



SERVICE BULLETIN No. 231A for members of RADIO MANUFACTURERS SERVICE

A PHILCO Service Plan

A complete list of dial drive parts used in all Philco radio sets is contained in this bulletin. The dial drive parts for sets from 1928 to 1936 are listed on pages 1 and 5. Drive parts for the 1937 sets are listed on page 5 and those for the 1938 sets on page 6. The various types of drives are illustrated on pages 2, 3 and 4.

The different dial parts and assemblies used in each model are listed under separate columns on pages 1, 5 and 6. When the type of dial drive or parts required for a model is desired, locate the model in the first column. Then directly opposite the model number in the second column, the type of drive will be indicated. The third column refers to the illustration appearing on pages 2, 3 or 4—also, whether one or more types are used. The part numbers of the

various assemblies and parts required in the drive mechanism will be found in the other columns.

The dial part numbers listed under the "Inverted Dial" column is used on all models having the following cabinet identifications: CSX, LZ, LZ, RX and Model 660L.

Service information and a complete replacement part list for the sets using the **Philco Automatic Tuning Dial mechanism** will be found in Service Bulletin 273.

The replacement parts for the **Cone-Centric Tuning Dial mechanism**, however, are listed on page 6 of this bulletin. Illustrations of the Cone-Centric mechanisms are shown on page 4.

PHILCO DIAL DRIVE ASSEMBLIES — 1928 TO 1936

Model	Type Drive	Illus.	Complete Drive Assy.	Drive Cord	Drive Cord Spring	Dial	Inverted Dial	Dial Pointer Assy.	Drive Bracket	Drive Ring and Hub	
4	Friction	"NA"	03011			03890					
14	Cable	"K"	04836	04834	7776	31-1066	31-1118				
15	Cable	Note A	4016A	4020A	7776	4276					
16 (Code 121-2-3)	Friction (Rubber)	"R"	45-2149			45-2364	31-1115				
16 (Code 125-6-7)	Cable & Vernier	"B"	31-1280	31-1352	28-8245	31-1363	31-1420				
17	Cable	"K"	04836	04834	7776	31-1066	31-1095				
18	Cable	"K"	04836	04834	7776	31-1066 31-1207*	31-1241				
19	Cable	"G"	31-1119	06920	7776	31-1025	31-1024				
20-21	Friction	"NA"	45-2150			4209B					
28	Cable & Vernier	"D"	31-1186	31-1457	7776	31-1208	31-1481 (CSX)				
29	Cable & Vernier	"A"	31-1276	31-1457	7776	31-1208					
	Two Types	"C"	31-1276	31-1457	7776	31-1245	31-1481				
30	Cable	Note A	4016A	3484A	3012	4139 (Scale)					
32	Cable	"H"	31-1184	31-1457	7776	31-1025					
34	Friction (Rubber)	"R"	45-2149			31-1162					
35-36	Friction	"NA"	03011			03031					
37	Friction	"NA"	03430			05811					
38	Vernier	Types "O," "S," and "T" used on this model—see illustration					31-1084				
39	Vernier	Types "O," "S," and "T" used on this model—see illustration					31-1471				
40-41-42	Cable	Note A		3484A	3012	3794					
43	Cable	"K"	05365	4020A	7776	05418					
44	Friction (Rubber)	"R"	45-2149			31-1107					
45	Cable & Vernier	"D"	31-1186	31-1457	28-8252	31-1208					
45	Cable & Vernier	"F"	31-1275	31-1457	28-8252	31-1208					
46	Friction	"NA"	45-2150			4209B					
47	Cable	"K"	04835	04834	7776	04832					
48	Friction	"NA"	45-2151			05811					
49	Cable & Vernier	"J"	45-2152	31-1456	7776	31-1205					
50	Friction	"NA"	03430			03322					
51-52	Friction	"NA"	45-2150			04031					
53	Direct Drive—No replacement						28-1021	28-1019			
54	Vernier	Types "P" and "Q" used on this model—see illustration					27-5008	27-7933			
57	Direct Drive—No replacement						28-1021	27-7152			
58-59	Vernier	Types "P" and "Q" used on this model—see illustration					27-5023	27-7933			
60	Vernier	Types "O," "S," and "T" used on this model—see illustration					31-1090 31-1792				
65	Cable	Note A		3484A	3012	3398 (Scale)					
66	Vernier	Types "O," "S," and "T" used on this model—see illustration					31-1234				
70	Friction	"NA"	03011			03031					
71	Cable	"K"	04835	04834		04832	05992				
76	Cable	Note A		3484A	3012	3794 (Scale)					
77	Cable	Note A	4016A	4020A	3012	4118					
81	Vernier	Types "O" and "T" used on this model—see illustration					31-1032				
86-87	Cable	Note A	4016A	3484A	7776	3047 (Scale) ¶		27-5007			
89	Cable—Two Types	"G"	06729- 06802‡	31-1457	7776	06697					
		"H"	31-1184	31-1457	3012	31-1590					
90	Friction	"NA"	03011			03031					
91	Cable	"K"	04836	04834	7776	04832	31-1026				
95	Cable	Note A		3484A	3012	3794 (Scale)					
96	Cable	Note A	4016A	4020A	7776	4118					
97	Cable & Vernier	"B"	31-1280	31-1352	28-8245	31-1513					

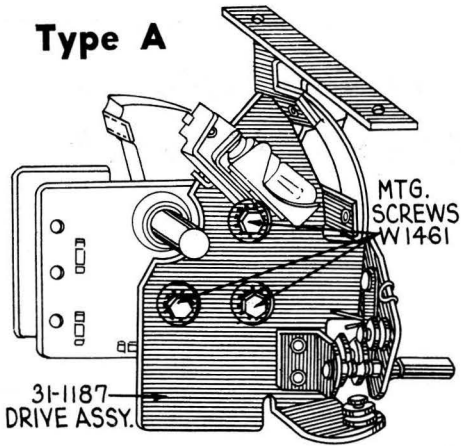
* Covers Police Frequencies.

‡ With shadow meter bracket.

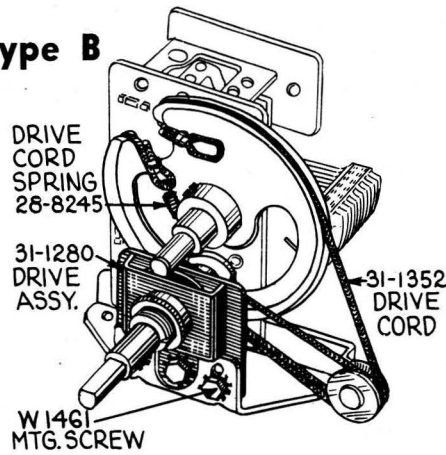
¶ Model 87—Dial scale No. 3398.

Note A. No Replacement—Return Condenser to Local Distributor for Repairs.

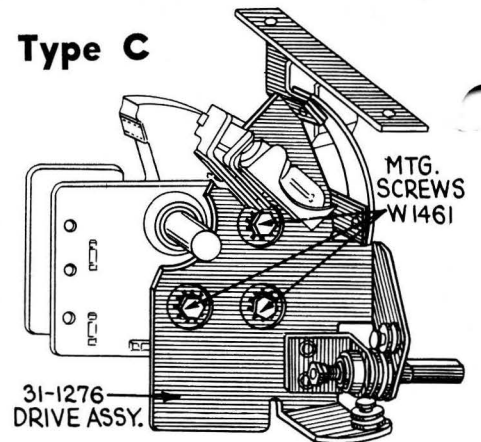
Type A



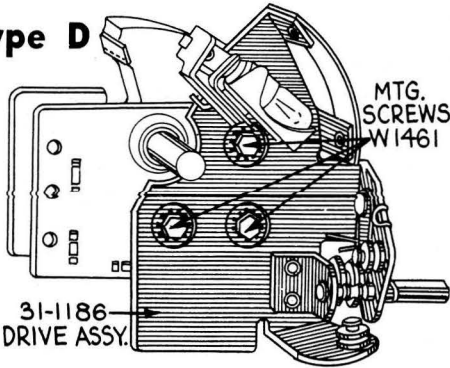
Type B



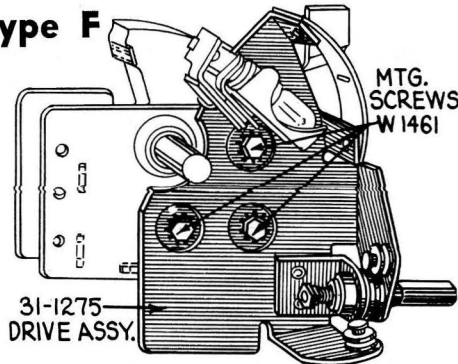
Type C



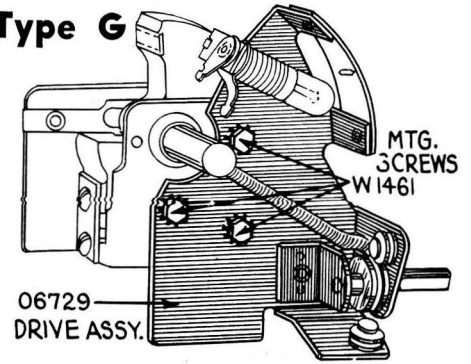
Type D



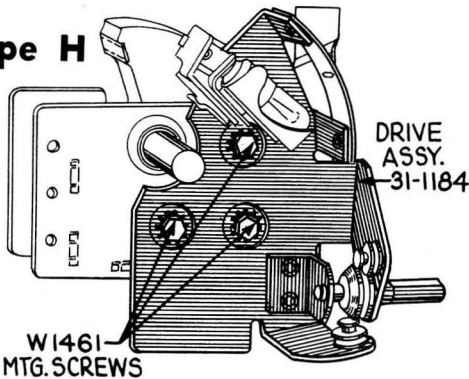
Type F



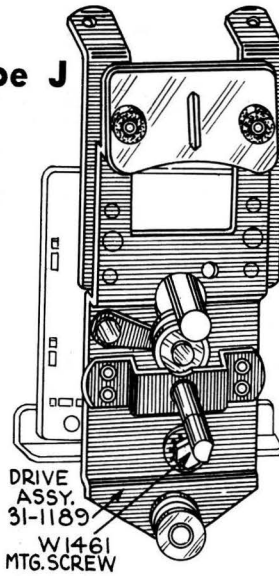
Type G



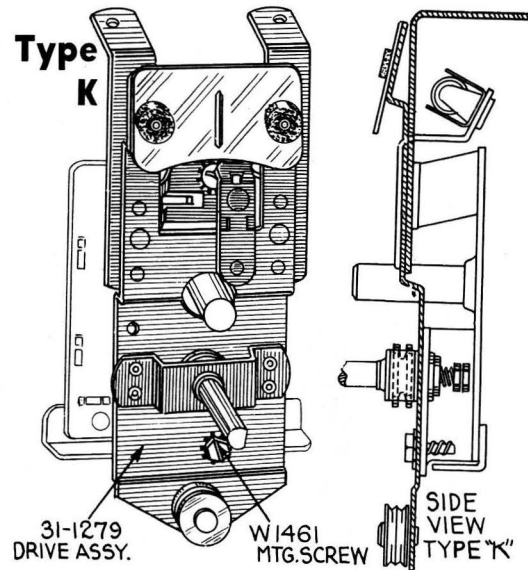
Type H



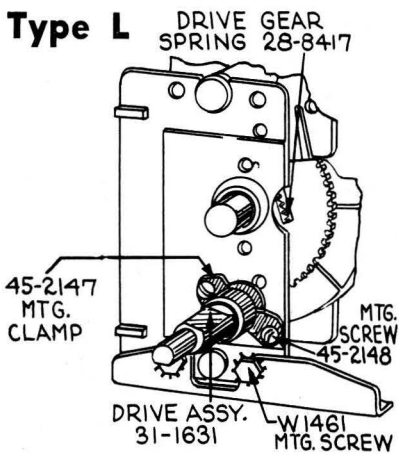
Type J



Type K



Type L

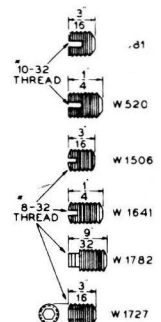


DIAL DRIVE CORDS

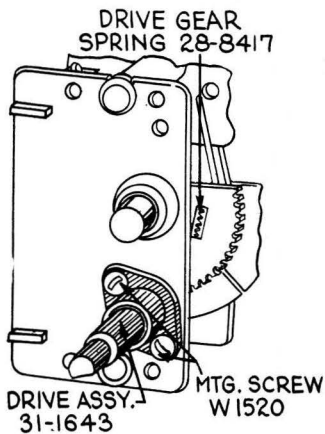


	Length (inches)
06920	15 1/2
3484A	15 3/4
4020A	17 1/2
31-1352	16 1/2
31-1456	17
31-1457	15 3/4
31-2082	8 3/8
31-2086	8 5/8
31-2096	12 1/8

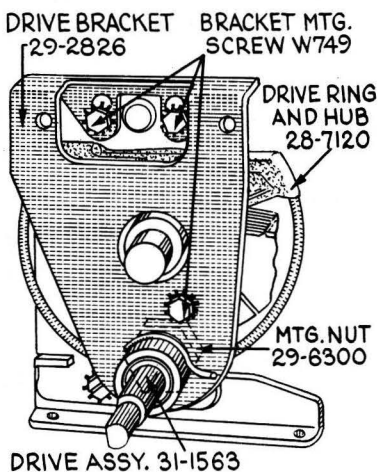
SET SCREWS



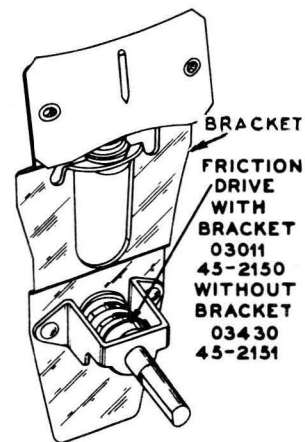
Type M



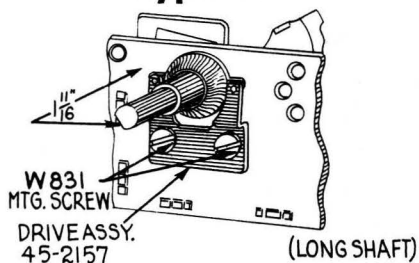
Type N



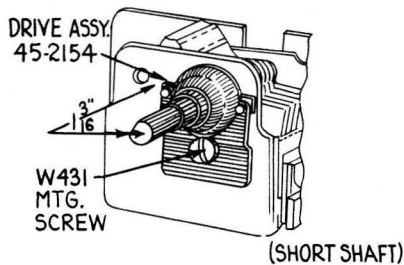
Type NA



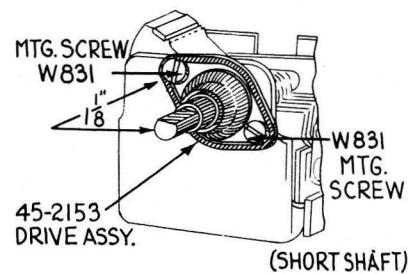
Type O



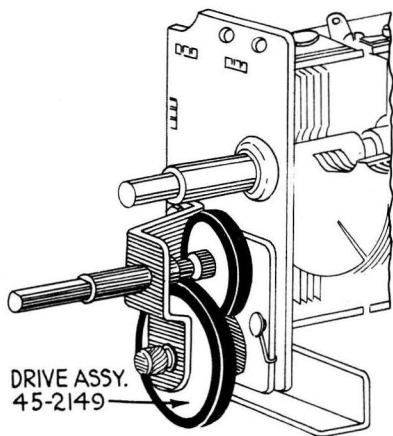
Type P



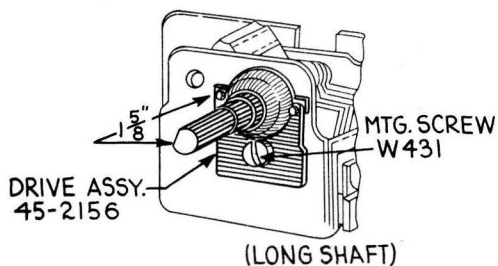
Type Q



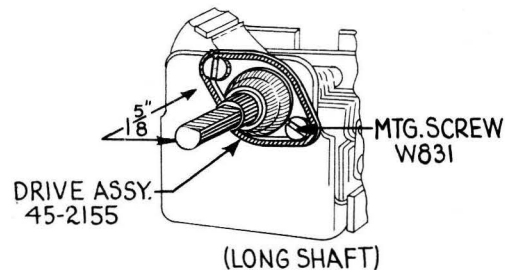
Type R



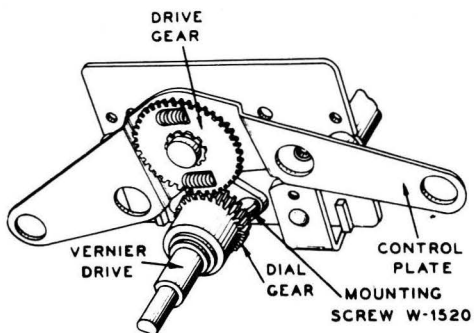
Type S



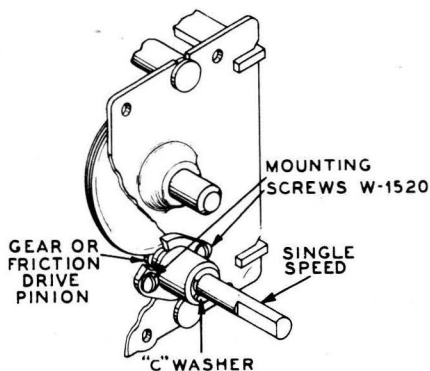
Type T



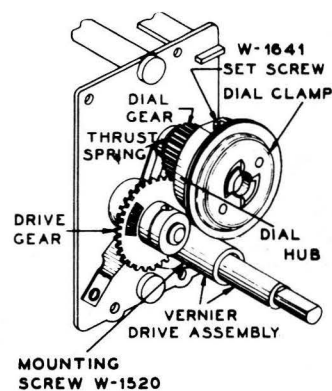
Type U



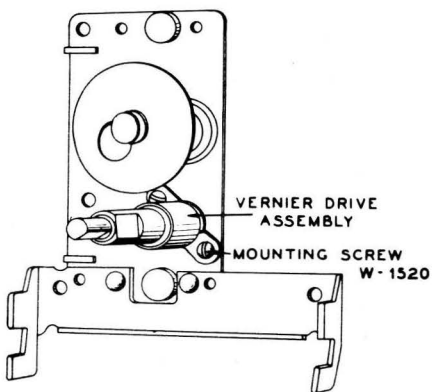
Type V



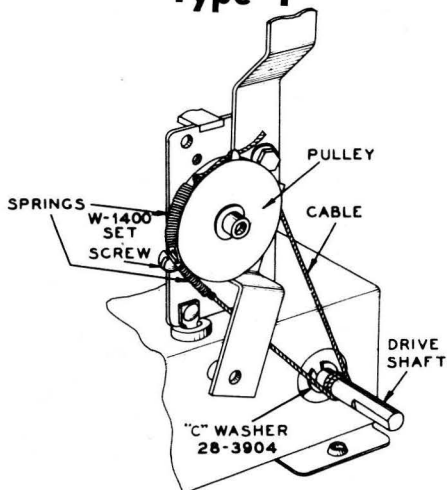
Type W



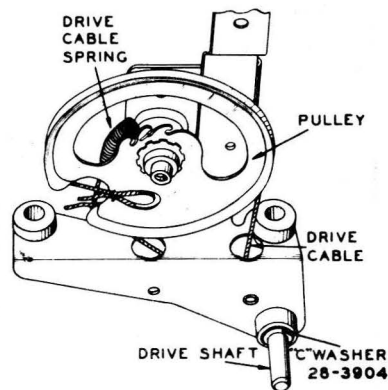
Type X



Type Y



Type Z



CONCENTRIC TUNING DIAL

(See Page 6 for Replacement Part Numbers)

Illustrations of the **Cone-Centric Automatic Tuning Unit** are shown in Figures 1, 2 and 3 below.

Figure 1 shows a side cutaway view of the complete unit. Figure 2 is a cross section view of the selector arm showing the audio shorting switch, silent tuning pawl and stator cone.

Figure 3 is a bottom cross section view of the selector arm showing the audio shorting switch (29) and indexing plunger (25).

The parts in each view are numbered. These numbers correspond to those given in the "Fig. No." column of the Parts List, page 6.

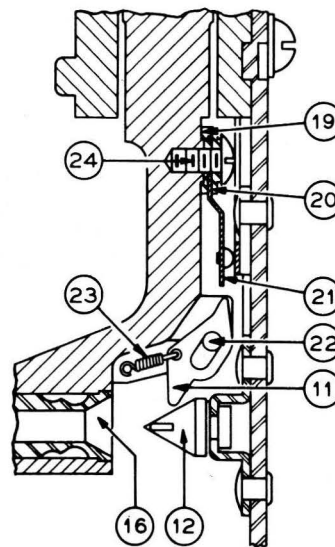


Fig. 2

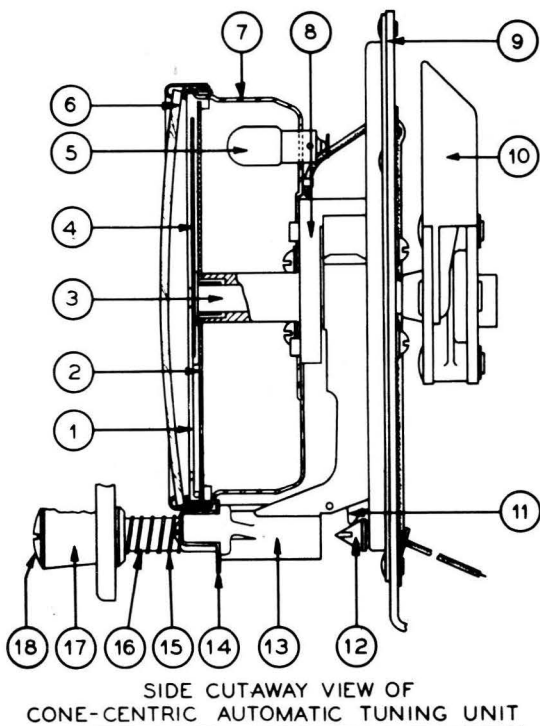


Fig. 1

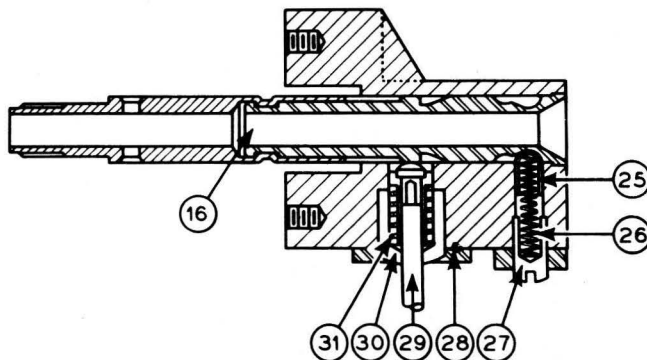


Fig. 3

DIAL DRIVE ASSEMBLIES — 1928 TO 1936 (continued)

Model	Type Drive	Illus.	Complete Drive Assy.	Drive Cord	Drive Cord Spring	Dial	Inverted Dial	Dial Pointer Assy.	Drive Bracket	Drive Ring and Hub
111-112	Cable		4016A	4020A	7776	4276				
116	Vernier	"N"	31-1563			27-5107		28-7129	29-2826	
		"J"	45-2152	31-1456	7776	31-1205	31-1241			
118	Cable-Two Types	"K"	31-1279	31-1456	7776	31-1414				
		"B"	31-1280	31-1352	28-8245	31-1364				
144	Cable & Vernier	"R"	45-2149			31-1206				
	Friction (Rubber)									
200	Cable		04836	31-1456	7776	31-1255				
201	Cable & Vernier		31-1382	31-1456	7776	31-1205				
600	Direct Drive No replacement.		Condenser must be replaced			27-5179				
602	Vernier Single Speed	Q Split Shaft	45-2469			Pointer 27-7933				
604	Gear-Vernier	U				27-5188				
						Pointer 27-8236				
See Model 37-604 for part numbers										
610	Vernier	"L" or "M"	31-1643			27-5131		31-1550		
611	Vernier	"L" or "M"	31-1643			27-5097		31-1550		
620	Vernier	"L" or "M"	31-1643			27-5098		31-1550		
623	Vernier	"L" or "M"	31-1643			27-5097		31-1550		
624	Vernier	"L" or "M"	31-1643			27-5163		31-1724		
625	Vernier	"L" or "M"	31-1643			27-5098		31-1550		
630-635	Vernier	"L" or "M"	31-1643			27-5098	27-5121	31-1550		
640	Vernier	"N"	31-1563			27-5103	27-5122	31-1550	29-2826	31-1600
641	Vernier	"N"	31-1563			27-5125		31-1550	29-2826	31-1600
642	Vernier	"L" or "M"	31-1643			27-5098		31-1550		
643	Vernier	"N"	31-1563			27-5131		31-1550	29-2826	31-1600
645	Vernier	"N"	31-1563			27-5165		31-1724	29-2826	31-1600
650	Vernier	"N"	31-1563			27-5103	27-5122	31-1550	29-2826	31-1600
651	Vernier	"N"	31-1563			27-5170		31-1724	29-2826	31-1600
655	Vernier	"N"	31-1563			27-5165		31-1724	29-2826	31-1600
660-665	Vernier	"N"	31-1563			27-5115	27-5123	28-7129	29-2826	31-1600
680	Vernier	"N"	31-1563			27-5127		28-7129	29-2826	31-1600

DIAL DRIVE ASSEMBLIES — 1937 MODELS

Model	Type Drive	Illus.	Dial	Dial Hub† and Clamps	Drive Gears	Vernier Assy.
37-9	Automatic Tuning Model—See Bulletin 273 for Parts					
37-10-37-11 Codes 121 and 125	Automatic Tuning Model—See Bulletin 273 for Parts					
37-33	Vernier	Q Solid Shaft	27-5243 Pointer 27-7933			31-1925 45-2171
37-34	Vernier	V	27-5252	Hub 28-7152 Clamp 28-2837 W-1506 Set Screw		31-1863 ⊙
37-38	Vernier	V	27-5196	Hub 28-7152 Clamp 28-2837 Set Screw W-1506		31-1863 ⊙
37-60	Vernier	V	27-5196	Hub 28-7152 Clamp 28-2837		31-1863 ⊙
37-61	Vernier	M	27-5205	Hub 28-7152 Clamp 28-2837		31-1879
37-62	Vernier	T Long Shaft	27-5287	Hub 28-7152 Clamp 28-2837		45-2426
37-84	This receiver uses a direct drive assembly		27-5210 Dial Dial Pointer 27-7933			
37-89	Vernier Single Speed	V	27-5204	Hub 28-7152 Clamp 28-2837		31-1844 ⊙
37-93	Vernier	Q	27-5280 Pointer 27-7933			45-2171
37-116 Codes 121 and 122, 126	Vernier (121)	W	27-5249 (121)	Hub 28-7187 (121) Clamp 28-2837 (121)	Solid 28-7185* Two Section 31-1884	31-1871 Code 121
For Code 122 Parts—See Service Bulletin 273						
37-600	Vernier Single Speed	Q ★	27-5193 Pointer 28-3789			45-2469
37-602	Vernier Single Speed	Q ★	27-5193 Pointer 28-3789			45-2469
37-604	Gear-Vernier	U	31-1799 Ass'y of Hub and Dial		Two Section 31-1787 Solid 28-6436	31-1877
37-610 Codes 121 and 125	Gear-Vernier	W	27-5203, Code 121 27-5285, Code 125	Hub 28-7187 Clamp 28-2837	Two Section 31-1884 Solid 28-7185*	31-1871
37-611 Code 121	Gear-Vernier	W	27-5203, Code 121 27-5285 (125)	Hub 28-7187 Clamp 28-2837	Two Section 31-1884 Solid 28-7185*	31-1871
37-620 and 630 Codes 121-125	Gear-Vernier	W	27-5203, Code 121 27-5285 (125)	Hub 28-7187 Clamp 28-2837	Two Section 31-1884 Solid 28-7185*	31-1871
37-623 Codes 121 and 125	Gear-Vernier	W	27-5214 (121) 27-5285 (125)	Hub 28-7187 Clamp 28-2837	Two Section 31-1884 Solid 28-7185*	31-1871
37-624 Codes 121 and 125	Gear-Vernier	W	27-5214 (121) 27-5285 (125)	Hub 28-7187 Clamp 28-2837	Two Section 31-1884 Solid 28-7185*	31-1871
37-640 Codes 121 and 125	Gear-Vernier	W	27-5214 (121) 27-5285 (125)	Hub 28-7187 Clamp 28-2837	Two Section 31-1884 Solid 28-7185*	31-1871
37-641 Code 121	Gear-Vernier	W	27-5214 (121) 27-5285 (125)	Hub 28-7187 Clamp 28-2837	Two Section 31-1884 Solid 28-7185*	31-1871
37-643 Code 121	Gear-Vernier	W	27-5250	Hub 28-7187 Clamp 28-2837	Two Section 31-1884 Solid 28-7185*	31-1871
37-650 Code 121	Gear-Vernier	W	27-5248	Hub 28-7187 Clamp 28-2837	Two Section 31-1884 Solid 28-7185*	31-1871
37-660 Code 121	Gear-Vernier	W	27-5209	Hub 28-7187 Clamp 28-2837	Two Section 31-1884 Solid 28-7185*	31-1871
37-665 Code 121	Gear-Vernier	W	27-5244	Hub 28-7187 Clamp 28-2837	Two Section 31-1884 Solid 28-7185*	31-1871
37-670 Code 121	Gear-Vernier	W	27-5213	Hub 28-7187 Clamp 28-2837	Two Section 31-1884 Solid 28-7185*	31-1871
37-675 Codes 121 and 122	Gear-Vernier (Code 121) Automatic Tuning Dial (Code 122)	W	27-5249 (121) 27-5207 (122)	Hub 28-7187 (121) Clamp 28-2837 (121)	Two Section 31-1884 Solid 28-7185*	31-1871 (Code 121)
Automatic Tuning—See Bulletin 273						
37-690	Automatic Tuning—See Bulletin 273					
37-2620 Code 121	Gear-Vernier	W	27-5245	Hub 28-7187 Clamp 28-2837	Two Section 31-1884 Solid 28-7185*	31-1871
37-2650 Code 121	Gear-Vernier	W	27-5269	Hub 28-7187 Clamp 28-2837	Two Section 31-1884 Solid 28-7185*	31-1871
37-2670	Gear-Vernier	W	27-5266	Hub 28-7187 Clamp 28-2837	Two Section 31-1884 Solid 28-7185*	31-1871

† Set Screw W-1506.

⊙ Specify whether gear or friction pinion is required.

★ Tuning shaft of this model is split.

* Additional parts required.
Set Screw W-1641.
Thrust Spring 28-8611.
Thrust Washer 28-3976.
C Washer 28-3904.

DIAL DRIVE ASSEMBLIES — 1938 MODELS

Model	Type Drive	Illus.	Dial or Dial and Pointer	Dial Wash and Clamp	Vernier Drive or Tuning Shaft Assy	Drive Cord	Drive Spring	Drive Pulley
38-1			Automatic Tuning Dial—See Bulletin 273					
38-2			Automatic Tuning Dial—See Bulletin 273					
38-3			Automatic Tuning Dial—See Bulletin 273					
38-4			Cone-Centric Tuner Type—See Page 6 for Part List					
38-5	Vernier	X	27-5330	Washer 27-4598 Clamp 28-5089	31-2089			
38-7			Cone-Centric Tuner Type—See Page 6 for Part List					
38-8	Vernier	X	27-5327	Washer 27-4598 Clamp 28-5089	31-2072			
38-9	Vernier	X	27-5327	Washer 27-4598 Clamp 28-5089	31-2072			
38-10	Vernier	X	27-5327	Washer 27-4598 Clamp 28-5089	31-2072			
38-12	Cable	Y	31-2097 Pointer 28-5185		38-9102 Clip 28-3904	31-2082	28-8751	Pulley 28-6662 Screw W-1400
38-14, Codes 121 and 124	Cable	Z	31-2098 Pointer 28-5201		38-9001 Shaft	31-2096	6508	31-1283
38-15, Codes 121 and 124	Cable	Z	31-2137 Pointer 28-5201		38-9001	31-2096	6508	31-1283
38-22, Codes 121 and 124			Cone-Centric Tuner Type—See Page 6 for Part List					
38-23 Code 121	Vernier	X	27-5327	Washer 27-4598 Clamp 28-5089	31-2072			
38-33 Code 121	Cable	Z	31-2107 Pointer 28-5201		Shaft 38-9107 Clip 28-3904	31-2086	28-8751	28-6662 Set Screw W-1400
38-34 Code 121	Vernier	V	27-5252	Hub 28-7152 Clamp 28-2837 Set Screw W-1506	31-1863 ⊙			
38-34 Code 125	Cable	Z	31-2107 Pointer 28-5201		Shaft 38-9107 Clip 28-3904	31-2086	28-8751	28-6662 Set Screw W-1400
38-35 Code 121	Cable	Z	31-2107 Pointer 28-5201		Shaft 38-9107 Clip 28-3904	31-2086	28-8751	28-6662 Set Screw W-1400
38-38 Code 121	Vernier	X	27-5333	Washer 27-4598 Clamp 28-5089	31-2128			
38-39	Vernier	X	27-5333	Washer 27-4598 Clamp 28-5089	31-2128			
38-40	Vernier	X	27-5333	Washer 27-4598 Clamp 28-5089	31-2128			
38-60 Codes 121 and 125	Vernier	V	27-5196	Hub 28-7152 Clamp 28-2837 Set Screw W-1506	31-1863 ⊙			
38-62 Code 121	Vernier	Long T Shaft	27-5287	Hub 28-7152 Clamp 28-2837 Set Screw W-1506	45-2426			
38-89 Codes 121 and 125	Vernier	V	27-5204	Hub 28-7152 Clamp 28-2837 Set Screw W-1506	31-1844 ⊙			
38-93 Code 121	Vernier	Q	27-5280 (121) Pointer 27-7933		45-2171			
38-93 Code 125	Cable	Y	31-2108 (125) Pointer 28-5201		38-9102 "C" Washer 28-3904	31-2086	28-8751	28-6662 Set Screw W1400
38-116, Codes 121 and 125			27-5207 (121) 27-5340 (125)	Automatic Tuning—See Service Bulletins 273, 286 and 286A				
38-620, Codes 121 and 125	Gear-Vernier		Same as 37-620, Code 125					
38-623, Codes 121 and 125	Gear-Vernier		Same as 37-623, Code 125					
38-624, Codes 121 and 125	Gear-Vernier		Same as 37-624, Code 125					
38-640 Code 121	Gear-Vernier		Same as 37-640, Code 125					
38-690, Codes 121 and 125			27-5207 (121) 27-5340 (125)	Automatic Tuning—See Bulletin 273				
38-2620, Codes 121, 125, 325			Same as 37-2620					
38-2670, Codes 121, 125, 325			Same as 37-2670					

⊙ Specify whether gear or friction pinion is required.

CONCENTRIC TUNING DIAL — REPLACEMENT PARTS

(See Page 4 for locations of Parts)

Fig. No.	Description	Part No.	List Price	Fig. No.	Description	Part No.	List Price
1	Dial Retaining Ring	28-5107	\$0.10	17X	Knob (Large)	45-2477	\$0.20
2	Dial (Models 38-7, 38-22)	27-5338	..	18	Screw (Knob)	28-6672	.10
	Dial (Model 38-4)	27-5337	..	19	Insulating Washers	27-8806	.90/c
3	Drive Shaft	28-6675	.10	20	Insulating Washers	27-8806	.90/c
4	Pointer	38-8925	.25	21	Contact Spring	27-8909*	..
5	Pilot Lamp (Models 4 and 7)	34-2064	.09	22	Pawl Pin	28-6674	..
	Pilot Lamp (Model 22)	34-2192	.15	23	Spring (Pawl)	28-8756	..
6	Bezel Assembly	40-6136	1.20		Spring Pin	28-6616	..
7	Reflector Assembly	45-2478	.75	24	Screw (Audio Shorting Switch)	W-164	..
8	Main Bearing	28-7242	.60	25	Indexing Plunger	28-5055	..
9	Mounting Bracket Assembly	45-2479	1.75	26	Spring (Indexing Plunger)	28-8757	..
10	Coupling Assembly	31-2056	1.25	27	Screw (Indexing Plunger)	28-6661	..
11	Pawl	28-5072	..	28	Lock Nut	W-434	..
12	Cone	31-2055	.10	29	Shorting Contact (Selector Arm)	45-2619	..
13	Selector Crank Assembly	45-2476	1.75	30	Retaining Screw	28-6666	..
14	Mask and Felt (Selector Crank)	45-2556	.85	31	Spring	28-8758	..
15	Spring	28-8761	.04		Selector Crank Assembly	45-2476	1.75
16	Indexing Plunger	38-8812	..		Gear (Small) Tuning Condenser	45-2490	.60
17	Knob (Small)	27-4572	.35		Gear (Large) Tuning Condenser	45-2491	.50

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