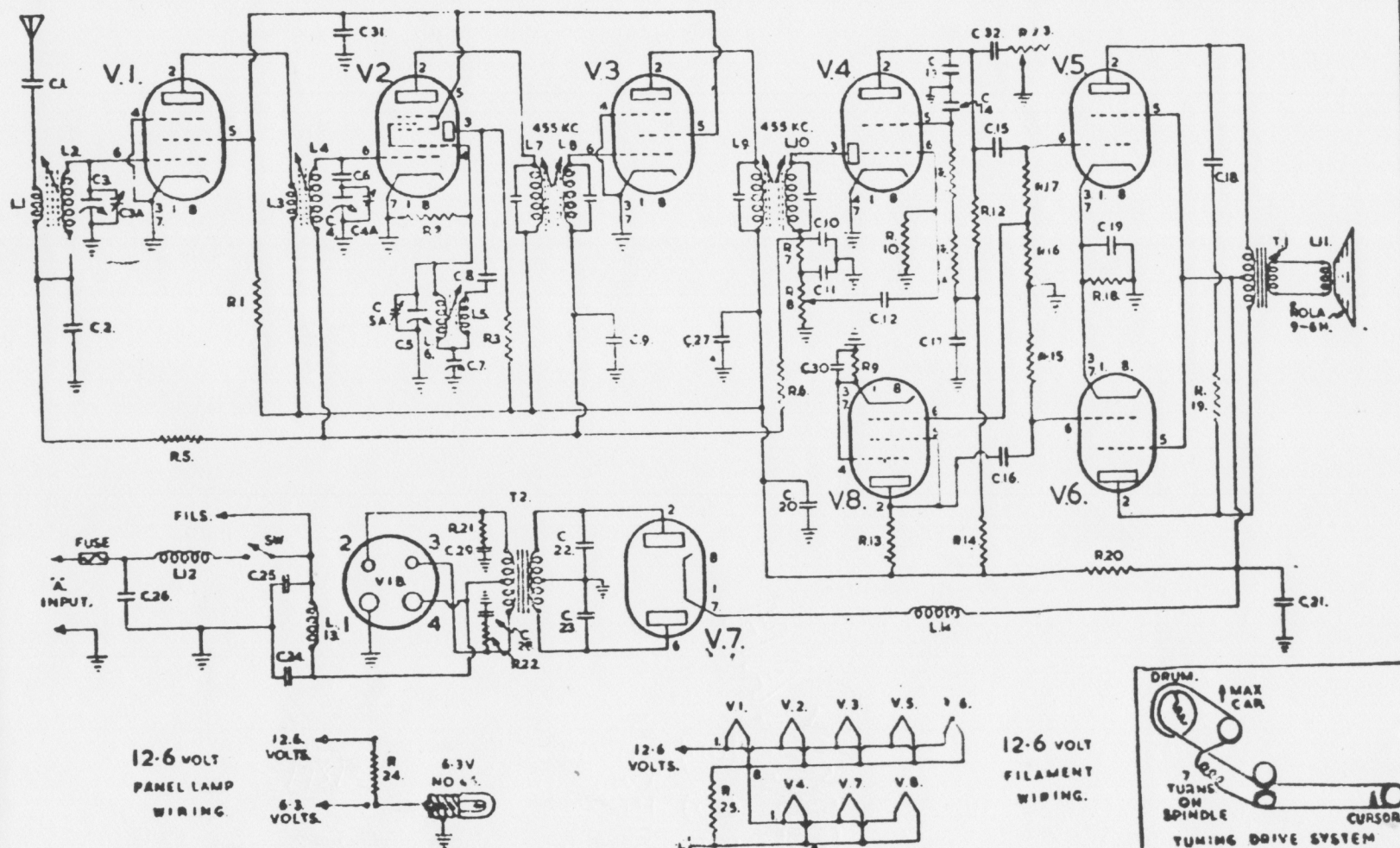


WESTCO PRODUCTS LTD			
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WESTCO PRODUCTS LTD.

MODEL 202 8 VALVE AUTO RADIO 6 AND 12 VOLT.

TECHNICAL NOTES.

The Westco Model 202 is an 8 valve (including rectifier) single band superheterodyne receiver designed to operate from either a 6 or 12 volt battery supply, provided the correct power supply system is used in each case.

Circuit Description:-

Aerial input via coupling coil L1 to single tuned circuit L2C3. First valve (V1 EF41) is a variable mu R.F. pentode operating as an R.F. amplifier. H.T. for V1 plate is fed through L3. V2 (ECH41) is a triode hexode frequency changer. The grid circuit is tuned by L4C4. Oscillator grid coil L6 is tuned by C5, series tracking by C7 600 pfd. The third valve is (V3 EF41) an R.F. variable mu pentode operating as an intermediate frequency amplifier with tuned transformer couplings L7, L8, L9, L10. The transformers are midget Philips type 5731/52 and are tuned to an INTERMEDIATE FREQUENCY OF 455 KCS. Diode signal detector is part of diode pentode valve V4 EAF41. Audio frequency component in rectified output is developed across volume control R8 which is diode load, and is passed through C12 to grid of pentode section. The D.C. potential developed across R7 R8 is fed back as bias to RF, F.C. and I.F. valves as A.V.C. Resistance capacity coupling between V4 and V5 output valve EL42 is by R12, C15, R16, R17. A small audio voltage is taken off R16 to grid of V8 (EF42, A.F. pentode) connected as triode, to provide balanced phase inversion for grid of V6 (EL42 output valve). The two EL42 valves which operate in a push pull circuit, are coupled to a Rola 9 - 6H inverted 9" x 6" elliptical speaker by push pull output transformer T1.

H.T. current is supplied by full wave rectifier V7 (EZ41) fed from T2. Smoothing is by R20 and C20 and C21. Interference occurring in the "A" line and vibrator circuits is suitably suppressed by inductors and capacitors in these circuits. Valve heaters are wired in a series parallel circuit for 12 volt operation and in parallel for 6 volt operation. The panel lamp is provided with a series resistor on 12 volts.

General Notes:-

- Controls: The controls provided on the front panel are volume - control and on-off switch, tuning, and tone control.
- Dial Lamp: One dial lamp is provided on both the 6 and 12 volt models. This is a 6.3v .25A. screw base No.46.
- Speaker: The speaker is connected to the receiver chassis by means of a suitably terminated reversible flexible lead, which may be cut to any length required.
- Aerial: A suitable bayonet socket is provided for connecting to the shielded aerial lead. Aerial compensation at 600 KC is carried out by adjusting the inductance of L2, which is accessible through the hole in the receiver chassis marked 600 KC.
- Voltage: The 6 or 12 volts required to operate the set is supplied through the fused lead which is connected to the car battery. The set will operate equally well on either positive or negative grounded systems. The fuse has a 10 amp rating.
- Dial Cord replacement: The dial drive is obtained through a single cord which drives both drum and cursor. The length is approx. 3 feet of fine gauge nylon braided glass yarn. The course taken by the cord is shown in the sketch.

MODEL 202 8 VALVE AUTO - RADIO.

P A R T S L I S T .

<u>ITEM NO.</u>	<u>NO. PER SET.</u>	<u>DESCRIPTION.</u>
1	46	No. 6 x 3/8" R.H. P.K. self tapping screws
2	4	5/40" x 3/4" bolts R.H.
3	6	5/40 x 1" bolts R.H.
4	10	5/40 x 1/4" Hex nuts.
5	2	Spire nut SNU 0531 1/4"
6	4	3/8" x 5/32" hole washers
7	9	No.6 x 1/4" B.H. P.K. screws
8	1	1/4" x 1" Hex mounting bolts.
9	1	1/4" x 1/2" Hex mounting bolts.
10	6	No. 6BA lockwashers
11	6	1/4" x 9/64" flat washers
12	4	1/2" x 9/64" brass pulleys
13	2	5/40 x 3/16" spacers
14	2	5/32" grub screws
15	2	spade bolts Part No.10.
16	3	6/32" x 3/16" C.H screws
17	24	1/8" x 1/8" brass rivets
18	4	1/2" x 9/64" washers
19	2	5/32 x 1/8" rivets
20	2	9/32" x 9/64" washers
21	4 feet	3 core power flex.
22	2	S3S plugs
23	2	S3S sockets
24	2	S3S retaining rings
25	1	9" x 6" car seating grille
26	2	EF41 valves
27	1	ECH41 valves
28	1	EA41 valves
29	2	EL 42 valves.
30	1	EF 42 valve
31	1	EZ 41 valve
32	1	Rola 9 - 6H P.M. speaker
33	1	100K potentiometer no switch
34	1	500K potentiometer with switch
35	2	lockwashers for pots
36	2	locknuts for pots.
37	3	Dial knobs
38	3	Felt washers
39	1	Plastic Dial front
40	2	Circlips
41	1	Dial spring
42	3 feet	Nylon glassyarn dial cord.
43	1	panel lamp holder
44	1	6.3 volt No.46 panel lamp.
45	4	Type C lug strip
46	2	Type D lug strip
47	4	Double tie lug strips
48	1	Double tie type A less middle lug.
49	2	No. 1 connector
50	1	No. 2 connector with flange
51	1	No. 3 connector
52	1	10 amp. fuse
53	2	1/4" grommets
54	1	1/4" grommet
55	1	Dial back with pulleys
56	1	Dial scale
57	1	5/1000 prespalm 8" x 1" chassis ins.strip
58	4	Gang mounting grommets large
59	1	Polar 3 gang condenser
60	1	600 pfd padder and nut.
61	2	.002 pfd 1.5% condenser.
62	1	40-40-20 mfd condenser 350 v.d.
63	2	.01 mfd 1600v. buffer condenser.
64	2	.5 mfd 200v braided lead.cond.
65	2	.05 mfd. 500 v. condensers.
66	1	.006 mfd 500v condenser

Valve Analysis:- The valve voltages and currents given in the following table were measured with a 1000 ohms per volt meter. Volume control was set at maximum and there was no signal input. Chassis was negative connection. The approx. "A" drain on 12.6 volts is 3A and on 6.3 volts isA

VALVE	PLATE	SCREEN	CATHODE
V1 EF41	200	65	0
V2 ECH41	200	65	0
V3 EF41	200	65	0
V4 EAF41	25	17	0
V5 EL42	235	240	12.5
V6 EL42	235	240	12.5
V8 EF42	105	-	1.6
V7 EZ41	330A.C.	-	245

TOTAL H. T. CURRENT 50 M.A.

Circuit alignment.

APPLY SIGNAL	TUNE SET TO	TRIM IN ORDER STATED FOR MAX OUT PUT
455 KC to G1 of V2 THRU .01		L10, L9, L8, L7 40wv approx for 500 MW ACROSS L11

1.4 MC to ANT Via Dummy ant.	1.4 mc.	C5A C4A C3A
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600KC as above

600KC

CHECK CALIBRATION AND SENSITIVITY.

Components and Valves:

Capacitors	Valves.
C1 Ant isolator	.006
C2 Series padder	.002 plus/minus 10%
C3 Ant. tuning)
C3A Ant. trimmer)
C4 R.F. tuning) 3 GANG POLAR.
C4A R.F. trimmer)
C5 osc. tuning)
C5A osc. trimmer)
C6 series padder	.002 plus/minus 10%
C7 series padder	600 pfd.
C8 osc coupling	50 pfd
C9 A.V.C. Bypass	.02
C10 I.F. bypass	.0001
C11 I.F. bypass	.0001
C12 A.F. coupling	.01
C13 I.F. Bypass	.0001
C14 Screen bypass	.05
C15 A.F. coupling	.01
C16 A.F. coupling	.01
C17 A.F. bypass	.25
C18 tone corrector	.01
C19) Cath bypass.	20
C20) H.T. smoothing	40
C21) H.T. smoothing	40
C22 Buffer cond.	.01
C23 Buffer cond.	.01
C24 R.F. bypass	.5
C25 R.F. bypass	.5
C26 Spark plate	--
C27 R.F. bypass	.1
C28 R.F. bypass	.05
C29 R.F. bypass	.05

C30	Cath. bypass	.05
c31	Screen bypass	.05
C32	Tone control	.002

RESISTORS

VALUES.

R1	H.T. screen feed	39K
R2	Osc. cont. grid	47K
R3	Osc. plate H.T.	47K
R4	A.V.C. decoupling	220K
R5	A.V.C. decoupling	220K
R6	A.V.C. decoupling	1 Meg.
R7	I.F. isolator	47K
R8	Vol. control	500K
R9	Cath bias	2000
R10	Cont. grid	4.7
R11.)	Audio p a reen H.T.	1 meg
R11A)		each
R12	Audio plate H.T.	470K
R13	Inverter H.T.	100K
R14	H.T. decoupling	47K
R15	Cont. grid	470K
R16	Cont. grid	22K
R17	Cont grid	470K
R18	Cath bias	330 ohm
R19	Tone correction	27K
R20	H.T. smoothing	2.5K
R21	R.F. suppressor	47 ohm
R22	R.F. suppressor	47 ohm
R23	Tone control	100 K
R24)	12.6 volt Series resistor	25 ohm
R25)	only Shunt resistor.	60 ohm

SUNDRIES.

APPROX. VALUES.

L1	Ant primary	.5 ohm
L2	Ant sec.	3.5 ohms
L3	R.F. prim.	3.0 ohms
L4	R.F. sec.	3.5 ohms
L5	Osc. prim.	.5 ohm.
L6	Osc. sec.	3.5 ohms
L7	I.F. prim	11 ohms
L8	I.F. sec	11 ohms
L9	I.F. prim	11 ohms
L10	I.F. sec.	11 ohms
L11	Speech coil	3.0 ohms
L12	R.F.C.	Very low
L13	R.F.C.	Very low
L14	R.F.C.	Very low
T1	output trans prim	550 ohms C.T.
	sec.	Very low
T2	Vib trans prim	Very low.
	sec.	600 Ohms C.T.

WESTCO PRODUCTS LTD.

THE WESTCO MODEL 202

8 VALVE AUTO RADIO.

The Westco Model 202 is an 8 valve superheterodyne radio designed for use on 6 and 12 volts. (2 models). It is suitable for under dash mounting in any automobile. Employing the latest type of Rimlock valves, the receiver is supplied in two units. The R.F. audio and power supply is contained in one unit, and the speaker in the second unit. The two units are interconnected by means of a simple and safe reversible three lead cable. The speaker used is a Rola P.M. with a 9" x 6" inverted elliptical cone, which possesses pleasing tone and ample volume handling capabilities. The set features automatic volume control, and tuning is carried out on an illuminated slide rule dial. An efficient noise suppressor is built in to prevent interference from the ignition system.

Specifications are:-

Valves and Type.	R.F. EF41, Frequency changer ECH41, I.F. EF41, 2nd Det-audio EAF41, Phase inverter EF42, push pull 2 x EL42, rectifier EZ41.
Power output:-	5.5 watts.
Tuning range:-	540 - 1550 KCS.
Intermediate Freq:-	455 KCS
Speaker:-	Rola 6-9H. Elliptical 9" x 6" P.M.
Power Consumption:-	3A - 12 volts - 6 volts
Controls:-	Volume and on-off switch Station Selector Variable tone control.
Size:-	Chassis 4 $\frac{3}{4}$ " high x 8 $\frac{3}{4}$ " wide x 11 $\frac{1}{2}$ " deep Speaker 2 $\frac{3}{4}$ " high 7" wide x 9 $\frac{3}{4}$ " deep.

Further information:-

External connections:-

- (1) Battery lead. A lead from the receiver carries a 10 amp fuse and is connected to the positive (some autos negative) "A" battery supply, at a suitable point.
- (2) Aerial lead. A three foot shielded aerial lead is provided, this connects to the external aerial.
- (3) Speaker connection: The lead carrying the two three pin plugs is used to connect the receiver to the speaker. It is reversible.

Accessories:- The parts necessary for mounting the receiver are supplied with each unit.

Installation:- The set is mounted in any suitable position under the auto dash panel and the speaker box suitably located. The battery, aerial, and speaker are then connected up. Although the receiver comes perfectly tuned, an aerial compensating adjustment is provided to allow for varying conditions of installation. With the set connected to the auto aerial, rotate the dial to approx. 600 Kcs. and with the volume control set at about three fourths maximum adjust the compensator to the maximum signal response. This adjustment can be carried out through the hole marked 600 Kc in the receiver cabinet.

All adjustments to this receiver should be carried out by a qualified radio technician.