



Philco Radio & Television Corp.

	Model: 34	Chassis:	Year: Pre October 1936
	Power:	Circuit:	IF:
	Tubes:		
	Bands:		

Resources

[Riders 5 \(V\) PHILCO 5-21](#)

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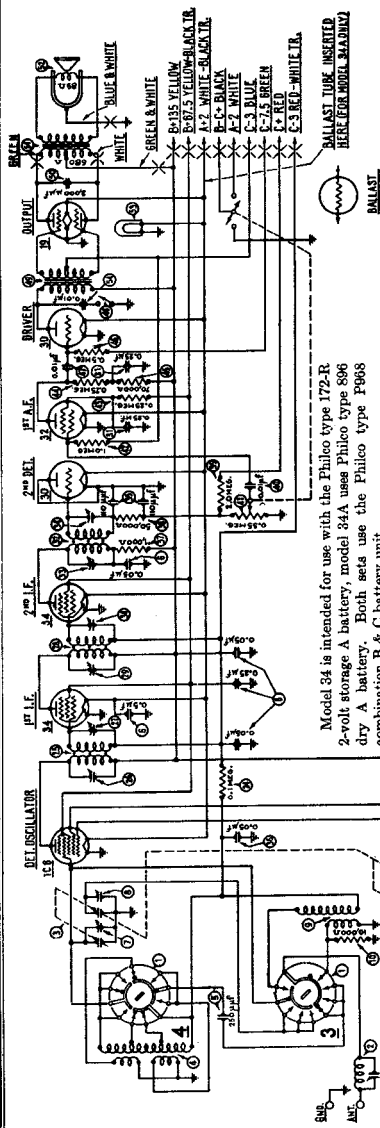
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PHILCO RADIO & TELEVISION CORP.

MODEL 34, 34-A
Schematic
Layouts



Model 34 is intended for use with the Philco type 172-R 2-volt storage A battery, model 34A uses Philco type 896 dry A battery. Both sets use the Philco type P968 combination B & C battery unit.

The current drain is: A battery—750 milliamperes; B battery—16 to 19 milliamperes. The ballast tube used in the model 34A keeps the voltage delivered by the dry A battery to the filament at nearly two volts at all times.

FIG. 4—Schematic Wiring Diagram

NOTE: Output transformer is mounted on receiver (under chassis) instead of on speaker as indicated in diagram. Also speaker magnet is not grounded.

IF PEAK 460 KC

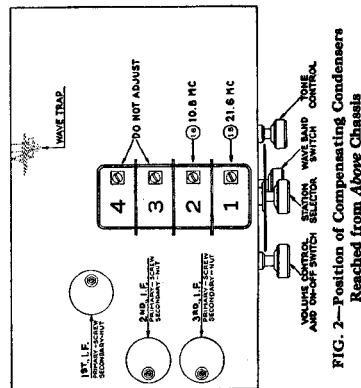


FIG. 2—Position of Compensating Condensers Reached from Above Chassis

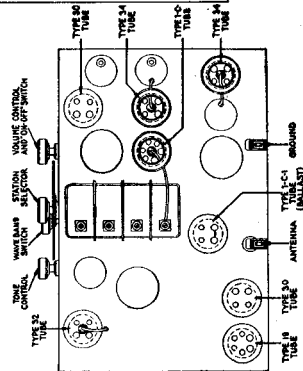
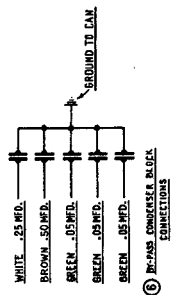
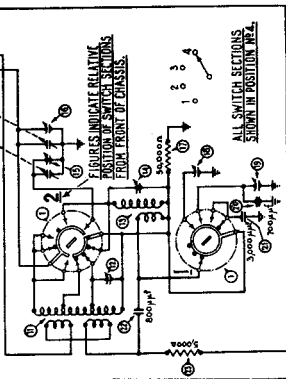


FIG. 1—Top View of Chassis



March, 1934

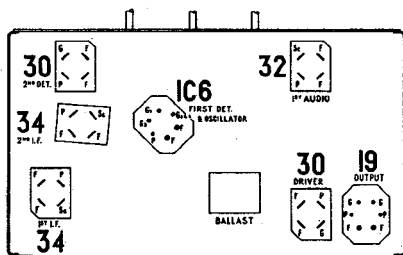
MODEL 34, 34-A
Alignment Data
Voltage, Socket
PHILCO RADIO & TELEVISION CORP.


FIG. 3—Tube Socket Layout (View of Underside)

ADJUSTING MODEL 34

The compensating condensers of Model 34 have been adjusted accurately before shipment. If later adjustment is required, in most cases only the intermediate frequency and low frequency compensating condensers should be done. Extreme care must be given the adjustment of the high frequency circuits, and the adjustment should NOT be undertaken unless the receiver is seriously out of alignment.

DO NOT ATTEMPT TO ADJUST the compensating condensers mounted upon sections numbered 3 and 4 of the Tuning Condenser Assembly. These have been adjusted, and sealed, at the factory.

Philco Model 048 All-Purpose Set Tester, which incorporates a signal generator covering broadcast and police band frequencies, is recommended for the adjustment of the intermediate frequency and low frequency compensating condensers.

Philco Model 091 crystal-controlled Signal Generator is recommended for the high frequency adjustments. It gives an accurate and constant 3600 kilocycle (3.6 megacycle) signal, the harmonics of which include the necessary high frequencies for adjusting the compensating condensers in the high frequency circuits.

1—ADJUSTMENT OF THE INTERMEDIATE FREQUENCY—Remove the grid clip from the type IC6 tube and connect the "ANT" output terminal of the signal generator to the grid cap of the tube. Connect the "GND" terminal of the signal generator to the "GND" terminal of the receiver chassis.

Connect the output meter to the primary terminals of the output transformer. Set the signal generator at 460 K.C. (the intermediate frequency of Model 34) and adjust each of the I.F. compensating condensers in turn, to give maximum response in the output of the receiver. The location of the I.F. compensating condensers is shown in Figure 2. Each of these transformers has a dual compensating condenser mounted at its top, and accessible thru a hole in the top of the coil shield. In the dual compensators, the Primary circuit is adjusted by turning the screw; the Secondary circuit is adjusted by turning the hex-head nut.

2—ADJUSTMENT OF THE WAVE TRAP—Replace the grid clip upon the Detector-Oscillator tube (Type IC6). Connect the output leads from the signal generator directly to the antenna and ground terminals of the receiver. Set the Wave-Band Switch of the receiver to the standard broadcast band (Range 1) and the Station Selector at the low frequency (520 K.C.) end. Adjust the Wave Trap ② condenser to give MINIMUM response to 400 K.C. signal from the signal generator. The Wave Trap ② is located at rear and underneath the chassis, and is shown in Figures 2 and 5. It is reached from the rear of the chassis.

3—ADJUSTMENT OF THE DIAL FREQUENCIES—Model 34 has four separate frequency bands or ranges, each obtained by one of the four positions of the wave-band switch. There is a compensating condenser for each

Table 1—Tube Socket Data*

CIRCUIT	Det.-Osc.	1st I. F.	2nd I. F.	2nd Det.	1st A. F.	Driver	Out. Pnt.
TYPE TUBES	IC6	34	34	30	32	30	19
Filament Volts.....	1.9	1.9	1.9	1.9	1.9	1.9	1.9
Plate Volts.....	P-135 G2-120	135	135	..	40	135	135
Screen Grid Volts.....	073½	073½	073½	..	35	..	..

*The above values were obtained from the underside of the chassis, using test leads and a high-resistance multi-range D. C. voltmeter. The Philco Model 048 All Purpose Set Tester is highly recommended for all tests of this character. Receiver volume control at maximum; station selector at 520 kilocycle. Readings taken with a plug-in adaptor will not be satisfactory.

range, which must now be adjusted. In the following procedure, the frequency ranges referred to, and obtained by the different positions of the switch are:

Range 1.....520 K.C.—1500 K.C.

Range 2.....1.5 M.C.—4.0 M.C.

Range 3.....4.0 M.C.—11.0 M.C.

Range 4.....11.0 M.C.—23.0 M.C.

Connect the output terminals of the Model 091 or equivalent Signal Generator, to the "ANT" and "GND" terminals of the receiver chassis. Connect an output meter to the primary terminals of the Output Transformer of the receiver. Set the Wave-Band Switch to Range 4, and the Station Selector at 21.6 M.C. The sixth harmonic of the 3.6 M.C. crystal in the Model 091 Signal Generator is picked up at this point. Adjust the compensating condenser ③ on Section 1 of Tuning Condenser for maximum response in the output of the receiver.

Turn the Wave-Band Switch to Range 3, and the Station Selector to 10.8 M.C. Here, the third harmonic of the 3.6 M.C. crystal will be heard. Adjust the compensating condenser ④ on Section 2 of Tuning Condenser for maximum response in the output of the receiver.

Turn the Wave-Band Switch to Range 2, and adjust the Station Selector to 3.6 M.C. The "Antenna" connection between the Signal Generator and the receiver chassis must be removed for this adjustment, otherwise the output of the Signal Generator will be too great. Adjust the compensating condenser ⑤ to give maximum response in the output circuit. This compensating condenser is located underneath the chassis and is not accessible from above. See Figure 5.

This concludes adjustments requiring the Model 091 (or equivalent) high frequency signal generator.

The Model 048 or its equivalent is now used again. Turn the Wave-Band Switch of the set to Range 2 and the Station Selector to 1.5 M.C. Set the Signal Generator at 1500 K.C. Make sure the "Antenna" connection between the Signal Generator and the Chassis has been restored. Adjust compensating condenser ⑥ located underneath the chassis, (Figure 5). Adjustment is made from the underside of the chassis.

Tune the Wave-Band Switch to Range 1 and the Station Selector to 1400 K.C. Set the Signal Generator at 1400 K.C. Adjust compensating condenser ⑦, which is located underneath the chassis. (See Figure 5). This adjustment is made from the underside of chassis.

Finally, with Wave-Band Switch at Range 1, and Station Selector at 520 K.C., set the Signal Generator at 520 K.C. and adjust compensating condenser ⑧ (Figure 5). This compensating condenser is also mounted underneath the chassis, and reached from below.

For proper and accurate adjustment of Model 34, the procedure must be followed exactly in the order given. The adjustment should not be undertaken without proper equipment as mentioned above.

PHILCO RADIO & TELEVISION CORP.

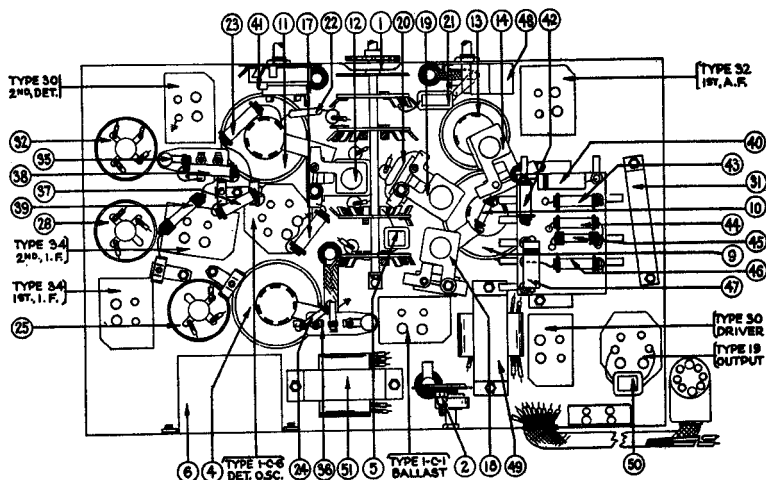
MODEL 34, 34-A
Chassis Layout
Parts List

FIG. 5—Bottom View of Chassis, Showing Parts, and Position of Compensating Condensers Reached from Below Chassis

MODEL 34 PARTS

No. on Fig.	Description	Part No.	List Price Each	No. on Fig.	Description	Part No.	List Price Each
1	Wave-Band Switch.....	42-1045	\$5.60	35	Condenser (.0011 mfd. twin).....	8035-C	\$0.25
2	Wave Trap.....	38-4199	.30	36	Condenser (.05 mfd.).....	3511-J	.35
3	Tuning Condenser Assembly.....	31-1153	6.35	37	Resistor (1,000 ohms—Brown-Black-Red).....	5837	.25
4	Antenna Transformer (H. F. Bands).....	32-1271	.70	38	Resistor (50,000 ohms—Green-Brown-Red).....	4518	.25
5	Condenser (.00025 mfd.).....	5052	.35	39	Resistor (2 meg.—Red-Black-Green).....	5872	.25
6	By-pass Condenser Block (25-5-55-55-55 mfd.).....	30-4151	1.00	40	Condenser (.01 mfd.).....	30-4124	.25
7	Compensating Condenser (Ant. H. F.).....	Part of ③	.....	41	Volume Control and On-Off Switch.....	38-5064	1.45
8	Compensating Condenser (Ant. B'wet).....	Part of ③	.....	42	Resistor (1.6 meg.—Brown-Black-Green).....	4409	.25
9	Antenna Transformer (Broadcast).....	32-1270	.55	43	Resistor (530,000 ohms—Orange-Orange-Yellow).....	4410	.25
10	Resistor (10,000 ohms—Brown-Black-Orange).....	32-1000	.25	44	Resistor (.25 meg.—Red-Yellow-Yellow).....	5946	.25
11	Oscillator Transformer (H. F. Bands).....	32-1273	.35	45	Resistor (70,000 ohms—Violet-Black-Orange).....	5385	.25
12	Compensating Condenser (Range 2).....	04000-C	.15	46	Resistor (.5 meg.—Yellow-White-Yellow).....	4517	.25
13	Oscillator Transformer (Broadcast).....	32-1272	.70	47	Condenser (.01 mfd.).....	30-4124	.25
14	Compensating Condenser (Osc. Range 1).....	04000-A	.15	48	Tone Control.....	30-4152	.50
15	Compensating Condenser (Osc. Range 2).....	Part of ③	.....	49	Audio (Input) Transformer.....	7253	1.80
16	Compensating Condenser (Osc. Range 3).....	Part of ③	.....	50	Condenser (.003 mfd.).....	7301	.45
17	Resistor (50,000 ohms—Green-Brown-Orange).....	4518	.25	51	Output Transformer.....	38-7223	1.50
18	Compensating Condenser (Broadcast; Series).....	04000-S	.35	52	Voice Coil & Cone Assembly (KR-4).....	30-3157	.50
19	Compensating Condenser (Range 2; Series).....	04000-R	.45	53	Pilot Lamp.....	5318	.25
20	Condenser (.0007 mfd.).....	5863	.35	54	Condenser (.01 mfd.).....	Part of ④	.....
21	Condenser (.003 mfd.).....	6009	.60	55	Pilot Lamp Bracket.....	38-5633	.55
22	Condenser (.0008 mfd.).....	6051	.35	56	Battery Cable.....	41-3083	2.00
23	Resistor (5,000 ohms—Green-Black-Red).....	5310	.25	57	Tube Shield (1).....	28-1107	.10
24	Resistor (100,000 ohms—White-White-Orange).....	6099	.35	58	Tube Shield (2).....	3006	.05 ea.
25	First I. F. Transformer.....	32-1341	1.35	59	Six Prong Socket.....	7247	.11
26	Compensating Condenser (1st I. F. Pri.).....	31-4007	Inc. as	60	Four Prong Socket.....	7244	.10
27	Compensating Condenser (1st I. F. Sec.).....	part of ②	.....	61	Speaker Socket.....	4957	.10
28	Second I. F. Transformer.....	32-1342	1.35	62	Knob (Medium).....	03063	.10
29	Compensating Condenser (2nd I. F. Pri.).....	31-4007	Inc. as	63	Knob (Small).....	03064	.10
30	Compensating Condenser (2nd I. F. Sec.).....	part of ②	.....	64	Knob (Large).....	27-4025	.10
31	Condenser (35-25 mfd.) (By-pass).....	30-4150	.70	65	Dial Assembly.....	31-1163	1.25
32	3rd I. F. Transformer.....	32-1343	1.35	66	Dial Scale.....	27-5089	.50
33	Compensating Condenser (3rd I. F. Pri.).....	31-4007	Inc. as	67	Idle Shaft Assembly.....	31-1056	.25
34	Compensating Condenser (3rd I. F. Sec.).....	part of ③	.....	68	Gear (Wave-Band Switch).....	28-7012	.20
				69	Mounting Bolt.....	W-567	\$3.00 per C.
				70	Mounting Washer (Rubber).....	6189	.04
				71	Mounting Washer (Steel).....	5068	.55 per C.

MODELS 32, 34, 38-122**45****Changes****PHILCO RADIO & TELEV. CORP.****Model 32**

Starting with Run No. 4, the antenna and ground Fahnestock clip terminals will be replaced with insulated wire leads. This is done to better meet Underwriters' requirements.

Starting with Run No. 5, Model 32 will use a type 77 detector-oscillator tube instead of a type 36. This change gives more stable performance of the oscillator.

This change involves using a six-hole tube socket instead of the original five-hole socket used for type 36. It also requires making the following substitutions:

Part @, No. 6208 resistor (15,000 ohms) is replaced by 33-1114 (8000 ohms)

Part @, No. 5863 condenser (700 Mmfd) is replaced by 7007 (1400 Mmfd.)

On page 3, correct Part No. of @ Volume Control is 30-5063, instead of 30-5055.

(List price given (\$1.00) is correct.)

Model 34

Correct list price of Part @, 36-3157 voice-coil and cone-assembly, KR-6 speaker, to read 0.75

Starting with Run No. 3, Model 34 will be equipped with a 4-point tone control instead of a 2-point. The part No. of the new control is 30-4168 which replaces 30-4152.

Model 38-122

This model will use a new output transformer, Part No. 32-7286. This replaces No. 2565 formerly used.

Referring to change notice of July 1st regarding ballast tube shunt resistor on Model 38-122, the correct part number of the 20 ohm resistor used will be 33-3043 instead of 33-3160.

A new ballast tube shunt resistor will be used in production effective this date. This will be part No. 33-3160, 20 ohms, instead of part No. 7155, 30 ohms. This gives a slight (desirable) increase in filament voltage.

Model 45

Starting with Run No. 5, the cathode resistor on 6A7 tube, Part No. @ on diagram will be changed from Part No. 6977 (500 ohms) to 33-3016 (400 ohms). This is to prevent variation in output of sets due to variation in 6A7 tubes.

Starting with Run No. 6, electrolytic condenser @ and @ (Part No. 30-2028) is replaced by No. 30-2079, same capacity but higher voltage rating.

Starting with Run No. 8, electrolytic condenser @ (see Service Bulletin 191) will be changed from part No. 30-2020 to 30-2026. Same capacity (6 mfd.), higher voltage rating.

Both Codes 121 and 122 on this model will now use bypass condenser 3615-W for part @. This change was made to simplify assembly on this model and does not affect performance.

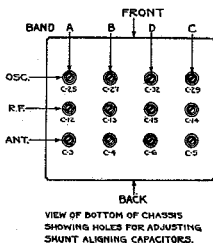
Models 45 & 29

Effective July 1st, mica condenser @ on wiring diagram of Model 29 was changed from Part No. 7301 to 30-1028. No change in capacity; change to facilitate wiring only.

Effective July 1st, a new wave-trap will be used in this model. Part ① on wiring diagram of Model 29 is changed from Part No. 38-5199 to 38-5995. The new wave trap uses an improved construction which facilitates production.

Stromberg-Carlson 68, 68-X

Since Volume V of Rider's Manual has gone to press, we have learned of the production of what is known as the Stromberg-Carlson 68-X. Basically, this receiver is the same as the model 68, which is shown in Rider's Volume V, pages 5-5 to 5-10, inclusive. However, the X models, which can be identified by an "X" following the serial number, incorporate certain changes. First, the secondary winding of the oscillator band A transformer contains a .00045-mfd. fixed condenser in shunt with the series trimmer, or in shunt with C-26.



Second, a 10,000-ohm fixed resistor is inserted into the common lead joining the band B and band C secondary windings in the r-f. tube grid circuit. Third, a fixed condenser has been added between the common lead connecting the band A and band B secondaries of the r-f. input transformer, and ground. Fourth, the fixed condenser C-24, located between the common lead joining all of the oscillator primary windings and ground has been changed from .1 mfd. to .05 mfd. The location of the twelve shunt aligning capacitors is shown in the accompanying illustration. The numbers correspond to the designating numbers shown upon the schematic and selector chassis wiring.

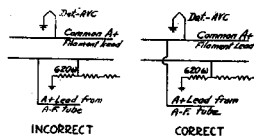
Sears-Roebuck 1857

A unique form of volume control is used in this receiver and we feel that it deserves mention. The schematic is shown upon pages 5-47 in the various issues of Rider's Manual Volume V. The output i-f. transformer is equipped with variable coupling between the primary and secondary windings. The variation in signal transfer between these two windings, as a consequence of the change in coupling, is the volume control. Incidentally, the i-f. coupling unit, employed between the i-f. amplifier tube and the demodulator or second detector, is resistance-capacity coupling. Only the input and output i-f. coupling units are of the transformer variety.

Certain instructions pertaining to the increase of "high" audio response has been furnished by the manufacturer. Connect a 15-mmf. condenser between the plate terminal of the input i-f. transformer primary and the grid terminal of the input i-f. transformer secondary. This condenser can be mounted inside the i-f. transformer shield can, atop of the Isolantite base. It will be necessary to re-peak the i-f. transformer at 175 kc.

Sentinel Model 7700, 7732, 7735, 7741

An error is acknowledged in the schematic of this receiver as shown upon page Sentinel 5-35 in Rider's Manual. The A plus lead is connected to the grid circuit instead of to the common filament lead. The diagram as shown and as correct appears below.



Correction in filament circuit of Sentinel 7700, 7732, etc.

Philco Model 16 [Codes 126, 127]

Starting January 10th the Shadowmeter shunt resistor, number 78, was changed from part No. 5310, which has a value of 5000 ohms, to part No. 7775, which has a value of 2500 ohms. This prevents the shadow from becoming too wide. Please note that this change will not be made in the model of 16 Code 125 receivers. However, it will be made in Model 500, Code 122 and Model 501, Code 122.

Philco Model 34

Starting with run No. 4, an r-f. choke, part No. 32-1514 is added, connected in the 135-volt B battery lead, between the points where diagram parts No. 37 and 45 join it. This prevents oscillation in the i-f. stage. For schematic see Rider's Volume V, Philco page 5-21.

Philco Model 144

Starting with run No. 3, the following change was made to improve stability:

The 0.25-mf. section of diagram part No. 26 bypass, which has been used as cathode bypass on the 6A7 tube, is now used as cathode bypass on the first 78 i-f. tube. A 0.25-mf. tubular condenser part (part No. 30-4146) is added, as bypass for the 6A7 cathode.

The cathode bypass on the 78 first i-f. tube previous to this change was a 0.5-mf. tubular condenser (in Code 125); in code 121 it was a section of the diagram part No. 26 bypass block, as shown in the schematic on page Philco 5-41 in Rider's Volume V.

These changes also apply to Model 506, code 122, Radio Phonograph.

A change was also made in the shadowmeter circuit to improve its operation. Referring to the schematic, the upper end of the shadowmeter is no longer connected to the diagram part No. 65 resistor, but only to diagram part No. 33 second i-f. transformer primary and also to the primary of diagram part No. 28 first i-f. transformer. The lead from diagram part No. 52 now goes to lower end of shadowmeter only. A connection must then be made from the lower end of resistor No. 65 to the junction of diagram parts No. 52, 46 resistor and 42 condenser, to complete the circuit.

The shadowmeter used will now be part No. 45-2028 and an 8000-ohm resistor (part No. 33-1114) will be connected across it to prevent too wide a shadow.

Detrola "Roadmaster"

The i-f. peak of this receiver, shown on page Detrola 5-2 in Rider's Manual, Volume V, is 456 kc. Please make this addition to your manuals.

Sparton Model 35

The i-f. peak of this receiver is 172.5 kc. Please make a note of this on the schematic diagram, which will be found on page 3-5 of Rider's Volume III, and on page 2245 of the Radiotron-Complete edition.

Sparton Model 36

To protect the life of the vibrator in the Sparton model 36 auto radio receiver, add a 0.01 mfd condenser, rated at 1,600 volts, across the secondary winding of the power transformer in the eliminator unit.

Oscillation in Sparton 65, 66

In case the metal braid shielding on the control-grid lead to either of the type 78 tubes becomes pushed down on the leads, these receivers may oscillate or otherwise operate improperly. This shielding may be pushed down accidentally when removing or installing the tube packing or changing tubes. Therefore, always pull these shields up to their full length in case of oscillation in these models. Sparton models 65 and 66 are shown upon Sparton page 5-7, 5-8, and 5-9 in Rider's Volume V.