A16.

MODEL BNP

6 VALVE SUPERHETERODYNE 5 BAND PORTABLE RECEIVER

POWER OUTPUT:

250 Milliwatts - max.
100 Milliwatts - undistorted.

INTERMEDIATE FREQUENCY: 455 Kc/s.

FOR OPERATION FROM:

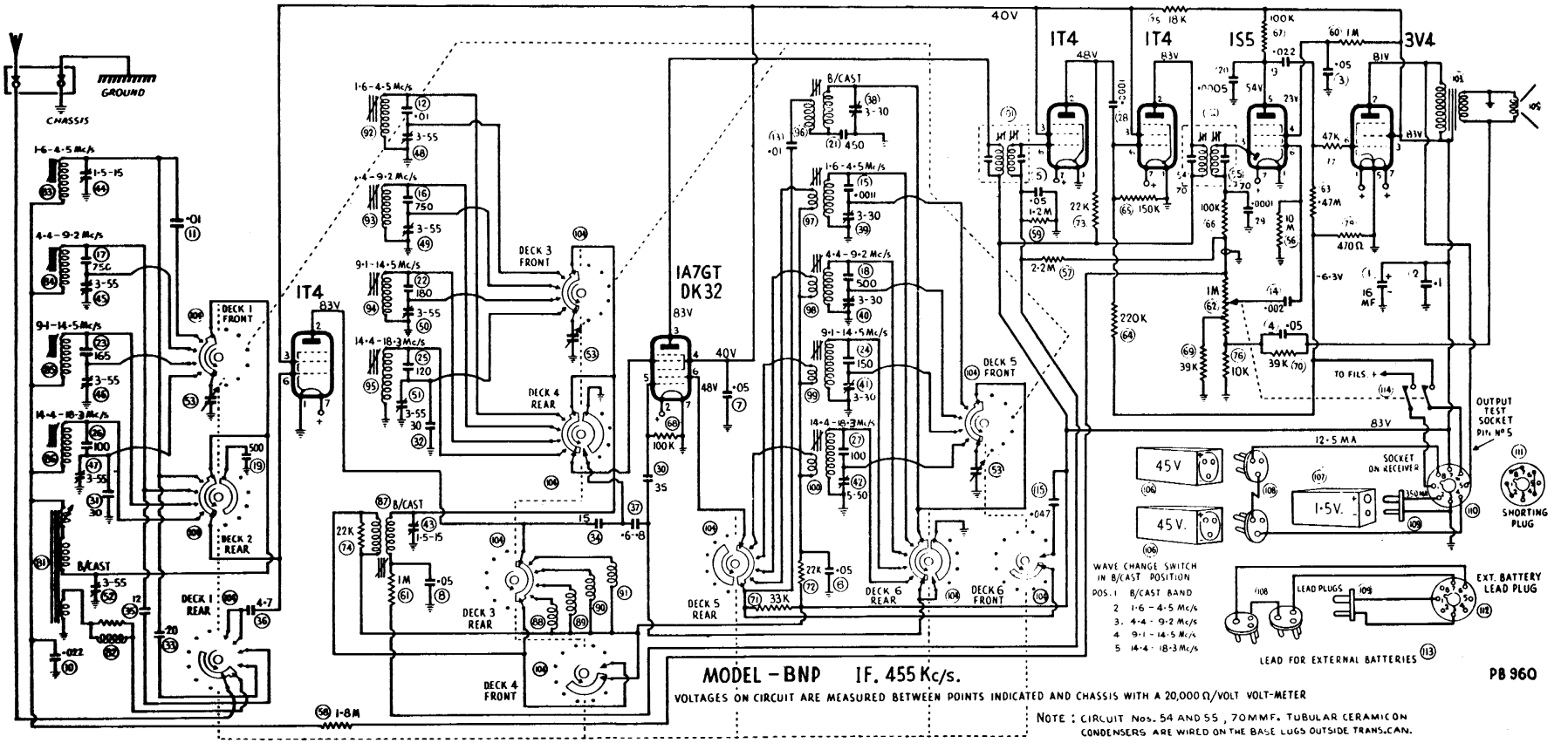
1.5 Volts "A" Battery
and
90 Volts "B" Battery (two 45 volt "B" Batteries in series)

TUNING RANGES:

Broadcast Band:-	535 - 1610 Kc/s.	560.7 - 186.3 Metres.	
Shortwave Tuning Ranges	1.6-4.5 Mc/s.	187.5-66.66	Metres
	4.4-9.2 Mc/s.	68.18-32.60	Metres
	9.1-14.5 Mc/s.	32.96-20.68	Metres
	14.4-18.3 Mc/s.	20.83-16.39	Metres

CURRENT CONSUMPTION:

"A" Battery 350 milliamps.
"B" Battery 12.5 milliamps (no signal)



MODEL - BNP IF. 455 Kc/s.

VOLTAGES ON CIRCUIT ARE MEASURED BETWEEN POINTS INDICATED AND CHASSIS WITH A 20,000 Ω/VOLT VOLT-METER

NOTE : CIRCUIT Nos. 54 AND 55 , 70MMF. TUBULAR CERAMICON CONDENSERS ARE WIRED ON THE BASE LUGS OUTSIDE TRANS.CAN.

PB 960

ALIGNMENT INSTRUCTIONS.

EQUIPMENT:

Signal generator:		Load Impedance:	10,000 Ohms
Output Meter:	:	Output Level :	25 milliwatts
Alignment tools :	Part No. M195 & PM581	"A" Battery :	1.5 volts
Mica capacitor :	0.01 MF for IF. trans alignment	"B" Battery :	90 volts
Dummy Antenna :	400 ohm non-inductive resistor	Volume Control:	max. volume (fully clockwise)
Alignment Template:	Part No. PB832	Intermed. Freq:	455 Kc/s.

ALIGNMENT CONDITIONS:

TO REMOVE CHASSIS FROM CABINET.

Pull push-on type tuning knob straight up off tuning spindle. Pull push-on type volume - on/off small knob straight up off vol. control spindle. With the aid of a spike release the spring clip fastening inside of wave change switch knob to volume control shaft.
Remove cabinet base by unscrewing the screws around the base of the cabinet. Remove cardboard battery packers and then the batteries. From the top of the cabinet, unscrew the screws fastening the dial.
Remove four screws fastening plastic legend plate to cabinet, then from top of cabinet unscrew and remove four countersunk screws which fasten chassis to cabinet.
The chassis will now slide out of the cabinet.

Re-fitting the chassis to the cabinet is the exact reverse procedure to removing it.

IF. TRANSFORMER ALIGNMENT:

Oper. No.	Generator Connection	Generator Frequency	Dummy Antenna	Instructions
1.	Fasten the dial reading off the cabinet on to the cardboard alignment template PB832 with $\frac{3}{8}$" x $\frac{1}{8}$" screws and nuts, then fit alignment template in position on top of chassis with the four screws which fasten the chassis to the cabinet. Fit control knobs on to control spindles.			
2.	To signal grid of 1T4 IF. valve (pin No.6)	455 Kc/s.	.01 MF mica capacitor in series with generator	Turn wave change switch to b/cast band position. Leave grid wire attached to valve socket. Peak 2nd IFT Pri. and sec. for max. output.
3.	To signal grid of 1A7GT valve	455 Kc/s.	.01 MF mica capacitor in series with generator	Turn cond. gang plates fully out of mesh. Leave grid wire attached to valve. Peak 1st IFT pri. and sec. for max. output.
4.	Repeat operations Nos. 2 and 3.			

DIAL POINTER SETTING.

Fully mesh condenser gang plates and set centre of dial pointer on centre of end of travel mark on dial reading near 540 Kc/s.

BROADCAST BAND ALIGNMENT

Oper. No.	Generator Connection	Generator Frequency	Instructions
1.	To inject a signal into the receiver rod aerial for alignment of the broadcast band, connect to the active terminal of the signal generator output approx. 2 ft. of aerial wire, then fashion the wire into a vertical position.		
2.	Place receiver chassis with ferrite rod aerial attached so that the receiver dial is uppermost and the ferrite rod is horizontal and nearest to the operator. Move the chassis to a position so that the fixed primary winding end of the rod aerial points to the 2 ft. of aerial wire attached to the generator output, and so that the fixed primary winding is not closer than 2 ft. from the 2 ft. of aerial wire. Place the "B" batteries in their respective positions at the ends of the chassis to provide the same amount of mass around the chassis as exists when fitted into the cabinet.		
3.	Refer. para. 1 and 2	600 Kc/s.	Turn cond. gang and dial pointer until centre of dial pointer is on 600 Kc/s. dial mark. Leave the cond. gang and dial pointer set in this position and peak the b/cast band oscl. coil inductance trim. (iron core) and the b/cast band RF. trans. ind. trim. (iron core) from the base end of the trans. also peak for max. output the sec. trimmer coil on the ferrite rod. Do not rock the cond. gang to and fro through the signal or move the dial pointer off the 600 Kc/s. dial mark until after the inductance trimmers and the rod trimmer coil have been peaked for max. output.

4.	Refer para. 1 and 2	1470 Kc/s.	Turn cond. gang and dial pointer until centre of dial pointer is on 1470 Kc/s. dial mark. Adjust b/cast band oscl. coil trim. cond. for logging and peak b/cast band RF. trans and ferrite rod trim. conds. for max. output.
5.	Repeat operations Nos 3 and 4.		

SHORT-WAVE BAND ALIGNMENT 1.6-4.5 Mc/s.

(This band is to be aligned before the higher frequency shortwave bands)

Oper. No.	Generator Connection	Generator Frequency	Dummy Antenna	Instructions
1.	To receiver external aerial & earth sockets	1.7 Mc/s.	400 ohm non-inductive resistor	Turn wave change switch to 1.6-4.5 Mc/s. band position. Turn cond. gang and dial pointer until centre of dial pointer is on 1.7 Mc/s. mark on dial. Leave the cond.gang and dial pointer set in this position and peak 1.6-4.5 Mc/s. band oscl. coil ind. trim. (iron core) and the 1.6-4.5 Mc/s. band antenna and RF. trans. ind. trim. (iron cores) for max. output.
2.	To receiver external aerial & earth sockets	4.2 Mc/s.	400 ohm non-inductive resistor	Turn cond. gang and dial pointer until centre of, dial pointer is on 4.2 Mc/s. dial mark. Adjust 1.6-4.5 Mc/s. band oscl. coil trim. cond. for logging, then peak 1.6-4.5 Mc/s. band antenna and RF. trans. trim. cond. for max. output.
3.	To receiver external aerial & earth sockets	1.7 Mc/s.	400 ohm non-inductive resistor	Turn cond. gang and dial pointer until centre of dial pointer is on 1.7 Mc/s. mark on dial. Leave the cond. gang and dial pointer set in this position. Repeak 1.6-4.5 Mc/s. band oscl. coil ind. trim. (iron core) then peak the 1.6-4.5 Mc/s. band antenna and RF. trans. ind. trim. (iron cores) for max. output. Do not rock the cond. gang to & fro through the signal or move the dial pointer off the 1.7 Mc/s. dial mark until after the ind. trim. (iron core)of the three coils has been peaked for max. output.
4.	To receiver external aerial & earth sockets	4.2 Mc/s.	400 Ohm non-inductive resistor	Turn cond. gang and dial pointer until centre of dial pointer is on 4.2 Mc/s. mark on dial . Readjust 1.6-4.5 Mc/s. band oscl. coil trim cond. for logging, then repeak 1.6-4.5 Mc/s. band antenna and RF trans. trim condensers for max. output. Rock cond. gang to & fro through the signal while adjusting the antenna and RF trans. trim. conds.
5.	To receiver external aerial & earth sockets	3 Mc/s.	400 ohm non-inductive resistor	Check tracking at 3 Mc/s.

SHORT-WAVE BAND ALIGNMENT 4.4-9.2 Mc/s.

1.	To receiver external aerial & earth sockets	4.5 Mc/s.	400 ohm non-inductive resistor	Turn wave change switch to 4.4-9.2 Mc/s. band position Turn cond.gang and dial pointer until centre of dial pointer is on 4.5 Mc/s. mark on dial. Leave cond. gang and dial pointer set in this position and peak the 4.4-9.2 Mc/s. band oscl. coil ind. trim. (iron core) and the 4.4-9.2 Mc/s. band antenna and RF trans. ind. trim (iron cores)for max. output.

Oper. No.	Generator Connection	Generator Frequency	Dummy Antenna	Instructions
2.	To receiver external aerial & earth sockets	9 Mc/s.	400 ohm non-inductive resistor	Turn cond. gang and dial pointer until centre of dial pointer is on 9 Mc/s. dial mark. Adjust 4.4-9.2 Mc/s. band oscl. coil trim.cond. for logging, then peak 4.4-9.2 Mc/s. band antenna and RF trans. trim condensers for max. output.
3.	To receiver external aerial & earth sockets	4.5 Mc/s.	400 ohm non-inductive resistor	Turn cond. gang and dial pointer until centre of dial pointer is on 4.5 Mc/s dial mark. Leave cond. gang and dial pointer set in this position. Repeak 4.4-9.2 Mc/s. band oscl. coil ind. trim. (iron core) then peak the 4.4-9.2 Mc/s. band antenna and RF. trans. ind. trimmers (iron cores) for max. output. Do not rock the cond. gang or dial pointer to and fro through the signal while adjusting or move them off the 4.5 Mc/s dial mark until after the ind. trim. (iron core) of the three coils has been peaked for max. output.
4.	To receiver external aerial & earth sockets	9 Mc/s.	400 ohm non-inductive resistor	Turn cond. gang and dial pointer until centre of dial pointer is on 9 Mc/s. dial mark. Readjust 4.4-9.2 Mc/s. band oscl. coil trim. cond. for logging, then, repeak 4.4-9.2 Mc/s. band antenna and RF trans. trim. conds. for max. output.
				Rock cond. gang to and fro through the signal while adjusting the antenna and RF trans. trim. condensers.
5.	To receiver external aerial & earth sockets	6.5 Mc/s.	400 ohm non-inductive resistor	Check tracking at 6.5 Mc/s.

SHORT-WAVE BAND ALIGNMENT 9.1-14.5 Mc/s.

Oper. No.	Generator Connection	Generator Frequency	Dummy Antenna	Instructions
1.	To receiver external aerial & earth sockets	9.6 Mc/s.	400ohm non-inductive resistor	Turn wave change switch to 9.1-14.5 Mc/s. band. position Turn cond. gang and dial pointer until centre of dial pointer is on 9.6 Mc/s. dial mark. Leave the cond. gang and dial pointer set in this position, and peak the 9.1-14.5 Mc/s. band. oscl. coil ind. trim. (iron core) and the 9.1-14.5 Mc/s. band antenna and RF. trans. ind. trim. (iron cores) for max. output.
2.	To receiver external aerial & earth sockets	14.2 Mc/s.	400 Ohm non-inductive resistor	Turn cond. gang and dial pointer until centre of dial pointer is on 14.2 Mc/s. dial mark. Adjust 9.1-14.5 Mc/s band oscl. coil trim. cond. for logging, then peak 9.1-14.5 Mc/s. band antenna & RF. trans. trim. conds. for max. output.

ASTOR MODEL BNP.

Oper. No.	Generator Connection	Generator Frequency	Dummy Antenna	Instructions
3.	To receiver external aerial & earth sockets	9.6 Mc/s.	400 Ohm non-inductive resistor	Turn cond. gang and dial pointer until centre of dial pointer is on 9.6 Mc/s. dial mark. Leave the cond. gang and dial pointer set in this position and repeak the 9.1-14.5 Mc/s. band oscl. coil. ind. trim. (iron core) and the 9.1-14.5 Mc/s. band antenna and RF trans. ind. trimmers (iron cores) for max. Output. Do not rock the cond. gang to and fro through the signal or move the dial pointer off the 9.6 Mc/s. dial mark until after the ind. trim. (iron core) of the three coils has been peaked for max. output.
4.	To receiver external aerial & earth sockets	14.2 Mc/s.	400 Ohm non-inductive resistor	Turn cond. gang and dial pointer until centre of dial pointer is on 14.2 Mc/s. mark on dial. Readjust 9.1-14.5 Mc/s. band oscl. coil trim. cond. for logging, then repeak 9.1-14.5 Mc/s. band antenna and RF trans. trim. conds. for max. output. Rock the cond. gang to and fro through the signal while adjusting the antenna and RF trans. trim. conds.
5.	To receiver external aerial & earth sockets	11.8 Mc/s.	400 Ohm non-inductive resistor	Check tracking at 11.8 Mc/s.

SHORT-WAVE BAND ALIGNMENT 14.4-18.3 Mc/s.

Oper. No.	Generator Connection	Generator Frequency	Dummy Antenna	Instructions
1.	To external Aerial and earth sockets	15.2 Mc/s.	400 Ohm non-inductive resistor	Turn wave change switch to 14.4-18.3 Mc/s. band position Turn cond. gang and dial pointer until centre of dial pointer is on 15.2 Mc/s. mark on dial. Leave the cond. gang and dial pointer set in this position and peak the 14.4-18.3 Mc/s. band oscl. coil ind. trim. (iron core) and the 14.4-18.3 Mc/s. band antenna and RF trans. ind. trimmers (iron cores) for max. output.
2.	To external aerial and earth sockets	18 Mc/s.	400 Ohm non-inductive resistor	Turn cond. gang and dial pointer until centre of dial pointer is on 18 Mc/s. dial mark. Adjust 14.4-18.3 Mc/s. band oscl. coil trim. cond. for logging, then peak 14.4-18.3 Mc/s. band antenna and RF trans. trim. conds. for. max. output.
3.	To external aerial and earth sockets	15.2 Mc/s.	400 Ohm non-inductive resistor	Turn cond. gang and dial pointer until centre of dial pointer is on 15.2 Mc/s. dial mark. Leave the cond. gang and dial pointer set in this position and repeak the 14.4-18.3 Mc/s. band oscl. coil ind. trim. (iron core) and the 14.4-18.3 Mc/s. band ant. and RF trans. ind. trimmers (iron cores) for max. output. Do no rock the cond. gang to and fro through the signal or move the dial pointer off 15.2 Mc/s. dial mark until after the ind. trim. (iron core) of the three coils has been peaked for max. output.

Oper. No.	Generator Connection	Generator Frequency	Dummy Antenna	Instructions
4.	To receiver external aerial and earth sockets	18 Mc/s.	400 Ohm non-inductive resistor	Turn cond. gang and dial pointer until centre of dial pointer is on 18 Mc/s. mark on dial. Readjust 14.4-18.3 Mc/s. band oscl. trim. cond. for logging, then repeak 14.4-18.3 Mc/s. band antenna and RF trans. trim. conds. for max. output. Rock cond. gang to and fro through the signal while adjusting the antenna and RF trans. trim. conds.
5.	To receiver external aerial and earth sockets	16.2 Mc/s.	400 Ohm non-inductive resistor	Check tracking at 16.2 Mc/s.

6. Remove control knobs and alignment template from the chassis, then refit the chassis to the cabinet.

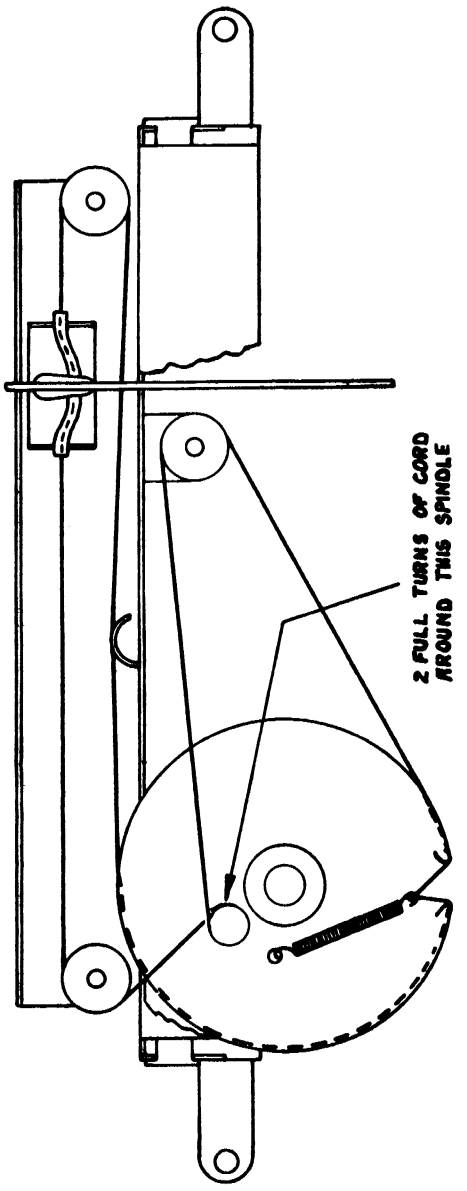
TUNING RANGE AFTER ALIGNMENT

TUNING RANGE AFTER ALIGNMENT

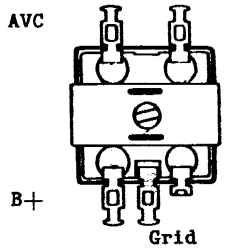
B/cast band	535 - 1610 Kc/s.
S/wave bands	1.6 - 4.5 Mc/s.
	4.4 - 9.2 Mc/s.
	9.1 - 14.5 Mc/s.
	14.4 - 18.3 Mc/s.

SHORT-WAVE COIL IDENTIFICATION SPOT COLOURS.

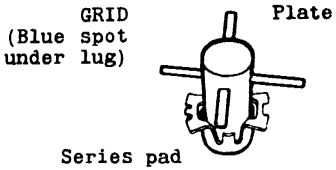
1.6 - 4.5 Mc/s. band	aerial	(L201)	RED & WHITE spots on iron core end of former.
"	RF	(L201)	RED & WHITE " " " " " " "
"	Oscl.	(L200)	RED spot " " " " " " "
4.4 - 9.2 Mc/s. band	aerial	(PT913)	WHITE " " " " " " "
"	RF	(PT913)	WHITE " " " " " " "
"	Oscl.	(L202)	WHITE " " " " " " "
9.1 -14.5 Mc/s. band	aerial	(L204)	BLACK & WHITE spots on iron core end of former.
"	RF	(L204)	BLACK & WHITE " " " " " " "
"	Oscl.	(L203)	BLACK spot " " " " " " "
14.4 -18.3 Mc/s. band	aerial	(L206)	YELLOW & WHITE spots " " " " " " "
"	RF	(L206)	YELLOW & WHITE " " " " " " "
"	Oscl.	(L205)	YELLOW spot " " " " " " "



B/CAST. RF. TRANS.



B/CAST. OSCL. COIL



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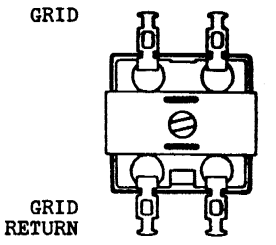

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