



Harsco Track Technologies

Harsco

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SERVICE BULLETIN MAINTENANCE OF WAY EQUIPMENT

DATE: 4-18-2006 **BULLETIN NO:** 06-004

TITLE: SOLID STATE STARTER RELAY ISSUES AND CONVERSION GROUP

RATING:

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

PRODUCT SERIES / MODEL: 6700S or J Tampers with or without Jupiter

SERIAL NO: Models #153245 through #153388

SUMMARY: There has been an increased failure rate occurring on the existing Solid State Starter Relay, part #2004579. Upon investigation, it was found that the engine manufacturer had made a change to the starter motor that is installed. This newer starter motor draws a higher surge amperage at startup which can cause the existing solid state relay to fail.

This Conversion Group will replace the existing solid state starter relay with a mechanical relay of sufficient amperage rating to handle the new starter motor at startup. Also, at the request of the engine manufacturer, the wiring for the fuel solenoid is being put on its own relay as part of this conversion.

OPERATIONAL IMPACT: To improve machine reliability.

ACTION: Follow the Instructions in this Bulletin to install the new Starter Relay Conversion Group. The bracket that is used to mount the existing solid state starter relay must be reworked to install the two new mechanical relays.

CONTACT: To order the Starter Relay Conversion Group #2012060, contact the Parts Department at the Ludington, MI. facility, (231) 843-3431. If you have any technical questions, please contact Eugene Russell or Joe Lokovich at the Ludington, MI. facility (231) 843-3431.

SAFETY INFORMATION

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

CONVERSION GROUP INSTALLATION INSTRUCTIONS

- See Drawing 2012060 Sheet #1 and Sheet #2

1. Locate the existing solid state starter relay mounted on the side of the pump drive on the rear of the engine.
2. Disconnect the wires from the existing solid state starter relay per the instructions on Drawing #2012060 Sheet #1.

Note: Be sure to note wire numbers before disconnecting for proper re-assembly.

3. Remove the existing solid state relay from the mounting bracket and discard; it will not re-used.
4. Remove the existing mounting bracket from the side of the pump drive. Rework the existing mounting bracket by drilling four 17/64 inch holes in it per the dimensions shown on Drawing #2012060 Sheet #1.
5. Install the new mechanical relays (1) and lord mounts w/ studs (2) to the reworked mounting bracket using the provided 1/4 inch flat washers (3), lock washers (4) and hex nuts (5) as shown on Drawing #2012060 Sheet #2.
6. Install the reworked mounting bracket and mechanical relays to the side of the pump drive re-using the existing mounting bolts as shown on Drawing #2012060 Sheet #2.
7. Connect the wires to the new mechanical relays (1) per the instructions on Drawing #2012060 Sheet #2 using the provided wire (7) and terminals (6, 9, 10 & 11).
8. Be sure to label the new relays and wires with their appropriate numbers as shown on Drawing #2012060 Sheet #2 using the provided labels (12).
9. Start the engine to check for proper operation.

#2012060 CONVERSION GROUP PARTS LIST - See Drawing 2012060 Sheet #2

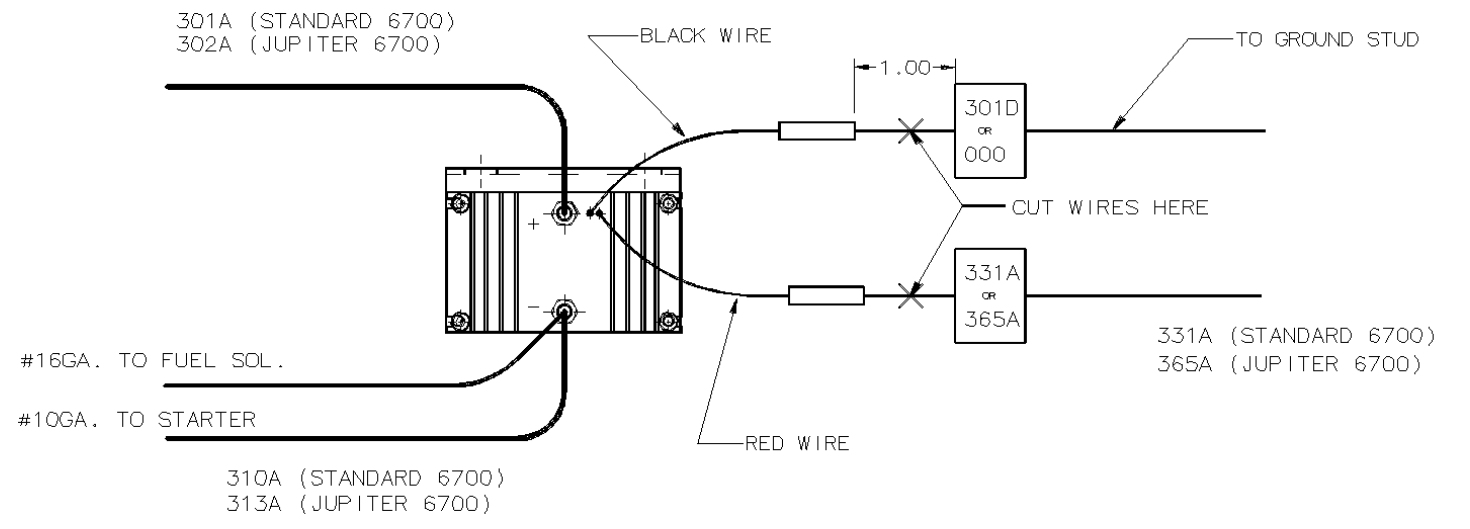
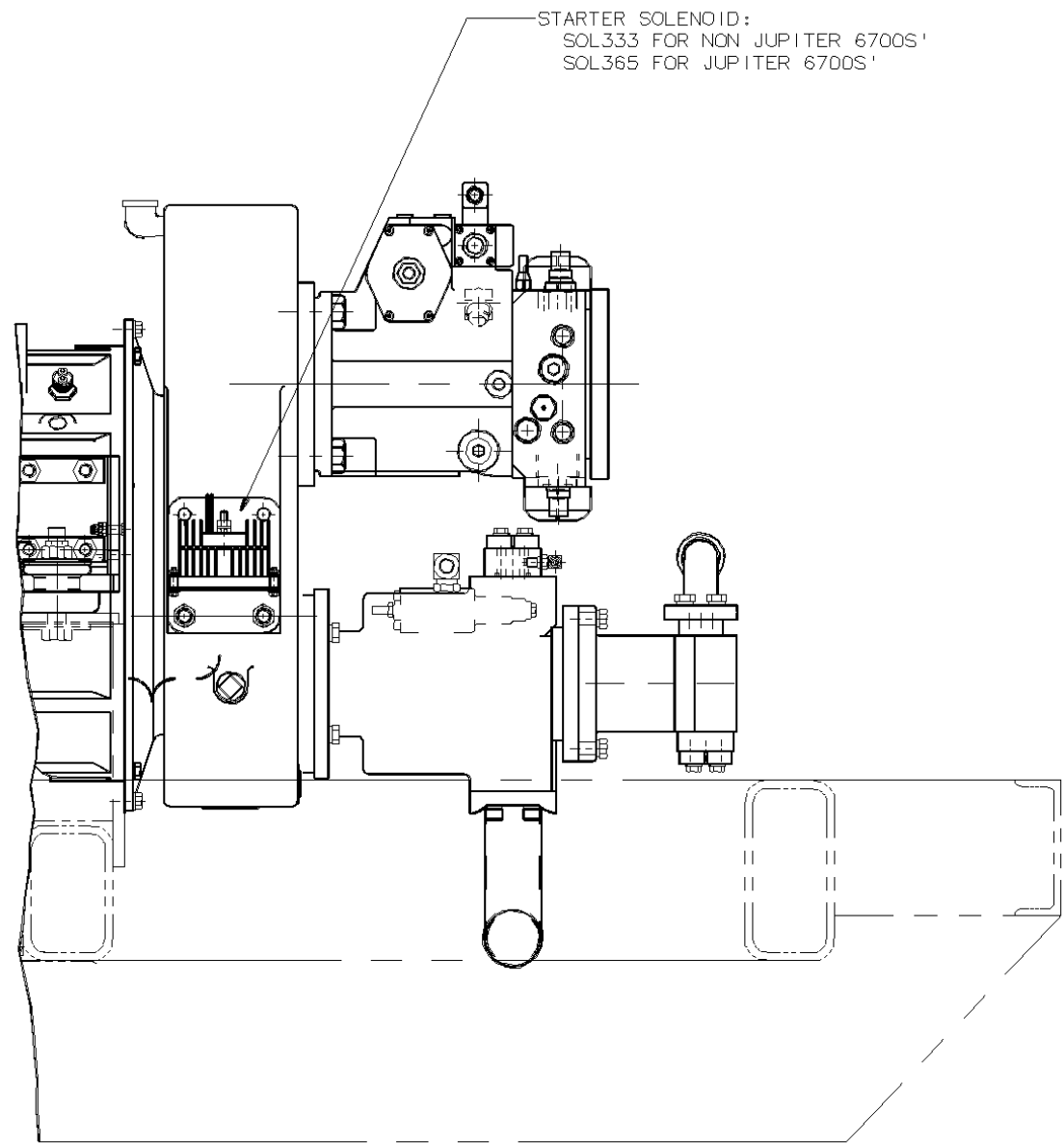
ITEM	PART NO	DESCRIPTION	QTY
1	2012062	Relay, 100 A.	2
2	154571-2	Lord Mount w/ Studs	4
3	150973-2	Washer- Plain, 1/4"	8
4	150988-9	Washer- Lock, 1/4"	8
5	150965-17	Nut- Grade 5 Hex, 1/4"-20	8
6	5854	Terminal	6
7	251742-1	Wire - 600 V, #16 AWG Black x 24 Inches.	1
8	157311-3	Butt Splice, Heat Shrink	3
9	5757	Terminal	3
10	2012094	Terminal Insulator	2
11	2012093	Terminal Insulator	2
12	2012115	2012060 Wire Labels	1
13	2012060-DWG	Drawing / Bill of Material.	1

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415 North Main Street
Fairmont, MN
56031-1837
Tel: (507) 235-3361
Fax: (507) 235-7370

2401 Edmund Road, Box 20
Cayce-West Columbia, SC
29171-0020
Tel: (803) 822-9160
Fax: (803) 822-7471

200 South Jackson Road
Ludington, MI
49431
Tel: (231) 843-3431
Fax: (231) 843-1644

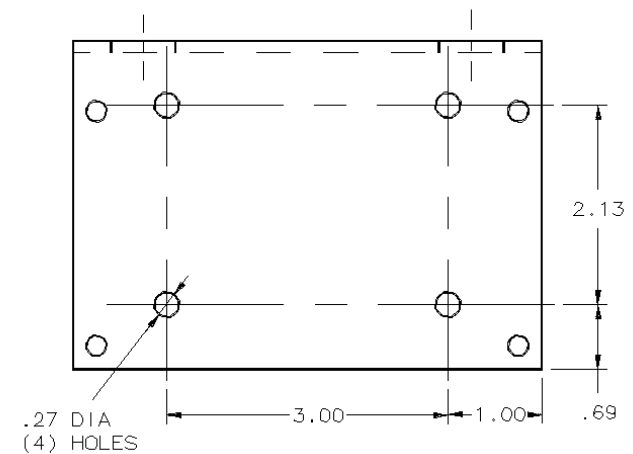


SOLID STATE RELAY REMOVAL REMOVING THE WIRING:

- INSURE THAT THE BATTERY SWITCH IS TURNED OFF.
- LABEL THE CONTROL WIRES 301D AND 331A (OR 000 AND 365A FOR JUPITER 6700S') JUST ABOVE THE ORIGINAL BUTT SPLICES. SEE DIAGRAM.
- CUT THE CONTROL WIRES BETWEEN THE LABEL AND THE ORIGINAL BUTT SPLICES.
- REMOVE THE #10GA. WIRE, 301A (302A FOR JUPITER 6700S') FROM THE (+) TERMINAL OF THE SOLID STATE RELAY.
- REMOVE BOTH THE #10GA. AND #16GA. WIRES, 310A (313A FOR JUPITER 6700S') FROM THE (-) TERMINAL OF THE SOLID STATE RELAY.

REMOVING THE RELAY:

- REMOVE THE 2 BOLTS ATTACHING THE RELAY BRACKET TO THE PUMP DRIVE.
- REMOVE THE RELAY AND SHOCK MOUNTS FROM THE BRACKET AND DISCARD THEM.
- REWORK THE BRACKET AS SHOWN BELOW.



CADAM DRAWING

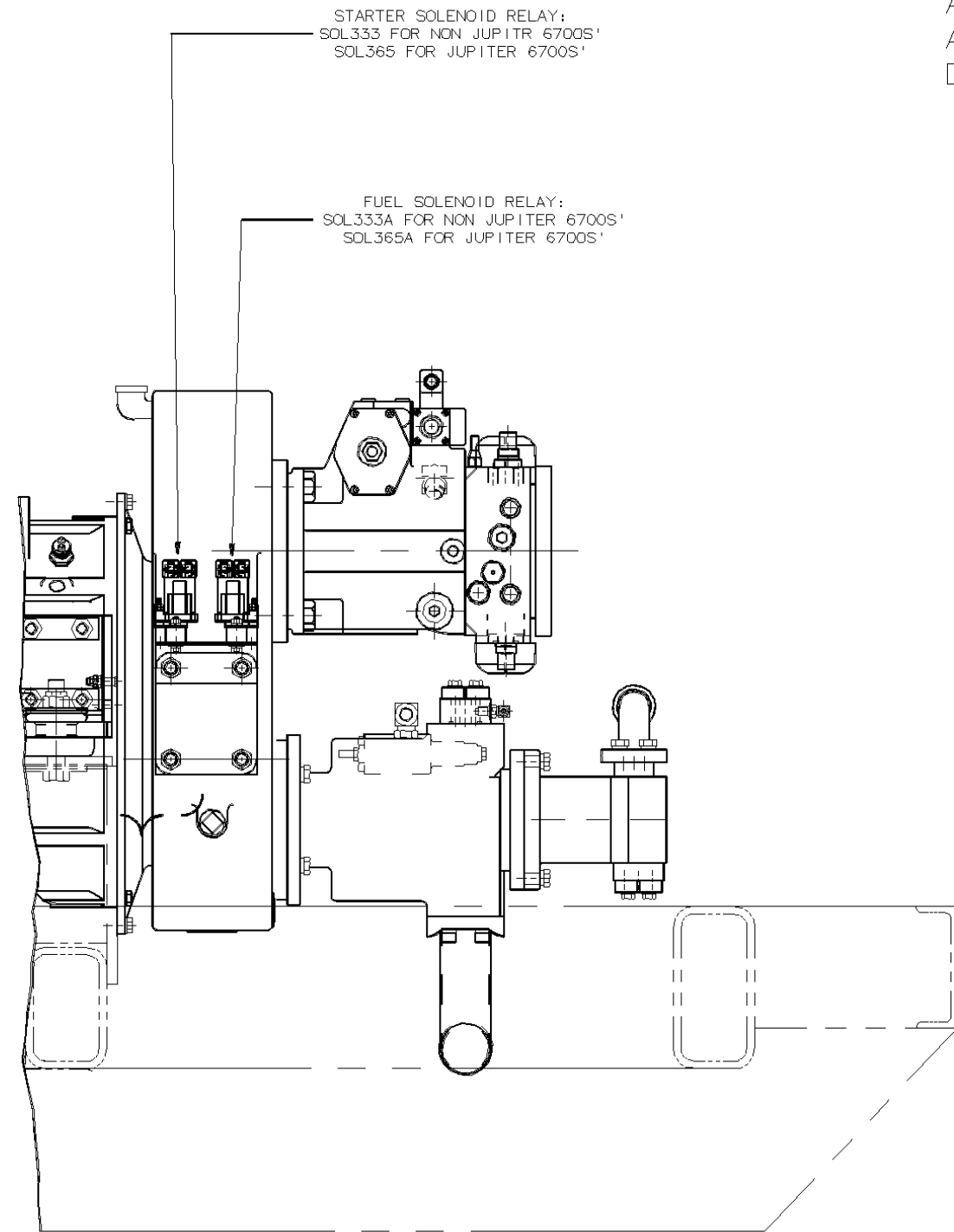
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IMPLIED TOLERANCES		TOLERANCE UNLESS OTHERWISE SPECIFIED	
INCH	METRIC	INCH	METRIC
OVER .10	1.27	OVER .10	1.27
.10 - .25	.005	.10 - .25	.005
.25 - .50	.008	.25 - .50	.008
.50 - 1.00	.010	.50 - 1.00	.010
1.00 - 2.00	.015	1.00 - 2.00	.015
2.00 - 5.00	.020	2.00 - 5.00	.020
5.00 - 10.00	.025	5.00 - 10.00	.025
10.00 - 25.00	.030	10.00 - 25.00	.030
25.00 - 50.00	.035	25.00 - 50.00	.035
50.00 - 100.00	.040	50.00 - 100.00	.040
100.00 - 200.00	.045	100.00 - 200.00	.045
200.00 - 500.00	.050	200.00 - 500.00	.050
500.00 - 1000.00	.055	500.00 - 1000.00	.055
1000.00 - 2000.00	.060	1000.00 - 2000.00	.060
2000.00 - 5000.00	.070	2000.00 - 5000.00	.070
5000.00 - 10000.00	.080	5000.00 - 10000.00	.080
10000.00 - 20000.00	.090	10000.00 - 20000.00	.090
20000.00 - 50000.00	.100	20000.00 - 50000.00	.100
50000.00 - 100000.00	.110	50000.00 - 100000.00	.110
100000.00 - 200000.00	.120	100000.00 - 200000.00	.120
200000.00 - 500000.00	.130	200000.00 - 500000.00	.130
500000.00 - 1000000.00	.140	500000.00 - 1000000.00	.140
1000000.00 - 2000000.00	.150	1000000.00 - 2000000.00	.150
2000000.00 - 5000000.00	.160	2000000.00 - 5000000.00	.160
5000000.00 - 10000000.00	.170	5000000.00 - 10000000.00	.170
10000000.00 - 20000000.00	.180	10000000.00 - 20000000.00	.180
20000000.00 - 50000000.00	.190	20000000.00 - 50000000.00	.190
50000000.00 - 100000000.00	.200	50000000.00 - 100000000.00	.200
100000000.00 - 200000000.00	.210	100000000.00 - 200000000.00	.210
200000000.00 - 500000000.00	.220	200000000.00 - 500000000.00	.220
500000000.00 - 1000000000.00	.230	500000000.00 - 1000000000.00	.230
1000000000.00 - 2000000000.00	.240	1000000000.00 - 2000000000.00	.240
2000000000.00 - 5000000000.00	.250	2000000000.00 - 5000000000.00	.250
5000000000.00 - 10000000000.00	.260	5000000000.00 - 10000000000.00	.260
10000000000.00 - 20000000000.00	.270	10000000000.00 - 20000000000.00	.270
20000000000.00 - 50000000000.00	.280	20000000000.00 - 50000000000.00	.280
50000000000.00 - 100000000000.00	.290	50000000000.00 - 100000000000.00	.290
100000000000.00 - 200000000000.00	.300	100000000000.00 - 200000000000.00	.300
200000000000.00 - 500000000000.00	.310	200000000000.00 - 500000000000.00	.310
500000000000.00 - 1000000000000.00	.320	500000000000.00 - 1000000000000.00	.320
1000000000000.00 - 2000000000000.00	.330	1000000000000.00 - 2000000000000.00	.330
2000000000000.00 - 5000000000000.00	.340	2000000000000.00 - 5000000000000.00	.340
5000000000000.00 - 10000000000000.00	.350	5000000000000.00 - 10000000000000.00	.350
10000000000000.00 - 20000000000000.00	.360	10000000000000.00 - 20000000000000.00	.360
20000000000000.00 - 50000000000000.00	.370	20000000000000.00 - 50000000000000.00	.370
50000000000000.00 - 100000000000000.00	.380	50000000000000.00 - 100000000000000.00	.380
100000000000000.00 - 200000000000000.00	.390	100000000000000.00 - 200000000000000.00	.390
200000000000000.00 - 500000000000000.00	.400	200000000000000.00 - 500000000000000.00	.400
500000000000000.00 - 1000000000000000.00	.410	500000000000000.00 - 1000000000000000.00	.410
1000000000000000.00 - 2000000000000000.00	.420	1000000000000000.00 - 2000000000000000.00	.420
2000000000000000.00 - 5000000000000000.00	.430	2000000000000000.00 - 5000000000000000.00	.430
5000000000000000.00 - 10000000000000000.00	.440	5000000000000000.00 - 10000000000000000.00	.440
10000000000000000.00 - 20000000000000000.00	.450	10000000000000000.00 - 20000000000000000.00	.450
20000000000000000.00 - 50000000000000000.00	.460	20000000000000000.00 - 50000000000000000.00	.460
50000000000000000.00 - 100000000000000000.00	.470	50000000000000000.00 - 100000000000000000.00	.470
100000000000000000.00 - 200000000000000000.00	.480	100000000000000000.00 - 200000000000000000.00	.480
200000000000000000.00 - 500000000000000000.00	.490	200000000000000000.00 - 500000000000000000.00	.490
500000000000000000.00 - 1000000000000000000.00	.500	500000000000000000.00 - 1000000000000000000.00	.500

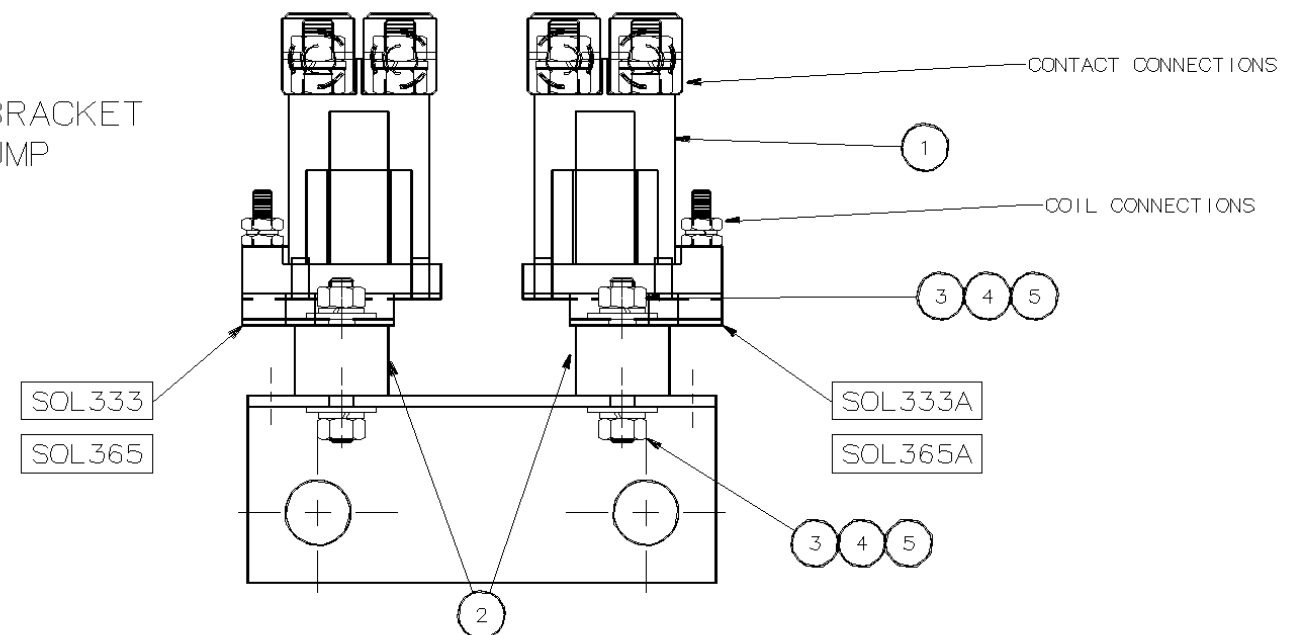
CHANGE	R/U	REVISION	DATE	DESCRIPTION
S10003302		RELEASE	04JAN08	STARTER RELAY CONVERSION

Part Number	1010384	Machine Type	6700S
Drawn	JAL	Date Drawn	04JAN08
Scale	.25"=1"	Part Number	2012060

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 Ludington, MI
 2012060, - 1 of 2



ATTACH RELAYS TO BRACKET AND RE-MOUNT TO PUMP DRIVE OF MACHINE.



#16GA. TO FUEL SOL. 310A (STANDARD 6700) 313A (JUPITER 6700)

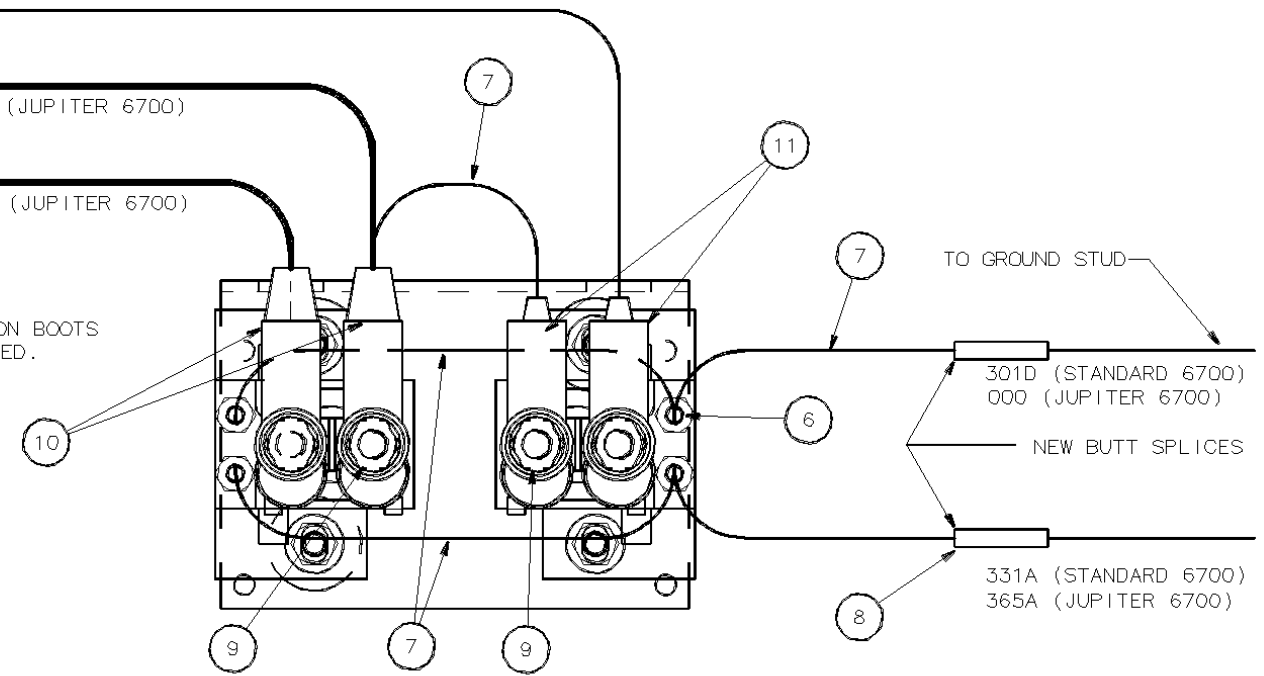
#10GA. TO BATTERY SWITCH

301A (STANDARD 6700) 302A (JUPITER 6700)

#10GA. TO STARTER

310A (STANDARD 6700) 313A (JUPITER 6700)

ALL 4 INSULATION BOOTS MUST BE USED.



MECHANICAL RELAY INSTALLATION WIRING CONNECTIONS

- SPLICE ENOUGH WIRE ON TO 301D (OR 000) TO MAKE THE CONNECTION TO THE RELAY
- SPLICE ENOUGH WIRE ON TO 331A (OR 365A) TO MAKE THE CONNECTION TO THE RELAY.
- CREATE JUMPERS BETWEEN COILS OF THE TWO RELAYS USING #16GA. WIRE AND REF. #6 TERMINALS.
- CREATE JUMPER BETWEEN CONTACTS OF THE RELAYS USING #16GA. WIRE AND REF. #9 TERMINALS.
- SLIDE INSULATION BOOT OVER TERMINALS OF BOTH THE #16GA. AND #10GA. WIRES OF 301A (OR 302A) AND MAKE CONNECTIONS TO THE RELAYS.
- SLIDE INSULATION BOOT OVER TERMINAL OF #10GA. WIRE 310A (OR 313A) AND MAKE CONNECTION TO RELAY.
- SLIDE INSULATION BOOT OVER TERMINAL OF #16GA. WIRE 310A (OR 313A) AND MAKE CONNECTION TO RELAY.

NOTE: DEPENDING ON WIRE ROUTING, TY-WRAPS MAY HAVE TO BE CUT TO ALLOW ENOUGH SERVICE LOOP IN THESE WIRES.

CADAM DRAWING

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