

28 ELECTRICAL SERVICE UNIT (LESU)
for
KEYBOARD SEND-RECEIVE and RECEIVE-ONLY SETS
PARTS

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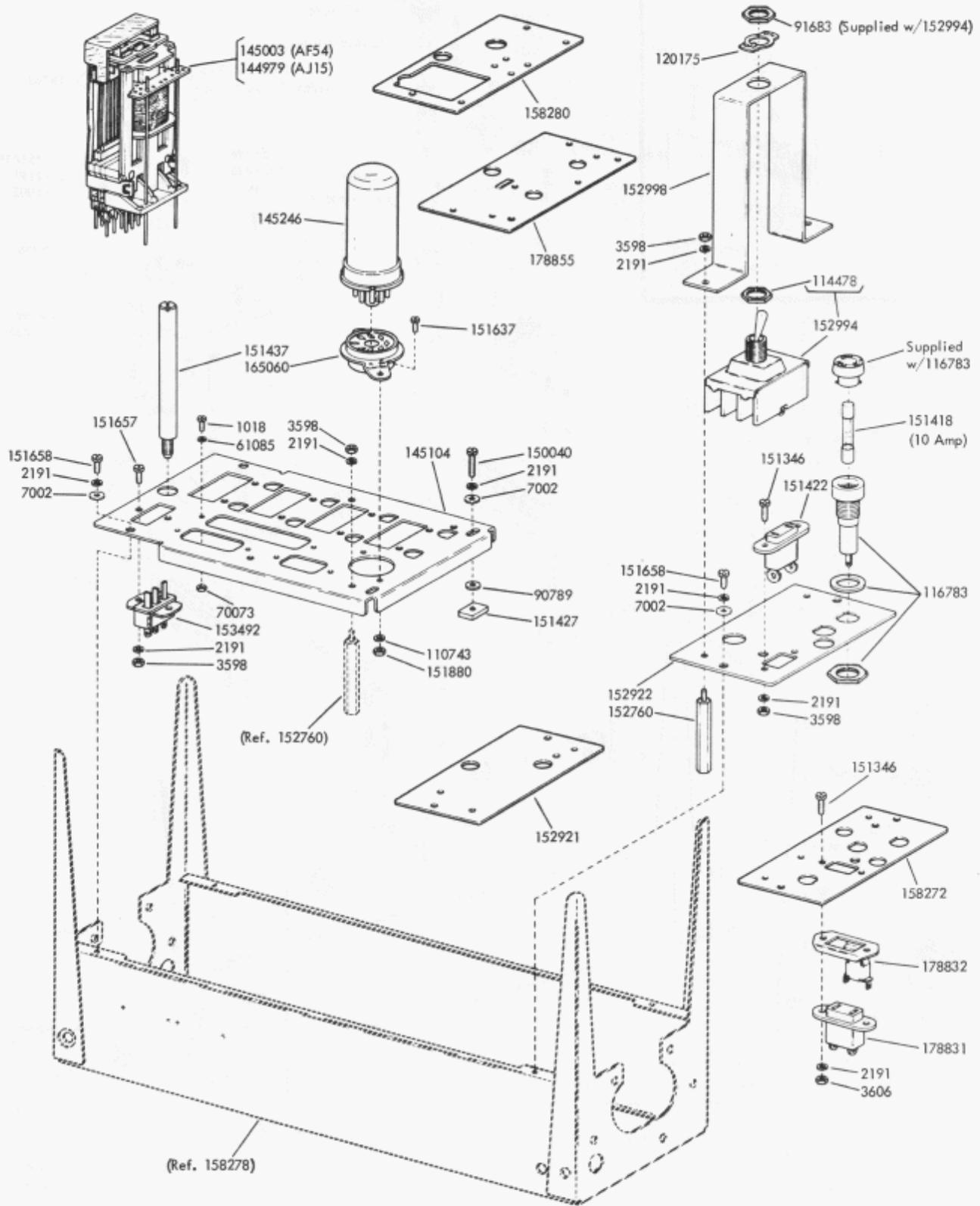


FIGURE 2. MOUNTING PLATES AND COMPONENTS

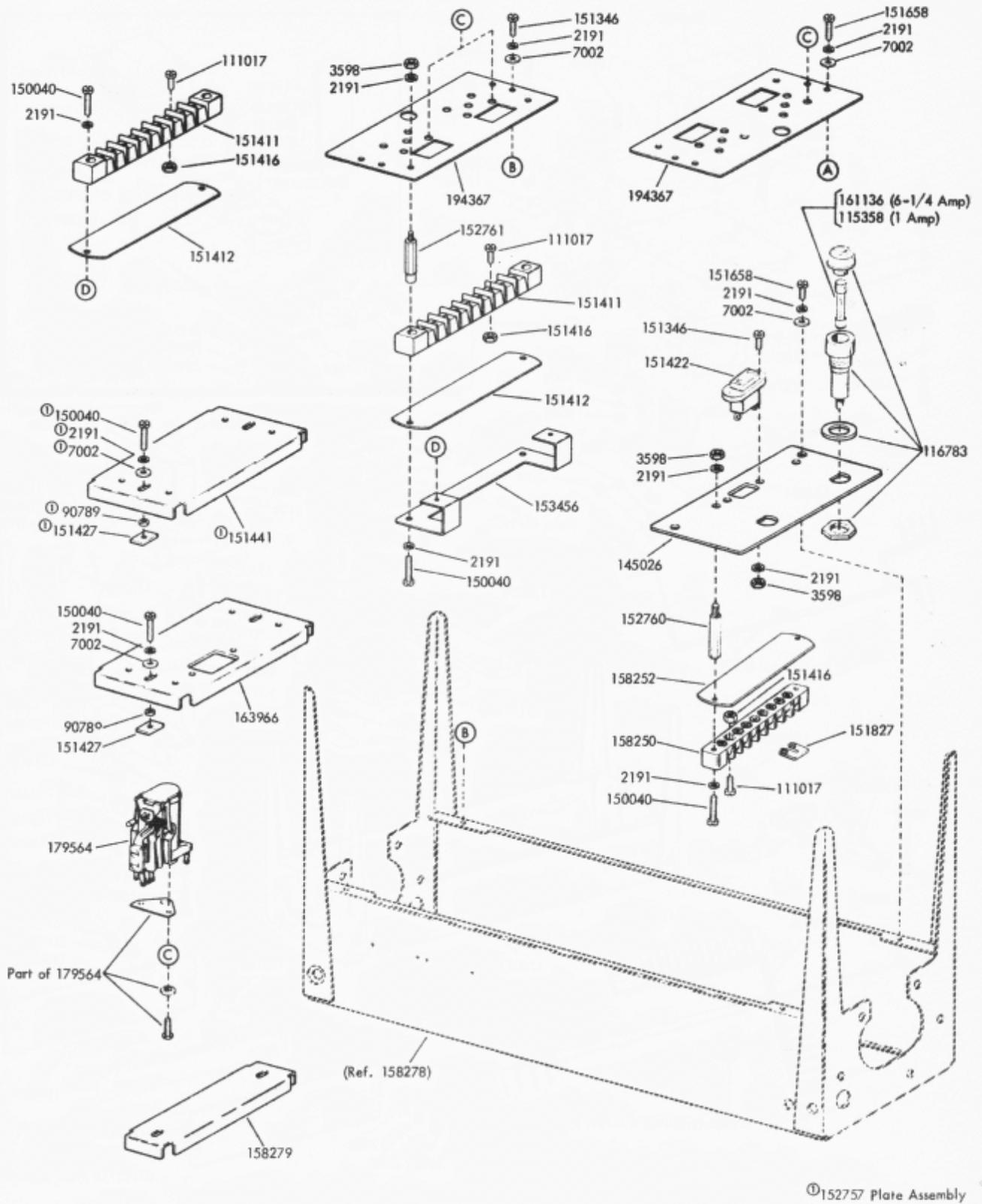


FIGURE 3. MOUNTING PLATES AND COMPONENTS (Continued)

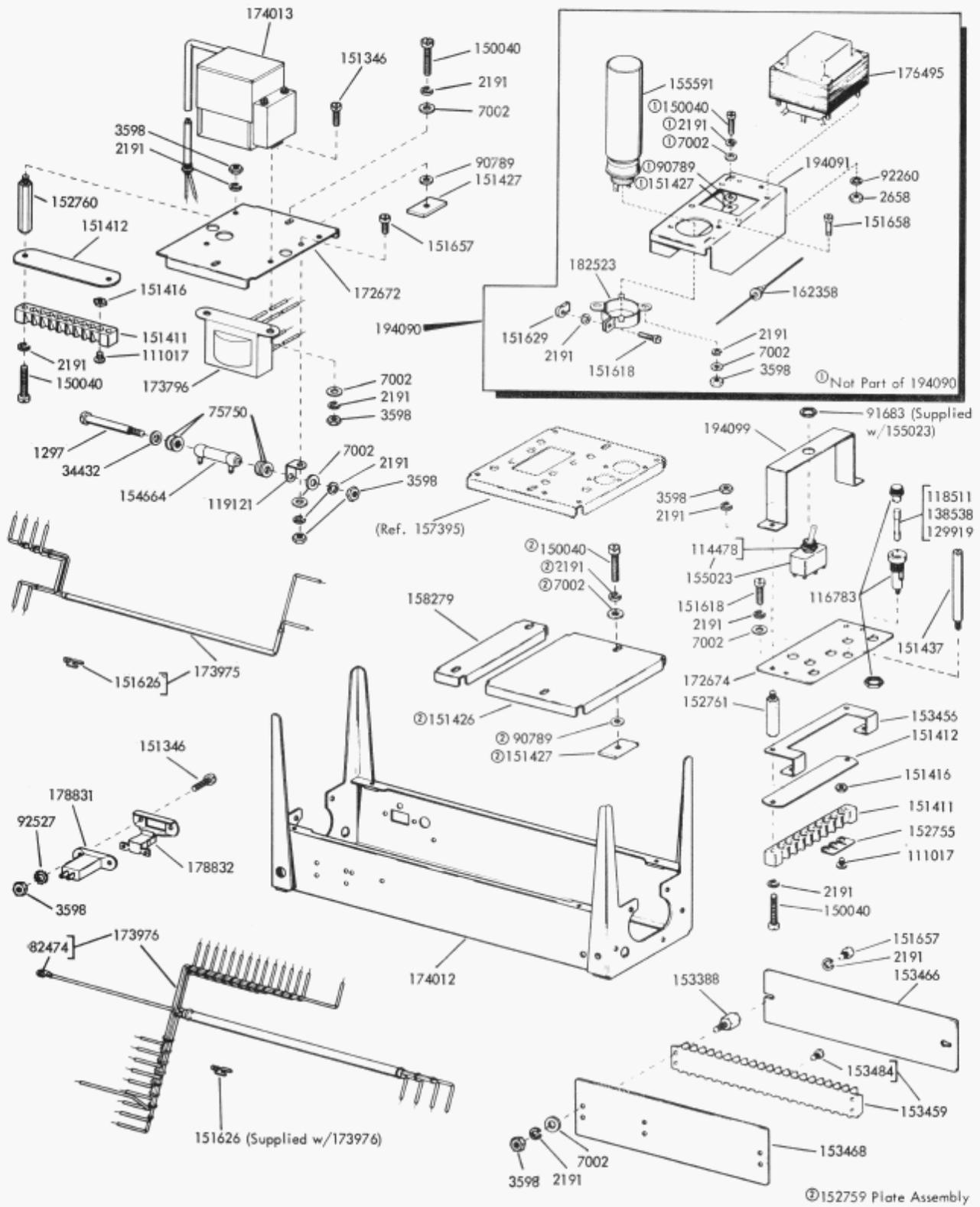


FIGURE 4. COMPONENTS FOR UNIT WITH ELECTRICAL NOISE SUPPRESSOR AND FILAMENT TRANSFORMER

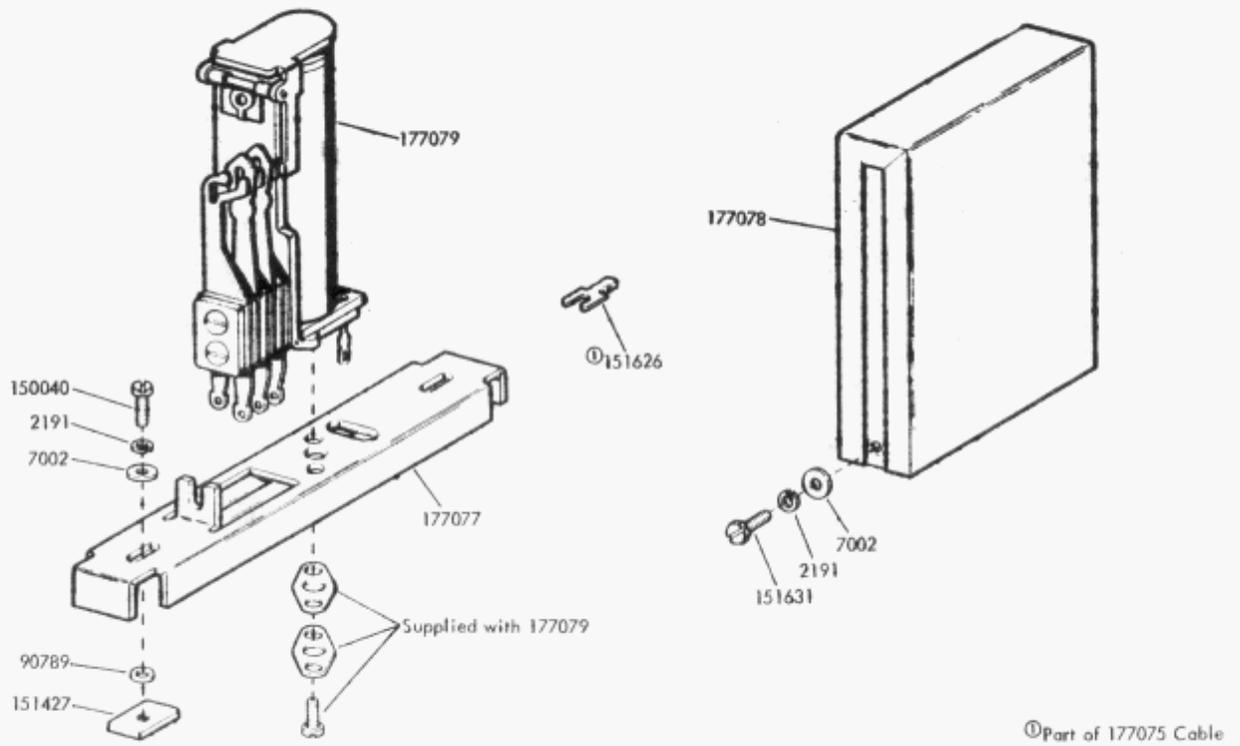


FIGURE 5. 177076 RELAY ASSEMBLY

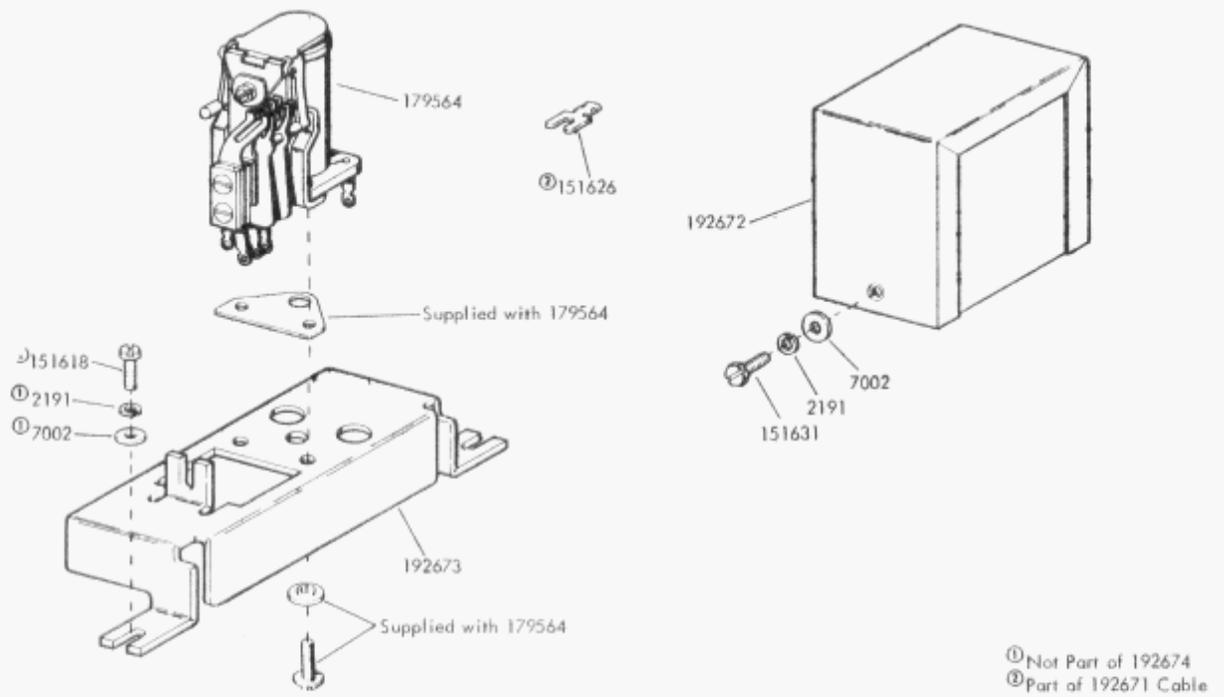
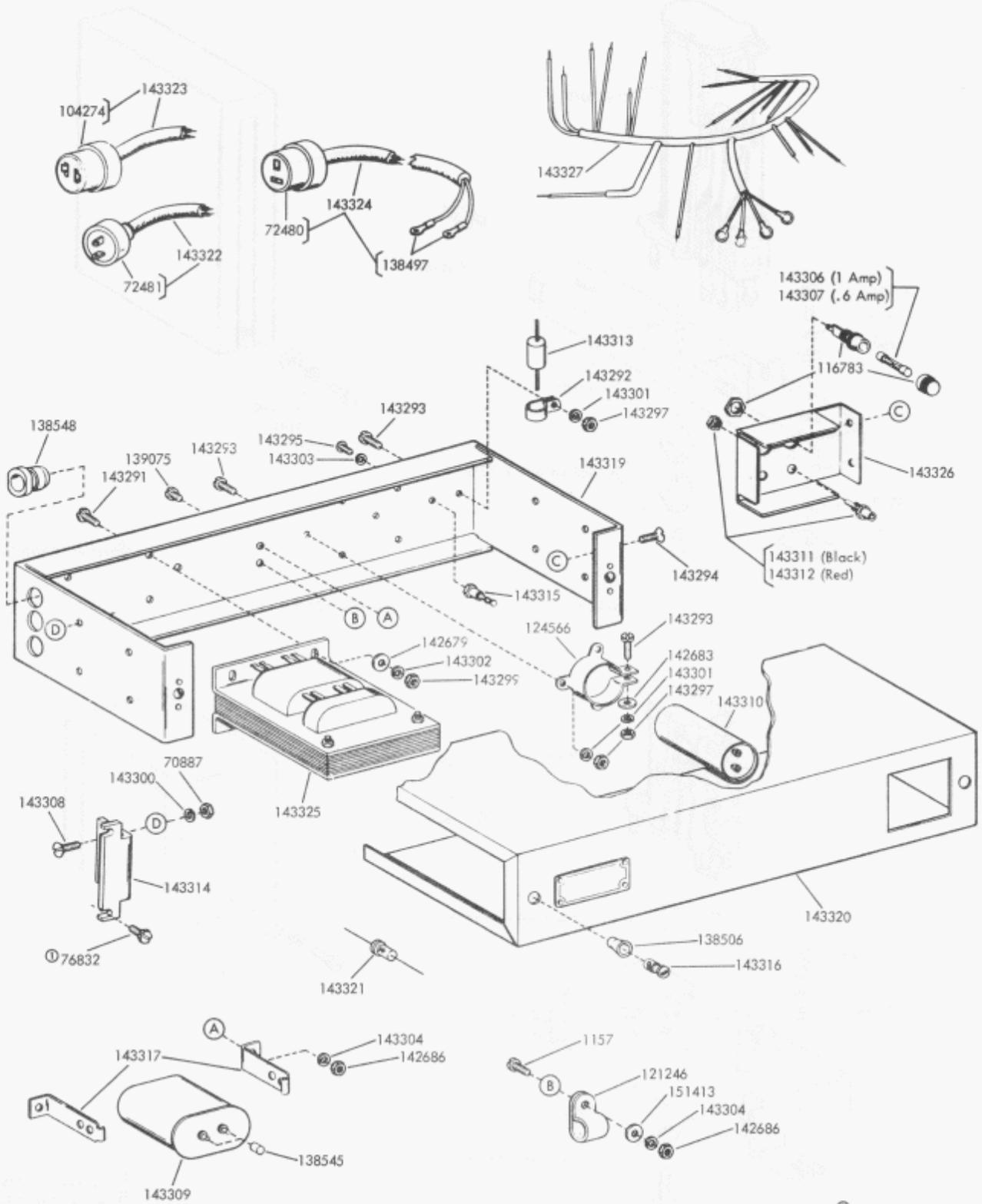


FIGURE 6. 192674 RELAY ASSEMBLY



Ⓛ Not Part of 164503

FIGURE 7. 164503 RECTIFIER ASSEMBLY

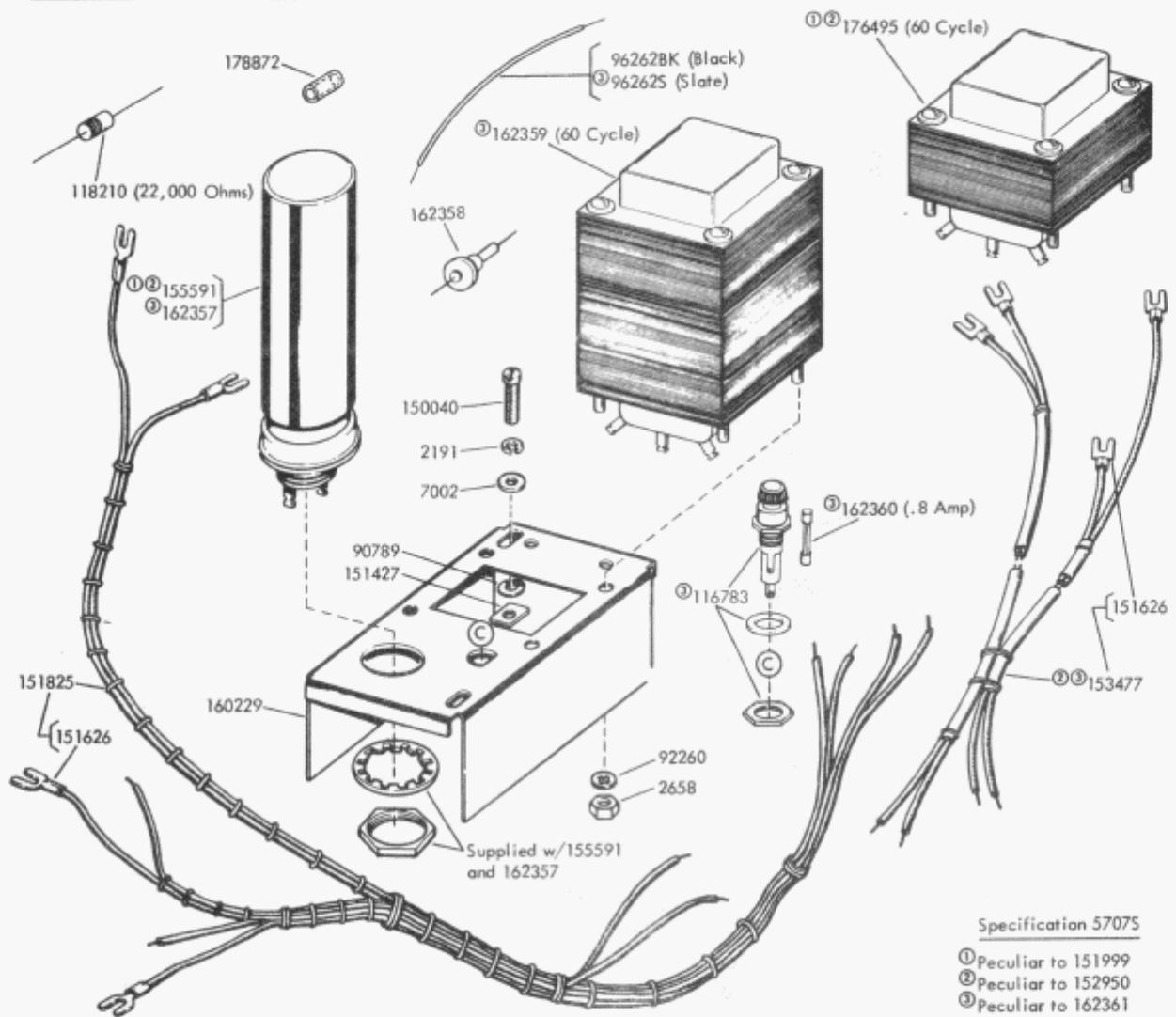
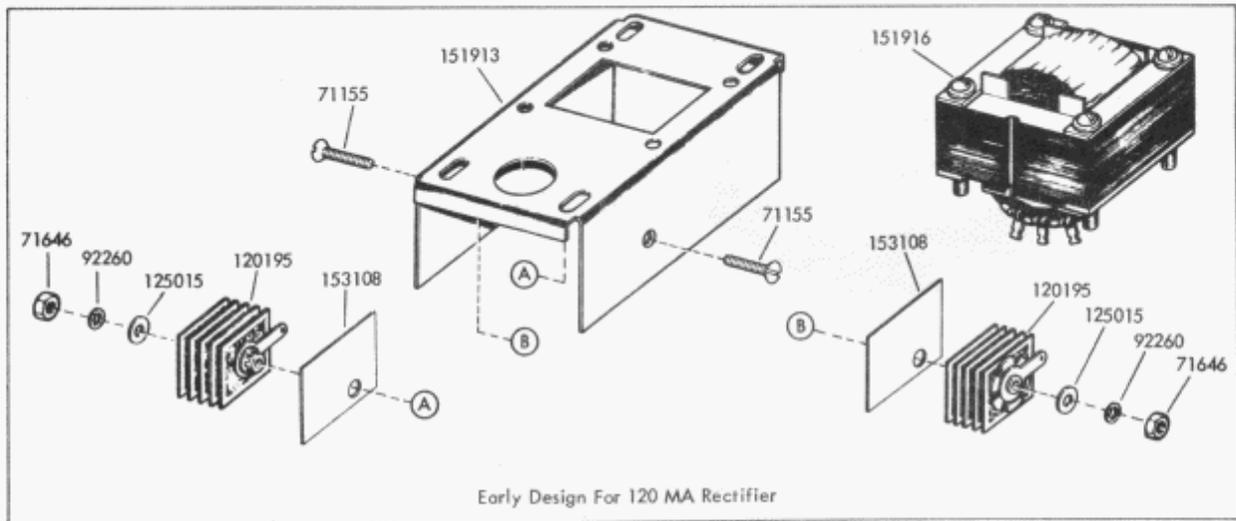
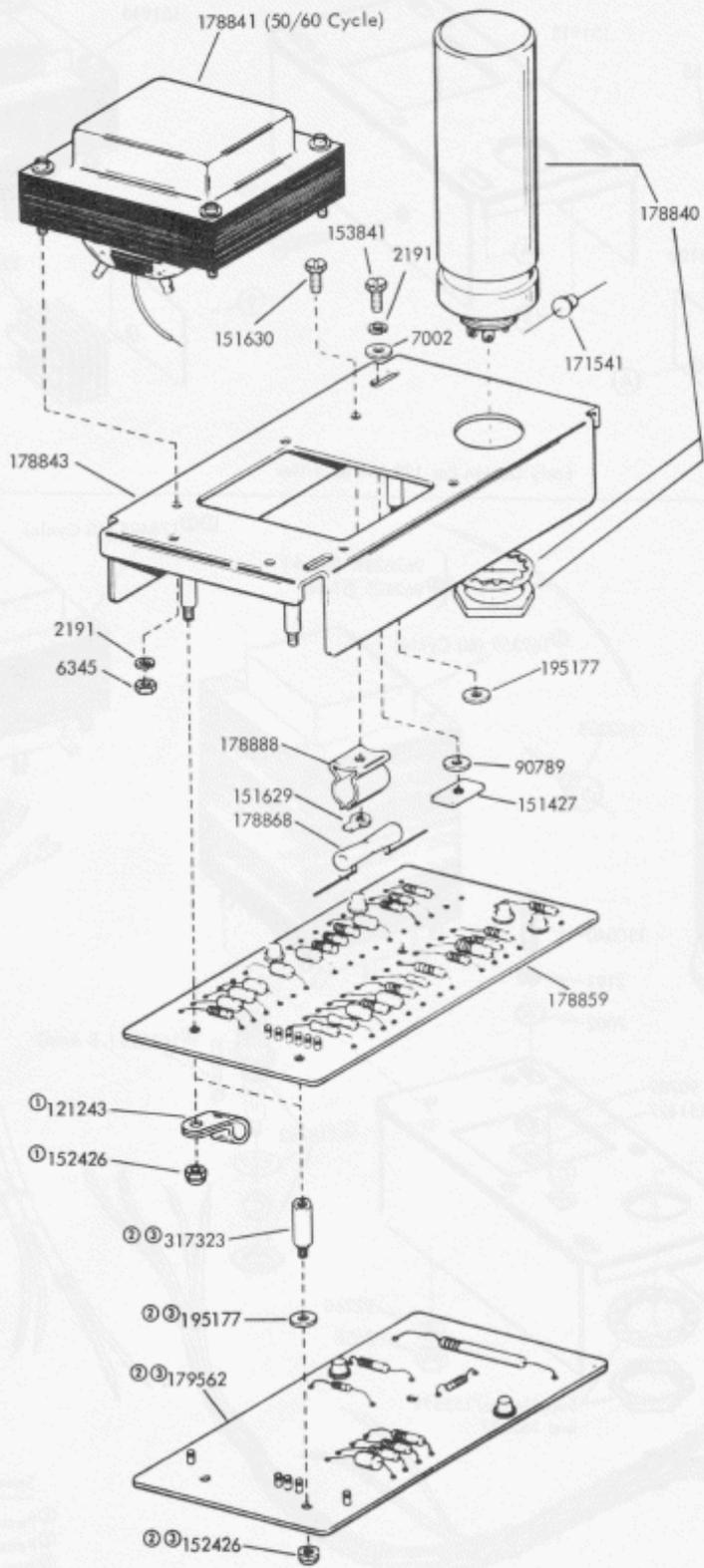


FIGURE 8. 151999, 152950 AND 162361 RECTIFIER AND CABLE ASSEMBLIES



CABLES	
Cable No.	Terminals
① 178886	151626 (2)
① 178887	151626 (4)
② 192670	151626 (6)
③ 194370	151626 (10)
Numbers in parenthesis () indicates amount of Terminals on each Cable.	

- ① Peculiar to 177010
- ② Peculiar to 192669
- ③ Peculiar to 194369

FIGURE 9. 177010, 192669 AND 194369 SELECTOR MAGNET DRIVER ASSEMBLIES (WITH OPEN LINE DETECTOR)

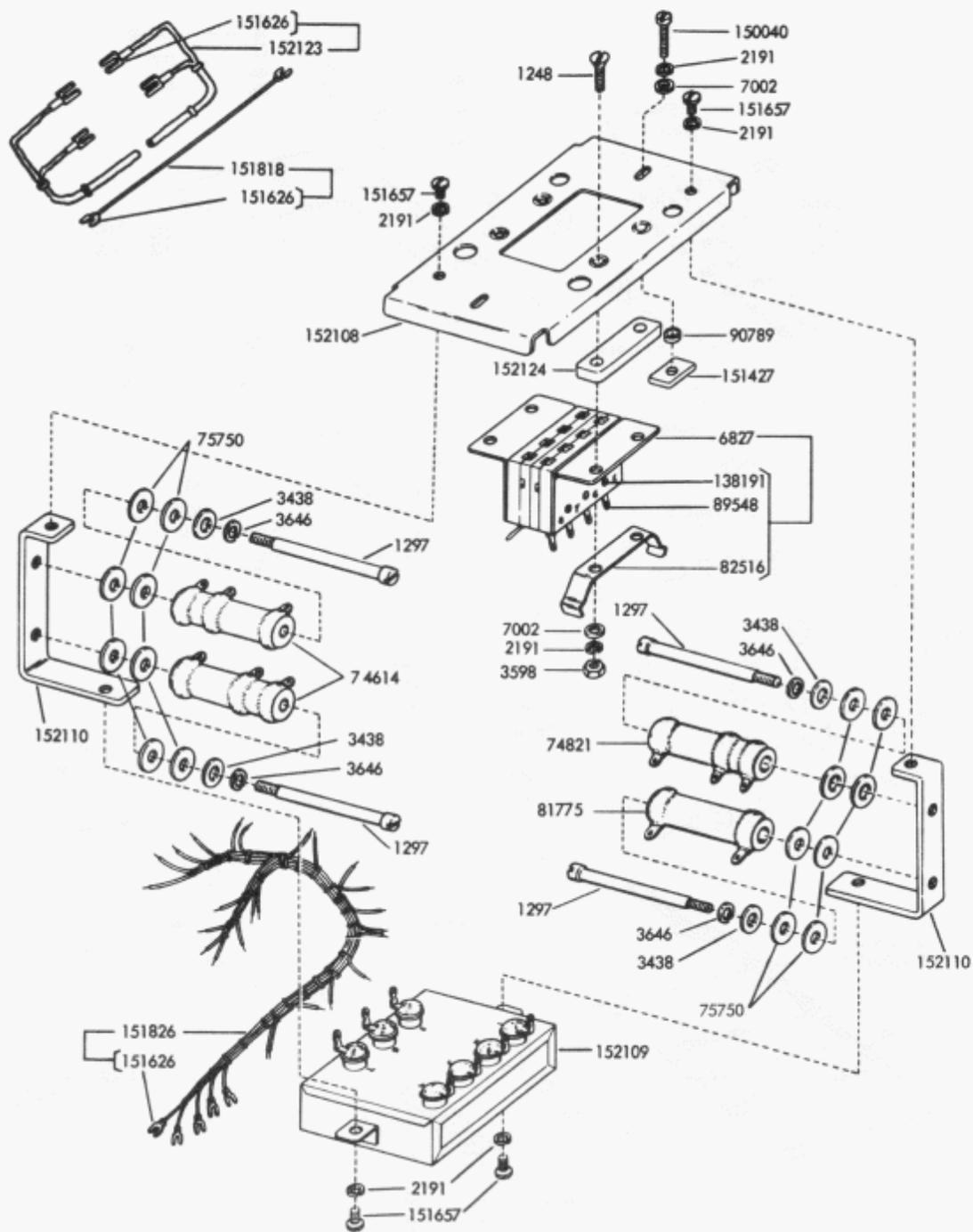


FIGURE 10. 151822 LINE RELAY MOUNTING ASSEMBLY

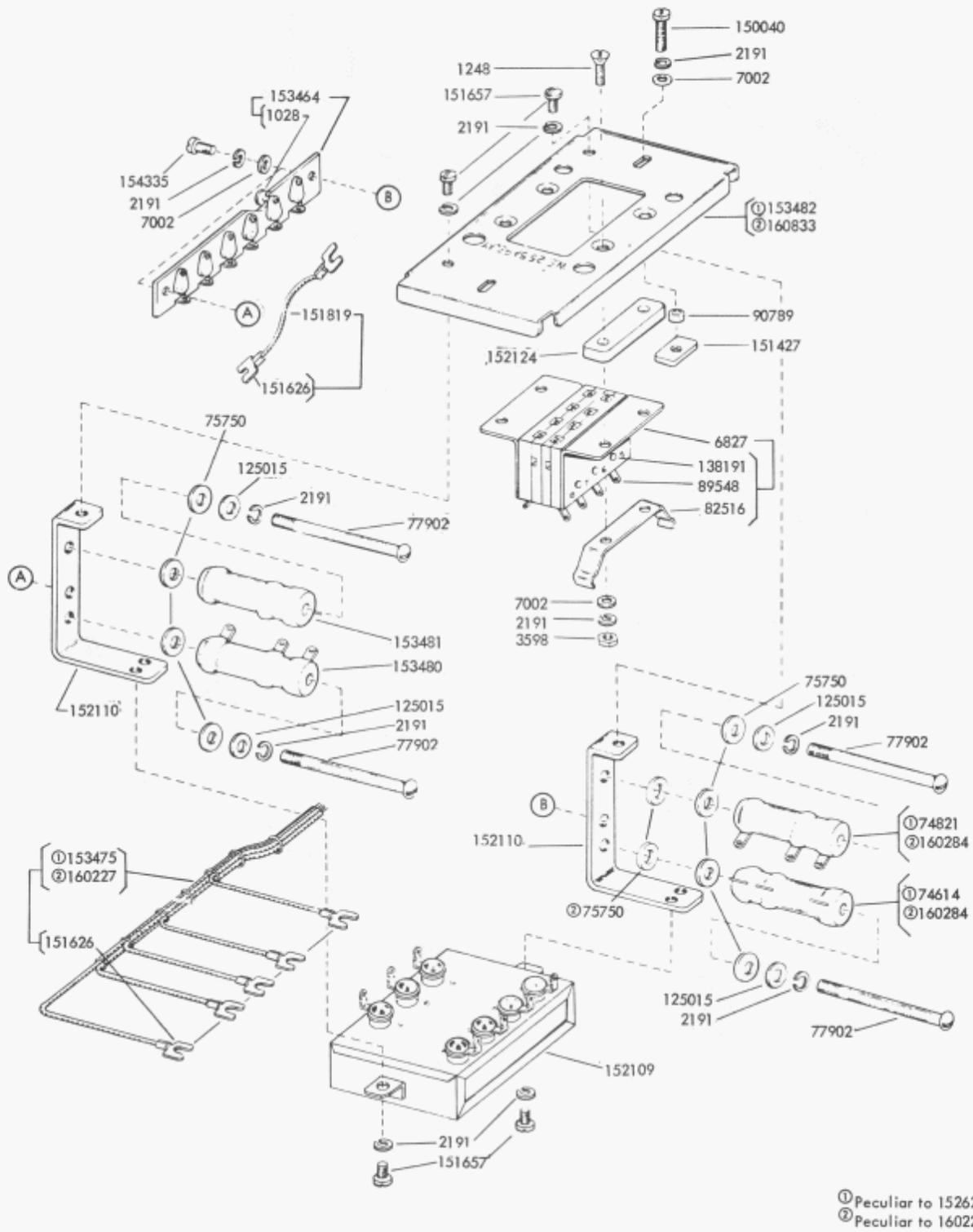


FIGURE 11. 152623 AND 160226 LINE RELAY MOUNTING ASSEMBLIES

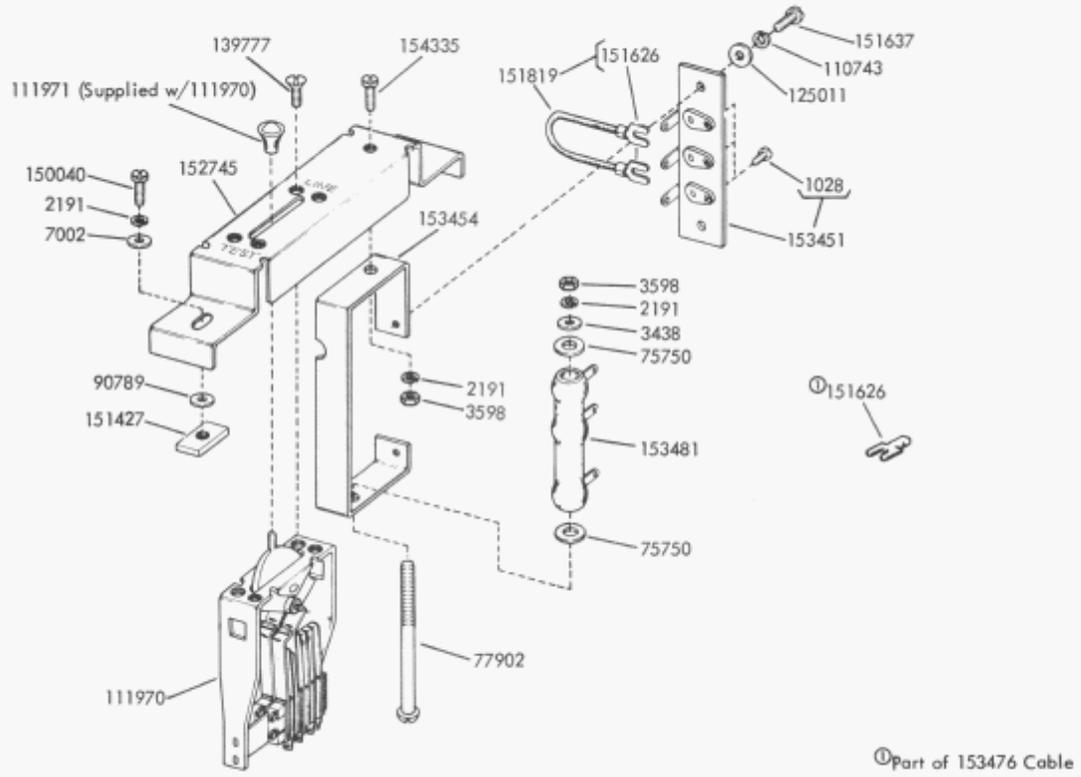


FIGURE 13. 152625 LINE TEST KEY ASSEMBLY

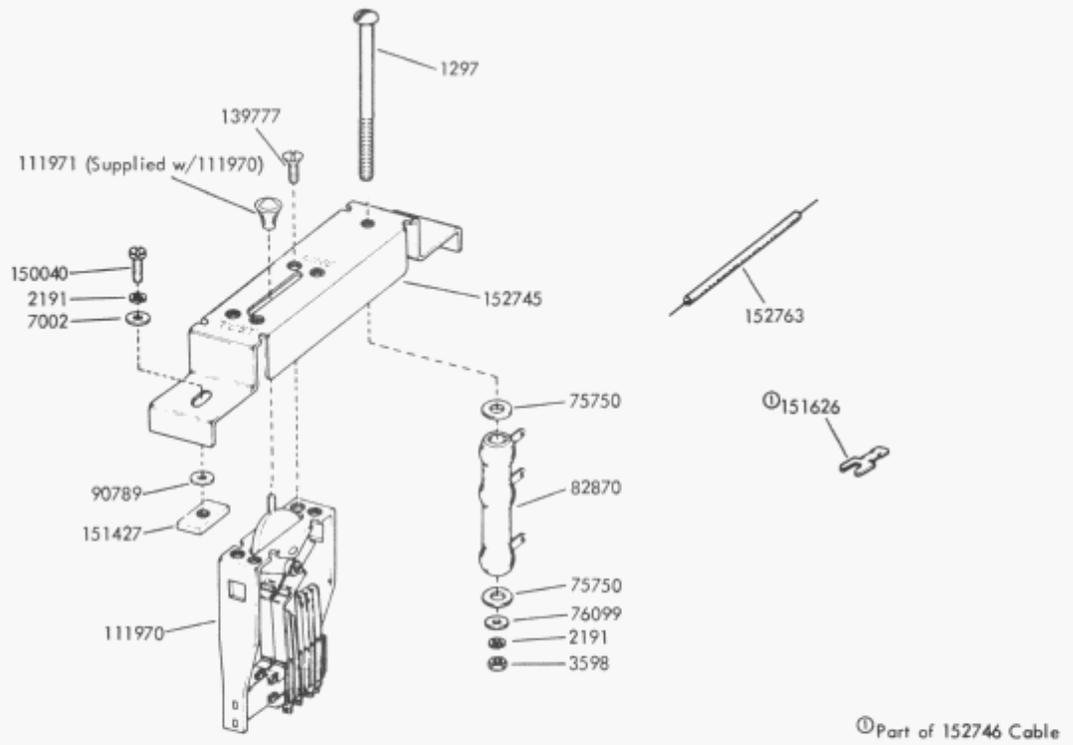


FIGURE 14. 152744 LINE TEST KEY ASSEMBLY

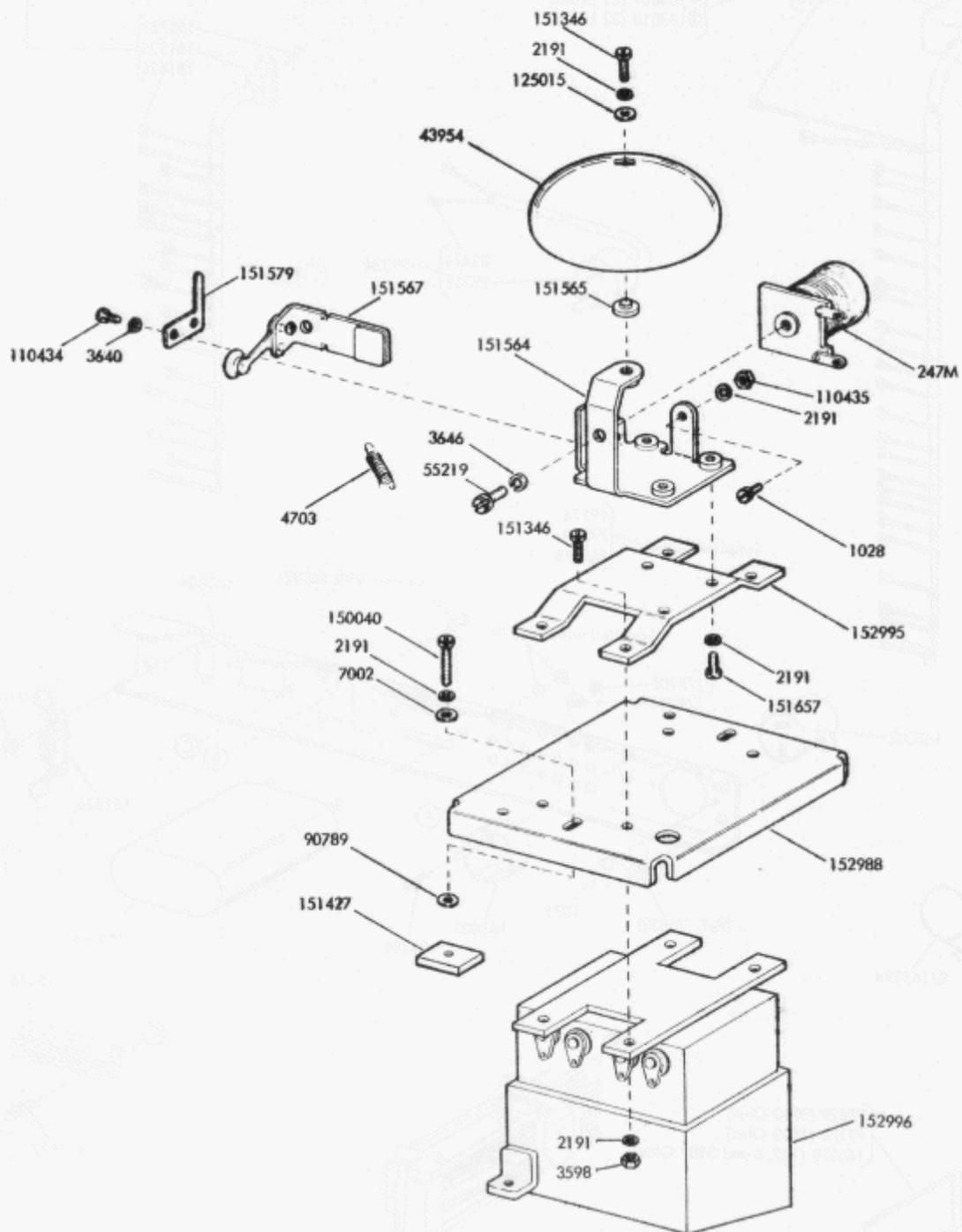


FIGURE 15. FILTER AND BELL ASSEMBLY

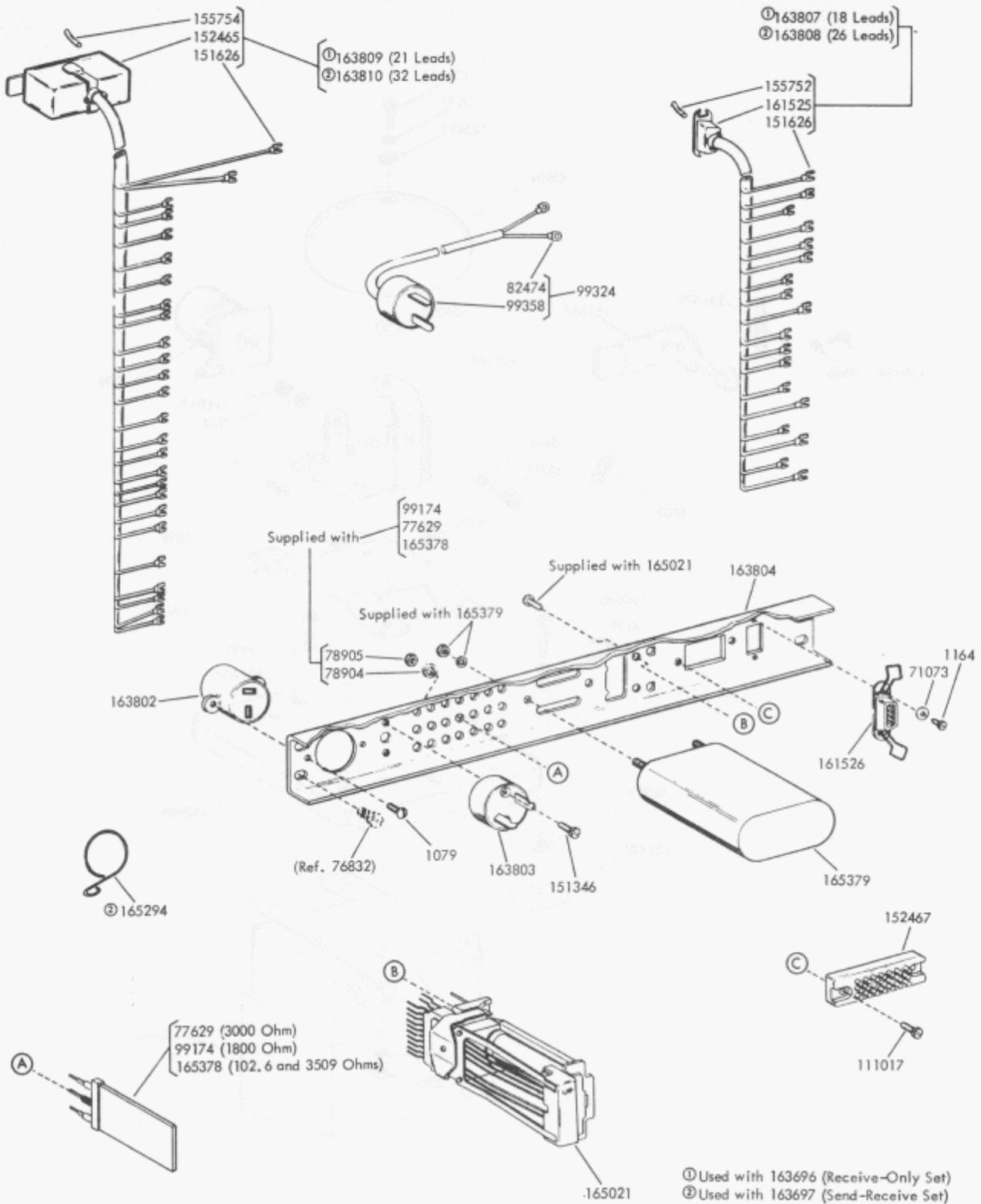


FIGURE 16. 163696 AND 163697 RELAY PANEL ASSEMBLIES

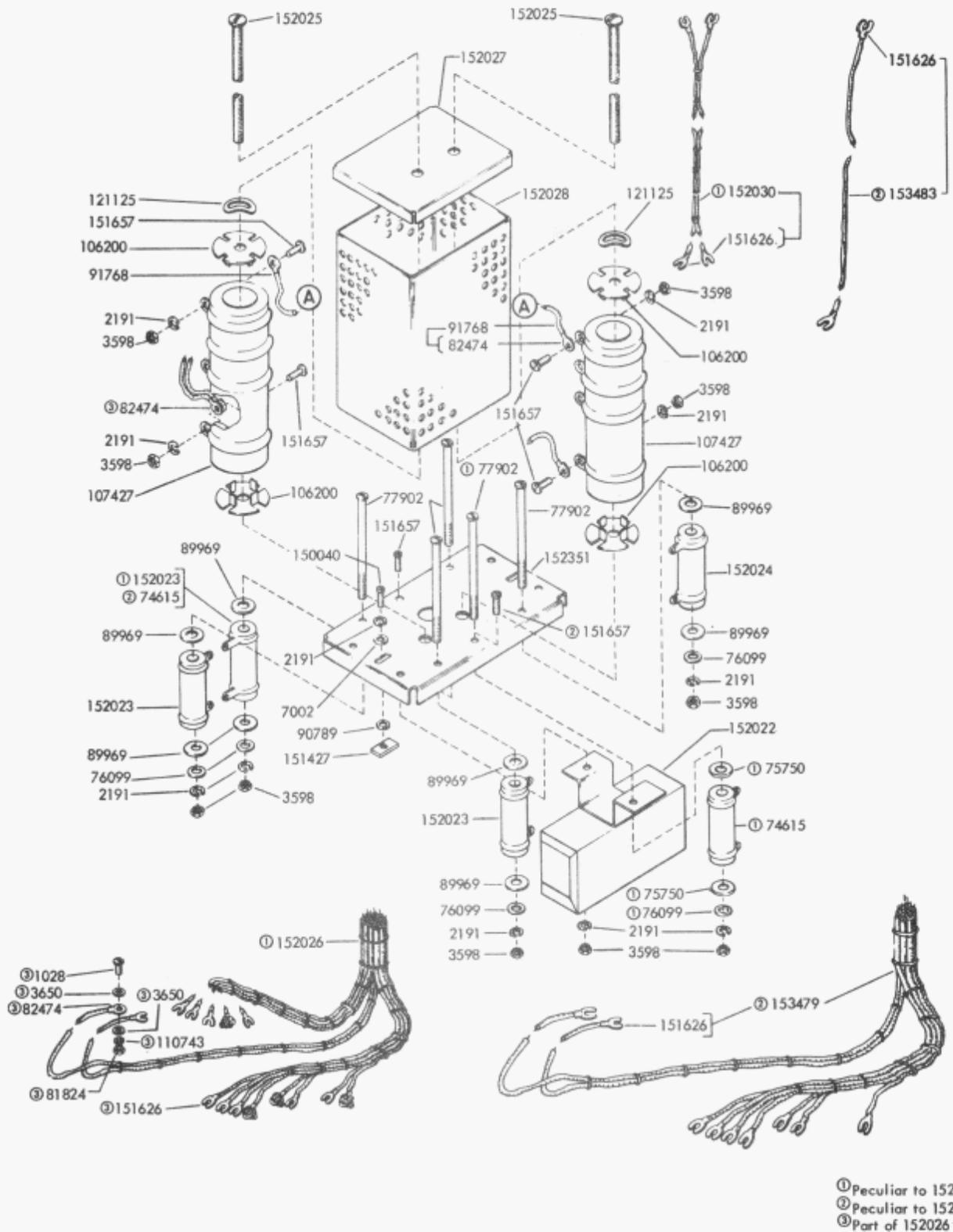


FIGURE 17. 152021 AND 152624 CAPACITOR-RESISTOR ASSEMBLIES

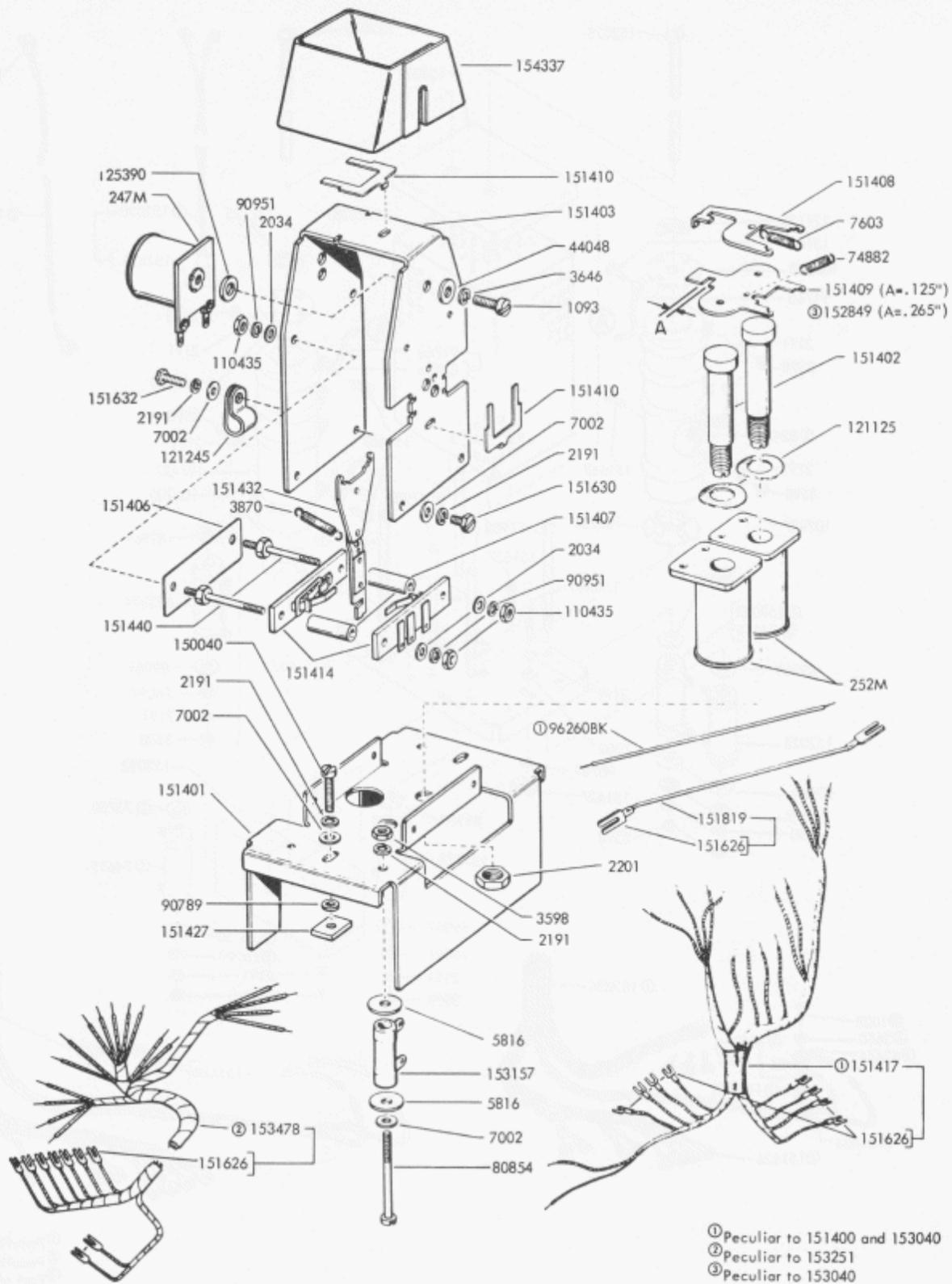


FIGURE 18. 151400, 153040 AND 153251 MOTOR CONTROL ASSEMBLIES

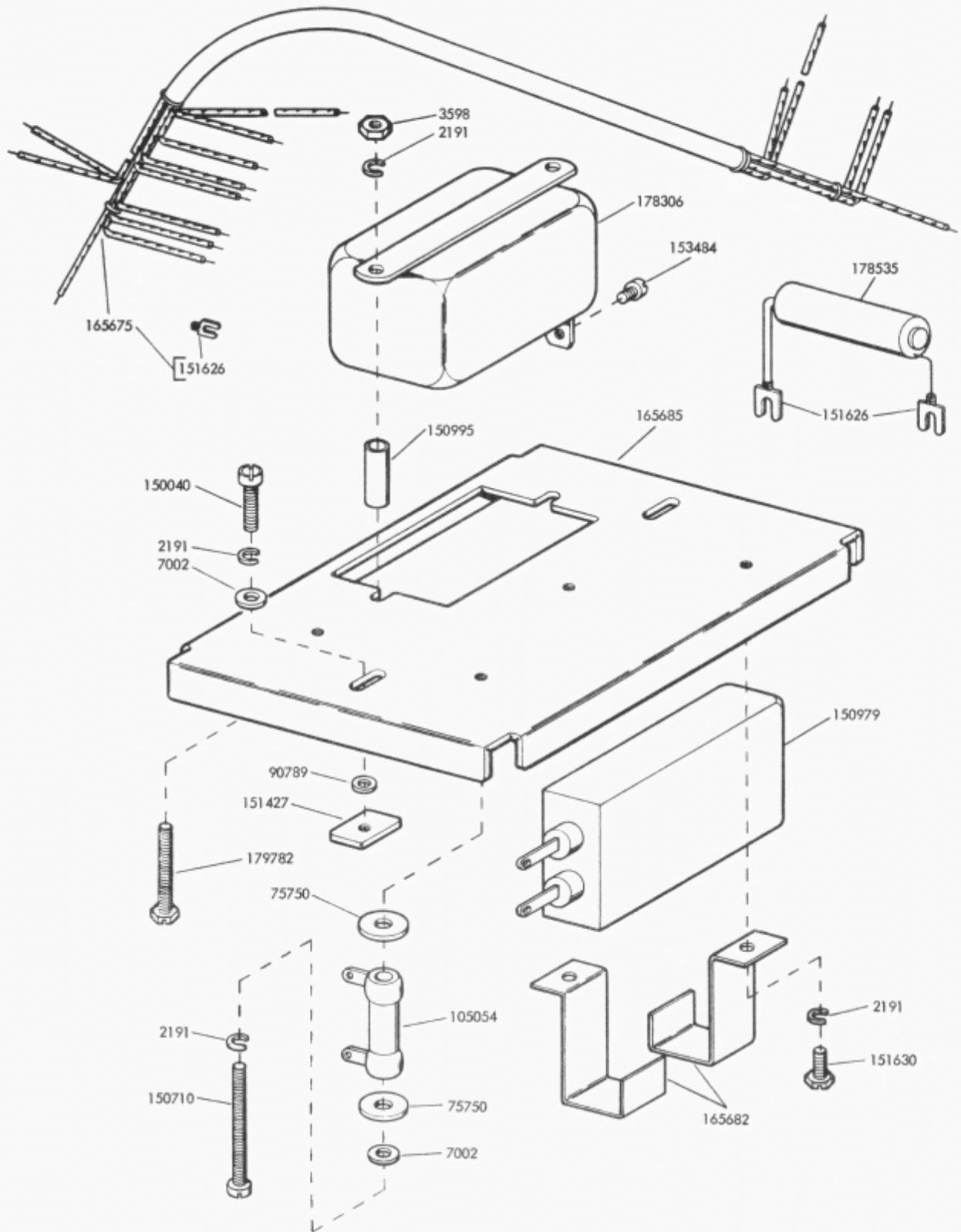


FIGURE 19. 165687 MOTOR CONTROL RELAY ASSEMBLY

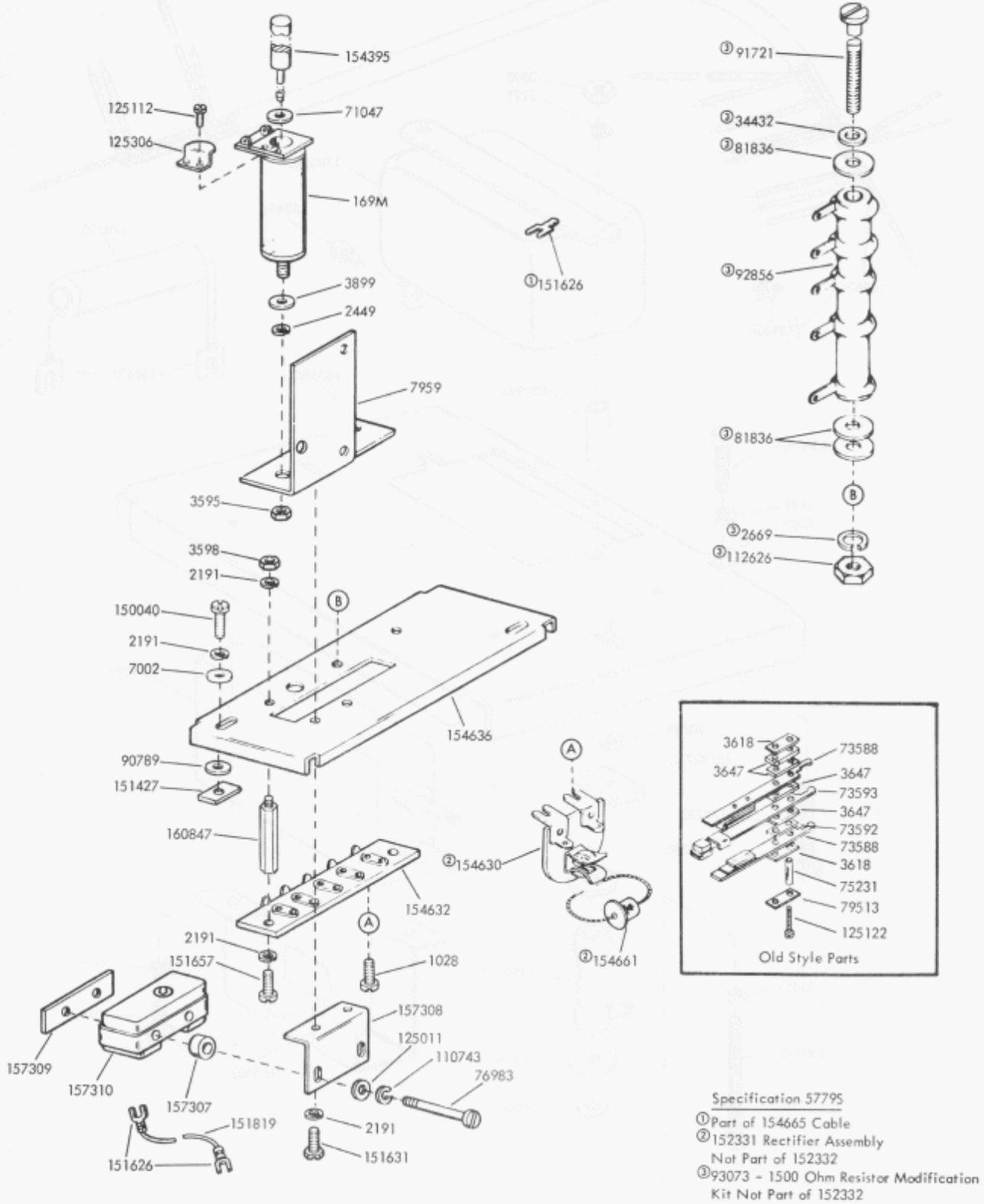
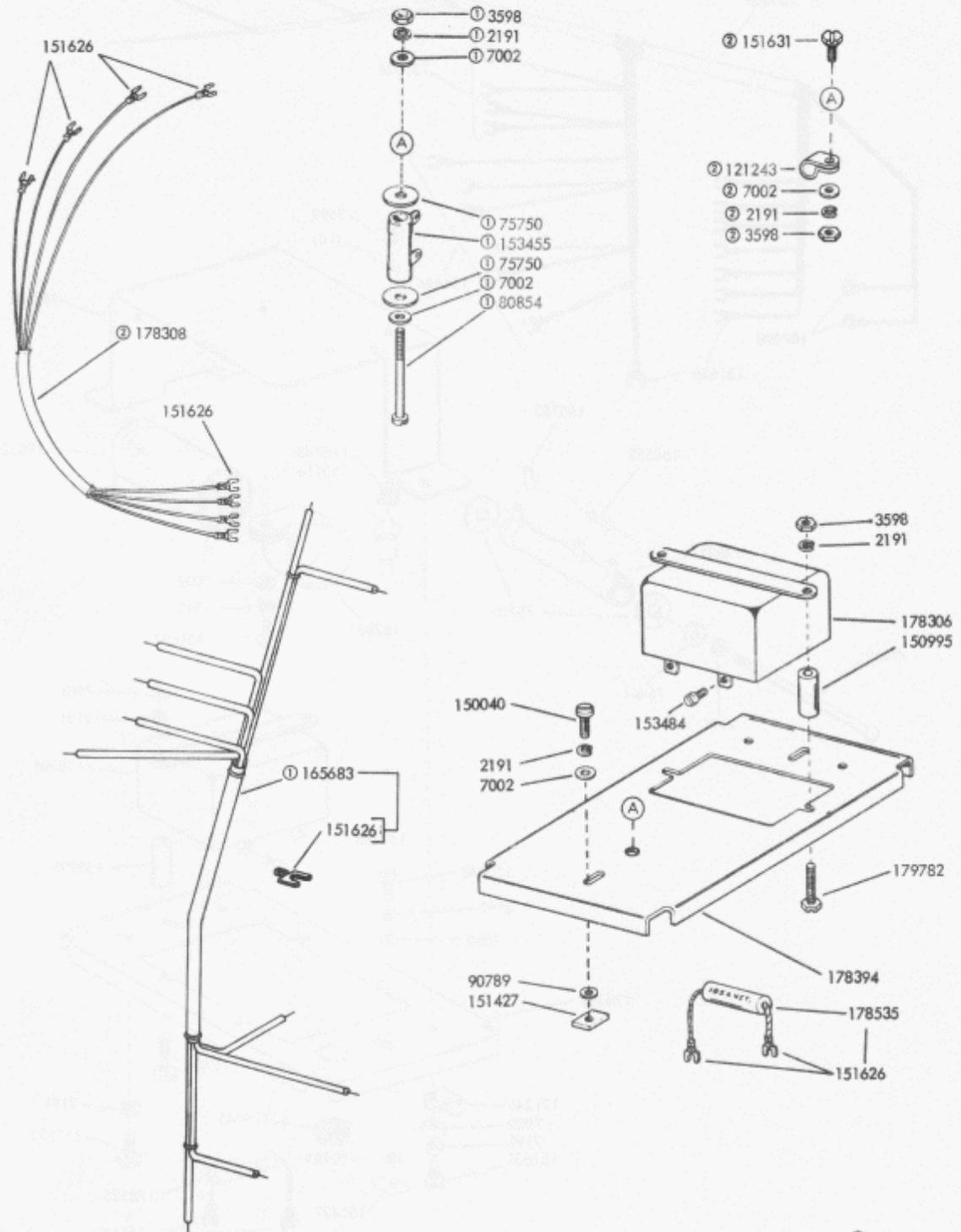


FIGURE 20. 152332 MOTOR CONTROL RELAY ASSEMBLY



① Peculiar to 165673
 ② Peculiar to 178307

FIGURE 21. 165673 AND 178307 MOTOR CONTROL RELAY ASSEMBLIES

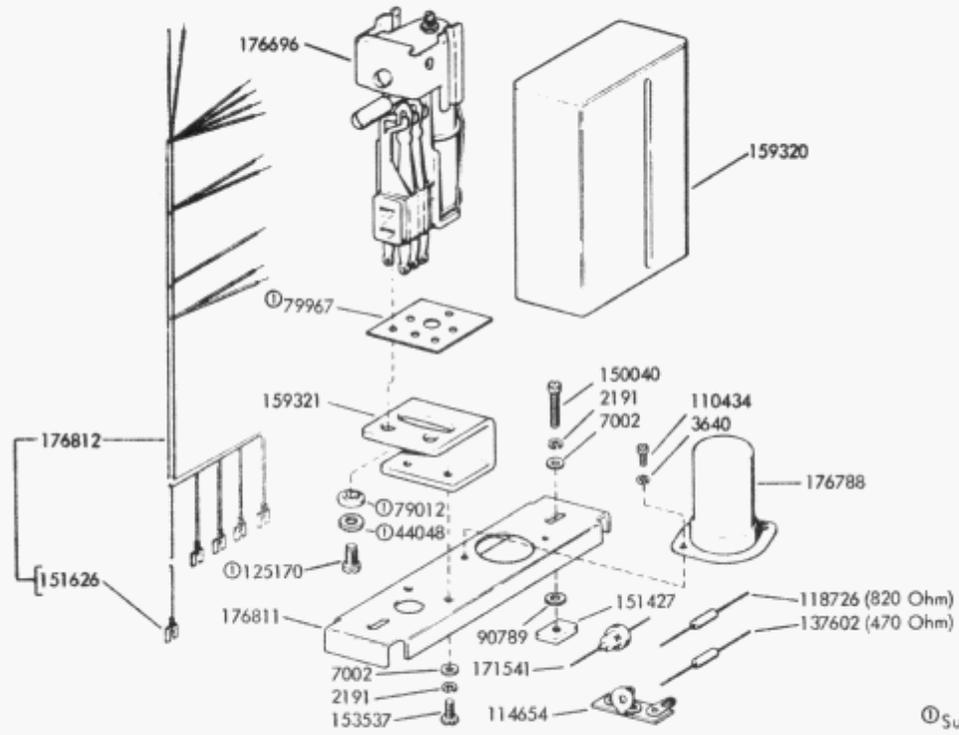


FIGURE 23. 176810 ANSWER-BACK CONTROL RELAY ASSEMBLY

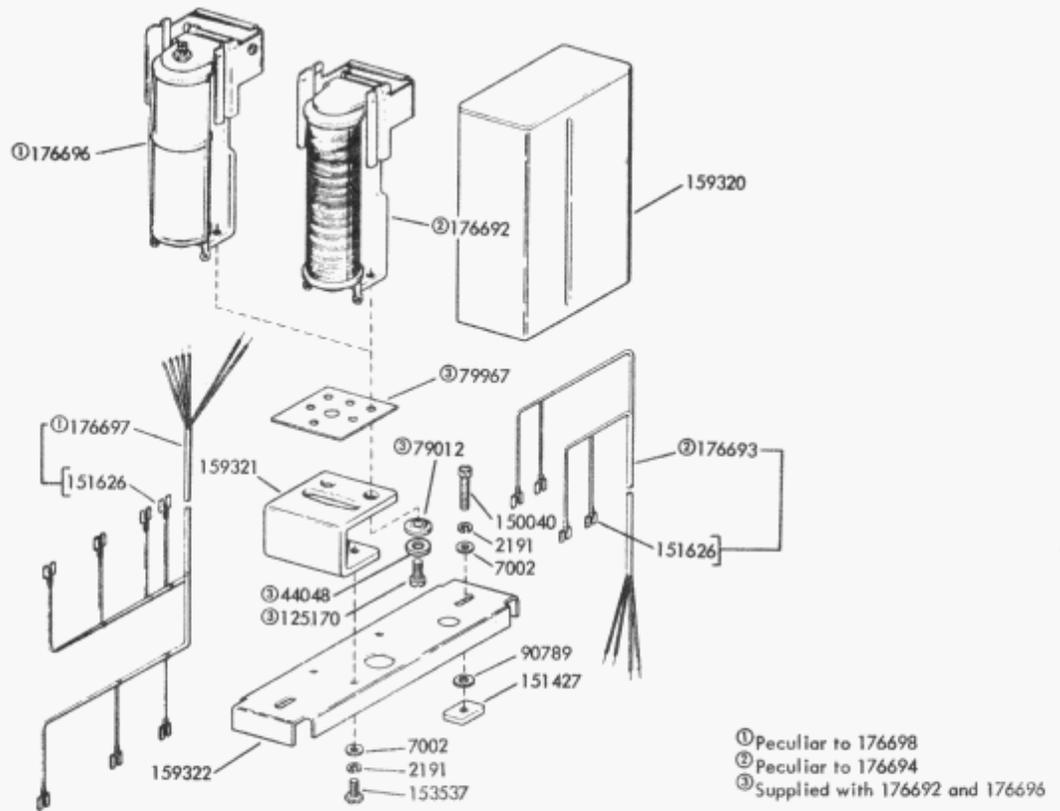


FIGURE 24. 176694 (MOTOR CONTROL) AND 176698 (SLOW RELEASE) RELAY ASSEMBLIES

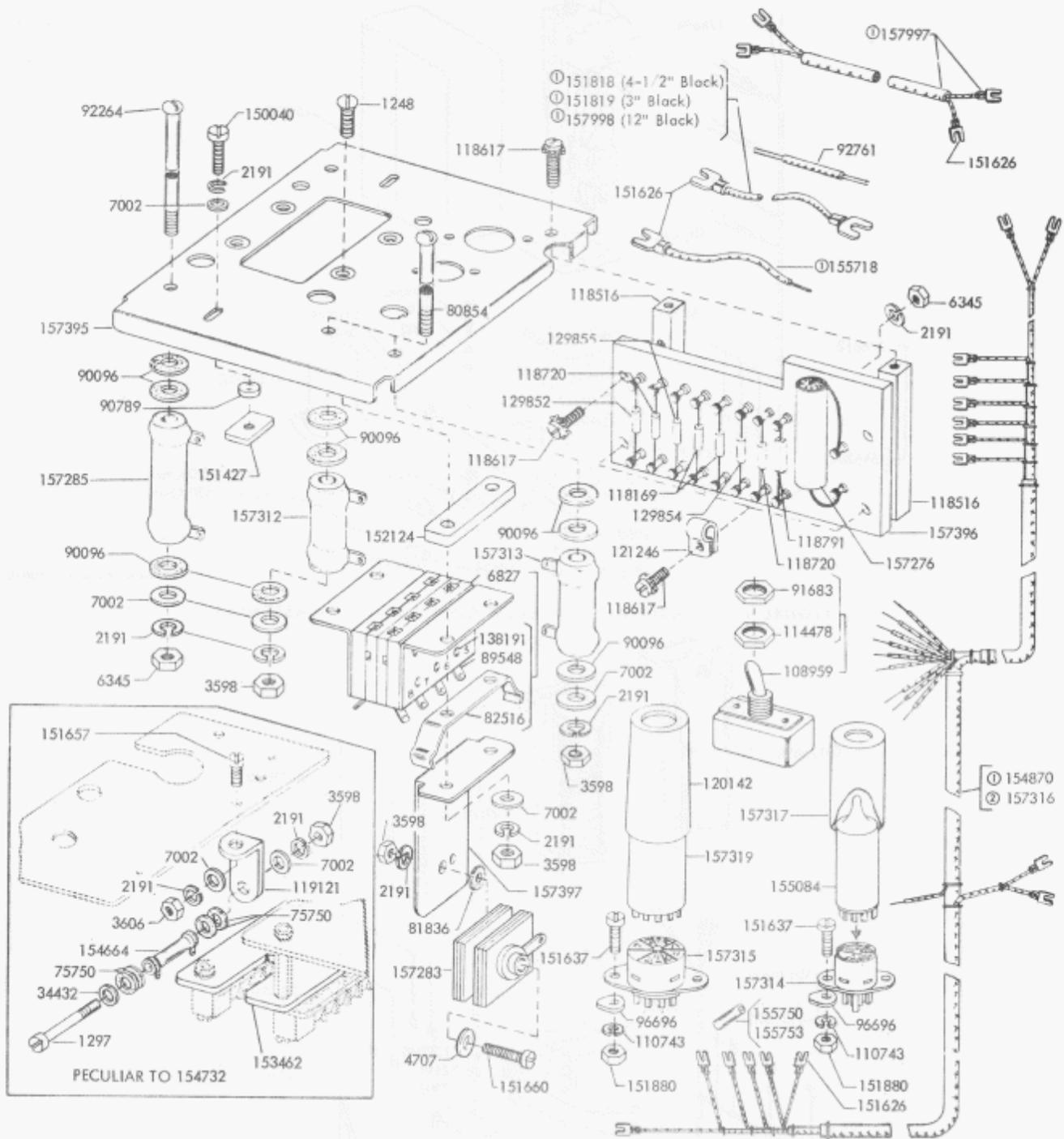


FIGURE 25. 154732 AND 154779 MODIFICATION KITS TO ADD A RELAY SHIFT TO AN ELECTRICAL SERVICE UNIT

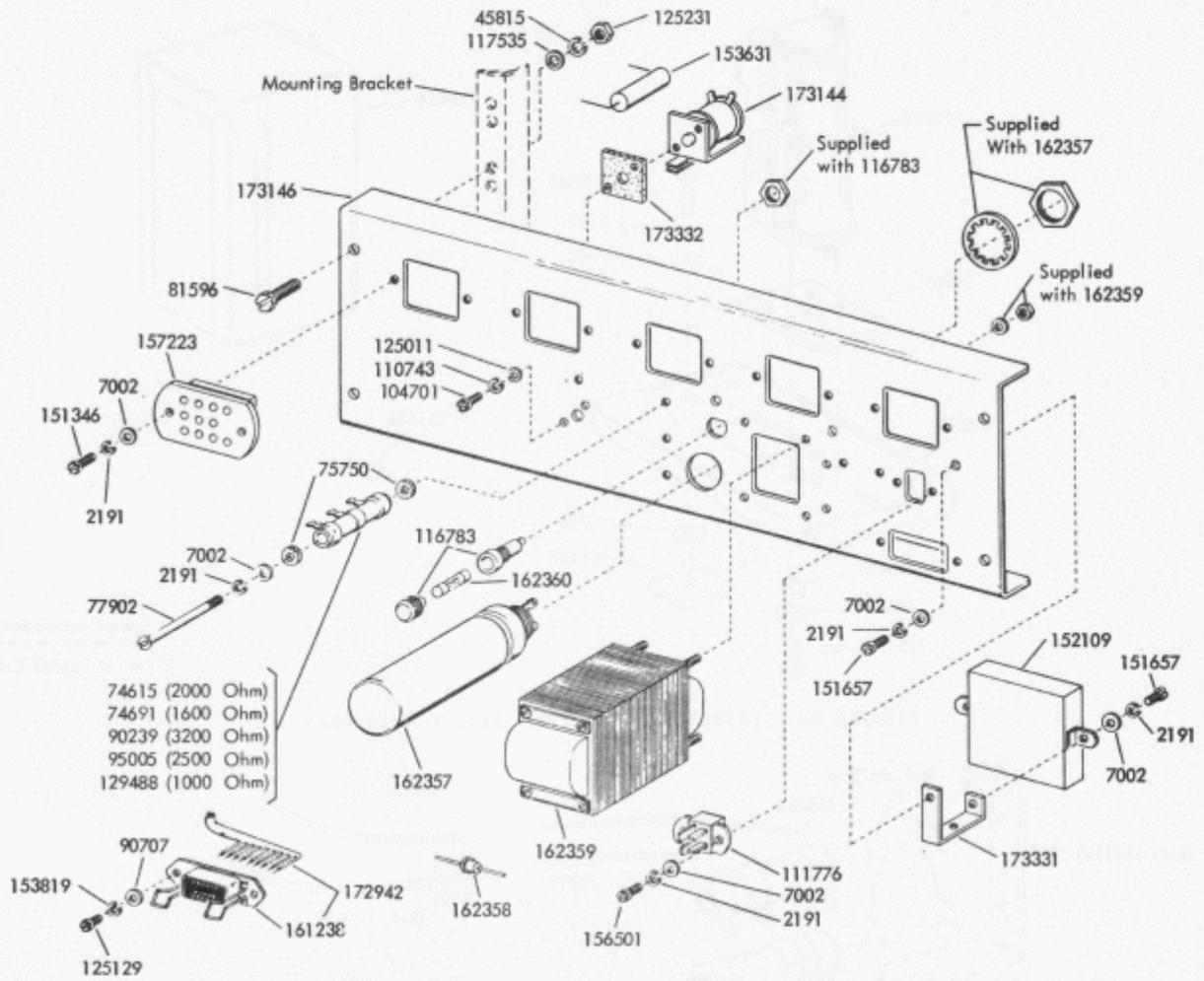


FIGURE 26. 164271 ELECTRICAL SERVICE ASSEMBLY

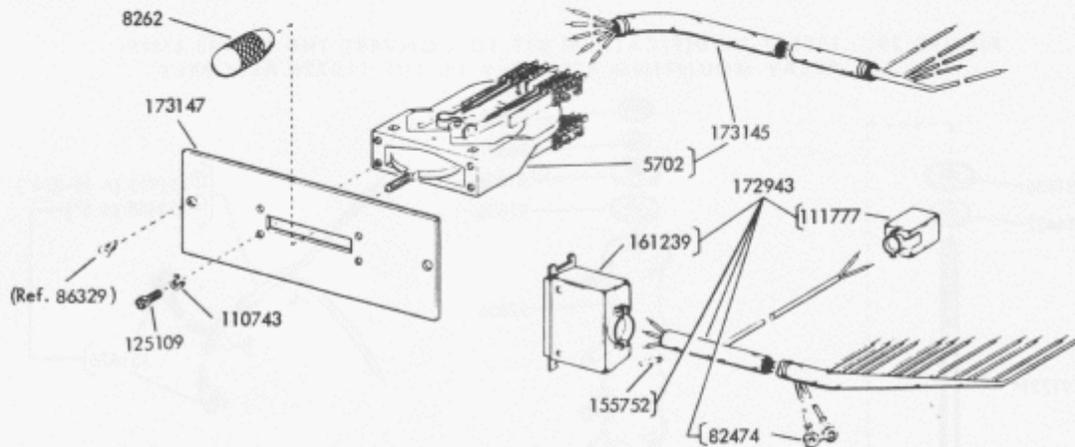


FIGURE 27. 173363 MODIFICATION KIT TO ADAPT A 164271 ELECTRICAL SERVICE ASSEMBLY FOR USE IN A CABINET

Specification 59975

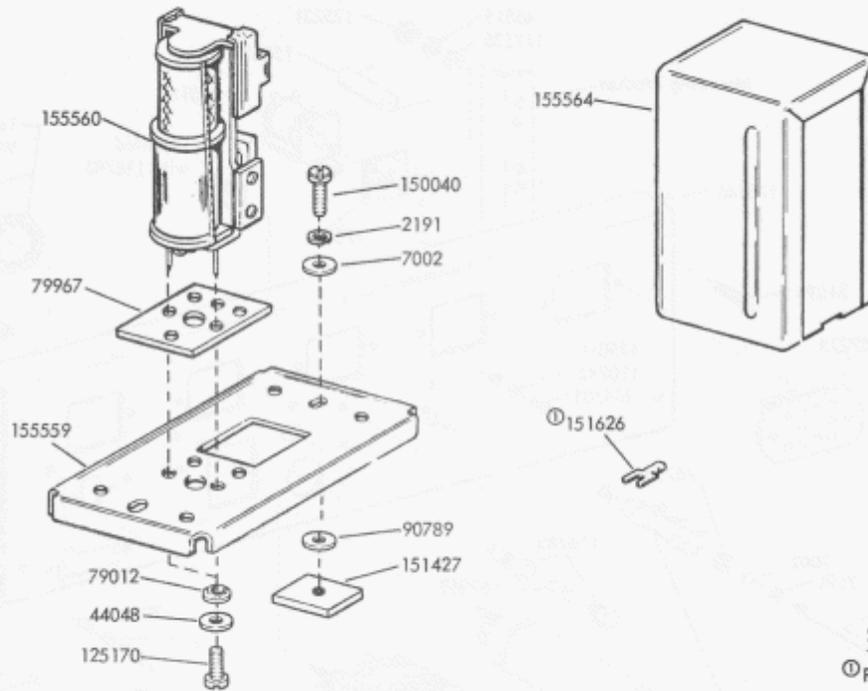


FIGURE 28. 155558 DC CONTROL RELAY ASSEMBLY

Specification 58815

① Part of 155561 Cable

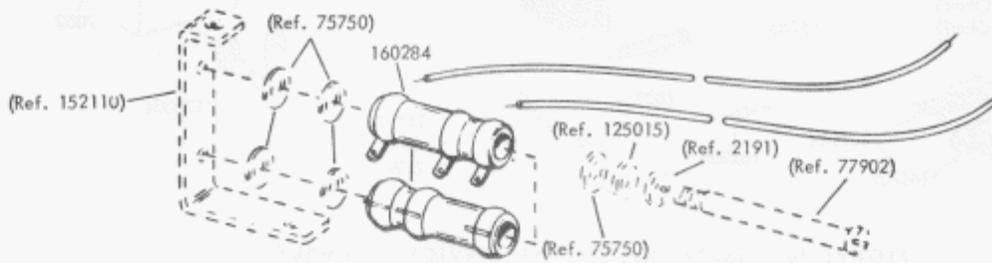
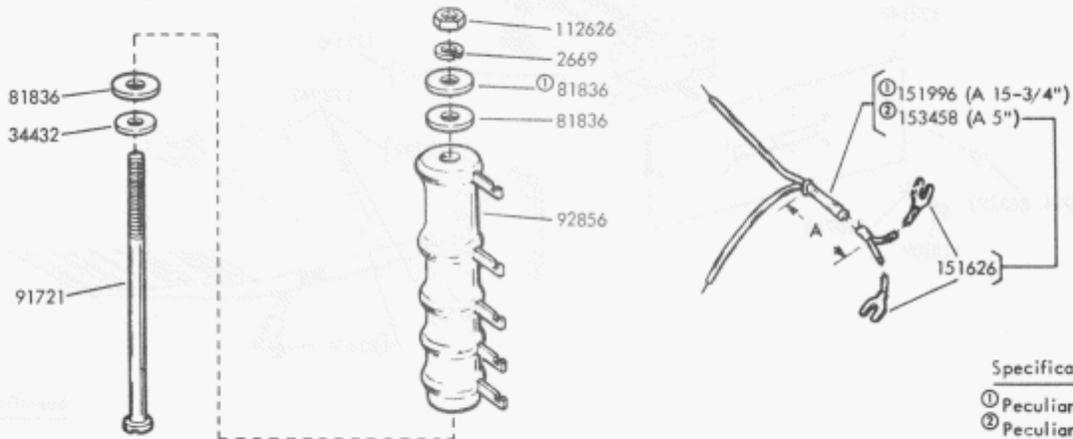


FIGURE 29. 159397 MODIFICATION KIT TO CONVERT THE 152623 LINE RELAY MOUNTING ASSEMBLY TO THE 160226 ASSEMBLY

Specification 56645



Specification 57745

① Peculiar to 151995

② Peculiar to 152330

FIGURE 30. 151995 AND 152330 MODIFICATION KITS TO ADD LINE PAD RESISTOR TO LESU

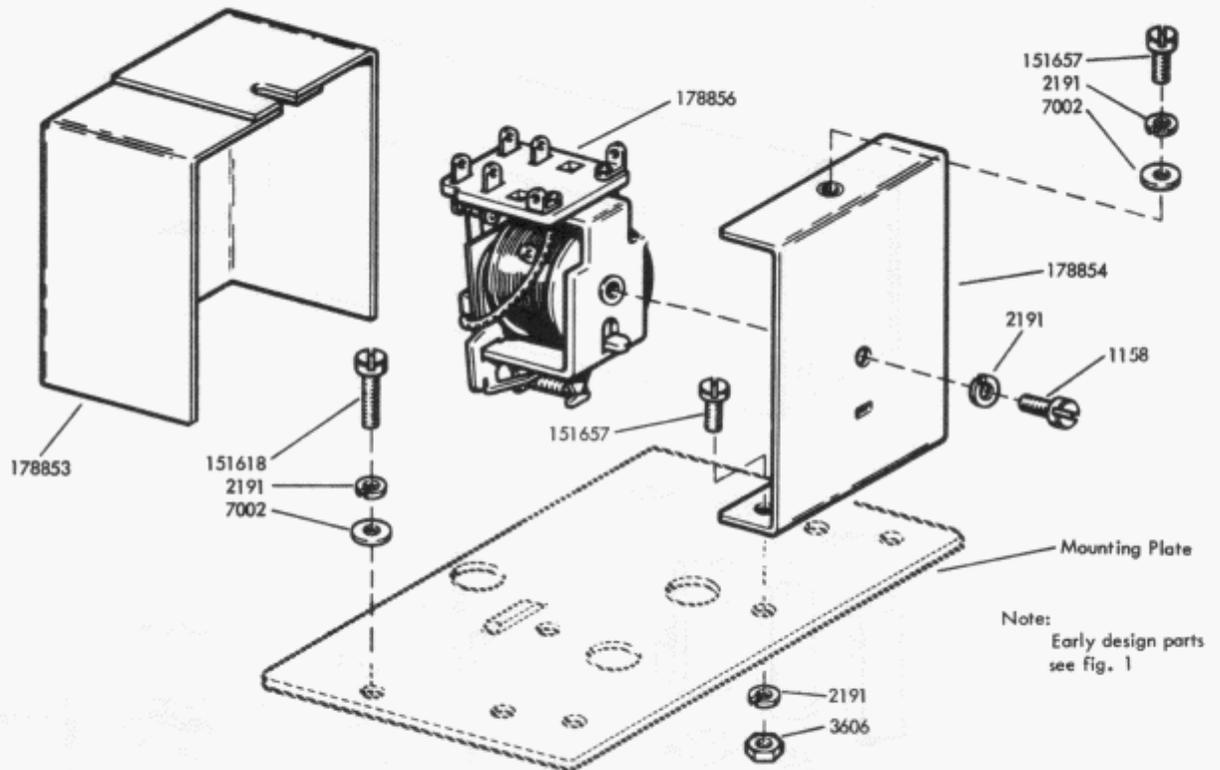


FIGURE 31. LINE SHUNT RELAY (NEW STYLE)

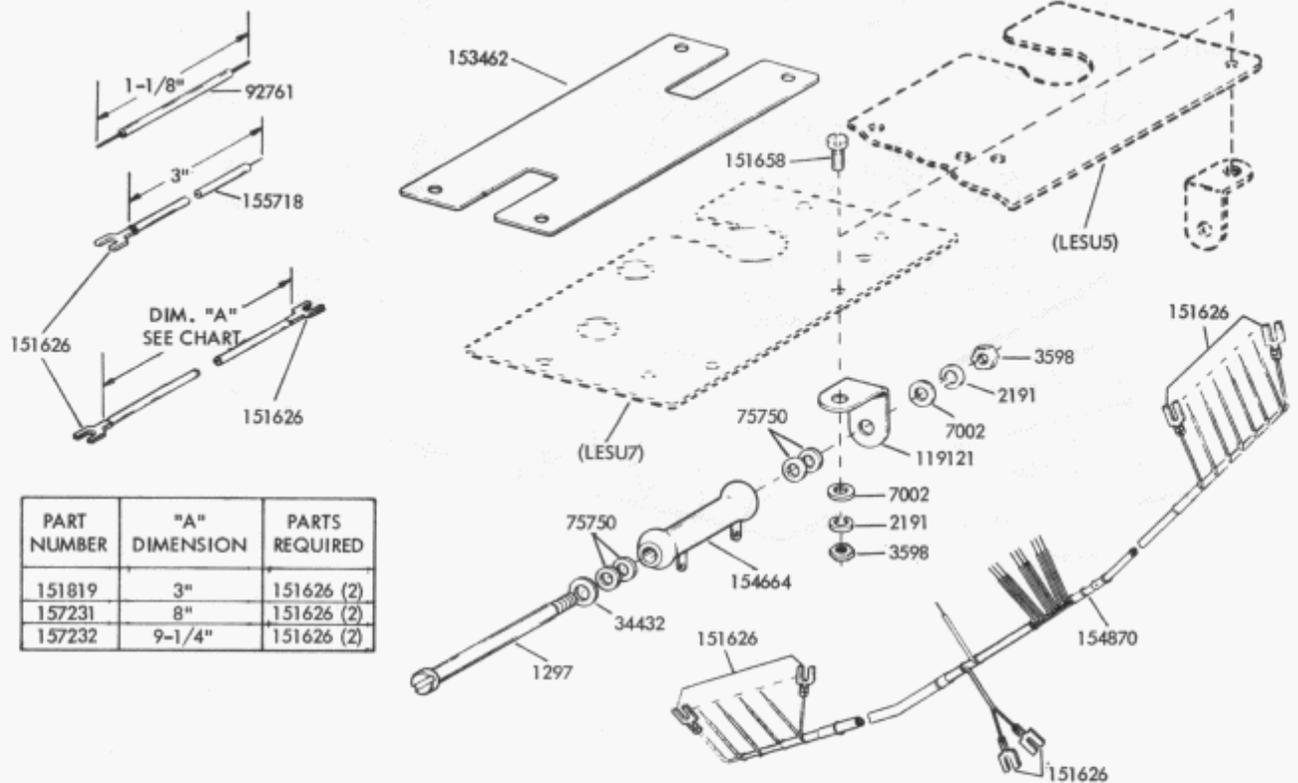
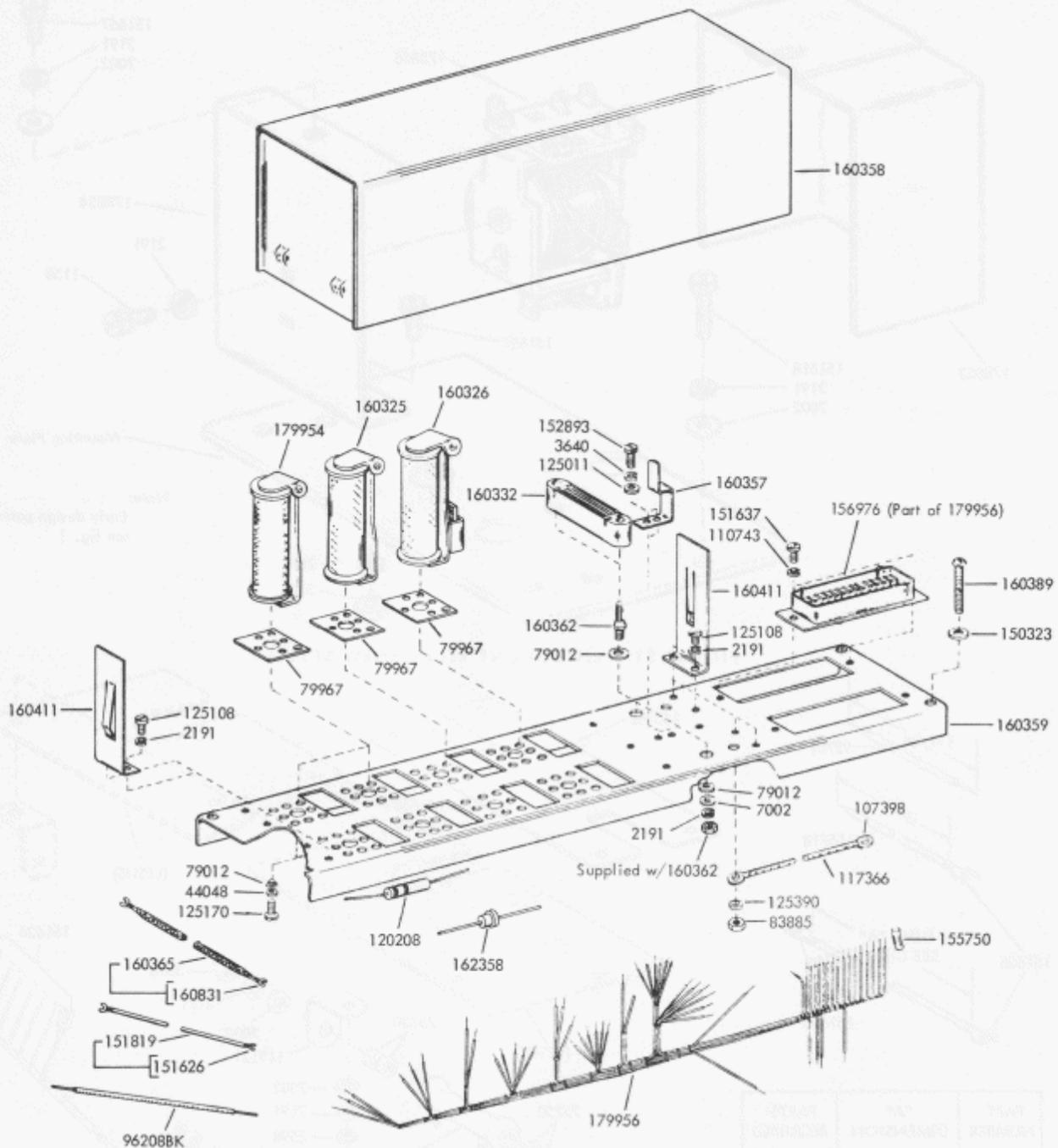


FIGURE 32. 154747 MODIFICATION KIT TO EQUIP AN LESU FOR CONTINUOUS SPACING



Specification 58875

FIGURE 33. 179472 MODIFICATION KIT TO PROVIDE TRANSMITTER AND REPERFORATOR CONTROL

CABLE CLAMPS	
	
Part No.	I. D.
121242	1/8
121243	3/16
121244	1/4
121245	5/16
121246	3/8
121247	7/16
121248	1/2
121249	5/8
121250	3/4
121251	1

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"

JUMPER ASSEMBLIES				
				
Part No.	Length	Color	Terminals	(Amt)
92761	1-1/2"	Black		
96216R	6"	Red		
151818	4-1/4"	Black	151626	(2)
151819	3-1/16"	Black	151626	(2)
152753	2-1/2"	Red	151626	(2)
152754	4-1/4"	Red	151626	(2)
157230	6"	Black	82474	(2)
157231	8"	Black	82474	(2)
157232	9-1/4"	Black	151626	(2)
160433	14"	Black		
160678	24"	Black	151626	(2)

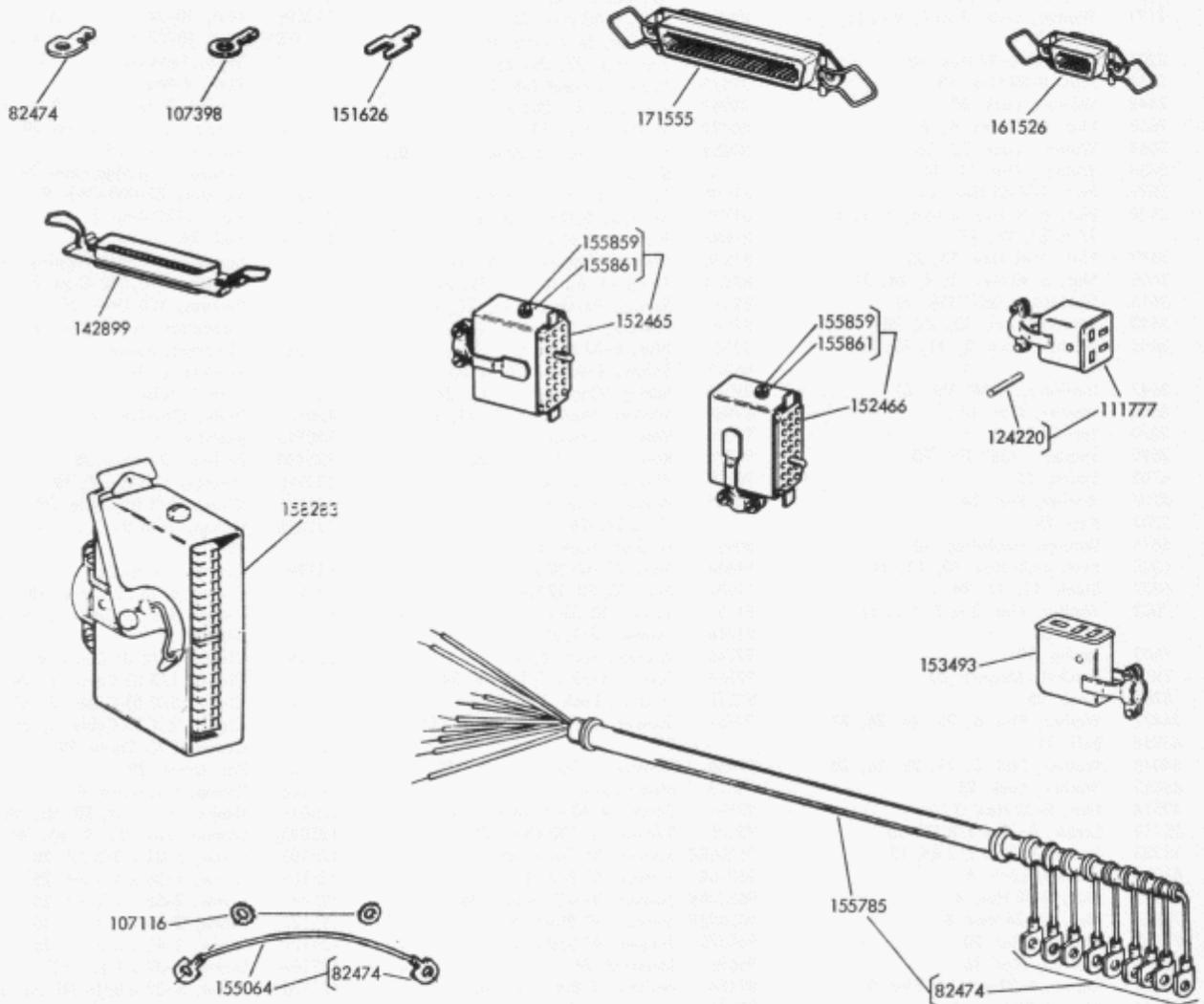


FIGURE 34. CABLE COMPONENTS

NUMERICAL INDEX

Part Number	Description and Page Number	Part Number	Description and Page Number	Part Number	Description and Page Number
169M	Coil, Magnet 20	73592	Plate 20	106200	Washer, Centering 17
247M	Coil, Magnet 15, 18	73593	Spring, Contact 20	107116	Washer, Lock 29
252M	Coil, Magnet 18	74614	Resistor, 2,600 Ohm 11, 12	107393	Switch, SP-ST Toggle 3
1018	Screw, 3-48 x 5/16 Fil 4	74615	Resistor, 2,000 Ohm 17, 25	107398	Terminal 3, 22, 28, 29
1028	Screw, 4-40 x 1/4 Fil 12, 14, 15, 17, 20	74691	Resistor, 1,600 Ohm 25	107427	Resistor, 25 Ohm 17
1079	Screw, 6-32 x 5/16 Rd 16	74821	Resistor, 2,810 Ohm 11, 12, 22	108959	Switch, DP-ST Toggle 24
1093	Screw, 8-32 x 7/16 Fil 18	74882	Spring 18	110434	Screw, 4-40 x 3/16 Fil 15, 23
1157	Screw, 8-32 x 1/2 Fil 3, 8	75231	Bushing, Insulating 20	110435	Nut, 4-40 Hex 15, 18
1158	Screw, 6-32 x 5/16 Fil 27	75750	Washer, Insulating 6, 11, 12, 14, 17, 19, 21, 22, 24 to 27	110743	Washer, Lock 4, 13, 14, 17, 20, 22, 24, 25, 28
1164	Screw, 2-56 x 3/16 Fil 16	76099	Washer, Flat 3, 14, 17	111017	Screw, 6-40 x 5/16 Fil 3, 5, 6, 16
1248	Screw, 6-40 x 1/2 Flat 11, 12, 24	76461	Washer, Flat 22	111776	Connector, 4 Pt Plug 25
1268	Screw, 6-40 x 5/16 Flat 13	76832	Screw, 12-24 x 5/8 Hex 8, 16	111777	Connector, 4 Pt Receptacle 25, 29
1297	Screw, 6-40 x 2-7/16 Fil 6, 11, 14, 24, 27	76983	Screw, 4-40 x 1-1/4 Fil 20	111970	Key, Line Test 14
2034	Washer, Flat 18	77629	Resistor, 3,000 Ohm 16	111971	Knob 14
2191	Washer, Lock 3 to 7, 9 to 15, 17 to 28	77902	Screw, 6-40 x 2-3/8 Rd 12, 14, 17, 22, 25, 26	112626	Nut, 10-32 Hex 20, 26
2201	Nut, 5/16-32 Hex 18	78904	Nut, 8-32 Hex 16	114478	Nut, 15/32-32 Hex 3, 4, 6, 24
2263	Nut, 8-32 Hex 13	78905	Washer, Insulating 16	114654	Strip, Terminal 23
2449	Washer, Lock 20	79012	Insulator 23, 26, 28	115358	Fuse, 1 Amp 5
2658	Nut, 6-32 Hex 6, 9	79513	Plate, Contact Top 20	116783	Holder, Fuse 3 to 6, 8, 9, 25
2669	Washer, Lock 20, 26	79967	Insulator 23, 26, 28	117366	Jumper, 8-1/2" Green 28
3438	Washer, Flat 11, 14	80721	Washer, Flat 13	117535	Washer, Flat 25
3595	Nut, 1/4-32 Hex 20	80854	Screw, 6-40 x 1-7/16 Fil 3, 18, 21, 24	118169	Resistor, 1.0 Meg Ohm 24
3598	Nut, 6-40 Hex 3 to 6, 11 to 15, 17 to 22, 24, 27	81596	Screw, 10-32 x 1-3/8 Hex 25	118210	Resistor, 22,000 Ohm 9
3599	Nut, 4-40 Hex 13, 22	81775	Resistor, 8,000 Ohm 11	118511	Fuse, .125 Amp 6
3606	Nut, 6-40 Hex 3, 4, 24, 27	81824	Nut, 4-40 Hex 17	118516	Post 24
3618	Insulator, .062" Thk 20	81836	Washer, Insulating 20, 24, 26	118617	Screw, 6-32 Self-Tapping 24
3640	Washer, Lock 15, 23, 28	82474	Terminal 6, 16, 17, 25, 29	118720	Resistor, 100,000 Ohm 24
3646	Washer, Lock 3, 11, 13, 15, 18	82516	Spring, Retaining 11, 12, 24	118726	Resistor, 820 Ohm 23
3647	Insulator, .094" Thk 20	82570	Resistor, 6,300 Ohm 14	118791	Capacitor, 1,000 MFD 24
3650	Washer, Flat 17	82870	Nut, 6-32 Hex 28	119045	Grammet, Rubber 22
3870	Spring 18	83885	Screw, 4-40 x 7/16 Rd 25	119121	Bracket 6, 24, 27
3899	Spacer, .188" Thk 20	86329	Spring, Contact 11, 12, 24	120142	Shield, Tube 24
4703	Spring 15	89548	Washer, Insulating 3, 13, 17	120175	Plate, ON-OFF 4
4707	Washer, Flat 24	89969	Washer, Insulating 24	120195	Rectifier 9
5702	Key 25	90239	Resistor, 3,200 Ohm 25	120208	Resistor, 22 Ohm 28
5816	Washer, Insulating 18	90707	Washer, Flat 25	121125	Washer, Spring 17, 18
6345	Nut, 6-32 Hex 10, 13, 24	90789	Washer, Flat 4 to 7, 9 to 15, 17 to 24, 26	121242	Clamp, 1/8 ID Cable 29
6827	Block 11, 12, 24	90951	Washer, Lock 18	121243	Clamp, 3/16 ID Cable 10, 21, 29
7002	Washer, Flat 3 to 7, 9 to 15, 17 to 28	91684	Nut, 15/32-32 Ring 3	121244	Clamp, 1/4 ID Cable 29
7603	Spring 18	91683	Nut, 15/32-32 Hex 3, 4, 6, 24	121245	Clamp, 5/16 ID Cable 18, 29
7959	Bracket, Magnet 20	91721	Screw, 10-32 x 2-3/4 Fil 20, 26	121246	Clamp, 3/8 ID Cable 3, 8, 22, 24, 29
8262	Knob 25	91768	Jumper, 2-1/3" Black 17	121247	Clamp, 7/16 ID Cable 29
34432	Washer, Flat 6, 20, 24, 26, 27	92260	Washer, Lock 6, 9	121248	Clamp, 1/2 ID Cable 3, 29
43954	Bell 15	92264	Screw, 6-32 x 2-1/4 Rd 24	121249	Clamp, 5/8 ID Cable 3, 29
44048	Washer, Flat 3, 18, 23, 26, 28	92527	Washer, Lock 3, 6	121250	Clamp, 3/4 ID Cable 3, 29
45815	Washer, Lock 25	92761	Jumper, 1-1/2" Black 24, 27, 29	121251	Clamp, 1 ID Cable 29
49514	Nut, 8-32 Hex 3	92856	Resistor, 1,500 Ohm 20, 26	124220	Pin, Drive 29
55219	Screw, 8-32 x 3/8 Fil 15	93073	Modification Kit 20	124566	Clamp, Capacitor 8
55323	Screw, 8-32 x 1/2 Rd 13	93191	Screw, 4-40 x 5/16 Flat 13	125011	Washer, Flat 14, 20, 25, 28
61085	Washer, Lock 4	95005	Resistor, 2,500 Ohm 25	125015	Washer, Flat 9, 12, 15, 26
70073	Nut, 3-48 Hex 4	96208BK	Jumper, 3" Black 28	125108	Screw, 6-32 x 3/8 Fil 28
70887	Nut, 10-24 Hex 8	96216R	Jumper, 6" Red 29	125109	Screw, 4-36 x 1/4 Fil 25
71047	Washer, Flat 20	96260BK	Jumper, 3-1/2" Black 18	125112	Screw, 2-56 x 1/8 Fil 20
71073	Washer, Flat 16	96262BK	Jumper, 4" Black 9	125122	Screw, 2-56 x 3/4 Fil 20
71155	Screw, 6-32 x 1-1/4 Flat 9	96262S	Jumper, 4" Slate 9	125129	Screw, 3-48 x 3/8 Fil 25
71646	Nut, 6-32 Hex 9	96696	Terminal 24	125164	Screw, 6-32 x 1 Fil 13
72480	Connector, 2 Pt Receptacle 8	99174	Resistor, 1,800 Ohm 16	125170	Screw, 8-32 x 5/16 Fil 23, 26, 28
72481	Connector, 2 Pt Plug 8	99324	Card Assembly 16	125231	Nut, 10-32 Hex 25
73175	Washer, Lock 13	99358	Connector, 2 Pt Plug 16	125306	Stop, Magnet Plunger 20
73588	Spring, Contact 20	104274	Connector, 2 Pt Receptacle 8	125390	Washer, Flat 18, 28
		104701	Screw, 4-40 x 9/32 Fil 25	129488	Resistor, 1,000 Ohm 25
		105054	Resistor, 5 Ohm 19		

NUMERICAL INDEX (Continued)

Part Number	Description and Page Number	Part Number	Description and Page Number	Part Number	Description and Page Number
129852	Resistor, 2,200 Ohm 24	151403	Frame 18	152023	Resistor, 400 Ohm 17
129853	Resistor, 10,000 Ohm 24	151406	Plate, Insulating 18	152024	Resistor, 1 Ohm 17
129855	Resistor, 51,000 Ohm 24	151407	Collar, Spacing 18	152025	Bolt, 1/4-20 x 5 Rd 17
129919	Fuse, 4 Amp SL-BL 3, 6	151408	Lever 18	152026	Cable w/Terminals 17
137602	Resistor, 470 Ohm 23	151409	Armature 18	152027	Plate 17
138191	Screw, 3-48 x 1 Rd 11, 12, 24	151410	Clip, Retaining 18	152028	Guard 17
138497	Terminal 8	151411	Block, Terminal 3, 5, 6	152030	Cable w/Terminals 17
138506	Grommet 8	151412	Insulator, Terminal Block 3, 5, 6	152108	Plate, Relay 11
138538	Fuse, 2 Amp SL-BL 6	151413	Washer, Flat 8	152109	Filter 11, 12, 25
138545	Cap 8	151414	Switch, Sensitive 18	152110	Bracket, Resistor Mounting 11, 12, 26
138548	Connector, Cord 8	151416	Nut, 6-40 Hex 3, 5, 6	152123	Cable w/Terminals 11
139075	Screw, 8-32 x 1/4 Fil 8	151417	Cable w/Terminals 18	152124	Spacer 11, 12, 24
139777	Screw, 3-56 x 1/4 Flat 14	151418	Fuse, 10 Amp 3, 4	152330	Modification Kit 2, 26
142269	Fuse, 3 Amp SL-BL 3	151421	Plate 3	152331	Rectifier Assembly 20
142679	Washer, Flat 8	151422	Connector, 2 Pt Receptacle 3, 4, 5	152332	Control Assembly, Motor 2, 20
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