

Firestone Tire & Rubber Co.

Model: 4-C-3

Chassis:

Year: Pre 1950

Power:

Circuit:

IF:

Tubes:

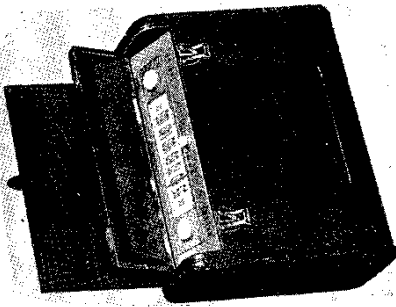
Bands:

Resources

Riders Volume 19 - FIRESTONE 19-38

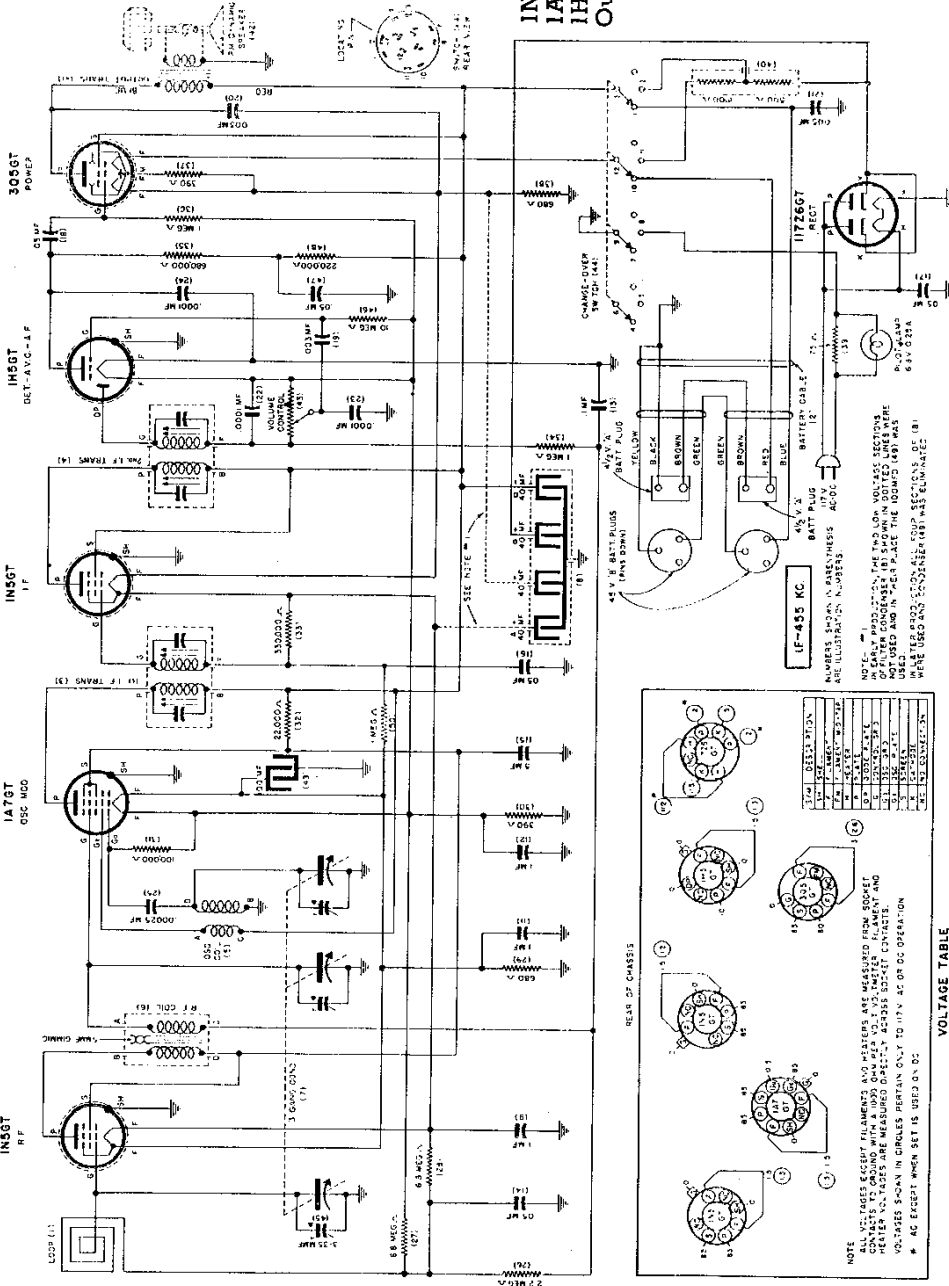
Riders Volume 19 - FIRESTONE 19-39

Riders Volume 19 - FIRESTONE 19-40



TUBE COMPLEMENT

1N5GT R.F., 1N5GT I.F.,
1A7GT Oscillator Modulator,
1H5GT Det., AVC, 3Q5GT Power
Output, 117Z6GT Rectifier.

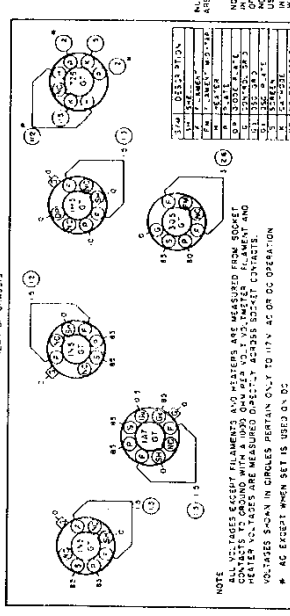


POWER SUPPLY BATTERIES
110-120 Volt AC-DC & Battery
Two 4½ Volt "A" Firestone Type 4-D-86
Two 45 Volt "B" Firestone Type 4-D-85
1620 to 530 K. C.
455 K. C.

TUNING RANGE
Intermediate Freq

POWER OUTPUT
5 Inch P. M.
3.2 Ohms at 400 Cycles
Undistorted — .25 Watts
Maximum — .4 Watts

LOUD SPEAKER
VOICE COIL IMPEDANCE
POWER OUTPUT

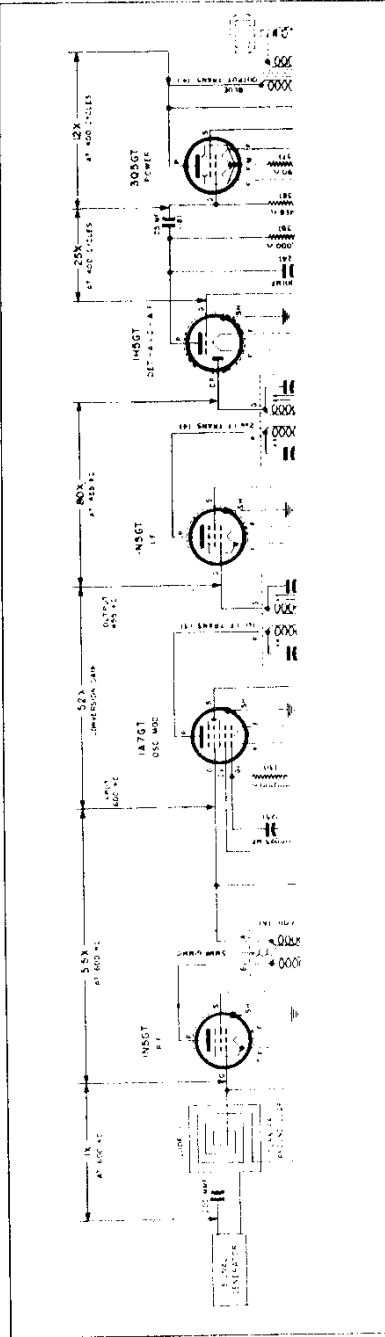


VOLTAGE TABLE
(BOTTOM VIEW OF CHASSIS)

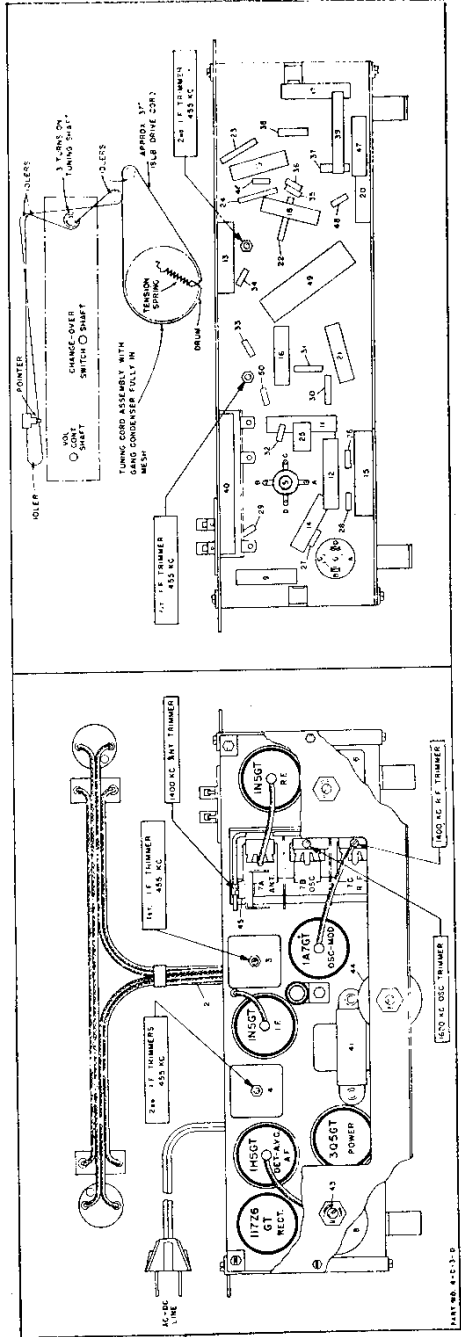
POINT	VOLTAGE
1	0
2	0
3	0
4	0
5	0
6	0
7	0
8	0
9	0
10	0
11	0
12	0
13	0
14	0
15	0
16	0
17	0
18	0
19	0
20	0
21	0
22	0
23	0
24	0
25	0
26	0
27	0
28	0
29	0
30	0
31	0
32	0
33	0
34	0
35	0
36	0
37	0
38	0
39	0
40	0
41	0
42	0
43	0
44	0
45	0
46	0
47	0
48	0
49	0
50	0
51	0
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78	0
79	0
80	0
81	0
82	0
83	0
84	0
85	0
86	0
87	0
88	0
89	0
90	0
91	0
92	0
93	0
94	0
95	0
96	0
97	0
98	0
99	0
100	0

Be sure R.F. and I.F. stages are accurately aligned before measuring gain. R.F. gains can be measured with a "channel" type instrument containing a tuned and calibrated R.F. amplifier. A vacuum tube voltmeter may be used for audio gain measurements. Observe following precautions:

1. For all gain measurements connect signal generator as shown. Use 600 KC. signal with 400 cycle modulation (use nearby frequency if local station interferes.)
2. Be sure radio is carefully tuned to generator maximum output at desired frequency before making measurements.
3. When using a "channel" type instrument carefully tune it for maximum output at desired frequency before making measurements.



Differences in tube characteristics, tolerance of parts, adjustment of tuned circuits, and variations of line voltage will influence stage gain. Accuracy of measurements is dependent upon careful tuning of receiver to generator signal and experience in using your test equipment. These factors may create considerable variation in gain measurements.



ALIGNMENT PROCEDURE

Be sure to follow procedure carefully and in the order given—otherwise the receiver will be insensitive and the dial calibration incorrect. For alignment procedure read tabulations from left to right. Make the adjustment marked (1) first, (2) next, (3) third, etc.

Before starting alignment:

- (a) Check tuning dial adjustment by tuning gang condenser until plates touch maximum capacity stop (completely in mesh) at which point the dial needle must be exactly even with the last line at the low frequency end of the dial calibration. If dial needle does not point exactly to last line, move to correct position.
- (b) Use an accurately calibrated test oscillator with some type of output measuring device.
- (c) **WHEN ADJUSTING 1620 KC OSCILLATOR TRIMMER AND 1400 KC R. F. TRIMMER**, remove chassis from cabinet and disconnect the white-green and white-black loop connection wires from the two Fahenstock clips mounted on rear of chassis. Attach a 1 megohm resistor across these Fahenstock clips and feed output of test oscillator across the 1 megohm resistor.
- (d) **THE 1400 KC LOOP ANTENNA TRIMMER** is accessible from the rear of the chassis when the inner back is removed. It should be adjusted only after all other adjustments have been made and with the set mounted in the cabinet, and the loop in an upright position. When aligning the 1400 KC Antenna Trimmer, couple test oscillator to receiver loop by: (1) make loop consisting of five to ten turns of No. 20 to No. 30 size wire, wound on a 2" or 3" form; (2) connect this loop across output of test oscillator; (3) place test oscillator loop near radio loop. **BE SURE THAT NEITHER LOOP MOVES WHILE ALIGNING.**

Steps	TEST OSCILLATOR			Refer to parts layout diagram for location of trimmers mentioned below:	
	Set receiver dial to:	Adjust test oscillator frequency to:	Use dummy antenna in series with output of test oscillator consisting of:		Attach output of test oscillator to
1	Any point where no interfering signal is received	Exactly 455 K. C.	0.2 Mfd. Condenser	High side to grid of 1A7GT tube, Low side to chassis (if non-Underwriter Approved) or Common Negative (if Underwriter Approved).	Adjust each of the 2nd I.F. transformer trimmer adjustment screws for maximum output, then adjust each of the 1st I.F. transformer trimmer adjustment screws for maximum output.
2	Rotate gang condenser to minimum capacity	Exactly - 1620 K. C.	See paragraph (C) above	See paragraph (C) above	Adjust 1620 Osc. Trimmer for maximum 1620 K. C. signal.
3	Rotate gang condenser to 1400 K.C.	Exactly 1400 K. C.			Adjust 1400 K.C. R.F. Trimmer for maximum output.
4	Approximately 1400 K. C.	Approx. 1400 K. C.	See paragraph (D) above	See paragraph (D) above	Adjust 1400 K.C. antenna trimmer for maximum output.

PARTS LIST

Ill. No.	Part No.	Part Name	Description	Ill. No.	Part No.	Part Name	Description
1	20E120-1	Antenna	Cabinet Door Assembly Complete with Hinges & Door Stop	24	23E299	Condenser	Mica, .0001 Mfd.
2	20E118	Cable	Battery Cable with "A" & "B" Plugs	25	23E242	Condenser	Mica, .00025 Mfd.
3	20E53	Coil	1st I.F. Transformer	26	27E225	Resistor	Carbon, 2.2 Megohm, 1/3 W.
4	20E254	Coil	2nd I.F. Transformer	27	27E685	Resistor	Carbon, 6.8 Megohm, 1/3 W.
*5	20E237	Coil	Oscillator (use with 24E7A Cond.)	28	27E685	Resistor	Carbon, 6.8 Megohm, 1/3 W.
	OR			29	27E681	Resistor	Carbon, 680 Ohm, 1/3 W.
*5	20E248	Coil	Oscillator (use with 24E7B Cond.)	30	27E391	Resistor	Carbon, 390 Ohm, 1/3 W.
6	20E48	Coil	R. F.	31	27E104	Resistor	Carbon, 100,000 Ohm, 1/3 W.
*7	24E7A	Condenser	Tuning, 3 Gang (use with 20E237 Osc. Coil).	32	27E223	Resistor	Carbon, 330,000 Ohm, 1/3 W.
	OR			33	27E334	Resistor	Carbon, 330,000 Ohm, 1/3 W.
*7	24E7B	Condenser	Tuning, 3 Gang (use with 20E248 Osc. Coil).	34	27E105	Resistor	Carbon, 1 Megohm, 1/3 W.
8	25E111	Condenser	Tubular, Dry Elect. (40-40 Mfd., 25 V.)	35	27E684	Resistor	Carbon, 680,000 Ohm, 1/3 W.
9	23E218	Condenser	Tubular, .1 Mfd. 200 V.	36	27E105	Resistor	Carbon, 1 Megohm, 1/3 W.
10	23E218	Condenser	Tubular, .1 Mfd. 200 V.	37	27E391	Resistor	Carbon, 390 Ohm, 1/3 W.
11	23E218	Condenser	Tubular, .1 Mfd. 200 V.	38	27E681	Resistor	Carbon, 680 Ohm, 1/3 W.
12	23E218	Condenser	Tubular, .1 Mfd. 200 V.	39	27E1001	Resistor	Flexible Wire Wound, 75 Ohm, 2 W.
13	23E218	Condenser	Tubular, .1 Mfd. 200 V.	40	27E1000	Resistor	Wire Wound 500 & 1900 Ohms.
14	23E216	Condenser	Tubular, .05 Mfd. 200 V.	41	22E115	Transformer	Output
15	23E224	Condenser	Tubular, .5 Mfd. 200 V.	42	1E18	Speaker	5" P.M. Dynamic
16	23E216	Condenser	Tubular, .05 Mfd. 200 V.	43	28E113	Volume Control	500,000 Ohms
17	23E416	Condenser	Tubular, .05 Mfd. 400 V.	44	29E10	Switch	4 Pole 3 Pos.
18	23E216	Condenser	Tubular, .05 Mfd. 200 V.	45	24E21	Condenser	Trimmer 3-35 Mmf.
19	23E406	Condenser	Tubular, .003 Mfd. 400 V.	46	27E106	Resistor	Carbon, 10 Megohm, 1/3 W.
20	23E406	Condenser	Tubular, .003 Mfd. 400 V.	47	23E216	Condenser	Tubular, .05 Mfd. 200 V.
21	23E408	Condenser	Tubular, .005 Mfd. 400 V.	48	27E224	Resistor	Carbon, 220,000 Ohm, 1/3 W.
22	23E39	Condenser	Mica, .0001 Mfd.	*49	25E19	Condenser	Tubular, Dry Elect. 100 Mfd. 25 V.
23	23E39	Condenser	Mica, .0001 Mfd.	50	27E105	Resistor	Carbon, 1 Megohm, 1/3 W.

MISCELLANEOUS PARTS

Part No.	Part Name	Description	Part No.	Part Name	Description
17E3-2	"A" Battery Plug	2 Prong "A" Battery Plug	10E43	Dial Scale Fastener	Trimount Stud for fastening Scale
17E3-5	"B" Battery Plug	3 Prong "B" Battery Plug	35E20-1	Dial Pointer	Dial Indicator
7E65	Cabinet	Cabinet less Loop Door & Inner Barrier	65E2	Dial Spring	Tension Spring for Drive Cord
4E1	Cord	6 Ft. Rubber Line Cord	37E1-1	Knob	1-1/8" Dia. for Tuning & Volume Control
20E121	Door Stop Assembly	Stop for Door & Loop Assembly	37E2-1	Knob	3/4" Dia. for Changeover Switch
5E17	Dial Plate Assembly	Dial Back Plate Assembly less Dial Scale	55E18	Hinge	Hinge for Cabinet Door & Loop Assembly
5E16	Dial Front Plate	Metal Control Plate for Cabinet, less Crystal	17E17	Pilot Lamp Socket Assembly	Pilot Lamp Socket Assembly less Lamp
9E6	Dial Crystal	Crystal for Front Plate	40E2	Pilot Lamp	6-3 volt .250 amp. Type
36E22	Dial Scale	Calibrated Scale	69E72F47	Rivet	No. 44 Lamp
4E1	Dial Cord	18 lb. Dial Drive Cord	69E92F47	Rivet	For Hinge
68E10	Dial Shaft	Complete Shaft Assm.			For Door Stop

**NOTE No. 1: In early production, the two low voltage sections of filter condenser, Illus. No. 8, Part 25E11, shown in dotted lines on circuit diagram, were not used and in their place the 100 Mfd., Illus. No. 49, Part 25E19 was used.

In later production all four sections of Illus. No. 8, Part 25E11, were used and condenser, Illus. No. 49, Part 25E19, was eliminated.

*NOTE No. 2: CHASSIS MARKED WITH LETTER "A" adjacent to serial number use Part 24E7A Gang Condenser and Part 20E237 Oscillator Coil.

THESE GANG CONDENSERS AND OSCILLATOR COILS ARE NOT INTERCHANGEABLE.

DO NOT use Part 24E7A Gang Condenser with Part 20E248 Osc. Coil, or Part 24E7B Gang Condenser with Part 20E237 Osc. Coil.