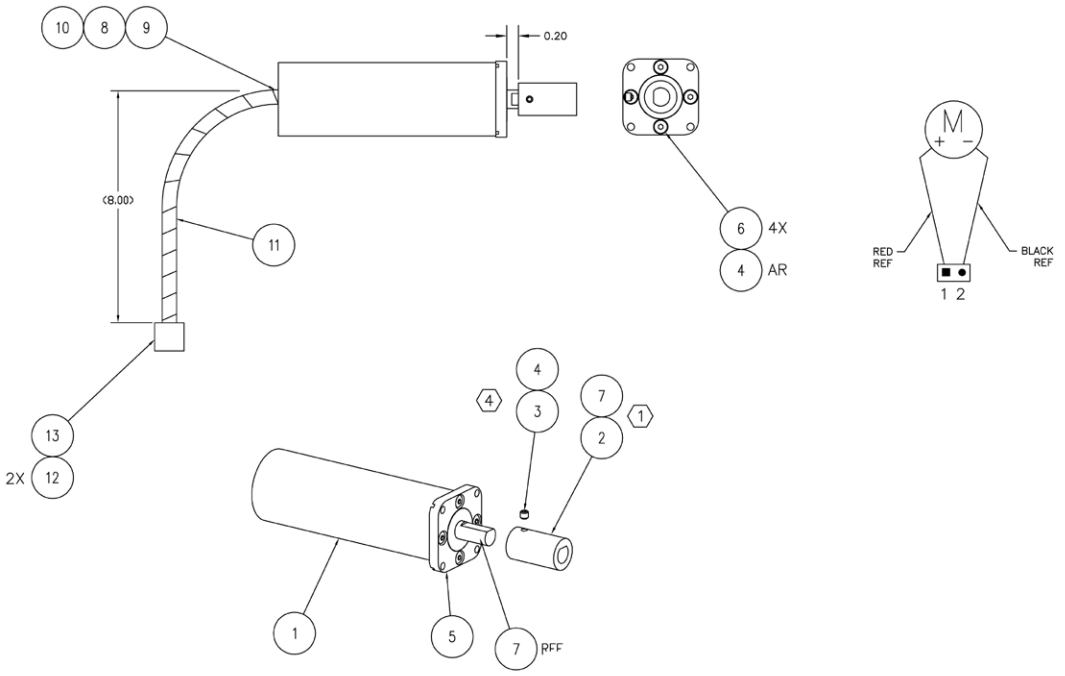


Figure 4: *Motor Rotate Assy, LT343 (replaced LT309)*

Motor Rotate Assy (See Fig. 4) Rev. B, LT343			
Item #	Desription	P/N	Qty
1	Motor,Rotate,11w,531:1,8mm Shft Dia	LT265	1
2	Coupling,Shft,Rotate,F/8mm Shft Dia	LT266	1
3	Screw,Set,Cup Pt,#6-32x1/8lg Sst	100046	1
4	Mro-Removable Lck,Nd 121200-50,Blue	440061	1
5	Flange,Motor,Rotate	LT113	1
6	Screw,Bhc,Skt,M3-.5x6mm Lg,Iso7380	HW1208	4
7	Mro-Ret.Comp,.015gp,Nd541200-50,Grn	CS092	1
8	Wire,#24 Black Teflon	713335	0.5
9	Wire,#24 Red Teflon	713337	0.5
10	Tube,Shrink,Black 1/8"	712789	0.2
11	Tubing,Spiral Wrap Blk Poly 1/8"	220709	0.5
12	Contact	715087	2
13	Housing,2-Pin,2mm	712864	1

LAMP

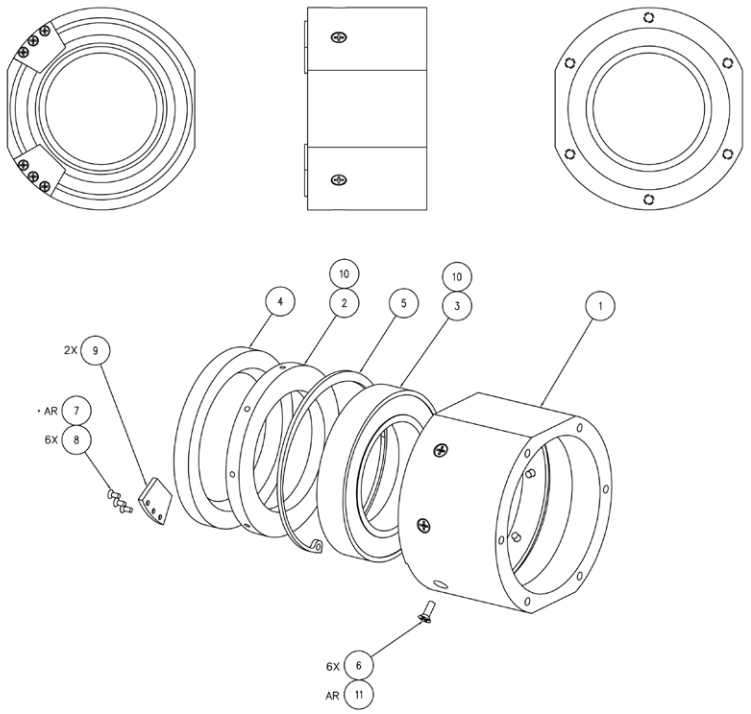


Figure 5. *Rotational Ring Assy, LAMP, LT310*

Rotational Ring Assy (See Fig. 5) Rev. F, LT310			
Item #	Desription	P/N	Qty
1	Ring,Rotational,Lamp	LT115	1
2	Gear,Internal,80t,1mm Pitch	LT116	1
3	Bearing,Ball,70x110x20,Sealed	HW454	1
4	Seal,Lip,3.25x4.50x7/16	HW455	1
5	Retaining Ring,Int,110mm Bore,Sst	HW456	1
6	Screw,8-32x1/2 Fl,Ph,Ss	103062	6
7	Mro-Removable Lck,Nd 121200-50,Blue	440061	1
8	Screw,Flat,4-40x1/4 Phil	712402	6
9	Stop,Rotation,Moving,Lamp	LT156	2
10	Mro-Grease,Heavy Duty Redman	440030	1
11	Mro-Form A Gasket Hi-Temp	445063	1

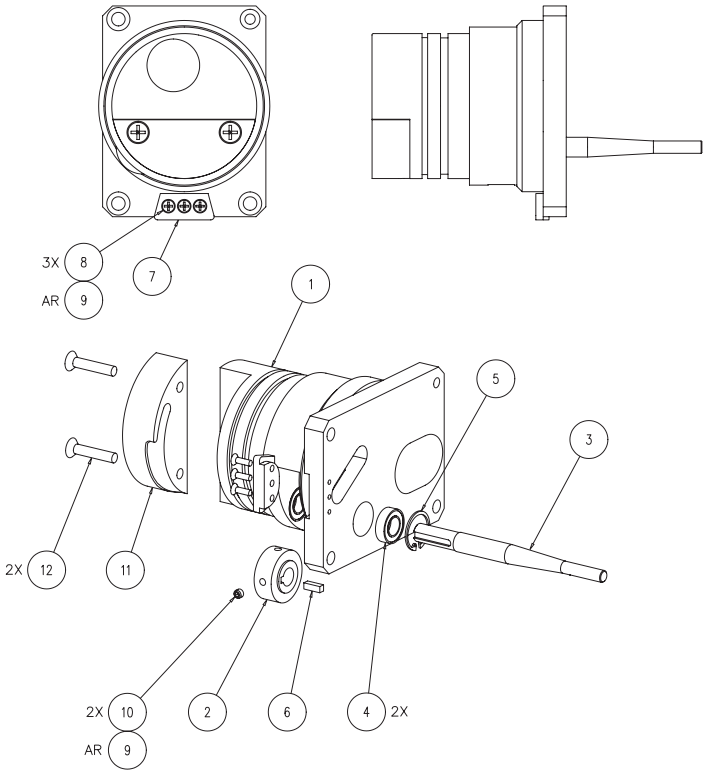
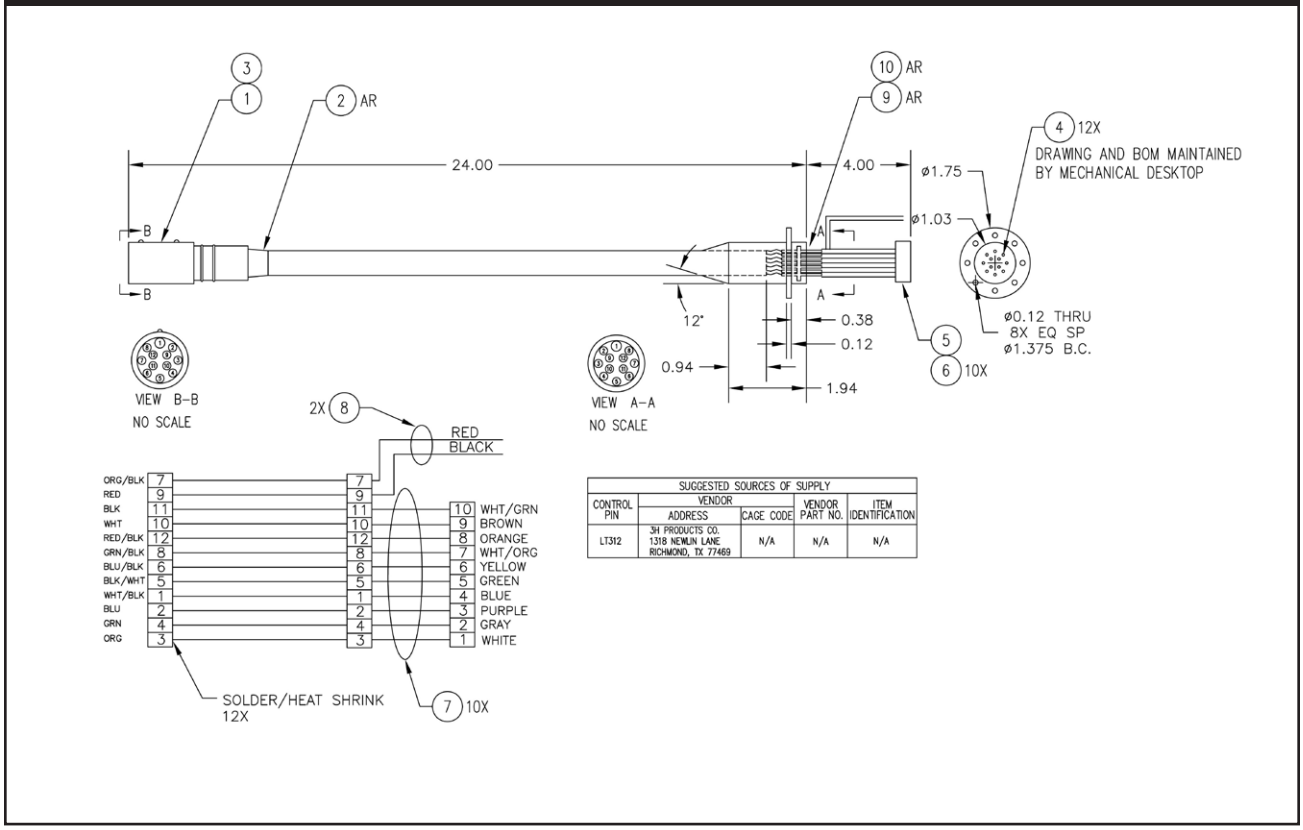


Figure 6. *Hub Assy, LT342 (replaced LT311)*

Hub Assy (See Fig. 6) Rev. A, LT342			
Item #	Desription	P/N	Qty
- 1	Hub,Rotate,Lamp	LT117	1
- 2	Pinion Gear,24t,1mm Pitch	LT118	1
- 3	Shaft,Rotate,F/8mm Shaft Dia,Lamp	LT267	1
- 4	Bearing,Ball,9x17x5,Sealed	HW457	2
- 5	Retaining Ring,Int,11/16 Bore,Sst	HW458	1
- 6	Key,Shaft/Arm	TM125	1
- 7	Stop,Rotation,Lamp	LT155	1
- 8	Screw,Flat,4-40x 9/16 SST	HW1668	3
- 9	Mro-Perma Mm-115-035 Threadlock Bl	440061	1
- 10	Screw,Set,8/32x1/8,Cut Pt,Ss	HW413	2
- 11	End Plate,Hub,Rotate,Lamp	LT240	1
- 12	Screw,Flat Skt Hd,10-32x1 Ss Nylok	101122	2

LAMP



SUGGESTED SOURCES OF SUPPLY				
CONTROL PIN	VENDOR ADDRESS	VENDOR CAGE CODE	VENDOR PART NO.	ITEM IDENTIFICATION
LT312	3H PRODUCTS CO. 1318 NEWLIN LANE RICHMOND, TX 77469	N/A	N/A	N/A

Figure 7. *Cable, 12 Pin, LAMP, LT312*

Cable, 12 pin, LAMP (See Fig. 7) Rev. E, LT312			
	No Bill of Material - Vendor Control Drawing		

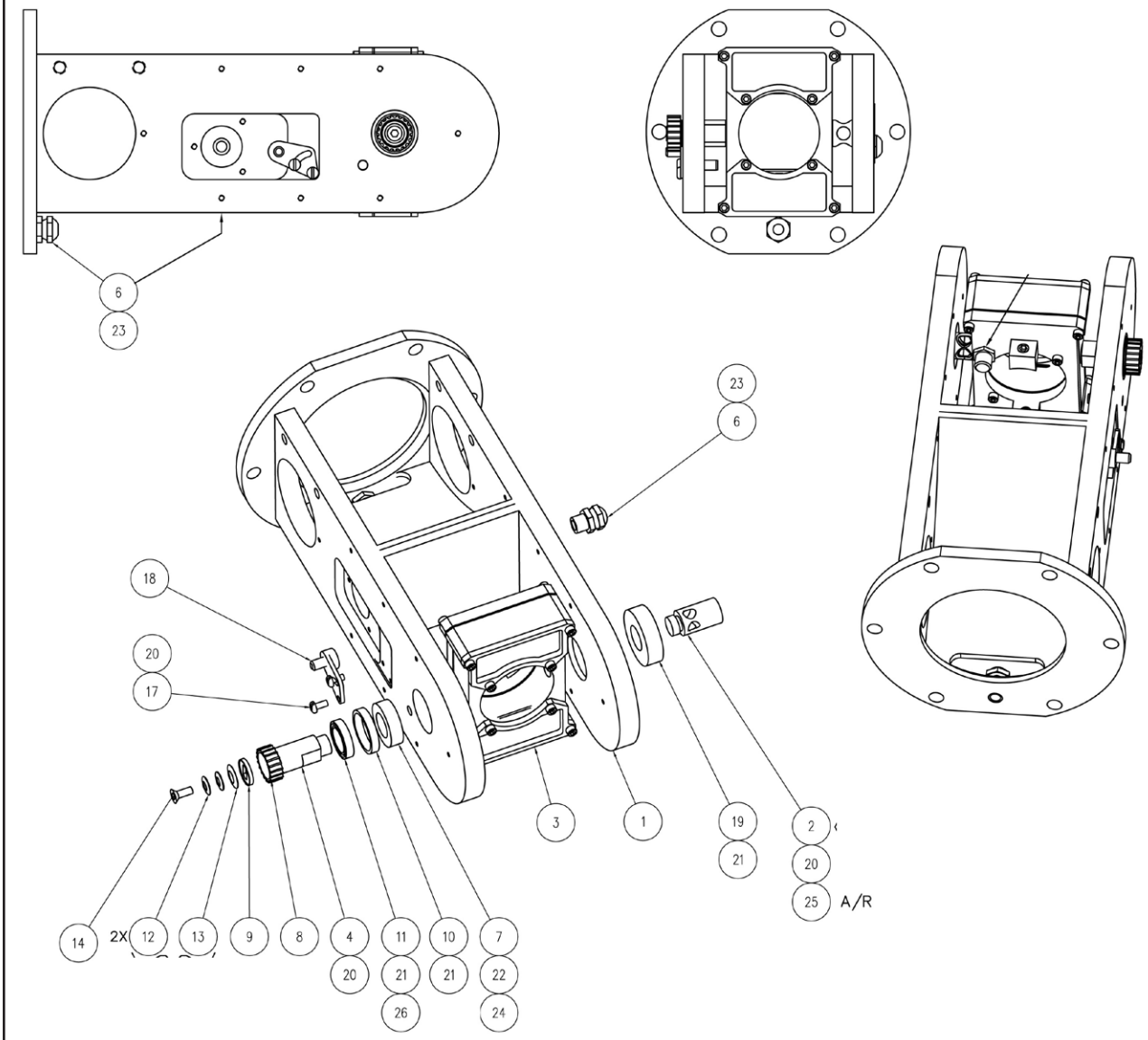


Figure 8. *Fork Assembly, LAMP, LT327*

LAMP

Fork Assy (See Fig. 8) Rev. D, LT327			
Item #	Desription	P/N	Qty
- 1	Weldment,Fork,Lamp	LT078	1
- 2	Shaft,Pivot,Lighthead,Lamp	LT079	1
- 3	Lighthead Assy,Mainline,Lamp	LT329	1
- 4	Shaft,Drive Side,Lamp	LT134	1
- 6	Strain Relief,Liquid Tight	HW463	3
- 7	Seal,Oil,.5id X.875 Od X.252thk	130305	1
- 8	Gear,Driven,Clutch,P&T	CP061	1
- 9	Plate,Clutch,P&T	CP062	1
- 10	Ring,Bearing	CP016	1
- 11	Bearing,.500bore X.75od X.1562thk	HW097	1
- 12	Washer,Bel Spr,3/16idx3/8odx.015,Ss	HW794	2
- 13	Washer,Bell Srg,1/4idx1/2odx.018,Ss	HW795	1
- 14	Screw,Flat Skt Cap,6-32x3/8nyl Ptch	HW796	1
- 17	Screw,Pan,4-40x1/4 Slotted Sst	712401	2
- 18	Tensioner,Belt,Nightowl	NO106	1
- 19	Bearing,Sealed.5bx1.125odx.312thk	HW018	1
- 20	Mro-Perma Mm-115-035 Threadlock Bl	440061	1
- 21	Mro-Loctite #680	CS092	1
- 22	Mro-Sealant,Pourable Translucent	445066	1
- 23	Mro-Loctite 545 Hydraulic	445091	1
- 24	Mro-Superlube,3 Oz	HW039	1
- 25	SPACER,3/8IDX1/2 ODX.005 SST	300041	1
- 26	MRO-GREASE,MOBIL 1 SYNTHETIC	CS419	1

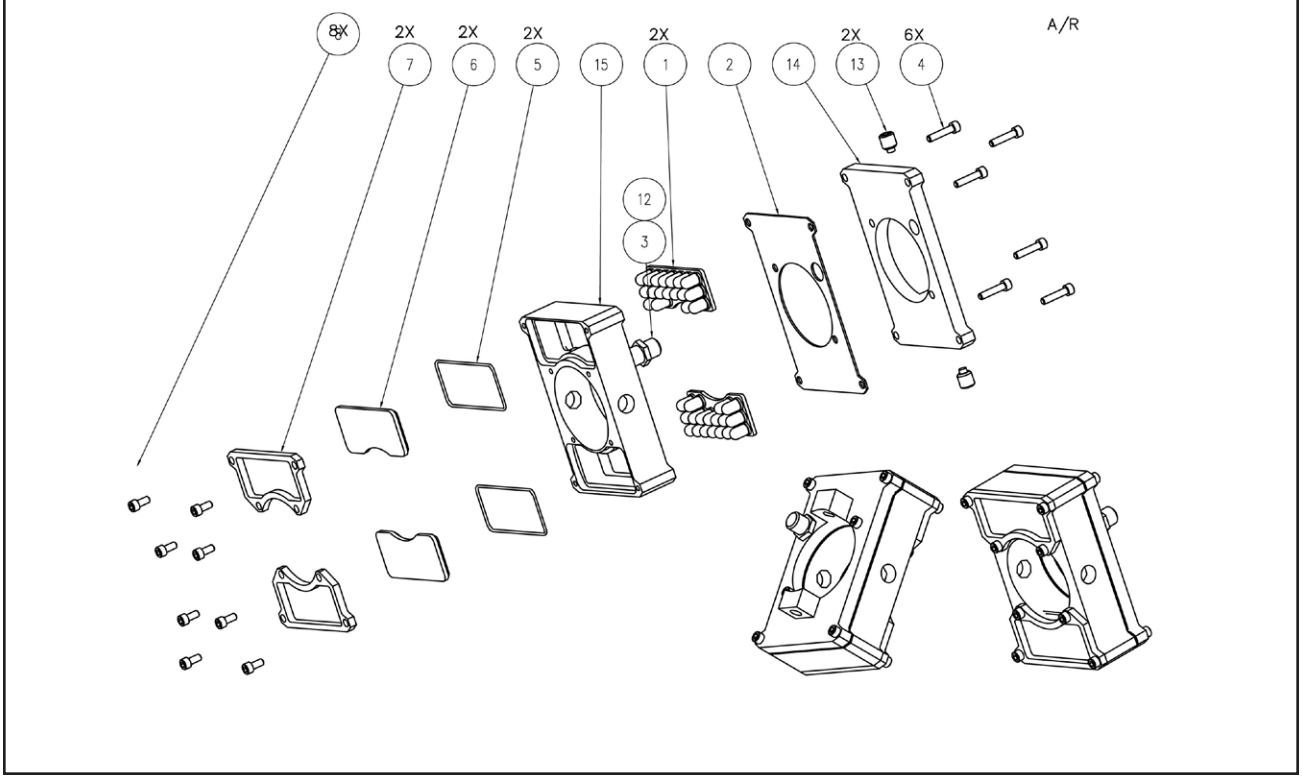
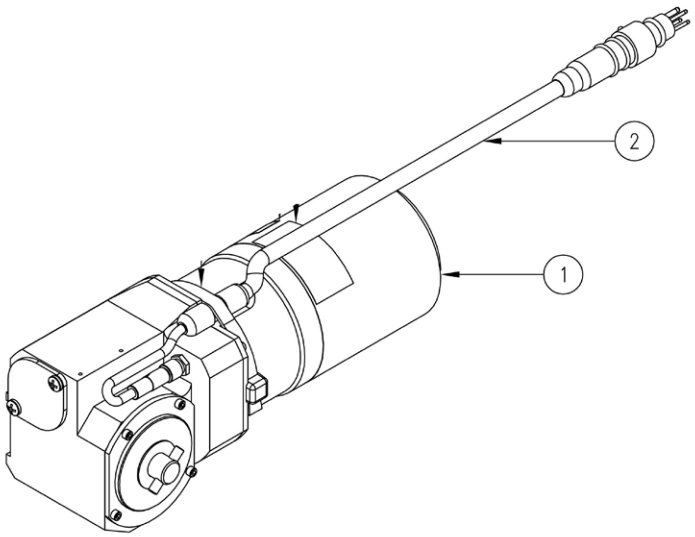
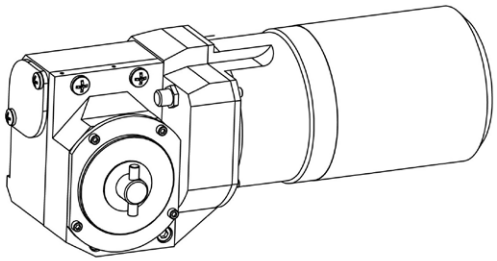


Figure 9. LIGHTHEAD ASSY,MAINLINE,LAMP, LT329

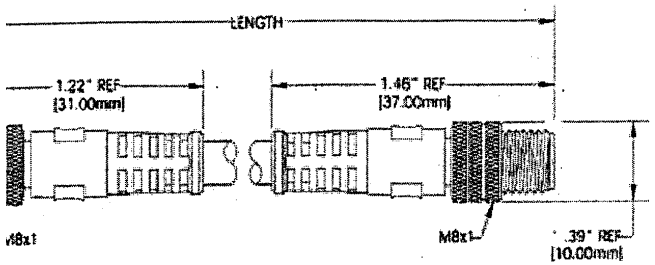
Lighthead Assembly, Mainline, LAMP, (See Fig. 9) Rev. D, LT329			
Item #	Desription	P/N	Qty
1	Pcb Assy,18led,Top,Lighthead,Lamp	LT402	2
2	Gasket,Cover,Rear,Light,Lamp	LT093	1
3	Receptacle,4pin,Bh 45460-001	EL497	1
4	Screw,Cap,Skt Hd,4-40x1/2,Sst	105061	6
5	O-Ring,1.6"Id X .045"W,Buna	HW581	2
6	Window,Lighthead,Lamp	LT147	2
7	Cover,Front,Light,Lamp	LT092	2
8	Screw,Cap,Soc Hd 4-40x1/4 Sst	103089	8
9	Wire,#24 Red Pvc	161571	1
10	Wire,#24 Black Teflon	713335	1
11	Grease,Anti Seize 8 Lb	420797	1
12	Mro-Seal.Hgh Press,Nd 440400-50,Brn	445091	1
13	Screw,Set 1/4-20x1/4 Ss,Nylon Tip	HW912	2
14	Cover,Back,Light,Lamp	LT091	1
15	Lighthead,Body,36led,Lamp	LT146	1



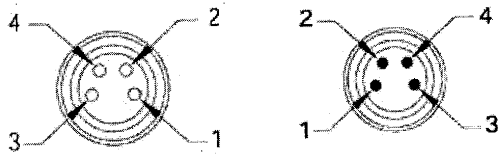
LT301



LT314



FACE VIEW



COLOR ROTATION

1 - brown
2 - white
3 - blue
4 - black

P/N EC429, CABLCABLE,4PIN,POWER,MOTOR & TRANS,LAMP

Motor/Transmission Assy (See Fig. 10) Rev. E, LT314			
Item #	Desription	P/N	Qty
- 1	Trans/Mtr,Fwd/Neu/Rev,Ultra Shorty	MC301-1	1
- 2	Cable Assy,Motor &Xnsm,Ultra Shorty	MC236	1

Figure 10a. *Motor/Transmission, Assy, LT314*

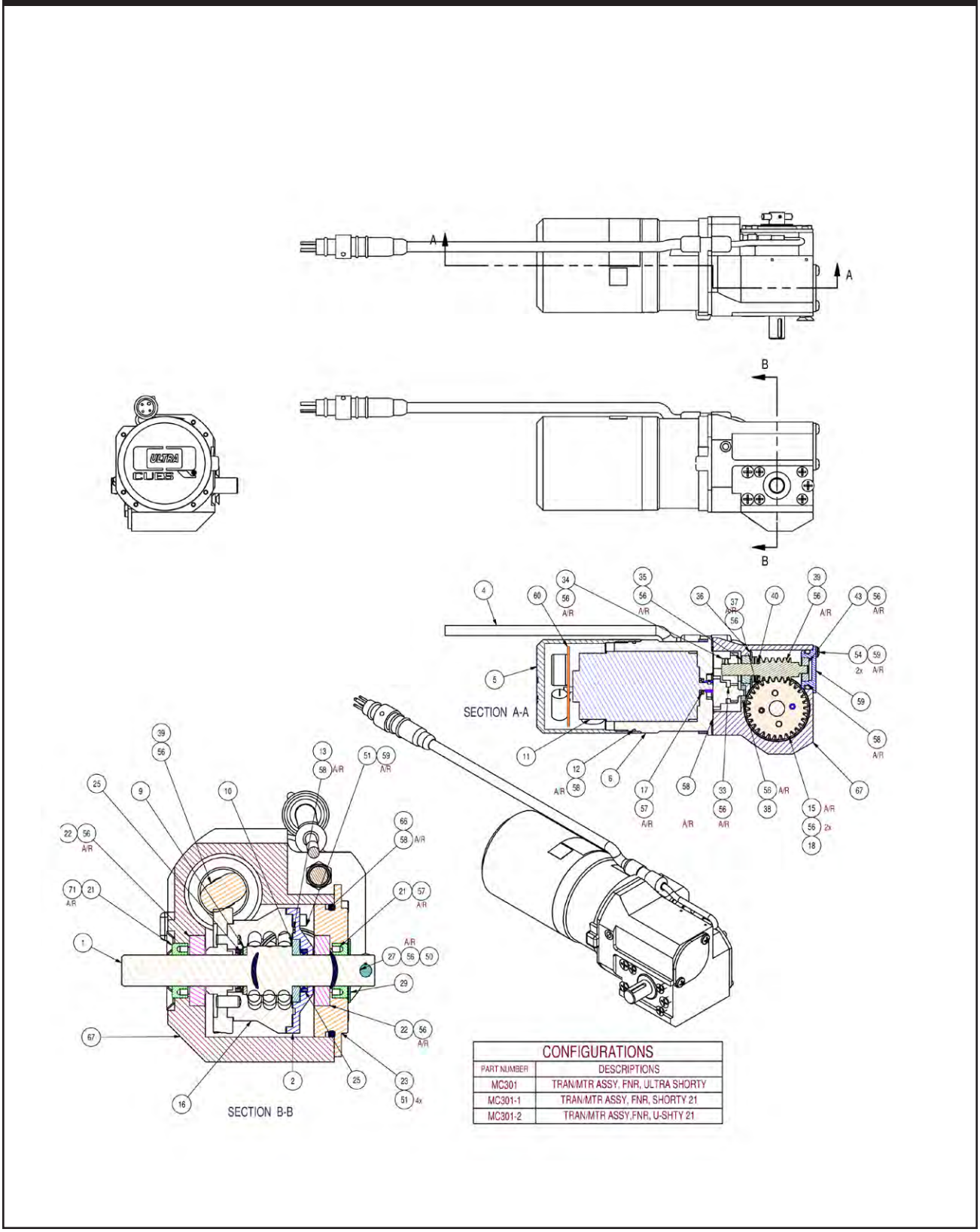


Figure 10-1. *Transmission/Motor,FWD/NEU/REV Clutch,HighSpeed, MC301-1*

LAMP

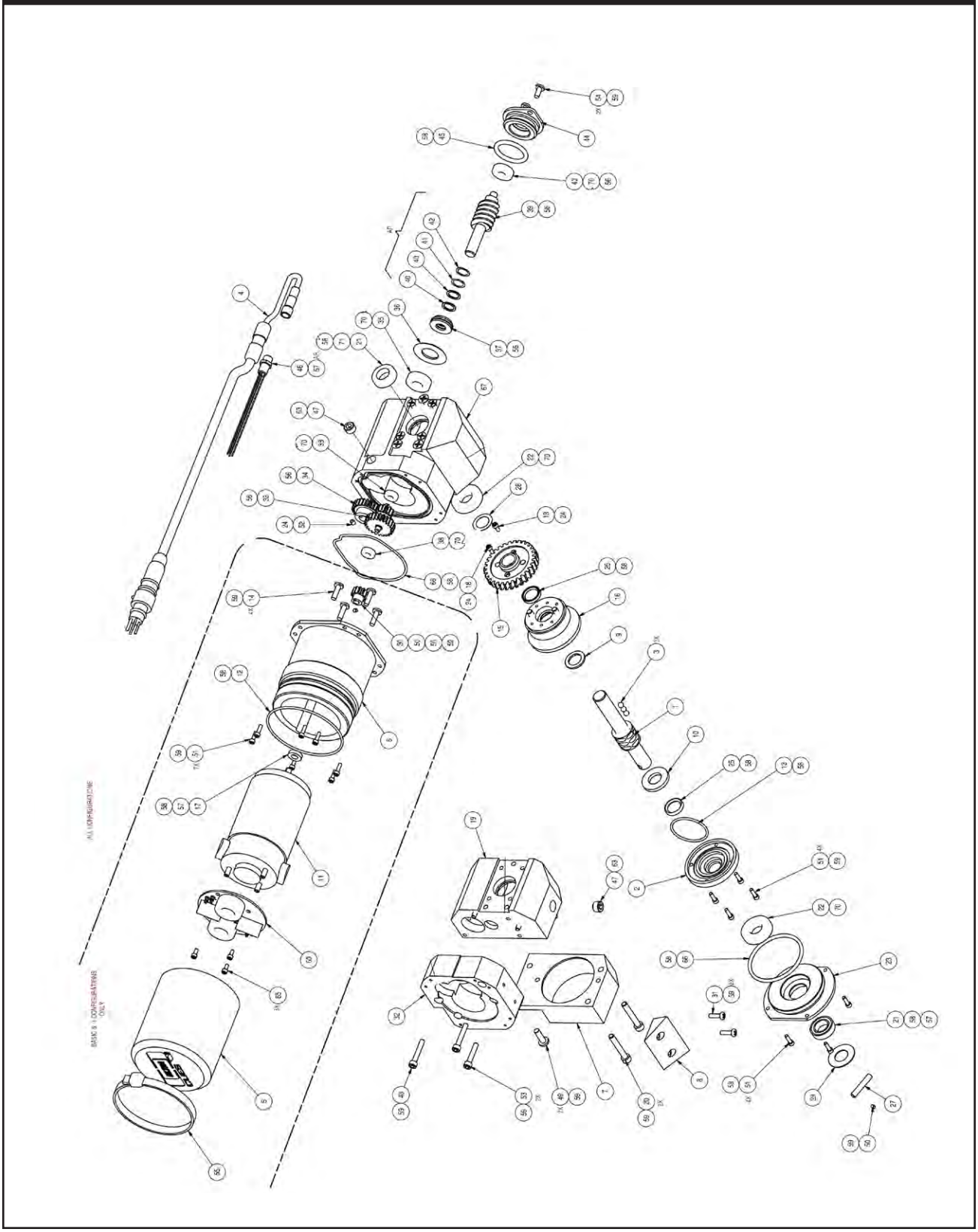


Figure 10-1. *Transmission/Motor,FWD/NEU/REV Clutch,HighSpeed, MC301-1*

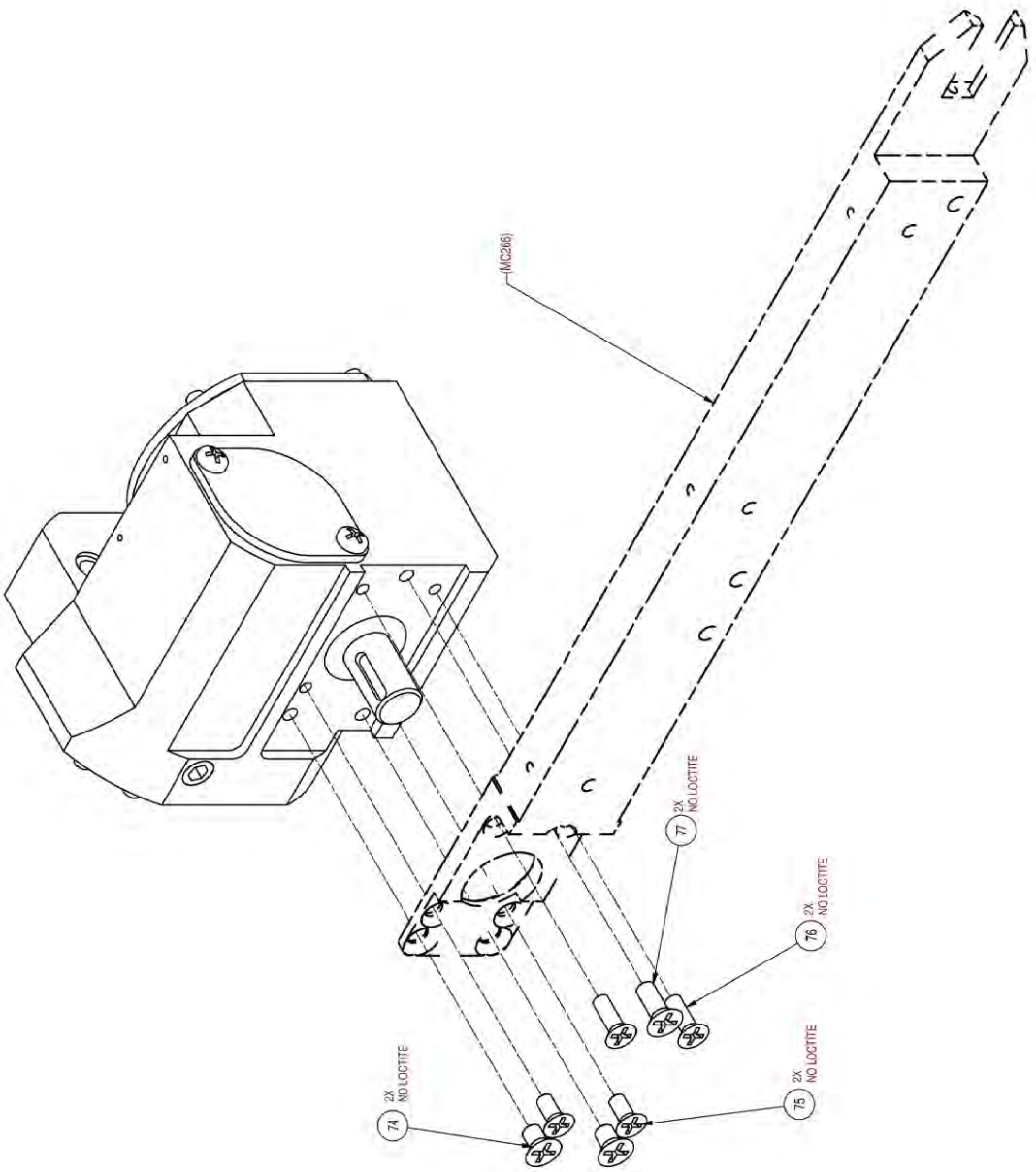


Figure 10-1. *Transmission/Motor,FWD/NEU/REV Clutch,HighSpeed, MC301-1*

LAMP

Trans/Motor, FWD/NEU/REV Clutch (See Figure 10-1), Rev. AK, MC301-1			
1	Shaft,Drive,Clutch,Ultra	MC245	1
2	Cover,Clutch,F/N/R	MC243	1
3	Ball,Bearing,3/16dia,Tungsten Carbi	HW1052	3
4	Cable Assy,Motor &Xnsm,Ultra Shorty	MC236	1
5	Cover,Rear,Motor&Xmsm,Ultra Shorty	MC237	1
6	Mount,Motor&Xmsm,Ultra	MC238	1
9	Bearing,Thrust,Bronz,.502x.753x1/16	HW321	1
10	Bearing,.502idx1.004 Odx1/8thk	HW905	1
11	Motor,115vdc,.12hp,W/Standoff,Trans	TL050	1
12	O-Ring,2-039 Ep	132215	1
13	O-Ring,2-026 Buna	HW903	1
14	Screw,Seal(8-32x9/16l)Phil Head	HW004	4
15	Gear,Worm,Hs,Bbc,Ultra Shorty	MC247	1
16	Race,Ball Triple,Clutch,F/N/R	MC244	1
17	Seal,Oil,.25 Bore X.5 Od .125thk	HW003	1
18	Screw,Cap,Soc Hd 4-40x1/4 Sst	103089	2
21	Seal,Oil,.5id X.875 Od X.252thk	130305	2
22	Bearing,Ball,1/2 Id X 1-1/8 Od X1/4	300284	2
23	Cover,Transmission,Ultra	MC246	1
24	Mro-Permanent Lock,Nd 140500-50,Red	440060	1
25	Seal,Oil,.500dia X.685 Bore,.12t	50681	2
26	Mro-Ret.Comp,.005gp,Nd530125-50,Grn	440072	1
27	Pin,Drive Sst .187x1"	97551	1
28	Spacer,1/2"Idx.010	300043	1
29	Spacer,Sprocket-Transporter	305071	1
30	Gear,Drive,Spur,12t/24p,Teardrop	HW552	1
33	Gear,Tandem	300407	1
34	Gear,Modified	299981	1
35	Bearing,Ball,Sld,3/8 Idx7/8 Odx9/32	300282	1
36	Spacer,1.240 Odx.630idx.060thk	300049	1
37	Bearing,Thrust	300285	1
38	Bearing,Ball,3/16 Id X 1/2 Od X5/32	300280	2
39	Gear,Worm,W/Shaft	299963	1
40	Spacer,Sst,3/8id X1/2 Od X.031 Thk	300047	2
41	Spacer,3/8idx1/2 Odx.005 Sst	300041	1
42	Spacer,3/8"Idx.010	300044	1
43	Bearing,Ball,1/4 Id X 3/4 Od X 7/32	300281	1
44	Housing,Bearing,Outer,Transmission	501175	1
45	O-Ring,Ep 80 #2-214	130145	1

Trans/Motor, FWD/NEU/REV Clutch (See Figure 10-1), Rev. AK, MC301-1			
46	Receptacle,4pin,Bh 45460-001	EL497	1
50	Screw,Set,4-40x1/8 Sst	100050	2
51	Screw,Cap,Skt Hd,4-40x3/8,Sst	100054	15
52	Screw,Set,6-32x3/16 Sst	100991	2
54	Screw,Pan,8-32x3/8 Phil Sst	103065	2
55	Mro-Tie,Cable,14"X5/16"Black	440305	1
56	Mro-Grease,Mobil 1 Synthetic	CS419	1
58	Mro-Lubricant,O-Ring 2 Oz Tube	439986	0.01
59	Mro-Removable Lck,Nd 121200-50,Blue	440061	1
60	Pcb Assy,Motor Filter,Transporter	TL400	1
63	Mro-Seal.Hgh Press,Nd 440400-50,Brn	445091	1
65	Screw,Cap,Skt Hd,4-40x1/4,W/Nylok	712389	3
66	O-Ring,2-135,Buna,195 Idx.103	HW438	1
67	Housing,Gear	MC277	1
68	O-Ring,Ep 2-038	130141	1
70	Mro-Ret.Comp,.015gp,Nd541200-50,Grn	CS092	1
71	Mro-Loctite 42540 F/Plastic	429791	1
72	Label,Lasertab Marker, .560 X .560	CS222	1
73	Label,Etl Mark,2" X 1"	CS224	1
74	Screw,Flathead,10-32x5/16 Phil Sst	101426	2
75	Screw,Flat,8-32x3/8 Phil Sst	100146	2
76	Screw,8-32x1/2 Fl,Ph,Ss	103062	2
77	Screw,Flat,10-32x1/2 Sst	103052	1
78	WASHER.375X.136+.005-0IDX.062T,PHEN	HW2327	1

LAMP

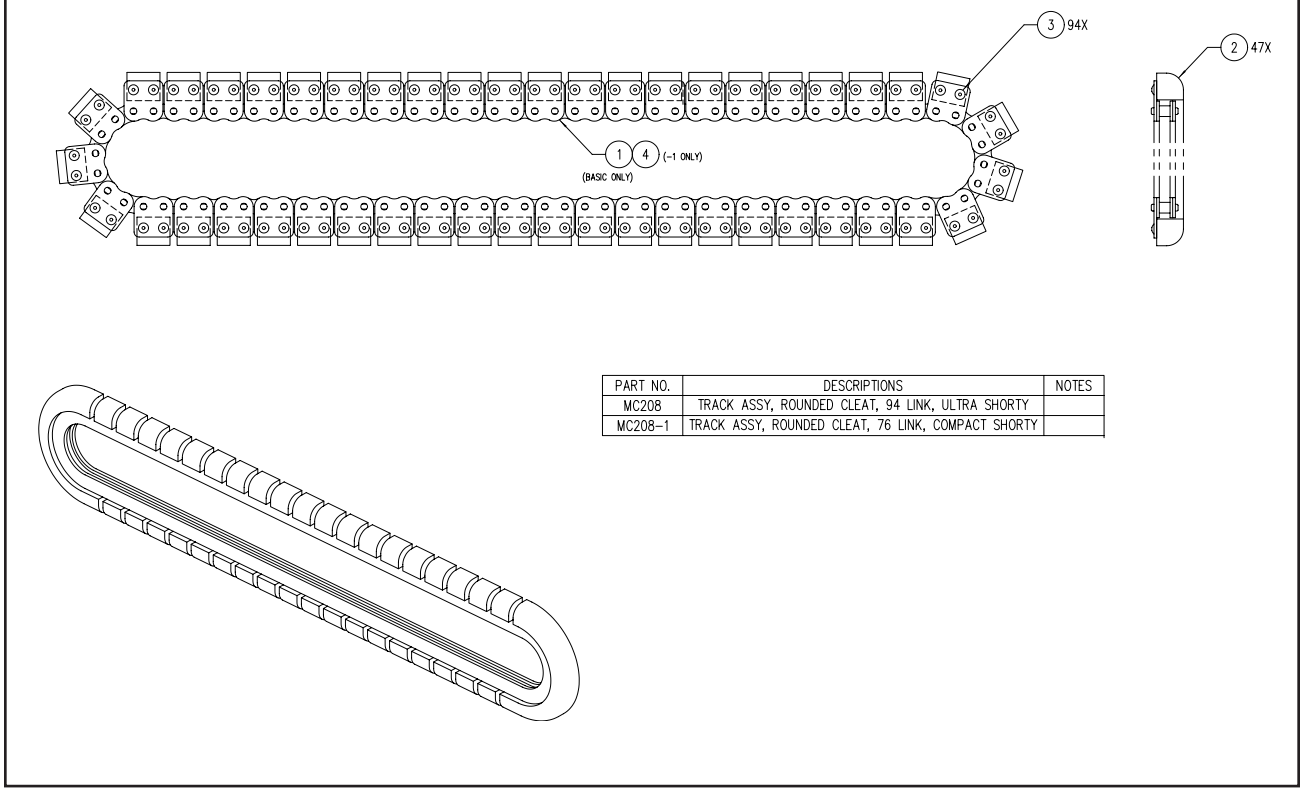


Figure 11. *Rounded Cleat Track Assy, MC208*

Track Assy, Round Cleat, Shorty (See Fig. 11) Rev. D, MC208			
Item #	Description	P/N	Qty
-1	· Chain, Carbon Steel, Two-Hole	MC207	1
-2	· Cleat Assembly, Rounded, Trans. Track	MC206	47
-3	· Rivet, Pop, SST, 3/32 dia x 1/8 lg	HW1078	94
	For Ultra Shorty 21:		
-4	Chain, Carbon Steel, 2 Hole	MC207-1	1
	Cleat Assembly, Rounded, Trans. Track	MC206	38
	Rivet, Pop, SST, 3/32 dia x 1/8 lg	HW1078	76

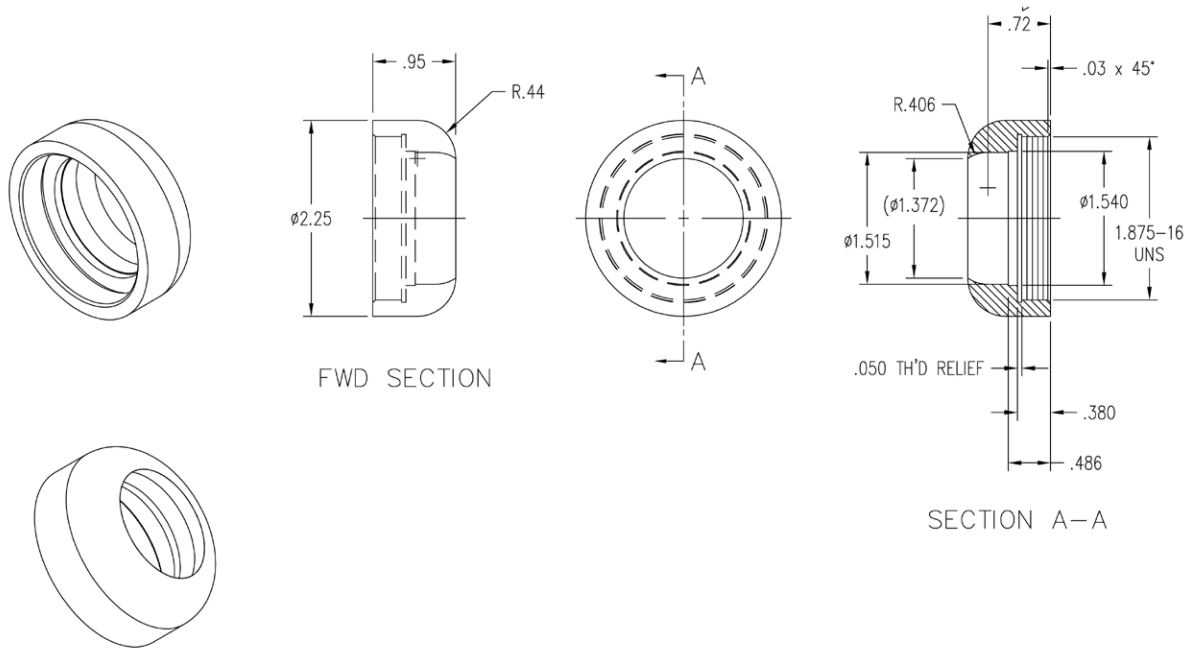
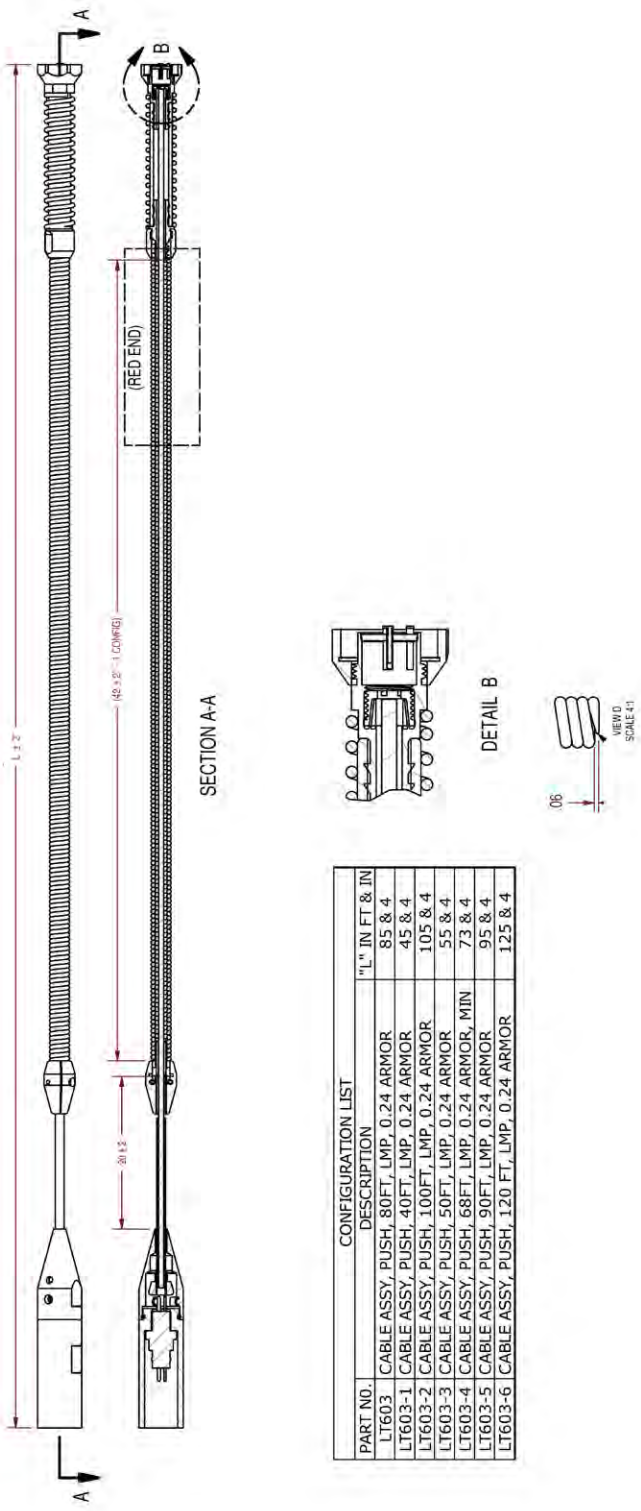


Figure 12. *Lateral Camera Centering Ball, LT258 (replaced LT081)*

Lateral Camera Centering Ball (See Fig. 12) Rev. E, LT258			
	No Bill of Material - Control Drawing		



CONFIGURATION LIST

PART NO.	DESCRIPTION	"L" IN FT & IN
LT603	CABLE ASSY, PUSH, 80FT, LMP, 0.24 ARMOR	85 & 4
LT603-1	CABLE ASSY, PUSH, 40FT, LMP, 0.24 ARMOR	45 & 4
LT603-2	CABLE ASSY, PUSH, 100FT, LMP, 0.24 ARMOR	105 & 4
LT603-3	CABLE ASSY, PUSH, 50FT, LMP, 0.24 ARMOR	55 & 4
LT603-4	CABLE ASSY, PUSH, 68FT, LMP, 0.24 ARMOR, MIN	73 & 4
LT603-5	CABLE ASSY, PUSH, 90FT, LMP, 0.24 ARMOR	95 & 4
LT603-6	CABLE ASSY, PUSH, 120 FT, LMP, 0.24 ARMOR	125 & 4

Figure 13a. *Push Cable Assy, 80ft, LT603*

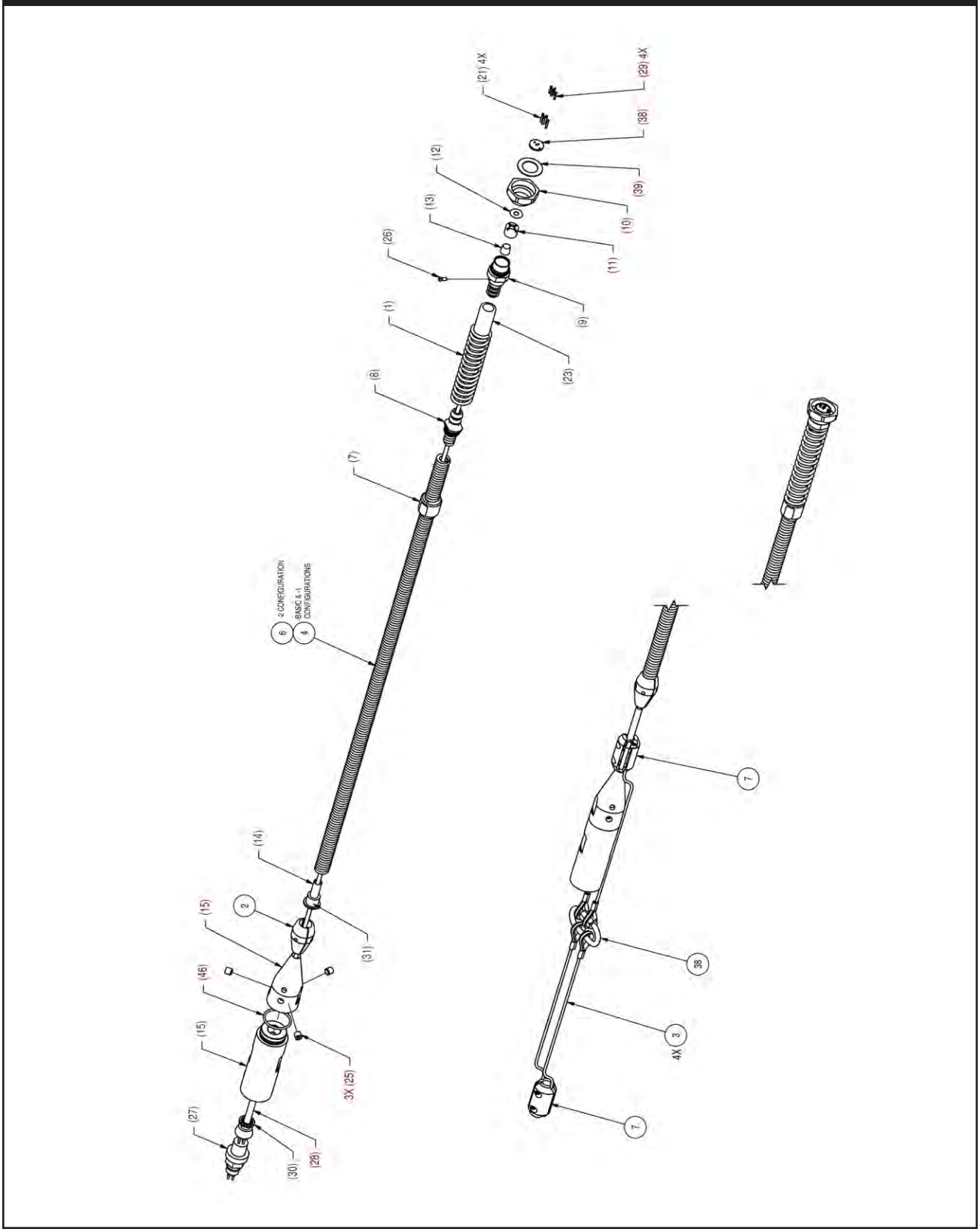


Figure 13b. *Push Cable Assy, 80ft, LT603*

CABLE ASSEMBLY PROCEDURE:

1. SCREW CAMERA NUT (ITEM 10) ON TO ADAPTER (ITEM 9). SLIDE SPRING (ITEM 1) OVER HOSE (ITEM 23). PUSH ADAPTER (ITEM 10), (ITEM 8), HOSE (ITEM 23) AND SPRING (ITEM 1) TOGETHER WITH A SMALL ARBOR PRESS. USE (LT297TL) STABILIZING TUBE AROUND SPRING AND ASSEMBLY WHEN PRESSING TOGETHER. SLIDE ITEM 7 OVER ITEM 4.

2. PUSH CABLE (ITEM 28) UP THROUGH HOLE IN ASSY. SLIDE CONE (ITEM 13) ONTO CABLE. PUT FIXTURE (LT099-1) AROUND CABLE, LEAVING APPROX 2" STICKING OUT ON TOP. CLAMP IN VISE.

3. UNWIND OUTER SHIELD CABLE STRANDS AND BEND THEM DOWN AROUND FIXTURE IN A FANNED OUT PATTERN. CUT WIRE STRANDS TO PROPER LENGTH USING FIXTURE. WEAKEN INNER BRAID CABLE STRANDS APPROXIMATELY 3/16" ABOVE TOP OF FIXTURE BY SCORING THEM LIGHTLY WITH A DREMEL TOOL. BEND THEM OVER AND BREAK THEM OFF. STRIP OUTER PLASTIC COATING FROM WIRES DOWN TO TOP OF INNER BRAIDS. SLIDE TOOL (LT097) OVER THE TOP OF THE BRAIDS TO COMPRESS THEM. TAKE FIXTURE OUT OF VISE AND TAKE OFF OF CABLE. WITH TOOL PUSH CABLE DOWN IN ADAPTER (ITEM 9) UNTIL IT BOTTOMS OUT. WHILE PULLING DOWN ON CABLE WITHDRAW TOOL FROM ASSEMBLY.

4. CUT A 3" PIECE OF BLACK 24 AWG WIRE (ITEM 31) AND STRIP ON E END 3/4". MIX UP A SMALL AMOUNT OF GRAY EPOXY (ITEM 32) AND SMEAR ON THE INSIDE TAPER OF THE CAPTURE NUT (ITEM 11). SLIDE NUT OVER WIRES. TIGHTEN NUT DOWN OVER STRANDS WITH TOOL (LT098). FOLD INNER BRAIDED STRANDS OVER ON TOP OF NUT UNTIL THEY LAY FLAT. SOLDER 3" BLACK WIRE TO ONE INNER BRAID NEXT TO BLACK WIRE FROM ARMORED CABLE. PERFORM CONTINUITY CHECK ON BLACK WIRE TO CABLE. SMEAR A THIN LAYER OF GRAY EPOXY (ITEM 32) OVER CABLE STRANDS BEFORE PUTTING ON MYLAR SPACER (ITEM 12). STRIP OFF THE REST OF THE OUTER PLASTIC COATING FROM WIRES.

5. CUT WIRES APPROXIMATELY 11/16" FROM TOP OF ADAPTER (ITEM 9). STRIP BACK 1/4" AND TIN. TIE THE TWO BLACK WIRES TOGETHER. PRESS AND SOLDER SOCKETS (ITEM 21) INTO MOUNTING BOARD (ITEM 38). CUT POST ON BOTTOM OF SOCKET, TAKING CARE NOT TO DAMAGE SOCKET. TIN OUTER SURFACE FOR WIRE CONNECTIONS. SOLDER WIRES TO SOCKETS PER SCHEMATIC AND VIEWS & MEG WIRES. DO NOT DEVIATE FROM LOCATION OF WIRES AS SHOWN ON SHEET 4. USE SHRINK TUBE A/R. WRAP PINS AND WIRES WITH ELECTRICAL TAPE AS SHOWN ON SHEET 4. OVERLAP TAPE 1/2".

6. GENTLY PUSH WIRES AND MOUNTING BOARD DOWN INTO PLACE IN ADAPTER (ITEM 9) AND HOLD IN PLACE WITH HOLDING TOOL (LT 296TL). MEG WIRES AGAIN RELEASE HOLDING TOOL SCREW AND GENTLY PULL BOARD UP JUST ENOUGH TO FILL CAVITY UNDERNEATH WITH A NEW BATCH OF GRAY EPOXY (ITEM 32). USE PLASTIC APPLICATOR TO INJECT EPOXY. PUSH BOARD DOWN INTO PLACE AND USE HOLDING TOOL (LT296TL) TO HOLD IN PLACE WHILE EPOXY DRIES, WIPE OFF EXCESS EPOXY WITH ALCOHOL. 2 HRS DRY TIME.

7. DRESS END OF PUSH CABLE (ITEM 4) BY SANDING END SQUARE. LIFT UP END OF COIL 1/16" AND REMOVE SHARP EDGE. SEE VIEW D. APPLY LOCTITE, ITEM 33, AND TIGHTEN NUT, ITEM 10.

8. USE THE BLUNT END OF A #55 DRILL BIT TO RESIZE THE INSIDE OF THE SOCKETS (ITEM 21) FOR FREE MOVEMENT OF POGO PINS (ITEM 29) BEFORE INSERTION. THIS END IS COMPLETE.

CABLE SIDE ASSEMBLY PROCEDURE:

9. CUT BRAIDED CABLE (ITEM 28) TO 87". INSTALL ITEM 14 INTO ITEM 4 UNTIL IT COMES OUT A COUPLE OF FEET.

10. SLIDE CONE END OF 2 PART SHELL (ITEM 15) OVER CABLE.

11. SLIDE HEAT SHRINK (ITEM 35) OVER CABLE AND HEAT IN PLACE 2" FROM END. USE TOOL 940666 TO HOLD INNER CABLE. SLIDE COLLAR (ITEM 31) OVER CABLE END. UNWIND OUTER AND INNER ARMOR SHIELDS DOWN TO HEAT SHRINK. POSITION COLLAR OVER HEAT SHRINK. BEND OUTER AND INNER ARMOR SHIELD WIRES OVER COLLAR AND INSERT INTO HOLES AROUND PERIMETER, TENSION AND TRIM EXCESS. THERE SHALL BE THREE SHIELD WIRES PER HOLD. SEE VIEW A.

12. TRIM CONDUCTORS TO 5/8" AND STRIP LAST 1/4" FROM EACH WIRE. PUT 1/2" OF HEAT SHRINK (ITEM 37) OVER EACH WIRE.

13. INSTALL O-RING (ITEM 46) ON EXT THREADED END OF FRONT SHELL. INSERT 4-PIN MALE PLUG (ITEM 28) INTO OPEN END OF FRONT SHELL AND THREAD IN PLACE. USE A DEEP 11/16" SOCKET TO TIGHTEN IN PLACE. SOLDER WIRES TO PLUG (ITEM 27) PER WIRING DIAGRAM. COVER CONNECTIONS WITH HEAT SHRINK.

14. SLIDE SHELL CONE UP CABLE AND OVER COLLAR. PUT FRONT SHELL IN VISE AND HOLD CABLE (ITEM 29) SO IT DOES NOT TURN AND TWIST WIRES. THREAD CONE END ONTO FRONT PART OF SHELL.TIGHTEN 2 HALFS WITH WRENCHES ON FLATS PRVIDED. BE SURE COLLAR IS SEATED FULLY INSIDE SHELL CONE. SECURE COLLAR IN PLACE WITH 3 SET SCREWS (ITEM 26).

15. TAPE SHELL END WITH CABLE TO PREVENT LEAKAGE. MIX SCOTCHCAST KIT (ITEM 41) AND USE SUPPLIED FUNNEL TO INJECT SCOTCHCAST INSIDE OF SHELL. DO NOT OVERFILL OR ALLOW TO SPILL OUT FRONT OF SHELL.

16. CLAMP LT090 (ITEM 2) ONTO ARMORED CABLE END (ITEM 14).

17. ENGRAVE SERIAL NO., PART NO., AND REVISION LETTER ON THE WRENCH FLATS OF THE SCOTCH CAST CHAMBER (ITEM 15). SCREW PLASTIC PROTECTION CAP (ITEM 11) ON OVER CONNECTION 1. DO NOT SCREW ON CAMERA NUT (ITEM 10), TIE WRAP IT TO ASSY.

Figure 13c. *Push Cable Assy, 80ft, LT603*

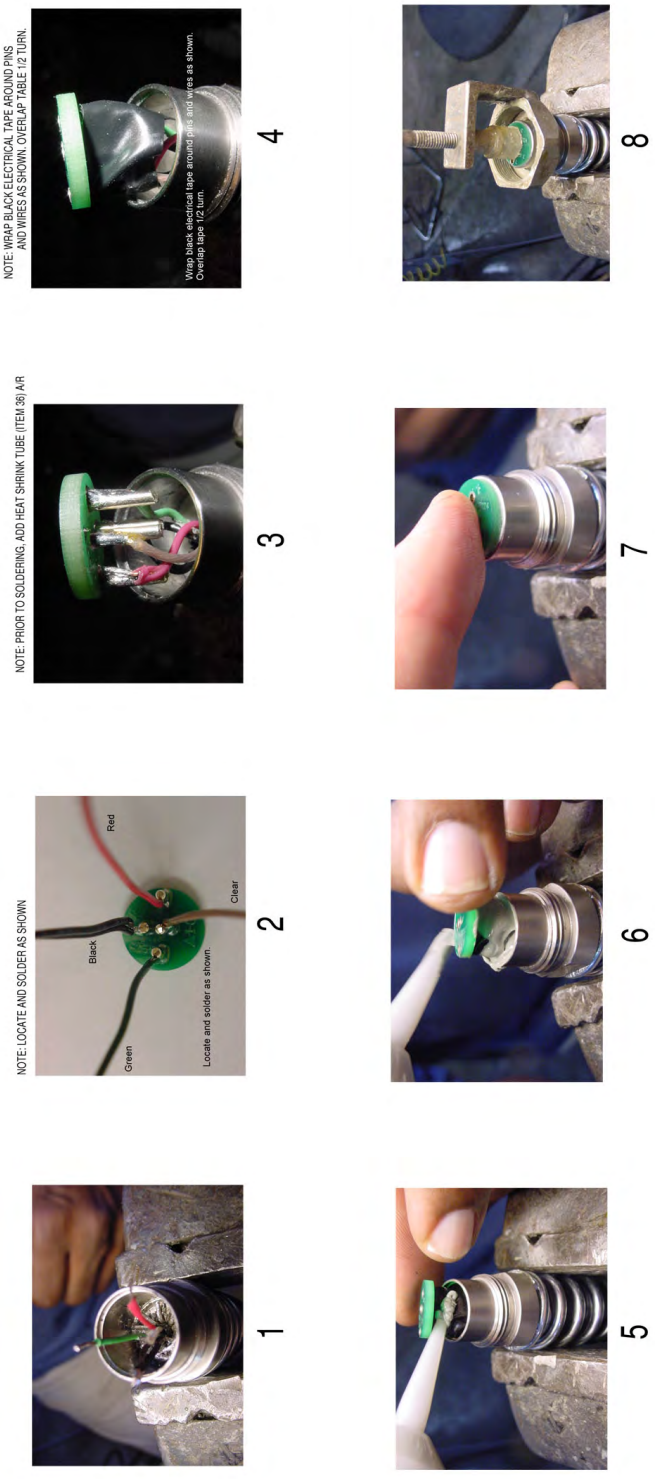


Figure 13d. *Push Cable Assy, 80ft, LT603*

LAMP

Cable Assy, Push, 80ft, LAMP (See Fig. 13) Rev. H, LT603			
Item #	Desription	P/N	Qty
0002	END,PROFILED,SPRING CABLE,LAMP	LT090	1
0003	TOW CABLE,12",PUSHCABLE,LAMP	LT150	4
0004	SPRING,CABLE,PUSH,80',LAMP	LT151	1
0006	STRAIN RELIEF,CLAMSHELL,PUSHCA,LAMP	LT152	2
0017	CABLE ASSY,INNER ARMORED,87FT	LT623	1
0022	KIT,REPAIR,PSHCBL,4PIN END,LMP,0.24	RP120	1
0033	MRO-REMOVABLE LCK,ND 121200-50,BLUE	440061	1
0034	TUBE,SHRINK,BLACK 3/32"	712595	1
0036	TUBE,SHRINK,BLACK 1/8"	712789	1
0037	RING-D,CHAIN,TOW CABLE,3/16"SS	712799	1
0040	MRO-RET.COMP,.015GP,ND541200-50,GRN	CS092	1

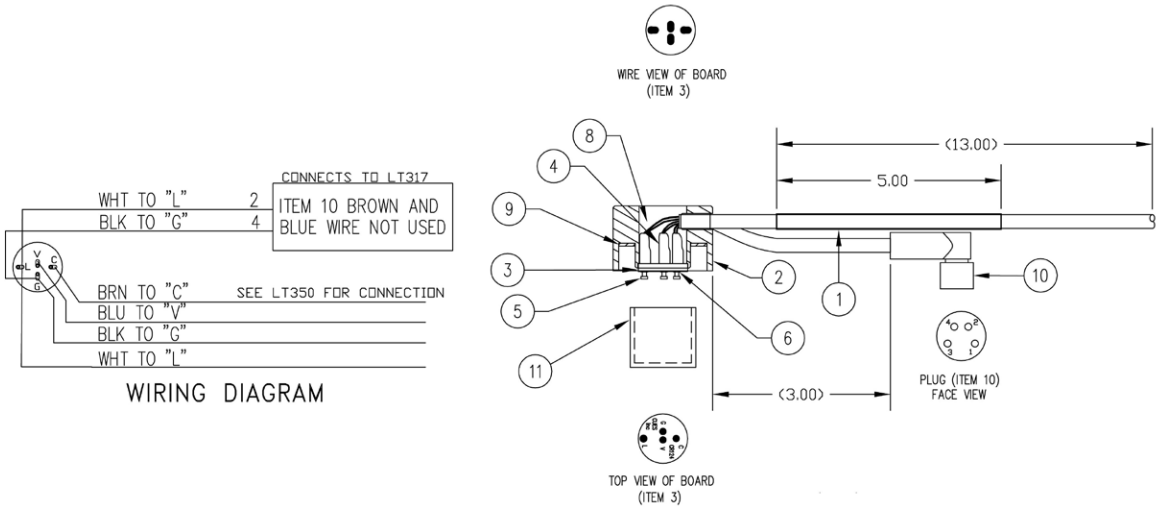


Figure 14. *Mainline Camera Cable Assy, LT316*

Mainline Camera Cable Assy (See Fig. 14) Rev. J, LT316			
Item #	Desription	P/N	Qty
1	Tube,Shrink,Black 1/4"Rnf	712576	0.42
2	Connector,Cx1,Main Camera,Lamp	LT144	1
3	Board,Mount,Cx1	CR124	1
4	Tube,Shrink,Black 3/32"	712595	1
5	Pin,Pogo W/Spring	1208	4
6	Socket,Wire Wrap,025 Sq	PL131	4
8	Scotchcast Urethane Resin 2130	950140	1
9	Gasket,Teflon,Cx1	CR126	1
10	Cable,4-Pin,Nano,Brad H,Lamp	LT148	1
11	Cap,Protection,Connection1	HW947	1

LAMP

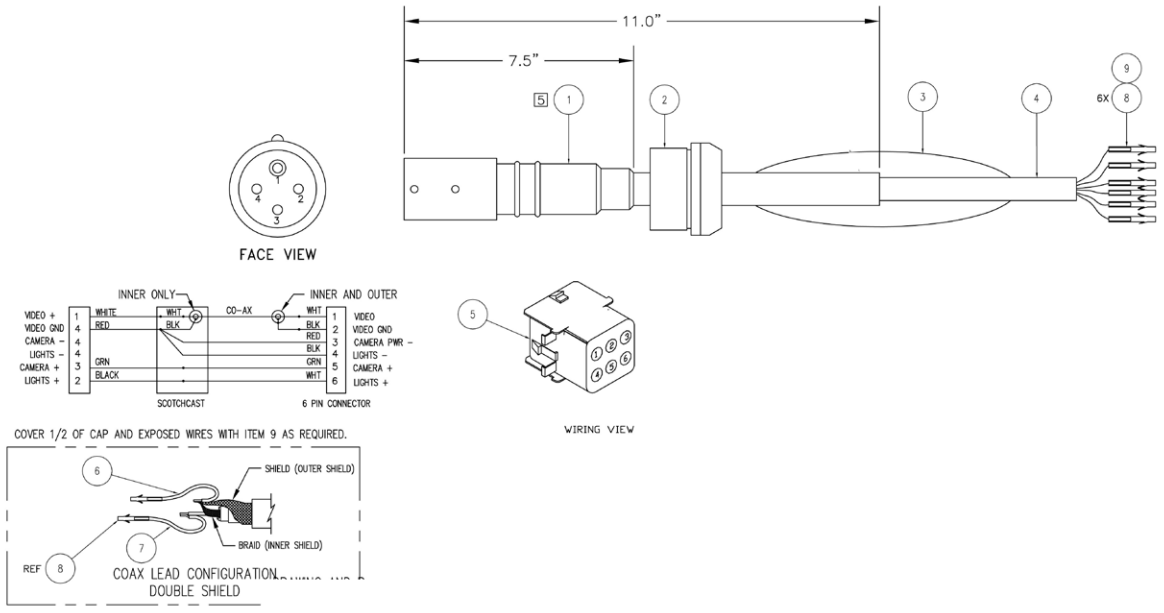


Figure 15. *Lateral Camera Cable Assy, LT318*

Lateral Camera Cable Assy (See Fig. 15) Rev. F, LT318			
Item #	Desription	P/N	Qty
1	Pigtail,4-Pin Female	160534	1
2	Nut,Capture,Lateral Cable	LT363	1
3	Kit,Scotchcast,.25"-.80 Dia Cable	EL220	1
4	Cable,4cond,1coax,22awg,Red	EC449	1000
5	Conn,Recept,W/6-Pins	712607	1
6	Wire,#20 Black Stranded 600v	713317	1
7	Wire,#20 White Bu	713326	1
8	Pin,Brass F/Wire Size 20-14	712612	6
9	Tube,Shrink,Black 1/4"Rnf	712576	1

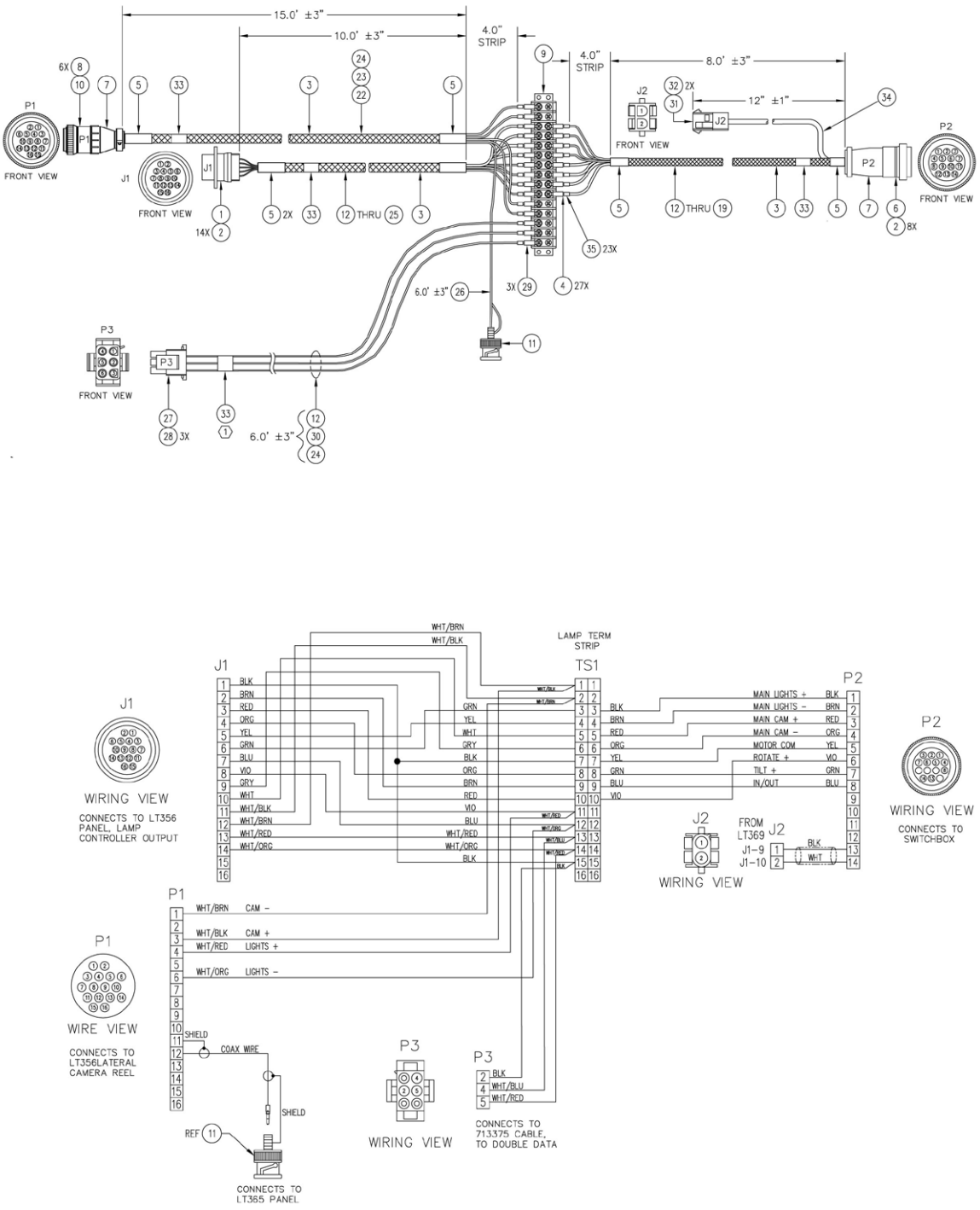
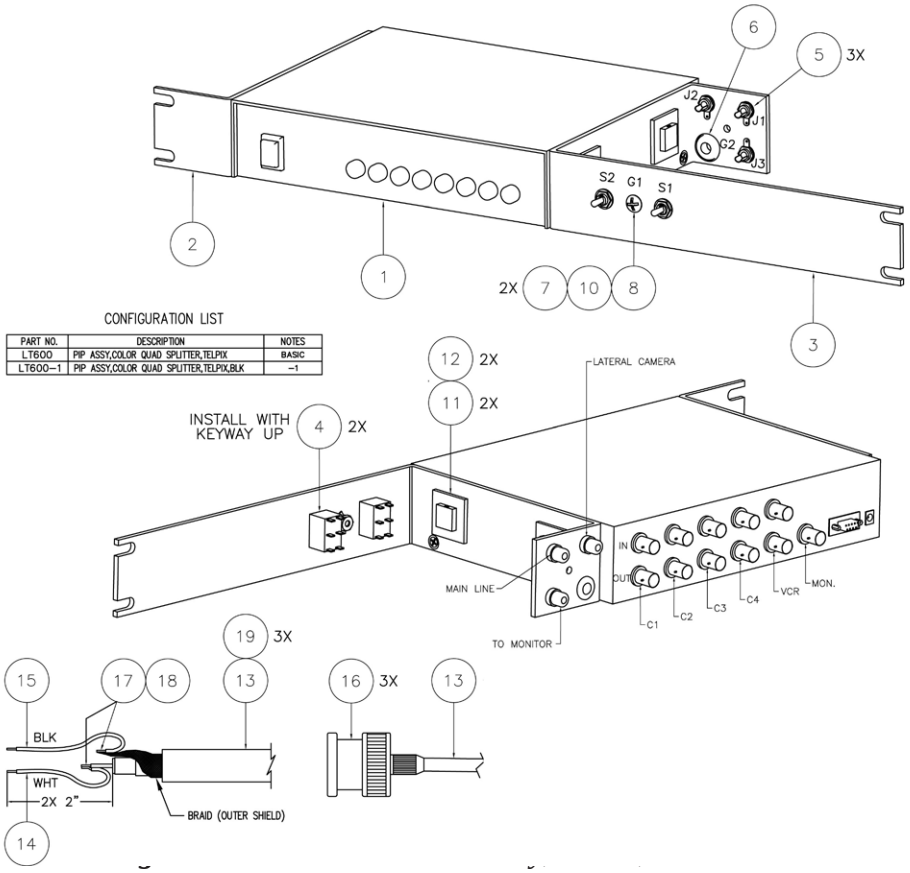


Figure 16. *Cable Assembly, Term Strip/Switchbox, LT374*

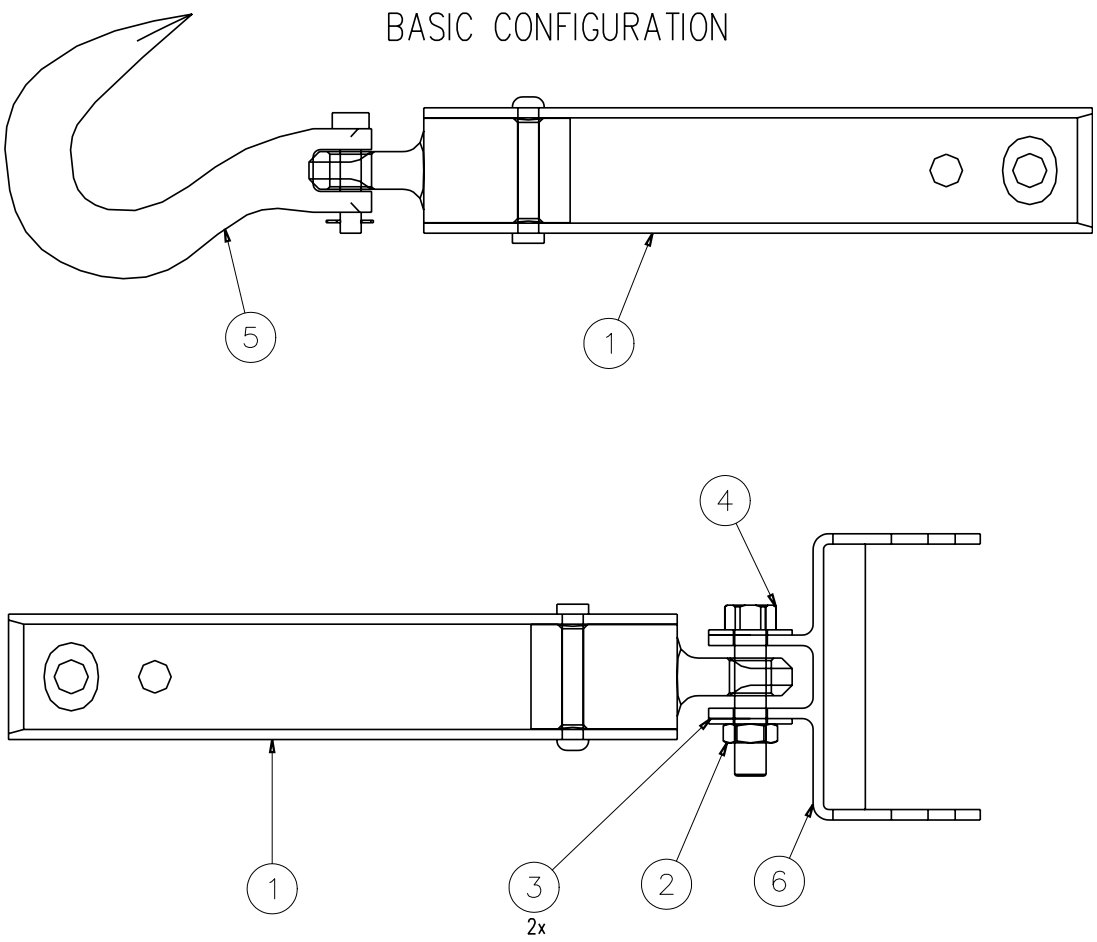
LAMP

Cable Assy, Term Strip/Switchbox (See Fig. 16) Rev. H, LT374

35	23	MARKERS, WIRE, NO'S 1–16	----	PANDUIT PCM-1-16
34	1.1	CORD, SERVICE THERMOPLASTIC SVT 18/2	713358	ROYCE 19140-10
33	4	LABEL, ID, CABLE MARKER	CS185	BRADY LAT-19-361-1
32	2	PIN, BRASS F/WIRE SIZE 20–14	712612	AMP 350218-1
31	1	CAP, 2-PIN (J2)	712601	AMP 1-480699-0
30	AR	WIRE, #18 WHT/BLU, \PVC	EL918	
29	3	TERMINAL, INSUL RING 14–16 W/ #8 STUD	300327	
28	3	SOCKET, BRASS F/WIRE SIZE 20–14	712613	AMP 350536-1
27	1	PLUG, 6-PIN (P3)	712606	AMP 1-480704-0
26	AR	CABLE, COAX 75 OHM	713353	BELDEN 8218
25	AR	WIRE, #18 WHT/ORG, PVC	EL917	
24	AR	WIRE, #18 WHT/RED, PVC	EL916	
23	AR	WIRE, #16 WHITE W/BROWN BU	713312	
22	AR	WIRE, #18 WHITE/BLACK	EL117	
21	AR	WIRE, #18 WHITE	161638	
20	AR	WIRE, #18 GRAY	161657	
19	AR	WIRE, #18 VIOLET	161655	
18	AR	WIRE, #18 BLUE	161654	
17	AR	WIRE, #18 GREEN	161637	
16	AR	WIRE, #18 YELLOW	161656	
15	AR	WIRE, #18 ORANGE	161653	
14	AR	WIRE, #18 RED	161652	
13	AR	WIRE, #18AWG BROWN, PVC	EL366	
12	AR	WIRE, #18 BLACK	161636	
11	1	CONNECTOR, BNC, PLUG CABLE MOUNT	EC1023	AMP 31-71033
10	1	PLUG, BOX SHELL SIZE 17–16 (P1)	712658	AMP 206037-1
9	1	TERMINAL STRIP, 16 TERMS, KULKA (TS1)	EL744	NEWARK 14F2639
8	6	SOCKET, TYPE III MULTIMATE (ROLL)	712309	AMP 66358-9
7	2	STRAIN RELIEF, SHELL SIZE 17	712543	AMP 206070-1
6	1	CONNECTOR, 14-PIN, MALE (P2)	7122	AMP 206044-1
5	10"	TUBE, SHRINK, BLACK, ADHESIVE 3:1 RATIO-1/2"	712572	ROYCE-ALPHA FIT-321-1/
4	27	CONNECTOR, RING, TERM #6 22–18	712743	PANDUIT PNF-18-GRN-3
3	33'	TUBE, EXPANDABLE 1/2" NYLON	165005	ROYCE 1/2 EMFGF
2	22	PIN TYPE III MUTIMATE (ROLL)	713127	AMP 1-66359-0
1	1	RECEPTACLE, BOX SF SHELL SIZE 17–16 (J1)	712748	AMP 206036-1
ITEM	QTY	DESCRIPTION	PART NO.	SYM

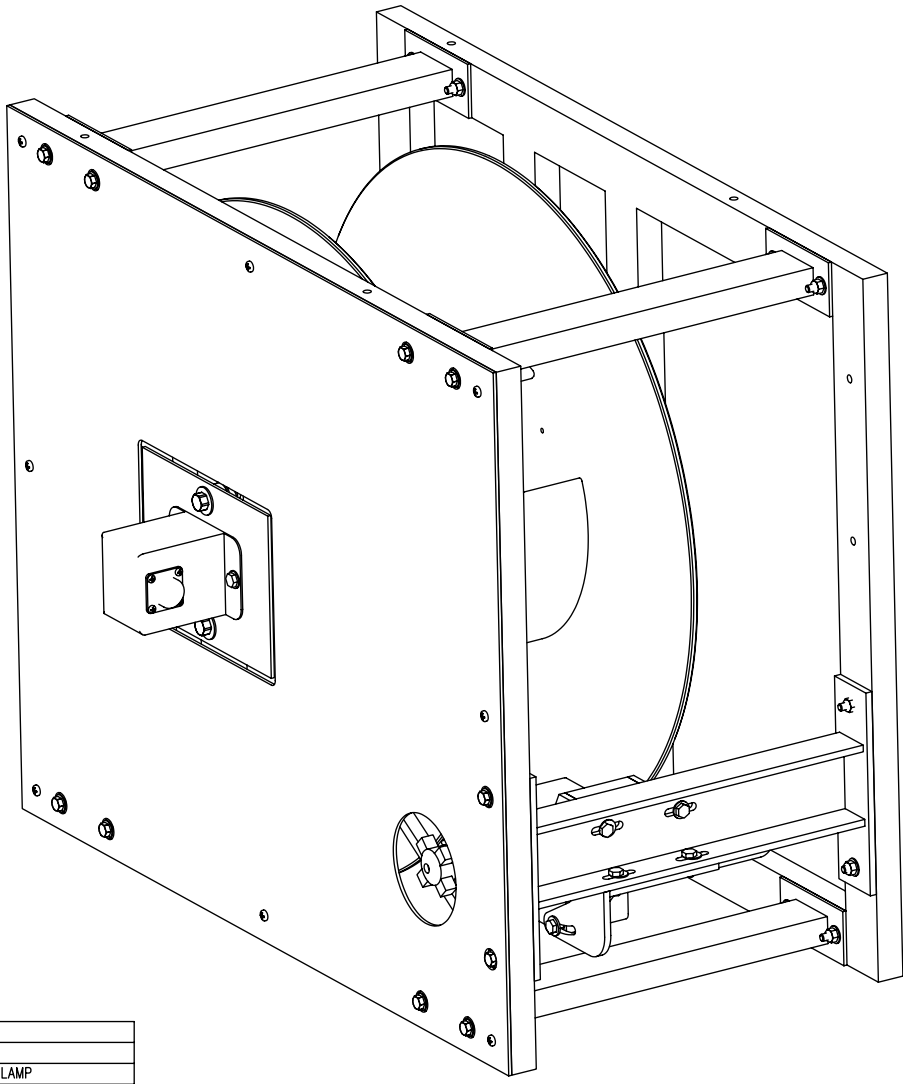


Camera PIP Assembly (See Fig. 17) Rev D. LT600			
Item #	Desription	P/N	Qty
1	Pip,Color,Quad Splitter,Telpix	EC1012	1
2	Bracket,Mounting,Left,Pip	LT293	1
3	Bracket,Mounting,Right,Pip	LT292	1
4	Switch,Dpdt Mta-206n	711812	2
5	Jack,Rca,Front Mount Chassis	EC929	3
6	Grommet,Rbr,9/16diax1/4holex1/16grv	121008	1
7	Lug,Terminal Gnd 1 Pk.	716235	2
8	Screw,Truss,6-32x1/2 Phil Gray	103084	1
10	Nut,Kep,6-32,Ss	HW941	1
11	Mro-Mount,Cable Tie	505147	2
12	Mro-Tie,Cable,3/32"X4",Wht/Clr	440307	2
13	Cable,Coax 75 Ohm	713353	1
14	Wire,#24 Wht,Pvc	EL919	1
15	Wire,#24 Black Pvc	161558	1
16	Connector,Bnc,Plug Cable Mount	EC1023	3
17	Tube,Shrink,Black 3/32"	712595	1
18	Tube,Shrink,Black 3/16"Rnf	712577	1
19	Wire,Marker	713366	3
20	Cable Assy,6'bnc Plug>Rca Plug	712960	3
21	Wire,#20 Blk & White Twisted Pr	161519	1



Hook Assembly, Retrieval (See Fig. 18) Rev. C, WT317-1			
Item #	Desription	P/N	Qty
-1	Adapter Assembly, Retrieval Hooks, R/D Tool	WT318	1
-2	Nut, Nylock, 3/8-16 SST	HW027	1
-3	Washer, Flat, 3/8 SAE	101236	2
-4	Bolt, Hex, 3/8-16 x 1 3/4 GR5 PL	101208	1
-6	Hook, Retrieval Tool	LT173	2

Figure 18. *Hook Assembly, Retrieval, WT317-1*



CONFIGURATION LIST	
PART NO.	DESCRIPTIONS
LT370	ASSY, REEL, LATERAL, LAMP
LT370-1	ASSY, REEL W/ LEVELWIND, LATERAL, LAMP

Figure 19a. *Lateral Reel Assembly, LAMP, LT370*

LAMP

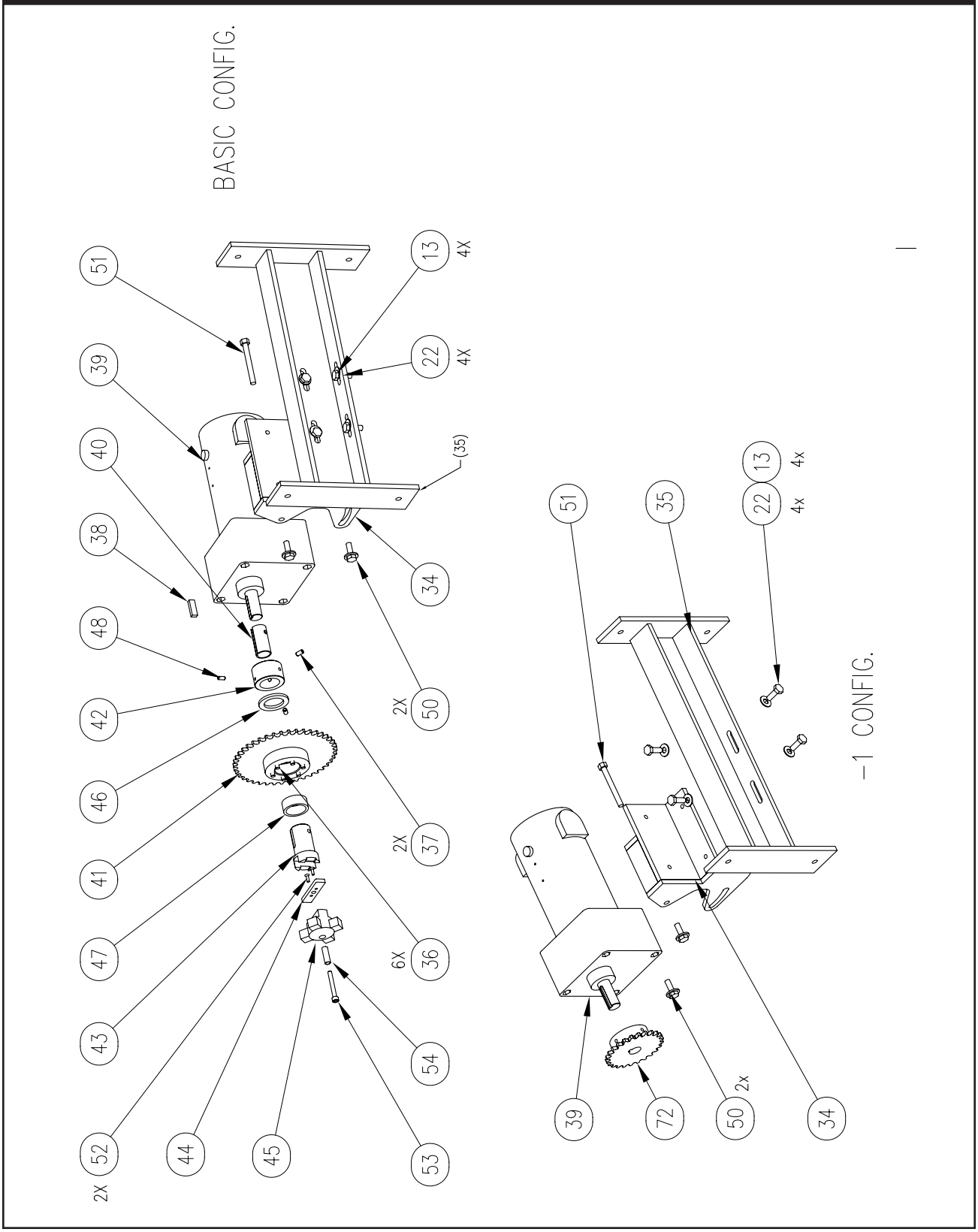


Figure 19b. *Lateral Reel Assembly, LAMP, LT370*

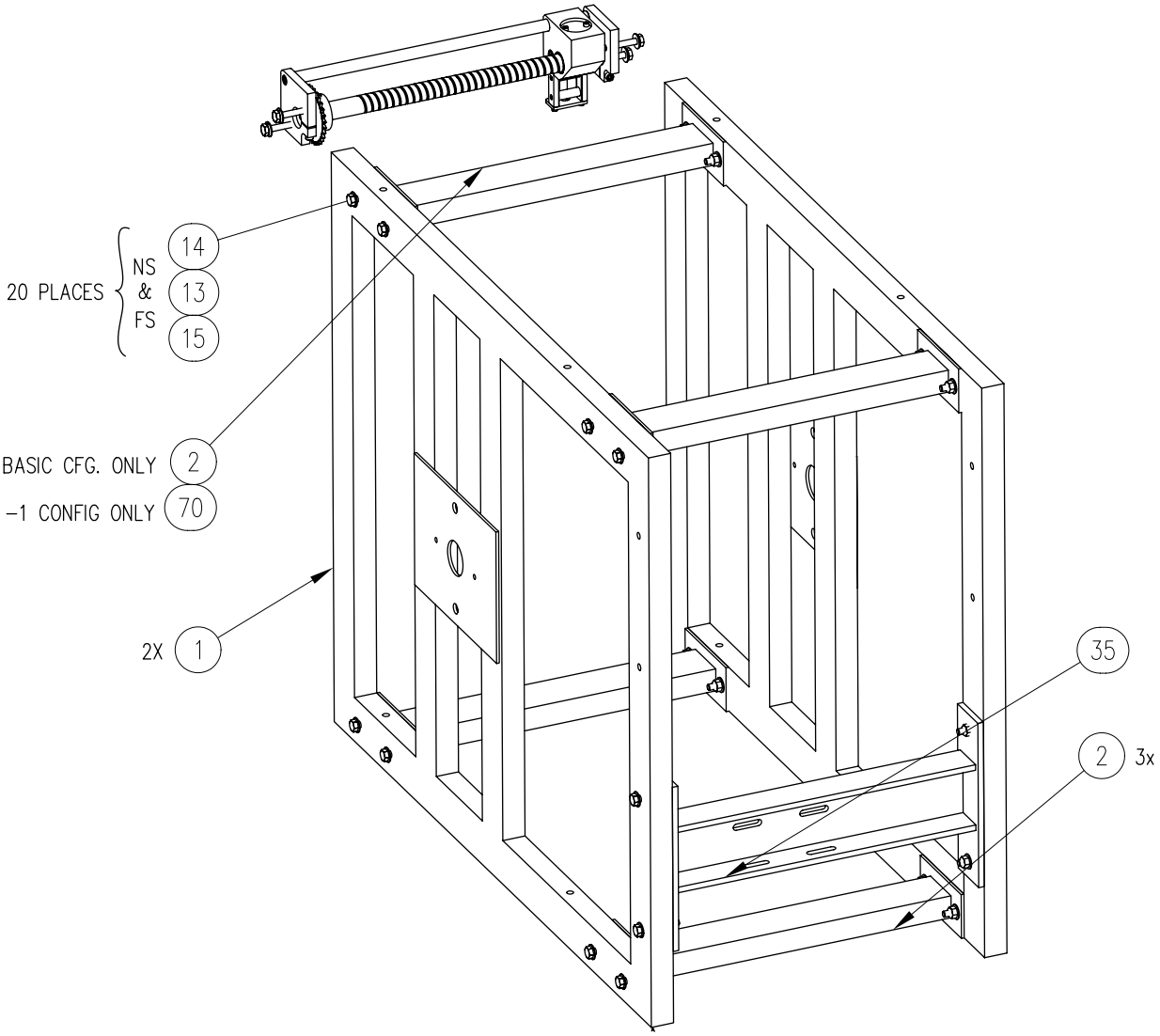


Figure 19c. *Lateral Reel Assembly, LAMP, LT370*

LAMP

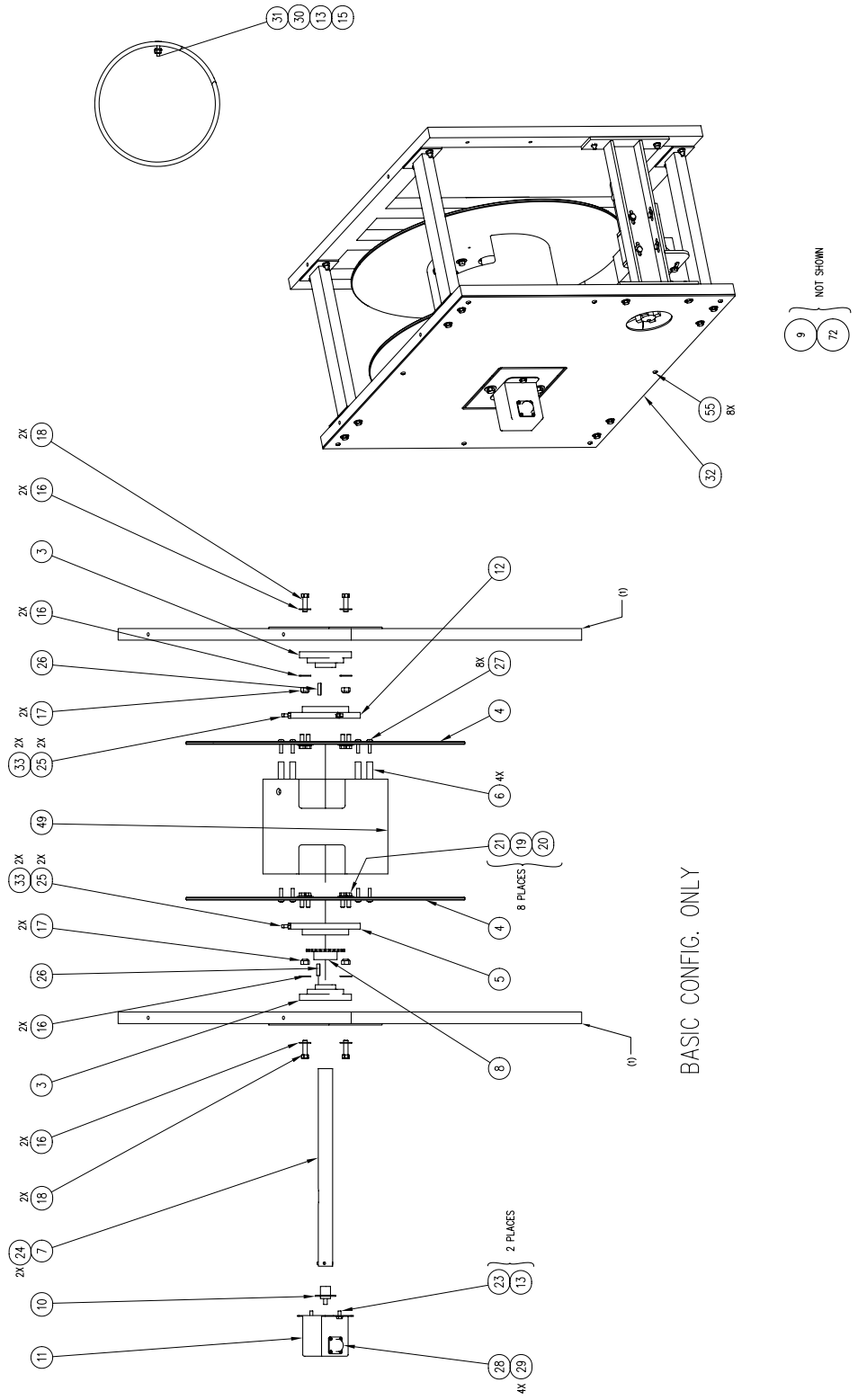


Figure 19d. *Lateral Reel Assembly, LAMP, LT370*

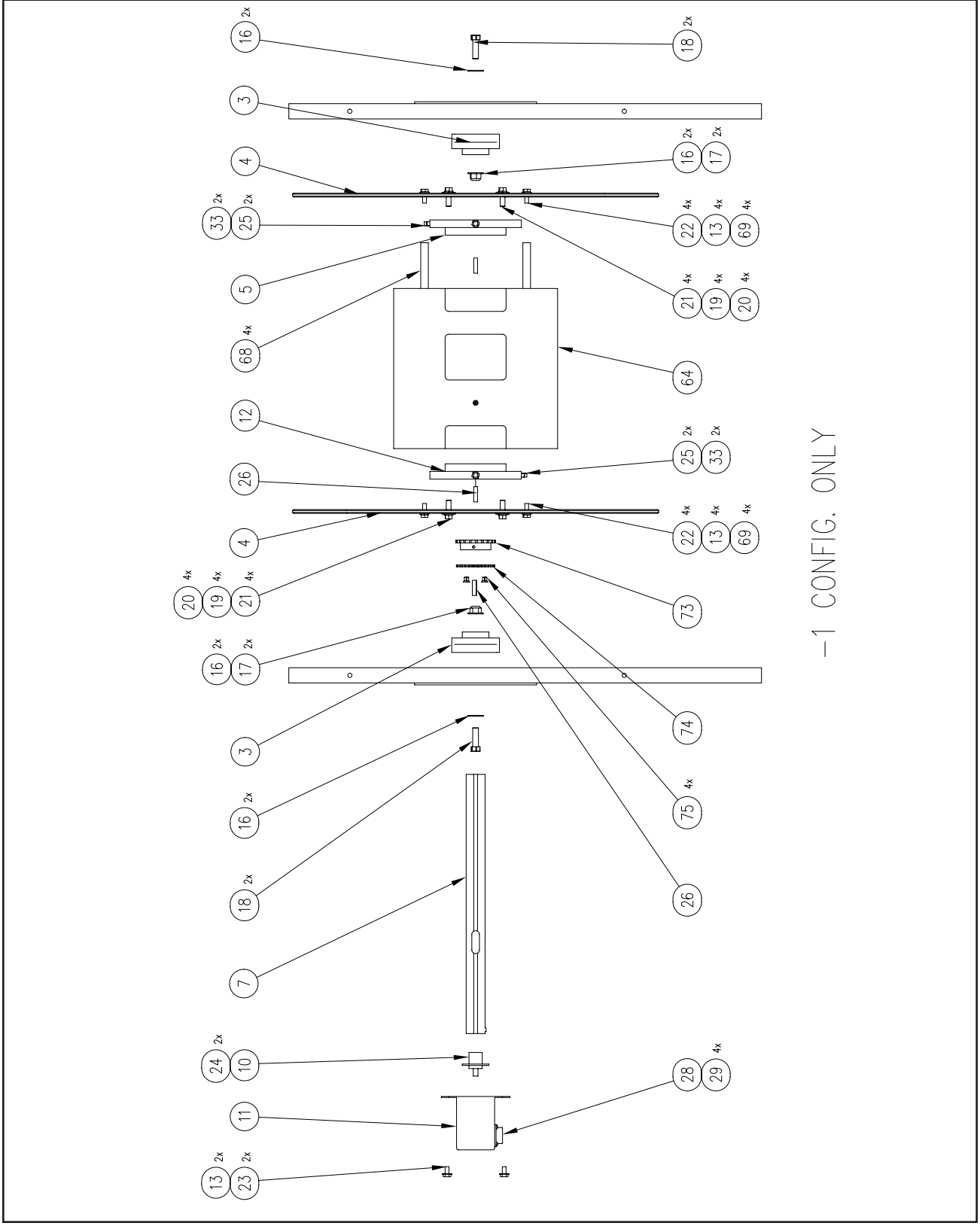


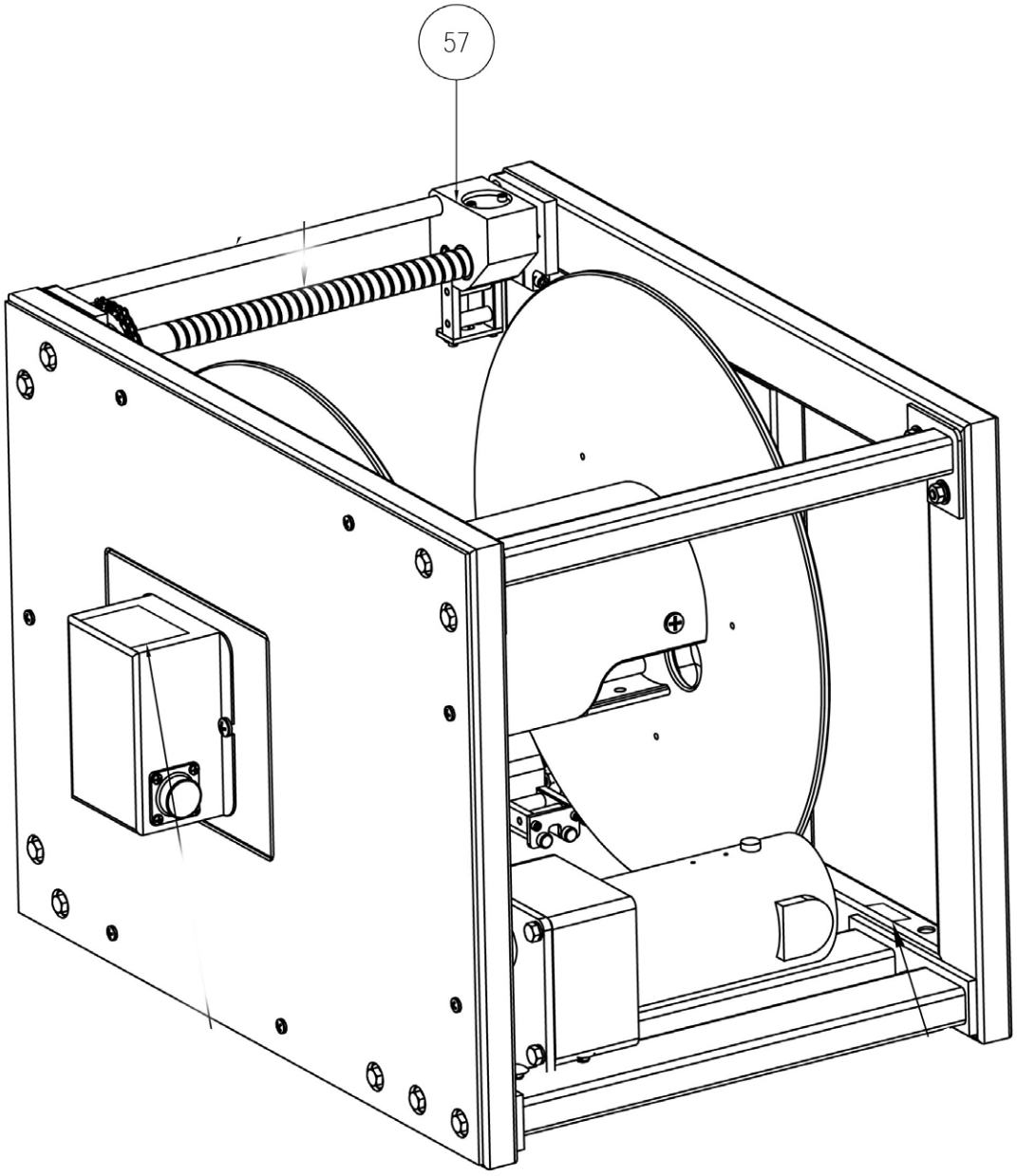
Figure 19e. *Lateral Reel Assembly, LAMP, LT370*

LAMP

Lateral Reel Assembly, LAMP, See Figure 19, Rev. D, P/N LT370			
Item #	Desription	P/N	Qty
− 1	Frame,Side,Reel,Lamp	LT207	2
− 2	Brace,Frame,Reel,Lamp	LT208	4
− 3	Bearing,2 Bolt,Flange,1-¼ Bore	LT217	2
− 4	Flange,Hub,Reel,Lamp	LT210	2
− 5	Flange,Bolt,Hub,Reel,Lamp	LT212	1
− 6	Standoff,Hub,Reel,Lamp	LT213	4
− 7	Shaft,Hub,Reel,Lamp	LT214	1
− 8	Sprocket,Mod,3/8p/26t/1.25b,Key,St	LT086	1
− 9	Chain,#35 X 3/8 Pitch Prestressed	300900	4
− 10	Slipring Assy,Lateral Reel,Lamp	LT332	1
− 11	Cover,Slipring,Reel,Lamp	LT216	1
− 12	Hub,Flange,Interchangeable	RL138	1
− 13	Washer,Flat,1/4"Sst	101736	47
− 14	Bolt,Hex,1/4-20x1 3/4 Gr5	101008	20
− 15	Nut,Lock Nylon Ins,Pld,1/4-20	101039	21
− 16	Washer,Flat,3/8 Sae	101236	8
− 17	Nut,Self-Lock,Plated,3/8-16	101243	4
− 18	Bolt,Hex,3/8-16x1 1/4 Gr5 Pl	101206	4
− 19	Washer,Flat,5/16 Sst	101741	8
− 20	Washer,Lock,5/16 Sst	HW028	8
− 21	Bolt,Hex,5/16-18x1"Zinc	101105	8
− 22	Bolt,Hex,1/4-20x3/4 Gr5 Pl	101004	4
− 23	Bolt,Hex,1/4-20x1/2 Sst	101016	2
− 24	Screw,Set,1/4-20x1/4 Stl	100998	2
− 25	Screw,Set,¼-20x3",Square Head	HW396	4
− 26	Keystock1/4"X1/4"X1"Machinesteel	MR004	2
− 27	Screw,Pan,1/4-20x1	101057	8
− 28	Receptacle,Box Sf Shell Size 17-16	712748	1
− 29	Screw,Pan,6-32x3/8 Sst	103023	4
− 30	Clamp,Tubing Insulated,1/4"	121107	11
− 31	Screw,Flat,1/4-20x1 1/4 Phil Sst	103074	1
− 32	Guard,Chain,Reel,Lamp	LT222	1
− 33	Nut,Hex,Sst,1/4-20	101040	4
− 34	Bracket,Motor,Adjustable,Red Rl,Lmp	LT084	1
− 35	Support,Motor Bracket,Red Reel,Lamp	LT085	1
− 36	Pin,Dowel,303 Sst .187x.500	100214	6
− 37	Screw,Set,10-32x3/8 Skt Sst	101602	2

Lateral Reel Assembly, LAMP, See FIgure 19, Rev. D, P/N LT370			
Item #	Desription	P/N	Qty
− 38	Key,Clutch,.280"X.187"X.875"L,Lamp	LT089	1
− 39	Motor,1/8hp,43.9:1,130vdc	LT220	1
− 40	Sleeve,Adapter,Iggy Clutch>Lmp Reel	LT088	1
− 41	Sprocket,Mod,3/8p/42t/1.25cb,Key,St	LT087	1
− 42	Collar,Clutch,Shaft,Dolly,Iggy	SD161	1
− 43	Shaft,Clutch Assy,Dolly	SD107	1
− 44	Key,Clutch Assy	SD108	1
− 45	Knob,Hand,Mod Clutch Assy	SD109	1
− 46	Bearing,Thrust,1.0x1.5x.12thk	SD159	1
− 47	Bearing,Sleeve,Oilite 1.0x1.25x.5lg	SD160	1
− 48	Screw,Set,8-32x3/8 Sst	HW198	1
− 49	Drum,Tv Reel,Standard	RL135	1
− 50	Bolt,Hex Hd,1/4-28x5/8,Gr5,Pl	HW578	2
− 51	Bolt,Hex-Hd,¼-28 X 2¼,Gr5,Pl	HW579	1
− 52	Screw,Flat,4-40x 3/8 Phil Sst	100055	2
− 53	Screw,Cap,Skt Hd,10-32x1 1/2,Sst	HW200	1
− 54	Spring,Compression,9/32x1-5/8"	HW206	1
− 55	Screw,Truss,10-32x3/8 Phil Sst	712437	8
− 56	Mro-Removable Lck,Nd 121200-50,Blue	440061	1
− 57	Cable Assy,Camera,Lateral 1,000'	LT318	1
− 58	Cable,#18-3 Sj	713357	1
− 60	Screw,Hex Wash Hd,#8x3/4,Tek,Pltd	101998	8
− 61	Plug,Bdx Shell Size 11-4	712663	1
− 62	Strain Relief,Bdx Shell Size 11	712699	1
− 63	Socket,Type Iii Multimate	712243	3
− 65	Controller,Rl,Frnt/Rear Swtch,Lamp	LT394	1
− 66	Cord,Power Color Scout	165006	1
− 67	Plug,6-Pin	712606	1
− 71	Master Link F/#35 3/8p Chain	300901	1

LAMP



CONFIGURATION LIST	
PART NUMBER	DESCRIPTION
LT397	REEL ASSY, LATERAL, LAMP
LT397-1	REEL ASSY, LATERAL W/ LEVELWIND, LAMP
LT397-2	REEL ASSY, SONAR W/ LEVELWIND
LT397-5	REEL ASSY, LATERAL, LAMP,BLK
LT397-6	REEL ASSY, LATERAL W/ LEVELWIND, LAMP,BLK
LT397-7	REEL ASSY, SONAR W/ LEVELWIND,BLK

Figure 20a. *Lateral Reel with Levelwind, LT397-1*

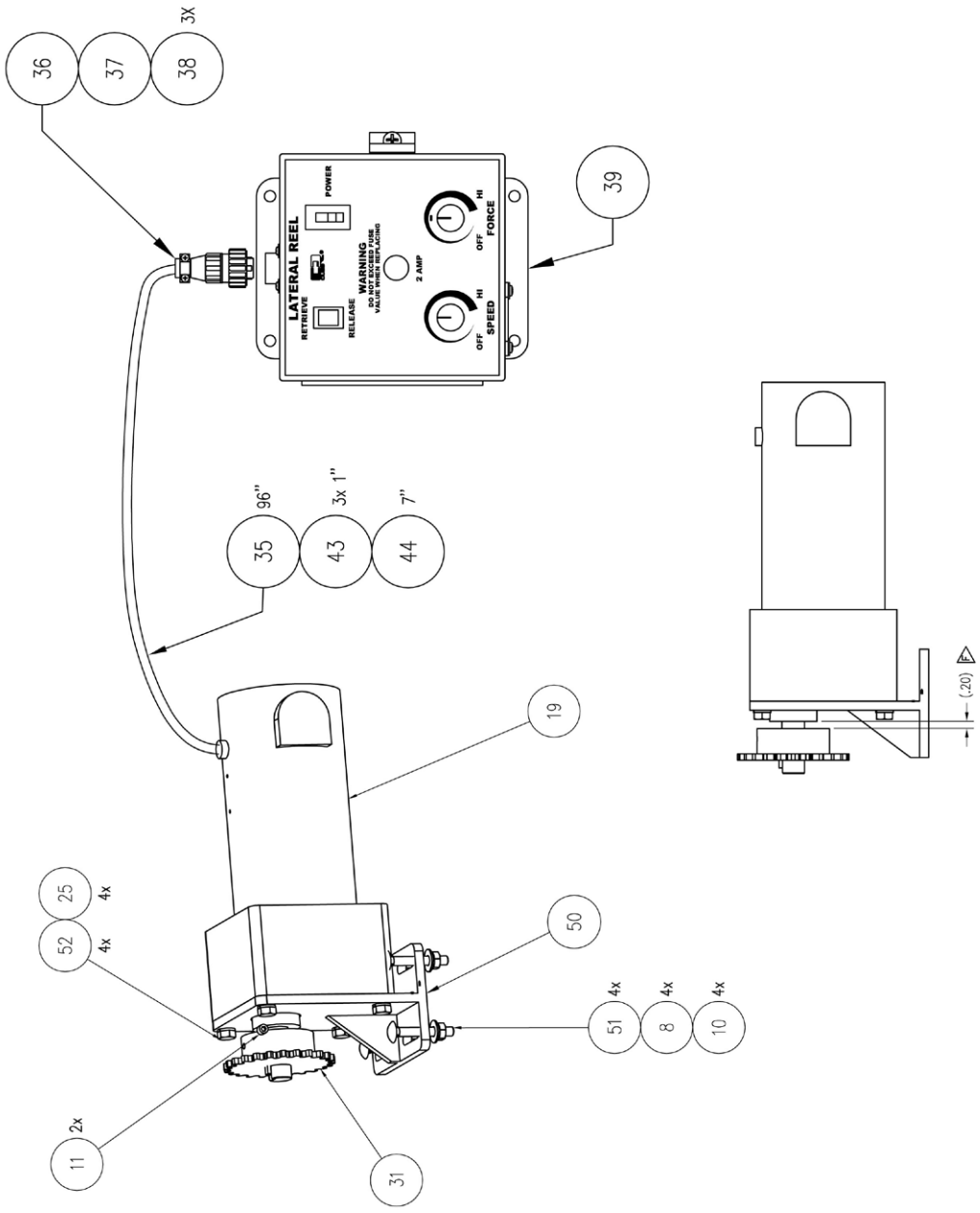


Figure 20b. *Lateral Reel with Levelwind, LT397-1*

LAMP

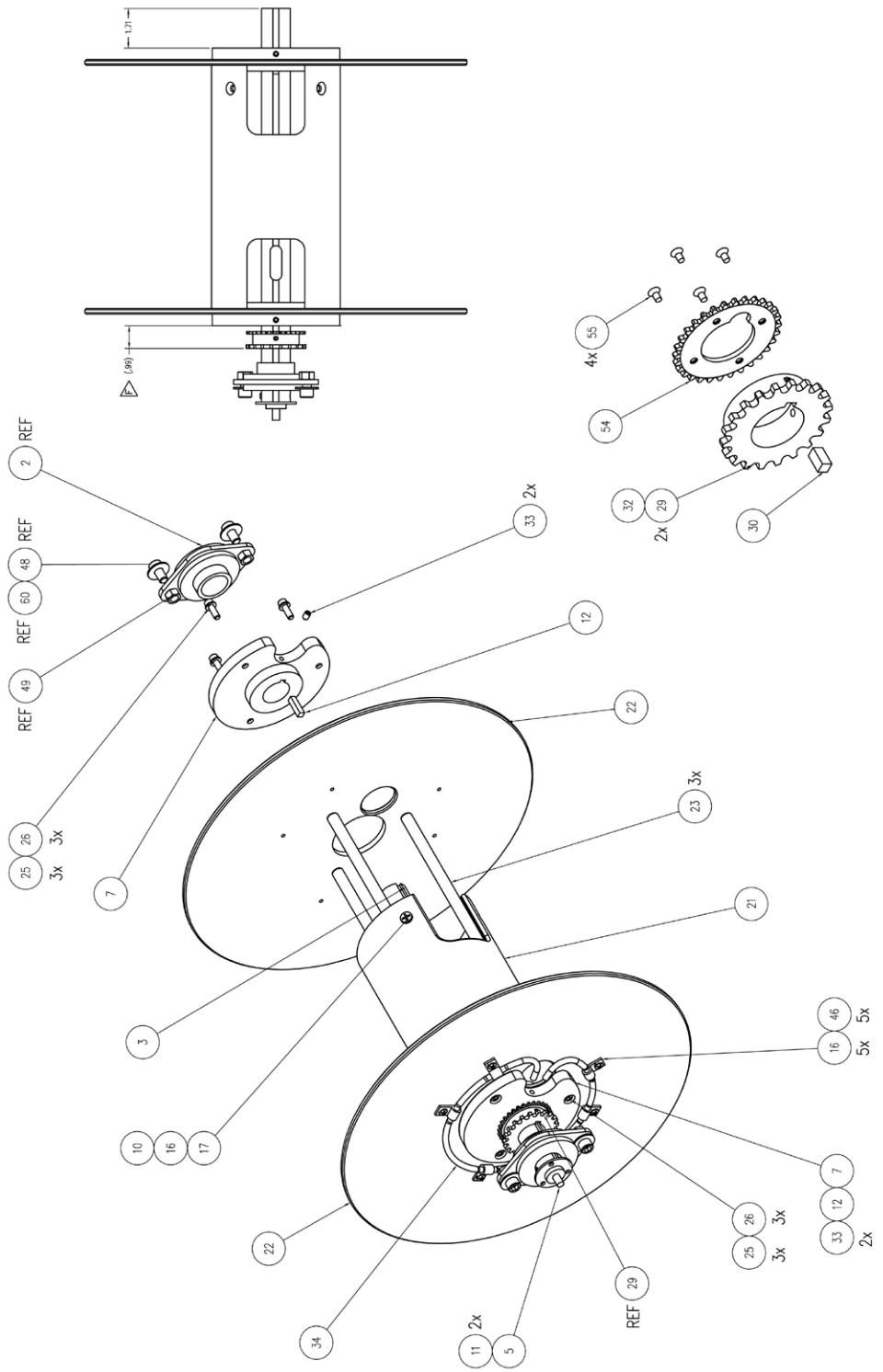


Figure 20c. *Lateral Reel with Levelwind, LT397-1*

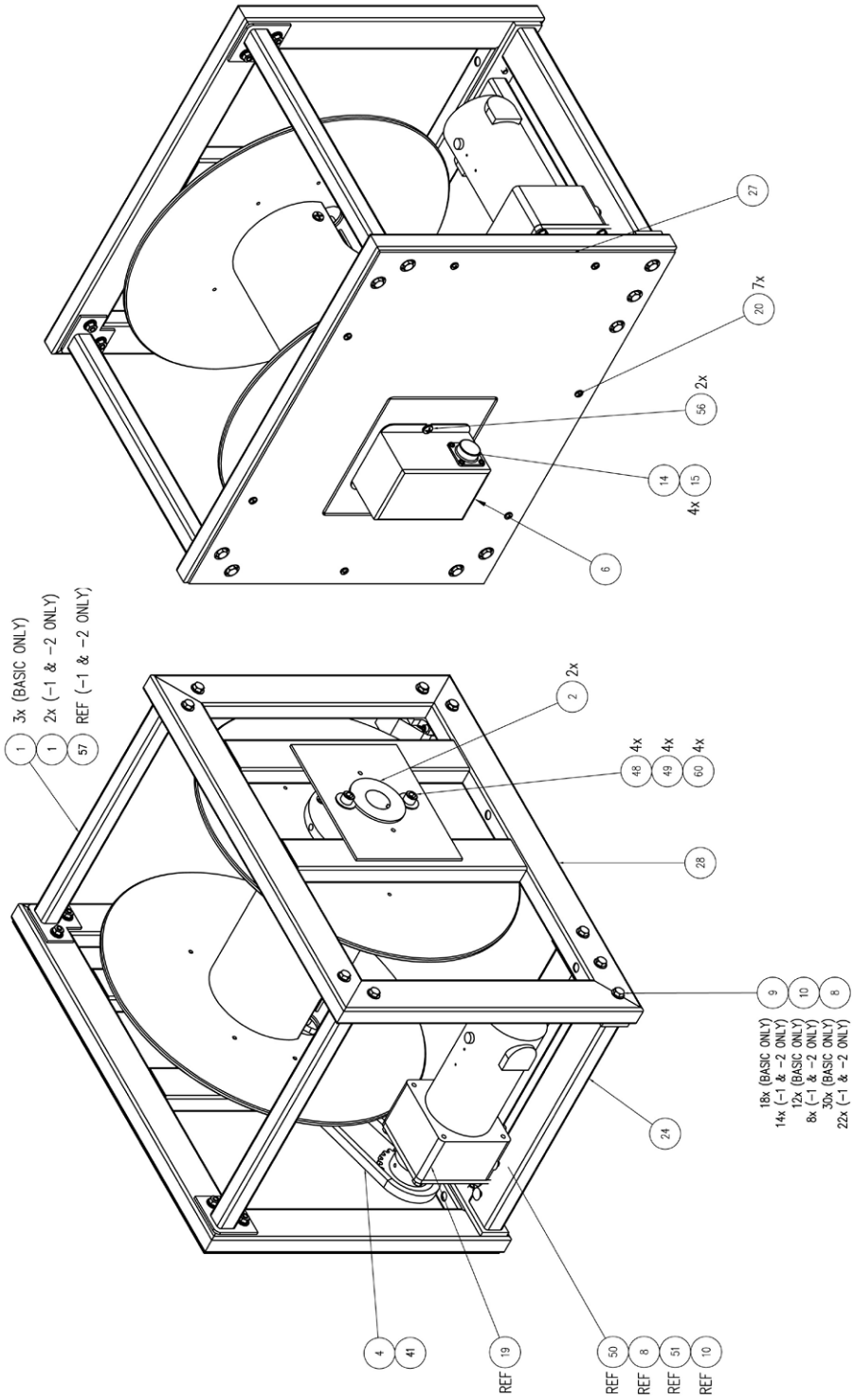
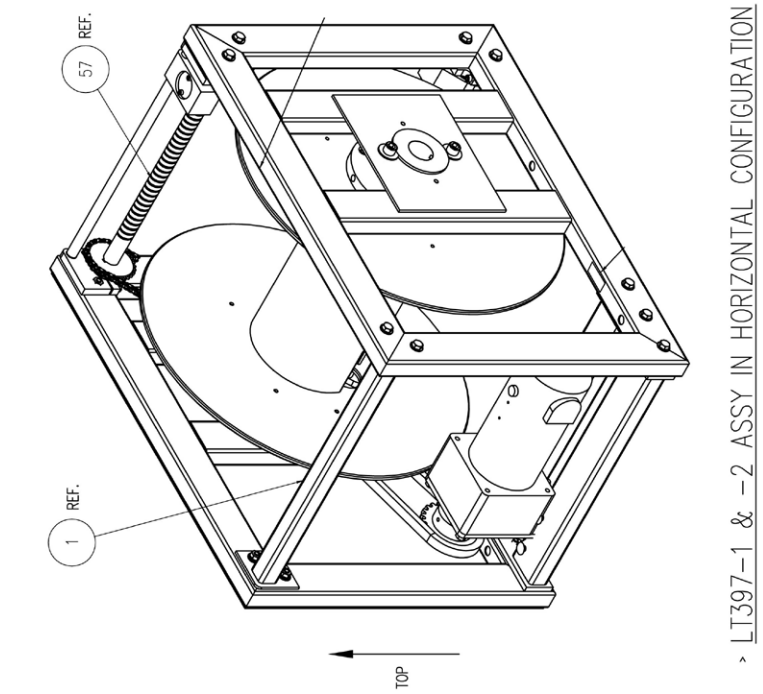
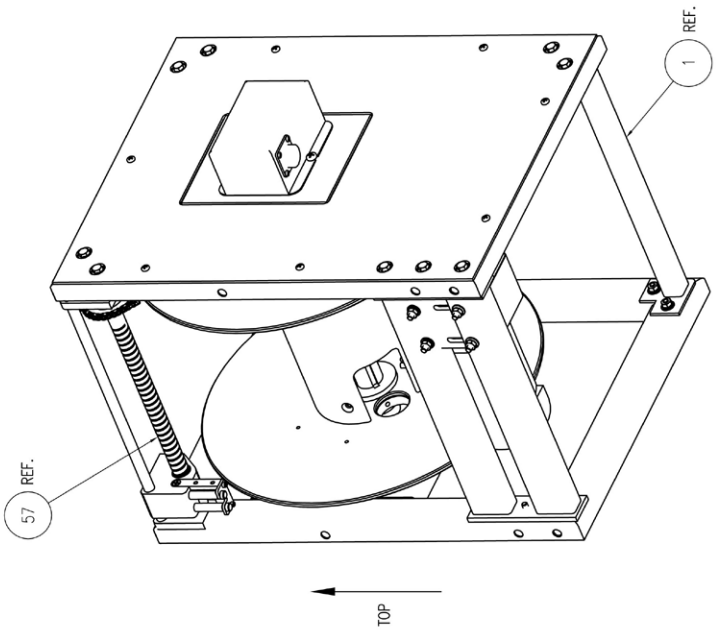


Figure 20d. *Lateral Reel with Levelwind, LT397-1*

LAMP



LT397-1 & -2 ASSY IN HORIZONTAL CONFIGURATION



LT397-1 & -2 ASSY IN VERTICAL CONFIGURATION

LATERAL INSPECTION SYSTEMS

Figure 20e. *Lateral Reel with Levelwind, LT397-1*

Lateral Reel with Levelwind, See Figure 20, Rev. H, LT397-1			
Item #	Desription	P/N	Qty
1	Brace,Frame,Lat.Reel,Lamp	LT230	3
2	Bearing,2 Bolt,1¼ Bore,Ps2-1-¼S	HW637	2
3	Shaft,Hub,Reel,Lamp	LT214	1
4	Chain,#35 X 3/8p,Prestrss,36.75lg	300900	2.21
5	Slipring Assy,Lateral Reel,Lamp	LT332	1
6	Cover,Slipring,Lamp Lat.Reel	LT261	1
7	Hub,Drum,Lateral Reel,Lamp	LT234	2
8	Washer,Flat,1/4"Sst	101736	34
9	Bolt,Hex,1/4-20x1 1/2 Gr5 Pl	101007	18
10	Nut,Kep,Plated,1/4-20	101042	13
11	Screw,Set,1/4-20x1/4 Stl	100998	4
12	Keystock1/4"X1/4"X1"Machinesteel	MR004	3
13	Mro-Removable Lck,Nd 121200-50,Blue	440061	1
14	Receptacle,Box Sf Shell Size 17-16	712748	1
15	Screw,Pan,6-32x3/8 Sst	103023	4
16	Clamp,Tubing Insulated,1/4"	121107	6
17	Screw,Flat,1/4-20x1 Phil	101053	1
19	Motor,1/8hp,43.9:1,130vdc	LT220	1
20	Fastener,Snap-In,Threaded,6mm	HW615	7
21	Drum,Cable,Lateral Reel,Lamp	LT233	1
22	Flange,Lateral Reel,Lamp	LT232	2
23	Spacer,Drum/Flange,Lat.Reel,Lamp	LT235	3
24	Brace,Frame & Motor,Lat.Reel,Lamp	LT231	1
25	Washer,Split Lock,1/4"Sst	101740	10
26	Screw,Cap,Skt Hd,1/4-20x3/4,Sst	101022	6
27	Cover,Frame,Lateral Reel,Lamp	LT238	1
28	Frame,Set(L/H&R/H),Reel,Lamp	LT229	1
29	Sprocket,3/8"P,20t,1¼"B,Ky W/Set,St	LT237	1
31	Sprocket,35bs24-5/8,W/3/16 Key&2set	LT236	1
32	Screw,Set,10-32x1/4 Sst	101000	2
33	Screw,Set,1/4-20x3/8 Skt Plated	101051	4
34	Cable Assy,Camera,Lateral 1,000'	LT318	1
35	Cable,#18-3 Sj	713357	8
36	Plug,Bdx Shell Size 11-4	712663	1
37	Strain Relief,Bdx Shell Size 11	712699	1
38	Socket,Multimate Iii,18-14 Ga	712243	3
39	Controller,Rl,Frnt/Rear Swtch,Lamp	LT394	1
40	Cord,Power Color Scout	165006	1
41	Master Link F/#35 3/8p Chain	300901	1

LAMP

Lateral Reel with Levelwind, See Figure 20, Rev. H, LT397-1			
Item #	Desription	P/N	Qty
42	Label,Lasertab Marker,3.00 X 1.90	CS223	1
43	Tube,Shrink,Black 1/8"	712789	1
44	Tube,Shrink,Black 3:1 Ratio-1/2"	712572	1
45	Plug,6-Pin	712606	1
46	Screw,Truss Hd,Phil,10-32x5/16 Sst	HW638	5
47	Tube,Shrink,Black 4:1 Ration	715010	1
48	Screw,Cap,Skthd,3/8-16x1,Sst	HW350	4
49	Nut,Kep,Plated,3/8-16	101244	4
50	Bracket,Motor, Lamp Lateral Reel	LT259	1
51	Bolt,Carriage,1/4-20 X 1.75 Zinc	HW1051	4
52	Bolt,Hex,1/4-28x3/4 Gr5 Pl	100990	4
54	Sprocket,25p,30t,1¼B Hubless,Ky Stl	LT275	1
55	Screw,Flathead,6-32x5/16 Phil	HW153	4
56	Screw,Pan,1/4-20x1/2 Phil Sst	101055	2
58	Mro-Tie,Cable,3/16"X7-1/2"Black	440304	1
60	Washer,Flat,3/8,Sst	HW201	4
61	MRO-LUBRICAN,CHAIN 12OZ.AEROSOL	940207	1

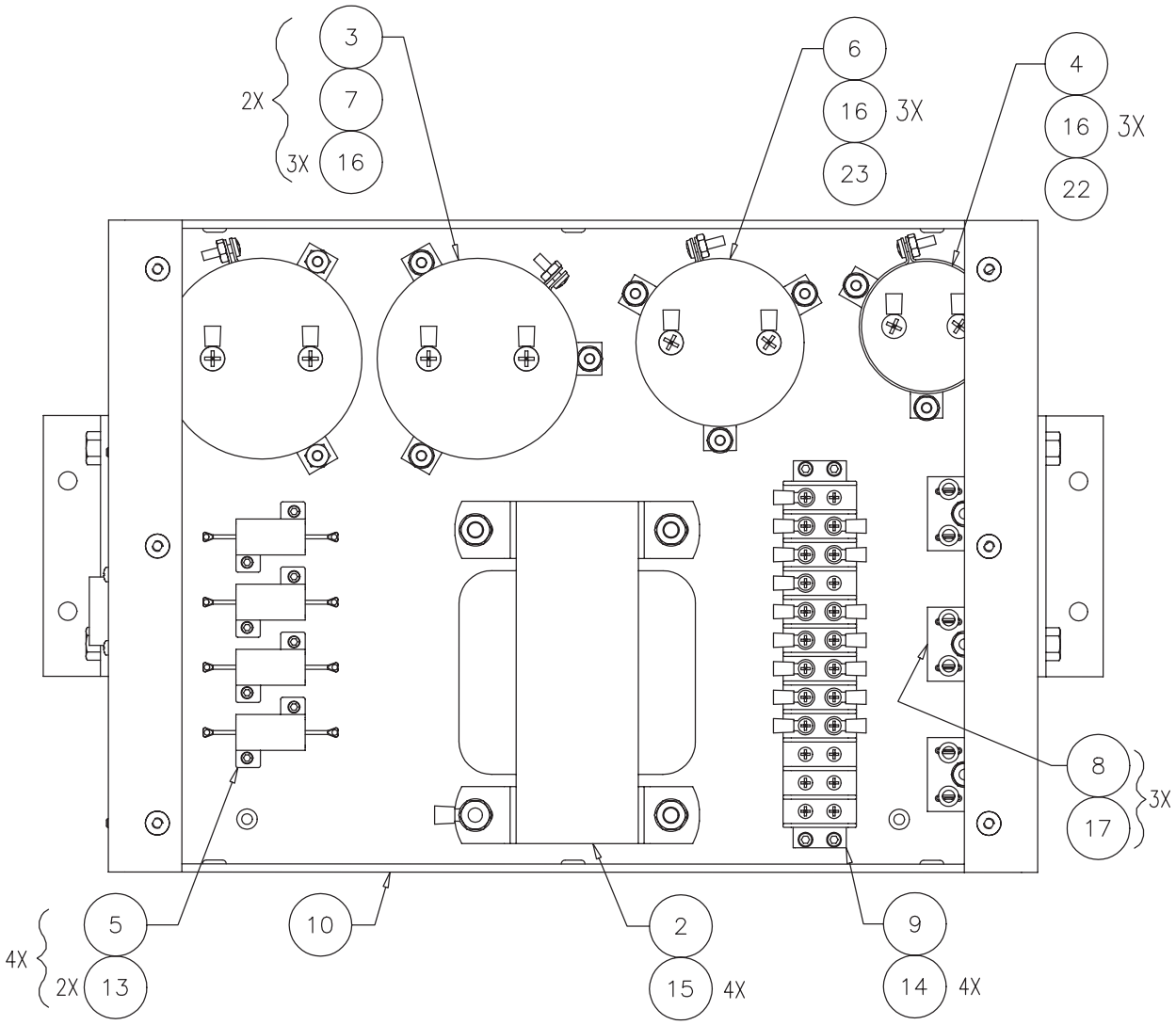


Figure 21a. *Power Supply Assembly, LAMP, LT352*

LAMP

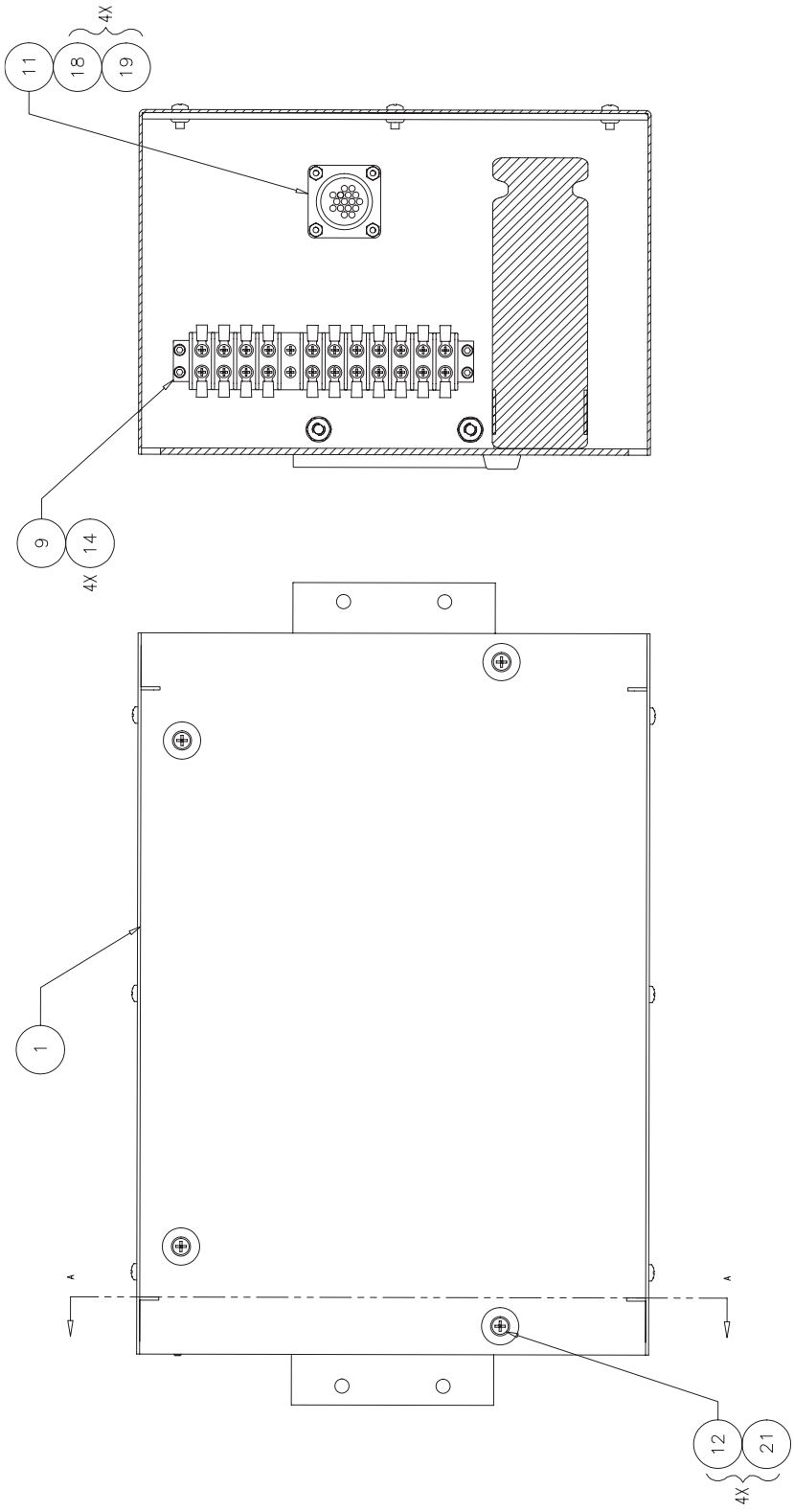


Figure 21a. *Power Supply Assembly, LAMP, LT352*

Power Supply Assembly (See Fig. 21) Rev. C, LT352			
Item #	Desription	P/N	Qty
-1	· Cover,Power Supply, LAMP	LT182	1
-2	· Transformer,688VA,LAMP	EC479	1
-3	· Potentiometer,2W,100K,Linear	EC291	2
-4	· Capacitor,1200MFD 250V	730058	1
-5	· Resistor,CF,3K OHM 25W	730059	4
-6	· Capacitor,4900UF,200VDC,ELECTRO	EC539	1
-7	· Capacitor,7400UF,200VDC,ELECTRO	EC538	2
-8	· Rectifier,Bridge 25A 400V	710634	3
-9	· Strip,Terminal,671-12 KULKA	712517	2
-10	· Base,Power Supply,LAMP	LT183	1
-11	· Receptacle,Box SF Shell Size 17-16	712748	1
-12	· Bumper,Polyurethane	130055	4
-13	· Screw,Cap,SOC HD 4-40X1/4 SST	103089	8
-14	· Screw,Cap,SKT HD,6-32X3/8,SST	105071	8
-15	· Nut,Kep,Plated,1/4-20	101042	4
-16	· Nut,Kep,Zinc Plated,6-32	712456	12
-17	· Nut,Kep,8-32,SS	HW940	3
-18	· Nut,Kep,4-40,SS	HW942	4
-19	· Screw,Bind,4-40X3/8 PHIL SST	712414	4
-20	· Screw,Pan,8-32X3/8 PHIL SST	103065	12
-21	· Screw,Pan,8-32X1/2 PHIL SST	712876	4
-22	· Mounting Ring,Capacitor	EC541	1
-23	· Screw,Pan,10-32X3/8 SST	103031	8
-24	· Terminal,Ring,#10,16-14	712740	8
-26	· Connector, Ring, Term#6 16-14	712739	38
-28	· Connector, 16-14 .250X.032 TAB	712736	12
-29	· Terminal, Ring, 1/4 Stud	160029	1
-30	· Pin Type III	713127	11
-31	· Wire,#18 WHT/BLU,PVC	EL918	1
-32	· Wire,#18 BLUE	161654	1
-33	· Wire,#18 RED	161652	1
-34	· Wire,#18 ORANGE	161653	1
-35	· Wire,#18,BLACKW/WHITE	EL096	1
-36	· Wire,#18 WHT/ORN,PVC	EL917	1
-37	· Wire,#18 WHT/RED,PVC	EL916	1
-38	· Wire,#18 BLACK	161636	1
-39	· Wire,#18 WHITE	161638	1
-40	· Wire,#18AWG BROWN,PVC	EL366	1
-41	· Wire,#18 WHITE/BLACK	EL117	1
-42	· Wire,#18 GREEN	161637	1
-43	· Tube,Shrink,Black 1/4"RNF	712576	1

CONFIGURATION LIST	
PART NUMBER	DESCRIPTION
LM350	ASSY, LAMP II, SPRING PUSH CABLE
LM350-2	ASSY, LAMP II, FIBERGLASS PUSH CABLE
LM350-3	ASSY, LAMP II, SPRING PUSH CABLE, REAR VIEW CAM
LM350-4	ASSY, LAMP II, FIBERGLASS PUSH CABLE, REAR VIEW CAM

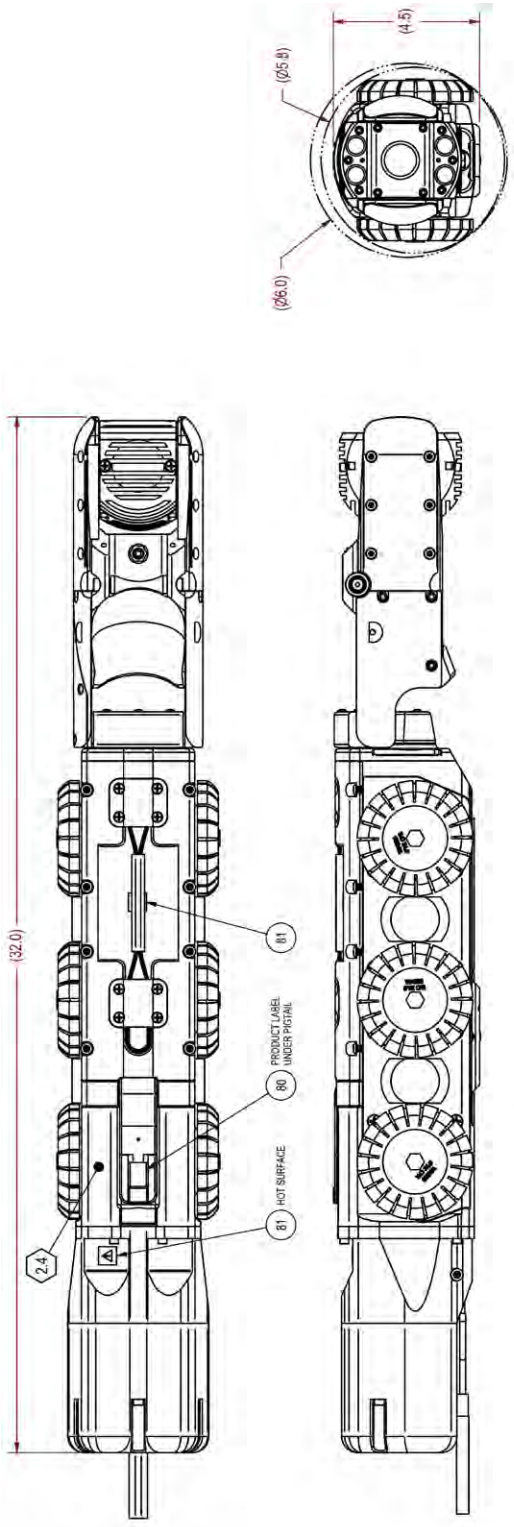


Figure 22a. LAMP II,80'PUSH CABLE & SELF UPRIGHT/NTSC, LM350

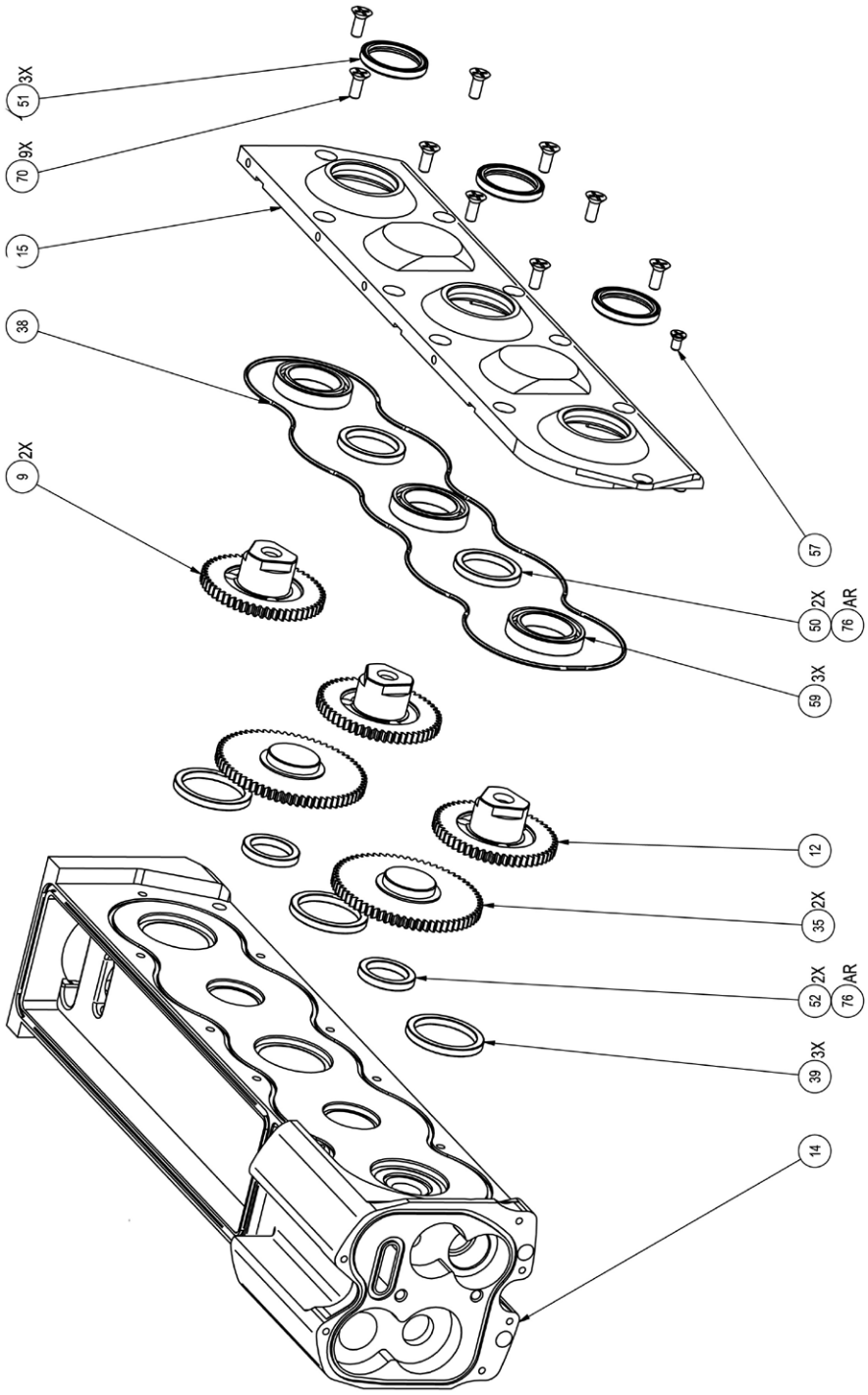


Figure 22b. *LAMP II,80'PUSH CABLE & SELF UPRIGHT/NTSC, LM350*

LAMP II

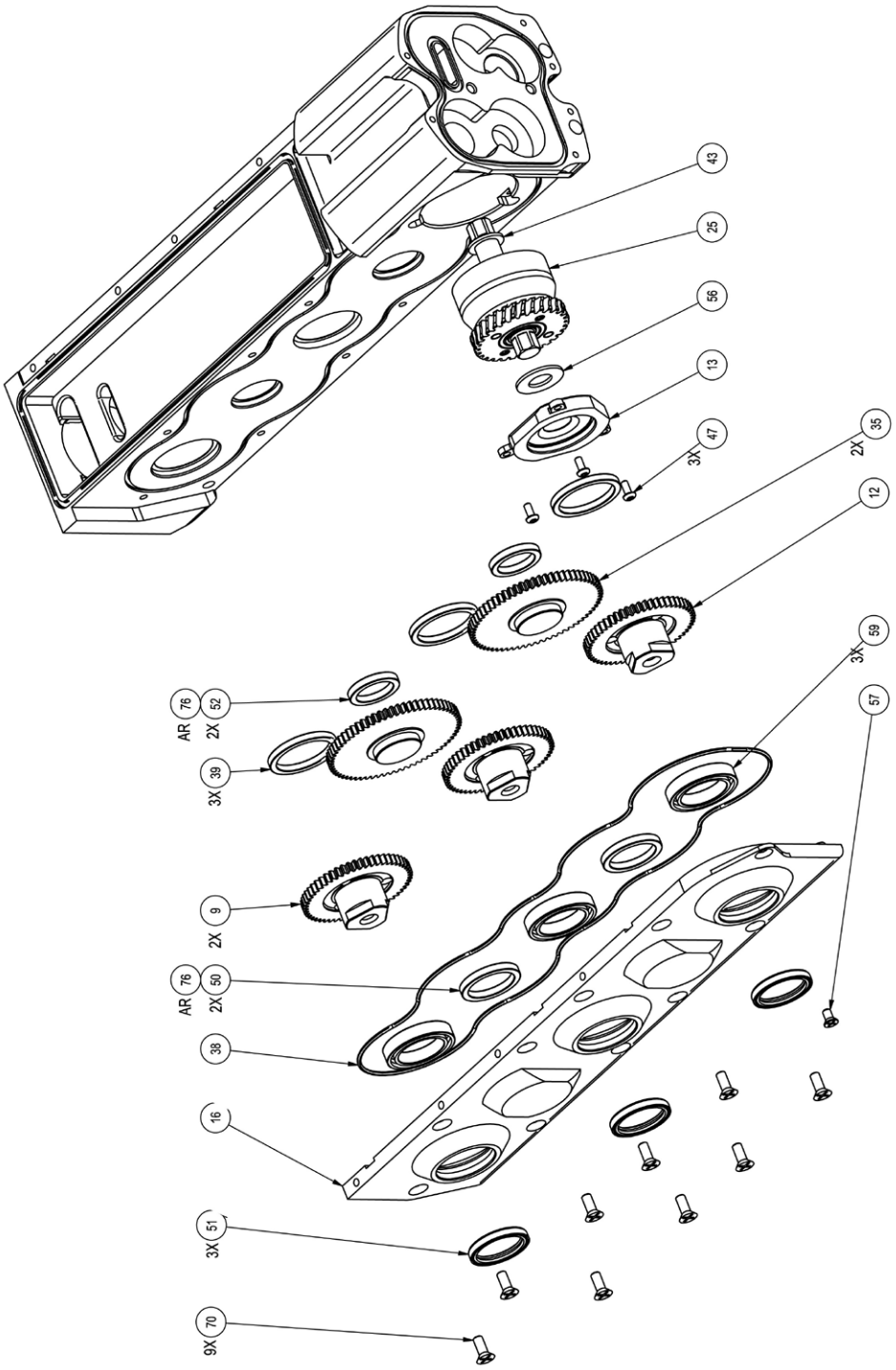


Figure 22c. LAMP II,80'PUSH CABLE & SELF UPRIGHT/NTSC, LM350

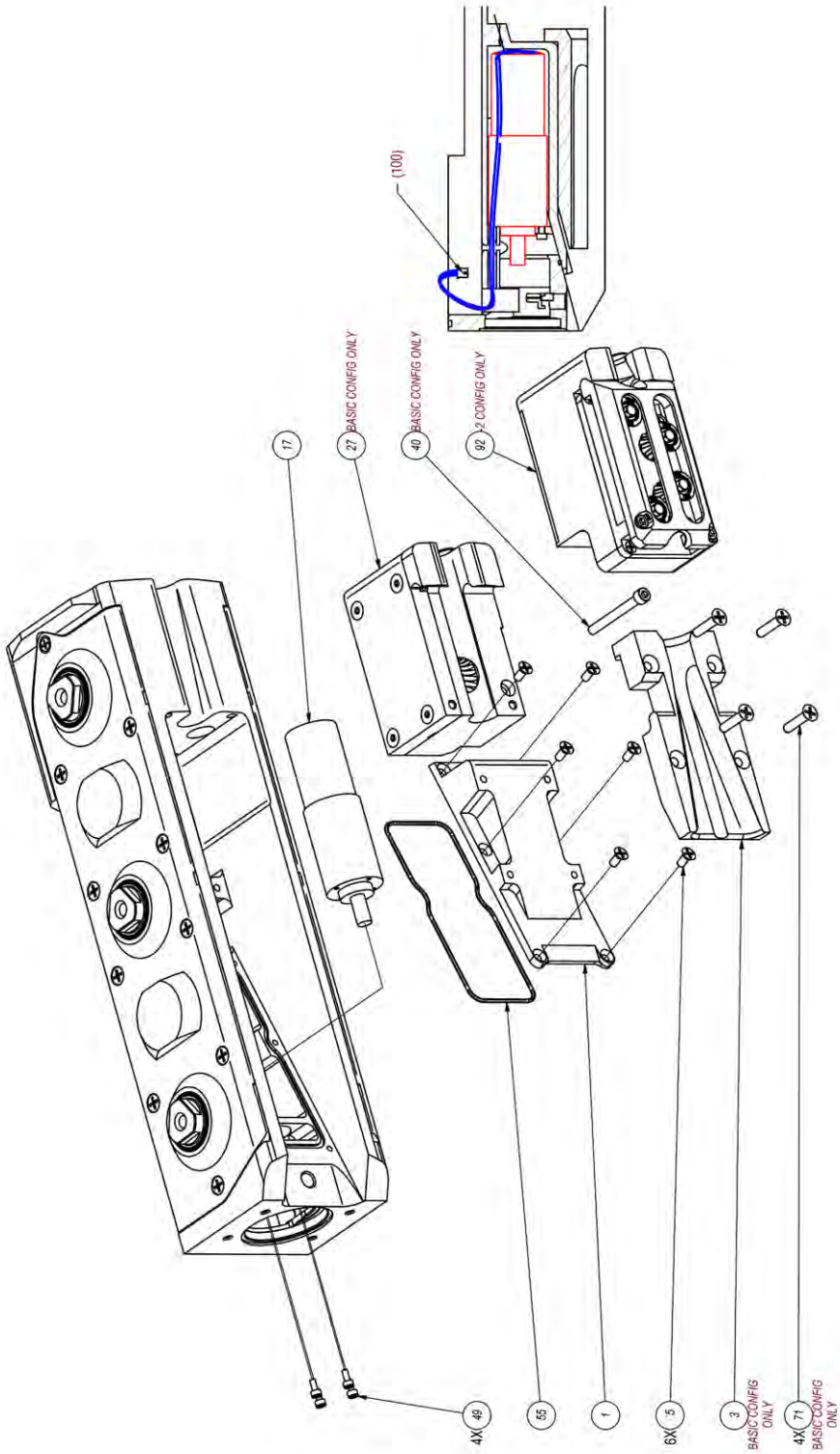


Figure 22d. LAMP II,80'PUSH CABLE & SELF UPRIGHT/NTSC, LM350

LAMP II

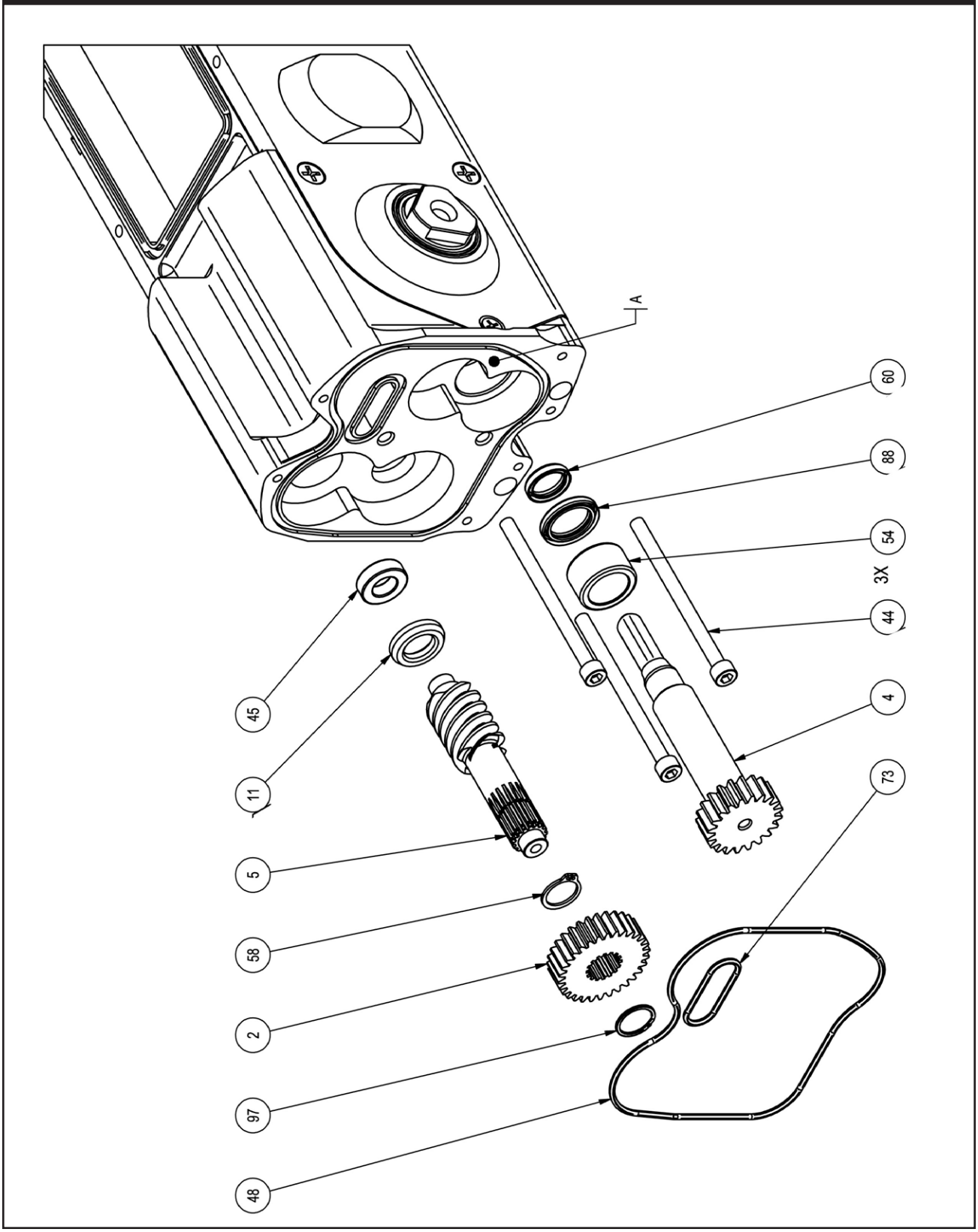


Figure 22e. LAMP II,80'PUSH CABLE & SELF UPRIGHT/NTSC, LM350

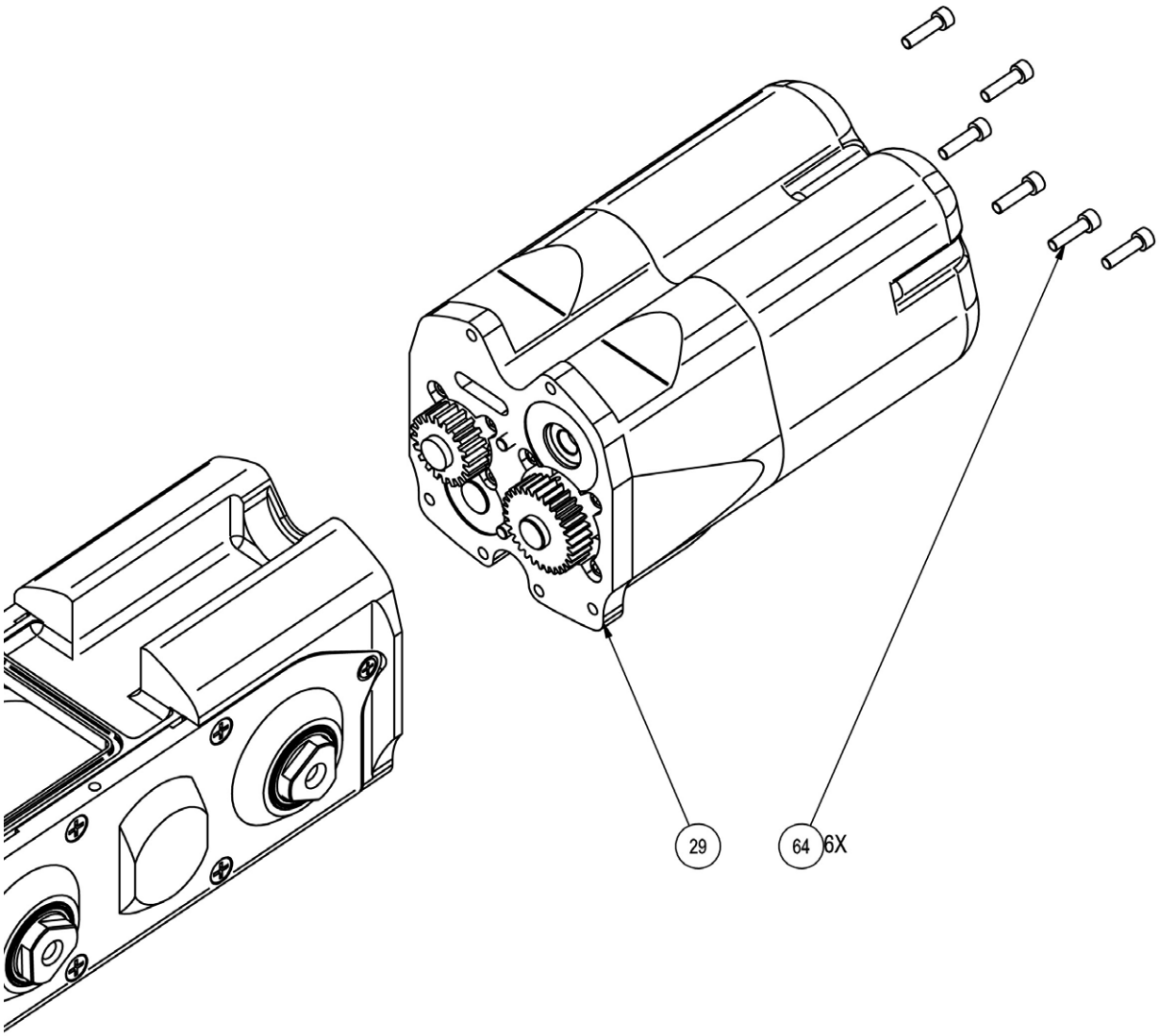


Figure 22f. *LAMP II,80'PUSH CABLE & SELF UPRIGHT/NTSC, LM350*

LAMP II

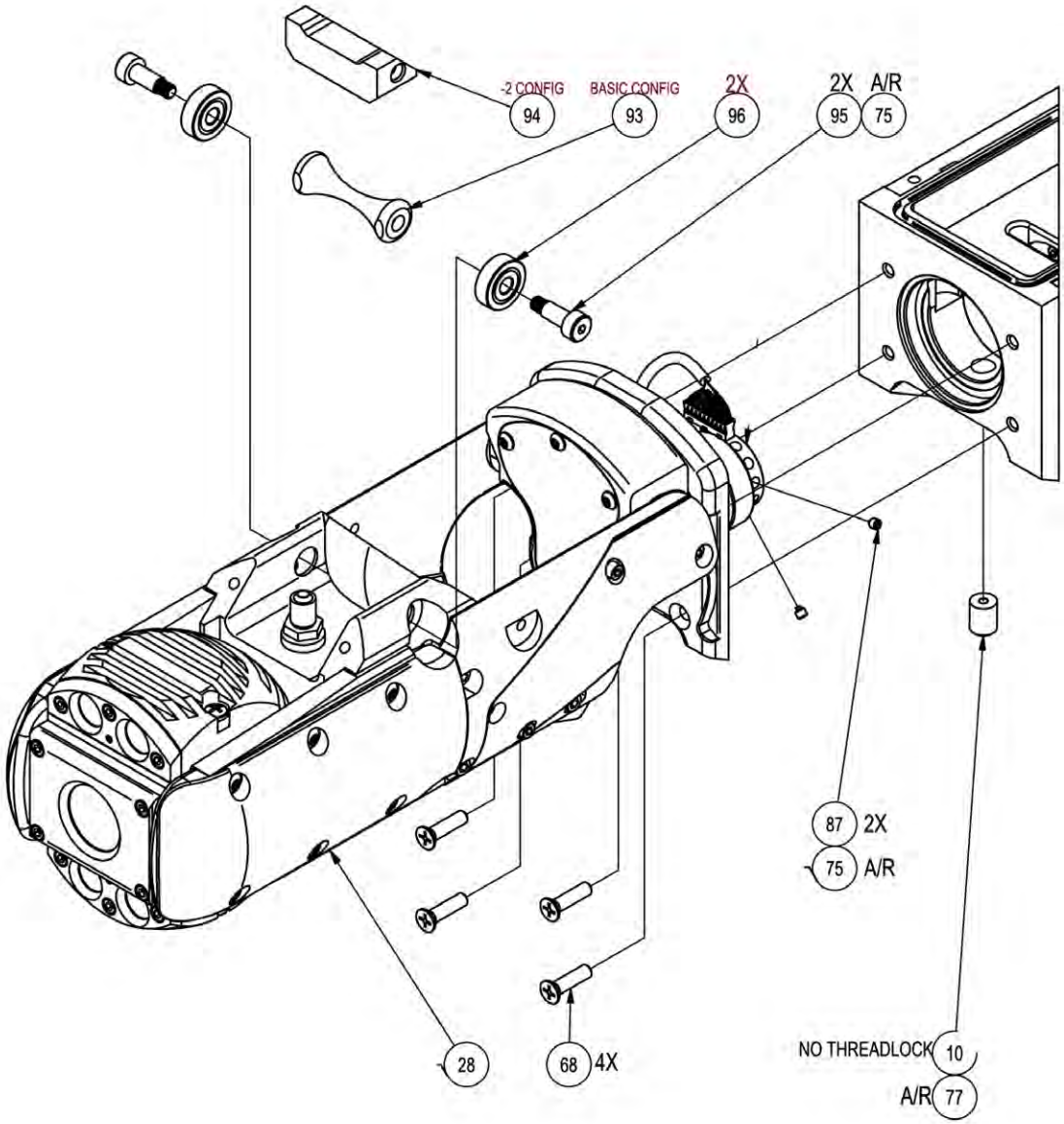


Figure 22g. LAMP II,80'PUSH CABLE & SELF UPRIGHT/NTSC, LM350

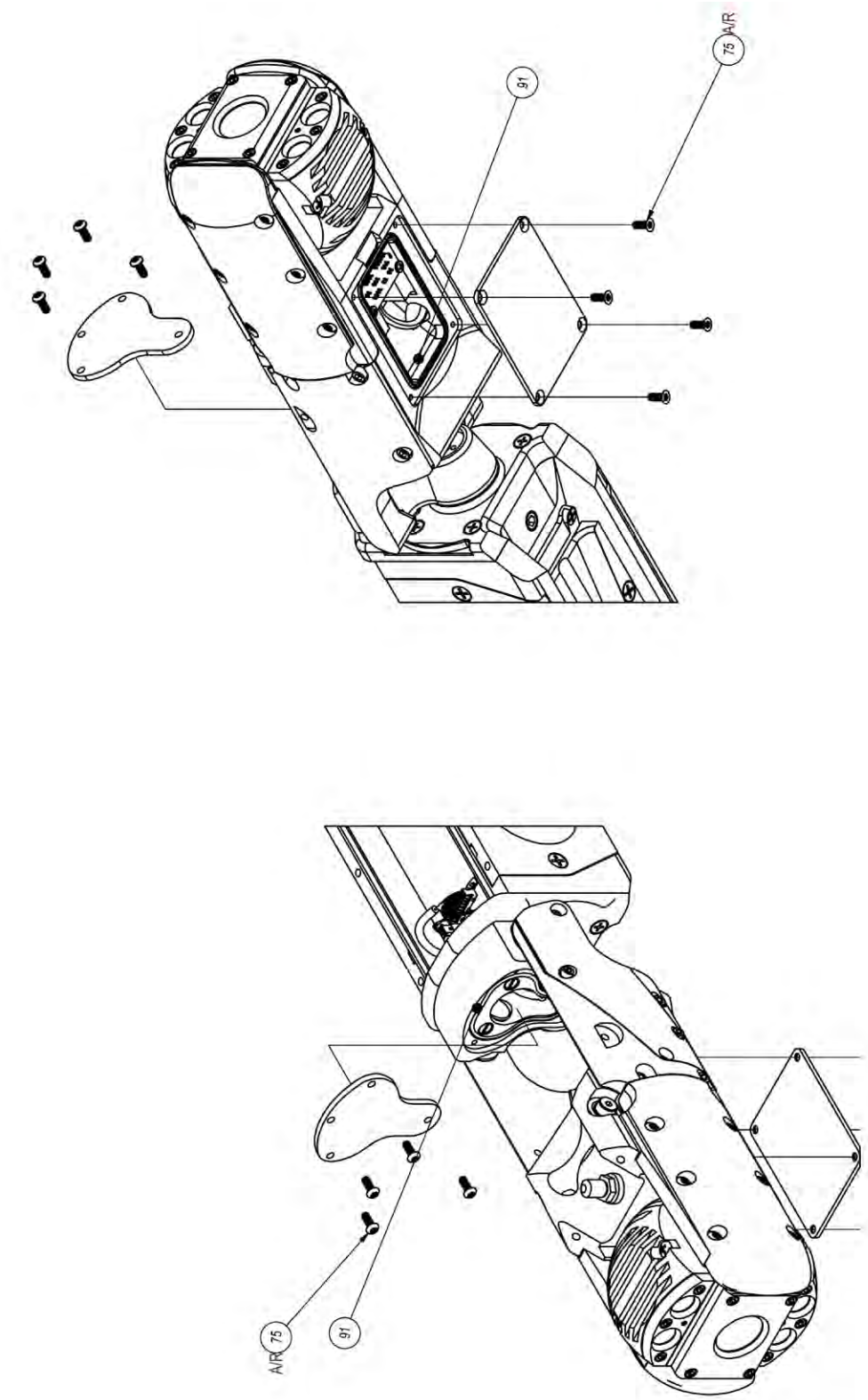


Figure 22h. *LAMP II,80'PUSH CABLE & SELF UPRIGHT/NTSC, LM350*

LAMP II

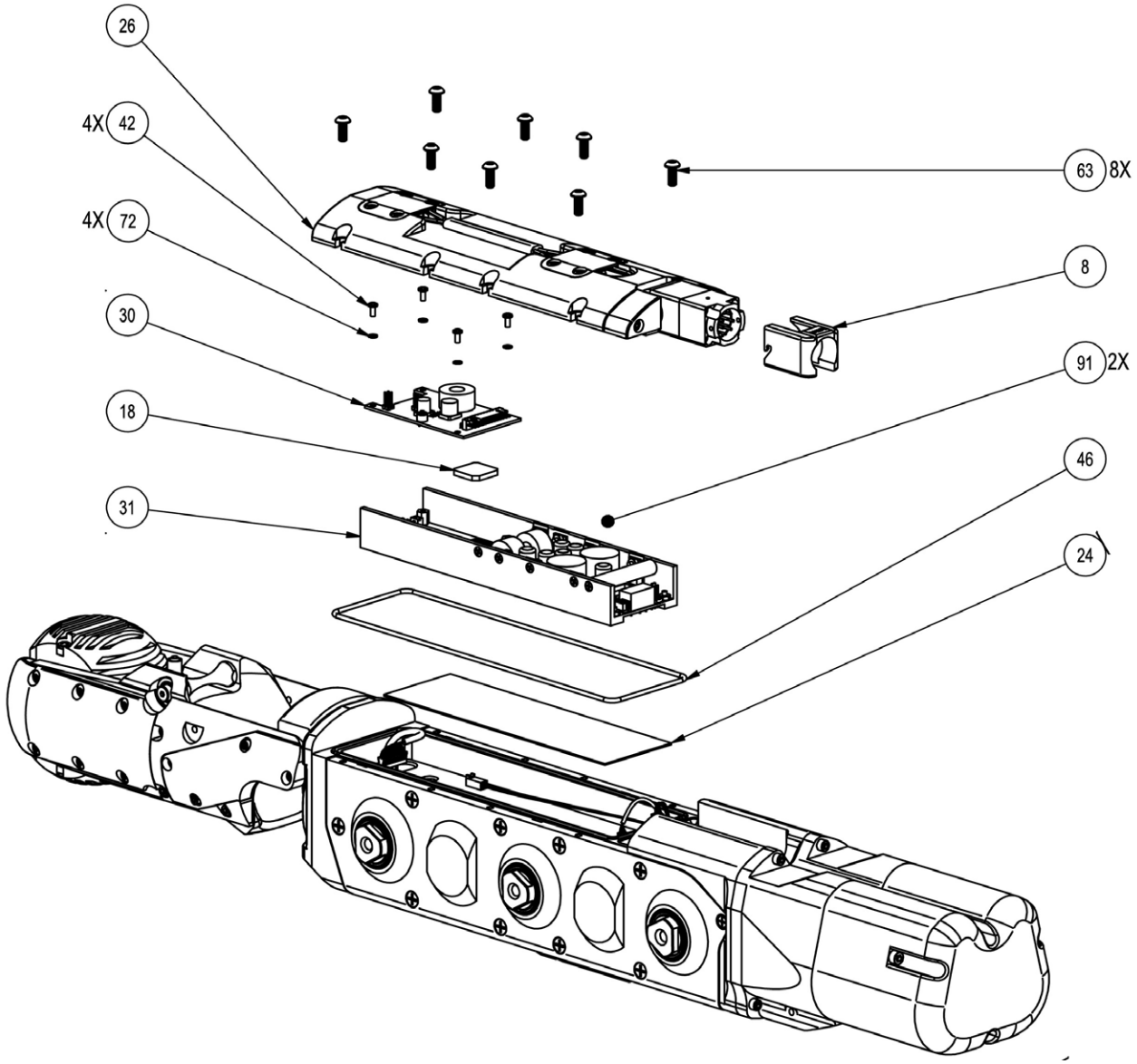


Figure 22i. LAMP II,80'PUSH CABLE & SELF UPRIGHT/NTSC, LM350

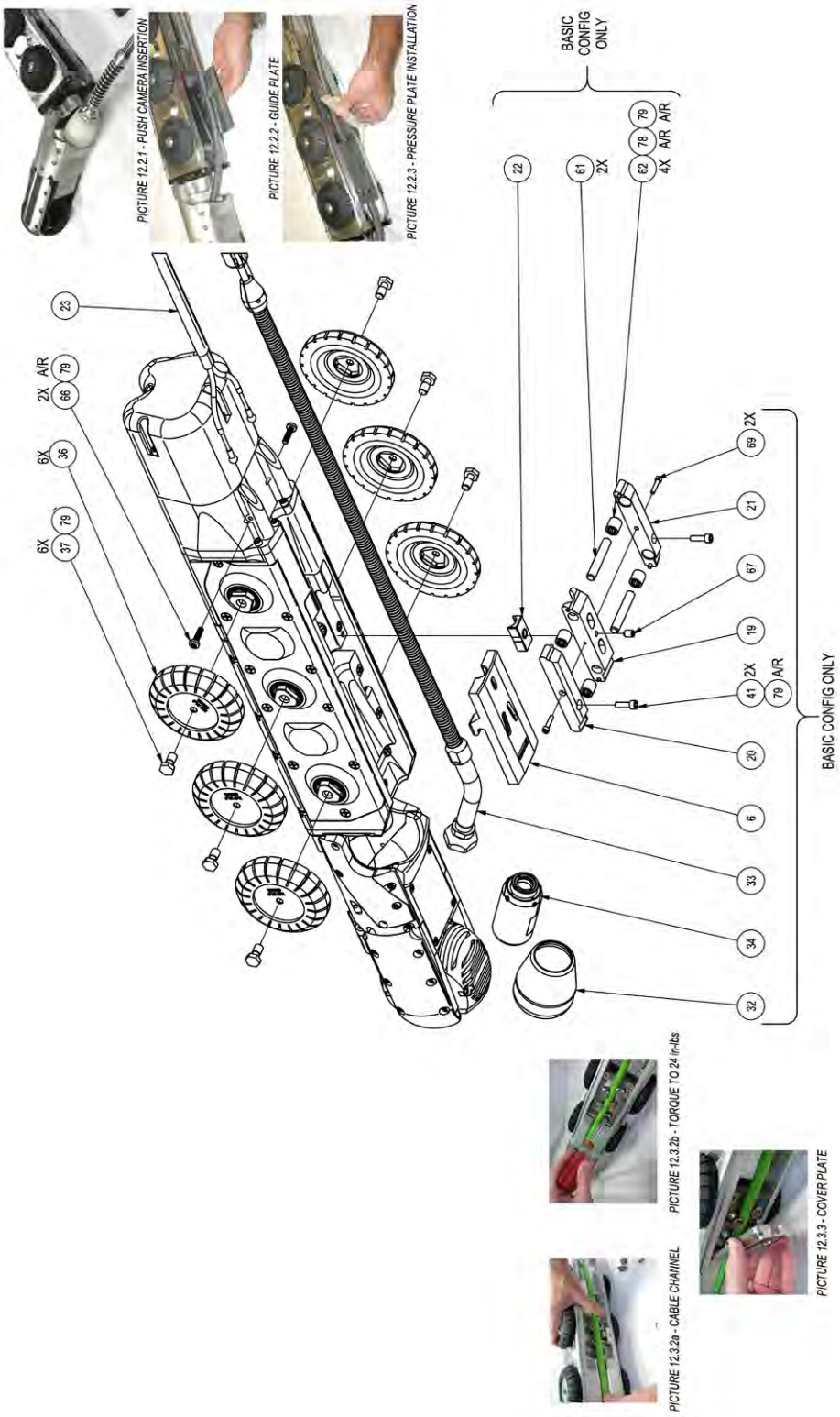


Figure 22j. *LAMP II,80'PUSH CABLE & SELF UPRIGHT/NTSC, LM350*

LAMP II

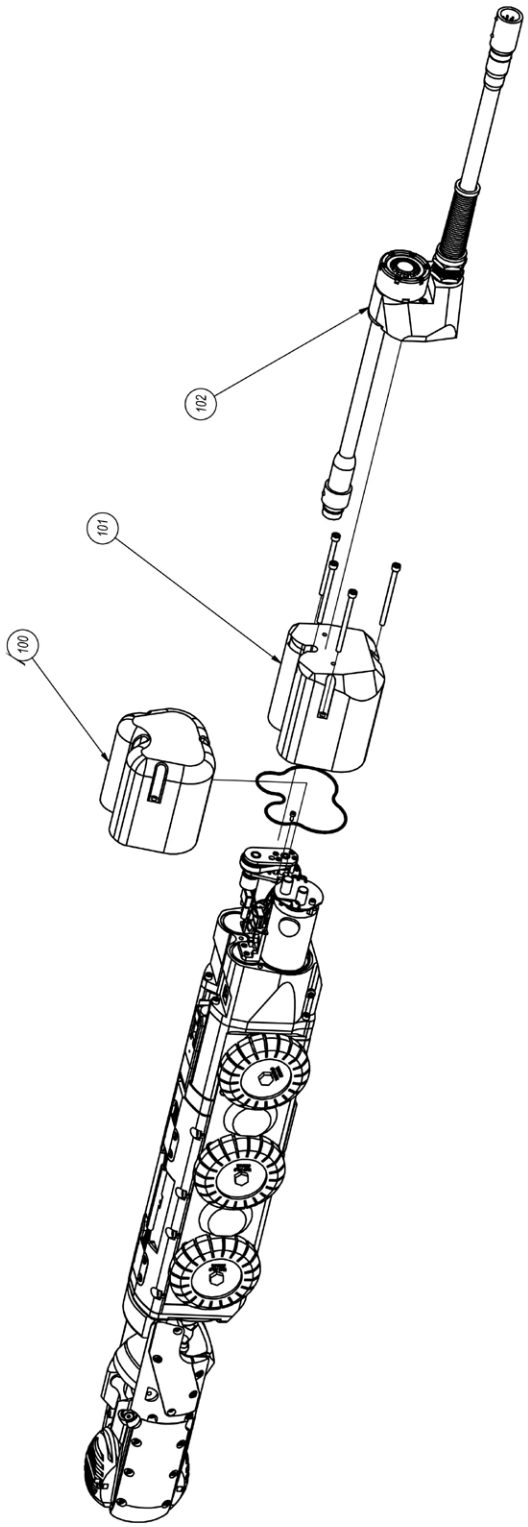


***Figure 22k**. LAMP II,80'PUSH CABLE & SELF UPRIGHT/NTSC, LM350*

>SPRING PUSH CABLE OPTION

LAMP II,80'PSH CBL&SLF UPR/SND/NTSC (See Figure 22),Rev. S, LM350			
Item#	Description	P/N	Quantity
0001	HOUSING,ROTATE MOTOR	LM011	1
0002	GEAR,SPUR,30TEETH,SPLINED,LAMPII	LM024	1
0003	PLATE,PUSH CABLE GUIDE,UPPER	LM027	1
0004	DRIVESHAFT,PUSH DRIVE,LAMP II	LM031	1
0005	SHAFT,WORM DRIVE,LAMPII	LM039	1
0006	GUIDE,PUSH,LOWER,LAMPII	LM042	1
0008	CONNECTOR,QUICK,12PIN,LAMP II	LM074	1
0009	AXLE,FRONT & INTERMEDIATE,LAMPII	LM075	4
0010	HALL SENSOR MAGNET ASSY,SHORT	LM076-1	1
0011	WASHER,THRUST,DRIVE,BIG,LAMP II	LM107	1
0012	AXLE,REAR,LAMPII	LM108	2
0013	HOUSING,AXLE BEARING,LAMPII	LM109	1
0014	MAIN BODY,LAMP II	LM110	1
0015	COVER,SIDE,RH,LAMP II	LM111	1
0016	COVER,SIDE,LH,LAMPII	LM112	1
0017	MOTOR/GEARBOX,,22V,1093:1,LAMPII	LM116	1
0018	MICROCNTRL,PRG,F/LM403,LAMP II	LM148	1
0019	PLATE,PRESSURE,SIDE 1,LAMPII	LM151	1
0020	PLATE,PRESSURE,SIDE 2,LAMPII	LM152	1
0021	PLATE,PRESSURE,SIDE 3,LAMPII	LM153	1
0022	WEARSTRIP ASSY,PSH CBL,SHRT,LMPII	LM154	1
0023	CABLE,TOW,LAMPII	LM157	1
0024	PAD,THERMALLY CONDUCTIVE,LAMPII	LM158	1
0025	CLUTCH ASSY,LAMP II	LM327	1
0026	COVER ASSY,ELECTRONICS BAY	LM304	1
0027	PUSH DRIVE ASSY,LAMP II	LM319	1
0028	CAMERA HEAD ASSY,W/LAUNCHER,LAMPII	LM325	1
0029	MOTOR ASSY,LAMP II	LM330	1
0030	PCB ASSY,MODEM & VIDEO,MC,LAMP II	LM401	1
0031	PCB ASSY,CONTROL,LAMP II	LM403	1
0032	BALL,CENTERING,PS3 CAM. 2.25" DIA.	LT258	1
0033	CABLE ASSY,PUSH,80FT,LMP,0.24 ARMOR	LT603	1
0034	CAMERA ASSY,SLF UP,HI-PWR,NTSC,SND	SR300-13	1
0035	GEARED SHAFT,IDLER,CPR	WM279	4
0036	WHEEL,RBR,75D,6",H-BTM CLR,CPR&LMII	WM209	6
0037	SCREW,CAPT,HEX,5/16-24UNF X 0.625	WM098-1	6
0038	O-RING,MOLDED,UNIBODY SIDE PLATE	WM101	2
0039	BEARING,BUSH,OUTER,CLUTCH,CPR	WM219	6

>SPRING PUSH CABLE OPTION

LAMP II,80'PSH CBL&SLF UPR/SND/NTSC (See Figure 22),Rev. S, LM350			
Item#	Description	P/N	Quantity
0040	SCREW,CAP,SKT HD,10-32X1-3/4LG,SST	HW118	1
0041	SCREW,CAP,SOC HEAD,10-32X5/8,SST	HW134	2
0042	SCREW,PAN,4-40X1/4 MACHINE	HW227	4
0043	BEARING,THRUST,BRONZ,.502X.753X1/16	HW321	1
0044	SCREW,CAP HD,10-32X2-3/4LG,SST	HW362	3
0045	BEARING,BALL,9X17X5,SEALED	HW457	1
0046	O-RING,2-168,BUNA	HW617	1
0047	SCREW,BUTTON HD 6-32X5/16 SST SKT	HW770	3
0048	O-RING,2-044 BUNA	HW802	1
0049	SCREW,SHCS,M3 X 7MM LG,18-8SST	HW2387	4
0050	BEARING,BALL,25MM ID X32ODX4MM,SEAL	HW1562	4
0051	SEAL,25ID X 32OD X 4MM W,RUBBER	HW1563	6
0052	BEARING,BALL,20MM IDX27ODX4MM,SEAL	HW1565	4
0054	BEARING,NEEDLE,15MM X 21MM X12MM	HW1757	1
0055	O-RING,2-045,BUNA-N,SHORE A70	HW1828	1
0056	BEARING,THRUST,1.00 OD X .50 ID	HW1832	1
0057	SCREW,FLAT,8-32X.313,PHIL,SS	HW1846	2
0058	RING,RTG,EXT,SNP,1/2DIA SS,	HW1898	2
0059	BEARING,BALL,37MMX25MMX7MM	HW1921	6
0060	SEAL,SHAFT,OIL,12MMX16MMX3MM	HW1519	1
0061	PIN,DOWEL,8MMX50MM HARD STEEL	HW1979	2
0062	BEARING,NEEDLE,8MMX12MMX10MM W	HW1980	4
0063	SCREW,BTNHD,PIN-IN-TRX,10-32X.50,SS	HW2058	8
0064	SCREW,CAP,SKT HD,8-32X5/8,SST	100141	6
0065	SCREW,FLAT,8-32X3/8 PHIL SST	100146	6
0066	SCREW,PAN,10-32X3/4 PHIL SST	101028	2
0067	SCREW,SET,1/4-20X3/8 KNURL PLATED	101052	1
0068	SCREW,FLAT,10-32X3/4 PHIL SST	101075	4
0069	SCREW,CAP,SKT HD,#6-32X5/8 LONG	101136	2
0070	SCREW,FLAT,10-32X1/2 SST	103052	18
0071	SCREW,FLAT,10-32X7/8,PHILLIP,SS	712444	4
0072	WASHER,SPLIT #4 STL	712462	4
0073	O-RING,2-020 BUNA	712494	1
0074	MRO-LUBRICANT,O-RING 2 OZ TUBE	439986	1
0075	MRO-REMOVABLE LCK,ND 121200-50,BLUE	440061	1
0076	MRO-RET.COMP,.005GP,ND530125-50,GRN	440072	1
0077	MRO-SEALANT,THREAD PST 567	CS215	1
0078	MRO-GREASE,MOBIL 1 SYNTHETIC	CS419	1

>SPRING PUSH CABLE OPTION

LAMP II,80'PSH CBL&SLF UPR/SND/NTSC (See Figure 22),Rev. S, LM350			
Item#	Description	P/N	Quantity
0079	MRO-ANTI-SEIZE,LPS NICKEL,P/N 03908	CS407	1
0081	LABEL,LASERTAB MARKER, .560 X .560	CS222	2
0082	MANUAL,LAMP II	LM903	1
0083	TOOL,3/8"DR TRQ WRNCH,MICROMTR ADJ	CS472	1
0084	TOOL,3/8DR,1/2"X6POINT SOCKET	CS486	1
0085	TOOL,3/8"DR,1/4"HEX BIT SOCKET	CS474	1
0086	MRO-GOOP,AUTOMOTIVE 3.7 OZ TUBE	420802	1
0087	SCREW,SET,6-32X1/8 SST BRASS TIP	100172	2
0088	ANTI-SEIZE,BRSH,NICKL GRAF,2 OZ	CS488	1
0089	SEAL,OIL,15X21X3MM,DBL LIP	HW2098	1
0090	LABEL,1-1/8"X3-1/2",AVERY 4150	CS491	1
0091	DESSICANT,.25G	MS116	4
0093	ROLLER,CHUTE,LAMPII	LM122	1
0095	SCREW,SHLDR,6X12XM5,SST	HW1953	2
0096	BEARING,6X19X6MM,ABEC1,DBL SEALED	HW1955	2
0097	RING,RETAIN.,SPIRAL,.500ID,.035 THK	HW605	1
0200	HOUSING,2-PIN,2MM	712864	1
0201	WIRE,#24 BLACK TEFLON	713335	1
0202	WIRE,#24 RED TEFLON	713337	1
0203	CONTACT	715087	2
0204	TUBE,SHRINK,1/16"	712593	1
0205	TUBE,SHRINK,RED 1/8"RNF	712580	1

>FIBERGLASS PUSH CABLE OPTION

LAMP II,ALT PSH DR,NO CAM&PSH CBL, Rev. S, LM350-2

Item#	Description	P/N	Quantity
0001	HOUSING,ROTATE MOTOR	LM011	1
0002	GEAR,SPUR,30TEETH,SPLINED,LAMPII	LM024	1
0004	DRIVESHAFT,PUSH DRIVE,LAMP II	LM031	1
0005	SHAFT,WORM DRIVE,LAMPII	LM039	1
0008	CONNECTOR,QUICK,12PIN,LAMP II	LM074	1
0009	AXLE,FRONT & INTERMEDIATE,LAMPII	LM075	4
0010	HALL SENSOR MAGNET ASSY,SHORT	LM076-1	1
0011	WASHER,THRUST,DRIVE,BIG,LAMP II	LM107	1
0012	AXLE,REAR,LAMPII	LM108	2
0013	HOUSING,AXLE BEARING,LAMPII	LM109	1
0014	MAIN BODY,LAMP II	LM110	1
0015	COVER,SIDE,RH,LAMP II	LM111	1
0016	COVER,SIDE,LH,LAMPII	LM112	1
0017	MOTOR/GEARBOX,,22V,1093:1,LAMPII	LM116	1
0018	MICROCNTRL,PRG,F/LM403,LAMP II	LM148	1
0023	CABLE,TOW,LAMPII	LM157	1
0024	PAD,THERMALLY CONDUCTIVE,LAMPII	LM158	1
0025	CLUTCH ASSY,LAMP II	LM327	1
0026	COVER ASSY,ELECTRONICS BAY	LM304	1
0028	CAMERA HEAD ASSY,W/LAUNCHER,LAMPII	LM325	1
0029	MOTOR ASSY,LAMP II	LM330	1
0030	PCB ASSY,MODEM & VIDEO,MC,LAMP II	LM401	1
0031	PCB ASSY,CONTROL,LAMP II	LM403	1
0035	GEARED SHAFT,IDLER,CPR	WM279	4
0036	WHEEL,RBR,75D,6",H-BTM CLR,CPR&LMII	WM209	6
0037	SCREW,CAPT,HEX,5/16-24UNF X 0.625	WM098-1	6
0038	O-RING,MOLDED,UNIBODY SIDE PLATE	WM101	2
0039	BEARING,BUSH,OUTER,CLUTCH,CPR	WM219	6
0042	SCREW,PAN,4-40X1/4 MACHINE	HW227	4
0043	BEARING,THRUST,BRONZ,.502X.753X1/16	HW321	1
0044	SCREW,CAP HD,10-32X2-3/4LG,SST	HW362	3
0045	BEARING,BALL,9X17X5,SEALED	HW457	1
0046	O-RING,2-168,BUNA	HW617	1
0047	SCREW,BUTTON HD 6-32X5/16 SST SKT	HW770	3
0048	O-RING,2-044 BUNA	HW802	1
0049	SCREW,SHCS,M3 X 7MM LG,18-8SST	HW2387	4
0050	BEARING,BALL,25MM ID X32ODX4MM,SEAL	HW1562	4
0051	SEAL,25ID X 32OD X 4MM W,RUBBER	HW1563	6

>FIBERGLASS PUSH CABLE OPTION

LAMP II,ALT PSH DR,NO CAM&PSH CBL, Rev. S, LM350-2			
Item#	Description	P/N	Quantity
0052	BEARING,BALL,20MM IDX27ODX4MM,SEAL	HW1565	4
0054	BEARING,NEEDLE,15MM X 21MM X12MM	HW1757	1
0055	O-RING,2-045,BUNA-N,SHORE A70	HW1828	1
0056	BEARING,THRUST,1.00 OD X .50 ID	HW1832	1
0057	SCREW,FLAT,8-32X.313,PHIL,SS	HW1846	2
0058	RING,RTG,EXT,SNP,1/2DIA SS,	HW1898	2
0059	BEARING,BALL,37MMX25MMX7MM	HW1921	6
0060	SEAL,SHAFT,OIL,12MMX16MMX3MM	HW1519	1
0063	SCREW,BTNHD,PIN-IN-TRX,10-32X.50,SS	HW2058	8
0064	SCREW,CAP,SKT HD,8-32X5/8,SST	100141	6
0065	SCREW,FLAT,8-32X3/8 PHIL SST	100146	6
0066	SCREW,PAN,10-32X3/4 PHIL SST	101028	2
0068	SCREW,FLAT,10-32X3/4 PHIL SST	101075	4
0070	SCREW,FLAT,10-32X1/2 SST	103052	18
0072	WASHER,SPLIT #4 STL	712462	4
0073	O-RING,2-020 BUNA	712494	1
0074	MRO-LUBRICANT,O-RING 2 OZ TUBE	439986	1
0075	MRO-REMOVABLE LCK,ND 121200-50,BLUE	440061	1
0076	MRO-RET.COMP,.005GP,ND530125-50,GRN	440072	1
0077	MRO-SEALANT,THREAD PST 567	CS215	1
0078	MRO-GREASE,MOBIL 1 SYNTHETIC	CS419	1
0079	MRO-ANTI-SEIZE,LPS NICKEL,P/N 03908	CS407	1
0081	LABEL,LASERTAB MARKER, .560 X .560	CS222	2
0082	MANUAL,LAMP II	LM903	1
0083	TOOL,3/8"DR TRQ WRNCH,MICROMTR ADJ	CS472	1
0084	TOOL,3/8DR,1/2"X6POINT SOCKET	CS486	1
0085	TOOL,3/8"DR,1/4"HEX BIT SOCKET	CS474	1
0086	MRO-GOOP,AUTOMOTIVE 3.7 OZ TUBE	420802	1
0087	SCREW,SET,6-32X1/8 SST BRASS TIP	100172	2
0088	ANTI-SEIZE,BRSH,NICKL GRAF,2 OZ	CS488	1
0089	SEAL,OIL,15X21X3MM,DBL LIP	HW2098	1
0090	LABEL,1-1/8"X3-1/2",AVERY 4150	CS491	1
0091	DESSICANT,.25G	MS116	4
0092	PUSH DRIVE ASSY,ALTERNATE,LAMP II	LM331	1
0094	CHUTE,LAMPII,6",F/ FIBERGLASS CABLE	LM260	1
0095	SCREW,SHLDR,6X12XM5,SST	HW1953	2
0096	BEARING,6X19X6MM,ABEC1,DBL SEALED	HW1955	2
0097	RING,RETAIN.,SPIRAL,.500ID,.035 THK	HW605	1

>FIBERGLASS PUSH CABLE OPTION

LAMP II,ALT PSH DR,NO CAM&PSH CBL, Rev. S, LM350-2			
Item#	Description	P/N	Quantity
0098	TOOL,NUT DRIVER,1/4IN	CS501	1
0200	HOUSING,2-PIN,2MM	712864	1
0201	WIRE,#24 BLACK TEFLON	713335	1
0202	WIRE,#24 RED TEFLON	713337	1
0203	CONTACT	715087	2
0204	TUBE,SHRINK,1/16"	712593	1
0205	TUBE,SHRINK,RED 1/8"RNF	712580	1

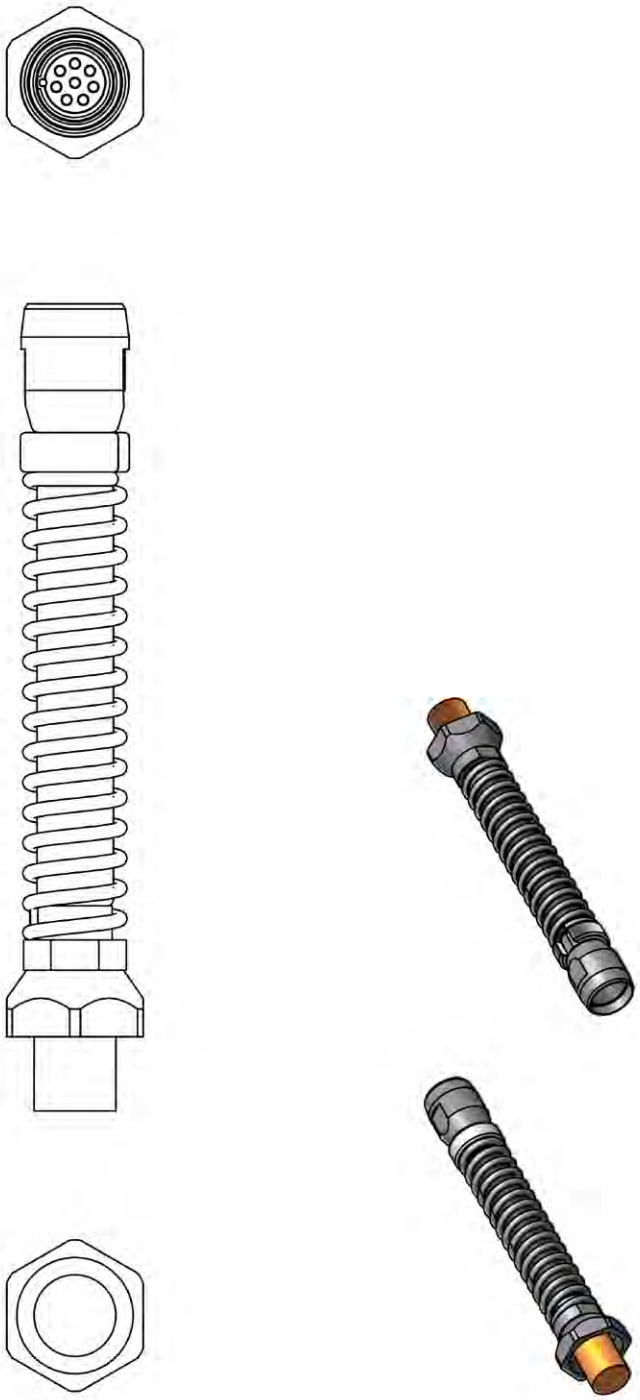


Figure 23a. SPRING ASSY, LATERAL CAMERA,LAMPII, LM335

LAMP II

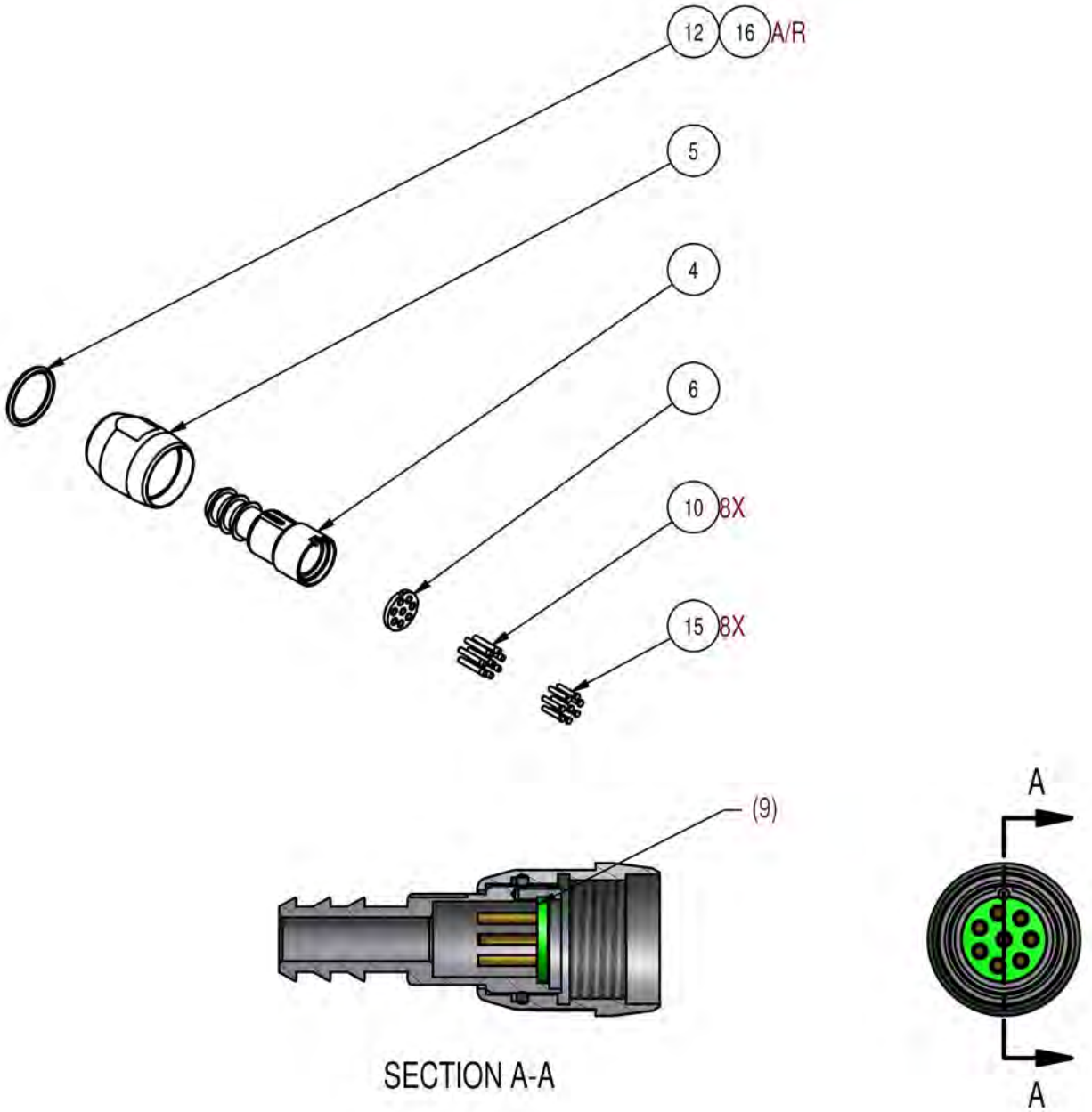


Figure 23b. SPRING ASSY, LATERAL CAMERA,LAMPII, LM335

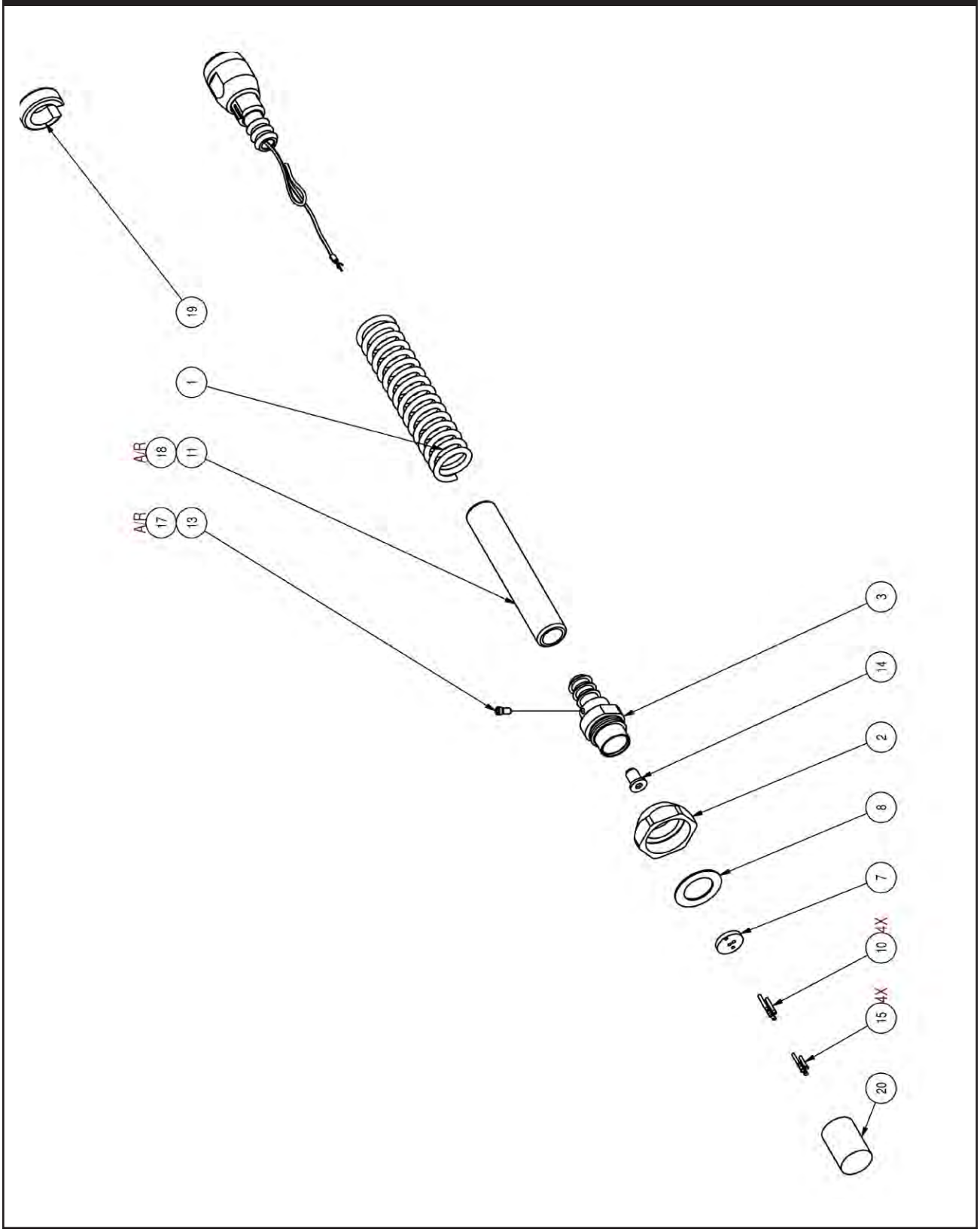


Figure 23c. SPRING ASSY, LATERAL CAMERA,LAMPII, LM335

LAMP II

SPRING ASSY,LATERAL CAMERA,LAMPII, (See Figure 23), LM335, Rev. B			
0001	SPRING,COMP,.859OD X .115WD X 3.75L	LT069	1
0002	NUT,PUSH CABLE/CAMERA,LAMP	LT244	1
0003	ADAPTER,PUSH CABLE,CAMERA END,LAMP	LT243	1
0004	ADAPTER,BARBED,SPRING,PSH CBL,LMPII	LM231	1
0005	NUT,CONNECTOR,PUSH CABLE,LAMPII	LM233	1
0006	PCB,RAW,PIN,LATERAL,PUSH CABLE	LM508	1
0007	BOARD,MOUNT,CX1	CR124	1
0008	GASKET,TEFLON,CX1	CR126	1
0010	SOCKET,WIRE WRAP,025 SQ	PL131	12
0011	HOSE,PUSH-LOC	HW515	1
0012	O-RING,2-016,BUNA-N	HW691	1
0013	SCREW,BUTTON SKT HD,M3-5X6MMLG,MOD	HW1208-1	1
0014	WELL,WIRE,SPRING END,LAMPII	LM280	1
0015	PIN,POGO W/SPRING	1208	12
0016	MRO-LUBRICANT,O-RING 2 OZ TUBE	439986	1
0017	MRO-REMOVABLE LCK,ND 121200-50,BLUE	440061	1
0018	GREASE,ANTI SEIZE 1 OZ	940700	1
0019	CLIP,SPACER,SPRING ASSY,LAMP II	LM274	1
0020	CAP,PROTECTION,CONNECTION1	HW947	1
0021	TUBE,SHRINK,BLACK 1/4"RNF	712576	1
0022	TUBE,SHRINK,BLACK 1/4"SCL	712587	1
0023	TUBE,SHRINK,1/16"	712593	1
0024	WIRE,#30 BLACK TEFLON	713205	1
0025	WIRE,#30 GREEN TEFLON	713210	1
0026	WIRE,#30 RED TEFLON	713207	1
0027	WIRE,#30 WHITE TEFLON	713213	1

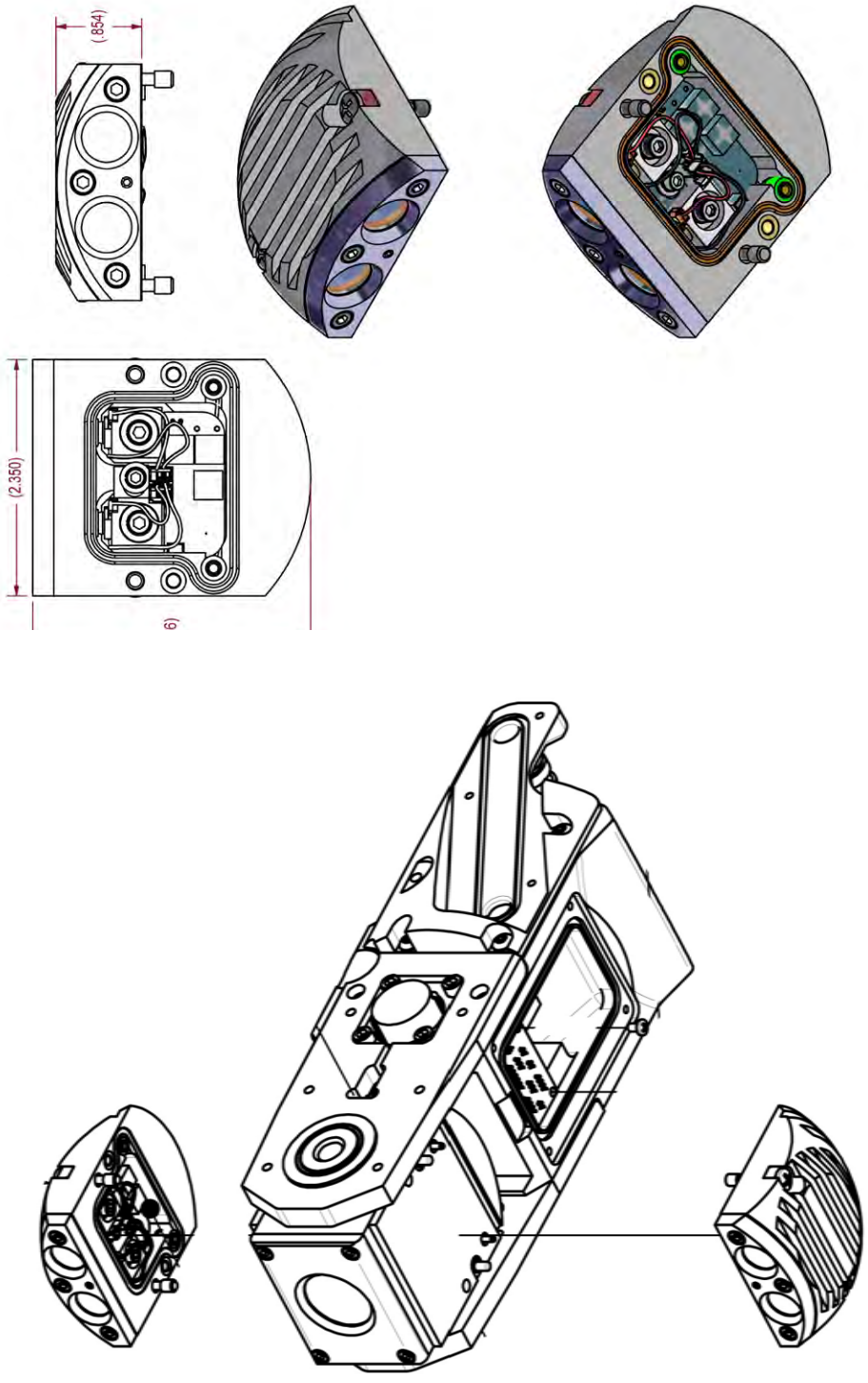


Figure 24a. *LED LIGHTHEAD ASSY,OZ III, MZ302*
(Used on LM325 Camera Head Assembly, LAMP II)

LAMP II

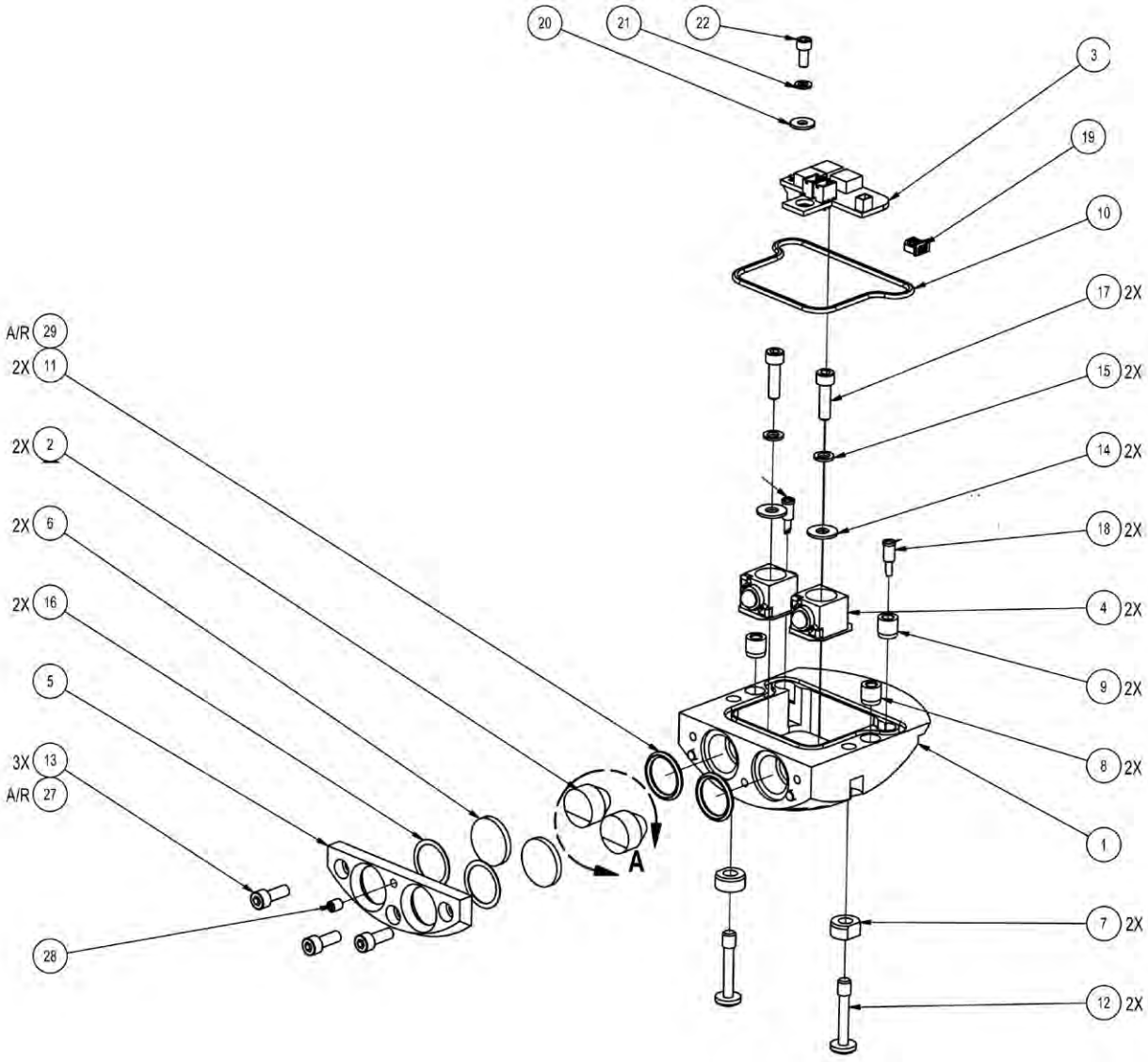


Figure 24b. *LED LIGHTHEAD ASSY,OZ III, MZ302*
(Used on LM325 Camera Head Assembly, LAMP II)

LED LIGHTHEAD ASSY,OZ III, (See Figure 24), MZ302, Rev. D			
0001	HOUSING,LIGHTHEAD,LED	MZ034	1
0002	COLLIMATOR,MODIFIED,LED LIGHTHD	MZ035	2
0003	PCB ASSY,UNIVERSAL LED/LSR DR,OZIII	MZ422	1
0004	LED ASSY,LED LIGHTHEAD ASSY,MINI OZ	MZ303	2
0005	BEZEL,LIGHTHEAD	MZ004	1
0006	WINDOW,SPPHIRE,0.625"OD X 2MM T,PS3	PS116	2
0007	INSULATOR,THERMAL,CAPTIVE SCREW	MZ018	2
0008	INSULATOR,THRML,1/8 DOWEL PIN,OZ II	CZ014	2
0009	INSULATOR,THRMAL,CONTACT,SCKT,OZ II	CZ012	2
0010	O-RING,MOLDED,LIGHTHEAD,MZ	MZ009	1
0011	O-RING,2-014,SILICONE	HW1361	2
0012	SCREW,CAP,MOD,PH-8-32X7/8 PHIL	HW1362	2
0013	SCREW,CAP,SKT HD,6-32X3/8,SST	105071	3
0014	WASHER,FLAT,#6 USS STL	100153	2
0015	WASHER,SPLIT #6 SST	100150	2
0016	WASHER,TEFLON,1/2ID X 5/8OD X.01THK	HW1363	2
0017	SCREW,CAP,SKT HD,6-32X1/2,SST	712417	2
0018	SOCKET,CONTACT	EC125	2
0019	HOUSING,2-PIN,2MM	712864	1
0020	WASHER,FLAT,#4 SST	100171	1
0021	WASHER,SPLIT #4 SST	100170	1
0022	SCREW,CAP,SOC HD 4-40X1/4 SST	103089	1
0023	WIRE,#24 RED TEFLON	713337	1
0024	WIRE,#24 BLACK TEFLON	713335	1
0025	CONTACT	715087	2
0026	TUBE,SHRINK,BLACK 3/32"	712595	1
0027	MRO-REMOVABLE LCK,ND 121200-50,BLUE	440061	1
0028	SCREW,SET,6-32X3/16 SST	100991	1
0029	MRO-LUBRICANT,O-RING 2 OZ TUBE	439986	1

LAMP II

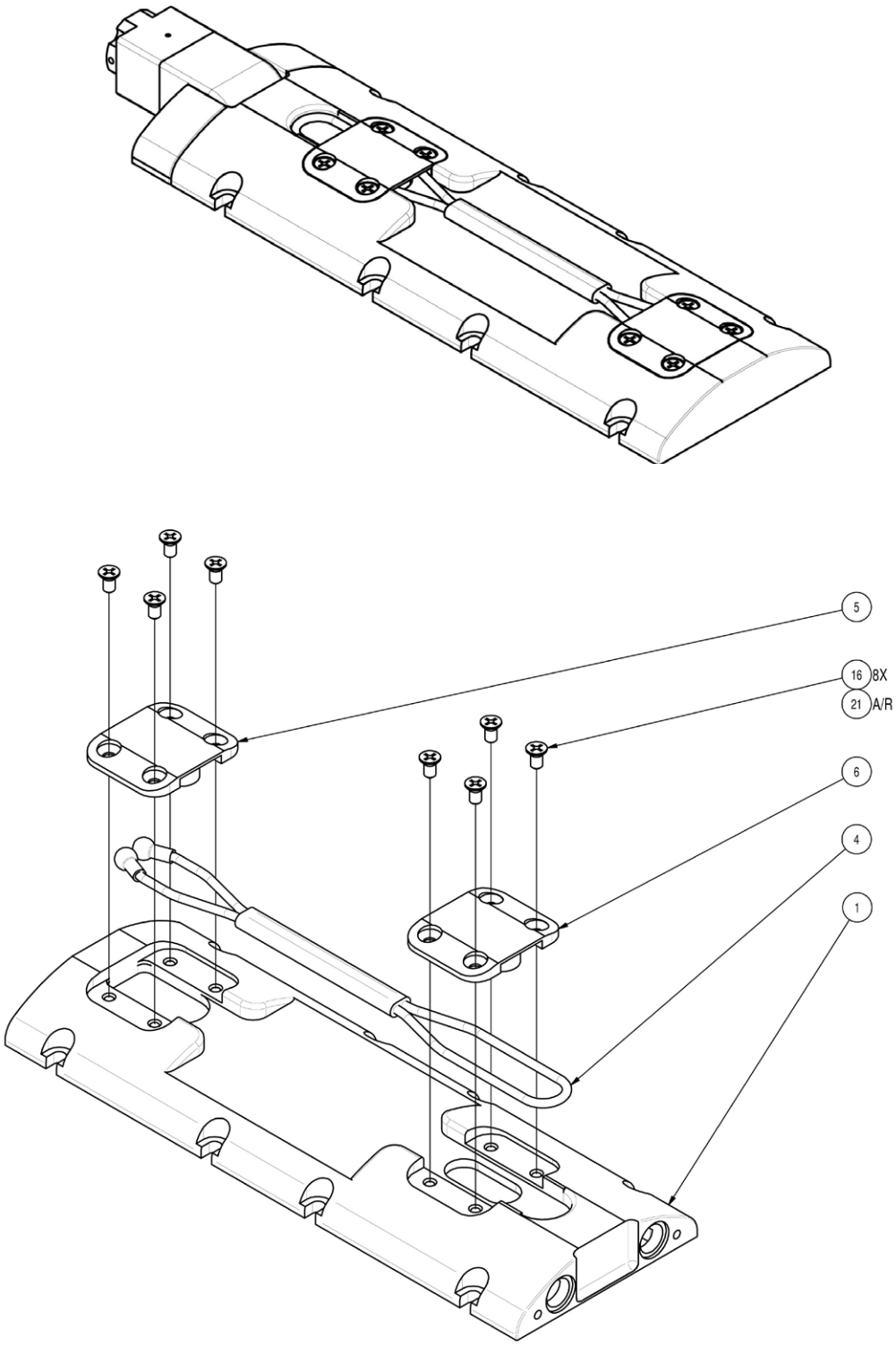


Figure 25a. COVER ASSY,ELECTRONICS BAY, LAMP II, LM304

LAMP II

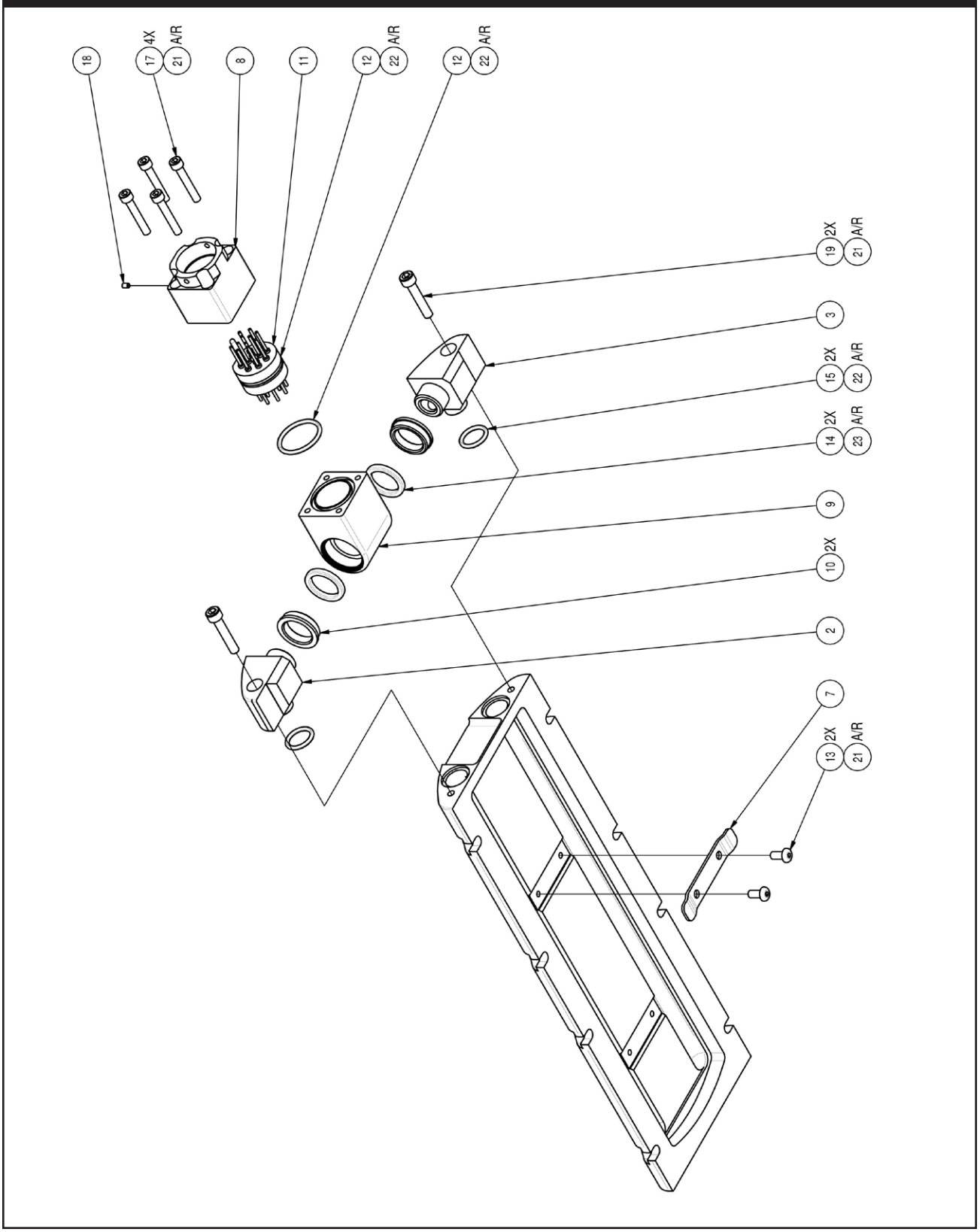
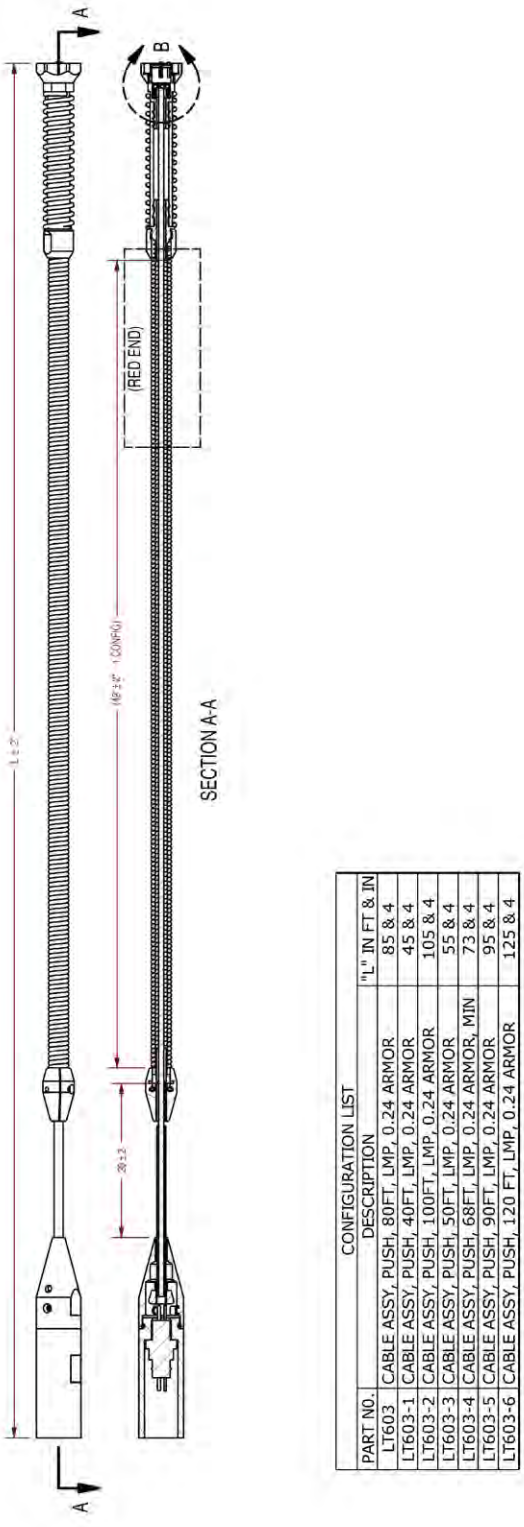


Figure 25b. *COVER ASSY,ELECTRONICS BAY, LAMP II, LM304*

LAMP II

COVER ASSY,ELECTRONICS BAY, LAMP II, (See Figure 25), LM304, Rev. B			
0001	COVER,ELECTRONIC BAY,LAMPII	LM004	1
0002	CLEVIS,HARNESS CONN,LEFT	LM006	1
0003	CLEVIS,HARNESS CONN,RIGHT	LM006-1	1
0004	CABLE ASSY,RETRIEVAL,LAMPII	LM032	1
0005	RETAINER,CABLE,FRONT,LAMPII	LM033	1
0006	RETAINER,CABLE,REAR,LAMPII	LM034	1
0007	RETAINER,CABLE,COVER,ELEC BY,LAMPII	LM043	1
0008	CAP,SWIVEL,MML	WM014	1
0009	HOUSING,SWIVEL,REAR,12-PIN	WM018	1
0010	BUSHING,.562ID X.749 ODX.20THK,BRNZ	WM019	2
0011	PLUG,FEMALE,12 PIN	WT038	1
0012	O-RING,2-018,SILICONE	HW683	2
0013	SCREW,BUTTON HD 6-32X5/16 SST SKT	HW770	2
0014	SEAL,QUAD,9/16"IDX3/4"ODX3/32"W	HW1514	2
0015	O-RING,2-013,SILICONE	HW1658	2
0016	SCREW,FLAT,8-32X.313,PHIL,SS	HW1846	8
0017	SCREW,CAP,SKT HD,#6-32X.88LG SST	100128	4
0018	SCREW,SET,2-56X1/8"LONG SOCKET	101097	1
0019	SCREW,CAP,SKT HD,8-32X7/8,SST	103067	2
0020	HOUSING,10PIN LOCKING,MOLEX	EL974	1
0021	MRO-REMOVABLE LCK,ND 121200-50,BLUE	440061	1
0022	MRO-LUBRICANT,O-RING 2 OZ TUBE	439986	1
0023	MRO-GREASE,MOBIL 1 SYNTHETIC	CS419	1
0024	WIRE,#22AWG,ORG/GRN,TWISTED PAIR	EC1739	1
0025	WIRE,#22AWG,(RED/BLK)(BLK/WHT)TP	EC1740	1
0026	WIRE,#24(WHT/RED)(WHT/BLK),TP	EC1741	1
0027	WIRE,#22AWG,RED/BLK,TWISTED PAIR	EC1738	1
0028	CABLE,TEFLON COAX	713362	1
0029	MRO-TAPE,LACING-SPOT TIE NYLON	150007	1
0030	TUBE,SHRINK,RED 3/16"RNF	712591	1
0031	TUBE,SHRINK,1/16"	712593	1
0032	TUBE,SHRINK,BLACK 3/32"	712595	1
0033	TUBE,SHRINK,BLACK 1/8"	712789	1
0034	TERMINAL,CRIMP 22-30 GAUGE WIRE	730113	20



CONFIGURATION LIST		
PART NO.	DESCRIPTION	"L" IN FT & IN
LT603	CABLE ASSY, PUSH, 80FT, LMP, 0.24 ARMOR	85 & 4
LT603-1	CABLE ASSY, PUSH, 40FT, LMP, 0.24 ARMOR	45 & 4
LT603-2	CABLE ASSY, PUSH, 100FT, LMP, 0.24 ARMOR	105 & 4
LT603-3	CABLE ASSY, PUSH, 50FT, LMP, 0.24 ARMOR	55 & 4
LT603-4	CABLE ASSY, PUSH, 68FT, LMP, 0.24 ARMOR, MIN	73 & 4
LT603-5	CABLE ASSY, PUSH, 90FT, LMP, 0.24 ARMOR	95 & 4
LT603-6	CABLE ASSY, PUSH, 120 FT, LMP, 0.24 ARMOR	125 & 4

Figure 26a. *CABLE ASSY,PUSH,80FT,LMP,0.24 ARMOR, LAMP II, LT603*

LAMP II

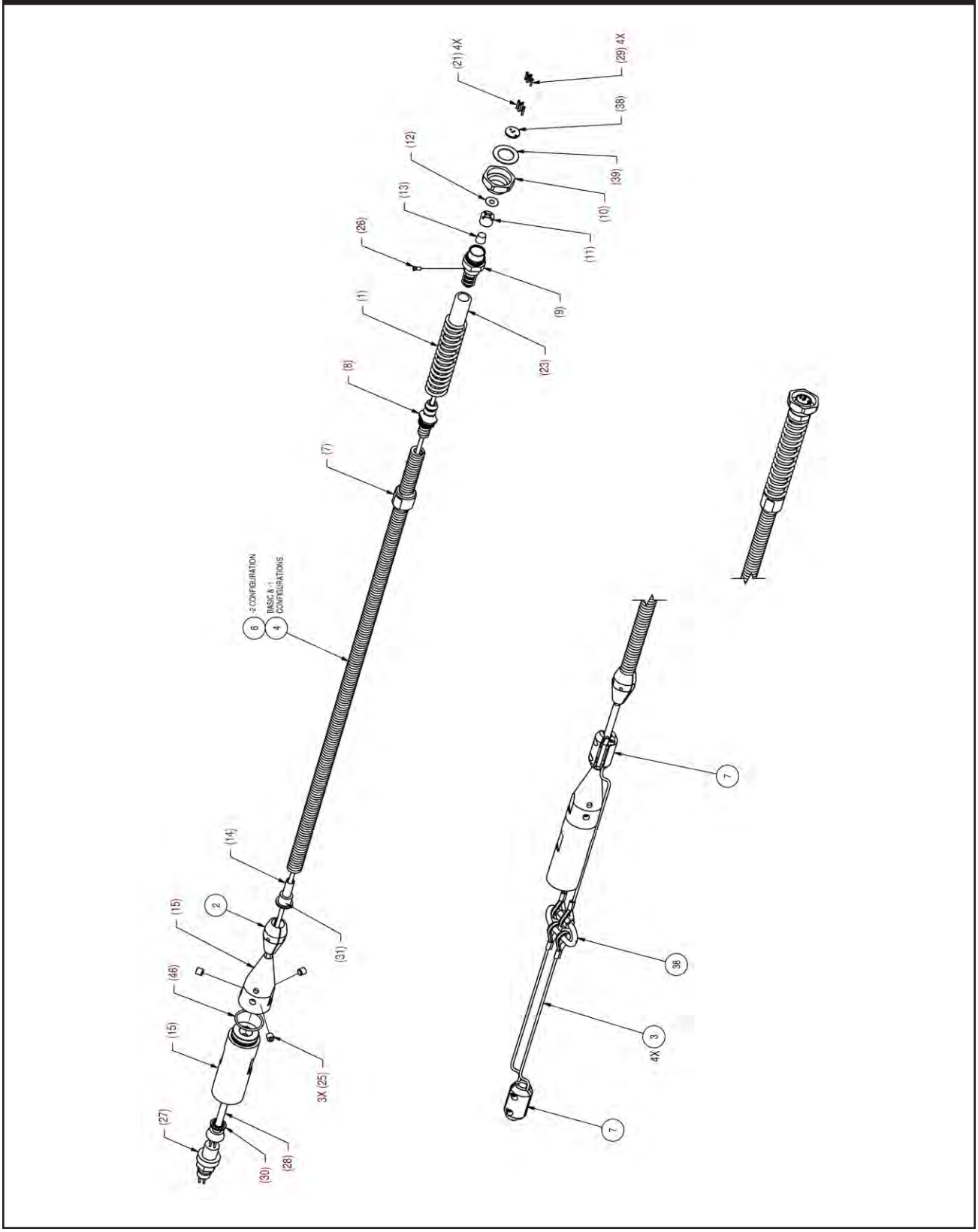


Figure 26b. *CABLE ASSY,PUSH,80FT,LMP,0.24 ARMOR, LAMP II, LT603*

CABLE ASSY,PUSH,80FT,LMP,0.24 ARMOR, LAMP II, (See Figure 26), LT603, Rev. H			
0002	END,PROFILED,SPRING CABLE,LAMP	LT090	1
0003	TOW CABLE,12",PUSHCABLE,LAMP	LT150	4
0004	SPRING,CABLE,PUSH,80',LAMP	LT151	1
0006	STRAIN RELIEF,CLAMSHELL,PUSHCA,LAMP	LT152	2
0017	CABLE ASSY,INNER ARMORED,87FT	LT623	1
0022	KIT,REPAIR,PSHCBL,4PIN END,LMP,0.24	RP120	1
0033	MRO-REMOVABLE LCK,ND 121200-50,BLUE	440061	1
0034	TUBE,SHRINK,BLACK 3/32"	712595	1
0036	TUBE,SHRINK,BLACK 1/8"	712789	1
0037	RING-D,CHAIN,TOW CABLE,3/16"SS	712799	1
0040	MRO-RET.COMP,.015GP,ND541200-50,GRN	CS092	1

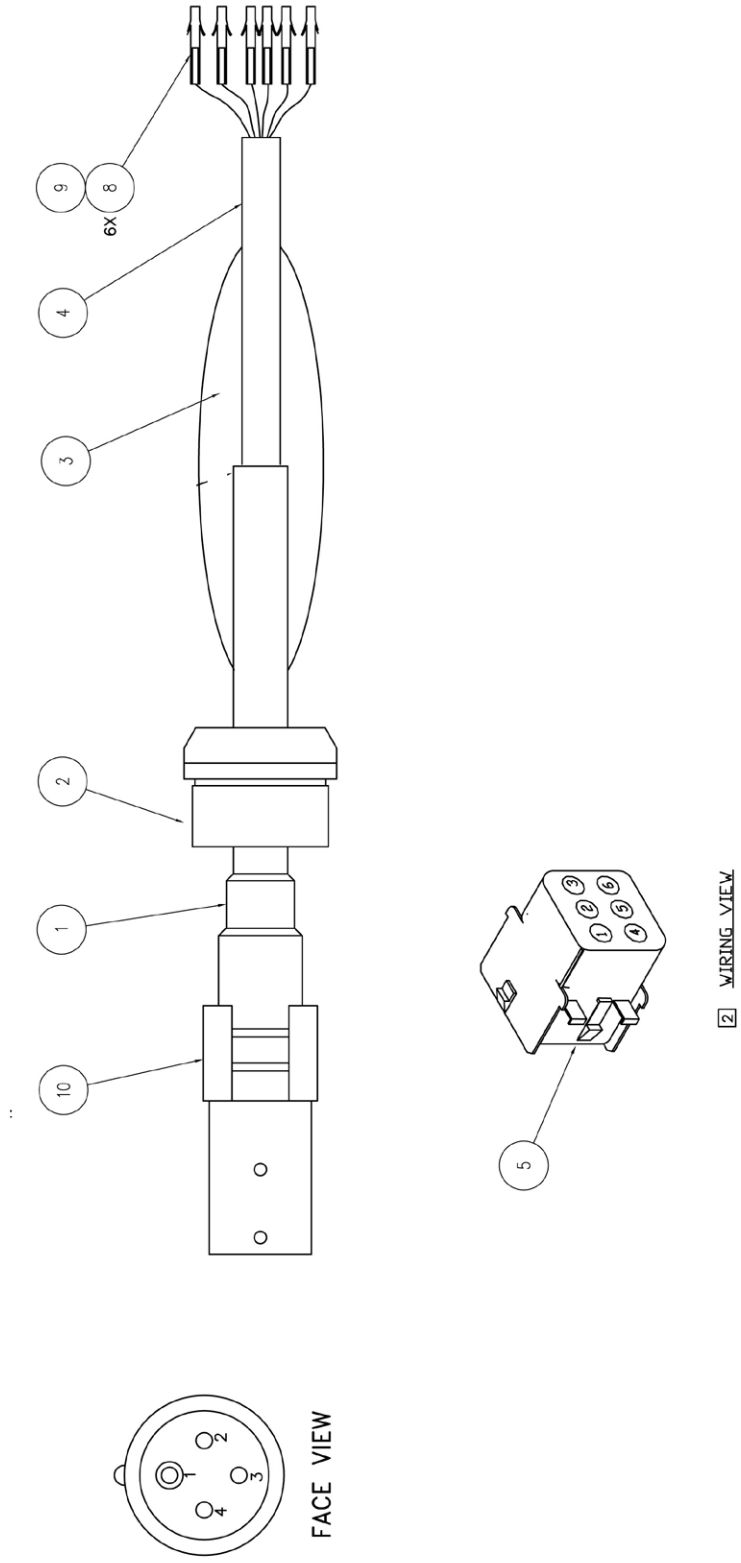
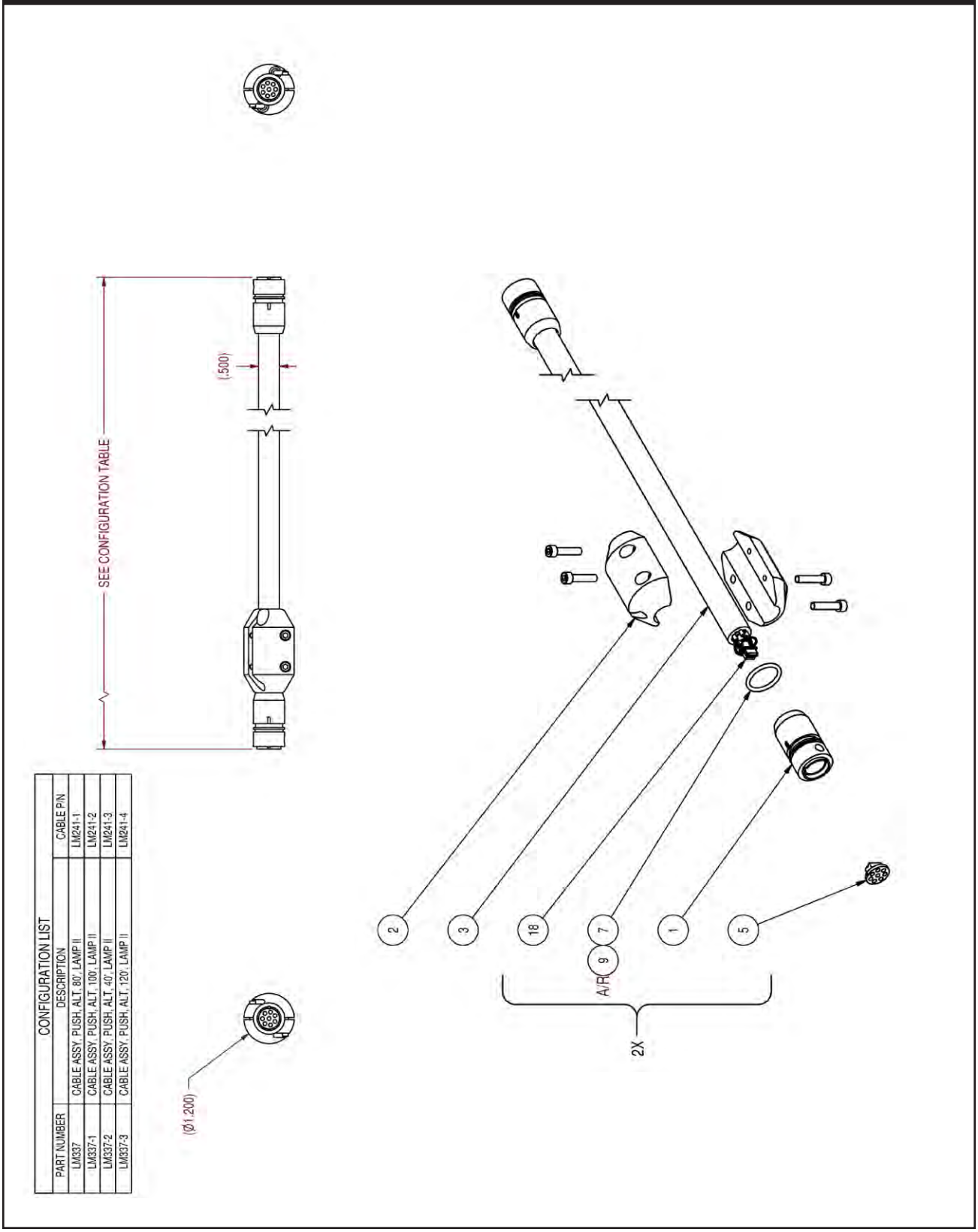


Figure 27. CABLE ASSY,CAMERA,LATERAL 1,000', LT318

CABLE ASSY,CAMERA,LATERAL 1,000', See FIgure 27, LT318, Rev. B			
0001	PIGTAIL,4-PIN FEMALE	160534	1
0002	NUT,CAPTURE,LATERAL CABLE	LT363	1
0003	KIT,SCOTCHCAST,.25"-.80 DIA CABLE	EL220	1
0004	CABLE,4COND,1COAX,22AWG,RED	EC449	1000
0005	CONN,RECEPT,W/6-PINS	712607	1
0006	WIRE,#20 BLACK STRANDED 600V	713317	1
0007	WIRE,#20 WHITE BU	713326	1
0008	PIN,BRASS F/WIRE SIZE 20-14	712612	6
0009	TUBE,SHRINK,BLACK 1/4"RNF	712576	1



CONFIGURATION LIST

PART NUMBER	DESCRIPTION	CABLE P/N
LM337	CABLE ASSY, PUSH, ALT, 80', LAMP II	LM241-1
LM337-1	CABLE ASSY, PUSH, ALT, 100', LAMP II	LM241-2
LM337-2	CABLE ASSY, PUSH, ALT, 40', LAMP II	LM241-3
LM337-3	CABLE ASSY, PUSH, ALT, 120', LAMP II	LM241-4

Figure 28. CABLE ASSY,ILLUMINATOR 425/1208 PCU, LAMP II, LT337

CABLE ASSY,PUSH,ALT,80',LAMPII, (See Figure 28), LM337, Rev. B			
0001	PLUG,6-PIN	712606	1
0002	PIN,BRASS F/WIRE SIZE 20-14	712612	10
0003	CONNECTOR,RECEP,12-PIN AMP	712611	1
0004	SCREW,F/MK-15 MOUNTING KIT 6X5/8HEX	712386	4
0005	TUBE,SHRINK,BLACK 1/2"	712578	0.17
0006	STRAIN RELIEF,CONN.,.500	712627	4
0007	SOCKET,BRASS F/WIRE SIZE 20-14	712613	16
0008	PLUG,12-PIN	712610	2
0009	WIRE,#18 RED	161652	15
0010	WIRE,#18 BLACK	161636	15
0011	WIRE,#18 GREEN	161637	0.67
0012	WIRE,#18 ORANGE	161653	0.67
0013	WIRE,#18 VIOLET	161655	0.67
0014	WIRE,#18 WHT/RED,PVC	EL916	0.67
0015	WIRE,#18AWG,RED/YEL,19STRAND,PVC	EC253	0.67
0016	WIRE,#18 WHT/BLU,PVC	EL918	0.67

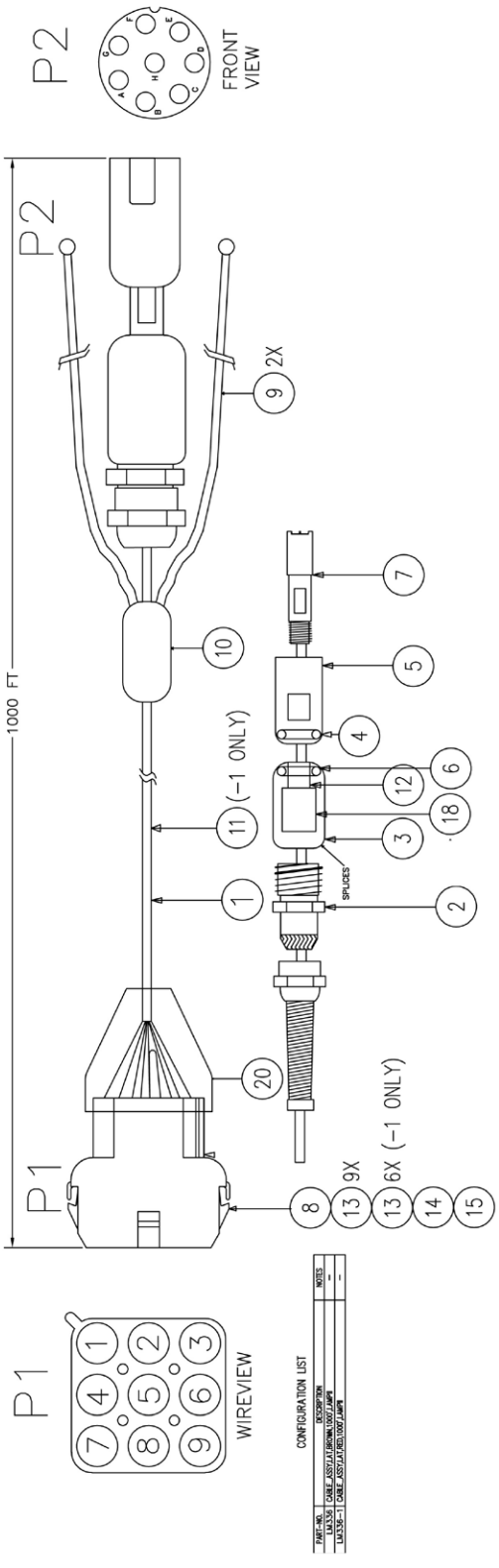


Figure 29. CABLE ASSY,LAT,BRN,6CND,1000', LAMP II, LT336

CABLE ASSY,LAT,BRN,6CND,1000',LMPII, (See Figure 29), LT336, Rev. D			
Item#	Description	P/N	Quantity
0001	CABLE,6COND,1COAX,BRN,1000',LAMPII	LM240	1
0002	STRAIN RELIEF FITG,W/SPRNG 3/8NPT	HW2295	1
0003	REDUCER,SPLICE CHAMBER,3/8NPT,LMPII	LM273	1
0004	O-RING,2-016,BUNA-N	HW691	1
0005	NUT,CONNECTOR,PUSH CABLE,LAMPII	LM233	1
0006	O-RING,2-015,BUNA N	HW1093	1
0007	ADAPTER ASSY,LAT.CABLE,LAMP2	LM344	1
0008	CAP,9-PIN	712609	1
0009	TOW CABLE,BALL ENDS,LAT.VID,LAMPII	LM244	2
0010	STRAIN RELIEF,CLAMSHELL,PUSHCA,LAMP	LT152	1
0012	MRO-PERMANENT LOCK,ND 140500-50,RED	440060	1
0013	PIN,BRASS F/WIRE SIZE 20-14	712612	9
0014	WIRE,#22AWG,YELLOW,PVC,STRD	EC414	1
0015	WIRE,#22AWG,VIOLET,PVC,STRD	EC415	1
0016	TUBE,SHRINK,BLACK 1/8"	712789	1
0017	TUBE,SHRINK,BLACK 1/4"RNF	712576	1
0018	MYLAR,INSULATNG,.75"X3",SPLCE CHBR	LM293	1
0019	TUBE,SHRINK,BLACK 3/4"ADH	712579	1
0020	TUBE,SHRINK,BLACK 4:1 RATION	715010	1

LAMP II

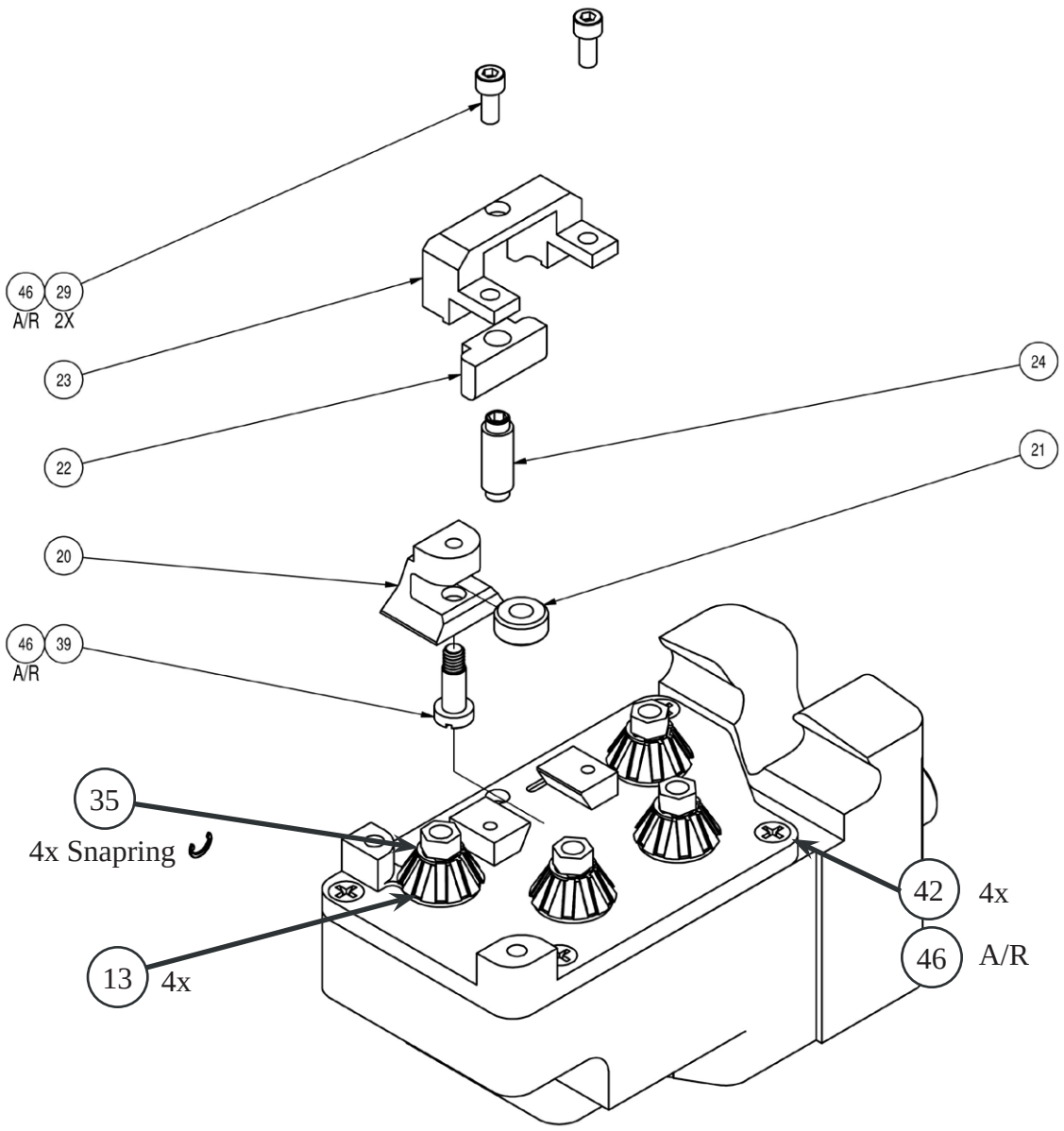


Figure 30a. *PUSH DRIVE ASSY, ALTERNATE,LAMP II, LT331*

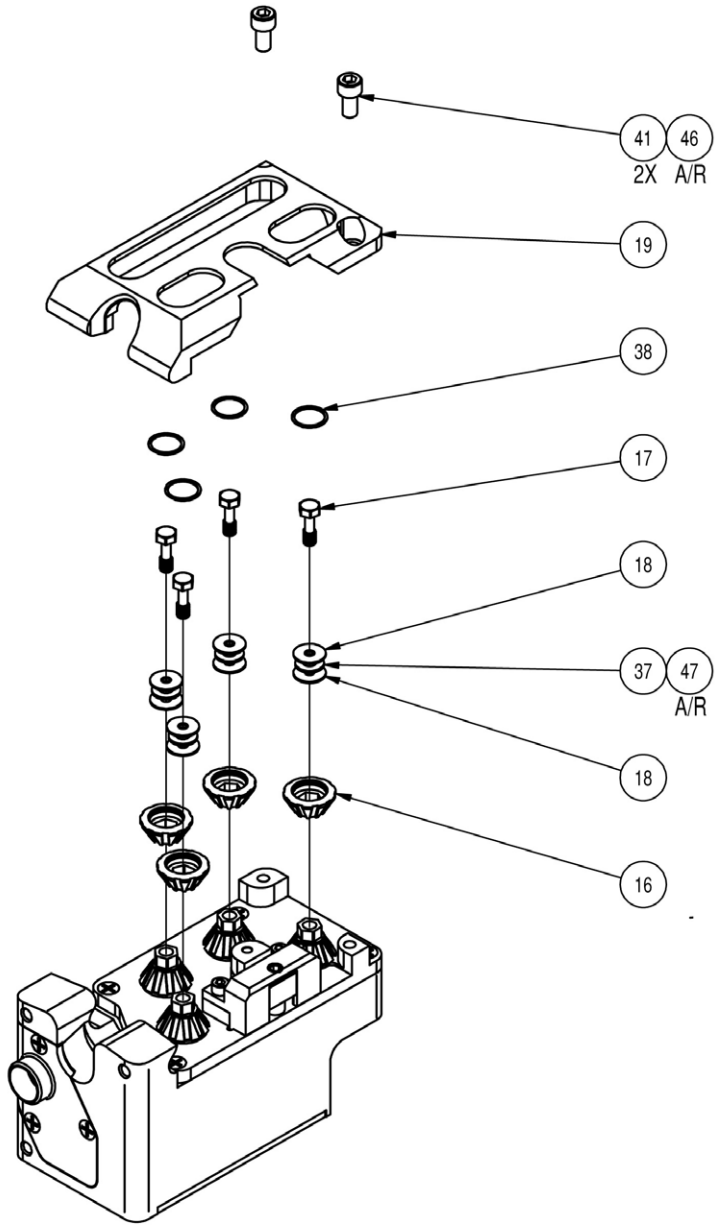


Figure 30b. *PUSH DRIVE ASSY, ALTERNATE,LAMP II, LT331*

LAMP II

PUSH DRIVE ASSY,ALTERNATE,LAMP II, (See Figure 30), LM331, Rev. A			
0013	ROLLER,BOTTOM,PUSH DRIVE	LM223	4
0016	ROLLER,TOP,PUSH DRIVE	LM226	4
0017	SCREW,CAPTIVE,HEX,8-32X.500,SS	LM227	4
0018	WASHER,CAPTIVE,.423OD,8-32,SS	LM228	8
0019	COVER,ROLLER,ALT PUSH ASSY,LAMPII	LM242	1
0020	ROLLER CLEVIS,PUSH DRIVE,LAMPII	LM254	1
0022	BLOCK,ADJUSTMENT,LAMP II	LM258	1
0023	CLEVIS,ADJUSTMENT BLOCK,LAMPII	LM259	1
0029	SCREW,CAP,SKT HD,6-32X5/16,SST	HW475	2
0035	RING,RETAINING,CRESANT,EXT,5/16	HW2118	4
0037	WASHER,FLAT,#8,UHMW	HW2122	4
0038	RING,RETAINING,SPIRAL,INT 7/16",SST	HW2123	4
0039	SCREW,SHLDR,.188X.375,8-32,LP,SS	HW2279	1
0041	SCREW,CAP,SKT HD,10-32X3/8,SST	103030	2
0042	SCREW,FLAT,6-32X3/8 PHIL SST	103058	4
0046	MRO-REMOVABLE LCK,ND 121200-50,BLUE	440061	1
0047	MRO-GREASE,MOBIL 1 SYNTHETIC	CS419	1

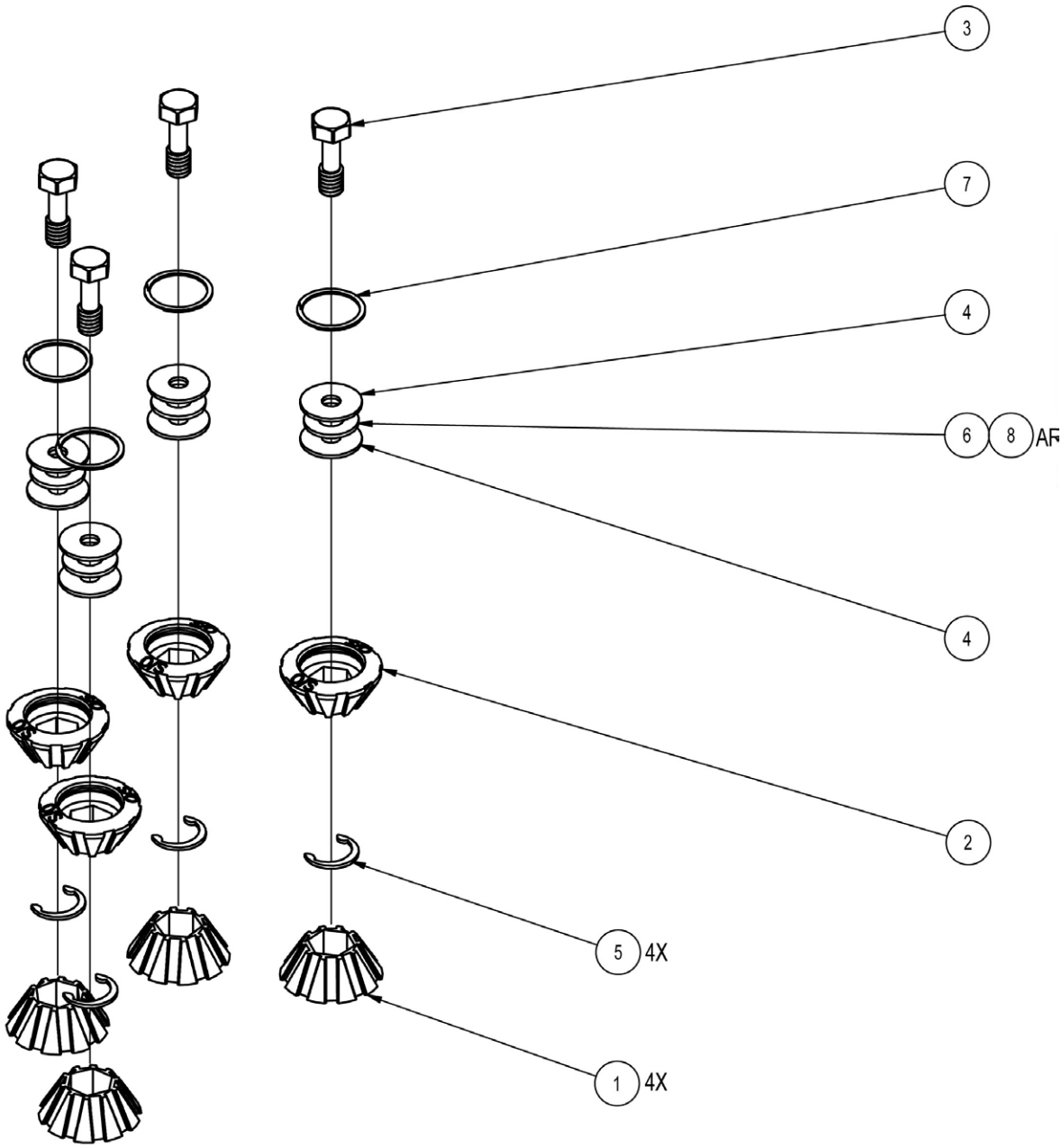


Figure 31. *KIT,LRG PUSH WHEELS,,ALT,LAMP II, LM920*

LAMP II

KIT,LRG PUSH WHEELS,,ALT,LAMP II, (See Figure 31), LM920, Rev. -			
0001	ROLLER,BOTTOM,PUSH DRIVE,LARGE	LM223-1	4
0002	ROLLER,TOP,PUSH DRIVE,LARGE	LM226-1	4
0003	SCREW,CAPTIVE,HEX,8-32X.500,SS	LM227	4
0004	WASHER,CAPTIVE,.423OD,8-32,SS	LM228	8
0005	RING,RETAINING,CRESANT,EXT,5/16	HW2118	4
0006	WASHER,FLAT,#8,UHMW	HW2122	4
0007	RING,RETAINING,SPIRAL,INT 7/16",SST	HW2123	4
0008	MRO-GREASE,MOBIL 1 SYNTHETIC	CS419	1

IMPORTANT INSTRUCTIONS ARE INCLUDED IN THIS MANUAL REGARDING THE LM920 WHEEL KIT. PLEASE REFER TO CHAPTER 4 FOR MORE INFORMATION.

Indentification of CUES "Black" Pan and Tilt Camera Lightheads

Reference Drawing for Lighthead assemblies	Approximate Production Start Date	Starting Serial #	Approximate Production End Date	Final Serial #	Trade Name	Gasket Configuration	Lamp Plate Ref. #
CP053	October, 1995	1	April,1998	520	Panther Pan and Tilt	One Red Gasket #CP059 Seals Both Lightbars	CP460 (w/ Blue Wires)
CP200	May, 1998	521	Oct, 1998	641	Panther Pan and Tilt	Individual Red Gaskets # CP107 for Each Lightbar	CP201 (Includes Gasket)
CP200	Nov, 1998	1	July, 2000	549	Night Owl Pan and Tilt	Individual Red Gaskets # CP107 for Each Lightbar	CP201 (Includes Gasket)
CP302	August, 2000	550	Approx. 2005		Night Owl Pan and Tilt	Individual Red Gaskets # CP107 for Each Lightbar	CP201 (Includes Gasket)

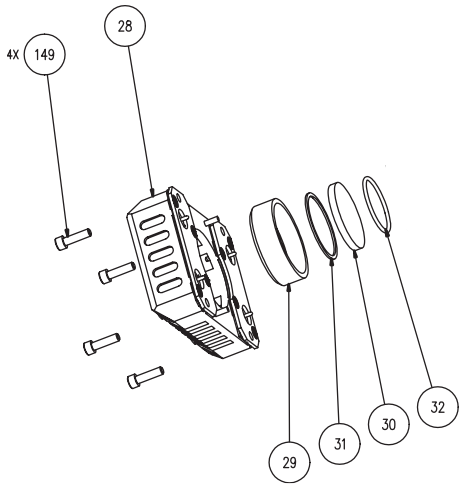
Cues Cameras are marked with a serialized Unit Date code. (Example XXX - YYYY - ZZZZ)

X - Represents the Serial Number

Y - Represents the Work Order #

Z - Represents the Date of Manufacture

Note: Date and Serial numbers are not absolute, as upgrades may have been performed at the Factory, or in the Field.



ITEM #	P/N	DESCRIPTION
028	SEE LIGHTHEAD IDENTIFICATION SHEET ABOVE	
029	505003	Retainer, Glass, Pan & TIlt
030	160524	Window, Camera, Pan & Tilt
031	120618	Ring, Teflon, Pan & Tilt
032	712565	O-Ring, 2-022
149	712417	Screw, Cap, Skt Hd, 6-32 x 1/2, SST

HPL 6+

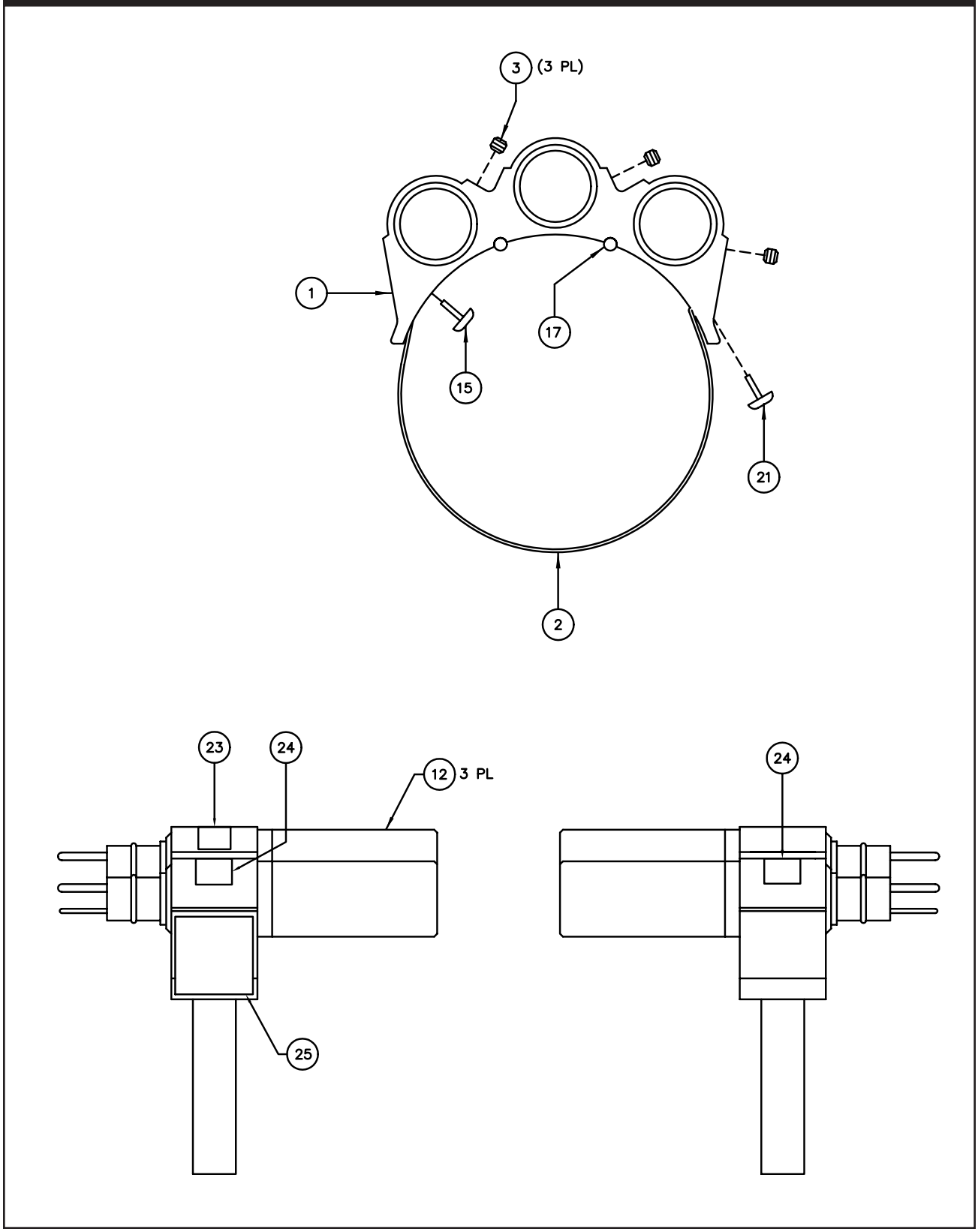


Figure 1a. *High Performance Lighthead 6+, 610700*

HPL 6+

High Performance Lighthead 6+ (See Fig.1a) Rev. K, 610700			
Item #	Description	P/N	Qty
− 1	Yoke,Hpl6+,Finished	730209	1
− 2	Strap,Yoke Hpl 6+	161110	1
− 3	Screw,Set,Cup Pt,#6-32x1/8lg Sst	100046	3
− 12	Cartridge,Light Hpl 6+	750141	3
− 14	Cable,Lighthead Hpl 6+	160626	1
− 15	Screw,Pan,6-32x1/4 Phil Sst	712416	1
− 16	Grease,Anti Seize 1 Oz	940700	1
− 17	Insulator,Yoke,Hpl 6+	300052	2
− 18	Mro-Carton,Shipping 6x6x6	440004	1
− 19	Tool,Brush Thread Cleaning Hpl 6+	730836	1
− 20	Instr,Sht-Hpl 6+	960931	1
− 21	Screw,Pan,6x32x5/8 Phil Sst	100143	1
− 22	Tool,Wrench Hex 1/16	940610	1
− 23	Label,Lasertab Marker,1.500 X .500	CS221	1
− 24	Label,Lasertab Marker, .560 X .560	CS222	2
− 25	Label,Etl Mark,1"X1"	CS225	1
	Associated Parts:		1
	· MRO-Carton, Shipping 6X6X6	440004	1
	· Tool, Brush Thread CLNG (HPL6)	730836	1
	· Instruction Sheet -HPL 6+	960931	1
	· Tool, Wrench HEX 1/16	940610	1
	· Grease,Anti Seize 1 OZ	940700	1
	· Lens	730163	3
	· Kit, Spare Parts	950089	1
	· MRO - Sealant RTV-118	445066	1
	· Cable, Lighthead, HPL 6+	160626	1

HPL 6+

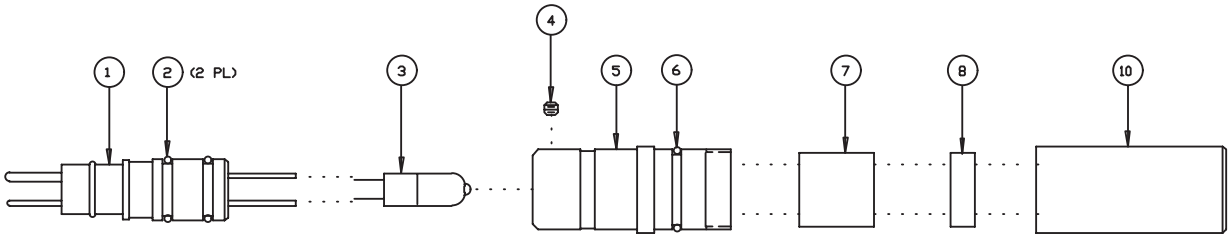
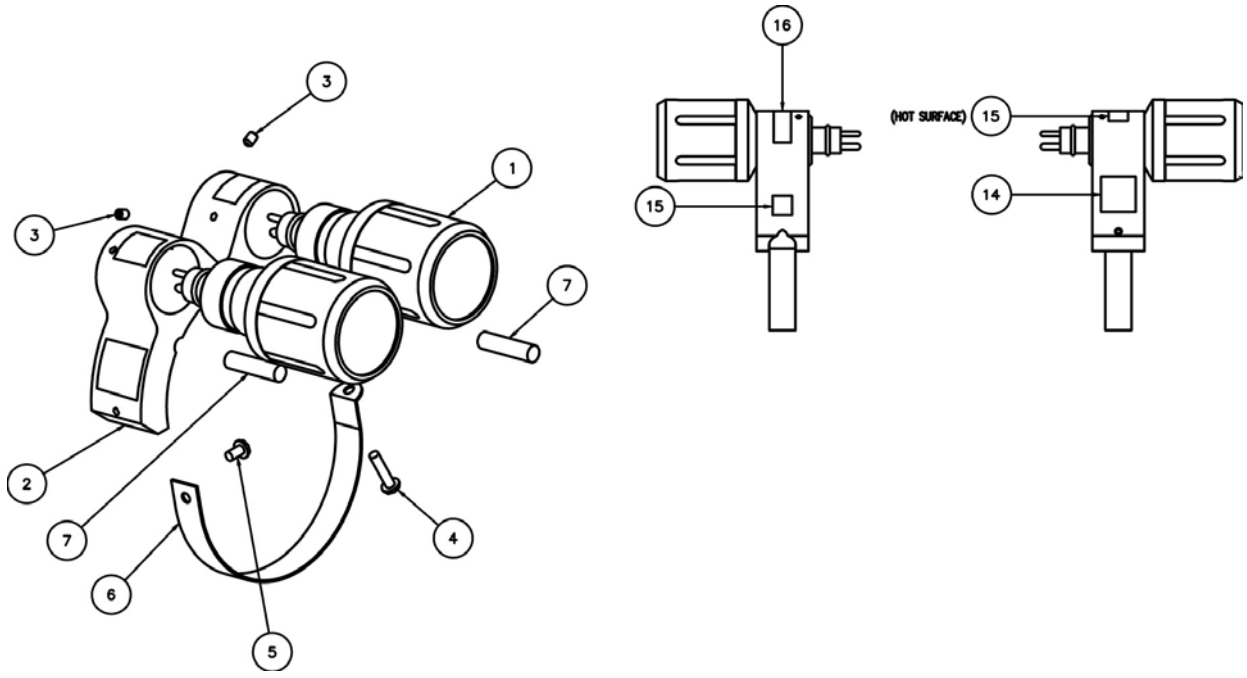


Figure 1b. *Cartridge, Light HPL6+, 750141*

Cartridge,Light HPL 6+ (See Fig. 1b) Rev. B, 750141			
Item #	Description	P/N	Qty
-1	·Connector, 2-PIN F/HPL6+	712671	1
-2	·O-Ring,2-014 Silicone	305073	2
-3	·Lightbulb, 20W HI-PERF	215001	1
-4	·Screw, Set, 6-32 x 3/32 SST	100051	1
-5	·Body, Lighthead, HPL6+	610448	1
-6	·O-Ring, 2-017 Silicone	305074	1
-7	· Reflector, HPL6+	040416	1
-8	·Spacer, Reflector HPL6+	300053	1
-10	·Lens, W/Retainer F/HPL6+	712940	1

HPL 8+



High Performance Lighthead 8+ (See Fig.2a) Rev. F, 610750

Item #	Description	P/N	Qty
- 1	Cartridge,Hpl8	712961	2
- 2	Yoke,Hpl8+,Finished	40300	1
- 3	Screw,Set,6-32x3/16 Sst	100991	2
- 4	Screw,Pan,6x32x5/8 Phil Sst	100143	1
- 5	Screw,Pan,6-32x1/4 Phil Sst	712416	1
- 6	Strap,Yoke Hpl 10+	501647	1
- 7	Insulator,Yoke,Teflon,.250dia	300054	2
- 8	Tool,Brush Thread Cleaning (5 Pk)	940212	1
- 9	Mro-Carton,Shipping 6x6x6	440004	1
- 10	Instr,Sht-Hpl 8	962032	1
- 11	Tool,Wrench Hex 1/16	940610	1
- 12	Cable,Lghthd,Hpl 8 & 10 16.75"	160627	1
- 13	Grease,Anti Seize 1 Oz	940700	1
- 14	Label,Etl Mark,1"X1"	CS225	1
- 15	Label,Lasertab Marker, .560 X .560	CS222	2
- 16	Label,Lasertab Marker,1.500 X .500	CS221	1
	ASSOCIATED PARTS:		
	· Tool,Brush Thread Cleaning (5 PK)	940212	1
	· MRO-Carton,Shipping 6X6X6	440004	1
	· Instruction Sheet HPL 8	962032	1
	· Tool, Wrench HEX 1/16	940610	1
	· Grease,Anti Seize 1 OZ	940700	1
	· Sealant, RTV - 118	445066	1
	· Wrench, Allen	640652	1

HPL 8+

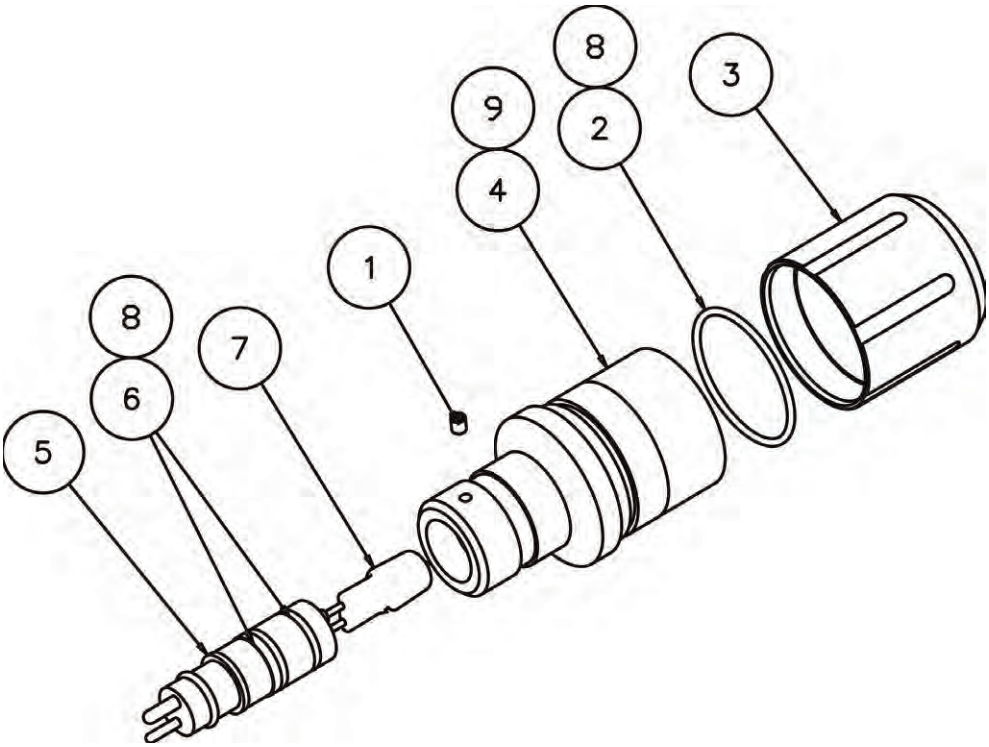


Figure 2b. *Cartridge, Light HPL8+, 712961*

Cartridge,Light HPL 8+ (See Fig. 1b) Rev. -, 712961			
Item #	Description	P/N	Qty
- 1	Screw,Set,6-32x3/16 Sst	100991	1
- 2	O-Ring,2-027 Silicone	305075	1
- 3	Lens,W/Retainer F/Hpl 8	713444	1
- 4	Body,Hpl 8+	610408	1
- 5	Connector,2-Pin Hpl 8+	730035	1
- 6	O-Ring,2-014 Silicone	305073	2
- 7	Lightbulb,Hpl 8+	210518	1
- 8	Mro-Lubricant,O-Ring 2 Oz Tube	439986	1
- 9	Grease,Anti Seize 8 Lb	420797	1

HPL 10+

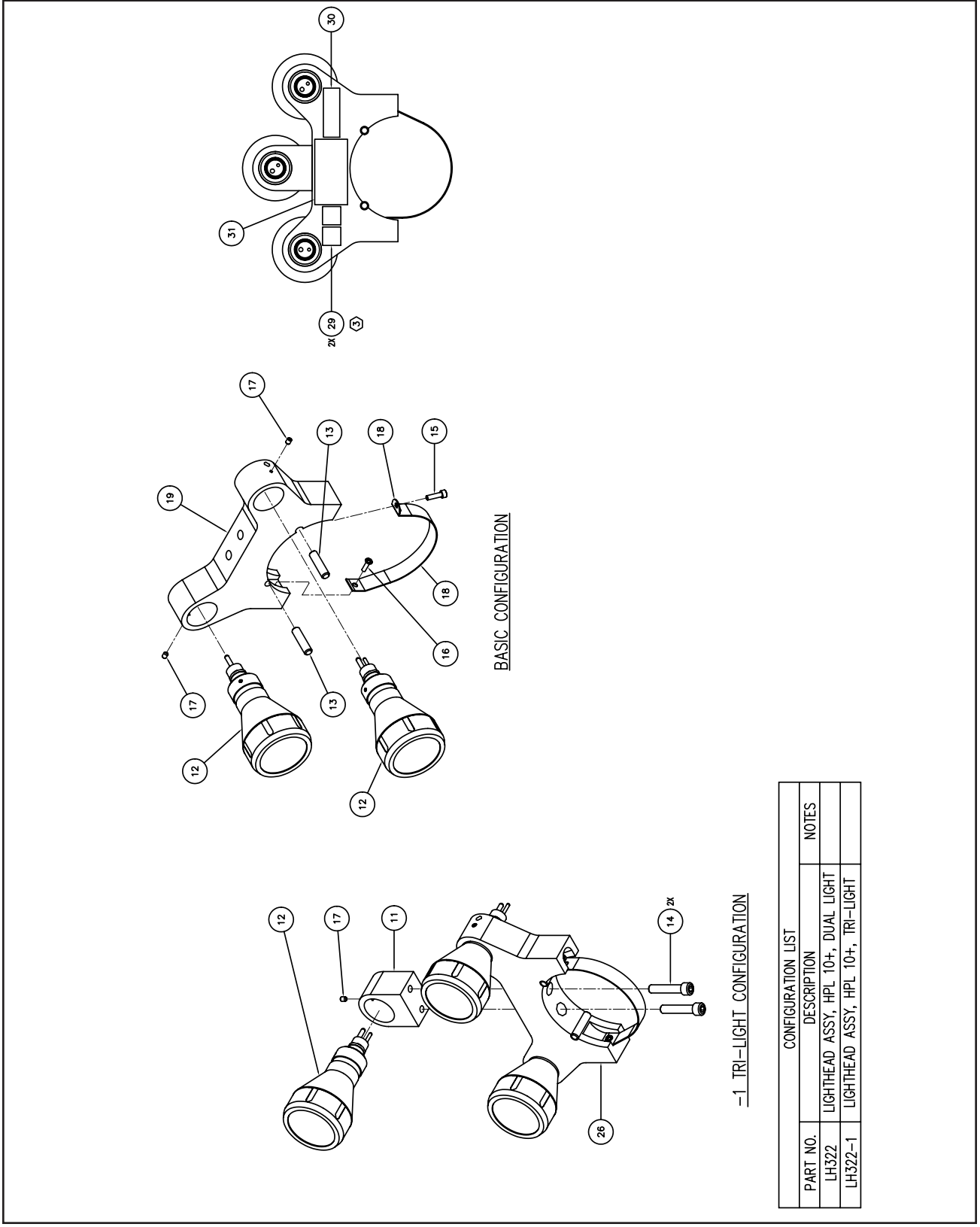


Figure 3a. *New High Performance Lighthead 10+, LH322*

HPL 10+

HPL10+ Dual Lighthead (See Fig.3a) Rev. B, LH322			
Item #	Description	P/N	Qty
− 12	Cartridge,Light Hpl 10+	750142	2
− 13	Insulator,Yoke,Teflon,.250dia	300054	2
− 15	Screw,Cap,Skt Hd,6-32x1/2,Sst	712417	1
− 16	Screw,Pan,6-32x5/16 Phil Sst	101088	1
− 17	Screw,Set,6-32x3/16 Sst	100991	2
− 18	Strap,Yoke,Hpl 8 And 10+	501647	1
− 19	Yoke,Hpl 10+,Dual Mount	LH038	1
− 20	Cable,Lghthd,Hpl 8 & 10 16.75"	160627	1
− 22	Tool,Wrench Hex 1/16	940610	1
− 23	Mro-Carton,Shipping 6x6x6	440004	1
− 24	Tool,Brush Thread Cleaning (5 Pk)	940212	1
− 25	Grease,Anti Seize 1 Oz	940700	1
− 27	Mro-Kit,Gray,Epoxi-Patch#9340	439800	1
− 28	Instr.Sht,Lamp Replacement,Hpl 10+	LH322-INST	1
− 29	Label,Lasertab Marker, .560 X .560	CS222	2
− 30	Label,Lasertab Marker,1.500 X .500	CS221	1
− 31	Label,Etl Mark,2" X 1"	CS224	1

HPL10+ Tri-Light (See Fig.3a) Rev. B, LH322-1			
Item #	Description	P/N	Qty
− 11	Yoke,Hpl 10+,Tri-Light Option	LH039	1
− 12	Cartridge,Light Hpl 10+	750142	1
− 14	Screw,Cap,Skt Hd,1/4-20x1-1/4,Sst	104044	2
− 17	Screw,Set,6-32x3/16 Sst	100991	1
− 20	Cable,Lghthd,Hpl 8 & 10 16.75"	160627	-1
− 21	Cable Assy,Trilight	160604	1
− 26	Lighthead Assy,Hpl 10+,Dual Light	LH322	1
− 30	Label,Lasertab Marker,1.500 X .500	CS221	1

CUES, Inc. HPL 10+ Lighthead

Maintenance and Lightbulb Replacement

The HPL 10+ Lighthead requires very little maintenance during normal day to day operation. In the event that maintenance needs to be done, following these basic guidelines will insure the proper operation of your lighthead.

Light Bulb Replacement :

1. Make sure the Lighthead is **UNPLUGGED** from the light head cable to prevent possibility of shock.
2. Loosen set screw (item 4) at **REAR** of Lighthead Cartridge.
3. Remove Lens Retainer (item 8) by turning it clockwise. Grasp the 2-Pin Male Connector (item 1) and push forward, removing it from the front of the cartridge.
4. Remove the old light bulb by holding the Reflector (item 3) and pulling away forward away from the 2-Pin Connector (item 1).
5. Inspect the O-Rings (item 2) on the 2-Pin Connector (item 1) and replace if **ANY** cut or abrasions are found. Remove damaged O-Rings with a small blade screwdriver. Use care not to damage the O-Ring seats on the 2-Pin Connector. Replace with CUES p/n 305073 **ONLY**. Place a small amount of O-Ring lube (CUES p/n 439986) around the new O-ring.
6. Replace light bulbs with CUES p/n 210508 **ONLY**. Failure to use the proper bulb will result in damage to the Lighthead and/or Camera. Do not force the bulbs into the connector, as damage to the bulb and/or connector will occur. **Note:** Warranty will be VOID if non-CUES parts or bulbs are used in the lighthead. DO NOT touch the light bulb with your bare hands. Install the light bulb by holding the Reflector (item 3) and insert into the 2-Pin Connector (item 1).
7. Insert the 2-Pin Connector (1) into the lighthead cartridge. Push inward until the base of the 2-Pin Connector is flush with rear of the lighthead body. Re-install the set screw (item 4) in the rear of the lighthead body.

Basic daily check:

1. Check the yoke insulators (item 13, sheet 2 of 2) for debris or damage. These insulators are designed to stop heat transfer from the lighthead to the camera. DO NOT operate the lighthead without insulators.
2. Check the lens (item 8, sheet 1 of 2) for damage or cracks. DO NOT operate the lighthead with cracked lens. This will severely damage the lighthead and void the warranty. Replace cracked lens with Retainer w/ lens (CUES p/n 730115). If the lens is cracked, unscrew the Retainer w/ lens counterclockwise and remove. Check the O-ring (item 6, sheet 1 of 2) and replace if needed (Following the O-Ring guidelines as in step 5 above). Clean the threads on the housing and apply a small amount of anti-seize (CUES p/n 940700) to the thread surface. Install the retainer w/ lens turning clockwise until tight.
3. Check the lighthead cable (CUES p/n 160627 for Dual-Light or p/n 160604 for Tri-Light) for any cuts or abrasions. Replace if the insulation is torn or damaged.

Figure 3b. *New High Performance Lighthead 10+, LH322, Maintenance and Lighthead Replacement*

HPL 10+

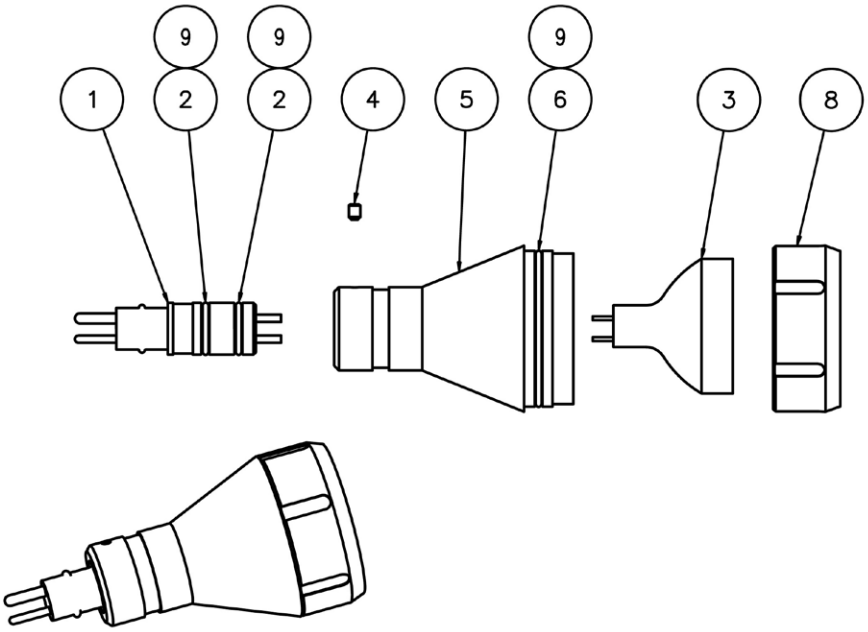


Figure 3c. *Cartridge, Light HPL10+, 750142*

Cartridge,Light HPL 10+ (See Fig. 3c) Rev. D, 750142			
Item #	Description	P/N	Qty
-1	Connector, 2-PIN F/HPL 10+	730068	1
-2	O-Ring,2-014 Silicone	305073	2
-3	Lightbulb, 85W HI-PERF	210508	1
-4	Screw, Set, 6-32 x 3/16 SST	100991	1
-5	Body, Lighthead, HPL10+	610406	1
-6	O-Ring, 2-031 Silicone	130150	1
-8	Lens, Clear, HPL10+	712941	1
-9	MRO-lubricant O-ring	439986	1

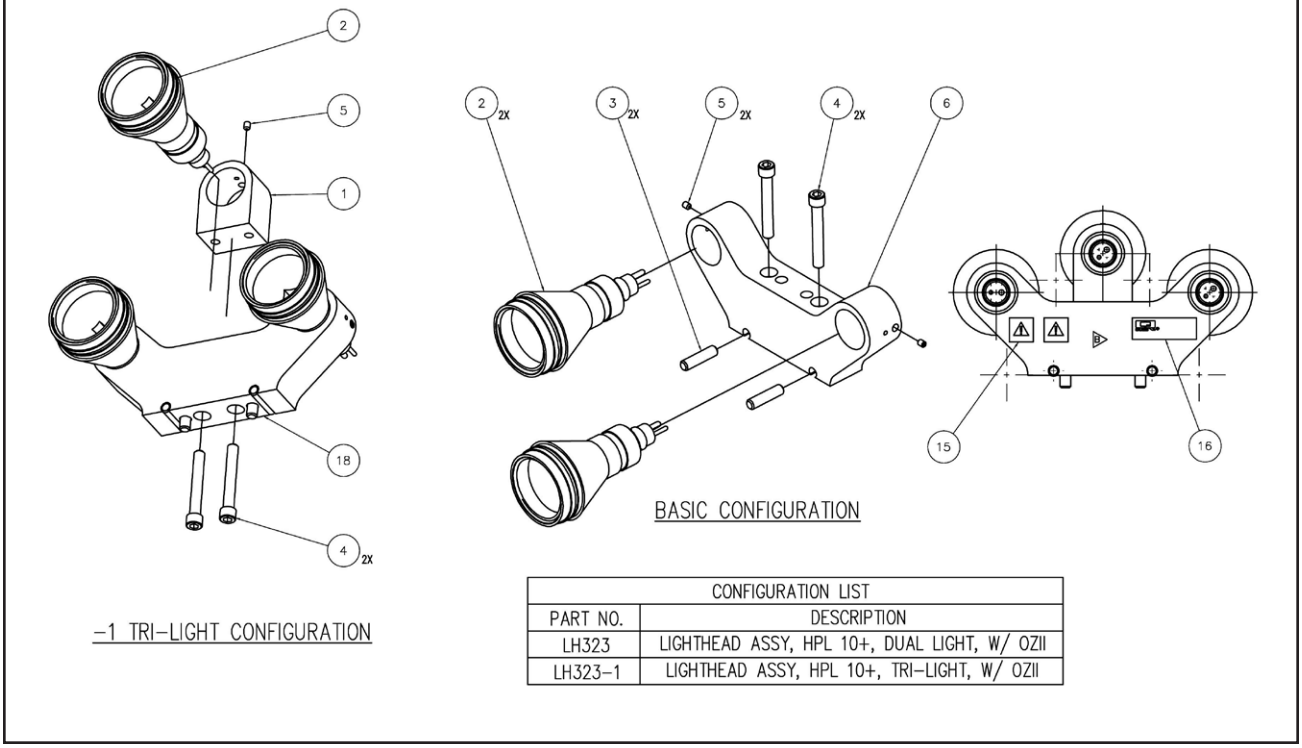


Figure 3d. *HPL10+ Dual Lighthead, PR Lift, LH323*

HPL10+ Dual Lighthead, PR LIFT (See Fig. 3d), LH323			
Item #	Description	P/N	Qty
2	Cartridge,Light Hpl 10+	750142	2
3	Insulator,Yoke,Teflon,.250dia	300054	2
4	Screw,Cap,Skt Hd,1/4-20x1-3/4 Sst	HW231	2
5	Screw,Set,6-32x3/16 Sst	100991	2
6	Yoke,Hpl 10+ Dual Mount,W/Oz Ii	LH045	1
7	Cable,Lghthd,Hpl 8 & 10 16.75"	160627	1
9	Tool,Wrench Hex 1/16	940610	1
10	Mro-Carton,Shipping 6x6x6	440004	1
11	Tool,Brush Thread Cleaning (5 Pk)	940212	1
12	Grease,Anti Seize 1 Oz	940700	1
13	Mro-Kit,Gray,Epoxi-Patch#9340	439800	1
14	Instr.Sht,Lmp Repl,Hpl 10+,F/P-Lift	LH323-INST	1
15	Label,Lasertab Marker, .560 X .560	CS222	2
16	Label,Lasertab Marker,1.500 X .500	CS221	1

HPL 10+

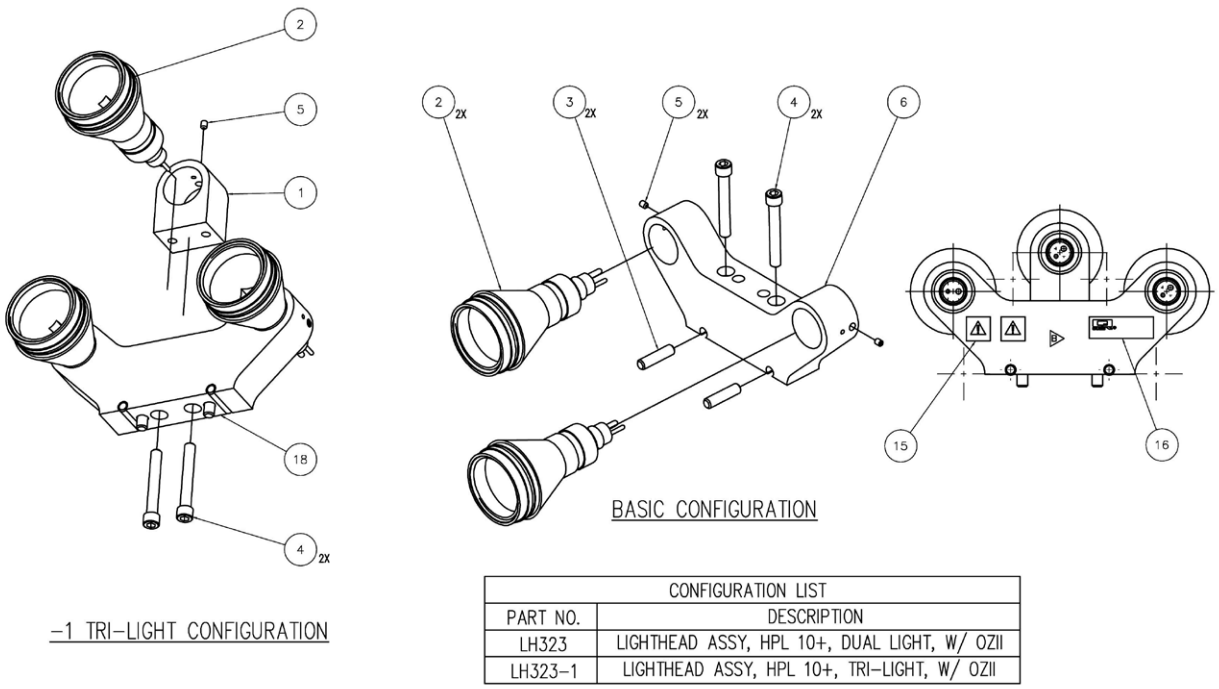


Figure 3e. *HPL10+ Lighthead, Tri-light, PR Lift, LH323-1*

HPL10+ Lighthead, TRI-LIGHT, PR LIFT, (See Fig. 3e) LH323-1			
Item #	Description	P/N	Qty
2	Cartridge,Light Hpl 10+	750142	2
3	Insulator,Yoke,Teflon,.250dia	300054	2
4	Screw,Cap,Skt Hd,1/4-20x1-3/4 Sst	HW231	2
5	Screw,Set,6-32x3/16 Sst	100991	2
6	Yoke,Hpl 10+ Dual Mount,W/Oz Ii	LH045	1
7	Cable,Lghthd,Hpl 8 & 10 16.75"	160627	1
9	Tool,Wrench Hex 1/16	940610	1
10	Mro-Carton,Shipping 6x6x6	440004	1
11	Tool,Brush Thread Cleaning (5 Pk)	940212	1
12	Grease,Anti Seize 1 Oz	940700	1
13	Mro-Kit,Gray,Epoxi-Patch#9340	439800	1
14	Instr.Sht,Lmp Repl,Hpl 10+,F/P-Lift	LH323-INST	1
15	Label,Lasertab Marker, .560 X .560	CS222	2
16	Label,Lasertab Marker,1.500 X .500	CS221	1

TriLight

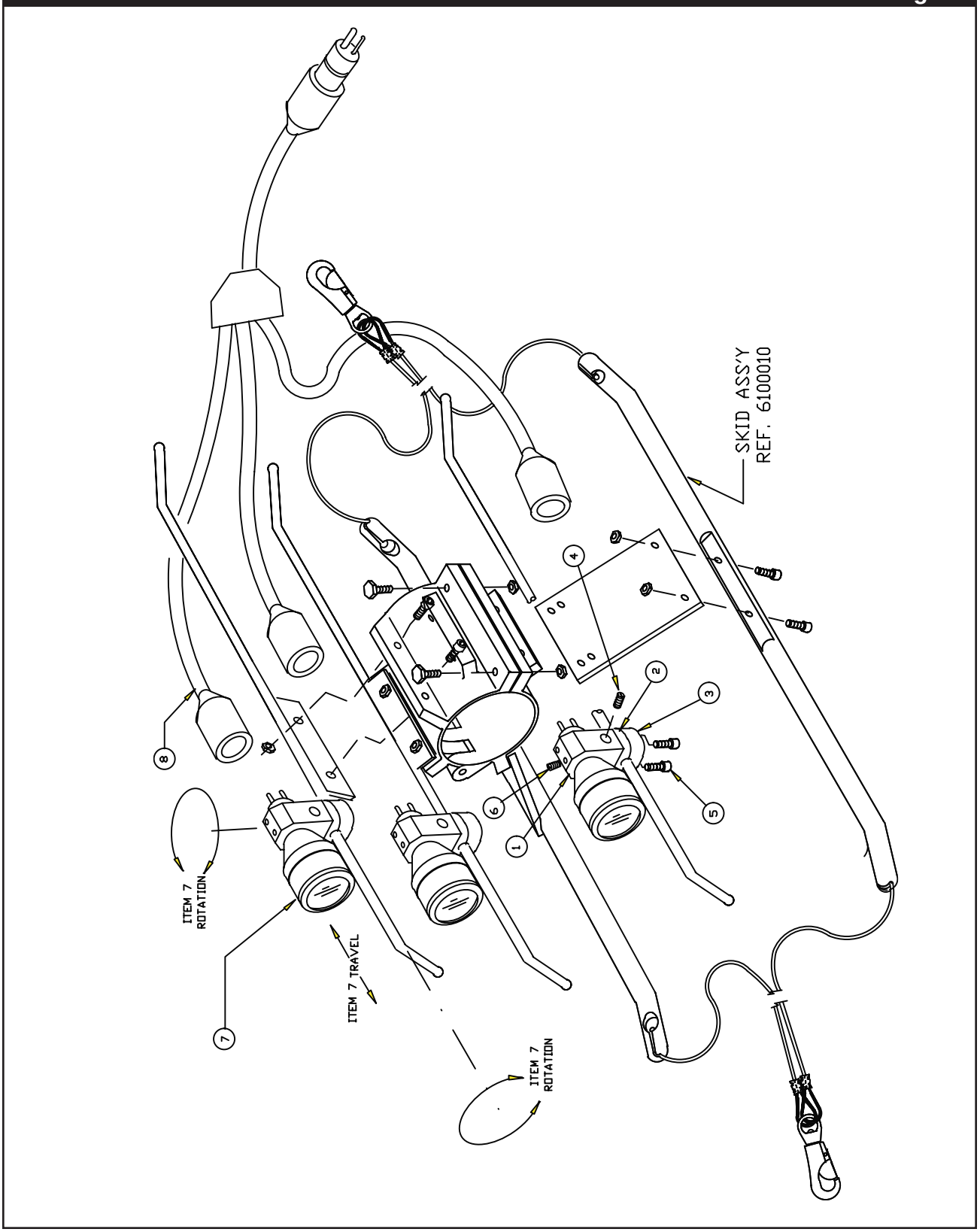


Figure 4. *Trilight Assembly, 610999*

TriLight

Tri-Light Assembly (See Fig. 4) Rev. B, 610999			
Item #	Description	P/N	Qty
− 1	Housing,Lighthead,Trilight Obs	501285	3
− 2	Clamp,Pivoting	120025	3
− 3	Clamp,Fixed	120024	3
− 4	Screw,Set,1/4-20x3/8 Nylon Tip Sst	101121	3
− 5	Screw,Cap,Skt Hd,1/4-20x1/2,Sst	101001	6
− 6	Screw,Set,10-32x1/4 Nylon Tip	101120	3
− 7	Cartridge,Light Hpl 10+	750142	3
− 8	Cable Assy,Trilight	160604	1
− 9	Mro-Carton,Shipping 6x6x6	440004	1
− 10	Grease,Anti Seize 1 Oz	940700	1
− 11	Instr,Sht-Hpl 10 Lghthd Cartridge	960947	1
− 12	Tool,Brush Thread Cleaning (5 Pk)	940212	1

HPL 5.5+

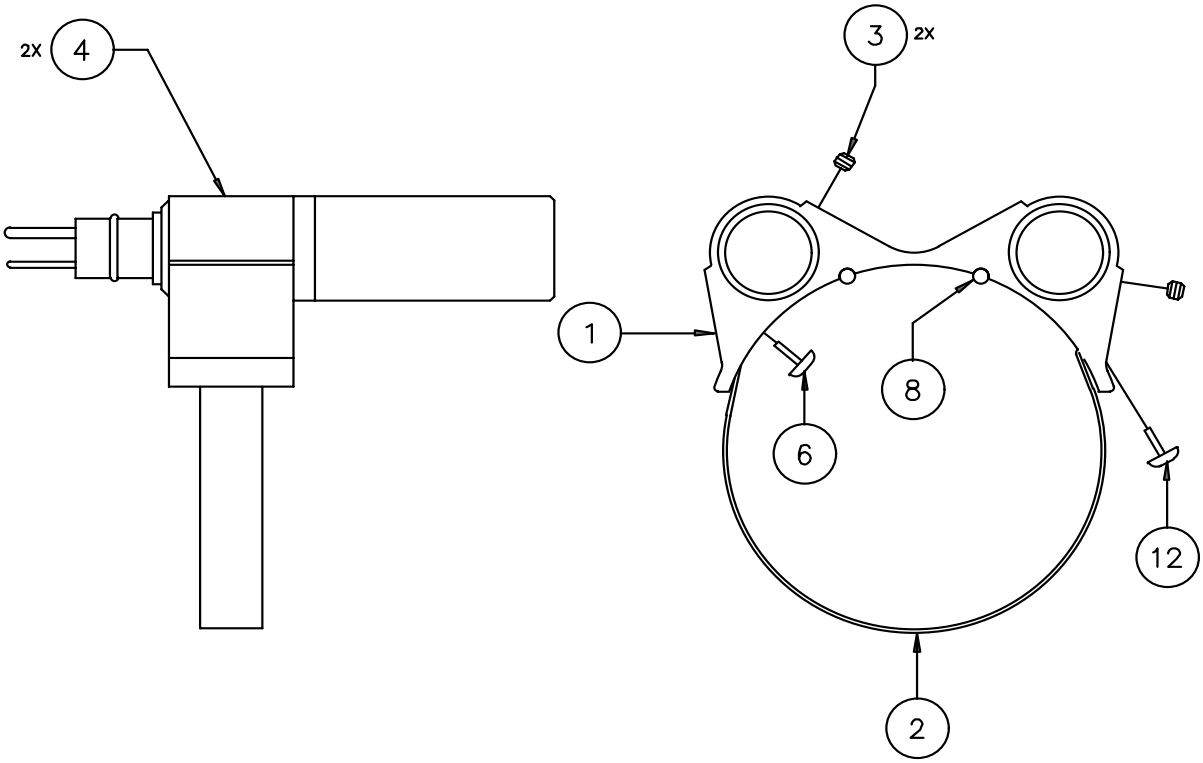


Figure 5a. *High Performance Lighthead 5.5+, HC328*

High Performance Lighthead 5.5 (See Fig.5a) Rev. B, HC328			
Item #	Description	P/N	Qty
− 1	Yoke,Modified F/Hpl5.5	HC143	1
− 2	Strap,Yoke Hpl 6+	161110	1
− 3	Screw,Set,Cup Pt,#6-32x1/8lg Sst	100046	2
− 4	Cartridge,Light Hpl 6+	750141	2
− 5	Cable Assy,Lighthead,Hpl5.5,Short	MC319	1
− 6	Screw,Pan,6-32x1/4 Phil Sst	712416	1
− 7	Grease,Anti Seize 1 Oz	940700	1
− 8	Insulator,Yoke,Hpl 6+	300052	2
− 9	Mro-Carton,Shipping 6x6x6	440004	1
− 10	Tool,Brush Thread Cleaning Hpl 6+	730836	1
− 11	Instr,Sht-Hpl 6+	960931	1
− 12	Screw,Pan,6x32x5/8 Phil Sst	100143	1
− 13	Tool,Wrench Hex 1/16	940610	1

HPL 5.5+

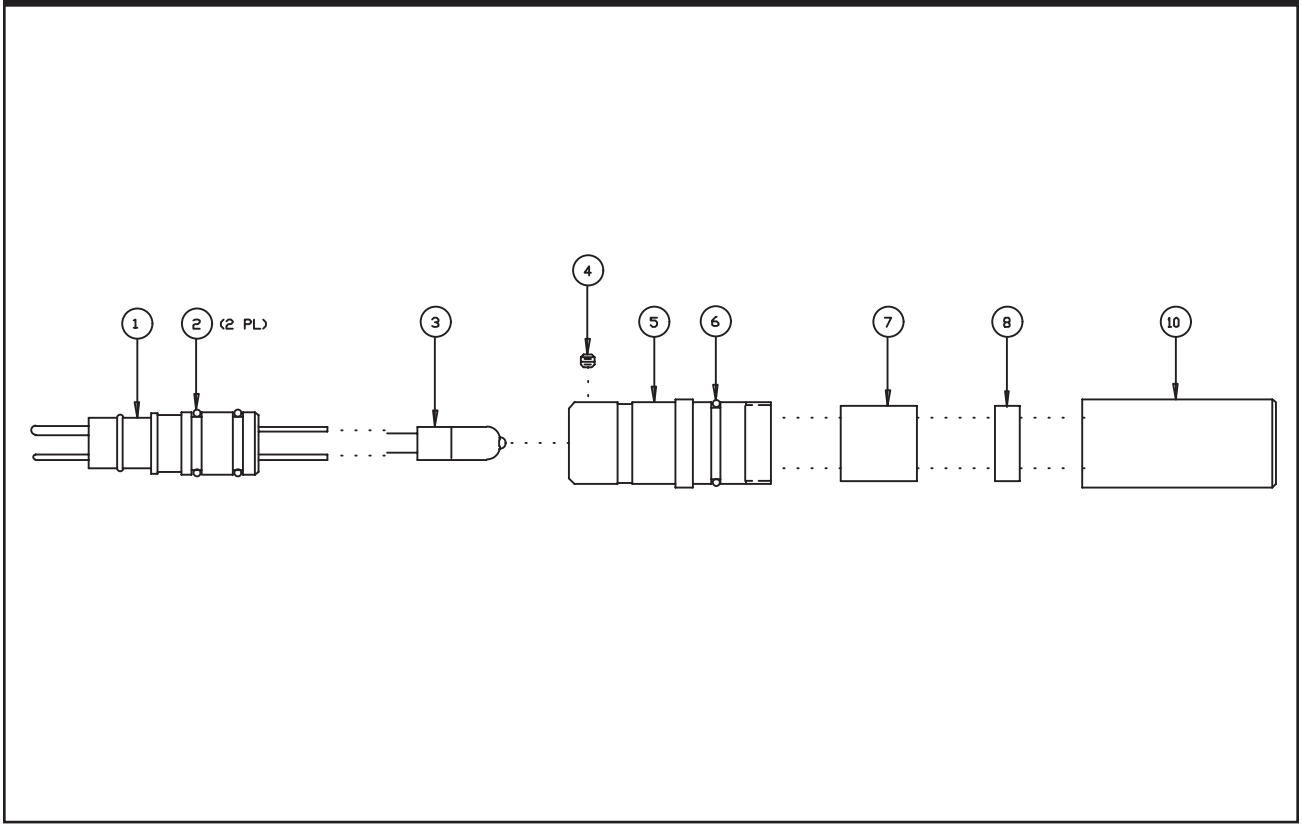


Figure 5b. *Cartridge, Light HPL5.5+, 750141*

Cartridge,Light HPL5.5+ (See Fig. 5b) Rev. B, 750141			
Item #	Description	P/N	Qty
-1	·Connector, 2-PIN F/HPL6+	712671	1
-2	·O-Ring,2-014 Silicone	305073	2
-3	·Lightbulb, 20W HI-PERF	215001	1
-4	·Screw, Set, 6-32 x 3/32 SST	100051	1
-5	·Body, Lighthead, HPL6+	610448	1
-6	·O-Ring, 2-017 Silicone	305074	1
-7	· Reflector, HPL6+	040416	1
-8	·Spacer, Reflector HPL6+	300053	1
-10	·Lens, W/Retainer F/HPL6+	712940	1

PS1 Plus

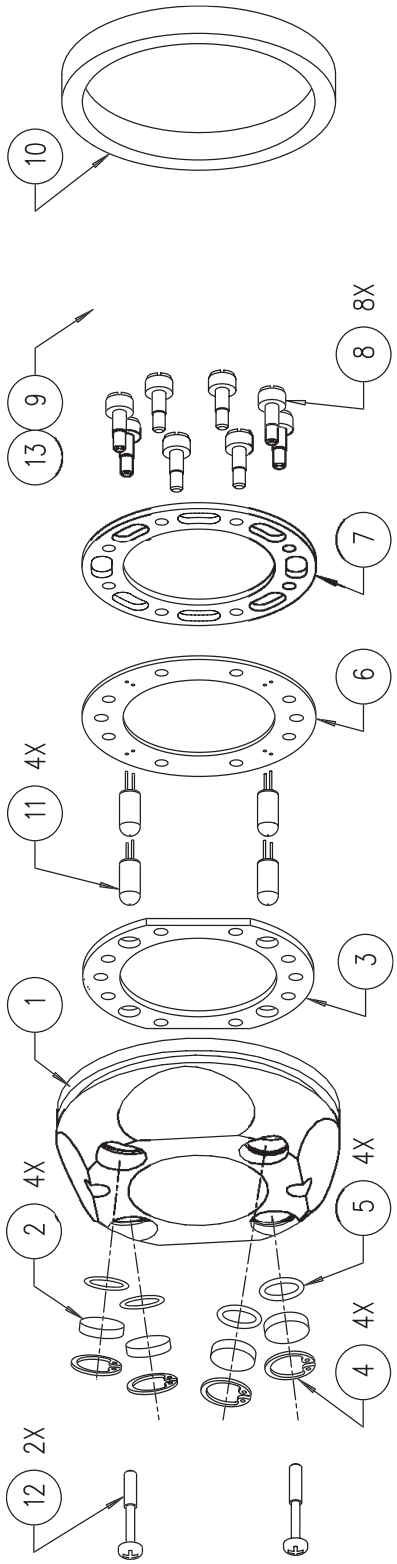


Figure 6. *Lighthead Assy, Retrofit, PS1 Plus, PL311*

PS1 Plus

Lighthead Assy, Retrofit, PS1 Plus (See Fig. 6) Rev. -, PL311			
Item #	Description	P/N	Qty
-1	· Case, Lighthead, Proscout, PS1	PL201	1
-2	· Lens, Glass, Lighthead, PS2	PM201	4
-3	· Gasket, Lighthead, PS1	PL202	1
-4	· Snap-Ring, .461 OD X .029 TH, Cres	HW883	4
-5	· O-Ring, .312 ID X .436 OD X .063 W, 70 DURMT	PM209	4
-6	· PCB Assy, PS1 Lightring	PL402	1
-7	· Plate, Lighthead, PS1	PL204	1
-8	· Screw, Slotted, 4-40 1/8 X 3/16, SS	HW893	8
-9	· O-Ring, #2-035, 2.239 ID X .070w, BUNA	7124	1
-10	· Ring, Lighthead, PS1	PL203	1
-11	· Lightbulb, Xenon 12v F/Panther	EL204	4
-12	· Screw, Seal, Captive, 4-40 X .687, SST	HW926	2
-13	· MRO-Lubricant, O-Ring 2 Oz Tube	439986	1
-14	· Instruction Sheet, Lighthead, PS1	PL205	1

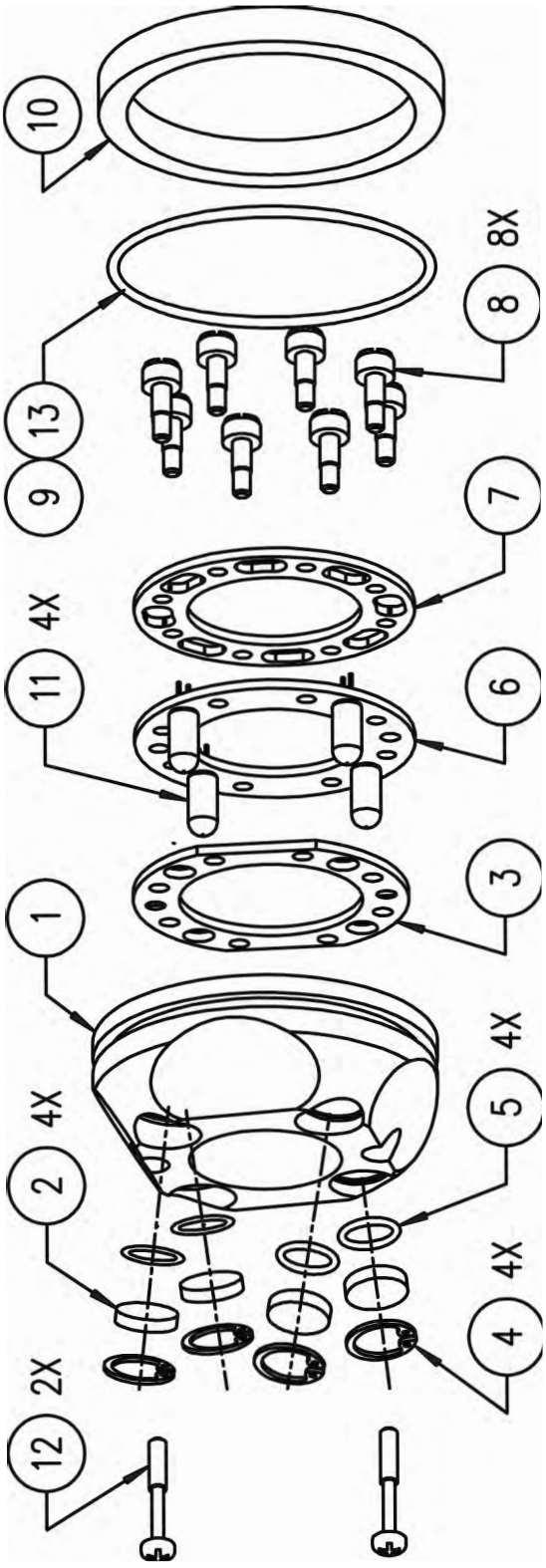


Figure 7. *Lighthead Assy, Retrofit, PS2 Plus, PM307*

PS2 Plus

Lighthead Assy, Retrofit, PS2 Plus (See Fig. 7) Rev. D, PM307			
Item #	Description	P/N	Qty
- 1	Housing,Lighthead,PS2	PM202	1
- 2	Lens,Glass,Lighthead,PS2+Ps1	PM201	4
- 3	Gasket,PCB,PS2	PM203	1
- 4	Snap-Ring,.461 Odx.029th,Cres	HW883	4
- 5	O-Ring,.312idx.436 Odx.063w,70durmt	PM209	4
- 6	PCB Assy,Lighthead,Ps2	PM403	1
- 7	Plate,PCB,Lighthead,Ps2	PM206	1
- 8	Screw,Slotted,4-40 1/8x3/16,SS	HW893	8
- 9	O-Ring,#2-033,1.989idx.070w,Buna	PM127	1
- 10	Ring,Teflon,PS2	PM205	1
- 11	Lightbulb,Xenon 12v F/Panther	EL204	4
- 12	Screw,Seal,Captive,4-40x.687,SST	HW926	2
- 13	Mro-Lubricant,O-Ring 2 Oz Tube	439986	.01

CONFIGURATION LIST

PART NO.	DESCRIPTION	NOTES
OZ330	CAMERA ASSY, NTSC, OZ,M/C	
OZ330–1	CAMERA ASSY, PAL, OZ, M/C	
OZ330–2	CAMERA ASSY, NTSC, OZ, S/C 2000	
OZ330–3	CAMERA ASSY, NTSC, OZ, S/C 2000 NPR	

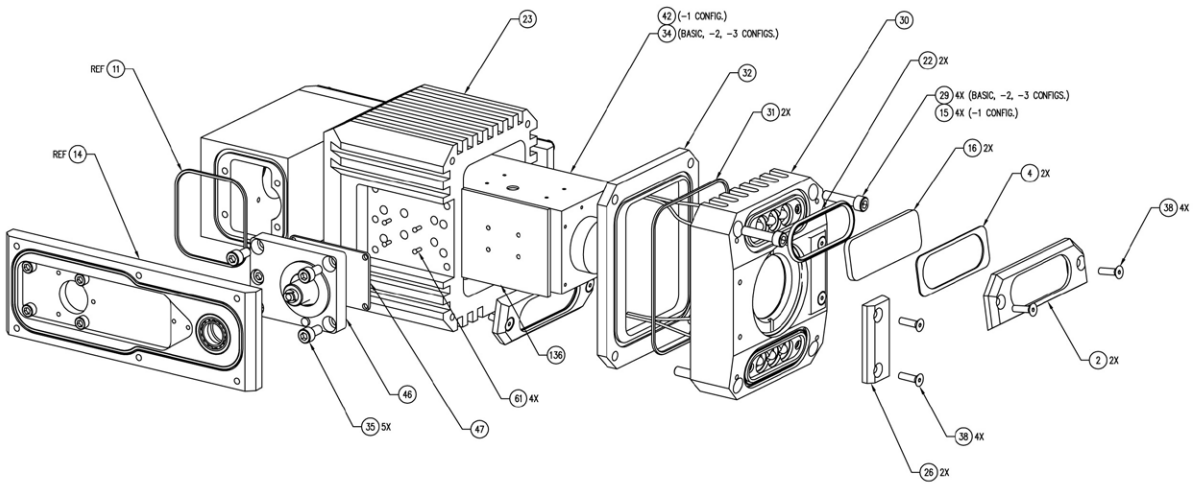


Figure 8a. *- Camera Assembly, OZ330*

Camera Assy, NTSC, OZ (See Fig. 8a) Rev. H, OZ330			
Item #	Description	P/N	Qty
- 2	Cover,Lamp Assy,Oz	OZ129	2
- 4	Spacer,Lens,Lamp Assy,Oz	OZ120	2
- 16	Lens,Pyrex,OZ Lamp	OZ107	2
- 22	O-Ring,2-130 Ep	HW399	2
- 26	Bumper,Lighthead,Oz	OZ118	2
- 29	Screw,Cap,Skt Hd,#10-32x.88lg Sst	101129	4
- 30	Lamp Assy,Camera,Oz	OZ333	1
- 31	O-Ring,2-043 Ep	HW398	2
- 32	Barrier,Thermal,Oz	OZ132	1
- 37	Screw,Flat,6-32x1/2 Skt Sst	103035	4

OZ

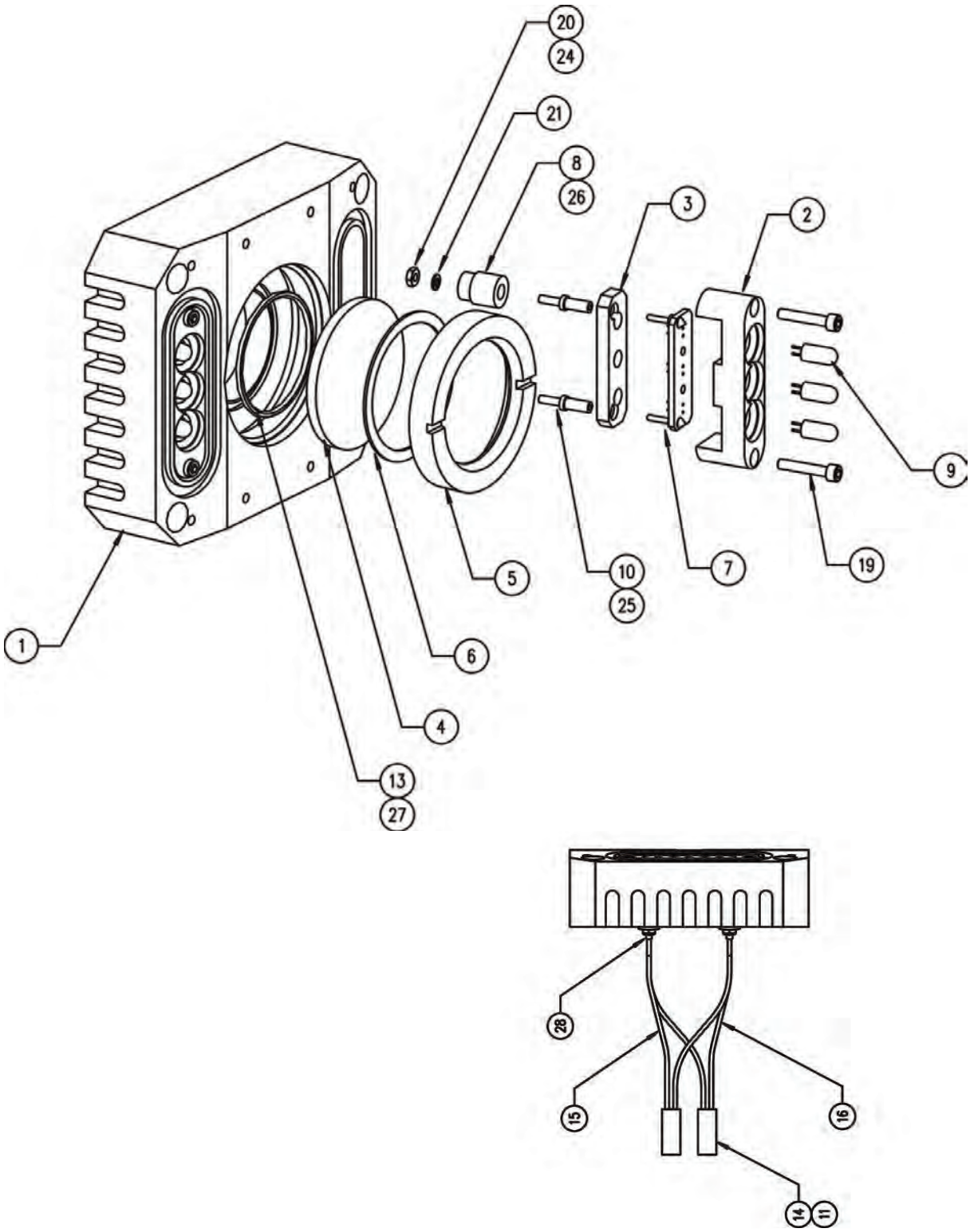


Figure 8b. *- Lamp Assembly, OZ333*

OZ

Lamp Assy, Camera, OZ (See Fig. 8b) Rev. A, OZ333			
Item #	Description	P/N	Qty
-1	· Housing, Lamp Assy	OZ128	1
-2	· Reflector, Lamp Assy	OZ104	2
-3	· Block, Compression, PCB, Lamp	OZ105	2
-4	· Lens, Pyrex,OZ Camera	OZ112	1
-5	· Nut, Compression, Lens, Small, OZ	OZ113	1
-6	· Spacer, Camera Lens, OZ	OZ121	1
-7	· PCB Assy, Light Plate, P & T	CP455	2
-8	· Mount, Socket, Lamp Plate Assy	CP106	4
-9	· Lamp, Miniature, 8 Watt, OZ	EC312	6
-10	· Socket, YSK015-007AH	EL390	4
-13	· O-Ring, 2-027 EP	HW397	1
-15	· Wire, #22AWG, Orange, PVC, Strd	EL441	2
-16	· Wire, #22AWG, Green, PVC, Strd	EC410	2
-19	· Screw, Cap, SKT HD, 4-40 X 5/8, SST	101112	4
-20	· Nut, Hex, Steel, 2-56	100105	4
-21	· Washer, Split Lock, #2 SST	100438	4
-24	· MRO-Loctite 271 Hi-Strength Red	440060	1
-25	· MRO-Sealant, Pourable Translucent	445066	1
-26	· MRO-Kit, Gray, Epoxi-Patch #9340	439800	1
-27	· MRO-Lubricant, O-Ring 2 Oz. Tube	439986	1
-28	· Tube, Shrink, Black 4:1 Ration	715010	1
-29	· MRO-Kit, CLear, Epoxi-Patch #608	439790	1

OZ II

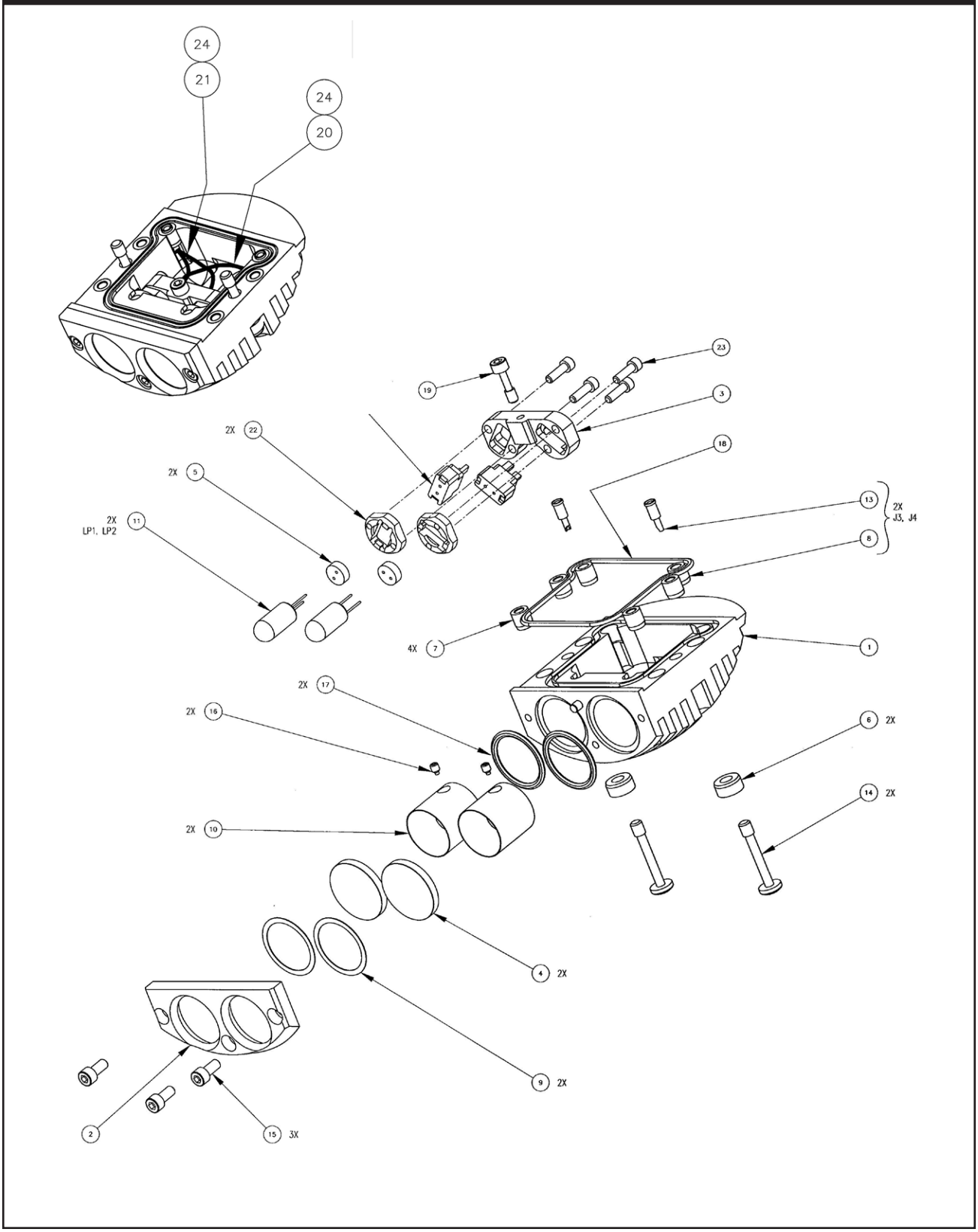


Figure 9. *Lighthead Module Assembly, OZII, CZ301*

OZ II

Lighthead Module Assembly, OZII (See Figure 9) Rev. D, CZ301			
Item #	Description	P/N	Qty
- 1	Housing,Lighthead,OzII	CZ010	1
- 2	Bezel,Window,Lighthead,OzII	CZ009	1
- 3	Clamp,Lamp,Lighthead Socket,OzII	CZ005	1
- 4	Lens,Planocon,Lghthd Window,OzII	CZ003	2
- 5	Spacer,Ushio Lamp,OzII	CZ076	2
- 6	Insulator,Thrml,Captive Screw,OzII	CZ015	2
- 7	Insulator,Thrml,1/8 Dowel Pin,OzII	CZ014	4
- 8	Insulator,Thrmal,Contact,Sckt,OzII	CZ012	2
- 9	Washer,Teflon,.910 Odx.760idx.010tk	HW649	2
- 10	Reflector,Parabolic	CZ011	2
- 11	Bulb,Xenon,T-2.5,12V,12W	EC124	2
- 12	Socket,Lamp-Holder,G4,Ceramic	EC123	2
- 13	Socket,Contact	EC125	2
- 14	Screw,Captive,Ph 8-32x1.0 Phil SST	HW643	2
- 15	Screw,Cap,Skt Hd,6-32x5/16,SST	HW475	3
- 16	Screw,Set,4-40 X.125,Silver-Tip,SST	HW642	2
- 17	O-Ring,2-018,Silicone	HW683	2
- 18	O-Ring,Molded,Light Head,OzII	CZ059	1
- 19	Screw,Captive,Shcs,6-32 X 1/2 SS	HW1040	1
- 20	Wire,#24 Black Teflon	713335	0.5
- 21	Wire,#24 Red Teflon	713337	0.5
- 22	Holder,Lamp Socket,Light Head,OzII	CZ067	2
- 23	Screw,Cap,Skt Hd,4-40x3/8,SST	100054	4
- 24	Tube,Shrink,Black 3/32" 4'lengths	712595	1
- 25	Mro-Removable Lck,Nd 121200-50,Blue	440061	1
- 26	Mro-Lubricant,O-Ring 2 Oz Tube	439986	1

OZ II

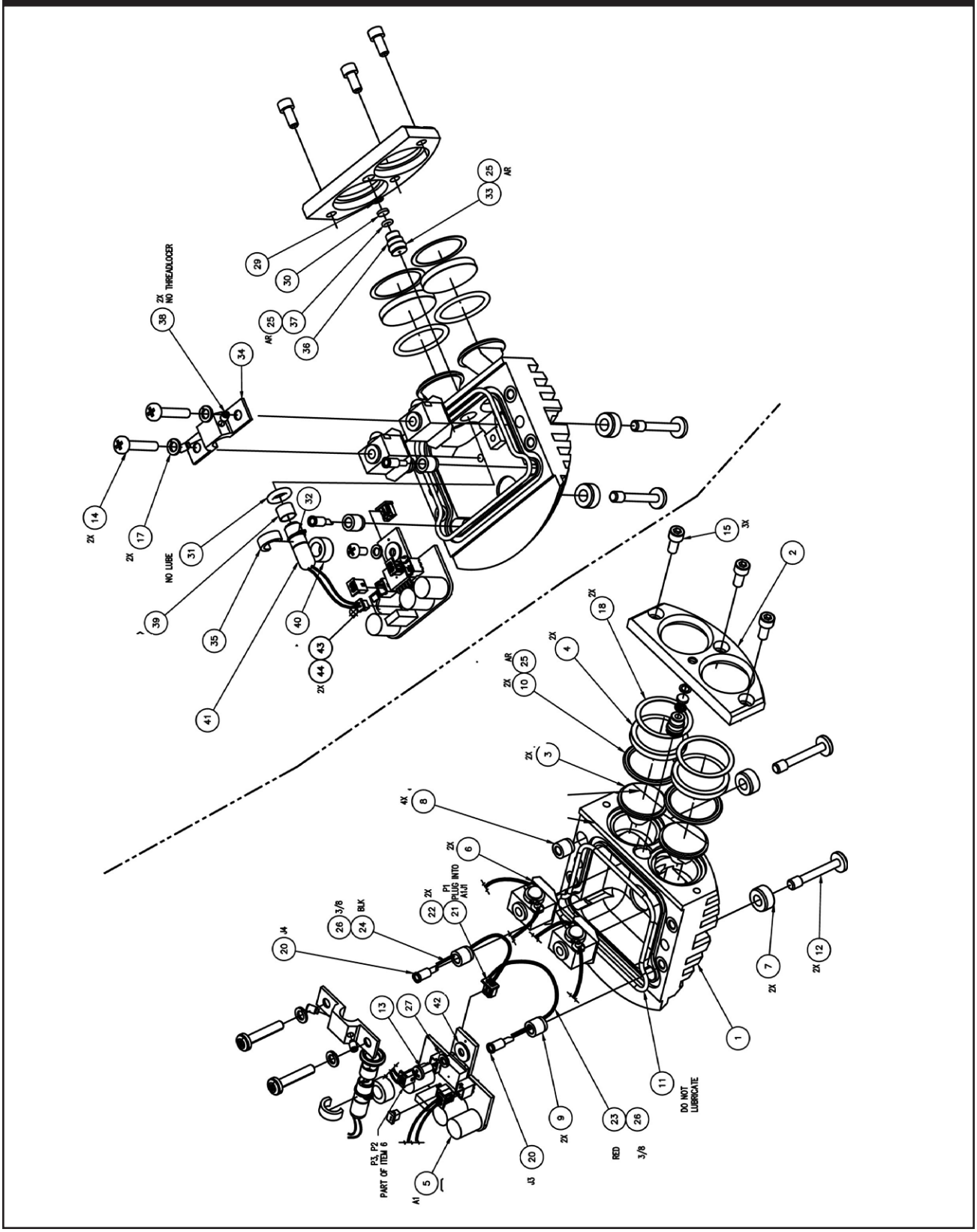
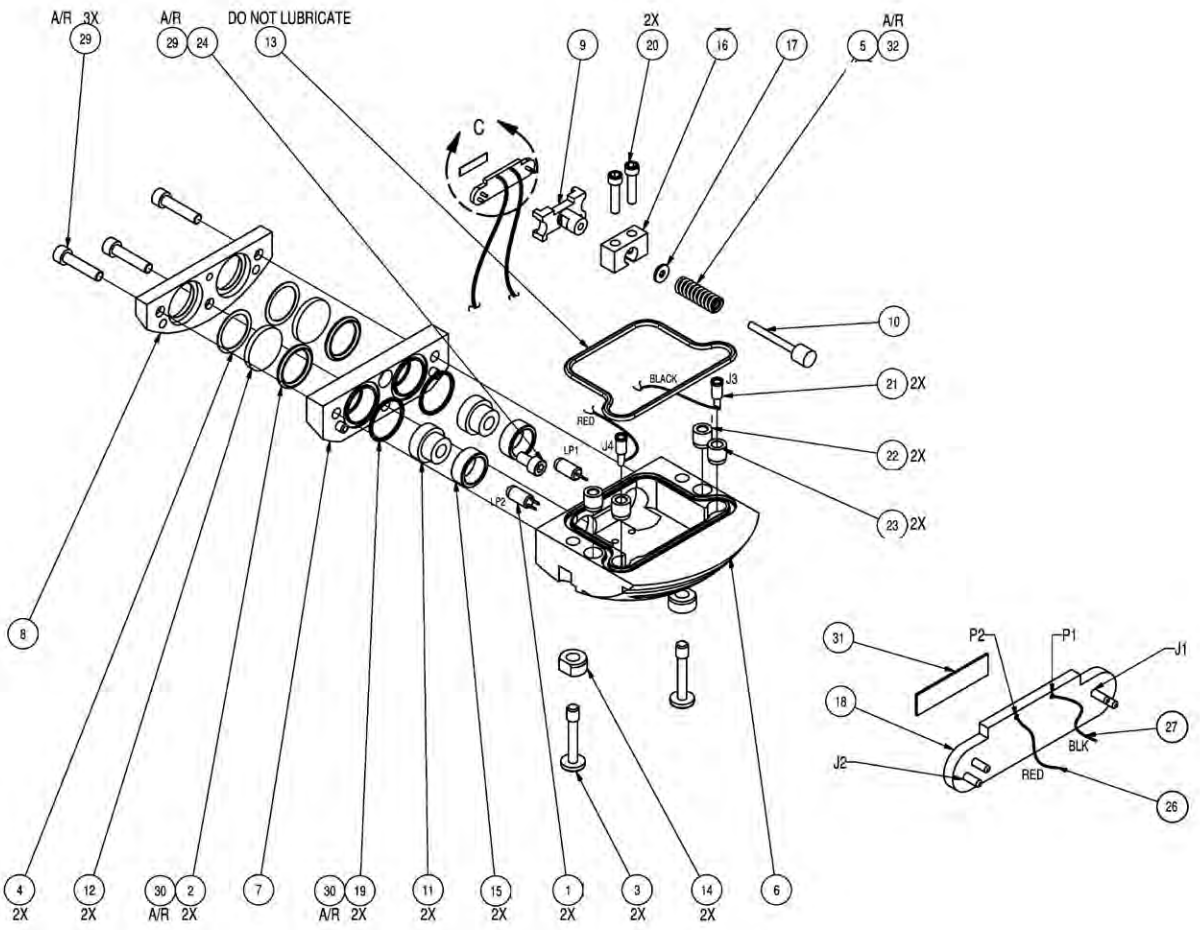


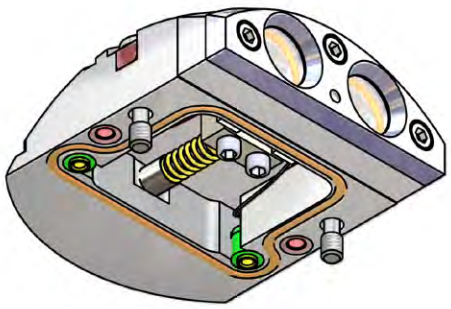
Figure 9a. *Lighthead Module Assembly, LED, OZII, CZ303*

OZ II

LIGHTHEAD MODULE ASSY,LED,OZ II, Rev. C, CZ303			
0001	HOUSING,LED LIGHTHEAD,OZ II	CZ087	1
0002	BEZEL,WINDOW,LIGHTHEAD,OZ II	CZ009	1
0003	COLLIMATOR,MOD.W/FLTS,LED LTHD,OZII	CZ084-1	2
0004	LENS,PLANOCON,LGHTHD WINDOW,OZ II	CZ003	2
0005	PCB ASSY,UNIVERSAL LED/LSR DR,OZII	CZ408	1
0006	LED ASSY,LED LIGHTHEAD,OZ II	CZ304	2
0007	INSULATOR,THRML,CAPTIVE SCREW,OZ II	CZ015	2
0008	INSULATOR,THRML,1/8 DOWEL PIN,OZ II	CZ014	4
0009	INSULATOR,THRMAL,CONTACT,SCKT,OZ II	CZ012	2
0010	O-RING,2-018,SILICONE	HW683	2
0011	O-RING,MOLDED,LIGHT HEAD,OZ II	CZ059	1
0012	SCREW,CAPTIVE,PH 8-32X1.0 PHIL SST	HW643	2
0013	SCREW,BIND,4-40X3/8 PHIL SST	712414	1
0014	SCREW,BIND,6-32X3/4 SST PHIL	104006	2
0015	SCREW,CAP,SKT HD,6-32X5/16,SST	HW475	3
0016	WASHER,FLAT,#6 USS STL	100153	2
0017	WASHER,SPLIT #6 SST	100150	2
0018	WASHER,TEFLON,.910 ODX.760IDX.010TK	HW649	2
0019	WASHER,FLAT,#4 SST	100171	1
0020	SOCKET,CONTACT	EC125	2
0021	HOUSING,2-PIN,2MM	712864	1
0022	CONTACT	715087	2
0023	WIRE,#24 RED TEFLON	713337	1
0024	WIRE,#24 BLACK TEFLON	713335	1
0025	MRO-LUBRICANT,O-RING 2 OZ TUBE	439986	1
0026	TUBE,SHRINK,BLACK 3/32"	712595	1
0027	WASHER,SPLIT #4 SST	100170	1

OZ III





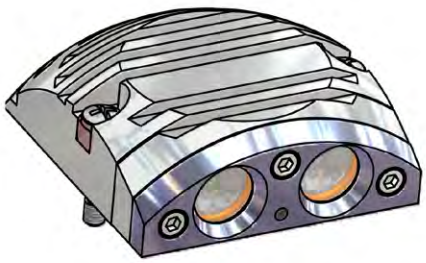


Figure 10. *Lighthead Assembly, OZIII, MZ301*

LIGHTHEAD ASSY,OZ III (See Figure 10), Rev. B, MZ301			
Item #	Description	P/N	Qty
1	Bulb,Xenon 12v F/Panther / No	EL204	2
2	O-Ring,2-014,Silicone	HW1361	2
3	Screw,Cap,Mod,Ph-8-32x7/8 Phil	HW1362	2
4	Washer,Teflon,1/2id X 5/8od X.01thk	HW1363	2
5	Spring,Comp,.234od X.038wd X.69l	HW1388	1
6	Housing,Lighthead	MZ002	1
7	Holder,Reflector,Lighthead	MZ003	1
8	Bezel,Lighthead	MZ004	1
9	Bracket,Lamps Pcb,Lighthead	MZ005	1
10	Rod,Lamps Pcb Bracket,Lighthead	MZ006	1
11	Reflector,Parabolic,1/2dia,T2 1/2	MZ007	2
12	Window,Spphire,0.625"Od X 2mm T,Ps3	PS116	2
13	O-Ring,Molded,Lighthead,Mz	MZ009	1
14	Insulator,Thermal,Captive Screw	MZ018	2
15	Spacer,Reflector Retainer	MZ077	2
16	Bracket,Pilot,Lamps Pcb,Lighthead	MZ036	1
17	Washer,Flat,Narrow #2 Sst	100174	1
18	Pcb Assy,Lighthead,Ez-Change	MZ405	1
19	O-Ring,14mm Id X 1mm Thk	HW1608	2
20	Screw,Cap,Skt Hd,4-40x1/2,Sst	105061	2
21	Socket,Contact	EC125	2
22	Insulator,Thrml,1/8 Dowel Pin,Oz Ii	CZ014	2
23	Insulator,Thrmal,Contact,Sckt,Oz Ii	CZ012	2
24	Screw,Cap,Skt Hd,6-32x1/4,Sst	103060	1
25	Screw,Cap,Skt Hd,#6-32x5/8 Long	101136	3
26	Wire,#24 Red Teflon	713337	1
27	Wire,#24 Black Teflon	713335	1
28	Tube,Shrink,Black 3/32"	712595	1
29	Mro-Removable Lck,Nd 121200-50,Blue	440061	1
30	Mro-Lubricant,O-Ring 2 Oz Tube	439986	1
31	Mro-Tape Teflon 10 Mil W/Sil Adh	MR537	1
32	Mro-Adhes.Instant,Nd 310035-28,Clr	440094	1

OZ III

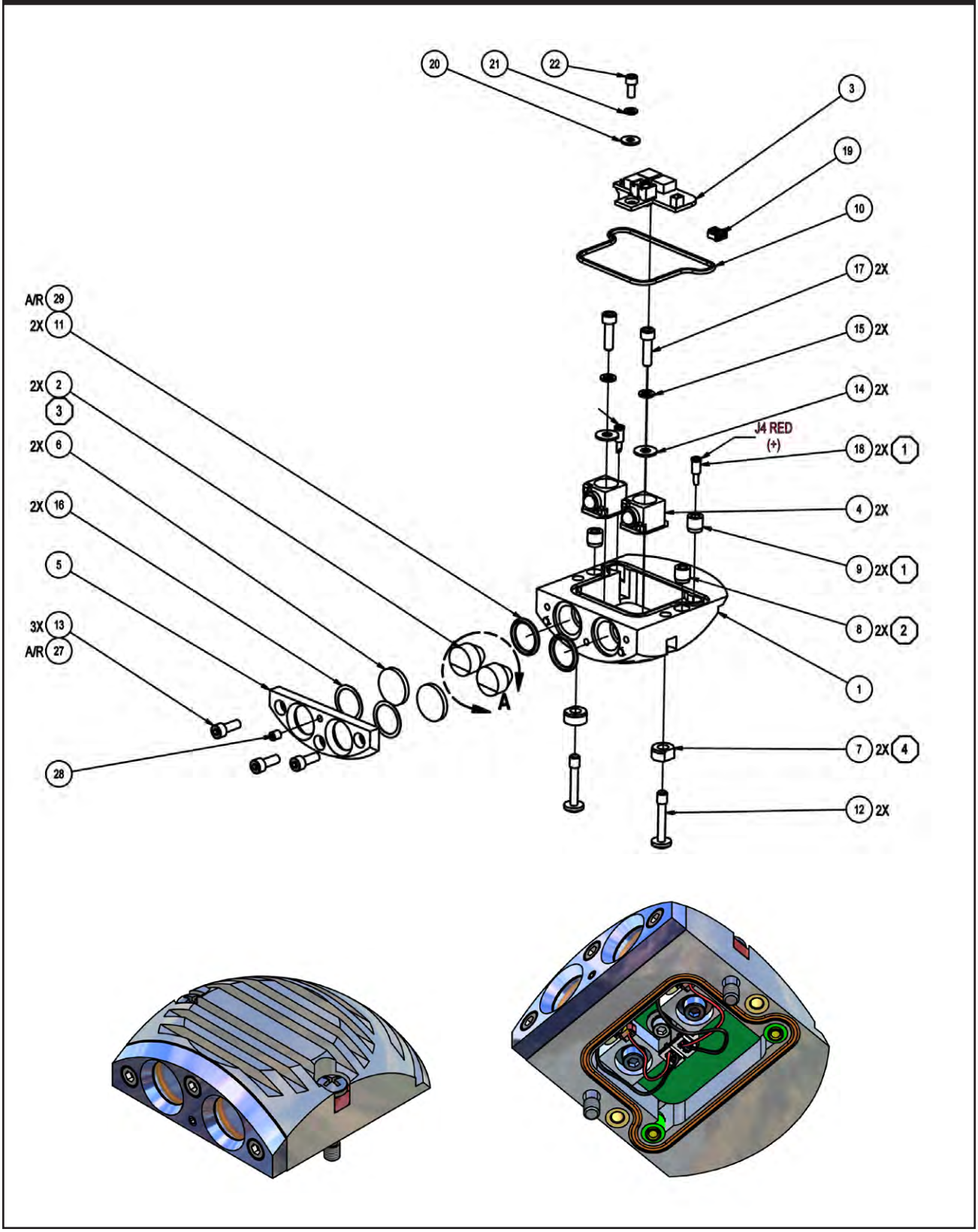


Figure 11. *LED Lighthead Assembly, OZIII, MZ302*

OZ III

LED LIGHTHEAD ASSY, OZ III (See Figure 11), Rev. D, MZ302			
Item #	Description	P/N	Qty
1	Housing,Lighthead,Led	MZ034	1
2	Collimator,Modified,Led Lighthd	MZ035	2
3	Pcb Assy,UNIVERSAL LED/LSR DR, OZIII	MZ422	1
4	Led Assy,Led Lighthead Assy,Mini Oz	MZ303	2
5	Bezel,Lighthead	MZ004	1
6	Window,Spphire,0.625"Od X 2mm T,Ps3	PS116	2
7	Insulator,Thermal,Captive Screw	MZ018	2
8	Insulator,Thrml,1/8 Dowel Pin,Oz Ii	CZ014	2
9	Insulator,Thrmal,Contact,Sckt,Oz Ii	CZ012	2
10	O-Ring,Molded,Lighthead,Mz	MZ009	1
11	O-Ring,2-014,Silicone	HW1361	2
12	Screw,Cap,Mod,Ph-8-32x7/8 Phil	HW1362	2
13	Screw,Cap,Skt Hd,6-32x3/8,Sst	105071	3
14	Washer,Flat,#6 Uss Stl	100153	2
15	Washer,Split #6 Sst	100150	2
16	Washer,Teflon,1/2id X 5/8od X.01thk	HW1363	2
17	Screw,Cap,Skt Hd,6-32x1/2,Sst	712417	2
18	Socket,Contact	EC125	2
19	Housing,2-Pin,2mm	712864	1
20	Washer,Flat,#4 Sst	100171	1
21	Washer,Split #4 Sst	100170	1
22	Screw,Cap,Soc Hd 4-40x1/4 Sst	103089	1
23	Wire,#24 Red Teflon	713337	1
24	Wire,#24 Black Teflon	713335	1
25	Contact	715087	2
26	Tube,Shrink,Black 3/32"	712595	1
27	Mro-Removable Lck,Nd 121200-50,Blue	440061	1
28	Screw,Set,6-32x3/16 Sst	100991	1
29	Mro-Lubricant,O-Ring 2 Oz Tube	439986	1

Pan & Tilt

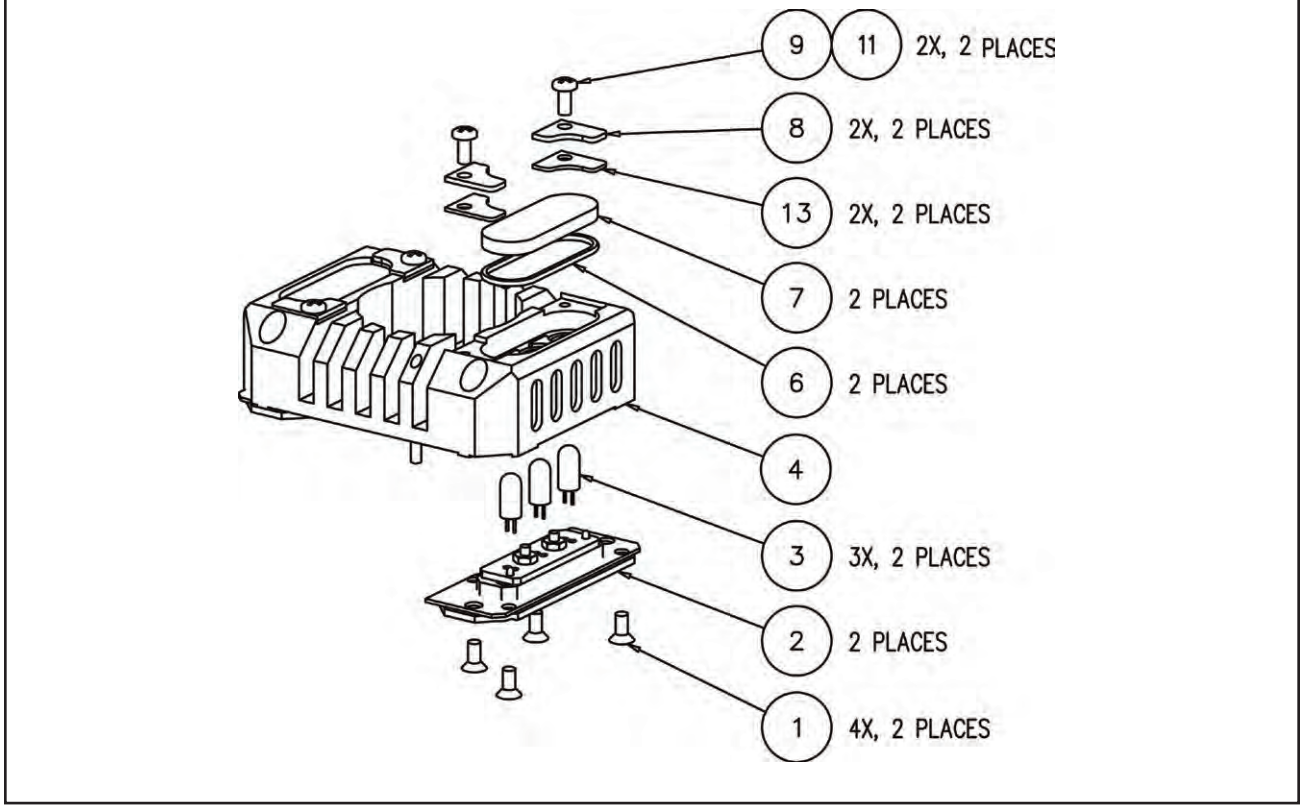


Figure 12a. *Lighthead Assembly, CP302*

Lighthead Assembly, CP302 (See Fig 12a) Rev. E, CP302			
Item #	Description	P/N	Qty
-1	· Screw, Flat, 4-40 x 1/4 Phil	712402	8
-2	· Lamp Plate Assembly, New, P&T	CP201	2
-3	· Lightbulb, Xenon 12v F/Panther	EL204	6
-4	· Lighthead, Core, NO, W/Reflectors	CP118	1
-6	· O-Ring, 2-022, Silicone	HW505	2
-7	· Lens, Lighthead	CP117	2
-8	· Retaining Clip, NO	CP115	4
-9	· Screw, Pan, 4-40x1/4 Machine	HW227	4
-11	· MRO -Perma MM-115-035	440061	1
-12	· MRO - Alchohol, Isopropyl	445618	1
-13	- Spacer. Delrin, P&T Lighthead	CP067	4

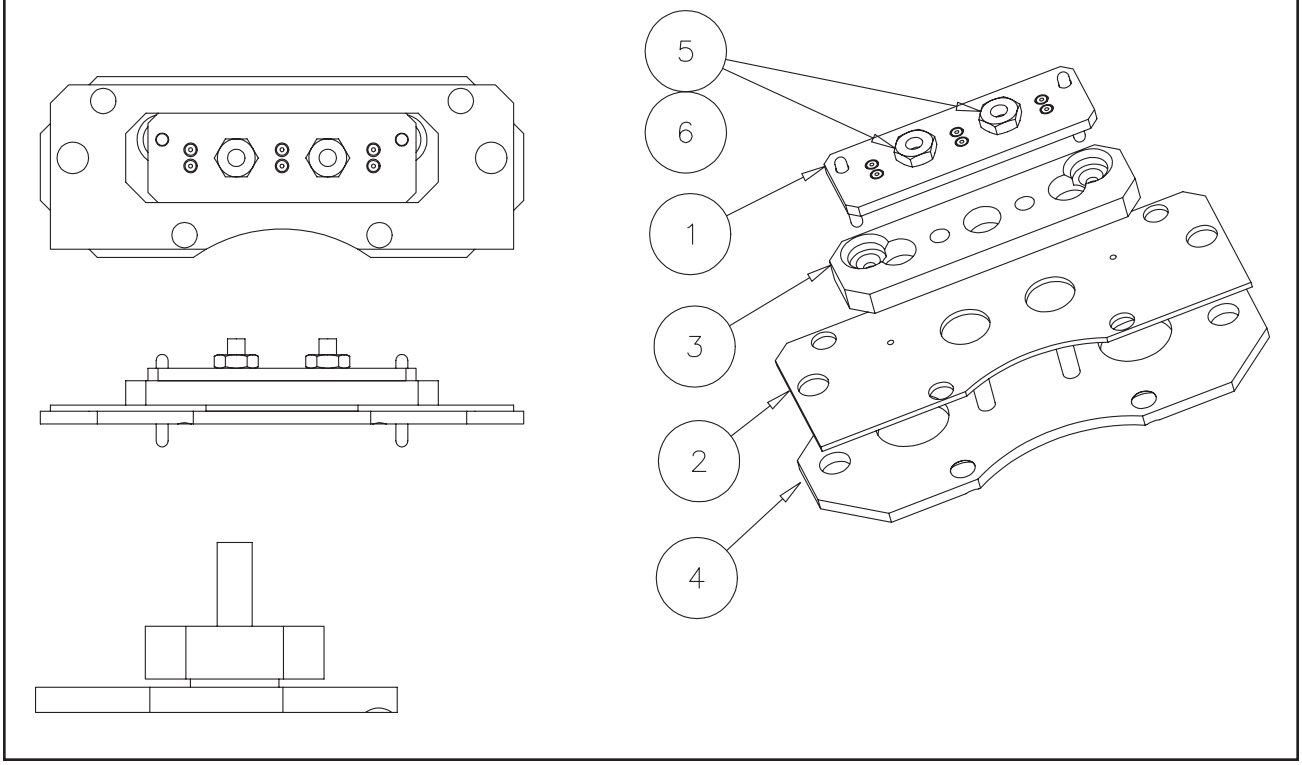
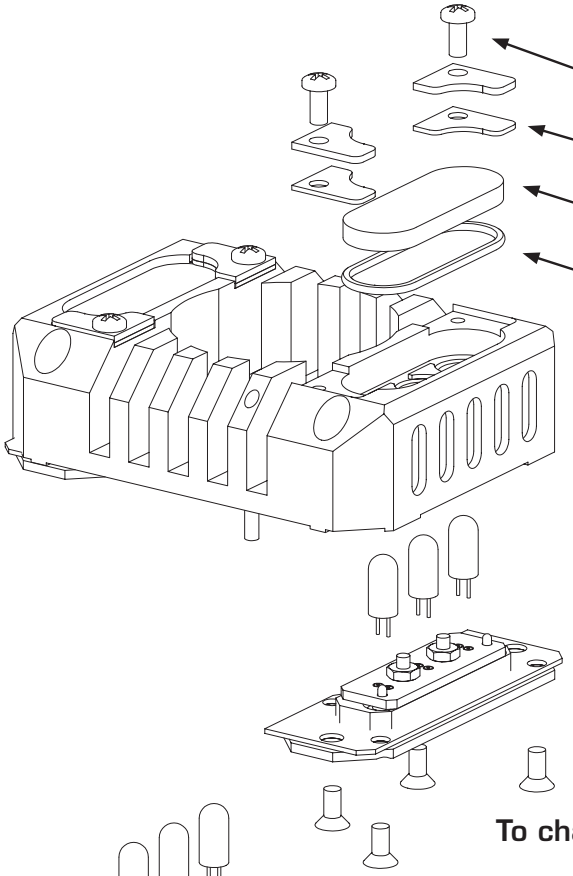


Figure 12b. *Lamp Plate Assembly, CP201*

Lamp Plate Assembly, CP201 (See Fig.12b) Rev. B, CP201			
Item #	Description	P/N	Qty
- 1	Pcb Assy,Light Plate,P&T	CP455	1
- 2	Gasket,Lamp Plate P&T	CP107	1
- 3	Spacer,Pcb,Lamp Plate	CP111	1
- 4	Plate,Lamp Plate,P&T	CP105	1
- 5	Nut,Hex,Steel,2-56	100105	2
- 6	Mro-Perma Mm-115-035 Threadlock Bl	440061	1

MAINTAINING THE CP302 PAN & TILT LIGHTHEAD

To change the light windows (refer to parts list A):



1. Remove the screws, retaining clips, glass window and o- ring.

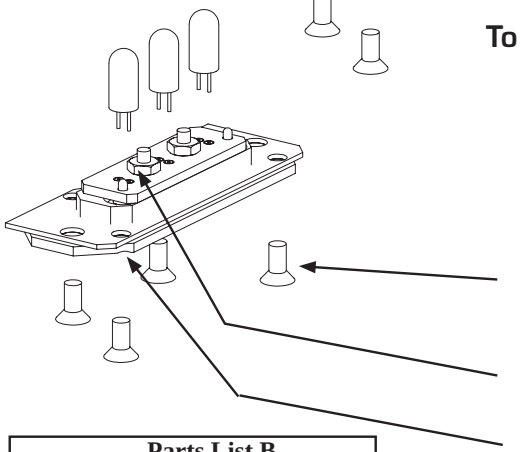
Parts List A	
Screws	HW227
Retaining Clips	CP115
Glass Window	CP117
O-ring	HW505
Reflector	CP118

2. Replace the o-ring and glass, if damaged.

3. Reinstall the retaining clips and screws. Insert both screws into the retaining clips and retighten the screws evenly, a little at a time on each side. If one side is tightened without tightening the other side, chipping of the window can occur, causing damage to the seal!

To change the light bulbs (refer to parts list B):

Note: Lightbulbs cannot be removed through the front glass!



1. Remove the lighthead from the camera by removing the 4 hex head screws.
2. On the underside of the lighthead, remove the 4 phillips head screws that attach the silver plate to the lighthead. Remove the entire light assembly.
3. Remove the 2 nuts and pull off the small board and plastic insulator.
4. Replace the gasket and reassemble. Replace burned bulbs.
5. Reinstall the 4 screws. The screws should be tightened until the gasket flattens out, but not overtightened. Over tightening the screws can cause the plate to warp and render the seal of the gasket ineffective.
6. Reinstall the lighthead on the camera.

Parts List B	
Lightbulb	EL204
Spacer	CP111
Board	CP455
Screws	712402
Plate	CP105
Gasket	CP107
Nut	NO105

Ultra Shorty

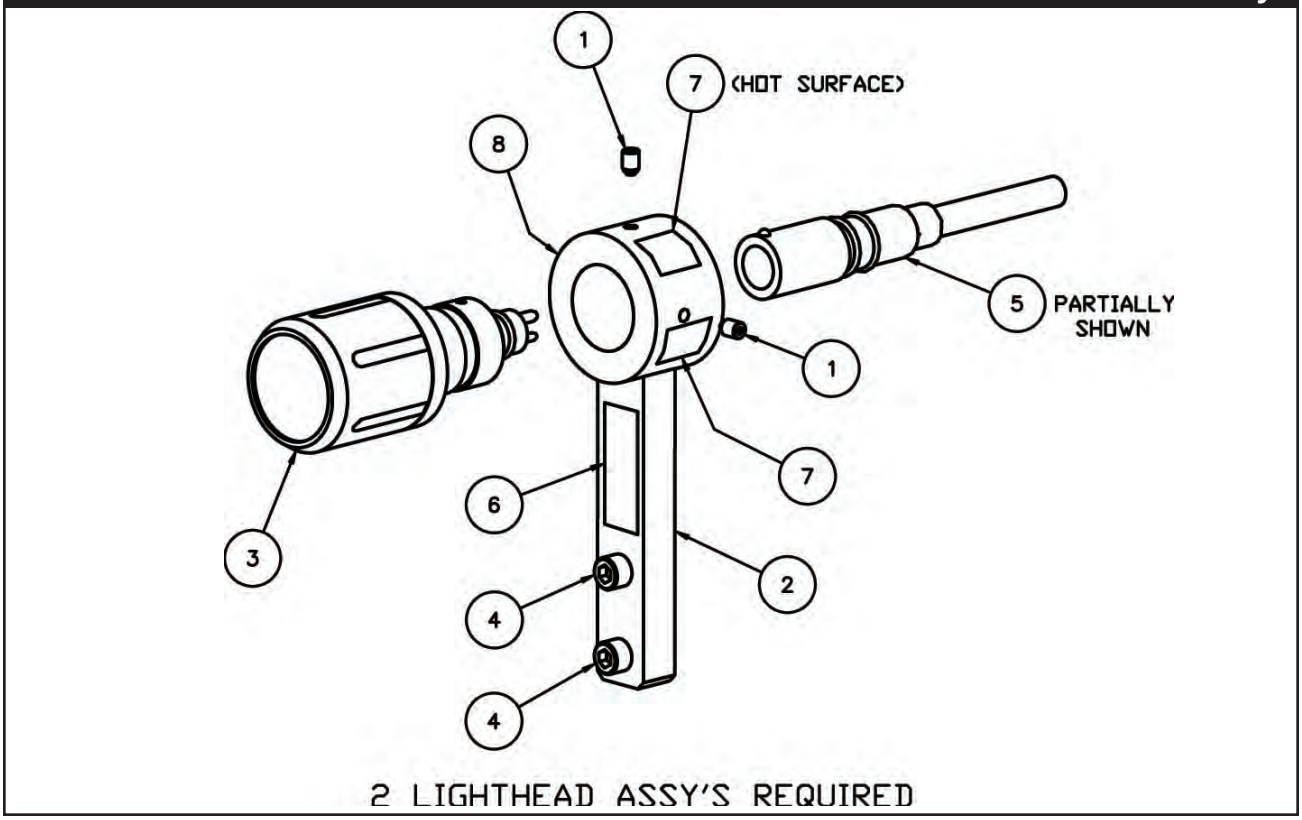


Figure 13. *Lighthead, External, Ultra Shorty, MC228*

Lighthead, Ultra Shorty (See Fig.13) Rev. C, MC228			
Item #	Description	P/N	Qty
− 1	Screw,Set,10-32x1/4 Nylon Tip	101120	4
− 2	Bracket,Light,External	MC227	2
− 3	Cartridge,Hpl8	712961	2
− 4	Screw,Captiv,Skt Hd,1/4-20x3/4lg,Ss	HW768	4
− 5	Cable,Lghthd,Hpl 8 & 10 16.75"	160627	1
− 6	Label,Lasertab Marker,1.500 X .500	CS221	1
− 7	Label,Lasertab Marker, .560 X .560	CS222	2
− 8	Label,Etl Mark,1"X1"	CS225	1

LAMP

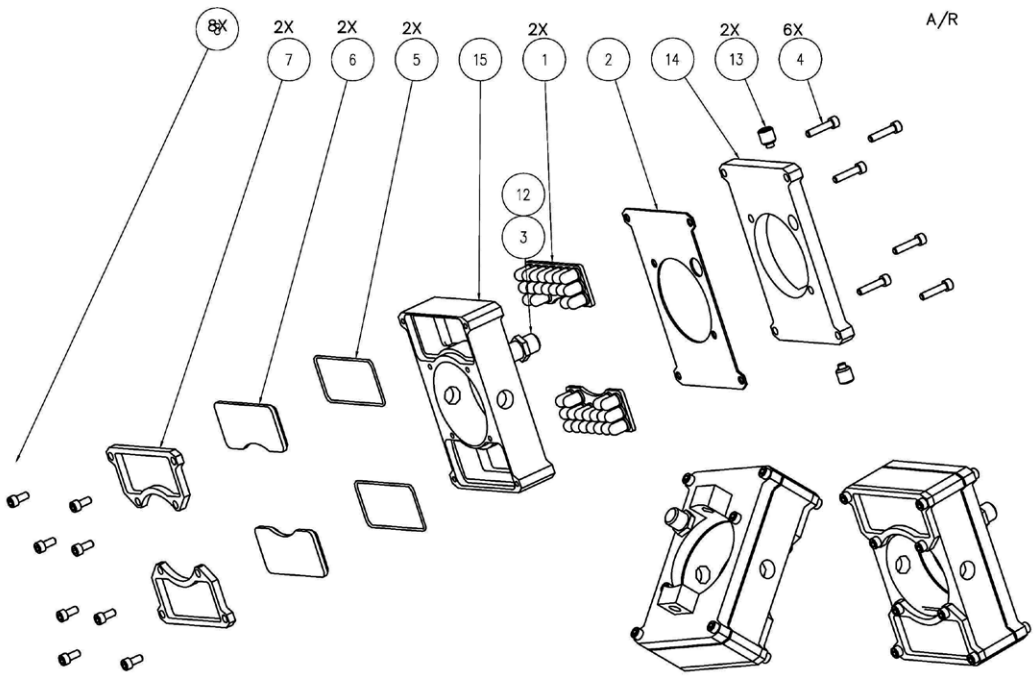


Figure 14. LIGHTHEAD ASSY,MAINLINE,LAMP, LT329

Lighthead Assembly, Mainline, LAMP, (See Fig. 14) Rev. D, LT329			
Item #	Desription	P/N	Qty
1	Pcb Assy,18led,Top,Lighthead,Lamp	LT402	2
2	Gasket,Cover,Rear,Light,Lamp	LT093	1
3	Receptacle,4pin,Bh 45460-001	EL497	1
4	Screw,Cap,Skt Hd,4-40x1/2,Sst	105061	6
5	O-Ring,1.6"Id X .045"W,Buna	HW581	2
6	Window,Lighthead,Lamp	LT147	2
7	Cover,Front,Light,Lamp	LT092	2
8	Screw,Cap,Soc Hd 4-40x1/4 Sst	103089	8
9	Wire,#24 Red Pvc	161571	1
10	Wire,#24 Black Teflon	713335	1
11	Grease,Anti Seize 8 Lb	420797	1
12	Mro-Seal.Hgh Press,Nd 440400-50,Brn	445091	1
13	Screw,Set 1/4-20x1/4 Ss,Nylon Tip	HW912	2
14	Cover,Back,Light,Lamp	LT091	1
15	Lighthead,Body,36led,Lamp	LT146	1

LAMP II

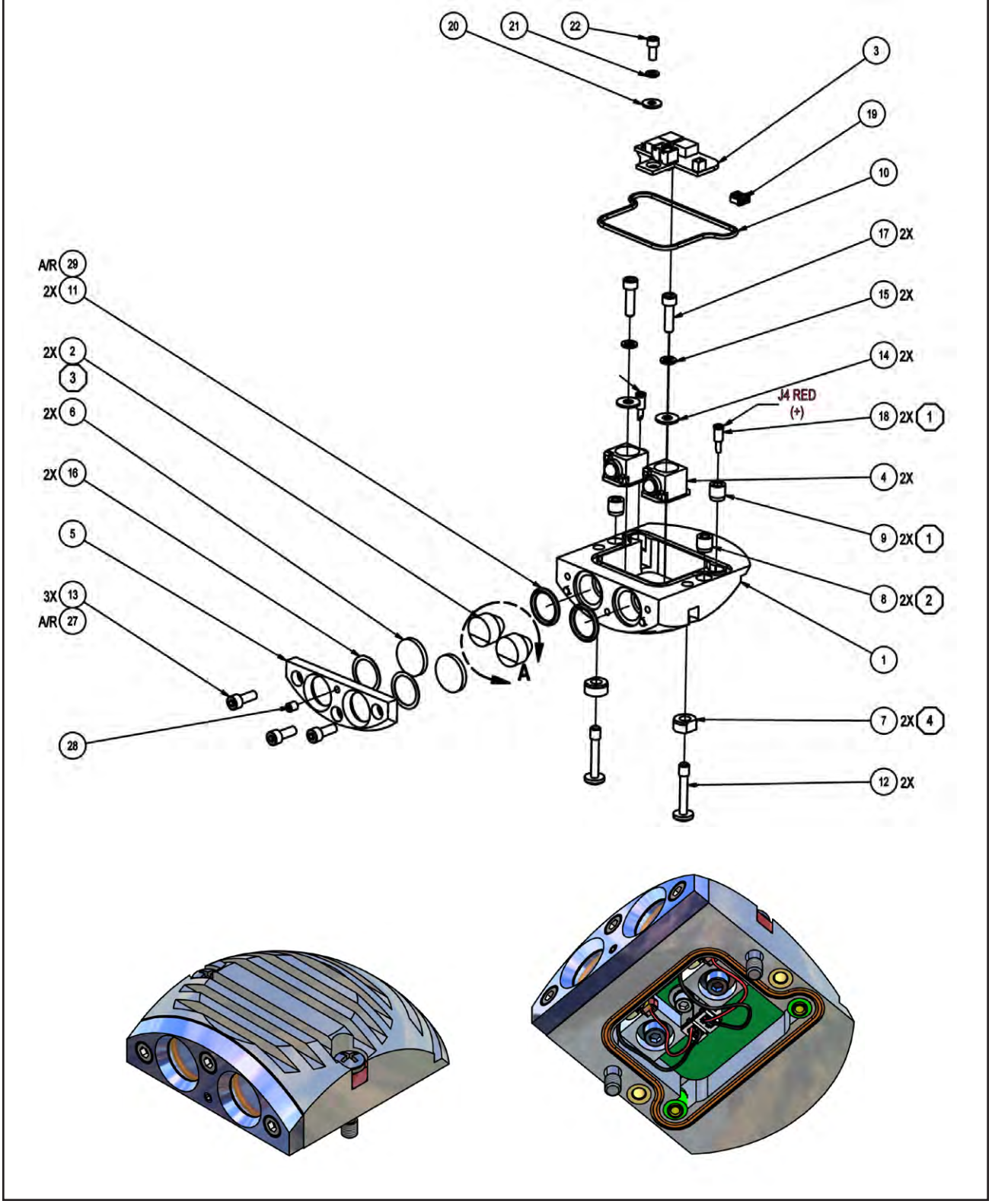


Figure 15. *LED Lighthead Assembly, OZIII, MZ302*

LAMP II

LED LIGHTHEAD ASSY, OZ III (See Figure 15), Rev. D, MZ302			
Item #	Description	P/N	Qty
1	Housing,Lighthead,Led	MZ034	1
2	Collimator,Modified,Led Lighthd	MZ035	2
3	Pcb Assy,UNIVERSAL LED/LSR DR, OZIII	MZ422	1
4	Led Assy,Led Lighthead Assy,Mini Oz	MZ303	2
5	Bezel,Lighthead	MZ004	1
6	Window,Spphire,0.625"Od X 2mm T,Ps3	PS116	2
7	Insulator,Thermal,Captive Screw	MZ018	2
8	Insulator,Thrml,1/8 Dowel Pin,Oz Ii	CZ014	2
9	Insulator,Thrmal,Contact,Sckt,Oz Ii	CZ012	2
10	O-Ring,Molded,Lighthead,Mz	MZ009	1
11	O-Ring,2-014,Silicone	HW1361	2
12	Screw,Cap,Mod,Ph-8-32x7/8 Phil	HW1362	2
13	Screw,Cap,Skt Hd,6-32x3/8,Sst	105071	3
14	Washer,Flat,#6 Uss Stl	100153	2
15	Washer,Split #6 Sst	100150	2
16	Washer,Teflon,1/2id X 5/8od X.01thk	HW1363	2
17	Screw,Cap,Skt Hd,6-32x1/2,Sst	712417	2
18	Socket,Contact	EC125	2
19	Housing,2-Pin,2mm	712864	1
20	Washer,Flat,#4 Sst	100171	1
21	Washer,Split #4 Sst	100170	1
22	Screw,Cap,Soc Hd 4-40x1/4 Sst	103089	1
23	Wire,#24 Red Teflon	713337	1
24	Wire,#24 Black Teflon	713335	1
25	Contact	715087	2
26	Tube,Shrink,Black 3/32"	712595	1
27	Mro-Removable Lck,Nd 121200-50,Blue	440061	1
28	Screw,Set,6-32x3/16 Sst	100991	1
29	Mro-Lubricant,O-Ring 2 Oz Tube	439986	1

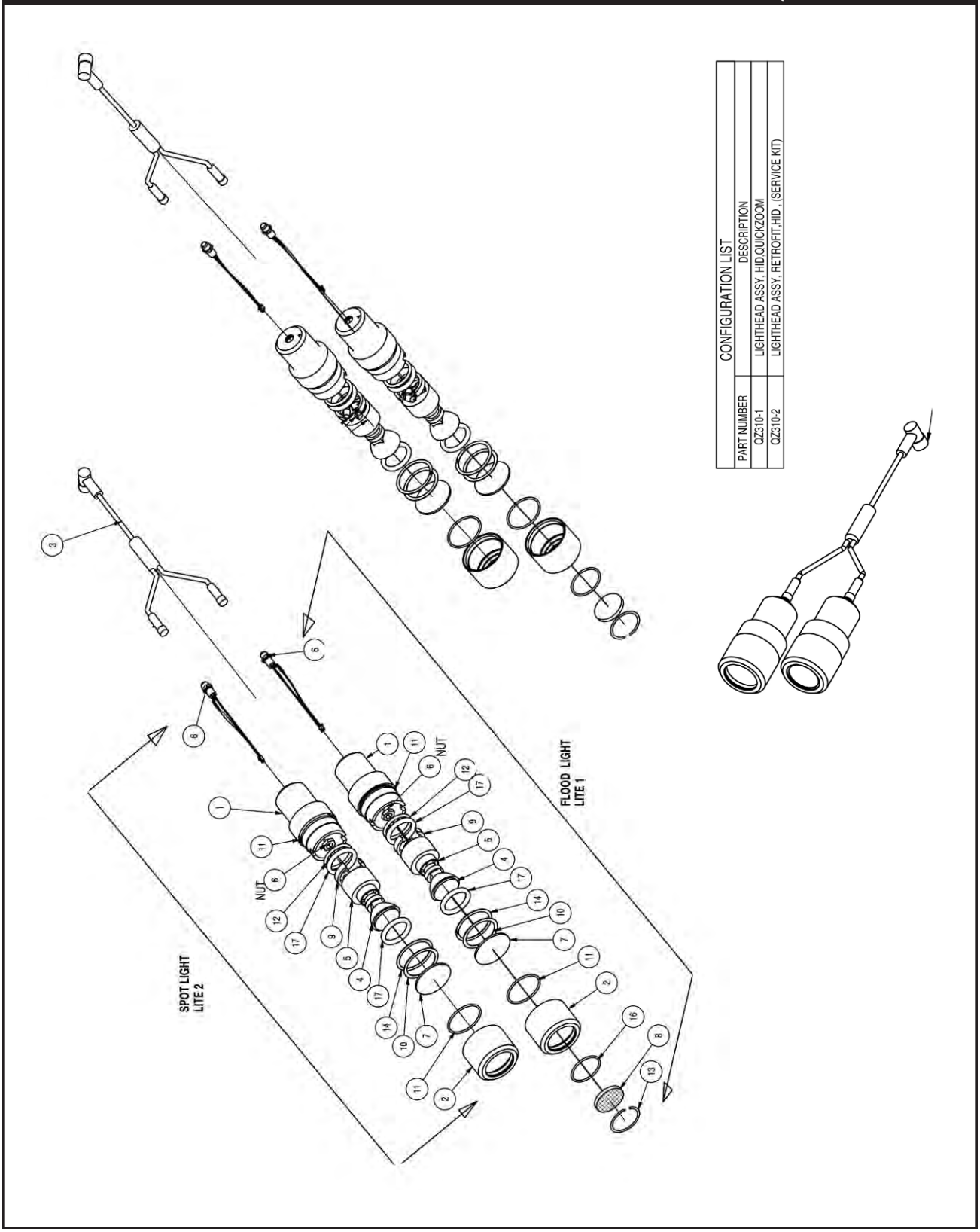
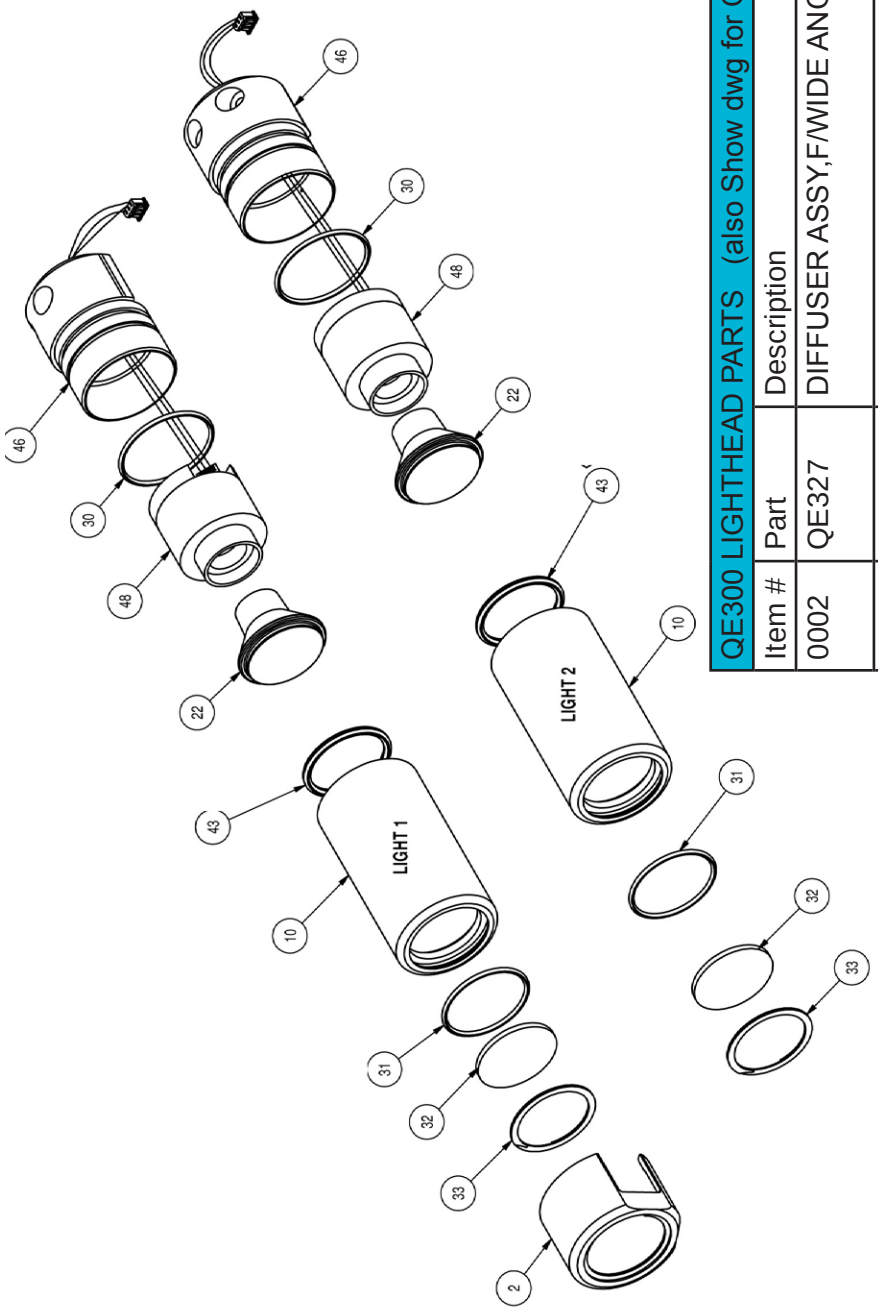


Figure 16. LIGHTHEAD ASSY,HID,QUICKZOOM, QZ310-1

QuickZOOMCam

LIGHTHEAD ASSY,HID,QUICKZOOM (See Figure 16), Rev. A, QZ310-1			
Item #	Description	P/N	Qty
1	Housing,Lighthead Hid	QZ020-1	2
2	Bezel,Lighthead Hid	QZ021	2
3	Cable Assy,Hid Lighthead,Quickzm	QZ311	1
4	Lamp,Hid Mr11,10w 6°	EC1472	2
5	Ballast Assy,Mr11 Hid	TZ349	2
6	Cable Assy,Hid Lighthead Quickzoom	QZ313	2
7	Lens,Clear,Hlp10	730115	2
8	Lens,Spread Mr-11	QZ024	1
9	Spacer,35mm Od X .5"Lg,Teflon	QZ022	2
10	Washer,1.68 Odx1.4id X.020thk,Tef	QZ023	2
11	O-Ring,2-029 Silicone	305076	4
12	O-Ring,29mm X 3mm Thk Viton	HW1458	2
13	Ring,Spiral Int It Duty,1.375,Ss	HW1536	1
14	Ring,Retain Spiral Int,1.687,Ss	HW1472	2
15	Mro-Lubricant,O-Ring 2 Oz Tube	439986	1
16	O-RING,METRIC,32IDX1.5 W,BUNA-A	HW1942	1
17	O-Ring,28mmid X 4mmw,Buna,Shorea70	HW1777	4

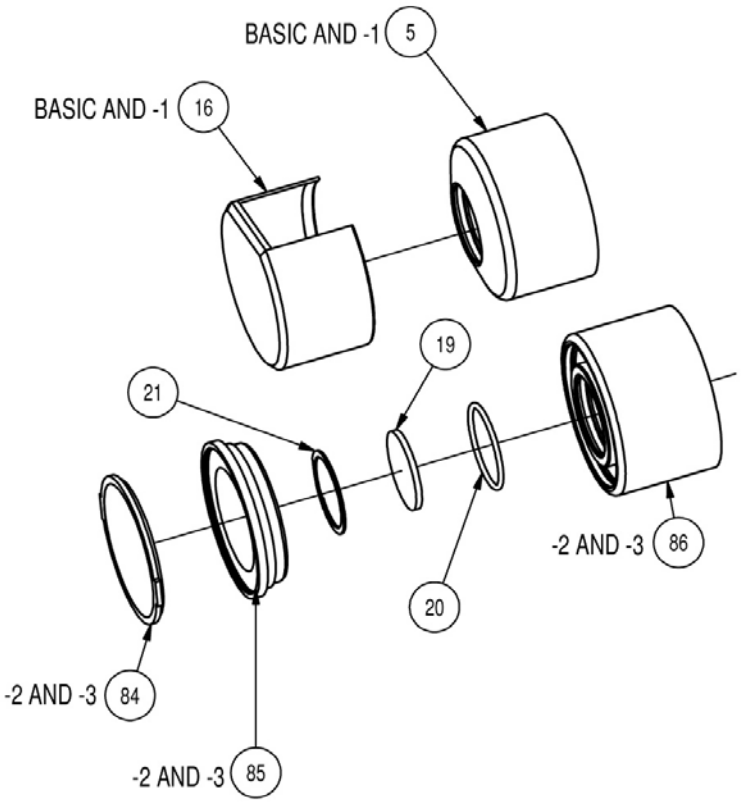
QZ II



QE300 LIGHTHEAD PARTS (also Show dwg for QE327 parts)			
Item #	Part	Description	Qty
0002	QE327	DIFFUSER ASSY,F/WIDE ANGLE,QZ2	1
0010	QE015	BEZEL,LIGHTHEAD,QZ2	2
0022	EC1650	LAMP,HID,14W,6 DEG,MR11	2
0030	HW1997	O-RING,2-028,BUNA-N	2
0031	HW2012	O-RING,2-026,SILICONE,SHORE A70	2
0032	CZ004	WINDOW,CAMERA MODULE,OZ II + III	2
0033	HW1981	RETAINING RIGN,SPIRAL,INT,1¼"B,SS	2
0043	HW1160	O-RING,2-123,BUNA N	2
0046	QE014	HOUSING,LIGHTHEAD,QZ2	2
0048	QE316	BALLAST ASSY,HID,DUAL WATTAGE	2

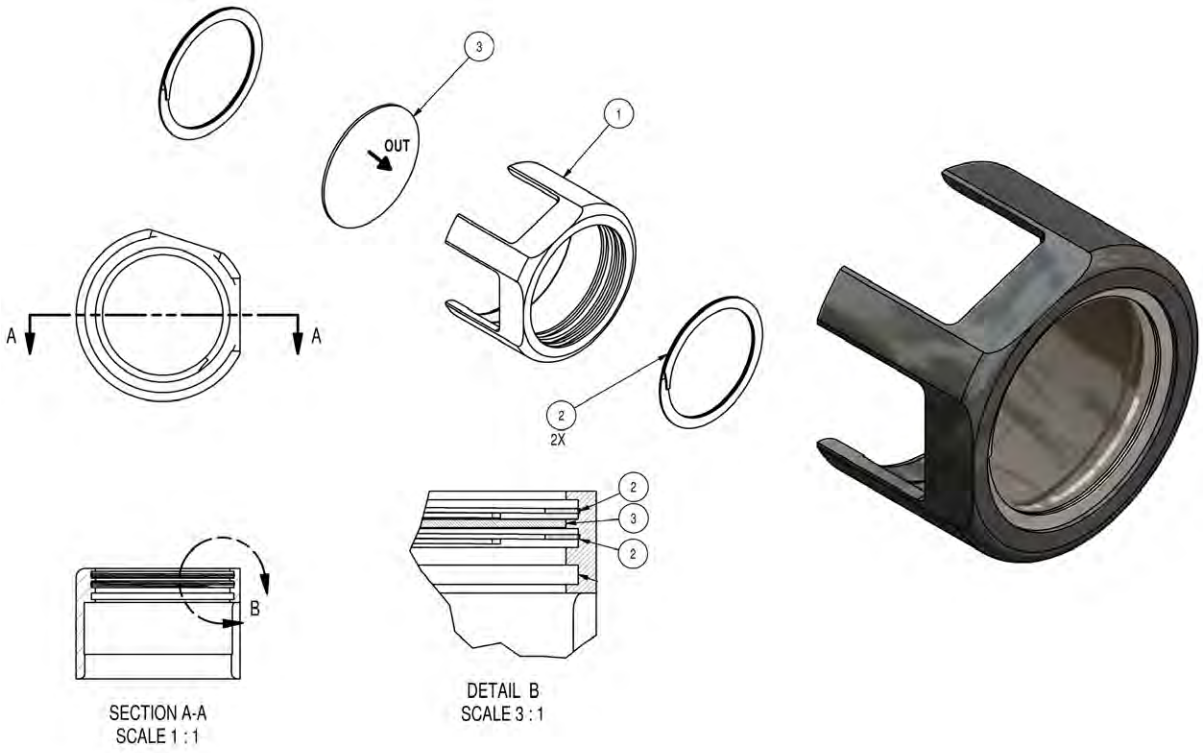
Figure 17a. Camera, NTSC, QZ2, QE300

QZ II



QE300 FRONT CAMERA WINDOW PARTS			
Item #	Part	Description	Qty
0005	QE010	COVER,FRONT,POLE CAMERA,QZ2	1
0016	QE039	COVER,CAMERA FRONT,POLE CAM,QZ2	1
0019	712910	LENS,GLASS HI-PERF LIGHTHEAD	1
0020	HW1998	O-RING,2-130,BUNA-N	1
0021	HW1982	RETAINING RING,SPRL,EXT,1-5/8"B,SS	1
0084	QE094	CAP,LENS,SNAP-ON,77MM	1
0085	QE093	PLUG,WIDE ANGLE LENS,QZ2	1
0086	QE091	COVER,FRONT,ADAPTABLE,POLE CAM,QZ2	1

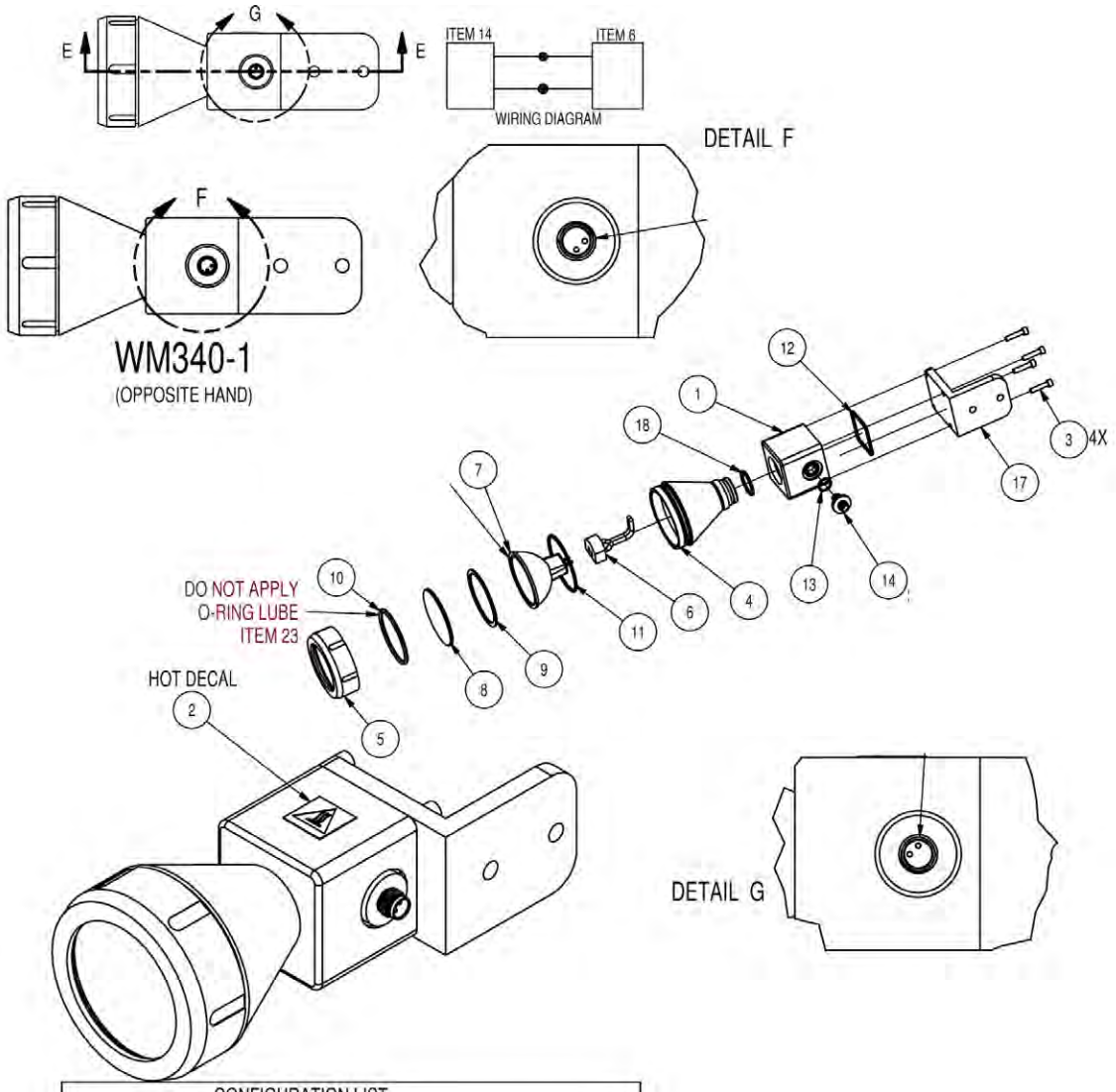
Figure 17b. Camera, NTSC, QZ2, QE300



DIFFUSER, ASSEMBLY, QZ2, QE327			
0001	HOUSING,DIFFUSER,LIGHTHEAD,QZ2	QE056	1
0002	RING,RETAIN SPIRAL INT,1.375,SS	HW1463	2
0003	WINDOW,SPREADER,ADF100100	QE098	1

Figure 18. Diffuser, Assembly, QZ2, QE327

CPR



CONFIGURATION LIST	
PART NUMBER	DESCRIPTION
WM340	LIGHT HEAD ASSY L.H., EXTERIOR LIGHT HEAD, CPR MANUAL LIFT
WM340-1	LIGHT HEAD ASSY R.H., EXTERIOR LIGHT HEAD, CPR MANUAL LIFT

Figure 19. LIGHTHEAD ASSY,EXT,LH,LTHD,CPRMNLFT, WM340

CPR

LIGHTHEAD ASSY,EXT,LH,LTHD,CPRMNLFT, Rev. A, (See Figure 19), WM340			
0001	BULKHEAD,EXT LIGHT HD,CPR MAN LIFT	WM270	1
0002	LABEL,LASERTAB MARKER, .560 X .560	CS222	1
0003	SCREW,CAP,SKT HD,#6-32X5/8 LONG	101136	4
0004	BODY,LIGHTHEAD,EXTERNAL	TZ069	1
0005	CAP,LENS,IMX	TZ237	1
0006	SOCKET,LIGHT BULB MR-16	TZ079	1
0007	BULB,LIGHT,MR-16,82V 85W	TZ073	1
0008	WINDOW,CLEAR,LIGHTHEAD,MR-16	LH041	1
0009	WASHER,TEFLON,C-CAM	TZ118	1
0010	O-RING,2-132,SILICONE	HW1659	1
0011	O-RING,2-032,SILICONE	HW1260	1
0012	O-RING,2-027 SILICONE	305075	1
0013	O-RING,10MM X 1MM,SILICONE	HW2125	1
0014	RECEPTACLE,F 300V,4AMP,4WIRE,I8	WM269	1
0015	TUBE,SHRINK,BLACK 3/16"RNF	712577	1
0016	MRO-LUBRICANT,O-RING 2 OZ TUBE	439986	1
0017	BRACKET,MNTG,EXT LIGHTHD,CPR	WM274	1
0018	O-RING,2-018,SILICONE	HW683	1

POWER CONTROL UNITS	
Description	P/N
Multi-Conductor	
PCU, 1208 M/C	7501721
PCU, 1208 M/C, f/Encoder LIS	PC600-3
PCU, 1208 M/C, f/Inclin.(23.5khz)	PC600-21
PCU, 1208 M/C, f/Inclinometer	PC600-2
PCU, 1208 M/C, f/LIS & Inclinometer	PC600-1
PCU, 1208, M/C, 1501+ w/Incl(23.5khz)	PC620-21
PCU, 1208, M/C, 1501+, w/Inclinometer	PC620-2
PCU, 1208, M/C, 220v, f/Incl(23.5khz)	PC600-A1
PCU, 1208, M/C, 220v, f/Inclinometer	PC600-A
PCU, 1208, M/C, LIS w/Incl.(23.5 khz)	PC600-11
PCU, 1208, M/C, MM w/Incl.(23.5 khz)	PC600-61
PCU, 1208, M/C, Obs.Use PC600-61	PC60016
PCU, 1208, M/C, Powernator	PC600
PCU, 1208, M/C, Powernator, 220v	PC600-8
PCU, 1208, M/C, w/Light Meter Option	PC630
PCU, B/W 1208 M/C Man/foc	7501735
PCU, M/C, 1501+w/Video Post Equal	PC620
Single-Conductor	
PCU, 1210 Color w/Posatryn S/C(g)	750182
PCU, 1210 S/C(g)	750179
PCU, 1210 S/C(g),220v	750179P
PCU, S/C, Obsolete Use 750179	7501771
PCU, Special 3000', S/C	PC650
Cutter	
PCU, 1208, M/C, SMM/Cutter	PC600-9
Illuminator	
PCU, Illuminator, 425 Lighthead	LH301

POWER CONTROL UNITS	
Description	P/N
Inspector General (IGGY)	
PCU, Iggy, 220v w/Accessories	SM401-2
PCU, Iggy, 220v, Inclin.,w/Acess.	SM401-5
PCU, Iggy, 220v, w/Access, Versa-well	SM301-6
PCU, Iggy, Metric	SM301-M
PCU, Iggy, Pal(220)Version	SM301-2
PCU, Iggy, Pal220, w/Inclinometer	SM301-5
PCU, Iggy, Standard	SM301
PCU, Iggy, w/Accessories	SM401
PCU, Iggy, w/Acess, Versa-well	SM301-3
PCU, Iggy, w/Inclinometer	SM301-4
PCU, Iggy, w/Inclinometer & Access.	SM401-4
PCU, Metric, Iggy, w/Accessories	SM401-M
Lateral Inspection Systems	
PCU, 1208 M/C, f/Encoder LIS	PC600-3
PCU, 1208 M/C, f/LIS & Inclinometer	PC600-1
PCU, 1208, M/C, LIS w/Incl.(23.5 khz)	PC600-11
PCU, 1208, M/C, f/Mudmaster & LIS	PC600-5
PCU, 1208, M/C, MM/LIS w/Incl(23.5khz)	PC600-71
PCU, 1208, M/C, Mudmaster, LIS, Incli.	PC600-7
PCU, 1501+, M/C, f/MM&Inclin&LIS	PC620-5
PCU, 1501+, M/C, MM/LIS, Incl(23.5khz)	PC620-51
ProScout	
PCU, Proscout	PC300
PCU, Proscout, w/220v 50hz Option	PC300-5
PCU, Proscout, w/Meter Option	PC300-1
PCU, Proscout, w/Prodata & RVC j	PC300-6
PCU, Proscout, w/Prodata Option	PC300-3
PCU, Proscout, w/Prodata,220v/50hz	PC300-7
PCU, Proscout, w/RVC Jck Option	PC300-4
PCU-Monitor, Assy, Mini/Scout	7511750

POWER CONTROL UNITS	
Description	P/N
Mudmasters	
PCU, 1208, M/C, 1501+, f/MM&Inclin	PC620-4
PCU, 1208, M/C, 1501+, f/Mudmaster	PC620-3
PCU, 1208, M/C, 1501+, MM, Incl(23.5khz)	PC620-41
PCU, 1208, M/C, 220v, MM/Incl(23.5khz)	PC600-B
PCU, 1208, M/C, f/Inclin.& MM,pt401	PC600-6
PCU, 1208, M/C, f/Mudmaster & LIS	PC600-5
PCU, 1208, M/C, MM w/Incl.(23.5 khz)	PC600-61
PCU, 1208, M/C, MM/LIS w/Incl(23.5khz)	PC600-71
PCU, 1208, M/C, Mudmaster, LIS, Incli.	PC600-7
PCU, 1208, M/C, Powernator f/Mudmaster	PC600-4
PCU, 1208, M/C, SMM/Cutter	PC600-9
PCU, 1501+, M/C, f/MM&Inclin&LIS	PC620-5
PCU, 1501+, M/C, MM/LIS, Incl(23.5khz)	PC620-51
PCU, Mudmaster	TM057
Storm Trekker	
PCU, Storm Trekker	RC008
PCU, Storm Trekker,1208r	RC330
PCU, 1208R, Storm Trekker, w/Incl.	RC330-3
PCU, 1208R, Storm Trekker/SMM	RC330-1
PCU, 1208R, Storm Trekker/SMM, w/Incl.	RC330-2

MP2020 SYSTEM CAMERAS	
DESCRIPTION	**P/N**
Proscout III Cameras:	
CAMERA,W/SEALED LEDS,NTSC,PS3	PS310
CAMERA,SONDE,W/SEALED LEDS,NTSC,PS3	PS315
SR300 Series Cameras:	
CAMERA ASSY,NON ROTATE,NTSC	SR300-15
CAMERA ASSY,NON-ROT,NTSC,SND,HI-PWR	SR300-19
CAMERA ASSY,SELF UPRIGHTING,NTSC	SR300-12
CAMERA ASSY,SLF UPRGHT,NTSC,22X24MM	SR300-21
CAMERA ASSY,SLF UP,HI-PWR,NTSC,SND	SR300-13
CAMERA ASSY,SLF UP,HI-PWR,NTSC,SND	SR300-8
CAMERA ASSY,SLF-UP,NTSC,SND,22X24MM	SR300-22
Centering Ball used with 1.5" diameter cameras above Part # LT258 (2.25" Diameter) Centering Ball 4.5" diameter for 4-6" pipe (requires above Part # LT258 2.25" Diameter cone to attach to camera)	
MP2020 Coiler assemblies with LCD Display	
COILER SYS,STD LCD,MP 20/20	CM350
COILER SYS,HIGH-BRIGHT LCD,MP20/20	CM350-1
COILER SYS,STD LCD,MNT VCR,MP 20/20	CM350-12
COILER SYS,HI-BRGT LCD,MNT VCR	CM350-18
COILER SYS,W/O LCD,MP 20/20	CM350-24
COILER SYS,LCD,10"WHLS,NARROW,MP	CM350-25
COILERS to USE trucks display	
COILER ASSY,MP20/20,W/TRNSLATR,12P	CM310
COILER ASSY,MP20/20,W/TRNSLATR,5P	CM310-1
Coilers	
COILER ASSY,W/VCR LOCK BOX,MP20/20	CM300-1
COILER ASSY,MP20/20,W/AUDIO	CM300-2
COILER ASSY,10" WHLS,NARROW,MP	CM300-3

MiniPush 20/20

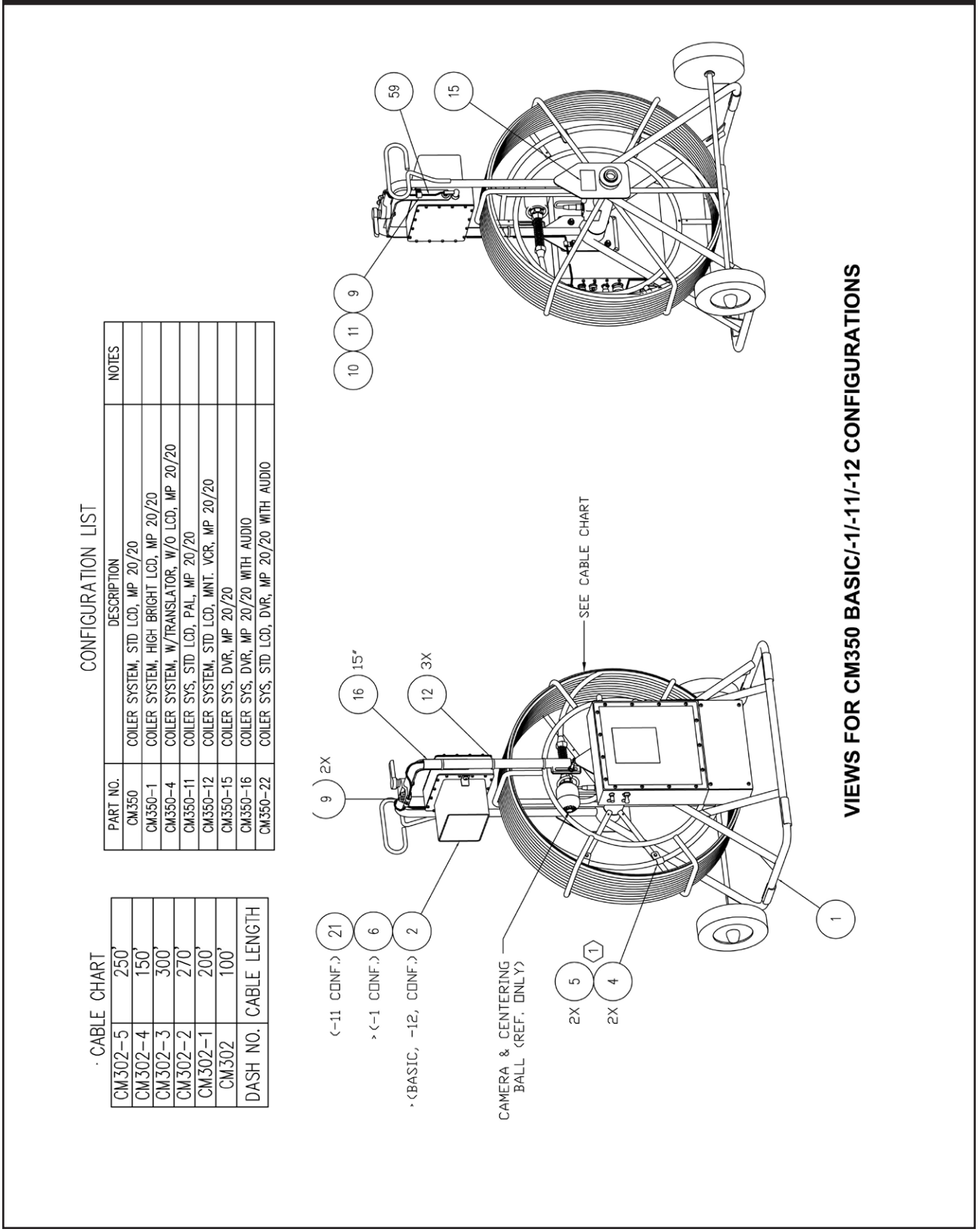
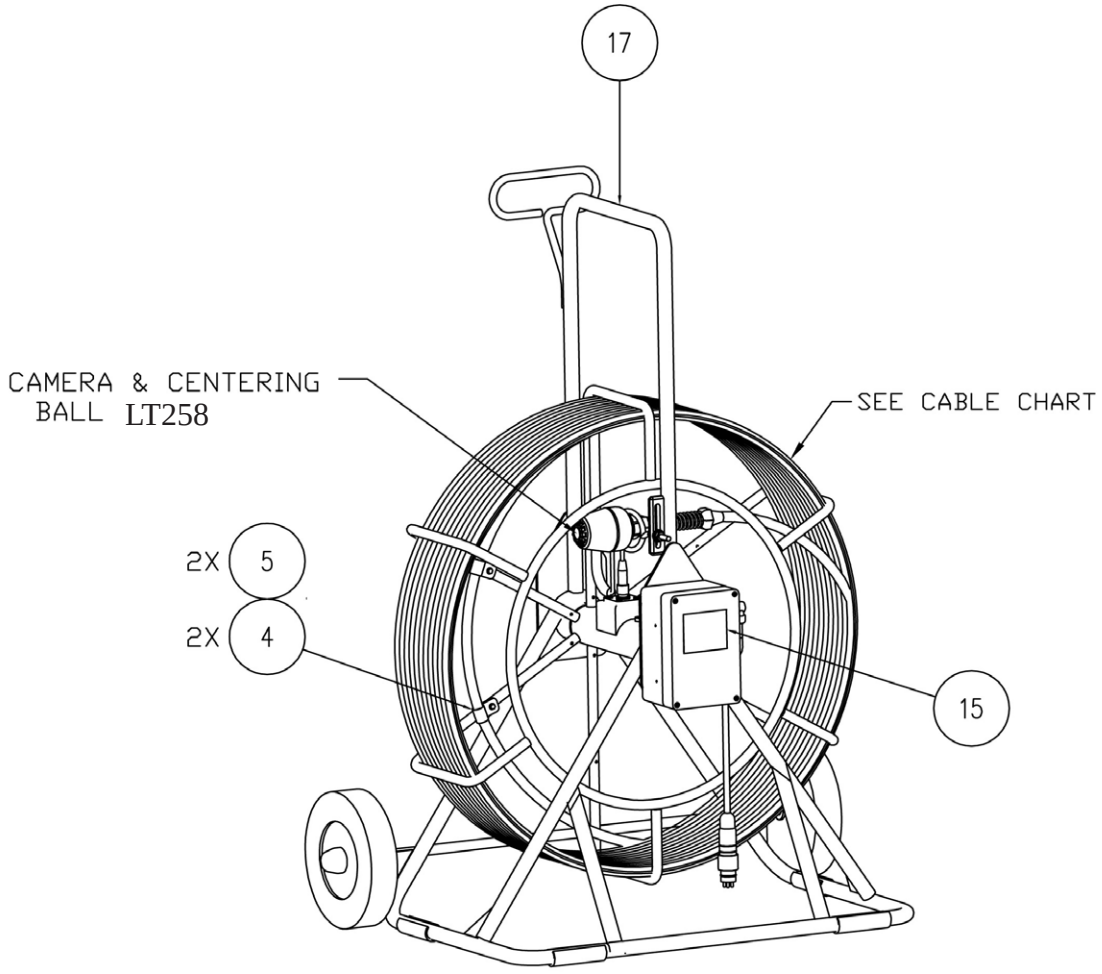


Figure 1a. *Mini Push 20/20, CM350*



VIEW FOR CM350-4 CONFIGURATION

Figure 1b: *Mini Push 20/20, CM350*

MiniPush 20/20

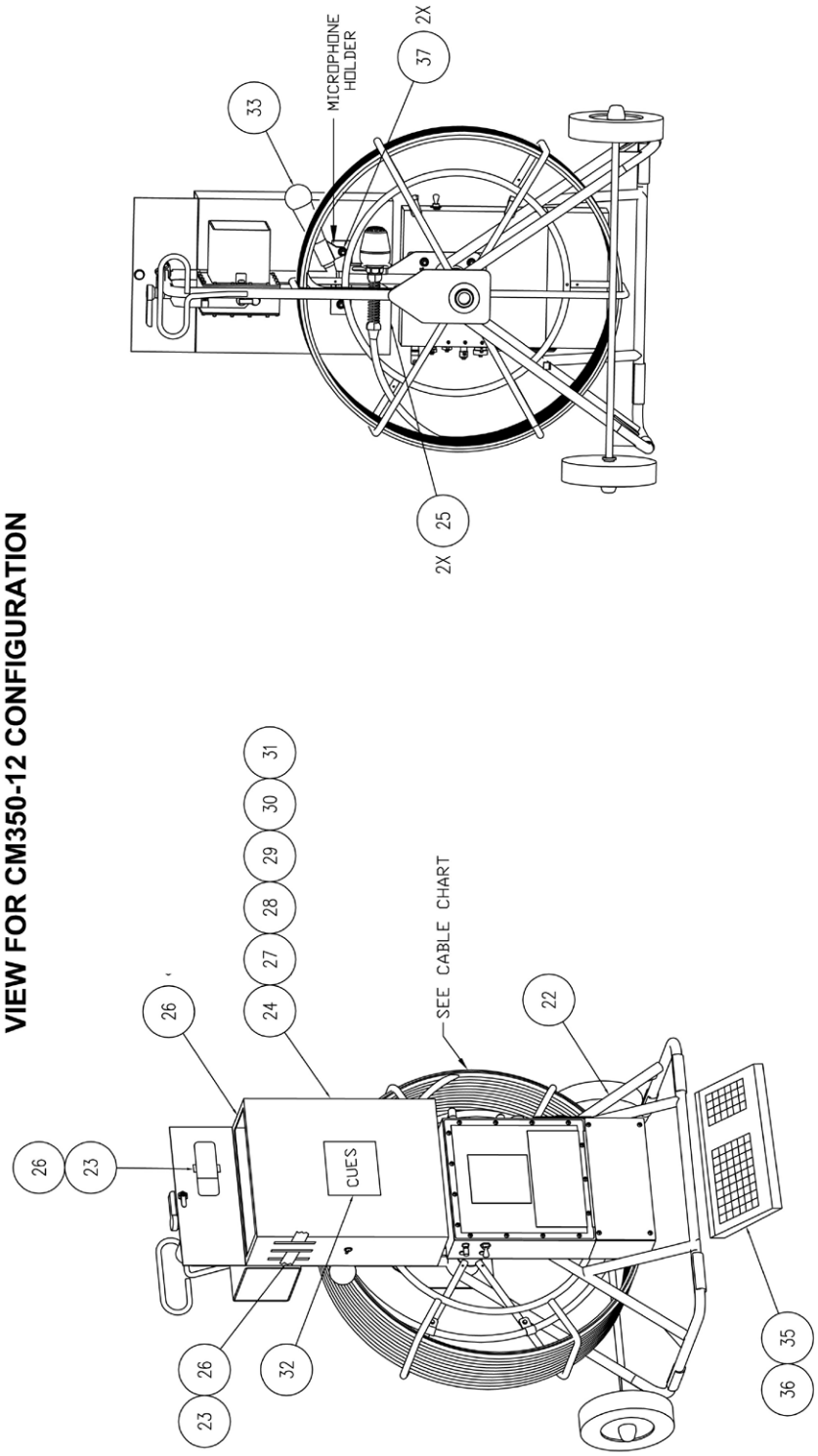


Figure 1c: *Mini Push 20/20, CM350*

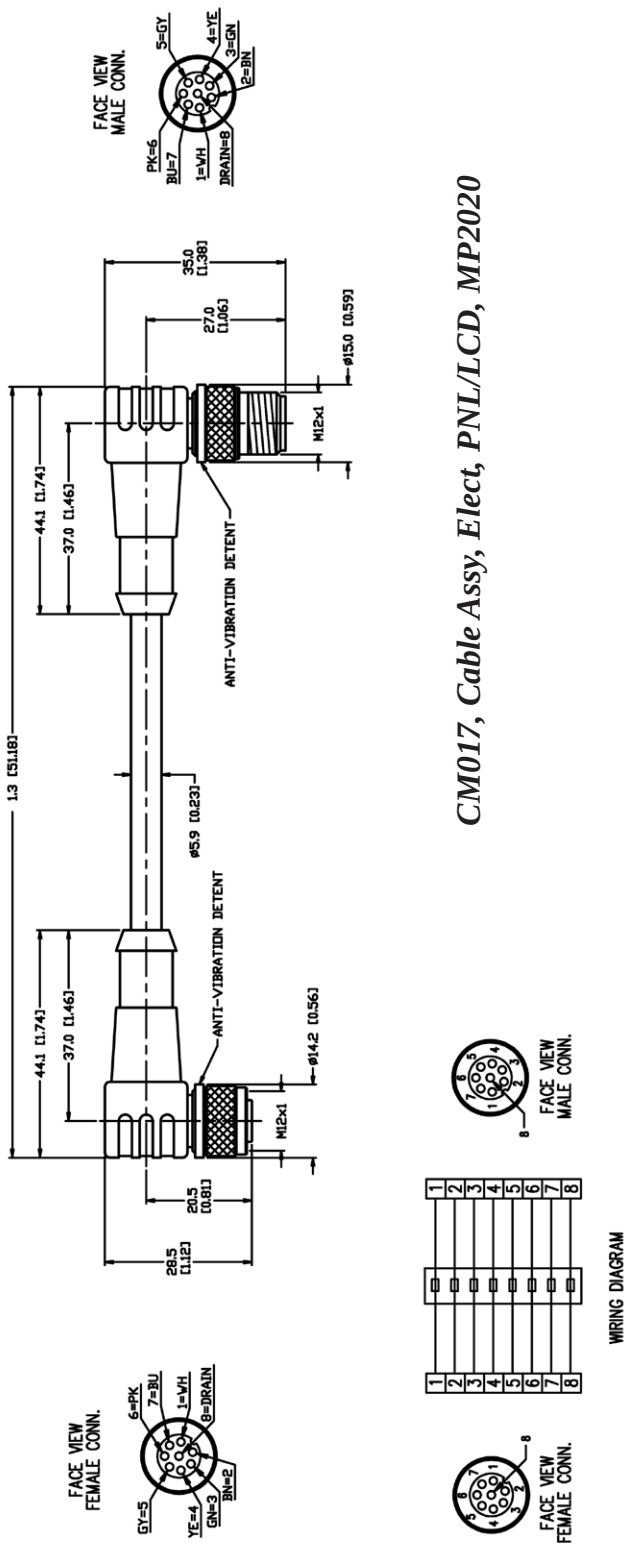


Figure 1e: *Mini Push 20/20, CM350*

MiniPush 20/20

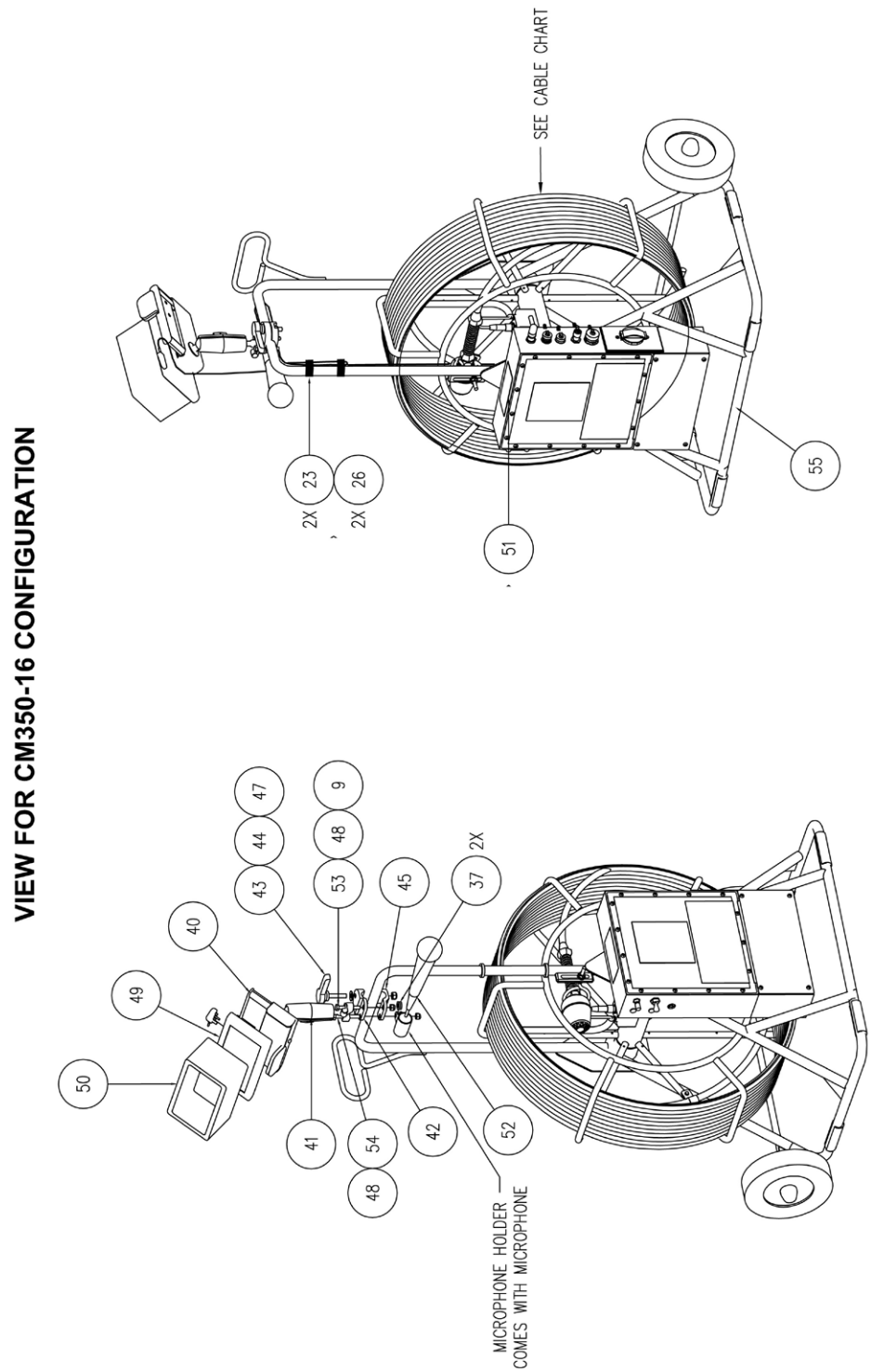


Figure 1f: *Mini Push 20/20, CM350*

VIEW FOR CM350-22 CONFIGURATION

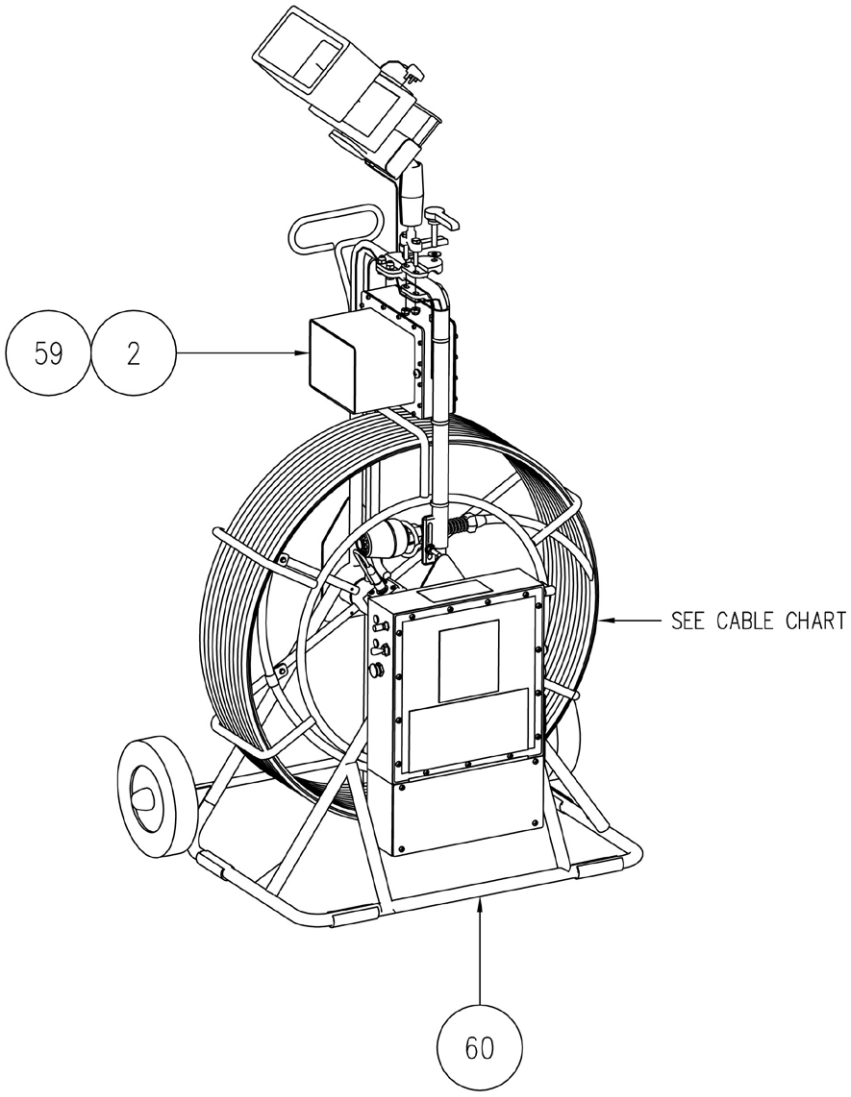


Figure 1g: *Mini Push 20/20, CM350*

MiniPush 20/20

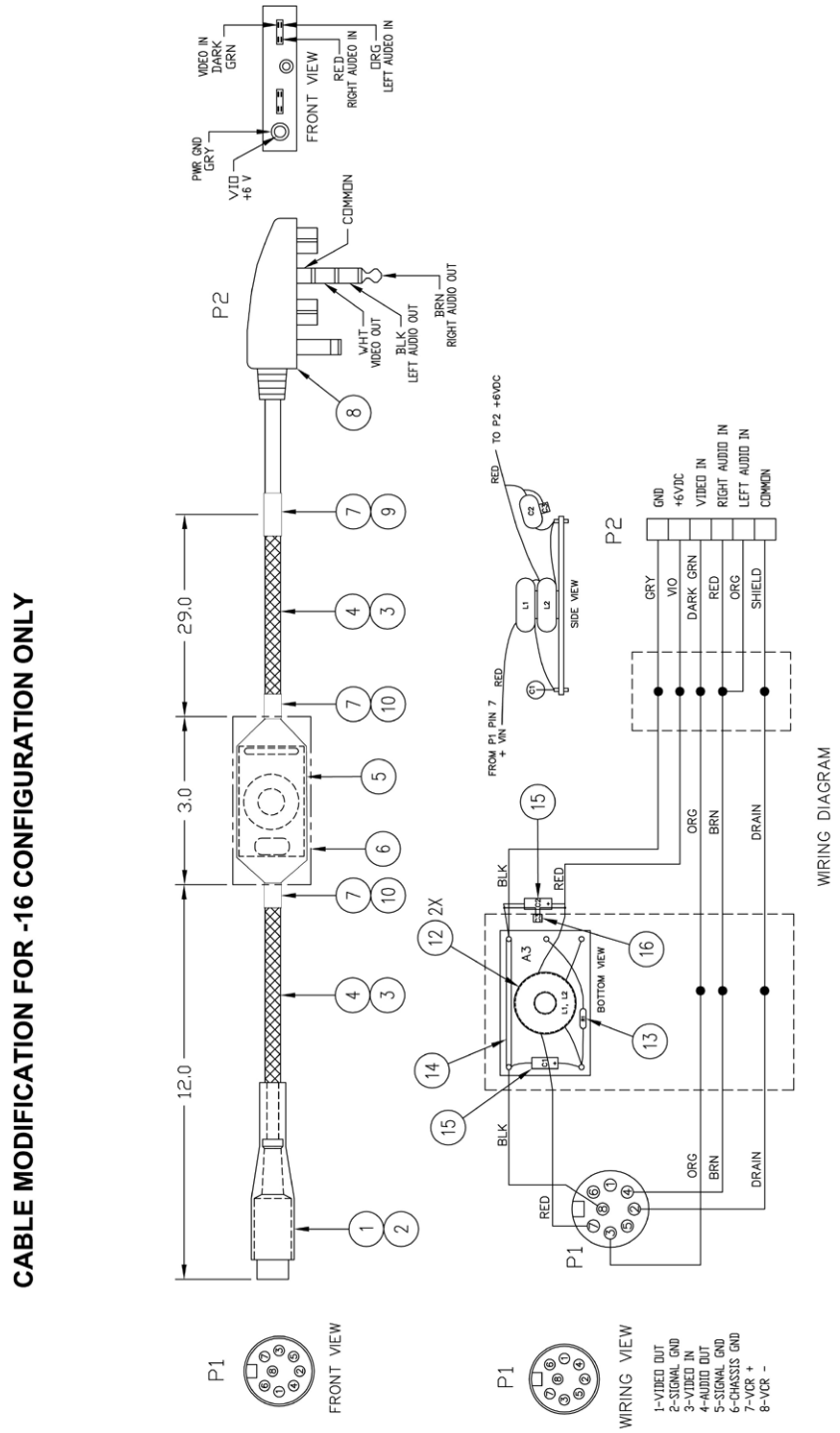


Figure 1h: *Mini Push 20/20, CM350*

Mini Push 20/20 (See Fig. 1) Rev. H, CM350			
Item #	Description	P/N	Qty
0001	COILER ASSY,MP20/20,W/AUDIO	CM300-2	1
0002	LCD DISPLAY ASSY,STD,NTSC/PAL,MP	CM303-2	1
0004	CLAMP,TUBING INSULATED,1/2"	121104	2
0005	SCREW,HEX WASHER HD,8X1-2 TYPE A PL	101949	2
0008	CORD,POWER COLOR SCOUT	165006	1
0009	CLAMP,CABLE NYLON 3/8ID	121003	2
0010	SCREW,PAN,6-32X1/4 PHIL SST	712416	1
0011	WASHER,FLAT,#6 USS STL	100153	1
0012	MRO-TIE,CABLE,7",CLEAR	440309	3
0013	GREASE,ANTI SEIZE 8 LB	420797	0.008
0014	MANUAL,OPERATION,MINI PUSH 20/20	CM901	1
0015	LABEL,LOGO 2.5"	962029	1
0016	GREASE,ANTI SEIZE 1 OZ	940700	1
0059	CABLE ASSY,ELEC.PNL/LCD,MINI PUSH	CM017	1

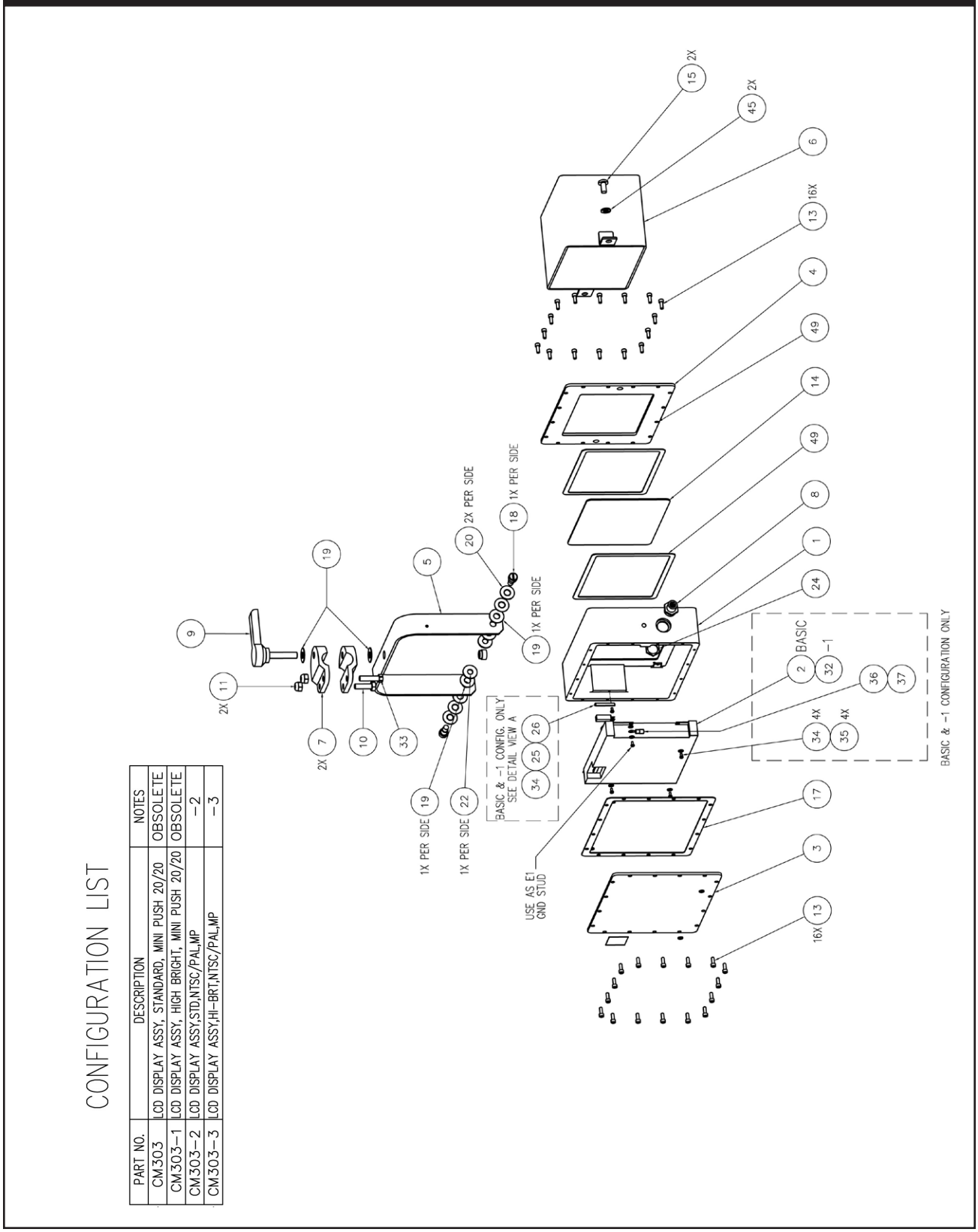
COILER SYS,HIGH-BRIGHT LCD,MP20/20, CM350-1			
Item #	Description	P/N	Qty
0002	LCD DISPLAY ASSY,STD,NTSC/PAL,MP	CM303-2	-1
0006	LCD DISPLAY ASSY,HI-BRT,NTSC/PAL,MP	CM303-3	1
0065	COILER SYS,STD LCD,MP 20/20	CM350	1

COILER SYS,W/TRNLTR,W/O LCD,MP20/20, CM350-4			
Item #	Description	P/N	Qty
0005	SCREW,HEX WASHER HD,8X1-2 TYPE A PL	101949	2
0013	GREASE,ANTI SEIZE 8 LB	420797	0.008
0014	MANUAL,OPERATION,MINI PUSH 20/20	CM901	1
0015	LABEL,LOGO 2.5"	962029	1
0017	COILER ASSY,MP20/20,W/TRNSLATR,12P	CM310	1

COILER SYS,STD LCD,MNT VCR,MP 20/20, CM350-12			
Item #	Description	P/N	Qty
0002	LCD DISPLAY ASSY,STD,NTSC/PAL,MP	CM303-2	1
0004	CLAMP,TUBING INSULATED,1/2"	121104	2
0005	SCREW,HEX WASHER HD,8X1-2 TYPE A PL	101949	2
0008	CORD,POWER COLOR SCOUT	165006	1
0009	CLAMP,CABLE NYLON 3/8ID	121003	2
0010	SCREW,PAN,6-32X1/4 PHIL SST	712416	1
0011	WASHER,FLAT,#6 USS STL	100153	1
0013	GREASE,ANTI SEIZE 8 LB	420797	0.008
0014	MANUAL,OPERATION,MINI PUSH 20/20	CM901	1
0015	LABEL,LOGO 2.5"	962029	1
0022	COILER ASSY,W/VCR LOCK BOX,MP20/20	CM300-1	1
0023	VELCRO,HOOK 5/8 BLACK	200512	1
0024	KIT,VCR,MOBILE,12VDC,W/CBL	CM907	1
0025	STRAIN RELIEF,PLASTIC,BLACK	EL225	2
0026	VELCRO,LOOP 5/8 BLACK	200513	1
0027	POWER DISTRI.ASSY,12VDC VCR,MP20/20	CM311	1
0028	CABLE ASSY,40",DIN>12VDC,VCR,MP2020	CM312-2	1
0029	AMPLIFIER,MINI AUDIO	EC934	2
0030	ADAPTER,IN-LINE,¼"PHONE TO 3.5MM	EC944	1
0031	CABLE,PHONO PLUG TO 3.5MM PLUG,3'	EC943	2
0032	LABEL,CUES,2X4"	962036	1
0033	MICROPHONE,SMALL,ON-OFF,W/EN3 CONN.	CM068	1
0034	TAPE,VIDEO T-120 INDUSTRIAL	714863	2
0035	KEYBOARD,MINI MULTIMEDIA BLACK PS-2	DP274	1
0036	ADAPTER,CABLE,PS2-F>AT-5P-M,KEYBRD	DP263	1
0059	CABLE ASSY,ELEC.PNL/LCD,MINI PUSH	CM017	1

COILER SYS,DVR,MP 20/20, CM350-18			
Item #	Description	P/N	Qty
0004	CLAMP,TUBING INSULATED,1/2"	121104	2
0005	SCREW,HEX WASHER HD,8X1-2 TYPE A PL	101949	2
0006	LCD DISPLAY ASSY,HI-BRT,NTSC/PAL,MP	CM303-3	1
0008	CORD,POWER COLOR SCOUT	165006	1
0009	CLAMP,CABLE NYLON 3/8ID	121003	2
0010	SCREW,PAN,6-32X1/4 PHIL SST	712416	1
0011	WASHER,FLAT,#6 USS STL	100153	1
0013	GREASE,ANTI SEIZE 8 LB	420797	0.008
0014	MANUAL,OPERATION,MINI PUSH 20/20	CM901	1
0015	LABEL,LOGO 2.5"	962029	1
0022	COILER ASSY,W/VCR LOCK BOX,MP20/20	CM300-1	1
0023	VELCRO,HOOK 5/8 BLACK	200512	1
0024	KIT,VCR,MOBILE,12VDC,W/CBL	CM907	1
0025	STRAIN RELIEF,PLASTIC,BLACK	EL225	2
0026	VELCRO,LOOP 5/8 BLACK	200513	1
0027	POWER DISTRI.ASSY,12VDC VCR,MP20/20	CM311	1
0028	CABLE ASSY,40",DIN>12VDC,VCR,MP2020	CM312-2	1
0029	AMPLIFIER,MINI AUDIO	EC934	2
0030	ADAPTER,IN-LINE,¼"PHONE TO 3.5MM	EC944	1
0031	CABLE,PHONO PLUG TO 3.5MM PLUG,3'	EC943	2
0032	LABEL,CUES,2X4"	962036	1
0033	MICROPHONE,SMALL,ON-OFF,W/EN3 CONN.	CM068	1
0034	TAPE,VIDEO T-120 INDUSTRIAL	714863	2
0035	KEYBOARD,MINI MULTIMEDIA BLACK PS-2	DP274	1
0036	ADAPTER,CABLE,PS2-F>AT-5P-M,KEYBRD	DP263	1
0059	CABLE ASSY,ELEC.PNL/LCD,MINI PUSH	CM017	1

MiniPush 20/20



CONFIGURATION LIST

PART NO.	DESCRIPTION	NOTES
CM303	LCD DISPLAY ASSY, STANDARD, MINI PUSH 20/20	OBSOLETE
CM303-1	LCD DISPLAY ASSY, HIGH BRIGHT, MINI PUSH 20/20	OBSOLETE
CM303-2	LCD DISPLAY ASSY,STD,NTSC/PAL,MP	-2
CM303-3	LCD DISPLAY ASSY,HI-BRT,NTSC/PAL,MP	-3

Figure 2a: *LCD Display Assembly, CM303*

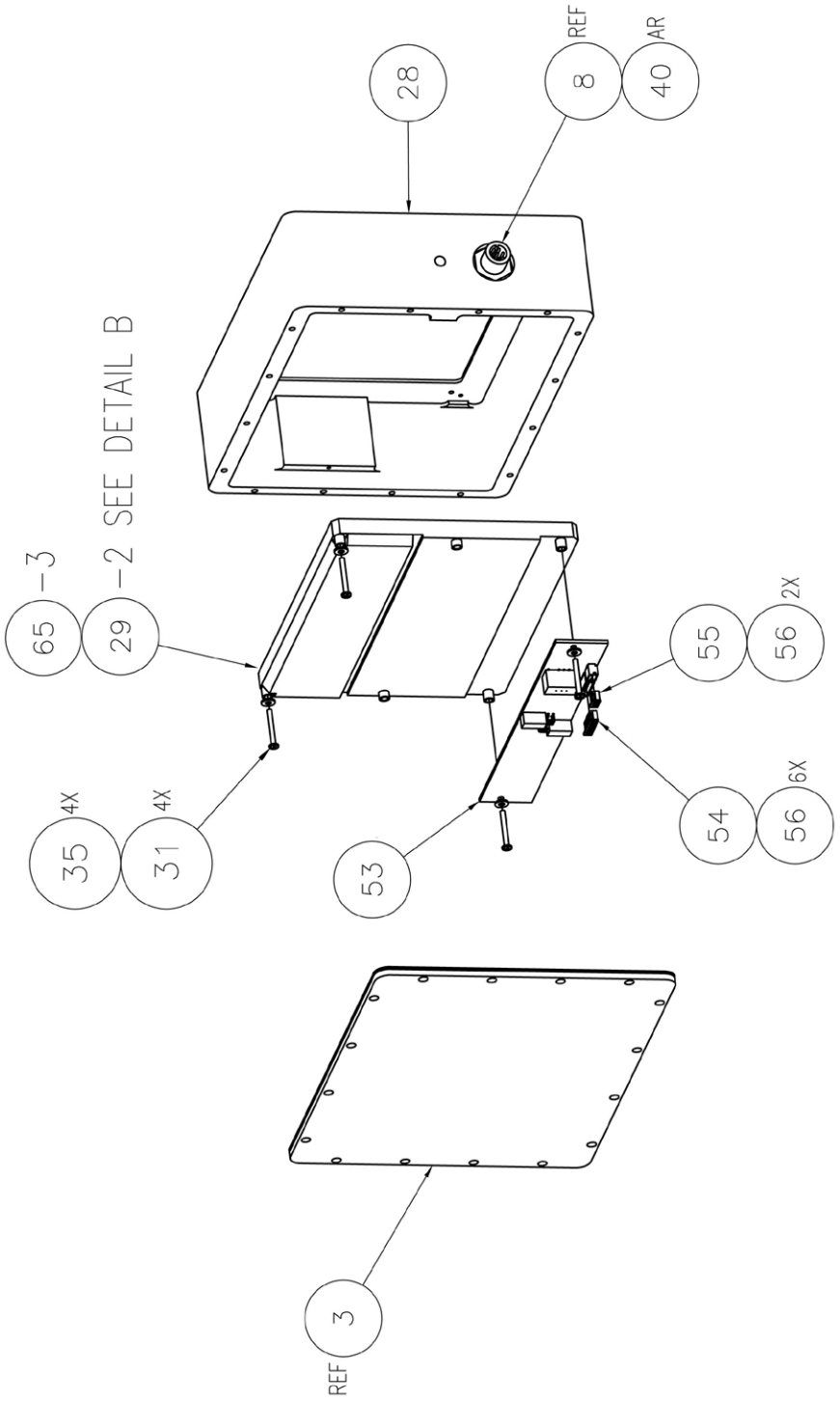


Figure 2b: *LCD Display Assembly, CM303*

LCD Display Assembly (See Fig. 2) Rev. M, CM303			
Item #	Description	P/N	Qty
0001	BOX,DISPLAY,MP SYS,OBS>CM005-1	CM005	1
0002	DISPLAY,LCD MODULE,MP SYS,OBS>CM043	CM006	1
0003	COVER,BACK,DISPLAY,MINI PUSH SYS	CM011	1
0004	COVER,FRONT,DISPLAY,MINI PUSH SYS	CM010	1
0005	BRACKET,DISPLAY,MINI PUSH SYSTEM	CM009	1
0006	VISOR,DISPLAY,MINI PUSH SYSTEM	CM007	1
0007	CLAMP,DISPLAY,MINI PUSH SYS	CM008	2
0008	CONNECTOR,BULKHD,M,8PIN,LUMBERG	EC275	1
0009	KNOB,DISPLAY,BOTTOM,MINI PUSH SYS	HW596	1
0010	SCREW,HEX HD,¼-20 X 7/8,SS	HW1060	1
0011	NUT,LOCK W/NYL INS 1/4-20 SST	HW030	2
0012	CAPACITOR,2.2MF 35V,TANTALUM	710339	1
0013	SCREW,CAP,SKT HD,6-32X3/8,W/NYLO,SS	101621	32
0014	WINDOW,LCD DISPLAY,MINI PUSH SYS	CM305	1
0015	SCREW,PAN,1/4-20X1/2 PHIL SST	101055	2
0016	CONTACT	715087	10
0017	GASKET,REAR COVER,LCD,MINI PUSH	CM037	1
0018	BOLT,SHLD,5/16 X 5/16,W/NYLOCK,PTCH	HW1061	2
0019	WASHER,FLAT,5/16ID X3/4 OD NYLON	HW785	7
0020	WASHER,WAVE SPR,5/16	HW725	4
0021	TUBE,SHRINK,BLACK 1/2"	712578	1
0022	WASHER,FLAT,1/4 USS PLD	101032	2
0023	RECEPTACLE,10PIN,MOLEX .079	EL635	1
0024	LOCKNUT,PG9 THREADS,LUMBERG	HW299	1
0025	SWITCH,TILT,MERCURY,METAL CASE,2 LD	EC802	1
0026	BRACKET,MNTING,TITL SWTCH,MINI PSH	CM028	1
0027	BRAID,TINNED COPPER TUBULAR	30057	1
0028	BOX,DISPLAY,MINI PUSH SYSTEM	CM005-1	1
0029	DISPLAY,LCD MODULE,PAL/NTSC,MODIFD	CM043-1	1
0031	SCREW,PAN,2-56X3/4 SST	103050	4
0033	BOLT,HEX,HEAD,1/4-20X1.00 LG,SST	HW803	1
0034	SCREW,PAN,2-56X3/16 PHIL SST	103017	5
0035	WASHER,FLAT,NARROW #2 SST	100174	8
0036	TERMINAL,RING,18-22AWG #6 STUD,RED	712638	1
0037	WASHER,INTERNAL STAR #2 SST	100144	1
0038	TUBING,TEFLON #24	HW068	1
0039	MRO-REMOVABLE LCK,ND 121200-50,BLUE	440061	1
0040	MRO-TIE,CABLE,3/32"X4",WHT/CLR	440307	1
0041	TUBE,SHRINK,BLACK 3/32"	712595	1
0042	TUBE,SHRINK,BLACK 1/8"	712789	1
0043	MRO-PERMANENT LOCK,ND 140500-50,RED	440060	1
0044	SOCKET STRIP,12PIN,FEMALE,SSA112WT	EL392	1
0045	WASHER,SPLIT LOCK,1/4"SST	101740	2
0049	GASKET,WINDOW DISPLAY,LCD	CM038	2

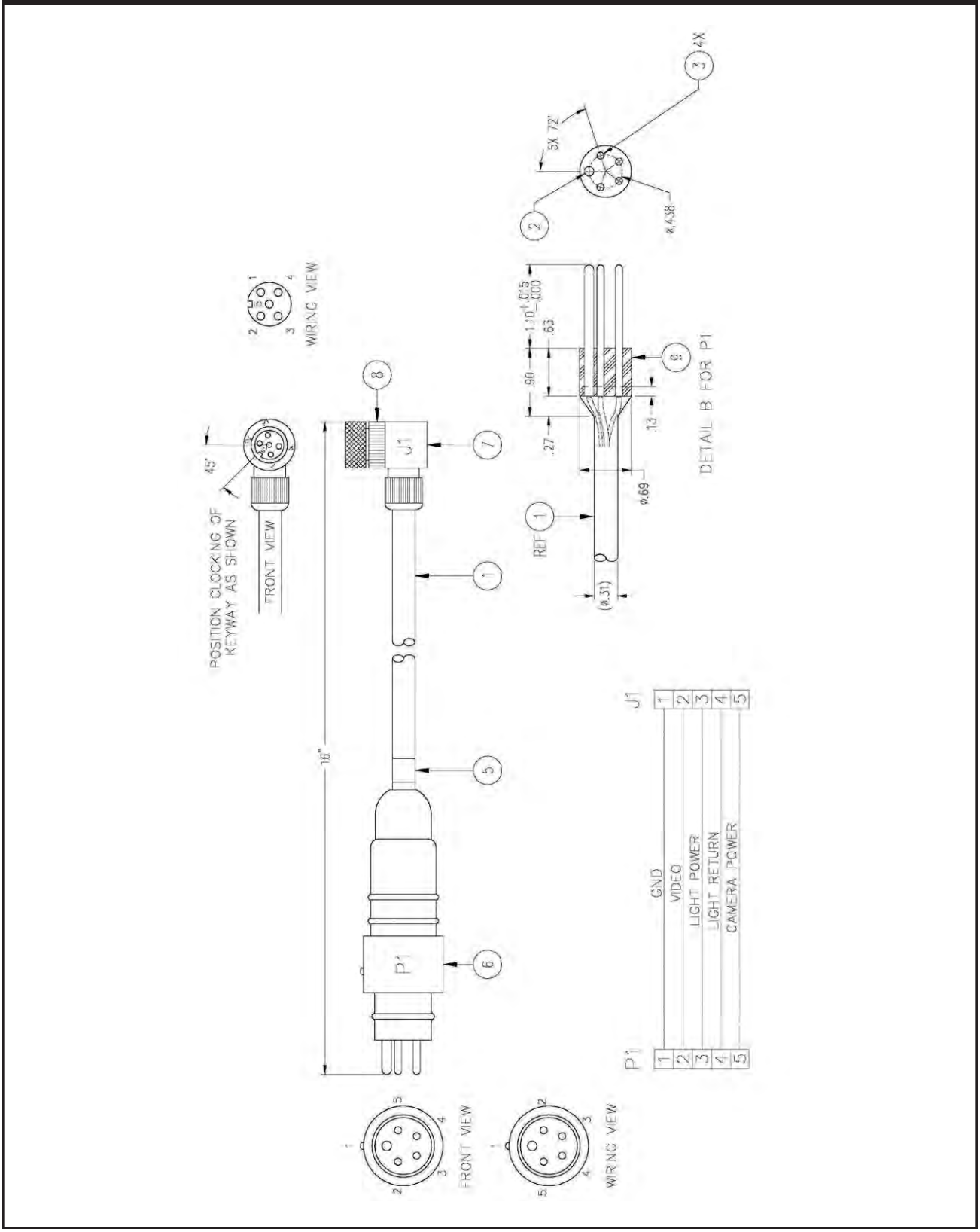


Figure 3. *Cable Adapter, Minipush to M/C Truck, CM024*

MiniPush 20/20

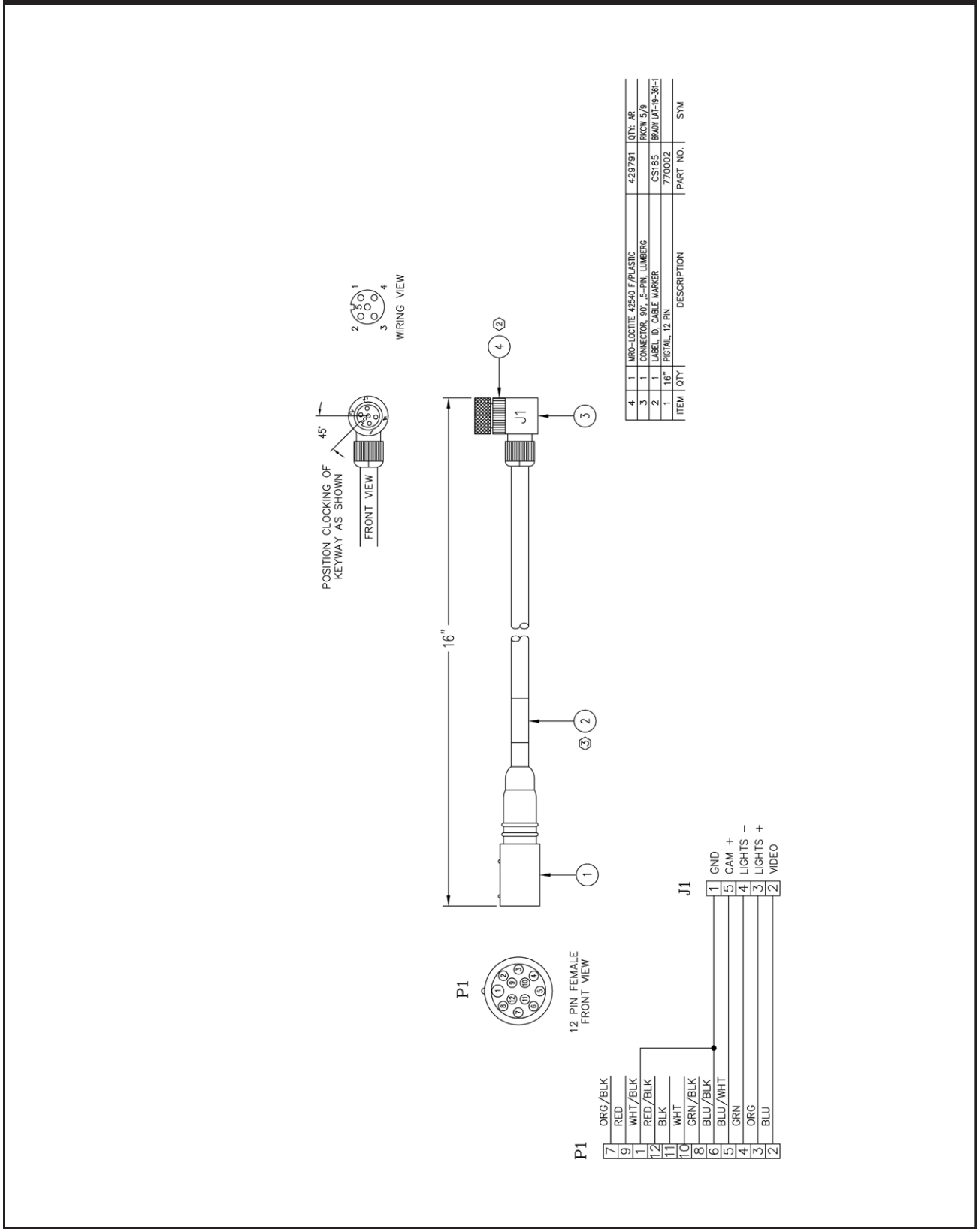
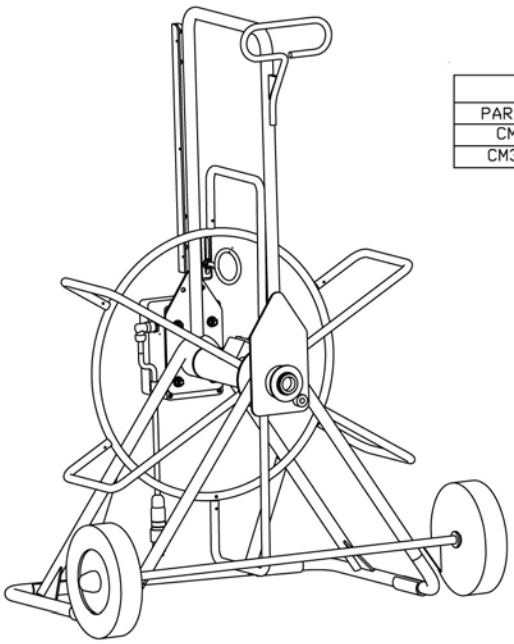


Figure 4. *Cable, Adapter, Minipush to M/C 12 Pin, CM324*

MiniPush 20/20 Coiler Assembly



CONFIGURATION LIST		
PART NO.	DESCRIPTION	NOTES
CM310	COILER ASSY,MP20/20,W/TRNSLATR,12P	
CM310-1	COILER ASSY,MP20/20,W/TRNSLATR,5P	

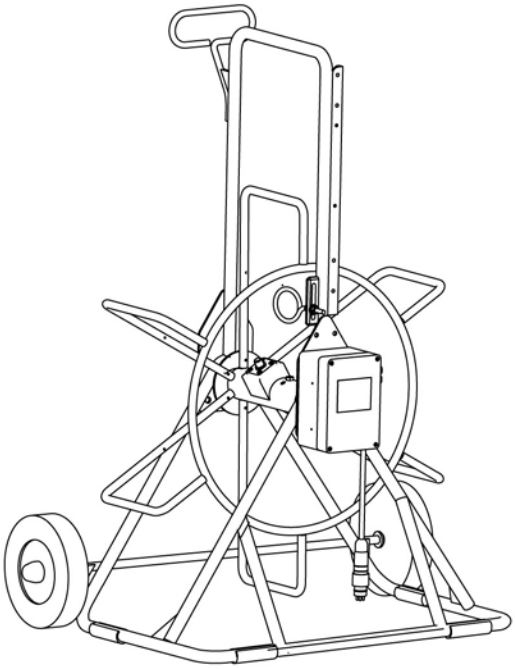


Figure 5a. *Coiler Assembly, Mini Push 20/20 with Translator, CM310*

MiniPush 20/20 Coiler Assembly

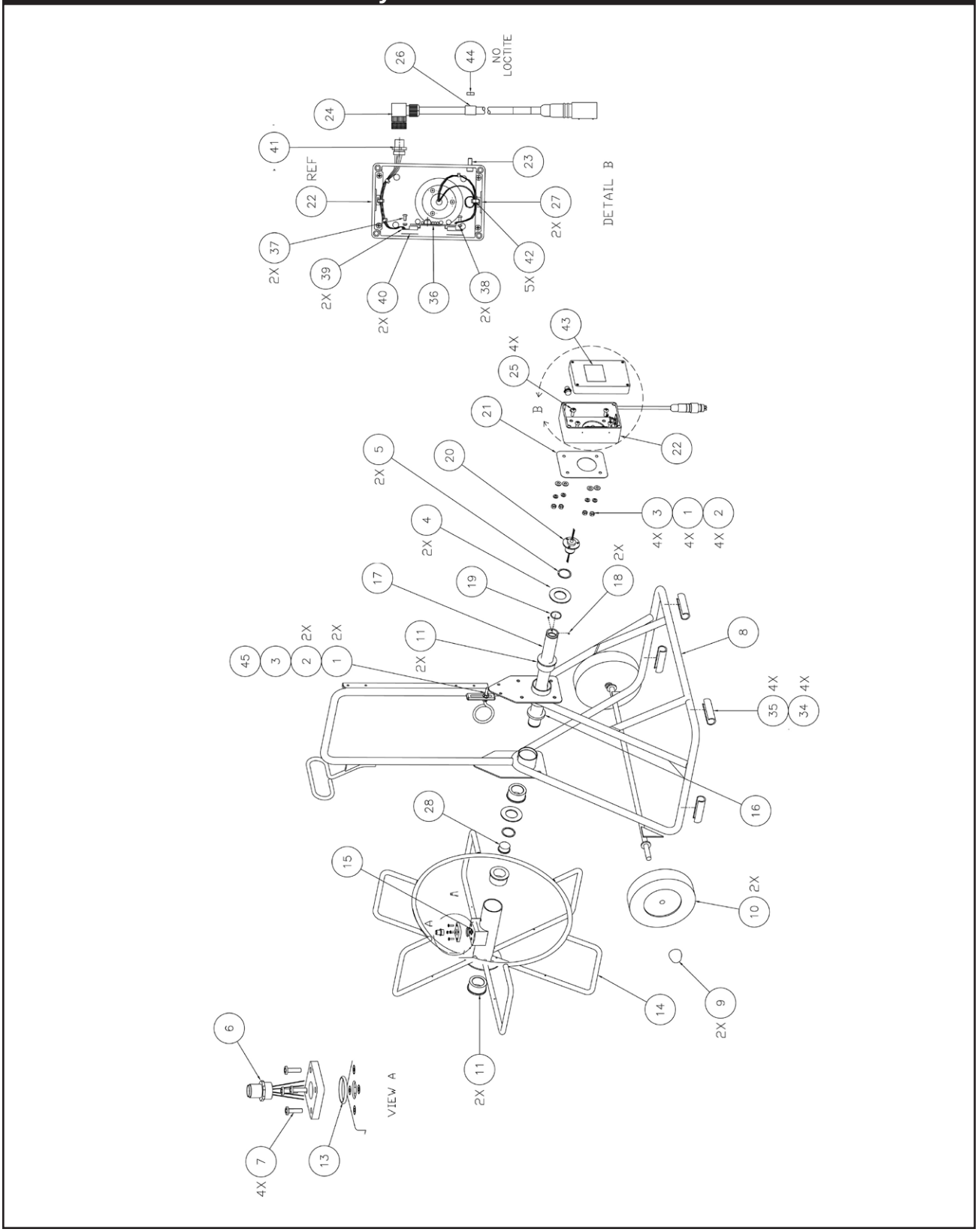
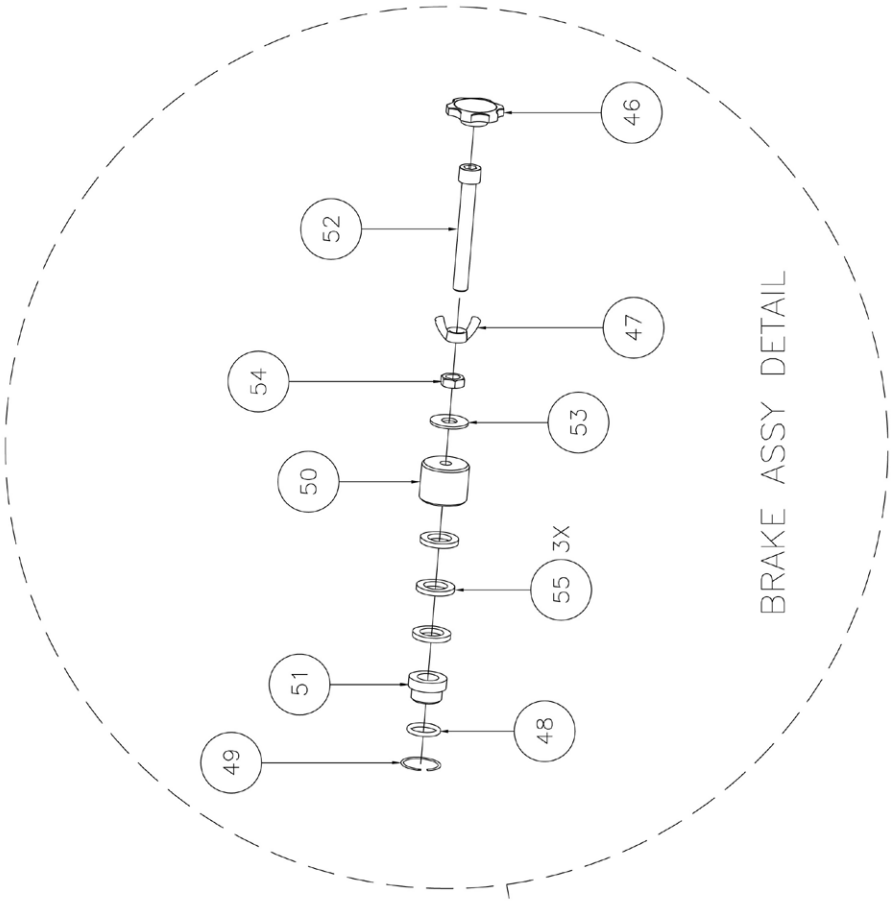


Figure 5b. *Coiler Assembly, Mini Push 20/20 with Translator, CM310*

MiniPush 20/20 Coiler Assembly



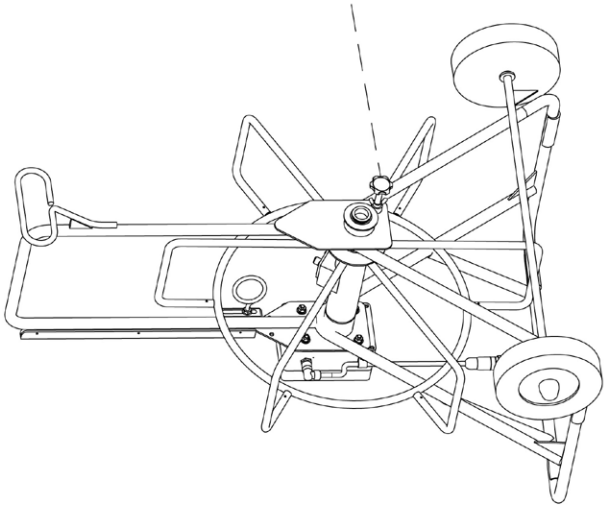


Figure 5c. *Coiler Assembly, Mini Push 20/20 with Translator, CM310*

Coiler Assembly, Mini Push 20/20 with Translator (See Figure 5), Rev. D, CM310			
Item #	Description	P/N	Qty
0001	NUT,HEX,SST,1/4-20	101040	6
0002	WASHER,FLAT,1/4"SST	101736	6
0003	WASHER,SPLIT LOCK,1/4"SST	101740	5
0004	SHIM,1-3/4 ODX 1-1/4 IDX.098THK ST	CR106	2
0005	RING,RETAINING,EXTERNAL,1 1/4"	HW172	2
0006	RECEPTACLE,MICRO,4PIN-M,PANEL MNT	EL733	1
0007	SCREW,SEAL(8-32X9/16L)PHIL HEAD	HW004	4
0008	FRAME,3/4"TUBING,MINI PUSH SYS	CM039	1
0009	CAP,SHAFT 1/2"	HW166	2
0010	WHEEL,RUBBER,7"DIA,COILER	CR001	2
0011	BEARING,AXLE,MINI PUSH SYSTEM	CM035	4
0012	PLATE,PG9 PLUG,MINI PUSH SYS	CM021	1
0013	O-RING,2-118 EP	132208	1
0014	BASKET,MINI PUSH SYSTEM	CM004	1
0015	BOLT,HEX,1/4-28X3/4 GR5 PL	100990	1
0016	SEAL,SHAFT,DBL LIP SPR,1¼X1.874 VIT	HW727	1
0017	AXLE,MINI PUSH SYSTEM	CM002	1
0018	SCREW,SET,CUP PT,#6-32X1/8LG SST	100046	2
0019	O-RING,2-022,1.0"X1.125,EP	HW139	1
0020	SLIPRING ASSY,W/TRANSLATOR,MP 20/20	CM308-1	1
0021	GASKET,FRAME,MINI PUSH SYS	CM023	1
0022	ENCLOSURE,MODIFIED F/MP TRANSLATOR	FM012-1	1
0023	SCREW,CAP,SKT HD,10-32X1/2,SST	102001	1
0024	CABLE,ADAPTER,MINIPUSH TO M/C 12P	CM324	1
0025	SCREW,TRUSS,1/4-20X3/4 PHIL SST	712449	4
0026	CLAMP,TUBING INSULATED,3/8"	121106	1
0027	MRO-MOUNT,CABLE TIE	505147	2
0028	CAP,.903"ID X 1.092"OD,PLASTIC	HW171	1
0029	MRO-REMOVABLE LCK,ND 121200-50,BLUE	440061	1
0030	MRO-PERMANENT LOCK,ND 140500-50,RED	440060	1
0031	MRO-LUBRICANT,O-RING 2 OZ TUBE	439986	1
0032	MRO-SEALANT,POURABLE TRANSLUCENT	445066	1
0033	TUBE,SHRINK,BLACK 1/8"	712789	1
0034	STRIP,WEAR,FULL RND,WHITE UHMW	MR197	1
0035	TAPE,PRESSURE SENSITIVE,WHITE	CS220	1
0036	MODULE,PCB ASSY TRANSLATOR	700800	1
0037	SCREW,PAN,4-40X1/4 MACHINE	HW227	2
0038	WASHER,SHOULDER NYLON #4	103056	2
0039	TRANSISTOR,TIP 142	710107	2
0040	INSULATOR,THERMAL,SIL-PAD,TO218	EL088	2

Coiler Assembly, Mini Push 20/20 with Translator (See Figure 5), Rev. D, CM310			
Item #	Description	P/N	Qty
0041	RECEPTACLE,MICRO,5-PIN-M,PANEL,MNT	EL736	1
0042	MRO-TIE,CABLE,3/32"X4",WHT/CLR	440307	5
0044	NUT,LOCK,SST,10-32	103033	1
0045	GUIDE,CABLE,RING,F/CM039	CM046	1
0046	KNOB,THUMB SCREW,F/3/8 SCREW	HW1739	1
0047	NUT,WING,SST,3/8-16	HW232	1
0048	O-RING,2-115,EPDM NSF 61	HW1617	1
0049	RING,RETAIN,SPIRAL IN,Ø1.000,SS	HW1752	1
0050	CAN,PAD,BRAKE,PORTABLE REEL,K2	MD102	1
0051	PAD,DELRIN,BRAKE,.63"LG,K2&MP2020	MD084	1
0052	SCREW,CAP SKT,3/8-16X3,FULL THD,SS	HW1770	1
0053	WASHER,FLAT,3/8 SAE	101236	1
0054	NUT,JAM,PLATED,3/8-16	101241	1
0055	WASHER,HOSE RUBBER	109302	3
0056	CLAMP,TUBING INSULATED,1/2"	121104	2
0057	SCREW,HEX WASHER HD,8X1-2 TYPE A PL	101949	2
0058	GREASE,ANTI SEIZE 8 LB	420797	0.008
0059	MANUAL,OPERATION,MINI PUSH 20/20	CM901	1

MiniPush 20/20

CONFIGURATION LIST

PART NO.	DESCRIPTION	NOTES
CM300	COILER ASSY, MINI PUSH 20/20 SYSTEM	BASIC
CM300–1	COILER ASSY, W/VCR LOCK BOX, MP 20/20 SYS	–1
CM300–2	COILER ASSY, MP20/20, W/AUDIO	–2

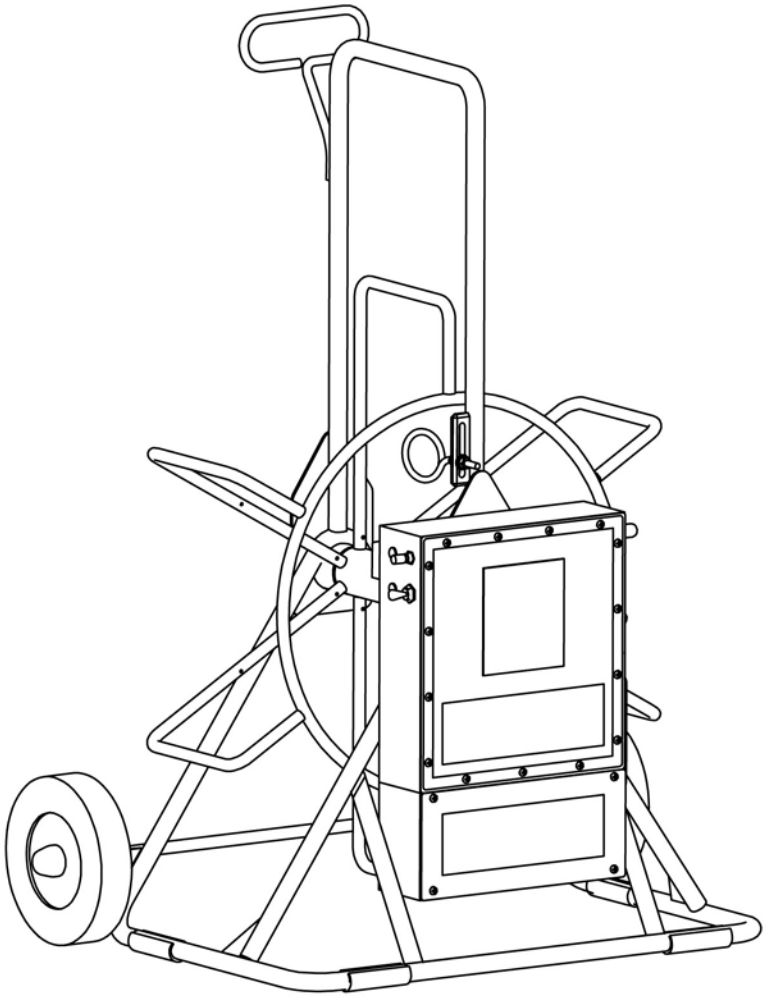


Figure 6a: *Coiler Assembly, CM300-1 & -2*

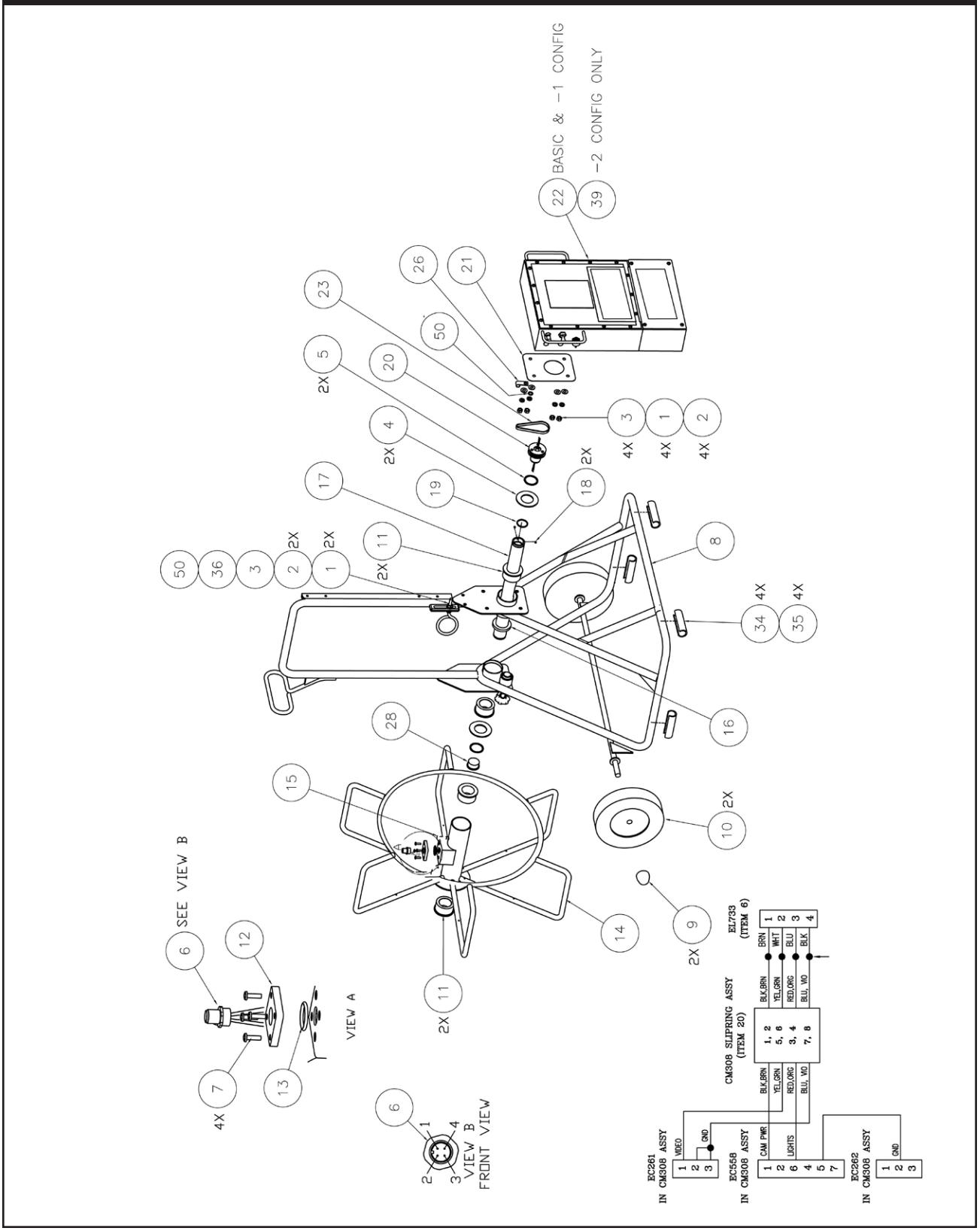


Figure 6b: *Coiler Assembly, CM300-1 & -2*

MiniPush 20/20

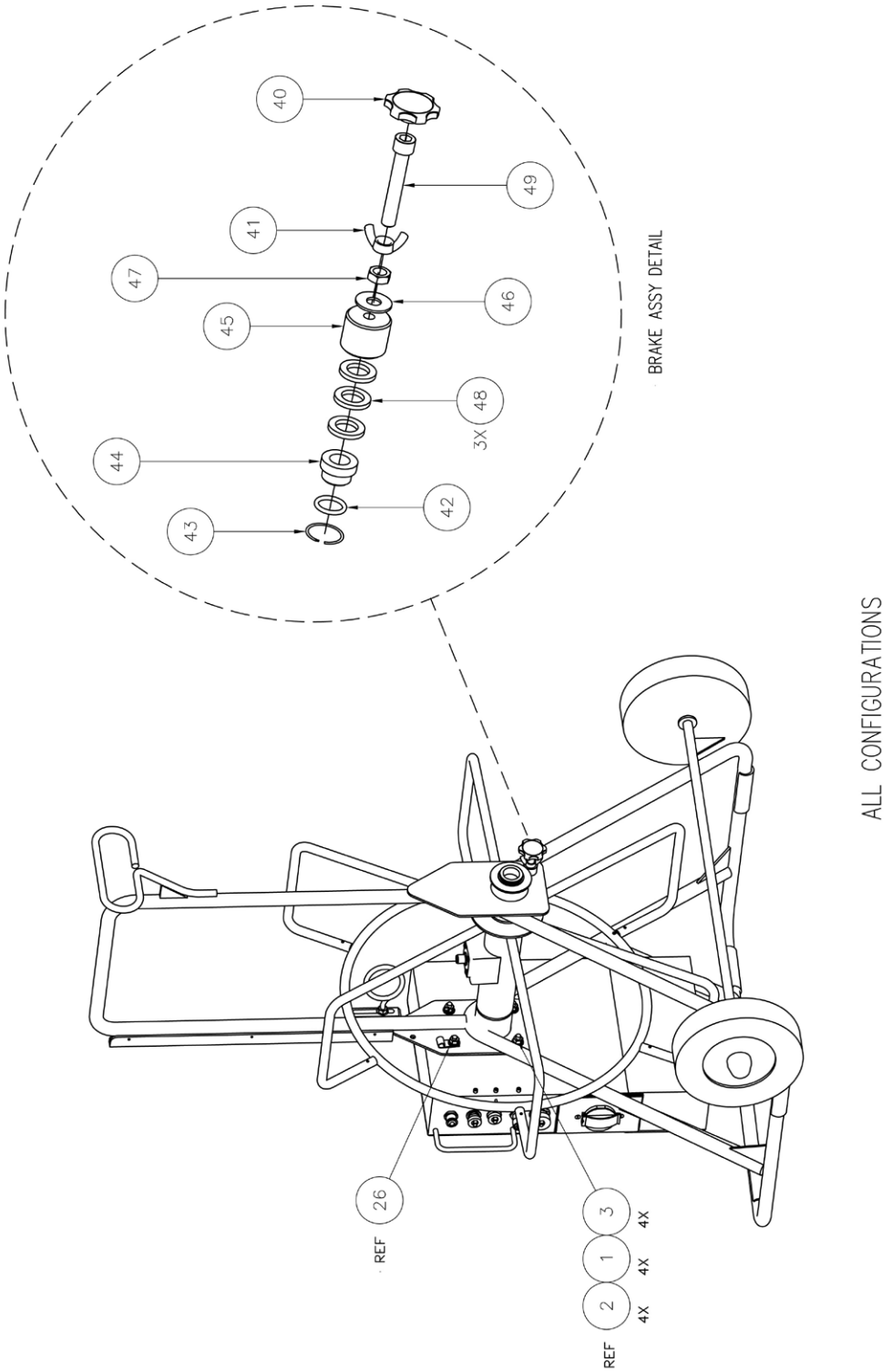


Figure 6c: *Coiler Assembly, CM300-1 & -2*

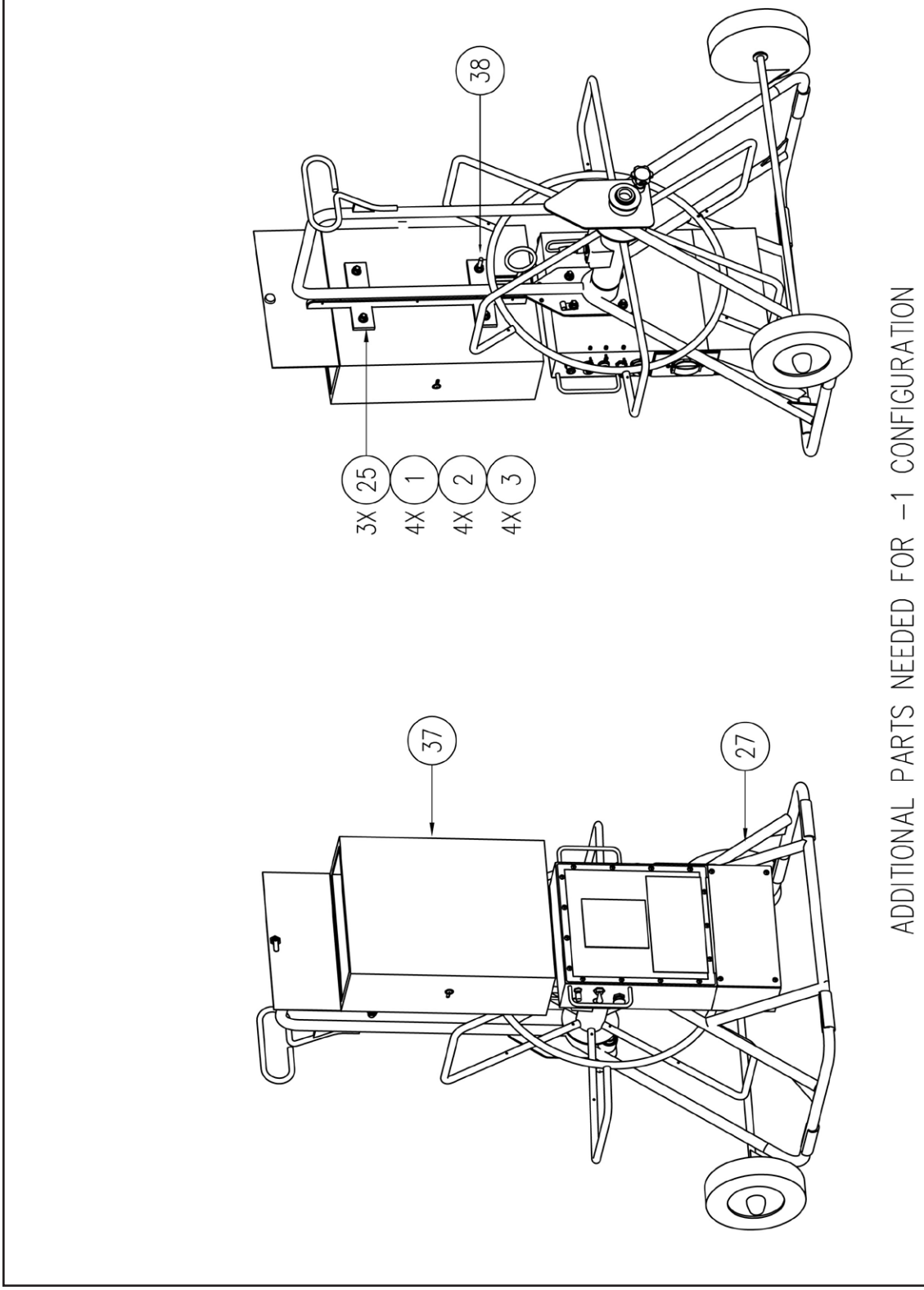


Figure 6d: *Coiler Assembly, CM300-1 & -2*

COILER ASSY,W/VCR LOCK BOX,MP20/20, (See Fig. 6) Rev. H, CM300-1			
Item #	Description	P/N	Qty
0001	NUT,HEX,SST,1/4-20	101040	10
0002	WASHER,FLAT,1/4"SST	101736	10
0003	WASHER,SPLIT LOCK,1/4"SST	101740	9
0004	SHIM,1-3/4 ODX 1-1/4 IDX.098THK ST	CR106	2
0005	RING,RETAINING,EXTERNAL,1 1/4"	HW172	2
0006	RECEPTACLE,MICRO,4PIN-M,PANEL MNT	EL733	1
0007	SCREW,SEAL(8-32X9/16L)PHIL HEAD	HW004	4
0009	CAP,SHAFT 1/2"	HW166	2
0010	WHEEL,RUBBER,7"DIA,COILER	CR001	2
0011	BEARING,AXLE,MINI PUSH SYSTEM	CM035	4
0012	PLATE,PG9 PLUG,MINI PUSH SYS	CM021	1
0013	O-RING,2-118 EP	132208	1
0014	BASKET,MINI PUSH SYSTEM	CM004	1
0015	BOLT,HEX,1/4-28X3/4 GR5 PL	100990	1
0016	SEAL,SHAFT,DBL LIP SPR,1¼X1.874 VIT	HW727	1
0017	AXLE,MINI PUSH SYSTEM	CM002	1
0018	SCREW,SET,CUP PT,#6-32X1/8LG SST	100046	2
0019	O-RING,2-022,1.0"X1.125,EP	HW139	1
0020	SLIPRING ASSY,MINI PUSH SYSTEM	CM308	1
0021	GASKET,FRAME,MINI PUSH SYS	CM023	1
0022	ELECTRONICS BOX ASSY,MP20/20,W/AUD	CM301-1	1
0023	BELT,ENCODER,MINI PUSH SYSTEM	HW592	1
0025	BOLT,HEX,1/4-20X3/4 GR5 PL	101004	3
0026	CLAMP,TUBING INSULATED,1/4"	121107	1
0027	FRAME ASSY,MOD,F/VCR/LOCKBOX,MP	CM039-1	1
0028	CAP,.903"ID X 1.092"OD,PLASTIC	HW171	1
0029	MRO-REMOVABLE LCK,ND 121200-50,BLUE	440061	1
0030	MRO-PERMANENT LOCK,ND 140500-50,RED	440060	1
0031	MRO-LUBRICANT,O-RING 2 OZ TUBE	439986	1
0032	MRO-SEALANT,POURABLE TRANSLUCENT	445066	1
0033	TUBE,SHRINK,BLACK 1/8"	712789	1
0034	STRIP,WEAR,FULL RND,WHITE UHMW	MR197	1
0035	TAPE,PRESSURE SENSITIVE,WHITE	CS220	1
0036	GUIDE,CABLE,RING,F/CM039	CM046	1
0038	LOCKBOX,VCR,MODIFIED,MP 20/20	CM044-1	1
0039	BOLT,HEX,1/4-20X1 1/2 TAP GR2	101021	1
0040	KNOB,THUMB SCREW,F/3/8 SCREW	HW1739	1

COILER ASSY,W/VCR LOCK BOX,MP20/20, (See Fig. 6) Rev. H, CM300-1			
Item #	Description	P/N	Qty
0042	O-RING,2-115,EPDM NSF 61	HW1617	1
0043	RING,RETAIN,SPIRAL IN,Ø1.000,SS	HW1752	1
0044	PAD,DELRIN,BRAKE,.63"LG,K2&MP2020	MD084	1
0045	CAN,PAD,BRAKE,PORTABLE REEL,K2	MD102	1
0046	WASHER,FLAT,3/8 SAE	101236	1
0047	NUT,JAM,PLATED,3/8-16	101241	1
0048	WASHER,HOSE RUBBER	109302	3
0049	SCREW,CAP SKT,3/8-16X3,FULL THD,SS	HW1770	1
0050	WASHER,STAR INTERNAL 1/4 PLD	101034	2

COILER ASSY,MP20/20,W/AUDIO, (See Fig. 6) Rev. H, CM300-2			
Item #	Description	P/N	Qty
0001	NUT,HEX,SST,1/4-20	101040	6
0002	WASHER,FLAT,1/4"SST	101736	6
0003	WASHER,SPLIT LOCK,1/4"SST	101740	5
0004	SHIM,1-3/4 ODX 1-1/4 IDX.098THK ST	CR106	2
0005	RING,RETAINING,EXTERNAL,1 1/4"	HW172	2
0006	RECEPTACLE,MICRO,4PIN-M,PANEL MNT	EL733	1
0007	SCREW,SEAL(8-32X9/16L)PHIL HEAD	HW004	4
0008	FRAME,3/4"TUBING,MINI PUSH SYS	CM039	1
0009	CAP,SHAFT 1/2"	HW166	2
0010	WHEEL,RUBBER,7"DIA,COILER	CR001	2
0011	BEARING,AXLE,MINI PUSH SYSTEM	CM035	4
0012	PLATE,PG9 PLUG,MINI PUSH SYS	CM021	1
0013	O-RING,2-118 EP	132208	1
0014	BASKET,MINI PUSH SYSTEM	CM004	1
0015	BOLT,HEX,1/4-28X3/4 GR5 PL	100990	1
0016	SEAL,SHAFT,DBL LIP SPR,1¼X1.874 VIT	HW727	1
0017	AXLE,MINI PUSH SYSTEM	CM002	1
0018	SCREW,SET,CUP PT,#6-32X1/8LG SST	100046	2
0019	O-RING,2-022,1.0"X1.125,EP	HW139	1
0020	SLIPRING ASSY,MINI PUSH SYSTEM	CM308	1
0021	GASKET,FRAME,MINI PUSH SYS	CM023	1
0023	BELT,ENCODER,MINI PUSH SYSTEM	HW592	1
0026	CLAMP,TUBING INSULATED,1/4"	121107	1

COILER ASSY,MP20/20,W/AUDIO, (See Fig. 6) Rev. H, CM300-2			
Item #	Description	P/N	Qty
0028	CAP,.903"ID X 1.092"OD,PLASTIC	HW171	1
0029	MRO-REMOVABLE LCK,ND 121200-50,BLUE	440061	1
0030	MRO-PERMANENT LOCK,ND 140500-50,RED	440060	1
0031	MRO-LUBRICANT,O-RING 2 OZ TUBE	439986	1
0032	MRO-SEALANT,POURABLE TRANSLUCENT	445066	1
0033	TUBE,SHRINK,BLACK 1/8"	712789	1
0034	STRIP,WEAR,FULL RND,WHITE UHMW	MR197	1
0035	TAPE,PRESSURE SENSITIVE,WHITE	CS220	1
0036	GUIDE,CABLE,RING,F/CM039	CM046	1
0039	ELECTRONICS BOX ASSY,MP20/20,W/AUD	CM301-1	1
0040	KNOB,THUMB SCREW,F/3/8 SCREW	HW1739	1
0041	NUT,WING,SST,3/8-16	HW232	1
0042	O-RING,2-115,EPDM NSF 61	HW1617	1
0043	RING,RETAIN,SPIRAL IN,Ø1.000,SS	HW1752	1
0044	PAD,DELRIN,BRAKE,.63"LG,K2&MP2020	MD084	1
0045	CAN,PAD,BRAKE,PORTABLE REEL,K2	MD102	1
0046	WASHER,FLAT,3/8 SAE	101236	1
0047	NUT,JAM,PLATED,3/8-16	101241	1
0048	WASHER,HOSE RUBBER	109302	3
0049	SCREW,CAP SKT,3/8-16X3,FULL THD,SS	HW1770	1
0050	WASHER,STAR INTERNAL 1/4 PLD	101034	2

MiniPush 20/20 Pushcables

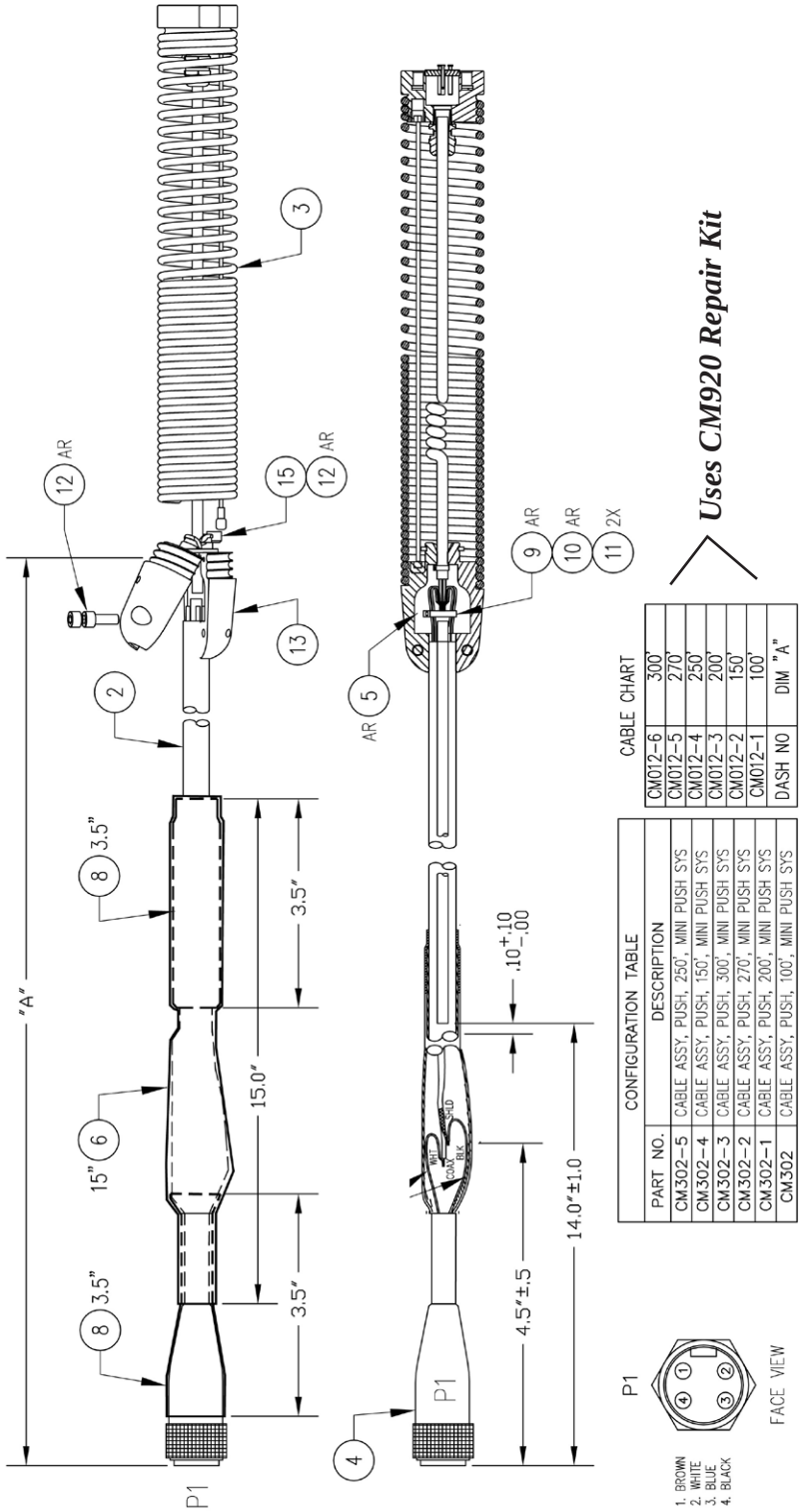


Figure 7a: *Mini Push Cable Assembly, CM302*

MiniPush 20/20 Pushcables

Cable Assembly, 100' (See Fig. 7) Rev. H, CM302

Item #	Description	P/N	Qty
0001	MRO-TAPE,FIBER ELECTRICAL	440351	1
0002	CABLE,PUSH,BLUE,MP,100' COILED	CM012-1	1
0003	CABLE END ASSY,CONNECTION&SPRING	CM340	1
0004	PIGTAIL,MICRO,4-PIN-F,STR,22AWG,2M	EL734	1
0006	TUBE,SHRINK,BLACK 3:1 RATIO-1/2"	712572	1.25
0007	TUBE,SHRINK,BLACK 3/16"RNF	712577	0.34
0008	TUBE,SHRINK,BLACK 1/2"SCL	712581	0.6
0009	TUBE,SHRINK,BLACK 1/4"RNF	712576	1
0010	TUBE,SHRINK,BLACK 3/32"	712595	1
0011	MRO-TIE,CABLE,3/32"X4",WHT/CLR	440307	2
0012	MRO-REMOVABLE LCK,ND 121200-50,BLUE	440061	1
0013	CLAMSHELL,CBL END,CONN&SPRNG ATTCH	CM104	1
0014	WRENCH,SPANNER,SPRNG,CBL END ASSY	CM106	1
0015	SCREW,SET,1/4-28X3/16 LONG,SST	HW105	1

Figure 7b: *Mini Push Cable Assembly, CM302*

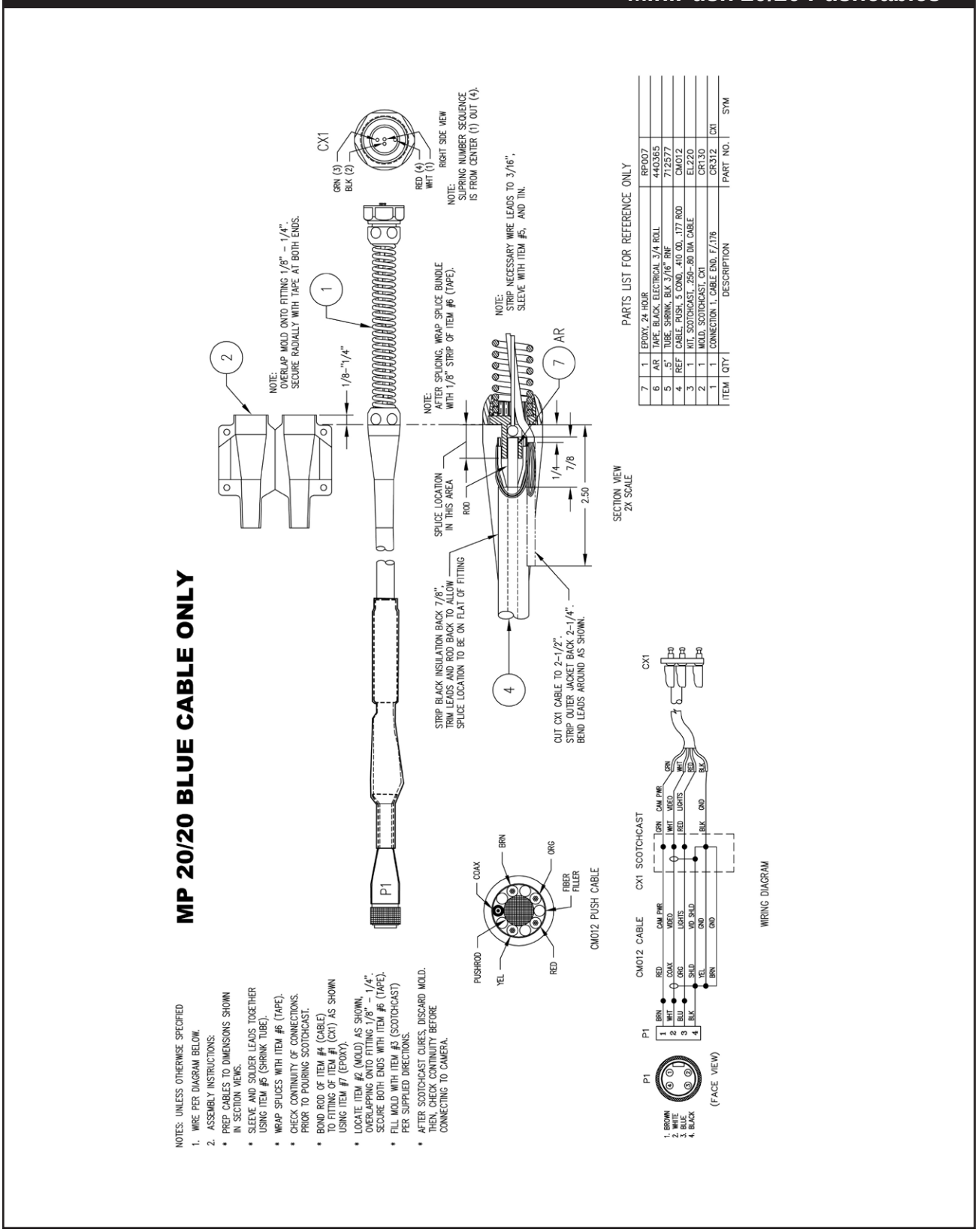
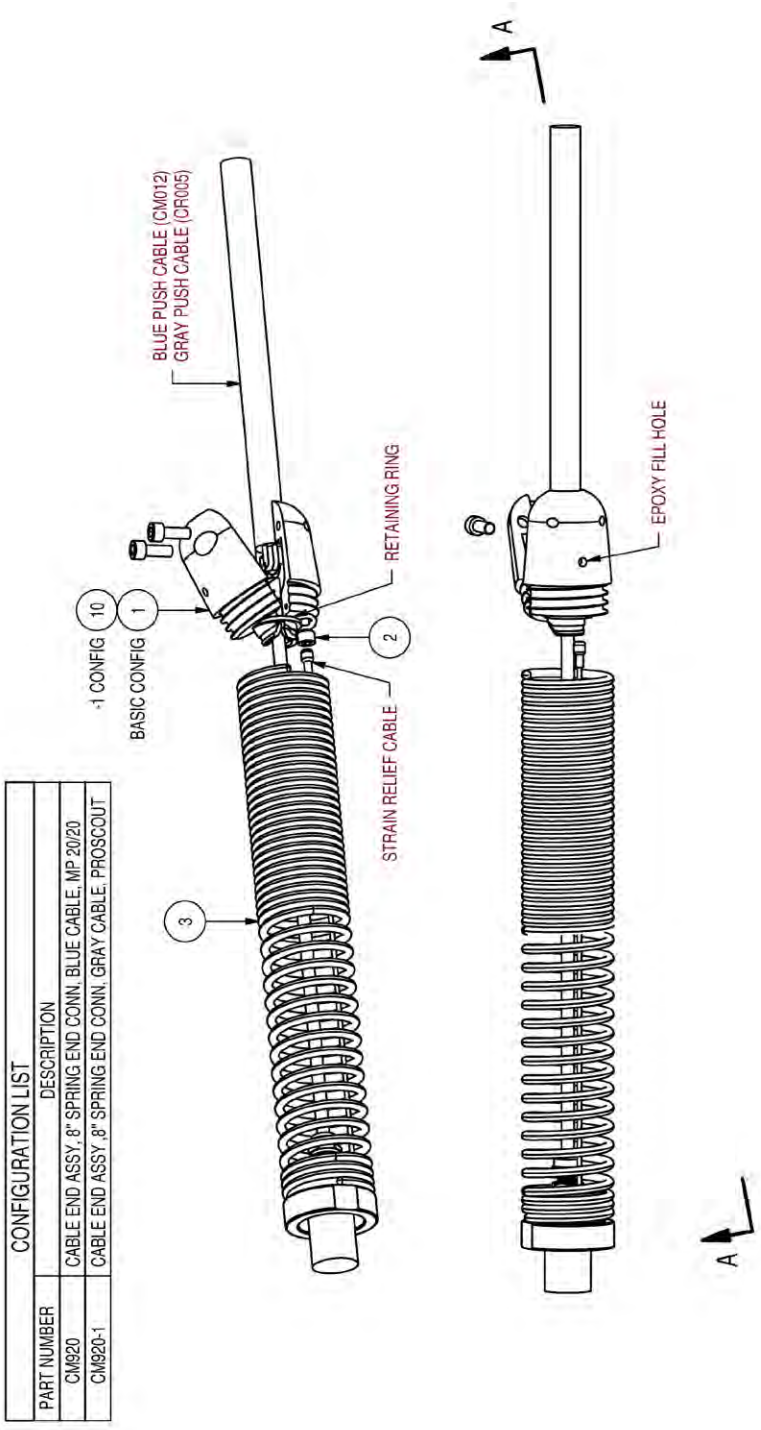


Figure 7c: *INSTR.SHT,CABLE END,CXI,MP 20/20, CM302-INST*

MiniPush 20/20 Pushcables



CONFIGURATION LIST	
PART NUMBER	DESCRIPTION
CM920	CABLE END ASSY, 8" SPRING END CONN, BLUE CABLE, MP 20/20
CM920-1	CABLE END ASSY, 8" SPRING END CONN, GRAY CABLE, PROSCOUT

Figure 8a: *INSTR.SHT,SPRING END CONNECTION,TO PUSH CABLE, CM920-INST*

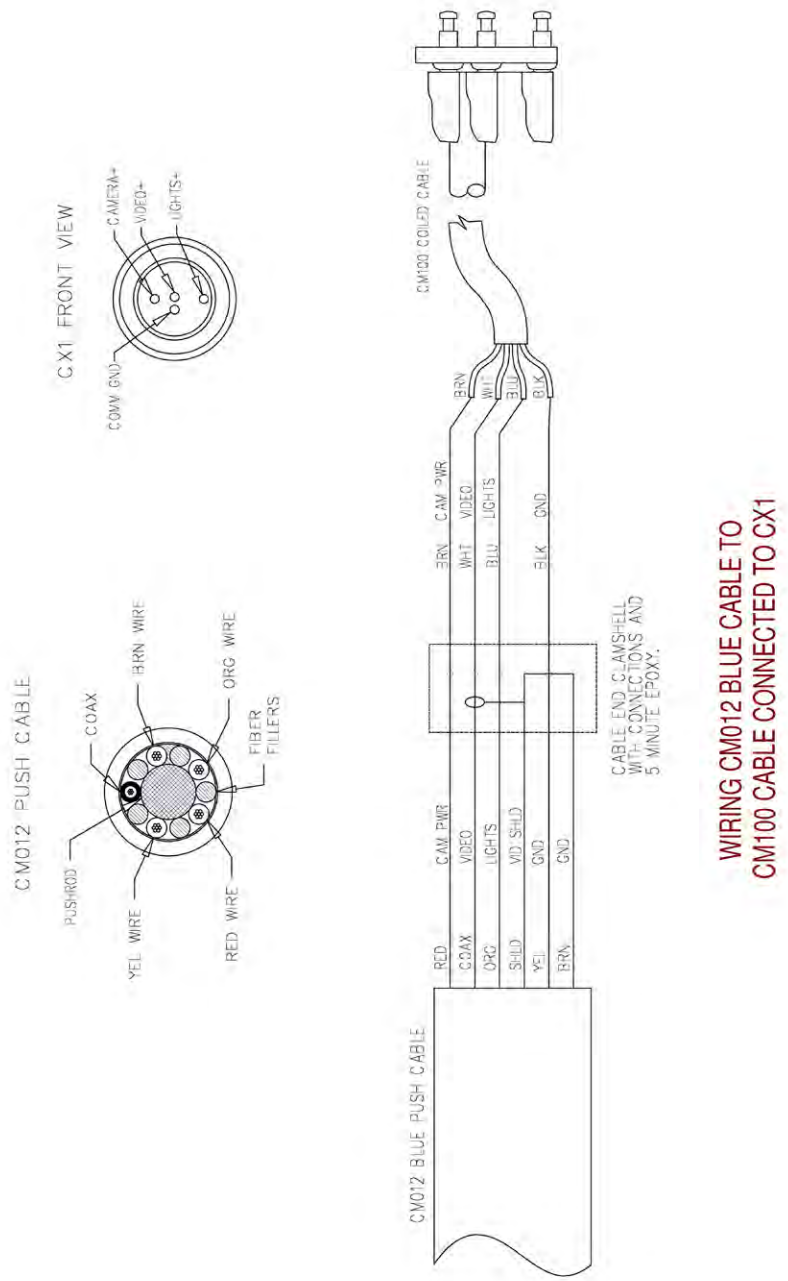


Figure 8b: *INSTR.SHT,SPRING END CONNECTION,TO PUSH CABLE, CM920-INST*

MiniPush 20/20 Pushcables

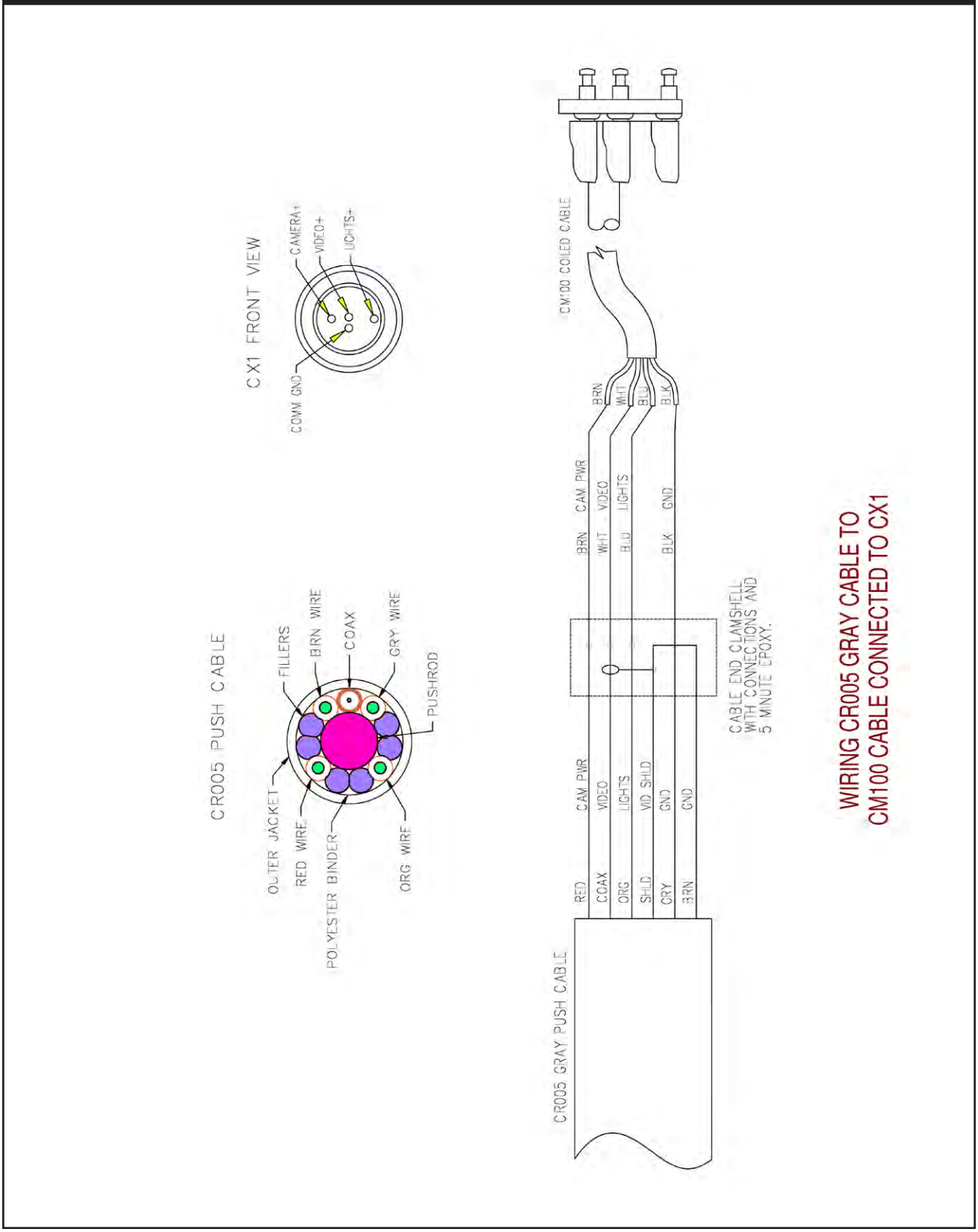
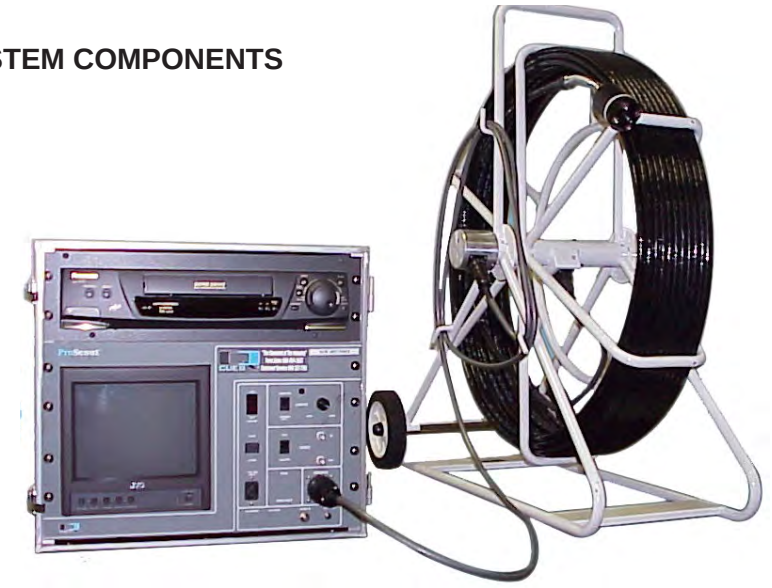


Figure 8c: *INSTR.SHT,SPRING END CONNECTION,TO PUSH CABLE, CM920-INST*

PROSCOUT SYSTEM COMPONENTS

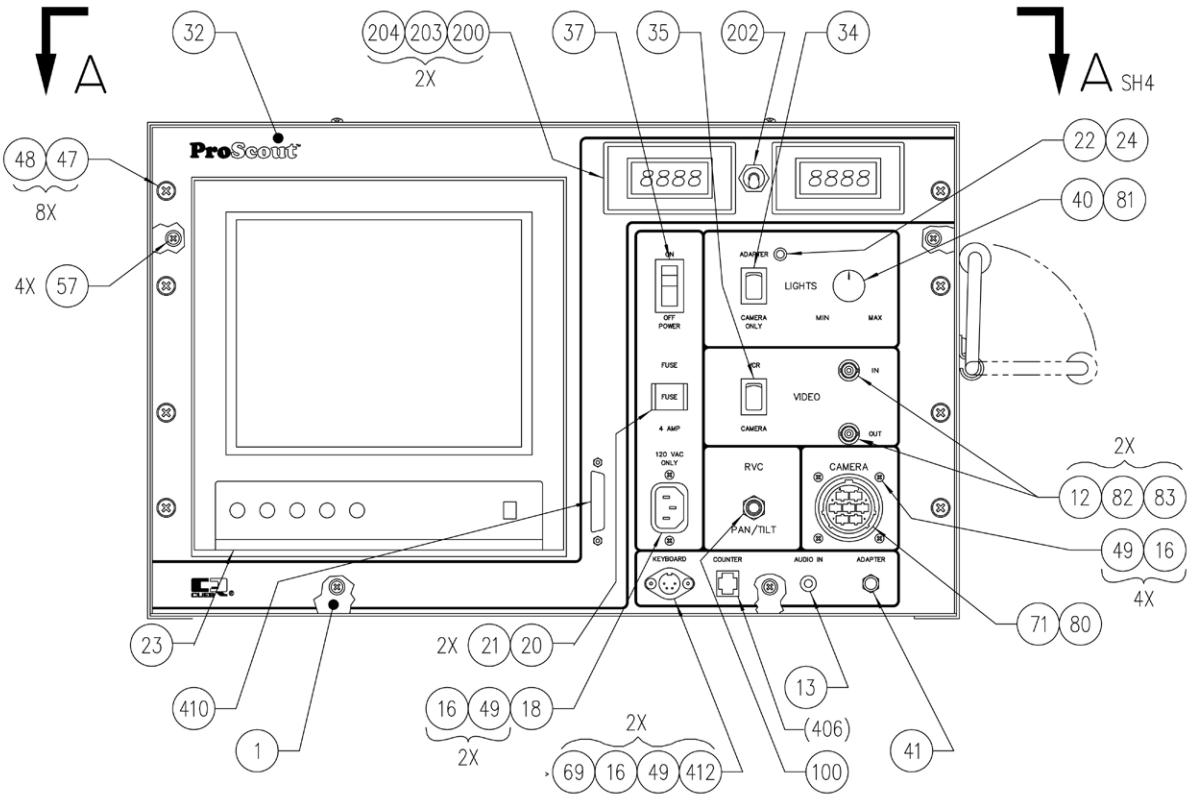


CAMERA DESCRIPTION	NEW STYLE P/N with CX1 Connection		OLD STYLE P/N with Pigtail	
PS1 Camera with CX1	PL401		PL307	
PS2 Camera with CX1	PM400		PM304	
SW2 Camera with CX1	BW402		BW300	
SW3 Camera With CX1	BW403		BW304	
COILER DESCRIPTION	**NEW STYLE P/N with CX1 Connection**		**OLD STYLE P/N with Pigtail**	
	.197	.250	.197	.250
Coiler with 200' Push Cable, CR012	CR176-2	CR250-2	CR304	CR012
Coiler with 300' Push Cable, CR013	CR176-3	CR250-3	CR305	CR013
Coiler with 400' Push Cable, CR014	CR176-C		CR306	CR014
Kit, Repair, Push Cable, 950167	CR320	CR250	950159	950167
Kit, Tool	002922			
COUNTER DESCRIPTION				
Counter, Mechanical, Coiler	DC307			
Counter, Electrical, Coiler	DC308			
Counter, Mechanical, Dolly	DC300			
Counter, Electrical, Dolly	DC302			
Counter, Proscout, Elec/Imp, Coiler	DC308			
Counter, Proscout, Elec/Imp, Dolly	DC302			
Counter, Proscout, Elec/Metr, Coiler	DC306			
Counter, Proscout, Elec/Metr, Dolly	DC303			
Counter, Proscout, Mech/Imp, Coiler	DC307			
Counter, Proscout, Mech/Imp, Dolly	DC300			
Counter, Proscout, Mech/Metr, Coiler	DC305			
Counter, Proscout, Mech/Metr, Dolly	DC301			

PUSHCABLE SYSTEMS (Coiler)	
DESCRIPTION	**P/N**
Basic Color Unit Includes:	
Camera, color, w/4-6" skids	
Power control unit (PCU), color	PC300
Coiler, w/200' push cable	CR304 (.176 old)
Common Accessories:	
Video, Training	960970
Manual, Technical Reference	960975
Tiger Tail	300654
Connector, f/cable, 5-pin F	7129
Connector, f/camera, 5-pin M	712228
Connector, PCU	
Connector, cable, 7-pin M	712888
Strain Relief	712735
Connector, Slip Ring	
Connector, 14-pin M	7122
Strain Relief, Shell Size 17	712543
Diagnostic Test Unit ProScout	TB302
Bag, Carrying	PC124
Sealant, Silicone, f/lightbulbs	950162
Fuse, 4a, f/lights	21K
Fuse, mini, 4a for PCU	165029
Scotchcast Resin with Mold	EL220
Dolly Equipment:	
Dolly, w/500' Cable	DS300
Dolly, w/1000' Cable & Motor	DS310
Counter, Mechanical, Dolly	DC307
Counter, Electrical, Dolly	DC308
Tool, Equipment Retrieval	950309
Kit, Repair, Cable End, Dolly	9501265

UMBILICAL CABLE COMPONENTS FOR CR303

SHOWN FOR REFERENCE ONLY!



EPROM CONFIGURATION LIST (TS035)	
PART NO.	DESCRIPTION
TS035	EPROM,PROGRAMMED,U20,TP310,(2000),ENGLISH
TS035-1	EPROM,PROGRAMMED,U20,TP310,(2000),FRENCH
TS035-2	EPROM,PROGRAMMED,U20,TP310,(2000),SPANISH
TS035-3	EPROM,PROGRAMMED,U20,TP310,(2000),RUSSIAN
TS035-4	EPROM,PROGRAMMED,U20,TP310,(2000),CANADIAN
TS035-5	EPROM,PROGRAMMED,U20,TP310,(2000),CANADIENNE

PCU, PROSCOUT CONFIGURATION LIST (PS300)		
PART NO.	DESCRIPTION	NOTES
PC300	PCU, PROSCOUT	
PC300-1	PCU, PROSCOUT, W/METER OPTION	
PC300-2	PCU, PROSCOUT, W/PRODATA, FOREIGN	6 7 4
PC300-3	PCU, PROSCOUT, W/PRODATA OPTION	2 4
PC300-4	PCU, PROSCOUT, RVC JACK OPTION	
PC300-5	PCU, PROSCOUT, W/220V/50Hz OPTION	1
PC300-6	PCU, PROSCOUT, W/PRODATA, RVC JACK	2 4
PC300-7	PCU, PROSCOUT, W/PRODATA, 220V/50Hz	4
PC300-8	PCU, PROSCOUT, SC	

Figure 9. *PCU, ProScout, Color, PC300*

ProScout Coilers & Cables

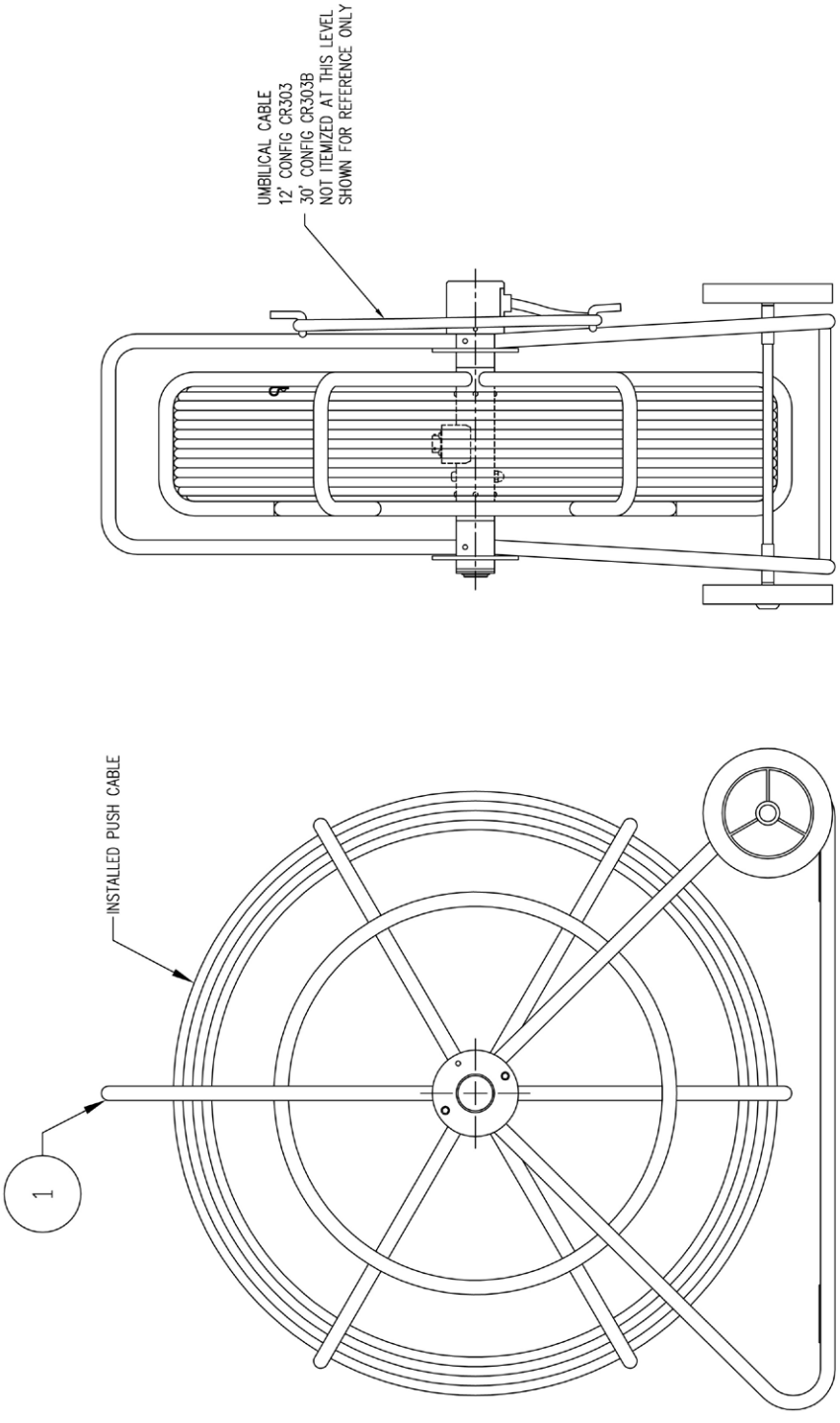


Figure 10: *Coiler Assy, CX1, Pushcable, CR176-1 w 100'.197*

SAMPLE BOM CR176-1 CONFIGURATION SHOWN FOR REFERENCE ONLY

Coiler Assy, CX1, 100' Pushcable (See Fig. 10) Rev. H, CR176-1				
Item #	Description	P/N	Qty	
0001	COILER,MAIN BODY ASSEMBLY	CR300	1	
0002	CABLE,PUSH,BLUE,MP,100' COILED	CM012-1	1	
0003	CABLE END ASSY,CONNECTION&SPRING	CM340	1	
0004	CONNECTOR,14-PIN,MALE	7122	1	
0005	PIN,MULTIMATE III,24-20 GA	7132	7	
0006	STRAIN RELIEF,SHELL SIZE 17	712543	1	
0008	WIRE,#20 WHITE W/BLACK BU	713327	0.5	
0009	WIRE,#20 BLACK STRANDED 600V	713317	0.5	
0010	TUBE,SHRINK,BLACK 3:1 RATIO-1/2"	712572	1.5	
0011	TUBE,SHRINK,BLACK 3/16"RNF	712577	0.3	***SEE DRAWING P/N CR276 FOR ASSY***
0012	TUBE,SHRINK,BLACK 1/2"SCL	712581	0.3	
0013	MRO-TAPE,FIBER ELECTRICAL	440351	1	
0014	TUBE,SHRINK,BLACK 1/4"RNF	712576	1	
0015	TUBE,SHRINK,BLACK 3/32"	712595	1	
0016	MRO-TIE,CABLE,3/32"X4",WHT/CLR	440307	2	
0017	MRO-REMOVABLE LCK,ND 121200-50,BLUE	440061	1	
0018	CLAMSHELL,CBL END,CONN&SPRNG ATTCH	CM104	1	
0019	WRENCH,SPANNER,SPRNG,CBL END ASSY	CM106	1	
0020	SCREW,SET,1/4-28X3/16 LONG,SST	HW105	1	

USES REPAIR KIT P/N CM920

ProScout Coiler Assemblies	
CR176-1	COILER ASSY,CX1,100',.197 PUSHCABLE
CR176-B	COILER ASSY,CX1,150',.197 PUSHCABLE
CR176-2	COILER ASSY,CX1,200',.197 PUSHCABLE
CR176-2H	COILER ASSY,CX1,200',.197 PSCBL,HYT
CR176-A	COILER ASSY,CX1,250',.197 PUSHCABLE
CR176-3H	COILER ASSY,CX1,300',HY,.197 PSHCBL
CR176-C	COILER ASSY,CX1 400',.197 PUSHCABLE

ProScout Coilers & Cables

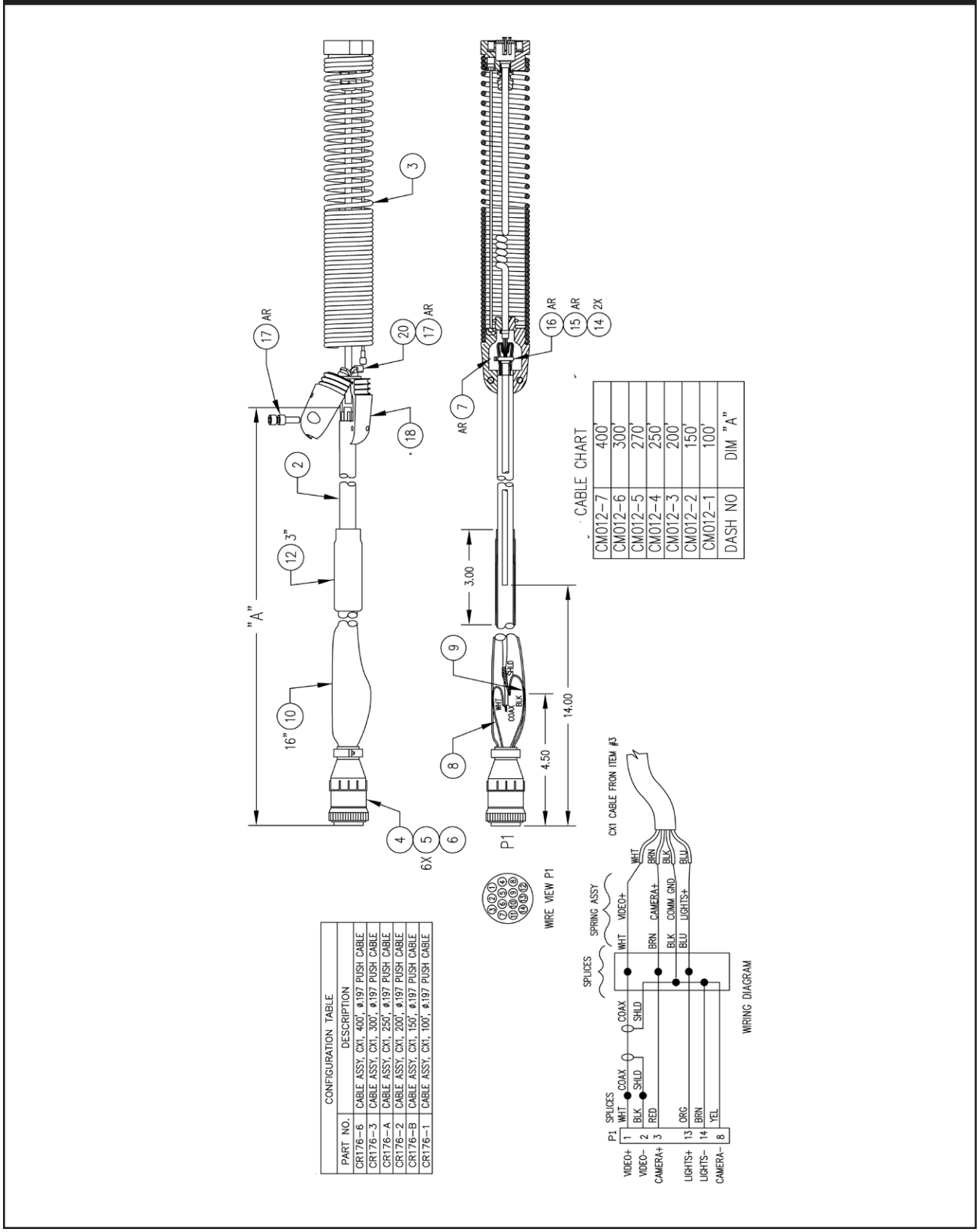


Figure 10b: *Coiler Assy, CX1, Pushcable, CR176-1 w 100'.197*

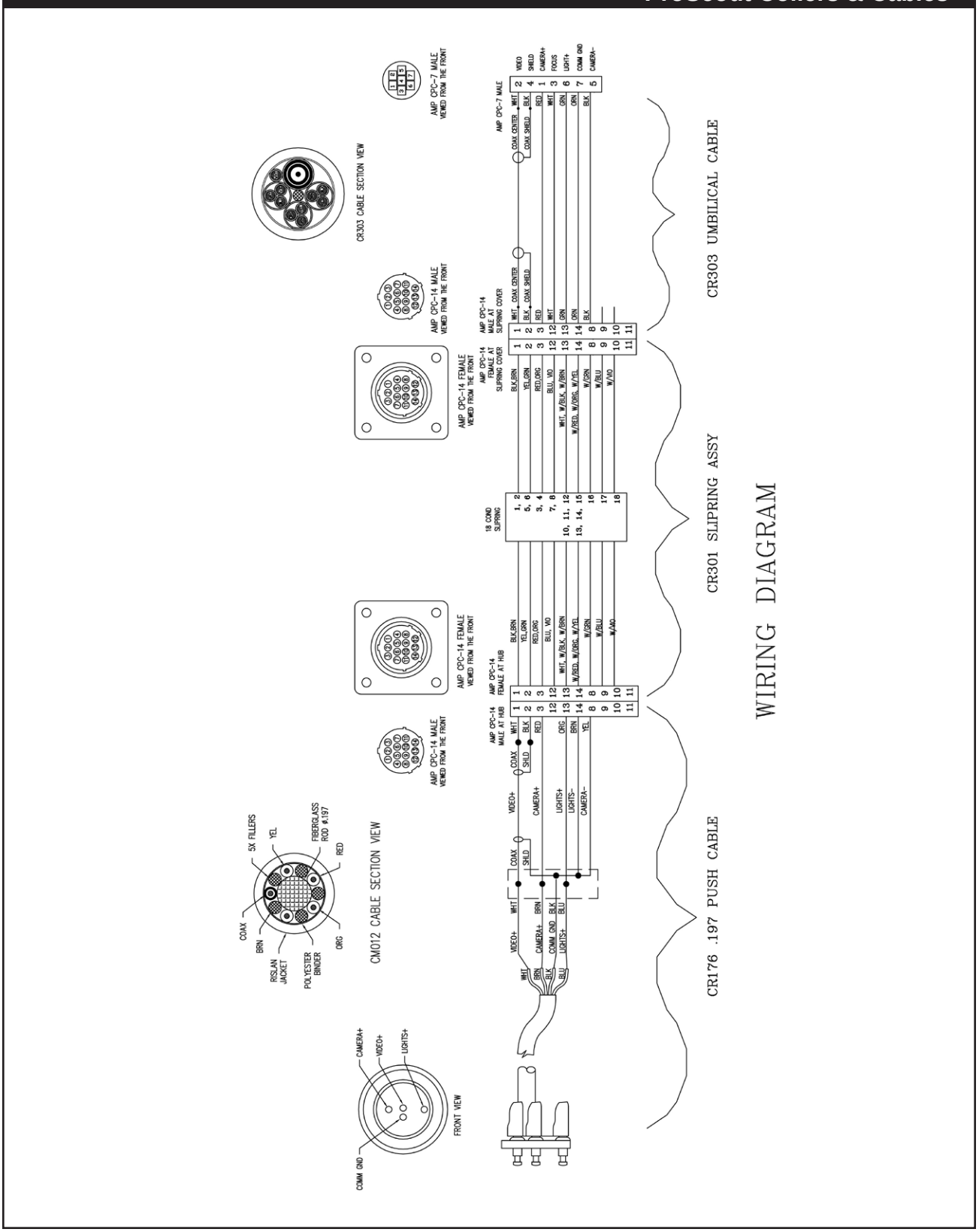


Figure 10c: *Coiler Assy, CX1, Pushcable, CR176-1 w 100' .197*

ProScout Coilers & Cables

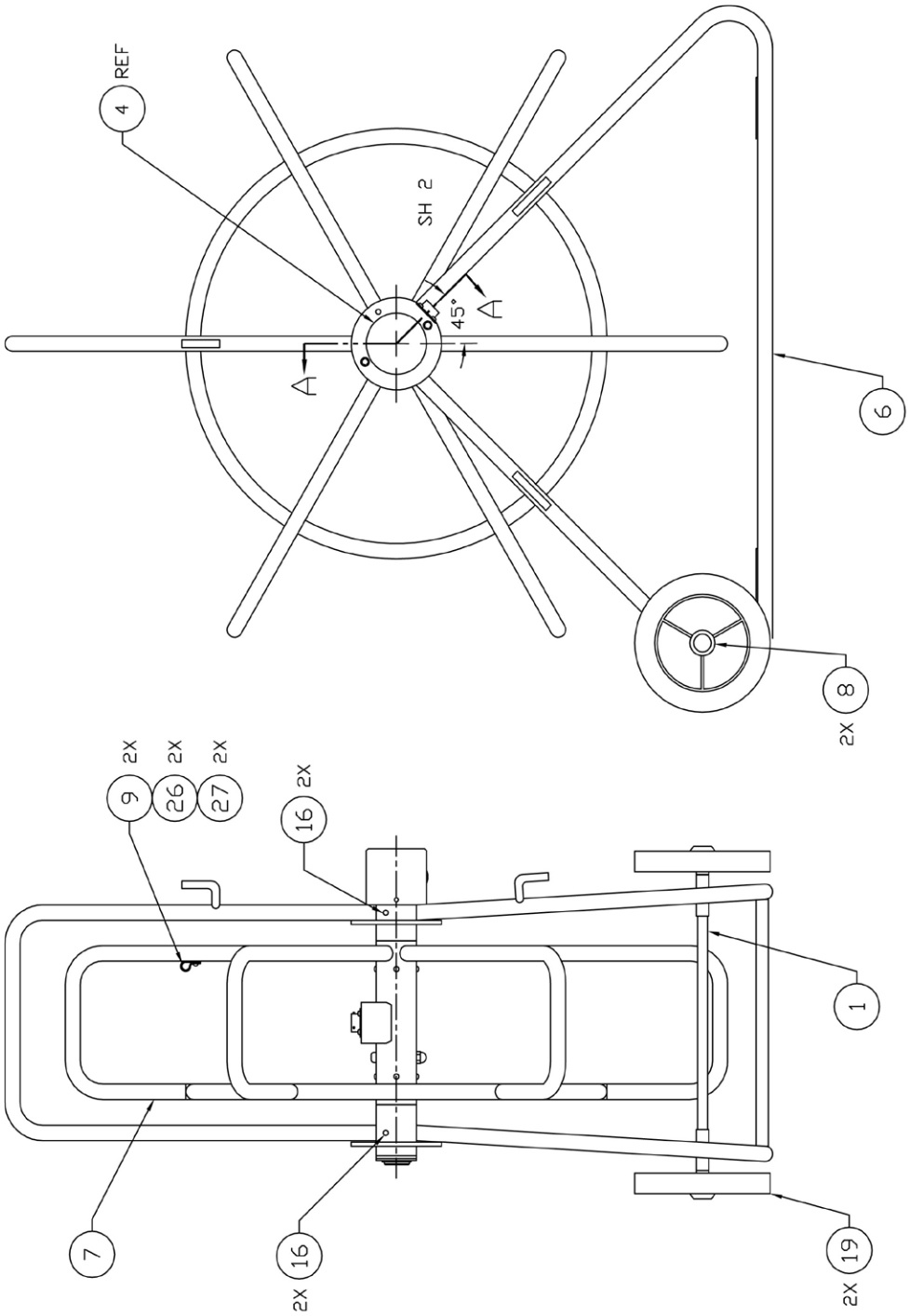


Figure 11a: *Coiler, Main Body Assembly, CR300*

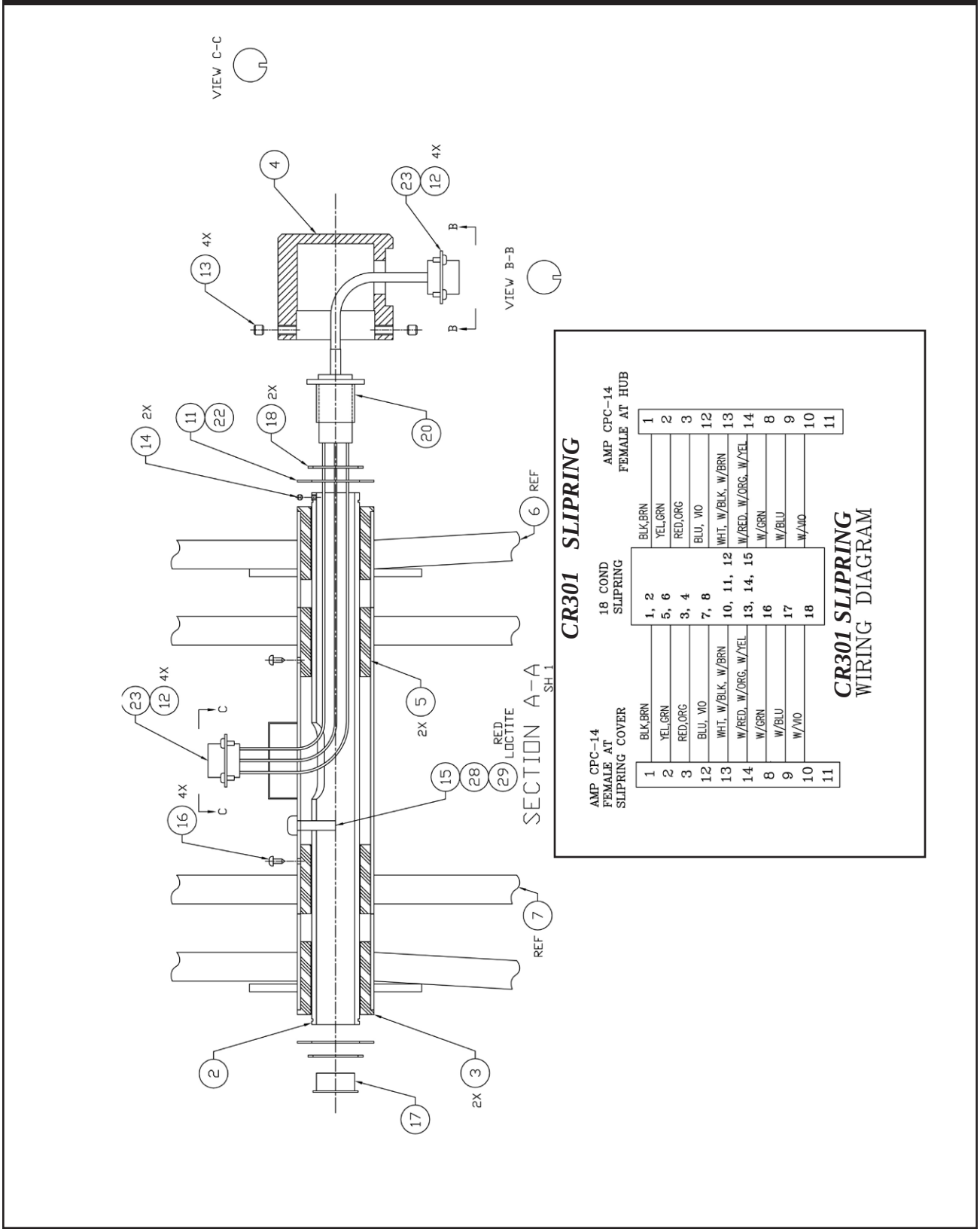


Figure 11b: *Coiler, Main Body Assembly, CR300*

Coiler, Main Body Assembly (See Fig. 11) Rev. H, CR300			
Item #	Description	P/N	Qty
1	Shaft,Carrier Wheel	CR101	1
2	Shaft,Cable Carrier	CR102	1
3	Bearing,External,Delrin	CR103	2
4	Carrier,S/R Cover	CR104	1
5	Bearing,Internal Delrin	CR105	2
6	Stand,Cable Carrier	CR107	1
7	Basket Assy,Carrier	CR109	1
8	Cap,Shaft 1/2"	HW166	2
9	Clip,Metal,1/2"W/Pvc Insulator	HW167	2
10	Mro-Tie,Cable,14"X3/16"X1/6"	440306	8
11	Shim,1-3/4 Odx 1-1/4id X.047thk St	HW168	2
12	Screw,Pan,6-32x1/4 Phil Sst	712416	8
13	Screw,Set,1/4-20x1/4 Stl	100998	4
14	Screw,Set,Cup Pt,#6-32x1/8lg Sst	100046	2
15	Screw,Rnd,1/4-20x2 1/4 Phil Sst	105089	1
16	Screw,Phil,Pan,Metal,#4 X 1/4,Sst	HW765	8
17	Cap,.903"Id X 1.092"Od,Plastic	HW171	1
18	Ring,Retaining,External,1 1/4"	HW172	2
19	Wheel,Rubber,7"Dia,Coiler	CR001	2
20	Slipring,Assy,Proscout Coiler	CR301	1
22	Shim,1-3/4 Odx 1-1/4 Idx.098thk St	CR106	2
23	Connector,Reel,14pin Fem/Proscout	7134	2
26	Washer,Flat,#6 Sst	100173	2
27	Screw,Hex Washer Hd,8x1-2 Type A Pl	101949	2
28	Nut,Acorn,Sst,1/4-20	HW192	1
29	Mro-Permanent Lock,Nd 140500-50,Red	440060	1
30	Mro-Removable Lck,Nd 121200-50,Blue	440061	1

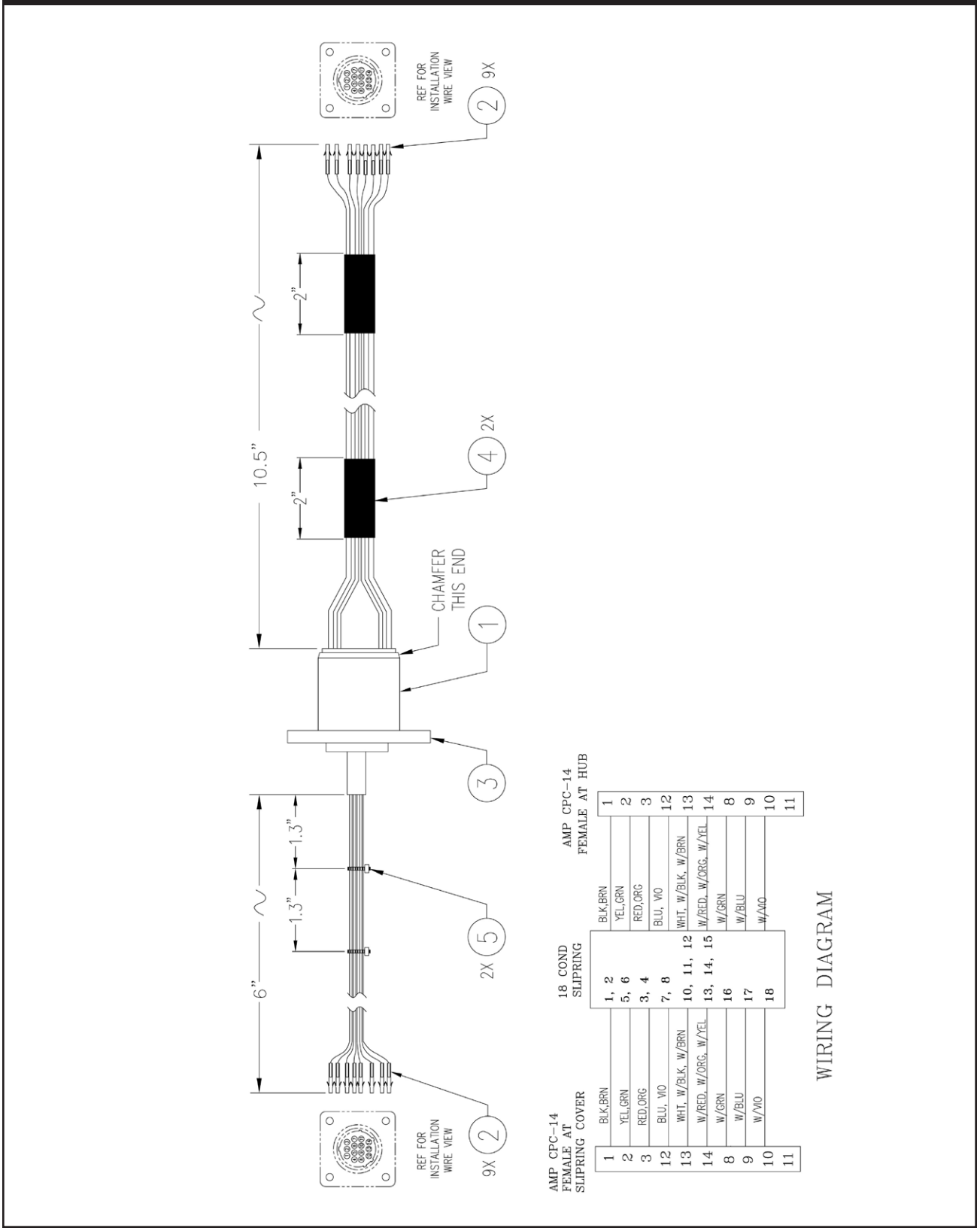


Figure 12: Slipring Assembly, *ProScout Coiler, CR301*

ProScout Coiler Replacement Pushcable Assemblies	
Configured with .197" Diameter Blue CM012 series Pushcables (replaces prior Black .176 Pushcable)	
CR276-A	CABLE ASSY,CX1,100',.197 PUS 1
CR276-2	CABLE ASSY,CX1,200',.197 PUS
CR276-3H	CABLE ASSY,CX1,300',HY,.197
CR276-4	CABLE ASSY,CX1,400',.197 PUS

Configured with .25" Diameter Grey CR005 series Pushcables	
CR350-2	CABLE ASSY,CX1,200',.250 PUS
CR350-3	CABLE ASSY,CX1,300',.250 PUS
CR350-4	CABLE ASSY,CX1,400',.250 PUS
CR350-5	CABLE ASSY,CX1,500',.250 PUS

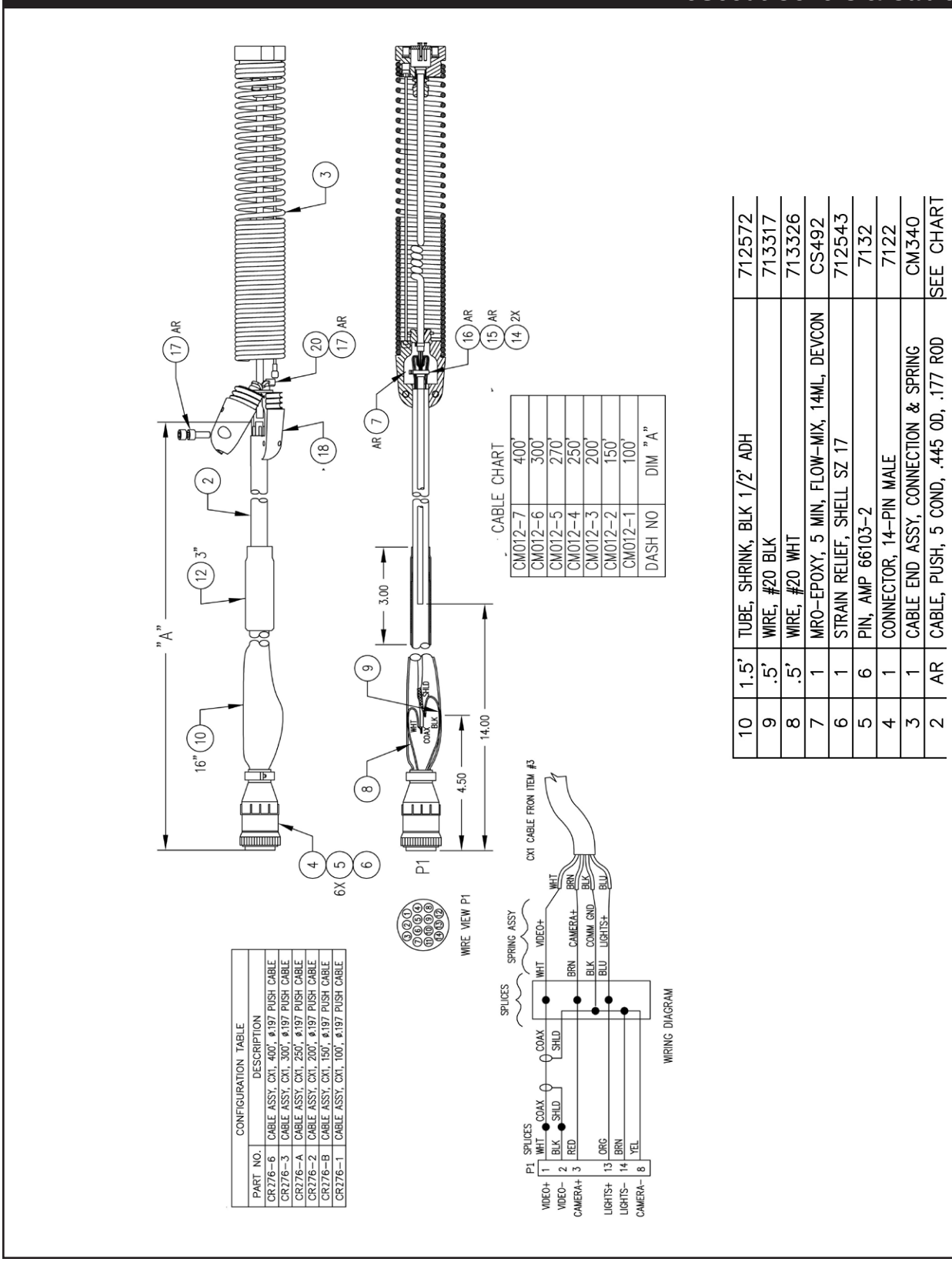


Figure 13: *Cable Assy, CX1, Pushcable, CR276 w 100' .197*

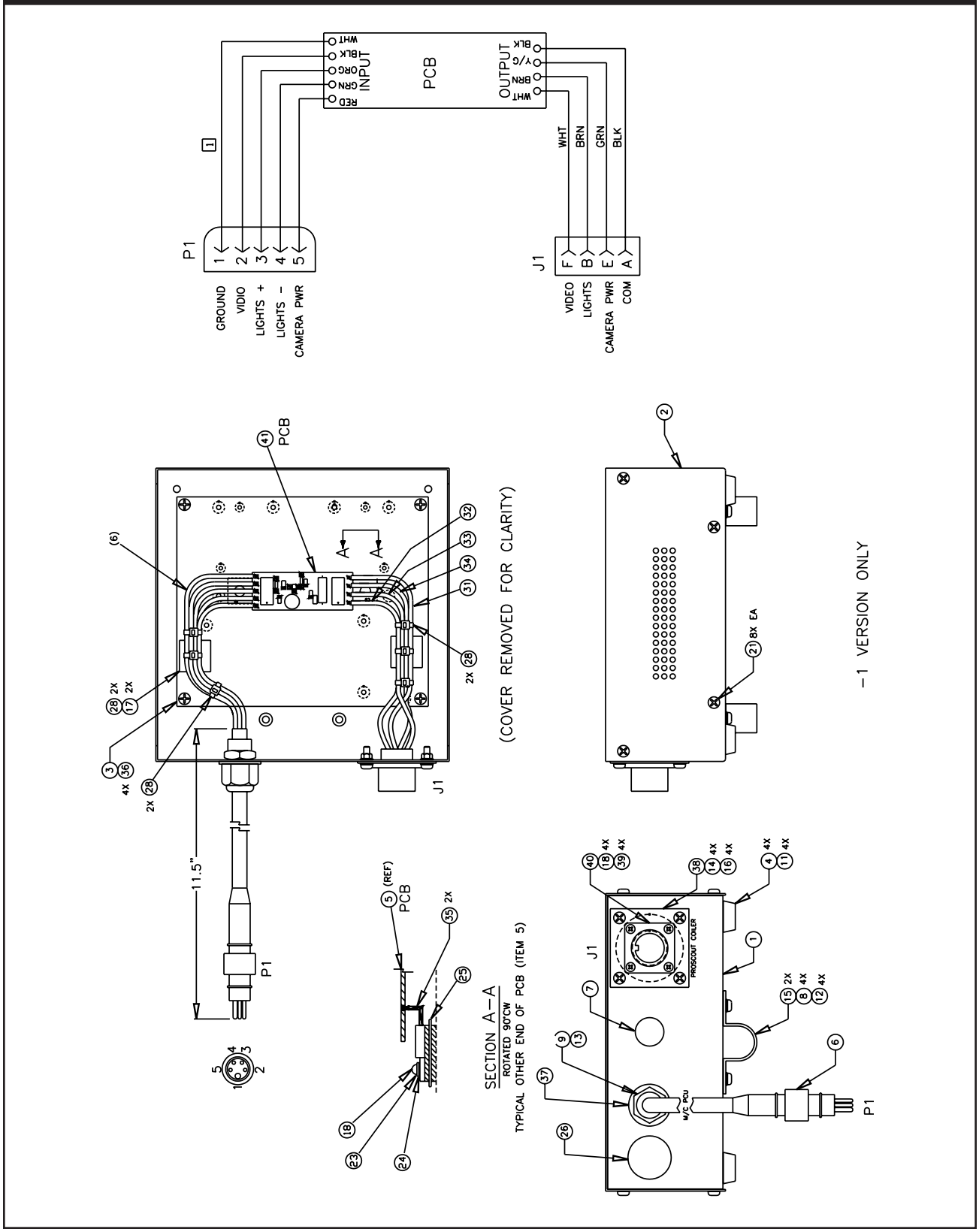
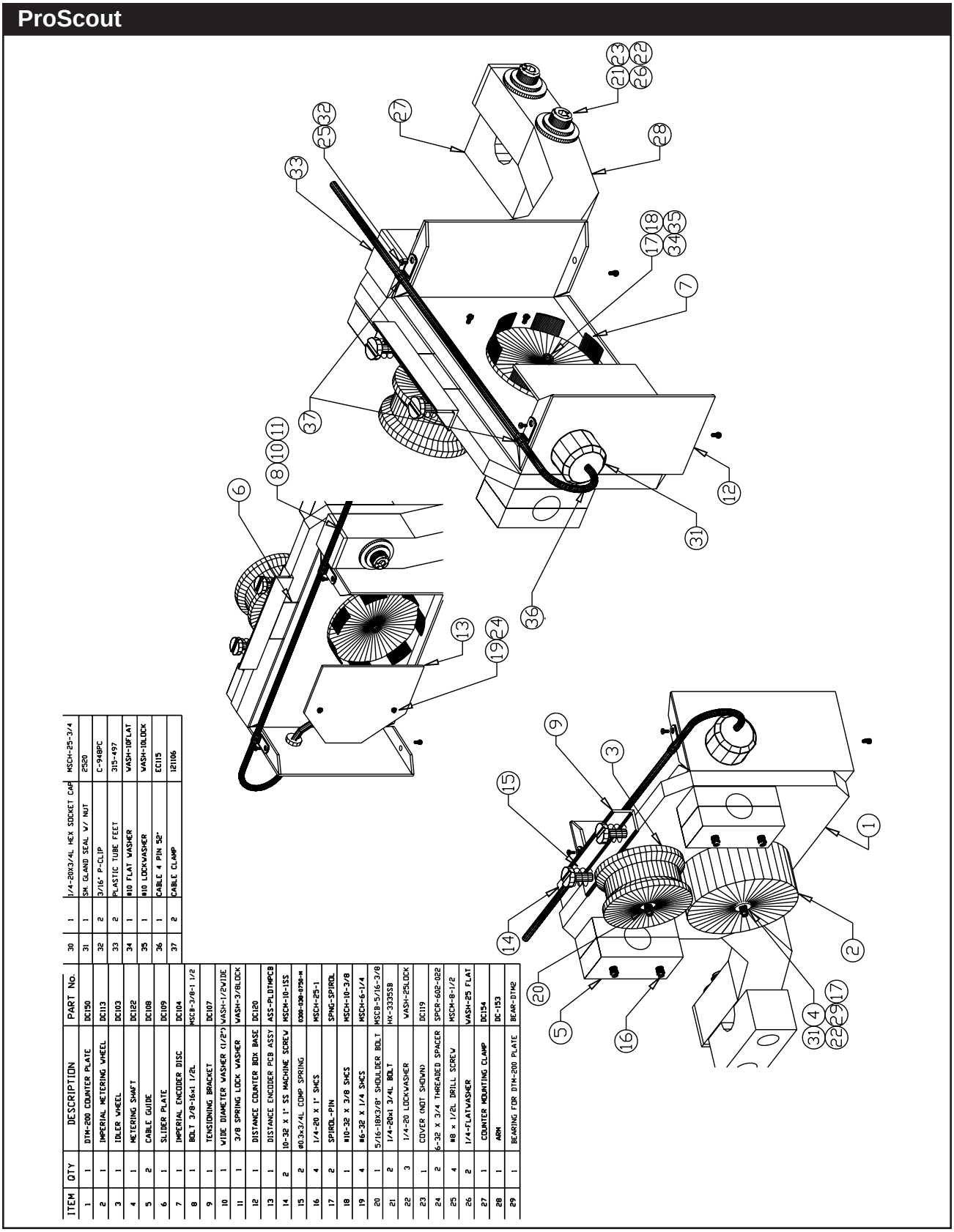


Figure 14. *Translator, Coiler to M/C Mainline, EC330*

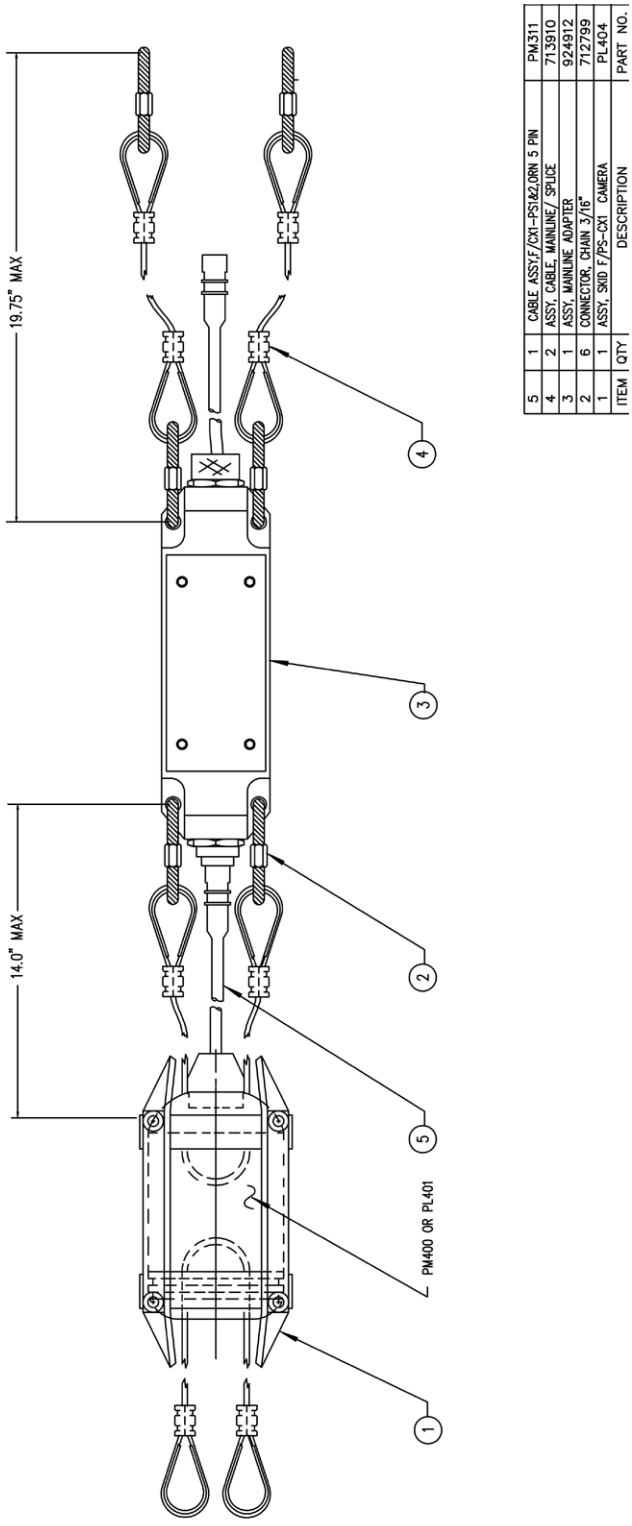
Translator, Coiler to M/C Mainline (See Fig. 14) Rev. G, EC330			
Item #	Description	P/N	Qty
− 1	Base,Proscout Translator	501288	1
− 2	Cover,Proscout Translator	161124	1
− 3	Plate,Translator M/C,Proscout	EC131	1
− 4	Bumper,Polyurethane	130055	4
− 5	Module,Pcb Assy Translator	700800	1
− 6	Pigtail,5-Pin Male	160552	1
− 7	Plug,Hole,25/64	EC105	1
− 8	Screw,Pan,8-32x3/8 Phil Sst	103065	4
− 9	Grip, Cord 1/2 .375-.570	161091	1
− 10	Connector,Plastic Sq Flng 23-7	712814	1
− 11	Screw,Pan,8-32x1/2 Phil Sst	712876	4
− 12	Washer,Flat,#8 Sst	100139	4
− 13	Nut,Lock,1/2"	161121	1
− 14	Screw,Pan,6-32x3/8 Sst	103023	4
− 15	Clamp,Axle,Ss	121031	2
− 16	Nut,Kep,Zinc Plated,6-32	712456	4
− 17	Mro-Mount,Cable Tie	505147	2
− 18	Screw,Bind,4-40x3/8 Phil Sst	712414	2
− 19	Mro-Goop,Automotive 3.7 Oz Tube	420802	1
− 20	Mro-Removable Lck,Nd 121200-50,Blue	440061	1
− 21	Screw,Tap,#6 X 1/4 Pan Hdss	HW245	8
− 22	Contact,Female Socket	715078	6
− 23	Washer,Flat,#4	712463	2
− 24	Washer,Shoulder Nylon #4	103056	2
− 25	Insulator,Thermal,Sil-Pad,To218	EL088	2
− 26	Plug,Hole,31/64	EC106	1
− 27	Mro-Loctite 42540 F/Plastic	429791	1
− 28	Mro-Tie,Cable,3/32"X4"	440307	6
− 29	Mro-Compound,Silcone Heatsink	445079	1
− 30	Label,Logo 5"	962030	1
− 31	Wire,#20 Black Stranded 600v	713317	1
− 32	Wire,#20 White Bu	713326	1
− 33	Wire,#20 Brown Bu	713318	1
− 34	Wire,#20 Green Bu 19/32	713322	1
− 35	Transistor,Tip 142	710107	2
− 36	Screw,Pan,6-32x5/16 Phil Sst	101088	4
− 37	Washer,Hose Rubber	109302	1

ProScout



ITEM	QTY	DESCRIPTION	PART NO.
1	1	DTM-200 COUNTER PLATE	DC150
2	1	IMPERIAL METERING WHEEL	DC113
3	1	IDLER WHEEL	DC103
4	1	METERING SHAFT	DC122
5	2	CABLE GUIDE	DC108
6	1	SLIDER PLATE	DC109
7	1	IMPERIAL ENCODER DISC	DC104
8	1	BOLT 3/8-16x1 1/2L	MSCB-3/8-1 1/2
9	1	TENSIONING BRACKET	DC107
10	1	WIDE DIAMETER WASHER (1/2")	WASH-1/2WIDE
11	1	3/8 SPRING LOCK WASHER	WASH-3/8LOCK
12	1	DISTANCE COUNTER BOX BASE	DC120
13	1	DISTANCE ENCODER PCB ASSY	ASS-PLDTMPCB
14	2	10-32 x 1" SS MACHINE SCREW	MSCH-10-1SS
15	2	Ø0.3x3/4L COMP SPRING	C000-C08-0750-**
16	4	1/4-20 x 1" SHCS	MSCH-25-1
17	2	SPIROL-PIN	SPNG-SPIROL
18	1	#10-32 x 3/8 SHCS	MSCH-10-3/8
19	4	#6-32 x 1/4 SHCS	MSCH-6-1/4
20	1	5/16-18X3/8" SHOULDER BOLT	MSCB-5/16-3/8
21	2	1/4-20x1 3/4L BOLT	HX-333538
22	3	1/4-20 LOCKWASHER	WASH-25LOCK
23	1	COVER (NOT SHOWN)	DC119
24	2	6-32 X 3/4 THREADED SPACER	SPCR-602-022
25	4	#8 x 1/2L DRILL SCREW	MSCH-8-1/2
26	2	1/4-FLATWASHER	WASH-25 FLAT
27	1	COUNTER MOUNTING CLAMP	DC154
28	1	ARM	DC-153
29	1	BEARING FOR DTM-200 PLATE	BEAR-DTM2
30	1	1/4-20X3/4L HEX SOCKET CAP	MSCH-25-3/4
31	1	SM. GLAND SEAL W/ NUT	2520
32	2	3/16" P-CLIP	C-948PC
33	2	PLASTIC TUBE FEET	315-497
34	1	#10 FLAT WASHER	WASH-10FLAT
35	1	#10 LOCKWASHER	WASH-10LOCK
36	1	CABLE 4 PIN 32"	EC115
37	2	CABLE CLAMP	12106

Figure 15. Counter,ProScout,Elec/Imp,Coiler, DC308



ITEM	QTY	DESCRIPTION	PART NO.
5	1	CABLE ASSY:F/CX1-PS1&2,ORN 5 PIN	PM311
4	2	ASSY, CABLE, MAINLINE/ SPLICE	713910
3	1	ASSY, MAINLINE ADAPTER	924912
2	6	CONNECTOR, CHAIN 3/16"	712799
1	1	ASSY, SKID F/PS-CX1 CAMERA	PL404

Figure 16. *Tow Assembly, PS-CX1 Camera > Mainline, PL403*

ProScout

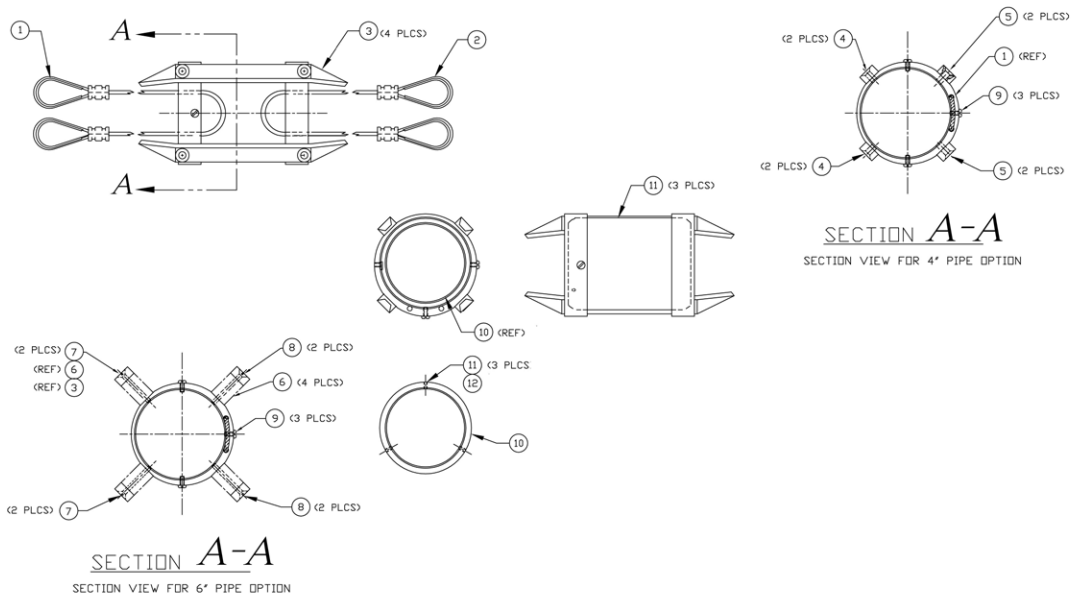


Figure 17. *Skid Assy, PS Camera CX1, 4-6" Pipe, PL404*

Skid Assy, PS Cam CX1, 4-6" Pipe (See Fig. 17) Rev.B, PL404			
Item #	Description	P/N	Qty
1	Front Sleeve Assy,Proscout Skid	300553	1
2	Back Sleeve,Assy,Proscout Skid	300548	1
3	Skid Runner,Ps-Cx1 Camera	PL145	4
4	Screw,Modified 8-32 X .335lg	101954	4
5	Screw,Flat,8-32x3/8 Phil Sst	100146	5
6	Spacer,Skid,Ps-Cx1,F/6"Pipe	PL146	4
7	Screw,Modified,8-32x1.08 Long	100127	4
8	Screw,Modified Mini Camera Tow Skid	1050670	4
9	Screw,Pan,4-40x1/4 Slotted Sst	712401	4
10	Adapter,Plastic,Ps2 Camera	HC120	1
11	Screw,Set,2-56x1/8"Long Socket	101097	3
12	Wrench,Allen,.035 Short Arm	CS132	1

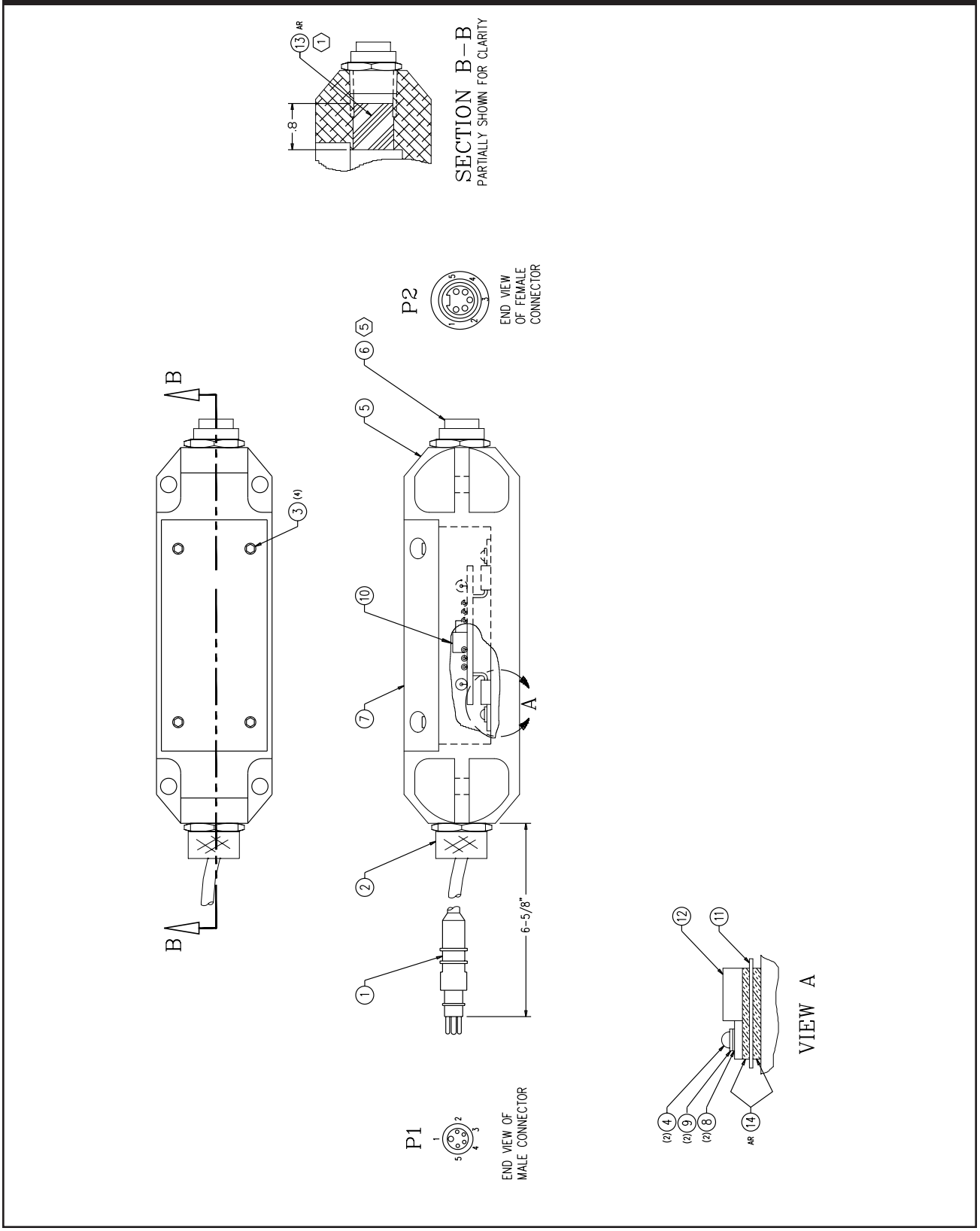


Figure 18a. *Translator, ProScout/Mainline-Bullet, 924912*

ProScout

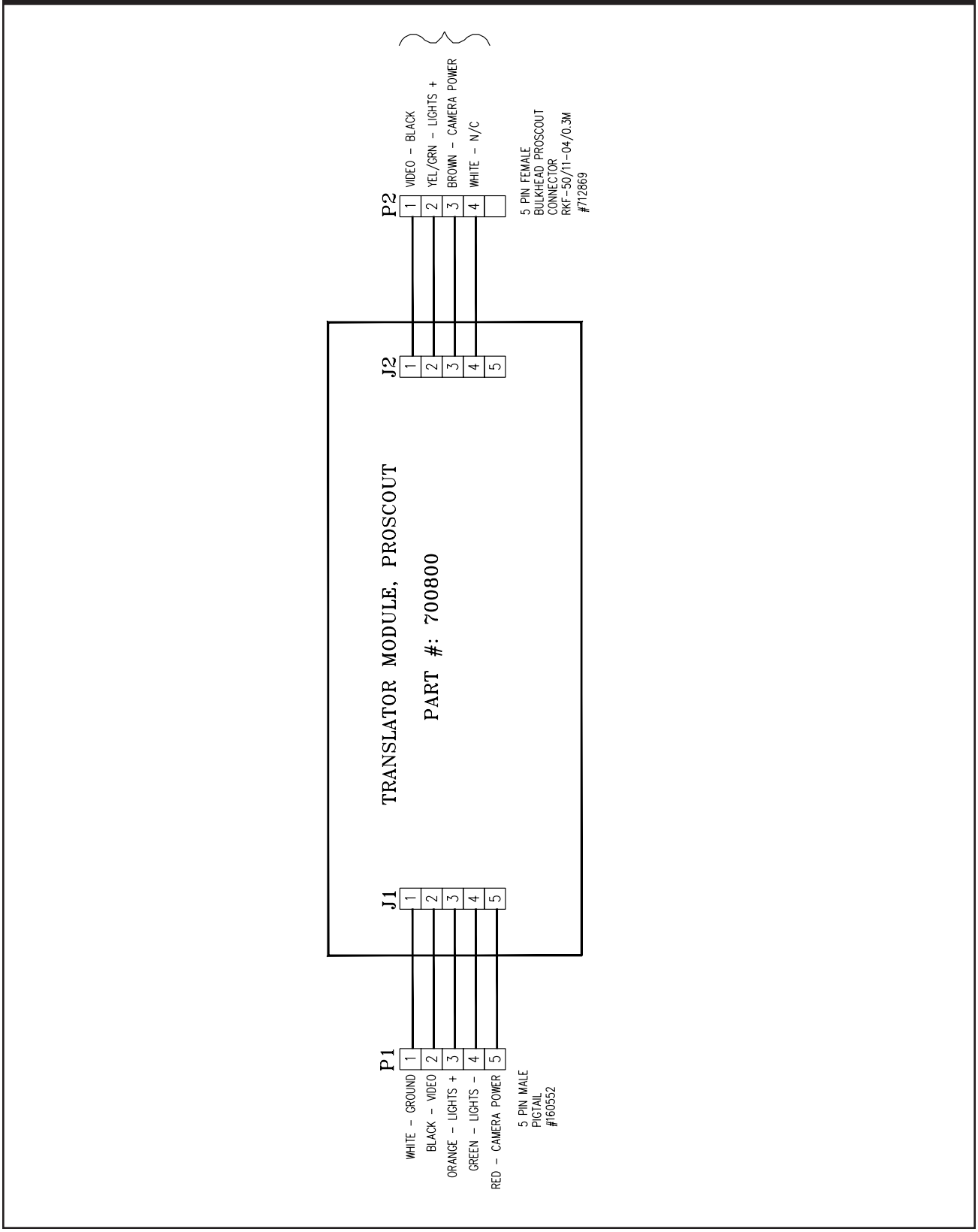


Figure 18b. *Translator, ProScout/Mainline-Bullet, 924912*

Translator, ProScout/Mainline (See Fig. 18) Rev. H, 924912			
Item #	Description	P/N	Qty
− 1	Pigtail,5-Pin Male	160552	1
− 2	Grip, Cord 1/2 .375-.570	161091	1
− 3	Screw,Cap,Skt Hd,10-32x3/8,Sst	103030	4
− 4	Screw,Pan,4-40x3/8 Cad Plated	100056	2
− 5	Body,Adapter	40210	1
− 6	Connector,Bulkhead,5 Skt,F,1/2"Npt	EC506	1
− 7	Adapter Cover	40209	1
− 8	Washer,Shoulder Nylon #4	103056	2
− 9	Washer,Flat,#4 Sst	100171	2
− 10	Module,Pcb Assy Translator	700800	1
− 11	Insulator,Thermal,Sil-Pad,To218	EL088	2
− 12	Transistor,Tip 142	710107	2
− 13	Mro-Sealant,Pourable Translucent	445066	1
− 14	Mro-Compound,Silcone Heatsink	445079	1
− 15	Mro-Tape,Teflon 3/4 Roll	440350	1

Inspector General

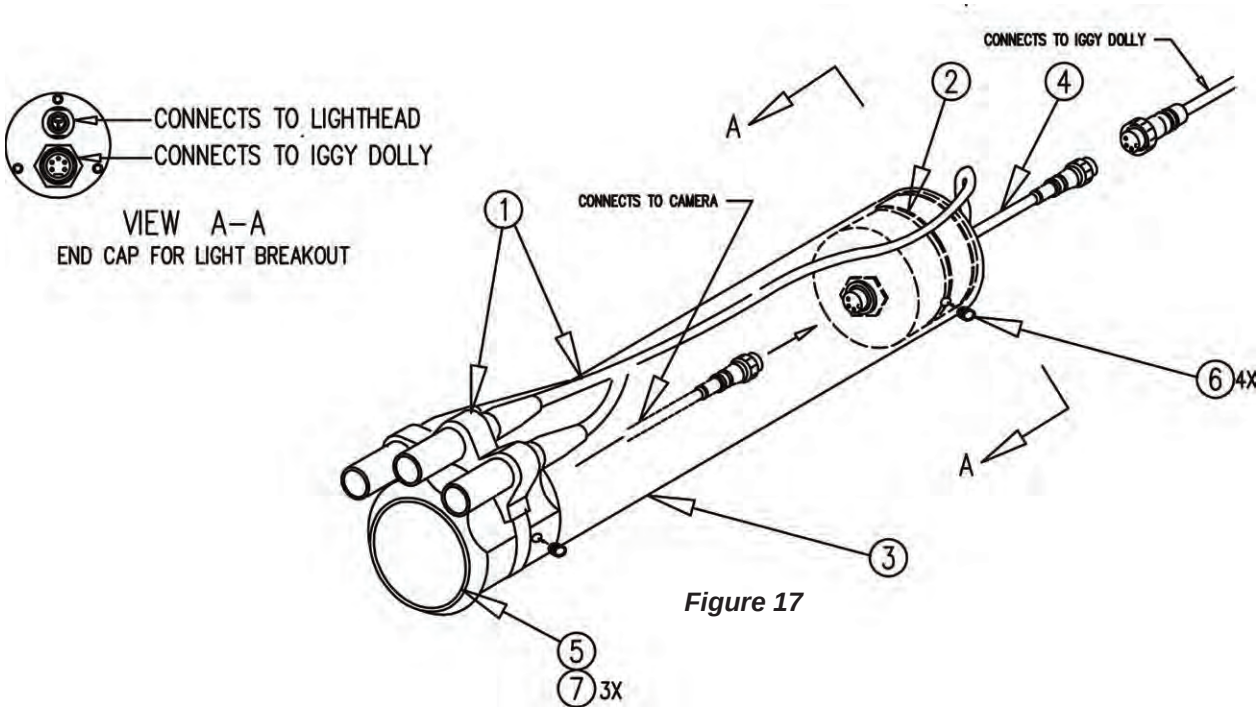
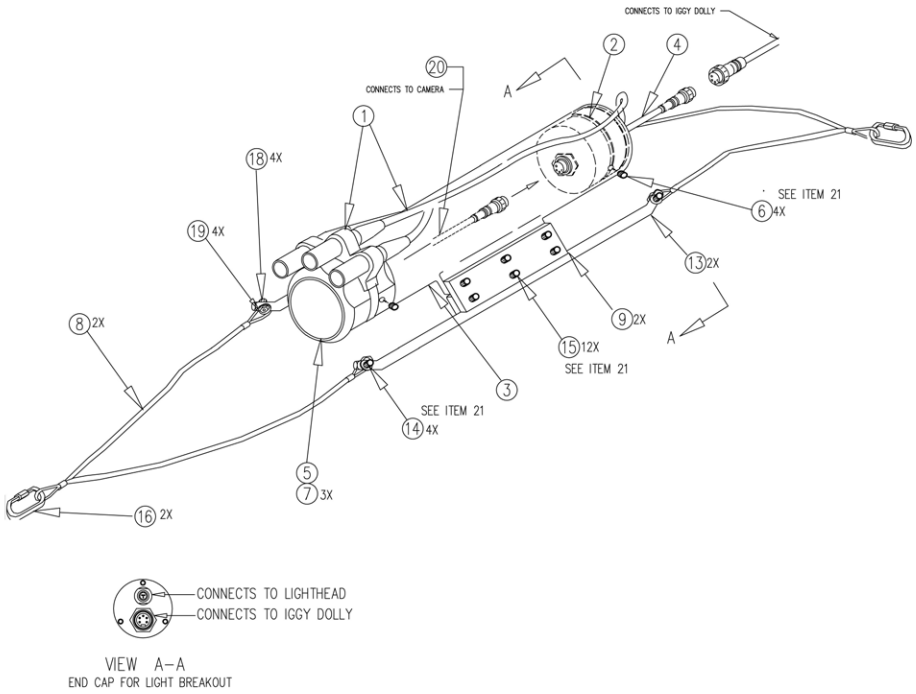


Figure 17

Adapter Tube Assembly w/HPL6, IGGY (See Flgre 19), Rev. -, HC334			
Item #	Description	P/N	Qty
- 1	Lighthead,Hpl6,Ps Cam/Iggy/1208pcu	HC331	1
- 2	Bulkhead Assy,Pipe Adapter Assy	HC316	1
- 3	Tube,Cast,Body,Pipe Adpt,Tractor	HC508	1
- 5	Adapter,Plastic,Ps2 Camera	HC120	1
- 6	Screw,Set,1/4-20x1/4 Stl	100998	4
- 7	Screw,Set,2-56x1/8"Long Socket	101097	3
- 8	Cable Assy,F/Cx1-Ps1&2,Orn 5 Pin	PM311	1
- 9	Wrench,Allen,.035 Short Arm	CS132	1

Inspector General



Skid Assembly with Lighthead 8" - 15", IGGY (See Figure 20), Rev. B, HC332			
- 1	Lighthead,Hpl6,Ps Cam/Iggy/1208pcu	HC331	1
- 2	Bulkhead Assy,Pipe Adapter Assy	HC316	1
- 3	Casting,Body W/Flanges	HC111	1
- 4	Cable,5pf/5pm,Proscout/Mainline	TR245	1
- 5	Adapter,Plastic,Ps2 Camera	HC120	1
- 6	Screw,Set,1/4-20x1/4 Stl	100998	4
- 7	Screw,Set,2-56x1/8"Long Socket	101097	3
- 8	Cable Assy,Tow,24",Pipe Skid Assy	HC510	2
- 9	Spacer,Plate,8" Skid (2 Req'd)	HC511	2
- 10	Spacer,Plate,10" Skid (2 Req'd)	HC512	2
- 11	Spacer,Plate,12" Skid (2 Req'd)	HC513	2
- 12	Skid,F/Large Pipe Adapter	HC132	2
- 13	Skid,Pipe,F/Proscout	HC131	2
- 14	Screw,Cap,Skt Hd,10-32x3/4,Sst	100121	4
- 15	Screw,Cap,Skt Hd,1/4-20x1/2,Sst	101001	12
- 16	Ring-D,Chain,Tow Cable,3/16"Ss	712799	2
- 17	Spacer,Plate,15" Skid (2 Req'd)	HC514	2
- 18	Washer,Flat,1/4"Sst	101736	4
- 19	Washer,Flat,#10 Sst	100140	4
- 20	Cable Assy,F/Cx1-Ps1&2,Orn 5 Pin	PM311	1
- 21	Wrench,Allen,.035 Short Arm	CS132	1
- 22	MRO Removable Lck, Blue	440061	AR

ProScout

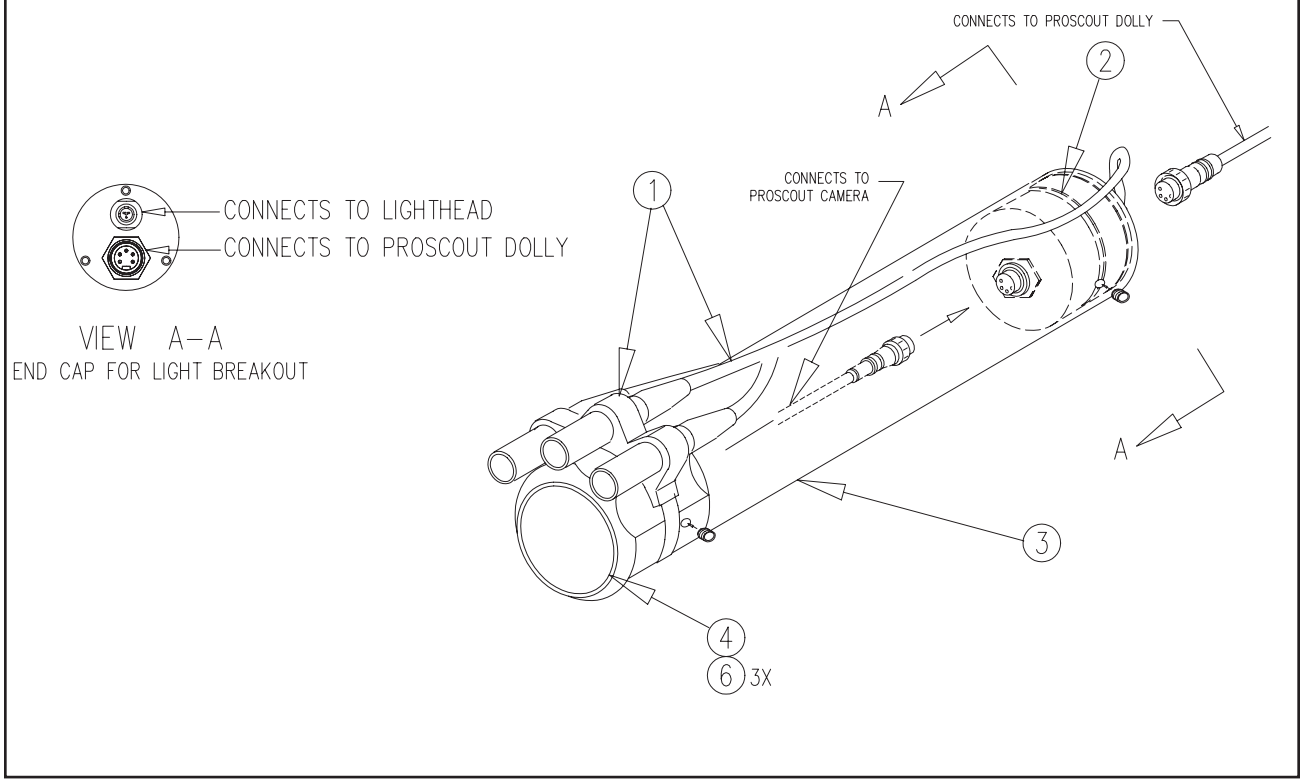


Figure 21. *Adapter Tube Assy, w/HPL6, Pro Scout, HC323*

Adapter Tube Assy, w/HPL6, PS (See Fig. 21) Rev. -, HC323			
Item #	Description	P/N	Qty
- 1	Lighthead,Hpl6,Ps Cam/Proscout Pcu	HC326	1
- 2	Bulkhead Assy,Pipe Adapter Assy	HC316	1
- 3	Tube,Cast,Body,Pipe Adpt,Tractor	HC508	1
- 4	Adapter,Plastic,Ps2 Camera	HC120	1
- 5	Screw,Set,1/4-20x1/4 Stl	100998	4
- 6	Screw,Set,2-56x1/8"Long Socket	101097	3
- 7	Cable Assy,F/Cx1-Ps1&2,Orn 5 Pin	PM311	1
- 8	Wrench,Allen,.035 Short Arm	CS132	1

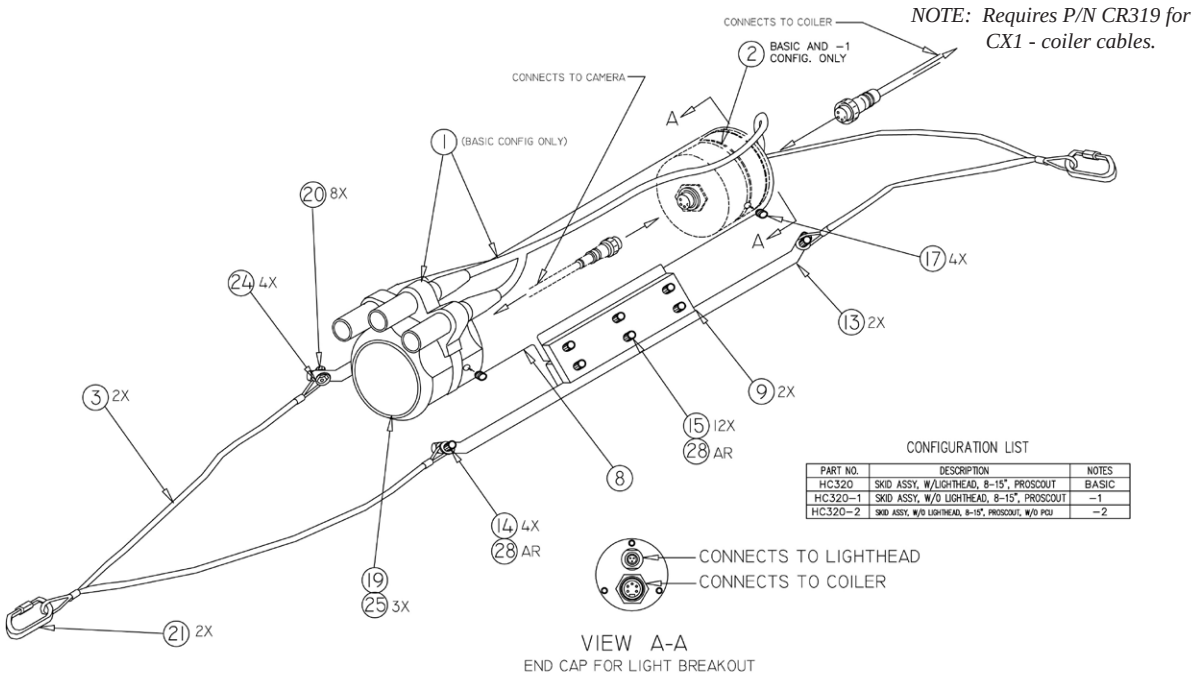


Figure 22: *Skid Assy, w/Lighthead, 8-15",ProScout, 6", HC320*

Skid Assy, w/Lighthd 8-15"ProScout 6" (Fig. 22) Rev. G, HC320			
Item #	Description	P/N	Qty
1	Lighthead,Hpl6,Ps Cam/Proscout Pcu	HC326	1
2	Bulkhead Assy,Pipe Adapter Assy	HC316	1
3	Cable Assy,Tow,24",Pipe Skid Assy	HC510	2
7	Skid,F/Large Pipe Adapter	HC132	2
8	Casting,Body W/Flanges	HC111	1
9	Spacer,Plate,8" Skid	HC511	2
10	Spacer,Plate,10" Skid	HC512	2
11	Spacer,Plate,12" Skid	HC513	2
13	Skid,Pipe,F/Proscout	HC131	2
14	Screw,Cap,Skt Hd,10-32x3/4,Sst	100121	4
15	Screw,Cap,Skt Hd,1/4-20x1/2,Sst	101001	12
17	Screw,Set,1/4-20x1/4 Stl	100998	4
19	Adapter,Plastic,Ps2 Camera	HC120	1
20	Washer,Flat,1/4"Sst	101736	8
21	Ring-D,Chain,Tow Cable,3/16"Ss	712799	2
22	Spacer,Plate,15" Skid (2 Req'd)	HC514	2
24	Washer,Flat,#10 Sst	100140	4
25	Screw,Set,2-56x1/8"Long Socket	101097	3
26	Wrench,Allen,.035 Short Arm	CS132	1
27	Screw,Cap,Skt Hd,1/4-20x3/4,Sst	101022	4

Bulkhead Assembly

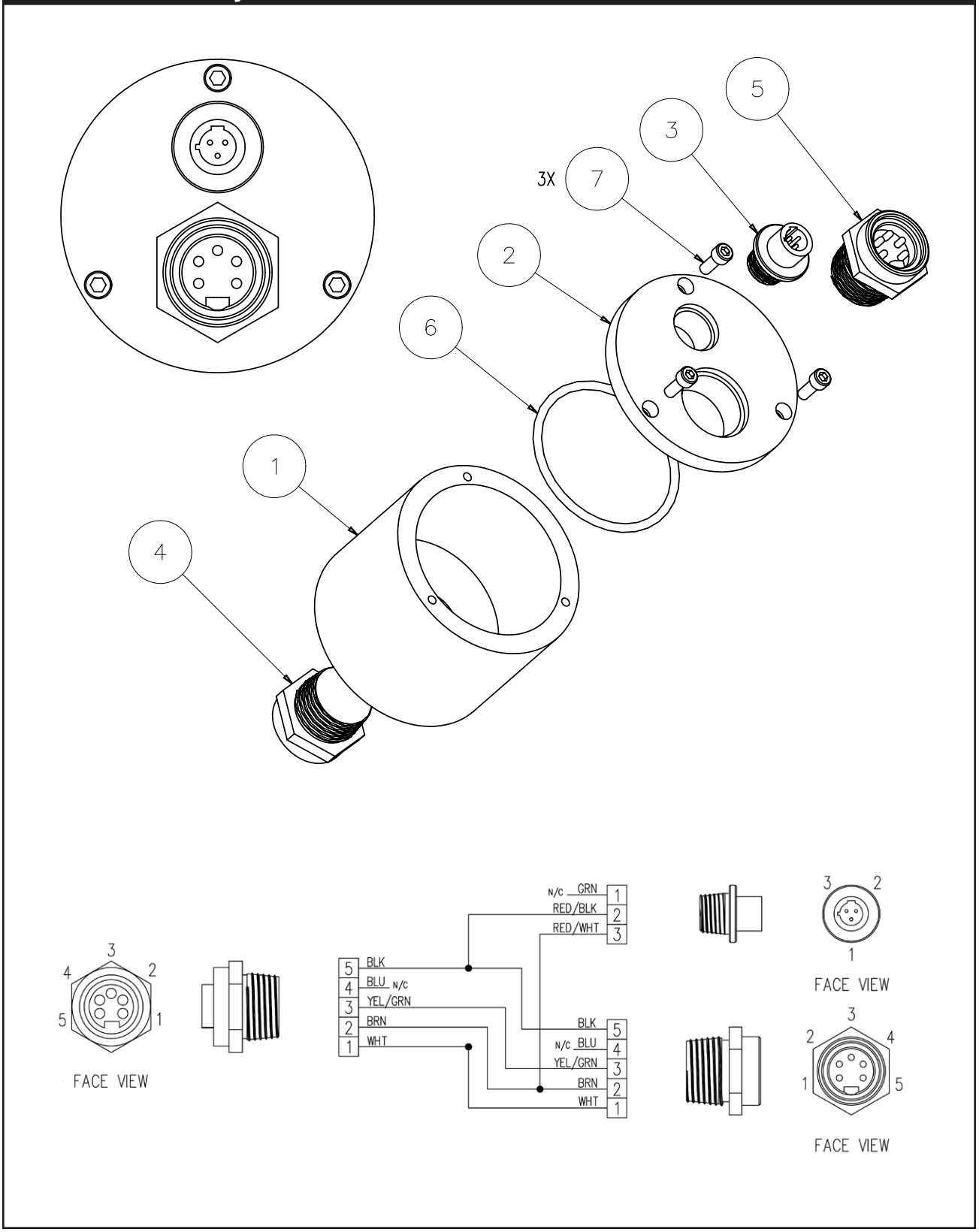
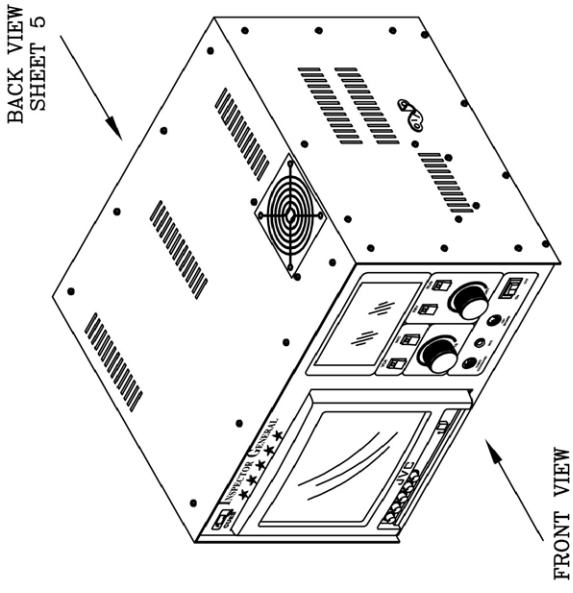


Figure 23. *Bulkhead Assembly, Pipe Adapter Assy, HC316*

Bulkhead Assy, Pipe Adapter Assy (See Fig. 23) Rev. F, HC316			
Item #	Description	P/N	Qty
− 1	Body,Rear Adapter,Pipe Skid Assy	HC140	1
− 2	End Cap,Rear Adapter,Pipe Skid	HC141	1
− 3	Connector,Bulkhead,3-Pin,M,1/4"Npt	EC501	1
− 4	Connector,Bulkhead,5 Skt,F,1/2"Npt	EC506	1
− 5	Connector,Bulkhead,5-Pin,M,1/2"Npt	EC505	1
− 6	O-Ring,2-133,Buna	HW214	1
− 7	Screw,Cap,Skt Hd,6-32x3/8,Sst	105071	3
− 8	Mro-Seal.Hgh Press,Nd 440400-50,Brn	445091	1
− 9	Mro-Removable Lck,Nd 121200-50,Blue	440061	1
− 10	Mro-Lubricant,O-Ring 2 Oz Tube	439986	1

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CONFIGURATION LIST		
PART NO.	DESCRIPTION	NOTES
SM301	PCU, IGGY, STANDARD	
SM301-12	PCU,IGGY,FOREIGN,SPANISH	2,3
SM301-13	PCU, IGGY, CANADIENNE	2,3
SM301-2	PCU, IGGY, PAL (220) VERSION	
SM301-21	PCU, IGGY, PAL (220) VERSION,SPANISH	2,3
SM301-3	PCU, IGGY, W/ACCESS. VERSA-WELL	5
SM301-4	PCU, IGGY, W/INCLINOMETER	
SM301-41	PCU, IGGY, W/INCLINOMETER (23.5 KHZ)	
SM301-42	PCU, IGGY, W/INCLINOMETER (23.5 KHZ), SPANISH	2,3
SM301-5	PCU, IGGY, PAL (220) VERSION, W/INCLINOMETER	
SM301-51	PCU, IGGY, PAL (220) VERSION, W/INCLINOMETER (23.5 KHZ)	
SM301-52	PCU, IGGY, PAL (220) VERSION, W/INCLINOMETER (23.5 KHZ),SPANISH	2,3
SM301-6	PCU, IGGY, 220V, W/ACCESS. VERSA-WELL	5
SM301-7	PCU, IGGY, STANDARD W/O MONITOR	6
SM301-8	PCU, IGGY, W 6.X FIRMWARE	
SM301-9	PCU,IGGY,220 VERSION,W/O MONITOR	
SM301-53	PCU, IGGY, 100V PAL	

EPROM CONFIGURATION LIST (TS035)	
PART NO.	DESCRIPTION
TS035	EPROM,PROGRAMMED,U20,TP310,(2000),ENGLISH
TS035-1	EPROM,PROGRAMMED,U20,TP310,(2000),FRENCH
TS035-2	EPROM,PROGRAMMED,U20,TP310,(2000),SPANISH
TS035-3	EPROM,PROGRAMMED,U20,TP310,(2000),RUSSIAN
TS035-4	EPROM,PROGRAMMED,U20,TP310,(2000),CANADIAN
TS035-5	EPROM,PROGRAMMED,U20,TP310,(2000),CANADIENNE

EPROM CONFIGURATION LIST (SM223)	
PART NO.	DESCRIPTION
SM223	EPROM,PROGRAMMED,U4,SM610,LARGEDISPLAY,ENGLISH
SM223-1	EPROM,PROGRAMMED,U4,SM610,LARGEDISPLAY,FRENCH
SM223-2	EPROM,PROGRAMMED,U4,SM610,LARGEDISPLAY,SPANISH
SM223-3	EPROM,PROGRAMMED,U4,SM610,LARGEDISPLAY,RUSSIAN

CONFIGURATION SWITCH SETTINGS FIRMWARE REVISION 6.0		
SWITCH #	OPEN (1)	CLOSED (0)
1	IMPERIAL COUNTING	METRIC COUNTING
2	PAL VIDEO	NTSC VIDEO
3	QUADRATURE	CUES BI-POLAR
4	PRESCALE 16:1	SCALE 1:1
5	PDR-2K	STD. PRODATA/PRODATA PLUS
6	UNUSED, SET TO 1	UNUSED
7	ENABLE TITLING	DISABLE TITLING
8	UNUSED, SET TO 1	UNUSED

Figure 24a: *PCU, Inspector General, SM301*

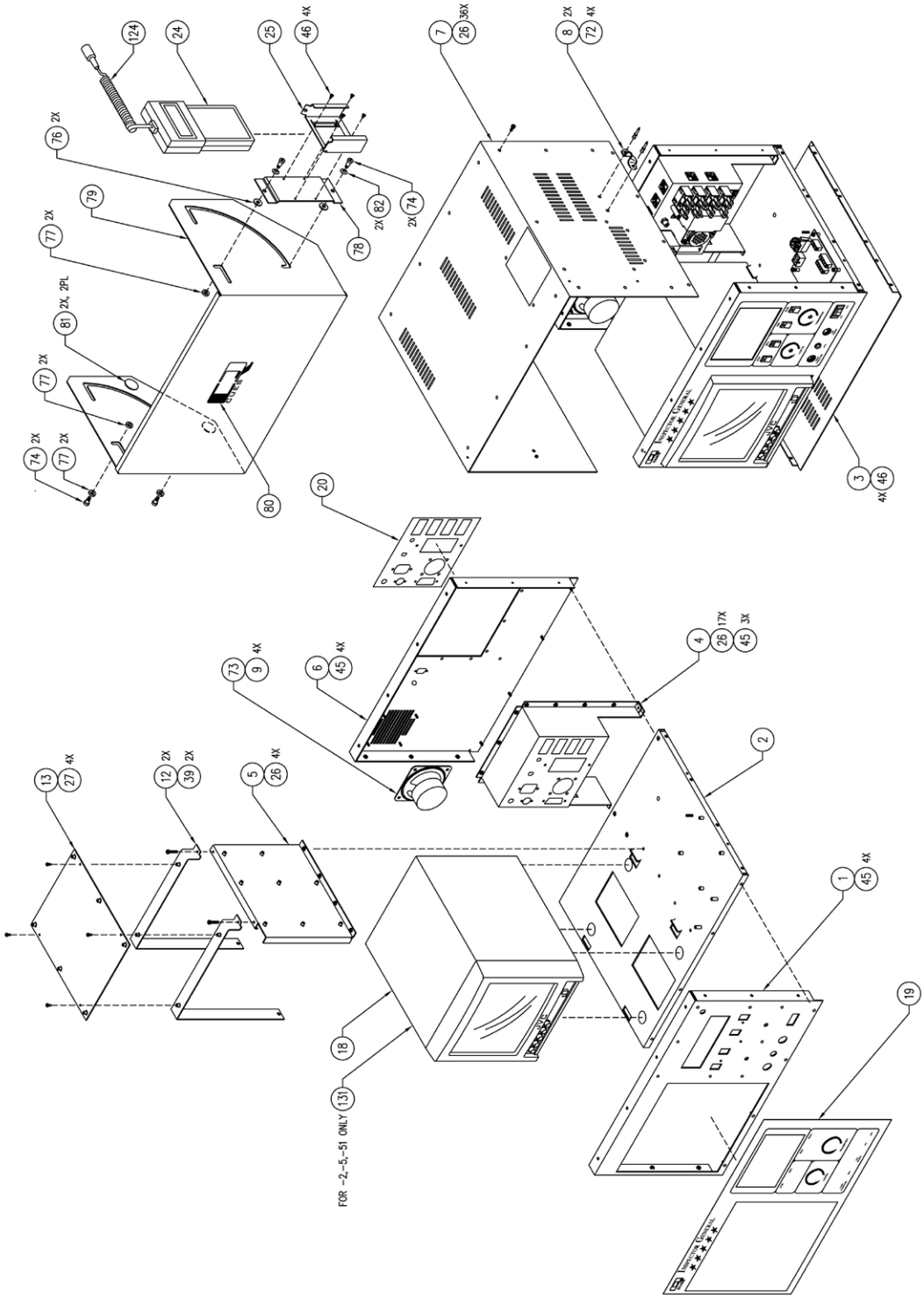


Figure 24b: *PCU, Inspector General, SM301*

Inspector General

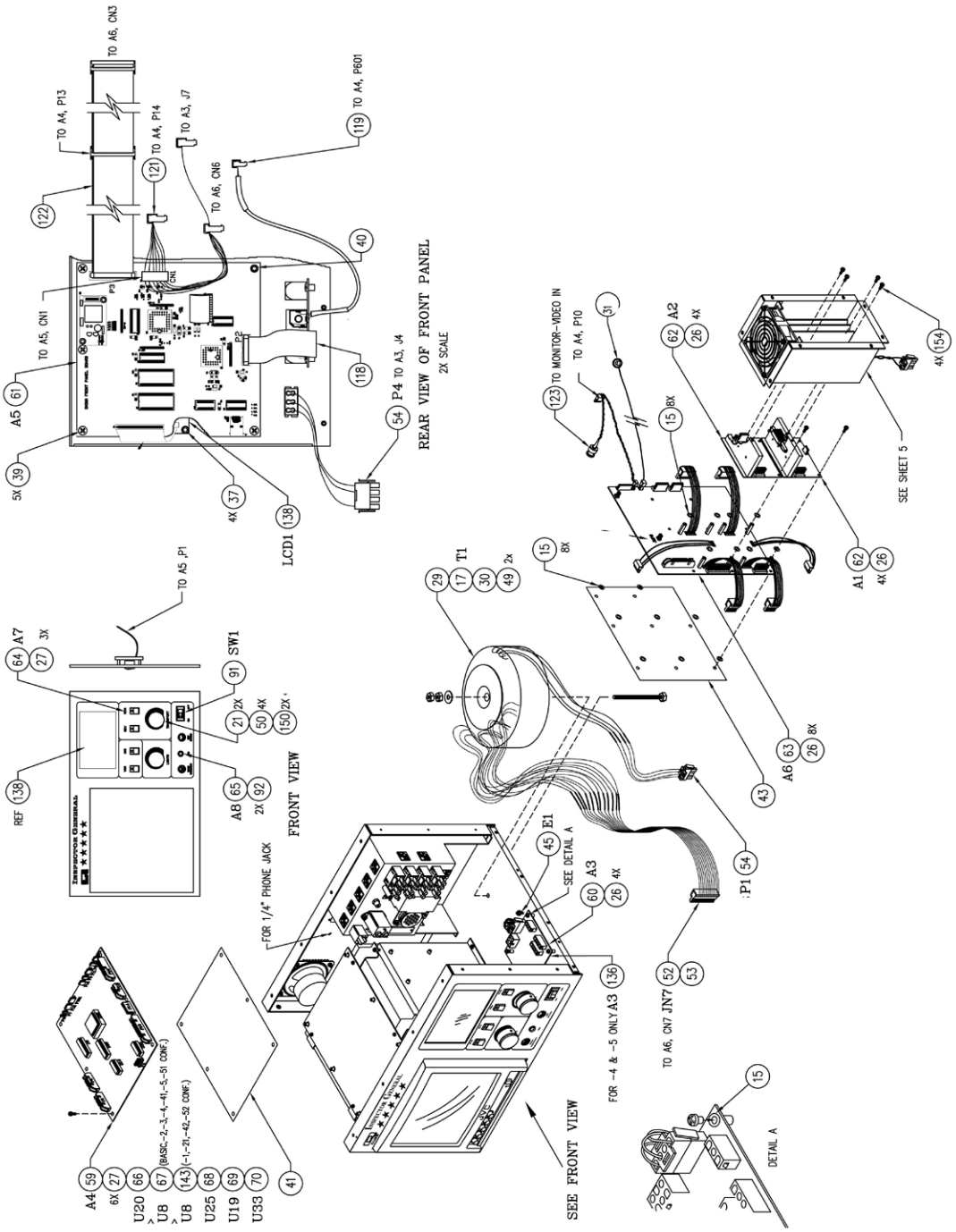


Figure 24c: *PCU, Inspector General, SM301*

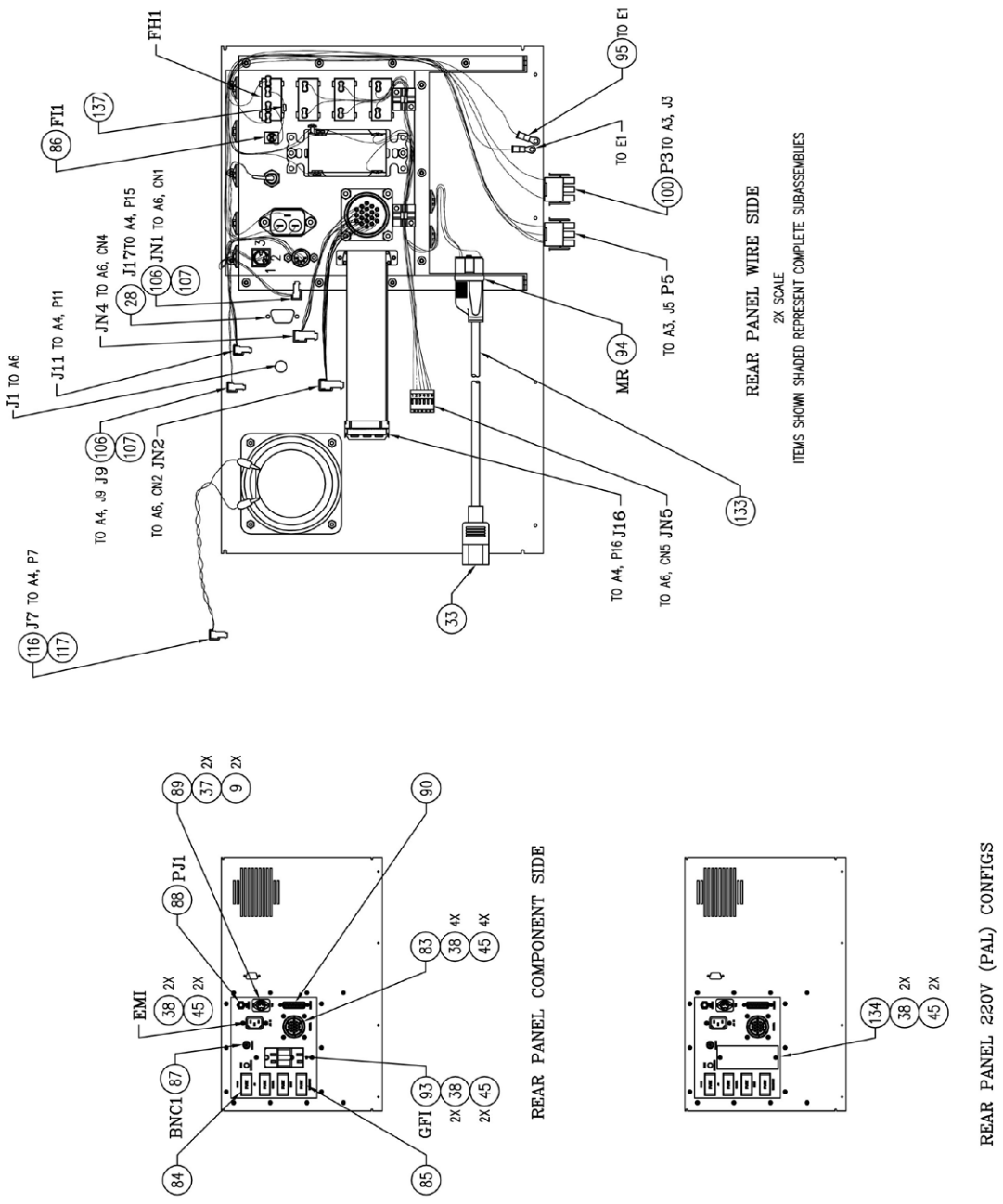


Figure 24d: *PCU, Inspector General, SM301*

PCU, Inspector General (See Figure 24), Rev. T, SM301			
Item #	Description	P/N	Qty
1	Panel,Front,Iggy,Pcu	SM219	1
2	Main Tray,Pcu,Iggy	SM101	1
3	Bottom Tray,Pcu,Iggy	SM102	1
4	Mounting Plate,Pcu,Iggy	SM105	1
5	Bracket,Pcb,Pcu,Iggy	SM120	1
6	Panel,Rear,Pcu,Iggy	SM104	1
7	Shell,Pcu,Iggy	SM109	1
8	Bracket,F/Hood Latch	SM095	2
9	Nut,Kep,Zinc Plated,4-40	712455	6
10	Washer,Flat,#6 Pl	712461	3
11	Bracket,Fan,Pcu,Iggy	SM127	1
12	Strap,Monitor,Pcu,Iggy	SM108	2
13	Mounting Plate,Pbc,Pcu,Iggy	SM107	1
14	Heatsink,Pcu,Iggy	SM117	1
15	Washer,Fiber,#6	712486	17
16	Extension Bar, Pcu,Iggy	SM115	2
17	Transformer,Pcu,Iggy	SM128	1
18	Monitor,10" Color, Ntsc And Pal	PC180	1
19	Overlay,Iggy,Pcu	SM220	1
20	Overlay,Rear,Lexan,Pcu,Iggy	SM113	1
21	Knob,Aluminum,Pcu,Iggy	SM112	2
22	Fan,120v,Pcu,Iggy	SM181	1
23	Grill,Fan,Pcu,Iggy	SM182	1
24	Hand Command,Pcu,Iggy	SM183	1
25	Hoisterhand Command,Pcu,Iggy	SM184	1
26	Screw,Pan,6-32x3/8 Sst	103023	79
27	Screw,Pan,4-40x1/4 Machine	HW227	14
28	Cable Assy,Titler,Ribbon,Pcb	TS305	1
29	Bolt,Hex,Hd. 1/4-20x4,Sst	101017	1
30	Washer,Flat,1/4"Sst	101736	1
31	Cable Assy,Pwr Supply Cntrl Bd,Iggy	SM352	1
33	Cable Assy,Power,110vac Input,14awg	SM191	1
34	Socket,8-Pin Dip	EL064	1
35	COrd, Power, c-14 Plug, 8'2", 250v	EC1555	1
37	Screw,Pan,4-40x3/8 Phil Plated	712403	6
38	Screw,Pan,6-32x1/2 Sst	472018	8
39	Screw,Bind,6-32x3/4 Sst Phil	104006	7
40	Screw,Cap,Skt Hd,10-32x3/4 4140 Aly	101023	3
41	Insulator,Prodata Pcb,Pcu	SM198	1
43	Insulator,Pcb,Iggy	SM189	1

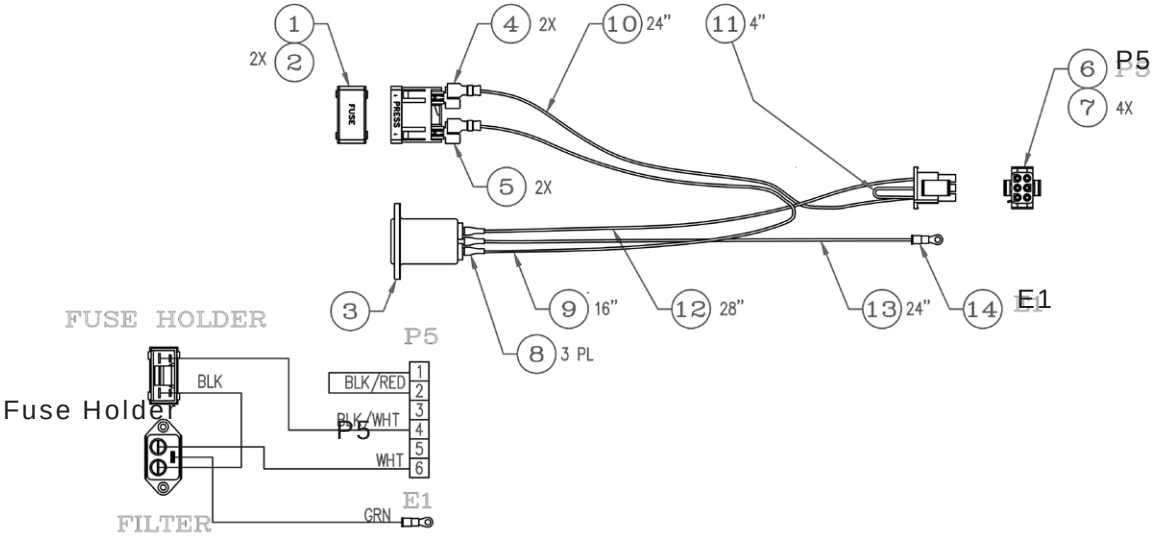
PCU, Inspector General (See Figure 24), Rev. T, SM301			
Item #	Description	P/N	Qty
45	Nut,Kep,Zinc Plated,6-32	712456	19
46	Screw,Flat,4-40x1/4 Phil	712402	8
47	Screw,Pan,6-32x1 1/2 Phil Sst	100117	3
48	Screw,Cap,Skt Hd,8-32x1/2,Sst	101025	2
49	Nut,Hex Plated,1/4-20	101038	2
50	Screw,Set,6-32x1/4 Sst	100099	4
52	Connector,Centerline,12 Pos.	MT143	1
53	Strain Relief,Conn,12 Pos	MT144	1
54	Connector,Plug,4-Pin,Pcu,Iggy	EL855	3
55	Socket,F/Conn,18-24awg	EL219	7
56	Mro-Mount,Cable Tie	505147	20
57	Mro-Tie,Cable,3/32"X4",Wht/Clr	440307	20
59	Pcb Assy,Prodata,W/O U8,19,20,25,33	TP310	1
60	Pcb Assy,Power Board,Iggy	SM412	1
61	Pcb Assy,Front Panel,Iggy	SM610	1
62	Pcb Assy,Switching Power Module	SM511	2
63	Pcb Assy,Pwr Sply Control Board	SM510	1
64	Pcb Assy,Keypad Board	SM611	1
65	Pcb Assy,Jack Interface Board	SM612	1
66	Eprom,Prog,U20,Tp310,(2000),English	TS035	1
67	Eprom,Prog,U8,Font,Tp310,(2000)	TS036	1
68	Ic,Progrmd,U25,Data Bus,Fpga,Tp310	TS024	1
69	Ic,Programd,U19,Titler Decod,Tp310	TS022	1
70	Ic,Progrmd,U33,Counter Deco,Tp310	TS023	1
72	Rivet,Pop,Alum,3/16x.063-.125h	HW487	4
73	Speaker,3.5"Sq,Shielded,6watts	EL328	1
74	Screw,Shld,10-32x.25x.375shld Lg,Ss	HW919	4
75	Screw,Shld,10-32x.25x.25 Shld Lg	HW888	2
76	Washer,Nylon,.625 Odx.250idx.062thk	HW887	2
77	Washer,Nylon,.560 Odx.260idx.125thk	HW891	6
78	Bracket,Mount,Hand Command,Iggy	SM212	1
79	Sunscreen,Iggy	SM213	1
80	Label,Cues,2x4"	962036	1
81	Felt Pad,1"Dia,P-7112	PC178	4
82	Washer,Bell Srg,1/4idx1/2odx.018,Ss	HW795	2
83	Cable Assy,19-Pin Conn,Iggy	SM326	1
84	Cable Assy,Ac Fuse,Iggy	SM322	1
85	Cable Assy,Cam/Light/Trans Fuse	SM325	1
86	Lamp,Indicator,Red,Pcu,Iggy	SM203	1

PCU, Inspector General (See Figure 24), Rev. T, SM301			
Item #	Description	P/N	Qty
87	Bnc,Panel Mount,Plastic	EL778	1
88	Jack,Phone,1/4"2 Cond,Pcu,Iggy	EL875	1
89	Cable Assy,Internal,Vcr I/O Conn,Ig	SM327	1
90	Cable Assy,Printer,Iggy	SM330	1
91	Switch,Ac,2 Position,Red-Light	EL227	1
92	Screw,Bind,4-40x1/2 Sst	712404	2
93	Outlet,Gfi	PC123	1
94	Receptacle,Single Snap-In 110/115v	160302	1
95	Terminal,Ring,22-18awg,#10 Stud,Red	712741	1
96	Wire,#18 Green	161637	1
97	Wire,#18 Black	161636	1
98	Wire,#18 White	161638	1
99	Wire,#18 Blk/Red,Pvc	EL915	1
100	Plug,3-Pin	712602	1
101	Pin,Dowel,303 Sst .250x.500	100213	4
102	Tube,Shrink,Black 1/4"Rnf	712576	1
103	Quick Disconnect,14-16awg,W/Sleeve	PC118	8
104	Wire,#24 Black Pvc	161558	3
105	Wire,#24 Wht,Pvc	EL919	3
106	Connector,3-Pin,.100 Center,Mass	EL867	2
107	Strain Relief,Conn,3-Pin,100center	EL868	2
108	Tube,Shrink,Black 1/8"	712789	1
109	Wire,#24 Gry,Pvc	EL921	0.9
110	Wire,#18 Gray	161657	2.4
111	Mro-Compound,Silcone Heatsink	445079	1
113	Wire,#20 White Bu	713326	2.5
114	Wire,#20 Black Stranded 600v	713317	2.7
115	Grommet,Rubber,.250idx.562 Od	HW837	1
116	Connector,Centerline,2 Pos	MT139	1
117	Strain Relief,Conn,2 Pos	MT140	1
118	Cable Assy,Jackpcb/Frontpcb,Iggy	SM334	1
119	Cable Assy,Ext Mic,W/Jack,Iggy	SM359	1
120	Wire,#18 Orange	161653	2.5
121	Cable Assy,Dc Power Supply,Iggy	SM332	1
122	Cable Assy,Main Buss Inter,Iggy	SM333	1
123	Cable Assy,Video/Monitor,Iggy	SM331	1
124	Cable Assy,Hand Command,Iggy	SM337	1
125	Wire,#18 Red	161652	2.5

PCU, Inspector General (See Figure 24), Rev. T, SM301			
Item #	Description	P/N	Qty
126	Wire,#18 Yellow	161656	1.5
127	Wire,#18 Wht/Blu,Pvc	EL918	1.5
128	Wire,#18 Blue	161654	1.5
129	Wire,#18,Blackw/White	EL096	1.5
130	Wire,#18 Wht/Red,Pvc	EL916	1.5
137	Resistor,Cf,51k Ohm 1/4w 5%	700091	1
138	Lcd Display Assy,Iggy Pcu	SM222	1
150	Spacer,Swg,#6x1/8lgx1/4rnd	712793	2
154	Screw,Cap,Skt Hd,10-32x1-1/4,Sst	103040	4

Inspector General

Cable Assembly, AC In + AC Fuse, P/N SM322



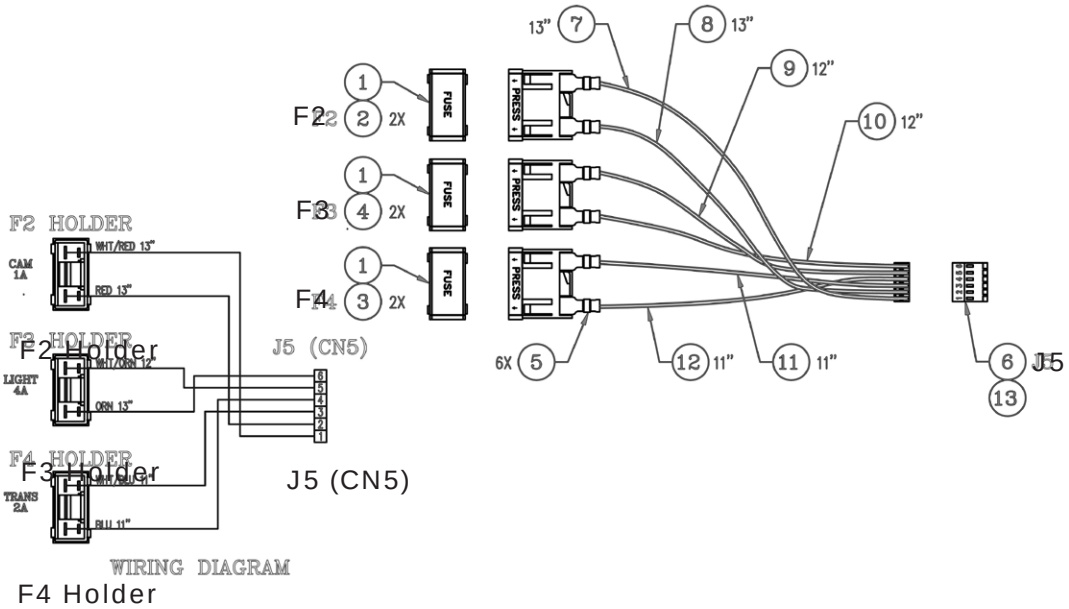
Fuse Holder

P5

E1

Filter

Cable Assembly, Camera, Light, Transport, P/N SM325



F2 Holder

F3 Holder

J5 (CN5)

F4 Holder

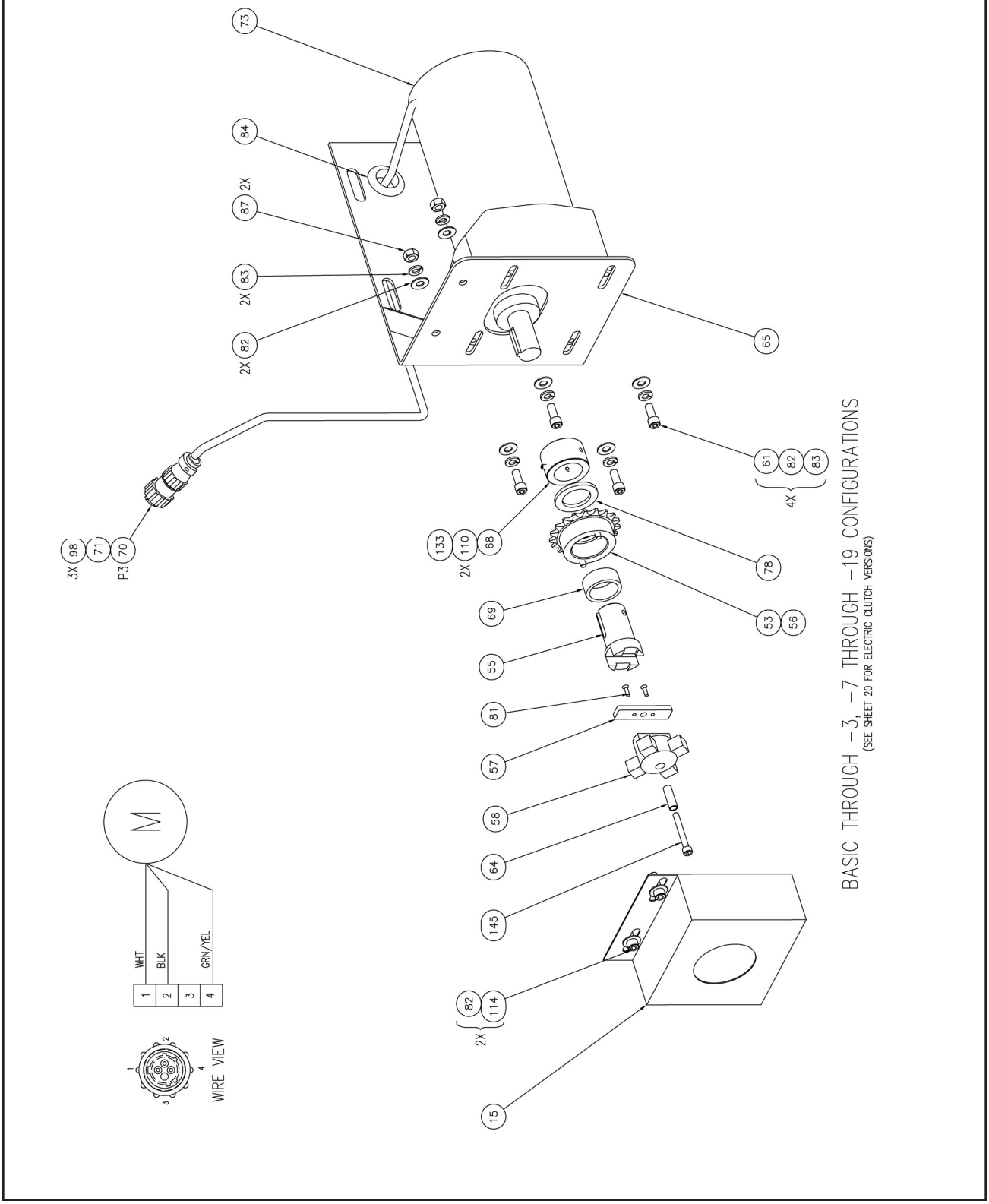


Figure 25a. *Dolly, IGGY, w/LW, FTGMTR, No Cbl, 7755*

Inspector General

CONFIGURATION LIST	
PART NO.	DESCRIPTION
7755	DOLLY, IG, LW, FM, NO CBL, 110V, W/O ELECT CLUTCH
7755-1	DOLLY, IG, NO LW, FM, NO CBL, 110V, W/O ELECT CLUTCH
7755-2	DOLLY, IG, LW, FM, NO CBL, 220V, W/O ELECT CLUTCH
7755-3	DOLLY, IG, NO LW, FM, NO CBL, 220V, W/O ELECT CLUTCH
7755-4	DOLLY, IG, VERSAWELL, W/SONAR, NO CBL, 110V, W/O ELECT CLUTCH
7755-5	DOLLY, IG, VERSAWELL, LW, FM, NO CBL, 220V, W/O ELECT CLUTCH
7755-6	DOLLY, IG, VERSAWELL, LW, FM, NO CBL, 110V, W/O ELECT CLUTCH
7755-7	DOLLY, IG, NO LW, NO FM, NO CBL, 220V, W/O ELECT CLUTCH
7755-8	DOLLY, IG, LW, FM, NO CBL, 110V, STEERABLE XPORTER W/O ELECT CLUTCH
7755-9	DOLLY, IG, LW, FM, NO CBL, S/C, 110V, W/O ELECT CLUTCH
7755-10	DOLLY, IG, W/LVLWND.M FTGMTR, NO CBL, 110V, W/O ELECT CLUTCH
7755-11	DOLLY, IG, LW, FM, NO CBL, 220V, S. TRNSP, W/O ELECT CLUTCH
7755-12	DOLLY, IG, W/LVLWIND, (M) 200V, CHINA, W/O ELECT CLUTCH
7755-13	DOLLY, IG, W/LVLWIND, FTGMTR, SHORT HANDLE, 220V, W/O ELECT CLUTCH
7755-14	DOLLY, IG, K2, LVLWD, FTG, F/PLT, ORG CBL, 110V, W/O ELECT CLUTCH
7755-15	DOLLY, IG, LW, FM, F/ORG CBL, 220V, W/O ELECT CLUTCH
7755-16	DOLLY, IG, K2, LVLWD, FTGMTR, F/GOLD CBL, 110V, W/O ELECT CLUTCH
7755-17	DOLLY, IG, LVLWD, FTGMTR, LAMP/TV 110V, W/O ELECT CLUTCH
7755-18	DOLLY, IG, K2, LVLWD, FTG, F/PLT & ORG CBL, 220V, W/O ELECT CLUTCH
7755-19	DOLLY, IG, K2, LVLWD, FTGMTR, F/GOLD CBL, 220V, W/O ELECT CLUTCH
7755-20	DOLLY, IG, K2, LVLWD, FTGMTR, F/GOLD CBL, 110V, W/ELECT CLUTCH
7755-21	DOLLY, IG, K2, LVLWD, FTGMTR, F/GOLD CBL, 220V, W/ELECT CLUTCH

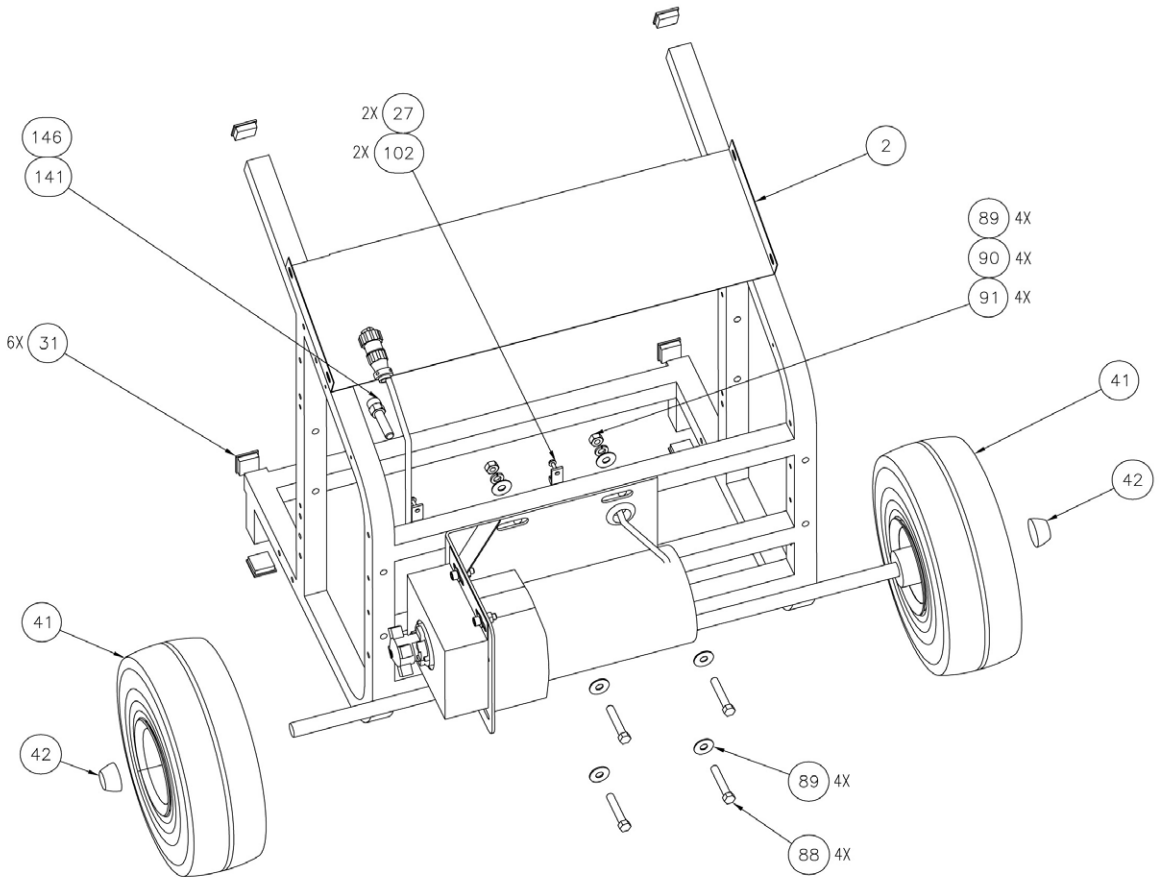


Figure 25b. *Dolly, IGGY, w/LW, FTGMTR, No Cbl, 7755*

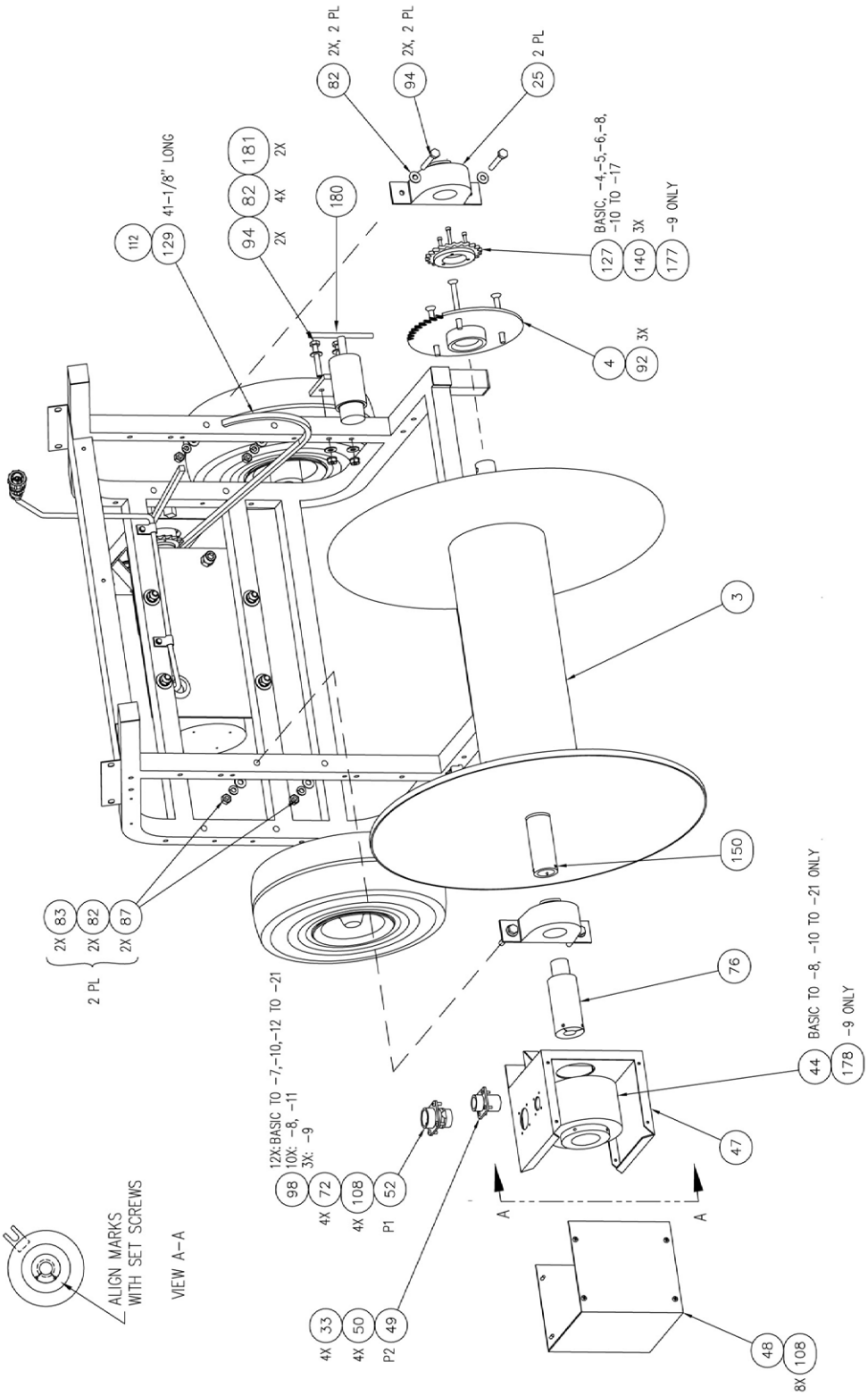


Figure 25c. *Dolly, IGGY, w/LW, FTGMTR, No Cbl, 7755*

Inspector General

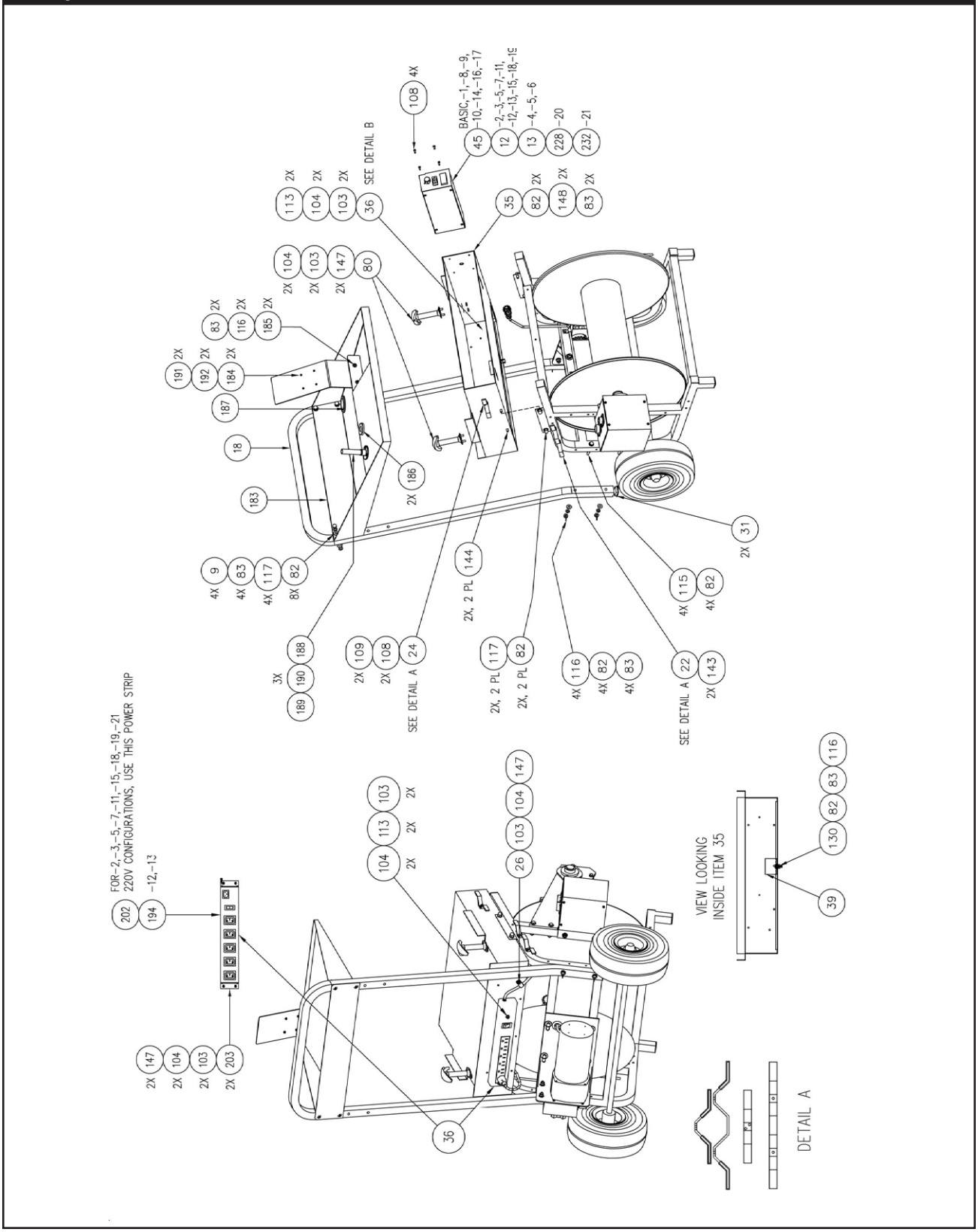


Figure 25d. *Dolly, IGGY, w/LW, FTGMTR, No Cbl, 7755*

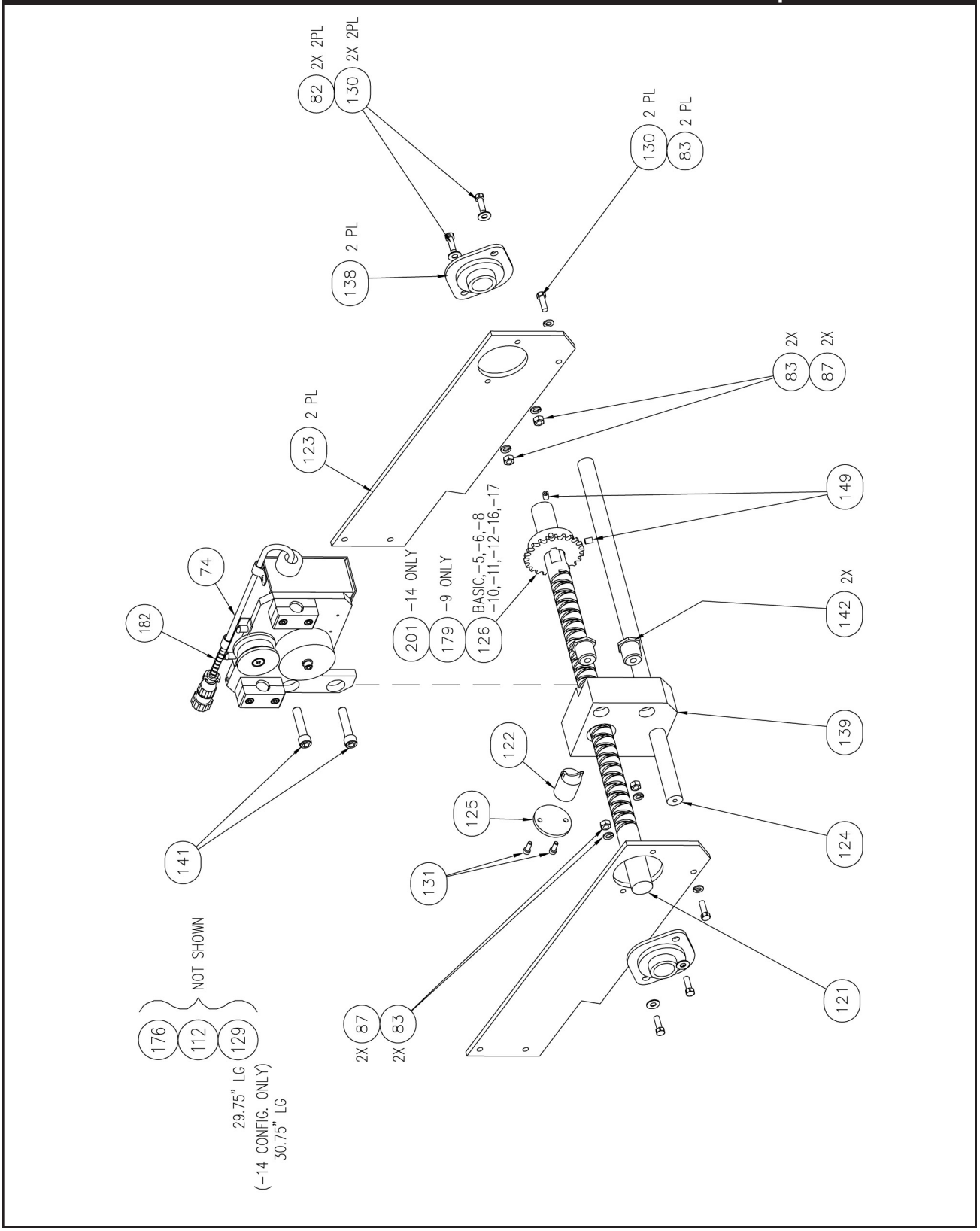


Figure 25e. *Dolly, IGGY, w/LW, FTGMTR, No Cbl, 7755*

Inspector General

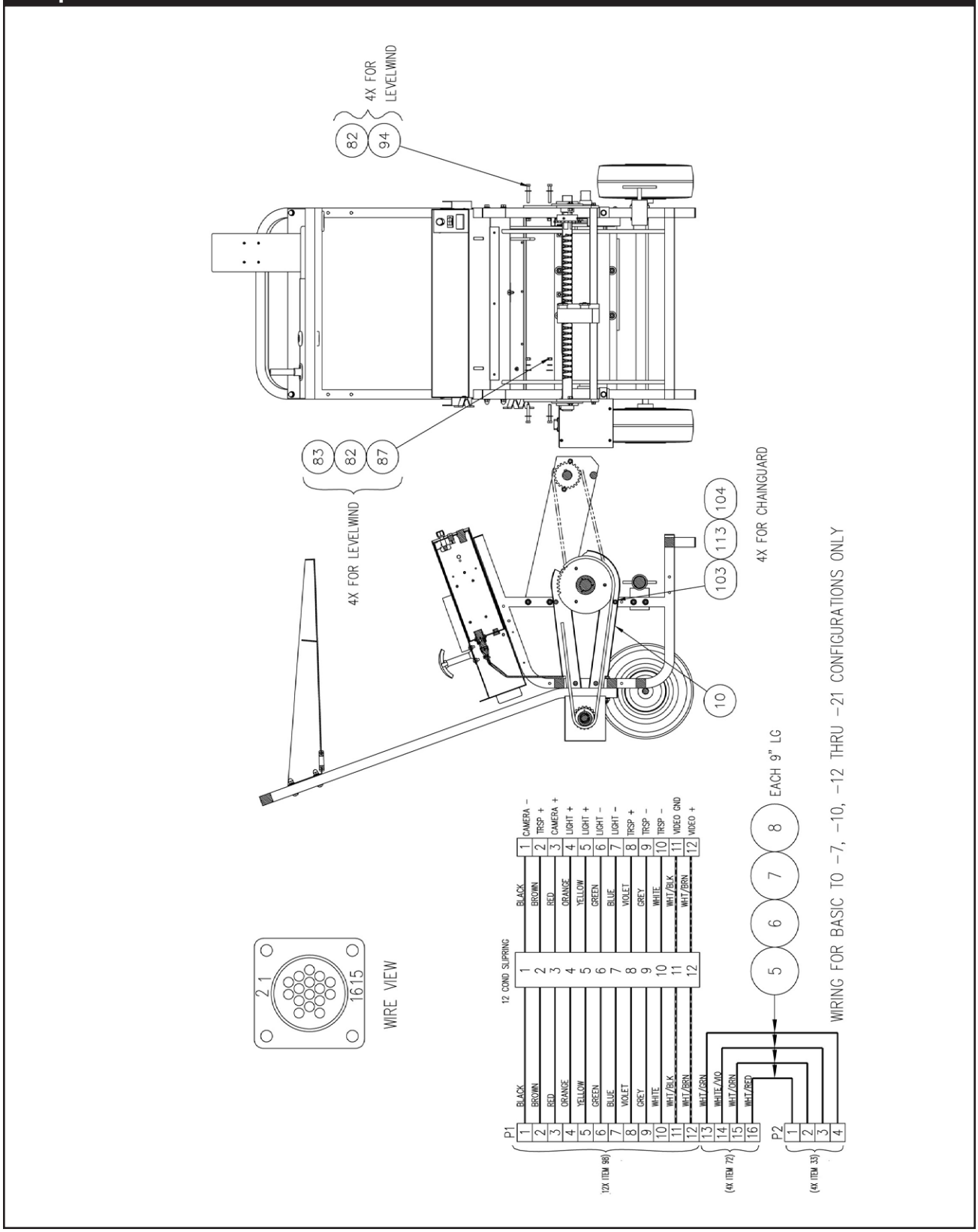


Figure 25f. *Dolly, IGGY, w/LW, FTGMTR, No Cbl, 7755*

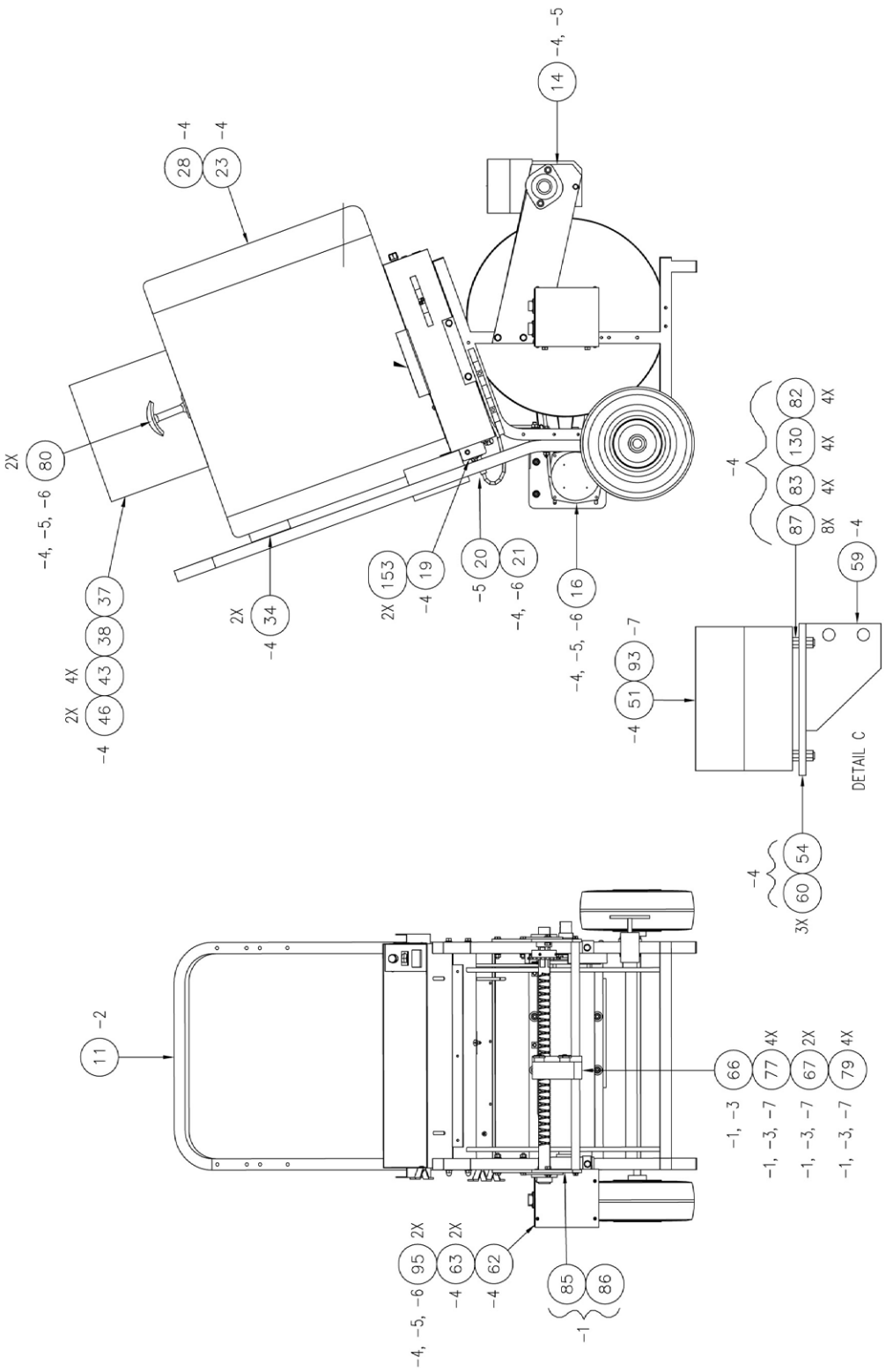


Figure 25g. *Dolly, IGGY, w/LW, FTGMTR, No Cbl, 7755*

Inspector General

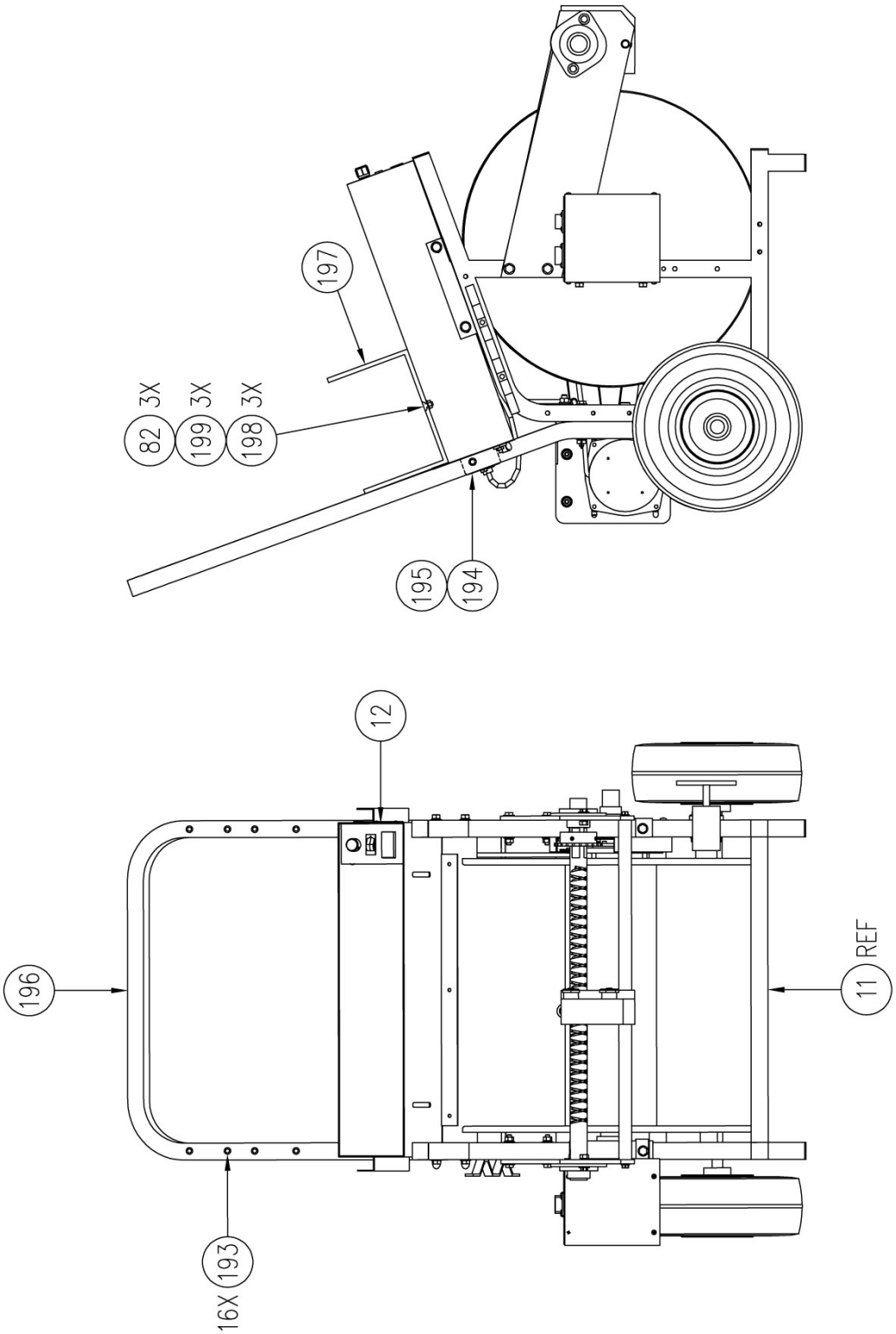
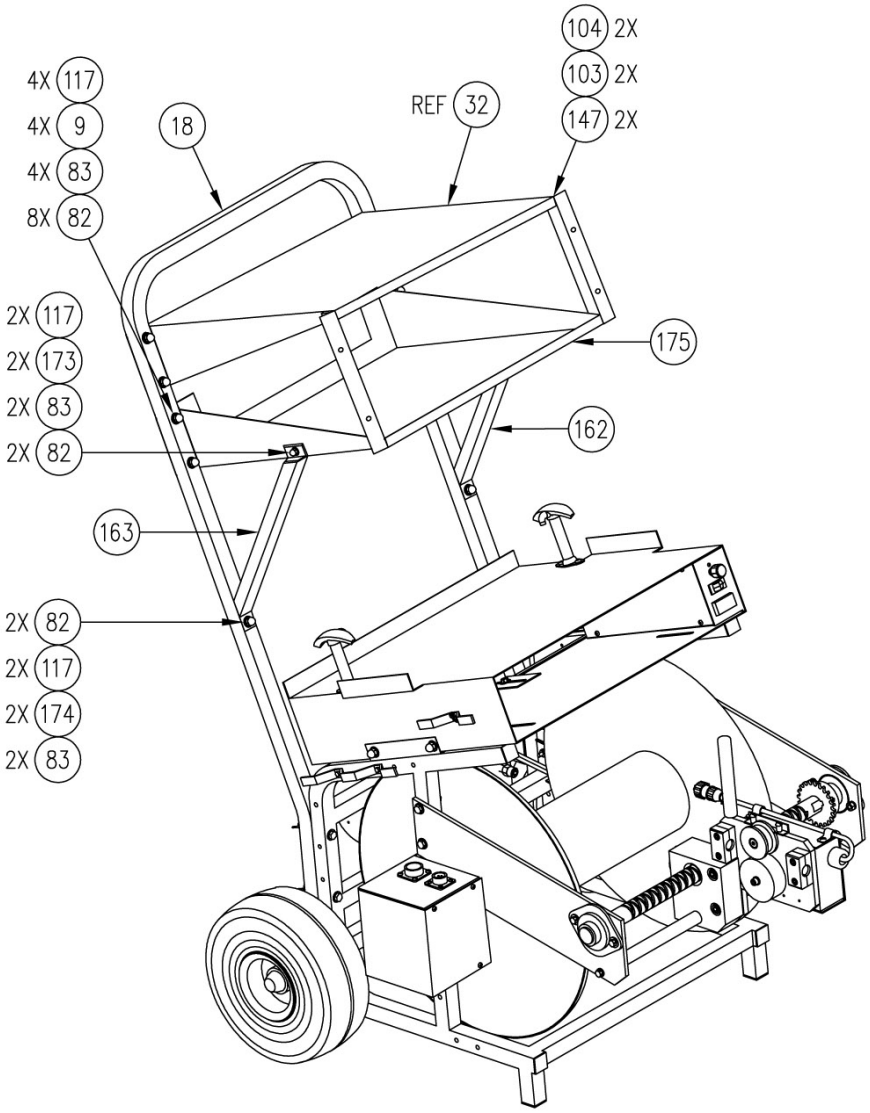


Figure 25h. *Dolly, IGGY, w/LW, FTGMTR, No Cbl, 7755*



-17 CONFIGURATION ONLY (LAMP)

Figure 25i. *Dolly, IGGY, w/LW, FTGMTR, No Cbl, 7755*

Inspector General

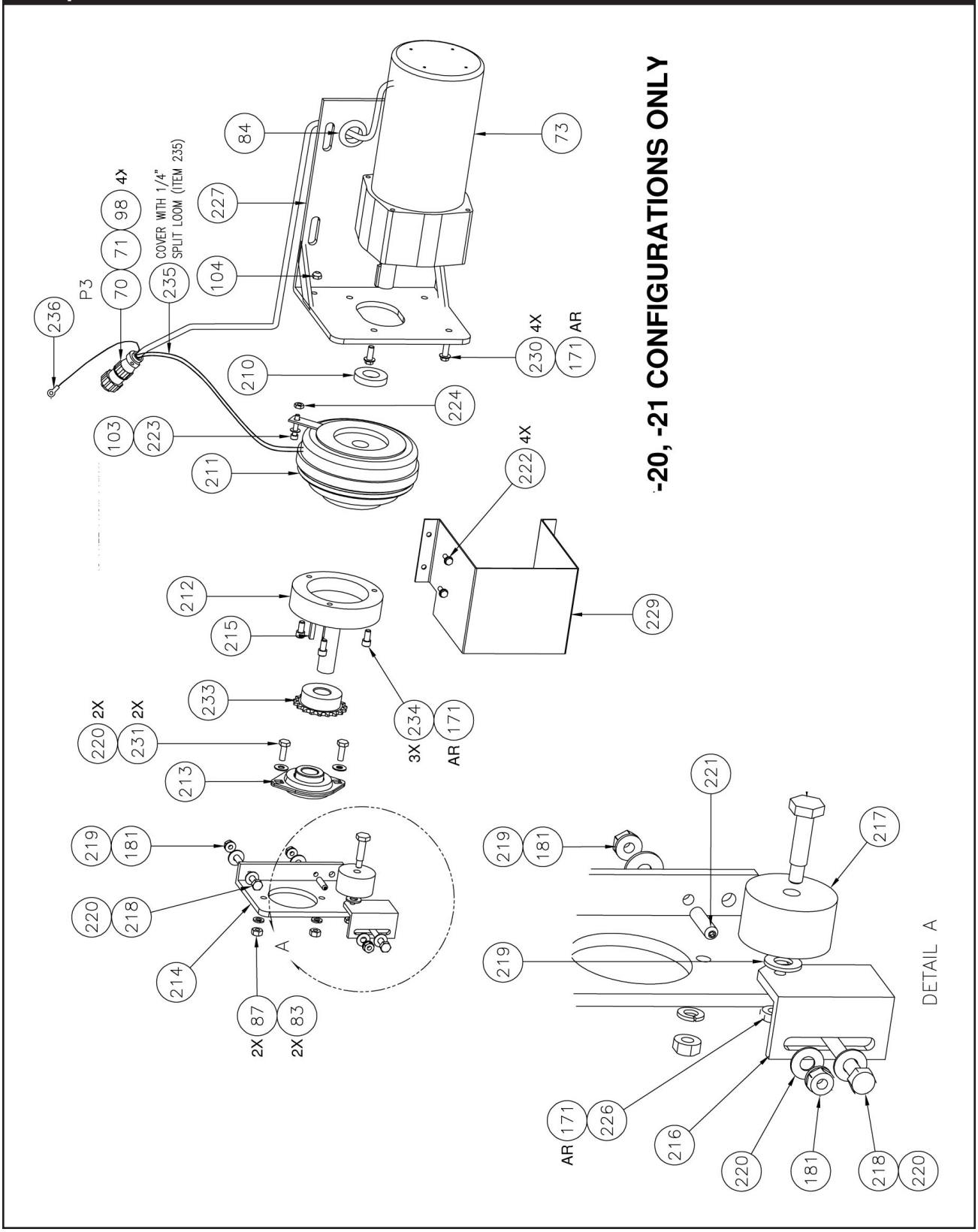


Figure 25j. *Dolly, IGGY, w/LW, FTGMTR, No Cbl, 7755*

DOLLY,IG,W/ LW,FTGMTR,NO CBL,110V, Rev. P, 7755			
0001	PLUG,12-PIN	712610	1
0002	FRAME,MAIN DOLLY	SD101	1
0003	DRUM,REEL,HEAVY DUTY,IGGY	SD102	1
0004	DRIVE SPROCKET,MODIFIED,DOLLY	SD103	1
0005	WIRE,#20 WHITE/ORANGE BU	713330	1
0006	WIRE,#20 WHITE/VIOLET	713334	1
0007	WIRE,#20 WHITE/GREEN	713332	1
0008	WIRE,#20 WHITE/RED BU	713329	1
0009	SCREW,RND,1/4-20X1 1/2 PHIL SST	105084	4
0010	CHAIN,GUARD,DOLLY	SD104	1
0015	SROCKET COVER,DOLLY	SD105	1
0018	HANDLE,IGGY,MODIFIED	SD112-1	1
0022	BRACKET.POWER CABLE,DOLLY	SD124	1
0024	BRACKET,WIRE,CABLE HOLDER,DOLLY	SD125	1
0025	BEARING,NSK,1-1/4"	HW186	2
0027	CLAMP,P-CLIP,1/4"SST	HW189	2
0029	HAND CRANK F/DOLLY	DS002	1
0030	PIN,Q/R,SST 1/4 X 1.7 GRIP	120818	1
0031	FOOT,PLASTIC,7/8"X16/18",SQUARE	HW190	8
0033	SOCKET,MULTIMATE III,24-20 GA	7133	4
0035	SHELF,VCR,DOLLY/IGGY	SD115	1
0036	RECEPTACLE,GFI POWER BAR,7 OUTLET	EL218	1
0039	BRACKET,VCR SHELF,DOLLY/IGGY	SD127	1
0041	WHEEL ASSY,10"OD,TIRE & HUB	DS003	2
0042	CAP,SHAFT,5/8",PLASTIC	HW193	2
0044	SLIPRING,ASSY,F/INSPECTOR GEN	SD302	1
0045	SPEED,CONTROLLER,ASSY,DOLLY	SD350	1
0047	BASE,SLIPRING ENCLOSURE,12 COND.	SD110	1
0048	COVER,SLIPRING ENCLOSURE,12 COND.	SD111	1
0049	RECEPTACLE,BDX SF RS SHELL SIZE11-4	712666	1
0050	SCREW,BIND,4-40X3/8 PHIL SST	712414	4
0052	RECEPTACLE,BOX SF SHELL SIZE 17-16	712748	1
0053	SPROCKET,MODIFIED,CLUTCH ASSY 19T	SD106	1
0055	SHAFT,CLUTCH ASSY,DOLLY	SD107	1
0056	PIN,DOWEL,303 SST .187X.500	100214	2
0057	KEY,CLUTCH ASSY	SD108	1
0058	KNOB,HAND,MOD CLUTCH ASSY	SD109	1
0061	SCREW,CAP,SKT HD,1/4-28X5/8,SST	HW203	4
0064	SPRING,COMPRESSION,9/32X1-5/8"	HW206	1
0065	BRACKET,MOTOR MOUNT,DOLLY	SD118	1

DOLLY,IG,W/ LW,FTGMTR,NO CBL,110V, Rev. P, 7755			
0065	BRACKET,MOTOR MOUNT,DOLLY	SD118	1
0068	COLLAR,CLUTCH,SHAFT,DOLLY,IGGY	SD161	1
0069	BEARING,SLEEVE,OILITE 1.0X1.25X.5LG	SD160	1
0070	PLUG,BDX RS SHELL SIZE 11-4	712706	1
0071	STRAIN RELIEF,BDX SHELL SIZE 11	712699	1
0072	PIN,MULTIMATE III,24-20 GA	7132	4
0073	MOTOR,ELEC,1/4 HP DC BODINE	EL224	1
0074	COUNTER,PROSCOUT,ELEC/IMP,DOLLY	DC302	1
0076	ADAPTER,SHAFT,SLIPRING	SD114	1
0078	BEARING,THRUST,1.0X1.5X.12THK	SD159	1
0080	LATCH,HOOD,HORIZONTAL	SM096	2
0081	SCREW,FLAT,4-40X 3/8 PHIL SST	100055	2
0082	WASHER,FLAT,1/4"SST	101736	54
0083	WASHER,SPLIT LOCK,1/4"SST	101740	33
0084	GROMMET,RUBBER,11/16ID X 1-5/16 OD	130012	1
0087	NUT,HEX,SST,1/4-20	101040	14
0088	BOLT,HEX,5/16-18X1 3/4 GR5	101108	4
0089	WASHER,FLAT,5/16 SST	101741	8
0090	WASHER,LOCK,5/16 SST	HW028	4
0091	NUT,HEX,SST,5/16-18	101140	4
0092	SCREW,TORX,1/4-20X2 1/2 FL	100995	3
0094	BOLT,HEX CAP,1/4-20X1-3/4 ZINC GR 5	101018	10
0098	PIN,MULTIMATE III,18-14 GA (ROLL)	713127	15
0102	SCREW,HEX WASH HD,#8X1/2,TEK,PLTD	101999	2
0103	WASHER,FLAT,#10 SST	100140	11
0104	NUT,LOCK,SST,10-32	103033	11
0108	SCREW,PAN,6-32X3/8 SST	103023	18
0109	NUT,KEP,6-32,SS	HW941	2
0110	SCREW,SET,10-32X3/8 SKT SST	101602	2
0112	MASTER LINK F/#35 3/8P CHAIN	300901	2
0113	SCREW,PAN,10-32X1 1/2 PHIL SST	105068	6
0114	SCREW,CAP,SKT HD,1/4-20X3/4,SST	101022	2
0115	BOLT,1/4-20X2 1/2,SST	HW184	4
0116	NUT,WING,SST,1/4-20	HW185	7
0117	NUT,ACORN,SST,1/4-20	HW192	6
0121	LEVELWIND SCREW,DOLLY/IGGY	SD156	1
0122	PAWL,LEVELWIND 1/2P	300780	1
0123	LEVELWIND,BRACKET,DOLLY/IGGY	SD150	2
0124	SHAFT,ANTIROTATION,DOLLY/IGGY	SD152	1

DOLLY,IG,W/ LW,FTGMTR,NO CBL,110V, Rev. P, 7755			
0125	COVER,FOLLOWER,DOLLY/IGGY	SD153	1
0126	SPROCKET,35BS20-1",20 TEETH	300427	1
0127	LEVELWIND SPROCKET,DOLLY/IGGY	SD155	1
0129	CHAIN,#35 X 3/8P,PRESTRSS,PER FOOT	300900	6.1
0130	SCREW,HEX HD,1/4-20X3/4 SST	101135	7
0131	SCREW,CAP,SKT HD,10-32X1/2,SST	102001	2
0133	SCREW,SET,8-32X1/4 SST	100147	1
0138	BEARING,BALL,MOUNTING,LEVELWIND	HW761	2
0139	BLOCK,LEVEL WIND,IGGY	SD151	1
0140	SCREW,CAP,SKT HD,#6-32X.88LG SST	100128	3
0141	SCREW,CAP,SKT HD,3/8-16X1-3/4,SST	101256	3
0142	NUT,ANCHOR,DISTANCE COUNTER,DOLLY	SD162	2
0143	SCREW,DRILL,#8X5/8	101946	2
0144	SCREW,TRUSS,1/4-20X3/8 PHIL SST	101012	2
0145	SCREW,CAP,SKT HD,10-32X1 1/2,SST	HW200	1
0146	NUT,HEX,SST,3/8-16	471029	1
0147	SCREW,PAN,10-32X1/2 SST	101860	5
0148	BOLT,HEX,1/4-20X1/2 SST	101016	2
0149	SCREW,SET,1/4-20X3/8 KNURL PLATED	101052	2
0150	SCREW,SET,6-32X1/4 SST	100099	3
0152	TUBE,SHRINK,BLACK 1/2"SCL	712581	1
0176	OFFSET LINK F/#35 3/8P CHAIN	300905	1
0180	BRAKE,TENSION,CABLE DRUM REEL	RL309	1
0181	NUT,KEP,PLATED,1/4-20	101042	2
0182	TUBING,SPIRAL WRAP BLK POLY 1/4"	220681	2
0183	TRAY,COMPONENT MOUNTS,IGGY	SD172	1
0184	BRACKET,MOUNTING,PENDENT,IGGY	SD171	1
0185	SCREW,PAN,1/4-20X1/2 PHIL SST	101055	2
0186	GROMMET,RUBBER 1¼"	HW587	2
0187	GROMMET,RUBBER 1½"	HW588	1
0188	EXTENSION,MIC,3"LG,5/8-27 MALE THRD	HW1352	1
0189	BASE,MIC,CHROME,5/8-27 FEMALE THRD	HW1353	1
0190	SCREW,PAN,8-32X3/8 PHIL SST	103065	3
0191	SCREW,PAN,4-40 X 5/16 PHIL SST	HW735	4
0192	NUT,KEP,ZINC PLATED,6-32	712456	4
0200	PLUG,BUTTON,5/16,BLACK	HW1576	8
0237	LABEL,WARNING,"KEEP HANDS CLEAR"	CS534	1

Inspector General

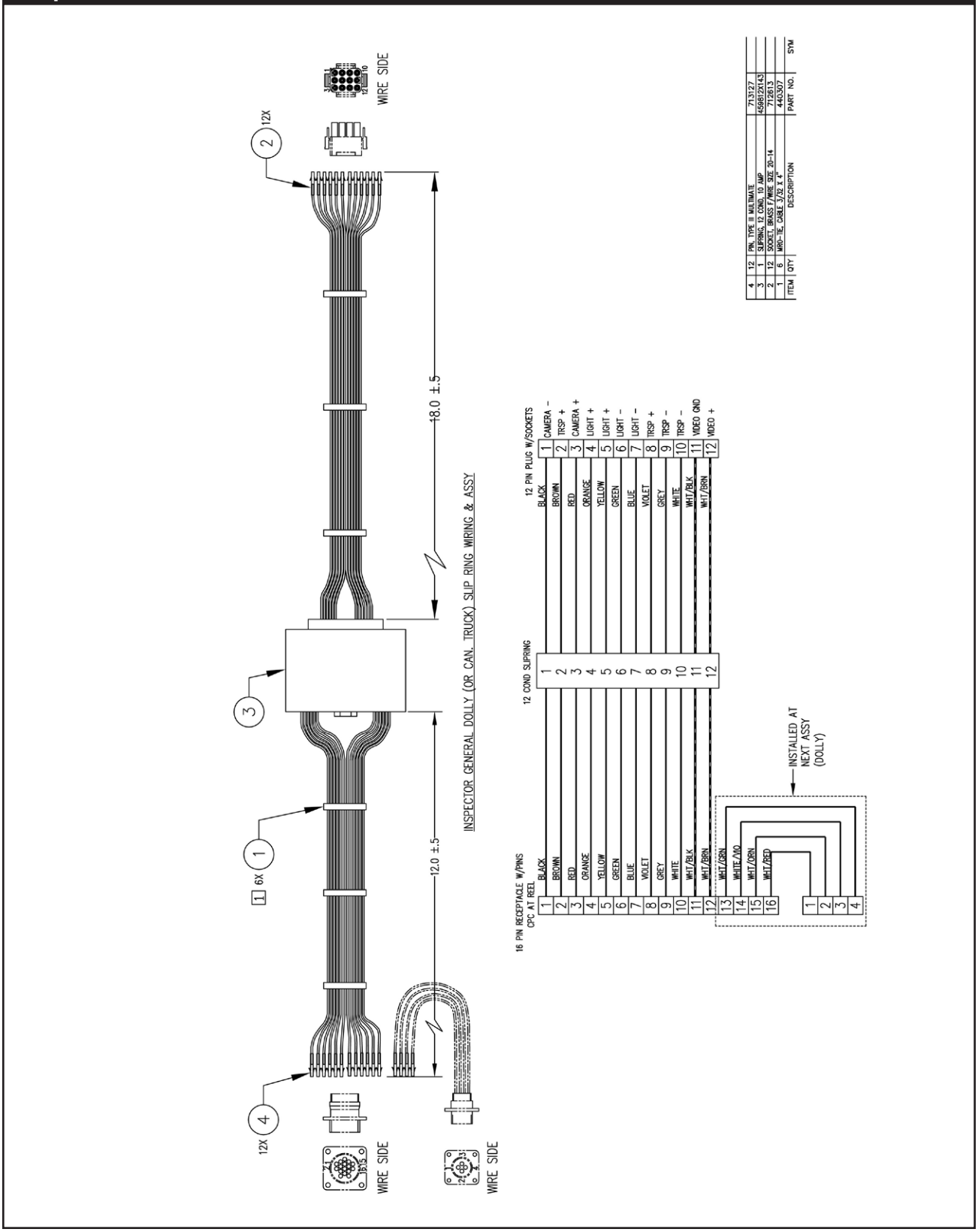


Figure 26: *Slipring Assembly for IGGY, SD302*

ITEM	QTY	DESCRIPTION	PART NO.
1	1	LEVELWIND SCREW, DOLLY / IGGY	SD156
2	1	PAWL, LEVELWIND 1/2 P	300780
3	2	LEVELWIND, BRACKET, DOLLY / IGGY	SD150
4	1	SHAFT, ANTIROTATION, DOLLY / IGGY	SD152
5	1	COVER, FOLLOWER, DOLLY / IGGY	SD153
6	1	SPROCKET,TRAVERSE, DOLLY/IGGY, 22	SD154
7	1	LEVELWIND SPROCKET, DOLLY / IGGY	SD155
8	1	OFFSET LINK F/#35 3/8P CHAIN	300905
9	29.75"	CHAIN, #35 x 3/8 PRESTRESSED	300900
10	6	SCREW, HEX HD 1/4–20 x 3/4 SST	101135
11	2	SCREW,CAP,SKT HD,10–32X 1/2 SST	102001
12	4	BOLT, HEX HD, 1/4–20 X 1 3/4", SST	HW180
13	2	SCREW, SET 1/4–20 X 3/8", KNURL, PLTD	101052
14	8	NUT, HEX, SST 1/4–20	101040
15	–	DELETED	–
16	12	WASHER, FLAT 1/4" SST	101736
17	10	WASHER, SPLITLOCK 1/4–20, SST	HW181
18	2	BEARING, BALL, MTG. LEVELWIND	HW761
19	1	BLOCK, LEVELWIND, IGGY	SD151
20	3	SCREW, SKT, CAP 6–32 x .875 SS	100128
21	2	SCREW, CAP 3/8–16 x 1 3/4 SKT	101256
22	2	NUT, ANCHORE, DISTANCE COUNTER	SD162

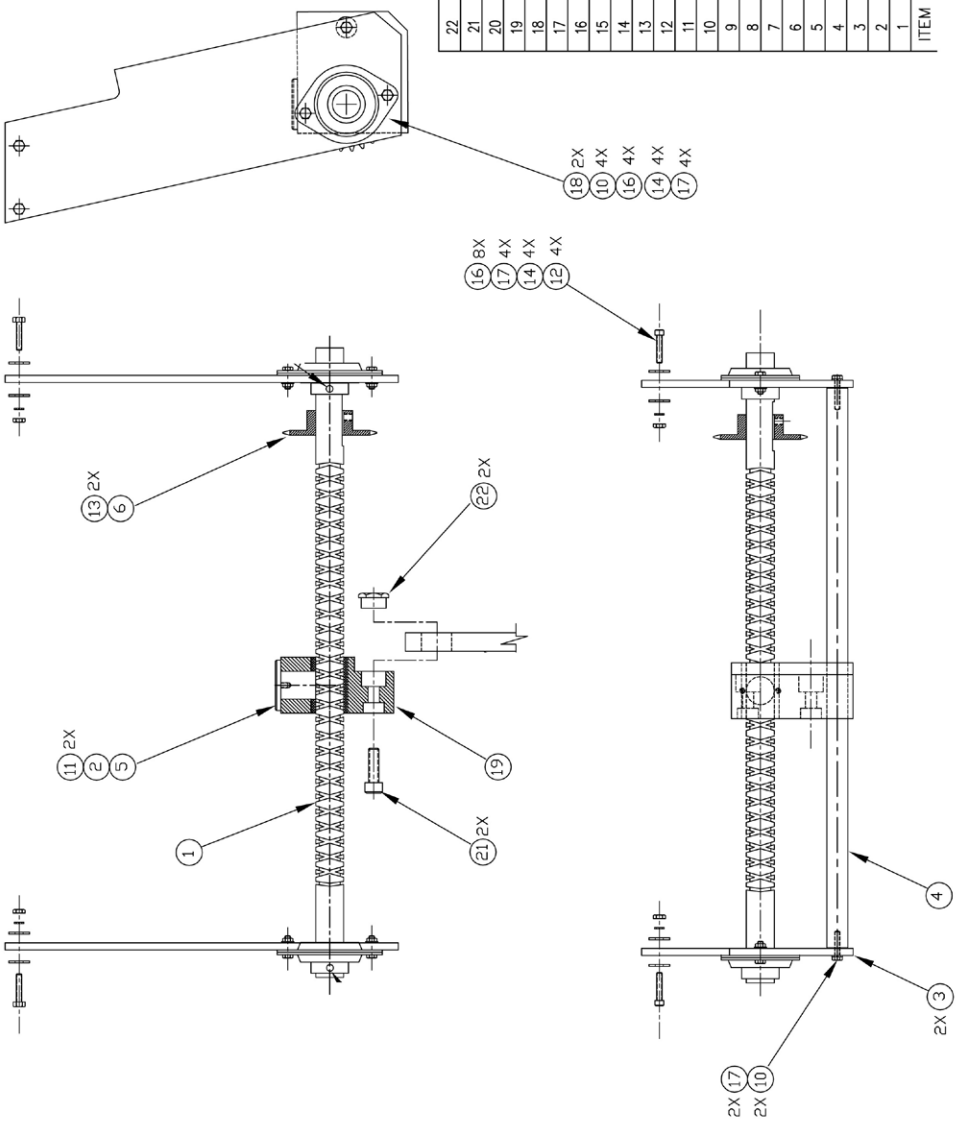
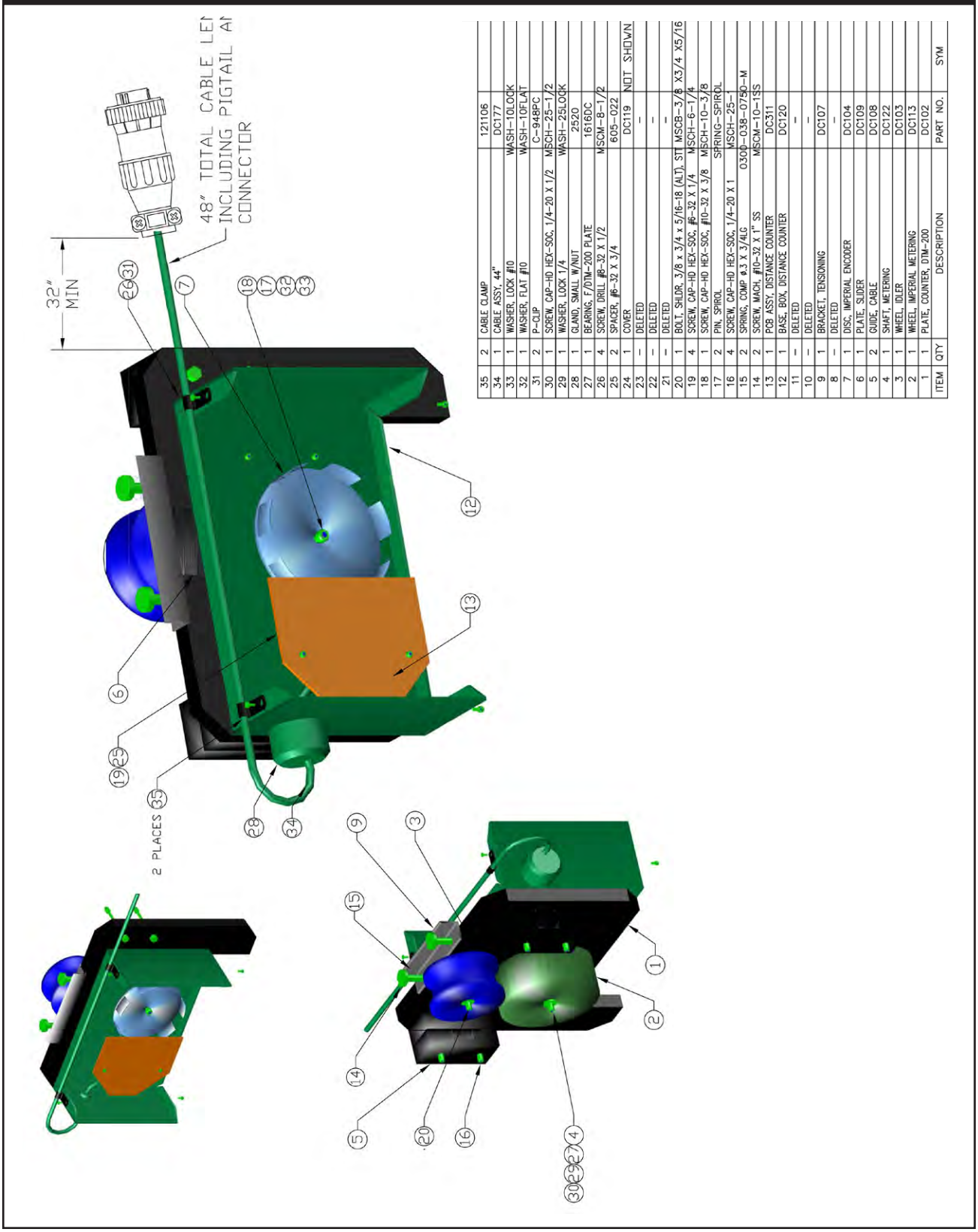


Figure 27: Levelwind Assy, IGGY, SD353

ProScout



ITEM	QTY	DESCRIPTION	PART NO.	SYM
35	2	CABLE CLAMP	121106	
34	1	CABLE ASSY, 44"	DC177	
33	1	WASHER, LOCK #10	WASH-10LOCK	
32	1	WASHER, FLAT #10	WASH-10FLAT	
31	2	P-CLIP	C-948PC	
30	1	SCREW, CAP-HD HEX-SOC, 1/4-20 X 1/2	MSCH-25-1/2	
29	1	WASHER, LOCK 1/4	WASH-25LOCK	
28	1	GLAND, SMALL W/NUT	2520	
27	1	BEARING, F/DTM-200 PLATE	1616DC	
26	4	SCREW, DRILL #8-32 X 1/2	MSCM-8-1/2	
25	2	SPACER, #6-32 X 3/4	605-022	
24	1	COVER	DC119	NOT SHOWN
23	–	DELETED	–	
22	–	DELETED	–	
21	–	DELETED	–	
20	1	BOLT, SHLDR, 3/8 x 3/4 x 5/16-18 (ALT), STT	MSCB-3/8 X3/4 X5/16	
19	4	SCREW, CAP-HD HEX-SOC, #6-32 X 1/4	MSCH-6-1/4	
18	1	SCREW, CAP-HD HEX-SOC, #10-32 X 3/8	MSCH-10-3/8	
17	2	PIN, SPIROL	SPRING-SPIROL	
16	4	SCREW, CAP-HD HEX-SOC, 1/4-20 X 1	MSCH-25-1	
15	2	SPRING, COMP ø.3 X 3/4LG	0300-038-0750-M	
14	2	SCREW, MACH, #10-32 X 1" SS	MSCM-10-1SS	
13	1	PCB ASSY, DISTANCE COUNTER	DC311	
12	1	BASE, BOX, DISTANCE COUNTER	DC120	
11	–	DELETED	–	
10	–	DELETED	–	
9	1	BRACKET, TENSIONING	DC107	
8	–	DELETED	–	
7	1	DISC, IMPERIAL ENCODER	DC104	
6	1	PLATE, SLIDER	DC109	
5	2	GUIDE, CABLE	DC108	
4	1	SHAFT, METERING	DC122	
3	1	WHEEL, IDLER	DC103	
2	1	WHEEL, IMPERIAL METERING	DC113	
1	1	PLATE, COUNTER, DTM-200	DC102	

Figure 28. *Counter,ProScout,Elec/Imp,Dolly, DC302*

CONFIGURATION LIST

PART NO.	DESCRIPTION	OPTION
MD680	CCU ASSY,TRUCK MOUNT,LX800 K2	
MD680–1	CCU ASSY,TRUCK MOUNT,LX800 K2,WRLSS	A
MD680–2	CCU ASSY,TRUCK MOUNT,LX800 K2,PAL	B
MD680–3	CCU ASSY,TRK MNT,LX800 K2,PAL,WRLSS	A,B
MD680–4	CCU ASSY,TRCK MNT,LX800 K2,W/EQUALZR	C
MD680–5	CCU ASSY,TRK MNT,LX800 K2,WRLSS,W/EQ	A,C
MD680–6	CCU ASSY,TRCK MNT,LX800 K2,PAL,W/EQ	B,C
MD680–7	CCU ASSY,TKMT,LX800 K2,PAL,WLS,W/EQ	A,B,C

POWER CORD CHART

PART–NO.	DESCRIPTION	COUNTRY	QTY
EC1551	CORD, POWER, 10A 250V, 8.2", AU1–10	AUSTRAILIA & CHINA	1
EC1552	CORD, POWER, 10A 250V, 8.2", AK1–13	ENGLAND, UK	1
EC1553	CORD, POWER, 10A 250V, 8.2", IS1–16	ISRAEL	1
EC1554	CORD, POWER, 10A 250V, 8.2", EU1–16	GERMAN, RUSSIA, EGYPT	1

Figure 29a: *CCU Assembly, Truck Mount, K2, MD680*

K2

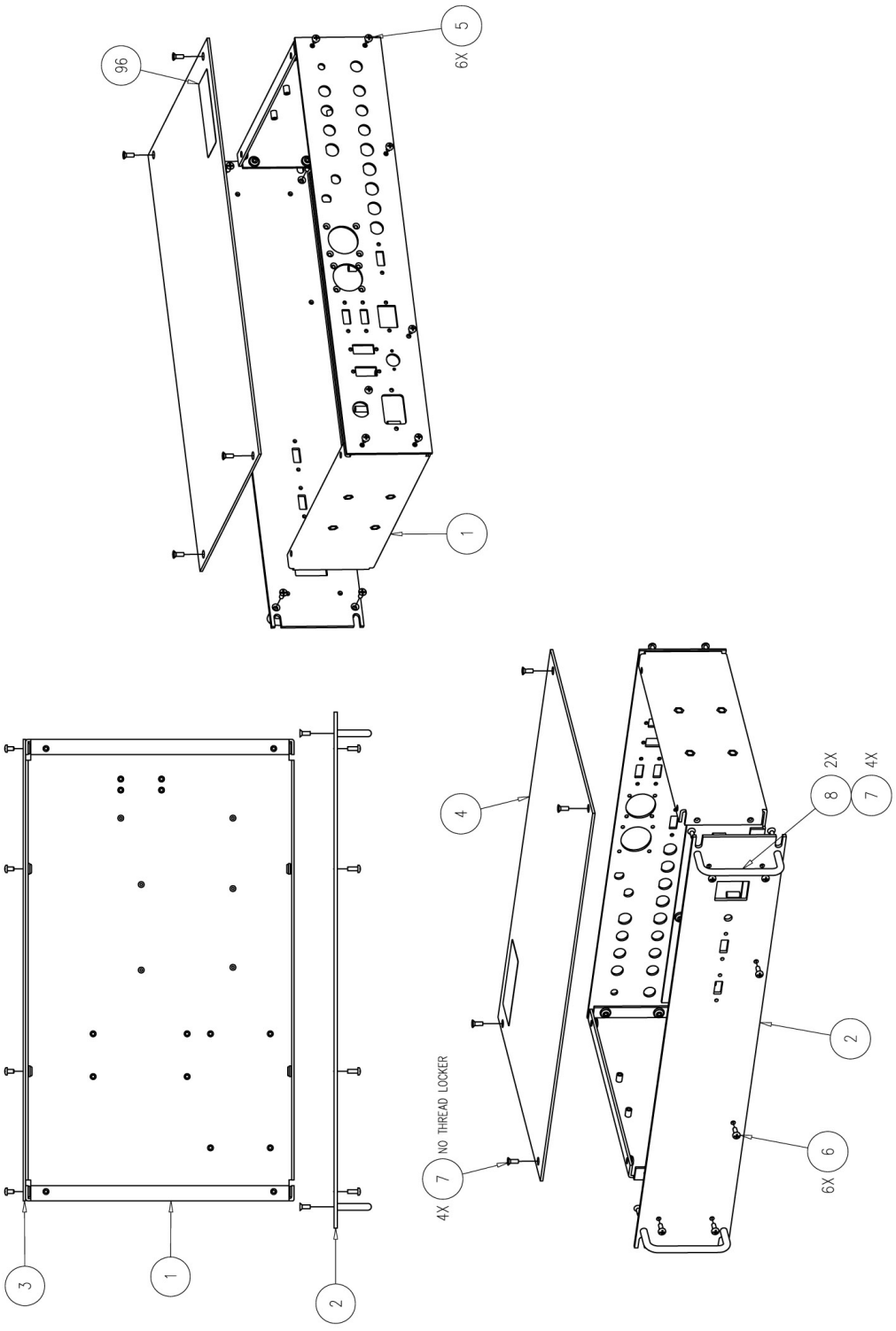


Figure 29b: *CCU Assembly, Truck Mount, K2, MD680*

K2

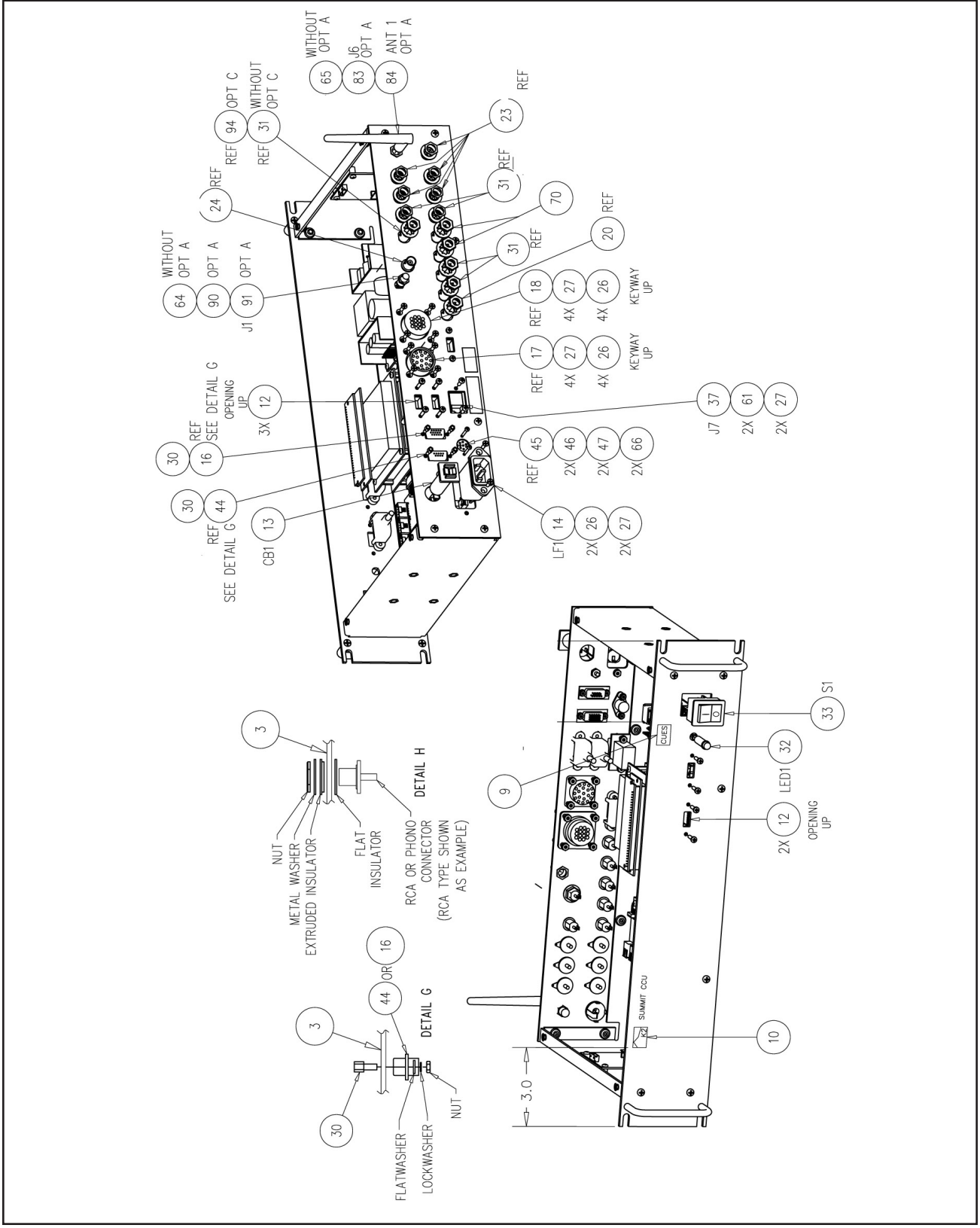


Figure 29c: *CCU Assembly, Truck Mount, K2, MD680*

K2

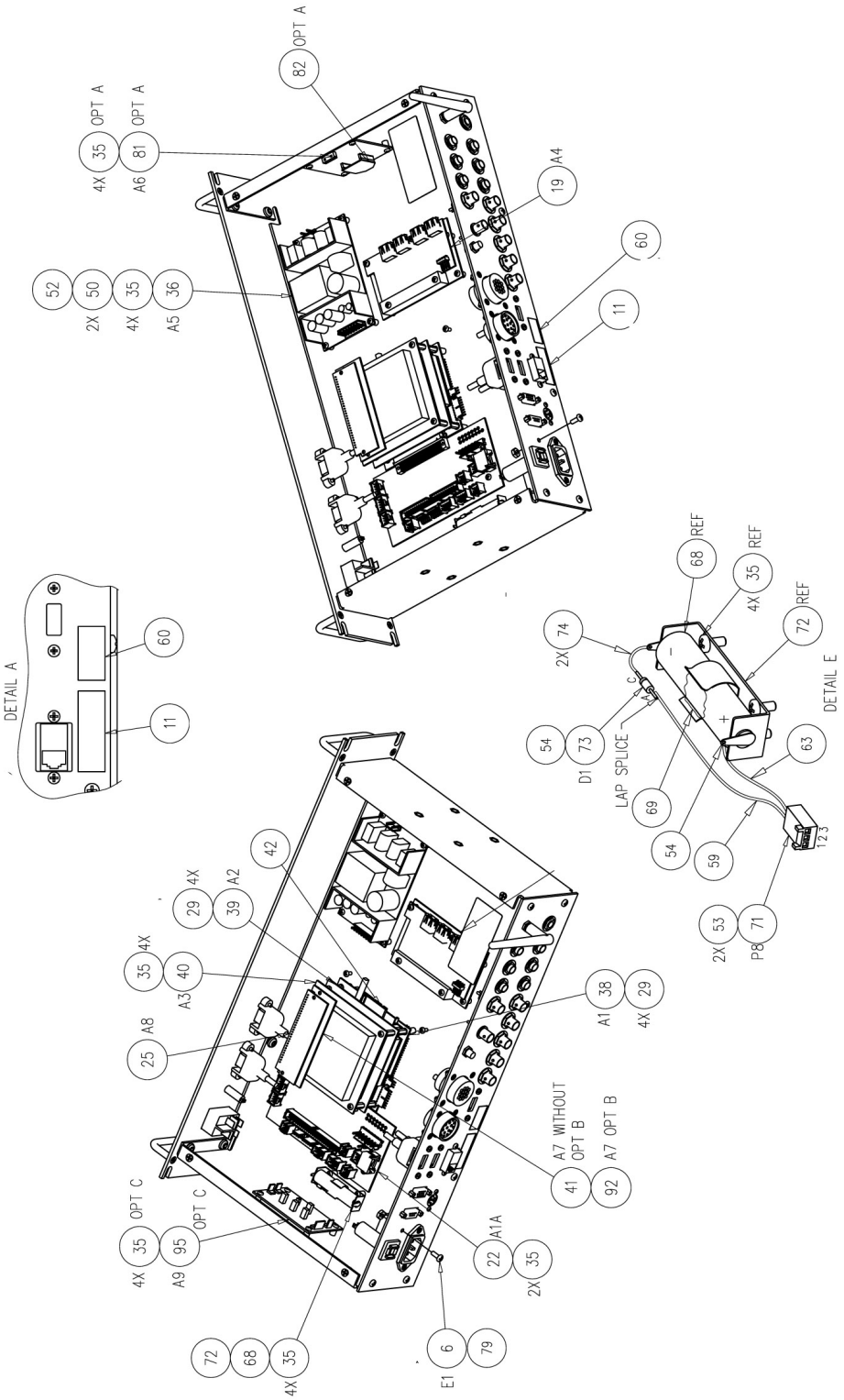


***Figure 29d**: CCU Assembly, Truck Mount, K2, MD680*

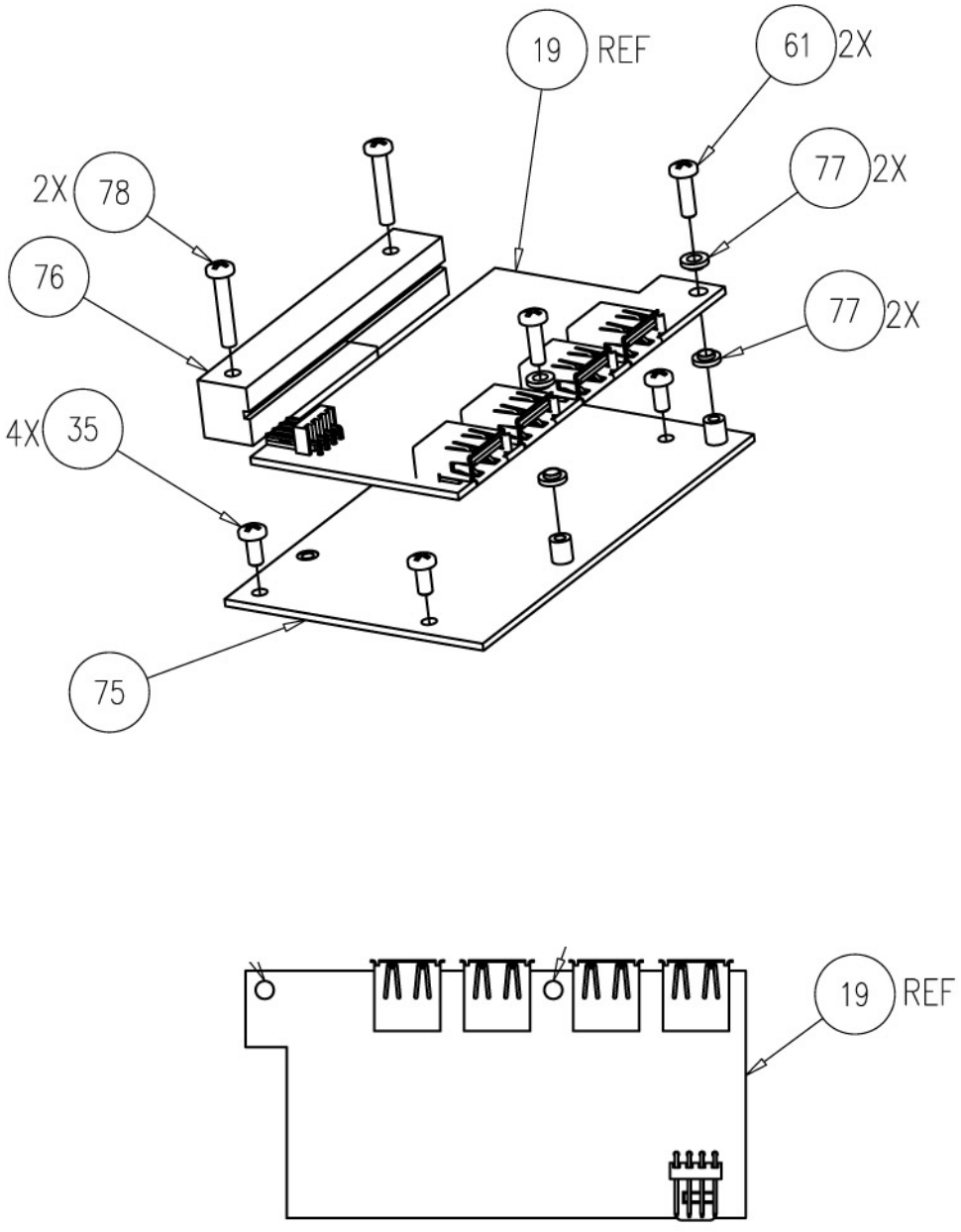


Figure 29e: *CCU Assembly, Truck Mount, K2, MD680*

K2

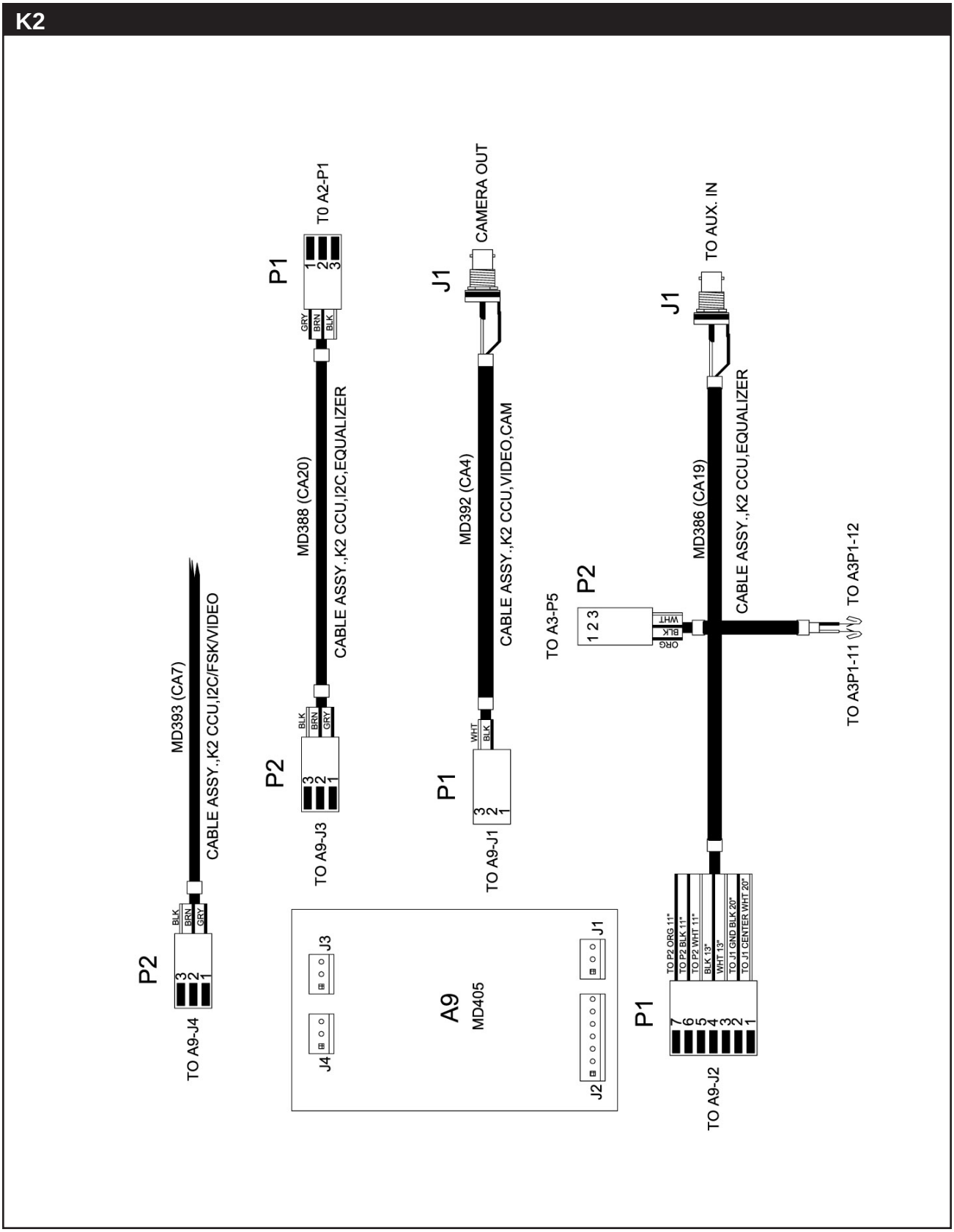


Figure 29f: *CCU Assembly, Truck Mount, K2, MD680*

CCU Assembly, Truck Mount, K2, MD680, Rev. D			
0001	CHASSIS,CCU,TRUCKMOUNT,K2	MD158	1
0002	PANEL,FRONT,CCU,TRUCKMOUNT,K2	MD155	1
0003	PANEL,REAR,CCU,TRK MNT,LX800,K2	MD273	1
0004	COVER,TOP,CCU,TRUCKMOUNT,K2	MD157	1
0005	SCREW,PAN,6-32X1/4 PHIL SST	712416	6
0006	SCREW,PAN,6-32X3/8 SST	103023	7
0007	SCREW,FLAT,6-32X3/8 PHIL SST	103058	8
0008	HANDLE,3"CCX1.25HX.375OD,PLTD	HW1891	2
0009	LABEL,LOGO CUES 1 1/4X1/2	962025	1
0010	LABEL,LOGO K2 SUMMIT,3/4"X1"	CS462	1
0011	LABEL,THERMAL XFR,1.500"W X .500"H	CS221	1
0012	CABLE,USB PNL MNT TO ASOCKET,2'	EC1247	4
0013	BREAKER,THRML,PSH>RESET,2A TYCO	EC1522	1
0014	CONNECTOR,IEC,15A,W/LINE FILTER	EC1309	1
0015	CORD,POWER COLOR SCOUT	165006	1
0019	HUB V2,USB,4 PORT,SYBA,MODIFIED	EC2100-1	1
0022	PCB ASSY,LX800 PWR & I/O,11" CBL,K2	MD409	1
0025	TITLER,BOB4,W/30-PIN HEADER	MD148	1
0026	SCREW,FLAT,4-40X 3/8 PHIL SST	100055	10
0027	NUT,KEP,4-40,SS	HW942	12
0028	MRO-LOCTITE 42540 F/PLASTIC	429791	1
0029	STANDOFF,HEX,M/F,4-40,3/16,5/8L,SS	HW2236	8
0030	FEMALE SCREWLOCK KIT,F/SUB D CONN	650330	2
0032	LED,GREEN	710943	1
0033	POWER,SWITCH,ROCKER,DPST,BLK	EC1523	1
0035	SCREW,PAN,4-40X1/4 MACHINE	HW227	20
0036	POWER SUPPLY,QUAD OUTPUT,70W	EC1257	1
0038	MOTHERBOARD,CPU,LX800,BIOS UPDATED	MD613	1
0039	PCB ASSY,FSK,PC104,MINI MAINLINE	MZ413	1
0040	PCB ASSY,A/V,PC104,K2,QUAD OUTPUT	MD414	1
0041	PCB ASSY,BLUE SCREEN ENERATOR,NTSC	MZ420	1
0042	MEMORY,CFLASH,LX800,PROGRAMMED	MD614	1
0043	MRO-REMOVABLE LCK,ND 121200-50,BLUE	440061	1
0046	NUT,HEX,#2-56,SST	HW673	2
0047	SCREW,PAN,2-56 X 9/16,PHIL,SST	HW1097	2
0048	MRO-MOUNT,CABLE TIE	505147	1
0049	CONNECTOR,SPADE,FEMALE	EL209	9
0050	TERMINAL,CRIMP,.156 PITCH	EC553	2
0051	TERMINAL,RING,22-18 AWG,#6 STUD,RED	712743	1

CCU Assembly, Truck Mount, K2, MD680, Rev. D			
0052	CONNECTOR,HOUSING,3PIN,.156",CRIMP	EC736	1
0053	TERMINAL,CRIMP 22-30 GAUGE WIRE	730113	4
0054	TUBE,SHRINK,BLACK 3/16"RNF	712577	1
0055	WIRE,#18 GREEN	161637	1
0056	WIRE,#18 WHITE	161638	1
0057	WIRE,#18 BLACK	161636	1
0058	WIRE,#22 WHITE/GREEN,PVC	EC1084	1
0059	WIRE,#22,WHITE/BLACK,PVC	EC1088	1
0060	SOFTWARE,XP EMBEDDED RUNTIME,LICENC	MD136	1
0061	SCREW,BIND,4-40X3/8 PHIL SST	712414	2
0062	MRO-TIE,CABLE,3/32"X4",WHT/CLR	440307	1
0063	WIRE,#22AWG,WHT/RED,PVC,STRD	EC416	1
0064	PLUG,BUTTONHOLE,.25",SNAP	HW378	1
0065	PLUG,BUTTON,5/16,BLACK	HW1576	1
0066	WASHER,FLAT,NARROW #2 SST	100174	2
0067	KIT,LX800 K2 CCU,CABLE ASSY,V2	MD926-2	1
0068	BATTERY,LITHIUM,AA,3.6V,2400MAH	EC1541	1
0070	CABLE ASSY,LX800 K2,CCU	MD693	1
0071	CONN HOUSING,3POS,.100W/RAMP&RIB	EC1963	1
0072	HOLDER,BATTERY,1CELL,AA,ALUM	EC1542	1
0073	DIODE,1N5817	710642	1
0074	TUBE,SHRINK,BLACK 3/32"	712595	1
0075	MOUNT,SUB PLATE,USB HUB V2,K2	MD280	1
0076	WASHER,#4,.28 O/D,.03 THK,NYLON	HW2453	3
0077	WASHER,SHOULDR,#4,.28 FLNG,NYLON	HW2454	3
0078	SCREW,PAN,PHIL,4-40X5/8,18-8,SST	HW1804	3
0079	NUT,KEP,6-32,SS	HW941	1
0096	LABEL, "WARNING HAZARDOUS VOLTAGE"	CS528	1

K2

CONFIGURATION LIST

PART NO.	DESCRIPTION	OPTION(S)	NOTES
MD640-4	PCU ASSY,LX800,K2,HI BRIGHT	C	
MD640-5	PCU ASSY,WIRELESS,LX800,K2,HI BRIGHT	A,C	
MD640-6	PCU ASSY,PAL,LX800,K2,HI BRIGHT	B,C	
MD640-7	PCU ASSY,WIRELESS,PAL,LX800,K2,HI BRIGHT	A,B,C	

CONFIGURATION LIST

PART NO.	DESCRIPTION	OPTION(S)	NOTES
MD640	PCU ASSY,LX800,K2	NONE	
MD640-1	PCU ASSY,WIRELESS,LX800,K2	A	
MD640-2	PCU ASSY,PAL,LX800,K2	B	
MD640-3	PCU ASSY,WIRELESS,PAL,LX800,K2	A,B	

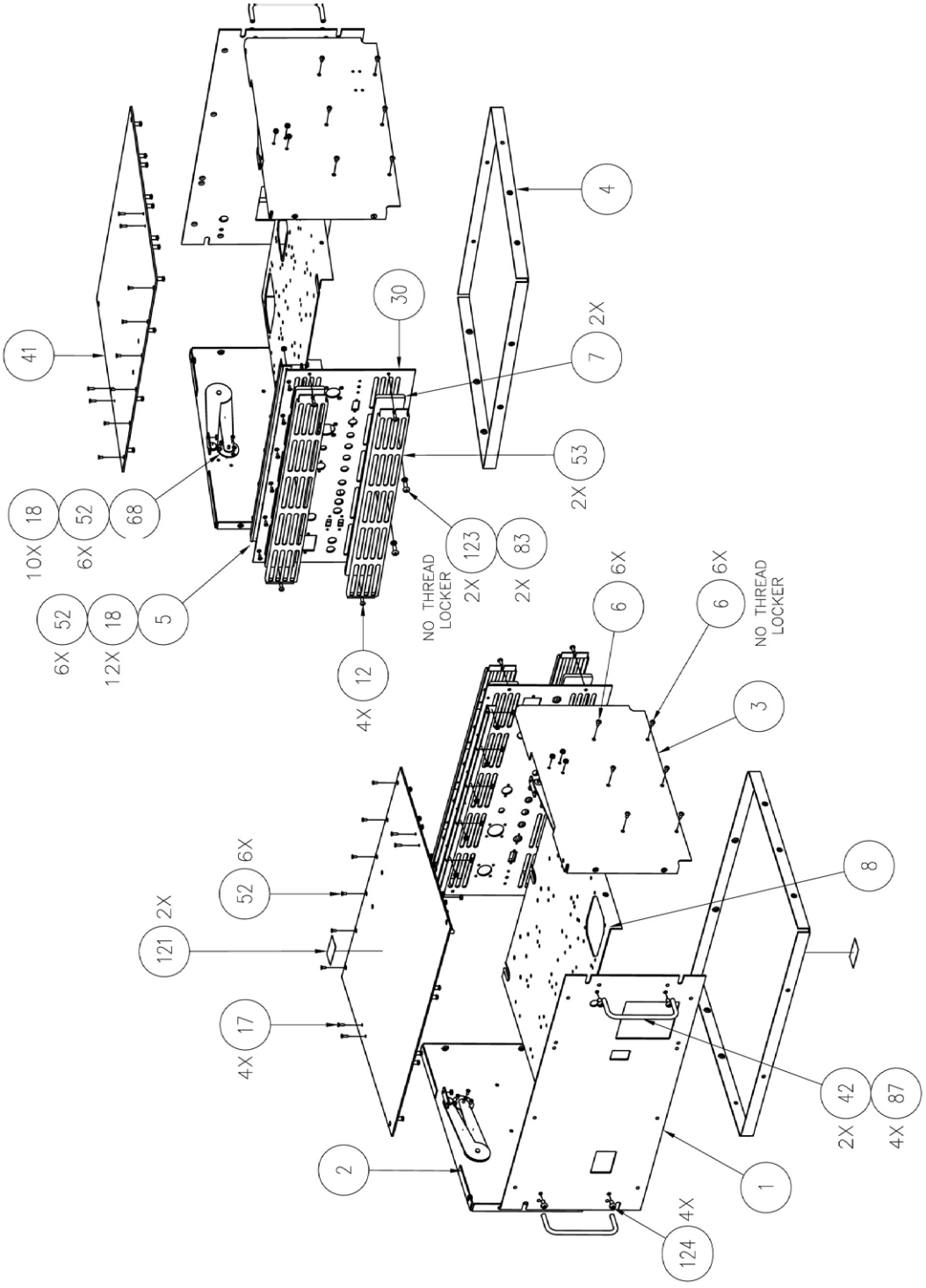


Figure 30a: *PCU Assembly, LX800, K2, MD640*

K2

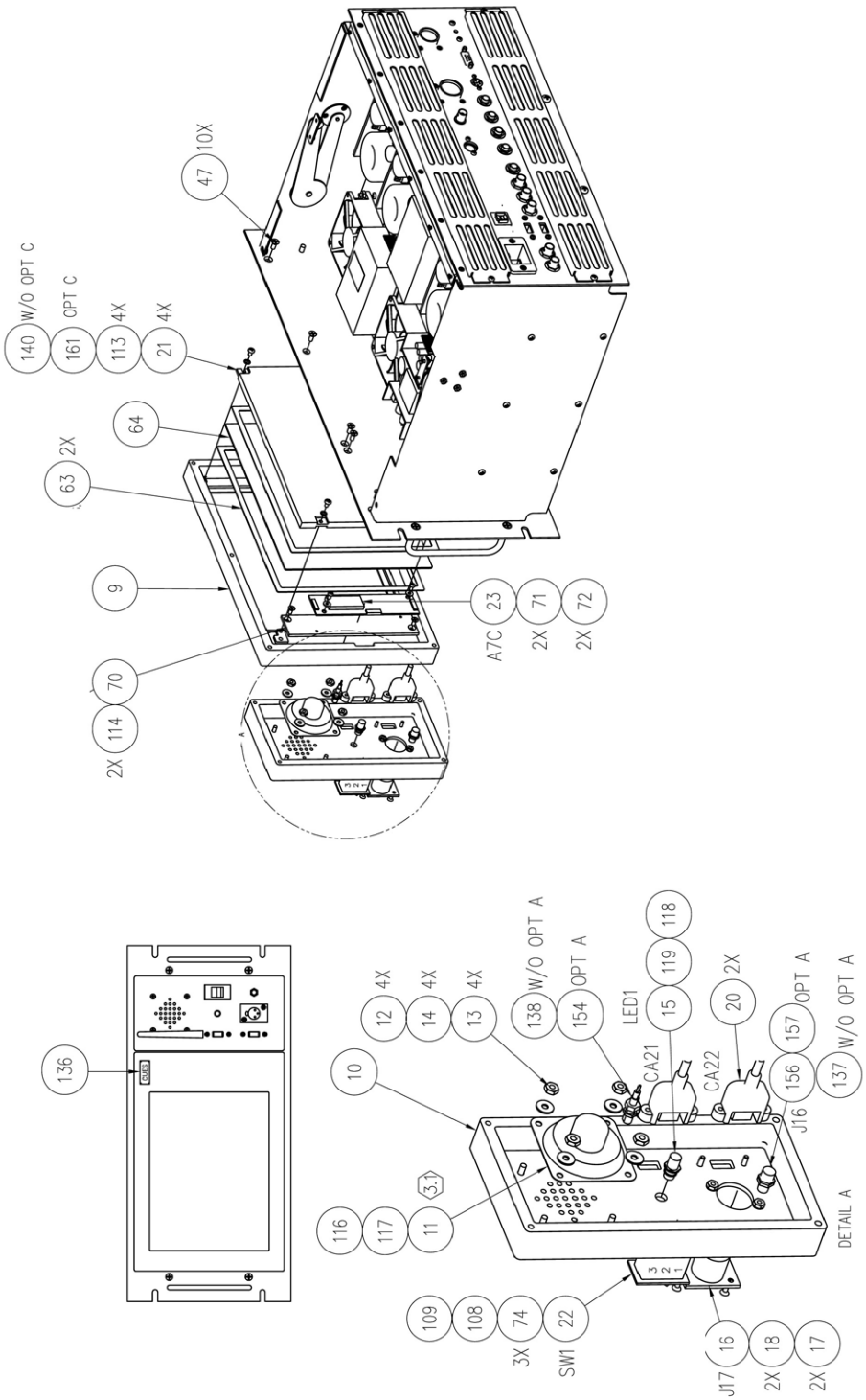


***Figure 30b**: PCU Assembly, LX800, K2, MD640*

K2

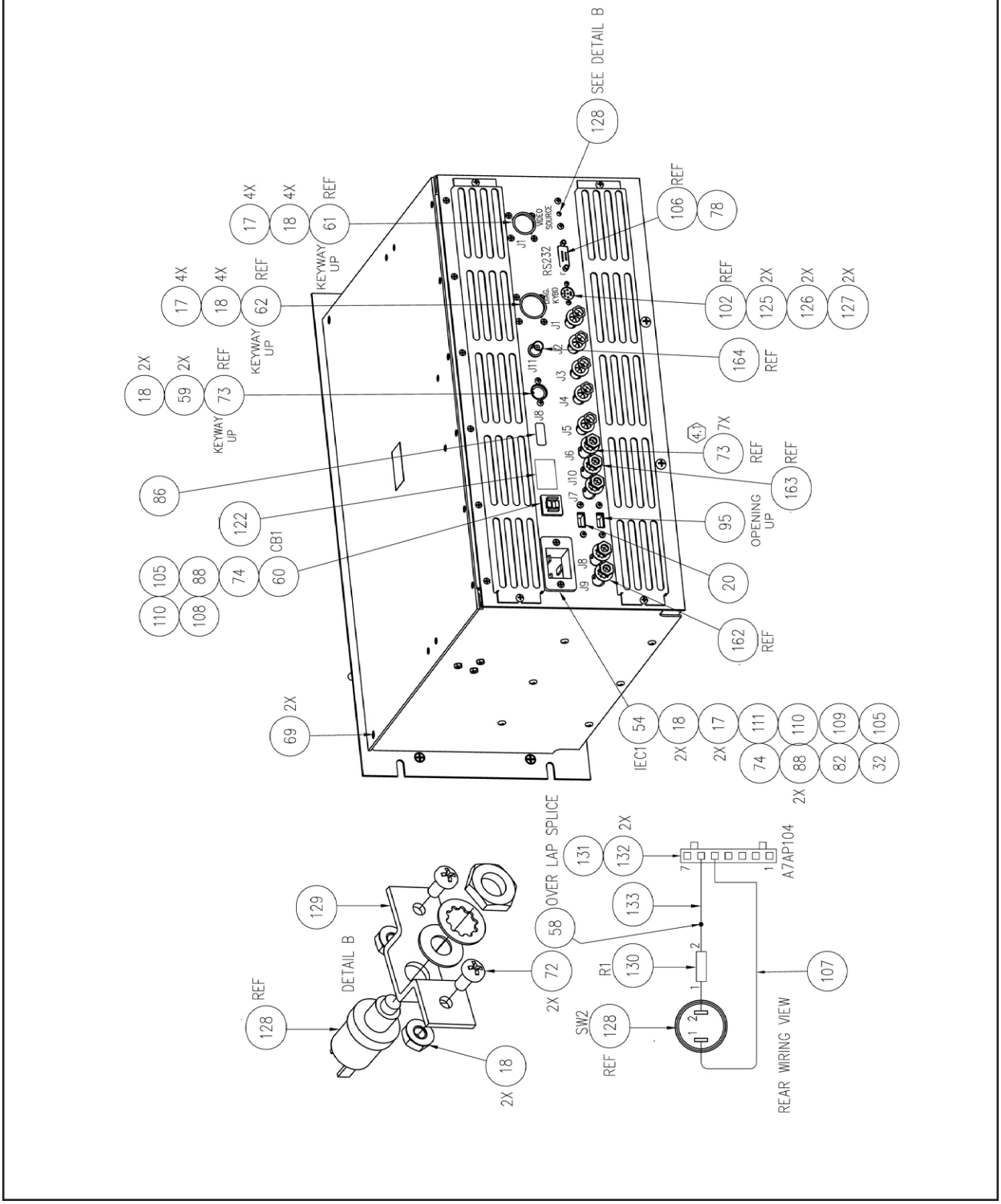


Figure 30c: *PCU Assembly, LX800, K2, MD640*

K2

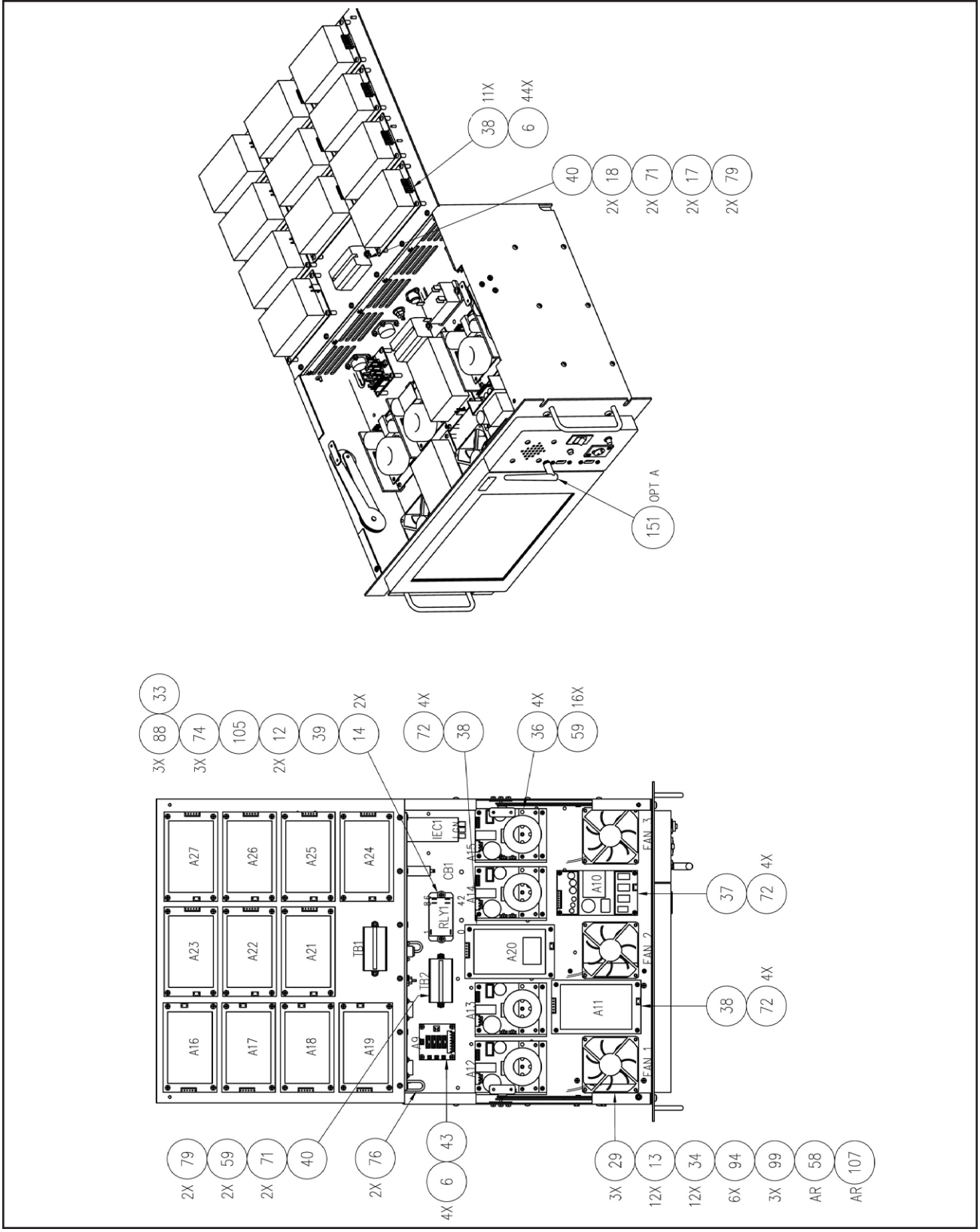


Figure 30d: *PCU Assembly, LX800, K2, MD640*

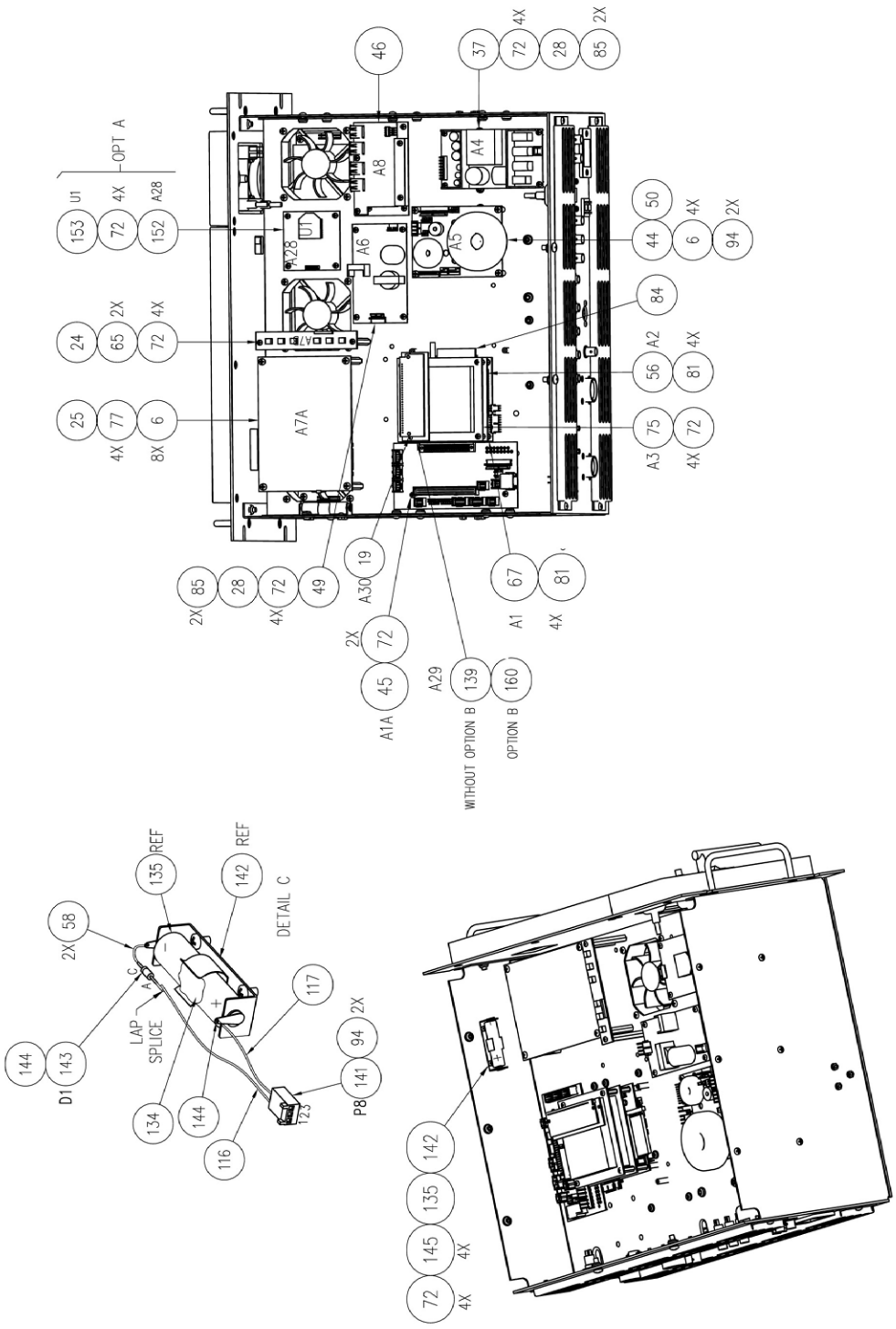
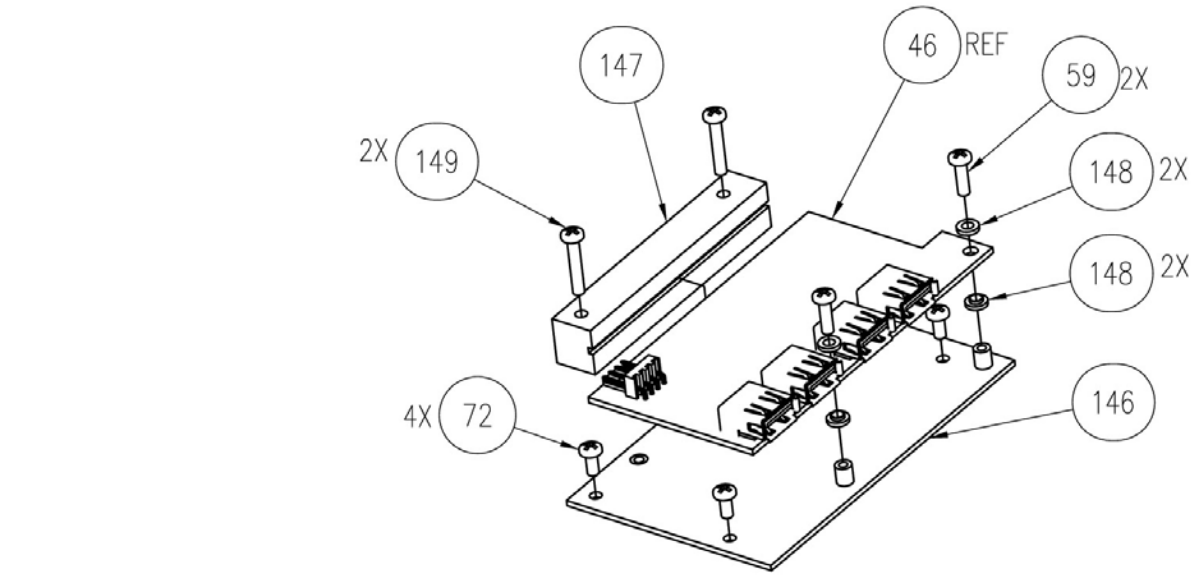


Figure 30e: *PCU Assembly, LX800, K2, MD640*

K2



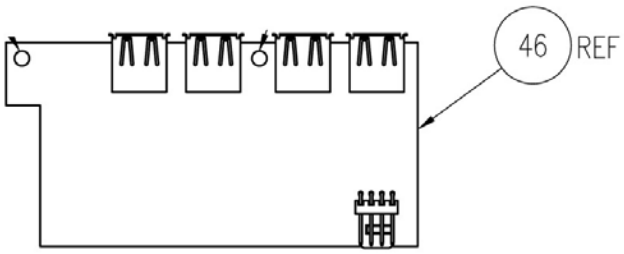


Figure 30f: *PCU Assembly, LX800, K2, MD640*

PCU Assembly, LX800, K2, MD640, Rev. C			
0001	PANEL,FRONT,PCU,MML	MZ079	1
0002	PANEL,LEFT SIDE,PCU,MML	MZ083	1
0003	PANEL,RIGHT SIDE,PCU,MML	MZ082	1
0004	BASE,CHASSIS,PCU,MML	MZ084	1
0005	HINGE,PCU,MML	MD054	1
0006	SCREW,PAN,6-32X1/4 PHIL SST	712416	72
0007	FILTER,FOAM,K2 PCU	MD137	2
0008	PANEL,CENTER,PCU,MML	MZ081	1
0009	HOUSING,LCD MOUNT,MINI MAINLINE	MZ047	1
0010	HOUSING,COMPONENT/SPKR MNT,MML	MZ052	1
0011	SPEAKER,2"8 OHM,.5W	EC1244	1
0012	SCREW,PAN,6-32X3/8 SST	103023	10
0013	NUT,KEP,6-32,SS	HW941	16
0014	WASHER,FLAT,#6 SST	100173	6
0015	LED,GREEN	710943	1
0016	CONNECTOR,XLR,PNL MNT,LOCKING	EC1253	1
0017	SCREW,FLAT,4-40X 3/8 PHIL SST	100055	18
0018	NUT,KEP,4-40,SS	HW942	44
0019	TITLER,BOB4,W/30-PIN HEADER	MD148	1
0020	CABLE,USB PNL MNT TO ASOCKET,2'	EC1247	3
0021	WASHER,STAR INTERNAL #6	712465	4
0022	SWITCH,AC,2 POSITION,RED-LIGHT	EL227	1
0026	KIT,LCD DRIVER,CNTRL & INVERTER	MZ060	1
0027	KIT,LX800 K2 PCU,CABLE ASSY,V2	MD925-2	1
0028	CONNECTOR,HOUSING,3PIN,.156",CRIMP	EC736	2
0029	FAN,12V,80MM SQ X 25MM	EC1255	3
0030	PANEL,REAR,K2,F/MD640	MD274	1
0031	SCREW,PAN,4-40X3/16 SST	HW236	4
0032	TERMINAL,RING,16-14 AWG,#6 STUD,BL	712739	1
0033	WIRE,#22AWG,BLUE,PVC,STRD	EC411	1
0034	SCREW,PAN,6-32X1/2 SST	472018	12
0035	MRO-MOUNT,CABLE TIE	505147	1
0036	PCB ASSY,BUCK SWITCHER,K2	MZ410	4
0037	POWER SUPPLY,QUAD OUTPUT,70W	EC1257	2
0038	POWER SUPPLY,48V,2.3A	EC1259	13
0039	RELAY,24V,DPST,30A	EC1246	1
0040	TERMINAL STRIP,12 POS,WAGO	EC1241	2
0041	COVER,TOP,PCU,MML	MZ078	1
0042	HANDLE,4.25CCX1.50HX.312DIA PLATED	712546	2
0043	PCB ASSY,DISTRIBUTION,UPPER,K2	MZ411	1

PCU Assembly, LX800, K2, MD640, Rev. C			
0044	PCB ASSY,DISTRIBUTION,LOWER,K2	MZ412	1
0045	PCB ASSY,LX800 PWR & I/O,18"CBL,K2	MD409-1	1
0046	HUB V2,USB,4 PORT,SYBA,MODIFIED	EC2100-1	1
0047	SCREW,FLAT,8-32X3/8 PHIL SST	100146	10
0048	MRO-REMOVABLE LCK,ND 121200-50,BLUE	440061	1
0049	POWER SUPPLY,12V,2.1A,25W,ASTRODYNE	EC1305	1
0050	HOUSING,3-PIN LOCKING	730165	1
0052	SCREW,FLAT,4-40X1/4 PHIL	712402	18
0053	GUARD,FILTER,ELEC.PLATFORM	MZ071	2
0054	CONNECTOR,IEC,15A,W/LINE FILTER	EC1309	1
0055	MRO-TIE,CABLE,3/32"X4",WHT/CLR	440307	1
0056	PCB ASSY,FSK,PC104,MINI MAINLINE	MZ413	1
0057	TUBE,SHRINK,BLACK 1/4"RNF	712576	1
0058	TUBE,SHRINK,BLACK 3/32"	712595	1
0059	SCREW,BIND,4-40X3/8 PHIL SST	712414	26
0060	BREAKER,CIRCUIT,THERMAL,15A	EC1308	1
0063	GASKET,10.4"WINDOW DISPLAY,LCD	MZ076	2
0064	WINDOW,LCD DISPLAY,FOR 10.4"	MZ075	1
0065	STANDOFF,THREADED HEX F/F	101836	2
0066	MANUAL,OPERATION,K2	MD910	1
0067	MOTHERBOARD,CPU,LX800,BIOS UPDATED	MD613	1
0068	LOCKING LID STAY,STEEL CHROME,PAIR	HW1473	1
0069	SCREW,FLAT,6-32X3/8 PHIL SST	103058	2
0070	PLATE,MOUNT,DISPLAY INVERT BOARD	MD262	1
0071	WASHER,FLAT,#4 SST	100171	6
0072	SCREW,PAN,4-40X1/4 MACHINE	HW227	40
0074	FAST-ON,.250X.032,22-18GA,LG RED	712742	8
0075	PCB ASSY,A/V,PC104,K2,QUAD OUTPUT	MD414	1
0076	GROMMET,EXTRD,F/.09"THK PLATE,POLY	HW1713	1
0077	STANDOFF,#6 X 1.75 HEX	B129334	4
0078	FEMALE SCREWLOCK KIT,F/SUB D CONN	650330	1
0079	JUMPER BAR,6-POLE,WAGO	EC1240	4
0080	CABLE,VIDEO,RCA-RCA,75 OHM,1.5'	EC1763	1
0081	STANDOFF,HEX,M/F,4-40,3/16,5/8L,SS	HW2236	8
0082	WIRE,14AWG,PVC,STR,GREEN/YELLOW	EL723	1
0083	WASHER,STAR INTERNAL #10	103024	2
0084	MEMORY,CFLASH,LX800,PROGRAMMED	MD614	1
0085	TERMINAL,CRIMP,.156 PITCH	EC553	4
0086	SOFTWARE,XP EMBEDDED RUNTIME,LICENC	MD136	1
0087	SCREW,FLAT,10-32X1/2 SST	103052	4

PCU Assembly, LX800, K2, MD640, Rev. C			
0087	SCREW,FLAT,10-32X1/2 SST	103052	4
0088	FAST-ON,.250X.032,16-14GA,LG BLUE	712736	6
0094	TERMINAL,CRIMP 22-30 GAUGE WIRE	730113	10
0099	RECEPTACLE,2-PIN .100	712863	4
0100	SOFTWARE,PRO2010NET,K2	MD182	1
0105	FASTON,MULTI-STCK,.250,16-14GA,INSU	HW1443	3
0107	WIRE,#24 RED PVC	161571	1
0108	WIRE,#18 BLACK	161636	1
0109	WIRE,#18 WHITE	161638	1
0110	WIRE,#14 BLACK STRANDED CU	161565	1
0111	WIRE,#14 WHITE STRANDED CU	161564	1
0113	SCREW,PAN,PHIL,6-32X.25,SS,NYL PTCH	HW2053	4
0114	SCREW,FLAT,6-32X5/16,PHIL SST	HW2285	2
0115	CABLE,TEFLON COAX	713362	1
0116	WIRE,#22AWG,BLACK,PVC,STRD	EC407	1
0117	WIRE,#22AWG,RED,PVC,STRD	EC412	1
0118	WIRE,#22,WHITE/BLACK,PVC	EC1088	1
0119	WIRE,#22 WHITE/GREEN,PVC	EC1084	1
0120	TUBE,SHRINK,1/16"	712593	1
0121	LABEL,1.5 X 1,DANGER HI VOLTAGE	CS200	2
0122	LABEL,THERMAL XFR,3.00"W X 2.00"H	CS223	1
0123	SCREW,PAN,10-32X1/2 SST	101860	2
0124	SCREW,PAN,10-32X3/8 SST	103031	4
0125	SCREW,PAN,2-56 X 9/16,PHIL,SST	HW1097	2
0126	WASHER,FLAT,NARROW #2 SST	100174	2
0127	NUT,HEX,#2-56,SST	HW673	2
0128	SWITCH,MOMENTRY ON SPST	EL796	1
0129	BRACKET,K2,VID SOURCE SEL SW	MD187	1
0130	RESISTOR,MF,4.75K OHM 1/4W 1%	700325	1
0131	HOUSING,7-PIN 2MM	EC825	1
0132	CONTACT	715087	2
0133	WIRE,#24 BRN,PVC	EL920	1
0135	BATTERY,LITHIUM,AA,3.6V,2400MAH	EC1541	1
0136	LABEL,LOGO CUES 1 1/4X1/2	962025	1
0137	PLUG,BUTTON,5/16,BLACK	HW1576	1
0138	PLUG,BUTTONHOLE,.25",SNAP	HW378	1
0139	PCB ASSY,BLUE SCREEN GENERATOR,NTSC	MZ420	1
0140	LCD,10.4",OPTREX	MZ062	1
0141	CONN HOUSING,3POS,.100W/RAMP&RIB	EC1963	1

PCU Assembly, LX800, K2, MD640, Rev. C			
0142	HOLDER,BATTERY,1CELL,AA,ALUM	EC1542	1
0143	DIODE,1N5817	710642	1
0144	TUBE,SHRINK,BLACK 3/16"RNF	712577	1
0145	NUT,HEX,SST,4-40	950306	4
0146	MOUNT,SUB PLATE,USB HUB V2,K2	MD280	1
0147	WASHER,#4,.28 O/D,.03 THK,NYLON	HW2453	1
0148	WASHER,SHOULDR,#4,.28 FLNG,NYLON	HW2454	4
0149	SCREW,PAN,PHIL,4-40X5/8,18-8,SST	HW1804	3
0165	STANDOFF,4-40M/F,3/16 HEX,1.5"LG,SS	HW2456	4

CONFIGURATION LIST	
PART NUMBER	DESCRIPTION
MD330	PLATINUM CABLE CONFIGURATION
MD330-1	ORANGE CABLE CONFIGURATION
MD330-2	PLATNIUM CABLE CONFIGURATION, 220V

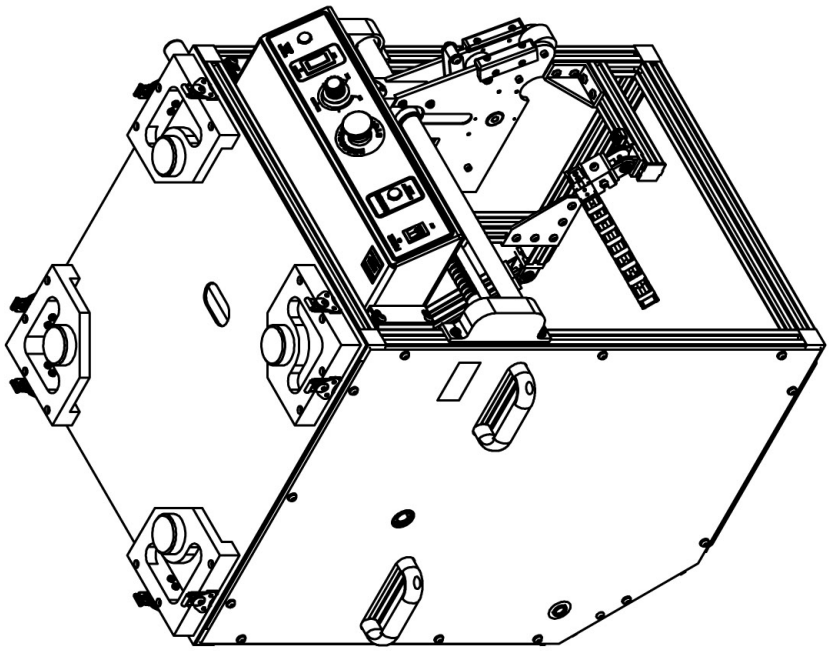


Figure 31a: *Reel Assembly, Portable, MD330*

K2

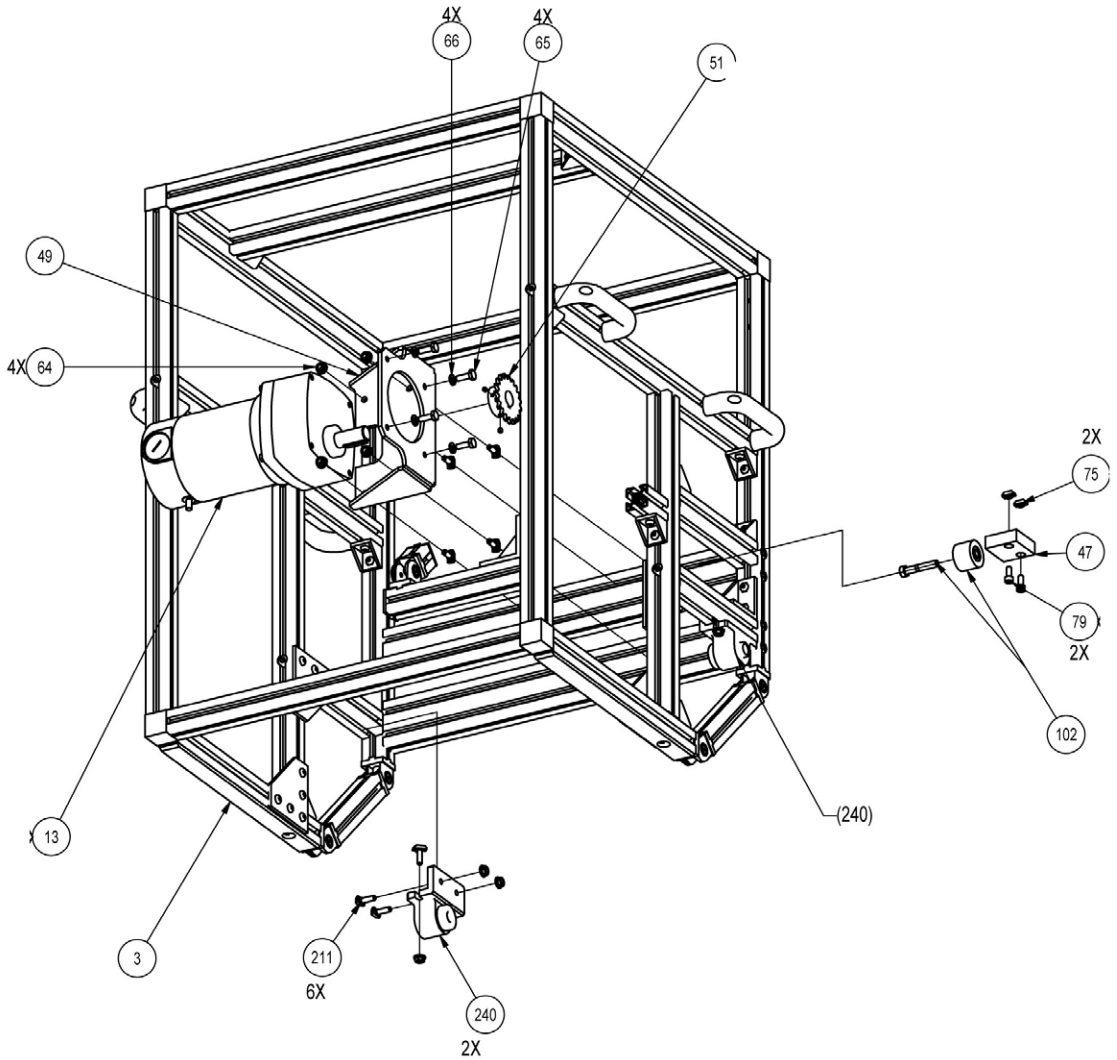


Figure 31b: *Reel Assembly, Portable, MD330*

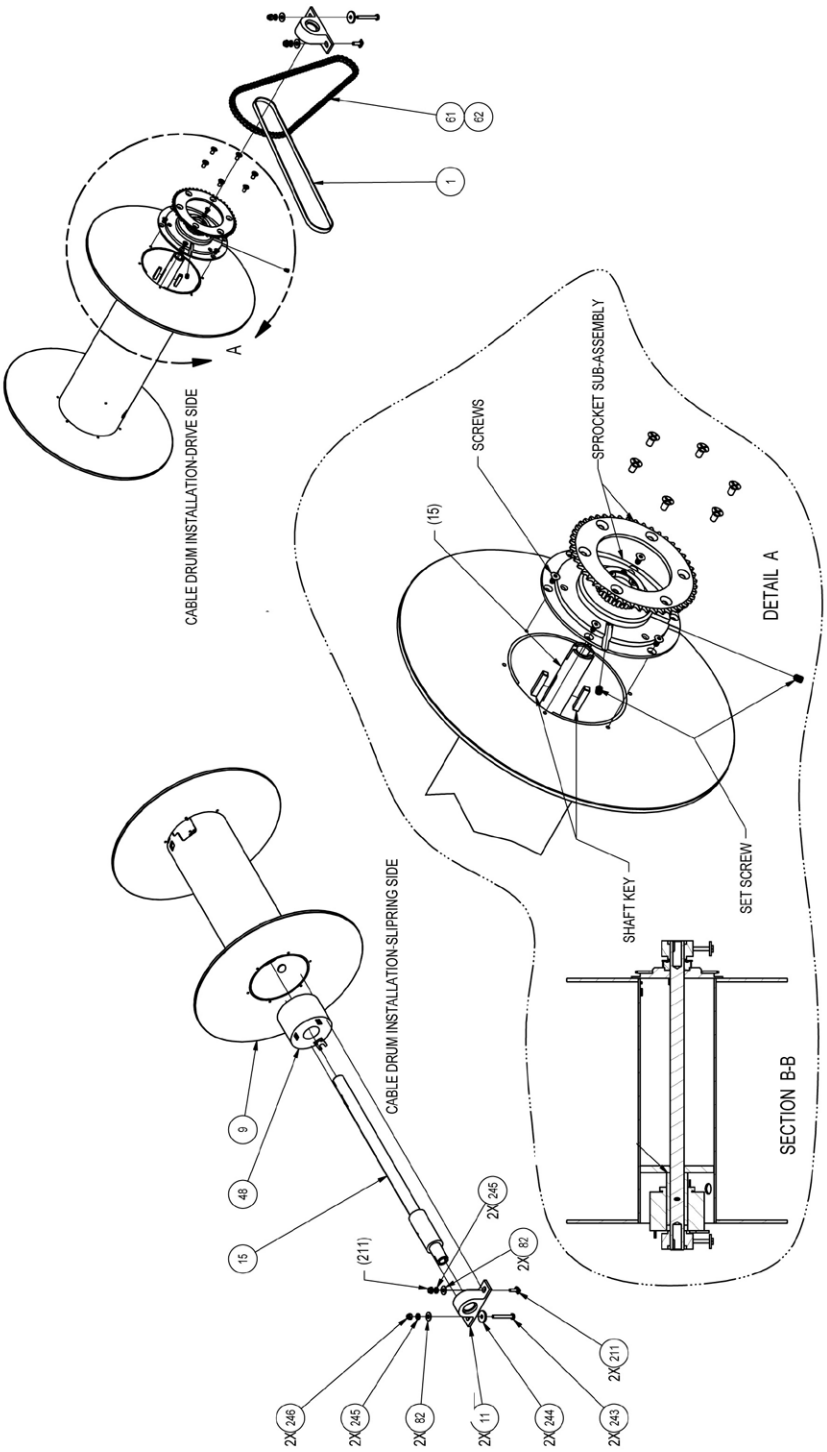


Figure 31c: *Reel Assembly, Portable, MD330*

K2

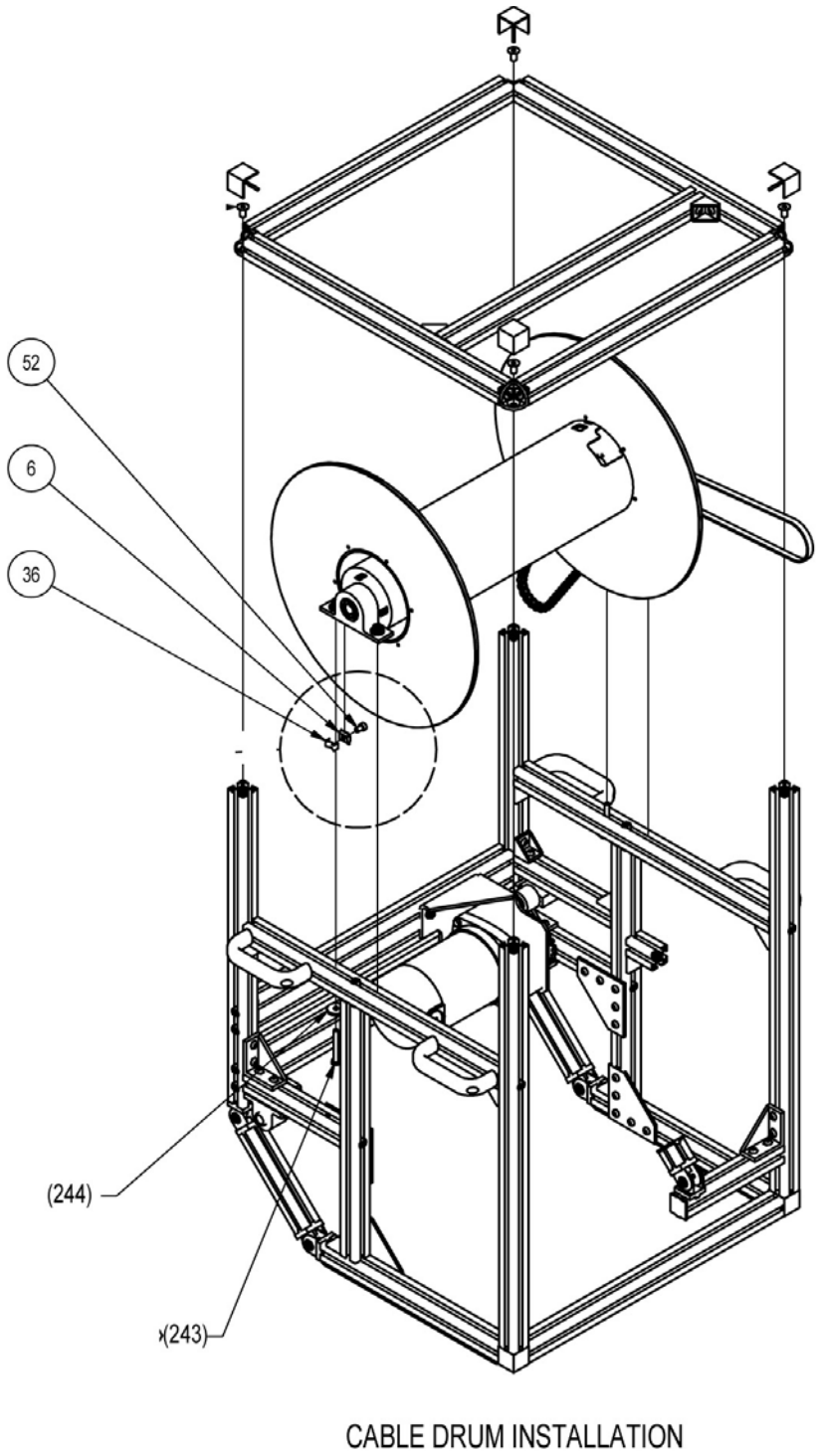


***Figure 31d**: Reel Assembly, Portable, MD330*

K2

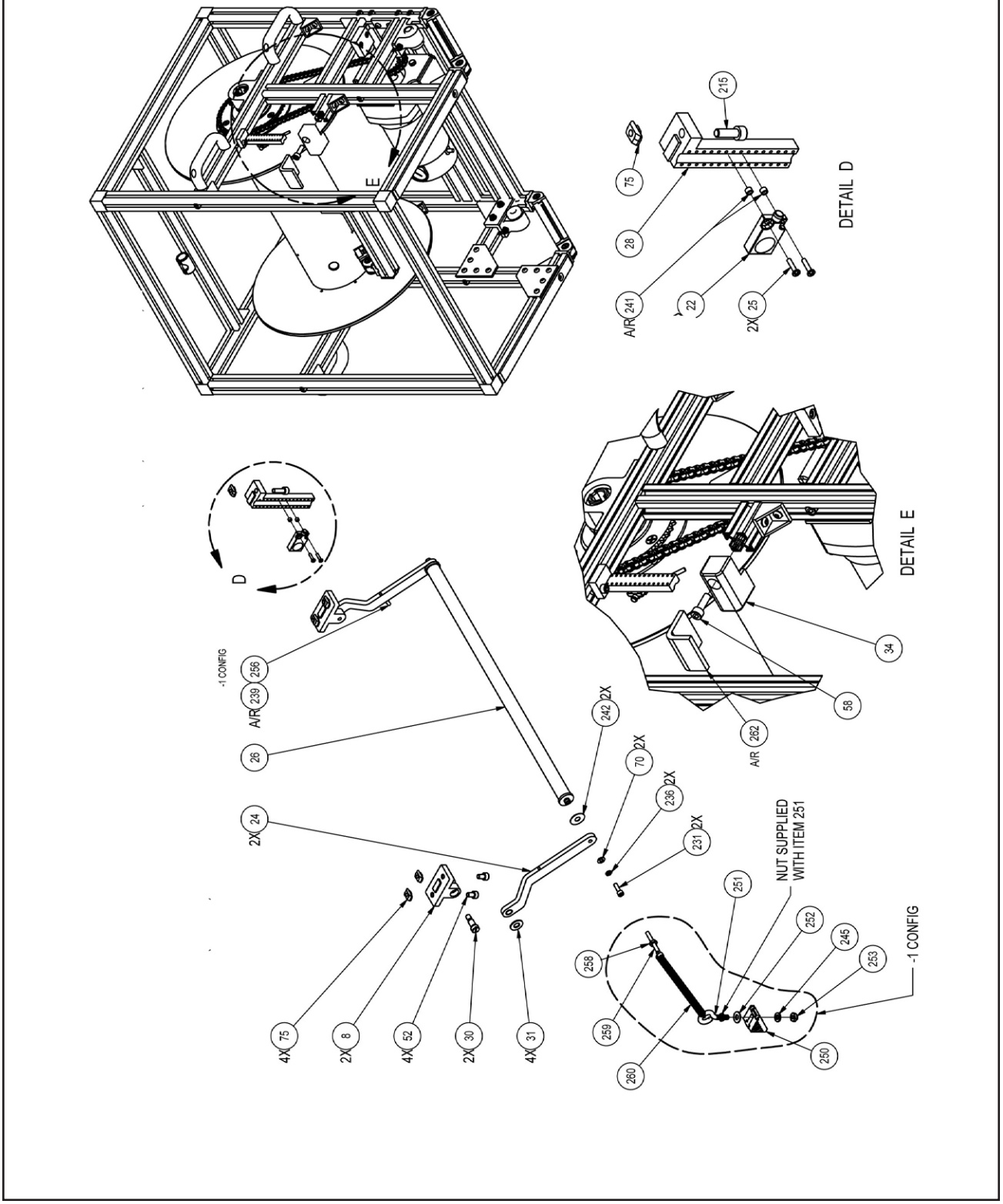


Figure 31e: *Reel Assembly, Portable, MD330*

K2

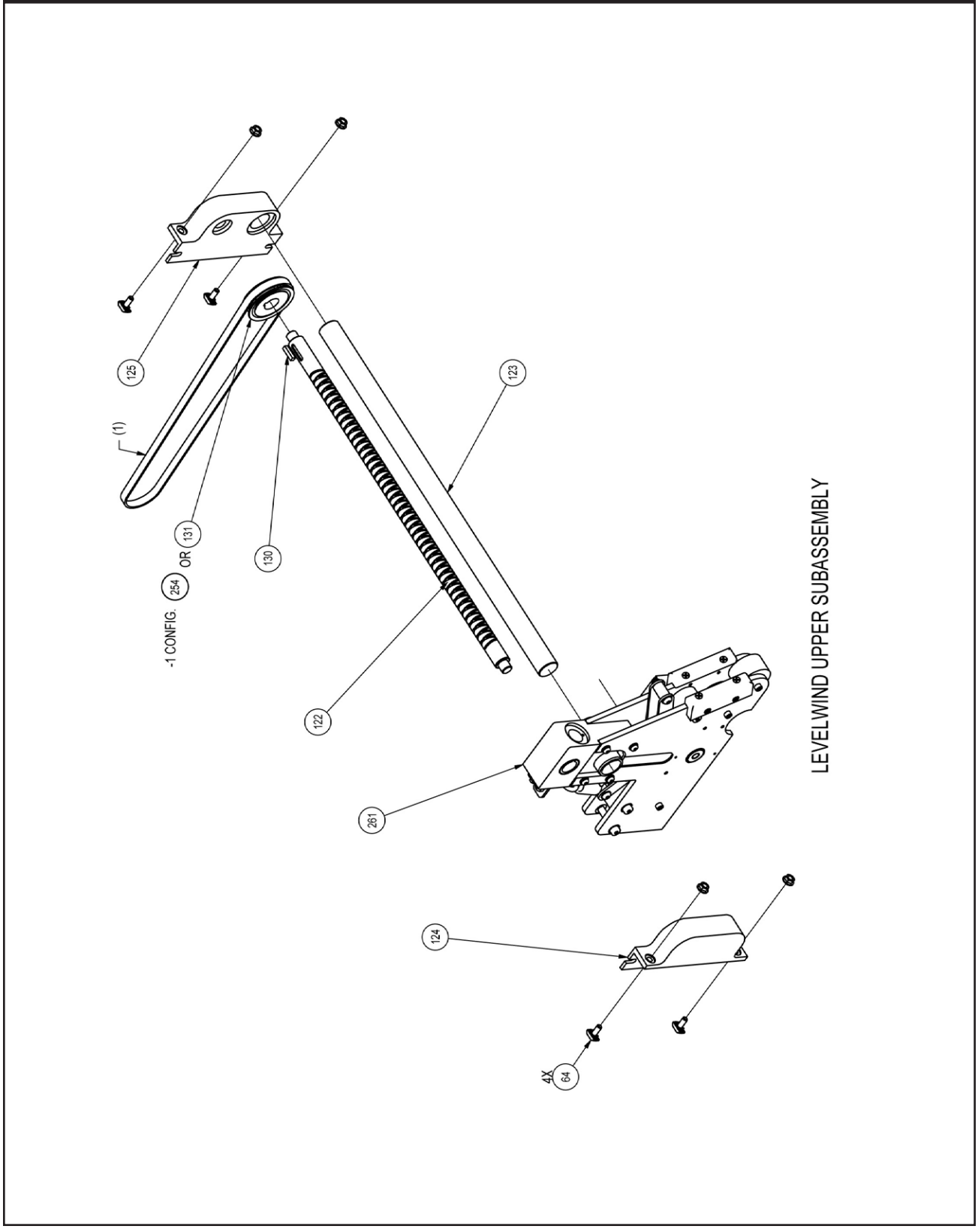


Figure 31f: *Reel Assembly, Portable, MD330*

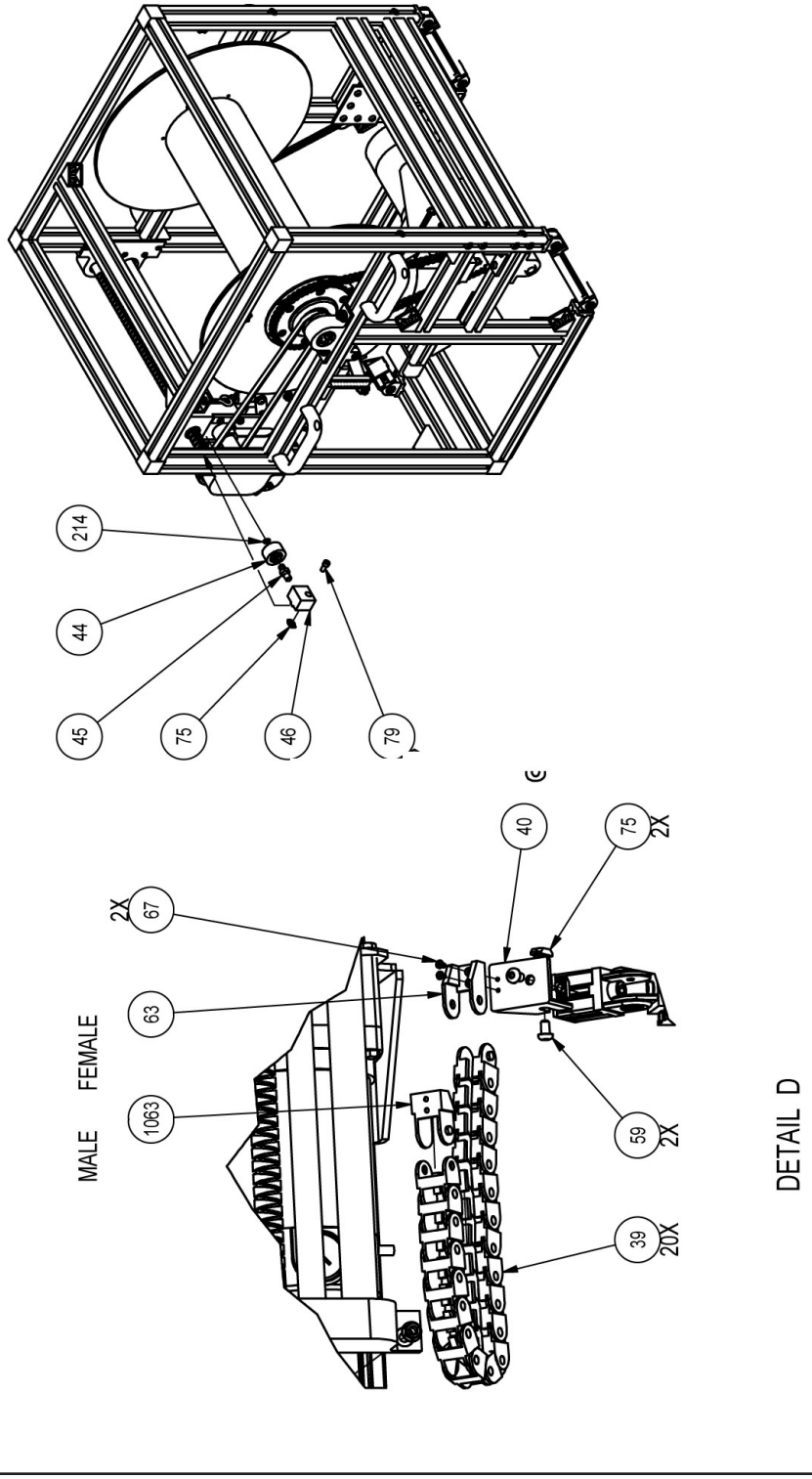


Figure 31g: *Reel Assembly, Portable, MD330*

K2

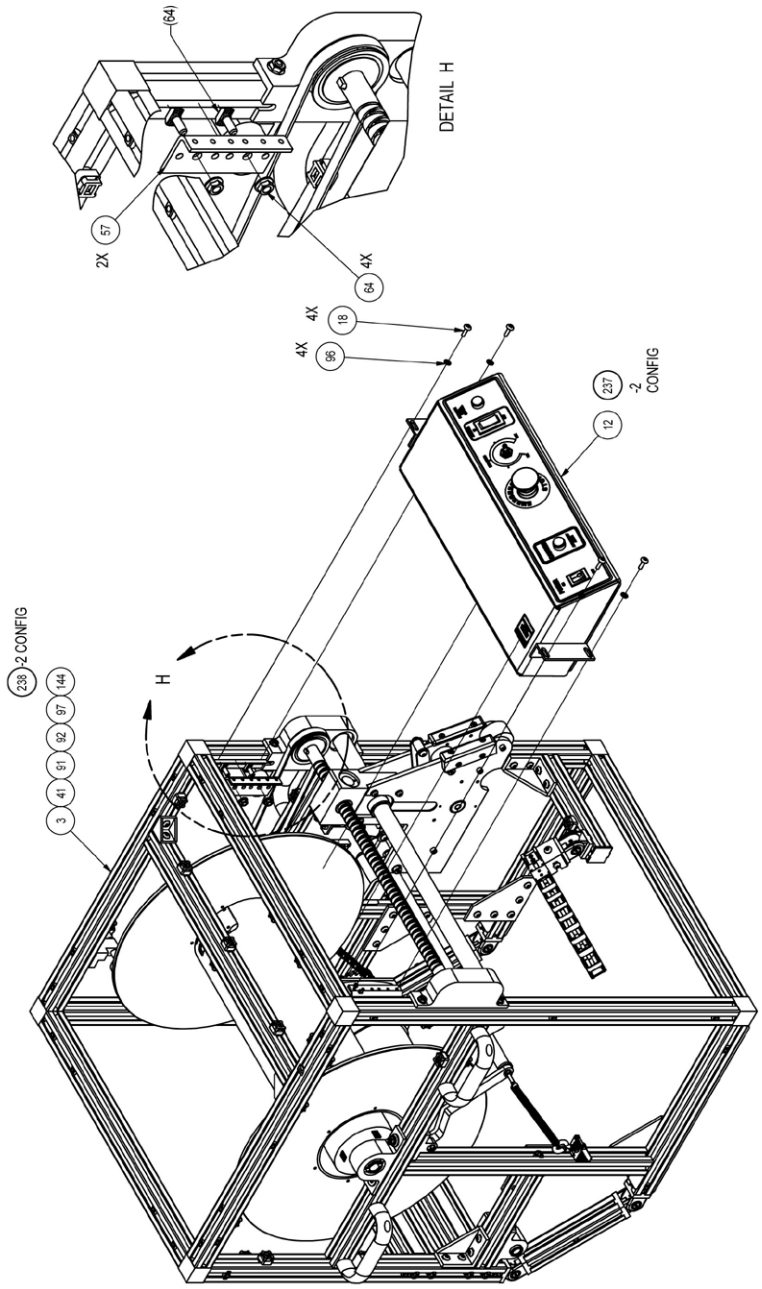


Figure 31h: *Reel Assembly, Portable, MD330*

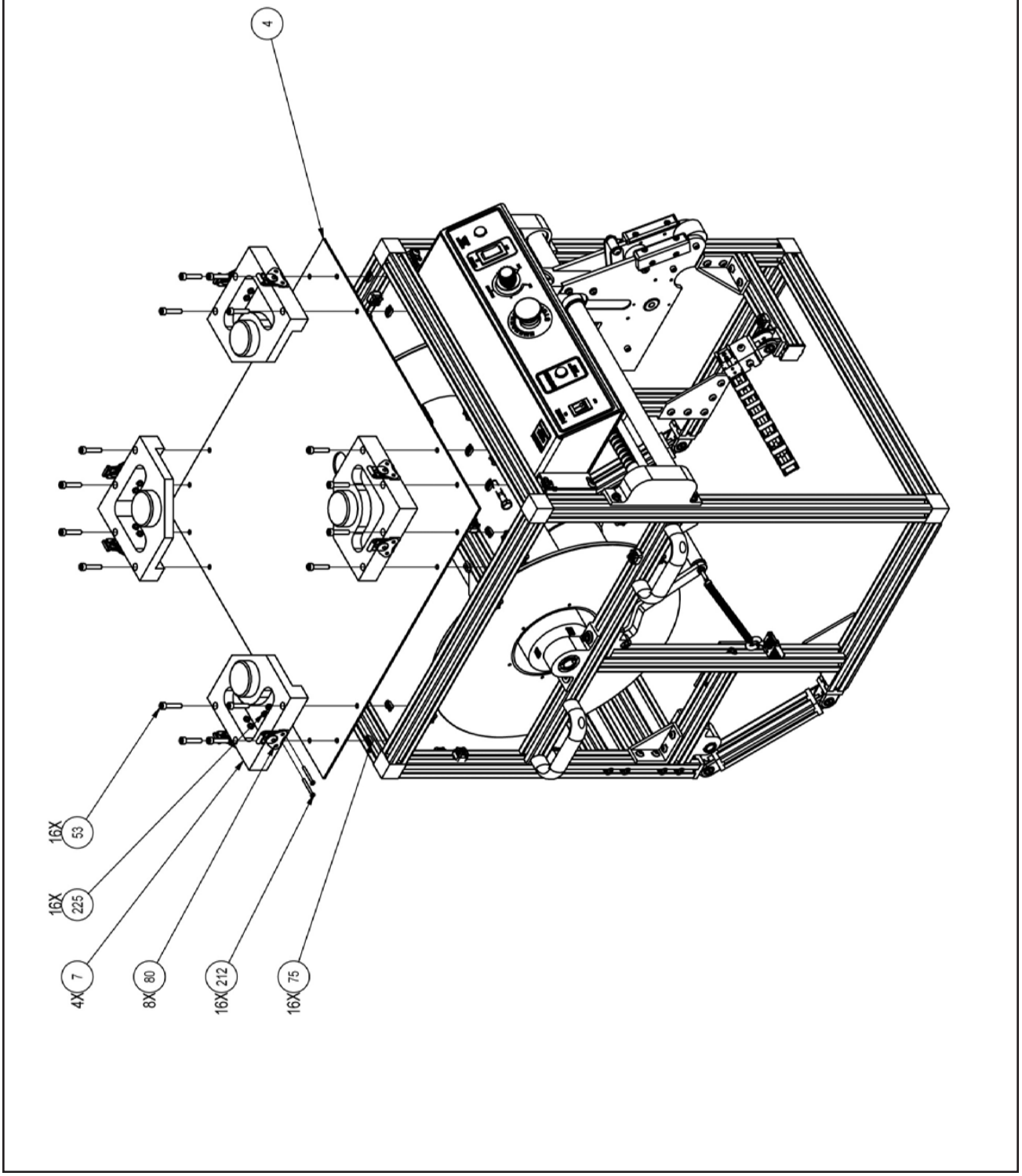


Figure 31i: *Reel Assembly, Portable, MD330*

K2

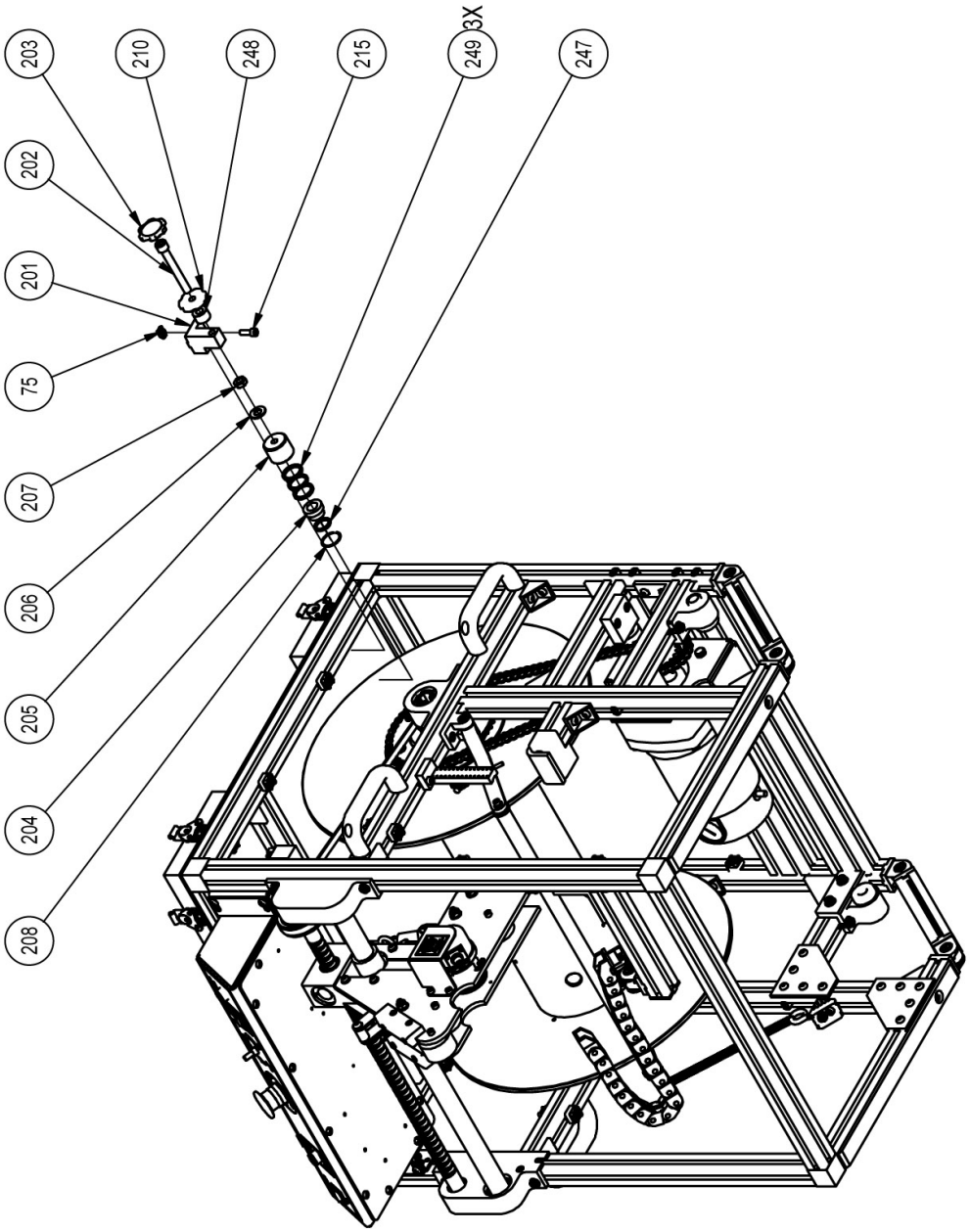
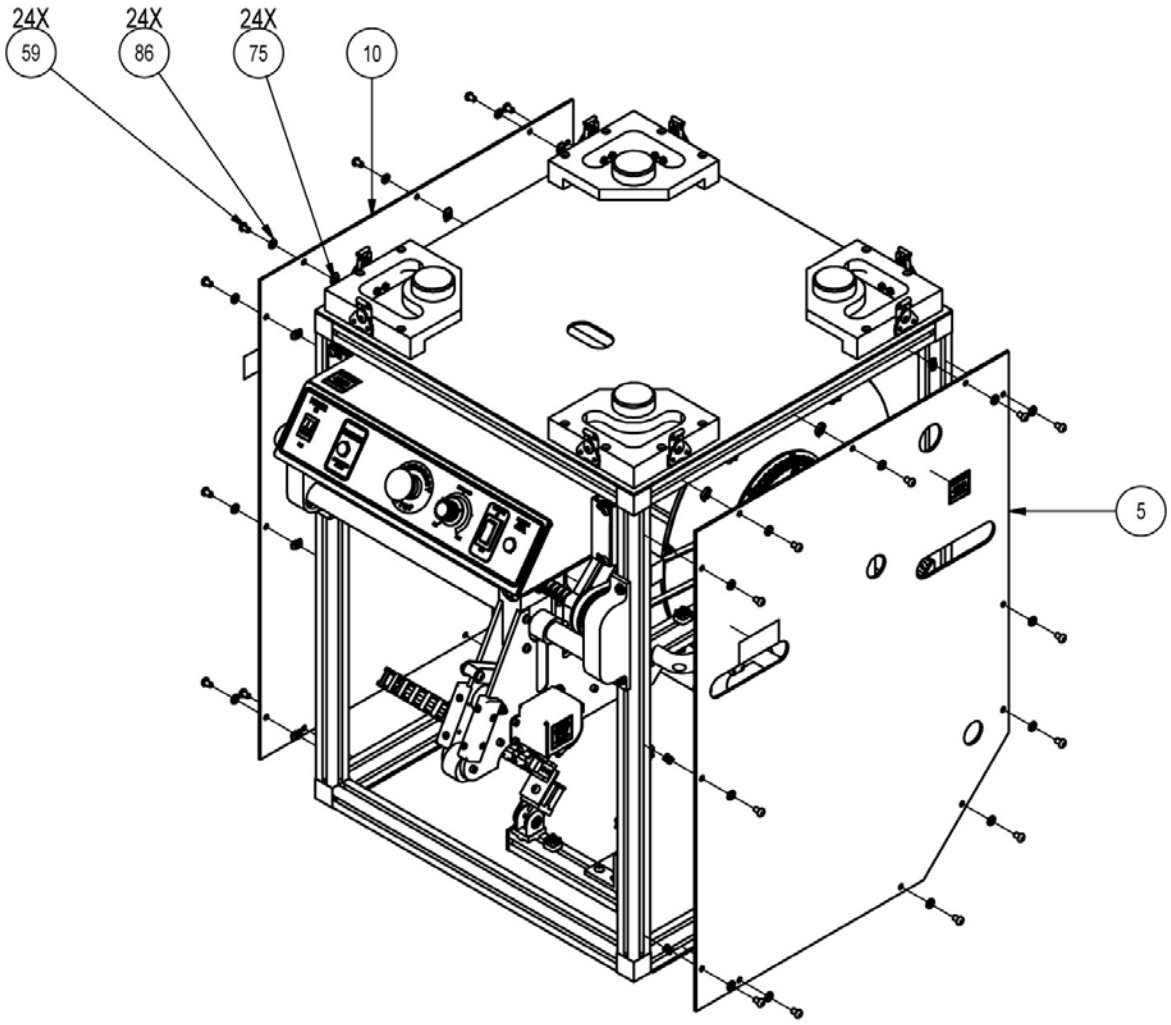


Figure 31j: *Reel Assembly, Portable, MD330*



SIDE COVERS INSTALLATION

Figure 31k: Reel Assembly, Portable, MD330

K2

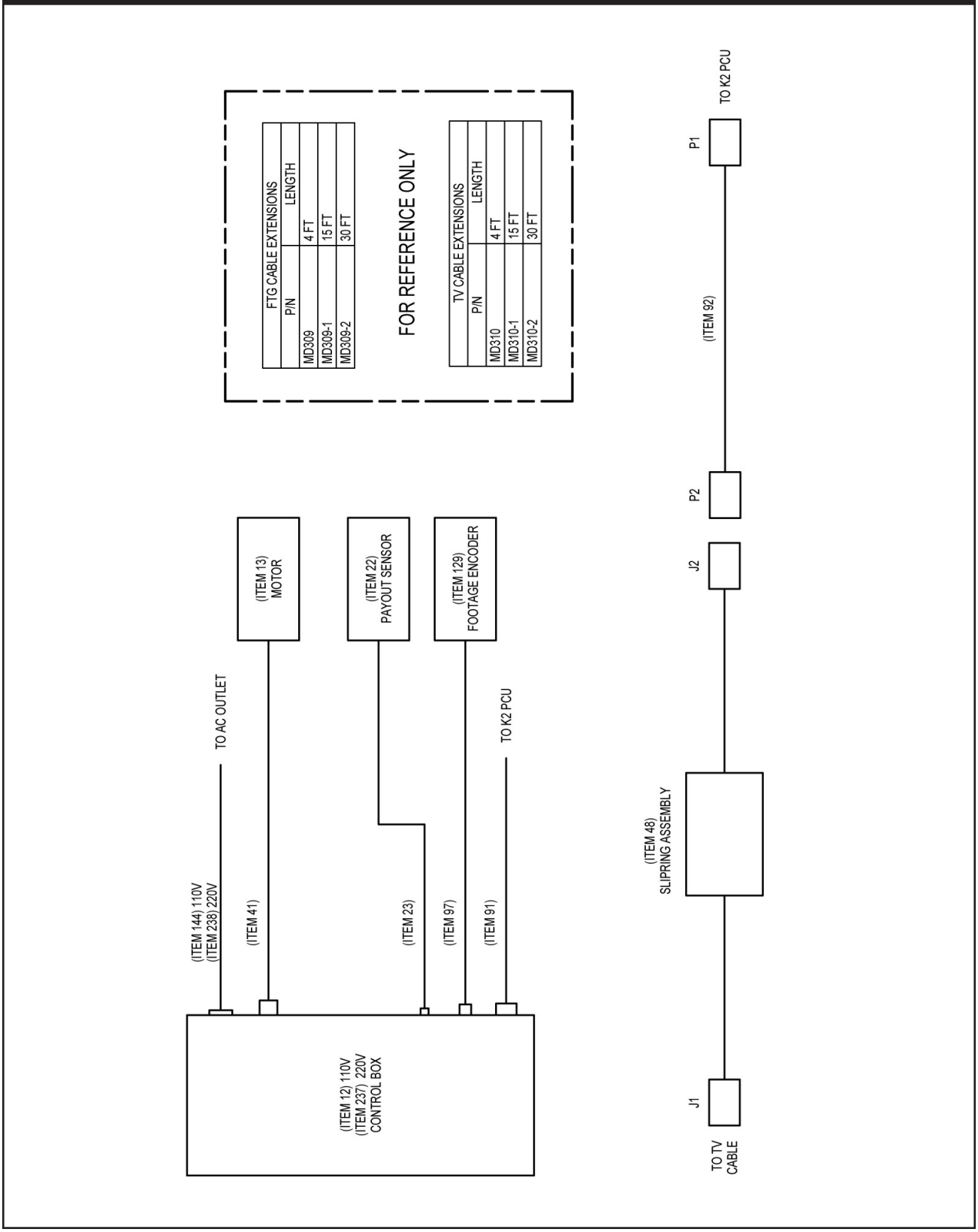


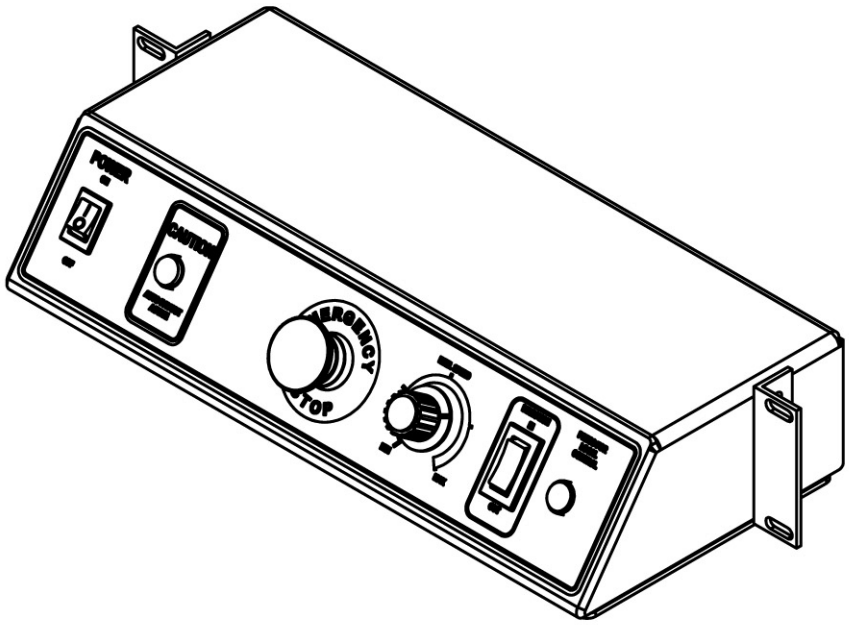
Figure 31l: *Reel Assembly, Portable, MD330*

Reel Assembly, Portable, MD330, Rev. J			
0001	BELT,TIMING,L PITCH,170 GROOVE 3/8W	HW1680	1
0003	CAGE,PORTABLE REEL,K2	MD301	1
0004	COVER,CAGE TOP,PORTABLE REEL	MD014	1
0005	COVER,SIDE,RL CAGE,PORT,PRTBL RL	MD044	1
0006	T-BLOCK,SWIVEL,M6,30MM PROFILE	HW1678	1
0007	BLOCK,SECURING,PCU CASE>REEL,PRT RL	MD015	4
0008	CLEVIS,ARM,PAYOUT ASSY,PRT RL	MD041	2
0009	DRUM ASSY,K2,PORTABLE REEL	MD329	1
0010	COVER,SIDE,RL CAGE,STARBRD,PRTBL RL	MD044-1	1
0011	PILLOW BLOCK,1.00 BORE	MD035	2
0012	CONTROL BOX ASSY,PORTABLE REEL,K2	MD304	1
0013	MOTOR,ELEC,1/4 HP DC BODINE	EL224	1
0015	SHAFT,DRUM,K2,PORTABLE REEL	MD173	1
0017	MRO-TIE,CABLE,14"X5/16"BLACK	440305	1
0018	SCREW,TRUSS,10-32X5/8 PHIL SST	712450	4
0022	SENSOR,PROXIMITY,8MM,EXT.RANGE	EC1377	1
0023	CABLE,PYOT SNSR,K2 REEL CNTRLLR,36"	MD308	1
0024	ARM,PAYOUT SENSOR,K2 REEL	MD040	2
0025	SCREW,PAN,4-40X1/2 PHIL SST	HW246	2
0026	ROLLER ASSY,PAYOUT,K2	MD167	1
0028	BRACKET,PROXIMITY SNSR	MD051	1
0030	SCREW,SHLDR,1/4-20X5/16X1/2,SS,SLOT	HW370	2
0031	WASHER,FLAT,5/16 SST	101741	2
0033	COVER,CAGE BACK,PORTABLE REEL	MD068	1
0034	BUMPER,SWINGARM,AUTO-PAYOUT	MD066	1
0036	SPRING,T-BLOCK,SWIVEL,30MM PROFILE	HW1677	1
0039	E-CHAIN,CBL CAR SYS,20LK,1.32'/0.4M	EC1432	1
0040	BRACKET,CABLE CARRIER	MD064	1
0041	CORDSET,3P,M,MINI,3',SINGLE END	EC1436	1
0044	PULLEY,IDLR,TMNG BLT,Ø1.38X.75	HW1699	1
0045	SHAFT,IDLER PULLEY,.25LG,PRTBL RL	HW1700	1
0046	TENSIONER,BELT,AUTO-PAYOUT,PRTBL RL	MD069	1
0047	TENSIONER,CHAIN,P-URETHANE ROLLER	MD085	1
0048	SLIPRING ASSY,K2 REEL	MD071	1
0049	BRACKET,MOTOR MOUNT,REINFORCED	MD072	1
0051	SPROCKET,35P,19 TEETH,Ø3/4BORE	HW1718	1
0052	SCREW,CAP SKT HD,M6 X 10MM,SST	HW1727	5
0053	SCREW,SKT-HD,M6 X 30MM,18-8 SST	HW1731	16
0055	BRACKET,CABLE,30MM PROFILE	HW1694	25
0057	RACK RAIL,2U,STEEL,IMPERIAL	MR560	2

Reel Assembly, Portable, MD330, Rev. J			
0057	RACK RAIL,2U,STEEL,IMPERIAL	MR560	2
0058	SCREW,CAP SKT HD,M8 X 25MM,SST	HW1734	1
0059	SCREW,BUTHEXSKT,M6X10MM,18-8,NYLPEL	HW1930	37
0060	HAND CRANK,PORTABLE REEL	MD056	1
0061	CHAIN,#35 X 3/8P,PRESTRSS,PER FOOT	300900	1
0062	MASTER LINK F/#35 3/8P CHAIN	300901	1
0063	BRACKET SET,MALE/FEM,MNT,E-CHAIN	EC1433	1
0064	BOLT,T,8MM,M6X14MM,REXROTH	HW1681	12
0065	BOLT,HEX,1/4-28X3/4 GR5 PL	100990	4
0066	WASHER,SPLIT 1/4 PLD	101033	4
0067	SCREW,FLAT,PHIL,M3X6MM,18-8 SST	HW1820	2
0070	WASHER,FLAT,#10 SST	100140	2
0075	NUT,T,8MM,M6,BOSCH REXROTH	HW1634	61
0079	SCREW,CAP SKT HD,M6X14MM,SST	HW1691	3
0080	LATCH,BUTTERFLY,LOW PROFILE,BLK,SST	HW1769	8
0082	WASHER,FLAT,1/4 USS PLD	101032	4
0086	WASHER,FLAT,M6XØ12X1.5MM SST	HW1738	34
0091	CABLE,CCU TO REEL CONTROLLER	RL366	1
0092	CABLE,CPR,VID CBL,CTRL BX>RL,4'	RL367	1
0096	WASHER,EXT TOOTH,#10,18-8,SST	HW1919	4
0097	CABLE,M12 F>5-P M,LED,RIGHT ANGLE	EC1464	1
0102	ROLLER,CHAIN,Ø34X24MM PURETHANE	HW1746	1
0122	SCREW,LEVELWIND,PORTABLE REEL	MD038	1
0123	GUIDE SHAFT,PORTABLE REEL	MD039	1
0124	BRACKET,SUPPORT LEFT LEVELWIND	MD028-1	1
0125	BRACKET,SUPPORT RIGHT LVLWND,K2	MD029-1	1
0126	PAWL,LEVELWIND,LAMP LATERAL REEL	LT276	1
0127	COVER,PAWL,LEVELWIND,LMP LAT.RL	LT277	1
0128	SCREW,CAP,SKT HD,6-32X3/8,SST	105071	2
0130	KEY,SQUARE,.188 SQ X .75LG,1018	MD081	1
0131	PULLEY,TIMING,1/5PX30T,3/8 BELT	HW1623	1
0144	CORD,POWER COLOR SCOUT	165006	1
0201	BRACKET,BRAKE,PORTABLE REEL,K2	MD101	1
0202	SCREW,CAP SKT,3/8-16X3,FULL THD,SS	HW1770	1
0203	KNOB,THUMB SCREW,F/3/8 SCREW	HW1739	1
0204	PAD,DELRIN,BRAKE,.63"LG,K2&MP2020	MD084	1
0205	CAN,PAD,BRAKE,PORTABLE REEL,K2	MD102	1
0206	WASHER,FLAT,3/8 SAE	101236	1
0207	NUT,JAM,PLATED,3/8-16	101241	1
0208	RING,RETAIN,SPIRAL IN,Ø1.000,SS	HW1752	1

Reel Assembly, Portable, MD330, Rev. J			
0208	RING,RETAIN,SPIRAL IN,Ø1.000,SS	HW1752	1
0210	THUMBNUT,BRAKE,PORTABLE REEL,K2	MD103	1
0211	BOLT,T,8MM,M6X18MM,REXROTH	HW1682	8
0212	SCREW,PAN,6-32X1 1/4 PHIL SST	100106	16
0214	RETAIN RING,.350IDX.415ODX.023W,SST	HW1017	1
0215	SCREW,SHCS,M6-1 X 18MM,A2 SST	HW1805	2
0216	MRO-REMOVABLE LCK,ND 121200-50,BLUE	440061	1
0217	MRO-LUBRICANT,LPS CHAINMATE,11-OZ	CS478	1
0218	TUBE,SHRINK,BLACK 3/16"RNF	712577	1
0219	TUBING,HEATSHRINK,SELFSEAL,.75DIA	CS147	1
0220	COVER PROFILE,30MM EXT	MR545	1
0221	TUBING,SPIRAL WRAP,BLK,POLY,1"	CS410	1
0222	LABEL,CAUTION,DISNG BRKE,1.40X1.38	MD159	2
0224	LABEL,PINCH PNT,CAUTION,2.75X1.35"	CS257	2
0225	NUT,KEP,6-32,SS	HW941	16
0231	SCREW,CAP,SOC HEAD,10-32X5/8,SST	HW134	2
0236	WASHER,SPLIT LOCK,#10 SST	101739	2
0239	MRO-PERMANENT LOCK,ND 140500-50,RED	440060	1
0240	BRACKET,WHEEL ATTCHMNT,PRT RL	MD036	2
0241	SPACER,4/40 X 1/8 ALUM, .125LG	HW723	2
0242	WASHER,FLT,.315IDX.875ODX.025,NYLON	HW1924	2
0243	SCREW,HEXHD,1/4-20X2"LG,18-8,SST	HW1926	2
0244	WASHER,FLT,.281IDX1ODX.125,BLK STL	HW1923	2
0245	WASHER,SPLIT LOCK,1/4"SST	101740	4
0246	NUT,LOCK W/NYL INS 1/4-20 SST	HW030	2
0247	O-RING,2-115,EPDM NSF 61	HW1617	1
0248	SPACER,.380ID X .75OD, X.5LG,ALUM	HW1934	1
0249	WASHER,HOSE RUBBER	109302	3
0261	FOOTAGE HEAD ASSY,K2	MD333	1
0262	STRIP,WEATHER CL CELL 1/4X2 W/ADH	130029	1

K2



CONFIGURATION LIST	
PART NUMBER	DESCRIPTION
MD304	CONTROL BOX ASSY, PORTABLE REEL, K2 (110 VAC)
MD304-1	CONTROL BOX ASSY, PORTABLE REEL, K2 (220 VAC)

Figure 32a:*Control Box Assembly, Portable Reel, K2, MD304*

K2

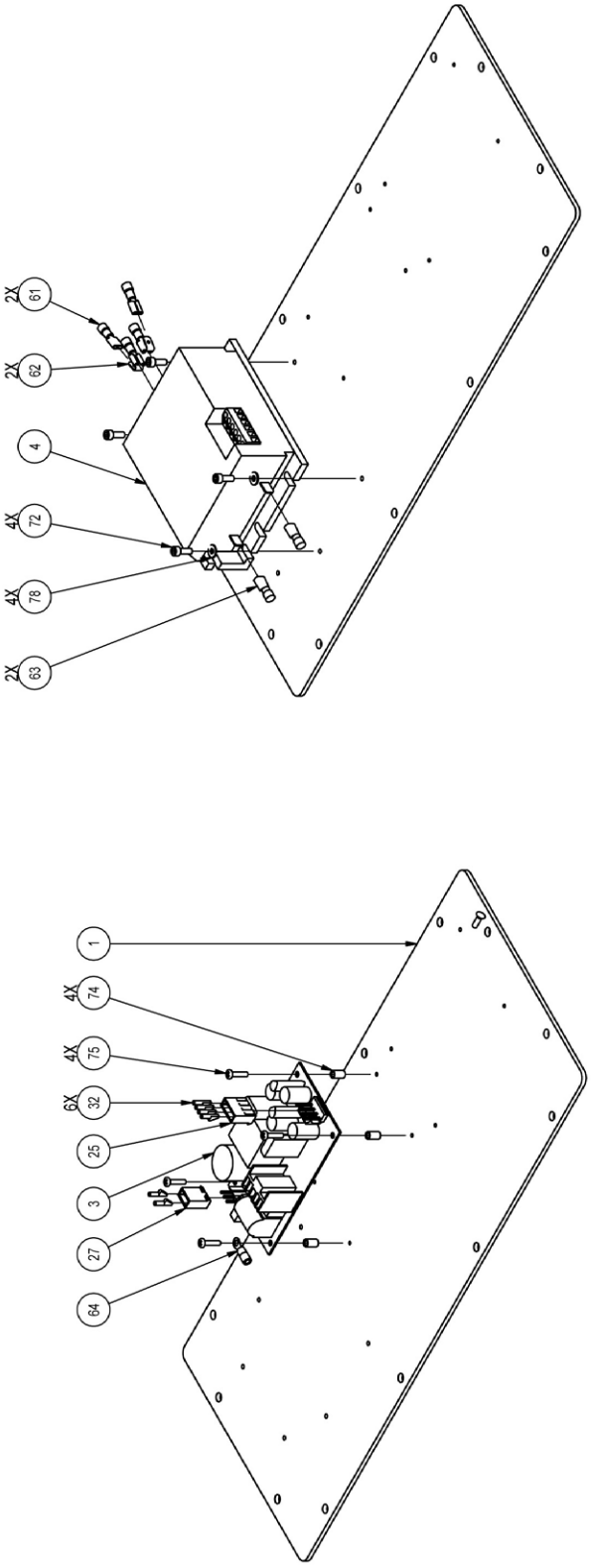


Figure 32b:*Control Box Assembly, Portable Reel, K2, MD304*

K2

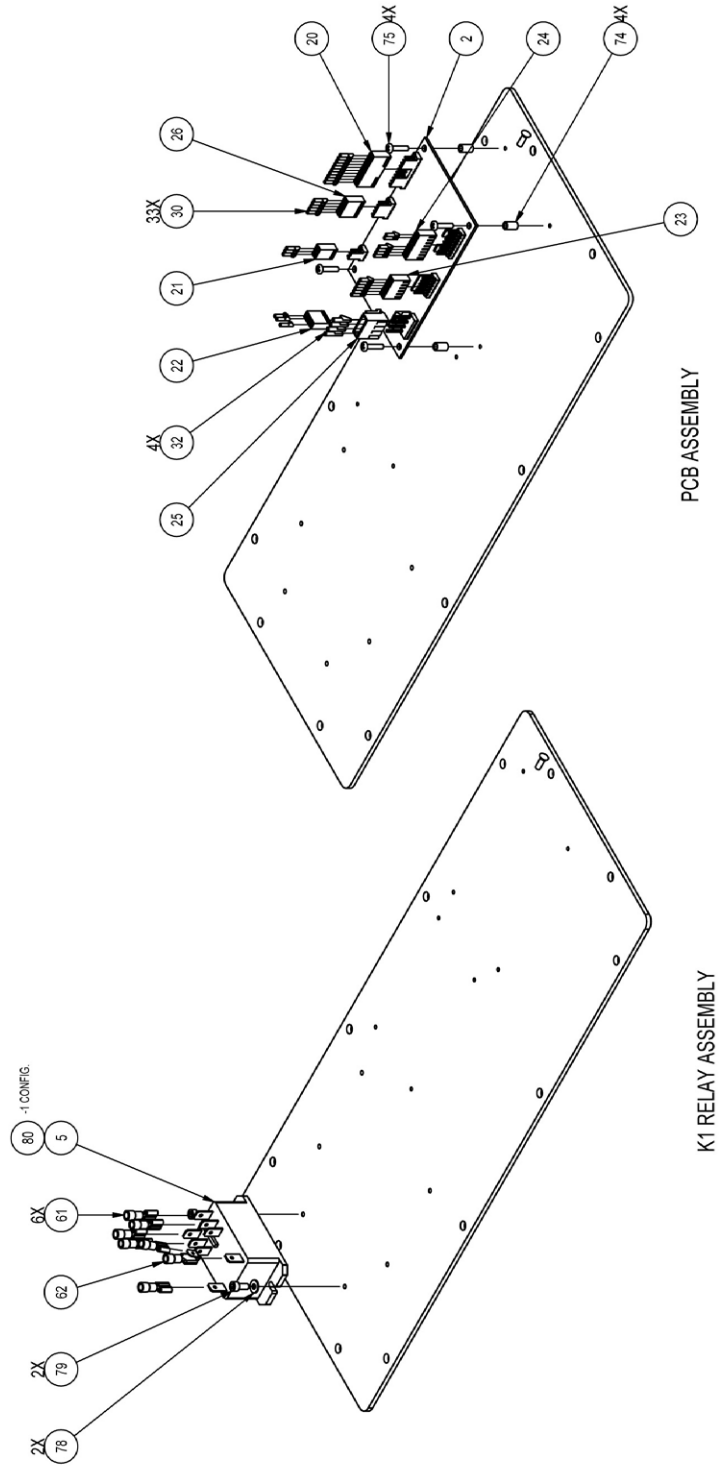


Figure 32c:*Control Box Assembly, Portable Reel, K2, MD304*

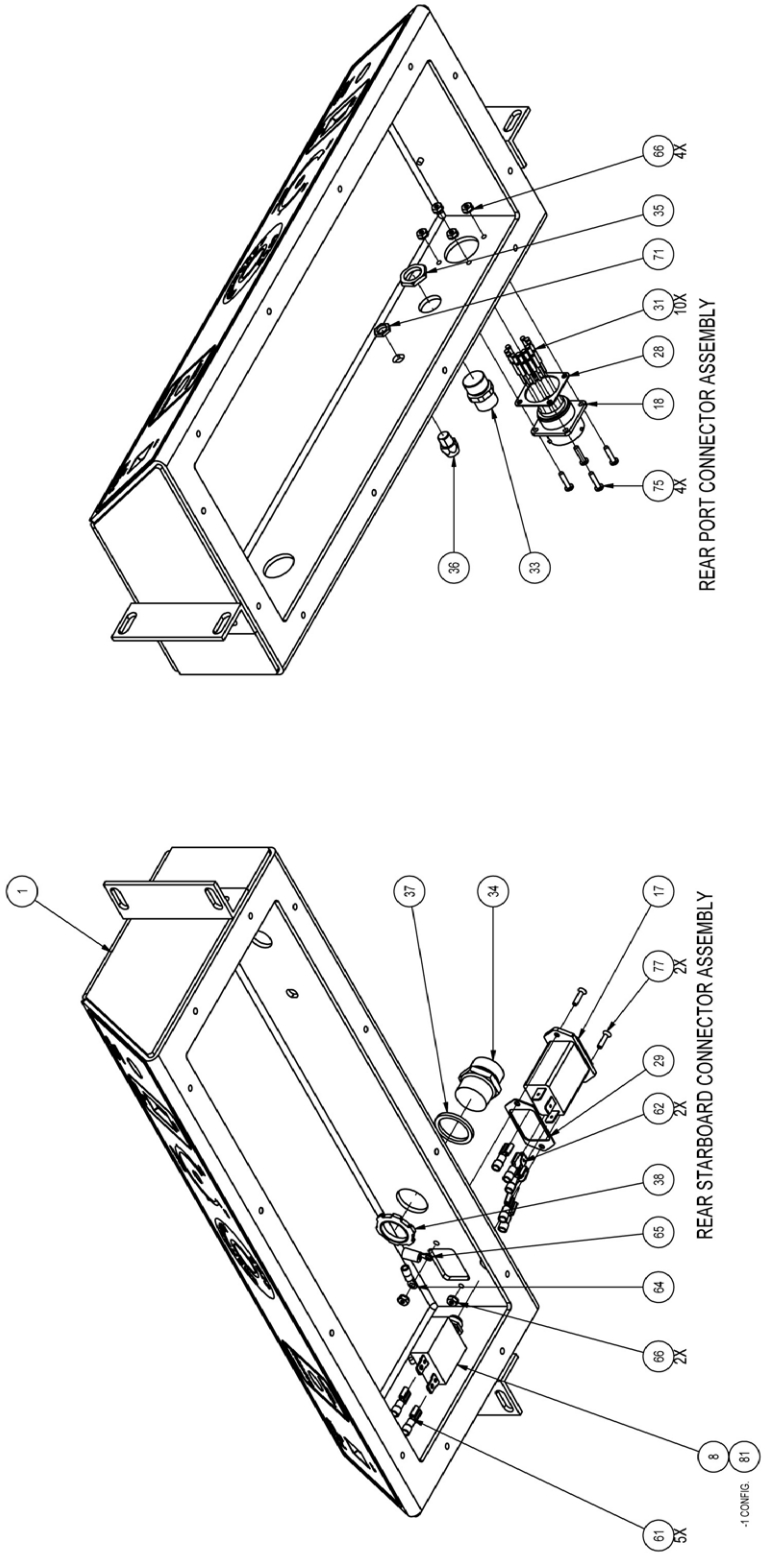
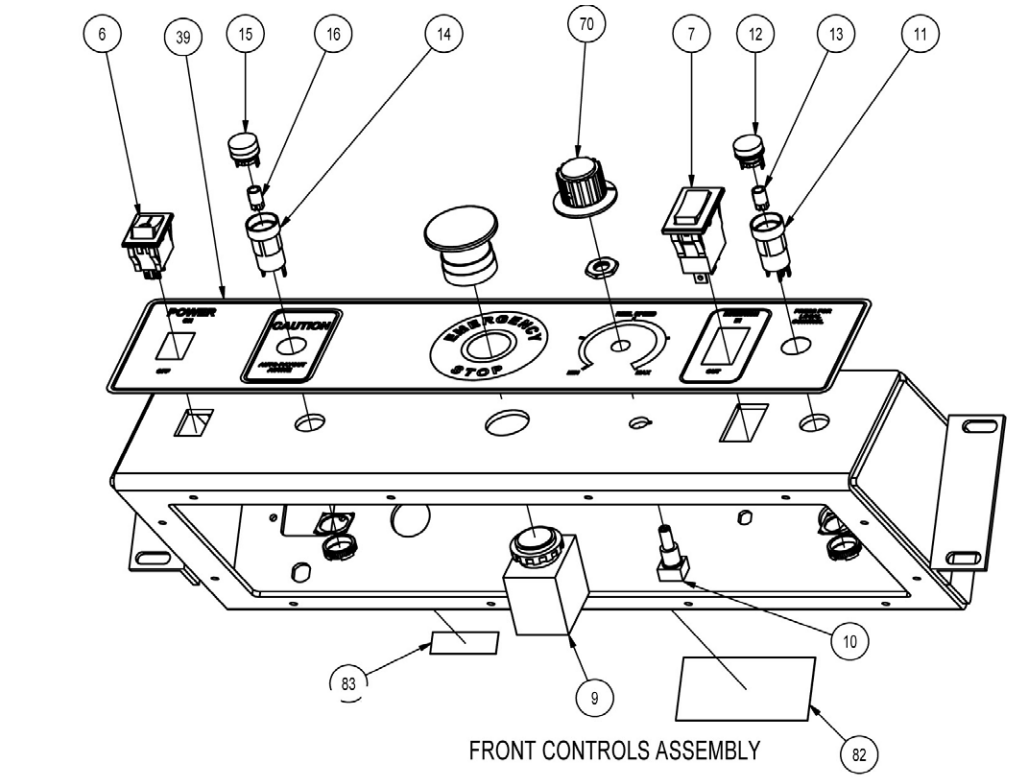
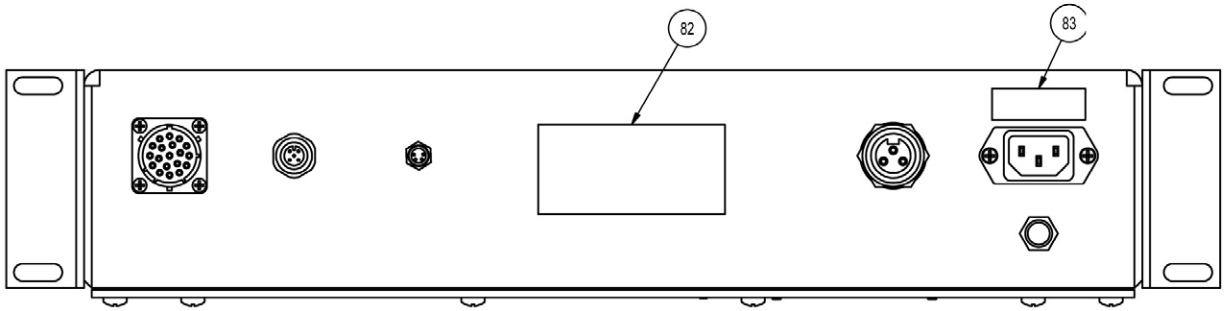


Figure 32d:*Control Box Assembly, Portable Reel, K2, MD304*

K2



FRONT CONTROLS ASSEMBLY



REAR VIEW

***Figure 32e**:Control Box Assembly, Portable Reel, K2, MD304*

Control Box Assembly, Portable Reel, K2, MD304, Rev. H			
0001	ENCLOSURE CONTROLLER,PRT RL	MD048	1
0002	PCB ASSY,K2 REEL CONTROL,ENHANCED	MD410	1
0003	POWER SUPPLY,DUAL,+/-12V,24W,ASTRD	EC1406	1
0004	POWER SUPPLY MTR DRIVER F/MD304	EC1326-2	1
0005	RELAY,DPDT,120VAC COIL,FLANGE MNT	EC1354	1
0006	SWITCH,DPST,ROCKER,16A,125/250VAC	EC1407	1
0007	SWITCH,SPDT,ON-NONE-ON,15A,NKK	EC1435	1
0008	CIRCUIT PROTECTOR,PUSHBUTTON,12A	EC1382	1
0009	PUSHBOTTON,E-STOP,40MM,PUSHLOCK	EC1380	1
0010	POT,10K,PNL MT	EC1215	1
0011	BASE,SWTCH,PSHBTN,DPDT,MOM,IDEC	EC1408	1
0012	LENS,SWITCH,ROUND,GREEN,IDEC	EC1410	1
0013	LED,PILOT LIGHT,12V,GREEN,IDEC	EC1409	1
0014	BASE,PILOT LIGHT,IDEC,16MM	EC1411	1
0015	LENS,PILOT LIGHT,ROUND,AMBER,IDEC	EC1413	1
0016	LED,PILOT LIGHT,12V,AMBER,IDEC	EC1412	1
0017	CONNECTOR,IEC,15A,W/LINE FILTER	EC1309	1
0018	CONNECTOR,19P,RECEP,W/PINS,REV SEX	EC1261	1
0020	HOUSING,10PIN LOCKING,MOLEX	EL974	1
0021	HOUSING,3-PIN LOCKING	730165	1
0022	HOUSING,4-PIN LOCKING	712783	1
0023	HOUSING,6-PIN LOCKING	712778	1
0024	HOUSING,8-PIN,0.100,LOCKING	EC816	1
0025	CONNECTOR,4PIN,CRIMP HOUSING.156	EC559	2
0026	HOUSING,5-PIN LOCKING	730166	1
0027	CONNECTOR,HOUSING,3PIN,.156",CRIMP	EC736	1
0028	GASKET,CONNECTOR,SHELL SIZE 16	MD080	1
0029	GASKET,LINE FILTER	MD061	1
0030	TERMINAL,CRIMP 22-30 GAUGE WIRE	730113	33
0031	CONTACT,PIN,CRIMP,16-20GA	EC1249	10
0032	TERMINAL,CRIMP,.156 PITCH	EC553	10
0033	CONNECTOR,BULKHD,FM,5PIN,LUMBERG	EC277	1
0034	RECEPTACLE,3PIN,MINI,F,STR	EC1415	1
0035	LOCKNUT,PG9 THREADS,LUMBERG	HW299	1
0036	CONNECTOR,LUMBERG,PICO,4P,PNL MNT	EC1243	1
0037	WASHER,HOSE RUBBER	109302	1
0038	LOCKOUT,1/2",F/MINICHANGE RECEPT	EC1128	1
0039	OVERLAY,REEL CONTROL,K2	MD082	1
0040	WIRE,#22AWG,BLACK,PVC,STRD	EC407	1
0041	WIRE,#22AWG,BROWN,PVC,STRD	EC408	1

Control Box Assembly, Portable Reel, K2, MD304, Rev. H			
0041	WIRE,#22AWG,BROWN,PVC,STRD	EC408	1
0042	WIRE,#22AWG,RED,PVC,STRD	EC412	1
0043	WIRE,#22AWG,ORANGE,PVC,STRD	EL441	1
0044	WIRE,#22AWG,YELLOW,PVC,STRD	EC414	1
0045	WIRE,#22AWG,GREEN,PVC,STRD	EC410	1
0046	WIRE,#22AWG,BLUE,PVC,STRD	EC411	1
0047	WIRE,#22AWG,VIOLET,PVC,STRD	EC415	1
0048	WIRE,#22AWG,GRAY,PVC,STRD	EC409	1
0049	WIRE,#22AWG,WHITE,PVC,STRD	EC406	1
0050	WIRE,#22,WHITE/BLACK,PVC	EC1088	1
0051	WIRE,#22,WHITE/BROWN PVC	EC1087	1
0052	WIRE,#22AWG,WHT/RED,PVC,STRD	EC416	1
0053	WIRE,#22,WHITE/ORANGE,PVC	EC1089	1
0054	WIRE,#22,WHITE/YELLOW,PVC	EC1090	1
0055	WIRE,#22 WHITE/GREEN,PVC	EC1084	1
0056	WIRE,#22,WHITE/BLUE,PVC	EC1086	1
0057	WIRE,#22,WHITE/VIOLET,PVC	EC1085	1
0058	WIRE,#18 BLACK	161636	1
0059	WIRE,#18 GREEN	161637	1
0060	WIRE,#18 WHITE	161638	1
0061	FAST-ON,.250X.032,22-18GA,LG RED	712742	13
0062	FASTON,MULTI-STCK,.250,22-18GA,INSU	HW1431	5
0063	FAST-ON,.250X.032,16-14GA,LG BLUE	712736	2
0064	TERMINAL,RING,18-22AWG #6 STUD,RED	712638	2
0065	TERMINAL,RING,16-14 AWG,#6 STUD,BL	712739	1
0066	NUT,KEP,4-40,SS	HW942	6
0067	TUBE,SHRINK,BLACK 1/8"	712789	1
0070	KNOB,1/4"SHAFT,.75HX.97D,SKIRTED	HW1892	1
0071	LOCKNUT,LUMBERG,FOR PICO PNL MNT	EC1242	1
0072	SCREW,CAP,SKT HD,6-32X3/8,SST	105071	4
0073	GASKET,BASE PLATE,CNTRL BX,RL,MML	MD063	1
0074	SPACER,3/16OD X.115ID X 5/16LG,ALUM	HW724	8
0075	SCREW,PAN,4-40X1/2 PHIL SST	HW246	12
0076	SCREW,FLHD,CROSS-REC,4-40X1/2,SST	HW828	2
0078	WASHER,THREAD,SCREW RETAIN,F/WT024	HW1063	6
0079	SCREW,CAP,SKT HD,6-32X5/16,SST	HW475	2
0085	SCREW,PAN,10-32X3/8 SST	103031	12

K2

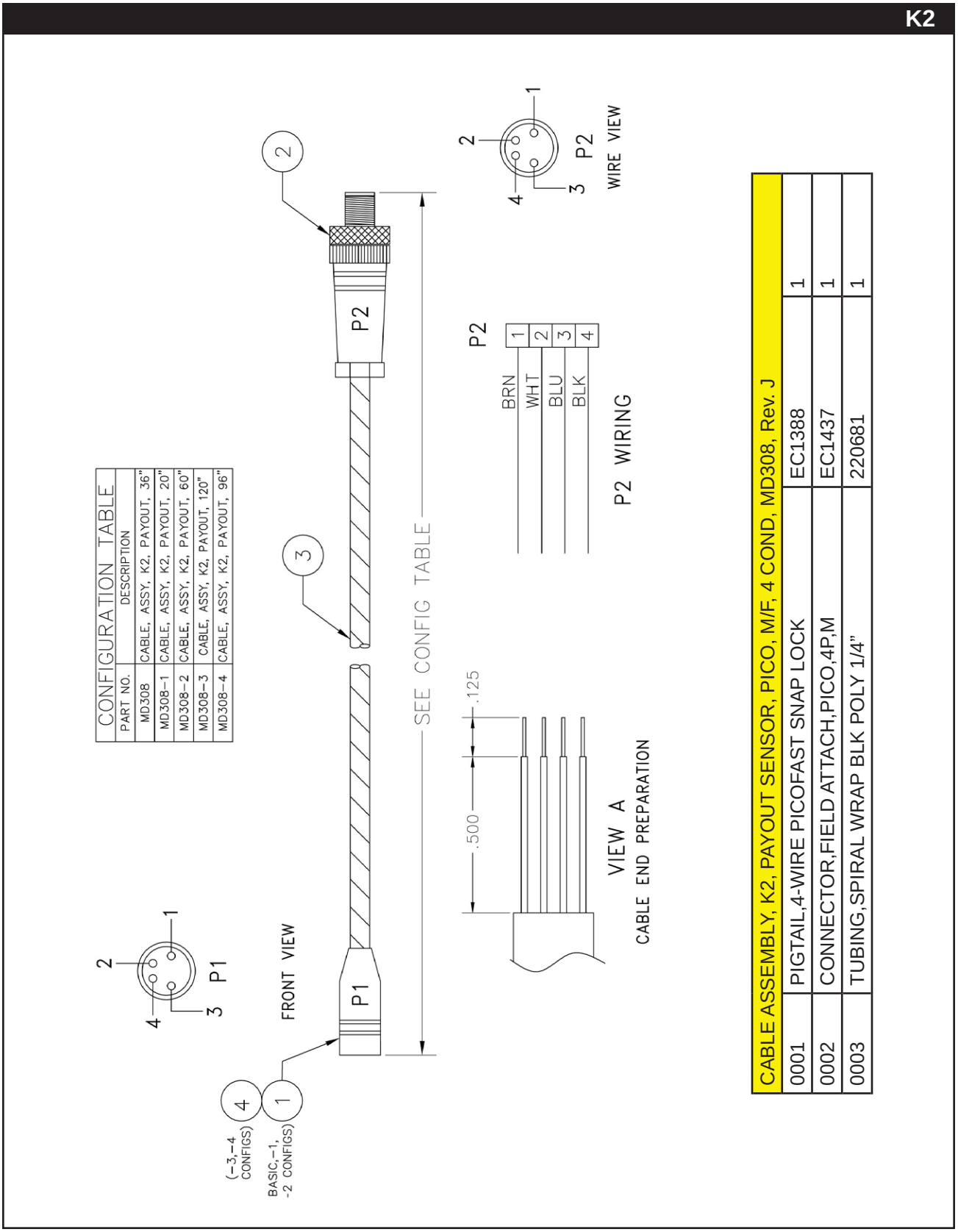
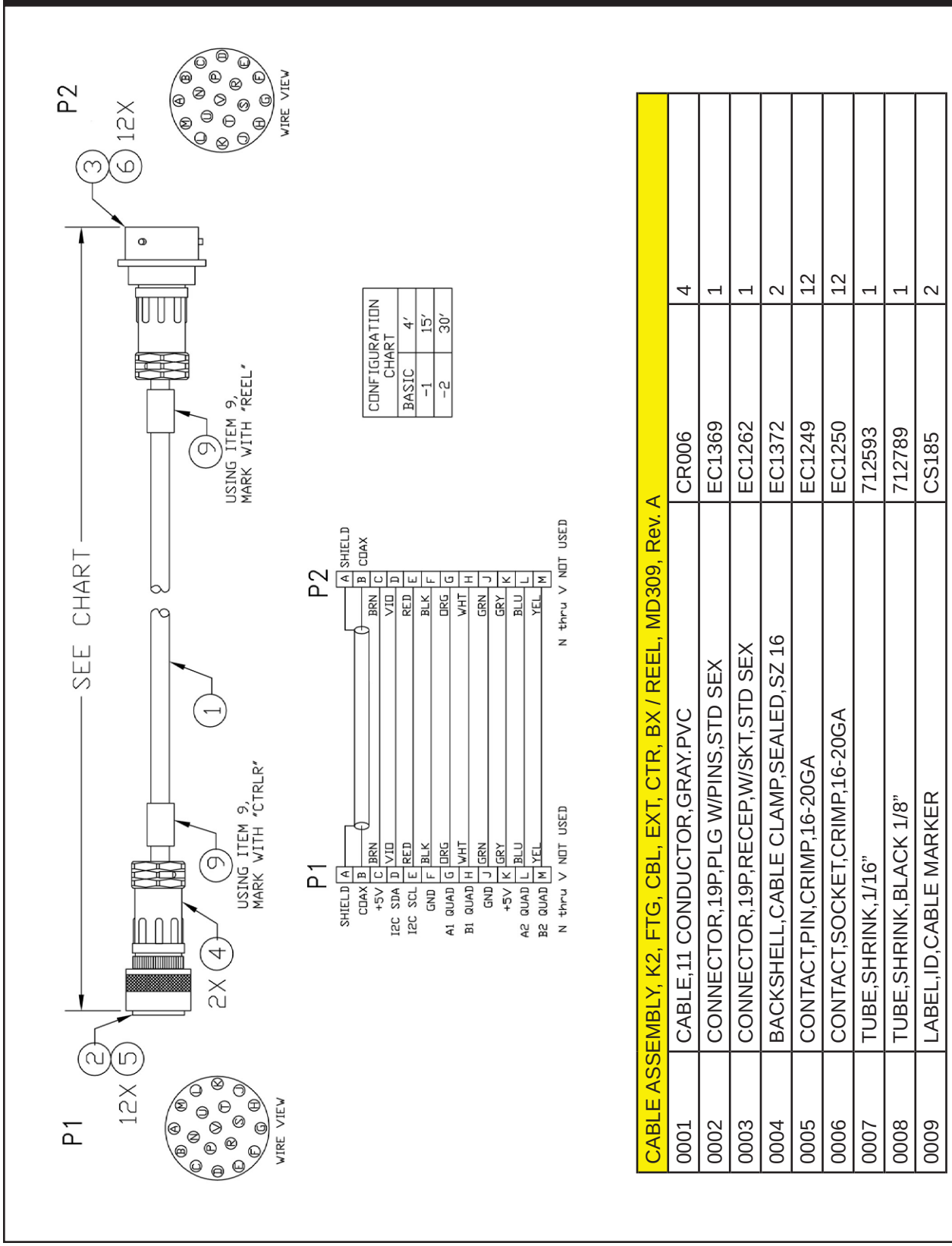


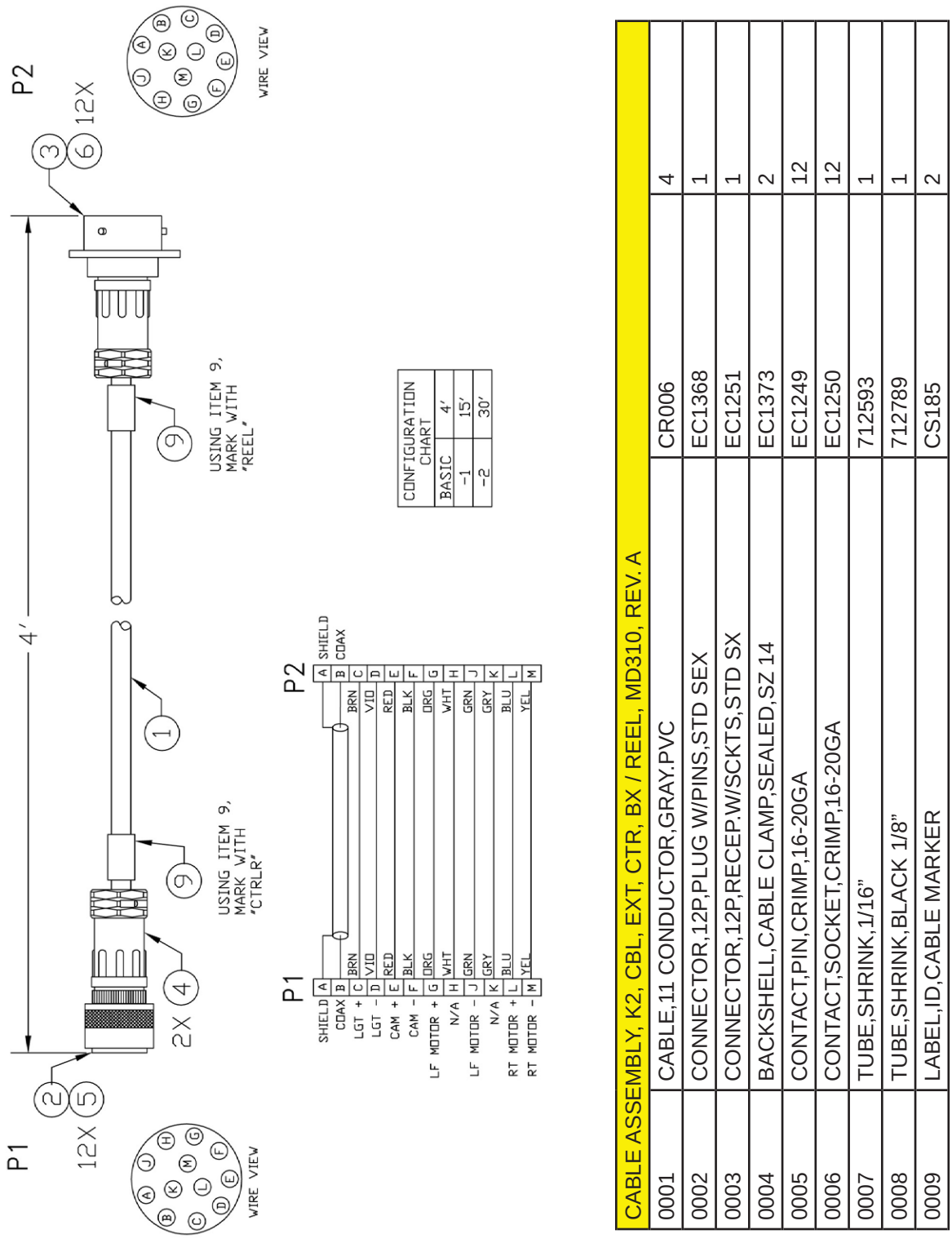
Figure 33:*Cable Assembly, K2, Payout Sensor, PICO, M/F, 4 Cond, MD308*

K2



CABLE ASSEMBLY, K2, FTG, CBL, EXT, CTR, BX / REEL, MD309, Rev. A			
0001	CABLE,11 CONDUCTOR,GRAY.PVC	CR006	4
0002	CONNECTOR,19P,PLG W/PINS,STD SEX	EC1369	1
0003	CONNECTOR,19P,RECEP,W/SKT,STD SEX	EC1262	1
0004	BACKSHELL,CABLE CLAMP,SEALED,SZ 16	EC1372	2
0005	CONTACT,PIN,CRIMP,16-20GA	EC1249	12
0006	CONTACT,SOCKET,CRIMP,16-20GA	EC1250	12
0007	TUBE,SHRINK,1/16"	712593	1
0008	TUBE,SHRINK,BLACK 1/8"	712789	1
0009	LABEL,ID,CABLE MARKER	CS185	2

Figure 34:*Cable Assembly, K2, Ftg, Cbl, Ext, Ctr, BX / Reel, MD309*



CABLE ASSEMBLY, K2, CBL, EXT, CTR, BX / REEL, MD310, REV. A		
0001	CABLE,11 CONDUCTOR,GRAY,PVC	CR006	4
0002	CONNECTOR,12P,PLUG W/PINS,STD SEX	EC1368	1
0003	CONNECTOR,12P,RECEP.W/SCKTS,STD SX	EC1251	1
0004	BACKSHELL,CABLE CLAMP,SEALED,SZ 14	EC1373	2
0005	CONTACT,PIN,CRIMP,16-20GA	EC1249	12
0006	CONTACT,SOCKET,CRIMP,16-20GA	EC1250	12
0007	TUBE,SHRINK,1/16"	712593	1
0008	TUBE,SHRINK,BLACK 1/8"	712789	1
0009	LABEL,ID,CABLE MARKER	CS185	2

Figure 35:*Cable Assembly, K2, Cbl, Ext, Ctr, BX / Reel, MD310*

K2

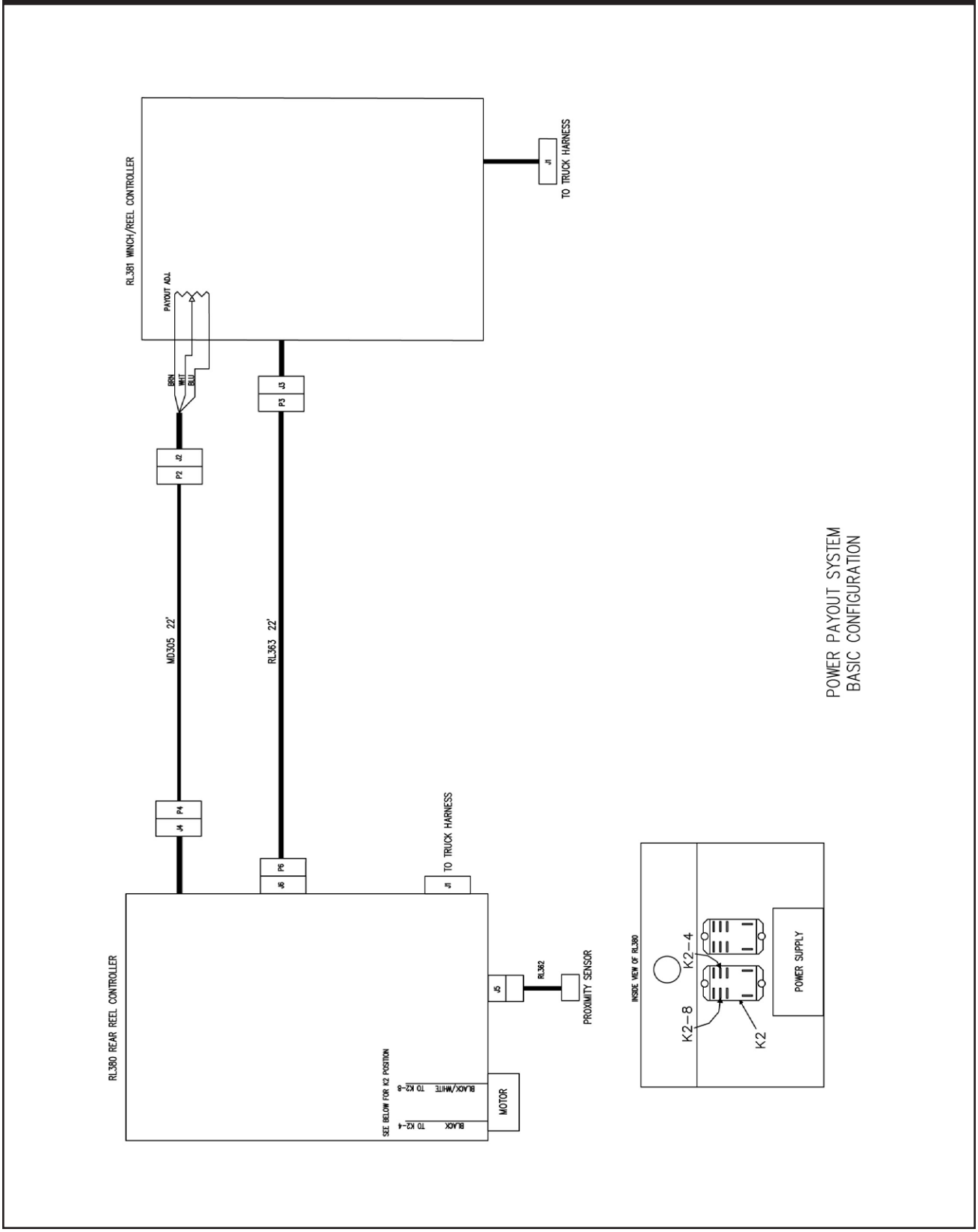


Figure 36a:*Instruction Sheet, Power Payout, MD903-INST*

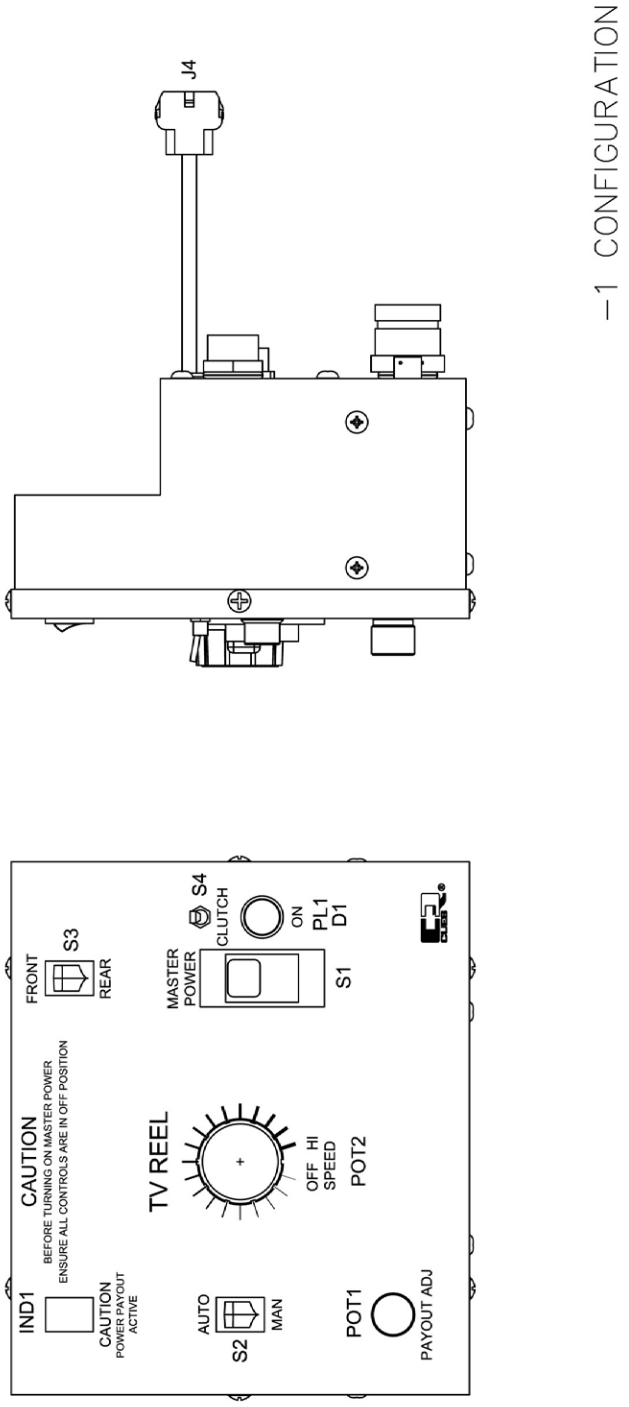
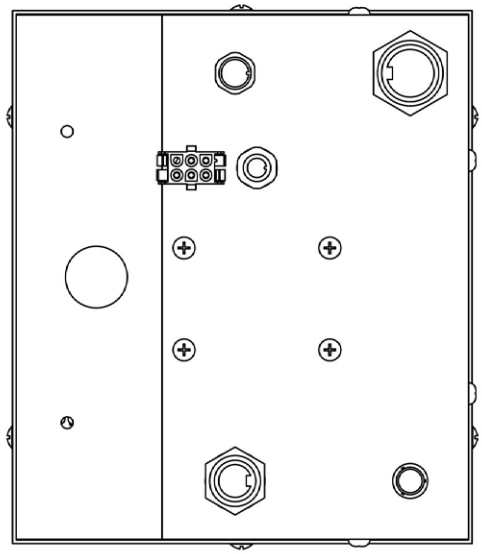


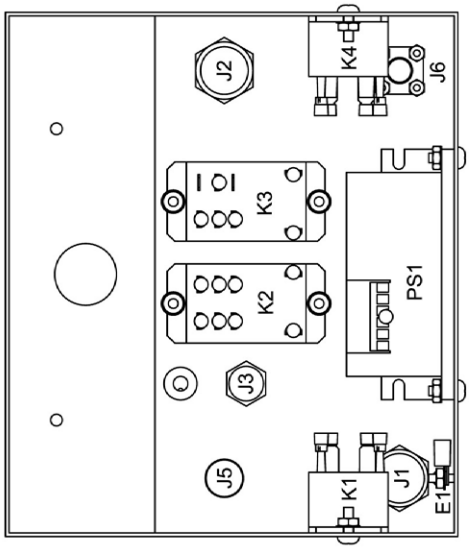
Figure 36b:Instruction Sheet, Power Payout, MD903-INST

K2



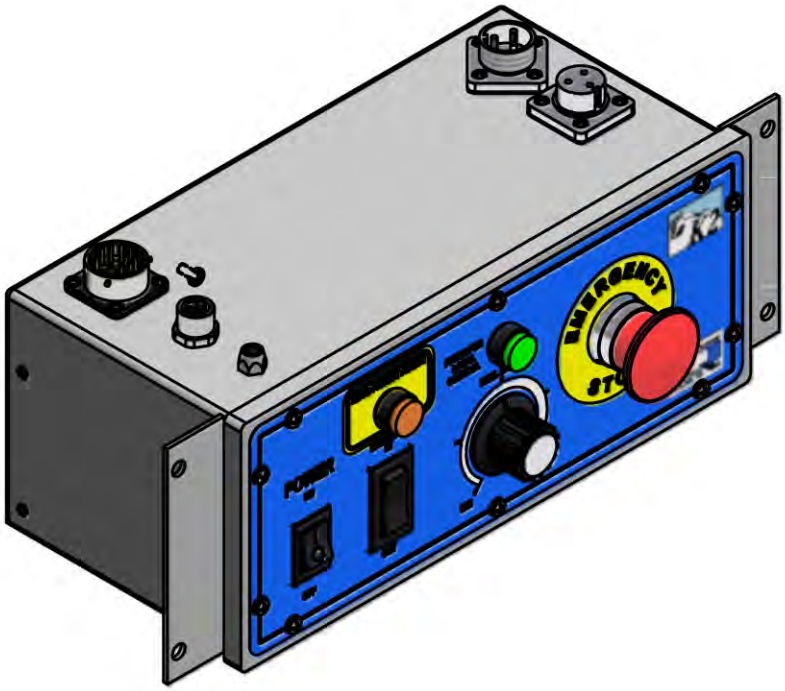
REAR VIEW OF CONTROLLER ASSEMBLY
NOTE CONNECTOR KEYWAY ORIENTATION

-1 CONFIGURATION



FRONT PANEL AND ASSOCIATED
PARTS REMOVED FOR CLARITY

***Figure 36c**:Instruction Sheet, Power Payout, MD903-INST*



CONFIGURATION LIST	
PART NUMBER	DESCRIPTION
MD316	CONTROLLER, ENCLOSURE ASSY, TRUCK MOUNT, K2, 110 VAC
MD316-1	CONTROLLER, ENCLOSURE ASSY, TRUCK MOUNT, K2, 220 VAC
MD316-2	CONTROLLER,ENCLOSURE ASSY,TRUCK MOUNT,K2,110 VAC,BLK
MD316-3	CONTROLLER,ENCLOSURE ASSY,TRUCK MOUNT,K2,220 VAC,BLK

***Figure 37a**:Controller Assembly, Reel, Truck Mount, MD316*

K2

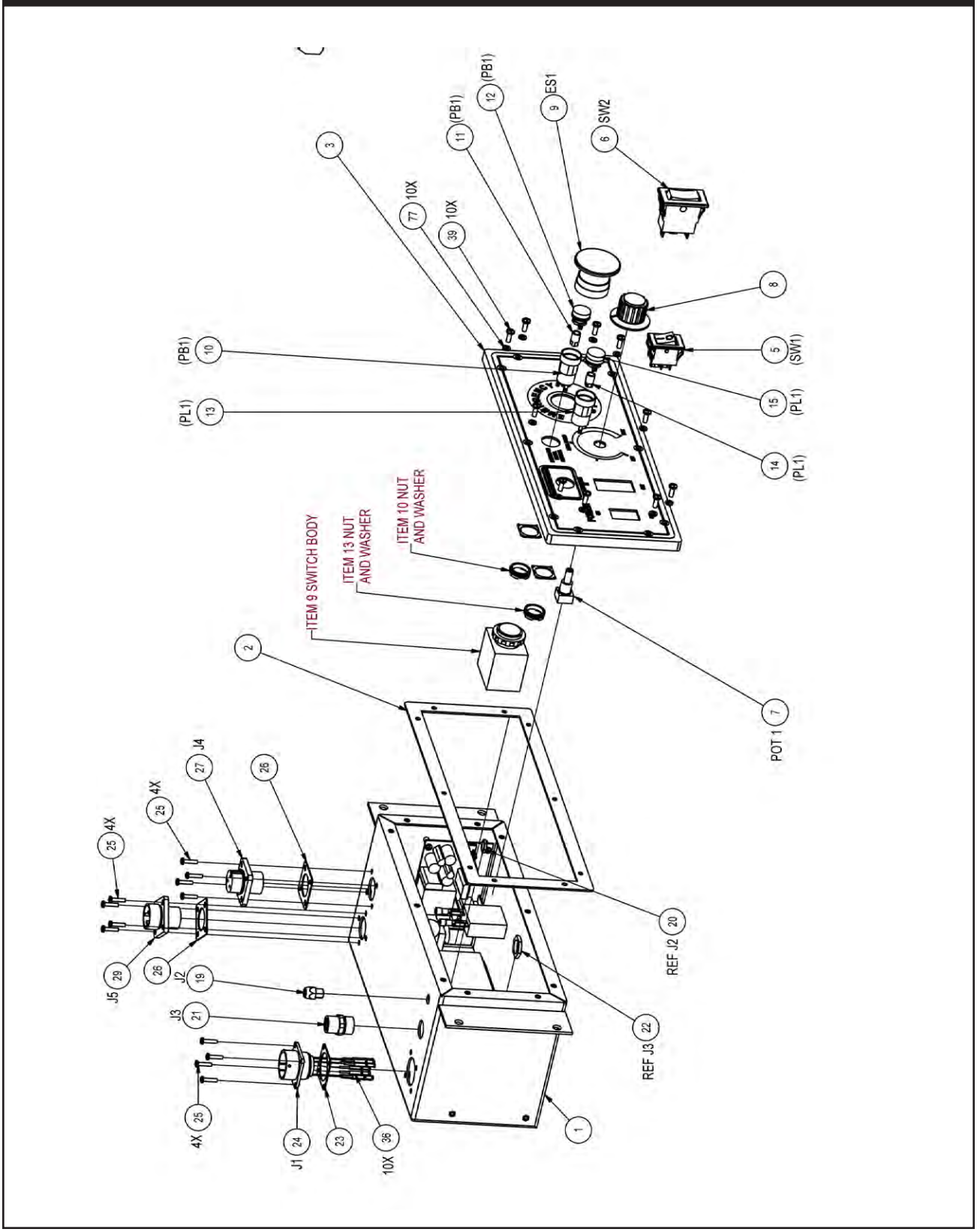


Figure 37b:*Controller Assembly, Reel, Truck Mount, MD316*

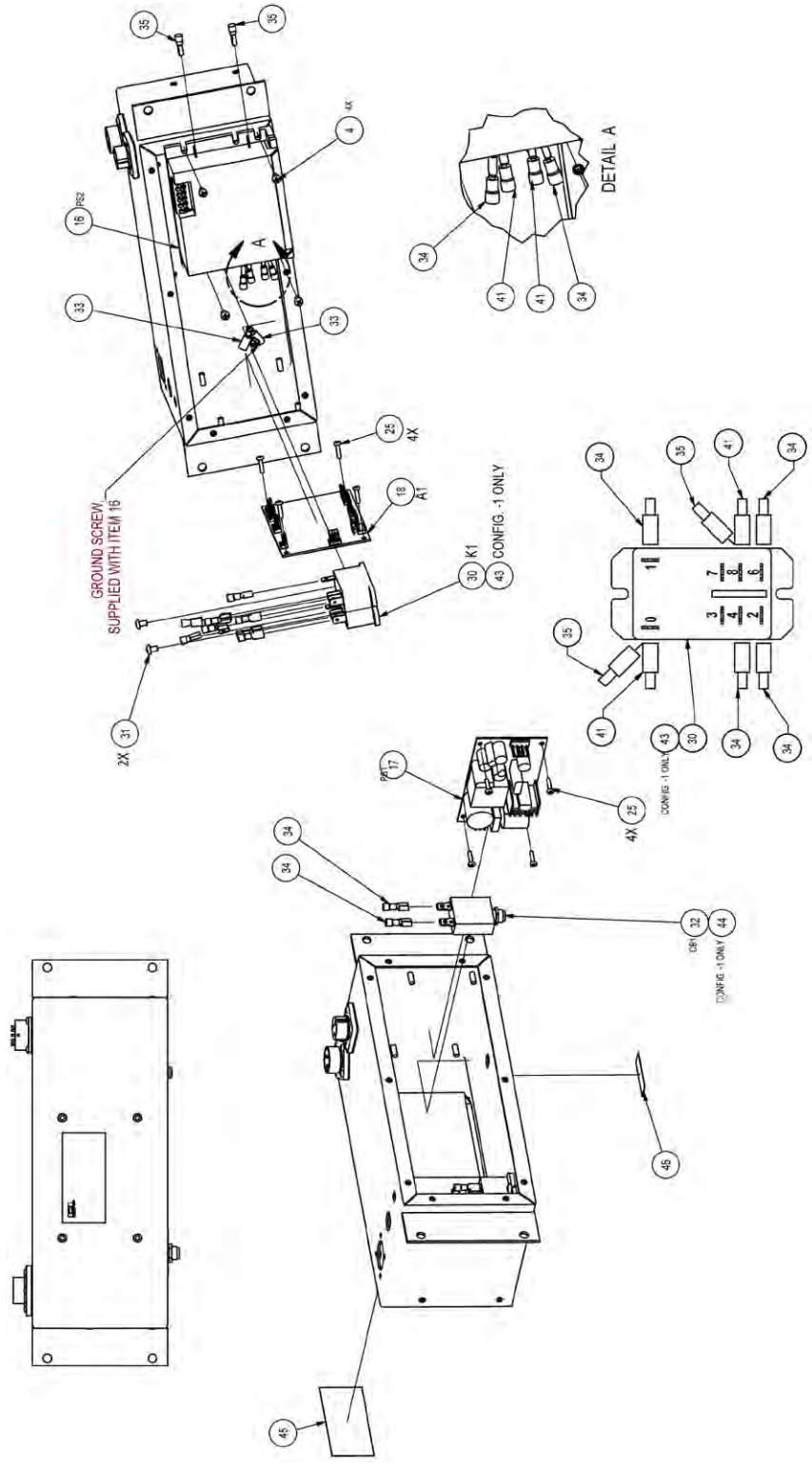
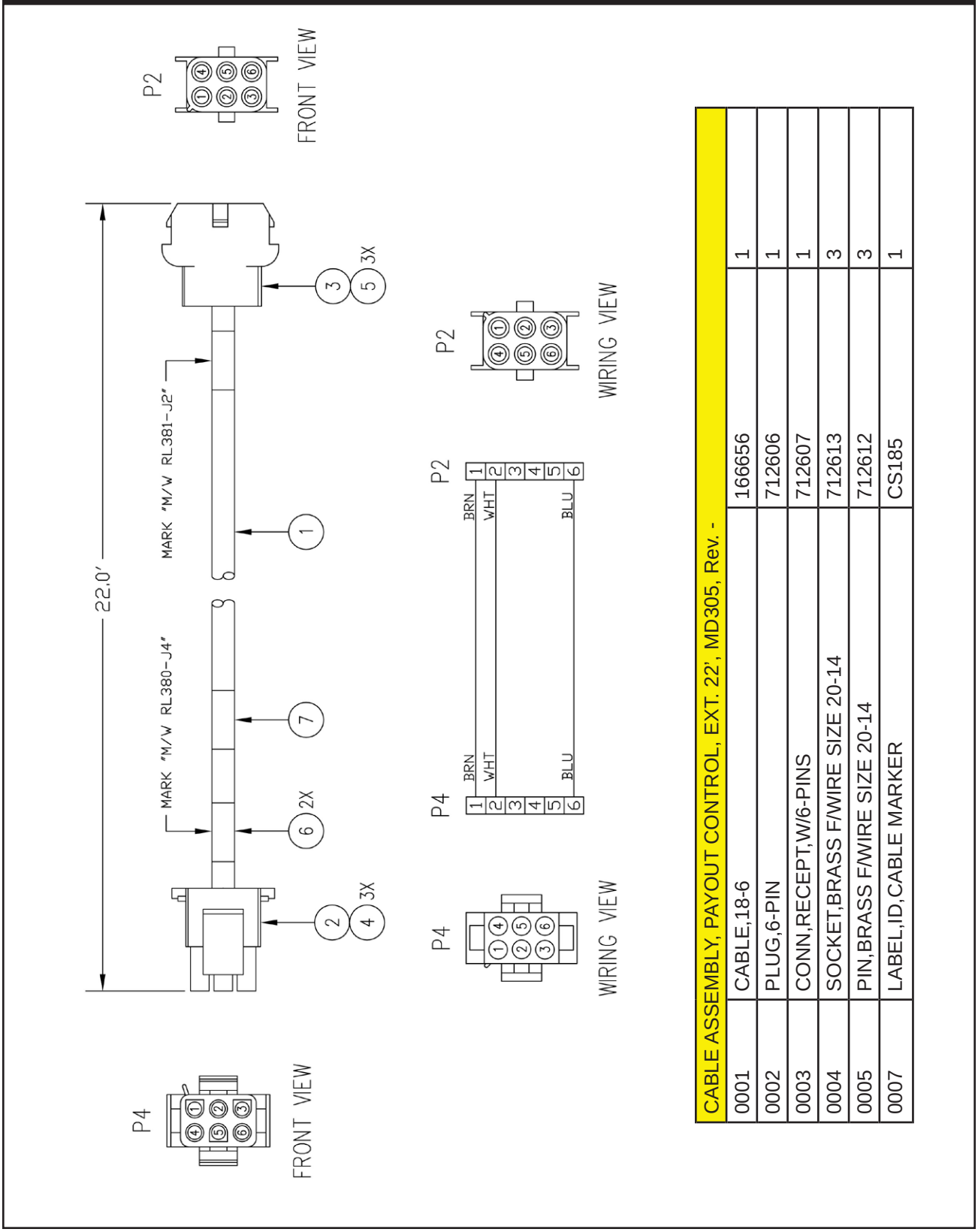


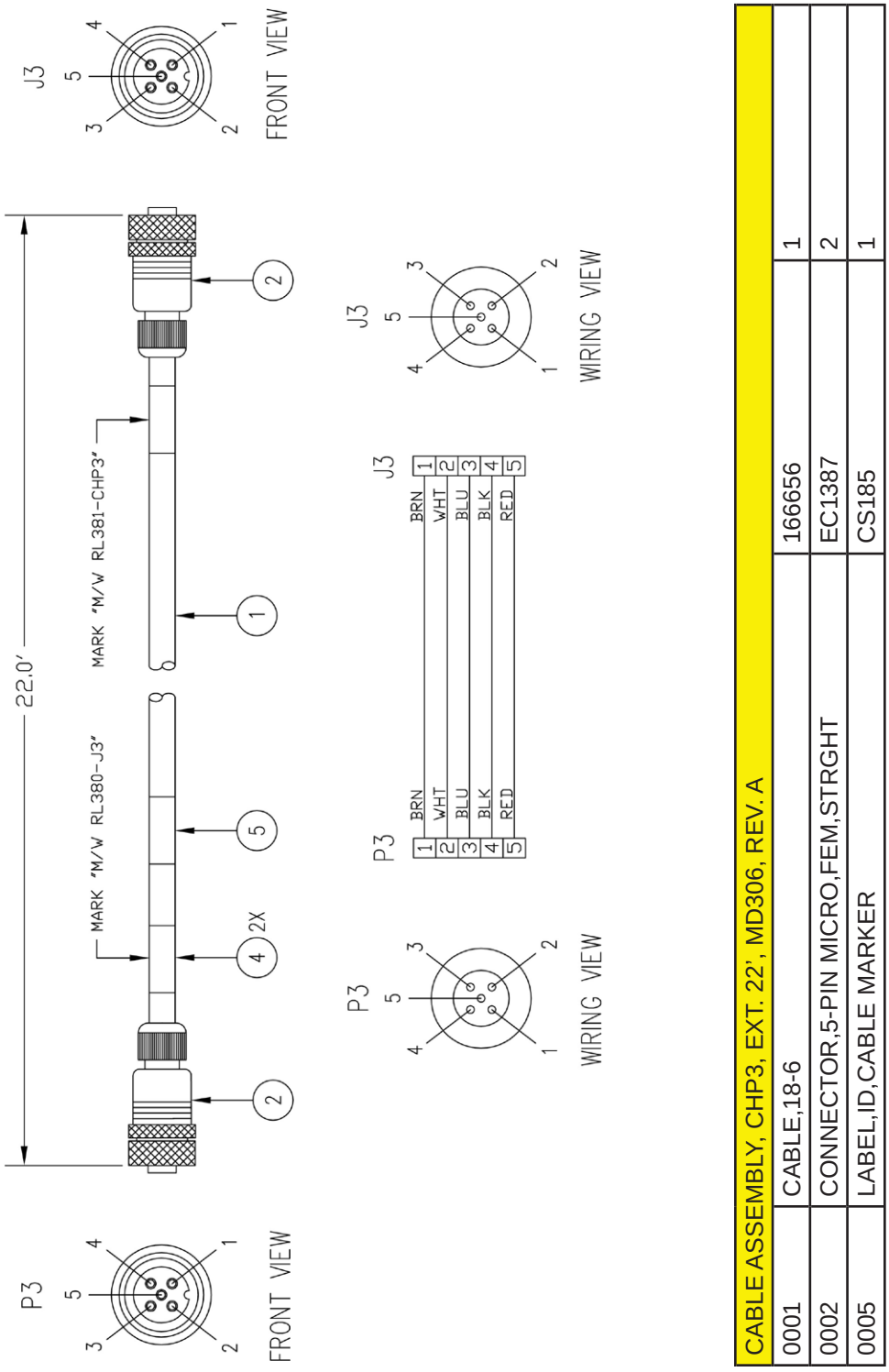
Figure 37c:*Controller Assembly, Reel, Truck Mount, MD316*

K2



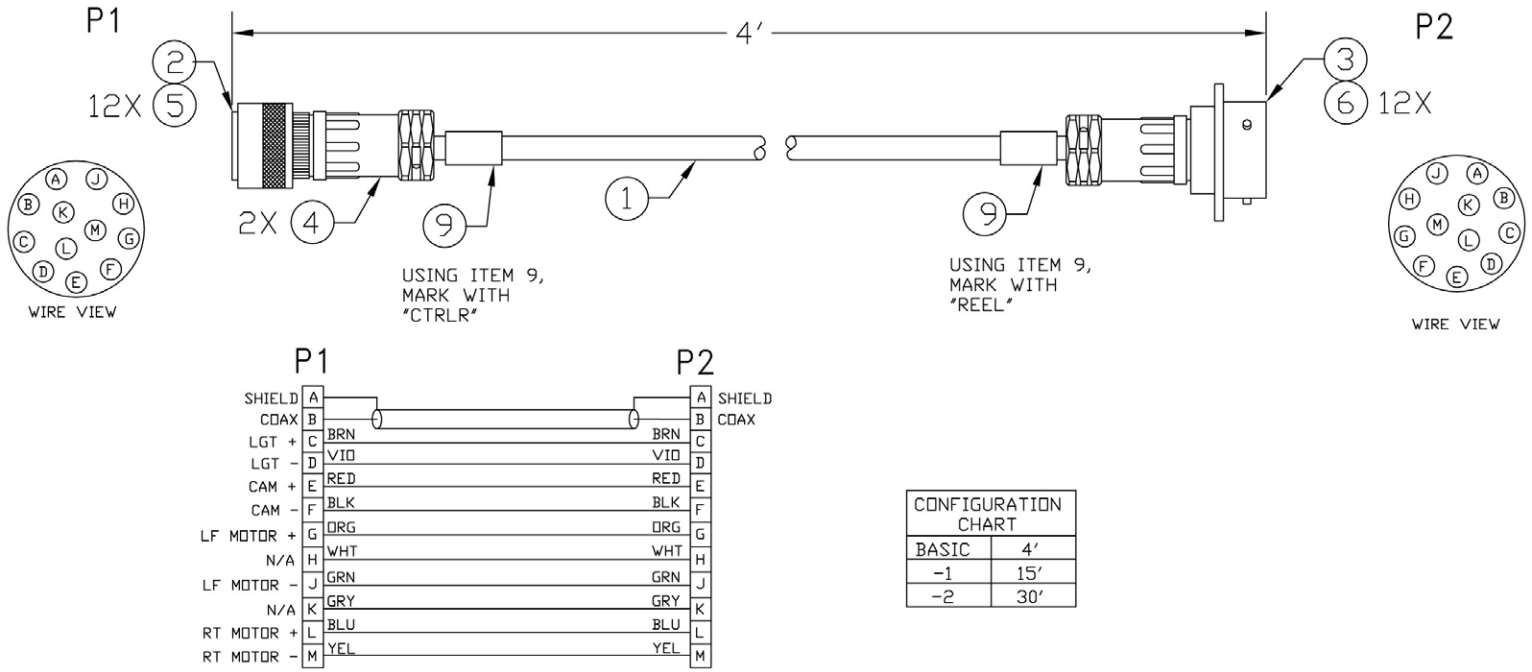
CABLE ASSEMBLY, PAYOUT CONTROL, EXT. 22', MD305, Rev. -			
0001	CABLE,18-6	166656	1
0002	PLUG,6-PIN	712606	1
0003	CONN,RECEPT,W/6-PINS	712607	1
0004	SOCKET,BRASS F/WIRE SIZE 20-14	712613	3
0005	PIN,BRASS F/WIRE SIZE 20-14	712612	3
0007	LABEL,ID,CABLE MARKER	CS185	1

Figure 38:*Cable Assembly, Payout Control, Ext. 22', MD305*



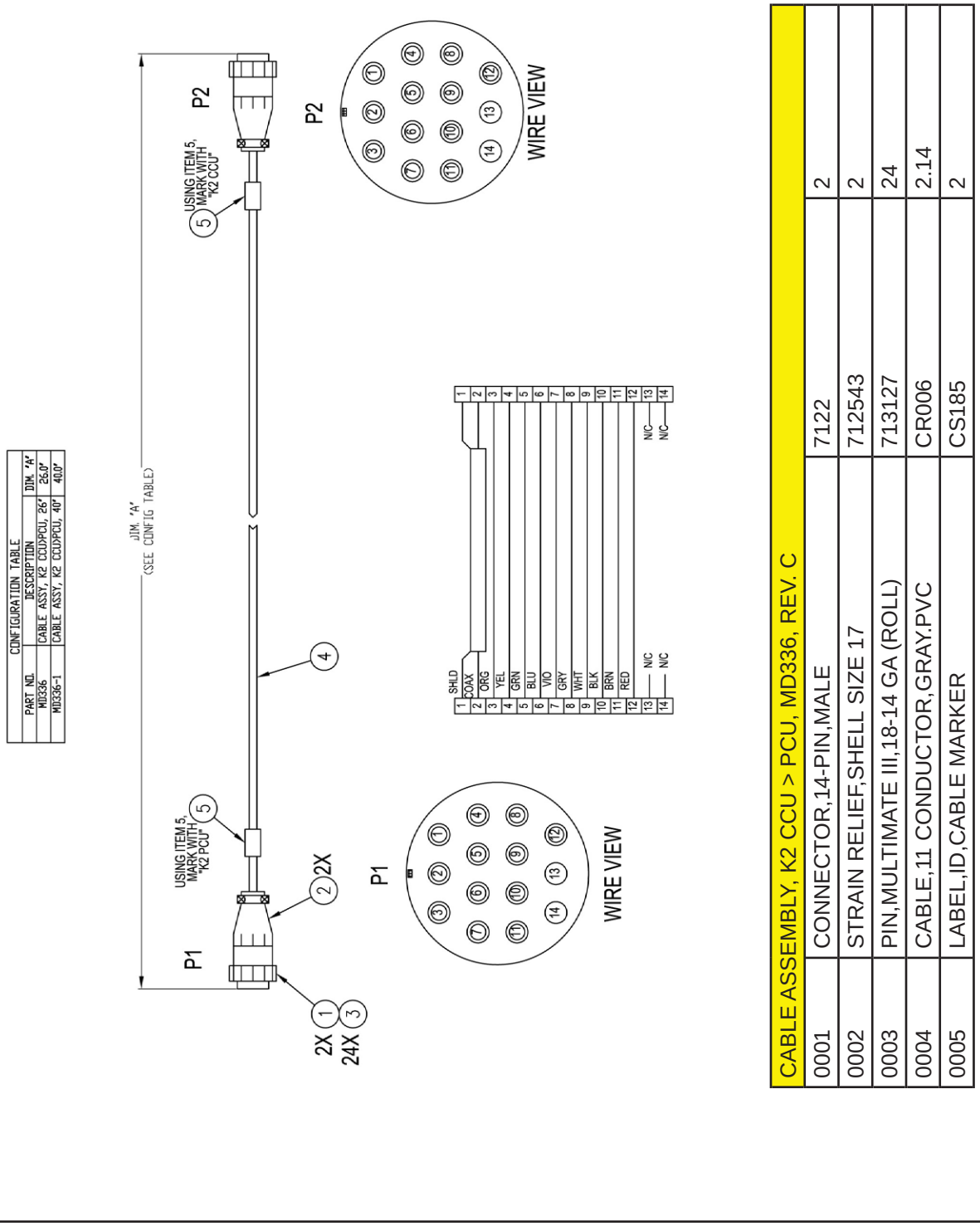
CABLE ASSEMBLY, CHP3, EXT. 22', MD306, REV. A			
0001	CABLE,18-6	166656	1
0002	CONNECTOR,5-PIN MICRO,FEM,STRGHT	EC1387	2
0005	LABEL,ID,CABLE MARKER	CS185	1

Figure 39:*Cable Assembly, CHP3, Ext. 22', MD306*



CABLE ASSEMBLY, K2, CBL, EXT, CTRL, BX / REEL, MD310, REV. A			
0001	CABLE,11 CONDUCTOR,GRAY.PVC	CR006	4
0002	CONNECTOR,12P,PLUG W/PINS,STD SEX	EC1368	1
0003	CONNECTOR,12P,RECEP.W/SCKTS,STD SX	EC1251	1
0004	BACKSHELL,CABLE CLAMP,SEALED,SZ 14	EC1373	2
0005	CONTACT,PIN,CRIMP,16-20GA	EC1249	12
0006	CONTACT,SOCKET,CRIMP,16-20GA	EC1250	12
0007	TUBE,SHRINK,1/16”	712593	1
0008	TUBE,SHRINK,BLACK 1/8”	712789	1
0009	LABEL,ID,CABLE MARKER	CS185	2

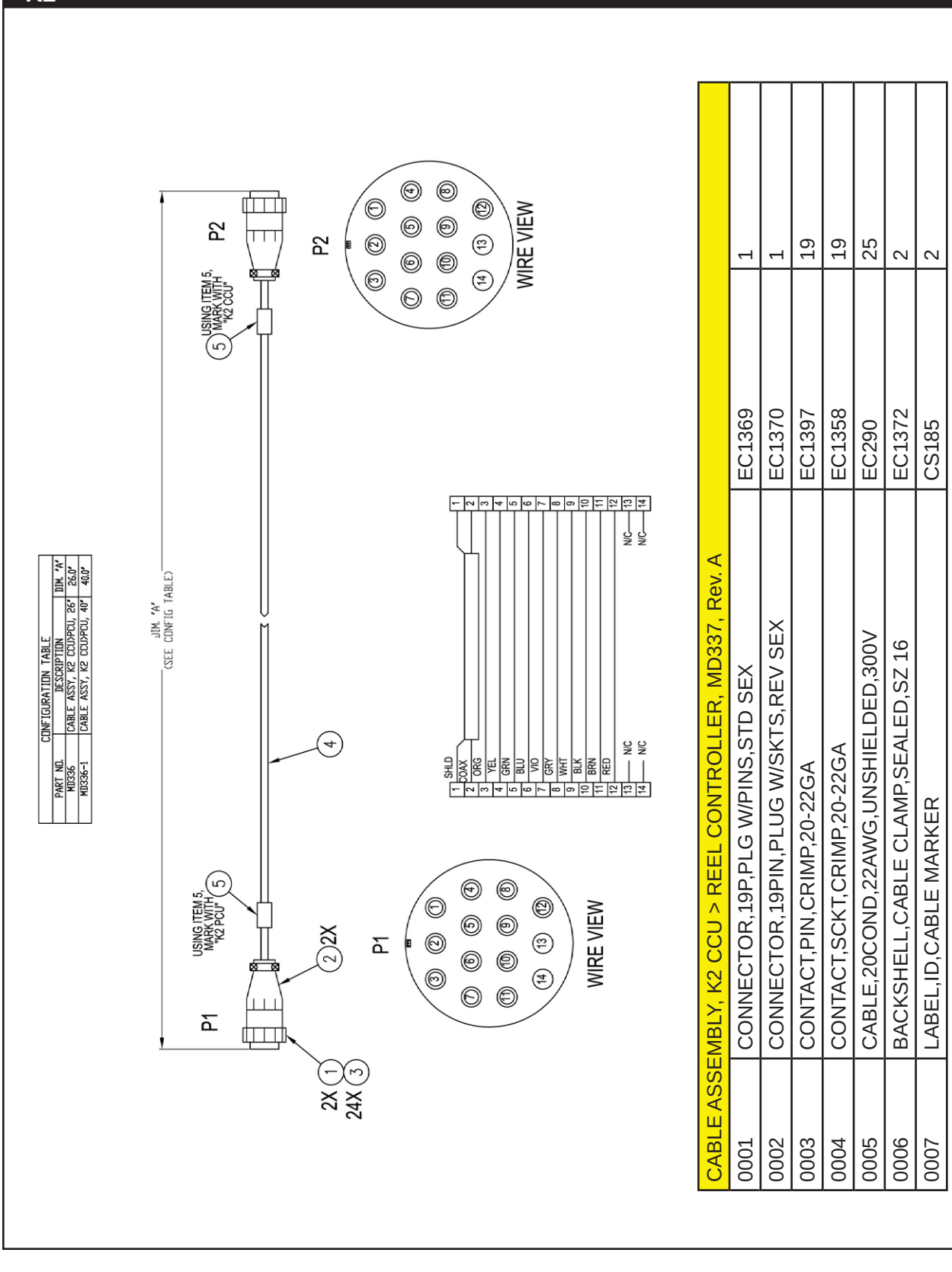
Figure 40:*Cable Assembly, K2, Cbl, Ext, Ctrl, BX / Reel, MD310*



CABLE ASSEMBLY, K2 CCU > PCU, MD336, REV. C			
0001	CONNECTOR,14-PIN,MALE	7122	2
0002	STRAIN RELIEF,SHELL SIZE 17	712543	2
0003	PIN,MULTIMATE III,18-14 GA (ROLL)	713127	24
0004	CABLE,11 CONDUCTOR,GRAY,PVC	CR006	2.14
0005	LABEL,ID,CABLE MARKER	CS185	2

***Figure 41**:Cable Assembly, K2 CCU > PCU, MD336*

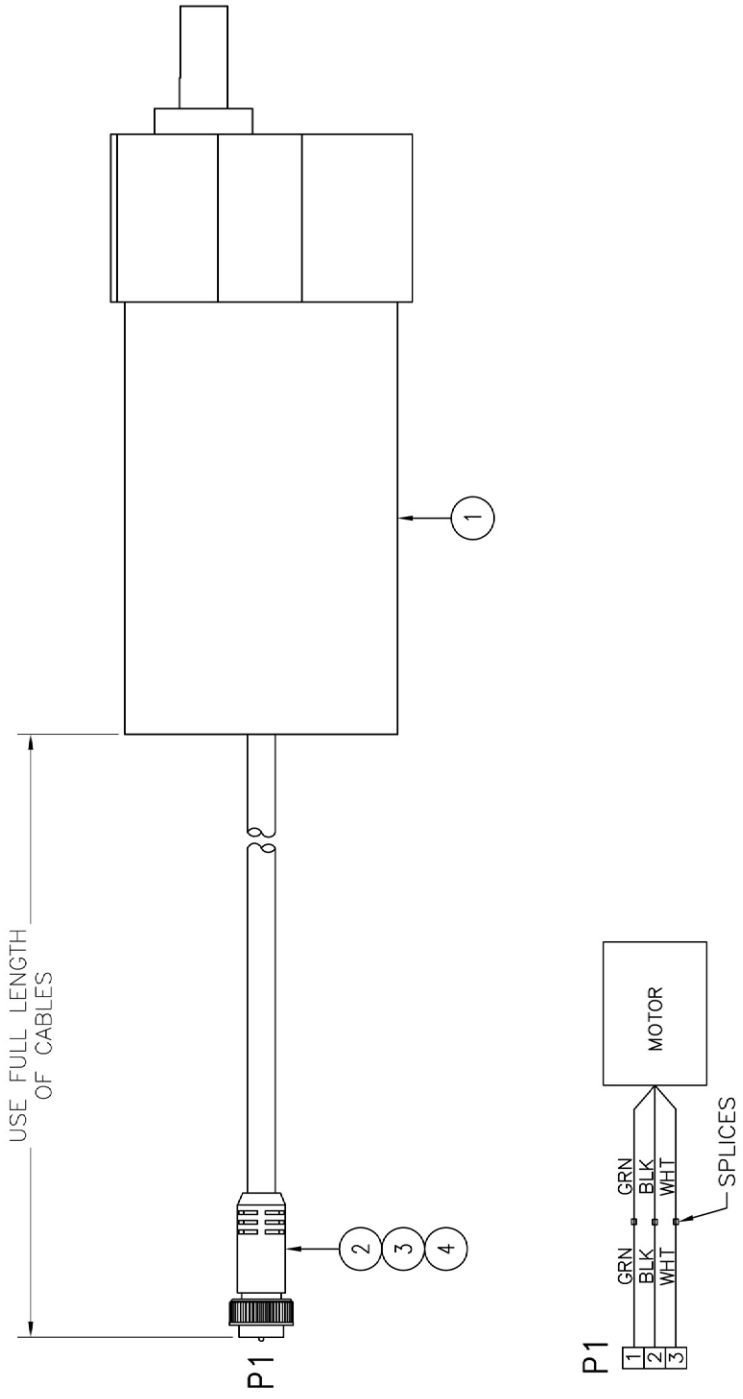
K2



CABLE ASSEMBLY, K2 CCU > REEL CONTROLLER, MD337, Rev. A			
0001	CONNECTOR,19P,PLG W/PINS,STD SEX	EC1369	1
0002	CONNECTOR,19PIN,PLUG W/SKTS,REV SEX	EC1370	1
0003	CONTACT,PIN,CRIMP,20-22GA	EC1397	19
0004	CONTACT,SCKT,CRIMP,20-22GA	EC1358	19
0005	CABLE,20COND,22AWG,UNSHIELDED,300V	EC290	25
0006	BACKSHELL,CABLE CLAMP,SEALED,SZ 16	EC1372	2
0007	LABEL,ID,CABLE MARKER	CS185	2

Figure 42:*Cable Assembly, K2 CCU > Reel Controller, MD337*

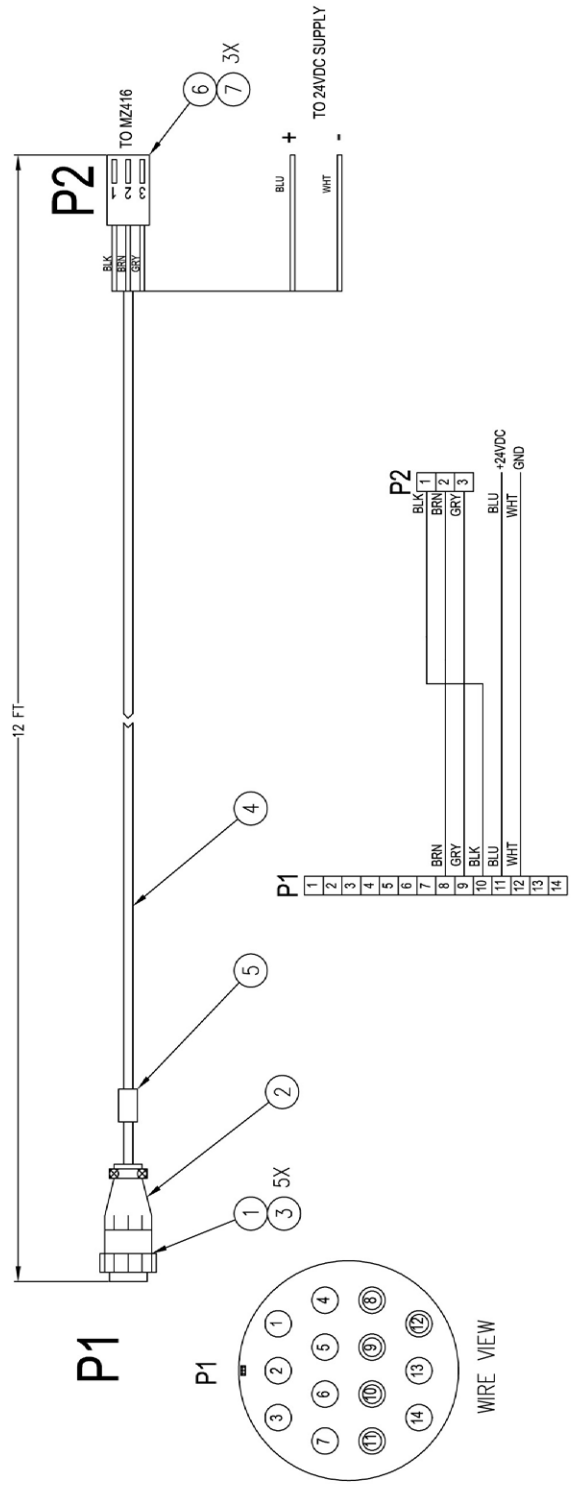
K2



TEST MOTOR ASSEMBLY, 130VDC, K2, MD369, REV. -			
0001	MOTOR,ELEC,1/4 HP DC BODINE	EL224	1
0002	CORDSET,3P,M,MINI,3',SINGLE END	EC1436	1
0003	TUBE,SHRINK,BLACK 1/2"SCL	712581	1
0004	TUBE,SHRINK,BLACK 3/16"RNF	712577	1

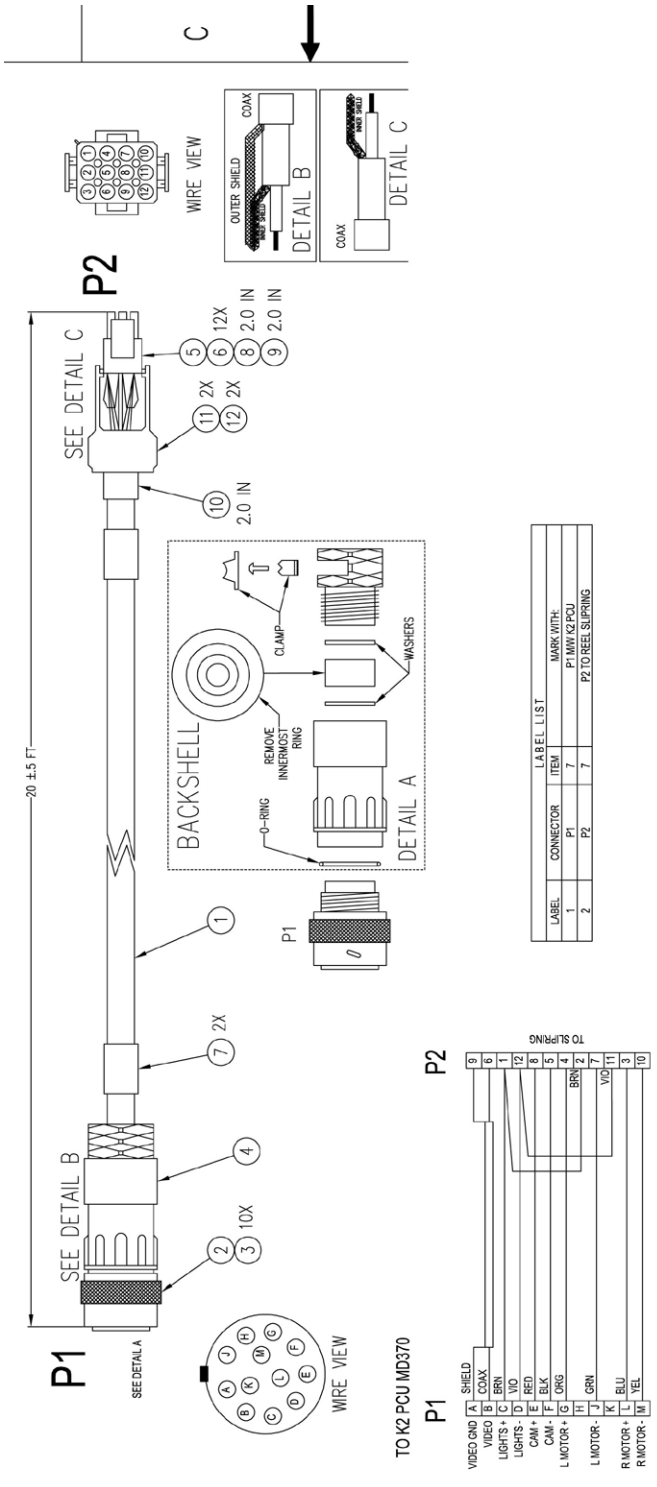
Figure 43:*Test Motor Assembly, 130VDC, K2, MD369*

K2



CABLE ASSEMBLY, K2, TEST, 12C, PCU, MD338, REV. -			
0001	CONNECTOR,14-PIN,MALE	7122	1
0002	STRAIN RELIEF,SHELL SIZE 17	712543	1
0003	PIN,MULTIMATE III,24-20 GA	7132	5
0004	CABLE,2 COND STRANDED,22GA.SHEILDED	EC1010	1
0005	LABEL,ID,CABLE MARKER	CS185	1
0006	HOUSING,3-PIN LOCKING	730165	1
0007	TERMINAL,CRIMP 22-30 GAUGE WIRE	730113	3

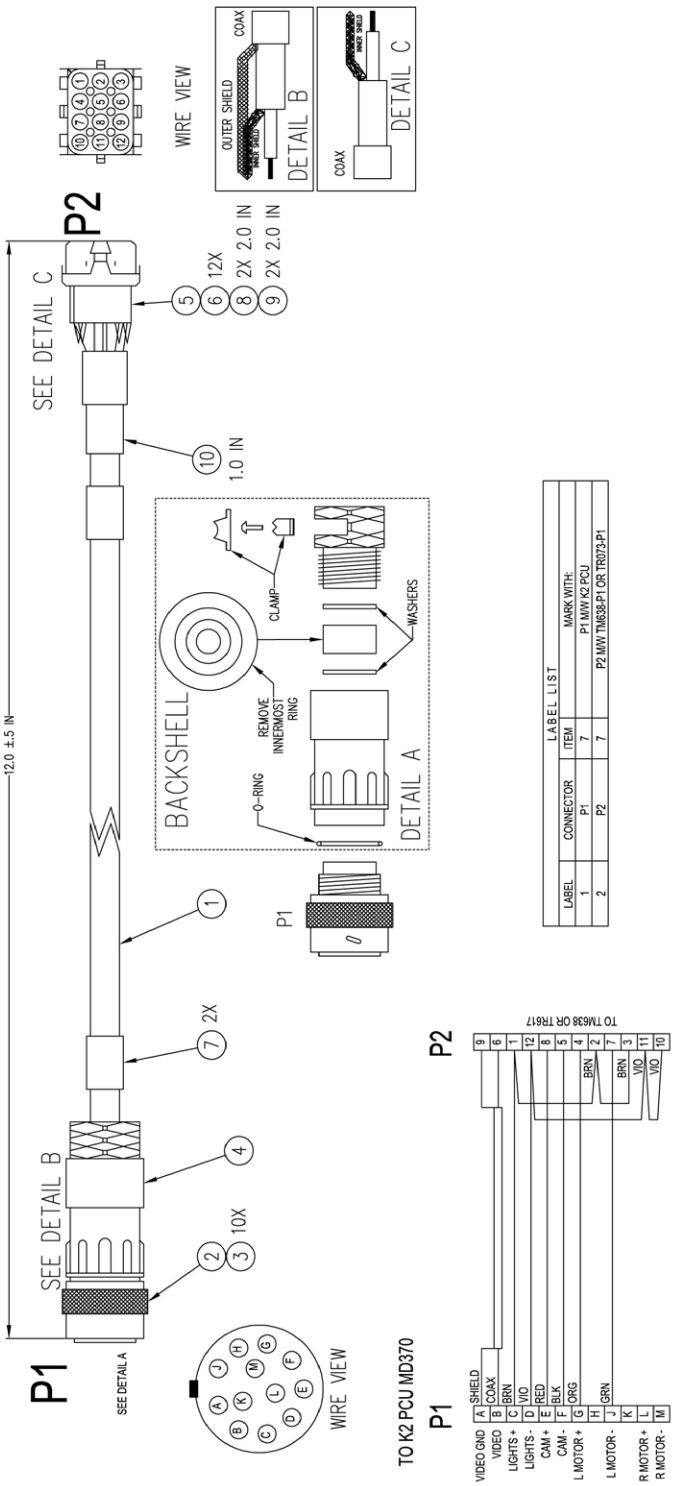
Figure 44: *Cable Assembly, K2, Test, 12C, PCU, MD338*



CABLE ASSEMBLY, K2, PCU > SLIPRING, MD339, REV. -			
0001	CABLE,11 CONDUCTOR,GRAY.PVC	CR006	20
0002	CONNECTOR,12P,PLUG W/PINS,STD SEX	EC1368	1
0003	CONTACT,PIN,CRIMP,16-20GA	EC1249	10
0004	BACKSHELL,CABLE CLAMP,SEALED,SZ 14	EC1373	1
0005	PLUG,12-PIN	712610	1
0006	SOCKET,BRASS F/WIRE SIZE 20-14	712613	12
0007	LABEL,ID,CABLE MARKER	CS185	2
0008	WIRE,#18AWG BROWN,PVC	EL366	1
0009	WIRE,#18 VIOLET	161655	1
0010	TUBE,SHRINK,BLACK 1/2"SCL	712581	1
0011	STRAIN RELIEF,CONN.,.500	712627	2
0012	SCREW,F/MK-15 MOUNTING KIT 6X5/8HEX	712386	2

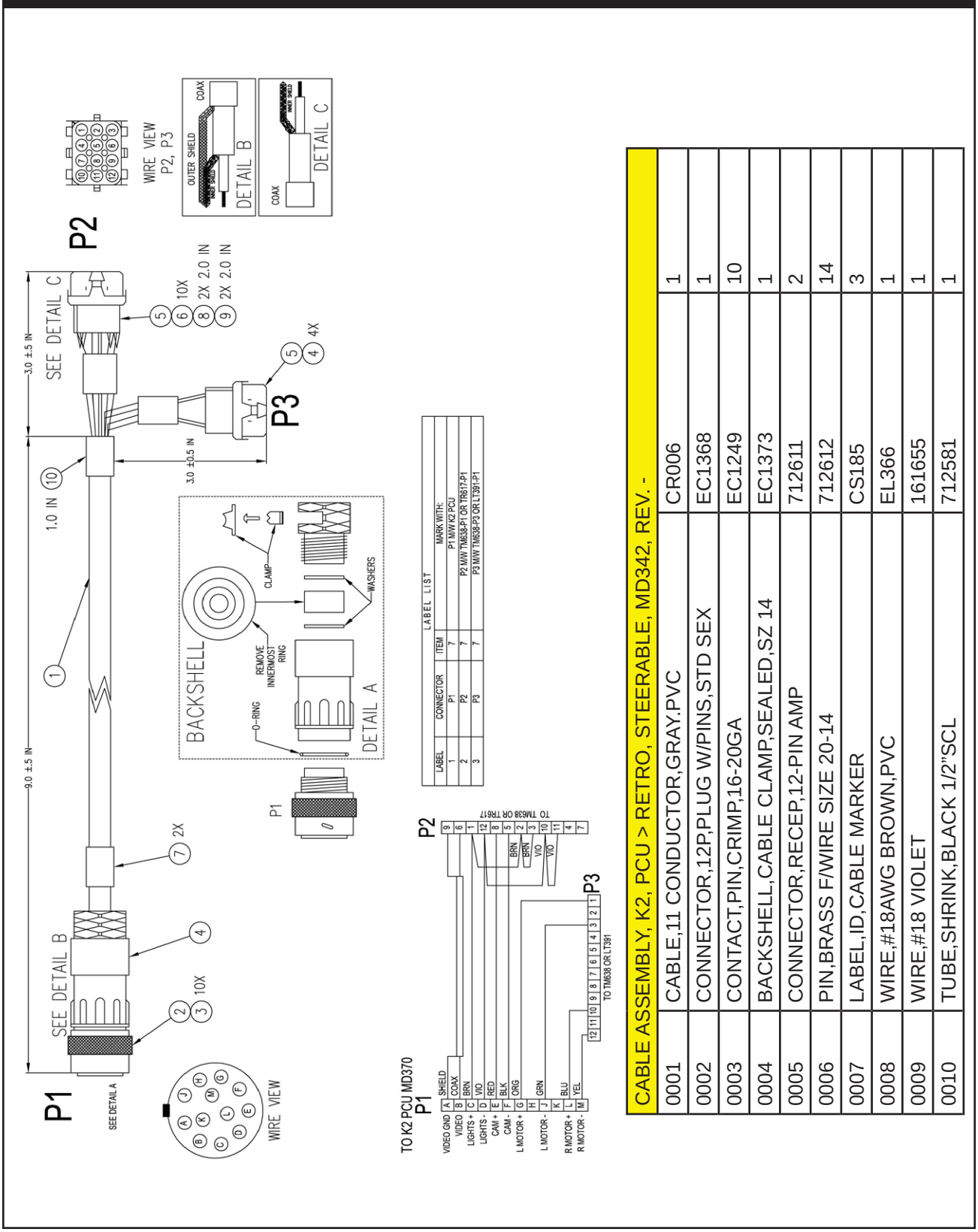
Figure 45: *Cable Assembly, K2, PCU > Slipring, MD339*

K2



CABLE ASSEMBLY, K2, PCU > RETRO, TV, MD341, REV. -			
0001	CABLE,11 CONDUCTOR,GRAY,PVC	CR006	1
0002	CONNECTOR,12P,PLUG W/PINS,STD SEX	EC1368	1
0003	CONTACT,PIN,CRIMP,16-20GA	EC1249	10
0004	BACKSHELL,CABLE CLAMP,SEALED,SZ 14	EC1373	1
0005	CONNECTOR,RECEP,12-PIN AMP	712611	2
0006	PIN,BRASS F/WIRE SIZE 20-14	712612	12
0007	LABEL,ID,CABLE MARKER	CS185	2
0008	WIRE,#18AWG BROWN,PVC	EL366	1
0009	WIRE,#18 VIOLET	161655	1
0010	TUBE,SHRINK,BLACK 1/2"SCL	712581	1

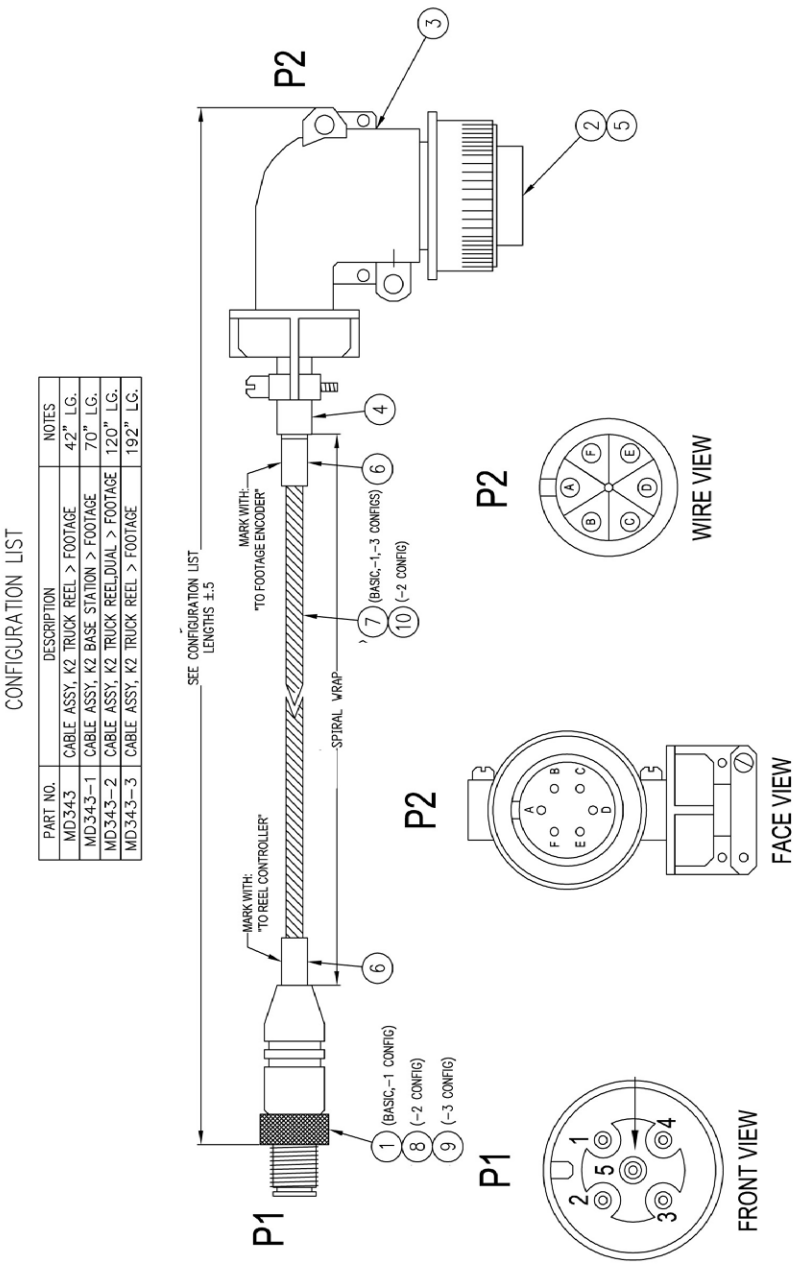
Figure 46: *Cable Assembly, K2, PCU > Retro, TV, MD341*



CABLE ASSEMBLY, K2, PCU > RETRO, STEERABLE, MD342, REV. -			
0001	CABLE,11 CONDUCTOR,GRAY,PVC	CR006	1
0002	CONNECTOR,12P,PLUG W/PINS,STD SEX	EC1368	1
0003	CONTACT,PIN,CRIMP,16-20GA	EC1249	10
0004	BACKSHELL,CABLE CLAMP,SEALED,SZ 14	EC1373	1
0005	CONNECTOR,RECEP,12-PIN AMP	712611	2
0006	PIN,BRASS F/WIRE SIZE 20-14	712612	14
0007	LABEL,ID,CABLE MARKER	CS185	3
0008	WIRE,#18AWG BROWN,PVC	EL366	1
0009	WIRE,#18 VIOLET	161655	1
0010	TUBE,SHRINK,BLACK 1/2"SCL	712581	1

Figure 47: *Cable Assembly, K2, PCU > Retro, Steerable, MD342*

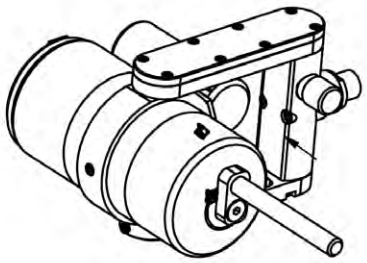
K2



CABLE ASSEMBLY, K2 TRUCK REEL > FOOTAGE, MD343, REV. C			
0001	PIGTAIL,MICRO,5P,STR,2M	EC1181	1
0002	PLUG,90 DEGREE ELBOW 6-PIN	712140	1
0003	CLAMP,F/14S SHELL(BAGGED)	712497	1
0004	TUBE,SHRINK,BLACK 1/2"SCL	712581	1
0005	TUBE,SHRINK,BLACK 3/32"	712595	1
0006	LABEL,ID,CABLE MARKER	CS185	2
0007	TUBING,SPIRAL WRAP BLK POLY 1/4"	220681	1

Figure 48: *Cable Assembly, K2 Truck Reel > Footage, MD343*





CONFIGURATION LIST	
PART NUMBER	DESCRIPTION
QE300	CAMERA, NTSC, QZ2
QE300-1	CAMERA, PAL, QZ2
QE300-2	CAMERA, NTSC, FOR WIDE ANGLE LENS, QZ2
QE300-3	CAMERA, PAL, FOR WIDE ANGLE LENS, QZ2

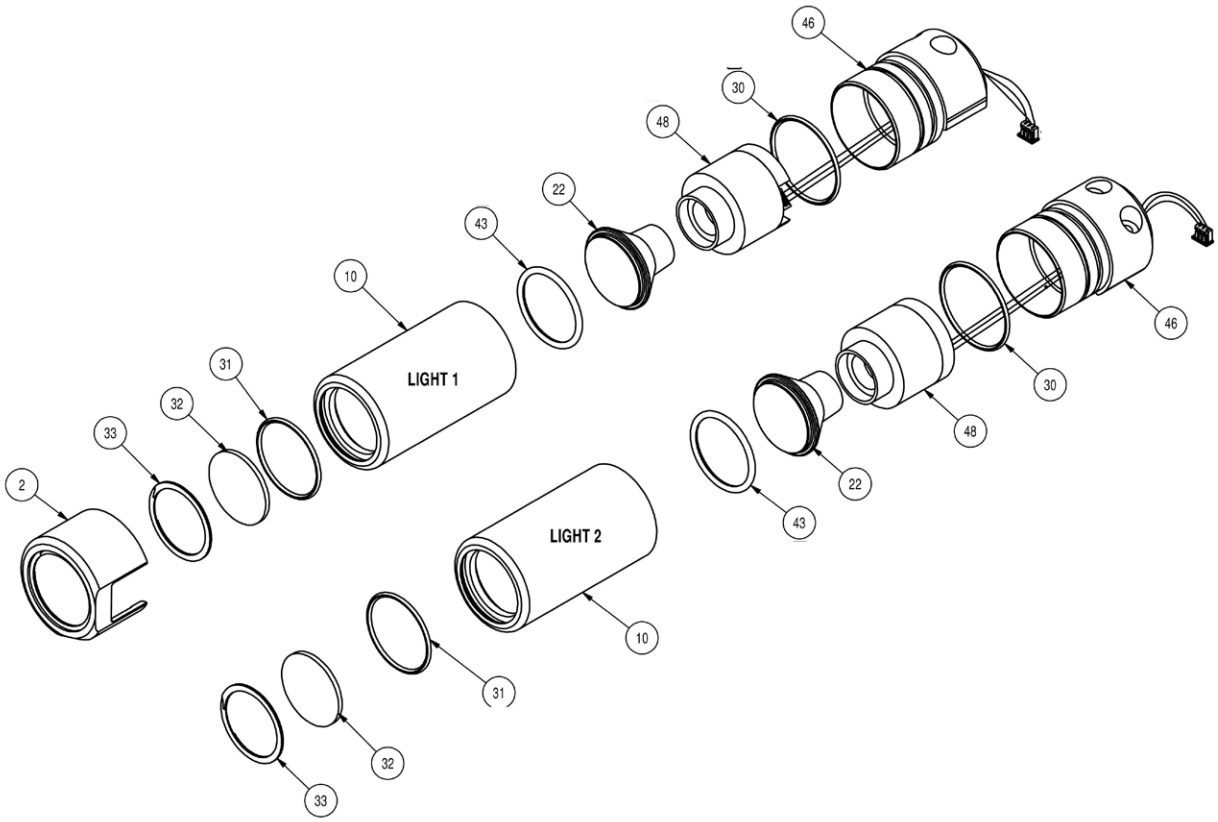


Figure 49a: *CAMERA,NTSC,F/WIDE LENS,QZ2, QE300*

QZ II

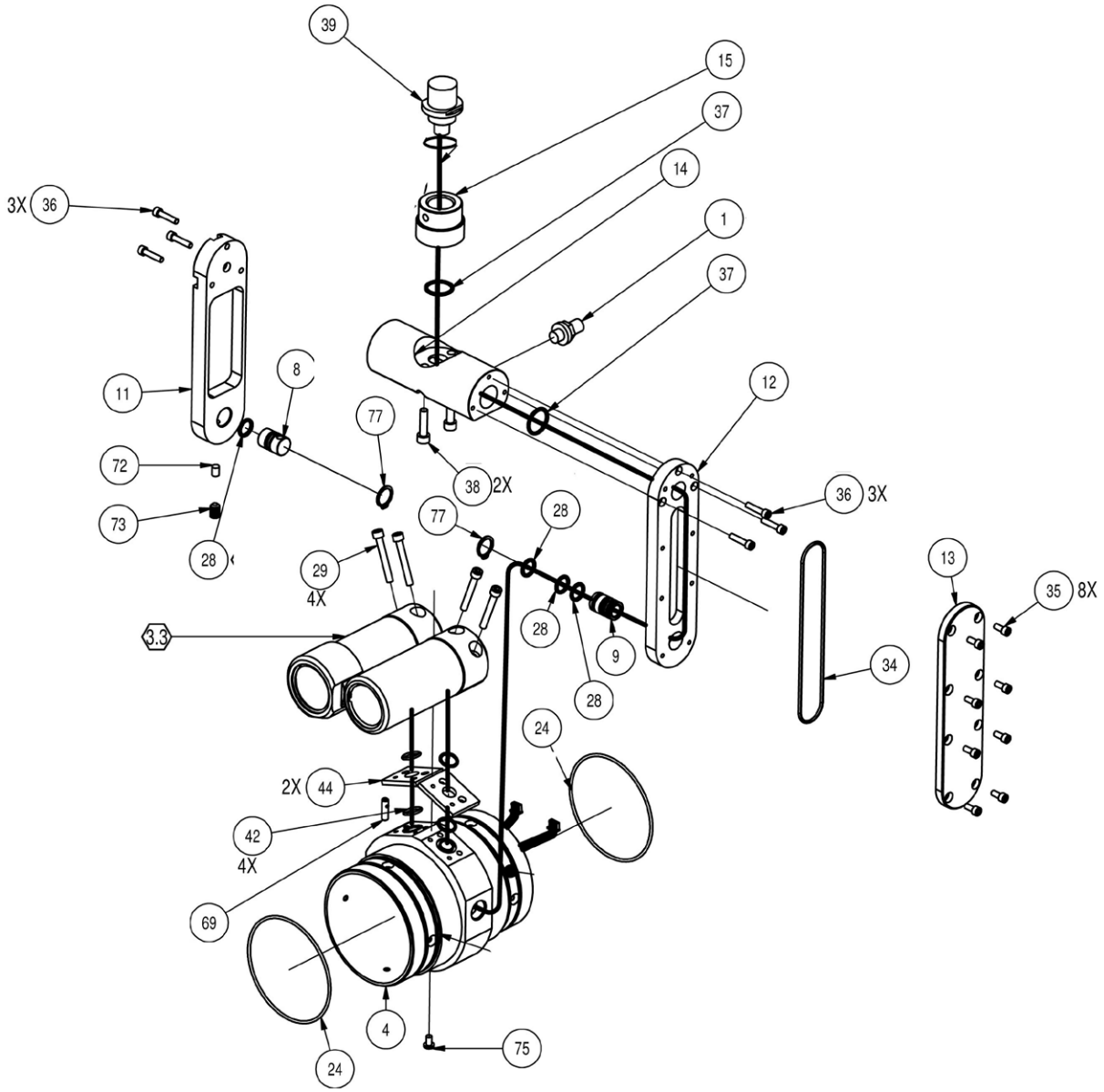


Figure 49b: *CAMERA,NTSC,F/WIDE LENS,QZ2, QE300*

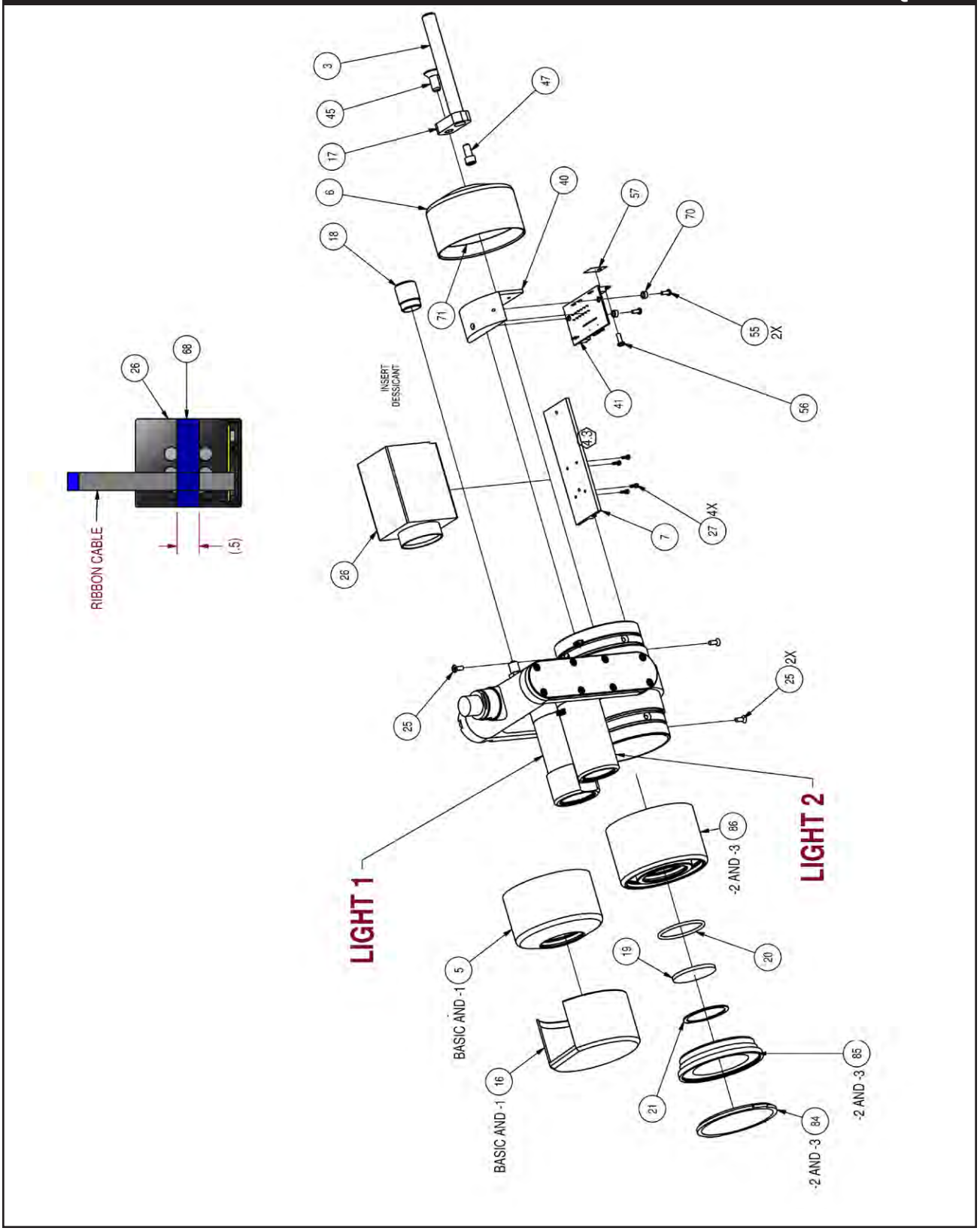


Figure 49c: *CAMERA,NTSC,F/WIDE LENS,QZ2, QE300*

CAMERA,NTSC,F/WIDE LENS,QZ2, (See Figure 49), QE300, Rev. F			
0001	VALVE,PURGE,P&T	CP063	1
0002	DIFFUSER ASSY,QZ2	QE327	1
0003	ROD,CAMERA ADJUSTER,QZ2	QE033	1
0004	HOUSING,POLE CAMERA,QZ2	QE008	1
0006	COVER,REAR,POLE CAMERA,QZ2	QE009	1
0007	BRACKET,CAMERA MOUNT,QZ2	QE011	1
0008	PIN,PIVOT,SOLID,QZ2	QE012	1
0009	PIN,PIVOT,HOLLOW,QZ2	QE013	1
0010	BEZEL,LIGHTHEAD,QZ2	QE015	2
0011	FORK PLATE,SIDE,SOLID,QZ2	QE016	1
0012	FORK PLATE,SIDE,HOLLOW,QZ2	QE017	1
0013	COVER,SIDE FORK,QZ2	QE018	1
0014	BAR,TOP,QZ2	QE019	1
0015	STUB,TOP,QZ2	QE020	1
0017	BLOCK,CAMERA ADJUSTER,QZ2	QE032	1
0018	CAP,PURGE VALVE,QZ2	QE041	1
0019	LENS,GLASS HI-PERF LIGHTHEAD	712910	1
0020	O-RING,2-130,BUNA-N	HW1998	1
0021	RETAINING RING,SPRL,EXT,1-5/8"B,SS	HW1982	1
0022	LAMP,HID,14W,6 DEG,MR11	EC1650	2
0024	O-RING,2-040,SILICONE	HW1261	2
0025	SCREW,FLAT,6-32X3/8 PHIL SST	103058	3
0026	CAMERA,MODULE,35X,NTSC,HITACHI,CBL	QE021	1
0027	SCREW,CAP,SKT,M2 X 6MM LG,SS	HW557	4
0028	O-RING,2-012,BUNA-N	HW1092	4
0029	SCREW,CAP,SKT HD,8-32X1-1/4,SST	105093	4
0030	O-RING,2-028,BUNA-N	HW1997	2
0031	O-RING,2-026,SILICONE,SHORE A70	HW2012	2
0032	WINDOW,CAMERA MODULE,OZ II + III	CZ004	2
0033	RETAINING RIGN,SPIRAL,INT,1¼"B,SS	HW1981	2
0034	O-RING,2-043,BUNA-N	HW693	1
0035	SCREW,CAP,SKT HD,6-32X5/16,SST	HW475	8
0036	SCREW,CAP,SKT HD,#6-32X5/8 LONG	101136	6
0037	O-RING,2-016,BUNA-N	HW691	2
0038	SCREW,STD CAP,HEX,SKT,10.32 x .875,SST	101129	2
0039	JACK,12 POSN,SKTS,FRONT,HERMETIC	EC1625	1
0040	BRACKET,CAMERA BOARD	QE040	1
0041	PCB ASSY,CAMERA INTERFACE,QZ2	QE405	1
0042	O-RING,METRIC,10 X 1.5MM, BUNA	HW1140	4
0043	O-RING,2-123,BUNA N	HW1160	2

CAMERA,NTSC,F/WIDE LENS,QZ2, (See Figure 49), QE300, Rev. F			
0044	PLATE,LIGHTHEAD INSULATOR,SS	QE055	2
0045	SCREW,SOCKET FL,HEX,5/16-18X3/4,SST	HW2029	1
0046	HOUSING,LIGHTHEAD,QZ2	QE014	2
0047	SCREW,CAP,SKT HD,1/4-20X1/2,SST	101001	1
0048	BALLAST ASSY,HID,DUAL WATTAGE	QE316	2
0049	CABLE ASSY,HID LIGHT POWER,QZ2	QE303	2
0050	MRO-LUBRICANT,O-RING 2 OZ TUBE	439986	1
0051	CONTACT	715087	18
0052	HOUSING,12-PIN,2MM	712865	1
0053	MRO-SEAL.HGH PRESS,ND 440400-50,BRN	445091	1
0054	MRO-REMOVABLE LCK,ND 121200-50,BLUE	440061	1
0055	SCREW,PAN,4-40 X 5/16 PHIL SST	HW735	2
0056	SCREW,PAN,6-32X3/8 PHIL NYLON	HW773	1
0057	INSULATOR,SILPAD,TO220	KC058	1
0058	WIRE,#24 WHITE TEFLON	713344	1
0059	WIRE,#24 BLACK TEFLON	713335	1
0060	WIRE,#24 RED TEFLON	713337	1
0061	WIRE,#24 GREEN TEFLON	713340	1
0062	WIRE,#24 BROWN TEFLON	713336	1
0063	WIRE,#24 GRAY 250'TEFLON	713347	1
0064	WIRE,#24 PURPLE TEFLON	713342	1
0065	WIRE,#24 YELLOW TEFLON	713339	1
0066	WIRE,#24 ORANGE TEFLON	713338	1
0067	WIRE,#24 BLUE TEFLON 250'PUT UP	713341	1
0068	VELCRO,3M LOOP SJ3527N BLK,2"WIDE	CS470	0.5
0069	SCREW,SET,8-32X.625,FLT,SS,NYL PELT	HW2095	1
0070	SPACER,4/40 X 1/8 ALUM, .125LG	HW723	2
0071	DESICCANT,MOLECULAR SIEVE,7G	930604	1
0072	PELLET,RUBBER,CAMERA,QZ2	QE084	1
0073	SCREW,SET,¼-28X.375,FLT,SS,NYL,PELT	HW2094	1
0074	RECEPTACLE,3PIN,MOLEX .079CTN	EL633	2
0075	SCREW,SEALING,PANPHIL,6-32X.25,18-8	HW2041	1
0076	RING,RTG,EXT,SNP,1/2DIA SS,	HW1898	1
0077	WIRE,#24 RED PVC	161571	1
0078	WIRE,#24 BLACK PVC	161558	1
0079	WIRE,#24 YELLOW PVC	161559	1
0081	TUBE,SHRINK,BLACK 1/4"RNF	712576	1
0082	TUBE,SHRINK,1/16"	712593	1
0084	CAP,LENS,SNAP-ON,77MM	QE094	1
0085	PLUG,WIDE ANGLE LENS,QZ2	QE093	1
0086	COVER,FRONT,ADAPTABLE,POLE CAM,QZ2	QE091	1

QZ II

CONFIGURATION LIST		
PART NUMBER	DESCRIPTION	
QE310	POLE ASSY, 24 FT, QZ2	
QE310-1	POLE ASSY, 34 FT, QZ2	
QE310-2	POLE ASSY, 24 FT 6 SEC, QZ2	



SEE QE950 FOR RETRACTED AND EXTENDED
POLE LENGTH DIMENSIONS AND POLE WEIGHTS

Figure 50a: *POLE ASSY,6.56-24FT,QZ2, QE310*

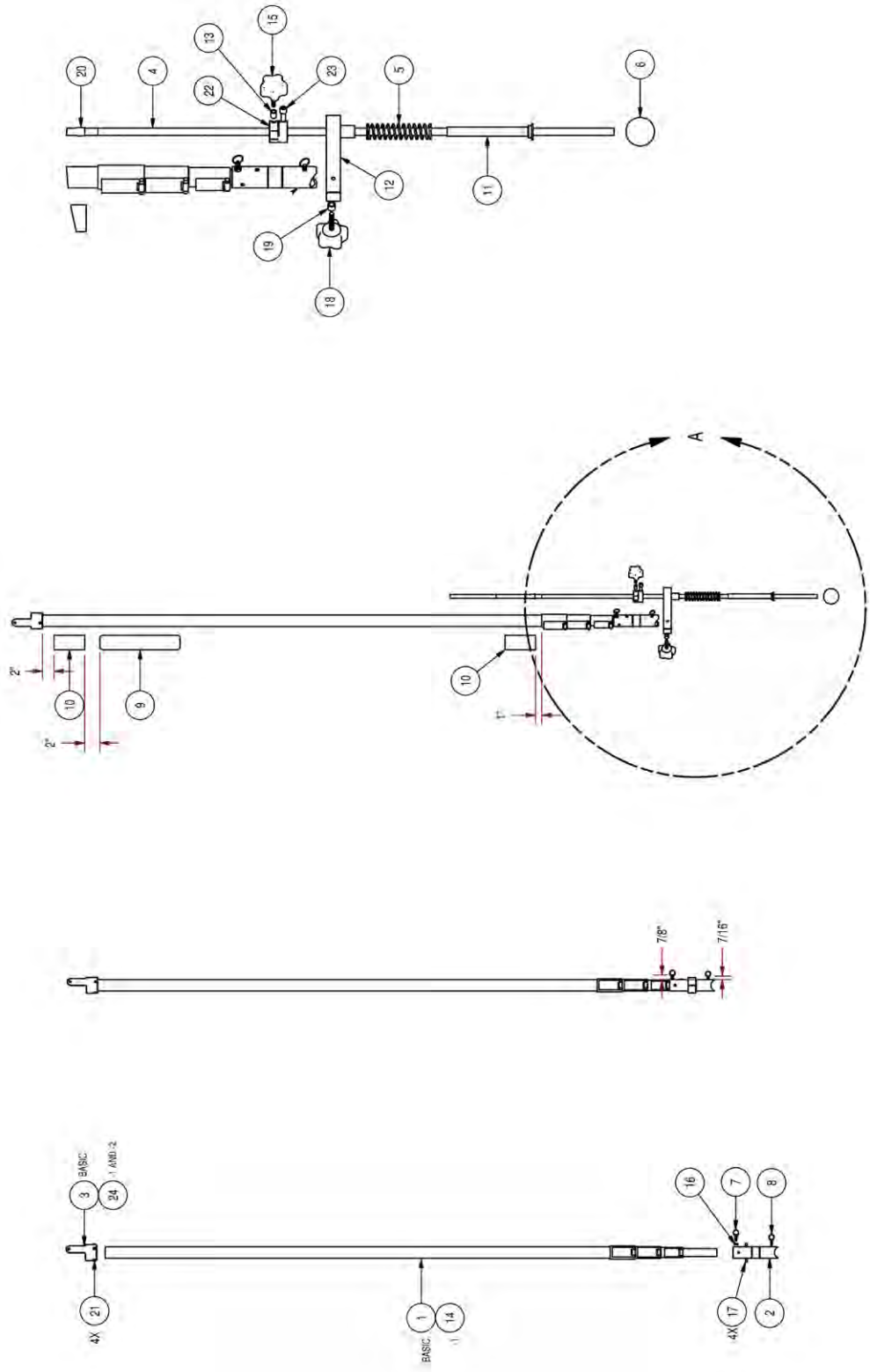


***Figure 50b**: POLE ASSY,6.56-24FT,QZ2, QE310*

POLE ASSY,6.56-24FT,QZ2, (See Figure 50), QE310, Rev. F			
0001	POLE,CARBON,4 SECT,6.45-23.4 FT	QE047	1
0002	ADAPTER,CAMERA/POLE,QZ2	QE023	1
0003	CAP,POLE CABLE BEND PROTECTOR	QE067	1
0004	ROD,DEPTH,POLE CAMERA,QZ2	QE031	1
0005	SPRING,COMPRESS,1.100X0.876X4.5L,SS	HW2020	1
0006	BALL,STABILIZER,QZ2	QE038	1
0007	SPRING PLNGR,PULL RNG,LCKG,¼"-20,SS	HW2016	1
0008	SPRING PLGNR,W/PULL RING,¼"-20,SS	HW2017	1
0009	DECAL,POLE LOGO/QZ2	QE052	1
0010	DECAL,DANGER POWER LINES,QZ2	QE054	2
0011	TUBE,SPRING HOLDER,QZ2	QE036	1
0012	ARM STABLIZER ASSY,W/BUSHING,QZ2	QE321	1
0013	SPACER,ADJUSTER KNOB,QZ2	QE037	1
0015	KNOB,STAR SHAPED,1/4"-20THRDX1.25"L	HW2021	1
0016	NUT,JAM,1/4-20,SST	HW1291	1
0017	PIN,MOD,SPRG COIL,1/4"X.325L,SS,QZ2	QE070	4
0018	KNOB,STARSHAPED,5/16-18X1.5"	HW2034	1
0019	SPACER,1/2"ODX.334"IDX.4LG,SST	QE069	1
0020	CAP,VINYLE BLK,1/2-9/16IDX1/2LG	HW2032	1
0021	PIN,MOD,SPRG COIL,1/4"X.188L,SS,QZ2	QE070-1	4
0022	COLLAR,ROD CLAMP,QZ2	QE035	1
0023	SCREW,SHCS,5/16-18X7/8,SST	HW269	1

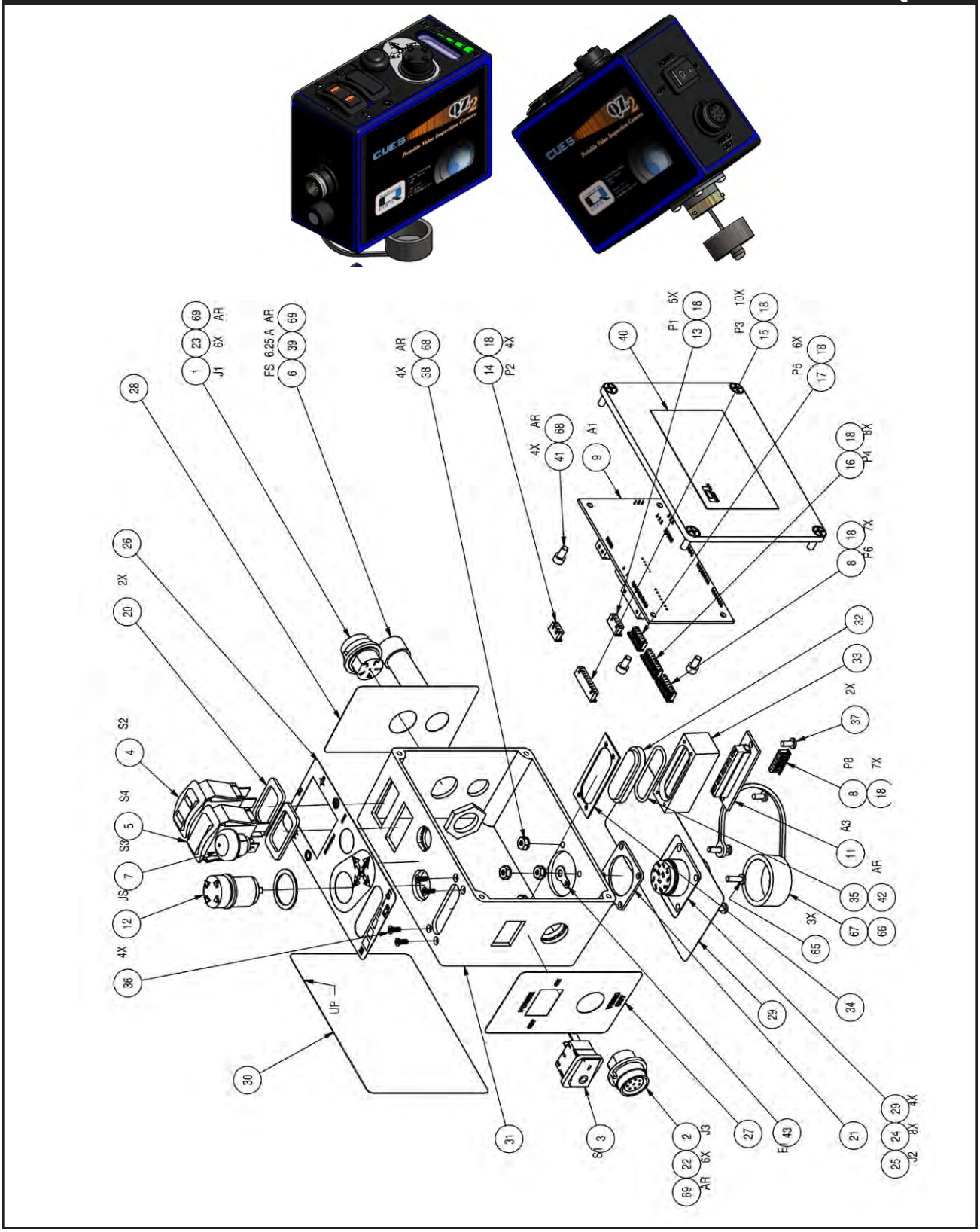


Figure 51: *CONTROLLER ASSY,CAMERA,QZ2, QE320*

CONTROLLER ASSY,CAMERA,QZ2, (See Figure 51), QE320, Rev. C			
0001	CONN,MINI,PNL MNT,6P,5A PLUGS,IP68	EC1701	1
0002	CONN,MINI,PNL MNT,8P,5A SCKTS,IP68	EC1715	1
0003	SWITCH,SPST,PWR,SEALED	EC1628	1
0004	SWITCH,SPDT,LIGHTED,AMBER,SEALED	EC1629	1
0005	SWITCH,SPDT,MOM-OFF-MOM,SEALED	EC1630	1
0006	FUSE HOLDER,3AG,PNL MNT,DRIP PROOF	EC1631	1
0007	SWITCH,PB,MOM,LIGHTED,GRN,SEALED	EC1632	1
0008	HOUSING,7 POSN,2MM SPACING MOLEX	EC1633	2
0009	PCB ASSY,CAMERA CONTROLLER,QZ2	QE402	1
0010	CONNECTOR,12P,RECEP.W/SCKTS,STD SX	EC1251	1
0011	PCB ASSY,BATTERY IND,QZ2	QE403	1
0012	JOYSTICK,4 DIR W/CTR PSH,PNL MNT	EC1657	1
0013	RECEPTACLE,5-PIN,2MM	712866	1
0014	HOUSING,4-PIN,2MM	712867	1
0015	RECEPTACLE,10PIN,MOLEX .079	EL635	1
0016	HOUSING,8-PIN,2MM MOLEX	EC1427	1
0017	RECEPTACLE,6PIN,MOLEX .079CTN	EL634	1
0018	CONTACT	715087	47
0019	DIODE,1N5817	710642	1
0020	GASKET,SPDT SWITCH,OTTO K1	EC1649	2
0021	GASKET,PANEL,14 SHELL CONN	EC1648	1
0022	SOCKET,MINI,5A,SLDR,22-26AWG,GLD	EC1706	6
0023	PIN,MINI,5A,SLDR,22-26AWG,GOLD	EC1707	6
0024	CONTACT,SOCKET,24-26 AWG	EC1659	8
0025	CONTACT,SOCKET,20-22 AWG	EC1658	4
0026	OERLAY,TOP CAM CONTROLLER,QZ2	QE048	1
0027	OVERLAY,PWR,CNTRLR,QZ2	QE049	1
0028	OVERLAY,BATT/FUSE,CNTRLR,QZ2	QE050	1
0029	OVERLAY,CAMERA CONN,CNTRL,QZ2	QE051	1
0030	DECAL,QZ2/CUES LOGO	QE053	1
0031	ENCLOSURE,MOD,CAM CONTROLLER,QZ2	QE060	1
0032	WINDOW,LED BATT INDICATOR	QE061	1
0033	BLOCK,MTG LED BATT INDICATOR	QE062	1
0034	GASKET,LED BATT INDICATOR	QE063	1
0035	O-RING,25MMIDX1.5MMW,BUNA-N,SH A 70	HW2035	1
0036	SCREW,SEAL,FHD,PH,2.56X.25,18-8,SS	HW2023	4
0037	SCREW,PAN,4-40X1/4 MACHINE	HW227	2
0038	NUT,KEP,4-40,SS	HW942	4
0039	FUSE,6.25 AMP,SLOW BLOW	711871	1
0040	LABEL,LASERTAB MARKER,3.00 X 1.90	CS223	1

CONTROLLER ASSY,CAMERA,QZ2, (See Figure 51), QE320, Rev. C			
0041	SCREW,CAP,SKT HD,6-32X1/4,SST	103060	4
0042	MRO-LUBRICANT,O-RING 2 OZ TUBE	439986	1
0043	LUG,TERMINAL GND 1 PK.	716235	1
0044	CAPACITOR,POLYSTYRENE,22PF,+/-2.5%	EL690	1
0045	CABLE,2 COND STRANDED,22GA.SHEILDED	EC1010	1
0046	CABLE,TEFLON COAX	713362	1
0047	WIRE,#24 BLACK TEFLON	713335	1
0048	WIRE,#24 RED TEFLON	713337	1
0049	WIRE,#24 BLUE TEFLON 250'PUT UP	713341	1
0050	WIRE,#24 YELLOW TEFLON	713339	1
0051	WIRE,#24 GRAY 250'TEFLON	713347	1
0052	WIRE,#24 BROWN TEFLON	713336	1
0053	WIRE,#24 GREEN TEFLON	713340	1
0054	WIRE,#24 PURPLE TEFLON	713342	1
0055	WIRE,#24 WHITE TEFLON	713344	1
0056	WIRE,#24 WHITE/ORANGE TEFLON	713131	1
0057	WIRE,#24 WHITE/BLACK TEFLON	713136	1
0058	WIRE,#24 WHITE/VIOLET TEFLON	713133	1
0059	WIRE,#24 WHITE/BLUE	713345	1
0060	WIRE,#24 WHITE/YELLOW TEFLON	713129	1
0061	WIRE,#24 ORANGE TEFLON	713338	1
0062	WIRE,#22AWG,BLACK,PVC,STRD	EC407	1
0063	WIRE,#22AWG,RED,PVC,STRD	EC412	1
0064	WIRE,#20 RED BU	713319	1
0065	SCREW,BIND,4-40X3/8 PHIL SST	712414	3
0066	SCREW,BIND,4-40X1/2 SST	712404	1
0067	CAP,DUST,SHELL,SZ 14,F/EC1251	EC1365	1
0068	MRO-REMOVABLE LCK,ND 121200-50,BLUE	440061	1
0069	MRO-LOCTITE 42540 F/PLASTIC	429791	1

QZ II

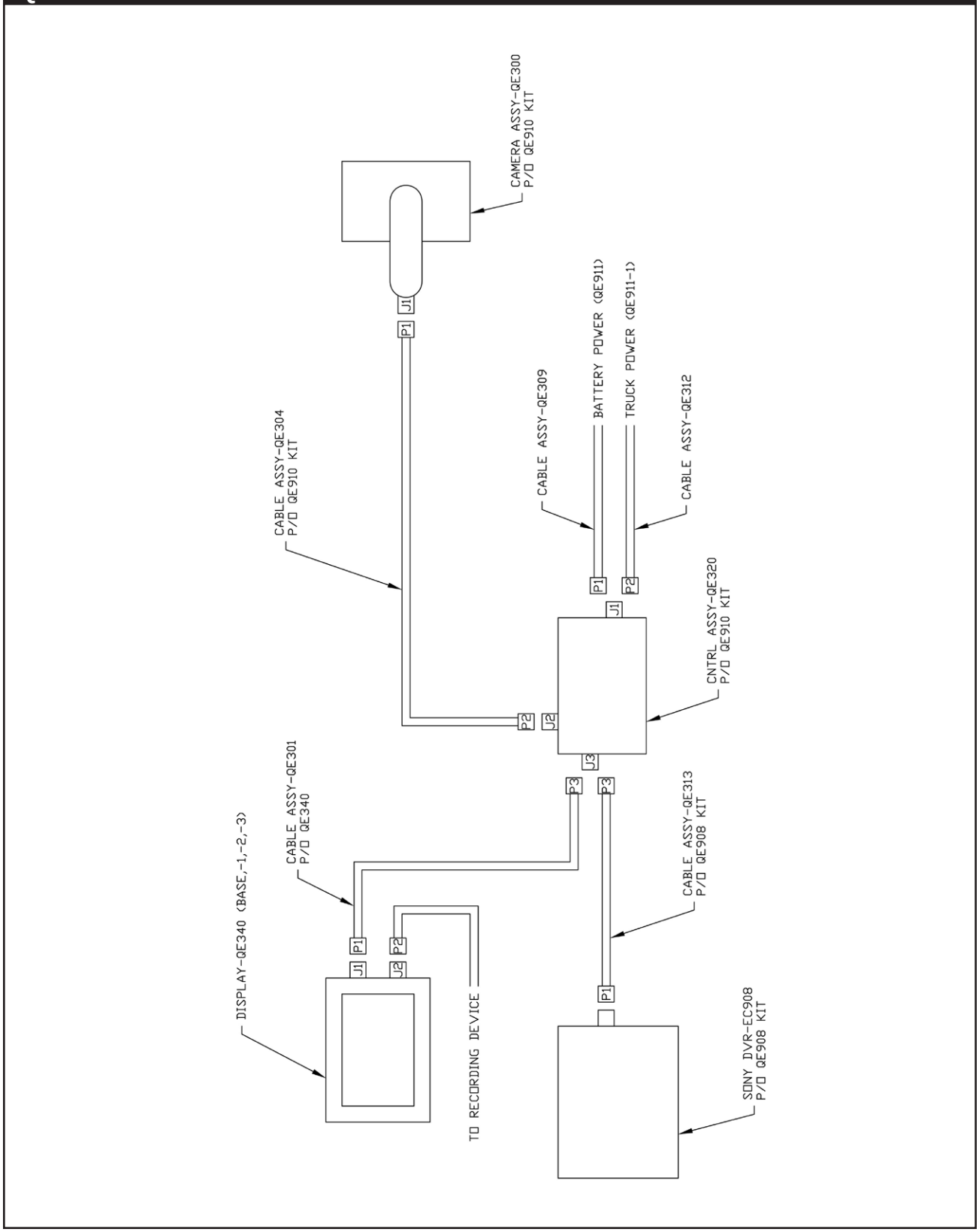


Figure 52: *QZ II WIRING DIAGRAM, QE910-INST, Rev -*

TV CABLE & HOSE REELS	
REEL ASSY,TV,RH,M/C,W/O CBL,W/MECH.	072244-1
REEL ASSY,TV,RH,M/C,W/O CBL,DIG DIS	072244-11
REEL ASSY,PAYOUT,RH,F/.350 DIA CBL	072244-12
REEL ASSY,PAYOUT,RH,F/.450 DIA CBL	072244-13
REEL ASSY,PAYOUT,LH,F/.450 DIA CBL	072244-15
REEL ASSY,PYOUT(R)F/.350CBL,DIG DIS	072244-16
REEL ASSY,PYOUT(R)F/.450CBL,DIG DIS	072244-17
REEL ASSY,PAYOUT(R)F/.350CBL,K2	072244-40
REEL ASSY,PYOUT(R)F/.350CBL,K2,PRTO	072244-40-P
REEL ASSY,(R),F/.450 CBL,K2	072244-47
REEL ASSY,PENTA HOSE W/FITTINGS	RL346
REEL ASSY,HOSE CUTTER LVWND RH	RL356
REEL ASSY,CUTTER 500' 1/2" SA	072116
REEL SYS,PAYOUT,RH,F/.450 DIA CBL	RL747-13
REEL ASSY,QUAD HOSE W/CBLE,RL.1000'	SS401
REEL ASSY,W/QUAD HOSE	SS400

LEVELWINDS / LEVELWIND ASSEMBLIES	
LEVELWIND ASSY,REEL,1/2"PITCH,BLACK	3007700-1
LEVELWIND,AUTO,F/DOLLY(NOT SOLD)	SD353
LEVELWIND ASSY,LAMP LATERAL REEL	LT341
LEVELWIND ASSY,F/4000'	RL070
LEVELWIND ASSY,IGGY,LIS	LT319
LEVELWIND ASSY,REEL W/O SPROCKET	3007700
LEVELWIND SCREW,DOLLY/IGGY	SD156
LEVELWIND SCREW,LAMP LATERAL REEL	LT268
LEVELWIND SPROCKET,DOLLY/IGGY	SD155
LEVELWIND SPROCKET,DOLLY/IGGY	SD155
LEVELWIND,BRACKET,DOLLY/IGGY	SD150

FOOTAGE METERS	
Description	**P/N**
Footage Meter	FM303
Footage Meter, Accumeter	FM300
Footage Meter, Accumeter, 10 Pulse	FM406
Footage Mtg, Accumeter, OBSOLETE Use FM406	FM400
Footage Wheel, LIS	LT036
Footage Mtr f/Mainline Reel w/IGGY PCU	FM406A
Multi-Conductor	
Footage Mtr, M/C, w/Encodr, uv-12'trlr	FM403
Footage Mtr, M/C, w/Encoder, um-16'trlr	FM402
Footage Mtr Assy, M/C	410207
Footage Mtr Assy, M/C(metric)	410208
Footage Mtr, M/C Mech uv-12'trlr	4102020
Footage Mtr, M/C w/Elect um-16'trlr met	4102044
Footage Mtr, M/C w/Elect(um-16')	4102042
Footage Mtr, M/C w/Elect uv-12'trlr	4102040
Single-Conductor	
Footage Mtr, S/C, w/Encod & Remote	FM407
Footage Mtr, S/C, w/Encodr(um-16'trl)	FM405
Footage Mtr, S/C, w/Encodr,uv-12'trlr	FM404
Footage Mtr, S/C w/Elect uv-12'trlr met	4102046
Footage Mtr, S/C w/Elect(um-16')	4102041
Footage Mtr, S/C w/Elect(uv-12'trlr)	4102043
Footage Mtr, Meter, Assy, S/C & S/C+	410209
Footage Counters - Small Black Counters	
95% of customers need this counter. Mounts on right-hand side of footage meter. As cable is pulled away from the truck, the count goes up.	300992
Counter mounts on the left-hand side of the footage meter. As the cable is pulled away from the truck, the count goes up.	300993
Counter used on 1984 and earlier models. Mounts on the left-hand side of the footage meter. As the cable is being towed back towards the truck, the count goes up.	300990
Counter mounts on the righhand side of the footage meter. As the cable is being towed back towards the truck, the count goes up.	300991

PAYOUT ASSEMBLIES	
PAYOUT ASSY,REEL,LEGACY,GOLD CABLE	MD320-1
PAYOUT ASSY,REEL,LEGACY,PLAT. CABLE	MD320

SLIPRINGS / SLIPRING ASSEMBLIES	
DESCRIPTION	**P/N**
SLIPRING,ASSY,M/C LITTON	RL023
SLIPRING,8 CONDUCTOR W/BRUSH ASSY	730870
SLIPRING,12 CONDUCTOR BNC/MOLEX	730877
SLIPRING,RETRO KIT 12 CONDUCTOR	730892
SLIPRING ASSY,K2 REEL	MD071
SLIPRING ASSY,S/C/SHORTY SYSTEM	TR546
SLIPRING ASSY,3COND,MERCOT.,S/C2000	TR735
SLIPRING,3 CONDUC,F/S/C2000 UPGRADE	EC590
SLIPRING,ASSY,S/C,LITTON	RL032
SLIPRING ASSY,LATERAL REEL,LAMP	LT332
SLIPRING,6 COND,REEL,LAMP	LT221
SLIPRING ASSY,MINI PUSH SYSTEM	CM308
SLIPRING ASSY,W/TRANSLATOR,MP 20/20	CM308-1
SLIPRING ASSY,CR320 COILER ASSY	CM308-2
SLIPRING,PROSCOUT,18 COND,MODIFIED	CR002-1
SLIPRING,ASSY,PROSCOUT COILER	CR301
SLIPRING,ASSY,PROSCOUT DOLLY	DS303
SLIPRING,PROSCOUT,18 CONDUCTOR	CR002
SLIPRING,ASSY,F/INSPECTOR GEN	SD302
SLIPRING ASSY,MERC,8RET.KIT,S/C2000	RL234
SLIPRING ASSY,MERCURY 8,RET KIT,M/C	RL332
SLIPRING ASSY,PCB,CAMERA,PS3	PS304
SLIPRING ASSY,PS/BW	PM309
SLIPRING,12 CONDUCTOR BNC/MOLEX	730877
SLIPRING,8 CONDUCTOR,MERCURY	730840
SLIPRING,BRUSH BLOCK,4 COND.S.U.C.	EC1026
SLIPRING,PROSCOUT 8 CONDUCTOR	5002K

WINCH POWER CABLE REELS	
REEL,ASSY,W/500'12/4 POWER CABLE	070500
REEL ASSY,W/500'14/4 PWR CABLE	705001
REEL,ASSY,W/O POWER CORD	705002
REEL,POWER,F/1000' & 500' 12/4 CABLE	071224
REEL,POWER,F/500' 14/4 CABLE	071225
REEL,POWER,F/1000' 10/4 PWR CABLE	071447
REEL ASSY,POWER F/12/4 1000'SV/HI	730543
REEL,ASSY,PWR W/CABLE 14-4 500'	730546

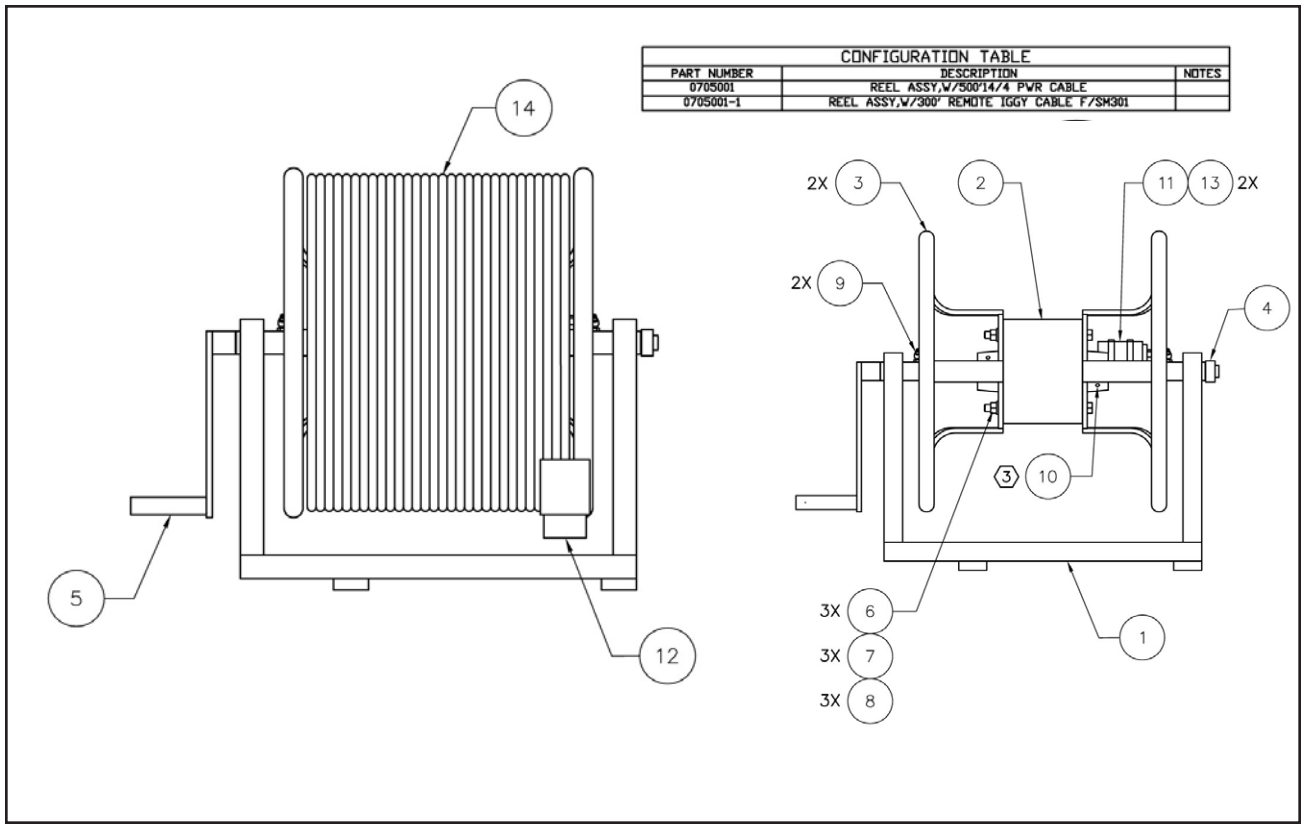


Figure 1: *Reel Assembly, w/500' Power Cable, 0705001*

Reel Assy, w/ 500' Power Cable (See Fig. 1) Rev. M, 0705001			
Item #	Description	P/N	Qty
-1	Frame Assy, Weldment, Power Cord	RL336	1
-2	Hub, Ctr, Pwr Cord, Reel	RL193	1
-3	Reel, Half, Utility	407001	2
-4	Collar, Set, 1-1/8 od x 5/8 id	300155	1
-5	Handle, Hand Crank Power Cord Reel	2002110	1
-6	Screw, Cap,3/8-16x5-1/2 hex hd gr 5	101223	3
-7	Washer, Split 3/8 Zinc	101233	3
-8	Nut, Hex 3/8-16 Plated	101240	3
-9	Fitting, Grease 1/4-28x45 deg	097530	2
-10	Pin, Spring, 3/16x1-1/2 Carbon Steel	097549	1
-11	Plug, 4 Prong for Pwr Winch Cable	161042	1
-12	Receptacle, f/Pwr Winch Cable f 4pro	161038	1
-13	MRO-Tie, Cable, 14"x3/16"x1/6"	440306	2
-14	Cable, 14-4 SJO, Black Jacket	06243005	1

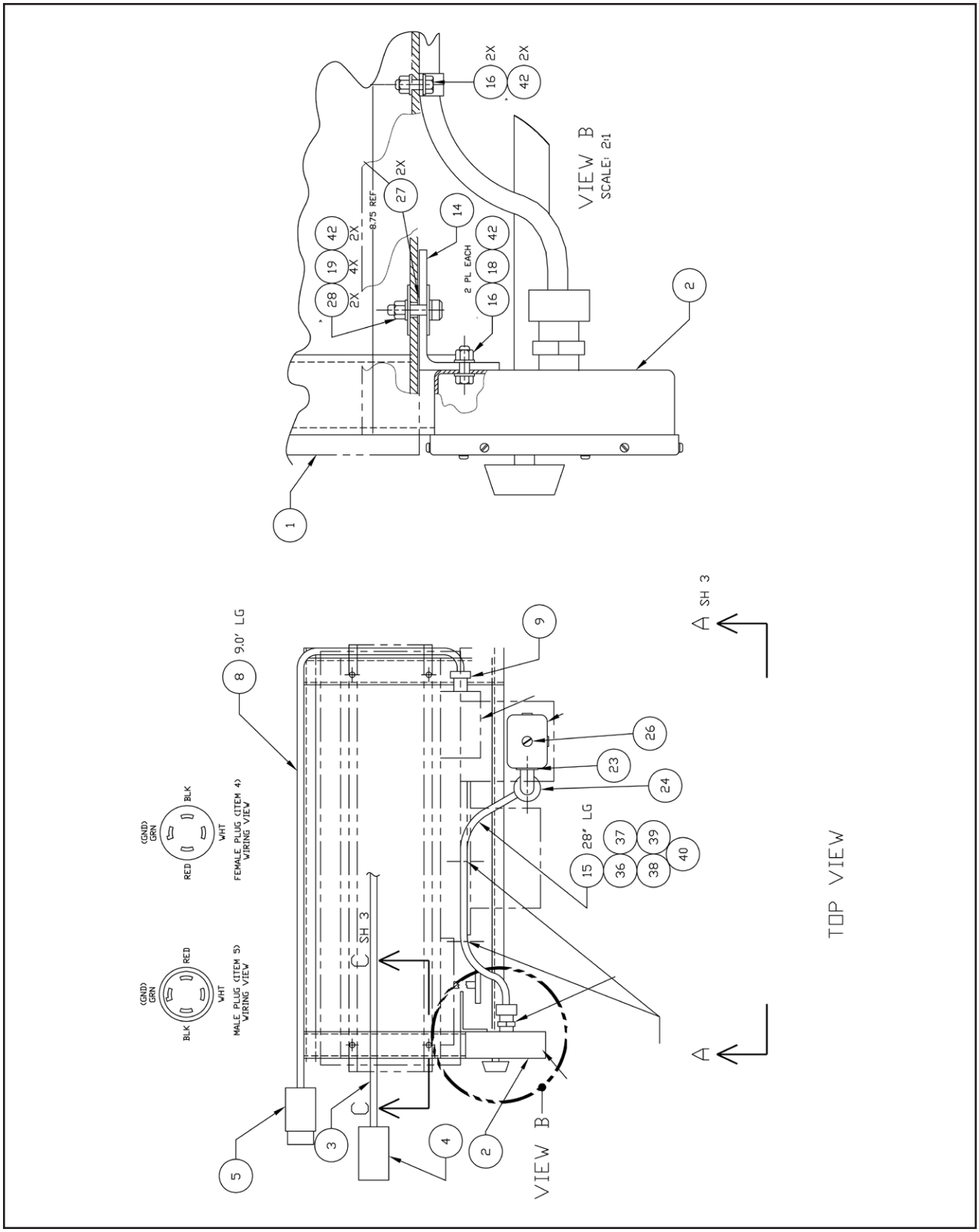


Figure 2a: *REEL ASSY,F/12/4 1000'SV/HI, 730543*

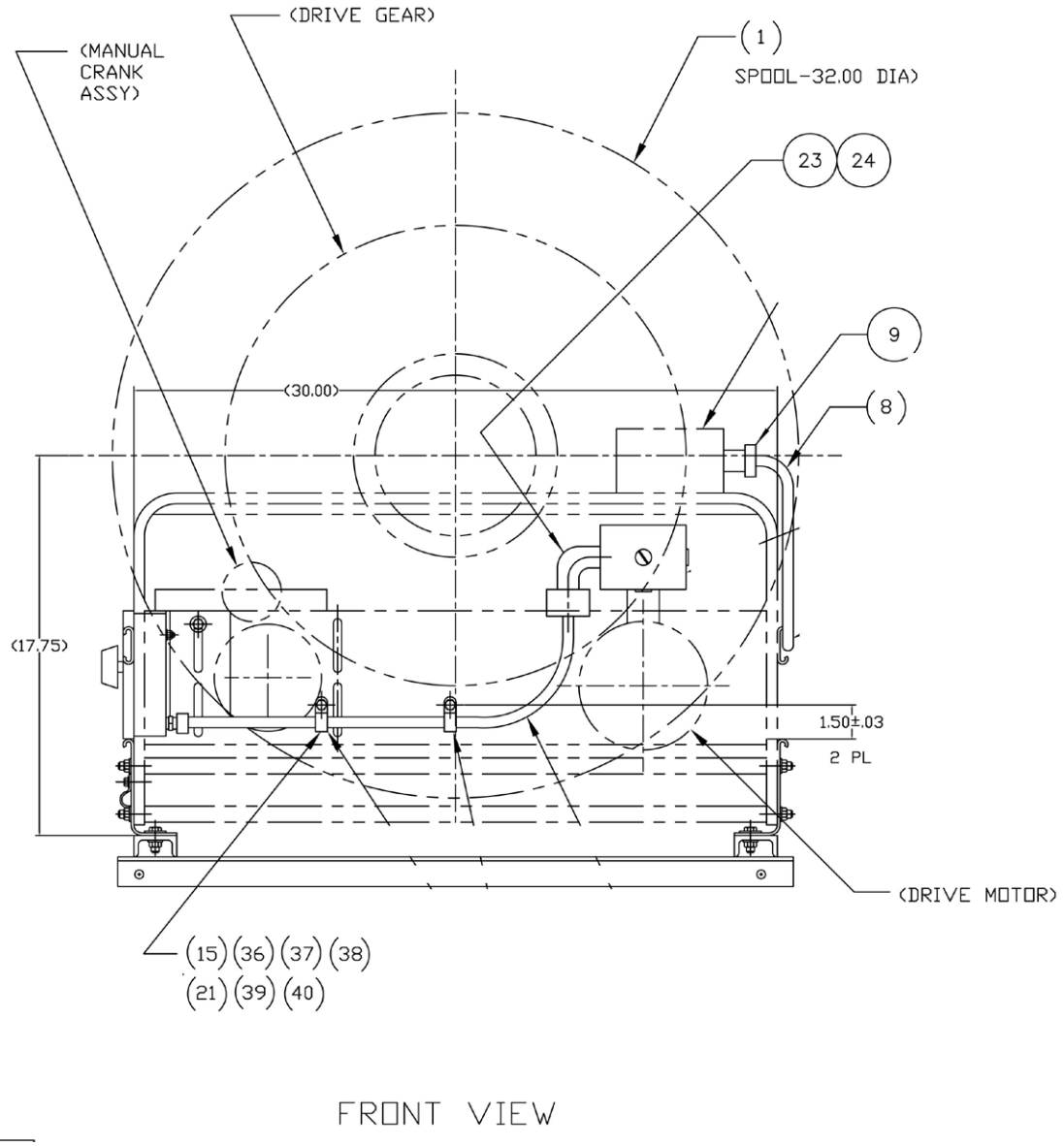


Figure 2b: *REEL ASSY,F/12/4 1000'SV/HI, 730543*

REEL ASSY,F/12/4 1000'SV/HI, Rev. K, 730543			
0001	REEL,PWR,F/1000' & 500' 12/4 CABLE	71224	1
0002	CONTROLLER ASSY,F/HANNAY PWR RL	TR1358	1
0003	CABLE,12-4 SJO 1000',BLACK JACKET	6243110	1
0004	RECEPTACLE,F/PWR WINCH CABLE F 4PRO	161038	1
0005	PLUG,4PRONG FOR PWR WINCH CABLE M	161042	1
0008	CABLE,12-4 SJO,BLACK JACKET	62431	9
0009	FITTING,CORD GRIP,CG75A-560	HW781	1
0010	MOUNT ASSY,PIGGY BACK REEL 071224	501658	1
0014	ANGLE,CONTROLLER,MOUNTIHG	TR009	1
0015	CONDUIT,LIQUID-TIGHT NON-MET 3/8	161080	28
0016	SCREW,HEX HD,1/4-20X3/4 SST	101135	8
0018	WASHER,FLAT,1/4"SST	101736	12
0019	WASHER,FENDER,1/4X1-1/4ODX1/16 PLD	101036	4
0021	STRAP,PIPE THIN WALL 1/2"	161116	2
0023	BUSHING,CONDUIT,REDUCING,3/4X1/2	111698	1
0024	CONNECTOR,LIQUID TITE,3/8(G)R A	113305	1
0026	PLUG,3/4 NPT CLOSE	TR142	3
0027	WASHER,SPLIT 1/4 PLD	101033	2
0028	BOLT,HEX,HEAD,1/4-20X1.00 LG,SST	HW803	2
0029	CLAMP,TUBING INSULATED,1/2"	121104	1
0035	TERMINAL,RING,16-14 AWG,#10 STUD,BL	712740	1
0036	WIRE,#16 WHITE BU	713309	4
0037	WIRE,#16 RED 1OOOV	713302	4
0038	WIRE,#16 BLACK BV 19/29	713300	5
0039	WIRE,#16 GRAY CV	713308	4
0040	WIRE,#16 GREEN BU 19/29	713305	4
0041	NUT,KEP,8-32,SS	HW940	4
0042	NUT,KEP,PLATED,1/4-20	101042	6

CONFIGURATION LIST

PART NO.	DESCRIPTION	NOTES
072244	REEL ASSEMBLY, TV, RH, GENERIC	
072244-1	REEL ASSEMBLY, TV, RH, M/C, W/O CABLE	
072244-2	REEL ASSEMBLY, TV, LH, M/C, W/O CABLE	
072244-3	REEL ASSEMBLY, TV, RH, S/C, W/O CABLE	
072244-4	REEL ASSEMBLY, TV, LH, S/C, W/O CABLE	

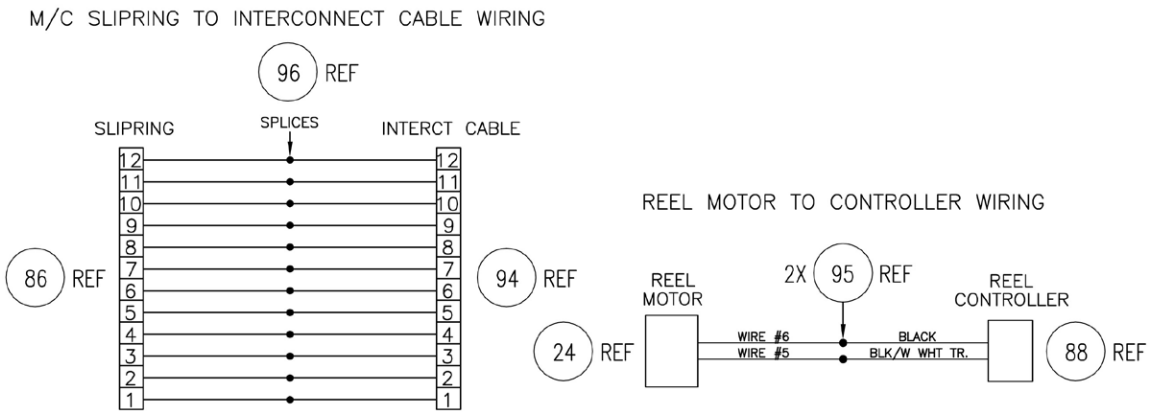


Figure 3a. *Reel Assembly, Cable, 072244*

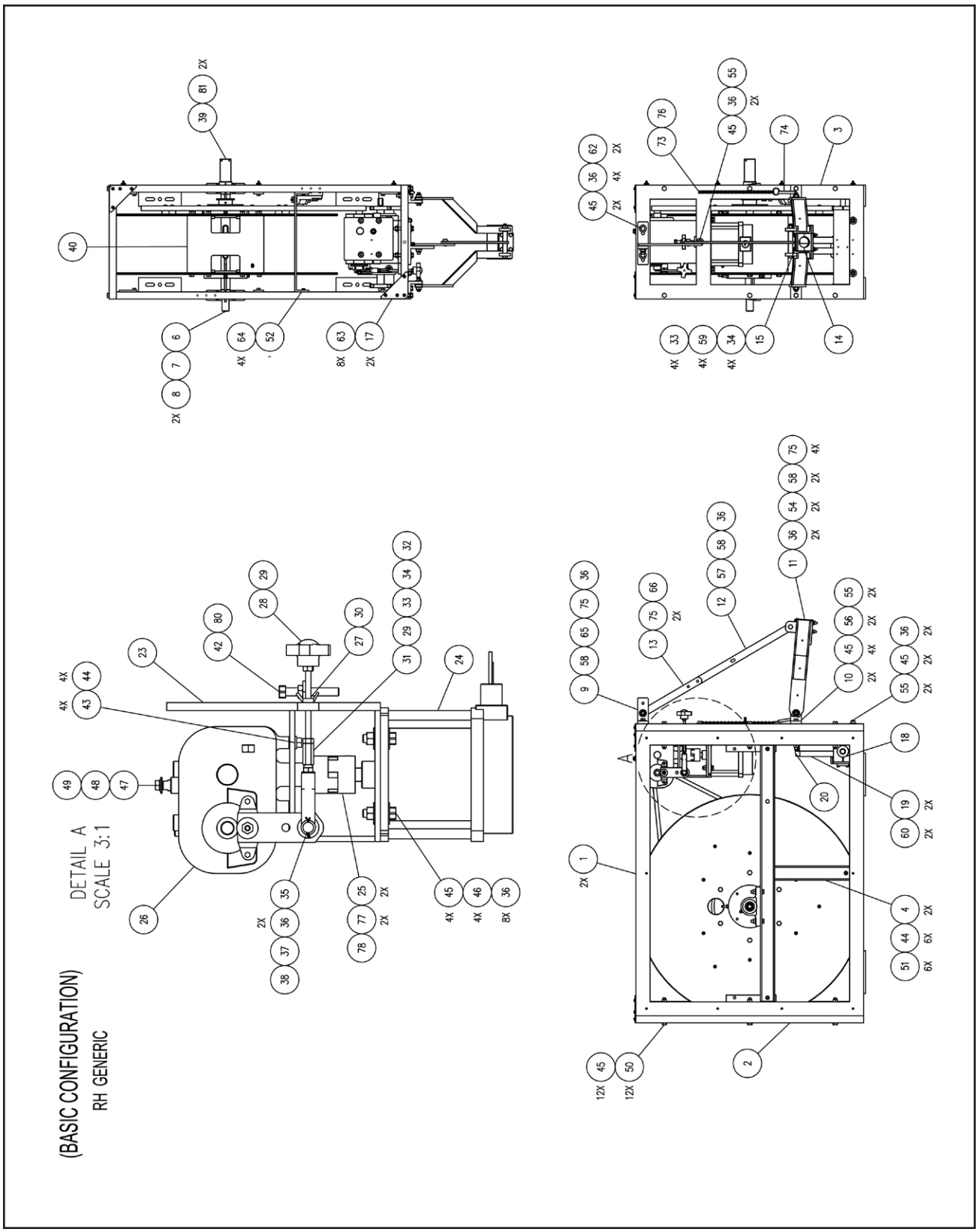


Figure 3b. *Reel Assembly, Cable, 072244*

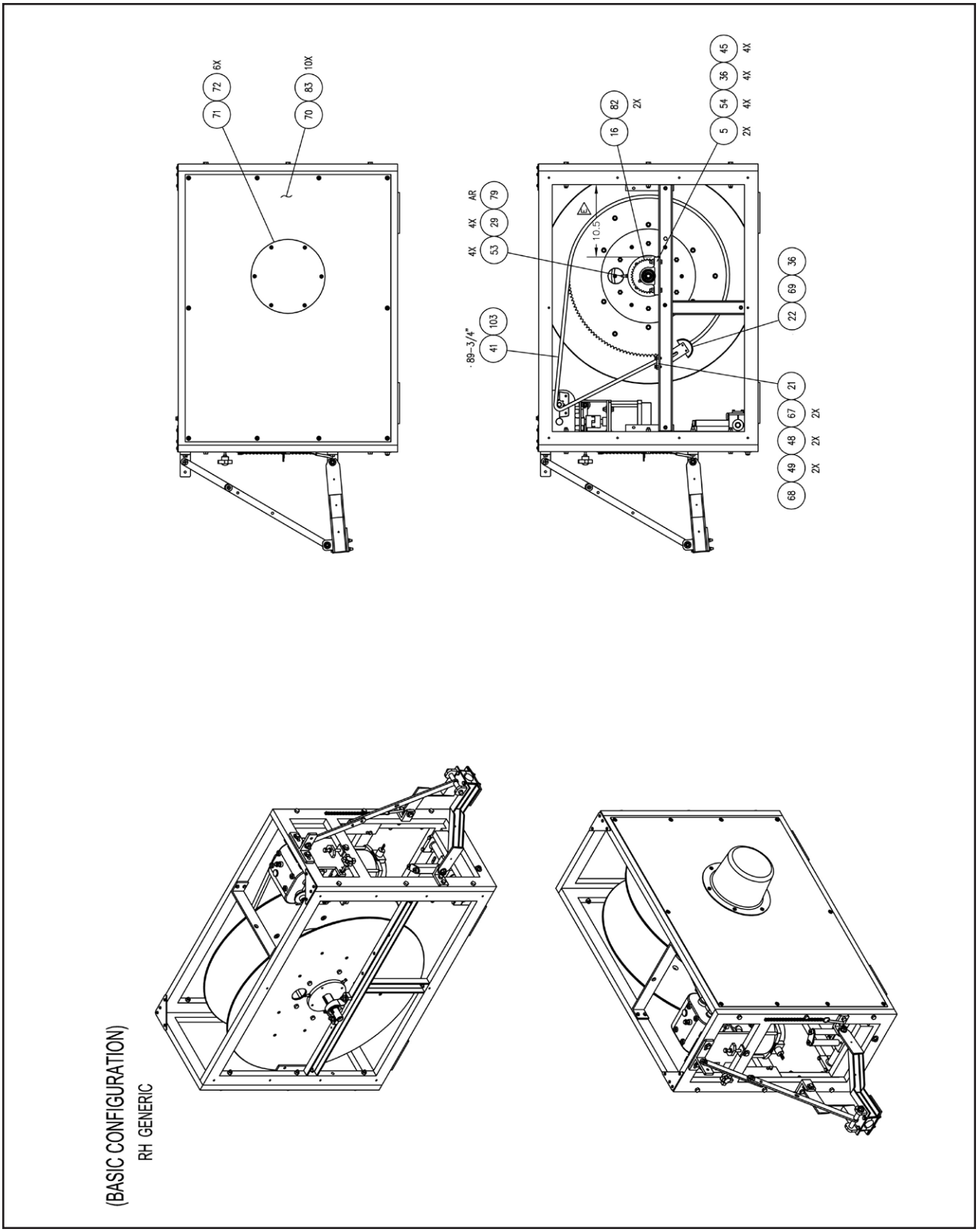


Figure 3c. *Reel Assembly, Cable, 072244*

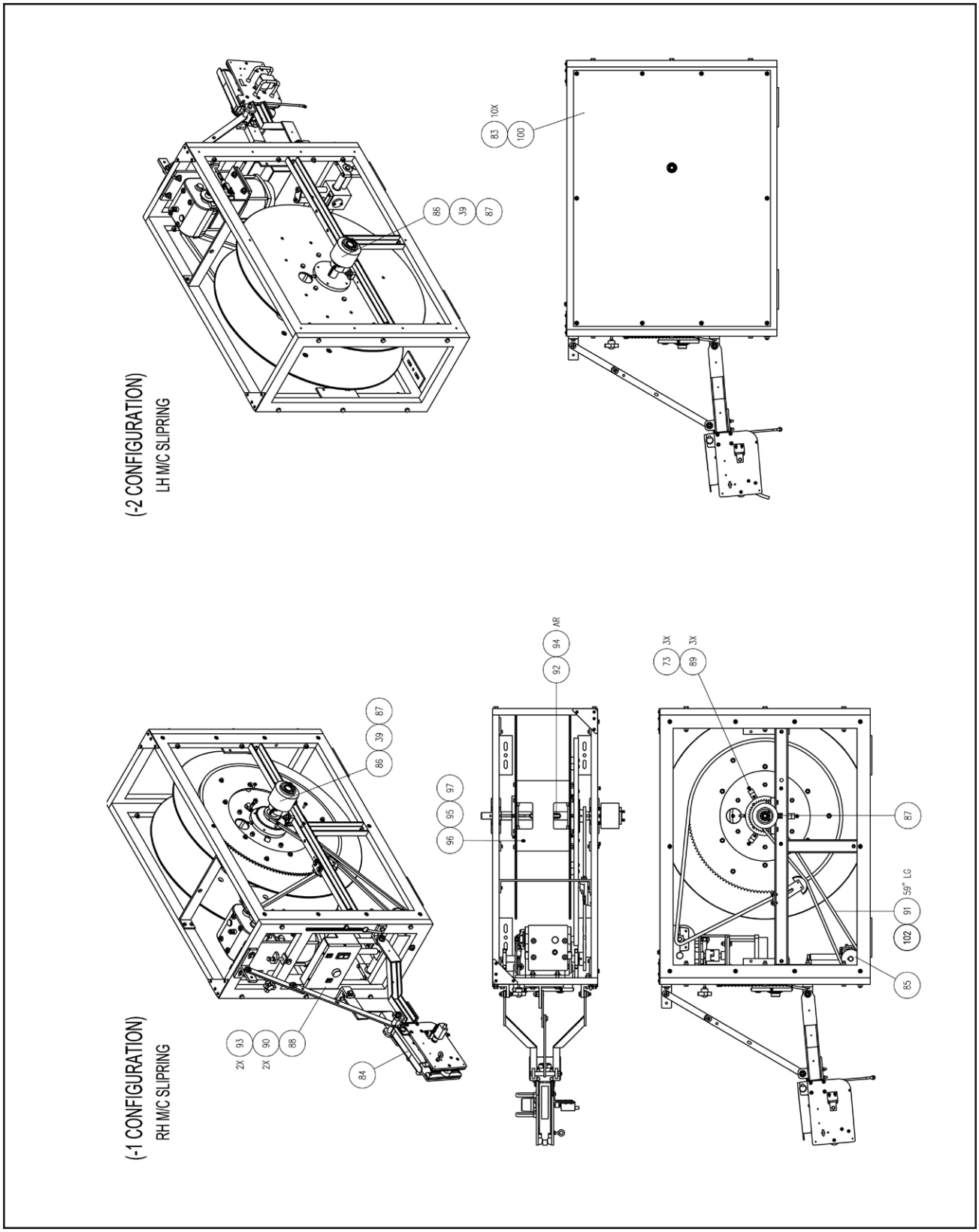


Figure 3d. *Reel Assembly, Cable, 072244*

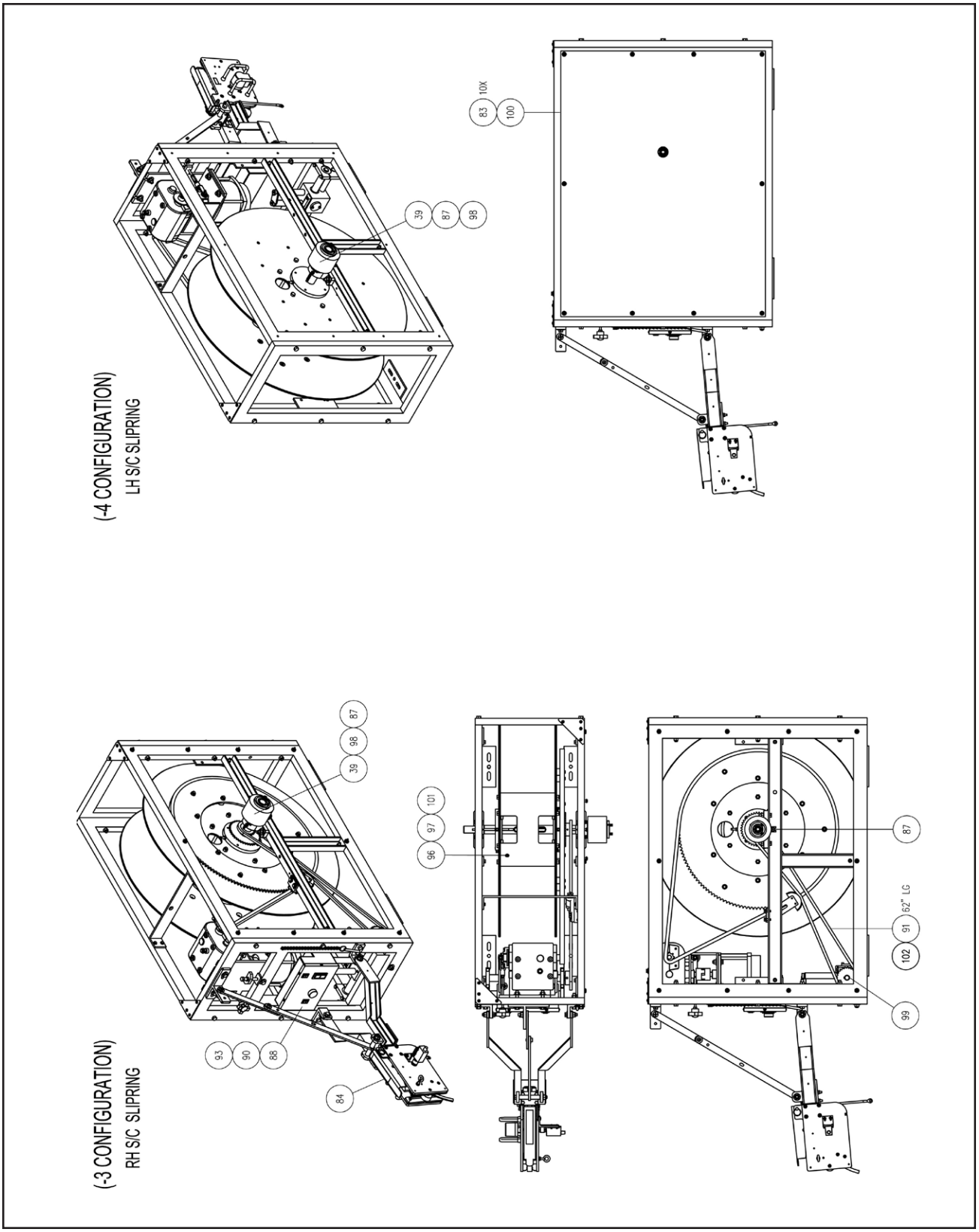


Figure 3e. *Reel Assembly, Cable, 072244*

Reel Assy, Cable (See Fig. 3) Rev. H, 072244			
Item #	Description	P/N	Qty
0002	FRAME,REAR,CABLE REEL	RL213	1
0003	FRAME,FRONT,CABLE REEL	5012590	1
0004	T-FRAME DRUM SUPPORT	71216	2
0005	BEARING,PLBLK 1"BORE	300311	2
0006	SHAFT,CABLE REEL,SLIPRING(L)	500259	1
0007	KEYSTOCK1/4"X1/4"X2"MACHINESTEEL	MR005	1
0008	KEYSTOCK1/4"X1/4"X1"MACHINESTEEL	MR004	2
0009	BRACKET,SUPPRT ARM,FTG,OBS>500247-1	500247	1
0010	BRACKET,FRAME FTGMTR,OBS>500243-1	500243	2
0011	FRAME ASSY,WLDMNT,OBS>RL709	300797	1
0012	ARM,SUPPORT,SIDELOAD,LOWER	501324	1
0013	ARM,SUPPORT,SIDELOAD UPPER	501312	1
0014	SWIVEL,BEARING BLOCK(2 HALVES)	501241	1
0015	PLATE,BEARING BLOCK,OBS>501242-1	501242	1
0016	SPROCKET ASSY,LEVELWIND DRIVE	300380	1
0017	GUSSET,TV REEL ASSY	130121	2
0018	LEVELWIND ASSY,RL,½P,OBS>3007700-1	3007700	1
0019	ROLLER,LEVELWIND	505131	2
0020	ENCLOSURE,CABLE GUIDE F/LEVELWIND	502150	1
0021	BRACKET,IDLER REEL,OBS>500702-1	500702	1
0022	CHAIN,IDLER LEVELWIND	300910	1
0023	MOUNT,PWR TRAIN,GRAY,OBS>5012500-1	5012500	1
0024	MOTOR ASSY,1200,1/2HP,OBS>310016	3100160	1
0025	COUPLING,HALF LOVEJOY 5/8BORE	300612	2
0026	TRANSMISSION,F/ 1200 REEL	3005250	1
0027	ROD,ALL-THREAD,1/4-20 X 4-1/2LG,RL	SS129	1
0028	KNOB,BRAKE ADJUSTMENT,REEL	RL174	1
0029	NUT,HEX PLATED,1/4-20	101038	6
0030	NUT,WING,PLATED,1/4-20	101029	1
0031	STANDOFF,AL,1/2"HEXX1"LG,1/4-20THR	HW425	1
0032	SCREW,SHCS,1/4-20X1 7/8 SST	100449	1
0033	NUT,LOCK W/NYL INS 1/4-20 SST	HW030	5
0034	WASHER,FLAT,1/4"SST	101736	5
0035	YOKE END,MODIFIED,REEL	RL175	1
0036	WASHER,FLAT,3/8 USS PLD	101232	27
0037	PIN,CLEVIS,3/8DX1-1/8LG	HW423	1
0038	PIN,COTTER,3/32X3/4 STEEL	97450	1
0039	ADAPTER,SHAFT,SLIPRING (L)	68004	1
0040	REEL,ASSY,CABLE DRUM MODULAR	71219	1
0041	CHAIN,#40 X 1/2 PITCH PRESTRESSED	300921	7.5
0042	BOLT,HEX,3/8-16X2 1/2 FULL THD PL	101210	1

Reel Assy, Cable (See Fig. 3) Rev. H, 072244			
Item #	Description	P/N	Qty
0043	WASHER,SPLIT 5/16 ZINC PLD	101133	4
0044	BOLT,HEX,5/16-18X1"ZINC	101105	10
0045	NUT,KEP,PLATED,3/8-16	101244	29
0046	BOLT,HEX,3/8-16X1 1/4 GR5 PL	101206	4
0047	BOLT,HEX,1/4-28X3/4 GR5 PL	100990	1
0048	WASHER,SPLIT 1/4 PLD	101033	3
0049	WASHER,FLAT,1/4 USS PLD	101032	3
0050	BOLT,HEX,3/8-16X3 1/2 GR5 PL	101215	12
0051	NUT,KEP,ZINC PLATED,5/16-18	101142	6
0052	BRACKET,TRNSM CBL,TV,OBS>TR525-1	TR525	1
0053	SCREW,SET,¼-20X3",SQUARE HEAD	HW396	4
0054	BOLT,HEX,3/8-16X1 1/2 GR5 PL	101207	6
0055	BOLT,HEX,3/8-16X2 GR5 PL	101209	5
0056	BOLT,HEX,3/8-16X4	101217	2
0057	BOLT,HEX,3/8-16X4 1/2 PL	101146	1
0058	NUT,SELF-LOCK,PLATED,3/8-16	101243	4
0059	BOLT,HEX,1/4-20X3"GRADE 5 PLATED	101013	4
0060	BOLT,SHOULDER,1/2X5 ALLOY	105091	2
0062	BOLT,HEX,3/8-16X2 1/2 GR5 PL	101211	2
0063	SCREW,PAN,10-32X3/8 PLATED	712440	8
0064	SCREW,HEX WASH HD,1/4X1 TEK,PLTD	102000	4
0065	SCREW,FLAT,SKT,3/8-16X1-1/4,BLK OX.	HW268	1
0066	BOLT,SHOULDER,3/8X3/8 ALLOY	100500	1
0067	BOLT,HEX,1/4-20X3/4 GR5 PL	101004	2
0068	PIN,ROLL,3/8X1"CARBON STEEL	97564	1
0069	BOLT,HEX,3/8-16X3/4 GR5 PL	101212	1
0070	PANEL,REEL ASSY,SLIPRING(L)	491129	1
0071	COVER,SLIPRING,CABLE REEL	161228	1
0072	SCREW,TRUSS,1/4-20X3/4 PHIL SST	712449	6
0073	SCREW,TRUSS,10-32X3/8 PHIL SST	712437	1
0074	PIN,FAST 5/16X2/12	97567	1
0075	WASHER,FLAT,3/8,SST	HW201	7
0076	CHAIN,SIZE 3 VICTOR PATTERN STYLE	300909	1
0077	KEY,WOODRUFF 3/16X3/4	200350	2
0078	COUPLING,RUBBER SPIDER LOVEJOY	300611	1
0079	MRO-REMOVABLE LCK,ND 121200-50,BLUE	440061	1
0080	NUT,JAM,PLATED,3/8-16	101241	1
0081	SCREW,SET,8-32X1/4 SST	100147	2
0082	SCREW,SET,1/4-20X1/4 STL	100998	2
0103	LINK,MASTER NO 40 ROLLER CHAIN	300920	1

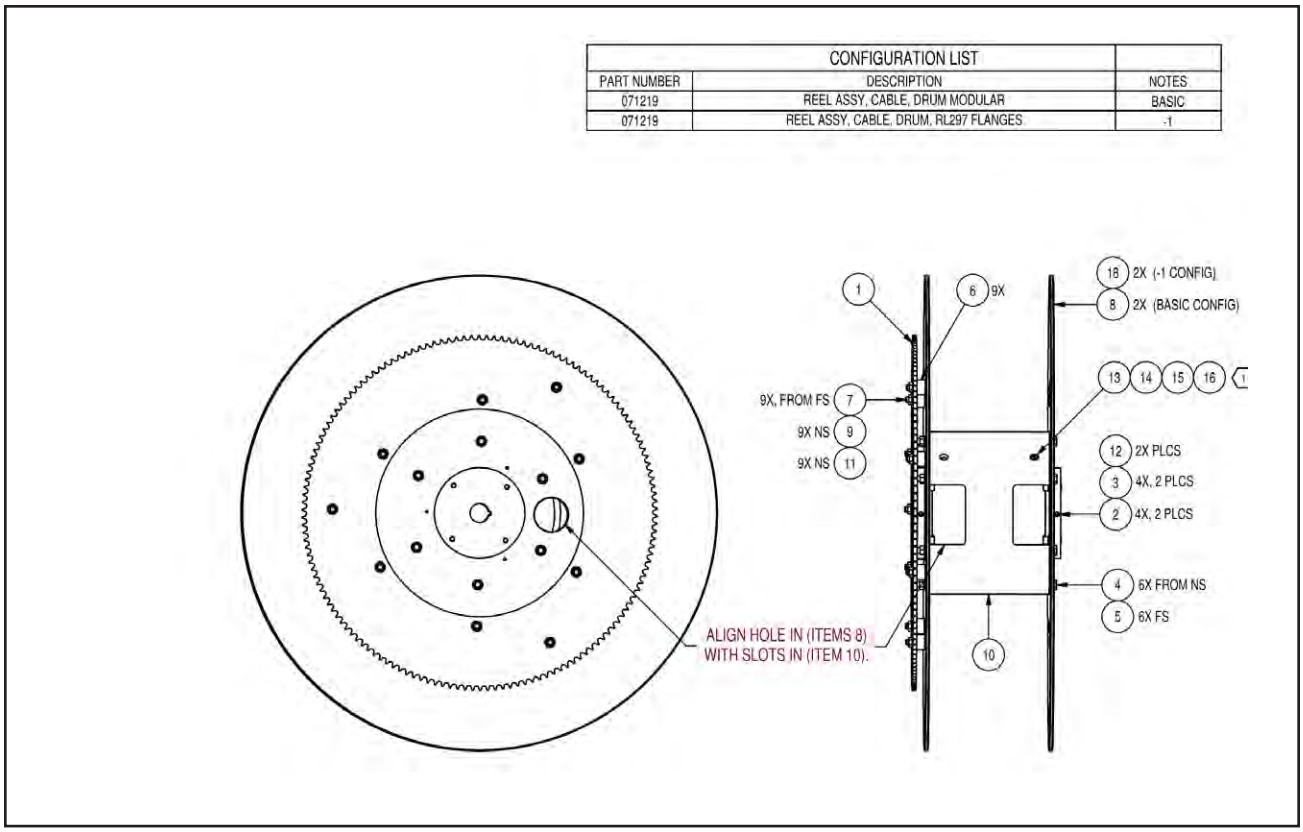


Figure 4. *Reel, Assy, Cable Drum Modular, 071219*

Reel, Assy, Cable Drum Modular (See Fig. 4) Rev. P 071219			
Item #	Description	P/N	Qty
0001	SPROCKET,PLATE 146T NO 41 PITCH	300441	1
0002	HUB,FLANGE,INTERCHANGEABLE	RL138	2
0003	SCREW,SHCS,5/16-18X7/8,SST	HW269	8
0004	BOLT,3/8-16X9 GR5 ZINC PL	1091250	6
0005	NUT,KEP,PLATED,3/8-16	101244	6
0006	SPACER,1200 REEL 1"ODX.624IDX9/16W	200905	9
0007	SCREW,FLAT,3/8-16X1 1/2 SKT BLKOX	101238	9
0008	FLANGE,INTERCHANGABLE	RL136	2
0009	WASHER,STAR INTERNAL 3/8 PLD	101234	9
0010	DRUM,TV REEL,STANDARD	RL135	1
0011	NUT,JAM,PLATED,3/8-16	101241	9
0012	WASHER,LOCK,5/16 SST	HW028	8
0013	SCREW,FLAT HEAD,PH,1/4-20X1 1/2,SS	HW520	1
0014	CLAMP,TUBING INSULATED,1/2"	121104	1
0015	NUT,KEP,PLATED,1/4-20	101042	1
0016	CLAMP,TUBE 3/4 INSULATED	121108	1
0017	MRO-TIE,CABLE,7",CLEAR	440309	1

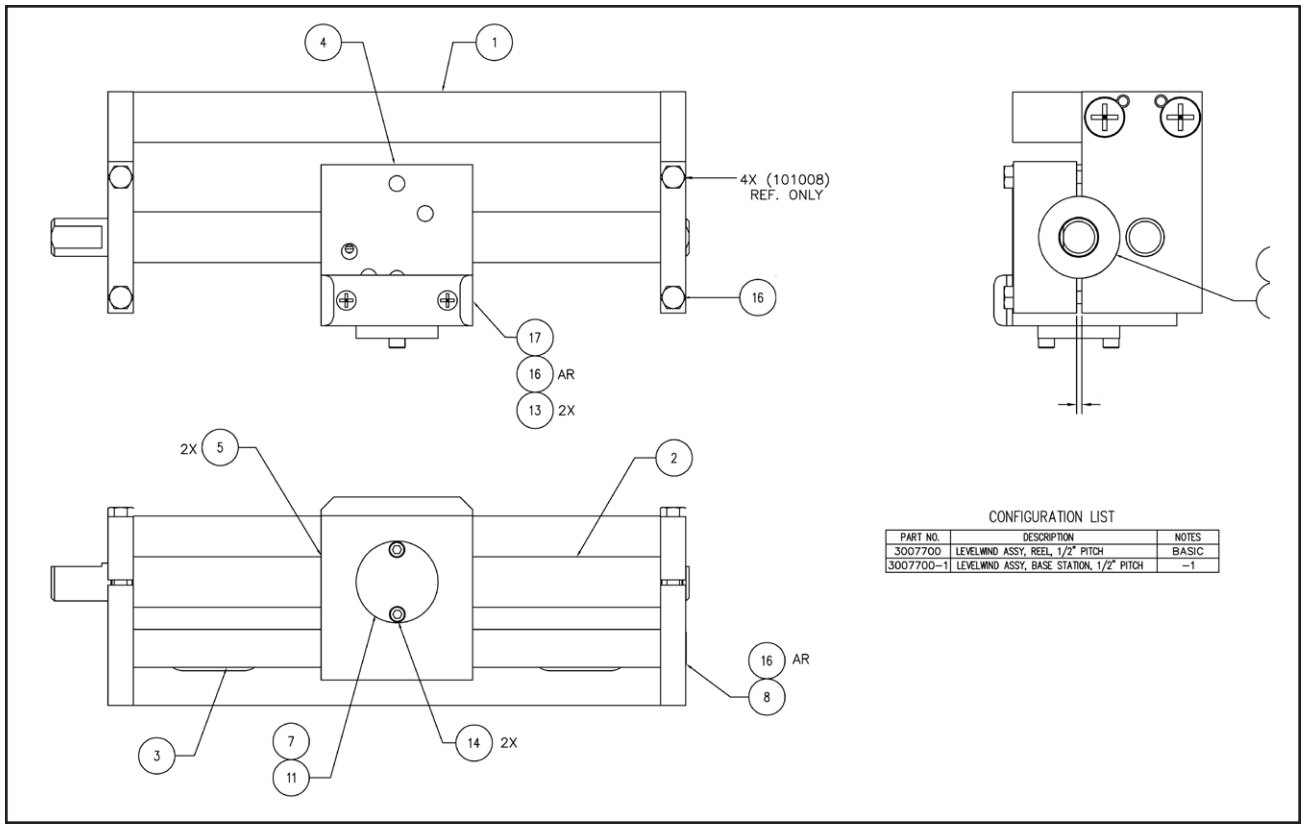


Figure 5. *Levelwind Assembly, Reel w/o Sprocket, 3007700*

Levelwind Assy, Reel w/o Sprocket (See Fig. 5) Rev. K			
Item #	Description	P/N	Qty
0001	FRAME,LEVELWIND,1200S,GREY	3007631	1
0002	SCREW,LEVELWIND,1/2P	300786	1
0003	ROD,GUIDE,LEVELWIND 1200 REEL	3007860	1
0004	BLOCK,FOLLOWER,LVLWD TV REEL	300779	1
0005	BUSHING,TENSION INSERT 1IDX1.375OD	300344	2
0006	BEARING,SEALED BALL 3/4X1-5/8X7/16	300322	2
0007	PAWL,LEVELWIND 1/2P	300780	1
0008	SCREW,SET,1/4-20X5/8 LONG LOK	101077	1
0009	MRO-PERMANENT LOCK,ND 140500-50,RED	440060	1
0011	COVER,PAWL 1/2P LEVELWIND	500405	1
0013	SCREW,FLAT,10-32X5/8 PHIL SST	103045	2
0014	SCREW,CAP,SKT HD,10-32X1/2,SST	102001	2
0016	MRO-REMOVABLE LCK,ND 121200-50,BLUE	440061	1
0017	BLOCK,TOP LEVELWIND	40608	1
0019	LABEL,WARNING,"KEEP HANDS CLEAR"	CS534	1

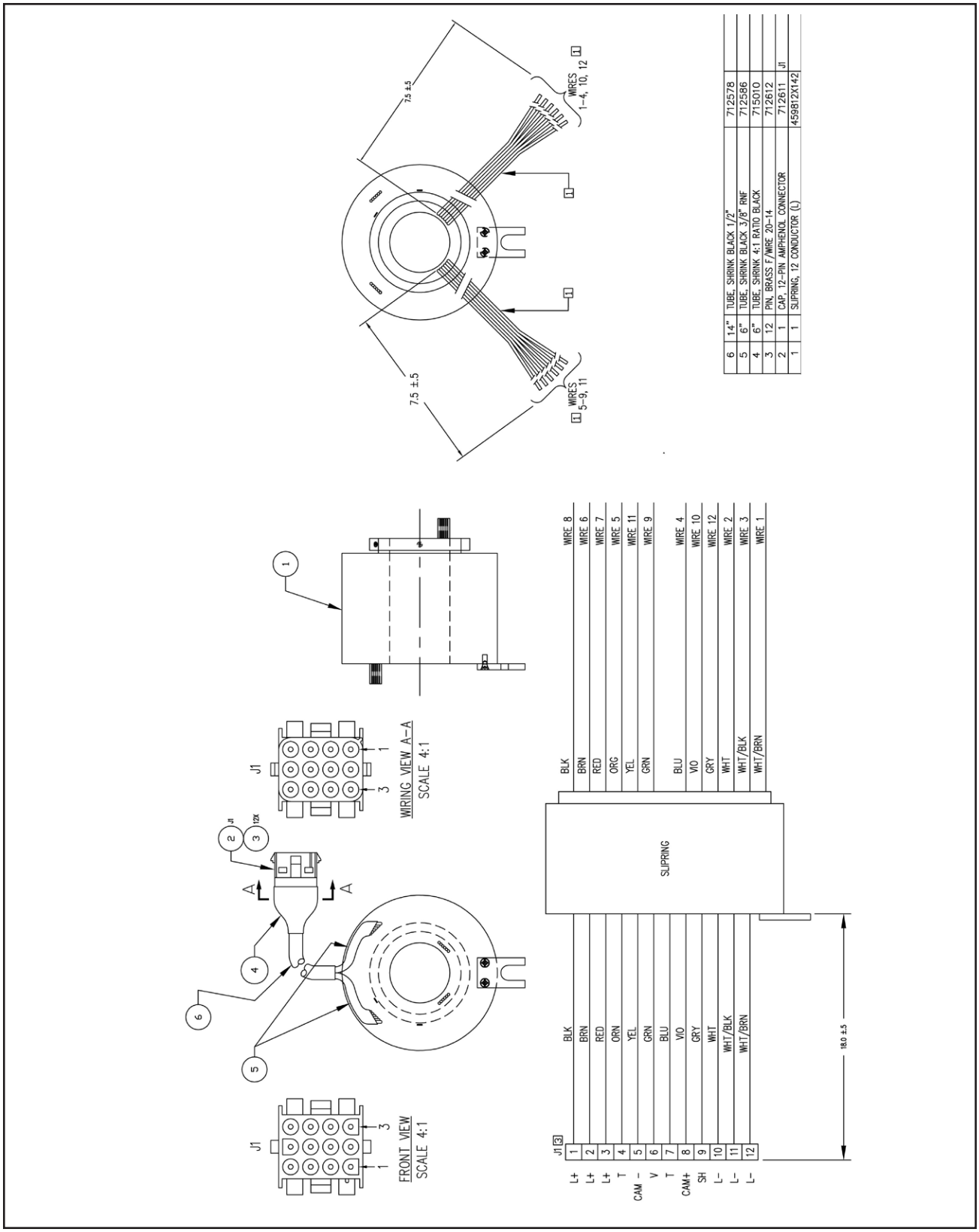


Figure 6: *Slipring, Assy, M/C, Rev. H, RL023*

CONFIGURATION LIST	
PART NUMBER	DESCRIPTION
MD320	PAYOUT ASSY, REEL, AUTO, PLATINUM CABLE
MD320-1	PAYOUT ASSY, REEL, AUTO, GOLD CABLE

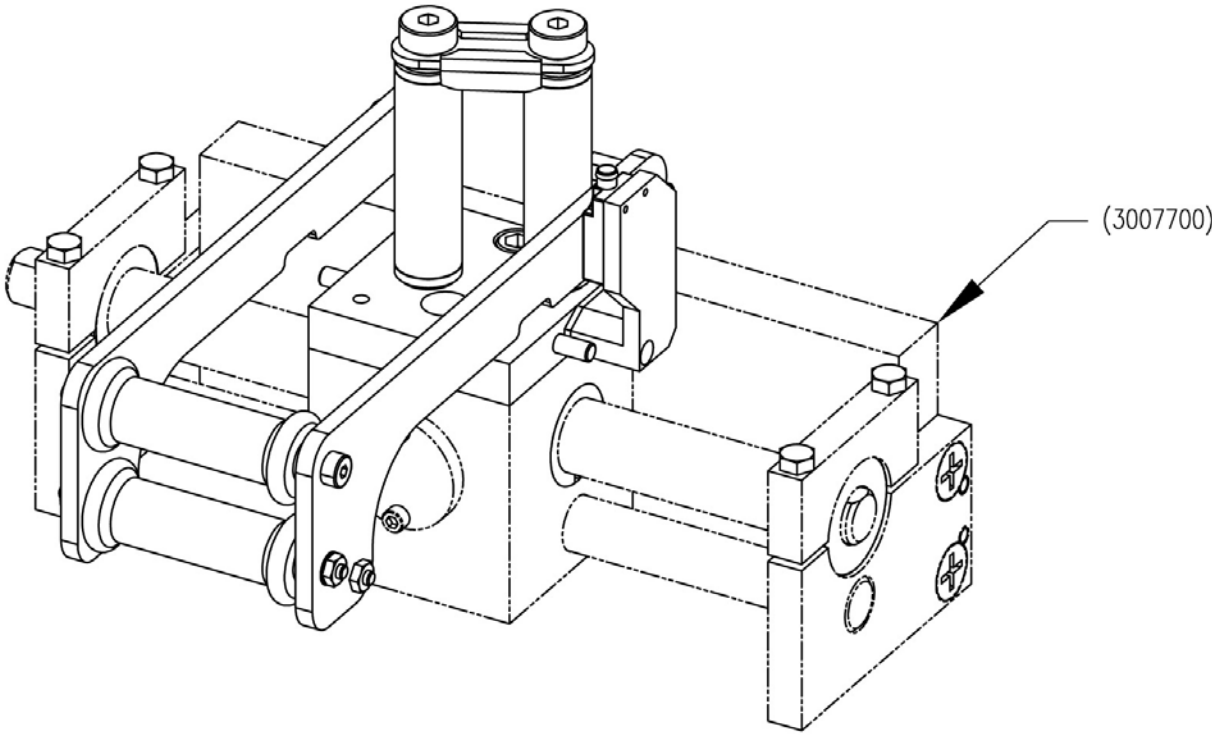


Figure 7a: *PAYOUT ASSY,REEL,LEGACY,GOLD CABLE MD320*

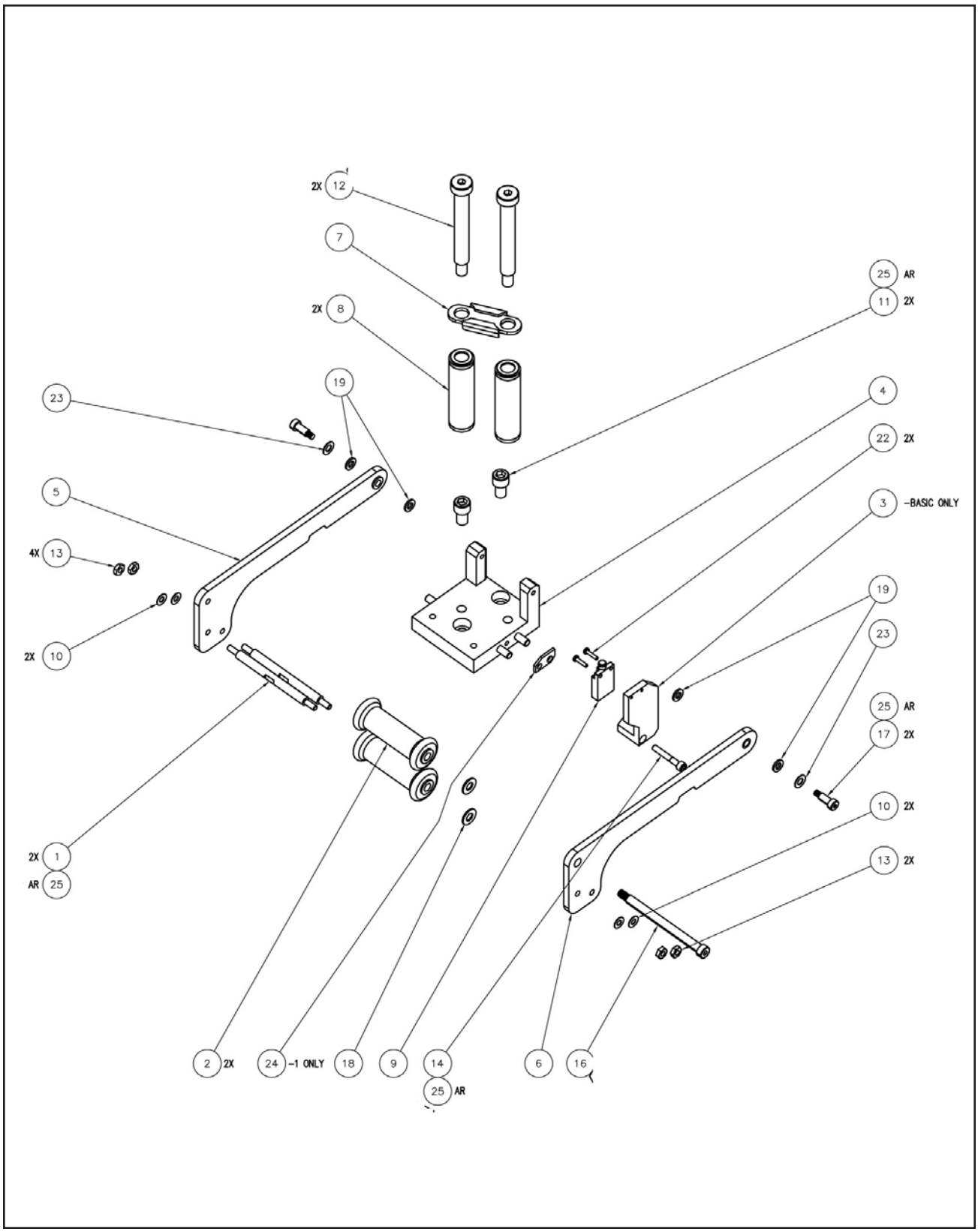


Figure 7b: *PAYOUT ASSY,REEL,LEGACY,GOLD CABLE MD320*

PAYOUT ASSY,REEL,LEGACY,PLAT. CABLE, Rev. G, MD320			
0001	AXLE,IDLER ROLLER,AUTO-PAYOUT,CPR	MD001	2
0002	ROLLER,IDLER,AUTO-PAYOUT,CPR	MD002	2
0003	BRACKET,TILT SENSOR,AUTO-PAYOUT,CPR	MD003	1
0004	PLATE,PIVOT,AUTO-PAYOUT,CPR	MD004	1
0005	PENDULUM,AUTO-PAYOUT,CPR	MD008	1
0006	PENDULUM,SENSOR SIDE,AUTO-PAYOUT	MD009	1
0007	ENCLOSURE,CABLE GUIDE F/LEVELWIND	502150	1
0008	ROLLER,LEVELWIND CABLE GUIDE	300776	2
0009	SENSOR,PROXIMITY,8MM,EXT.RANGE	EC1377	1
0010	WASHER,FLAT,#10 SST	100140	4
0011	SCREW,CAP,SKT HD,3/8-16X5/8,SST	101250	2
0012	BOLT,SHOULDER,1/2X3 1/2 STL	100501	2
0013	NUT,JAM,10-32,SST	8799	4
0014	SCREW,CAP,SKT HD,10-32X1-1/4,SST	103040	1
0016	SCREW,SHLDR,Ø5/16X3.5X1/4-20,SST	HW1618	1
0017	SCREW,SHLDR,Ø1/4X1/2X10-32,SST	HW1619	2
0018	WASHER,TRST,Ø5/16XØ5/8X1/16,OILITE	HW1620	2
0019	WASHER,THRST,Ø1/4XØ7/16X1/16 OILITE	HW1621	4
0022	SCREW,PAN,4-40X1/2 PHIL SST	HW246	2
0023	WASHER,.265 ID X .50 OD X.03THK,SST	HW1299	2
0025	MRO-REMOVABLE LCK,ND 121200-50,BLUE	440061	1

CONFIGURATION LIST

PART NO.	DESCRIPTION	NOTES
FM406	FOOTAGE METER,ACCUMETER,10 PULSE	
FM406-1	FOOTAGE METER,ACCUMETER,10 PULSE W/ MECH. COUNTER	
FM406-2	FOOTAGE METER,ACCUMETER,W/O REMOTE READOUT	
FM406-3	FOOTAGE METER,ACCUMETER,10 PULSE,NO CABLE	
FM406-4	FOOTAGE METER,ACCUMETER,W/O REMOTE READOUT,NO CABLE	

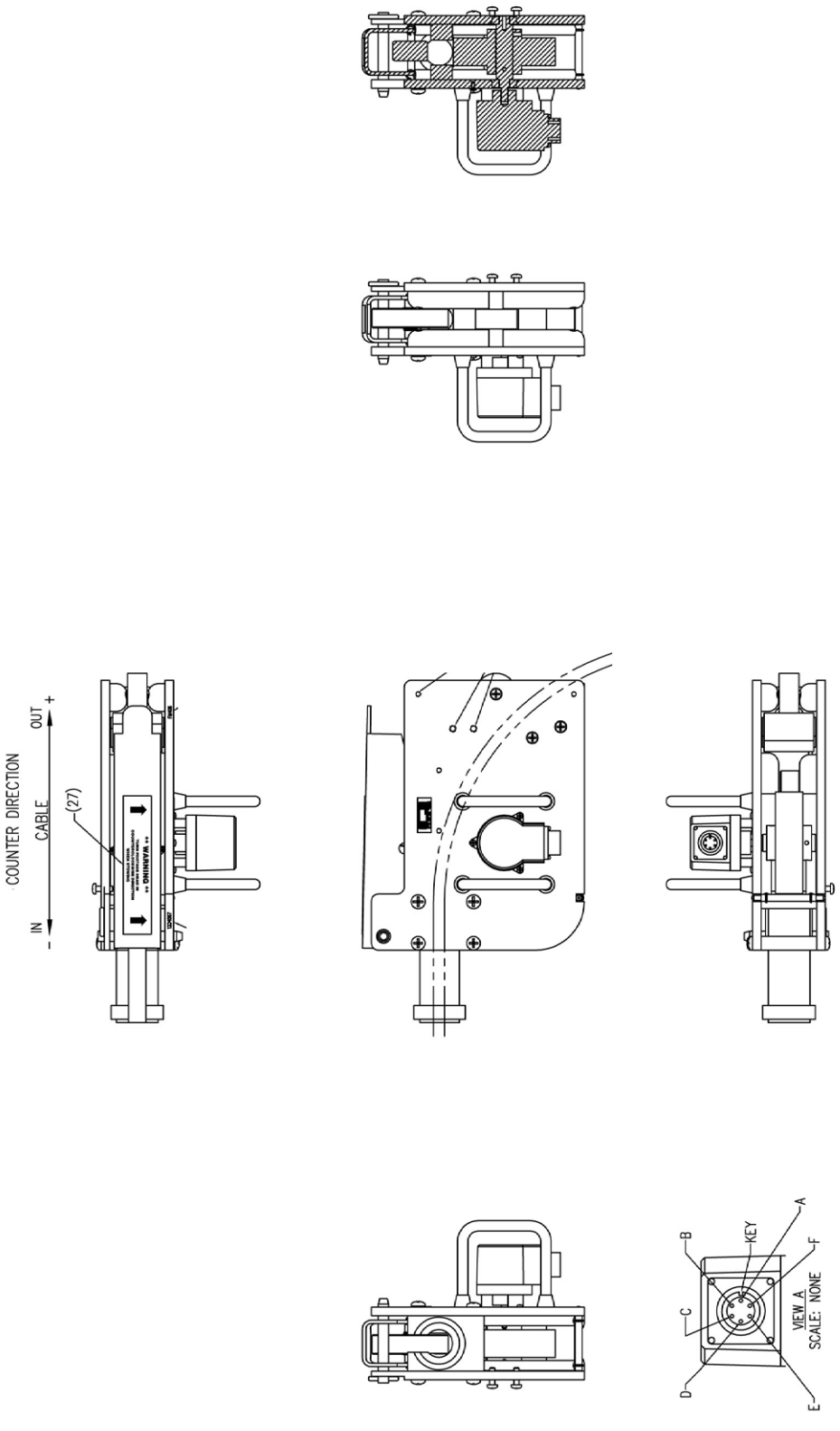


Figure 8a: Footage Meter, Accumeter, 10 Pulse, FM406

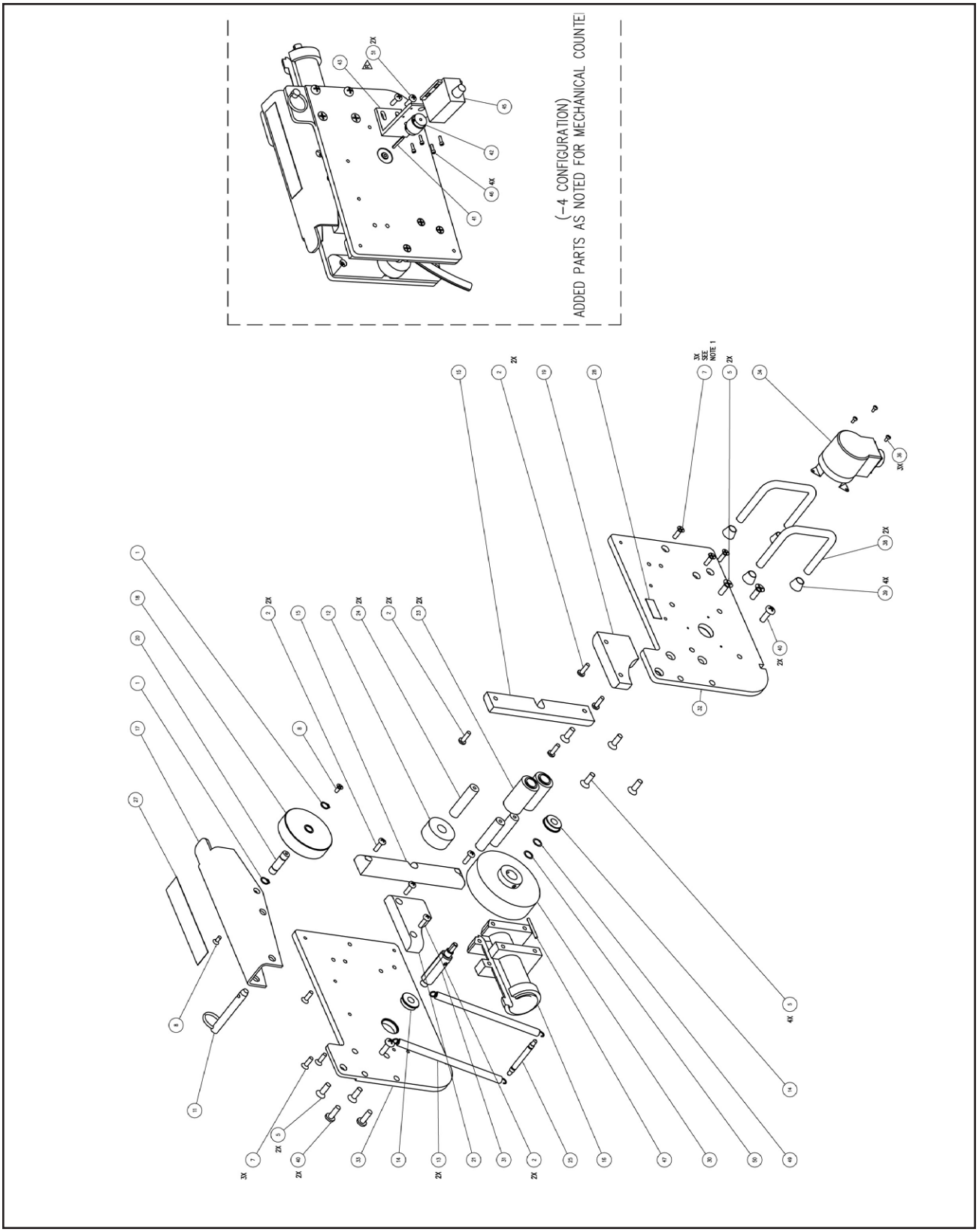


Figure 8b: Footage Meter, Accumeter, 10 Pulse, FM406

Footage Mtr, Accumtr, 10 Pulse (See Fig. 8) Rev. R,FM406			
Item #	Description	P/N	Qty
0001	RING,RETAINING,3/8"	97512	2
0002	SCREW,PAN,10-32X5/8 SST	100108	8
0005	SCREW,FLATHEAD,1/4-20X3/4 PHIL SST	103080	8
0006	REMOTE READOUT ASSY,ACCUMETER	FM401	1
0007	SCREW,FLAT,10-32X5/8 PHIL SST	103045	6
0008	SCREW,FLAT,8-32X3/8 PHIL SST	100146	2
0011	PIN,FAST 3/8"X2.3"	120809	1
0012	ROLLER,KEEPER	200289	1
0013	SPRING,EXTENSION,FOOTAGE METER	200410	2
0014	BEARING,FLANGE,FOOTAGE METER	300339	2
0015	GUIDE, CABLE	500135	2
0016	PIVOT ASSY,WELDMENT	501234	1
0017	ARM,PRESSURE WHEEL	501235	1
0018	WHEEL,PRESSURE,F/FM300,410207	501237	1
0019	GUIDE,SIDE FOOTAGE METER L.H.	501238	1
0020	SHAFT,PRESSURE WHEEL	501239	1
0021	GUIDE,SIDE FOOTAGE METER R.H.	501240	1
0023	ROLLER,FOOTAGE METER	501245	2
0024	SHAFT,SPACER	501246	3
0025	SHAFT,ANCHOR SPRING	501248	1
0027	LABEL,WARNING,FTGMTR	960700	1
0028	LABEL,LOGO CUES 1 1/4X1/2	962025	1
0029	CABLE,FTGMTR TO TITLERS,22FT	7133892	1
0030	WHEEL,MEASURE,ALUMINUM,M/C	FM010	1
0031	SHAFT,SHORT,MEASURE WHEEL,RR	FM020	1
0032	PLATE,ENCODR,REMOTE READOUT,ACCUMTR	FM021	1
0033	PLATE,FOOTAGE HEAD,EYE BOLT SIDE	FM015	1
0034	ENCODER,W/6PIN CONN,10PPR	EL518	1
0036	SCREW,PAN,4-40X1/4 MACHINE	HW227	3
0037	MRO-REMOVABLE LCK,ND 121200-50,BLUE	440061	1
0038	HANDLE,RND,3/8DIA,3HX3WX1/4-20,SST	HW921	2
0039	FERRULE,3/8DIA HANDLE,SST	HW920	4
0040	SCREW,PAN,1/4-20X3/4	101058	4
0047	PIN,ROLL,.125 DIA X1.25 LG SST	HW056	1
0049	SPACER,3/8IDX1/2 ODX.005 SST	300041	1
0050	SPACER,3/8"IDX.010	300044	1

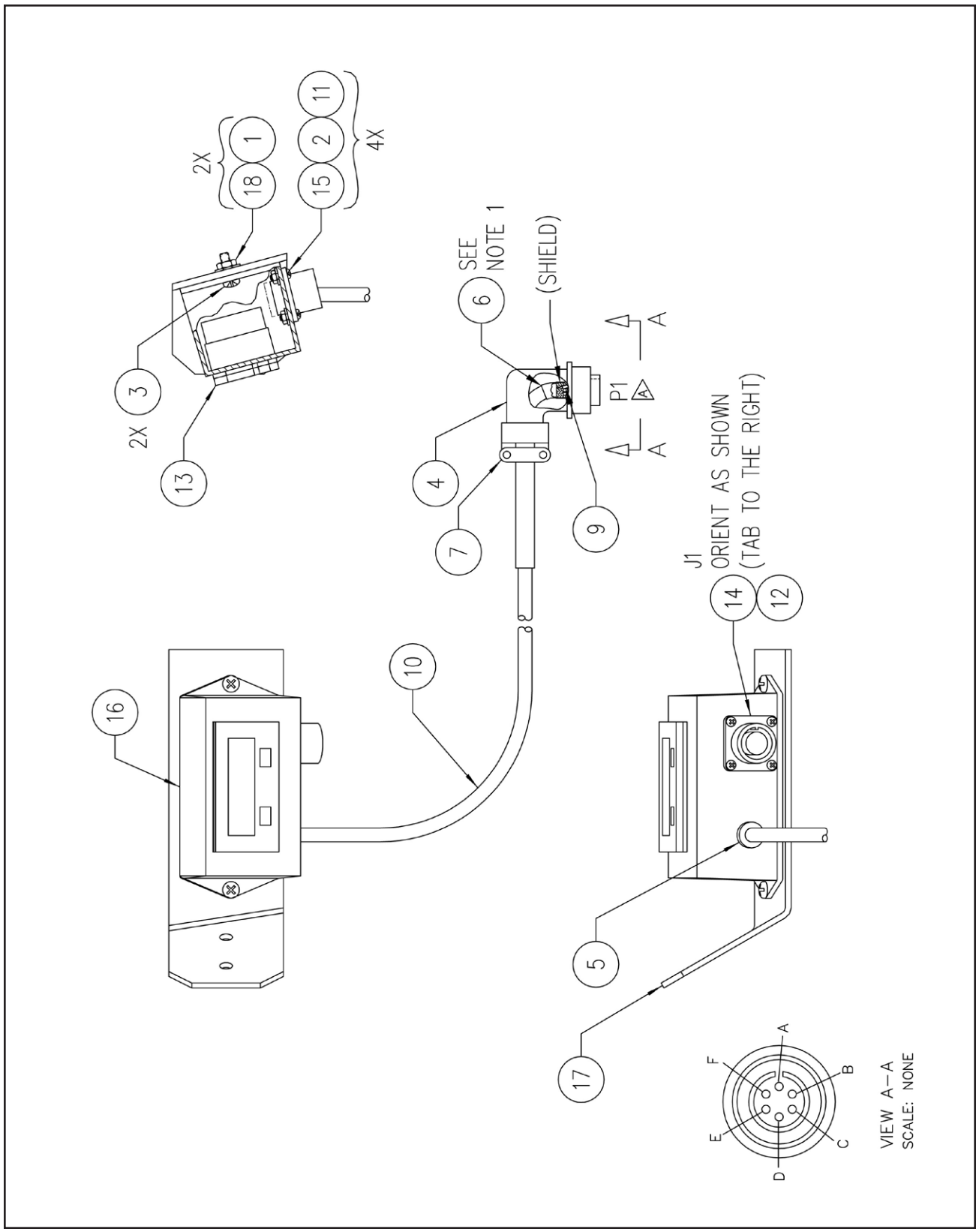


Figure 9: *Remote Readout Assembly, FM401*

Remote Readout Assy, Accumeter (See Fig. 9) Rev.C, FM401			
Item #	Description	P/N	Qty
- 1	Washer, Flat, #10 SST	100140	2
- 2	Washer, Flat, #4 SST(red od .209)	101737	4
- 3	Screw, Pan, 10-32x5/8 SST	100108	2
- 4	Plug, 90 Degree Elbow 6-Pin	712140	1
- 5	Strain Relief, Heyco sr-5p-4	712569	1
- 6	Tube, Shrink, Black 3/8"rnf	712586	1
- 7	Clamp, f/14s Shell(bagged)	712497	1
- 8	Connector, Ring, Term#6 22-18	712743	5
- 9	Wire, #20 White w/Black Bu	713327	1
- 10	Cable, #20-4	713356	16
- 11	Nut, Hex, SST, 4-40	950306	4
- 12	Gasket, f/Bx Mnt Conn.	CR120	1
- 13	Position Indicator, Digital	FM008	1
- 14	Connector, Bx Mnt, 14s, w/f-Sockets	FM009	1
- 15	Screw, Bind, 4-40x3/8 Phil SST	712414	4
- 16	Box, Modified, Meter Enclosure	FM026	1
- 17	Bracket, Mounting, Meter Enclosure	FM024	1
- 18	Nut, Lock, SST, 10-32	103033	2
- 19	Tube, Shrink, Black 1/8"	712789	1
- 20	Wire, #20 Red bu	713319	1
- 21	Wire, #20 Black Stranded 600v	713317	1
- 22	Wire, #20 Green Bu 19/32	713322	1
- 23	Wire, #20 White Bu	713326	1
- 24	Instructions, Accumeter, FM300/fm406	FM900	1

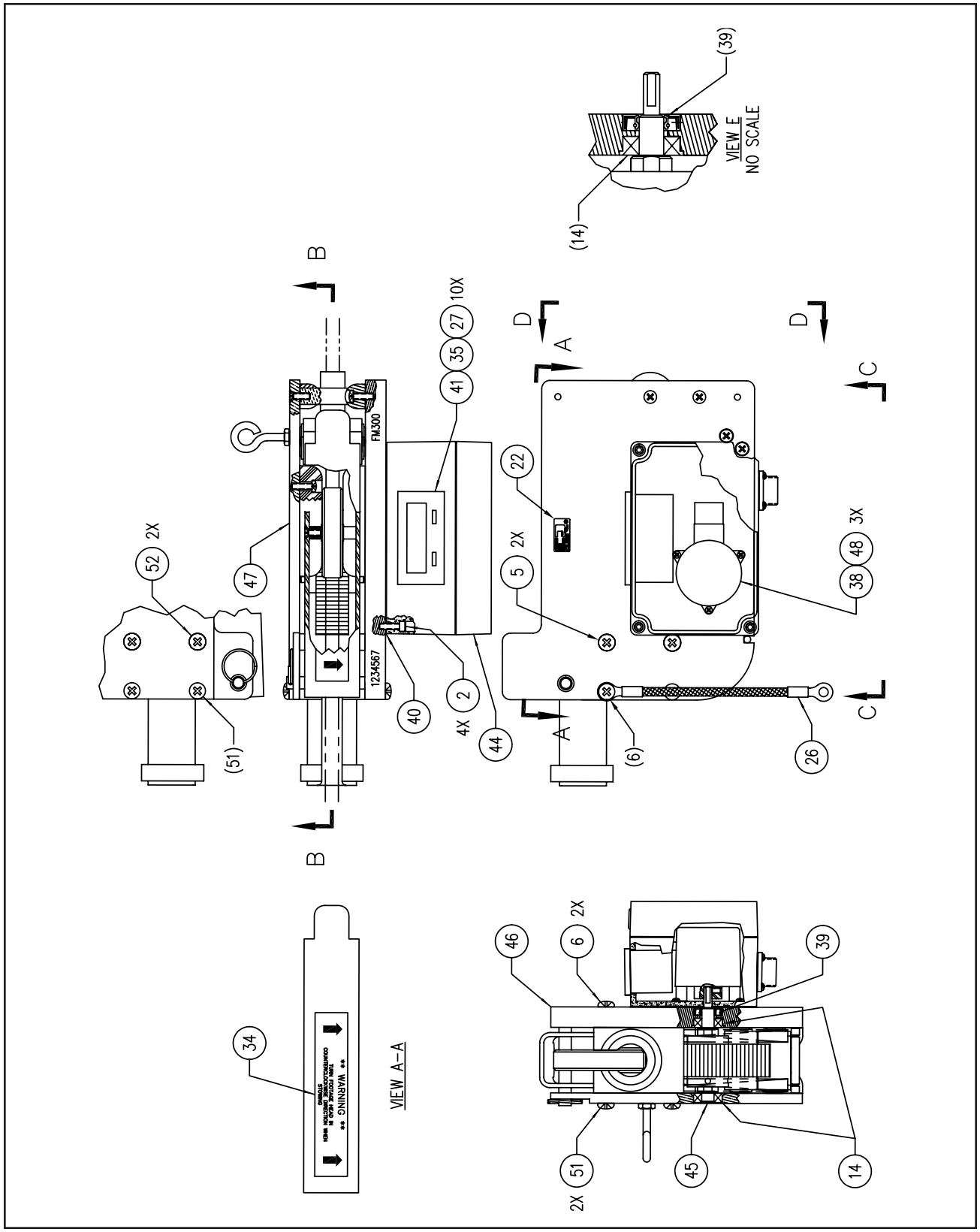


Figure 10a: *Footage Meter, Accumeter, FM300*

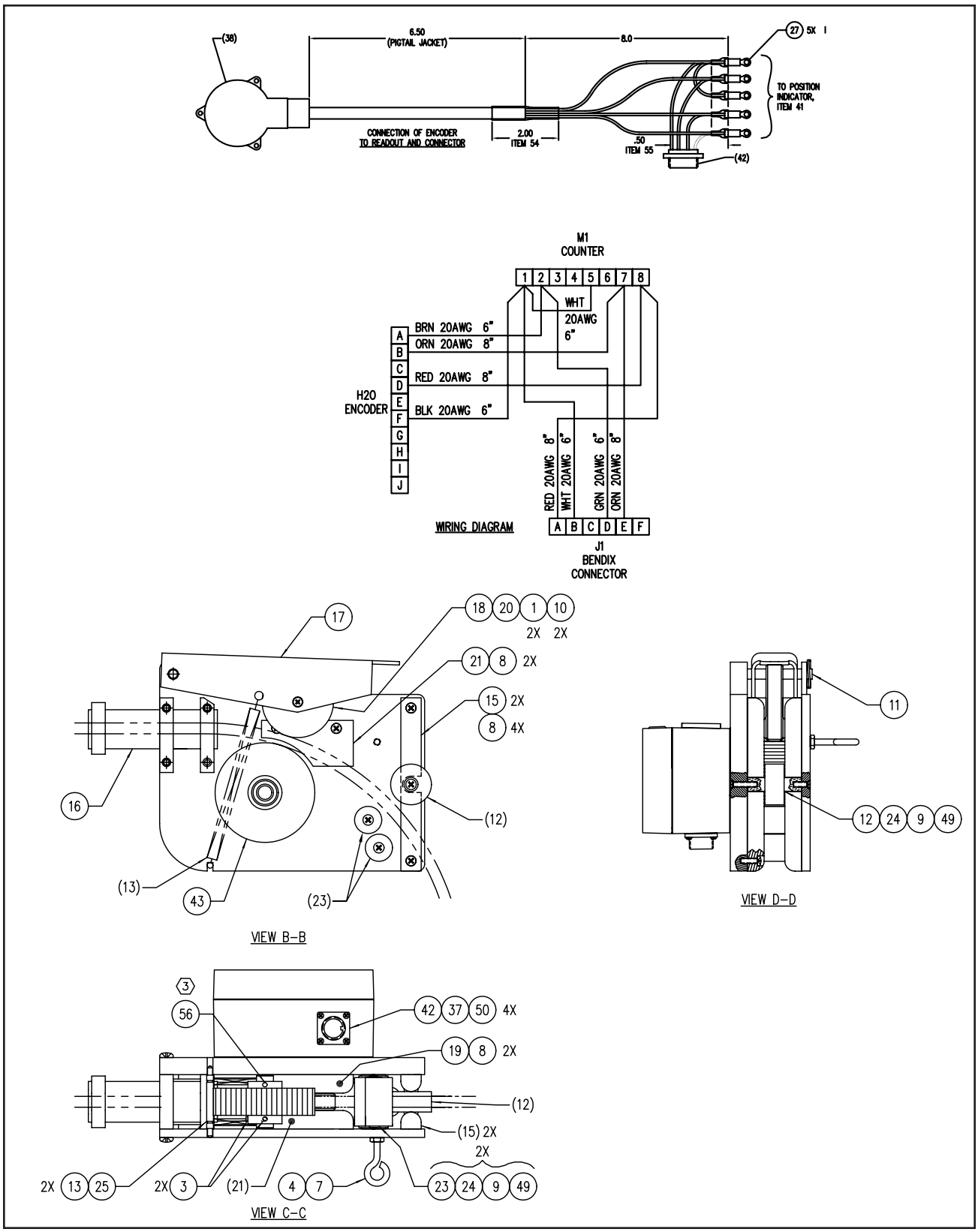


Figure 10b: *Footage Meter, Accumeter, FM300*

Footage Mtr, Accumtr (See Fig. 10) Rev. K, FM300			
Item #	Description	P/N	Qty
− 1	Ring,Retaining,3/8"	097512	2
− 2	Screw,Cap,Skt Hd,8-32x5/8,Sst	100141	4
− 3	Screw,Set,8-32x1/4 Sst	100147	2
− 4	Nut,Kep,Plated,1/4-20	101042	1
− 5	Screw,Flat,1/4-20x1 Phil	101053	2
− 6	Screw,Pan,1/4-20x1	101057	2
− 7	Bolt,Eye,1/4-20x2.0lg,1.0 Shank,Zp	HW467	1
− 8	Screw,Pan,10-32x5/8 Sst	100108	8
− 9	Screw,Flat,10-32x5/8 Phil Sst	103045	3
− 10	Screw,8-32x1/2 Fl,Ph,Ss	103062	2
− 11	Pin,Fast 3/8"X2.3"	120809	1
− 12	Roller,Keeper	200289	1
− 13	Spring,Extension,Footage Meter	200410	2
− 14	Bearing,Flange,Footage Meter	300339	2
− 15	Guide, Cable	500135	2
− 16	Pivot Assy,Weldment	501234	1
− 17	Arm,Pressure Wheel	501235	1
− 18	Wheel,Pressure,F/Fm300,410207	501237	1
− 19	Guide,Side Footage Meter L.H.	501238	1
− 20	Shaft,Pressure Wheel	501239	1
− 21	Guide,Side Footage Meter R.H.	501240	1
− 23	Roller,Footage Meter	501245	2
− 24	Shaft,Spacer	501246	3
− 25	Shaft,Anchor Spring	501248	1
− 26	Strap,Grounding	502260	1
− 27	Connector,Ring,Term#6 22-18	712743	5
− 28	Mro-Seal.Hgh Press,Nd 440400-50,Brn	445091	1
− 29	Mro-Removable Lck,Nd 121200-50,Blue	440061	1
− 30	Wire,#20 Red Bu	713319	1
− 31	Wire,#20 Orange Bu	713320	1
− 32	Wire,#20 Green Bu 19/32	713322	1
− 33	Wire,#20 White Bu	713326	1
− 34	Label,Warning,Ftgmtr	960700	1
− 35	Mro-Sealant,Pourable Translucent	445066	1
− 36	Cable,Ftgmtr To Titlers,22ft	7133892	1
− 37	Gasket,F/Bx Mnt Conn.	CR120	1
− 38	Encoder,Footage,10ppr,Pigtail	FM005	1

Footage Mtr, Accumtr (See Fig. 10) Rev. K, FM300			
Item #	Description	P/N	Qty
− 39	Seal,Shaft,.375idx.874 Odx.25thk	FM006	1
− 40	Gasket,Encoder,Enclosure	FM007	1
− 41	Position Indicator,Digital,Danaher	FM008	1
− 42	Connector,Bx Mnt,14s,W/F-Sockets	FM009	1
− 43	Wheel,Measure,Aluminum,M/C	FM010	1
− 44	Enclosure,Encoder,Accumeter	FM011	1
− 45	Shaft,Measure Wheel	FM013	1
− 46	Plate,Encoder,Box Side	FM014	1
− 47	Plate,Encoder,Eye Bolt Side	FM015	1
− 48	Screw,Pan,4-40x3/16 Sst	HW236	3
− 49	Screw,Flat,10-32x1 Phil Sst	HW804	3
− 50	Screw,Bind,4-40x3/8 Phil Sst	712414	4
− 51	Screw,Truss,1/4-20x3/4 Phil Sst	712449	2
− 52	Screw,Flathead,1/4-20x3/4 Phil Sst	103080	2
− 53	Mro-Lubricant,Sil-Glyde W/Silicone	CS042	1
− 54	Tube,Shrink,Black 3:1 Ratio-1/2"	712572	2
− 55	Tube,Shrink,Black 1/8"	712789	2
− 56	Pin,Roll,.125 Dia X1.25 Lg Sst	HW056	1
− 57	Instructions,Accumeter,Fm300/Fm406	FM900	1

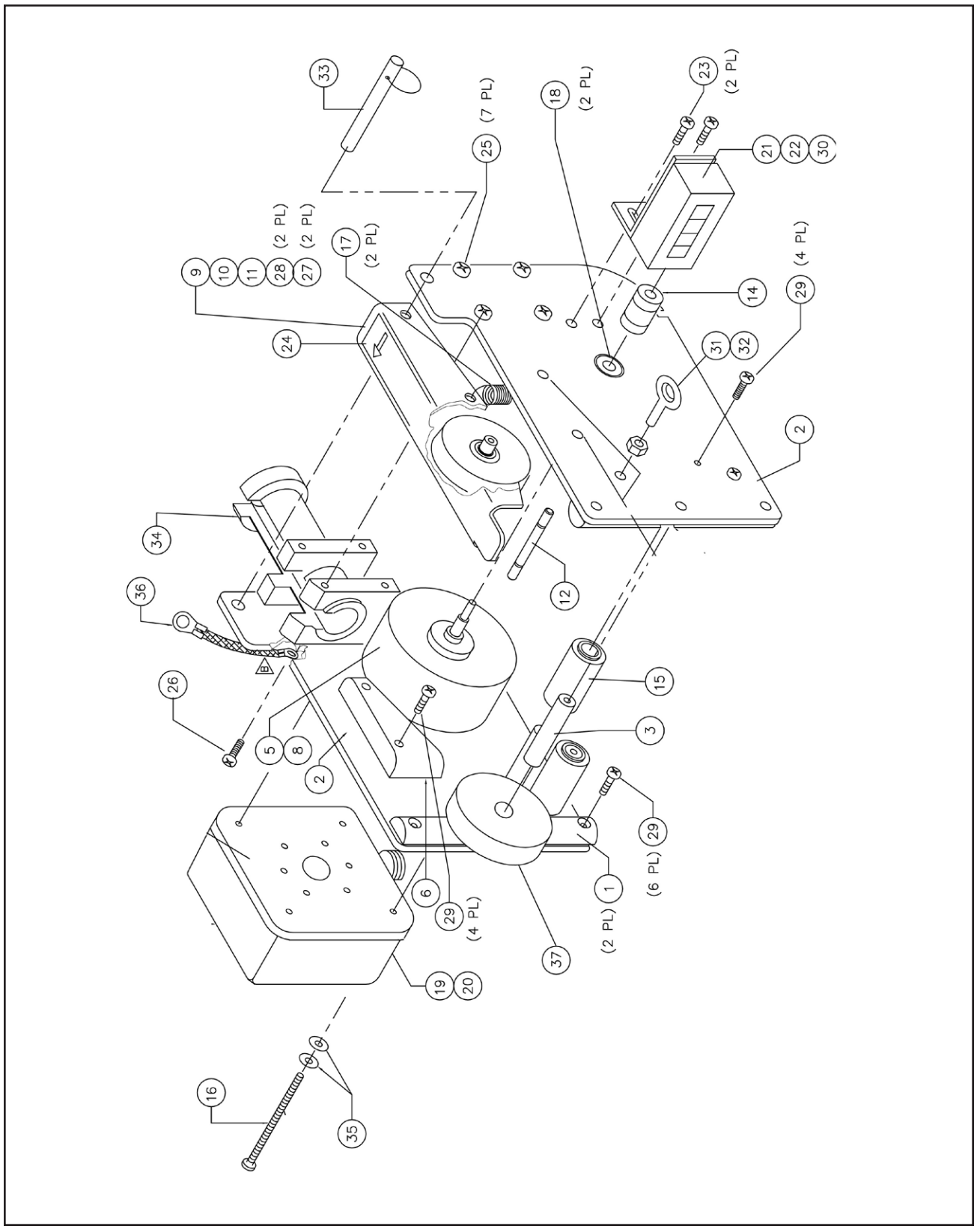


Figure 11: *Footage Meter Assembly, 410207*

Footage Meter Assy (See Fig. 11) Rev. T, 410207			
Item #	Description	P/N	Qty
0001	GUIDE, CABLE	500135	2
0002	PLATE,SIDE ELECTRIC	501233	2
0003	SHAFT,SPACER	501246	3
0005	WHEEL,MEASURE MOD TRUCK	300866	1
0006	GUIDE,SIDE FOOTAGE METER R.H.	501240	1
0007	GUIDE,SIDE FOOTAGE METER L.H.	501238	1
0008	SHAFT,MEASURE WHEEL MOD TRUCKS	300008	1
0009	WHEEL,PRESSURE,F/FM300,410207	501237	1
0010	SHAFT,PRESSURE WHEEL	501239	1
0011	ARM,PRESSURE WHEEL	501235	1
0012	SHAFT,ANCHOR SPRING	501248	1
0013	CABLE,FTGMTR TO TITLERS,22FT	7133892	1
0014	COUPLING,SHAFT FLEXIBLE 1/8X1"	300610	1
0015	ROLLER,FOOTAGE METER	501245	2
0016	SCREW,PAN,10-32X2 1/2 PHIL SST	712434	2
0017	SPRING,EXTENSION,FOOTAGE METER	200410	2
0018	BEARING,FLANGE,FOOTAGE METER	300339	2
0019	DATAVIEW,FTGMTR ELECTRONIC ASSY	7139180	1
0020	CODE WHEEL ASSY,TENTHS FTGMTR	7139281	1
0021	BRACKET,MECH CNTR MNT FGTMTR	5001000	1
0022	COUNTER,MECH FTGMTR LH TOP COMING	300992	1
0023	SCREW,TRUSS,10-32X3/8 PHIL SST	712437	8
0024	LABEL,WARNING,FTGMTR	960700	1
0025	SCREW,PAN,1/4-20X1/2 PHIL SST	101055	7
0026	SCREW,FLATHEAD,1/4-20X1/2 PHIL SST	103079	1
0027	SCREW,8-32X1/2 FL,PH,SS	103062	2
0028	RING,RETAINING,3/8"	97512	2
0029	SCREW,PAN,10-32X1/2 SST	101860	14
0030	SCREW,CAP,SKT HD,4-40X3/8,BLACK	100061	4
0031	BOLT EYE,MODIFIED F/FTGMTR	101222	1
0032	NUT,KEP,PLATED,1/4-20	101042	1
0033	PIN,FAST 3/8"X2.3"	120809	1
0034	PIVOT ASSY,WELDMENT	501234	1
0035	O-RING,MINI CAM BULBS BUNA N 006	712500	2
0036	STRAP,GROUNDING	502260	1
0037	ROLLER,KEEPER	200289	1

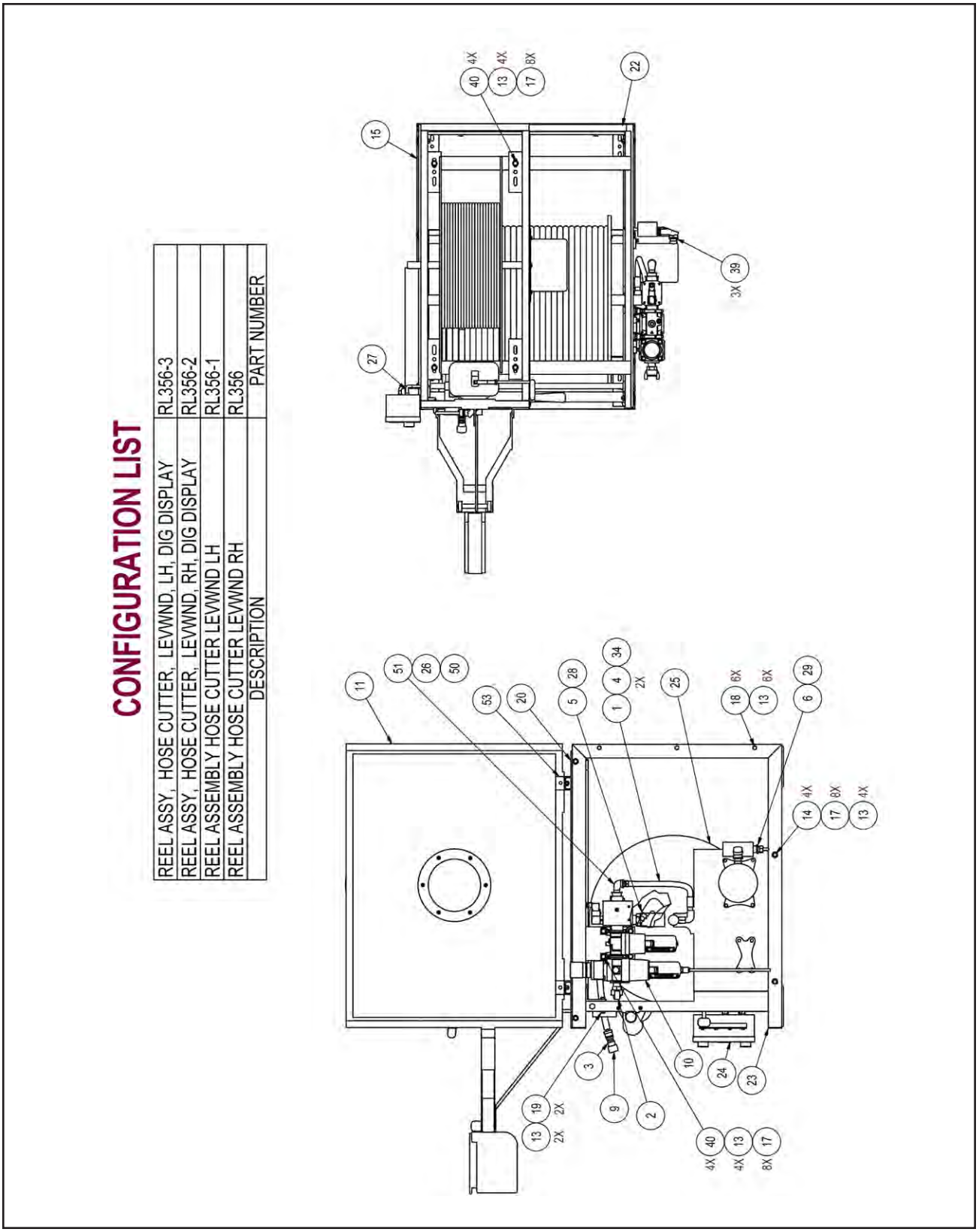


Figure 12a: REEL ASSY,HOSE CUTTER LVWND RH, RL356

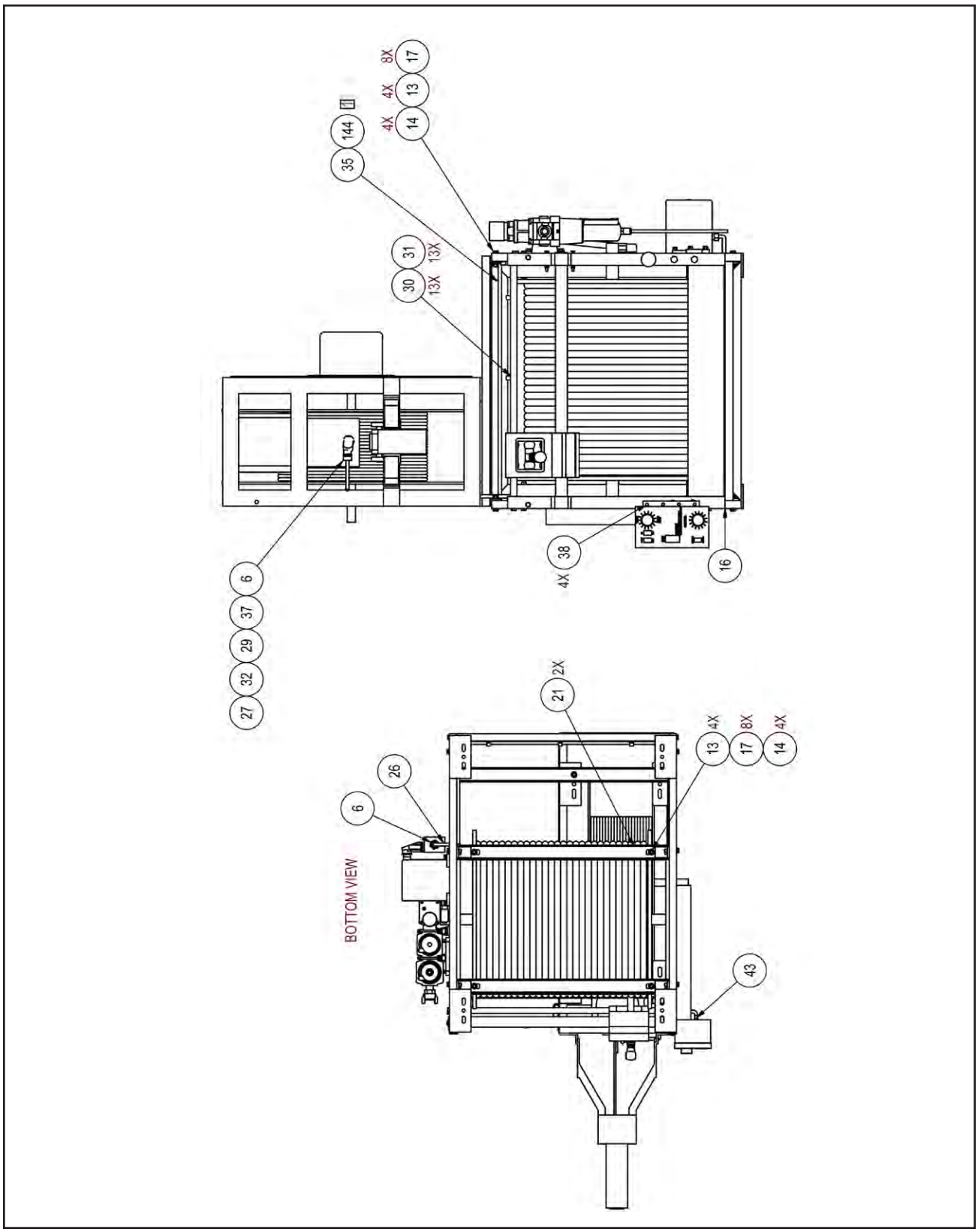


Figure 12b: *REEL ASSY,HOSE CUTTER LVWND RH, RL356*

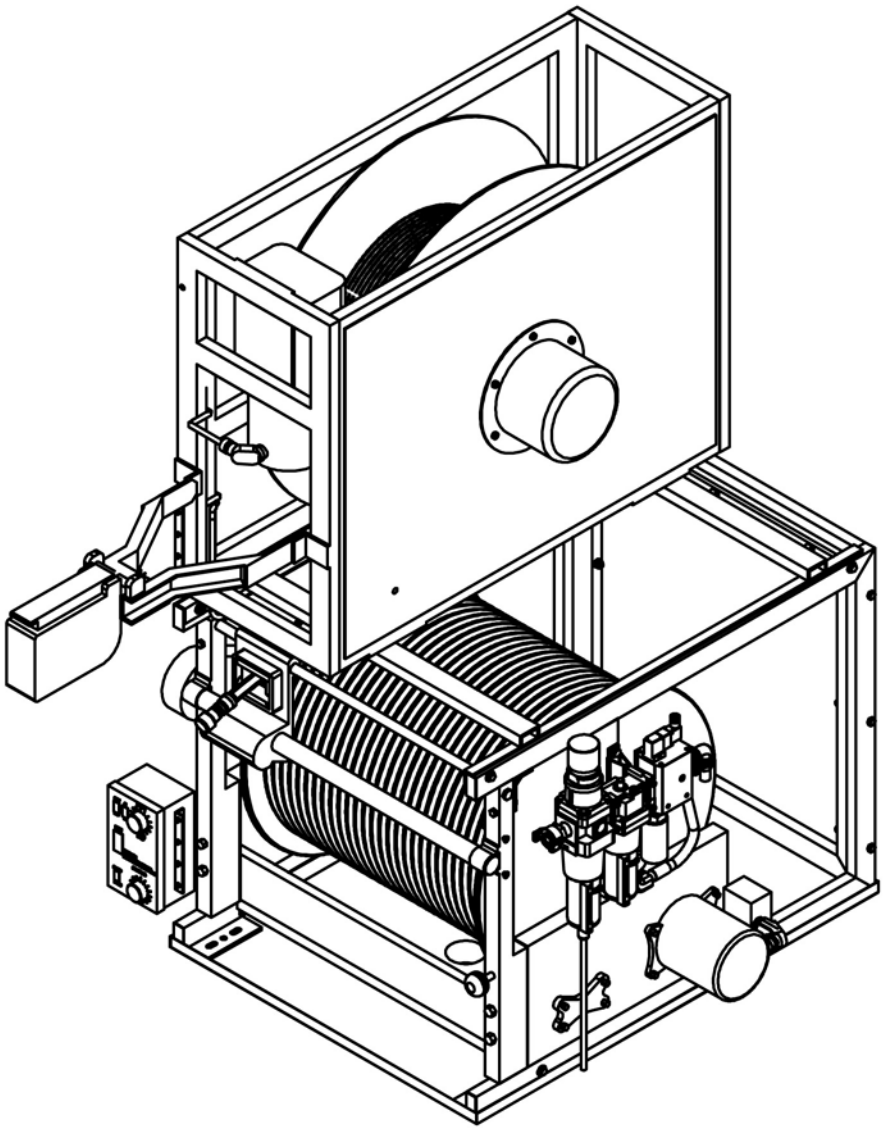


Figure 12c: *REEL ASSY,HOSE CUTTER LVWND RH, RL356*

REEL ASSY, HOSE CUTTER< LVWND, RH, REV. E, RL356			
0001	HOSE,RUBBER,3/4ID,250 PSI	10060	1.58
0002	COUPLING,QUICK ACTING MALE ADAPTER	RL043	1
0003	BELL REDUCER 3/8FPT X1/2FPT	112411	1
0004	CLAMP,WORM,SST,#12	120605	2
0005	BUSHING,1/2X3/8,GALV,REDUCING	112222	1
0006	GRIP, CORD 1/2 .375-.570	161091	2
0007	PLATE,BLANK SINGLE GANG COVER	501275	1
0008	BOX,2"DEEP-5 OUTLET 3/4"	161714	1
0009	QUICK DISCONNECT,W/CHECK VALVE & SL	220442	1
0010	DRYER AND MUFFLER ASSY,VALVE,K.CTR	KC100	1
0011	REEL ASSY,TV,GENERIC,BLK	RL600	1
0012	BOLT,HEX,3/8-16X3/4 GR5 PL	101212	8
0013	NUT,KEP,PLATED,3/8-16	101244	26
0014	BOLT,HEX,3/8-16X1 3/4 GR5 PL	101208	8
0015	DRIP PAN,REEL CUTTER LVWIND	RL256	1
0016	FRAME,REEL,LVWND CUTTER,SIDE LEFT	RL257	1
0017	WASHER,FLAT,3/8,SST	HW201	36
0018	BOLT,HEX,3/8-16X3 1/2 GR5 PL	101215	6
0019	BOLT,HEX,3/8-16X2 GR5 PL	101209	2
0020	FRAME,REEL,LVWND CUTTER,TOP	RL255	1
0021	FRAME,REEL,LVWND CUTTER,BOTTOM	RL254	2
0022	FRAME,REEL,LVWND CUTTER,REAR	RL252	1
0023	FRAME,REEL,LVWND CUTTER,SIDE RT	RL253	1
0024	CONTROLLER,REELMOUNT,CUTTER	RL010	1
0025	REEL,HOSE CUTTER,LEVELWIND <800'	RL251	1
0027	CONNECTOR,PLUG,M 2,16 AWG	EL119	1
0028	ADAPTER,3/8MNPTX1/2F JIC FLARE	B052795	1
0029	BUSHING,CONDUIT,REDUCING,3/4X1/2	111698	2
0030	CLAMP,TUBING INSULATED,3/8"	121106	13
0031	SCREW,HEX WASH HD,#10X5/8,TEK,PLTD	101854	13
0032	NUT,WIRE,ORANGE,18-14	160021	7
0033	PUSHON,SST 3/4HX1/2MPT	113274	2
0034	TUBE,SHRINK,3:1 RATIO	715025	1
0035	TUBE,SHRINK,BLACK 1/2"	712578	1
0036	NIPPLE,BRASS 3/4"NPT X 1"LG	HW895	1
0037	ELBOW,PULLING 3/4"	115030	2
0038	SCREW,HEX WASH HD,1/4X1 TEK,PLTD	102000	4
0039	NUT,LOCK,3/4"	161122	3
0040	BOLT,HEX,3/8-16X4 1/2 PL	101146	2

REEL ASSY, HOSE CUTTER< LVWND, RH, REV. E, RL356			
0041	SCREW,TORX,1/4-20X2 1/2 FL	100995	2
0042	NUT,LOCK NYLON INS,PLD,1/4-20	101039	2
0043	PLUG,4PIN,MALE,90°,12'L	EC1434	1
0044	TUBE,SHRINK,BLACK 3/16"RNF	712577	1
0045	COVER,RIGHT SIDE,RH,TV REEL	RL706	1
0047	CABLE,TRANSMISSION,10'	TR284	1
0048	SPROCKET,35P,25T,3/16KEY,2SET	RL035	1
0052	PIN,CLEVIS,3/8DX1-1/8LG	HW423	3
0056	FOOTAGE METER,ACCU,W/MECH CNTR ONLY	FM406-2	1
0057	CHANNEL,SHIFTER	RL188	1
0058	SLIPRING,ASSY,M/C LITTON	RL023	1
0059	CABLE,INTERCONNECT,M/C,L SLPRG,24"	RL024	1
0060	LINKAGE,TRANS,SELECT,STACKED RL,BLK	RL713-1	1
0061	BRACKET,SHIFTER,F/TV REELS	RL717	1
0062	BRACKET,SHIFTER,PART OF RL717	RL718	1
0063	ROD,THRDED,PSH/PULL,RL SHFTR,TV RL	RL705	1
0064	BUSHING,PSH/PULL,RL SHFTR,TV RL	RL704	1
0065	KNOB,BALL,3/8-16	HW412	1
0066	SPACER,DELRIN,SHIFTER	RL189	2
0067	YOKE,END X MSN/BRAKE 1/4-28 HOLE	200340	3
0068	YOKE,END X MSN/BRAKE 3/8-24 HOLE	200341	1
0069	BRACKET,TRANS CABLE,TV REEL,BLK	RL711	1
0070	ROLLER,LEVELWIND	505131	2
0071	ENCLOSURE,CABLE GUIDE F/LEVELWIND	502150	1

CONFIGURATION LIST

PART NO.	DESCRIPTION	NOTES
SS400	QUAD HOSE REEL ASSY	
SS400-1	QUAD HOSE REEL ASSY W/O HOSE	

* Uses SS402 Replacement Hose Assembly

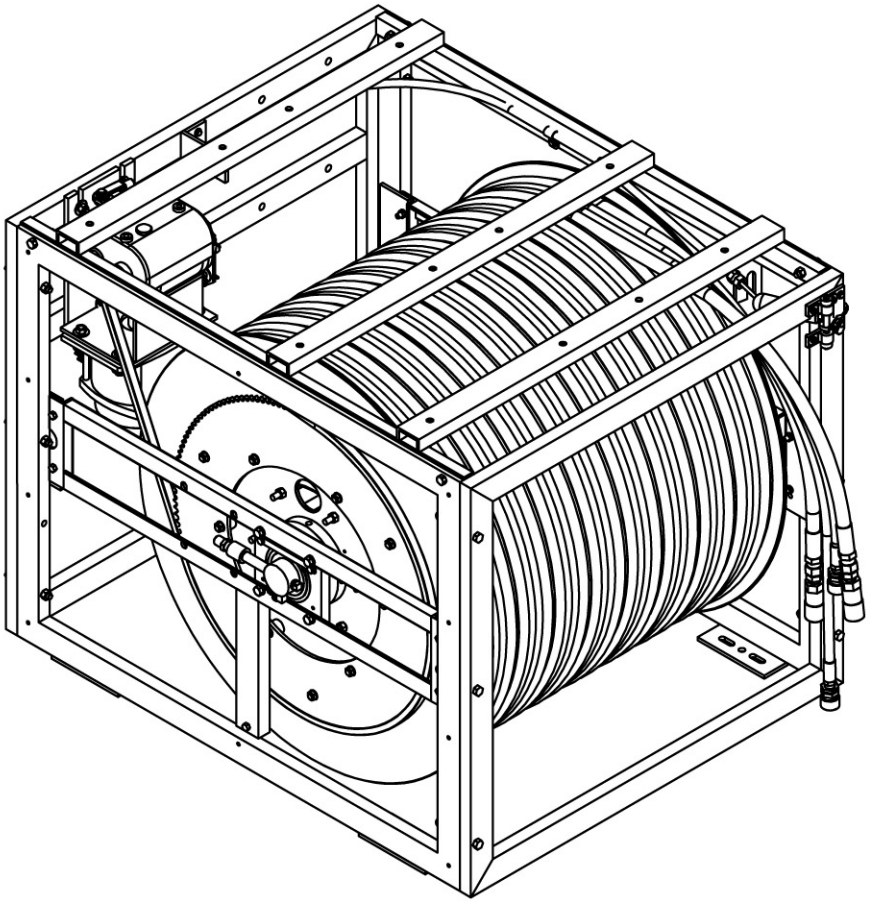


Figure 13a. *Reel Assembly w/Quad Hose SS400*

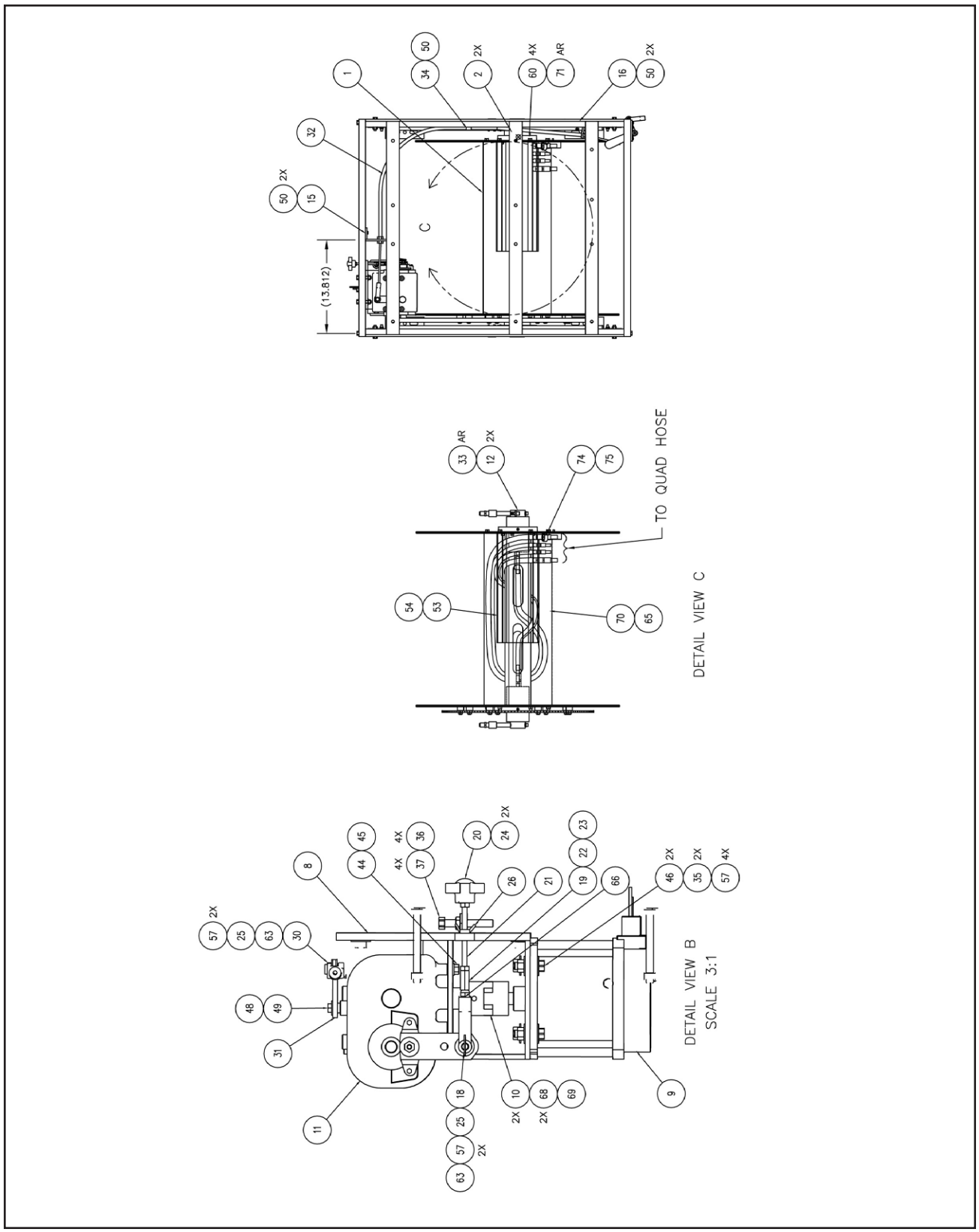


Figure 13b. *Reel Assembly w/Quad Hose SS400*

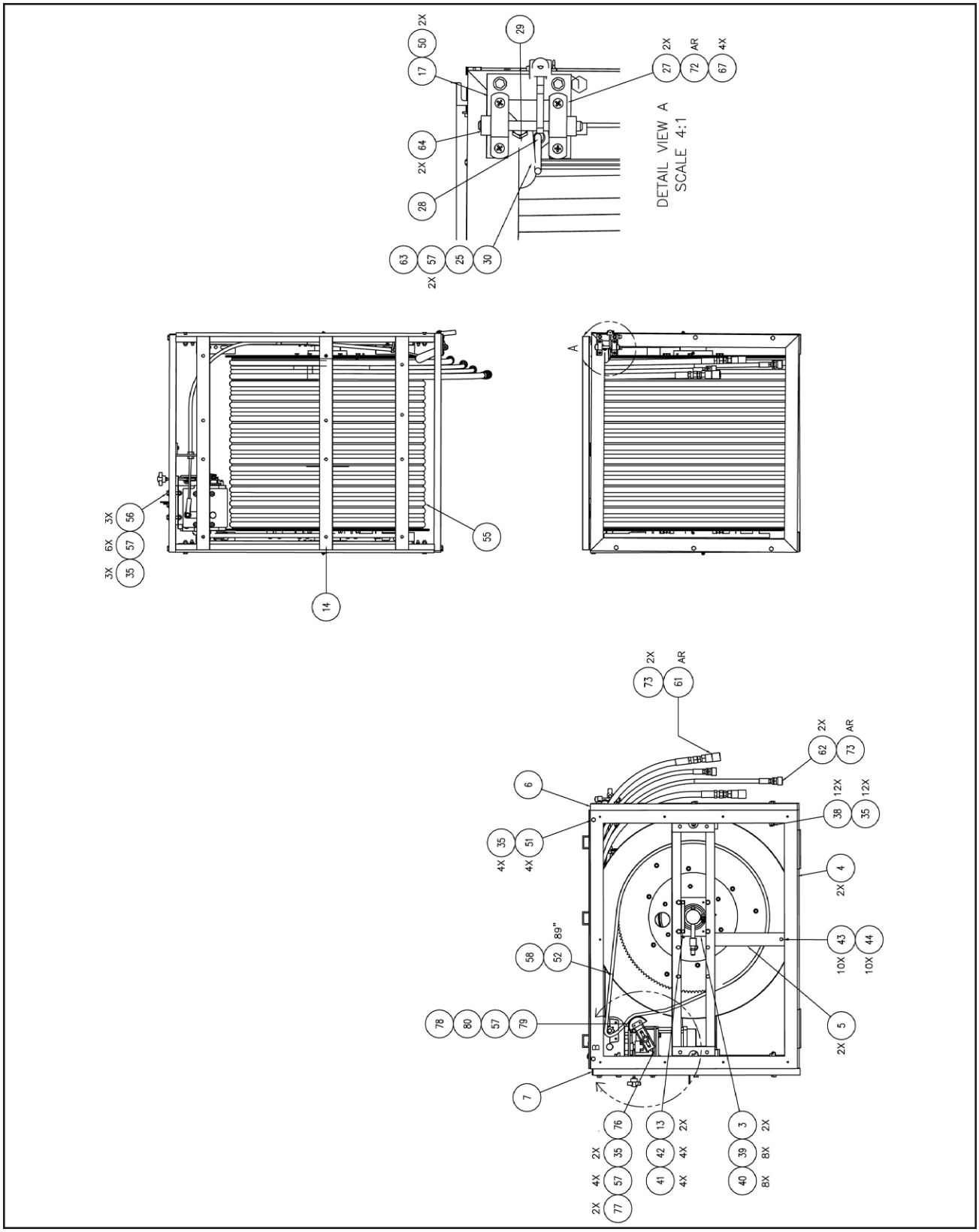


Figure 13c. *Reel Assembly w/Quad Hose SS400*

Reel Assembly, w/Quad Hose (See Fig. 13) Rev. J, SS400			
Item #	Description	P/N	Qty
0001	REEL HUB ASSY,F/QUAD HOSE	712300	1
0002	SPACER,REEL	300221	2
0003	BLOCK,BUSHING DUAL 1200 REEL	5012570	2
0004	FRAME,SIDE,HOSE/CABLE REELS	505128	2
0005	FRAME ASSY,REEL HOSE	71217	2
0006	FRAME,FRONT,REEL,QUAD HOSE	SS101	1
0007	FRAME,REAR,REEL,QUAD HOSE	SS102	1
0008	MOUNT,POWER TRAIN,BLACK	5012500-1	1
0009	MOTOR,1200 PWR TRAIN	310016	1
0010	COUPLING,HALF LOVEJOY 5/8BORE	300612	2
0011	TRANSMISSION,F/ 1200 REEL	3005250	1
0012	ROTARY JOINT ASSY,QUAD HOSE REEL	SS341	2
0013	STRAP,BUSHING BLOCK	5023120	2
0014	MOUNT ASSY,PIGGYBACK REEL	5001550	1
0015	BRACKET,TRANSMISSION CABLE,REEL	RL153	1
0016	BRACKET,TRANSMISSION CABLE,FRONT	RL154	1
0017	PLATE,MOUNTING,TRANSM SHFTR,QUAD RL	RL156	1
0018	YOKE END,MODIFIED,REEL	RL175	1
0019	STANDOFF,AL,1/2"HEXX1"LG,1/4-20THR	HW425	1
0020	KNOB,BRAKE ADJUSTMENT,REEL	RL174	1
0021	ROD,ALL-THREAD,1/4-20 X 4-1/2LG,RL	SS129	1
0022	NUT,LOCK W/NYL INS 1/4-20 SST	HW030	1
0023	WASHER,FLAT,1/4"SST	101736	1
0024	NUT,HEX,SST,1/4-20	101040	2
0025	PIN,CLEVIS,3/8DX1-1/8LG	HW423	3
0026	NUT,WING,PLATED,1/4-20	101029	1
0027	PILLOW BLOCK,LINKAGE,SHIFT,REEL	SS125	2
0028	BRACKET,LINKAGE,SHIFT,REEL	SS126	1
0029	HANDLE,PLASTIC TPR BLK 3/8-16THD	200202	1
0030	YOKE,END X MSN/BRAKE 1/4-28 HOLE	200340	3
0031	ARM,CONNECTOR,LINKAGE,TRANSMISSION	SS128	1
0032	CABLE,TRANSMISSION,5'	RL155	1
0033	MRO-LUBRICANT,SIL-GLYDE W/SILICONE	CS042	1
0034	CLIP,METAL,1/2"W/PVC INSULATOR	HW167	1
0035	NUT,KEP,PLATED,3/8-16	101244	23
0036	NUT,JAM,PLATED,3/8-16	101241	1
0037	BOLT,HEX,3/8-16X2 1/2 FULL THD PL	101210	1
0038	BOLT,HEX,3/8-16X3 1/2 GR5 PL	101215	12
0039	BOLT,HEX,3/8-16X1 PLATED	101205	8

Reel Assembly, w/Quad Hose (See Fig. 13) Rev. J, SS400			
Item #	Description	P/N	Qty
0040	WASHER,SPLIT 3/8 ZINC	101233	8
0041	BOLT,HEX,1/4-20X3/4 GR5 PL	101004	4
0042	WASHER,STAR INTERNAL 1/4 PLD	101034	4
0043	NUT,KEP,ZINC PLATED,5/16-18	101142	10
0044	BOLT,HEX,5/16-18X1"ZINC	101105	14
0045	WASHER,SPLIT 5/16 ZINC PLD	101133	4
0046	BOLT,HEX,3/8-16X1 1/4 GR5 PL	101206	2
0048	WASHER,FLAT,1/4 SAE ZINC PLD	101031	1
0049	BOLT,HEX,1/4-28X3/4 GR5 PL	100990	1
0050	SCREW,HEX WASH HD,1/4X1 TEK,PLTD	102000	7
0051	BOLT,HEX,3/8-16X1 3/4 GR5 PL	101208	7
0052	CHAIN,#40 X 1/2 PITCH PRESTRESSED	300921	7.5
0053	HOSE,W/FITTING,½"IDX54"LG,BLUE	SS327	1
0054	HOSE,W/FITTING,3/8"IDX57"LG,BLUE	SS326	1
0055	HOSE ASSY,QUAD,W/CRIMP FITTINGS,NEW	SS402	1
0056	BOLT,HEX,3/8-16X2 GR5 PL	101209	3
0057	WASHER,FLAT,3/8 USS PLD	101232	21
0058	LINK,MASTER NO 40 ROLLER CHAIN	300920	1
0060	SCREW,SET,5/16-18X5/8 STEEL	101100	4
0061	DISCONNECT,QUICK,F,DRIPLES,½NPT,SST	SS219	2
0062	QUICK DISCONNECT,FEMALE 3/8FPT SST	220423	2
0063	PIN,COTTER,3/32X3/4 STEEL	97450	3
0064	COLLAR,SET,3/4 OD X 3/8 ID	300153	2
0065	HOSE,W/FITTING,3/8"IDX51",RED	SS322	1
0066	SCREW,SHCS,1/4-20X1 7/8 SST	100449	1
0067	SCREW,TRUSS,10-32X5/8 PHIL SST	712450	4
0068	KEY,WOODRUFF 3/16X3/4	200350	2
0069	COUPLING,RUBBER SPIDER LOVEJOY	300611	1
0070	HOSE,W/FITTINGS,½"IDX54"LG,RED	SS321	1
0071	MRO-REMOVABLE LCK,ND 121200-50,BLUE	440061	1
0072	MRO-PERMANENT LOCK,ND 140500-50,RED	440060	1
0073	MRO-SEALANT,THREAD PST 567	CS215	1
0074	CLAMP,P,INSULATED,1"	HW480	1
0075	SCREW,TRUSS,10-32X3/8 PHIL SST	712437	1
0076	BRACKET,MAIN CHAIN,TENSIONER	RL715	1
0077	BOLT,HEX,3/8-16X1 1/2 GR5 PL	101207	2
0078	PIN,ROLL,3/8X1"CARBON STEEL	97564	1
0079	CHAIN,IDLER LEVELWIND	300910	1
0080	BOLT,HEX,3/8-16X3/4 GR5 PL	101212	1
0081	LABEL,WARNING,"KEEP HANDS CLEAR"	CS534	1

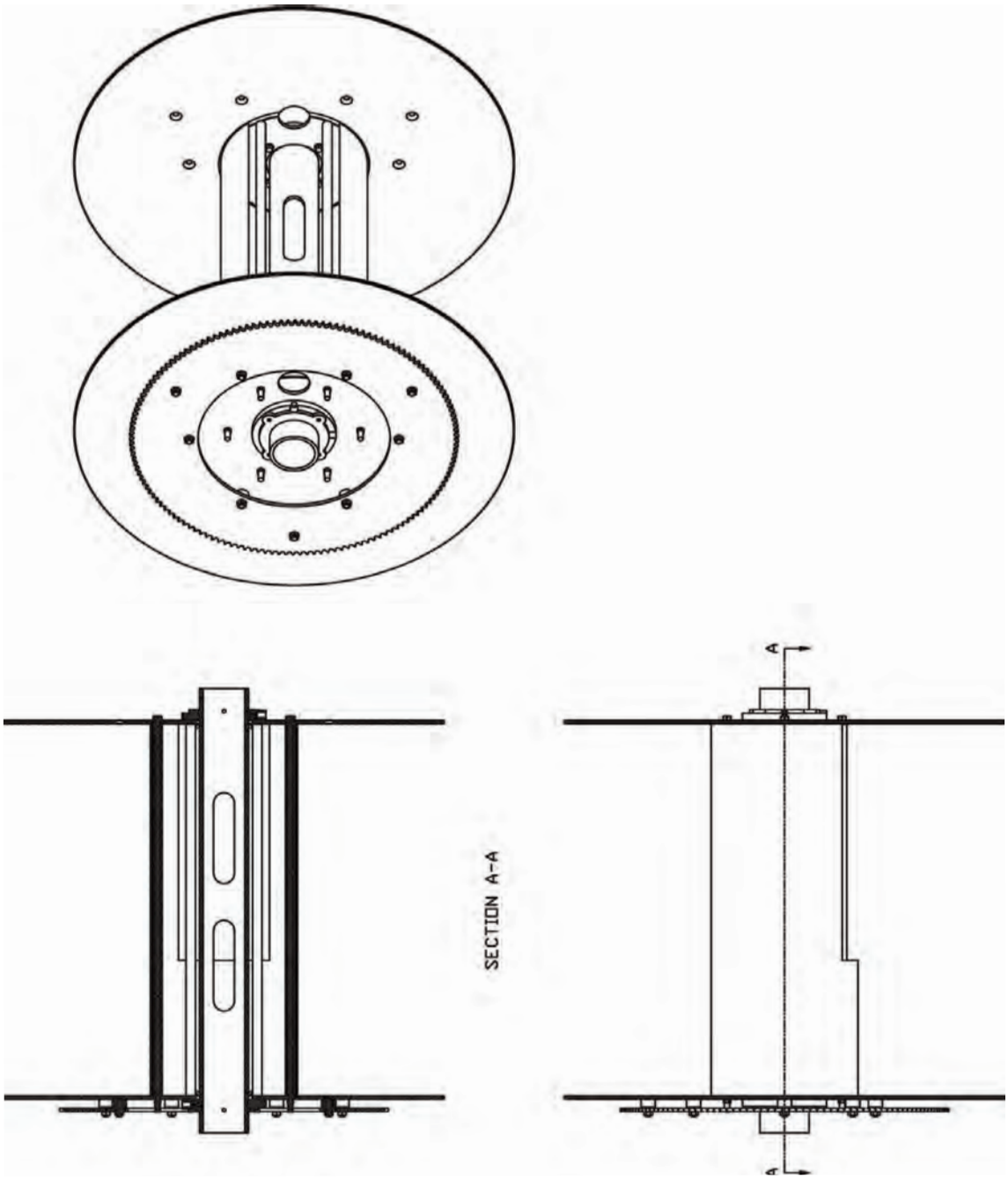


Figure 14a. *Reel Hub Assembly, F/Quad Hose, 0712300*

Reel Hub Assembly for Quad Hose

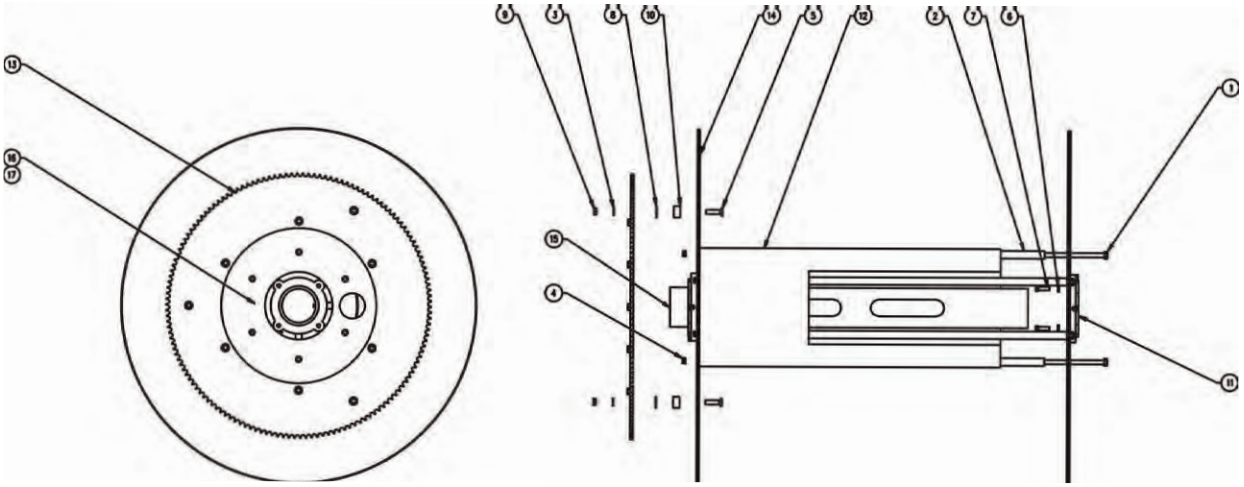


Figure 14b. *Reel Hub Assembly, F/Quad Hose, 0712300*

Reel Hub Assy, F/Quad Hose (See Fig. 14) Rev. K, 0712300			
Item #	Description	P/N	Qty
-1	· Bolt, 3/8-16 X 28	1091270	6
-2	· Spacer, Hub, 1200 Hose Reel	2010000	6
-3	· Washer, Star Internal 3/8 Pld	101234	9
-4	· Nut, KEP, Plated, 3/8-16	101244	6
-5	· Screw, Flat, SKT, 3/8-16 X 1-1/2, SKT BLKOX	101238	9
-6	· Washer, Split 5/16 Zinc Pld	101133	8
-7	· Bolt, Hex , 5/16-18 X 1 Zinc	101105	8
-8	· Washer, Flat, 3/8 USS Pld	101232	6
-9	· Nut, Jam, Plated, 3/8-16	101241	9
-10	· Spacer, 1200 Reel 1 OD X .624 ID X 9/16W	200905	9
-11	· Flange, 1230 Reel Al	5012611	2
-12	· Hub, 1220 Hose Reel	300443	1
-13	· Sprocket, Plate 146T NO 41 Pitch	300441	1
-14	· Flange, Interchangable	RL136	2
-15	· Axle, F/1212 Reel	300036	2
-16	· Screw, Set, 5/16-18 X 5/8 Steel	101100	4
-17	· MRO-Perma HM-128-042 Hi Strength Red	440060	AR

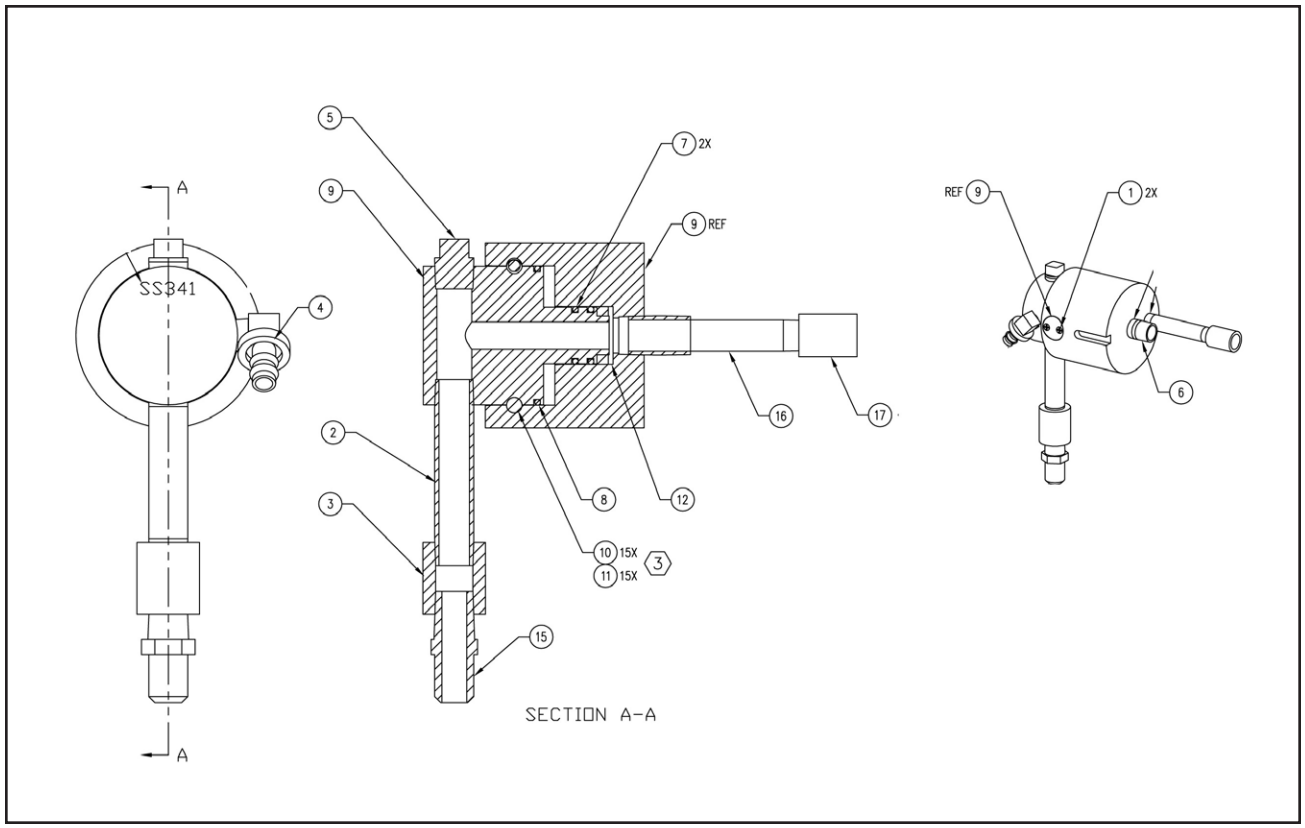


Figure 15. *Rotary Joint Assy, Quad Hose Reel, SS341*

Rotary Joint Assy, Quad Hose (See Fig. 15) Rev. E, SS341			
Item #	Description	P/N	Qty
- 1	Screw,Flat,4-40x3/16 Phil Sst	100110	2
- 2	Nipple,Sst,3/8x3	113107	1
- 3	Coupling,Sst,3/8 Sched 40 Aly T-304	113111	1
- 4	Pushlock,90deg Brass 3/8hx1/4mpt	114341	1
- 5	Plug,Sst,3/8 Sched 40 Aly T-304	113176	1
- 6	Nipple,Sst,3/8xclose Aly T-304	113103	1
- 7	O-Ring,Ep F/Acetone As-116	130101	2
- 8	O-Ring,Ep F/Acetone As-137	130100	1
- 9	Rotary Joint,W/O Fittings 1200 Reel	220950	1
- 10	Bearing,Ball,Sst,1/4"T-316	300305	15
- 11	Bearing,Ball,Sst,3/16"T-316	300306	15
- 12	Bushing, Rotary Joint	300813	1
- 13	Mro-Loctite 545 Hydraulic	445091	1
- 14	Mro-Lubricant,Sil-Glyde W/Silicone	CS042	1
- 15	Connector,Male,5/8flare X 3/8mpt-Ss	113144	1
- 16	Nipple,Sst,1/4x3	113007	1
- 17	Coupling,Sst,1/4"	113011	1

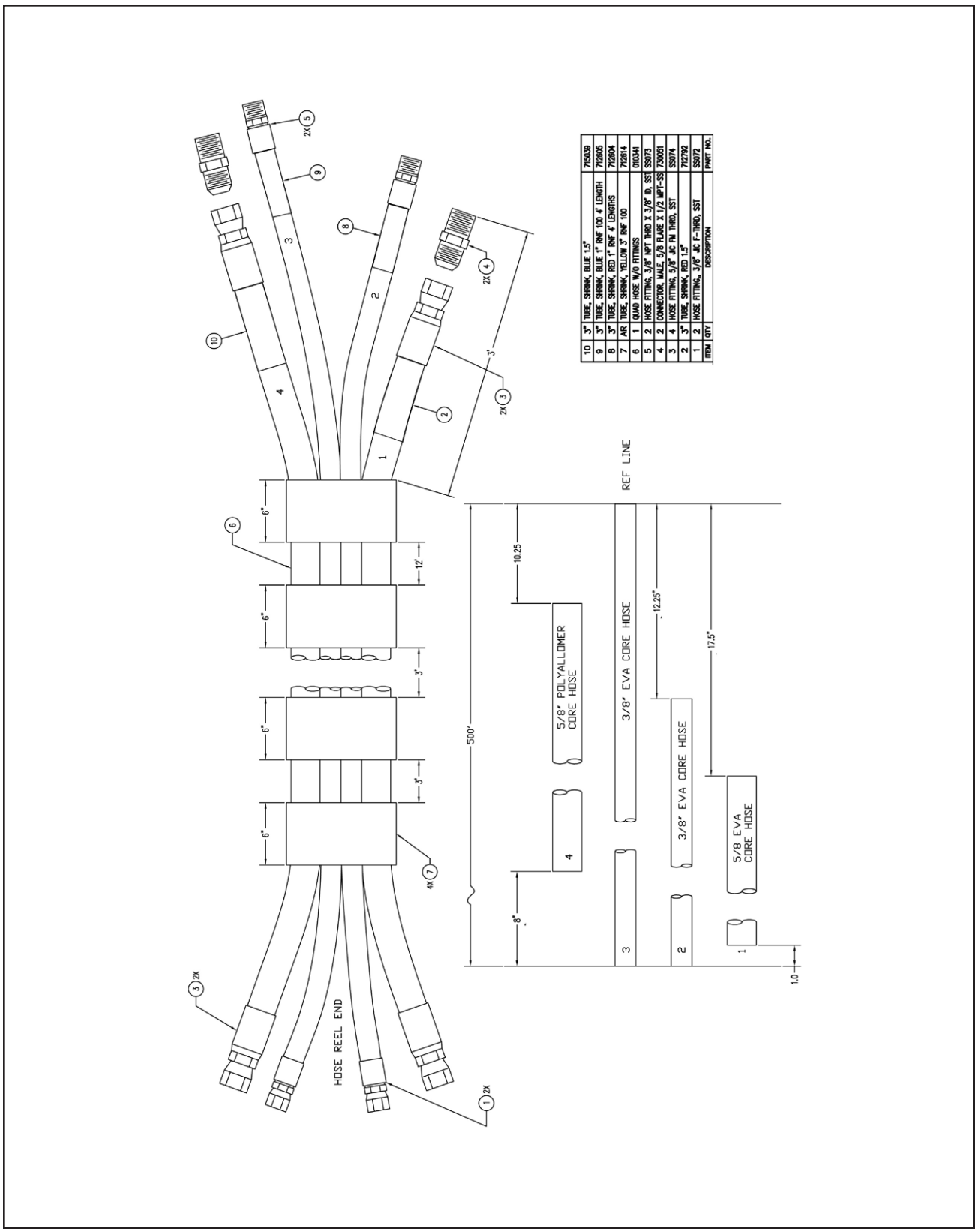


Figure 16: *Hose Assembly, Quad, with Fittings (Replacement for SS400) SS402*

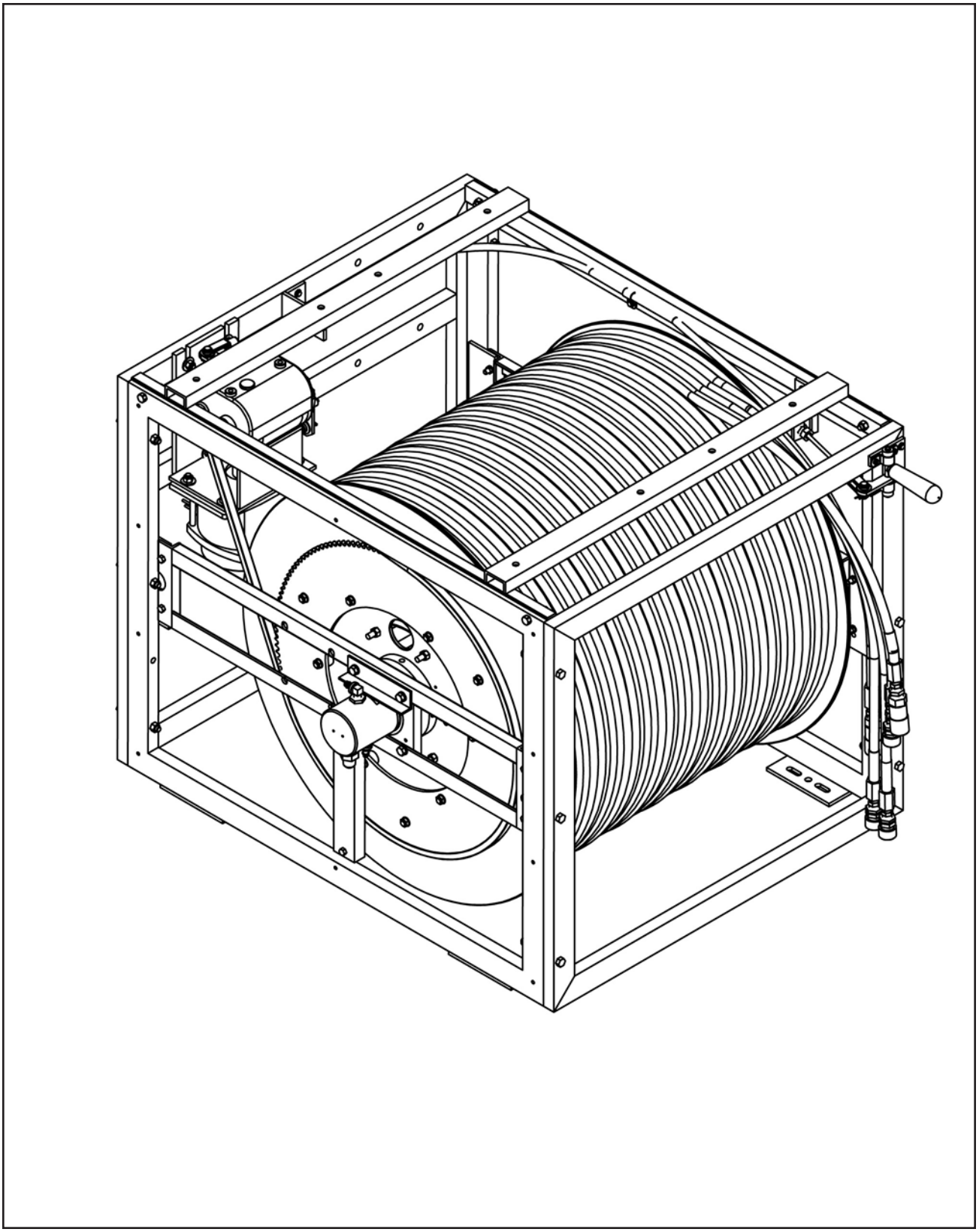


Figure 17a: *REEL ASSY,PENTA HOSE W/FITTINGS, RL346*

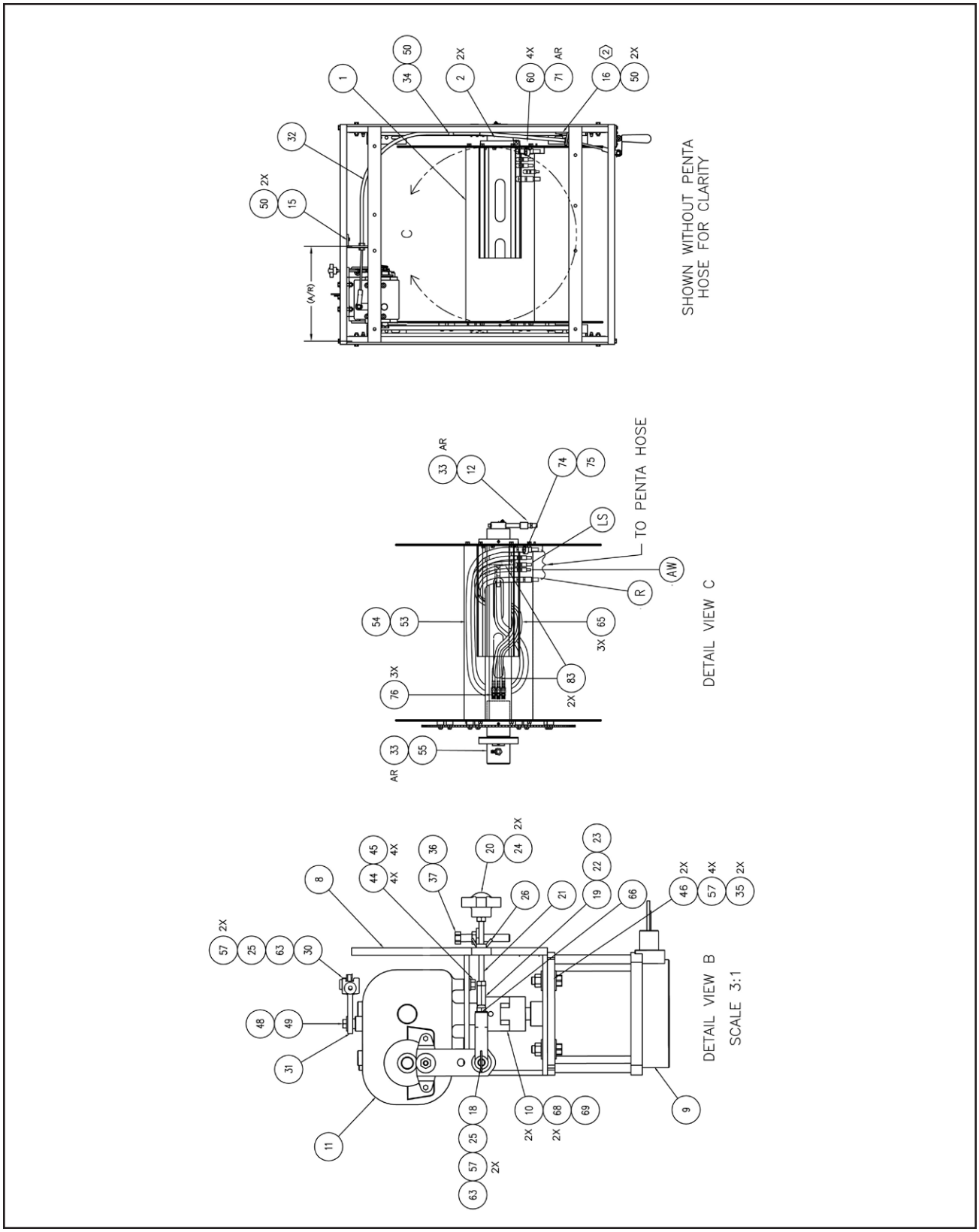


Figure 17b: *REEL ASSY,PENTA HOSE W/FITTINGS, RL346*

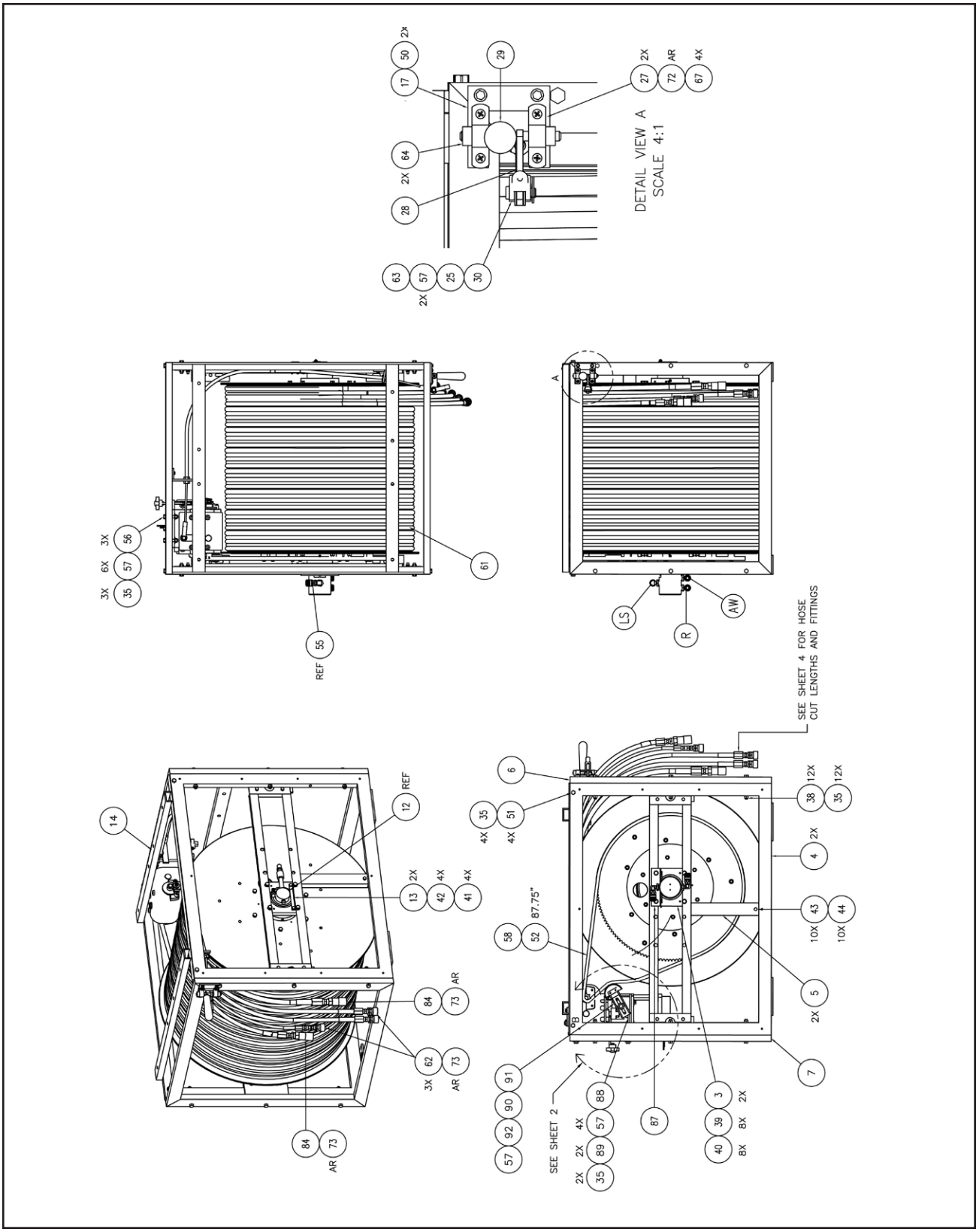


Figure 17c: REEL ASSY,PENTA HOSE W/FITTINGS, RL346

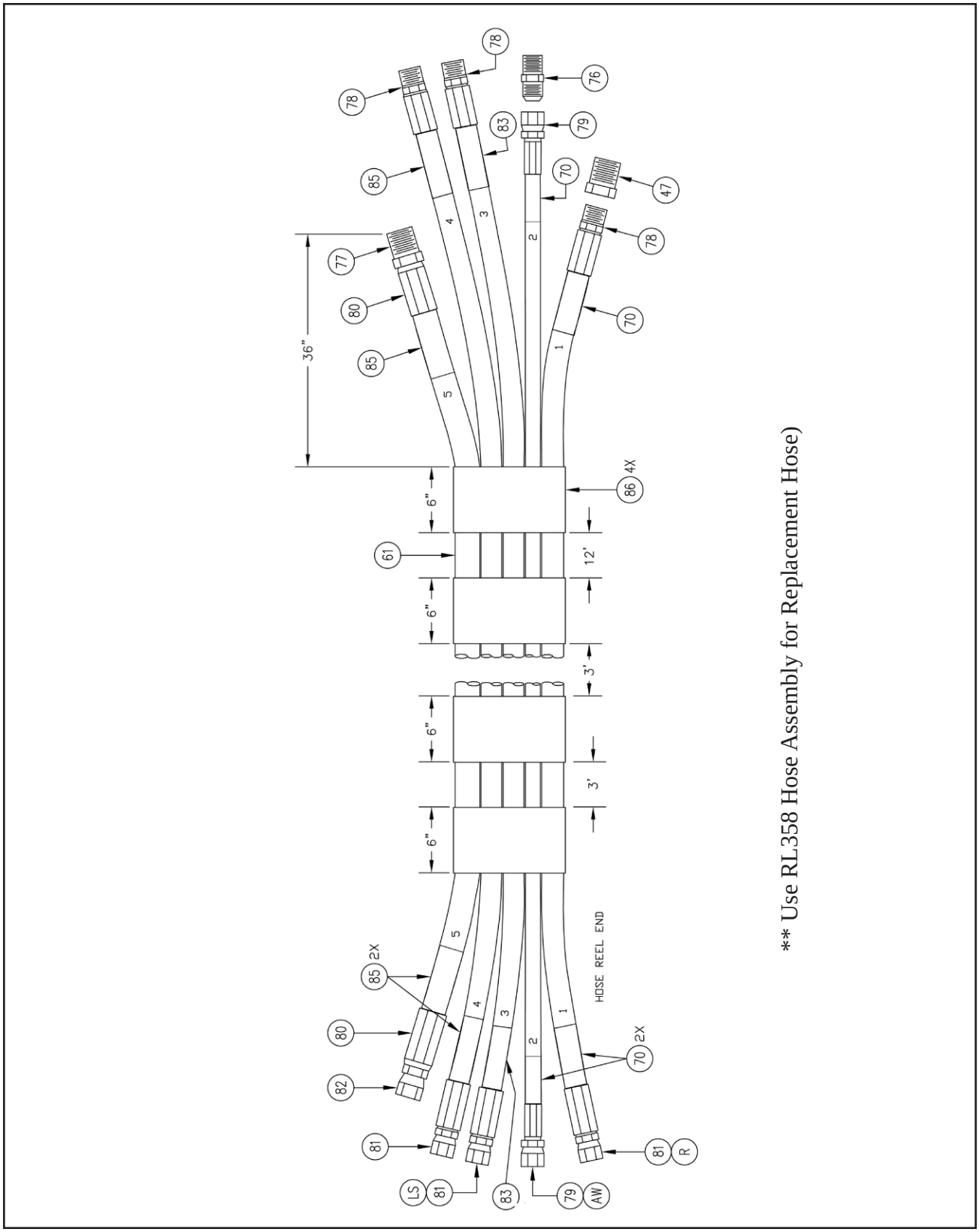


Figure 17d: *REEL ASSY,PENTA HOSE W/FITTINGS, RL346*

REEL ASSY, PENTA HOSE w/ FITTINGS, REV. G, RL346			
0001	REEL HUB ASSY,F/QUAD HOSE	712300	1
0002	SPACER,REEL	300221	2
0003	BLOCK,BUSHING DUAL 1200 REEL	5012570	2
0004	FRAME,SIDE,HOSE/CABLE REELS	505128	2
0005	FRAME ASSY,REEL HOSE	71217	2
0006	FRAME,FRONT,REEL,QUAD HOSE	SS101	1
0007	FRAME,REAR,REEL,QUAD HOSE	SS102	1
0008	MOUNT,POWER TRAIN,BLACK	5012500-1	1
0009	MOTOR,1200 PWR TRAIN	310016	1
0010	COUPLING,HALF LOVEJOY 5/8BORE	300612	2
0011	TRANSMISSION,F/ 1200 REEL	3005250	1
0012	ROTARY JOINT ASSY,QUAD HOSE REEL	SS341	1
0013	STRAP,BUSHING BLOCK	5023120	2
0014	MOUNT ASSY,PIGGYBACK REEL	5001550	1
0015	BRACKET,TRANSMISSION CABLE,REEL	RL153	1
0016	BRACKET,TRANSMISSION CABLE,FRONT	RL154	1
0017	PLATE,MOUNTING,TRANSM SHFTR,QUAD RL	RL156	1
0018	YOKE END,MODIFIED,REEL	RL175	1
0019	STANDOFF,AL,1/2"HEXX1"LG,1/4-20THR	HW425	1
0020	KNOB,BRAKE ADJUSTMENT,REEL	RL174	1
0021	ROD,ALL-THREAD,1/4-20 X 4-1/2LG,RL	SS129	1
0022	NUT,LOCK W/NYL INS 1/4-20 SST	HW030	1
0023	WASHER,FLAT,1/4"SST	101736	1
0024	NUT,HEX,SST,1/4-20	101040	2
0025	PIN,CLEVIS,3/8DX1-1/8LG	HW423	3
0026	NUT,WING,PLATED,1/4-20	101029	1
0027	PILLOW BLOCK,LINKAGE,SHIFT,REEL	SS125	2
0028	BRACKET,LINKAGE,SHIFT,REEL	SS126	1
0029	HANDLE,PLASTIC TPR BLK 3/8-16THD	200202	1
0030	YOKE,END X MSN/BRAKE 1/4-28 HOLE	200340	3
0031	ARM,CONNECTOR,LINKAGE,TRANSMISSION	SS128	1
0032	CABLE,TRANSMISSION,5'	RL155	1
0033	MRO-LUBRICANT,SIL-GLYDE W/SILICONE	CS042	1
0034	CLIP,METAL,1/2"W/PVC INSULATOR	HW167	1
0035	NUT,KEP,PLATED,3/8-16	101244	23
0036	NUT,JAM,PLATED,3/8-16	101241	1
0037	BOLT,HEX,3/8-16X2 1/2 FULL THD PL	101210	1
0038	BOLT,HEX,3/8-16X3 1/2 GR5 PL	101215	12

REEL ASSY, PENTA HOSE w/ FITTINGS, REV. G, RL346			
0039	BOLT,HEX,3/8-16X1 PLATED	101205	8
0040	WASHER,SPLIT 3/8 ZINC	101233	8
0041	BOLT,HEX,1/4-20X3/4 GR5 PL	101004	4
0042	WASHER,STAR INTERNAL 1/4 PLD	101034	4
0043	NUT,KEP,ZINC PLATED,5/16-18	101142	10
0044	BOLT,HEX,5/16-18X1"ZINC	101105	14
0045	WASHER,SPLIT 5/16 ZINC PLD	101133	4
0046	BOLT,HEX,3/8-16X1 1/4 GR5 PL	101206	2
0048	WASHER,FLAT,1/4 SAE ZINC PLD	101031	1
0049	BOLT,HEX,1/4-28X3/4 GR5 PL	100990	1
0050	SCREW,HEX WASH HD,1/4X1 TEK,PLTD	102000	7
0051	BOLT,HEX,3/8-16X1 3/4 GR5 PL	101208	7
0052	CHAIN,#40 X 1/2 PITCH PRESTRESSED	300921	7.31
0053	HOSE,W/FITTING,½"IDX54"LG,BLUE	SS327	1
0054	HOSE,W/FITTING,3/8"IDX57"LG,BLUE	SS326	1
0055	ROTARY JOINT ASSY,3 PORT,PENTA SYS	RL344	1
0056	BOLT,HEX,3/8-16X2 GR5 PL	101209	3
0057	WASHER,FLAT,3/8 USS PLD	101232	20
0058	LINK,MASTER NO 40 ROLLER CHAIN	300920	1
0060	SCREW,SET,5/16-18X5/8 STEEL	101100	4
0061	HOSE,PENTA-500'RAW	B017388	1
0062	QUICK DISCONNECT,FEMALE 3/8FPT SST	220423	3
0063	PIN,COTTER,3/32X3/4 STEEL	97450	3
0064	COLLAR,SET,3/4 OD X 3/8 ID	300153	2
0065	HOSE,W/FITTING,3/8"IDX51",RED	SS322	3
0066	SCREW,SHCS,1/4-20X1 7/8 SST	100449	1
0067	SCREW,TRUSS,10-32X5/8 PHIL SST	712450	4
0068	KEY,WOODRUFF 3/16X3/4	200350	2
0069	COUPLING,RUBBER SPIDER LOVEJOY	300611	1
0070	TUBE,SHRINK,RED 1"RNF 4'LENGTHS	712604	0.5
0071	MRO-REMOVABLE LCK,ND 121200-50,BLUE	440061	1
0072	MRO-PERMANENT LOCK,ND 140500-50,RED	440060	1
0073	MRO-SEAL.HGH PRESS,ND 440400-50,BRN	445091	1
0074	CLAMP,P,INSULATED,1"	HW480	1
0075	SCREW,TRUSS,10-32X3/8 PHIL SST	712437	1
0076	ADAPTER,3/8"M NPT X 3/8"M JIC	HW737	4
0077	FITTING,½"HOSE X ½"MALE NPT,SST	HW738	1
0078	FITTING,3/8"HOSE X 3/8"MALE NPT,SST	HW739	3
0079	FITTING,¼"HSE X3/8"JIC SWIVEL,F,SST	HW740	2
0080	JACKET,PARFLEX,F/FITTINGS,SST	HW741	2

REEL ASSY, PENTA HOSE w/ FITTINGS, REV. G, RL346			
0081	FITTING,3/8"H X 3/8"JIC,SWIVL,F,SST	B094293	3
0082	FITTING,NIPPLE 1/2HX7/814	B060429	1
0083	TUBE,SHRINK,0.750 YELLOW	B005215	0.5
0084	DISCONNECT,QUICK,F,DRIPLES,½NPT,SST	SS219	2
0085	TUBE,SHRINK,BLUE 1"RNF 100 4'LENGTH	712605	0.5
0086	TUBE,SHRINK,YELLOW 3"RNF 100	712614	0.5
0087	BRACKET,ANTI-ROT,3PRT,ROTARY JOINT	RL276	1
0088	BRACKET,MAIN CHAIN,TENSIONER	RL715	1
0089	BOLT,HEX,3/8-16X1 1/2 GR5 PL	101207	2
0090	PIN,ROLL,3/8X1"CARBON STEEL	97564	1
0091	CHAIN,IDLER LEVELWIND	300910	1
0092	BOLT,HEX,3/8-16X3/4 GR5 PL	101212	1
0093	LABEL,WARNING,"KEEP HANDS CLEAR"	CS534	1

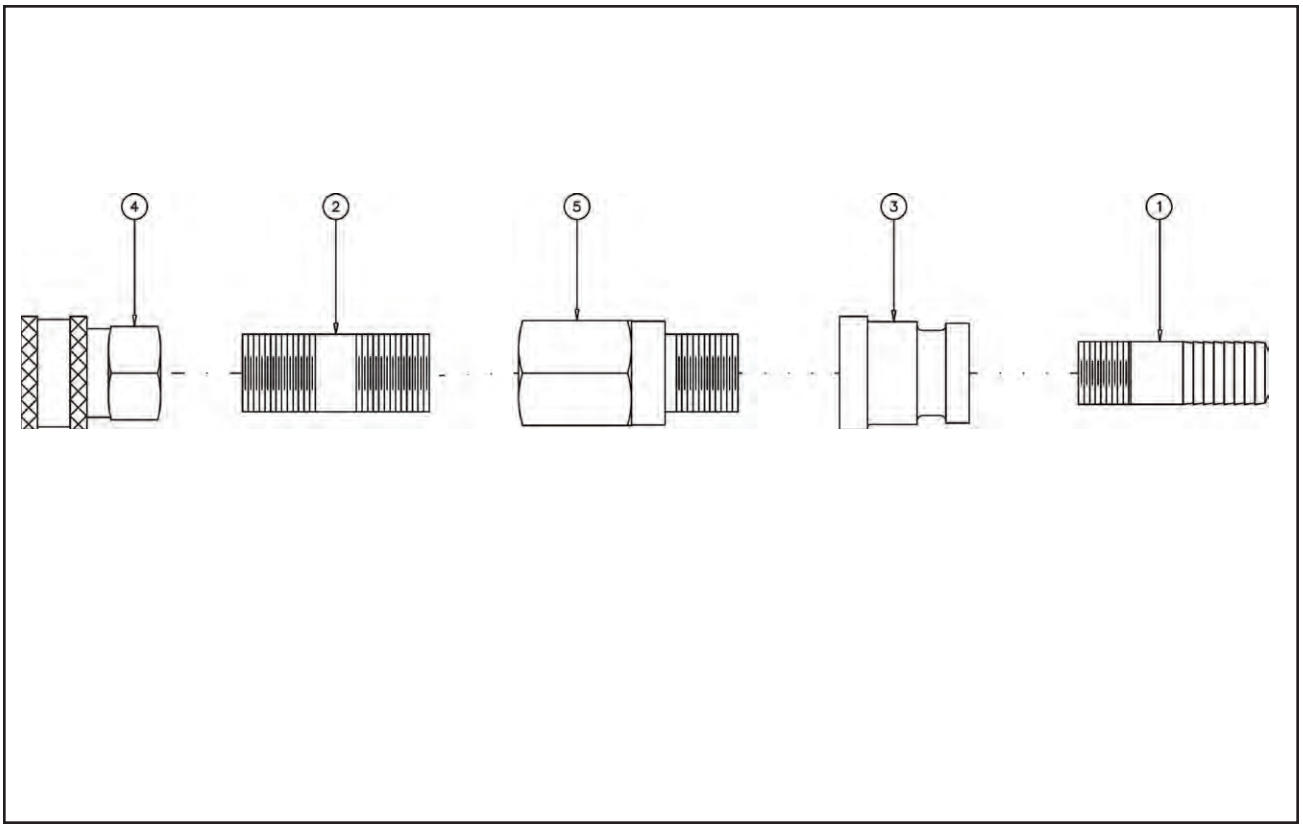


Figure 1: *Hose End Assembly, Chemical, 1/2", 2310030*

Hose End Assembly, Chem, 1/2" (See Fig.1) Rev. E, 2310030			
Item #	Description	P/N	Qty
- 1	Pushon,3/8"Mptx5/8id Hosex2"T304 Ss	113174	1
- 2	Nipple,Sst,1/2x2 Sched 40 Aly T-304	113206	1
- 3	Coupli,Rdc 1/2fx3/8f Sch40 Sst T304	113214	1
- 4	Quick Disconnect,Female 1/2 Sst Fpt	220433	1
- 5	Valve,Check,30psi,½"	SS062	1

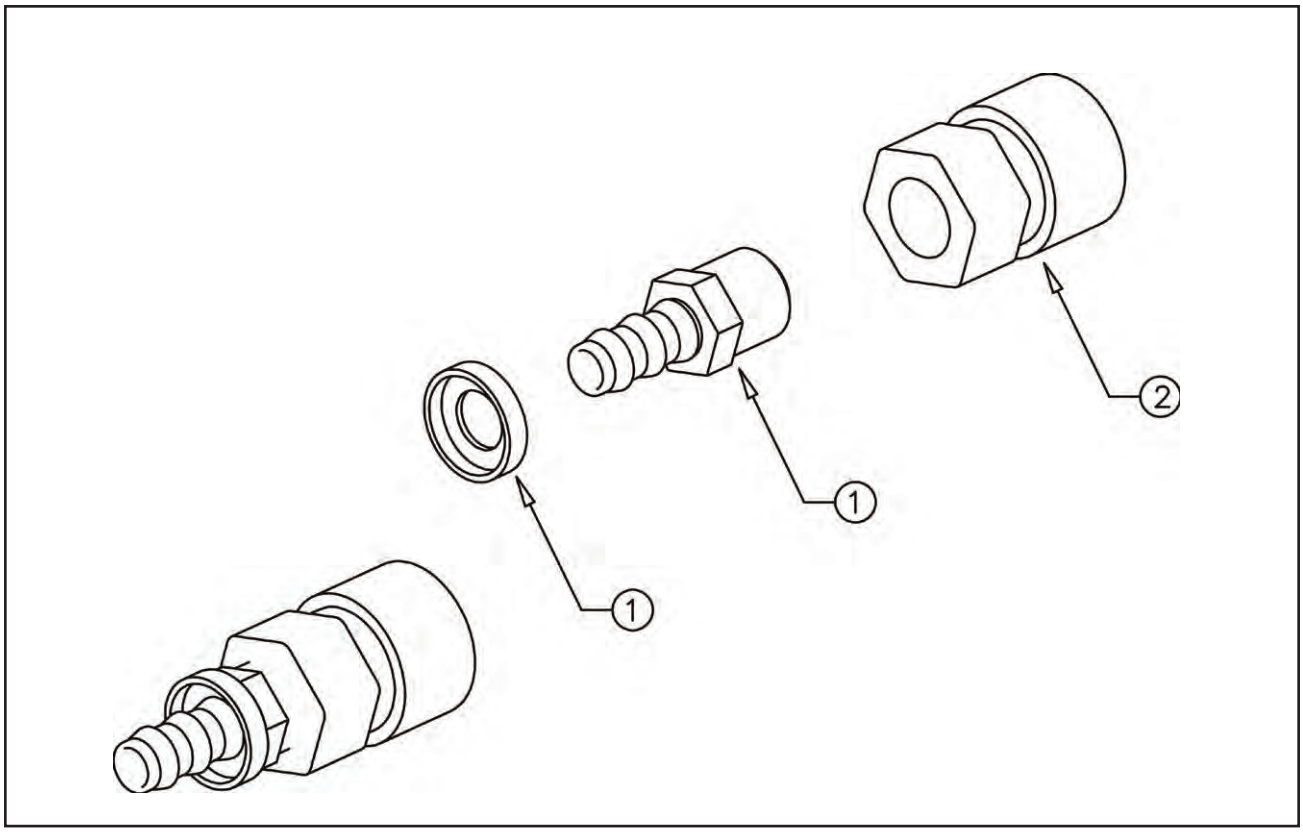
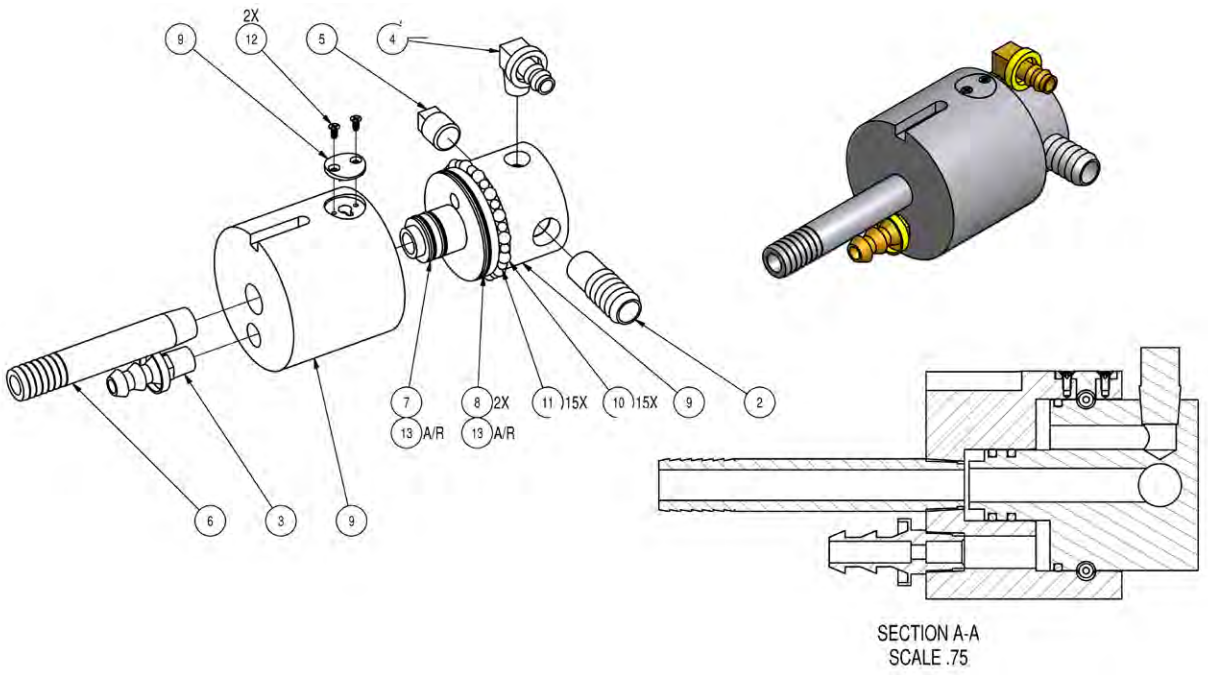


Figure 2: *Hose End Assembly, Chemical, 3/8", 2310000*

Hose End Assembly, Chem, 3/8" (See Fig.2) Rev. A, 2310000			
Item #	Description	P/N	Qty
- 1	Fitting,Hose 3/8mpt, X 3/8hose SS	113148	1
- 2	Quick Disconnect,Female 3/8fpt SST	220423	1
- 3	Mro-Loctite 545 Hydraulic	445091	1



ITEM	QTY	DESCRIPTION	PART NO.
14	1	MRO - PIPE THREAD SEALANT, 3 OZ TUBE	440042
13	1	MRO - LUBRICANT, O-RING, 2 OZ TUBE	439986
12	2	SCREW, FLAT PHIL,4-40 X.25, 18-8, SST	712402
11	15	BALL, .188 DIA, 316, SST	300306
10	15	BALL, .250 DIA, 316, SST	300305
9	1	ROTARY JOINT, W/O FITTINGS, 1200R	220950
8	1	O-RING, 2-137, EP, SHORE A 70	130100
7	2	O-RING, 2-116, EP, SHORE A 70	130101
6	1	PUSHON, SST, .625H X .375MPT X 4in	114314
5	1	PLUG, PIPE, SQ HD, .375 NPT, SST	113176
4	1	PUSHLOCK, 90 deg, BRASS, .375H X .25MPT	114341
3	1	PUSHLOCK, BRASS, .375H X .25MPT	114322
2	1	3/8 X 5/8 BARB SS	113174

Figure 3: *Rotary Joint Assembly, 1200 Reel, 2209500, Rev. F*

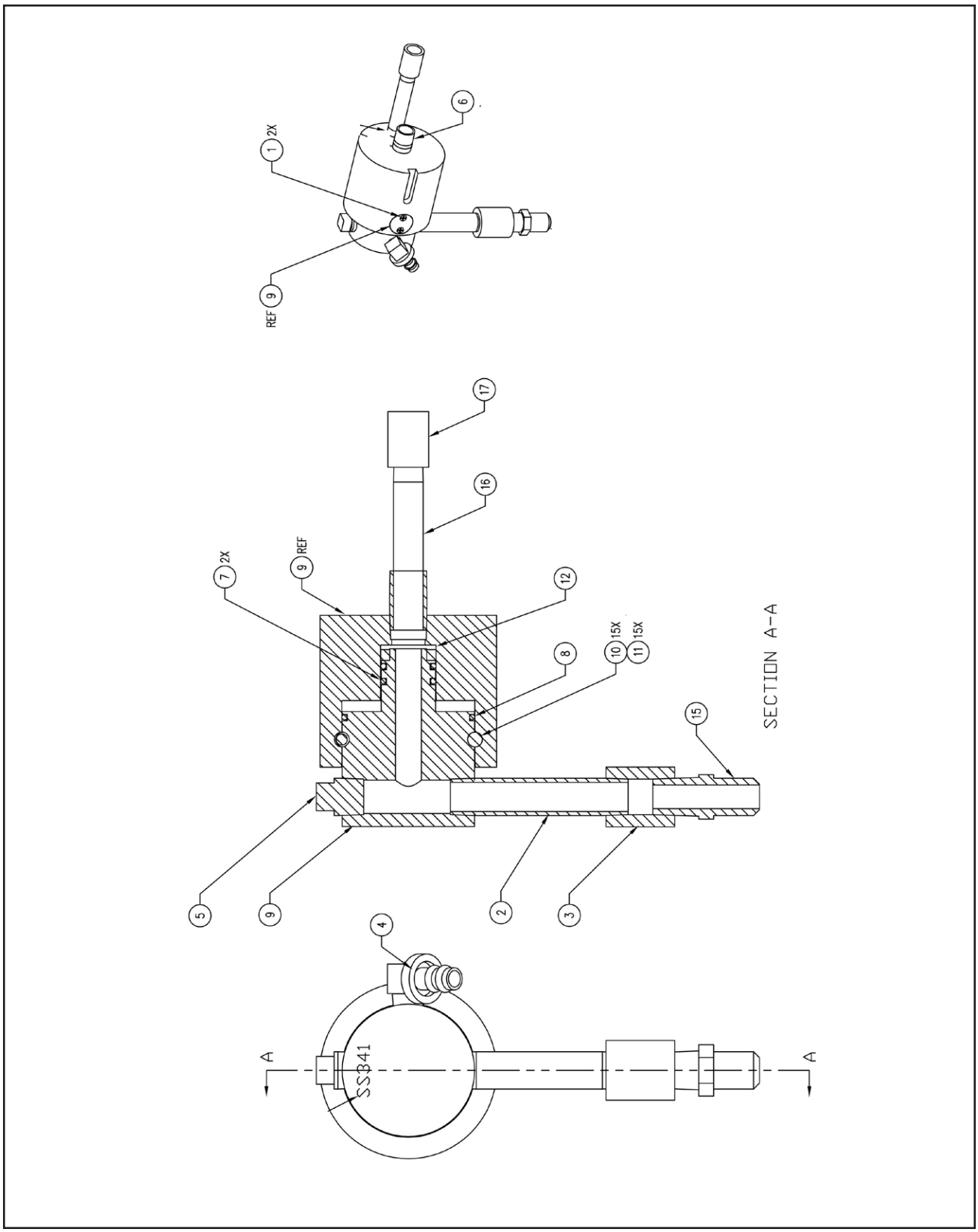


Figure 4: *Rotary Joint Assembly, Quad Hose Reel, SS341*

Rotary Joint Assy, Quad Hose Reel (See Fig.4) Rev. E, SS341			
Item #	Description	P/N	Qty
- 1	Screw,Flat,4-40x3/16 Phil Sst	100110	2
- 2	Nipple,Sst,3/8x3	113107	1
- 3	Coupling,Sst,3/8 Sched 40 Aly T-304	113111	1
- 4	Pushlock,90deg Brass 3/8hx1/4mpt	114341	1
- 5	Plug,Sst,3/8 Sched 40 Aly T-304	113176	1
- 6	Nipple,Sst,3/8xclose Aly T-304	113103	1
- 7	O-Ring,Ep F/Acetone As-116	130101	2
- 8	O-Ring,Ep F/Acetone As-137	130100	1
- 9	Rotary Joint,W/O Fittings 1200 Reel	220950	1
- 10	Bearing,Ball,Sst,1/4"T-316	300305	15
- 11	Bearing,Ball,Sst,3/16"T-316	300306	15
- 12	Bushing, Rotary Joint	300813	1
- 13	Mro-Loctite 545 Hydraulic	445091	1
- 14	Mro-Lubricant,Sil-Glyde W/Silicone	CS042	1
- 15	Connector,Male,5/8flare X 3/8mpt-Ss	113144	1
- 16	Nipple,Sst,1/4x3	113007	1
- 17	Coupling,Sst,1/4"	113011	1

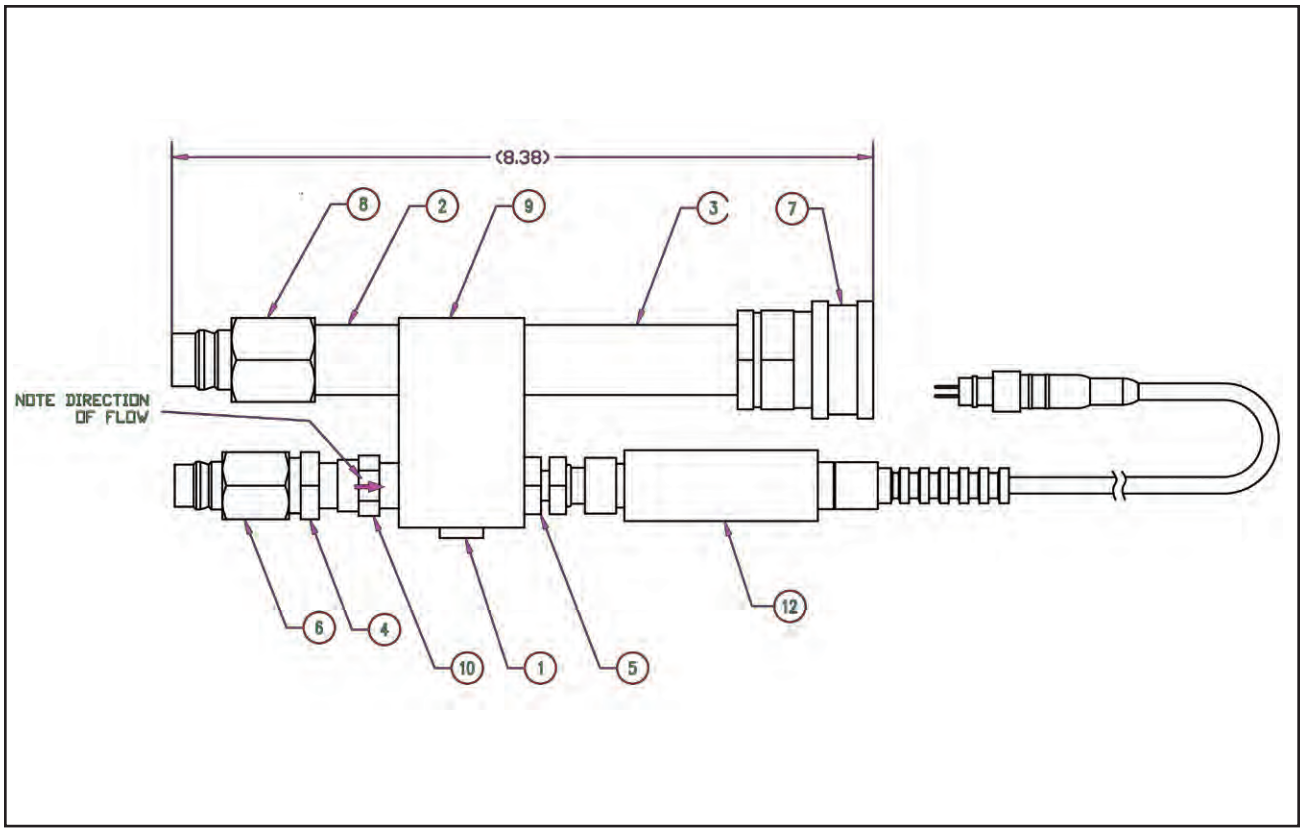


Figure 5: *Adapter Assembly, for Quad Hose, M/C, 4005041*

Adapter Assy, for Quad Hose, M/C(See Fig.5) Rev. C, 4005041			
Item #	Description	P/N	Qty
- 1	Plug,Skt Hd Hex Hol Hex Pt Sst 1/4	113002	1
- 2	Nipple,Sst,1/2x2 Sched 40 Aly T-304	113206	1
- 3	Nipple,Sst,1/2x4 Sched 40 T-304	113209	1
- 4	Bushing,3/8x1/4 Rdc Sst Sch40 T-304	113121	1
- 5	Union,1/4mstx1/4mst,Sae,O-Ring	HW422	1
- 6	Plug,Quick Disconnect M Sst 3/8 Fpt	220424	1
- 7	Quick Disconnect,Female 1/2 Sst Fpt	220433	1
- 8	Quick Disconnect,Male 1/2 Sst Fpt	220434	1
- 9	Block,Manifold,Posatryn	231012	1
- 10	Valve,Check 1/4"Sst F/H-Block	230210	1
- 11	Mro-Loctite 545 Hydraulic	445091	1
- 12	Transducer,Posatryn Mc W/Cable	714214	1

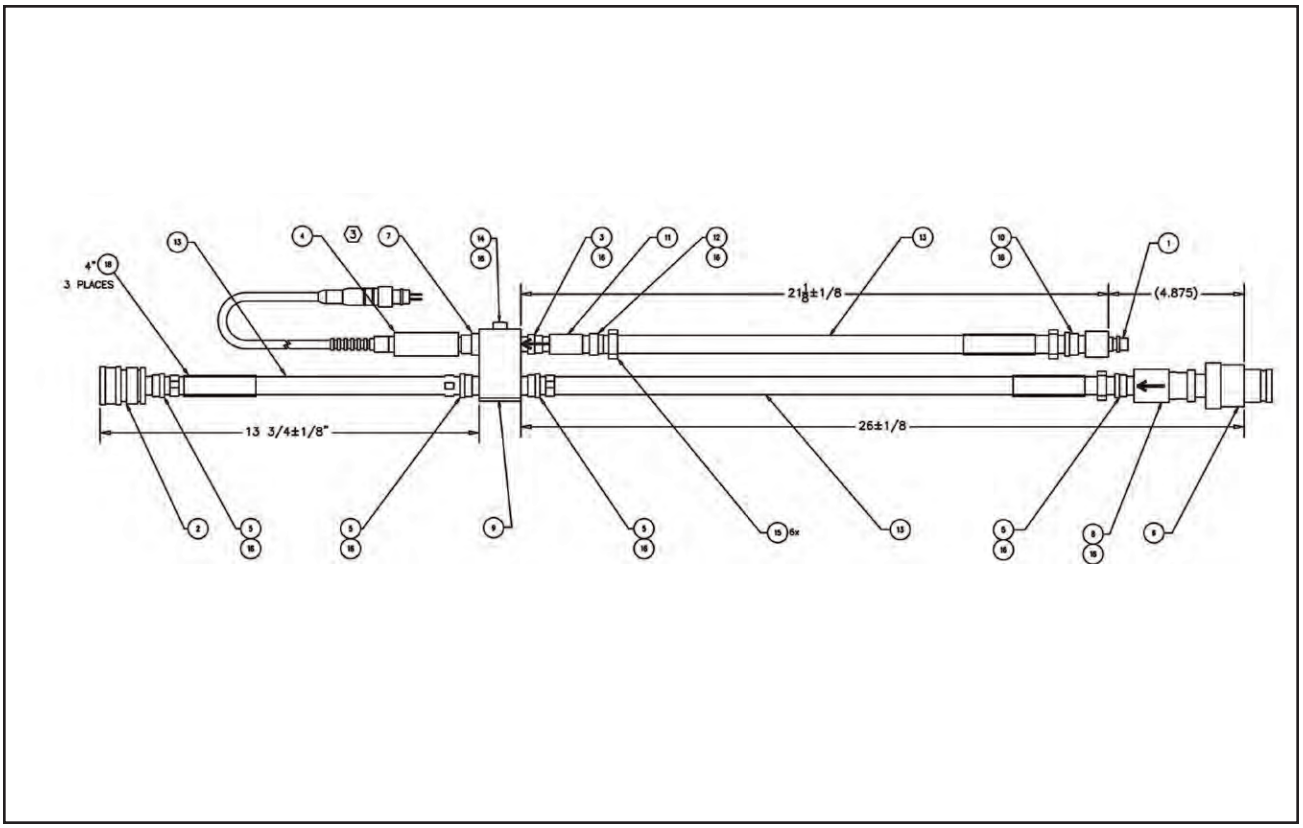


Figure 6: *H-Block Adapter Assembly, Rev. D, SS351*

Item #	Description	P/N	Qty
- 1	Plug,Quick Disconnect M Sst 3/8 Fpt	220424	1
- 2	Quick Disconnect,Female 1/2 Sst Fpt	220433	1
- 3	Valve,Check 1/4"Sst F/H-Block	230210	1
- 4	Transducer,Posatryn Mc W/Cable	714214	1
- 5	Pushlock,Sst ½"Mpt X 3/8 Hose	HW402	4
- 6	Nipple,Dripless,Locking,Male	SS106	1
- 7	Union,1/4mstx1/4mst,Sae,O-Ring	HW422	1
- 8	Valve,Check,30psi,½"	SS062	1
- 9	Block,Manifold,Posatryn	231012	1
- 10	Fitting,Hose 3/8mpt, X 3/8hose Ss	113148	1
- 11	Coupling,Sst,1/4"	113011	1
- 12	Pushlock,Sst 1/4"Mpt X 3/8h	HW403	1
- 13	Hose,Epdm Rubber 3/8 Black 200psi	010031	5
- 14	Plug,Skt Hd Hex Hol Hex Pt Sst 1/4	113002	1
- 15	Clamp,Crimp,3/4"	121010	6
- 16	Mro-Sealant Thread PST 567	CS215	1
- 17	Mro-Lubricant,O-Ring 2 Oz Tube	439986	1
- 18	Tube,Shrink,Red 1"Rnf 4'lengths	712604	1

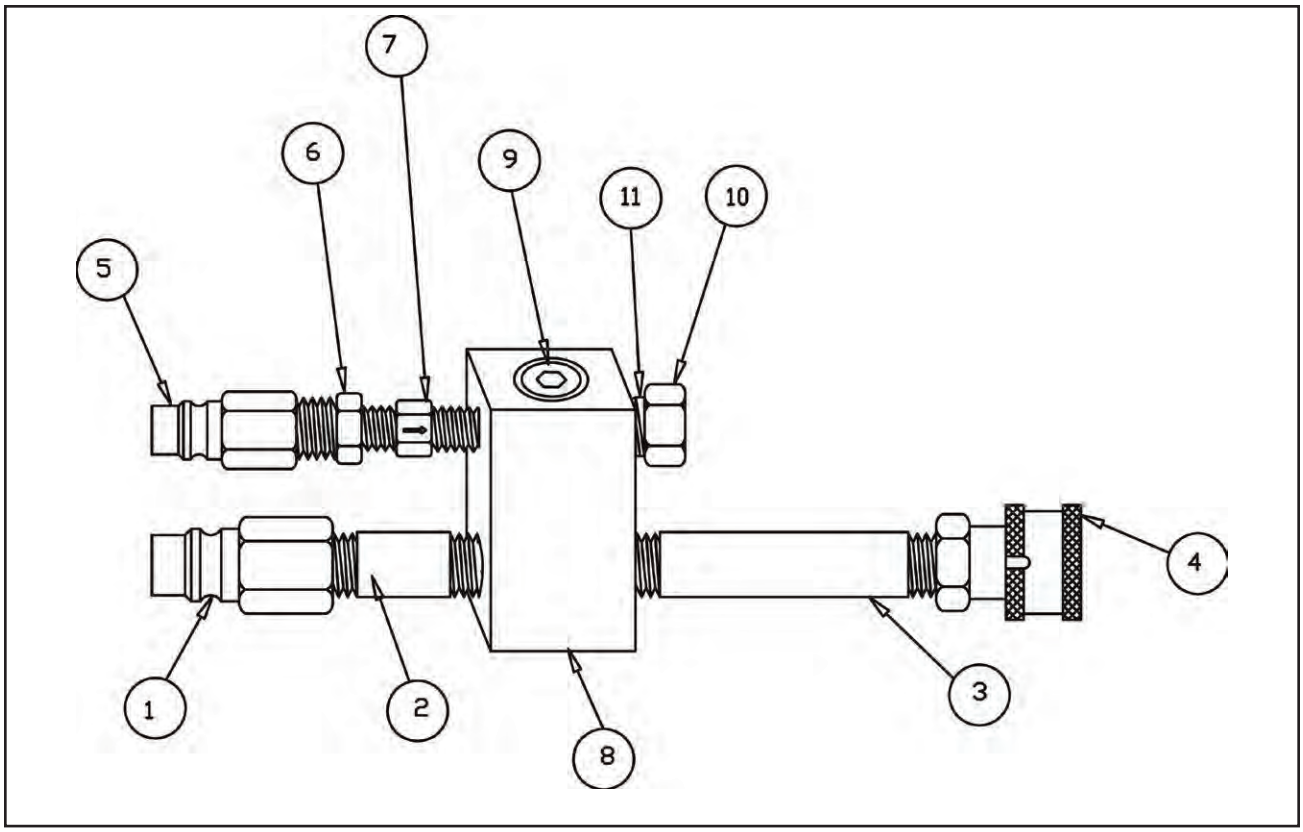
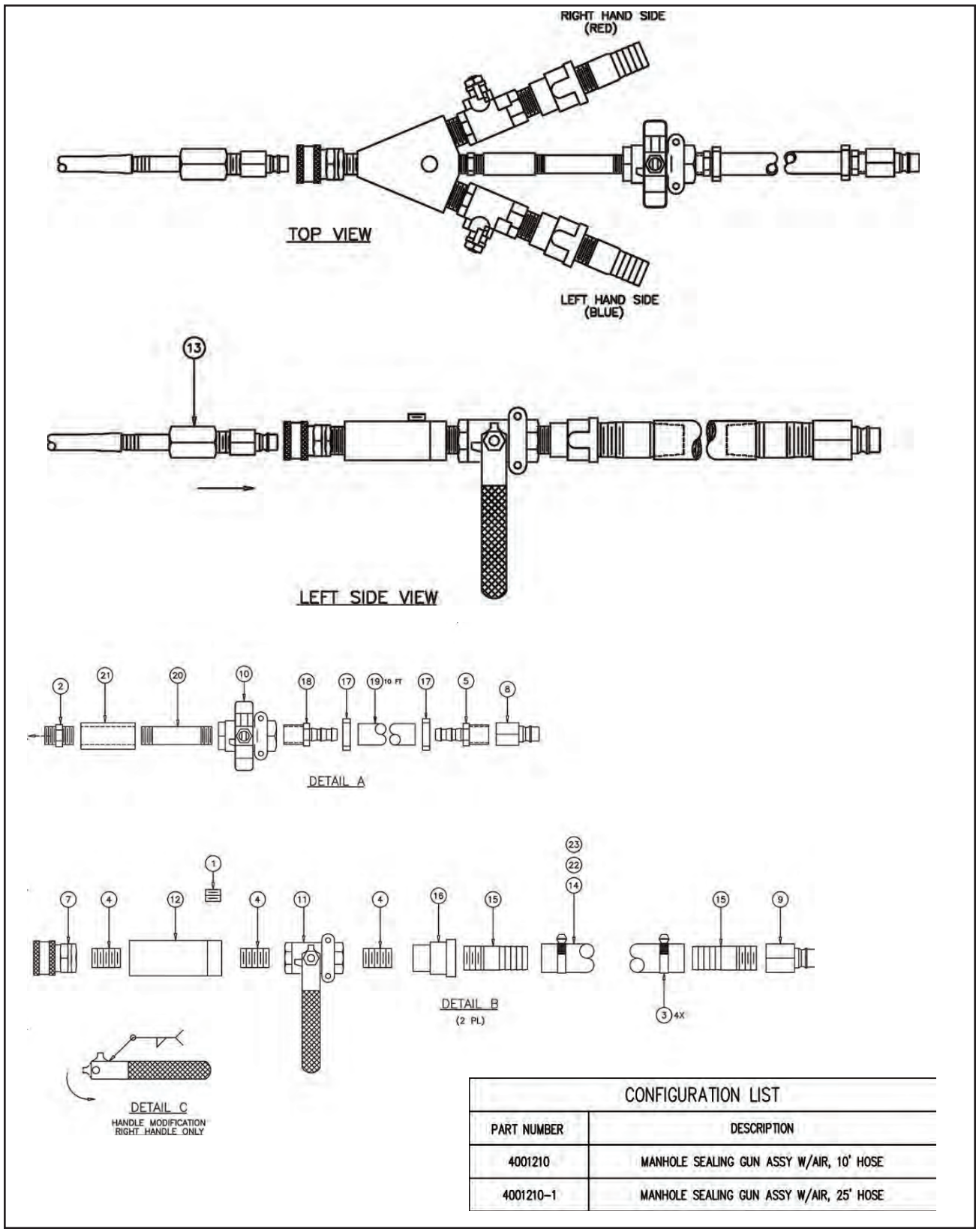


Figure 7: *Test Manifold Assembly, 2310110*

Test Manifold Assembly (See Fig.7) Rev. C, 2310110			
Item #	Description	P/N	Qty
- 1	Quick Disconnect,Male 1/2 Sst Fpt	220434	1
- 2	Nipple,Sst,1/2x2 Sched 40 Aly T-304	113206	1
- 3	Nipple,Sst,1/2x4 Sched 40 T-304	113208	1
- 4	Quick Disconnect,Female 1/2 Sst Fpt	220433	1
- 5	Plug,Quick Disconnect M Sst 3/8 Fpt	220424	1
- 6	Bushing,3/8x1/4 Rdc Sst Sch40 T-304	113121	1
- 7	Valve,Check 1/4"Sst F/H-Block	230210	1
- 8	Block,Manifold,Posatryn	231012	1
- 9	Plug,Skt Hd Hex Hol Hex Pt Sst 1/4	113002	1
- 10	Plug,Tube Sst,1/4"	114343	1
- 11	O-Ring,Epr-012,.364id X.070 Wall	130011	1



CONFIGURATION LIST	
PART NUMBER	DESCRIPTION
4001210	MANHOLE SEALING GUN ASSY W/AIR, 10' HOSE
4001210-1	MANHOLE SEALING GUN ASSY W/AIR, 25' HOSE

Figure 8: *Manhole Sealing Gun Assembly w/ Air, 4001210*

Manhole Sealing Gun Assy w/ Air (See Fig.8) Rev. L, 4001210			
Item #	Description	P/N	Qty
- 1	Plug,Skt Hd Hex Hol Hex Pt Sst 1/4	113002	1
- 2	Valve,Check 1/4"Sst F/H-Block	230210	1
- 3	Clamp,Worm,Sst,#12	120605	4
- 4	Nipple,Sst,3/8xclose Aly T-304	113103	5
- 5	Pushlock,Brass 3/8hx3/8mpt	114522	2
- 7	Quick Disconnect,Female 3/8fpt Sst	220423	1
- 8	Plug,Quick Disconnect M Sst 3/8 Fpt	220424	1
- 9	Quick Disconnect,Male 1/2 Sst Fpt	220434	2
- 10	Valve,Ball,T Handle Sst 1/4"	230119	1
- 11	Valve,Ball,3/8"Sst	230121	2
- 12	Manifold,Manhole Gun	231014	1
- 13	Nozzle Assy,Manhole Gun	4001111	1
- 14	Hose,Rubber,3/4id,250 Lb	010060	20
- 15	Pushon,Sst 3/4hx1/2mpt	113274	4
- 16	Coupli,Rdc 1/2fx3/8f Sch40 Sst T304	113214	2
- 17	Clamp,Crimp,5/8"	121011	2
- 18	Pushlock, Brass	114322	1
- 19	Hose,Rubber,3/8id,250 Lb	010030	10
- 20	Nipple,Sst,1/4x2	113004	1
- 21	Coupling,Sst,1/4"	113011	1
- 22	Tube,Shrink,Red 1.5"	712792	0.5
- 23	Tube,Shrink,Blue 1.5"	715039	0.5

AGITATOR ASSEMBLY, CHEMICAL TANK 0802980

ITEM	QTY	DESCRIPTION	P/N
1	1	Motor, agitator 1/2 horse power 1500 RPM	310026
2	1	Stand, chemical agitator motor	0408011
3	1	Coupling, agitator chemical tank	502347
4	1	Motor Shaft, bracket chemical tank	502346
5	1	Propeller, chemical tank	3100250
N/S	4	Screw, set 10-32" x 1/4"	101000
N/S	4	Nut, 8-32" plated	712457

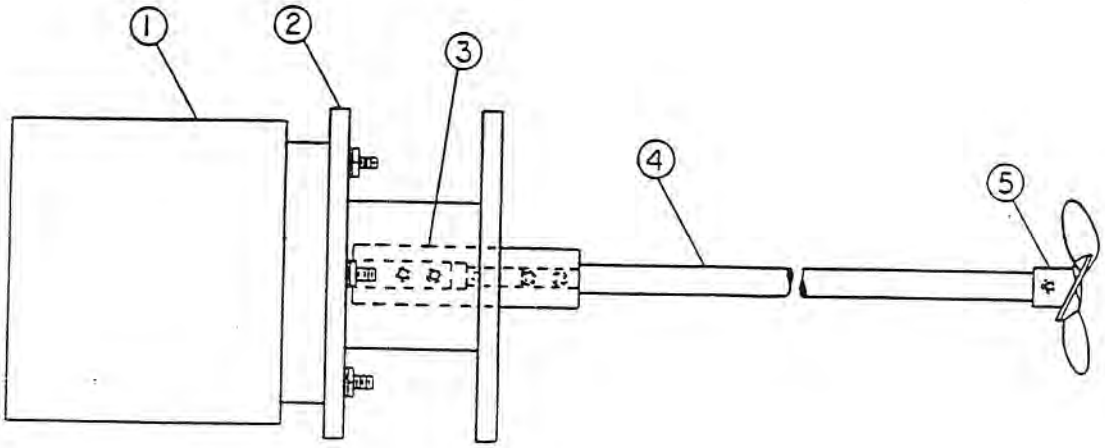


Figure 9: *Agitator Assembly, Chemical Tank, 0802980*

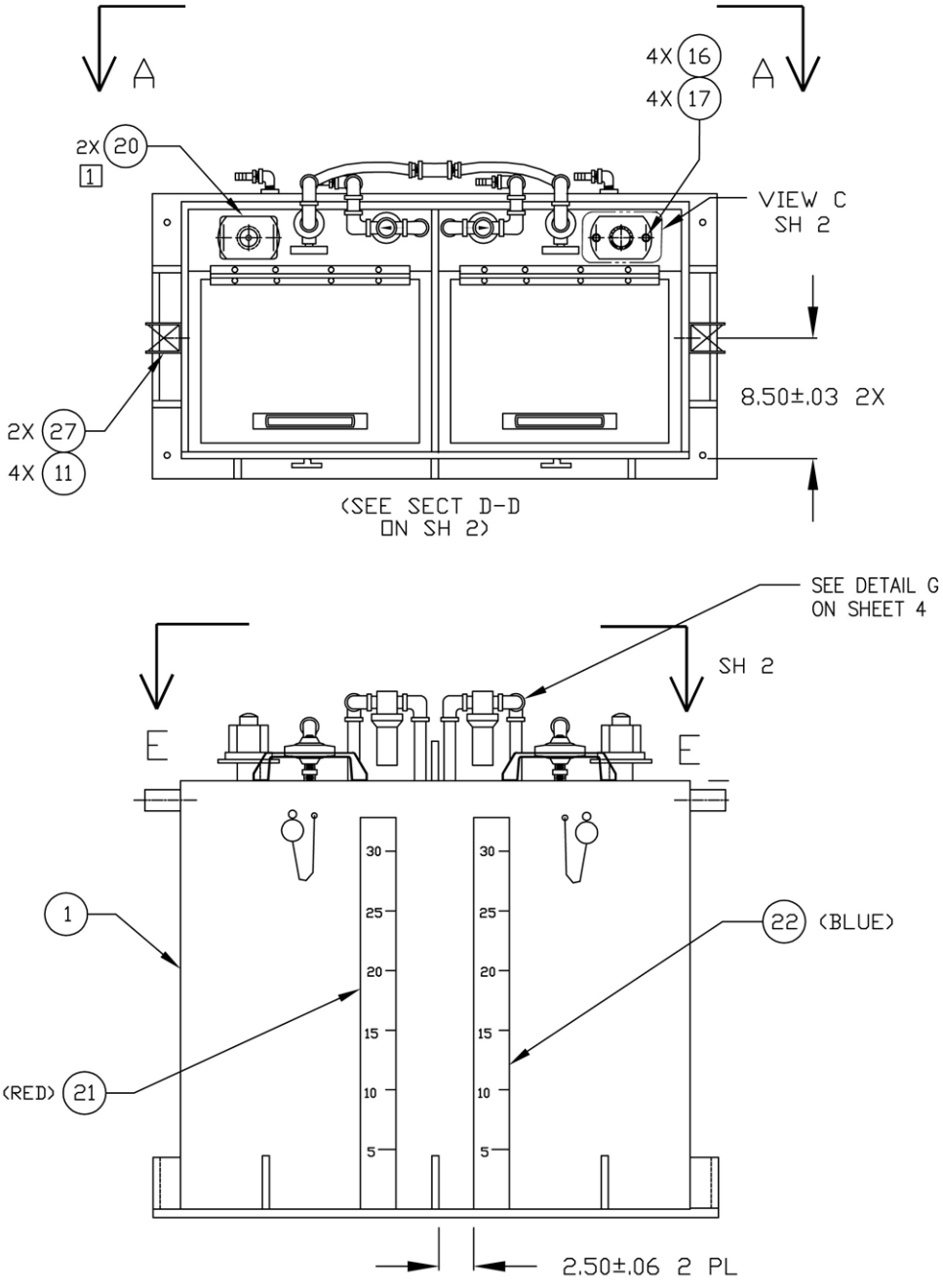


Figure 10a: *Tank Assembly, Chemical, w/o Motor, SS320*

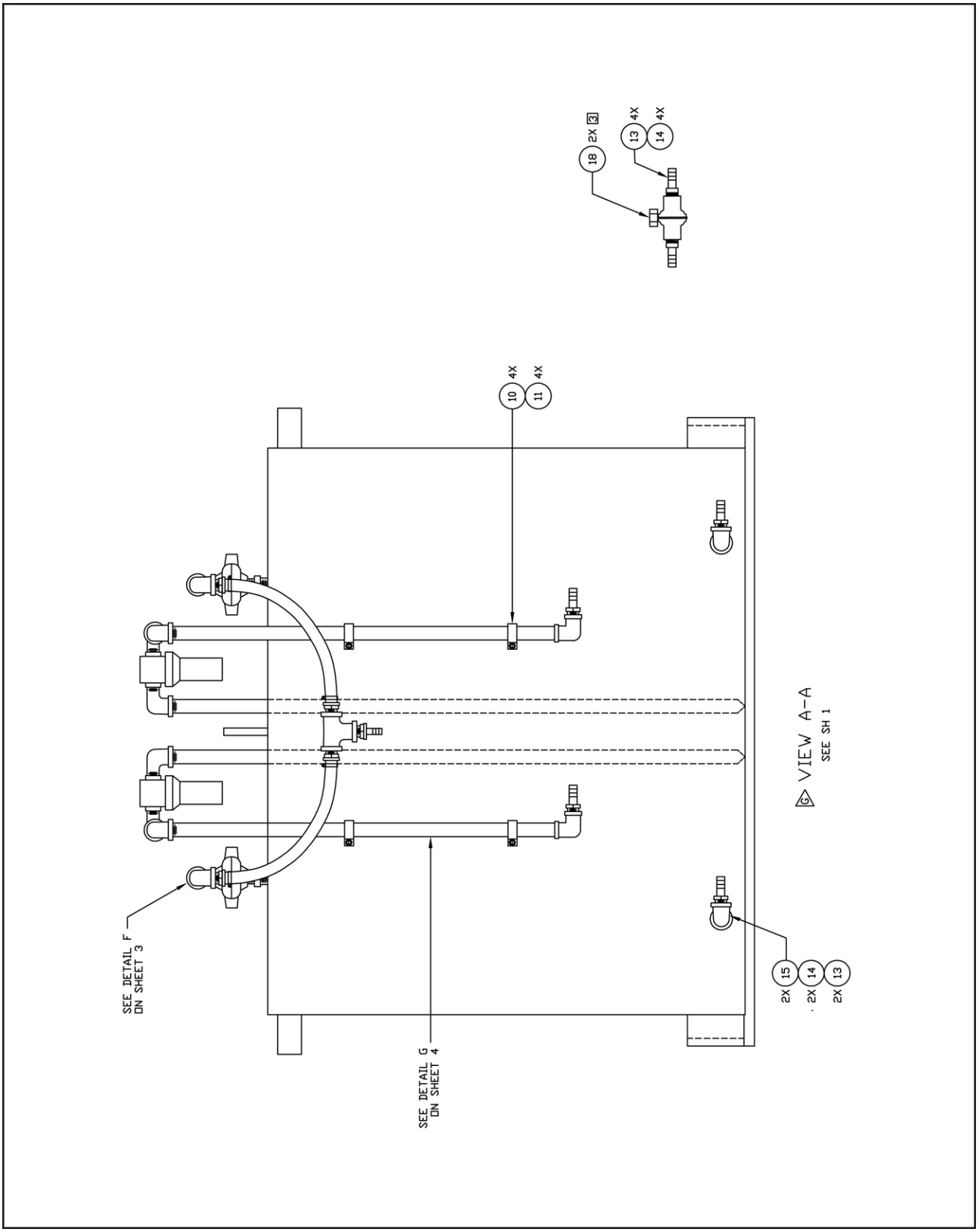


Figure 10b: *Tank Assembly, Chemical, w/o Motor, SS320*

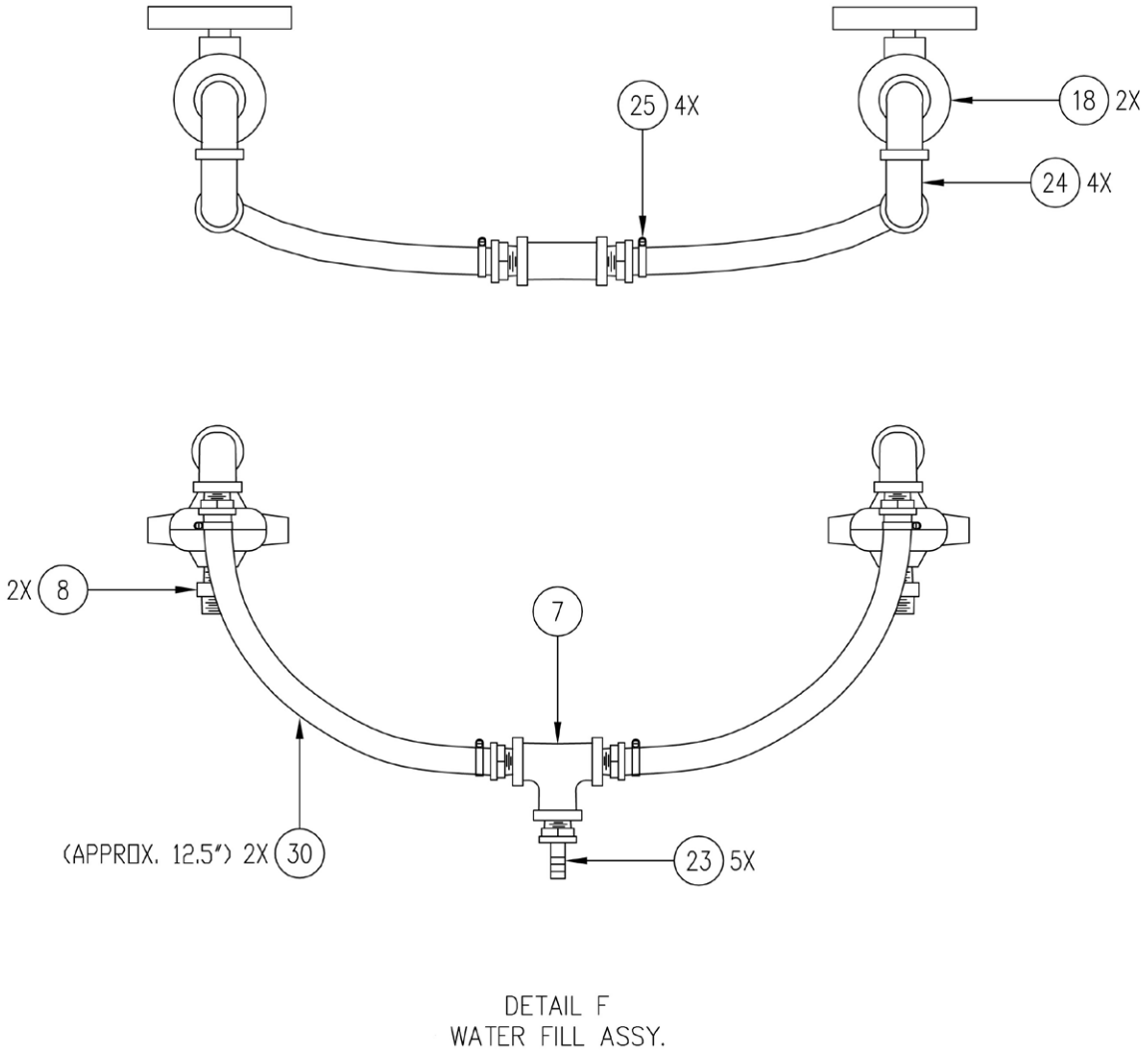


Figure 10c: *Tank Assembly, Chemical, w/o Motor, SS320*

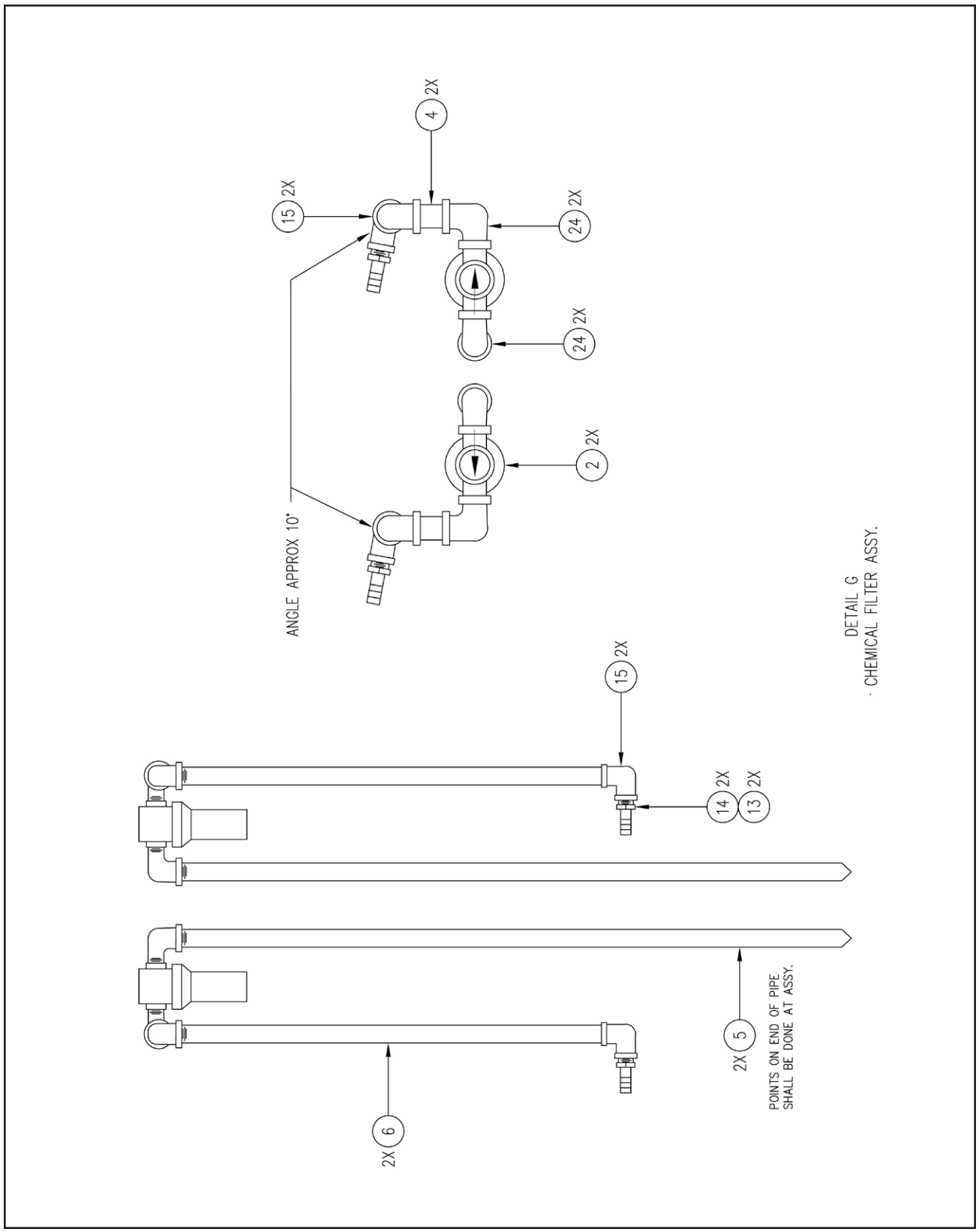


Figure 10d: *Tank Assembly, Chemical, w/o Motor, SS320*

Tank Assembly, Chemical (See Fig.10) Rev. G, SS320			
Item #	Description	P/N	Qty
0001	TANK ASSY,NON-CORROSIVE	80350	1
0002	FILTER ASSY,W/80 MESH SST STRAINER	220702	2
0003	FITTING,HOSE BARB,5/8,1/2 M,NPT SST	HW2451	4
0004	NIPPLE,SST,1/2X1 1/2	113205	2
0005	NIPPLE,PIPE,1/2X36",THD ONE END,SST	HW2449	2
0006	NIPPLE,PIPE,1/2X24",THD 2 ENDS,SST	HW2450	2
0007	TEE,FEMALE PIPE 1/2 SST	113141	1
0008	NIPPLE,PIPE 3/4X1/2 SST	113146	2
0009	REDUCER,BUSHING,3/4X1/2 TXT,PVC	HW908	2
0010	STRAP,PIPE ONE HOLE EMT 3/4 IN	161115	4
0011	SCREW,HEX WASHER HD,8X1-2 TYPE A PL	101949	8
0012	MRO-PERMABOND,LM-012-042 HY SEALANT	CS169	1
0013	PUSHON,3/8"MPTX5/8ID HOSEX2"T304 SS	113174	12
0014	BUSHING,THIN SHLDR 1/2X3/8 RDC SST	113222	12
0015	ELBOW,SST,90 DEG 1/2	113232	4
0016	WASHER,FLAT,1/4"SST	101736	4
0017	SCREW,HEX HD,1/4-20X3/4 SST	101135	4
0018	VALVE,PVC BALL 1/2FPT	230126	4
0019	PUSHON,PVC,1/2MPTX1/2 H ID	HW909	2
0020	COVER,F/CHEMICAL TANK	161805	2
0021	LABEL,MEASURE STRIP 5-30GAL RED R	920161	1
0022	LABEL,MEASURE STRIP 5-30GAL BLUE R	920162	1
0023	PUSHLOCK,SST ½"MPT X 3/8 HOSE	HW402	5
0024	ELBOW,STREET,1/2 SST	113139	10
0025	CLAMP,WORM SCR,SST,#6 .312WIDE 5/8	120602	4
0027	CLIP,SPRING CHEM MIX PADDLE MOUNT	97504	2
0028	TUBE,SHRINK,RED 1"RNF 4'LENGTHS	712604	0.3
0029	TUBE,SHRINK,BLUE 1"RNF 100 4'LENGTH	712605	0.03
0030	HOSE,RUBBER,3/8ID,250 LB	10030	2

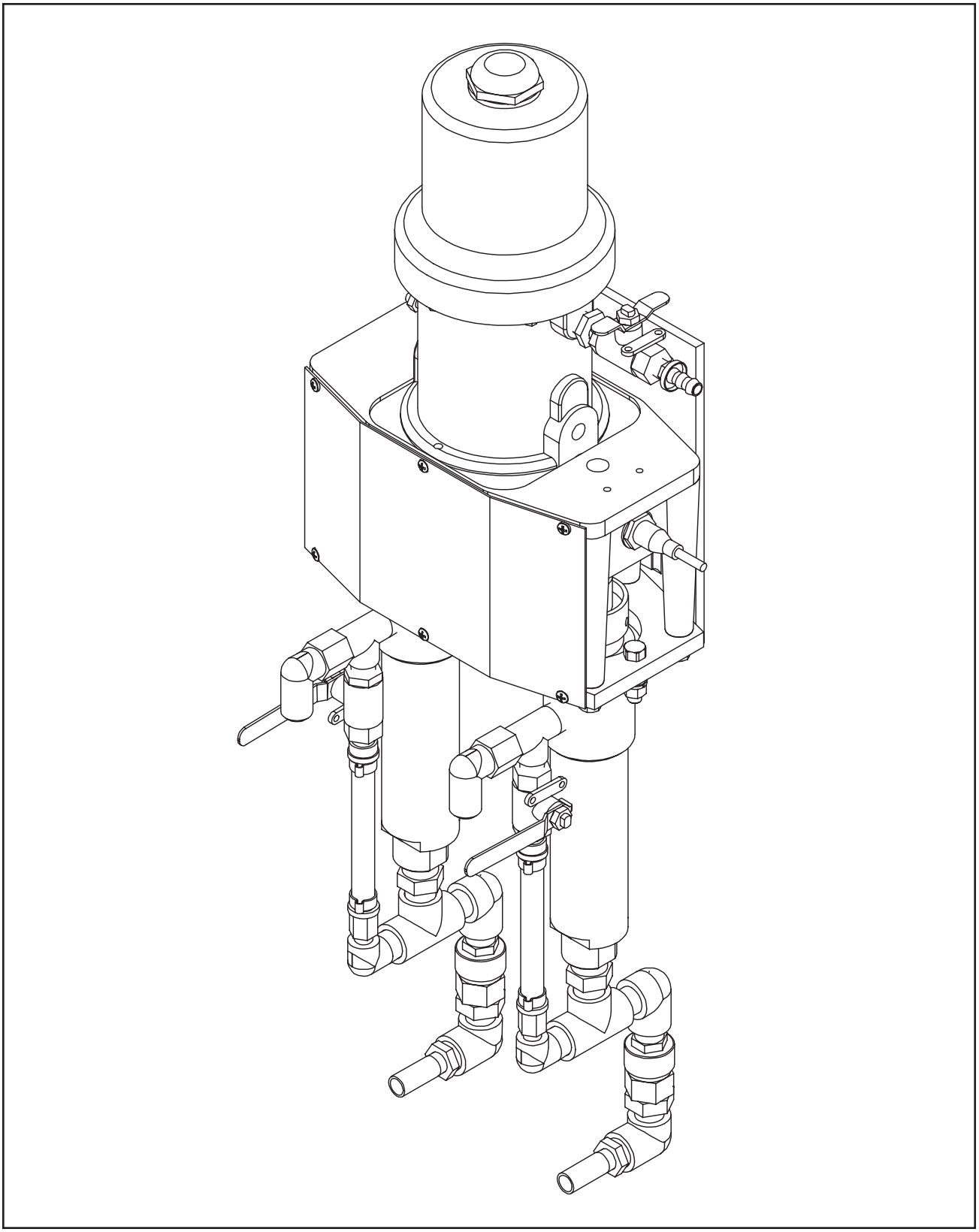


Figure 11a: *Pump Assembly, Multi-Grout, 350216*

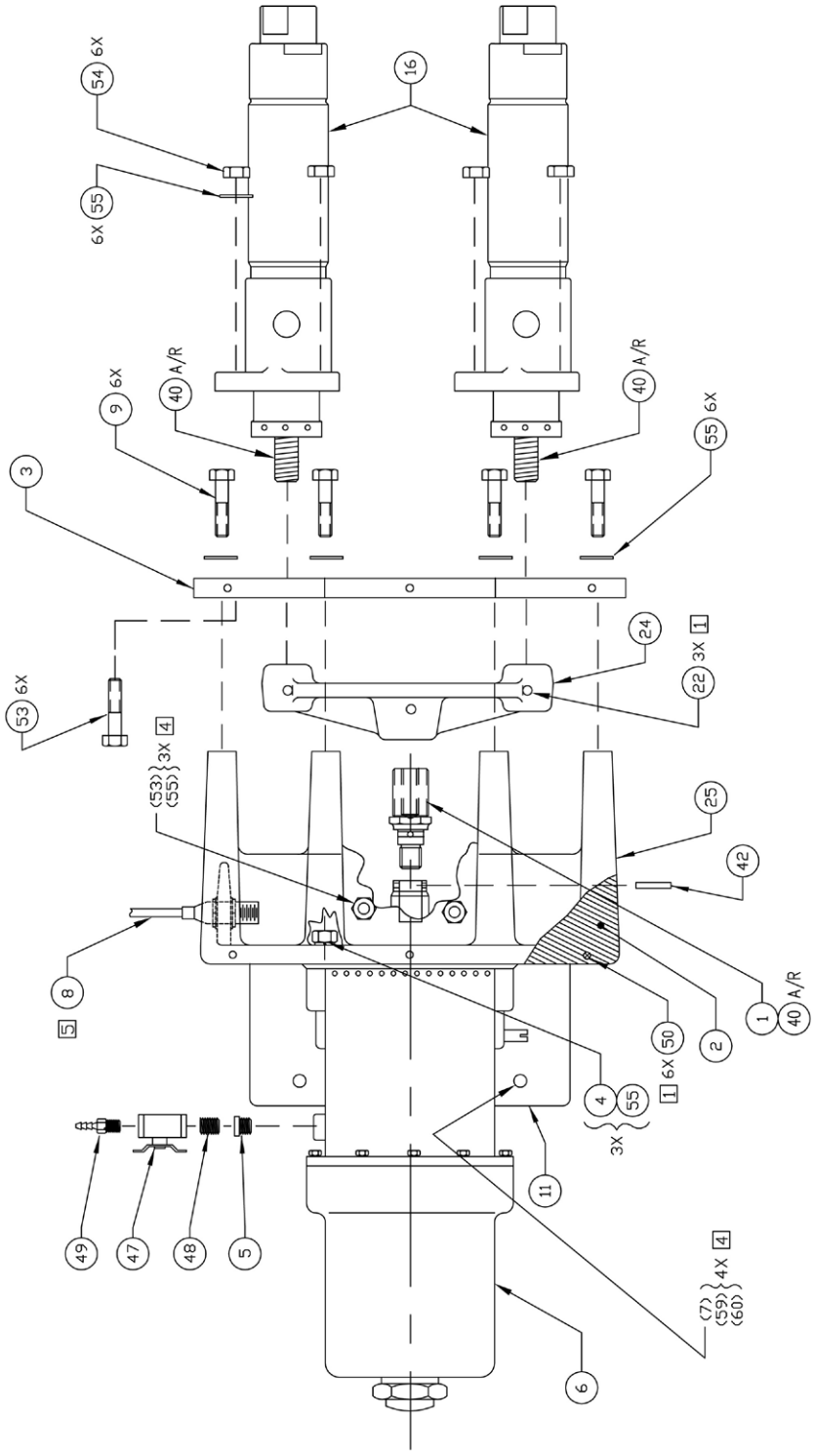


Figure 11b: *Pump Assembly, Multi-Grout, 350216*

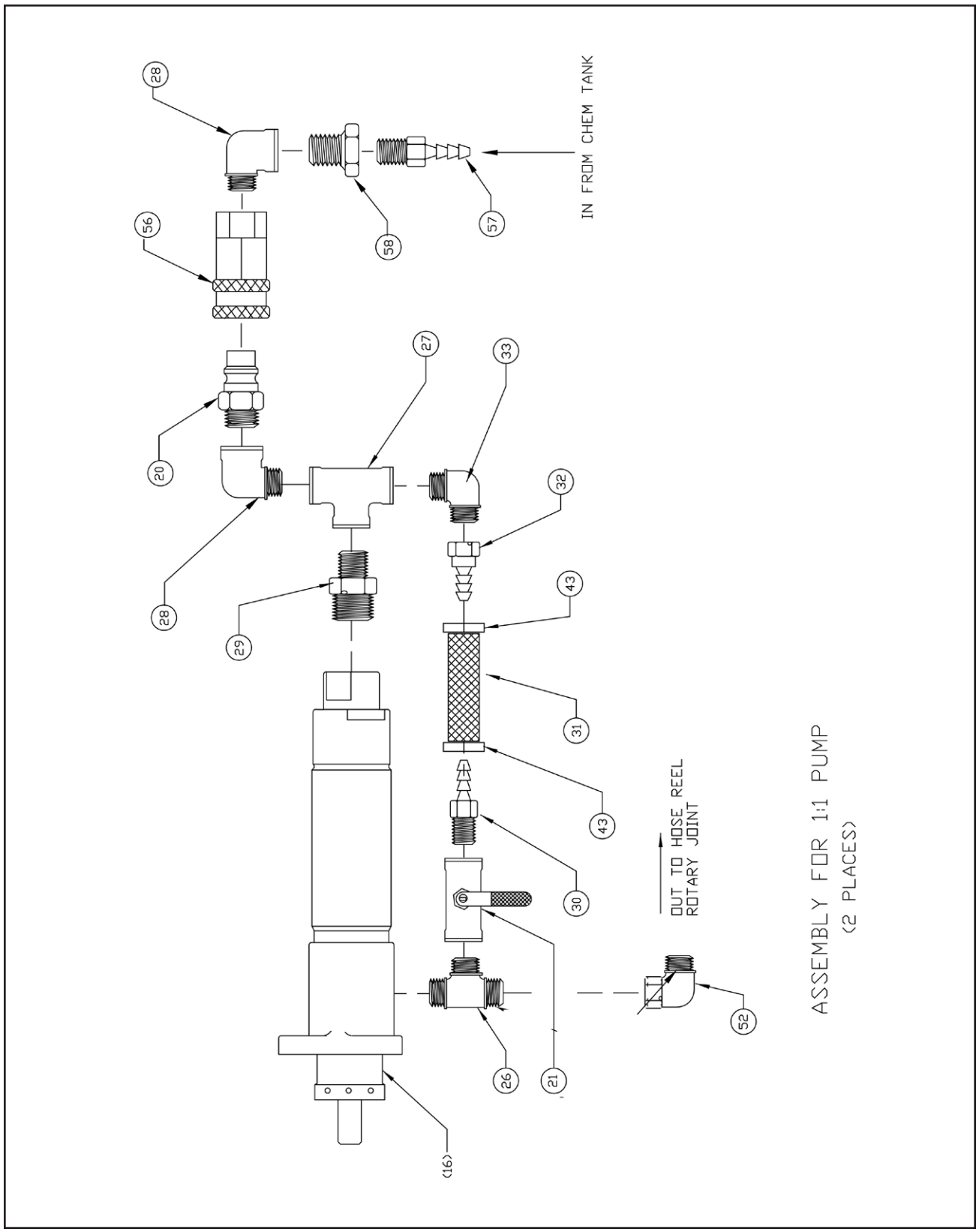


Figure 11c: *Pump Assembly, Multi-Grout, 350216*

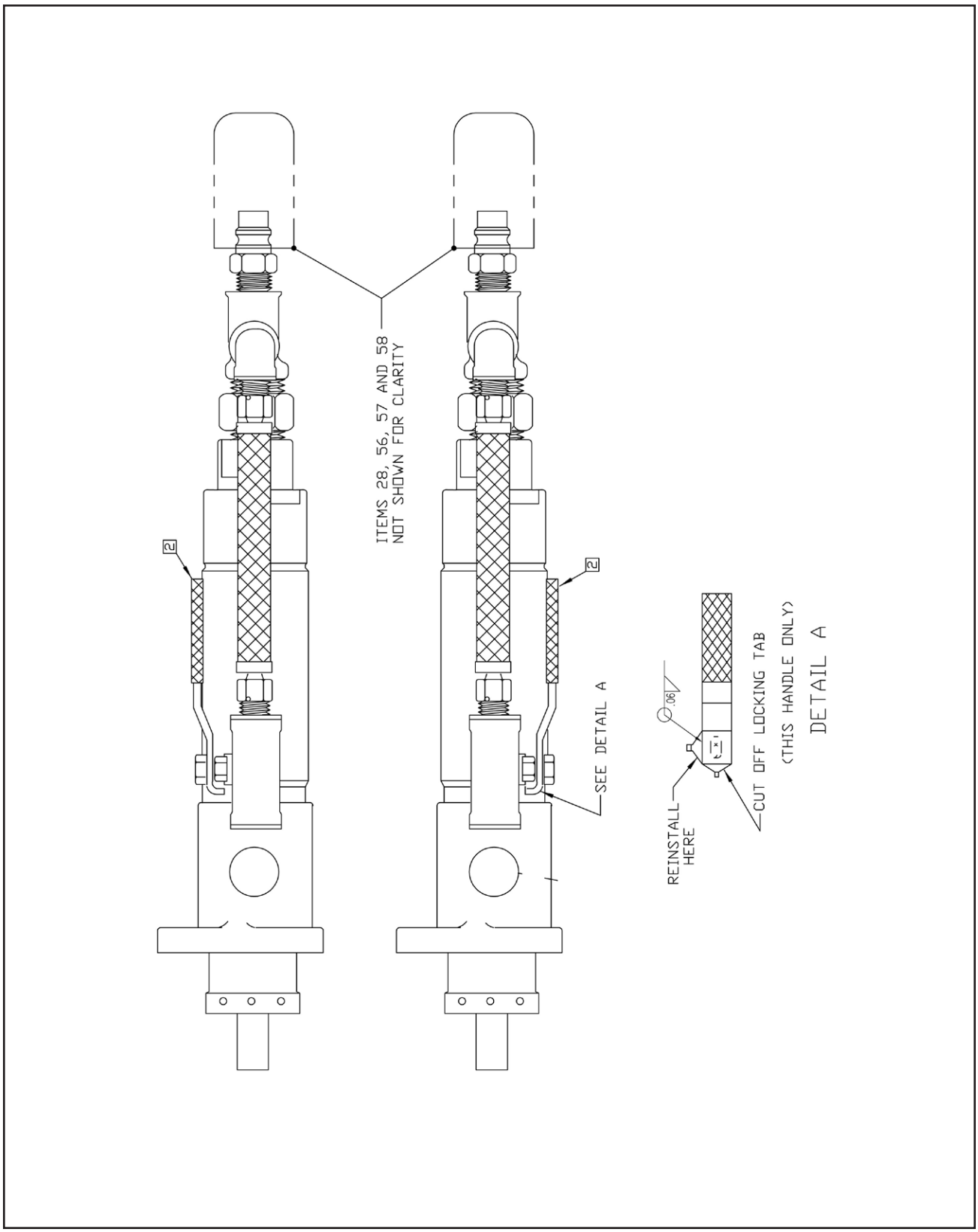


Figure 11d: *Pump Assembly, Multi-Grout, 350216*

Pump Assembly, Multi-Grout (See Fig.11) Rev. T, 350216			
Item #	Description	P/N	Qty
0001	STUD,CONNECTING,AIR MOTOR	501321	1
0002	GUARD,MULTI GROUT PUMP	551223	1
0003	PLATE,MULTI-GROUT PUMP MOUNTING	501319	1
0004	BOLT,HEX,3/8-16X1 PLATED	101205	3
0005	BUSHING,3/8X1/4,BRASS,REDUCING	114561	1
0006	AIR MOTOR,GRACO 5-1	310205	1
0007	BOLT,CARRIAGE,3/8-16X2	102109	4
0008	PROXIMITY SWITCH ASSY,SS	SS334	1
0009	BOLT,HEX,3/8-16X1 1/4 GR5 PL	101206	6
0011	PLATE,GROUT PUMP MOUNTING	402950	1
0016	CYLINDER,GROUT PUMP 1-1MOD	3502100	2
0020	NIPPLE,DISC SST 1/2 MPT	220498	2
0021	VALVE,BALL,3/8"SST	230121	2
0022	SCREW,SET,1/4-20X3/8 NYLON TIP SST	101121	3
0024	BRACKET,PUMP CONNECTING	45065	1
0025	MOUNT,AIR MOTOR	45066	1
0026	TEE,1/2MPT X3/8MPT X5/8 JIC SST	113149	2
0027	TEE,FEMALE PIPE 1/2 SST	113141	2
0028	ELBOW,STREET,1/2 SST	113139	4
0029	NIPPLE,PIPE 3/4X1/2 SST	113146	2
0030	FITTING,HOSE 3/8MPT, X 3/8HOSE SS	113148	2
0031	HOSE,EPDM RUBBER 3/8 BLACK 200PSI	10031	0.75
0032	SWIVEL,JIC-3/8HOSE X3/8TUBE SST	113142	2
0033	ELBOW,MALE,1/2MPT X3/8JIC MALE SST	113135	2
0042	PIN,SPRING,1/8X1 CARBON STEEL	97548	1
0043	CLAMP,CRIMP,3/4"	121010	4
0044	MRO-SEALANT,THREAD WITH TEFLON 502	442056	1
0045	MRO-SEAL.HGH PRESS,ND 440400-50,BRN	445091	1
0046	MRO-REMOVABLE LCK,ND 121200-50,BLUE	440061	1
0047	VALVE,BALL,T HANDLE SST 1/4"	230119	1
0048	NIPPLE,BRASS 1/4XCLOSE	114303	1
0049	PUSHLOCK,BRASS 3/8HX1/4MPT	114322	1
0050	SCREW,PAN,10-32X3/8 SST	103031	6
0052	ELBOW,SWIVEL,NUT 90DEG JIC SST	113136	2
0053	BOLT,HEX,3/8-16X1 1/2 GR5 PL	101207	9
0054	NUT,HEX,SST,3/8-16	471029	6
0055	WASHER,SPLIT 3/8 ZINC	101233	18
0056	QUICK DISCONNECT,F SST,1/2FPT W/CK	220437	2
0057	PUSHON,3/8"MPTX5/8ID HOSEX2"T304 SS	113174	2
0058	BUSHING,THIN SHLDR 1/2X3/8 RDC SST	113222	2
0059	NUT,KEP,PLATED,3/8-16	101244	4
0060	WASHER,FLAT,3/8 USS PLD	101232	4

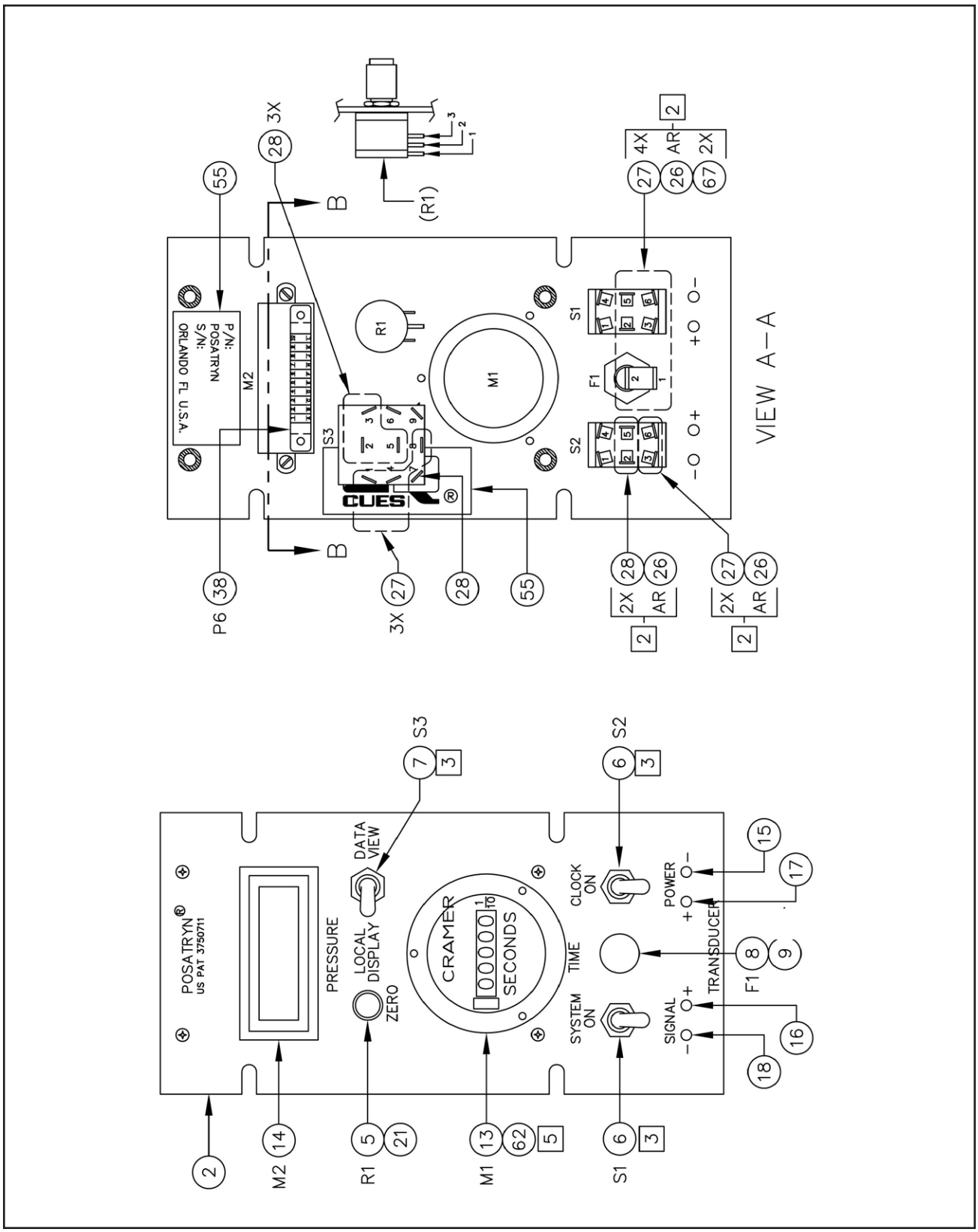


Figure 12a: *Posatryn Pressure Monitor, 750300*

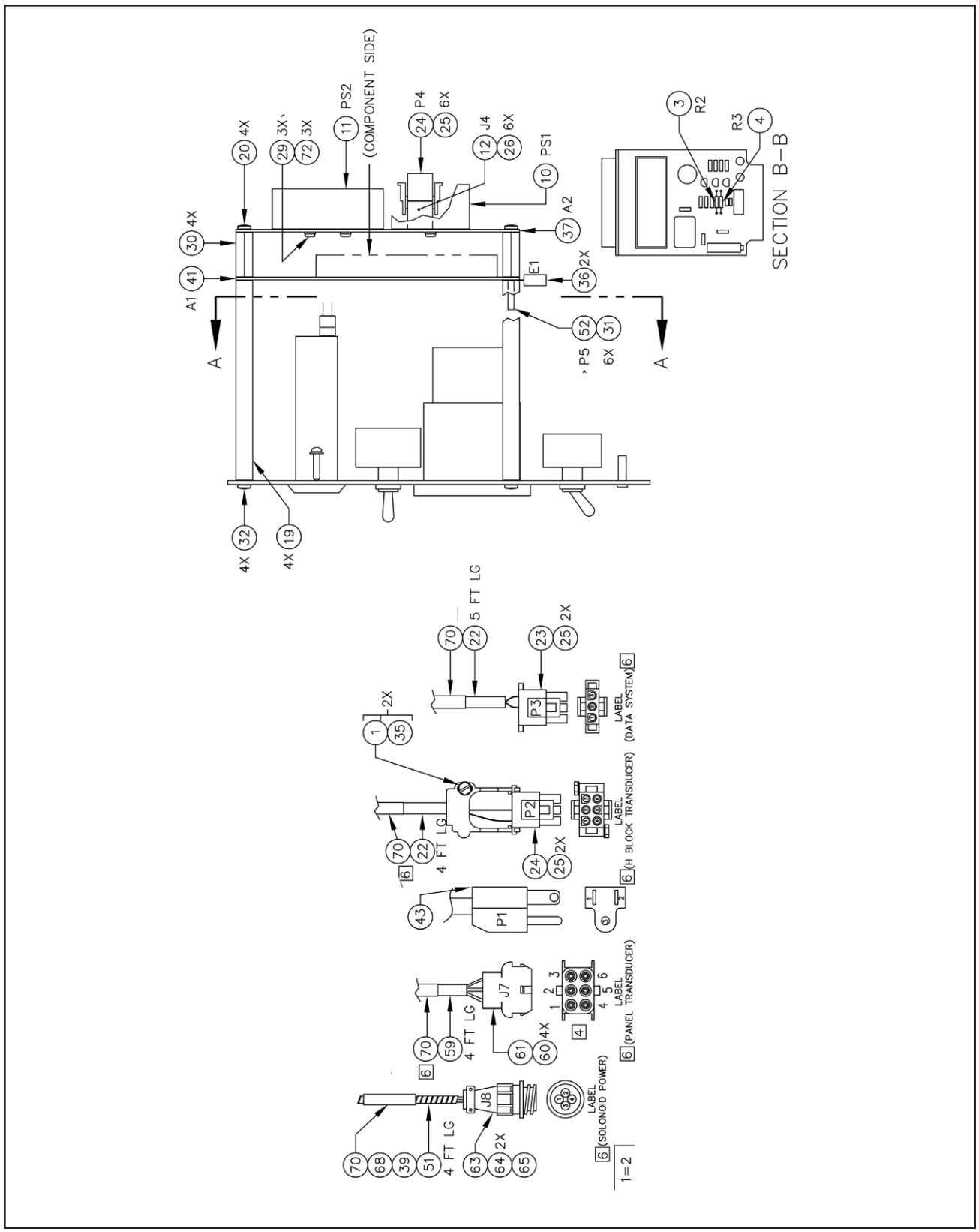


Figure 12b: *Posatryn Pressure Monitor, 750300*

Posatryn Pressure Monitor (See Fig.12) Rev. M, 750300			
Item #	Description	P/N	Qty
0001	SCREW,TAP,#6X3/8 WSHR TYPE A PLTD	101858	2
0002	PANEL,POSATRYN,MOD TRUCK	491033	1
0003	RESISTOR,MF,10K OHM 1/4W 1%	700161	1
0004	RESISTOR,MF,90.9K OHM 1/4W 1%	700170	1
0005	POT,50K	700223	1
0006	SWITCH,DPDT	711801	2
0007	SWITCH,3PDT	711808	1
0008	HOLDER,FUSE HKP-HH	711866	1
0009	FUSE,.75 AMP,250V	711867	1
0010	POWER SUPPLY, 24V	711601	1
0011	POWER SUPPLY,5V	711602	1
0012	HEADER,6-PIN	712630	1
0013	METER,SECONDS 636 - 120V 60HZ	712172	1
0014	METER,DIGITAL F/POSATRYN	712175	1
0015	JACK,TEST PRESSURE IN-WHITE	712210	1
0016	JACK,TEST PRESSURE IN-RED	712212	1
0017	JACK,TEST PRESSURE IN-BLACK	712214	1
0018	JACK,TEST PRESSURE IN-GREEN	712216	1
0019	STANDOFF,3/8 ROUND FEMALE 4-1/2 LG	299913	4
0020	SCREW,BIND,6-32X1/2 SST	712418	4
0021	KNOB,1/4"	712511	1
0022	TUBING,SPIRAL WRAP BLK POLY 1/4"	220681	1
0023	PLUG,3-PIN	712602	1
0024	PLUG,6-PIN	712606	2
0025	SOCKET,BRASS F/WIRE SIZE 20-14	712613	10
0026	TUBE,SHRINK,BLACK 1/4"RNF	712576	1
0027	FAST-ON,.250X.032,16-14GA,LG BL,LSE	712632	9
0028	FAST-ON,.250X.032,18-22GA,SM RD,LSE	712641	6
0029	SCREW,PAN,4-40X3/16 SST	HW236	3
0030	SPACER,THREADED,1LGX1/4HEX M/F 6-32	712567	4
0031	CONTACT,SNAP	712692	6
0032	SCREW,TRUSS,6-32X1/2 PHIL GRAY	103084	4
0033	WIRE,#20 BROWN BU	713318	1
0034	MRO-TIE,CABLE,3/32"X4",WHT/CLR	440307	16
0035	STRAIN RELIEF,CONN.,.500	712627	2
0036	RING,NO 8 18-22GA	712639	2
0037	BOARD,POWER SUPPLY,POSATRYN	713012	1
0038	CONNECTOR,POSATRYN-DPM	713059	1

Posatryn Pressure Monitor (See Fig.12) Rev. M, 750300			
Item #	Description	P/N	Qty
0039	WIRE,#16 BLACK BV 19/29	713300	4
0040	WIRE,#20 BLACK STRANDED 600V	713317	10
0041	MODULE,POSATRYN/DV ADAPTER	7131351	1
0042	WIRE,#24 ORANGE TEFLON	713338	0.3
0043	CABLE,#18-3 AC CORD	713360	1
0044	WIRE,#20 RED BU	713319	12
0045	WIRE,#20 GREEN BU 19/32	713322	3
0046	WIRE,#20 WHITE BU	713326	11
0047	WIRE,#20 WHITE/RED BU	713329	1
0048	WIRE,#20 WHITE/GREEN	713332	1
0049	WIRE,#24 YELLOW TEFLON	713339	0.3
0050	WIRE,#24 GREEN TEFLON	713340	0.3
0051	WIRE,#16 WHITE BU	713309	0.9
0052	CONNECTOR,7PIN,CRIMP HOUSING.100	EC558	1
0053	WIRE,#24 RED TEFLON	713337	1
0054	WIRE,#24 PURPLE TEFLON	713342	1
0055	LABEL,LOGO 2.5"	962029	1
0056	WIRE,#18 BUSS	713404	1
0057	WIRE,#24 BLACK TEFLON	713335	1
0058	WIRE,#24 WHITE TEFLON	713344	1
0059	CABLE,4 COND,24AWG,INSULATED,PCU	SM209	4
0060	PIN,BRASS F/WIRE SIZE 20-14	712612	4
0061	CONN,RECEPT,W/6-PINS	712607	1
0062	WASHER,SHOULDER NYLON #4	103056	3
0063	RECEPTACLE,BDX FHRS SHELL 11-4	712664	1
0064	SOCKET,MULTIMATE III,18-14 GA	712243	2
0065	STRAIN RELIEF,BDX SHELL SIZE 11	712699	1
0067	TERMINAL,DISCONNECT INSULATED 12-10	160038	2
0069	LABEL,ID,WHITE,HEAT SHRINK,SMALL	962949	4
0070	LABEL,ID,WHITE,HEAT SHRINK,LARGE	962947	4
0071	TUBE,SHRINK,BLACK 3/32"	712595	1
0072	WASHER,FLAT,#4 SST	100171	3

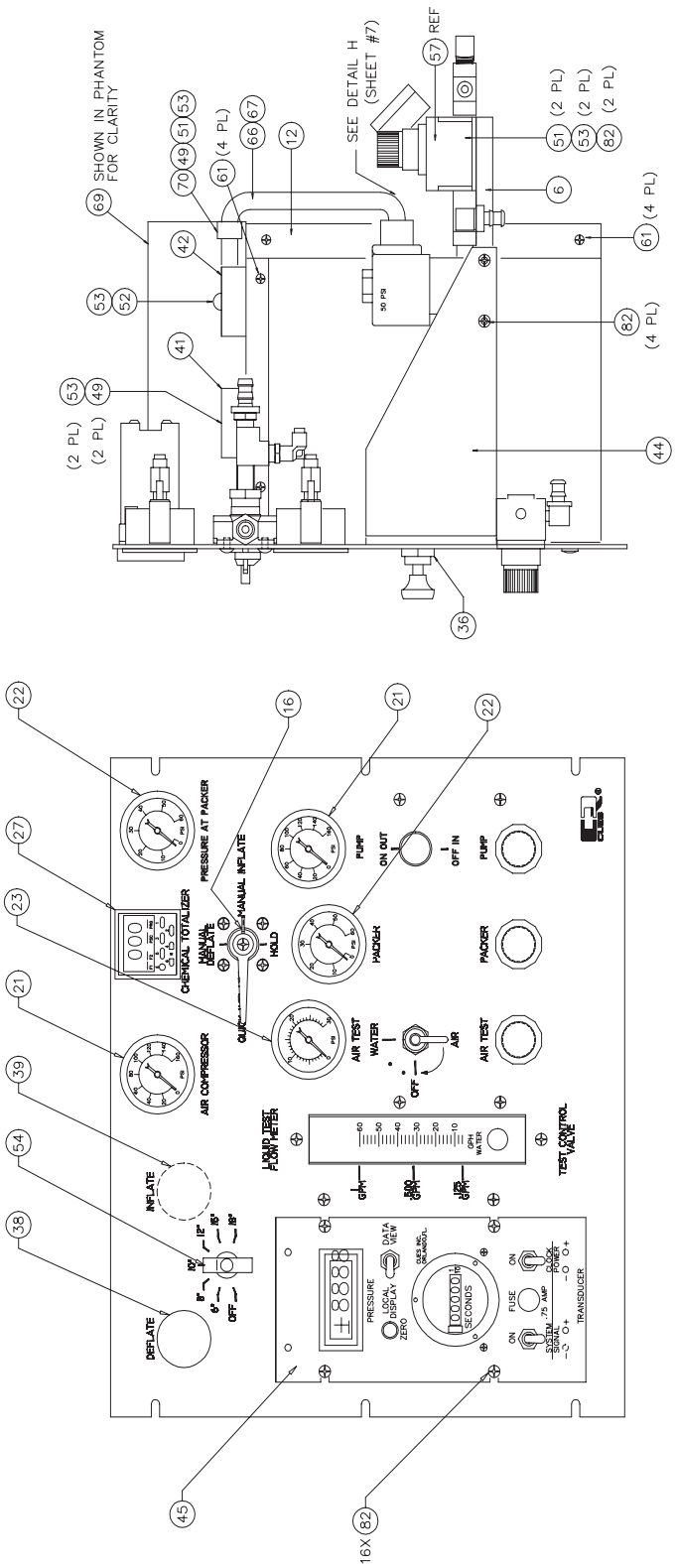


Figure 13a: *Grout Control Panel Assembly, 220696*

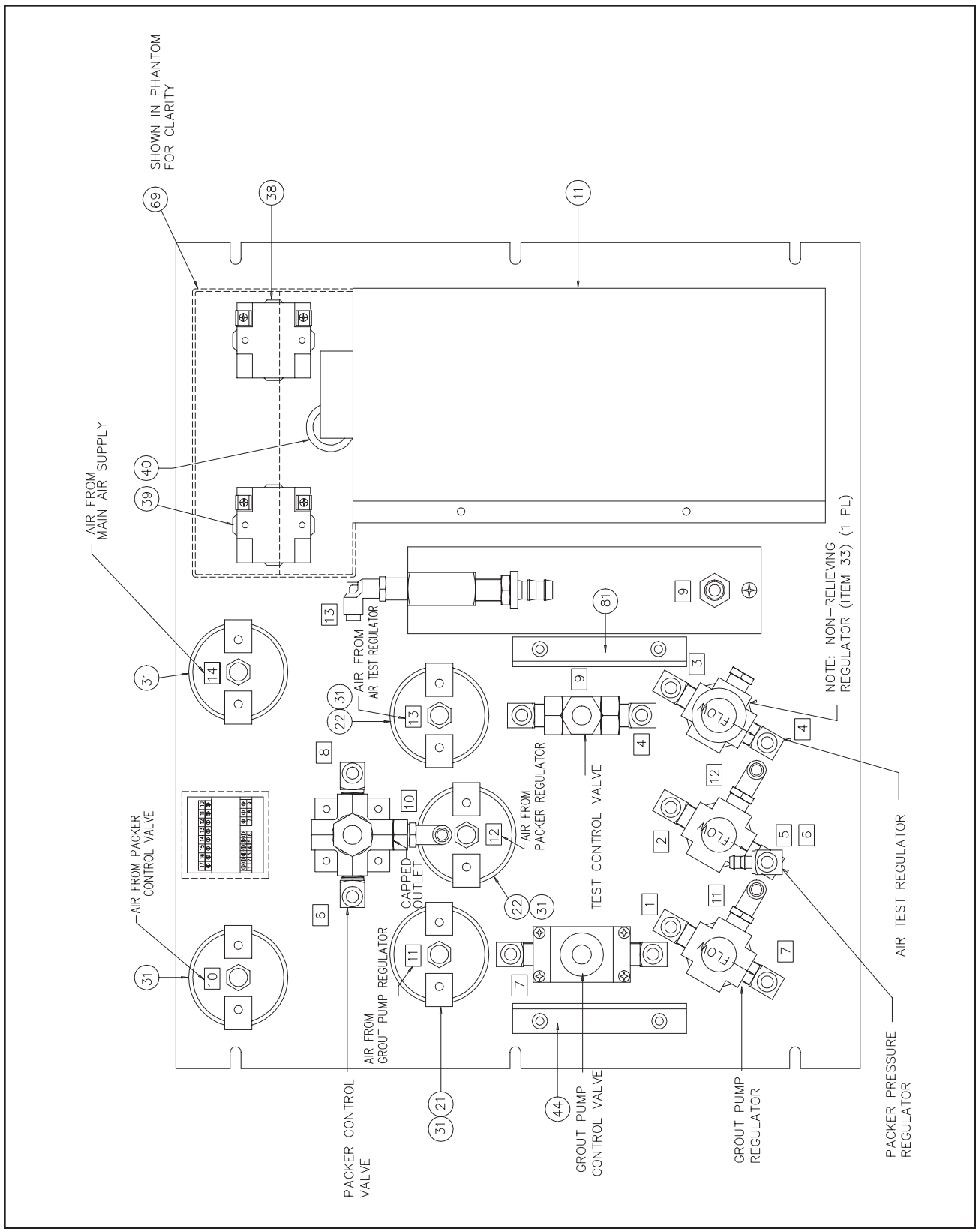


Figure 13b: *Grout Control Panel Assembly, 220696*

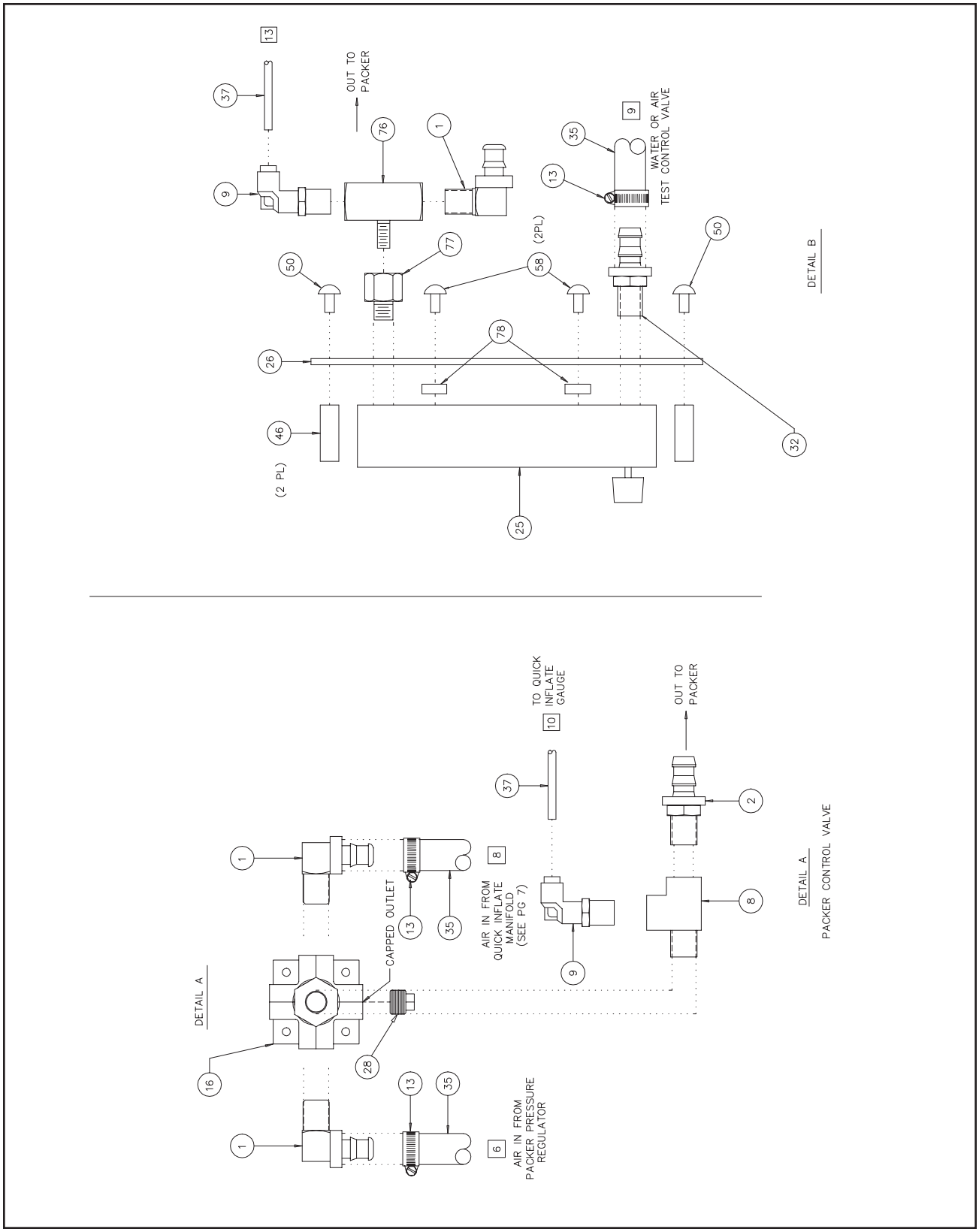


Figure 13c: *Grout Control Panel Assembly, 220696*

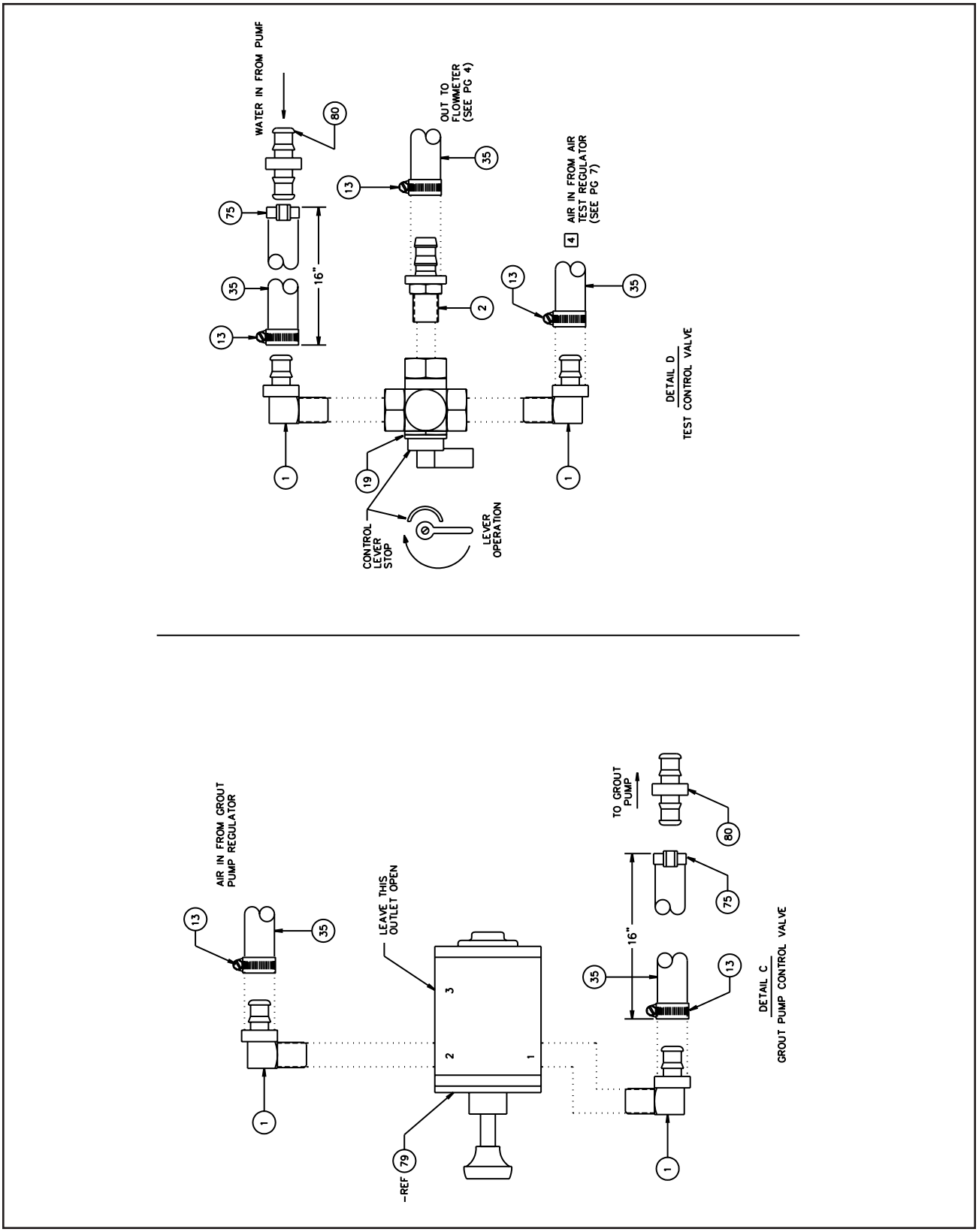


Figure 13d: *Grout Control Panel Assembly, 220696*

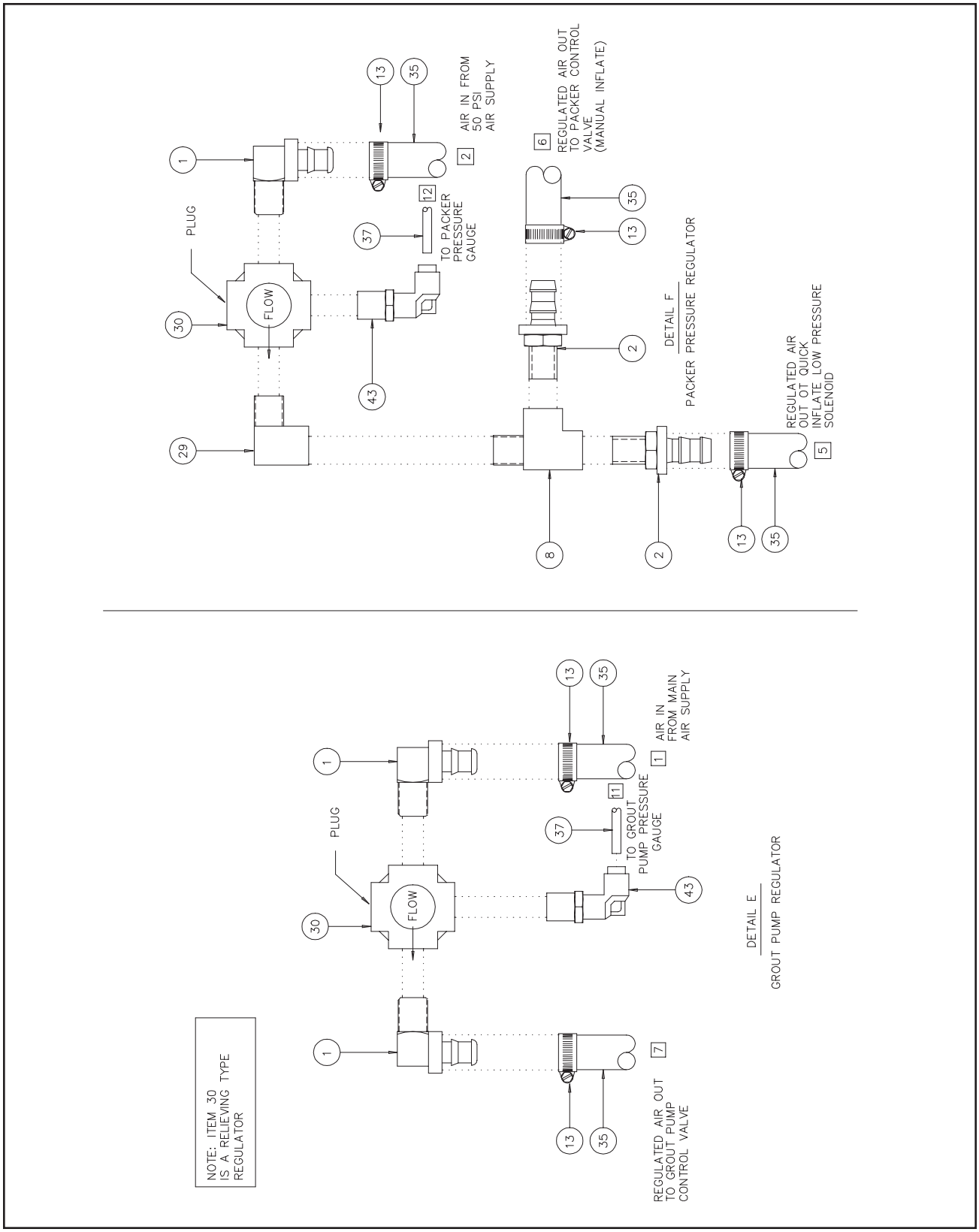


Figure 13e: *Grout Control Panel Assembly, 220696*

Grout Control Panel Assembly (See Fig.13) Rev. Z, 220696			
Item #	Description	P/N	Qty
- 1	Pushlock,90deg Brass 3/8hx1/4mpt	114341	15
- 2	Pushlock,Brass 3/8hx1/4mpt	114322	8
- 3	Cable,#18-3 Ac Cord	713360	1
- 4	Panel,Quick Inflate	491122	1
- 5	Elbow,Brass 90deg 1/8	114236	1
- 6	Bracket,Solenoid	500229	1
- 7	Tee,Female Brass 1/4x1/4x1/4	114334	1
- 8	Tee,Street Brass 1/4	114335	4
- 9	Elbow,Tube,90deg 5/32tx1/4mpt	220632	3
- 10	Nipple,Brass 1/8x1-1/2	114100	1
- 11	Cover,Test Panel Rear	500505	1
- 12	Cover,Posatryn-Chem Panel	500503	1
- 13	Clamp,Worm Scr,Sst,#6 .312wide 5/8	120602	20
- 14	Nipple,Brass 1/4xclose	114303	4
- 15	Gauge,0-160 Psi Pnl Mt 1 1/2"	220130	1
- 16	Valve,Plug,5way,¼Port	SS093	1
- 17	Valve,Solenoid 1/4 Npt 50 Psi	230123	1
- 18	Valve,Solenoid 1/4 Npt 100 Psi	230124	1
- 19	Valve,Ball,3 Way 1/4 Npt	230133	1
- 20	Nipple,Brass 1/4x1-1/2	114385	1
- 21	Gauge,0-160 Psi Pnl Mt 2"	220004	2
- 22	Gauge,0-60 Psi Pnl Mt 2"	220002	2
- 23	Gauge,0-30 Psi Ctr Mt 2"	220009	1
- 25	Meter,Flow W/Press Adj Knob	220825	1
- 26	Bracket,Flow Meter Dwyer	501637	1
- 27	Counter,Preset,Veeder,115v	EC331	1
- 28	Plug,Square Head Brass 1/4	114302	1
- 29	Elbow,Brass 90deg 1/4 Str	114373	2
- 30	Regulator,Panel,1/4"Rel W/Nut	220658	3
- 31	Connector,Brass,5/32tx1/8fpt	220637	5
- 32	Pushlock,Brass 3/8hx1/8mpt	114320	1
- 33	Regulator,Panel,1/4"Non-Rel W/Nut	220659	1
- 34	Cross,Brass 1/4p	114336	2
- 35	Hose,Rubber,3/8id,250 Lb	010030	9
- 36	Nut,Panel Mt F/3-Way Valve	230144	1
- 37	Tubing,Plastic Orange 5/32	220684	5
- 38	Switch,N.C. Pushbutton Red	711827	1

Grout Control Panel Assembly (See Fig.13) Rev. Z, 220696			
Item #	Description	P/N	Qty
- 39	Switch,N.O. Pushbutton Green	711829	1
- 40	Switch,Rotary,2 Pole,2-10 Pos.	EL640	1
- 41	Relay,Solid State	711579	1
- 42	Relay,Seal Control Panel	711578	1
- 43	Elbow,Tube,90deg 5/32tx1/8mpt	220631	2
- 44	Plate,Left Side,Test Panel	501162	1
- 45	Posatryn Pressure Monitor(G)	750300	1
- 46	Standoff,Al,Round-Dwyer Flow Meter	501639	2
- 47	Adapter,Tab,I-Style	712650	3
- 49	Screw,Bind,10-32x1/2 Plated	712441	2
- 50	Screw,Truss,10-32x3/8 Phil Sst	712437	2
- 51	Washer,Flat,#10 Sst	100140	2
- 52	Screw,Flat,10-32x1 1/4 Phil Sst	101862	1
- 53	Nut,Lock,Sst,10-32	103033	5
- 54	Knob,Selector,1 1/2x1/4 Bore	715029	1
- 56	Spacer,Solenoid	300051	2
- 57	Bracket,Regulator Support	502316	1
- 58	Screw,Truss,10-32x5/8 Phil Sst	712450	6
- 59	Fastener,Pidg Fast-On .250 Red	712641	9
- 60	Ring,No 8 18-22ga	712639	12
- 61	Screw,Pan,8-32x3/8 Phil Sst	103065	8
- 62	Resistor,Cf,150k,1/4w,5%5	EL956	1
- 63	Resistor,Cf,82k Ohm 1/4w 5%	700096	1
- 64	Resistor,Mf,121k Ohm 1/4w 1%	700517	1
- 65	Resistor,Mf,100k Ohm 1/4w 1%	700165	1
- 66	Tubing,Spiral Wrap Blk Poly 3/8"	220708	1
- 67	Tubing,Spiral Wrap Blk Poly 1/4"	220681	0.25
- 68	Valve,Relief,1/4mpt 50psi Non Adj	230815	1
- 69	Shield,Posatryn Panel	551224	1
- 70	Clamp,Tubing Insulated,1/2"	121104	1
- 71	Wrench,Spanner,Solenoid Valve	940603	1
- 72	Mro-Tie,Cable,3/32"X4"	440307	1
- 73	Holder,Fuse In-Line	711865	1
- 74	Fuse,1 Amp,250v	711869	1
- 75	Clamp, Crimp 3/4	121010	2
- 76	Tee,Branch Male Brs 1/4fx1/4mx1/4f	114372	1
- 77	Adapter,Brass,1/4fpt X 1/8mpt	114390	1

Grout Control Panel Assembly (See Fig.13) Rev. Z, 220696			
Item #	Description	P/N	Qty
- 78	Spacer,3/8x1/4 Al For#10screw	501638	2
- 79	Valve,Spool 3-Way 1/4 In	230143	1
- 80	Mender,Hose Brass 3/8	114311	2
- 81	Plate,Right Side,Test Panel	501272	1
- 82	Screw,Truss,10-32x5/8 Phil Gray	103082	22
- 83	Resistor,Cf,180k Ohm 1/4w 5%	700100	1
- 84	Decal,Fuse,(1 Amp)	967003	1
- 85	Resistor,Cf,56k Ohm 1/4w 5%	700092	1
- 86	Plug,Bdx Shell Size 11-4	712663	1
- 87	Strain Relief,Bdx Shell Size 11	712699	1
- 88	Socket,Type Iii Multimate (Roll)	712309	4
- 89	Cable,#20-4	713356	6

CUES Packers	
Description	**P/N**
Multi-Grout:	
Packer Assy,6"(150mm)Multigrout	6000061
Packer Assy,8" (200 mm) Multigrout	6000081
Packer Assy,10"(250mm)Multigrout	6000101
Packer Assy,12"(300mm)Multigrout	6000121
Packer Assy,15"(400mm)Multigrout	6000151
Low Void:	
Packer Assy,Lv 8"	600658
Packer Assy,Lv 10"	600651
Packer Assy,Lv 12"	600652
Packer Assy,Lv 15"	600653
Compact Low Void:	
Packer Assy,18"(450mm)Compact	6002182
Packer Assy,18"Clvp(450mm)	600314
Packer Assy,20"(500mm)Compact	6003200
Packer Assy,20"Clvp(500mm)	600016
Packer Assy,21"Clvp(550mm)	600017
Packer Assy,24"Clvp(600mm)	600018
Packer Assy,27"Clvp(700mm)	600019
Packer Assy,30"Clvp(750mm)	600020
Packer Assy,36"(900mm)C/Collap	6002362
Packer Assy,36"Clvp(900mm)	600021
Packer Assy,42"Clvp(1050mm)	600022
Logiball:	
Packer Assy,Logiball 6" Mainline	SS373
Packer Assy,Logiball 8" Mainline	SS372
Packer,Logiball,6"Mainline,Modified	SS367
Packer,Logiball,8"Mainline,Modified	SS368
Packer,Logiball,Lateral,8"	SS142
Standard:	
Packer Assy,4"Std	6000040
Packer Assy,6"(150mm)Std	6000060
Packer Assy,8"(200mm)Std	6000080
Packer Assy,10"(250mm)Std	6000100
Packer Assy,12"(300mm)Std	6000120
Packer Assy,15"(400mm)Std	6000150

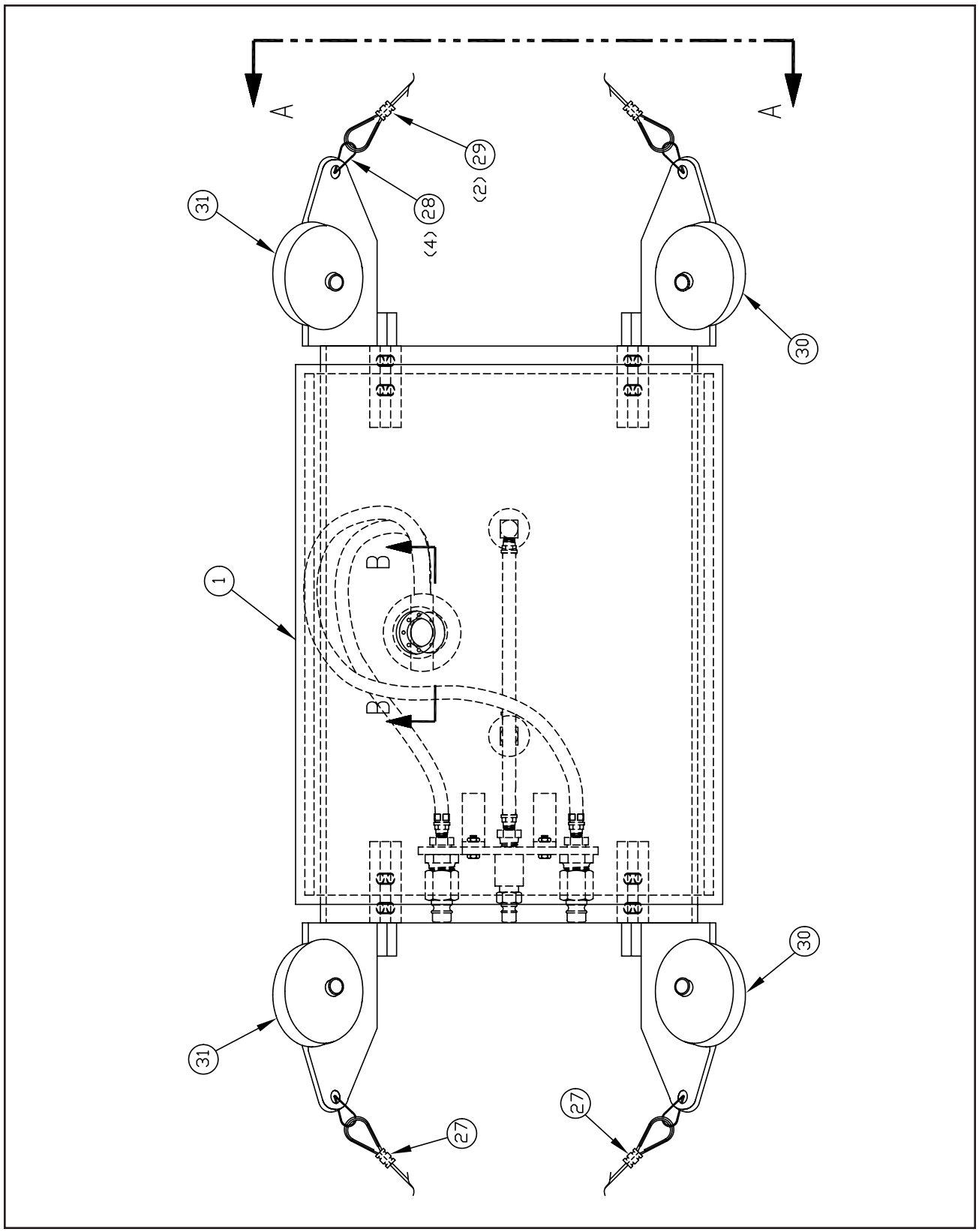


Figure 14a: *Packer Assembly, 18", Compact Low Void, 600314*

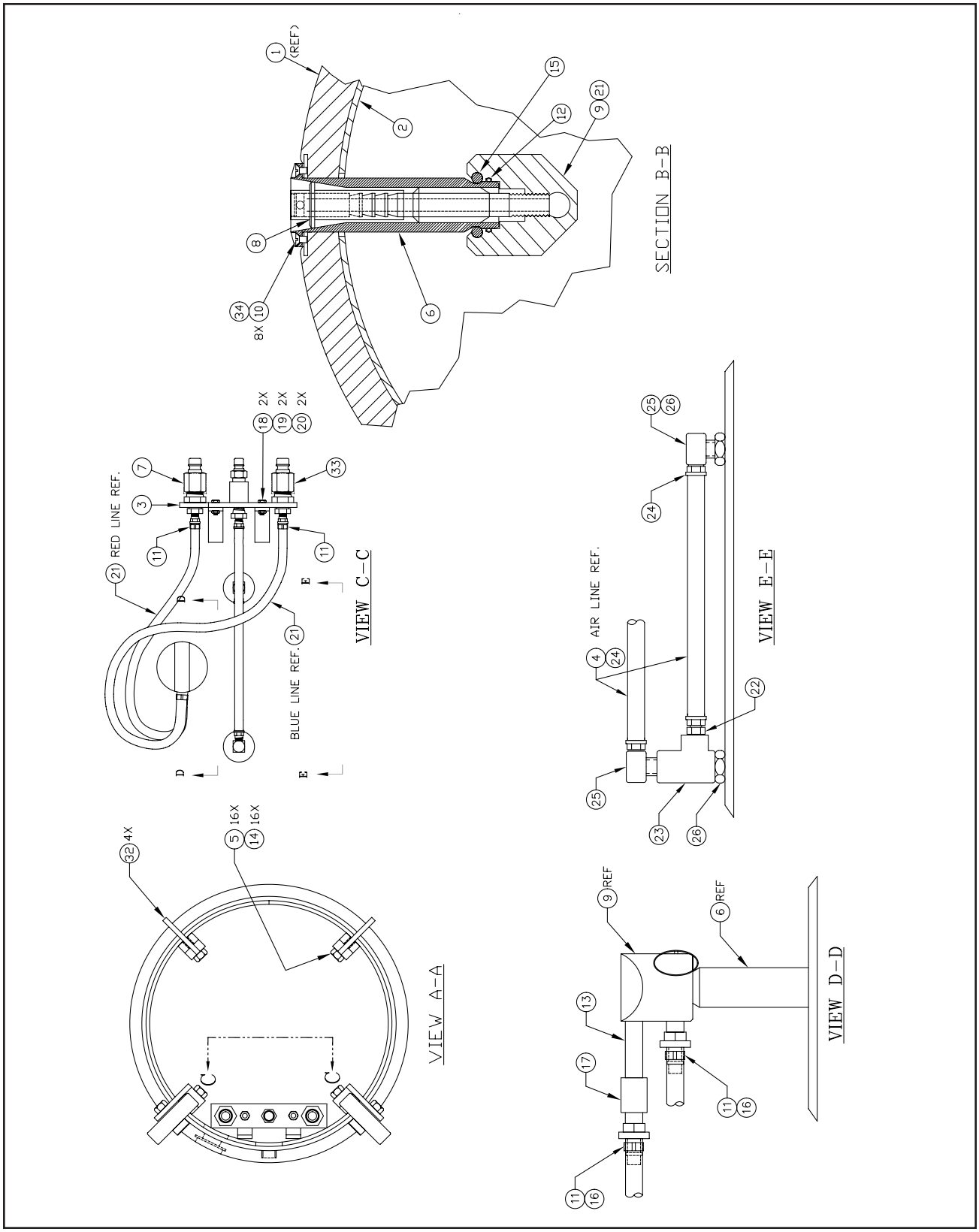


Figure 14b: *Packer Assembly, 18", Compact Low Void, 600314*

Packer Assembly, 18", CLVP (See Fig.14) Rev. J, 600314			
Item #	Description	P/N	Qty
− 1	Bladder,18"Compact Lvp	60022	1
− 2	Weldment,Cylinder,18"Clvp	560666	1
− 3	Weldment,Manifold Assy,Clvp	231015	1
− 4	Hose,Rubber,3/8id,250 Lb	10030	5
− 5	Bolt,Hex,3/8-16x1 Plated	101205	16
− 6	Housing,Mixing Tube,Lvp	40514	1
− 7	Tube,Shrink,Red 1.5"	712792	0.75
− 8	Stem,Valve,Assy,Lvp	161226	1
− 9	Base,Mixing Tube,Lvp	40008	1
− 10	Screw,Flat,4-40x1/4 Phil	712402	8
− 11	Clamp,Crimp,3/4"	121010	4
− 12	O-Ring,Acetone Ep As-019	130104	1
− 13	Nipple,Sst,1/4x2	113004	1
− 14	Washer,Split 3/8 Zinc	101233	16
− 15	Pin,Quick Release 3/16x2 Sst	300804	2
− 16	Pushlock,Sst 1/4"Mpt X 3/8h	HW403	2
− 17	Coupling,Sst,1/4"	113011	1
− 18	Bolt,Hex,1/4-20x1 Gr5	101005	2
− 19	Washer,Flat,1/4 Uss Pld	101032	2
− 20	Nut,Kep,Plated,1/4-20	101042	2
− 22	Connector,Male,Brass,3/8tx1/4mpt	114137	1
− 23	Tee,Street Brass 1/4	114335	1
− 24	Pushlock,Swivel Brass 3/8hx3/8fpt	114528	3
− 25	Elbow,Brass 90deg 3/8flrd X1/4mpt	114544	2
− 26	Bushing,3/8x1/4,Brass,Reducing	114561	2
− 27	Cable,Tow,F/18"Compact Packer	120160	2
− 28	Clevis,3/16"	120426	4
− 29	Cable,Tow,Rear Compact Packer	1201660	2
− 30	Wheel Assy,Right Compact Packer	5002140	2
− 31	Wheel Assy,Left Compact Packer	5002150	2
− 32	Skid Assy,18" & 21"Compact Packer	5002130	4
− 33	Tube,Shrink,Blue 1.5"	715039	0.75
− 34	Mro-Form A Gasket Hi-Temp	445063	1

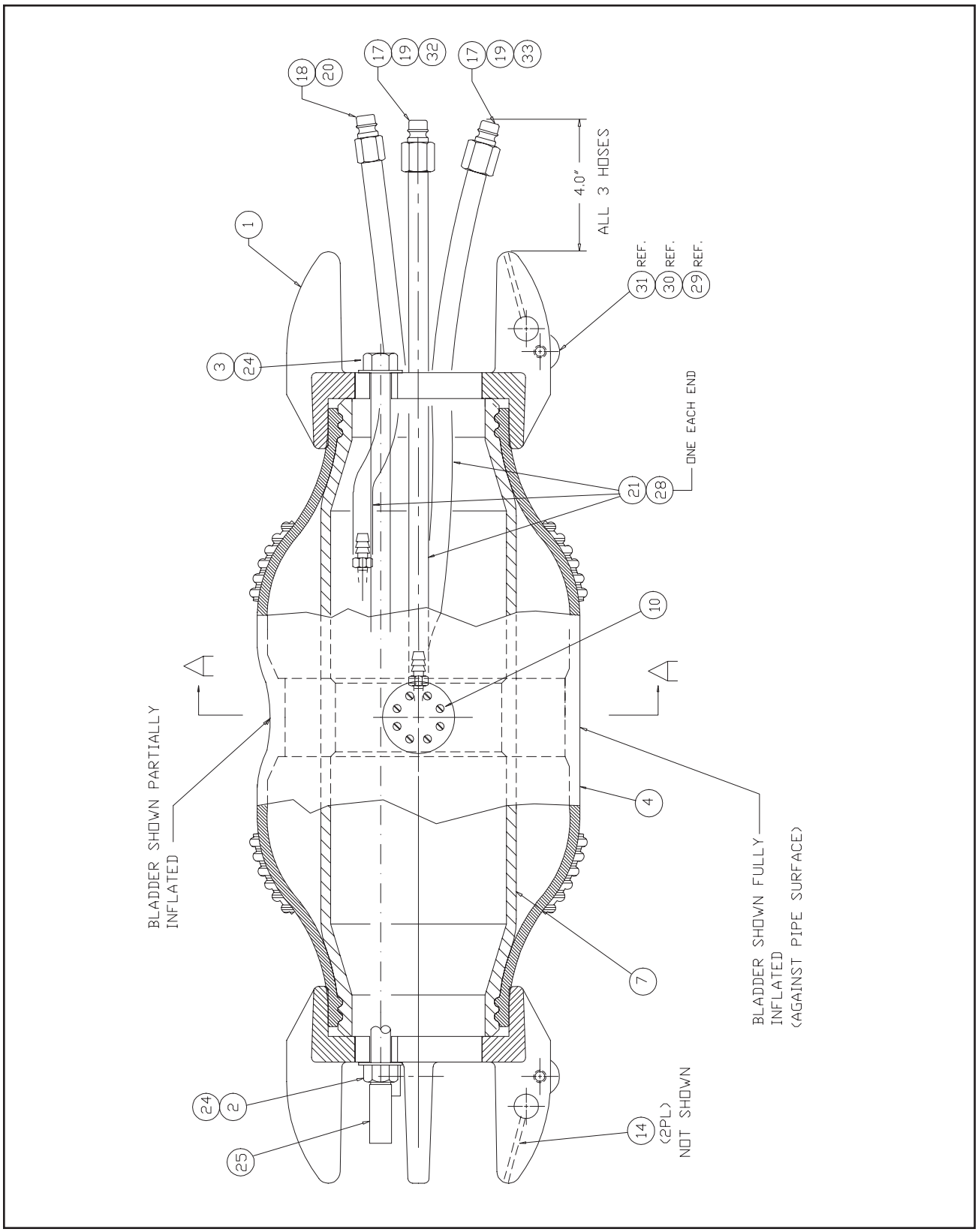


Figure 15a: *Packer Assembly, 8", Low Void, 600658*

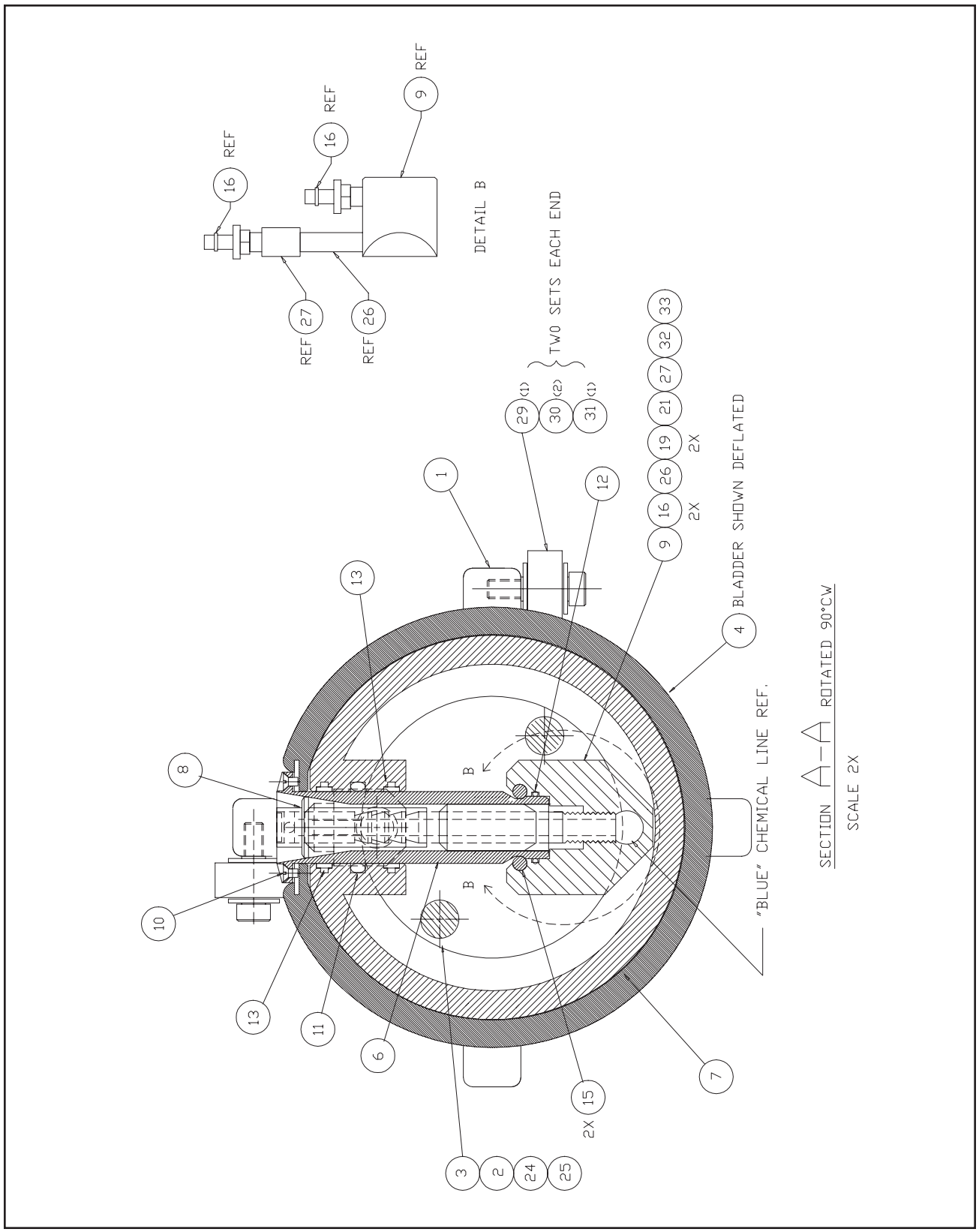


Figure 15b: *Packer Assembly, 8", Low Void, 600658*

Packer Assembly, 8", LV (See Fig.15) Rev. H, 600658			
Item #	Description	P/N	Qty
- 1	Casting,End,Machining,8"Lvp	040611	2
- 2	Nut,Hex 3/8-16 Plated	101240	2
- 3	Bolt,3/8-16x19 1/8 8"Lvp	113405	2
- 4	Bladder,8"	060011	1
- 5	Mro-Lubricant,Rubber Emulsion	439786	1
- 6	Housing,Mixing Tube,Lvp	040514	1
- 7	Cylinder Assy,(Weldment)8"Lvp	120002	1
- 8	Stem,Valve,Assy,Lvp	161226	1
- 9	Base,Mixing Tube,Lvp	040008	1
- 10	Screw,Flat,4-40x1/4 Phil	712402	8
- 11	O-Ring,Ep 2-213	132206	1
- 12	O-Ring,Acetone Ep As-019	130104	1
- 13	Guide Ring,Cylinder	300805	2
- 14	Cable,Tow,F/8"(200mm)Packer	120108	2
- 15	Pin,Quick Release 3/16x2 Sst	300804	2
- 16	Pushlock,Sst 1/4"Mpt X 3/8h	HW403	3
- 17	Pushlock,Sst ½"Mpt X 3/8 Hose	HW402	2
- 18	Fitting,Hose 3/8mpt, X 3/8hose Ss	113148	1
- 19	Quick Disconnect,Male 1/2 Sst Fpt	220434	2
- 20	Plug,Quick Disconnect M Sst 3/8 pt	220424	1
- 21	Hose,Epdm Rubber 3/8 Black 200psi	010031	1
- 23	Instruction Sheet,Lvp	960955	1
- 24	Washer,Flat,5/16 Uss Pld	101132	4
- 25	Cap,Plastic Yellow	200801	2
- 26	Nipple,Sst,1/4x2	113004	1
- 27	Coupling,Sst,1/4"	113011	1
- 28	Clamp,Crimp,3/4"	121010	6
- 29	Bolt,Shld,5/16x5/8x1/4 Ss	HW767	4
- 30	Washer,Flat,5/16 Sst	101741	8
- 31	Wheel,.316idx1.0 Odx.45w Delrin	SS020	4
- 32	Tube,Shrink,Red 1"Rnf 4'lengths	712604	0.25
- 33	Tube,Shrink,Blue 1"Rnf 100 4'length	0.25	

HELPFUL TIPS - ULTRA SHORTY TRANSPORTER

ADAPTING THE ULTRA SHORTY TRANSPORTER TO DIFFERENT SIZE PIPE

As the transporter is taken apart to adapt to different pipe sizes, debris and sand may accumulate on the mating faces of the cradle and the expanders, causing the mating faces to no longer be in contact and no longer be parallel. If this is the case, a small angle is formed which increases significantly the space between the two tracks resulting in the shaft extension potentially getting loose and falling off. A hosing or wiping down of the mating faces when the transporter is disassembled should prevent the problem.

The following table shows the quantity and type of shaft extenders/pipe adapters and braces (braces on 30" and 36" only) needed for the different pipe sizes.

The opposite page depicts the basic six inch configuration as seen from the front of the transporter. This configuration does not require a shaft extender, pipe adapter or braces.

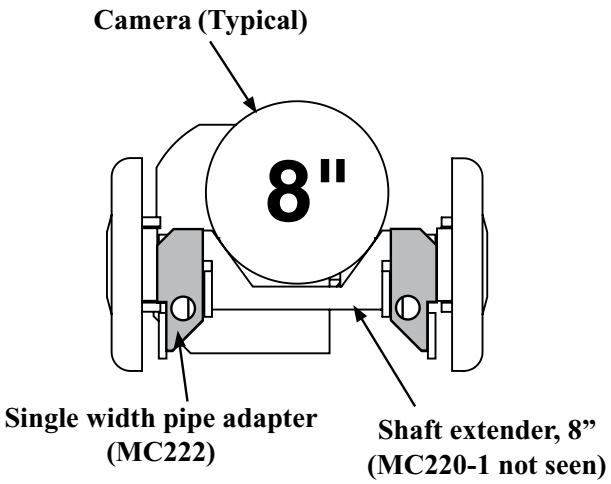
Configuration Table - Pipe Sizes (inches) / Qty										
Item #	**P/N**	**Description**	**8"**	**10"**	**12"**	**15"**	**18"**	**24"**	**30"**	**36"**
43	MC220-1	Shaft Extender, 8", 0.17#	1	-	-	-	-	-	-	-
44	MC220-3	Shaft Extender, 10", 0.35#	-	1	-	-	-	-	-	-
45	MC220-5	Shaft Extender, 12", 0.54#	-	-	1	-	-	-	-	-
36	MC220-7	Shaft Extender, 15", 0.75#	-	-	-	1	-	-	-	-
	MC220-13	Shaft Extender, 18", 1.09#	-	-	-	-	1	-	-	-
	MC220-15	Shaft Extender, 24", 1.65#	-	-	-	-	-	1	-	-
	MC220-30	Shaft Extender, 30", 2.21#	-	-	-	-	-	-	1	-
	MC220-36	Shaft Extender, 36", 2.76#	-	-	-	-	-	-	-	1
37	MC221	Pipe Adapter, 3x Width, 5.7#	-	-	2	2	4	6	8	10
38	MC222	Pipe Adapter, 1x Width, 1.45#	2	4	-	2	-	-	-	-
	MC257	Optional Brace, 2.37#	-	-	-	-	-	-	2	2

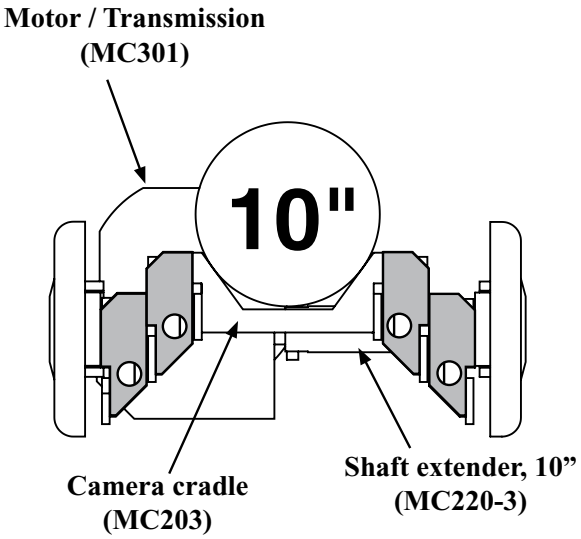
Weight Breakdown by Configuration (for both Ultra Shorty & Ultra Shorty 21)									
Pipe Size (inches)	**6"**	**8"**	**10"**	**12"**	**15"**	**18"**	**24"**	**30"**	**36"**
Weight w/ P&T Camera (lbs)	40	42	46	50	55	64	76	89	96
Weight w/o P&T Camera (lbs)	26	28	32	36	41	50	62	75	82
Weight w/ OZII Camera (lbs)	39.7	42.8	45.8	51.6	54.7	63.6	75.5	92.2	104.2
Weight w/o OZII Camera (lbs)	25.5	28.6	31.6	37.4	40.5	49.4	61.3	78.0	90

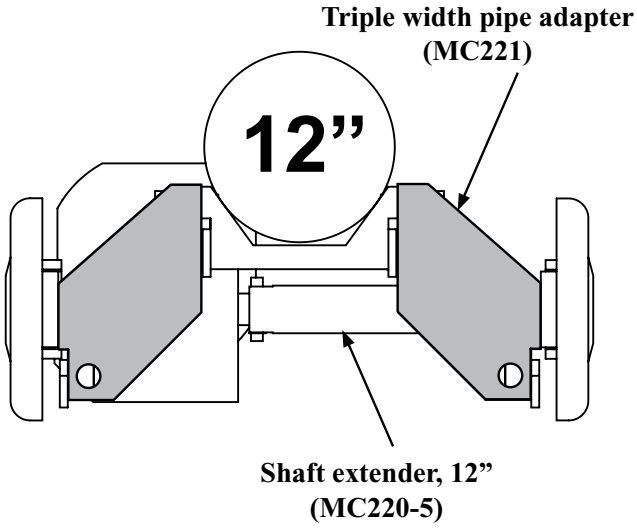
Additional Weight Options (for both Ultra Shorty & Ultra Shorty 21)		
P/N	**Description**	**Weight Difference (lbs)**
MC222B	Adapter, Single Width, Brass	4
MC222	Adapter, Single Width	1.36
MC275	Clamshell	4
MC002	Weight, Body	3.2

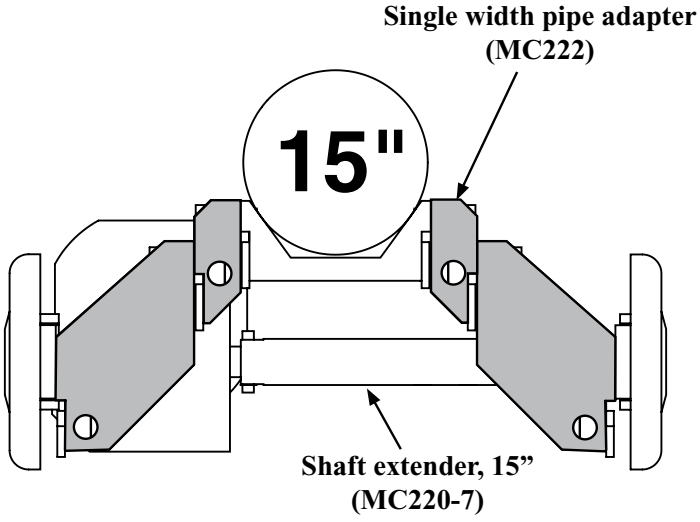
HELPFUL TIPS - ULTRA SHORTY TRANSPORTER

8", 10", 12", and 15" Configurations:



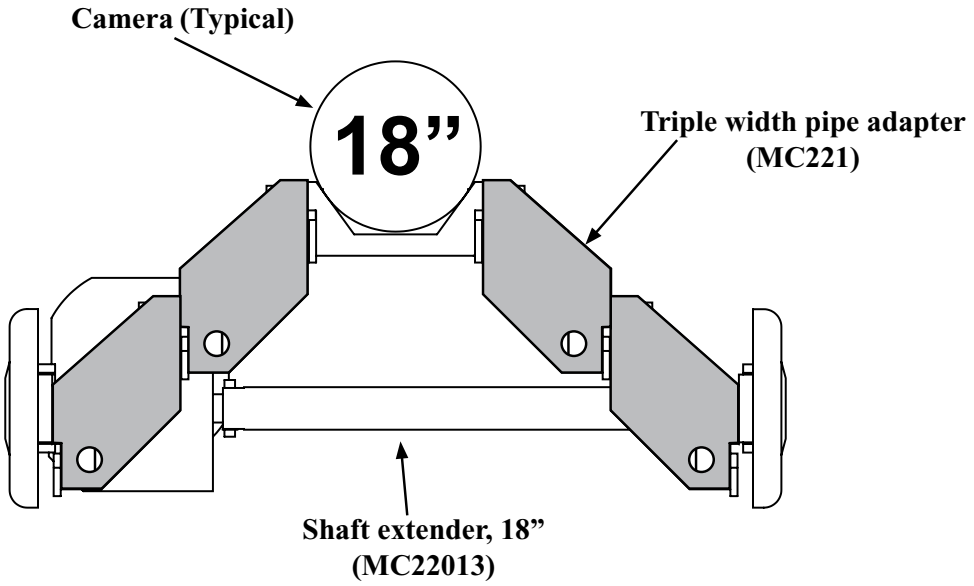


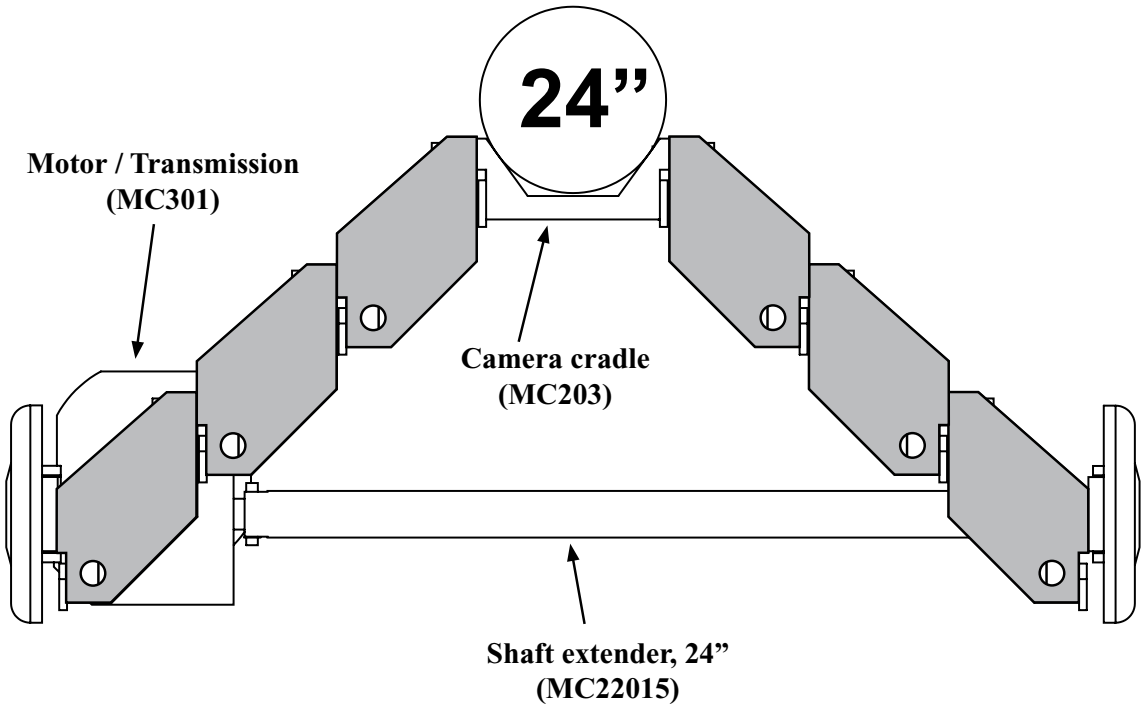




HELPFUL TIPS - ULTRA SHORTY TRANSPORTER

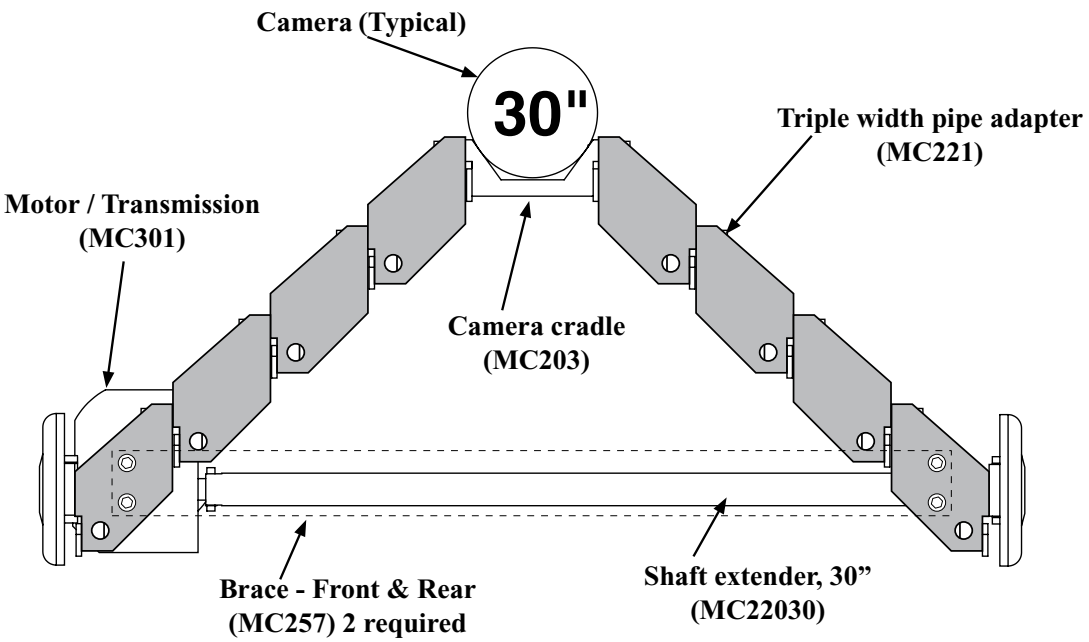
18" and 24" Configurations:

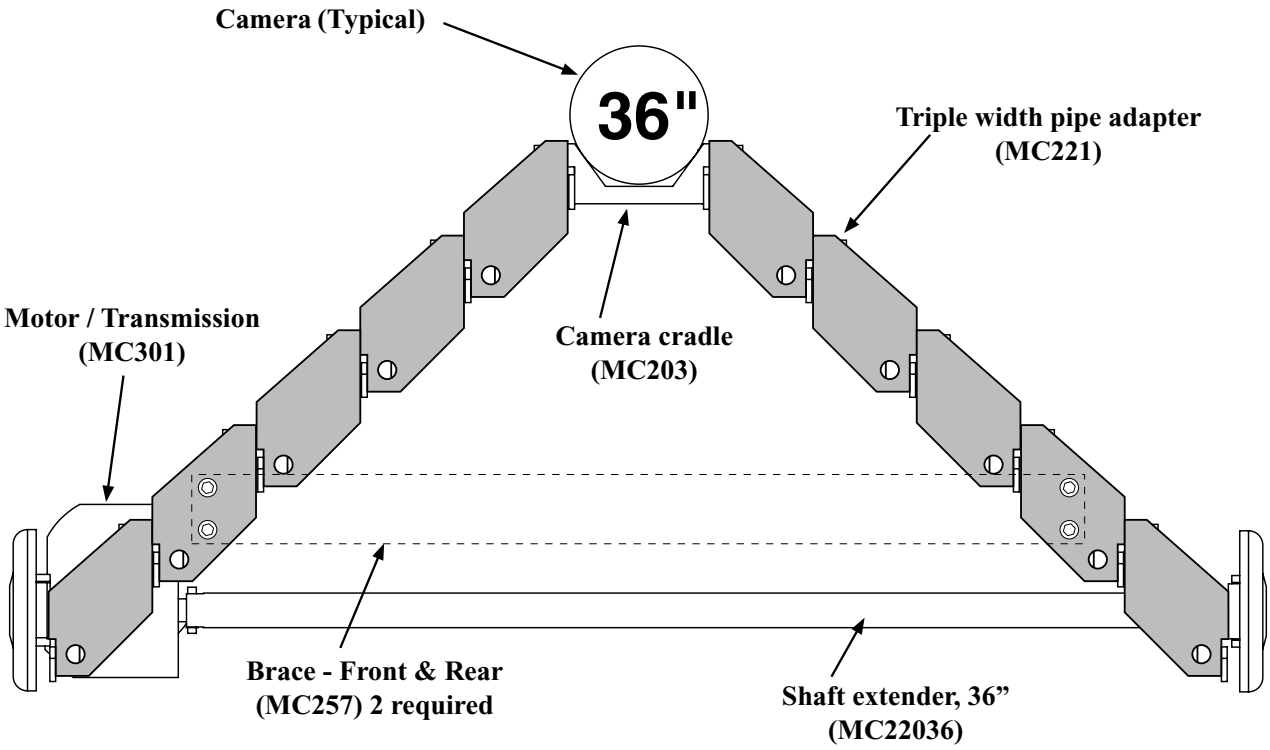




HELPFUL TIPS - ULTRA SHORTY TRANSPORTER

30" and 36" Configurations (Optional)





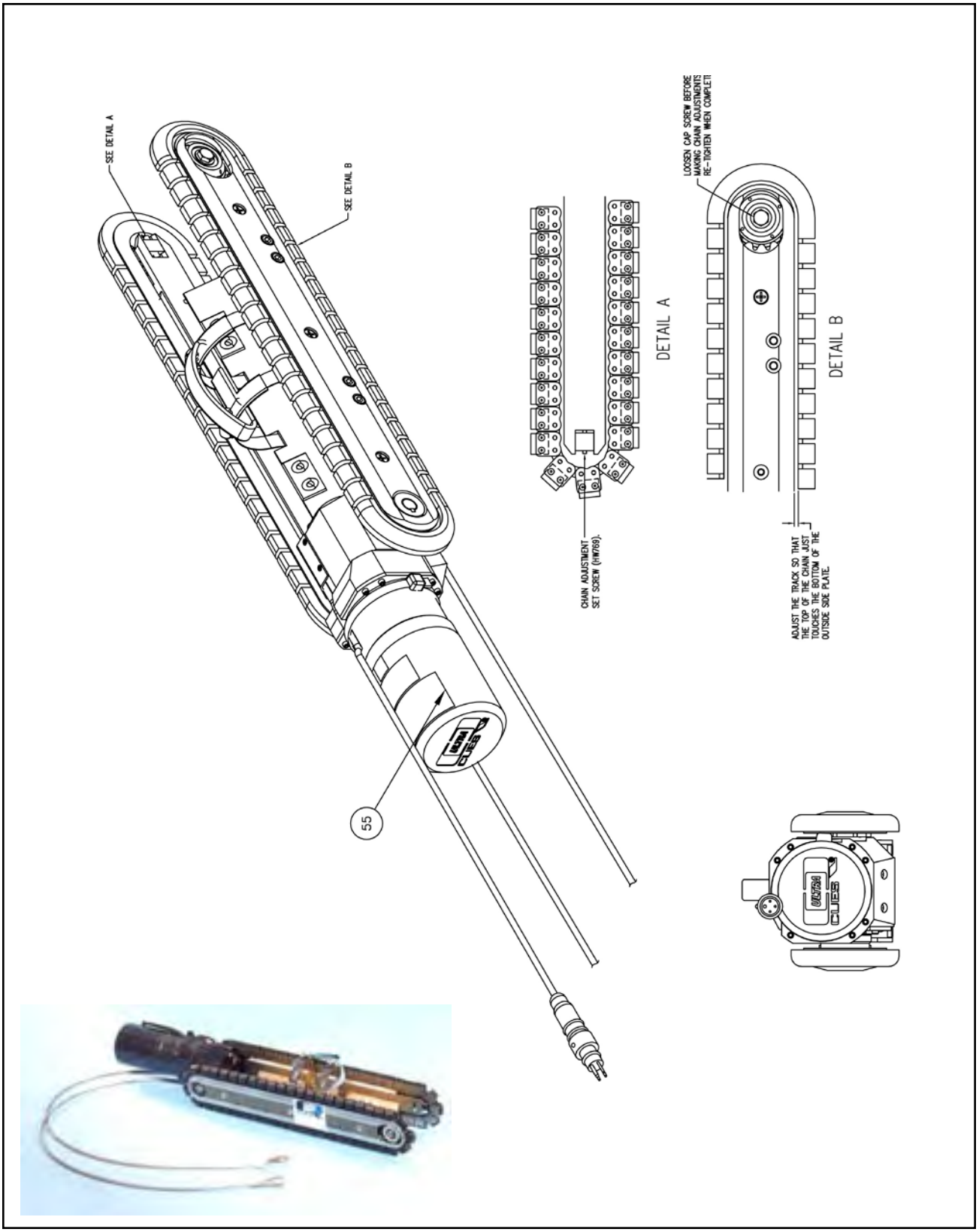


Figure 1a. *Transporter, Ultra Shorty, 6", w/out Extensions, MC400*

Ultra Shorty

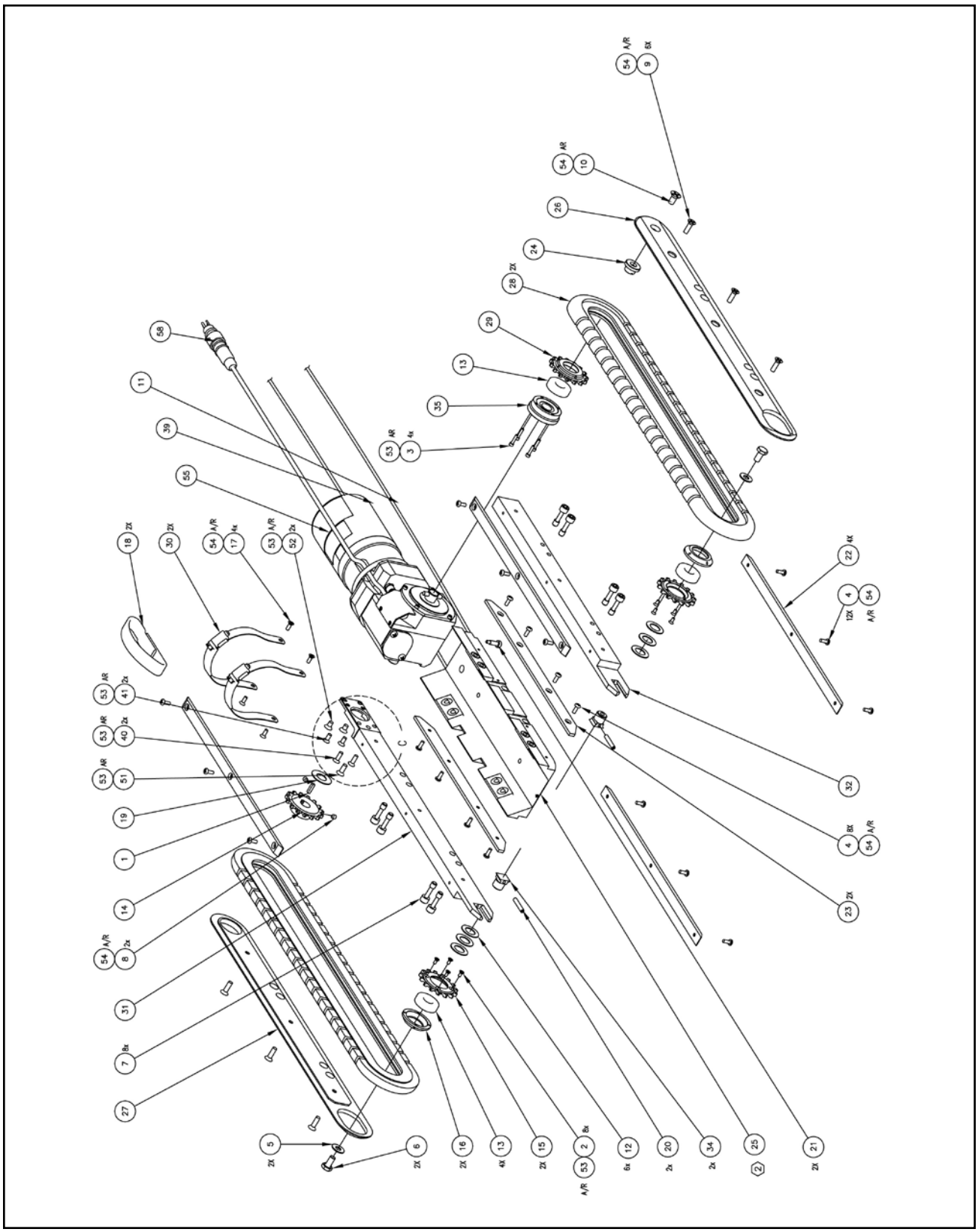


Figure 1b. *Transporter, Ultra Shorty, 6", w/out Extensions, MC400*

Ultra Shorty

Transporter Assy, Ultra Shorty (See Fig.1) Rev. L, MC400			
1	Keystock,1/8"Sq X1/2lg,Zinc Plated	8874	1
2	Screw,Flat,4-40x5/16,Ss	HW266	8
3	Screw,Cap,Skt Hd,4-40x1/2,Sst	105061	4
4	Screw,Pan,6-32x3/8 Phil Brass	HW774	20
5	Washer,Flat,1/4"Sst	101736	2
6	Screw,Cap,Hx,1/4-28x3/8,Ss,Nyl Plt	HW1069	2
7	Screw,Captive,1/4-20x.84lg,416sst	HW900	8
8	Screw,Set,10-32x3/16 Sst	103038	2
9	Screw,Flat,10-32x5/8 Phil Sst	103045	6
10	Screw,Flathead,1/4-20x1/2 Phil Sst	103079	1
11	Cable,Tow,F/Shorty & 36"Packer,54"	120165	2
12	Washer,1/2idx7/8odx1/32thk,Sst	HW267	6
13	Bearing,Sealed.5bx1.125odx.312thk	HW018	3
14	Sprocket,35p 15t 1/2b	300432	1
15	Sprocket,35p,15t,Face Mount	MC268	2
16	Hub,Idler Sprocket	MC269	2
17	Screw,Flat,6-32x3/8 Phil Sst	103058	4
18	Loop,Lifting,Webbing	MC223	1
19	Spacer,Sprocket-Transporter	305071	1
20	Screw,Set,8-32x1lg,Lok,Conept	HW769	2
21	Screw,6-32.Shoulder,3/16dx7/16l,Sst	HW772	2
22	Wearstrip, Top And Bottom	MC003	4
23	Wearstrip,Side	MC009	2
24	Spindle,Drive Sprocket Coupling	MC272	1
25	Cradle,Camera Body,10.50"	MC203-1	1
26	Plate,Outer,Port Side,Ultra	MC240	1
27	Plate,Outer,Starboard,Ultra	MC239	1
28	Track Assy,Rnd Clt,94lnk,Ultra Shty	MC208	2
29	Sprocket,Drive,#35,15t,Fwc	MC270	1
30	Clamp,Worm(Mod),F/Transporter	MC210	2
31	Plate,Motor Mtg,Sprocket,Ultra	MC241	1
32	Plate,Port Side,Sprocket,Ultra	MC242	1
34	Spindle,Idler Sprocket	MC267	2
35	Coupling,Transmission,Fwc	MC273	1

Ultra Shorty

Transporter Assy, Ultra Shorty (See Fig.1) Rev. L, MC400			
39	Trans/Mtr,Fwd/Neu/Rev,U-Shorty 21	MC301-1	1
40	Screw,8-32x1/2 Fl,Ph,Ss	103062	2
41	Screw,Flat,8-32x3/8 Phil Sst	100146	2
42	Y Eliminator,60deg,Ultra Shorty M/C	MC233	1
49	Instruction Sheet,Ultra Shorty	MC253	1
51	Screw,Flat,10-32x1/2 Sst	103052	1
52	Screw,Flathead,10-32x5/16 Phil Sst	101426	2
53	Mro-Permanent Lock,Nd 140500-50,Red	440060	1
54	Mro-Removable Lck,Nd 121200-2,Blue	CS036	1
55	Label,Lasertab Marker,3.00 X 1.90	CS223	1
58	Cable Assembly, Motor & XNSM, Ultra Shorty	MC400	1

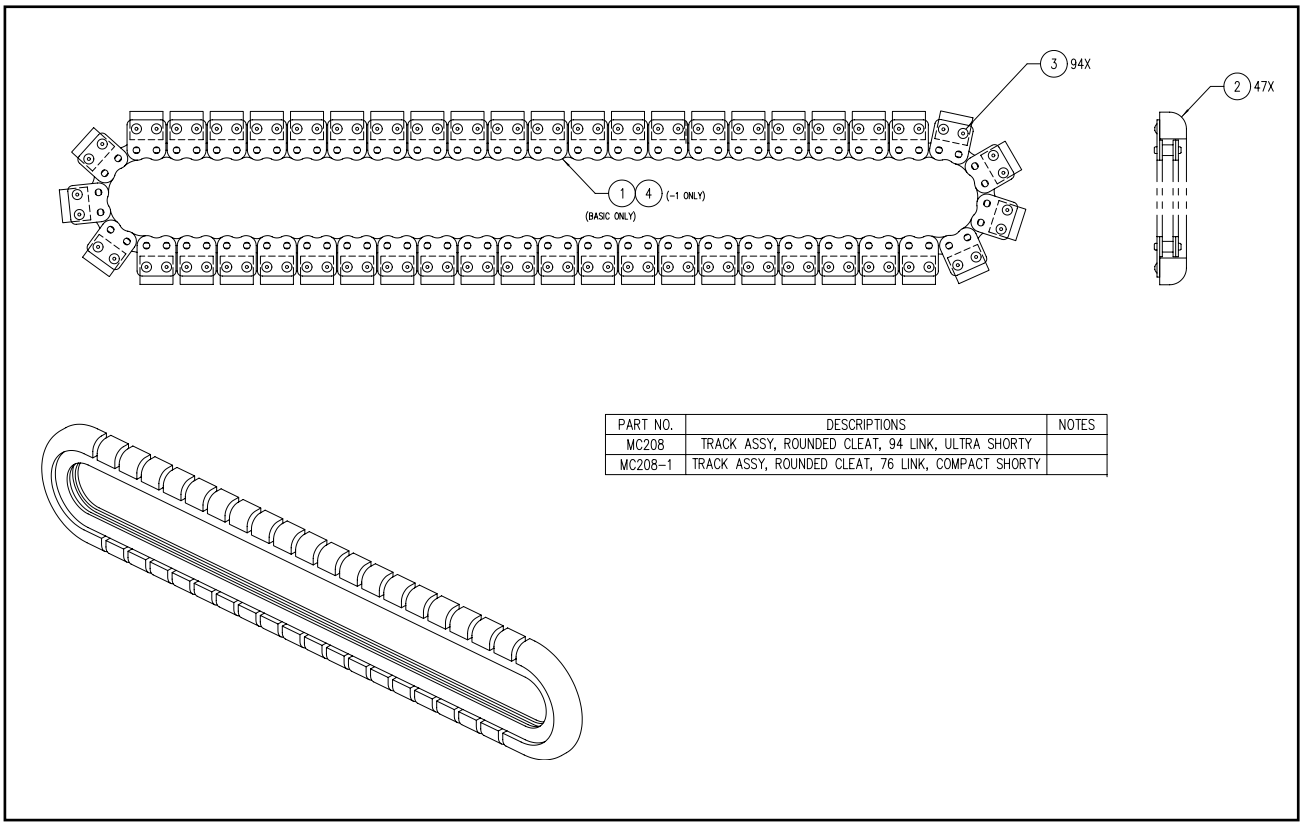


Figure 2. *Track Assembly, Round Cleat, Shorty*

Track Assy, Round Cleat, Shorty (See Fig. 2) Rev. D, MC208			
Item #	Description	P/N	Qty
-1	· Chain, Carbon Steel, Two-Hole	MC207	1
-2	· Cleat Assembly, Rounded, Trans. Track	MC206	47
-3	· Rivet, Pop, SST, 3/32 dia x 1/8 lg	HW1078	94
	For Ultra Shorty 21:		
-4	Chain, Carbon Steel, 2 Hole	MC207-1	1
	Cleat Assembly, Rounded, Trans. Track	MC206	38
	Rivet, Pop, SST, 3/32 dia x 1/8 lg	HW1078	76

CONFIGURATIONS	
PART NUMBER	DESCRIPTIONS
MC301	TRAN/MTR ASSY, FNR, ULTRA SHORTY
MC301-1	TRAN/MTR ASSY, FNR, SHORTY 21
MC301-2	TRAN/MTR ASSY,FNR, U-SHTY 21

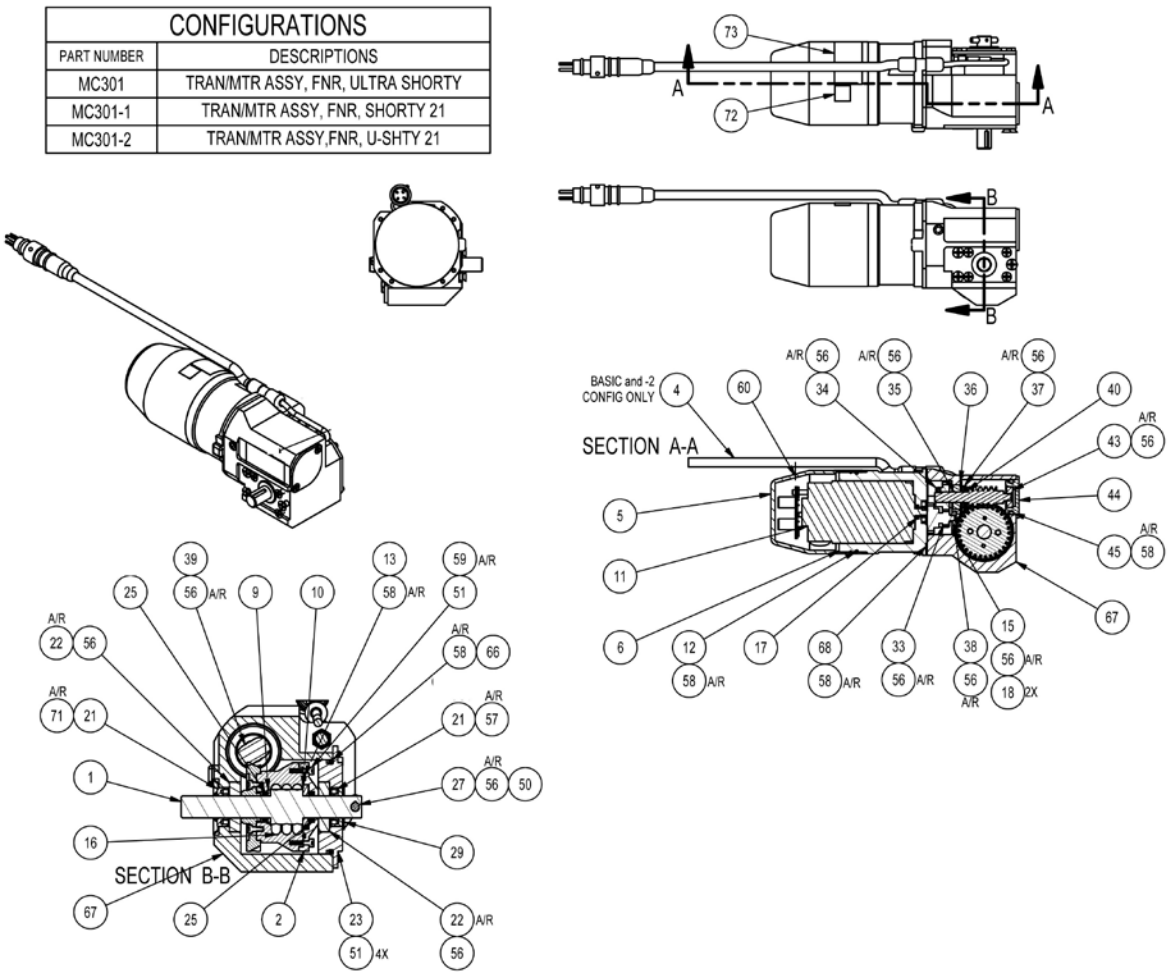


Figure 3a. *Transmission/Motor, FWD/NEU/REV, Shorty, MC301-1*

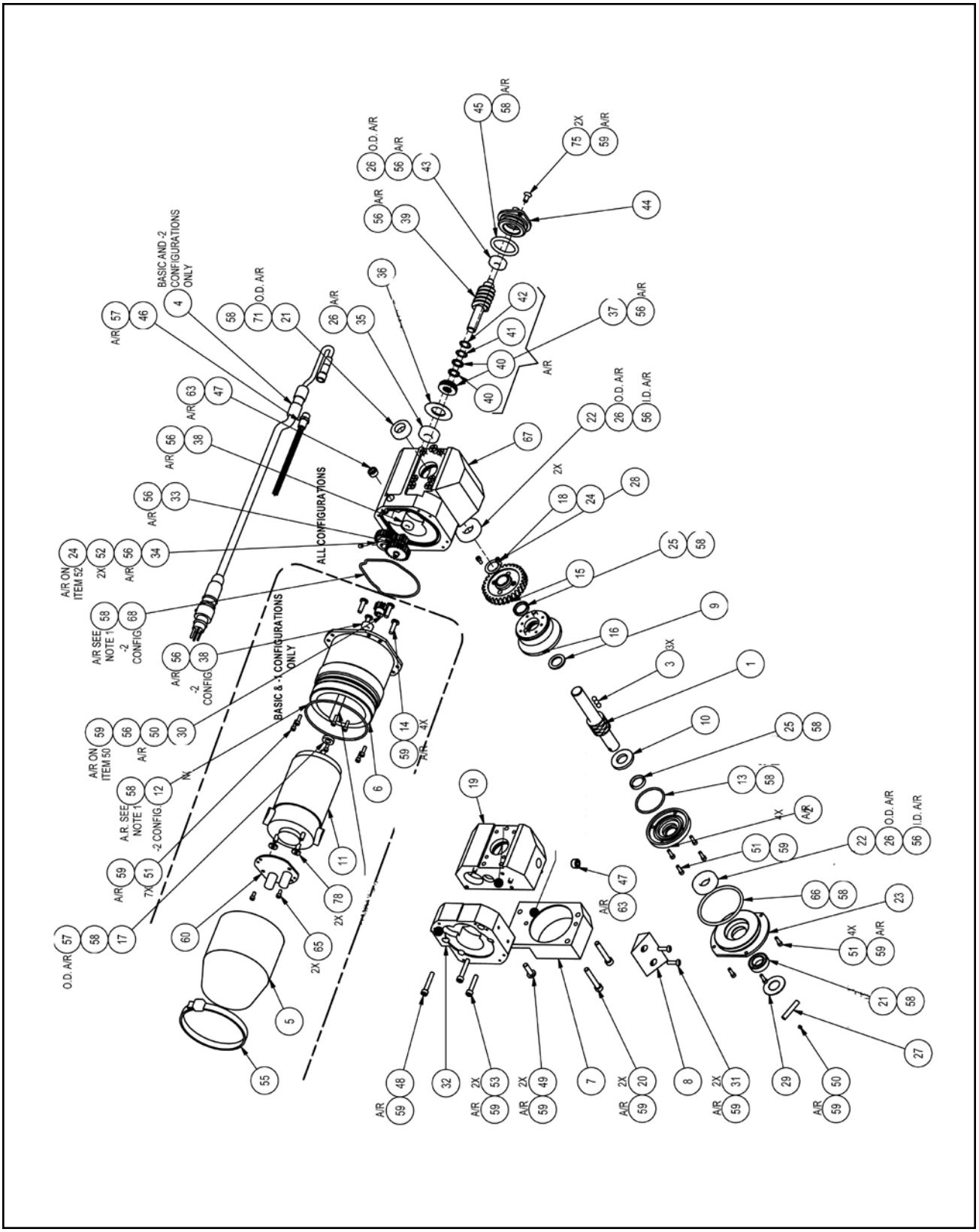


Figure 3b. *Transmission/Motor, FWD/NEU/REV, Shorty, MC301-1*

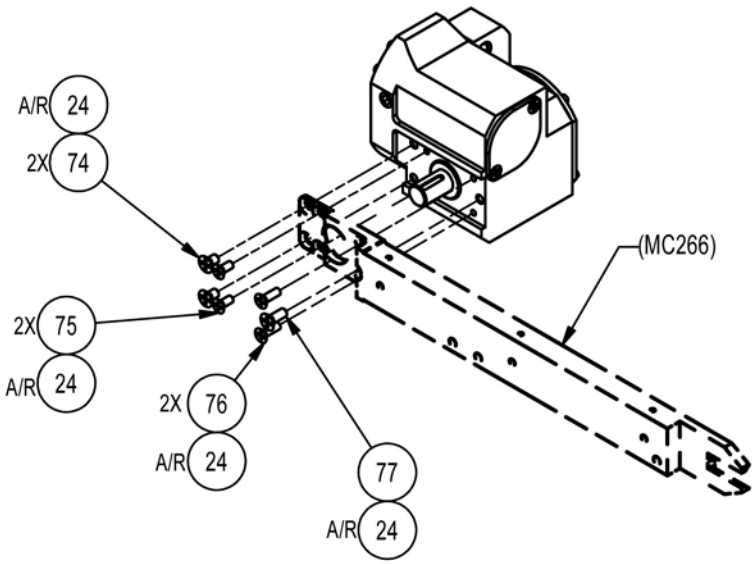


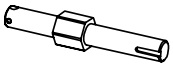
Figure 3c. *Transmission/Motor, FWD/NEU/REV, Shorty, MC301-1*

Ultra Shorty

Trans/Motor, FWD/NEU/REV Clutch (See Figure 3), Rev. AK, MC301-1			
0001	SHAFT,DRIVE,CLUTCH,ULTRA	MC245	1
0002	COVER,CLUTCH,F/N/R	MC243	1
0003	BALL,BEARING,3/16DIA,TUNGSTEN CARBI	HW1052	3
0005	MOTOR CAN,CONE,USIII,WTR-US21/WS405	TX023	1
0006	MOUNT,MOTOR&XMSM,ULTRA	MC238	1
0009	BEARING,THRUST,BRONZ,.502X.753X1/16	HW321	1
0010	BEARING,.502IDX1.004 ODX1/8THK	HW905	1
0011	MOTOR,115VDC,.12HP,W/STANDOFF,TRANS	TL050	1
0012	O-RING,2-039 EP	132215	1
0013	O-RING,2-026 BUNA	HW903	1
0014	SCREW,SEAL(8-32X9/16L)PHIL HEAD	HW004	4
0015	GEAR,WORM,HS,BBC,ULTRA SHORTY	MC247	1
0016	RACE,BALL TRIPLE,CLUTCH,F/N/R	MC244	1
0017	SEAL,OIL,.25 BORE X.5 OD .125THK	HW003	1
0018	SCREW,CAP,SOC HD 4-40X1/4 SST	103089	2
0021	SEAL,OIL,.5ID X.875 OD X.252THK	130305	2
0022	BEARING,BALL,1/2 ID X 1-1/8 OD X1/4	300284	2
0023	COVER,TRANSMISSION,ULTRA	MC246	1
0024	MRO-PERMANENT LOCK,ND 140500-50,RED	440060	1
0025	SEAL,OIL,.500DIA X.685 BORE,.12T	50681	2
0026	MRO-RET.COMP,.005GP,ND530125-50,GRN	440072	1
0027	PIN,DRIVE SST .187X1"	97551	1
0028	SPACER,1/2"IDX.010	300043	1
0029	SPACER,SPROCKET-TRANSPORTER	305071	1
0030	GEAR,DRIVE,SPUR,12T/24P,TEARDROP	HW552	1
0033	GEAR,TANDEM	300407	1
0034	GEAR,MODIFIED	299981	1
0035	BEARING,BALL,SLD,3/8 IDX7/8 ODX9/32	300282	1
0036	SPACER,1.240 ODX.630IDX.060THK	300049	1
0037	BEARING,THRUST	300285	1
0038	BEARING,BALL,3/16 ID X 1/2 OD X5/32	300280	2
0039	GEAR,WORM,W/SHAFT	299963	1
0040	SPACER,SST,3/8ID X1/2 OD X.031 THK	300047	2
0041	SPACER,3/8IDX1/2 ODX.005 SST	300041	1
0042	SPACER,3/8"IDX.010	300044	1
0043	BEARING,BALL,1/4 ID X 3/4 OD X 7/32	300281	1
0044	HOUSING,BEARING,OUTER,TRANS,WTRIII	TX081	1
0045	O-RING,2-214,EP	130145	1
0046	RECEPTACLE,4PIN,BH 45460-001	EL497	1

Ultra Shorty

Trans/Motor, FWD/NEU/REV Clutch (See Figure 3), Rev. AK, MC301-1			
0050	SCREW,SET,4-40X1/8 SST	100050	2
0051	SCREW,CAP,SKT HD,4-40X3/8,SST	100054	15
0052	SCREW,SET,6-32X3/16 SST	100991	2
0055	MRO-TIE,CABLE,14"X5/16"BLACK	440305	1
0056	MRO-GREASE,MOBIL 1 SYNTHETIC	CS419	1
0058	MRO-LUBRICANT,O-RING 2 OZ TUBE	439986	0.01
0059	MRO-REMOVABLE LCK,ND 121200-50,BLUE	440061	1
0060	PCB ASSY,FILTER,NON-FUSED	WS406	1
0063	MRO-SEAL.HGH PRESS,ND 440400-50,BRN	445091	1
0065	SCREW,CAP,SKT HD,4-40X1/4,W/NYLOK	712389	2
0066	O-RING,2-135,BUNA,195 IDX.103	HW438	1
0067	HOUSING,GEAR	MC277	1
0068	O-RING,EP 2-038	130141	1
0070	MRO-RET.COMP,.015GP,ND541200-50,GRN	CS092	1
0071	MRO-LOCTITE 42540 F/PLASTIC	429791	1
0072	LABEL,LASERTAB MARKER, .560 X .560	CS222	1
0073	LABEL,ETL MARK,2" X 1"	CS224	1
0074	SCREW,FLATHEAD,10-32X5/16 PHIL SST	101426	2
0075	SCREW,FLAT,8-32X3/8 PHIL SST	100146	4
0076	SCREW,8-32X1/2 FL,PH,SS	103062	2
0077	SCREW,FLAT,10-32X1/2 SST	103052	1
0078	WASHER.375X.136+.005-0IDX.062T,PHEN	HW2327	2



MC245
Shaft, Drive, Clutch,
Ultra (1)



MC243
Cover, Clutch, Ultra
(1)



HW902
Ball, 3/16 Dia.
Chrome Steel
(3)



HW321
Bearing, Thrust,
Bronze, .502 X .753 X 1/16
(1)



HW905
Bearing,
.502 ID X 1.004 OD X 1/8 Thk
(1)



HW903
O-Ring, 2-026
BUNA
(1)



MC247
Gear, Worm, HS
BBC, Ultra Shorty
(1)



MC244
Race, Ball Triple
Clutch, Ultra
(1)



130305
Seal, Oil
.5 ID X .875 OD X .252 Thk
(2)



300284
Bearing, Ball
1/2 ID X 1 1/8 OD X 1/4
(2)



MC246
Cover, Transmission
Ultra
(1)



050681
Seal, Oil
.50 Dia. X .685 Bore, .12T
(2)



300043
Spacer, 1/2" ID X .010
(1)

TRANSPORTERS

Figure 4. *Kit, Shorty, Clutch, Retrofit, MC452 - Component View*

Ultra Shorty

Kit, Shorty, Clutch, Retrofit (See Fig.4), Rev. -, MC452			
Item #	Description	P/N	Qty
-1	· Shaft, Drive, Clutch, Ultra	MC245	1
-2	· Cover, Clutch, Ultra	MC243	1
-3	· Ball, 3/16 Dia., Tungsten Steel	HW1052	3
-9	· Bearing, Thrust, Bronze, .502 X .753 X 1/16	HW321	1
-10	· Bearing, .502 Dia. X 1.004 OD X 1/8 Thk	HW905	1
-13	· O-Ring, 2-026 BUNA	HW903	1
-15	· Gear, Worm, HS, BBC, Ultra Shorty	MC247	1
-16	· Race, Ball Triple, Clutch, Ultra	MC244	1
-21	· Seal, Oil, .5 ID X .875 OD X .252 Thk	130305	2
-22	· Bearing, Ball, 1/2 ID X 1 1/8 OD X 1/4	300284	2
-23	· BCover, Transmission, Ultra	MC246	1
-25	· Seal, Oil, .500 Dia. X .685 Bore, .12T	050681	2
-28	· Spacer, 1/2" ID X .010	300043	1
-29	· Screw, Cap, SKT HD, 4-40 x 3/8, SST	100054	4
-30	· Screw, Cap, SOC HD 4-40 x 1/4 SST	103089	2

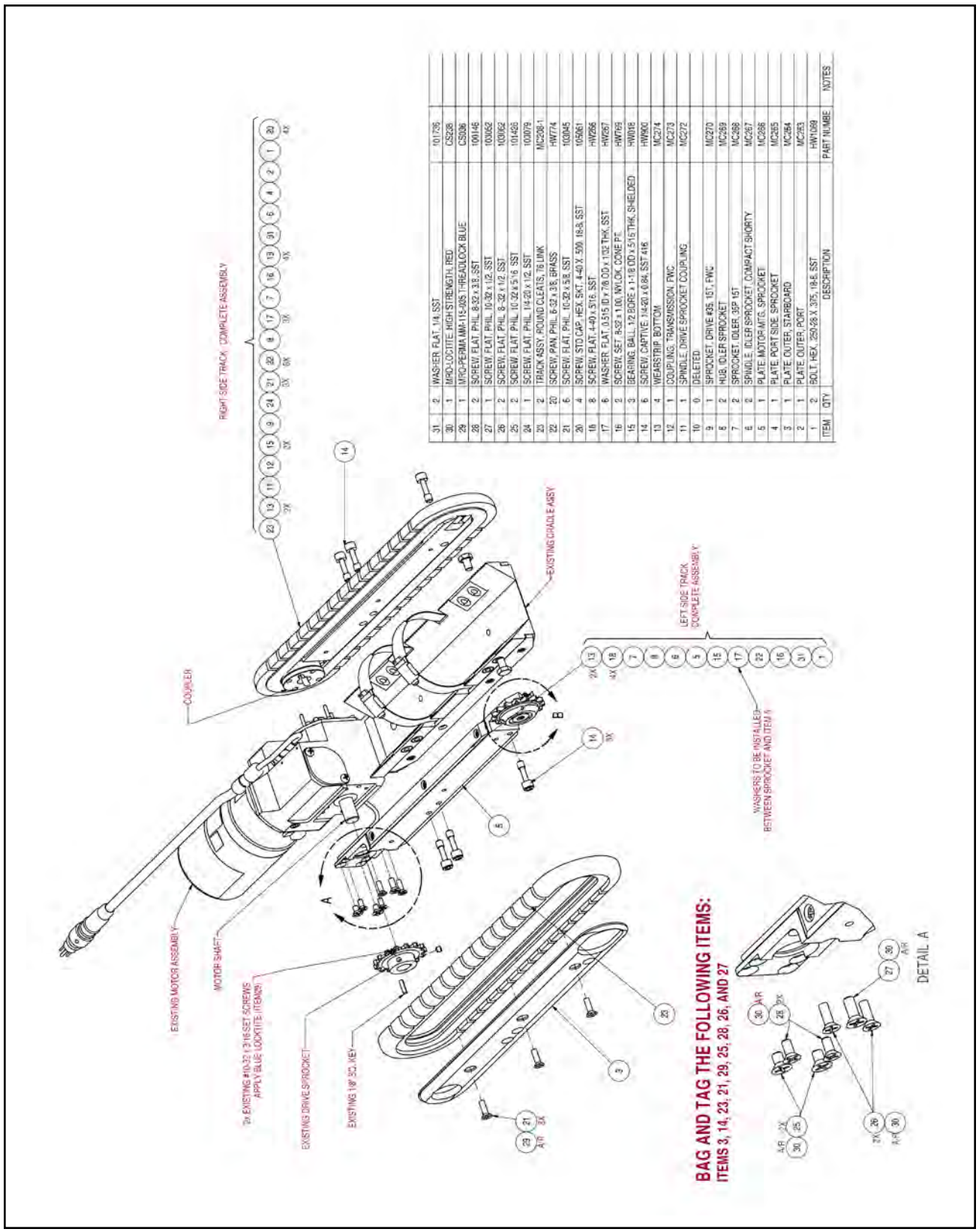


Figure 5a. *Kit, Shorty 21 Conversion, MC904*

Ultra Shorty 21

Ultra Shorty 21 Conversion Kit (See Figure 5), Rev. B , MC904			
1	Screw,Cap,Hx,1/4-28x3/8,Ss,Nyl Plt	HW1069	2
2	Plate,Outer,Port,Compact Shorty	MC263	1
3	Plate,Outer,Starboard,Compact Shrty	MC264	1
4	Plate,Port,Sprocket,Compact Shorty`	MC265	1
5	Plate,Motor Mtg,Sprkt,Compact Shrty	MC266	1
6	Spindle,Idler Sprocket	MC267	2
7	Sprocket,35p,15t,Face Mount	MC268	2
8	Hub,Idler Sprocket	MC269	2
9	Sprocket,Drive,#35,15t,Fwc	MC270	1
11	Spindle,Drive Sprocket Coupling	MC272	1
12	Coupling,Transmission,Fwc	MC273	1
13	Wearstrip,Upper And Lower,F/Mc350	MC274	4
14	Screw,Captive,1/4-20x.84lg,416sst	HW900	6
15	Bearing,Sealed.5bx1.125odx.312thk	HW018	3
16	Screw,Set,8-32x1lg,Lok,Conept	HW769	2
17	Washer,1/2idx7/8odx1/32thk,Sst	HW267	6
18	Screw,Flat,4-40x5/16,Ss	HW266	8
20	Screw,Cap,Skt Hd,4-40x1/2,Sst	105061	4
21	Screw,Flat,10-32x5/8 Phil Sst	103045	6
22	Screw,Pan,6-32x3/8 Phil Brass	HW774	12
23	Track Assy,Rnd Clt,76lnk,Cmpct Shty	MC208-1	2
24	Screw,Flathead,1/4-20x1/2 Phil Sst	103079	1
25	Screw,Flathead,10-32x5/16 Phil Sst	101426	2
26	Screw,8-32x1/2 Fl,Ph,Ss	103062	2
27	Screw,Flat,10-32x1/2 Sst	103052	1
28	Screw,Flat,8-32x3/8 Phil Sst	100146	2
29	Mro-Removable Lck,Nd 121200-2,Blue	CS036	1
30	Mro-Permanent Lock,Nd 140500-2,Red	CS238	1
31	Washer,Flat,1/4"Sst	101736	2
32	Instr.Sht,Ultra>Compct Shty Convers	MC904-INST	1

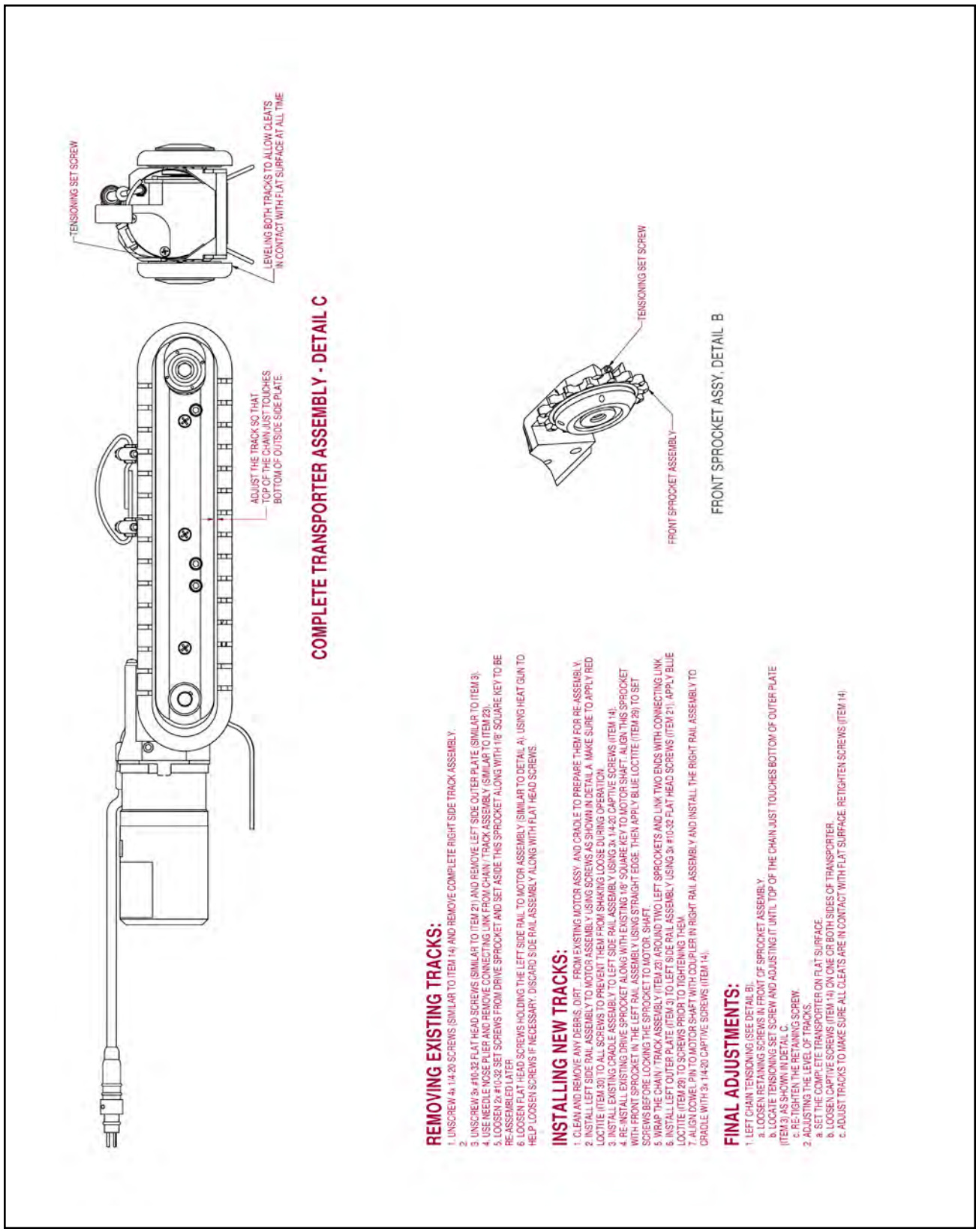


Figure 5b. *Kit, Shorty 21 Conversion Instructions, MC904-INST*

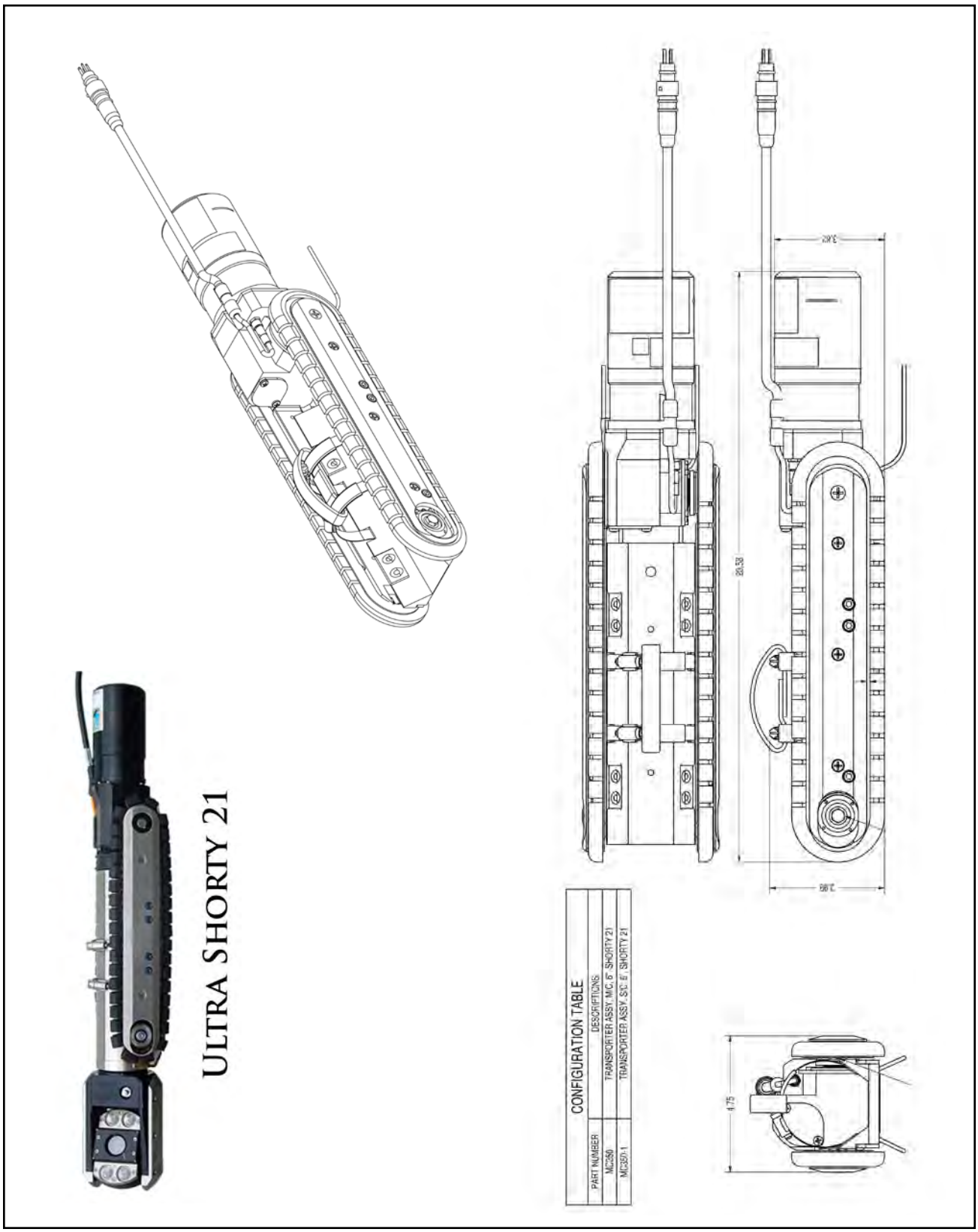


Figure 6a. *Transporter Assy, Shorty 21, MC350*

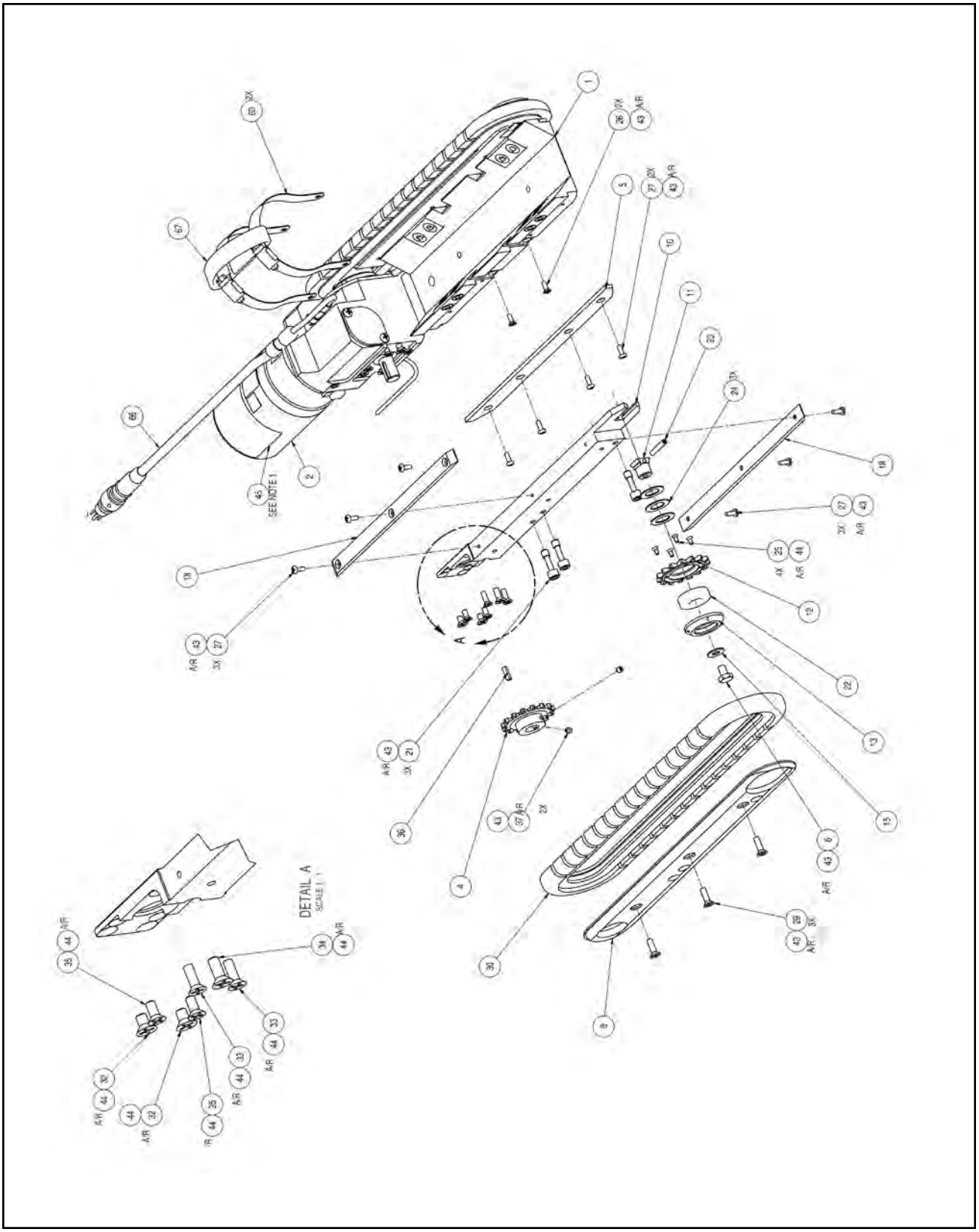


Figure 6b. *Transporter Assy, Shorty 21, MC350*

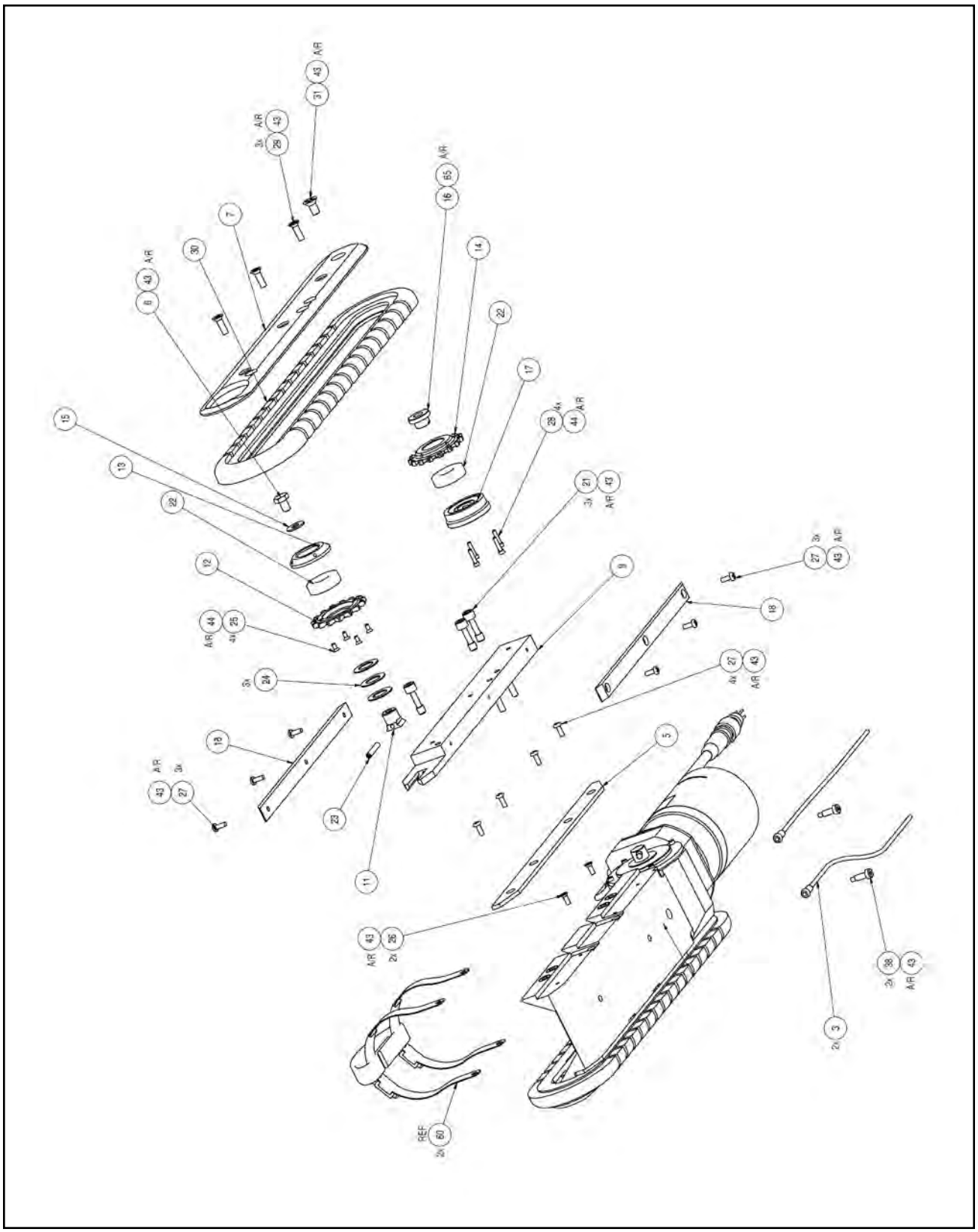


Figure 6c. *Transporter Assy, Shorty 21, MC350*

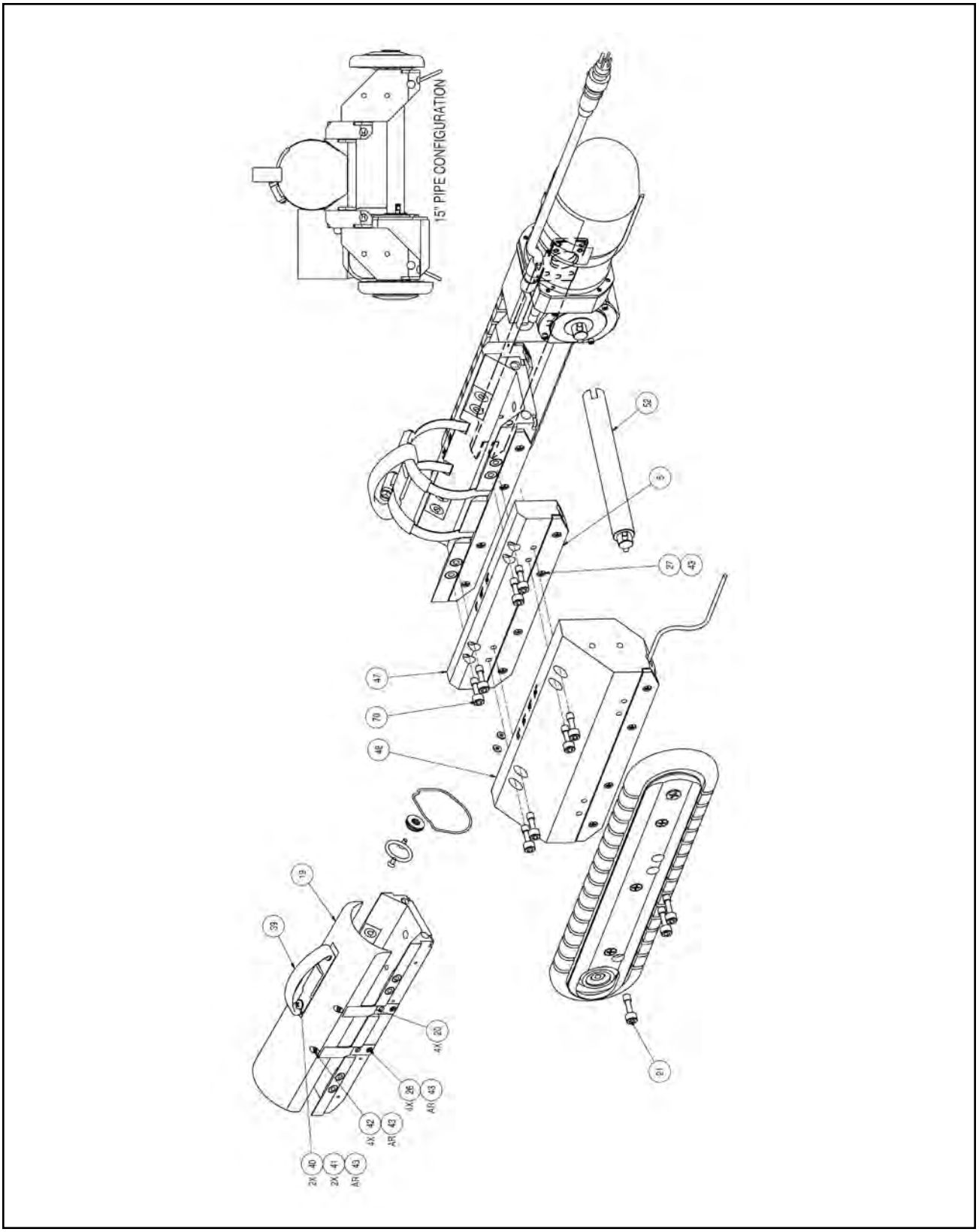


Figure 6d. *Transporter Assy, Shorty 21, MC350*

Ultra Shorty 21

Ultra Shorty 21 Transporter Assy (See Figure 6), Rev. N, MC350			
1	Cradle,Camera Body,10.50"	MC203-1	1
2	Trans/Mtr,Fwd/Neu/Rev,U-Shorty 21	MC301-1	1
3	Cable,Tow,F/Shorty & 36"Packer,54"	120165	2
4	Sprocket,35p 15t 1/2b	300432	1
5	Wearstrip,Side	MC009	2
6	Screw,Cap,Hx,1/4-28x3/8,Ss,Nyl Plt	HW1069	2
7	Plate,Outer,Port,Compact Shorty	MC263	1
8	Plate,Outer,Starboard,Compact Shrty	MC264	1
9	Plate,Port,Sprocket,Compact Shorty`	MC265	1
10	Plate,Motor Mtg,Sprkt,Compact Shrty	MC266	1
11	Spindle,Idler Sprocket	MC267	2
12	Sprocket,35p,15t,Face Mount	MC268	2
13	Hub,Idler Sprocket	MC269	2
14	Sprocket,Drive,#35,15t,Fwc	MC270	1
15	Washer,Flat,1/4"Sst	101736	2
16	Spindle,Drive Sprocket Coupling	MC272	1
17	Coupling,Transmission,Fwc	MC273	1
18	Wearstrip,Upper And Lower,F/Mc350	MC274	4
21	Screw,Captive,1/4-20x.84lg,416sst	HW900	6
22	Bearing,Sealed.5bx1.125odx.312thk	HW018	3
23	Screw,Set,8-32x1lg,Lok,Conept	HW769	2
24	Washer,1/2idx7/8odx1/32thk,Sst	HW267	6
25	Screw,Flat,4-40x5/16,Ss	HW266	8
26	Screw,Flat,6-32x3/8 Phil Sst	103058	4
27	Screw,Pan,6-32x3/8 Phil Brass	HW774	20
28	Screw,Cap,Skt Hd,4-40x1/2,Sst	105061	4
29	Screw,Flat,10-32x5/8 Phil Sst	103045	6
30	Track Assy,Rnd Clt,76lnk,Cmpct Shty	MC208-1	2
31	Screw,Flathead,1/4-20x1/2 Phil Sst	103079	1
32	Screw,Flathead,10-32x5/16 Phil Sst	101426	2
33	Screw,8-32x1/2 Fl,Ph,Ss	103062	2
34	Screw,Flat,10-32x1/2 Sst	103052	1
35	Screw,Flat,8-32x3/8 Phil Sst	100146	2
36	Keystock,1/8"Sq X1/2lg,Zinc Plated	8874	1
37	Screw,Set,10-32x3/16 Sst	103038	2
38	Screw,6-32.Shoulder,3/16dx7/16l,Sst	HW772	2
39	Loop,Lifting,Webbing	MC223	1
43	Mro-Removable Lck,Nd 121200-50,Blue	440061	1

Ultra Shorty 21 Transporter Assy (See Figure 6), Rev. N, MC350			
44	Mro-Permanent Lock,Nd 140500-50,Red	440060	1
45	Label,Lasertab Marker,3.00 X 1.90	CS223	1
46	Y Eliminator,60deg,Ultra Shorty M/C	MC233	1
60	Clamp,Worm(Mod),F/Transporter	MC210	2
64	Instruction Sheet,Ultra Shorty	MC253	1
65	Mro-Ret.Comp,.005gp,Nd530125-50,Grn	440072	1
66	CABLE ASSY,MOTOR &XNSM,ULTRA SHORTY	MC236	1
67	LOOP,LIFTING,WEBBING,U-SHTY,WTR,CPR	MC223	1
68	MANUAL,OPERATION,ULTRA SHORTY & 21	MC225	1

Ultra Shorty 21

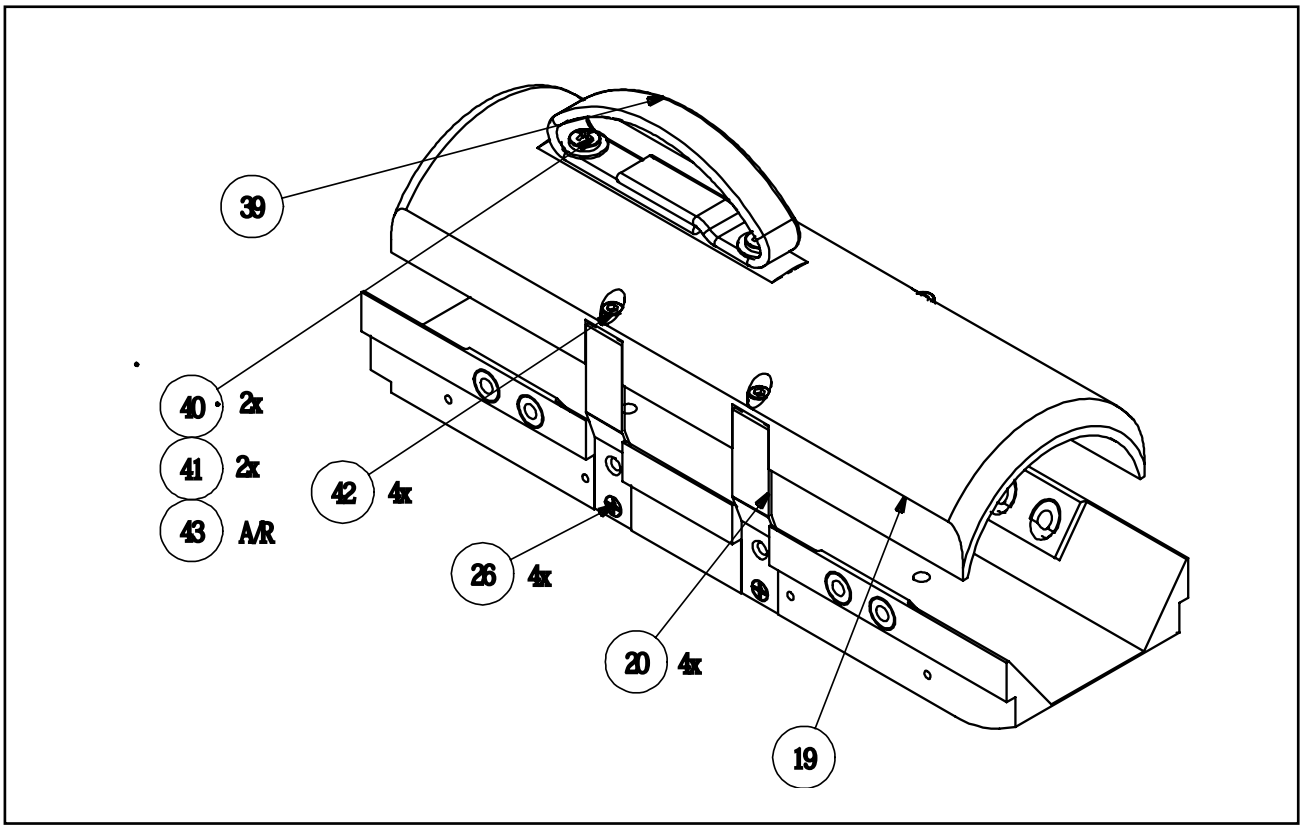


Figure 7. *Kit, Clamshell, Shorty 21, MC903*

Ultra Shorty 21 Clamshell Kit (See Figure 7), Rev. -, MC903			
Item #	Description	P/N	Qty
- 19	Clamshell,Shorty	MC275	1
- 20	Strap,Camera	MC276	4
- 26	Screw,6x32x1/2 Phil Fl Sst	712484	4
- 39	Loop,Lifting,Webbing	MC223	1
- 40	Screw,Pan,10-32x3/8 Sst	103031	2
- 41	Washer,Flat,#10 Sst	100140	2
- 42	Screw,Shcs,8-32x3/8 Sst	100448	4

DRAWING NOT AVAILABLE AT THIS TIME

Replacement Sprocket Assembly, Front, P/N MC907			
Item #	Description	P/N	Qty
- 1	Spindle,Idler Sprocket	MC267	1
- 2	Sprocket,35p,15t,Face Mount	MC268	1
- 3	Hub,Idler Sprocket	MC269	1
- 4	Bearing,Sealed.5bx1.125odx.312thk	HW018	1
- 5	Washer,1/2idx7/8odx1/32thk,Sst	HW267	3
- 6	Screw,Flat,4-40x5/16,Ss	HW266	4
- 7	Screw,Set,8-32x1lg,Lg-Lok,Cone Pt.	HW769	1
- 8	Screw,Cap,Hex,1/4-28 X 3/8,Sst	HW1069	1
- 9	Washer,Flat,1/4"Sst	101736	1

DRAWING NOT AVAILABLE AT THIS TIME

Replacement Drive Assembly, Rear, P/N MC908			
Item #	Description	P/N	Qty
- 1	Coupling,Transmission,Fwc	MC273	1
- 2	Sprocket,Drive,#35,15t,Fwc	MC270	1
- 3	Spindle,Drive Sprocket Coupling	MC272	1
- 4	Bearing,Sealed.5bx1.125odx.312thk	HW018	1
- 5	Screw,Cap,Skt Hd,4-40x1/2,Sst	105061	4
- 6	Screw,Flathead,1/4-20x1/2 Phil Sst	103079	1

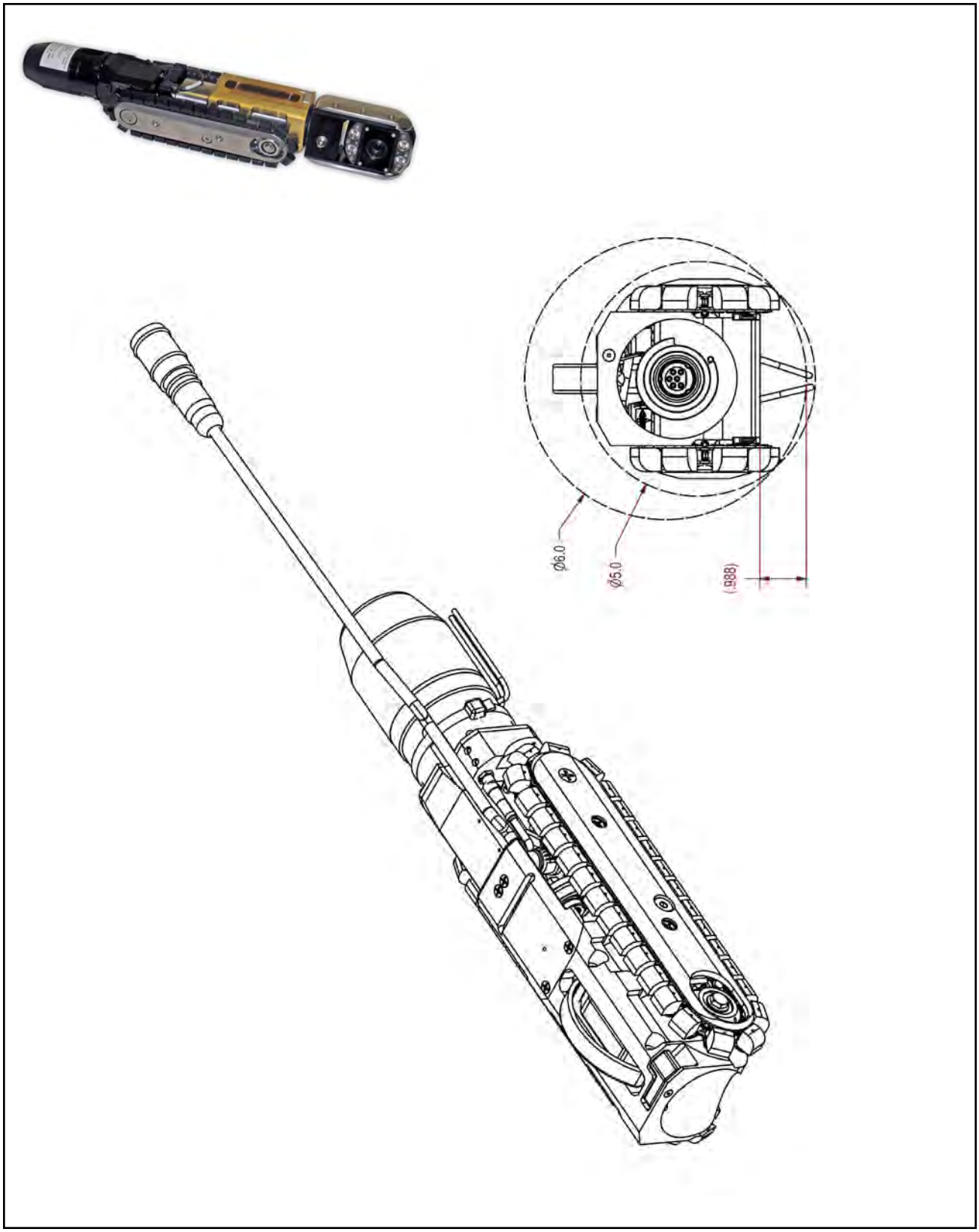


Figure 8a. *Ultra Shorty III, TX350*

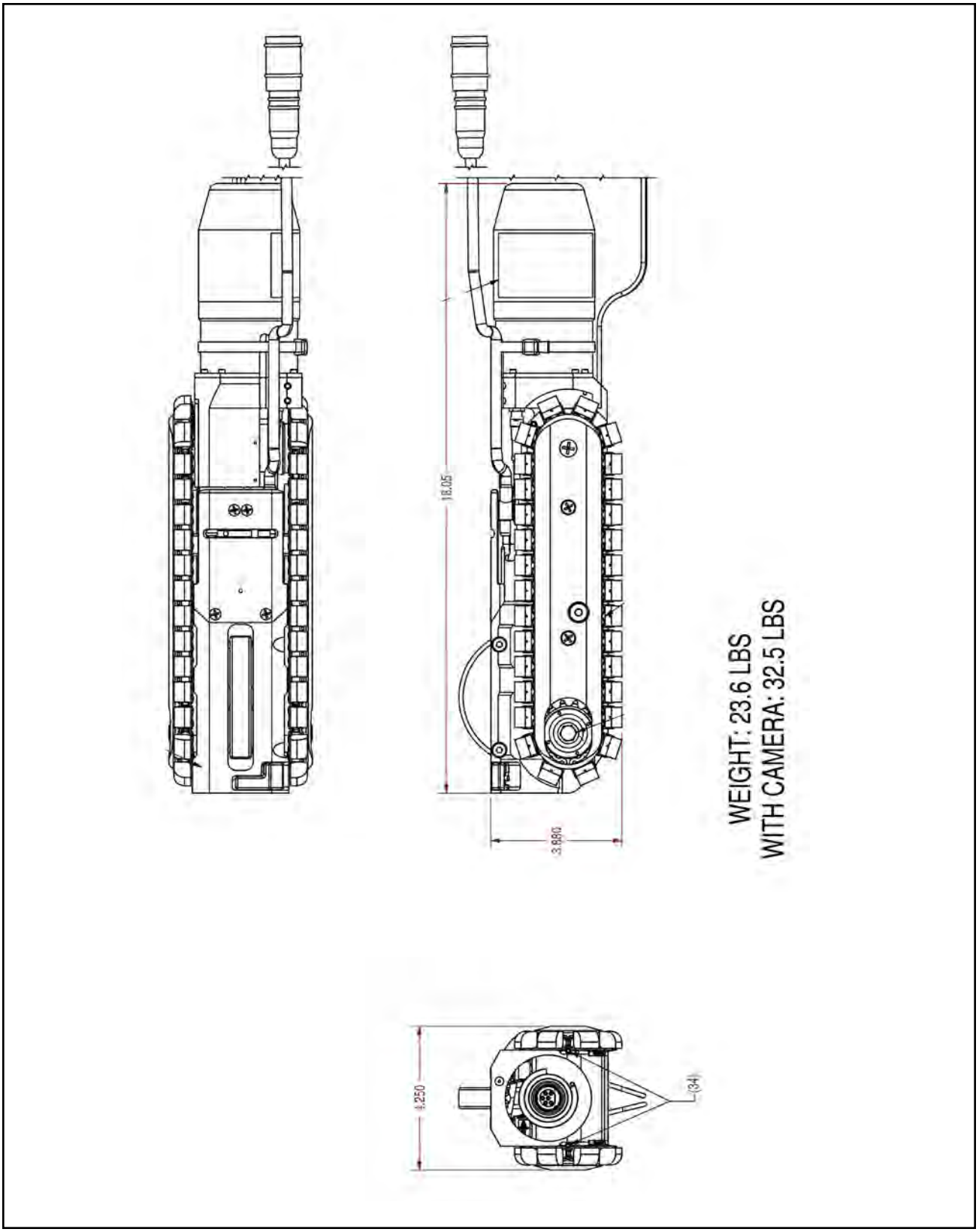


Figure 8b. *Ultra Shorty III, TX350*

Ultra Shorty III

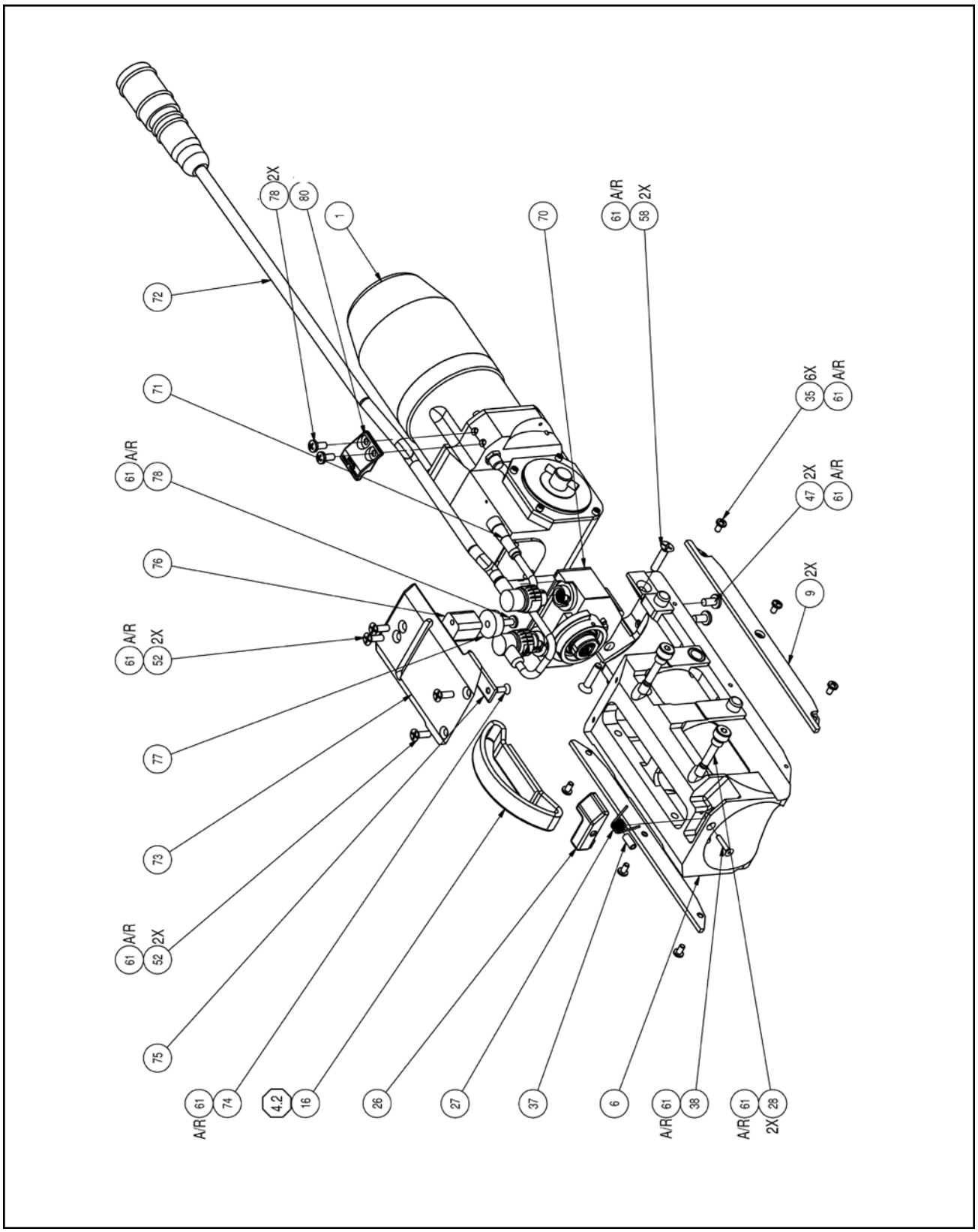


Figure 8c. *Ultra Shorty III, TX350*

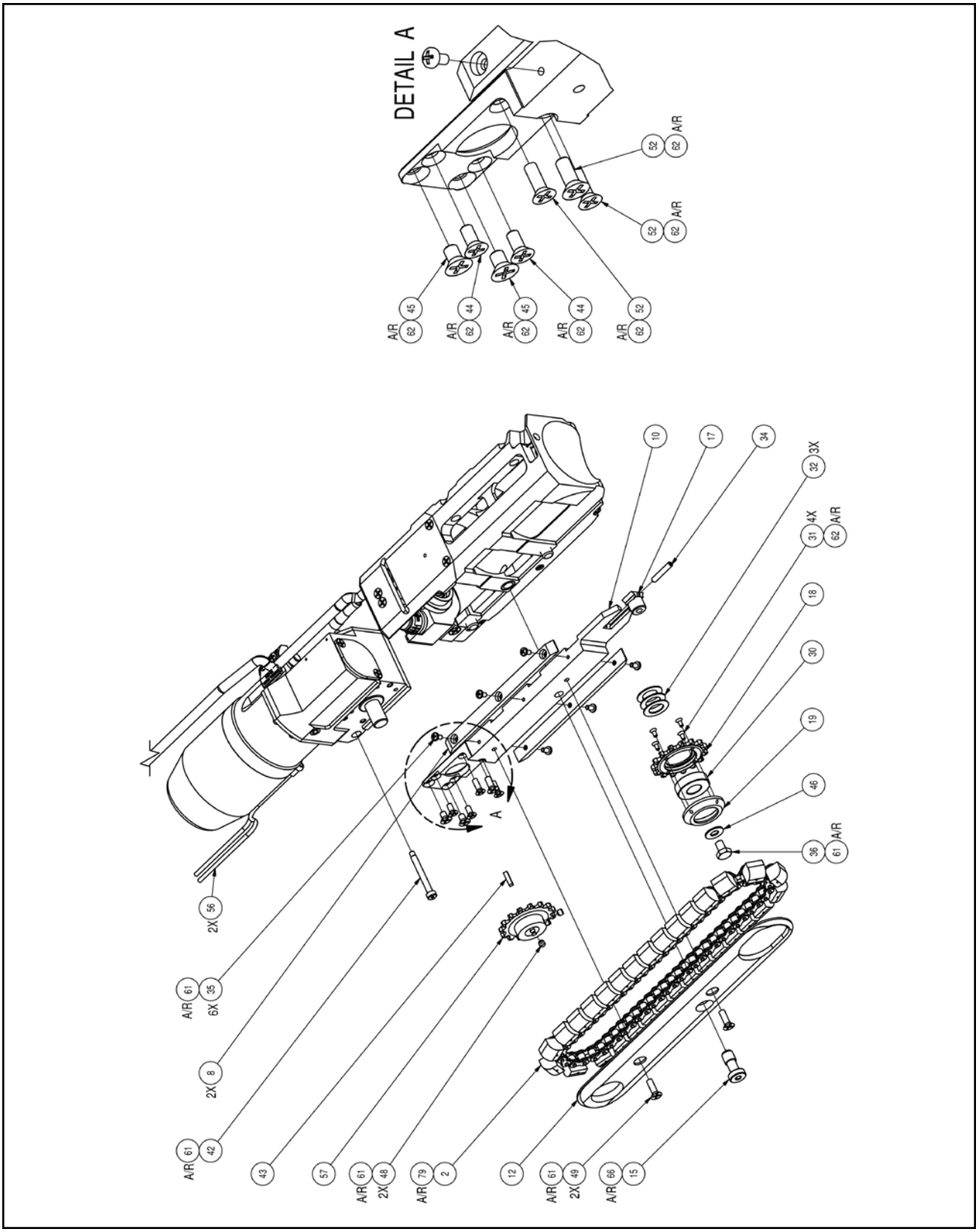


Figure 8d. *Ultra Shorty III, TX350*

Ultra Shorty III

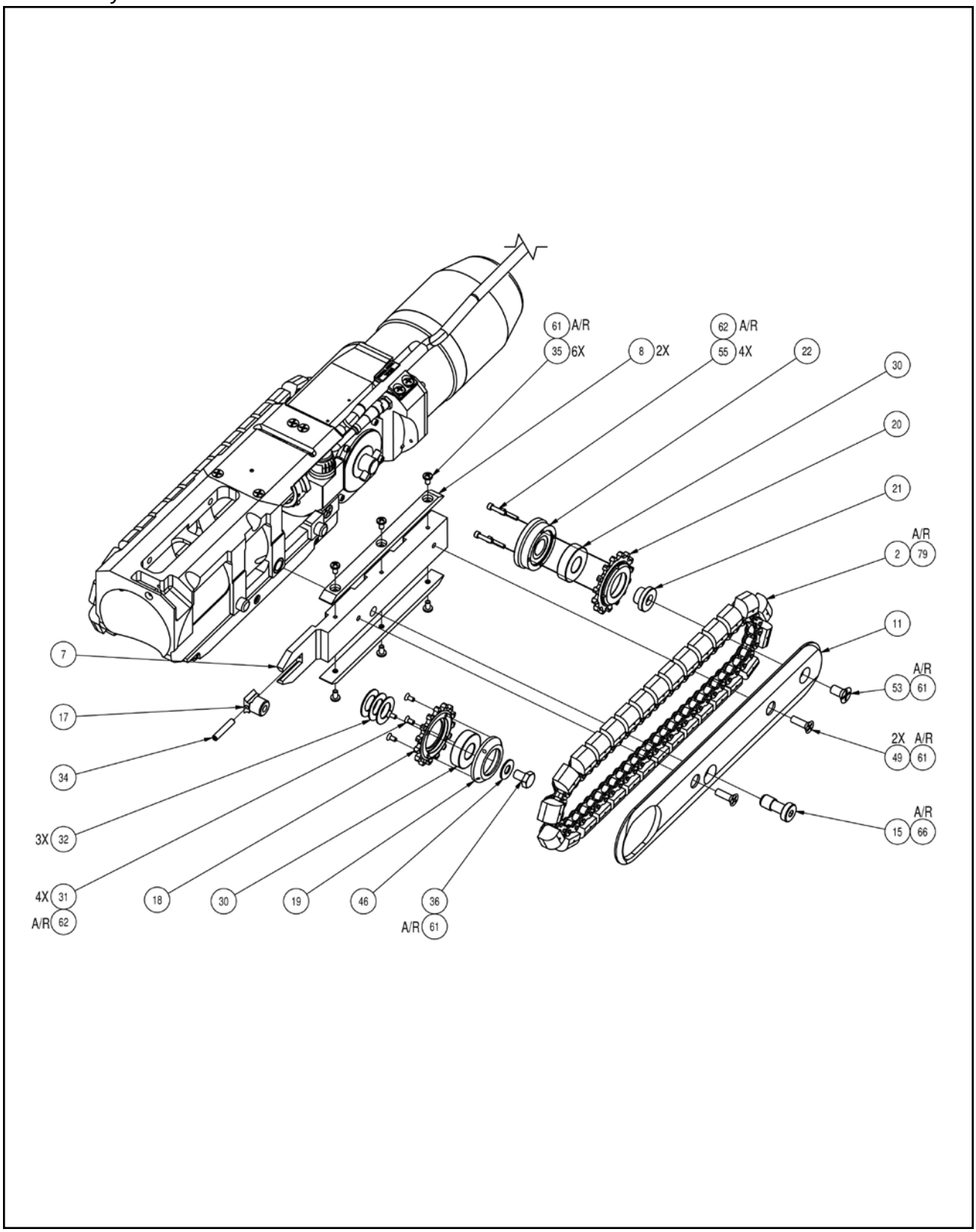
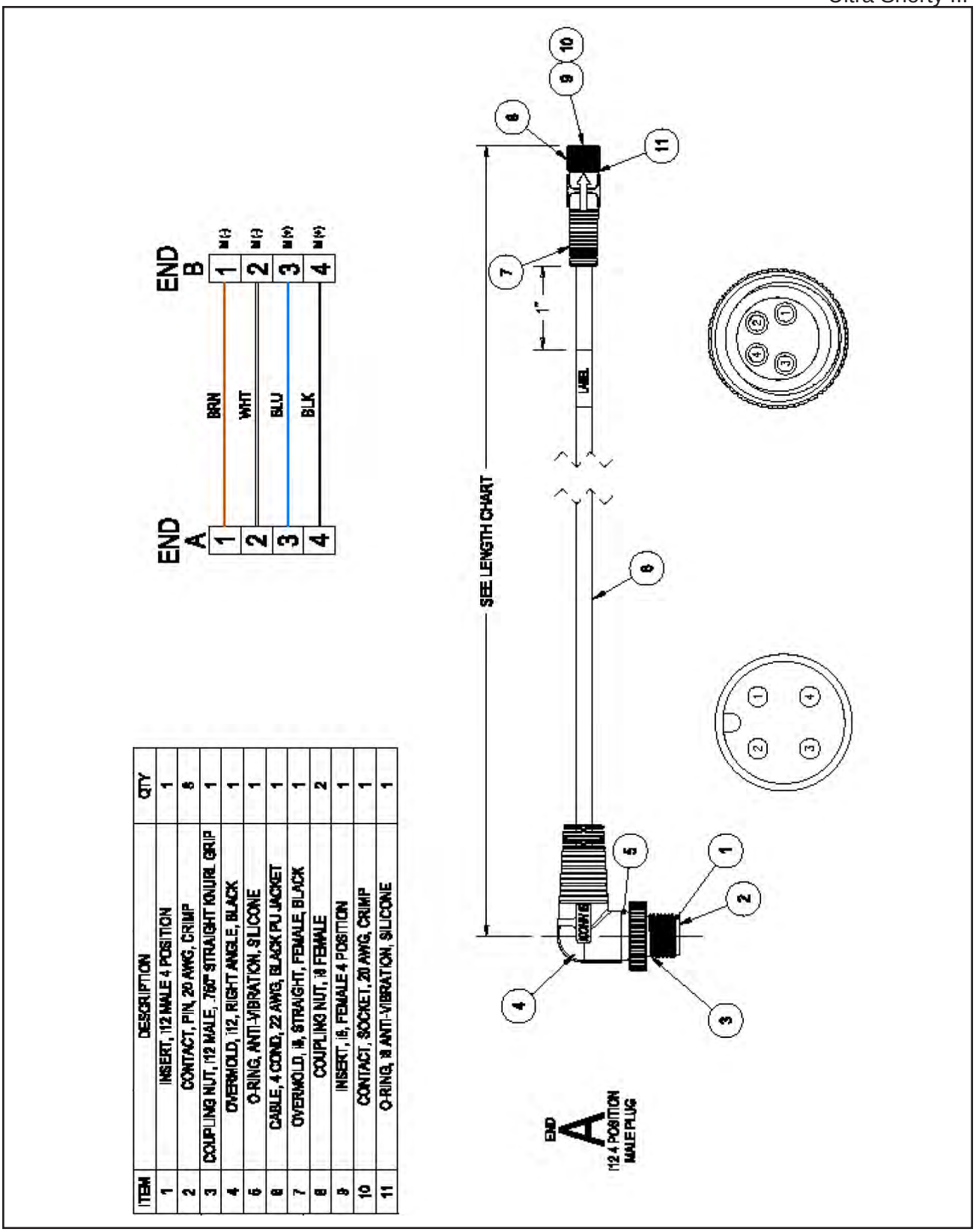


Figure 8e. *Ultra Shorty III, TX350*

Ultra Shorty III (See Figure 8), Rev. E, P/N TX350			
Item #	Description	P/N	Qty
0001	TRANS/MTR,FWD/NEU/REV,USIII	TX301	1
0002	TRACK ASSY,RND CLEAT, 30 CNT, USIII	TX305	2
0006	BODY,USIII	TX005	1
0007	GUIDE PLATE,PORTSIDE,USIII	TX007	1
0008	WEARSTRIP,TOP AND BOTTOM,USIII	TX008	4
0009	WEARSTRIP,SIDE,USIII	TX009	2
0010	PLATE,MOTOR MTG,SPRCKT,USIII	TX010	1
0011	PLATE,OUTER,PORT,USIII	TX011	1
0012	PLATE,OUTER,STARBOARD,USIII	TX012	1
0015	SCREW,CAPTIVE,LOW,3/8 X.83,17-4SS	TX025	2
0016	LOOP,LIFTING,WEBBING,U-SHTY,WTR,CPR	MC223	1
0017	SPINDLE,IDLER SPROCKET	MC267	2
0018	SPROCKET,35P,15T,FACE MOUNT	MC268	2
0019	HUB,IDLER SPROCKET	MC269	2
0020	SPROCKET,DRIVE,#35,15T,FWC	MC270	1
0021	SPINDLE,DRIVE SPROCKET COUPLING	MC272	1
0022	COUPLING,TRANSMISSION,FWC	MC273	1
0026	BUTTON,LATCH CAMERA	WM086	1
0027	SPRING,TORSION,.357 OD X .045,MOD	WM102	1
0028	SCREW,SHOULDER LIFT STRAP,CPR	WM107	2
0030	BEARING,SEALED.5BX1.125ODX.312THK	HW018	3
0031	SCREW,FLAT,4-40X5/16,SS	HW266	8
0032	WASHER,1/2IDX7/8ODX1/32THK,SST	HW267	6
0034	SCREW,SET,8-32X1LG,LOK,CONEPT	HW769	2
0035	SCREW,PAN HD,6-32 X 1/4,BRASS,PHIL	HW1224	18
0036	SCREW,CAP,HX,1/4-28X3/8,SS,NYL PLT	HW1069	2
0037	SPACER,.188 OD X .115 ID X .406 LG	HW1581	1
0038	SCREW,CAP #4-40 X 5/8LG,FH,SS	HW1582	1
0042	SCREW,SHLDR,.188 X 1.5,8-32,SST	HW1792	1
0043	KEYSTOCK,1/8"SQ X1/2LG,ZINC PLATED	8874	1
0044	SCREW,FLAT,8-32X3/8 PHIL SST	100146	2
0045	SCREW,FLATHEAD,10-32X5/16 PHIL SST	101426	2
0046	WASHER,FLAT,1/4"SST	101736	2
0047	SCREW,PAN,10-32X3/8 SST	103031	2
0048	SCREW,SET,10-32X3/16 SST	103038	2
0049	SCREW,FLAT,10-32X5/8 PHIL SST	103045	4
0050	SCREW,FLAT,10-32X1/2 SST	103052	1
0052	SCREW,8-32X1/2 FL,PH,SS	103062	2
0053	SCREW,FLATHEAD,1/4-20X1/2 PHIL SST	103079	1

Ultra Shorty III

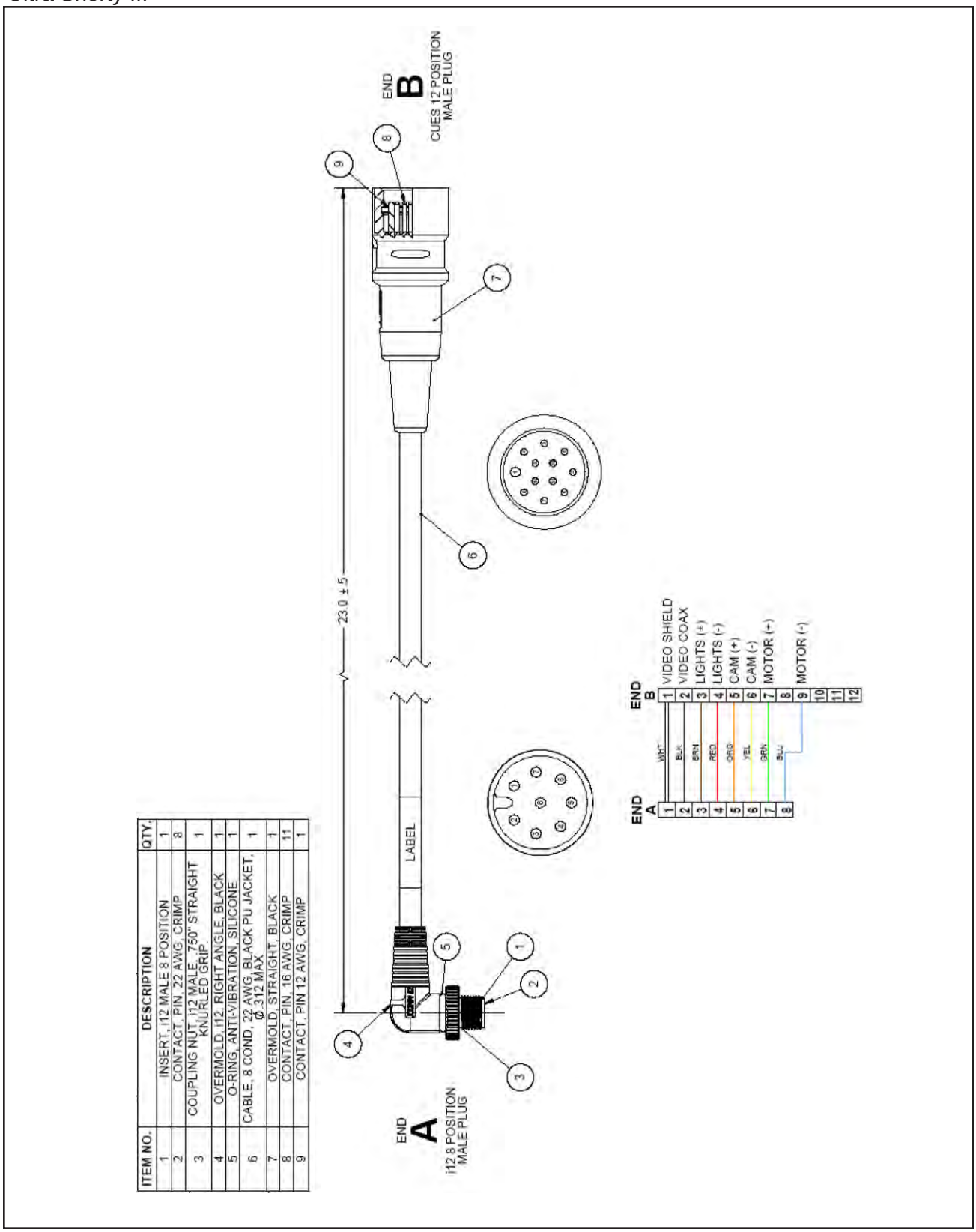
Ultra Shorty III (See Figure 8), Rev. E, P/N TX350			
Item #	Description	P/N	Qty
0055	SCREW,CAP,SKT HD,4-40X1/2,SST	105061	4
0056	CABLE,TOW,F/WTRIII & USIII,54"	120165	2
0057	SPROCKET,35P 15T 1/2B	300432	1
0058	SCREW,FLAT,10-32X7/8,PHILLIP,SS	712444	2
0060	MRO-LUBRICANT,O-RING 2 OZ TUBE	439986	1
0061	MRO-REMOVABLE LCK,ND 121200-50,BLUE	440061	1
0062	MRO-PERMANENT LOCK,ND 140500-2,RED	CS238	1
0063	TOOL,CHISEL,5/32TIP X 5/16HEX X5L	HW1886	1
0064	LABEL,LASERTAB MARKER,3.00 X 1.90	CS223	1
0066	MRO-ANTI-SEIZE,LPS NICKEL,P/N 03908	CS407	1
0067	MANUAL,ULTRA SHORTY III	TX901	1
0068	INSTRUCTION SHEET,ULTRA SHORTY	MC253	1
0070	BULKHEAD ASSY,WTRIII,OBS USE TX345	TX326	1
0071	CABLE ASSY,4-PIN,8.5"L,OBS>TX342	TX316	1
0072	CABLE ASSY,12 PIN>12 PIN,OBS>TX343	TX317	1
0073	GUARD,CONNECTOR PROTECTIVE,WTRIII	TX084	1
0074	SCREW,FLAT,6-32X3/8 PHIL SST	103058	1
0075	PLATE,CABLE HOLDER,WTR III	TX092	1
0076	BUMPER BLOCK,CONN.GUARD PLT,WTRIII	TX090	1
0077	BUMPER,POLYURETHANE	130055	1
0078	SCREW,PAN,8-32X3/8 PHIL SST	103065	3
0079	MRO-LUBRICANT,LPS CHAINMATE,11-OZ	CS478	1
0080	CLAMP,CABLE,USIII	TX094	1



ITEM	DESCRIPTION	QTY
1	INSERT, M12 MALE 4 POSITION	1
2	CONTACT, PIN, 20 AWG, CRIMP	6
3	COUPLING NUT, M12 MALE, .750" STRAIGHT KNURL GRIP	1
4	OVERMOLD, M12, RIGHT ANGLE, BLACK	1
5	O-RING, ANTI-VIBRATION, SILICONE	1
6	CABLE, 4 COND, 22 AWG, BLACK PU JACKET	1
7	OVERMOLD, M8, STRAIGHT, FEMALE, BLACK	1
8	COUPLING NUT, M8 FEMALE	2
9	INSERT, M8, FEMALE 4 POSITION	1
10	CONTACT, SOCKET, 20 AWG, CRIMP	1
11	O-RING, M8 ANTI-VIBRATION, SILICONE	1

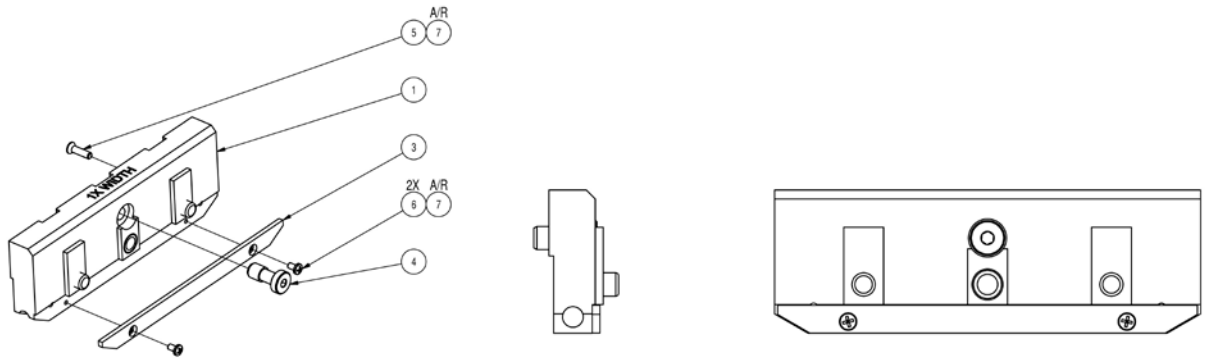
Figure 9. CABLE ASSY,4-PIN,WTRIII/USIII,8.5"L, TX342

Ultra Shorty III



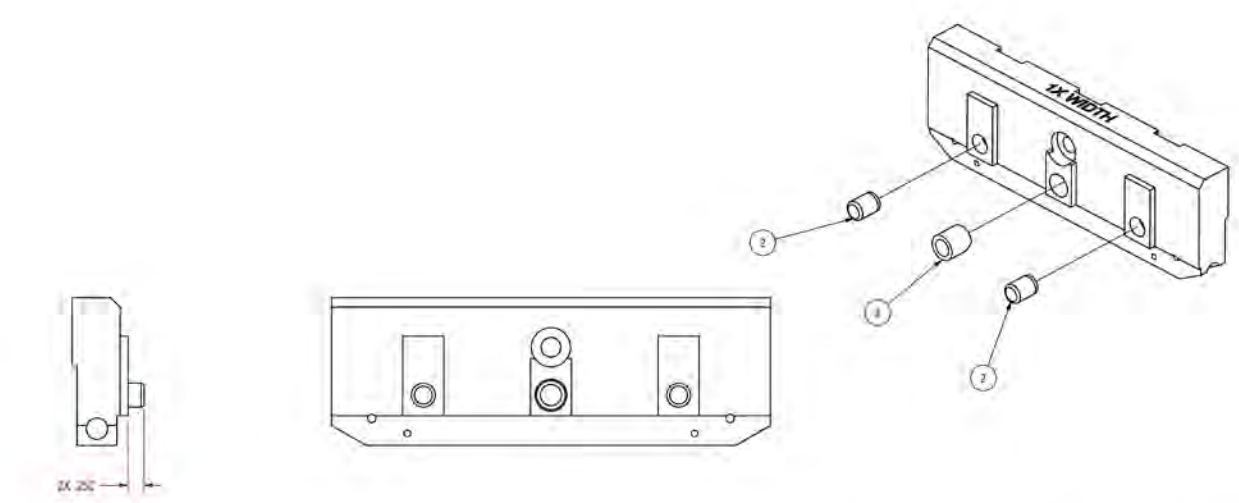
ITEM NO.	DESCRIPTION	QTY.
1	INSERT, i12 MALE 8 POSITION	1
2	CONTACT, PIN, 22 AWG, CRIMP	8
3	COUPLING NUT, i12 MALE, .750" STRAIGHT KNURLED GRIP	1
4	OVERMOLD, i12, RIGHT ANGLE, BLACK	1
5	O-RING, ANTI-VIBRATION, SILICONE	1
6	CABLE, 8 COND, 22 AWG, BLACK PU JACKET, Ø.312 MAX	1
7	OVERMOLD, STRAIGHT, BLACK	1
8	CONTACT, PIN, 16 AWG, CRIMP	11
9	CONTACT, PIN 12 AWG, CRIMP	1

Figure 10. CABLE ASSY,12P>8P,WTR3/US3/OZ3 ADAP, TX343



CONFIGURATION LIST	
PART NUMBER	DESCRIPTION
TX308	ADAPTER ASSY, 1X WIDTH, USIII - ALUMINUM
TX308-1	ADAPTER ASSY, 1X WIDTH, USIII - BRASS

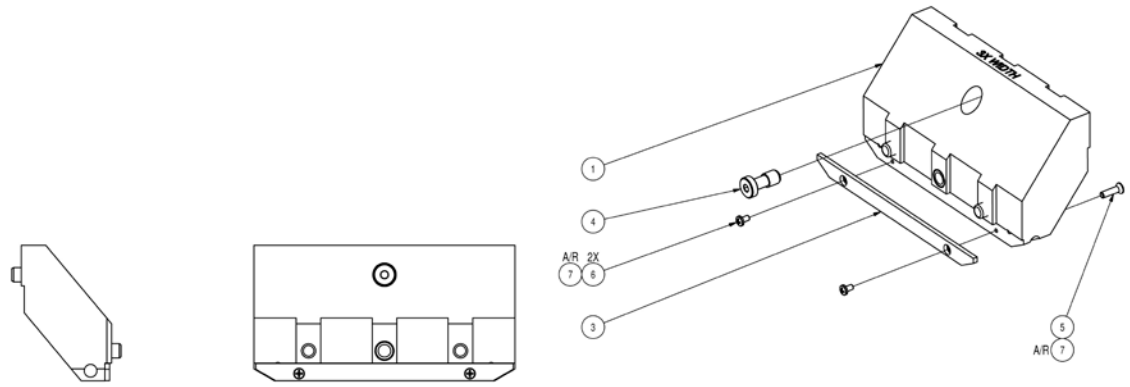
Figure 11. ADAPTER ASSY, 1X WIDTH, US III, TX308



CONFIGURATION LIST	
PART NUMBER	DESCRIPTION
TX022	ADAPTER, SINGLE WIDTH, ALUMINUM
TX022-1	ADAPTER, SINGLE WIDTH, BRASS

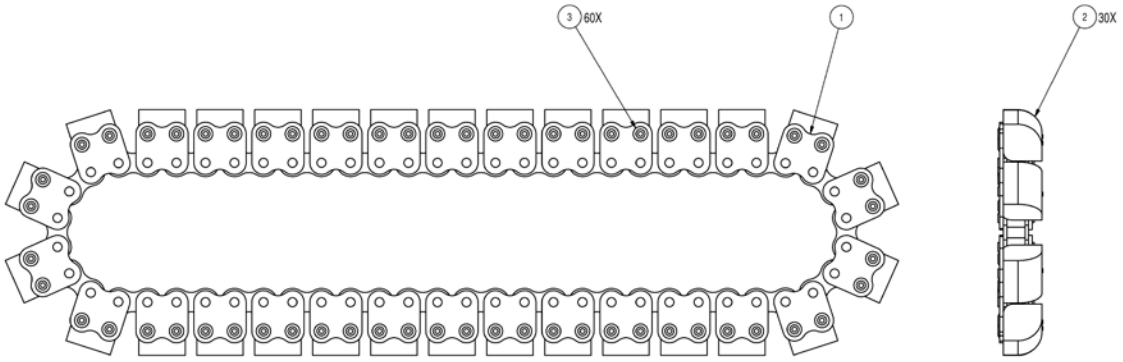
ITEM	QTY	DESCRIPTION	PART NO.	VENDOR
4	1	PIPE ADAPTER, 1X WIDTH, BRASS	TX022-1	
3	1	KEYED INSERT	TX022 - ITEM3	McMaster #92344
2	2	PIN, DOWEL, .375 x .5, SST	TX022 - ITEM2	McMaster #91014

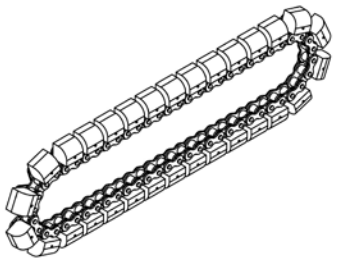
Figure 12. *PIPE ADAPTER 1X WIDTH, TX022*



CONFIGURATION LIST	
PART NUMBER	DESCRIPTION
TX309	ADAPTER ASSY, 3X WIDTH, USIII, ALUMINUM
TX309-1	ADAPTER ASSY, 3X WIDTH, USIII, BRASS

Figure 13. ADAPTER ASSY, 3X WIDTH, US III, TX309





ITEM	QTY	DESCRIPTION	PART NO.	NOTES
3	60	RIVET, POP, .094DIA X .125LG, SST	HW1078	
2	30	CLEAT ASSEMBLY, ROUNDED, TRANSPORTER TRACK	MC306	
1	1	CHAIN, CARBON STEEL, 2 HOLE, M35-2, 60LINK	MC207-3	

Parts List

Figure 14. 60 LINKS, USIII, ROUNDED CLEATS, TX305

DRAWING NOT AVAILABLE AT THIS TIME

M/C Track Transporter w/ FWC

Transporter, M/C Track W/FWC, Rev. -, 620704			
Item #	Description	P/N	Qty
− 1	Track Assy,Transporter	3009150	2
− 2	Motor & Xmsn Assy,Fwc,Hs,M/C Trans	TG008	1
− 3	Plate,Outer Right Hand Side	500316	1
− 4	Plate,Side Outer Left Hand	500315	1
− 5	Weldment,Transporter(Low)	509400	1
− 6	Support,Left Hand	501186	1
− 7	Support,Sprocket Right Hand	501187	1
− 8	Wearstrip,Plas Trans Track Bottom	501184	4
− 9	Washer,Flat,#6 Sst	100173	4
− 10	Screw,8-32x1/2 Fl,Ph,Ss	103062	2
− 11	Screw,Set,4-40x1/8 Sst	100050	1
− 12	Clevis,3/16"	120426	2
− 13	Cable,Tow,Transporter& K-Cutter,27"	120504	2
− 14	Block,Tow Cable,F/Transport Cable	120480	2
− 15	Washer,Star 1/4 Sst External	101035	1
− 16	Screw,Flat,6-32x3/8 Phil Sst	103058	12
− 17	Bearing,Ball,Sld,3/8 Idx7/8 Odx9/32	300282	3
− 20	Mro-Carton 44 X 12 X 12 Dw 275#	444851	1
− 21	Screw,Cap,Skt Hd,10-32x1-1/4,Sst	103040	4
− 22	Screw,Pan,6-32x1/2 Phil Nylon	100120	20
− 24	Sprocket,35p 15t 1/2b	300432	1
− 26	Kit,Idler Spindle F/Transp Mod Ii	950156	2
− 28	Wearstrip,Metal Trans End Left	501192	2
− 29	Hub,Sprocket Transporter	300444	2
− 30	Clamp,Sprocket,Fwc	500245	1
− 31	Spacer,Sprocket-Transporter	305071	1
− 33	Panel,Center,Wearstrip Mounting	501191	2
− 35	Ring,Retaining,3/8"	97512	1
− 36	Wearstrip,Metal Trans End Right	501193	2
− 37	Pin,Drive Sst .187x1"	97551	1
− 38	Screw,Cap,Skt Hd,1/4-20x3/4,Sst	101022	5
− 39	Adapter,Pipe	501188	4
− 40	Screw,Flat,4-40x 3/8 Phil Sst	100055	12
− 41	Screw,Flat,10-32x5/8 Phil Sst	103045	6
− 42	Screw,Flat,8-32x3/8 Phil Sst	100146	2
− 43	Screw,Cap,Skt Hd,10-32x3/4,Sst	100121	4
− 44	Clamp,Worm,(Mod)F/Transporter	120607	2
− 45	Spindle,Drive,Sprocket,Fwc	299909	1

DRAWING NOT AVAILABLE AT THIS TIME

M/C Track Transporter w/ FWC

Transporter, M/C Track W/FWC, Rev. -, 620704			
Item #	Description	P/N	Qty
− 47	Guide,Pipe Adapter	505057	2
− 48	Screw,Bind,6-32x3/16 Sltd Sst	712415	4
− 49	Screw,Cap,Skt Hd,1/4-20x1,Sst	101065	4
− 50	Screw(Mod)F/Transporter	101419	4
− 51	Label,Logo 2.5"	962029	1
− 52	Screw,Truss,1/4-20x3/4 Phil Sst	712449	1
− 80	Screw,Pan,6x32x5/8 Phil Sst	100143	4
− 98	Wearstrip,Plastic Trans Trackside	501183	2
− 99	Coupling,Adapter,L/B,Fwc,M/C	112406	1
− 100	Tubing,Nylon 1/2 Od X3/8 Id Black	10049	4
− 101	Weight,Transporter Body(Low)	300224	1
− 102	Coupling,8"W/Pin & Screw	1141230	1
− 103	Keystock,1/8"Sq X1/2lg,Zinc Plated	8874	1
− 105	Screw,Set,10-32x1/4 Sst	101000	1
− 106	Screw,Set,10-32x3/16 Sst	103038	1
− 107	Sprocket,Drive,Fwc	300423	1
− 108	Sprocket,35p 15t Face Mount	300433	2

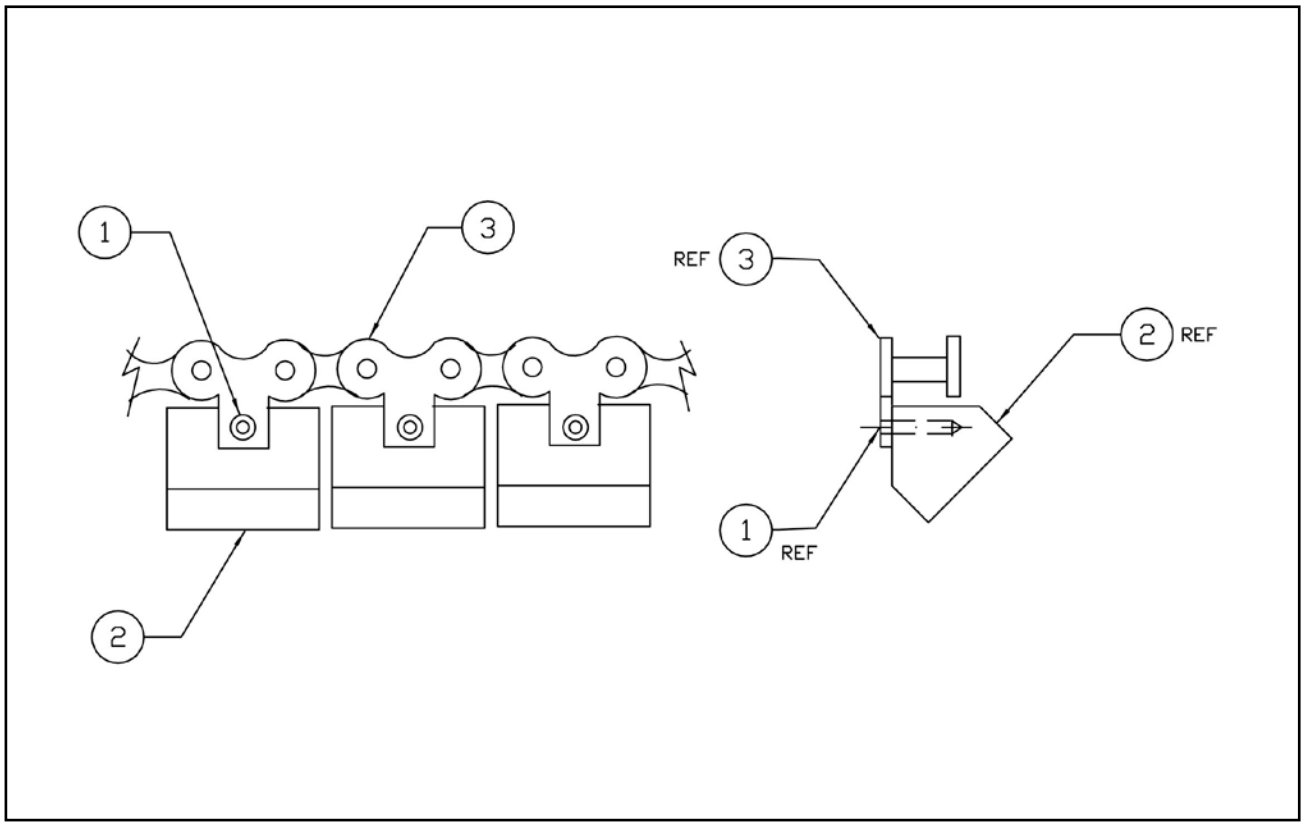


Figure 14. *Track Assembly, Transporter, 3009150*

Track Assembly, Transporter (See Fig.14) Rev. C, 3009150			
Item #	Description	P/N	Qty
0001	RIVET,POP,SST,3/32X5/16	97790	69
0002	CLEATS,TRANSPORTER,ONE-HOLE	299930	69
0003	CHAIN, 35.3/8P 136LK-3/4P AELONG	300916	1
0004	MASTER LINK TRANSPORTER TRACK	305064	1

M/C Track Transporter w/ FWC

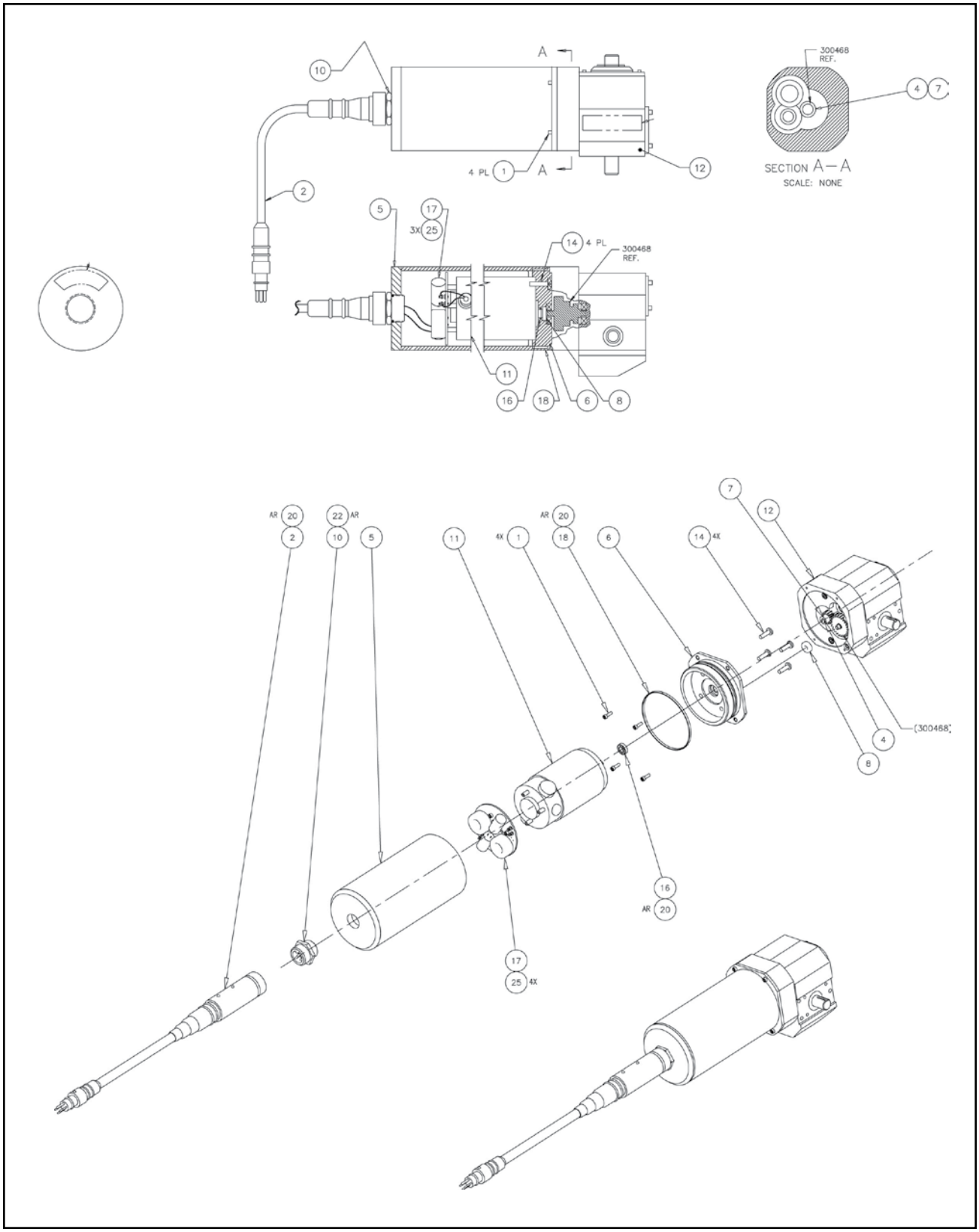


Figure 15. *Motor & XMSN Assembly, FWC, HS, M/C Trans., TG008*

M/C Track Transporter w/ FWC

Motor & XMSN Assy, FWC, HS, M/C Trans., See Figure 15, Rev. G, TG008			
Item #	Description	P/N	Qty
− 1	Screw,Cap,Skt Hd,4-40x3/8,Sst	100054	4
− 2	Cable Assy,Metal/Sleeve,4 Pin	712818	1
− 4	Screw,Set,4-40x1/8 Sst	100050	1
− 5	Housing,Motor Assy,S/C,M/C	501156	1
− 6	Plate,2 1/2"Motor Mounting	500319	1
− 7	Gear,Drive,Spur,12t/24p,Teardrop	HW552	1
− 8	Bearing,Ball,3/16 Id X 1/2 Od X5/32	300280	1
− 10	Connector,Chassis,Male,3-Pin	712813	1
− 11	Motor,115vdc,.12hp,W/Standoff,Trans	TL050	1
− 12	Transmission & Fwc Hs	300468	1
− 14	Screw,Seal(8-32x9/16l)Phil Head	HW004	4
− 15	Seal,Oil,.25 Bore X.5 Od .125thk	HW003	1
− 17	Pcb Assy,Motor Filter,Transporter	TL400	1
− 18	O-Ring,2-039 Ep	132215	1
− 20	Mro-Lubricant,O-Ring 2 Oz Tube	439986	1
− 21	Mro-Removable Lck,Nd 121200-50,Blue	440061	1
− 22	Mro-Sealant,Pourable Translucent	445066	1
− 25	Screw,Cap,Skt Hd,4-40x1/4,W/Nylok	712389	3

M/C Track Transporter w/ FWC

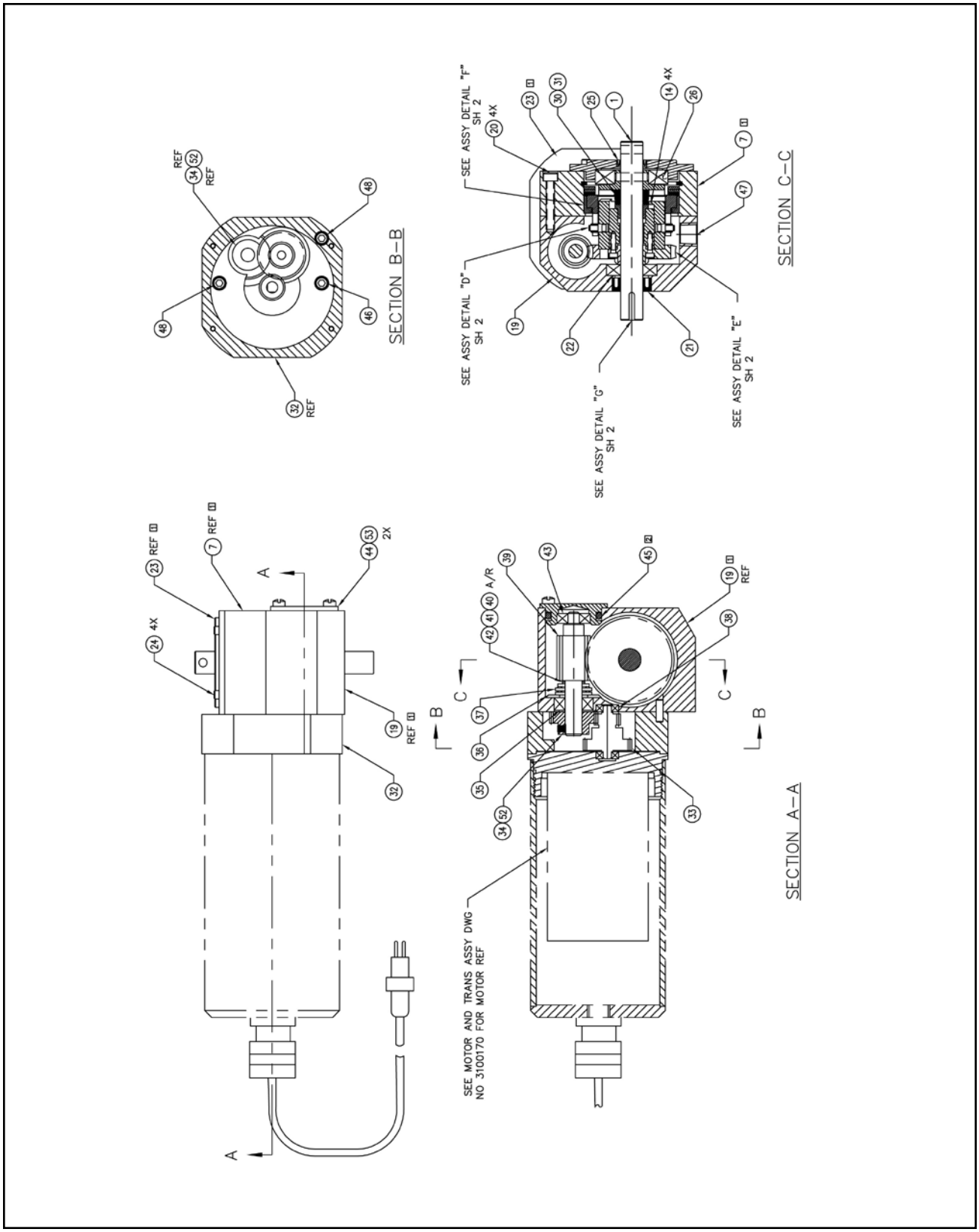


Figure 16a. *Transmission& FWC HS, 300468*

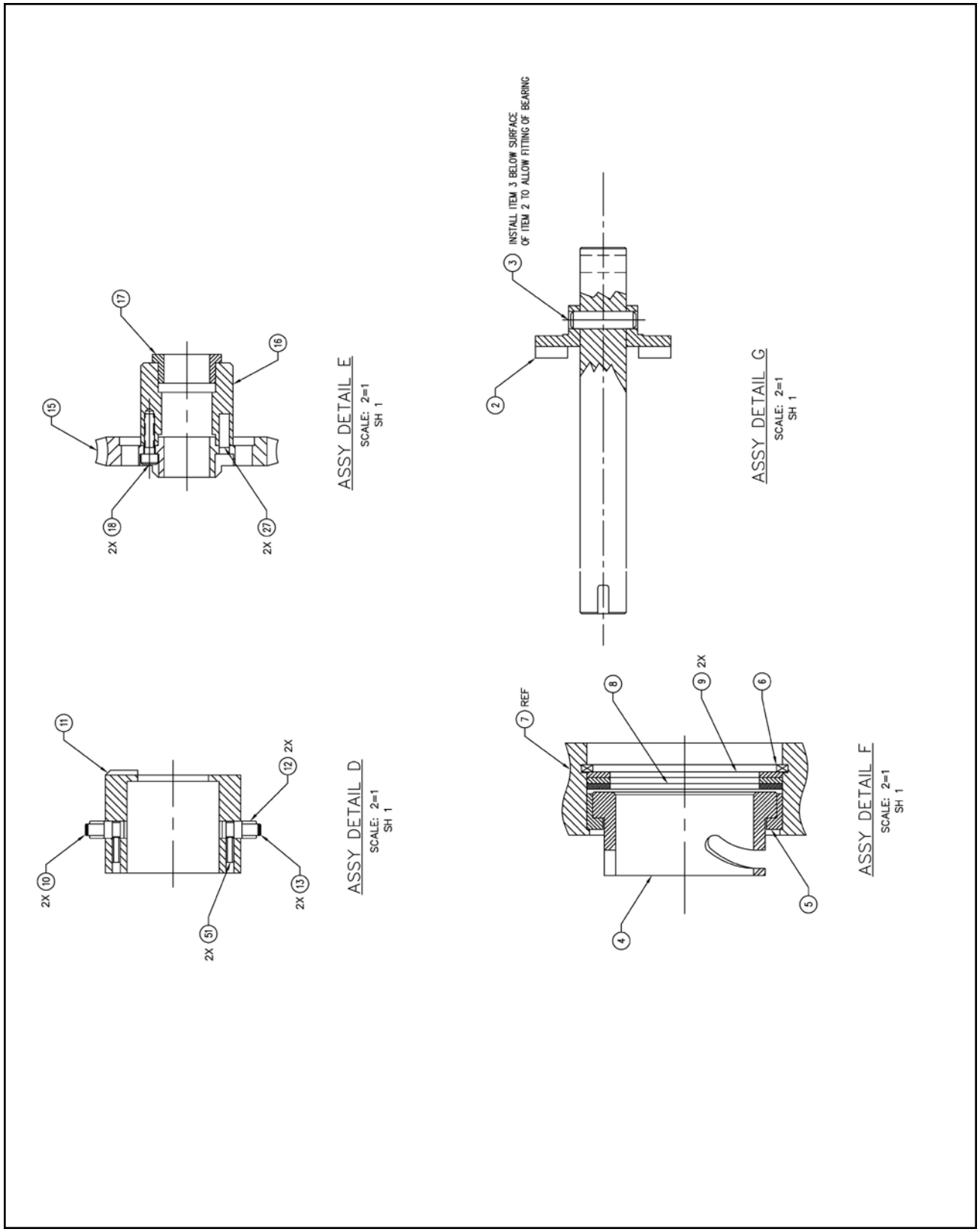


Figure 16b. *Transmission& FWC HS, 300468*

M/C Track Transporter w/ FWC

Transmission & FWC HS (See Fig.16) Rev. F, 300468			
Item #	Description	P/N	Qty
0001	SHAFT,FWC	471075	1
0002	CLUTCH,FACE,FIXED,FWC	300274	1
0003	PIN,CLUTCH FACE,TRANSPORTER	TG019	1
0004	BARREL CAM,FWC	491159	1
0005	BEARING,SLEEVE,CAM,FWC	300465	1
0006	RING,RETAINING,INTERNAL,2 1/8 BORE	97456	1
0007	HOUSING,BARREL CAM,FWC	501603	1
0008	WASHER,THRUST,FWC	101252	1
0009	SPACER,THRUST WASHER,FWC	502310	2
0010	PIN,ROLLER,FWC	97538	2
0011	CLUTCH,FACE,SLIDING,FWC	300275	1
0012	ROLLER,BARREL CAM,FWC	200516	2
0013	RING,RETAINING,EXTERNAL,1/8 SHAFT	97457	2
0014	PIN,DOWEL,1/8X.75,416 SST	HW754	4
0015	GEAR,WORM,FWC	471076	1
0016	CLUTCH,SLIDING,INNER	300455	1
0017	BEARING,FLANGED,.502 ID X .627 OD	300463	1
0018	SCREW,CAP,SKT HD,4-40X3/8,SST	100054	2
0019	HOUSING,WORM GEAR	501163	1
0020	SCREW,CAP,SKT HD,10-32X1,SST	101425	4
0021	SEAL,OIL,.5ID X.875 OD X.252THK	130305	1
0022	BEARING,BALL,1/2 ID X 1-1/8 OD X1/4	300284	1
0023	HOUSING,BEARING,FWC	501211	1
0024	SCREW,CAP,SKT HD,4-40X3/8,BLACK	100061	4
0025	SEAL,OIL,.500DIA X.685 BORE,.12T	50681	1
0026	BEARING,.75 ID X 1.625 OD X .31WIDE	300464	1
0027	PIN,SPRING,1/8X1/2 CARBON STEEL	97562	2
0028	OBSOLETE,USE-PN 100050	712411	1
0029	SPACER,SPROCKET-TRANSPORTER	305071	1
0030	SPACER,SHAFT,FWC	300268	1
0031	SPACER,SST,1/2IDX5/8 ODX.031THICK	300048	3
0032	HOUSING,REDUCTION GEAR	501178	1
0033	GEAR,TANDEM	300407	1
0034	GEAR,MODIFIED	299981	1
0035	BEARING,BALL,SLD,3/8 IDX7/8 ODX9/32	300282	1
0036	SPACER,1.240 ODX.630IDX.060THK	300049	1
0037	BEARING,THRUST	300285	1
0038	BEARING,BALL,3/16 ID X 1/2 OD X5/32	300280	1

M/C Track Transporter w/ FWC

Transmission & FWC HS (See Fig.16) Rev. F, 300468			
Item #	Description	P/N	Qty
0039	GEAR,WORM,W/SHAFT	299963	1
0040	SPACER,SST,3/8ID X1/2 OD X.031 THK	300047	3
0041	SPACER,3/8IDX1/2 ODX.005 SST	300041	1
0042	SPACER,3/8"IDX.010	300044	2
0043	BEARING,BALL,1/4 ID X 3/4 OD X 7/32	300281	1
0044	HOUSING,BEARING,OUTER,TRANS,WTRIII	TX081	1
0045	O-RING,2-214,EP	130145	1
0046	SCREW,CAP,SKT HD,8-32X7/8,SST	103067	1
0047	PLUG,LOW PROFILE,1/8 NPT	MS039	1
0048	SCREW,CAP,SKT HD,8-32X1.00,SST	103068	2
0050	SCREW,SET,4-40X1/8 SST	100050	2
0051	SCREW,SET,4-40X1/4 SST	100052	2
0052	SCREW,SET,6-32X3/16 SST	100991	2
0053	SCREW,FLAT,8-32X3/8 PHIL SST	100146	2
0056	SPACER,1/2"IDX.010	300043	2

DRAWING NOT AVAILABLE AT THIS TIME

Kit, Idler Spindle F/Trans. MOD II, Rev.-, 950156			
Item #	Description	P/N	Qty
-1	· Screw, 1/4-20 X 1 1/8 SST Tens Adj	100135	2
-2	· Spindle, Idler F/Trans. MOD II	300101	2
-3	· Screw, CAP SKT HD, 10-32 X 3/8 SS w/NYL	101119	2
-4	· Instr, Sht-Powertrac Chain Adj	960944	2
-5	· Instr, Sht-Powertrac 6" Usage	960953	2
-6	· Spacer, 3/8 ID X 5/8 OD X .031 SST	300050	6
-7	· Cap, Spindle Trans MOD II	299965	2

DRAWING NOT AVAILABLE AT THIS TIME

S/C Track Transporter w/ FWC

Transporter, S/C Track W/FWC, Rev. -, 620650			
Item #	Description	P/N	Qty
− 1	Track Assy,Transporter	3009150	2
− 2	Motor & Xmsn Assy,Fwc,Hs,S/C Trans	3100170	1
− 3	Plate,Outer Right Hand Side	500316	1
− 4	Plate,Side Outer Left Hand	500315	1
− 5	Support,Left Hand	501186	1
− 6	Support,Sprocket Right Hand	501187	1
− 7	Wearstrip,Plas Trans Track Bottom	501184	4
− 8	Wearstrip,Plastic Trans Trackside	501183	2
− 9	Screw,8-32x1/2 Fl,Ph,Ss	103062	2
− 10	Spindle,Drive,Sprocket,Fwc	299909	1
− 11	Clevis,3/16"	120426	2
− 12	Cable,Tow,Transporter& K-Cutter,27"	120504	2
− 13	Block,Tow Cable,F/Transport Cable	120480	2
− 14	Washer,Star 1/4 Sst External	101035	1
− 15	Screw,Flat,6-32x3/8 Phil Sst	103058	12
− 16	Bearing,Ball,Sld,3/8 Idx7/8 Odx9/32	300282	3
− 17	Screw,Cap,Skt Hd,1/4-20x1,Sst	101065	4
− 18	Screw,Truss,1/4-20x3/4 Phil Sst	712449	1
− 19	Screw,Cap,Skt Hd,10-32x1-1/4,Sst	103040	4
− 20	Screw,Pan,6-32x1/2 Phil Nylon	100120	20
− 21	Screw,Flat,4-40x5/8 Phil Sst	100060	4
− 22	Coupling,Adapter,Fwc,S/C	112405	1
− 23	Kit,Idler Spindle F/Transp Mod Ii	950156	2
− 25	Hub,Sprocket Transporter	300444	2
− 26	Clamp,Sprocket,Fwc	500245	1
− 28	Sprocket,Drive,Fwc	300423	1
− 29	Panel,Center,Wearstrip Mounting	501191	2
− 30	Screw,Cap,Skt Hd,1/4-20x5/8,Sst	101024	4
− 31	Ring,Retaining,3/8"	97512	1
− 32	Screw,Flat,10-32x5/8 Phil Sst	103045	6
− 33	Screw,Flat,8-32x3/8 Phil Sst	100146	2
− 34	Weldment,Transporter S/Cii-Elec	5011760	1
− 35	Wearstrip,Metal Trans End Right	501193	2
− 36	Adapter,Pipe	501188	4
− 37	Mro-Carton 44 X 12 X 12 Dw 275#	444851	1
− 38	Wearstrip,Metal Trans End Left	501192	2
− 39	Sprocket,35p 15t 1/2b	300432	1

DRAWING NOT AVAILABLE AT THIS TIME

S/C Track Transporter w/ FWC

Transporter, S/C Track W/FWC, Rev. -, 620650			
Item #	Description	P/N	Qty
− 40	Tubing,Nylon 1/2 Od X3/8 Id Black	10049	4
− 42	Screw,Flat,4-40x 3/8 Phil Sst	100055	12
− 44	Screw,Set,10-32x1/4 Sst	101000	2
− 45	Sprocket,35p 15t Face Mount	300433	2
− 46	Coupling,8"W/Pin & Screw	1141230	1
− 47	Keystock,1/8"Sq X1/2lg,Zinc Plated	8874	1
− 48	Spacer,Sprocket-Transporter	305071	1

S/C Track Transporter w/ FWC

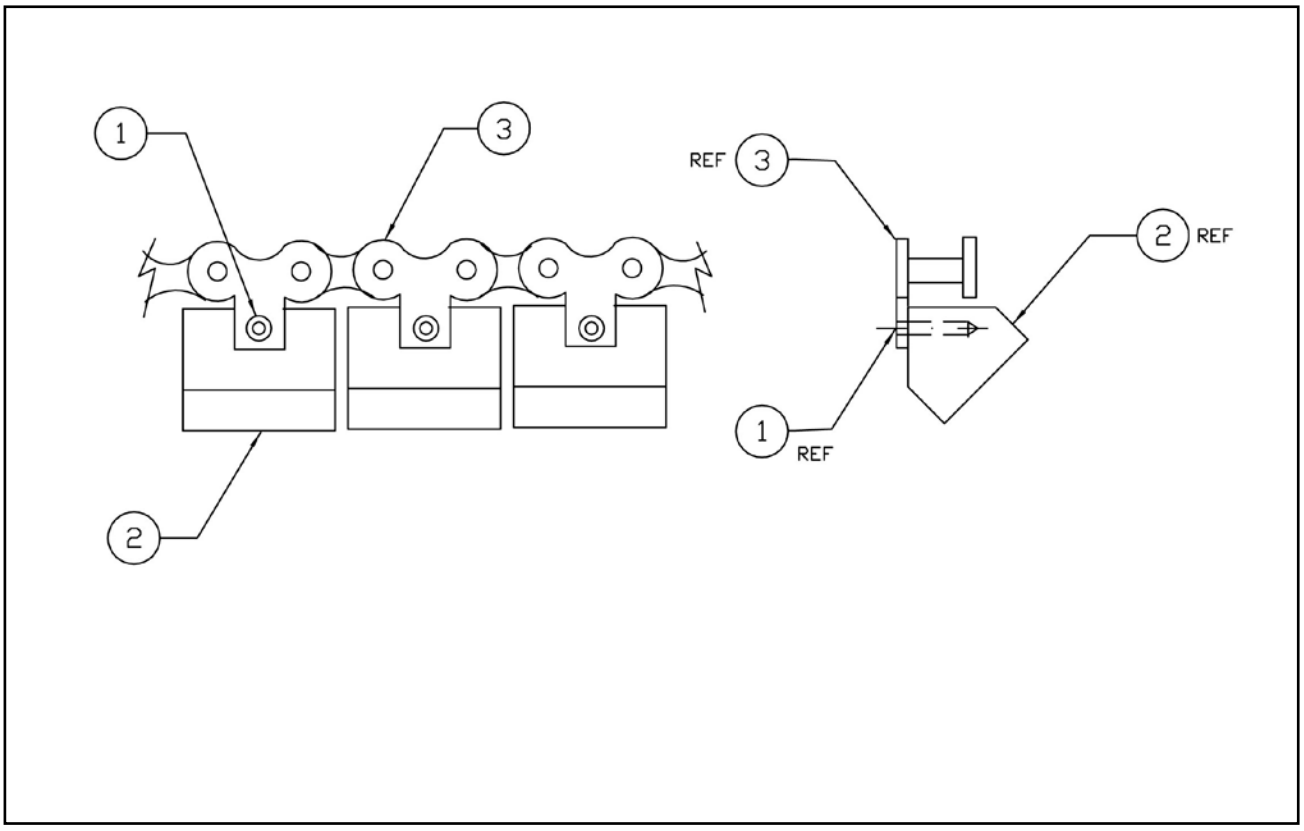


Figure 17. *Track Assembly, Transporter, 3009150*

Track Assembly, Transporter (See Fig.17) Rev. C, 3009150			
Item #	Description	P/N	Qty
0001	RIVET,POP,SST,3/32X5/16	97790	69
0002	CLEATS,TRANSPORTER,ONE-HOLE	299930	69
0003	CHAIN, 35.3/8P 136LK-3/4P AELONG	300916	1
0004	MASTER LINK TRANSPORTER TRACK	305064	1

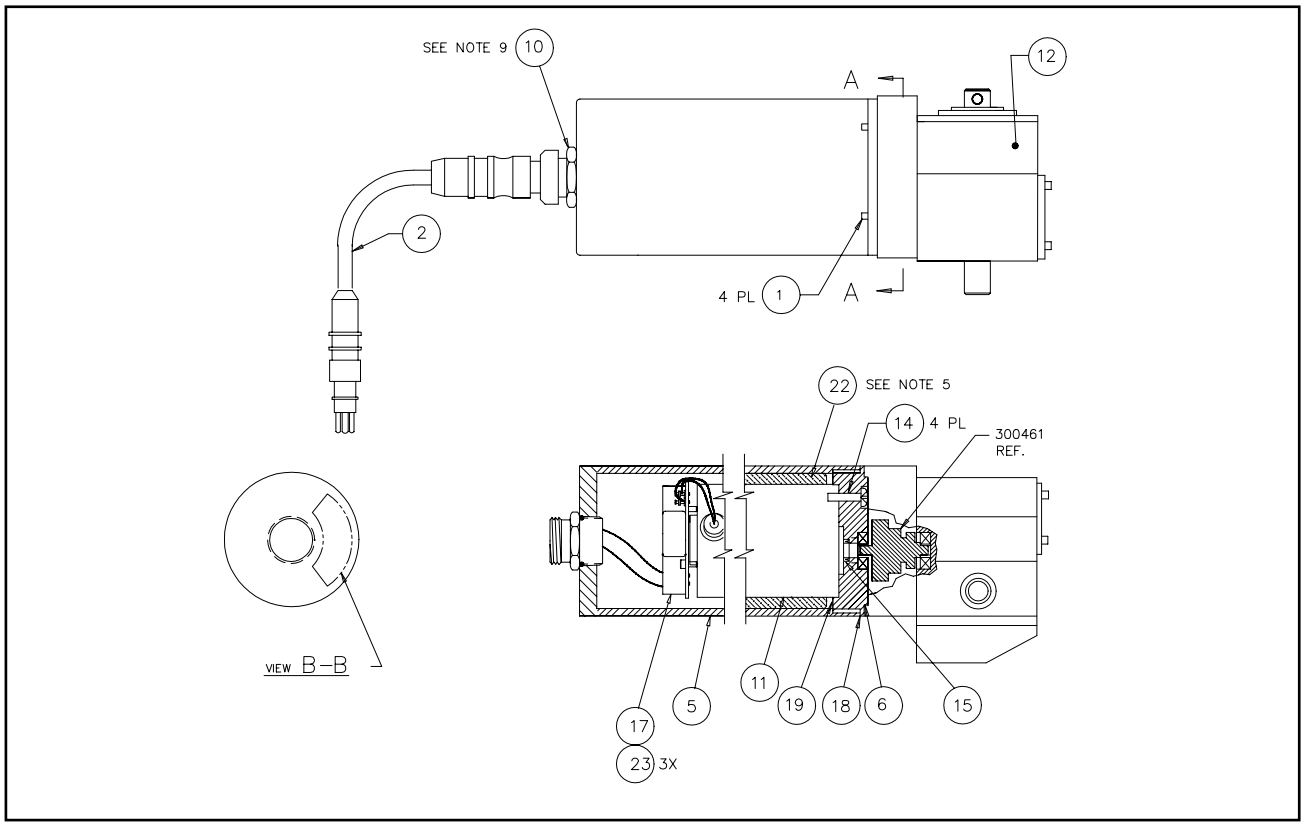


Figure 18. *Motor & XMSN Assembly, FWC, HS, S/C Trans., 3100170*

Motor&XMSN, FWC, HS, S/C (See Fig.18) Rev. F, 3100170			
Item #	Description	P/N	Qty
- 1	Screw,Cap,Skt Hd,4-40x3/8,Black	100061	4
- 2	Cable Assy,Metal/Sleeve,4 Pin	712818	1
- 4	Screw,Set,4-40x1/8 Sst	100050	1
- 5	Housing,Motor Assy,S/C,M/C	501156	1
- 6	Plate,2 1/2"Motor Mounting	500319	1
- 10	Connector,Chassis,Male,3-Pin	712813	1
- 11	Motor,115vdc,.12hp,W/Standoff,Trans	TL050	1
- 12	Transmission & Fwc Hs	300468	1
- 14	Screw,Seal(8-32x9/16l)Phil Head	HW004	4
- 15	Seal,Oil,.25 Bore X.5 Od .125thk	HW003	1
- 17	Pcb Assy,Motor Filter,Transporter	TL400	1
- 18	O-Ring,2-039 Ep	132215	1
- 19	Screw,Cap,Skt Hd,4-40x3/8,Sst	100054	3
- 20	Gear,Drive,Spur,12t/24p,Teardrop	HW552	1
- 21	Bearing,Ball,3/16 Id X 1/2 Od X5/32	300280	1
- 23	Screw,Cap,Skt Hd,4-40x1/4,W/Nylok	712389	3

S/C Track Transporter w/ FWC

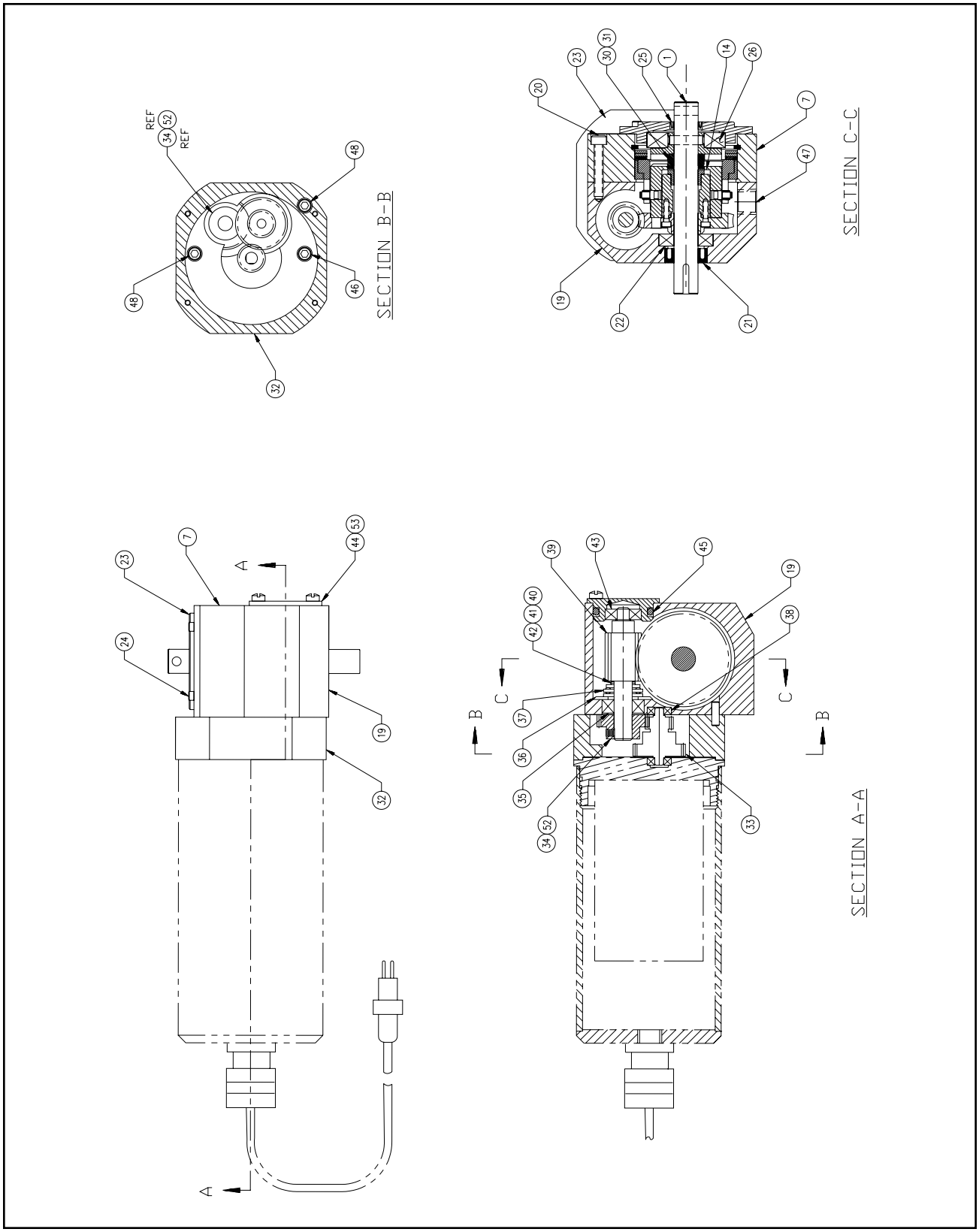


Figure 19a. Transmission& FWC HS, 300468

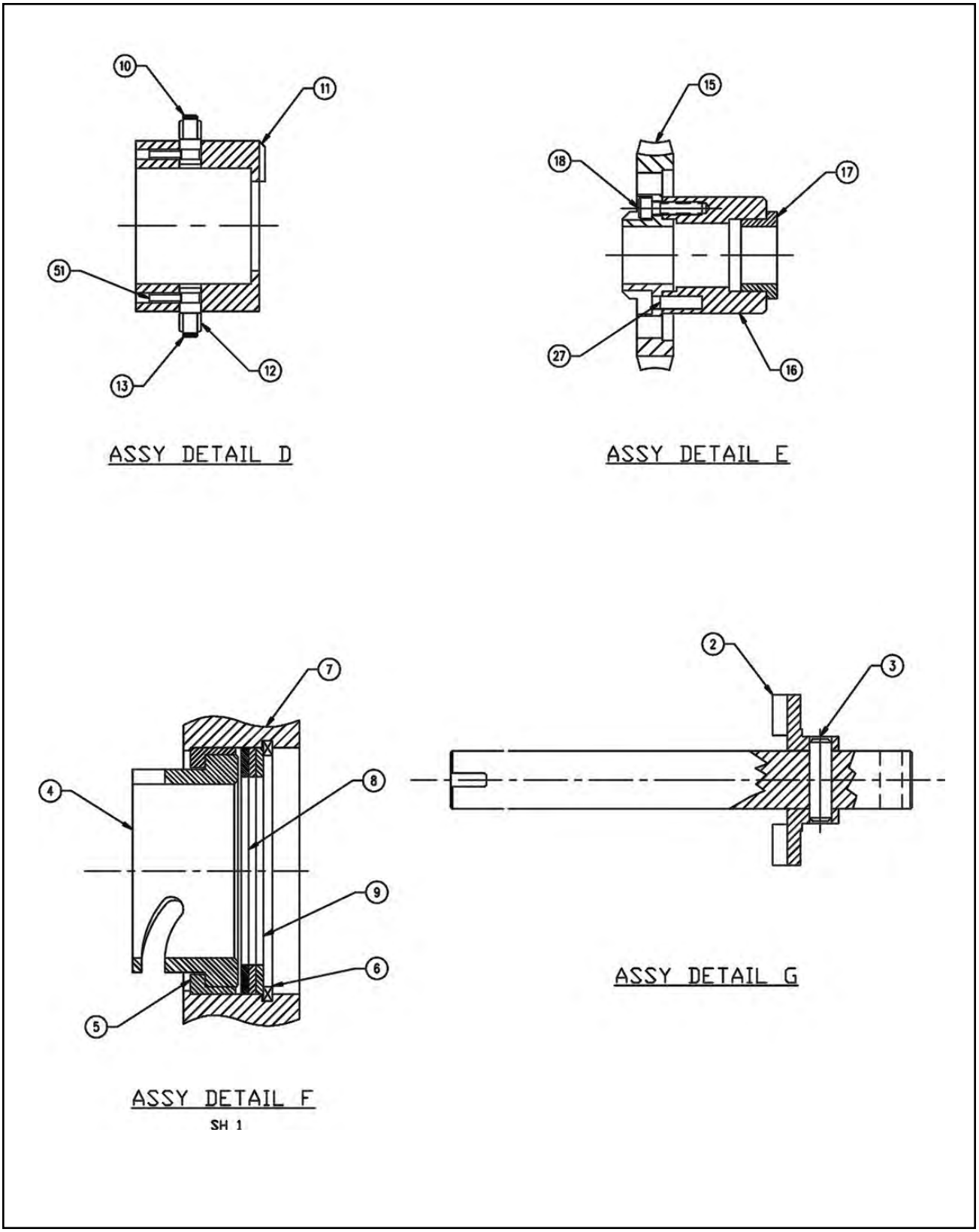


Figure 19b. Transmission& FWC HS, 300468

S/C Track Transporter w/ FWC

Transmission & FWC HS (See Fig.19) Rev. F, 300468			
Item #	Description	P/N	Qty
− 1	Shaft,Fwc	471075	1
− 2	Clutch,Face,Fixed,Fwc	300274	1
− 3	Pin,Clutch Face,Transporter	TG019	1
− 4	Barrel Cam,Fwc	491159	1
− 5	Bearing,Sleeve,Cam,Fwc	300465	1
− 6	Ring,Retaining,Internal,2 1/8 Bore	97456	1
− 7	Housing,Barrel Cam,Fwc	501603	1
− 8	Washer,Thrust,Fwc	101252	1
− 9	Spacer,Thrust Washer,Fwc	502310	2
− 10	Pin,Roller,Fwc	97538	2
− 11	Clutch,Face,Sliding,Fwc	300275	1
− 12	Roller,Barrel Cam,Fwc	200516	2
− 13	Ring,Retaining,External,1/8 Shaft	97457	2
− 14	Pin,Dowel,1/8x.75,416 Sst	HW754	4
− 15	Gear,Worm,Fwc	471076	1
− 16	Clutch,Sliding,Inner	300455	1
− 17	Bearing,Flanged,.502 Id X .627 Od	300463	1
− 18	Screw,Cap,Skt Hd,4-40x3/8,Sst	100054	2
− 19	Housing,Worm Gear	501163	1
− 20	Screw,Cap,Skt Hd,10-32x1,Sst	101425	4
− 21	Seal,Oil,.5id X.875 Od X.252thk	130305	1
− 22	Bearing,Ball,1/2 Id X 1-1/8 Od X1/4	300284	1
− 23	Housing,Bearing,Fwc	501211	1
− 24	Screw,Cap,Skt Hd,4-40x3/8,Black	100061	4
− 25	Seal,Oil,.500dia X.685 Bore,.12t	50681	1
− 26	Bearing,.75 Id X 1.625 Od X .31wide	300464	1
− 27	Pin,Spring,1/8x1/2 Carbon Steel	97562	2
− 28	Obsolete,Use-Pn 100050	712411	1
− 29	Spacer,Sprocket-Transporter	305071	1
− 30	Spacer,Shaft,Fwc	300268	1
− 31	Spacer,Sst,1/2idx5/8 Odx.031thick	300048	3
− 32	Housing,Reduction Gear	501178	1
− 33	Gear,Tandem	300407	1
− 34	Gear,Modified	299981	1
− 35	Bearing,Ball,Sld,3/8 Idx7/8 Odx9/32	300282	1
− 36	Spacer,1.240 Odx.630idx.060thk	300049	1
− 37	Bearing,Thrust	300285	1
− 38	Bearing,Ball,3/16 Id X 1/2 Od X5/32	300280	1
− 39	Gear,Worm,W/Shaft	299963	1

S/C Track Transporter w/ FWC

Transmission & FWC HS (See Fig.19) Rev. F, 300468			
Item #	Description	P/N	Qty
− 40	Spacer,Sst,3/8id X1/2 Od X.031 Thk	300047	3
− 41	Spacer,3/8idx1/2 Odx.005 Sst	300041	1
− 42	Spacer,3/8"Idx.010	300044	2
− 43	Bearing,Ball,1/4 Id X 3/4 Od X 7/32	300281	1
− 44	Housing,Bearing,Outer,Transmission	501175	1
− 45	O-Ring,Ep 80 #2-214	130145	1
− 46	Screw,Cap,Skt Hd,8-32x7/8,Sst	103067	1
− 47	Plug,Low Profile,1/8 Npt	MS039	1
− 48	Screw,Cap,Skt Hd,8-32x1.00,Sst	103068	2
− 50	Screw,Set,4-40x1/8 Sst	100050	2
− 51	Screw,Set,4-40x1/4 Sst	100052	2
− 52	Screw,Set,6-32x3/16 Sst	100991	2
− 53	Screw,Pan,8-32x3/8 Phil Sst	103065	2
− 56	Spacer,1/2"Idx.010	300043	2

DRAWING NOT AVAILABLE AT THIS TIME

Kit, Idler Spindle F/Trans. MOD II, Rev.-, 950156			
Item #	Description	P/N	Qty
-1	· Screw, 1/4-20 X 1 1/8 SST Tens Adj	100135	2
-2	· Spindle, Idler F/Trans. MOD II	300101	2
-3	· Screw, CAP SKT HD, 10-32 X 3/8 SS w/NYL	101119	2
-4	· Instr, Sht-Powertrac Chain Adj	960944	2
-5	· Instr, Sht-Powertrac 6" Usage	960953	2
-6	· Spacer, 3/8 ID X 5/8 OD X .031 SST	300050	6
-7	· Cap, Spindle Trans MOD II	299965	2

S/C Track Transporter w/ FWC

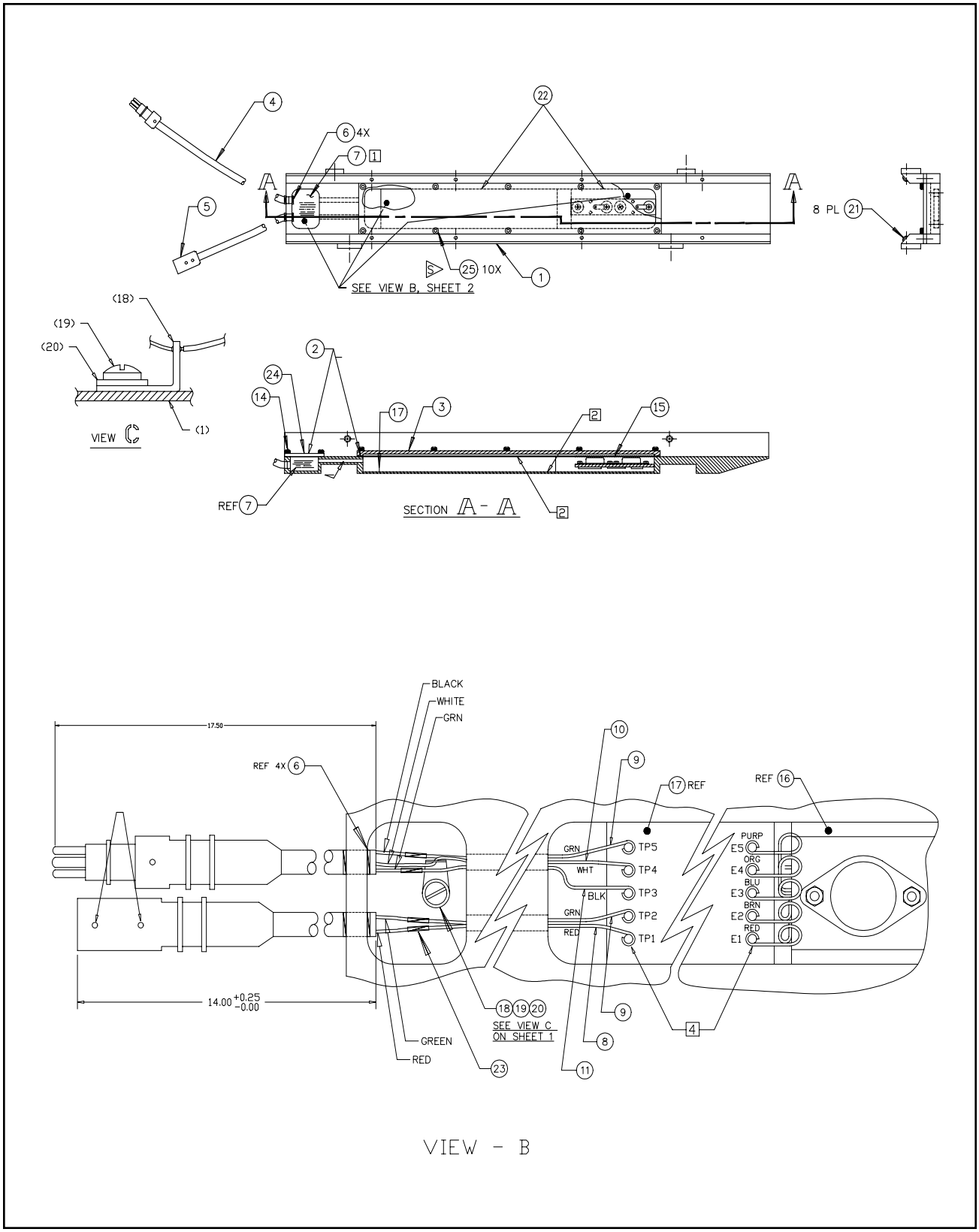


Figure 20. *Weldment, Transporter S/C II Elect, 5011760*

S/C Track Transporter w/ FWC

Weldment, Transporter, (See Fig. 20) Rev. S, 5011760			
Item #	Description	P/N	Qty
− 1	Frame,Transporter,S/C 11	509811	1
− 2	Mro-Form A Gasket Hi-Temp	445063	1
− 3	Plate,Transporter Bottom	620660	1
− 4	Pigtail,3-Pin Male	160532	1
− 5	Pigtail,4-Pin Female Polyurethane	160565	1
− 6	Ring,Hog	160000	4
− 7	Mro-Grease,Elec. Insul. #4	CS012	1
− 8	Wire,#20 Red Bu	713319	1
− 9	Wire,#20 Green Bu 19/32	713322	1
− 10	Wire,#20 White Bu	713326	1
− 11	Wire,#20 Black Stranded 600v	713317	1
− 12	Mro-Compound,Silcone Heatsink	445079	1
− 13	Mro-Removable Lck,Nd 121200-50,Blue	440061	1
− 14	Screw,Cap,Skt Hd,6-32x3/8,Sst	105071	4
− 15	Foam,Insulation 1.4 X 3.5 X 1/8	105095	1
− 16	Module,Transistor F/Transporter	730359	1
− 17	Pcb Assy,Longboard,Transporter,S/C	TG433	1
− 18	Lug,Solder	712661	1
− 19	Screw,Bind,6-32x3/16 Sltd Sst	712415	1
− 20	Washer,Flat,#6 Pl	712461	1
− 21	Screw,Pan,6-32x1/4 Phil Sst	712416	8
− 22	Mro-Tape,Teflon,Insulating,1",3m	CS116	1
− 23	Tube,Shrink,Black 1/8"	712789	1
− 24	Cover,S/C Transporter Cradle	TG042	1
− 25	Screw,Sealing,Weldment Body	HW584	10

S/C Track Transporter w/ FWC

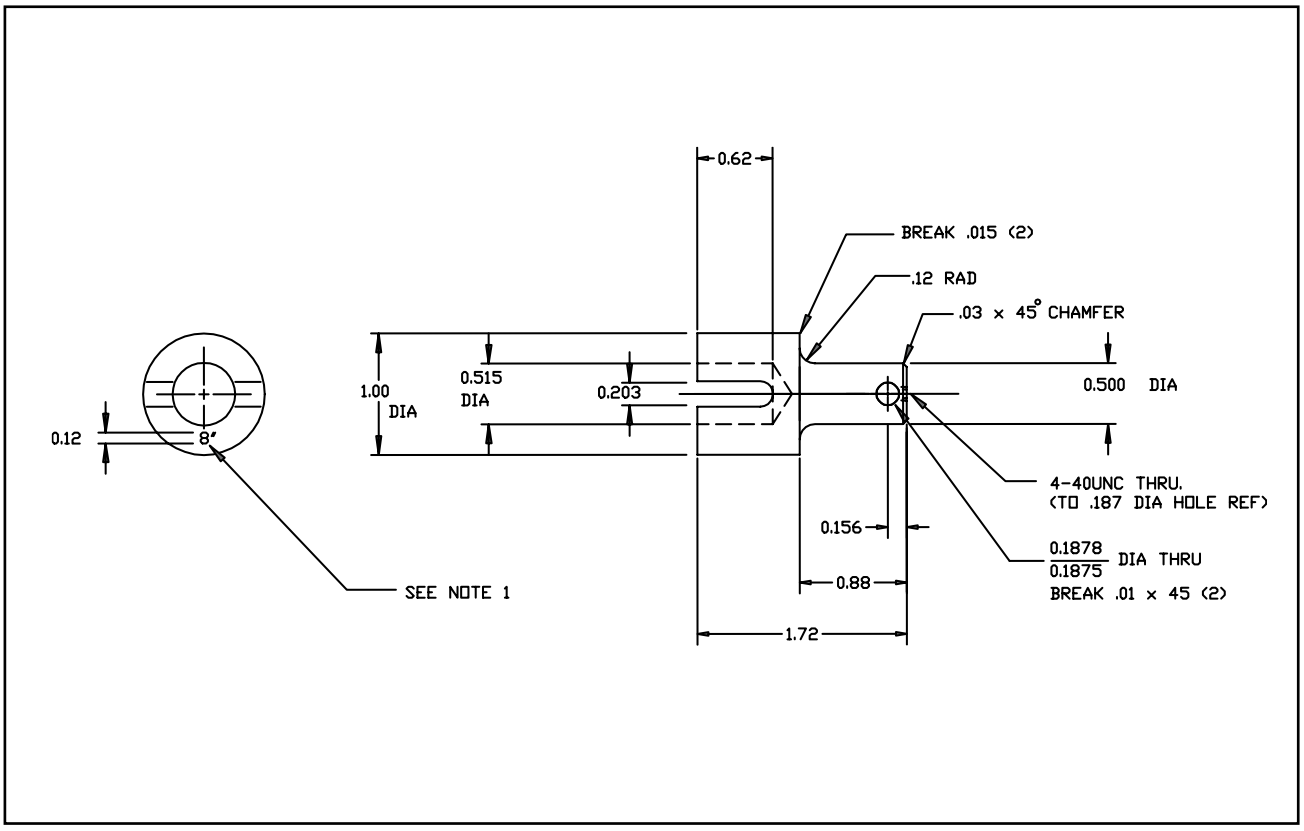


Figure 21. *Coupling, 8" w/Pin & Screw*

Coupling, 8" w/Pin & Screw (See Fig. 21) Rev. -, 1141230			
Item #	Description	P/N	Qty
-1	· Coupling, 8" FWC	114123	1
-2	· Pin, Drive SST .187 X 1"	097551	1
-3	· Obsolete, Use PN 100050	712411	1



CONFIGURATION LIST

PART NO.	DESCRIPTIONS	NOTES
TM600	TRANSPORTER ASSEMBLY, M/C, SMM	-
TM600-1	TRANSPORTER ASSEMBLY, SC3, SMM	-
TM600-2	TRANSPORTER ASSY,SMM,NO LIFT	-
TM600-3	TRANSPORTER ASSEMBLY, M/C,SMM ON IGGY W/SM301, PCU	-

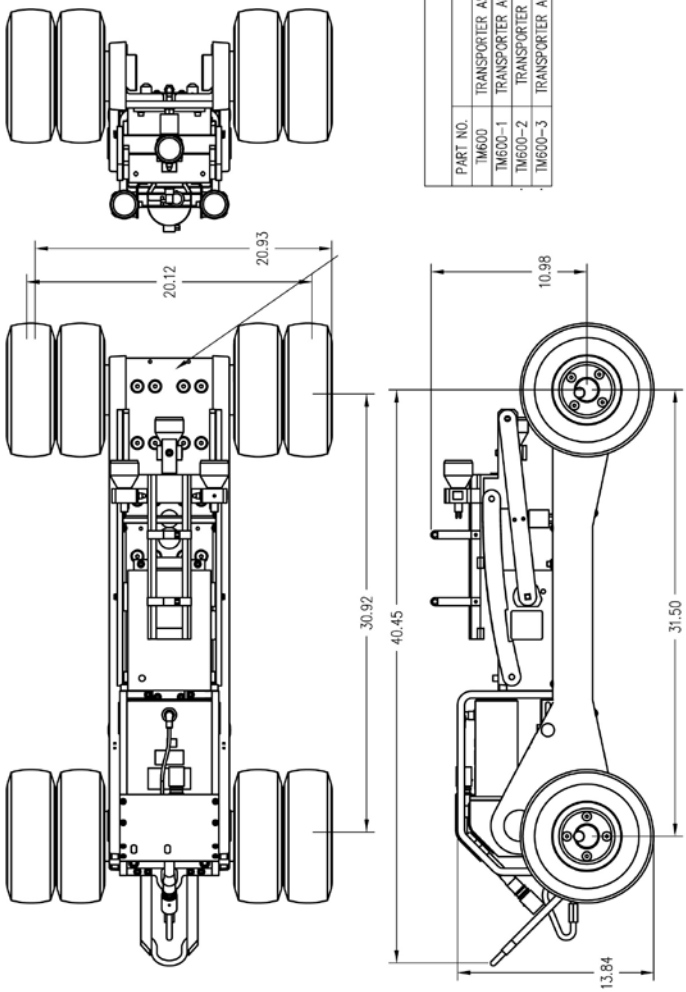


Figure 22a. *Transporter, Steerable Mudmaster, TM600*

Steerable Mudmaster

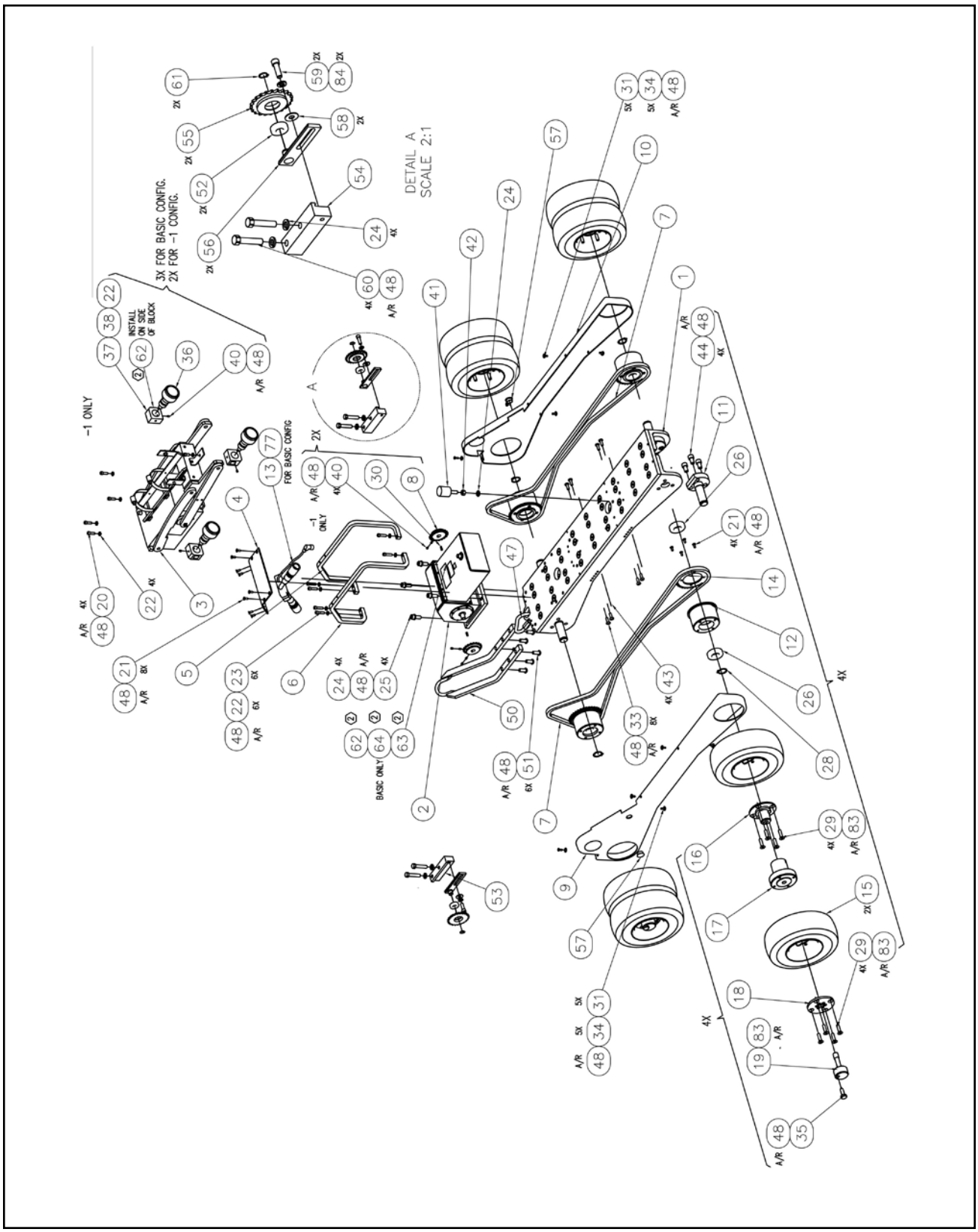


Figure 22b. *Transporter, Steerable Mudmaster, TM600*

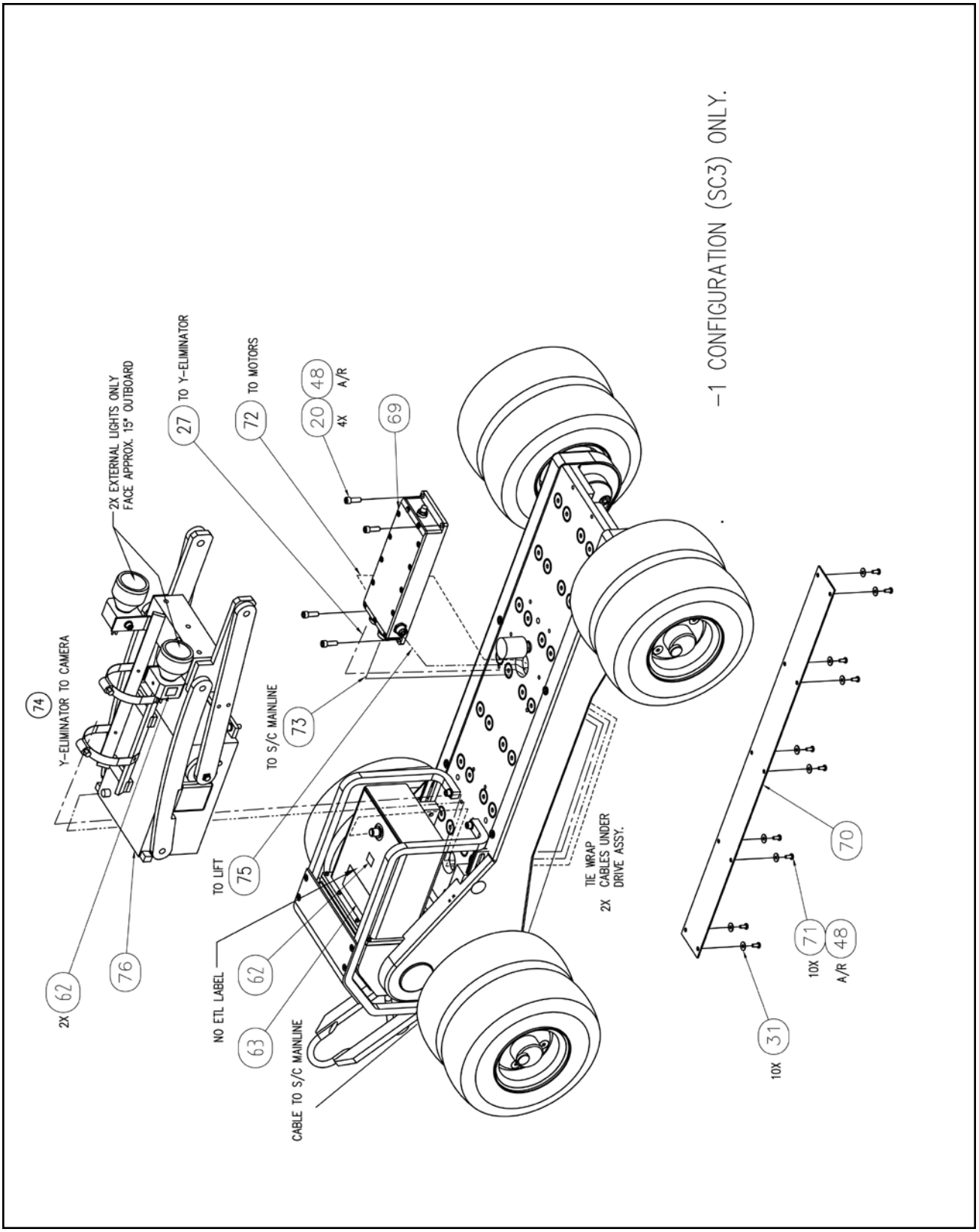


Figure 22c. *Transporter, Steerable Mudmaster, TM600*

Steerable Mudmaster

Transporter, Steerable Mudmaster (See Fig. 22) Rev. N, TM600			
Item #	Description	P/N	Qty
0001	FRAME ASSY,STEERABLE MM	TM601	1
0002	TRANSMISSION ASSY,STEERABLE MM	TM661	1
0003	POWERLIFT II ASSY,MUDMASTER,M/C	TM342	1
0004	COVER,REAR,ROLL BAR	TM677	1
0005	BAR,ROLL,LEFT	TM675	1
0006	BAR,ROLL,RIGHT	TM674	1
0007	KIT,CHAIN,SMM	TM317	2
0008	SPROCKET,MOD,DRIVE,STRBLE MM,35B19	TM671	2
0009	COVER,CHAIN,RT HAND,STEERABLEMM	TM666	1
0010	COVER,CHAIN,;LT HAND,STEERABLE MM	TM665	1
0011	AXLE,WHEEL,STEERABLE MM	TM662	4
0012	WHEEL HUB, CHAIN MUDMASTER	TM316	4
0013	CABLE,SMM,F/USE W/160626-1,12/5/4/3	TM356	1
0014	SPROCKET,MODIFIED,HUB,WHEEL	TM305	4
0015	TIRE ASSY, MM, KNOBBY	TM033	8
0016	WHEEL,INNER,OUTER HUB	TM014	4
0017	WHEEL,OUTER,INNER HUB	TM011	4
0018	OUTER STEEL CLAMP PLATE	TM010	4
0019	KNURLED NUT,OUTER WHEEL,USE W/HW522	TM012	4
0020	SCREW,CAP,SKT HD,1/4-20X3/4,SST	101022	4
0021	SCREW,FLAT,10-32X1/2 SST	103052	24
0022	WASHER,SPLIT LOCK,1/4"SST	101740	13
0023	SCREW,CAP,SKT HD,1/4-20X1,SST	101065	6
0024	WASHER,SPRING LOCK,3/8,SST	HW202	9
0025	SCREW,CAP,SKTHD,3/8-16X1,SST	HW350	4
0026	BEARING,SEALED,1IDX2ODX.5THK	HW021	8
0028	RING,RETAINING,EXTERNAL,1.00 SHAFT	HW022	4
0029	SCREW,FLHD,HEX-SOC,5/16-18X1/25 SST	HW020	32
0030	KEYSTOCK,1/8"SQ X1/2LG,ZINC PLATED	8874	2
0031	WASHER,FLAT,#8 SST	100139	10
0033	SCREW,PAN,1/4-20X3/4	101058	8
0034	SCREW,PAN,8-32X1/2 PHIL SST	712876	10
0035	PLUNGER,SPRING,KNURLED KNOB,RETRAC.	HW522	4
0036	CARTRIDGE,LIGHT HPL 10+	750142	3
0037	LIGHT,CARTRIDGE HOLDER	711891	3
0038	SCREW,CAP,SKT HD,1/4-20X1/2,SST	101001	3
0040	SCREW,SET,10-32X1/4 SST	101000	3
0041	BUMPER,ROUND,3/8-16X1.25 STUD,MM	HW922	1

Transporter, Steerable Mudmaster (See Fig. 22) Rev. N, TM600			
Item #	Description	P/N	Qty
0041	BUMPER,ROUND,3/8-16X1.25 STUD,MM	HW922	1
0042	NUT,HEX,SST,3/8-16	471029	1
0043	GUIDE,CHAIN,TENSIONER,STRBLE MM	TM668	4
0044	SCREW,SHCS,7/16-20X3/4LG,SST	HW347	12
0046	Y ELIMINATOR,FLAT,W/TAP,5PIN,M/C	MC418	1
0047	LINK,QUICK,PEAR SHAPED,THD	HW390	1
0048	MRO-REMOVABLE LCK,ND 121200-50,BLUE	440061	1
0050	BRACKET,CRANE,LIFTING	TM693	1
0051	SCREW,BUTTONHD,HEXSOC,3/8-16X7/8,SS	HW393	6
0052	BEARING,SEALED.5BX1.125ODX.312THK	HW018	2
0053	BLOCK,TENSIONER,SMM,RT	TM618	1
0054	BLOCK,TENSIONER,SMM,LT	TM619	1
0055	SPROCKET,#35,22T,35B22,MODIFIED	TM622	2
0056	BRACKET,TENSIONER,SMM	TM623	2
0057	PLUG,HOLE F/3/4" HOLE	HW899	2
0058	WASHER,FLAT,5/16 SST	101741	2
0059	SCREW,CAP,SKT HD,5/16-18X1,SST	101257	2
0060	BOLT,HEX,3/8-16X1 3/4 GR5 PL	101208	4
0061	RING,RETAINING EXTERNAL 1/2"	97501	2
0062	LABEL,LASERTAB MARKER, .560 X .560	CS222	4
0063	LABEL,LASERTAB MARKER,3.00 X 1.90	CS223	1
0064	LABEL,ETL MARK,2" X 1"	CS224	1
0066	TOW CABLE, REAR,STD.CUTTER/SMM	KC062	2
0067	CABLE,LIGHTHEAD HPL 10+,SMM	160626-1	1
0068	MANUAL,STEERABLE MUDMASTER	TM900	1
0077	MRO-TIE,CABLE,14"X5/16"BLACK	440305	1
0084	WASHER,LOCK,5/16 SST	HW028	2

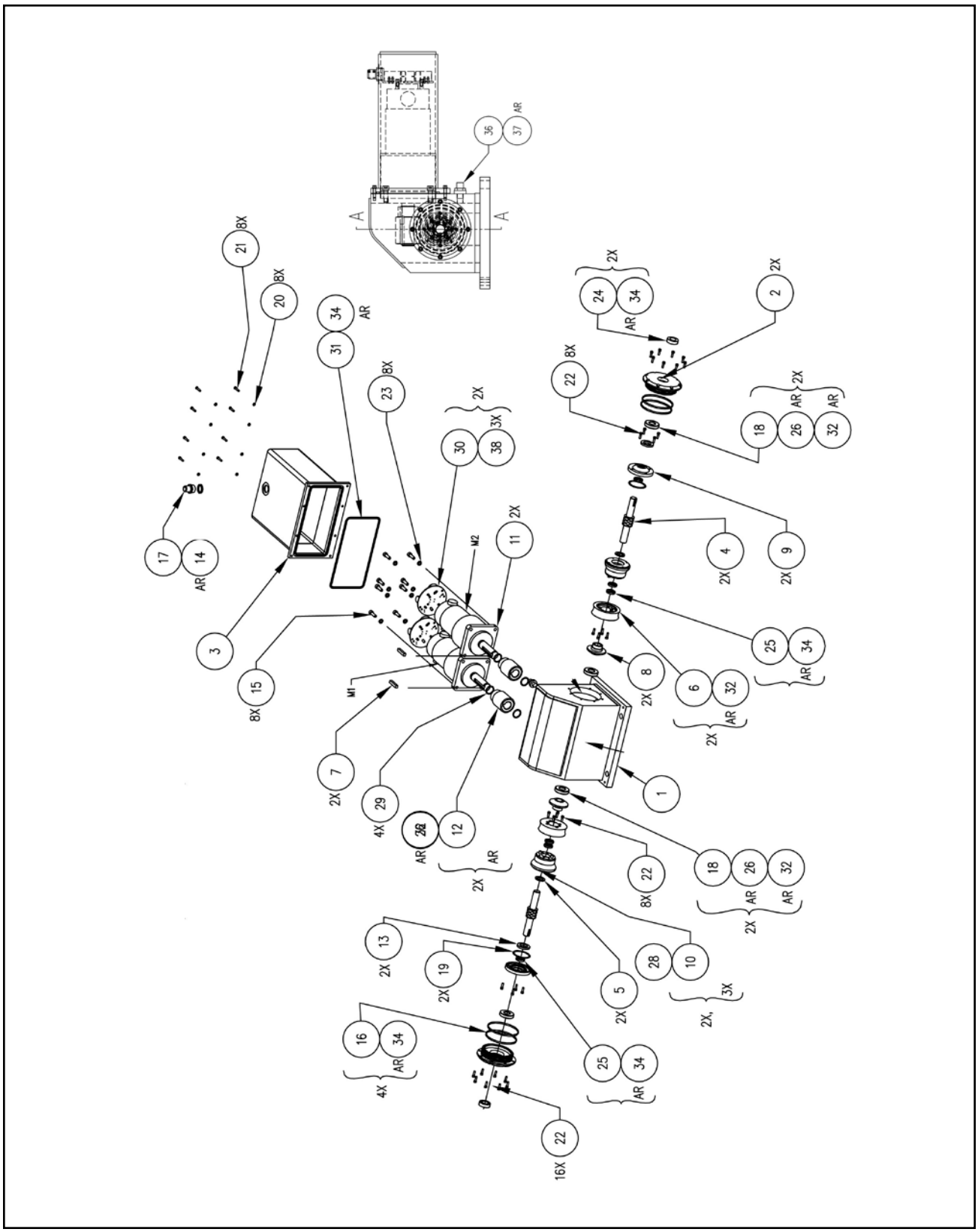


Figure 23. Transmission Assembly, SMM, TM661

Steerable Mudmaster

Transmission Assembly, SMM (See Fig. 23) Rev. Q, TM661			
Item #	Description	P/N	Qty
1	Drive Box,Steerable Mm	TM651	1
2	Cover,Side,Xmsm,Steerable Mm	TM652	2
3	Box,Motor Cover,Steerable Mm	TM654	1
4	Shaft,Clutch,Xmsn,Steerable Mm	TM656	2
5	Bearing,Thrust,Bronz,.502x.753x1/16	HW321	2
6	Worm Gear Mod,Drivebox,Strble Mm	TM657	2
7	Key,Square,3/16x1"Lg	TM658	2
8	Spacer,Shaft,Drive,Steerable Mm	TM673	2
9	Cover,Clutch,F/N/R	MC243	2
10	Race,Ball Triple,Clutch,F/N/R	MC244	2
11	Motor/Gearbox Assy,211a204,Smm	EL741	2
12	Worm,Modified,Keyed Quad Thread	TM680	2
13	Bearing,.502idx1.004 Odx1/8thk	HW905	2
14	Mro-Sealant,Pourable Translucent	445066	1
15	Screw,Cap,Soc Head,10-32x5/8,Sst	HW134	8
16	O-Ring,2-036,2.5bore X.07w,Buna	HW361	4
17	Receptacle,Micro,4pin-M,Panel Mnt	EL733	1
18	Bearing,Ball,1/2 Id X 1-1/8 Od X1/4	300284	4
19	O-Ring,2-026 Buna	HW903	2
20	Washer,Split #4 Sst	100170	8
21	Screw,Cap,Skt Hd,4-40x1/2,Sst	105061	8
22	Screw,Cap,Skt Hd,4-40x3/8,Sst	100054	32
23	Washer,Split Lock,#10 Sst	101739	8
24	Seal,Oil,.5id X.875 Od X.252thk	130305	2
25	Seal,Oil,.500dia X.685 Bore,.12t	50681	6
26	Mro-Ret.Comp,.015gp,Nd541200-50,Grn	CS092	1
28	Ball,Bearing,3/16dia,Tungsten Carbi	HW1052	6
29	Ring,Retaining,Spiral,5/8d,Sst	HW339	4
30	Pcb Assy,Motor Filter,Transporter	TL400	2
31	O-Ring,5.487"Idx.103"W,40duro,Buna	HW271	1
32	Mro-Grease,Mobil 1 Synthetic	CS419	1
34	Mro-Lubricant,O-Ring 2 Oz Tube	439986	1
35	Mro-Removable Lck,Nd 121200-50,Blue	440061	1
36	Valve,Purge,P&T	CP063	1
37	Mro-Seal.Hgh Press,Nd 440400-50,Brn	445091	1
38	Screw,Cap,Skt Hd,4-40x1/4,W/Nylok	712389	6

Steerable Mudmaster

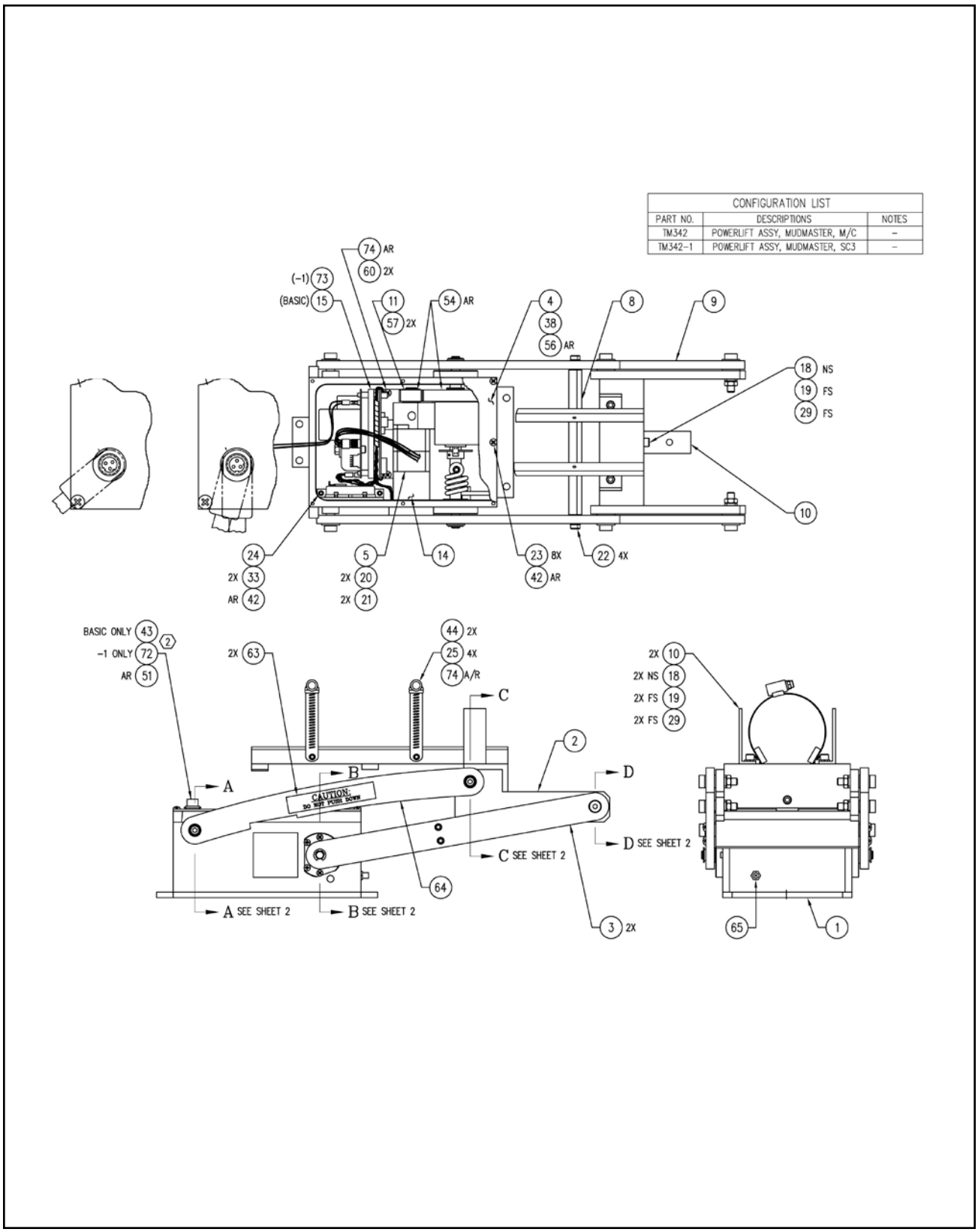


Figure 24a. *Powerlift II Assembly, SMM, TM342*

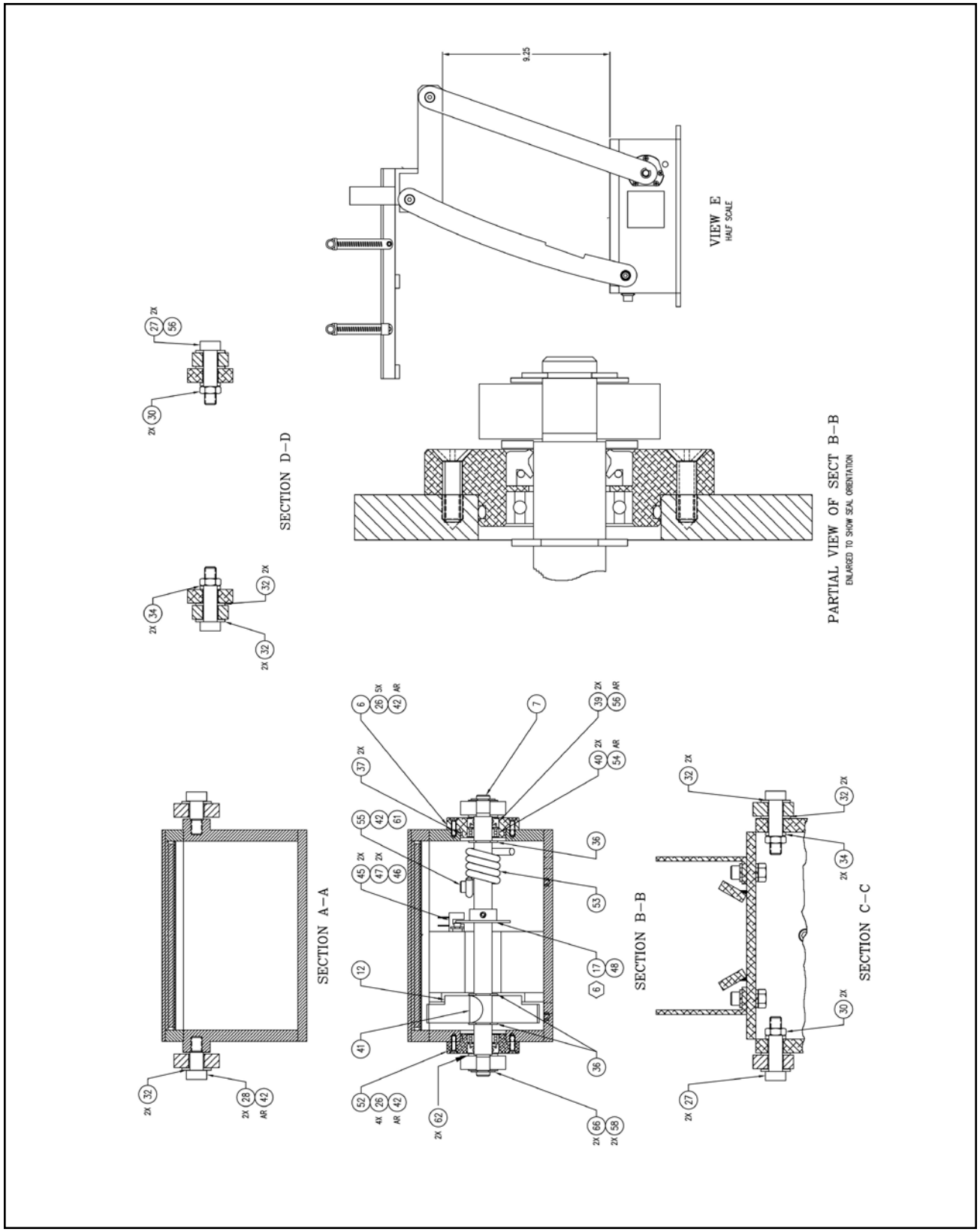


Figure 24b. *Powerlift II Assembly, SMM, TM342*

Steerable Mudmaster

Powerlift II Assembly, SMM (See Fig. 24) Rev. H, TM342			
Item #	Description	P/N	Qty
1	Box,Powerlift,Mm	TM146	1
2	Cradle Weldment,Powerlift	TM102	1
3	Link,Connecting,Fwd	TM103	2
4	Lid,Liftbox,Mudmaster	TM148	1
5	Gearhead,70:1,Planetary,Mm Lift	TM144	1
6	Cap,Bearing/Seal,Mm Lift	TM152	1
7	Shaft,Gear/Link Drive	TM107	1
8	Cross-Bar,Connecting Link	TM108	1
9	Link,Connecting,Aft	TM109	1
10	Bracket,Light Cart.Mounting	TM110	3
11	Gear Mod.,Pinion	TM111	1
12	Gear Mod.,Shaft	TM112	1
14	Motor,Stepper,Nema 17type,Mm Lift	TM145	1
15	Driver Assy,Stepping Motor	TM126	1
17	Cam,Optical Sensor,Mm Lift	TM131	1
18	Screw,Cap,Skt Hd,1/4-20x3/4,Sst	101022	3
19	Washer,Split Lock,1/4"Sst	101740	3
20	Screw,Cap,Skt Hd,#10-32x.88lg Sst	101129	2
21	Washer,Split Lock,#10 Sst	101739	2
22	Screw,Pan,10-32x5/8 Sst	100108	4
23	Screw,Pan,8-32x3/8 Phil Sst	103065	8
24	Vicor Assy,Mm Powerlift	TM137	1
25	Screw,Cap,Skt Hd,8-32x1/4,Sst	100142	4
26	Screw,Flhd,Cross-Rec,4-40x1/2,Sst	HW828	9
27	Screw,Shldr 5/16-18,3/8x1,Ss	HW823	4
28	Screw,Shldr,5/16-18-.375 Dia X.500	HW106	2
29	Nut,Hex,Sst,1/4-20	101040	3
30	Nut,Hex,Sst,5/16-18	101140	4
32	Spacer,3/8 X 13/16 X 1/16 Sst	HW834	10
33	Screw,Cap,Skt Hd,6-32x1/4,Sst	103060	2
34	Spacer,3/8x9/16x3/32thk Sst	HW832	4
36	Ring,Retaining,.396 Id X .046 Thk	HW830	3
37	O-Ring,1.114 X .070,Buna N	132216	2
38	O-Ring,2.169,Nuna-N	HW866	1
39	Seal,Oil,.5id X.875 Od X.252thk	130305	2
40	Bearing,Ball 1/2 Idx7/8od X.218thk	HW825	2
41	Key,Woodruff,#406	HW836	1
42	Mro-Removable Lck,Nd 121200-50,Blue	440061	1

Steerable Mudmaster

Powerlift II Assembly, SMM (See Fig. 24) Rev. H, TM342			
Item #	Description	P/N	Qty
43	Connector,Bulkhead,3-Pin,M,1/4"Npt	EC501	1
44	Clamp,Worm(Mod),F/Transporter	MC210	2
45	Screw,Cap,Soc Hd 4-40x1/4 Sst	103089	2
46	Switch,Optical Sensor,Slotted	EL375	1
47	Washer,Flat,#4 Sst(Red Od .209)	101737	2
48	Screw,Set,4-40x1/8 Sst	100050	1
49	Connector,Centerline,2 Pos	MT139	1
50	Connector,Centerline,4 Pos.	MT141	1
51	Mro-Sealant,Pourable Translucent	445066	1
52	Cap,Bearing/Seal,Mm,Setinge	TM151	1
53	Spring,Mm Lift	TM135	1
54	Mro-Grease,Heavy Duty Redman	440030	1
55	Screw,Capskt,10-32x.75,Scs Blk	HW925	1
56	Mro-Lubricant,O-Ring 2 Oz Tube	439986	1
57	Ring,Retaining External 1/2"	97501	2
58	Ring,Retaining,3/8 External,Sst	HW886	2
59	Tube,Shrink,1/16"	712593	1
60	Screw,Pan,6-32x3/8 Sst	103023	2
61	Washer,Flat,#10 Sst	100140	1
62	Spacer,1/2 Idx15/16odx1/16thk,Sst	HW831	2
63	Label,Caution Do Not Force Down	TM141	2
64	Link,Connecting,Rt,Mm Lift	TM147	1
65	Valve,Purge,P&T	CP063	1
66	Washer,1/2idx7/8odx1/32thk,Sst	HW267	2
74	Mro-Permanent Lock,Nd 140500-50,Red	440060	1

Steerable Mudmaster

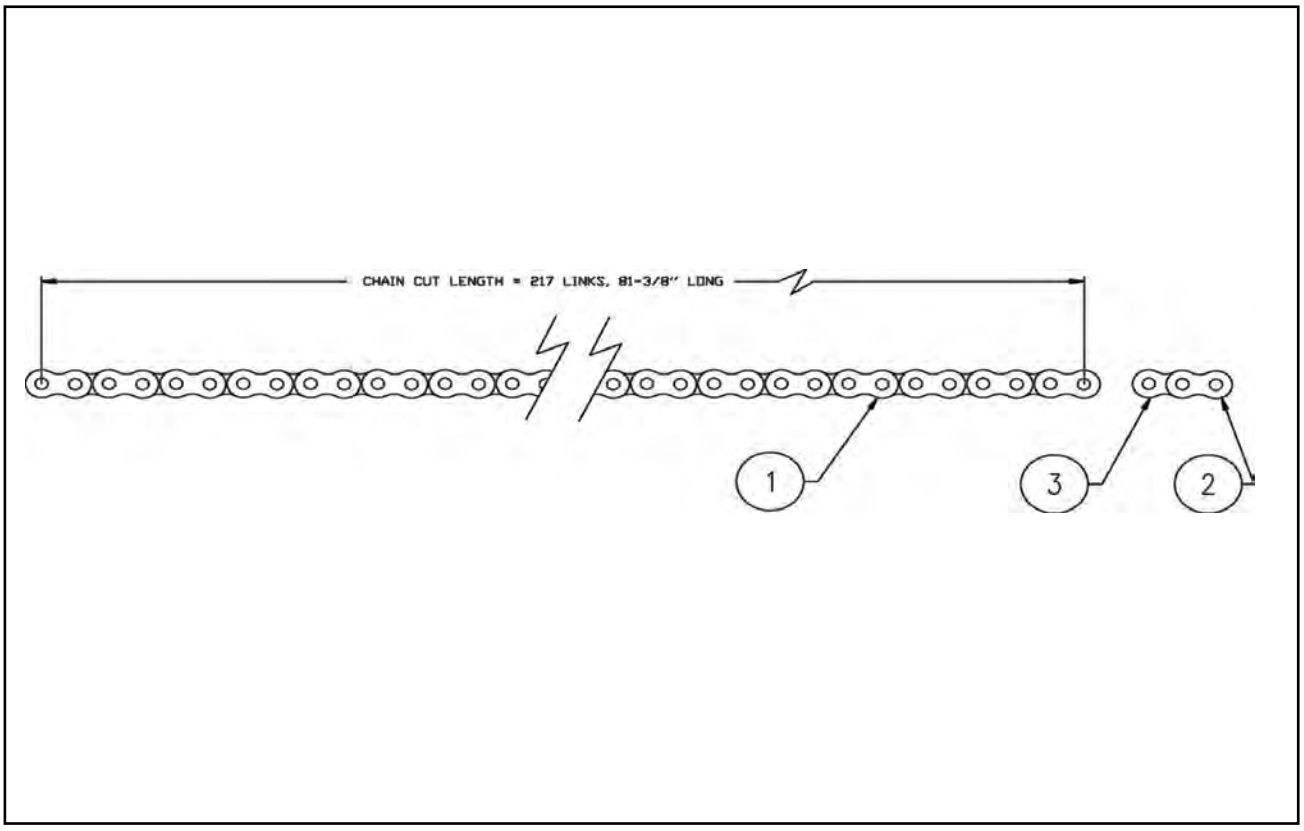


Figure 25. *Kit, Chain, SMM, TM317*

Kit, Chain, SMM (See Fig. 25) Rev. B, TM317			
Item #	Description	P/N	Qty
-1	· Chain, 35R1V, Mudmaster	TM308	6.84'
-2	· Link, Offset, 35-Pitch, Perfet Coat/Aqua	HW421	1
-3	· Master Link, #35, Mudmaster	TM318	1

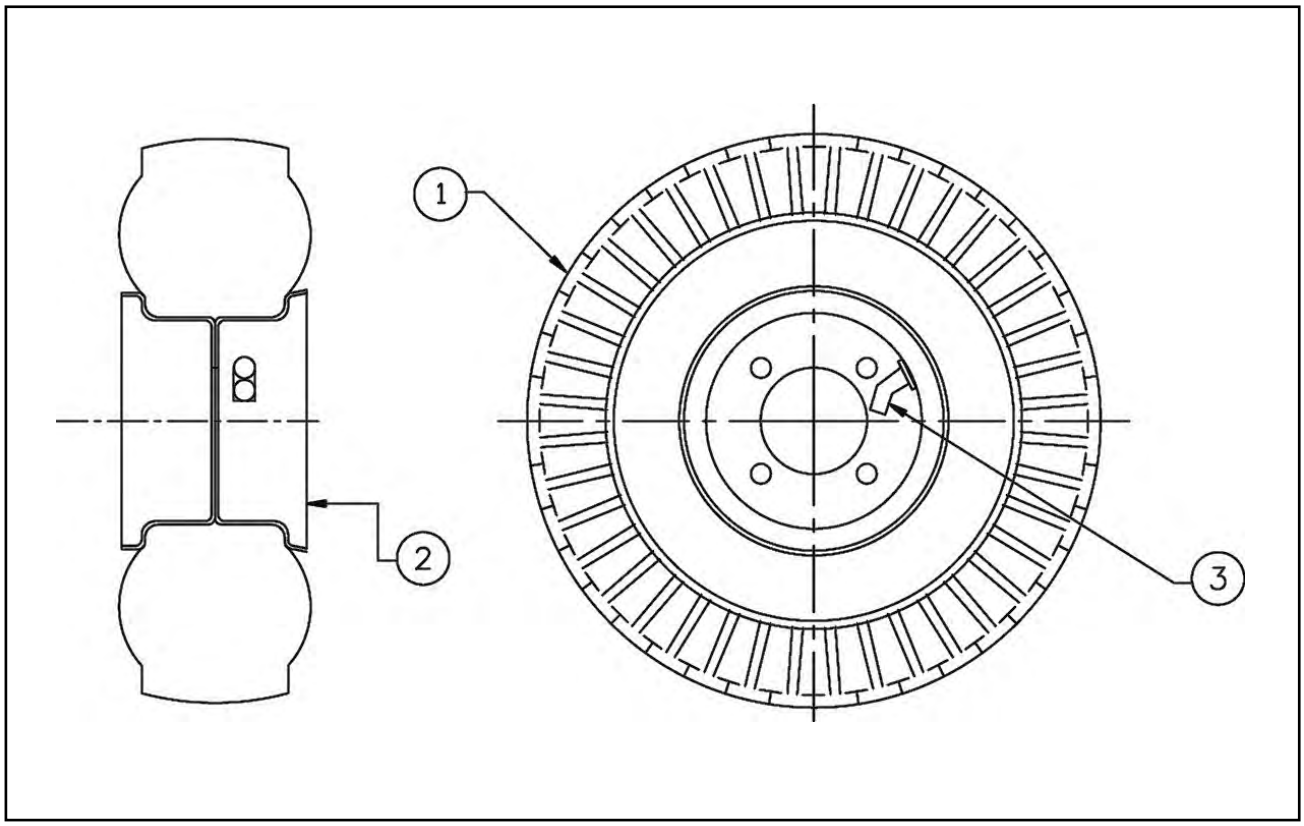


Figure 26. *Tire and Wheel Assembly, TM033*

Tire and Wheel Assembly (See Fig. 26) Rev. -, TM033			
Item #	Description	P/N	Qty
-1	· Tire, Pneumatic	TM034	1
-2	· Rim, Set (2) Modified	TM052	1
-3	· Tube, 10 X 3.5	TM050	1

Mudmaster w/ Remote Lift

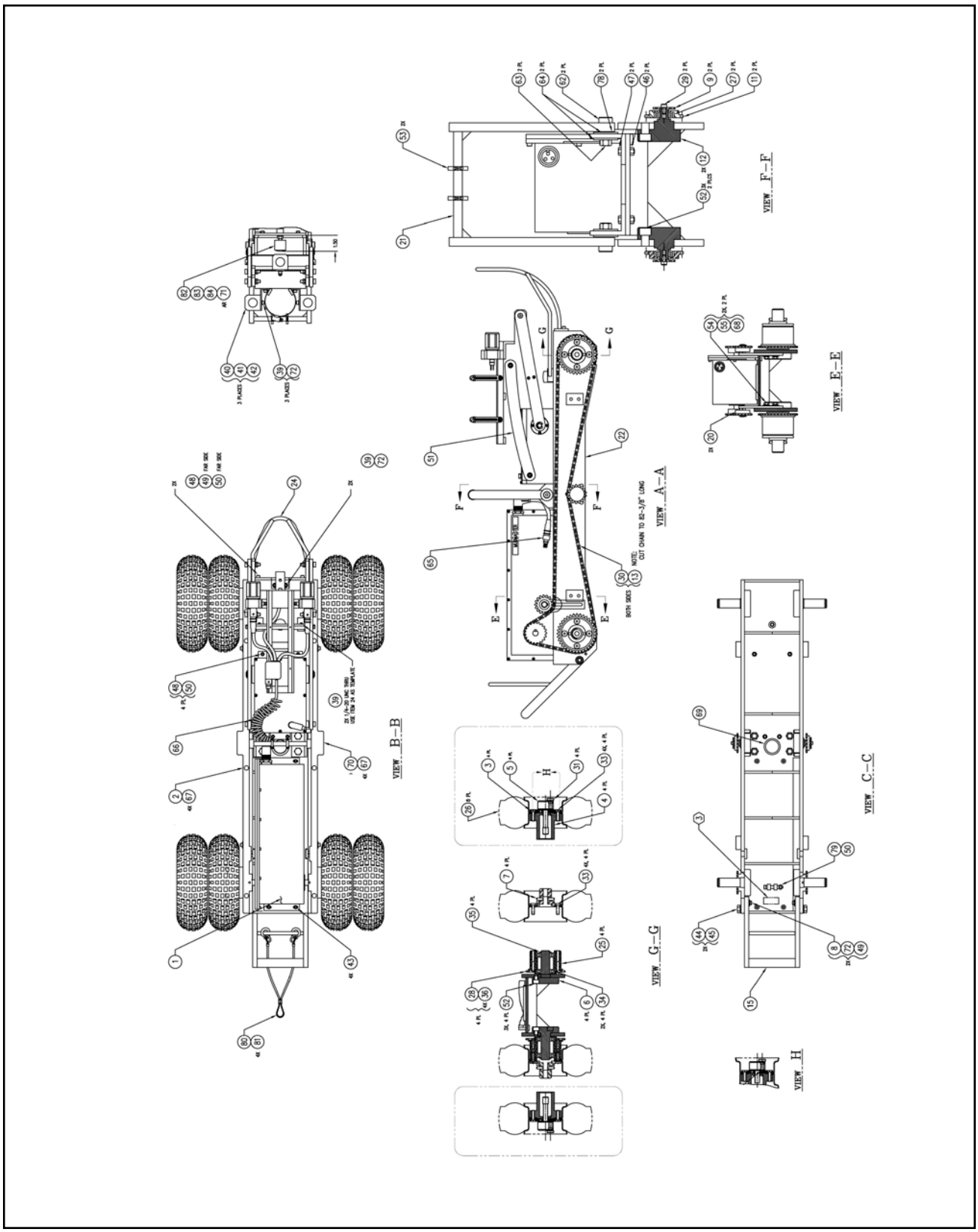


Figure 27. *Transporter, Mudmaster w/Remote Lift, TM339*

Transporter, Mudmaster w/Remote Lift (See Figure 27), Rev. H TM339			
Item #	Description	P/N	Qty
1	Drive Box Assy,Lift,Mudmaster	TM325	1
2	Chainguard,Lh,Mm	TM322	1
3	Outer Steel Clamp Plate	TM010	4
4	Wheel,Outer,Inner Hub	TM011	4
5	Knurled Nut,Outer Wheel,Use W/Hw522	TM012	4
6	Shaft,Wheel Stub	TM013	4
7	Wheel,Inner,Outer Hub	TM014	4
8	Bolt,Hex,Head,1/4-20x1.00 Lg,Sst	HW803	2
9	Washer	TM017	2
11	Sprocket,Modified,Idler,Mudmaster	TM302	2
12	Pulley,Stub Shaft	TM021	2
13	Master Link, #35, Mudmaster	TM318	2
15	Handle Assembly	TM024	1
20	Chain Tensioner Assy,Mudmaster	TM314	2
21	Central Sling Handle	TM028	1
22	Frame Weldment Assy,Mud,Chain Ver.	TM319	1
24	Bar,Roll,Front	TM031	1
25	Wheel Hub, Chain Mudmaster	TM316	4
26	Tire,And Wheel Assembly	TM033	8
27	Bearing,Sealed.5bx1.125odx.312thk	HW018	2
28	Sprocket,Modified,Hub,Wheel	TM305	4
29	Screw,Cap,Skt Hd,10-32x1/2,Sst	102001	2
30	Chain,35r1v, Mudmaster	TM308	20
31	Plunger,Spring,Knurled Knob,Retrac.	HW522	4
33	Screw,Flhd,Hex-Soc,5/16-18x1/25 Sst	HW020	32
34	Bearing,Sealed,1idx2odx.5thk	HW021	8
35	Ring,Retaining,External,1.00 Shaft	HW022	4
36	Screw,Flat,10-32x1/2 Sst	103052	16
39	Screw,Cap,Skt Hd,1/4-20x5/8,Sst	101024	7
40	Light,Cartridge Holder	711891	3
41	Cartridge,Light Hpl 10+	750142	3
42	Screw,Set,10-32x1/4 Nylon Tip	101120	3
43	Screw,Cap,Skt Hd,1/4-20x3/4,Sst	101022	4
44	Bolt,Hex,Head,1/2-13x1	HW023	2
45	Washer,Lock,1/2 Sst	HW032	2
46	Nut,Nylock,Sst,1/2-13	HW040	2
47	Bolt,Hex,Head,1/2-13x1 1/2 Sst	HW031	2
48	Screw,Cap,Skt Hd,1/4-20x1,Sst	101065	6

Mudmaster w/ Remote Lift

Transporter, Mudmaster w/Remote Lift (See Figure 27), Rev. H TM339			
Item #	Description	P/N	Qty
49	Washer,Flat,1/4"Sst	101736	4
50	Nut,Lock W/Nyl Ins 1/4-20 Sst	HW030	7
51	Powerlift Ii Assy,Mudmaster,M/C	TM342	1
52	Screw,Shcs,7/16-20x1/2lg,Sst	HW024	18
53	Collar,Split Locking 1/2 Dia Shaft	HW025	2
54	Bolt,Hex,Head,5/16-18x3/4 Sst	HW029	4
55	Washer,Lock,5/16 Sst	HW028	4
62	Screw,Shldr,1/2x1,3/8-16 Sst	HW013	2
63	Nut,Nylock,3/8-16 Sst	HW027	2
64	Washer,Flat,1/2idx1.375 Odx.109thk	HW026	4
65	Cable,Power,Mudmaster Motor, 4 Pin	TM044	1
66	Cable Assy,Lift & Lights,Mudmaster	TM320	1
67	Screw,Cap,Skt Hd,1/4-20x3/8,Sst	HW160	8
68	Washer,Flat,5/16 Sst	101741	4
69	Bushing,Snap Sb150018 Hayco	712570	1
70	Chainguard,Rh,Mm	TM321	1
71	Mro-Removable Lck,Nd 121200-50,Blue	440061	1
72	Washer,Split Lock,1/4"Sst	101740	7
78	Bracket,Center Sling,Mudmaster	TM324	2
79	Screw,Shldr,Skt Hd,5/16x1 1/2 Lg	100508	1
80	Cable,Tow,6"Y F/Steel Armor	120510	1
81	Clevis,1/4"	120427	2
82	Bumper,Round,3/8-16x1.25 Stud,Mm	HW922	1
83	Washer,Spring Lock,3/8,Sst	HW202	1
84	Nut,Hex,Sst,3/8-16	471029	1

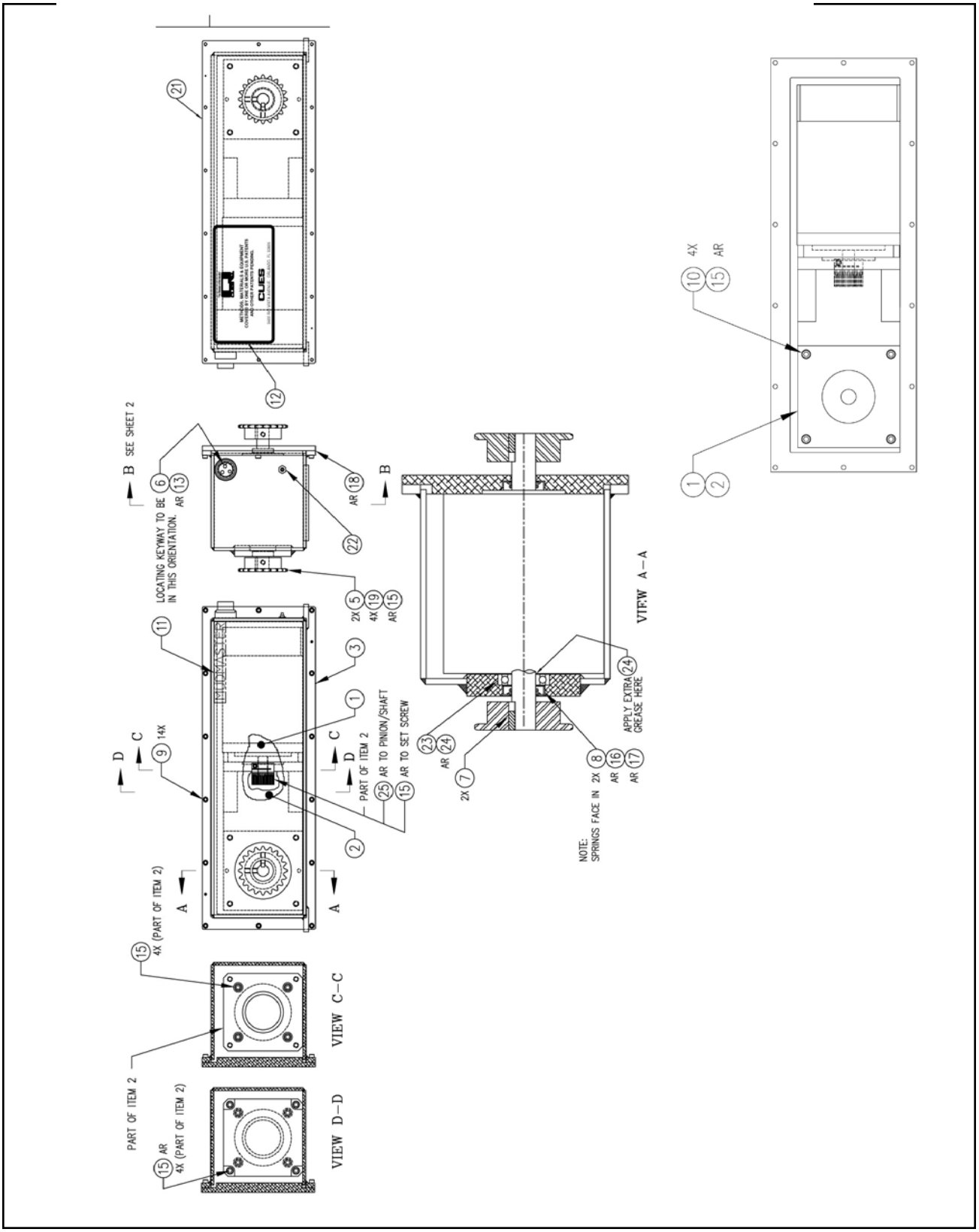


Figure 28. *Drive Box Assembly, TM325*

Mudmaster w/ Remote Lift

Drive Box Assembly (See Fig. 28) Rev. F, TM325			
Item #	Description	P/N	Qty
− 1	Motor,130vdc Bodine 4035	TM036	1
− 2	Gearhead Modification,Right Angle	TM037	1
− 3	Box,Drive,Weldment,Mm	TM053	1
− 5	Sprocket,Modified,Drive Box Assy	TM315	2
− 6	Connector,Chassis,Male,3-Pin	712813	1
− 7	Key,3/16x.50lg,Cds	TM153	2
− 8	Seal,Oil,.625 Sb X1.128 Od X.25thk	HW016	2
− 9	Screw,Cap,Skt Hd,8-32x1/2,Sst	101025	14
− 10	Screw,Cap,Skt Hd,1/4-20x3/4,Sst	101022	4
− 11	Decal,Mudmaster	TM048	1
− 12	Plate, Patent, CUES	960910	1
− 13	Mro-Sealant,Rtv,Transluc 2.8fl Oz	445068	1
− 14	Tube,Shrink,Black 1/8"	712789	1
− 15	Mro-Removable Lck,Nd 121200-50,Blue	440061	1
− 16	Mro-Seal.Hgh Press,Nd 440400-50,Brn	445091	1
− 17	Mro-Lubricant,O-Ring 2 Oz Tube	439986	1
− 18	Mro-Form A Gasket Hi-Temp	445063	1
− 19	Screw,Set,1/4-20x5/8 Sst	101054	2
− 21	Cover,Motor Box,Mm	TM142	1
− 22	Valve,Purge,P&T	CP063	1
− 23	Bearing,Radial,.625x1.375,Sst	HW127	1
− 24	Mro-Grease,Heavy Duty Redman	440030	1
− 25	Mro-Ret.Comp,.015gp,Nd541200-50,Grn	CS092	1

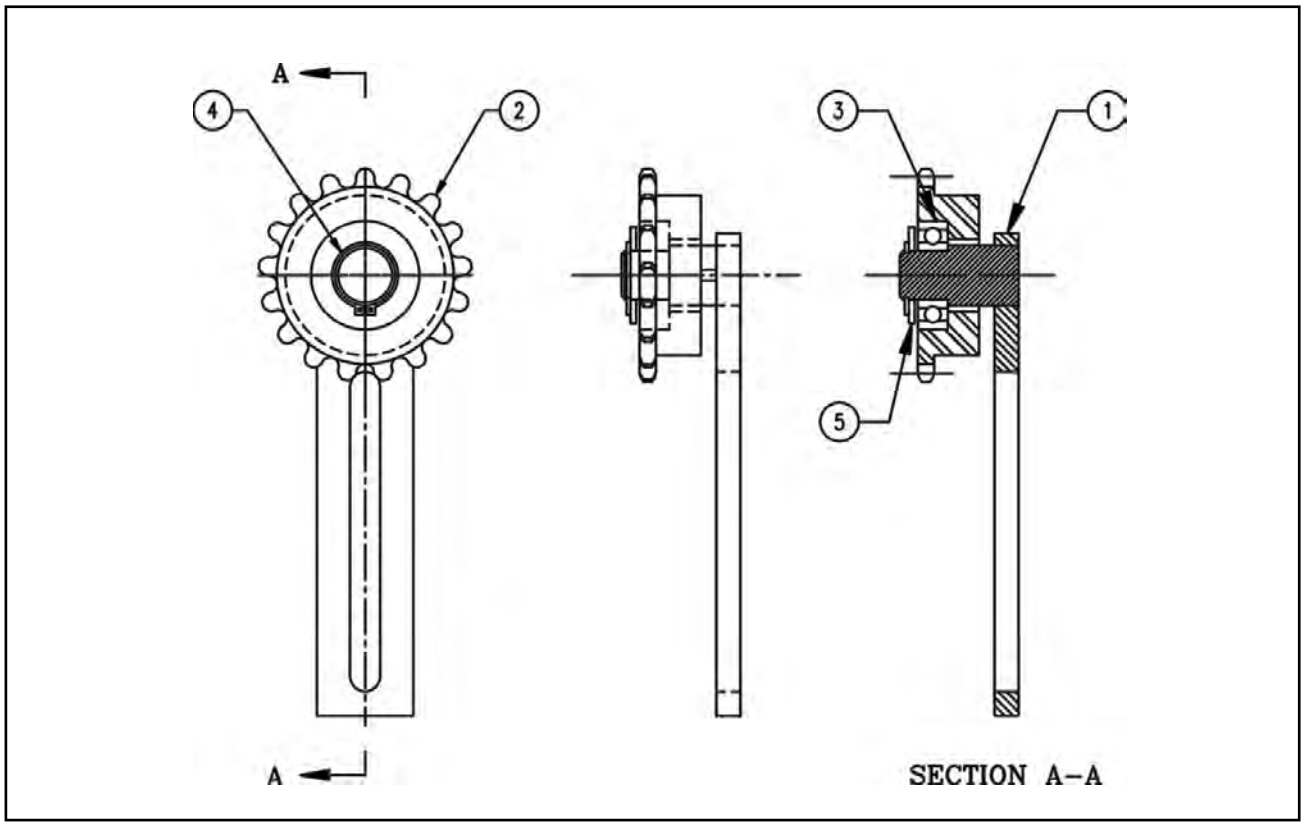


Figure 29. Chain Tensioner Assembly, Mudmaster, TM314

Chain Tensioner Assy, Mudmaster (See Fig. 29) Rev. -, TM314			
Item #	Description	P/N	Qty
-1	· Tension Assembly, Weldment	TM018	1
-2	· Sprocket, Modification, Idler	TM303	1
-3	· Bearing, 1/2 X 1 1/8 X .312 Thk	HW018	1
-4	· Ring, Retaining, External, 1/2”	097501	1
-5	· Washer, Thrust	300301	1

Steerable Pipe Ranger

CONFIGURATION LIST	
PART NUMBER	DESCRIPTION
WS350	TRANSPORTER ASSY, M/C, STEERABLE PIPE RANGER
WS350-1	TRANSPORTER ASSY, S/C, STEERABLE PIPE RANGER
WS350-2	TRANSPORTER ASSY, M/C, STEERABLE LITE RANGER
WS350-3	TRANSPORTER ASSY, S/C, STEERABLE LITE RANGER



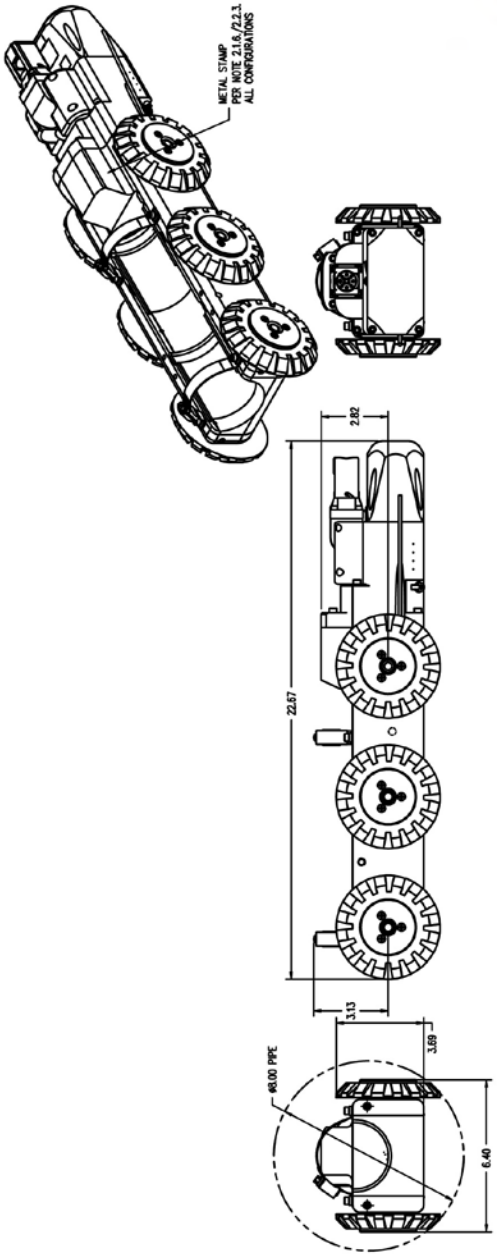


Figure 30a. *Transporter Assembly, Steerable, M/C, Pipe Ranger, WS350*

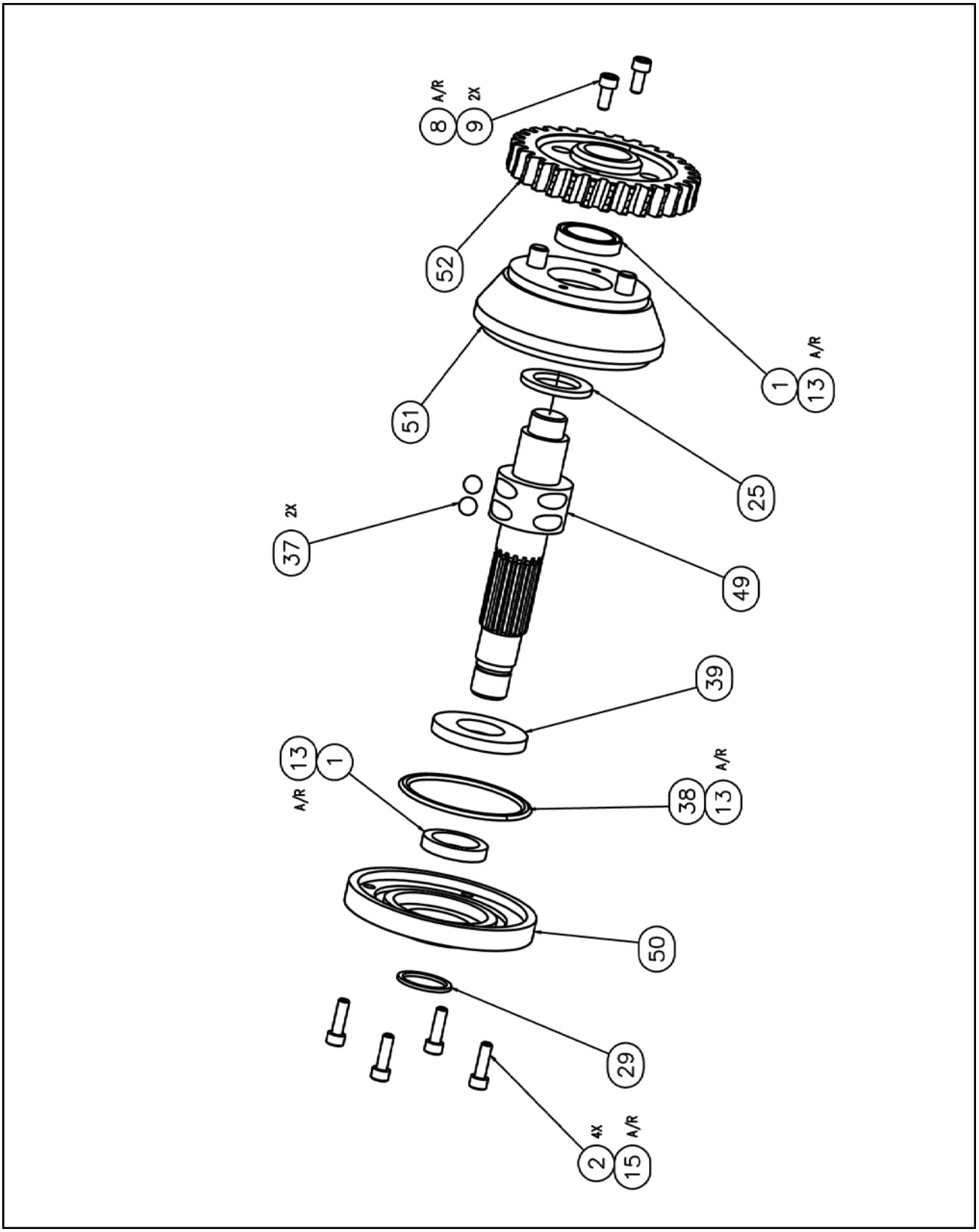


Figure 30b. *Transporter Assembly, Steerable, M/C, Pipe Ranger, WS350*

Steerable Pipe Ranger

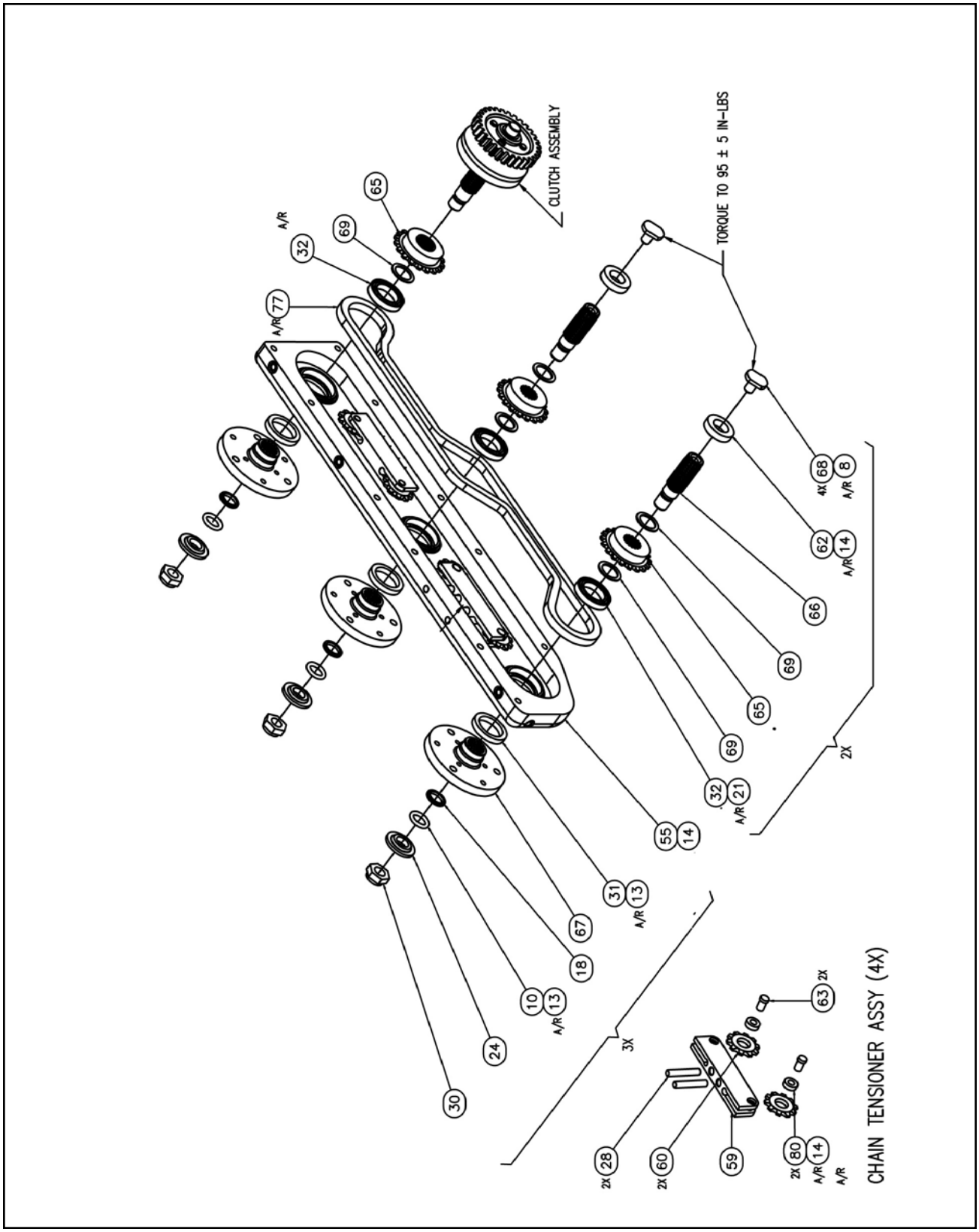


Figure 30c. *Transporter Assembly, Steerable, M/C, Pipe Ranger, WS350*

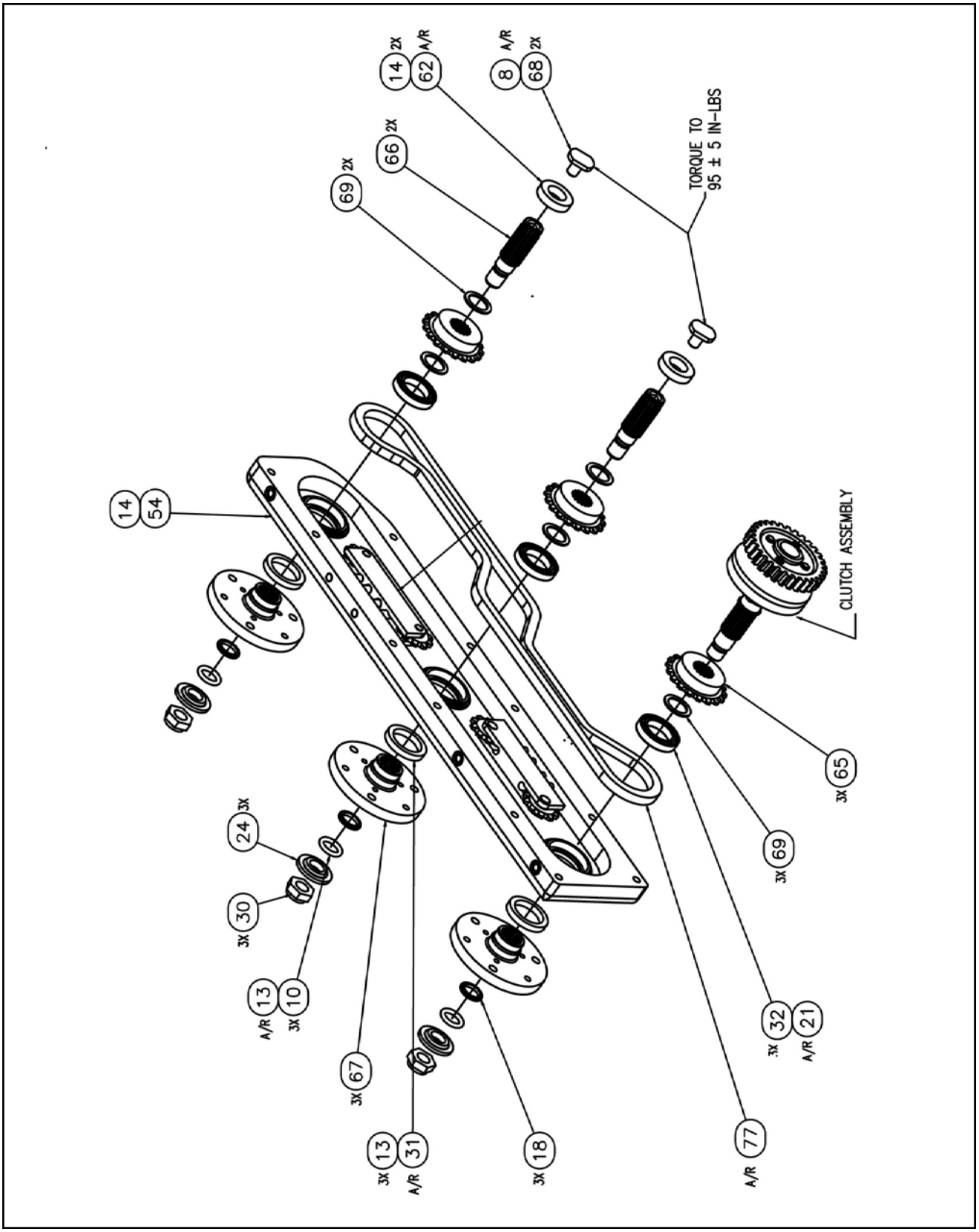


Figure 30d. *Transporter Assembly, Steerable, M/C, Pipe Ranger, WS350*

Steerable Pipe Ranger

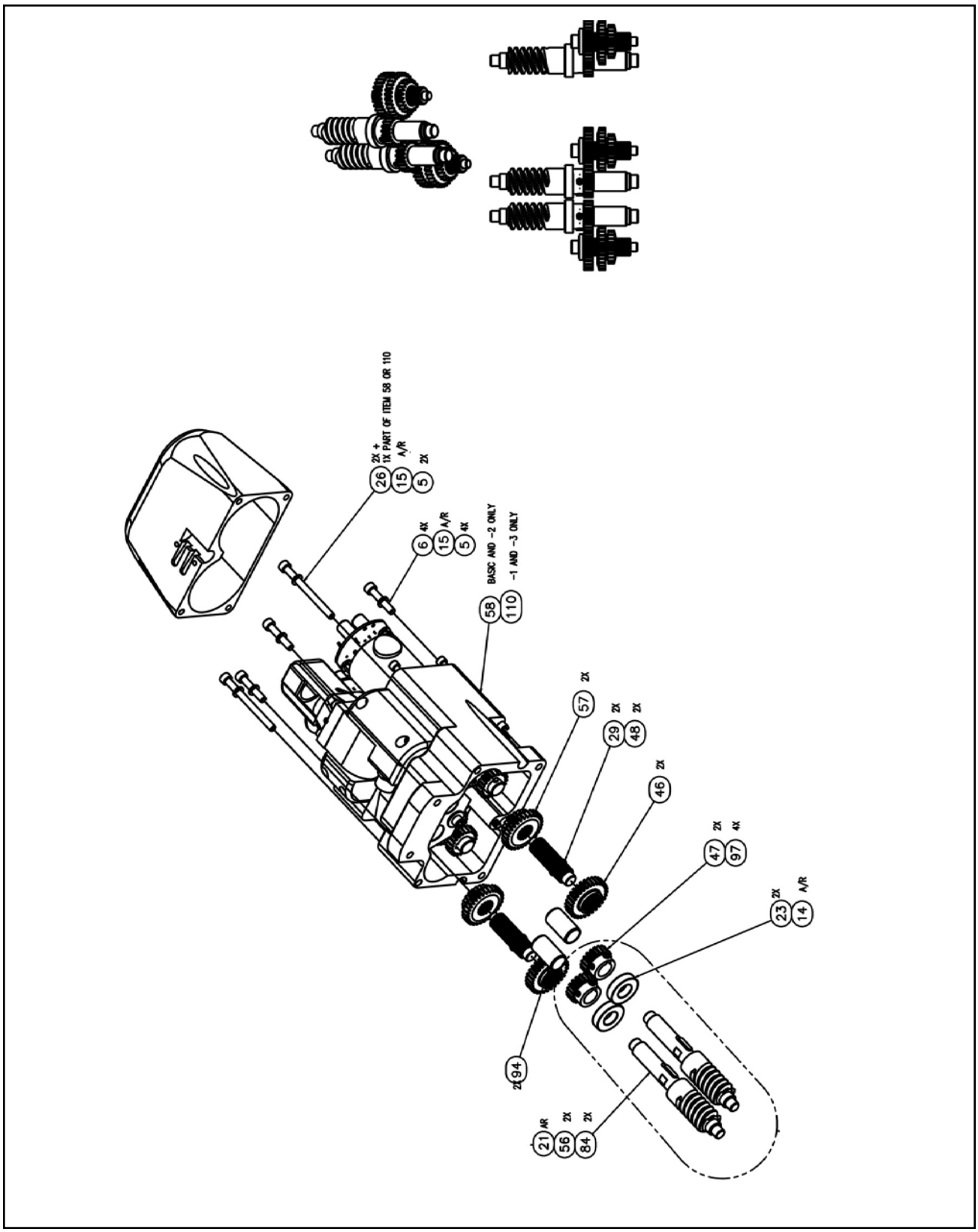


Figure 30e. *Transporter Assembly, Steerable, M/C, Pipe Ranger, WS350*

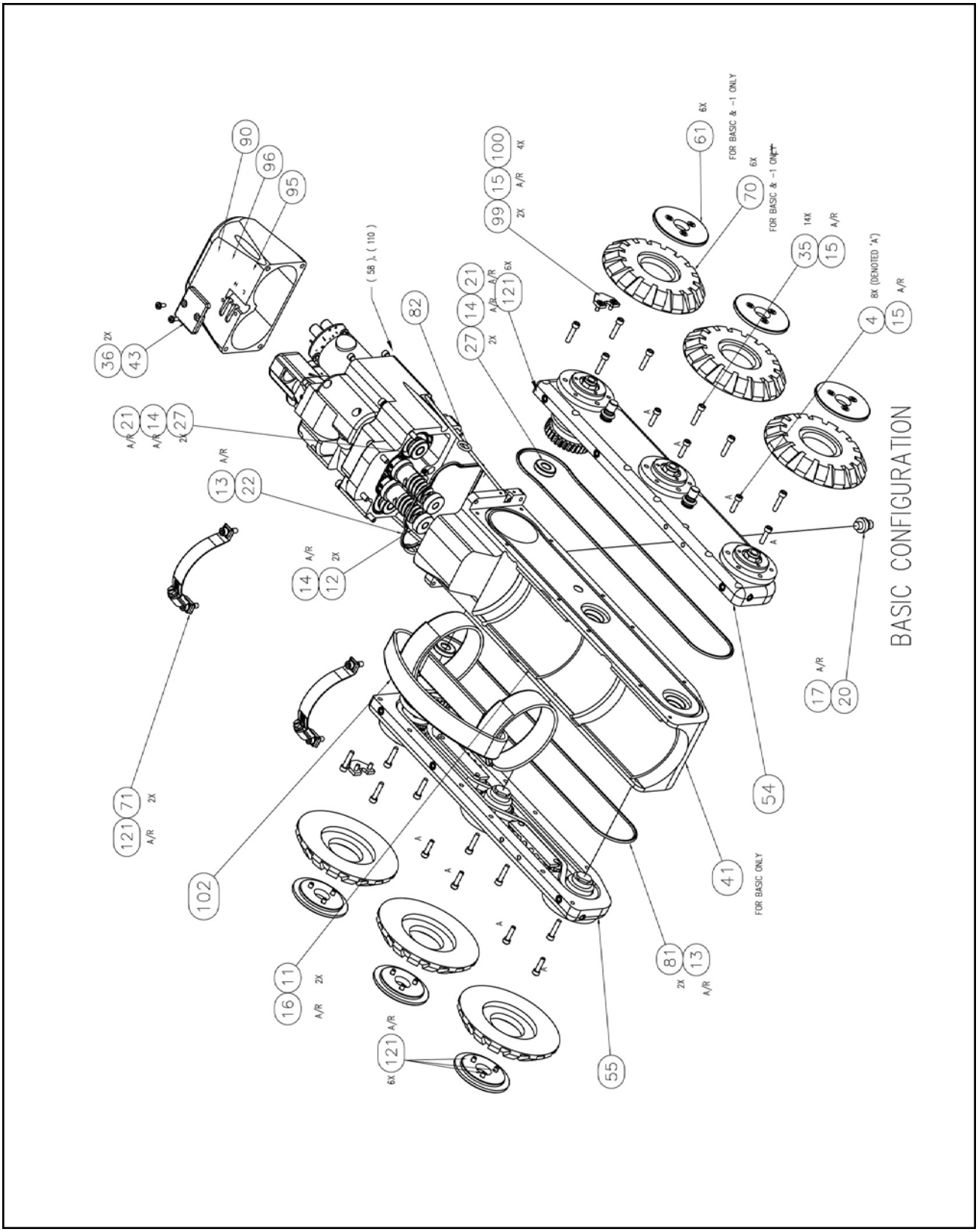


Figure 30f. *Transporter Assembly, Steerable, M/C, Pipe Ranger, WS350*

Steerable Pipe Ranger

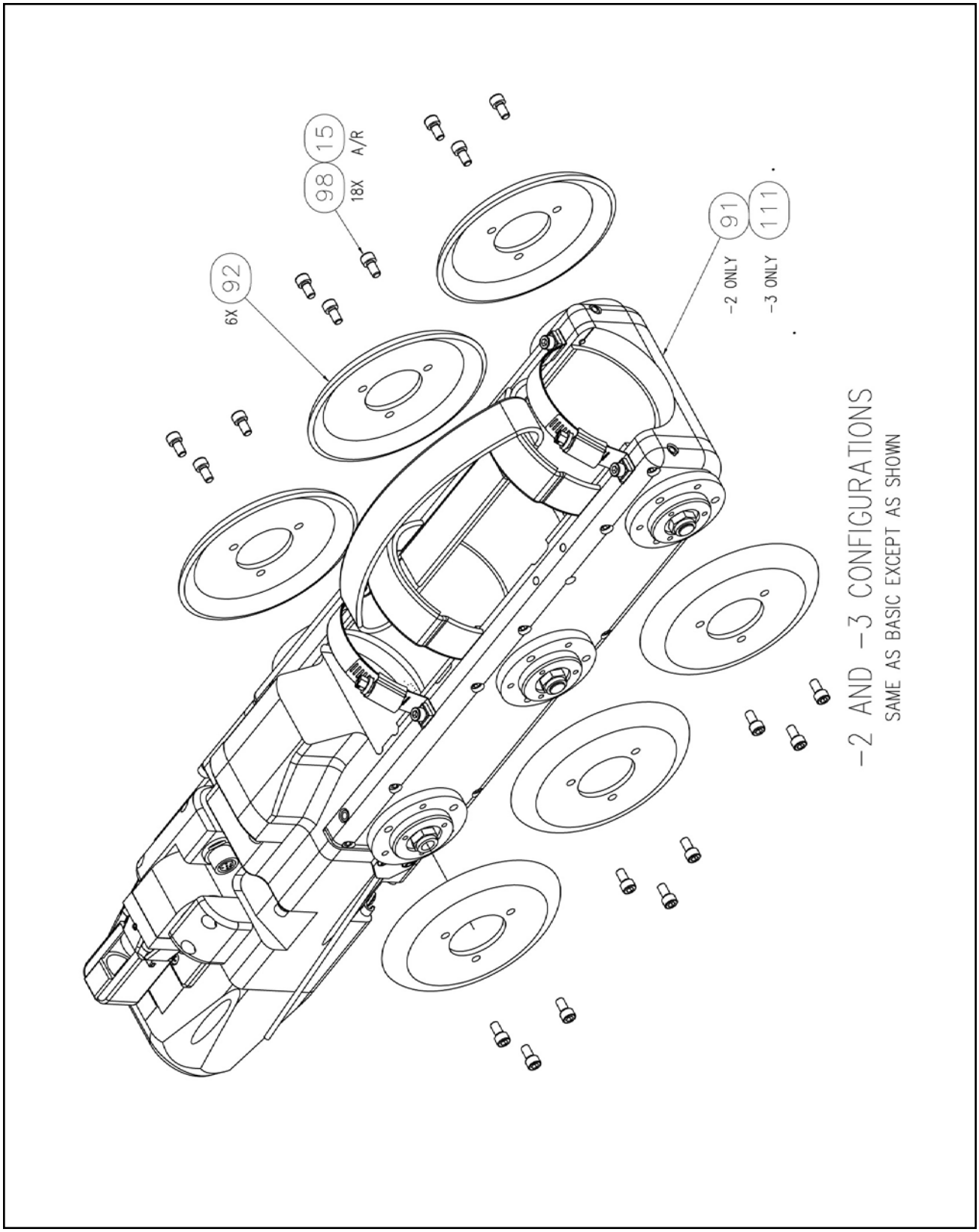


Figure 30g. *Transporter Assembly, Steerable, M/C, Pipe Ranger, WS350*

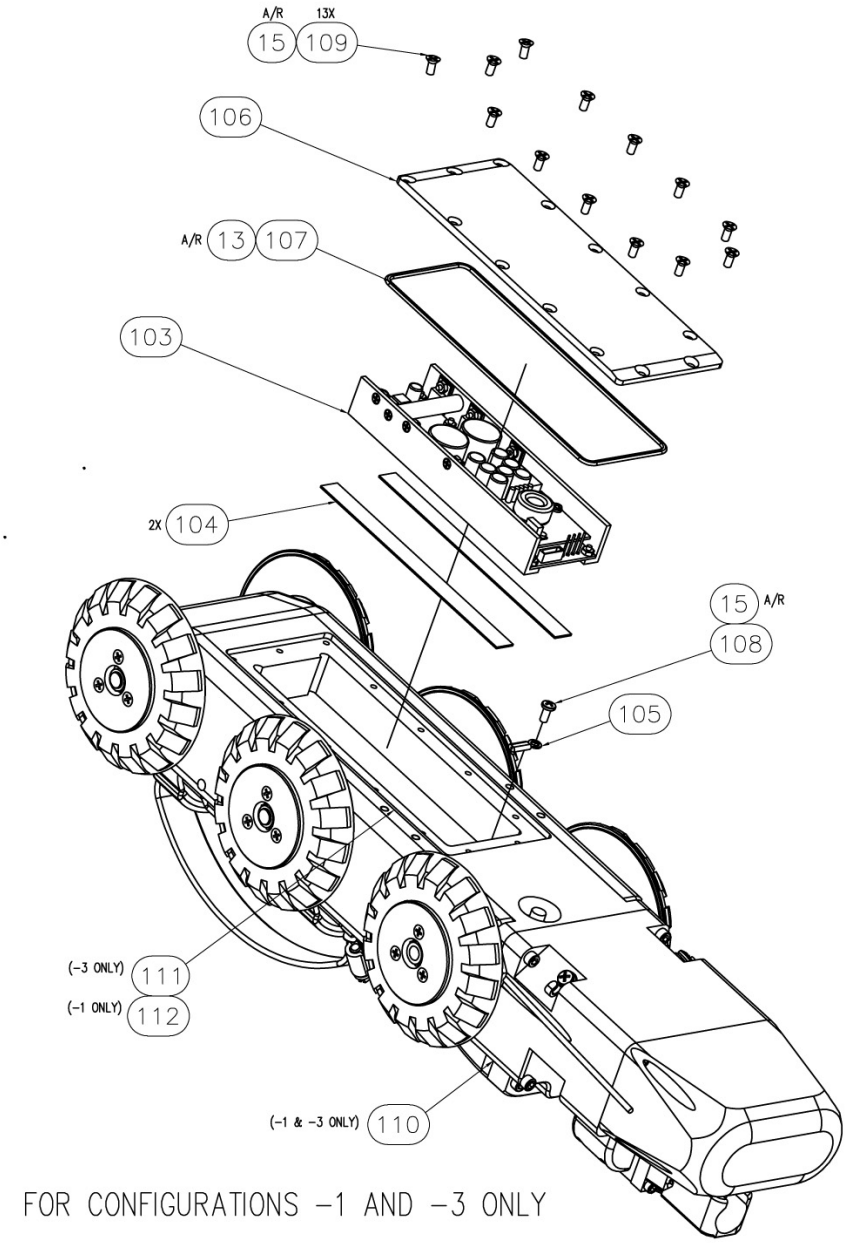


Figure 30h. *Transporter Assembly, Steerable, M/C, Pipe Ranger, WS350*

Steerable Pipe Ranger

Transporter Assembly, Steerable (See Figure 30), Rev. Y, WS350			
Item #	Description	P/N	Qty
0001	SEAL,OIL,.500DIA X.685 BORE,.12T	50681	4
0002	SCREW,CAP,SKT HD,4-40X3/8,SST	100054	8
0003	MRO-TAG,WARNING FOR PR & SPR	WT095	1
0004	SCREW,CAP,SKT HD,8-32X5/8,SST	100141	8
0005	WASHER,SPLIT LOCK,#10 SST	101739	6
0006	SCREW,CAP,SKT HD,10-32X1,SST	101425	4
0008	MRO-PERMANENT LOCK,ND 140500-50,RED	440060	1
0009	SCREW,CAP,SOC HD 4-40X1/4 SST	103089	4
0010	O-RING,10MM X 2.5MM,BUNA	130112	6
0011	PAD,CAMERA YOKE	1302001	2
0012	BEARING,BALL,(METRIC)8X22X7	300273	2
0013	MRO-LUBRICANT,O-RING 2 OZ TUBE	439986	1
0014	MRO-GREASE,MOBIL 1 SYNTHETIC	CS419	1
0015	MRO-REMOVABLE LCK,ND 121200-50,BLUE	440061	1
0016	MRO-ADHESIVE,WEATHERSTRIP(TUBE)	440065	1
0017	MRO-GASKET MAKER,FASTGASKET,BLK	445067	1
0019	WASHER,O-RING PROTECTION,WHL HUB	WS081	6
0020	VALVE,PURGE,P&T	CP063	1
0021	MRO-RET.COMP,.015GP,ND541200-50,GRN	CS092	1
0022	O-RING,2-155 BUNA	HW1000	1
0023	BEARING,BALL,12MM IDX24MM ODX6MM TK	HW1002	2
0024	WASHER,RETAINING,WHEEL HUB	WS080	6
0025	BEARING,THRUST,BRONZ,.502X.753X1/16	HW321	2
0026	SCREW,CAP,SKT HD,10-32 X 2¼,SST	HW1054	2
0027	BEARING,.375"ID X .875"OD	HW568	4
0028	SPRING,.180"ODX.110"IDX,.68"LG,SST	HW1816	8
0029	RING,RETAIN.,SPIRAL,.500ID,.035 THK	HW605	4
0030	NUT,NYLOCK,3/8-24,SST,LOW PROFILE	HW607	6
0031	SEAL,SHAFT,.75X1.00X.158TK,DBL LIPS	HW1165	6
0032	BEARING,AXLE,OUTER,17MM ID,P-RANGER	HW612	6
0035	SCREW,CAP,SKT HD,#8-32 X 3/4 SST	HW809	14
0036	SCREW,PAN,6-32X5/16 PHIL SST	101088	2
0037	BALL,BEARING,3/16DIA,TUNGSTEN CARBI	HW1052	4
0038	O-RING,2-026 BUNA	HW903	2
0039	BEARING,.502IDX1.004 ODX1/8THK	HW905	2
0041	MAIN BODY,C365 BRASS(MUNTZ),M/C SPR	WS001	1
0043	COVER,GEAR SHIFTER,STEERABLE PR	WS003	1
0046	GEAR,30T,IDLER	WS020	2
0047	GEAR,20T,IDLER	WS007	2
0048	SHAFT,IDLER,SPLINE,SPR REV.E&HIGHER	WS021	2

Transporter Assembly, Steerable (See Figure 30), Rev. Y, WS350			
Item #	Description	P/N	Qty
0049	SHAFT,DRIVE,DBL BALL CLUTCH,SPR	WS087	2
0050	COVER,DOUBLE BALL,CLUTCH,SPR	WS011	2
0051	RACE,DOUBLE BALL,CLUTCH,SPR	WS012	2
0052	GEAR,WORM,DOUBLE THRD,STEERABLE PR	WS013	2
0054	COVER,LEFT DR TRAIN,SPR,2 SET PINS	WS015-1	1
0055	COVER,RIGHT DR TRAIN,2 SET PINS	WS016-1	1
0056	SHAFT,TRANS,WORM,STEERABLE PR	WS017	2
0057	GEAR,21/30T,SPLINED,SPR	WS022	2
0058	MOTOR ASSY,W/FILTERS,SPR	WS307	1
0059	SPRING BLOCK,TENSIONER	WT014	4
0060	SPOCKET,IDLER TENSIONER	WT016	8
0061	HUB,7-8" PIPE,PIPE RANGER	WT024	6
0062	BEARING,AXLE,12MM ID	WT026	4
0063	PIN,AXLE,SPOCKET,TENSIONER	WT028	8
0065	SPROCKET,18-TOOTH,SPLINED P-RANGER	WT083	6
0066	SHAFT,FNT/MID,AXLE,SPLINED,PR/SPR	WT129	4
0067	HUB,INNER,SPLINED,PR/SPR	WT128	6
0068	RETAINER,AXLE BEARING,PIPE RANGER	WT086	4
0069	SPACER,BEARING,AXLE,SPLINED,P-RANGR	WT089	10
0070	TIRE,8"PIPE,PIPE RANGER 4.5" O.D.	WT090	6
0071	STRAP CLAMP,CAM. HOLD-DOWN,P-RANGER	WT091	2
0077	CHAIN,110LNK,27.5"L,RIVET CONTINOUS	WS071	2
0080	BEARING,.190IDX.372ODX.120T	WS073	8
0081	O-RING,2-175,BUNA	WT046	2
0082	CABLE,TOW,PR,SPR+CPR 39.5 JND PAIR	WS062	1
0084	KEYSTOCK,4MM SQR X ½",SST	LT125	2
0087	Y ELIMINATOR,M/C,SHORT,W/O TAP,SPR	WT049-1	1
0090	LABEL,LASERTAB MARKER,1.500 X .500	CS221	1
0094	BEARING,SLEEVE,12IDX14ODX25LG,PLAS	HW1056	2
0095	LABEL,LASERTAB MARKER, .560 X .560	CS222	1
0096	LABEL,ETL MARK,2" X 1"	CS224	1
0097	SCREW,SET,10-32X1/8 SST	101027	4
0099	RETAINER,TOW CABLE,SPR	WS019	2
0100	SCREW,FLAT,6-32X3/8 PHIL SST	103058	4
0101	MANUAL,OPERATION,PIPE RANGER	WT901	1
0102	LOOP,LIFTING,PR	WT114	1
0105	TERMINAL,RING,22-18AWG,#10 STUD,RED	712741	1
0108	SCREW,PAN HD,PH,#8-32 X 1/4,SST	HW1450	1
0121	MRO-ANTI-SEIZE,LPS NICKEL,P/N 03908	CS407	1
0122	ANTI-SEIZE,BRSH,NICKL GRAF,2 OZ	CS488	1

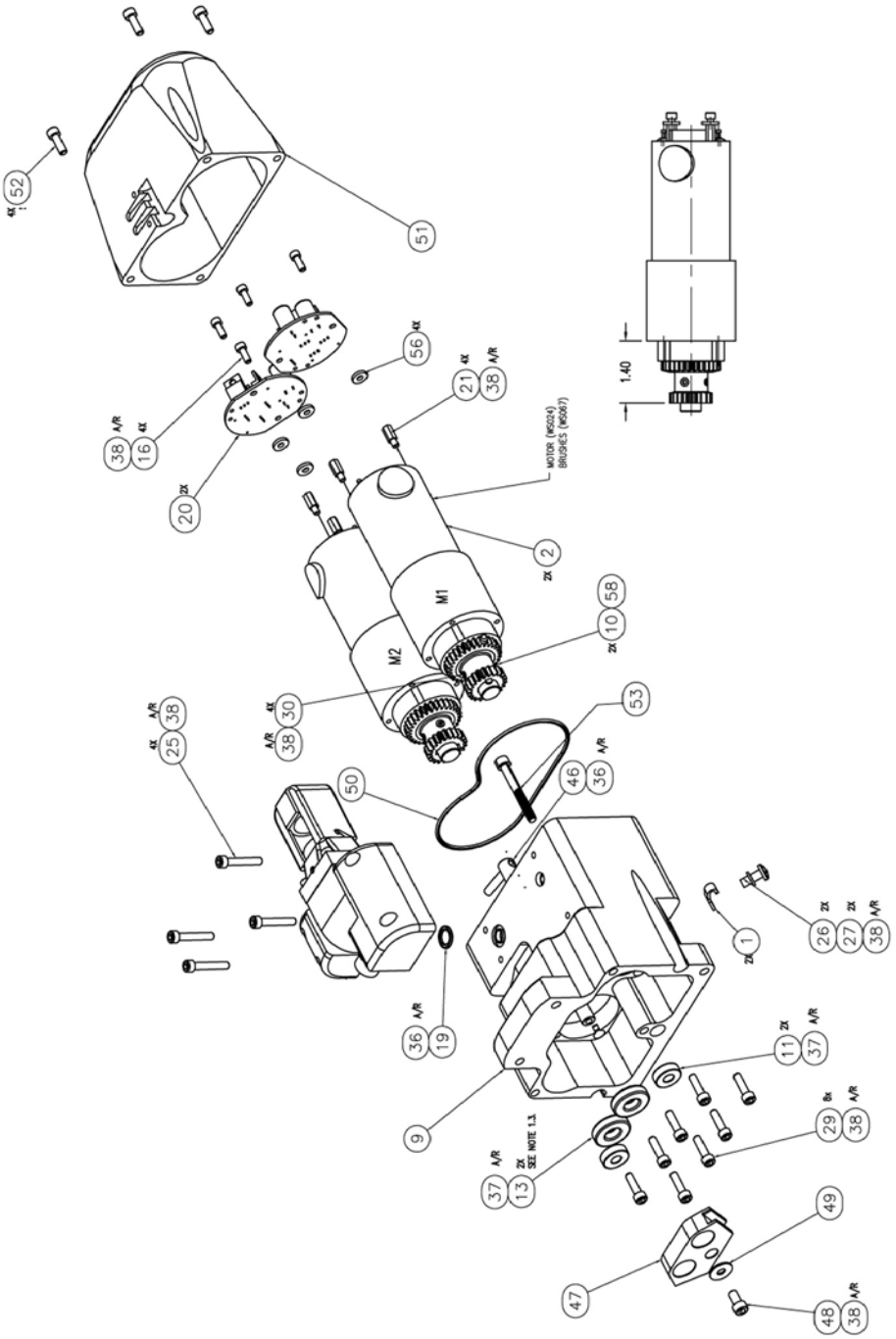


Figure 31a. MOTOR ASSY,W/FILTERS,SPR, WS307

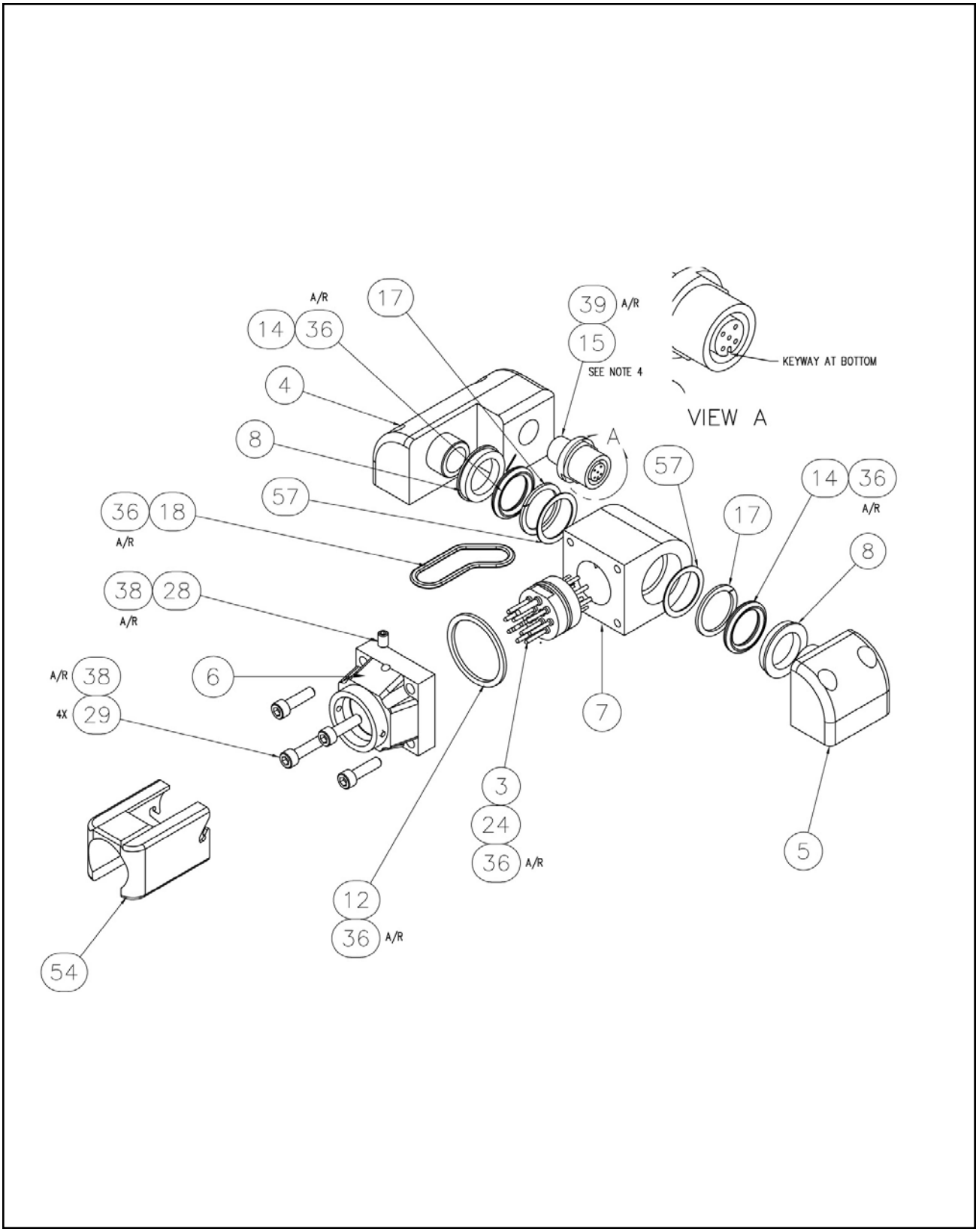


Figure 31b. MOTOR ASSY,W/FILTERS,SPR, WS307

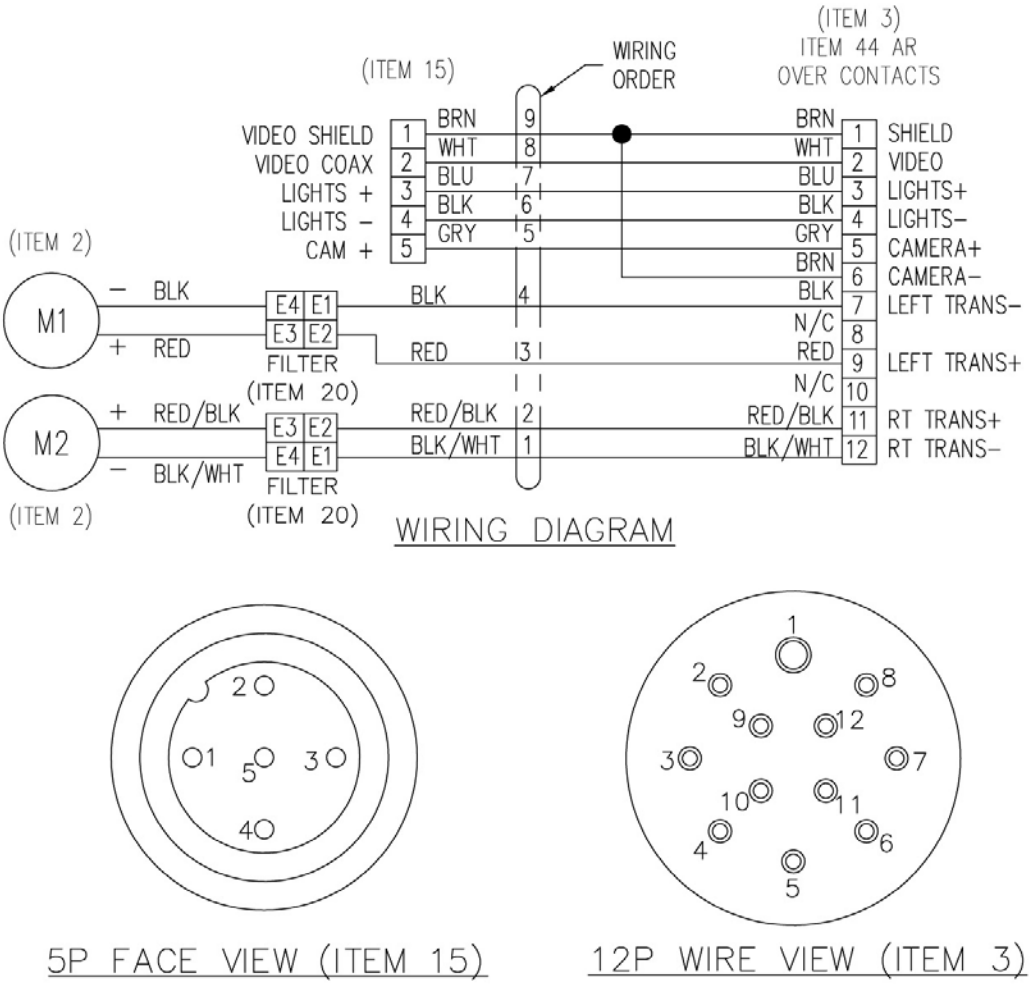
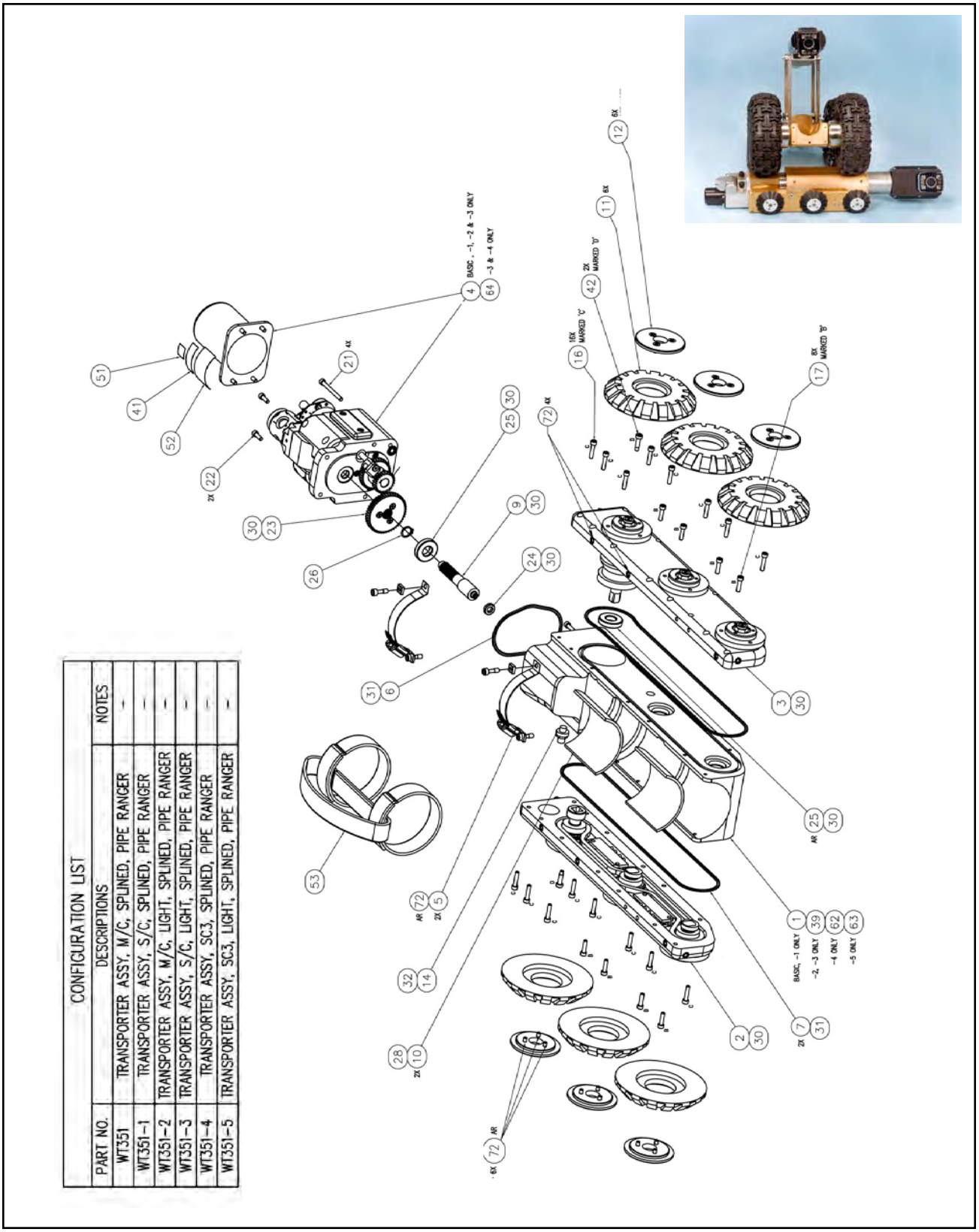


Figure 31c. MOTOR ASSY,W/FILTERS,SPR, WS307

Motor Assembly with Filters, SPR (See Figure 31), Rev. K, WS307			
Item #	Description	P/N	Qty
0001	HOOK,SPRING,PAWL,LIFT	WT088	2
0002	GEARMOTOR,115VDC,SHRT STCK,21.3:1	WS023	2
0003	PLUG,FEMALE,12 PIN	WT038	1
0004	CLEVIS SIDE,PORT,SWIVEL,12PIN	WT034	1
0005	CLEVIS SIDE,STARBOARD,SWIVEL,12 PIN	WT033	1
0006	HOUSING,CONNECTOR,LCKG,12P,PR/SPR	WT126	1
0007	HOUSING,SWIVEL,REAR,12 PIN	WT031	1
0008	BUSHING,SHOULDER,BRNZ,PR&SPR	WS072	2
0009	HOUSING,GEAR TRAIN	WS018	1
0010	GEAR,21/30T,DRIVE,STEERABLE PR	WS009	2
0011	BEARING,BALL,.25IDX.625ODX.196TK,OP	HW1001	2
0012	O-RING,2-023,SILICONE	RP005	1
0013	BEARING,.375"ID X .875"OD	HW568	2
0014	SEAL,DOUBLE,#208,BUNA,AS568A	HW1808	2
0015	RECEPTACLE,5P FEM/FEM,MICRO-CHANGE	EC594	1
0016	SCREW,CAP,SKT HD,6-32X3/8,W/NYLO,SS	101621	4
0017	RING,BCKUP,SPLT,.702"IDX.874"OD,TEF	HW1810	2
0018	O-RING,2-025,BUNA	BW128	1
0019	O-RING,CLAMP PIVOT,2-011,EP	8805	1
0020	PCB ASSY,CURR LIMIT FILT,SPR/PR	WS405	2
0021	STANDOFF,HEX,3/8"LG,6-32 M/F THD	HW1071	4
0022	WIRE,20AWG,RED/BLK,PVC	EC280	2
0023	WIRE,20AWG,BLK/WHT,PVC	EC279	2
0024	O-RING,2-018,EP	130115	1
0025	SCREW,CAP,SKT HD,8-32X7/8,SST	103067	4
0026	SCREW,PAN,10-32X3/8 SST	103031	2
0027	WASHER,SPLIT LOCK,#10 SST	101739	2
0028	SCREW,SET,8-32X1/4 SST	100147	1
0029	SCREW,CAP,SKT HD,8-32X5/8,SST	100141	12
0030	SCREW,SET,10-32X1/8 SST	101027	4
0036	MRO-LUBRICANT,O-RING 2 OZ TUBE	439986	1
0037	MRO-GREASE,MOBIL 1 SYNTHETIC	CS419	1
0038	MRO-REMOVABLE LCK,ND 121200-50,BLUE	440061	1
0039	MRO-SEAL.HGH PRESS,ND 440400-50,BRN	445091	1
0041	TUBE,SHRINK,BLACK 3/16"RNF	712577	1
0042	WIRE,#20 RED BU	713319	2
0043	WIRE,#20 BLACK STRANDED 600V	713317	2
0044	TUBE,SHRINK,BLACK 1/8"	712789	1

Steerable Pipe Ranger

Motor Assembly with Filters, SPR (See Figure 31), Rev. K, WS307			
Item #	Description	P/N	Qty
0046	HANDLE,GEAR SHIFTER,STEERABLE PR	WS004	1
0047	GEAR SHIFTER,STEERABLE PIPE RANGER	WS005	1
0048	SCREW,CAP,SKT HD,10-32X3/8,SST	103030	1
0049	WASHER,FLAT,#10 SST	100140	1
0050	O-RING,2-043,BUNA-N	HW693	1
0051	CAN,MOTOR,STEERABLE PIPE RANGER	WS014	1
0052	SCREW,CAP,SKT HD,8-32X1/2,SST	101025	4
0053	SCREW,CAP,SKT HD,10-32X1-3/4LG,SST	HW118	1
0054	CONNECTOR,LOCKING,F/12P PIGTAIL	WM056	1
0056	WASHER,.153IDX.375ODX.063T,PHENOLIC	HW1958	4
0057	SHIM,.687"ID X.873"OD X.020"THK,SS	HW1809	2
0058	MRO-RET.COMP,.015GP,ND541200-50,GRN	CS092	1



CONFIGURATION LIST

PART NO.	DESCRIPTIONS	NOTES
WT351	TRANSPORTER ASSY, M/C, SPLINED, PIPE RANGER	-
WT351-1	TRANSPORTER ASSY, S/C, SPLINED, PIPE RANGER	-
WT351-2	TRANSPORTER ASSY, M/C, LIGHT, SPLINED, PIPE RANGER	-
WT351-3	TRANSPORTER ASSY, S/C, LIGHT, SPLINED, PIPE RANGER	-
WT351-4	TRANSPORTER ASSY, SC3, SPLINED, PIPE RANGER	-
WT351-5	TRANSPORTER ASSY, SC3, LIGHT, SPLINED, PIPE RANGER	-

Figure 32a. *Transporter Assy, Wheeled, M/C, WT351, for S/N's 24 - up*

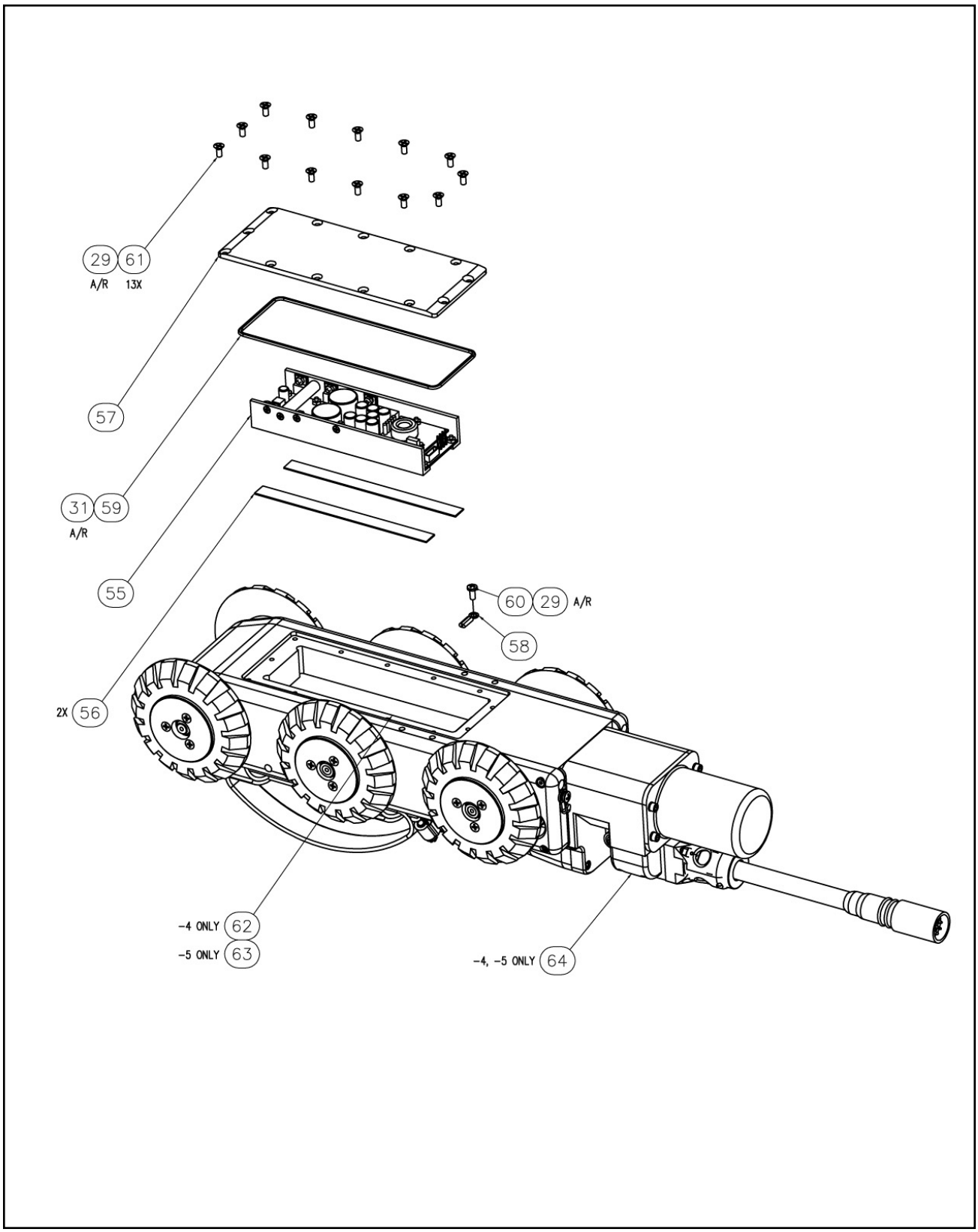


Figure 32b. *Transporter Assy, Wheeled, M/C, WT351, for S/N's 24 - up*

Pipe Ranger

Transporter Assembly, Wheeled (See Fig. 32), Rev. P, WT351			
Item #	Description	P/N	Qty
0001	MAIN BODY,WEDGE NOSE,BRASS	WT101	1
0002	DRIVE ASSY,STARBOARD,SPLINED,PR	WT321	1
0003	DRIVE ASSY,PORT,SPLINED,PIPE RANGER	WT322	1
0004	MOTOR/TRANSMISSION ASSY,W/FILTER,PR	WT324	1
0005	STRAP CLAMP,CAM. HOLD-DOWN,P-RANGER	WT091	2
0006	O-RING,2-151,BUNA	WT043	1
0007	O-RING,2-175,BUNA	WT046	2
0008	MRO-TAG,WARNING FOR PR & SPR	WT095	1
0009	SHAFT,TRANSMISSION,WORM AND SPLINE	WT009	1
0010	PAD,CAMERA YOKE	1302001	2
0011	TIRE,8"PIPE,PIPE RANGER 4.5" O.D.	WT090	6
0012	HUB,7-8" PIPE,PIPE RANGER	WT024	6
0014	VALVE,PURGE,P&T	CP063	1
0016	SCREW,CAP,SKT HD,#8-32 X 3/4 SST	HW809	16
0017	SCREW,CAP,SKT HD,8-32X5/8,SST	100141	6
0021	SCREW,CAP,SKT HEAD,8-32X1.75,SST	HW149	4
0022	SCREW,CAP,SKT HD,8-32X1/2,SST	101025	2
0023	GEAR ASSY,DRIVEN,WHEELED TRANS.	WT308	1
0024	BEARING,FORWARD SHAFT SUP.,7MM ID	HW567	1
0025	BEARING,50"ID X 1.125"OD	HW569	2
0026	RING,RETAINING EXTERNAL 1/2"	97501	1
0027	CABLE,TOW,PR,SPR+CPR 39.5 JND PAIR	WS062	1
0028	MRO-ADHESIVE,WEATHERSTRIP(TUBE)	440065	1
0029	MRO-REMOVABLE LCK,ND 121200-50,BLUE	440061	1
0030	MRO-GREASE,MOBIL 1 SYNTHETIC	CS419	1
0031	MRO-LUBRICANT,O-RING 2 OZ TUBE	439986	1
0032	MRO-GASKET MAKER,FASTGASKET,BLK	445067	1
0034	Y ELIMINATOR,M/C,SHORT,W/O TAP,PR	WT049	1
0035	MANUAL,OPERATION,PIPE RANGER	WT901	1
0041	LABEL,LASERTAB MARKER,1.500 X .500	CS221	1
0042	SCREW,SHOULDER,8-32X1/2,SS	HW498	2
0051	LABEL,LASERTAB MARKER, .560 X .560	CS222	1
0052	LABEL,ETL MARK,2" X 1"	CS224	1
0053	LOOP,LIFTING,PR	WT114	1
0072	MRO-ANTI-SEIZE,LPS NICKEL,P/N 03908	CS407	1
0073	ANTI-SEIZE,BRSH,NICKL GRAF,2 OZ	CS488	1
0101	SHAFT,DR,LEFT,SPLINED,CLUTCH,PR	WT130	1
0102	COVER,CLUTCH,F/N/R	MC243	1
0103	RACE,BALL TRIPLE,CLUTCH,F/N/R	MC244	1

Pipe Ranger

Transporter Assembly, Wheeled (See Fig. 32), Rev. P, WT351			
Item #	Description	P/N	Qty
0104	WASHER,O-RING PROTECTION,WHL HUB	WS081	6
0105	BALL,BEARING,3/16DIA,TUNGSTEN CARBI	HW1052	3
0106	SCREW,CAP,SOC HD 4-40X1/4 SST	103089	2
0107	BEARING,THRUST,BRONZ,.502X.753X1/16	HW321	1
0108	BEARING,.502IDX1.004 ODX1/8THK	HW905	1
0109	SEAL,OIL,.500DIA X.685 BORE,.12T	50681	2
0110	O-RING,2-026 BUNA	HW903	1
0111	SCREW,CAP,SKT HD,4-40X3/8,SST	100054	4
0114	COVER,LFT DR TRAIN,PR,2SETS OF PINS	WT103-1	1
0115	GEAR,WORM,QUAD TREAD,SDWT	WT054	1
0116	COVER,RGT DR TRAIN,PR,2SETS OF PINS	WT104-1	1
0117	AXLE,REAR,RIGHT,SPLINED,PR	WT131	1
0130	SEAL,SHAFT,.75X1.00X.158TK,DBL LIPS	HW1165	6
0131	SPACER,BEARING,AXLE,SPLINED,P-RANGR	WT089	10
0132	SPROCKET,18-TOOTH,SPLINED P-RANGER	WT083	6
0133	SHAFT,FNT/MID,AXLE,SPLINED,PR/SPR	WT129	4
0135	HUB,INNER,SPLINED,PR/SPR	WT128	6
0136	BEARING,AXLE,12MM ID	WT026	4
0137	CHAIN,110LNK,27.5"L,RIVET CONTINOUS	WS071	2
0139	RING,RETAIN.,SPIRAL,.500ID,.035 THK	HW605	2
0140	O-RING,10MM X 2.5MM,BUNA	130112	6
0141	NUT,NYLOCK,3/8-24,SST,LOW PROFILE	HW607	6
0142	SPRING,.180"ODX.110"IDX,.68"LG,SST	HW1816	8
0143	SPRING BLOCK,TENSIONER	WT014	4
0144	SPOCKET,IDLER TENSIONER	WT016	8
0145	PIN,AXLE,SPOCKET,TENSIONER	WT028	8
0146	BEARING,AXLE,OUTER,17MM ID,P-RANGER	HW612	6
0147	BEARING,.190IDX.372ODX.120T	WS073	8
0148	RETAINER,AXLE BEARING,PIPE RANGER	WT086	4
0149	WASHER,RETAINING,WHEEL HUB	WS080	6
0151	HOOK,SPRING,PAWL,LIFT	WT088	2
0152	WASHER,SPLIT LOCK,#10 SST	101739	2
0153	SCREW,PAN,10-32X1/2 SST	101860	2
0154	WASHER,FLAT,#10 SST	100140	2
0155	MRO-RET.COMP,.015GP,ND541200-50,GRN	CS092	1
0158	MRO-PERMANENT LOCK,ND 140500-50,RED	440060	1

P/N WT321 is NOT SOLD, but is shown for illustration purposes only.

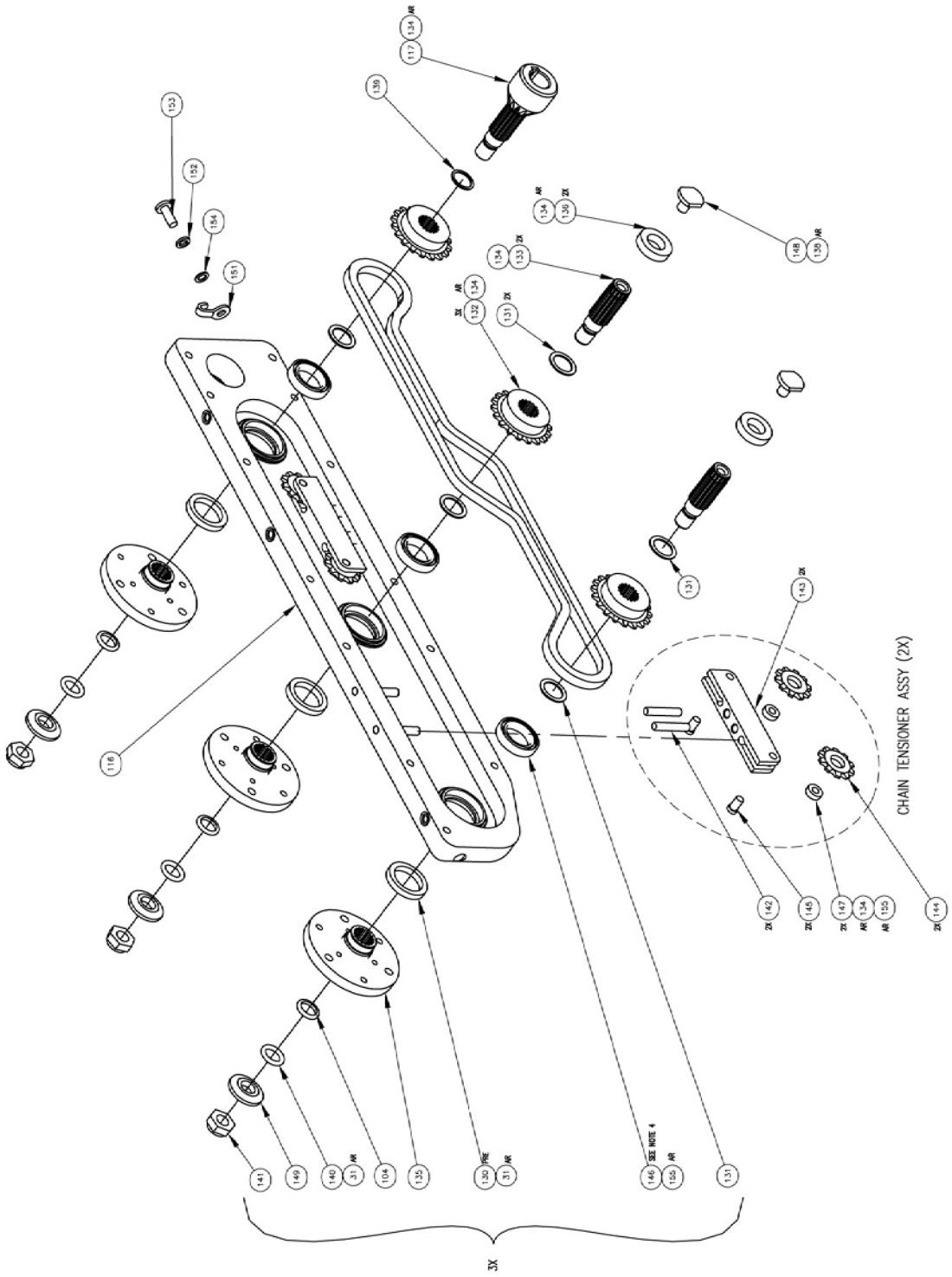


Figure 33a. *Drive Assembly, Starboard Side, Splined Shaft, WT321, Rev. M, for S/N's 24 - up*

P/N WT321 is NOT SOLD, but is shown for illustration purposes only.

ITEM	QTY	DESCRIPTION	PART NO.	SYM
155	1	MRO–RET.COMP,.015GP,ND541200–50,GRN	CS092	QTY: AR
154	1	WASHER,FLAT,#10 SST	100140	
153	1	SCREW, PAN, 10–32 X 1/2 SST	101860	
152	1	WASHER, SPLIT LOCK, #10 SST	101739	
151	1	HOOK, SPRING, PAWL, LIFT	WT088	
149	3	WHEEL,INNER,SPLINED,PR	WS080	
148	2	RETAINER, AXLE BEARING	WT086	
147	4	BEARING, SUPER OILITE, .190ID. X .372OD. X .120 THK.	WS073	
146	3	BEARING, ø17mm ID X ø26mm OD X 5mm WIDE	HW612	
145	4	PIN, AXLE, SPROCKET	WT028	
144	4	SPROCKET, IDLER, TENSIONER	WT016	
143	2	SPRING BLOCK, TENSIONER	WT014	
142	4	SPRING	HW1816	
141	3	NUT, NYLOCK, 3/8–24, SST, LOW PROFILE	HW607	
140	3	O–RING, (METRIC) 10 x 2.6	130112	
139	1	RING, RETAINING, SPIRAL, .500 ID. x .035 THK	HW605	
138	1	MRO–PERMANENT LOCK,ND 140500–50,RED	440060	QTY: AR
137	1	CHAIN, 110LNK, 27.5"L, RIVET CONTINOUS	WS071	
136	2	BEARING,AXLE,12MM ID	WT026	
135	3	WHEEL,INNER,SPLINED,PR	WT128	
134	1	MRO–GREASE, MOBIL 1 SYNTHETIC	CS419	QTY: AR
133	2	SHAFT,AXLE,SPLINED,PR&SPR	WT129	
132	3	SPROCKET, 18–TOOTH, SPLINED	WT083	
131	5	SPACER, BEARING, AXLE ASSEMBLY	WT089	
130	3	SEAL, ø.75ID x ø1.000D x .149THK, DBL LIPS, SPR	HW1165	
117	1	AXLE,REAR,RIGHT,SPLINED,PR	WT131	
116	1	COVER, RIGHT DRIVE TRAIN, 2 SETS OF PINS	WT104–1	
104	3	WASHER, O–RING PROTECTION, WHEEL HUB	WS081	
31	1	MRO–LUBRICANT,O–RING	439986	QTY: AR
29	1	MRO – PERMA MM–115–035 THREADLOCK BLUE	440061	QTY: AR

Figure 33b. *Drive Assembly, Starboard Side, Splined Shaft, WT321, Rev. M, for S/N's 24 - up*

P/N WT322 is NOT SOLD, but is shown for illustration purposes only.

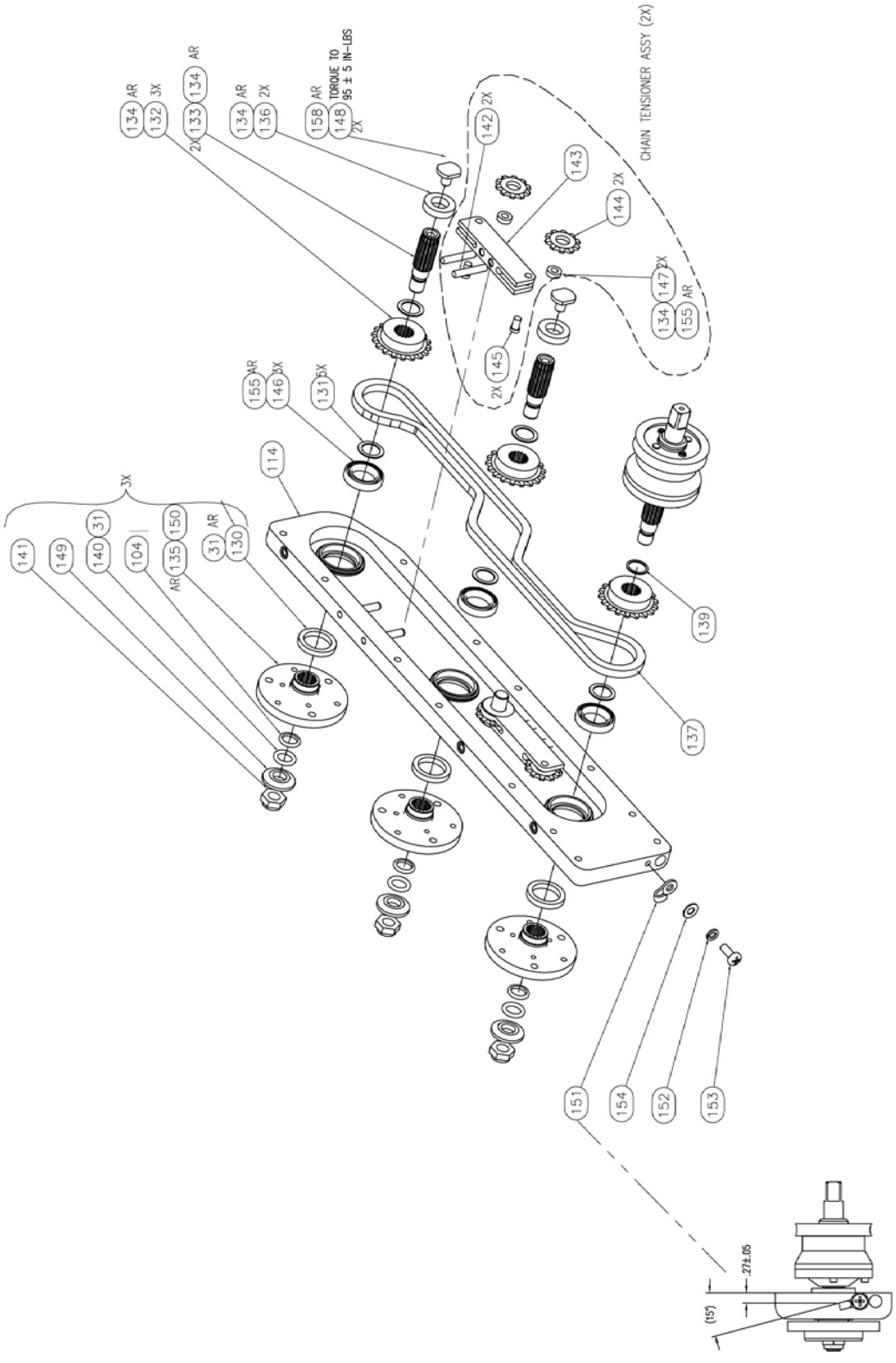


Figure 34a. *Drive Assembly, Port Side, Splined Shaft, WT322, Rev. Q for S/N's 24 - up*

P/N WT322 is NOT SOLD, but is shown for illustration purposes only.

ITEM	QTY	DESCRIPTION	PART NO.	NOTE
158	1	MRO–PERMANENT LOCK, ND 140500–50, RED	440060	QTY: A/R
157	0	DELETED	----	
156	0	DELETED	----	
155	1	MRO–RET.COMP,.015GP,ND541200–50,GRN	CS092	QTY: A/R
154	1	WASHER,FLAT,#10 SST	100140	
153	1	SCREW, PAN, 10–32 X 1/2 SST	101860	
152	1	WASHER, SPLIT LOCK, #10 SST	101739	
151	1	HOOK, SPRING, PAWL, LIFT	WT088	
150	0	DELETED	----	
149	3	WASHER, FLAT, 3/8, SST	WS080	
148	2	RETAINER, AXLE BEARING	WT086	
147	4	BEARING, SUPER OILITE, .190ID. X .372OD. X .120 THK	WS073	
146	3	BEARING, ø17mm ID X ø26mm OD X 5mm WIDE	HW612	
145	4	PIN, AXLE, SPROCKET	WT028	
144	4	SPOCKET, IDLER TENSIONER	WT016	
143	2	SPRING BLOCK, TENSIONER	WT014	
142	4	SPRING,.180"OD X.110"ID X,.68" LG, SST	HW1816	
141	3	NUT, NYLOCK, 3/8–24, SST, LOW PROFILE	HW607	
140	3	O–RING, (METRIC) 10 x 2.6	130112	
139	1	RING, RETAINING, SPIRAL, .500 ID x .035 THK	HW605	
138	0	DELETED	----	
137	1	CHAIN, 110LNK , 27.5"L, RIVET CONTINOUS	WS071	
136	2	BEARING, AXLE, 12mm ID	WT026	
135	3	WHEEL, INNER, SPLINED	WT128	
134	1	MRO–GREASE, MOBIL 1 SYNTHETIC	CS419	QTY: A/R
133	2	SHAFT, AXLE, SPLINED	WT129	
132	3	SPROCKET, 18–TOOTH, SPLINED	WT083	
131	5	SPACER, BEARING	WT089	
130	3	SEAL, .750ID x 1.000OD x .149THK, DBL LIPS, SPR	HW1165	
115	1	GEAR, WORM, QUAD THREAD, SDWT	WT054	PITCH DIA. SHW
114	1	COVER, LEFT TRAIN DRIVE, 2 SETS OF PINS.	WT103–1	
111	4	SCREW, CAP, SKT HD, 4–40 X 3/8, SST	100054	
110	1	O–RING, 2–026 BUNA	HW903	
109	2	SEAL, OIL, ø.500 X .685 BORE, .12 THICK	050681	
108	1	BEARING, ø.502 ID X ø1.004 OD X 1/8 THK	HW905	
107	1	BEARING, THRUST, BRONZE, ø.502 X ø .753 X 1/16	HW321	
106	2	SCREW, CAP, SOC HD 4–40 X 1/4 SST	103089	
105	3	BALL, ø3/16, TUNGSTEN STEEL	HW1052	
104	3	WASHER, O–RING PROTECTION, WHEEL HUB	WS081	
103	1	RACE, TRIPLE BALL, CLUTCH	MC244	
102	1	COVER, CLUTCH, ULTRA	MC243	
101	1	SHAFT,DRIVE,SPRLINED,CLUTCH,PR	WT130	
31	1	MRO – LUBRICANT, O–RING	439986	QTY: A/R
29	1	MRO – PERMA MM–115–035 THREADLOCK BLUE	440061	

Figure 34b. *Drive Assembly, Port Side, Splined Shaft, WT322, Rev. Q for S/N's 24 - up*

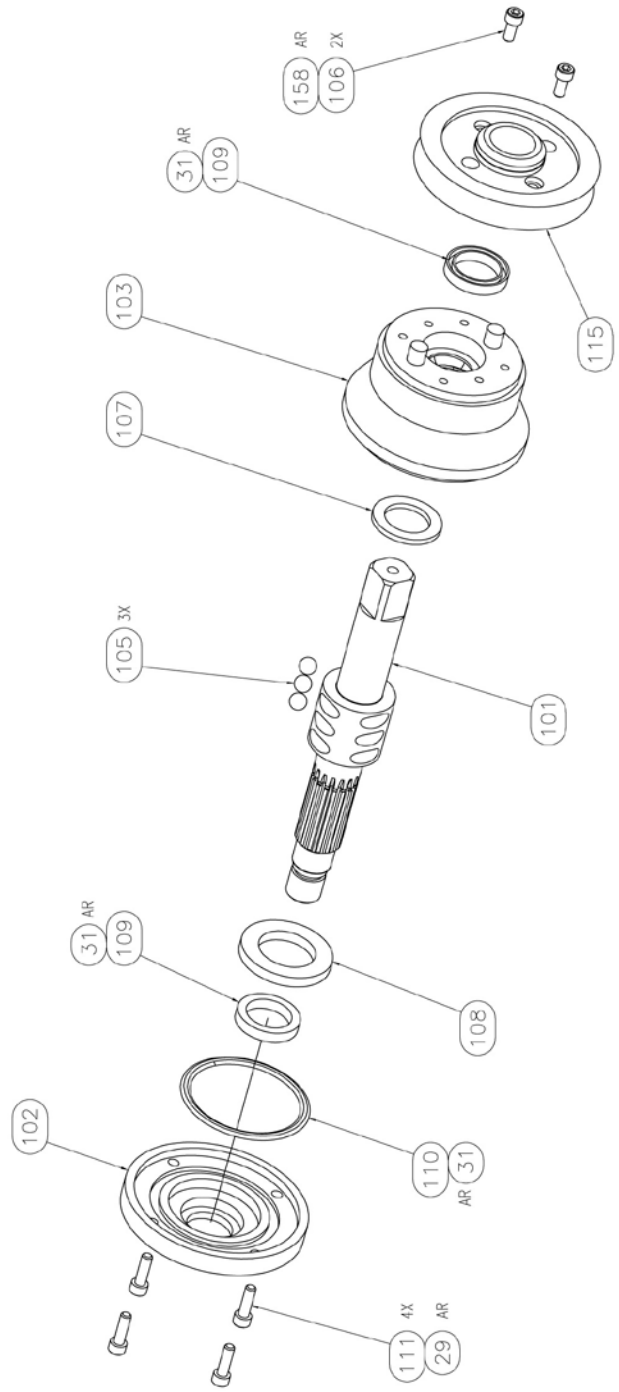


Figure 34c. *Drive Assembly, Port Side, Splined Shaft, WT322, Rev. Q for S/N's 24 - up*

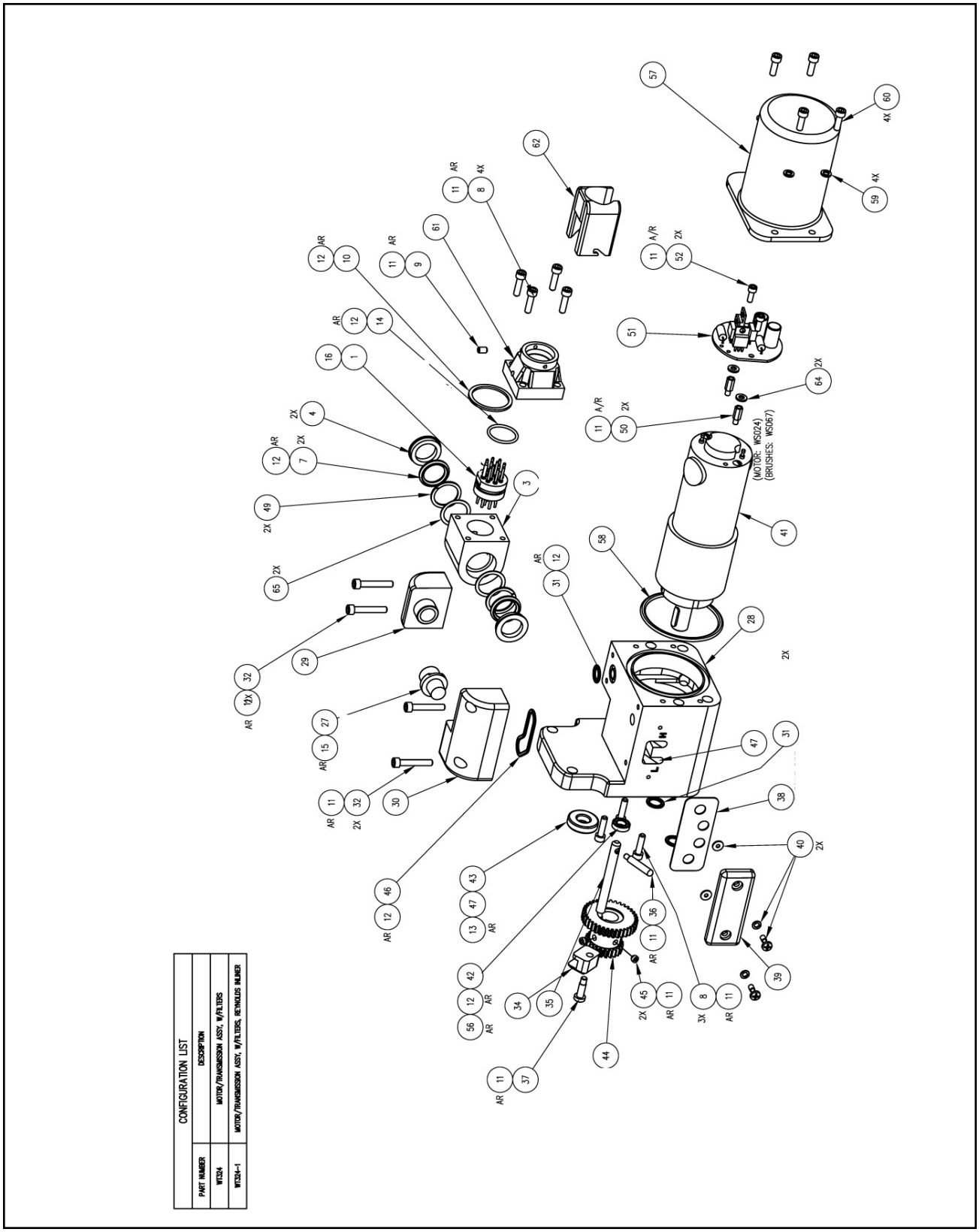


Figure 35a. *Motor / Transmission Assembly w/ Filter, WT324*

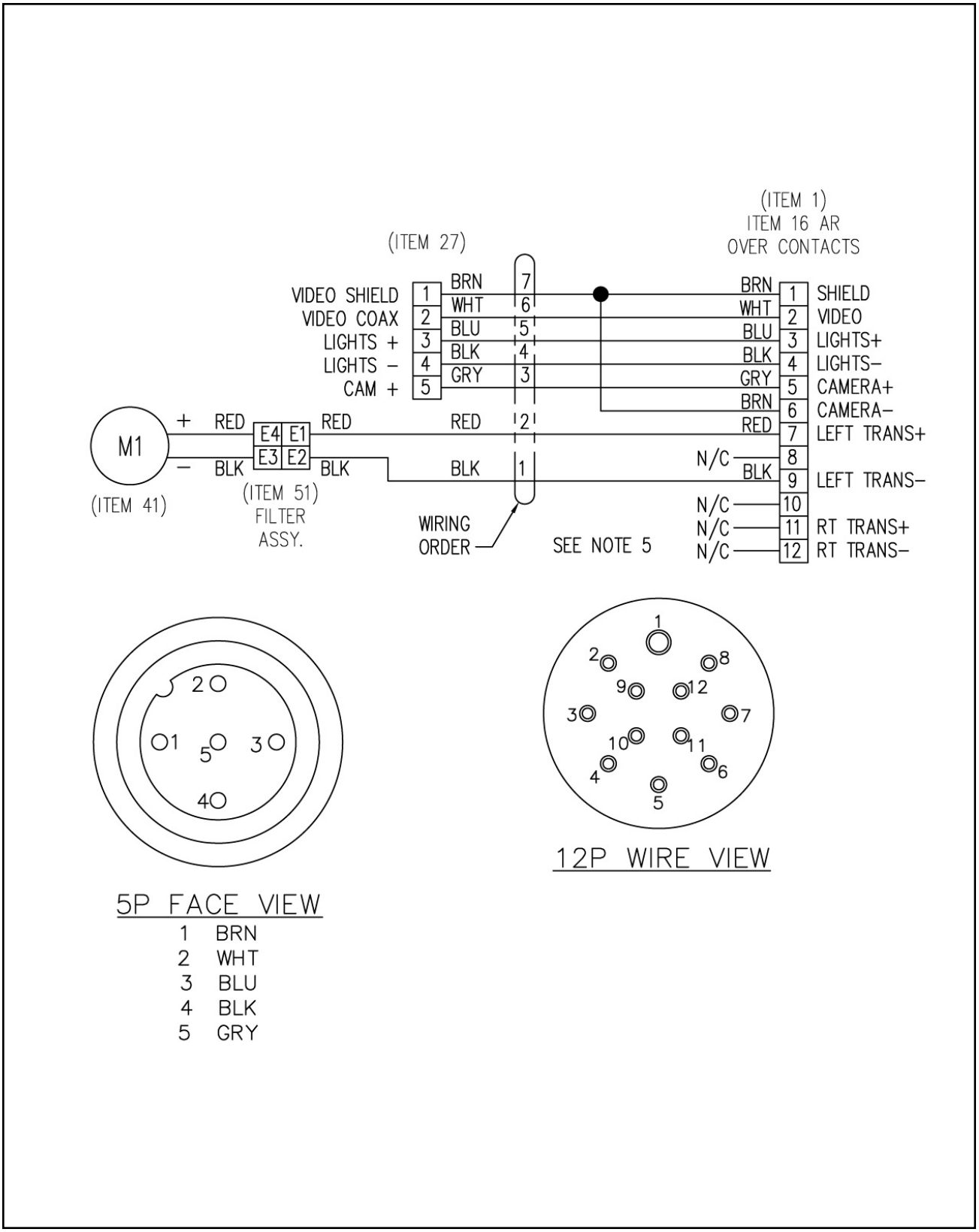


Figure 35b. *Motor / Transmission Assembly w/ Filter, WT324*

Pipe Ranger

Motor / Transmission Assembly w/ Filter (See Figure 35),Rev. K, WT324			
Item #	Description	P/N	Qty
0001	PLUG,FEMALE,12 PIN	WT038	1
0003	HOUSING,SWIVEL,REAR,12 PIN	WT031	1
0004	BUSHING,SHOULDER,BRNZ,PR&SPR	WS072	2
0007	SEAL,DOUBLE,#208,BUNA,AS568A	HW1808	2
0008	SCREW,CAP,SKT HD,8-32X5/8,SST	100141	7
0009	SCREW,SET,8-32X1/4 SST	100147	1
0010	O-RING,2-023,SILICONE	RP005	1
0011	MRO-REMOVABLE LCK,ND 121200-50,BLUE	440061	1
0012	MRO-LUBRICANT,O-RING 2 OZ TUBE	439986	1
0013	MRO-RET.COMP,.015GP,ND541200-50,GRN	CS092	1
0014	O-RING,2-018,EP	130115	1
0015	MRO-SEAL.HGH PRESS,ND 440400-50,BRN	445091	1
0016	TUBE,SHRINK,BLACK 1/8"	712789	1
0017	WIRE,#20 BLACK STRANDED 600V	713317	1
0023	WIRE,#20 RED BU	713319	1
0027	RECEPTACLE,5P FEM/FEM,MICRO-CHANGE	EC594	1
0028	HOUSING,AFT	WT005	1
0029	CLEVIS SIDE,STARBOARD,SWIVEL,12 PIN	WT033	1
0030	CLEVIS SIDE,PORT,SWIVEL,12PIN	WT034	1
0031	O-RING,CLAMP PIVOT,2-011,EP	8805	3
0032	SCREW,CAP,SKT HD,8-32X1.00,SST	103068	4
0034	FORK,SHIFTER	WT006	1
0035	ROD,SHIFTER	WT007	1
0036	HANDLE,SHIFTER	WT008	1
0037	SCREW,SHLDR,8-32X.187DIA X.138LG,LP	HW591	1
0038	GASKET,SHIFTER COVER	WT051	1
0039	COVER,SHIFTER	WT039	1
0040	SCREW,CAPTIVE,PH 6-32X3/8 W/WASHER	HW821	2
0041	GEARMOTOR,115VDC,SHRT STCK,21.3:1	WS023	1
0042	SEAL,.25"ID X .5"OD X.125",NEOPRENE	HW582	1
0043	BEARING,.375"ID X .875"OD	HW568	1
0044	GEAR ASSY,DRIVE,WHEELED TRANSPORTER	WT010	1
0045	SCREW,SET,10-32X1/8 SST	101027	2
0046	O-RING,2-025,BUNA	BW128	1
0047	MRO-GREASE,MOBIL 1 SYNTHETIC	CS419	1
0048	TUBE,SHRINK,BLACK 3/16"RNF	712577	1

Pipe Ranger

Motor / Transmission Assembly w/ Filter (See Figure 35),Rev. K, WT324			
Item #	Description	P/N	Qty
0049	RING,BCKUP,SPLT,.702"IDX.874"OD,TEF	HW1810	2
0050	STANDOFF,HEX,3/8"LG,6-32 M/F THD	HW1071	2
0051	PCB ASSY,CURR LIMIT FILT,SPR/PR	WS405	1
0052	SCREW,CAP,SKT HD,6-32X3/8,W/NYLO,SS	101621	2
0056	MRO-GASKET MAKER,FASTGASKET,BLK	445067	1
0057	CAN,MOTOR	WT011	1
0058	O-RING,2-138 EP	132209	1
0059	WASHER,SPLIT LOCK,#8 SST	101738	4
0060	SCREW,CAP,SKT HD,8-32X1/2,SST	101025	4
0061	HOUSING,CONNECTOR,LCKG,12P,PR/SPR	WT126	1
0062	CONNECTOR,LOCKING,F/12P PIGTAIL	WM056	1
0064	WASHER,.153IDX.375ODX.063T,PHENOLIC	HW1958	2
0065	SHIM,.687"ID X.873"OD X.020"THK,SS	HW1809	2

Compact Pipe Ranger

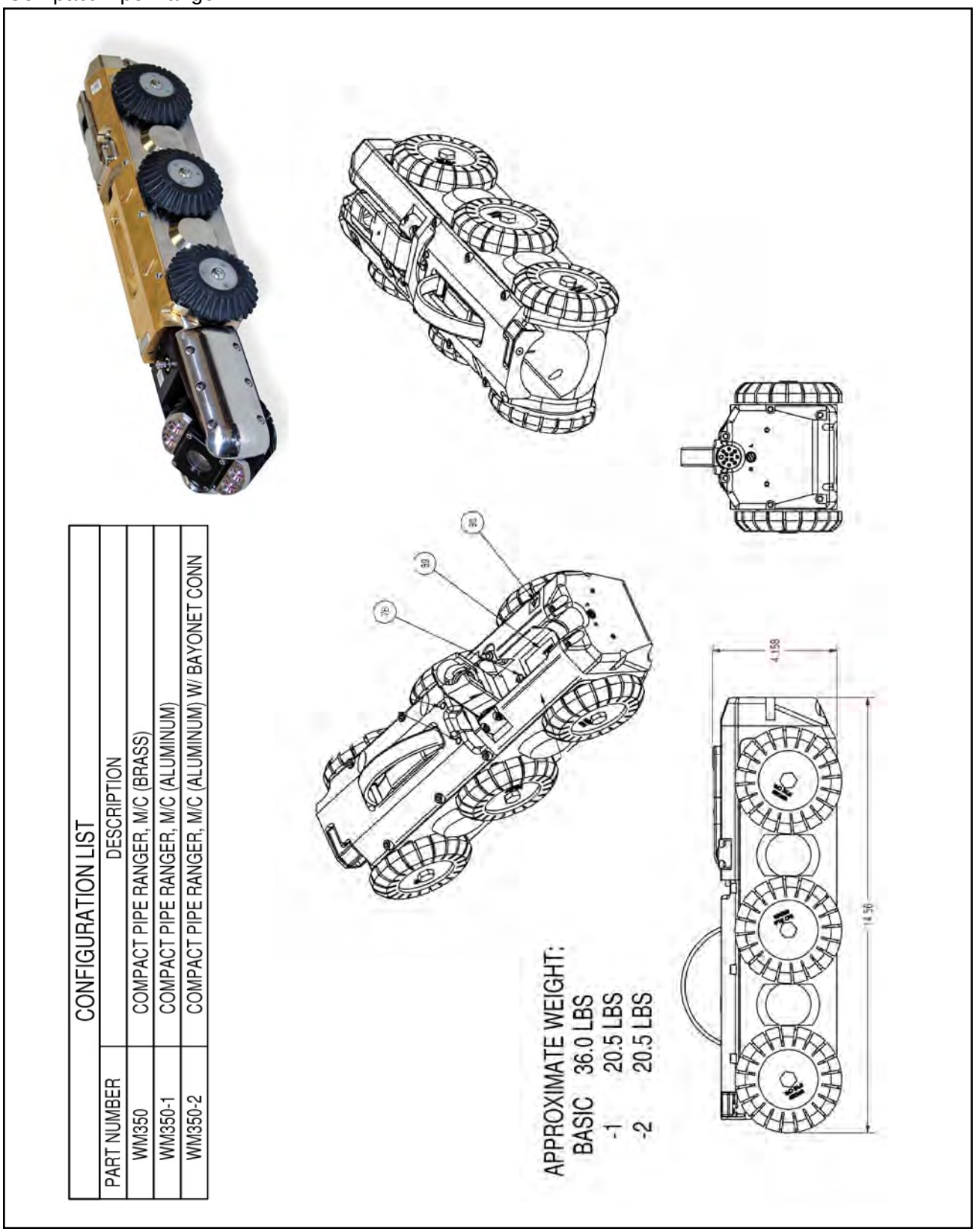


Figure 36a. *TRANSPORTER ASSY,UNIBODY BRASS,CPR,WM350*

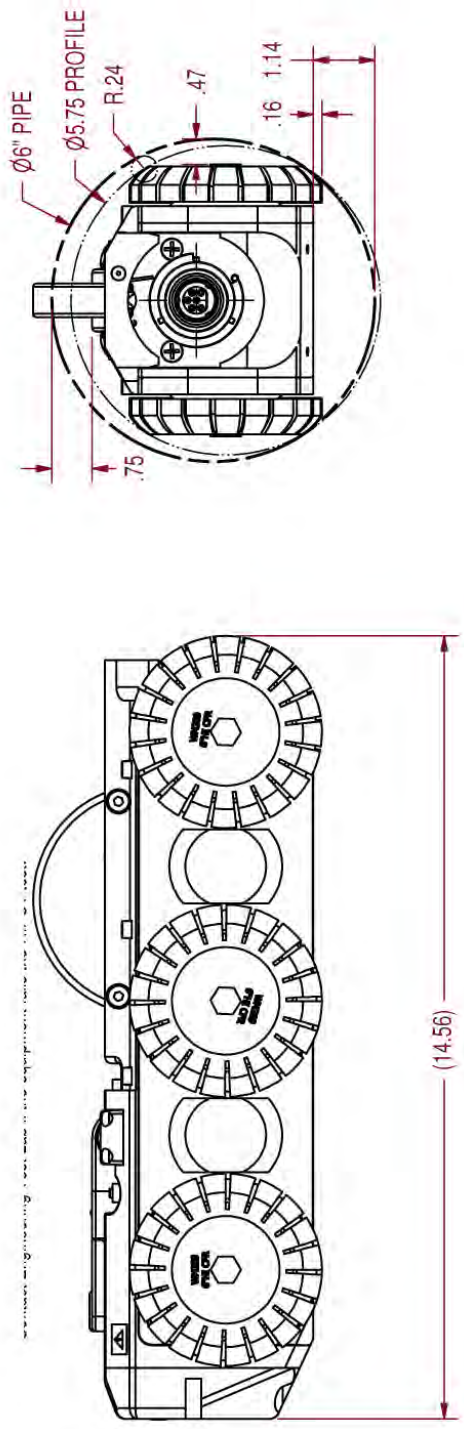


Figure 36b. *TRANSPORTER ASSY,UNIBODY BRASS,CPR,WM350*

Compact Pipe Ranger

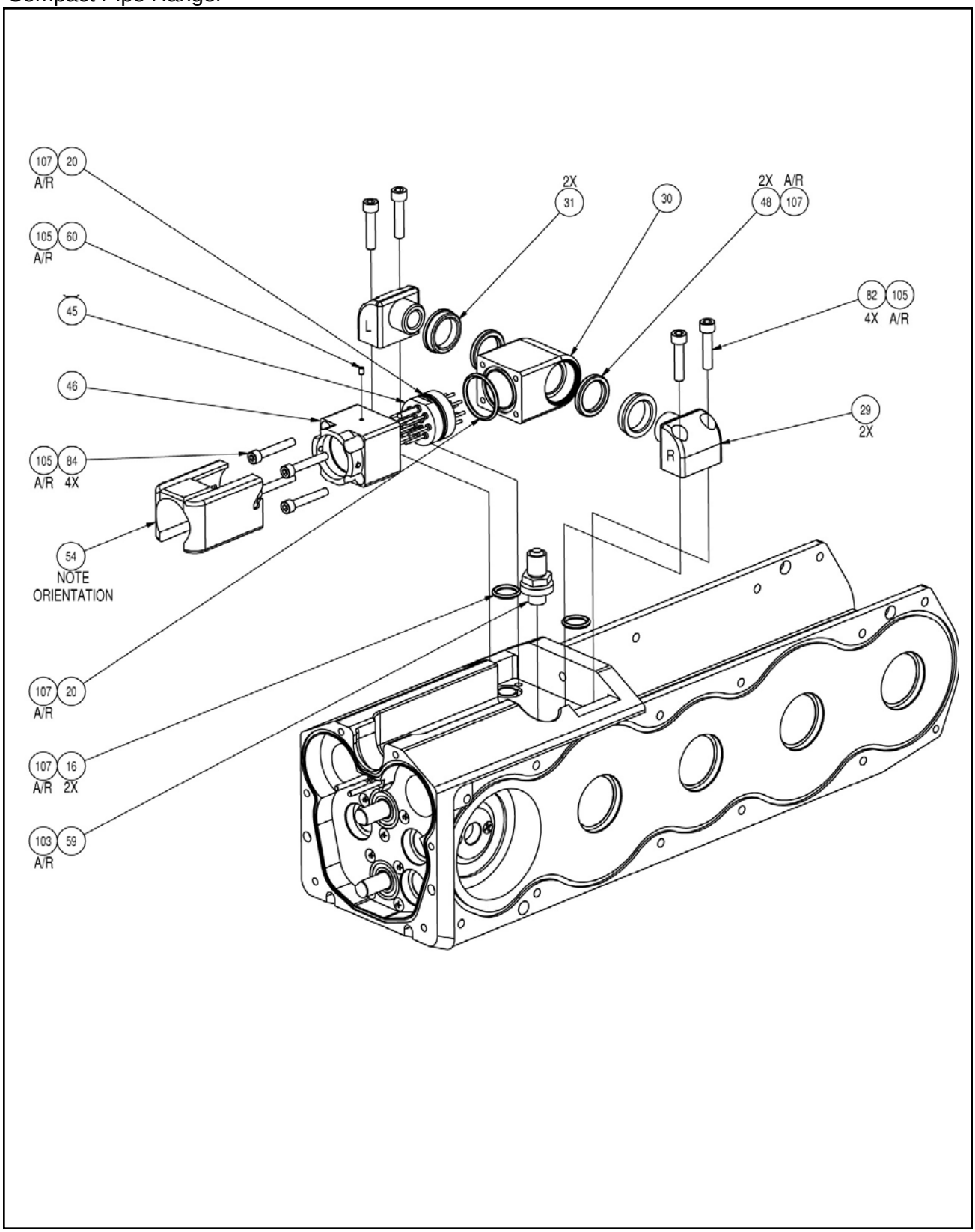


Figure 36c. *TRANSPORTER ASSY,UNIBODY BRASS,CPR,WM350*

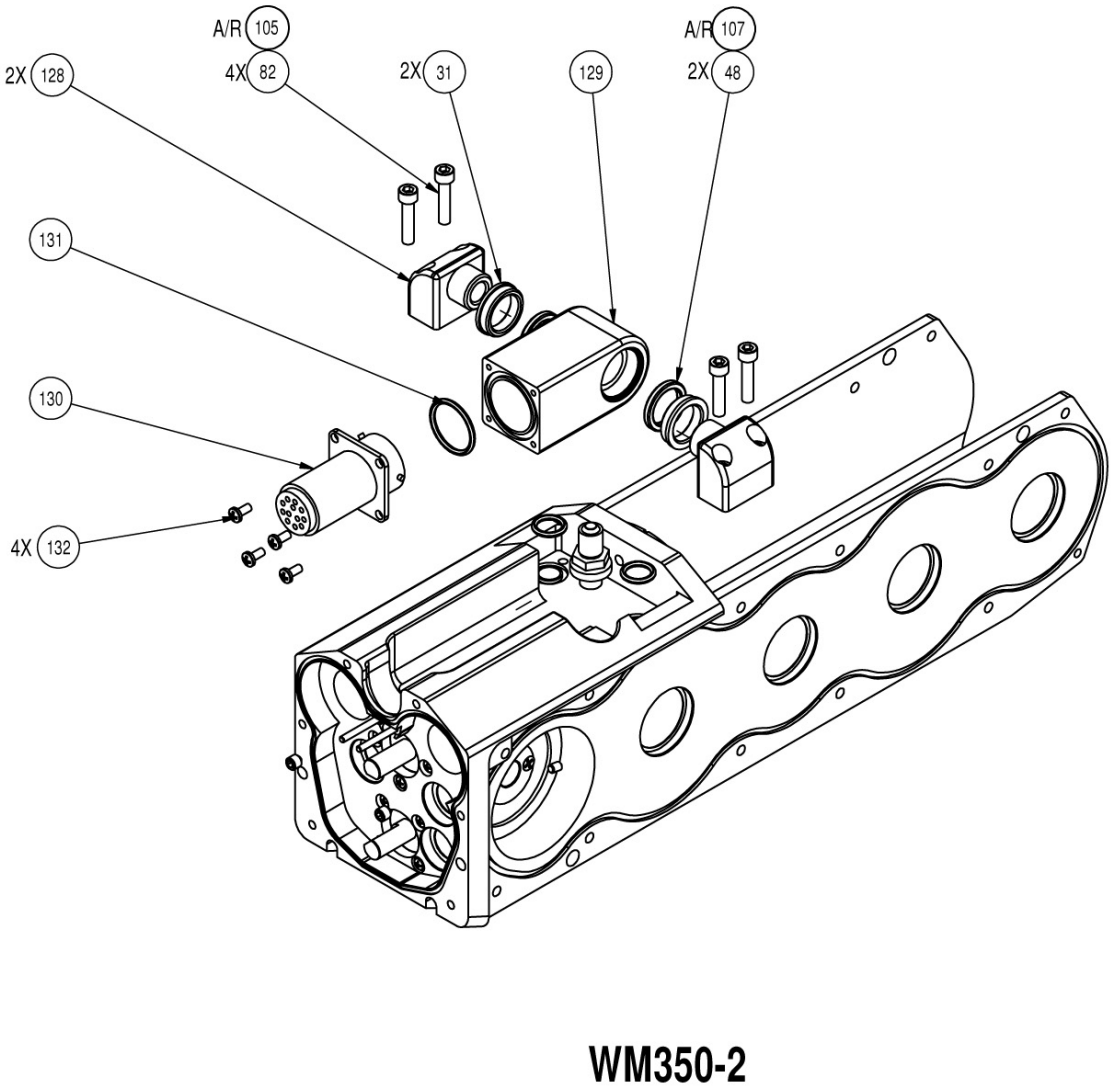


Figure 36d. *TRANSPORTER ASSY,UNIBODY BRASS,CPR,WM350*

Compact Pipe Ranger

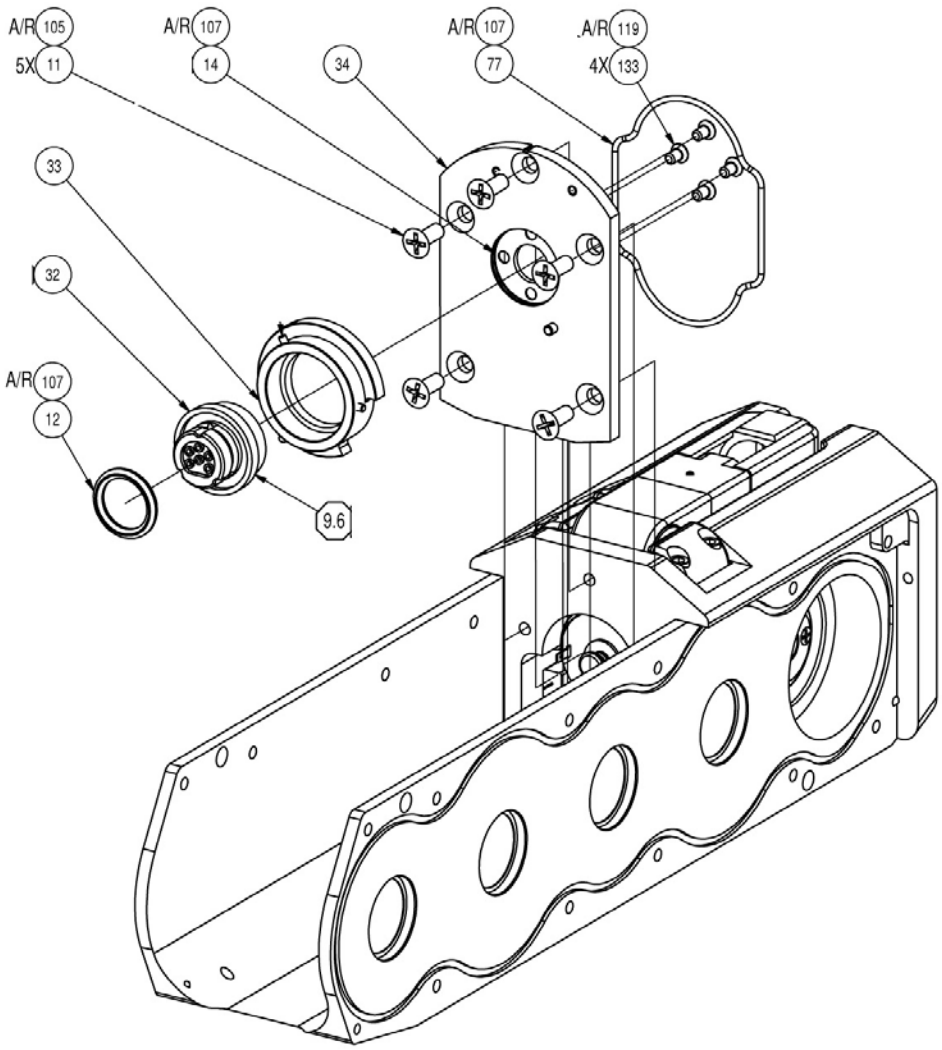


Figure 36e. *TRANSPORTER ASSY,UNIBODY BRASS,CPR,WM350*

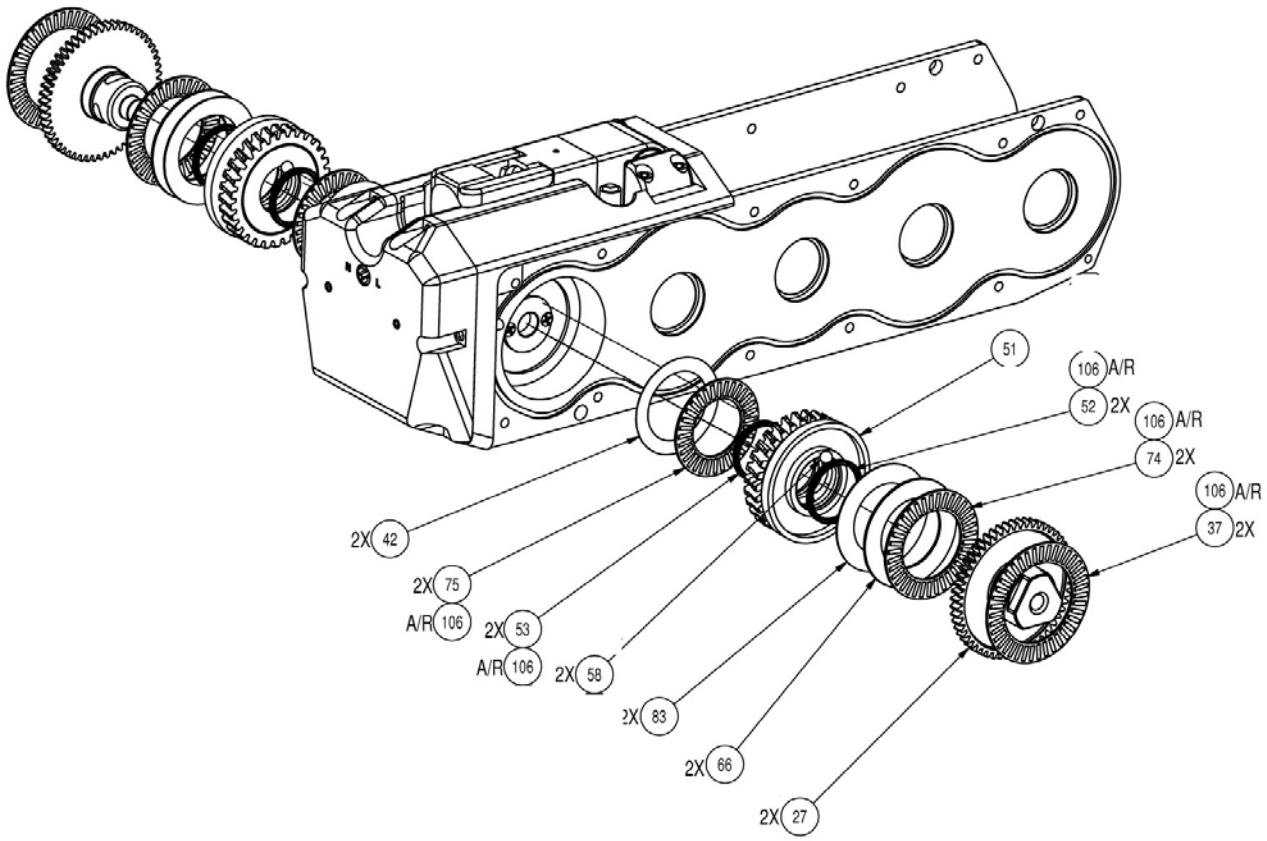


Figure 36f. *TRANSPORTER ASSY,UNIBODY BRASS,CPR,WM350*

Compact Pipe Ranger

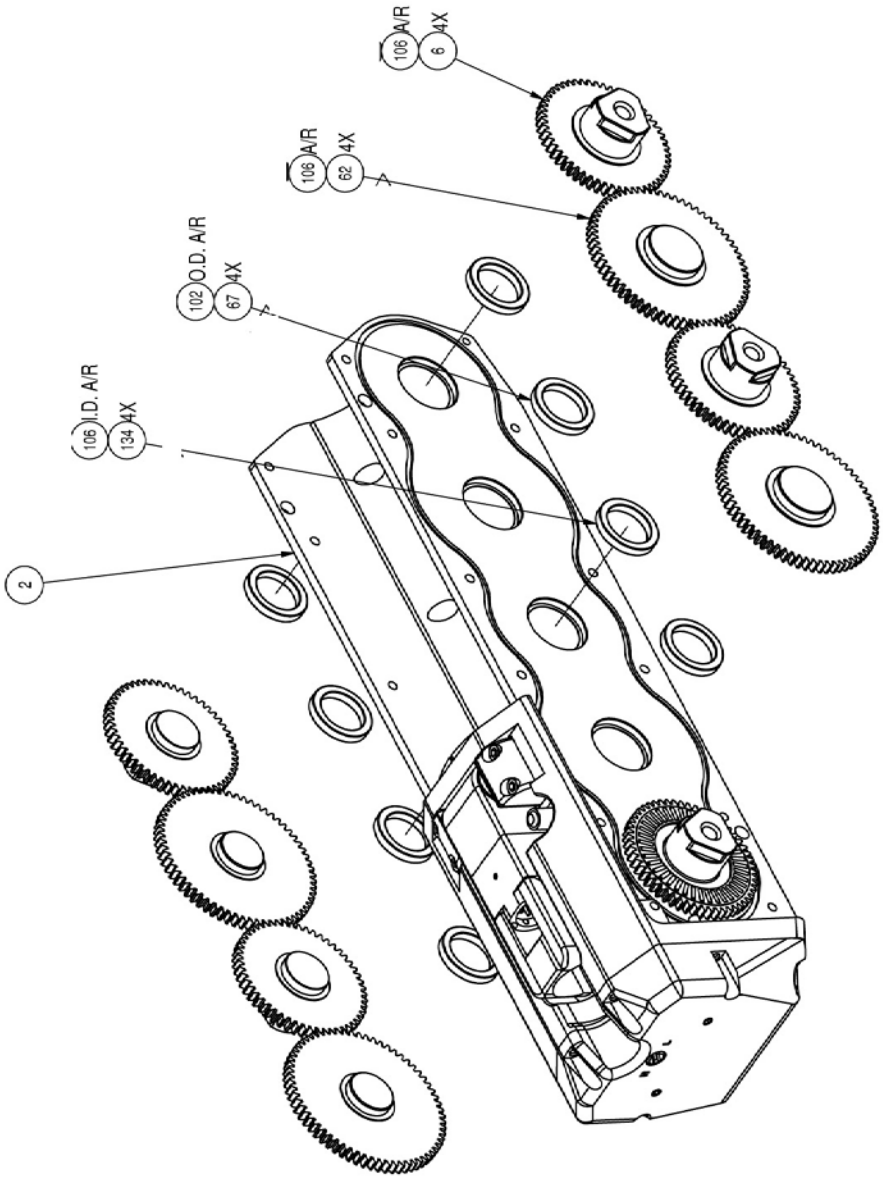


Figure 36g. *TRANSPORTER ASSY,UNIBODY BRASS,CPR,WM350*

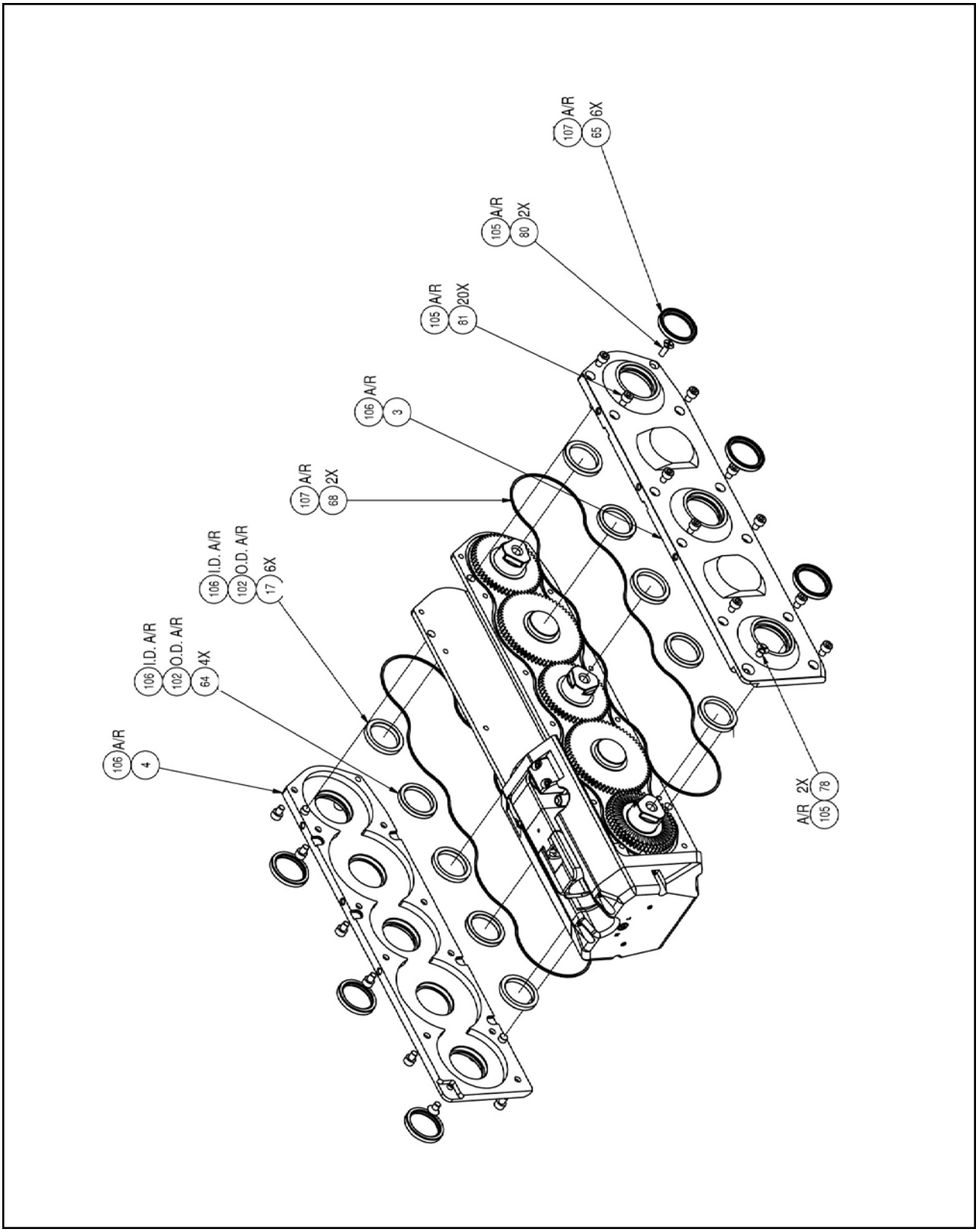


Figure 36h. *TRANSPORTER ASSY,UNIBODY BRASS,CPR,WM350*

Compact Pipe Ranger

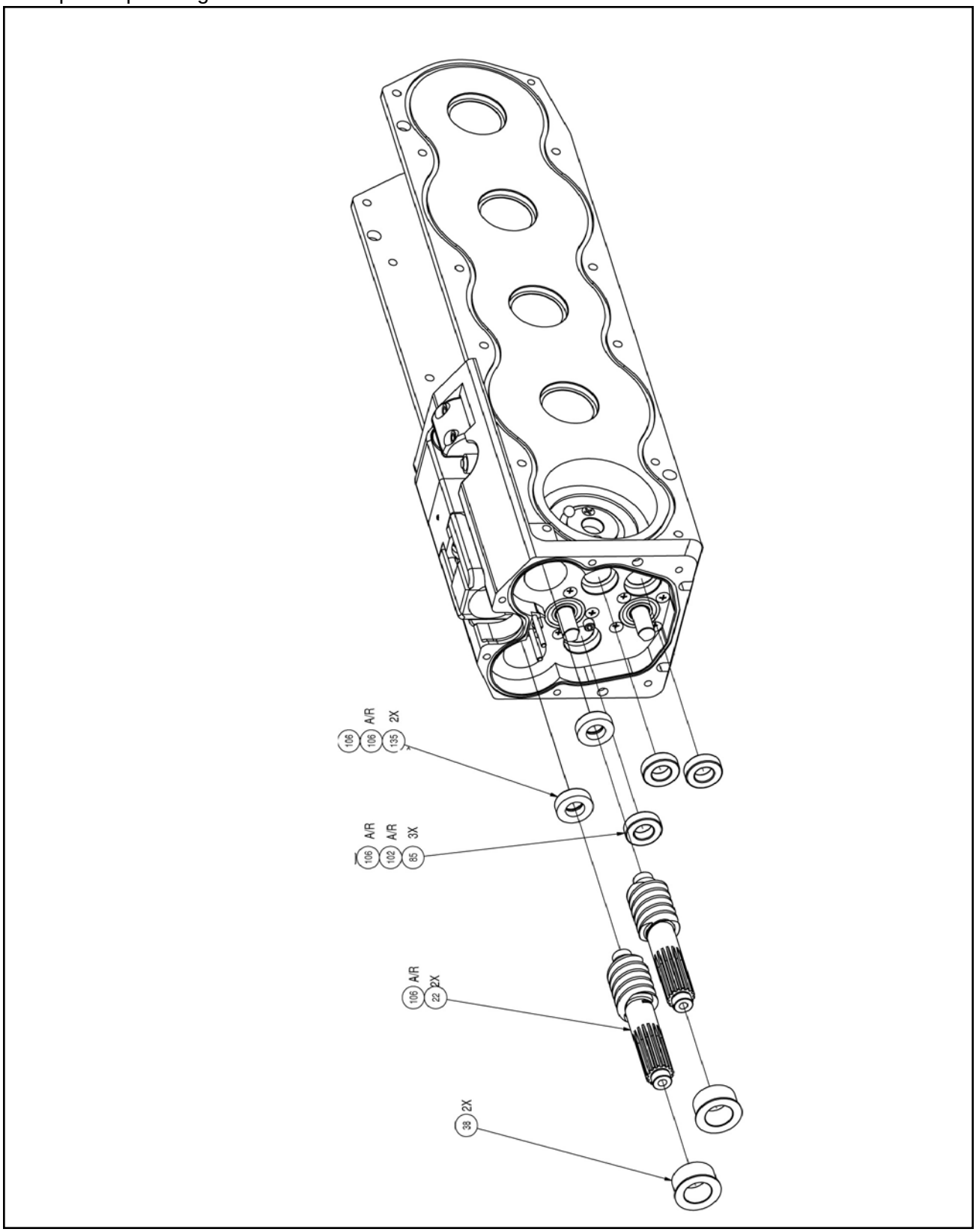


Figure 36i. *TRANSPORTER ASSY,UNIBODY BRASS,CPR,WM350*

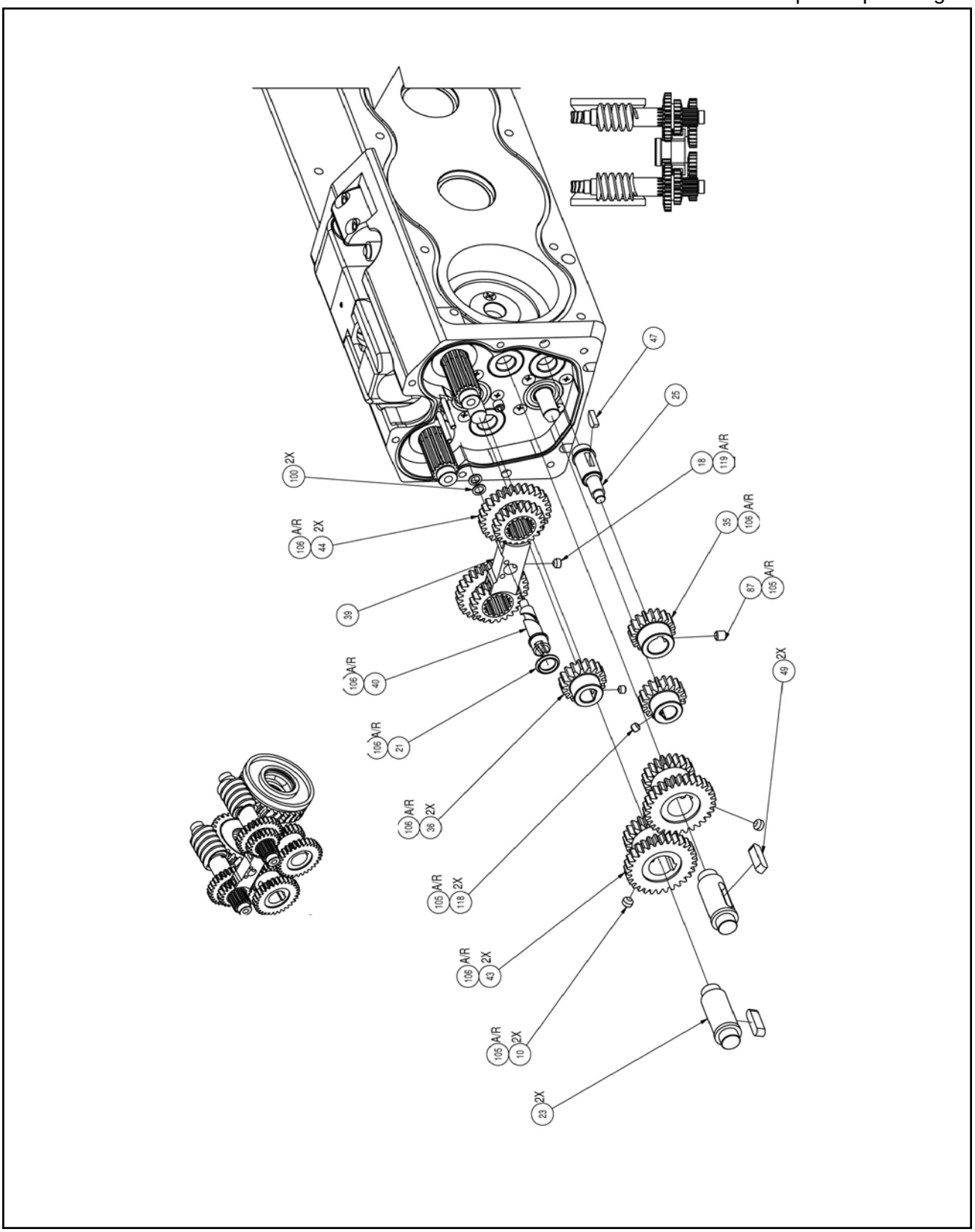


Figure 36k. *TRANSPORTER ASSY,UNIBODY BRASS,CPR,WM350*

Compact Pipe Ranger

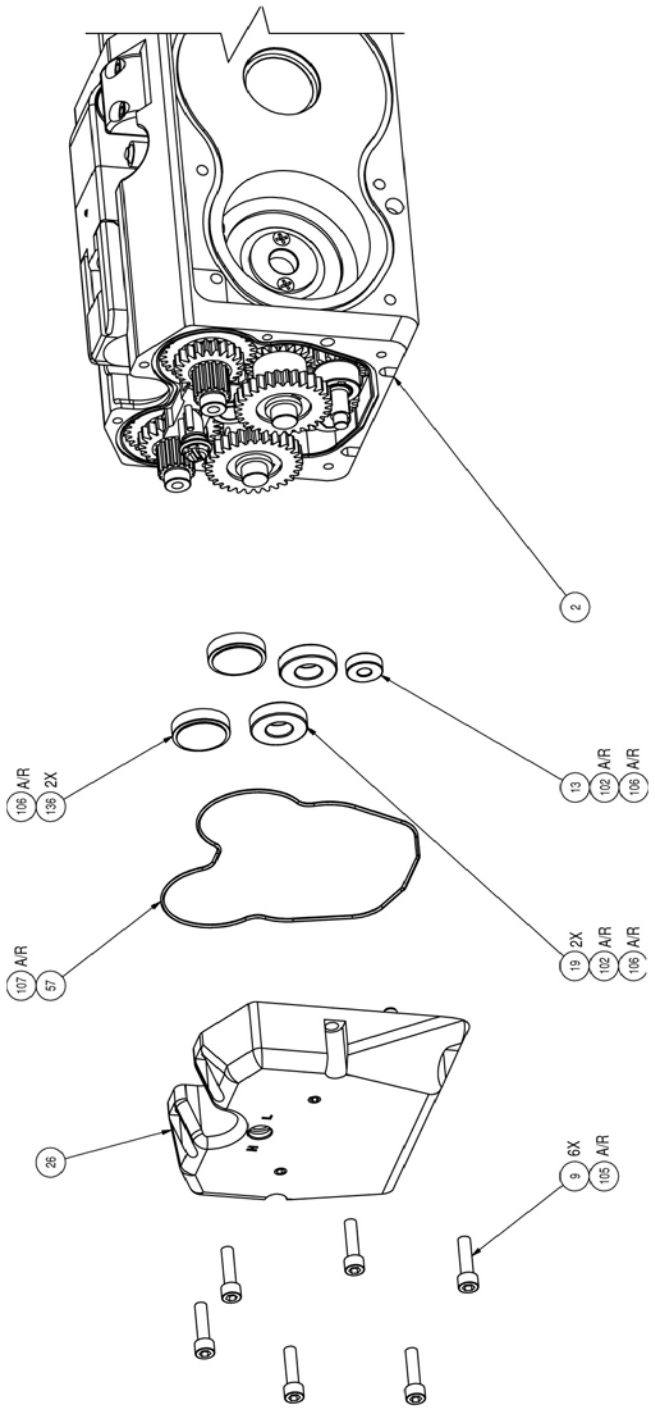


Figure 36l. *TRANSPORTER ASSY,UNIBODY BRASS,CPR,WM350*

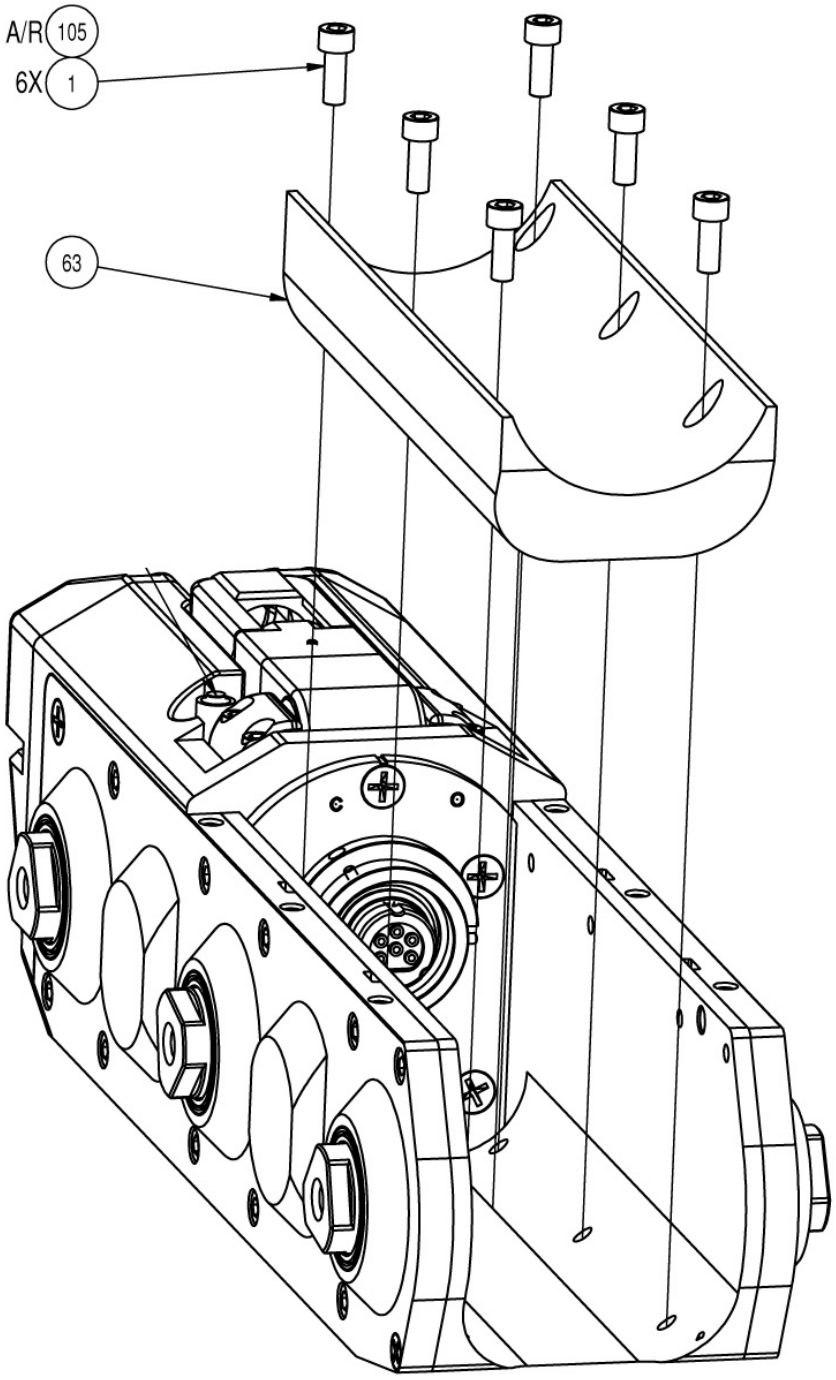


Figure 36m. *TRANSPORTER ASSY,UNIBODY BRASS,CPR,WM350*

Compact Pipe Ranger

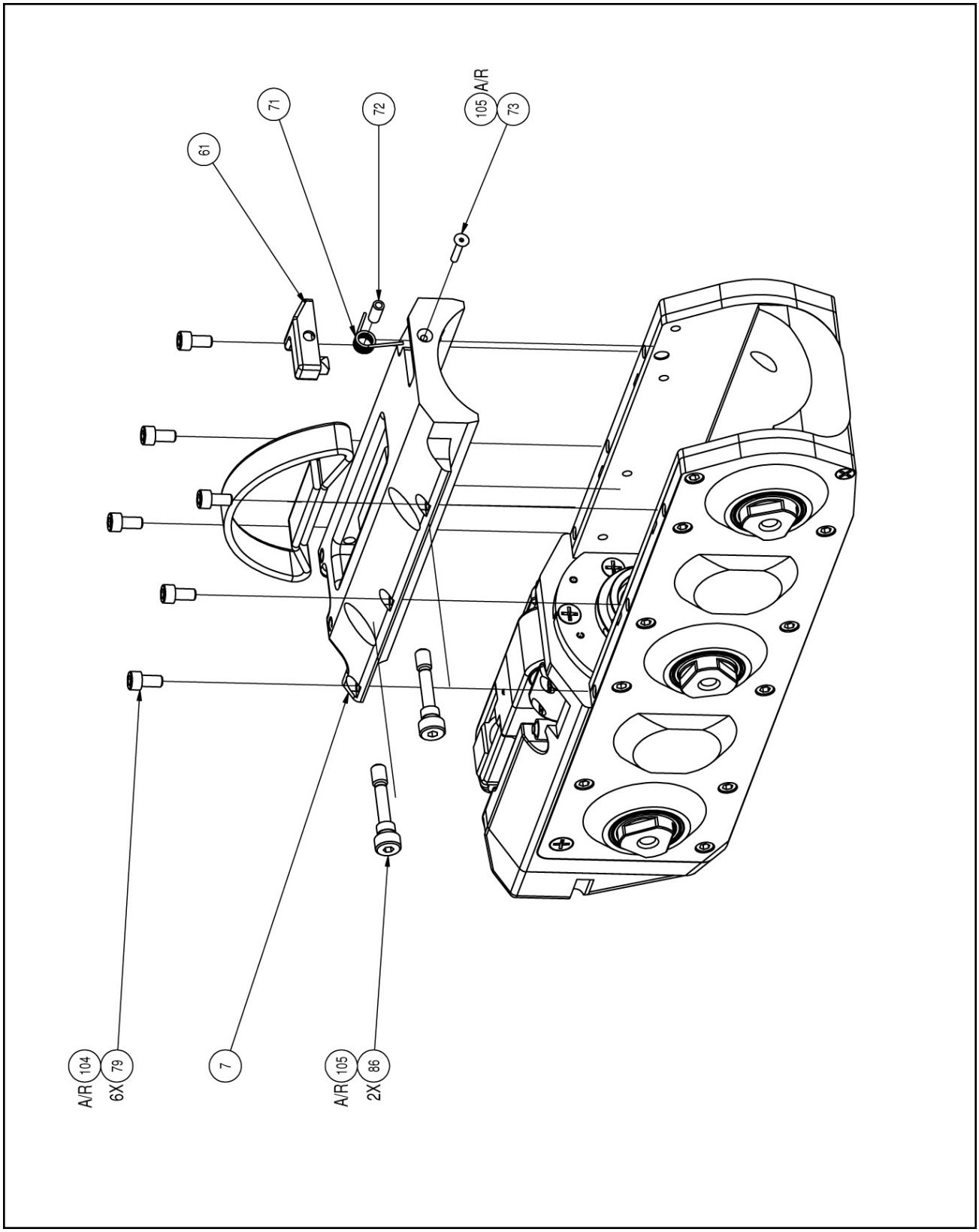


Figure 36n. *TRANSPORTER ASSY,UNIBODY BRASS,CPR,WM350*

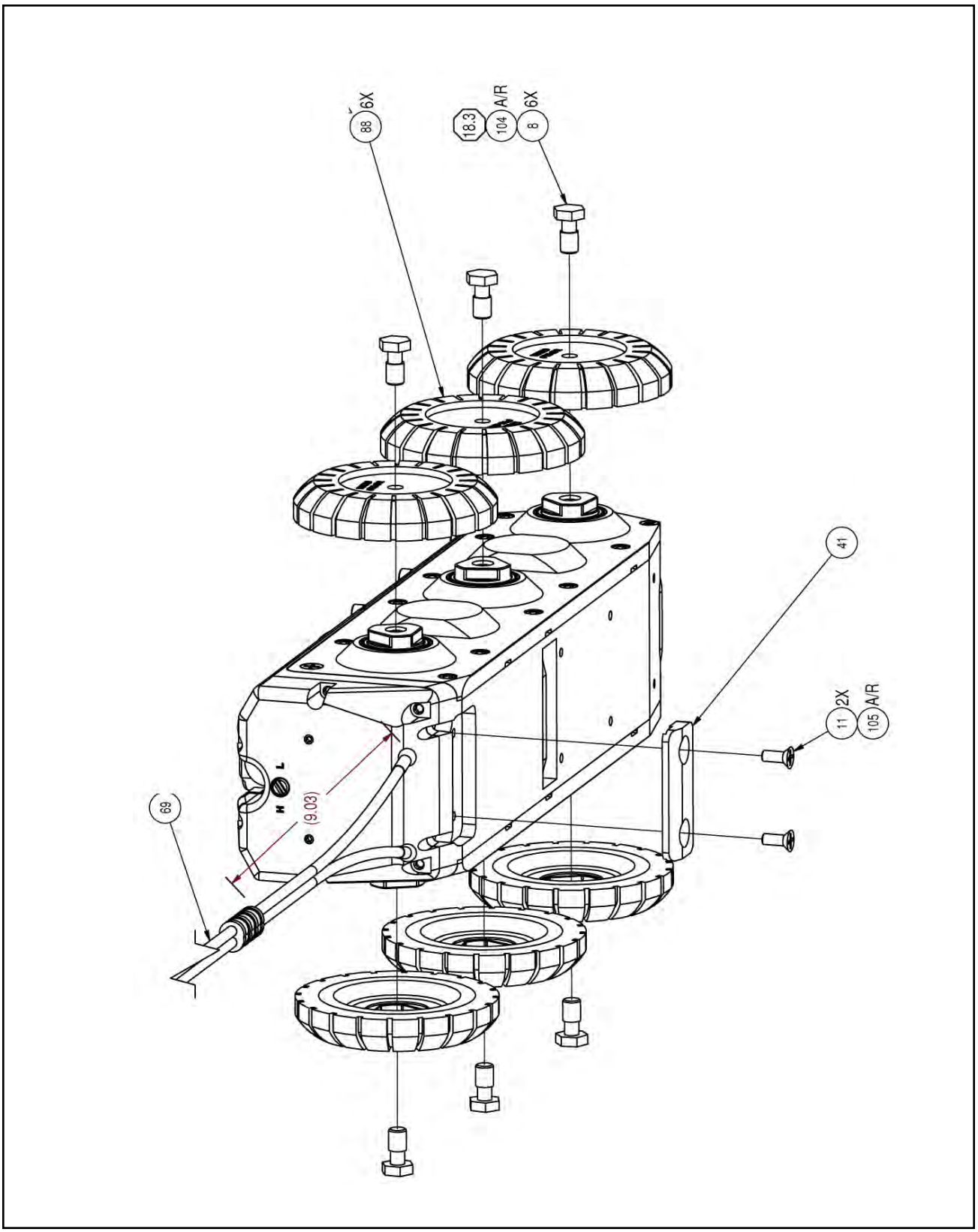


Figure 36o. *TRANSPORTER ASSY,UNIBODY BRASS,CPR,WM350*

Compact Pipe Ranger

TRANSPORTER ASSY,UNIBODY BRASS,CPR (See Figure 36),Rev. Q, WM350			
Item #	Description	P/N	Qty
0001	SCREW,CAP,SKT HD,10-32X1/2,SST	102001	6
0002	HOUSING ASSY,XPRTR,BRASS,CPR	WM329	1
0003	COVER,SIDE,RIGHT,UNIBODY,CPR,SS	WM072	1
0004	COVER,SIDE,LEFT,UNIBODY CPR	WM073	1
0006	GEARED SHAFT,IDLE WHEEL DRIVE,CPR	WM278	4
0007	CLAMP,CAMERA(NAVAL BRASS)	WM008-1	1
0008	SCREW,CAPT,HEX,5/16-24UNF X 0.625	WM098-1	6
0009	SCREW,CAP,SKT HD,8-32X5/8,SST	100141	6
0010	SCREW,SET,10-32X1/8 SST	101027	2
0011	SCREW,FLAT,10-32X1/2 SST	103052	7
0012	O-RING,17MM ID X3MMW,BUNA,SHOREA70	HW1772	1
0013	BEARING,BALL,3/16 ID X 1/2 OD X5/32	300280	1
0014	O-RING,2-022 BUNA	712565	1
0015	SCREW,CHEESEHEAD M3X6 PHIL	8928	8
0016	O-RING,2-012,BUNA-N	HW1092	2
0017	BEARING,BUSH,OUTER,WHL SHAFT,CPR	WM217	6
0018	SCREW,SET,8-32 X 3/16,POG POINT,SST	HW1453	1
0019	BEARING,BALL,9MMX20MMX6MM,DBL SHD	HW1541	2
0020	O-RING,2-018,SILICONE	HW683	2
0021	O-RING,2-011,SILICONE	PM209	1
0022	SHAFT,WORM DRIVE,MINI MAINLINE	WM001	2
0023	SHAFT,IDLER GEAR,MINI MAINLINE	WM002	2
0024	GEARMOTOR,23:1,MAXON RE035 GP032C	WM003	2
0025	SHAFT,IDLER MINI MAINLINE	WM005	1
0026	COVER,REAR W/PINS,SS,CPR	WM084-2	1
0027	AXLE,MAIN DRIVE,CPR	WM276	2
0029	CLEVIS,SIDE	WM017	2
0030	HOUSING,SWIVEL,REAR,12-PIN	WM018	1
0031	BUSHING,.562ID X.749 ODX.20THK,BRNZ	WM019	2
0032	CONNECTOR,TWIST LOCK,FEMALE,6 SCKT	WM300	1
0033	NUT,TWIST LOCK,6-PIN	WM021	1
0034	BULKHEAD,TWIST LOCK CONN,SS	WM022	1
0035	GEAR,SPUR,24DP 18T 14.5PA,KEYED	WM024	1
0036	GEAR,SPUR,24DP 18T 14.5PA,D-HOLE	WM025	2
0037	BEARING,THRUST,NDL,35MMX52MMX2MM	HW2048	2
0038	BUSHING,WORM SHAFT	WM029	2
0039	BRACKET,GEAR CHANGE	WM031	1
0040	SHAFT,LEAD SHIFTER	WM032	1
0041	KEEPER,TOW CABLES,WHLD MINI XPTR	WM035	1
0042	SHIM,30MMX42MMX0.2MM,18-8SS	HW2055	2

TRANSPORTER ASSY,UNIBODY BRASS,CPR (See Figure 36),Rev. Q, WM350			
0043	GEAR,21/30T,DRIVE,STEERABLE PR	WS009	2
0044	GEAR,21/30T,SPLINED,SPR	WS022	2
0045	PLUG,FEMALE,12 PIN	WT038	1
0046	CAP,SWIVEL,MML	WM014	1
0047	KEY,WOODRUFF, 3/32 X 3/8,SS	BT024	1
0048	SEAL,QUAD,9/16"IDX3/4"ODX3/32"W	HW1514	2
0049	KEY,RND ENDS,METRIC,4MM SQX16MM L	HW1515	2
0050	LOOP,LIFTING,WEBBING,U-SHTY,WTR,CPR	MC223	1
0051	CLUTCH WORM GEAR ASSY,CPR	WM335	2
0052	O-RING,QUAD,2-021,BUNA-N	HW2011	2
0053	SEAL,QUAD,2-20,BUNA-N	HW1759	2
0054	CONNECTOR,LOCKING,F/12P PIGTAIL	WM056	1
0055	CAPACITOR,.22UF,400V,10%,MPOLYFILM	EC252	2
0056	RESISTOR,CF,10 OHM,1/4 W 5%	700559	2
0057	O-RING,3.645ID,VITON,BACK COVER	WM106	1
0058	BALL,5MM,TUNGSTEN CARBIDE,GRADE 25	HW2276	2
0059	VALVE,PURGE,P&T	CP063	1
0060	SCREW,SET,2-56X1/8"LONG SOCKET	101097	1
0061	BUTTON,LATCH CAMERA	WM086	1
0062	GEARED SHAFT,IDLER,CPR	WM279	4
0063	CRADLE,CAMERA,CPR	WM088	1
0064	BEARING,BALL,25MM ID X32ODX4MM,SEAL	HW1562	4
0065	SEAL,25ID X 32OD X 4MM W,RUBBER	HW1563	6
0066	WASHER,THRUST,STL,30MMX47MMX1MM	HW2049	2
0067	BEARING,BALL,20MM IDX27ODX4MM,SEAL	HW1565	4
0068	O-RING,MOLDED,UNIBODY SIDE PLATE	WM101	2
0069	CABLE,TOW,PR,SPR+CPR 39.5 JND PAIR	WS062	1
0071	SPRING,TORSION,.357 OD X .045,MOD	WM102	1
0072	SPACER,.188 OD X .115 ID X .406 LG	HW1581	1
0073	SCREW,CAP #4-40 X 5/8LG,FH,SS	HW1582	1
0074	BEARING,THRUST,NDL,30MMX47MMX2MM	HW2047	2
0075	BEARING,THRSUT,NDL,25MMX42MMX2MM	HW2046	2
0076	LABEL,ETL MARK,1"X1"	CS225	1
0077	O-RING,MOLDED,BULKHEAD	WM103	1
0078	SCREW,FLATHEAD,10-32X5/16 PHIL SST	101426	2
0079	SCREW,CAP,SKT HD,10-32X3/8,SST	103030	6
0080	SCREW,8-32X1/2 FL,PH,SS	103062	2
0081	SCREW,CAP,SKT HD,10-32 X 1/4,SST	HW1345	20
0082	SCREW,CAP,SKT HD,#8-32 X 3/4 SST	HW809	4
0083	WASHER,BELL,STL,30MMX47MMX0.6MM	HW2050	2
0084	SCREW,CAP,SKT HD,#6-32X.88LG SST	100128	4

TRANSPORTER ASSY,UNIBODY BRASS,CPR (See Figure 36),Rev. Q, WM350			
0085	BEARING,BALL,9X17X5,SEALED	HW457	3
0086	SCREW,SHOULDER LIFT STRAP,CPR	WM107	2
0087	SCREW,SET,8-32X3/16 SST	101927	1
0088	WHEEL,RBR,75D,6",H-BTM CLR,CPR&LMII	WM209	6
0089	LABEL,LASERTAB MARKER,1.500 X .500	CS221	1
0090	LABEL,LASERTAB MARKER, .560 X .560	CS222	1
0091	TUBE,SHRINK,BLACK 3/16"RNF	712577	1
0092	WIRE,20AWG,RED/BLK,PVC	EC280	1
0093	WIRE,20AWG,BLK/WHT,PVC	EC279	1
0094	WIRE,#20 RED BU	713319	1
0095	WIRE,#20 BLACK STRANDED 600V	713317	1
0096	TOOL,CHISEL,5/32TIP X 5/16HEX X5L	HW1886	1
0099	MANUAL,COMPACT PIPE RANGER	WM901	1
0100	SHIM,ROUND,.167ID X .248 OD X .020	HW1595	2
0101	FUSE,.90AMPS,120V,RESETTABLE	EC1356	2
0102	MRO-RET.COMP,.005GP,ND530125-50,GRN	440072	1
0103	MRO-GASKET MAKER,FASTGASKET,BLK	445067	1
0104	MRO-ANTI-SEIZE,LPS NICKEL,P/N 03908	CS407	1
0105	MRO-REMOVABLE LCK,ND 121200-50,BLUE	440061	1
0106	MRO-GREASE,SYNTH,SIL-PTFE,14-OZ	CS476	1
0107	MRO-LUBRICANT,O-RING 2 OZ TUBE	439986	1
0108	TUBE,SHRINK,BLACK 3/32"	712595	1
0110	WIRE,#24 RED TEFLON	713337	1
0111	WIRE,#24 WHITE TEFLON	713344	1
0112	WIRE,#24 BLACK TEFLON	713335	1
0113	WIRE,#22,GREEN,TEFLON	EC1619	1
0114	WIRE,#22,ORANGE,TEFLON	EC1618	1
0115	WIRE,#24 GRAY 250'TEFLON	713347	1
0116	TUBE,SHRINK,0.750 YELLOW	B005215	1
0117	MRO-TAG WARNING NO HI GEAR&12"PNEU	WT095-1	1
0118	SCREW,SET,CUP PT,#6-32X1/8LG SST	100046	2
0119	MRO-PERMANENT LOCK,ND 140500-2,RED	CS238	1
0123	SCREW,FLT UNDCUT,6.32X.25,18-8,SS	HW1975	4
0134	BEARING,INNER,WHEELED SHAFT,CPR	WM220	4
0135	BEARING,BUSH,INNER,WORM SHAFT,CPR	WM221	2
0136	BEARING,OUTER,WORM SHAFT,CPR	WM222	2
0138	TOOL,3/8"DR TRQ WRNCH,MICROMTR ADJ	CS472	1
0139	TOOL,3/8"DR,1/4"HEX BIT SOCKET	CS474	1
0140	TOOL,3/8DR,1/2"X6POINT SOCKET	CS486	1
0141	TUBE,SHRINK,RED 3/16"RNF	712591	1
0142	ANTI-SEIZE,BRSH,NICKL GRAF,2 OZ	CS488	1
0143	LABEL,1-1/8"X3-1/2",AVERY 4150	CS491	1

WM902-INST

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Wheel Matrix for Compact Pipe Ranger (CPR)

Installation Configuration Matrix

Configuration	6" Relined	6" Relined	6" RUBBER	8" RUBBER	8" STEEL	10" RUBBER	10" STEEL	12" RUBBER	12" STEEL	15" RUBBER	15" STEEL	12" PNEU	15" PNEU
KIT Number	WM907	WM307	N/A	WM308	WM308-1	WM310	WM310-1	WM310	WM310-1	WM310	WM310-1	WM312	WM312
HUB, Inner	none	none	none	WM089 (6 ea.)	none	WM089 (6 ea.)	none	WM089 (6 ea.)	none	WM089 (6 ea.)	none	WM100 (4 ea.)	WM100 (4 ea.)
HUB, Outer	none	none	none	WM090 (6 ea.)	none	WM091 (6 ea.)	none	WM091 (6 ea.)	none	WM091 (6 ea.)	none	none	none
WHEEL/TIRE	WM097 (6 ea.)	WM096 (6 ea.)	WM209 (6 ea.)	WM092 (6 ea.)	WM094 (6 ea.)	WM093 (6 ea.)	WM108 (6 ea.)	WM093 (6 ea.)	WM108 (6 ea.)	WM093 (6 ea.)	WM108 (6 ea.)	WT331 (4 ea.)	WT331 (4 ea.)
SPACERS (NOT IN KITS) REQUIRED FOR PIPE SIZE CONFIG.	none	none	none	WM058 (6 ea.)	WM058 (6 ea.)	WM061 (6 ea.)	WM061 (6 ea.)	WM058 (6 ea.) WM061 (6 ea.)	WM058 (6 ea.) WM061 (6 ea.)	WM061 (12 ea.)	WM061 (12 ea.)	none	WM058 (4 ea.) WM061 (4 ea.)
HUB SCREWS	none	none	none	103052 (18 ea.)	none	102001 (18 ea.)	none	102001 (18 ea.)	none	102001 (18 ea.)	none	none	none
CAPTIVE SCREW	WM098-1 (6 ea.)	WM098-1 (6 ea.)	WM098-1 (6 ea.)	WM099-1 (6 ea.)	WM099-1 (6 ea.)	none	none	none	none	none	none	none	none
ATTACHMENT SCREW	none	none	none	none	none	HW1567 (6 ea.) 1.5" length	HW1567 (6 ea.) 1.5" length	HW1568 (6 ea.) 2.0" length	HW1568 (6 ea.) 2.0" length	HW1569 (6 ea.) 2.5" length	HW1569 (6 ea.) 2.5" length	HW1568 (4 ea.) 2.0" length	HW1570 (4 ea.) 3.5" length

NOTE: Spacer kits (WM317 or WM317-1) are required and include all spacers and screws for 8"-15" configurations.

TITLE:	INSTR. SHT, WHEEL MATRIX FOR COMPACT PIPE RANGER	DFTSMN:	DATE:
DWG. NO.:	WM902-INST	CHKR:	DATE:
ECN:	11041	ENGR:	DATE:
REV.:	D	MFG:	DATE:
MATERIAL:	NONE	MAT'L:	DATE:
FINISH:	NONE		
PRODUCT:	CPR		
NEXT ASSY / USED ON:	WM350 AND WM350-1		

Figure 37a. *INSTR.SHT,WHEEL MATRIX FOR CPR,WM902-INST*

Wheel Matrix for Compact Pipe Ranger (CPR)

Kit Inventory Checklist

Kit No.	*Qty.*	*Part Number*	*Nomenclature*
WM307	6 ea.	WM096	Wheel, Steel, 6" Relined Pipe
(6" relined pipe)	* (included)	WM098-1	Screw, Captive, Hex Head, 5/16-24UNF x 0.625
WM308	6 ea.	WM089	Hub, Inner, 8-15"
(8" pipe)	6 ea.	WM090	Hub. Outer, 8"
	6 ea.	WM092	Tire, Rubber, 8" Pipe
	18 ea.	103052	Screw, Flat, Phillips, 10-32UNF x 1/2
	6 ea.	WM099-1	Screw, Captive, Hex, 5/16-24UNF x 1.000
WM308-1	6 ea.	WM094	Wheel, Steel, 8" Pipe
(8" pipe)	* (included)	WM099-1	Screw, Captive, Hex, 5/16-24UNF x 1.000
WM310	6 ea.	WM089	Hub, Inner, 8-15"
(10-15" pipe)	6 ea.	WM091	Hub, Outer, 10-15"
	6 ea.	WM093	Tire, Rubber, 10-15" Pipe
	18 ea.	102001	Screw, SHCS, 10-32UNF x 1/2
WM310-1	6 ea.	WM108	Wheel, Steel, 10-15" Pipe
(10-15" pipe)	(OR 4 ea.	WM095	Wheel, Steel, 10-15" Pipe)
WM312	4 ea.	WM100	Adapter, Hub, Pneu. Wheels
(pneu. 12-15" pipe)	4 ea.	WT331	Pneumatic Wheel Assy

Kit No.	*Qty.*	*Part Number*	*Nomenclature*
WM907	6 ea	WM097	Wheel, Rubber, 6" Relined Pipe
(6" relined pipe)	* (included)	WM098-1	Screw, Captive, Hex Head, 5/16-24UNF x 0.625
WM315	6 ea.	WM096	Wheel, Steel, 6" Pipe
(all wheels)	* (included)	WM098-1	Screw, Captive, Hex, 5/16-24UNF x 0.625
	6 ea.	WM094	Wheel, Steel, 8" Pipe
	* (included)	WM099-1	Screw, Captive, Hex, 5/16-24UNF x 1.000
	6 ea.	WM108	Wheel, Steel, 10-15" Pipe
	12 ea.	WM089	Hub, Inner, 8-15"
	6 ea.	WM090	Hub. Outer, 8"
	6 ea.	WM092	Tire, Rubber, 8" Pipe
	18 ea.	103052	Screw, Flat, Phillips, 10-32UNF x 1/2
	6 ea.	WM099-1	Screw, Captive, Hex, 5/16-24UNF x 1.000
	6 ea.	WM091	Hub, Outer, 10-15"
	6 ea.	WM093	Tire, Rubber, 10-15" Pipe
	18 ea.	102001	Screw, SHCS, 10-32UNF x 1/2
	4 ea.	WM100	Adapter, Hub, Pneu. Wheels
	4 ea.	WT331	Pneumatic Wheel Assy

*Note: Captive Screw is contained within wheel

BRASS AND ALUMINUM 6"-15" PIPE SPACER KITS

WM317 (BRASS)	6 ea.	WM058	Spacer, .5",Quick Change,CPR,Brass
(6"-15" pipe)	12 ea.	WM061	Spacer,1", Quick Change,CPR,Brass
	12 ea.	HW1567	Scew,SHCS,5/16-24UNF X 1.50,SS
	12 ea.	HW1568	Scew,SHCS,5/16-24UNF X 2.00,SS
	12 ea.	HW1569	Scew,SHCS,5/16-24UNF X 2.50,SS
	8 ea.	HW1570	Scew,SHCS,5/16-24UNF X 3.50,SS

WM317-1 (ALUM)	6 ea.	WM058-1	Spacer, .5",Quick Change,CPR,Alum
(6"-15" pipe)	12 ea.	WM061-1	Spacer,1", Quick Change,CPR,Alum
	12 ea.	HW1567	Scew,SHCS,5/16-24UNF X 1.50,SS
	12 ea.	HW1568	Scew,SHCS,5/16-24UNF X 2.00,SS
	12 ea.	HW1569	Scew,SHCS,5/16-24UNF X 2.50,SS
	8 ea.	HW1570	Scew,SHCS,5/16-24UNF X 3.50,SS

Figure 37b. INSTR,SHT,WHEEL MATRIX FOR CPR,WM902-INST

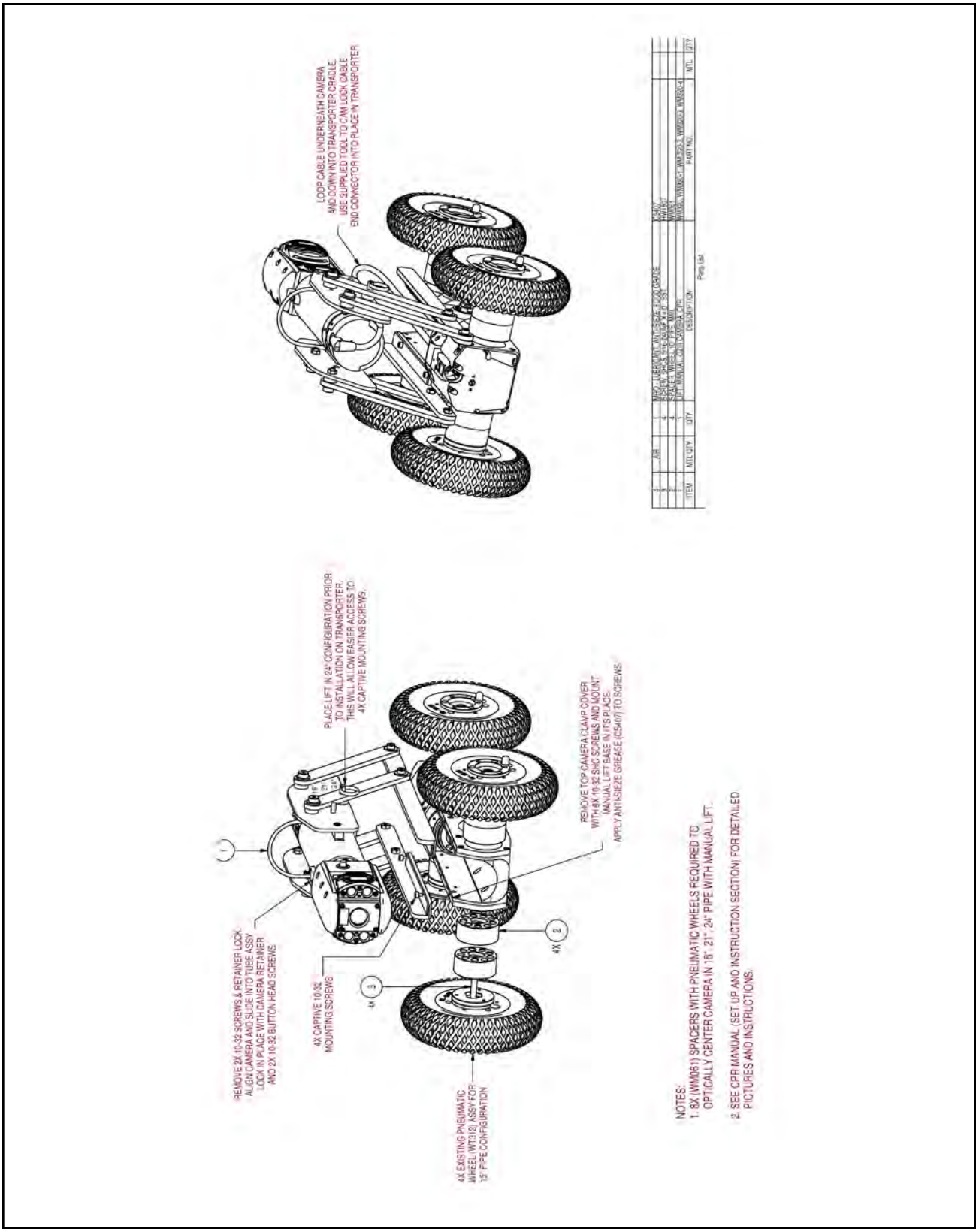
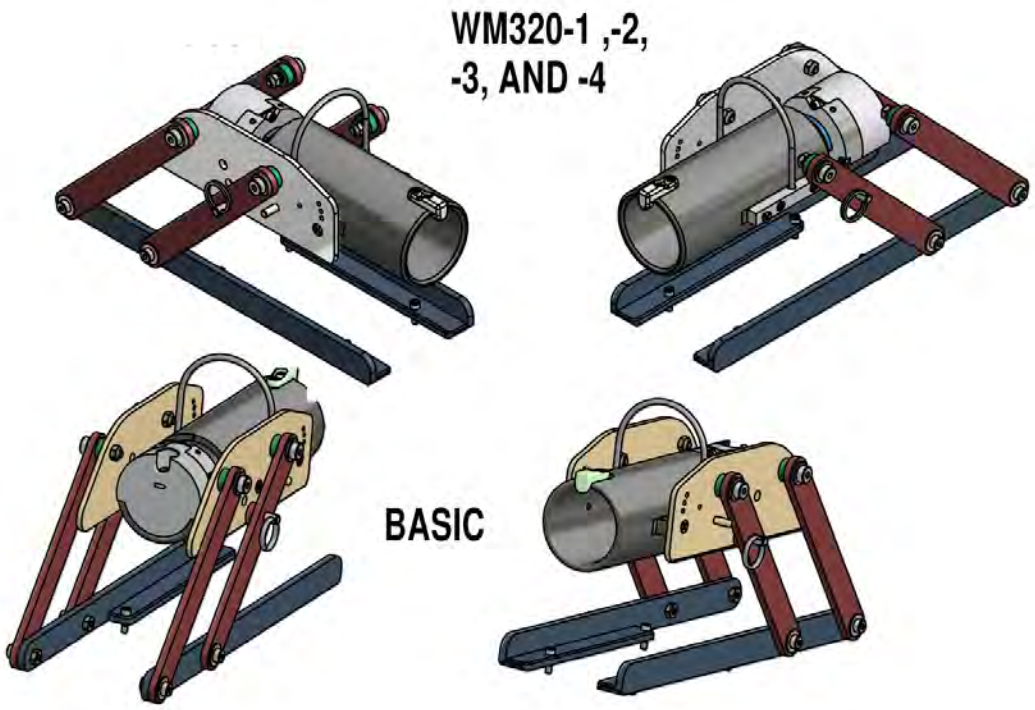


Figure 38. *INSTR.SHT,CPR,18-24",W/MANUAL LIFT,WM904-INST*

Compact Pipe Ranger Accessories



CONFIGURATION LIST		
PART NUMBER	DESCRIPTION	CONFIGURATION
WM320	LIFT, MANUAL, OZIII CAMERA, CPR, SST OBSOLETE	BASIC
WM320-1	LIFT, MANUAL, OZIII CAMERA, CPR,ALUM, REAR MNT CONN	-1
WM320-2	LIFT, MANUAL, OZIII CAMERA, CPR, SST, REAR MNT CONN	-2
WM320-3	LIFT, MANUAL, OZIII CAMERA, CPR,ALUM, REAR MNT CONN, SONDE	-3
WM320-4	LIFT, MANUAL, OZIII CAMERA, CPR,SST, REAR MNT CONN, SONDE	-4

Figure 39a. *LIFT,MANUAL,OZ III CAM,CPR, WM320*

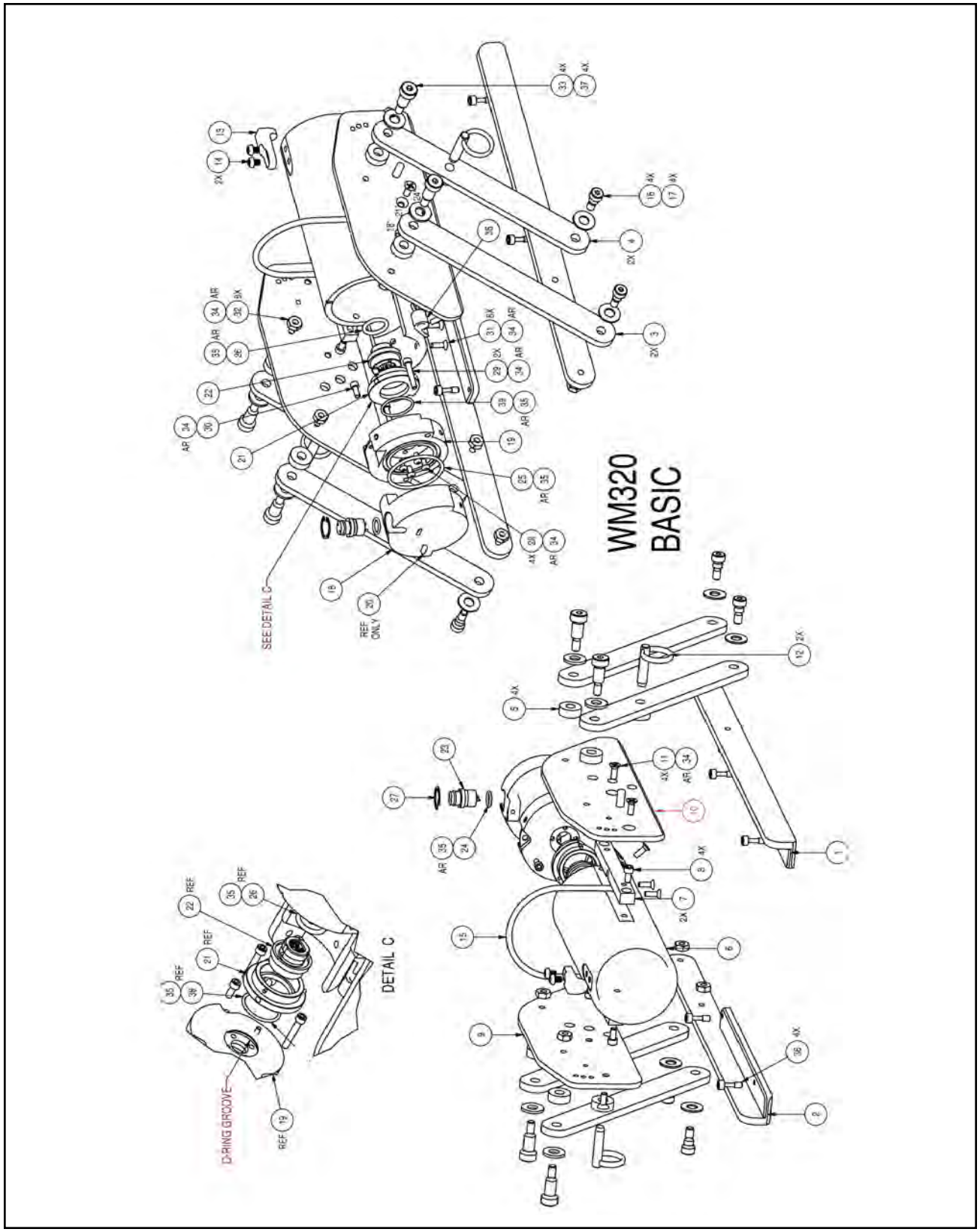


Figure 39b. *LIFT,MANUAL,OZ III CAM,CPR, WM320*

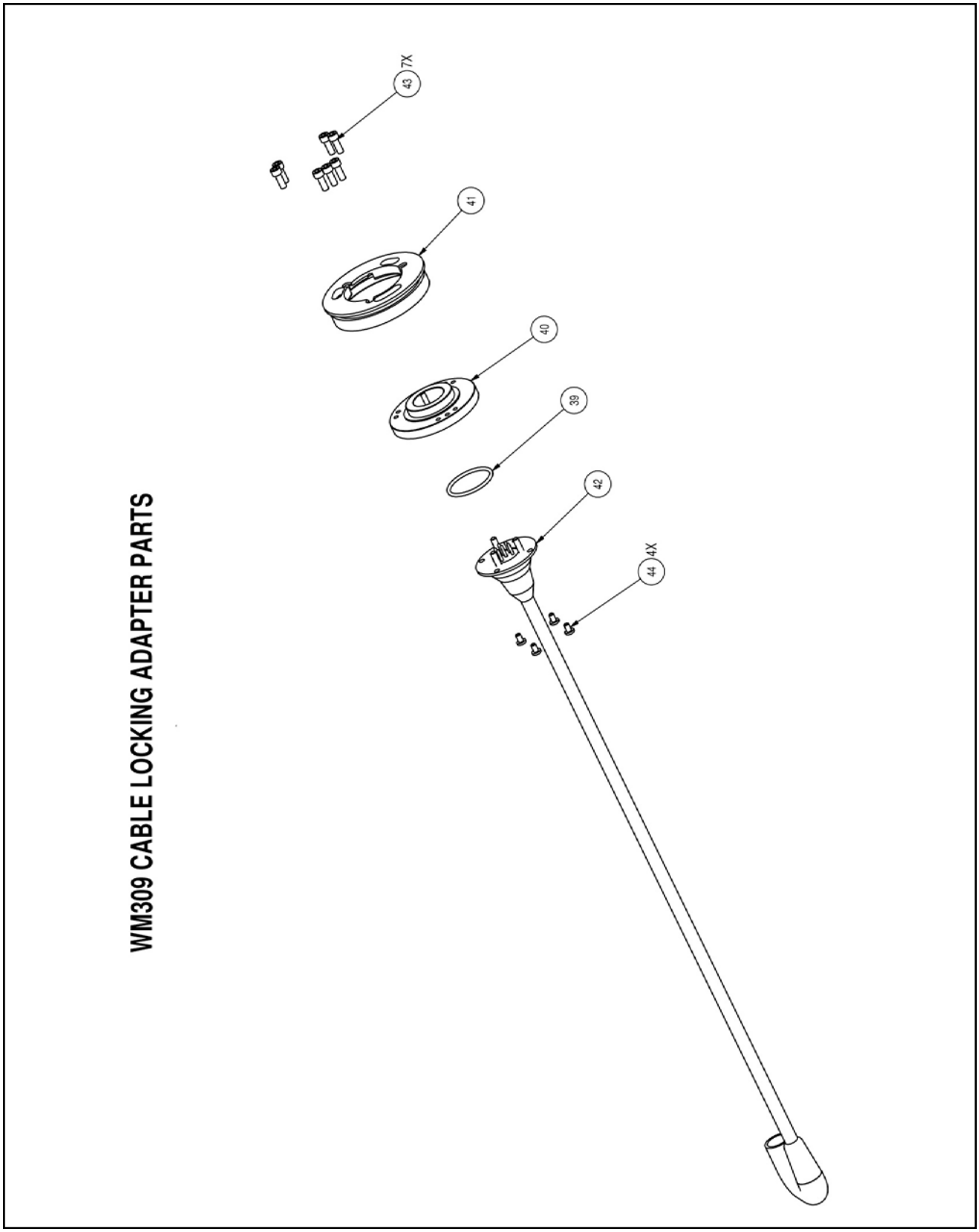


Figure 39c. *LIFT,MANUAL,OZ III CAM,CPR, WM320*

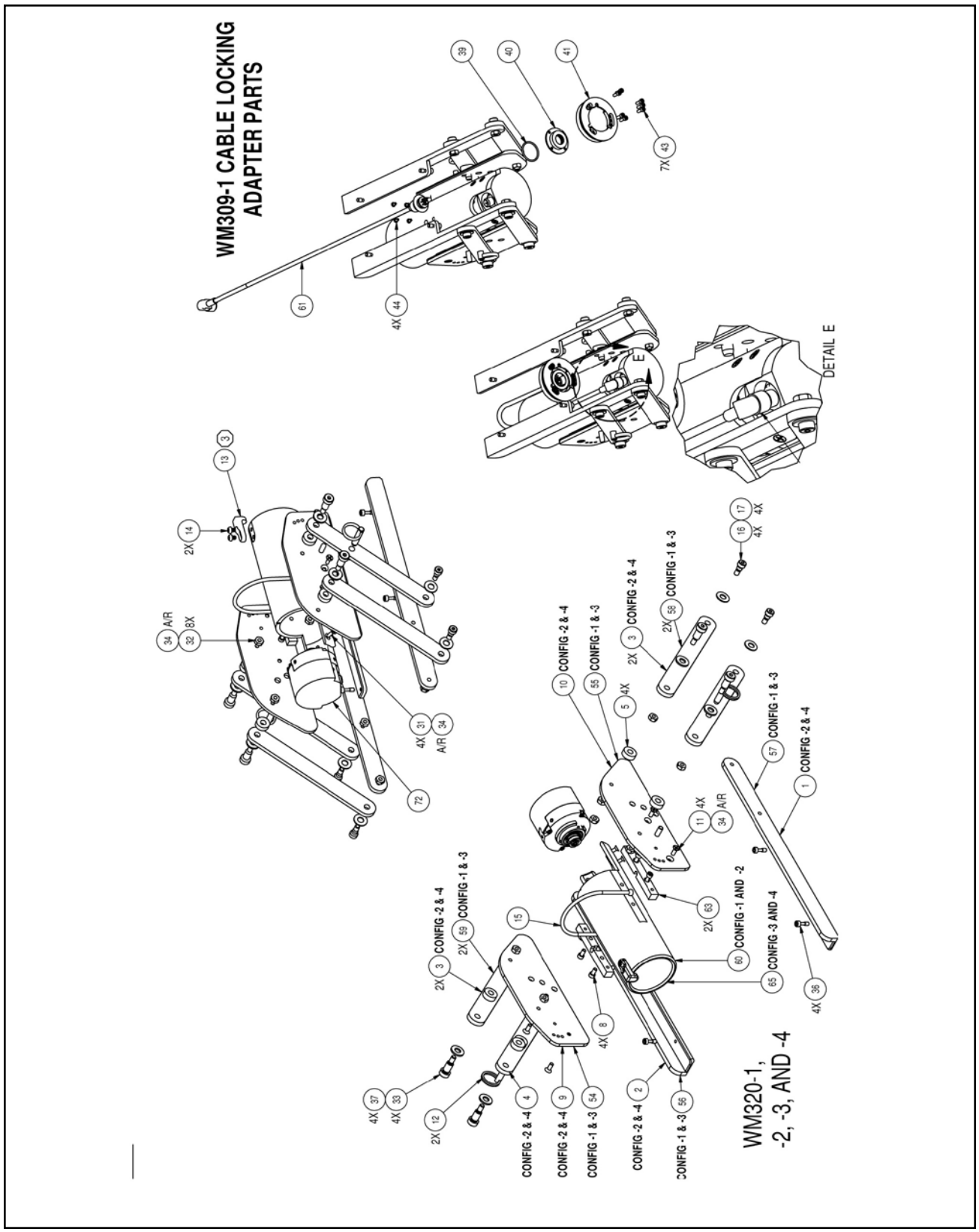


Figure 39d. *LIFT,MANUAL,OZ III CAM,CPR, WM320*

LIFT,MANUAL,OZ III CAM,CPR (See Figure 39), Rev. G, WM320-1			
Item #	Description	P/N	Qty
0005	SPACER,ARM,MANUAL LIFT,CPR	WM111	4
0008	SCREW,CAP,SKT HD,10-32X3/8,SST	103030	4
0011	SCREW,FLAT,10-32X1/2 SST	103052	4
0012	PIN,QUICK RELEASE,5/16 X 0.8 LG	HW1775	2
0013	RETAINER,CAMERA,OZIII-US 21 KIT	MZ097	1
0014	SCREW,BUTTN HD,SKT,10-32 X ¼,SST	HW1520	2
0015	CABLE,TOW,F/6"PACKER/PR&SPR LIFTS	120106	1
0016	BOLT,SHOULDER,5/16X5/16X1/4-20,SST	HW1774	4
0017	WASHER,FLAT,5/16 SST	101741	4
0031	SCREW,8-32X1/2 FL,PH,SS	103062	4
0032	NUT,JAM,1/4-20,SST	HW1291	8
0033	BOLT,SHOULDER,5/16 X 5/8,18-8 SST	HW1714	4
0034	MRO-REMOVABLE LCK,ND 121200-50,BLUE	440061	1
0035	MRO-LUBRICANT,O-RING 2 OZ TUBE	439986	1
0036	SCREW,CAPTIVE,SHCS,10-32X5/8 SST	HW838	4
0037	WASHER,FLAT,THICK,5/16 X .082-.104	HW1773	4
0039	O-RING,2-022 BUNA	712565	1
0040	INTERFACE ADAPTER, OZ III CAMERA	WM116	1
0041	LOCK RING,REAR CONNECTOR,MINI OZ	MZ030	1
0043	SCREW,CAP,SKT HD,6-32X3/8,SST	105071	7
0044	SCREW,PAN,4-40X3/16 SST	HW236	4
0045	TOOL,CHISEL,5/32TIP X 5/16HEX X5L	HW1886	1
0046	WIRE,#24 GRAY 250'TEFLON	713347	1
0047	WIRE,#24 RED TEFLON	713337	1
0048	WIRE,#24 GREEN TEFLON	713340	1
0049	WIRE,#24 ORANGE TEFLON	713338	1
0050	WIRE,#24 WHITE TEFLON	713344	1
0051	WIRE,#24 BLACK TEFLON	713335	1
0054	PLATE,SIDE,LEFT,CAM,LEFT,CPR,ALUM	WM112-2	1
0055	PLATE,SIDE,RIGHT,CAM,LIFT CPR,ALUM	WM112-3	1
0056	BASE,MOUNTING LEFT,LIFT,CPR,ALUM	WM113-2	1
0057	BASE,MOUNTING,RIGHT,LEFT,CPR,ALUM	WM113-3	1
0058	ARM,REAR,MANUAL LIFT,CPR,ALUM	WM114-2	2
0059	ARM,FRONT,MANUAL LIFT,CPR,ALUM	WM114-3	2
0060	TUBE,MANLFT,OZIII/CPR,REAR MNT CONN	WM322	1
0061	CABLE ASSY,CPR,MANLIFT,REAR MNT CON	WM309-1	1
0063	BAR,MNT,CAM TUBE,OZIII/CPR,REAR MNT	WM323	2
0066	WIRE,#24 BROWN TEFLON	713336	1
0067	MRO-SEAL.HGH PRESS,ND 440400-50,BRN	445091	1
0068	INSTR.SHT,CPR,18-24",W/MANUAL LIFT	WM904-INST	1
0069	SCREW,SHCS,5/16-24UNF X 4.0",SST	HW1807	4
0072	BULKHEAD ASSY,OZIII,TUB MNT,MAN LFT	WM334	1

LIFT,MANUAL,OZ III CAM,CPR (See Figure 39), Rev. G, WM320-2			
Item #	Description	P/N	Qty
0001	BASE,MOUNTING,RIGHT,LIFT,CPR	WM113-1	1
0002	BASE,MOUNTING,LEFT,LIFT,CPR	WM113	1
0003	ARM,REAR,MANUAL LIFT,CPR	WM114	2
0004	ARM,FRONT,MANUAL LIFT,CPR	WM114-1	2
0005	SPACER,ARM,MANUAL LIFT,CPR	WM111	4
0008	SCREW,CAP,SKT HD,10-32X3/8,SST	103030	4
0009	PLATE,SIDE,LEFT,CAM,LIFT,CPR	WM112	1
0010	PLATE,SIDE,RIGHT,CAM,LIFT,CPR	WM112-1	1
0011	SCREW,FLAT,10-32X1/2 SST	103052	4
0012	PIN,QUICK RELEASE,5/16 X 0.8 LG	HW1775	2
0013	RETAINER,CAMERA,OZIII-US 21 KIT	MZ097	1
0014	SCREW,BUTTN HD,SKT,10-32 X ¼,SST	HW1520	2
0015	CABLE,TOW,F/6"PACKER/PR&SPR LIFTS	120106	1
0016	BOLT,SHOULDER,5/16X5/16X1/4-20,SST	HW1774	4
0017	WASHER,FLAT,5/16 SST	101741	4
0031	SCREW,8-32X1/2 FL,PH,SS	103062	4
0032	NUT,JAM,1/4-20,SST	HW1291	8
0033	BOLT,SHOULDER,5/16 X 5/8,18-8 SST	HW1714	4
0034	MRO-REMOVABLE LCK,ND 121200-50,BLUE	440061	1
0035	MRO-LUBRICANT,O-RING 2 OZ TUBE	439986	1
0036	SCREW,CAPTIVE,SHCS,10-32X5/8 SST	HW838	4
0037	WASHER,FLAT,THICK,5/16 X .082-.104	HW1773	4
0039	O-RING,2-022 BUNA	712565	1
0040	INTERFACE ADAPTER, OZ III CAMERA	WM116	1
0041	LOCK RING,REAR CONNECTOR,MINI OZ	MZ030	1
0043	SCREW,CAP,SKT HD,6-32X3/8,SST	105071	7
0044	SCREW,PAN,4-40X3/16 SST	HW236	4
0045	TOOL,CHISEL,5/32TIP X 5/16HEX X5L	HW1886	1
0046	WIRE,#24 GRAY 250'TEFLON	713347	1
0047	WIRE,#24 RED TEFLON	713337	1
0049	WIRE,#24 ORANGE TEFLON	713338	1
0050	WIRE,#24 WHITE TEFLON	713344	1
0051	WIRE,#24 BLACK TEFLON	713335	1
0060	TUBE,MANLFT,OZIII/CPR,REAR MNT CONN	WM322	1
0061	CABLE ASSY,CPR,MANLIFT,REAR MNT CON	WM309-1	1
0063	BAR,MNT,CAM TUBE,OZIII/CPR,REAR MNT	WM323	2
0066	WIRE,#24 BROWN TEFLON	713336	1
0067	MRO-SEAL.HGH PRESS,ND 440400-50,BRN	445091	1
0068	INSTR.SHT,CPR,18-24",W/MANUAL LIFT	WM904-INST	1
0069	SCREW,SHCS,5/16-24UNF X 4.0",SST	HW1807	4
0072	BULKHEAD ASSY,OZIII,TUB MNT,MAN LFT	WM334	1

LIFT,MANUAL,OZ III CAM,CPR (See Figure 39), Rev. G, WM320-3			
Item #	Description	P/N	Qty
0005	SPACER,ARM,MANUAL LIFT,CPR	WM111	4
0008	SCREW,CAP,SKT HD,10-32X3/8,SST	103030	4
0011	SCREW,FLAT,10-32X1/2 SST	103052	4
0012	PIN,QUICK RELEASE,5/16 X 0.8 LG	HW1775	2
0013	RETAINER,CAMERA,OZIII-US 21 KIT	MZ097	1
0014	SCREW,BUTTN HD,SKT,10-32 X ¼,SST	HW1520	2
0015	CABLE,TOW,F/6"PACKER/PR&SPR LIFTS	120106	1
0016	BOLT,SHOULDER,5/16X5/16X1/4-20,SST	HW1774	4
0017	WASHER,FLAT,5/16 SST	101741	4
0031	SCREW,8-32X1/2 FL,PH,SS	103062	4
0032	NUT,JAM,1/4-20,SST	HW1291	8
0033	BOLT,SHOULDER,5/16 X 5/8,18-8 SST	HW1714	4
0034	MRO-REMOVABLE LCK,ND 121200-50,BLUE	440061	1
0035	MRO-LUBRICANT,O-RING 2 OZ TUBE	439986	1
0036	SCREW,CAPTIVE,SHCS,10-32X5/8 SST	HW838	4
0037	WASHER,FLAT,THICK,5/16 X .082-.104	HW1773	4
0039	O-RING,2-022 BUNA	712565	1
0040	INTERFACE ADAPTER, OZ III CAMERA	WM116	1
0041	LOCK RING,REAR CONNECTOR,MINI OZ	MZ030	1
0043	SCREW,CAP,SKT HD,6-32X3/8,SST	105071	7
0044	SCREW,PAN,4-40X3/16 SST	HW236	4
0045	TOOL,CHISEL,5/32TIP X 5/16HEX X5L	HW1886	1
0046	WIRE,#24 GRAY 250'TEFLON	713347	1
0047	WIRE,#24 RED TEFLON	713337	1
0048	WIRE,#24 GREEN TEFLON	713340	1
0049	WIRE,#24 ORANGE TEFLON	713338	1
0050	WIRE,#24 WHITE TEFLON	713344	1
0051	WIRE,#24 BLACK TEFLON	713335	1
0054	PLATE,SIDE,LEFT,CAM,LEFT,CPR,ALUM	WM112-2	1
0055	PLATE,SIDE,RIGHT,CAM,LIFT CPR,ALUM	WM112-3	1
0056	BASE,MOUNTING LEFT,LIFT,CPR,ALUM	WM113-2	1
0057	BASE,MOUNTING,RIGHT,LEFT,CPR,ALUM	WM113-3	1
0058	ARM,REAR,MANUAL LIFT,CPR,ALUM	WM114-2	2
0059	ARM,FRONT,MANUAL LIFT,CPR,ALUM	WM114-3	2
0061	CABLE ASSY,CPR,MANLIFT,REAR MNT CON	WM309-1	1
0063	BAR,MNT,CAM TUBE,OZIII/CPR,REAR MNT	WM323	2
0065	TUBE,MANLFT,OZIII/CPR,REARCON,DELRN	WM322-1	1
0066	WIRE,#24 BROWN TEFLON	713336	1
0067	MRO-SEAL.HGH PRESS,ND 440400-50,BRN	445091	1
0068	INSTR.SHT,CPR,18-24",W/MANUAL LIFT	WM904-INST	1
0069	SCREW,SHCS,5/16-24UNF X 4.0",SST	HW1807	4
0072	BULKHEAD ASSY,OZIII,TUB MNT,MAN LFT	WM334	1

LIFT,MANUAL,OZ III CAM,CPR (See Figure 39), Rev. G, WM320-4			
Item #	Description	P/N	Qty
0001	BASE,MOUNTING,RIGHT,LIFT,CPR	WM113-1	1
0002	BASE,MOUNTING,LEFT,LIFT,CPR	WM113	1
0003	ARM,REAR,MANUAL LIFT,CPR	WM114	2
0004	ARM,FRONT,MANUAL LIFT,CPR	WM114-1	2
0005	SPACER,ARM,MANUAL LIFT,CPR	WM111	4
0008	SCREW,CAP,SKT HD,10-32X3/8,SST	103030	4
0009	PLATE,SIDE,LEFT,CAM,LIFT,CPR	WM112	1
0010	PLATE,SIDE,RIGHT,CAM,LIFT,CPR	WM112-1	1
0011	SCREW,FLAT,10-32X1/2 SST	103052	4
0012	PIN,QUICK RELEASE,5/16 X 0.8 LG	HW1775	2
0013	RETAINER,CAMERA,OZIII-US 21 KIT	MZ097	1
0014	SCREW,BUTTN HD,SKT,10-32 X ¼,SST	HW1520	2
0015	CABLE,TOW,F/6"PACKER/PR&SPR LIFTS	120106	1
0016	BOLT,SHOULDER,5/16X5/16X1/4-20,SST	HW1774	4
0017	WASHER,FLAT,5/16 SST	101741	4
0031	SCREW,8-32X1/2 FL,PH,SS	103062	4
0032	NUT,JAM,1/4-20,SST	HW1291	8
0033	BOLT,SHOULDER,5/16 X 5/8,18-8 SST	HW1714	4
0034	MRO-REMOVABLE LCK,ND 121200-50,BLUE	440061	1
0035	MRO-LUBRICANT,O-RING 2 OZ TUBE	439986	1
0036	SCREW,CAPTIVE,SHCS,10-32X5/8 SST	HW838	4
0037	WASHER,FLAT,THICK,5/16 X .082-.104	HW1773	4
0039	O-RING,2-022 BUNA	712565	1
0040	INTERFACE ADAPTER, OZ III CAMERA	WM116	1
0041	LOCK RING,REAR CONNECTOR,MINI OZ	MZ030	1
0043	SCREW,CAP,SKT HD,6-32X3/8,SST	105071	7
0044	SCREW,PAN,4-40X3/16 SST	HW236	4
0045	TOOL,CHISEL,5/32TIP X 5/16HEX X5L	HW1886	1
0046	WIRE,#24 GRAY 250'TEFLON	713347	1
0047	WIRE,#24 RED TEFLON	713337	1
0049	WIRE,#24 ORANGE TEFLON	713338	1
0050	WIRE,#24 WHITE TEFLON	713344	1
0051	WIRE,#24 BLACK TEFLON	713335	1
0061	CABLE ASSY,CPR,MANLIFT,REAR MNT CON	WM309-1	1
0063	BAR,MNT,CAM TUBE,OZIII/CPR,REAR MNT	WM323	2
0065	TUBE,MANLFT,OZIII/CPR,REARCON,DELRN	WM322-1	1
0066	WIRE,#24 BROWN TEFLON	713336	1
0067	MRO-SEAL.HGH PRESS,ND 440400-50,BRN	445091	1
0068	INSTR.SHT,CPR,18-24",W/MANUAL LIFT	WM904-INST	1
0069	SCREW,SHCS,5/16-24UNF X 4.0",SST	HW1807	4
0071	BULKHEAD ASSY,OZIII,TUB MNT,MAN LFT	WM334	1

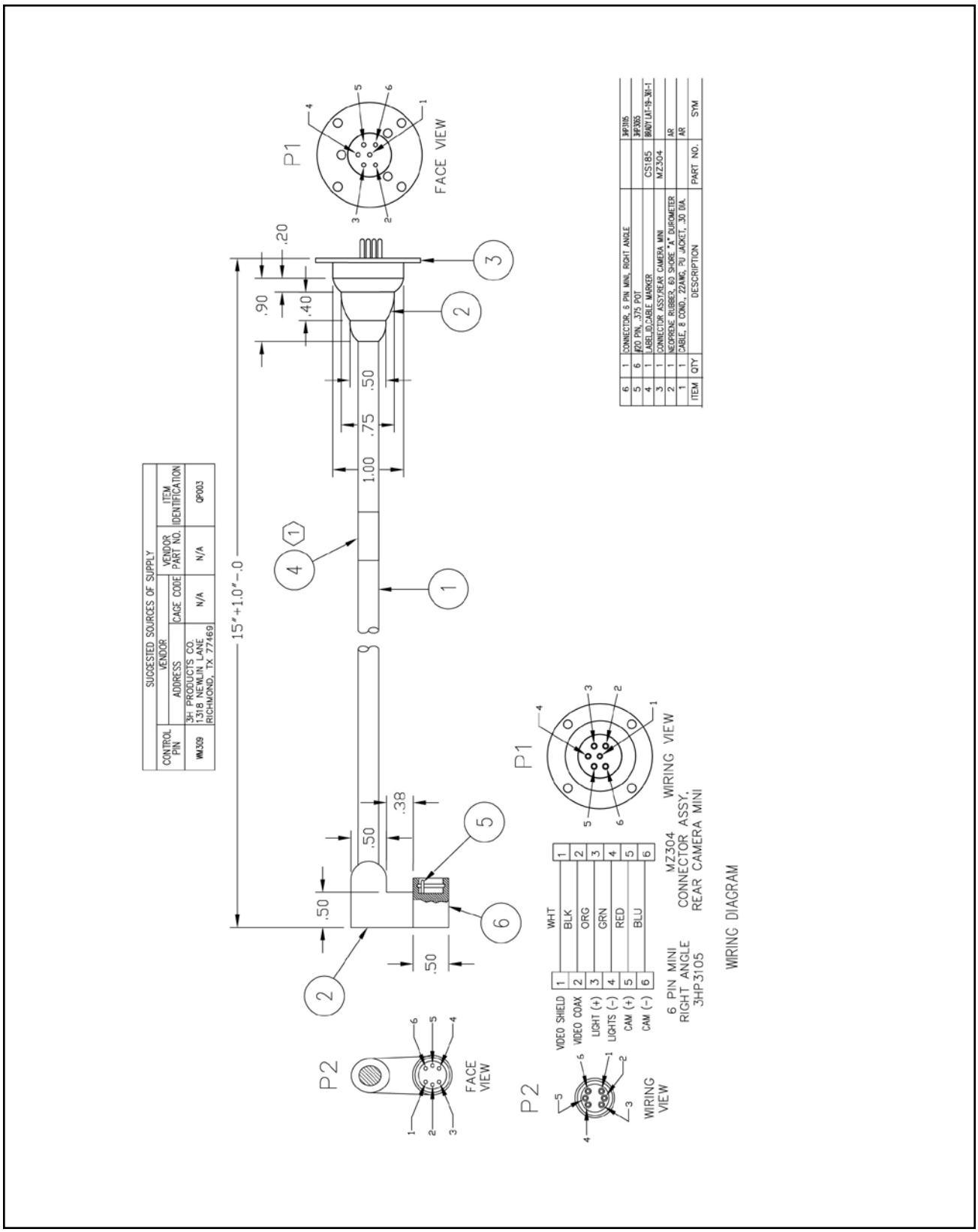


Figure 40. *CABLE ASSY,CPR WITH MANUAL LIFT, WM309*

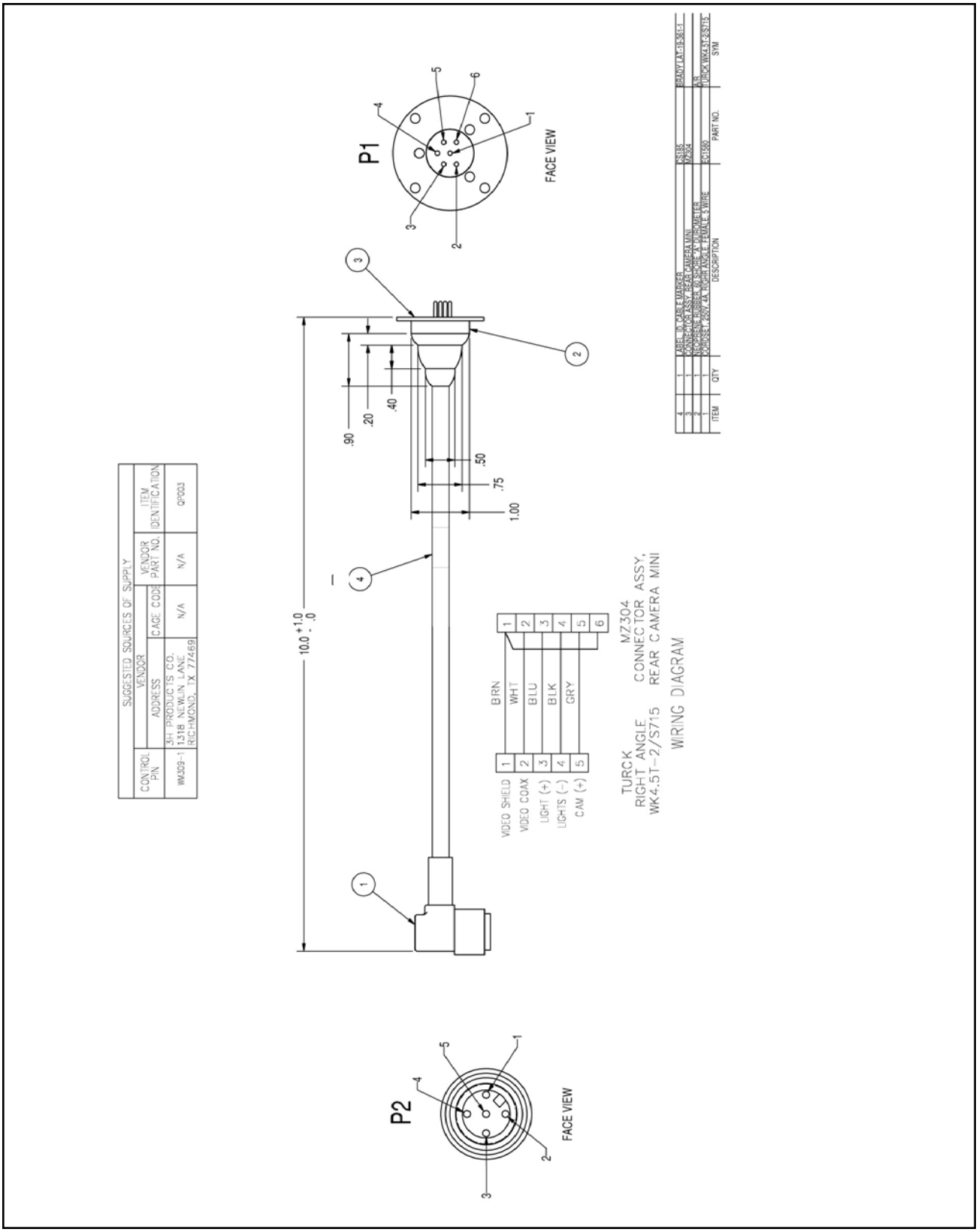


Figure 41. *CABLE ASSY,CPR WITH MANUAL LIFT, REAR MOUNT CONN, WM309-1*

WTR III Spare Parts:

P/N	Description
TX317	CABLE ASSY,12 PIN>12 PIN,OBS>TX343
TX343	CABLE ASSY,12P>8P,WTR3/US3/OZ3 ADAP
TX316	CABLE ASSY,4-PIN,8.5"L,OBS>TX342
TX342	CABLE ASSY,4-PIN,WTRIII/USIII,8.5"L
TX316-1	CABLE ASSY,4-PIN,16"L,OBS>TX342-1
TX342-1	CABLE ASSY,4-PIN,WTRIII/USIII,16"L
TX324	TRACK MODULE ASSY,RIGHTHAND,WTRIII
TX325	TRACK MODULE ASSY,LEFTHAND,WTRIII

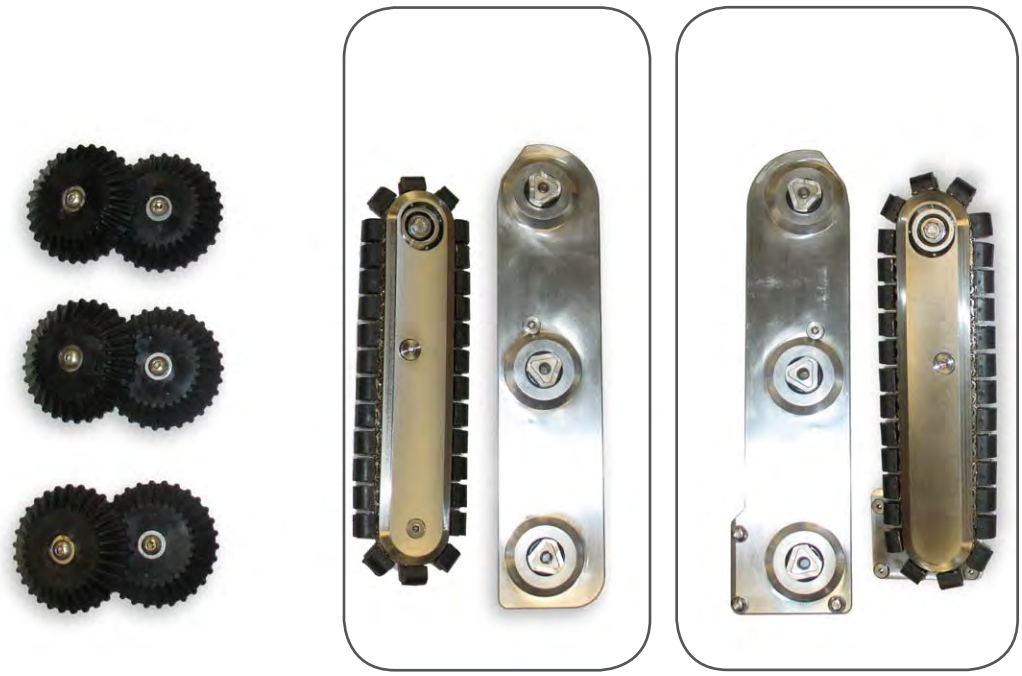


Figure 42a. *WTR III Transformer Transporter Spare Parts*

CONFIGURATION LIST	
PART NUMBER	DESCRIPTION
TX361	WHEELED MODE, M/C, WTR III
TX361-1	TRACKED MODE, MC, WTR III
TX361-2	WHEELED MODE, S/C, WTR III
TX361-3	TRACKED MODE, S/C, WTR III

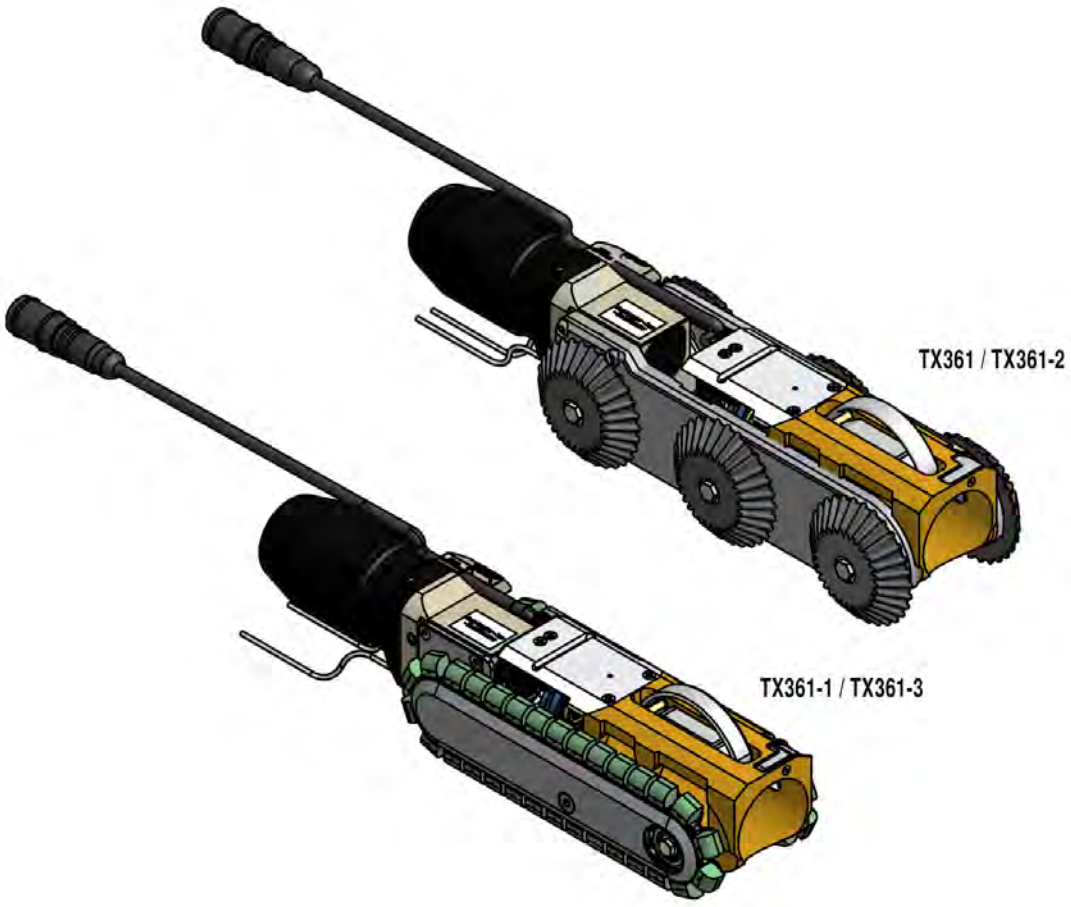


Figure 42b: TRANSPORTER ASSY,M/C,WHEELED,WTRIII, TX361

WTR III Transformer Transporter

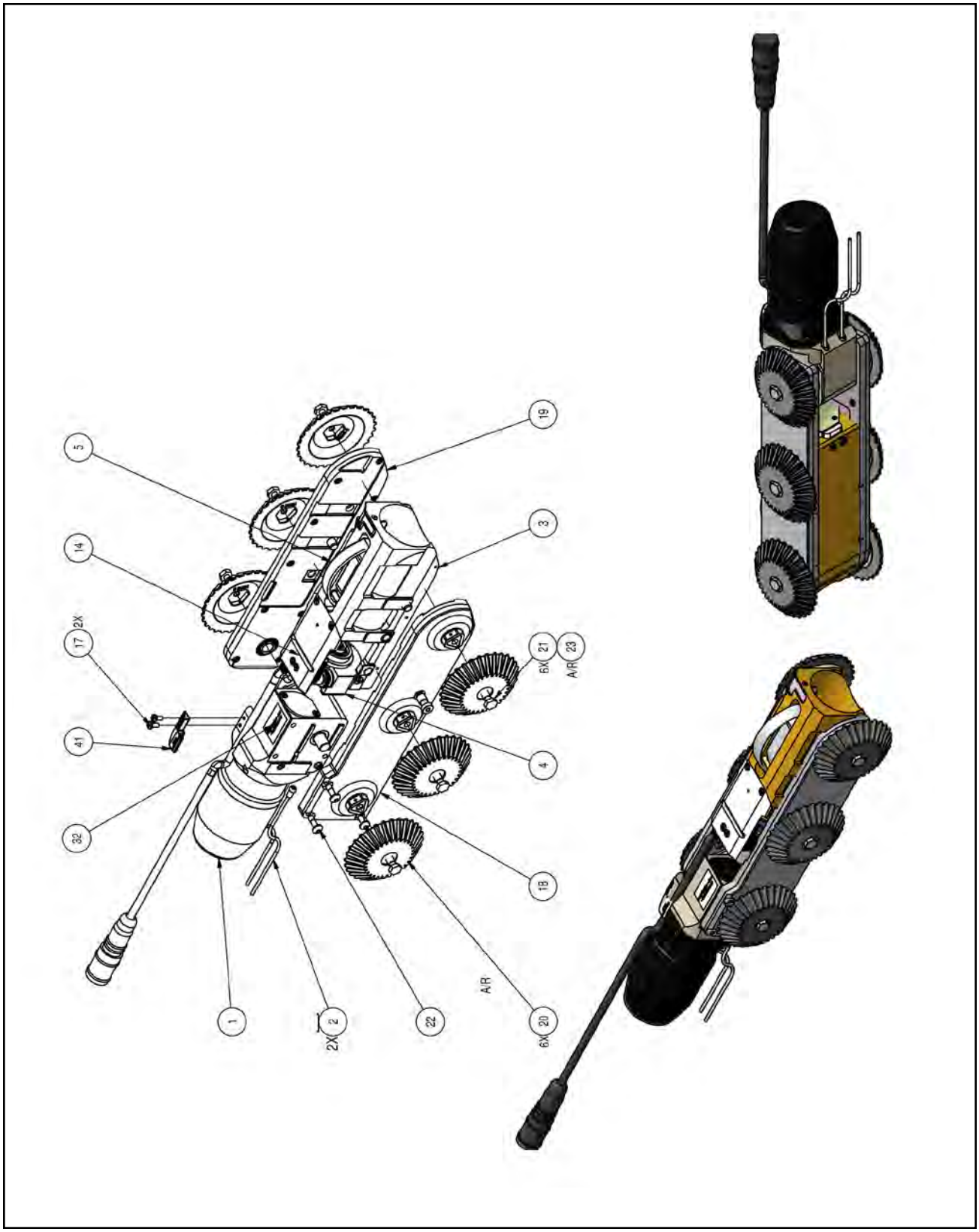


Figure 42c. *WTR III Transformer Transporter Spare Parts*

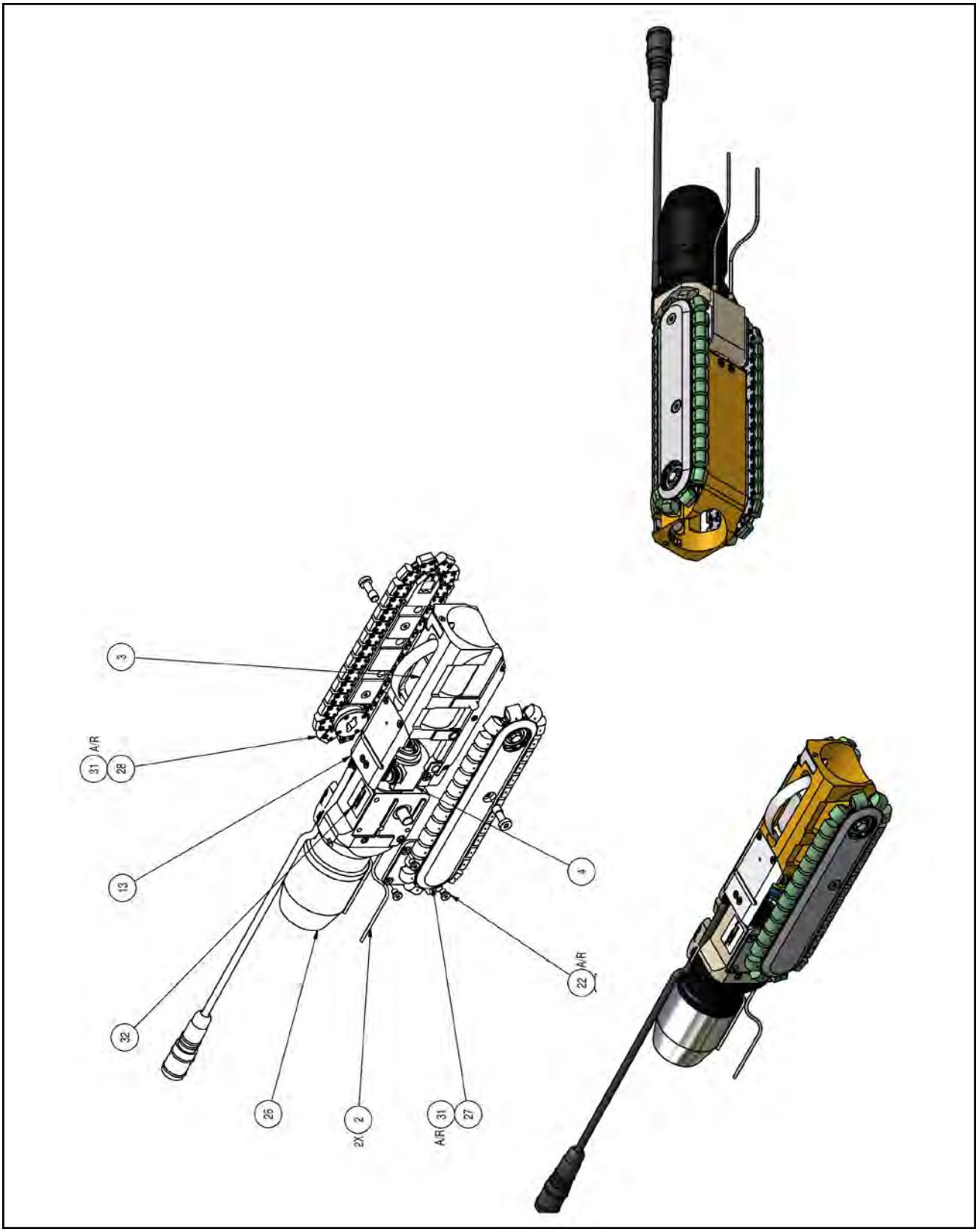


Figure 42d: TRANSPORTER ASSY,M/C,WHEELED,WTRIII, TX361

WTR III Transformer Transporter

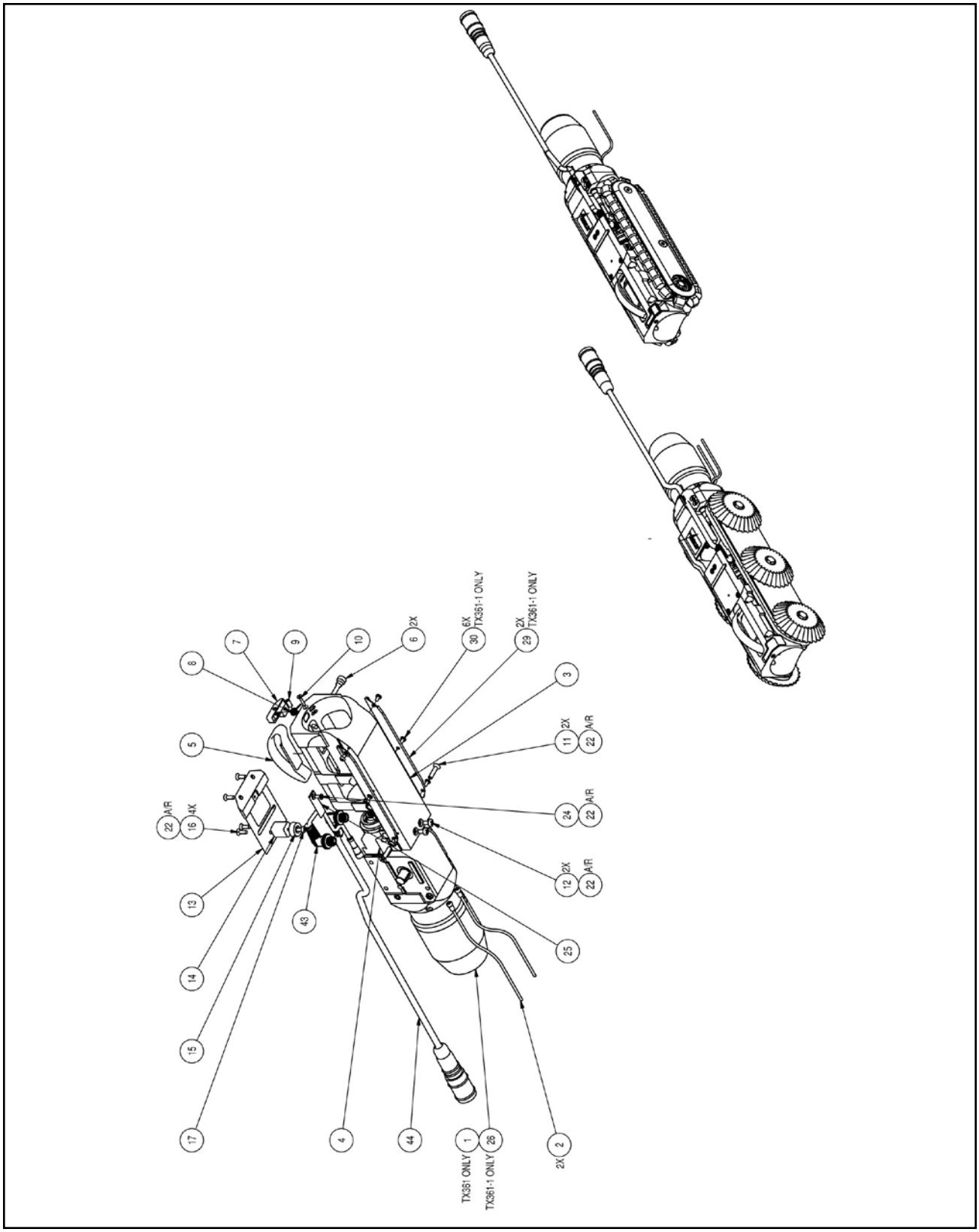


Figure 42e. *WTR III Transformer Transporter Spare Parts*

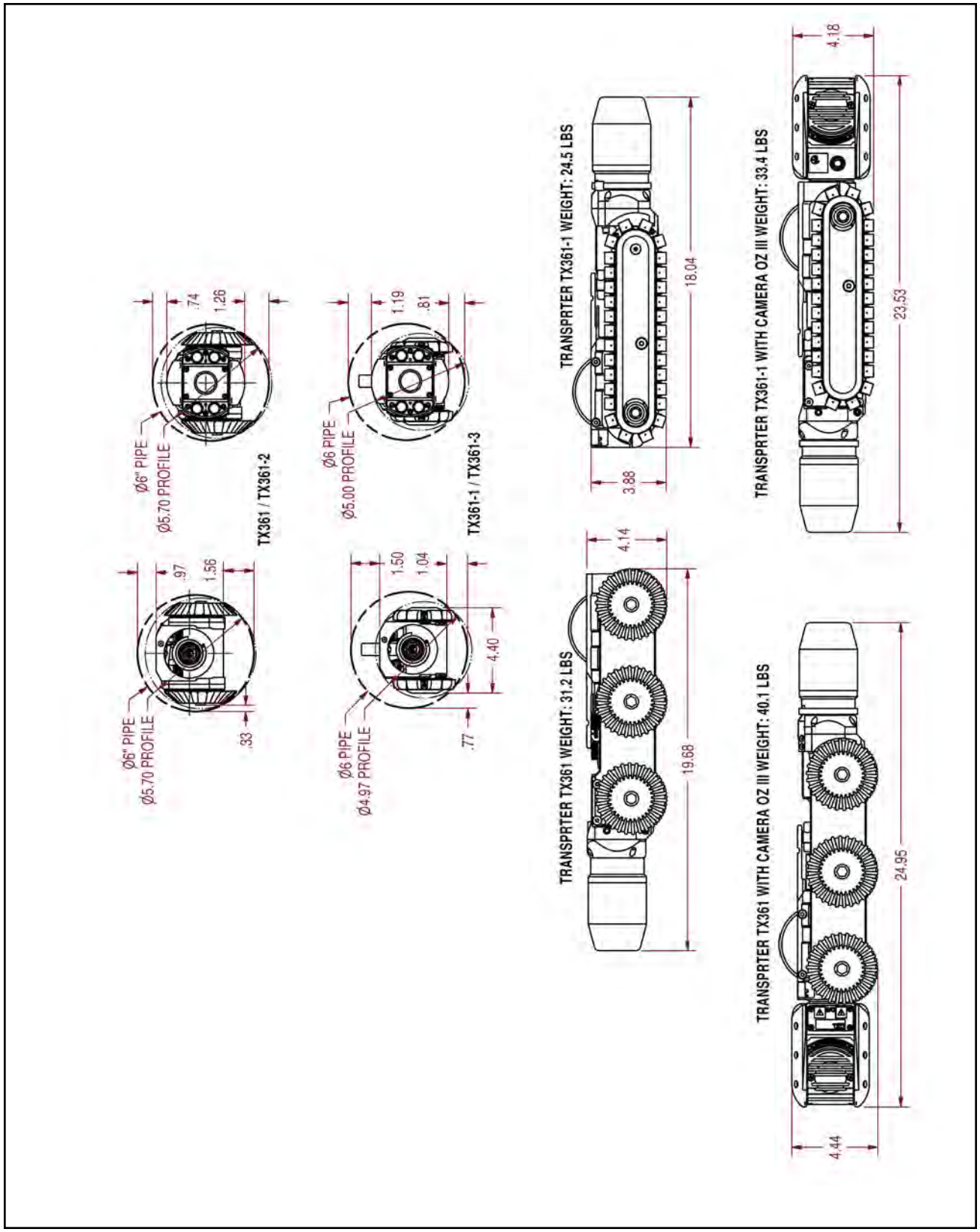


Figure 42f: TRANSPORTER ASSY,M/C,WHEELED,WTRIII, TX361

WTR III Transformer Transporter

TRANSPORTER ASSY,M/C,WHEELED,WTRIII, TX361, Rev C			
Item	Description	Part Number	Qty
0001	TRAN/MTR,FWD,NEU/REV,WHL,WTR	TX320	1
0002	CABLE,TOW,F/WTRIII & USIII,54"	120165	2
0003	CRADLE BODY,MODULARIZED,WTRIII	TX056	1
0004	BULKHEAD ASSY,WTRIII/USIII	TX345	1
0005	LOOP,LIFTING,WEBBING,U-SHTY,WTR,CPR	MC223	1
0006	SCREW,SHOULDER LIFT STRAP,CPR	WM107	2
0007	BUTTON,LATCH CAMERA	WM086	1
0008	SPRING,TORSION,.357 OD X .045,MOD	WM102	1
0009	SPACER,.188 OD X .115 ID X .406 LG	HW1581	1
0010	SCREW,CAP #4-40 X 5/8LG,FH,SS	HW1582	1
0011	SCREW,FLAT,10-32X7/8,PHILLIP,SS	712444	2
0012	SCREW,PAN,10-32X3/8 SST	103031	2
0013	GUARD,CONNECTOR PROTECTIVE,WTRIII	TX084	1
0014	BUMPER BLOCK,CONN.GUARD PLT,WTRIII	TX090	1
0016	SCREW,8-32X1/2 FL,PH,SS	103062	4
0017	SCREW,PAN,8-32X3/8 PHIL SST	103065	2
0018	WHEEL MODULE ASSY,RIGHTHAND,WTRIII	TX322	1
0019	WHEEL MODULE ASSY,LEFTHAND,WTRIII	TX323	1
0020	WHEEL,RUBBER,6"PIPE,WTRIII	TX111	6
0021	SCREW,CAPT,HEX,5/16-24UNF X 0.625	WM098-1	6
0022	MRO-REMOVABLE LCK,ND 121200-50,BLUE	440061	1
0024	SCREW,FLAT,6-32X3/8 PHIL SST	103058	1
0025	PLATE,CABLE HOLDER,WTR III	TX092	1
0032	LABEL,LASERTAB MARKER,1.500 X .500	CS221	1
0033	TOOL,CHISEL,5/32TIP X 5/16HEX X5L	HW1886	1
0034	TOOL,3/8"DR TRQ WRNCH,MICROMTR ADJ	CS472	1
0035	TOOL,3/8DR,1/2"X6POINT SOCKET	CS486	1
0036	TOOL,3/8"DR,1/4"HEX BIT SOCKET	CS474	1
0038	MANUAL,OPERATION,WTR III	TX920	1
0041	CLAMP,CABLE,WTR	TX095	1
0042	ANTI-SEIZE,BRSH,NICKL GRAF,2 OZ	CS488	1
0043	CABLE ASSY,4-PIN,WTRIII/USIII,8.5"L	TX342	1
0044	CABLE ASSY,12P>8P,WTR3/US3/OZ3 ADAP	TX343	1
0045	LABEL,1-1/8"X3-1/2",AVERY 4150	CS491	1

TRANSPORTER ASSY,M/C,TRACK,WTRIII, TX361-1, Rev C			
Item	Description	Part Number	Qty
0002	CABLE,TOW,F/WTRIII & USIII,54"	120165	2
0003	CRADLE BODY,MODULARIZED,WTRIII	TX056	1
0004	BULKHEAD ASSY,WTRIII/USIII	TX345	1
0005	LOOP,LIFTING,WEBBING,U-SHTY,WTR,CPR	MC223	1
0006	SCREW,SHOULDER LIFT STRAP,CPR	WM107	2
0007	BUTTON,LATCH CAMERA	WM086	1
0008	SPRING,TORSION,.357 OD X .045,MOD	WM102	1
0009	SPACER,.188 OD X .115 ID X .406 LG	HW1581	1
0010	SCREW,CAP #4-40 X 5/8LG,FH,SS	HW1582	1
0011	SCREW,FLAT,10-32X7/8,PHILLIP,SS	712444	2
0012	SCREW,PAN,10-32X3/8 SST	103031	2
0013	GUARD,CONNECTOR PROTECTIVE,WTRIII	TX084	1
0014	BUMPER BLOCK,CONN.GUARD PLT,WTRIII	TX090	1
0016	SCREW,8-32X1/2 FL,PH,SS	103062	4
0017	SCREW,PAN,8-32X3/8 PHIL SST	103065	1
0022	MRO-REMOVABLE LCK,ND 121200-50,BLUE	440061	1
0024	SCREW,FLAT,6-32X3/8 PHIL SST	103058	1
0025	PLATE,CABLE HOLDER,WTR III	TX092	1
0026	TRAN/MTR,FWD,NEU/REV,H-SPD,TRK,WTR	TX320-1	1
0027	TRACK MODULE ASSY,RIGHTHAND,WTRIII	TX324	1
0028	TRACK MODULE ASSY,LEFTHAND,WTRIII	TX325	1
0029	WEARSTRIP,SIDE,USIII	TX009	2
0030	SCREW,PAN HD,6-32 X 1/4,BRASS,PHIL	HW1224	6
0031	MRO-LUBRICANT,LPS CHAINMATE,11-OZ	CS478	1
0032	LABEL,LASERTAB MARKER,1.500 X .500	CS221	1
0033	TOOL,CHISEL,5/32TIP X 5/16HEX X5L	HW1886	1
0038	MANUAL,OPERATION,WTR III	TX920	1
0041	CLAMP,CABLE,WTR	TX095	1
0043	CABLE ASSY,4-PIN,WTRIII/USIII,8.5"L	TX342	1

WTR III Transformer Transporter

TRANSPORTER ASSY,S/C,WHEELED,WTRIII, TX361-2, Rev C			
Item	Description	Part Number	Qty
37	CABLE ASSY,S/C,3P>8P,WTRIII/USIII	TX344	1
39	TRANSPORTER ASSY,M/C,WHEELED,WTRIII	TX361	1
44	CABLE ASSY,12P>8P,WTRIII>USIII	TX343	-1

TRANSPORTER ASSY,S/C,TRACK,WTRIII, TX361-3, Rev C			
Item	Description	Part Number	Qty
37	CABLE ASSY,S/C,3P>8P,WTRIII/USIII	TX344	1
40	TRANSPORTER ASSY,M/C,TRACK,WTRIII	TX361-1	1
44	CABLE ASSY,12P>8P,WTRIII>USIII	TX343	-1

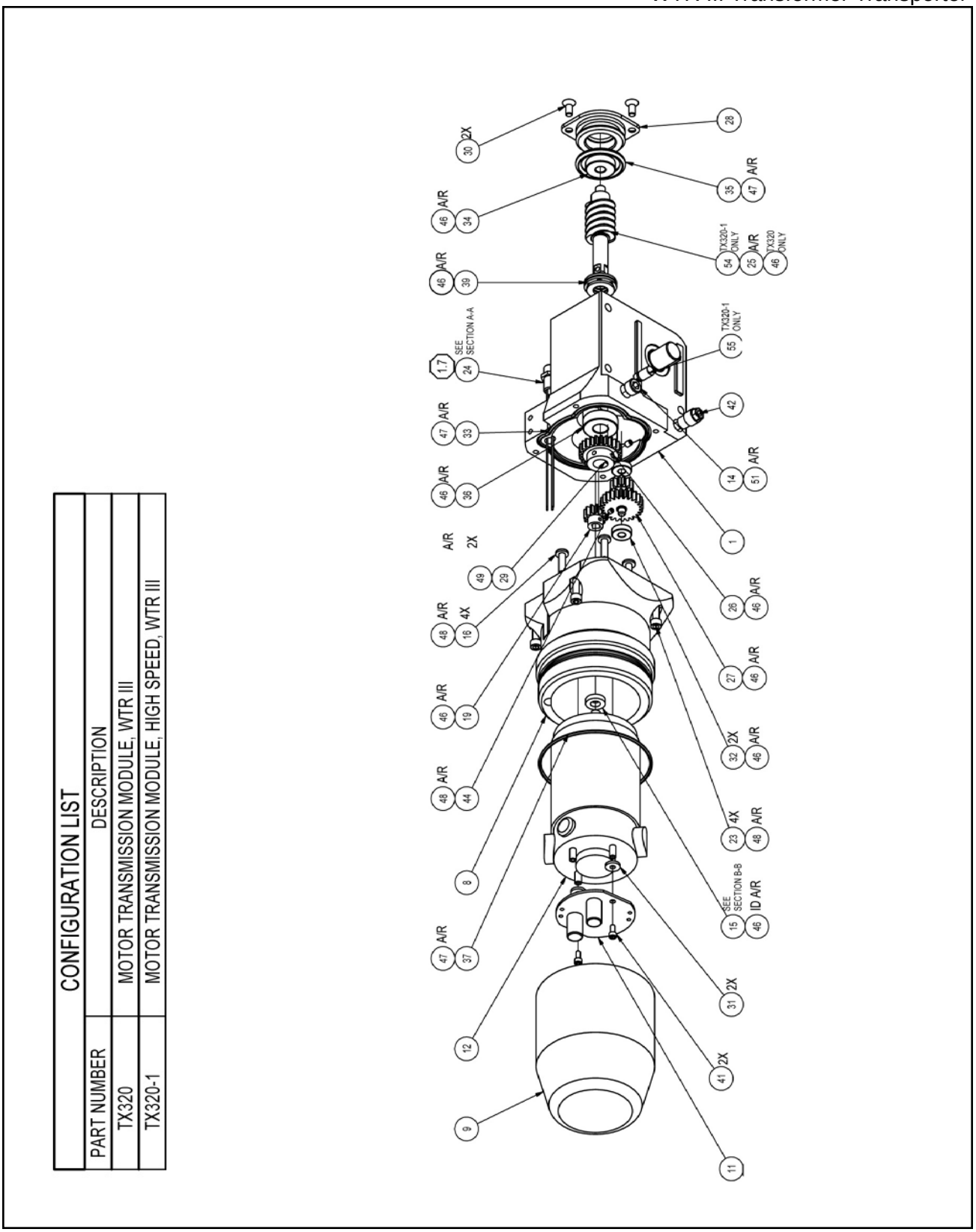


Figure 43a: TRAN/MTR,FWD,NEU/REV,WHEEL,WTRIII, TX320

WTR III Transformer Transporter

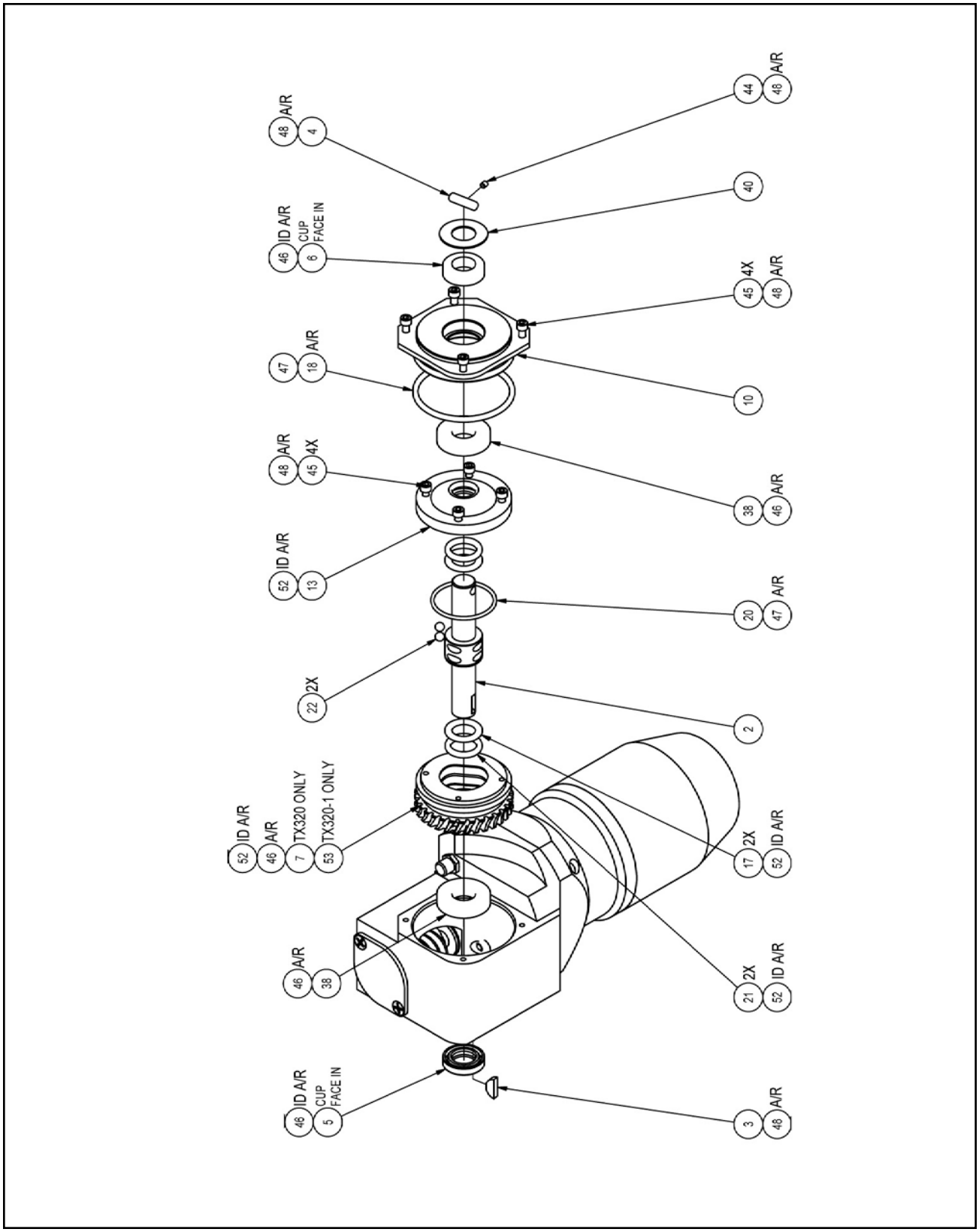


Figure 43b: TRAN/MTR,FWD,NEU/REV,WHEEL,WTRIII, TX320

TRAN/MTR,FWD,NEU/REV,WHEEL,WTRIII, TX320, Rev E			
Item	Description	Part Number	Qty
0001	HOUSING,WTR TRNS,MODULARIZED,WTRIII	TX054	1
0002	SHAFT,DR,MTR TRN,MODULARIZED,WTRIII	TX055	1
0003	KEY,WOODRUFF,404,FLTBTM,1/8X½,316SS	HW150	1
0004	PIN,DOWEL,.1877X.656,18-8 SST	TX089	1
0005	SEAL,OIL,0.5X0.875X0.188,DBL LIP	HW1881	1
0006	SEAL,OIL,.5ID X.875 OD X.252THK	130305	1
0007	CLUTCH,RACE,W/WORM GEAR,BAL,DBL	TX303	1
0008	MOUNT,MTR TRANS MODULE,WTRIII	TX087	1
0009	MOTOR CAN,CONE,USIII,WTR-US21/WS405	TX023	1
0010	COVER,TRANS/MTR MODULE,WTRIII	TX086	1
0011	PCB ASSY,FILTER,NON-FUSED	WS406	1
0012	MOTOR,115VDC,.12HP,W/STANDOFF,TRANS	TL050	1
0013	CLUTCH,COVER,BALL,DBL,WTRIII	TX074	1
0014	PLUG,LOW PROFILE,1/8 NPT	MS039	1
0015	SEAL,OIL,.25 BORE X.5 OD .125THK	HW003	1
0016	SCREW,SEAL(8-32X9/16L)PHIL HEAD	HW004	4
0017	BEARING,THRT,.502X.780X.063,CLTSHFT	TX075	2
0018	O-RING,2-135,BUNA,195 IDX.103	HW438	1
0019	GEAR,DRIVE,SPUR,12T/24P,TEARDROP	HW552	1
0020	O-RING,2-026 BUNA	HW903	1
0021	SEAL,QUAD,9/16"IDX3/4"ODX3/32"W	HW1514	2
0022	BALL,BEARING,3/16DIA,TUNGSTEN CARBI	HW1052	2
0023	SCREW,SHCS,8-32X3/8 SST	100448	4
0024	RECEPTACLE,4PIN,BH 45460-001	EL497	1
0025	WORM/SHAFT,16DP,.625PD,14.5PA,S.THD	TX071	1
0026	GEAR,MODIFIED	299981	1
0027	GEAR,TANDEM	300407	1
0028	HOUSING,BEARING,OUTER,TRANS,WTRIII	TX081	1
0029	SCREW,SET,6-32X3/16 SST	100991	2
0030	SCREW,FLAT,8-32X3/8 PHIL SST	100146	2
0031	WASHER.375X.136+.005-0IDX.062T,PHEN	HW2327	2
0032	BEARING,BALL,3/16 ID X 1/2 OD X5/32	300280	2
0033	O-RING,EP 2-038	130141	1
0034	BEARING,BALL,1/4 ID X 3/4 OD X 7/32	300281	1
0035	O-RING,2-214,EP	130145	1
0036	BEARING,BALL,SLD,3/8 IDX7/8 ODX9/32	300282	1
0037	O-RING,2-039 EP	132215	1
0038	BEARING,BALL,1/2 ID X 1-1/8 OD X1/4	300284	2

WTR III Transformer Transporter

TRAN/MTR,FWD,NEU/REV,WHEEL,WTRIII, TX320, Rev E			
Item	Description	Part Number	Qty
0039	BEARING,THRUST	300285	1
0040	SPACER,SPROCKET-TRANSPORTER	305071	1
0041	SCREW,CAP,SKT HD,4-40X1/4,W/NYLOK	712389	2
0042	STUD,RETAINING,TOW CABLE,WTRIII	TX112	1
0044	SCREW,SET,4-40X1/8 SST	100050	2
0045	SCREW,CAP,SKT HD,6-32X3/8,SST	105071	8
0046	MRO-REMOVABLE LCK,ND 121200-2,BLUE	CS036	1
0047	MRO-PERMANENT LOCK,ND 140500-2,RED	CS238	1
0048	MRO-GREASE,MOBIL 1 SYNTHETIC	CS419	1
0049	MRO-SEALANT,POURABLE TRANSLUCENT	445066	1
0050	MRO-SEAL.HGH PRESS,ND 440400-50,BRN	445091	1
0051	MRO-RET.COMP,.015GP,ND541200-50,GRN	CS092	1
0052	MRO-LUBRICANT,O-RING 2 OZ TUBE	439986	1
0053	MRO-LUBRICANT,SIL-GLYDE W/SILICONE	CS042	1

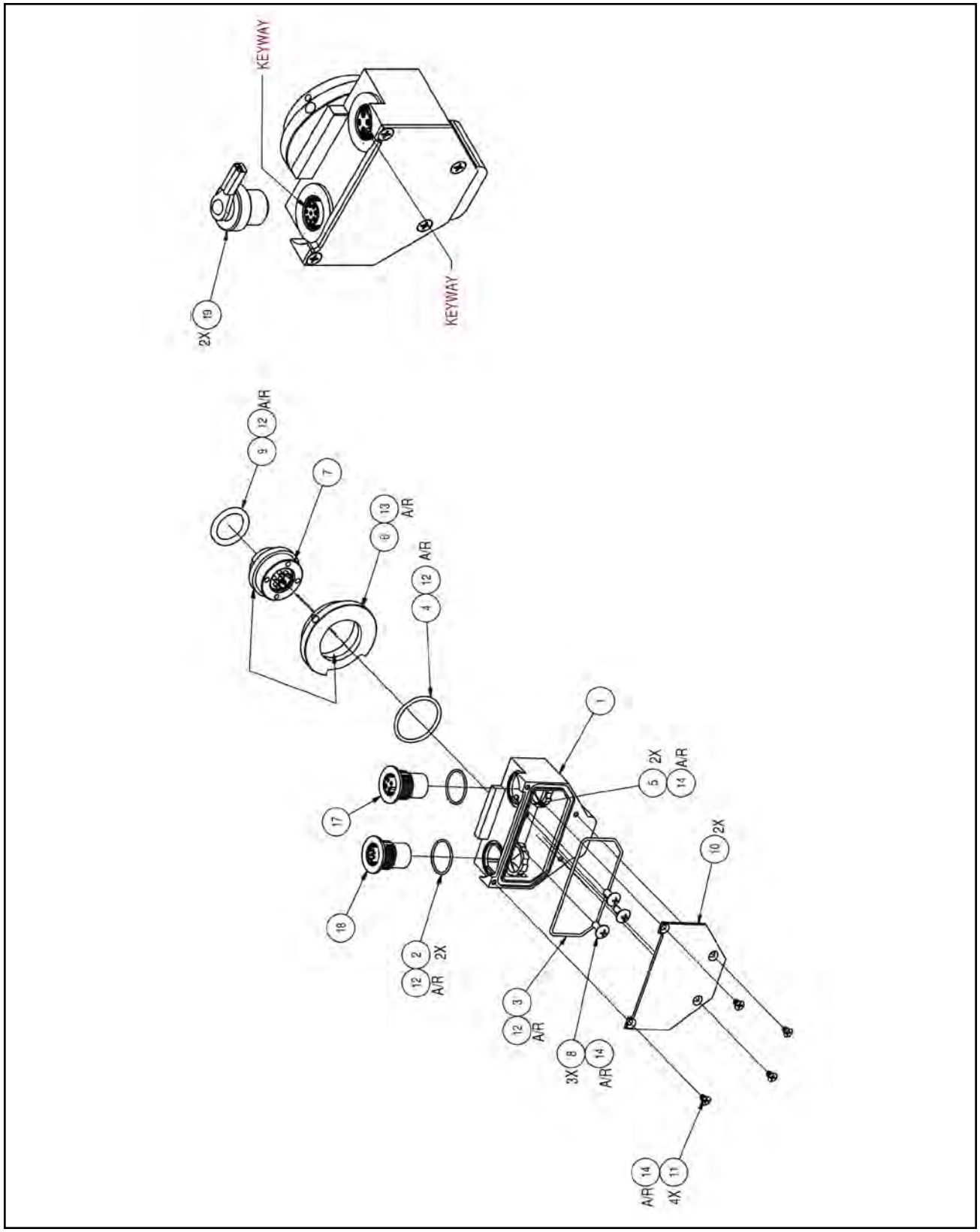


Figure 44: BULKHEAD ASSY,WTRIII/USIII, TX345

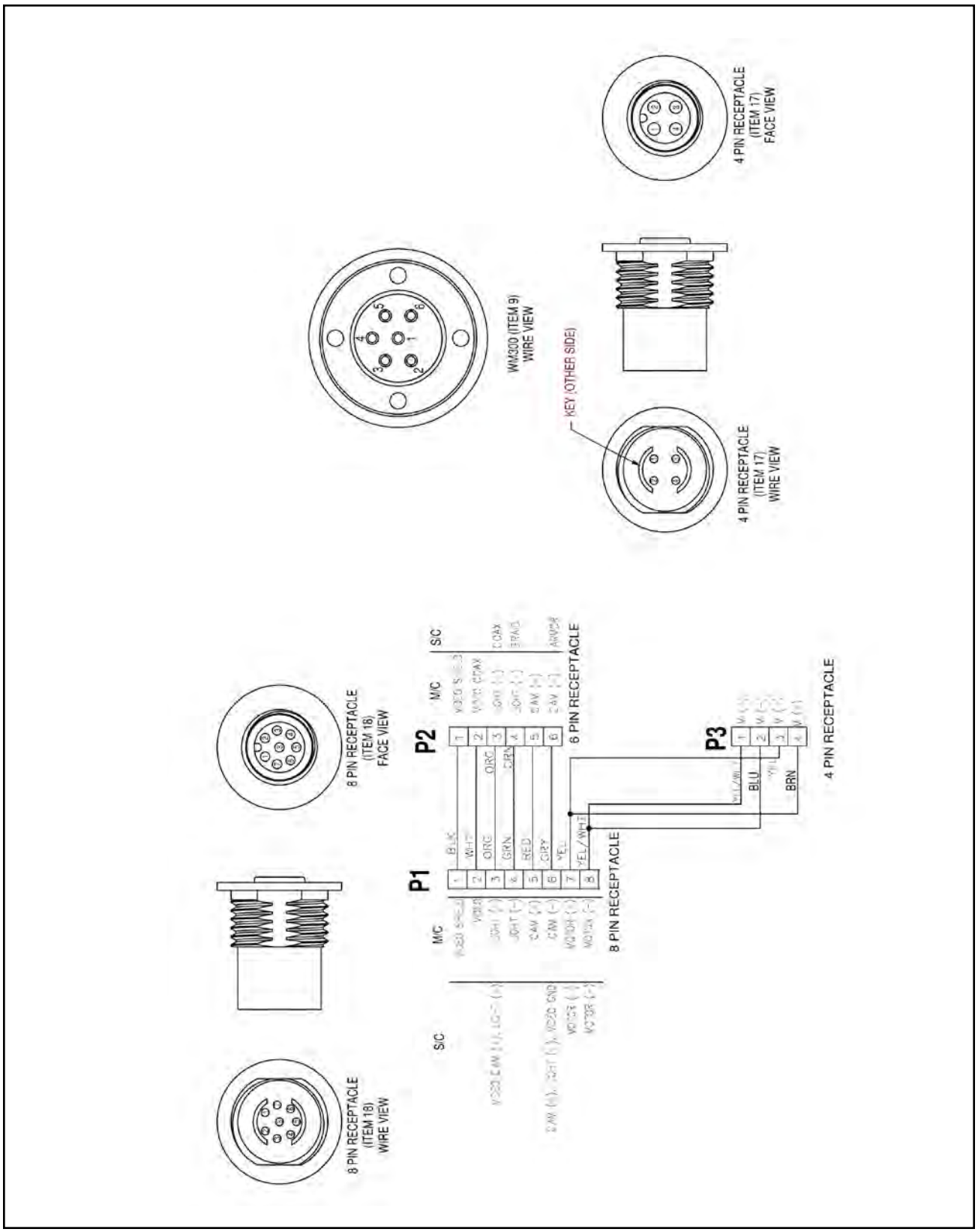


Figure 45: BULKHEAD ASSY,WTRIII/USIII, TX345

BULKHEAD ASSY,WTRIII/USIII, TX345, Rev -			
Item	Description	Part Number	Qty
1	BULKHEAD,WTRIII	TX082	1
2	O-RING,17MM X 1MM,BUNA-N,SHORE A-70	HW1972	2
3	O-RING,#2-033,1.989IDX.070W,BUNA	PM127	1
4	O-RING,2-022 BUNA	712565	1
5	NUT,ROUND CONNECTOR	TX085	2
6	NUT,TWIST LOCK,6-PIN	WM021	1
7	CONNECTOR,TWIST LOCK,FEMALE,6 SCKT	WM300	1
8	SCREW,TRUSS,PHIL,6-32X.318,SST	HW2015	3
9	O-RING,17MM ID X3MMW,BUNA,SHOREA70	HW1772	1
10	PLATE,SEAL,BULKHEAD,WTRIII	TX083	1
11	SCREW,FLAT,4-40X3/16 PHIL SST	100110	4
12	MRO-LUBRICANT,O-RING 2 OZ TUBE	439986	1
13	MRO-GREASE,MOBIL 1 SYNTHETIC	CS419	1
14	MRO-REMOVABLE LCK,ND 121200-50,BLUE	440061	1
15	TUBE,SHRINK,BLACK 3/32"	712595	1
16	TUBE,SHRINK,BLACK 1/8"	712789	1
17	RECEPTACLE,F 250V,5AMP,4WIRE,SPCL	TX102	1
18	RECEPTACLE,F 250V,5AMP,8WIRE,SPCL	TX103	1

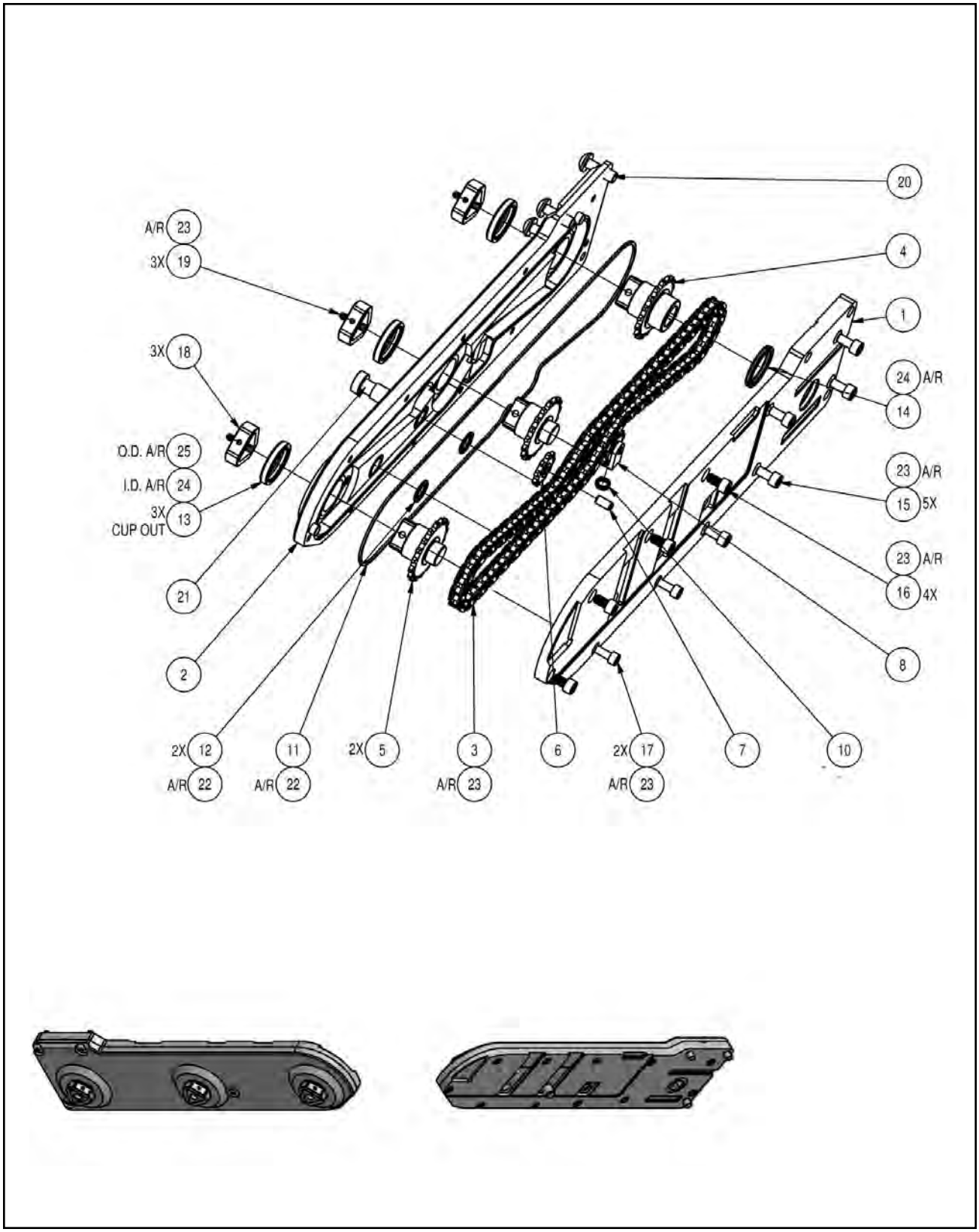
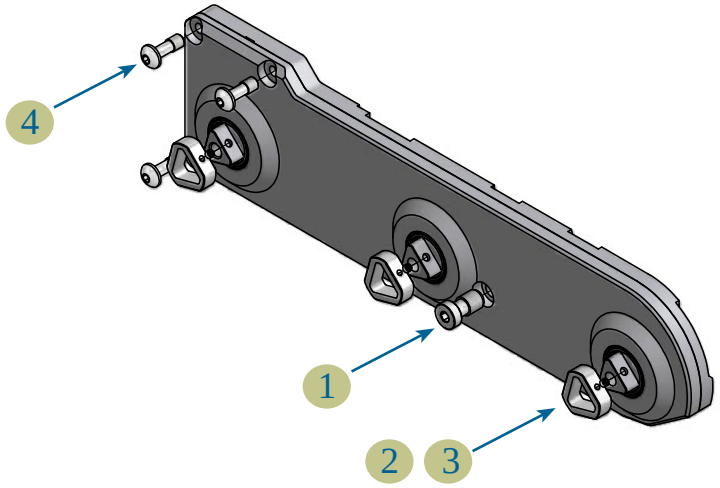


Figure 46:WHEEL MODULE ASSY,RIGHTHAND,WTRIII, TX322

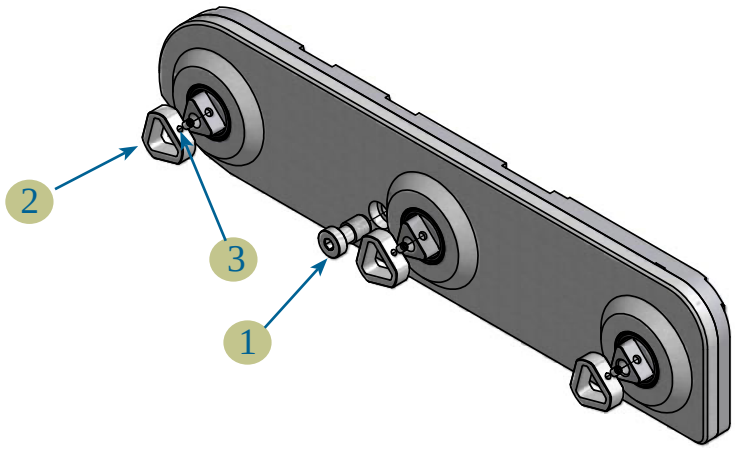
WHEEL MODULE ASSY,RIGHTHAND,WTRIII, TX322, Rev B			
Item	Description	Part Number	Qty
1	PLATE ASSY,BASE,RH,WHLD,WTRIII	TX311	1
2	COVER ASSY,BASE,RH,WHEELED,WTRIII	TX319	1
3	CHAIN,PITCH 0.25,100LK,CNT RVT,25"L	TX038	1
4	SPRKT/SHFT,DR,PWR,RH SIDE,WTRIII	TX035	1
5	SHAFT/SPRKT,MID,FRNT,WHL DR,WTRIII	TX036	2
6	SPROCKET,9T,W/BUSHING,WTRIII	TX314	1
7	PIN,DOWEL,0.1875X0.375,416SST,HRD	HW1868	1
8	TENSIONER ASSY,CHAIN,WHLD,WTRIII	TX315	1
10	SPRING,WAVE,17-7SS,CS031-L1-S17	HW2057	1
11	O-RING,BIG SIDE SEAL,TRN MOD,WTRIII	TX044	1
12	O-RING,10.5X1.5,BUNA-N	HW1933	2
13	SEAL,OIL,20MMX26MMX4MM TCM	HW1869	3
14	O-RING,QUADRING,4-117,.812IDX.103CS	HW1956	1
15	SCREW,CAP,SKT HD,10-32X3/8,SST	103030	5
16	SCREW,CAP,HX,SKT,10-32X0.312,18-8SS	HW1882	4
17	SCREW,SHCS,8-32X3/8 SST	100448	2
18	COLLET,WHEEL,SHAFT,DRIVE,WTRIII	TX031	3
19	SCREW,SET,6-32X3/16 SST NYLOCK	101087	3
20	SCREW,CAP,BTN,HEX,¼-28UNF X .700	TX042	3
21	SCREW,CP,HX,.375-16X.0625X.7,17-4PH	TX030	1
22	MRO-LUBRICANT,O-RING 2 OZ TUBE	439986	1
23	MRO-REMOVABLE LCK,ND 121200-50,BLUE	440061	1
24	MRO-GREASE,MOBIL 1 SYNTHETIC	CS419	1
25	MRO-LOCTITE,#380,CYANOACRYLATE GLUE	CS469	1

WTR III Transformer Transporter

Item	P/N	Description	QTY
TX322 - PLATE ASSY, BASE, CONN, RIGHT TRACK, WTR III			
1	TX030	SCREW,CP,HX,.375-16X.0625X.7,17-4PH (main screw for the right and left wheel modules)	
2	TX031	COLLET,WHEEL,SHAFT,DRIVE,WTRIII	
3	101087	SCREW,SET,6-32X3/16 SST NYLOCK (set screw for TX031)	
4	TX042	SCREW,CAP,BTN,HEX,¼-28UNF X .700 (screws that attach the right wheel module to the motor transmission module)	



Item	P/N	Description	QTY
TX323 - PLATE ASSY, BASE, CONN, LEFT TRACK, WTR III			
1	TX030	SCREW,CP,HX,.375-16X.0625X.7,17-4PH (main screw for the right and left wheel modules)	
2	TX031	COLLET,WHEEL,SHAFT,DRIVE,WTRIII	
3	101087	SCREW,SET,6-32X3/16 SST NYLOCK (set screw for TX031)	



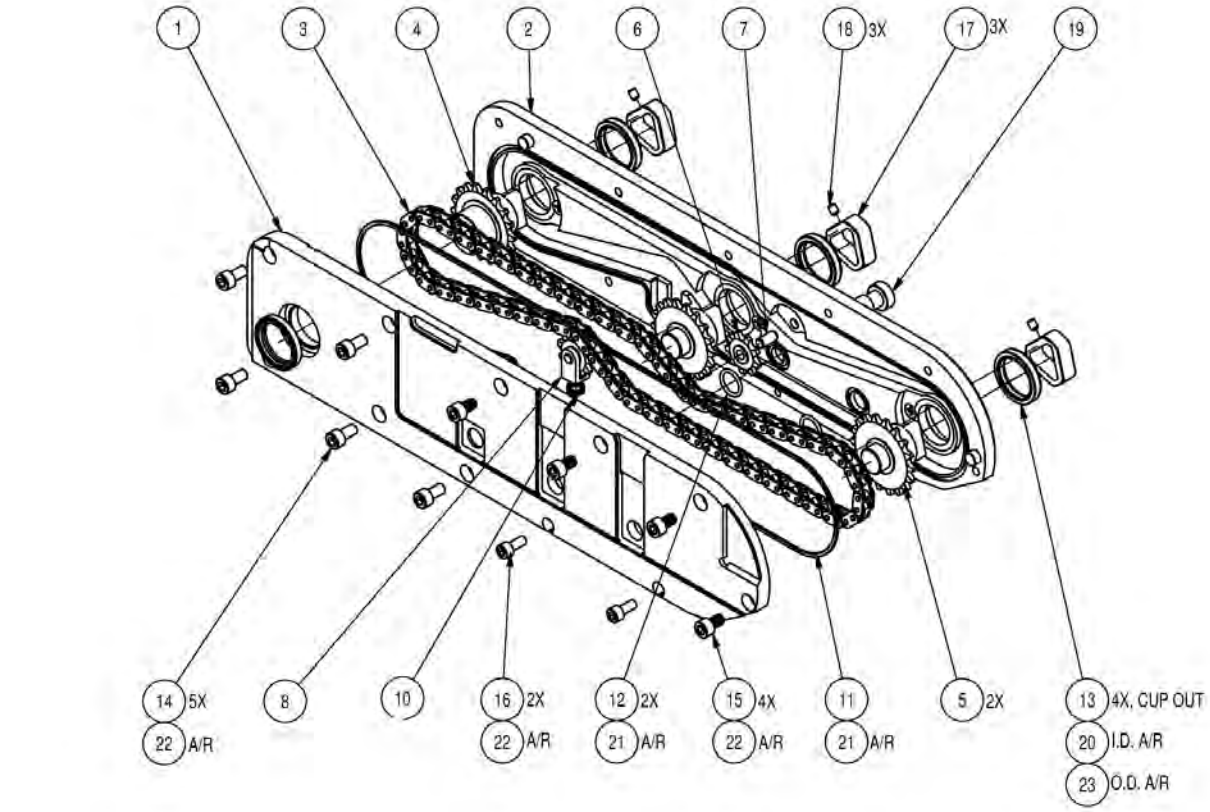




Figure 47: WHEEL MODULE ASSY,LEFTHAND,WTRIII, TX323

WTR III Transformer Transporter

WHEEL MODULE ASSY,LEFTHAND,WTRIII, TX323, Rev B			
Item	Description	Part Number	Qty
1	PLATE ASSY,BASE,LH,WHLD,WTRIII	TX310	1
2	COVER ASSY,BASE,LH,WHEELED,WTRIII	TX318	1
3	CHAIN,PITCH 0.25,100LK,CNT RVT,25"L	TX038	1
4	SPRKT/SHAFT,DR,PWR,LEFT,WTRIII	TX048	1
5	SHAFT/SPRKT,MID,FRNT,WHL DR,WTRIII	TX036	2
6	SPROCKET,9T,W/BUSHING,WTRIII	TX314	1
7	PIN,DOWEL,0.1875X0.375,416SST,HRD	HW1868	1
8	TENSIONER ASSY,CHAIN,WHLD,WTRIII	TX315	1
10	SPRING,WAVE,17-7SS,CS031-L1-S17	HW2057	1
11	O-RING,BIG SIDE SEAL,TRN MOD,WTRIII	TX044	1
12	O-RING,10.5X1.5,BUNA-N	HW1933	2
13	SEAL,OIL,20MMX26MMX4MM TCM	HW1869	4
14	SCREW,CAP,SKT HD,10-32X3/8,SST	103030	5
15	SCREW,CAP,HX,SKT,10-32X0.312,18-8SS	HW1882	4
16	SCREW,SHCS,8-32X3/8 SST	100448	3
17	COLLET,WHEEL,SHAFT,DRIVE,WTRIII	TX031	3
18	SCREW,SET,6-32X3/16 SST NYLOCK	101087	3
19	SCREW,CP,HX,.375-16X.0625X.7,17-4PH	TX030	1
20	MRO-GREASE,MOBIL 1 SYNTHETIC	CS419	1
21	MRO-LUBRICANT,O-RING 2 OZ TUBE	439986	1
22	MRO-REMOVABLE LCK,ND 121200-50,BLUE	440061	1
23	MRO-LOCTITE,#380,CYANOACRYLATE GLUE	CS469	1

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WTR III Transformer Transporter

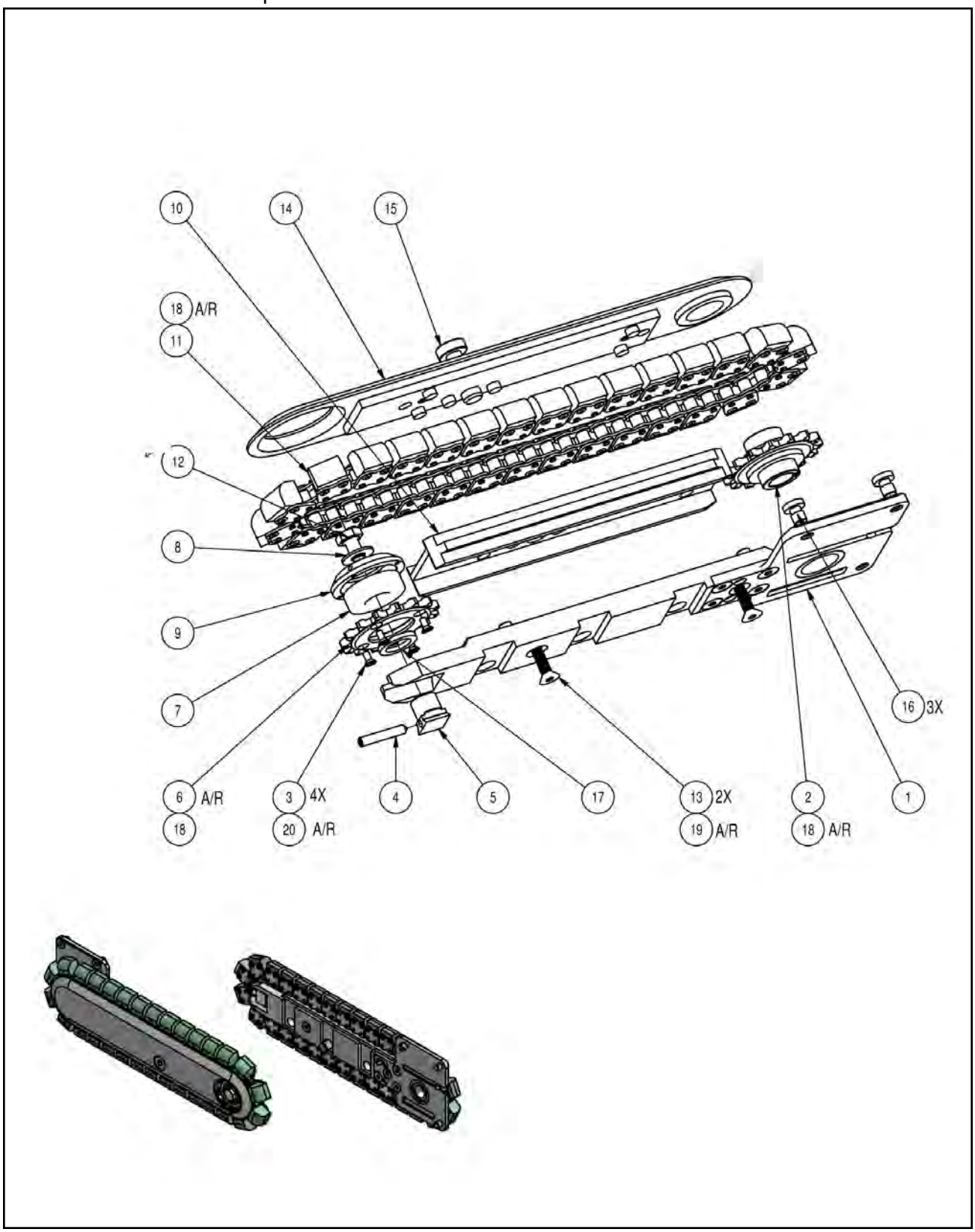


Figure 48: TRACK MODULE ASSY,RIGHTHAND,WTRIII, TX324

TRACK MODULE ASSY,RIGHTHAND,WTRIII, TX324, Rev C			
Item	Description	Part Number	Qty
1	PLATE ASSY,BASE,CONN,RH,TRK,WTRIII	TX312	1
2	SPRCKT/SHFT,35PT 15T,HX HOLE,WTRIII	TX060	1
3	SCREW,FLAT,4-40X5/16,SS	HW266	4
4	SCREW,SET,8-32X1LG,LOK,CONEPT	HW769	1
5	SPINDLE,IDLER SPROCKET	MC267	1
6	SPROCKET,35P,15T,FACE MOUNT	MC268	1
7	BEARING,SEALED.5BX1.125ODX.312THK	HW018	1
8	WASHER,FLAT,1/4"SST	101736	1
9	HUB,IDLER SPROCKET	MC269	1
10	WEAR SLIDER,CHAIN,TRK,RIGHT,WTRIII	TX061	1
11	TRACK ASSY,RND CLEAT, 30 CNT, USIII	TX305	1
12	SCREW,CAP,HX,1/4-28X3/8,SS,NYL PLT	HW1069	1
13	SCREW,FLAT,HEX,SKT,10-32X.75,18-8SS	HW1889	2
14	COVER ASSY,RH,TRK MOD,WTRIII	TX313	1
15	SCREW,CAP,LOW,3/8-16X.969,17-4SS	TX051	1
16	SCREW,FLT,HEX,SKT,.25-28X.375,17-4	TX069	3
17	SPACER,SPROCKET,RH,TRACK,WTRIII	TX052	1
18	MRO-LUBRICANT,LPS CHAINMATE,11-OZ	CS478	1
19	MRO-REMOVABLE LCK,ND 121200-50,BLUE	440061	1
20	MRO-PERMANENT LOCK,ND 140500-50,RED	440060	1

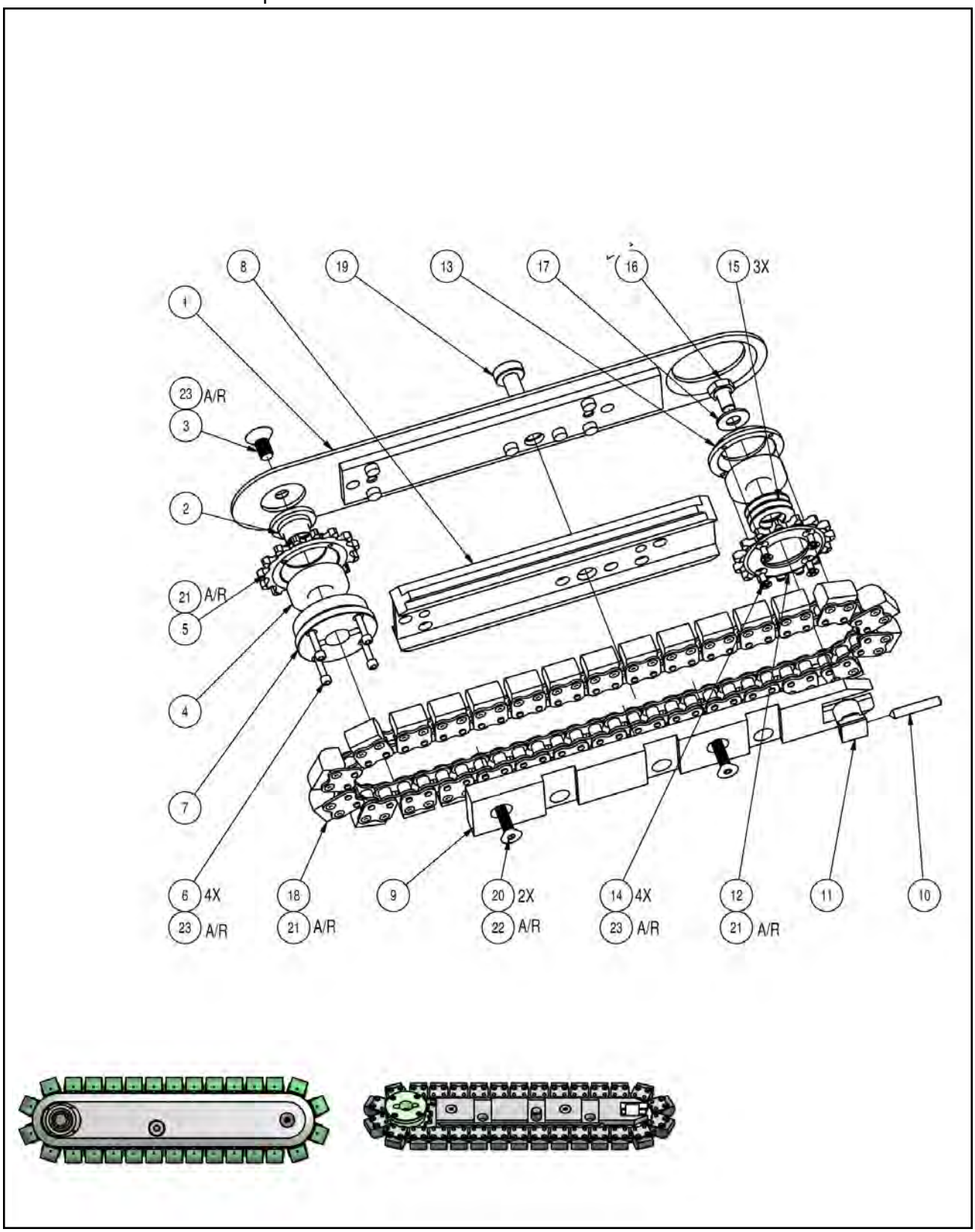
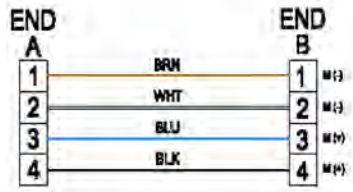


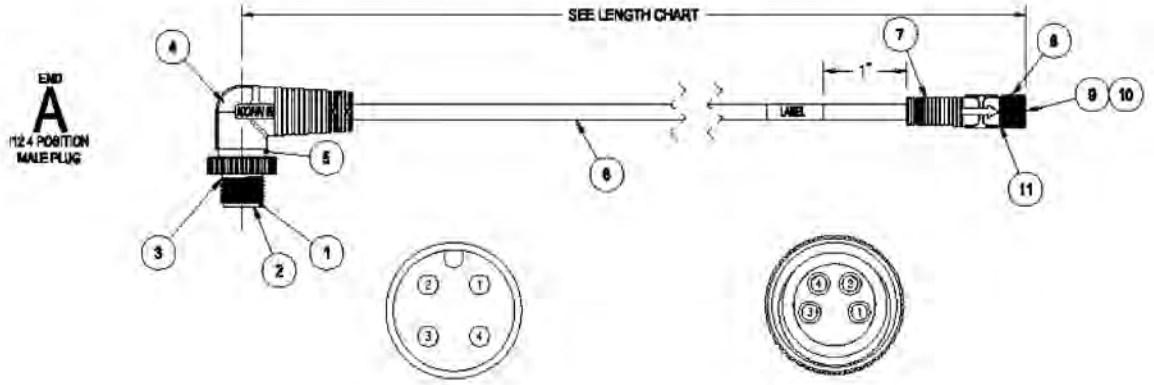
Figure 49: TRACK MODULE ASSY,LEFTHAND,WTRIII, TX325

TRACK MODULE ASSY,LEFTHAND,WTRIII, TX325, Rev C			
Item	Description	Part Number	Qty
1	COVER,BASE,TRK MOD,LEFT,WTRIII	TX064	1
2	SPINDLE,FIX,SPKT,FRNT DR,LFT,WTRIII	TX065	1
3	SCREW,FLT,HX,SKT,.250-28X.50,18-8SS	HW1890	1
4	BEARING,SEALED.5BX1.125ODX.312THK	HW018	2
5	SPROCKET,DRIVE,#35,15T,FWC	MC270	1
6	SCREW,CAP,SKT HD,4-40X1/2,SST	105061	4
7	COUPLING,SHAFT,DR,TRK,LEFT,WTRIII	TX068	1
8	WEAR SLIDR,CHAIN,TRK MOD LFT,WTRIII	TX066	1
9	PLATE,BASE,TRK MOD,LEFT,WTRIII	TX067	1
10	SCREW,SET,8-32X1LG,LOK,CONEPT	HW769	1
11	SPINDLE,IDLER SPROCKET	MC267	1
12	SPROCKET,35P,15T,FACE MOUNT	MC268	1
13	HUB,IDLER SPROCKET	MC269	1
14	SCREW,FLAT,4-40X5/16,SS	HW266	4
15	WASHER,1/2IDX7/8ODX1/32THK,SST	HW267	3
16	SCREW,CAP,HX,1/4-28X3/8,SS,NYL PLT	HW1069	1
17	WASHER,FLAT,1/4"SST	101736	1
18	TRACK ASSY,RND CLEAT, 30 CNT, USIII	TX305	1
19	SCREW,CAP,LOW,3/8-16X.969,17-4SS	TX051	1
20	SCREW,FLAT,HEX,SKT,10-32X.75,18-8SS	HW1889	2
21	MRO-LUBRICANT,LPS CHAINMATE,11-OZ	CS478	1
22	MRO-REMOVABLE LCK,ND 121200-50,BLUE	440061	1
23	MRO-PERMANENT LOCK,ND 140500-50,RED	440060	1

CABLE ASSEMBLIES

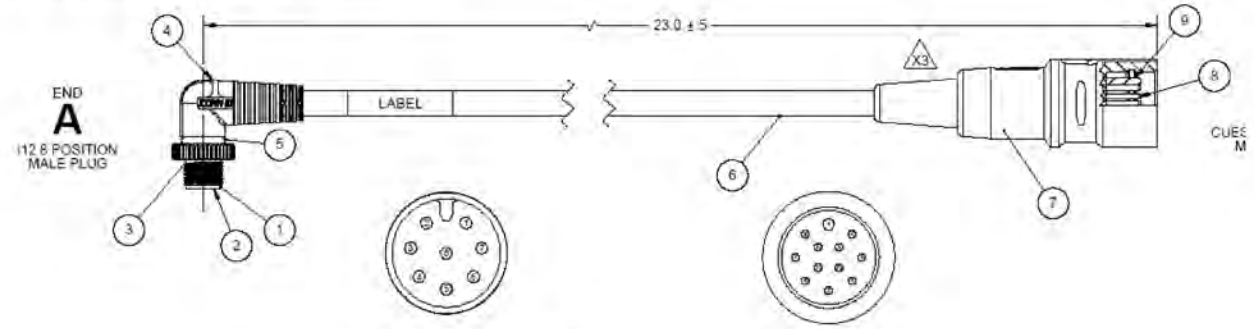
ITEM	DESCRIPTION	QTY
1	INSERT, I12 MALE 4 POSITION	1
2	CONTACT, PIN, 20 AWG, CRIMP	8
3	COUPLING NUT, I12 MALE, .750" STRAIGHT KNURL GRIP	1
4	OVERMOLD, I12, RIGHT ANGLE, BLACK	1
5	O-RING, ANTI-VIBRATION, SILICONE	1
6	CABLE, 4 COND, 22 AWG, BLACK PU JACKET	1
7	OVERMOLD, I8, STRAIGHT, FEMALE, BLACK	1
8	COUPLING NUT, I8 FEMALE	2
9	INSERT, I8, FEMALE 4 POSITION	1
10	CONTACT, SOCKET, 20 AWG, CRIMP	1
11	O-RING, I8 ANTI-VIBRATION, SILICONE	1

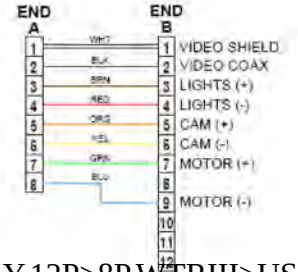




CABLE ASSY,4-PIN,WTRIII/USIII,8.5"L, TX342

ITEM NO.	DESCRIPTION	QTY.
1	INSERT, I12 MALE 8 POSITION	1
2	CONTACT, PIN, 22 AWG, CRIMP	8
3	COUPLING NUT, I12 MALE, .750" STRAIGHT KNURLED GRIP	1
4	OVERMOLD, I12, RIGHT ANGLE, BLACK	1
5	O-RING, ANTI-VIBRATION, SILICONE	1
6	CABLE, 8 COND, 22 AWG, BLACK PU JACKET, Ø .312 MAX	1
7	OVERMOLD, STRAIGHT, BLACK	1
8	CONTACT, PIN, 16 AWG, CRIMP	11
9	CONTACT, PIN 12 AWG, CRIMP	1

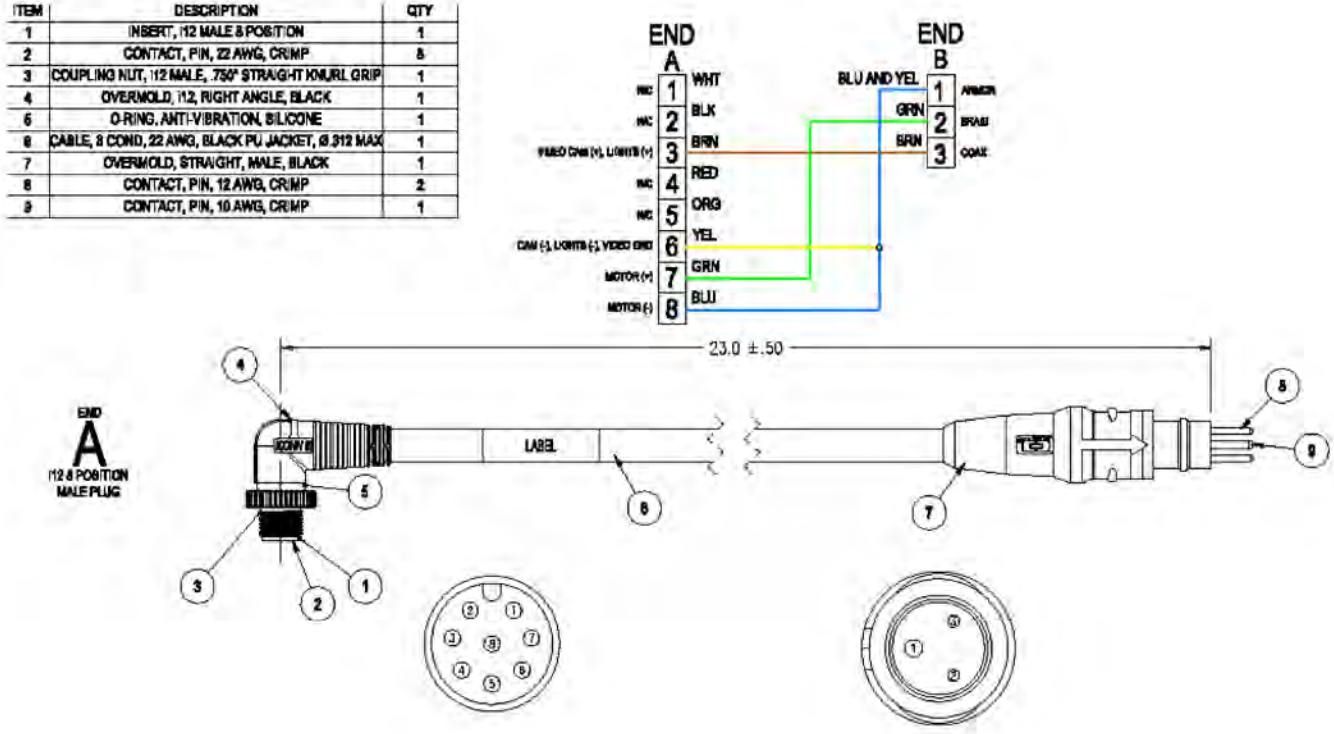




CABLE ASSY,12P>8P,WTRIII>USIII, TX343

CABLE ASSEMBLIES

ITEM	DESCRIPTION	QTY
1	INSERT, I12 MALE 8 POSITION	1
2	CONTACT, PIN, 22 AWG, CRIMP	8
3	COUPLING NUT, I12 MALE, .750" STRAIGHT KNURL GRIP	1
4	OVERMOLD, I12, RIGHT ANGLE, BLACK	1
5	O-RING, ANTI-VIBRATION, SILICONE	1
6	CABLE, 8 COND, 22 AWG, BLACK PU JACKET, Ø.312 MAX	1
7	OVERMOLD, STRAIGHT, MALE, BLACK	1
8	CONTACT, PIN, 12 AWG, CRIMP	2
9	CONTACT, PIN, 10 AWG, CRIMP	1



CABLE ASSY,S/C,3P>8P,WTRIII/USIII, TX344

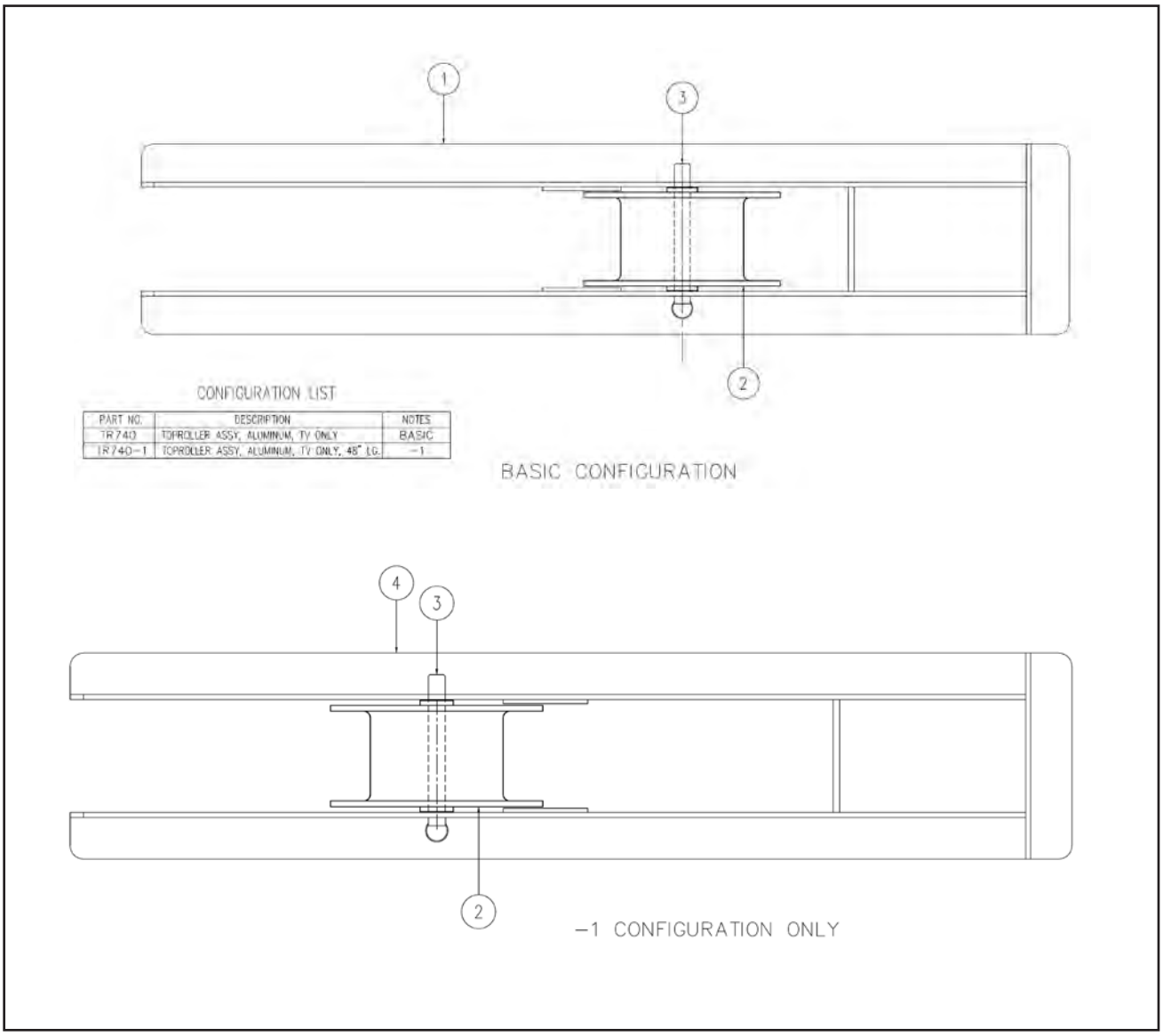


Figure 1: *Toproller Assembly, Manhole, TV ONLY, Al, TR740*

Toproller Assembly, Manhole, TV ONLY, Al, Rev. -, TR740			
Item #	Description	P/N	Qty
- 1	Frame Assy,Toproller,Aluminum	TR739	1
- 2	Roller Assy,Tophole,Mach.W/Bushings	TR742	1
- 3	Pin,Quick Rel 4.8grip-3/4dia	120813	1

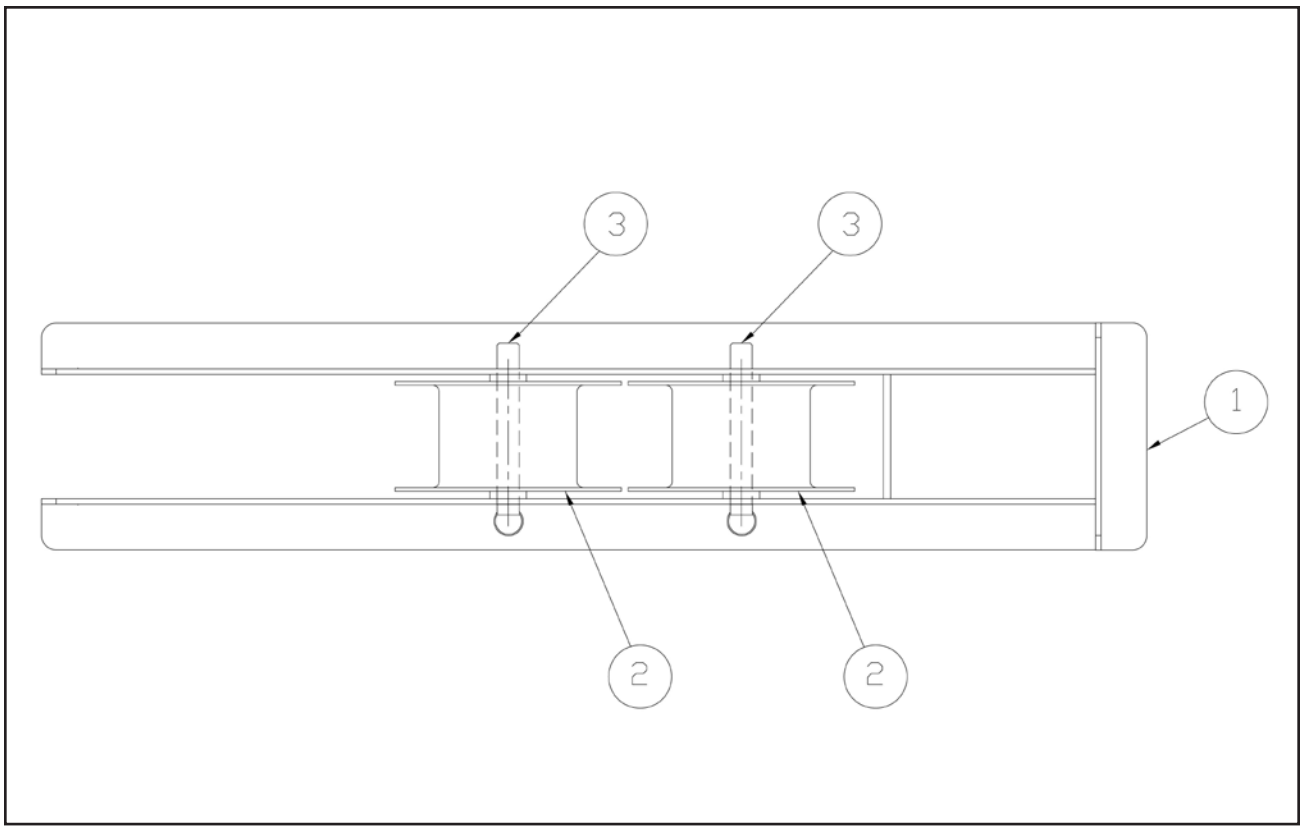


Figure 2: *Toproller Assembly, TV/Seal, TR741*

Toproller Assembly, Aluminum TV/SEAL, Rev. -, TR741			
0001	FRAME ASSY,TOPROLLER,ALUMINUM	TR739	1
0002	ROLLER ASSY,TOPHOLE,MACH.W/BUSH-INGS	TR742	2
0003	PIN,QUICK REL 4.8GRIP-3/4DIA	120813	2

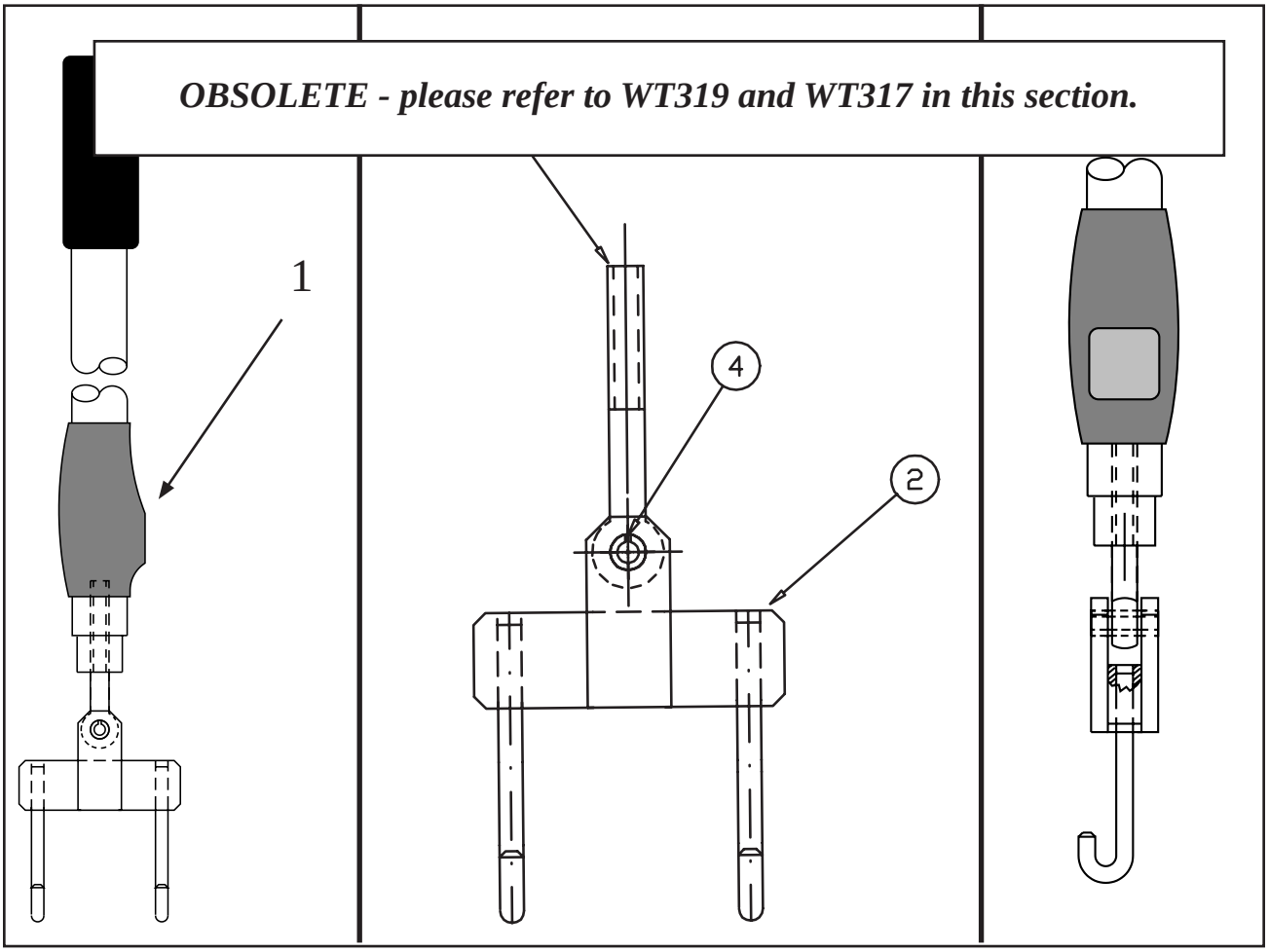
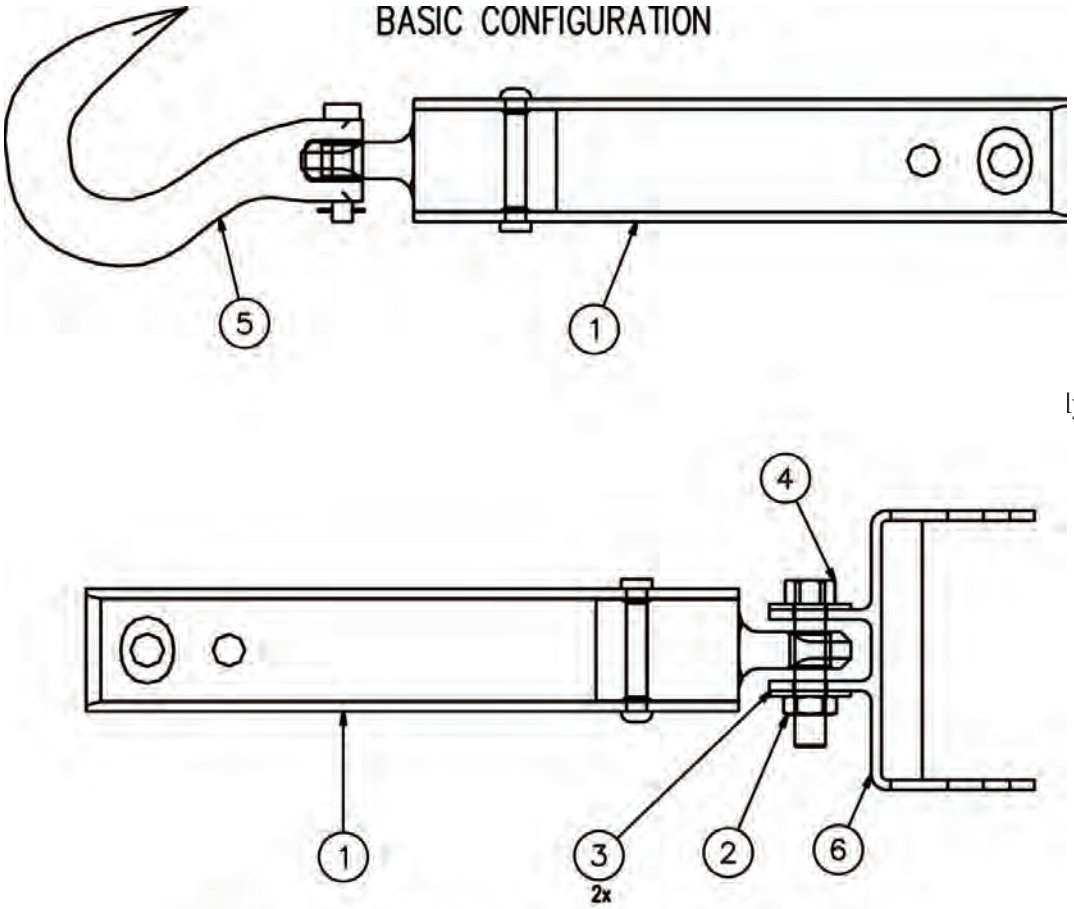


Figure 3: *Retrieval Tool, Koala & Shorty, TK015*

Retrieval Tool, Koala & Shorty (See Fig. 3) Rev. A, TK015			
Item #	Description	P/N	Qty
-1	Pole Assy, Retrieval Tool	TK020	1
-2	Hook Assy, Weldment	TK013	1
-3	Bolt, Swing, Threaded, 3/8-16 unc	HW216	1
-4	Pin, Roll, 5/16"x1" SST	HW215	1

OBSOLETE - please refer to WT319 and WT317 in this section.



WT317-1 VIEW SHOWN FOR ASSEMBLY EXAMPLE

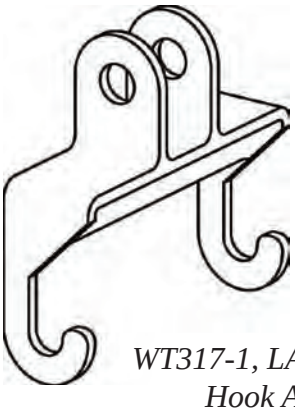
CONFIGURATION LIST

PART NO.	DESCRIPTION	NOTES
WT317	HOOK ASSEMBLY, RETRIEVAL, SHORTY	
WT317-1	HOOK ASSEMBLY, RETRIEVAL, LAMP	
WT317-2	HOOK ASSEMBLY, RETRIEVAL, PIPE RANGER	
WT317-3	HOOK ASSEMBLY, RETRIEVAL, CURRAHEE	
WT317-4	HOOK ASSEMBLY, RETRIEVAL, TRANSPORTER/SKID	
WT317-5	HOOK ASSEMBLY, RETRIEVAL, KOALA	

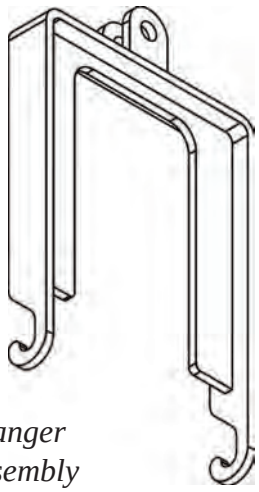
Hook Assy,Retrieval, (See Fig. 4a) Rev. C, WT317			
Item #	Description	P/N	Qty
-1	Adapter Assembly, Retrieval Tool	WT318	1
-5	Hook, Retrieval Tool	WT073	1

Figure 4a: *Hook Assembly, Retrieval, WT317*

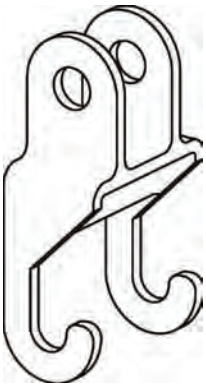
NOTE: Hooks are shown for reference only. All assemblies include the Pole Adapter, P/N WT318.



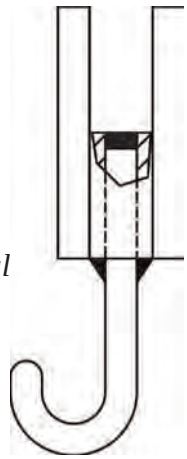
WT317-1, LAMP Retrieval Hook Assembly



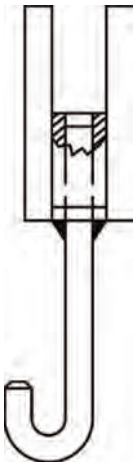
WT317-2, Pipe Ranger Retrieval Hook Assembly



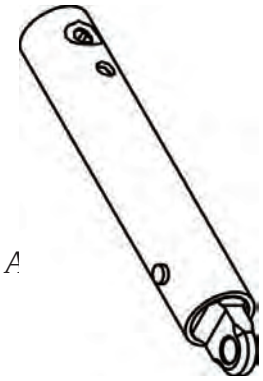
WT317-3, Currahee Cutter Retrieval Hook Assembly



WT317-4, Transporter/Skid Dual Retrieval Hook Assembly

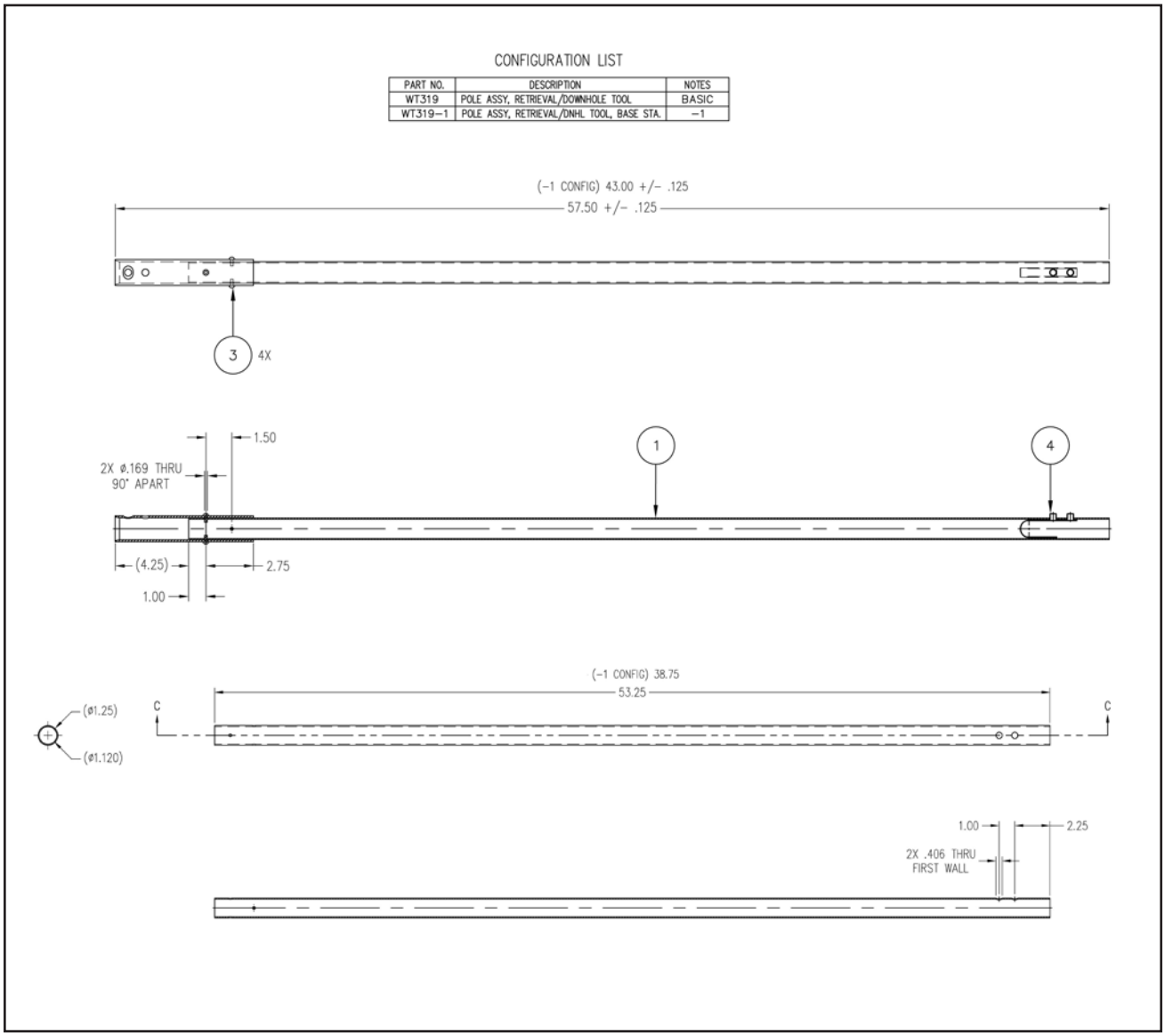


WT317-5, Ultra Shorty / Koala Dual Retrieval Hook Assembly

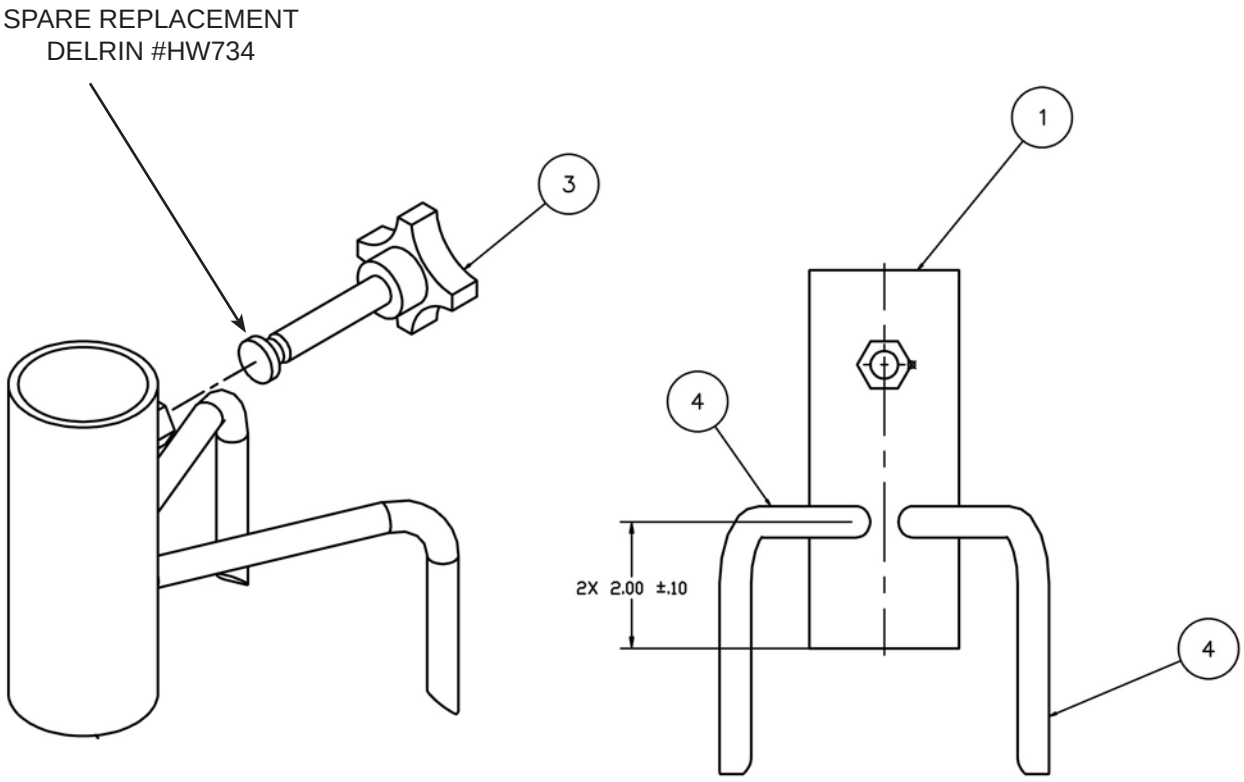


WT318, Pole A

Figure 4b: *WT317 Series - Various Retrieval Hooks*



Pole Assy,Retrieval,5', Fiberglass, (See Fig. 5) Rev. C, WT319			
Item #	Description	P/N	Qty
-1	Tubing, 1.25 OD, .125 Wall, Fiberglass, Orange	Glass Tube	In inches
-2	Sleeve, Hook/Pole, Retrieval Tool	WT076	1
-3	Rivet, Blind, 5/32 Diameter, .25 Grip	SSB5-4S	4
-4	Clip, Ring, Downroller	B059757	1



ITEM	QTY	DESCRIPTION	PART NO.	Material
4	2	CLAW HOOK	WT074-2	013904 (ø.50 STEEL ROUND)
3	1	KNOB, MODIFIED, CLAW HOOK	HW630	
2	1	NUT, HEX, 1/2-13 PLATED	101440	
1	1	TUBE	WT074-1	015313 (TUBE,RND SMLS 2.380DX2.06ID)

Figure 6: *Claw Hook, Manhole Adapter, Downhole Pole, WT074*

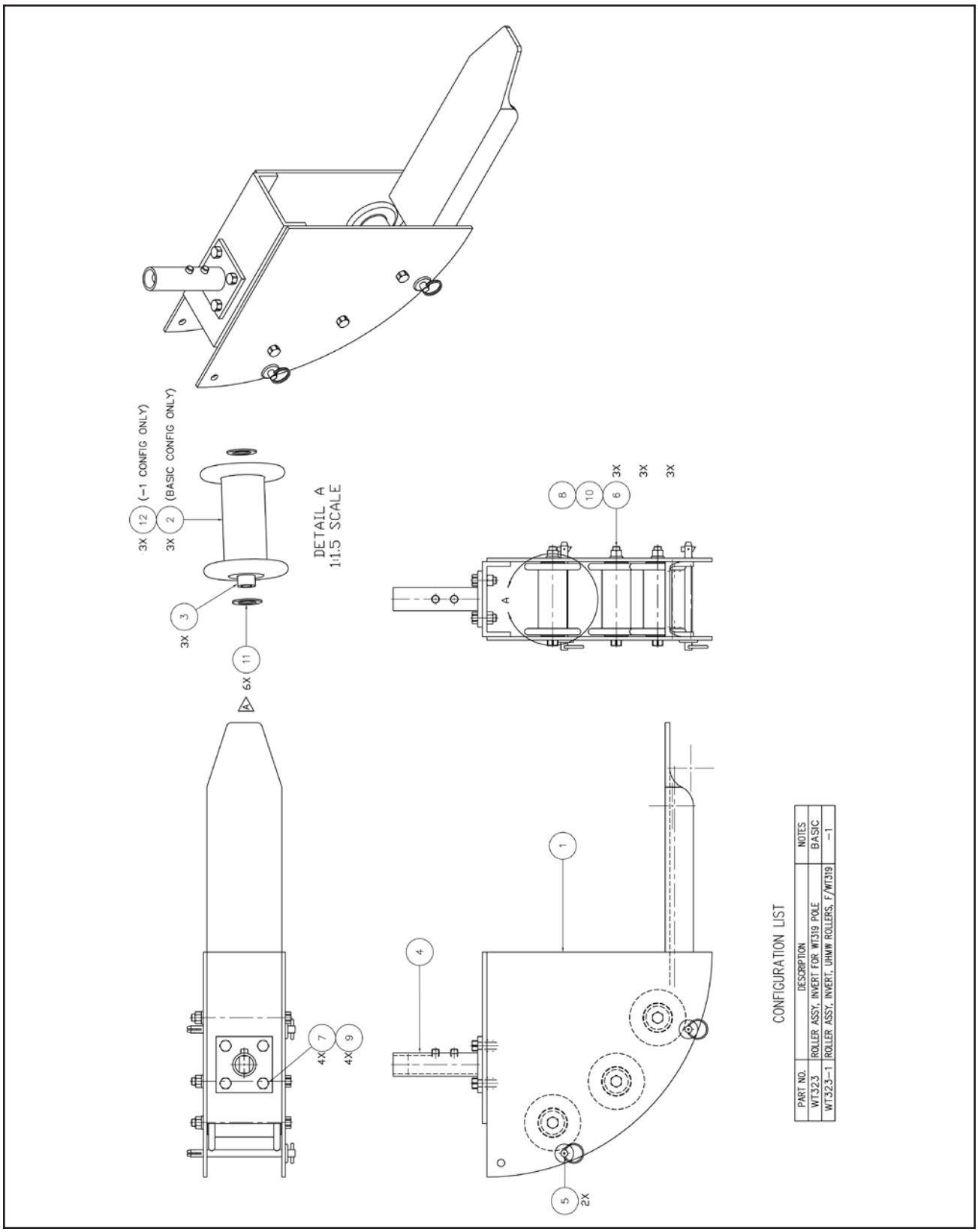


Figure 7: *Roller Assembly, Invert for WT319 Pole, WT323*

Roller Assembly, Invert for WT319 Pole, Rev. B, WT323			
0002	ROLLER,INVERT SEAL ATTCH,OBS>WM069	*0406031	3
0003	SLEEVE,INVERT ROLLER	300103	3
0004	ADAPTER ASSY,POLE,INVERT ROLLER,WT	WT320	1
0005	PIN,HITCH 3/8X4 3/4 INVERT ROLLER	120810	2
0006	BOLT,HEX,3/8-16X5 GR5 PL	101221	3
0007	BOLT,HEX,3/8-16X1 PLATED	101205	4
0008	WASHER,SPLIT 3/8 ZINC	101233	3
0009	NUT,KEP,PLATED,3/8-16	101244	4
0010	NUT,HEX 3/8-16 PLATED	101240	3
0011	WASHER,BRASS,.648IDX1.042 ODX.050TH	HW732	6

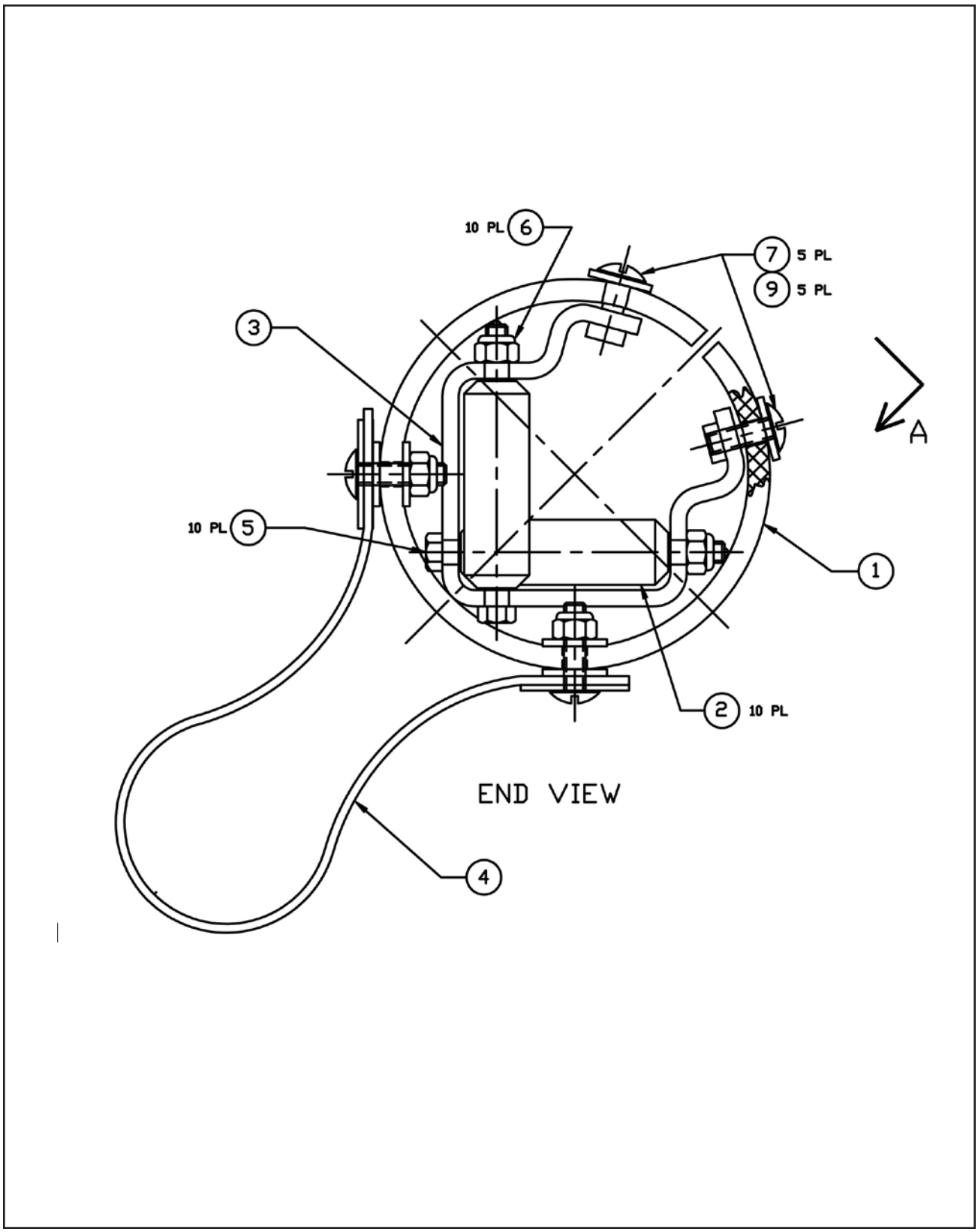


Figure 8a: Guide, Cable, Gator Tail, VR004

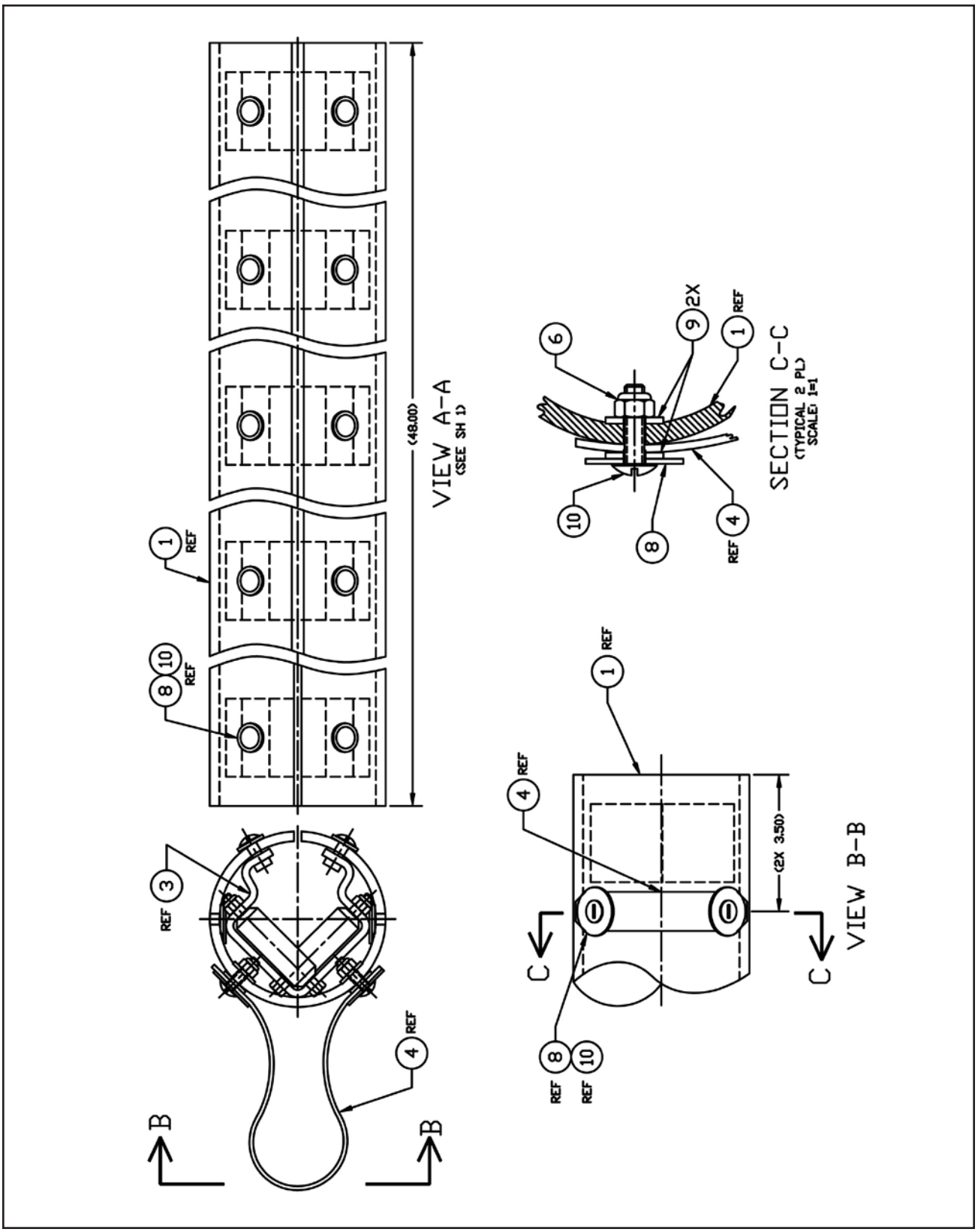


Figure 8b: Guide, Cable, Gator Tail, VR004

Guide, Cable, Gator Tail (See Fig. 8) Rev. D, VR004			
Item #	Description	P/N	Qty
- 1	Hose,Vacuum,Plastic,4"Dia	VR003	1
- 2	Roller,Cable	VR002	10
- 3	Housing,Cable Guide	VR001	5
- 4	Strap,Handle	VR005	1
- 5	Screw,Hex Hd,1/4-20x3.25"Sst	HW053	10
- 6	Nut,Lock Nylon Ins,Pld,1/4-20	101039	12
- 7	Screw,Truss,1/4-20x3/4 Phil Sst	712449	10
- 8	Washer,Fender,1/4x1-1/4odx1/16 Pld	101036	2
- 9	Washer,Flat,1/4 Uss Pld	101032	14
- 10	Screw,Truss,1/4-20x1.0" SST	HW055	2
- 11	ROPE,POLYPROPYLENE,1/4 IN,YELLOW	CS466	40

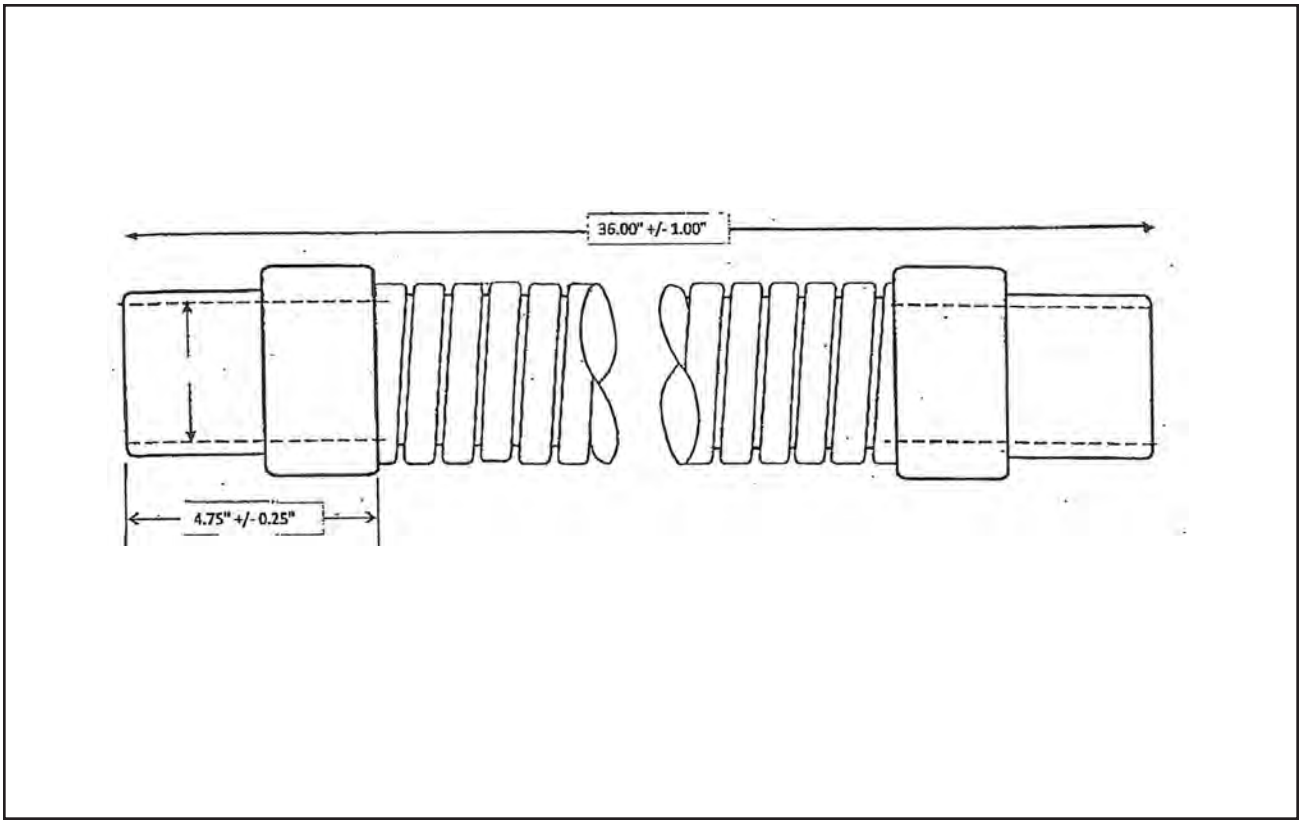
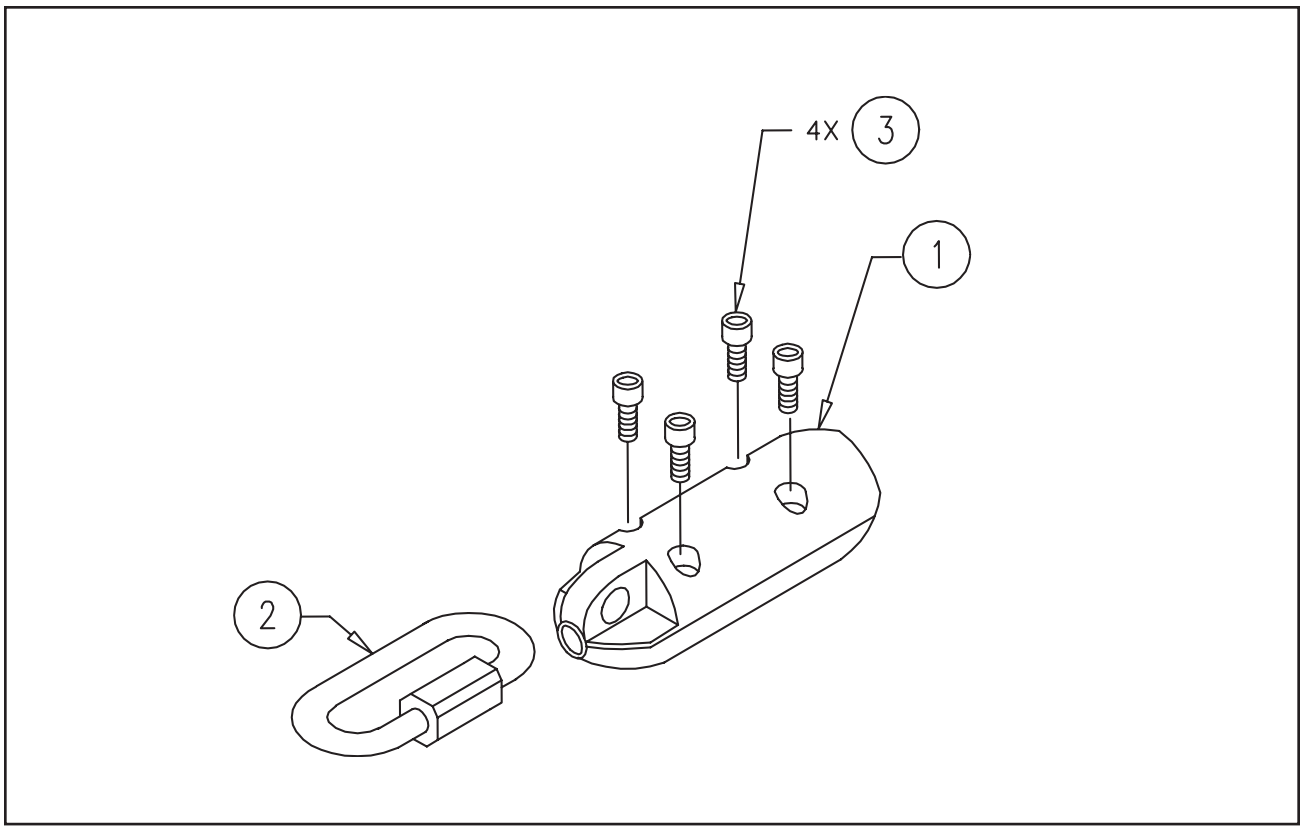


Figure 9: Guide, Cable, Tiger Tail w/ 40' Rope, 300654

GUIDE,CABLE,TIGER TAIL,W/40'ROP, 300654			
0001	GUIDE,CABLE,TIGER TAIL,NOT SOLD	300653	1
0002	ROPE,POLYPROPYLENE,1/4 IN,YELLOW	CS466	40



STRAIN RELIEF (for new repair kits)	PART NUMBER
Multi-Conductor Gold	120825
Multi-Conductor Yellow/Black	120820
Multi-Conductor Blue	TG012
Single Conductor (also used for LIS)	120220
ProScout Dolly / Green	120825
1/2" Multi-Conductor	120820
1/2" Nylon (Chinese Finger)	120201
ASSOCIATED PARTS:	
Screws (4 required)	(New Style) HW2391 - SCREW,CAPTIVE,1/4-20X.84LG,18-8SST (Old Style) - SCREW,CAPTIVE,SKT HD,10-32 X .75,SS
Clevis (1 required) - Connector Threaded Chain	712849 (1/4")
Clevis (1 required) - Ring D, Chain 3/16"	712799 (3/16")

TOW CABLES - GROUPED BY APPLICATION & LENGTH

Tow Cables for Cutter Applications					
P/N	DESCRIPTION	TYPE	TYPE DESCRIPTION	LENGTH (INCHES)	PRIMARY APPLICATION
120168	CABLE,TOW,F/6”KANGAROO CUTTER	A	Ball to Ball	22	Cutter 6” Pipe
120169	CABLE,TOW(8”-30”)KANGAROO CUTTER	A	Ball to Ball	24”	Cutter 8-30” Pipe
ZM127	TOW CABLE,F/8-30” KCUTTER F/ZOOM	A	Ball to Ball	48	Cutter with zoom camera
KC061	TOW CABLE,CAMERA END,K CUTTER	B	Ball to Loop	20.4	Cutter
ZM128	TOW CABLE,CAM.END,OBS.USE 120164	B	Ball to Loop	44.5	Cutter
120164	CABLE,TOW,F/30”PACKER,CUTTER W/OZ	B	Ball to Loop	44	Sealing/Cutter
GK017	CABLE,TOW,ASSY,18”GIANT KANGAROO	D	Loop to Loop	18	Cutter / Giant
KC062	TOW CABLE, REAR,STD.CUTTER/SMM	D	Loop to Loop	25.4	Cutter / SMM
KC087	CABLE,TOW,CUTTER 39.5” LENGTH	D	Loop to Loop	39.5	Cutter
CC215	CABLE,TOW,66”,LOOP ENDS,CC	D	Loop to Loop	66	Cutter

Tow Cables for Float Applications					
SF110	TOW CABLE,FLOAT,SONAR	D	Loop to Loop	24	Sonar
120512	CABLE,TOW,FLOAT,REAR	F	Clevis + Loop to Two Leads w/ Clevis + Loop	15	Float
120511	CABLE,TOW,FLOAT,FRONT,36”,W/CLEVIS’	F	Clevis + Loop to Two Leads w/ Clevis + Loop	36	Float

TOW CABLES - GROUPED BY APPLICATION & LENGTH

P/N	DESCRIPTION	TYPE	TYPE DESCRIPTION	LENGTH (INCHES)	PRIMARY APPLICATION
Tow Cables for Transporter Applications					
120106	CABLE,TOW,F/6"PACKER/PR&SPR LIFTS	A	Ball to Ball	9-1/8	Sealing and PipeRanger Camera Lift Lifting Loop
TG015	CABLE,TOW,F/ M/C WHEELED TRANSP	B	Ball to Loop	24	Transporter - Powerwheels
120504	CABLE,TOW,TRANSPORTER& K-CUTTER,27 "	B	Ball to Loop	27	Powertrac Trans. / Cutter
120163	CABLE,TOW,F/27"PACKER,39.5" LENGTH	B	Ball to Loop	39.5	Ultra Shorty / 27" Packer
120165	CABLE,TOW,F/WTRIII & USIII,54"	B	Ball to Loop	54	Track Transporter
120165-1	CABLE,TOW,F/US21,60"	B	Ball to Loop	60	Track Transporter US21
KC062	TOW CABLE, REAR,STD.CUTTER/SMM	D	Loop to Loop	25.4	Cutter / Steerable MudMaster
120510	CABLE,TOW,6"Y F/STEEL ARMOR	E	Center Loop to Two Leads w/ Loop	6	Mudmaster Transporter
TK005	TOW CABLE ASSY,KOALA	E	Center Loop to Two Leads w/ Loop	20	Koala
WS062	CABLE,TOW,PR,SPR+CPR 39.5 JND PAIR	G	Ball to Loop Pair Crimped Together	39.5	Transporter Pipe Ranger c/ Compact Pipe Ranger
WS062-1	CABLE,TOW,REAR VIEW CAM TO SPR 54"	G	Ball to Loop Pair Crimped Together	54	Transporter Pipe Ranger w/ Rear View Camera
Tow Cables for Lamp I + II Transporter Applications					
LM244	TOW CABLE,BALL ENDS,LAT.VID,LAMPI	A	Ball to Ball	12	Lamp II
LT150	TOW CABLE,12",PUSHCABLE,LAMP	B	Ball to Loop	12	Lamp I
LM157	CABLE,TOW,LAMPII	BB	Center Loop w/ Two Combined Leads w/ Ball Ends	39.5	Lamp II

TOW CABLES - GROUPED BY APPLICATION & LENGTH

Tow Cables for Sealing Applications

P/N	DESCRIPTION	TYPE	TYPE DESCRIPTION	LENGTH (INCHES)	PRIMARY APPLICATION
120106	CABLE,TOW,F/6”PACKER/PR&SPR LIFTS	A	Ball to Ball	9-1/8	Sealing and PipeRanger Camera Lift Lifting Loop
120108	CABLE,TOW,F/8”(200MM)PACKER	A	Ball to Ball	12	Sealing
120110	CABLE,TOW,F/10”(250MM)PACKER	A	Ball to Ball	15	Sealing
120112	CABLE,TOW,F/12”(300MM)PACKER	A	Ball to Ball	18	Sealing
120115	CABLE,TOW,F/15”(400MM)PACKER	A	Ball to Ball	22.5	Sealing
120118	CABLE,TOW,18”PACKER	A	Ball to Ball	27	Sealing
120124	CABLE,TOW,24”PACKER	A	Ball to Ball	35.5	Sealing
120104	CABLE,TOW,4”PACKER	A	Ball to Ball	6	Sealing
SS374	TOW CABLE,F/6”LOGIBALL	B	Ball to Loop	9	Sealing
SS375	TOW CABLE,F/8”LOGIBALL	B	Ball to Loop	12	Sealing
SS376	TOW CABLE,F/10”LOGIBALL	B	Ball to Loop	15	Sealing
SS377	TOW CABLE,F/12”LOGIBALL	B	Ball to Loop	18	Sealing
120160	CABLE,TOW,F/18”COMPACT PACKER	B	Ball to Loop	26	Sealing
120161	CABLE,TOW,F/21”(550MM)PACKER	B	Ball to Loop	30.5	Sealing
120162	CABLE,TOW,F/24”(600MM)PACKER	B	Ball to Loop	35	Sealing
120163	CABLE,TOW,F/27”PACKER,39.5” LENGTH	B	Ball to Loop	39.5	Ultra Shorty / 27”Packer
120164	CABLE,TOW,F/30”(750MM)PACKER	B	Ball to Loop	44	Sealing
120167	CABLE,TOW,42”(1611MM)COMPACT PACKER	B	Ball to Loop	63	Sealing
SS365	TOW CABLE ASSY,GROUT SYSTEM	C	Snap Swivel w/ Two Leads with Ball Ends	56	Sealing
SS150	TOW CABLE,LOGIBALL,28”	D	Loop to Loop	28	Sealing
1201660	CABLE,TOW,REAR COMPACT PACKER	I	Center Clevis + Loop, to Two Leads w/ Clevis + Loop	24-1/8	Packer - Compact Series

TOW CABLES - GROUPED BY APPLICATION & LENGTH

Tow Cables for Skid Applications					
P/N	DESCRIPTION	TYPE	TYPE DESCRIPTION	LENGTH (INCHES)	PRIMARY APPLICATION
120506	TOW CABLE ASSY,FOR CAMERA SKIDS 14”	C	Snap Swivel w/ Two Leads with Ball Ends	14	Skid
120502	TOW CABLE ASSY,FOR CAMERA SKIDS 27”	C	Snap Swivel w/ Two Leads with Ball Ends	27	Skid
120502-1	TOW CABLE ASSY, F/SKID CBL,51”LONG	C	Snap Swivel w/ Two Leads with Ball Ends	51	Skid
120600	TOW CABLE ASSY,F/LIS ONLY	H	Two Clevis to a Y Loop, to Center Snap Swivel to Two Ball Ends	24	Misc. / LIS
120501	TOW CABLE ASSY,TV SKID 36” F/36-60”	H	Two Clevis to a Y Loop, to Center Snap Swivel to Two Ball Ends	27	Misc. Steel Armor Scotchcast Chamber

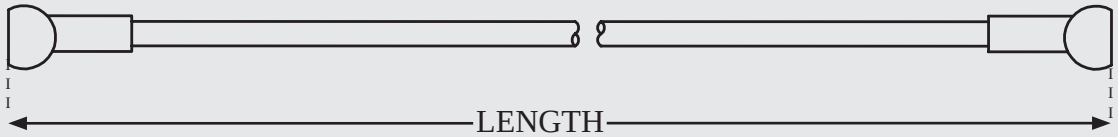
TOW CABLES - GROUPED BY APPLICATION & LENGTH

Miscellaneous Tow Cables + Components					
P/N	DESCRIPTION	TYPE	TYPE DESCRIPTION	LENGTH (INCHES)	PRIMARY APPLICA-TION
120153	CABLE,TOW,8”WHEEL SET,LIS	B	Ball to Loop	13-5/8	Misc.
120152	CABLE,TOW,10”WHEEL SET,LIS	B	Ball to Loop	16-5/8	Misc.
120151	CABLE,TOW,12”WHEEL SET,LIS	B	Ball to Loop	20-1/4	Misc.
120150	CABLE,TOW,15”WHEEL SET,LIS	B	Ball to Loop	24-1/2	Misc.
120210	CABLE,TOW,LIS	D	Loop to Loop	18	Misc.
120510	CABLE,TOW,6”Y F/STEEL ARMOR	E	Center Loop to Two Leads w/ Loops	6	Steel Armor Splice Chamber
120507	CABLE,TOW,9”Y F/STEEL ARMOR	E	Center Loop to Two Leads w/ Loops	9	Steel Armor Splice Chamber
PM137	CABLE,TOW,SKID SET,F/PROSCOUT	E	Center Loop to Two Leads w/ Loops	12	Proscout Skid
SW105	CABLE,TOW,35”LG,VERSA-WELL	E	Center Loop to Two Leads w/ Loops	35	Well Camera System
120426	CLEVIS,3/16”	N/A	Joins loops - removeable	N/A	Misc.
120001	Swage for 1/8” Cable Repair				
120011	Swage for 3/16” Cable Repair				
120413	SNAP SWIVEL,CAMERA TOW CABLE,SS				
712799	RING-D,CHAIN,TOW CABLE,3/16”SS				
712849	CONNECTOR,THREADED CHAIN 1/4 SST				

TOW CABLES - GROUPED BY TYPE AND LENGTH

TYPE "A" Ball to Ball Tow Cables			
P/N	DESCRIPTION	LENGTH (INCHES)	APPLICATION
120104	CABLE,TOW,4"PACKER	6	Sealing
120106	CABLE,TOW,F/6"PACKER/PR&SPR LIFTS	9-1/8	Sealing and PipeRanger Camera Lift Lifting Loop
LM244	TOW CABLE,BALL ENDS,LAT.VID,LAMPII	12	Lamp II
120108	CABLE,TOW,F/8"(200MM)PACKER	12	Sealing
120110	CABLE,TOW,F/10"(250MM)PACKER	15	Sealing
120112	CABLE,TOW,F/12"(300MM)PACKER	18	Sealing
120168	CABLE,TOW,F/6"KANGAROO CUTTER	22	Cutter 6" Pipe
120115	CABLE,TOW,F/15"(400MM)PACKER	22.5	Sealing
120169	CABLE,TOW(8"-30")KANGAROO CUTTER	24"	Cutter 8-30" Pipe
120118	CABLE,TOW,18"PACKER	27	Sealing
120124	CABLE,TOW,24"PACKER	35.5	Sealing
ZM127	TOW CABLE,F/8-30" KCUTTER F/ZOOM	48	Cutter with zoom camera

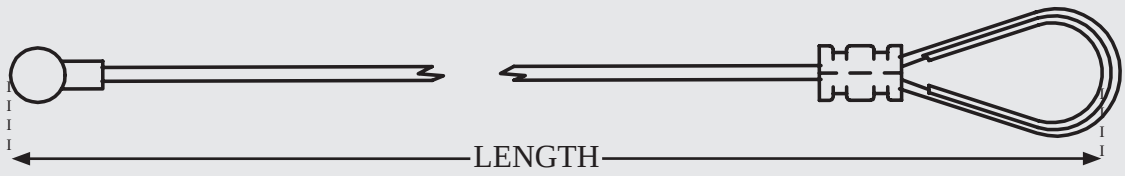
FIGURE "A"



TOW CABLES - GROUPED BY TYPE AND LENGTH

TYPE "B" Ball to Loop Tow Cables			
P/N	DESCRIPTION	LENGTH (INCHES)	APPLICATION
SS374	TOW CABLE,F/6"LOGIBALL	9	Sealing
SS375	TOW CABLE,F/8"LOGIBALL	12	Sealing
LT150	TOW CABLE,12",PUSHCABLE,LAMP	12	Lamp I
120153	CABLE,TOW,8"WHEEL SET,LIS	13-5/8	Misc.
SS376	TOW CABLE,F/10"LOGIBALL	15	Sealing
120152	CABLE,TOW,10"WHEEL SET,LIS	16-5/8	Misc.
SS377	TOW CABLE,F/12"LOGIBALL	18	Sealing
120151	CABLE,TOW,12"WHEEL SET,LIS	20-1/4	Misc.
KC061	TOW CABLE,CAMERA END,K CUTTER	20.4	Cutter
TG015	CABLE,TOW,F/ M/C WHEELED TRANSP	24	Transporter - Powerwheels
120150	CABLE,TOW,15"WHEEL SET,LIS	24-1/2	Misc.
120160	CABLE,TOW,F/18"COMPACT PACKER	26	Sealing
120504	CABLE,TOW,TRANSPORTER& K-CUTTER,27"	27	Powertrac Trans. / Cutter
120161	CABLE,TOW,F/21"(550MM)PACKER	30.5	Sealing
120162	CABLE,TOW,F/24"(600MM)PACKER	35	Sealing
120163	CABLE,TOW,F/27"PACKER,39.5" LENGTH	39.5	Ultra Shorty / 27"Packer
120164	CABLE,TOW,F/30"PACKER,CUTTER W/OZ	44	Sealing/Cutter
ZM128	TOW CABLE,CAM.END,OBS.USE 120164	44.5	Cutter
120165	CABLE,TOW,F/WTRIII & USIII,54"	54	Track Transporter
120165-1	CABLE,TOW,F/US21,60"	60	Track Transporter US21
120167	CABLE,TOW,42"(1611MM)COMPACT PACKER	63	Sealing

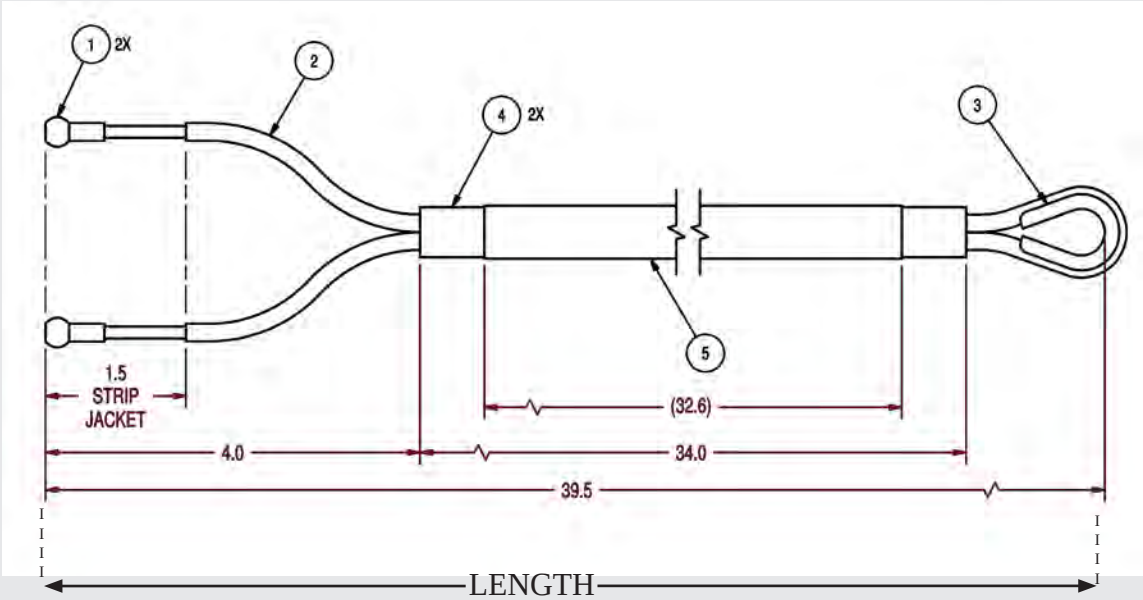
FIGURE "B"



TOW CABLES - GROUPED BY TYPE AND LENGTH

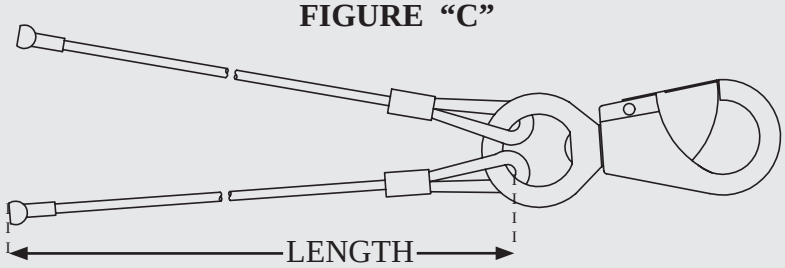
TYPE "BB" Center Loop w/ Two Combined Leads w/ Ball Ends			
P/N	DESCRIPTION	LENGTH (INCHES)	APPLICATION
LM157	CABLE,TOW,LAMPII	39.5	Lamp II

FIGURE "BB"



TYPE "C" Snap Swivel w/ Two Leads with Ball Ends			
P/N	DESCRIPTION	LENGTH (INCHES)	APPLICATION
120506	TOW CABLE ASSY,FOR CAMERA SKIDS 14"	14	Skid
120502	TOW CABLE ASSY,FOR CAMERA SKIDS 27"	27	Skid
120502-1	TOW CABLE ASSY, F/SKID CBL,51"LONG	51	Skid
SS365	TOW CABLE ASSY,GROUT SYSTEM	56	Sealing

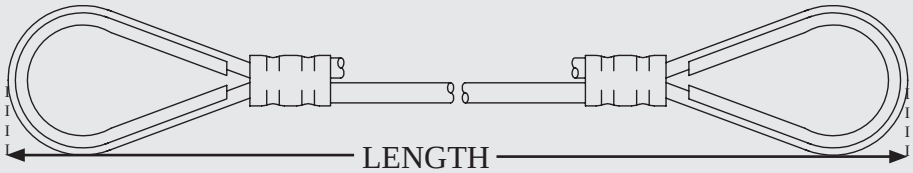
FIGURE "C"



TOW CABLES - GROUPED BY TYPE AND LENGTH

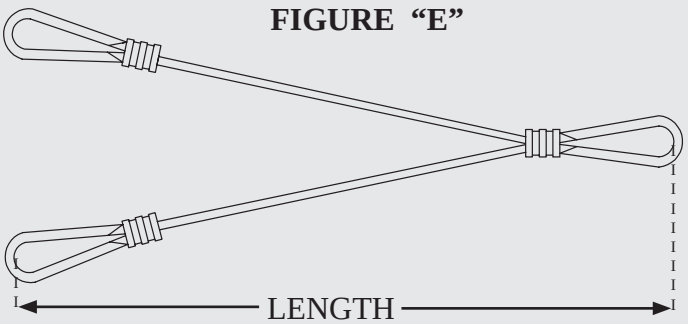
TYPE "D" Loop to Loop Tow Cables			
P/N	DESCRIPTION	LENGTH (INCHES)	APPLICATION
120210	CABLE,TOW,LIS	18	Misc.
GK017	CABLE,TOW,ASSY,18"GIANT KANGAROO	18	Cutter / Giant
SF110	TOW CABLE,FLOAT,SONAR	24	Sonar
KC062	TOW CABLE, REAR,STD.CUTTER/SMM	25.4	Cutter / SMM
KC062	TOW CABLE, REAR,STD.CUTTER/SMM	25.4	Cutter / Steerable MudMaster
SS150	TOW CABLE,LOGIBALL,28"	28	Sealing
KC087	CABLE,TOW,CUTTER 39.5" LENGTH	39.5	Cutter
CC215	CABLE,TOW,66",LOOP ENDS,CC	66	Cutter

FIGURE "D"



TYPE "E" Center Loop to Two Leads w/ Loops Tow Cables			
P/N	DESCRIPTION	LENGTH (INCHES)	APPLICATION
120510	CABLE,TOW,6"Y F/STEEL ARMOR	6	Steel Armor Splice Chamber
120507	CABLE,TOW,9"Y F/STEEL ARMOR	9	Steel Armor Splice Chamber
PM137	CABLE,TOW,SKID SET,F/PROSCOUT	12	Proscout Skid
TK005	TOW CABLE ASSY,KOALA	20	Koala
SW105	CABLE,TOW,35"LG,VERSA-WELL	35	Well Camera System

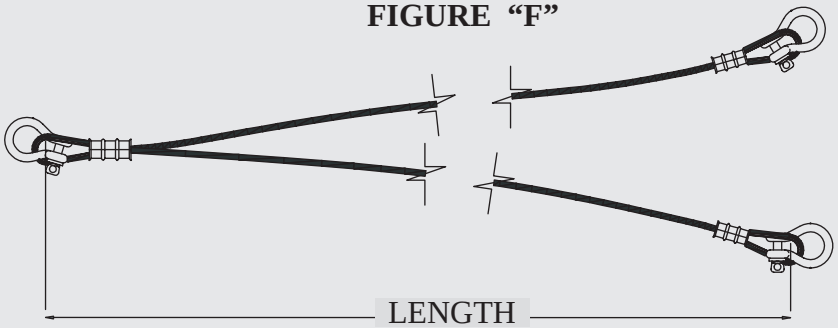
FIGURE "E"



TOW CABLES - GROUPED BY TYPE AND LENGTH

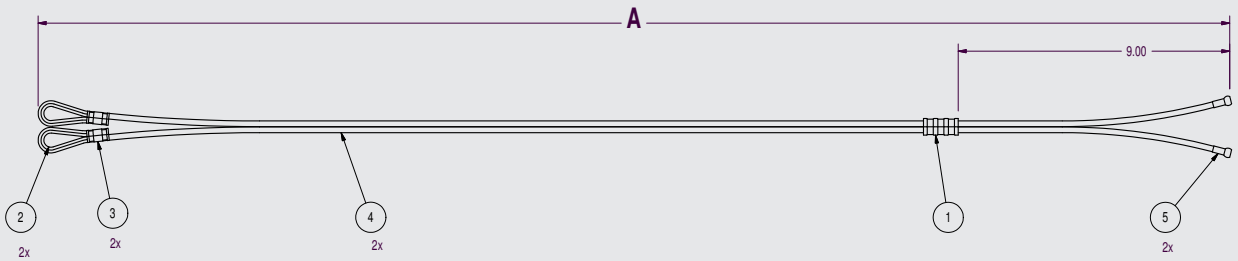
TYPE "F" Clevis + Loop to Two Leads w/ Clevis + Loop Tow Cables			
P/N	DESCRIPTION	LENGTH (INCHES)	APPLICATION
120512	CABLE,TOW,FLOAT,REAR	15	Float
120511	CABLE,TOW,FLOAT,FRONT,36",W/CLEVIS'	36	Float

FIGURE "F"



TYPE "G" Ball to Loop Pair Crimped Together Tow Cables			
P/N	DESCRIPTION	LENGTH (INCHES)	APPLICATION
WS062	CABLE,TOW,PR,SPR+CPR 39.5 JND PAIR	39.5	Transporter Pipe Ranger c/ Compact Pipe Ranger
WS062-1	CABLE,TOW,REAR VIEW CAM TO SPR 54"	54	Transporter Pipe Ranger w/ Rear View Camera

FIGURE "G"



TOW CABLES - GROUPED BY TYPE AND LENGTH

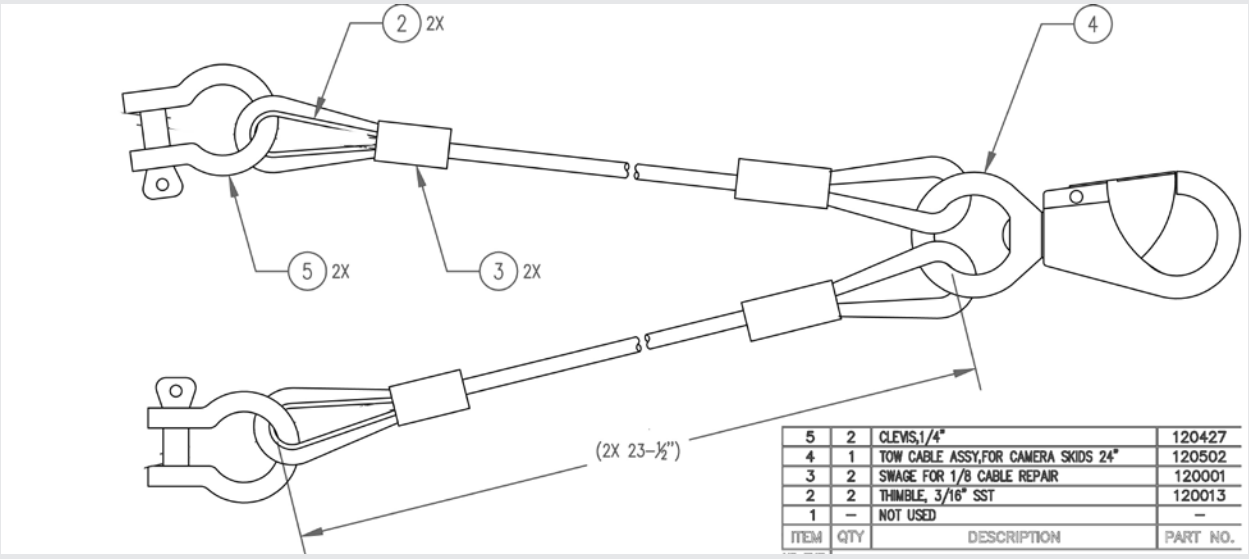
TYPE "H" Two Clevis to a Y Loop, to Center Snap Swivel to Two Ball Ends			
P/N	DESCRIPTION	LENGTH (INCHES)	APPLICATION
120600	TOW CABLE ASSY,F/LIS ONLY	24	Misc. / LIS
120501	TOW CABLE ASSY,TV SKID 36" F/36-60"	27	Misc. Steel Armor Scotchcast Chamber

FIGURE "H"

PICTURE TO BE ADDED AT A LATER DATE

TYPE "I" Center Clevis + Loop, to Two Leads w/ Clevis + Loop			
P/N	DESCRIPTION	LENGTH (INCHES)	APPLICATION
1201660	CABLE,TOW,REAR COMPACT PACKER	24-1/8	Packer - Compact Series

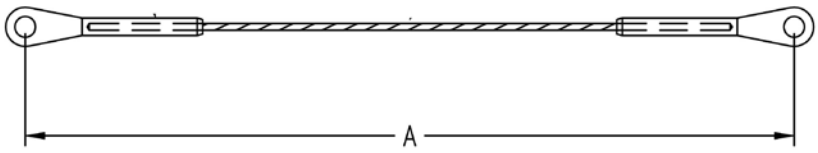
FIGURE "I"



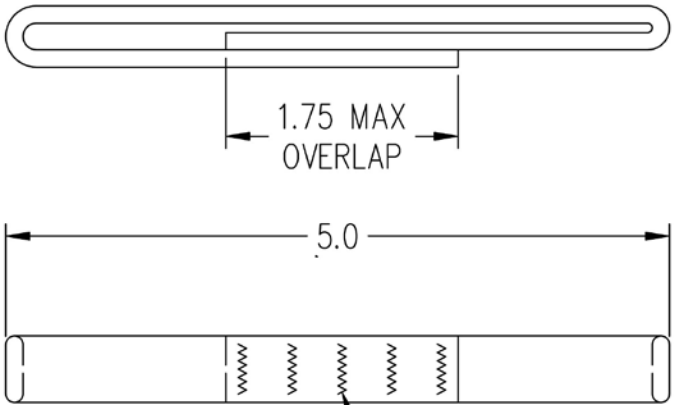
LIFTING STRAPS / CABLES

P/N CC193 - CABLE,HOIST,PR/SPR,7.68"L,MODIFIED

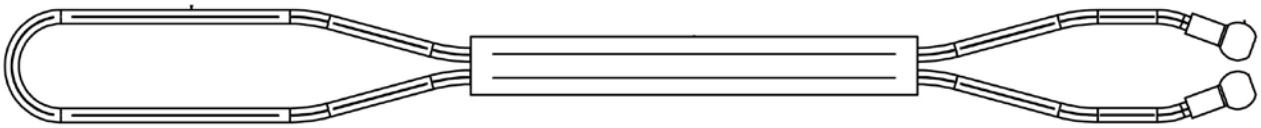
CONFIG	LENGTH 'A' IN INCHES
BASIC	7.68
–1	7.68
–2	15.00



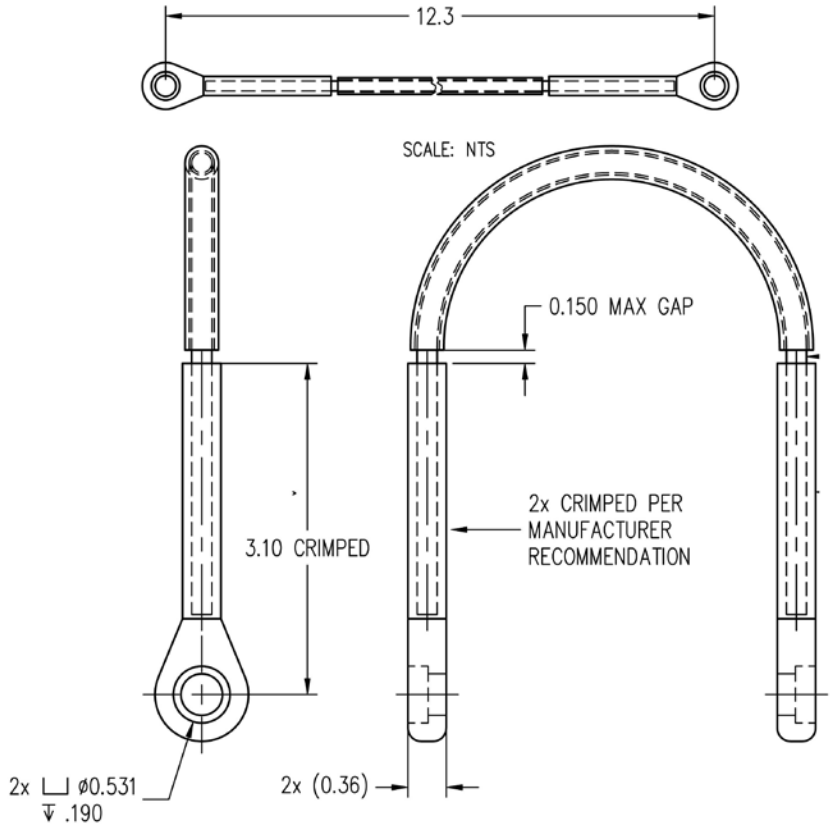
P/N MC223 - LOOP,LIFTING,WEBBING,U-SHTY,WTR,CPR



P/N LM032 - CABLE ASSY,RETRIEVAL,LAMPII



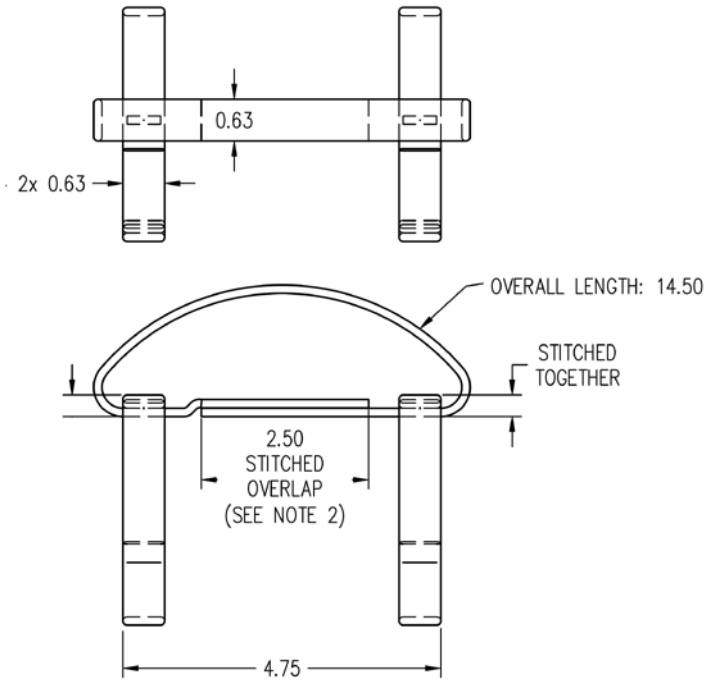
P/N LT289 - CABLE,LIFT,MODIFIED,LAMP



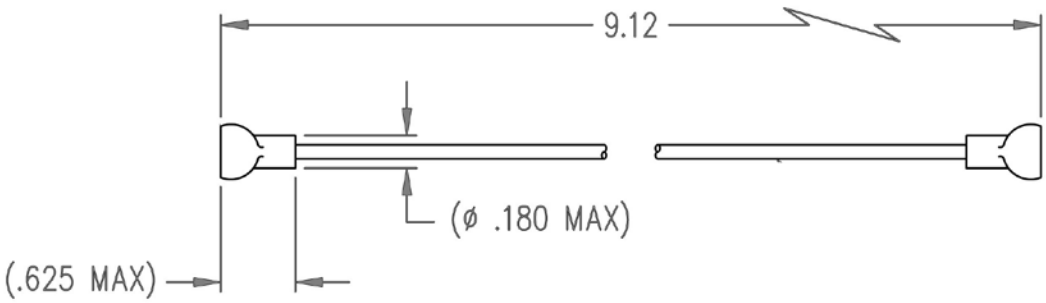
CONFIGURATION LIST		
PART NO.	DESCRIPTIONS	NOTES
LT289	CABLE, LIFT, 3/16", SST	–
LT289-1	CABLE, LIFT, MODIFIED, LAMP	

LIFTING STRAPS / CABLES

P/N WT114 - LOOP, lIFTING, PR



P/N 120106 - CABLE,TOW,F/6"PACKER/PR&SPR LIFTS



SKID ASSEMBLIES / FLOAT	
Used On / Description	P/N
Inspector General (IGGY) Skids:	
Skid Assy, w/Lighthead 8"-15", Iggy	HC332
Skid Kit, w/Tube/Lightheads, 8-30", Iggy	HC333
Pan & Tilt Camera Skids:	
SKID ASSY,SUB-6"W/OZ3ADP,TV&CTR,OBS	MZ325
Skid Assy, 6", P&T, CVC, RVC	CP303
Skid Assy 8" f/P&T 460	610460
Skid Assy, 8-15" f/P&T 460	610461
Skid Assy, 8-30" f/P&T 460	6104508
ProScout / Mini Camera Skids:	
Skid Assy Proscout 4-6"	601025
Skid Assy, 8-15" Proscout-No Lighthead	HC320A
Skid Assy,f/ProScout 2,w/ Single Conductor Translator	PM316
Skid Assy, Tow, Heavy Duty, 6" Pipe ProScout 2	PM308
Skid Assy, Tow, Heavy Duty, 6" Pipe, ProScout1	PL310
Skid Assy, w/Lighthead, 8-15", Proscout	HC320
Skid Assy. f/ProScout SW3 (B/W) 2-4" Pipe	550550
Skid Kit, w/Tube/Lighthead, 8-30", ProScout	HC321
Skid & Lighthead Assy	HC320B
Skid, 4" Lateral Camera	610005
Skid, Camera, Black&White ProScout	6013
Skid, Camera, ProScout(ns)	6102
Skid, Camera, PS2	PM113
Other TV Camera Skids:	
Skid Assy 6", Obsolete, Use CP303	6100060
Skid Assy, TV Camera w/8"Spacer	6100002
Skid Assy, w/8"-30" Spacers	6100010
Float	
Float Assembly with Arms	506901

OZIII Sub-6" Skid Assembly & OZIII Adapter Tube

Purpose:

The new OZIII Sub-6 Inch Skid Assembly and OZIII Adapter Tube were released for production in March, 2007. This document provides specifications and available configurations.

System Configurations: Refer to page 2



OZIII Sub-6" Skid Assembly

The OZIII Sub-6 Inch Skid Assembly was developed to maximize the clearance in 6 inch relined pipe and can be used with TV Only systems or Cutter configurations. The unit fits inside a 5" pipe with clearance.

OZIII Sub-6 inch Skid Assembly
- Sub-6 inch skid for OZIII only
  - > for use with Cutter in 6 inch relined pipe

* Currently cannot be used with the Sonde



Tube Assembly does not include necessary cabling.
Cable will vary depending on your specific configuration.
Refer to page 2 for available configurations.

OZIII Adapter Tube

The OZIII Adapter Tube Assembly was designed to support existing equipment with the new OZIII camera and new configurations and/or spares requirements.

The OZIII Adapter Tube converts the OZIII camera to the following applications:
- Ultra Shorty 21
- Pipe Ranger
  - > w/manual lift
  - > external lights (gold cable only)
  - > w/remote lift (future)
- Steerable Pipe Ranger
  - > w/manual lift
  - > external lights (gold cable only)
  - > w/remote lift (future)
- Steerable Mudmaster
- Power Trac
- Ultra Shorty

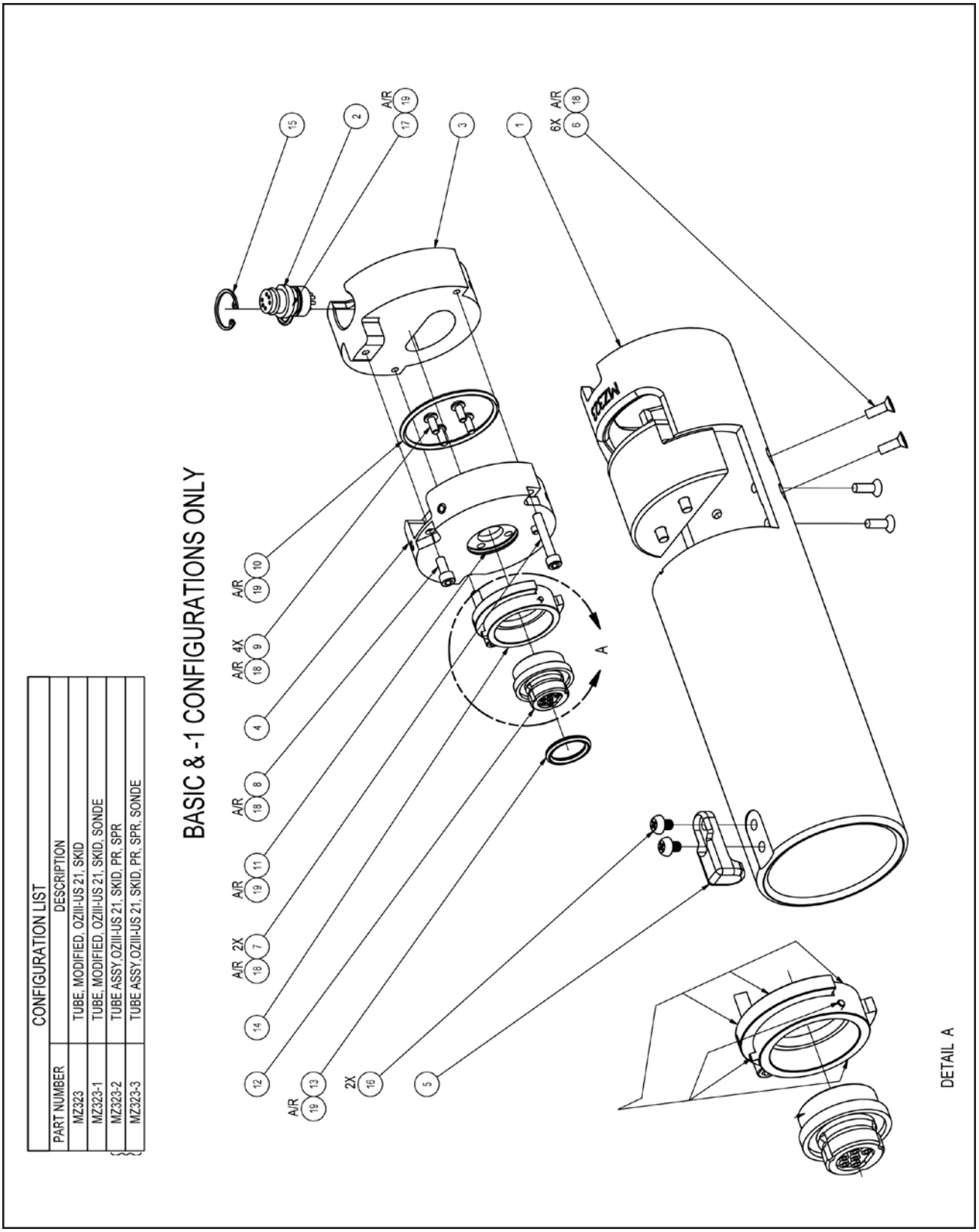


Figure 11a: Tube Assembly, OZIII, Rev. E, MZ323

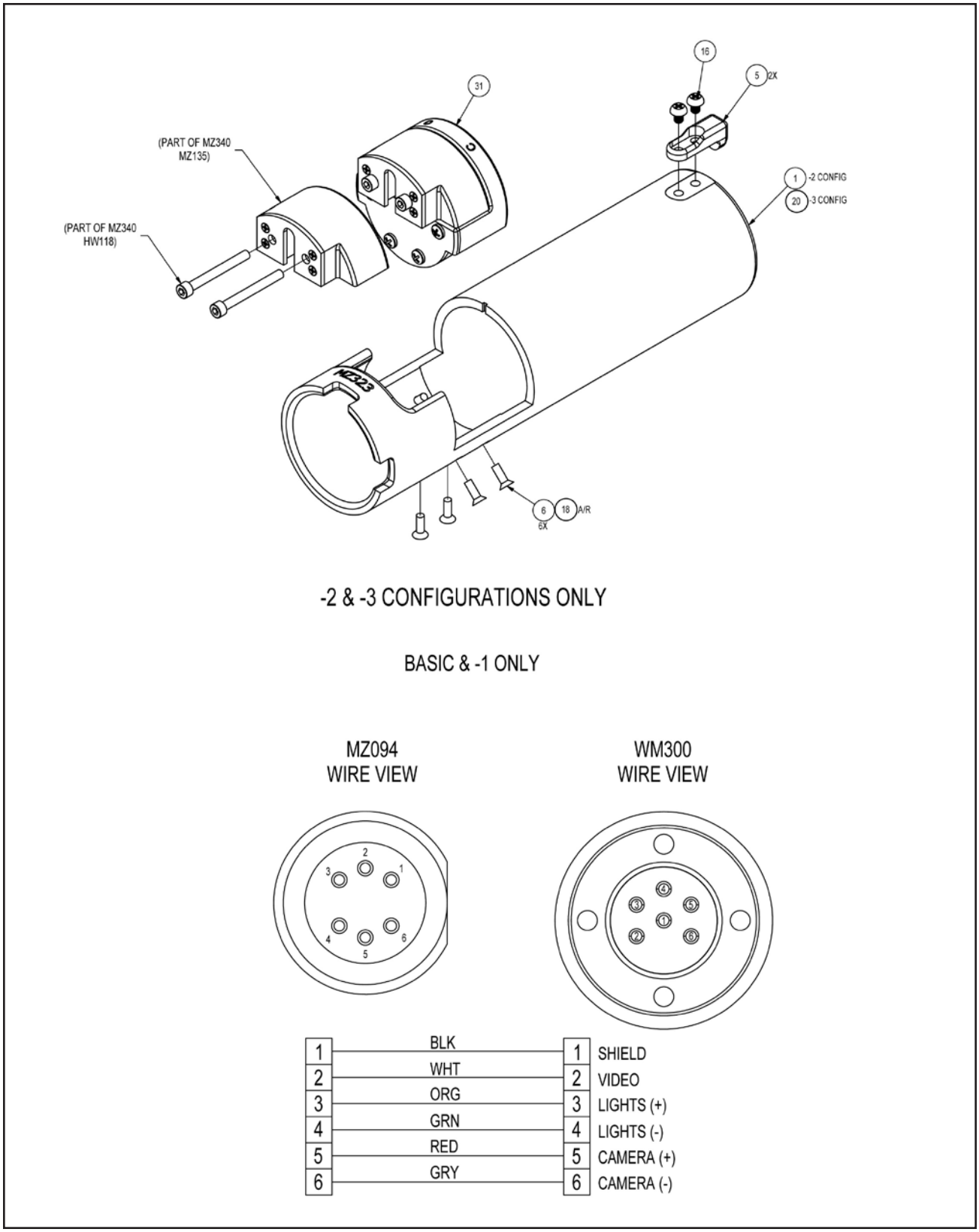


Figure 11b: Tube Assembly, OZIII, Rev. E, MZ323

MZ323, TUBE ASSY,OZIII>US21,OBS>MZ323-2			
0001	TUBE,MODIFIED,OZIII-US 21,SKID	MZ093	1
0002	CONNECTOR,BULKHD,6P,OZIII-US 21 KIT	MZ094	1
0003	BULKHEAD,REAR,OZIII-US 21 KIT,OBS	MZ095	1
0004	BULKHEAD,FRONT,OZIII-US 21 KIT	MZ096	1
0005	RETAINER,CAMERA,OZIII-US 21 KIT	MZ097	1
0006	SCREW,8-32X1/2 FL,PH,SS	103062	6
0007	SCREW,CAP,SKT HD,8-32X1.00,SST	103068	2
0008	SCREW,SHCS,8-32X3/8 SST	100448	1
0009	SCREW,BUTTON HD 6-32X5/16 SST SKT	HW770	4
0010	O-RING,2-132,SILICONE	HW1659	1
0011	O-RING,2-022 BUNA	712565	1
0012	CONNECTOR,TWIST LOCK,FEMALE,6 SCKT	WM300	1
0013	O-RING,2-115,EPDM NSF 61	HW1617	1
0014	NUT,TWIST LOCK,6-PIN	WM021	1
0015	RING,RETAINING,INT,11/16,SST	HW1670	1
0016	SCREW,BUTTN HD,SKT,10-32 X ¼,SST	HW1520	2
0017	O-RING,2-013,SILICONE	HW1658	1
0018	MRO-REMOVABLE LCK,ND 121200-50,BLUE	440061	1
0019	MRO-LUBRICANT,O-RING 2 OZ TUBE	439986	1
0021	TOOL,CHISEL,5/32TIP X 5/16HEX X5L	HW1886	1
0022	TUBE,SHRINK,BLACK 1/8"	712789	1
0023	TUBE,SHRINK,BLACK 3/32"	712595	1
0024	WIRE,#24 GRAY 250'TEFLON	713347	1
0025	WIRE,#24 RED TEFLON	713337	1
0026	WIRE,#24 GREEN TEFLON	713340	1
0027	WIRE,#24 ORANGE TEFLON	713338	1
0028	WIRE,#24 WHITE TEFLON	713344	1
0029	WIRE,#24 BLACK TEFLON	713335	1
0030	MRO-GREASE,MOBIL 1 SYNTHETIC	CS419	1

TUBE ASSY,OZIII TO US21,SKID,PR/SPR, REV. E, MZ323-2			
0001	TUBE,MODIFIED,OZIII-US 21,SKID	MZ093	1
0005	RETAINER,CAMERA,OZIII-US 21 KIT	MZ097	1
0006	SCREW,8-32X1/2 FL,PH,SS	103062	6
0016	SCREW,BUTTN HD,SKT,10-32 X ¼,SST	HW1520	2
0018	MRO-REMOVABLE LCK,ND 121200-50,BLUE	440061	1
0021	TOOL,CHISEL,5/32TIP X 5/16HEX X5L	HW1886	1
0022	BULKHEAD ASSY,OZIII ADAPTER TUBE	MZ340	1

MZ323-1, TUBE ASSY,OZIII>US21,OBS>MZ323-3			
0002	CONNECTOR,BULKHD,6P,OZIII-US 21 KIT	MZ094	1
0003	BULKHEAD,REAR,OZIII-US 21 KIT,OBS	MZ095	1
0004	BULKHEAD,FRONT,OZIII-US 21 KIT	MZ096	1
0005	RETAINER,CAMERA,OZIII-US 21 KIT	MZ097	1
0006	SCREW,8-32X1/2 FL,PH,SS	103062	6
0007	SCREW,CAP,SKT HD,8-32X1.00,SST	103068	2
0008	SCREW,SHCS,8-32X3/8 SST	100448	1
0009	SCREW,BUTTON HD 6-32X5/16 SST SKT	HW770	4
0010	O-RING,2-132,SILICONE	HW1659	1
0011	O-RING,2-022 BUNA	712565	1
0012	CONNECTOR,TWIST LOCK,FEMALE,6 SCKT	WM300	1
0013	O-RING,2-115,EPDM NSF 61	HW1617	1
0014	NUT,TWIST LOCK,6-PIN	WM021	1
0015	RING,RETAINING,INT,11/16,SST	HW1670	1
0016	SCREW,BUTTN HD,SKT,10-32 X ¼,SST	HW1520	2
0017	O-RING,2-013,SILICONE	HW1658	1
0018	MRO-REMOVABLE LCK,ND 121200-50,BLUE	440061	1
0019	MRO-LUBRICANT,O-RING 2 OZ TUBE	439986	1
0020	TUBE,MODIFIED,OZIII-US 21,SKID,SNDE	MZ093-1	1
0021	TOOL,CHISEL,5/32TIP X 5/16HEX X5L	HW1886	1
0022	TUBE,SHRINK,BLACK 1/8"	712789	1
0023	TUBE,SHRINK,BLACK 3/32"	712595	1
0024	WIRE,#24 GRAY 250'TEFLON	713347	1
0025	WIRE,#24 RED TEFLON	713337	1
0026	WIRE,#24 GREEN TEFLON	713340	1
0027	WIRE,#24 ORANGE TEFLON	713338	1
0028	WIRE,#24 WHITE TEFLON	713344	1
0029	WIRE,#24 BLACK TEFLON	713335	1
0030	MRO-GREASE,MOBIL 1 SYNTHETIC	CS419	1

TUBE ASSY,OZIII-US21,SKD,PR/SPR,SND, REV. E, MZ323-3			
0005	RETAINER,CAMERA,OZIII-US 21 KIT	MZ097	1
0006	SCREW,8-32X1/2 FL,PH,SS	103062	6
0016	SCREW,BUTTN HD,SKT,10-32 X ¼,SST	HW1520	2
0018	MRO-REMOVABLE LCK,ND 121200-50,BLUE	440061	1
0020	TUBE,MODIFIED,OZIII-US 21,SKID,SNDE	MZ093-1	1
0021	TOOL,CHISEL,5/32TIP X 5/16HEX X5L	HW1886	1
0022	BULKHEAD ASSY,OZIII ADAPTER TUBE	MZ340	1

OZIII ADAPTER TUBES AND CABLE CONFIGURATION	
MZ323-2	TUBE ASSY,OZIII TO US21,SKID,PIPERANGERS and FLOAT
MZ323-3	TUBE ASSY,OZIII-US21,SKID,PR,PIPERANGERS and FLOAT - FOR USE WITH SONDE
CABLES TO ADAPT THE OZIII ADAPTER TUBE TO THE PIPERANGER AND STEERABLE PIPE RANGERS	
MZ346	CABLE ASSY,OZ3,ADP>PR,SPR,MAN LIFT
MZ346-1	CABLE ASSY,OZ3 ADP>PR,MAN.LIFT-LGTS - REQUIRES MZ134 STRAIN RELEIF BRACKET AND HW134 SCREW TO INSTALL
MZ346-2	CABLE ASSY,OZ3 ADP>PR/SPR PLIFT
MZ346-3	CABLE ASSY,OZ3 ADP>PR/SPR PLFT LGT - REQUIRES MZ134 +HW134 TO INSTALL
MZ346-4	CABLE ASSY,OZ3,ADP>PIPERANGER,W/O LIFT
MZ346-5	CABLE ASSY,OZ3,ADP>STEERBLE PR,W/O LIFT
CABLES TO ADAPT THE OZIII ADAPTER TUBE TO A 5 PIN MALE END - USED WITH ULTRA SHORTY, ULTRA SHORTY 21, CAMERA SKIDS, FLOATS and STEERABLE AND NON-STEERABLE MUDMASTER	
MZ341	CABLE ASSY,5P>8P,OZ3 ADAPTER TO US,US21,SKID,23" LONG
MZ341-1	CABLE ASSY,OZ3 ADAPTER,CUTTER,CAM1ST,90.5" LONG
MZ341-2	CABLE ASSY,OZIII,US21,SMM,EXT LGHT REQUIRES MZ134 +HW134 TO INSTALL
CABLES TO ADAPT THE OZIII ADAPTER TUBE TO A 12 PIN MALE END - USED WITH CAMERA SKIDS AND FLOATS AND CONNECTS DIRECTLY TO A 12 PIN TERMINATED TV CABLE	
TX343	CABLE ASSY,12P>8P,WTR3/US3/OZ3 ADAP
TX343-1	CABLE ASSY,12P>8P,EXT LIGHT REQUIRES MZ134 +HW134 TO INSTALL
CABLES TO ADAPT THE OZIII ADAPTER TUBE TO A 3 PIN MALE END - USED WITH ULTRA SHORTY, ULTRA SHORTY 21, CAMERA SKIDS AND FLOATS	
TX344	CABLE ASSY,S/C,3P>8P,USIII/WTRIII,SKID,FLOAT, 23" LONG
TX344-1	CABLE ASSY,S/C,12P>8P,EXT. LIGHT
CABLES TO ADAPT THE OZIII ADAPTER TUBE TO A 5 PIN MALE END - USED WITH ULTRA SHORTY, ULTRA SHORTY 21, CAMERA SKIDS, FLOATS and STEERABLE AND NON-STEERABLE MUDMASTER	
	REQUIRES MZ134 +HW134 TO INSTALL

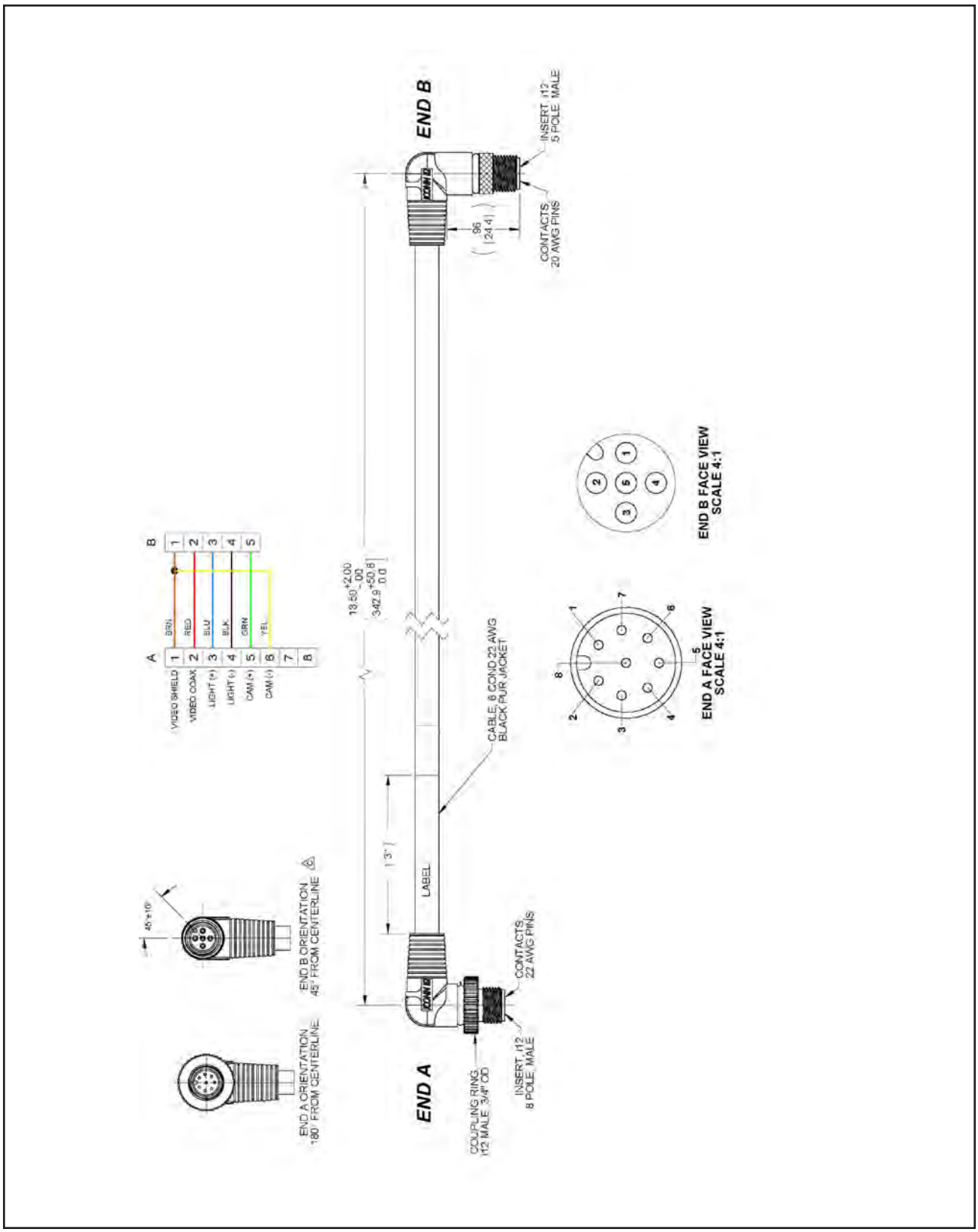


Figure 12a: Cable Assembly, OZIII, Adp>SR, SPR, Man Lift, MZ346

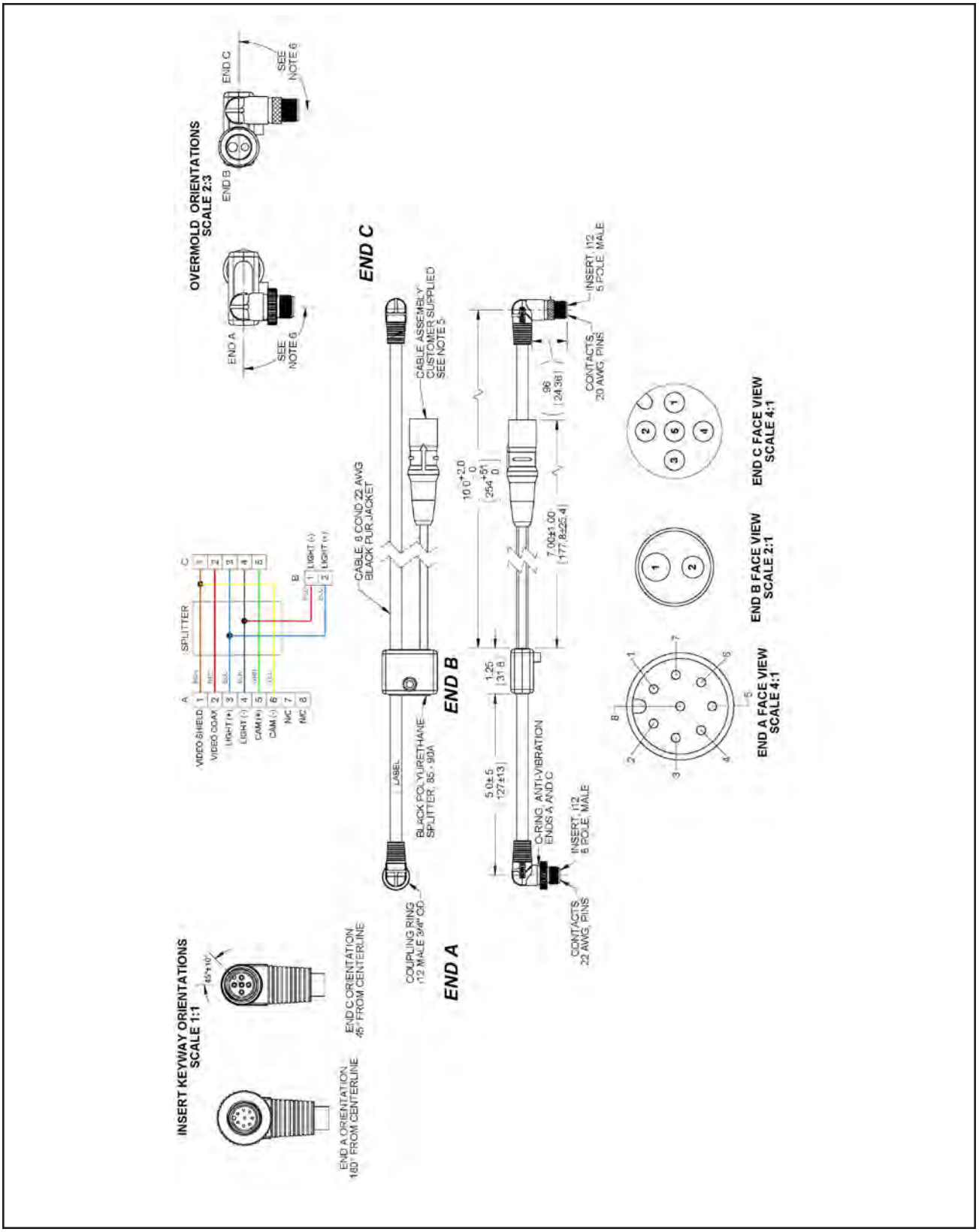


Figure 12b: Cable Assembly, OZIII, Adp>PR, Man Lift, MZ346-1

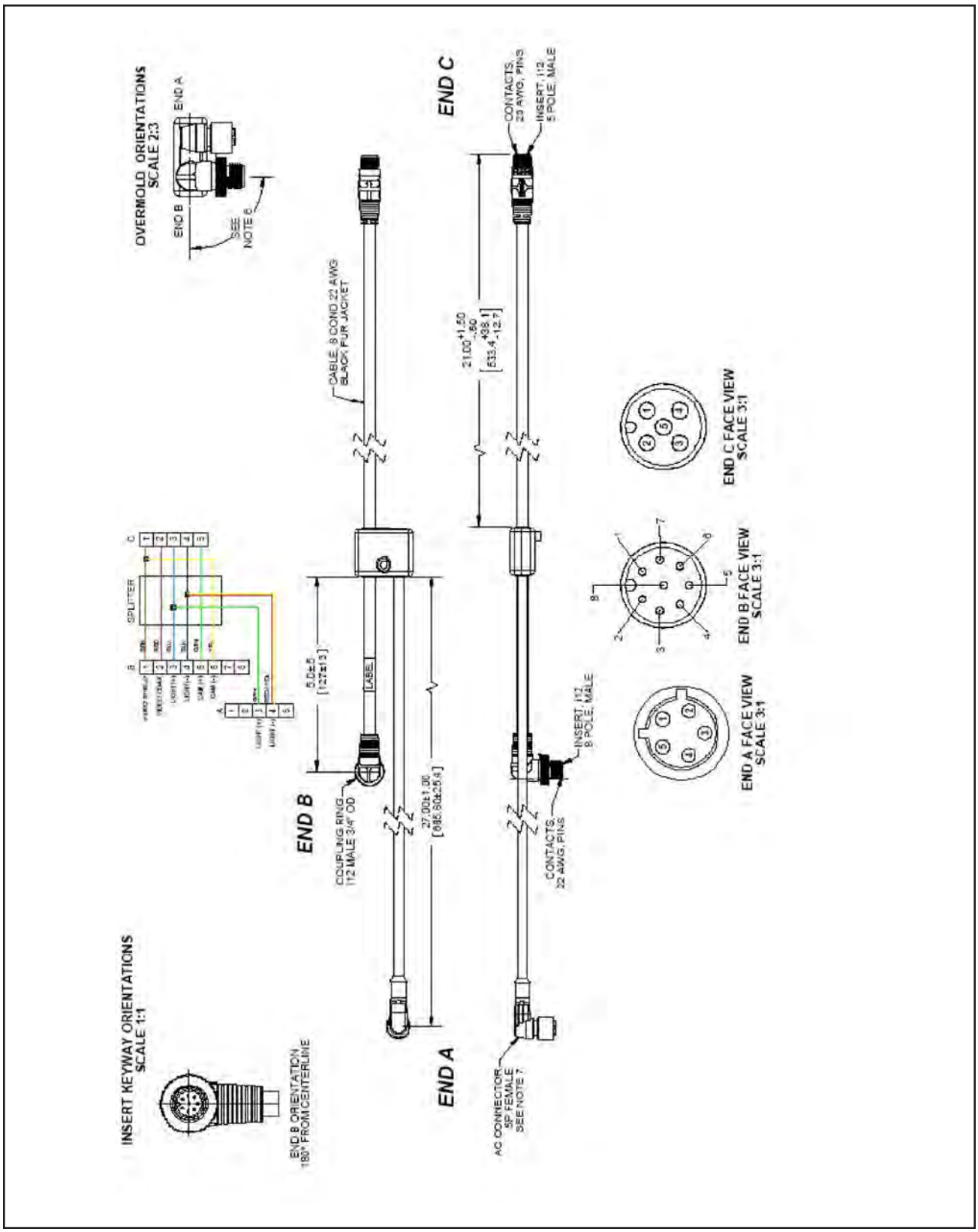


Figure 12c: Cable Assembly, OZIII, Adp>SR, SPR, Power Lift, MZ346-2

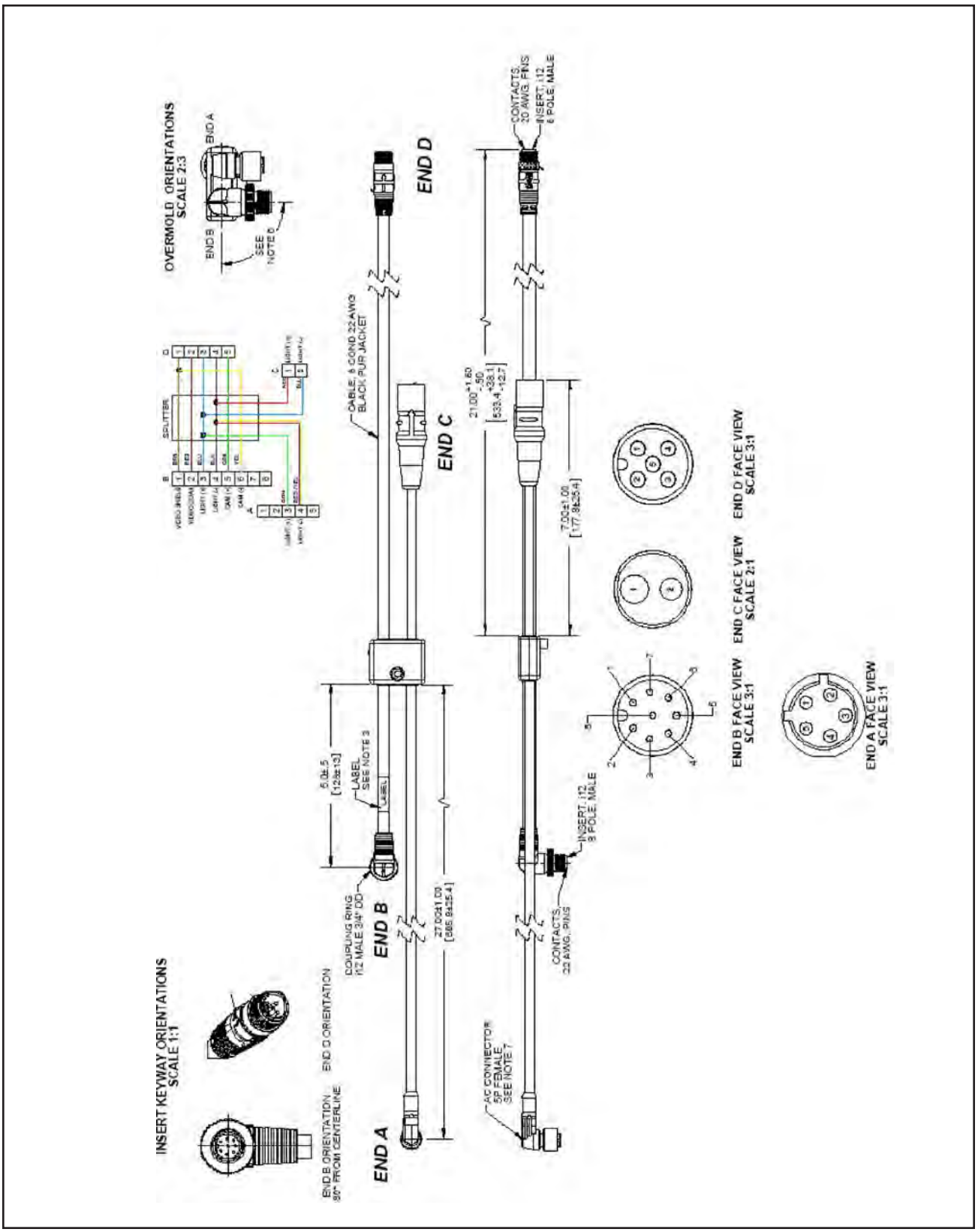


Figure 12d: Cable Assembly, OZIII, Adp>PR, Power Lift Lgt, MZ346-3

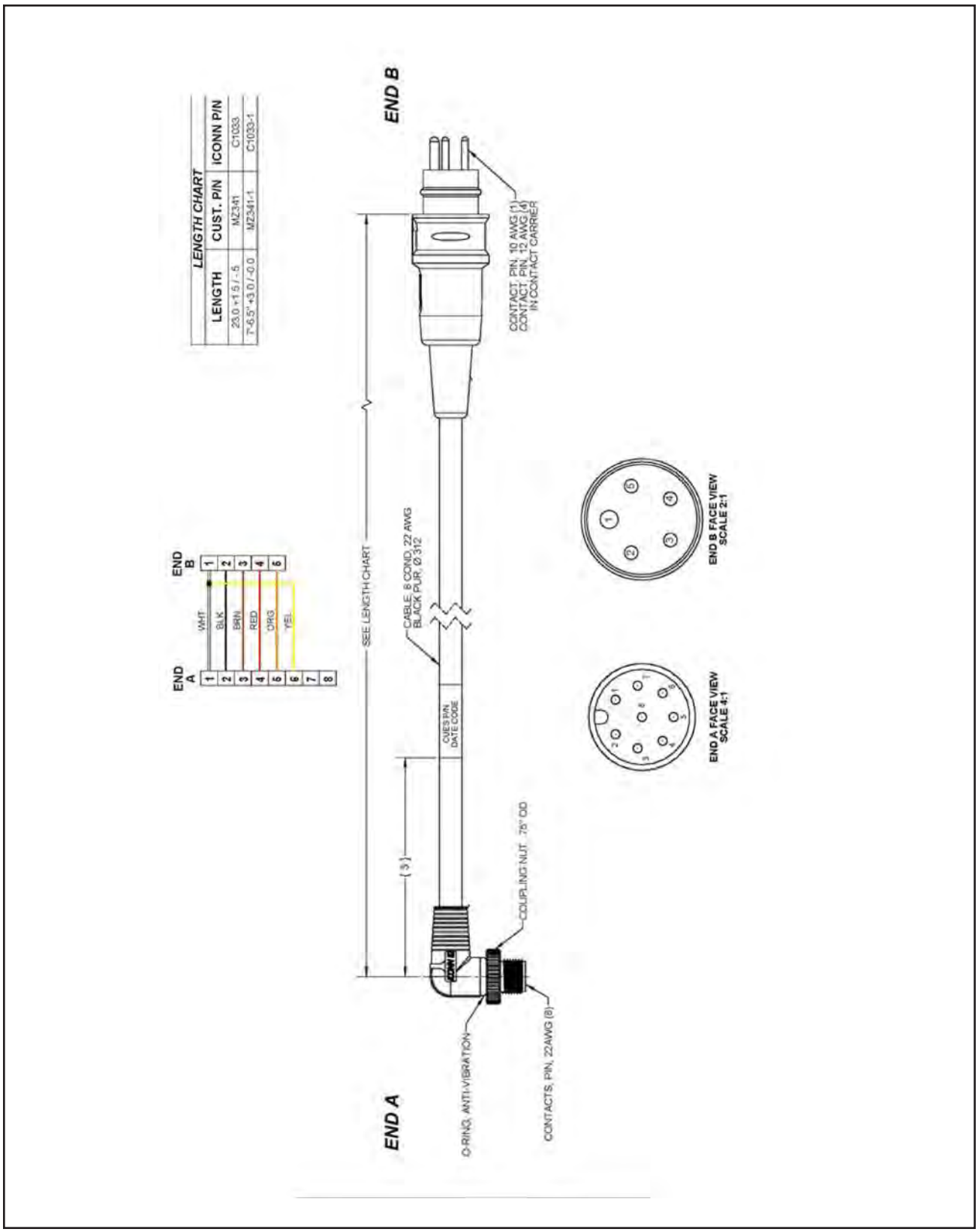


Figure 13a: Cable Assembly, 5P > 8P, OZIII-US 21, Skid, MZ341

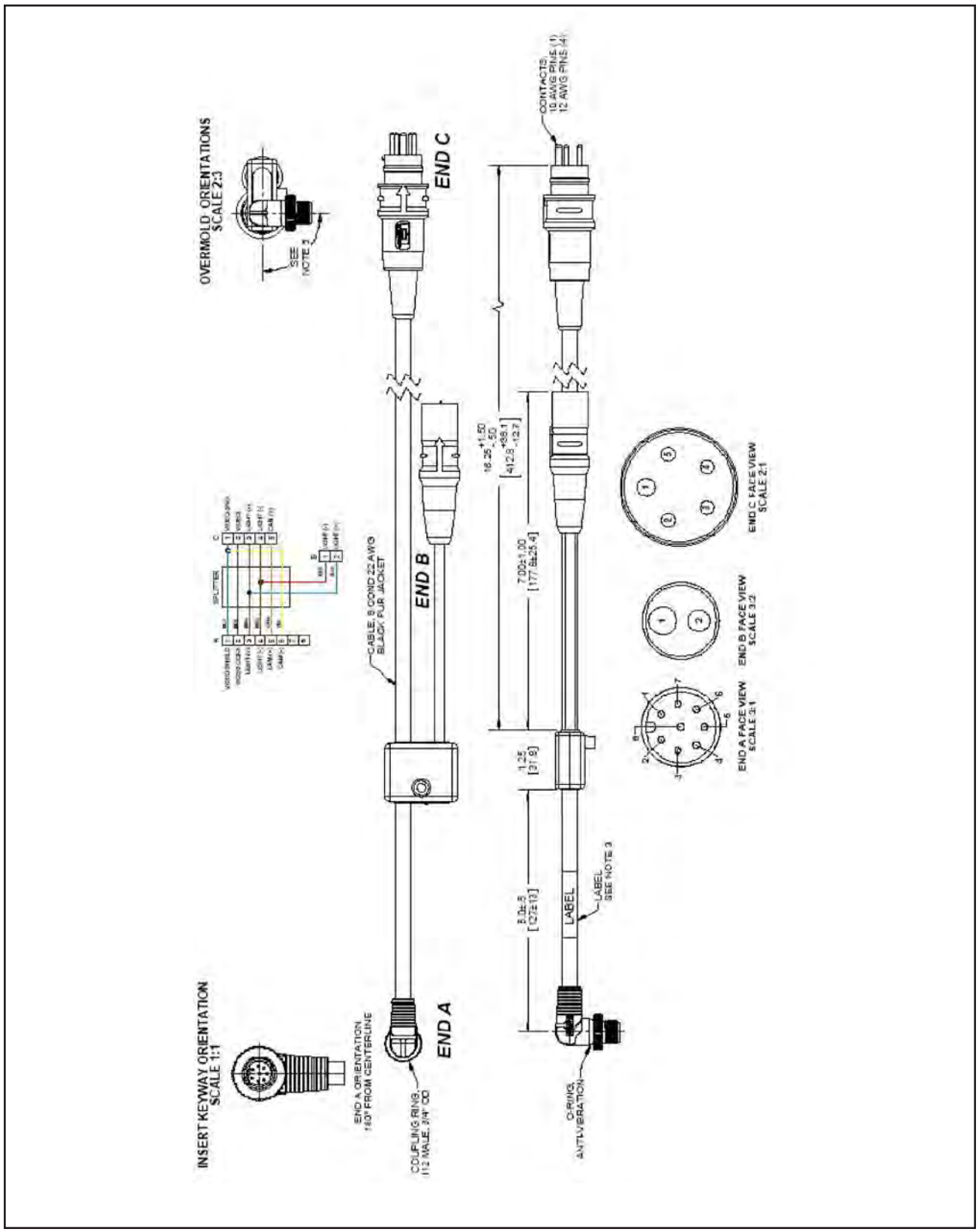


Figure 13b: Cable Assembly, 5P > 8P, OZIII-US 21, SMM, Ext Light, MZ341-2

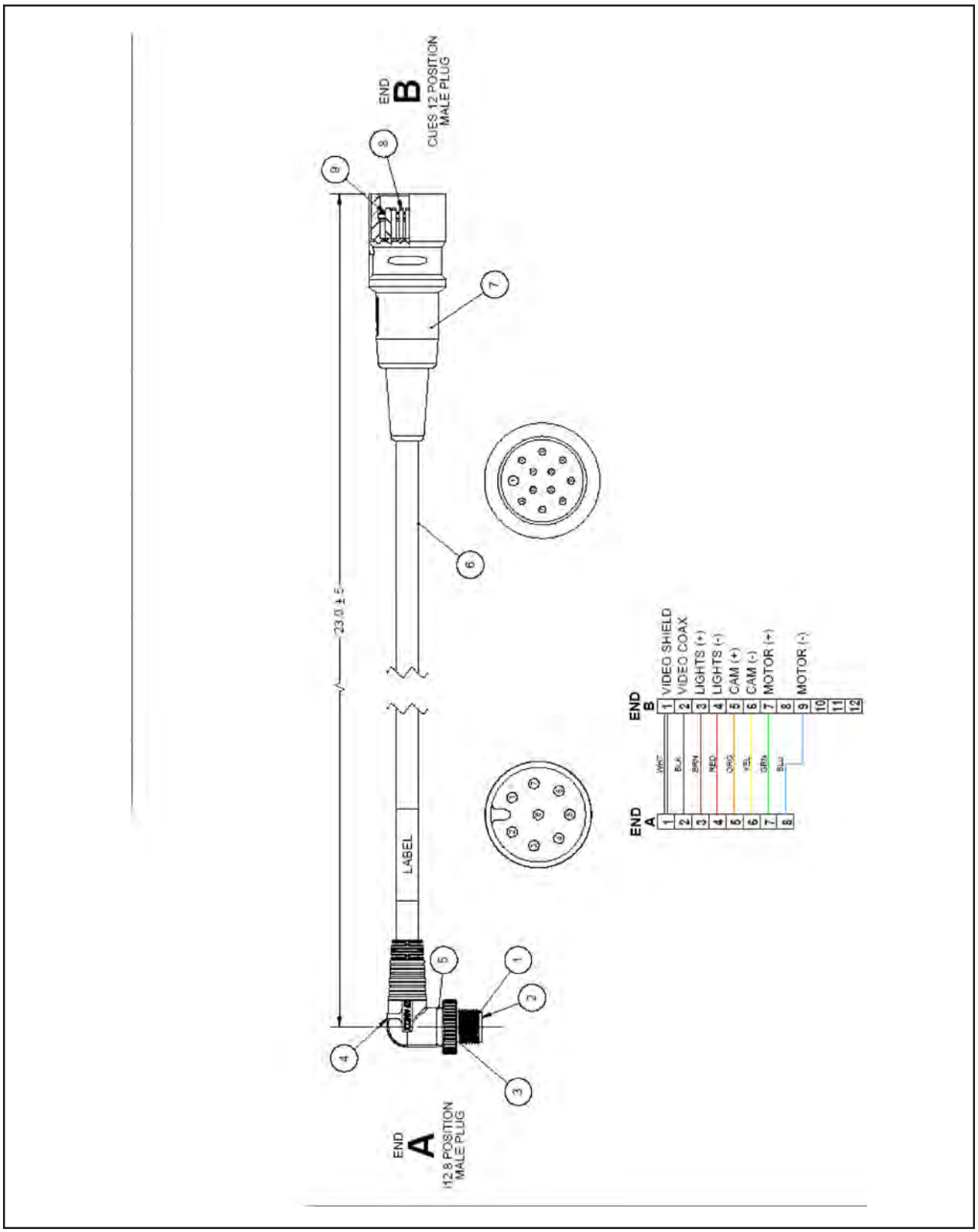


Figure 14: Cable Assembly, 12P > 8P, WTR III / USIII, TX343

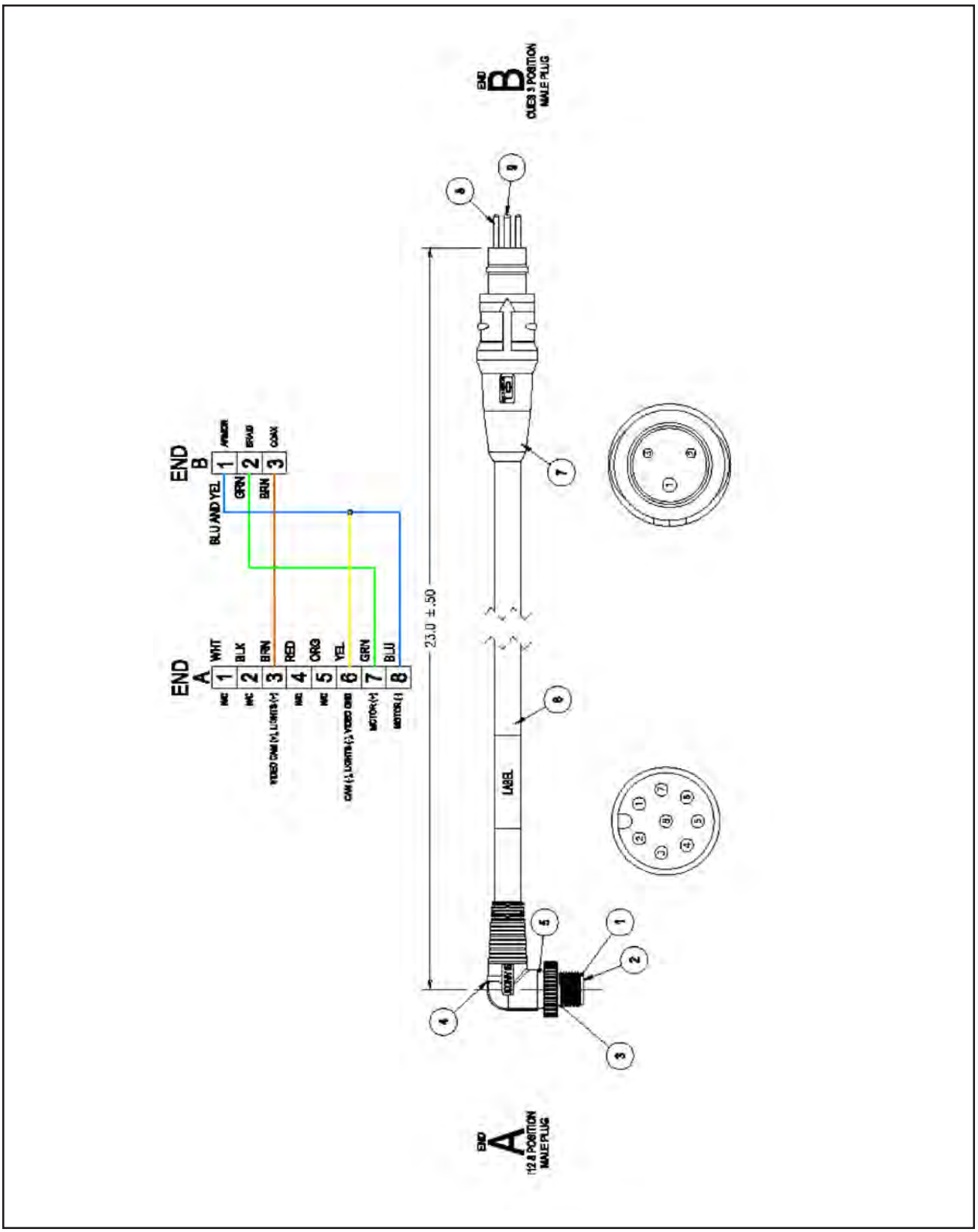


Figure 15: Cable Assembly, S/C, 3p to 8p, WRTIII / USIII, TX344

OZIII Adapter Tube Cable Installation Instructions

General:

These instructions are for the OZIII adapter tube with screw on connector only. These instructions do not apply to adapter tube with rubber push on type connectors, part numbers MZ323 and MZ323-1. See representative picture of screw on adapter tube.



Tools:

5/32" Allen Wrench

Typical parts needed to install cable:

Adapter tube for screw on connector, part numbers MZ323-2 or MZ323-3.
Applicable cable based on your transporter configuration.
Bracket, part number MZ134, and 10-32 X 5/" long screw, part number HW134, if cable has a splitter. See pictures below to identify applicable cable. Other configurations have up to four cables coming from splitter.

Representative samples to identify cables:



Cable without splitter



Cable with splitter

OZIII Adapter Tube Cable Installation Instructions

Instructions for installing cable without splitter. See below for cable with splitter.

1) Remove two 10-32 screws, part number HW118, on adapter tube bulkhead shown in Figure 1. Set aside to be reused for cable installation. Note: Do not remove 8 Phillps head screws securing plate to strain relief or sealing plate to bulkhead.



Figure 1

2) Remove strain relief, part number MZ135, shown in Figures 2 and 3.



Figure 2



Figure 3

3) Route cable and orient connector as shown in Figure 4. Finger tighten connector securely. Do not use wrench or pliers.



Figure 4

OZIII Adapter Tube Cable Installation Instructions

4) Install strain relief, part number MZ135, as shown in Figure 5.



Figure 5

5) Install two 10-32 screws, part number HW118, removed from bulkhead strain relief in Figure 1 above. See Figure 6.

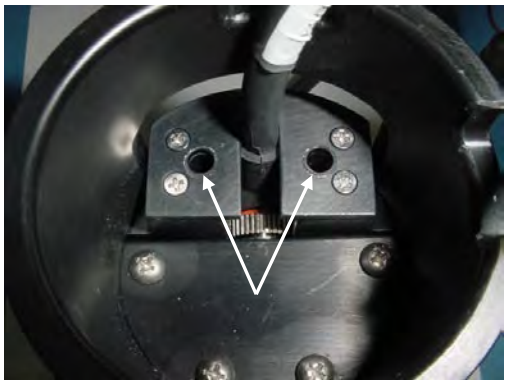


Figure 6

6) Install adapter tube into transporter or skid per instructions in applicable manual.

OZIII Adapter Tube Cable Installation Instructions

Instructions for installing cable with splitter

1) Remove two 10-32 screws, part number HW118, on adapter tube bulkhead shown in Figure 1. Set aside to be reused for cable installation. Note: Do not remove 8 Phillps head screws securing plate to strain relief or sealing plate to bulkhead.



Figure 1

2) Remove strain relief, part number MZ135, shown in Figures 2 and 3.



Figure 2



Figure 3

3) Obtain cable with splitter, bracket, part number MZ134, and 10-32 X 5/8" long screw, part number HW134. See figure 4. Note: Screw not shown.



Figure 4

OZIII Adapter Tube Cable Installation Instructions

4) Note orientation of angled part of bracket in Figure 5. It will face down and towards 8 pin right angle cable. Locate raised portion on side of splitter and insert into hole on bracket. When installed properly, nut swaged on bracket will face up as pictured.

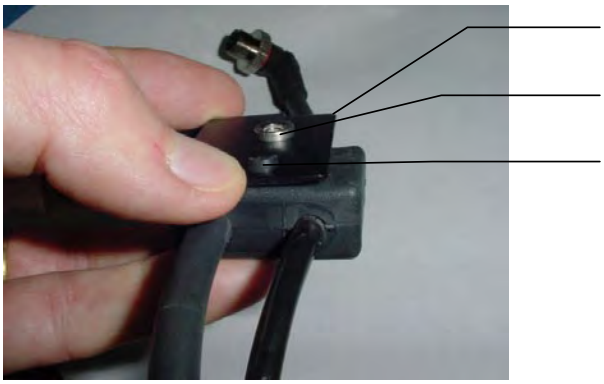


Figure 5

5) While holding together, flip splitter and bracket over and install 10-32 screw into through hole on splitter per Figure 6. Tighten with Allen wrench.



Figure 6

OZIII Adapter Tube Cable Installation Instructions

6) Route cable and orient connector as shown in Figure 7. Finger tighten connector securely. Do not use wrench or pliers.



Figure 7

7) Install strain relief, part number MZ135, as shown in Figure 8.



Figure 8

8) Install two 10-32 screws, part number HW118, removed from bulkhead strain relief in Figure 1 into bracket as shown in Figure 9.



Figure 9

OZIII Adapter Tube Cable Installation Instructions

9) Align screws with holes on bulkhead strain relief installed in Figures 8. Bracket must be under cable. Verify cable does not get pinched or exhibit excessive bending.

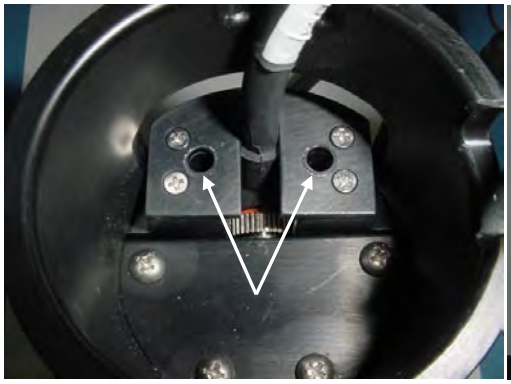


Figure 10



Figure 11

10) Tighten screws with Allen wrench. Installation should appear as shown in Figure 12.



Figure 12

11) Install adapter tube into transporter or skid per instructions in applicable manual.

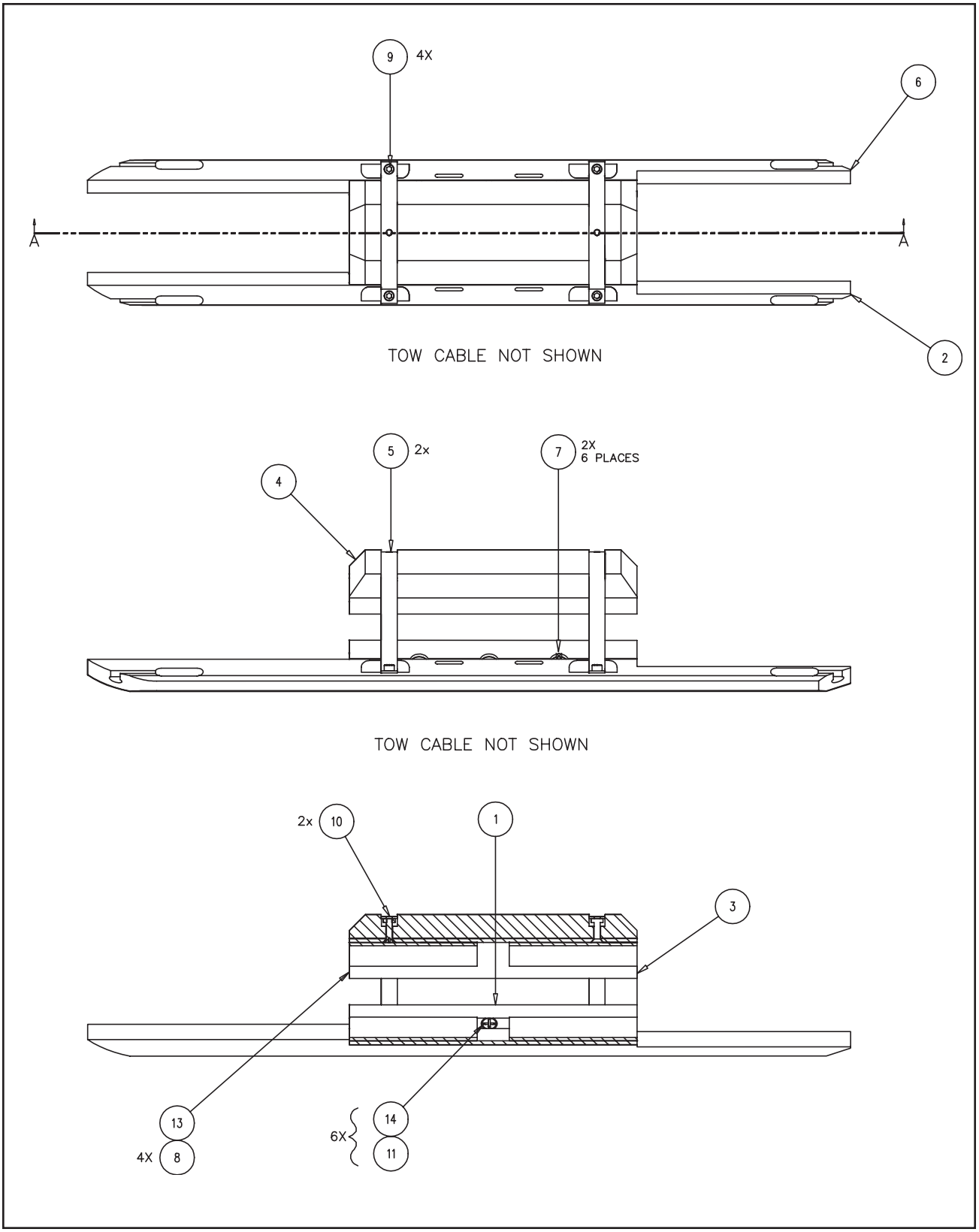


Figure 16: *Skid Assembly, 6", CP303*

Skid Assembly, 6" (See Fig. 16) Rev. B, CP303			
Item #	Description	P/N	Qty
-1	Cradle, Skid, 6"	CP121	1
-2	Rail, Skid, Right, 6"	CP119	1
-3	Cover, Top, 6" P&T Skid	161074	1
-4	Guard, Top, 6" P&T Skid	509416	1
-5	Clamp, 6" P&T Skid	121034	2
-6	Rail, Skid, Left, 6"	CP120	1
-7	Spacer, .625 odx.260idx.125thk, SS	HW518	12
-8	Pad, Camera Yoke	1302001	4
-9	Screw, Cap, Skt Hd,10-32x3/8, SST	103030	4
-10	Screw, Flat, 10-32x7/8 Slotted Plated	712444	2
-11	Screw, Flathead, 1/4-20x3/4 Phil SST	103080	6
-12	Tow Cable Assy, for Camera Skids 24"	120502	2
-13	MRO-Adhesive, Weatherstrip(tube)	440065	1
-14	MRO-Perma MM-115-035 Threadlock Bl	440061	1
-15	Clamp, Worm, SST, 3 5/16-4 1/4"	120611	2
-16	Loop, Lifting, Webbing	MC223	1

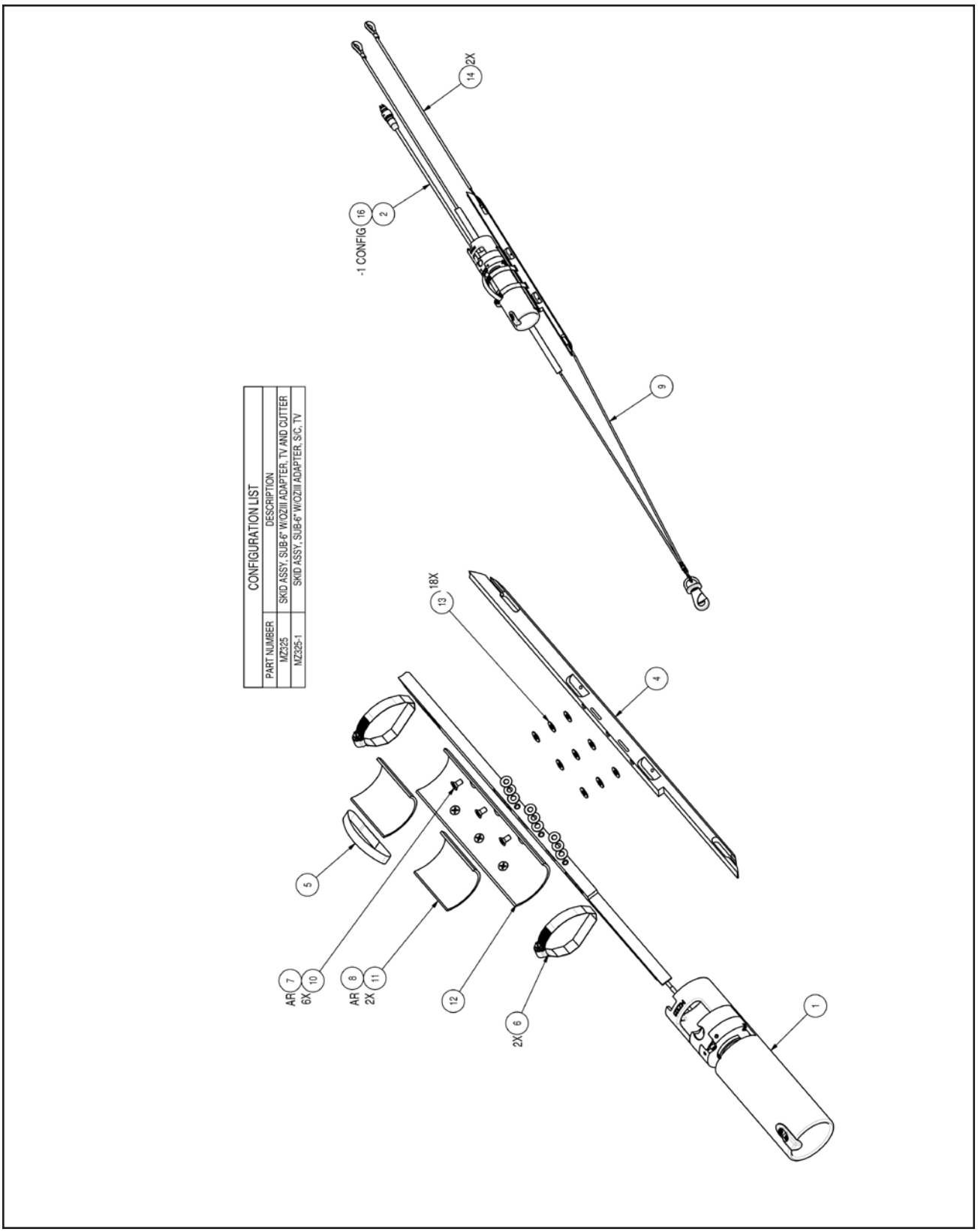


Figure 17: *Skid Assembly, Sub-6 inch w/OZ III Adapter, TV & Cutter, MZ325*

Skid Assembly, Sub-6 inch w/OZ III Adapter, TV & Cutter, Rev. A, MZ325			
0001	TUBE ASSY,OZIII>US21,OBS>MZ323-2	MZ323	1
0002	CABLE ASSY,5-P>6-P,OZIII-US 21,SKID	MZ310	1
0003	RAIL,SKID,RIGHT,OZIII,W/ADAPTER	CP119-1	1
0004	RAIL,SKID,LEFT,OZIII W/ADAPTER	CP120-1	1
0005	LOOP,LIFTING,WEBBING,U-SHTY,WTR,CPR	MC223	1
0006	CLAMP,HOSE,#52,SST	HW208	2
0007	MRO-REMOVABLE LCK,ND 121200-50,BLUE	440061	1
0008	MRO-ADHESIVE,WEATHERSTRIP(TUBE)	440065	1
0009	TOW CABLE ASSY,FOR CAMERA SKIDS 27"	120502	1
0010	SCREW,FLATHEAD,1/4-20X1/2 PHIL SST	103079	6
0011	PAD,CAMERA YOKE	1302001	2
0012	CRADLE,SKID,6"	CP121	1
0013	WASHER,FLAT,1/4"SST	101736	18
0014	CABLE,TOW,TRANSPORTER& K-CUTTER,27"	120504	2
0015	CABLE ASSY,5P>6P,OZIII,CUTTR,SKID	MZ310-1	1

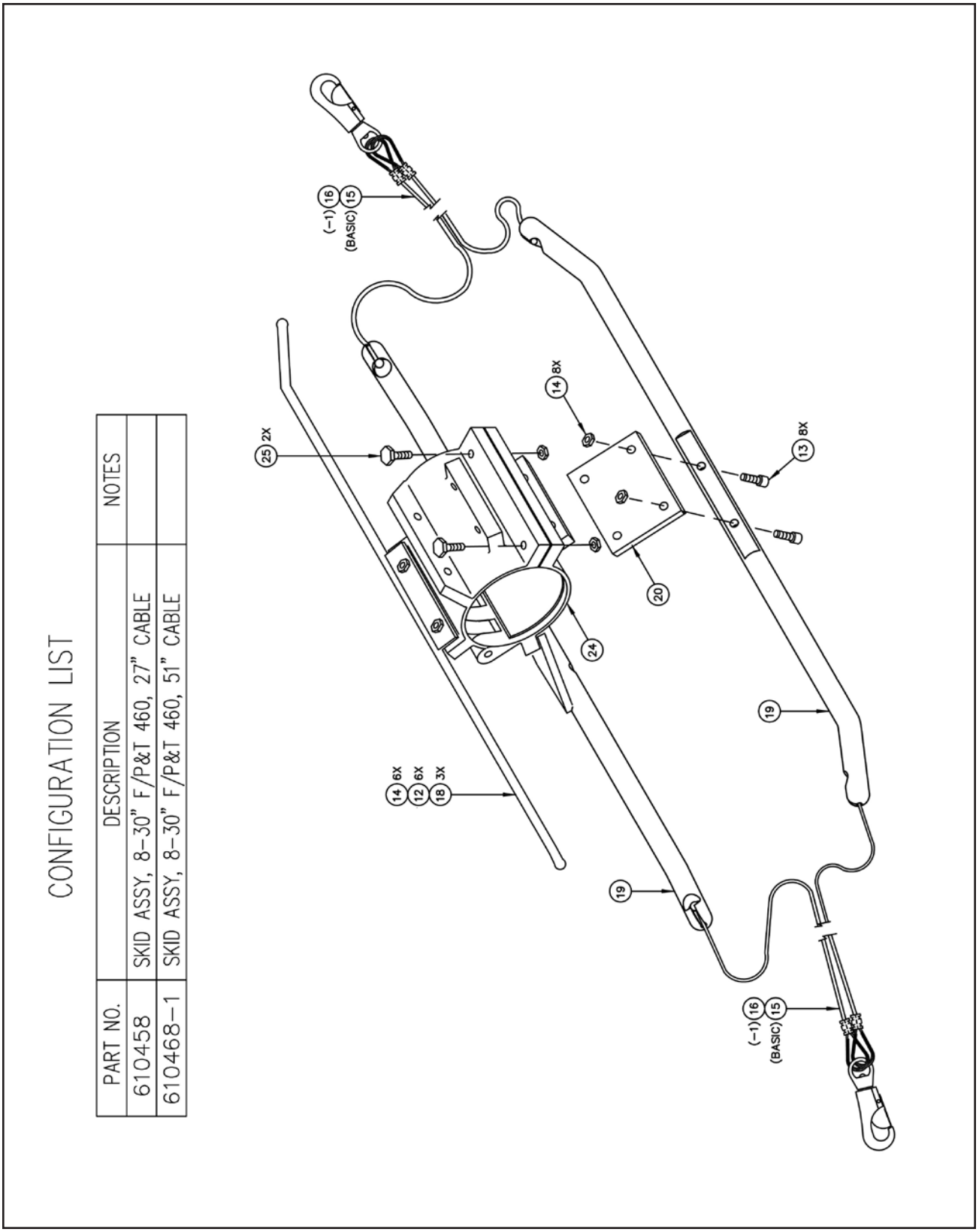


Figure 17: *Skid Assembly, 8-30", for P&T Camera, 610458*

Skid Assembly, 8-30", P&T Cam. (See Fig. 17) Rev. K, 610458			
Item #	Description	P/N	Qty
0001	MRO-CARTON,SHIPPING 4X2X21	CS107	1
0002	SPACER,PLATE,CAMERA SKID 10" 2 REQ	610010	2
0003	SPACER,PLATE,CAMERA SKID 12" 2 REQ	610012	2
0004	SPACER,PLATE,(15)TV CAMERA SKID	610015	2
0005	SPACER,PLATE,(18)TV CAMERA SKID	610018	2
0006	SPACER,PLATE,(21)TV CAMERA SKID	610021	2
0007	SPACER,PLATE,(24)TV CAMERA SKID	610024	2
0008	SPACER,PLATE,(30)TV CAMERA SKID	610030	2
0009	STRUT,18"-24" TV SKID	6100980	1
0010	STRUT,30-60 TV SKID	6100990	1
0012	SCREW,CAP,SKT HD,1/4-20X1-1/4,SST	104044	6
0013	SCREW,CAP,SKT HD,1/4-20X1,SST	101065	8
0014	NUT,KEP,PLATED,1/4-20	101042	14
0015	TOW CABLE ASSY,FOR CAMERA SKIDS 27"	120502	2
0018	SKID,GUARD,P/T 460	551225	3
0019	SKID,RUNNER,3/4X25 1/2 CAMERA	500208	2
0020	SPACER,PLATE,CAMERA SKID 8" 2 REQ	610008	2
0022	MRO-CARTON,SHIPPING 28X8X8	CS102	1
0024	YOKE ASSY,CAMERA	MS312	1
0025	BOLT,HEX CAP,1/4-20X1-3/4 ZINC GR 5	101018	2

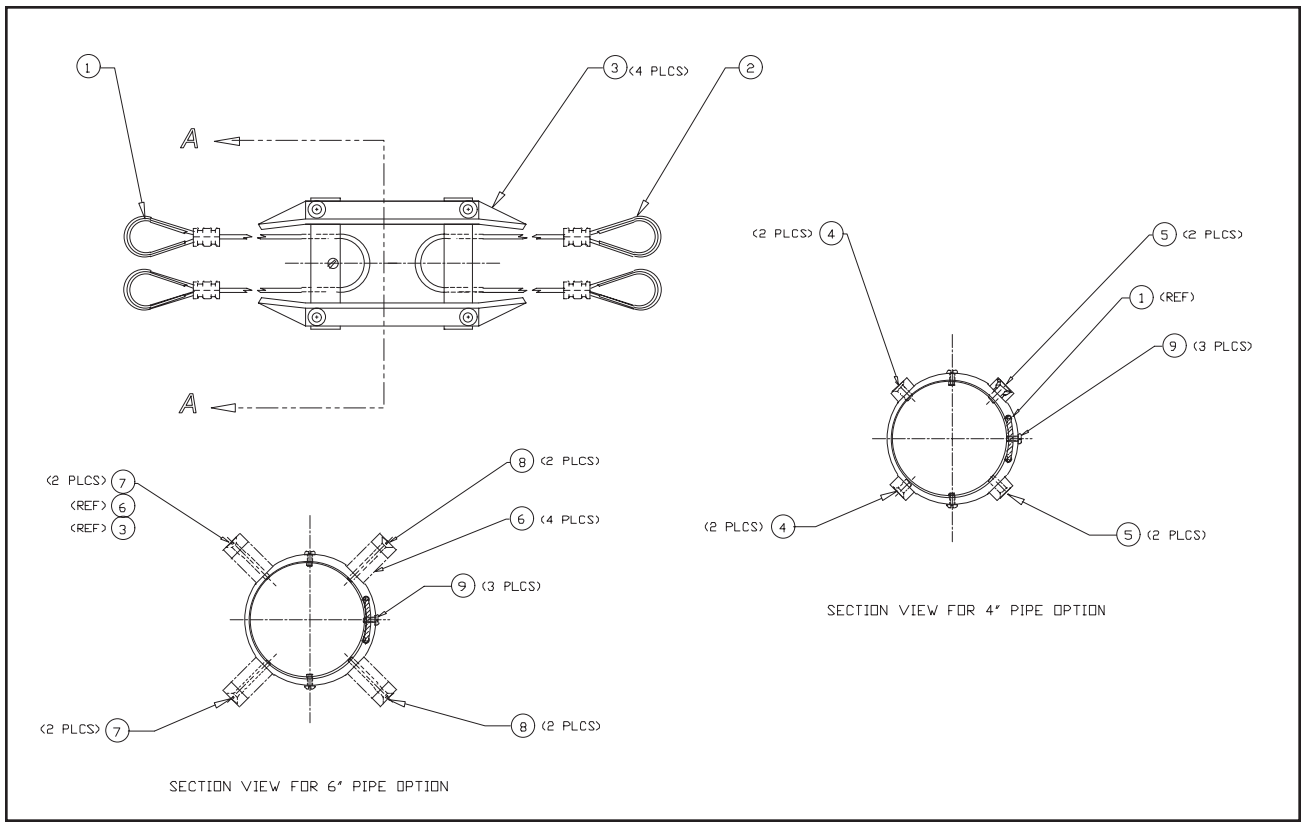


Figure 18: Skid Assembly, ProScout 4-6", 601025

Skid Assembly, ProScout 4-6" (See Fig. 18) Rev. C, 601025			
Item #	Description	P/N	Qty
-1	Front Sleeve Assy, Proscout Skid	300553	1
-2	Back Sleeve, Assy, Proscout Skid	300548	1
-3	Skid, Runner, Mini Camera 4/6" Tow	500228	4
-4	Screw, Modified 8-32 x .335lg	101954	4
-5	Screw, Flat, 8-32x3/8 Phil SST	100146	4
-6	Spacer, 6" Skid	300045	4
-7	Screw, Modified, 8-32x1.08 Long	100127	8
-8	Screw, Modified Mini Camera Tow Skid	1050670	4
-9	Screw, Pan, 4-40x1/4 Slotted SST	712401	4

NOTE: Requires P/N CR319 for CX1 - coiler cables.

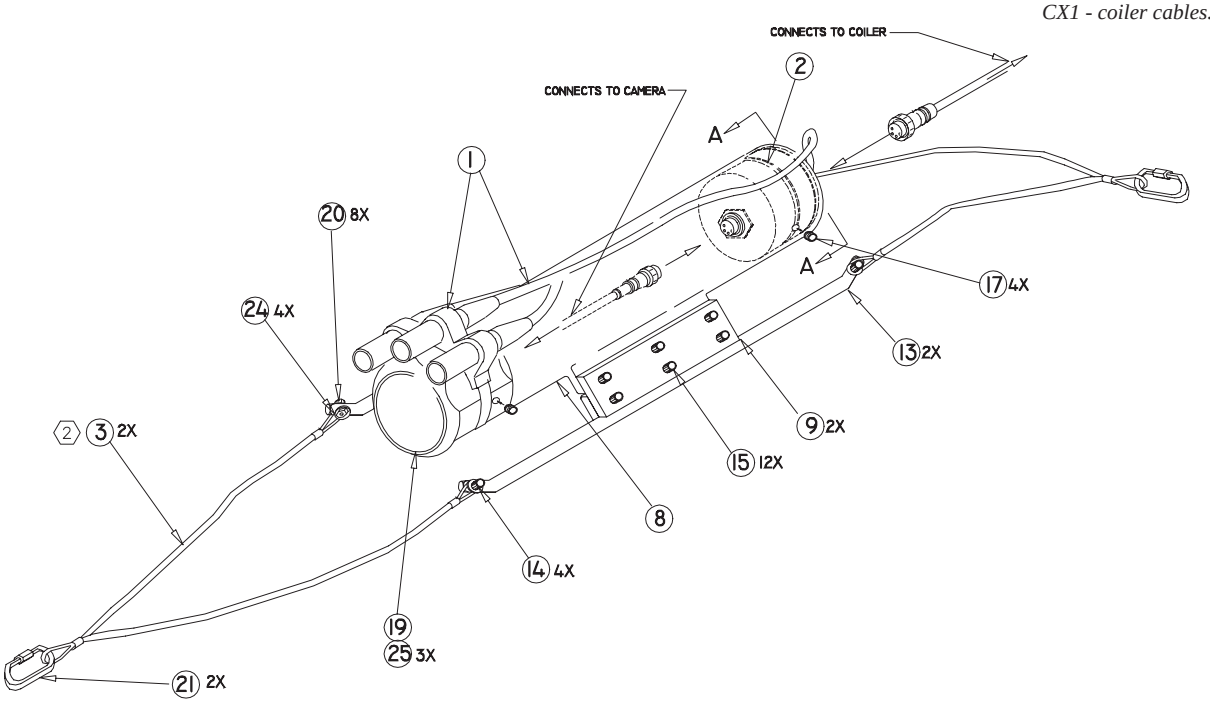


Figure 19: *Skid Assy, w/Lighthead, 8-15",ProScout, 6", HC320*

Skid Assy, w/Lighthd 8-15"ProScout 6" (Fig. 19) Rev. G, HC320			
Item #	Description	P/N	Qty
0001	LIGHTHEAD,HPL6,PS CAM/PROSCOUT PCU	HC326	1
0002	BULKHEAD ASSY,PIPE ADAPTER ASSY	HC316	1
0003	CABLE ASSY,TOW,24",PIPE SKID ASSY	HC510	2
0007	SKID,F/LARGE PIPE ADAPTER	HC132	2
0008	CASTING,BODY W/FLANGES	HC111	1
0009	SPACER,PLATE,8" SKID	HC511	2
0010	SPACER,PLATE,10" SKID	HC512	2
0011	SPACER,PLATE,12" SKID	HC513	2
0013	SKID,PIPE,F/PROSCOUT	HC131	2
0014	SCREW,CAP,SKT HD,10-32X3/4,SST	100121	4
0015	SCREW,CAP,SKT HD,1/4-20X1/2,SST	101001	12
0017	SCREW,SET,1/4-20X1/4 STL	100998	4
0019	ADAPTER,PLASTIC,PS2 CAMERA	HC120	1
0020	WASHER,FLAT,1/4"SST	101736	8
0021	RING-D,CHAIN,TOW CABLE,3/16"SS	712799	2
0022	SPACER,PLATE,15" SKID (2 REQ'D)	HC514	2
0024	WASHER,FLAT,#10 SST	100140	4
0025	SCREW,SET,2-56X1/8"LONG SOCKET	101097	3
0026	WRENCH,ALLEN,.035 SHORT ARM	CS132	1
0027	SCREW,CAP,SKT HD,1/4-20X3/4,SST	101022	4

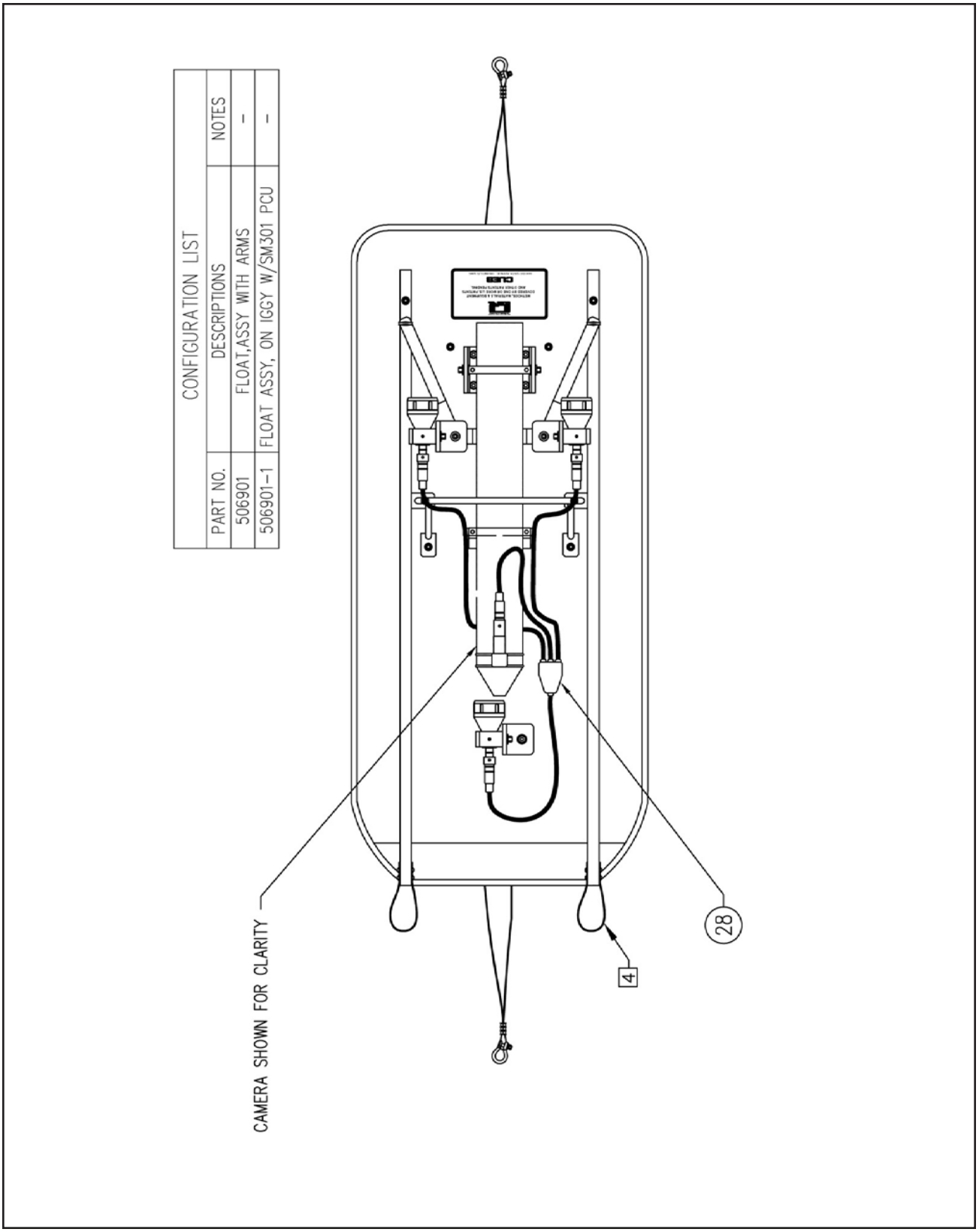


Figure 20a: *Float Assembly, 506901*

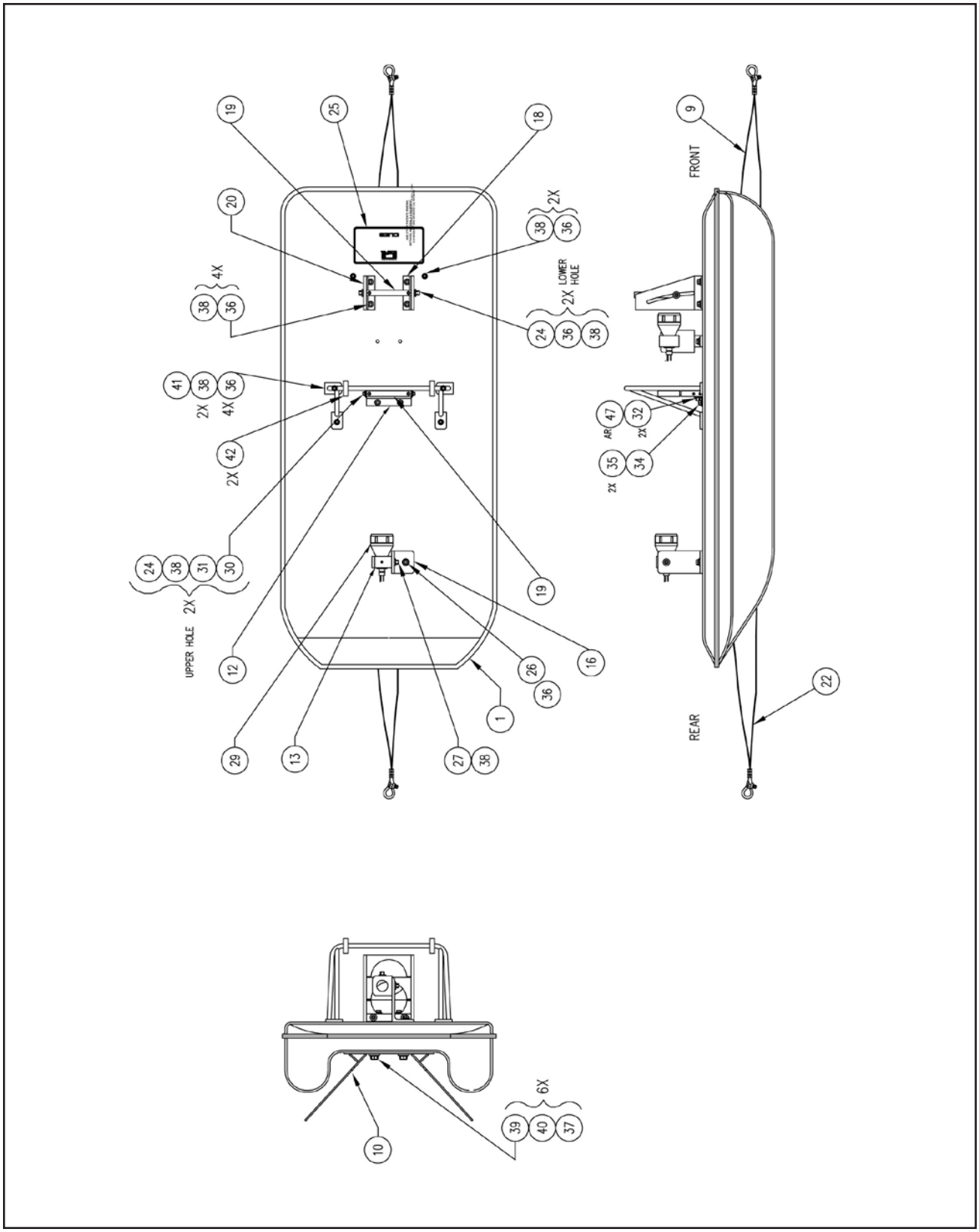


Figure 20b: *Float Assembly, 506901*

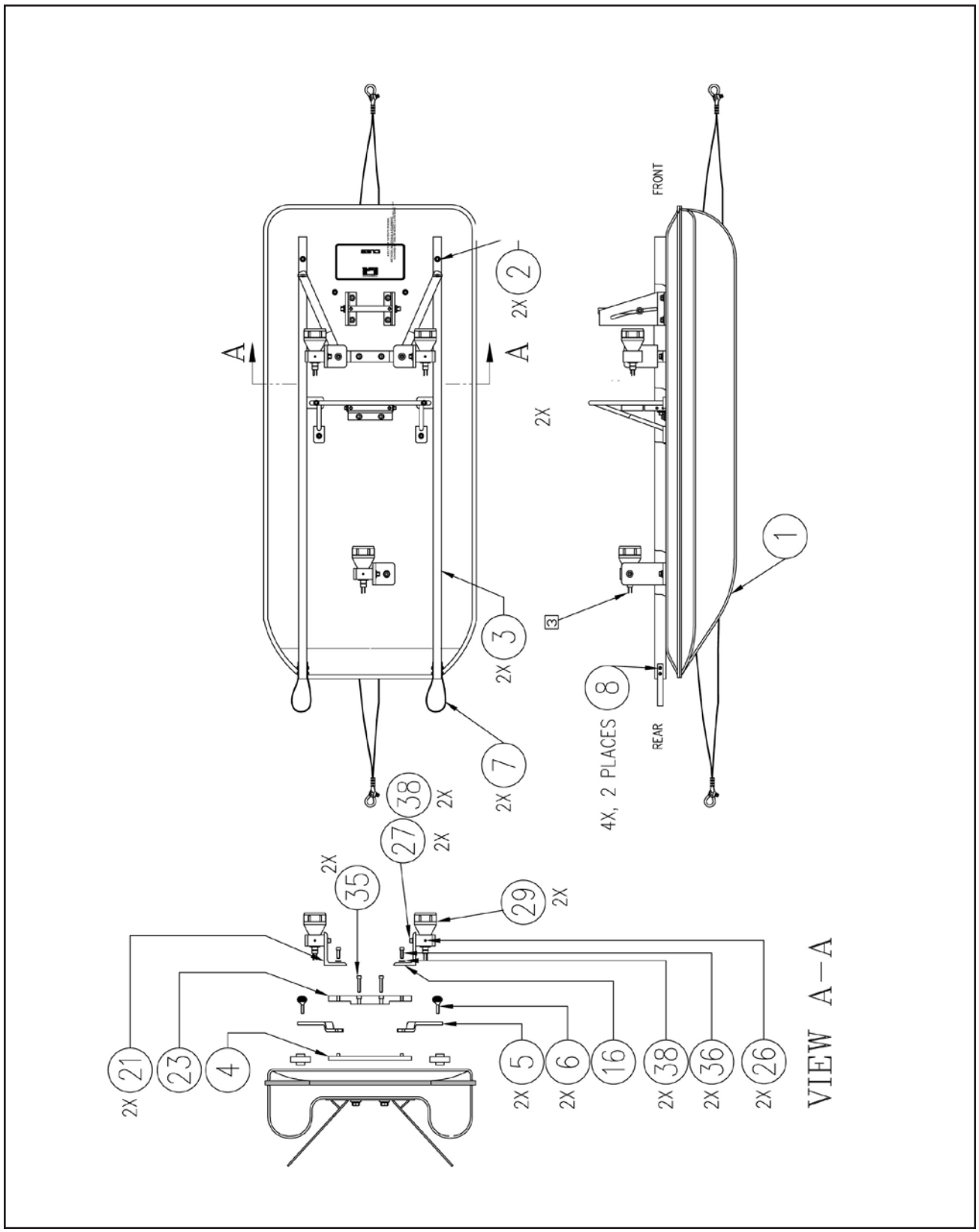


Figure 20c: *Float Assembly, 506901*

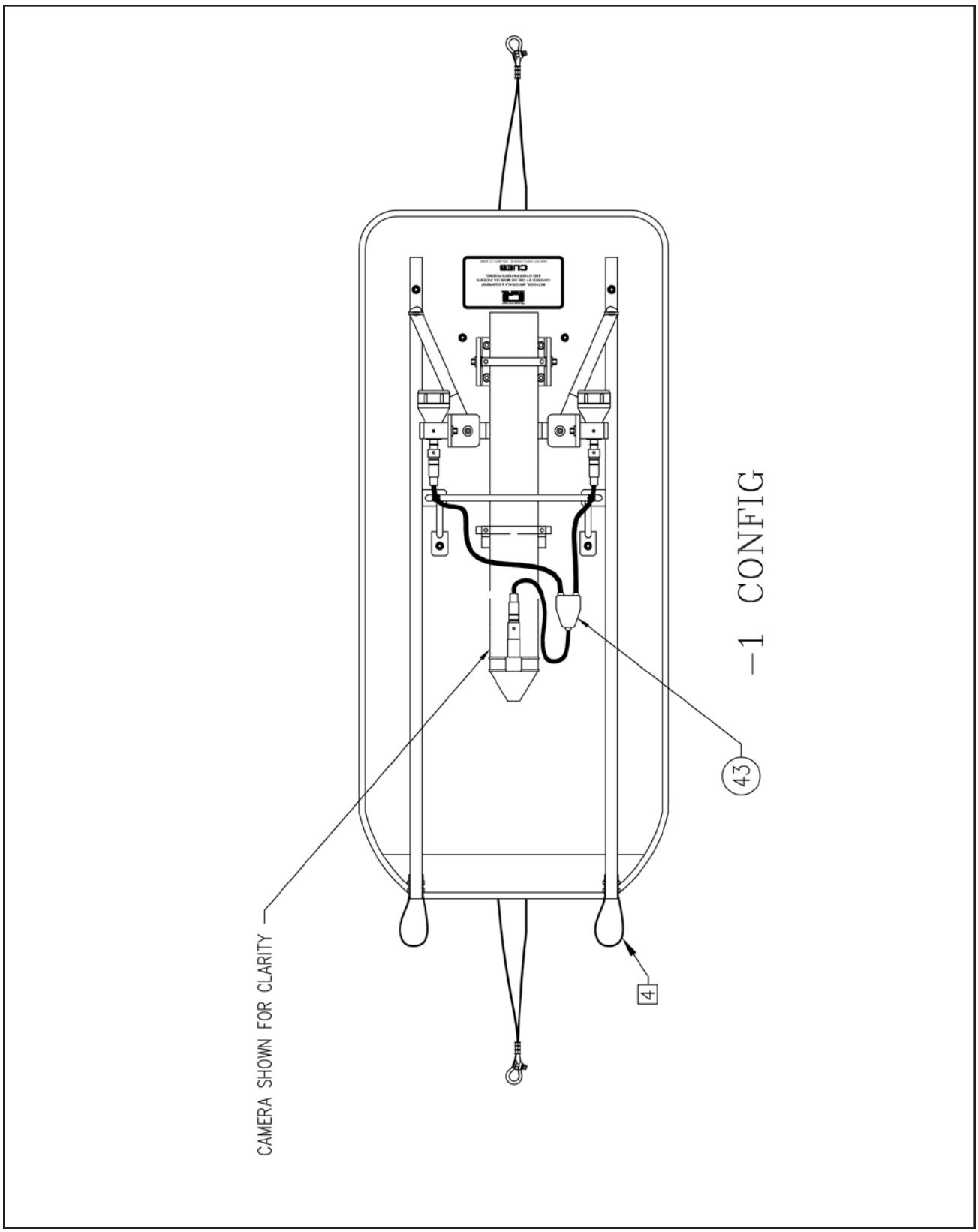
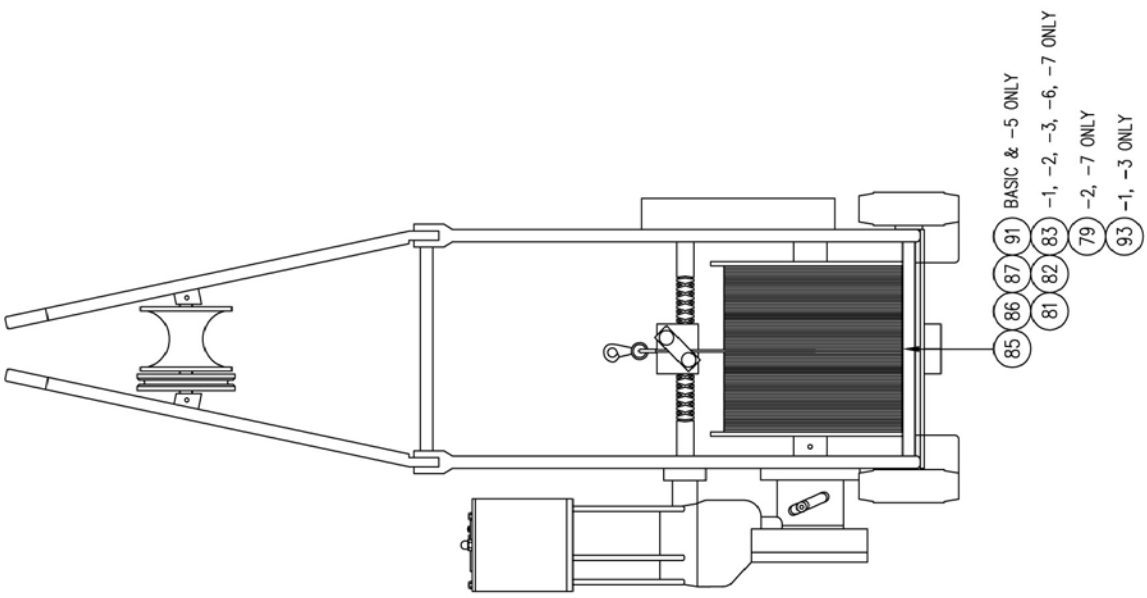


Figure 20d: *Float Assembly, 506901*

Float Assembly (See Fig. 20) Rev. J, 506901			
Item #	Description	P/N	Qty
0001	FLOAT,MOLDED BODY	200215	1
0002	SCREW,CAP,SKT HD,1/4-20X1-1/4,SST	104044	2
0003	ARM,CENTRALIZER F/FLOAT OPTION	500200	2
0004	SUPPORT,TIE BAR	505031	1
0005	BAR,TIE,CENTRALIZER ARM	501335	2
0006	SCREW,SHLDR,THUMB,1/4-20 X 3/4,SST	HW549	2
0007	CENTRALIZER SPRING F/FLOAT	200257	2
0008	SCREW,PAN,10-32X3/8 SST	103031	8
0009	CABLE,TOW,FLOAT,FRONT,36",W/CLEVIS'	120511	1
0010	SLED WELDMENT ASSY	500253	1
0012	CLAMP,HINGE PLATE,CAMERA,FLOAT	500328	1
0013	LIGHT,CARTRIDGE HOLDER	711891	3
0016	BRACKET,REAR LIGHT,TRILIGHT	501341	1
0018	BRACKET,CAMERA,FLOAT,RIGHT SIDE ASY	509403	1
0019	CLAMP PLATE, CAMERA, FRONT + REAR	500705	2
0020	BRACKET,CAMERA,FLOAT,LEFT SIDE ASSY	509401	1
0021	BRACKET,TRILIGHT FRONT LIGHT	501342	2
0022	CABLE,TOW,FLOAT,REAR	120512	1
0023	MOUNT,FORWARD LAMP	509415	1
0024	WASHER,FLAT,1/4 SAE ZINC PLD	101031	4
0025	PLATE,PATENT CUES	960910	1
0026	SCREW,SET,10-32X1/4 NYLON TIP	101120	3
0027	SCREW,CAP,SKT HD,1/4-20X5/8,SST	101024	3
0028	CABLE,FLOAT LIGHTHEAD	160628	1
0029	CARTRIDGE,LIGHT HPL 10+	750142	3
0030	CLAMP,TUBING INSULATED,3/8"	121106	2
0031	SCREW,CAP,SKT HD,1/4-20X1/2,SST	101001	2
0032	SCREW,TRUSS,1/4-20X3/8 PHIL SST	101012	2
0034	SPACER,F/FLOAT	300063	1
0035	SCREW,CAP,SKT HD,1/4-20X1-1/4 SFTY	101060	4
0036	SCREW,CAP,SKT HD,1/4-20X3/4,SST	101022	15
0037	WASHER,FLAT,3/8 USS PLD	101232	6
0038	WASHER,SPLIT 1/4 PLD	101033	20
0039	BOLT,HEX,3/8-16X1 PLATED	101205	6
0040	WASHER,SPLIT 3/8 ZINC	101233	6
0041	BRACKET,FLOAT RETRIEVAL	500120	1
0042	COLLAR,DOUBLE SPLIT SHFT 3/8ID BLK	300107	2
0044	MRO-GASKET MAKER,FASTGASKET,BLK	445067	1
0046	MRO-CARTON DBLWALL 46X26X22	440209	1
0047	MRO-REMOVABLE LCK,ND 121200-50,BLUE	440061	1

WINCHES / WINCH ASSEMBLIES	
Description	**P/N**
Winch Assemblies	
WINCH ASSY,115V,W/1000' 1/8"SST CBL	6205011
WINCH ASSY,115V W/1000'3/16 SST CBL	6205011-1
WINCH ASSY,115V W/1500'3/16"SST CBL	6205011-2
WINCH ASSY,220V W/1000'3/16"SST CBL	6205011-3
WINCH ASSY,W/O MOTOR AND CABLE	6205011-4
WINCH ASSY,W/O MTR,1000'1/8"SST CBL	6205011-5
WINCH ASSY,W/O MTR,1000'3/16SST CBL	6205011-6
WINCH ASSY,115V,1200'3/16"SST CBL	6205011-7
WINCH ASSY,ELECTRIC 115V,W/O CABLE	6205011-8
WINCH ASSY,115V F/1500',W/O CBL	6205011-9
Hand Winches	
Winch, Hand, No Cable/No Legs(base)	6200931
Winch, Hand, No cable/With legs	6201101
Winch, Hand, w/1000' 1/8 SST	6201112
Winch, Hand, w/1000' 3/16 SST	6201141
Winch, Hand, w/1200' 1/8 SST	62011



CONFIGURATION LIST

PART-NO.	DESCRIPTION	NOTES
6205011	WINCH ASSY, ELECTRIC 115V W/1000' 1/8" SST CABLE	
6205011-1	WINCH ASSY, ELECTRIC 115V W/1000' 3/16" SST CABLE	
6205011-2	WINCH ASSY, ELECTRIC 115V W/1500' 3/16" SST CABLE	
6205011-3	WINCH ASSY, ELECTRIC 220V W/1000' 3/16" SST CABLE	
6205011-4	WINCH ASSY, WITHOUT MOTOR AND CABLE	
6205011-5	WINCH ASSY, WITHOUT MOTOR, W/1000' 1/8" SST CABLE	
6205011-6	WINCH ASSY, WITHOUT MOTOR, W/1000' 3/16" SST CABLE	
6205011-7	WINCH ASSY, ELECTRIC 115V W/1200' 3/16" SST CABLE	
6205011-8	WINCH ASSY, ELECTRIC 115V W/O CABLE	
6205011-9	WINCH ASSY, ELECTRIC 115V, W/1500' 3/16" W/O CABLE	
6205011-10	WINCH ASSY,115V,W/2500'1/8"SST CBL	
6205011-11	WINCH ASSY,115V F/1500',W/O CBL&MTR	

Figure 21a: *Winch, Assy, Elect w/o Cable, 6205011*

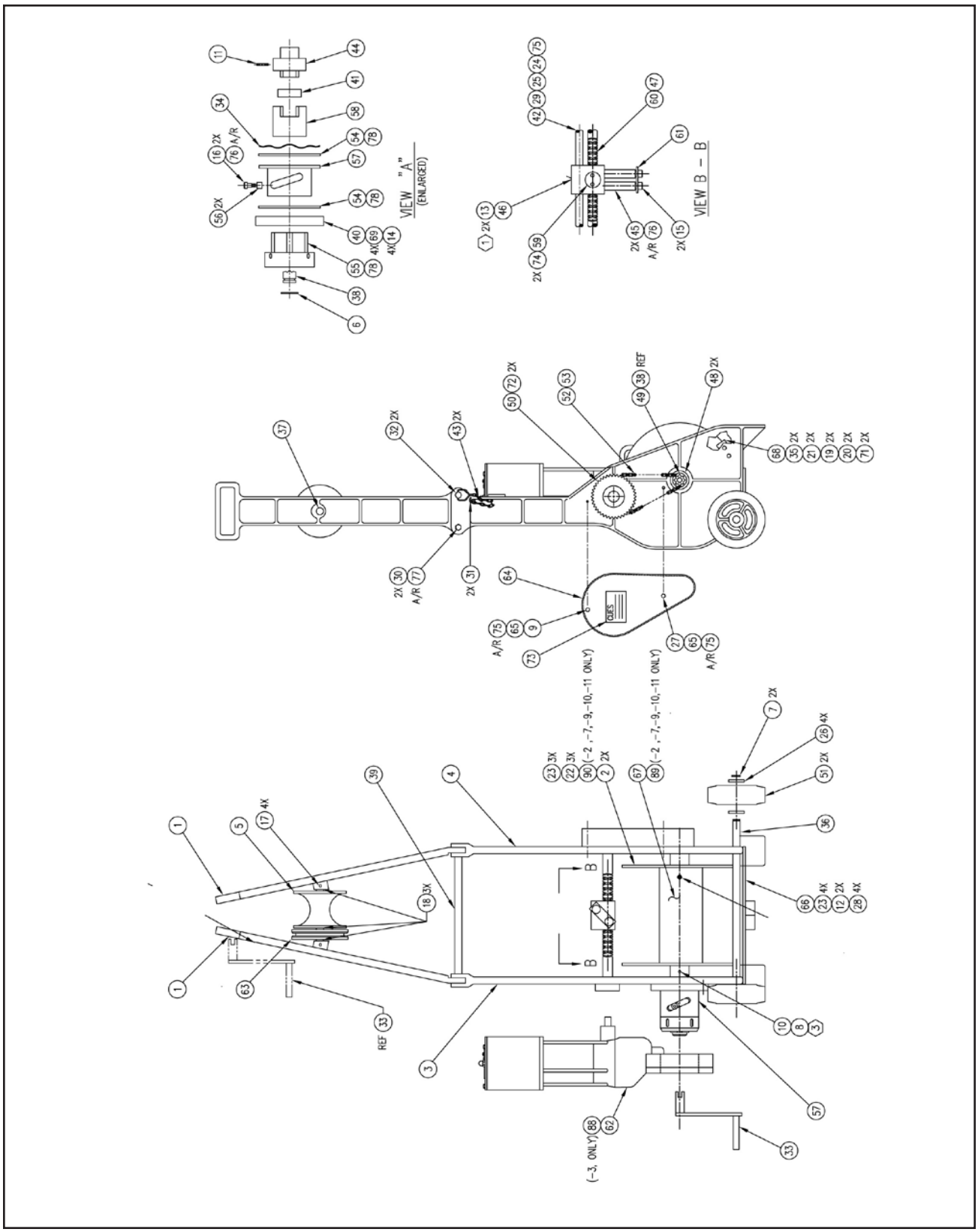


Figure 21b: *Winch, Assy, Elect w/o Cable, 6205011*

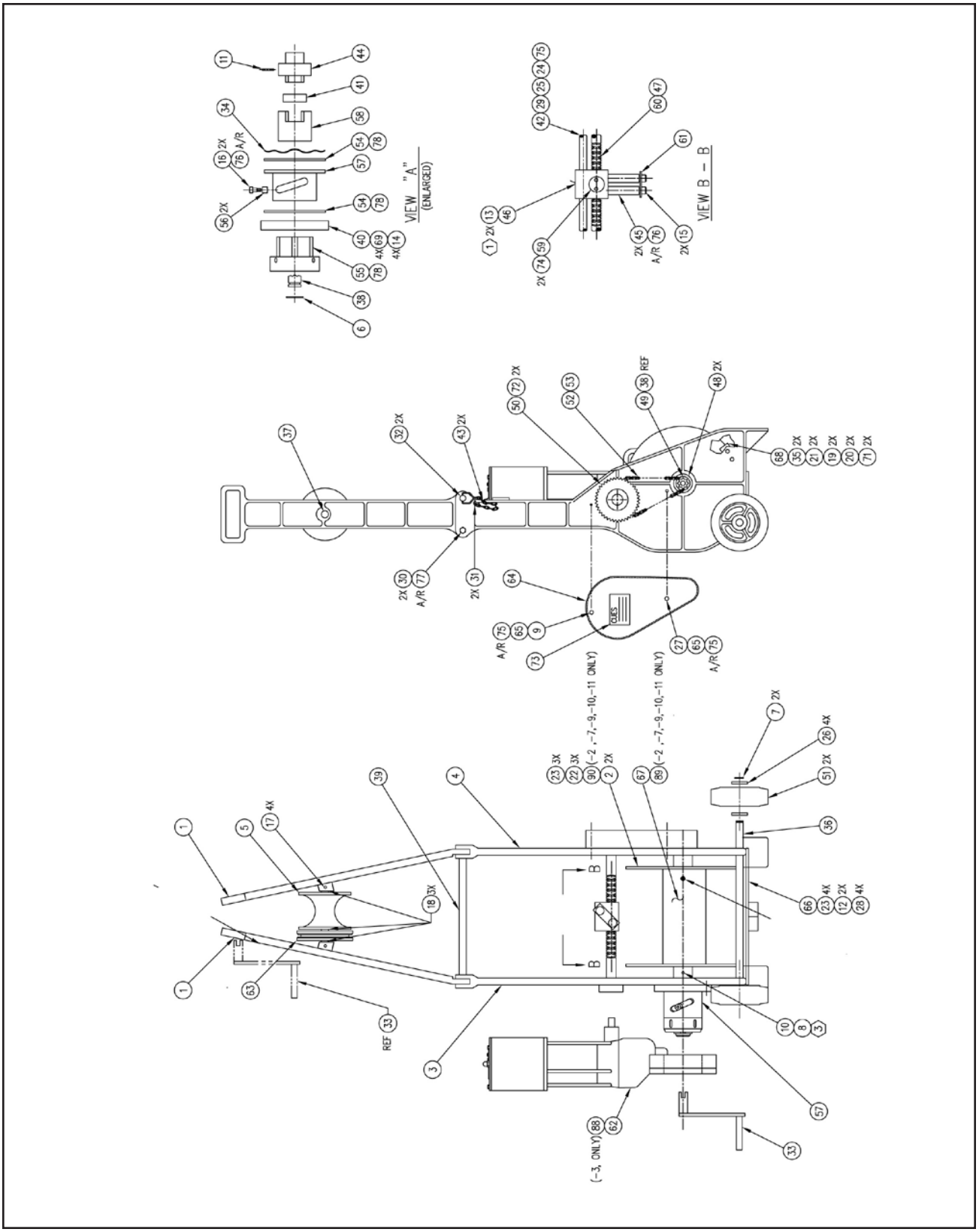


Figure 21c: *Winch, Assy, Elect w/o Cable, 6205011*

Winch Assembly, Electric (See Fig. 21) Rev. L, 6205011			
Item #	Description	P/N	Qty
0001	ARM,EXTENSION ELECT WINCH	403021	2
0002	FLANGE,AL,CABLE REEL,1000FT,WINCH	405020	2
0003	FRAME,LEFT,MACH.ELECT.WINCH	405111	1
0004	FRAME,RIGHT,MACH.ELECT.WINCH	405121	1
0005	ROLLER ASSY,LARGE,TOPROLLER & WINCH	TR102	1
0006	RING,RETAINING,CLUTCH ELECT WINCH	97502	1
0007	RING,RETAINING,EXTERNAL,.706	97507	2
0008	PIN,SPRNG COILED,Ø.312X2.75L,416SST	HW2371	1
0009	BOLT,HEX,1/4-20X2 1/4 GRD 5 PLATED	101010	1
0010	PIN,SPRING,1/4X21/2 ELECT WINCH	97553	1
0011	PIN,SPRING,1/4X3 ELECT WINCH	97555	1
0012	WASHER,FLAT,3/8 USS PLD	101232	2
0013	BUSHING,TENSION,1-3/8X1-1/8X3/4	100102	2
0014	WASHER,SPLIT #10 STL	100152	4
0015	BOLT,SHOULDER,1/2X3 1/2 STL	100501	2
0016	BOLT,SHOULDER,3/8X3/8 ALLOY	100500	2
0017	SCREW,SET,1/4-20X3/8 KNURL PLATED	101052	4
0018	BUSHING,MACH,1-3/8X7/8X14GA	101734	3
0019	NUT,KEP,PLATED,1/4-20	101042	2
0020	NUT,LOCK NYLON INS,PLD,1/4-20	101039	2
0021	BOLT,HEX,1/4-20X1 1/2 TAP GR2	101021	2
0022	BOLT,HEX,3/8-16X11.5 GR2	101225	3
0023	NUT,KEP,PLATED,3/8-16	101244	7
0024	SCREW,FLAT,3/8-16X1 SKT ALLOY	101227	1
0025	WASHER,SPLIT 3/8 ZINC	101233	1
0026	WASHER,FLAT,3/4 SAE CD PLD #1	101735	4
0027	BOLT,HEX,HEAD,1/4-20X2 1/2 GR5 PL	101011	1
0028	BOLT,HEX,3/8-16X1 PLATED	101205	4
0029	BOLT,HEX,3/8-16X1 1/4 GR5 PL	101206	1
0030	BOLT,HEX,3/8-16X2 1/2 GR5 PL	101211	2
0031	HOOK,S-TYPE 1"STEEL	120416	4
0032	PIN,HITCH POWER WINCH 10/10	120821	2
0033	CRANK,HAND ELECT WINCH	2002010	1
0034	SPRING,WAVE F/PWR WINCH	200402	1
0035	SPRING,COMPRESSION SST WINCH RLP	200405	2
0036	AXLE,WHEEL ELECT WINCH	3000130	1
0037	AXLE,ROLLER,ELEC WINCH	3000150	1
0038	AXLE,POWER WINCH CABLE DRUM	300016	1
0039	SPACER,SHAFT,F/ELECT WINCH	3000190	1
0040	FLANGE,CLUTCH ELECT WINCH	3005010	1
0041	SPACER,CLUTCH ELECT WINCH	300510	1

Winch Assembly, Electric (See Fig. 21) Rev. L, 6205011			
Item #	Description	P/N	Qty
0042	ROD,GUIDE,LEVELWIND POWER WINCH	3007800	1
0043	CHAIN,SIZE 3 VICTOR PATTERN STYLE	300909	1.2
0044	JAW,CLUTCH PINNED ELECT WINCH	3005111	1
0045	ROLLER,LEVELWIND CABLE GUIDE	300776	2
0046	FOLLOWER BLOCK ASSY,WINCH LEVWD	300778	1
0047	BEARING,SEALED BALL 3/4X1-5/8X7/16	300322	2
0048	BEARING,BALL,SHLDED 40MMX68MMX15MM	300323	2
0049	SPROCKET,35P 10T 1/2B NO KEYWAY	300401	1
0050	SPROCKET,35B 40T W/S&KEY 3/4	300402	1
0051	WHEEL,ELEC WINCH 6 IN DIA 410LB CAP	300862	2
0052	CHAIN,#35 X 3/8P,PRESTRSS,PER FOOT	300900	2
0053	MASTER LINK F/#35 3/8P CHAIN	300901	1
0054	DISC,FRICTION CLUTCH ELEC WINCH	300502	2
0055	HUB,CLUTCH ELECT WINCH (PAINTED)	3005031	1
0056	BUSHING, ROLLER CLUTCH ELEC WINCH	300504	2
0057	CLUTCH,SHIFTING SLEEVE ELECT WINCH	3005071	1
0058	JAW,CLUTCH SLIDING ELECT WINCH	3005081	1
0059	PAWL ASSY,LEVELWIND 3/4P ELEC WINCH	300781	1
0060	SCREW,LEVELWIND,3/4P F/ELECT WINCH	300783	1
0061	BAR,TIE,ROLLER GUIDE LEVELWIND	300784	1
0062	MOTOR ASSY,115VAC F/PWR WINCH	3100061	1
0063	PULLEY,TOW CABLE ELECT WINCH	4103100	1
0064	BRACKET,CHAIN GUARD ELEC WINCH	5012011	1
0065	SPACER,GUARD CHAIN ELECT WINCH	5012070	2
0066	SPACER,BOTTOM ELECT WINCH W/FLAG MT	5012130	1
0067	CYL, DRUM ELECT WINCH (MIN BLD 10)	5095090	1
0068	BRAKE,SHOE,ELECTRIC WINCH	5095171	1
0069	SCREW,PAN,10-32X1 PHIL SST	103053	4
0071	WASHER,FLAT,1/4 SAE ZINC PLD	101031	4
0072	SCREW,SET,1/4-20X3/8 NYLOCK	101050	2
0073	LABEL,LOGO 2.5"	962029	1
0074	SCREW,CAP,SKT HD,10-32X1/2,SST	102001	2
0075	MRO-PERMANENT LOCK,ND 140500-50,RED	440060	1
0076	MRO-SUPERLUBE 14.5 OZ	429793	1
0077	MRO-REMOVABLE LCK,ND 121200-50,BLUE	440061	1
0078	MRO-GREASE,HEAVY DUTY REDMAN	440030	1
0080	CABLE ASSY,POWER,20'ELECT WINCH	303051	1
0084	KIT,SHEAR PIN ELECT WINCH	9501160	1
0085	SWAGE FOR 1/8 CABLE REPAIR	120001	3
0086	THIMBLE,WIRE ROPE 1/8 SST	120014	1
0087	SNAP SWIVEL,CAMERA TOW CABLE,SS	120413	1
0091	CABLE,WINCH,1/8"SST	20330	1000

USER MANUALS

Manual Title:	P/N
Compact Pipe Ranger	WM901
Currahee Cutter	960971
DataCap 3.0	DP107
DataCap 4.0	DP900
DataCap Optional Modules	DP901
D&D Logger	TS900
Digital Universal Camera (DUC)	HD910
DV-1 Quick Guide	QE918
DVR-SD User Guide	MS908
IGGY Inspector General System	SM901
GRANITE XP User'Manual	GX921
GRANITE XP Instructions	GX923
JetCamera System	JC905
K2 Portable Inspection System	MD910
Kangaroo Cutters	960971
Koala Transporter	TK037
Laser Profiler	LP908
Lateral Cleaning System (LCS)	LC900
Lateral & Mainline Probe (LAMP)	LT900
Lateral & Mainline Probe II (LAMP II)	LM903
Lite Stick	QC910
MiniPush 20/20	CM901
Multi-Conductor TV Only System	960950
Night Owl Pan & Rotate Camera	NO900
Optical Zoom Camera (OZ)	OZ900
Optical Zoom II Camera (OZII)	CZ902
Optical Zoom III Camera (OZIII)	MZ901
Pipe Ranger (* *Includes* Lite and Steerable Pipe Ranger)	WT901
Parts Catalog	960919
Parts Catalog CD	CS175
ProData 2000 Titler	TS903
ProScout	960975
Quick ZoomCAM Pole Camera	QZ910
QZ II Pole Camera	QE915
Report Master 3.0	DP420
Single-Conductor Plus TV Only	960952
Single-Conductor 2000 System	TR906
Single-Conductor TV Only	960951

USER MANUALS

Manual Title:	P/N
Steerable Mudmaster	TM900
Test/Seal Operations (Grouting)	960958
Ultra Shorty Transporter (* *Includes* Ultra Shorty 21)	MC225
Well Qube	SW200
WTR Transformer Transporter	TX920
Zoom Master	ZM900

VIDEOS

VIDEOS	PART NUMBER
The CUES Story	960974
Inspector General	SM600
Mudmaster	TM067
ProScout Pushcable Repair	960985
ProScout Training	960970
Sunrise Grouting Demo	SS030
TV Only System	962033
TV / Seal (Grouting) System	960898
TV Cable Repair, Single-Conductor	960984
TV Cable Repair, M/C Fiber Armor	960986
TV Cable Repair, M/C Steel Armor	960987
TV Cable Repair, M/C w/12 pin	960983
Troubleshooting TV & TV / Seal Systems	960934
Cleaning & Setting Check Valves	960925