

# **SMM Steerable Mudmaster**

## **Wheeled Transporter**

### **OPERATION & MAINTENANCE MANUAL**

P/N TM900, Revision 6: 082020







## CHAPTER 1 - Introduction

---

Introduction .....	1
--------------------	---

## CHAPTER 2 - System Description

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Steerable Mudmaster System Description .....	2
--	---

## CHAPTER 3 - System Set-up and Installation

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Procedure: Connecting the System.....	3
Procedure: Electrical Connections for the Camera .....	4

## CHAPTER 4 - Mudmaster Operations

---

Procedure: Operating the SMM .....	8
Procedure: SMM Maintenance.....	8
Procedure: After the Inspection .....	8

## CHAPTER 5 - SMM Exploded View Drawings and BOM's

---

Transporter, Steerable Mudmaster, TM600 .....	11
Transmission Assembly, SMM, TM661 .....	17
Powerlift Assembly, SMM, TM342 .....	22
Kit, Chain, SMM, TM317 .....	24
Tire and Wheel Assembly, TM033 .....	25
Light Cartridge, HPL10+, 750142 .....	26

## Appendices

---

Warranty Information .....	30
CUES Material Return Policy.....	32
CUES Parts & Service .....	34
Safety Precautions & Equipment.....	35
Record of Revisions.....	36

**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.

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The CUES Steerable Mudmaster (SMM) transporter, referred to as 'SMM' throughout the manual, is designed to:

- Operate as one component of a multi-conductor inspection system
- Inspect 24" to 200" pipelines
- Utilize all-wheel drive in conjunction with a low center of gravity to traverse and steer through pipelines
- Allow the remote operating lift to position the camera for best available picture

The SMM does this by utilizing power sources within multi-conductor systems to drive its 4-wheeled, or optional 8-wheeled configuration, with 10.5" or optional 12" tires. Since the transporter is self-propelled, you do not need to operate in lines with usable exit manholes.

These instructions are for a multi-conductor system. First, verify that your video cable is gold multiconductor before proceeding. The multi-conductor cable is approximately ½" in diameter and contains 8 to 12 conductors depending on the age of the system. Twelve conductors are required to operate the SMM system. If you are uncertain about what type of system you have, please call our Customer Service Department at 1-800-327-7791.

If the transporter is being installed on a TV only system, a modification must be made to the end of the TV cable, and/or to the rest of your truck electrical wiring, depending on your specific system.



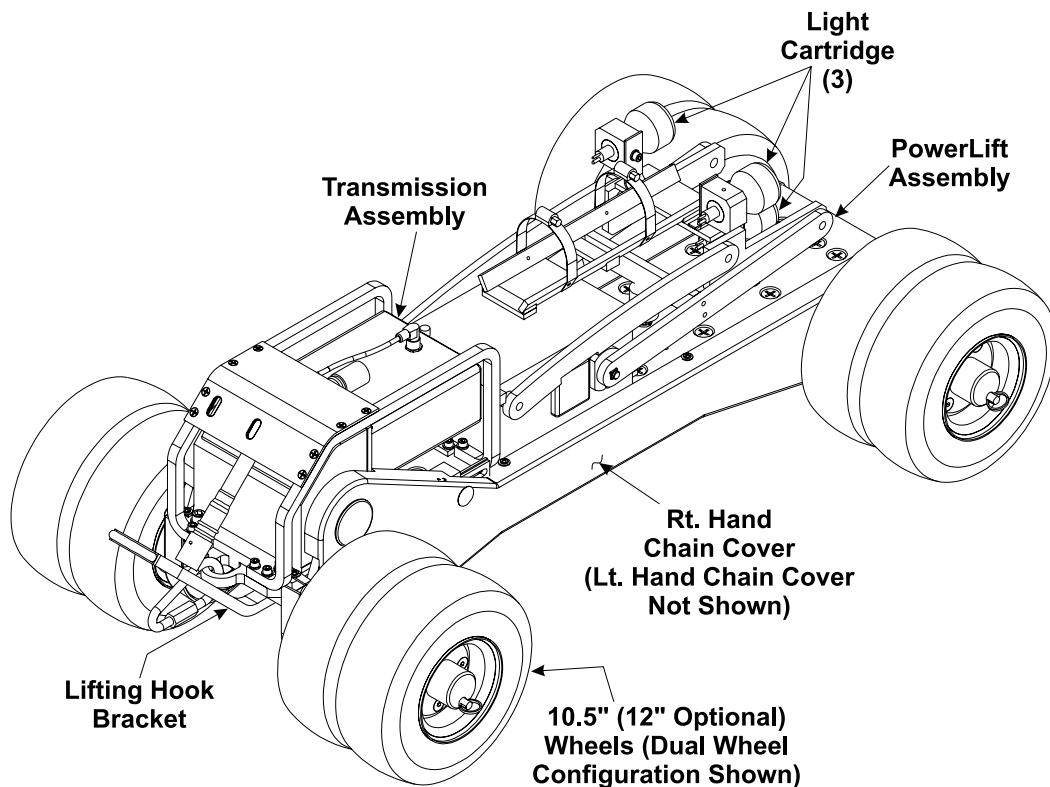
The SMM system is equipped with a self-propelled power forward, power reverse, and freewheel multiconductor transporter.

The transporter has three mounted video lights to provide adequate lighting in the lowest lighting conditions and is designed to carry any of the CUES mainline cameras. The operator-controlled lift assembly is used to raise the camera position to provide a 'center-of-pipe' view in pipelines up to 52" in diameter. A DVR may be used to record the video events.

As the name Steerable Mudmaster suggests, the transporter has been designed with two separate motor clutch sets: one for the left side wheels, the other for the right side wheels. Each clutch has a drive shaft connected to drive sprockets that engage the wheels independently of each other. The clutches are controlled by the operator through the controller.

Thus, the transporter is "steered", much in the same way as a tracked vehicle. The transporter is powered by a motorized transmission. A dual chain drive configuration, one for each side, powers the four, or in special instances, eight wheels via the transmission in the rear of the unit.

The transporter has full variable speed in the forward or reverse mode, from 0 to 60 feet per minute running capability with the 10.5" wheels. The transporter is capable of inspecting pipes up to 200" diameter and can turn in its own length.



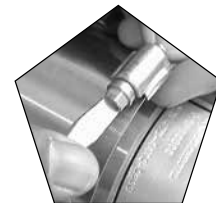


## ELECTRICAL AND PHYSICAL CONNECTIONS

Check to make sure that all equipment including any generator is OFF (0) before making any of the necessary connections involving the Steerable Mudmaster system. Changing connections with power to the system can cause harm to the operator and/or equipment failure.

### PROCEDURE: Connecting the System

1. Ensure that the controller POWER switch is turned to the OFF position.
2. Connect the truck 12-pin TV cable to the SMM transporter (not shown).
3. Physically attach the camera to the transporter with worm clamps.
4. Connect the camera connectors.

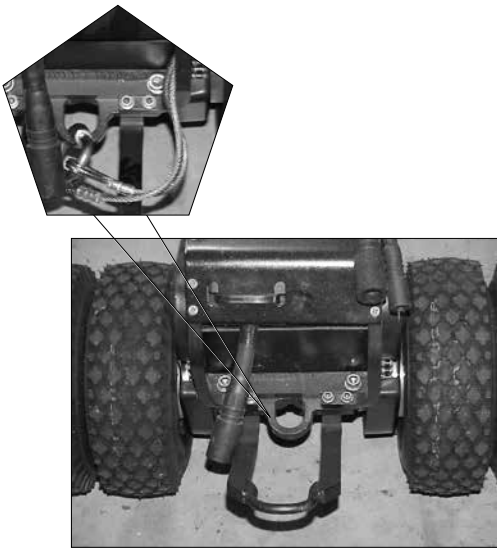


# 3

## SYSTEM SET-UP & INSTALLATION

### PROCEDURE: Connecting the System, Continued

5. A strain relief with quick link is fixed on the TV cable near the connector. Loosen the four cap screws and move the ring so that the tow cables on the back of the transporter can be connected to it. Now slide the ring a little closer to the transporter so that the TV cable has two or three inches of slack between the ring and the transporter when the tow cables are taut. Fix the strain relief ring in place by tightening down the four Allen screws. Your SMM transporter and multi-conductor camera are now ready for use.
6. Physically attach the tow cables with quick link.
7. Turn the controller power switch ON.



### 8. For TM370 Controllers Only:

To determine whether you have a TM370 controller, look at the front panel. TM370 controllers have a label surrounding the 'CALIBRATE' button and LED (as shown below), whereas other model Steerable Mudmaster controllers do not and, instead, just have the word 'CALIBRATE' printed underneath the button and LED.





## For TM370 Controllers Only (continued):

TM370 controllers have more than one operating mode, with the current setting indicated by the number of times that the Calibrate LED is flashing. NOTE: In other model controllers, the Calibrate LED does not flash and remains off.

**1 Flash** = HI-V/STANDARD Mode = high voltage for most transporters, including Steerable Mudmaster

**2 Flashes** = 60V CPR Mode = reduced voltage only for newer, '60V' Compact Pipe Ranger transporter (WM360)

In order to achieve maximum performance from the Steerable Mudmaster, the TM370 controller should be set to 'HI-V/STANDARD' mode, indicated by the Calibrate LED on the front panel periodically flashing one time. If the LED is flashing more than once, you will have to switch modes. To switch modes, first power OFF the controller. Then, press the Calibrate switch and, while holding it down, power the controller back ON. Finally, release the Calibrate switch once the LED has turned off. Verify the Calibrate LED is now periodically flashing one time.

## PROCEDURE: Electrical Connections for the Camera

NOTE: Before performing any of the following connections, make sure that the PCU (Power Control Unit) and other components are OFF (0).

NOTE: Apply a small amount of Anti-Seize grease, P/N 420797, on the rubber surface before making each connection to protect and preserve the connectors. Do not get grease on the metal pins.

Insert the y-eliminator that was supplied with the system into the back of the camera. Align the pins correctly before pressing it completely into the rear of the camera. Attach the retaining screws to hold the y-eliminator secure.

Next, attach the camera to the transporter cradle with the two (#56) worm clamps. Make sure that the worm clamps are secure so that the camera doesn't rotate or slide freely on the cradle. Use a cable-tie to secure the cables to the body of the camera.

WEIGHT TABLE	
Description:	Weight:
Steerable Mudmaster Transporter, P/N TM600	215 lbs.
OZ II CAMERA (no cables), PN CZ300	13.3 lbs.

# CUES K2/K3 SCREEN OPERATIONS: HELP MENU

Instructions for using the K2/K3 system are included in the HELP menu, which is accessible by pressing the F1 button at any time. The K2/K3 HELP system includes all of the information in Chapter 2 of the printed user manual.

## CUES HELP INDEX

===== CUES HELP INDEX =====

1. KEYS: ALL SCREENS?  
ALL SET UP SCREENS?  
RUN-TIME SCREEN1?  
RUN-TIME SCREEN2?  
RUN-TIME SCREEN3?  
FREE-FORMAT SCREEN?  
FREE FORMAT RUN-TIME SCREEN?  
TEST CONTROLLER HELP SCREEN?  
LAMPPII HELP SCREEN?  
GXP HELP SCREEN?
2. FIELD ENTRY HELP SCREEN?

Press F1 at any time to access the HELP screen.

<ENTER> to all screens  
STATUS LINE - displays the action to be performed in each field.

## KEYS FOR ALL SCREENS

===== CUES KEYS FOR ALL SCREENS =====

<F1> ----- TO HELP INDEX SCREEN  
<CTRL><F2> ----- CLEAR COMMENT FIELDS  
<CTRL><F4> ----- CLEAR FREE FORMAT SCN  
<CTRL><F5> ----- CLEAR INSP. SETUP SCN  
<CTRL><F6> ----- CLEAR ALARM  
<CTRL><F7> ----- TOGGLE MUTE/UNMUTE  
<CTRL><F10> ----- DEFAULT COMMENT SET

<CTRL><ALT><t> --- DISABLE/ENABLE TITLER  
<CTRL><ALT><s> --- DISABLE/ENABLE STATUS  
<CTL><ALT><UPARROW> SPEAKER VOLUME UP  
<CTL><ALT><DNARROW> SPEAKER VOLUME DOWN  
<CTRL><ALT><+>---- LOG SCREEN

<ESCAPE> previous screen

## KEYS FOR ALL SET UP SCREENS

== CUES KEYS FOR ALL SET UP SCREENS ==

<ENTER> - SELECT ACTION/HIGHLIGHT NEXT FLD  
<UPARROW> --- PREV SELECTION/FIELD  
<DOWNARROW> - NEXT SELECTION/FIELD  
<LEFTARROW> - MOVE CURSOR LEFT  
<RIGHTARROW> MOVE CURSOR RIGHT  
<DELETE> ---- DELETE AT CURSOR  
<BACKSPACE> - DELETE LEFT OF CURSOR  
<CTRL><DELETE> - CLEAR ENTRY  
<TAB> ----- HIGHLIGHT NEXT FIELD  
<SHIFT><TAB> HIGHLIGHT PREVIOUS FIELD  
<SPACEBAR> -- TOGGLE TWO SELECTIONS  
<CTL><ALT><INSERT> - RESTORE SCREEN  
<INSERT> - TOGGLE OVERWRITE/INSERT

<ESCAPE> previous screen

## KEYS FOR RUN-TIME SCREEN1

=== CUES KEYS FOR RUN-TIME SCREEN1 ==

<SHIFT><F1> ---- TOGGLE COMMENTS ON/OFF  
<SHIFT><F2> ---- TOGGLE OBSERVATN ON/OFF  
<SHIFT><F3> ---- TOGGLE INCLINE ON/OFF  
<SHIFT><F4> ---- TOGGLE ARROW ON/OFF  
<SHIFT><F5> ---- TOGGLE TITLE ON/OFF  
<SHIFT><F6> ---- TOGGLE DATE ON/OFF  
<SHIFT><F7> ---- TOGGLE TIME ON/OFF  
<SHIFT><F8> ---- TOGGLE MANHOLES ON/OFF  
<SHIFT><F9> ---- TOGGLE PRESSURE ON/OFF  
<SHIFT><F10> --- TOGGLE DISTANCE ON/OFF  
<F11> ----- TOGGLE TRANS SPD ON/OFF  
<CTRL><F11> --- TOGGLE DIRECTION ON/OFF  
<CTRL><F12> ---- TOGGLE LENGTH ON/OFF  
ARROW-LF/RT ---- MOVE FIELDS/ARROW LF/RT  
ARROW-UP/DN ---- MOVE FIELDS/ARROW UP/DN

<ESCAPE> previous menu

## KEYS FOR RUN-TIME SCREEN2

=== CUES KEYS FOR RUN-TIME SCREEN2 ==

<F1> --- TO/FROM HELP SCREENS  
<F2> --- TO/FROM EQUIPMENT CONFIGURATION  
<F3> --- TO/FROM FREE-FORMAT SCREEN  
<F4> --- TO/FROM FREE-FORMAT W/RUN SCRIN  
<F5> --- TO/FROM INSPECTION SETUP SCREEN  
<F6> --- TO/FROM DISPLAY SETUP SCREEN  
<F7> --- TO/FROM DIAGNOSTICS MENU SCREEN  
<F8> --- TO/FROM REMINDER SETUP SCREEN  
<F9> --- TO/FROM COMMENT DEFINITION SCRIN  
<F10> -- TO CONFIGURE REELS SCREEN  
<CTRL><i>- ZERO INCLINATION  
<CTRL><p>- ZERO PRESSURE  
<CTRL><-d>/<z>- PRESET/ZERO DISTANCE  
<SHIFT><HOME> HOME FIELDS  
<SHIFT><INSERT>TOGGLE ALL FIELDS ON/OFF

<ESCAPE> previous menu

## KEYS FOR RUN-TIME SCREEN3

=== CUES KEYS FOR RUN-TIME SCREEN3 ==

<CTRL><f> ----- TOGGLE FONT RENDERINGS

There are two ways to input observations either <ENTER> and use arrow keys to see stored comment fields, or input a code and it will display the comment. After either, <ENTER> will save the observation. These work for FreeFormat w/RunTime also.

<ENTER> ----- TO ENTER COMMENTS MODE  
ARROW UP/DN - DISP. PREV/NEXT COMMENT  
<ENTER> ----- SAVE THIS COMMENT  
<A-Z> ----- INPUT CODE/GET COMMENT  
<ENTER> ----- SAVE THIS COMMENT

<ESCAPE> previous menu

## CUES K2/K3 SCREEN OPERATIONS: HELP MENU

Instructions for using the K2/K3 system are included in the HELP menu, which is accessible by pressing the F1 button at any time. The K2/K3 HELP system includes all of the information in Chapter 2 of the printed user manual.

### KEYS FOR FREE-FORMAT SCREEN

== CUES KEYS FOR FREE-FORMAT SCREEN ==

<ENTER> ----- CARRIAGE RETURN/LINE FEED  
 <UPARROW> --- MOVE CURSOR UP  
 <DOWNARROW> - MOVE CURSOR DOWN  
 <LEFTARROW> - MOVE CURSOR LEFT  
 <RIGHTARROW> MOVE CURSOR RIGHT  
  
 <DELETE> ---- DELETE SELECTION AT CURSOR  
 <BACKSPACE> - DELETE LEFT OF CURSOR  
 <TAB> ----- SPACE TO NEXT TAB STOP  
 <CTRL><b> --- BEGIN TEXT BLOCK SELECTION  
 <CTRL><c> --- COPY SELECTED TEXT BLOCK  
 <CTRL><x> --- CUT SELECTED TEXT BLOCK  
 <CTRL><v> --- PASTE SAVED TEXT BLOCK  
 <CTRL><f> --- TOGGLE FONT RENDERINGS

<ESCAPE> previous menu

### KEYS FOR FREE-FORMAT WITH RUN SCREEN

=== CUES FREE FORMAT W/RUN SCREEN ===

<CTRL><f> ---- TOGGLE FONT RENDERINGS  
 <UPARROW> ---- MOVE RUN-TIME GROUP UP  
 <DOWNARROW> -- MOVE RUN-TIME GROUP DOWN  
 <LEFTARROW> -- MOVE RUN-TIME GROUP LEFT  
 <RIGHTARROW> - MOVE RUN-TIME GROUP RIGHT  
 <SHIFT><F2> -- TOGGLE OBSERVATION ON/OFF  
 <SHIFT><F4> -- TOGGLE ARROW ON/OFF

<ESCAPE> previous menu

### CUES GXP HELP

===== CUES GXP HELP =====

<CTRL><f> ----- TOGGLE FONT RENDERINGS  
 <ALT><CTRL><g> - TO/FROM EQUIPM CONFGRTN  
 <F1> --- HELP  
 <ESC> --- MAIN MENU

- Press <CTRL><f> to cycle through the font renderings. There are four selections: EBW, HBW, WWB, BBW. The three letters are abbreviations for the background color, outline color and character color used for the text that is overlaid on the video display. E refers to external, meaning that the video is passed through (transparent). W refers to white, B refers to black and H refers to half-tone.
- Press <ALT><CTRL><g> to move to/from the Equipment Configuration screen.
- Press <F1> to display the GXP Help screen.
- Press <ESC> to move to the main menu.

### CUES TEST CONTROLLER HELP

===== CUES TEST CONTROLLER HELP =====

The following hot keys are only valid on the Test Controller screen.

<CTRL><ALT><j>- SAVE XPORT JOYSTICK OFFS

- Press <CTRL><ALT><j> to save the values of the gamepad transporter analog sticks. The negatives of these values will then be added to all gamepad transporter analog stick values until the next power cycle of the system. This feature is to be used only if the gamepad's analog sticks are exhibiting 'creep', whereby when at rest, there values are not close enough to zero.

### CUES LAMP II HELP

===== CUES LAMP II HELP =====

The following hot keys are only valid when the LAMP II Transporter/Camera are being used.

<ALT><F10> ----- TOGGLE LATERAL DISTANCE  
 <ALT><CTRL><v> - TOGGLE VIEW MAIN/LAMP II  
 <ALT><d> ----- PRESET LATERAL DISTANCE  
 <ALT><z> ----- ZERO LATERAL DISTANCE  
 The following only work with the Micro Pan & Tilt  
 <SHUTTER>+<DPAD +/>- Raise/Lower floods  
 <IRIS>+<DPAD +/>- Raise/Lower spots  
 <ESCAPE> previous menu

### CUES CUTTER HELP

===== CUES KEYS FOR CUTTER =====

Left joystick vert : UP/DN CUT  
 Right joystick horz : CCW/CW CUT  
 Right joystick vert:FWD/REV CUT DRV  
 IRIS+DPAD +/- : Raise/lower UP/DN CUT  
 SHUTTR+DPAD +/- : Raise/lower CCW CUT  
 FOCUS+DPAD +/- : Raise/lower FWD/REV CUT  
 LIGHTS+DPAD +/- :Raise/lower flood lgts  
 LIGHTS+DPAD 0/1 : Raise/lower spot lgts  
 DIAGNOSTICS+DPAD +/- : Pan up/down  
 ZOOM+DPAD +/- Focus near/far  
 Right joystick button : Pan home  
 VIEW : Toggle camera view  
 LIFT : Toggle btwn cut/drive on FWD/REV  
 F11 : Toggle display of cut speed %

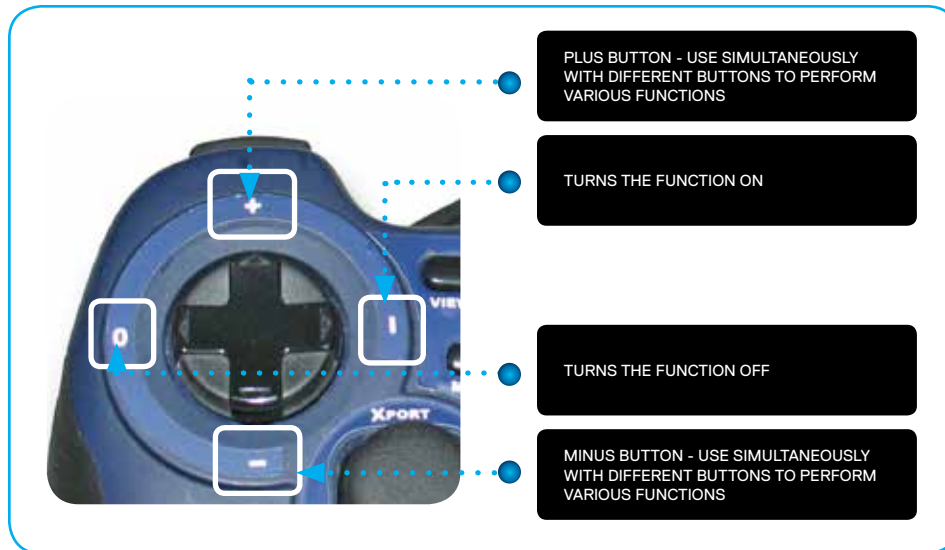
<ESCAPE> previous menu



# CUES LOGITECH GAME PAD FUNCTIONS

WHEN USING A CUES TRANSPORTER/CAMERA

(If using a LAMP II OR CURRAHEE CUTTER, refer to Quick Card P/N's LM912 & CK912)



# CUES LOGITECH GAME PAD FUNCTIONS

WHEN USING A CUES TRANSPORTER/CAMERA

(If using a LAMP II OR CURRAHEE CUTTER, refer to Quick Card P/N's LM912 & CK912)



WHILE PRESSING THE IRIS BUTTON, SIMULTANEOUSLY PRESS THE PLUS / MINUS BUTTONS TO OPEN/CLOSE THE IRIS

WHILE PRESSING THE SHUTTER BUTTON, SIMULTANEOUSLY PRESS THE PLUS OR MINUS BUTTONS TO SHUTTER FAST/SLOW TO ENABLE VISIBILITY IN LOW-LIGHT CONDITIONS

WHILE PRESSING THE FOCUS BUTTON, SIMULTANEOUSLY PRESS THE PLUS OR MINUS BUTTONS TO FOCUS THE CAMERA NEAR/FAR. ALSO, PRESS THE FOCUS BUTTON AND THE "ON" BUTTON SIMULTANEOUSLY TO AUTO-FOCUS

WHILE PRESSING THE ZOOM BUTTON, SIMULTANEOUSLY PRESS THE PLUS OR MINUS BUTTONS TO ZOOM THE CAMERA IN/OUT



USE THE JOYSTICK TO MOVE THE TRANSPORTER. PRESS TO STOP THE TRANSPORTER.

USE THE JOYSTICK TO MOVE THE CAMERA. PRESS TO MOVE THE CAMERA TO THE HOME POSITION.

WHEN MOVING THE JOYSTICKS, NO VOLTAGE WILL BE APPLIED UNTIL THE OPERATOR HAS MOVED THE JOYSTICK APPROXIMATELY 20% AWAY FROM THE CENTER. THIS MAKES IT SO THAT THE TRANSPORTER DOESN'T HAVE ANY VOLTAGE APPLIED UNTIL THE OPERATOR ACTUALLY WANTS TO MOVE THE TRANSPORTER.

# CUES LOGITECH GAME PAD FUNCTIONS

WHEN USING A CUES TRANSPORTER/CAMERA

(If using a LAMP II OR CURRAHEE CUTTER, refer to Quick Card P/N's LM912 & CK912)

WHILE PRESSING THE REEL BUTTON, SIMULTANEOUSLY PRESS THE PLUS OR MINUS BUTTON TO MOVE THE REEL FASTER / SLOWER SPEED

PRESS THE REEL AND "ON" BUTTONS SIMULTANEOUSLY FOR PAYOUT MODE

PRESS THE REEL AND "OFF" BUTTONS SIMULTANEOUSLY FOR RETRIEVE MODE



WHILE PRESSING THE LIGHTS BUTTON, SIMULTANEOUSLY PRESS THE PLUS OR MINUS BUTTON TO ILLUMINATE THE EXTERNAL LIGHTS BRIGHTER OR DIMMER

PRESS THE LIGHTS AND ON / OFF BUTTONS TO TURN THE INTERNAL LIGHTS ON/OFF

PRESS IN COMBINATION WITH THE DPAD 1 TO TURN CRUISE CONTROL ON  
PRESS IN COMBINATION WITH THE DPAD 0 TO TURN CRUISE CONTROL OFF  
PRESS IN COMBINATION WITH THE DPAD + TO RAISE THE CRUISE CONTROL VOLTAGE  
PRESS IN COMBINATION WITH THE DPAD - TO LOWER THE CRUISE CONTROL VOLTAGE

PRESS TO DISPLAY THE INTERNAL DIAGNOSTICS SYSTEM.



## XBOX 360 CONTROLLER FUNCTIONS

The Xbox 360 Controller functions are identical to those of the Logitech Gamepad, aside from the exceptions shown below.



1. 'GUIDE' button: To turn the controller on, press and hold down this button until the ring of LEDs around it begin flashing. The flashing will stop, and the LED in the top-left quadrant will remain lit when the controller is connected to the system.
2. The two 'CONNECT' buttons (one on the wireless receiver and one on the controller): To connect the controller to the system, perform the following steps. NOTE: This is only necessary if the ring of LEDs around the 'GUIDE' button are flashing continuously.
  - a. Make sure that the wireless receiver is plugged into a USB port on the K2/K3 and its LED is lit.
  - b. Press and hold down the 'CONNECT' button on the wireless receiver until its LED begins flashing.
  - c. Press and hold down the 'CONNECT' button on the controller until the ring of LEDs around the 'GUIDE' button start spinning. The controller is connected to the system when the LEDs stop spinning, flash a few times, and the one in the top-left quadrant remains lit.

Several wired and wireless controllers will work with the system and may be available in a critical situation from a local electronics vendor, such as a Radio Shack, Best Buy or Walmart. However, only controllers purchased through CUES will have labels and are guaranteed to have been tested with the system.

The controllers that will work with the K2/K3:

- Wired Logitech Dual-Action
- Wired Logitech RumblePad 2
- Wired Microsoft Xbox 360
- Wireless Logitech RumblePad 2
- Wireless Microsoft Xbox 360
- Logitech Wireless F710
- Logitech Wired F310

Note that this also gives the priority that controllers are given, in the event that more than one is connected to the K2/K3 at a time. (It's common for customers to have both a wireless and a wired controller available. If the batteries go dead on the wireless, the wired controller can still control the transporter, camera and lights). The system will read the highest priority controller if more than one is connected at a time. Every two seconds the system detects if any controller has been connected or disconnected and determines which controller should be read from.



## OPERATING THE TRANSPORTER

### **PROCEDURE: Operating the SMM**

First make sure that the power has been turned off. Then make all the necessary electrical connections including the camera and lighthead, if applicable. Attach the tow cables and ensure that the TV cable has at least three or four inches of slack when the tow cables are taut. Set the SMM into the pipeline and power up the system.

To move the SMM, use the gamepad controller to move the transporter forward. When you intend to advance at full throttle, gently accelerate to speed. This helps to reduce wear on the motor and other electrical components.

When changing from forward to reverse freewheel, allow the SMM to come to a complete stop. After the SMM has stopped, reverse the transporter for about four seconds to disengage the clutch. The SMM is now ready to freewheel. Use your winch or reel to pull the SMM back towards the control point and entry manhole. Use the power reverse and move the transporter backwards.

NOTE: The SMM was not designed to plow through heavy grease or other obstructions. Damage to the equipment will result from improper use.

### **PROCEDURE: SMM Maintenance**

The SMM is a sensitive piece of electronic equipment. Power surges and abrupt shut downs can interfere with proper operation. We strongly suggest that you keep your mobile generator properly adjusted. The generator should deliver a steady 110 to 120 volts. Should the Engineering Panel indicate that the generator is operating outside these guidelines, see the Generator Manual for the proper adjustments or contact authorized service personnel.

The camera, lighthead, and SMM must be cleaned with detergent and water after each day of use. After cleaning your SMM, oil the chains with heavy chain lubricant. This will keep them clean, functional and well protected from the outside environment. Failure to do so could result in the warranty being voided.

Before operating the SMM, check all cables coming out of the transporter. Look for cuts or worn areas. If wear on the cables is discovered, the cables should be repaired or replaced immediately. Do not operate your SMM with worn or cut cables.

Never remove the cover from the motor or controller. Each of these areas contains delicate electronic components. Opening any of these areas will result in the warranty being voided.

## **PROCEDURE: After the Inspection**

### **WARNING!**

1. Always carry the SMM transporter by its frame rather than the TV cable or camera.
2. During some troubleshooting procedures, power may need to be applied to the system or a system component.

Personnel should use extreme caution to prevent possible electrical burns or shock. To help protect personnel and equipment from electrical shock, always shut the system down while placing or removing the Steerable Mudmaster from the manhole.



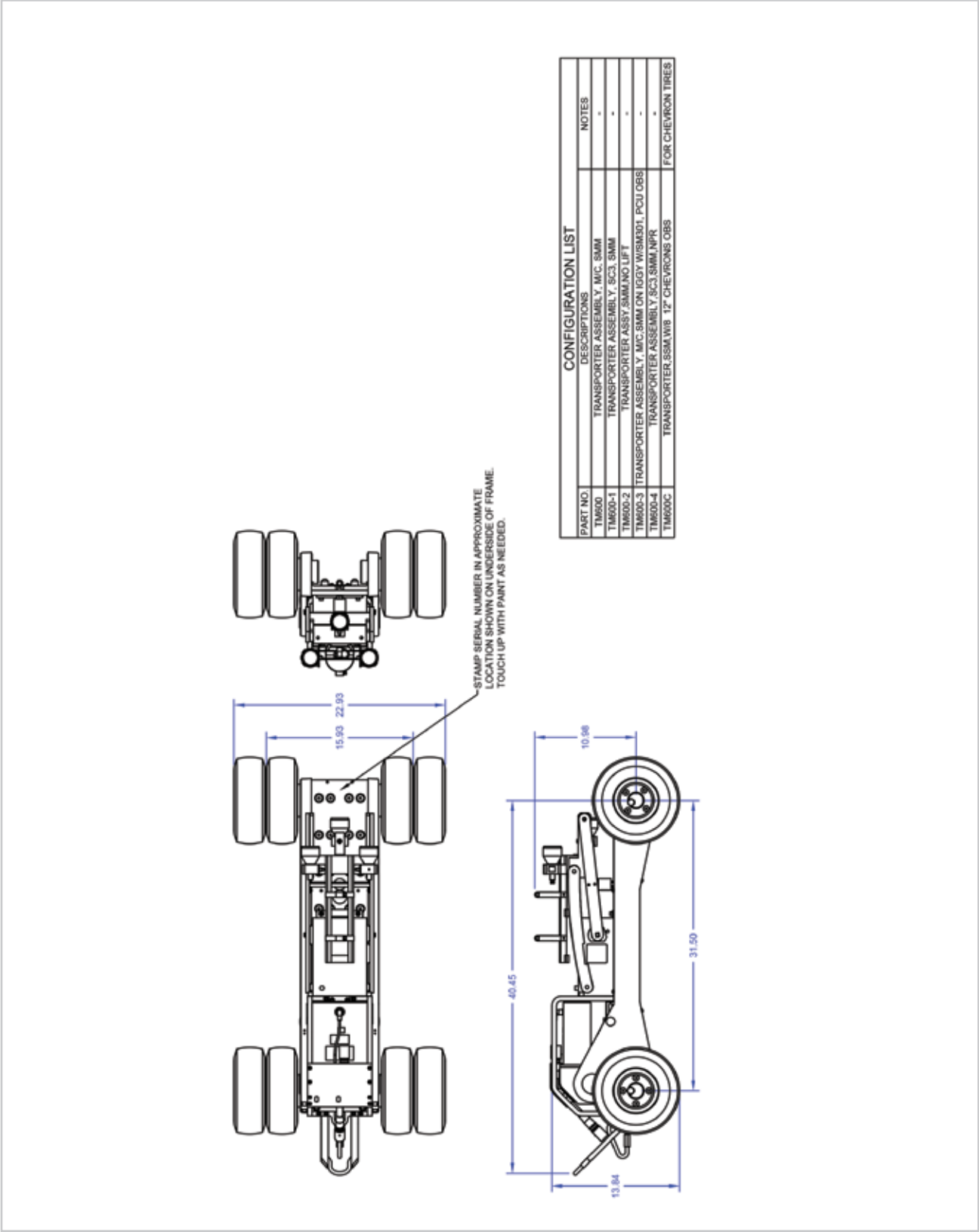
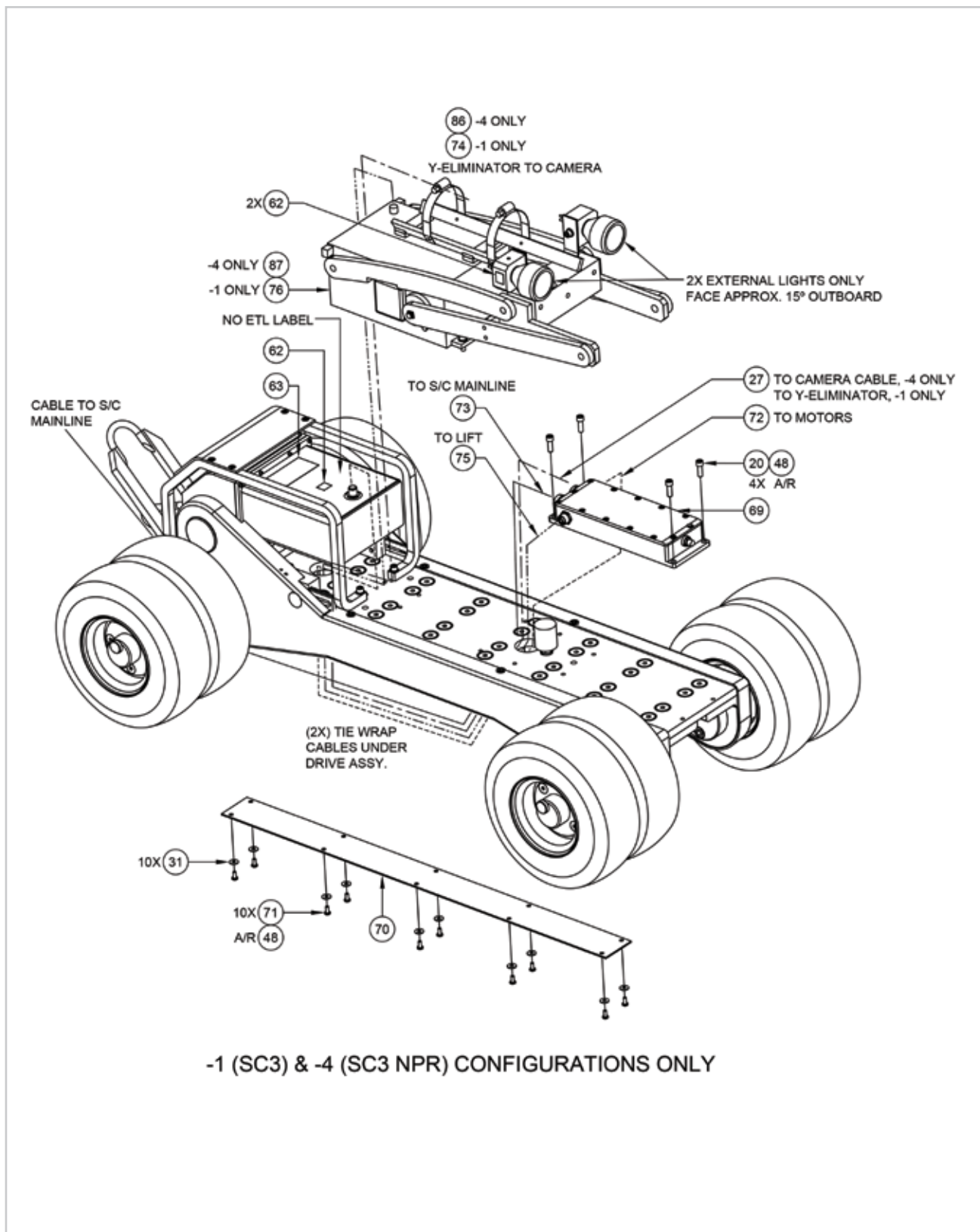


Figure 1a. Steerable Mudmaster Transporter, TM600





**Figure 1c.** Steerable Mudmaster Transporter, TM600



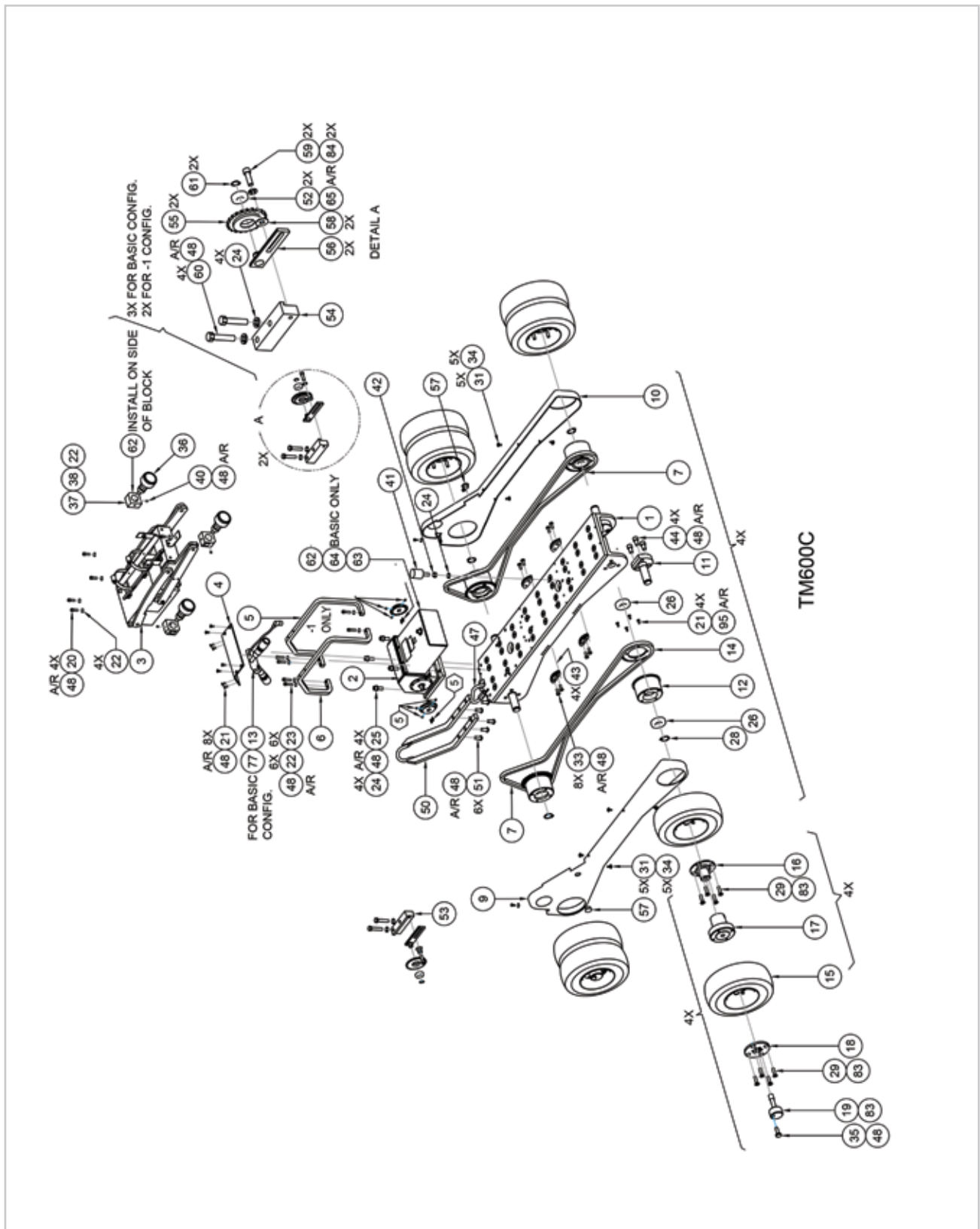


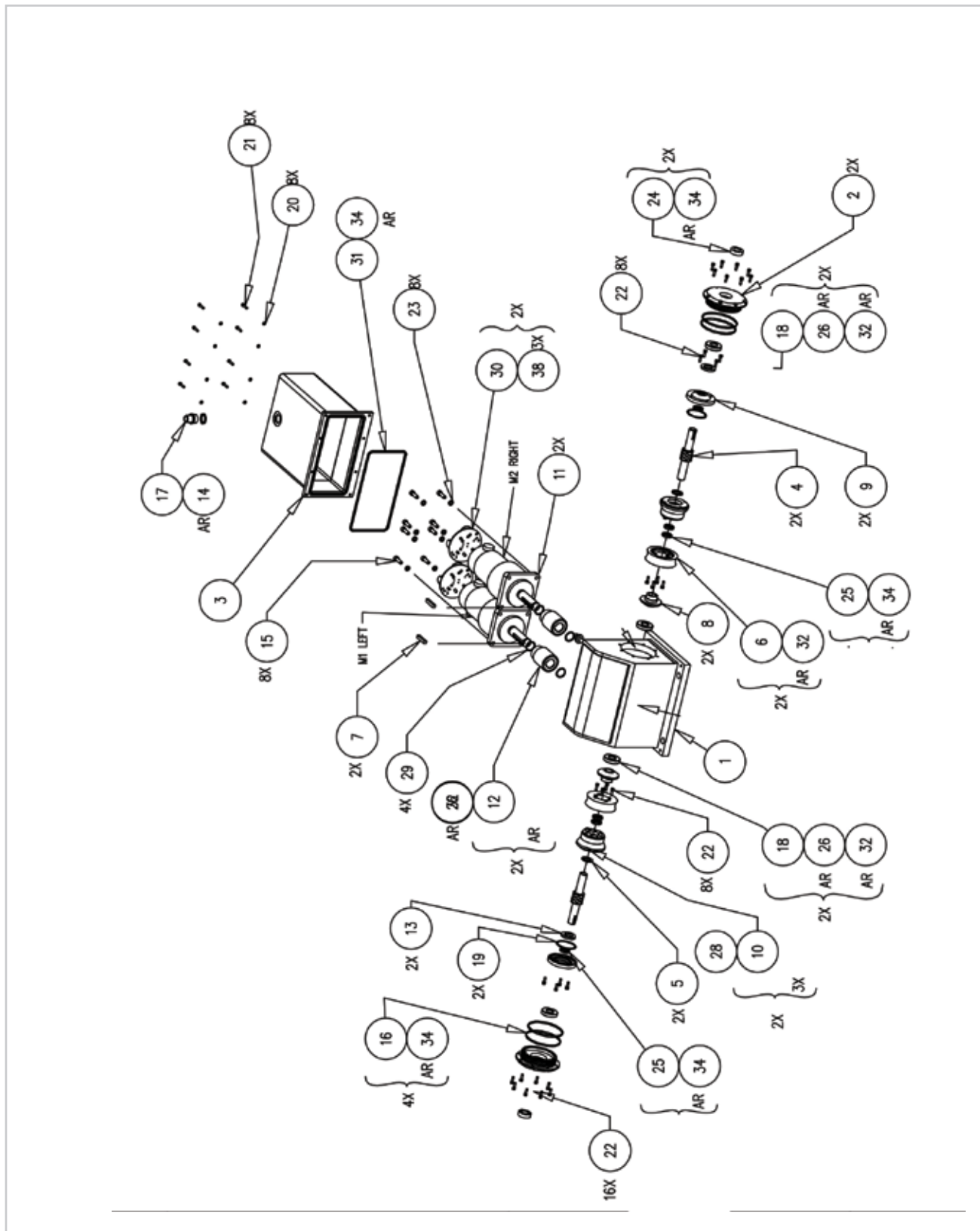
Figure 1d. Steerable Mudmaster Transporter, TM600

## STEERABLE MUDMASTER, TM600

Fig#	Description	P/N	Qty
1-	Transporter, Steerable Mudmaster ( <b>See Fig. 1</b> ) Rev. W	TM600	1
0001	FRAME ASSY,STEERABLE MM	TM601	1
0002	TRANSMISSION ASSY,HEX CLUTCH	TM368	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
0009	COVER,CHAIN,RIGHT HAND,STEERABLE MM	TM666	1
0010	COVER,CHAIN,LEFT HAND,STEERABLE MM	TM665	1
0011	AXLE,WHEEL,STEERABLE MM	TM662	4
0012	WHEEL HUB, CHAIN MUDMASTER	TM316	4
0013	CABLE,SMM,12/5/4/3,F/USE W/160626-1	TM356	1
0014	SPROCKET,MODIFIED,HUB,WHEEL	TM305	4
0015	TIRE ASSY,KNOBBY,SMM	WT313-1	8
0016	WHEEL,INNER,OUTER HUB F/KNOBBY	TM014	4
0017	WHEEL,OUTER,INNER HUB	TM011	4
0018	OUTER STEEL CLAMP PLATE	TM010	4
0019	KNURLED NUT,OUTER WHL,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	FLHD,HEX-SOC,5/16-18X 1.25 SST	HW020	32
0031	WASHER,FLAT,#8 SST	100139	10
0033	SCREW,PAN,1/4-20X3/4	101058	8
0034	SCREW,CAP,SKT HD,8-32X1/2,W/NYLO,SS	101620	10
0035	PLUNGER,SPRING,KNURLED KNOB,RETRAC.	HW522	4
0036	CARTRIDGE,LIGHT,HPL 10+,LED,15°BEAM	750142-15	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	11
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

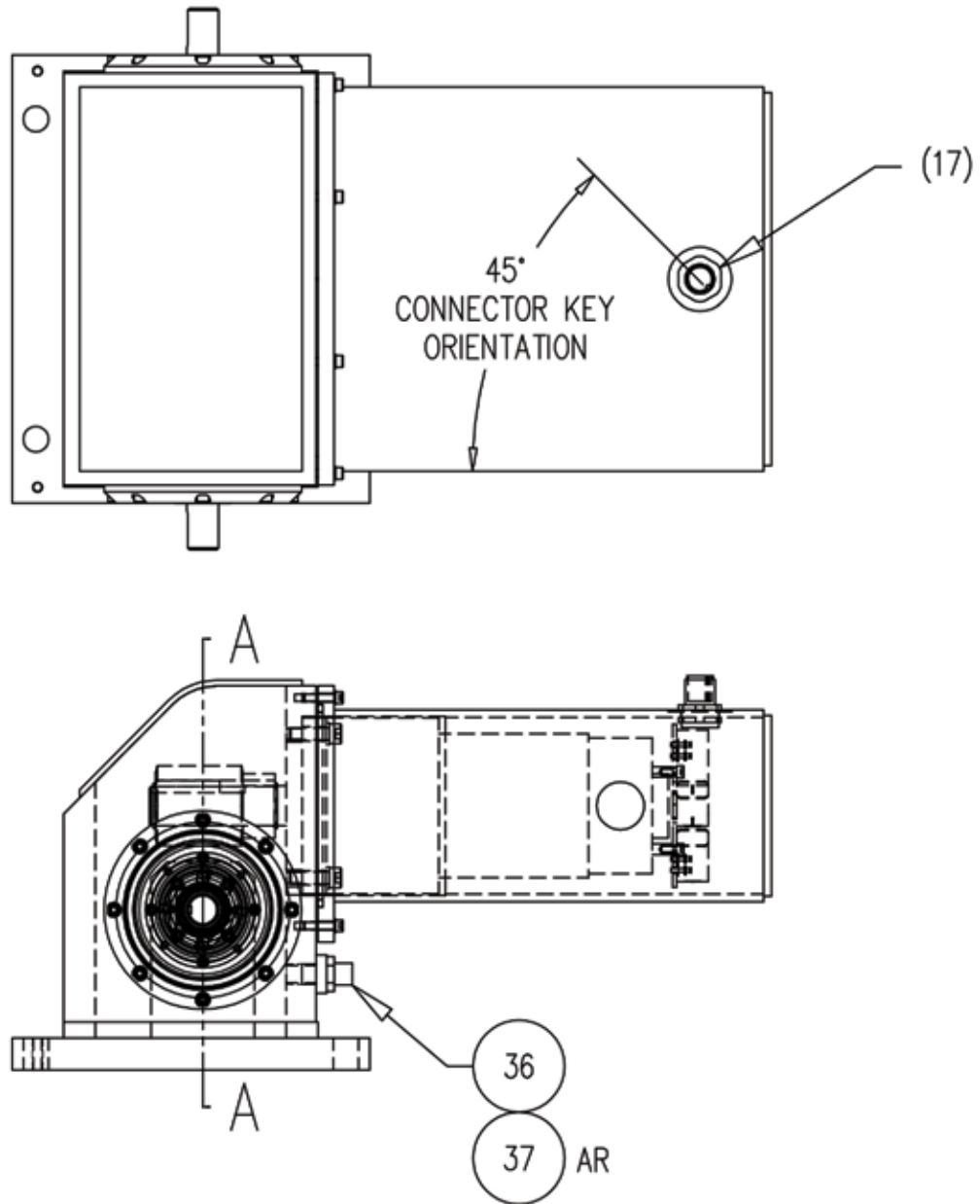
## STEERABLE MUDMASTER, TM600

Fig#	Description	P/N	Qty
1-	Transporter, Steerable Mudmaster ( <b>See Fig. 1</b> ) Rev. W	TM600	1
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 121200-2,BLUE	CS036	1
0050	BRACKET,CRANE,LIFTING	TM693	1
0051	SCREW,BUTTONHD,HEXSOC,3/8-16X7/8,SS	HW393	6
0052	BEARING,SEALED.5B X 1.125ODX.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"	097501	2
0062	LABEL,LASERTAB MARKER, .560 X .560	CS222	3
0063	LABEL,THERMAL XFR,3.00"W X 2.00"H	CS223	1
0064	LABEL,ETL MARK,2" X 1"	CS224	1
0065	MRO-RET.COMP,.015GP,ND541200-50,GRN	CS092	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
0095	MRO-PERMANENT LOCK,ND 140500-50,RED	440060	1



**Figure 2a.** Transmission Assembly, Steerable Mudmaster, TM661





**Figure 2b.** Transmission Assembly, Steerable Mudmaster, TM661

# 5

## STEERABLE MUDMASTER, TM600

Fig#	Description	P/N	Qty
2-	Transmission Assembly, SMM ( <i>See Fig. 2</i> ) Rev. S	TM661	1
	0001 DRIVE BOX,STEERABLE MM	TM651	1
	0002 COVER,SIDE,XMSM,STEERABLE MM	TM652	2
	0003 BOX,MOTOR COVER,STEERABLE MM	TM654	1
	0004 SHAFT,CLUTCH,XMSN,STEERABLE MM	TM656	2
	0005 BEARING,THRUST,BRONZ,.502X.753X1/16	HW321	2
	0006 WORM GEAR MOD,DRIVEBOX,STRBLE MM	TM657	2
	0007 KEY,SQUARE,3/16X1"LG	TM658	2
	0008 SPACER,SHAFT,DRIVE,STEERABLE MM	TM673	2
	0009 COVER,CLUTCH,F/N/R	MC243	2
	0010 RACE,BALL TRIPLE,CLUTCH,F/N/R	MC244	2
	0011 GEARMOTOR, 140 VDC, 28:93:1	TM181	2
	0012 WORM,MODIFIED,KEYED QUAD THREAD	TM680	2
	0013 BEARING,.502IDX1.004 ODX1/8THK	HW905	2
	0014 MRO-SEALANT,POURABLE TRANSLUCENT	445066	1
	0015 SCREW,CAP,SOC HEAD,10-32X5/8,SST	HW134	8
	0016 O-RING,2-036,2.5BORE X.07W,BUNA	HW361	4
	0017 RECEPTACLE,MICRO,4PIN-M,PANEL MNT	EL733	1
	0018 BEARING,BALL,1/2 ID X 1-1/8 OD X1/4	300284	4
	0019 O-RING,2-026 BUNA	HW903	2
	0020 WASHER,SPLIT #4 SST	100170	8
	0021 SCREW,CAP,SKT HD,4-40X1/2,SST	105061	8
	0022 SCREW,CAP,SKT HD,4-40X3/8,SST	100054	32
	0023 WASHER,SPLIT LOCK,#10 SST	101739	8
	0024 SEAL,OIL,.5ID X.875 OD X.252THK	130305	2
	0025 SEAL,OIL,.500DIA X.685 BORE,.093	050681	6
	0026 MRO-RET.COMP,.015GP,ND541200-50,GRN	CS092	1
	0028 BALL,BEARING,3/16DIA,TUNGSTEN CARBI	HW1052	6
	0029 RING,RETAINING,SPIRAL,5/8D,SST	HW339	4
	0030 PCB ASSY,MOTOR FILTER,TRANSPORTER	TL400	2
	0031 O-RING,5.487"IDX.103"W,40DURO,BUNA	HW271	1
	0032 MRO-GREASE,MOBIL 1 SYNTHETIC	CS419	1
	0034 MRO-LUBRICANT,O-RING 2 OZ TUBE	439986	1
	0035 MRO-REMOVABLE LCK,ND 121200-50,BLUE	440061	1
	0036 VALVE,PURGE,P&T	CP063	1
	0037 MRO-SEAL.HGH PRESS,ND 440400-50,BRN	445091	1
	0038 SCREW,CAP,SKT HD,4-40X1/4,W/NYLOK	712389	6

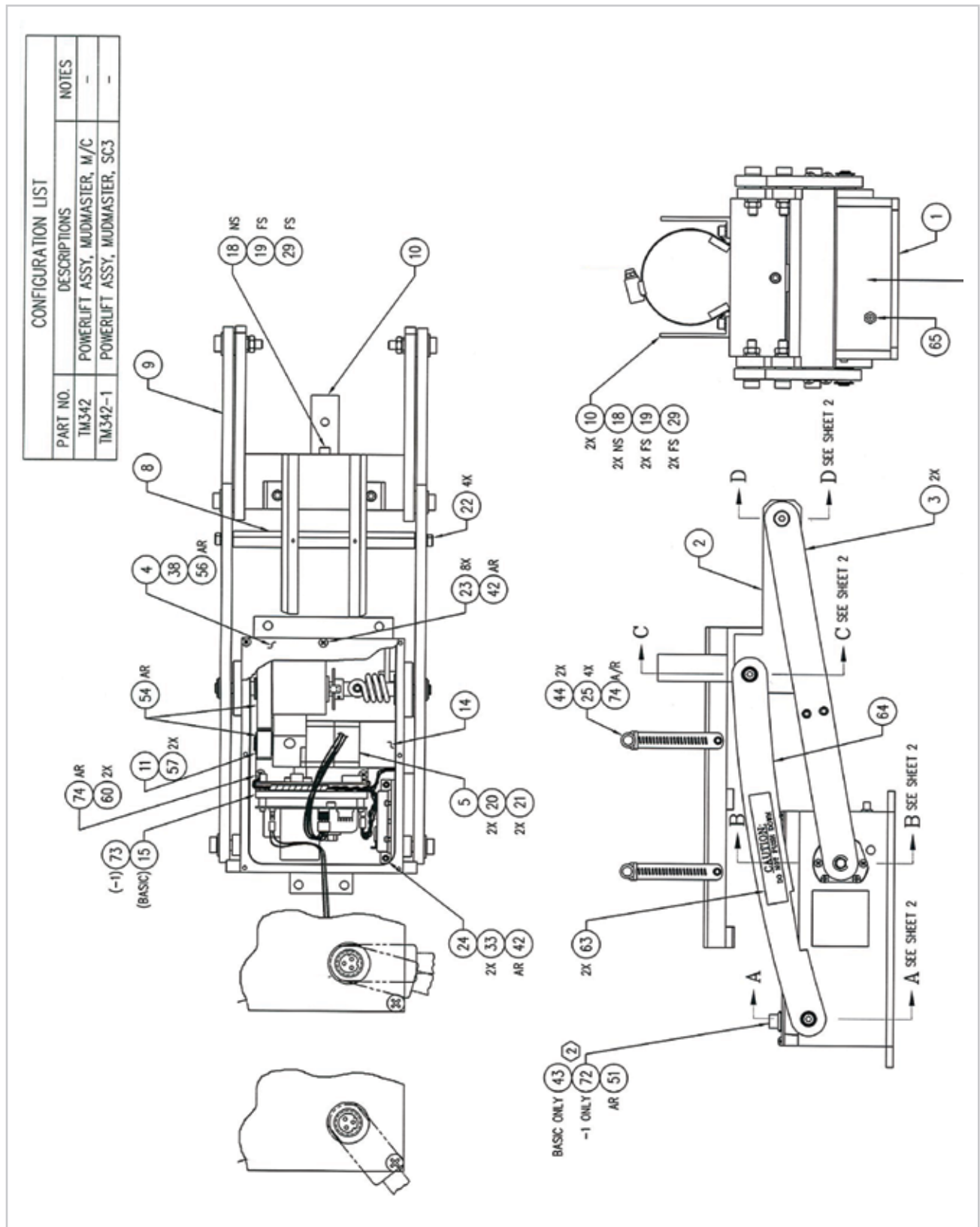
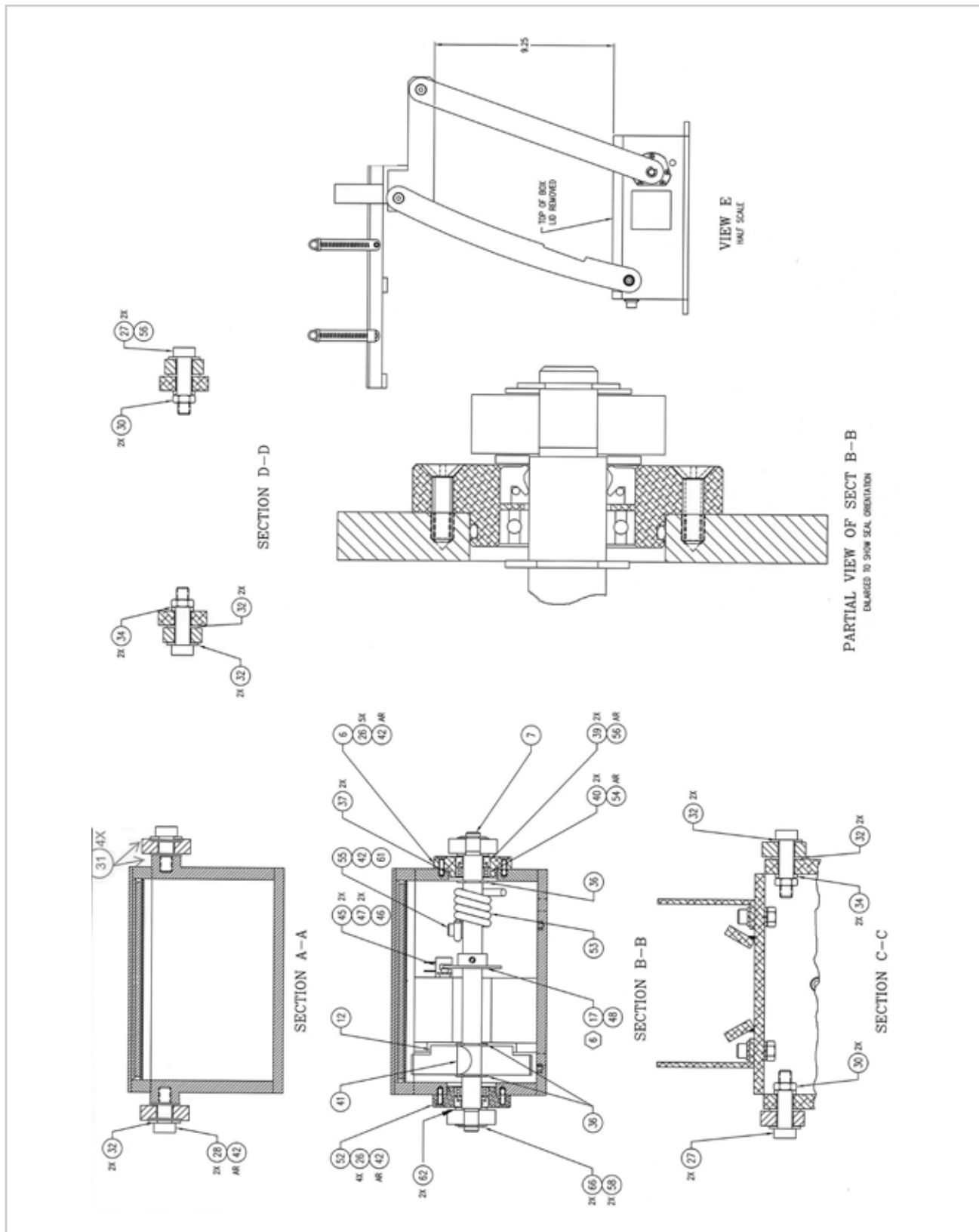


Figure 3. Powerlift Assembly, TM342



**Figure 3. Powerlift Assembly, TM342**

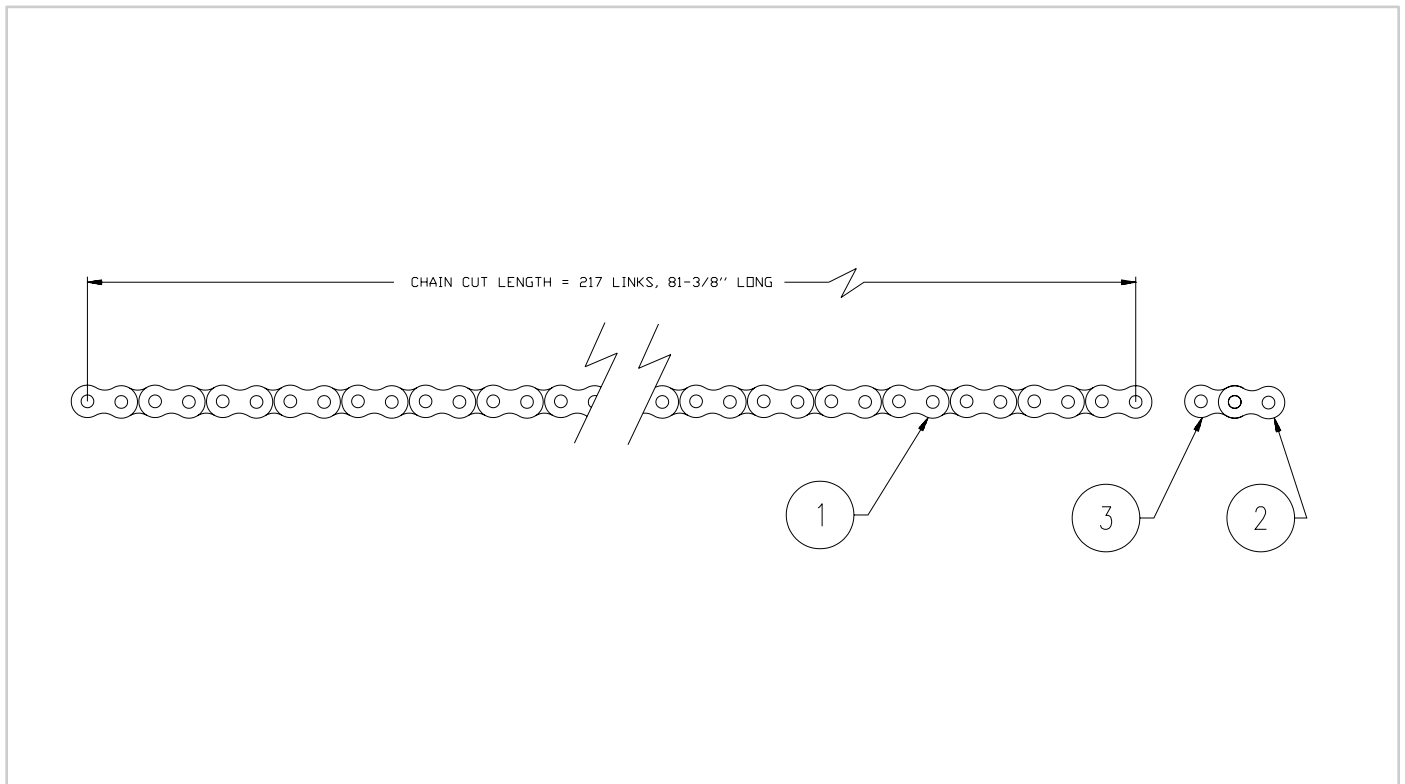


## STEERABLE MUDMASTER, TM600

Fig#	Description	P/N	Qty
3-	Powerlift Assembly, SMM ( <b>See Fig. 3</b> ) Rev. J	TM342	1
0001	BOX,POWERLIFT,MM	TM146	1
0002	CRADLE WELDMENT,POWERLIFT	TM102	1
0003	LINK,CONNECTING,FWD	TM103	2
0004	LID,LIFTBOX,MUDMASTER	TM148	1
0005	GEARHEAD,70:1,PLANETARY,MM LIFT	TM144	1
0006	CAP,BEARING/SEAL,MM LIFT	TM152	1
0007	SHAFT,GEAR/LINK DRIVE	TM107	1
0008	CROSS-BAR,CONNECTING LINK	TM108	1
0009	LINK,CONNECTING,AFT	TM109	1
0010	BRACKET,LIGHT CART.MOUNTING	TM110	3
0011	GEAR MOD.,PINION	TM111	1
0012	GEAR MOD.,SHAFT	TM112	1
0014	MOTOR,STEPPER,NEMA 17TYPE,MM LIFT	TM145	1
0015	DRIVER ASSY,STEPPING MOTOR	TM126	1
0017	CAM, OPTICAL SENSOR MM POWERLIFT	TM131	1
0018	SCREW,CAP,SKT HD,1/4-20X3/4,SST	101022	3
0019	WASHER,SPLIT LOCK,1/4"SST	101740	3
0020	SCREW,CAP,SKT HD,#10-32X.88LG SST	101129	2
0021	WASHER,SPLIT LOCK,#10 SST	101739	2
0022	SCREW,PAN,10-32X5/8 SST	100108	4
0023	SCREW,PAN,8-32X3/8 PHIL SST	103065	8
0024	VICOR ASSY,MM POWERLIFT	TM137	1
0025	SCREW,CAP,SKT HD,8-32X1/4,SST	100142	4
0026	SCREW,FLHD,CROSS-REC,4-40X1/2,SST	HW828	9
0027	SCREW,SHLDR 5/16-18,3/8X1,SS	HW823	4
0028	SCREW,SHLDR,5/16-18-.375 DIA X.500	HW106	2
0029	NUT,HEX,SST,1/4-20	101040	3
0030	NUT,HEX,SST,5/16-18	101140	4
0031	WASHER,TEFLON,.380IDX.812ODX.031THK	HW606	4
0032	SPACER,3/8 X 13/16 X 1/16 SST	HW834	10
0033	SCREW,CAP,SKT HD,6-32X1/4,SST	103060	2
0034	SPACER,3/8X9/16X3/32THK SST	HW832	4
0036	RING,RETAINING,.396 ID X .046 THK	HW830	3
0037	O-RING,2-024,BUNA	132216	2
0038	O-RING,2-169,BUNA	HW866	1
0039	SEAL,OIL,.5ID X.875 OD X.252THK	130305	2

## STEERABLE MUDMASTER, TM600

Fig#	Description	P/N	Qty
3-	Powerlift Assembly, SMM ( <b>See Fig. 3</b> ) Rev. J	TM342	1
0040	BEARING,BALL 1/2 IDX7/8OD X.218THK	HW825	2
0041	KEY,WOODRUFF,#406	HW836	1
0042	MRO-REMOVABLE LCK,ND 121200-2,BLUE	CS036	1
0043	CONNECTOR,BULKHEAD,3-PIN,M,1/4"NPT	EC501	1
0044	CLAMP,WORM(MOD),F/TRANSPORTER	MC210	2
0045	SCREW,CAP,SOC HD 4-40X1/4 SST	103089	2
0046	SWITCH,OPTICAL SENSOR,SLOTTED	EL375	1
0047	WASHER,FLAT,#4 SST(RED OD .209)	101737	2
0048	SCREW,SET,4-40X1/8 SST	100050	1
0049	CONNECTOR,CENTERLINE,2 POS	MT139	1
0050	CONNECTOR,CENTERLINE,4 POS.	MT141	1
0051	MRO-SEALANT,POURABLE TRANSLUCENT	445066	1
0052	CAP,BEARING/SEAL,MM,SETINGE	TM151	1
0053	SPRING,MM LIFT	TM135	1
0054	MRO-GREASE,HEAVY DUTY REDMAN	440030	1
0055	SCREW,CAPSKT,10-32X.75,SCS BLK	HW925	1
0056	LUBE,ORING, SUPER O LUBE, 2 OZ TUBE	439986	1
0057	RING,RETAINING EXTERNAL 1/2"	097501	2
0058	RING,RETAINING,3/8 EXTERNAL,SST	HW886	2
0059	TUBE,SHRINK,1/16"	712593	1
0060	SCREW,PAN,6-32X3/8 SST	103023	2
0061	WASHER,FLAT,#10 SST	100140	1
0062	SPACER,1/2 IDX15/16ODX1/16THK,SST	HW831	2
0063	LABEL,CAUTION DO NOT FORCE DOWN	TM141	2
0064	LINK,CONNECTING,RT,MM LIFT	TM147	1
0065	VALVE,PURGE,P&T	CP063	1
0066	WASHER,1/2IDX7/8ODX1/32THK,SST	HW267	2
0074	MRO-PERMANENT LOCK,ND 140500-50,RED 440060		1



**Figure 4. Kit, Chain, SMM, TM317**

## STEERABLE MUDMASTER, TM600

Fig#	Description	P/N	Qty
4-	Kit, Chain, SMM ( <b>See Fig. 4</b> ) Rev. B	TM317	1
-1	· Chain, 35R1V, Mudmaster	TM308	6.84'
-2	· Link, Offset, 35-Pitch, Perfet Coat/Aqua	HW421	1
-3	· Master Link, #35, Mudmaster	TM318	1

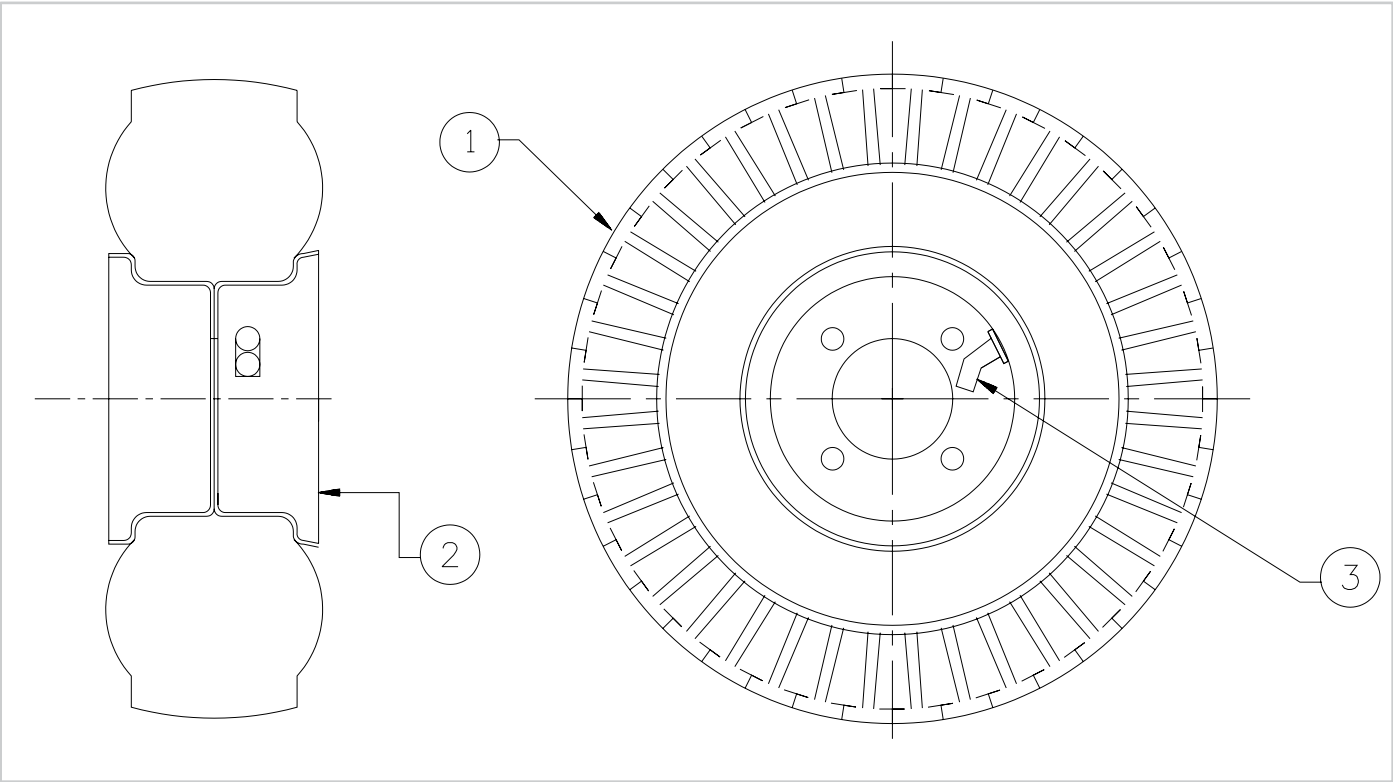


Figure 5. Tire And Wheel Assembly, TM033

STEERABLE MUDMASTER, TM600

Fig#	Description	P/N	Qty
5-	Tire and Wheel Assemblby ( <b>See Fig. 5</b> ) Rev. -	TM033	1
-1	· Tire, Pneumatic	TM034	1
-2	· Rim, Set (2) Modified	TM052	1
-3	· Tube, 10 X 3.5	TM050	1



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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.

## SAFETY PRECAUTIONS

Precautions must always be taken when operating electronic equipment. Exposed wires, damaged equipment, or improper operation can lead to a dangerous situation.

Please take a few minutes and read this entire manual prior to operating the equipment. Follow all safety procedures and thoroughly inspect equipment prior to use each day. This will help the equipment retain it's full value and will reduce the risk of injury, property, and/or equipment damage.



- Read the entire manual before attempting to connect or operate any equipment.
- Connect and disconnect cables only when the electric power is turned OFF.
- Never remove protection covers from the equipment or power generator. Internal repairs should only be done by an authorized CUES technician.
- If using a portable generator, always place it in an open area away from other equipment, manholes or obstructions prior to start-up; do not use a portable generator in an enclosed area.
- Upon receipt of the equipment, check for visible damage. If there is any evidence of rough handling, if damage is found, or if any equipment is missing, please contact the CUES Customer Service at 1-800-327-7791.

## PERSONAL SAFETY EQUIPMENT & TRAINING

CUES stresses the use of appropriate safety equipment while working in and around manholes and during system operation. Safety should constantly remain the utmost priority. NOTE: The user of CUES products is responsible for all training and operation under federal, state and local guidelines and regulations for both confined space entry and traffic control. Recommended safety equipment includes but is not limited to the following:

- Safety goggles
- Work gloves
- Steel-toed boots
- Reflective vests
- Hard hats
- Filter masks (full respirators may be necessary)
- Flashlights
- Safety lines
- Traffic warning signs
- Traffic cones
- Gas detectors
- Ventilation fans

***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 misuse of the products.***

## CUES MATERIAL RETURN POLICY

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 #:
Return For:	Reason:	Territory	Prod. Ref. Cd: 51200
S.O. To Be Credited:			
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.

**MRA #:**  
XXXX

**Return To:**

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

## CUES PARTS & SERVICE

At CUES, we realize your return on investment is directly related to daily production in the field. By stocking the largest inventory of OEM equipment in our industry, CUES strives to ship all parts orders on the same day or within 24 hours after receipt of the order.

Whether you need a camera or a fuse, CUES will quickly process and ship your order in accordance with your schedule requirements! Our experienced parts professionals can help you with parts identification, shipping methods, equipment operation questions, and connect you to the correct specialist for troubleshooting!

CUES offers four convenient stocking locations that contain a large assortment of parts, finished products, portable, and truck mounted systems. Texas, Arizona, Oklahoma and Louisiana customers can be serviced by our local dealerships. Contact us at your most convenient stocking location! For authorized dealer locations, log onto our website at [www.cuesinc.com](http://www.cuesinc.com).

Parts can be ordered via phone or facsimile! For operating hours, contact information, and locations, log onto our website at [www.cuesinc.com](http://www.cuesinc.com). Contact us at your most convenient stocking location! Log onto our website at [www.cuesinc.com](http://www.cuesinc.com) to view the CUES Parts Department & Dealers hours & locations.

**CUES Parts Department:** Parts turnaround is normally within 24 hours after receipt of order. Please note that special shipping arrangements can be made at the time of the order. All return shipments received at CUES freight collect will be refused upon delivery unless previously authorized by CUES personnel. Normal operating hours are 8am to 5pm, EST., Phone: 800-327-7791, Fax: 800-831-1184.

**CUES Service Depot:** Service turnaround is normally 72 hours or less upon receipt at our depot, excluding weekends and holidays. All return shipments received at CUES freight collect will be refused upon delivery unless previously authorized by CUES personnel. Normal operating hours are 8am to 5pm, EST., Phone: 800-327-7791.

**CUES @ Corporate Office**  
3600 Rio Vista Avenue  
Orlando, Florida 32805  
800-327-7791  
407-425-1569 FAX

8am - 6pm EST M-Fri

**CUES @ Atlanta**  
3755 Industrial Ct.  
NW, Suite 14  
Suwannee, GA 30024  
770-945-8674  
770-945-9604 FAX

8am - 5pm EST M-Fri

**CUES West**  
1943 S. Augusta Ct.  
Ontario, CA 91761  
909-923-2001  
909-923-2091 FAX

7<sup>AM</sup> - 6<sup>PM</sup> PST M-Fri

**CUES @ Northern California**  
640 Eubanks Court, Suite C  
Vacaville, CA 95688  
Phone: 866-358-CUES  
Fax: 707-449-0260

8:00<sup>AM</sup> - 5<sup>PM</sup> PST M-Fri

**CUES @ MidWest**  
2325 Parklawn Drive, Suite K  
Waukesha, WI 53186  
Phone:: 262-717-3165  
Fax: 262-717-3167

7AM - 4PM CST M-Fri

**CUES @ Canada**  
1675 Sismet Rd., #2  
Mississauga, Ontario  
Canada L4W 1P9  
905-238-9178  
905-238-5018 FAX

8<sup>AM</sup> - 5<sup>PM</sup> EST M-Fri

**CUES Northwest**  
1000 NW Commerce Ct., Suite B  
Estacada, OR 97023  
Phone: 1.800.432.1549 ext: 403  
Fax: 909-923-2051

## SAFETY PRECAUTIONS

Precautions must always be taken when operating electronic equipment. Exposed wires, damaged equipment, or improper operation can lead to a dangerous situation.

Please take a few minutes and read this entire manual prior to operating the equipment. Follow all safety procedures and thoroughly inspect equipment prior to use each day. This will help the equipment retain it's full value and will reduce the risk of injury, property, and/or equipment damage.



- Read the entire manual before attempting to connect or operate any equipment.
- Connect and disconnect cables only when the electric power is turned OFF.
- Never remove protection covers from the equipment or power generator. Internal repairs should only be done by an authorized CUES technician.
- If using a portable generator, always place it in an open area away from other equipment, manholes or obstructions prior to start-up; do not use a portable generator in an enclosed area.
- Upon receipt of the equipment, check for visible damage. If there is any evidence of rough handling, if damage is found, or if any equipment is missing, please contact the CUES Customer Service at 1-800-327-7791.

## PERSONAL SAFETY EQUIPMENT & TRAINING

CUES stresses the use of appropriate safety equipment while working in and around manholes and during system operation. Safety should constantly remain the utmost priority. NOTE: The user of CUES products is responsible for all training and operation under federal, state and local guidelines and regulations for both confined space entry and traffic control. Recommended safety equipment includes but is not limited to the following:

- Safety goggles
- Work gloves
- Steel-toed boots
- Reflective vests
- Hard hats
- Filter masks (full respirators may be necessary)
- Flashlights
- Safety lines
- Traffic warning signs
- Traffic cones
- Gas detectors
- Ventilation fans

***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 misuse of the products.***

## CUES RECORD OF REVISIONS

This Record of Revision page is designed to allow the manual user to determine the engineering/manufacturing level to which the manual is written. As engineering changes to this hardware are made at CUES, necessary information in the manual will be revised to reflect those changes. The latest change level and the rationale for any change(s) will be explained in tabular format on this page to allow the manual user to be better equipped should the need arise to call CUES regarding technical information.

Original Manual	Revision	Revision Date	Change Description
SMM	Original	110101	Initial release.
	2	040102	Updated manual to current format Incorporated all outstanding revisions in exploded view drawings and BOM's
	3	030103	Added electrical rating and safety information; Incorporated outstanding revisions in exploded view drawings and BOM's
	4	042216	Updated all BOM's and exploded view drawings; Added/updated information for the new controller, P/N TM370
	5	042616	Additional controller calibration instructions added
	6	082020	Updated manual to current branding guidelines and updated all BOM's and drawings to current

Innovation for over

50  
Years

CUES is the world's leading manufacturer of closed circuit television video (CCTV) inspection, rehabilitation, pipe profiling equipment and asset inspection/decision support software. For over 50 years, CUES has provided innovative pipeline inspection technology and solutions to enable accurate condition assessment and proactive maintenance programs for buried infrastructure.

In addition to inspection equipment, CUES also designs, manufactures, and sells a broad range of pipeline rehabilitation and profiling equipment. These include chemical grouting systems for sewer line pipe joints capable of using a wide variety of grouting products. CUES also manufactures lateral reinstatement cutting systems which enable the reinstating of laterals in mainline sewers after they have been relined with any of a wide variety of liner materials. Pipe profiling is accomplished via Laser for Sonar based systems.

CUES has the most locations and dealers available to serve you! To find a local CUES facility, find the operating hours for a particular location, or to contact us at your most convenient stocking location, please log onto our website at [www.cuesinc.com](http://www.cuesinc.com) or call the CUES Corporate Headquarters in Orlando, Florida for more information.