

DUAL AIR BRAKE STAND 26-C

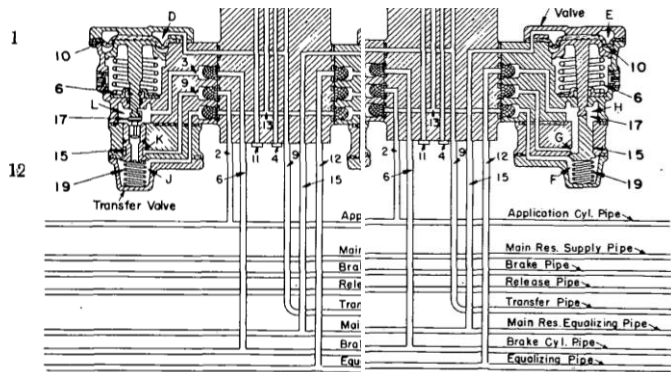


Fig. 45 Diagrammatic g. 45 Diagrammatic

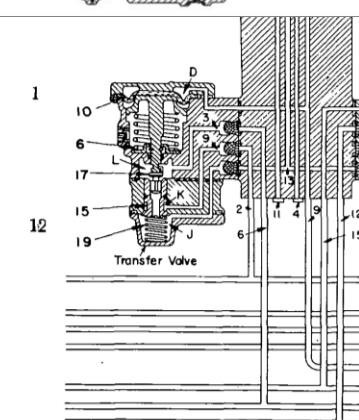
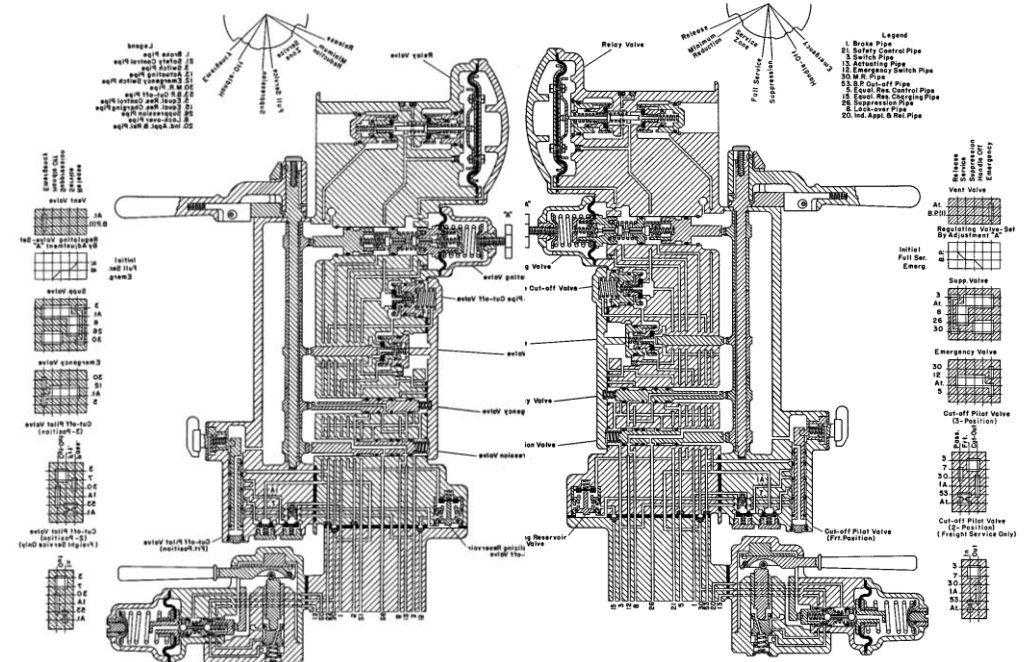
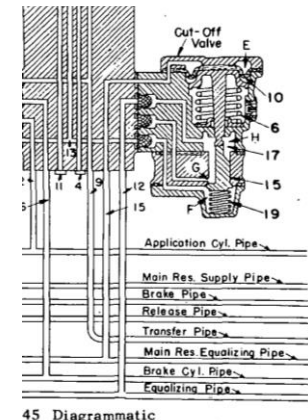


Fig. 45 Diagrammatic



45 Diagrammatic

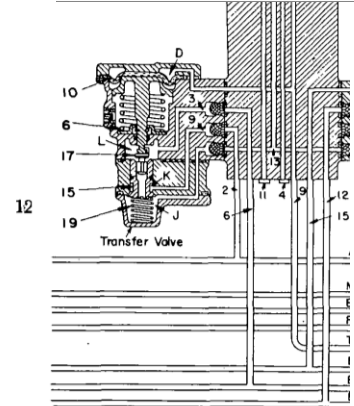
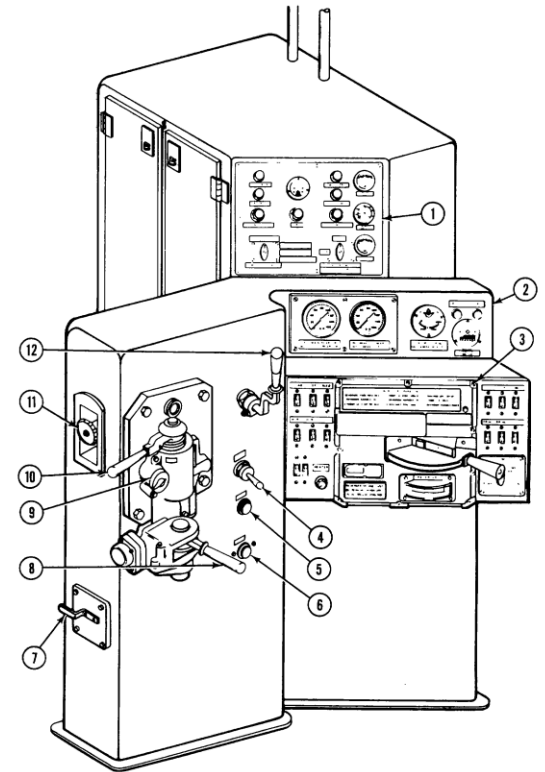
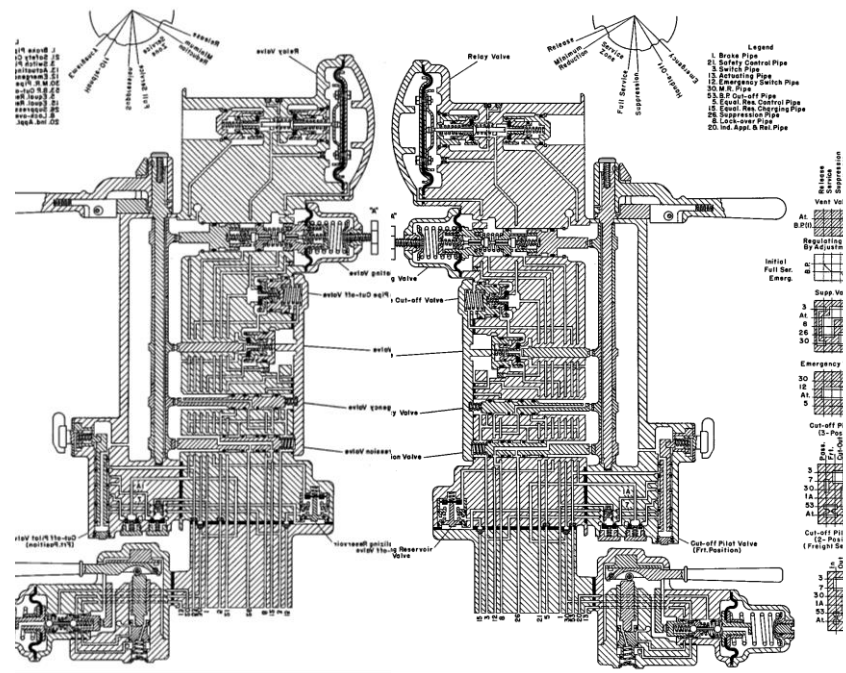
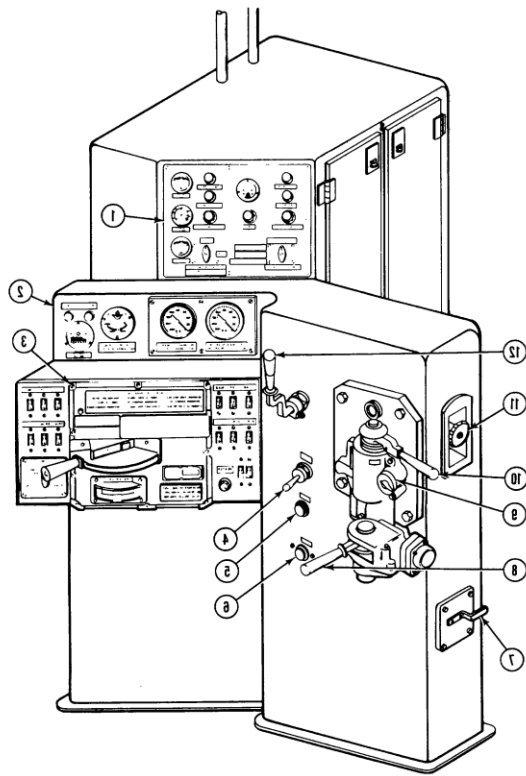
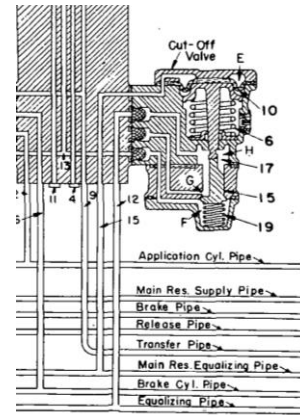


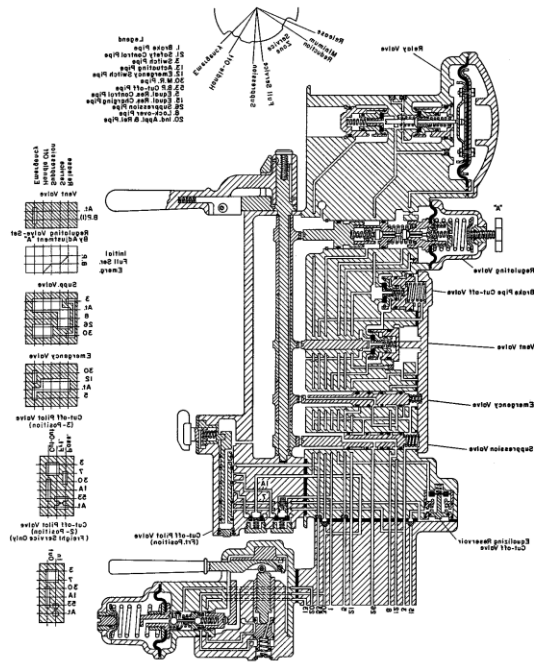
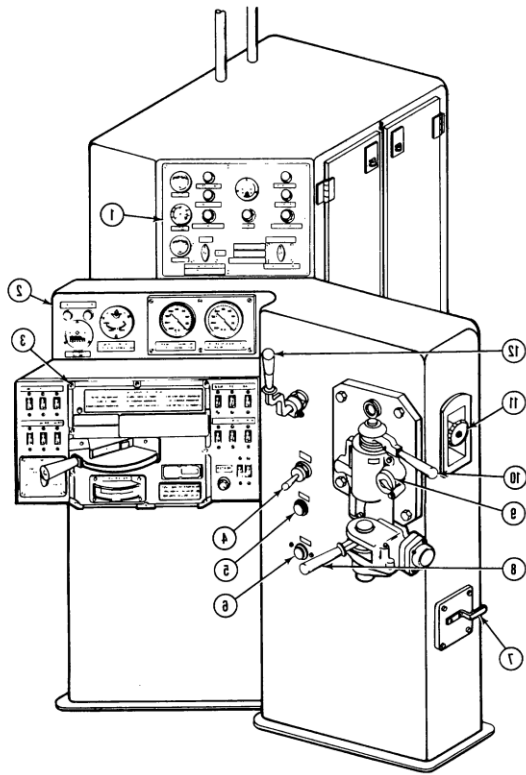
Fig. 45 Diagrammatic



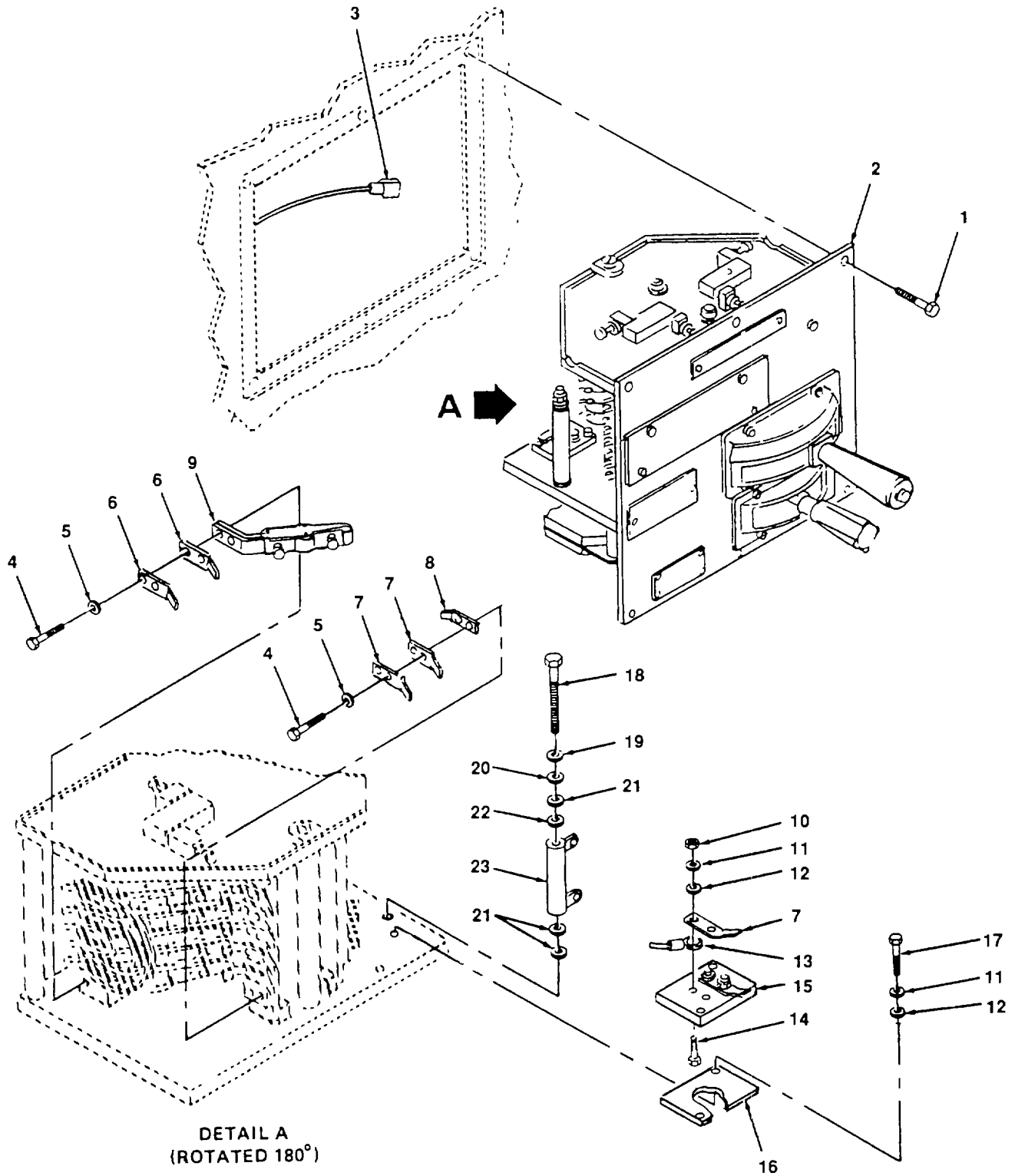
45 Diagrammatic

- Legend
- 1 Brake Pipe
 - 2 Safety Control Pipe
 - 3 Control Pipe
 - 4 Excessing Pipe
 - 5 Relay Valve - Switch Pipe
 - 6 S.B.P. Cut-off Pipe
 - 7 Equal Res. Control Pipe
 - 8 Equal Res. Charging Pipe
 - 9 Underexcessing Pipe
 - 10 Ind. Appl. & Rel. Pipe

- Valve - In
 Valve - Out
 A.C. - Air
 B.P.P. - Brake Pipe
 Regulating
 G.A. - Gas
 Initial
 Full Ser.
 Emerg.
 Supp. Val.
 3
 A
 8
 S.D.
 30
 Emergency
 S.D.
 12
 A
 5
 Cut-off in
 (3-Pos.)
 3
 7
 1A
 15
 A
 Cut-off Pil.
 (2-Pos.)
 (Freight Se.
 3
 7
 30
 1A
 S.D.
 A.



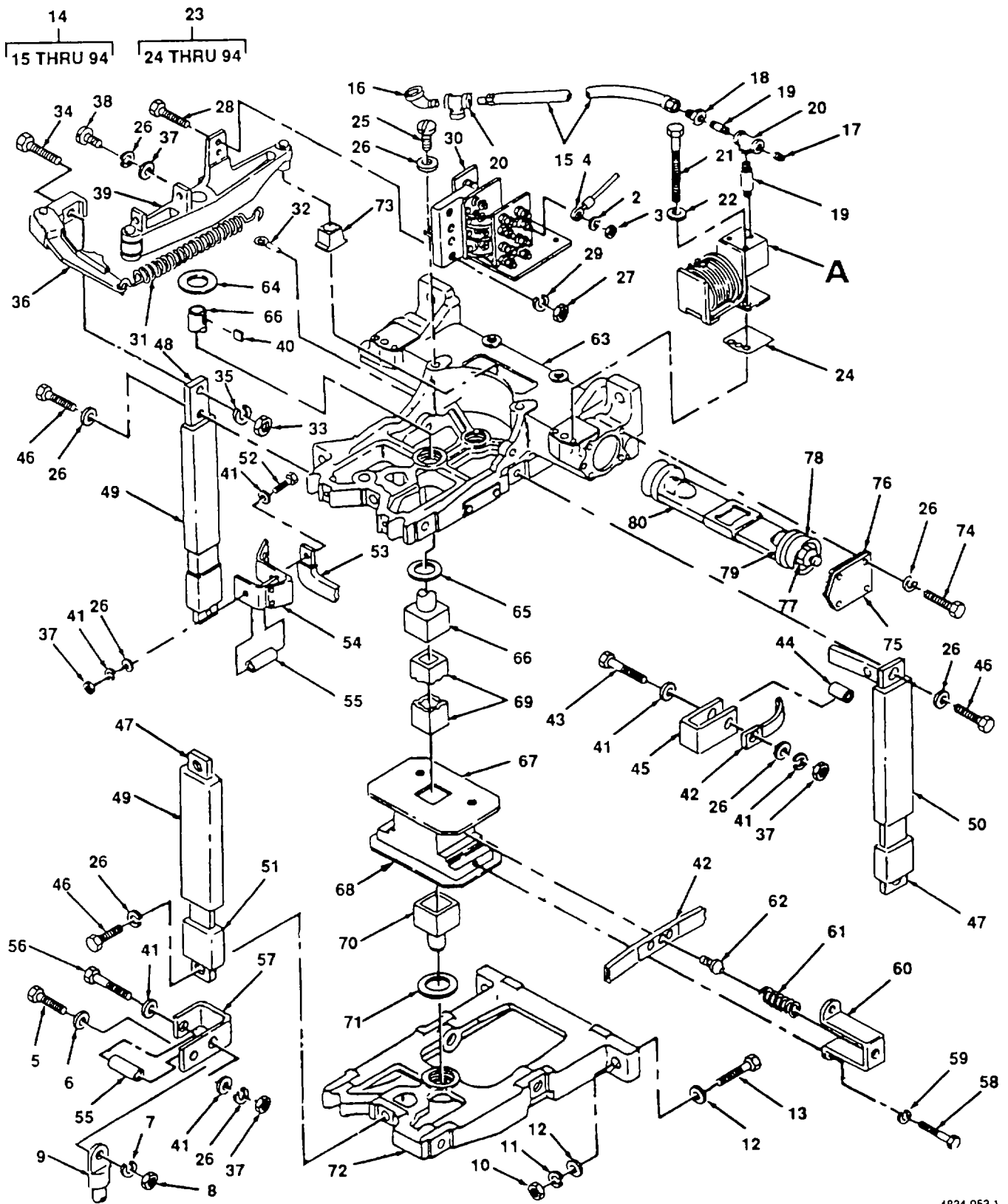
REAR CAB STAND



4834-060

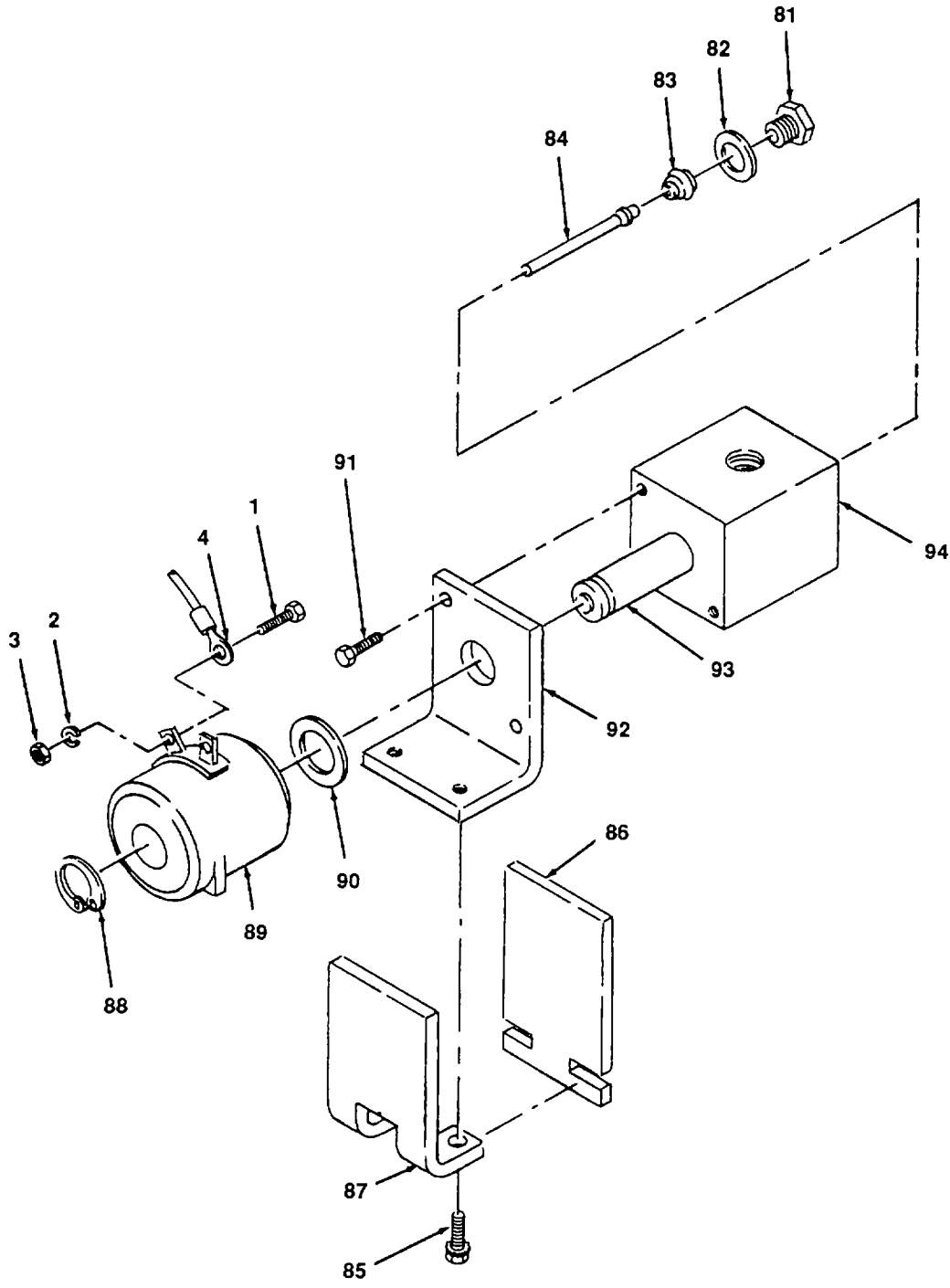
Figure 60. Controller Mechanism

(1) ITEM NO.	(2) FSCM	(3) PART NUMBER	(4) DESCRIPTION AND USABLE ON CODE	(5) QTY
			GROUP 10 BRAKE SYSTEM, AIR	
			FIG. 60 CONTROLLER MECHANISM	
1	96906	MS35206	SCREWS, MOUNTING	6
2	51225		CONTROLLER MECHANISM (17KC108 F1 (24443) MODIFIED AT DEPOT)	
3	72915	8491796	LEADS, WIRE HARNESS, MAKE FROM; 14 AWG 8491796 (72915) AND TERMINAL SPADE, P/N A2272 (46522)	30
4	80971	N44P16012B	SCREW, MACHINE, NO.10-32	22
5	96906	MS35338-45	WASHER, LOCK	22
6	80971	418562404G1	TERMINALS	11
7	80971	41A264656G1	TERMINALS	11
8	80971	482A768G1	CONTACT	11
9	80971	41A264589G1	FINGER	11
10	80971	N210P16B	NUT, 10-32	2
11	80971	N405P39B	WASHER, LOCK, 10-32	2
12	80971	N402P9B	WASHER, PLAIN, 10-32	2
13	72915	8491796	WIRE, ELECTRICAL, MAKE FROM, 8 AWG 9326091 (72915) AND TERMINAL LUG 324045 (89110)	
14	80971	N668P16010B	SCREW, HEX-HEAD, 10-32, 5/8 IN	2
15	80971	41B557061 P2	BASE, TERMINAL MOUNTING	1
16	80971	41B557061P3	SHIELD, BASE	1
17	80971	N668P16012B	SCREW, HEX-HEAD, 10-32,3/4 IN.	2
18	80971	N668P16076B	SCREW, 10-32, 43/4 IN	1
19	96906	MS35338-43	WASHER, LOCK	1
20	96906	MS27183-8	WASHER, FLAT	1
21	80971	41A250244P1	SPACER	2
22	80971	41A250243P1	WASHER, MICA	2
23	80971	482A444APP20	RESISTOR	
			END OF FIGURE	



4834-053 1

Figure 53. Reverser (Sheet 1 of 2)



DETAIL A

Figure 53. Reverser (Sheet 2 of 2).

(1) ITEM NO.	(2) FSCM	(3) PART NUMBER	(4) DESCRIPTION AND USABLE ON CODE	(5) QTY
			GROUP 10 BRAKE SYSTEM, AIR	
			FIG. 53 REVERSER	
1	96906		SCREW, #10	2
2	96906	MS35338-43	WASHER, LOCK, #10	18
3	96906	MS356049-202	NUT, #10	18
4			LEAD, ELECTRICAL, MAKE FROM, WIRE, 14 AWG P/N 8491796 (72915), LUG 14 AWG #10 STUD 31906(89110), REF DES, 1CC 531H, CCA N61, N62, SD 11R, CC, SD11S, 2SD51K, CCA, 1CC61Z, 1AA1, 1AA2, N60, CC, 10C 53K, N61, AA2, 1AA3, 1AA4	
5	96906	MS90725-66	SCREW BOLT	4
6	96906	MS27183-14	WASHER, FLAT	4
7	96906	MS35338-46	WASHER, LOCK	4
8	96906	MS51967-09	NUT, HEX	
9			LEAD, ELECTRICAL, MAKE FROM, CABLE 3/0, LUG 3/8 STUD, REF DES, FI, FF1, FF2, F2, F3, AA3, FF3J, FF4, AA4, F4J, FS1J, AM1, FF1J, AM1, FF1J, FS2J, 16AA1, F2J, FS2J, 1GAA1, F2J, FS3J, 1GAA2, FF3, FS4J, AM2, F4	4
10	96906	MS51967-15	NUT	2
11	96906	MS35338-48	WASHER, LOCK	2
12	96906	MS27183-18	WASHER, FLAT	4
13	96906	MS90725	SCREW, HEX-HEAD	2
14	80971	17DP21C3	REVERSER	1
15	80971	41C600937P10	HOSE	1
16	96906	MS51504-B4-4	ELBOW	1
17	80971	N5700P31	PLUG, PIPE	1
18	01276	2021-8-10B	ADAPTER	1
19	80971	N5704P316B	NIPPLE	2
20	80971	N5701P103	TEES	2
21	80971	N26P23032B	BOLTS	2
22	80971	N405P42B	WASHER, LOCK	2
23	80971	17MV38A12	VALVE, MAGNET ASSY	2
24	80971	6714650P1	GASKET	2
25	80971	N44P25010B	SCREW	4

(1) ITEM NO.	(2) FSCM	(3) PART NUMBER	(4) DESCRIPTION AND USABLE ON CODE	(5) QTY
			FIG. 53 REVERSER (CONT)	
26	80971	N405P43B	WASHERS, LOCK	24
27	96906	MS51967-09	NUT	2
28	96906	MS90725-66	SCREW, HEX-HEAD	2
29	96906	MS35338-46	WASHER, LOCK	2
30	80971	6742812G3	INTERLOCK	1
31	80971	487A212P1	SPRING, TENSION	1
32	80971	N504P2820	PIN, COTTER	1
33	80971	N203P29B	NUT	10
34	80971	N22P29028B	BOLT	10
35	80971	N405P45B	WASHER, LOCK	11
36	80971	6742810G2	ASSEMBLY, PAWL	1
37	80971	N203P25B	NUT, LOCK	21
38	80971	N72P2520B	SETSCREW	1
39	80971	6742810G1	LEVER, ASSY OPERATING	1
40	80971	N3400P607	KEY, WOODRUFF	1
41	80971	N402P13B	WASHER, FLAT, 3/8 IN	40
42	80971	426C379G1	FINGER	8
43	80971	41A252683P2	BOLT, CARRIAGE, 2 3/4 IN	8
44	80971	41A262072P5	SPACERS	8
45	80971	8800596P1	SUPPORTS	4
46	80971	N22P29020B	BOLTS, CARRIAGE	10
47	80971	880058861	ROD	2
48	80971	8800589G1	ROD	
49	80971	8800588G1	SLEEVE	1
50	80971	880058P1	SLEEVES	8
51	80971	8800585P1	SLEEVES	10
52	80971	MS90725-70	BOLTS, HEX-HEAD, 3/8-16 X 3 IN	8
53	80971	311V223P1	BUS BARS	4
54	80971	496A427G1	SUPPORTS	8
55	80971	41A262072P4	SPACERS, 0 615 IN	8
56	80971	N22P25044B	BOLT, HEX-HEAD, 3/8-16 X 2 3/4	4
57	80971	496A428G1	SUPPORTS	4

(1) ITEM NO.	(2) FSCM	(3) PART NUMBER	(4) DESCRIPTION AND USABLE ON CODE	(5) QTY
			FIG. 53 REVERSER (CONT)	
58	80971	N44P14016B	BOLT	16
59	80971	N405P38B	WASHER, LOCK	16
60	80971	311V255P1	SUPPORT	8
61	80971	729074P1	SPRING	8
62	80971	8800594P1	SEAT	8
63	80971	6750344G2	FRAME, TOP END	1
64	80971	41A251410P8	BUSHING, 0 878 IN ID, BRONZE	1
65	80971	41A250534P1	BEARING, THRUST	1
66	80971	8800584P1	SLEEVE, 59/64 IN LONG	1
67	80971	496A427G1	SUPPORT BARRIERS	4
68	80971	8800590P1	INSULATORS	3
69	80971	8800592P1	SHAFT	1
70	80971	498A624P1	SLEEVE, 13/16 IN LONG	1
71	80971	311V750P1	SPACER	1
72	80971	6742614G1	FRAME, BOTTOM END	1
73	80971	8800663P1	BLOCK, GUIDE	1
74	80971	N22P23014B	BOLT, HEX-HEAD	8
75	80971	9964324P1	HEAD, CYLINDER	2
76	80971	6715989P1	GASKET	2
77	80971	41A260076P2	NUT, SELF-LOCKING	2
78	80971	41A251866P3	PACKING	2
79	80971	41B550968P1	FOLLOWER	2
80	80971	6735780G2	PISTON	2
81	80971	41A251655P1	CAP PLUG	1
82	80971	499960P1	GASKET	1
83	80971	41A274588P1	SPRING, COMPRESSION	1
84	80971	41A251653P1	VALVE, INLET	1
85	80971	8823750P234	SCREW, W/LOCKWASHER #10-32 X 3/8	2
86	80971	41A251647P1	ARMATURE	1
87	80971	8818143P1	ARMATURE, GUIDE	1
88	80971	N900P75	RING, RETAINING	1
89	80971	9960925G1	COIL	1
90	80971	881 0476P1	WASHER, RUBBER	1
91	80971	N84P16008B	SCREWS	2
92	80971	41B550459P1	MAGNET, FRAME	1

(1) ITEM NO.	(2) FSCM	(3) PART NUMBER	(4) DESCRIPTION AND USABLE ON CODE	(5) QTY
93 94	80971 80971	41A251652P1 41A251658G2	FIG. 53 REVERSER (CONT) VALVE, STEM 1 VALVE, BODY END OF FIGURE	

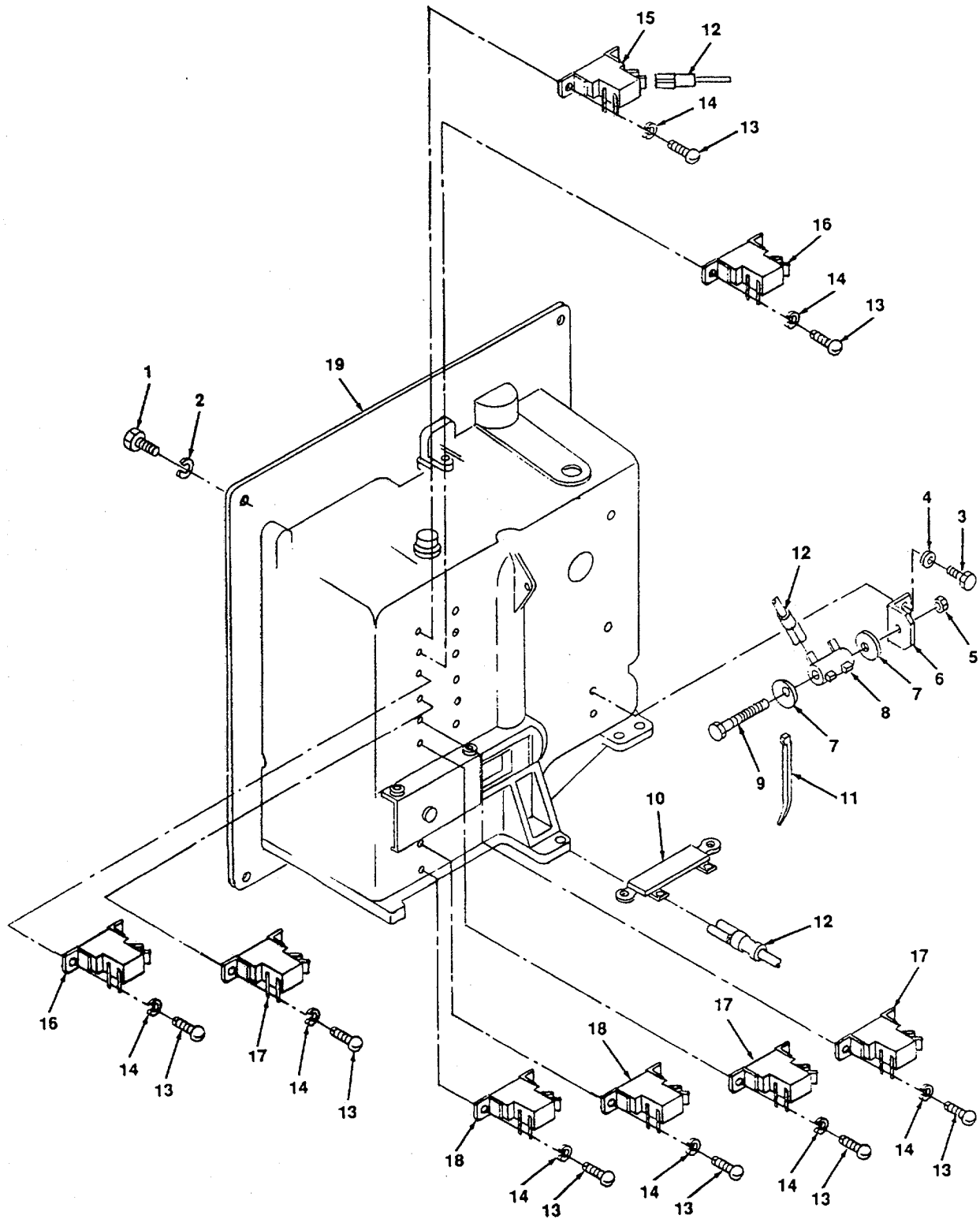


Figure 63. Controller Mechanism.

(1) ITEM NUMBER	(2) FSCM	(3) PART NUMBER	(4) DESCRIPTION AND USABLE ON CODE (UOC)	(5) QTY
			GROUP 10 CONTROLS, ELECTRICAL GROUP	
			FIG. 63 CONTROLLER MECHANISM	
1	96906	MS90725-8	SCREW, HEX-HEAD, 1/4 IN.	6
2	96906	MS35338-44	WASHER, LOCK, 1/4 IN.	6
3	72915	180020	SCREW, HEX HEAD, 1/4-20 X 3/4 IN.	2
4	72915	120380	WASHER, LOCK	2
5	72915	8488943	NUT, LOCK, 1/4-20	1
6	72915	8035144	BRACKET, RESISTOR MOUNTING	1
7	80971	41A250243P1	WASHER, MICA	2
8	80971	482A444APP20	RESISTOR, RE50	1
9	72915	180022	SCREW, 1/4-20 X 1 IN.	1
10	72915	8391184	RESISTOR, RE53	1
11	53421	T-18R9	STRAP, TIE	1
12			LEAD, ELECTRICAL, MADE FROM; WIRE, 14 AWG, P/N 8491796 (72915) AND TERMINAL, 14 AWG, SPADE LUG, P/N A2272 (46522) REF. DES: "FOR"; EX, J, CA, "AV"; AV, BV, "CV"; J, CV, "PY"; P02, PX, PCA, "EX"; 13PH, RE, RE50; J, RE53	16
13	72915	153421	SCREW, FIL. HEAD, 10-32 X 1/2 IN.	20
14	72915	121801	WASHER, LOCK, #10 INTERNAL TOOTH	20
15	72915	8296752	SWITCH	1
16	72915	8298178	SWITCH	2
17	72915	8296748	SWITCH	3
18	72915	8296750	SWITCH	2
19	72915	9091052	CONTROLLER, MECHANISM	1
			END OF FIGURE	

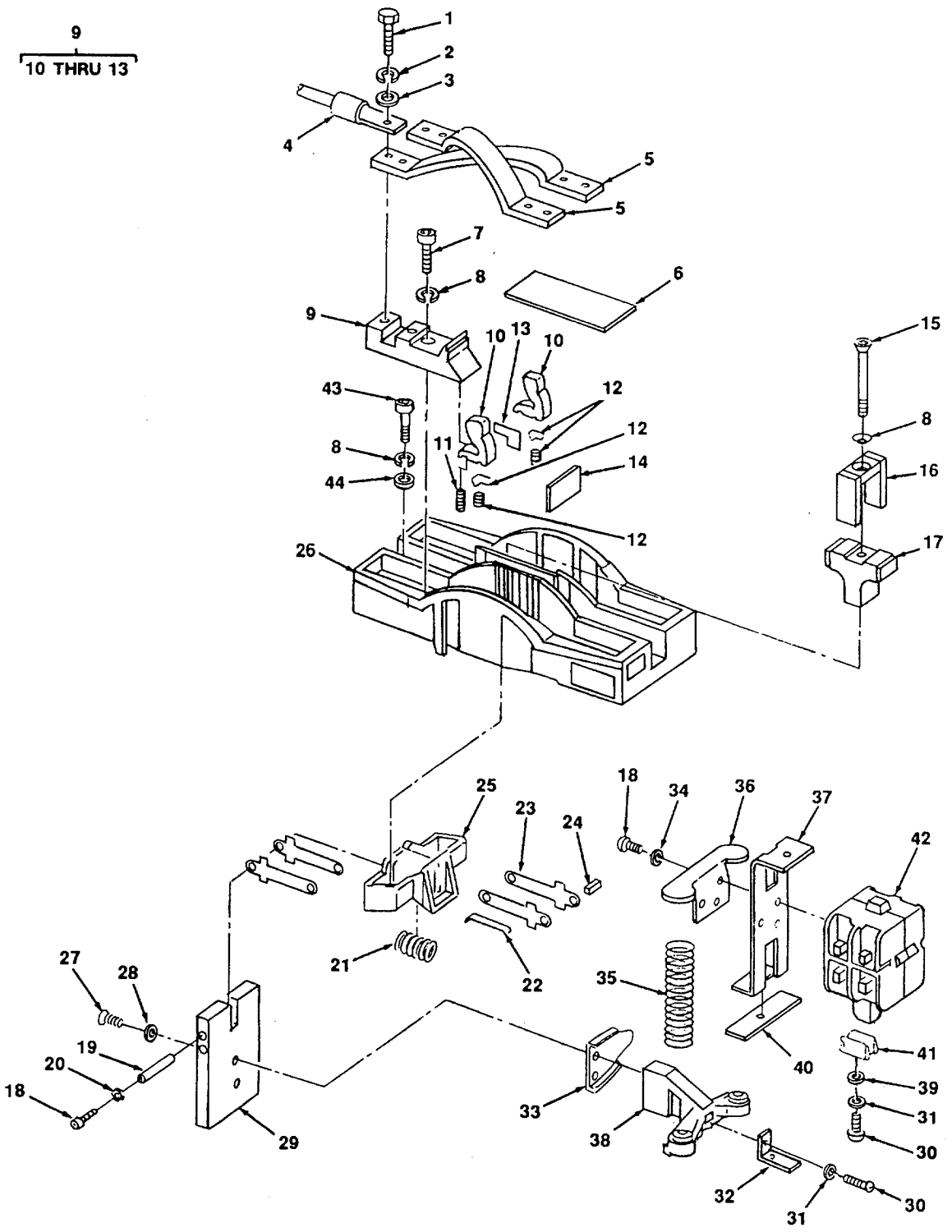


Figure 57. Switch, Magnetic Reverser (Sheet 1 of 2).

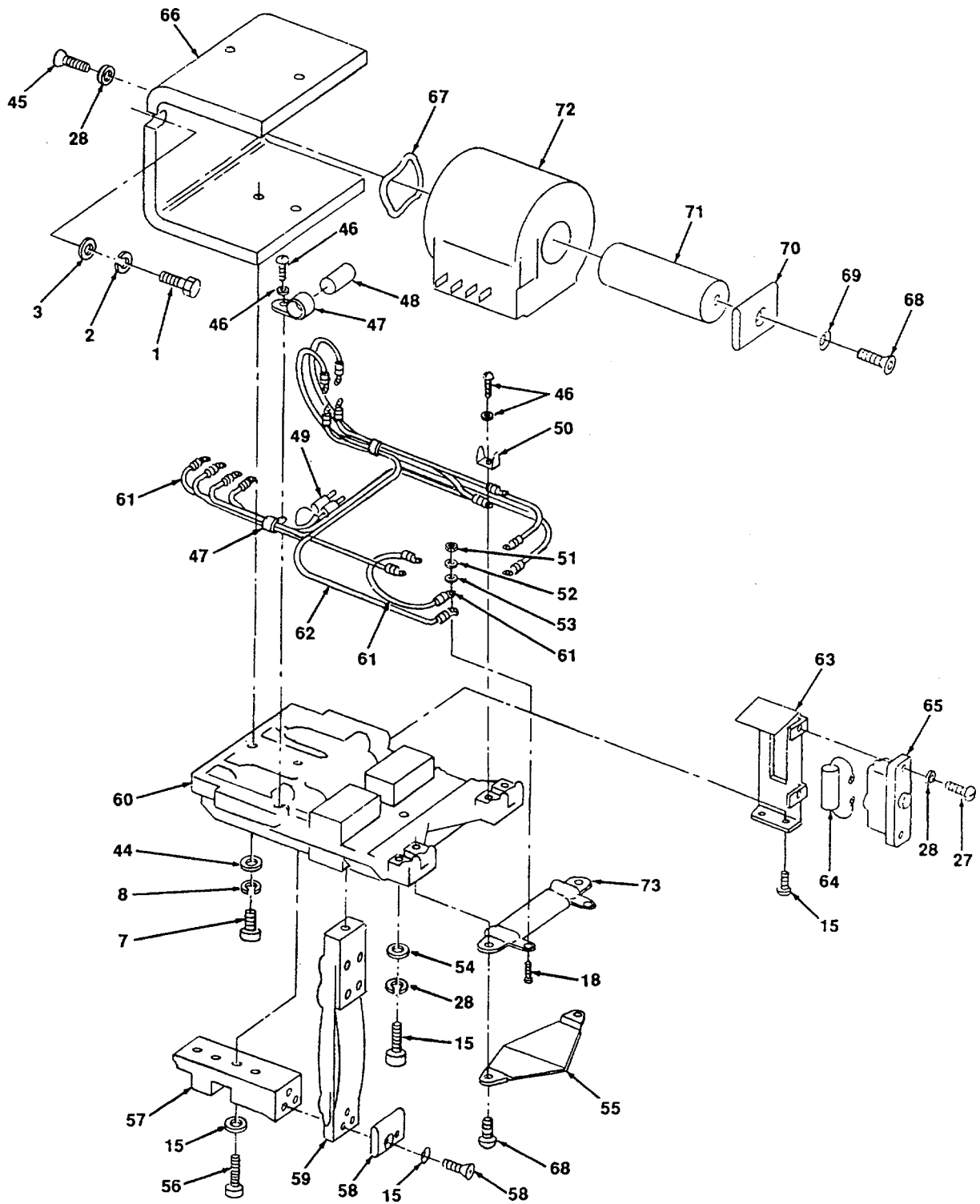


Figure 57. Switch, Magnetic Reverser (Sheet 2 of 2).

(1) ITEM NUMBER	(2) FSCM	(3) PART NUMBER	(4) DESCRIPTION AND USABLE ON CODE (UOC)	(5) QTY
			GROUP 10 CONTROLS, ELECTRICAL GROUP	
			FIG. 57 SWITCH, MAGNETIC REVERSER	
1	96906	MS90725	SCREW, HEX, 3/8 IN	4
2	96906	MS35338-46	WASHER, LOCK, 3/8 IN.	4
3	96906	MS27183-14	WASHER, FLAT, 3/8 IN.	4
4			LEAD, ELECTRICAL, CABLE, 4-0, TERMINAL, 3/8 STUD, P/N 324045 (89110), REF. DES: "RVF1", F1, FF1, "RVF2"; F3, F4, "RVR1"; F2, FF2, "RVR2"; F4, FF4	2
5	72915	8468850	BARS, ELECTRICAL TRANSFER	2
6	72915	8339367	COVER, TOP, RED GLASTIC	2
7	72915	9421706	SCREW, CAP, HEX-HEAD, 5/16-18 X 7/8	8
8	72915	120214	WASHER, LOCK, HELICAL	8
9	72915	8471755	CONTACT, KIT ASSEMBLY	4
10	72915	8441833	CONTACT, ASSEMBLY	8
11	72915	8468989	SPRING, DUAL WIPE	4
12	72915	2441836	SPRING ASSEMBLY, PIVOT INCLUDES CAP	8
13	72915	8441834	SPACER, CONTACT	4
14	72915	8339356	IRON, HOLD ON, STATIONARY	4
15	72915	8364897	SCREW, CAP, 5/16-18 X 2-3/4 FLAT SOCKET HEAD	2
16	72915	8339362	IRON, HOLD ON, MOVABLE CONTACT	2
17	72915	8339361	CONTACT, MOVABLE	2
18	72915	225842	SCREW, CAP, HEX SOCKET HEAD, 10-32 X 1/2 IN.	3
19	72915	8339347	PIN, BEARING, 1/4 IN. O.D. X 2 1/16 IN LONG	1
20	72915	8463503	WASHER, LOCK #10, DISH TYPE, INT. TOOTH	4
21	72915	8338345	SPRING, OPERATOR LINKAGE, 5/18 OD X 1-25/32 LONG	1
22	72915	8354458	GUIDE, OIPERATOR LINKAGE, "LI" TYPE	1
23	72915	83393344	LINKAGE, ARMATURE	4
24	72915	456876	PIN, ROLL, 114 IN. OD X 1/2 IN. LONG	1
25	72915	468992	OPERATOR, MOVABLE CONTACT SUPPORT	1
26	72915	8339351	MOLDING, TOPTERMINAL	1
27	72915	178830	SCREW, ROUNDHEAD, #6X5/8 TAPPING	2
28	72915	13334512	WASHER, LOCK, 5/16 COUNTERSINK, EXT. TOOTH	1

(1) ITEM NUMBER	(2) FSCM	(3) PART NUMBER	(4) DESCRIPTION AND USABLE ON CODE (UOC)	(5) QTY
			FIG. 57 SWITCH, MAGNETIC REVERSER (CONT)	
29	72915	8339346	ARMATURE, STEEL, 4-5/16 X3 X 1/2 IN.	1
30	72915	9415798	SCREW, HEX-HEAD, 1/4-20 X 1 IN.	2
31	72915	120423	WASHER, LOCK, 1/4 IN. INT. TOOTH	2
32	72915	8339349	OPERATOR, AUX. INTERLOCK	1
33	72915	8410742	BRACKET, LIMIT SWITCH OPERATING	1
34	72915	121801	WASHER, LOCK #10, INT. TOOTH	1
35	72915	8339363	SPRING, RETURN 1 O.D. X4 IN. LONG	2
36	72915	8380900	BRACKET, TOP RETURN SPRING	1
37	72915	8339350	BRACKET, AUX INTERLOCK SUPPORT	1
38	72915	8364866	BRACKET, BOTTOM RETURN SPRING	1
39	72915	8269680	WASHER, BELLVILLE, 1/4 ID X 3/4 IN. OD	1
40	72915	8339366	INSULATOR, SUPPORT BRACKET	1
41	72915	8409983	BOBBIN, INTERLOCK OPERATOR	1
42	72915	8341965	INTERLOCK ASSEMBLY	1
43	72915	426892	SCREW, CAP, HEX, SOCKET-HEAD, 5/16-18 X 1	1
44	72915	120393	WASHER, FLAT, 5/16 IN.	1
45	72915	8364897	SCREW, CAP, YOKE MTG., 5/16-18 X 1, FLAT, SOCKET HEAD	1
46	72915	454734	SCREW, 10-32 X3/8 FIL HD., INCL., WASHER	8
47	72915	8463504	CLAMP, WHITE NYLON, 9/16 ID	2
48	72915	8389466	SLEEVE, RECTIFIER INSULATION	1
49	72915	8433751	RECTIFIER ASSEMBLY, INCLUDE SILICON DIODE, SELENIUM CLIP CELL AND LEADS	1
50	72915	8276560	TAB, FAST ON LEAD, CONNECTION "U" TYPE	2
51	72915	120614	NUT, MACHINE, 10-32	2
52	72915	121801	WASHER, LOCK #10	4
53	72915	8039920	WASHER, FLAT, #10 BRASS	4
54	72915	120393	WASHER, FLAT, 5/16 IN.	1
55	72915	8354912	GUARD, RESISTOR	1
56	72915	8470047	SCREW, SUPPORT PLATE MTG., 1/4-20 X 1, FLAT SOCKET HEAD	4
57	72915	8468987	TERMINAL ASSEMBLY, BOTTOM	1
58	72915	8468988	PLATE, MOVABLE, CONTACT SUPPORT	1
59	72915	2468990	SUPPORTASSEMBLY, MOVABLE CONTACT	1
60	72915	8339358	MOLDING, BOTTOM TERMINAL	1

(1) ITEM NUMBER	(2) FSCM	(3) PART NUMBER	(4) DESCRIPTION AND USABLE ON CODE (UOC)	(5) QTY
			FIG. 57 SWITCH, MAGNETIC REVERSER (CONT)	
61			LEAD, ELECTRICAL CONNECTOR, MADE FROM; WIRE, 14 AWG, P/N 849176 (72915), TERMINAL 14 AWG, W/SPADE, P/N A2272 (46522) ON ONE END AND LUG, 14 AWG P/N 31906 (89110) ON OTHER END. REF. DES: "RVF1"; N4, N4A, DD, DD1, "RVF2"; N3, N4, 001, "RVR1"; N4, N5A, OH1, OH, "RVR2"; N5A, DH1, N5	18
62			LEAD, ELECTRICAL, MADE FROM; WIRE, 14 AWG, P/N 849176 (72915) AND TERMINAL LUG ON EACH END, P/N 31906 (89110) REF. DES: "RVF1L"; SA33, SA32, MEC, ME6, DF6, DFG, DCD, "RVF2"; MC, MEC, DG, DFG, DD/DD6, DCD, RVRI; SA23, SA2, MBC, MB6, DB6, DBC, DG11, DG6/DG, "RVR2"; MC/MC6, MBC, DBC, DC, DH6, DGH	31
63	72915	8410741	BRACKET, LIMIT SWITCH MTG.	1
64	72915	8347522	CAPACITOR, MOLDED MYLAR, 0.1 MFD, 400 VDC INCLUDES LEADS	1
65	72915	8144845	SWITCH, LIMIT, 2 AMPS, 125 VOLTS	1
66	72915	8375503	YOKE, MAGNET, "U" TYPE	1
67	72915	8339341	WASHER, WAVE, 1 13/32 I.D. X 1 53/64 O.D. X .015 IN. THICK	1
68	72915	8354704	SCREW, CAP, POLE PLATE MTG., 1/4-20 X 3/4 FLAT SOCKET HAD	1
69	72915	138604	WASHER, LOCK, 1/4 COUNTERSINK, EXTERNAL TOOTH	1
70	72915	8339340	PLATE, POLE, 1 3/4 X 1 5/16 X 3/16 IN.	1
71	72915	8339339	CORE, MAGNET, 1 5/16 DIA. X3 1/4 IN. LONG	1
72	72915	8339342	COIL, MAGNET, RESISTANCE, 19.8 OHMS, 74 VDC	1
73	72915	8339375	RESISTOR, 55W, 75 OHMS	1
			END OF FIGURE	

3-33. CONTROLLER MECHANISM

This task covers:

a.	Removal	c.	Cleaning	e.	Repair	g.	Assembly
b.	Test	d.	Inspection	f.	Disassembly	h.	Installation

INITIAL SETUP:

Tools

Tool kit No. SC 4940-97-CL-E12

Material/Parts

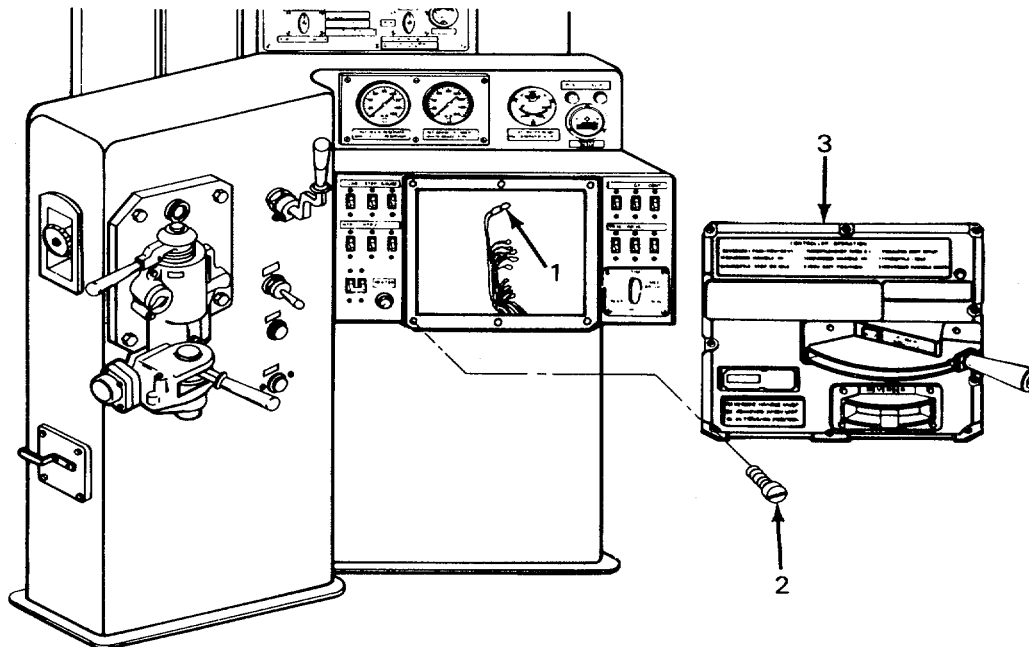
Drycleaning solvent (Item 30, Appendix B)

REMOVAL

WARNING

- High voltage is used in the operation of equipment. Do not be misled by the term LOW VOLTAGE. Potentials as low as 50 volts may cause death.
- Remove rings, bracelets, wristwatches, and neck chains before working around the locomotive. Jewelry can catch on equipment and cause injury, or may short across an electrical circuit and cause severe burns or electrical shock.

1. Set battery switch to OPEN position.
2. Gain access to rear of controller through high-voltage cabinet door.
3. Tag and disconnect wire harness leads from controller mechanism (3).



3-33. CONTROLLER MECHANISM (cont)

REMOVAL (cont)

4. Remove panel light (1) from top of controller mechanism (3).
5. Remove eight mounting screws (2) from top and sides of controller mechanism (3).
6. Remove controller mechanism (3).

TEST

7. Use multimeter and check the switches individually. Make a resistance test to check that the switches open and close while moving the throttle from STOP to THROTTLE 8 position.
8. Use a voltmeter and test resistor (7). Make a resistance test to check that the resistance is 300 ohms $\pm 5\%$.
9. Use a voltmeter and test resistor (16). Make a resistance test to check that the resistance is 75 ohms $\pm 5\%$.

CLEANING, INSPECTION, AND REPAIR

WARNING

- Drycleaning solvent P-D-680 is toxic and flammable. Wear protective goggles and gloves and use only in a well-ventilated area. Avoid contact with skin, eyes, and clothes and don't breathe vapors. Do not use near open flame or excessive heat. The flash point is 100 - 138°F (38 - 59°C). If you become dizzy while using cleaning solvent, get fresh air immediately and get medical aid. If contact with eyes is made, wash your eyes with water and get medical aid immediately.
- Compressed air used for cleaning purposes will not exceed 30 psi (207 kPa). Use only with effective chip-guarding and personal-protective equipment (goggles, shield, gloves, etc.).

NOTE

Repair consists of replacing defective switches and/or replacing resistors.

10. Use drycleaning solvent and clean parts. Dry with compressed air.

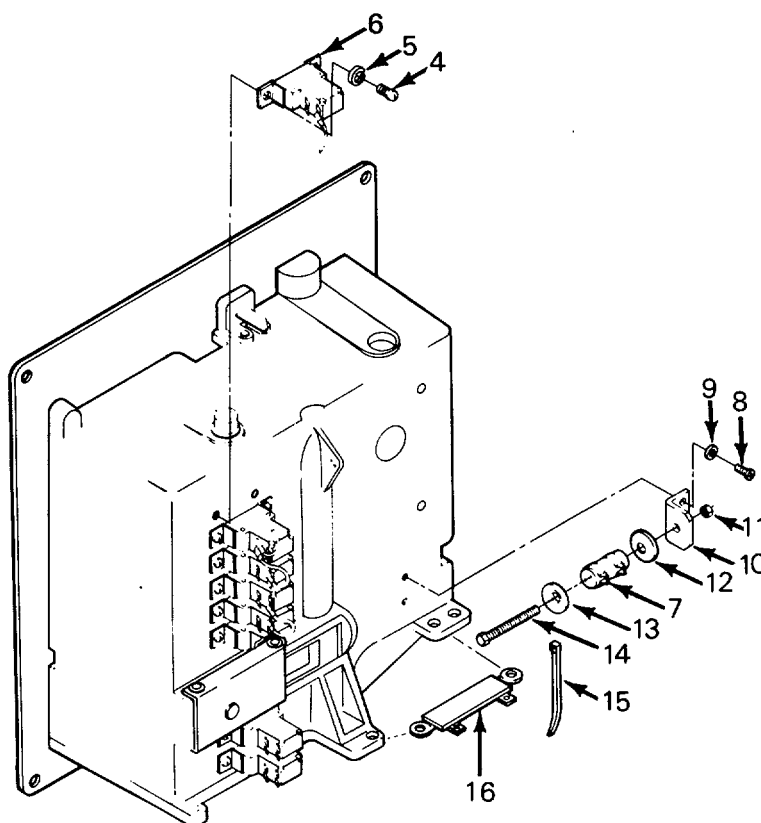
3-33. CONTROLLER MECHANISM (cont)

CLEANING, INSPECTION, AND REPAIR (cont)

11. Inspect parts for cracks, breaks, or other damage.
12. Replace defective parts.

DISASSEMBLY

13. Remove two screws (4) and lockwashers (5).
14. Tag and disconnect wire jumpers between RE50 (7) and RE53 (16).
15. Remove switch (6).
16. Tag and disconnect wires from resistor RE50 (7) and resistor RE53 (16).
17. Remove two screws (8), lockwashers (9), and bracket (10).
18. Remove nut (11), mica washer (12), resistor RE50 (7), mica washer (13), and screw (14).
19. Remove two tie straps (15) and resistor RE53 (16).



3-33. CONTROLLER MECHANISM (cont)

ASSEMBLY

20. Install resistor RE53 (16) and secure with two tie straps (15).
21. Install screw (14), mica washer (13), resistor RE50 (7), mica washer (12) into bracket (10) and secure with nut (11).
22. Connect wires from resistor RE50 and RE53 and remove tags.
23. Install bracket (10), two lockwashers (9), and screws (8).
24. Install switch (6), two lockwashers (5), and screws (4).

INSTALLATION

25. Install controller mechanism (3) into control stand and secure with eight screws (2).
26. Connect wire jumpers between RE50 (7) and RE53 (16) and remove tags.
27. Install panel light (1).
28. Connect wiring harness to controller mechanism (3) and remove tags.

3-28. MAGNETIC REVERSER SWITCH

This task covers:

- | | | | |
|----------------|---------------|-------------|-----------------|
| a. Removal | c. Cleaning | e. Repair | g. Installation |
| b. Disassembly | d. Inspection | f. Assembly | h. Test |

INITIAL SETUP

Tools

Tool kit SC 4940-97-CL-E12

Test Equipment

Multimeter 6625-01-139-2512

Variable dc voltage supply

Material/Parts

Dry-cleaning solvent (Item 30, Appendix B)

Sealing compound (Item 8, Appendix B)

REMOVAL

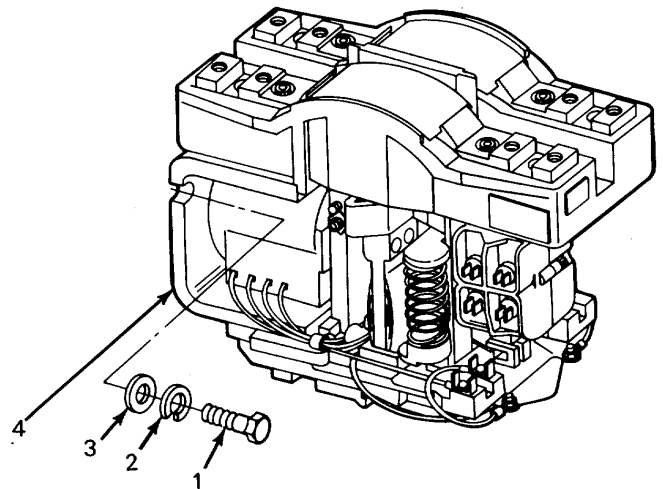
WARNING

- High voltage is used in the operation of equipment. Do not be misled by the term LOW VOLTAGE. Potentials as low as 50 volts may cause death.
- Remove rings, bracelets, wristwatches, and neck chains before working around the locomotive. Jewelry can catch on equipment and cause injury, or may short across an electrical circuit and cause severe burns or electrical shock.

NOTE

If magnetic reverse switch is suspected of being defective perform steps 37, 38, and 39 before removal.

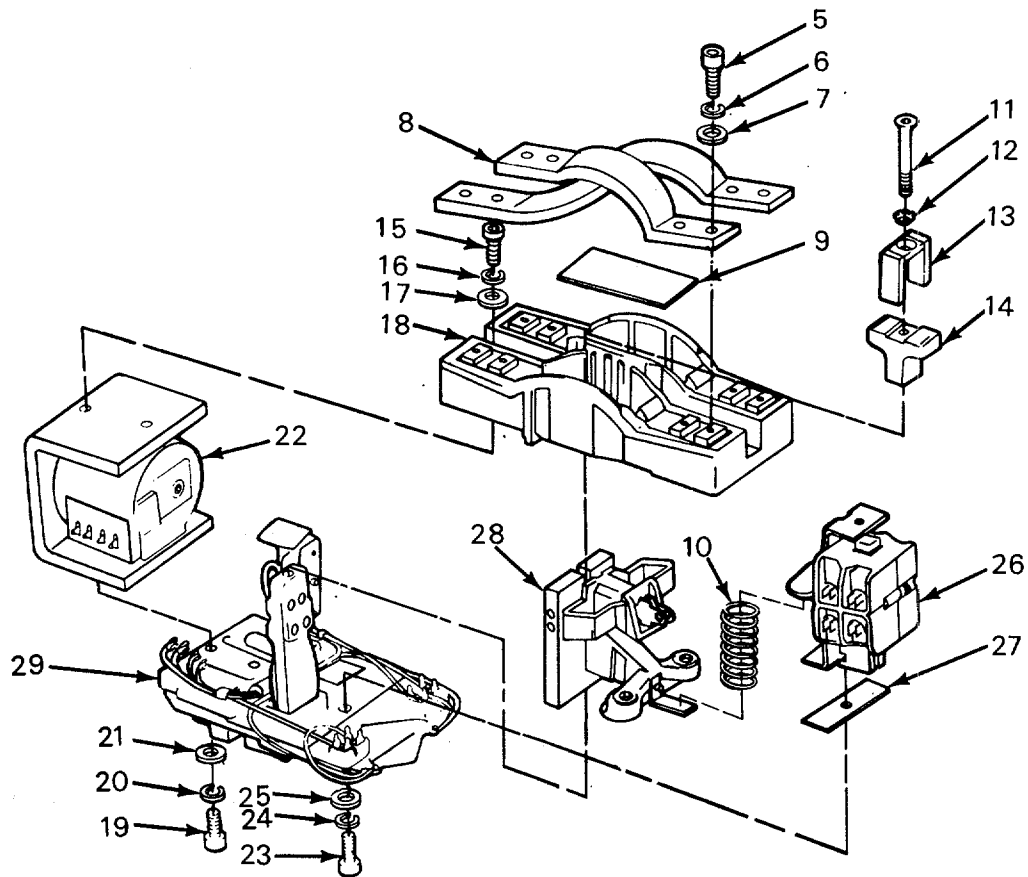
1. Set battery switch to OPEN position. Disconnect wires from relay assembly and tag wires.
2. Remove two socket-head screws (1), lockwashers (2), flat washers (3), and magnetic reverser switch (4).



3-28. MAGNETIC REVERSER SWITCH (cont)

DISASSEMBLY

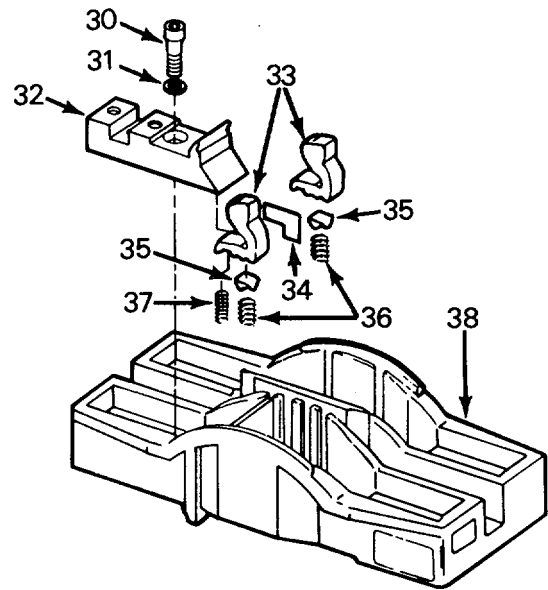
3. Remove eight screws (5), lockwashers (6), flat washers (7), and two transfer bars (8).
4. Push ends of two plastic covers (9) and remove.
5. Remove two return springs (10).
6. Remove two allen-head screws (11), lockwashers (12), movable hold-on irons (13), and movable contacts (14).
7. Remove three allen-head screws (15), lockwashers (16), flat washers (17), and top terminal assembly (18).
8. Tag and remove wires from magnetic assembly (22).
9. Remove two allen-head screws (19), lockwashers (20), flat washers (21), and magnet assembly (22).
10. Remove allen-head screws (23), lockwashers (24), and flat washer (25).
11. Remove interlock assembly (26), insulator (27), and armature and operator assembly (28) from bottom terminal and limit switch assembly (29).



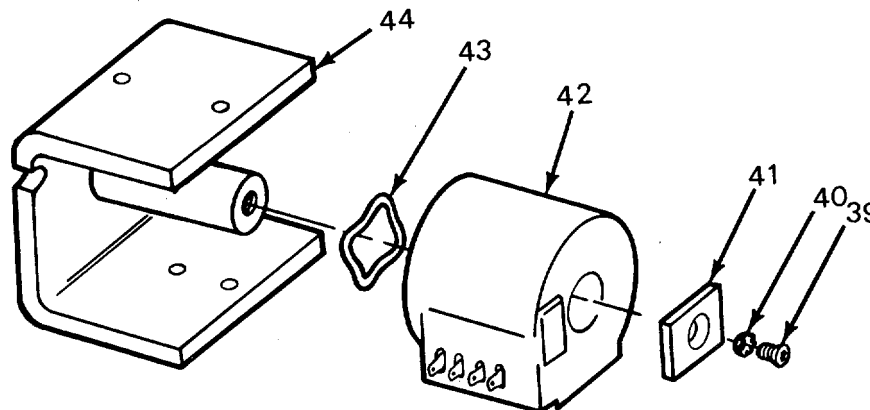
3-28. MAGNETIC REVERSER SWITCH (cont)

DISASSEMBLY (cont)

12. Disassemble top terminal assembly (18) by the following:
 - a. Remove eight allen-head screws (30), lockwashers (31), and four contact assemblies (32).
 - b. Remove eight stationary contacts (33) and four spacers (34).
 - c. Remove eight caps (35), pivot springs (36), and wipe springs (37) from top terminal (38).



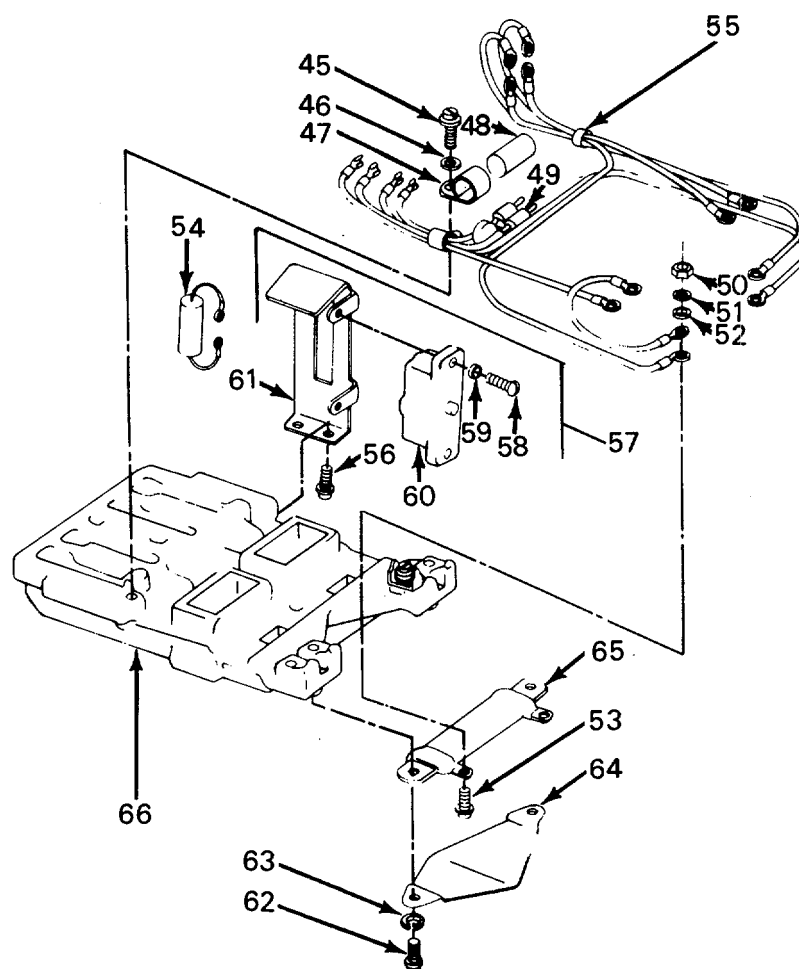
13. Disassemble magnet assembly (22) by the following:
 - a. Remove allen head screw (39), lockwasher (40), and pole plate (41).
 - b. Remove magnet coil (42) and spring washer (43) from magnet yoke (44).



14. Disassemble bottom terminal and limit switch assembly (29) by the following:
 - a. Remove screw (45), flat washer (46), clamp (47), sleeve (29), and rectifier assembly (49).
 - b. Remove two nuts (50), lockwashers (51), flat washers (52), and screws (53).
 - c. Tag and disconnect wires from back of limit switch (60). Remove capacitor (54) and wiring harness (55).

3-28. MAGNETIC REVERSER SWITCH (cont)

DISASSEMBLY (cont)



- d. Remove two screws (56) and limit switch assembly (57).
- e. Remove two screws (58), lockwashers (59), and limit switch (60) from switch bracket (61).
- f. Remove two screws (62), lockwashers (63), resistor guard (64), and resistor (65) from bottom terminal (66).

3-28. MAGNETIC REVERSER SWITCH (cont)

CLEANING, INSPECTION, AND REPAIR

WARNING

- Drycleaning solvent P-D-680 is toxic and flammable. Wear protective goggles and gloves and use only in a well-ventilated area. Avoid contact with skin, eyes, and clothes and don't breathe vapors. Do not use near open flame or excessive heat. The flash point is 100 138°F (38 - 59°C). If you become dizzy, get fresh air and medical aid immediately. If contact with eyes is made, wash your eyes and get medical aid immediately.
- Compressed air used for cleaning purposes will not exceed 30 psi (207 kPa). Do not direct compressed air against skin. Use goggles or full face shield.

NOTE

Do not file or attempt to clean movable contacts (14) and stationary contacts (33). Silver alloy surfaces on contacts may become blackened, pitted, or eroded. These conditions will not hamper the operation of the contactor.

15. Use drycleaning solvent and clean metal parts. Dry with compressed air.
16. Inspect molded parts for warpage, breaks, and cracks. Replace damaged parts.
17. Inspect movable contacts (14) and stationary contacts (33). If alloy material is worn through to base metal, replace contacts.
18. Inspect magnet coil (42) for damaged insulation. Replace damaged coil.
19. Use a multimeter and measure resistance of magnet coil (42). If resistance is not 19.8 ohms ($\pm 10\%$), replace coil.
20. Use a multimeter and measure resistance of resistor (65). If resistance is not 75 ohms ($\pm 5\%$), replace resistor.

3-28. MAGNETIC REVERSER SWITCH (cont)

ASSEMBLY

21. Assemble bottom terminal and limit switch assembly (29) by the following:
 - a. Install resistor (65) and resistor guard (64) on bottom terminal (66). Coat two screws (62) with sealant and install screws and lockwashers (63).
 - b. Install limit switch (60) on switch bracket (61). Secure with two lockwashers (59) and screws (58).
 - c. Install limit switch assembly (57) on bottom terminal (66). Coat two screws (56) with sealant and install.
 - d. Install wiring harness (55) on bottom terminal (66). Install capacitor (54) on back of limit switch assembly (57) and connect wires.
 - e. Install two screws (53), flat washers (52), lockwashers (51), and nuts (50).
 - f. Install rectifier assembly (49), sleeve (48), clamp (47), flat washer (46), and screw (45).
23. Assemble magnet assembly (22) by the following:
 - a. Install spring washer (43) and magnet coil (42).
 - b. Install pole plate (41) and secure with lockwasher (40) and screw (39).
24. Assemble top terminal assembly (18) by the following:
 - a. Install eight wipe springs (37), pivot springs (36), and caps (35) on top terminal (38).
 - b. Install eight stationary contacts (33), four spacers (34), and four contact assemblies (32) on top terminal (38). Secure with eight lockwashers (31) and allen-head screws (30).
25. Install armature and operator assembly (28) over movable contact assembly on limit switch assembly (29).
26. Install insulator (27) and interlock assembly (26) on limit switch assembly (29), with armature and operator assembly (28) in slot of interlock assembly.
27. Install flat washer (25), lockwasher (24), and allen-head screw (23).
28. Install magnet assembly (22) on limit switch assembly (29). Secure with two flat washers (21), lockwashers (20), and allen-head screws (19).
29. Connect wires and remove tags.

3-28. MAGNETIC REVERSER SWITCH (cont)

ASSEMBLY (cont)

30. Install top terminal assembly (18) on magnet assembly (22) and interlock assembly (26). Secure with three flat washers (17), lockwashers (16), and allen-head screws (15).
31. Install two movable contacts (14) and two movable hold-on irons (13). Secure with two lockwashers (12) and allen-head screws (11).
32. Install two return springs (10) between armature and operator assembly (28) and interlock assembly (26).
33. Install two plastic covers (.9).
34. Install two transfer bars (8) on top terminal assembly (18). Secure with eight flat washers (7), lockwashers (6), and screws (5).

INSTALLATION

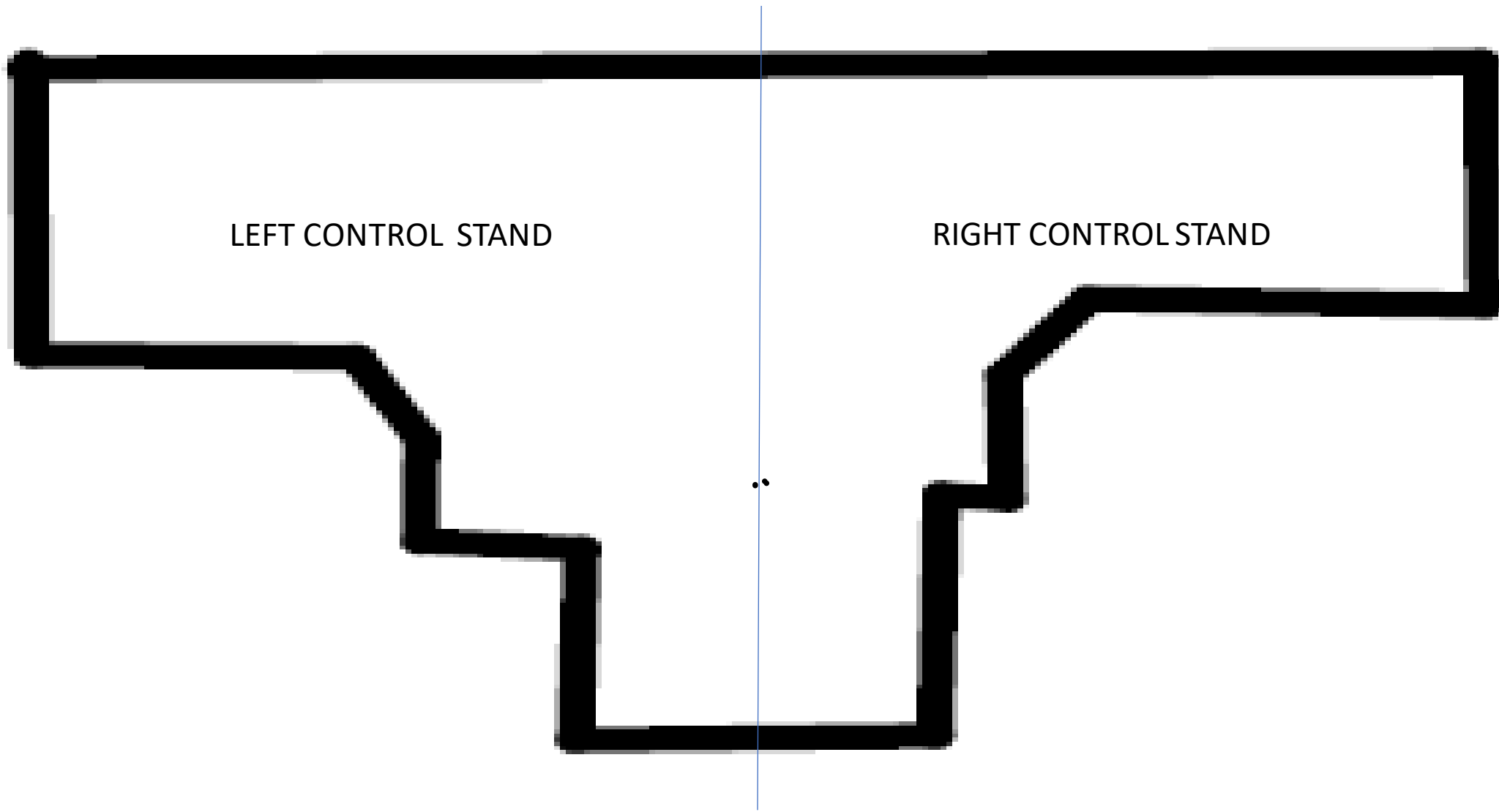
35. Install magnetic reverser switch (4) and secure with two flat washers (3), lockwashers (2), and socket-head screws (1).
36. Install electrical wires in accordance with wiring diagram.

TEST

37. Connect a variable dc voltage supply to magnet coil (42). Use a multimeter and measure voltage. Check that pickup voltage is 48 V dc maximum and dropout voltage is 5 to 28 V dc.
38. Energize and deenergize relay and check that there is no hesitation during pickup or dropout.
39. Check that that battery switch is in OPEN position. Manually operate interlock contacts. Use a multimeter and check resistance of contacts for infinity while open and continuity while closed.

FRONT/REAR CONTROL CONSOLES

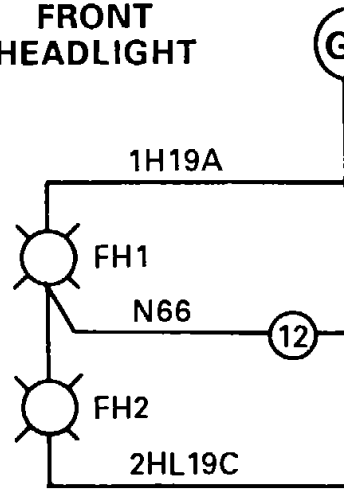
ADAM NUGENT ROSENBERGER 11/10/21



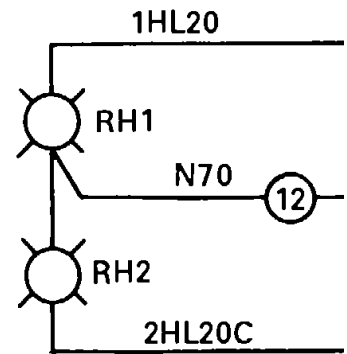
LEFT CONTROL STAND

RIGHT CONTROL STAND

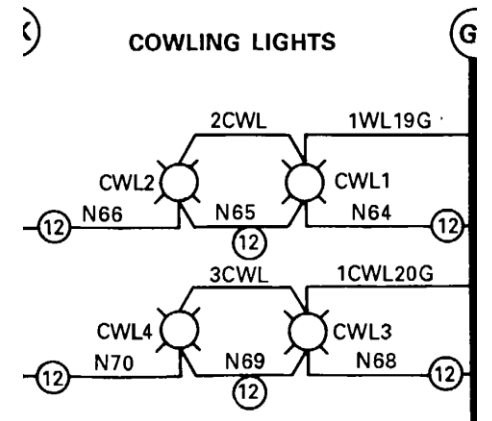
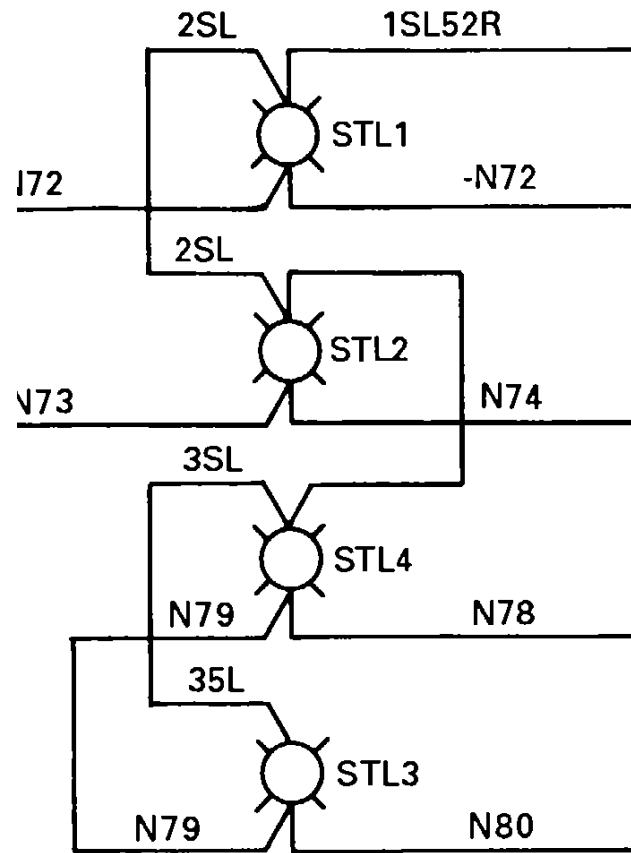
FRONT HEADLIGHT



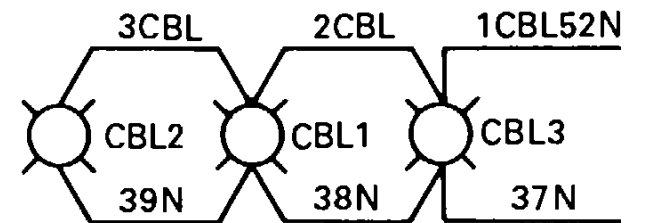
REAR HEADLIGHT



STEP LIGHTS



CAB LIGHTS



THE FOLLOWING IS FOR THE FRONT CAB

LEFT AND RIGHT BANK CONTROL STAND THE LISTED ONCE BUT SHOW UP IN BOTH FRONT LEFT AND FRONT RIGHT CONTROL STANDS

LEFT BANK CONTROL
STAND

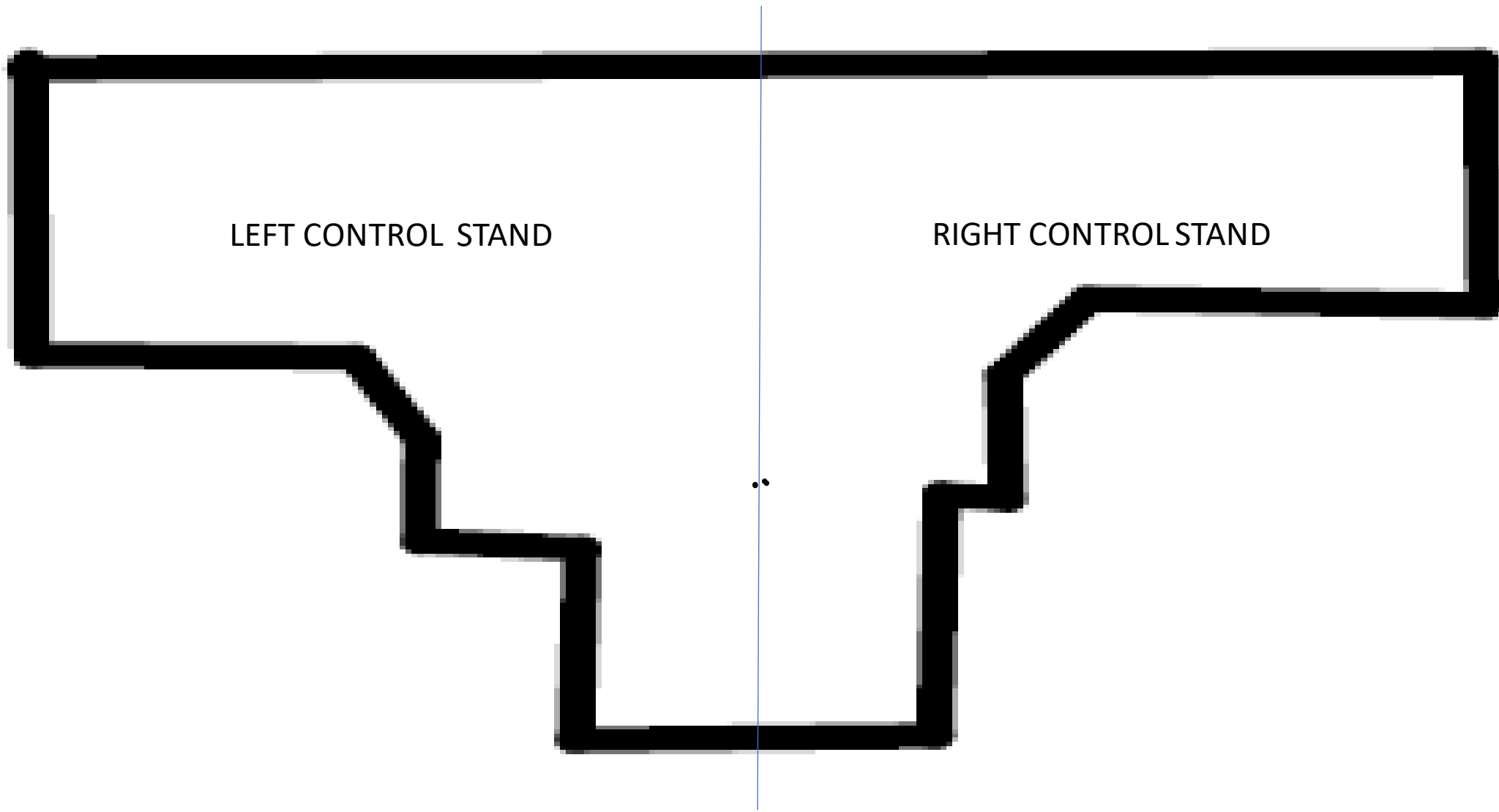
FRONT AND REAR
HEADLIGHT

STEP LIGHTS CAB LIGHTS
COWLING LIGHTS

RIGHT BANK CONTROL
STAND

FRONT AND REAR
HEADLIGHT

STEP LIGHTS CAB LIGHTS
COWLING LIGHTS



LEFT CONTROL STAND

RIGHT CONTROL STAND

THE FOLLOWING IS FOR THE FRONT CAB

LEFT AND RIGHT BANK CONTROL STAND THE LISTED ONCE BUT SHOW UP IN BOTH FRONT LEFT AND FRONT RIGHT CONTROL STANDS

LEFT BANK CONTROL
STAND

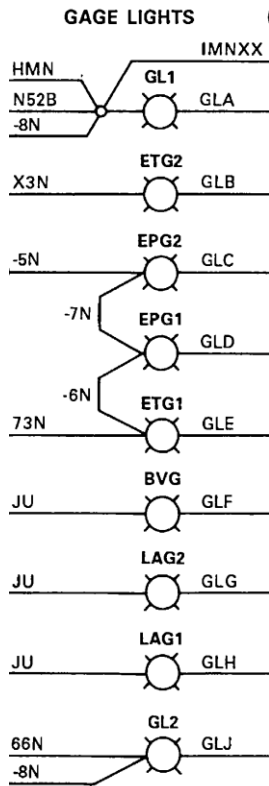
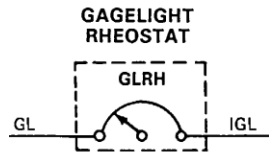
RIGHT BANK CONTROL
STAND

GAGE LIGHTS AND
RESISTORS

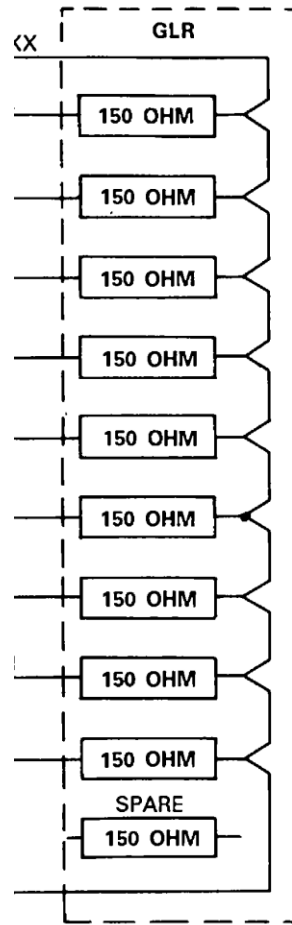
GAGE LIGHTS AND
RESISTORS

INDICATOR LIGHTS AND
RESISTORS

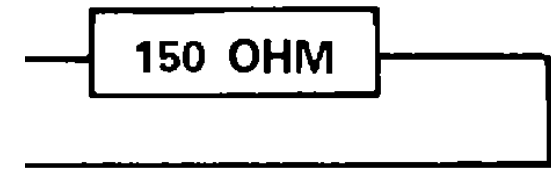
INDICATOR LIGHTS AND
RESISTORS



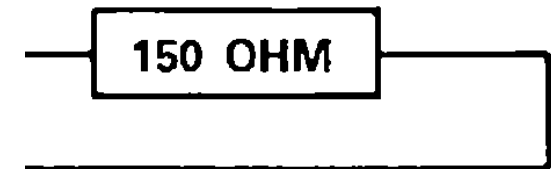
GAGE LIGHT RESISTORS

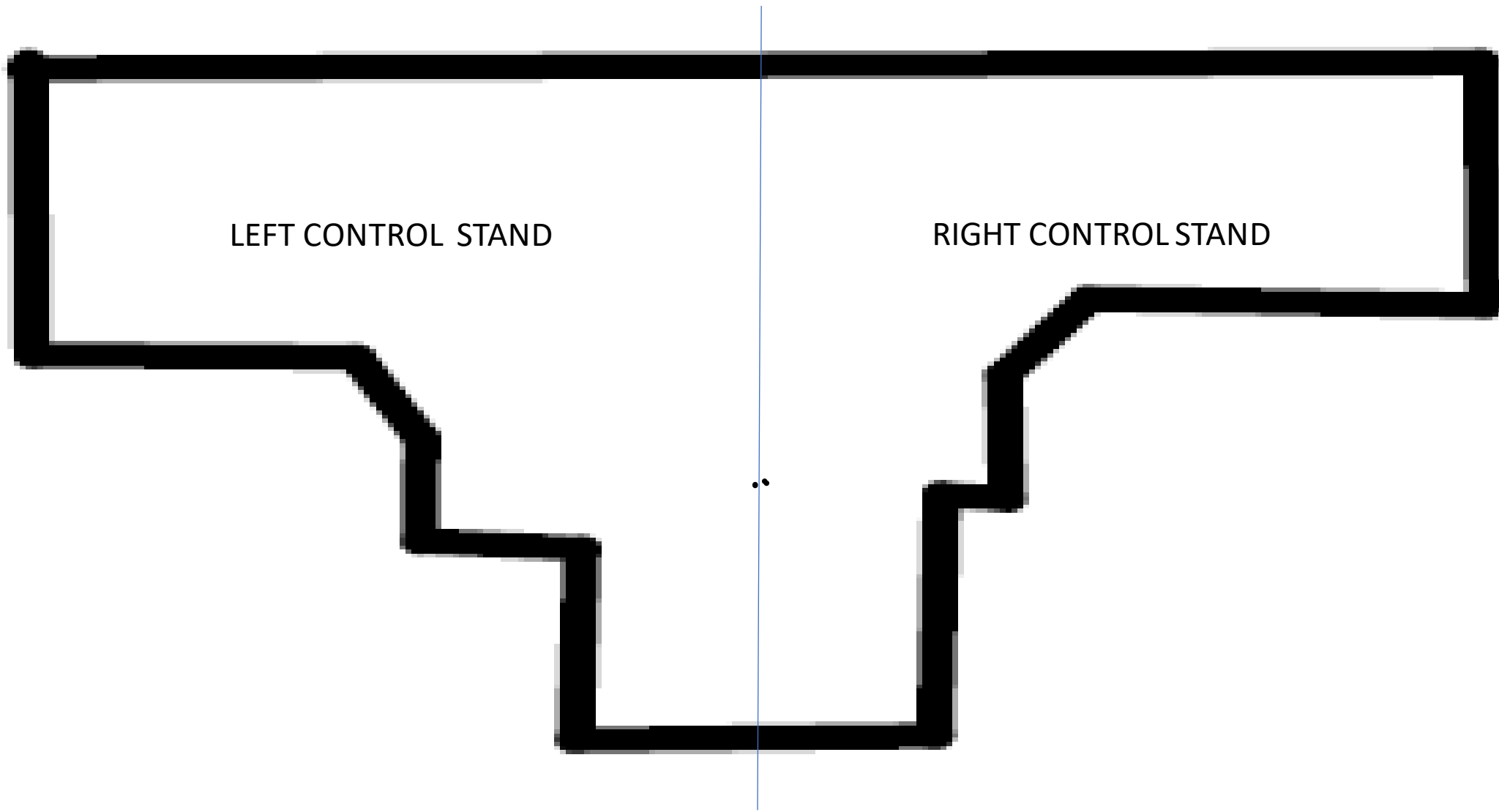


**IND LIGHT RES
ILR2**



**) + GAGE LIGHT RES
ILR1**





LEFT CONTROL STAND

RIGHT CONTROL STAND

THE FOLLOWING IS FOR THE FRONT CAB

LEFT AND RIGHT BANK CONTROL STAND THE LISTED ONCE BUT SHOW UP IN BOTH FRONT LEFT AND FRONT RIGHT CONTROL STANDS

LEFT BANK CONTROL
STAND

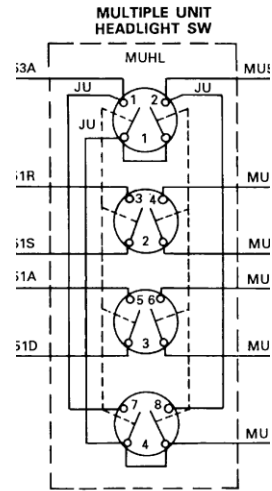
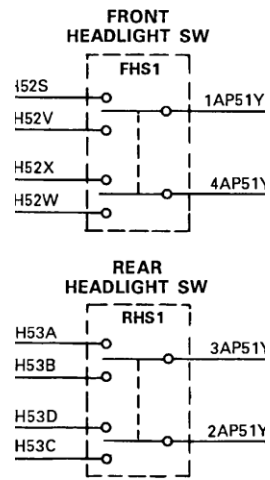
STEP LIGHTS CAB LIGHTS
NUMBER LIGHTS AND
HEADLIGHTS

WHEEL SLIP LIGHT AND
GROUND LIGHT COWLING
LIGHT SWITCH

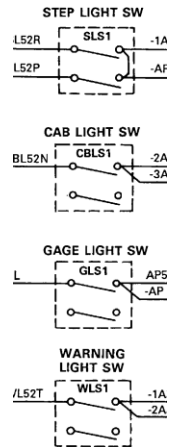
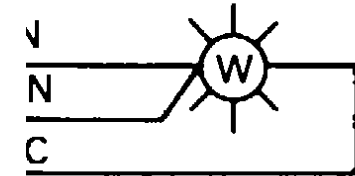
RIGHT BANK CONTROL
STAND

STEP LIGHTS CAB LIGHTS
NUMBER LIGHTS AND
HEADLIGHTS

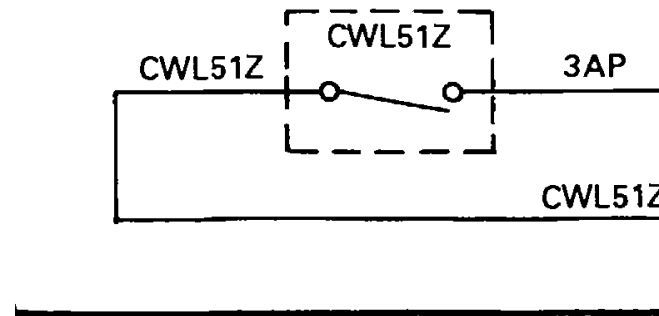
WHEEL SLIP LIGHT AND
GROUND LIGHT COWLING
LIGHT SWITCH



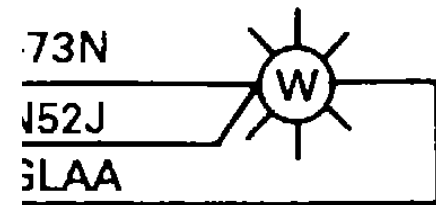
**WHEEL SLIP
IND LIGHT
WSL1**

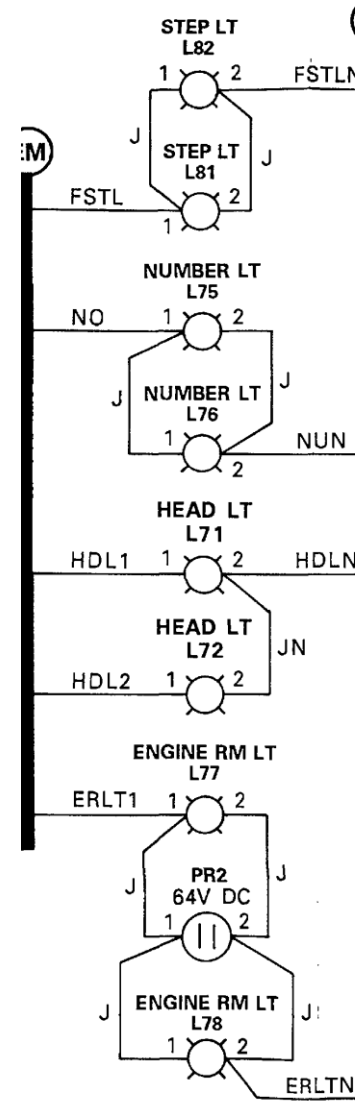
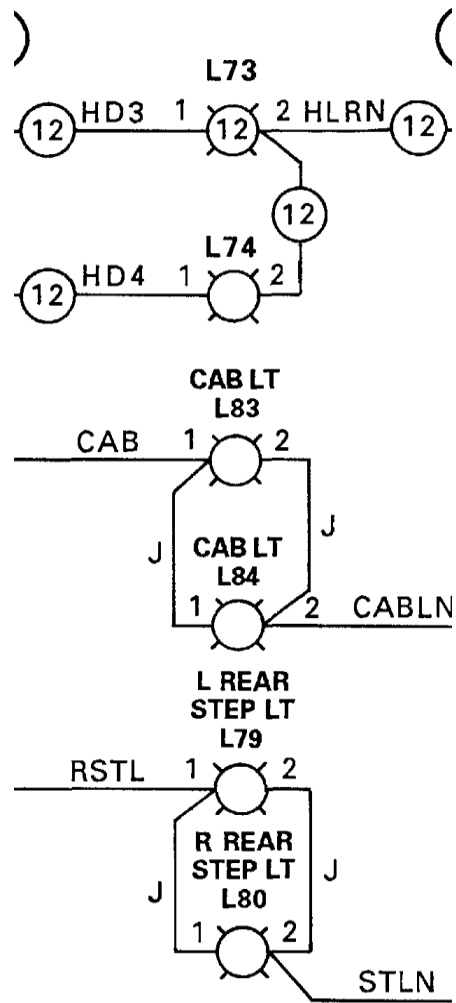


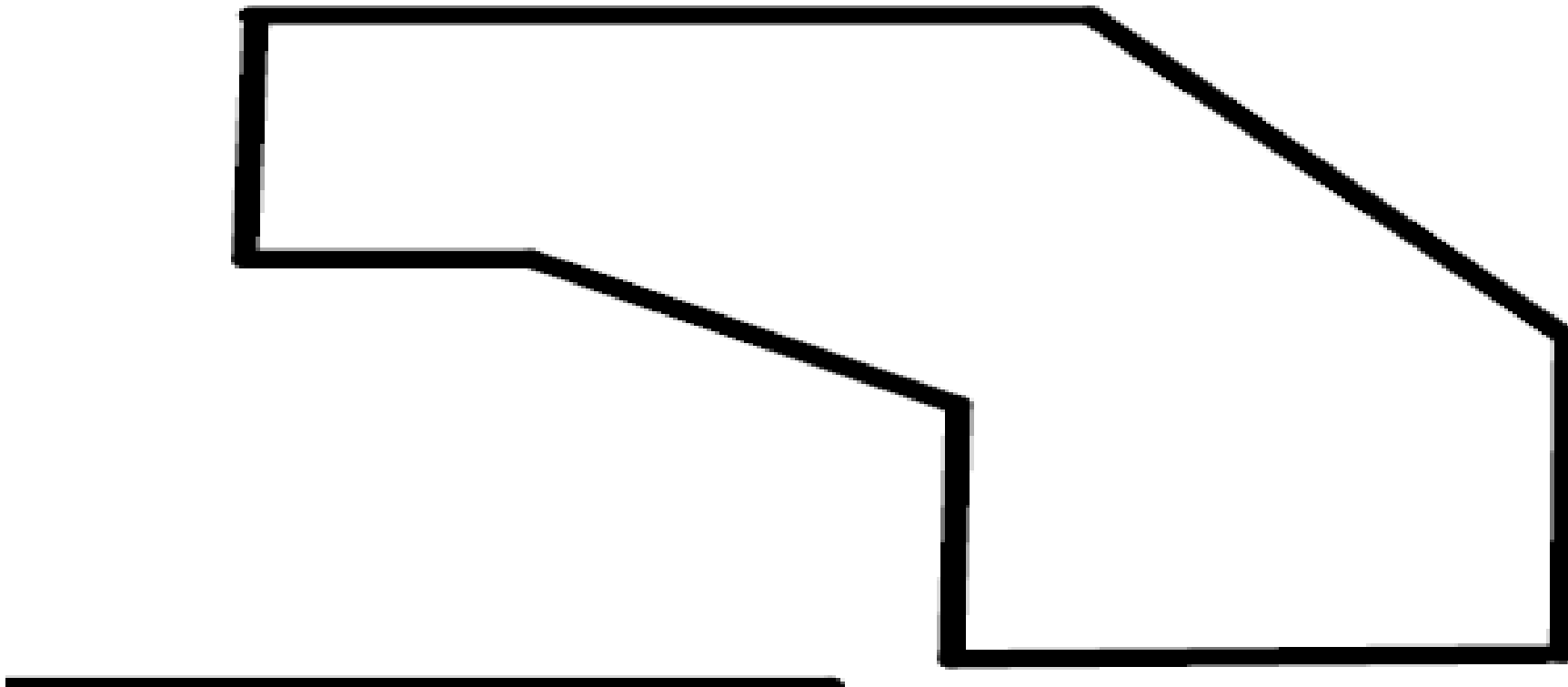
**COWLING
LIGHT SW**



**GROUND RELAY
IND LIGHT
GRL1**







**REAR CONTROL
STAND**

REAR CONTROL STAND CONSIST

STEP LIGHTS CAB LIGHTS
NUMBER LIGHTS AND
HEADLIGHTS

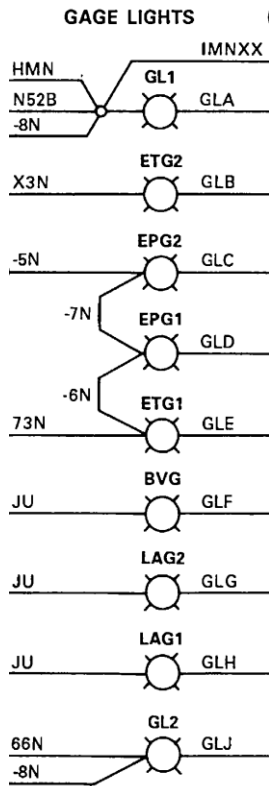
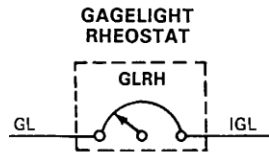
WHEEL SLIP LIGHT AND
GROUND LIGHT COWLING
LIGHT SWITCH

GAGE LIGHTS AND
RESISTORS

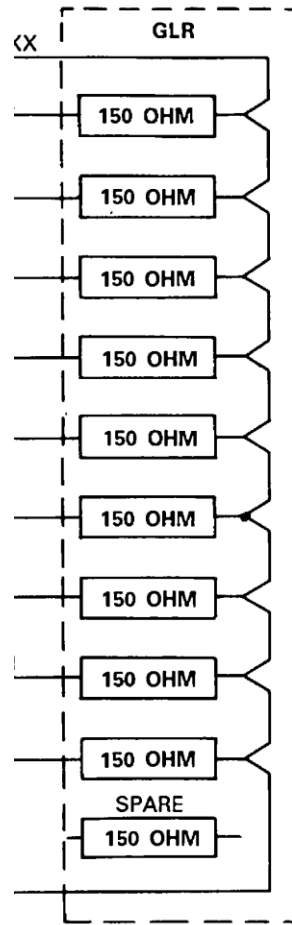
INDICATOR LIGHTS AND
RESISTORS

FRONT AND REAR
HEADLIGHT

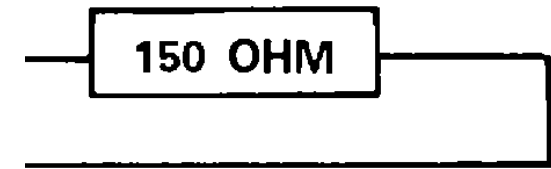
STEP LIGHTS CAB LIGHTS
COWLING LIGHTS



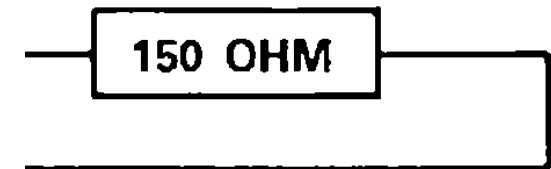
GAGE LIGHT RESISTORS

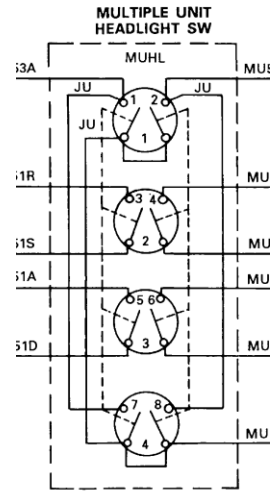
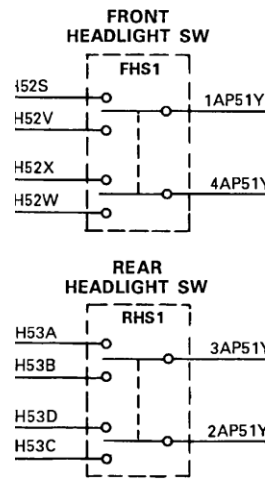


**IND LIGHT RES
ILR2**

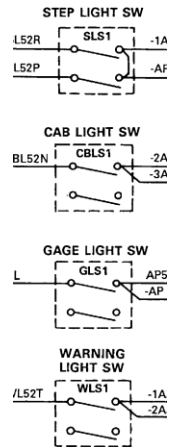
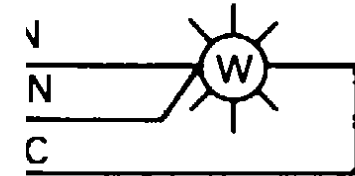


**) + GAGE LIGHT RES
ILR1**

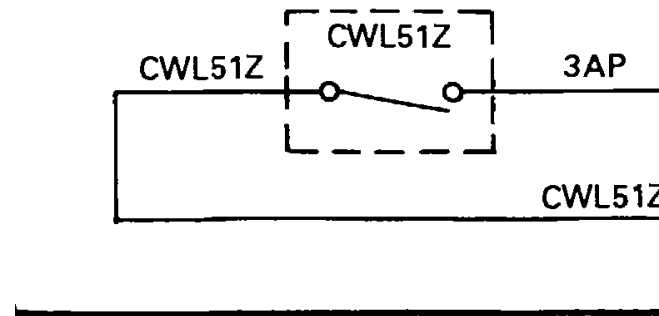




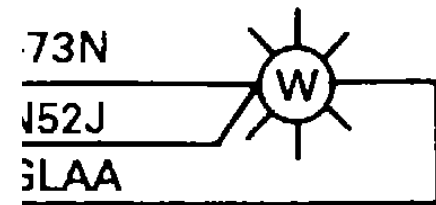
**WHEEL SLIP
IND LIGHT
WSL1**

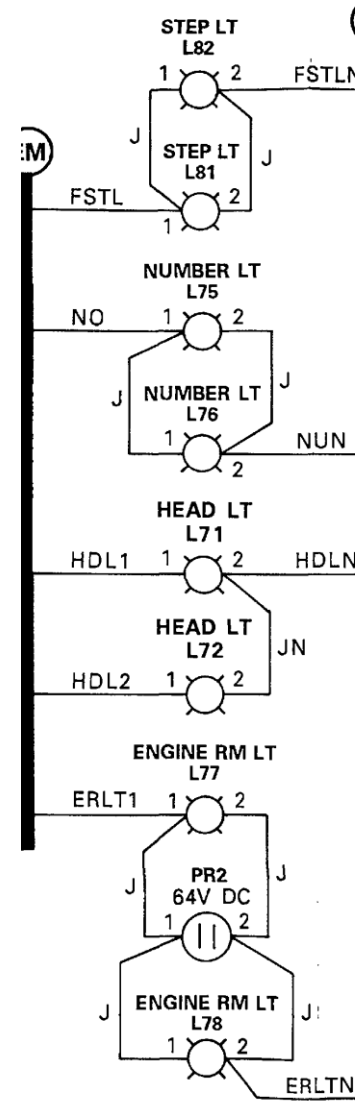
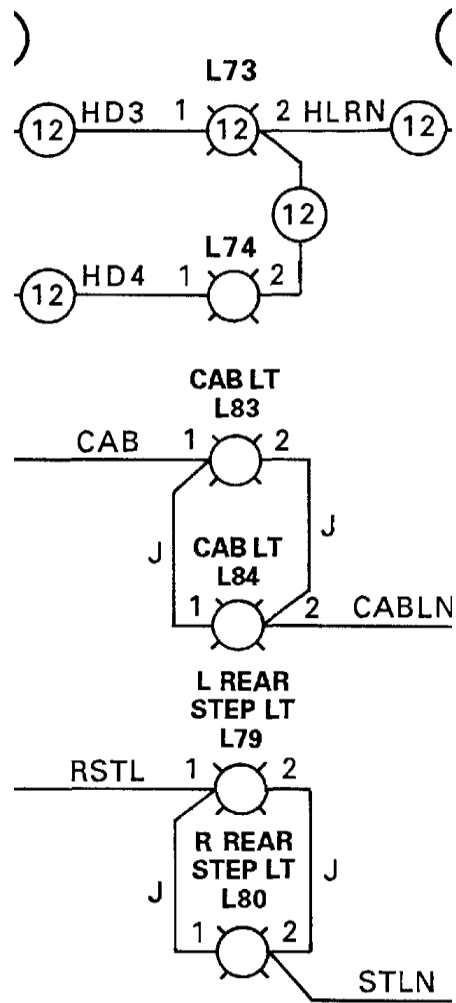


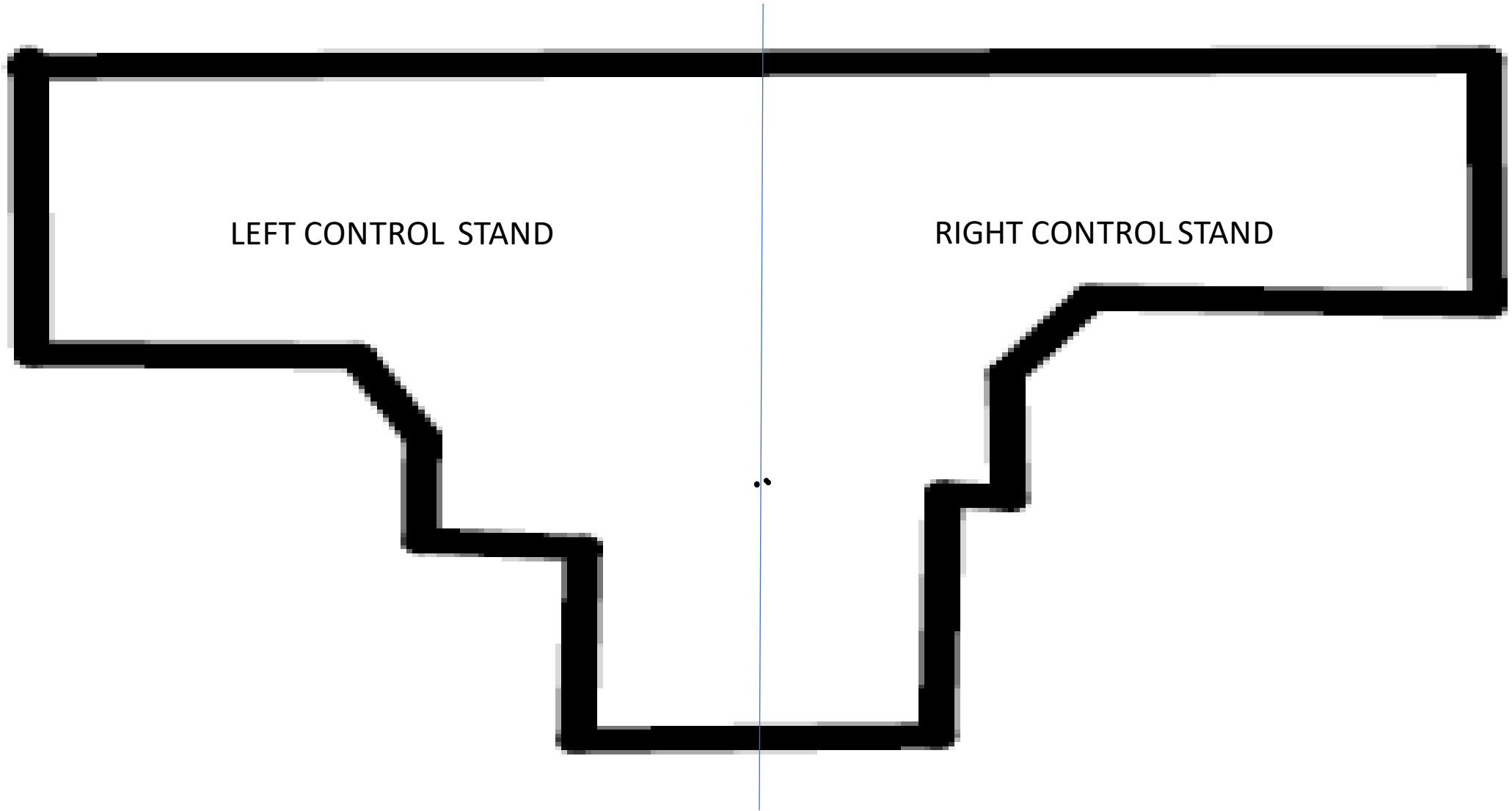
**COWLING
LIGHT SW**



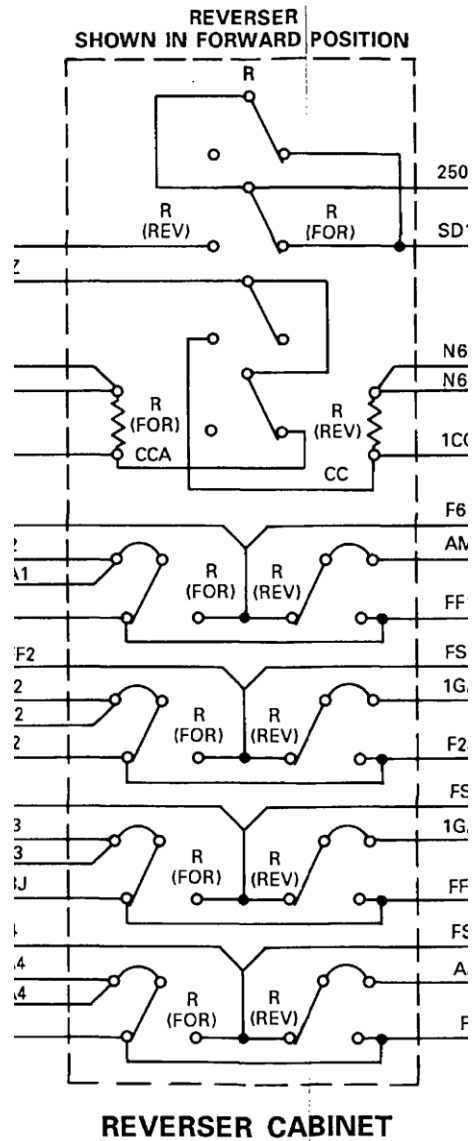
**GROUND RELAY
IND LIGHT
GRL1**



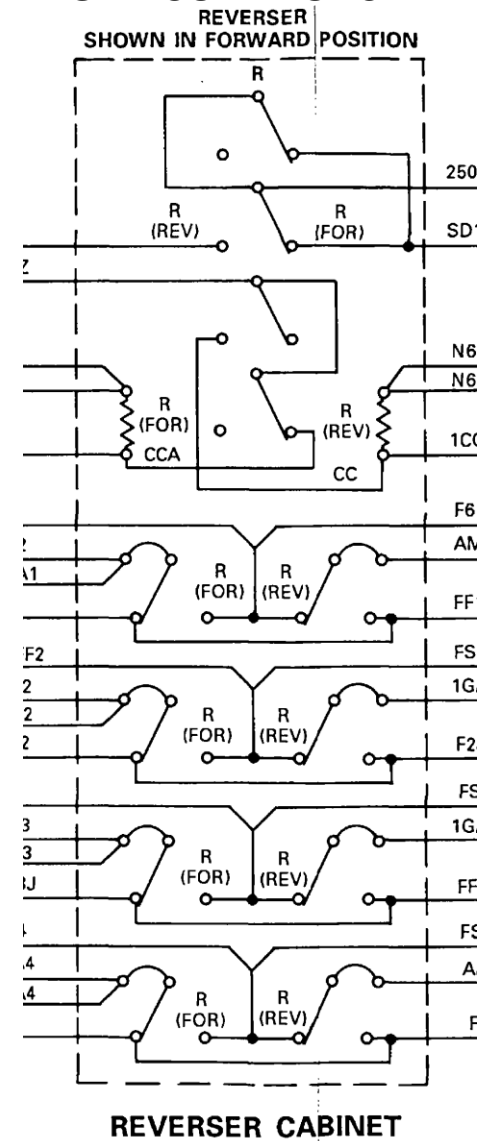


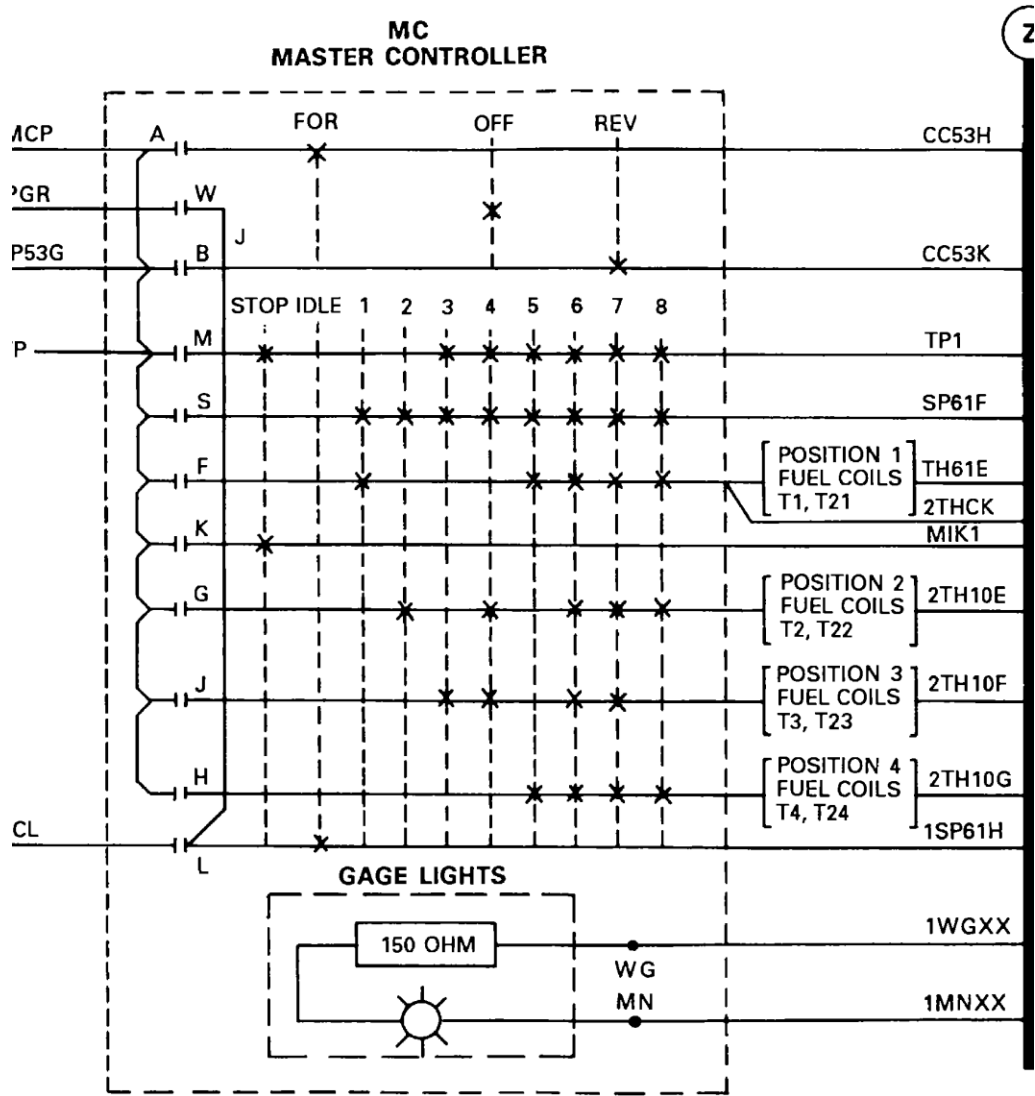


LEFT CONTROL STAND

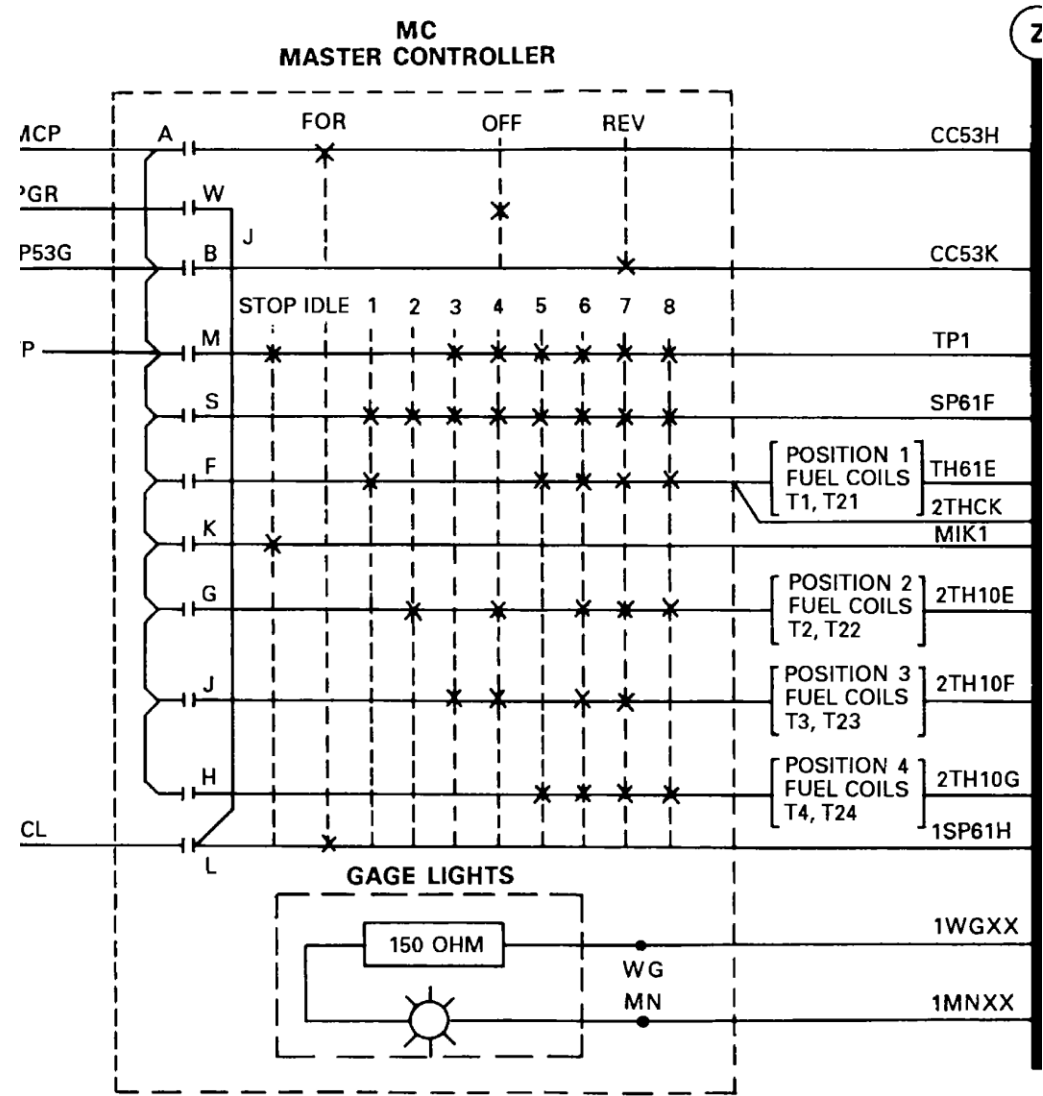


RIGHT CONTROL STAND



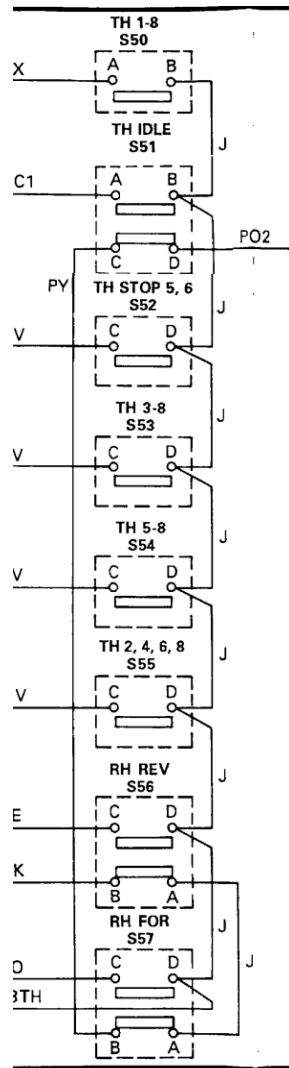


LEFT MASTER CONTROLLER

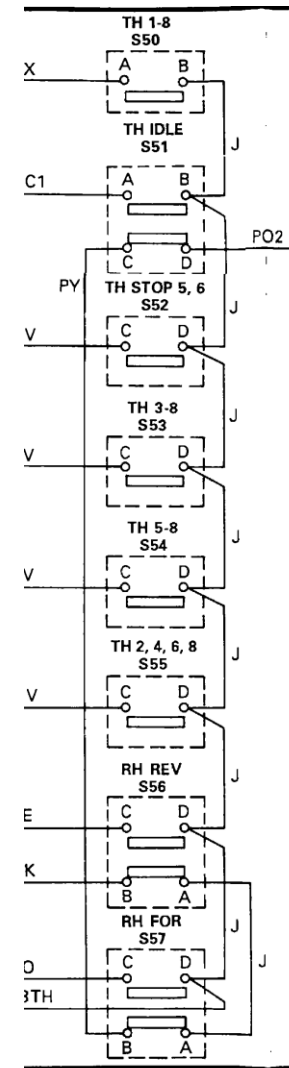


RIGHT MASTER CONTROLLER

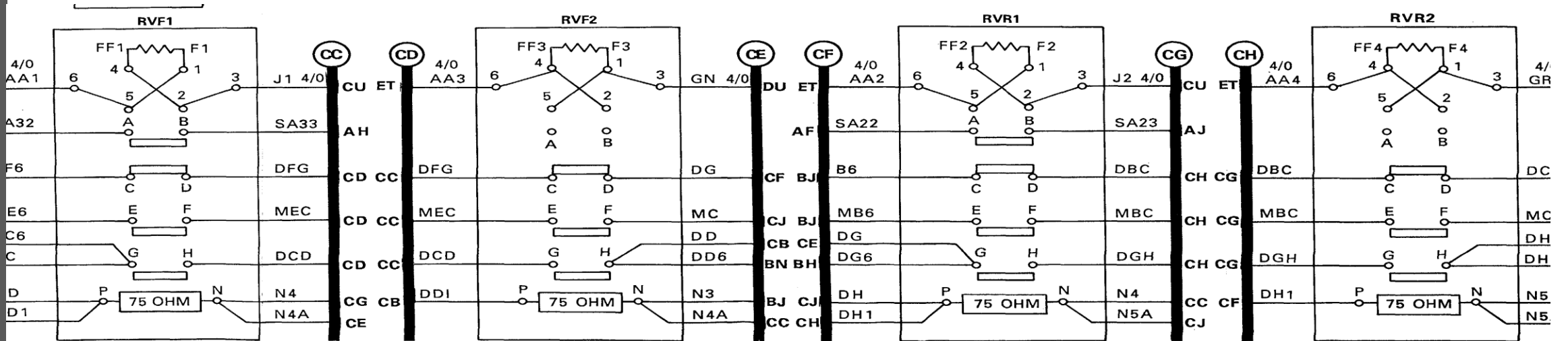
LEFT CONTROL STAND



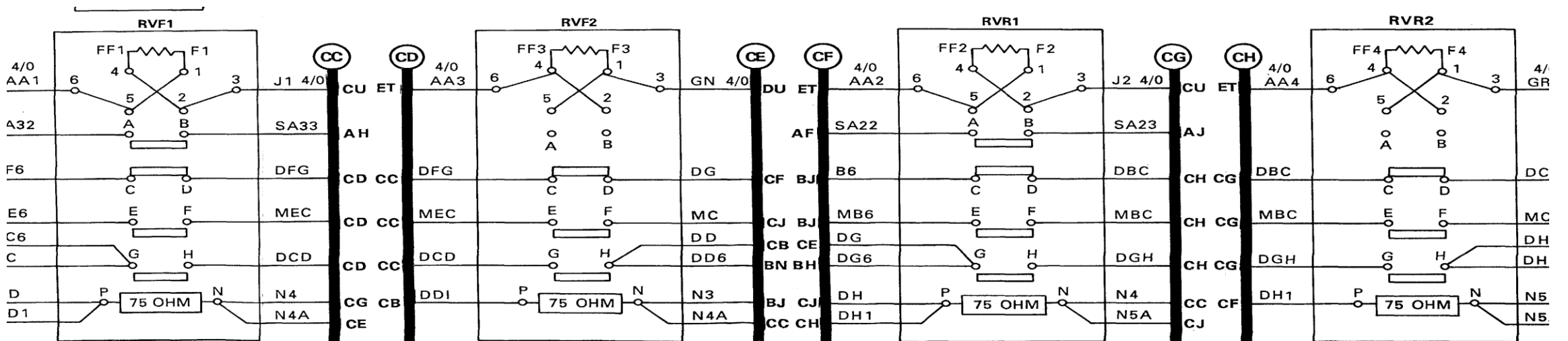
RIGHT CONTROL STAND

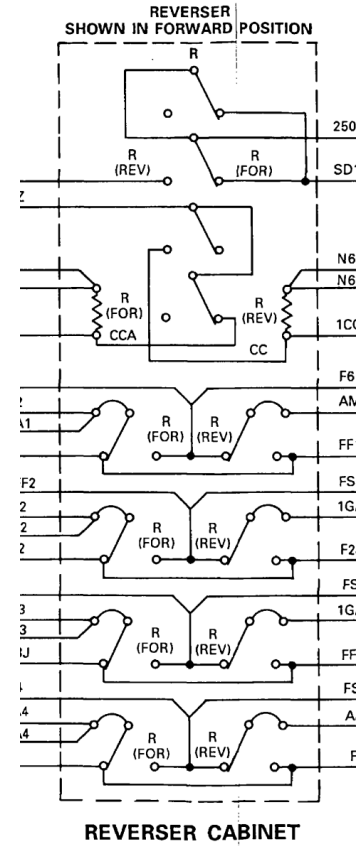
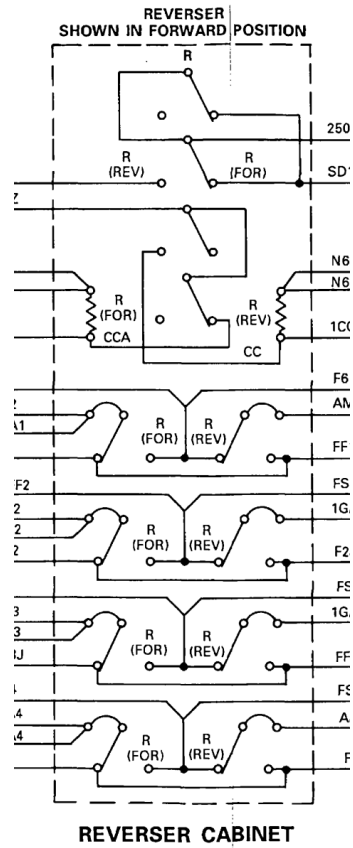
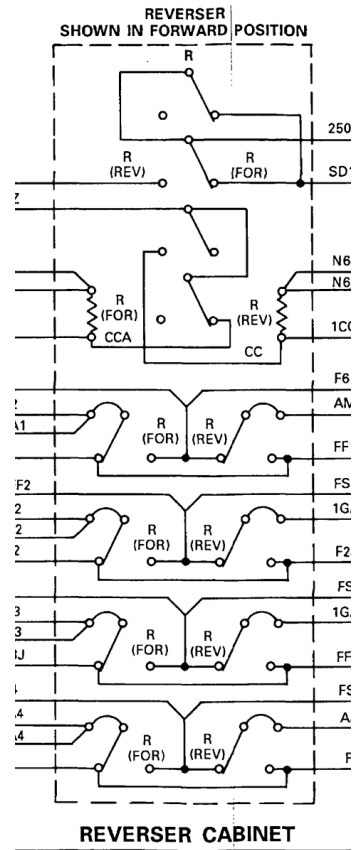


LEFT CONTROL STAND

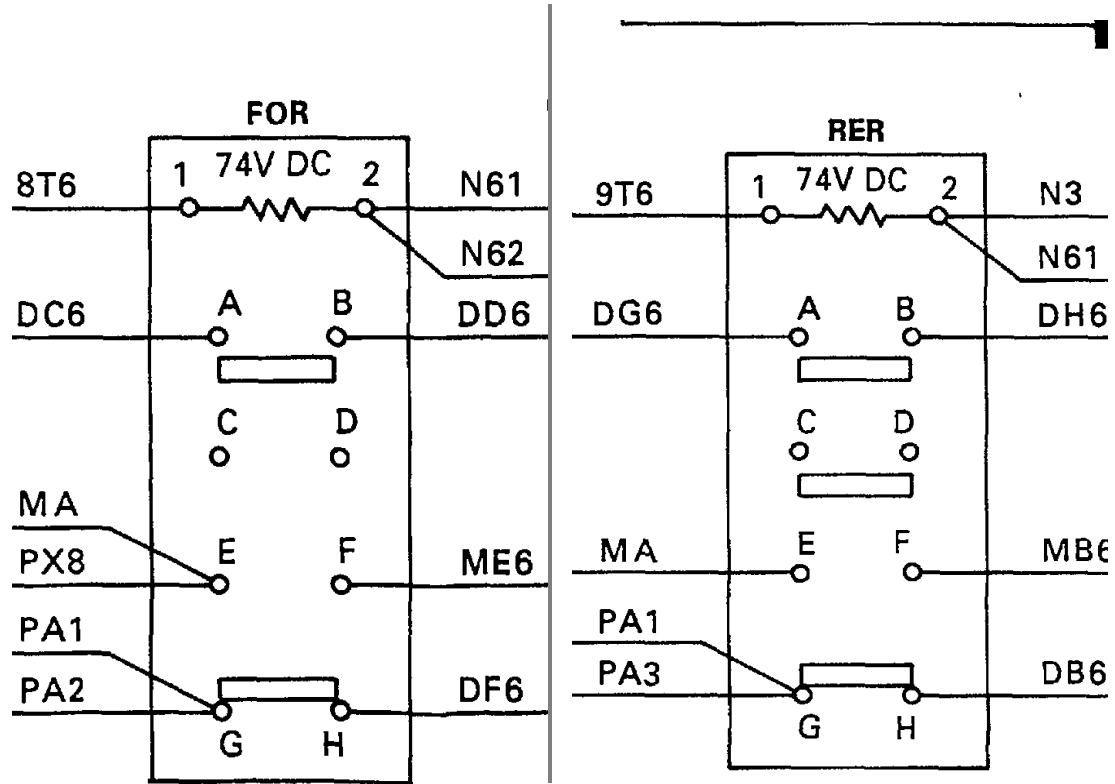


RIGHT CONTRO STAND

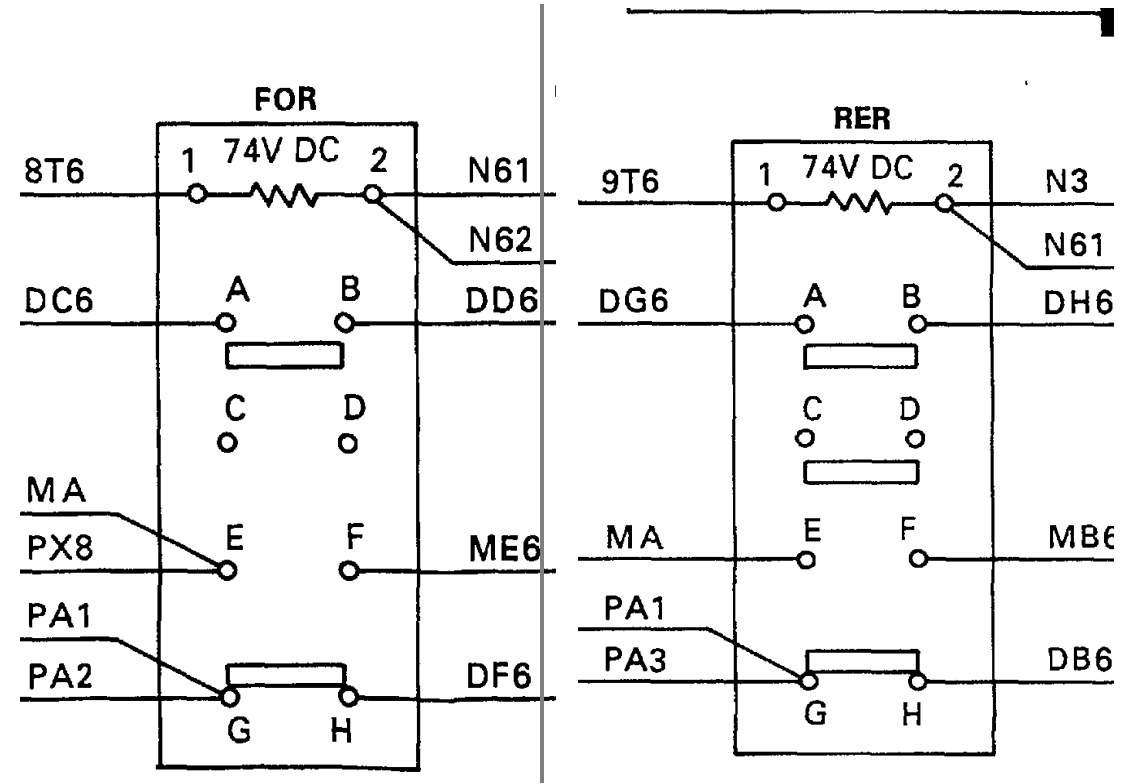


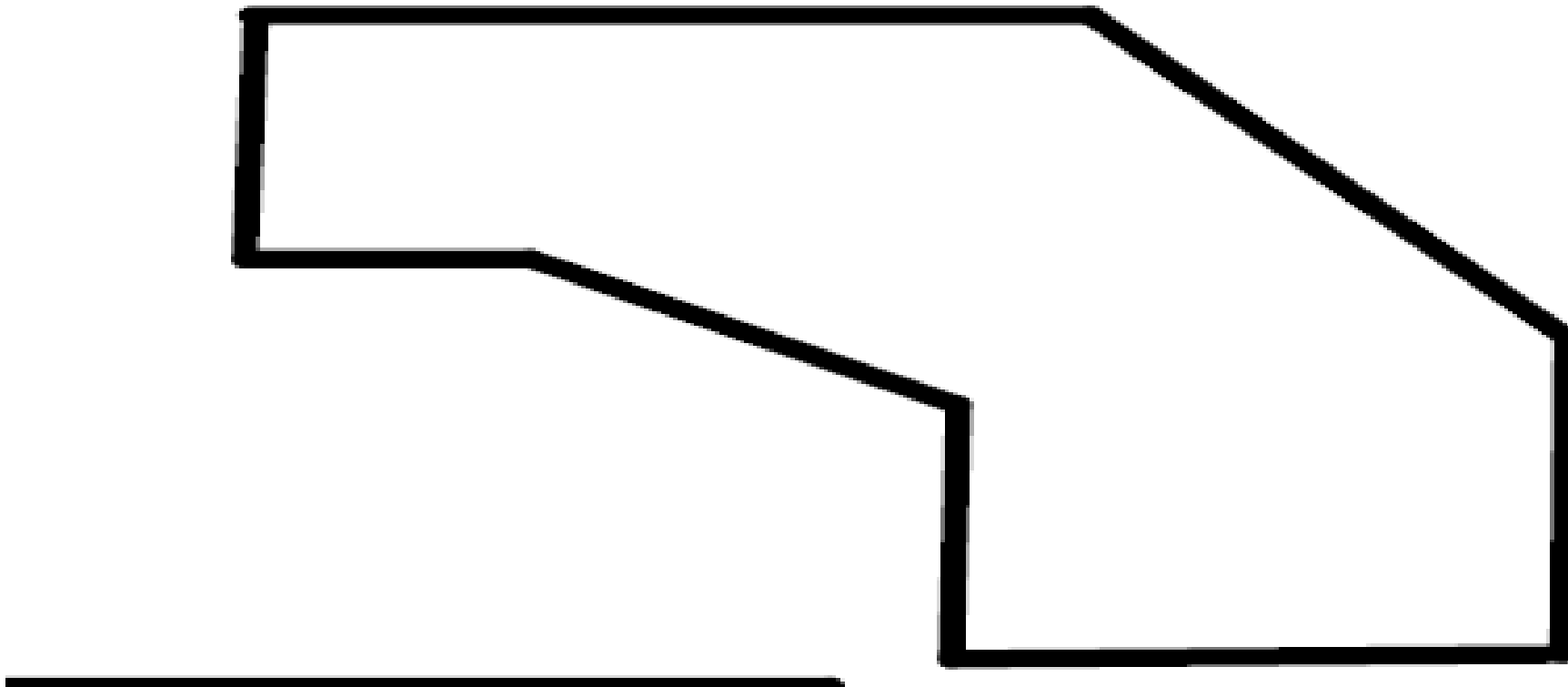


LEFT CONTROL STAND

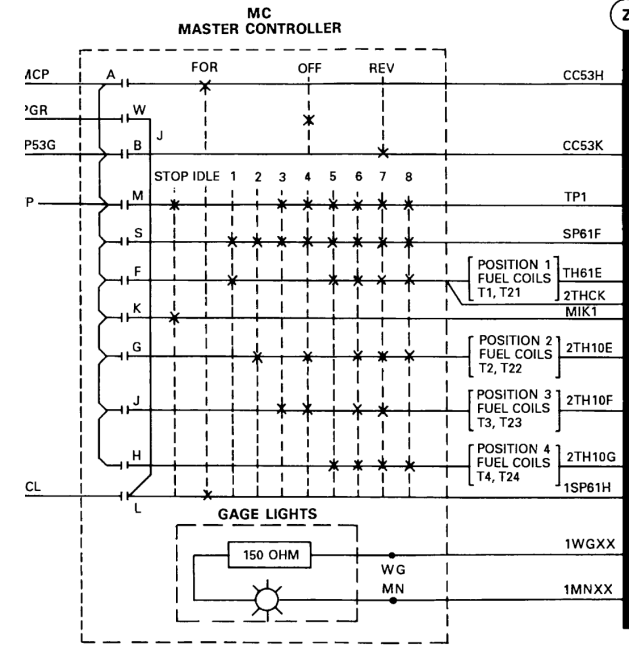
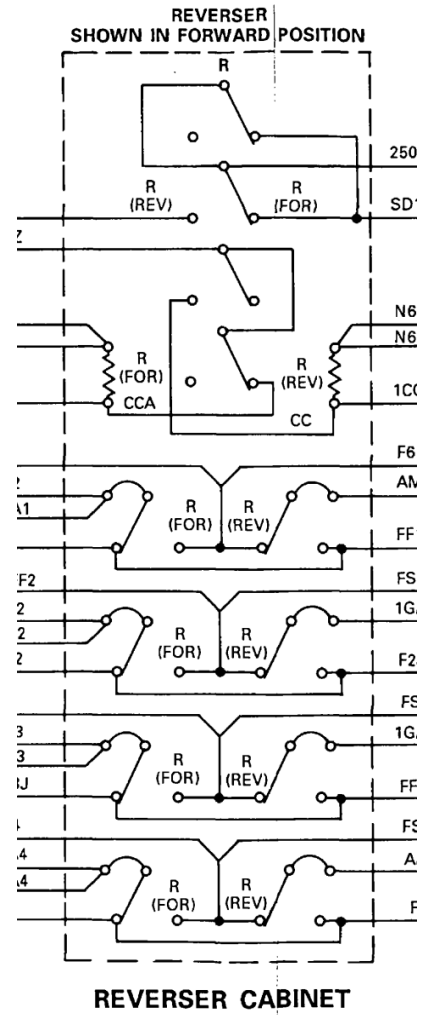
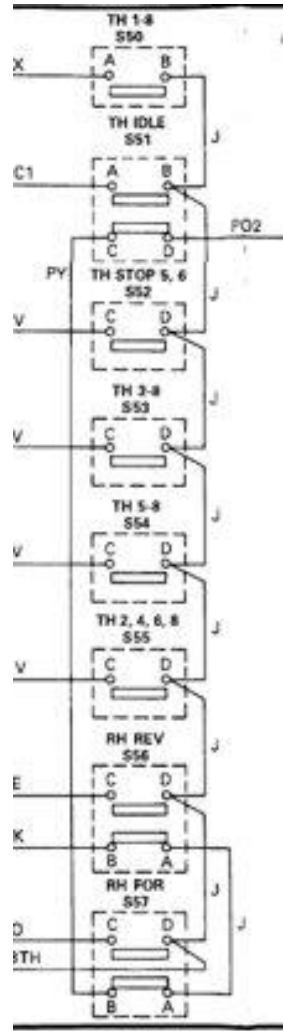


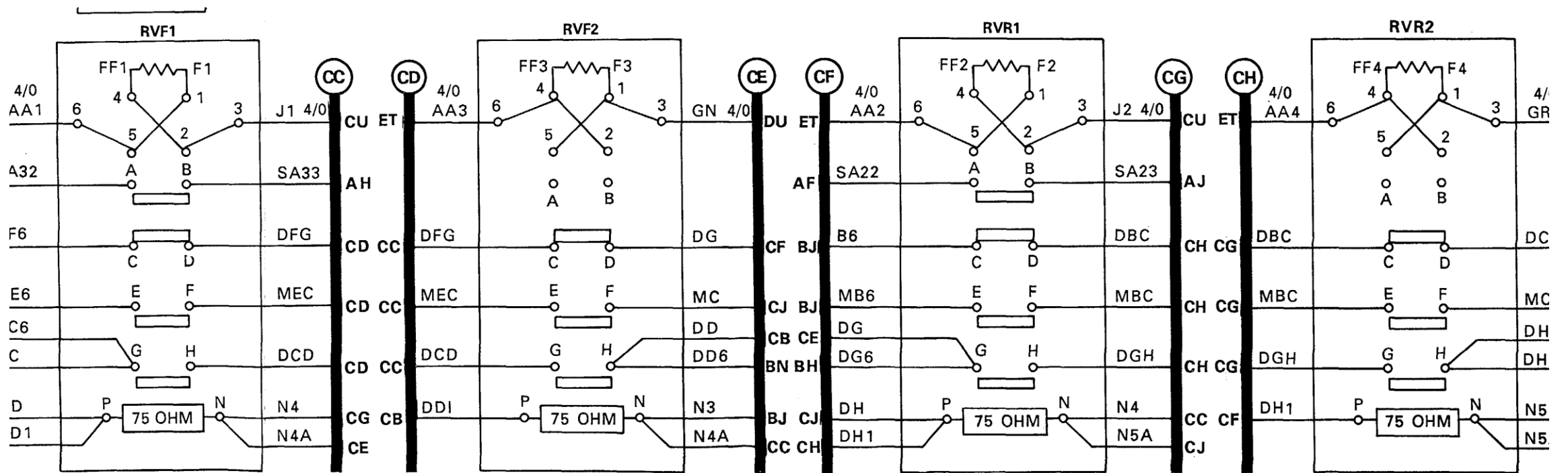
RIGHT CONTROL STAND

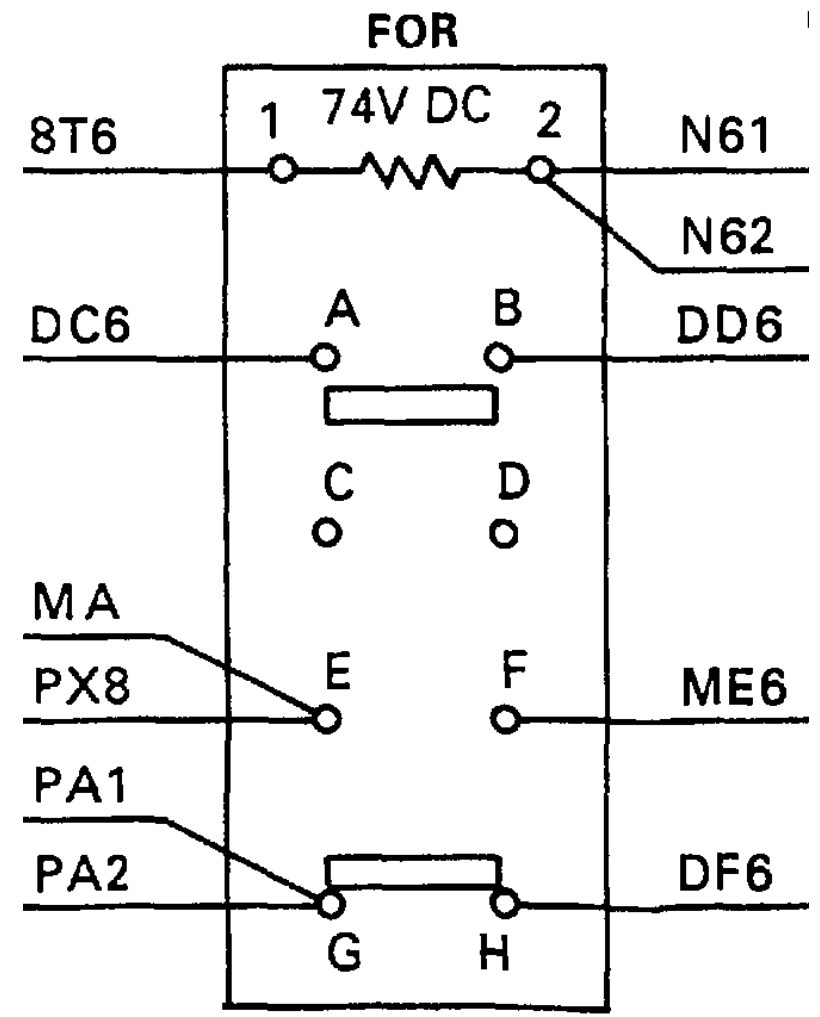
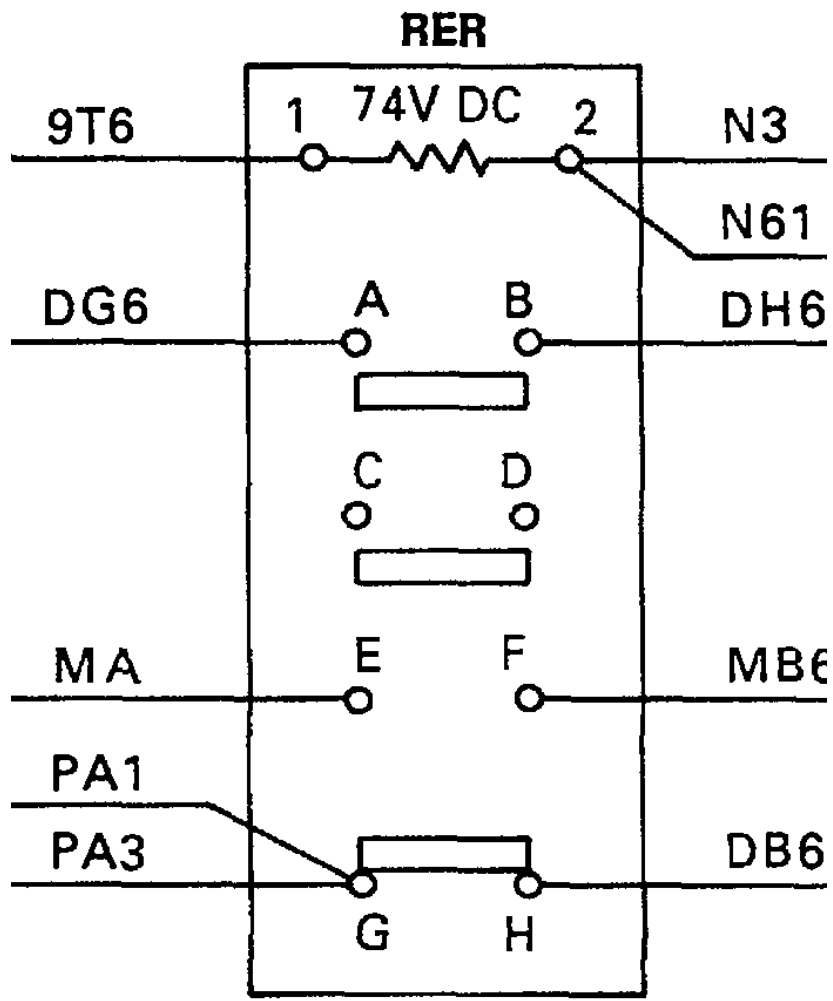


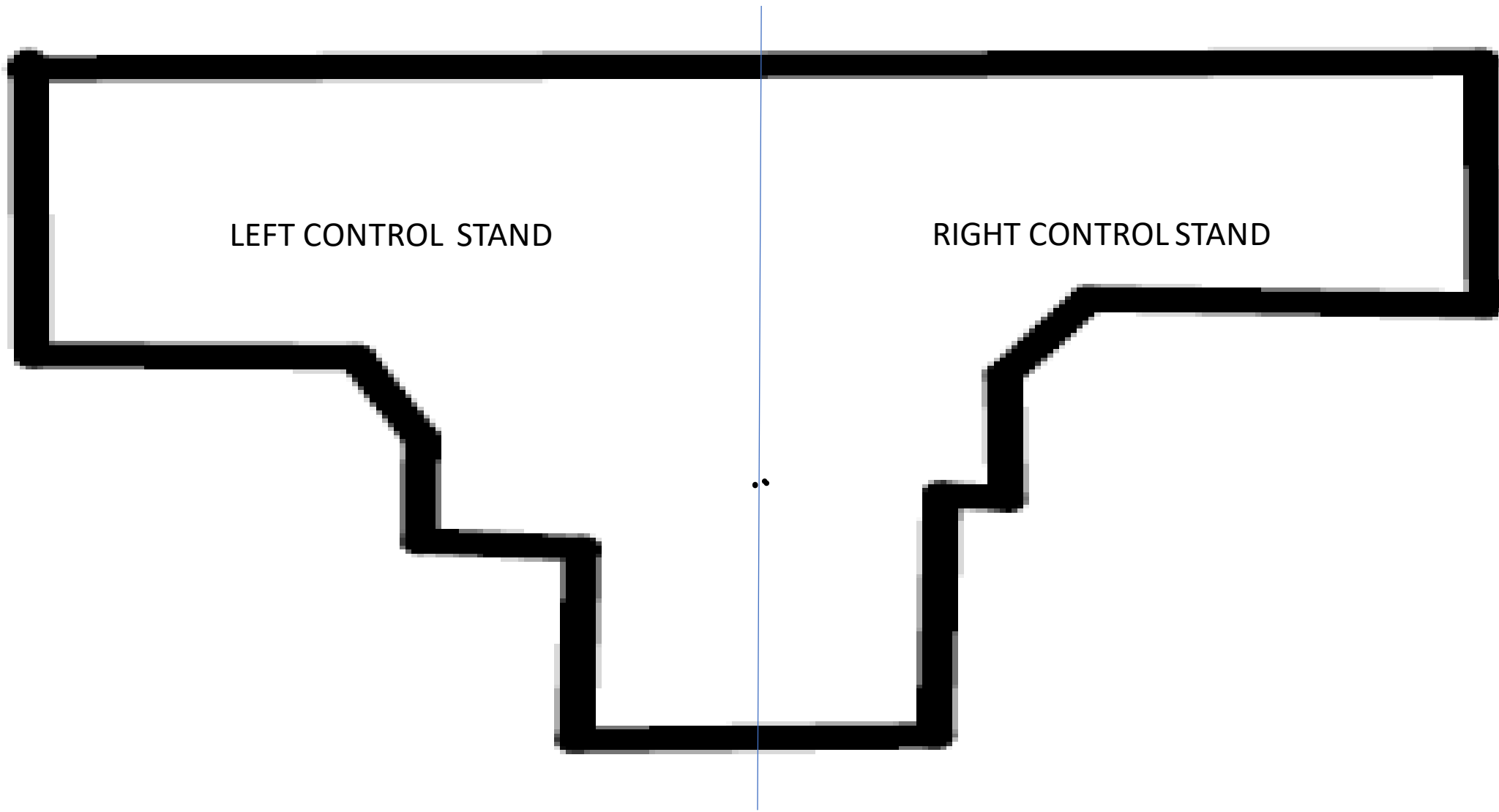


**REAR CONTROL
STAND**









LEFT CONTROL STAND

RIGHT CONTROL STAND

THE FOLLOWING IS FOR THE FRONT CAB

LEFT AND RIGHT BANK CONTROL STAND THE LISTED ONCE BUT SHOW UP IN BOTH FRONT LEFT AND FRONT RIGHT CONTROL STANDS

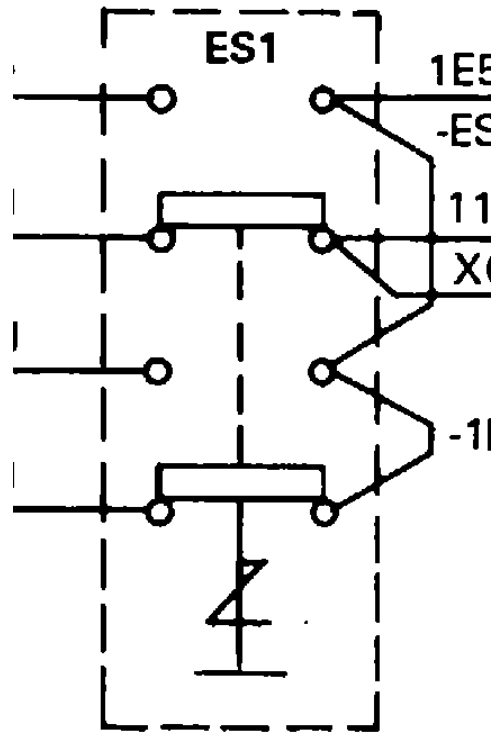
LEFT BANK CONTROL
STAND

RIGHT BANK CONTROL
STAND

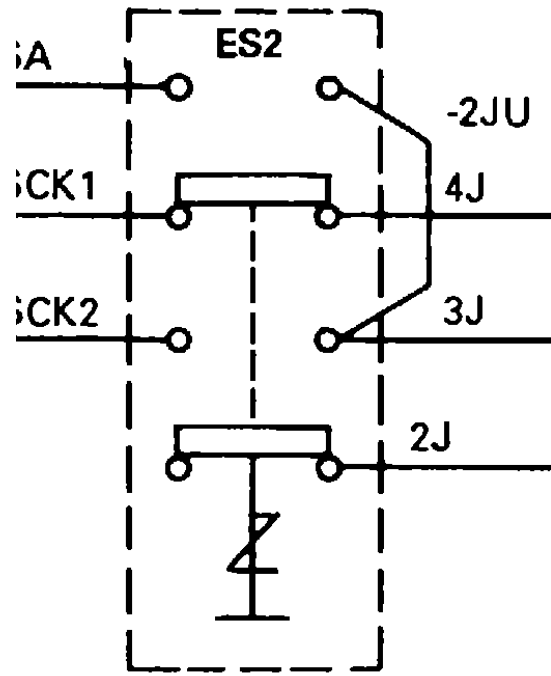
ENGINE START AND STOP
SWITCHES

ENGINE START AND STOP
SWITCHES

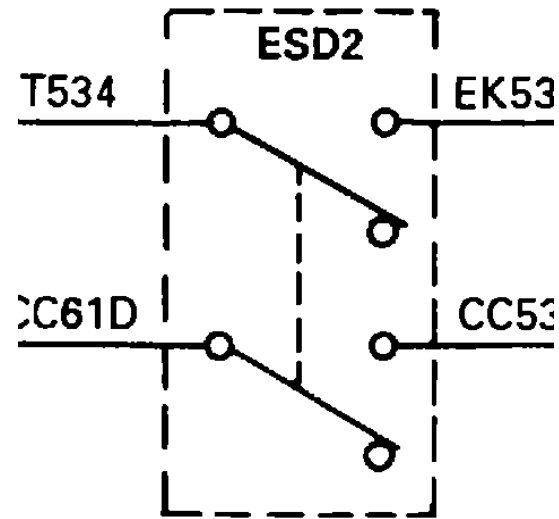
ENGINE START SW



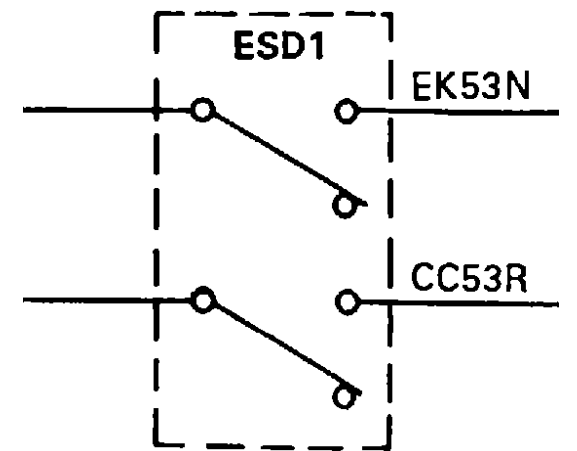
ENGINE START SW



ENGINE STOP SW



ENGINE STOP SW



THE FOLLOWING IS FOR THE FRONT CAB

LEFT AND RIGHT BANK CONTROL STAND THE LISTED ONCE BUT SHOW UP IN BOTH FRONT LEFT AND FRONT RIGHT CONTROL STANDS

LEFT BANK CONTROL
STAND

EMERGENCY FUEL CUT OFF
NO. 1 AND NO.2 ENGINES

NO.1 AND NO.2 ENGINES
TEMP RELAY AND SWITCH

NO1 AND NO12 ENGINES
STOP SOLENIOD AND OIL
PRESSURE SWITCHES

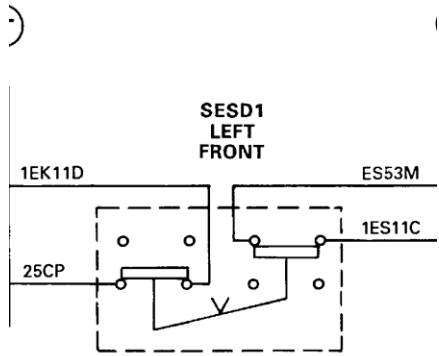
RIGHT BANK CONTROL
STAND

EMERGENCY FUEL CUT OFF
NO. 1 AND NO.2 ENGINES

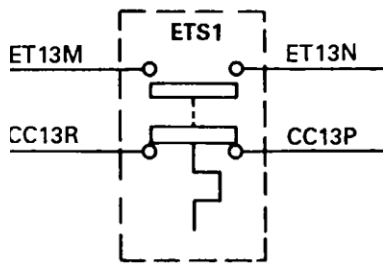
NO.1 AND NO.2 ENGINES
TEMP RELAY AND SWITCH

NO1 AND NO12 ENGINES
STOP SOLENIOD AND OIL
PRESSURE SWITCHES

EMERGENCY FUEL CUT-OFF SWITCHES

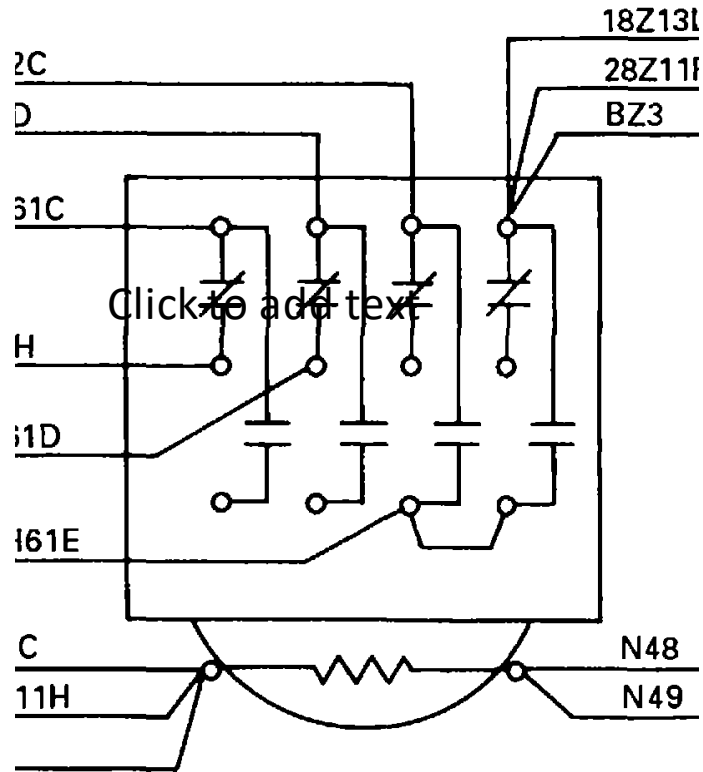


ENGINE TEMPERATURE SW



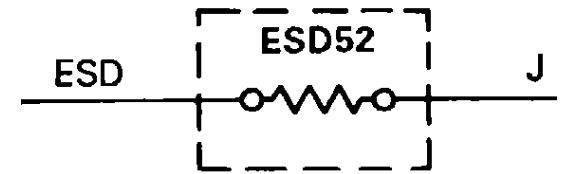
NO 1 DIESEL ENGINE

ENG TEMP WARNING RELAY ETWR

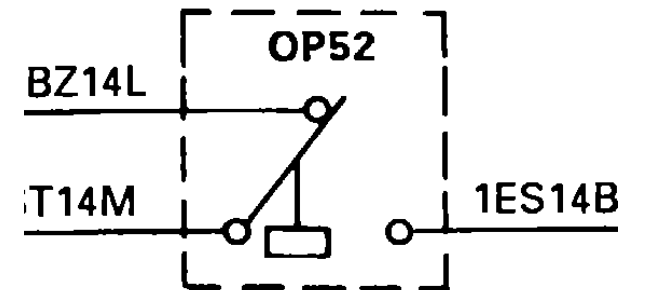


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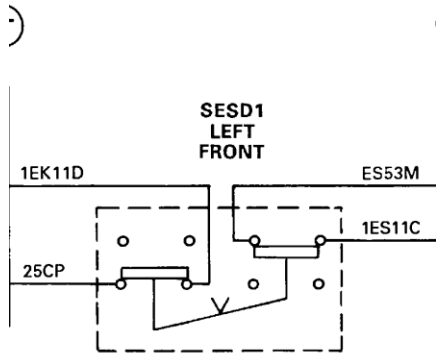
ENGINE STOP SOLENOID



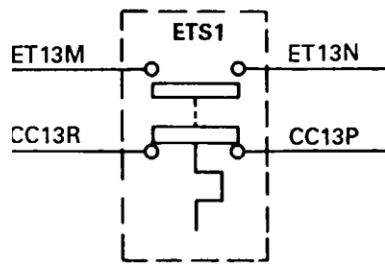
ENGINE OIL PRESSURE SW



EMERGENCY FUEL CUT-OFF SWITCHES

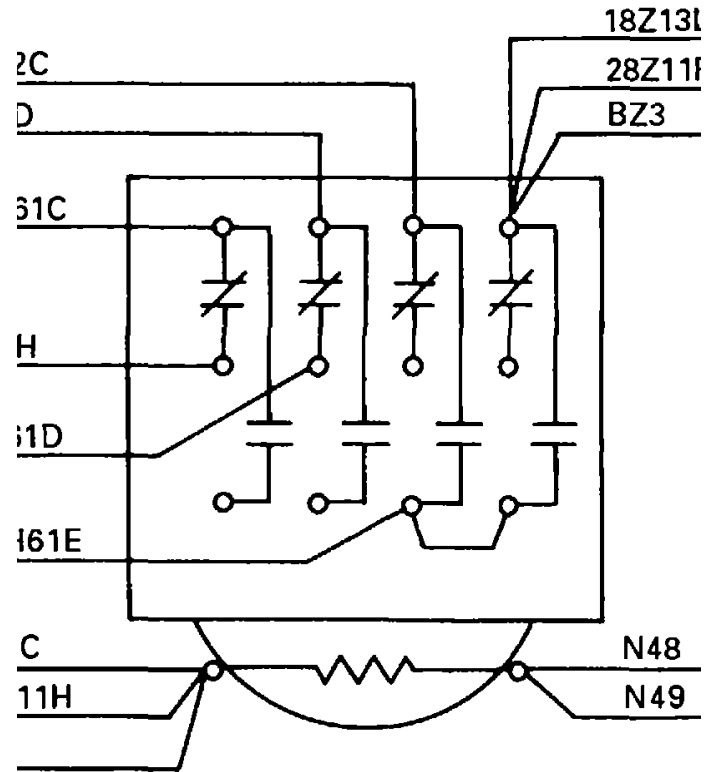


ENGINE TEMPERATURE SW

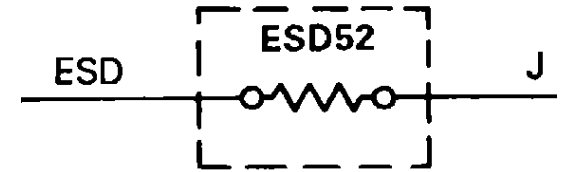


NO.2 DIESEL ENGINE

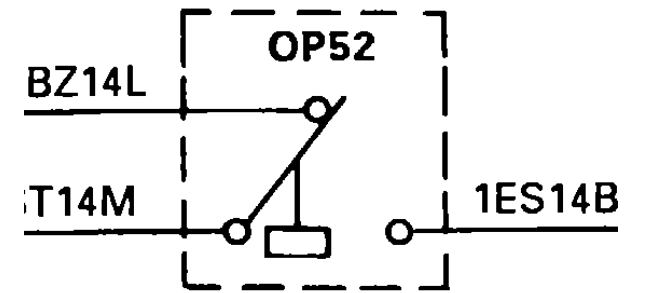
ENG TEMP WARNING RELAY ETWR



ENGINE STOP SOLENOID



ENGINE OIL PRESSURE SW



THE FOLLOWING IS FOR THE FRONT CAB

LEFT AND RIGHT BANK CONTROL STAND THE LISTED ONCE BUT SHOW UP IN BOTH FRONT LEFT AND FRONT RIGHT CONTROL STANDS

LEFT BANK CONTROL
STAND

RIGHT BANK CONTROL
STAND

SAFETY CONTROL
PRESSURE SWITCH

SAFETY CONTROL
PRESSURE SWITCH

PRESSURE CONTROL
SWITCH

PRESSURE CONTROL
SWITCH

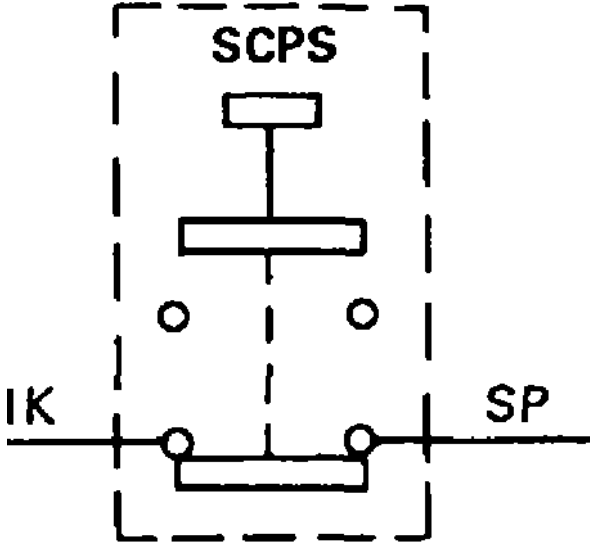
EMERGENCY SANDING
SWITCH

EMERGENCY SANDING
SWITCH

GROUND RELAY CUTOUT
SWITCH

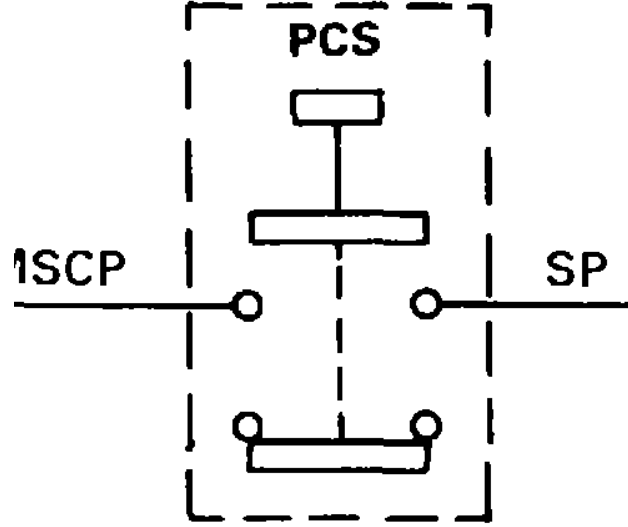
GROUND RELAY CUTOUT
SWITCH

**SAFETY CONTROL
PRESSURE SW**



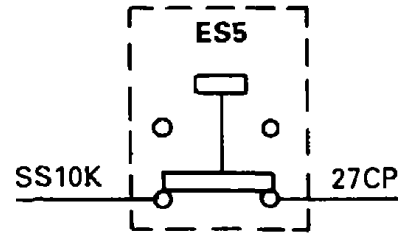
SET AT
22-RISING
10-FALLING

**PRESSURE
CONTROL SW**

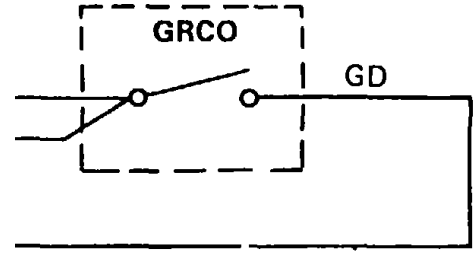


SET AT
60 PSI

**EMERGENCY
SANDING SW**



**GROUND RELAY
CUTOUT SW**



THE FOLLOWING IS FOR THE FRONT CAB

LEFT AND RIGHT BANK CONTROL STAND THE LISTED ONCE BUT SHOW UP IN BOTH FRONT LEFT AND FRONT RIGHT CONTROL STANDS

LEFT BANK CONTROL
STAND

LOAD AMMETER NO 1 AND
NO.2

LOAD METER SHUNTS

BATTERY VOLTMETER

SERVICE METER

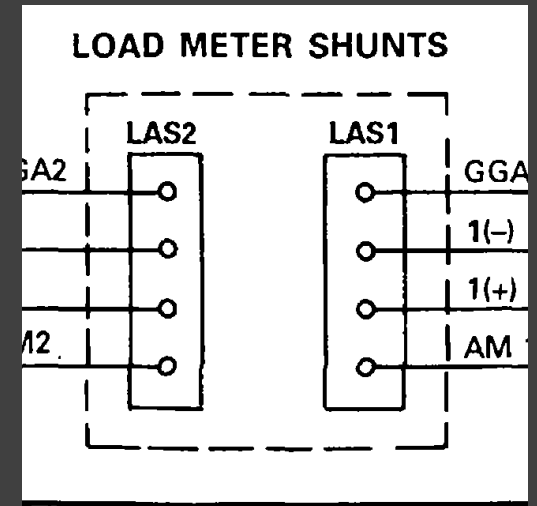
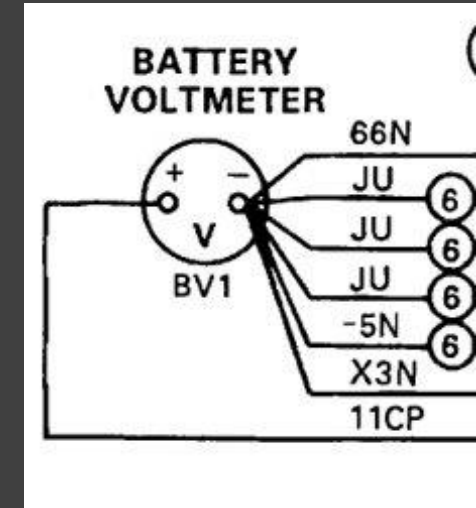
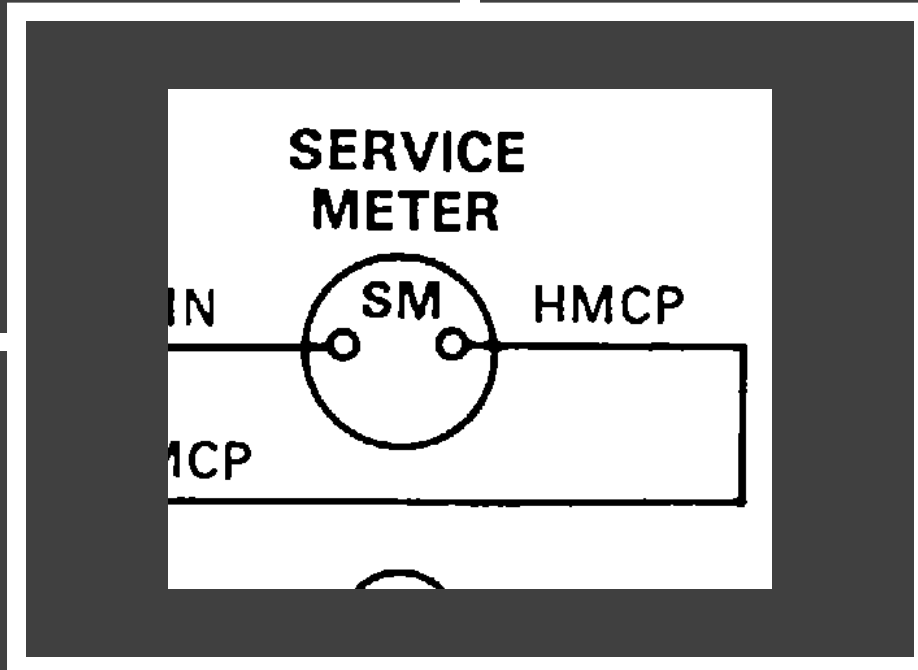
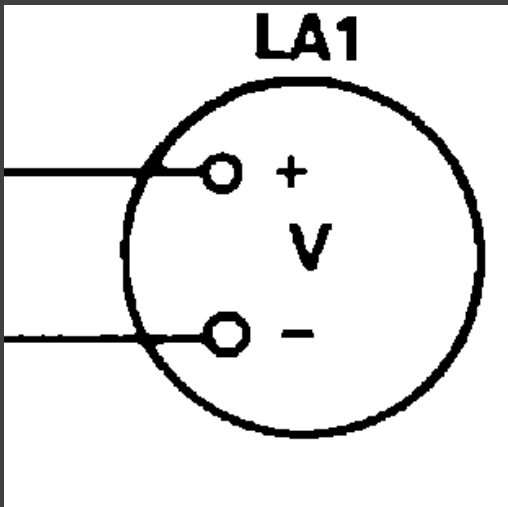
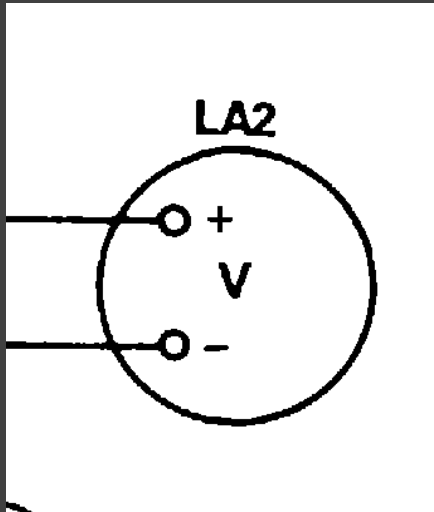
RIGHT BANK CONTROL
STAND

LOAD AMMETER NO 1 AND
NO.2

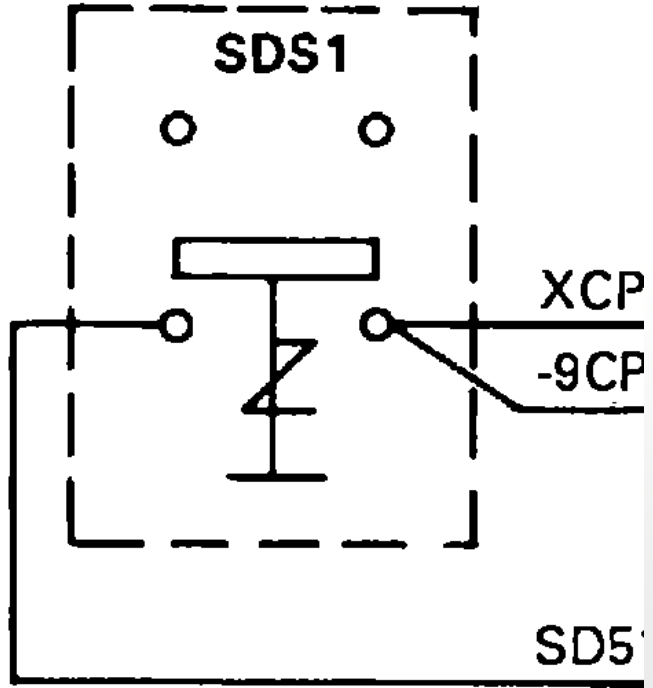
LOAD METER SHUNTS

BATTERY VOLTMETER

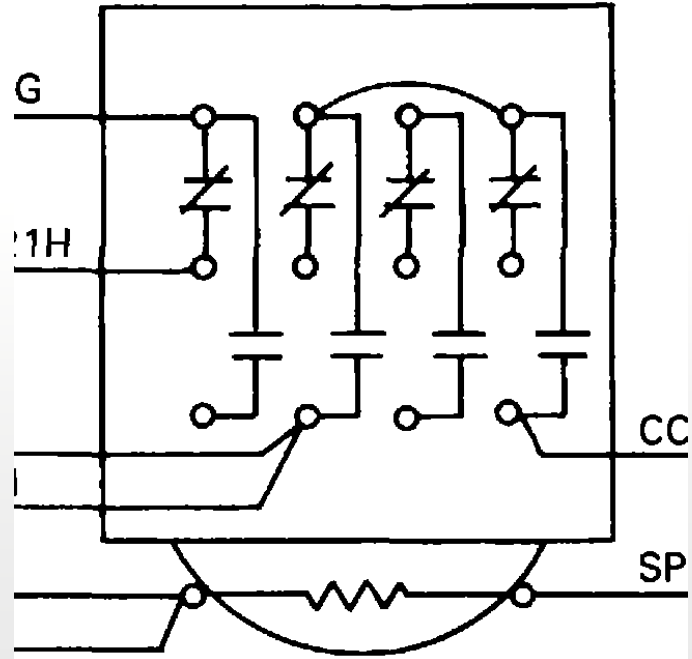
BATTERY VOLTMETER



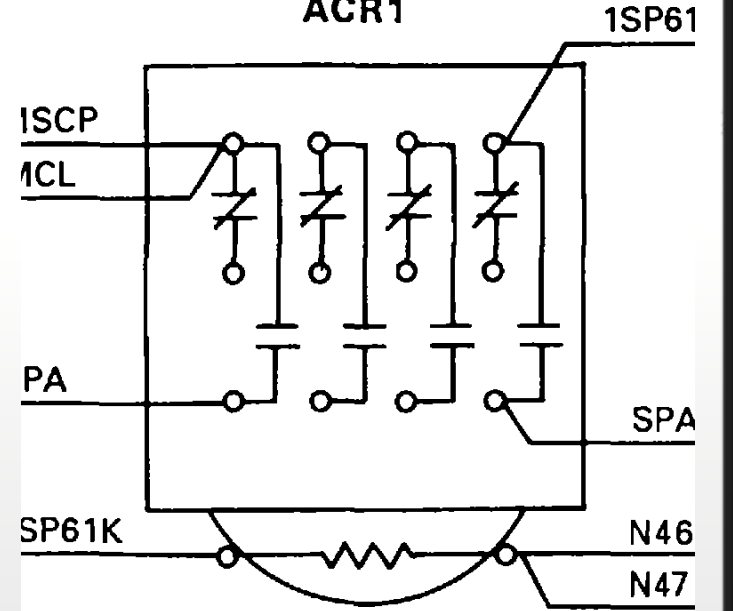
SANDING SW



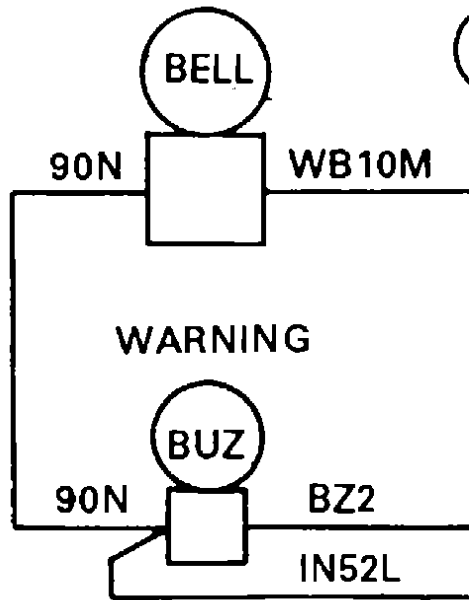
SAFETY RELAY ACR2



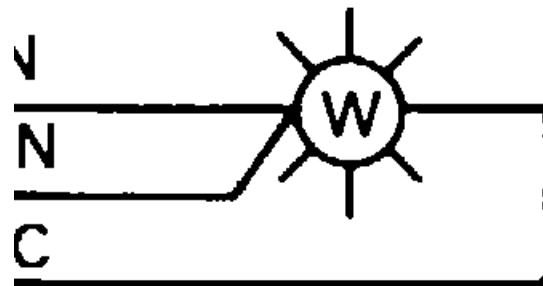
SAFETY RELAY ACR1



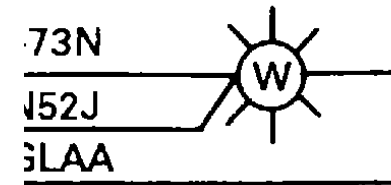
**ENGINE TEMP
WARNING
ET WB**



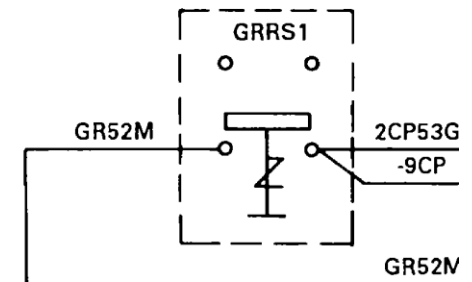
**WHEEL SLIP
IND LIGHT
WSL1**

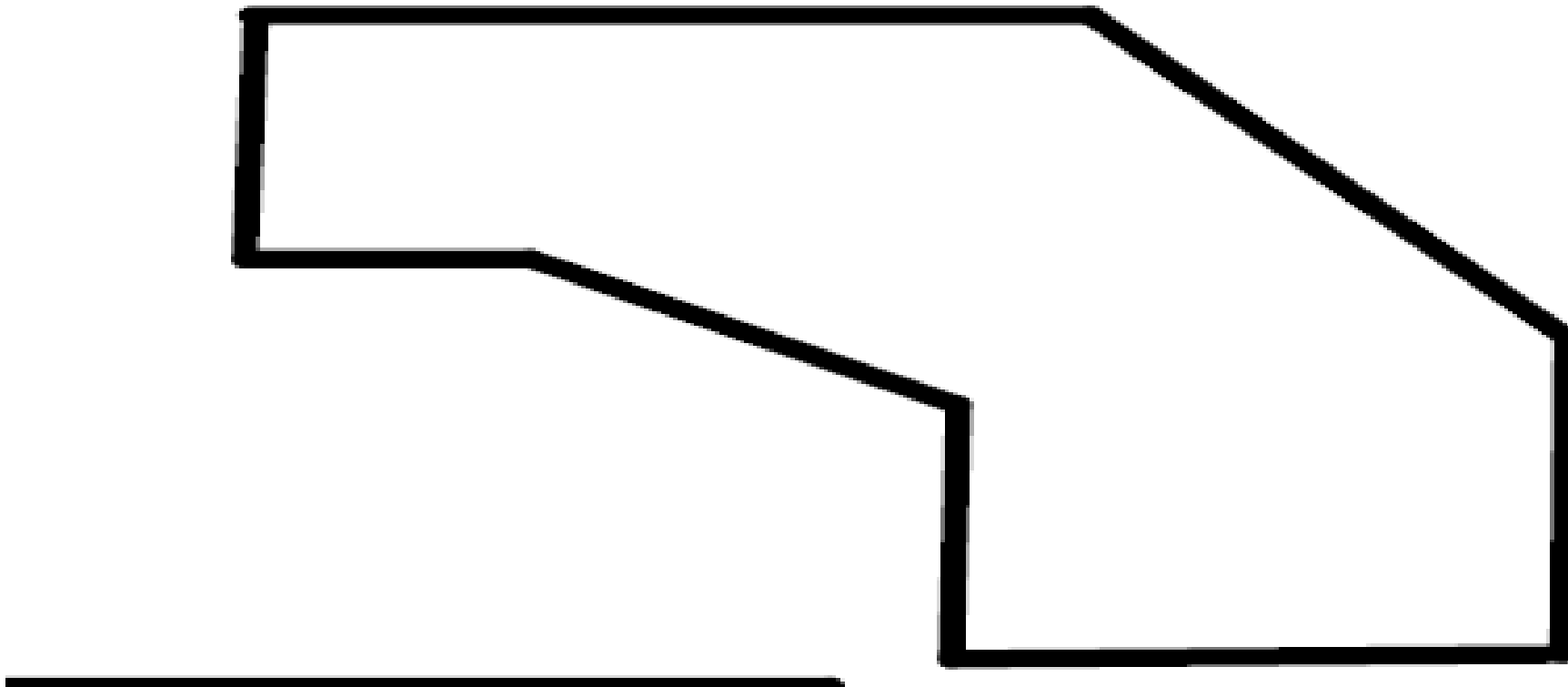


**GROUND RELAY
IND LIGHT
GRL1**



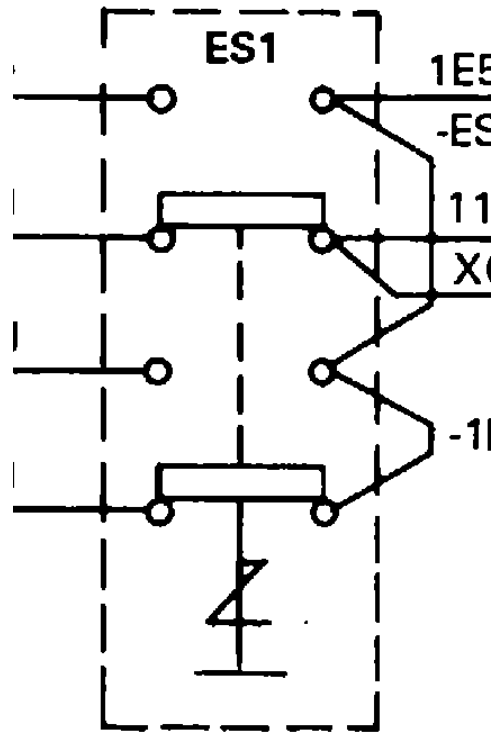
**GROUND RELAY
RESET**



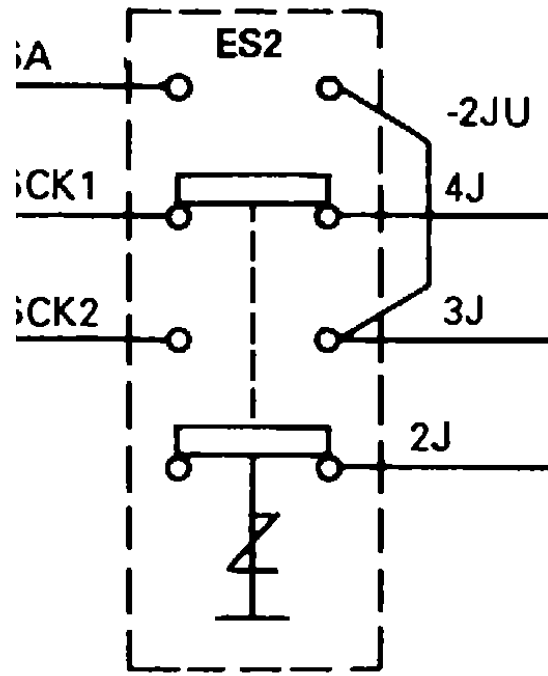


**REAR CONTROL
STAND**

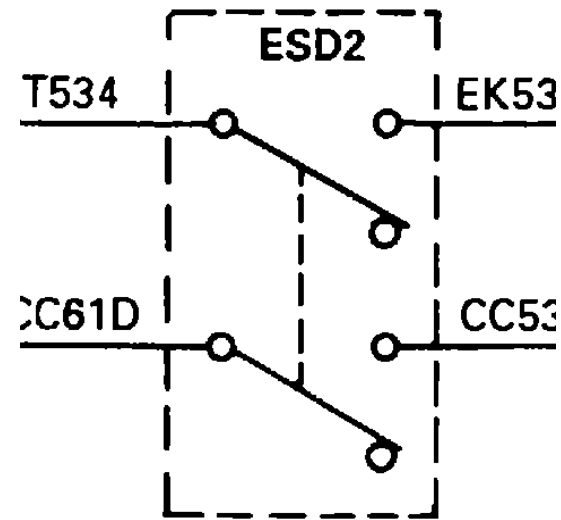
ENGINE START SW



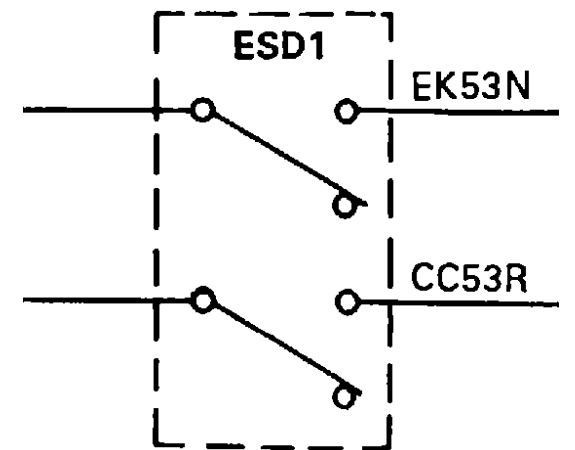
ENGINE START SW



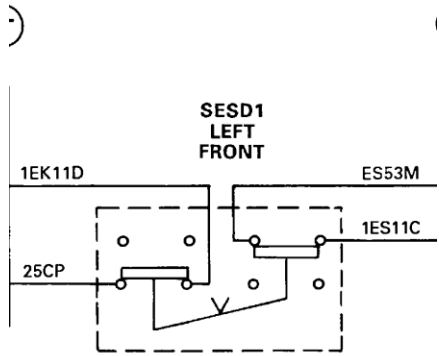
ENGINE STOP SW



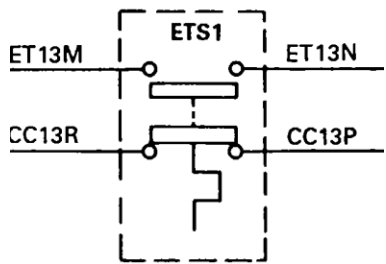
ENGINE STOP SW



EMERGENCY FUEL CUT-OFF SWITCHES

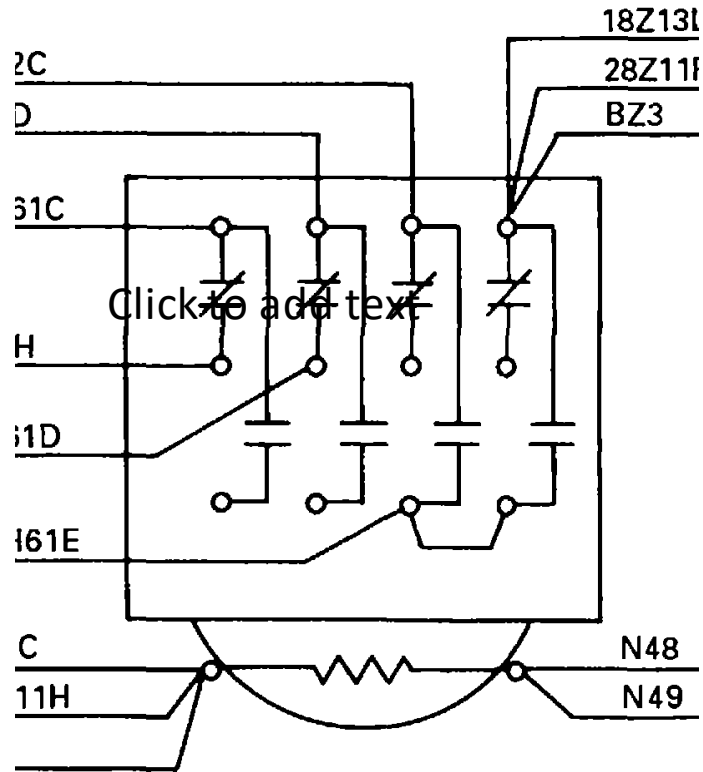


ENGINE TEMPERATURE SW

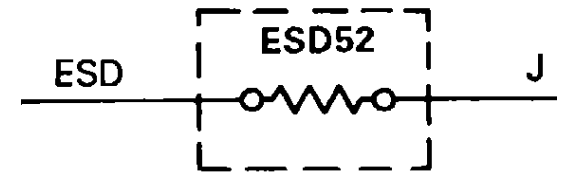


NO 1 DIESEL ENGINE

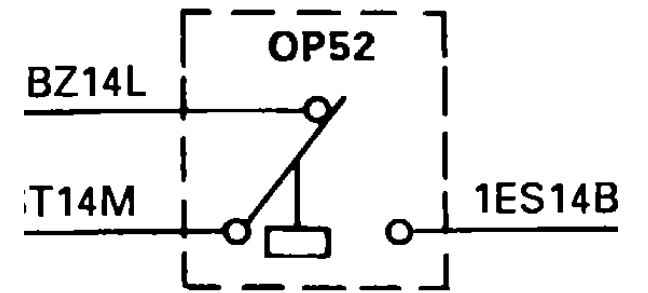
ENG TEMP WARNING RELAY ETWR



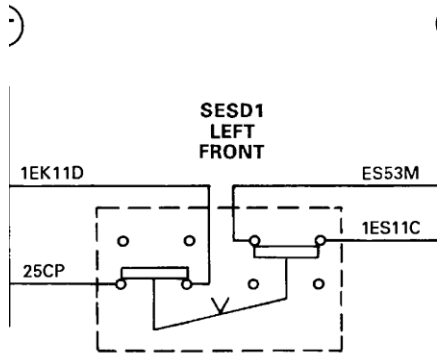
ENGINE STOP SOLENOID



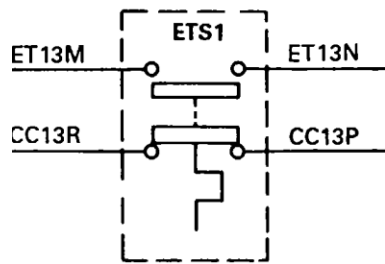
ENGINE OIL PRESSURE SW



EMERGENCY FUEL CUT-OFF SWITCHES

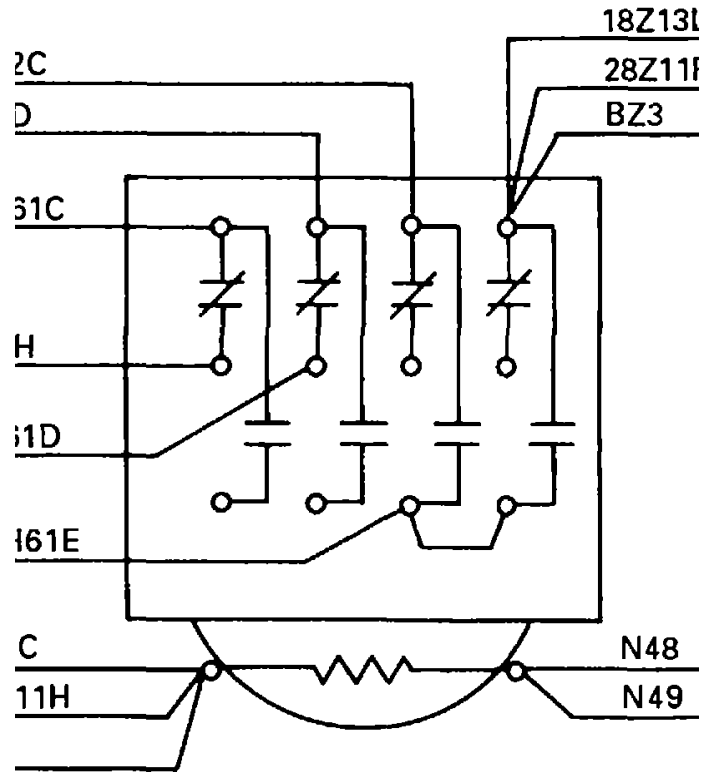


ENGINE TEMPERATURE SW

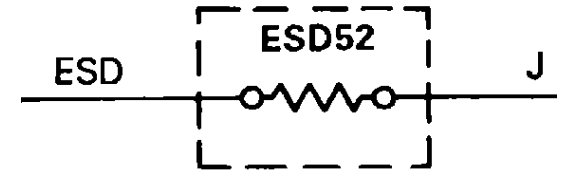


NO.2 DIESEL ENGINE

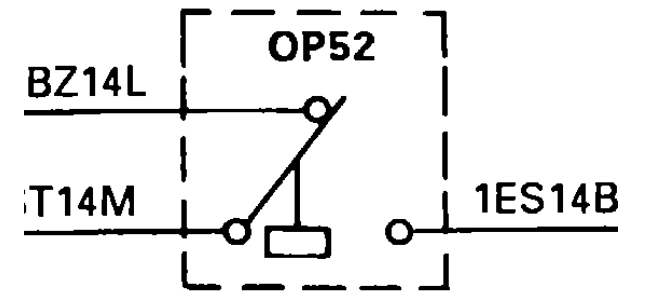
ENG TEMP WARNING RELAY ETWR



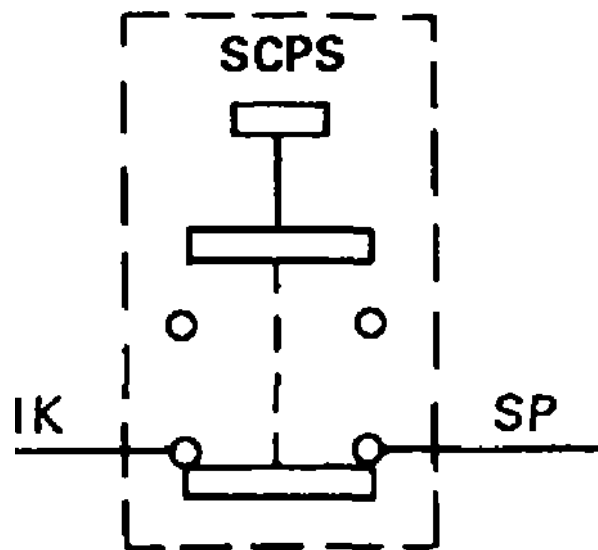
ENGINE STOP SOLENOID



ENGINE OIL PRESSURE SW

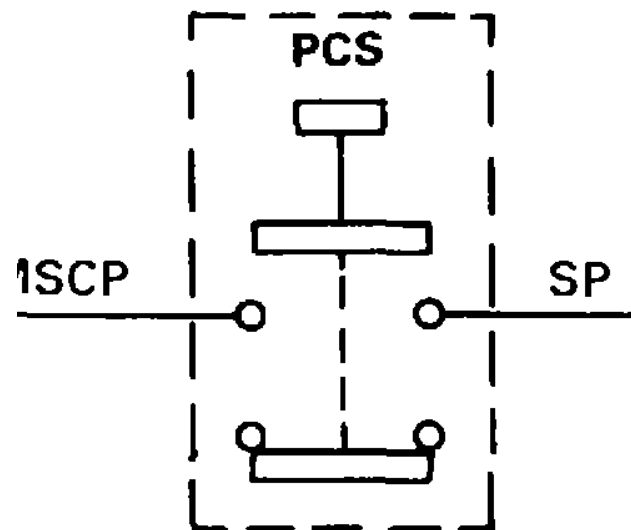


SAFETY CONTROL PRESSURE SW



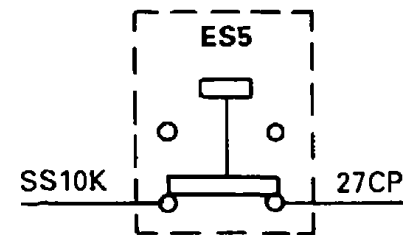
SET AT
22-RISING
10-FALLING

PRESSURE CONTROL SW

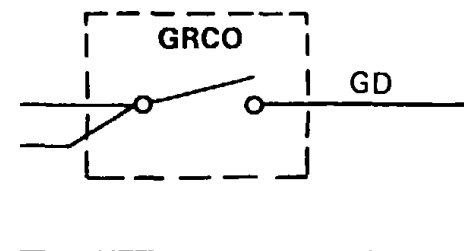


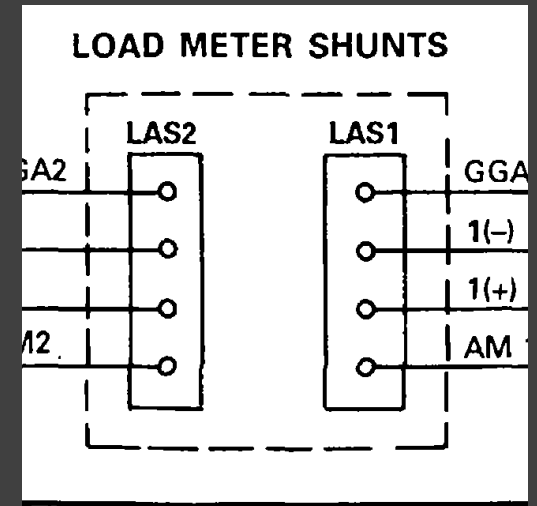
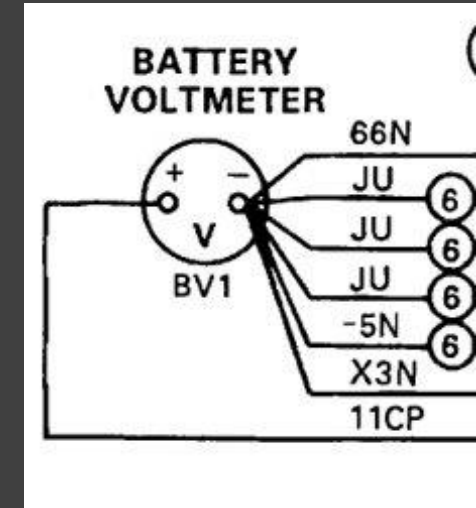
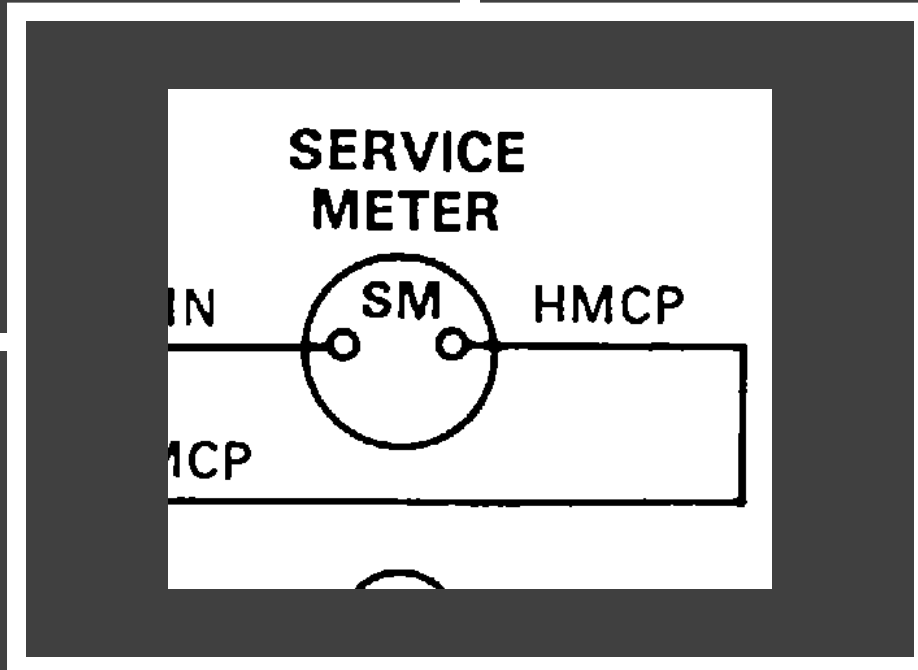
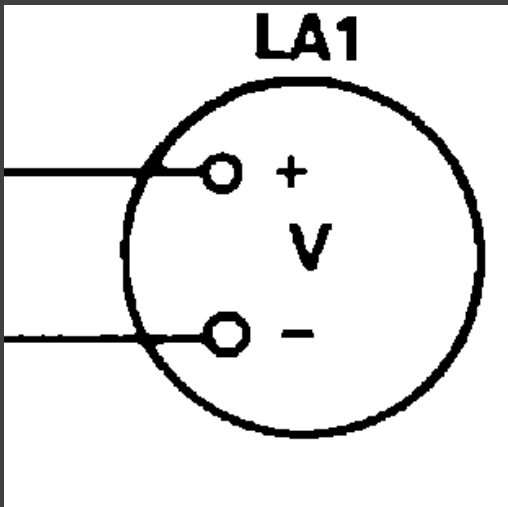
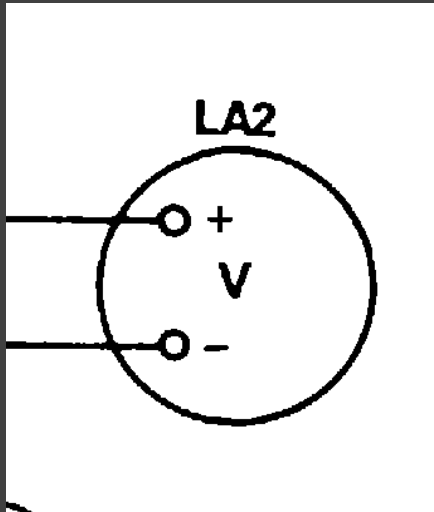
SET AT
60 PSI

EMERGENCY SANDING SW

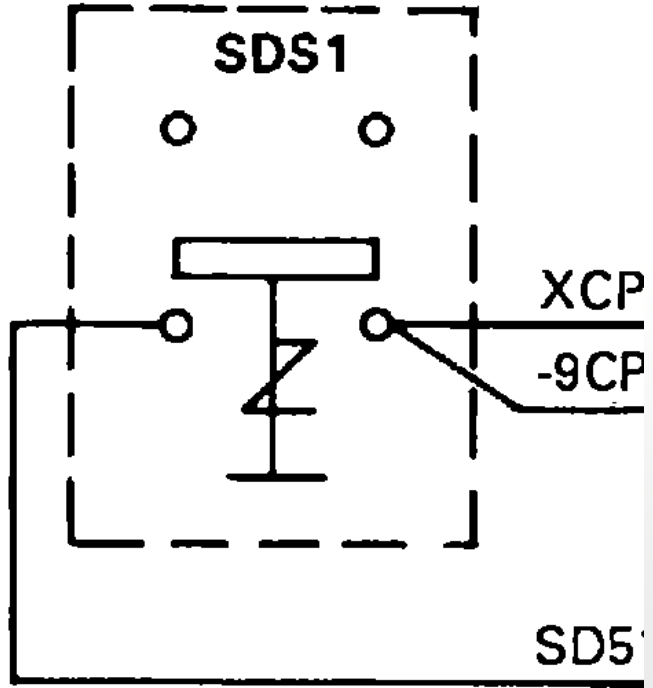


GROUND RELAY CUTOUT SW

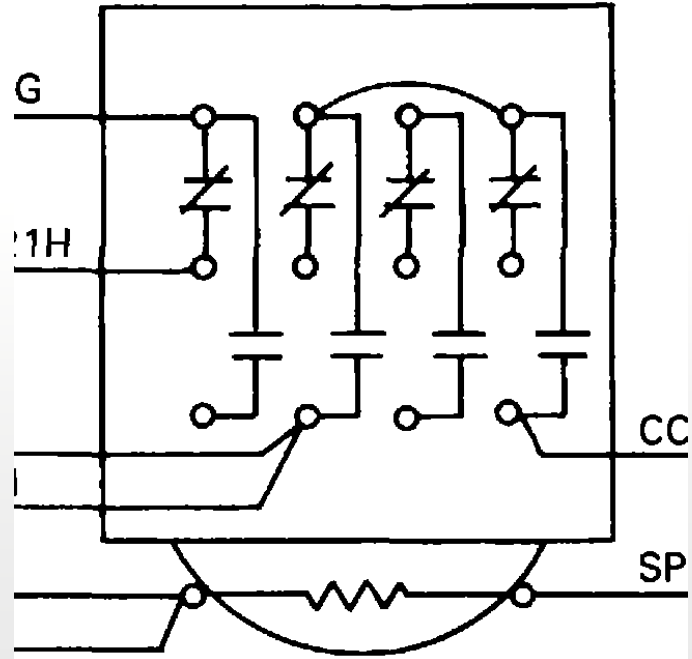




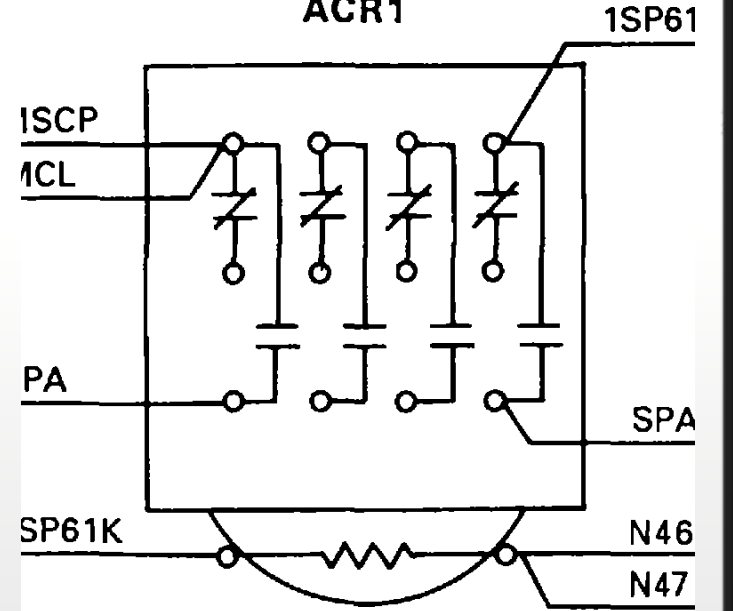
SANDING SW



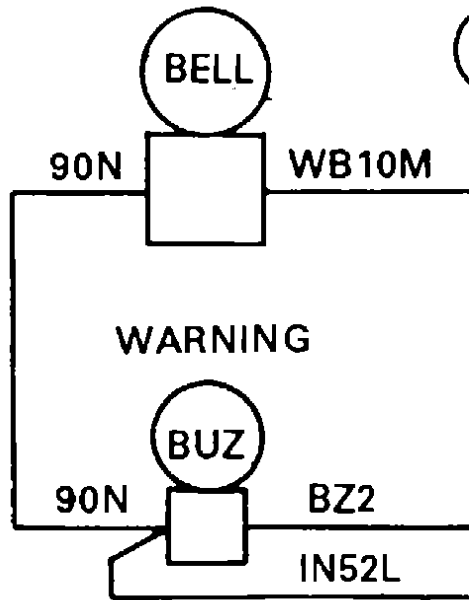
SAFETY RELAY ACR2



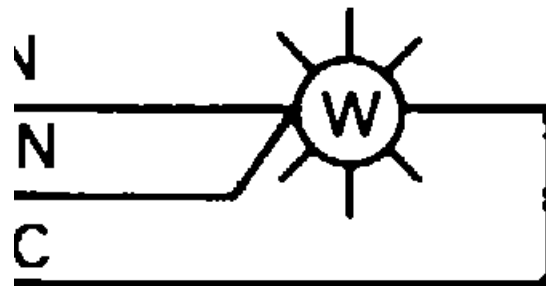
SAFETY RELAY ACR1



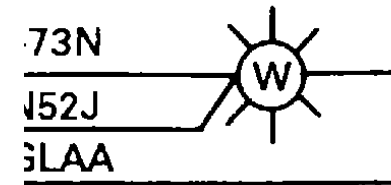
**ENGINE TEMP
WARNING
ET WB**



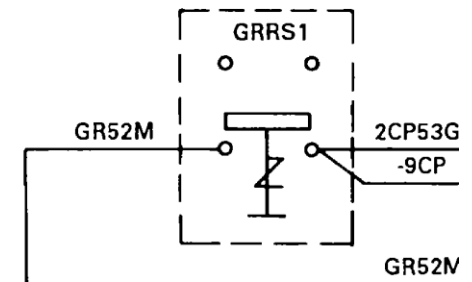
**WHEEL SLIP
IND LIGHT
WSL1**



**GROUND RELAY
IND LIGHT
GRL1**

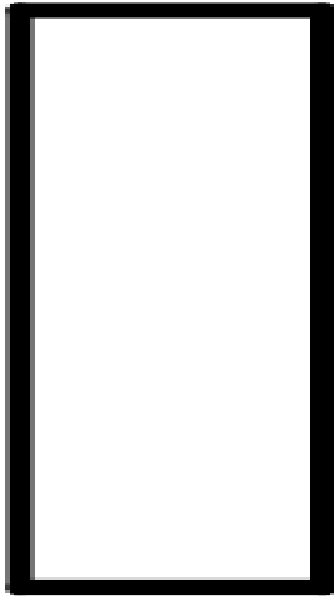


**GROUND RELAY
RESET**



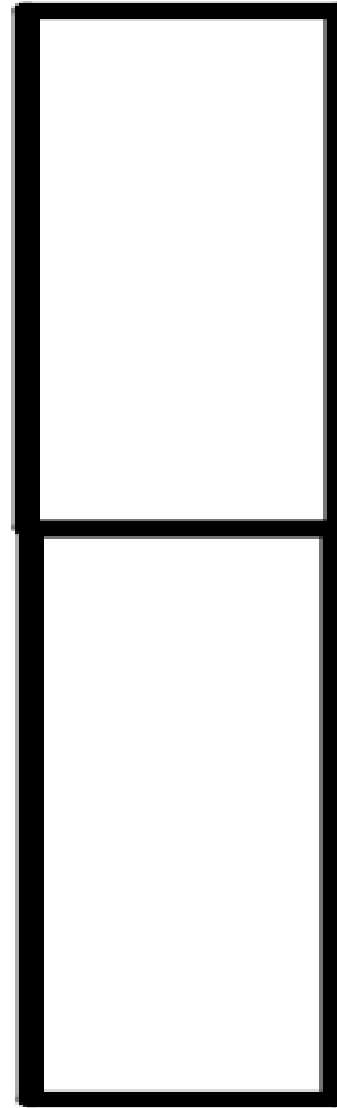
FRONT AND REAR CONTROL CABINETS

BY ADAM NUGENT ROSENBERGER



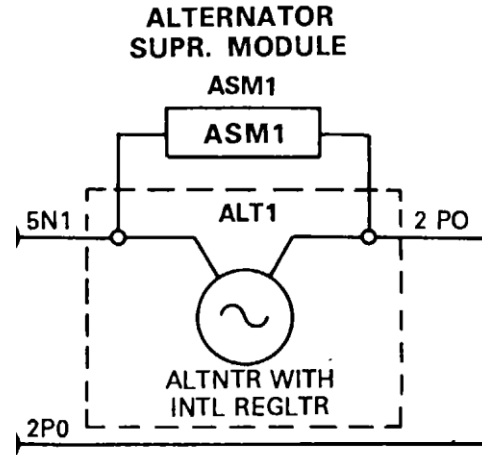
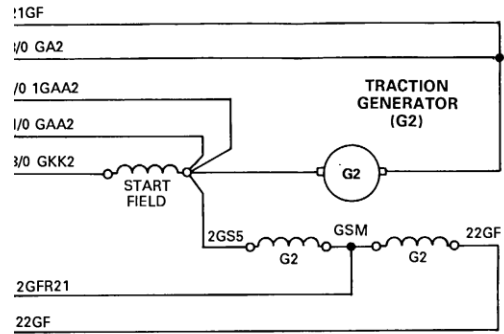
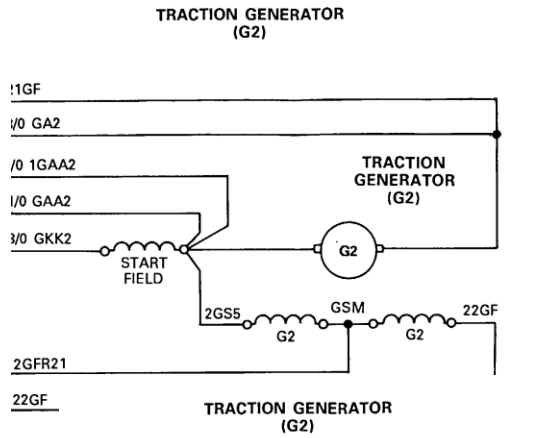
CONTROL CABINET 1

FRONT CAB

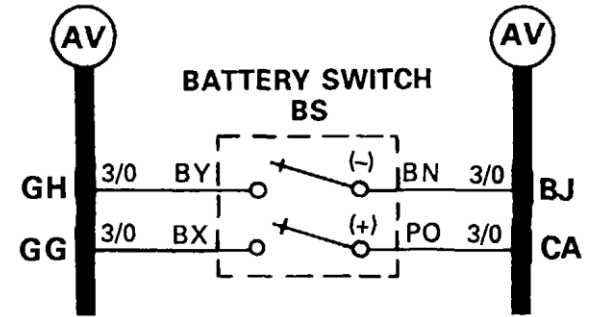
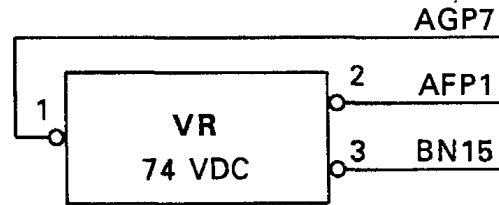
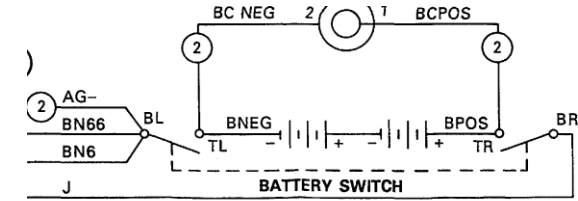


CONTROL CABINET 2

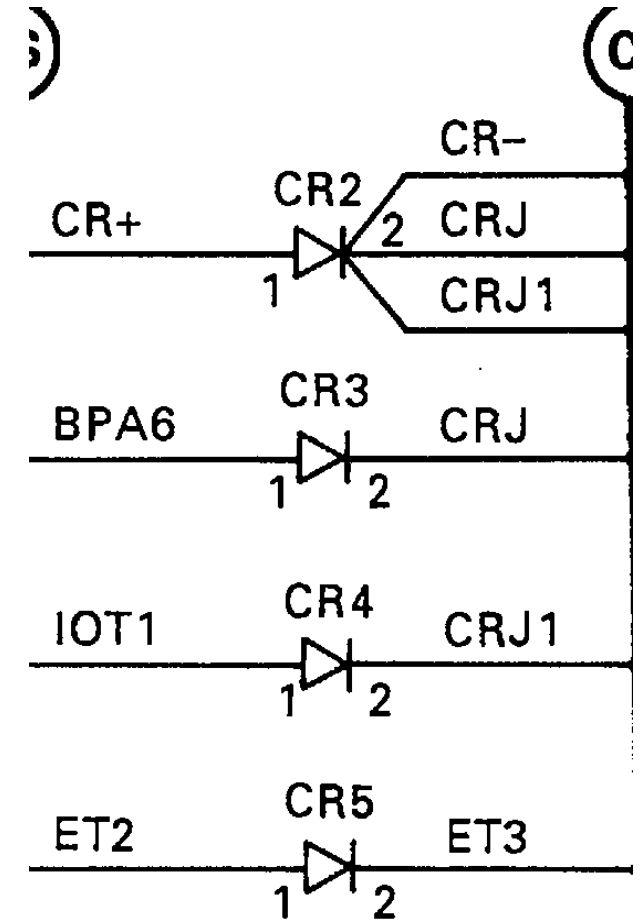
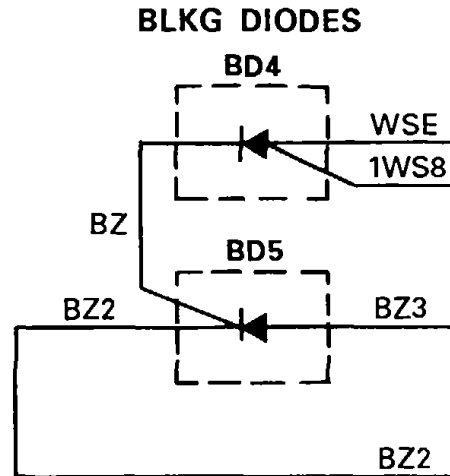
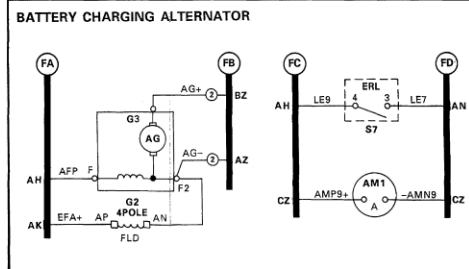
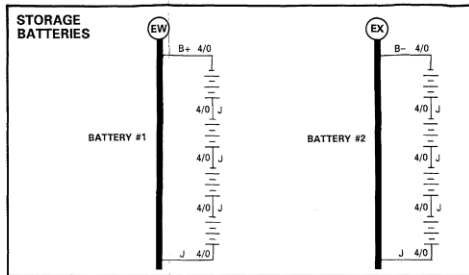
CONTROL CABINET 3



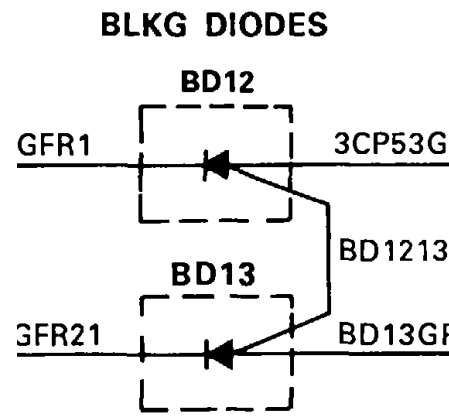
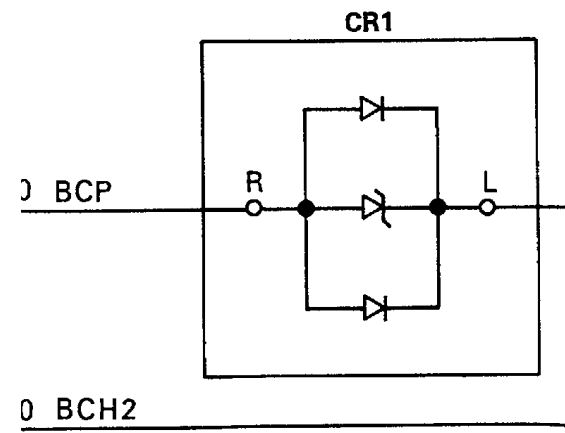
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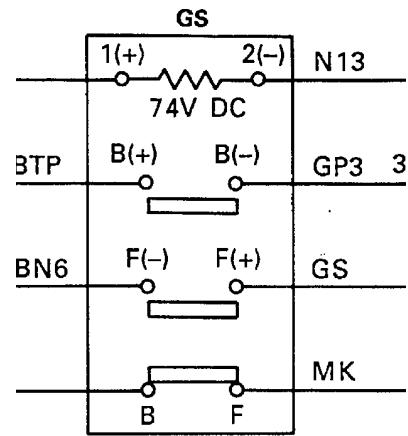


HIGH VOLTAGE CONTROL ROOM

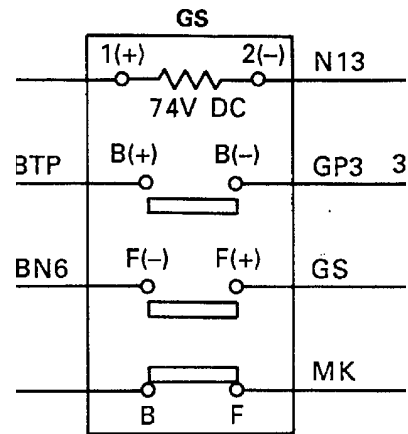


**HIGH VOLTAGE
CONTROL ROOM
FRONT**

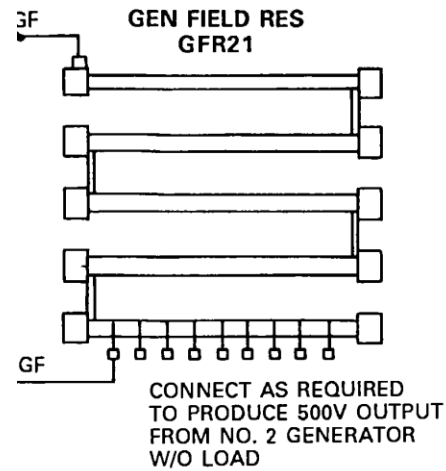




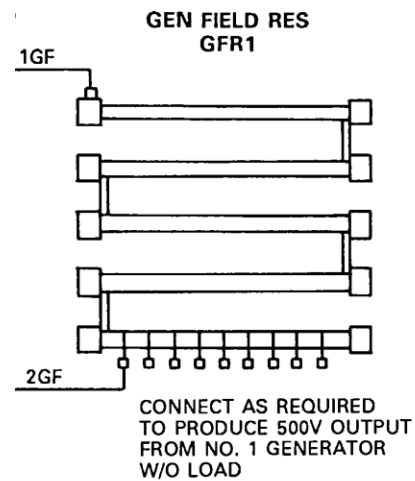
CONTROL CABINET 2



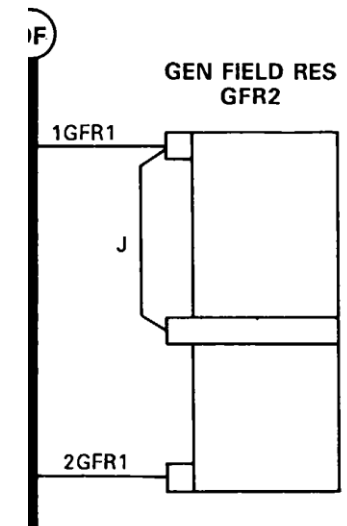
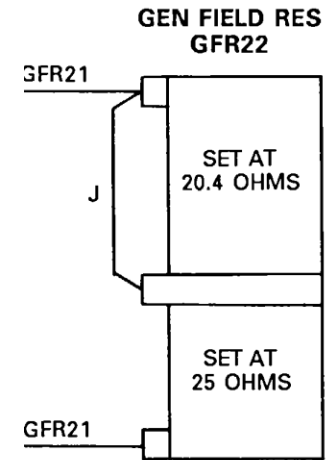
CONTROL CABINET 2

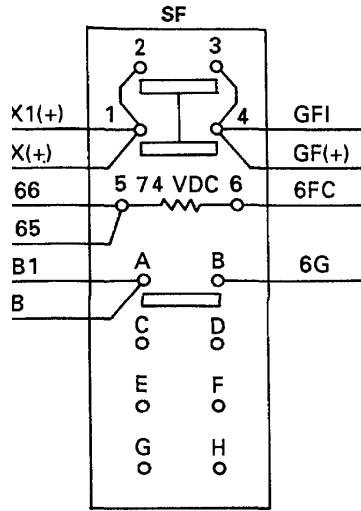


GENERATOR 1

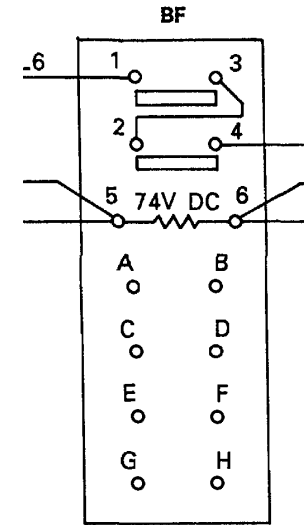


GENERATOR 2

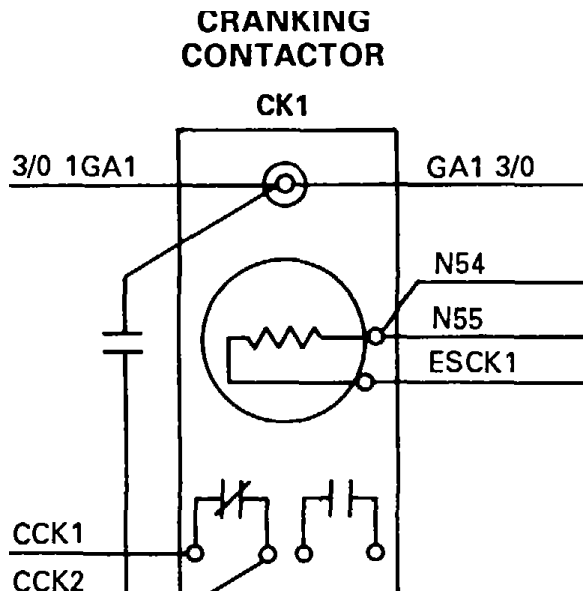




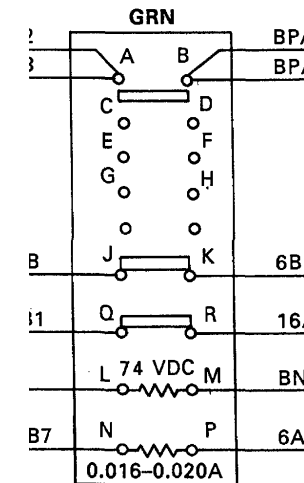
CONTROL CANBINET 2



CONTROL CABINET 3

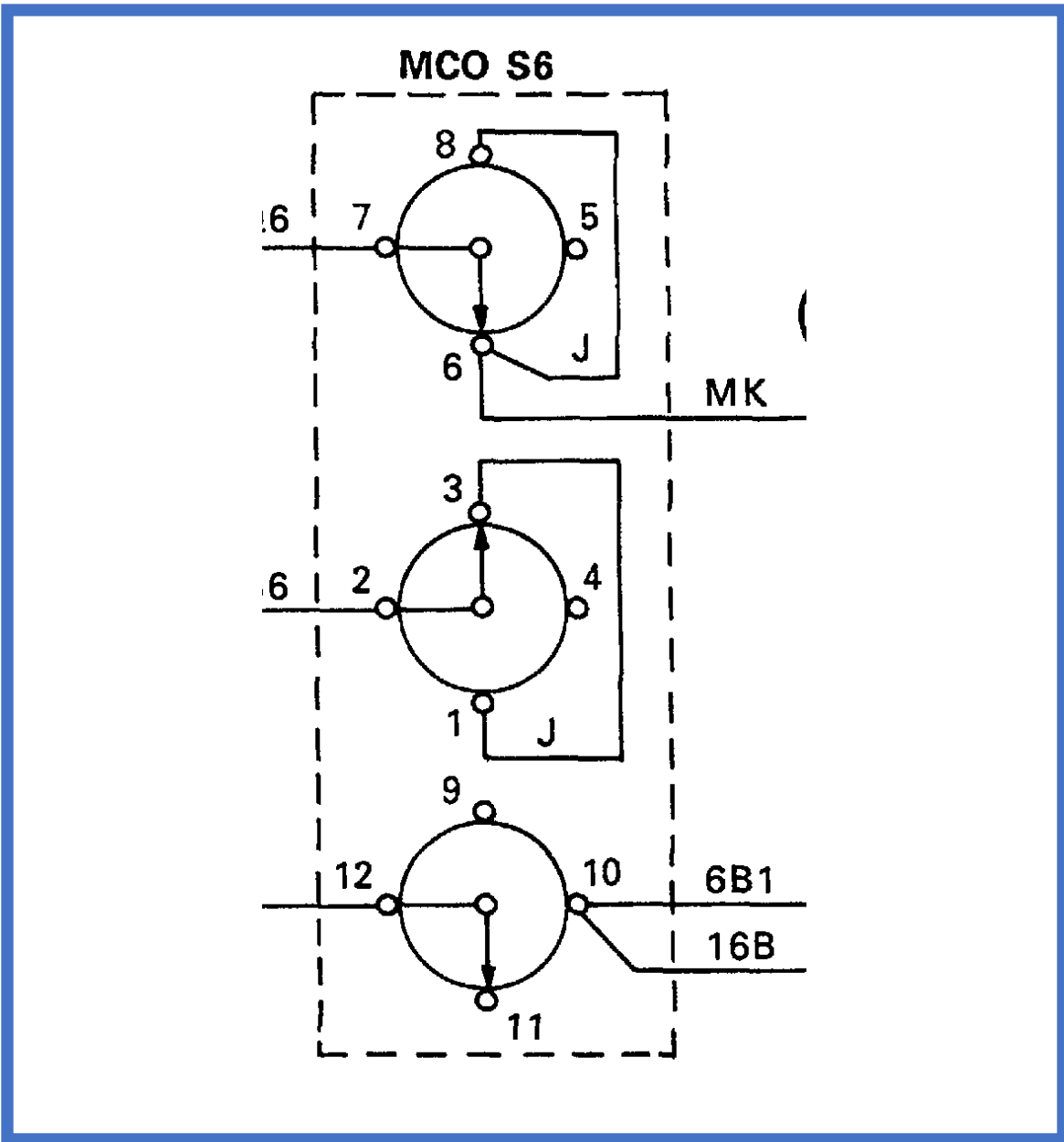
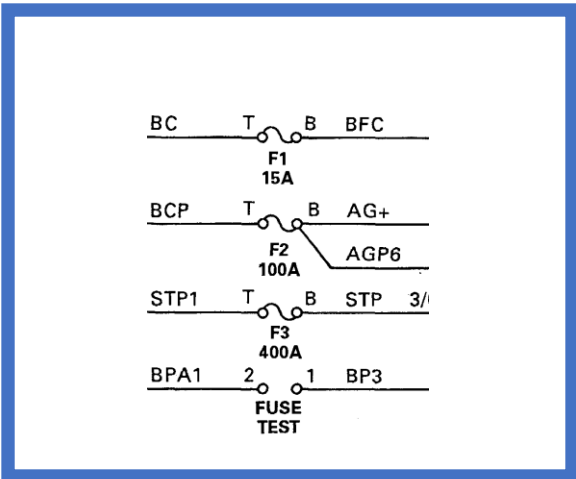
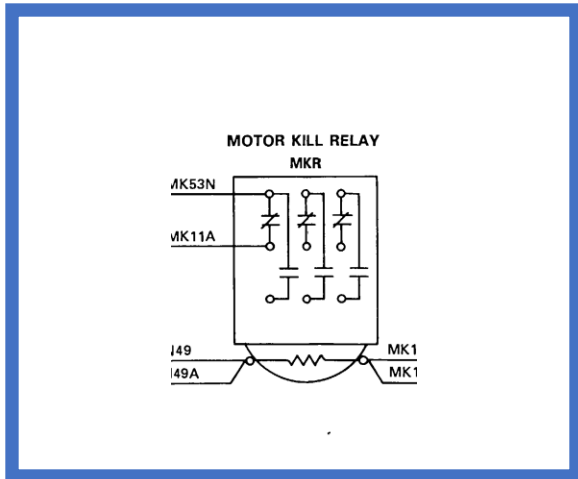
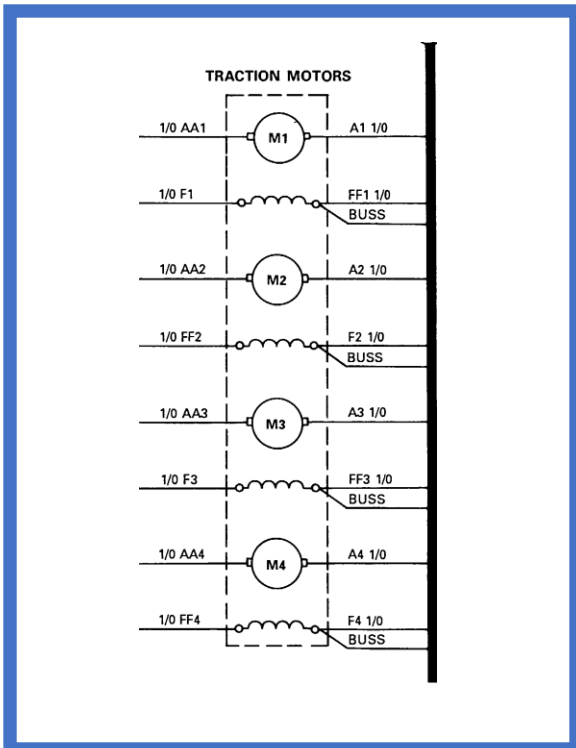
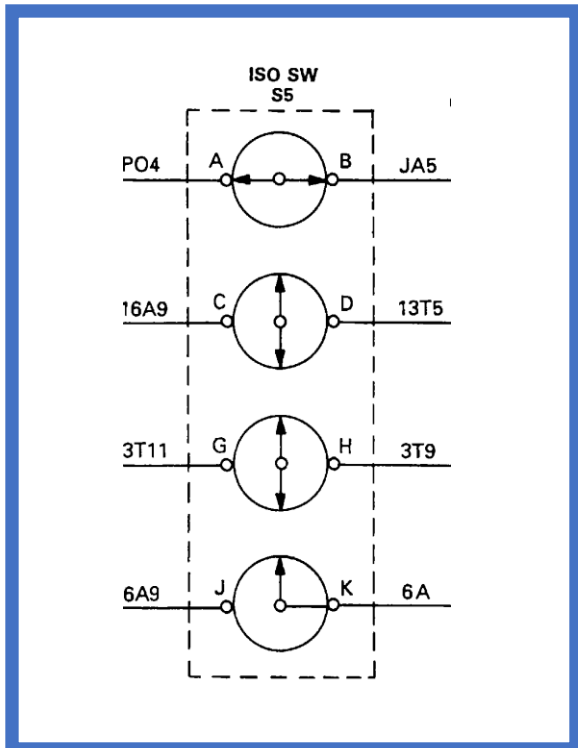


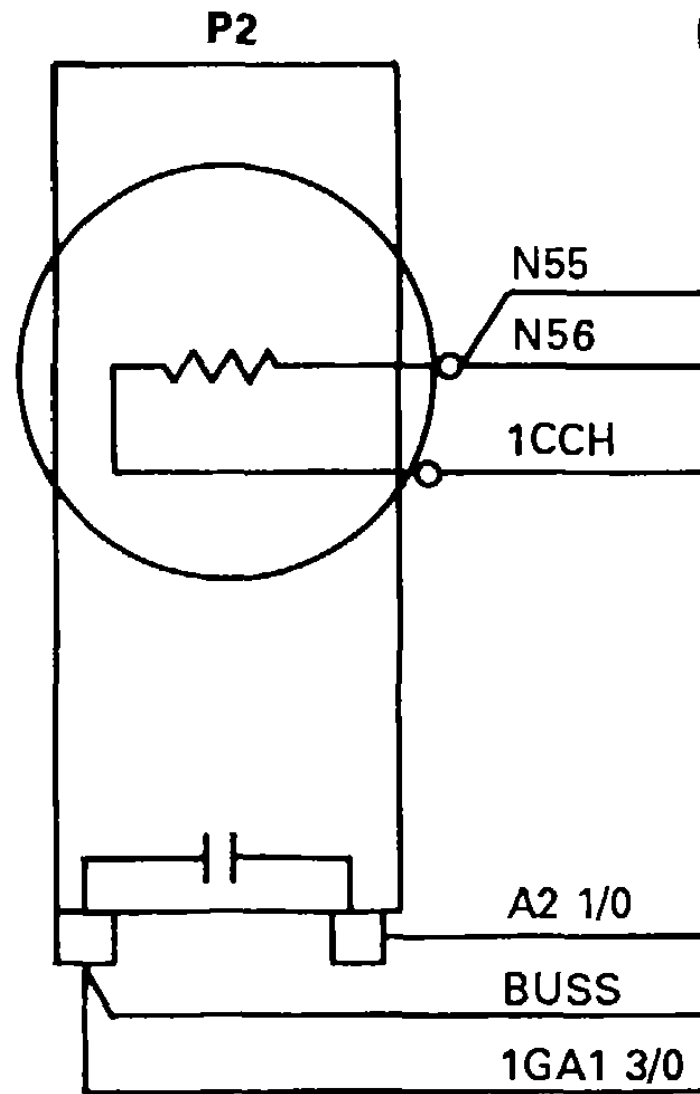
CONTROL CANBINET 2



CONTROL CABINET 3

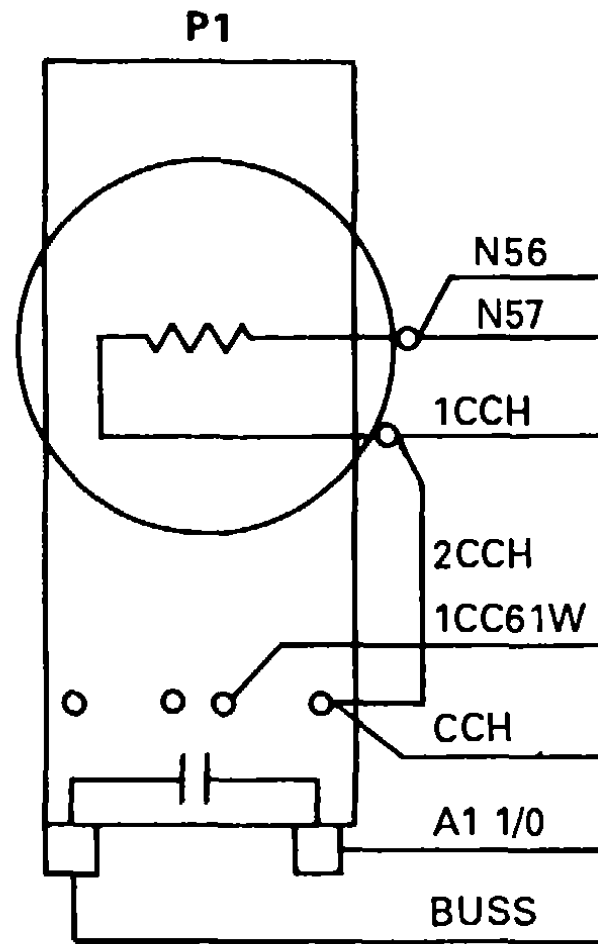
CONTROL CABINET 1



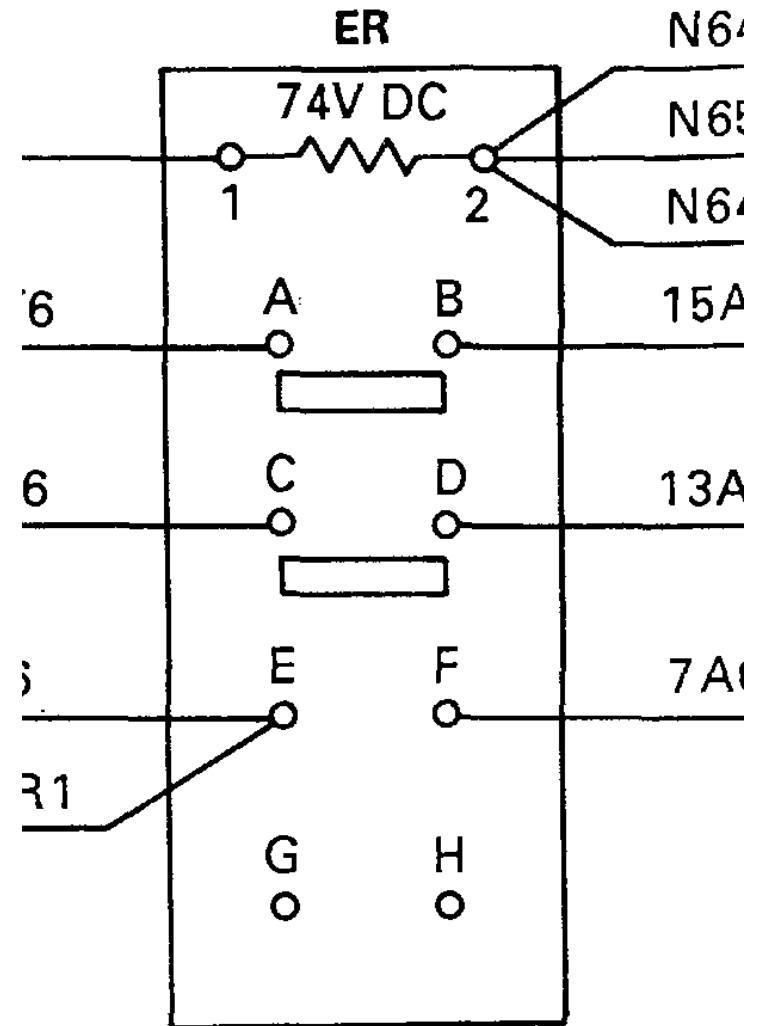
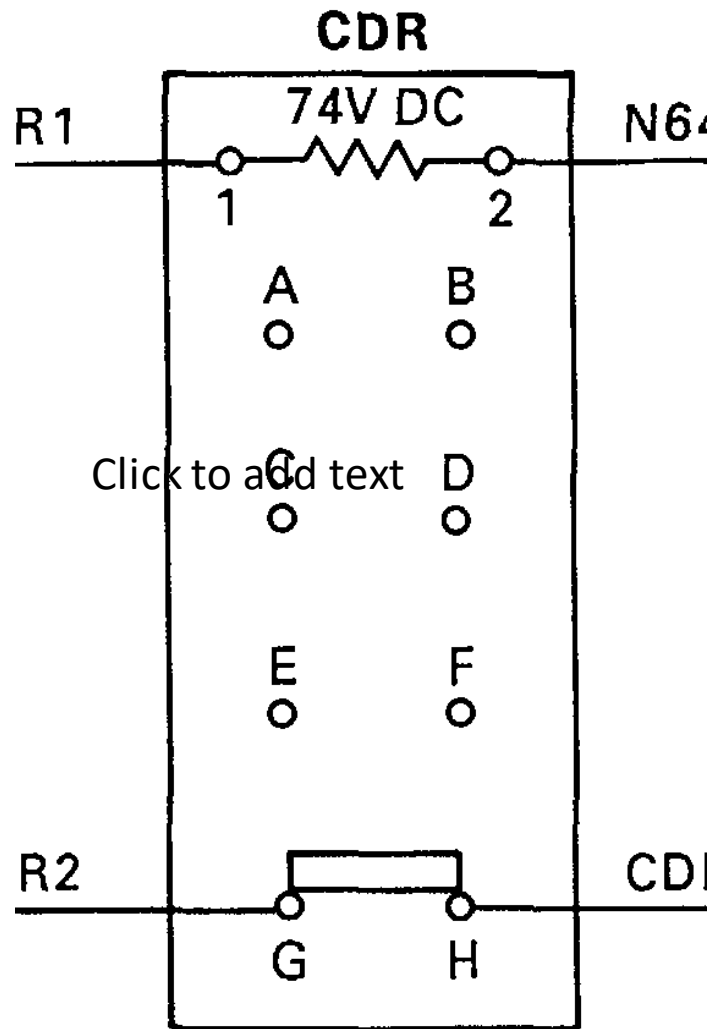
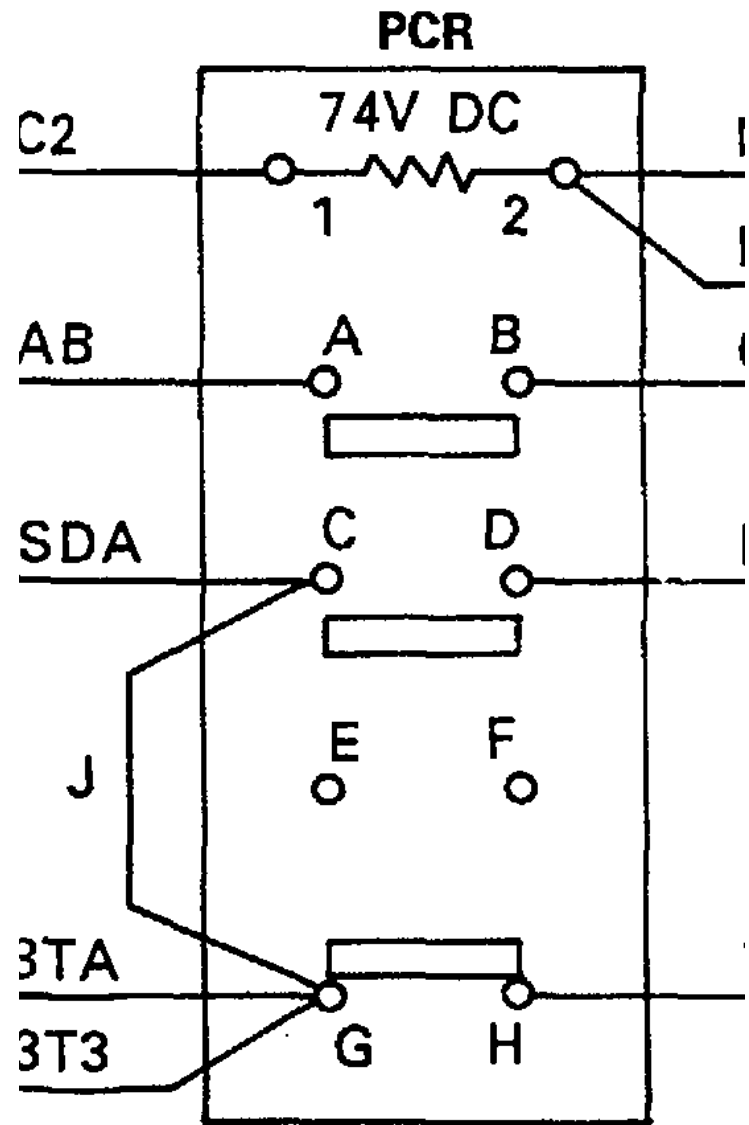


CONTROL CABINET 3

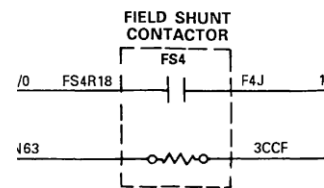
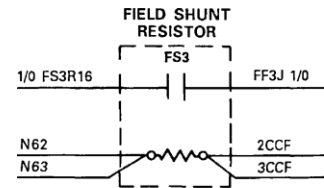
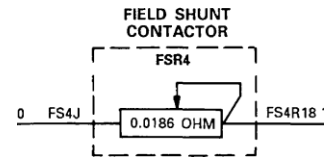
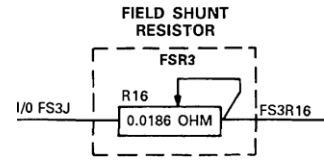
POWER CONTACTORS



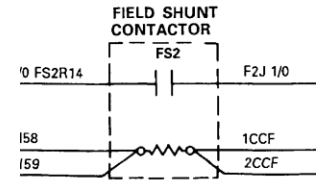
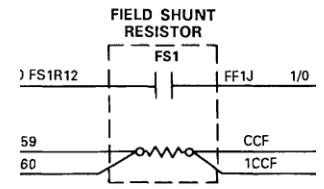
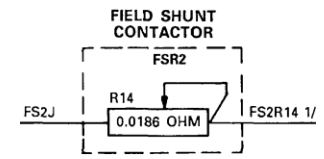
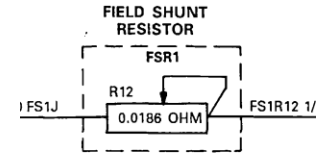
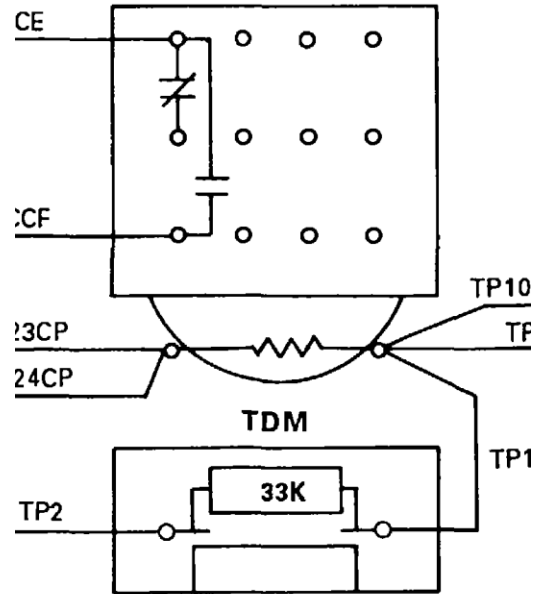
CONTROL CABINET 2



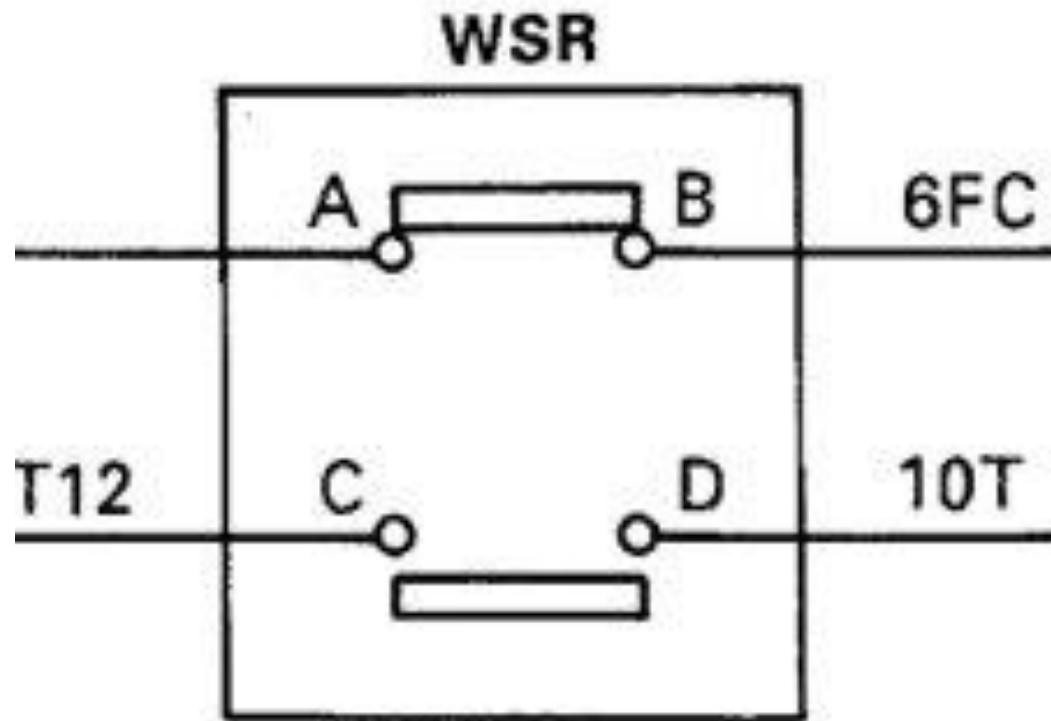
CONTROL CABINET 3



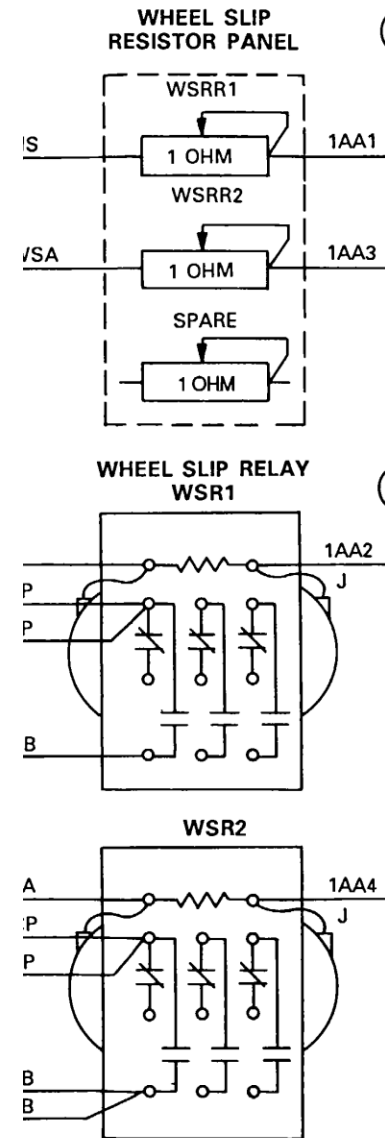
FIELD SHUNT
XSTR RELAY
TR

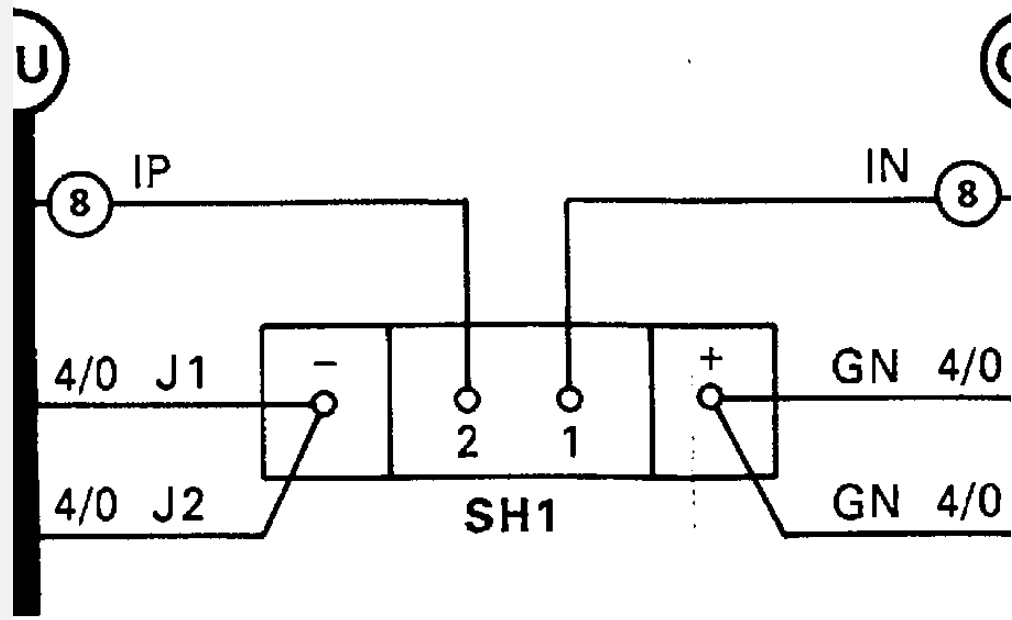


FRONT CONTROL ROOM

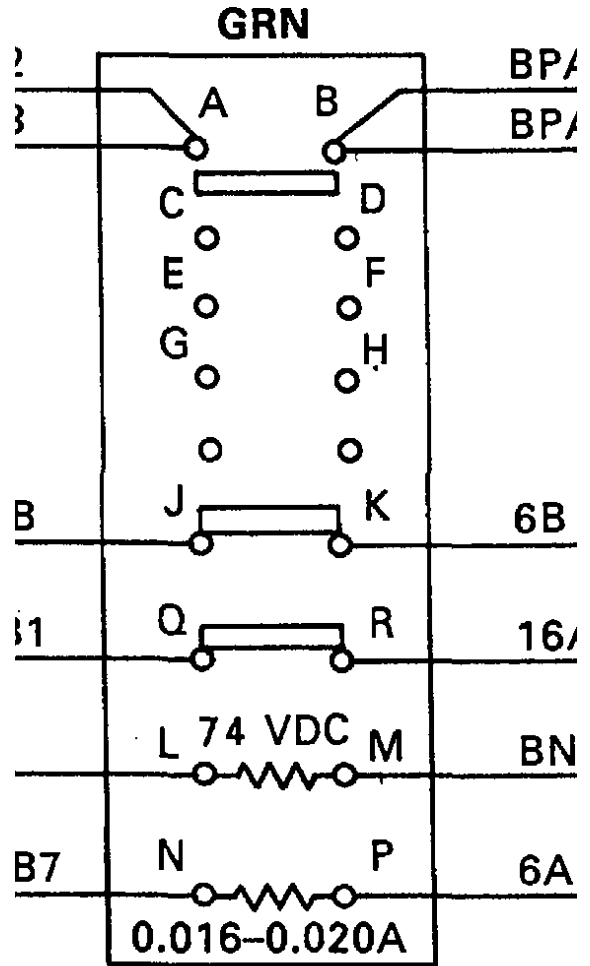


CONTROL CABINET 1



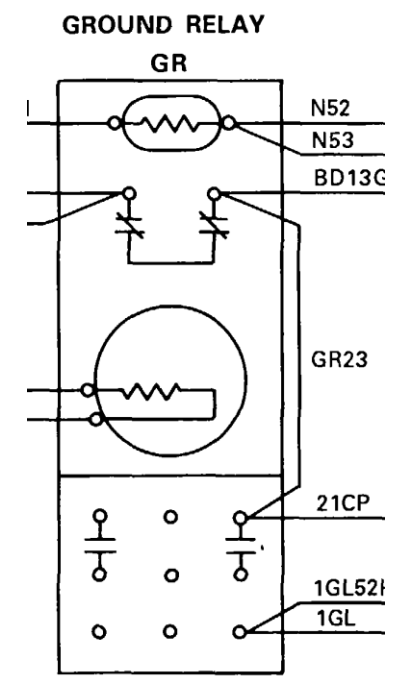
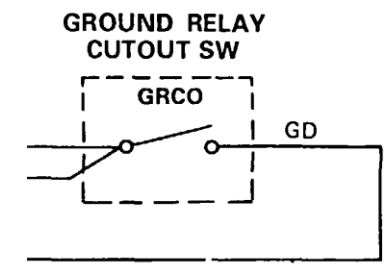


**FRONT CONTROL CABINET
FIREWALL**

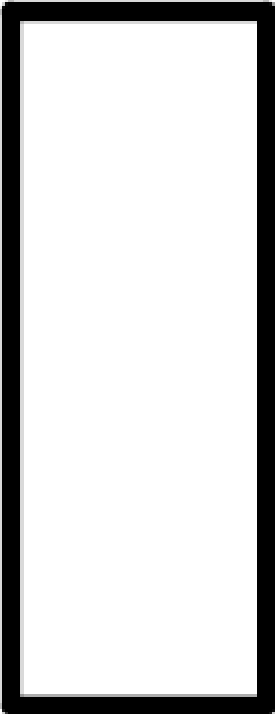


CONTROL CABINET

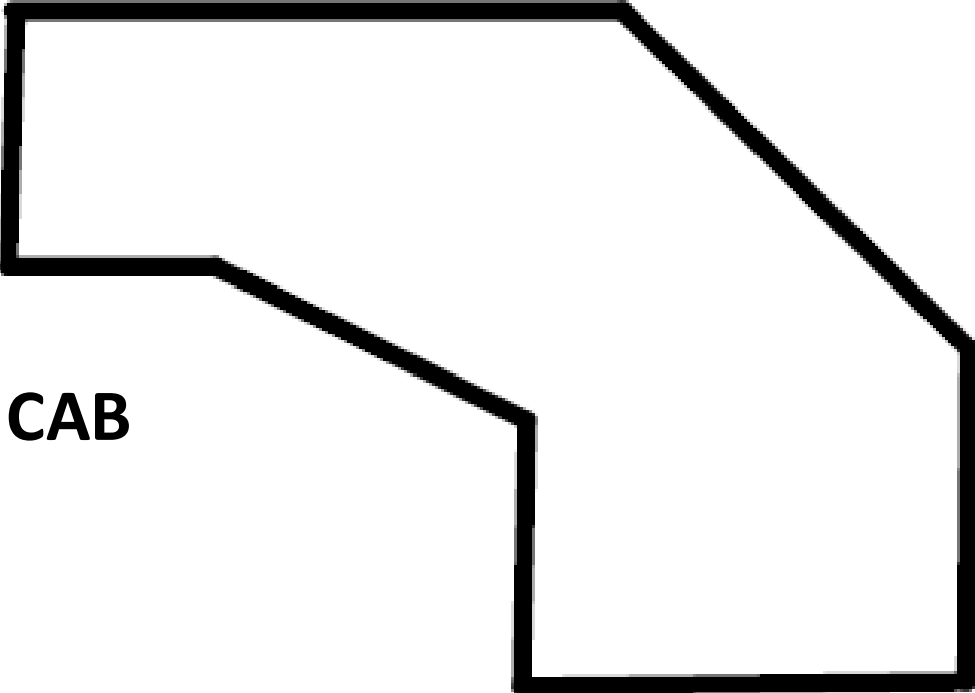
5



CONTROL CABINET 4

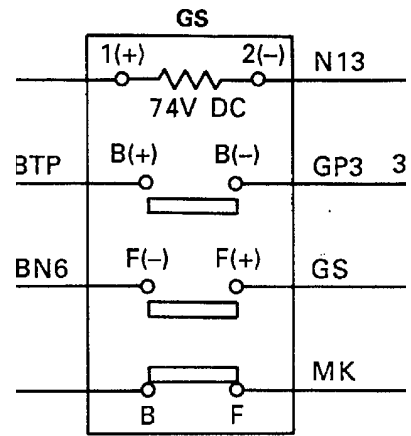


REAR CAB

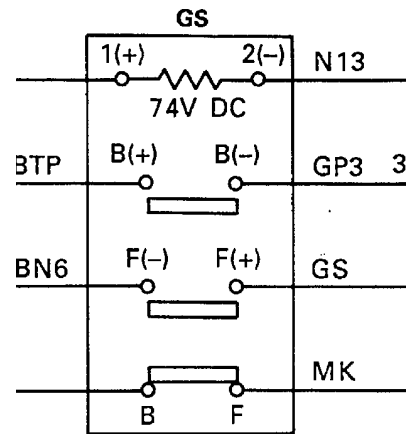


CONTROL CABINET 5

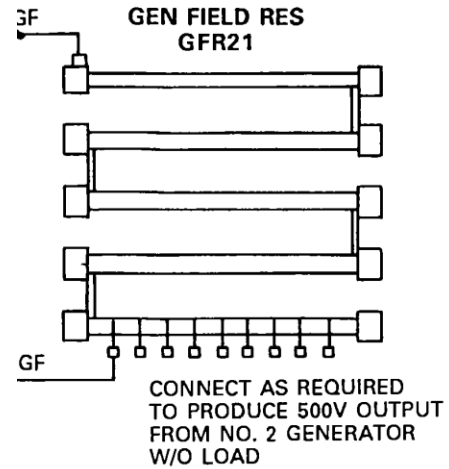




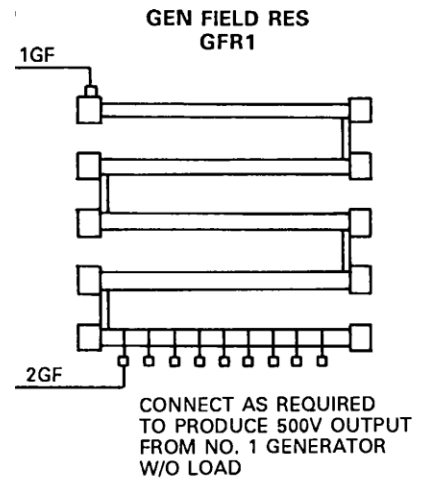
CONTROL CABINET 4



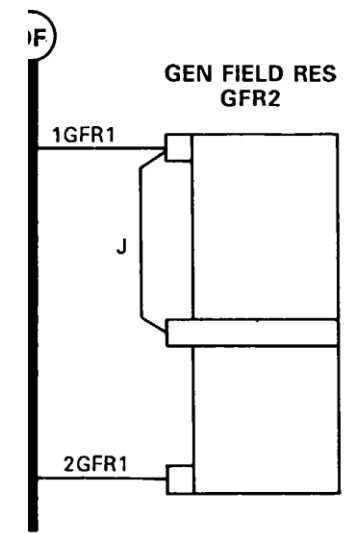
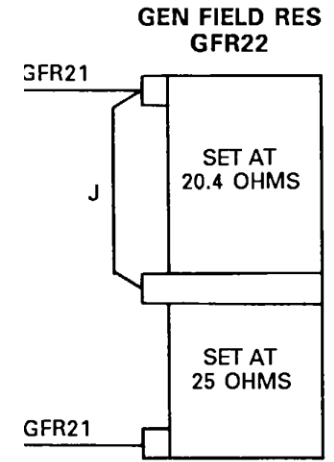
CONTROL CABINET 4



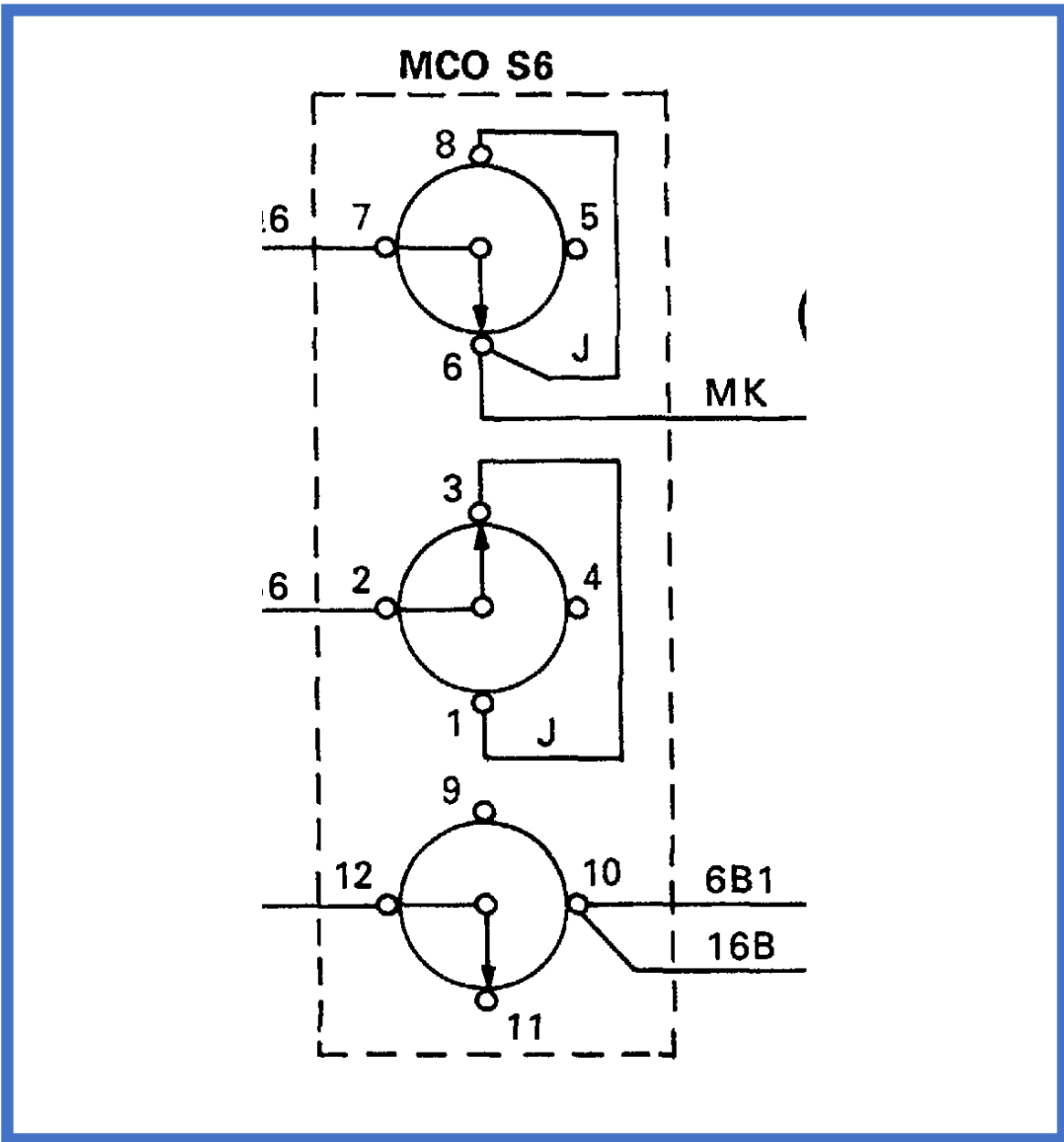
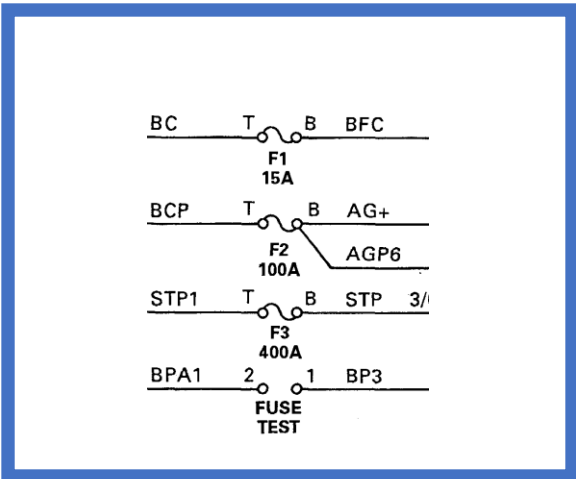
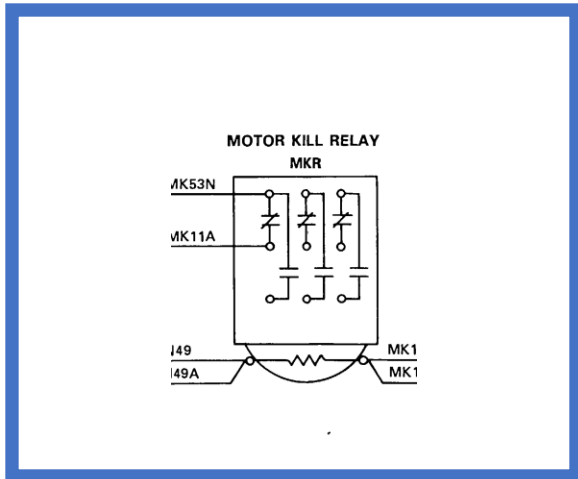
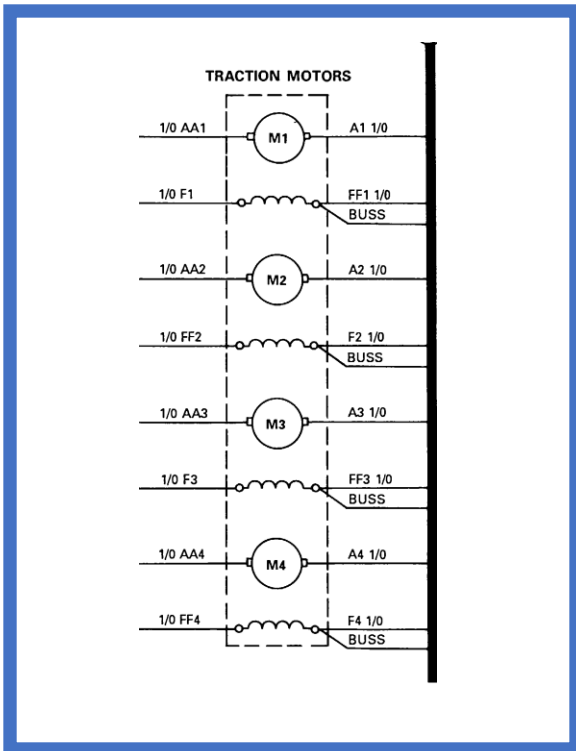
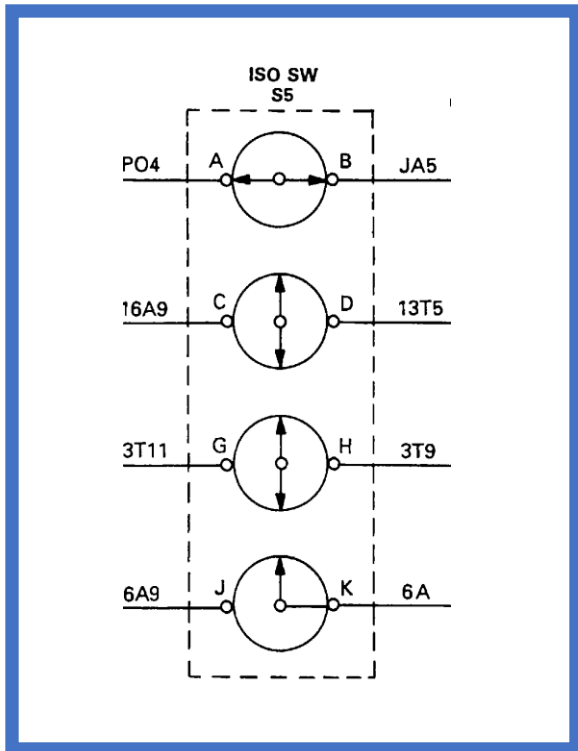
GENERATOR 1



GENERATOR 2

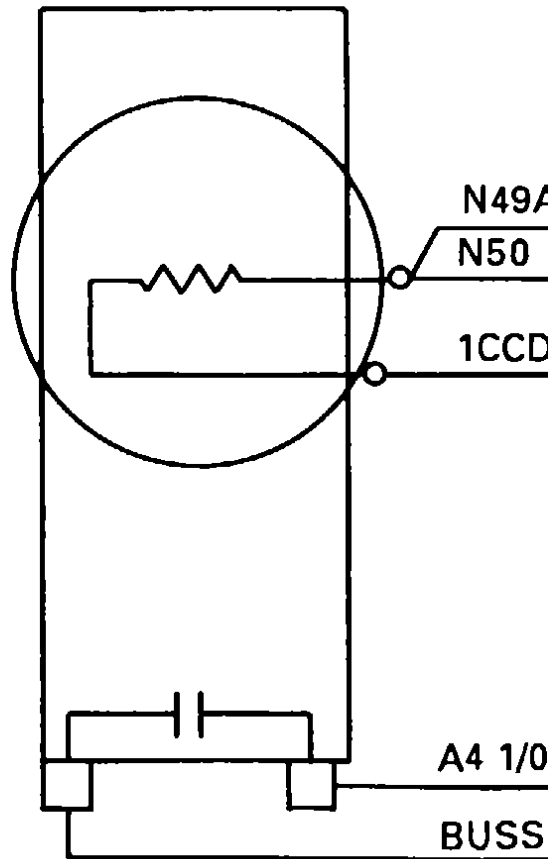


CONTROL CABINET 5



POWER CONTACTOR

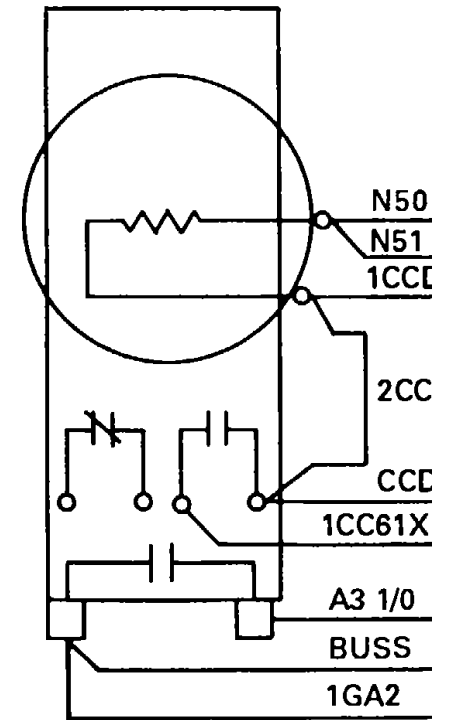
P4



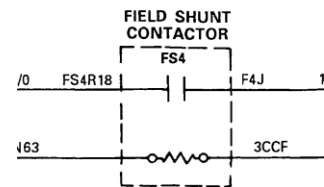
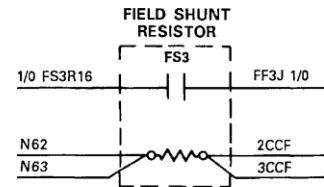
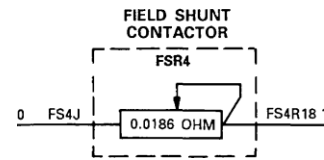
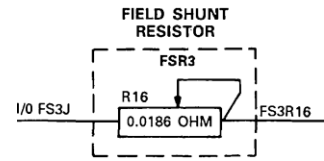
CONTROL CABINET 4

POWER CONTACTOR

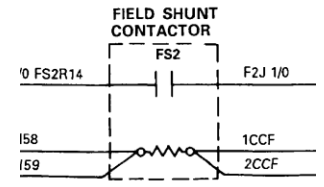
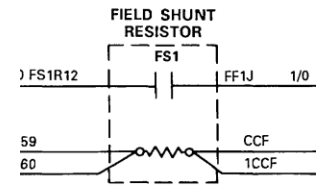
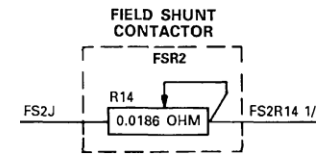
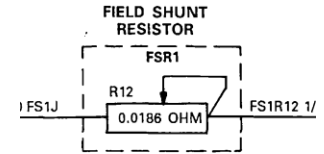
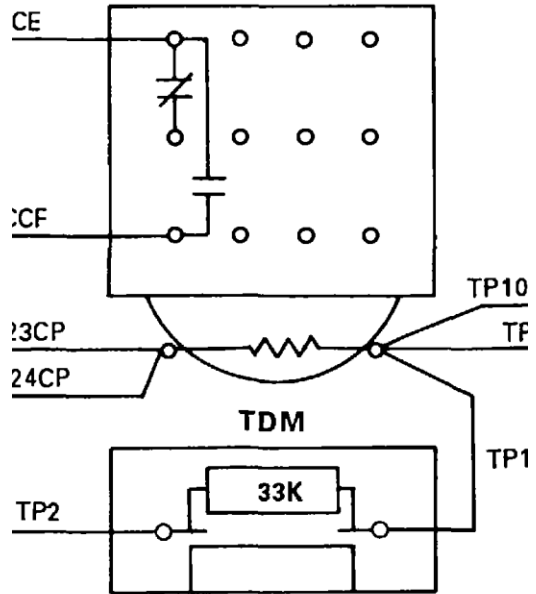
P3



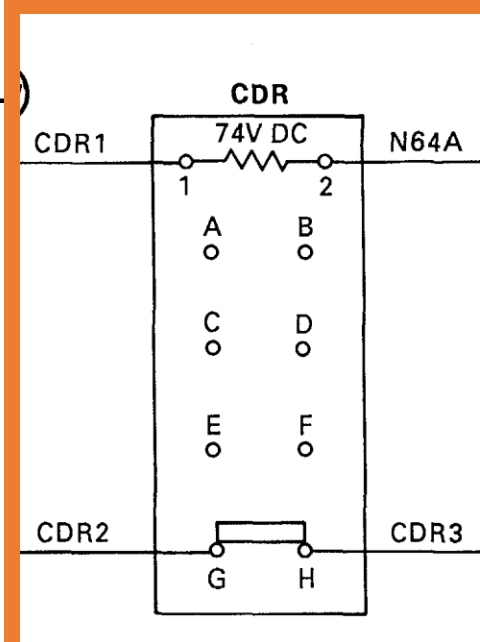
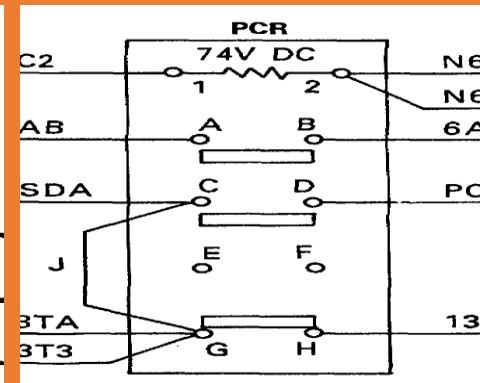
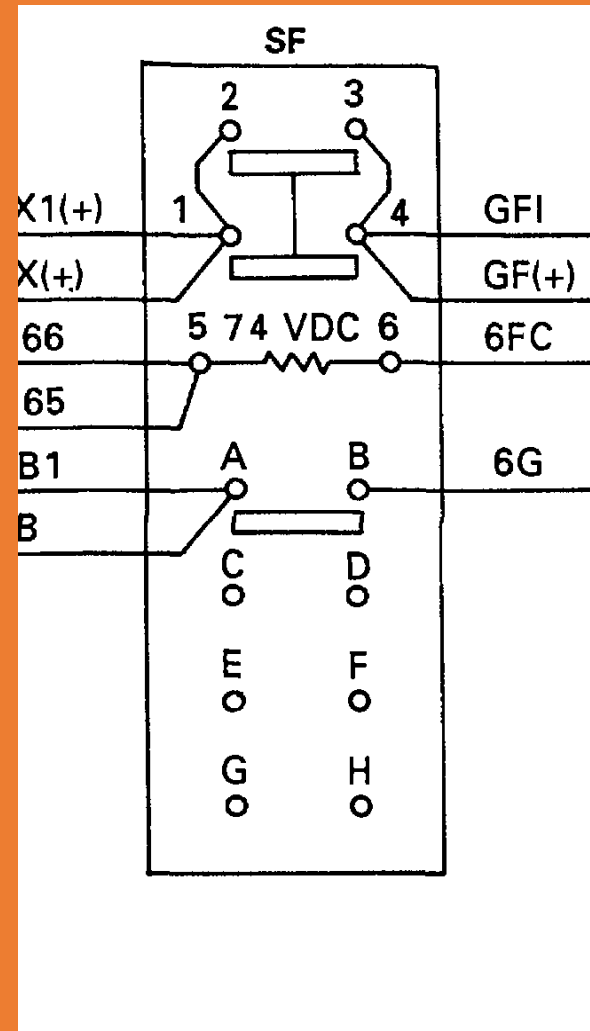
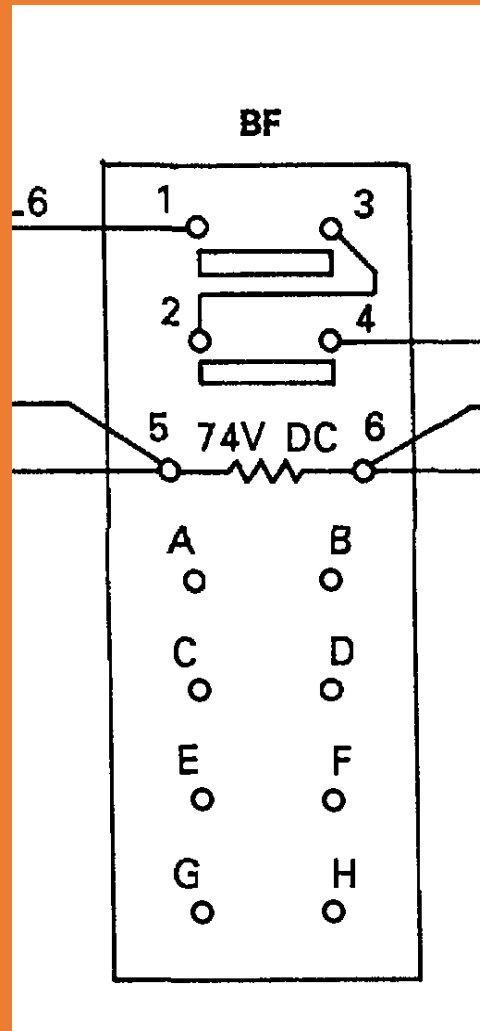
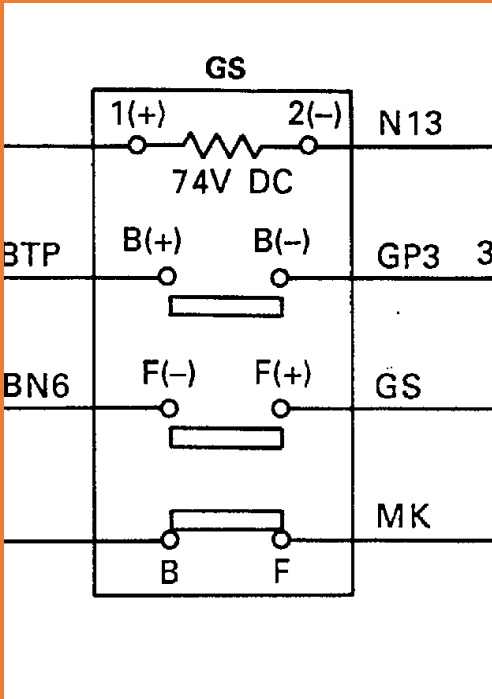
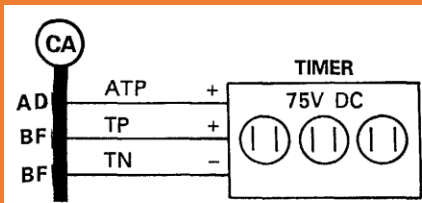
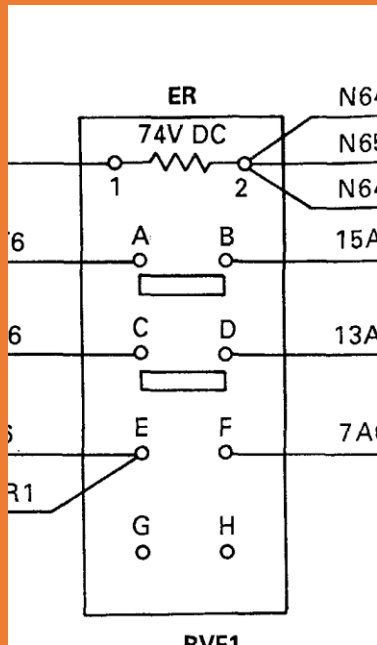
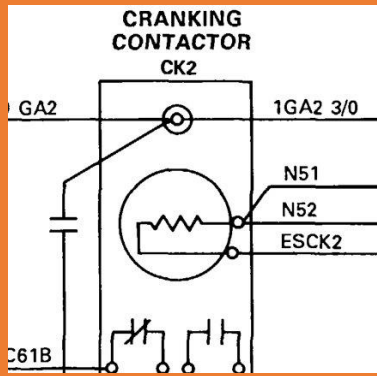
CONTROL CABINET 4



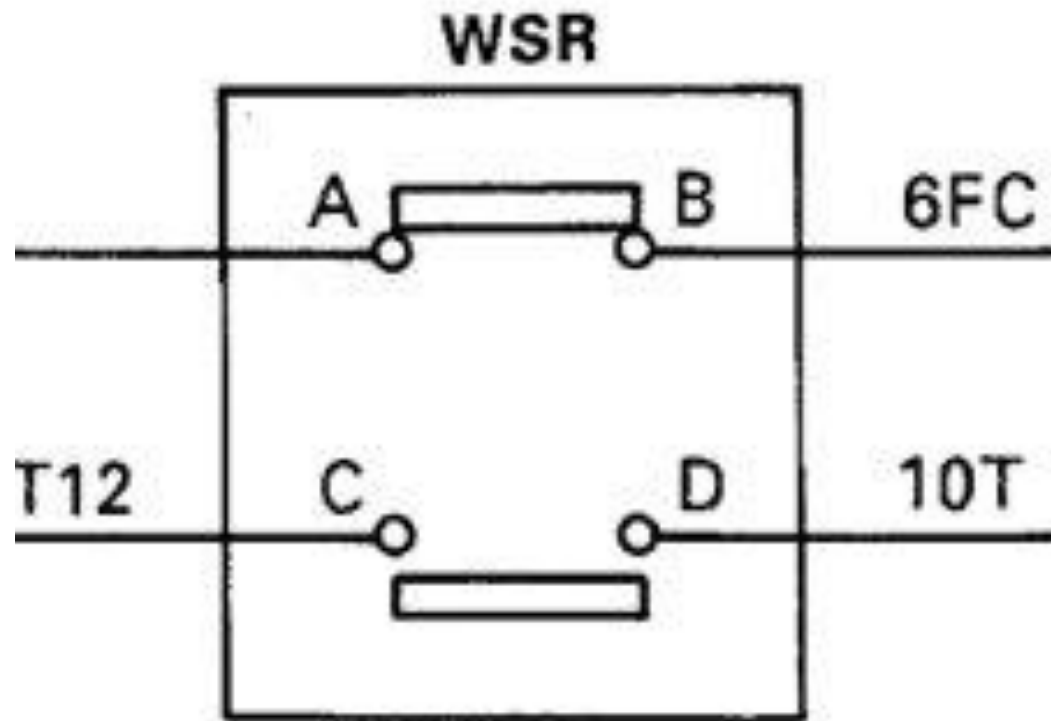
FIELD SHUNT
XSTR RELAY
TR



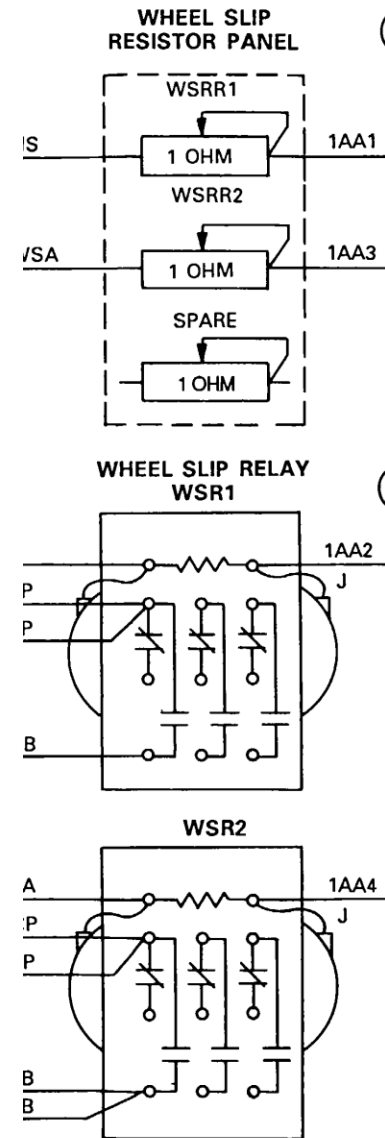
REAR CONTROL ROOM

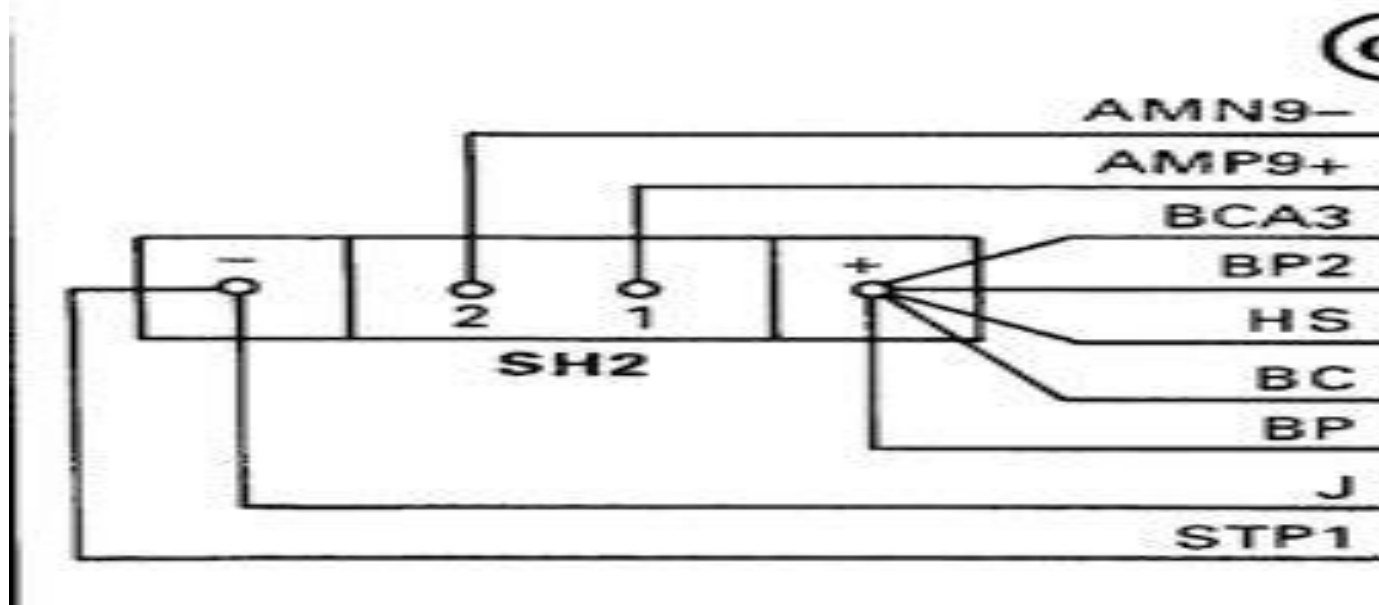


CONTROL CABINET 4

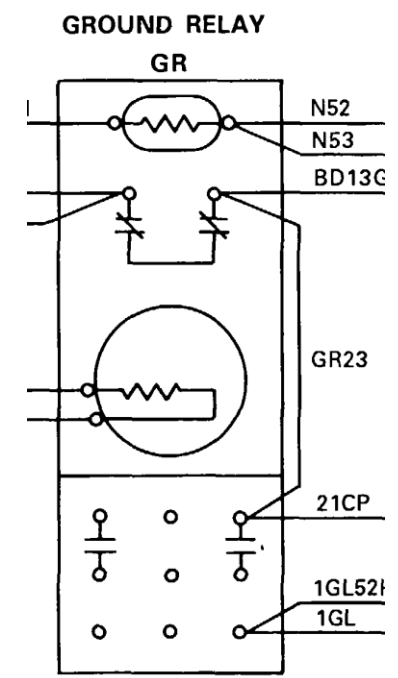
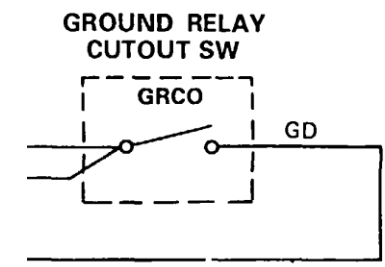
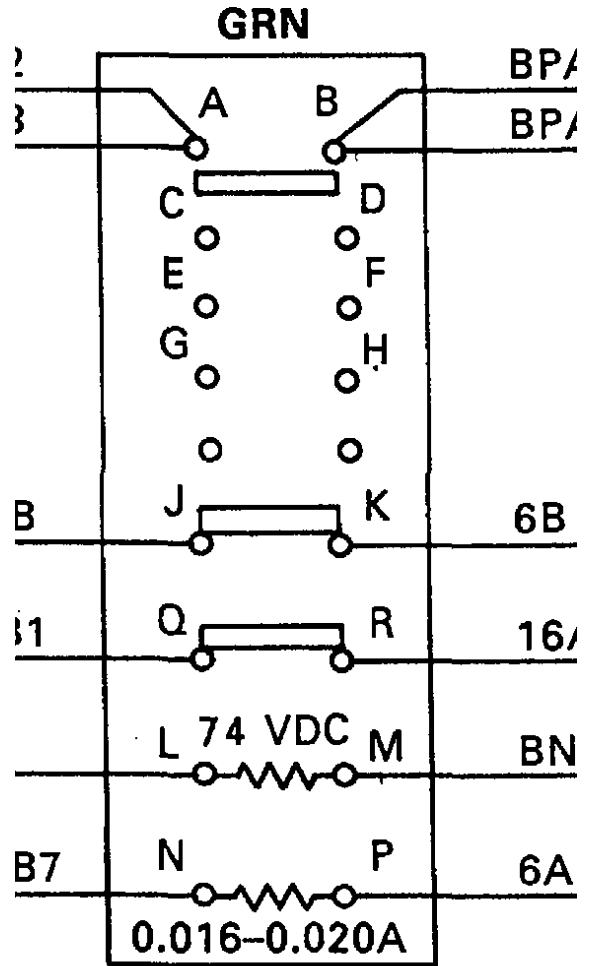


CONTROL CABINET 4



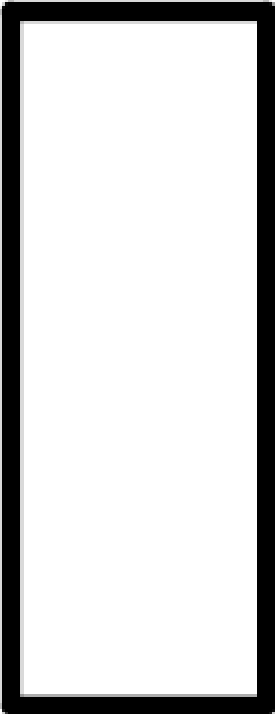


**REAR CONTROL
CABINET FIREWALL**

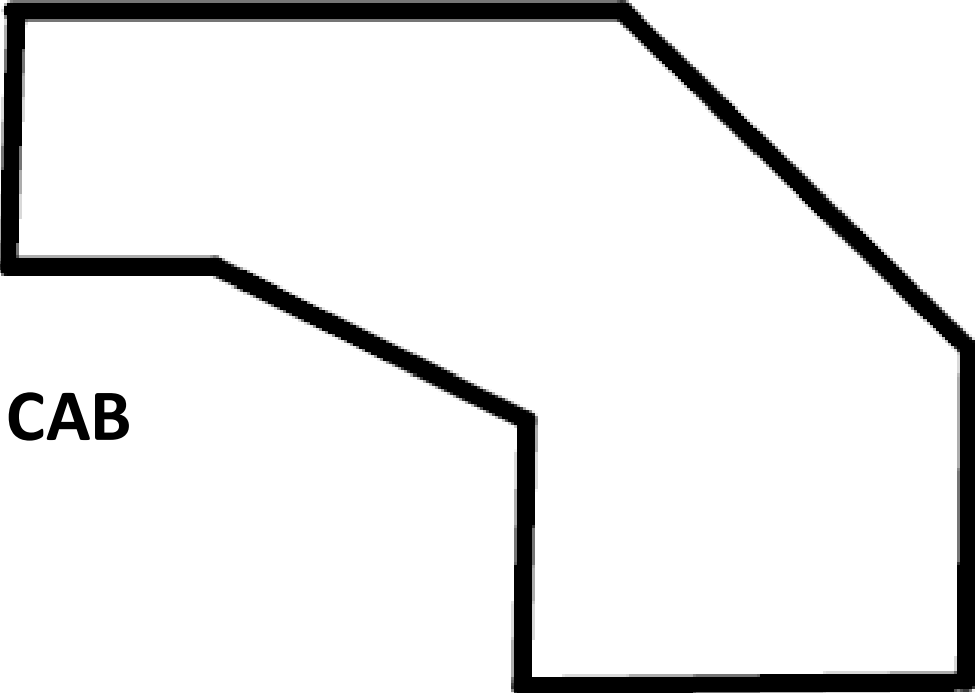


CONTROL CABINET

CONTROL CABINET 4



REAR CAB



CONTROL CABINET 5



AIR SYSTEM COMPRESSOR AND SAND