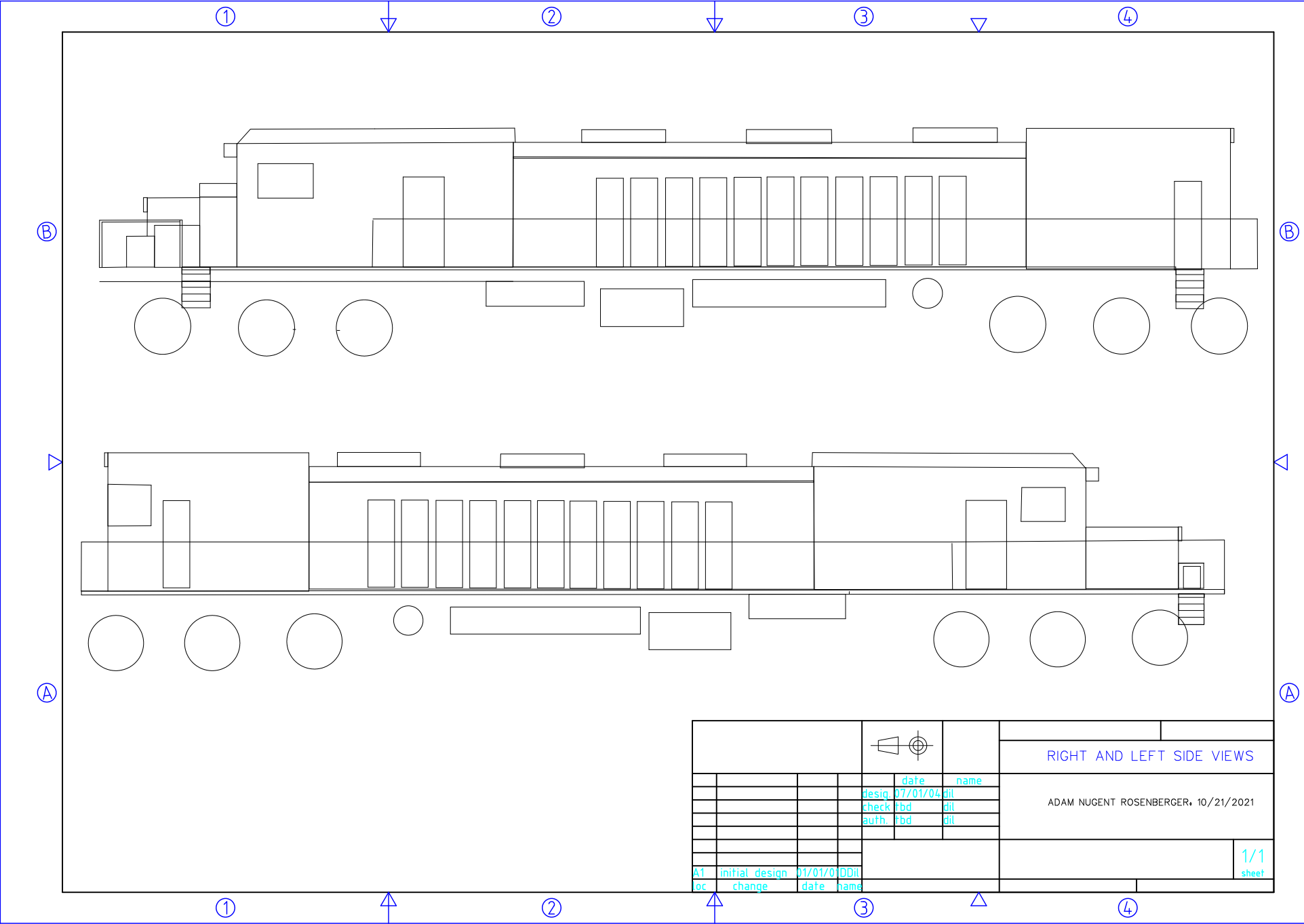
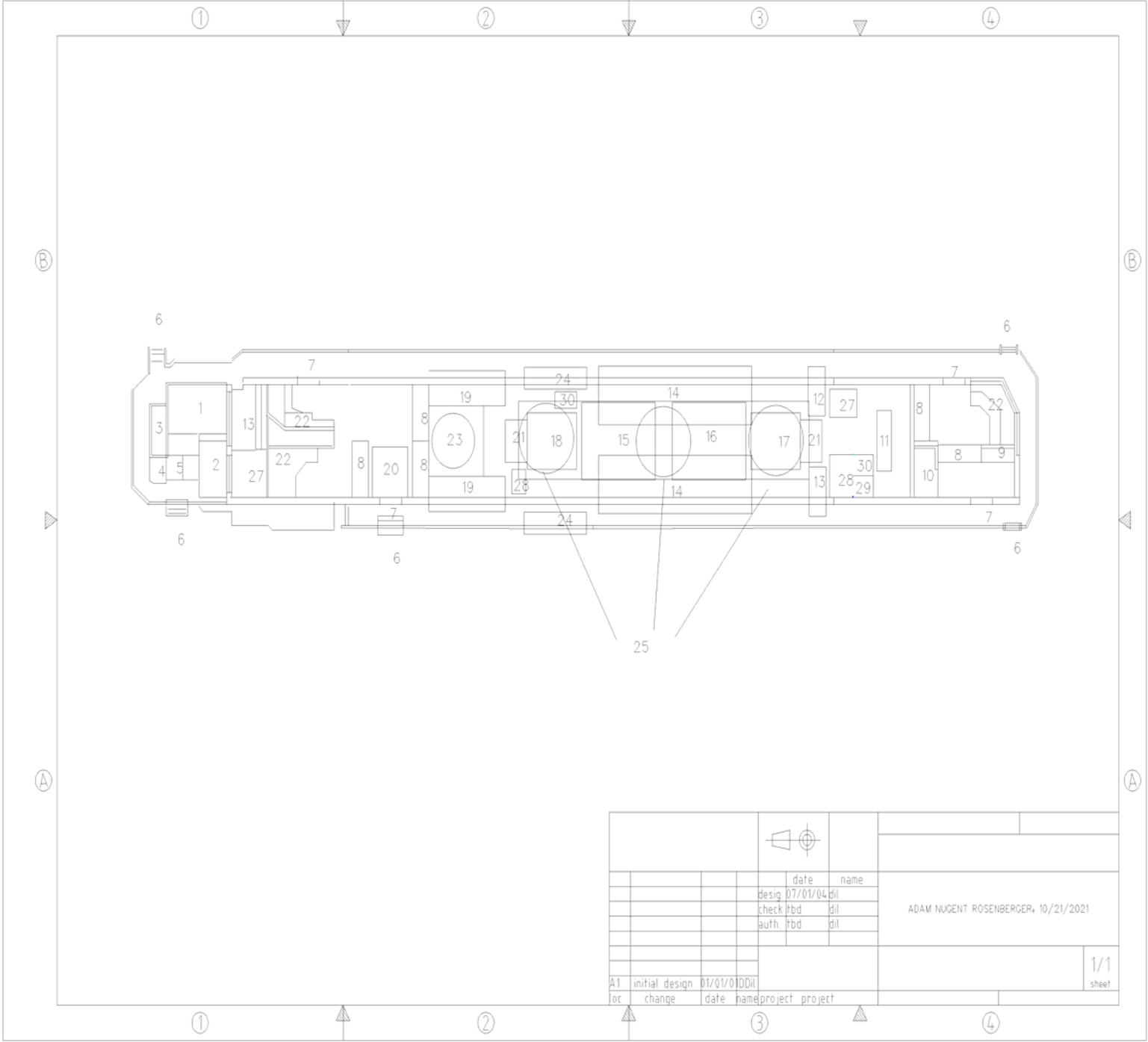




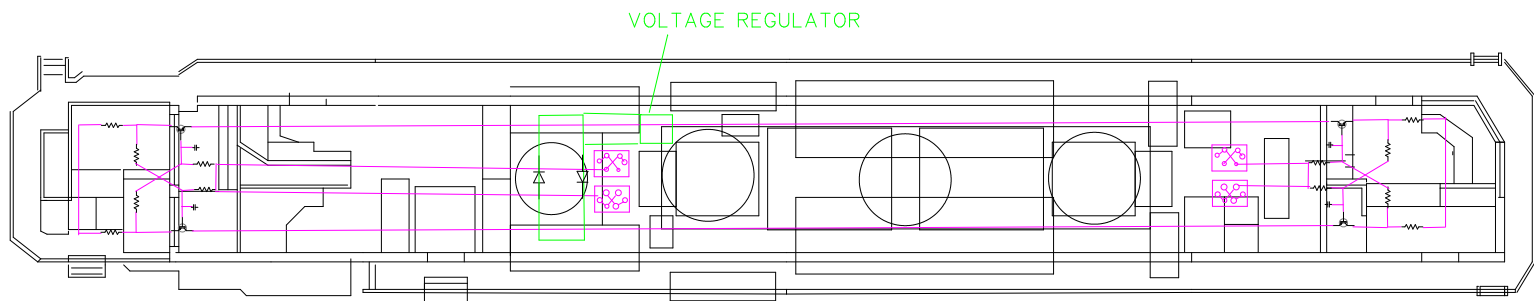


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REFERENCE NUMBER PART DESCRIPTION

1 SAND TRAP
2 ENGINEER'S HEATER
3 WHINCH
4 BATTERY
5 DASH SERIES 8 AIR COMPARTMENT BOX
6 STEPS
7 DOORS
8 ELECTRICAL CABINET
9 FIREMAN'S HEATER
10 TOILET
11 AIR COMPRESSOR
12 AIR RESERVIOR
13 AIR RESERVIOR
14 FUEL TANK
15 NO 1 ENGINE
16 NO 2 ENGINE
17 MAIN GENERATOR 1
18 MAIN GENERATOR 2
19 BATTERY BOX
20 BATTERY KNIFE SWITCH
21 ALTERNATOR AUXILIARY GENERATOR
22 CONTROL PANEL
23 DYNAMIC BRAKE
24 TOOL BOX
25 RADIATOR AND FANS
27 AIR DUCT -TRACTION MOTOR BLOWER
28 AIR DUCT-ALTERNATOR BLOWER
29 LUBE OIL COOLER HOUSING
30 VOLTAGE REGULATOR

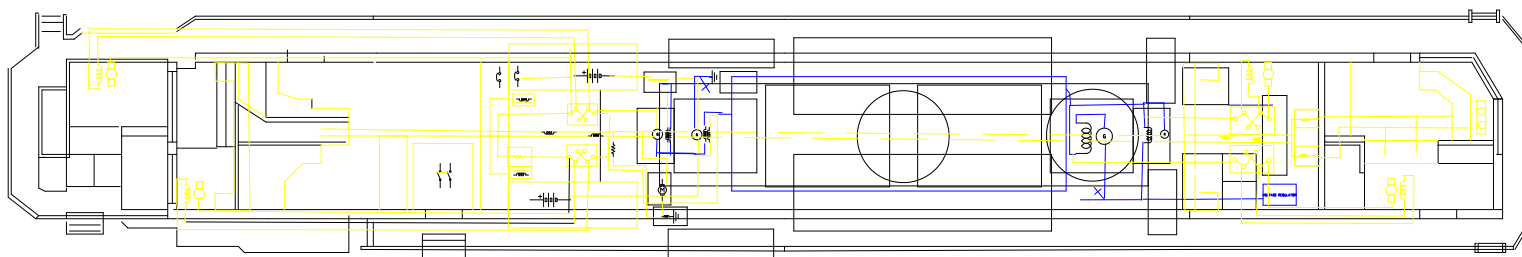


AC COUNTER EMF TRACTION MOTOR DYNAMIC BRAKING AND CHARGING DUAL DIODES

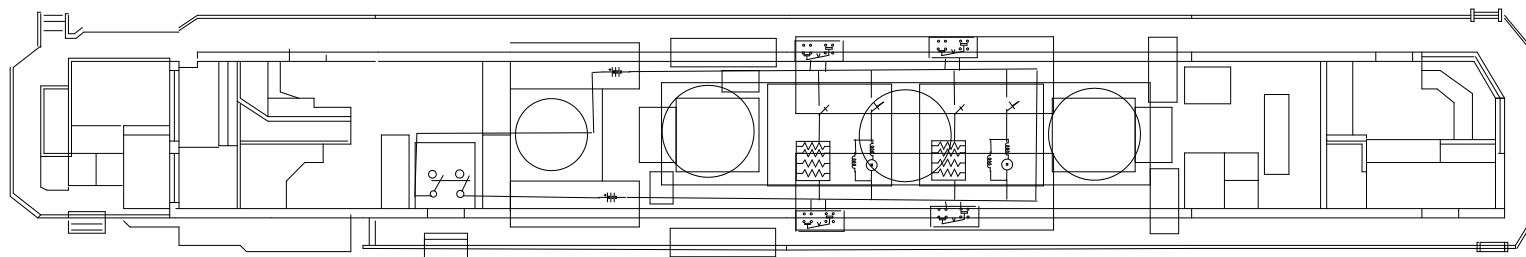
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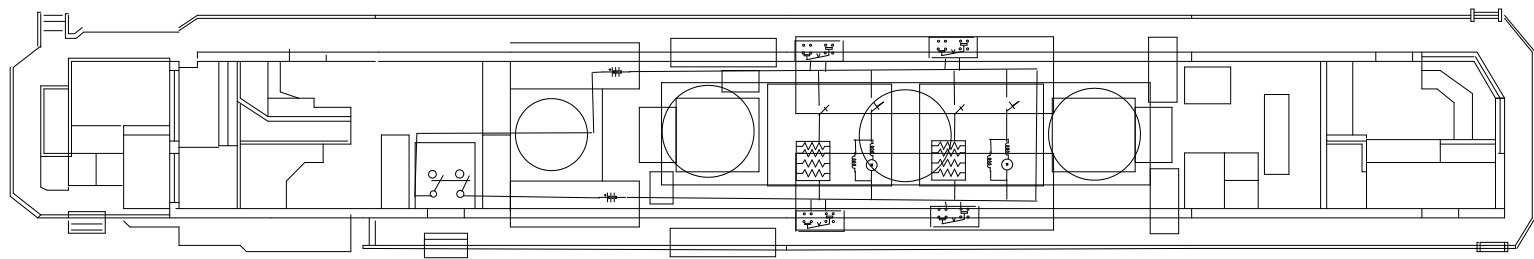
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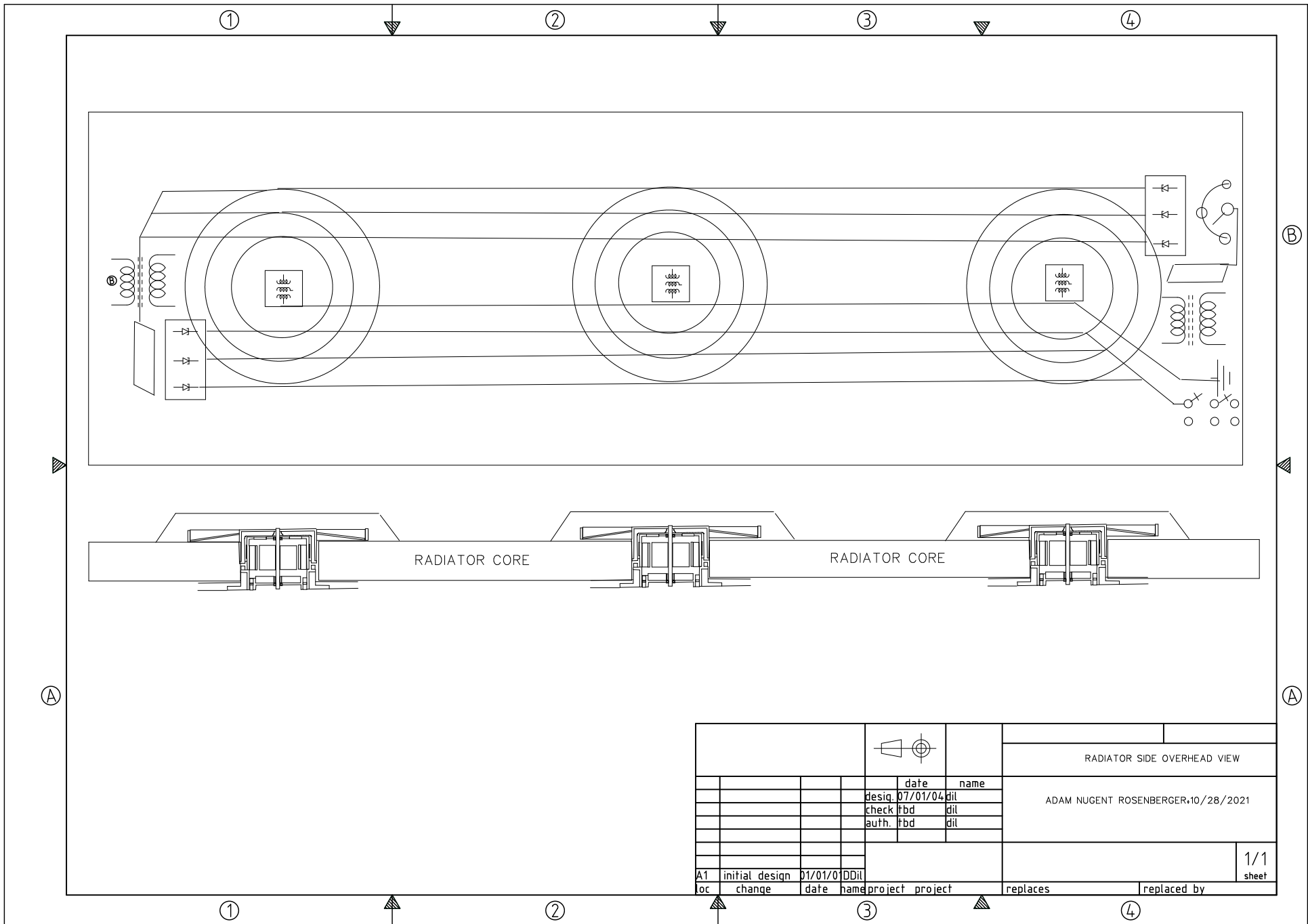
								
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loc	change	date	name	project	project			



							
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				date	name	ADAM NUGENT ROSENBERGER, 10/21/2021	
				desig. 07/01/04	dil		
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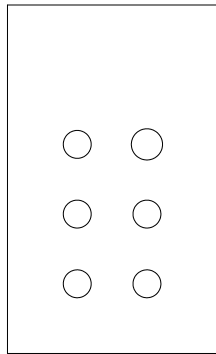
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						RADIATOR SIDE OVERHEAD VIEW	
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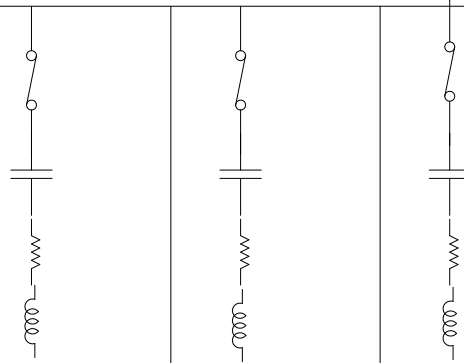
WHEATSTONE RECITIFER BRIDGE ON FUSE TEST

+ and -

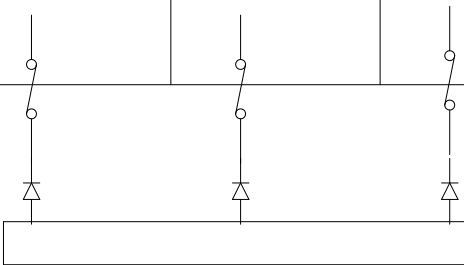


FUSE TEST

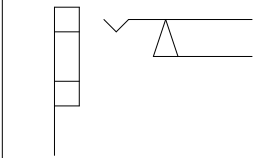
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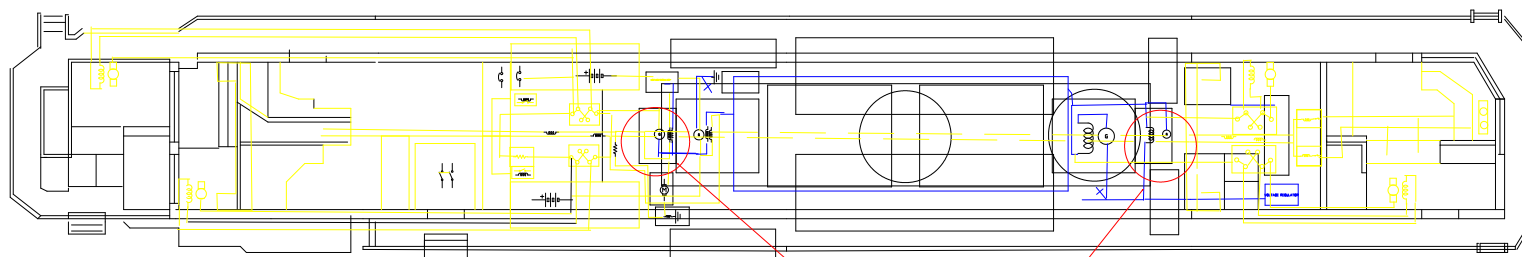
CLOSED CARD SLOT



SHUNT WALL

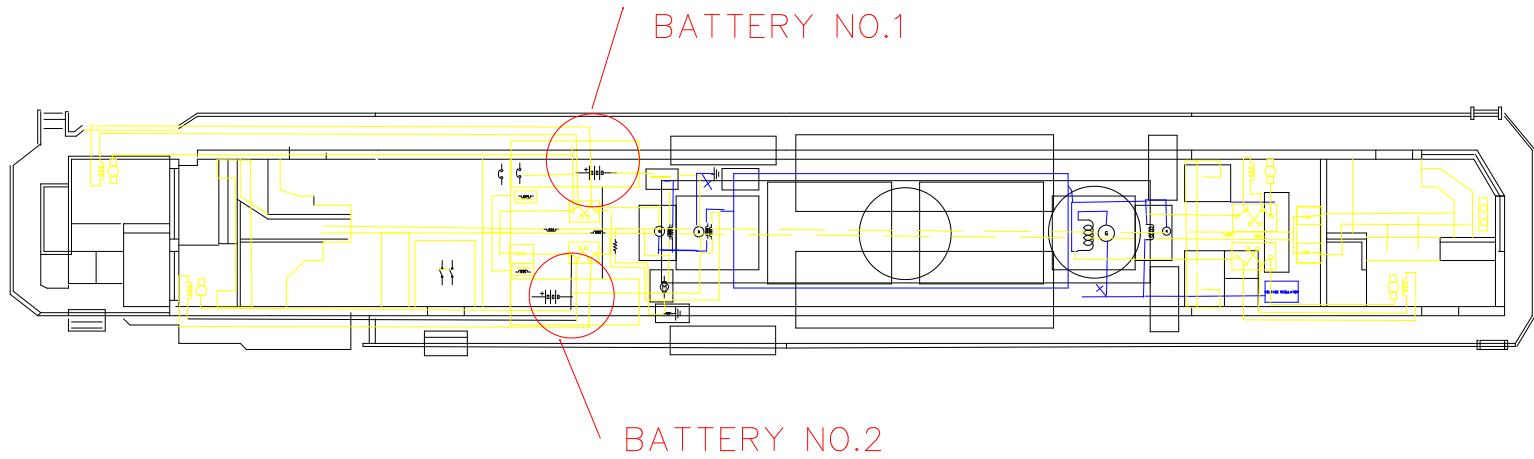


jack meter

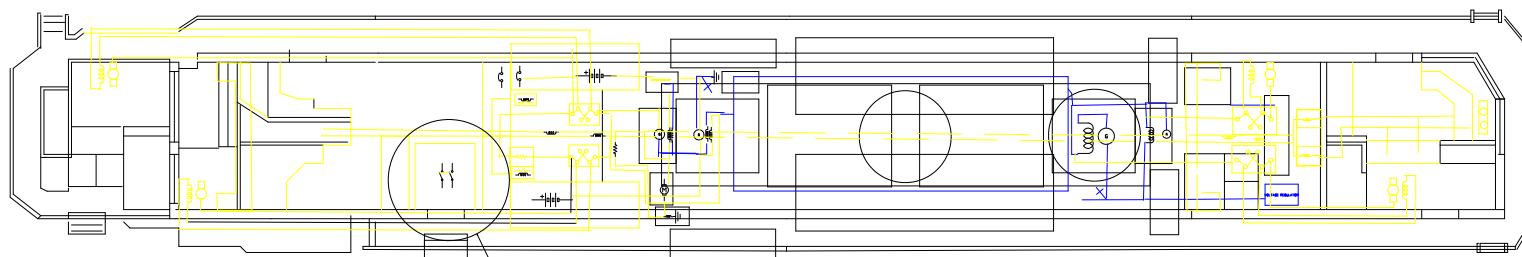


AUXILIARY EXICTER GENERATORS

						AUXILIARY EXICTER GENERATORS	
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loc	change	date	name	project	project		



						
					BATTERIES	
				date	name	ADAM NUGENT ROSENBERGER•11/5/2021
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				check fbd	dil	
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A1	initial design	01/01/01	DDil			1/1
loc	change	date	name	project	project	sheet



BATTERY KNIFE SWITCH

							
						BATTERY KNIFE SWITCH	
				date	name	ADAM NUGENT ROSENBERGER,11/5/2021	
				desig. 07/01/04	dil		
				check fbd	dil		
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4833-058

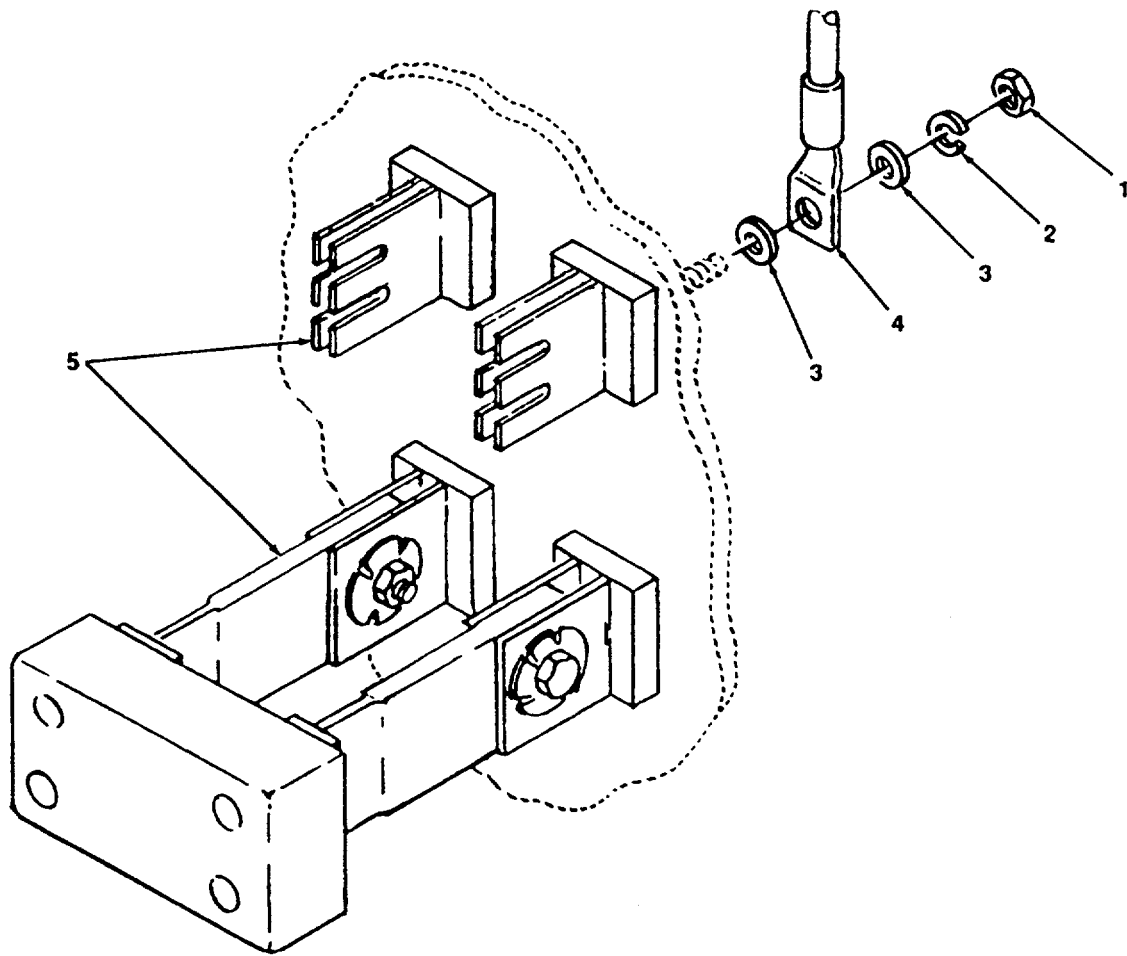
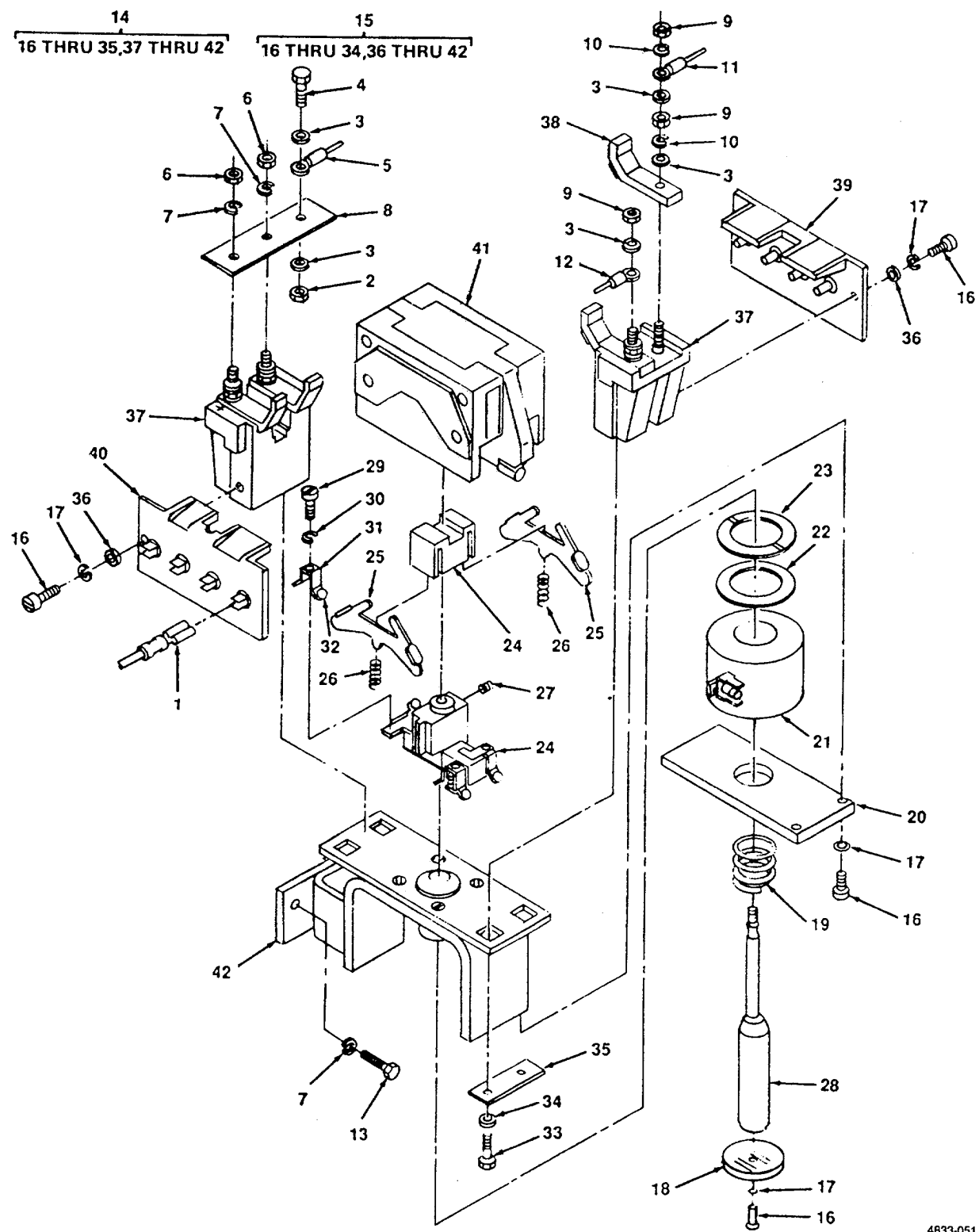


Figure 58. Knife Switches, Battery.

(1) ITEM NUMBER	(2) FSCM	(3) PART NUMBER	(4) DESCRIPTION AND USABLE ON CODE (UOC)	(5) QTY
			GROUP 10 CONTROLS, ELECTRICAL GROUP	
			FIG. 58 KNIFE SWITCHES, BATTERY	
1	96906	MS51967-09	NUT, HEX, 3/4 IN.	4
2	96906	MS35338-46	WASHER, LOCK, 3/8 IN.	8
3	96906	MS27183-14	WASHER, FLAT, 3/8 IN.	8
4			CABLE, 3/0 W/318 STUD, REF. DES: BY, BX, BC, BFC	4
5	24446	41B11393P1	SWITCH, KNIFE, DOUBLE, BATTERY, REF. DES: BS	1
			END OF FIGURE	



								
						CONTACTOR BATTERY FIELD AND SHUNT FIELD		
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				design	07/01/04			dil
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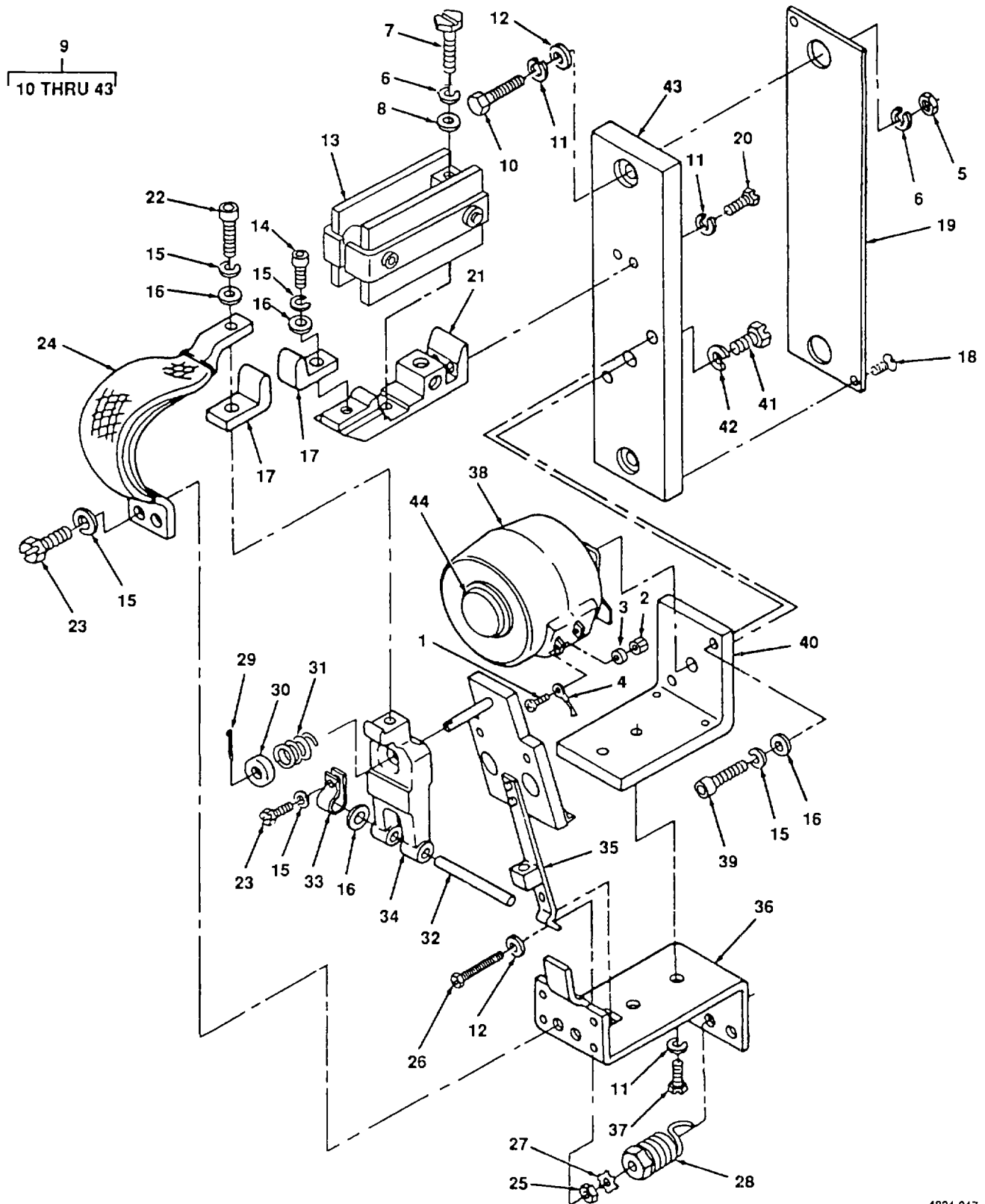


4833-051

Figure 51. Contactor, Battery Field and Shunt Field .

(1) ITEM NUMBER	(2) FSCM	(3) PART NUMBER	(4) DESCRIPTION AND USABLE ON CODE (UOC)	(5) QTY
			GROUP 10 CONTROLS, ELECTRICAL GROUP	
			FIG. 51 CONTACTOR, BATTERY FIELD AND SHUNT FIELD	
1			LEAD, ELECTRICAL, MADE FROM WIRE, 14 AWG, P/N 847054 (72915) TERMINAL, 14 AWG FASTON P/N 8250906 (72915), REF DES: 6B, 6B1, 6G	3
2	96906	MS15922-49	NUT, HEX, 5/8	4
3	96906	MS27183-24	WASHER, FLAT, 5/8	6
4	96906	MS90725-159	SCREW, HEX, 5/8	2
5			LEAD, ELECTRICAL, MADE FROM; WIRE 8 AWG, P/N 9094884 (72915) TERMINAL 8 AWG, STUD 3/8 IN. P/N 324045 (72915) REF DES; ITEM 14, GF1-, GF+, N66, N67	
6	96906	142212	NUT, HEX, REF. DES; ITEM 14	6
7	96906	120423	WASHER, LOCK, 1/4 IN.	11
8	96906	8240751	CONTACT, MAIN MOVABLE, ITEM 14	2
9	96906	5939163	NUT, LOCK	4
10	96906	121801	WASHER, LOCK, #10 INT. TOOTH	16
11			LEAD, ELECTRICAL, MADE FROM WIRE, 14 AWG P/N 847054 (72915), TERMINAL, 14 AWG LUG P/N 81232A1 (72915) REF. DES; ITEM 15, N65, N66, 6FC	2
12			LEAD, ELECTRICAL, MADE FROM; WIRE, 12 AWG P/N 9326091 (72915) TERMINAL, LUG P/N 8123281 (72915) REF. DES; ITEM 15, EX1-, EX1+	2
13	96906	MS90725-9	SCREW, HEX 1/2 X 1-1/4.	4
14	72915	8200709	CONTACTOR ASSEMBLY, BATTERY FIELD	1
15	72915	8251126	CONTACTOR ASSEMBLY, SHUNT FIELD	1
16	72915	8208916	SCREW, CAP, SOCKETHEAD	1
17	72915	138530	WASHER, LOCK, INT. TOOTH	9
18	72915	8208919	WASHER, CAP, 1 1/2 IN. L.D.	1
19	72915	8208918	SPRING, COMPRESSION, REEE LENGTH 1 11/32 IN. LONG	1
20	72915	8208911	PLATE, YOKE END	1
21	72915	8208928	COIL, MAGNET	1

(1) ITEM NUMBER	(2) FSCM	(3) PART NUMBER	(4) DESCRIPTION AND USABLE ON CODE (UOC)	(5) QTY
			FIG. 51 CONTACTOR, BATTERY FIELD AND SHUNT FIELD (CONT)	
22	72915	8208913	WASHER, COIL SHIM, FISH PAPER	4
23	72915	8360526	WASHER, COIL, SPRING, BERRYLLIUM COPPER	1
24	72915	8208925	CARRIER ASSEMBLY, CONTACT	1
25	72915	8208924	CARRIER, MOVABLE CONTACT	1
26	72915	8247541	SPRING, COMPRESSION 17/32 IN. LONG	2
27	72915	131970	SCREW, MACHINE SET SOCKETHEAD	1
28	72915	8278221	PLUNGER, MAGNET	1
29	72915	426885	SCREW, MACHINE 6-32 X9/16 FIL. HD. BRASS	4
30	72915	138526	WASHER, LOCK #6, INT. TOOTH	4
31	72915	8190094	BRIDGE ASSEMBLY	4
32	72915	8190091	STUD ASSEMBLY	8
33	72915	130021	SCREW, HEX-HEAD, SUPPORT MTG., 1/4-20 X 7/8	4
34	72915	120423	WASHER, LOCK, 1/4 IN. TOOTH	4
35	72915	8253755	BAR, TERM. 1-1/2 X 3/4 X 1/16-(2) 3/16 DIA. HOLES, REF. DES: ITEM 15	2
36	72915	8130023	WASHER, FLAT #8, BRASS	4
37	72915	8241521	SUPPORT ASSEMBLY, CONTACT	2
38	72915	8208931	CONTACT, STATIONARY	4
39	72915	8309895	SUPPORT ASSEMBLY, LH	1
40	72915	8309894	SUPPORT ASSEMBLY, RH	1
41	72915	8208933	CHUTE, ARC	1
42	72915	8208926	MOUNTING ASSEMBLY, MAGNET YOKE	1
			END OF FIGURE	



4834-047

Figure 47. Contactor, Field Shunt

(1) ITEM NO.	(2) FSCM	(3) PART NUMBER	(4) DESCRIPTION AND USABLE ON CODE	(5) QTY
			GROUP 10 CONTROLS, ELECTRICAL GROUP	
			FIG. 47 CONTACTOR, FIELD SHUNT	
1	96906	MS27617-8	SCREW, #10, 3/8 IN LONG	2
2	96906	MS35649-202	NUT, #10	2
3	96906	MS35338-8	WASHER, LOCK, #10	2
4			LEAD, ELECTRICAL, MAKE FROM, WIRE, 14 AWG P/N 8491796 (72915) AND TERMINAL LUG P/N 31906 (89110), REF DES, N58, N59, N60, N62, N69, N64, CCF, 1CCF, 2CCF, 3CCF	10
5	96906	MS51967-09	NUT, 3/8 IN	2
6	96906	MS35338-46	WASHER, LOCK, 3/8 IN	2
7	96906	MS90725	SCREW, HEX-HEAD, 3/8 X 1 3/4 IN	2
8	96906	MS27183-14	WASHER, FLAT, 3/8 IN	2
9	24446	17CM53B9	FIELD, SHUNT CONTACTOR, REF DES, FS1, FS2, FS3, FS4	4
10	96906	MS90725-14	SCREW, HEX-HEAD, 1/4 IN, 2 IN LONG	2
11	96906	MS35338-44	WASHER, LOCK	3
12	96906	MS27183-10	WASHER, FLAT	2
13	80971	2744700G3	ARC, CHUTE	1
14	80971	N170P23016B	SCREW, CAP, SOCKET-HEAD	1
15	96906	MS35338-45	WASHER, LOCK, 5/16 IN	8
16	96906	MS27183-12	WASHER, FLAT, 5/16 IN	8
17	80971	9960190G1	CONTACT TIP, STATIONARY	2
18	96906	N125P1306B	SCREW	2
19	80981	6713391P1	SHIELD	1
20	96906	MS90725-10	SCREWS, HEX-HEAD	2
21	80971	4767491P1	SUPPORT, CONTACT TIP	1
22	80971	N170P23020B	SCREW, CAP, SOCKET-HEAD	1
23	96906	MS90725-28	SCREW, HEX-HEAD	1
24	96906	9963819G1	SHUNT	1
25	96906	N210P16B	LOCKNUT, CALIBRATING	1
26	96906	6706033G1	SCREW, CALIBRATING	1
27	80971	N403P19B	WASHER, STAR	2
28	80971	8823898G1	SPRING, CALIBRATING	1
29	80971	N503P908B6	PIN, COTTER, 3/32 IN , 1/2 IN LONG	1
30	80971	8814853P1	SEAT, SPRING	1
31	80971	8862956P1	PRESSURE, SPRING, CONTACT	1

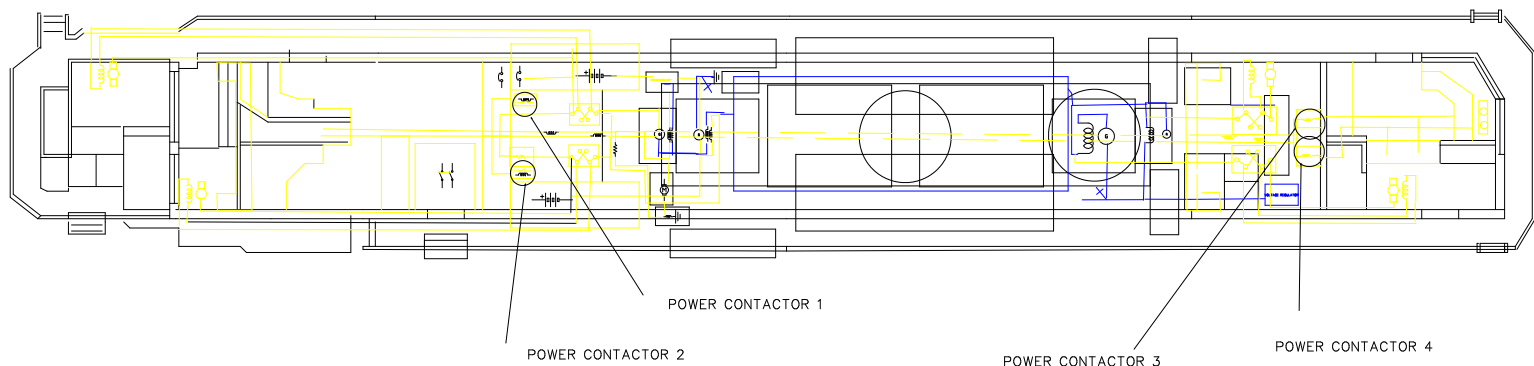
(1) ITEM NO.	(2) FSCM	(3) PART NUMBER	(4) DESCRIPTION AND USABLE ON CODE	(5) QTY
			FIG. 47 CONTACTOR, FIELD SHUNT (CONT)	
32	80971	8814797P1	PINS	1
33	80971	8814696P1	CLAMPS	2
34	80971	336B640P7	CONTACT LEVER ARM	1
35	80971	8839157G1	ARMATURE, WITH SPRING POST AND BRACKET	1
36	80971	9960149P2	ARMATURE, STOP	1
37	96906	MS90725-6	SCREWS, HEX-HEAD	2
38	80971	4739326G2	OPERATING COIL	1
39	96906		SCREW, CAP, SOCKET-HEAD	2
40	80971	4768834P1	MAGNET, FRAME	1
41	96906	MS90725-36	SCREW, HEX HEAD	1
42	96906	MS35338-45	WASHER, LOCK	1
43	80971	996019P1	BASE	1
44	4710372P1		CORE, MAGNET	1
			END OF FIGURE	

TECHNICAL MANUAL

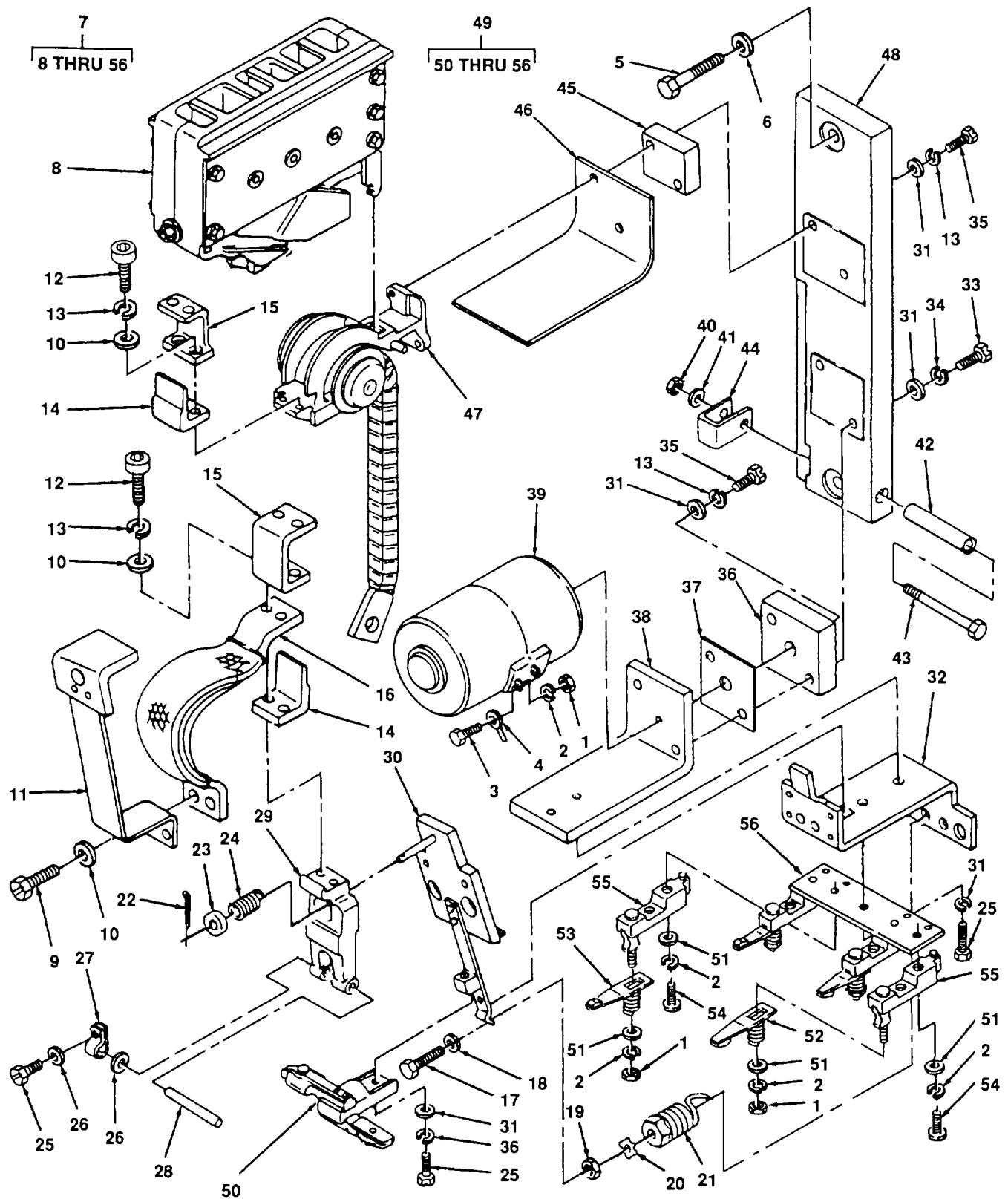
**UNIT, INTERMEDIATE DIRECT SUPPORT
AND GENERAL SUPPORT
REPAIR PARTS AND SPECIAL TOOLS LIST
LOCOMOTIVE, DIESEL-ELECTRIC,
56-1/2-INCH GAGE, 80-TON, 670 HP,
0-4-4-0 WHEEL,
MODEL B-B-160/160-4GE747-A1
NSN 2210-01-158-2980**

Approved for public release, distribution is unlimited

**HEADQUARTERS, DEPARTMENT OF THE ARMY
2 OCTOBER 1989**



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				check: fbd	dil		
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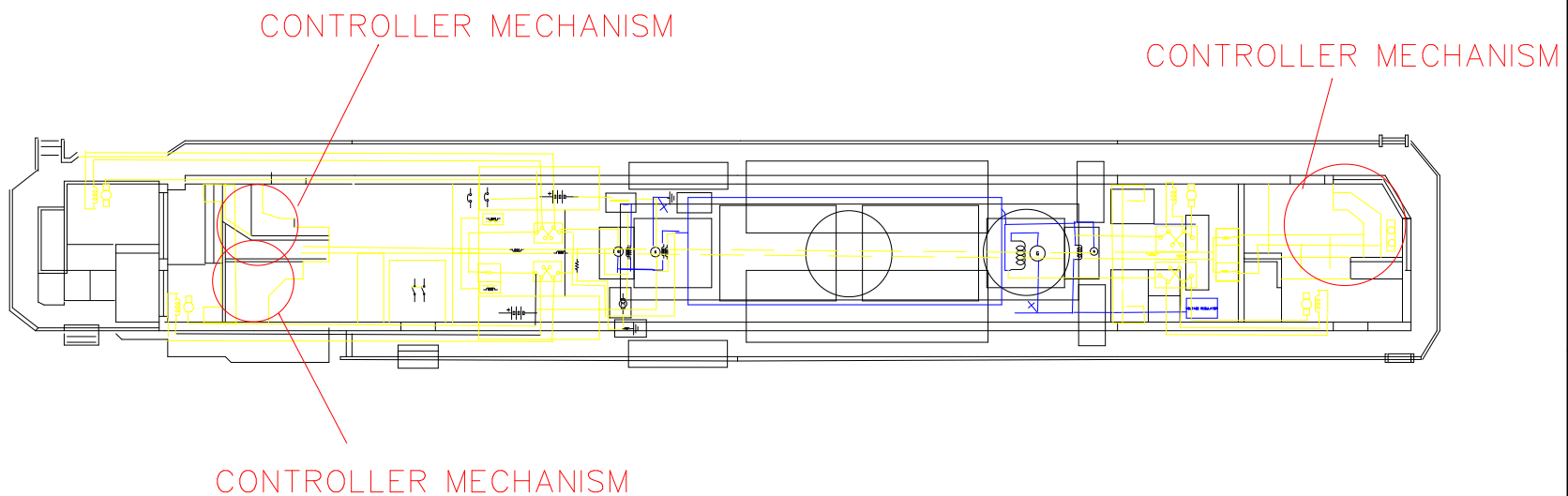


4834-049

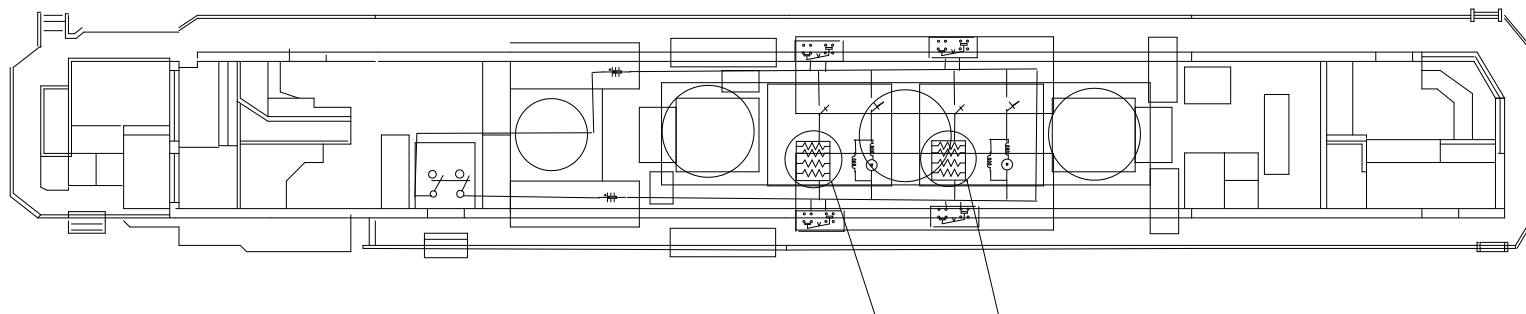
Figure 49. Contactor, Power

(1) ITEM NO.	(2) FSCM	(3) PART NUMBER	(4) DESCRIPTION AND USABLE ON CODE	(5) QTY
			GROUP 10 CONTROLS, ELECTRICAL GROUP	
			FIG. 49 CONTACTOR, POWER	
1	96906	MS35649-202	NUT, #10	3
2	96906	MS35338-8	WASHER, LOCK	5
3	96906	MS27617-8	SCREW, #10, 3/8 IN. LONG	2
4			LEAD, ELECTRICAL, MAKE FROM, WIRE, 14 AWG 8491796 (72915) AND TERMINAL LUG 1434780 (594000), REF DES,	
5	96906	MS90725-67	SCREWS, HEX-HEAD, 3/8 X 2 1/4 IN	2
6	96906	MS27183-14	WASHERS, FLAT, 3/8	2
7	24446	17CM55AK5	CONTACTOR, POWER	1
8	80971	41 D750063G1	ARC CHUTE	1
9	96906	MS90725-31	SCREW, HEX-HEAD, 5/16 IN -18,5/8 IN LONG	2
10	96906	MS27183-12	WASHERS, FLAT, 5/16	4
11	80971	6715120G1	SPRING, SUPPORT	1
12	80971	N170P23016B	SCREWS, ALLEN-HEAD, 5/16 X1 IN LONG	4
13	96906	MS35338-45	WASHER, LOCK, 5/16 IN	6
14	80971	41A263565G1	CONTACT, TIP STATIONARY	1
15	80971	8814906P1	HORN, ARCING	2
16	80971	9960283G1	SHUNT	1
17	80971	6706033G1	SCREW, ASSEMBLY, CALIBRATING	1
18	96906	MS27183-10	WASHER, FLAT, 1/4 IN	1
19	80971	N210P16B13	NUT, CALIBRATING	1
20	80971	N403P19B13	WASHER, STAR	1
21	80971	8823898G1	SPRING CALIBRATING	1
22	80971	N503P90B13	PIN, COTTER	1
23	80971	8814853P1	RETAINER, SPRING	1
24	80971	8862957P1	SPRING, CONTACT PRESSURE	1
25	96906	MS90725-6	SCREW, HEX-HEAD	2
26	96906	MS35338-43	WASHER, LOCK	2
27	80971	8814696P1	CLAMPS	1
28	80971	881497P1	PIN 1	
29	80971	336B640P6	CONTACT, LEVER	1
30	80971	8839157G1	ARMATURE	1
31	96906	MS27183-10	WASHER, FLAT, #10	1
32	80971		ARMATURE, STOP	1

(1) ITEM NO.	(2) FSCM	(3) PART NUMBER	(4) DESCRIPTION AND USABLE ON CODE	(5) QTY
			FIG. 49 CONTACTOR, POWER (CONT)	
33	96906	MS90725-40	SCREW, 5/16-18 X 2 IN	2
34	96906	MS35338-45	WASHER, LOCK, 3/8	2
35	96906	MS90725-36	SCREW, HEX-HEAD	2
36	80971	41C653400P13	INSULATING BLOCK	1
37	80971	41A272792P2	SHIM, .030 IN	1
38	80971	4734385P1	MAGNET FRAME	1
39	80971	47396562	COIL, OPERATING	1
40	96906	MS51967-03	NUT, 1/4 X 20	1
41	96906	MS35338-44	WASHER, LOCK, 1/4 IN	1
42	80971	41C653393P7	SPACER, 23/16 IN	1
43	96906	MS90725-20	SCREW, CAP	1
44	80971	41C653393P6	CLAMP	1
45	80971	41C653400P12	INSULATING BLOCK	1
46	80971	41A271220P2	INSULATION	1
47	80971	170X1010	BLOWOUT COIL	1
48	80971	41C657010P3	BASE	1
49	80971	17AF14J3	INTERLOCK J1, J3	
50	80971	6701850G1	CONTACT ASSEMBLY (J1, J3)	1
51	90906	MS27183-8	WASHER, FLAT, #10 (J1, J3)	8
52	80971	6700284G1	CONTACT, FINGER (J1, J3)	2
53	80971	6700314G1	CONTACT, FINGER WITH COMPRESSION SPRING (J1, J3)	2
54	80971	N44P16008B	SCREW, SL FL HD, #10-32 X 11/2 IN (J1, J3)	4
55	80971	8860652P1	SUPPORT (J1, J3)	4
56	80971	6700603P1	MOUNTING PLATE	1
			END OF FIGURE	



						CONTROLLER MECHANISM	
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				auth. fbd	dil		
							1/1
A1	initial design	01/01/01	DDil				sheet
loc	change	date	name	project	project		



NO 1 AND NO2 DIESEL ENGINE FUEL COILS

							
						NO 1 AND NO2 DIESEL ENGINE FUEL COILS	
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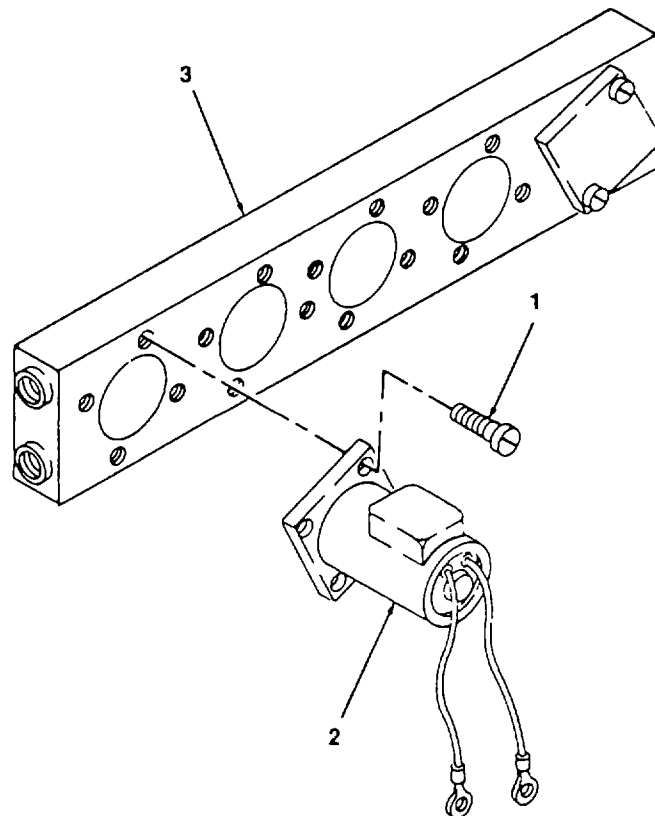
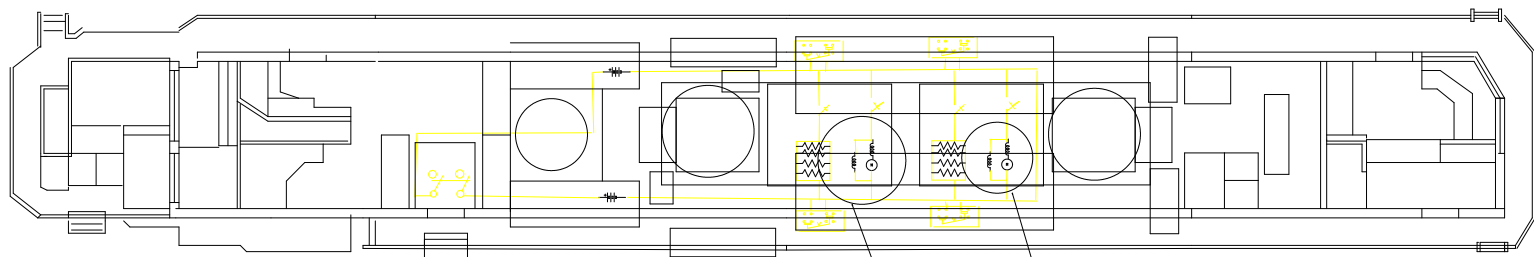


Figure 108. Fuel Control Solenoids

(1) ITEM NO.	(2) FSCM	(3) PART NUMBER	(4) DESCRIPTION AND USABLE ON CODE	(5) QTY
1 2 3	96906	ESM-3011-3BC-3025	GROUP 18 ENGINE GROUP, DIESEL FIG. 108 FUEL CONTROL SOLENOIDS SCREW, MACHINE SOLENOID, FUEL CONTROL (VERSA PRODUCTS) MANIFOLD, FUEL CONTROL END OF FIGURE	16 4 1



FUEL PUMP AND DAMPER

						FUEL PUMP AND DAMPER	
				date	name	ADAM NUGENT ROSENBERGER, 10/21/2021	
				design	07/01/04 dil		
				check	fbid dil		
				auth	fbid dil		
A1	initial design	01/01/01	DDil				1/1
loc	change	date	name	project	project		sheet

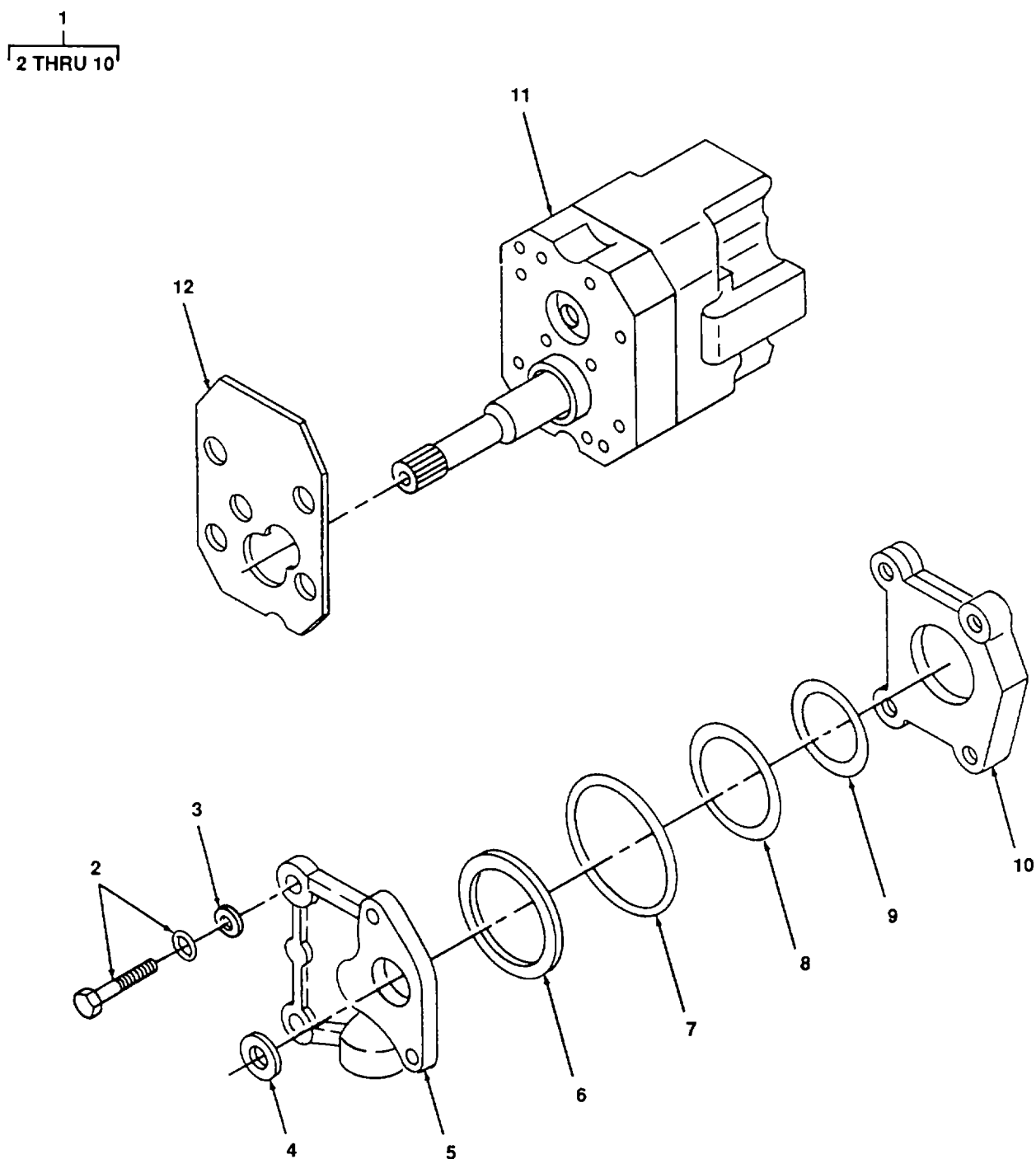
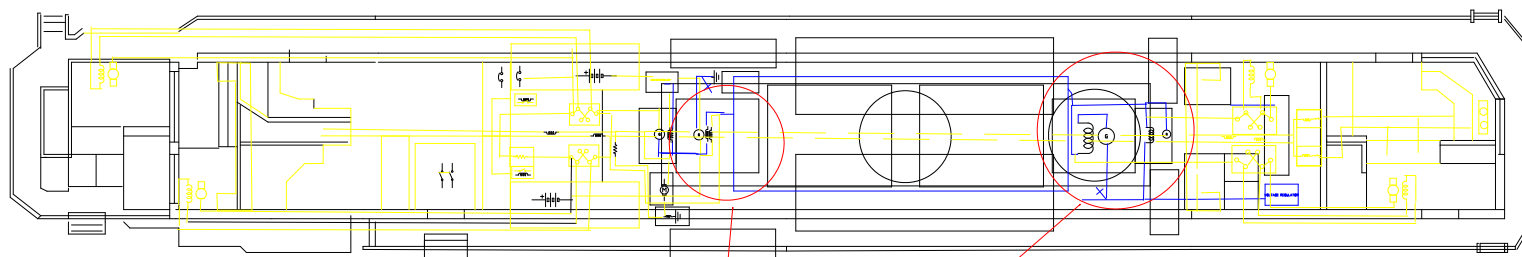


Figure 107. Fuel Pump and Damper.

(1) ITEM NO.	(2) FSCM	(3) PART NUMBER	(4) DESCRIPTION AND USABLE ON CODE	(5) QTY
			GROUP 18 ENGINE GROUP, DIESEL	
			FIG. 107 FUEL PUMP AND DAMPER	
1	15434	BM-76340	DAMPER, FUEL PUMP	1
2	15434	3017051	CAPSCREW	2
3	15434	70704	WASHER, FLAT	2
4	15434	151900	SEAL, DAMPER TO GEAR PUMP	1
5	15434	153336	BODY, DAMPER	1
6	15434	100099	O-RING	1
7	15434	202897	DIAPHRAGM	1
8	15434	139988	O-RING	1
9	15434	160514	WASHER, NYLON	1
10	15434	153338	PLATE	1
11	15434	3034217	PUMP, GEAR	1
12	15434	3026163	GASKET	1
			END OF FIGURE	



MAIN GENERATORS

						MAIN GENERATORS	
				date	name	ADAM NUGENT ROSENBERGER•11/5/2021	
				desig. 07/01/04	dil		
				check fbd	dil		
				auth. fbd	dil		
A1	initial design	01/01/01	DDil				1/1
loc	change	date	name	project	project	sheet	

TRACTION MOTOR 1

TRACTION MOTOR 3

TRACTION MOTOR 2

TRACTION MOTOR 4

						TRACTION MOTORS	
				date	name	ADAM NUGENT ROSENBERGER•11/5/2021	
				desig. 07/01/04	dil		
				check fbd	dil		
				auth. fbd	dil		
							1/1
A1	initial design	01/01/01	DDil				sheet
loc	change	date	name	project	project		

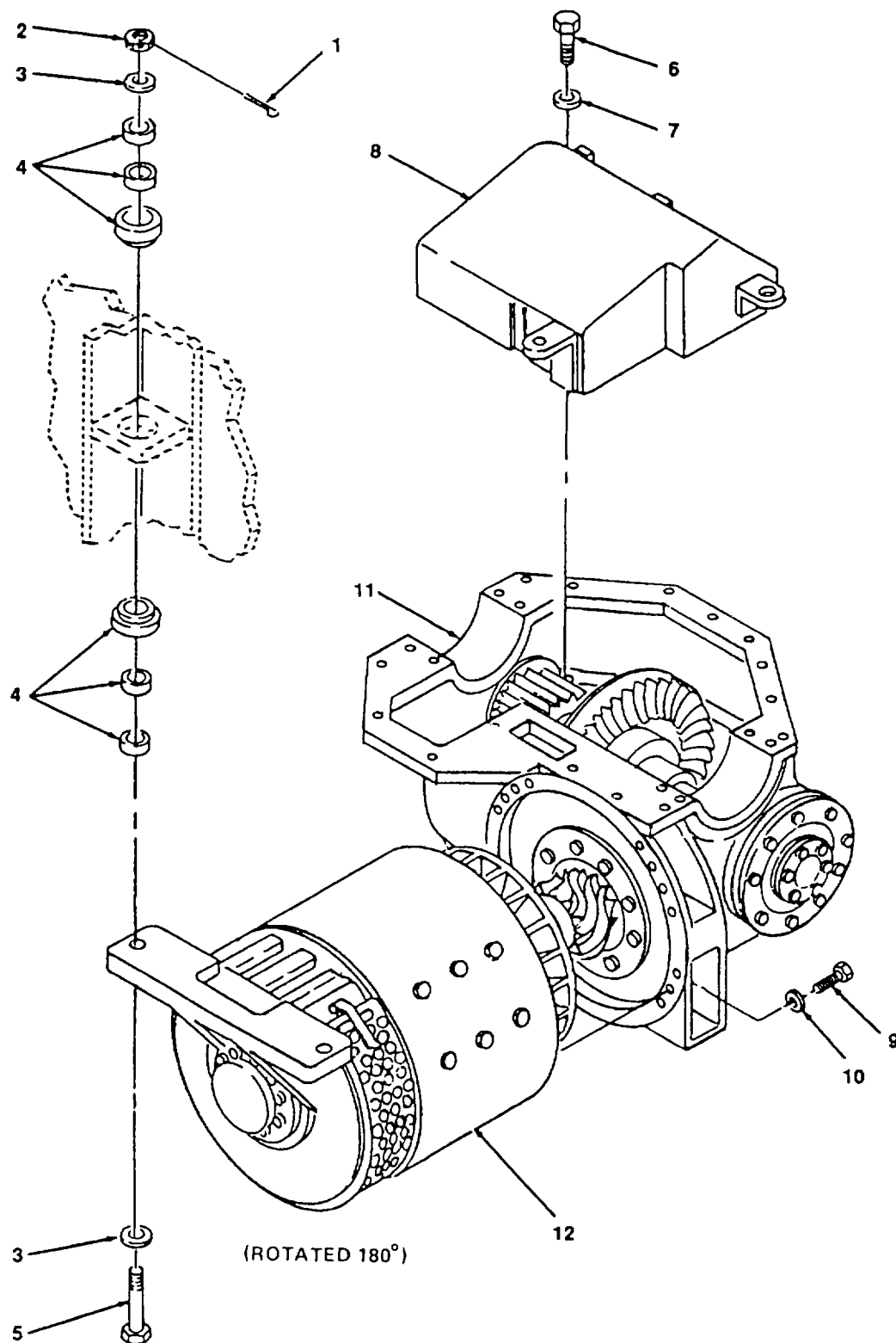
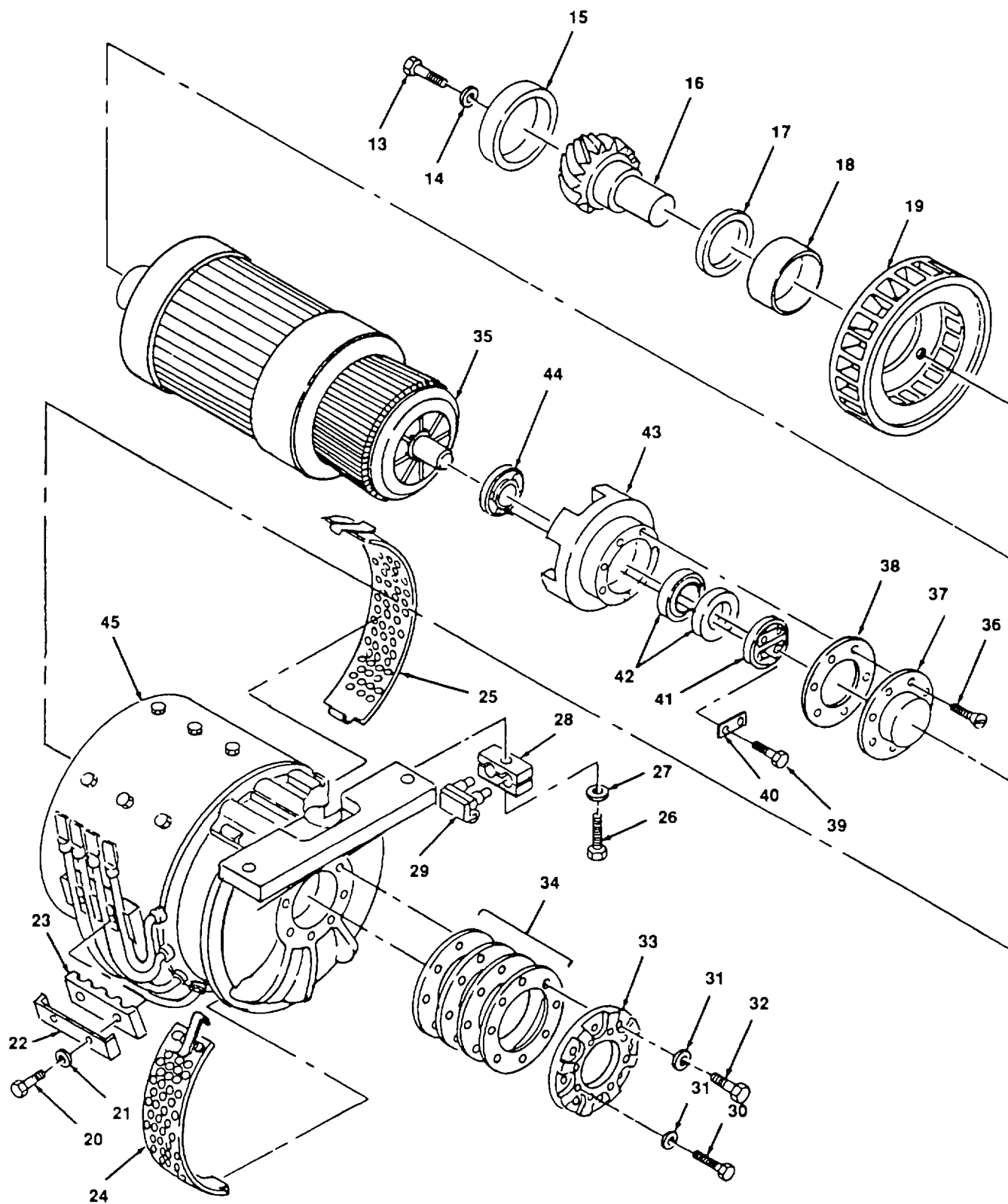


Figure 153. Traction Motor (Sheet 1 of 3).



4834-153 2

Figure 153. Traction Motor (Sheet 2 of 3).

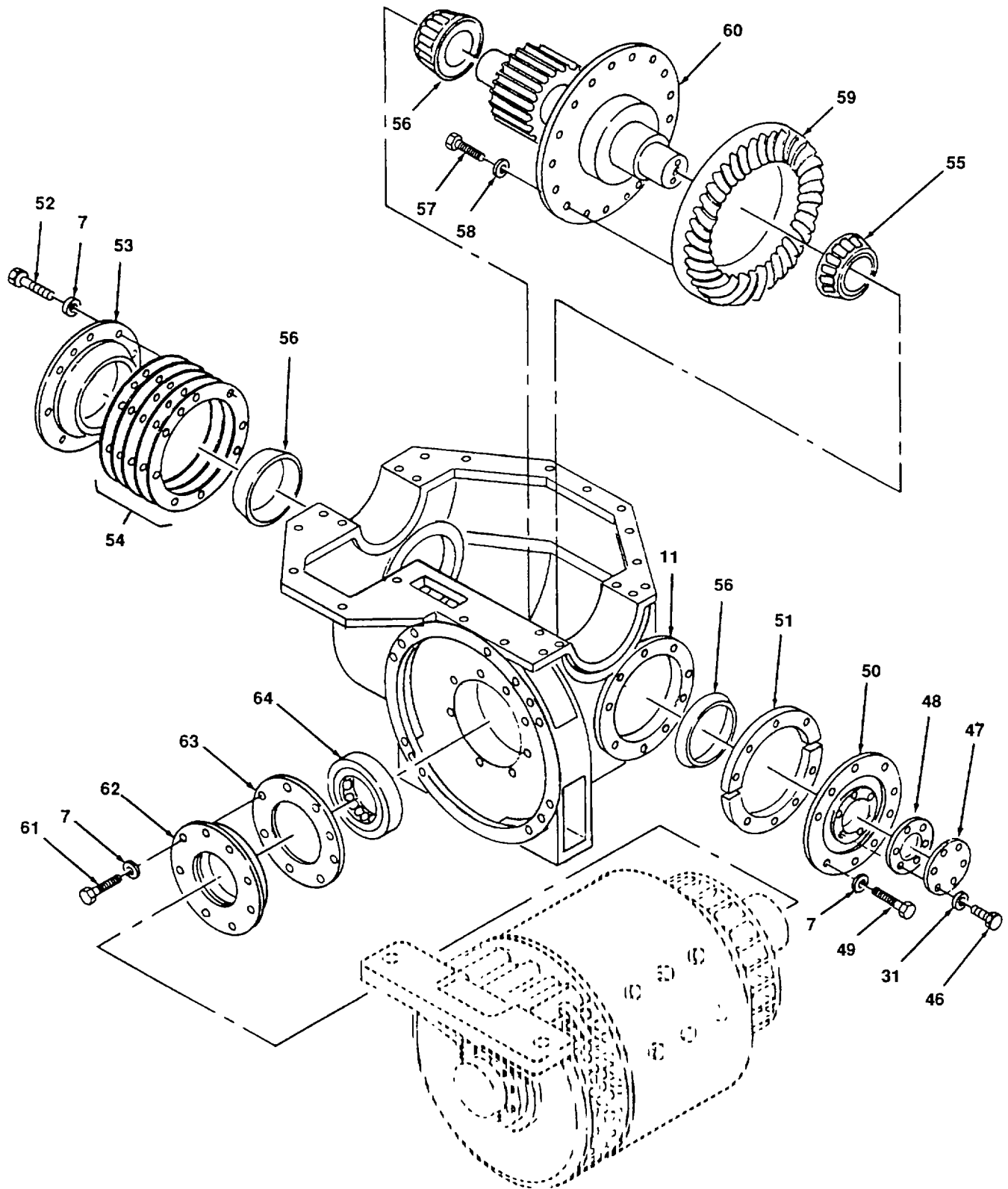
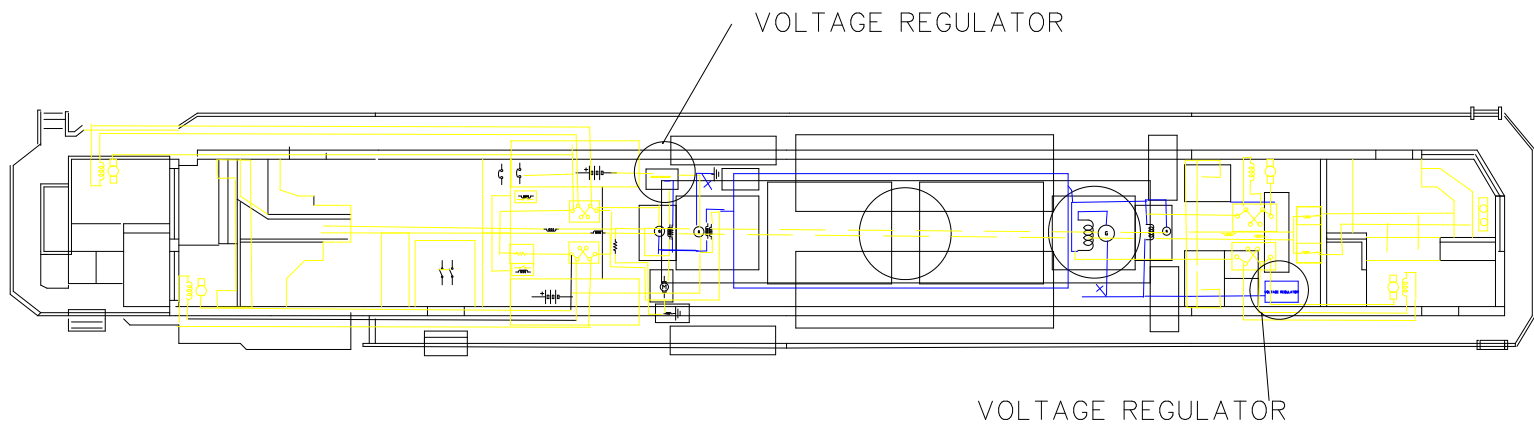


Figure 153. Traction Motor (Sheet 3 of 3).

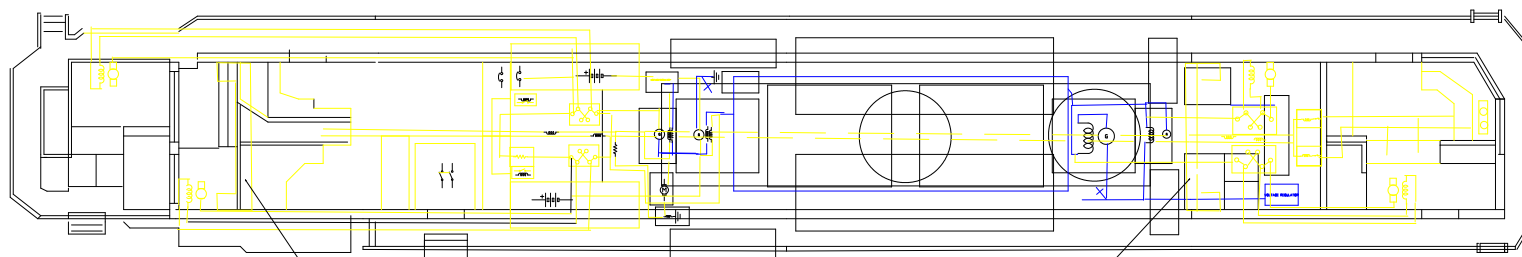
(1) ITEM NO.	(2) FSCM	(3) PART NUMBER	(4) DESCRIPTION AND USABLE ON CODE	(5) QTY
			GROUP 21 TRACTION MOTOR	
			FIG. 153 TRACTION MOTOR AND GEAR UNIT	
1	24446	14547	PIN, COTTER	2
2	24446	270641	NUT	2
3	24446	8816910	WASHER, FLAT	2
4	24446	9962139G1	PAD ASSEMBLY	2
5	24446	8869918P29	BOLT, HEX-HEAD	2
6	24446	8806102P1	SCREW, HEX-HEAD, OIL PAN TO GEAR BOX, 5/8-11 NC	12
7	96906	MS35338-50	WASHER, LOCK, 5/8	116
8			PAN, OIL HYPOID	2
9	24446	220105	SCREW, HEX-HEAD, GEAR BOX TO MOTOR, 3/4-10 NC	48
10	96906	MS35338-51	WASHER, LOCK, 3/4 IN	48
11	80971	7GA22C1	UNIT, GEAR	4
12	24446	SGE747D2	TRACTION MOTOR	4
13	24446	6709888P1	SCREW, MACHINE PINION TO ARMATURE SHAFT, 3/4-16 NC	4
14	24446	6709884P1	WASHER, PINION BOLT, 3/4 IN	4
15			SLINGER, OIL	4
16			PINION, HYPOID	4
17	24446	6709832P1	COLLAR, SPACER BEARING TO PINION	4
18			RACE, BEARING	4
19			FAN, BLOWER TRACTION MOTOR	4
20			SCREW, HEX-HEAD	8
21			WASHER, LOCK	8
22			CLAMP, WIRE BRACKET	4
23			BRACKET, WIRE	4
24	24446	6744392G2	COVER, COMMUTATOR INSPECTION WITH CLAMPING LEVER, L.H	4
25	24446	6744392G1	COVER, COMMUTATOR INSPECTION WITH CLAMPING LEVER, R H	4
26			SCREW, HEX-HEAD	16
27			WASHER, LOCK	16
28			CLAMP, BRUSH HOLDER	16
29	24446		BRUSH ASSEMBLY (SEE FIG 112 FOR BREAKDOWN)	4

(1) ITEM NO.	(2) FSCM	(3) PART NUMBER	(4) DESCRIPTION AND USABLE ON CODE	(5) QTY
			FIG. 153 TRACTION MOTOR AND GEAR UNIT (CONT)	
30	96906	MS90725	SCREW, HEX-HEAD, 3/8-16 UNC	32
31	96906	MS35338-46	WASHER, LOCK, 3/8 IN	56
32	96906	MS90725	SCREW, HEX-HEAD, 5/8-11 UNC	32
33	24446	493A374PT1	PLATE, END, COMMUTATOR END	4
34			SHIMS, END PLATE, COMMUTATOR	
35	24446	6756899G1	ARMATURE, TRACTION MOTOR W/COMMUTATOR SHAFT AND FAN	4
36			SCREW, FLAT HEAD, SLOTTED	16
37	15434	334B309PT1	CAP, BEARING, COMMUTATOR END	4
38	24446	186V855PT1	GASKET, END CAP COMMUTATOR	4
39			SCREW, HEX-HEAD	16
40			BAR, LOCK TAB	8
41	60969	189V441 P1	PLATE, CLAMP, COMMUTATOR END	4
42	24446	8864950PT129	BEARING, BALL, COMMUTATOR END	8
43	15434	334B274PT1	HOUSING, BEARING SEAL, COMMUTATOR END	4
44	24446	493A384PT1	COLLAR, BEARING SEAL, COMMUTATOR END	4
45			HOUSING, MOTOR	4
46	24446	234483	SCREW, HEX-HEAD, BEARING HOUSING COVER	24
47			PLATE, COVER	4
48	24446	8806076P1	GASKET, COVER, BEARING HOUSING, GEAR END (NSN 5330-366-1607)	4
49	24446	98X25	SCREW, HEX-HEAD, BEARING HOUSING TO GEAR BOX 5/8-11 NC	36
50			HOUSING, BEARING	4
51			SPACER, SPLIT, BEARING HOUSING	4
52	96906	MS90725-163	SCREW, HEX-HEAD, BEARING HOUSING TO GEAR BOX, 5/8-11 NC X 1 3/4 IN LONG	36
53			HOUSING, BEARING	4
54	80971	8828025P1	SHIM, BEARING HOUSING, 0 003 IN THICK	V
	24446	8828025P23	SHIM, BEARING HOUSING, 0 005 IN THICK	V
	24446	8828025P2	SHIM, BEARING HOUSING, 0 007 IN THICK	V
	24446	8828025P4	SHIM, BEARING HOUSING, 0 025 IN THICK	V
	24446	6709830P4	SHIM, BEARING HOUSING, 0 063 IN THICK	V
55	24446	8864953P22	BEARING, ROLLER, TAPERED W/CONE AND CUP, PINION END	4

(1) ITEM NO.	(2) FSCM	(3) PART NUMBER	(4) DESCRIPTION AND USABLE ON CODE	(5) QTY
56	24446	8864953P22	FIG. 153 TRACTION MOTOR AND GEAR UNIT (CONT) BEARING, ROLLER, TAPERED W/CONE AND CUP, GEAR END	4
57	24446	6709856P1	SCREW, HEX-HEAD, 3/4-16 NC	72
58	24446	8806056P1	WASHER, HUB MTG SCREW, 3/4 IN	72
59	24446	153X5	GEAR, RING AND PINION SET, HYPOID RING, 49 TEETH, PINION; 10 TEETH	4
60	24446	6744394G7	SHAFT, REDUCTION GEAR INCL PINION AND HUB	4
61			SCREW, HEX-HEAD AP BEARING CAP TO GEAR BOX, 1/2° 18 NC X 1/2 IN. LONG	72
62	24446	6733789G1	CAP, ROLLER BEARING, W/LUBRICANT FLINGER (NSN 2240-366-1600)	4
63	24446	6709833P1	GASKET, BEARING CAP TO GEAR BOX	4
64	62679	NU32OW23	BEARING, CYLINDRICAL ROLLER PINION	4
NOTE Assure bearing is manufactured specifically for traction motor use. END OF FIGURE				



						VOLTAGE REGULATOR			
				date	name	ADAM NUGENT ROSENBERGER,11/5/2021			
				desig. 07/01/04	dil				
				check fbd	dil				
				auth. fbd	dil				
A1	initial design	01/01/01	DDil					1/1	
loc	change	date	name	project	project	sheet			



WHEEL SLIP RELAY 1

WHEEL SLIP RELAY 2

							
						WHEEL SLIP RELAYS	
				date	name	ADAM NUGENT ROSENBERGER•11/5/2021	
				desig. 07/01/04	dil		
				check fbd	dil		
				auth. fbd	dil		
							1/1
A1	initial design	01/01/01	DDil				sheet
loc	change	date	name	project	project		

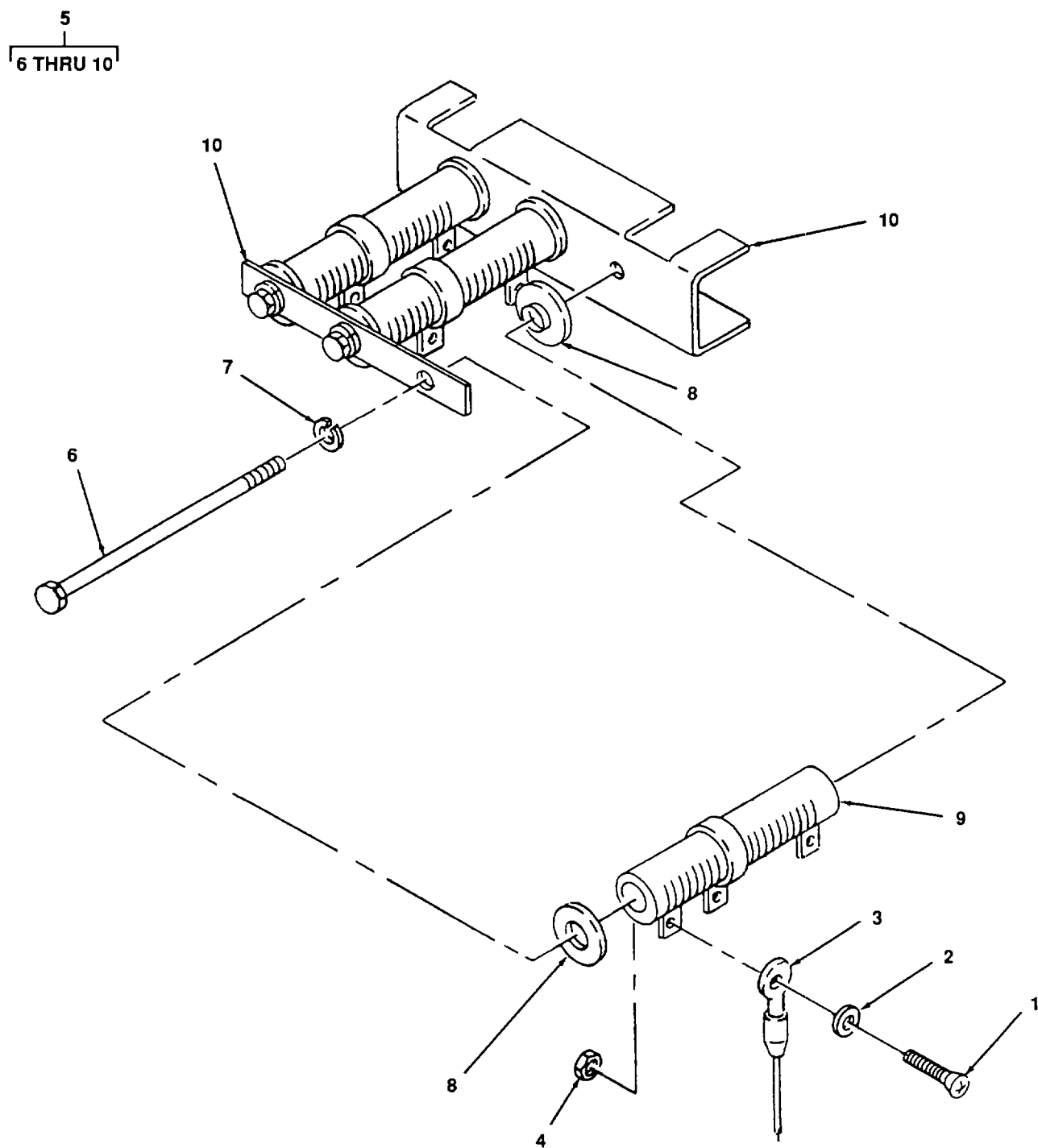
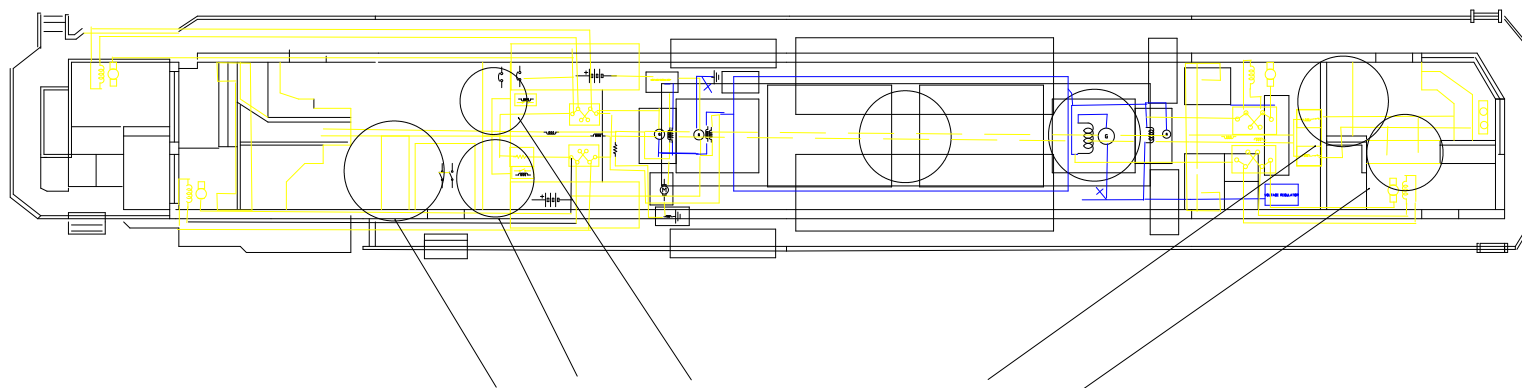


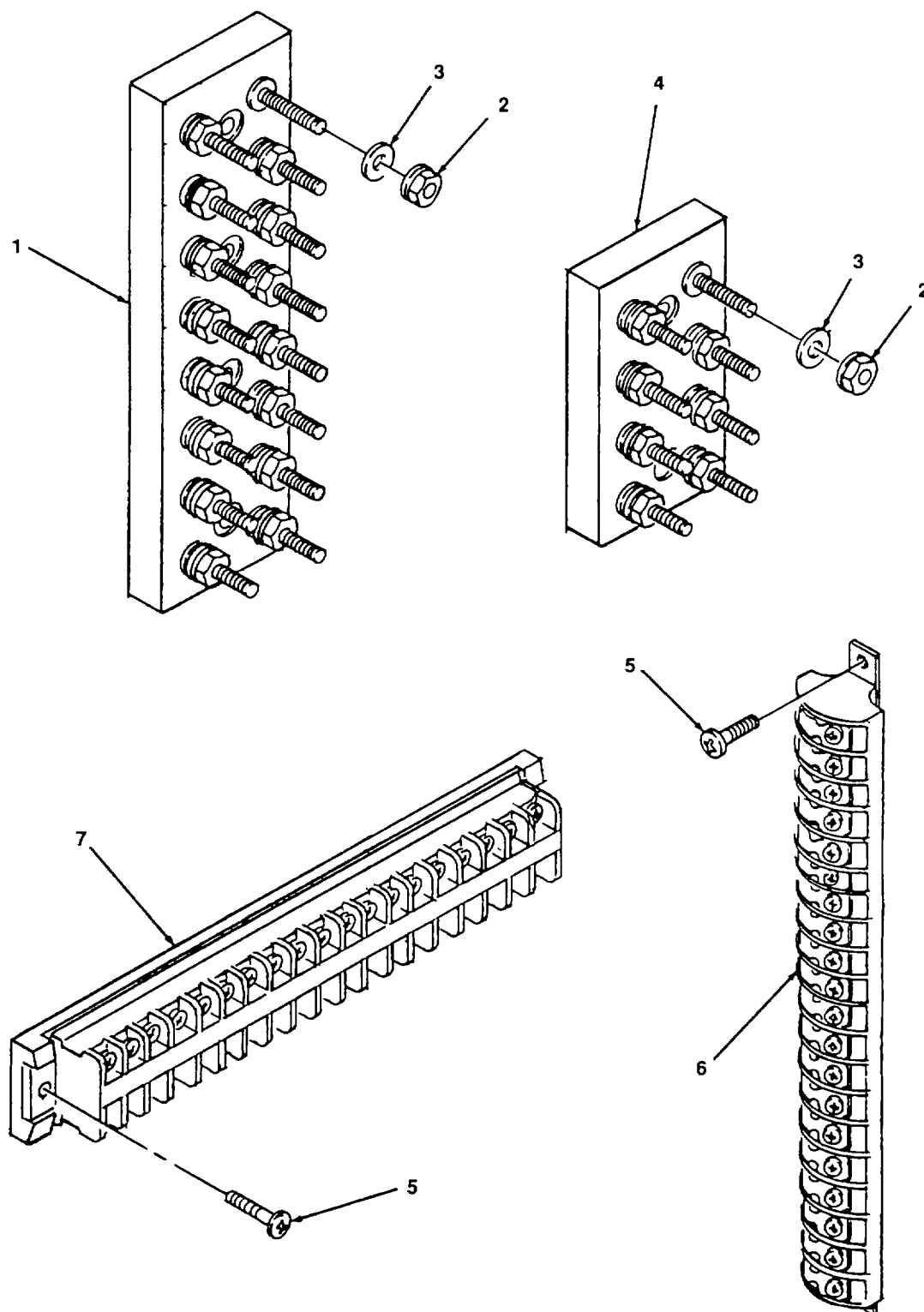
Figure 59. Wheel-Slip Relay Resistor

(1) ITEM NO.	(2) FSCM	(3) PART NUMBER	(4) DESCRIPTION AND USABLE ON CODE	(5) QTY
			GROUP 10 BRAKE SYSTEM, AIR	
			FIG. 59 RESISTOR, ASSEMBLY, WHEEL SLIP RELAY	
1	96906	MS90725-3	SCREW, 1/4 IN.	7
2	96906	MS27183-10	WASHER, FLAT, 1/4 IN.	7
3			LEAD, ELECTRICAL, MAKE FROM, 14 AWG P/N 31906 (89110), TERMINAL, 14-16 AWG #10 STUD, P/N 8491796 (72195) REF DES, WS, WSA, J, AA1,1 AA3	7
4	96906	MS51967-03	NUT, 1/4 IN	7
5	24446	17FR45B3	RESISTOR ASSEMBLY, WHEEL SLIP RELAY	3
6	96906	MS90725	SCREW, 3/8 IN	3
7	96906	MS35338-46	WASHER, LOCK, 3/8 IN	3
8	24446		INSULATOR, 3/8 IN	6
9	24446	496A755G1	RESISTOR, WHEEL SLIP RELAY	3
10	24446	392A951G2	BRACKET	1
			END OF FIGURE	



CONTROL CABINETS/TERMINAL BOARDS

						CONTROL CABINETS TERMINAL BOARDS	
				date	name	ADAM NUGENT ROSENBERGER+11/5/2021	
				design	07/01/04 dil		
				check	fbd dil		
				auth	fbd dil		
							1/1
A1	initial design	01/01/01	DDil				sheet
loc	change	date	name	project	project		



4834-064

Figure 64. Terminal Boards.

(1) ITEM NO.	(2) FSCM	(3) PART NUMBER	(4) DESCRIPTION AND USABLE ON CODE	(5) QTY
			GROUP 10 CONTROLS, ELECTRICAL GROUP	
			FIG.. 64 TERMINAL BOARDS	
1	72915	8458371	TERMINAL BOARD (TB 1,10,11,13,14,17,18, 61,51, 52 & 53	
2	96906	MS51922-1	NUT, SELF-LOCKING	24
3	96906	MS27183-10	WASHER, FLAT	24
4	72915		TERMINAL BOARD, MAKE FROM, 8458371 TB37838	2
5	96906	MS24617	SCREW, #10, 1 IN LONG	4
6	72915		TERMINAL BOARD (TB 19 & 20)	
7	72915		TERMINAL BOARD (TB 13 & 14)	
			END OF FIG.URE	

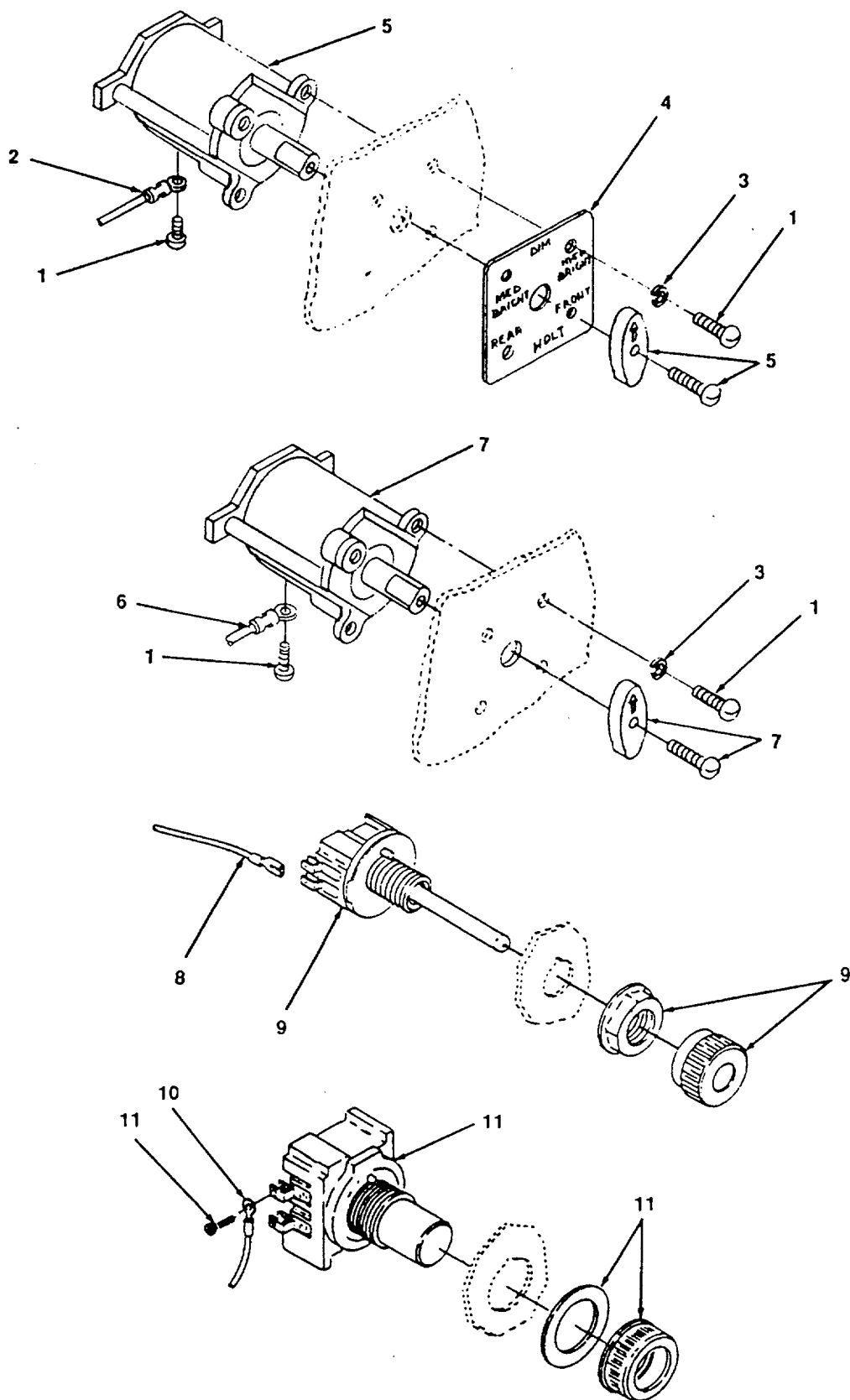


Figure 36. Switches (Sheet 1 of 2).

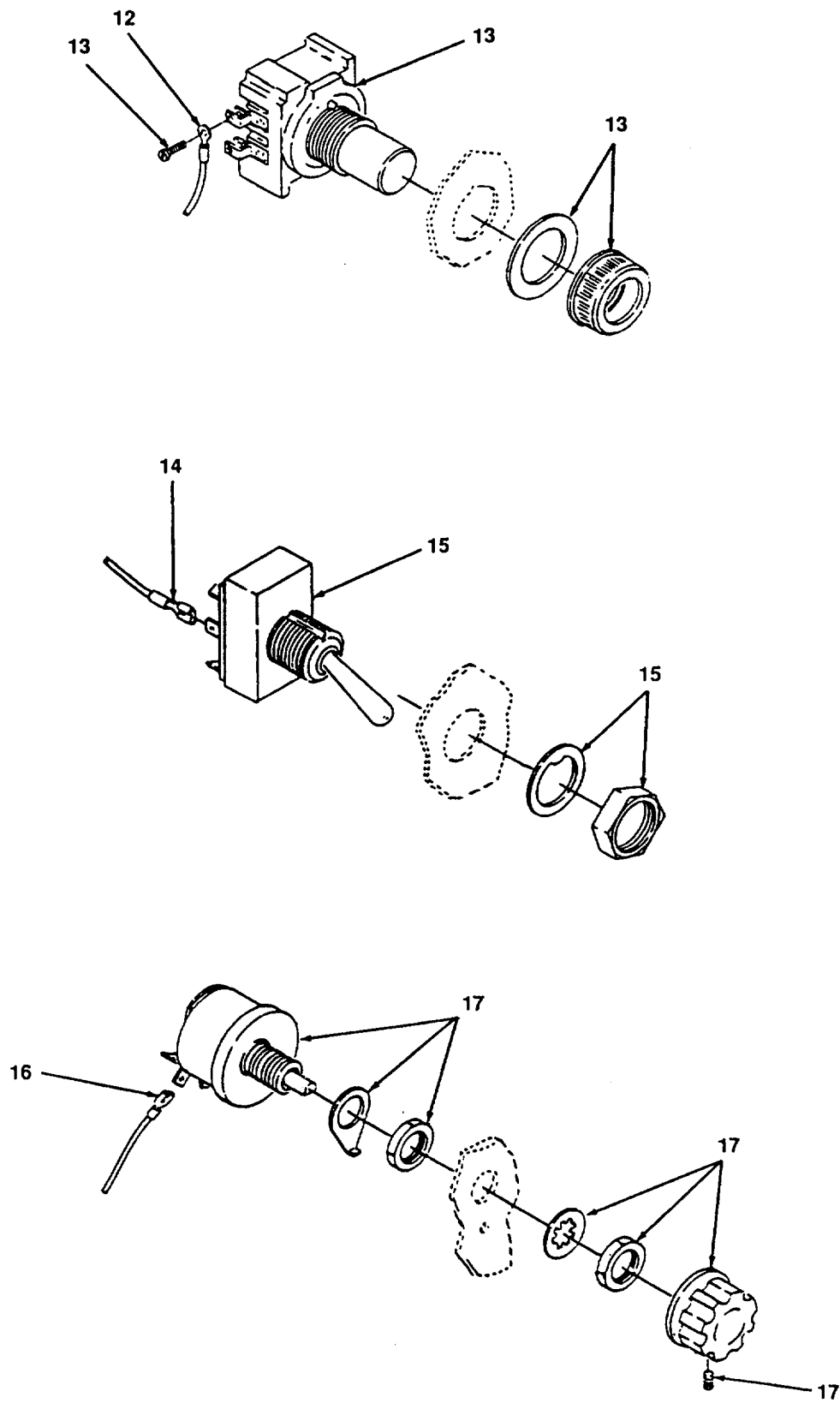


Figure 36. Switches (Sheet 2 of 2).

(1) ITEM NUMBER	(2) FSCM	(3) PART NUMBER	(4) DESCRIPTION AND USABLE ON CODE (UOC)	(5) QTY
			GROUP 08 ELECTRICAL ACCESSORIES GROUP FIG. 36 SWITCHES	
1	96906	MS35206-34	SCREW, PAN HEAD #6	4
2			LEAD, ELECTRICAL, MADE FROM; WIRE 14 AWG P/N 8491796 (72915), TERMINAL LUG 14-16 AWG P/N 31906 (891 10), REF. DES: FRONT: HA22, HP5; REAR: HU22	3
3	96906	MS35338-41	WASHER, LOCK #6	4
4	72915	8238114	PLATE, ROTARY SNAP SWITCH HEADLIGHT INDICATOR	1
5	72915	8237656	SWITCH, ROTARY SNAP, HEADLIGHT	1
6			LEAD, ELECTRICAL, MADE FROM; WIRE 14 AWG P/N 8491796 (72915), TERMINAL, LUG, 14-16 AWG P/N 31906 (891 10), REF. DES: ISOLATION, JA5, 3J913T5, 6A, 6A9, 16A9, 3T11, P04; REMOTE HEADLIGHT: J, HM4, 25T2, 25T1	11
7	72915	8157802	SWITCH, ROTARY	2
8			LEAD, ELECTRICAL, MADE FROM; WIRE 14 AWG, P/N 8491796 (72915) TERMINAL, SPADE, P/N A2272 (46522), REF. DES: SA10, SA	2
9	72915	8295963	SWITCH, SAND, WOBBLER	1
10			LEAD, ELECTRICAL, MADE FROM WIRE, 14 AWG, P/N 849176 (72915), TERMINAL, LUG 14-16 AWG P/N 31906 (89110) REF. DES: SW9, SA9	2
11	72915	8384650	SWITCH, STOP, RED PUSHBUTTON	1
12			LEAD, ELECTRICAL, MADE FROM; WIRE 14 AWG, P/N 8491796 (72915), TERMINAL, LUG, 14-16 AWG P/N 31906 (89110) REF. DES: BPA9/BPA, GR, AGP6, AGP7, SE1, M2, SE9, FP1, FP, SZA, SZG	12
13	72915	8230431	SWITCH, BLACK, PUSHBUTTON	3

(1) ITEM NUMBER	(2) FSCM	(3) PART NUMBER	(4) DESCRIPTION AND USABLE ON CODE (UOC)	(5) QTY
14			FIG. 36 SWITCHES (CONT) LEAD, ELECTRICAL, MADE FROM; WIRE, 14 AWG P/N 8491796 (72915), TERMINAL, FASTON 14-16 AWG, P/N A2272 (46522) REF. DES: LE6, LE7	2
15	72915	8331384	SWITCH, TOGGLE	2
16			LEAD, ELECTRICAL, MADE FROM; WIRE, 14 AWG, P/N 8491796 (72915), TERMINAL, FASTON 14-16 AWG, P/N A2272 (46522) REF. DES: HT22, H2TA, L53 THRU L59, GA3	8
17	72915	8237523	SWITCH, RHEOSTAT	2
			END OF FIGURE	

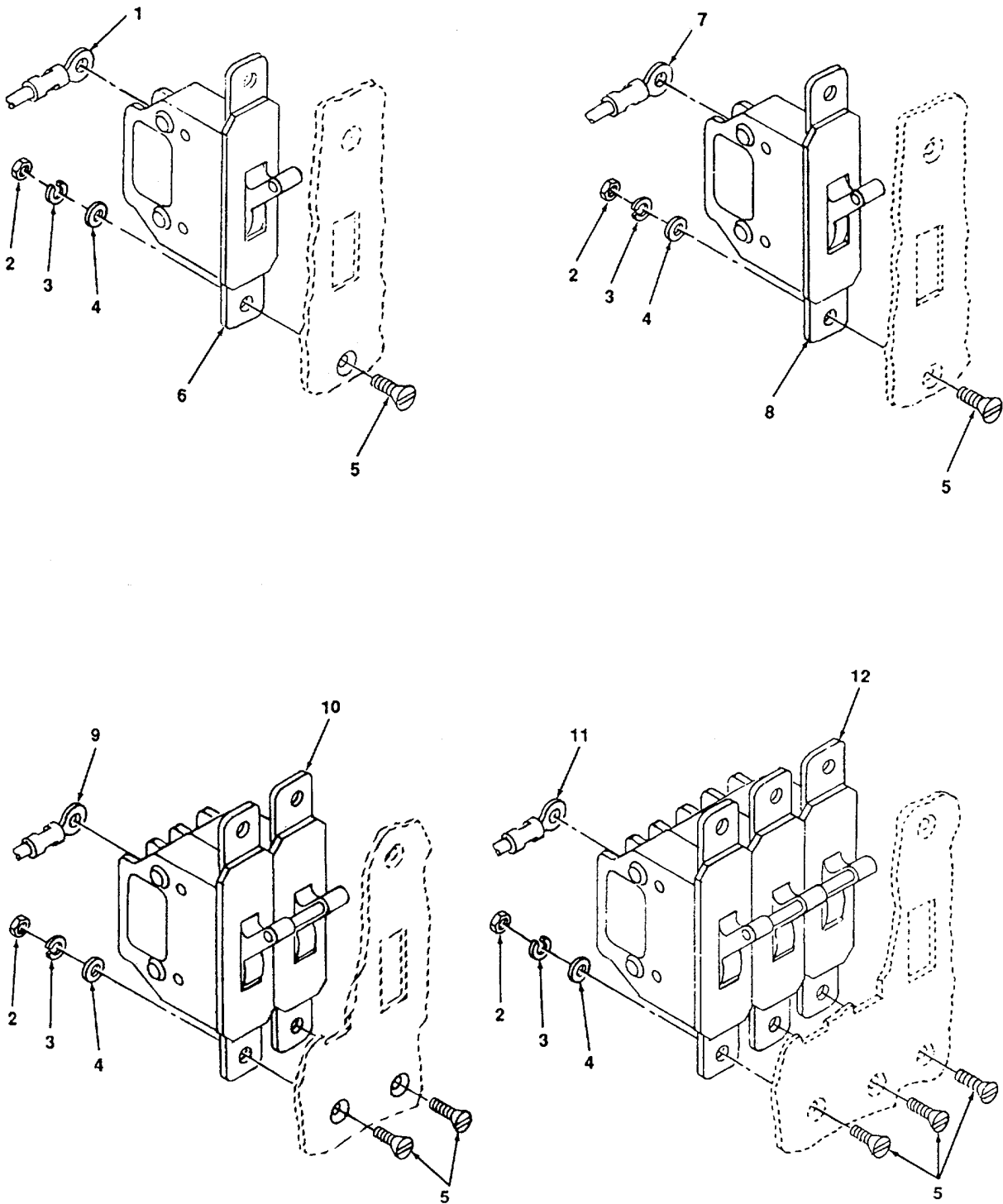


Figure 38. Circuit Breakers.

(1) ITEM NUMBER	(2) FSCM	(3) PART NUMBER	(4) DESCRIPTION AND USABLE ON CODE (UOC)	(5) QTY
			GROUP 08 ELECTRICAL ACCESSORIES GROUP FIG. 38 CIRCUIT BREAKERS	
1			LEAD, ELECTRICAL, MADE FROM; WIRE, 14 AWG, P/N 8491796 (72915), TERMINAL, LUG 14-16 AWG, P/N 8210498 (72915) REF. DES: CB50; STEP: CB51; GAGE: CB52, HTRI, CB53, HTR, GB53, 58, 13; SPARE 1, 2, 3	14
2	96906	MS51967-03	NUT, HEX, 1/4 IN.	32
3	96906	MS35338-44	WASHER, LOCK, 1/4 IN.	32
4	96906	MS27183-10	WASHER, FLAT, 1/4 IN.	32
5	96906	MS35206	SCREW, FLAT HEAD, COUNTERSINK, 1/4 IN.	32
6	72915	8458698	CIRCUITBREAKER, SINGLE, 15AMP	2
7			LEAD, ELECTRICAL, MADE FROM; WIRE, 14 AWG, P/N 8491796 (72915), TERMINAL, FASTON 14-16 AWG, P/N 31906 (89110) REF. DES; CB4, 54, CB7, 5, 32, 59	6
8	72915	8458699	CIRCUIT BREAKER, SINGLE, 30 AMP	2
9			LEAD, ELECTRICAL, MAKE FROM; WIRE, 14 AWG, P/N 8491796 (72915) TERMINAL, FASTON, 14-16 AWG, P/N 31906 (89110) REF. DES:	2
10	72915	8458724	CIRCUIT BREAKER, DOUBLE, 30 AMP	4
11			LEAD, ELECTRICAL, MADE FROM; WIRE, 14 AWG, P/N 8491796 (12915), TERMINAL, FASTON 14-16 AWG, P/N 31906 (89110) REF. DES:	2
12	72915	8458742	CIRCUIT BREAKER, TRIPLE, 30 AMP	4
			END OF FIGURE	

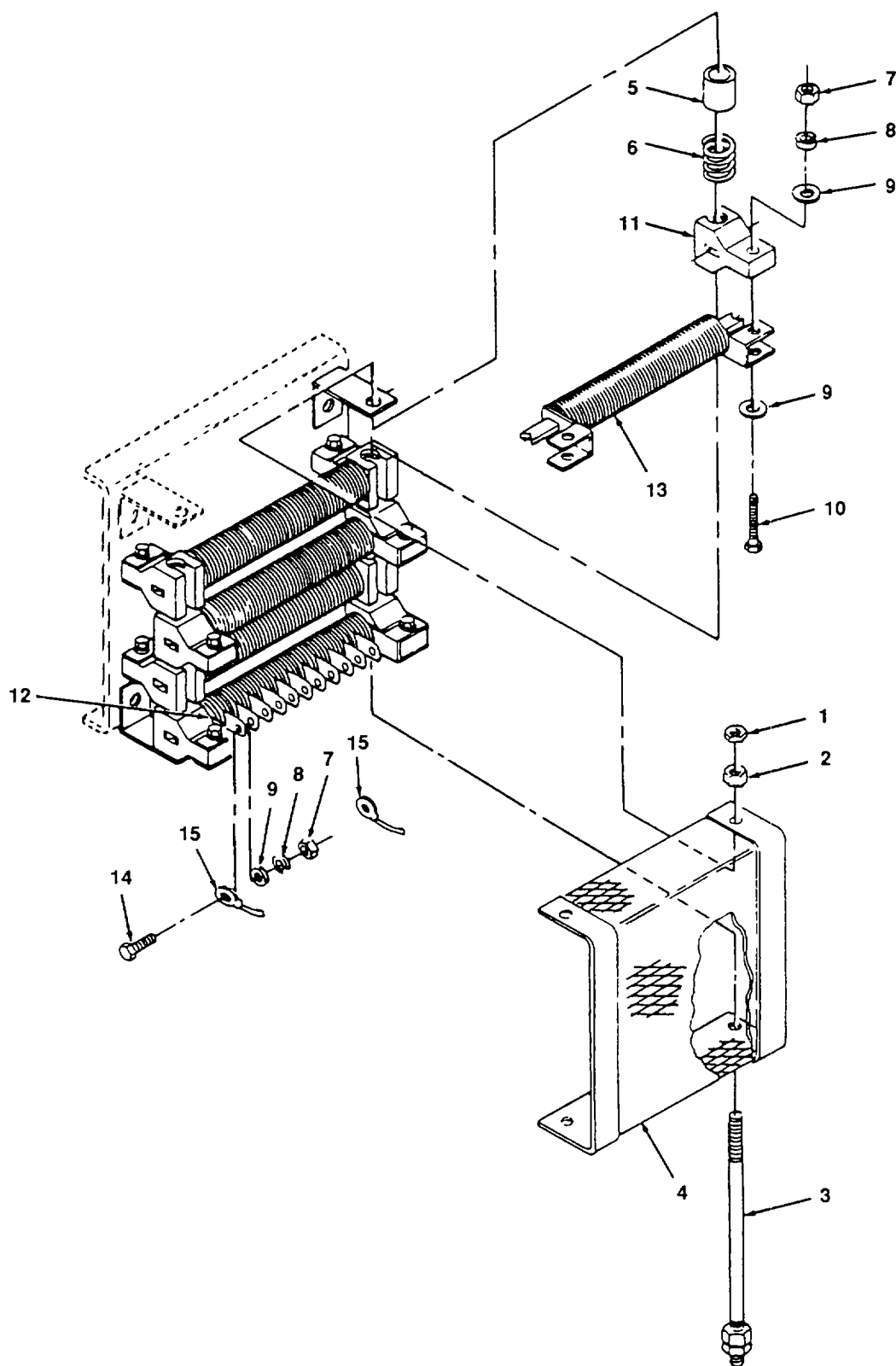
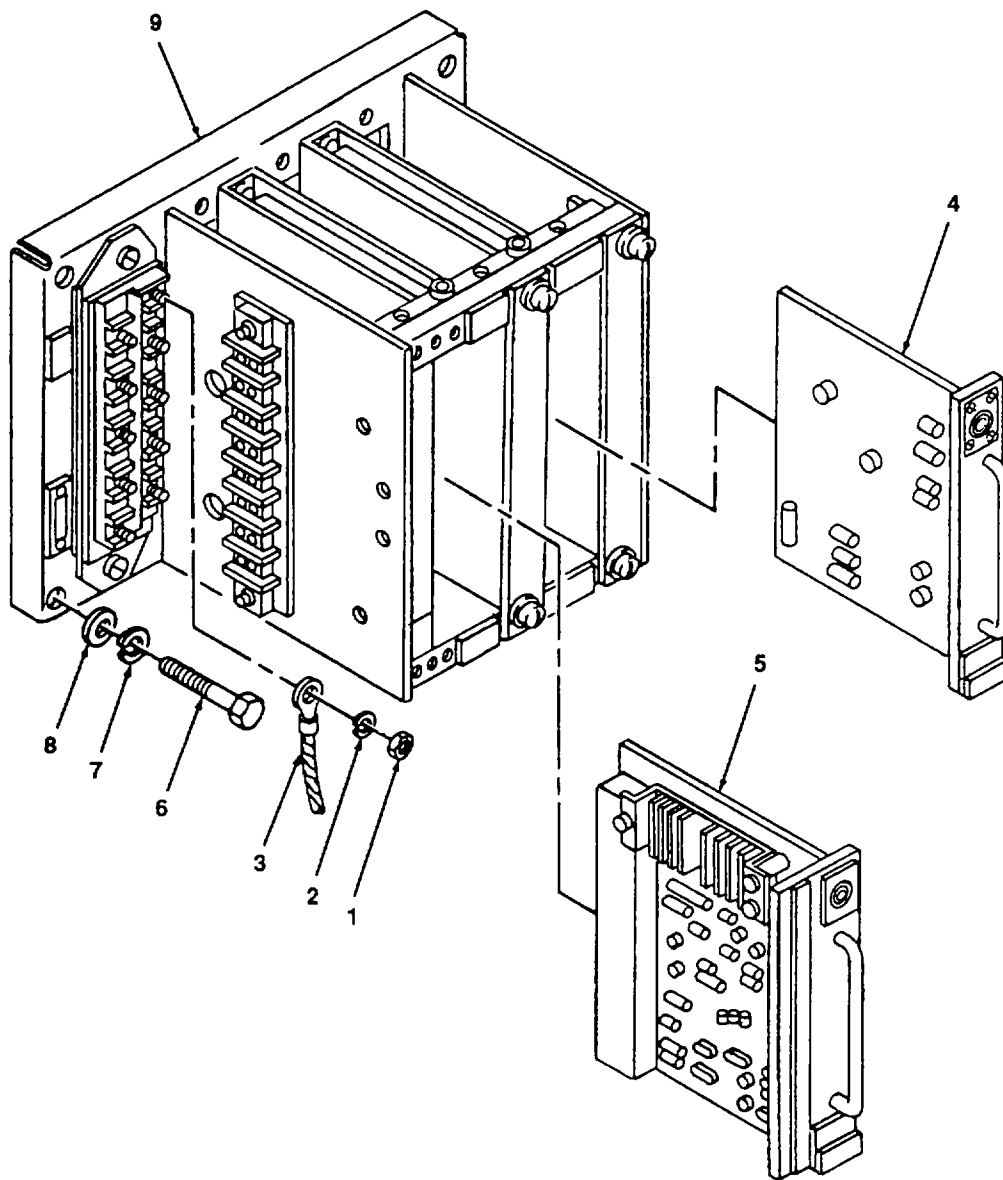


Figure 55. Resistor, Generator Field.

(1) ITEM NO.	(2) FSCM	(3) PART NUMBER	(4) DESCRIPTION AND USABLE ON CODE	(5) QTY
			GROUP 10 BRAKE SYSTEM, AIR	
			FIG. 55 RESISTOR, GENERATOR FIELD	
1	96906	MS51922-33	NUT, LOCK	2
2	96906	MS51967-15	NUT	2
3			STUDS	2
4	97403	13228E2151	CAGE, RESISTOR	1
5			SPACERS	4
6			SPRINGS	
7	96906	MS51967-09	NUT, 3/8	10
8	96906	MS35338-46	WASHER, LOCK, 3/8	10
9	96906	MS27183-14	WASHER, FLAT, 3/8	10
10	96906	MS90725-66	SCREWS, HEX-HEAD	8
11			INSULATORS	2
12	24446	41B556486G2	RESISTOR	8
13	24446	492A933G1	RESISTOR	2
14	96906	MS90725-55	SCREWS, HEX-HEAD, 3/8	6
15			LEADS, ELECTRICAL, MAKE FROM, 14 AWG 8491796 (72915) AND TERMINAL, 14-16 AWG, 3/8 STUD, 1434780 (594000), REF DES, 1GFR1, J1,2GFR1, 1GFR21, J1,2GFR21	
			END OF FIGURE	



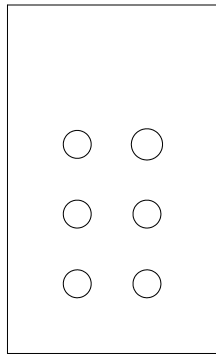
4834-062

Figure 62. Panel, Transition Relay.

(1) ITEM NO.	(2) FSCM	(3) PART NUMBER	(4) DESCRIPTION AND USABLE ON CODE	(5) QTY
			GROUP 10 BRAKE SYSTEM, AIR	
			FIG. 62 PANEL, TRANSISTOR RELAY	
1	96906	MS35649-202	NUT	17
2	96906	MS35338-43	WASHER, LOCK	17
3			LEAD, ELECTRICAL, MAKE FROM; 14 AWG 8491796 (72915), TERMINAL LUG, 14-16 AWG P/N 31906 (89110) REF DES, J-TP2, K-N45 AND N46, M-AAT, N-AA-	17
4	24446	FD1139	CARD, SPEED-EVENT (TWO-CHANNEL)	1
5	24446	FD1137	CARD, TACH RECEIVER	1
6	96906	MS90725-69	SCREW, HEX-HEAD	4
7	96906	MS35338-46	WASHER, LOCK	4
8	96906	MS27183-14	WASHER, FLAT	4
9	24446	17FL182AN1	PANEL, RELAY	1
			END OF FIG.URE	

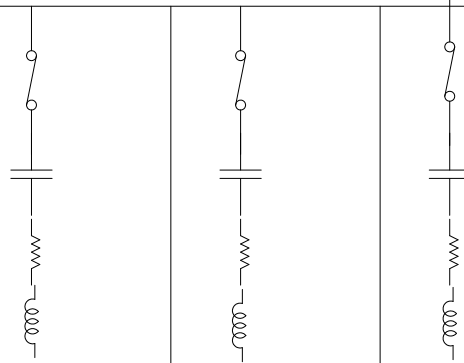
WHEATSTONE RECITIFER BRIDGE ON FUSE TEST

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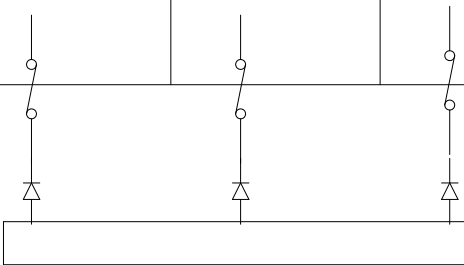


FUSE TEST

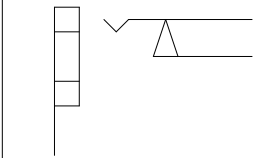
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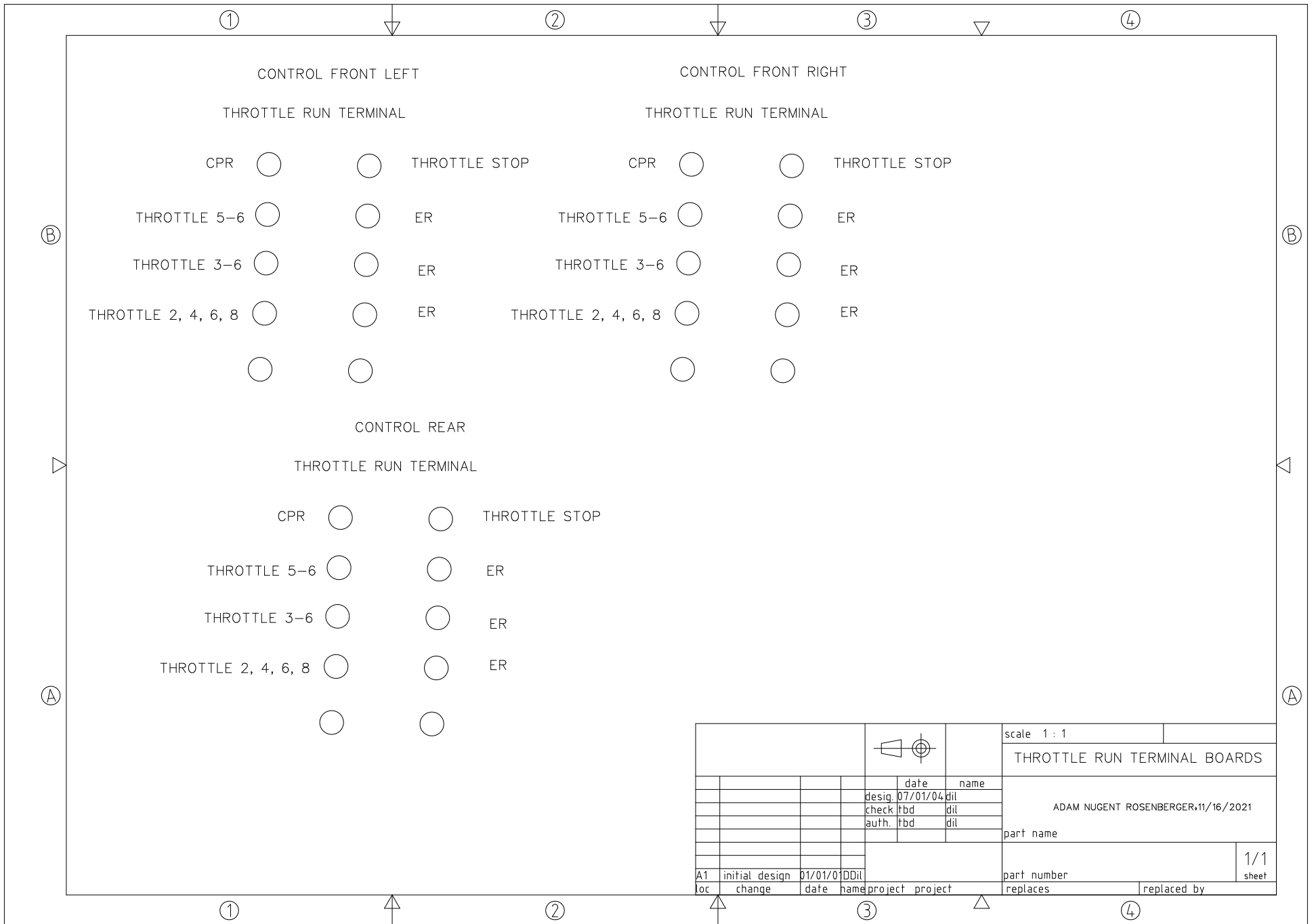
CLOSED CARD SLOT



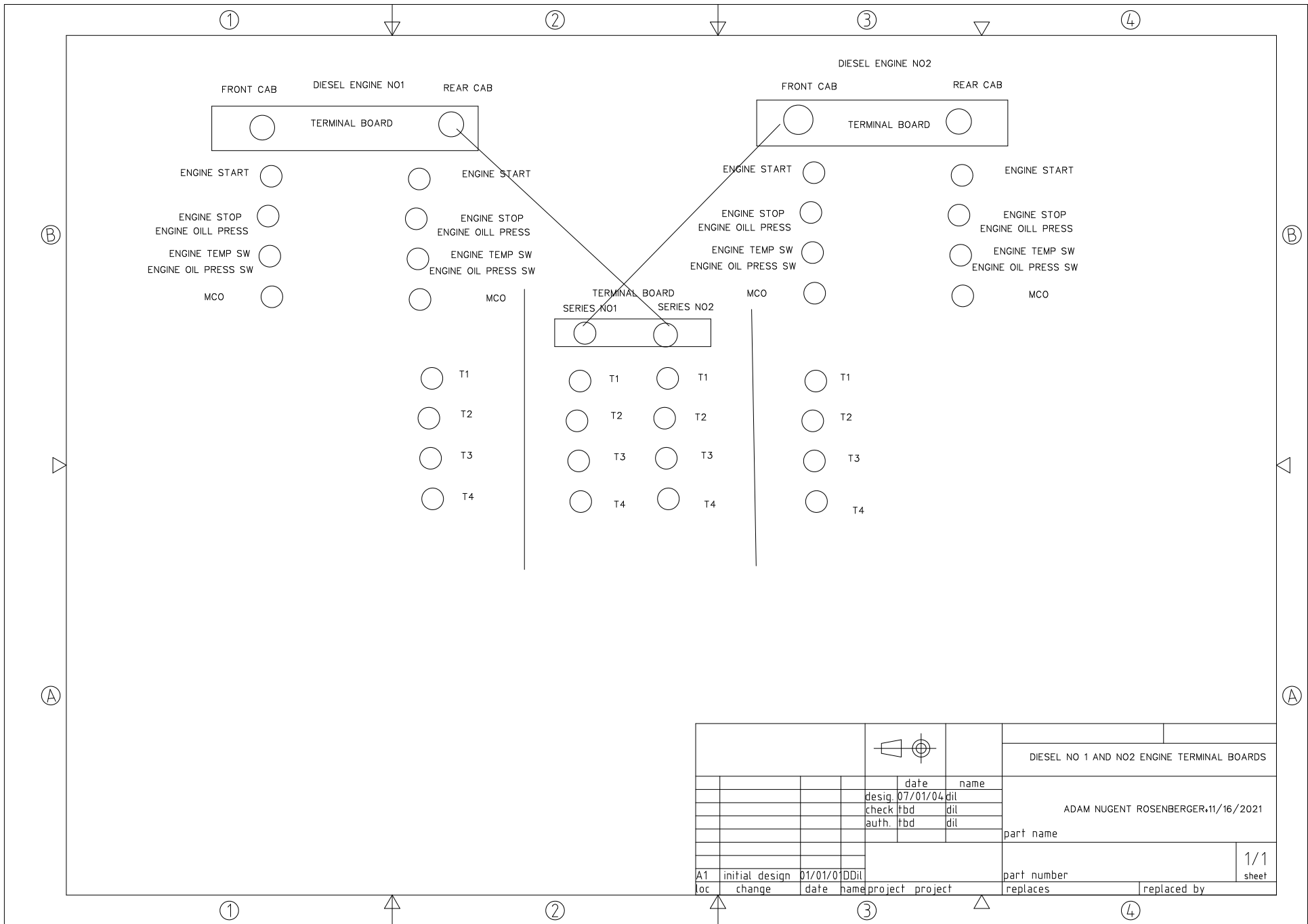
SHUNT WALL



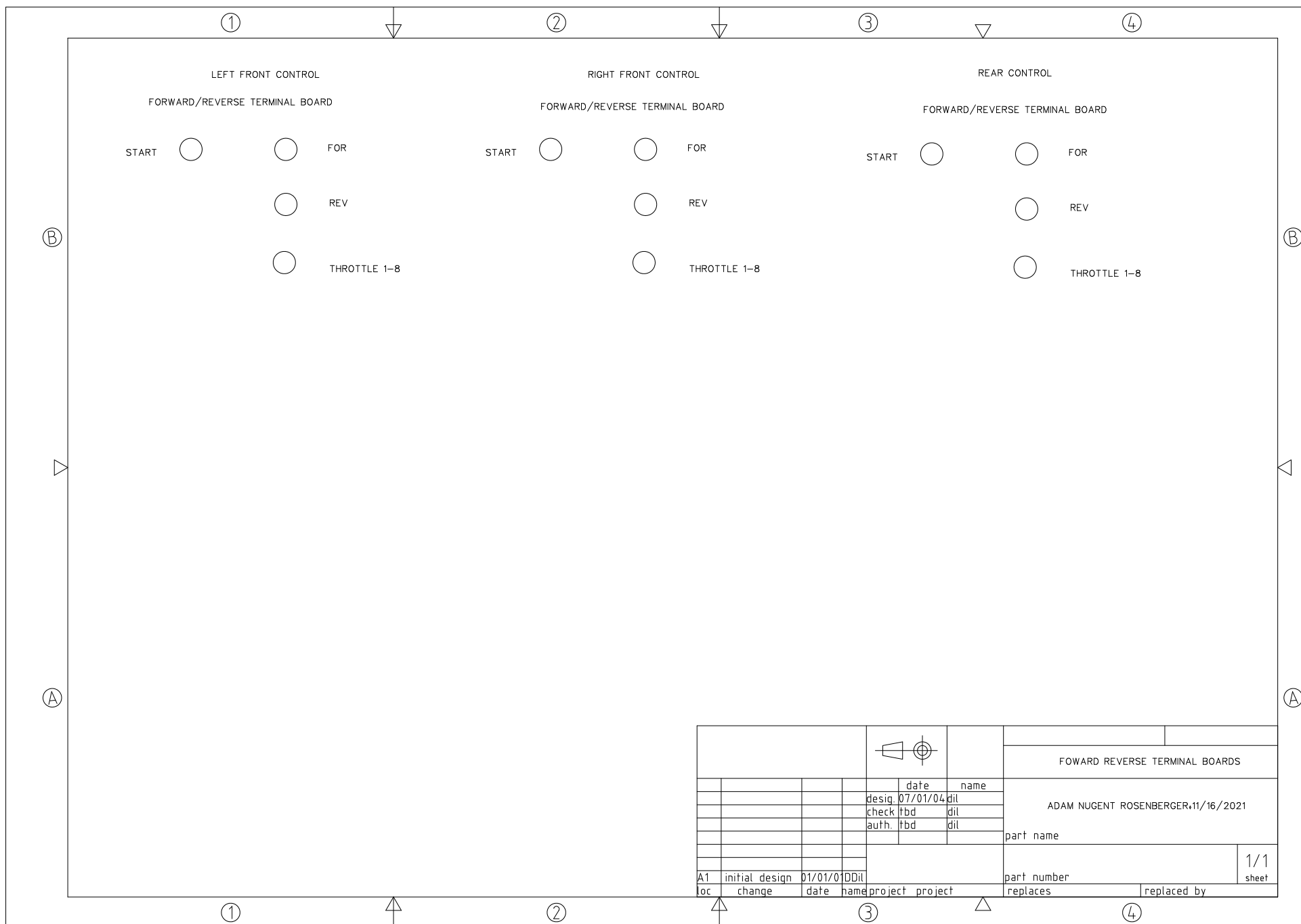
jack meter



						scale 1 : 1	
						THROTTLE RUN TERMINAL BOARDS	
				date	name	ADAM NUGENT ROSENBERGER,11/16/2021	
				desig.	07/01/04 dil		
				check	tbd dil		
				auth.	tbd dil		
						part name	
A1	initial design	01/01/01	DDil			part number	1/1
loc	change	date	name	project	project	replaces	replaced by
						sheet	



							
						DIESEL NO 1 AND NO2 ENGINE TERMINAL BOARDS	
				date	name	ADAM NUGENT ROSENBERGER,11/16/2021	
				desig.	07/01/04 dil		
				check	fbd dil		
				auth.	fbd dil		
						part name	
						part number	
A1	initial design	01/01/01	DDil			1/1	
loc	change	date	name	project	project	replaces	replaced by
						sheet	



LIGHTS CONTL STAND LEFT FRONT

GLS 1
GLR 300 OHM
GLR 150 OHM

ALARM

GLR RHEOSTAT
PIN 1
PIN 2

GLT

ENGINE TEMP 1

ENGINE TEMP 2

ENGINE PRESSURE 1

ENGINE PRESSURE 2

FUEL ENGINE 1

FUEL ENGINE 2

OIL PRESSURE 1

OIL PRESSURE 2

BATTERY VOLTMETER

OIL GUAGE 1

OIL GUAGE 2

PRESSYRE BRAKE LT

MAIN AIR RESERV LT

LIGHTS CONTL STAND RIGHT FRONT

GLT GLR

GLT 150 OHM ALARM



LIGHT GUAGE TERMINAL BOARD FRONT

ADAM NUGENT ROSENBERGER, 11/16/2021

part name

part number

replaces

replaced by

1/1
sheet

				date	name		
				design	07/01/04	dil	
				check	tbd	dil	
				auth.	tbd	dil	
A1	initial design	01/01/01	DDil				
loc	change	date	name	project	project		

LIGHT GUAGE TERMINAL BOARD REAR CONTROL

GLS 1 ☐
 GLR ☐ 300 OHM
 GLR ☐ 150 OHM

☐ GLR RHEOSTAT
 PIN 1
 PIN 2

☐ GLT

☐ ENGINE TEMP 1

☐ ENGINE TEMP 2

☐ ENGINE PRESSURE 1

☐ ENGINE PRESSURE 2

☐ FUEL ENGINE 1

☐ FUEL ENGINE 2

☐ OIL PRESSURE 1

☐ OIL PRESSURE 2

☐ BATTERY VOLTMETER

☐ OIL GUAGE 1

☐ OIL GUAGE 2

☐ PRESSYRE BRAKE LT

☐ MAIN AIR RESERV LT

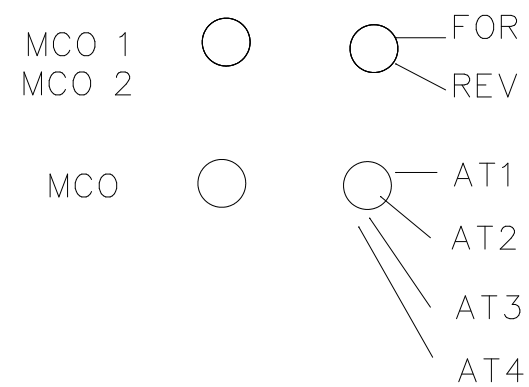
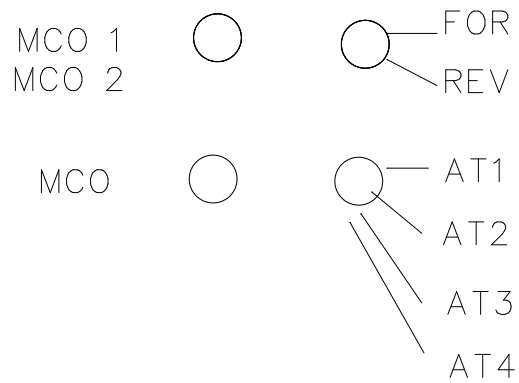
ALARM

				date	name	LIGHT GUAGE TERMINAL BOARD REAR CONTROL
	design.	07/01/04	dil			ADAM NUGENT ROSENBERGER, 11/16/2021
	check	tbd	dil			
	auth.	tbd	dil			
						part name
A1	initial design	01/01/01	DDil			part number
loc	change	date	name	project	project	replaces
						replaced by

1/1
sheet

FRONT CAB MOTOR CUT OUT TERMINAL BOARD

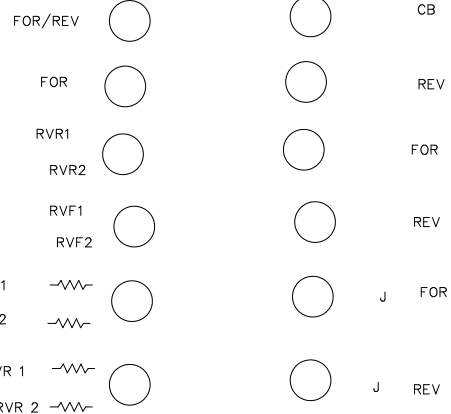
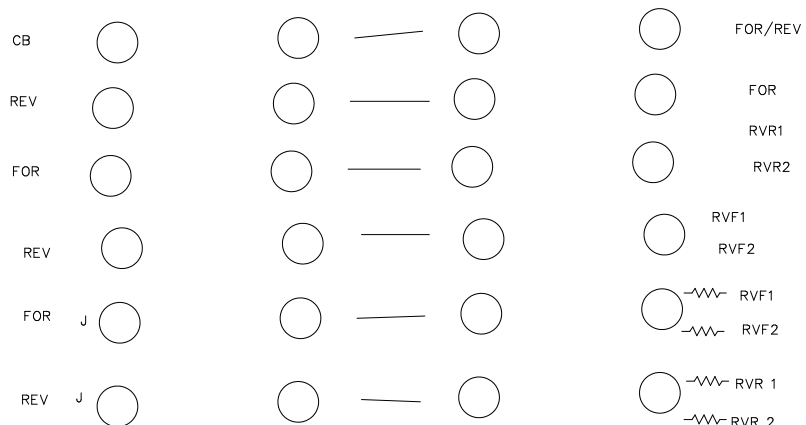
REAR CAB MOTOR CUT OUT TERMINAL BOARD



							
				date		name	
				design	07/01/04	dil	
				check	tbd	dil	
				auth.	tbd	dil	
						part name	
						part number	
A1	initial design	01/01/01	DDil			1/1	
loc	change	date	name	project	project	replaces	replaced by

REVERSER CONTROL CABINET TERMINAL BOARD LEFT FRONT

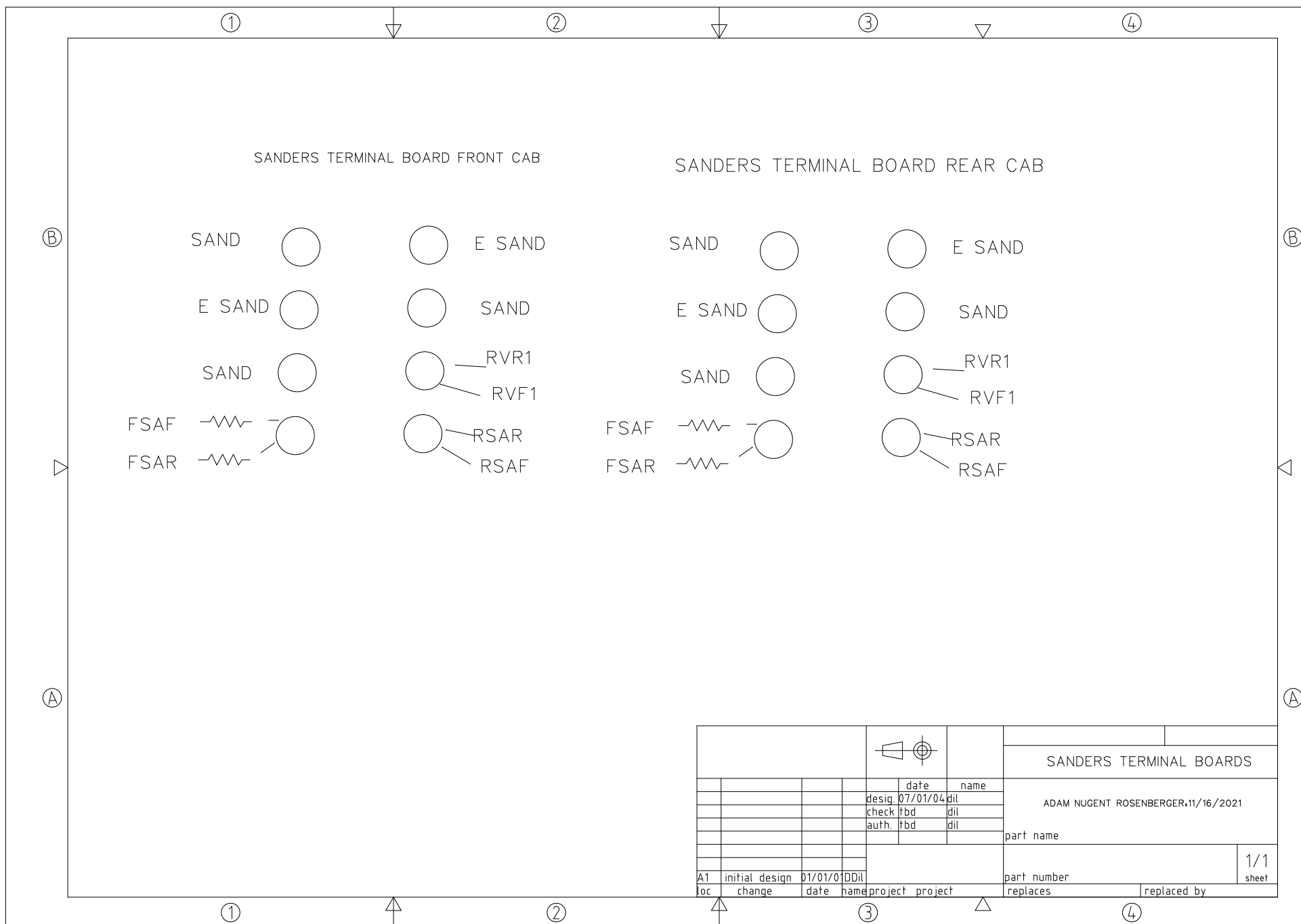
REVERSER CONTROL CABINET TERMINAL BOARD RIGHT FRONT

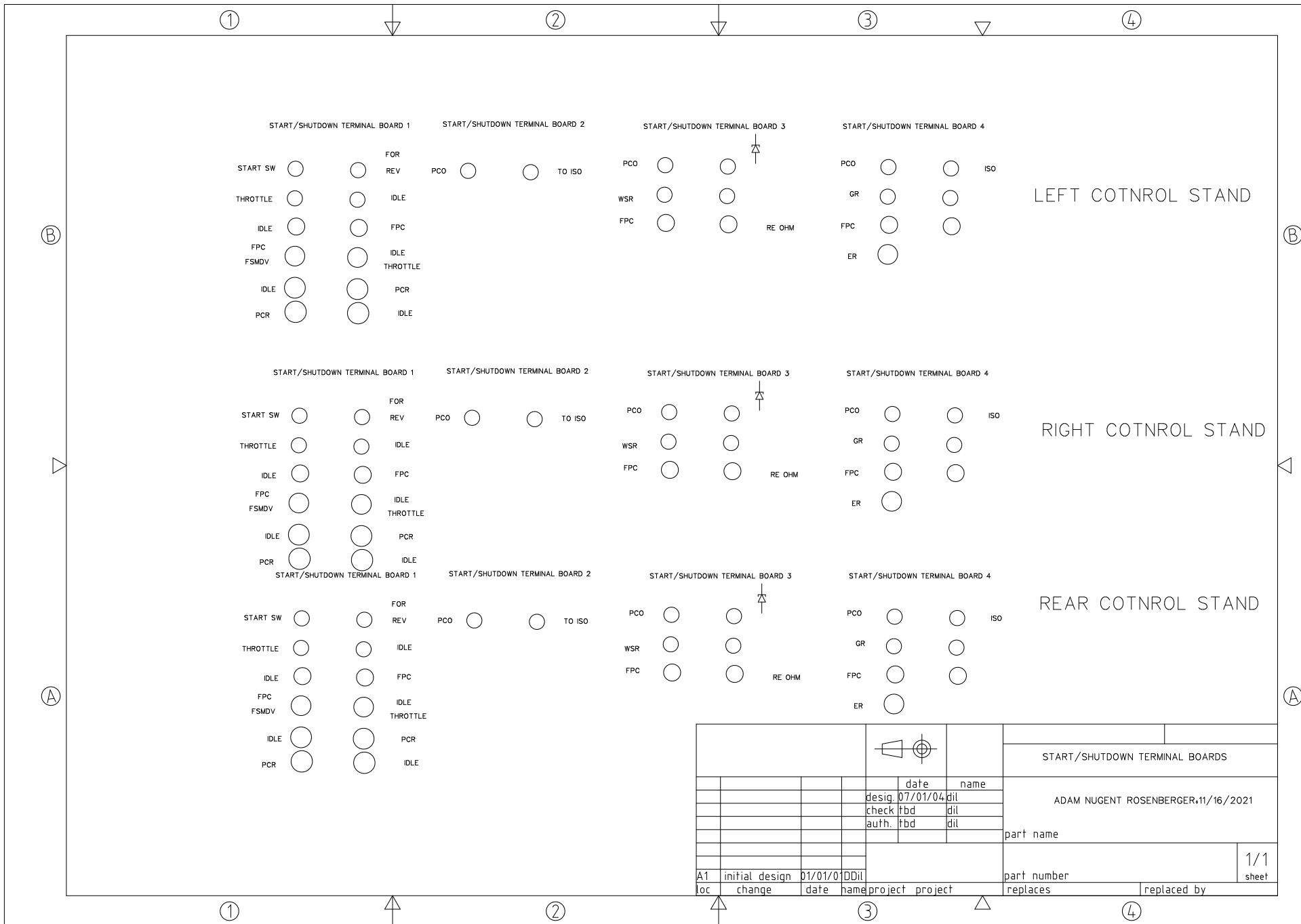


REVERSER CONTROL CABINET TERMINAL BOARD REAR

						REVERSER CONTROL CABINET TERMINAL BOARD	
				date	name	ADAM NUGENT ROSENBERGER,11/16/2021	
				desig.	07/01/04 dil		
				check	tbd dil		
				auth.	tbd dil	part name	
						part number	
A1	initial design	01/01/01	DDil			1/1	
loc	change	date	name	project	project	replaces	replaced by

sheet

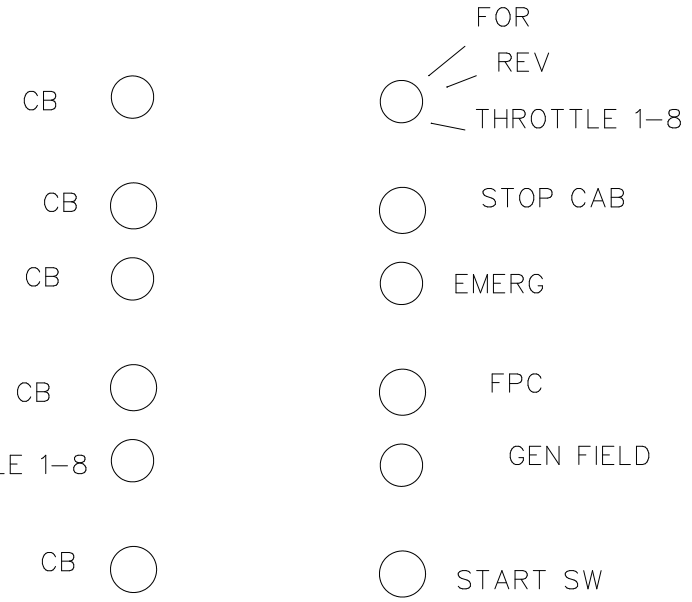
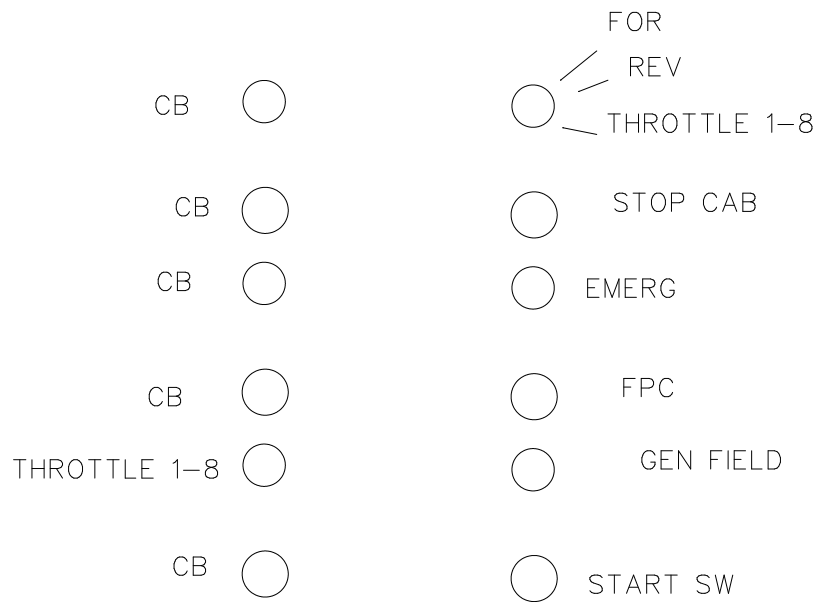




								START/SHUTDOWN TERMINAL BOARDS		
				date	name	ADAM NUGENT ROSENBERGER;11/16/2021				
				design	07/01/04 dil					
				check	tbd dil					
				auth.	tbd dil	part name				
A1	initial design	01/01/01	DDil						part number	1/1
loc	change	date	name	project	project	replaces			replaced by	sheet

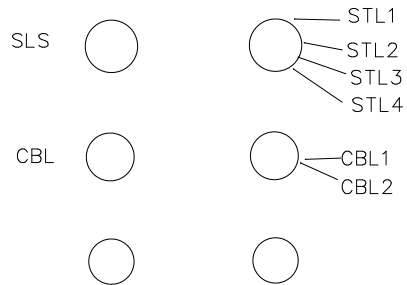
START SW FRONT CAB TERMINAL BOARD

START SW REAR CAB TERMINAL BOARD

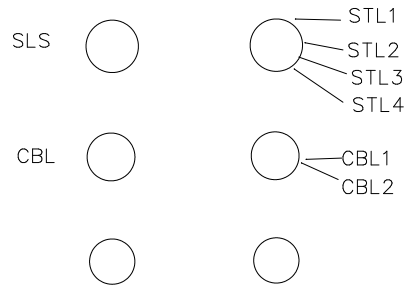


						START SWITCH TERMINAL BOARDS	
				date	name	ADAM NUGENT ROSENBERGER,11/16/2021	
				design	07/01/04 dil		
				check	tbd dil		
				auth	tbd dil	part name	
						part number DD00NN	
A1	initial design	01/01/01	DDil			replaces	1/1 sheet
loc	change	date	name	project	project	replaced by	

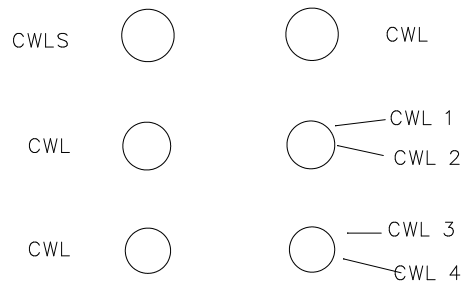
LIGHTS CAB/STEP TERMINAL FRONT



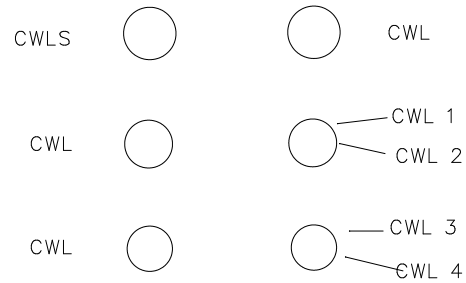
LIGHTS CAB/STEP TERMINAL REAR



COWLING LIGHT FRONT TERMINAL BOARD

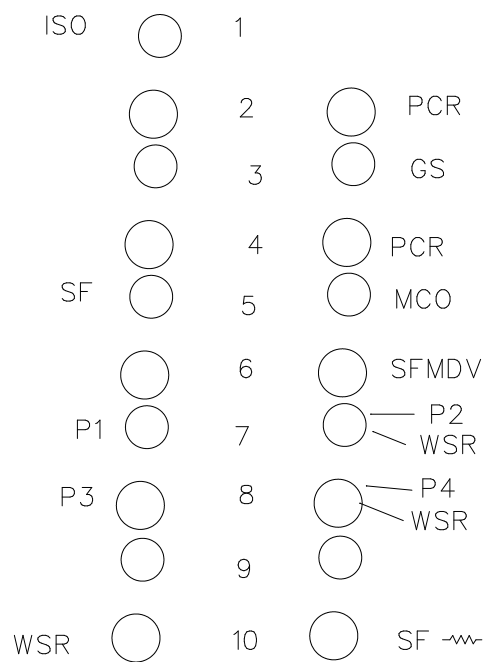


COWLING LIGHT REAR TERMINAL BOARD

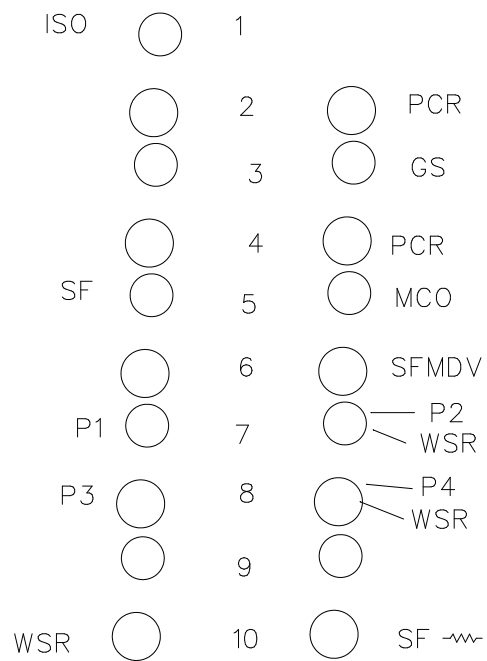


						(mass)	
						LIGHTS STEP COWL CAB TERMINAL BOARD	
				date	name	ADAM NUGENT ROSENBERGER+11/16/2021	
				design	07/01/04 dil		
				check	tbd dil		
				auth.	tbd dil		
						part name	
A1	initial design	01/01/01	DDil				1/1
loc	change	date	name	project	project	part number	sheet
				replaces		replaced by	

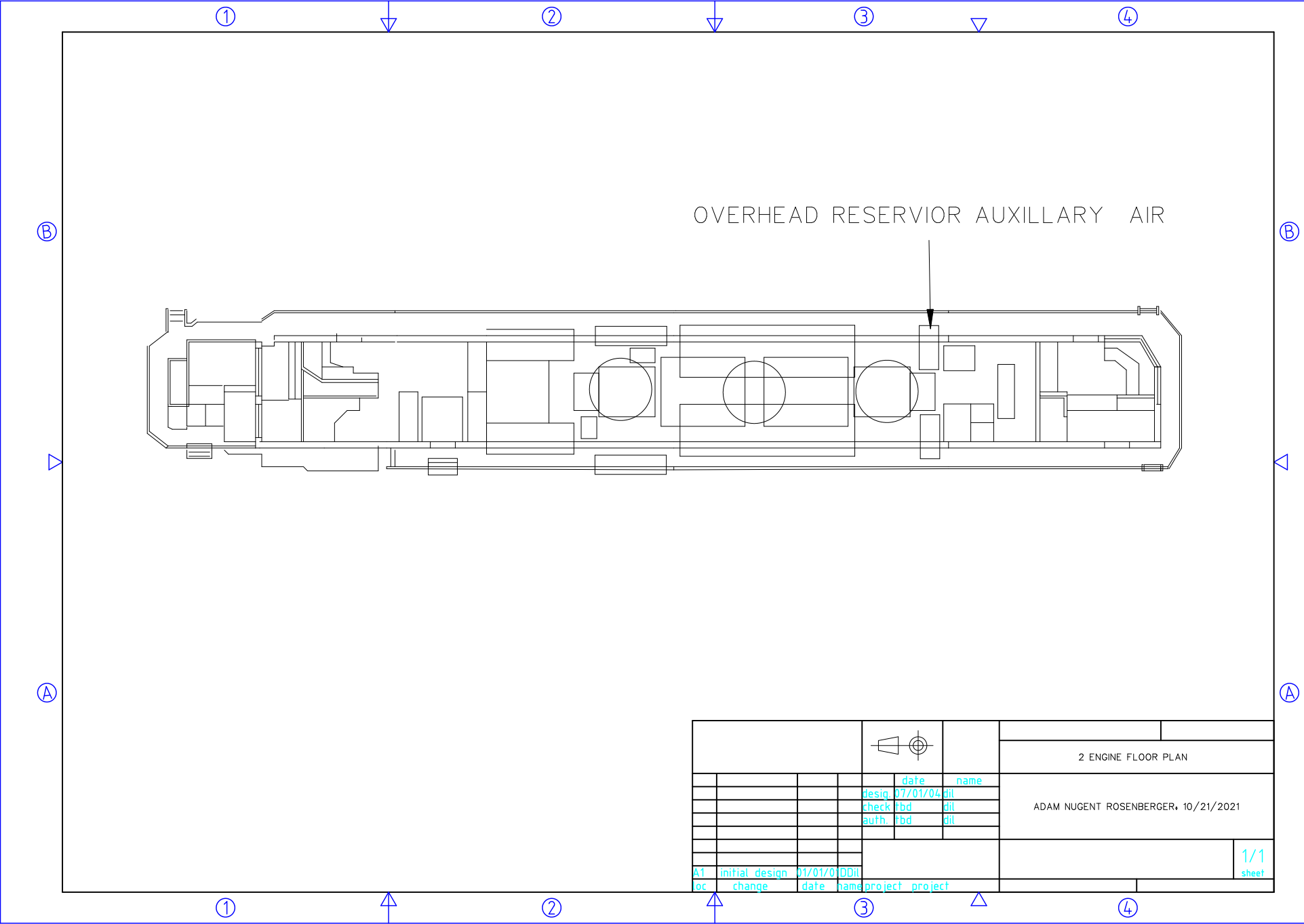
FRONT CAB THROTTLE ENGINE RELAY TERMINAL BOARD



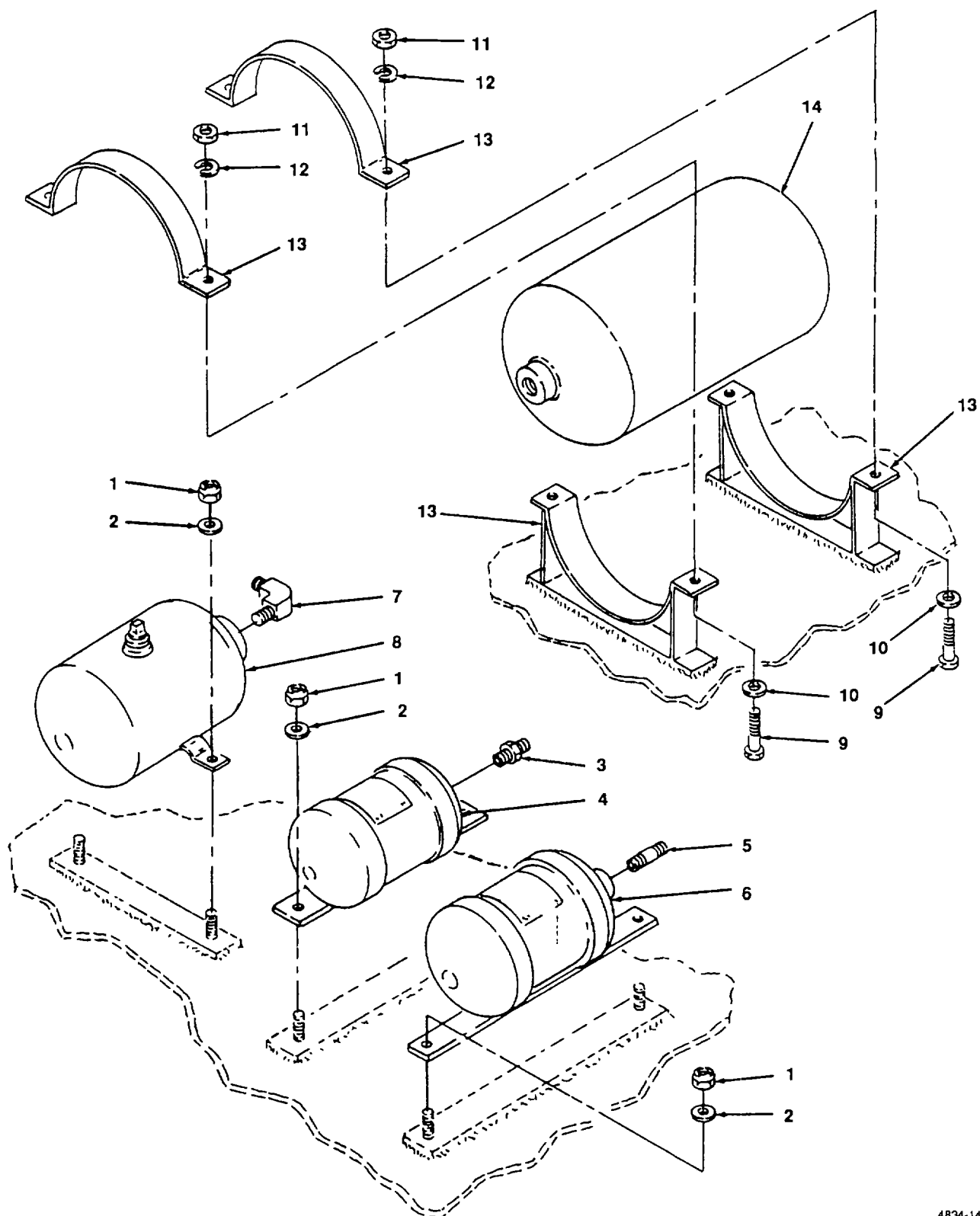
REAR CAB THROTTLE ENGINE RELAY TERMINAL BOARD



						THROTTLE RUN ENGINE RELAY TERMINAL BOARD	
				date	name	ADAM NUGENT ROSENBERGER,11/16/2021	
				desig.	07/01/04 dil		
				check	tbd dil		
				auth.	tbd dil		
							part name
							part number
A1	initial design	01/01/01	DDil				1/1 sheet
loc	change	date	name	project	project	replaces	replaced by



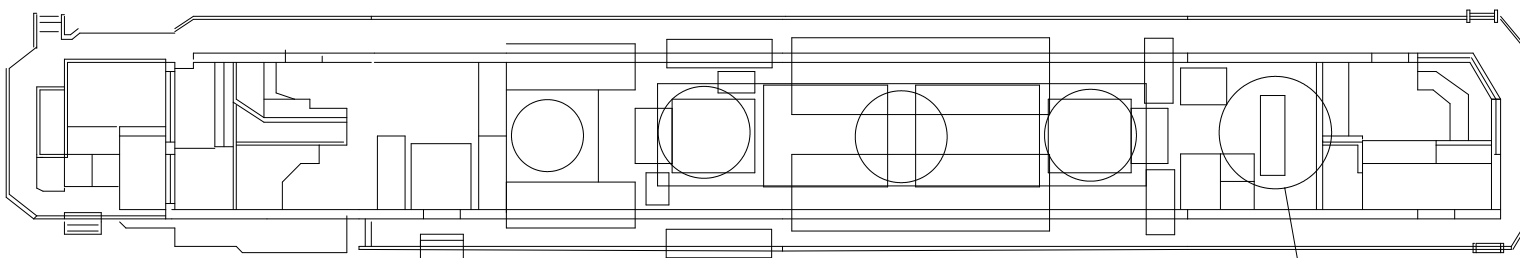
									
						2 ENGINE FLOOR PLAN			
					date	name		ADAM NUGENT ROSENBERGER, 10/21/2021	
				design	07/01/04	dil			
				check	fbd	dil			
				auth	fbd	dil			
A1	initial design	01/01/01	DDil					1/1	
loc	change	date	name	project	project			sheet	



4834-145

Figure 145. Reservoir Auxiliary.

(1) ITEM NO.	(2) FSCM	(3) PART NUMBER	(4) DESCRIPTION AND USABLE ON CODE	(5) QTY
			GROUP 19 AIR BRAKE SYSTEM GROUP	
			FIG. 145 RESERVOIRS, AUXILIARY	
1	96906	MS51922-33	NUT, LOCKING, 1/2 IN	6
2	96906	MS27183-18	WASHER, FLAT	6
3	96906	MS51500-BB	ADAPTER, PIPE TO TUBING, 3/8 TO 1/2 IN	1
4	82722	557676	RESERVOIR, VOLUME	1
5	96906	MS51873-49	NIPPLE, PIPE, CLOSE, 3/8	1
6	82722	559113	RESERVOIR	1
7	96906	MS51504-BB	ELBOW, PIPE TO TUBING, 3/8 X 1/2 IN.	1
8	82722	557085	RESERVOIR, EQUALIZING	1
9	96906	MS90725-36	SCREW, HEX-HEAD, 5/16 X 11/4 IN	4
10	96906	MS27183-12	WASHER, FLAT, 5/16	4
11	96906	MS51922-9	NUT, SELF-LOCKING	4
12	96906	MS35338-48	WASHER, LOCK	4
13	97403	13228E2149-86	BRACKETS	2
14	82722	518122	RESERVOIR, CONTROL AIR	1
			END OF FIGURE	



AIR COMPRESSOR

						AIR COMPRESSOR	
				date	name	ADAM NUGENT ROSENBERGER, 10/21/2021	
				design 07/01/04	dil		
				check fbd	dil		
				auth fbd	dil		
							1/1
A1	initial design	01/01/01	DDil				sheet
loc	change	date	name	project	project		

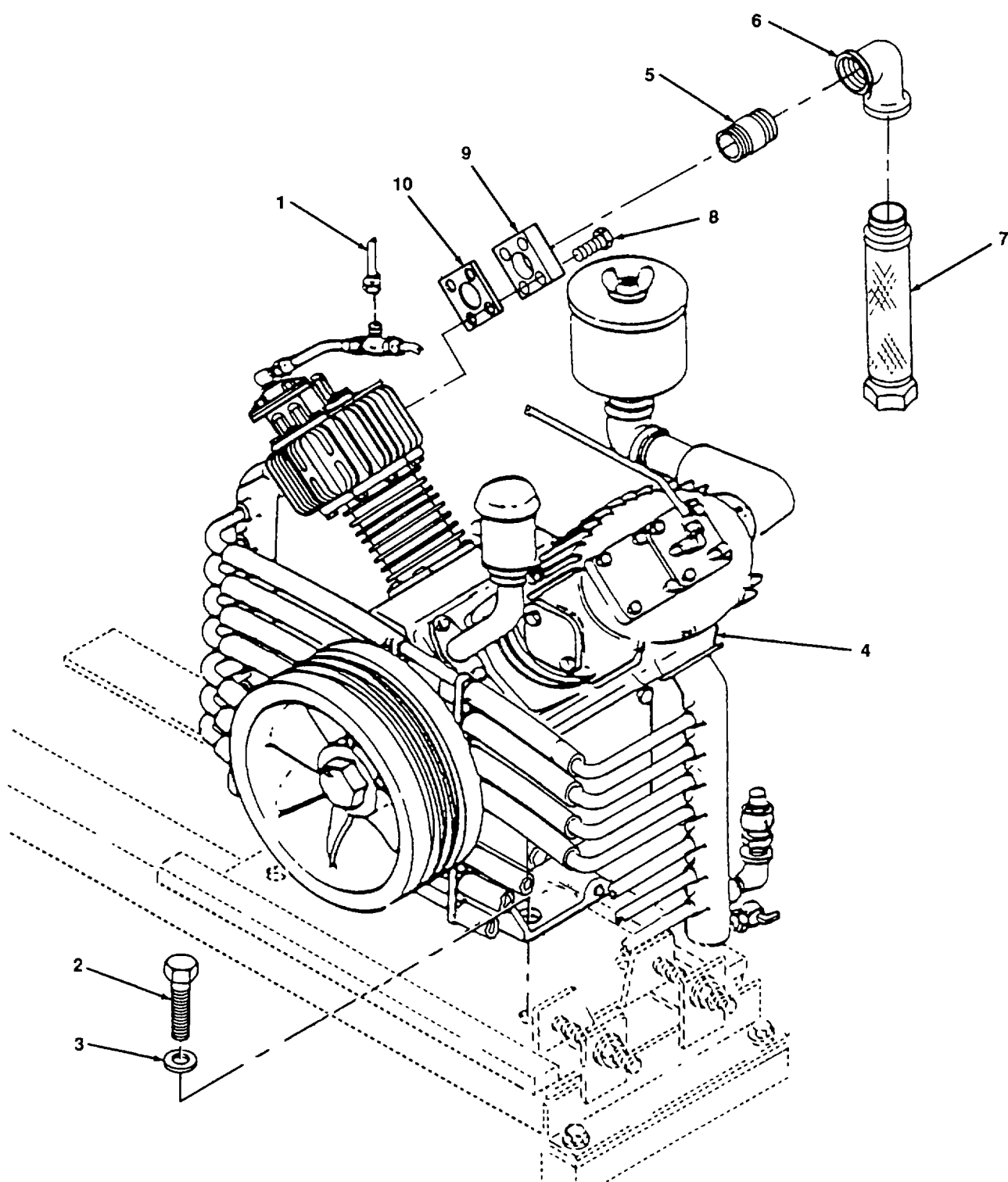
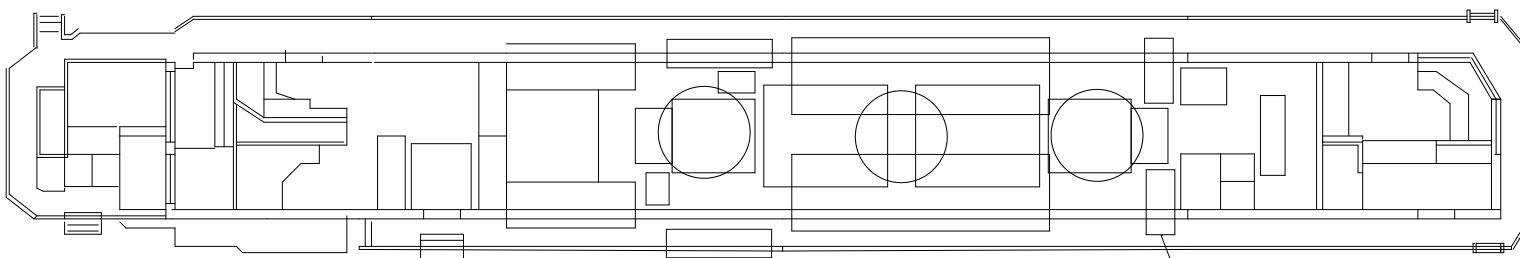


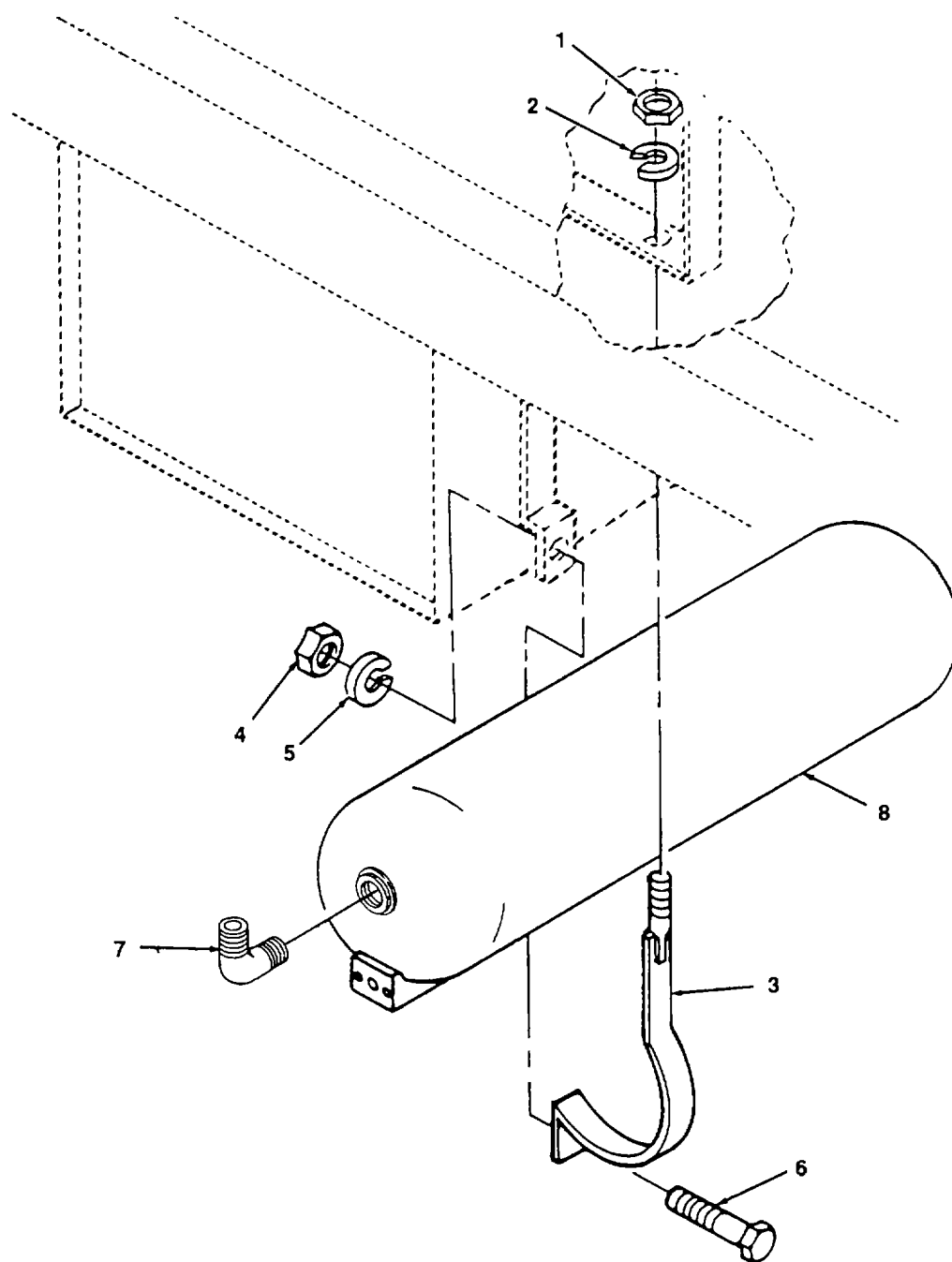
Figure 79. Air Compressor Assembly.

(1) ITEM NO.	(2) FSCM	(3) PART NUMBER	(4) DESCRIPTION AND USABLE ON CODE	(5) QTY
			GROUP 16 AIR COMPRESSOR	
			FIG. 79 AIR COMPRESSOR ASSEMBLY	
1	96906		FITTING, UNLOADER AIR LINE	2
2	96906	MS90725-129	BOLT, 625-11 UNC -2A X 2 00 LG	2
3	96906	MS35338-50	WASHER, LOCK	2
4	2K654	AVLALBBF9999	AIR COMPRESSOR ASSEMBLY	1
5	96906	MS51873-125B	NIPPLE	1
6	72423	1201-200	ELBOW, 900	1
7	2K654	A0545274K49	PIPE, FLEX, 2 IN	1
8	2K654	75A39	SCREW, CAP	4
9	2K654	60AUX192	FLANGE	1
10	2K654	25C1682	GASKET	1
			END OF FIGURE	



OVERHEAD RESERVIOR MAIN AIR

								2 ENGINE FLOOR PLAN	
				date	name	ADAM NUGENT ROSENBERGER, 10/21/2021			
				design	07/01/04 dil				
				check	fbd dil				
				auth	fbd dil				
						1/1 sheet			
A1	initial design	01/01/01	DDil						
loc	change	date	name	project	project				



4834-144

Figure 144. Reservoir Main Air.

(1) ITEM NO.	(2) FSCM	(3) PART NUMBER	(4) DESCRIPTION AND USABLE ON CODE	(5) QTY
			GROUP 19 BRAKE SYSTEM, AIR	
			FIG. 144 RESERVOIR, MAIN AIR	
1	96906	MS51967-24	NUT, 3/4 IN	2
2	96906	MS35338-51	WASHER, LOCK, 3/4 IN	2
3	24446		STRAP, SUPPORT	2
4	96906	MS51967-15	NUT, HEX, 1/2	2
5	96906	MS35338-48	WASHER, LOCK, 1/2	2
6	96906	MS90725	SCREW, HEX-HEAD, 1/2 X 1/2	2
7	72423	1043-400	ELBOW	1
8	24446	9962053P1	RESERVOIR, MAIN AIR	1
			END OF FIGURE	



								
				AIRBRAKE COMPARTMENT				
				date	name	ADAM NUGENT ROSENBERGER, 10/21/2021		
				desig	07/01/04			dil
				check	rbd			dil
				auth	rbd			dil
A1		initial design		01/01/01	010			
or		change		date	name			project
							1/1 sheet	

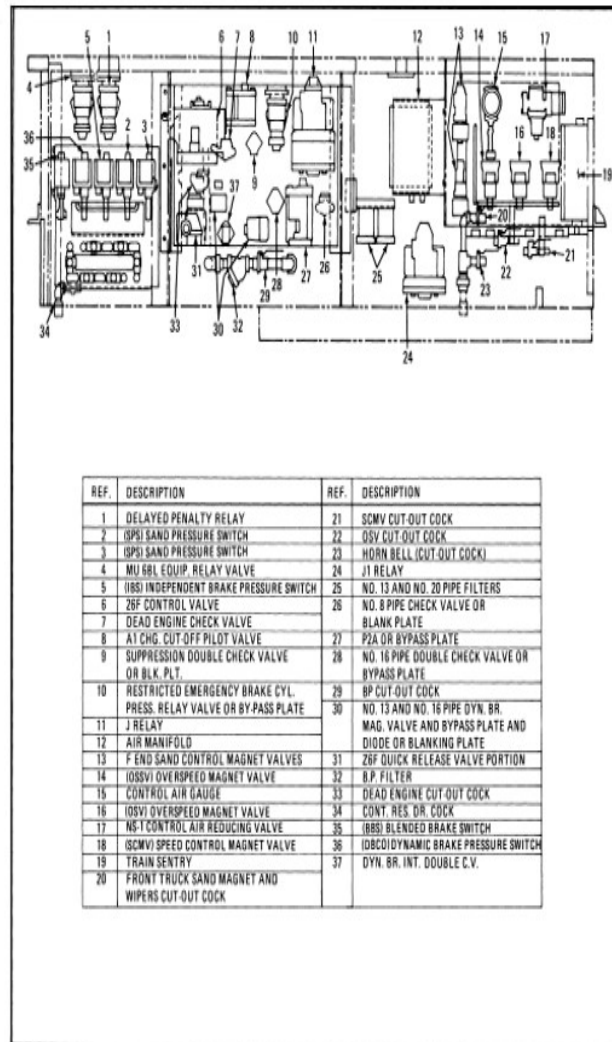
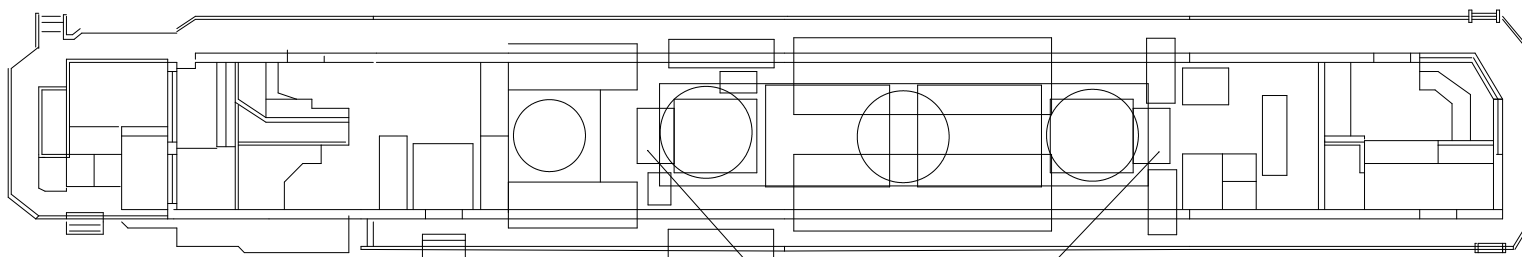


FIG. 26. AIR BRAKE COMPARTMENT.



AUXILIARY GENERATORS

						AUXILIARY GENERATORS			
				date	name	ADAM NUGENT ROSENBERGER, 10/21/2021			
				design	07/01/04 dil				
				check	fbd dil				
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4833-067.1

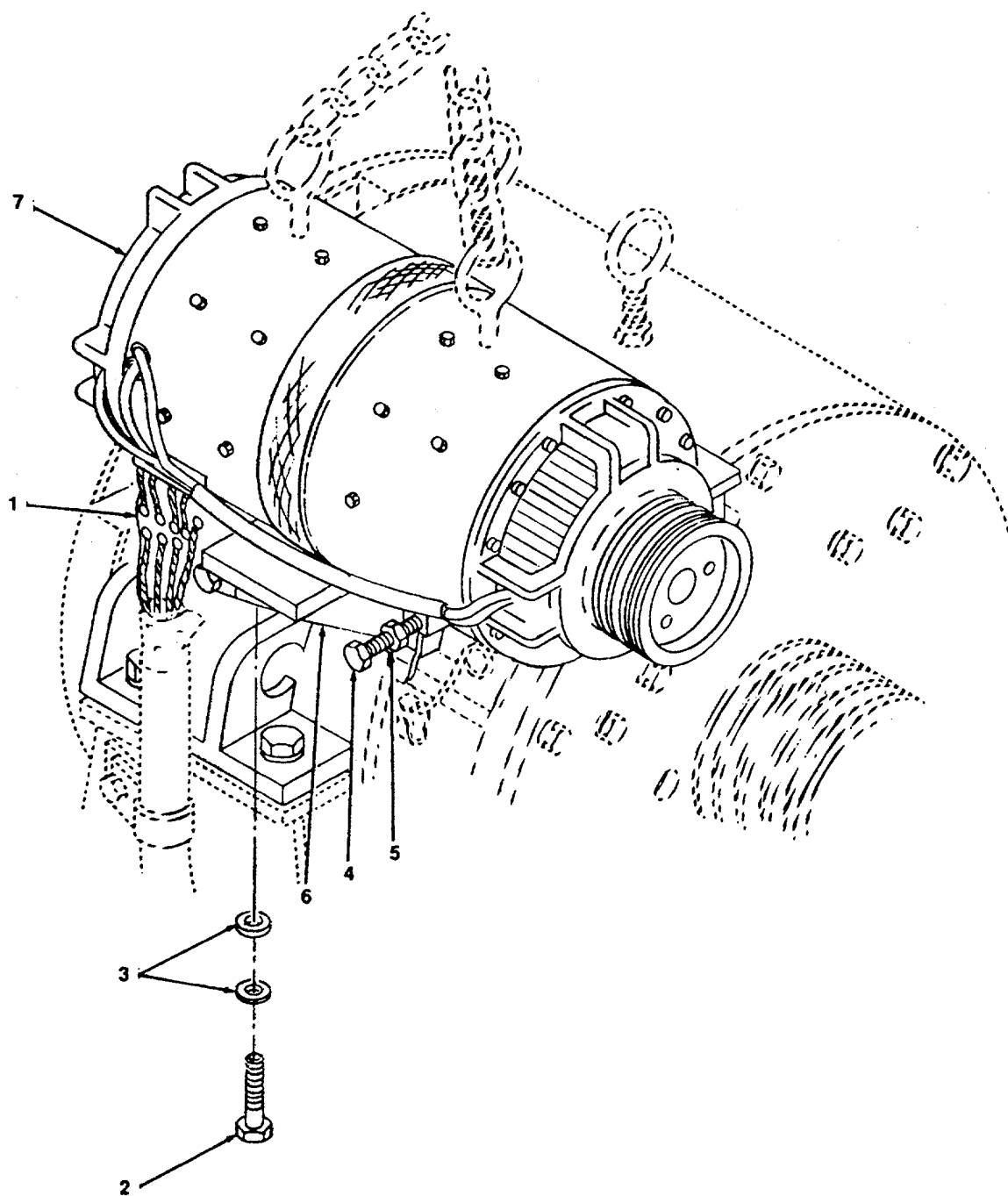


Figure 67. Generator Exciter, Auxiliary Assembly (Sheet 1 of 2).

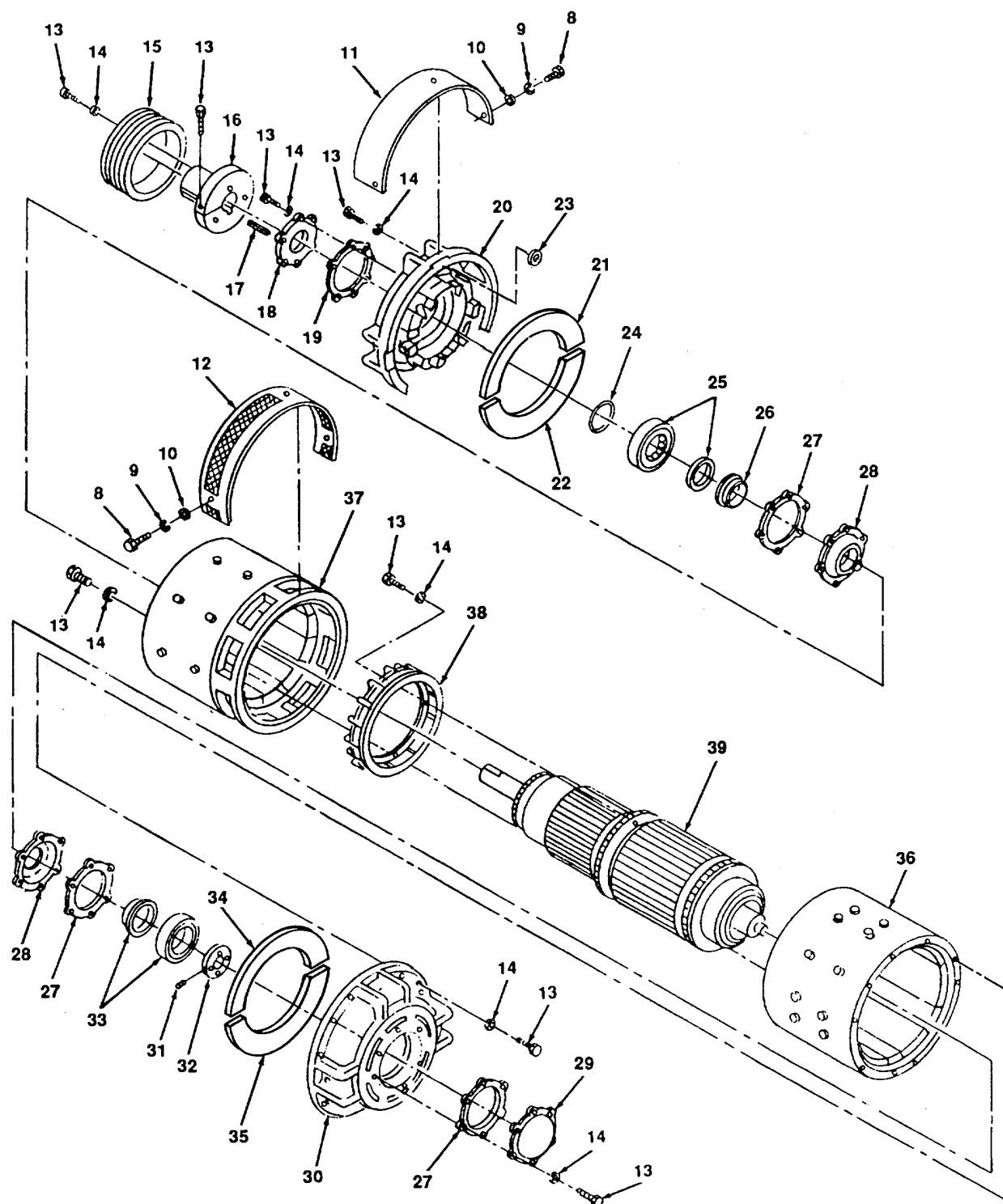
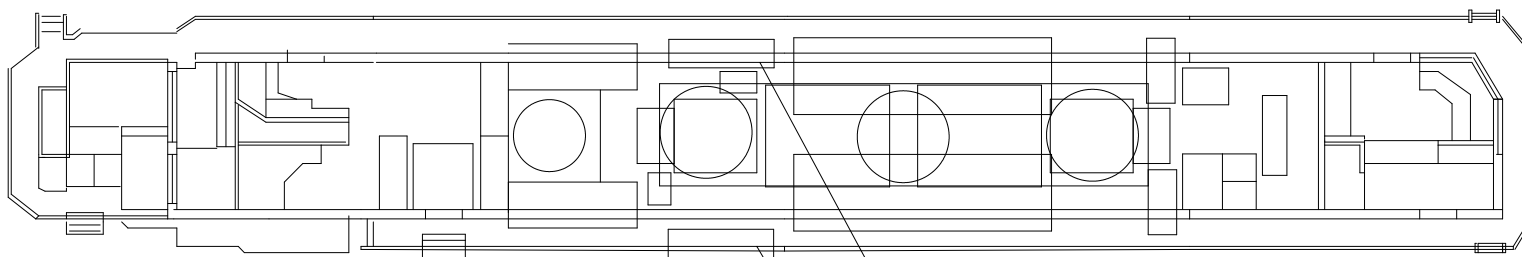


Figure 67. Generator Exciter, Auxiliary Assembly (Sheet 2 of 2).

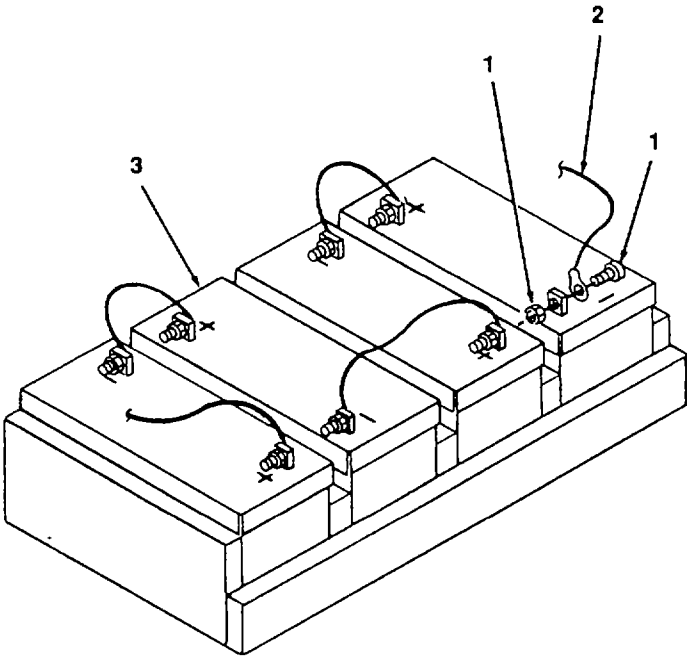
(1) ITEM NUMBER	(2) FSCM	(3) PART NUMBER	(4) DESCRIPTION AND USABLE ON CODE (UOC)	(5) QTY
1			GROUP 11 GENERATOR, EXCITER, AUXILIARY GROUP FIG. 67 GENERATOR, EXCITER, AUXILIARY ASSEMBLY LEAD, ELECTRICAL, MADE FROM; WIRE, 14 AWG, P/N 8491796 (72915), TERMINAL, LUG, CABLE LEAD, P/N 370285 (79500) REF. DES: AG+, AG-, HF1+, EFZ+, EFA+, EF8+	6
2	96906	MS90725-114	BOLTS, HEX-HEAD, 7/8 IN.	4
3	96906	M535338-18	WASHER, FLAT, 7/8 IN.	8
4	96906	MS90725-215	SCREW, HEX, ADJUSTING	2
5	96906	MS51967-27	NUT, ADJUSTING	1
6	79500		BRACKET, MOUNTING	1
7	79500	YG-49D	GENERATOR, EXCITER, AUXILIARY ASSEMBLY	1
8	96906	MS90275-201	SCREW, HEX HEAD	13
9	96906	MS51922-57	WASHER, LOCK	13
10	96906	MS27183-24	WASHER, FLAT	13
11	79500	1021212	COVER, COMMUTATOR INSPECTION	2
12	79500		COVER, COMMUTATOR SCREEN	1
13	96906	MS90725-58	SCREW, HEX-HEAD 3/8 X 3/4	20
14	96906	MS35338-46	WASHER, LOCK 3/8 IN.	20
15	79500		PULLEY	1
16	79500		INNER PULLEY	1
17	79500		KEY	1
18	79500	1546473	CAP, OUTER EXCITER	1
19	79500	1020202	GASKET	1
20	79500	1536473	HOUSING, EXCITER END	1
21	79500	1445267	RING, GENERATOR END POS	1
22	79500	1445266	RING, GENERATOR, END NEG	1
23	79500	1133859	WASHER, RING SUPPORT	6
24	79500	14882276	SLINGER OIL	1
25	52676	NU312CH	BEARING, ASSEMBLY, INCL. RACE INNER	1
26	79500	1407971	SPACER, BEARING	1
27	79500	1020201	GASKET	1
28	79500	1020200	CAP, INNER EXCITER	1
29	79500	1243241	CAP, OUTER AUXILIARY, GENERATOR END	1

(1) ITEM NUMBER	(2) FSCM	(3) PART NUMBER	(4) DESCRIPTION	(5) QTY
			FIG. 67 GENERATOR, EXCITER, AUXILIARY ASSEMBLY (CONT)	
30	79500		HOUSING, AUXILIARY END	1
31	79500		SCREW, SET	2
32	79500		NUT, LOCK	1
33	52676	6312JC3	BEARING, BALL, ANNULAR, INCL. INNER RACE	1
34	79500	1612039	RING, EXCITER POS	1
35	79500	1612040	RING, EXCITER NEG	1
36	79500		FRAME, AUXILIARY	1
37	79500		FRAME, EXCITER	1
38	79500		FAN, COOLING	1
39	79500	1579091	ARMATURE, GENERATOR	1
			END OF FIGURE	



BATTERIES AND CONNECTIONS

								BATTERIES AND CONNECTIONS	
				date	name	ADAM NUGENT ROSENBERGER, 10/21/2021			
				design	07/01/04 dil				
				check	fbd dil				
				auth	fbd dil				
						1/1 sheet			
A1	initial design	01/01/01	DDil						
loc	change	date	name	project	project				



4834-040

Figure 40. Batteries and Connections.

(1) ITEM NO.	(2) FSCM	(3) PART NUMBER	(4) DESCRIPTION AND USABLE ON CODE	(5) QTY
			GROUP 08 ELECTRICAL ACCESSORIES	
			FIG. 40 STORAGE BATTERIES, CONNECTIONS	
1	24446	8077275	BOLT ASSEMBLY, CONNECTOR	8
2			LEAD, ELECTRICAL, MAKE FROM, 3/0 CABLE, BY(-), BX(+)	5
			TERMINAL, 3/0 WITH 3/8 STUD, P/N 89110325513	8
3	24446	8HHG25	BATTERY	4
			END OF FIGURE	



								
						BATTERY BOX		
				date	name	ADAM NUGENT ROSENBERGER, 10/21/2021		
				design	07/01/04			dil
				check	fbd			dil
				auth	fbd			dil
A1	initial design	01/01/01	DDil				1/1	
loc	change	date	name	project	project		sheet	

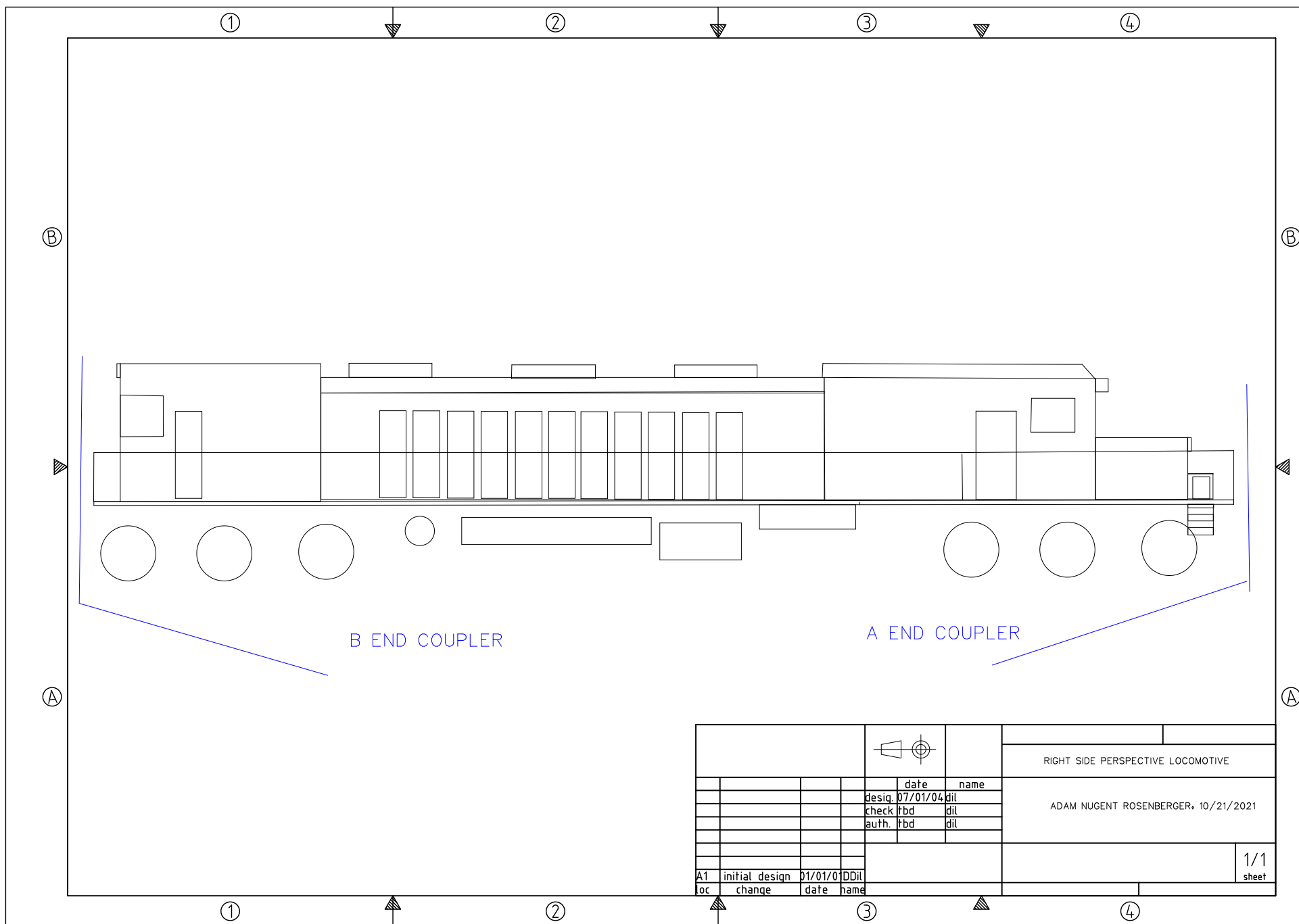
TECHNICAL MANUAL

**UNIT, INTERMEDIATE DIRECT SUPPORT
AND GENERAL SUPPORT
REPAIR PARTS AND SPECIAL TOOLS LIST**

**LOCOMOTIVE, DIESEL-ELECTRIC,
56-1/2-INCH GAGE, 60-TON, 500 HP,
0-4-4-0 WHEEL,
MODEL RS-4-TC-1A
NSN 2210-01-158-2978**

Approved for public release; distribution is unlimited

**HEADQUARTERS, DEPARTMENT OF THE ARMY
10 APRIL 1990**



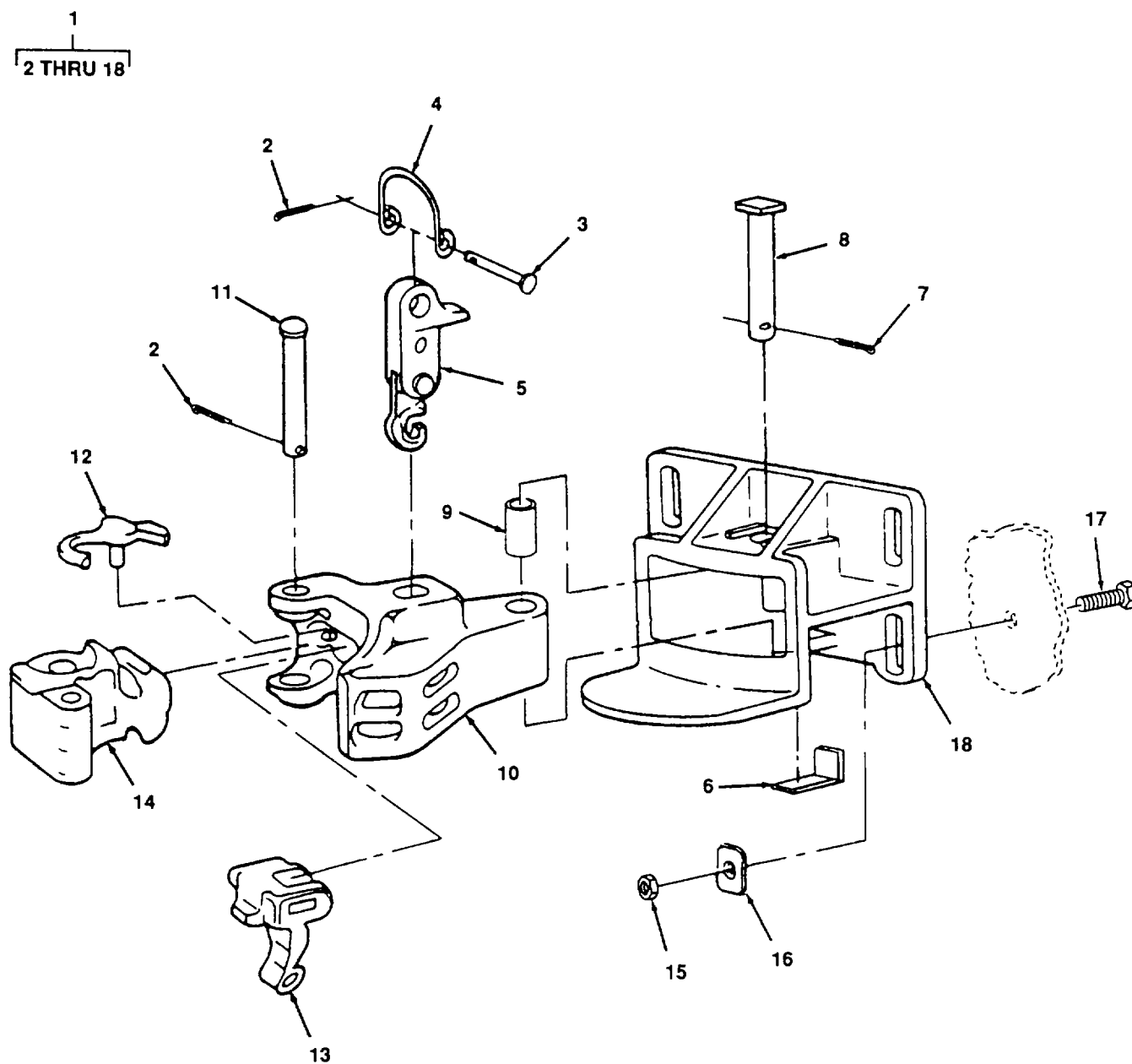
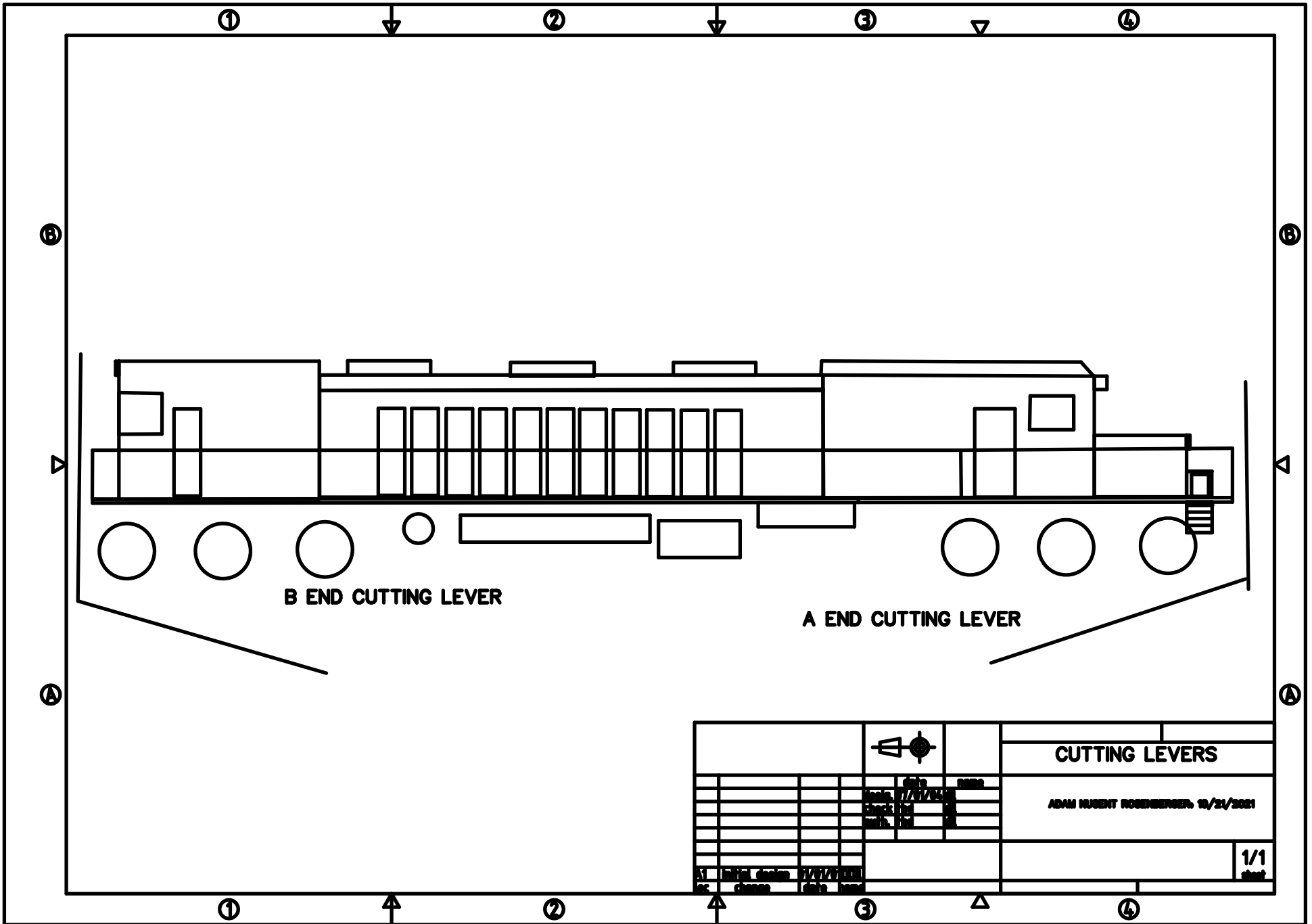
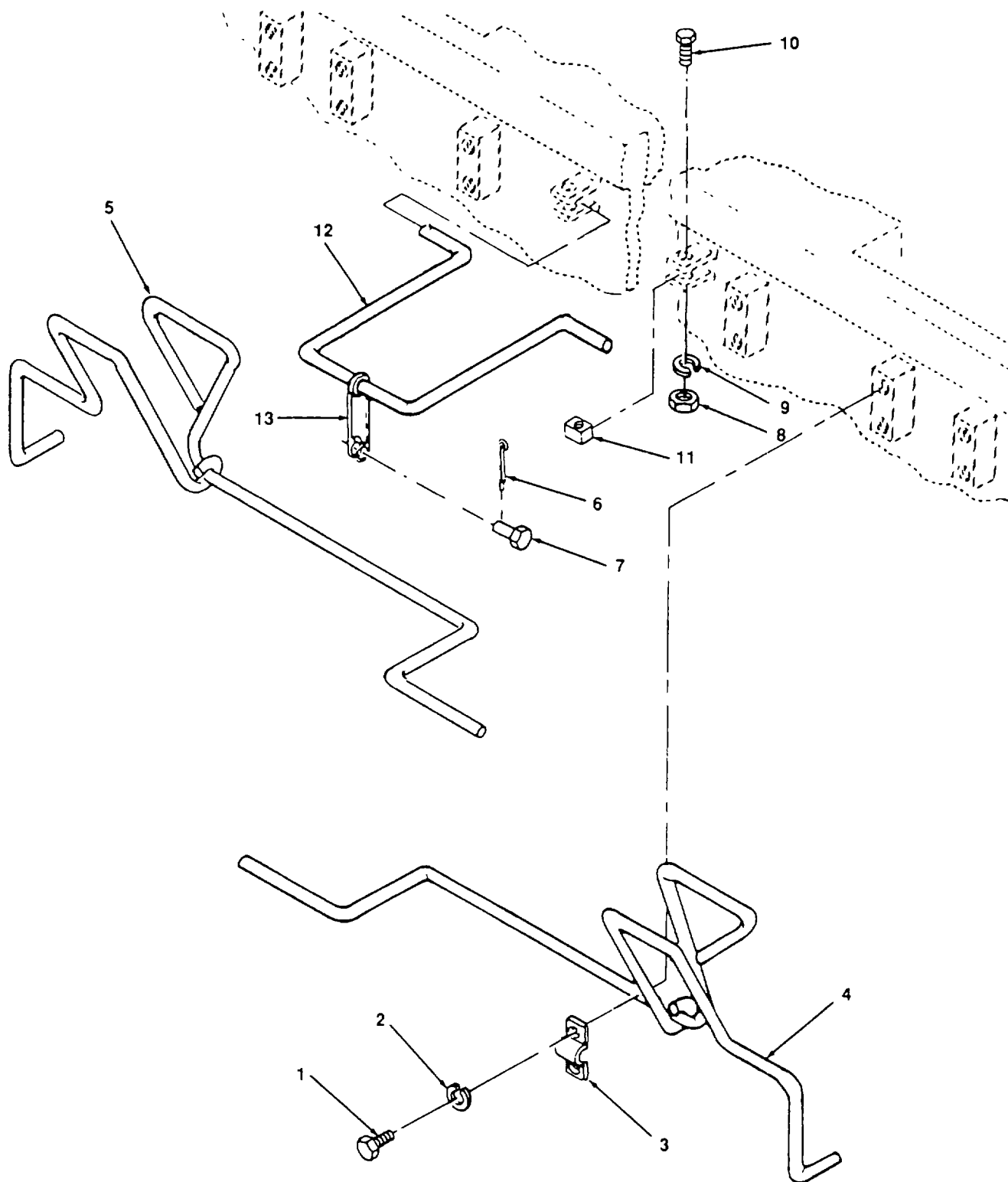


Figure 155. Couplers

(1) ITEM NO.	(2) FSCM	(3) PART NUMBER	(4) DESCRIPTION AND USABLE ON CODE	(5) QTY
			GROUP 22 DRAFT GEAR GROUP	
			FIG. 155 COUPLERS	
1	24446	8825114	COUPLER, RAILWAY, AUTOMATIC	2
2	96906		PIN, COTTER 1/4 IN DIA X 2 IN LONG (NSN 5315-00-209-7273)	2
3			PIN, HEADED, STRAIGHT UNCOUPLER CLEVIS, 3/41N DIA X2 1/2 IN LONG	2
4			LOOP, UNCOUPLER CLEVIS	2
5	24446	145X52	LIFTER, LOCK	1
6			FLANGE, TOGGLE PIN LOCK	2
7	96906		PIN, COTTER 3/8 IN DIA X3 IN LONG (NSN 5315-00-846-4297)	2
8	24446	279387	PIN, TOGGLE, EYE COLLAR (NSN 5315-417-5007)	
9	24446	145X47	BUSHING, COUPLER (NSN 3120-417-4383)	2
10	24446	9962572P1	COUPLER, POCKET (NSN 2240-00-127-9035)	2
11	24446	145X49	PIN, STRAIGHT, HEADED KNUCKLE	2
12	76663	E30	THROWER, AUTOMATIC COUPLER	2
13	76663	E40	LOCK, COUPLER (NSN 2240-161-2236)	2
14	24446	145X48	KNUCKLE	2
15	96906	MS51967-33	NUT, HEX 1 1/8-7 UNC	8
16			WASHER, PLATE	8
17	96906	MS90725-264	SCREW, HEX-HEAD 1 1/8-7 UNC X 6 IN LONG	8
18			YOKE, SUPPORT	1
			END OF FIGURE	

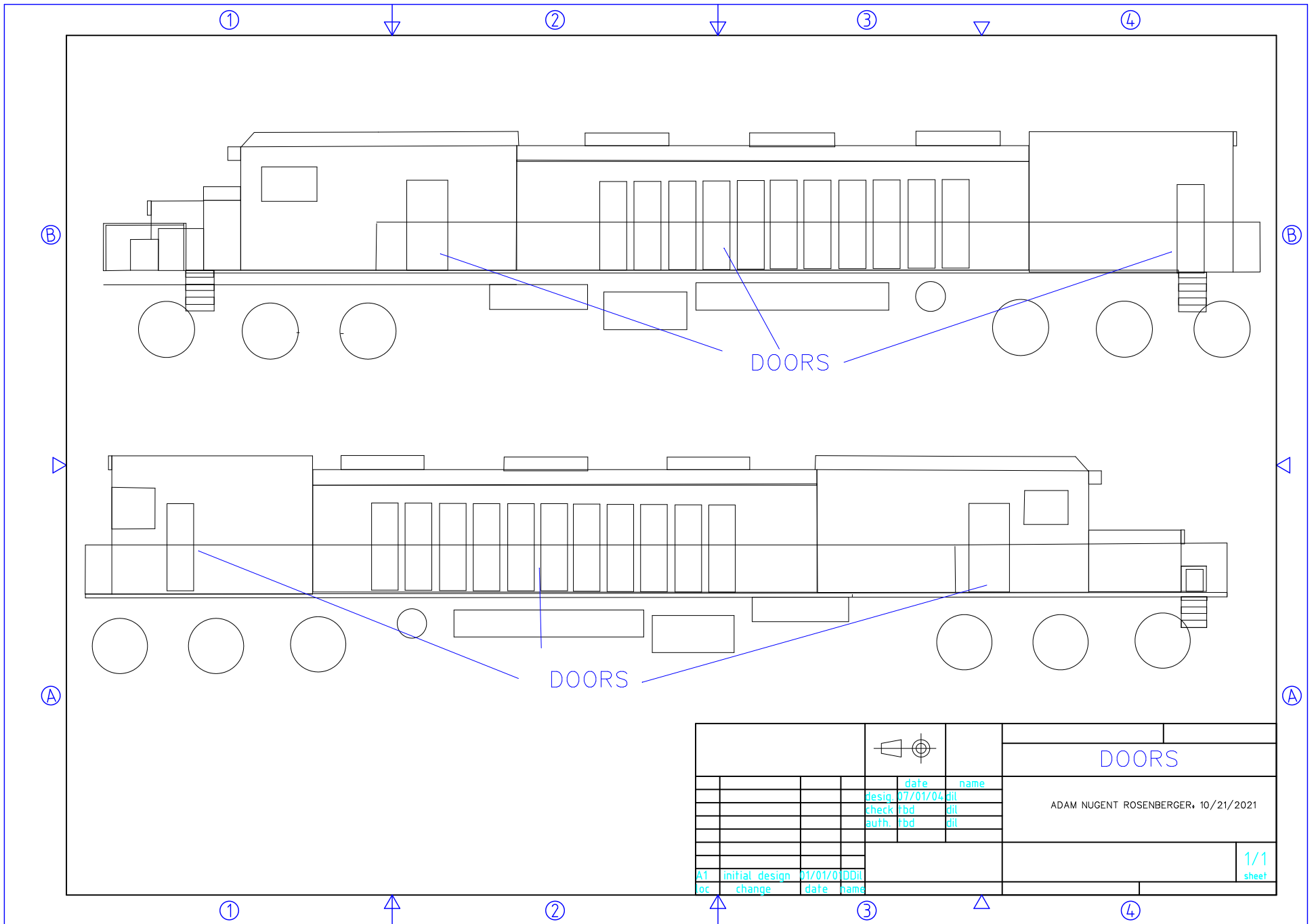




4834 003

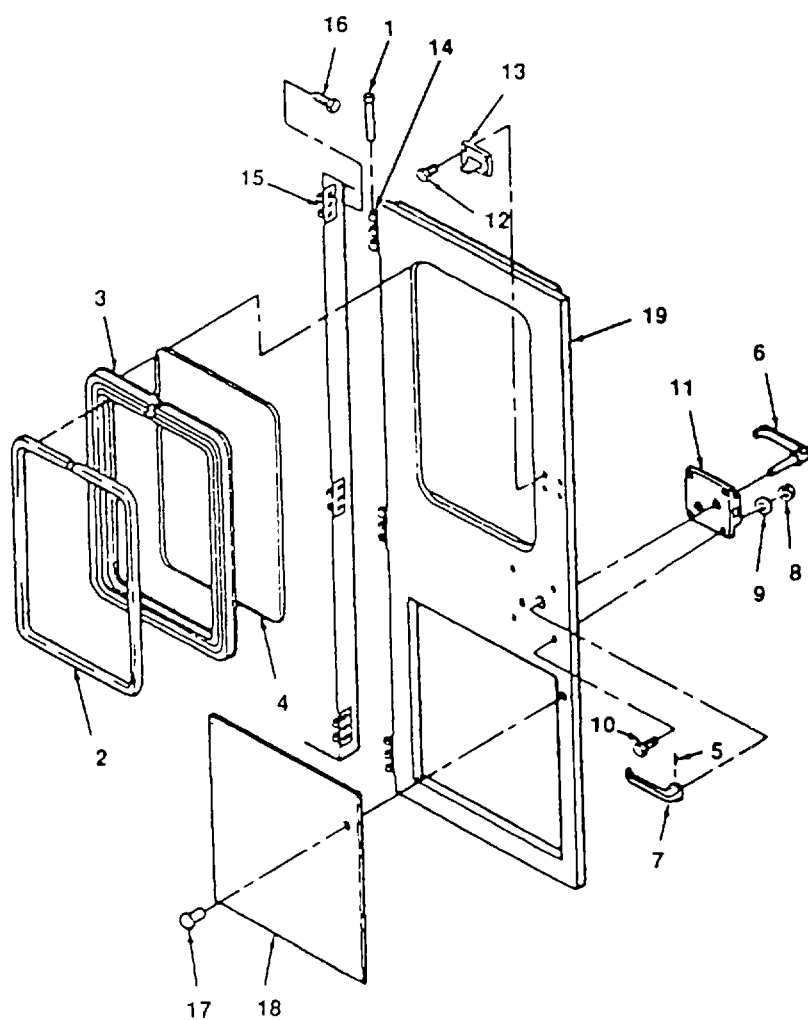
Figure 3. Cutter Levers.

(1) ITEM NO.	(2) FSCM	(3) PART NUMBER	(4) DESCRIPTION AND USABLE ON CODE	(5) QTY
			GROUP 01 BODY GROUP	
			FIG 3 CUTTER LEVER	
1	96906	MS90725-158	SCREW, HEX HED , 5/8 X 1 IN.	12
2	96906	MS35338-50	WASHER, LOCK 5/8 IN	12
3			BRACKET	6
4	24446	172X32	LEVER W/STOPS LEFT HAND	1
5	24446	172X31	LEVER W/STOPS, RIGHT HAND	1
6	96906		COTTER KEY, 1/4 X 2 IN (NSN 5315-00-209-7273)	1
7			PIN - LIFTING BAR, 3/4 X 2 5/8	1
8	96906	MS51967-09	NUT, HEX, 3/8	2
9	96906	MS27183-14	WASHER, LOCK, 3/8 IN	2
10	96906	MS90725-67	SCREW, HEX, 3/8 X 2 1/2 IN 16-UNC	2
11			RETAINER BLOCK	2
12	24446	6741987GZ	LEVER, UNCOUPLING, CENTER	1
13			CLEVIS	2
			END OF FIGURE	



						DOORS	
				date	name	ADAM NUGENT ROSENBERGER, 10/21/2021	
				design: 07/01/04	dil		
				check: fbd	dil		
				auth: fbd	dil		
A1	initial design	01/01/01	DDil				
loc	change	date	name				

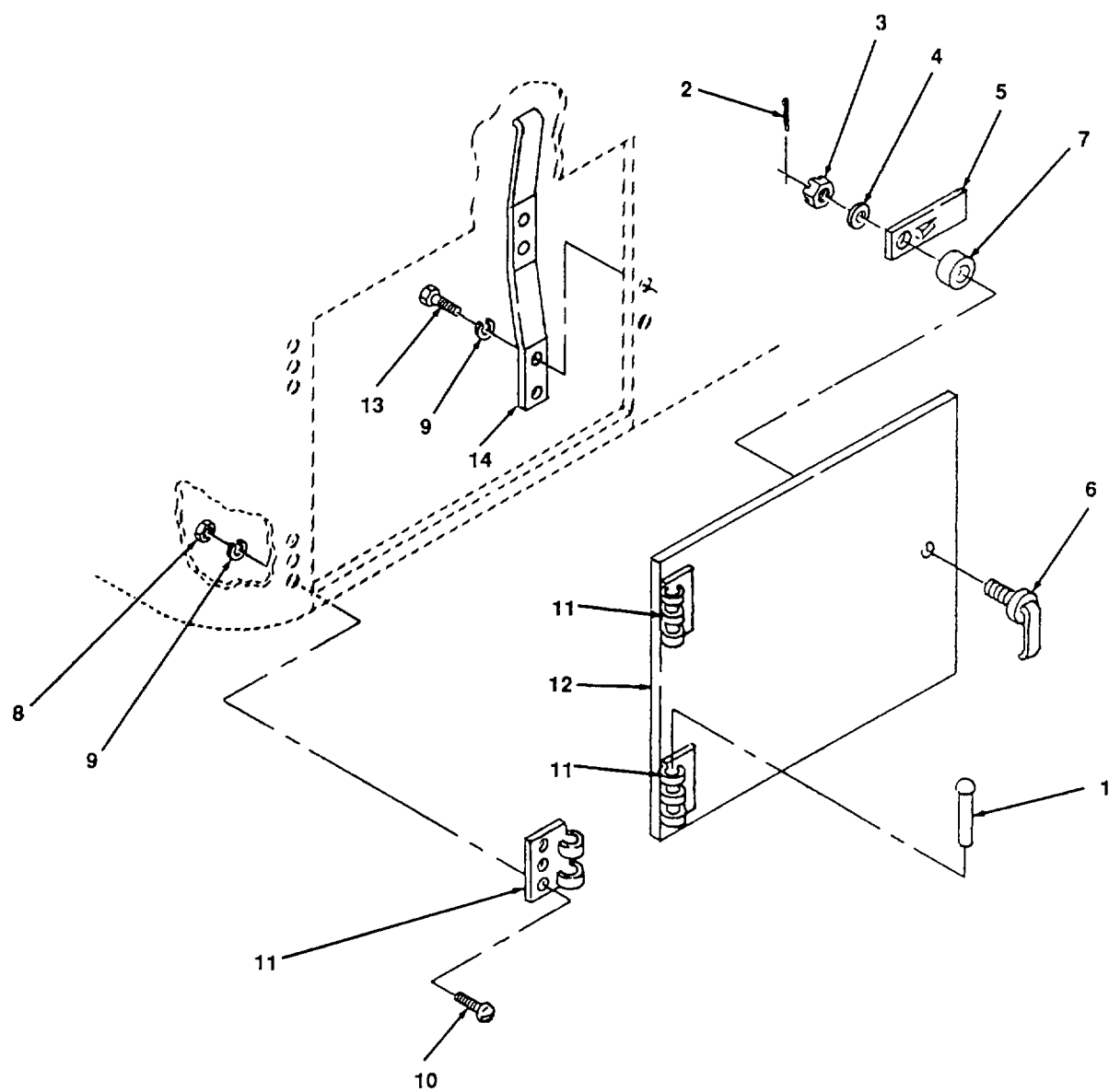
1/1
sheet



4834 012

Figure 12. Cab Door and Lock.

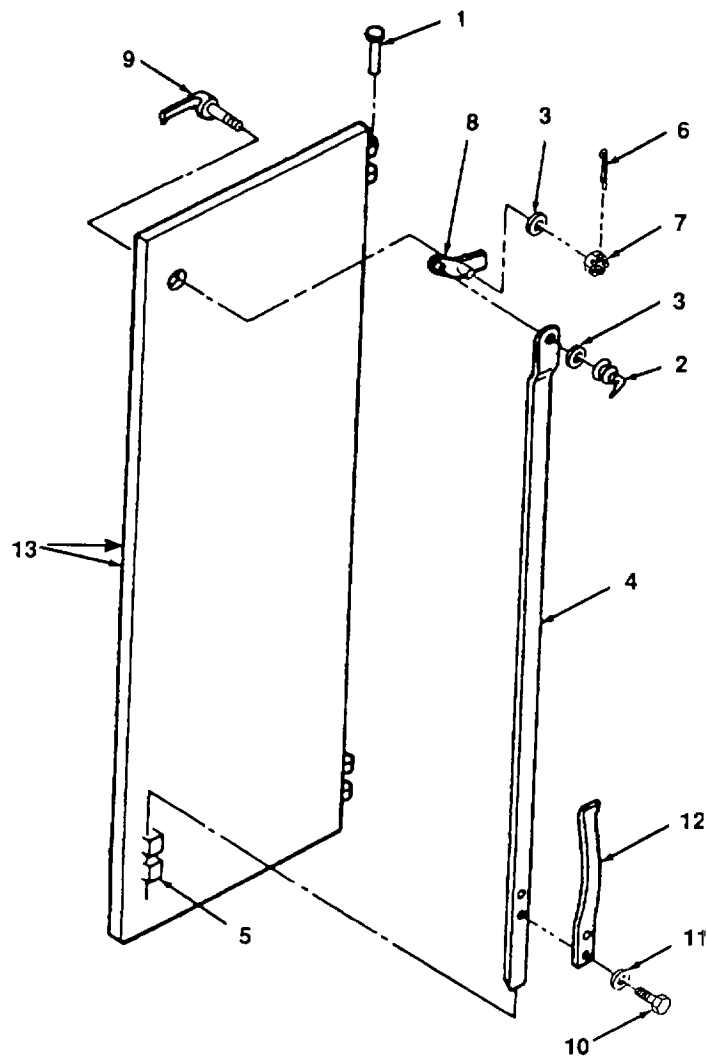
(1) ITEM NO.	(2) FSCM	(3) PART NUMBER	(4) DESCRIPTION AND USABLE ON CODE	(5) QTY
			GROUP 02 CAB GROUP	
			FIG. 12 CAB DOOR AND LOCK	
1	96906		PINS, 5/16 X 3 1/2 IN (NSN 5306-00-026-4839)	3
2	34339	PP-C9233	WEATHERSTRIP FILLER	V
3	34339	PP-C9238	WEATHERSTRIP	V
4	81348	DD-GT-451	GLASS	1
5	AU-VE-CO	9006	PIN, SPRING, 1/8 X 3/4 IN.	2
6			HANDLE, INSIDE	1
7			HANDLE, OUTSIDE	1
8	96906	MS51967-09	NUT, FLAT HEAD, 1/4	4
9	96906	MS35338-44	WASHER, LOCK, 114	4
10	96906	MS90725-6	SCREWS, 1/4 X 3/4 (NSN 5305-00-068-0502)	4
11			DOOR LOCK ASSY	1
12	96906		SCREW, MACHINE (NSN 5305-00-068-0502)	4
13			DOOR CATCH	1
14	96906		HINGE HALVE, INSIDE, 31/2 X 1 1/4 IN	3
15	96906		HINGE HALVE, OUTSIDE	3
16	96906		SCREWS, CSKH, 1/4-20 X 1 1/2 (NSN 5305-00-958-5248)	18
17	96906		RIVET, 3/16 X 1/4 (NSN 5320-00-493-4101)	8
18	96906		SCREEN, 23 1/2 X 23 IN	1
			END OF FIGURE	



4834 013

Figure 13. Door, Side Compartment.

(1) ITEM NO.	(2) FSCM	(3) PART NUMBER	(4) DESCRIPTION AND USABLE ON CODE	(5) QTY
			GROUP 02 CAB GROUP	
			FIG. 13 DOOR, SIDE COMPARTMENT	
1	96906		PIN, 5/16 X 3 1/2 IN LONG (NSN 5306-00-026-4839)	2
2	96906		PIN, COTTER, 1/8 X 3/4 (NSN 5310-00-236-8357)	1
3	96906		NUT, CASTLE, 1/2 IN (NSN 5310-00-281-5346)	1
4	96906	MS27183-18	WASHER, FLAT, 1/2 IN (NSN 5310-00-984-8818)	1
5			LATCH	1
		672915 6731285	HANDLE	1
7			SPACER, 1/2 X 1/ 3/4 IN	1
8	96906	MS51967-06	NUT, 5/16 IN	6
9	96906	MS35338-45	WASHER, LOCK, 5/16 IN	8
10	96906	MS90725-34	SCREW, 5/16 X 1 IN (NSN 5305-00-080-3639)	6
11			HINGE, DOOR	2
12			DOOR	1
13	96906	MS90725-325	SCREW, HEX, 5/16	2
14			SPRING	1
			END OF FIGURE	



4834-014

Figure 14. Electrical Equipment Cabinet Door.

(1) ITEM NO.	(2) FSCM	(3) PART NUMBER	(4) DESCRIPTION AND USABLE ON CODE	(5) QTY
			GROUP 02 CAB GROUP	
			FIG. 14 DOOR, ELECTRICAL EQUIPMENT CABINET	
1			PIN, 1/4 X 3 1/2	2
2			SPRING	1
3	96906	MS27183-18	WASHER, FLAT 1/2 IN	2
4			LATCH BAR, 41 IN LONG	1
5			GUIDE LOOP 5/16 X 1	2
6	96906		COTTER PIN, 1/8 X 3/4 (NSN 5315-00-236-8357)	1
7	96906	MS51967-15	NUT, 1/2 IN (NSN 5310-00-281-5346)	1
8			LATCH LEVER, 4 1/2 IN X 2 1/8 IN	1
9		MS90725-3	DOOR HANDLE	1
10	96906		SCREW, 1/4 IN X 1/2 IN (NSN 5305-00-071-2506)	2
11	96906	MS35338-44	LOCKWASHER, 1/4 IN	2
12			SPRING, 3/8 WIDE X 8 1/2 IN LONG	2
13			DOOR	
			END OF FIGURE	

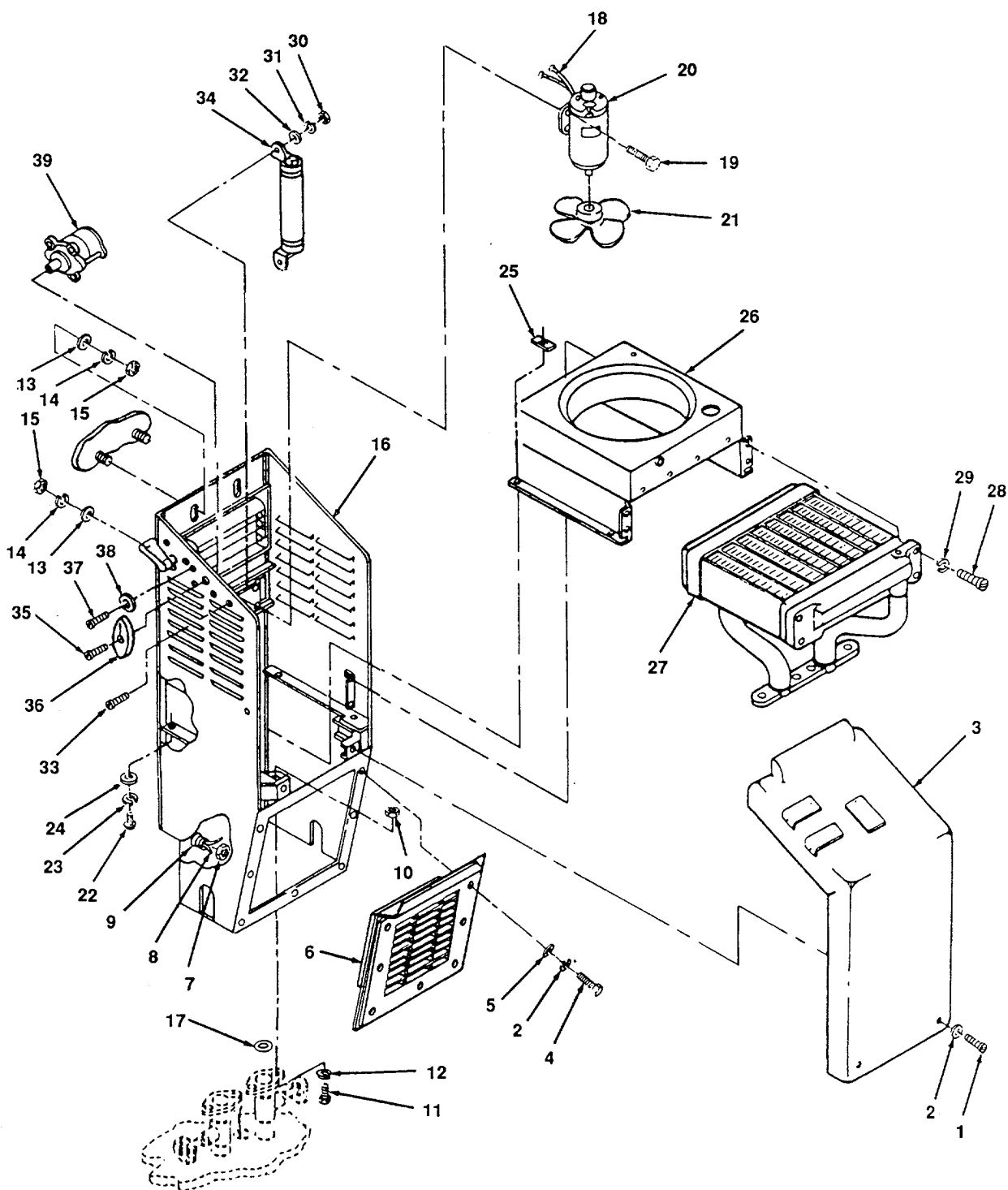


Figure 21. Heater Assembly, Engineer's.

(1) ITEM NUMBER	(2) FSCM	(3) PART NUMBER	(4) DESCRIPTION AND USABLE ON CODE (UOC)	(5) QTY
			GROUP 05 CAB HEATER GROUP	
			FIG. 21 HEATER ASSEMBLY, ENGINEERS	
1	96906	MS90725	SCREW, 7/8-12 UNC	2
2	96906	MS35338-52	WASHER, LOCK, 7/8	9
3	67049		COVER	1
4	96906	MS90725-7	SCREWS, HEX-HEAD, 1/4 X 7/8	8
5	96906	MS35338-52	WASHER, LOCK	7
6	67049		COVER, GRILL, LOWER	1
7	59730	511	CONDUIT NUT (NSN 5975-01-185-2223)	1
8			LEAD, ELECTRICAL, MAKE FROM; WIRE, 14 AWG 8491796 (72915), TERMINAL, 14-10 P1434780 (59400), REF. DES; CONDUIT, 1/2 IN., MAKE FROM 8166953 (81349)	2
9			NUT, HEX	1
10	96906	MS51967-09	WASHERS, LOCK, 3/8	4
11	96906	MS35338-46	SCREW, HEX-HEAD, 3/8 X 1 1/2	4
12	96906	MS90725-64	NUT, HEX	4
13	96906	MS51967-15	WASHERS, LOCK	2
14	96906	MS35338-48	WASHERS, FLAT	2
15	96906	MS37183-18	HEATER	2
16	50024	12400123-2	O-RING (NSN 5330-00-161-5408)	1
17	82722		LEAD, ELECTRICAL, FAN MOTOR, WL52T, MAKE FROM; WIRE, 14 AGW, 8491796 (72915)	2
18			TERMINAL 14-10, 01434780 (59400)	
19	96906	MS90725-113	SCREW, CAP	2
20	67049	A230910	MOTOR, REF. DES: HM1	2
21	67049		FAN	1
22	67049		SCREWS	4
23	67049		WASHER, LOCK	4
24	67049		WASHER, FLAT	4
25	67049		CLIP	1
26	67049		GUARD, FAN	1

(1) ITEM NUMBER	(2) FSCM	(3) PART NUMBER	(4) DESCRIPTION AND USABLE ON CODE (UOC)	(5) QTY
			FIG. 21 HEATER ASSEMBLY, ENGINEERS (CONT)	
27	67049		CORE, RADIATOR	1
28	67049		SCREWS	4
29	67049		WASHER, LOCK	4
30	67049		NUT, HEX	2
31	67049		WASHER, LOCK	2
32	67049		WASHER, FLAT	2
33	67049		SCREW	2
34	67049		RESISTOR	1
35	67049		SCREW	1
36	67049		KNOB	1
37	67049		SCREW	2
38	67049		WASHERS, LOCK	2
39	67049		SWITCH, FAN	2
			END OF FIGURE	

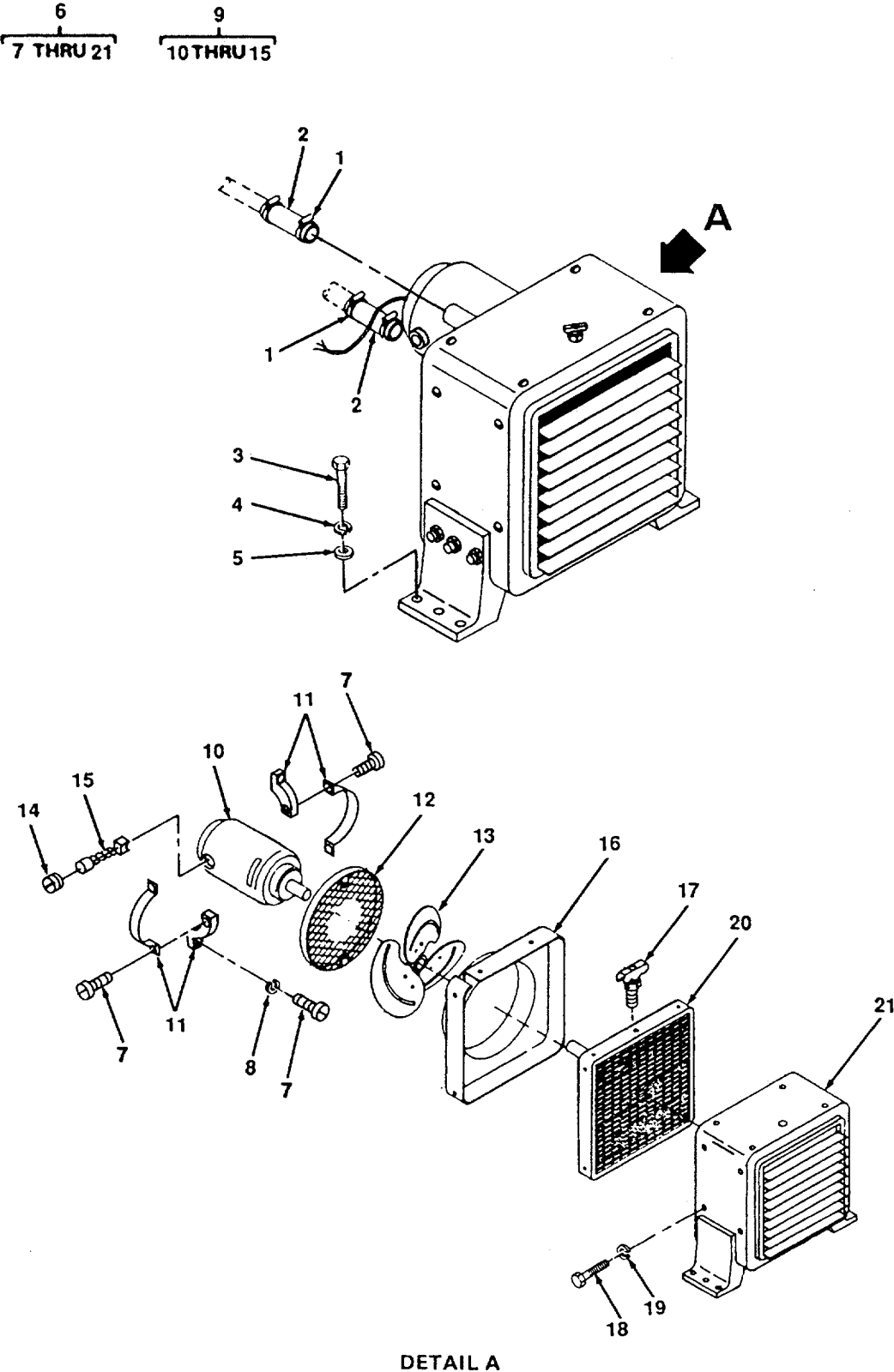
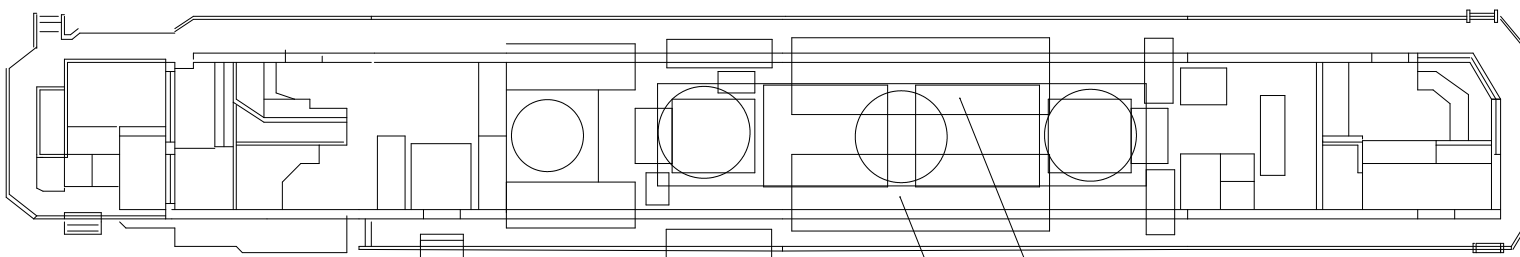


Figure 20. Heater Assembly, Fireman's.

(1) ITEM NUMBER	(2) FSCM	(3) PART NUMBER	(4) DESCRIPTION AND USABLE ON CODE (UOC)	(5) QTY
			GROUP 05 CAB HEATER GROUP	
			FIG. 20 HEATER ASSEMBLY, FIREMANS	
1	96906		CLAMP, HOSE (NSN 4730-00-908-3193)	4
2	96906		HOSE, 1 1/4X4 1/2 IN., MAKE FROM; NSN 4720-00-235-1428	2
3	96906	MS90725-34	SCREW, HEX-HEAD, 5/16X 1 IN.	4
4	96906	MS35338-45	WASHER, LOCK, 5/16 IN.	4
5	96906	MS27183-12	WASHER, FLAT, 5/16	4
6	02451	12400117	HEATER ASSEMBLY	1
7			SCREW, HEX-HEAD	3
8			WASHER, LOCK	3
9	90627	24-8-873	MOTOR ASSEMBLY	1
10	75418	B-5913	MOTOR, REF. DES: HMZ	1
11	75418		BRACKET	1
12	75418		SCREEN	1
13	75418		FAN	1
14	75418		CAP, BRUSH, MOTOR	2
15	75418	B5913	BRUSH, ELECTRICAL W/PIGTAIL, TERMINAL AND SPRING (NSN 5977-00-379-1608)	2
16	75418		FRAME, INNER	1
17	75418		PETCOCK	2
18	75418		SCREW, HEX-HEAD	6
19	75418		WASHER, LOCK	6
20	75418	C7756	CORE, HEATER	1
21	75418		HOUSING, HEATER	1
			END OF FIGURE	



FUEL TANK

						FUEL TANK	
				date	name	ADAM NUGENT ROSENBERGER, 10/21/2021	
				design	07/01/04 dil		
				check	fbid dil		
				auth	fbid dil		
							1/1
A1	initial design	01/01/01	DDil				sheet
loc	change	date	name	project	project		

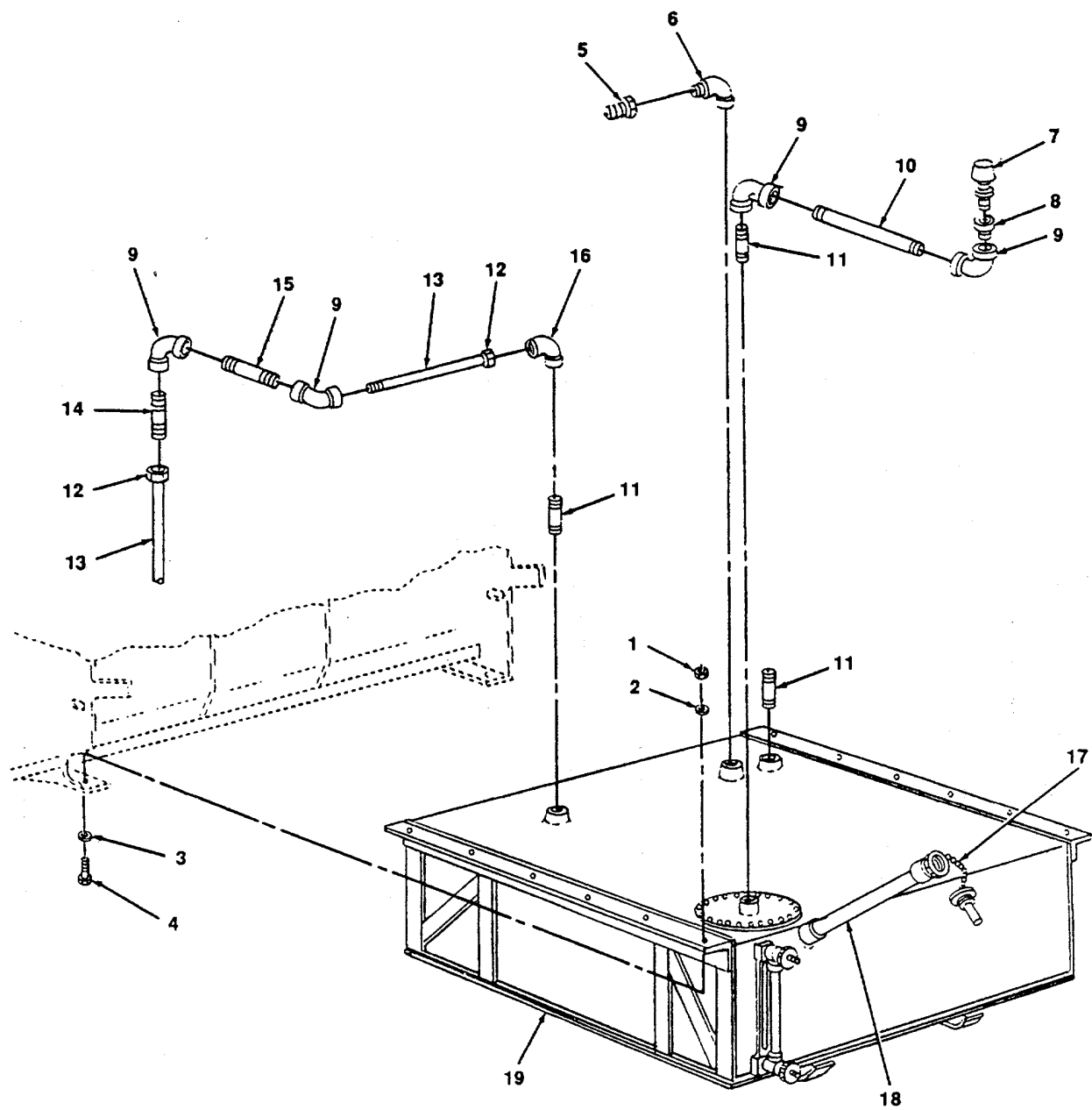


Figure 76. Tank, Fuel.

(1) ITEM NUMBER	(2) FSCM	(3) PART NUMBER	(4) DESCRIPTION USABLE ON CODE (UOC)	(5) QTY
			GROUP 14 FUEL SYSTEM GROUP	
			FIG. 76 TANK, FUEL	
1	96906	MS651967-21	NUT, 5/8	12
2	96906	MS35338-50	WASHER, LOCK, 5/8	12
3	96906	MS21783-21	WASHER, FLAT	12
4	96906	MS90725-164	SCREW, HEX-HEAD, 5/8-11 X 2	12
5	33027	648F1-2X38	ADAPTER TUBE TO PIPE 1/2 IN.	1
6	72423	1203-100	ELBOW STREET 1/2 IN.	1
7	90615	GA5261	VALVE, RELIEF	1
8			ADAPTER	1
9	72423	1201-060	ELBOW, 900, 3/8	2
10	96906	MS51953-69	NIPPLE, 3/8 X 12	2
11	96906	MS51953-57	NIPPLE 3/8 X 3	3
12	72423	1641-060	UNION, 3/8	2
13	42423	ASTM-A120	PIPE, VENT,	1
14	72423	MS51953-59	NIPPLE 3/8 X 4	1
15	72423	MS51953-63	NIPPLE 6 IN.	1
16	72423	1203-060	ELBOW, STREET 3/8	1
17	72915	8472022	CHAIN, FUEL OIL CAP	1
18	90615	384A	FILLER, FUEL OIL	1
19	90615	83-4-470	TANK ASSEMBLY, FUEL	1
			END OF FIGURE	



				MAIN GENERATOR 1 AND 2	
				ADAM NUGENT ROSENBERGER, 10/21/2021	
				date	name
				design	07/01/04 dhl
				check	fbd dhl
				auth	fbd dhl
A1	initial design	01/01/04	dhl		
loc	change	date	name	project	project
					1/1 sheet

4833-069.1

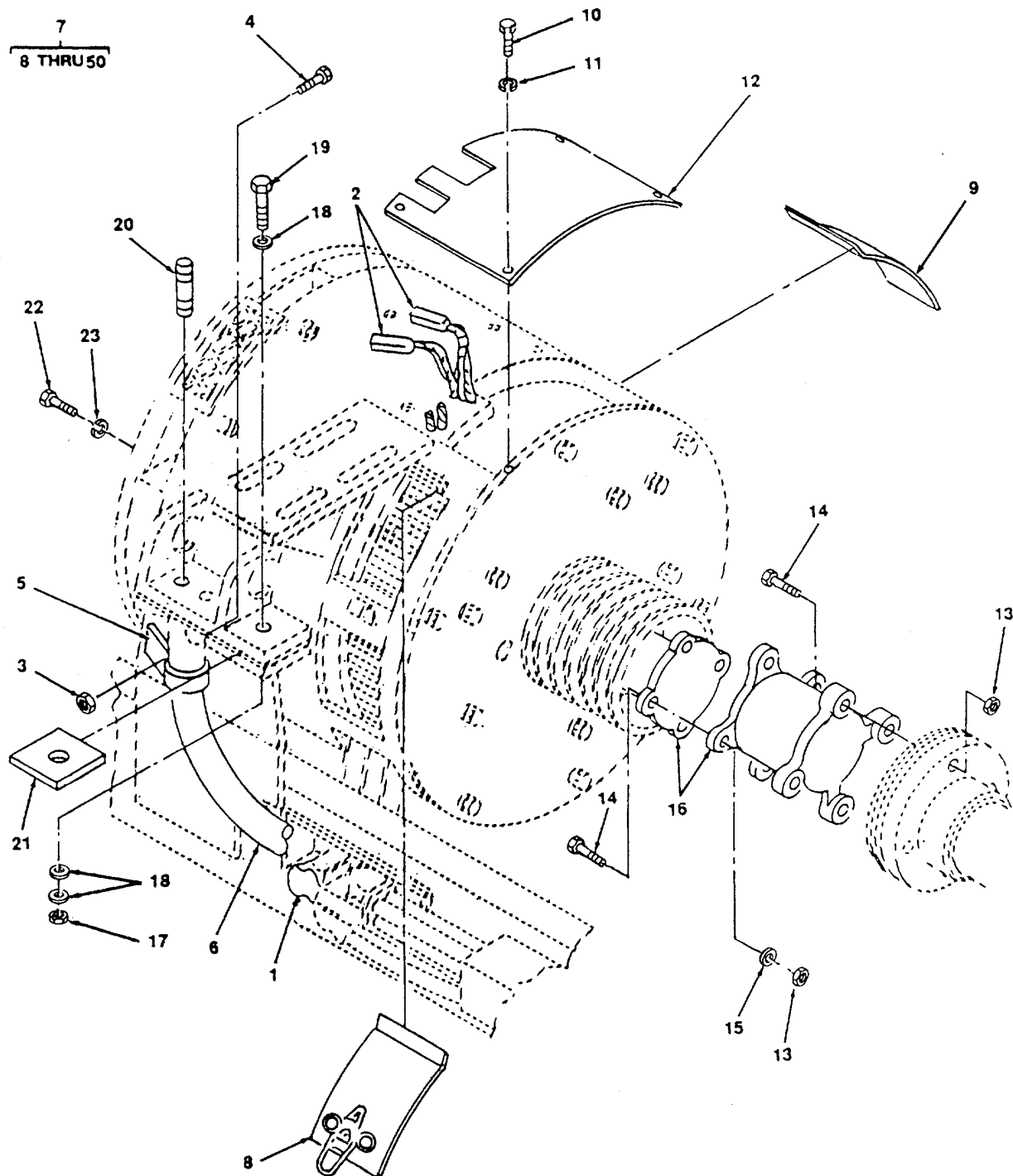


Figure 69. Generator, Main (Sheet 1 of 2).

4833-069.2

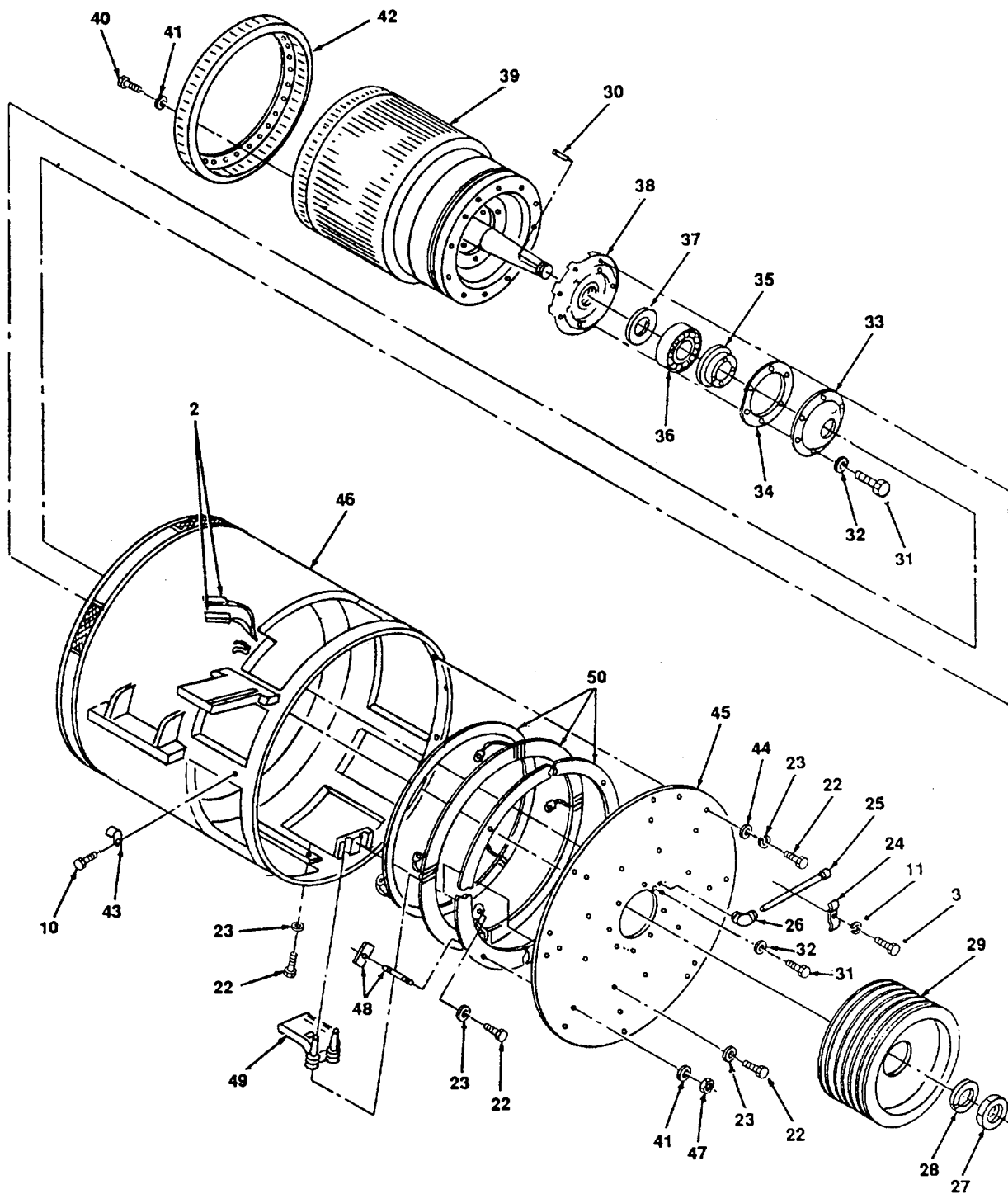
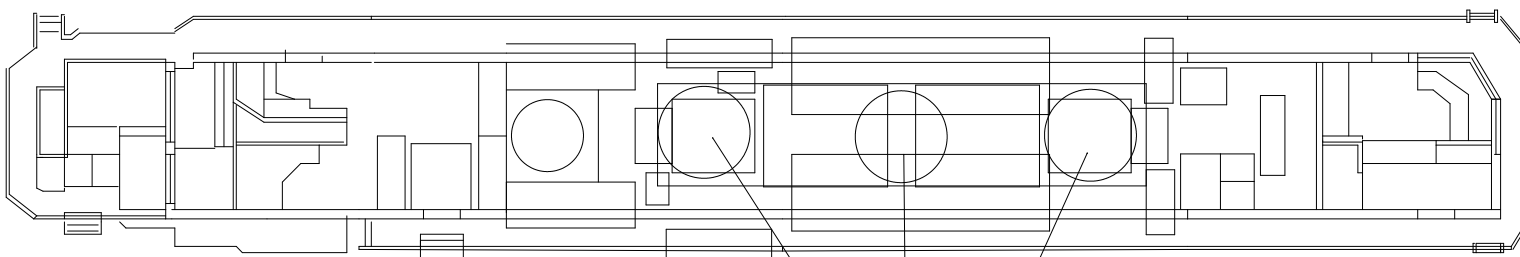


Figure 69. Generator, Main (Sheet 2 of 2).

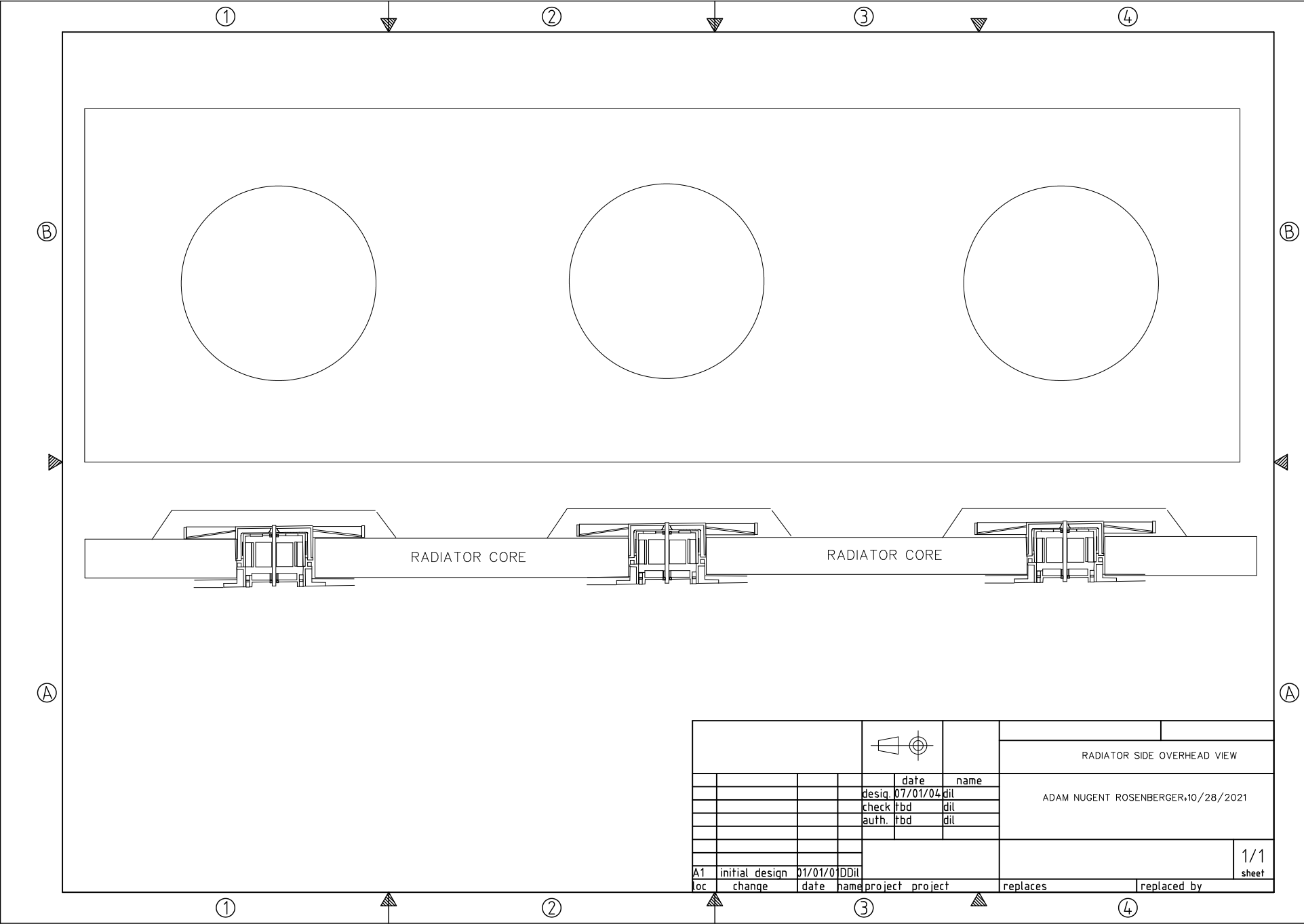
(1) ITEM NUMBER	(2) FSCM	(3) PART NUMBER	(4) DESCRIPTION AND USABLE ON CODE (UOC)	(5) QTY
			GROUP 12 MAIN GENERATOR GROUP FIG. 69 GENERATOR, MAIN	
1	72915		LEAD, ELECTRICAL, MADE FROM; WIRE, AWG, P/N (72915), TERMINAL, CONNECTOR, P/N 1593772 (79500)	6
2	72915		LEAD, ELECTRICAL, MADE FROM; WIRE, AWG, P/N (72915) AND TERMINAL, SPADE	6
3	96906	51967-03	BOLT, 1/4 IN.	1
4	96906	90725	SCREW, HEX-HEAD, 1/4 IN.	1
5	79500	13228E2148-48	CLAMP DOUBLE	1
6	09641	LA13	CONDUIT, ELECTRICAL	1
7	79500	1604C	GENERATOR, MAIN	1
8	79500	1612185	COVER, UH, W/LATCH	1
9	79500	1612184	COVER, R/H, W/LATCH	1
10	96906	MS90725	SCREW, HEX-HEAD, 1/4 IN.	1
11	96906	MS35338-44	WASHER, LOCK, 1/4 IN.	1
12	79500	1612186	COVER, COMMUTATOR TAP	2
13	96906	MS51967-21	NUT	8
14	96906	MS90725-165	SCREW, HEX-HEAD	8
15	79500		SPACER	4
16	79500		COUPLING, FLEXIBLE	1
17	96906	MS51967-24	NUT, 3/4 IN.	4
18	96906	MS27183-24	WASHERS, FLAT, 3/4 IN.	12
19	96906	MS907825-195	SCREW, HEX-HEAD, 3/4 X 4 IN.	6
20	79500		PIN, DOWEL 3/4 X 4 IN.	2
21	79500		SHIM	v
22	96906	MS90725-165	BOLTS, MOUNTING, 5/8 X 2 1/4 IN.	25
23	96906	MS35338-41	WASHERS, LOCK, 5/8 IN.	25
24	96906	13228E2148-34	CLAMP, 3/4 IN.	1
25	79500		TUBE, LUBRICATION	2
26	72423	1203-100	ELBOW, 90° STREET	2
27	96906	MS51967	NUT	6
28	96906	MS35338	WASHER, LOCK	6
29	96906	1421929	PULLEY	1
30	79500		KEY	1

(1) ITEM NUMBER	(2) FSCM	(3) PART NUMBER	(4) DESCRIPTION AND USABLE ON CODE (UOC)	(5) QTY
			FIG. 69 GENERATOR, MAIN (CONT)	
31	96906	MS90725-113	SCREW, 1/2X1 1/21N.	12
32	96906	MS35338-48	WASHER, LOCK	12
33	79500	1417339	CAP, BEARING	1
34	79500	1417340	GASKET, CAP	1
35	79500	1417341	SEAL, OUTERBEARING	1
36	79500	1297229	BEARING, ROLLER	1
37	79500	1417342	SEAL, INNER BEARING	1
38	79500		CARTRIDGE, BEARING	1
39	79500	1630996	ARMATURE	1
40	96906	MS90725-85	SCREW, HEX-HEAD, 7/16 X 1	1 6
41	96906	MS35338-47	WASHER, LOCK, 7/16	24
42	79500		FAN, ARMATURE	1
43	96906		CLIP	1
44	96906	MS27183-21	WASHER, FLAT, 5/8	16
45	79500		COVER, STATOR FRAME	1
46	79500		STATOR FRAME	1
47	96906	MS51967-12	NUT, 7/16	8
48	79500		CLAMP, T-BAR, 7/16 X 3 IN.	8
49	79500	1593937	HOLDER, BRUSH	8
50	79500		RING ASSEMBLY, GENERATOR	1
			END OF FIGURE	



RADIATOR

								RADIATOR	
				date	name	ADAM NUGENT ROSENBERGER, 10/21/2021			
				design	07/01/04 dil				
				check	fbd dil				
				auth	fbd dil				
						1/1 sheet			
A1	initial design	01/01/01	DDil						
loc	change	date	name	project	project				



							
						RADIATOR SIDE OVERHEAD VIEW	
				date	name	ADAM NUGENT ROSENBERGER.10/28/2021	
				design	07/01/04 dil		
				check	fbd dil		
				auth.	fbd dil		
A1	initial design	01/01/01	DDil				1/1 sheet
loc	change	date	name	project	project	replaces	replaced by

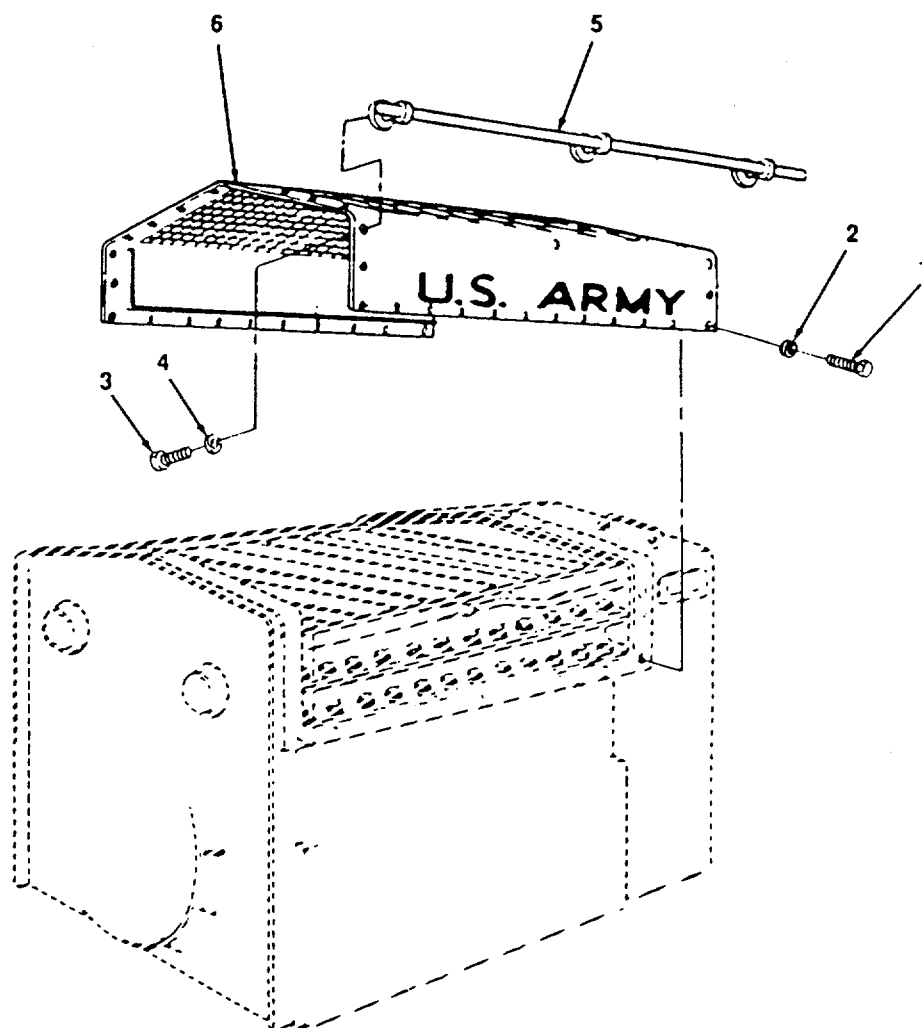


Figure 6. Radiator Hood and Handrail Assembly.

4833-006

(1) ITEM NUMBER	(2) FSCM	(3) PART NUMBER	(4) DESCRIPTION AND USABLE ON CODE (UOC)	(5) QTY
			GROUP 01 BODY GROUP	
			FIG. 6 RADIATOR, HOOD AND HANDRAIL ASSEMBLY	
1	96906	MS90725-60	SCREW, HEX-HEAD, 3/8 X 1 IN.	40
2	96906	MS27183-14	WASHER, LOCK, 3/8 IN.	40
3	96906	MS90725-185	SCREW, HEX-HEAD, 3/4 X 1 1/2 IN.	8
4	96906	MS35338-51	WASHER, LOCK, 3/4 X 1 1/2 IN.	8
5	90615	53-3-130	HANDRAIL	2
6			HOOD, RADIATOR	1
			END OF FIGURE	



								
						SAND TRAPS		
				date	name	ADAM NUGENT ROSENBERGER, 10/21/2021		
				design	07/01/04			dil
				check	fbd			dil
				auth.	fbd			dil
							1/1 sheet	
A1	initial design	01/01/04	DDil					
oc	change	date	name	project	project			

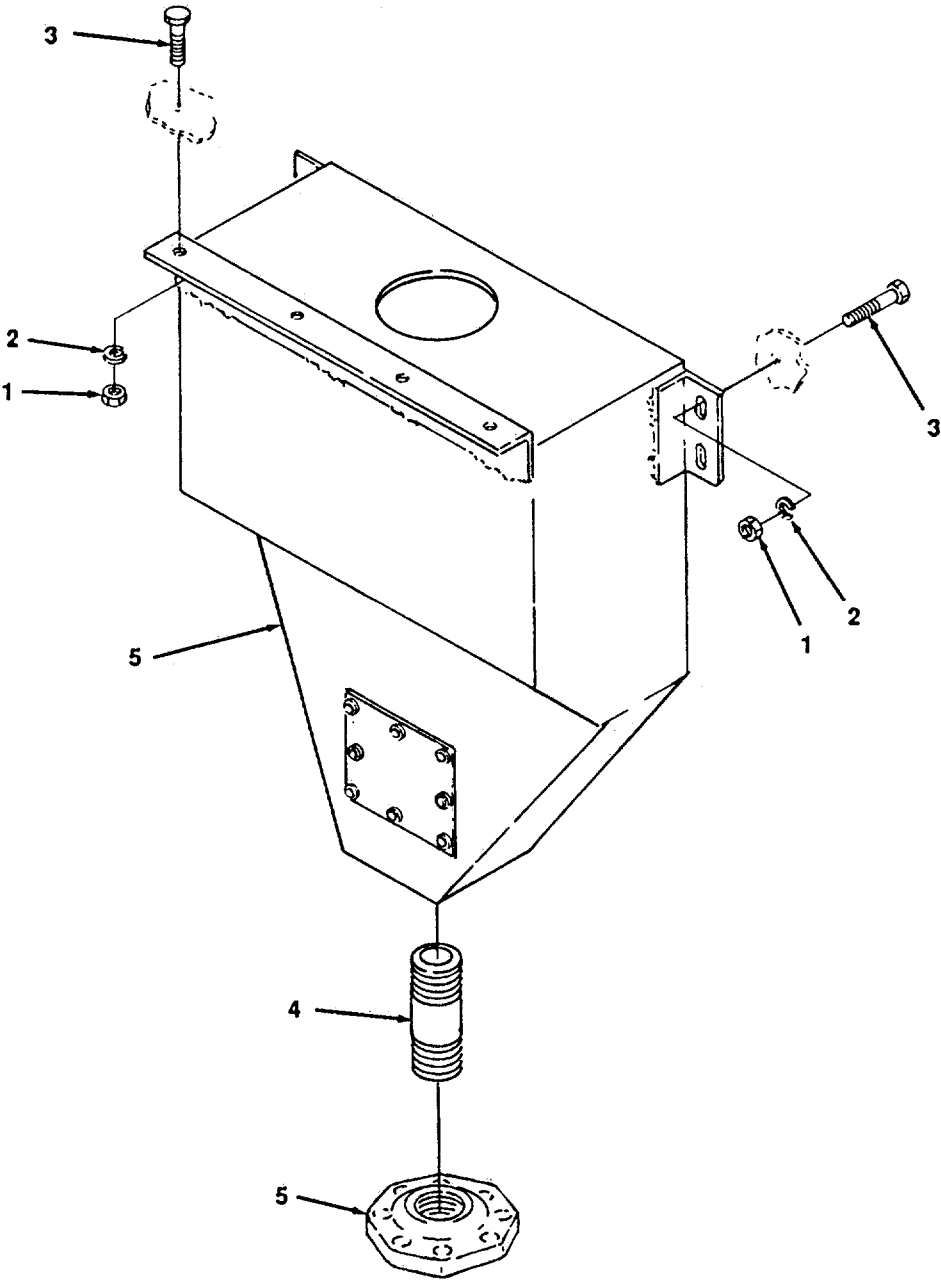
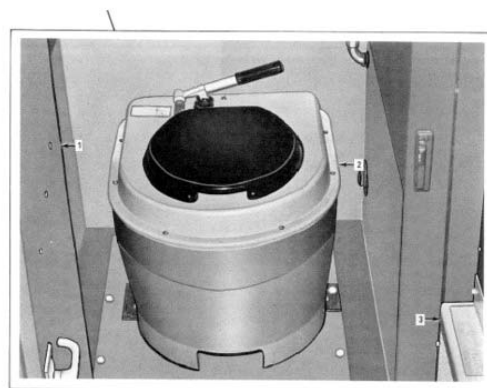
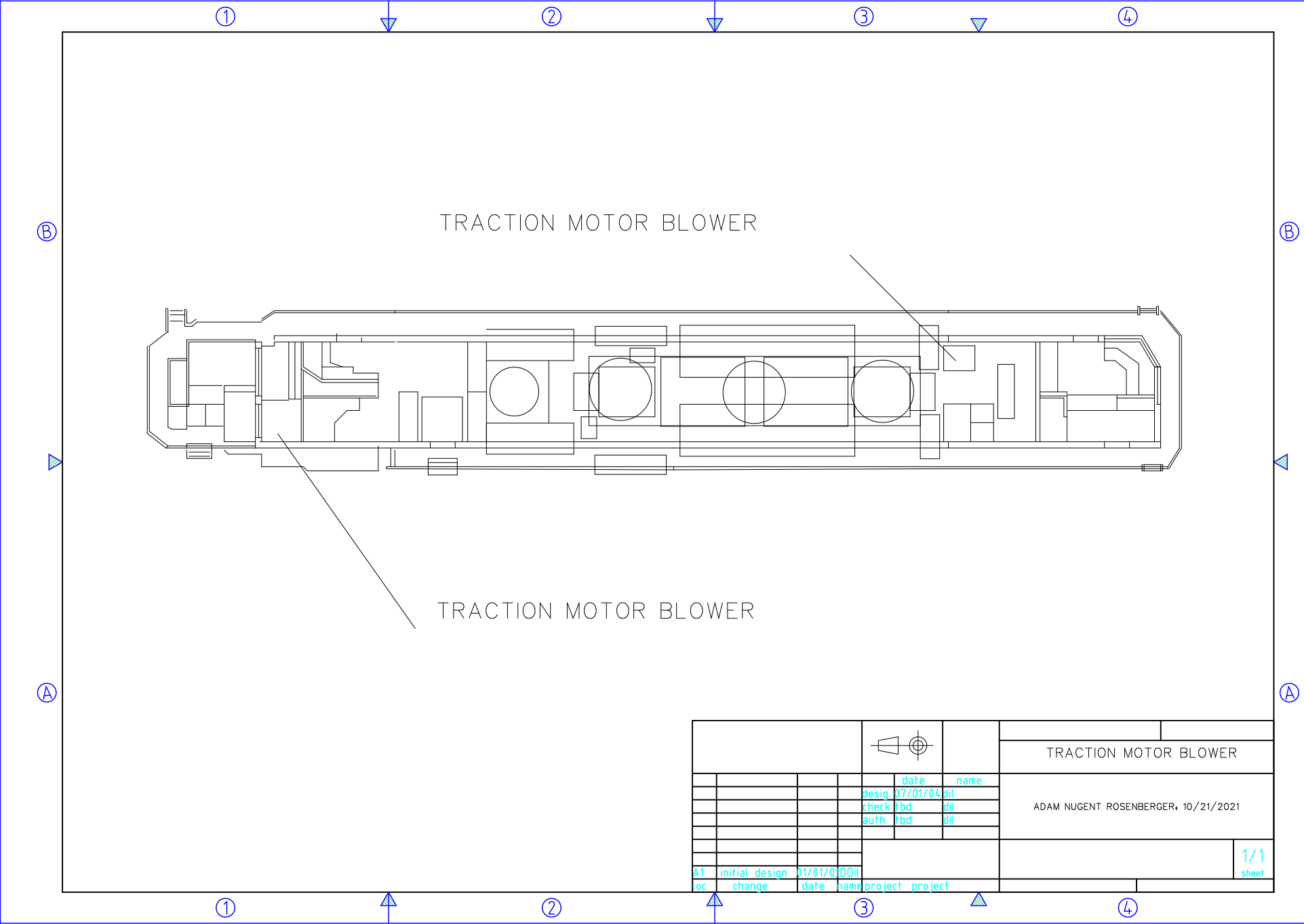


Figure 34. Sandbox.

(1) ITEM NUMBER	(2) FSCM	(3) PART NUMBER	(4) DESCRIPTION AND USABLE ON CODE (UOC)	(5) QTY
			GROUP 07 SANDER GROUP	
			FIG. 34 SANDBOX	
1	96906	MS51922-33	NUT, LOCK, 1/2 IN.	8
2	96906	MS35338-48	WASHER, LOCK	8
3	96906	MS90725-115	SCREW, CAP, 1/2 X 2 IN.	8
4	96906	MS51953-151	NIPPLE, 1 1/4 X 4 IN./WITH FLANGE	1
5	90615		SANDBOX ASSEMBLY	1
			END OF FIGURE	



REFERENCE	DESCRIPTION
1.	TOILET DOOR
2.	TOILET
3.	WATER COOLER



						TRACTION MOTOR BLOWER	
				date	name	ADAM NUGENT ROSENBERGER, 10/21/2021	
				design	07/01/04 dil		
				check	fbd dil		
				auth	fbd dil		
A1	initial design	01/01/01	DDil				1/1 sheet
loc	change	date	name	project	project		

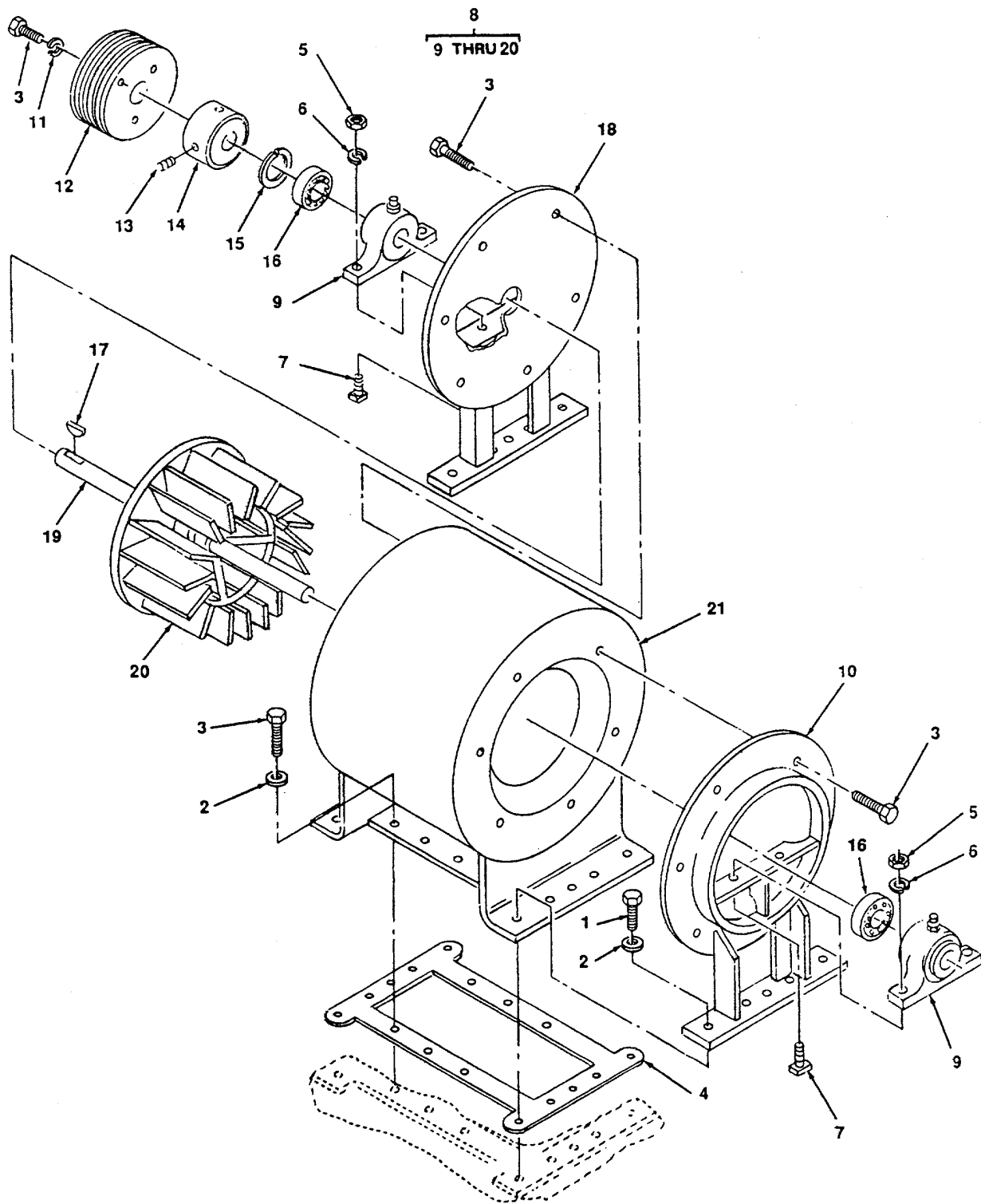
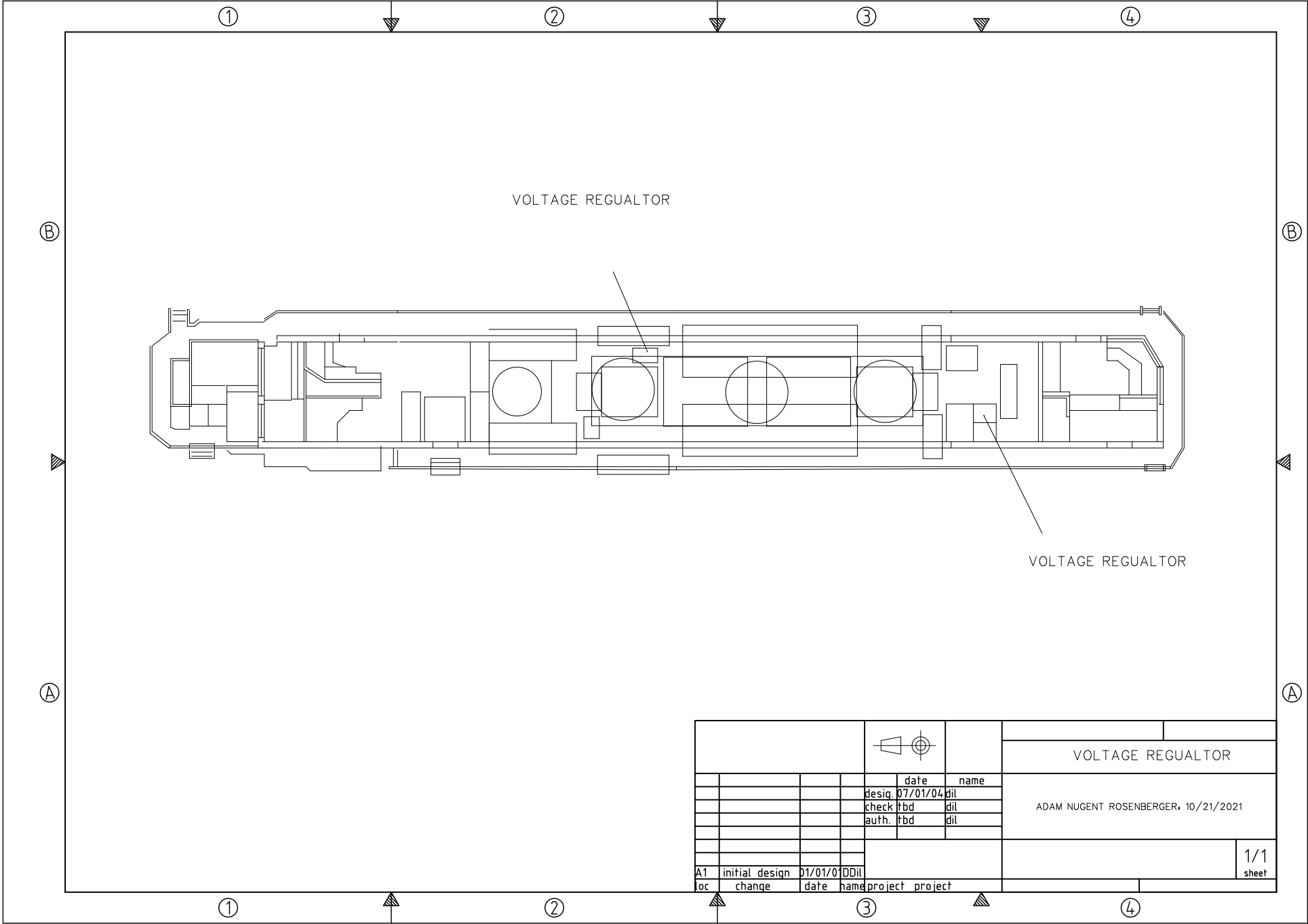


Figure 84. Blower, Traction Motor Assembly.

(1) ITEM NUMBER	(2) FSCM	(3) PART NUMBER	(4) DESCRIPTIONUSABLE ON CODE (UOC)	(5) QTY
			GROUP 16 BLOWER TRACTION MOTOR GROUP	
			FIG. 84 BLOWER, TRACTION MOTOR ASSEMBLY	
1	96906	MS90725-62	SCREW, HEX-HEAD, 3/8 X 1 1/4 IN.	10
2	96906	MS27183-14	WASHER, FLAT, 3/8 IN.	22
3	96906	MS90725-60	SCREW, HEX-HEAD, 3/8 X 1 IN.	27
4	96906		GASKET; MAKE FROM (NSN) 9320-00-241-9742)	1
5	96906	MS51967-15	NUT, 1/2	4
6	96906	MS35338-49	WASHER, LOCK, 1/2 IN.	4
7	96906	MS90725-109	SCREW, HEX-HEAD, 1/2 IN.	4
8	90615	67-3-1860	BLOWER ASSEMBLY, TRACTION MOTOR	1
9	90615	SA01-11-16	PILLOW BLOCK REAR	2
10	90615		COVER, REAR	1
11	96906	MS35338-46	WASHER, LOCK 3/8 IN.	3
12	90615	67-3-1790	SHEAVE, BLOWER DRIVE	1
13	90615		SCREW, SET, SOCKET	2
14	90615		SPACER	1
15	90615		RING, LOCK	1
16	21335	L207	BEARING, BALL ANNULAR	2
17	90615		KEY	1
18	90615		COVER, FRONT	1
19	90615	67-8-420	SHAFT, BLOWER	1
20	90615		BLOWER, FAN	1
21	90615		HOUSING, TRACTION MOTOR	1
			END OF FIGURE	



						VOLTAGE REGUALTOR	
				date	name	ADAM NUGENT ROSENBERGER, 10/21/2021	
				desig.	07/01/04 dil		
				check	tbd dil		
				auth.	tbd dil		
							1/1 sheet
A1	initial design	01/01/01	DDil				
loc	change	date	name	project	project		

3-34. VOLTAGE REGULATOR

This task covers:

- | | | | |
|---------|------------|-----------|-----------------|
| a. Test | b. Removal | c. Repair | d. Installation |
|---------|------------|-----------|-----------------|
-

INITIAL SETUP:

Tools

Tool kit SC 4940-97-CL-E12

Material/Parts

Drycleaning solvent (Item 30, Appendix B)

Test Equipment

Multimeter 6625-01-139-2512

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.

TEST

1. With engine running and throttle in No. 8 position, use a multimeter and measure voltage between terminal (1) of voltage regulator (positive) and negative side of battery switch. Multimeter reading should be 74 ± 1 volt in all throttle positions. It may be necessary to loosen locking nut (2) and adjust rheostat (3) to obtain correct reading. Shut down engine.

NOTE

If regulator is defective, attempt to correct fault by replacing panel control board. If correct test measurement cannot be obtained after replacing panel control board, replace entire voltage regulator.

REMOVAL

2. Set battery switch to OPEN position. Tag and disconnect voltage regulator wires.

3-34. VOLTAGE REGULATOR (cont)

REMOVAL (cont)

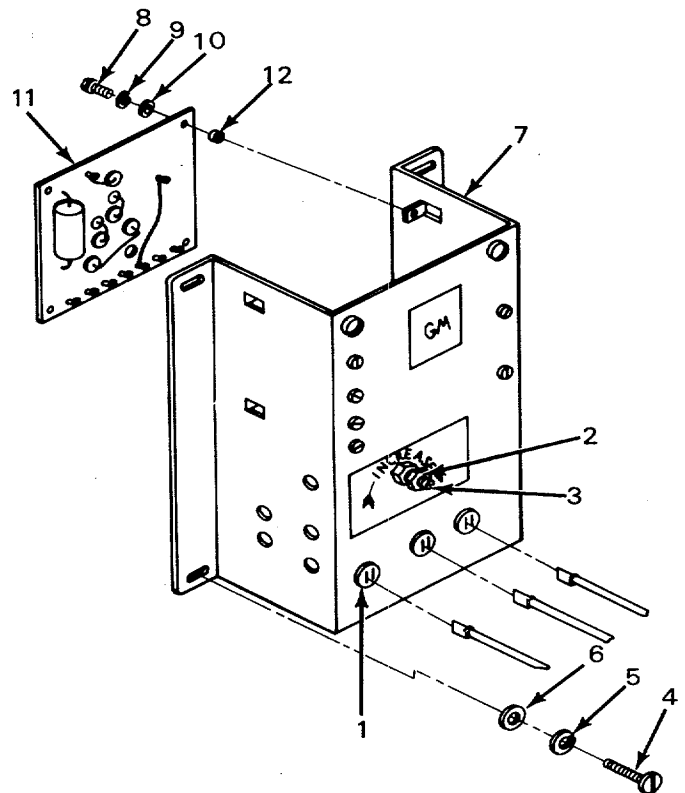
3. Remove four screws (4), lockwashers (5), flat washers (6), and voltage regulator (7).

REPAIR

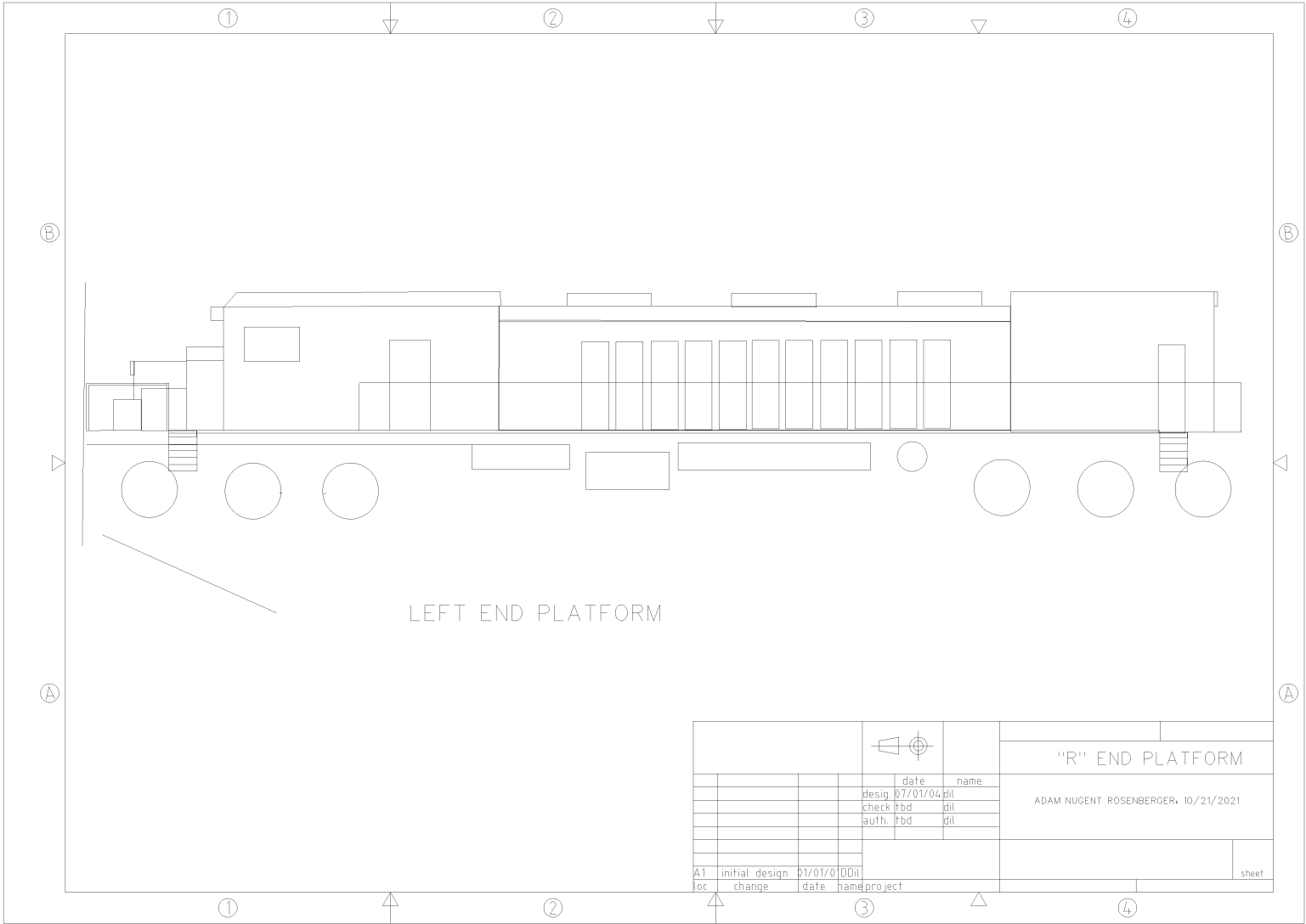
4. Remove four screws (8), lockwashers (9), flat washers (10), panel control board (11), and four grommets (12). Tag and disconnect wires from panel control board.

INSTALLATION

5. Connect wires to panel control board and remove tags.
6. Install four grommet (12). Position panel control board (11) and secure with four flat washers (10), lockwashers (9), and screws (8).
7. Connect voltage regulator wires and perform voltage test in step 1 above. If reading of 74 ± 1 volt is not obtained, remove control board, return board to stock, and perform step 8. If $74 \text{ volts} \pm 1$ is obtained proceed to step 9-and continue with installation procedures.
8. Tag and disconnect voltage regulator wires, and replace entire voltage regulator.
9. Install voltage regulator (7) and secure with four flat washers (6), lockwasher (5), and screws (4).
10. Connect voltage regulator wires in accordance with wiring diagram and remove tags.
11. Loosen locking nut (2) and turn rheostat (3) to minimum reading.



12. Connect multimeter leads between positive side of charge fuse and negative side of battery switch.
13. With engine running the multimeter reading should indicate between 62 and 70 volts.
14. Place throttle in No. 8 position and adjust rheostat to maintain 74 volts. Allow components to warm up, and adjust voltage as necessary until constant 74-volt reading is attained. Lock rheostat (3) in place by tightening locking nut (2).
15. Shut down engine. (TM 55-2210-223-12)



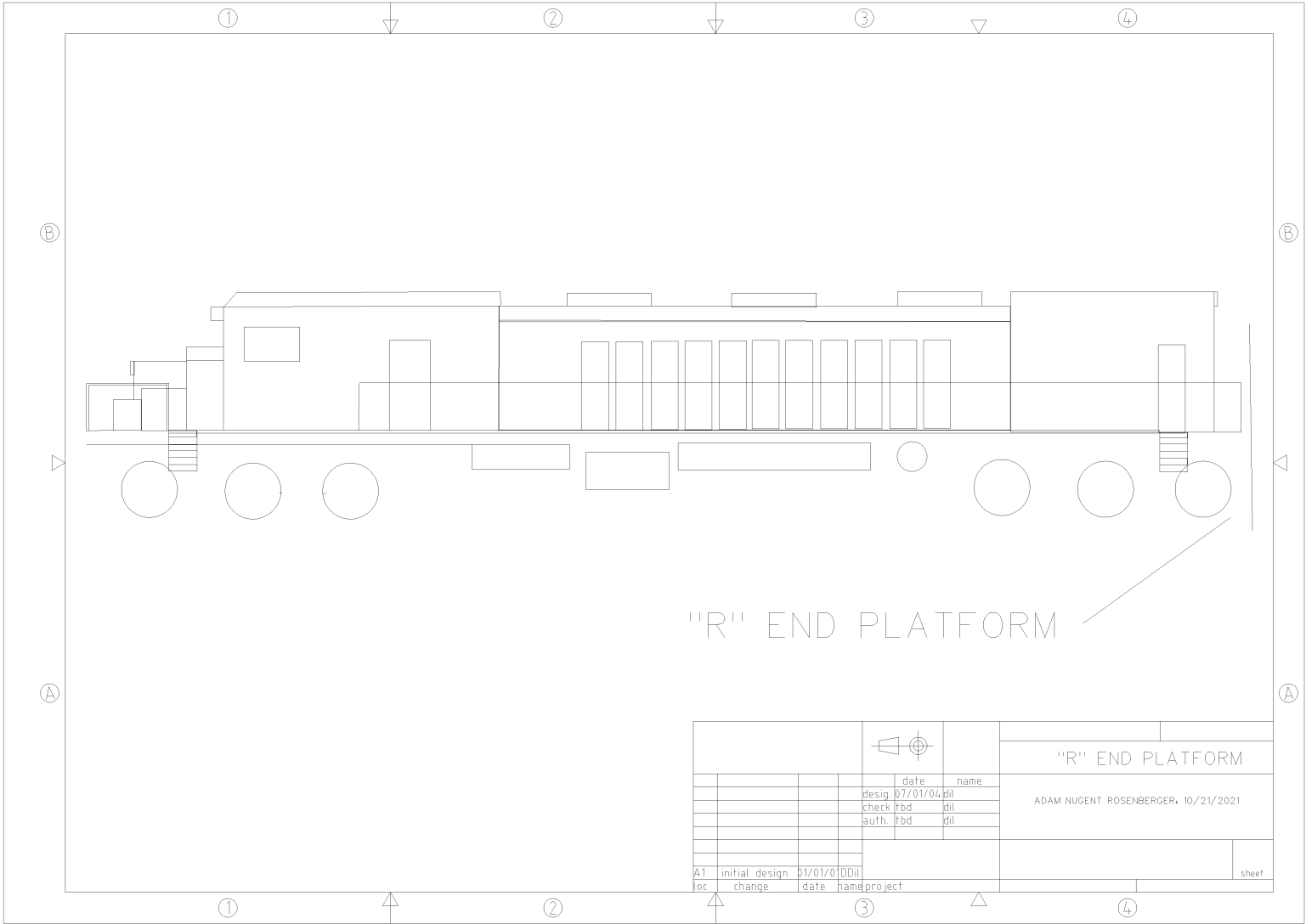
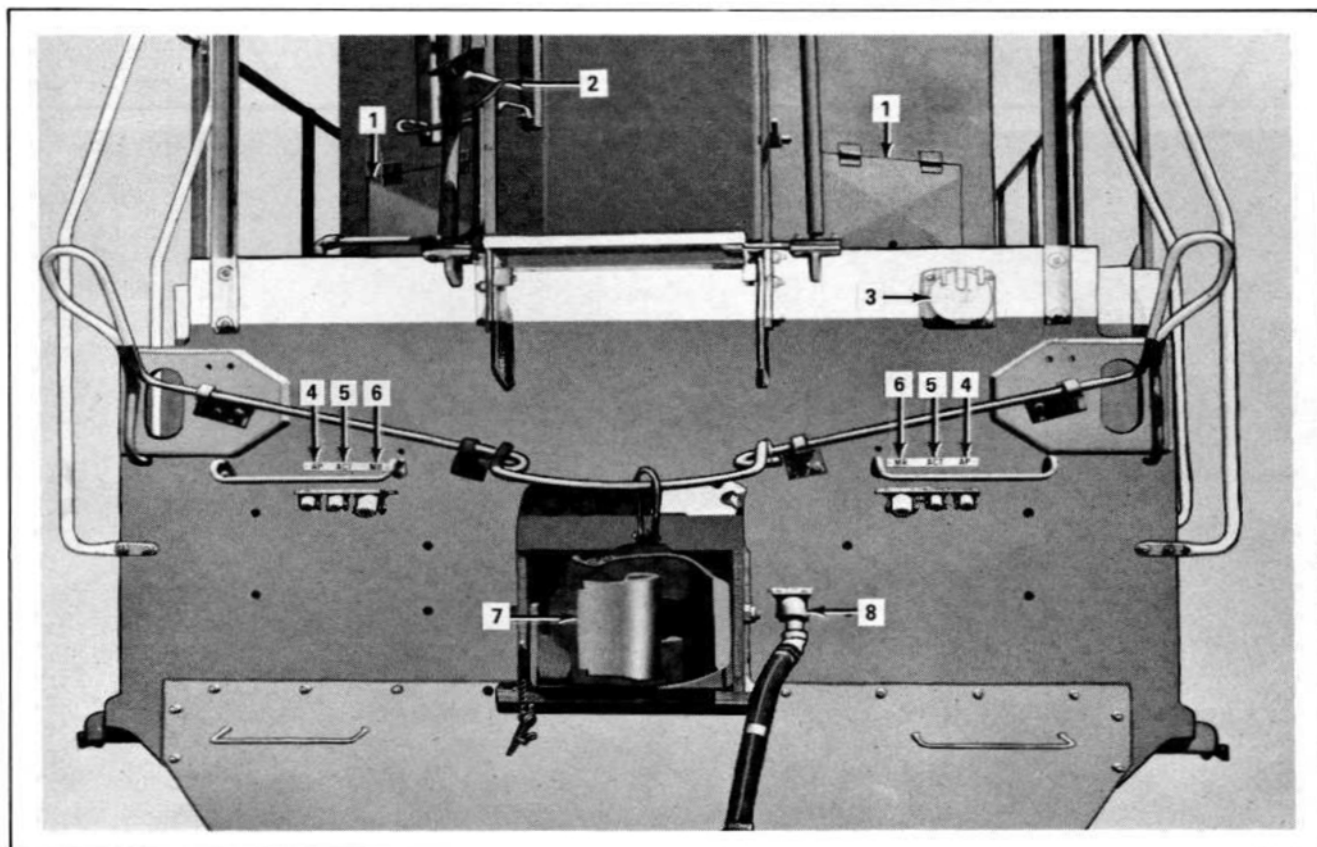
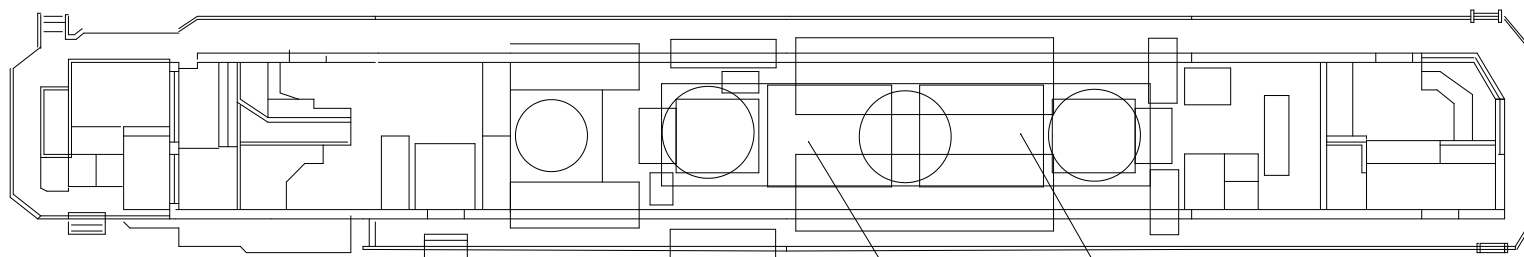


FIG. 17, E-31319



REF.	DESCRIPTION	CHECK	REF.	DESCRIPTION	CHECK
1	SANO BOX TRAP/CUT-OUT	POSITION	6	MAIN RESERVOIR PIPE	
2	CROSSWALK LIGHT	WORKS	7	COUPLER	CRACKS
3	MU RECEPTACLE	PINS	8	BRAKE PIPE HOSE	
4	APPLICATION PIPE				
5	ACTUATING PIPE				



NO.1 AND NO.2 DIESEL ENGINES

						NO.1 AND NO.2 DIESEL ENGINES	
				date	name	ADAM NUGENT ROSENBERGER, 10/21/2021	
				design	07/01/04 dil		
				check	fbd dil		
				auth	fbd dil		
							1/1
A1	initial design	01/01/01	DDil				sheet
loc	change	date	name	project	project		

DUAL AIR BRAKE STAND 26-C

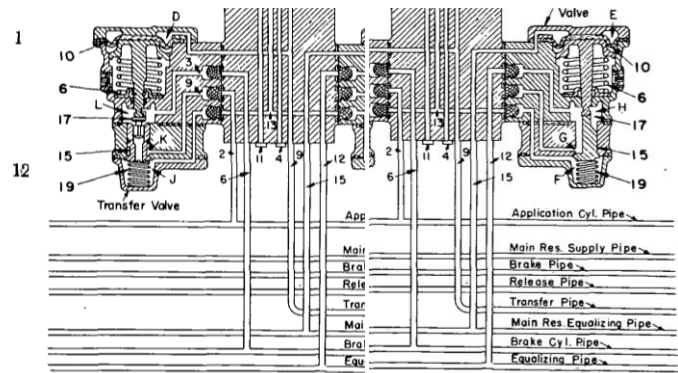


Fig. 45 Diagrammatic g. 45 Diagrammatic

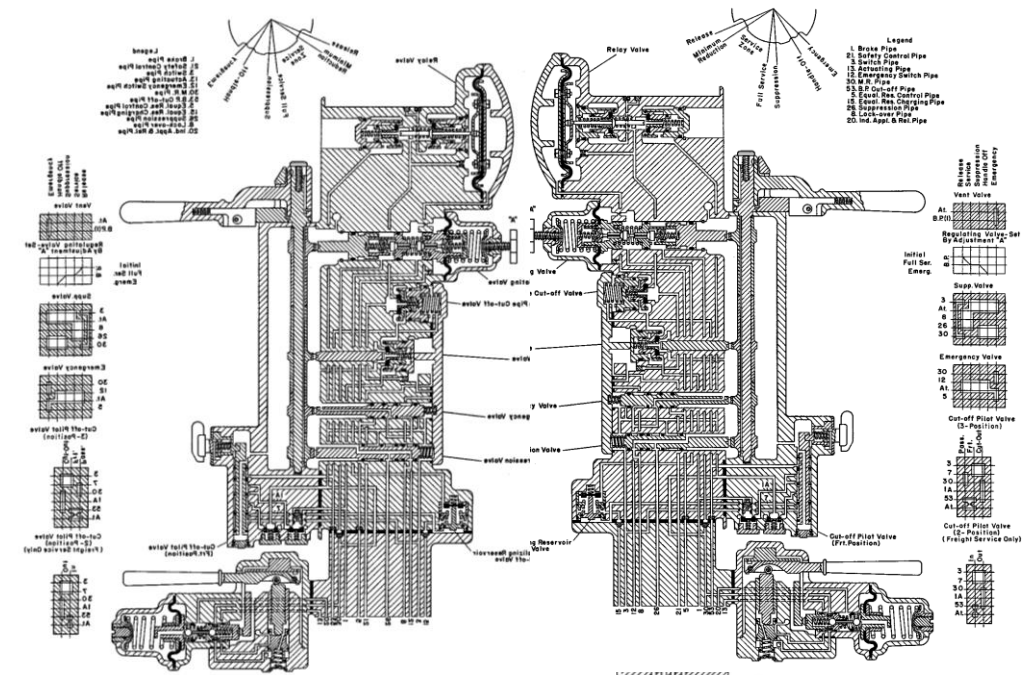


Fig. 45 Diagrammatic

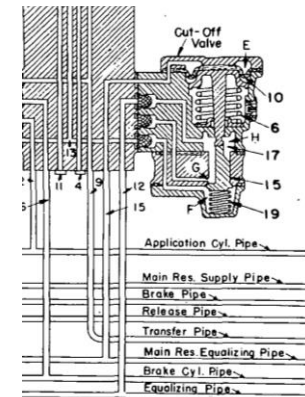
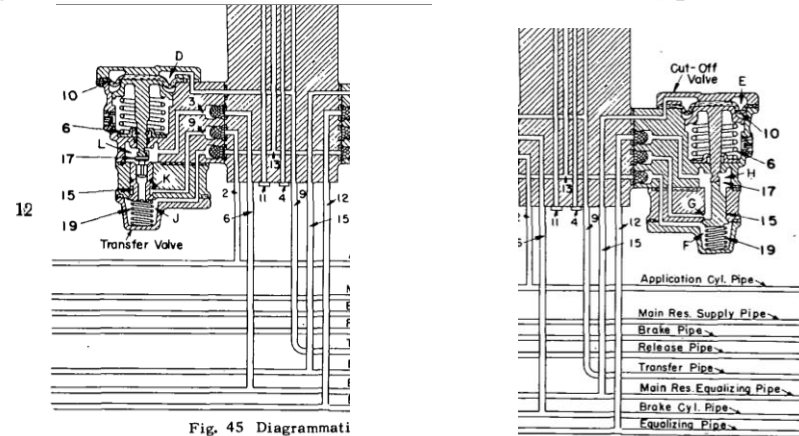
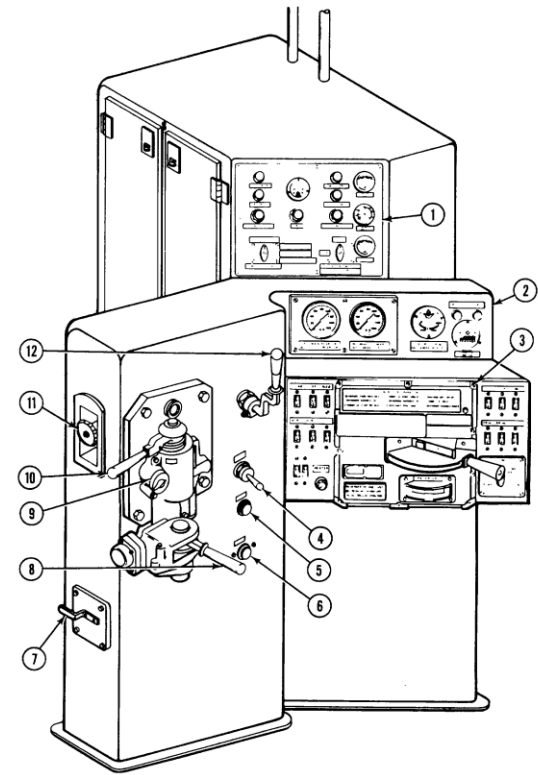
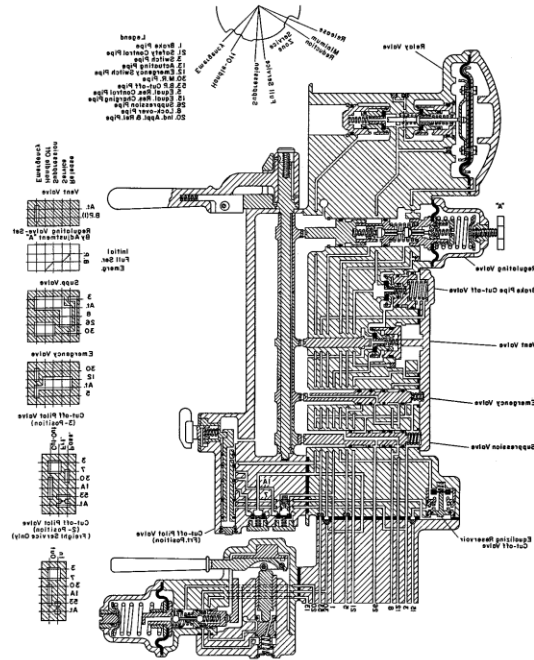
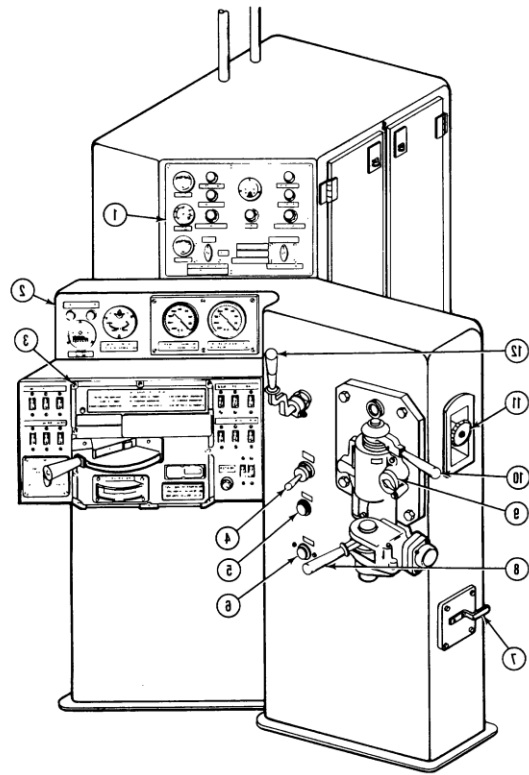


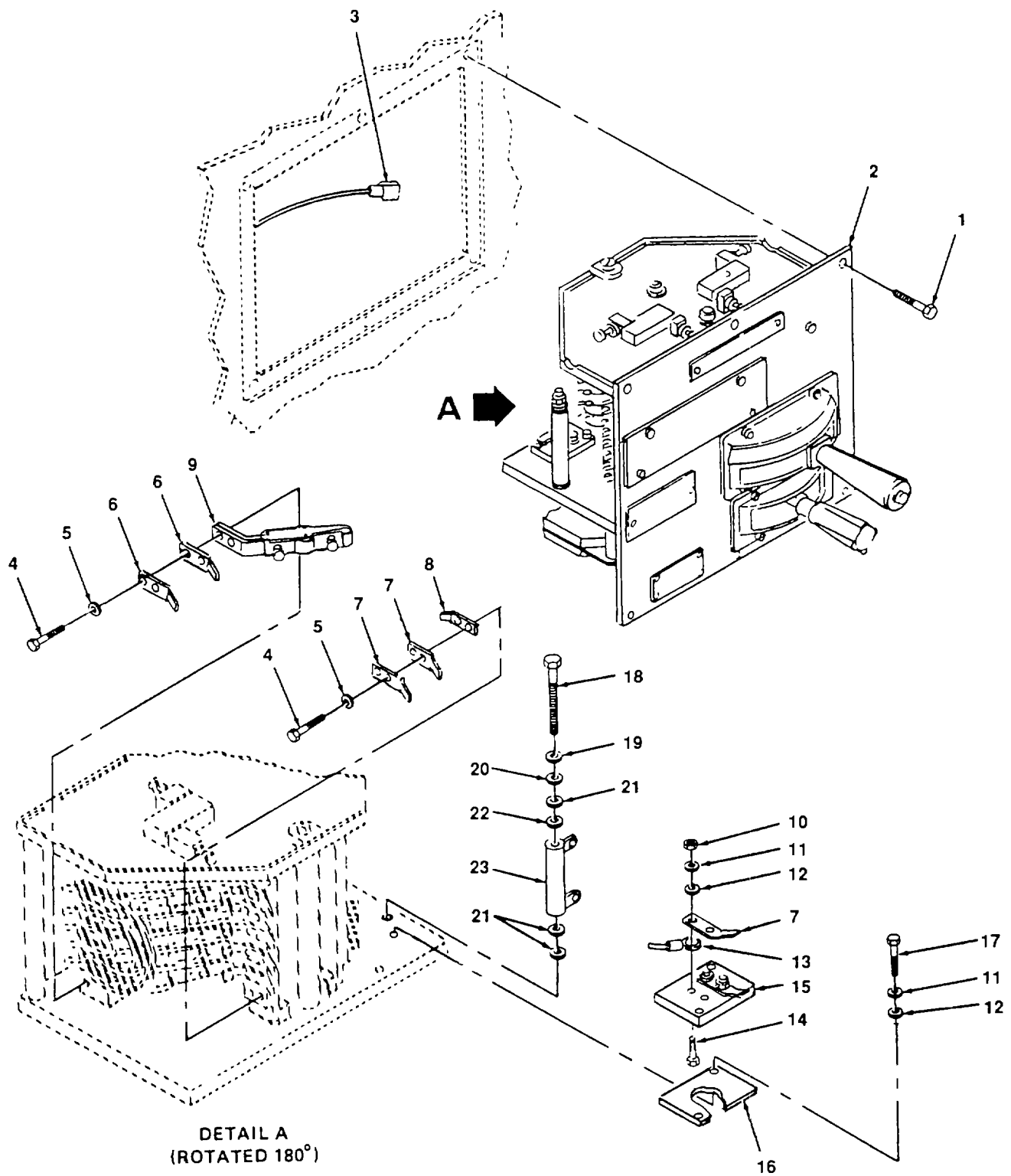
Fig. 45 Diagrammatic



45 Diagrammatic



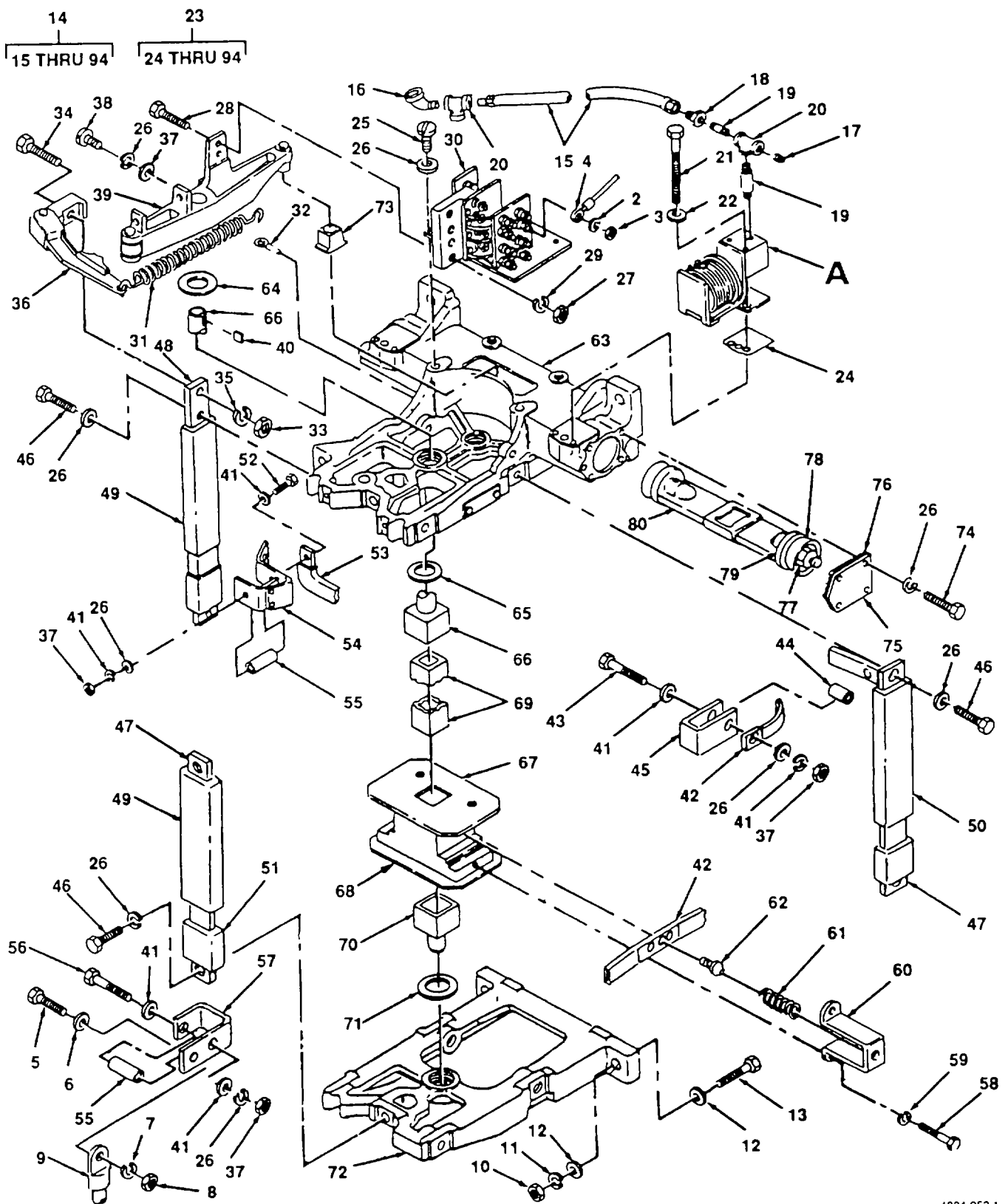
REAR CAB STAND



4834-060

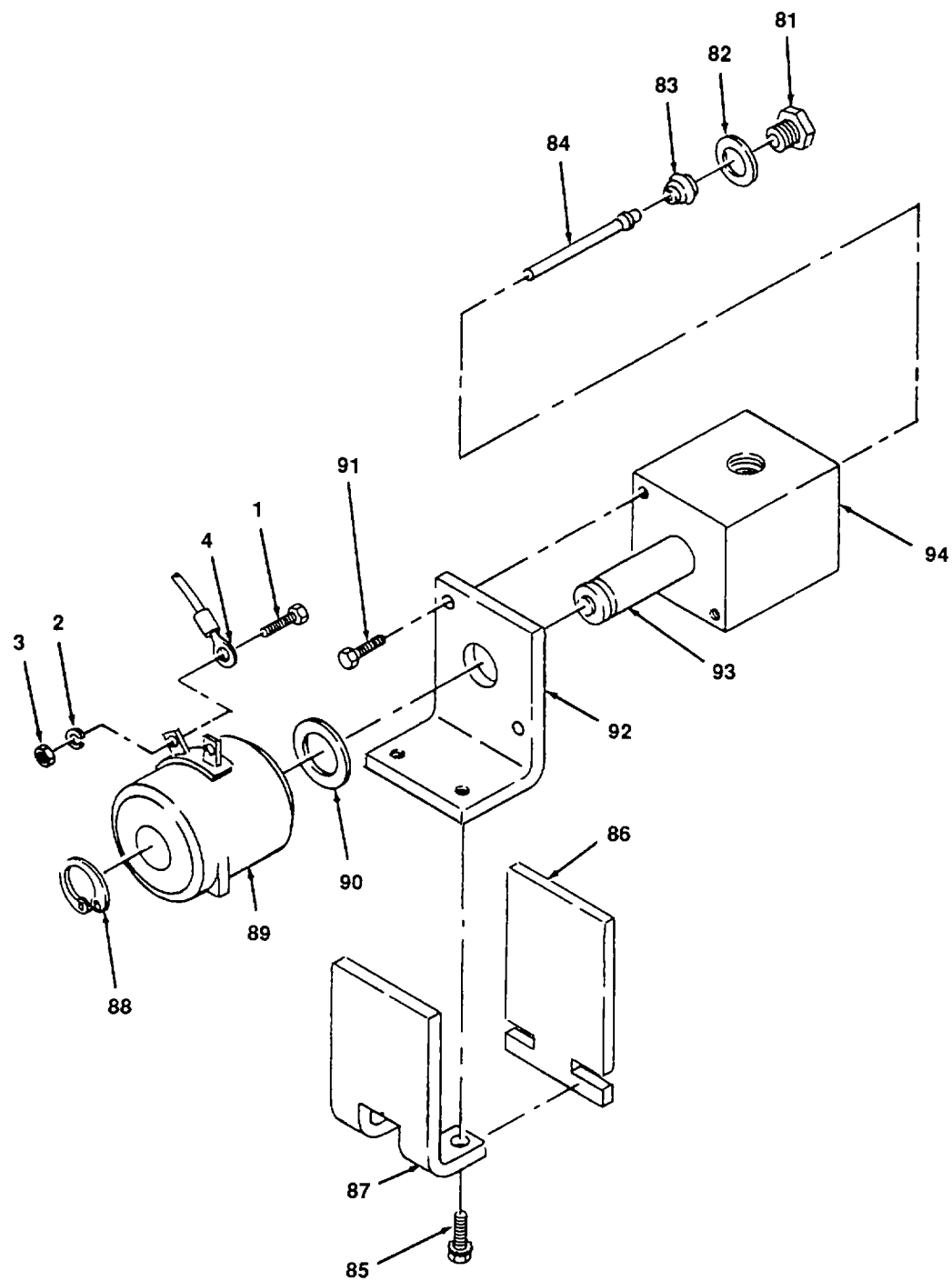
Figure 60. Controller Mechanism

(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

4834-053 2

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, 4 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	
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	

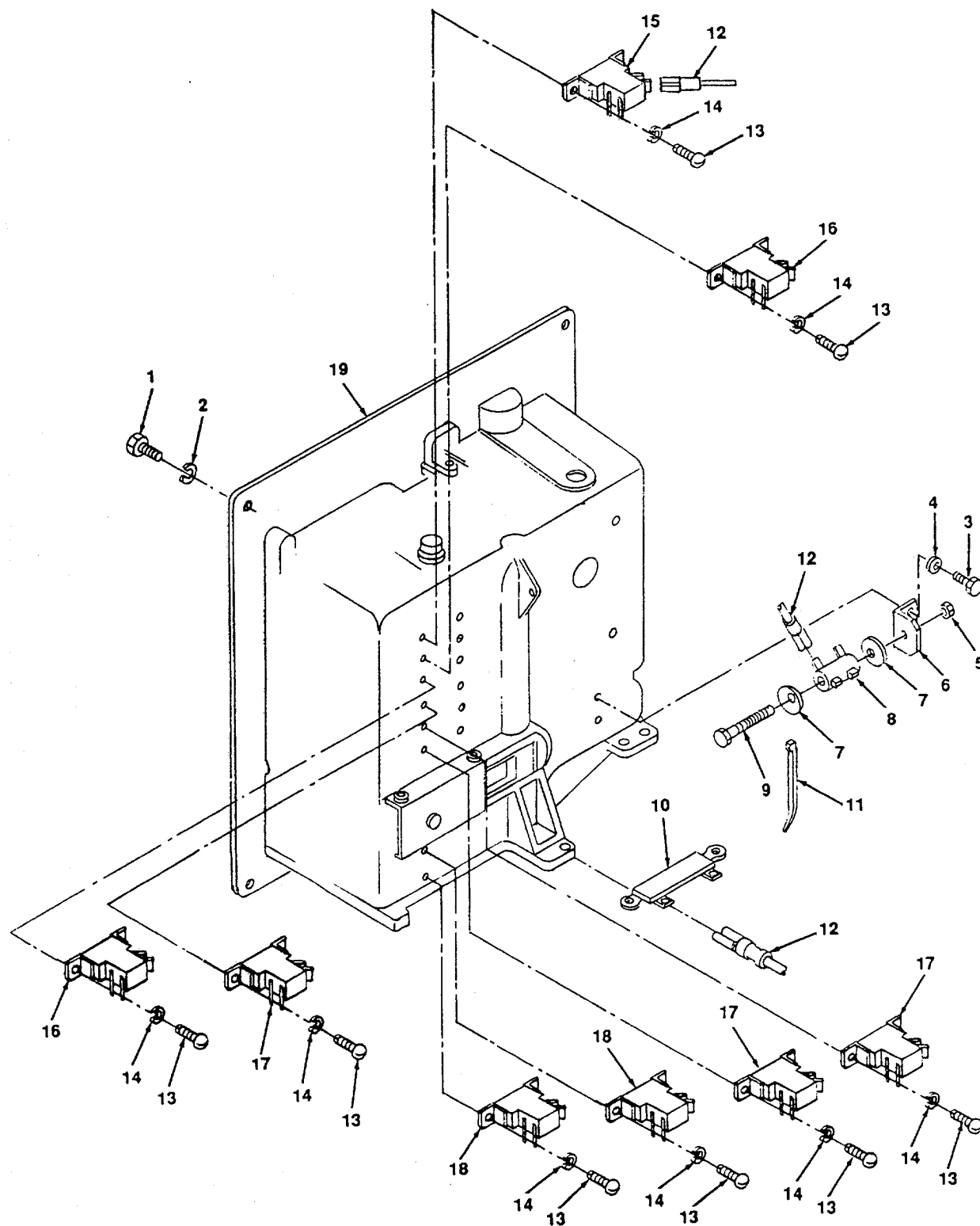
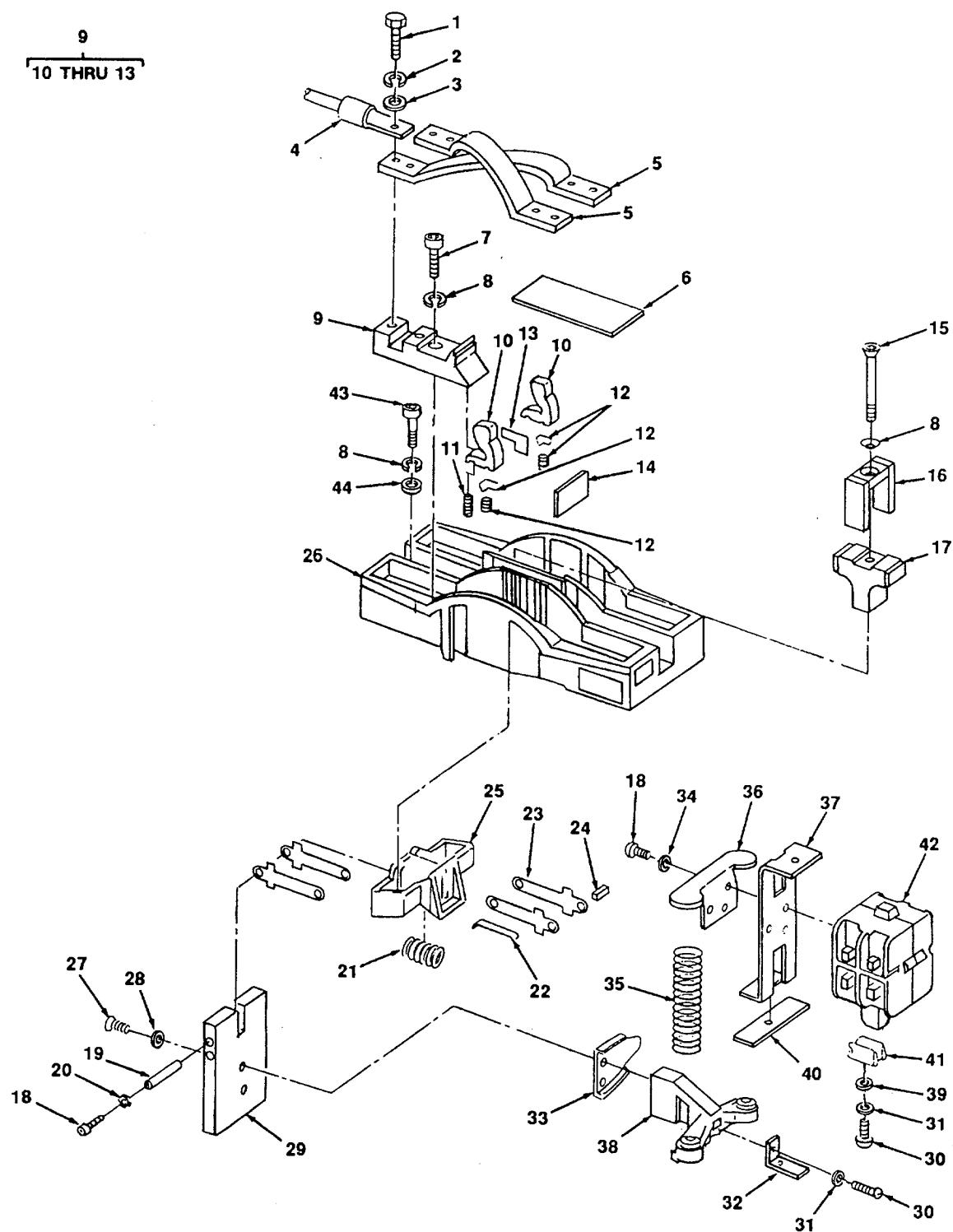


Figure 63. Controller Mechanism.

(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	



4833-057.1

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

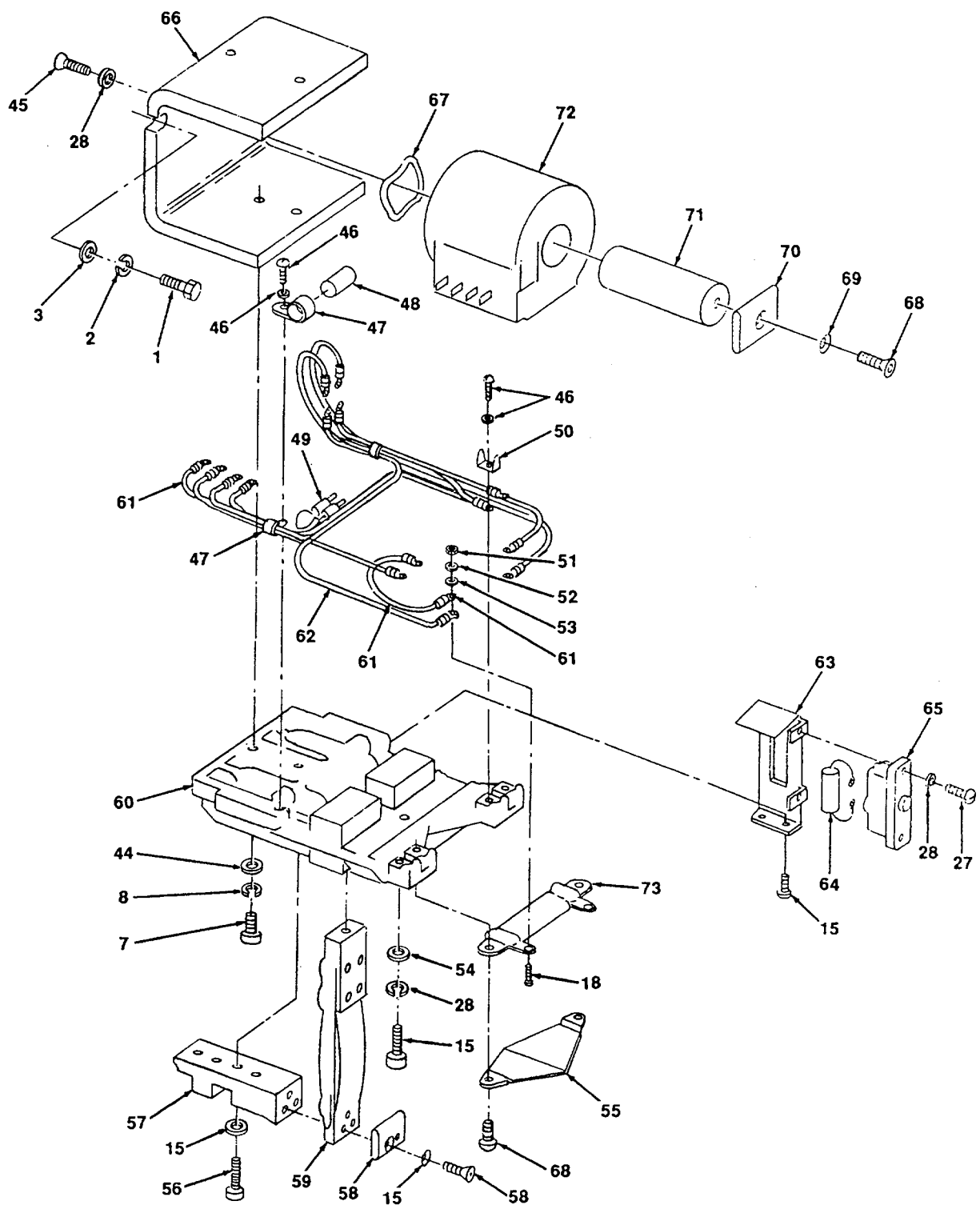


Figure 57. Switch, Magnetic Reverser (Sheet 2 of 2).

(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
61			FIG. 57 SWITCH, MAGNETIC REVERSER (CONT) 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

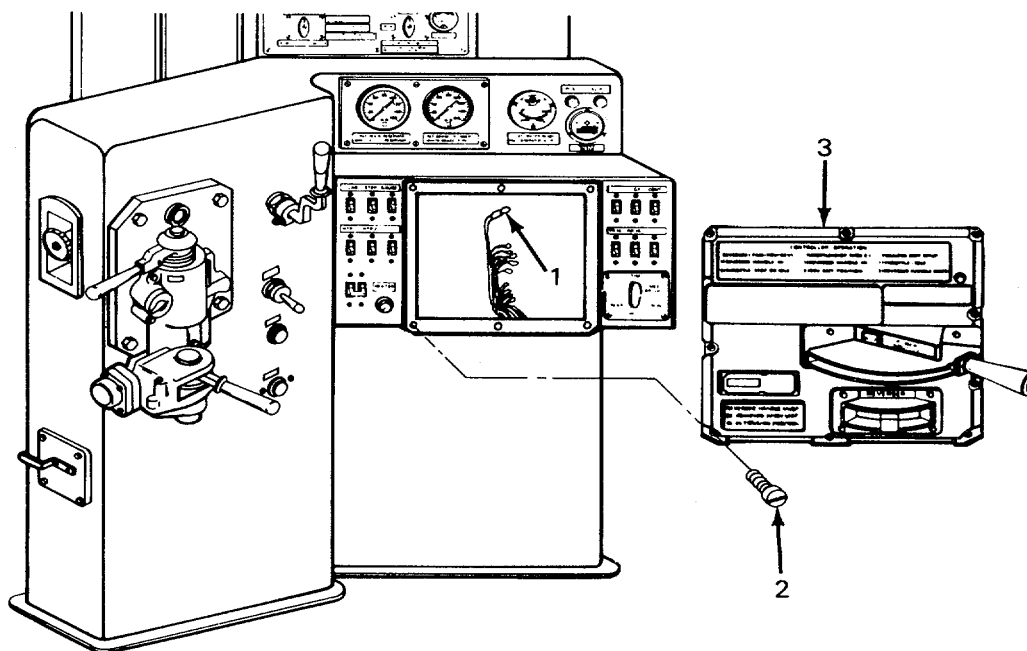
Drycleaning solvent (Item 30, Appendix B)

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.

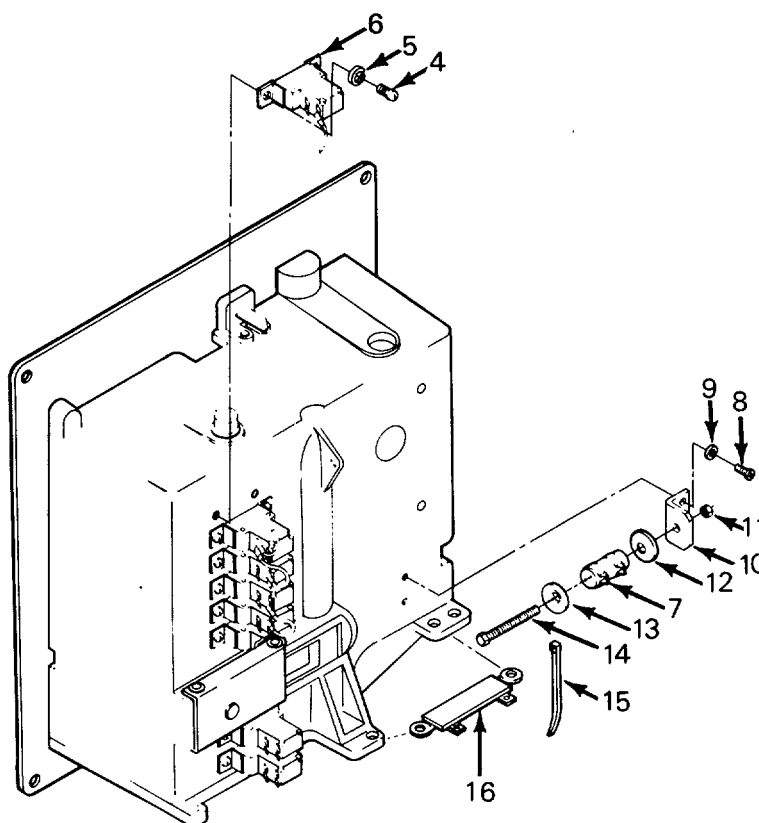
3-33. CONTROLLER MECHANISM (cont)

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

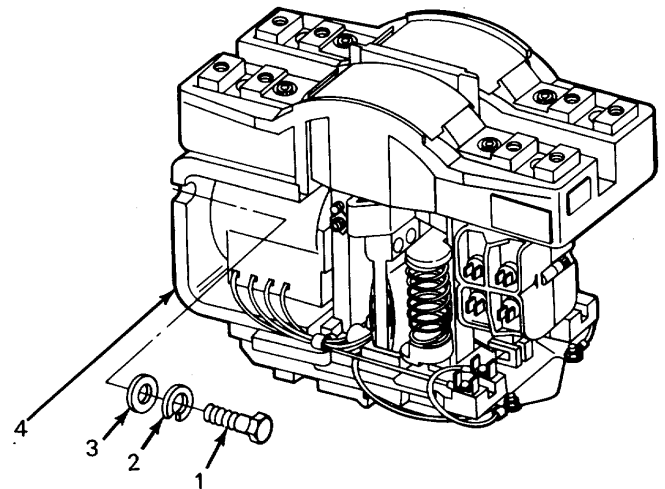
WARNING

- 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.

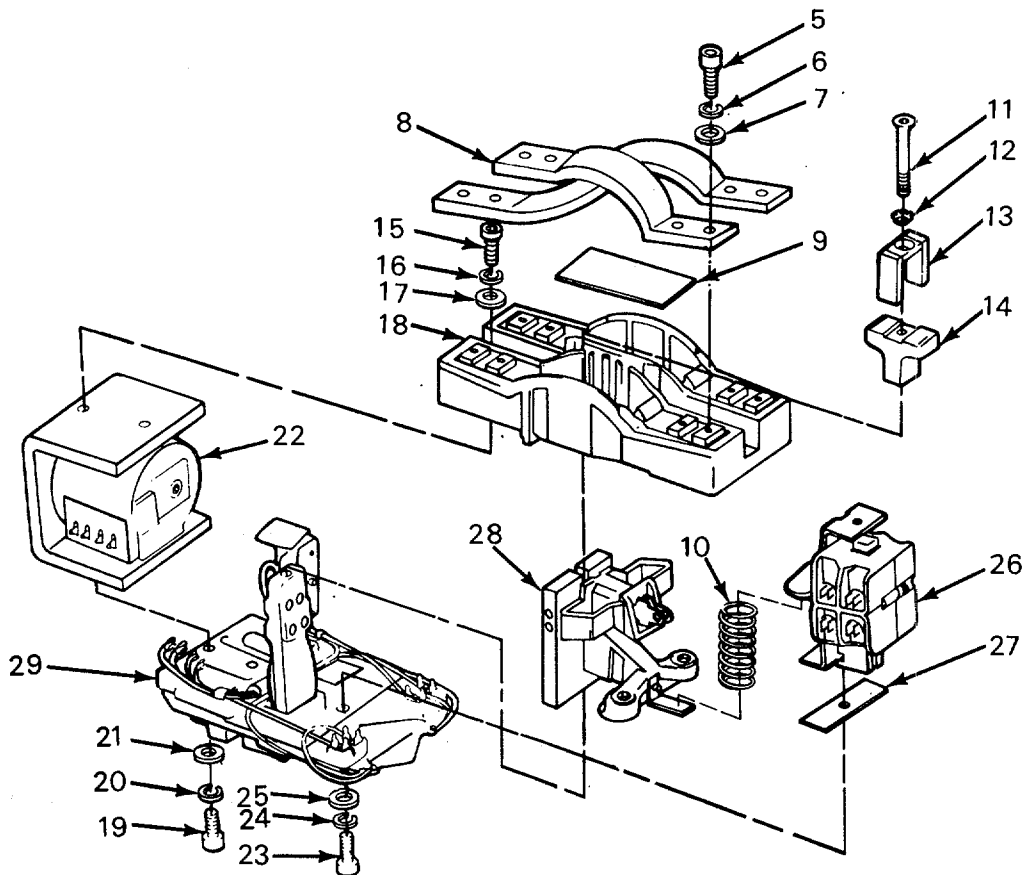
1. Set battery switch to OPEN position. Disconnect wires from relay assembly and tag wires.
2. Remove two socket-head screws (1), lockwashers (2), flat washers (3), and magnetic reverser switch (4).



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).

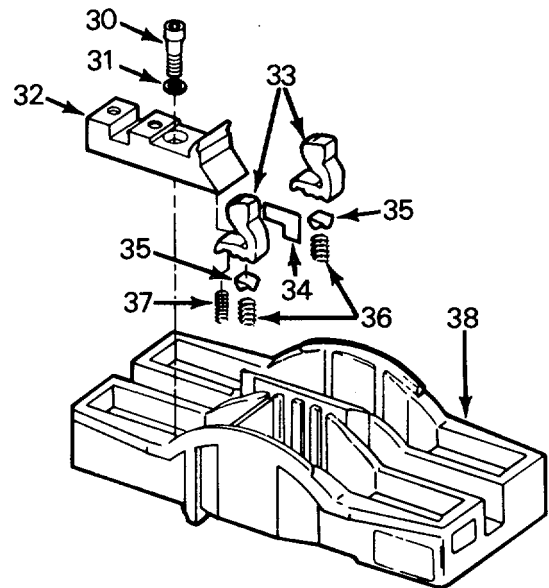


3-28. MAGNETIC REVERSER SWITCH (cont)

DISASSEMBLY (cont)

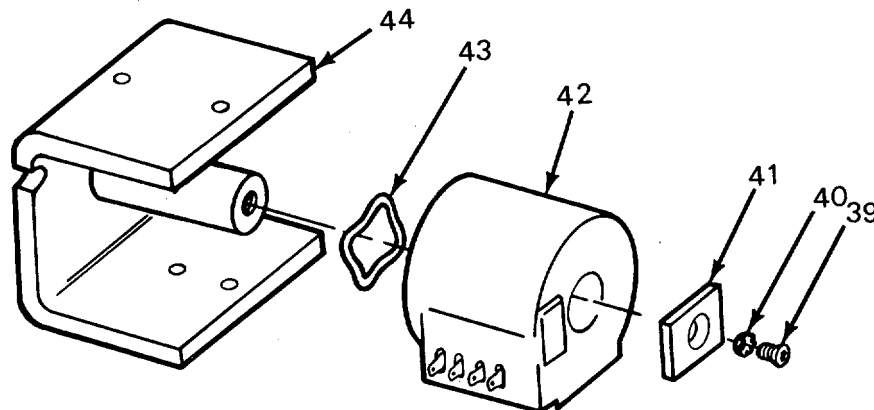
12. Disassemble top terminal assembly (18) by the following:

- 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).

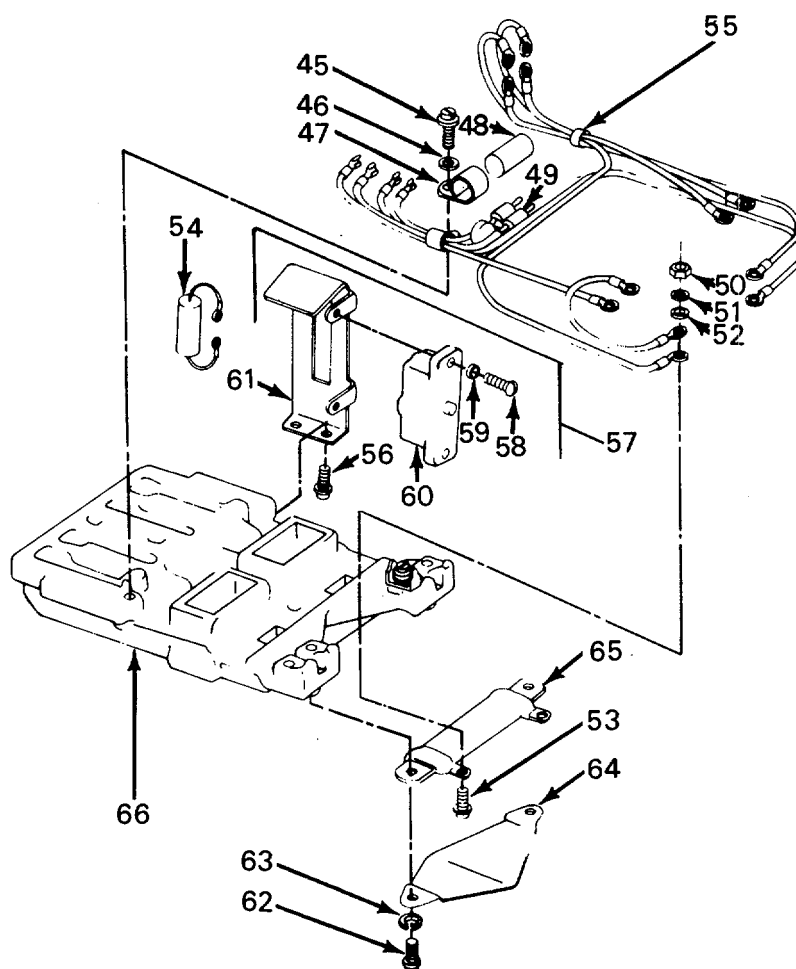


14. Disassemble bottom terminal and limit switch assembly (29) by the following:

- 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

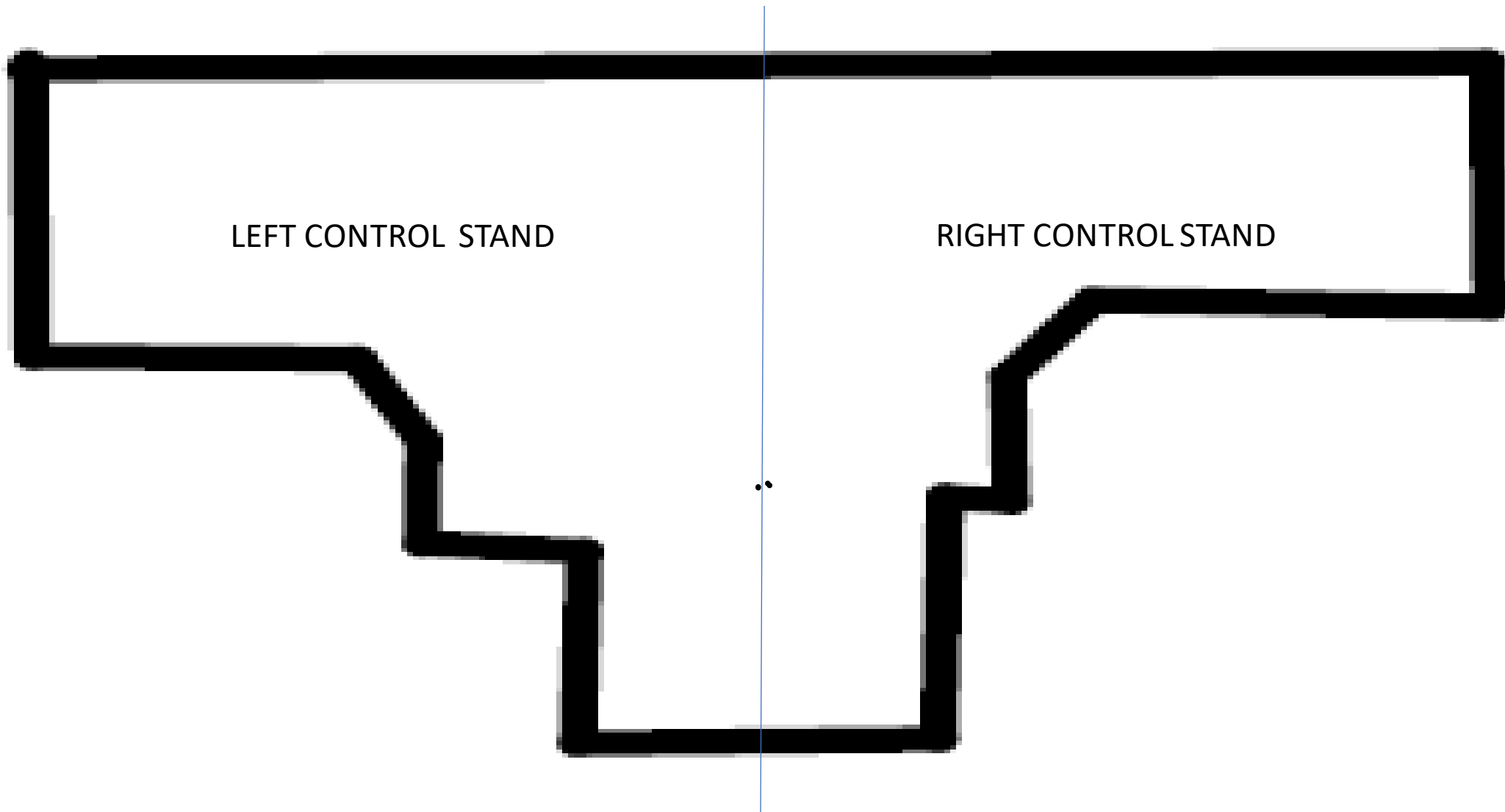
35. Install magnetic reverser switch (4) and secure with two flat washers (3), lockwashers (2), and socket-head screws (1).
36. Install electrical wires in accordance with wiring diagram.

TEST

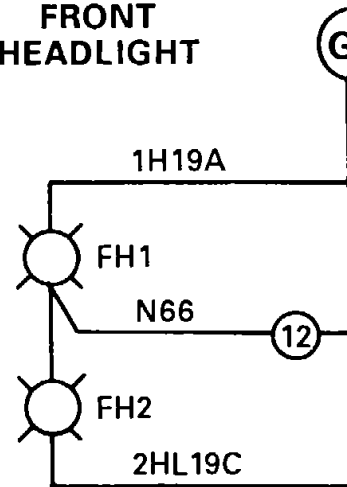
37. Connect a variable dc voltage supply to magnet coil (42). Use a multimeter and measure voltage. Check that pickup voltage is 48 V dc maximum and dropout voltage is 5 to 28 V dc.
38. Energize and deenergize relay and check that there is no hesitation during pickup or dropout.
39. Check that that battery 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

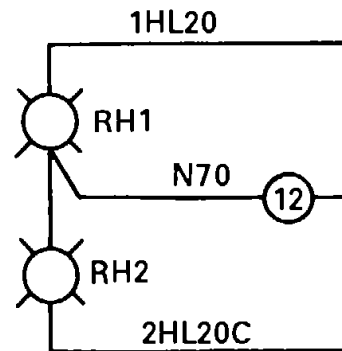
ADAM NUGENT ROSENBERGER 11/10/21



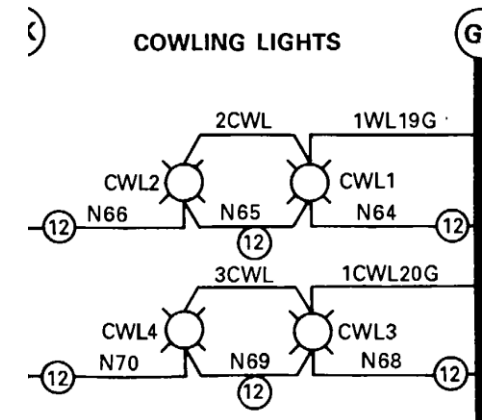
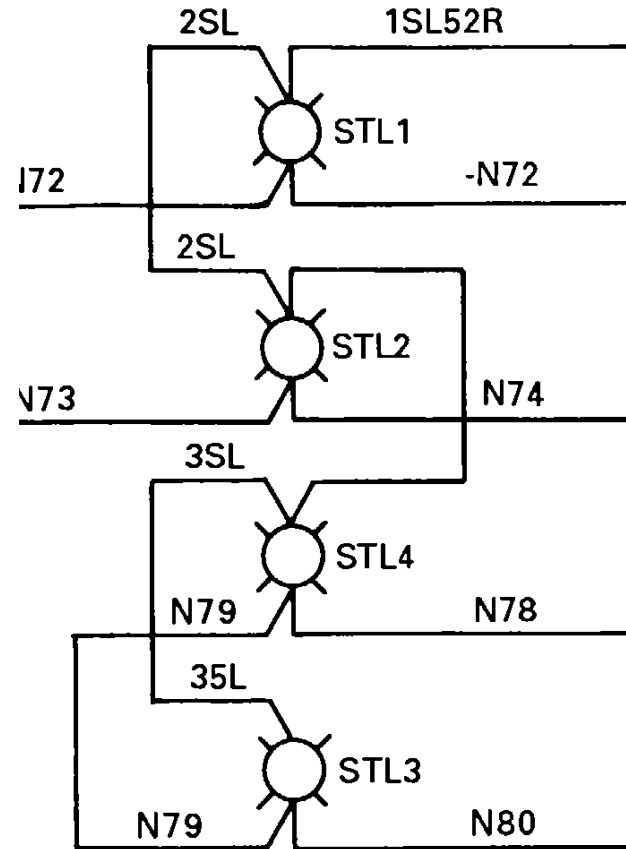
FRONT HEADLIGHT



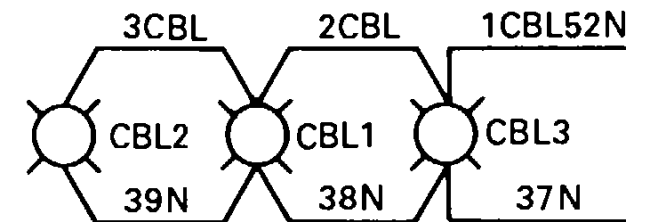
REAR HEADLIGHT



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

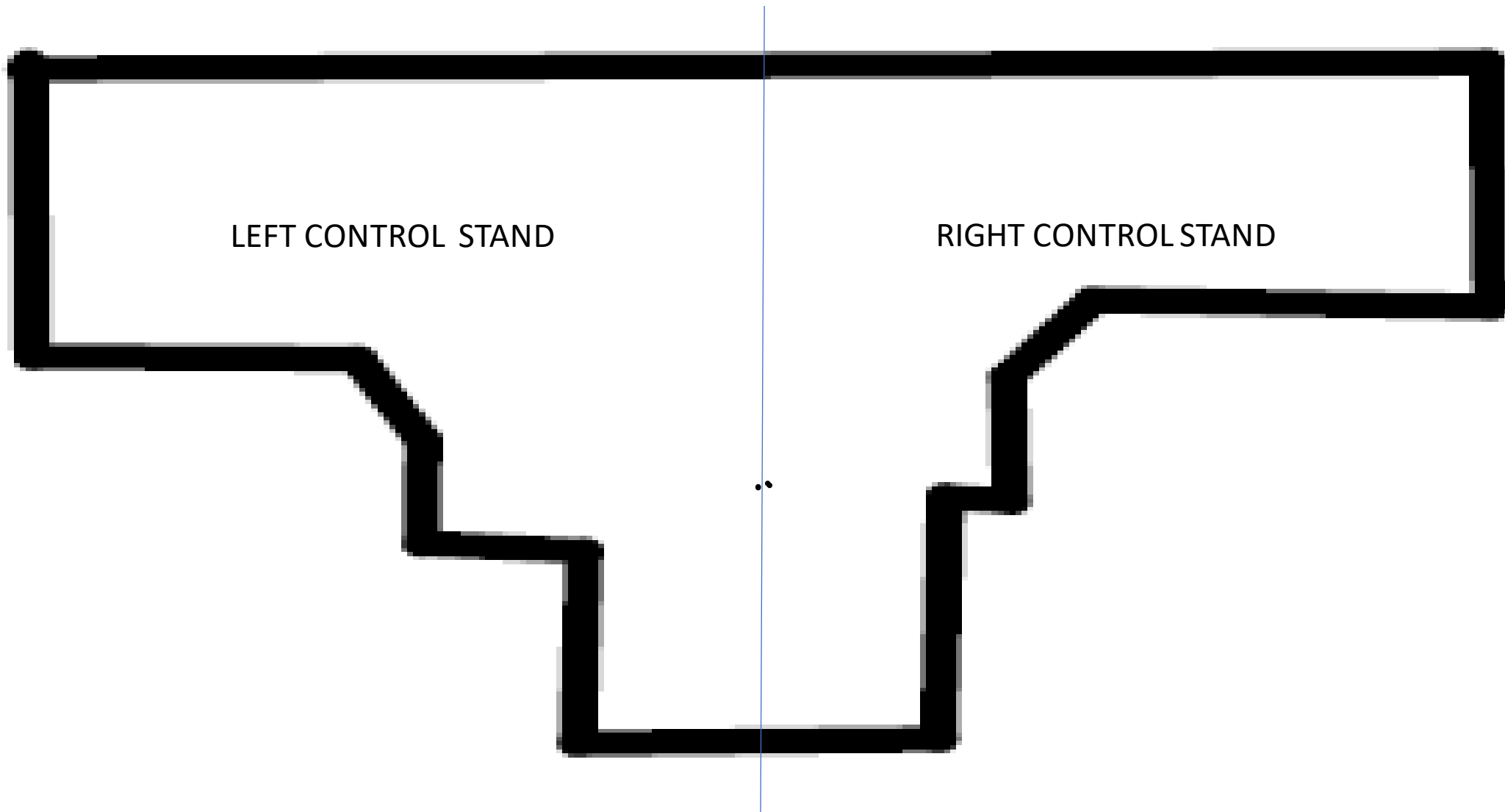
FRONT AND REAR
HEADLIGHT

STEP LIGHTS CAB LIGHTS
COWLING LIGHTS

RIGHT BANK CONTROL
STAND

FRONT AND REAR
HEADLIGHT

STEP LIGHTS CAB LIGHTS
COWLING LIGHTS



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

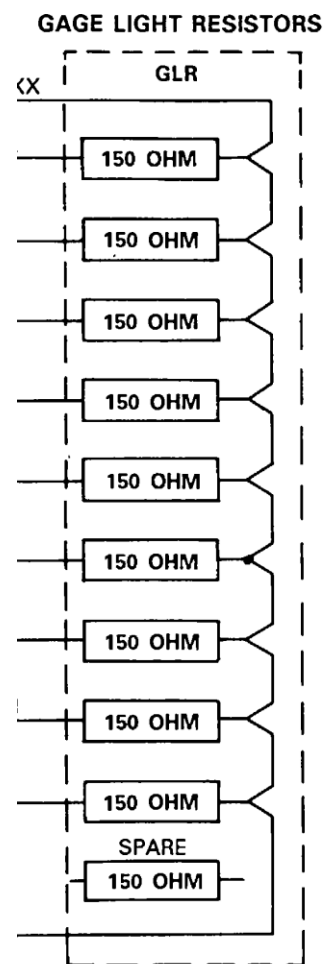
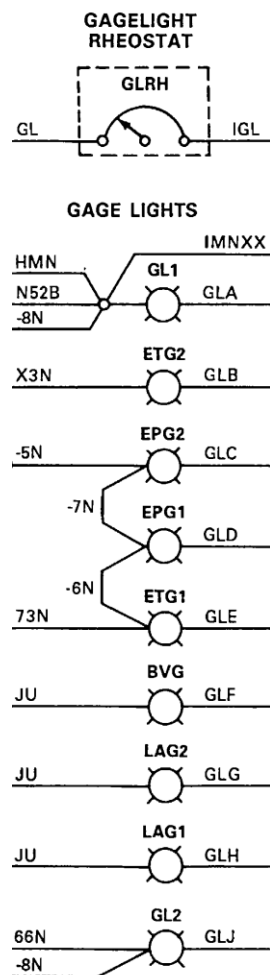
RIGHT BANK CONTROL
STAND

GAGE LIGHTS AND
RESISTORS

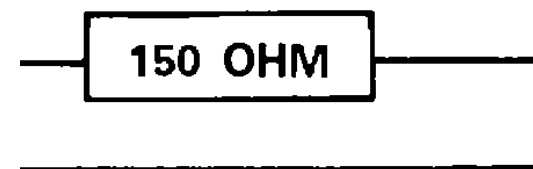
GAGE LIGHTS AND
RESISTORS

INDICATOR LIGHTS AND
RESISTORS

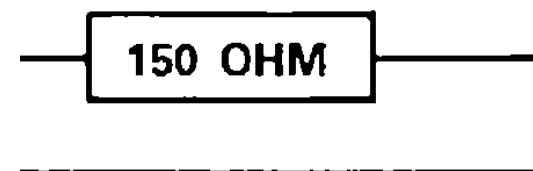
INDICATOR LIGHTS AND
RESISTORS

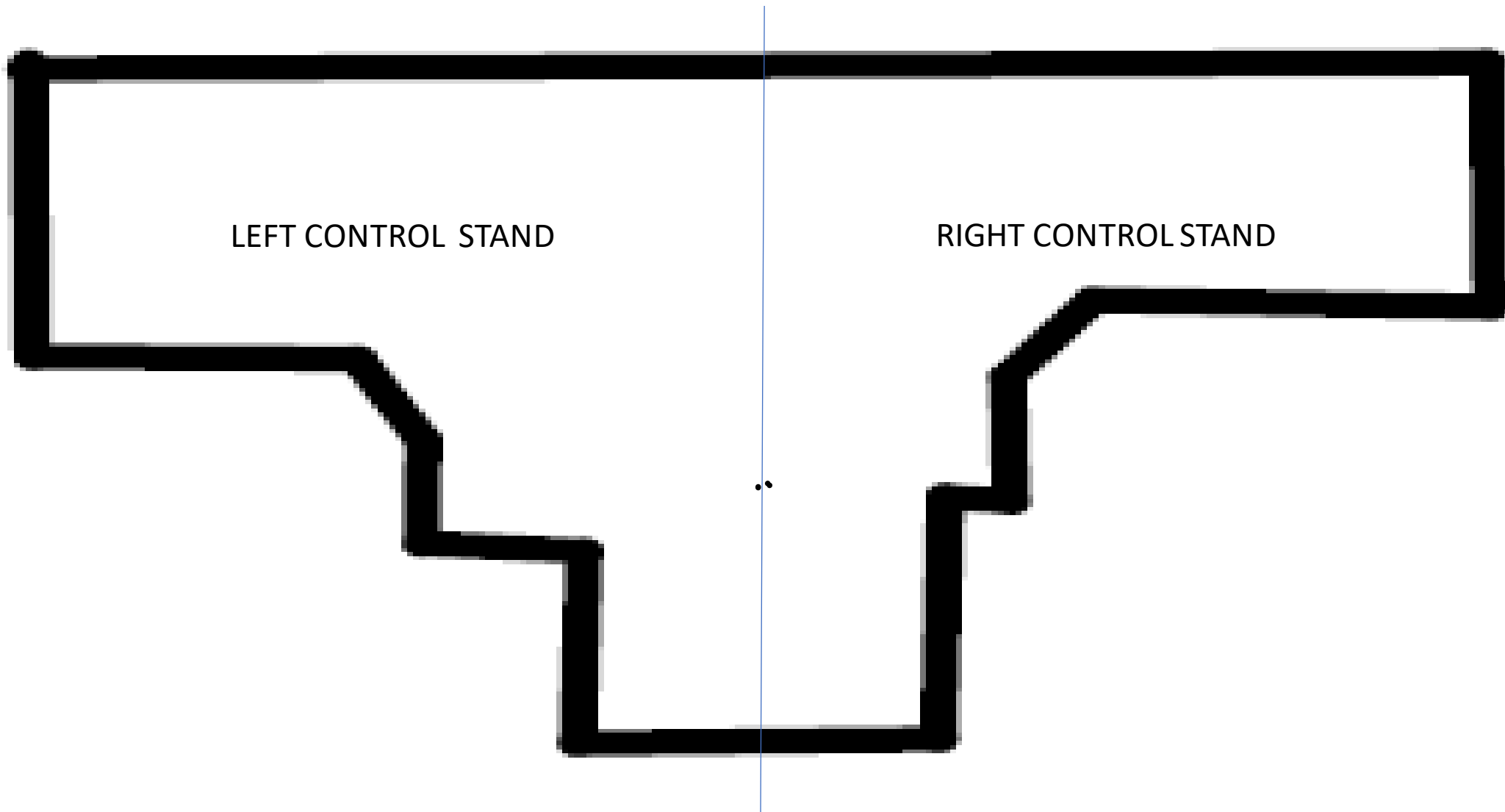


**IND LIGHT RES
ILR2**



**) + GAGE LIGHT RES
ILR1**





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

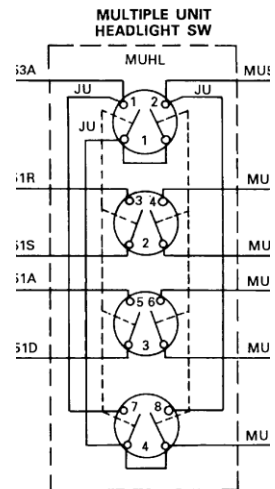
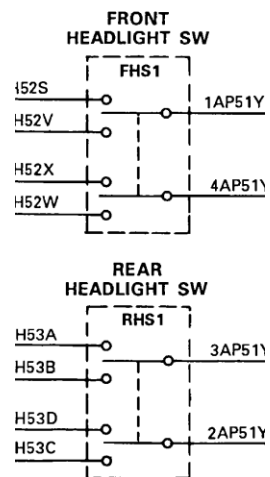
STEP LIGHTS CAB LIGHTS
NUMBER LIGHTS AND
HEADLIGHTS

WHEEL SLIP LIGHT AND
GROUND LIGHT COWLING
LIGHT SWITCH

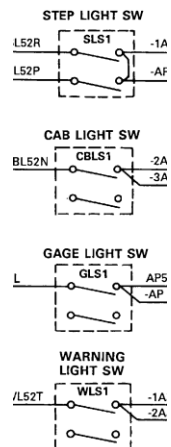
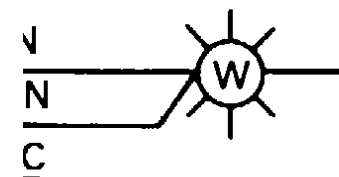
RIGHT BANK CONTROL
STAND

STEP LIGHTS CAB LIGHTS
NUMBER LIGHTS AND
HEADLIGHTS

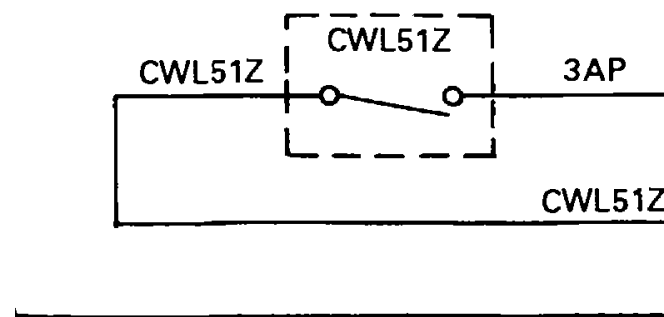
WHEEL SLIP LIGHT AND
GROUND LIGHT COWLING
LIGHT SWITCH



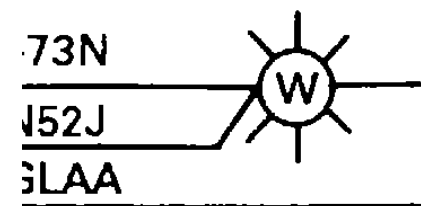
WHEEL SLIP IND LIGHT WSL1

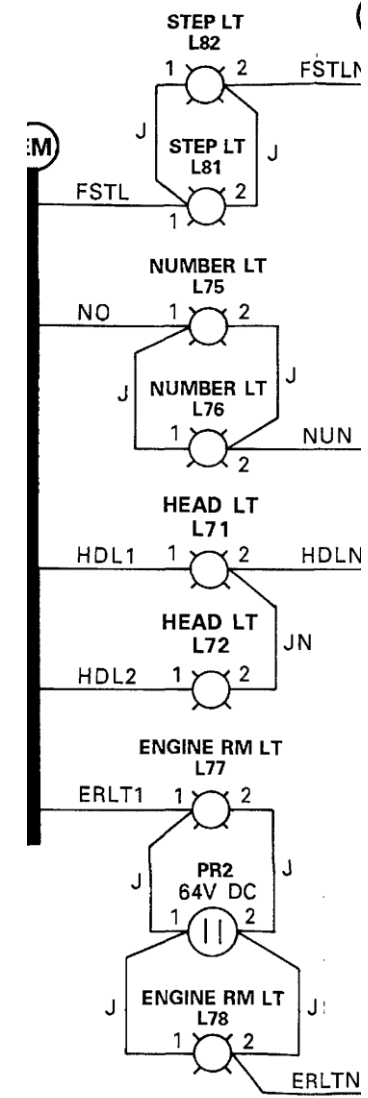
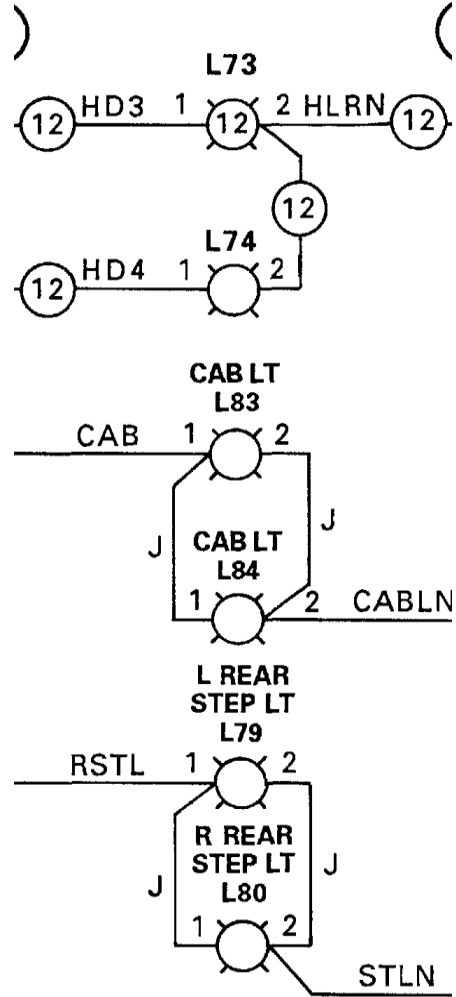


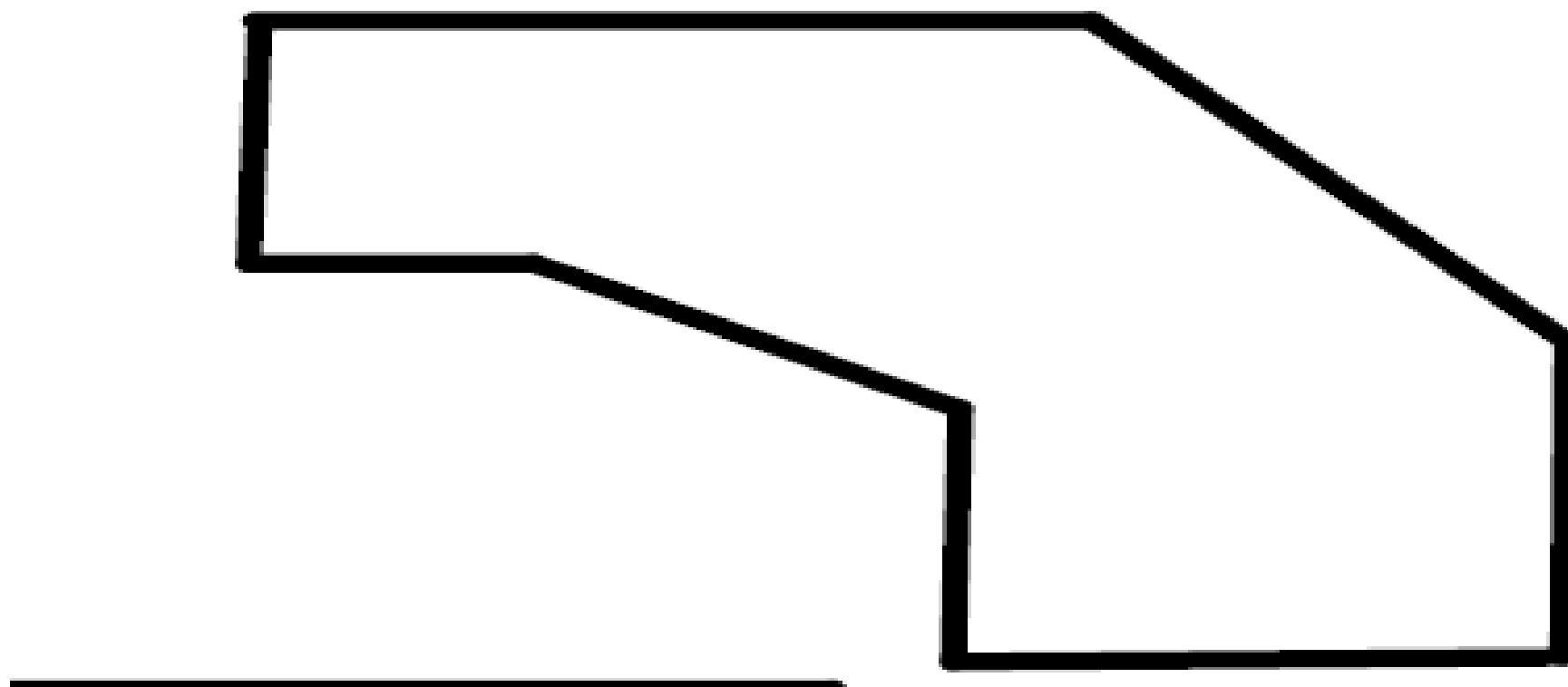
COWLING LIGHT SW



GROUND RELAY IND LIGHT GRL1







**REAR CONTROL
STAND**

REAR CONTROL STAND CONSIST

STEP LIGHTS CAB LIGHTS
NUMBER LIGHTS AND
HEADLIGHTS

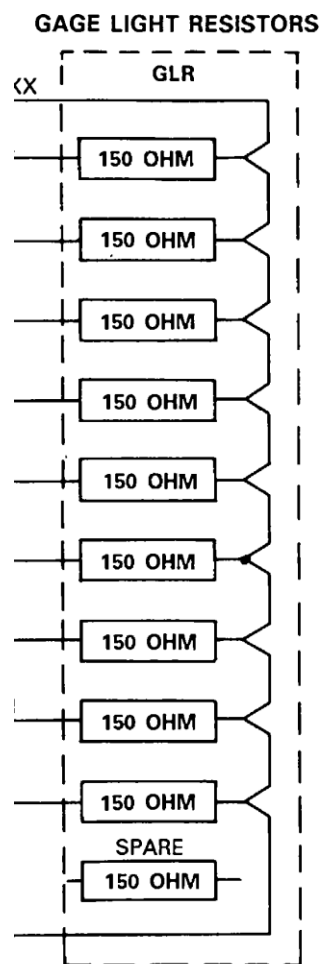
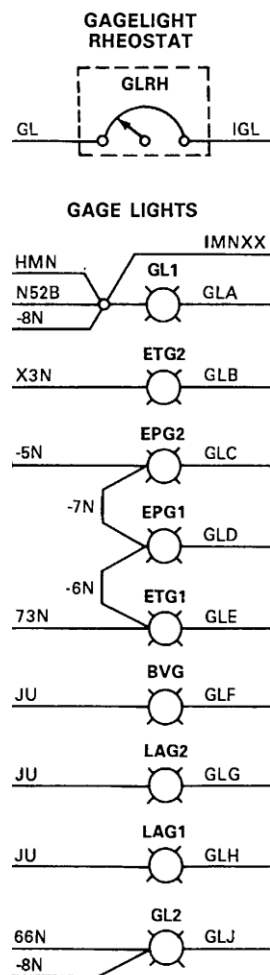
WHEEL SLIP LIGHT AND
GROUND LIGHT COWLING
LIGHT SWITCH

GAGE LIGHTS AND
RESISTORS

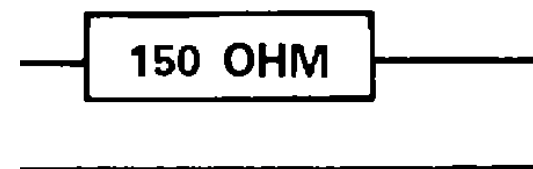
INDICATOR LIGHTS AND
RESISTORS

FRONT AND REAR
HEADLIGHT

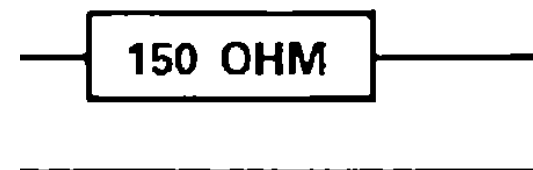
STEP LIGHTS CAB LIGHTS
COWLING LIGHTS

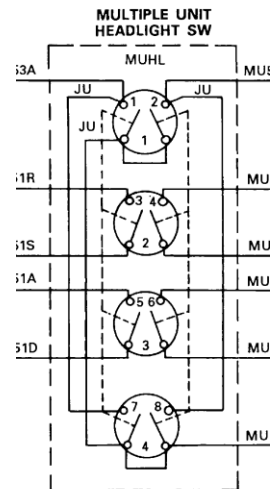
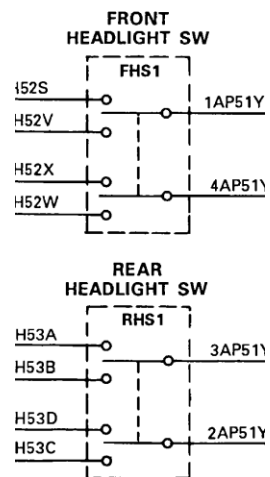


**IND LIGHT RES
ILR2**

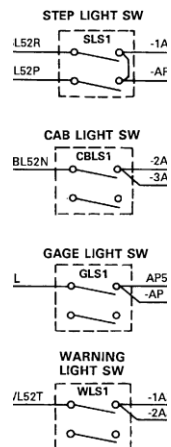
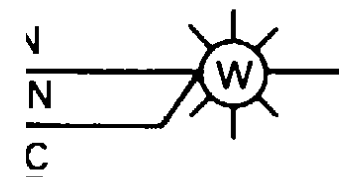


**) + GAGE LIGHT RES
ILR1**

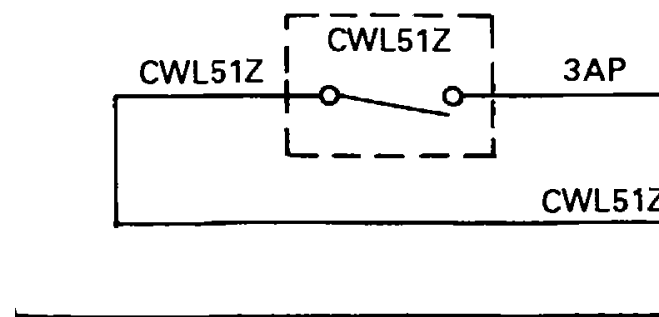




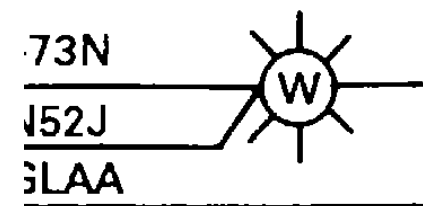
WHEEL SLIP IND LIGHT WSL1

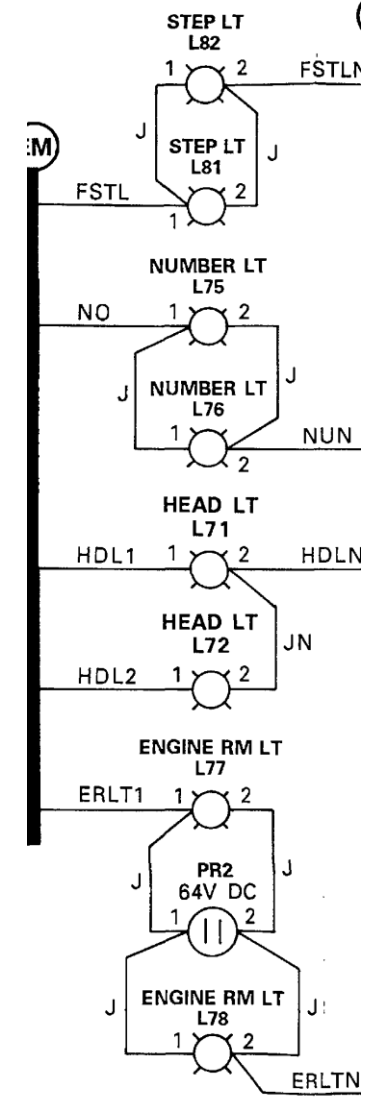
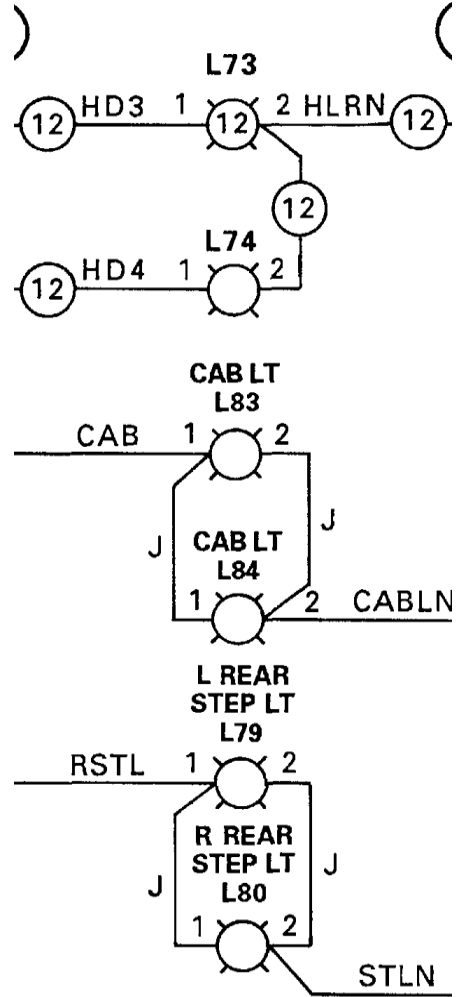


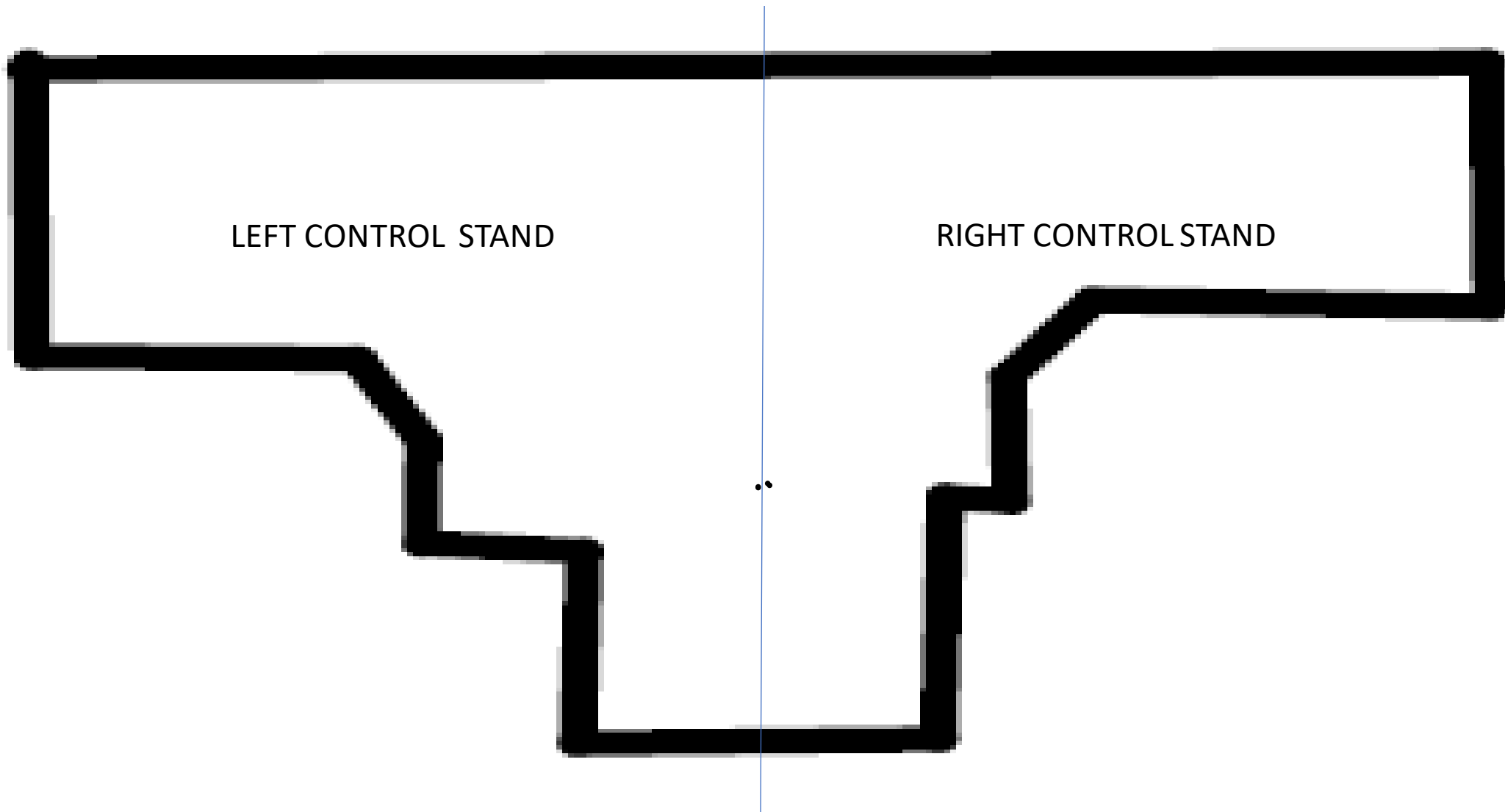
COWLING LIGHT SW



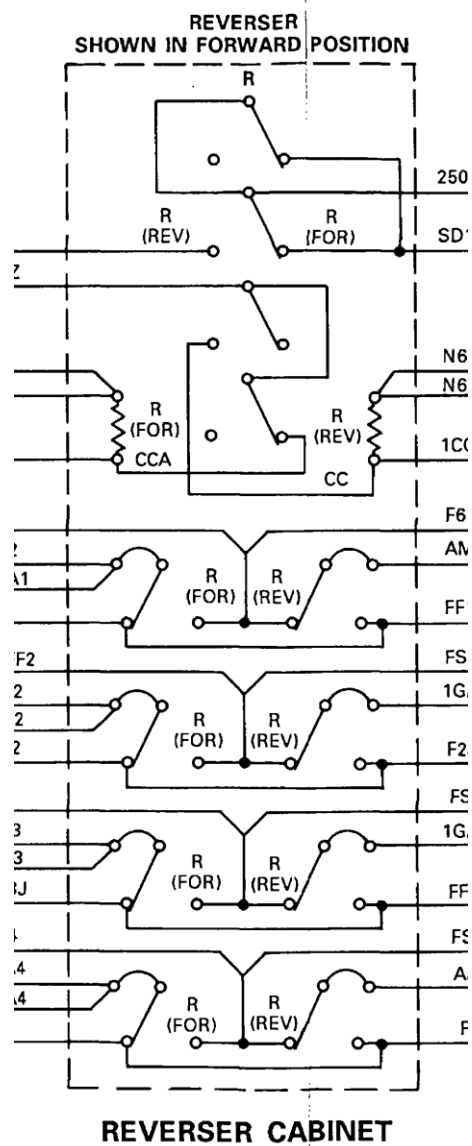
GROUND RELAY IND LIGHT GRL1



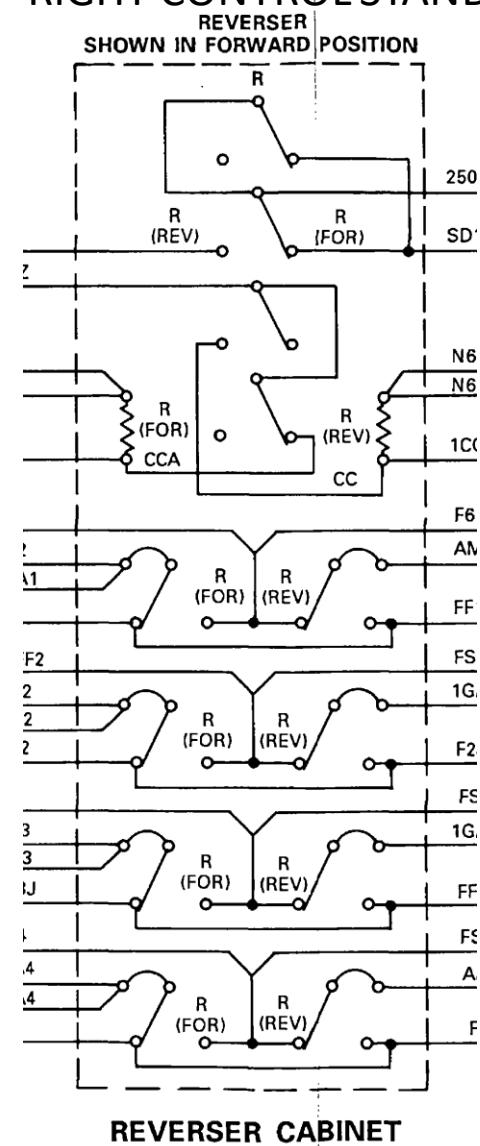


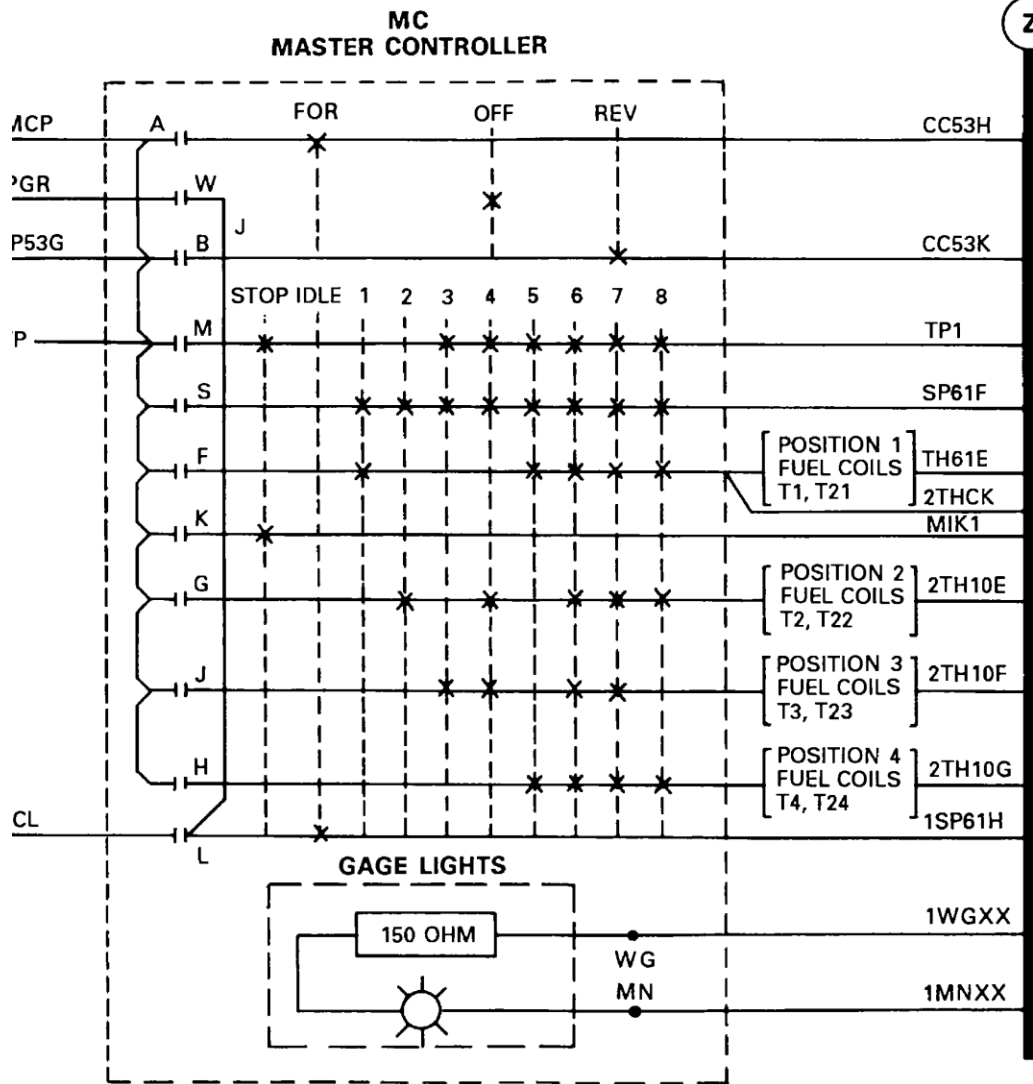


LEFT CONTROL STAND

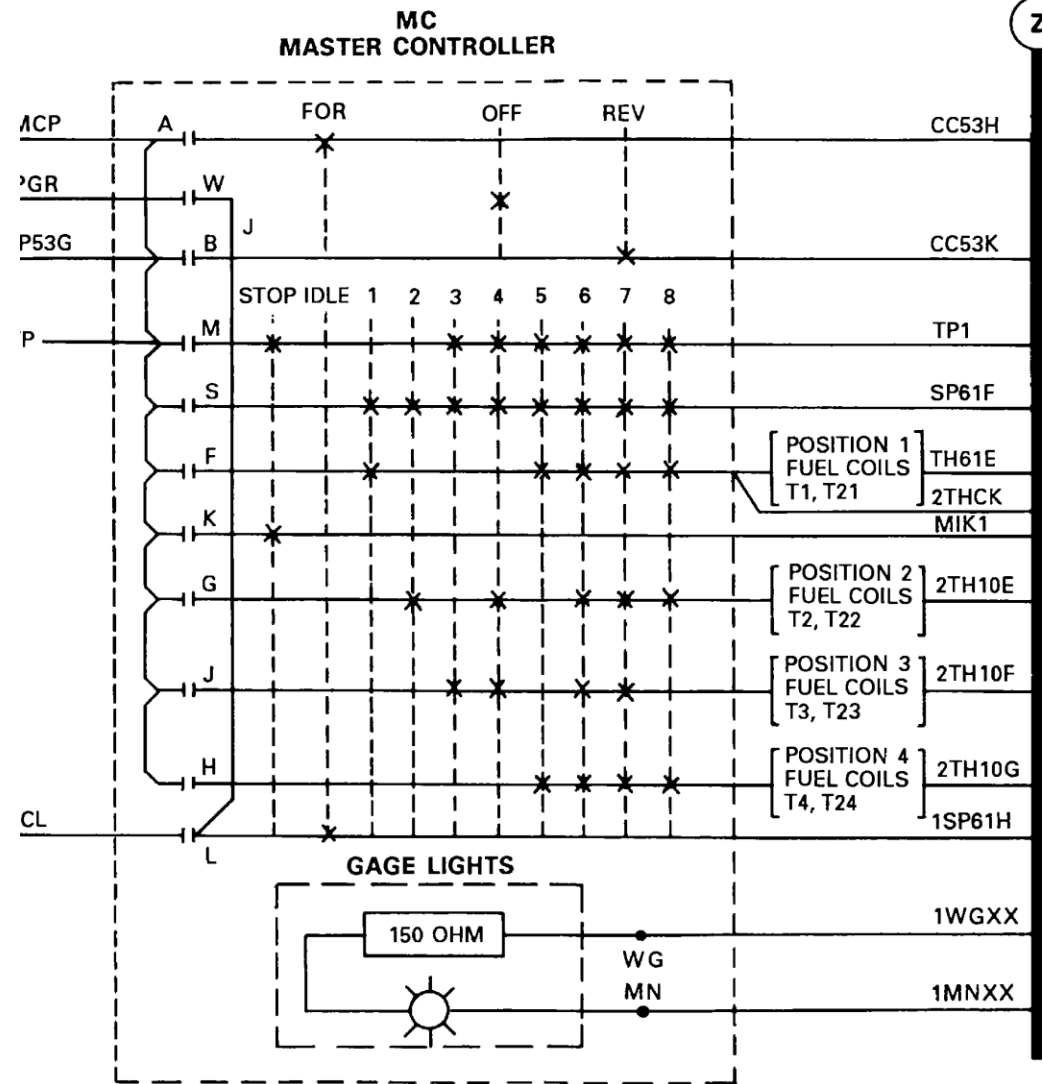


RIGHT CONTROL STAND



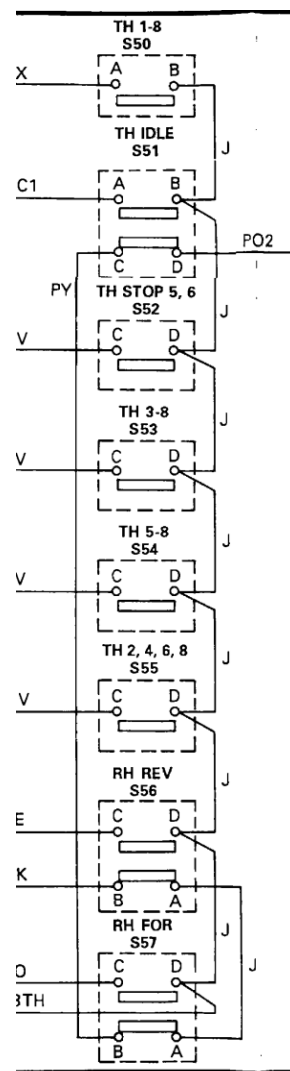


LEFT MASTER CONTROLLER

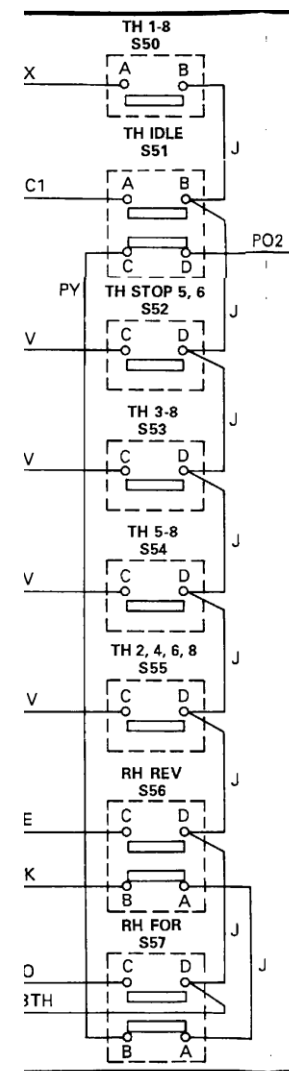


RIGHT MASTER CONTROLLER

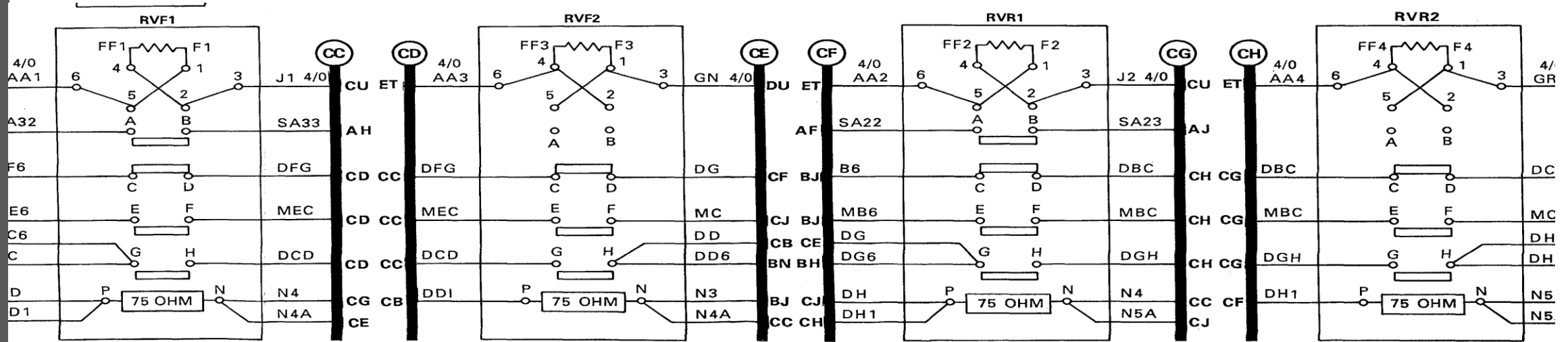
LEFT CONTROL STAND



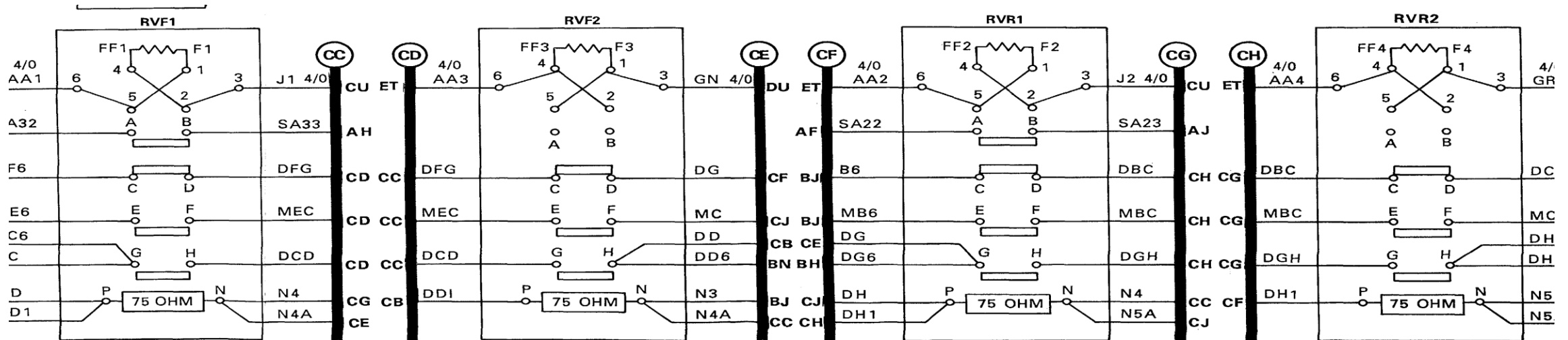
RIGHT CONTROL STAND



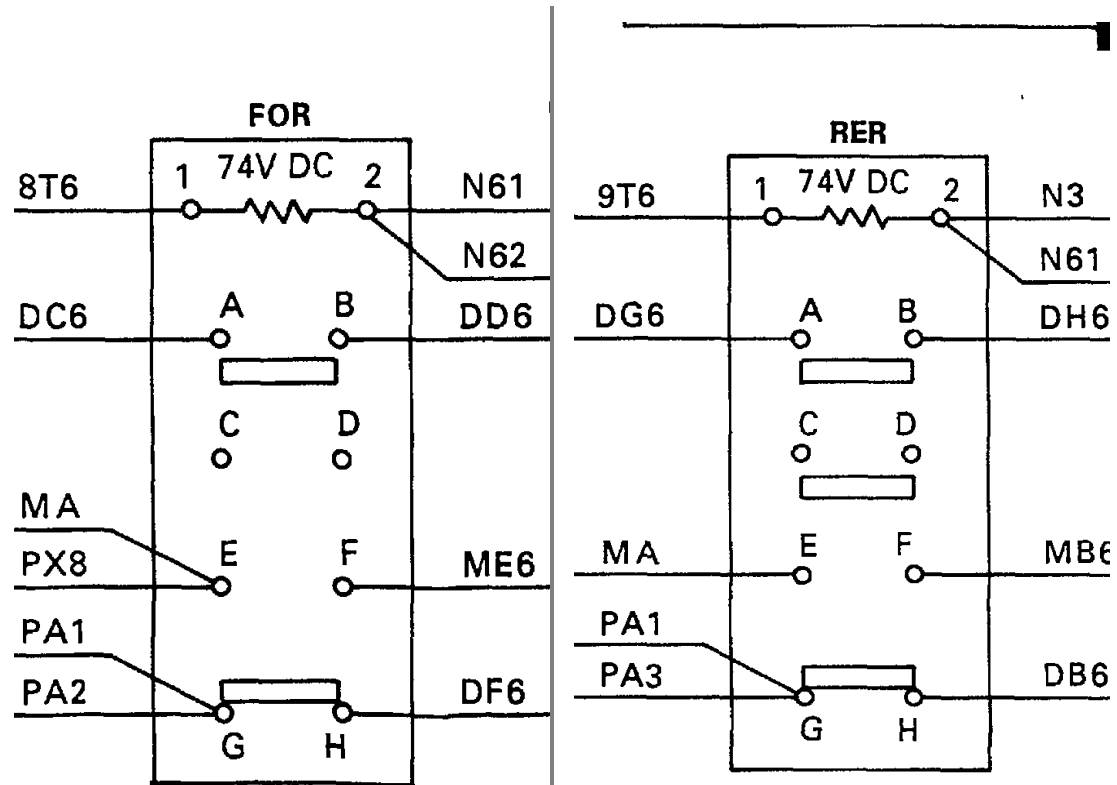
LEFT CONTROL STAND



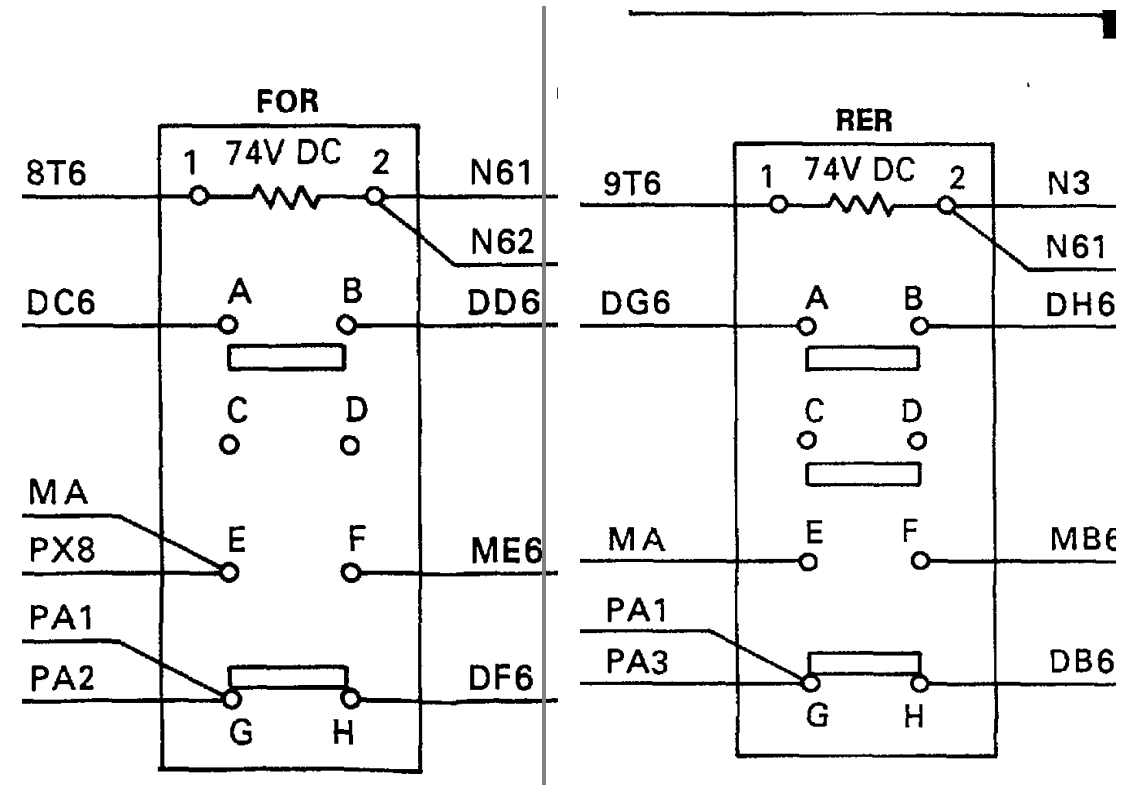
RIGHT CONTRO STAND

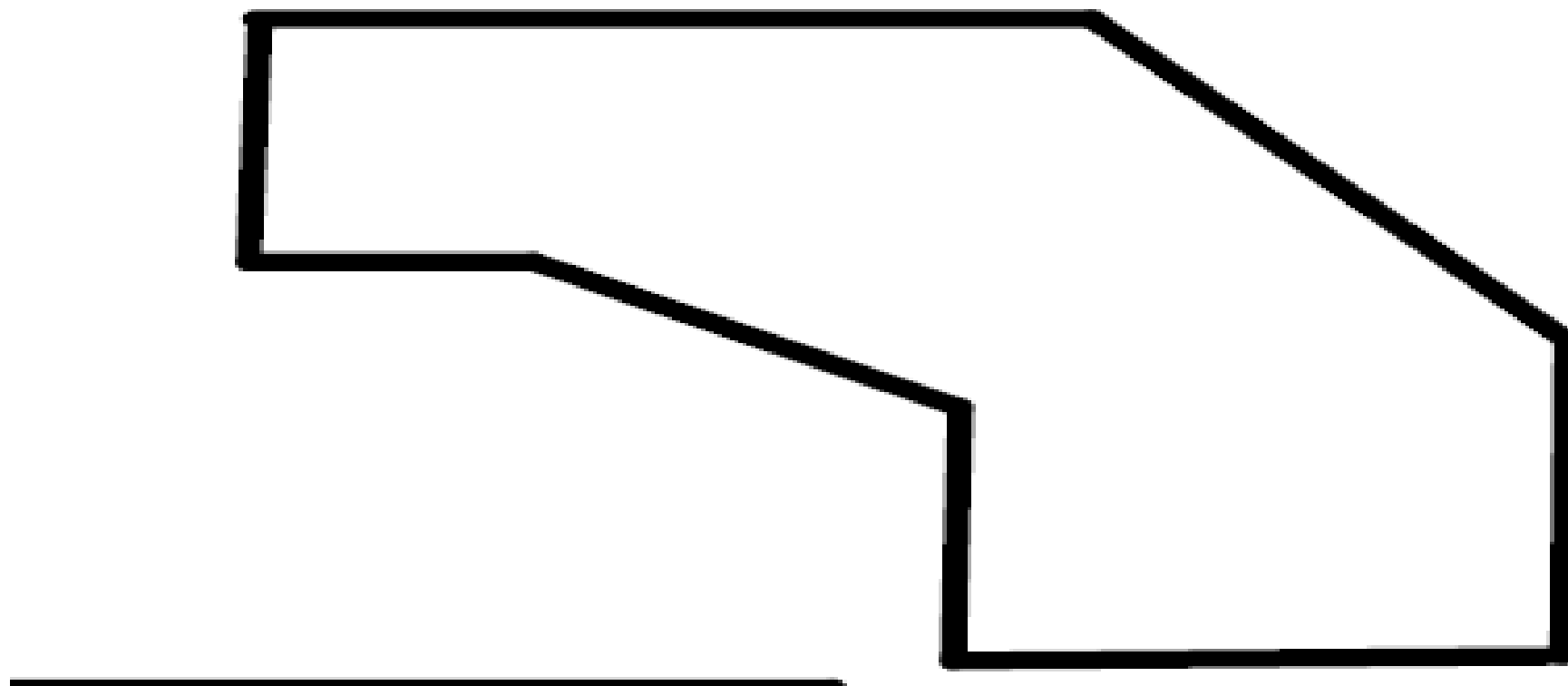


LEFT CONTROL STAND

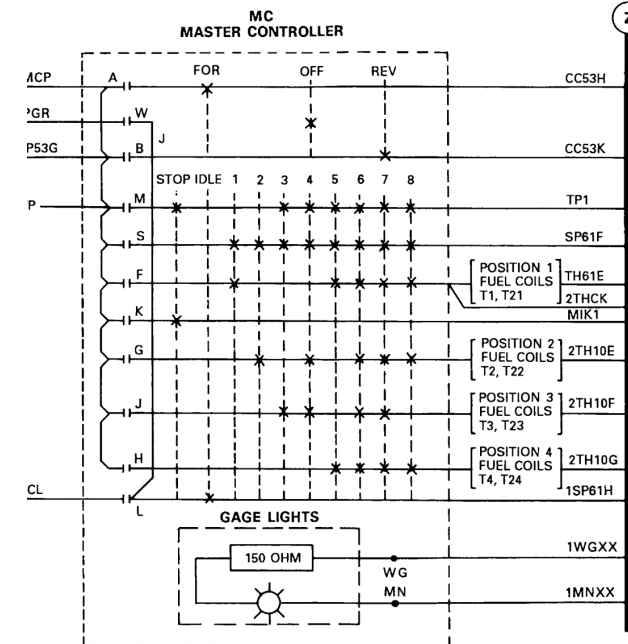
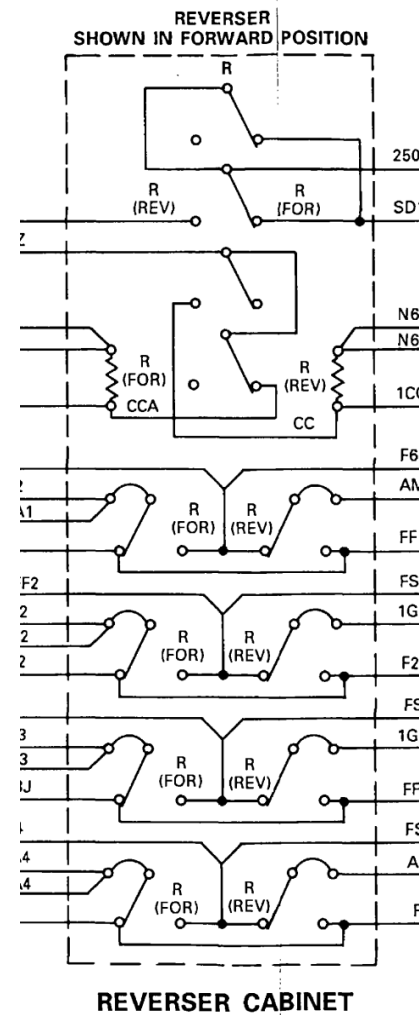
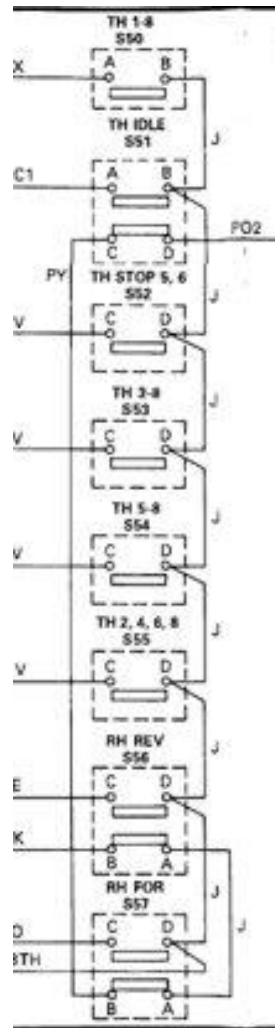


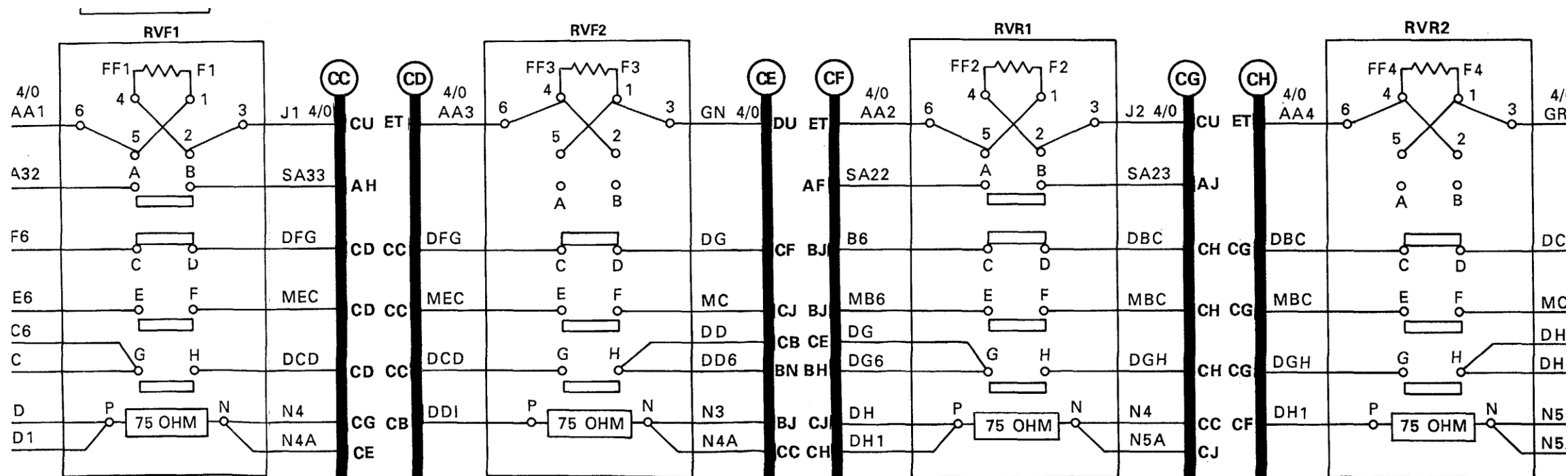
RIGHT CONTROL STAND

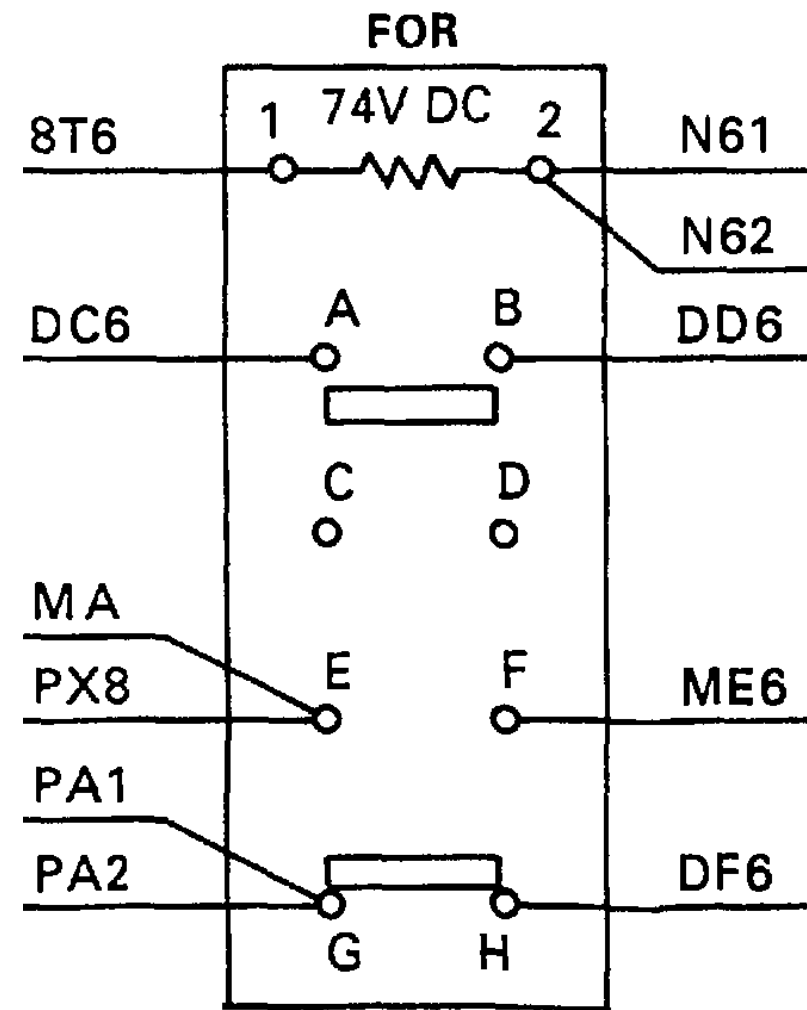
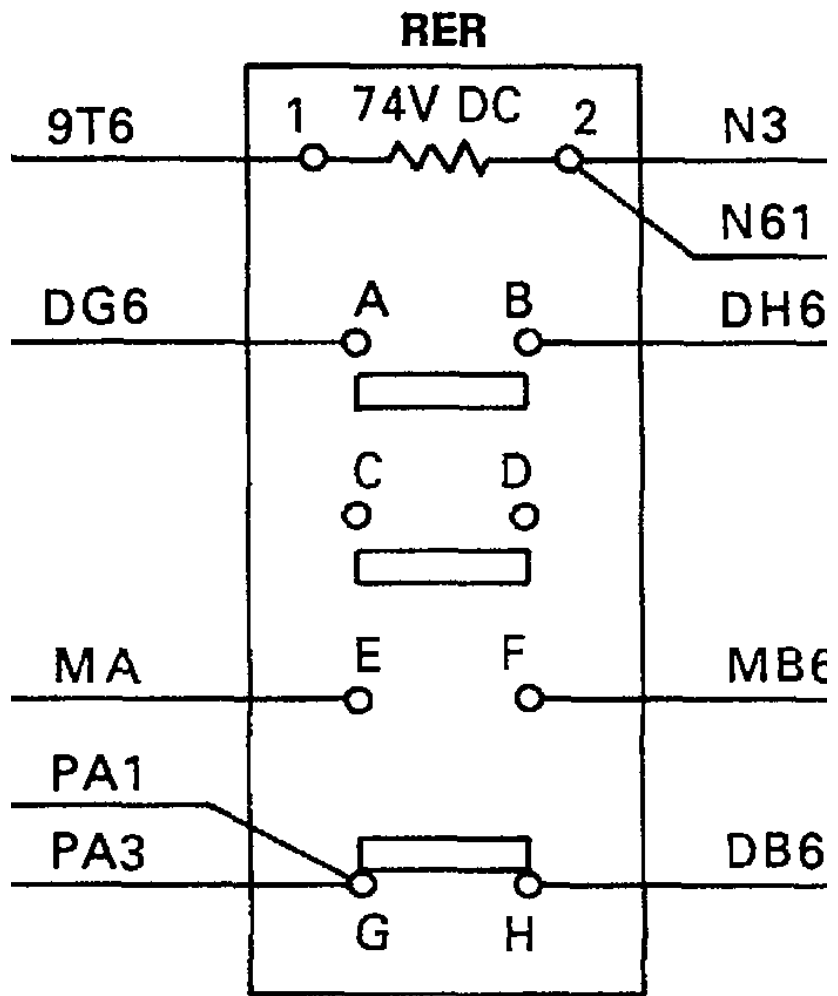


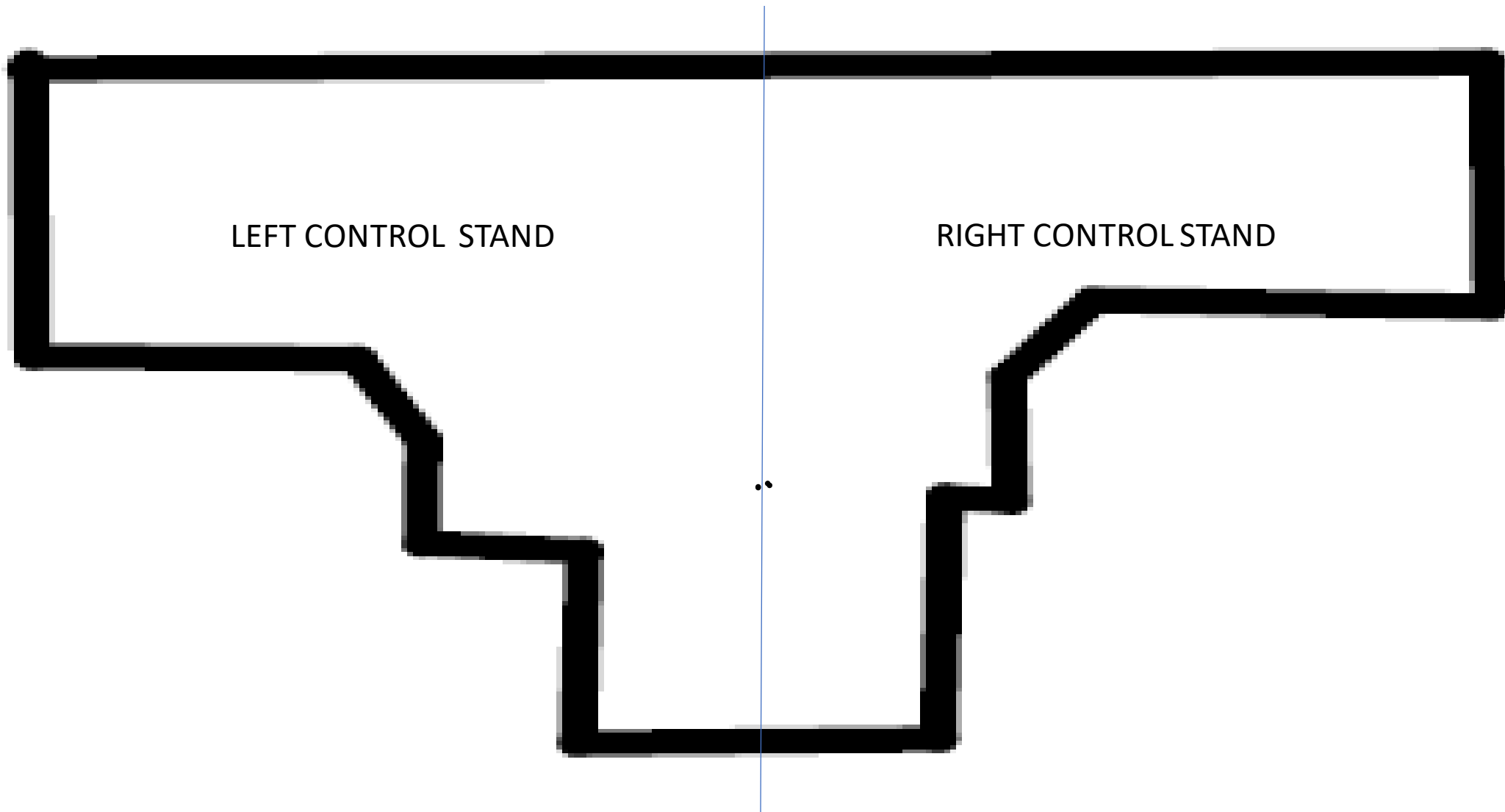


**REAR CONTROL
STAND**









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

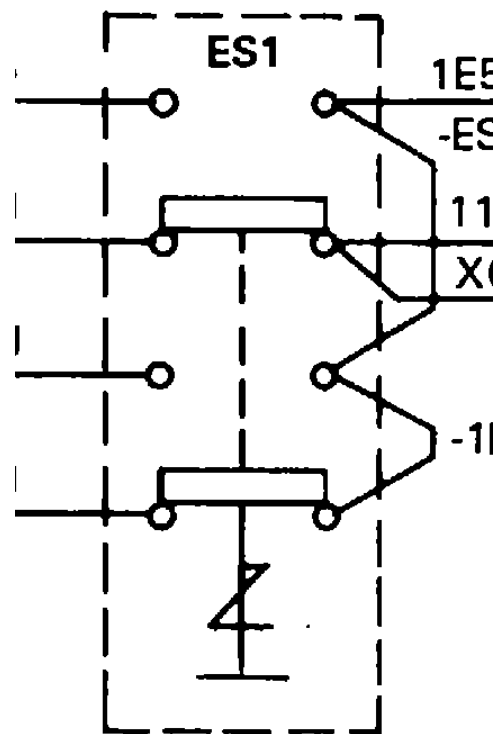
LEFT BANK CONTROL
STAND

RIGHT BANK CONTROL
STAND

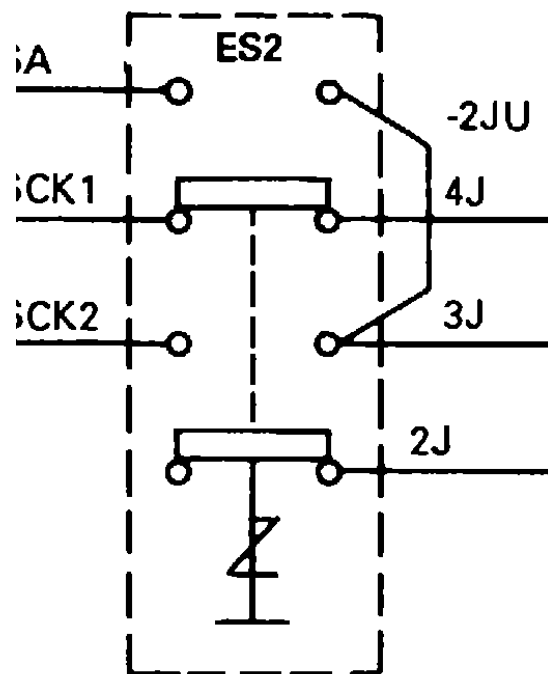
ENGINE START AND STOP
SWITCHES

ENGINE START AND STOP
SWITCHES

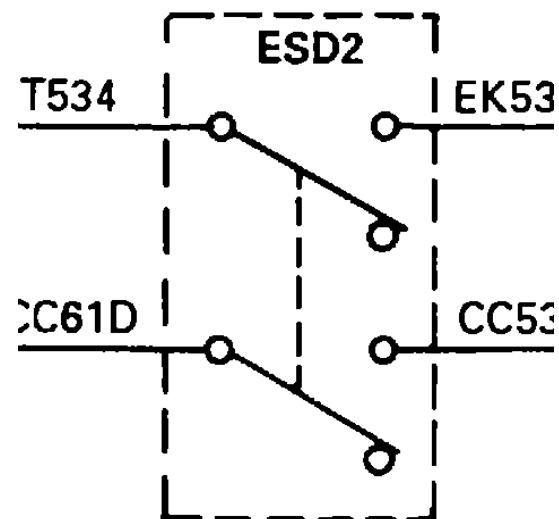
ENGINE START SW



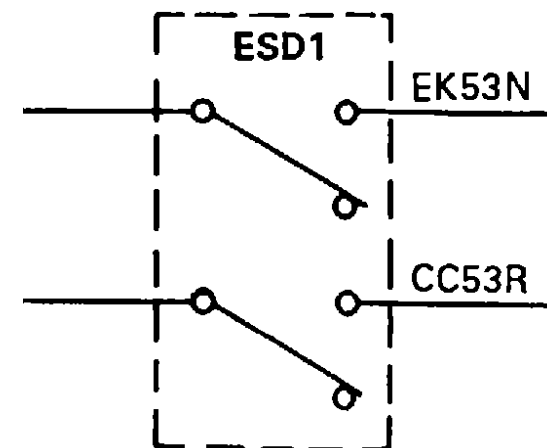
ENGINE START SW



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

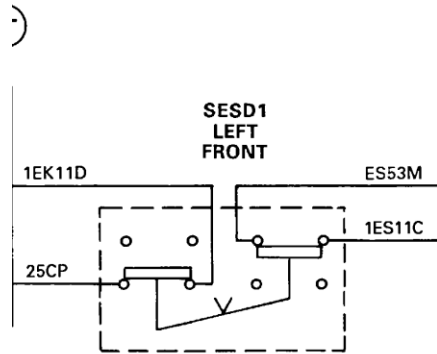
RIGHT BANK CONTROL
STAND

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

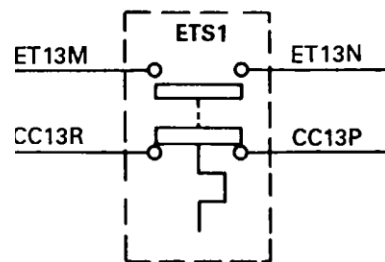
NO.1 AND NO.2 ENGINES
TEMP RELAY AND SWITCH

NO1 AND NO12 ENGINES
STOP SOLENIOD AND OIL
PRESSURE SWITCHES

EMERGENCY FUEL CUT-OFF SWITCHES

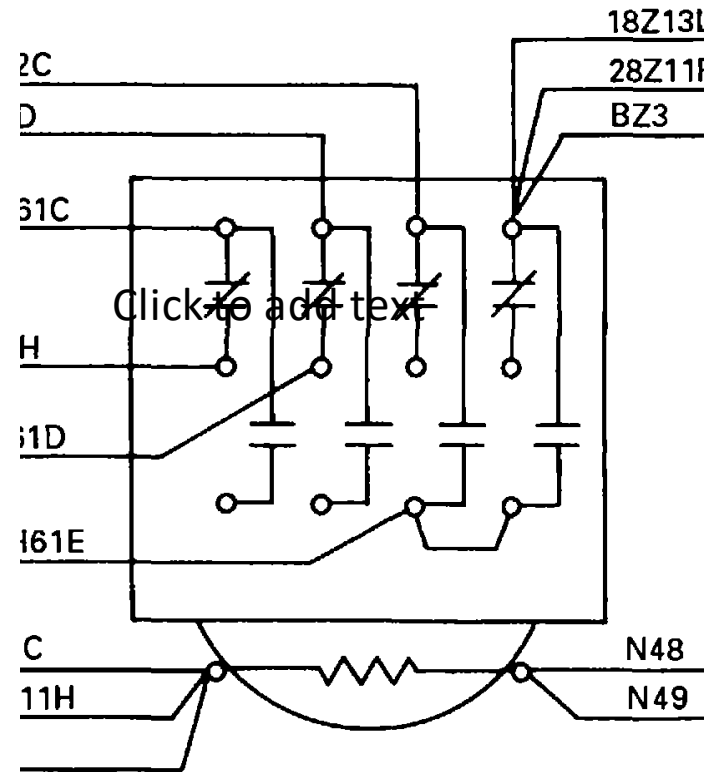


ENGINE TEMPERATURE SW

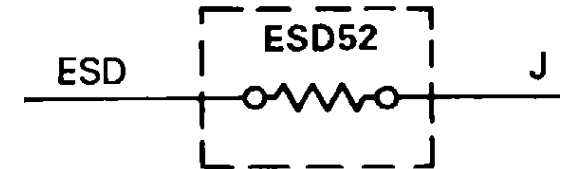


NO 1 DIESEL ENGINE

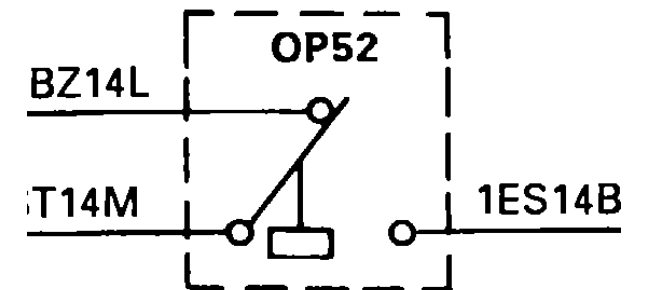
ENG TEMP WARNING RELAY ETWR



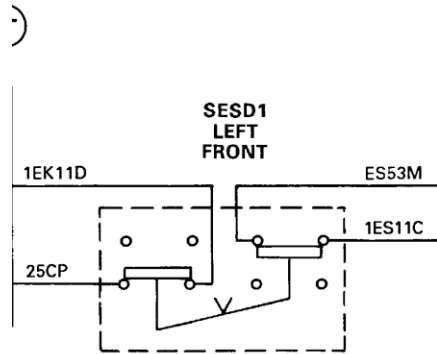
ENGINE STOP SOLENOID



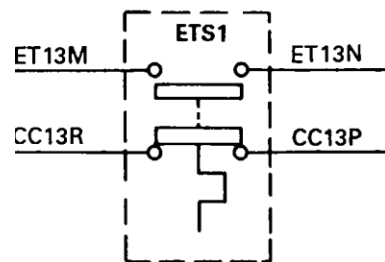
ENGINE OIL PRESSURE SW



EMERGENCY FUEL CUT-OFF SWITCHES

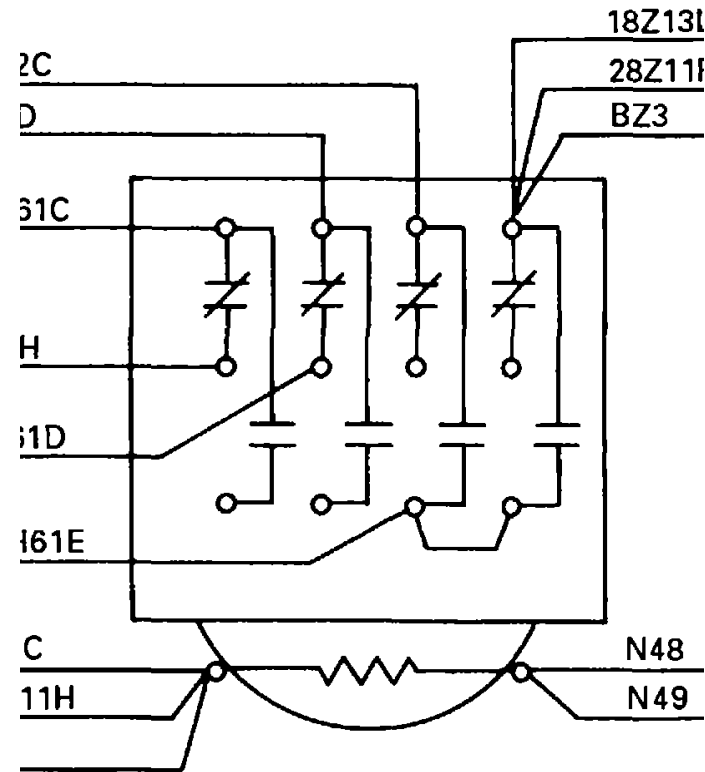


ENGINE TEMPERATURE SW

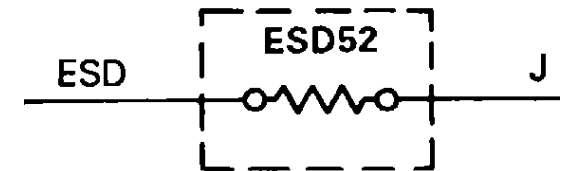


NO.2 DIESEL ENGINE

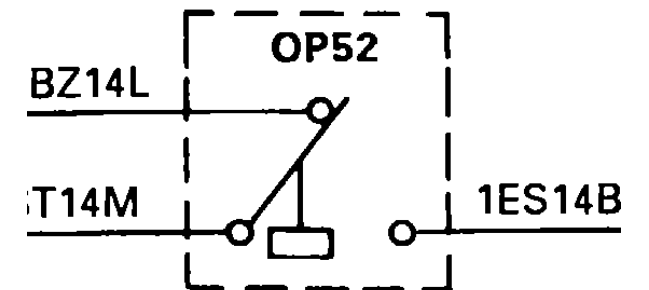
ENG TEMP WARNING RELAY ETWR



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

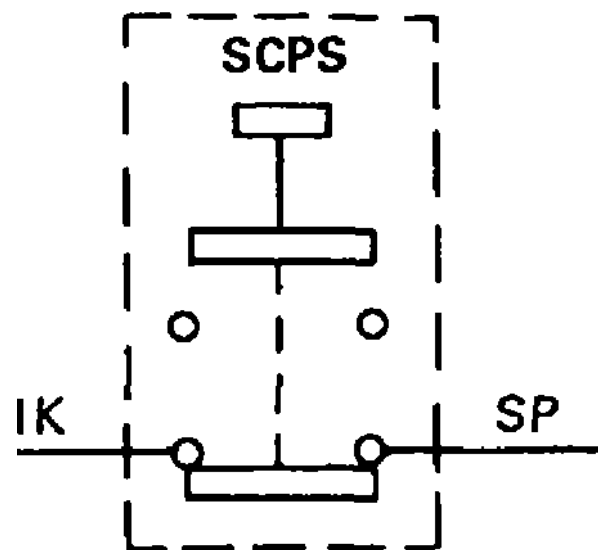
EMERGENCY SANDING
SWITCH

EMERGENCY SANDING
SWITCH

GROUND RELAY CUTOUT
SWITCH

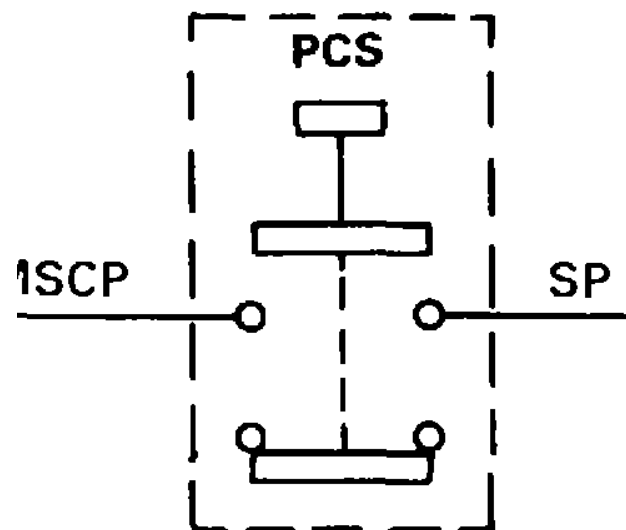
GROUND RELAY CUTOUT
SWITCH

SAFETY CONTROL PRESSURE SW



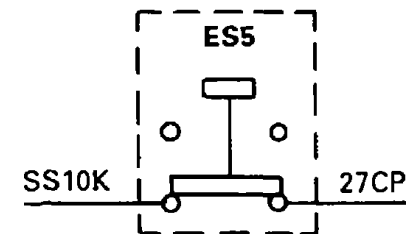
SET AT
22-RISING
10-FALLING

PRESSURE CONTROL SW

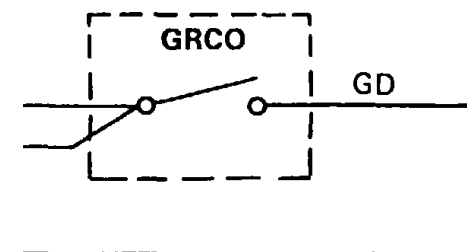


SET AT
60 PSI

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

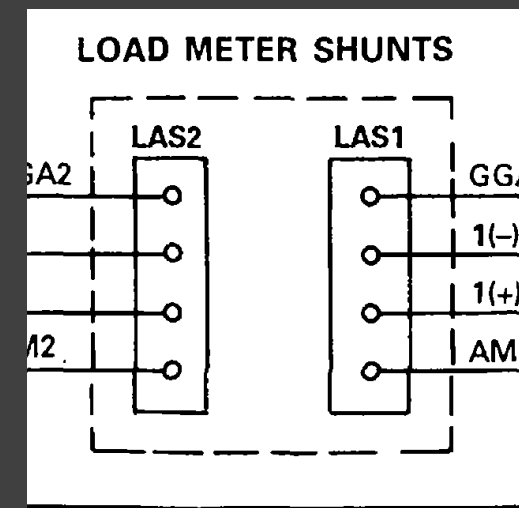
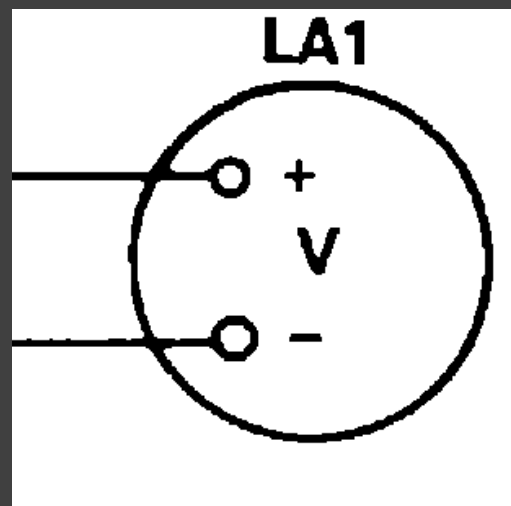
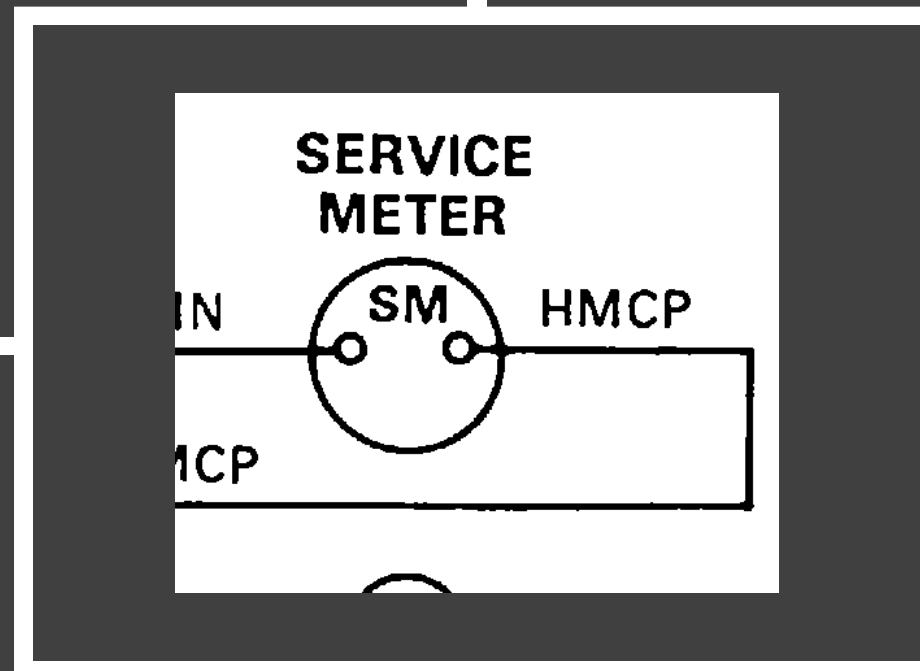
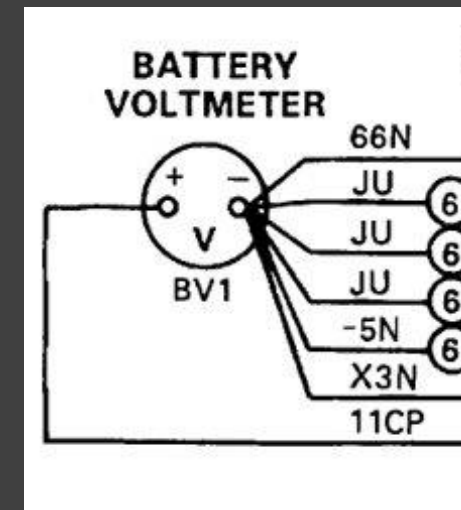
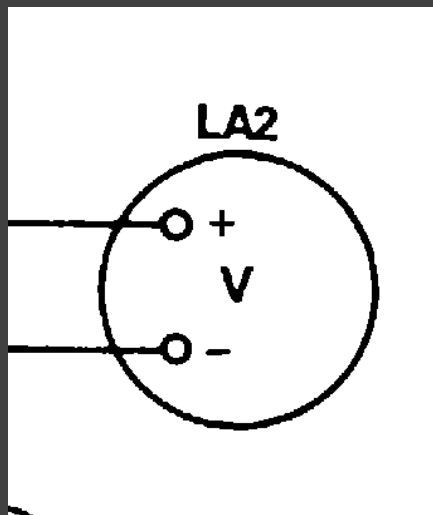
RIGHT BANK CONTROL
STAND

LOAD AMMETER NO 1 AND
NO.2

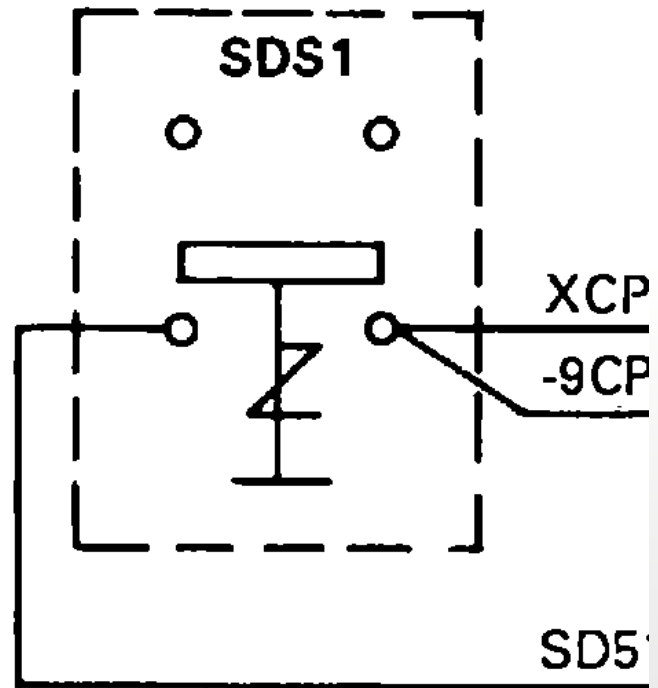
LOAD METER SHUNTS

BATTERY VOLTMETER

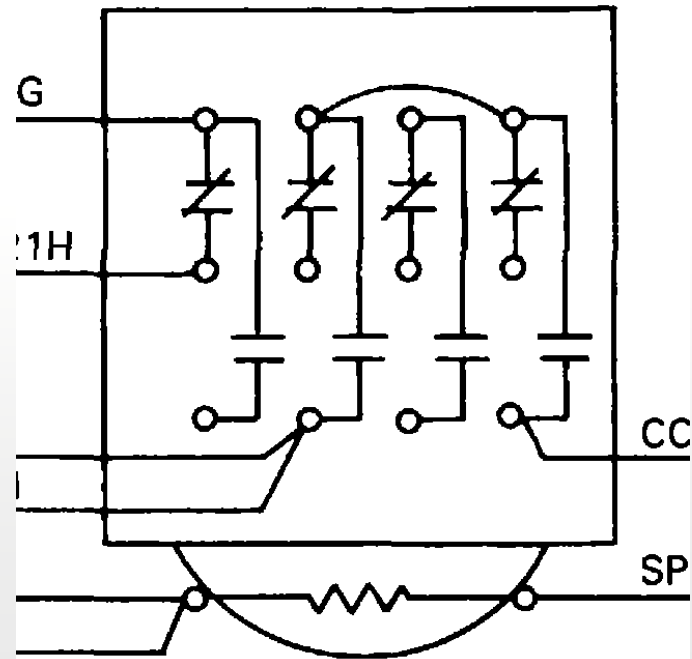
BATTERY VOLTMETER



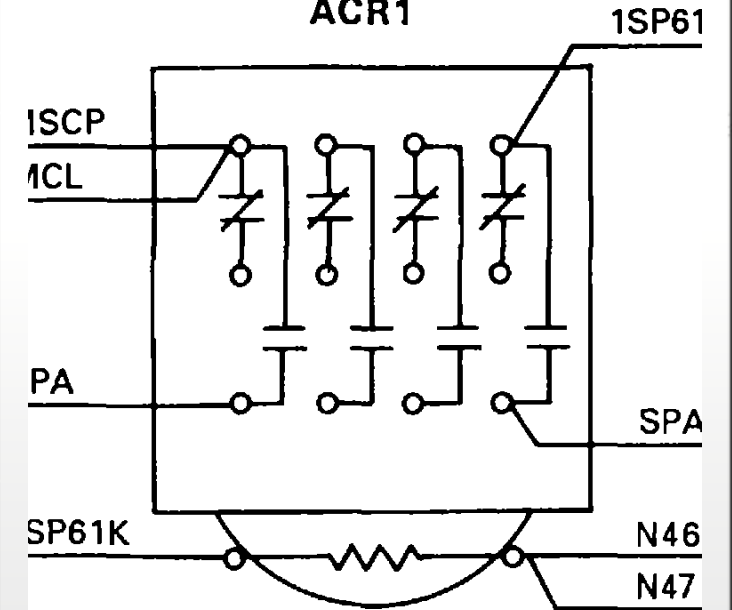
SANDING SW



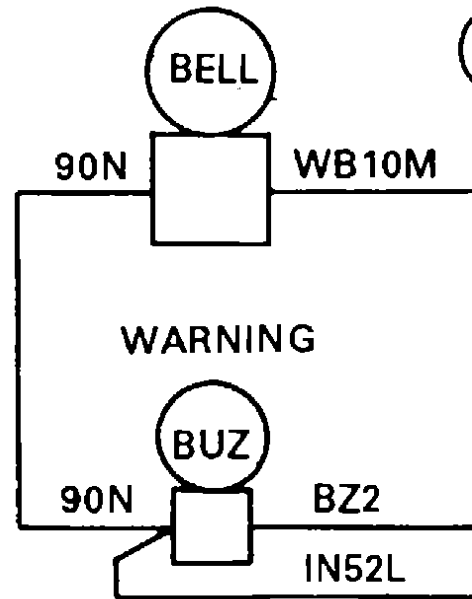
SAFETY RELAY ACR2



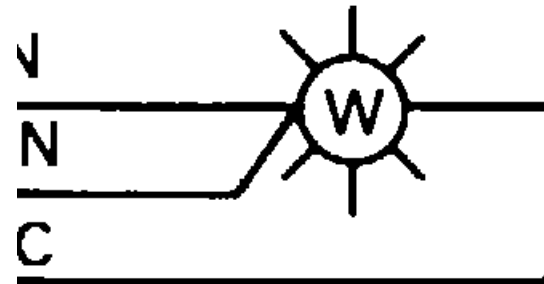
SAFETY RELAY ACR1



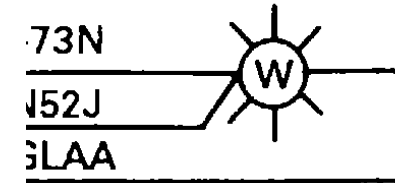
ENGINE TEMP WARNING ET WB



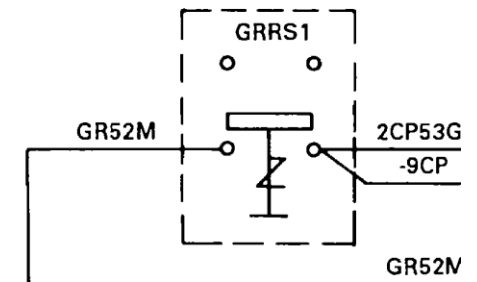
WHEEL SLIP IND LIGHT WSL1

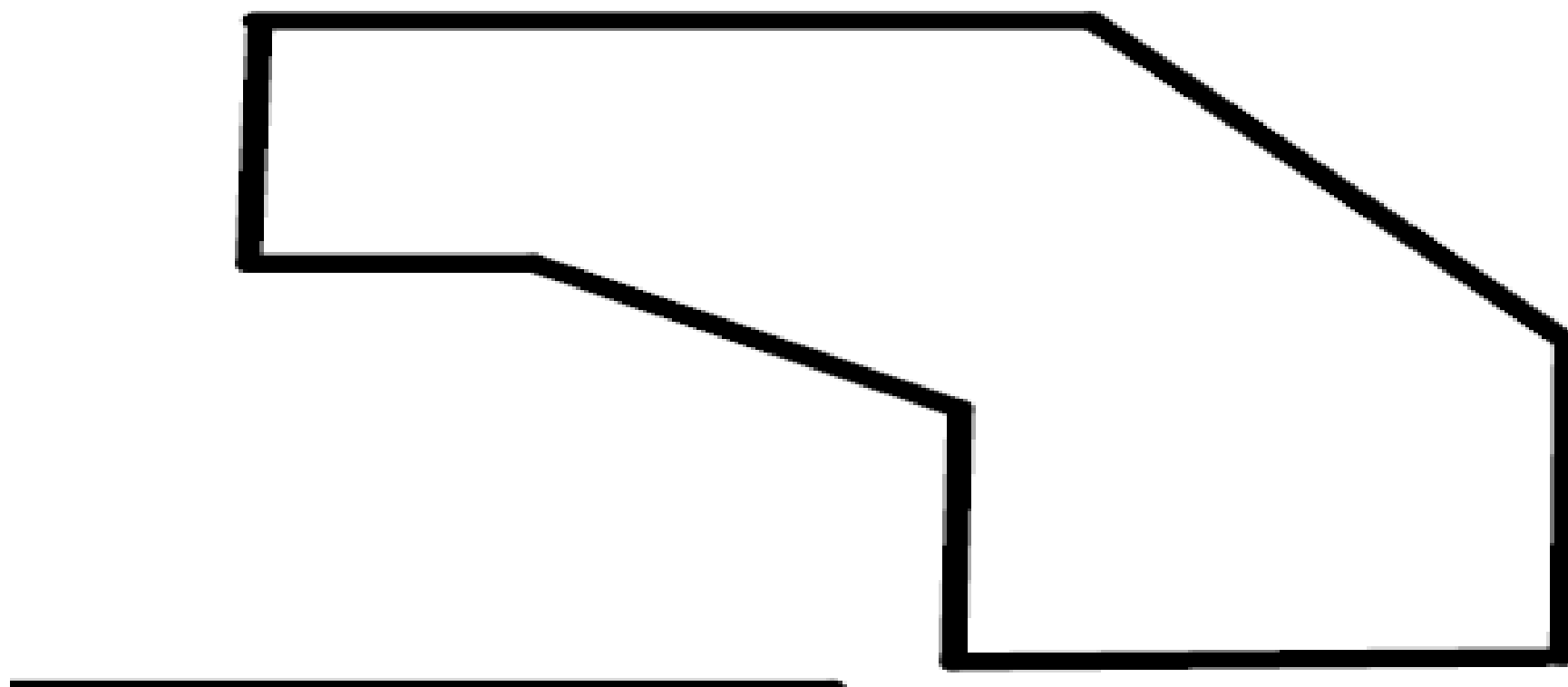


GROUND RELAY IND LIGHT GRL1



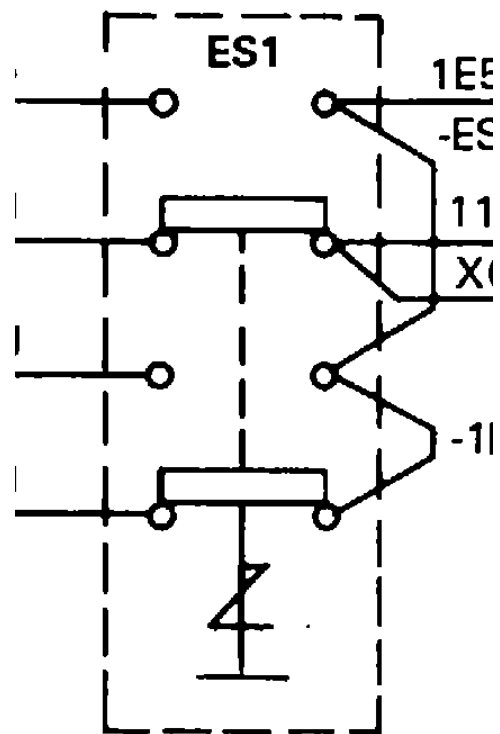
GROUND RELAY RESET



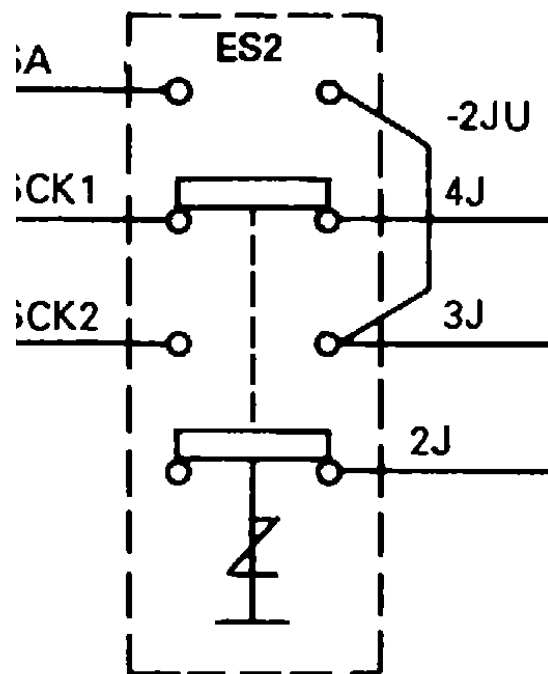


**REAR CONTROL
STAND**

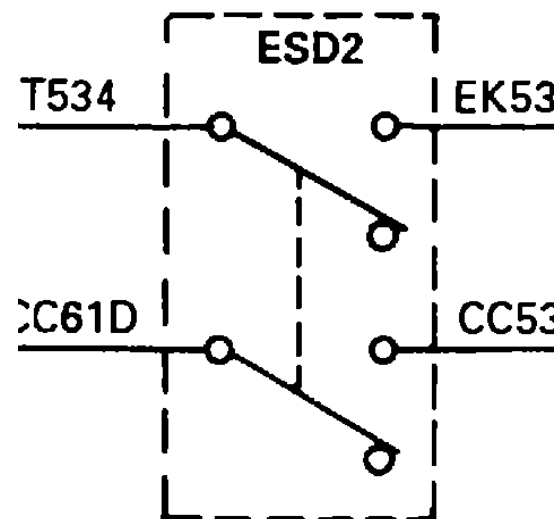
ENGINE START SW



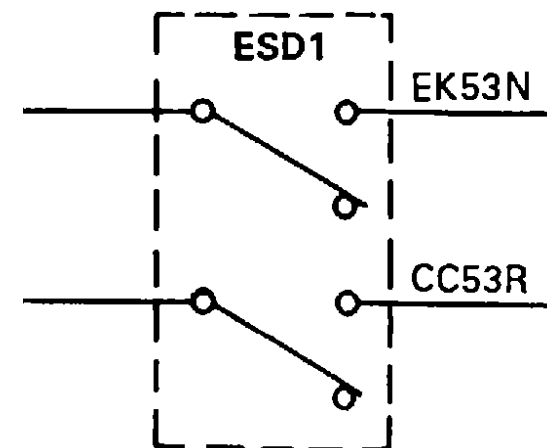
ENGINE START SW



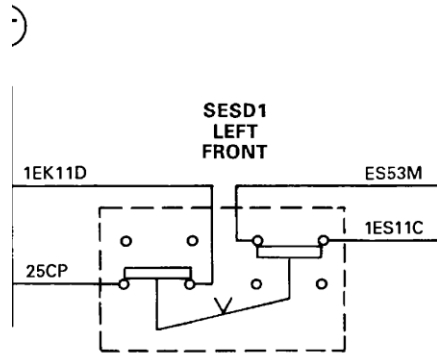
ENGINE STOP SW



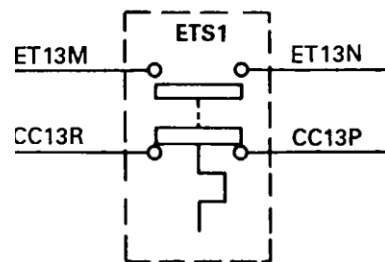
ENGINE STOP SW



EMERGENCY FUEL CUT-OFF SWITCHES

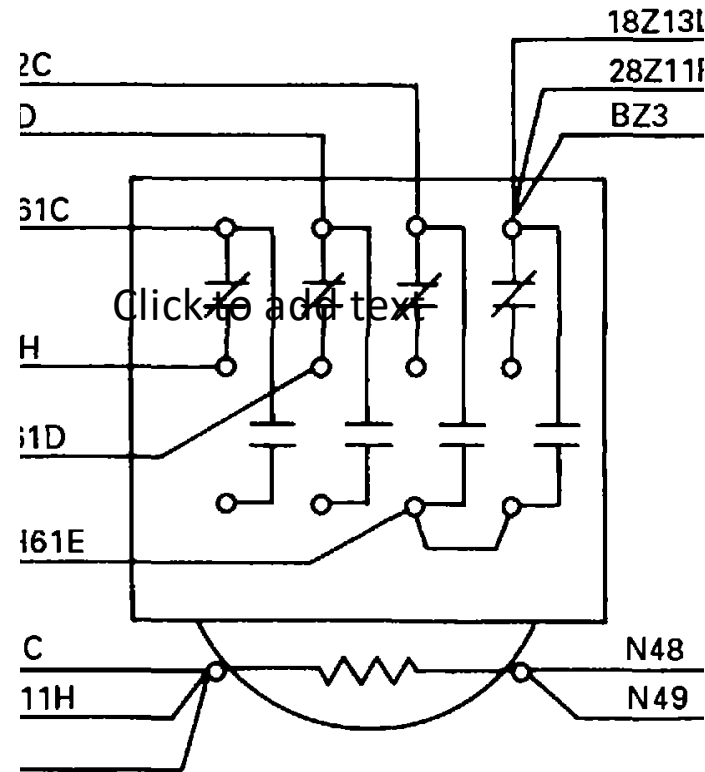


ENGINE TEMPERATURE SW

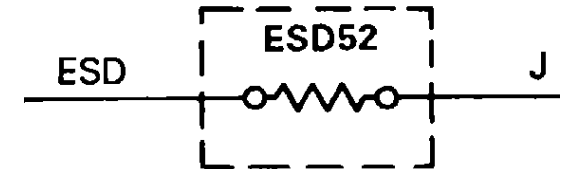


NO 1 DIESEL ENGINE

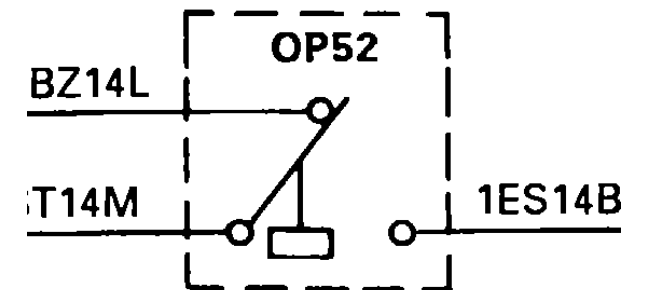
ENG TEMP WARNING RELAY ETWR



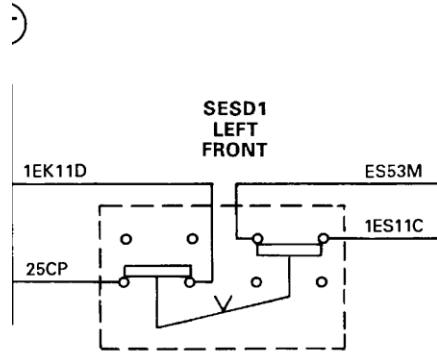
ENGINE STOP SOLENOID



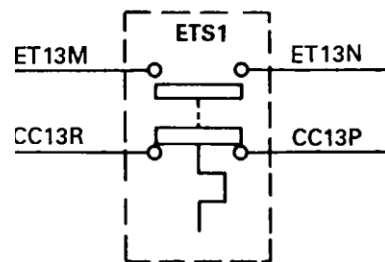
ENGINE OIL PRESSURE SW



EMERGENCY FUEL CUT-OFF SWITCHES

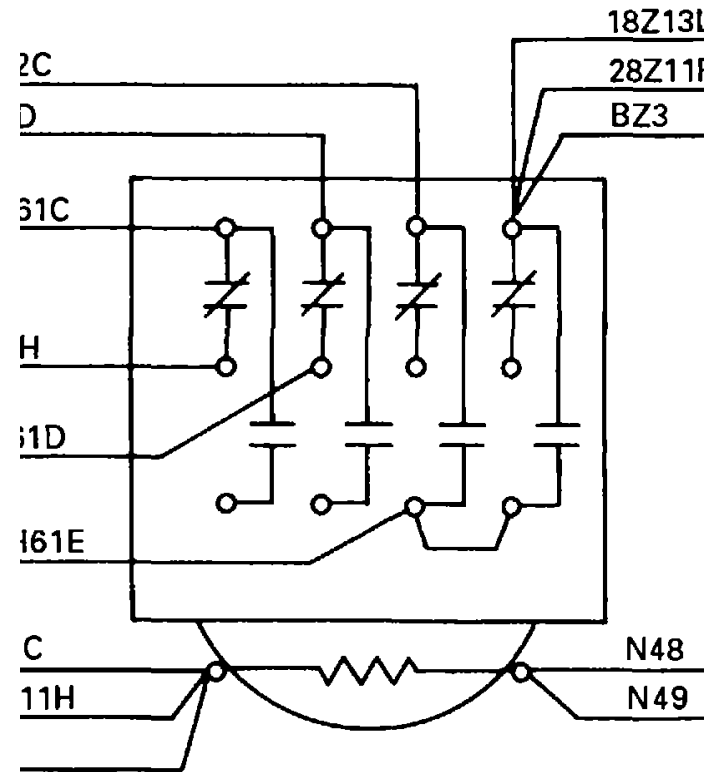


ENGINE TEMPERATURE SW

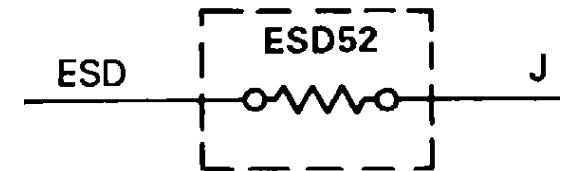


NO.2 DIESEL ENGINE

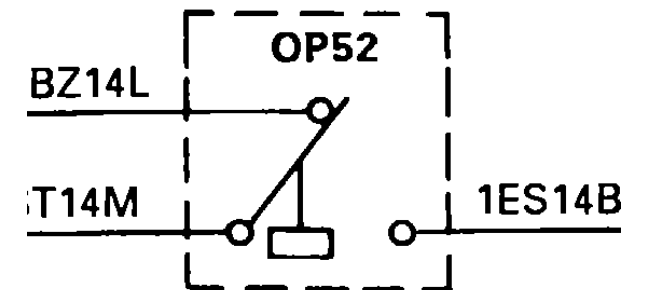
ENG TEMP WARNING RELAY ETWR



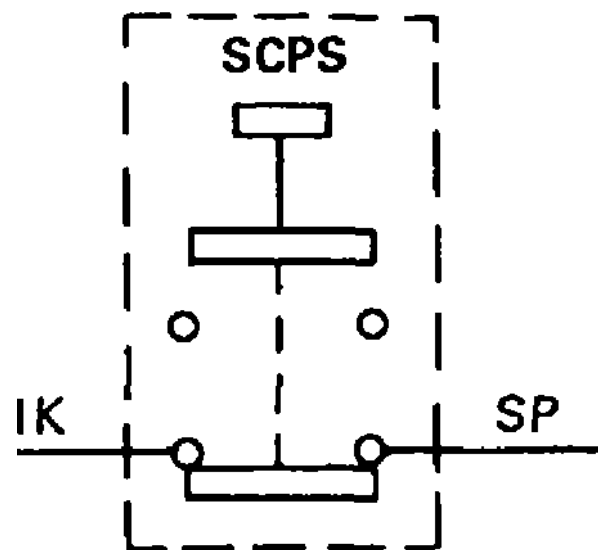
ENGINE STOP SOLENOID



ENGINE OIL PRESSURE SW

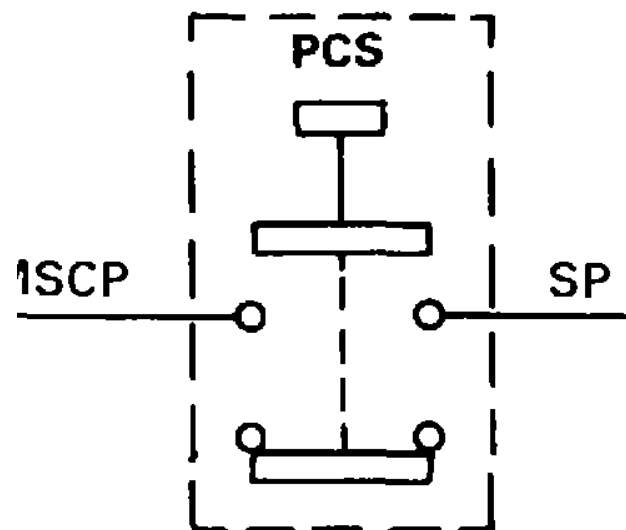


SAFETY CONTROL PRESSURE SW



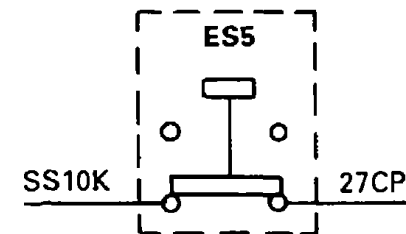
SET AT
22-RISING
10-FALLING

PRESSURE CONTROL SW

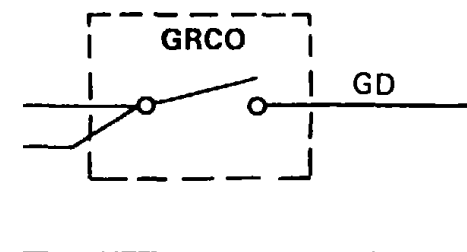


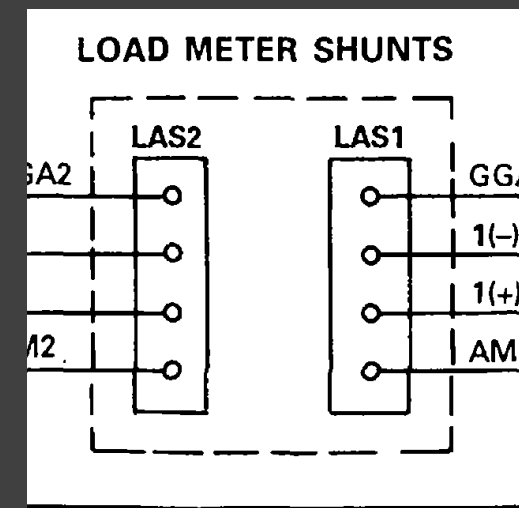
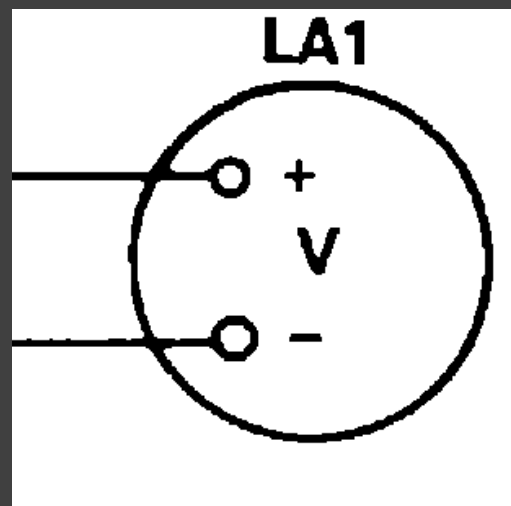
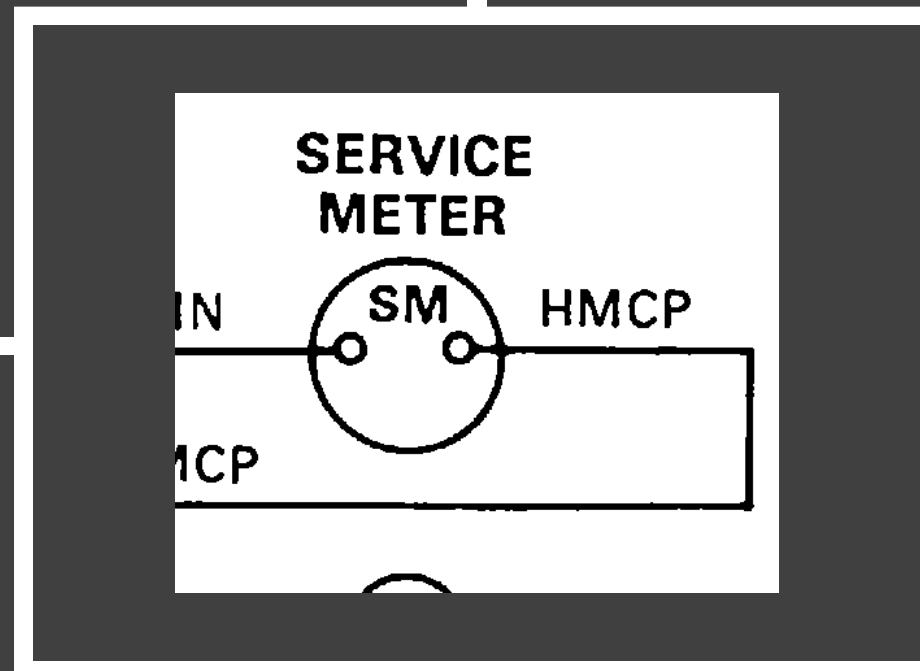
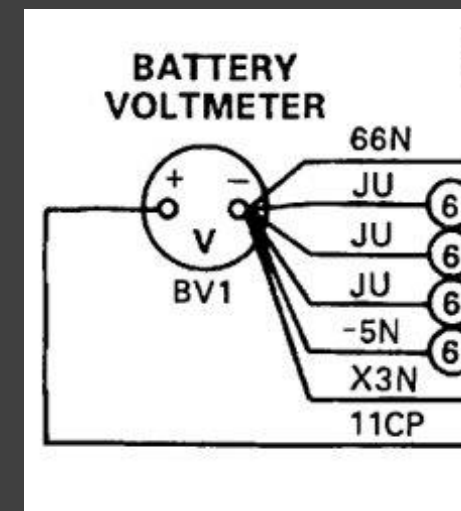
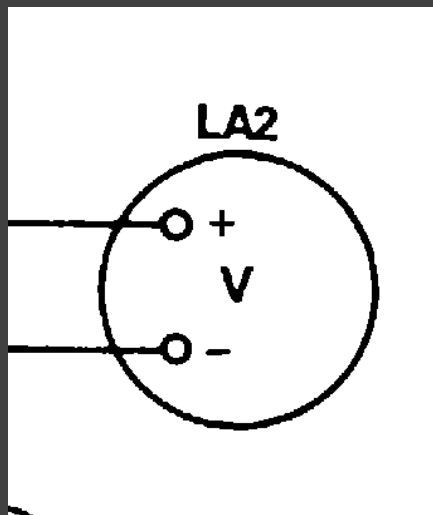
SET AT
60 PSI

EMERGENCY SANDING SW

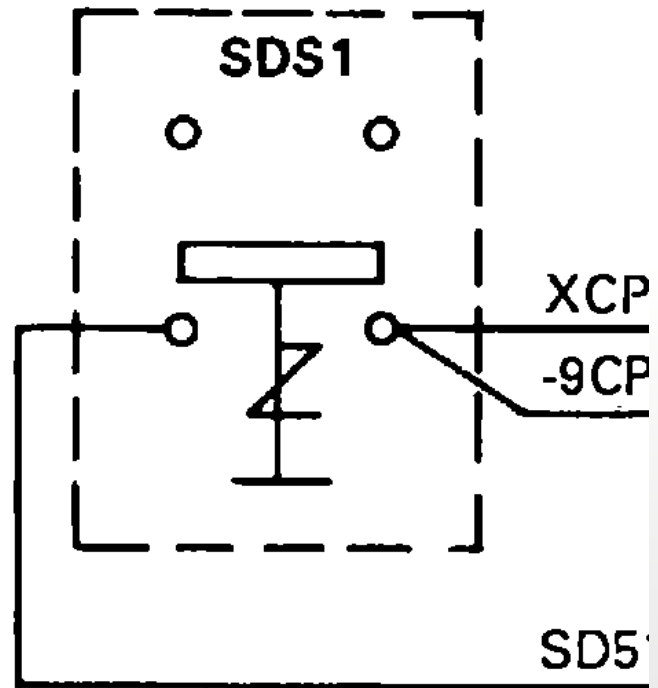


GROUND RELAY CUTOUT SW

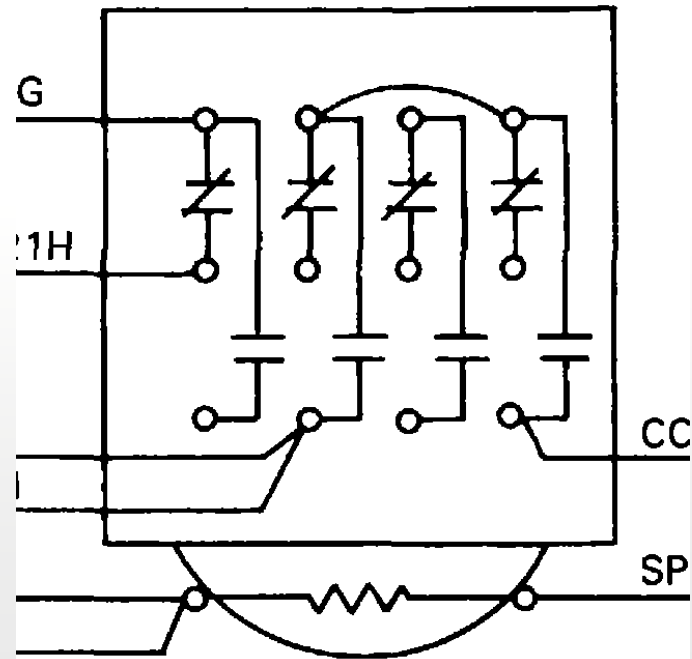




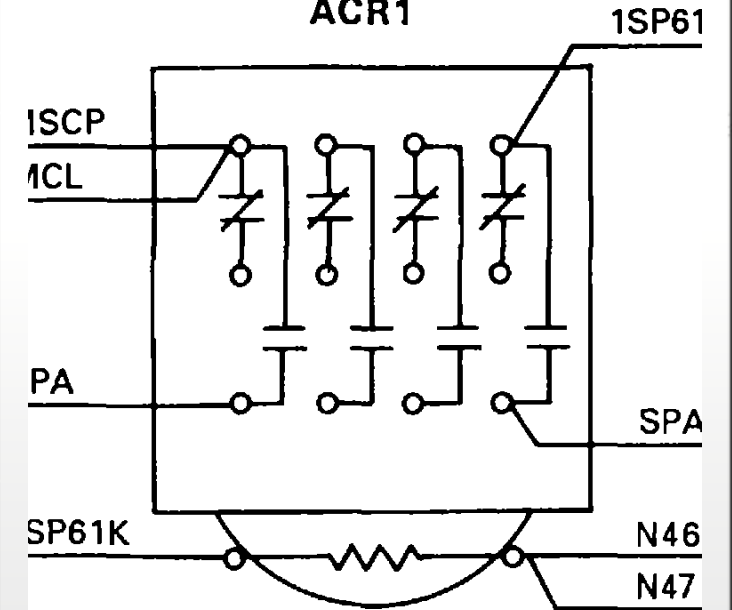
SANDING SW



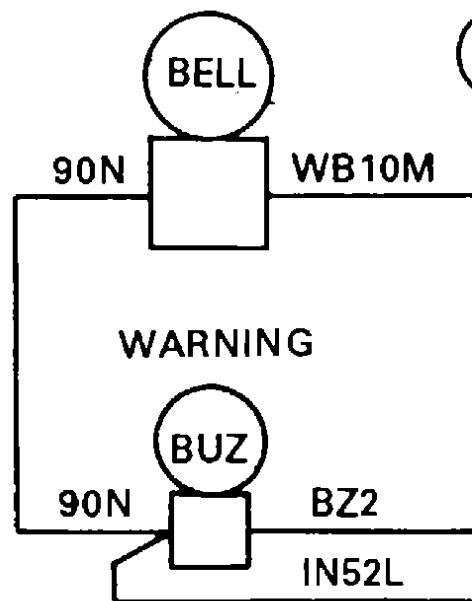
SAFETY RELAY ACR2



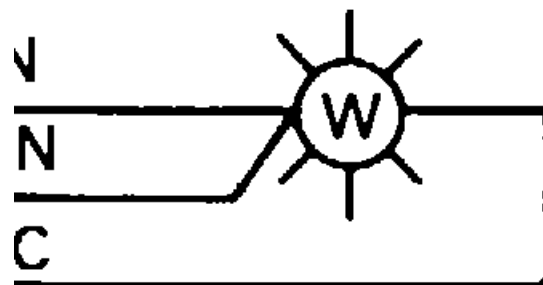
SAFETY RELAY ACR1



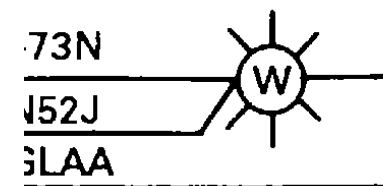
ENGINE TEMP WARNING ET WB



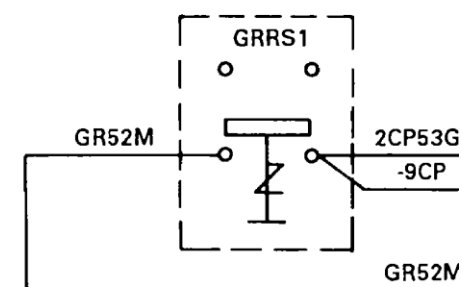
WHEEL SLIP IND LIGHT WSL1



GROUND RELAY IND LIGHT GRL1



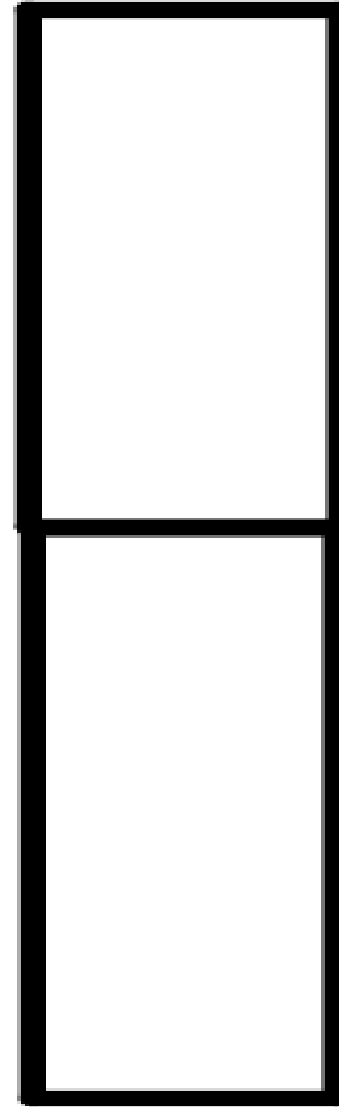
GROUND RELAY RESET



FRONT AND REAR CONTROL CABINETS

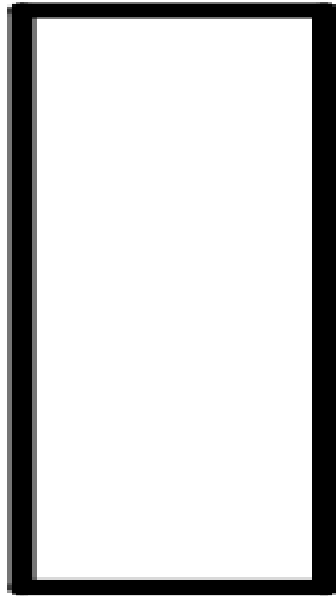
BY ADAM NUGENT ROSENBERGER

CONTROL CABINET 2

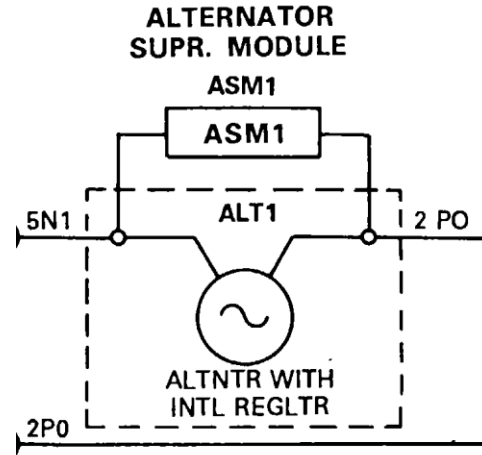
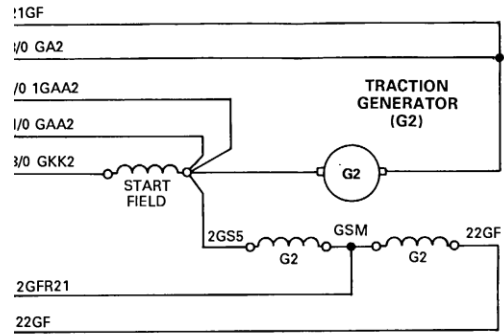
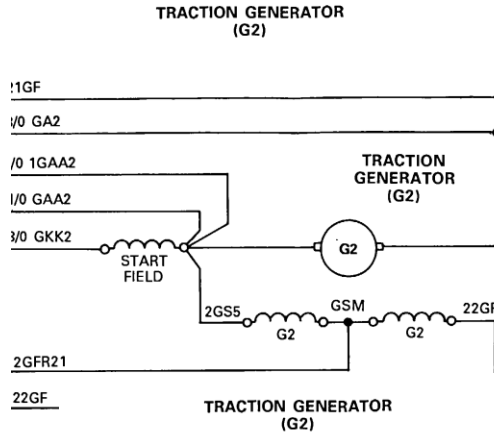


CONTROL CABINET 3

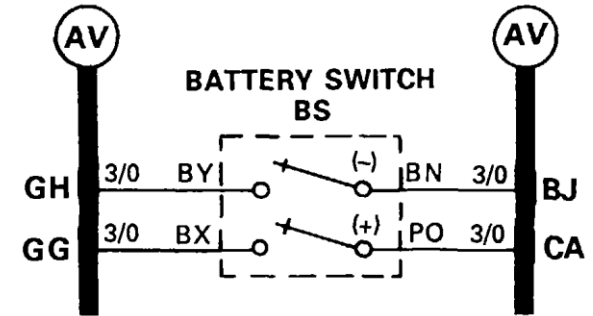
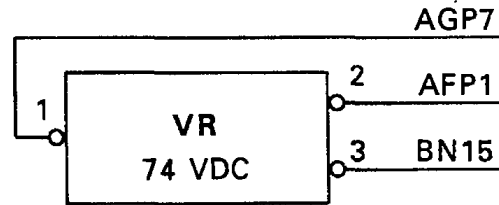
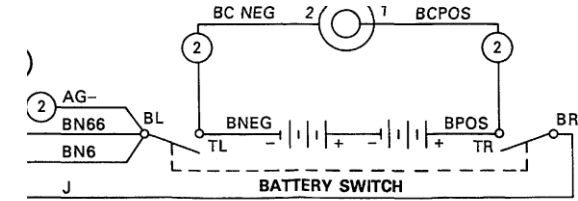
FRONT CAB



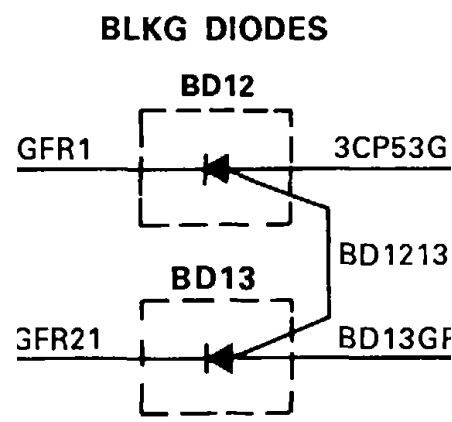
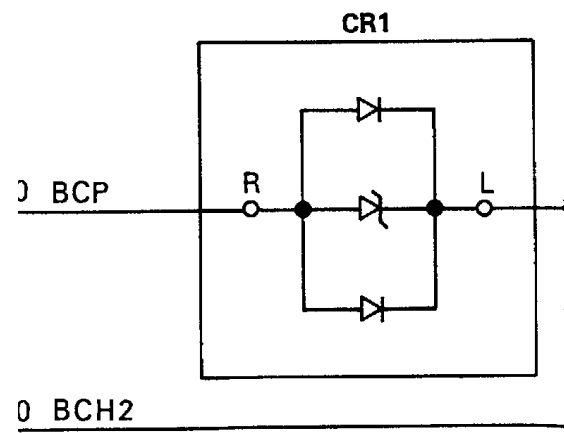
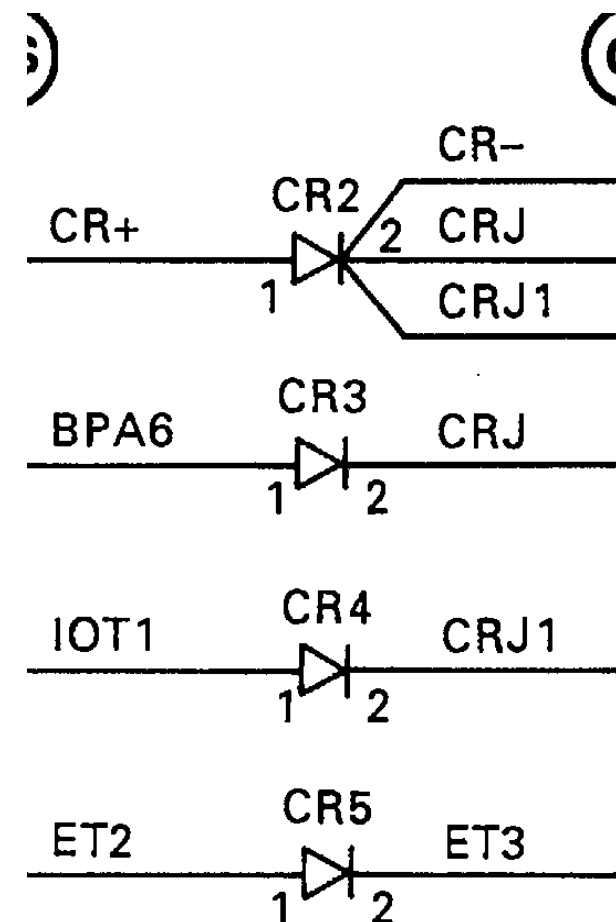
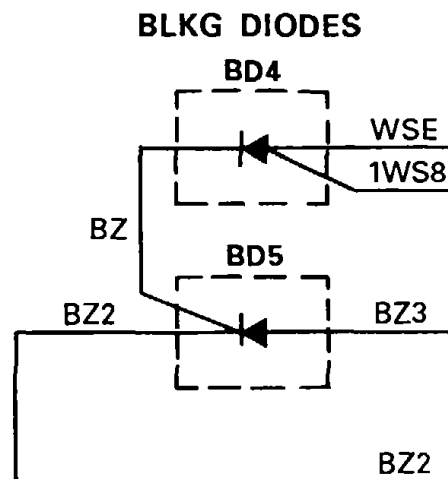
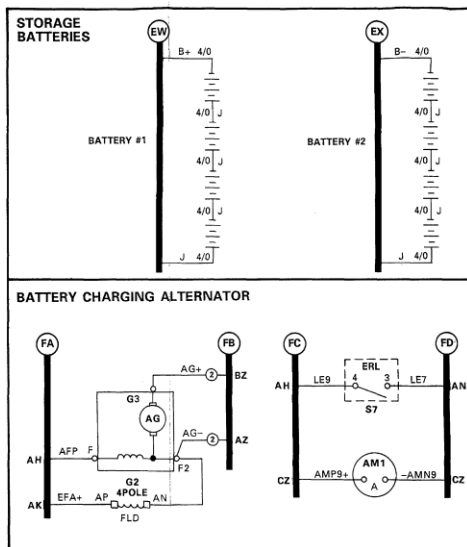
CONTROL CABINET 1



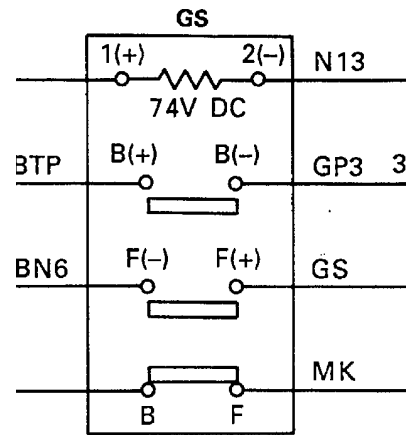
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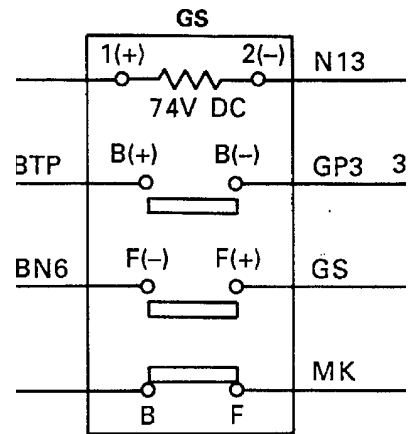
HIGH VOLTAGE CONTROL ROOM



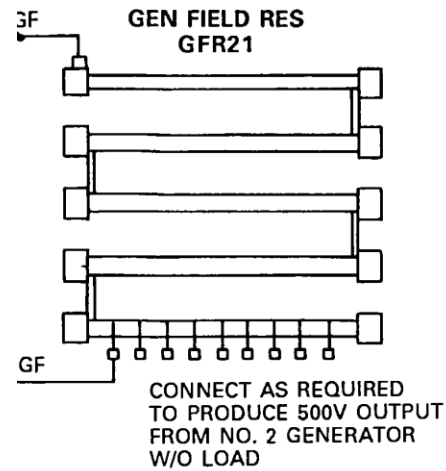
**HIGH VOLTAGE
CONTROL ROOM
FRONT**



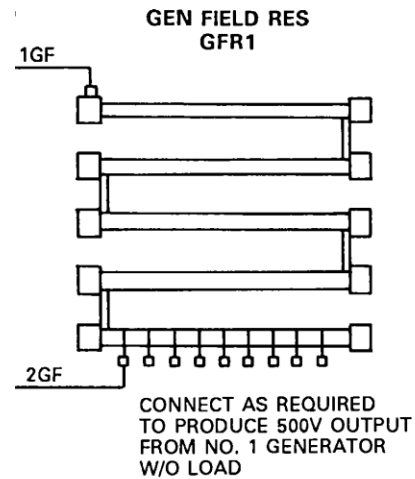
CONTROL CABINET 2



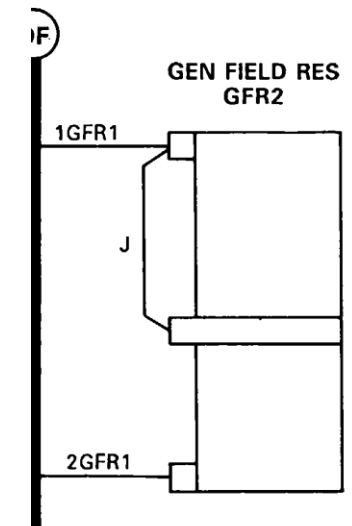
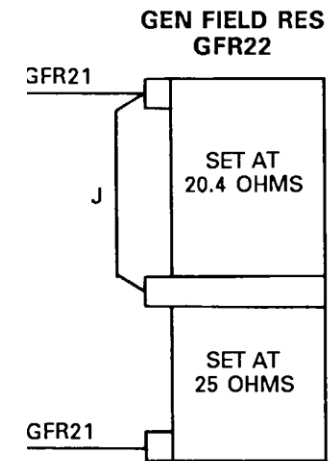
CONTROL CABINET 2

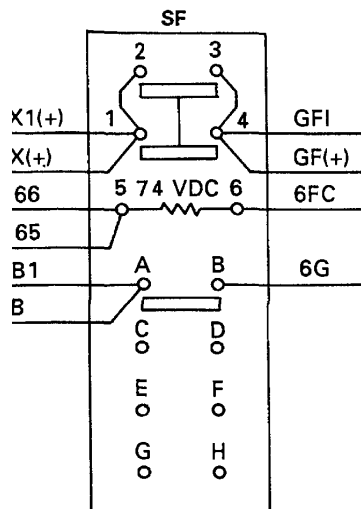


GENERATOR 1

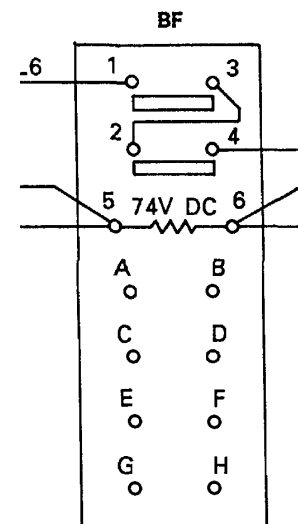


GENERATOR 2

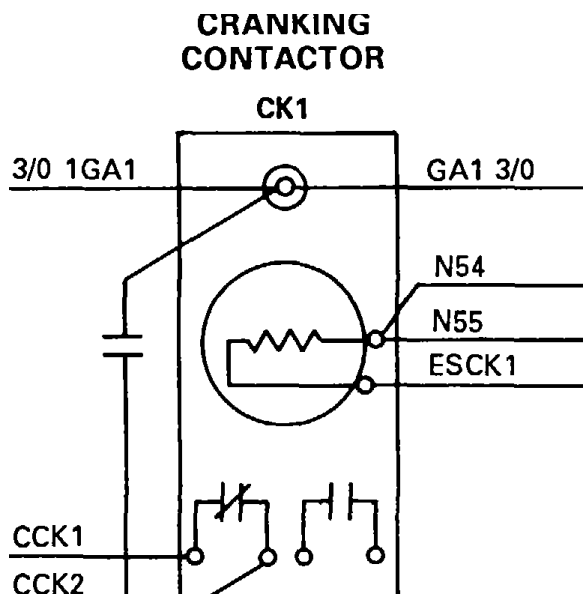




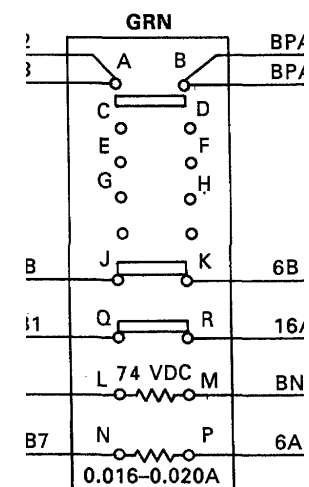
CONTROL CANBINET 2



CONTROL CABINET 3

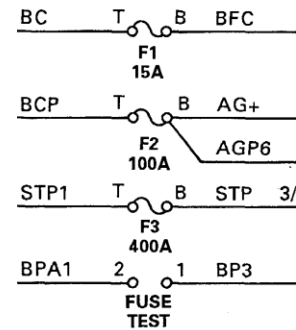
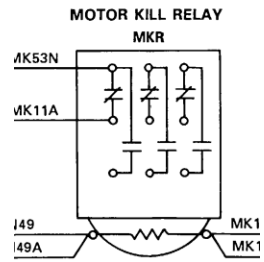
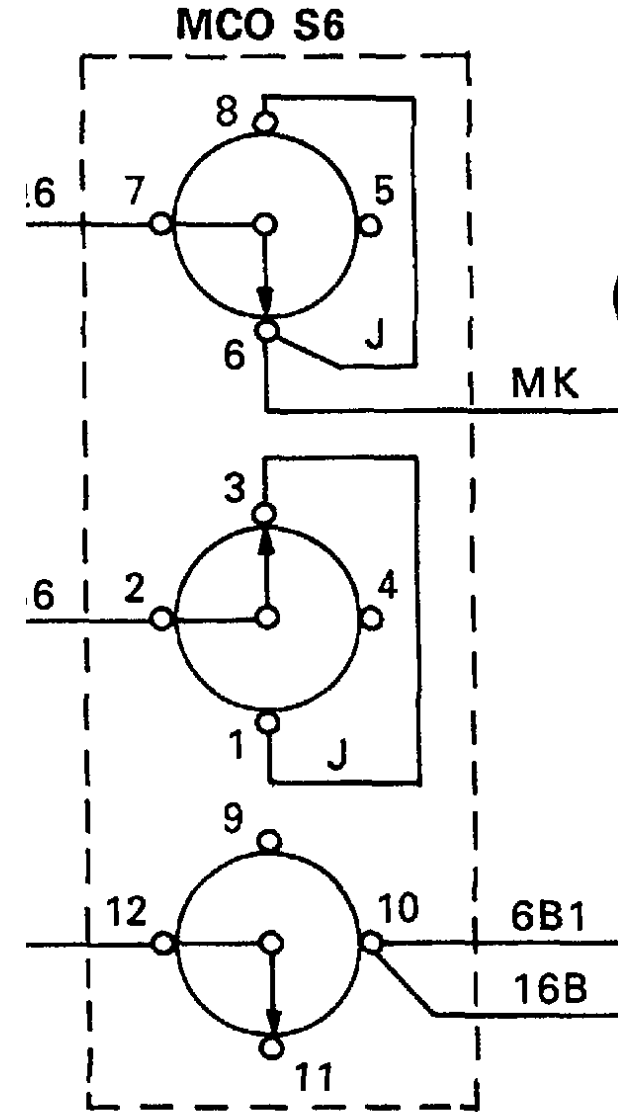
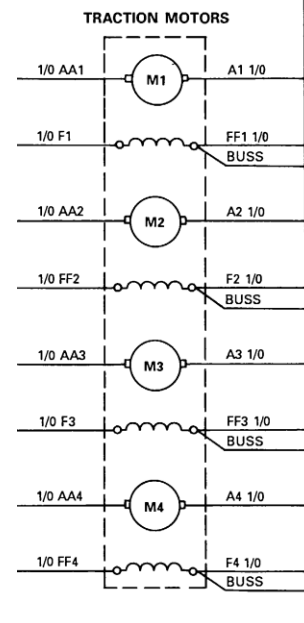
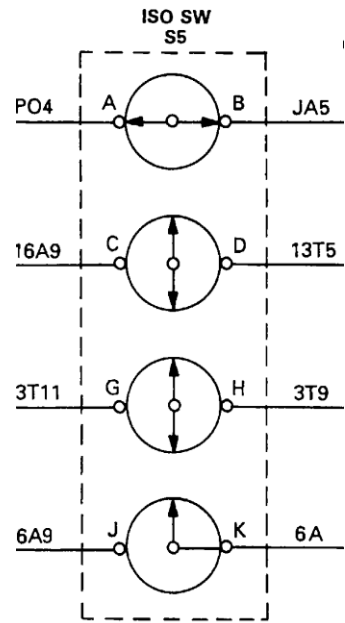


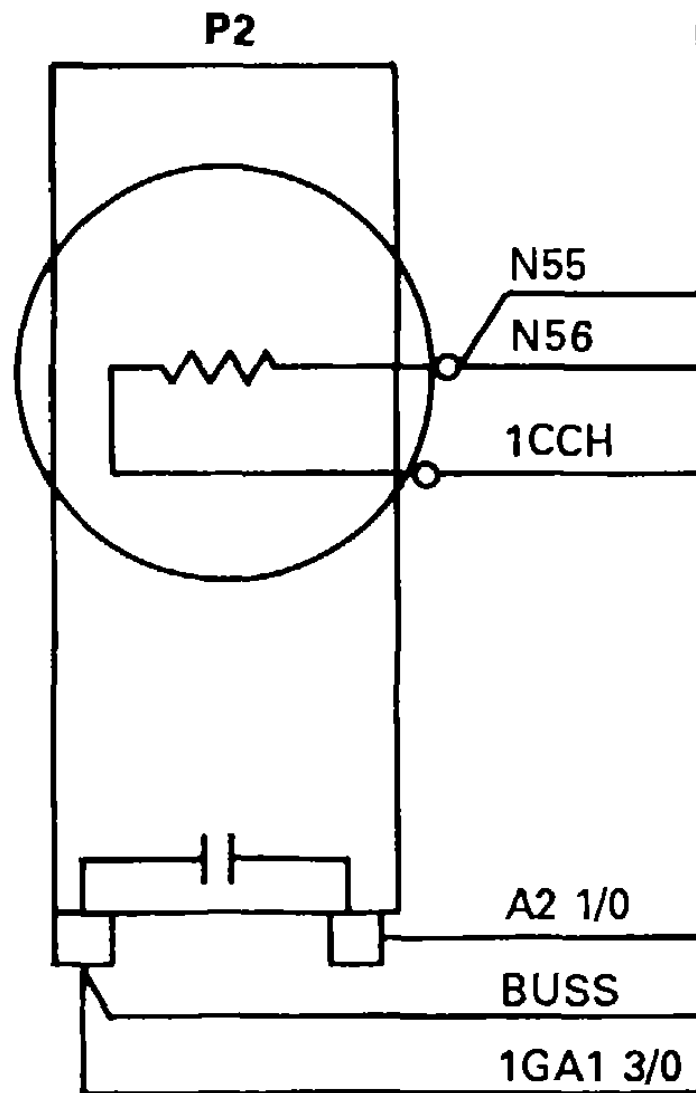
CONTROL CANBINET 2



CONTROL CABINET 3

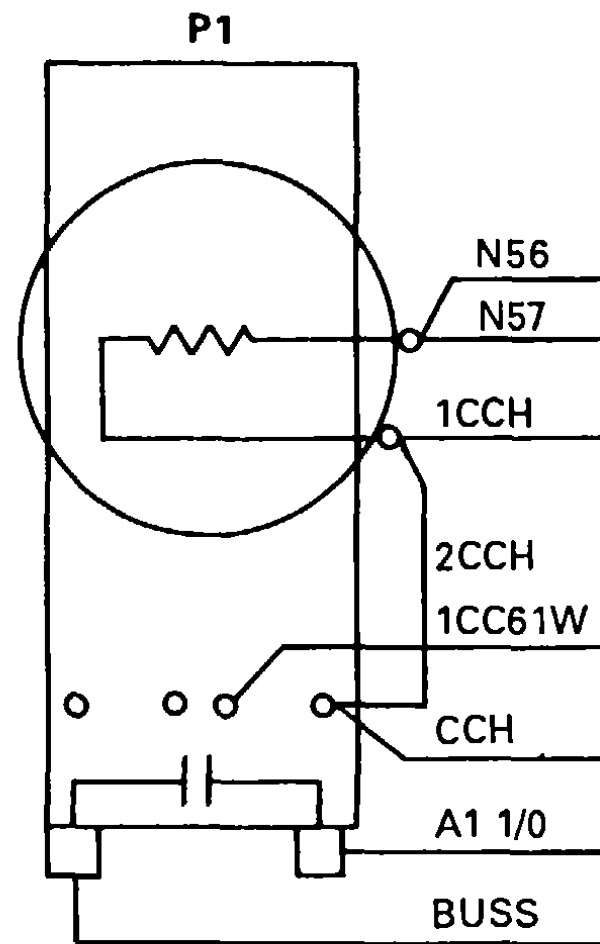
CONTROL CABINET 1



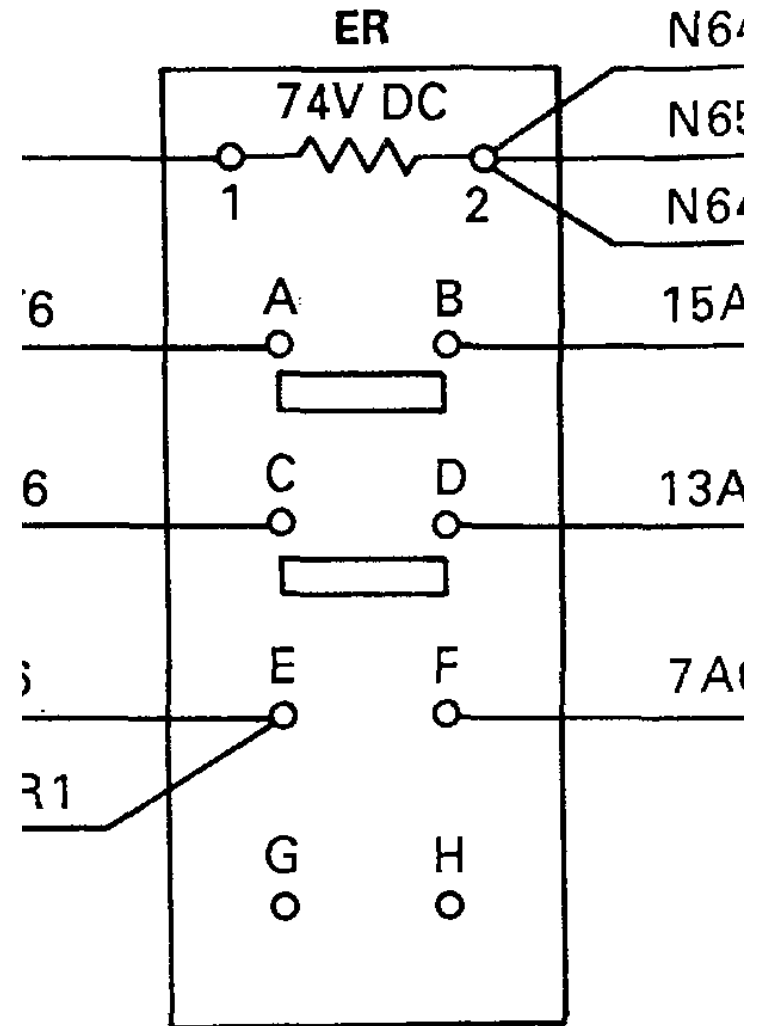
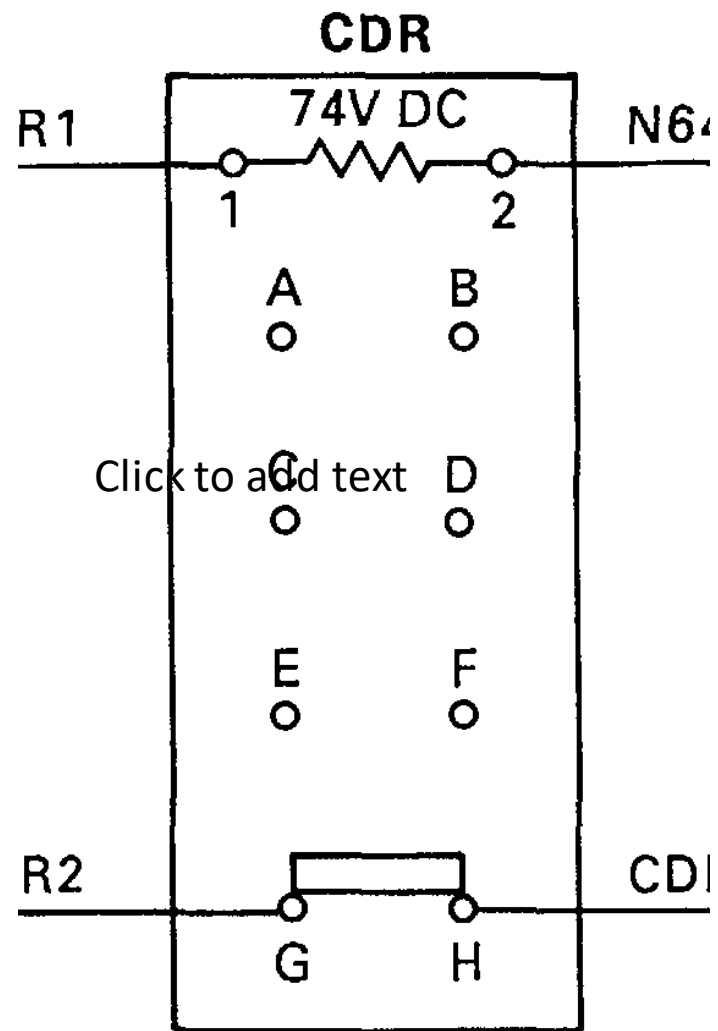
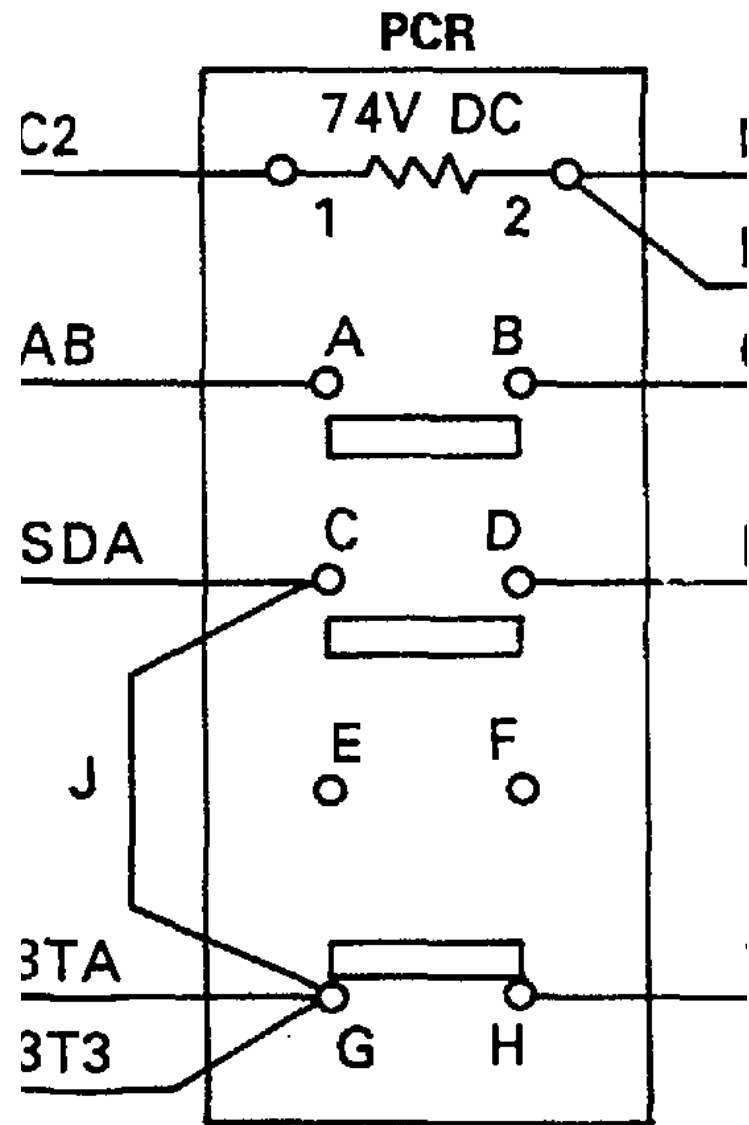


CONTROL CABINET 3

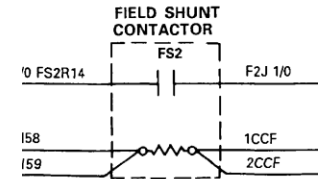
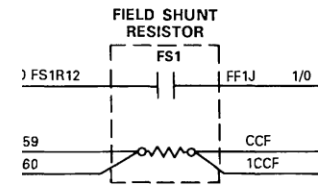
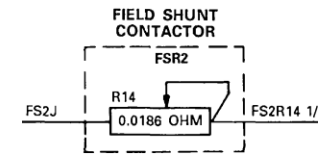
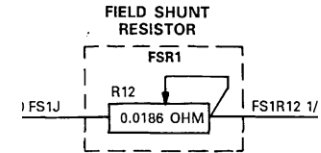
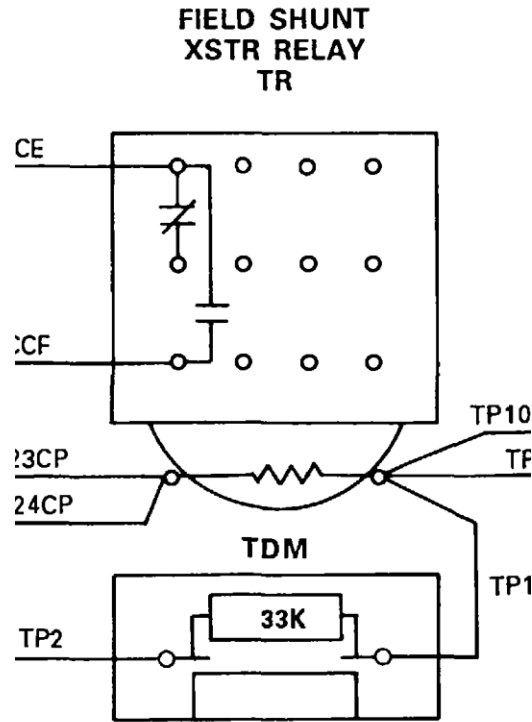
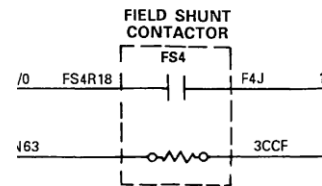
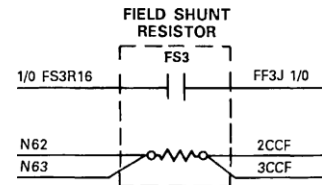
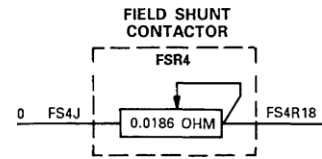
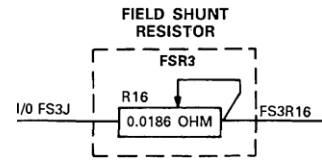
POWER CONTACTORS



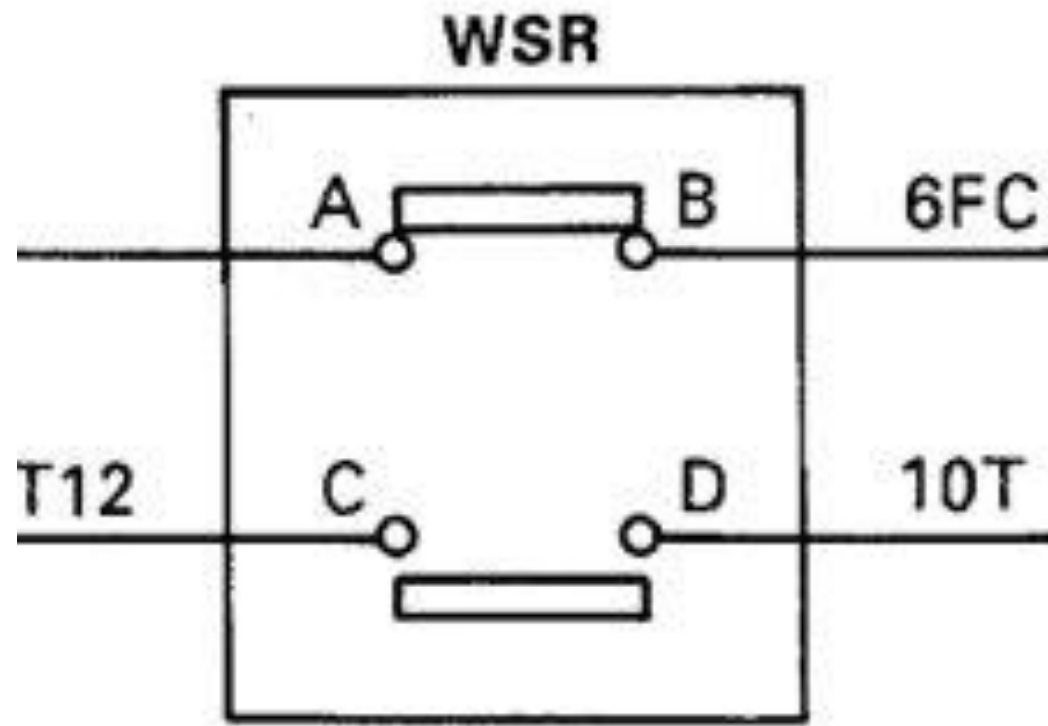
CONTROL CABINET 2



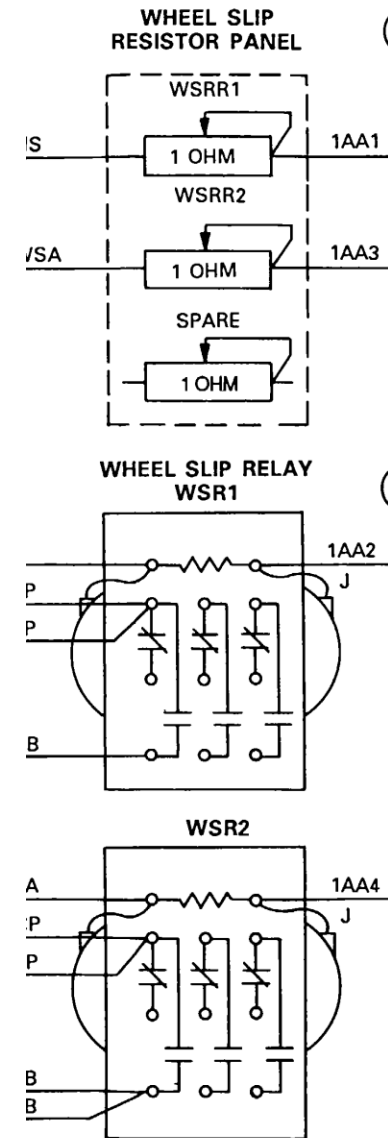
CONTROL CABINET 3

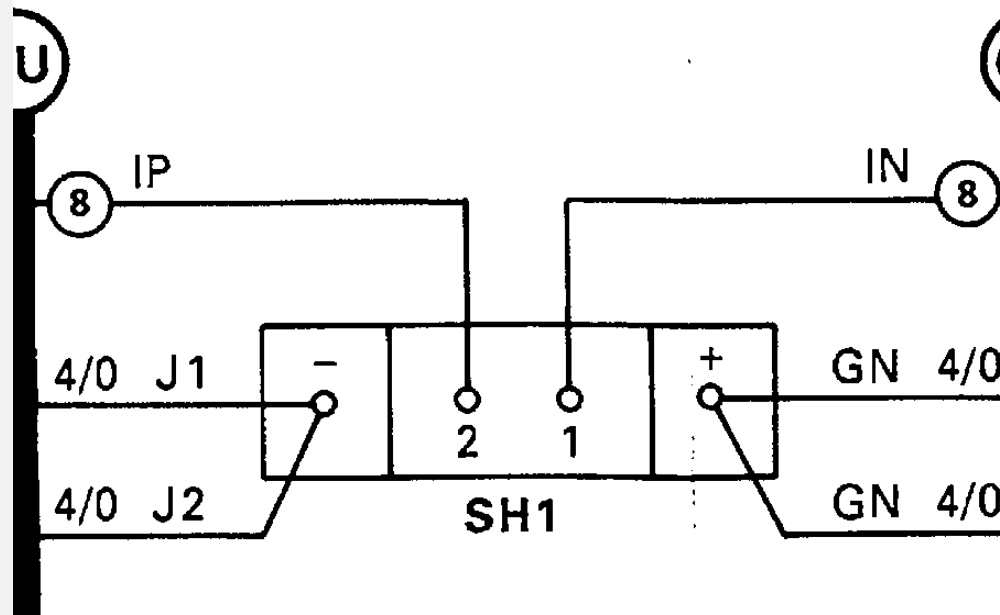


FRONT CONTROL ROOM

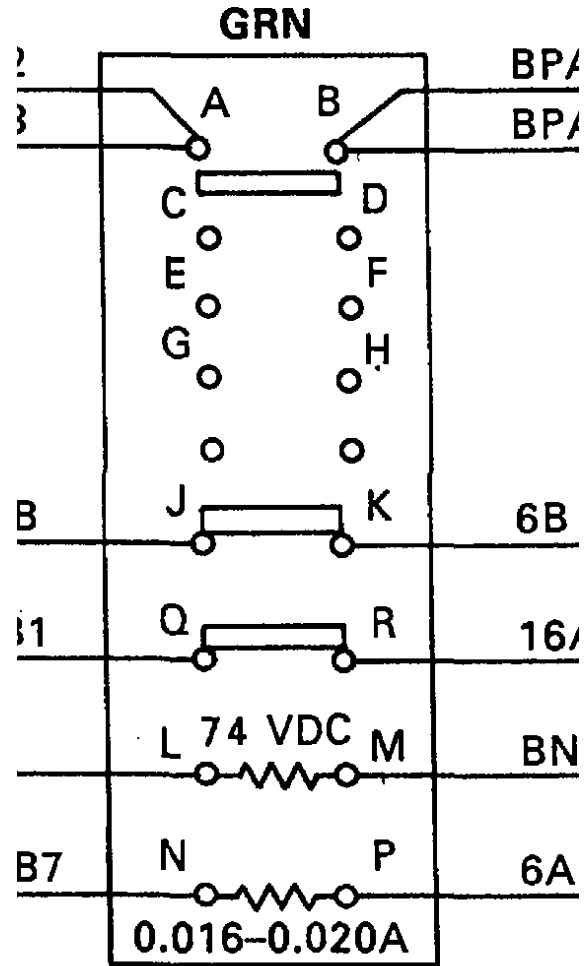


CONTROL CABINET 1



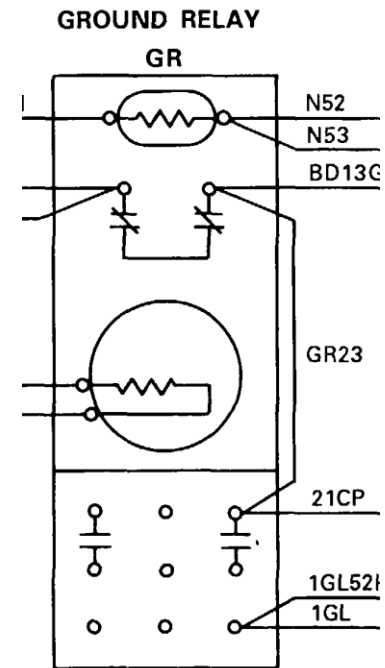
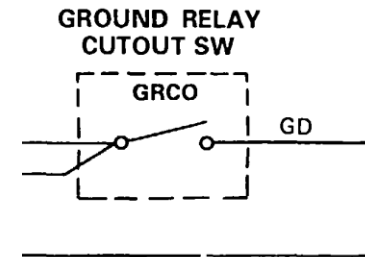


**FRONT CONTROL CABINET
FIREWALL**

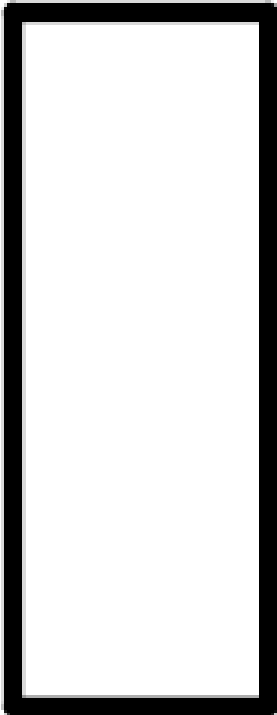


CONTROL CABINET

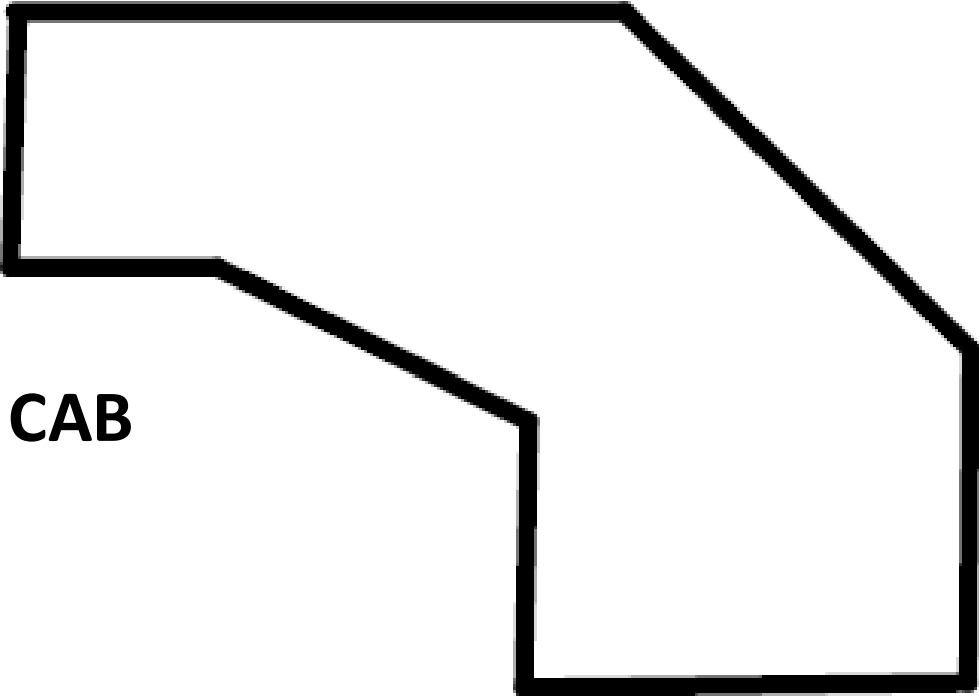
5



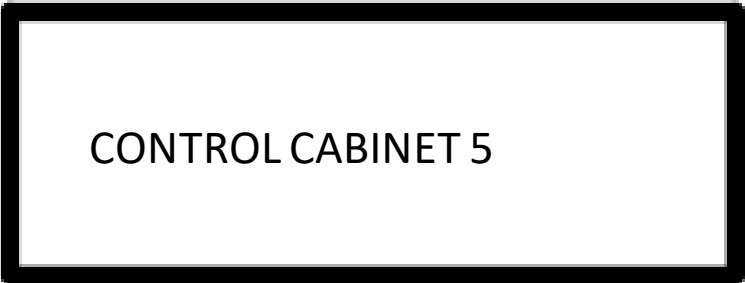
CONTROL CABINET 4

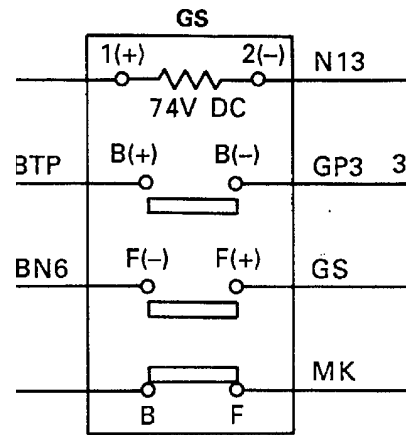


REAR CAB

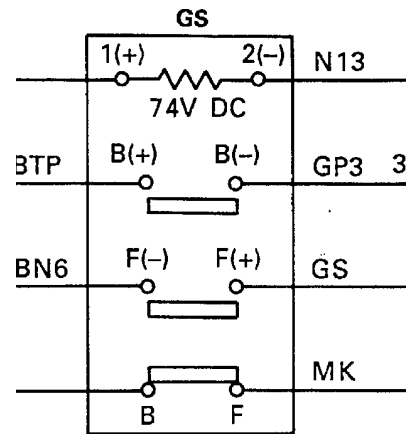


CONTROL CABINET 5

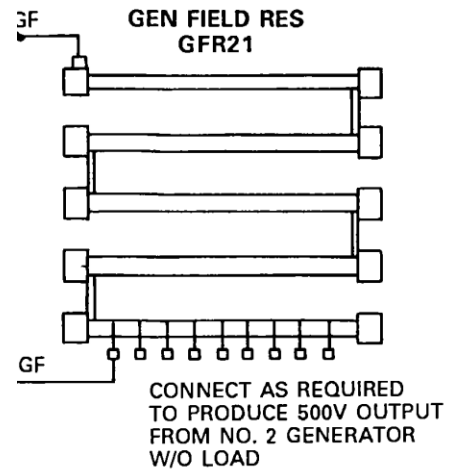




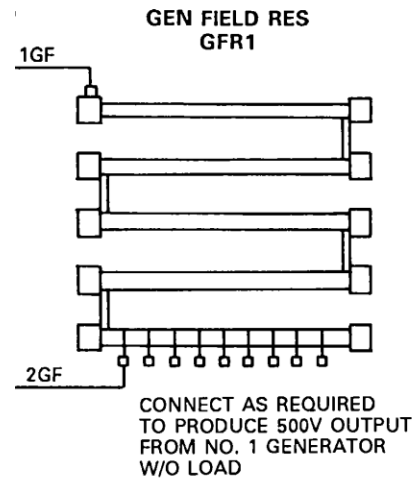
CONTROL CABINET 4



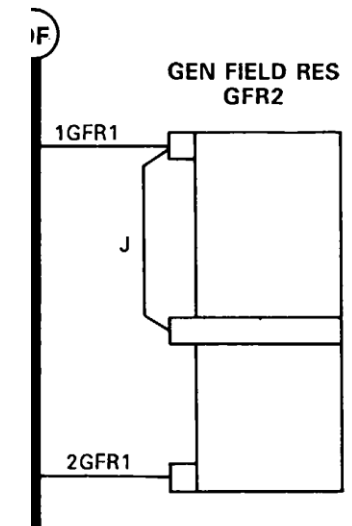
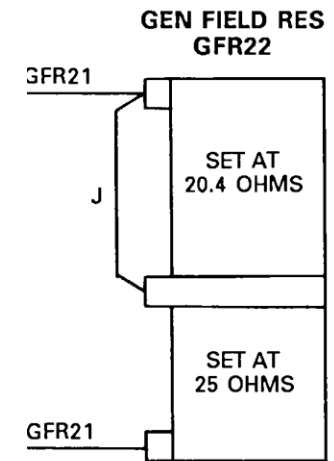
CONTROL CABINET 4



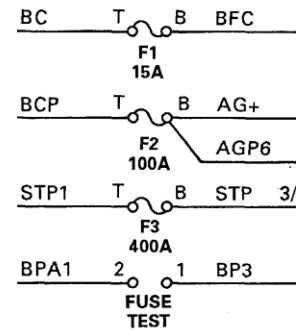
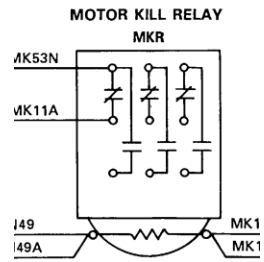
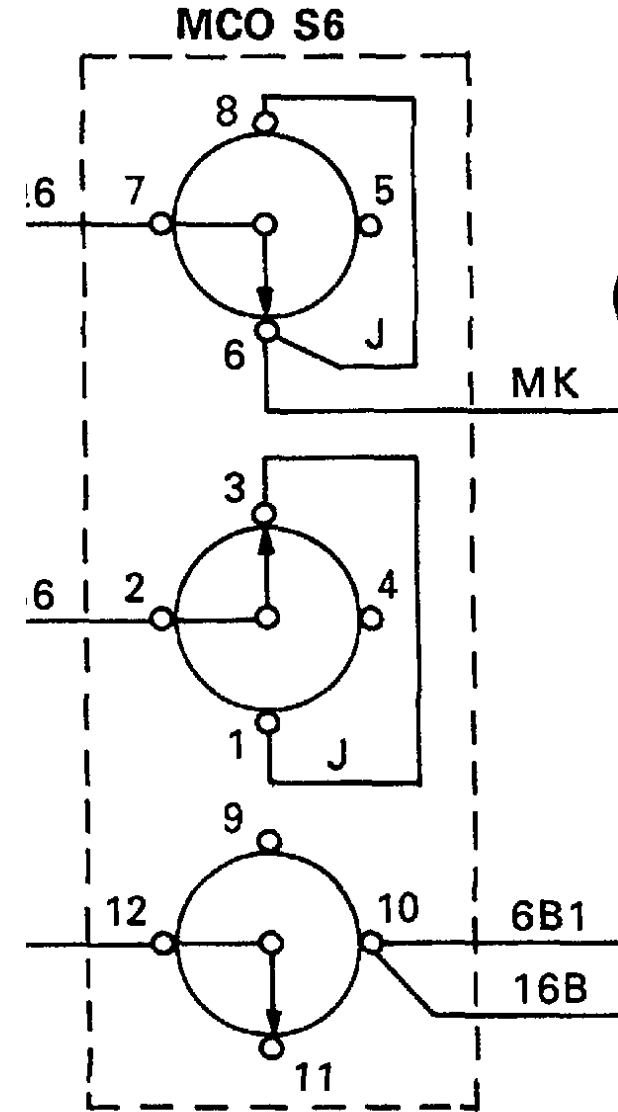
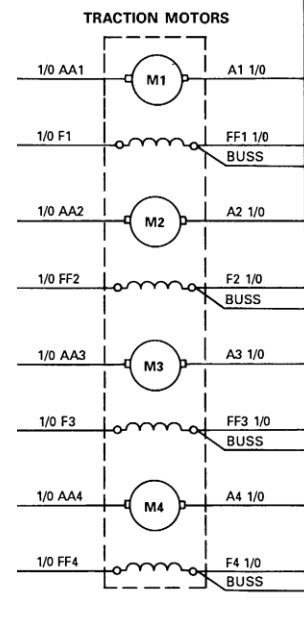
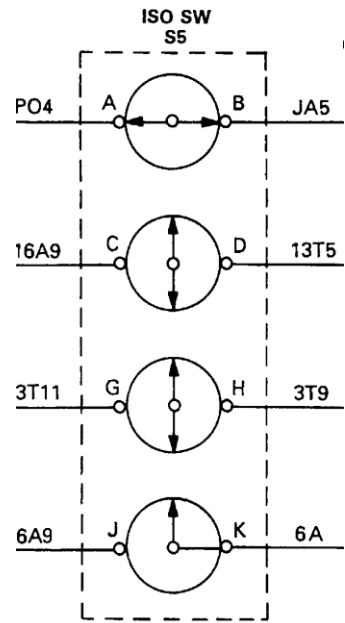
GENERATOR 1



GENERATOR 2

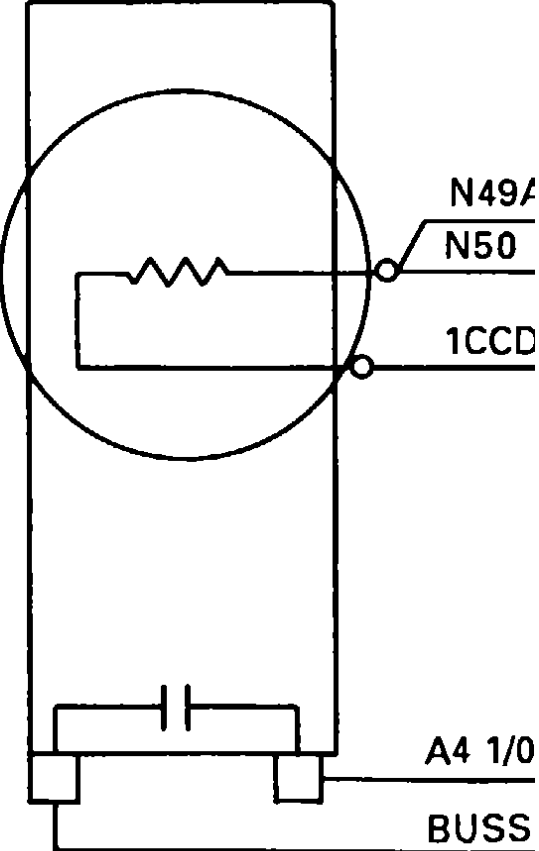


CONTROL CABINET 5



POWER CONTACTOR

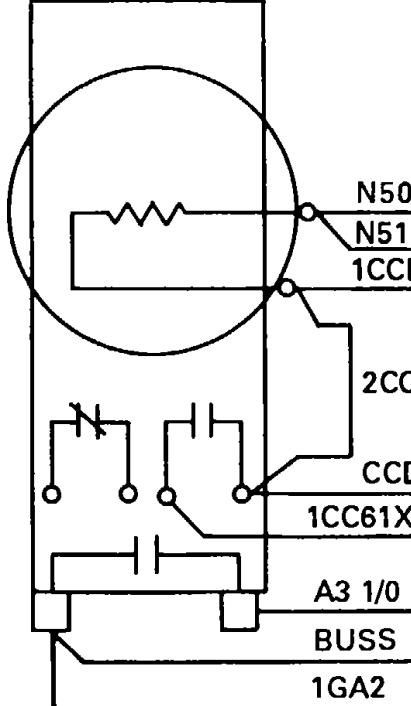
P4



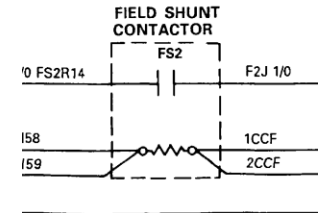
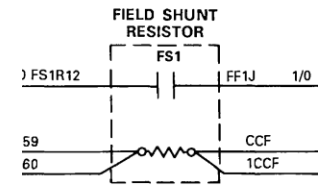
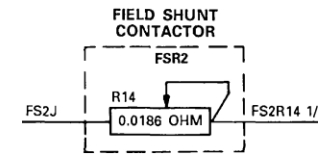
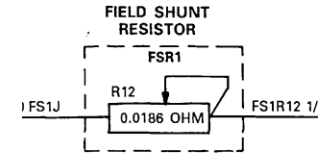
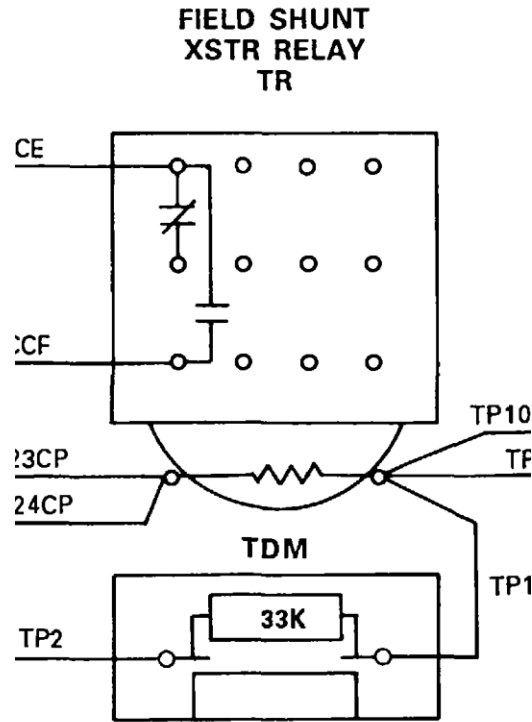
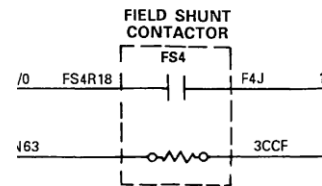
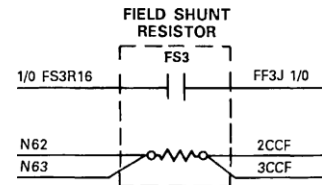
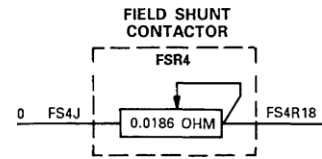
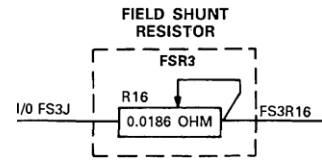
CONTROL CABINET 4

POWER CONTACTOR

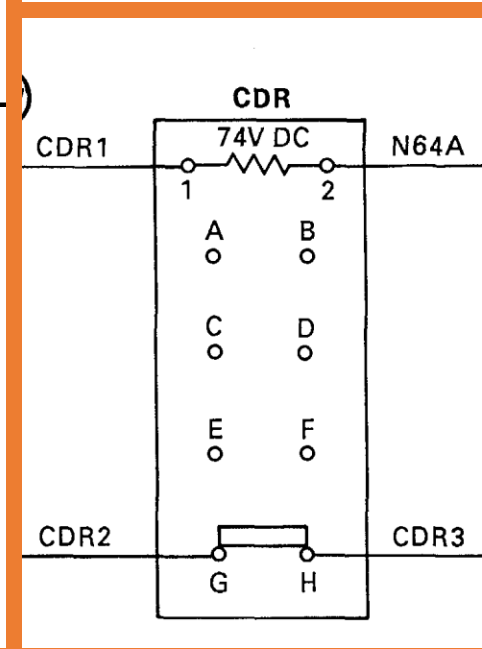
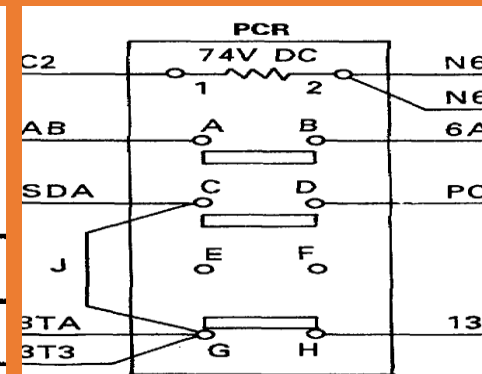
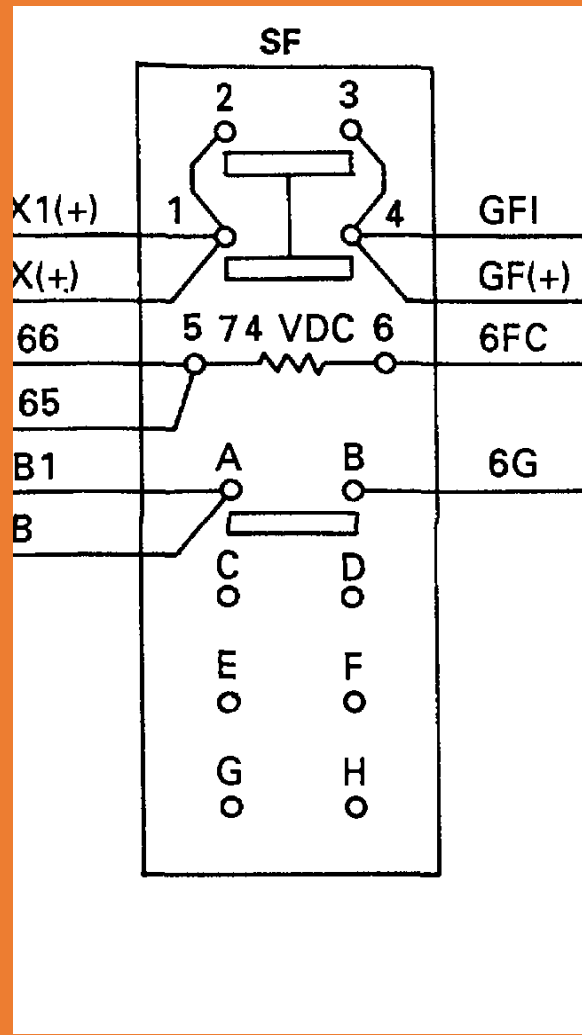
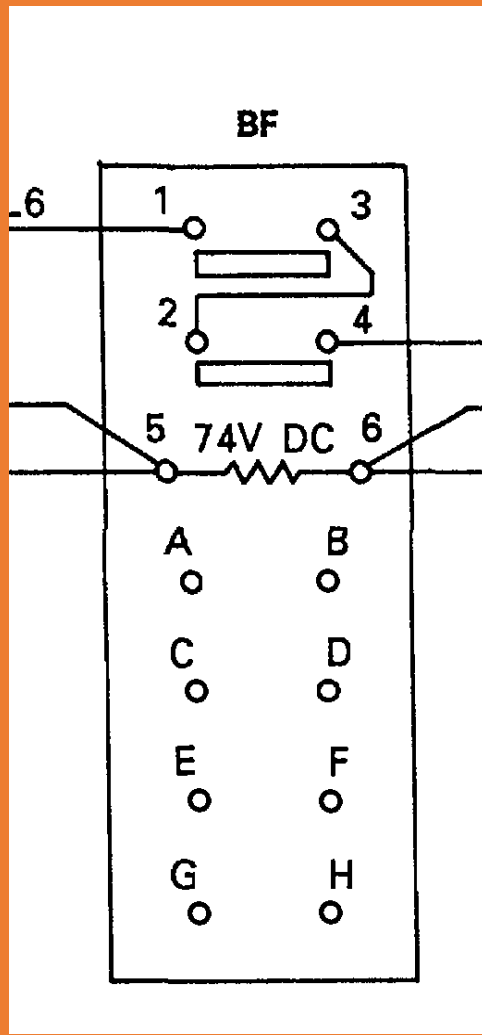
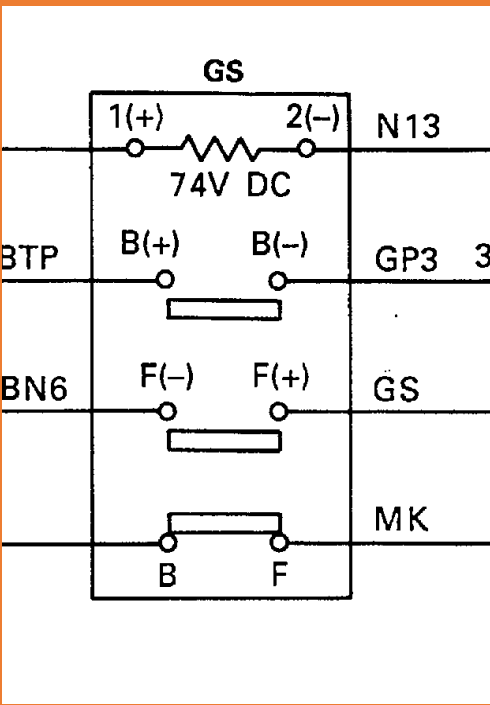
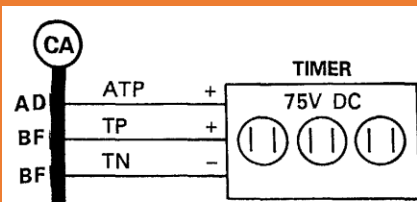
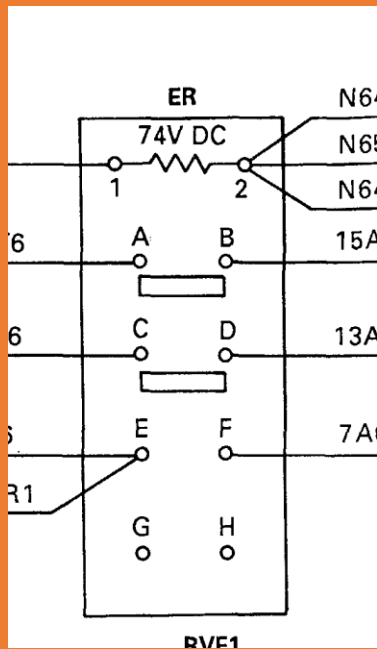
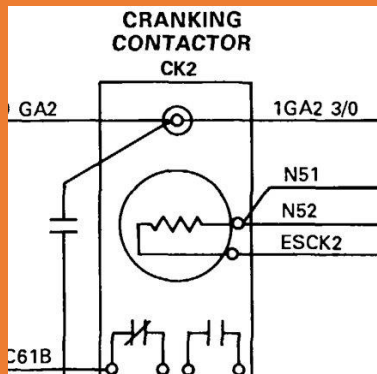
P3



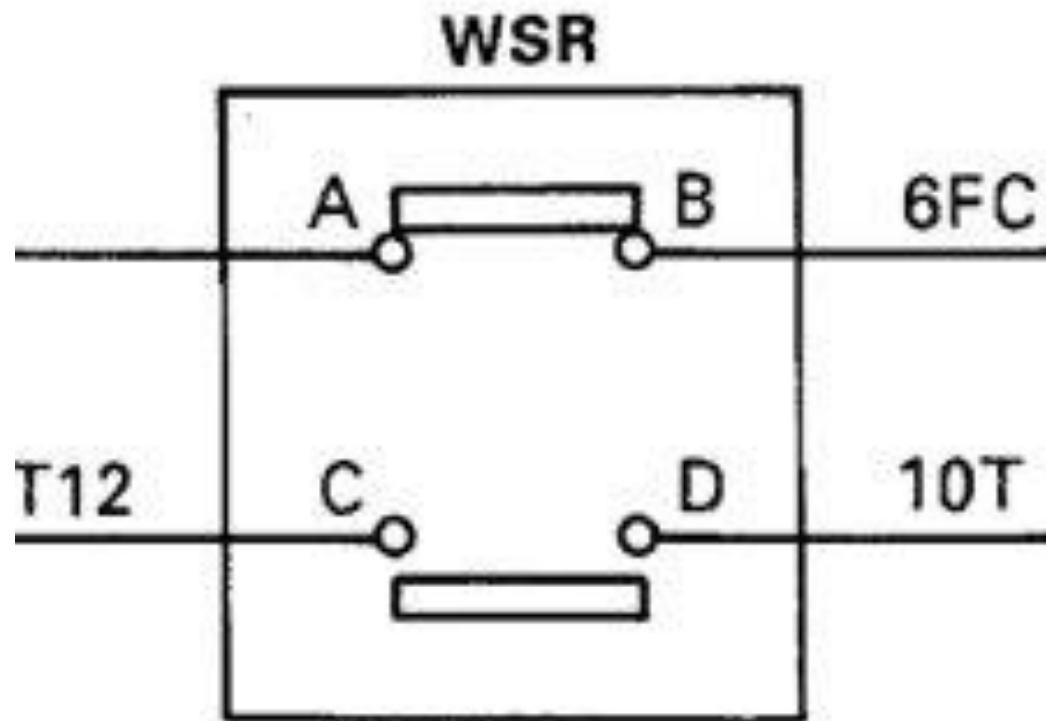
CONTROL CABINET 4



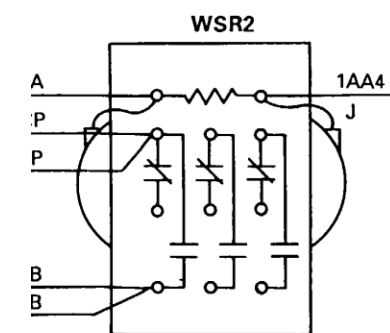
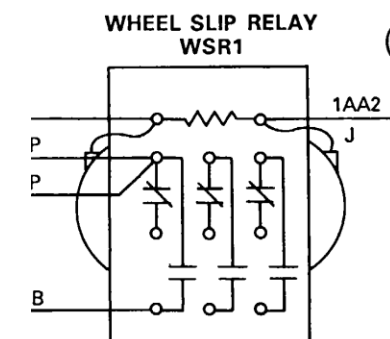
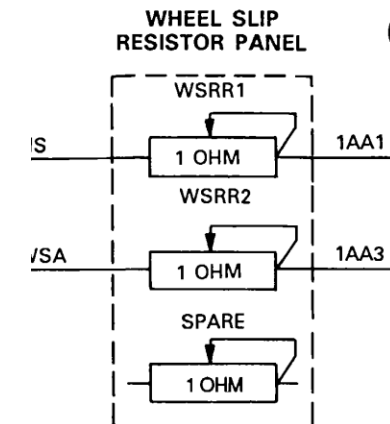
REAR CONTROL ROOM

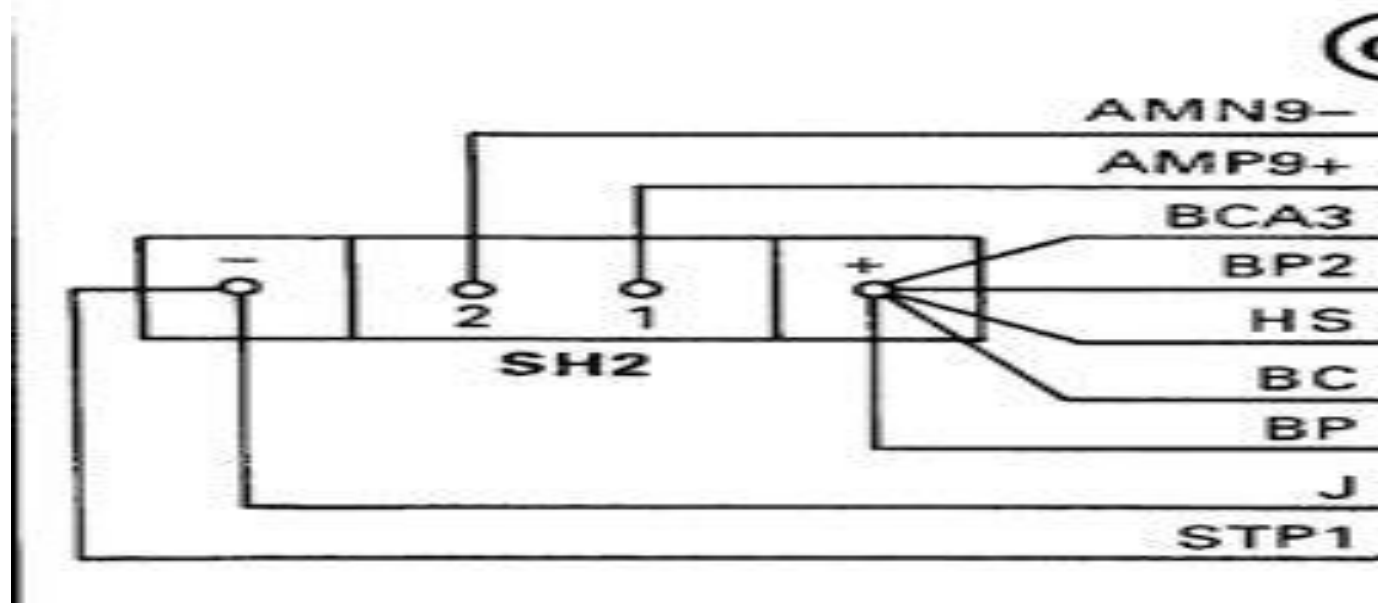


CONTROL CABINET 4

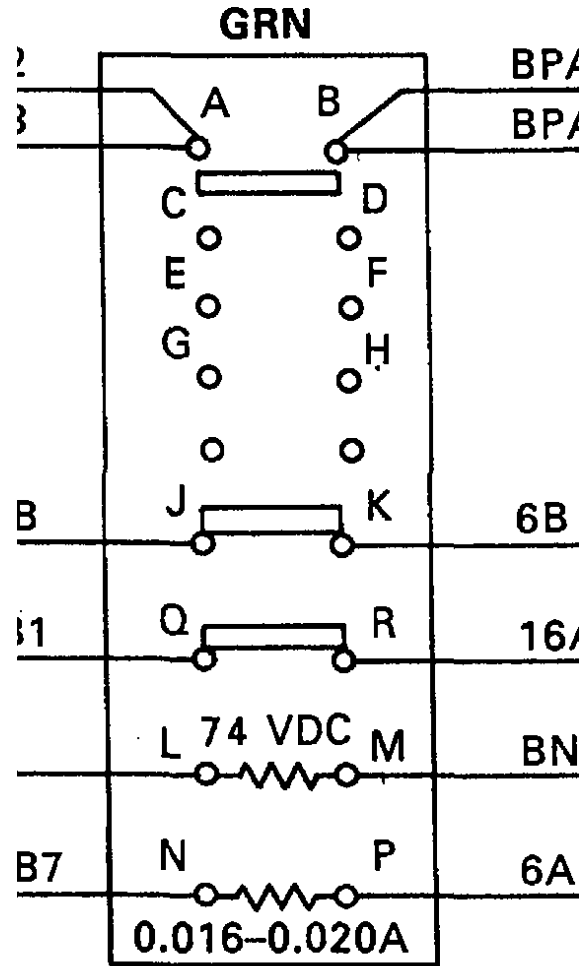


CONTROL CABINET 4



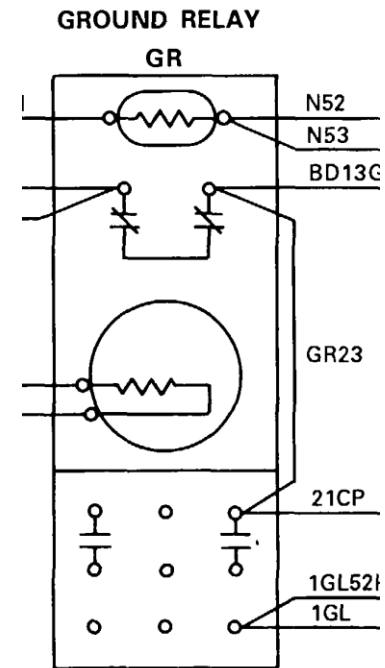
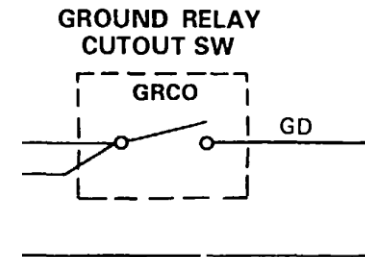


**REAR CONTROL
CABINET FIREWALL**

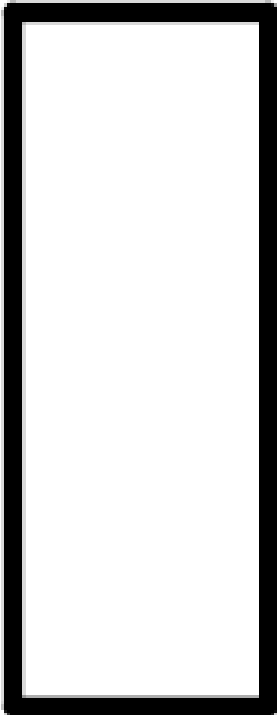


CONTROL CABINET

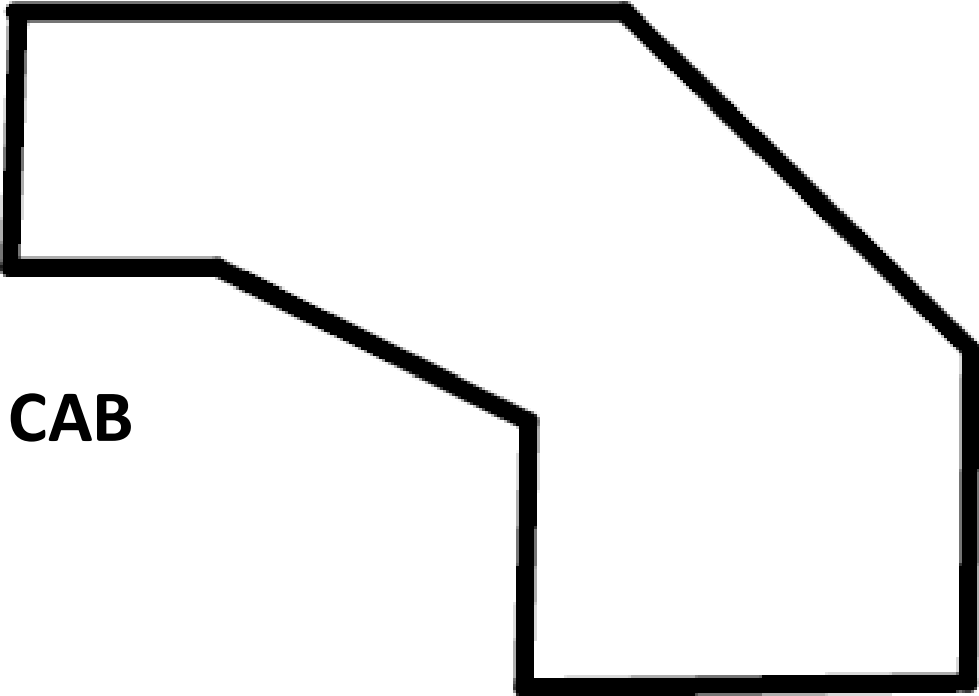
5



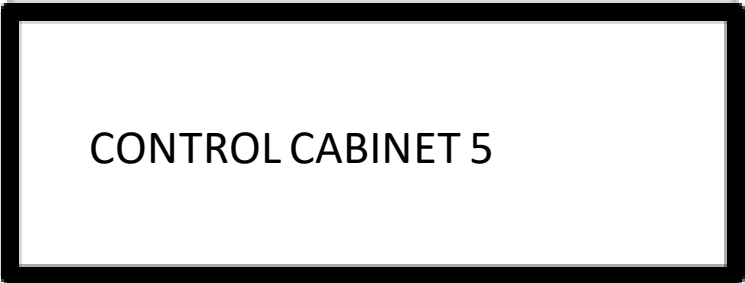
CONTROL CABINET 4



REAR CAB



CONTROL CABINET 5



AIR SYSTEM COMPRESSOR AND SAND