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RAIL

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## SERVICE BULLETIN MAINTENANCE OF WAY EQUIPMENT

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**DATE:** 3-15-2011 **BULLETIN NO:** 11-003

**TITLE:** SOLID STATE RELAY REPLACEMENT

**RATING:**

<input type="checkbox"/>	<b>DIRECTIVE</b> (Action Is Required)	<input type="checkbox"/>	<b>ALERT</b> (Potential Problem)
<input checked="" type="checkbox"/>	<b>INFORMATION</b> (Action Is Optional)	<input type="checkbox"/>	<b>PRODUCT IMPROVEMENT</b> (Enhance Product)

**PRODUCT SERIES / MODEL:** 6700S / 6700SJ Tampers

**SERIAL NO:** 6700S Tampers - All Models  
6700SJ Tampers - 2003 - 2008 Models

**SUMMARY:** Almost from the inception of the Computer Curve Liner, solid state relays have been used to control the mask motors. These relays were used because they were faster reacting than traditional mechanical relays, which was a requirement for controlling the mask. Their speed presented a downside however, in that they were prone to react faster than the circuit breaker could protect it. This frequently resulted in "smoked" relays.

**OPERATIONAL IMPACT:** Conversion Kits are available to replace these solid state relays with a solid state electronic load reversing relay. This new solid state relay has built in short circuit protection and replaces the function of four old solid state relays.

**ACTION:** Harsco Rail Conversion Kit #2014477 is available for 6700S machines and Conversion Kit #2014476 is available for 6700SJ machines.

**CONTACT:** If you have any questions or if we can be of any service, please contact:

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Ludington, MI Facility	Columbia, SC Facility
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<a href="mailto:grussell@harsco.com">grussell@harsco.com</a>	

**SAFETY INFORMATION**

- **FOLLOW APPLICABLE RAILROAD LOCKOUT - TAGOUT PROCEDURE TO REMOVE MACHINE FROM ENERGY SOURCES. FAILURE TO COMPLY COULD RESULT IN SEVERE BODILY INJURY.**

**2014476 CONVERSION KIT INSTALLATION - 6700SJ Tampers 2003 - 2008 Models**  
- See Drawing #2014476 - Sheet 1

**Legend:** SSR = Solid State Relay - Old                                      TB = Terminal Block  
ELR = Electronic Load Relay - New                                      BLK = Black  
MOD = Module

**Step A.** Battery disconnect switch should be in the OFF position.

**Step B.** Disconnect the (+) positive terminal from the battery to ensure there is no live voltage present.

**Step C.** Locate the following wires and disconnect from the old SSR relays. They will be reconnected to the new ELR relays in Step E.

1. Locate wire #710A from TB-2:30 to old SSR-3302:2 and disconnect.
2. Locate wire #000 from TB-2:4 to old SSR-3304:1 and disconnect.
3. Locate wire #903A from TB-2:34 to old SSR-3302:1 and disconnect.
4. Locate wire #906A from TB-2:35 to old SSR-3304:2 and disconnect.
5. Locate wire #915A from TB-2:36 to old SSR-3310:1 and disconnect.
6. Locate wire #918A from TB-2:37 to old SSR-3312:2 and disconnect.
7. Locate wire #3302A from MOD-02-5:01 to old SSR-3302:3 and disconnect.
8. Locate wire #3306A from MOD-02-5:02 to old SSR-3306:3 and disconnect.
9. Locate wire #3308A from MOD-02-5:03 to old SSR-3310:3 and disconnect.
10. Locate wire #3310A from MOD-02-5:04 to old SSR-3314:3 and disconnect.
11. Locate wire #000 from MOD-02-5:0V1 to old SSR-3316:4 and disconnect.

**Step D.**

1. Disconnect any remaining wiring at the old SSR relays and discard.
2. Remove the old SSR relays and discard.
3. Install the new din rail, new ELR relays, and clips as shown in Figure 2.

**2014476 CONVERSION KIT INSTALLATION - 6700SJ Tampers 2003 - 2008 Models**

- See Drawing #2014476 - Sheet 1

**Step E.**

1. Connect existing wire #710A from TB-2:30 to new ELR-3302:+24V.
2. Install new wire #710A (#16 BLK) from TB-2:30 to new ELR-3310:+24V.
3. Connect existing wire #000 from TB-2:4 to new ELR-3302:GND.
4. Install new wire #000 (#16 BLK) from TB-2:4 to ELR-3310:GND.
5. Install new wire #000 (#16 BLK) from ELR-3302:G to new ELR-3310:G.
6. Relabel wire #903A from TB-2:34 as wire #3303A and connect to new ELR-3302:M+.
7. Relabel wire #906A from TB-2:35 as wire #3304A and connect to new ELR-3302:M-.
8. Relabel wire #915A from TB-2:36 as wire #3309A and connect to new ELR-3310:M+.
9. Relabel wire #918A from TB-2:37 as wire #3311A and connect to new ELR-3310:M-.
10. Connect existing wire #3302A from MOD-02-5:01 to new ELR-3302:R.
11. Connect existing wire #3306A from MOD-02-5:02 to new ELR-3302:L.
12. Connect existing wire #3308A from MOD-02-5:03 to new ELR-3310:R.
13. Connect existing wire #3310A from MOD-02-5:04 to new ELR-3310:L.
14. Connect existing wire #000 from MOD-02-5:0V1 to new ELR3310:G.

**Step F.**

1. Replace Schematic Pages 9 and 33 in Parts Book with Drawing #2014476 - Sheets 2 and 3.
2. Place copy of Conversion Kit Prints in Electrical Section of Parts Book.

**Step G.** Re-connect the (+) positive terminal of the battery.**Step H.** Turn the battery disconnect switch to the ON position.**Step I.** Verify all electrical circuits are functional.**2014476 CONVERSION KIT PARTS LIST - See Drawing #2014476 - Sheet 1**

ITEM	PART NO	DESCRIPTION	QTY
	2014476	Conversion Kit . . . . .	1
1	253071-1	Din Mounting Rail - 3" Long . . . . .	1
2	250046-113	Machine Screw - Pan Head, #6-32 x 3/8" . . . . .	2
3	150987-7	Washer - Plain, #6 . . . . .	2
4	150988-5	Washer- Lock, #6 . . . . .	2
5	F023518	End Clip . . . . .	3
6	2013604	Relay - Electronic Load Reversing . . . . .	2
7	2014476-DWG	Hard Copy Of Drawing / Bill Of Material . . . . .	2
8	2014489	Wire Markers - Relay Conversion. . . . .	1

**2014477 CONVERSION KIT INSTALLATION - 6700S Tampers 1996 and Later Models**

- See Drawing #2014477 - Sheet 1

**Legend:** SSR = Solid State Relay - Old  
ELR = Electronic Load Relay - New  
OPTO = Opto-Isolator Module

TB = Terminal Block  
BLK = Black  
CONN = Connector

**Step A.** Battery disconnect switch should be in the OFF position.

**Step B.** Disconnect the (+) positive terminal from the battery to ensure there is no live voltage present.

**Step C.** Locate the following wires and disconnect from the old SSR relays. They will be reconnected to the new ELR relays in Step E.

1. Locate wire #3026A from CONN-15:R to old SSR-3026:3 and disconnect.
2. Locate wire #3029A from CONN-15:S to old SSR-3031:3 and disconnect.
3. Locate wire #301D from TB-2:103 to old SSR-3028:1 and disconnect.
4. Locate wire #2301A from TB-2:85 to old SSR-3026:4 and disconnect.
5. Locate wire #1344A from TB-2:121 to old SSR-3026:2 and disconnect.
6. Locate wire #1353A from TB-2:123 to old SSR-3026:1 and disconnect.
7. Locate wire #1348A from TB-2:122 to old SSR-3031:1 and disconnect.

**Step D.**

1. Disconnect any remaining wiring at the old SSR relays and discard.
2. Remove the old SSR relays and discard.
3. Install the new din rail, new OPTO modules, new ELR relay and clips as shown in Figure 2.

**Step E.**

1. Connect existing wire #3026A from CONN-15:R to new OPTO-3032:3.
2. Connect existing wire #3029A from CONN-15:S to new OPTO-3029:3.
3. Connect existing wire #301D from TB-2:103 to new ELR-3030:G.
4. Install new wire #301D (#16 BLK) from TB-2:103 to new ELR-3030:GND.
5. Connect existing wire #2301A from TB-2:85 to new OPTO-3029:4.
6. Install new wire #2301A (#16 BLK) from TB-2:85 to new OPTO-3032:4.
7. Connect existing wire #1344A from TB-2:121 to new ELR-3030:+24V.
8. Connect existing wire #1353A from TB-2:123 to new ELR-3030:M-.
9. Connect existing wire #1348A from TB-2:122 to new ELR-3030:M+.
10. Install new wire #3002A (#16 BLK) from TB-2:173 to new OPTO-3029:1.
11. Install new wire #3002A (#16 BLK) from TB-2:173 to new OPTO-3032:1.
12. Install new wire #3031A (#16 BLK) from new OPTO-3029:2 to new ELR-3030:R.
13. Install new wire #3034A (#16 BLK) from new OPTO-3032:2 to new ELR-3030:L.

**2014477 CONVERSION KIT INSTALLATION - 6700S Tampers 1996 and Later Models**

- See Drawing #2014477 - Sheet 1

**Step F.**

1. Replace Schematic Page 30 in Parts Book with Drawing #2014477 - Sheet 2.
2. Place copy of Conversion Prints in Electrical Section of Parts Book.

**Step G.** Re-connect the (+) positive terminal of the battery.**Step H.** Turn the battery disconnect switch to the ON position.**Step I.** Verify all electrical circuits are functional.**2014477 CONVERSION KIT PARTS LIST - See Drawing #2014477 - Sheet 1**

ITEM	PART NO	DESCRIPTION	QTY
	2014477	Conversion Kit . . . . .	1
1	253071-1	Din Mounting Rail - 3-5/16" Long . . . . .	1
2	250046-113	Machine Screw - Pan Head, #6-32 x 3/8" . . . . .	2
3	150987-7	Washer - Plain, #6 . . . . .	2
4	150988-5	Washer- Lock, #6 . . . . .	2
5	F023518	End Clip . . . . .	3
6	2014479	Module - Digital I/O . . . . .	2
7	2013604	Relay - Electronic Load Reversing . . . . .	1
8	2014477-DWG	Hard Copy Of Drawing / Bill Of Material . . . . .	2
9	2014489	Wire Markers - Relay Conversion . . . . .	1

**2014477 CONVERSION KIT INSTALLATION - 6700S Tampers Prior To 1996 Models**

- See Drawing #2014477 - Sheet 3

**Legend:** SSR = Solid State Relay - Old  
ELR = Electronic Load Relay - New  
OPTO = Opto-Isolator Module

TB = Terminal Block  
BLK = Black  
CONN = Connector

**Step A.** Battery disconnect switch should be in the OFF position.

**Step B.** Disconnect the (+) positive terminal from the battery to ensure there is no live voltage present.

**Step C.** Locate the following wires and disconnect from the old SSR relays. They will be reconnected to the new ELR relays in Step E.

1. Locate wire #333 from CONN-15:R to old SSR-1:3 and disconnect.
2. Locate wire #334 from CONN-15:S to old SSR-4:3 and disconnect.
3. Locate wire #200 from TB-1 to old SSR-2:1 and disconnect.
4. Locate wire #400 from TB-4 to old SSR-1:4 and disconnect.
5. Locate wire #302 from TB-4 to old SSR-1:2 and disconnect.
6. Locate wire #350 from CONN-11:K to old SSR-1:1 and disconnect.
7. Locate wire #351 from CONN-11:L to old SSR-4:1 and disconnect.

**Step D.**

1. Disconnect any remaining wiring at the old SSR relays and discard.
2. Remove the old SSR relays and discard.
3. Install the new din rail, new OPTO modules, new ELR relay and clips as shown in Figure 2.

**Step E.**

1. Connect existing wire #333 from CONN-15:R to new OPTO-3032:3
2. Connect existing wire #334 from CONN-15:S to new OPTO-3029:3
3. Connect existing wire #200 from TB1 to new ELR-3030:G
4. Install new wire #200 (#16 BLK) from TB1 to new ELR-3030:GND
5. Connect existing wire #400 from TB4 to new OPTO-3029:4
6. Install new wire #400 (#16 BLK) from TB4 to new OPTO-3032:4
7. Connect existing wire #302 from TB4 to new ELR-3030:+24V
8. Connect existing wire #350 from CONN-11:K to new ELR-3030:M-
9. Connect existing wire #351 from CONN-11:L to new ELR-3030:M+
10. Install new wire #203C (#16 BLK) from TB2 to new OPTO-3029:1
11. Install new wire #203C (#16 BLK) from TB2 to new OPTO-3032:1
12. Install new wire #3031A (#16 BLK) from new OPTO-3029:2 to new ELR-3030:R
13. Install new wire #3034A (#16 BLK) from new OPTO-3032:2 to new ELR-3030:L

**2014477 CONVERSION KIT INSTALLATION - 6700S Tampers Prior To 1996 Models**

- See Drawing #2014477 - Sheet 3

**Step F.** Place copy of Conversion Prints in Electrical Section of Parts Book.**Step G.** Re-connect the (+) positive terminal of the battery.**Step H.** Turn the battery disconnect switch to the ON position.**Step I.** Verify all electrical circuits are functional.**2014477 CONVERSION KIT PARTS LIST - See Drawing #2014477 - Sheet 3**

ITEM	PART NO	DESCRIPTION	QTY
	2014477	Conversion Kit . . . . .	1
1	253071-1	Din Mounting Rail - 3-5/16" Long . . . . .	1
2	250046-113	Machine Screw - Pan Head, #6-32 x 3/8" . . . . .	2
3	150987-7	Washer - Plain, #6 . . . . .	2
4	150988-5	Washer- Lock, #6 . . . . .	2
5	F023518	End Clip . . . . .	3
6	2014479	Module - Digital I/O . . . . .	2
7	2013604	Relay - Electronic Load Reversing . . . . .	1
8	2014477-DWG	Hard Copy Of Drawing / Bill Of Material . . . . .	2
9	2014489	Wire Markers - Relay Conversion . . . . .	1

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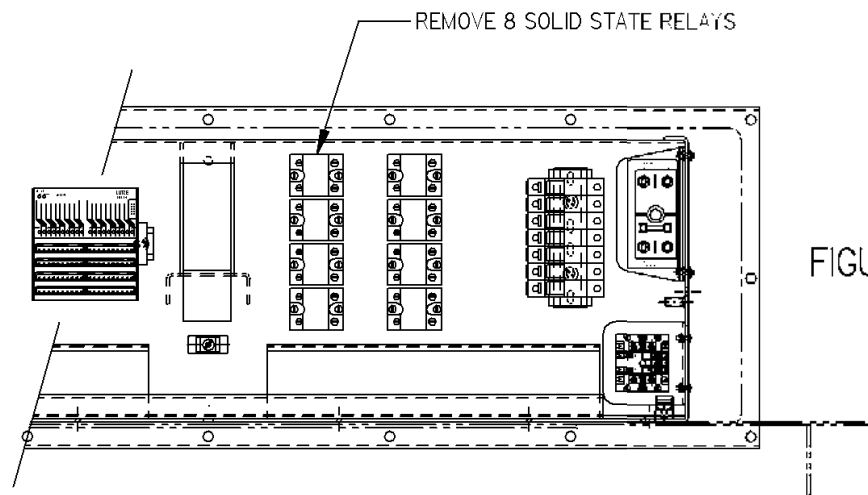
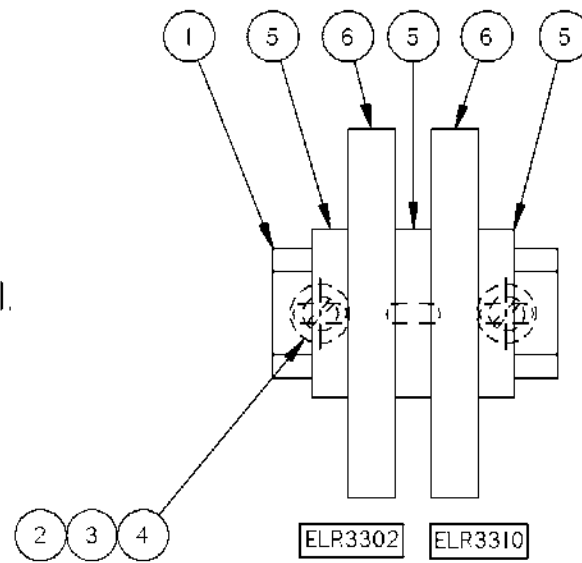


FIGURE 1.



DETAIL "A"  
SCALE: FULL

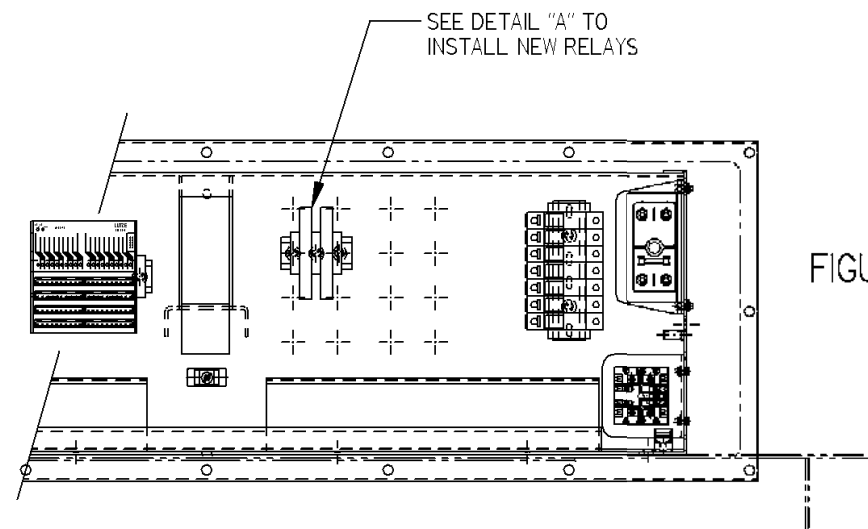
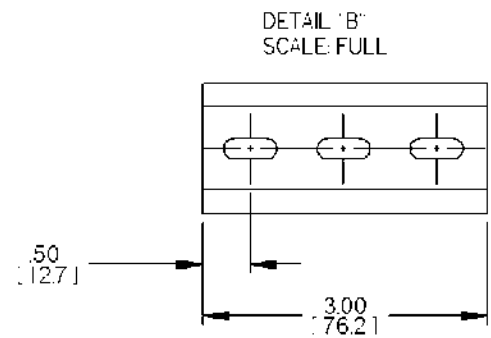
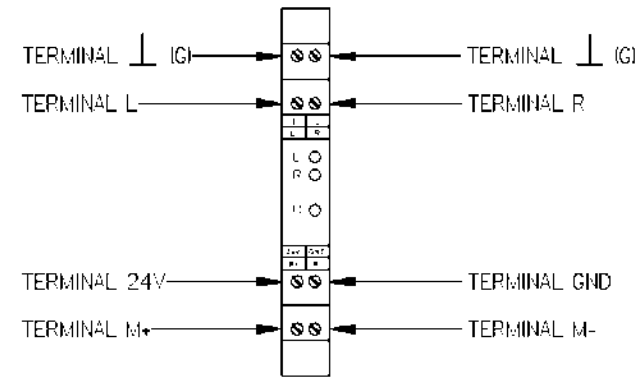


FIGURE 2.



DETAIL "B"  
SCALE: FULL



PEF 6 RELAY

**INSTRUCTIONS:**

**STEP 1.**

LOCATE AND DISCONNECT THE RELAY END OF THESE WIRES. THEY WILL BE RECONNECTED TO THE NEW RELAYS IN STEP 3.

1. LOCATE WIRE 710A FROM TB2:30 TO OLD RELAY SSR3302:2
2. LOCATE WIRE 000 FROM TB2:4 TO OLD RELAY SSR3304:1
3. LOCATE WIRE 903A FROM TB2:34 TO OLD RELAY SSR3302:1
4. LOCATE WIRE 906A FROM TB2:35 TO OLD RELAY SSR3304:2
5. LOCATE WIRE 915A FROM TB2:36 TO OLD RELAY SSR3310:1
6. LOCATE WIRE 918A FROM TB2:37 TO OLD RELAY SSR3312:2
7. LOCATE WIRE 3302A FROM MOD:02-5:01 TO OLD RELAY SSR3302:3
8. LOCATE WIRE 3306A FROM MOD:02-5:02 TO OLD RELAY SSR3306:3
9. LOCATE WIRE 3308A FROM MOD:02-5:03 TO OLD RELAY SSR3310:3
10. LOCATE WIRE 3310A FROM MOD:02-5:04 TO OLD RELAY SSR3314:3
11. LOCATE WIRE 000 FROM MOD:02-5:0V1 TO OLD RELAY SSR3316:4

**STEP 2.**

1. DISCONNECT REMAINING WIRING AT RELAYS AND DISCARD.
2. REMOVE RELAYS AND DISCARD.
3. INSTALL NEW DIN RAIL, RELAYS, AND CLIPS AS SHOWN IN FIG. 2.

**STEP 3.**

1. TERMINATE EXISTING 710A FROM TB2:30 TO ELR3302:+24V
2. INSTALL NEW 710A #16 BLK FROM TB2:30 TO ELR3310:+24V
3. TERMINATE EXISTING 000 FROM TB2:4 TO ELR3302:GND
4. INSTALL NEW 000 #16 BLK FROM TB2:4 TO ELR3310:GND
5. INSTALL NEW 000 #16 BLK FROM ELR3302:G TO ELR3310:G
6. RELABEL WIRE 903A FROM TB2:34 AS WIRE 3303A TERMINATE AT ELR3302:M+
7. RELABEL WIRE 906A FROM TB2:35 AS WIRE 3304A TERMINATE AT ELR3302:M-
8. RELABEL WIRE 915A FROM TB2:36 AS WIRE 3309A TERMINATE AT ELR3310:M+
9. RELABEL WIRE 918A FROM TB2:37 AS WIRE 3311A TERMINATE AT ELR3310:M-
10. TERMINATE EXISTING WIRE 3302A FROM MOD:02-5:01 TO ELR3302:R
11. TERMINATE EXISTING WIRE 3306A FROM MOD:02-5:02 TO ELR3302:L
12. TERMINATE EXISTING WIRE 3308A FROM MOD:02-5:03 TO ELR3310:R
13. TERMINATE EXISTING WIRE 3310A FROM MOD:02-5:04 TO ELR3310:L
14. TERMINATE EXISTING WIRE 000 FROM MOD:02-5:0V1 TO ELR3310:G

**STEP 4.**

1. REPLACE SCHEMATIC PAGES 9 & 33 IN PARTS BOOK.
2. PLACE COPY OF CONVERSION PRINTS IN ELECTRICAL SECTION OF PARTS BOOK.

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NO.	DATE	DESCRIPTION																		
1	12/1/89	RELEASE																		
2	12/1/89	REVISED																		
<p>HARSOCO</p> <p>Lucenton, NC</p>						<p>2014476</p>														

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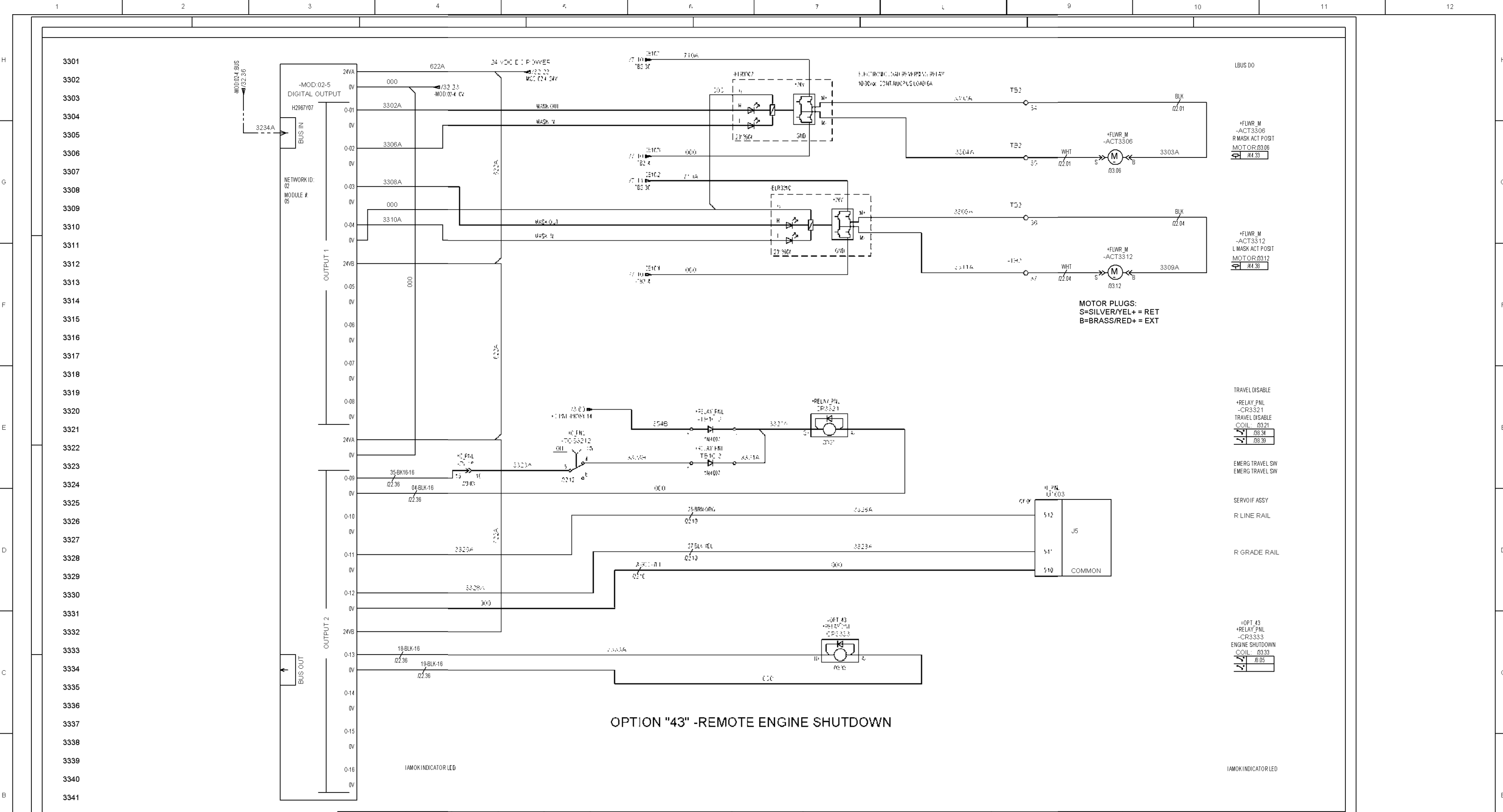
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CHANGE #	DATE	APP. PRV.	DIFF. DATE	BY	H.L.A. - INSTALLATION	SYSTEM POOL:	DRAWING TITLE:	SHEET NUMBER	SCALE:	HARSCO TRACK TECHNOLOGIES		
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DRAWN:	DATE:	LATE	DATE	DATE	LOCATION:	DRAWING FILE:	MODEL:	TOTAL # OF SHTS:	NO. JUPITER SHTS	PART NO.:	DOCUMENT# & R/L:	
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REV.	DATE	DESCRIPTION												
1	12MAY09	CONV-MASK MOTOR RELAYS, JUP												
2	12JUN09	REVISION												
<p>Model: 6700</p> <p>Drawn: adoucette</p> <p>Scale: 1:1</p> <p>Sheet: 2 of 3</p>		<p>Part Number: 2014476</p>	<p>Weight: Error: No reference</p>	<p>Material: 2014476</p>	<p>2 of 3</p>									



OPTION "43" -REMOTE ENGINE SHUTDOWN

CHANGE #	DATE	APP. ENR.	CHK. ENR.	CHECKED	H.L.A. - INSTALLATION	SYSTEM POOL:	DRAWING TITLE:	SHEET NUMBER	SCALE:	HARSCO TRACK TECHNOLOGIES		
					ENC1	2014005A	JUPITER L-BUS	33	D	200 S. Jackson Rd. Ludington, MI 49431 (231) 840-3431		
DRAWN	DATE	L.A.T.E.	DATE	DATE	LOCATION:	DRAWING FILE:	MOD 5 DIGITAL OUTPUT	TOTAL # OF SHTS	NO. JUPITER SHTS	PART NO.:	DOCUMENT# & R/L:	
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REV.	DATE	DESCRIPTION
1	12MAY09	CONV-MASK MOTOR RELAYS, JUP
2	12JUN09	REVISED

**HARSCO**  
Ludington, MI

2014476 3 of 3

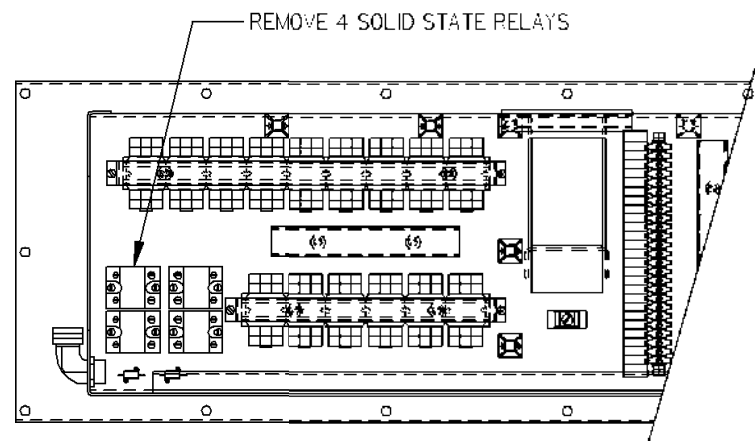
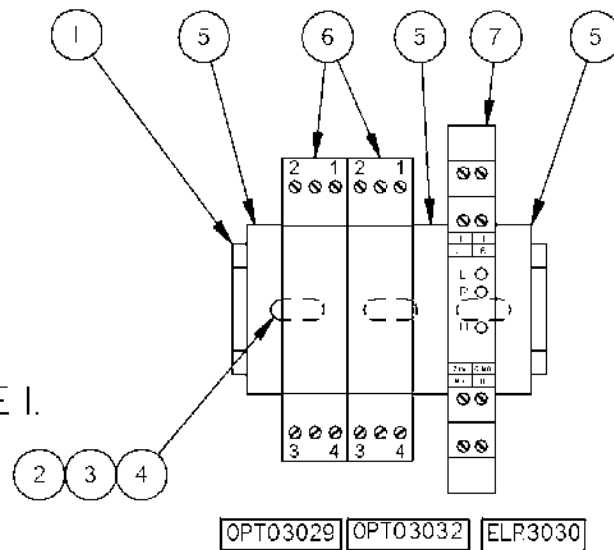


FIGURE 1.



DETAIL 'A'  
SCALE: FULL

DETAIL 'B'  
SCALE: FULL

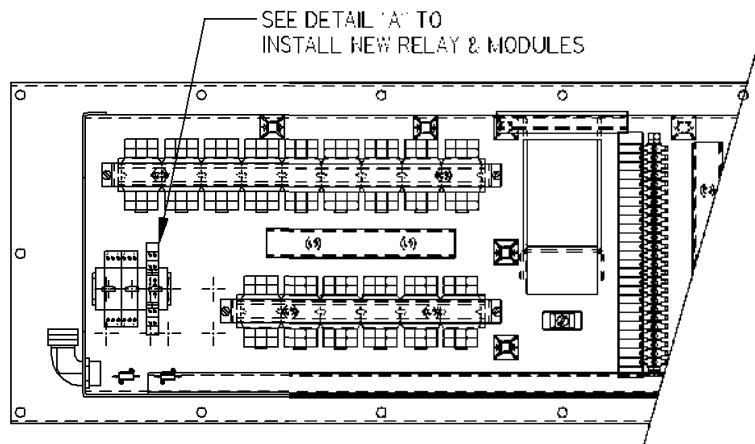
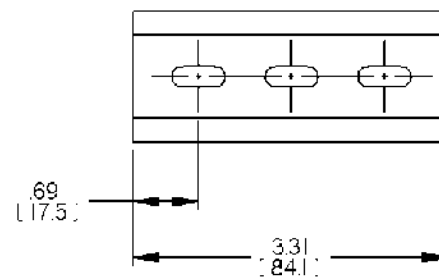
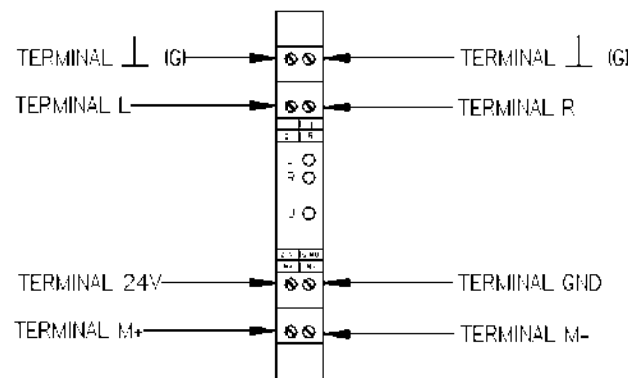


FIGURE 2.



TERMINAL 1- (+) OUTPUT  
TERMINAL 2- (-) OUTPUT  
TERMINAL 3- (+) INPUT  
TERMINAL 4- (-) INPUT

REF 6 MODULE



REF 7 RELAY

**STEP 1.**

LOCATE AND DISCONNECT THE RELAY END OF THESE WIRES. THEY WILL BE RECONNECTED TO THE NEW RELAYS IN STEP 3.

1. LOCATE WIRE 3026A FROM CONN15:R TO OLD RELAY SSR3026:3
2. LOCATE WIRE 3029A FROM CONN15:S TO OLD RELAY SSR3031:3
3. LOCATE WIRE 301D FROM TB2:103 TO OLD RELAY SSR3028:1
4. LOCATE WIRE 2301A FROM TB2:85 TO OLD RELAY SSR3026:4
5. LOCATE WIRE 1344A FROM TB2:121 TO OLD RELAY SSR3026:2
6. LOCATE WIRE 1353A FROM TB2:123 TO OLD RELAY SSR3026:1
7. LOCATE WIRE 1348A FROM TB2:122 TO OLD RELAY SSR3031:1

**STEP 2.**

1. DISCONNECT REMAINING WIRING AT RELAYS AND DISCARD.
2. REMOVE RELAYS AND DISCARD.
3. INSTALL NEW DIN RAIL, RELAYS, AND CLIPS AS SHOWN IN FIG. 2.

**STEP 3.**

1. TERMINATE EXISTING 3026A FROM CONN15:R TO OPTO3032:3
2. TERMINATE EXISTING 3029A FROM CONN15:S TO OPTO3029:3
3. TERMINATE EXISTING 301D FROM TB2:103 TO ELR3030:G
4. INSTALL NEW 301D #16 BLK FROM TB2:103 TO ELR3030:GND
5. TERMINATE EXISTING 2301A FROM TB2:85 TO OPTO3029:4
6. INSTALL NEW 2301A #16 BLK FROM TB2:85 TO OPTO3032:4
7. TERMINATE EXISTING 1344A FROM TB2:121 TO ELR3030:+24V
8. TERMINATE EXISTING 1353A FROM TB2:123 TO ELR3030:M-
9. TERMINATE EXISTING 1348A FROM TB2:122 TO ELR3030:M+
10. INSTALL NEW 3002A #16 BLK FROM TB2:173 TO OPTO3029:1
11. INSTALL NEW 3002A #16 BLK FROM TB2:173 TO OPTO3032:1
12. INSTALL NEW 3031A #16 BLK FROM OPTO3029:2 TO ELR3030:R
13. INSTALL NEW 3034A #16 BLK FROM OPTO3032:2 TO ELR3030:L

**STEP 4.**

1. REPLACE SCHEMATIC PAGE 30 IN PARTS BOOK WITH NEXT PAGE.
2. PLACE COPY OF CONVERSION PRINTS IN ELECTRICAL SECTION OF PARTS BOOK.

**SHEETS 1 & 2 ARE FOR MACHINES BUILT 1996 AND LATER**

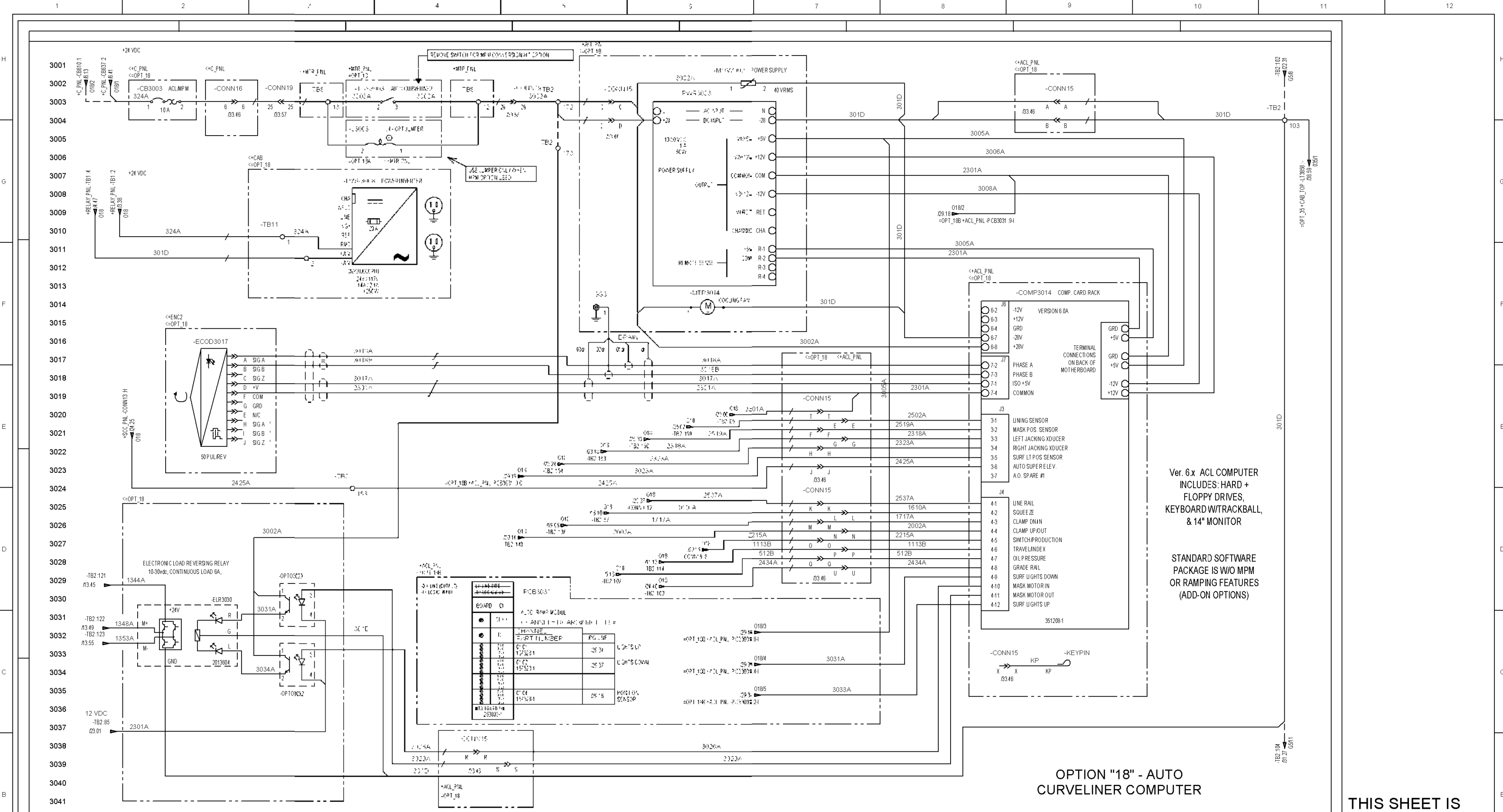
**SHEET 3 IS FOR MACHINES BUILT PRIOR TO 1996**

UNION IDENTICAL		REVISION		DATE	BY	CHKD	APP'D	REVISED
1	1	1	1	14MAY09				CONVERSION-MASK MOTOR RELAYS
2	2	2	2					
3	3	3	3					
4	4	4	4					
5	5	5	5					
6	6	6	6					
7	7	7	7					
8	8	8	8					
9	9	9	9					
10	10	10	10					
11	11	11	11					
12	12	12	12					

**HARSCO**  
Ludington, MI  
2014477 1 of 3

Inch [mm]

SOLID EDGE DRAWING



Ver. 6x ACL COMPUTER  
INCLUDES: HARD +  
FLOPPY DRIVES,  
KEYBOARD W/TRACKBALL,  
& 14" MONITOR

STANDARD SOFTWARE  
PACKAGE IS W/O MPM  
OR RAMPING FEATURES  
(ADD-ON OPTIONS)

**OPTION "18" - AUTO  
CURVELINER COMPUTER**

**THIS SHEET IS  
FOR MACHINES  
BUILT 1996 AND  
LATER**

CHANGE #	DATE	APPROV	DESCRIPTION	PROJECT	H.L.A. - INSTALLATION	SYSTEM POOL:	DRAWING TITLE:	SHEET NUMBER	SCALE:	HARSCO TRACK TECHNOLOGIES		
BAD	04/02/2008				#ENC1	2012306B	AUTO CURVE LINER COMPUTER PANEL	30	D	NO. JUPITER SHTS	PART NO.:	DOCUMENT# & R/L:
						1010549B	MODEL: 6716S, 6717S, & 6718S-STK	43	0	2012306	1010549	

SOLID EDGE DRAWING

**CONFIDENTIAL**

ALL DIMENSIONS ARE IN INCHES - TOLERANCE UNLESS OTHERWISE SPECIFIED

INCH	METRIC
OVER TO	OVER TO
0.005	0.127
0.010	0.254
0.015	0.381
0.030	0.762
0.060	1.524
0.125	3.175
0.250	6.350
0.500	12.700
1.000	25.400

ECN or CI: S10004029 R/L: RELEASE REVISION: 14MAY09 DATE: 14MAY09 DESCRIPTION: CONVERSION-MASK MOTOR RELAYS

Drawing Number: 6700 PARTING TYPE: RAIL

Mod: 14MAY09 LUDINGTON, MI

Part: Error: No reference Scale: 1:1 Part: 14MAY09 Part: 14MAY09

2014477 2 of 3

Inch  
[mm]

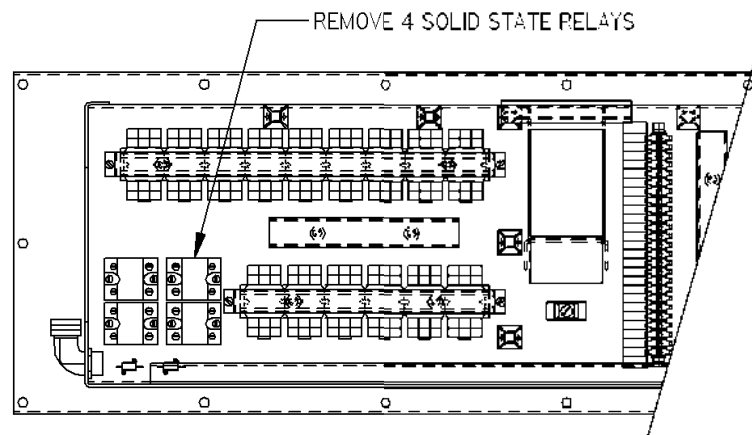


FIGURE 1.

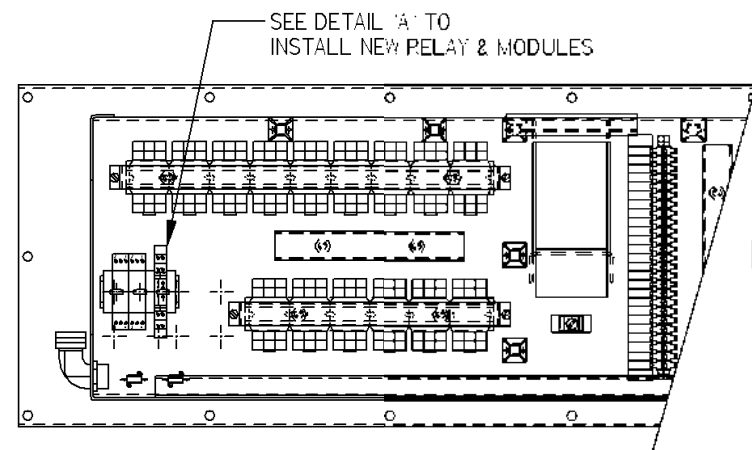
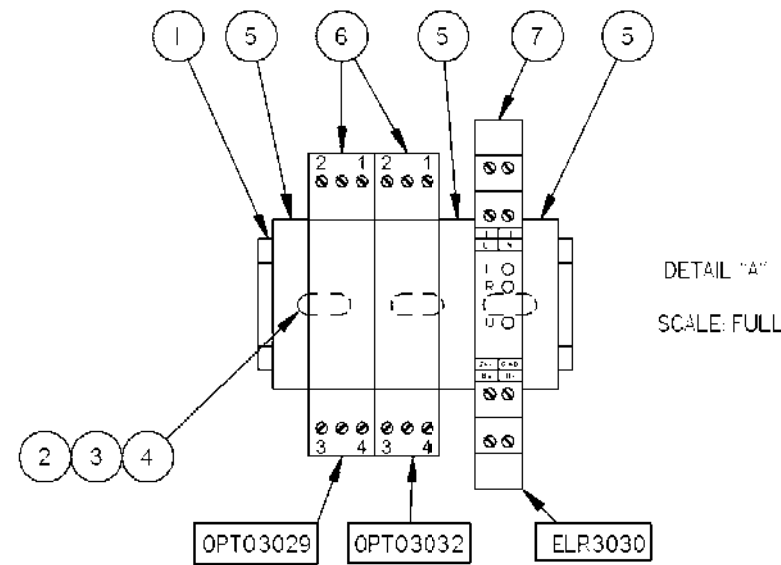
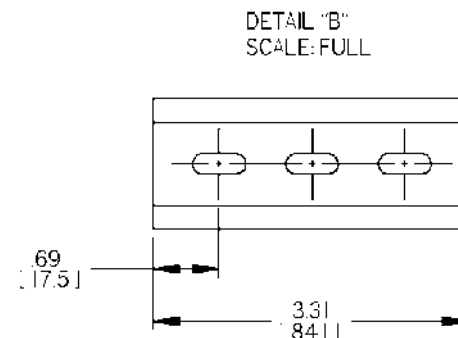


FIGURE 2.

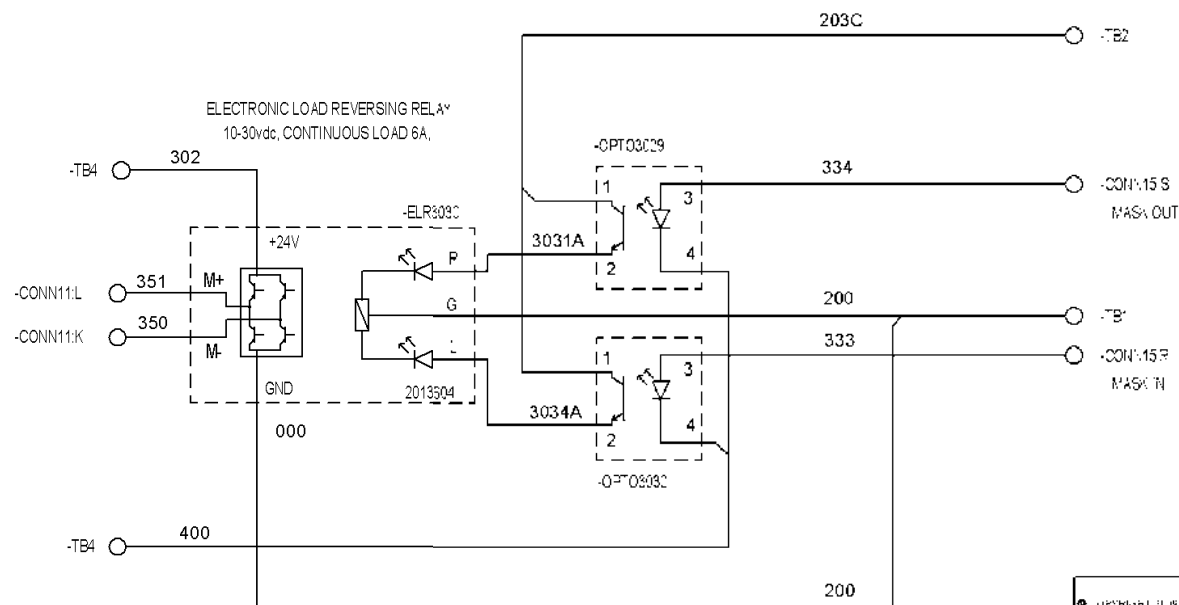


DETAIL "A"  
SCALE: FULL



DETAIL "B"  
SCALE: FULL

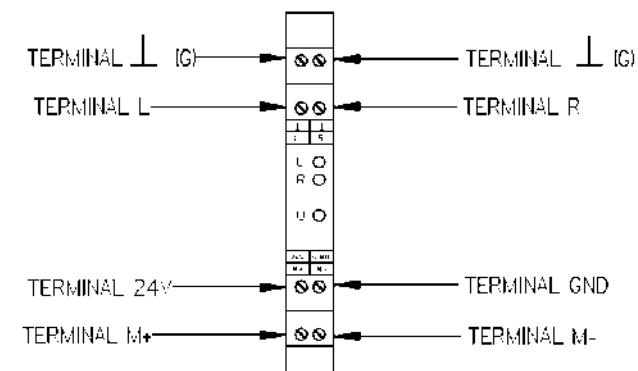
ELECTRICAL SCHEMATIC



TERMINAL 1- (+) OUTPUT  
TERMINAL 2- (-) OUTPUT  
TERMINAL 3- (+) INPUT  
TERMINAL 4- (-) INPUT



REF 6 MODULE



PEF 7 RELAY

STEP 1.

LOCATE AND DISCONNECT THE RELAY END OF THESE WIRES. THEY WILL BE RECONNECTED TO THE NEW RELAYS IN STEP 3.

1. LOCATE WIRE 333 FROM CONN15:R TO OLD RELAY SSR1:3
2. LOCATE WIRE 334 FROM CONN15:S TO OLD RELAY SSR4:3
3. LOCATE WIRE 200 FROM TB1 TO OLD RELAY SSR2:1
4. LOCATE WIRE 400 FROM TB4 TO OLD RELAY SSR1:4
5. LOCATE WIRE 302 FROM TB4 TO OLD RELAY SSR1:2
6. LOCATE WIRE 350 FROM CONN11:K TO OLD RELAY SSR1:1
7. LOCATE WIRE 351 FROM CONN11:L TO OLD RELAY SSR4:1

STEP 2.

1. DISCONNECT REMAINING WIRING AT RELAYS AND DISCARD.
2. REMOVE RELAYS AND DISCARD.
3. INSTALL NEW DIN RAIL, RELAYS, AND CLIPS AS SHOWN IN FIG. 2.

STEP 3.

1. TERMINATE EXISTING 333 FROM CONN15:R TO OPTO3032:3
2. TERMINATE EXISTING 334 FROM CONN15:S TO OPTO3029:3
3. TERMINATE EXISTING 200 FROM TB1 TO ELR3030:G
4. INSTALL NEW 200 #16 BLK FROM TB1 TO ELR3030:GND
5. TERMINATE EXISTING 400 FROM TB4 TO OPTO3029:4
6. INSTALL NEW 400 #16 BLK FROM TB4 TO OPTO3032:4
7. TERMINATE EXISTING 302 FROM TB4 TO ELR3030:+24V
8. TERMINATE EXISTING 350 FROM CONN11:K TO ELR3030:M-
9. TERMINATE EXISTING 351 FROM CONN11:L TO ELR3030:M+
10. INSTALL NEW 203C #16 BLK FROM TB2 TO OPTO3029:1
11. INSTALL NEW 203C #16 BLK FROM TB2 TO OPTO3032:1
12. INSTALL NEW 3031A #16 BLK FROM OPTO3029:2 TO ELR3030:R
13. INSTALL NEW 3034A #16 BLK FROM OPTO3032:2 TO ELR3030:L

STEP 4.

1. PLACE COPY OF CONVERSION PRINTS IN ELECTRICAL SECTION OF PARTS BOOK.

THIS SHEET IS FOR MACHINES BUILT PRIOR TO 1996

Inch [mm]

REVISIONS		REV	DATE	DESCRIPTION
1	1	1	14MAY09	CONVERSION-MASK MOTOR RELAYS

<p>CONFIDENTIAL</p> <p>ALL DIMENSIONS ARE IN INCHES - TOLERANCES UNLESS OTHERWISE SPECIFIED</p> <p>THIS DRAWING IS THE PROPERTY OF HARSCO CORPORATION. IT IS TO BE USED FOR THE MANUFACTURE OF THE PARTS AND EQUIPMENT SPECIFIED HEREIN. IT IS TO BE KEPT IN THE ORIGINAL FORM AND NOT REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM. THE RECIPIENT AGREES TO HOLD HARSCO CORPORATION HARMLESS FROM AND AGAINST ALL SUCH CLAIMS AND DAMAGES. THIS DOCUMENT IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM. THE RECIPIENT AGREES TO HOLD HARSCO CORPORATION HARMLESS FROM AND AGAINST ALL SUCH CLAIMS AND DAMAGES. THIS DOCUMENT IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM. THE RECIPIENT AGREES TO HOLD HARSCO CORPORATION HARMLESS FROM AND AGAINST ALL SUCH CLAIMS AND DAMAGES.</p>	<p>Part Number: 2014477</p> <p>Rev: 1</p> <p>Scale: 1:1</p> <p>Material: 6700</p> <p>Manufacturer: Ludington, MI</p>
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**HARSCO**

Ludington, MI

2014477 3 of 3