

28 ELECTRICAL SERVICE UNIT (LESU)
for
AUTOMATIC SEND-RECEIVE SETS
PARTS

Figure	Contents	Page	Figure	Contents	Page
1	Container	3	24	Line Test Key Control	18
2	Line Shunt Relays and Mountings Plates	4	25	173452 Electronic Keyer Assembly	19
3	Plates and Resistors	5	26	146652 Modification Kit to Add Wave Shaping Inductor	19
4	153251 Motor Control Assembly	6	27	Line Jack Assembly	20
5	152950 Rectifier and Cable Assembly (150 MA)	7	28	154747 Modification Kit to Add Continuous Spacing	20
6	162361 and 310275 Rectifiers and Cable Assemblies (500 MA)	7	29	164868 Modification Kit to Provide a Cabinet with an Auxiliary Electrical Service Unit	21
7	146901 and 170573 Rectifier Assemblies	8	30	Auxiliary Electrical Service Unit	22
8	305631 Rectifier Assembly	9	31	Components to Provide for AC and DC Power Distribution	23
9	177010 and 178601 Selector Magnet Driver Assemblies 179560 Selector Magnet Driver Assembly with Open Line Detector	10	32	Components to Provide Line Relays and Selector Battery	24
10	Line Relay Mounting	11	33	161829 Modification Kit for Mounting an Electrical Service Unit on Relay Rack Brackets	25
11	170285 and 173281 Resistor Assemblies	12	34	179139 and 195036 Auxiliary Reporforator Line Relay Assembly	25
12	178138 Slow Release Relay Assembly (Non-Contention)	12	35	160422 Modification Kit to Equip Cabinet with Rectifier	25
13	Quick Acting Relay (10 MS) Mechanism	13	36	192750 Rectifier Assembly	26
14	159318 Slow Release Relay Assembly	13	37	179610 and 179611 Modification Kits to Reduce Radio Frequency Noise on ASR Set (Includes Parts on this Figure and Figure 38)	27
15	176810 Answer-Back Control Relay Assembly	14	38	179610 and 179611 Modification Kits to Reduce Radio Frequency Noise on ASR Set (Includes Parts on this Figure and Figure 37)	27
16	176694 (Motor Control) and 176698 (Slow Release) Relay Assemblies	14	39	Rectifier-130V DC-20V AC	29
17	152332 and 176448 Relay Motor Control Assemblies	15	40	162483 Call Directing Relay Unit	30
18	155558 D. C. Control Relay Assembly	15	41	179472 Modification Kit to Provide a Transmitter Control Device	31
19	178345 Modification Kit and 178608 Relay Assembly to provide motor control and answer back relays	16	42	Cable Components	32
20	165650 Motor Control and Answer-Back Relay Assembly	16		Numerical Index	33
21	178307 Motor Control Relay Assembly	17			
22	160420 and 195038 Auxiliary Line Shunt Relay Assembly 179444 and 173239 Auxiliary Reader Control Relay Assemblies	17			
23	158293, 164232, 173252 and 194492 Line Test Key Assemblies	18			

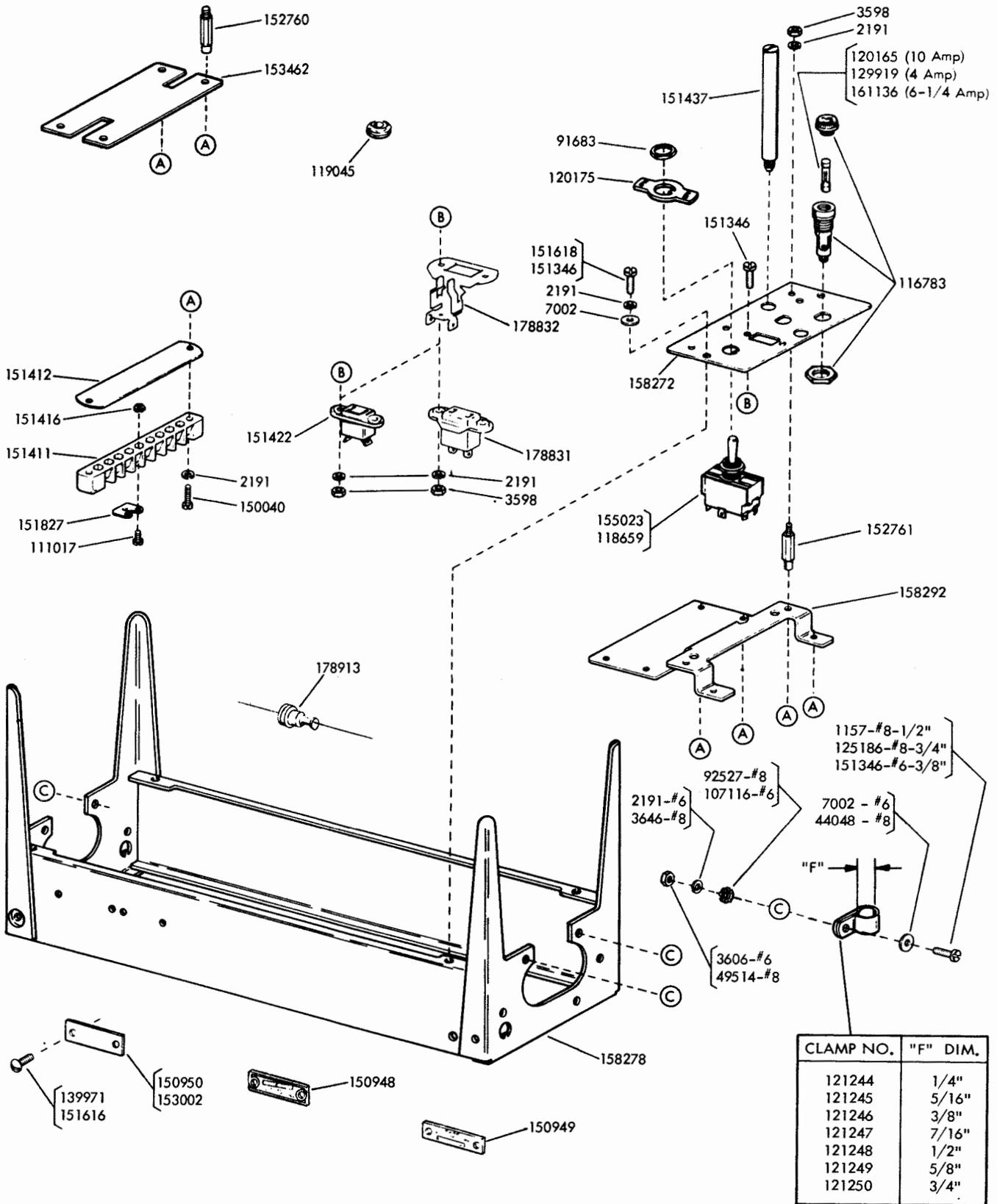
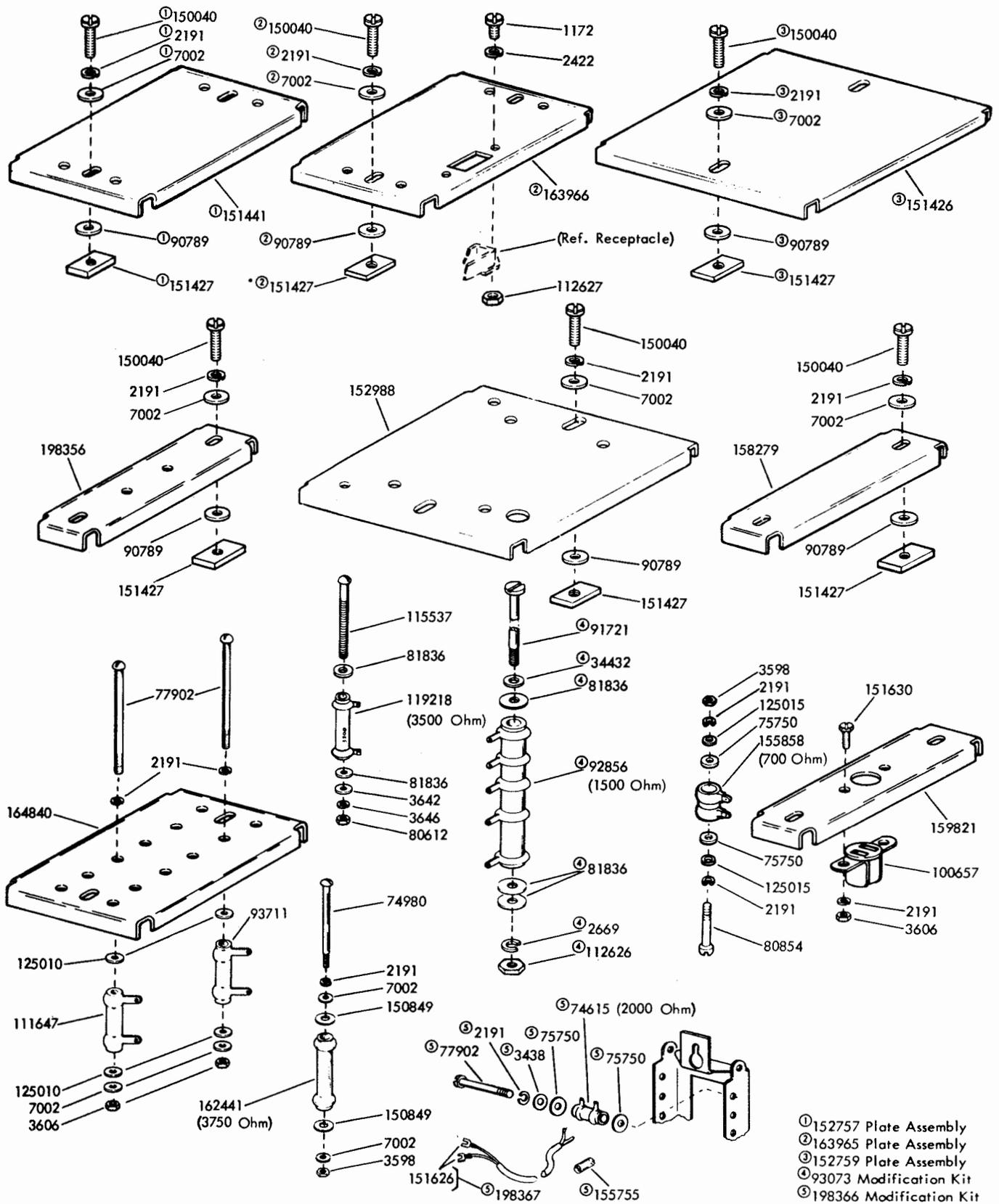


FIGURE 1. CONTAINER



- ① 152757 Plate Assembly
- ② 163965 Plate Assembly
- ③ 152759 Plate Assembly
- ④ 93073 Modification Kit
- ⑤ 198366 Modification Kit

FIGURE 3. PLATES AND RESISTORS

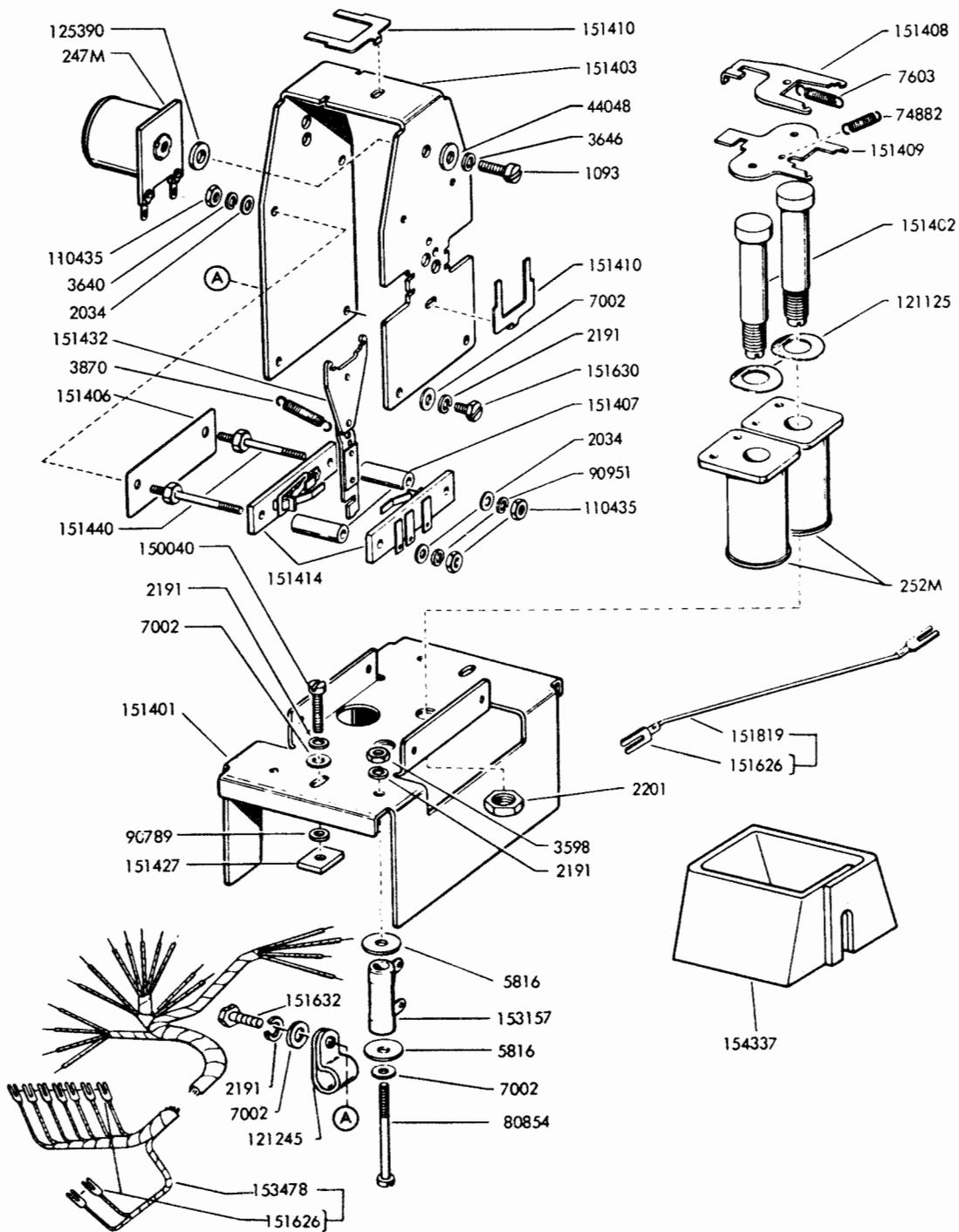


FIGURE 4. 153251 MOTOR CONTROL ASSEMBLY

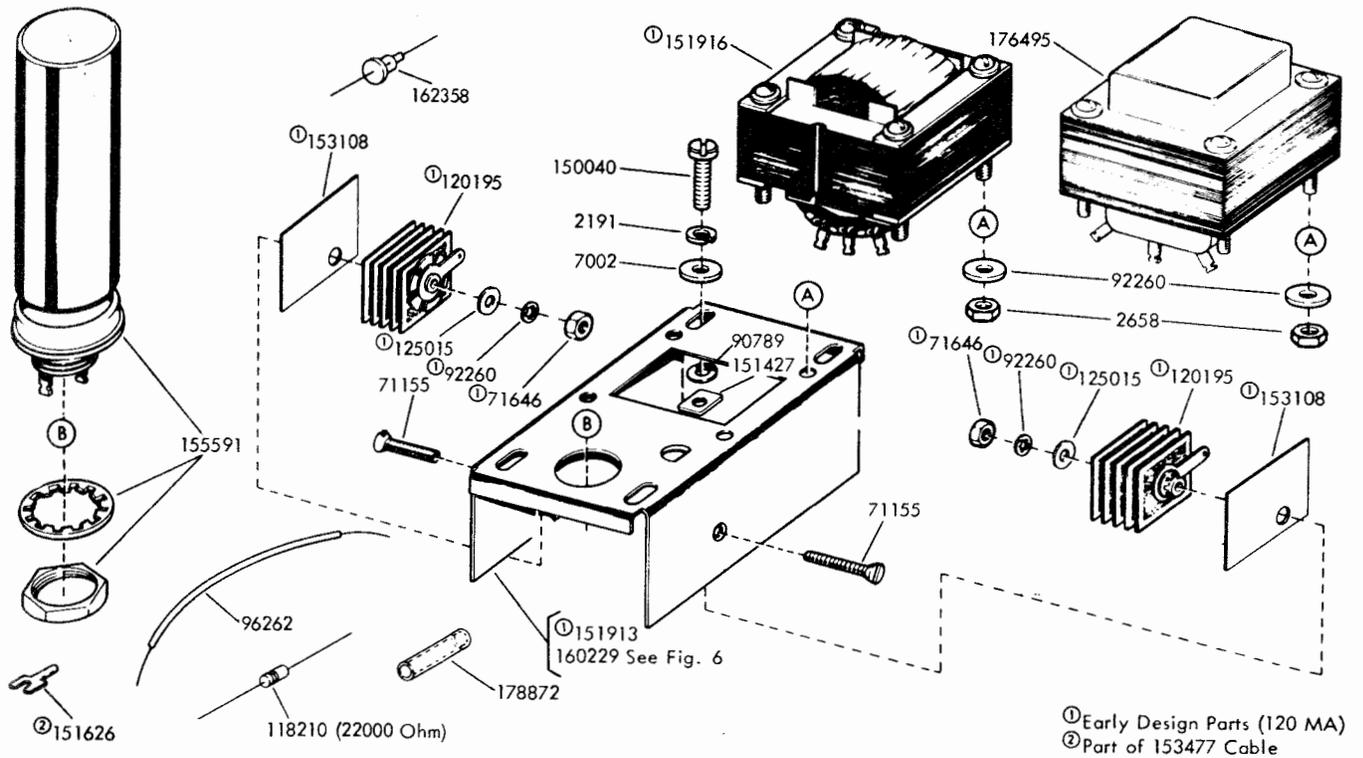


FIGURE 5. 152950 RECTIFIER AND CABLE ASSEMBLY (150 MA)

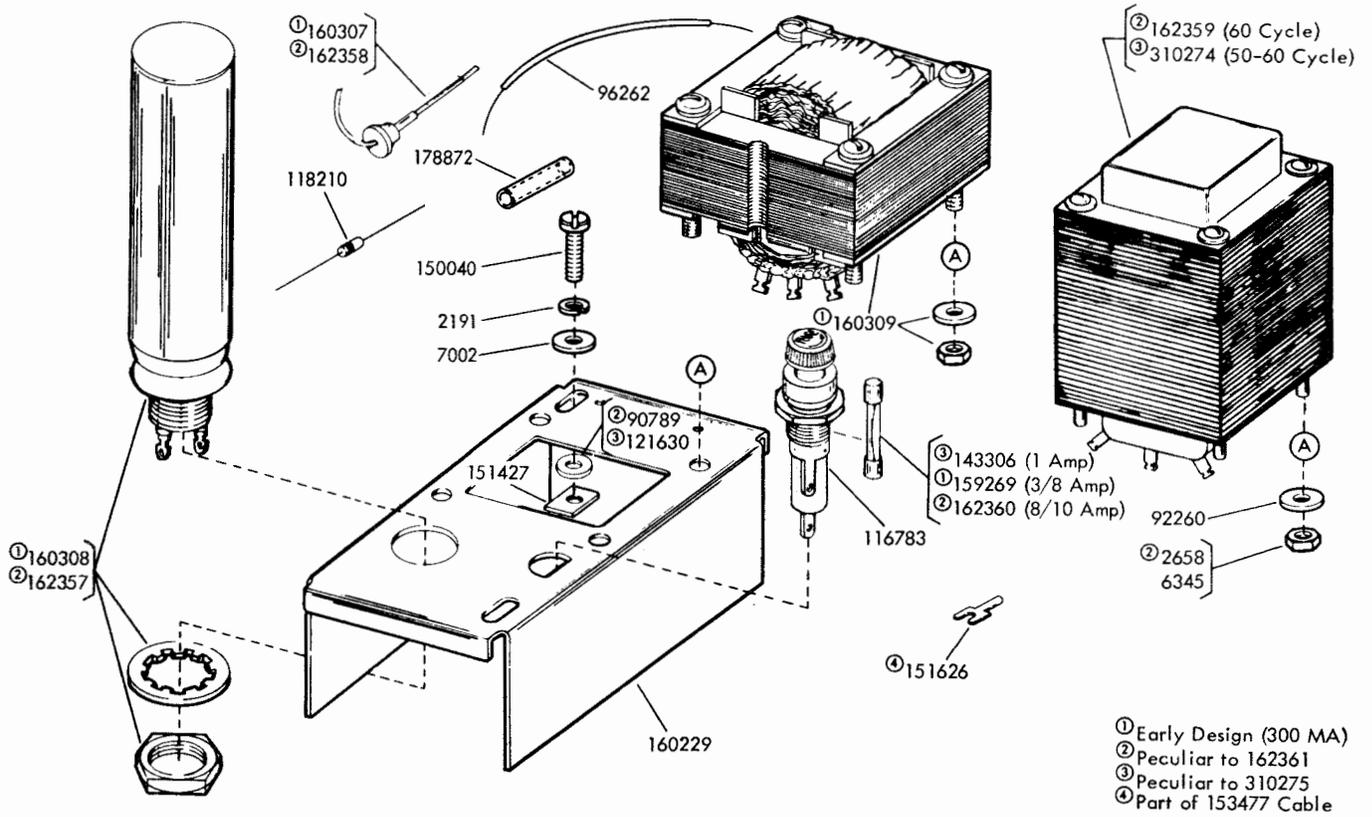


FIGURE 6. 162361 AND 310275 RECTIFIERS AND CABLE ASSEMBLIES (500 MA)

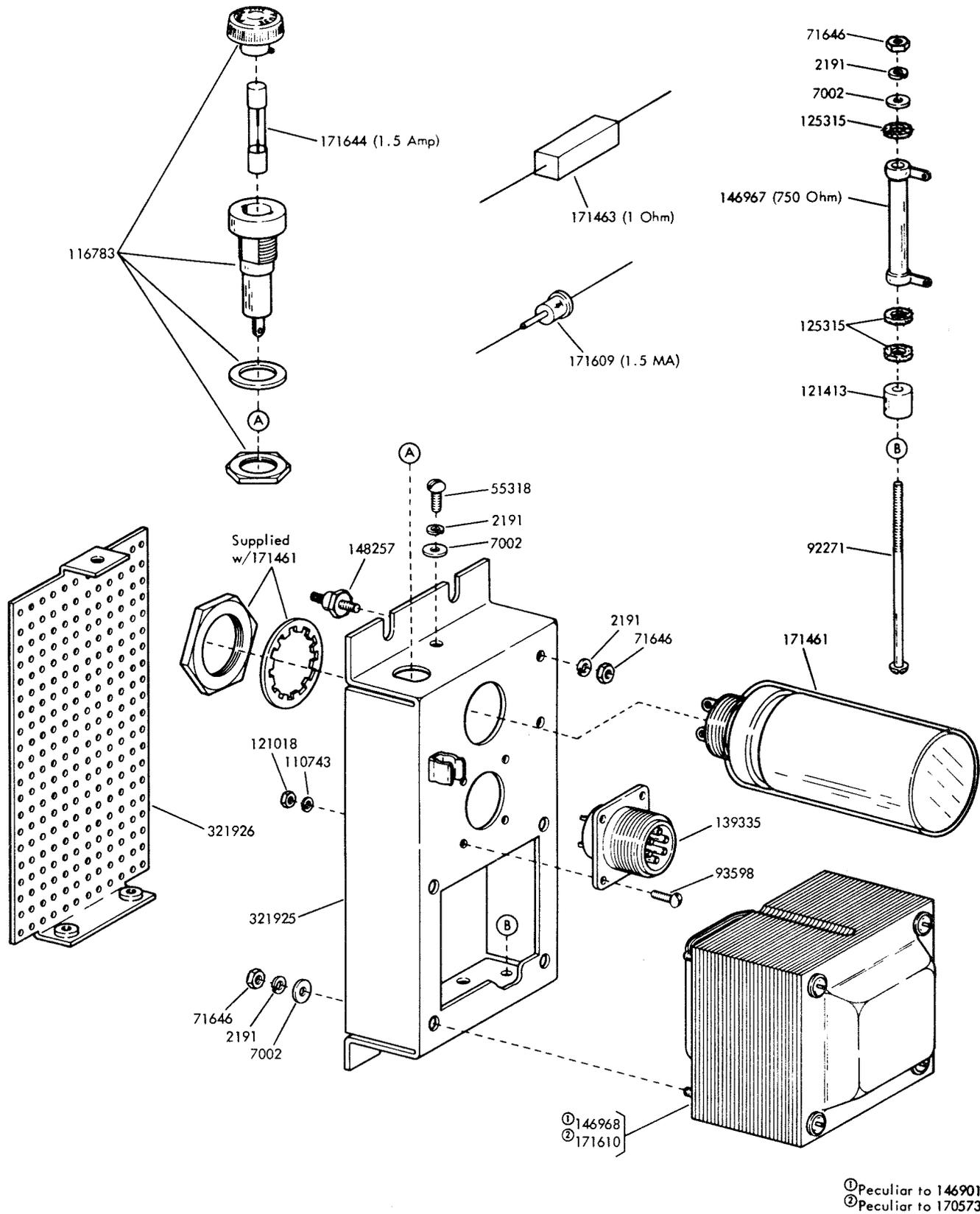


FIGURE 7. 146901 AND 170573 RECTIFIER ASSEMBLIES

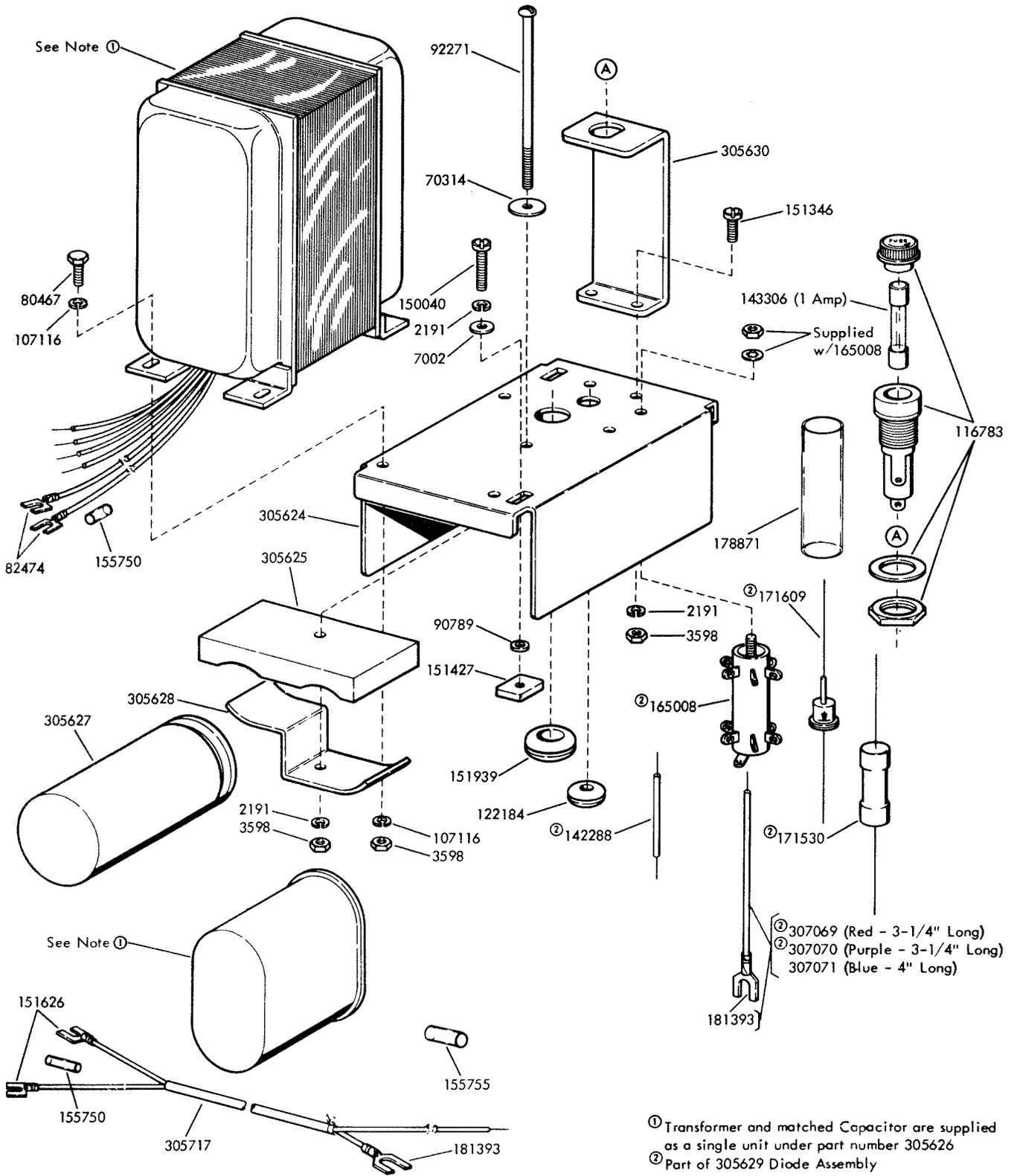
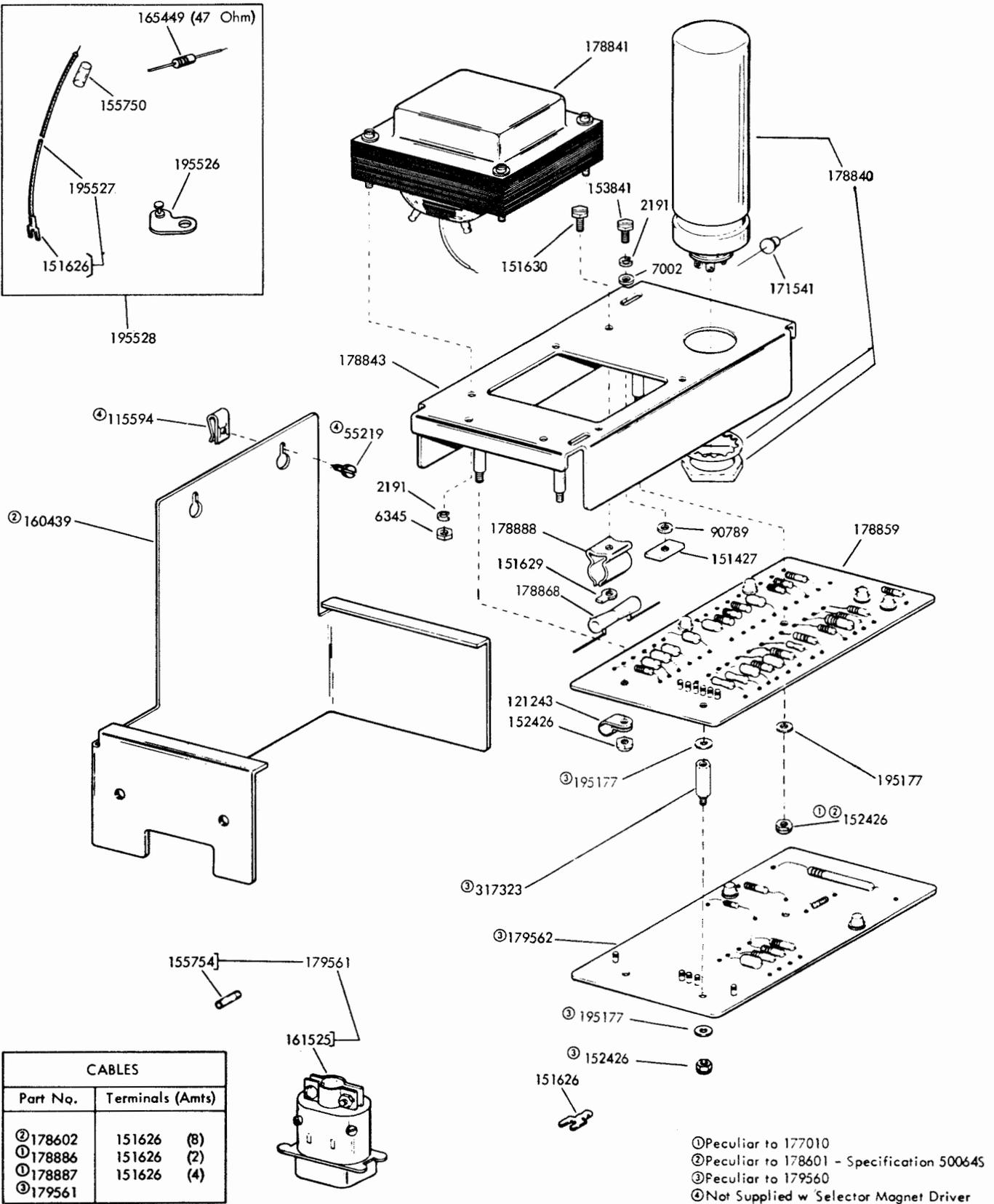


FIGURE 8. 305631 RECTIFIER ASSEMBLY



CABLES		
Part No.	Terminals (Amts)	
② 178602	151626	(8)
① 178886	151626	(2)
① 178887	151626	(4)
③ 179561		

FIGURE 9. 177010 AND 178601 SELECTOR MAGNET DRIVER ASSEMBLIES
 179560 SELECTOR MAGNET DRIVER ASSEMBLY WITH OPEN LINE DETECTOR

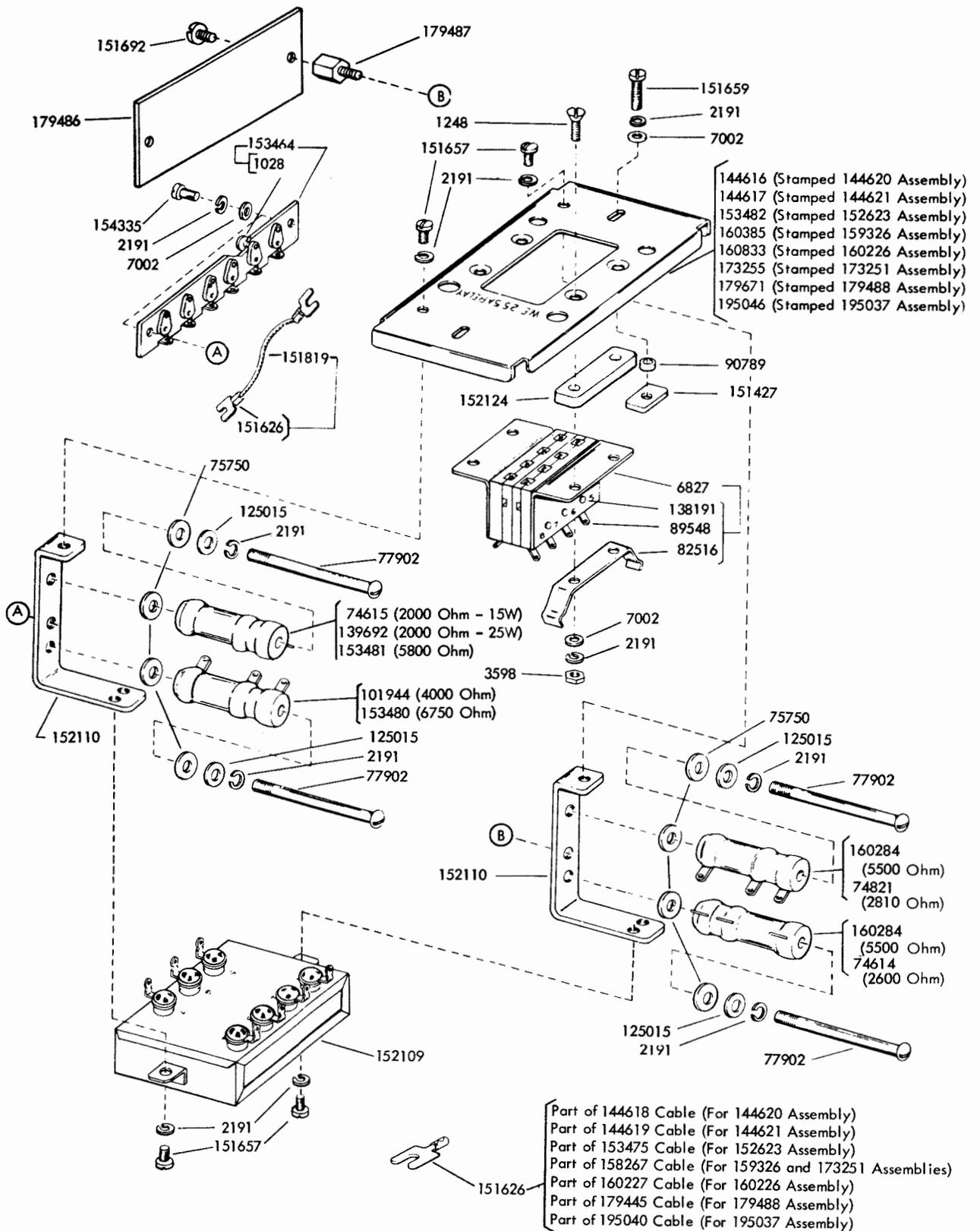


FIGURE 10. LINE RELAY MOUNTING

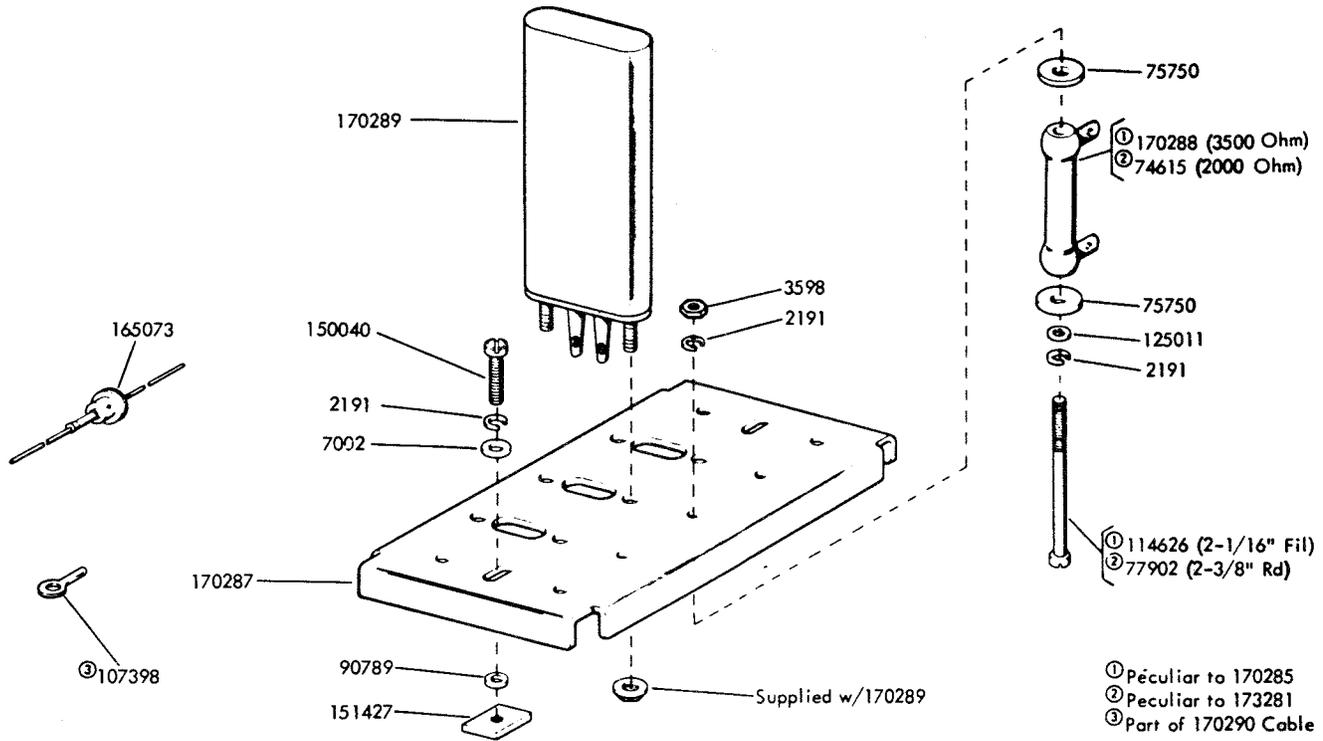


FIGURE 11. 170285 AND 173281 RESISTOR ASSEMBLIES

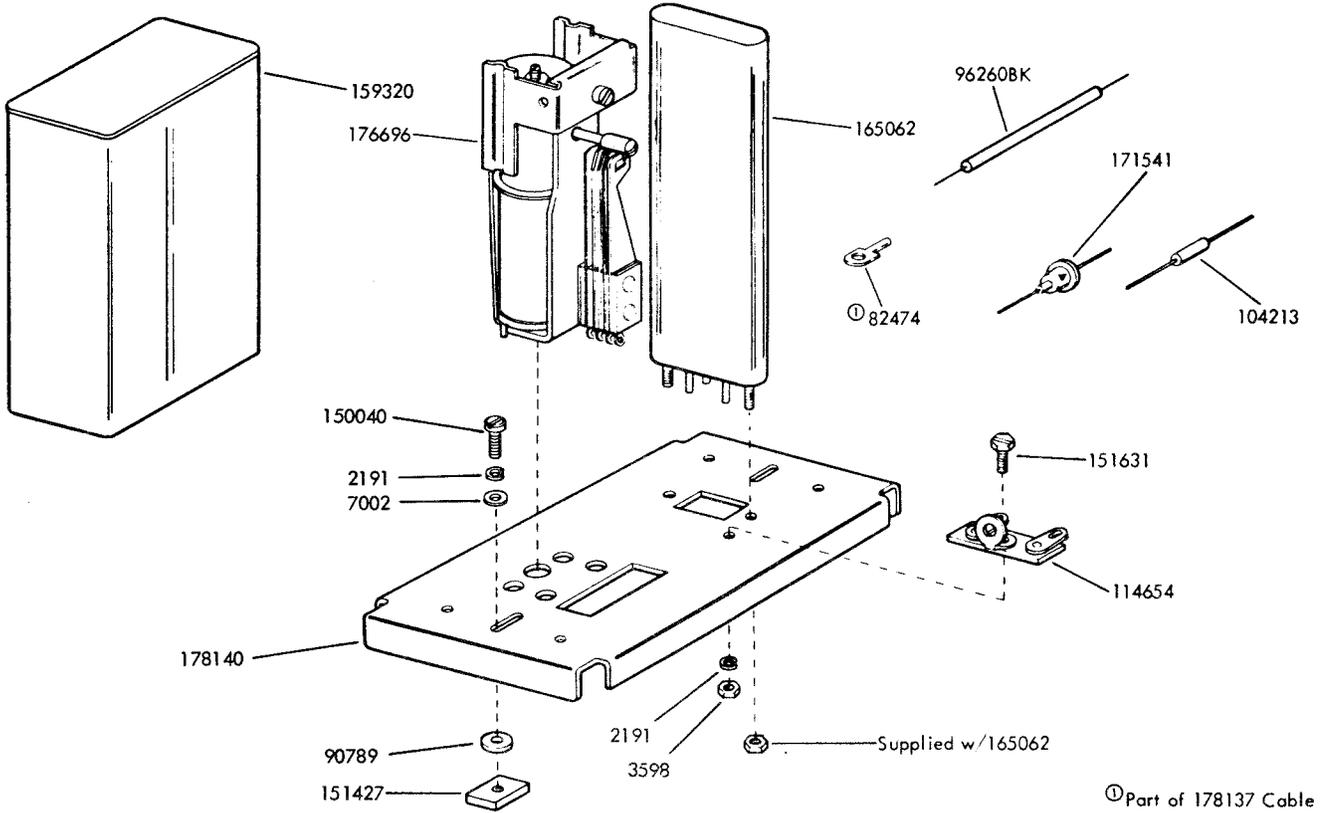


FIGURE 12. 178138 SLOW RELEASE RELAY ASSEMBLY (NON-CONTENTION)

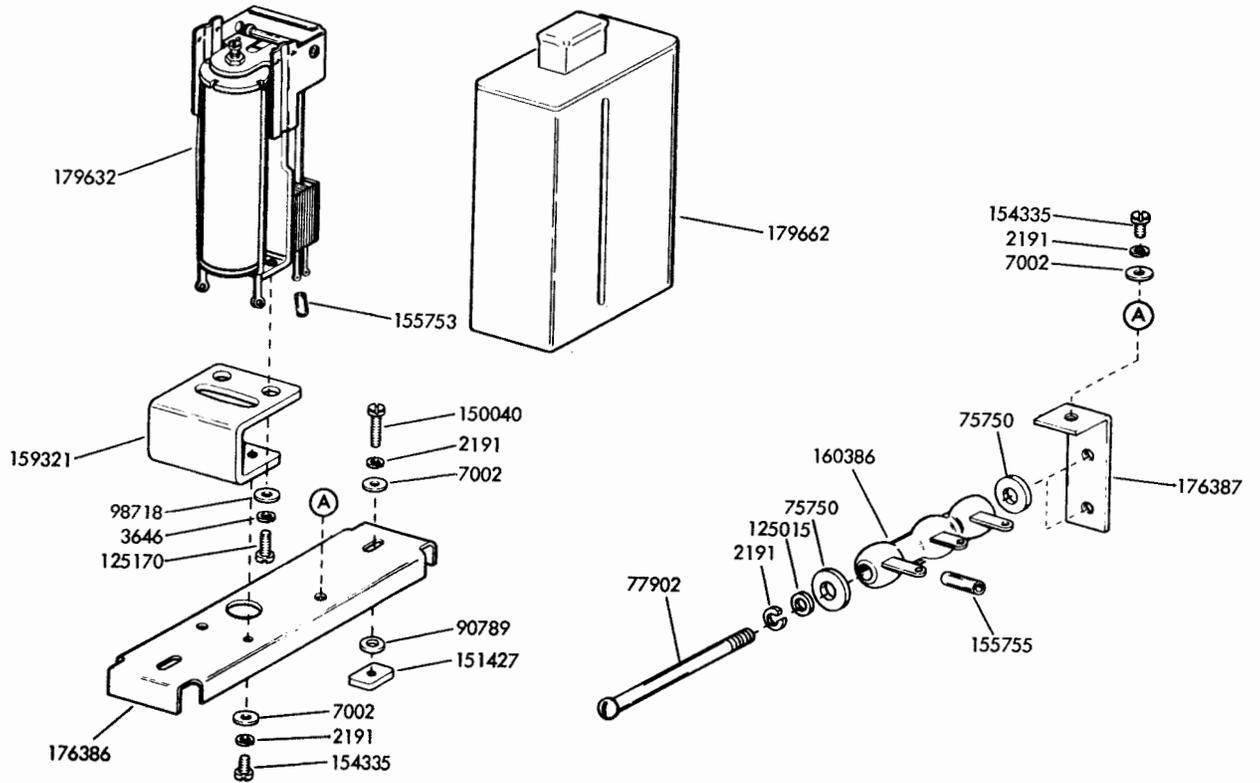


FIGURE 13. QUICK ACTING RELAY (10 MS) MECHANISM

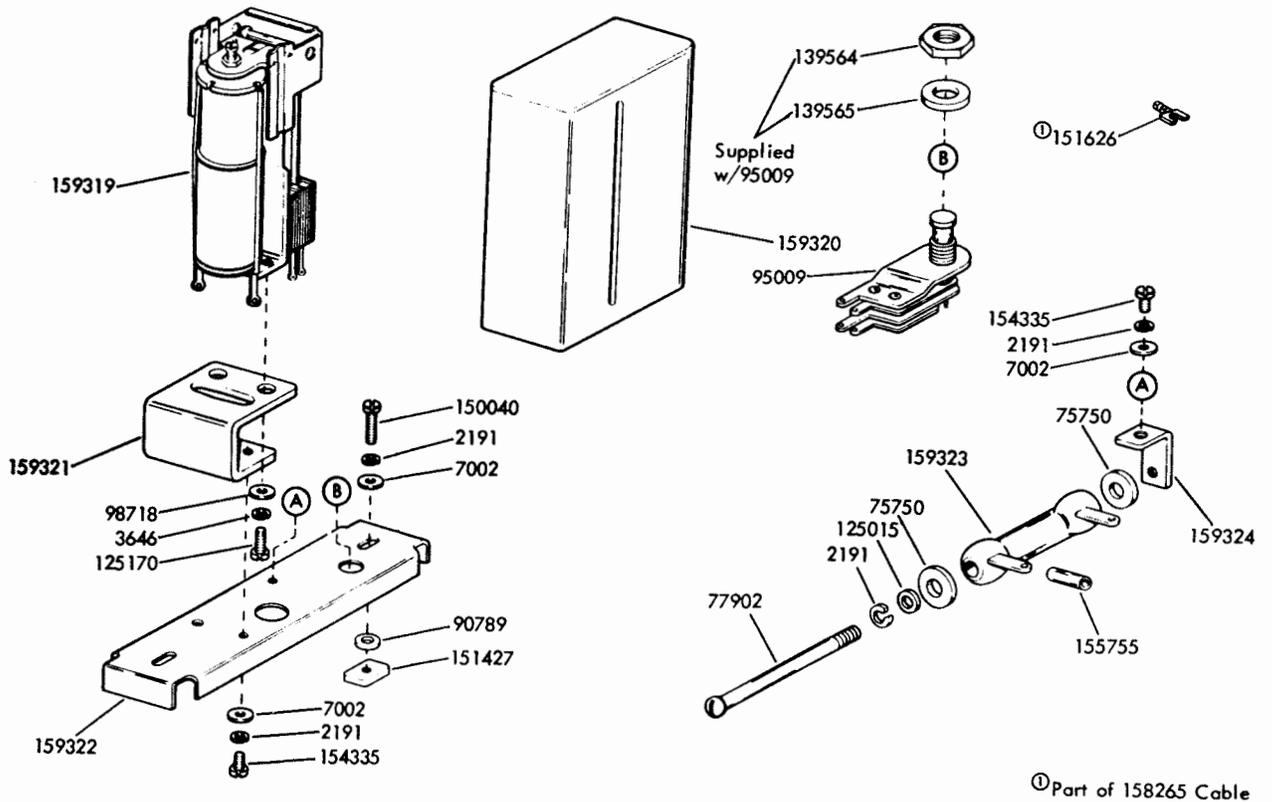


FIGURE 14. 159318 SLOW RELEASE RELAY ASSEMBLY

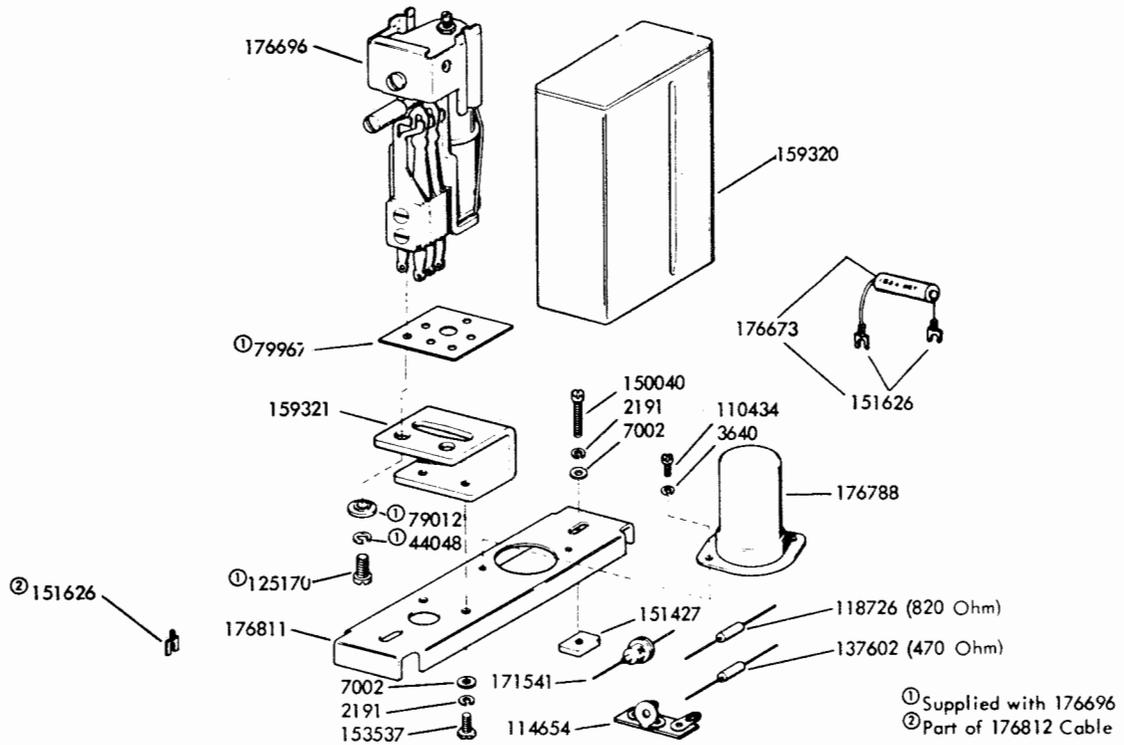


FIGURE 15. 176810 ANSWER-BACK CONTROL RELAY ASSEMBLY

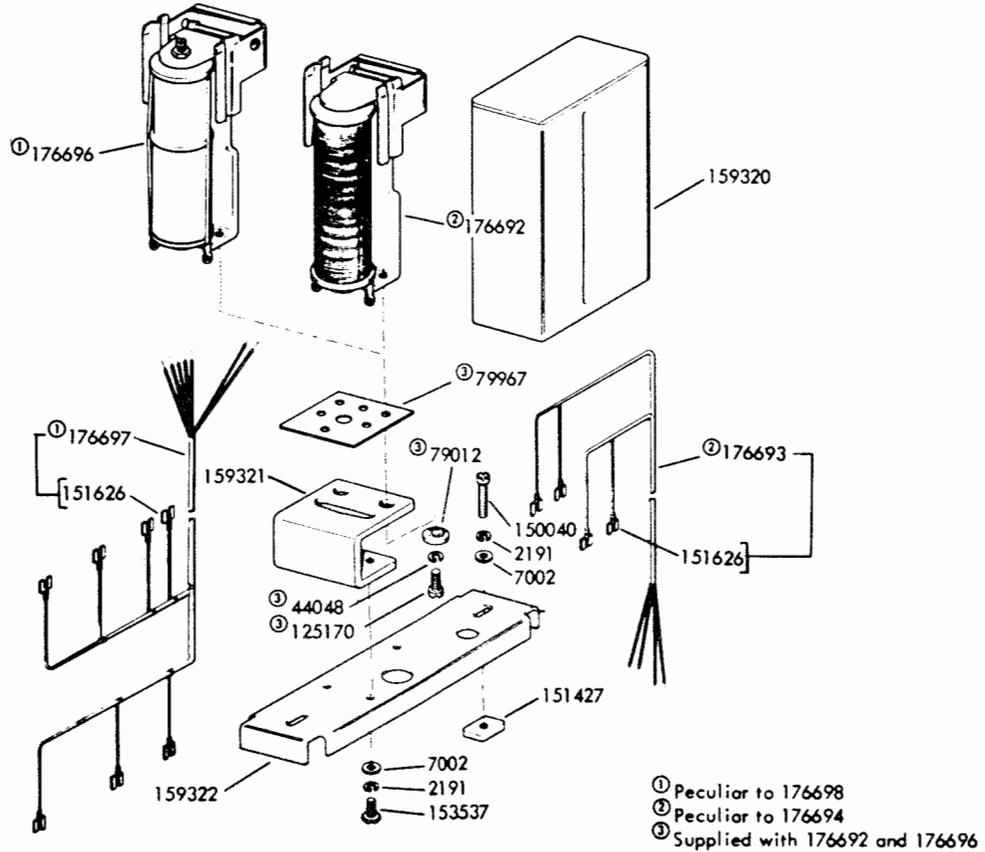


FIGURE 16. 176694 (MOTOR CONTROL) AND 176698 (SLOW RELEASE) RELAY ASSEMBLIES

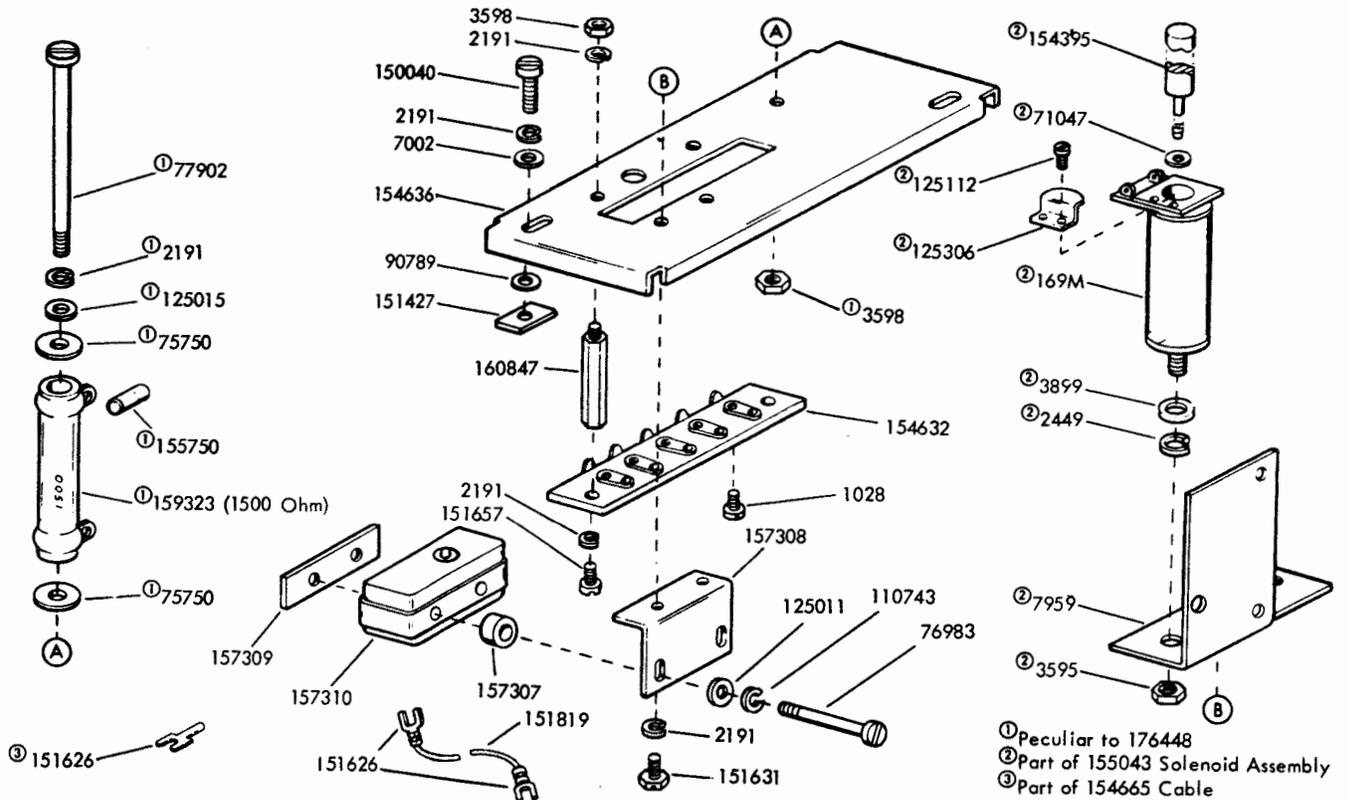


FIGURE 17. 152332 AND 176448 RELAY MOTOR CONTROL ASSEMBLIES

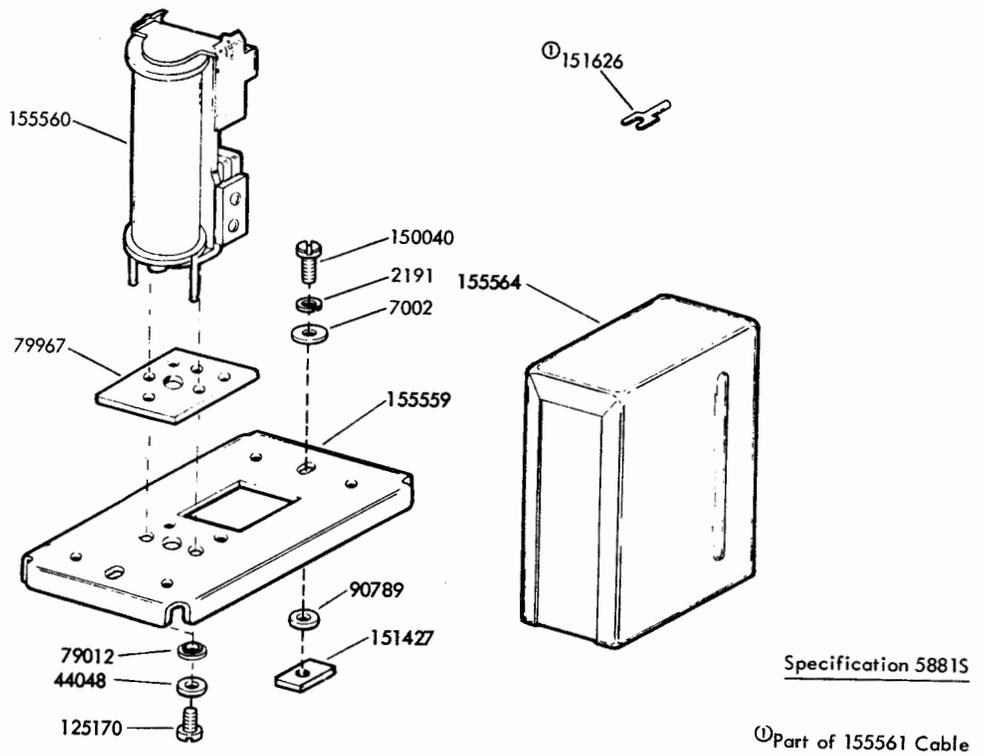


FIGURE 18. 15558 D.C. CONTROL RELAY ASSEMBLY

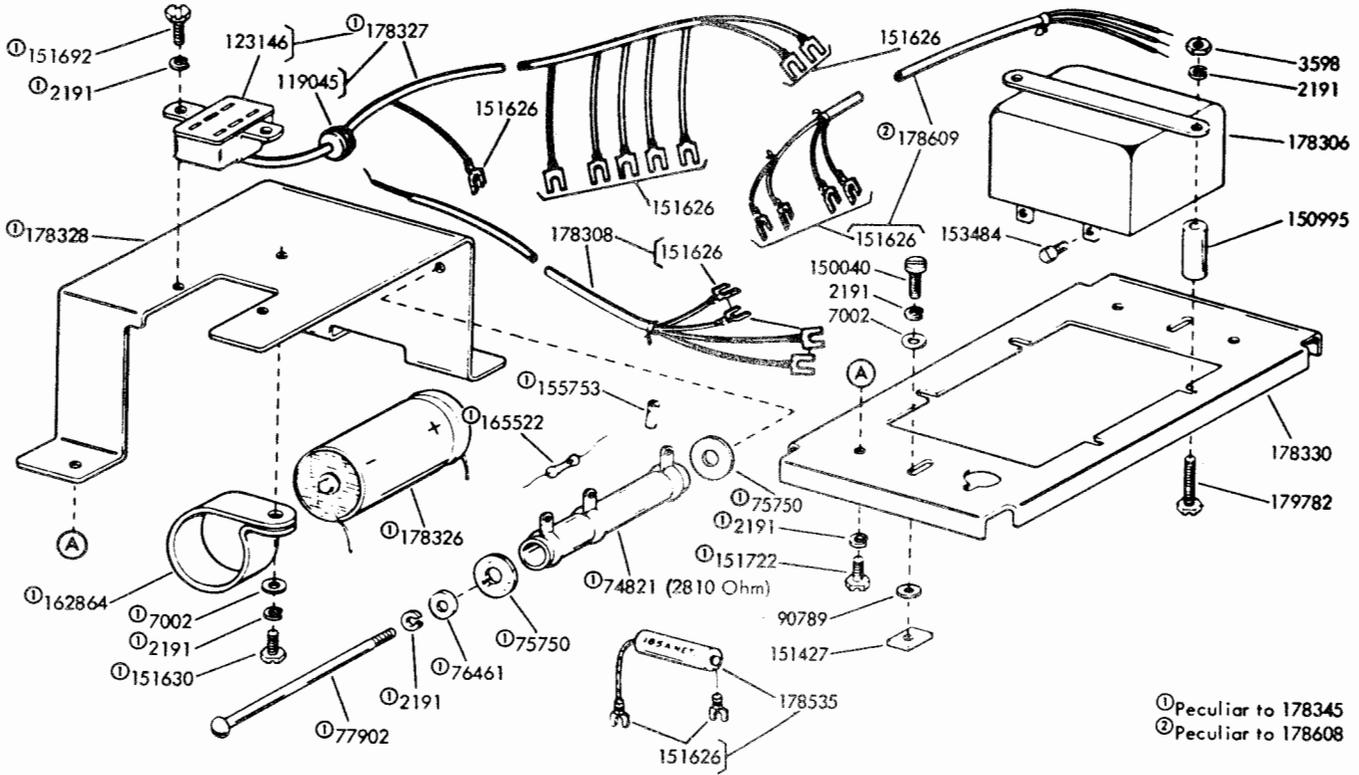


FIGURE 19. 178345 MODIFICATION KIT AND 178608 RELAY ASSEMBLY TO PROVIDE MOTOR CONTROL AND ANSWER BACK RELAYS

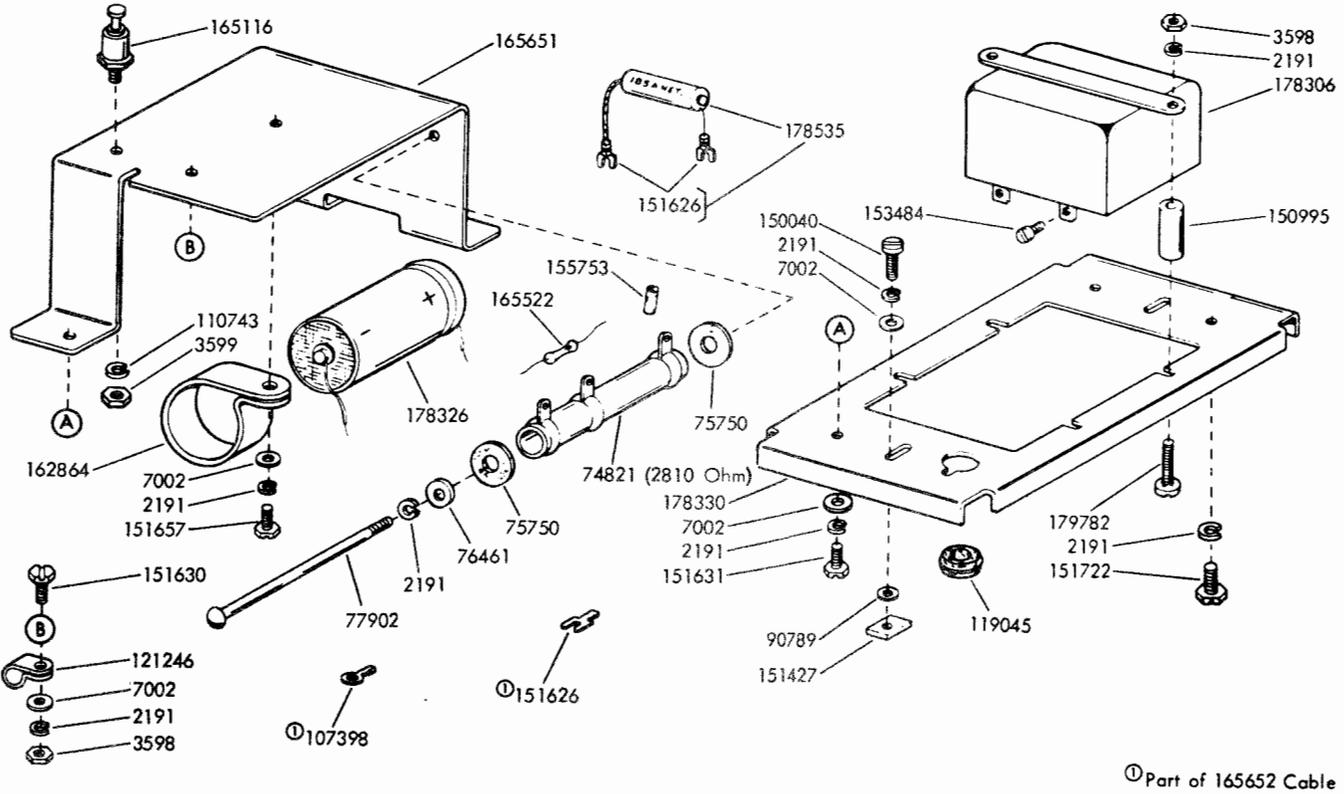


FIGURE 20. 165650 MOTOR CONTROL AND ANSWER BACK RELAY ASSEMBLY

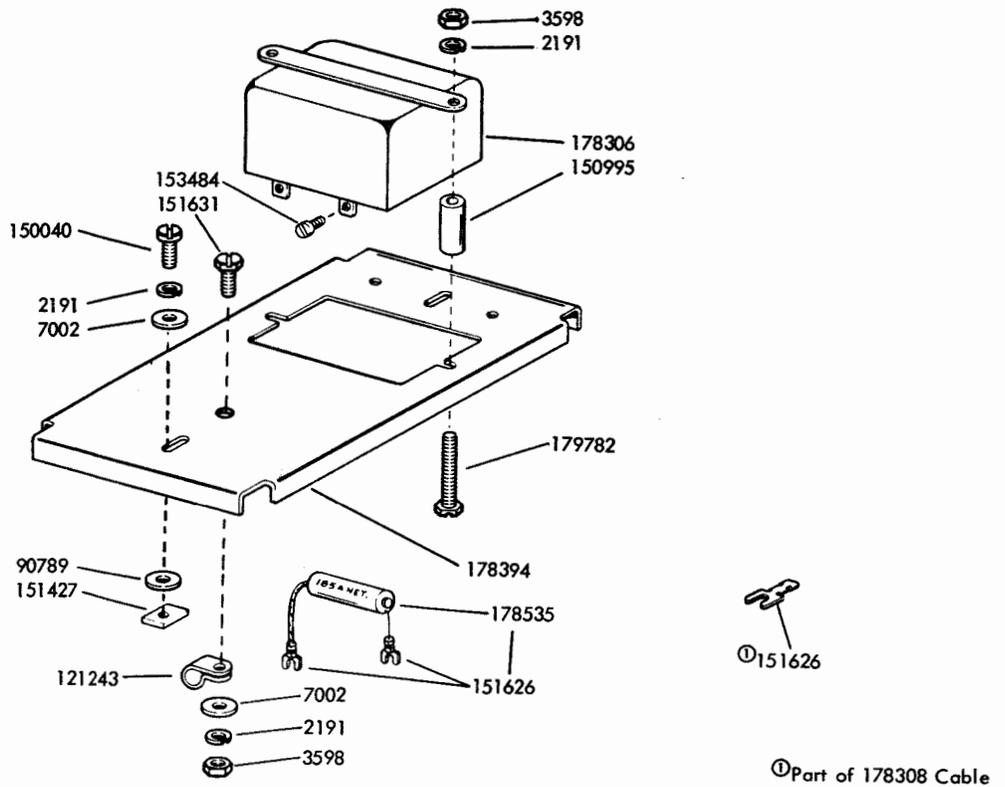


FIGURE 21. 178307 MOTOR CONTROL RELAY ASSEMBLY

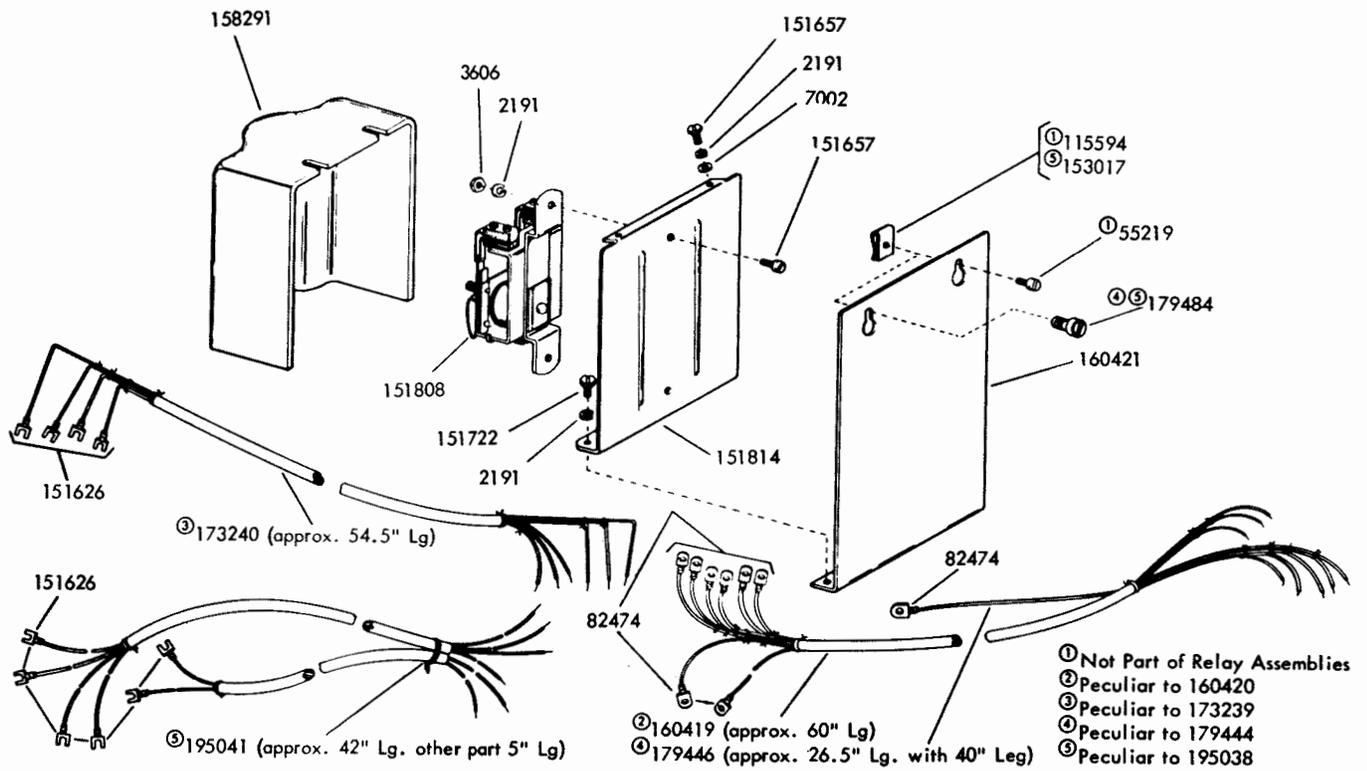


FIGURE 22. 160420 AND 195038 AUXILIARY LINE SHUNT RELAY ASSEMBLY
179444 AND 173239 AUXILIARY READER CONTROL RELAY ASSEMBLIES

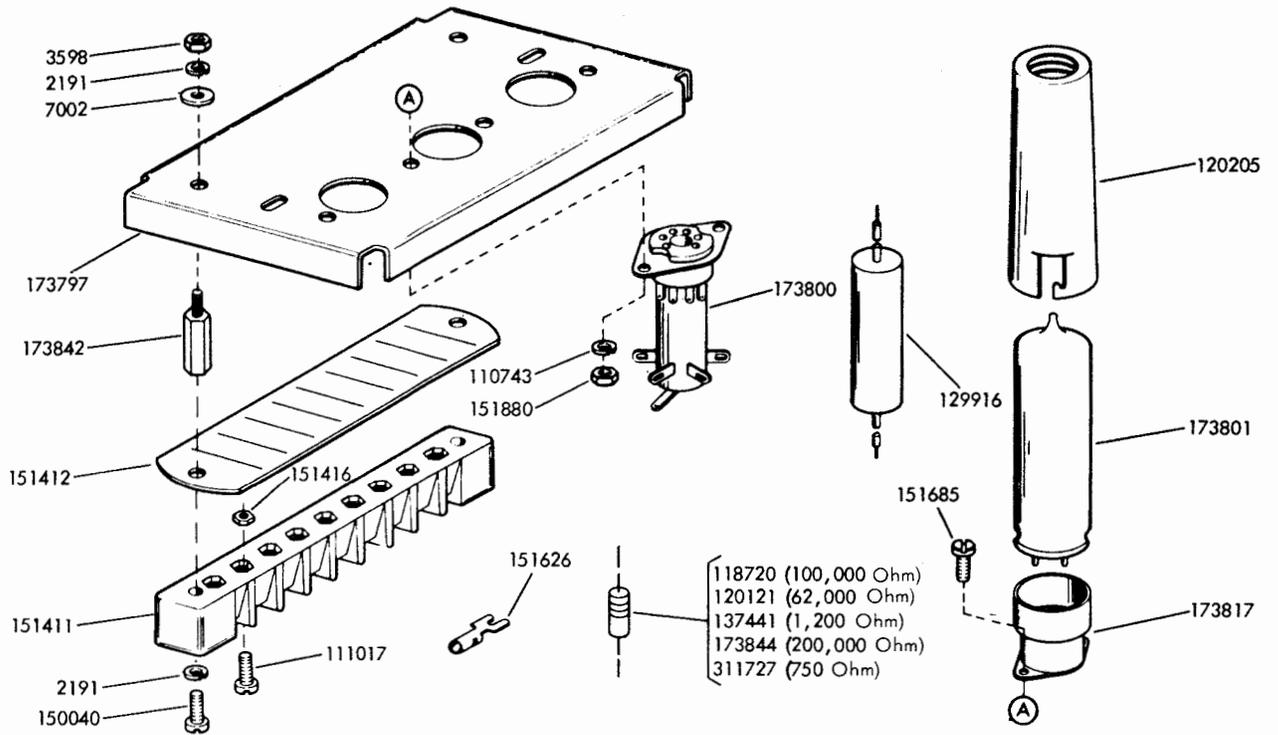


FIGURE 25. 173452 ELECTRONIC KEYSER ASSEMBLY

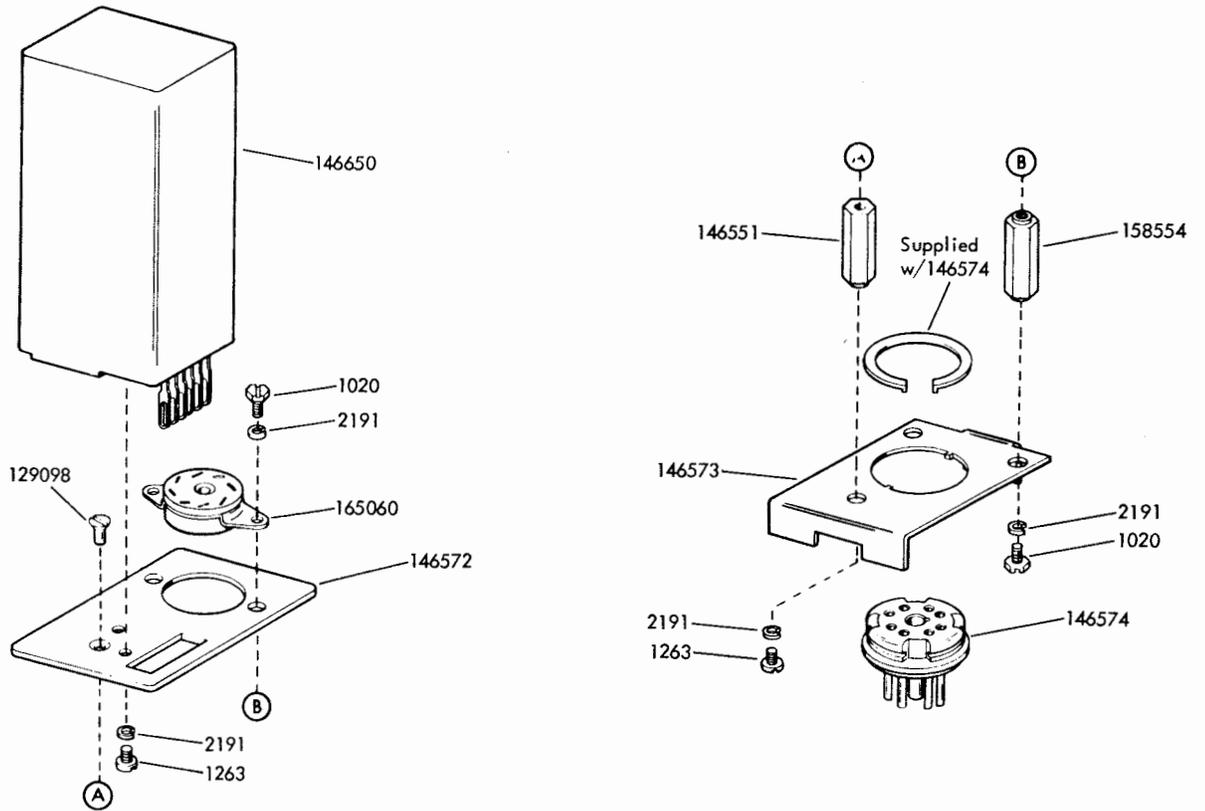
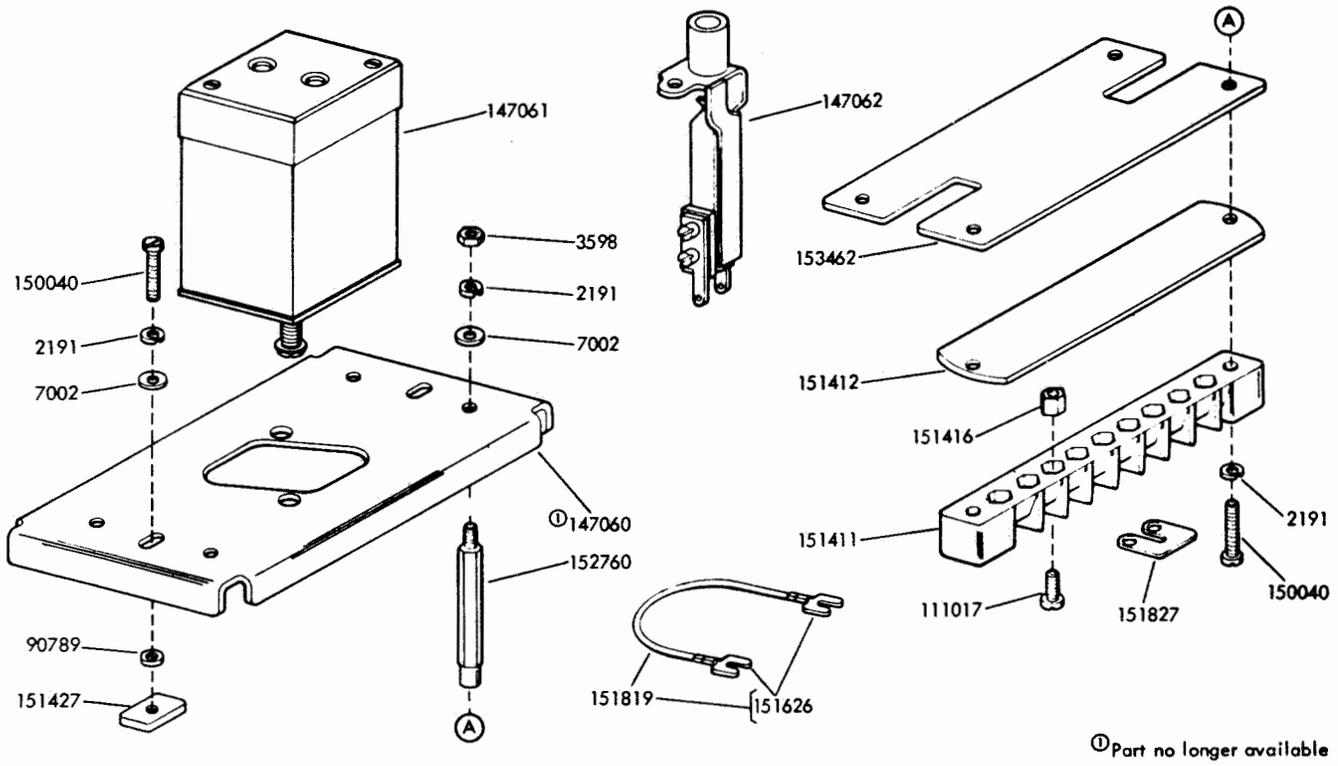


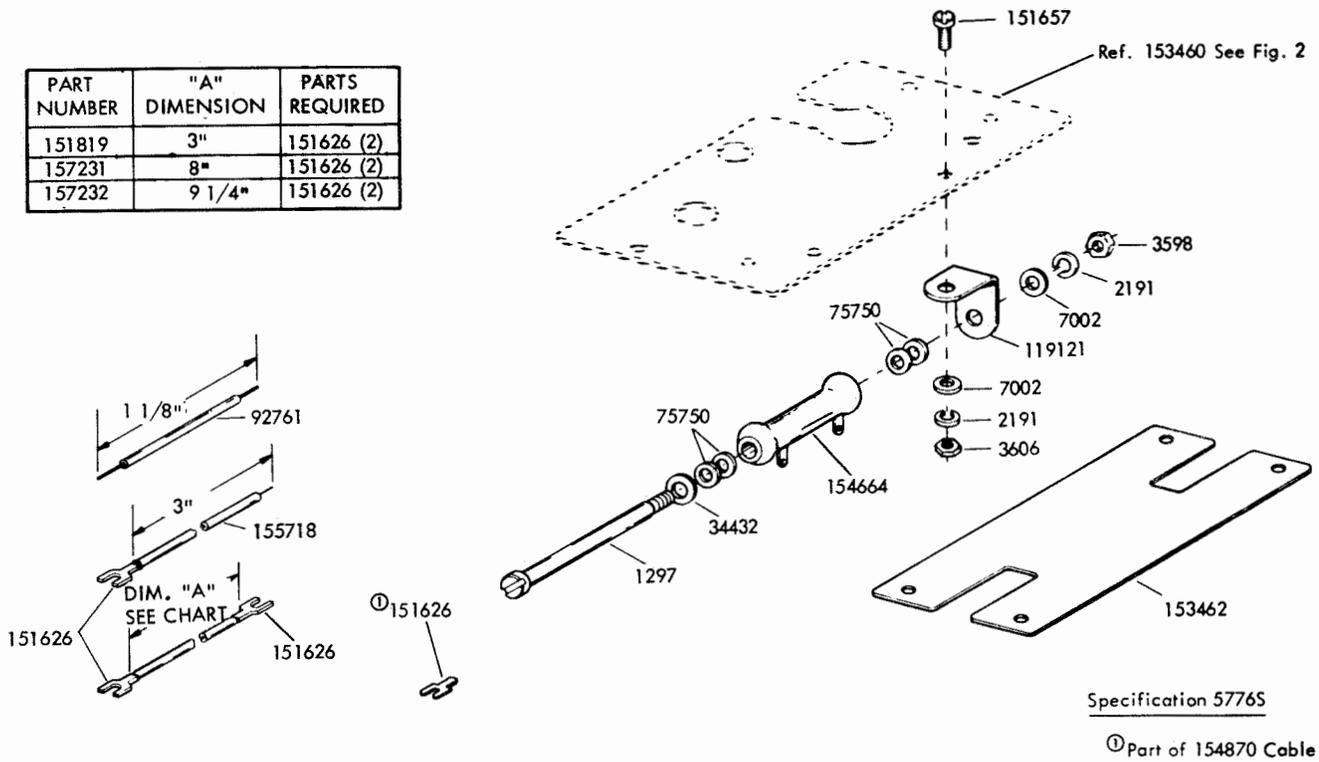
FIGURE 26. 146652 MODIFICATION KIT TO ADD WAVE SHAPING INDUCTOR



① Part no longer available

FIGURE 27. LINE JACK ASSEMBLY

PART NUMBER	"A" DIMENSION	PARTS REQUIRED
151819	3"	151626 (2)
157231	8"	151626 (2)
157232	9 1/4"	151626 (2)



Specification 57765

① Part of 154870 Cable

FIGURE 28. 154747 MODIFICATION KIT TO ADD CONTINUOUS SPACING

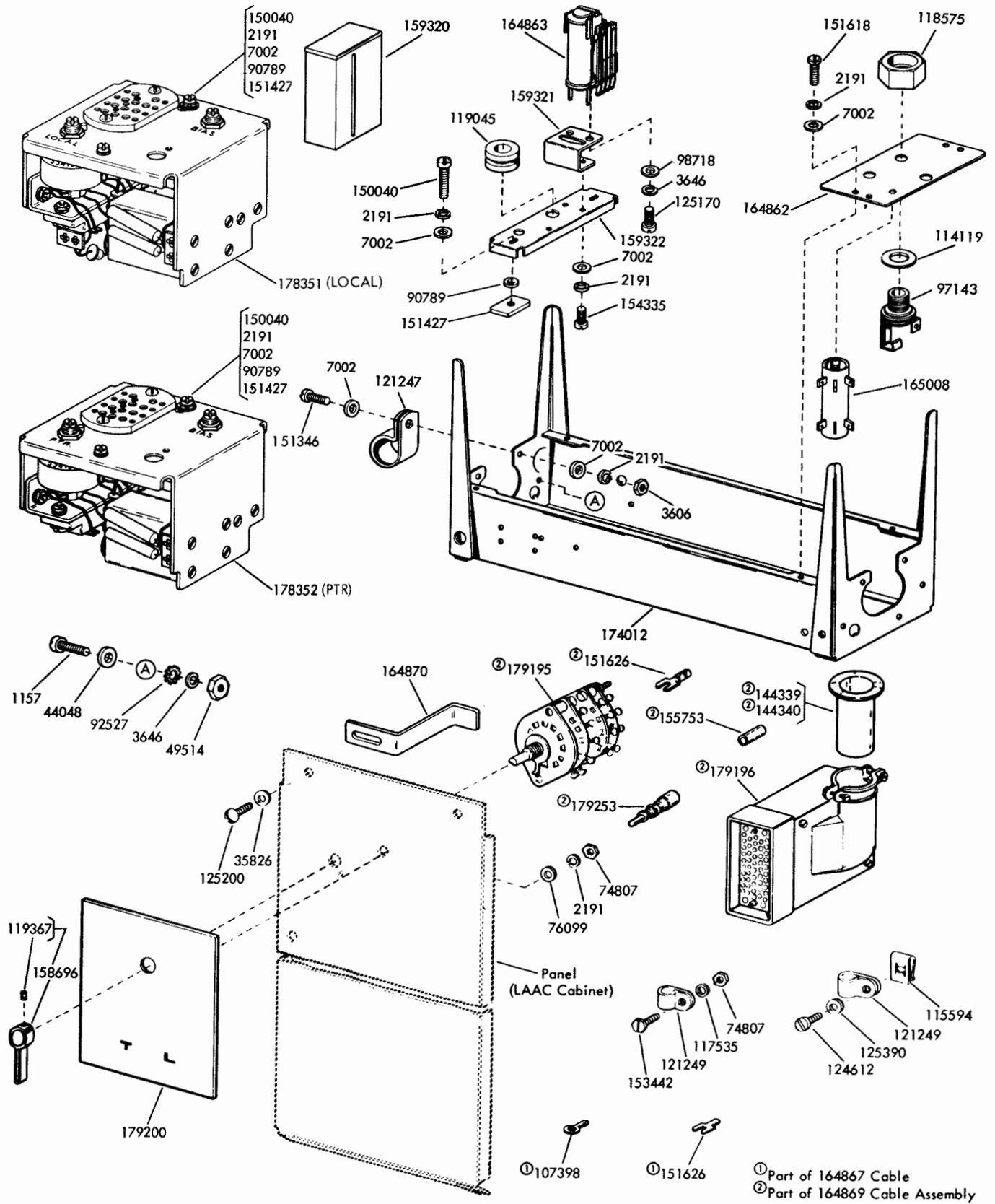


FIGURE 29. 164868 MODIFICATION KIT TO PROVIDE A CABINET WITH AN AUXILIARY ELECTRICAL SERVICE UNIT

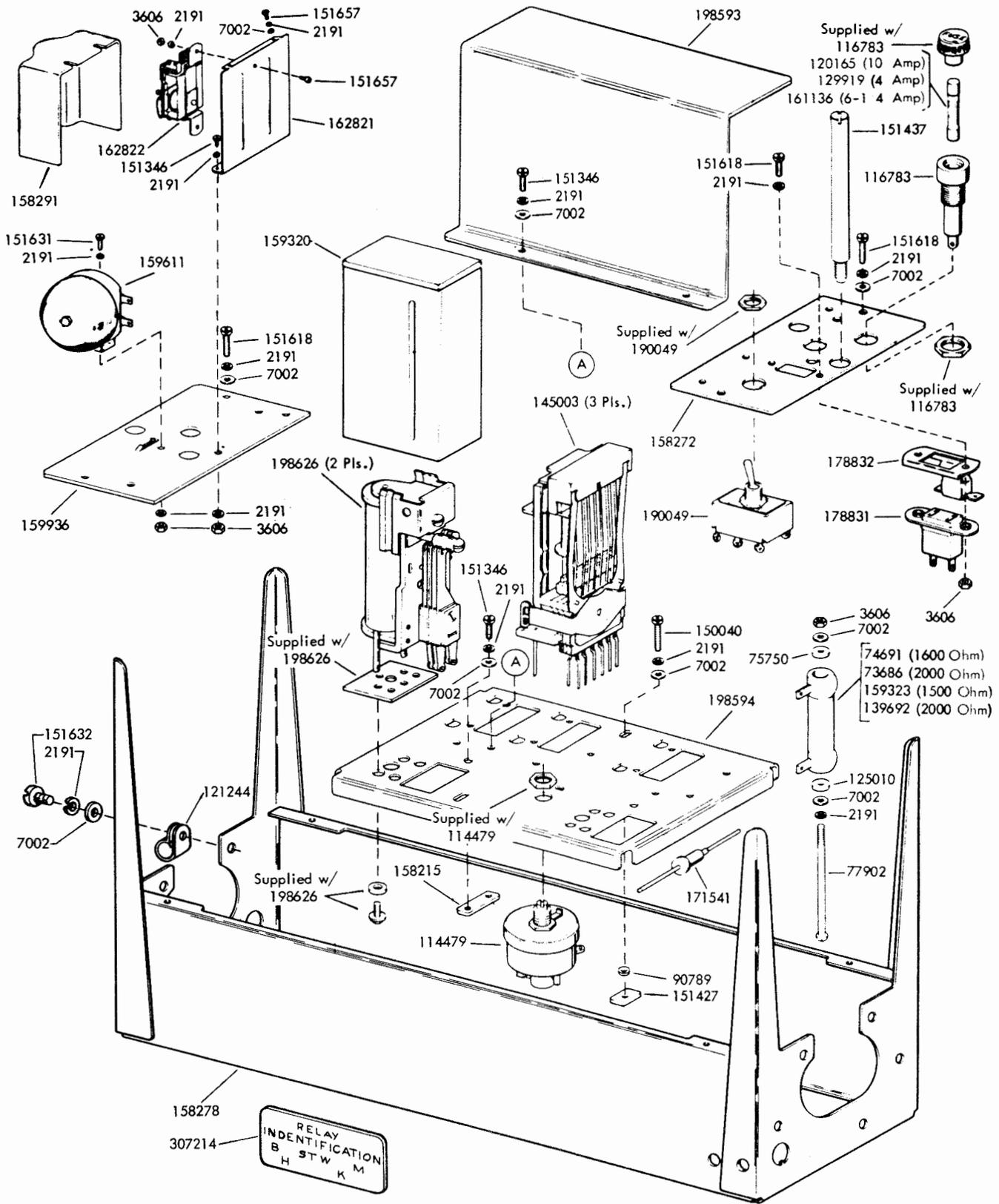


FIGURE 32. COMPONENTS TO PROVIDE LINE RELAYS AND SELECTOR BATTERY

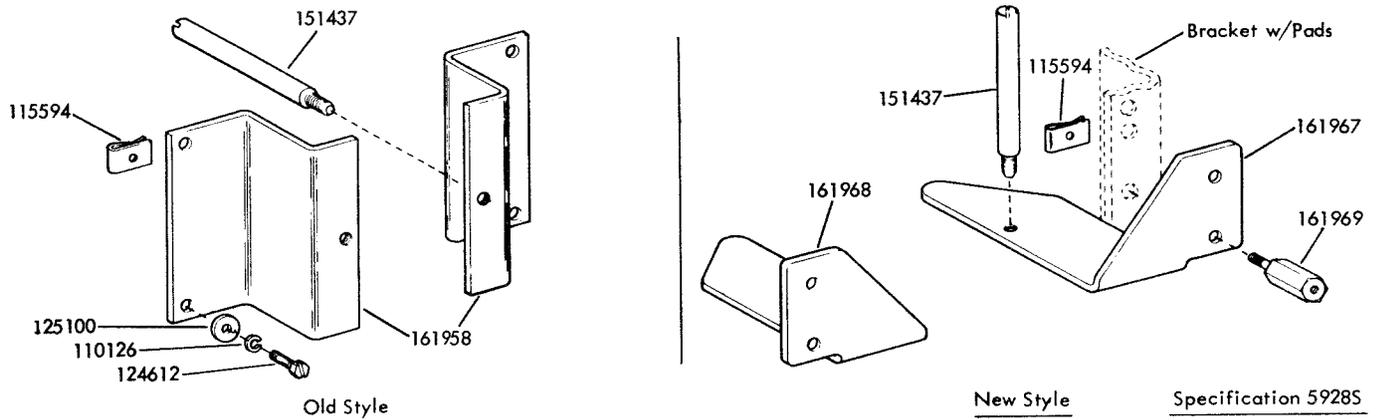


FIGURE 33. 161829 MODIFICATION KIT FOR MOUNTING AN ELECTRICAL SERVICE UNIT ON RELAY RACK BRACKETS

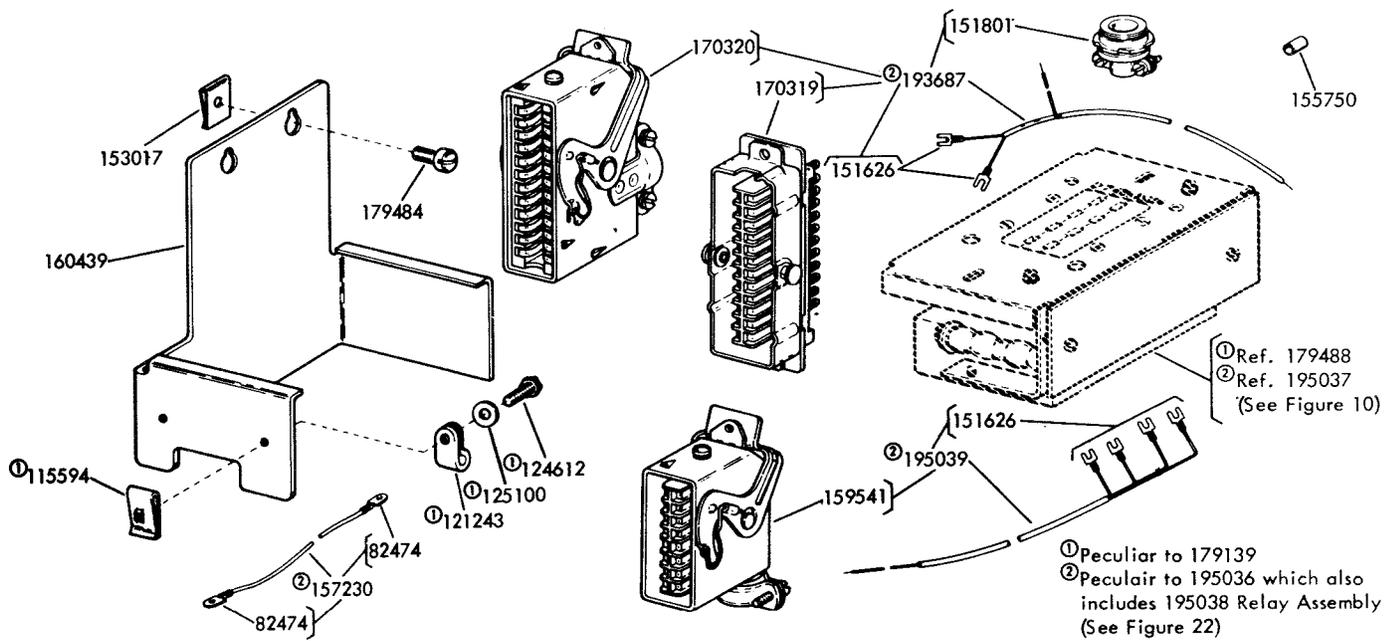


FIGURE 34. 179139 AND 195036 AUXILIARY REPERFORATOR LINE RELAY ASSEMBLY

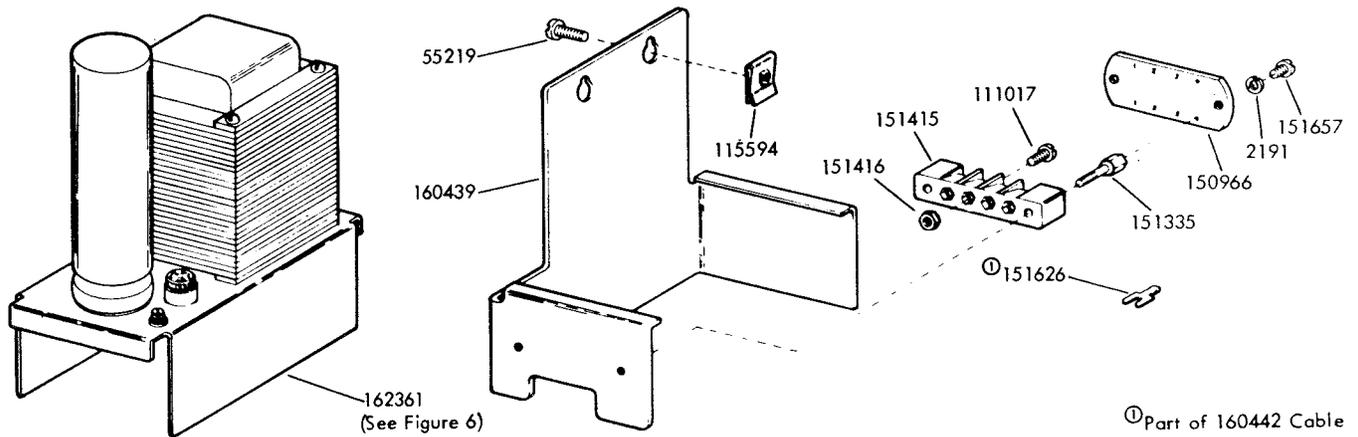


FIGURE 35. 160422 MODIFICATION KIT TO EQUIP CABINET WITH RECTIFIER

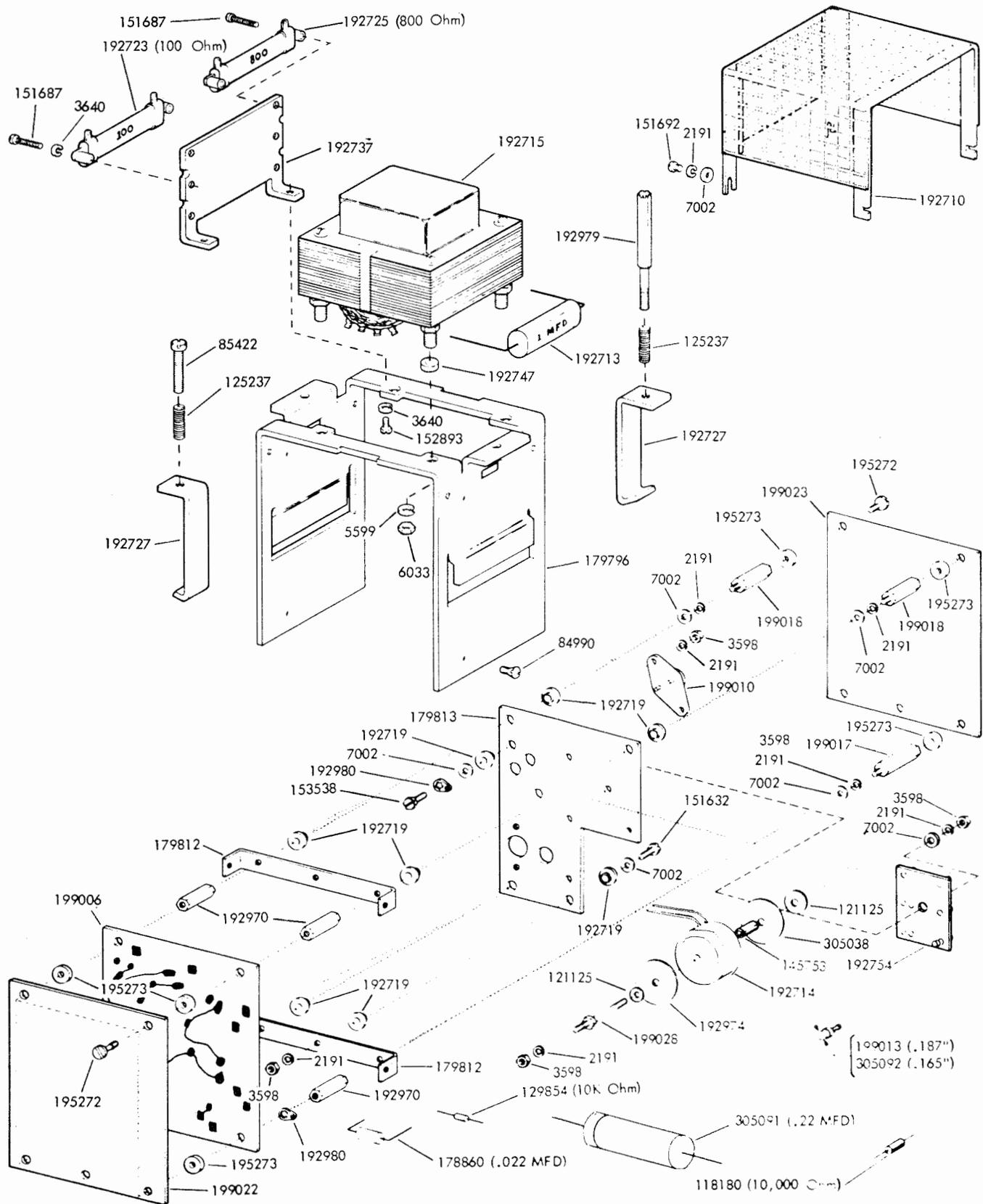
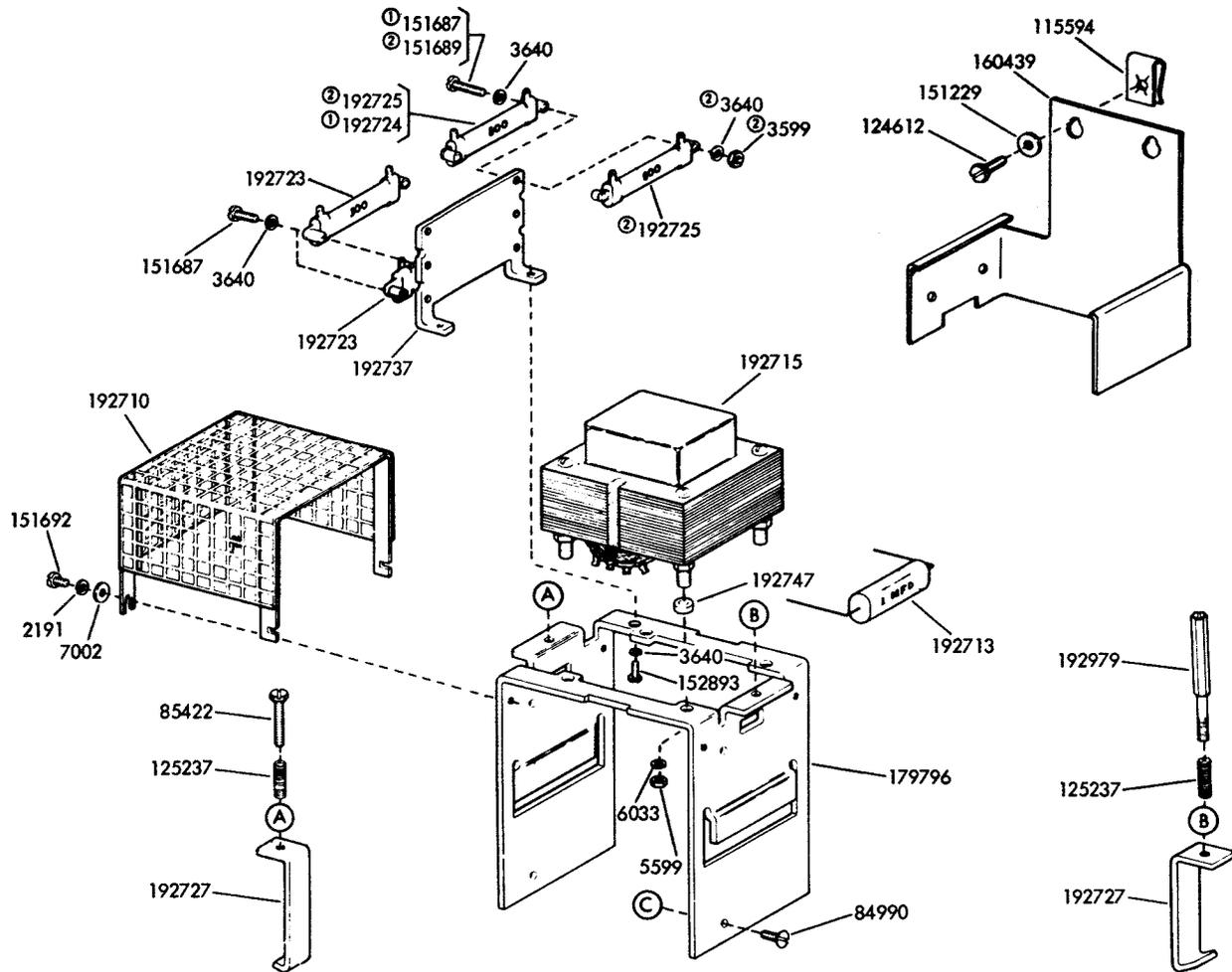
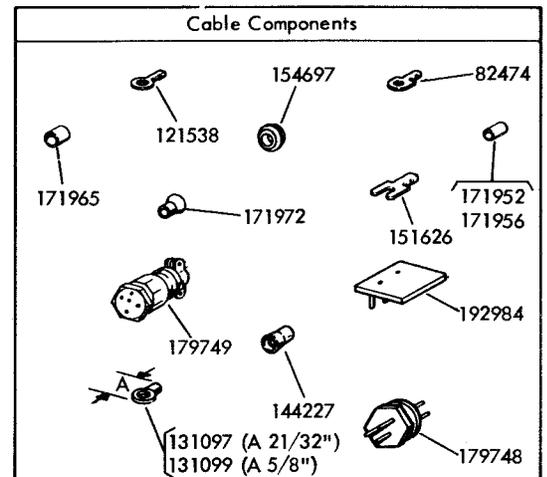


FIGURE 36. 19250 RECTIFIER ASSEMBLY



Jumpers			
Part No.	Color	Terminals	Length
151819	Black	151626 (2)	3-1/16"
156880	Black	121538 (2)	6-1/4"
157230	Black	151626 (2)	9-1/4"
157232	Black	151626 (2)	3-1/2"
195269	Green	82474 (1)	3-1/2"
195270	Green	131099 (1)	3-1/2"
305019	Brown		2"
305020	Purple		2"



- ① Peculiar to 192730 Selector Magnet Driver Assembly
- ② Peculiar to 192740 Low Level Keyer Assembly

FIGURE 37. 179610 AND 179611 MODIFICATION KITS TO REDUCE RADIO FREQUENCY NOISE ON ASR SET (Includes Parts on This Figure and Figure 38)

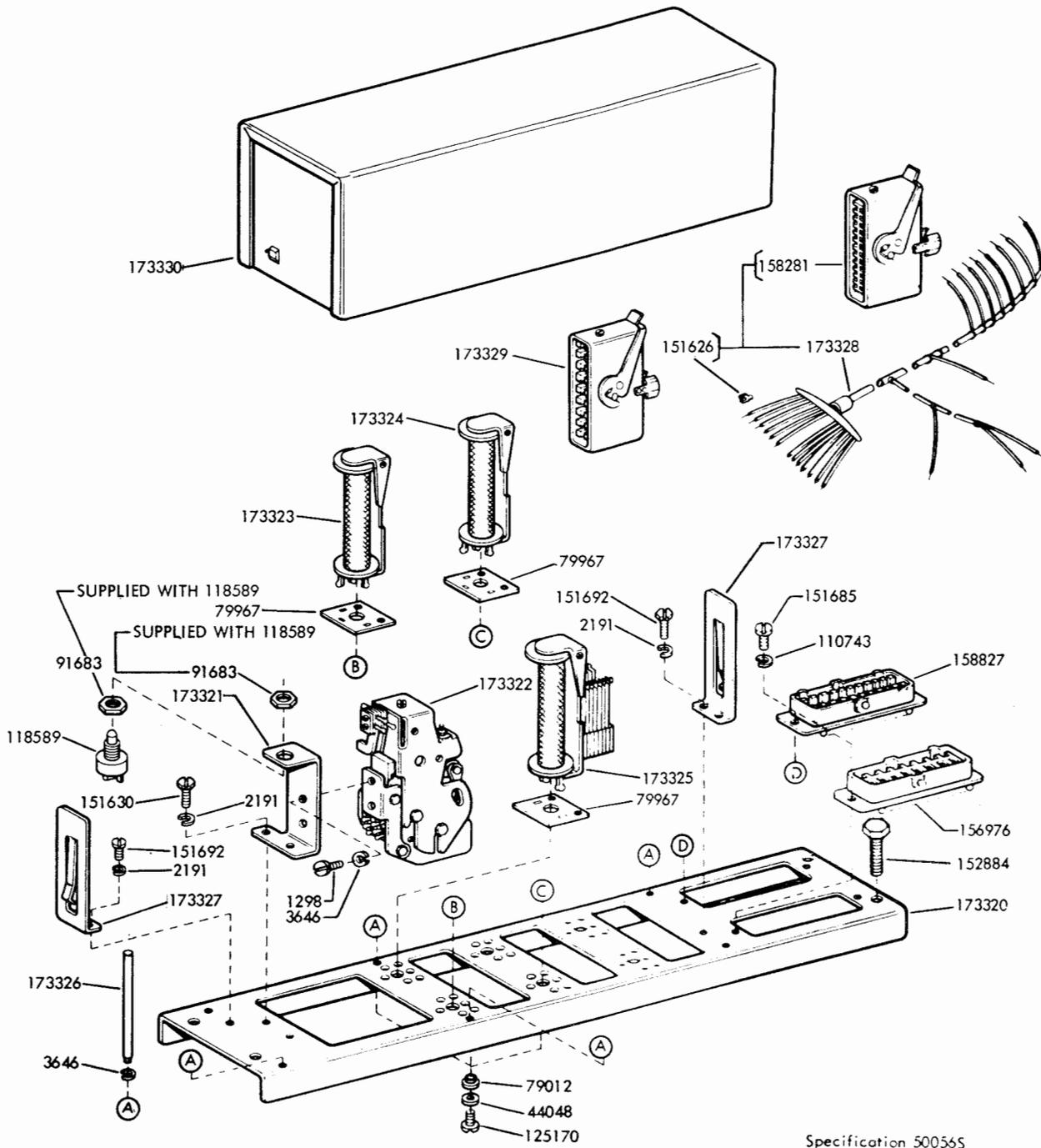
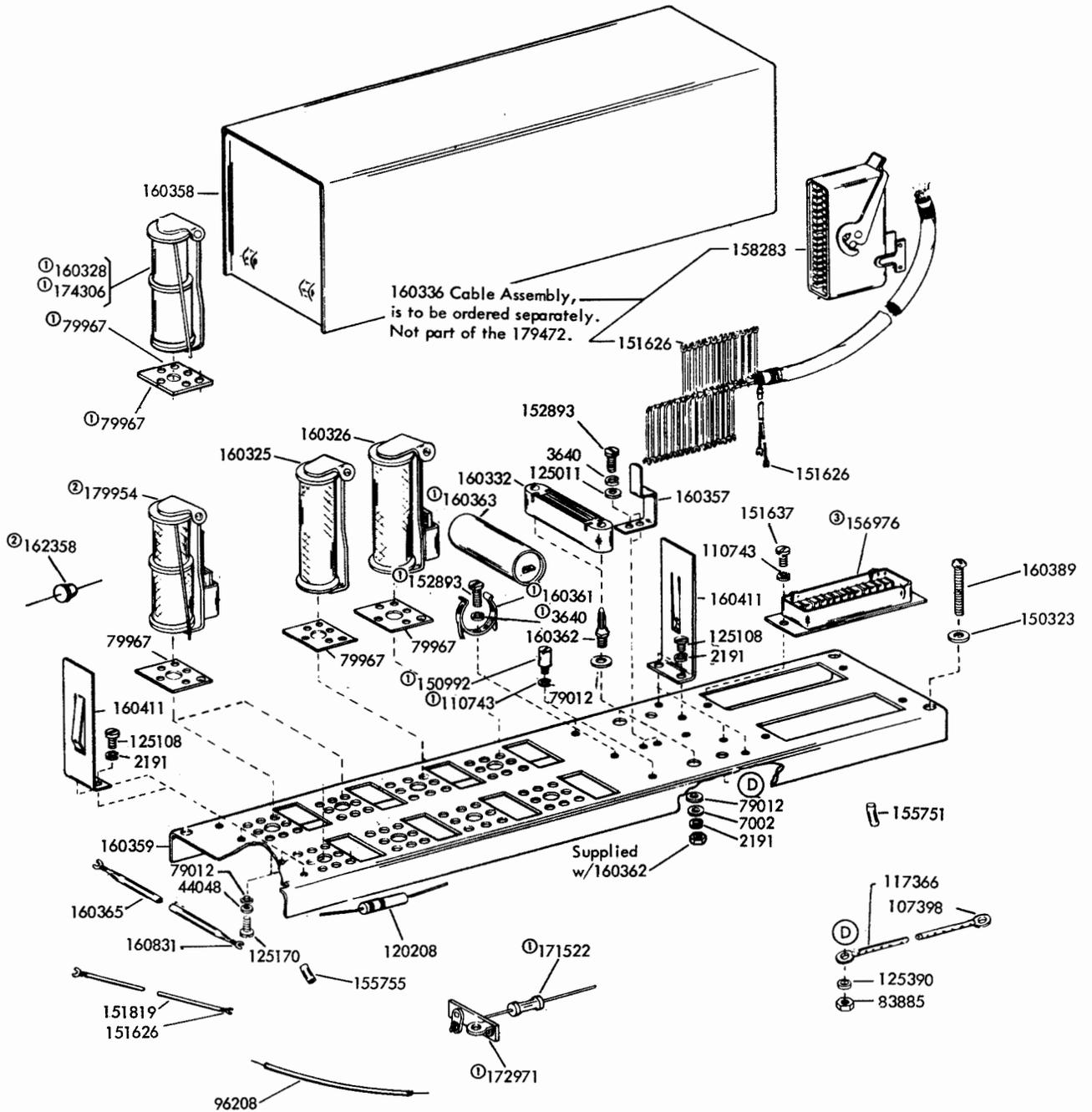
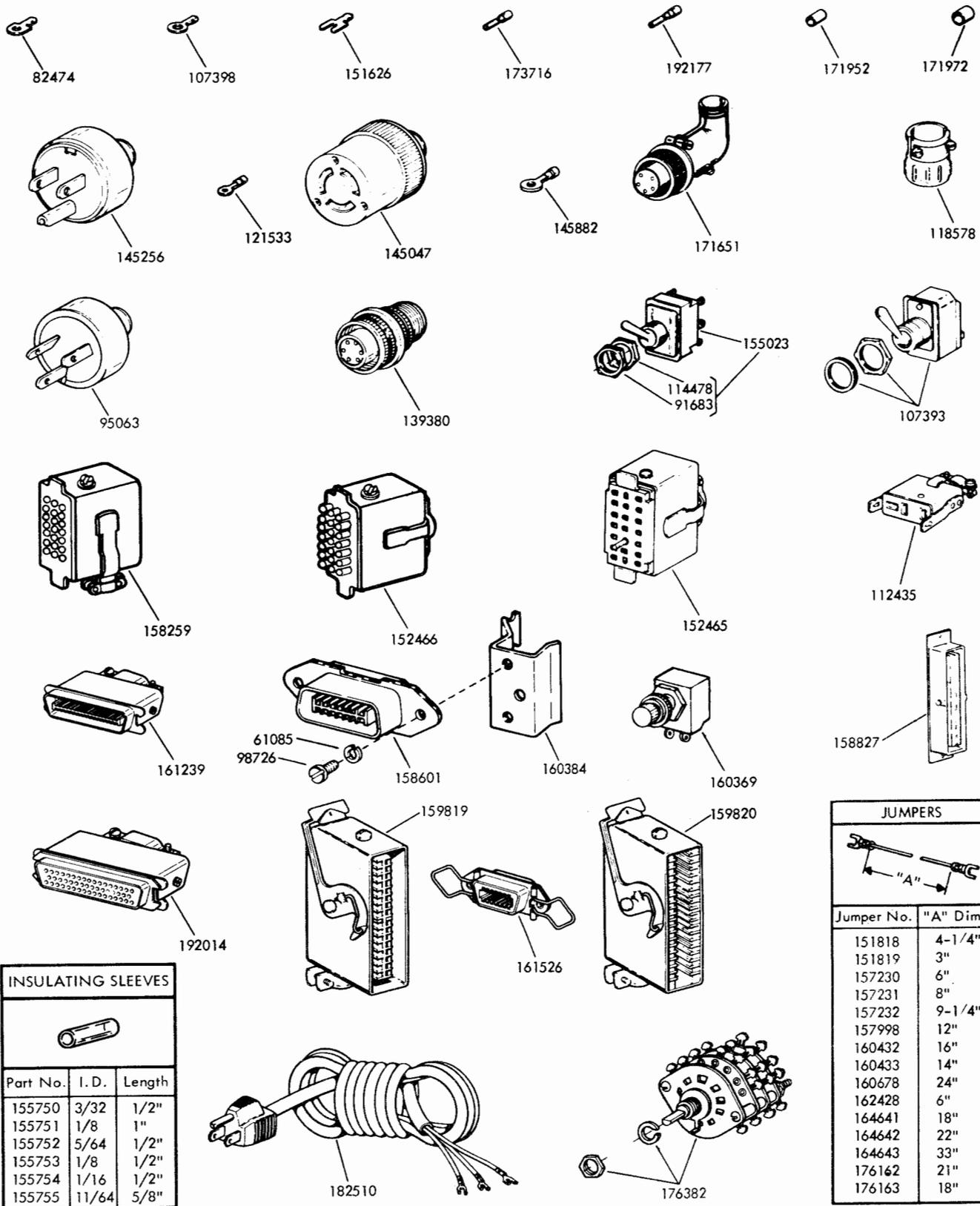


FIGURE 40. 162483 CALL DIRECTING RELAY UNIT



- ① Peculiar to Early Design 160334 Modification Kit. This feature no longer furnished - Specification 58875
- ② Also part of 179953 Modification Kit to convert early design 160334 Central Device to a 179472. Specification 501525
- ③ Part of 179956 Cable Assembly

FIGURE 41. 179472 MODIFICATION KIT TO PROVIDE A TRANSMITTER CONTROL DEVICE



INSULATING SLEEVES		
		
Part No.	I. D.	Length
155750	3/32	1/2"
155751	1/8	1"
155752	5/64	1/2"
155753	1/8	1/2"
155754	1/16	1/2"
155755	11/64	5/8"

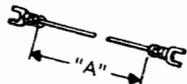
JUMPERS	
	
Jumper No.	"A" Dim.
151818	4-1/4"
151819	3"
157230	6"
157231	8"
157232	9-1/4"
157998	12"
160432	16"
160433	14"
160678	24"
162428	6"
164641	18"
164642	22"
164643	33"
176162	21"
176163	18"

FIGURE 42. CABLE COMPONENTS

NUMERICAL INDEX¹

Part Number	Description and Page Number	Part Number	Description and Page Number	Part Number	Description and Page Number
169M	Coil, Magnet 15	74615	Resistor, 2,000 Ohm 5, 11, 12	110434	Screw, 4-40 x 3/16 Fil 14
247M	Coil, Magnet 6	74691	Resistor, 1,600 Ohm 24	110435	Nut, 4-40 Hex 6, 23
252M	Coil, Magnet 6	74807	Nut, 10-32 Shoulder Hex 21	110743	Washer, Lock 4, 8, 15, 16, 18, 19, 23, 30, 31
1020	Screw, 6-40 x 1/4 Hex 19	74821	Resistor, 2,810 Ohm 11, 16	111017	Screw, 6-40 x 5/16 Fil 3, 4, 19, 20, 22, 23, 25
1028	Screw, 4-40 x 1/4 Fil 11, 15, 18	74882	Spring 6	111647	Resistor, 1,000 Ohm 4, 5
1093	Screw, 8-32 x 7/16 Fil 6	74980	Screw, 6-40 x 1-13/16 Rd 5	112435	Socket 32
1157	Screw, 8-32 x 1/2 Fil 3, 21, 29	75750	Washer, Insulating 5, 11, 12, 13, 15, 16, 18, 20, 23, 24	112626	Nut, 10-32 Hex 5
1158	Screw, 6-32 x 5/16 Fil 4	76099	Washer, Flat 21	112627	Nut, 2-56 Hex 5
1172	Screw, 2-56 x 5/16 Fil 5	76461	Washer, Flat 16	114119	Washer, Insulating 21
1248	Screw, 6-40 x 1/2 Flat 11	76983	Screw, 4-40 x 1-1/4 Fil 15	114478	Nut, 15/32-32 Hex 32
1263	Screw, 6-32 x 1/4 Fil 19	77902	Screw, 6-40 x 2-3/8 Rd 4, 5, 9, 11, 12, 13, 15, 16, 18, 23, 24	114479	Rheostat, 1,500 Ohm 24
1264	Screw, 10-32 x 1/2 Flat 29	79012	Insulator 14, 15, 30, 31	114626	Screw, 6-40 x 2-1/16 Fil 12
1297	Screw, 6-40 x 2-7/16 Fil 20	79967	Insulator 14, 15, 30, 31	114654	Strip, Terminal 12, 14
1298	Screw, 8-32 x 1/4 Fil 30	80342	Screw, 6-40 x 23/64 Hex 23	115537	Screw, 8-32 x 2-1/4 Rd 5
2034	Washer, Flat 6	80467	Screw, 6-40 x 3/8 Hex 9	115594	Nut, Speed 10, 17, 21, 25, 27
2191	Washer, Lock 3 to 31	80612	Nut, 8-32 Hex 5	116783	Holder, Fuse 3, 7, 8, 9, 22, 24, 29
2201	Nut, 5/16-32 Hex 6	80854	Screw, 6-40 x 1-7/16 Fil 5, 6	117366	Jumper, 8-1/2" Green 31
2322	Washer, Lock 29	81836	Washer, Insulating 5	117535	Washer, Flat 21
2422	Washer, Lock 5	82474	Terminal 9, 12, 17, 25, 27, 32	118180	Resistor, 10,000 Ohm 26
2449	Washer, Lock 15	82516	Spring, Retaining 11	118210	Resistor, 22,000 Ohm 7
2658	Nut, 6-32 Hex 7	82870	Resistor, 6,300 Ohm 18	118575	Nut, 3/8-32 Insulating 21
2669	Washer, Lock 5, 29	83885	Nut, 6-32 Hex 31	118578	Clamp, 3/4 ID Cable 32
3438	Washer, Flat 5, 18, 29	84990	Screw, 6-40 x 1/4 Flat 26, 27	118589	Switch, Black Pushbutton 30
3595	Nut, 1/4-32 Hex 15	85422	Screw, 10-32 x 15/16 Hex 26, 27	118659	Switch, Toggle 3
3598	Nut, 6-40 Hex 3 to 6, 9, 11, 12, 15 to 20, 22, 23, 26, 28	86742	Nut, 4-40 Hex 23	118720	Resistor, 100K Ohm 19
3599	Nut, 4-40 Hex 4, 16, 27	89548	Spring, Contact 11	118726	Resistor, 820 Ohm 14
3606	Nut, 6-40 Hex 3, 4, 5, 17, 20, 21, 24	90789	Washer, Flat 5, 6, 7, 10, 11, 12, 13, 15, 16, 17, 20 to 24	119045	Grommet, Rubber 3, 16, 21
3639	Washer, Lock 29	90951	Washer, Lock 6	119121	Bracket 20
3640	Washer, Lock 6, 14, 23, 26, 27, 28, 31	91683	Nut, 15/32-32 Hex 3, 22, 30, 32	119218	Resistor, 3,500 Ohm 5
3642	Washer, Flat 5	91721	Screw, 10-32 x 2-3/4 Fil 5	119367	Screw, 8-32 Set 21
3646	Washer, Lock 3, 5, 6, 13, 21, 30	92260	Washer, Lock 7	120121	Resistor, 62,00 Ohm 19
3650	Washer, Flat 28	92271	Screw 6-32 x 2-3/4 Rd 8	120165	Fuse, 10 Amp 3, 24
3870	Spring 6	92527	Washer, Lock 3, 21	120175	Plate, Off-On 3, 22
3899	Spacer, .188" Thk 15	92761	Jumper, 1-1/2" Black 20	120195	Rectifier 7
5599	Nut, 8-32 Hex 26, 27	92856	Resistor, 1,500 Ohm 4, 5	120205	Shield, Tube 19
5816	Washer, Insulating 6	93073	Modification Kit 5	120208	Resistor, 22 Ohm 31
6033	Washer, Lock 26, 27	93598	Screw, 4-40 x 5/16 Rd 8	120421	Resistor, 100 Ohm 23
6345	Nut, 6-32 Hex 7, 10	93711	Resistor, 200 Ohm 5	121018	Nut, 4-40 Hex 8
6347	Screw, 6-32 x 3/8 Rd 23	93959	Key 23	121125	Washer, Spring 6, 26, 28
6827	Block 11	93984	Washer, Lock 29	121243	Clamp, 3/16" ID Cable 10, 17, 25, 28
7002	Washer, Flat 3 to 24, 26, 27, 28, 31	93985	Washer, Lock 29	121244	Clamp 1/4" ID Cable 3, 24
7603	Spring 6	95009	Switch, Push Button 13	121245	Clamp 5/16" ID Cable 3, 6, 23
7959	Bracket, Magnet 15	95063	Connector, 3 Pt Plug 32	121246	Clamp, 3/8" ID Cable 3, 16, 29
8262	Knob 18	96208BK	Jumper, 3" Lg Black 31	121247	Clamp, 7/16" ID Cable 3, 21, 23
8449	Spacer, .094" Thk 28	96260BK	Jumper, 3-1/2" Black 12	121248	Clamp, 1/2" ID Cable 3
34432	Washer, Flat 5, 20	96262BK	Jumper, 4" Lg Black 7	121249	Clamp, 5/8" ID Cable 3, 4, 21
35826	Washer, Flat 21	96262S	Jumper, 4" Lg Slate 7	121250	Clamp, 3/4" ID Cable 3
44048	Washer, Flat 3, 6, 14, 15, 21, 30, 31	97143	Jack 21	121413	Spacer, .344" Thk 8
49514	Nut, 8-32 Hex 3, 21	98142	Washer, Flat 23	121533	Terminal 32
55219	Screw, 8-32 x 3/8 Fil 10, 17, 25	98718	Washer, Flat 13, 21	121538	Terminal w/Insulator 27
55318	Screw, 6-32 x 1/4 Rd 8	98726	Screw, 3-48 x 1/4 Fil 32	121630	Washer, Flat 7
61085	Washer, Lock 32	100657	Connector, 2 Pt Receptacle 4, 5	122184	Grommet 9
70314	Washer, Flat 9	101944	Resistor, 4,000 Ohm 11	123146	Socket, 6 Pt 16
70887	Nut, 10-24 Hex 29	102690	Connector, Duplex Receptacle 22	124566	Clamp, Capacity 29
71047	Washer, Flat 15	104213	Resistor, 300 Ohm 12	124612	Screw, 8-32 x 1 2 Hex 21, 25, 27
71155	Screw, 6-32 x 1-1/4 Flat 7	104807	Washer, Flat 18	125010	Washer, Insulating 4, 5, 24
71646	Nut, 6-32 Hex 7, 8	107116	Washer, Lock 3, 9, 23	125011	Washer, Flat 12, 15, 18, 31
73686	Resistor, 2,000 Ohm 24	107393	Switch, SP-ST Toggle 32	125015	Washer, Flat 5, 7, 11, 13, 15, 23
74614	Resistor, 2,600 Ohm 11	107398	Terminal 4, 12, 16, 21, 31, 32		
		110126	Washer, Lock 25		

NUMERICAL INDEX (Continued)

Part Number	Description and Page Number	Part Number	Description and Page Number	Part Number	Description and Page Number
125100	Washer, Flat 25	144618	Cable w/Terminals 11	151407	Collar, Spacing 6
125108	Screw, 6-32 x 3/8 Fil 31	144619	Cable w/Terminals 11	151408	Lever 6
125112	Screw, 2-56 x 1/8 Fil 15	144620	Mounting Assembly, Line Relay 11	151409	Armature 6
125130	Screw, 6-32 x 1/2 Fil 23			151410	Clip, Retaining 6
125170	Screw, 8-32 x 5/16 Fil 13, 14, 15, 21, 30, 31	144621	Mounting Assembly, Line Relay 11	151411	Block, Terminal 3, 4, 19, 20, 22, 23
125186	Screw, 8-32 x 3/4 Fil 3	144625	Guard 23	151412	Insulator, Terminal 3, 4, 19, 20, 22, 23
125200	Screw, 10-32 x 1/2 Rd 21	144626	Container 22	151413	Washer, Flat 9, 29
125231	Nut, 10-32 Hex 29	144630	Block, Mounting 23	151414	Switch, Sensitive 6
125237	Spring, Compression 26, 27	144631	Post, Mounting 23	151415	Block, Terminal 25
125306	Stop, Magnet Plunger 15	144633	Jumper, 18" Black 23	151416	Nut, 6-40 Hex 3, 4, 19, 20, 22, 23, 25
125315	Washer, Insulating 8	144634	Relay, 90 Ohm 23	151418	Fuse, 10 Amp 22
125390	Washer, Flat 6, 21, 31	144960	Plate, Mounting 23	151422	Connector 2 Pt Receptacle 3, 22
129098	Screw, 6-40 x 11/32 Flat 19	144962	Bracket, Mounting 23	151426	Plate, 3-3/4 Wide Blank 5
129854	Resistor, 10,000 Ohm 26	144963	Cover 23	151427	Plate, Clamp 5, 6, 7, 10 to 17, 20 to 24
129916	Capacitor, .1 MFD 19	145003	Relay 24	151432	Armature 6
129919	Fuse, 4 Amp SL-BL 3, 24	145021	Relay 23	151437	Stud 3, 4, 22, 23, 24, 25
131097	Terminal, 21/32" Lg 27	145040	Plate, Mounting 22	151440	Stud 6
131099	Terminal 5/8" Lg 27	145047	Connector, 3 Pt Receptacle 29, 32	151441	Plate, 2-3/4 Wide Blank 5
137441	Resistor, 1,200 Ohm 19			151616	Screw, #2 Self-Tapping 3
137602	Resistor, 470 Ohm 14	145068	Plate, Mounting 22	151618	Screw, 6-40 x 7/16 Fil 3, 4, 21, 24
138191	Screw, 3-48 x 1 Rd 11	145071	Plate, Mounting 23	151626	Terminal 4 to 7, 9, 10, 11, 13 to 23, 25, 27, 29, 30, 31, 32
138545	Cap, Insulator 29	145072	Plate, Mounting 23	151629	Nut, 6-40 Lug 10
138548	Connector, Cord 29	145191	Connector, 2 Pt Receptacle 29	151630	Screw, 6-40 x 1/4 Hex 4, 5, 6, 10, 16, 23, 30
139075	Screw, 8-32 x 1/4 Fil 29	145256	Connector, 3 Pt Plug 29, 32	151631	Screw, 6-40 x 5/16 Hex 12, 15, 16, 17, 24, 28
139158	Connector, Duplex Receptacle 22	145270	Capacitor, 1 MFD 23	151632	Screw, 6-40 x 3/8 Hex 6, 24, 26, 28
139335	Connector, 6 Pt Plug 8	145753	Bushing 26, 28	151637	Screw, 4-40 x 1/4 Fil 18, 23, 31
139380	Connector, 6 Pt Receptacle 32	145882	Terminal 32	151657	Screw, 6-40 x 1/4 Fil 4, 11, 15, 16, 17, 18, 20, 24, 25
139564	Nut, 3/8-32 Hex 13	145894	Switch 22	151658	Screw, 6-40 x 5/16 Fil 22, 23
139565	Washer, Flat 13	146551	Resistor, 47,500 Ohm 19	151659	Screw, 6-40 x 1/2 Fil 4, 11
139692	Resistor, 2,000 Ohm 11, 24	146572	Plate, Top Mounting 19	151685	Screw, 4-40 x 5/16 Fil 4, 19, 30
139777	Screw, 3-56 x 1/4 Flat 18	146573	Plate, Lower Mounting 19	151687	Screw, 4-40 x 7/16 Fil 26, 27, 28
139971	Screw, 2-56 Self-Tapping 3, 18	146574	Connector, 8 Pt Plug 19	151689	Screw, 4-40 x 3/4 Fil 27
142288	Jumper, 2" Black 9	146650	Inductor 19	151692	Screw, 6-40 x 3/16 Fil 11, 16, 26, 27, 30
142679	Washer, Flat 29	146652	Modification Kit 2, 19	151722	Screw, 6-40 x 3/16 Hex 16, 17
142686	Nut, 8-32 Hex 29	146901	Rectifier Assembly 2, 8	151733	Screw, 4-40 x 9/16 Fil 23
143291	Screw, 1/4-20 x 5/8 Hex 29	146967	Resistor, 750 Ohm 8	151801	Bushing, Clamp 25
143292	Clamp, Cable 29	146968	Transformer 8	151808	Relay 4, 17
143293	Screw, 6-32 x 1/2 Spl 29	147060	Plate 20	151814	Bracket, Relay Mounting 4, 17
143294	Screw, 8-32 x 3/8 Flat 29	147061	Mount, Jack 20	151818	Jumper, 4-1/4" Black 23, 32
143295	Screw, 4-40 x 1/4 Rd 29	147062	Jack, Line 20	151819	Jumper, 3" Black 6, 11, 15, 18, 20, 23, 27, 31, 32
143297	Nut, 6-32 Hex 29	147082	Cable Assembly 29	151827	Strap, Terminal 3, 4, 20, 22, 23
143299	Nut, 1/4-20 Hex 29	147083	Cable Assembly 29	151880	Nut, 4-40 Hex 19
143306	Fuse, 1 Amp SL-BL 7, 9, 29	147084	Cable Assembly 29	151913	Plate, Mounting 7
143307	Fuse, .6 Amp 29	147085	Plate, Upper Adapter 29	151916	Transformer 7
143308	Screw, 10-24 x 5/8 Flat 29	147086	Plate, Nut 29	151939	Grommet, Rubber 9
143309	Capacitor, 2.75 MFD 29	147087	Bracket, Lower 29	152109	Filter 11
143310	Capacitor, 1250 MFD 29	148257	Terminal, Insulated 8	152110	Bracket, Resistor Mounting 11
143311	Jack, Black 29	150040	Screw, 6-40 x 5/8 Fil 3, 4, 5, 6, 7, 9, 12 to 17, 19 to 24	152124	Spacer 11
143312	Jack, Red 29	150323	Washer, Flat 31	152332	Control Assembly, Motor 2, 15
143313	Resistor, 6,000 Ohm 29	150849	Washer, Insulating 5	152426	Nut, 6-40 Self-Locking 10
143314	Bracket, Mounting 29	150948	Plate 3		
143315	Terminal, Insulating 29	150949	Plate, Serial 3		
143317	Bracket 29	150950	Plate, Code 3		
143319	Chassis 29	150966	Insulator, Terminal 25		
143320	Cover 29	150992	Stud 31		
143321	Diode 29	150995	Bushing 16, 17		
143325	Regulator 29	151152	Screw, 4-40 x 3/16 Hex 18		
143326	Bracket, Fuse Jack 29	151229	Washer, Flat 27		
144227	Connector, Black Insulated 27	151335	Stud 25		
144339	Bushing, 2" Lg 21	151346	Screw, 6-40 x 3/8 Fil 3, 4, 9, 21, 22, 23, 24		
144340	Bushing, 2-1/8" Lg 21	151401	Base 6		
144610	Card, EC610 Circuit 23	151402	Core 6		
144616	Plate, Relay 11	151403	Frame 6		
144617	Plate, Relay 11	151406	Plate, Insulating 6		

NUMERICAL INDEX (Continued)

Part Number	Description and Page Number	Part Number	Description and Page Number	Part Number	Description and Page Number
152465	Connector, 20 Pt Receptacle 4, 32	155559	Plate 15	159541	Connector, 16 Pt Plug 25
152466	Connector, 20 Pt Receptacle 4, 32	155560	Relay 15	159611	Bell 24
152623	Mounting Assembly, Line Relay 11	155561	Cable w/Terminals 15	159819	Connector, 32 Pt Plug 32
152750	Cable Assembly 4	155564	Cover, Relay 15	159820	Connector, 32 Pt Receptacle 32
152755	Strap, Terminal 4	155591	Capacitor, 220 MFD 7	159821	Plate, Tape Out Connector 5
152757	Plate Assembly, Blank 5	155718	Jumper, 3" Black 20	159936	Plate, Left Mounting 24
152759	Plate Assembly 5	155750	Sleeve, 3/32 ID x 1/2 Lg Insulating 9, 10, 15, 18, 25, 32	160226	Mounting Assembly, Line Relay 11
152760	Stud 3, 20, 22	155751	Sleeve, 1/8 ID x 1" Lg Insulating 31, 32	160227	Cable w/Terminals 11
152761	Stud 3, 4	155752	Sleeve, 5/64 ID x 1/2" Lg Insulating 32	160229	Plate, Mounting 7
152884	Screw, 12-24 x 1 Hex 30	155753	Sleeve, 1/8 ID x 1/2" Lg Insulating 13, 16, 21, 32	160284	Resistor, 5,500 Ohm 11
152893	Screw, 4-40 x 1/4 Hex 26, 27, 28, 31	155754	Sleeve, 1/16 ID x 1/2" Lg Insulating 10, 32	160307	Diode 7
152950	Rectifier Assembly 2, 7	155755	Sleeve, 11/64 ID x 5/8" Lg Insulating 5, 9, 13, 31, 32	160308	Capacitor, 300 MFD 7
152988	Plate, Cover 5	155858	Resistor, 700 Ohm 5	160309	Transformer 7
153002	Plate, Bell Identification 3	156632	Screw, 6-40 x 13/32 Hex 28	160325	Relay, Quick Acting 31
153017	Nut, Speed 17, 25	156880	Jumper, 2-3/8" Black 27	160326	Relay, Quick Acting 31
153102	Screw, 8-32 Set 18	156976	Connector, 32 Pt Plug 30, 31	160328	Relay, 2,000 Ohm 31
153108	Insulator, .031" Thk 7	157230	Jumper, 6" Black 25, 27, 32	160332	Flasher, Thermal 31
153157	Resistor, 400 Ohm 6	157231	Jumper, 8" Black 20, 32	160334	Modification Kit 31
153251	Control Assembly, Motor 2, 6	157232	Jumper, 9-1/4" Black 20, 27, 32	160336	Cable Assembly 31
153442	Screw, 10-32 x 1/2 Hex 21, 29	157307	Spacer 15	160357	Clip, Spring 31
153451	Block, Terminal 18	157308	Bracket 15	160358	Cover 31
153456	Bracket 4	157309	Plate, Nut 15	160359	Plate, Relay Mounting 31
153457	Strap, Terminal 4	157310	Switch, Sensitive 15	160361	Clip 31
153460	Plate, Left Mounting 4, 20	157998	Jumper, 12" Black 32	160362	Plug, Banana 31
153462	Plate 3, 20, 22	158215	Plate, Nut 24	160363	Capacitor, 6 MFD 31
153464	Block Terminal 11	158216	Plate, Nut 4	160365	Jumper, 28" Braided 11
153475	Cable w/Terminal 11	158259	Connector, 20 Pt Receptacle 32	160367	Plate, Left Mounting 4
153476	Cable w/Terminals 18	158265	Cable Assembly 13	160369	Switch, NO Pushbutton 32
153477	Cable w/Terminals 7	158266	Cable w/Terminals 18	160384	Bracket 32
153478	Cable w/Terminals 6	158267	Cable w/Terminals 11	160385	Plate, Relay 11
153480	Resistor, 6,750 Ohm 11	158272	Plate, Right Mounting 3, 24	160386	Resistor, 1,000 Ohm 13
153481	Resistor, 5,800 Ohm 11, 18	158273	Plate, Left Mounting 4	160389	Screw, 12-34 x 1-1/4 Rd 31
153482	Plate, Relay 11	158278	Container 3, 4, 23, 24	160411	Bracket, Cover Guide 31
153484	Screw, 6-32 Spl 16, 17	158279	Plate, 1-5/16 Wide Blank 5	160419	Cable w/Terminals 17
153537	Screw, 6-40 x 9/32 Hex 14	158280	Plate, Left Mounting 4	160420	Relay Assembly, Line Shunt 2, 17
153538	Screw, 6-40 x 7/16 Hex 26, 28	158281	Connector, 32 Pt Plug 30	160421	Bracket 17
153631	Network, Spark Suppression 23	158283	Connector, 32 Pt Receptacle 31	160422	Modification Kit 2, 25
153799	Screw, 4-40 x 21/64 Hex 18	158284	Connector, 20 Pt Receptacle 4	160432	Jumper, 16" Black 32
153841	Screw, 6-40 x 9/16 Hex 10, 23	158291	Cover, Relay 4, 17, 24	160433	Jumper, 14" Black 32
154335	Screw, 6-40 x 9/32 Fil 11, 13, 21	158292	Bracket, Terminal 3, 23	160439	Bracket 10, 25, 27
154337	Cover 6	158293	Key Assembly, Line Test 2, 18	160442	Cable w/Terminals 25
154395	Plunger, Solenoid 15	158294	Key, Line Test 18	160678	Jumper, 24" Black 32
154413	Plate, Switch 22	158295	Bracket, Resistor 18	160831	Terminal 31
154444	Fork 18	158296	Bracket, Test Key 18	160833	Plate, Relay 11
154449	Shaft 18	158554	Post, Pilot 19	160847	Stud 15
154459	Fork 18	158601	Connector, 14 Pt Plug 32	161136	Fuse, 6-1/4 Amp SL-BL 3, 24
154632	Block, Terminal 15	158694	Plate, Designation 18	161239	Connector, 36 Pt Plug 32
154636	Plate 15	158696	Knob 18, 21	161525	Connector, 14 Pt Plug 10
154664	Resistor, 2,000 Ohm 20	158827	Connector, 32 Pt Receptacle 30, 32	161526	Connector, 14 Pt Receptacle 32
154665	Cable w/Terminals 15	159269	Fuse, 3/8 Amp 7	161829	Modification Kit 2, 25
154697	Grommet, Rubber 27	159318	Relay Assembly 2, 13	161875	Resistor, 2,000 Ohm 23
154747	Modification Kit 2, 20	159319	Relay 13	161958	Bracket, Mounting 25
154870	Cable w/Terminals 20	159320	Cover, Relay 12, 13, 14, 21, 24	161967	Bracket, Right 25
155023	Switch, DP-DT Toggle 3, 22, 32	159321	Bracket, Relay 13, 14, 21	161968	Bracket, Left 25
155043	Solenoid Assembly 15	159322	Plate, Relay 13, 14, 21	161969	Stud 25
155045	Switch, SP-DT Toggle 22	159323	Resistor, 1,500 Ohm 13, 15, 24	162357	Capacitor, 500 MFD 7
155558	Relay Assembly 2, 15	159324	Bracket, Resistor 13	162358	Diode 7, 31
		159326	Mounting Assembly, Line Relay 11	162359	Transformer, Power 7
				162360	Fuse, .8 Amp SL-BL 7
				162361	Rectifier Assembly 2, 7, 25
				162428	Jumper, 6" Black 32
				162441	Resistor, 3,750 Ohm 5
				162483	Relay Assembly 2, 30
				162630	Modification Kit 18
				162821	Bracket 24
				162822	Relay 24

NUMERICAL INDEX (Continued)

Part Number	Description and Page Number	Part Number	Description and Page Number	Part Number	Description and Page Number
162864	Clamp, 7/8" ID Cable 16	173281	Resistor Assembly 2, 12	178602	Cable w Terminals 10
163169	Shaft, Control 18	173320	Plate, Relay Mounting 30	178608	Relay Assembly, Motor Control 2, 16
163172	Bracket, Arm 18	173321	Bracket, Mounting 30	178609	Cable w Terminals 16
163965	Plate Assembly 5	173322	Switch, Stepping 30	178631	Connector, 2 Pt Receptacle 3, 24
163966	Plate 5	173323	Relay 30	178832	Plate, Adapter 3, 24
164232	Key Assembly, Line Test 2, 18	173324	Relay, Delay 30	178840	Capacitor, 400 MFD 10
164233	Cable w/Terminals 18	173325	Relay 30	178841	Transformer 10
164641	Jumper, 18" Lg Black 32	173326	Post, Guide 30	178843	Plate, Mounting 10
164642	Jumper, 22" Black 32	173327	Bracket, Cover Guide 30	178853	Cover, Relay 4
164643	Jumper, 33" Black 32	173328	Cable Assembly 30	178854	Bracket, Relay 4
164840	Plate, Mounting 5	173329	Connector, 32 Pt Receptacle 30	178855	Plate, Left 4
164862	Plate, Right and Left Mounting 21	173330	Cover, Relay Plate 30	178856	Relay, Line Shunt 4
164863	Relay, 3,300 Ohm 21	173452	Keyer Assembly, Electronic 2, 19	178859	Card, Circuit 10
164867	Cable w Terminals 21	173716	Terminal, Receptacle Type 32	178860	Capacitor, .022 MFD 26, 28
164868	Modification Kit 2, 21	173724	Modification Kit 4	178868	Resistor, 700 Ohm 10
164869	Cable Assembly 21	173797	Plate 19	178871	Sleeve, 1/2 ID x 1-1 8" Lg Insulating 9
164870	Bracket, Mounting 21	173800	Turret, Socket 19	178872	Sleeve, 1 1/2 ID x 1-1 4" Lg Insulating 7
165008	Turret, Terminal 4, 9, 21	173801	Tube, Vacuum 19	178886	Cable w/Terminals 10
165060	Socket, Tube 19, 23	173817	Base, Tube Shield 19	178887	Cable w/Terminals 10
165062	Capacitor, 2 MFD 12	173842	Stud 19	178888	Clip 10
165073	Diode 12	173844	Resistor, 200,000 Ohm 19	178913	Diode 3
165116	Terminal 16	174012	Container, Electrical 21	179139	Relay Assembly, Line 2, 25
165168	Key 23	174306	Relay 31	179195	Switch, Rotary 21
165449	Resistor, 47 Ohm 10	176162	Jumper, 21" Lg Black 32	179196	Connector, 75 Pt Plug 21
165522	Diode 16	176163	Jumper, 18" Lg Black 32	179200	Plate, Designation 21
165650	Relay Assembly 2, 16	176382	Switch, Rotary 32	179253	Terminal 21
165651	Bracket, Mounting 16	176386	Plate 13	179444	Relay Assembly 2, 17
165652	Cable w/Terminals 16	176387	Bracket, Mounting 13	179445	Cable w/Terminals 11
170285	Resistor Assembly 2, 12	176448	Control Assembly, Relay Motor 2, 15	179446	Cable w/Terminals 17
170287	Plate, Mounting Resistor 12	176495	Transformer, Power 7	179472	Modification Kit 2, 31
170288	Resistor, 3,500 Ohm 12	176673	Suppressor, Spark 14	179484	Screw, 12-24 Spl 17, 25
170289	Capacitor, 1.3 - 1.6 MFD 12	176692	Relay, 4,000 Ohm 14	179486	Cover, Insulator 11
170290	Cable w/Terminals 12	176693	Cable w/Terminals 14	179487	Stud 11
170319	Connector, 24 Pt Plug 25	176694	Relay Assembly, Motor Control 2, 14	179488	Mounting Assembly, Line Relay 11, 25
170320	Connector, 24 Pt Receptacle 25	176696	Relay, Slow Release 12, 14	179560	Driver Assembly, Selector Magnet 2, 10
170573	Rectifier Assembly 2, 8	176697	Cable w/Terminals 14	179561	Cable Assembly 10
171461	Capacitor, 900 MFD 8	176698	Relay Assembly 2, 14	179562	Card, Circuit 10
171463	Resistor, 1 Ohm 8	176788	Capacitor, 60 MFD 14	179610	Modification Kit 2, 27, 28
171490	Connector, 15 Pt Circuit Card 23	176810	Relay Assembly 2, 14	179611	Modification Kit 2, 27, 28
171516	Relay 23	176811	Plate, Mounting 14	179632	Relay, Quick Acting 13
171522	Resistor, 400 Ohm 31	176812	Cable w/Terminals 14	179662	Cover, Relay 13
171530	Resistor, 2,000 Ohm 9	177010	Driver Assembly, Selector Magnet 2, 10	179671	Plate, Relay 11
171541	Diode 10, 12, 14, 24	178137	Cable w/Terminals 12	179748	Connector, 5 Pt Plug 27
171602	Diode 23	178138	Relay Assembly, Slow Release 2, 12	179749	Connector, 5 Pt Receptacle 27
171609	Diode 8, 9	178140	Plate, Mounting 12	179782	Screw, 6-40 x 7 5/8 Hex 16, 17
171610	Transformer 8	178306	Relay, Power 16, 17	179796	Chassis 26, 27
171644	Fuse, 1.5 Amp 8	178307	Relay Assembly, Motor Control 2, 17	179812	Bracket, Mounting 26, 28
171651	Connector, 6 Pt Receptacle 32	178308	Cable w/Terminals 16, 17	179813	Dissipator, Heat 26, 28
171952	Connector, Green Shielding 27, 32	178326	Capacitor, 20 MFD 16	179953	Modification Kit 31
171956	Connector, Green Shielding 27	178327	Cable Assembly 16	179954	Relay, 2,000 Ohm 31
171965	Connector, Yellow Shielding 27	178328	Bracket, Mounting 16	179956	Cable Assembly 31
171972	Connector, Green Insulated 27, 32	178330	Plate 16	181393	Terminal 9
172971	Board, Terminal 31	178345	Modification Kit 2, 16	181618	Capacitor, .01 MFD 28
173138	Plate, Designation 18	178351	Relay Assembly, Line 21	182510	Card, Power 32
173239	Relay Assembly 2, 17	178352	Relay Assembly, Line 21	190049	Switch, DT-DP Toggle 24
173240	Cable w/Terminals 17	178394	Plate 17	192014	Connector, 50 Pt Receptacle Type 32
173251	Mounting Assembly, Line Relay 11	178535	Suppressor, Spark 16, 17	192177	Terminal, Receptacle Type 32
173252	Key Assembly, Line Test 2, 18	178601	Driver Assembly, Selector Magnet 2, 10		
173255	Plate, Relay 11				

Part Number	Description and Page Number	Part Number	Description and Page Number	Part Number	Description and Page Number
192710	Cover 26, 27	195038	Relay Assembly, Line Shunt 2, 17, 25	199021	Cover 28
192713	Capacitor, 1 MFD 26, 27	195039	Cable Assembly 25	199022	Cover 26
192714	Choke, .70 Ohm 26, 28	195040	Cable w/Terminals 11	199023	Cover 26
192715	Transformer 26, 27	195041	Cable w/Terminals 17	199028	Post 26, 28
192719	Bushing, Shoulder 26, 28	195046	Plate, Relay 11	199038	Card, Circuit 8
192720	Diode 28	195177	Washer, Insulating 10	199445	Clamp, Capacitor 9
192721	Diode 28	195269	Jumper, 3-1/2" Lg Green 27	305019	Jumper, 2" Brown 27
192723	Resistor, 100 Ohm 26, 27	195270	Jumper, 3-1/2" Lg Green 27	305020	Jumper, 2" Purple 27
192724	Resistor, 600 Ohm 27	195272	Screw, 6-40 Spl 26, 28	305038	Washer, Insulating 26, 28
192725	Resistor, 800 Ohm 26, 27	195273	Bushing 26, 28	305091	Capacitor, .22 MFD 26
192726	Block 28	195526	Board w/Terminal 10	305092	Post White Insulated 26
192727	Clamp 26, 27	195527	Jumper, 12" Slate 10	305624	Plate, Mounting 9
192730	Driver Assembly, Selector Magnet 27, 28	195528	Modification Kit 10	305627	Capacitor, 1,500 MFD 9
192737	Bracket, Resistor 26, 27	198356	Plate 5	305629	Diode Assembly 9
192740	Keyer Assembly, Low Level 27, 28	198366	Modification Kit 5	305630	Bracket, Fuse 9
192747	Spacer, .125" Thk 26, 27	198367	Cable w/Terminals 5	305631	Rectifier Assembly 2, 9
192750	Rectifier Assembly 2, 26	198593	Shield 24	305717	Cable w/Terminals 9
192754	Varistor Assembly 26, 28	198594	Plate, Mounting 24	307069	Jumper, 2-1/4" Lg Red 9
192767	Transistor 28	198626	Relay 24	307070	Jumper, 3-1/4" Lg Purple 9
192970	Post 26, 28	199003	Card, Circuit 28	307071	Jumper, 4" Lg Blue 9
192973	Washer, Insulating 28	199006	Card, Circuit 26, 28	307126	Transformer 9
192974	Washer, Insulating 26, 28	199010	Diode 26	307214	Plate, Identification 24
192979	Stud 26, 27	199013	Post, White Insulated 26, 28	307737	Bracket 9
192980	Terminal, Lug 26, 28	199016	Post 28	310235	Plate, Left 4
192984	Socket, 3 Pt 27	199017	Post 26	310274	Transformer 7
193687	Cable Assembly 25	199018	Post 26	310275	Rectifier Assembly 2, 7
194492	Key Assembly, Line Test 2, 18	199019	Cover 28	311727	Resistor, 750 Ohm 19
195036	Relay Assembly, Line 2, 25	199020	Cover 28	312529	Cover 18
195037	Mounting Assembly, Line Relay 11, 25			317323	Post 10
				321925	Cover, Rectifier 8
				321926	Cover 8