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DOCKYARD RADIO REPAIR TEST INSTRUCTIONS

PAMPHLET NO. P/RES/W2 (3)

FOR

A.P. 5714OC/D RECEIVER B.40

Part 3 - Testing to Specification.

Radio Equipment Section,
E.E.M. Department,
H.M. Dockyard,
Portsmouth.

DECEMBER 1961.

NOT TO BE REMOVED FROM _____

Dockyard Radio Repair Test Instructions
Pamphlet No. P/RES/W2 - A.P. 5714OC/D Receiver B.40

All copies of this specification dated previous to December, 1961 should be destroyed.

The new issue carries many amendments, and although initially written for A.P. 5714OC/D Receivers, it has now been widened to include earlier variations of this type.

Amendment No.	Date	Amendment No.	Date

Dockyard Radio Repair Test Instructions
Pamphlet No. P/RES/W2 - A.P. 5714OC/D Receiver B.40

CONTENT

Dockyard Radio Repair Test Instructions.
Pamphlet No. P/RES/W2 - A.P. 57140C/D Receiver B.40
Part 3 - Testing to Specification.

Section 1 - General Information

1. RELEVANT PUBLICATIONS

1.1 B.R. 1617 Handbook for A.P. 57140 Series Receiver B.40.

1.2 Dockyard Radio Repair Test Instructions Pamphlet No. P/RES/1 - Standard methods for Testing Amplitude - Modulation Double sideband Wireless Receivers.

2. APPARATUS REQUIRED

2.1 Standard Test Rig for testing L.F./M.F./H.F. Receivers for details see 1.2 above.

NOTE: The signal generator quoted throughout these instructions is the CT.218, terminated in an A.P. 60861 connector.

If an A.P. 54704A Signal Generator is used, it should be terminated in an A.P. 62151, 10/92 ohm, 20 decibels attenuator and 36 inches of Uniradio 31 cable terminated in A.P. 67169 plug assembly. Readings using this signal generator will be 20 decibels (i.e. ten times), higher than those quoted in these instructions.

2.2 A.P. W.5112 or A/2500 Quartz Plate Crystal (2,500 kc/s).

2.3 68 ohms selected resistor or 100 ohms non inductive variable resistor in series with a 0.01 μF capacitor, terminated in crocodile clips.

2.4 Meter having 200 μA F.S.D.

3. GENERAL INSTRUCTIONS AND TEST CONDITIONS

3.1 All measurements to be made in a screened cubicle.

3.2 Connect the receiver and test instruments to a common 'earth'.

3.3 Switch on the receiver and test instruments, for at least one hour before commencing any measurements, or alignment, excepting where otherwise specified.

NOTE: When switching on the Receiver ensure that the SYSTEM switch is not left in the R/T position, or the B.F.O. will not warm up.

3.4 Align the receiver as laid down in B.R. 1617 Handbook for A.P. 57140 Series Receiver B.40.

NOTE: The receiver should always be re-aligned if there has been a major repair, or if the Sensitivity measurements show re-alignment to be necessary.

It should not be necessary to re-align the receiver if only valves are changed. If the B.F.O. Valve V206 is changed, re-adjustment of the B.F.O. coil L.202 may be required.

3.5 All signal generator voltages are given in terms of Attenuator settings.

Dockyard Radio Repair Test Instructions
Pamphlet No. P/RES/W2 - A.P. 5714OC/D Receiver B40
Part 3 - Testing to Specification

Section 1 - General Information Cont'd.

4. DIAGNOSING POOR PERFORMANCE

4.1 R.F. Amplifier Stage Gain Figures

For test conditions see Section 2 - Performance Tests, Test No. 9 - R.F. Amplifier Overall Gain.

For 500 mW into 600 ohms at the Receiver Ext. L.S. output the signal generator attenuator settings should not be greater than:

Band/ Frequency Mc/s	Signal Generator Attenuator Setting (micro-volts)			
	V103 Grid	V102 Grid	V101 Grid	Aerial Input
	I.F. Attenuator out			I.F. Attenuator in
1/0.67	50	50	3.0	25
2/1.66	50	25	3.5	22
3/4.1	30	16	2.2	20
4/9.8	40	14	1.1	15
5/18.0	35	9.0	1.4	35

4.2 I.F. Stage Gain Figures

For test conditions see Section 2 - Performance Tests, Test No. 5 - I.F. Amplifier Overall Gain.

For 500 mW. into 600 ohms at Receiver Ext. L.S. output the signal generator attenuator settings should not be greater than:

Test Point and condition	Signal Generator Setting	
	Bandwidth 3 Kc/s	8 Kc/s
V201 Grid	280 µV.	700 µV.
V202 Grid	5.0 mV.	9 mV.
V203 Grid	75 mV.	80 mV.
Socket 201		
Plug IN		
Pin 1, 2	700 µV.	3.1 mV.
Pin 3	140 µV.	700 µV.
Pin 4	80 µV.	200 µV.
Plug OUT		
Pin 1, 2	1.6 µV.	
Pin 3	70 µV.	
Pin 4	90 mV.	

Section 2 - Performance Tests

<table>
<tr><th>Test No. (1)</th><th>Performance (2)</th><th>Test Rig (3)</th><th>Conditions and Procedure (4)</th></tr>
<tr><td>1</td><td><u>A.F. AMPLIFIER GAIN</u>
For a receiver output of 500 mW. into 600 ohms, the test oscillator output voltage must not exceed 15.0 volts.

<u>B40 A and C</u>
Grid V302 ≤ 5 volts

<u>B40 D</u>
Grid V302 ≤ 8 volts</td><td><u>Instruments:-</u>
A.F. Test Oscillator
A.F. Power Output Meter
100:1 A.F. Attenuator

<u>Connections:-</u>
Connector '1' joined through the 100:1 attenuator to the slide contact on the receiver A.F. Gain control

Connector '2B' joined between receiver Ext. L.S. output and Output Meter.</td><td><u>Conditions</u>
Output meter input impedance set to 600 ohms.

Test oscillator set to give 1,000 c/s output.

N.B. Receiver system switch to 'Tune'

<u>Procedure</u>
Find the Test oscillator output voltage to give 500 mW at Receiver output.</td></tr>
<tr><td>2</td><td><u>A.F. AMPLIFIER RESPONSE</u>
Should be
<table><tr><th>Frequency c/s</th><th>Change in receiver output (dB)</th></tr><tr><td>80</td><td>> - 15</td></tr><tr><td>400</td><td>0 (reference</td></tr><tr><td>2000</td><td>+3 ± 1</td></tr><tr><td>5000</td><td>+0.5 ± 1.5</td></tr></table></td><td>As for Test 1</td><td><u>Conditions</u>
as above except Test Oscillator set to give 400 c/s.

<u>Procedure</u>
Adjust the Test Oscillator output to give 500 mW at Receiver output (= 0dB reference) Vary the Test Oscillator frequency, keeping the output voltage constant.

Find the change in Receiver output, relative to that obtained at 400 c/s.</td></tr>
<tr><td>3</td><td><u>A.F. AMPLIFIER DISTORTION</u>
There should be negligible distortion in the receiver output waveform when the test oscillator output at 1,000 c/s is adjusted to produce
(a) 1.5 Watts at the receiver output for a B40 D.
(b) 2.0 watts at the receiver output for a B40 A, B and C.</td><td><u>Instruments</u>
As for Test 1 plus oscilloscope and 10:1 attenuators substituted for a 100:1 attenuator.

<u>Connections:-</u>
As for Test 1 except: Connector '1' joined to the A.F. Gain Control slide contact through a 10:1 attenuator. Connector '3' joined between Power Output Meter and Oscilloscope A.1 terminal.</td><td><u>Conditions</u>
Test oscillator set to give 1,000 c/s output Oscilloscope adjusted for free running' time base synchronised to the test oscillator frequency.

<u>Procedure</u>
Increase test oscillator voltage until receiver output appears to distort. Note receiver power output at which this occurs.</td></tr>
</table>

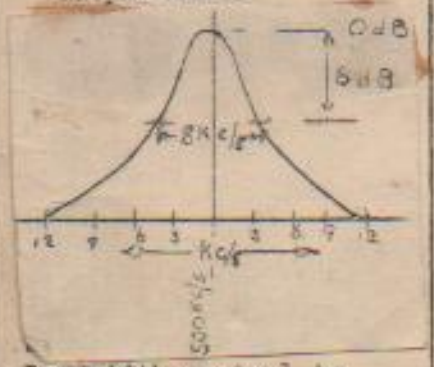
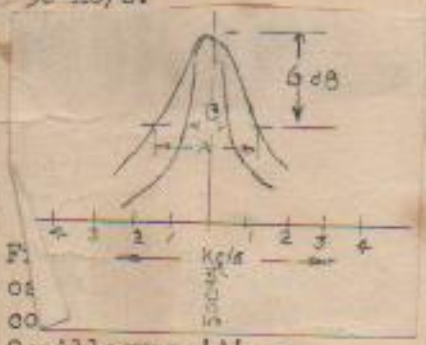
Section 2 - Performance Tests Cont'd.
All signal generator voltages are given in terms of attenuator settings

Test No. (1)	Performance (2)	Test Rig (3)	Conditions and Procedure (4)
4	A.F. OUTPUTS With the Receiver Ext. L.S. output level at 2.0 Watts, the other outputs should be Line (CD) 23 mW Phone (EF) 16 mW Phone Jacks 15 mW Tolerance ±1.5dB	Instruments As for the initial part of Test 3. Connections Use Connector 4 for measuring outputs at the Phone Jacks	Conditions Test Oscillator adjusted to give 2 watts at the receiver output (4/5) set this Before Procedure Close output switch at rear of receiver, and disconnect Ext. L.S. connection to the Power Output Meter. Connect Power output meter to receiver outputs indicated in Column 2.
5	I.F. AMPLIFIER OVERALL GAIN For a receiver output of 500 mW into 600 ohms, the signal generator output should be:-	Instruments R.F. Signal Generator A.F. Power output meter. Connections: Connectors 5 and 6 between signal generator connector, and receiver No.13 Turret contact and chassis. Connector '2b' joined between Ext. L.S. output and A.F. Power output meter, and leave joined for the remaining tests.	Conditions Receiver Controls:- Crystal Switch - ON (crystal removed) Bandwidth switch - As indicated in Col. 2 System switch - CAL. Output switch (rear of receiver) - In opposite direction of arrow. Signal generator set up for C.W. operation and tuned to zero beat (500 Kc/s.) B40A. R.223 to be shorted out until Test 15. B.F.O. grid to be shorted to earth with a 0.01 µF capacitor. System switch - Manual. Procedure: Put Receiver System switch to R.T. Set up signal generator for M.C.W. output 30% at 400 c/s. Find the signal generator output voltage to give 500 mW of receiver output.

BANDWIDTH Switch Positions	Signal Generator Output (micro volts)
3.0 Kc/s	< 8 ● 5 nominal
8.0 Kc/s	< 24 18 nominal

Section 2 - Performance Tests Cont'd.

All signal generator voltages are given in terms of attenuator settings.

Test No. (1)	Performance (2)	Test Rig (3)	Conditions and Procedure (4)
6	I.F. AMPLIFIER OVERALL RESPONSE This is given by	Instruments Frequency swept oscillator Oscilloscope A.F. Power Output Meter.	Conditions:- F.S. Oscillator Controls:- Output Sw. Button 3. Attenuator Control - '0' Modulator Sw. - Freq. Bandwidth Con. - As indicated in Col. 2 under Oscillograms.
	Bandwidth Switch Positions / Total Bandwidth Kc/s 3.0 Kc/s: -6dB > 2.5, -40dB < 9.0* 8.0 Kc/s: -6dB > 8.0, -40dB < 25 * 1.0 Kc/s: -6dB > 1.0, -30dB < 5.0*	Connections:- Join connector '3' between F.S. Oscillator terminal 'X' and Oscilloscope terminal X.1 Join connector '7' between F.S. Oscillator and Receiver No. 13 Turret contact and chassis. Join connector '3' between Receiver junction RV220/SW203 and Oscilloscope terminal 'A1'	Oscilloscope controls set to give sweep of 10 cms. free-running at approx. 10 c/s (Velocity Control set to 100 c/s and Fine control set to zero should give approximate sweep rate ON NO ACCOUNT SHOULD THE SWEEP RATE BE INCREASED ABOVE THIS SETTING. F.S. Oscillator tuned to the Receiver frequency as indicated by maximum Power Output Meter reading, and readjust as necessary to bring the oscillogram of the response curve into the centre of the 'tube'. Oscilloscope 'A1' gain control adjusted to give amplitude of peak of response to 5 cms. Increase output from F.S. Oscillator if insufficient gain is available B40 C/D - System switch to R.T. B40A. See test 5.
	*Measured with a Power output meter  Bandwidth control to 30 Kc/s.  Oscillogram 'A' - Receiver Bandwidth switch to 3.0 Kc/s Oscillogram 'B':- Receiver Bandwidth switch to 1.0 Kc/s.		Procedure Inspect shape of response curves against figures and oscillograms given in col. 2.

Section 2 - Performance Tests Cont'd

All signal generator voltages are given in terms of attenuator settings.

Test No. (1)	Performance (2)	Test Rig (3)	Conditions and Procedure (4)
7	NOISE LIMITER ACTION With the signal generator set to give 100 micro-volts M.C.W. signal, the Limiter Control should limit on signal with a modulation depth between 10% and 60%.	Instruments R.F. Signal Generator A.F. Power Output Meter. Oscilloscope. Connections Connector '3' disconnected. Connector '5' and '6' joined between Signal Generator Connector, and receiver No. 13 turret contact and chassis. Connector '3' from A1 terminal of oscilloscope, onto connector '2b' at Power Output meter.	Conditions:- Receiver Controls:- System Switch - R.T. Bandwidth Switch - 8.0 Kc/s Limiter Switch - ON A.G.C. Switch - ON. Signal Generator set-up for M.C.W. operation 30% at 400 c/s, and tuned to 500 Kc/s as indicated by maximum Power Output Meter reading Output level adjusted to 100 micro-volts. Procedure Vary modulation depth of Test signal as indicated in Test Certificate. Check the ratio of the amplitudes of the Receiver output with the noise limiter control in the fully clockwise and fully anti-clockwise positions respectively.
8	B.F.O. OPERATION WARNING: For this test the B.F.O. must have been operating for a minimum of 4 hours. (A) B.40C With the Receiver System Switch set to C.W. high and C.W. low respectively the beat note should be 1,000 c/s.	Instruments As for test 7 plus A.F. Test Oscillator Connectors:- Connector '3' paralleled with '2b' at the Power Output meter, and joined to Oscilloscope A1 terminal. Connector '3' joined between A.F. Test Oscillator Oscilloscope X1 terminal.	Conditions Oscilloscope velocity range switch set to X1. Receiver Controls:- System Switch - Cal. A.G.C. Switch - ON Bandwidth Switch - 3 Kc/s B40A - Remove 0.01 µF capacitor from the grid of the B.F.O. grid. Signal generator set up at 50 µV out for C.W. operation, and tune

Section 2 - Performance Tests Cont'd.

All signal generator voltages are given in terms of attenuator settings.

Test No. (1)	Performance (2)	Test Rig (3)	Conditions and Procedure (4)
8 Cont.	B.F.O. OPERATION (Cont'd) (A) B.40C Cont'd. SIG. GEN. 500KCS ZERO BIAS - AF GENERATOR SET AT 1000 C/S. SWITCH TO CW HITONE AND TUNE FOR ELIPSE L202-205 GOING OUT. CW-LOW TUNE L203 FOR ELIPSE. SWITCH TO 'TUNE' AND ADJUST L204 FOR 'ZERO BEAT'		Procedure Cont'd. to 500 Kc/s as indicated by minimum Power output m meter reading. Procedure Put receiver system switch to C.W. high. Set the A.F. Test Oscillator output to give a convenient deflection on the oscilloscope and adjust the frequency until an ellipse is obtained. Check the frequency at this setting. Put the receiver system switch to C.W. low and repeat the above.
	(B) B.40D System switch set to Audio Output frequency. F.S.K. Wide High 3,050 ± 50 L205 FAR. OUT F.S.K. Wide Low 2,050 c/s ± 50 C247 GREAT. C F.S.K. Narrow High 1,500 c/s ± 20 C243 LOW C F.S.K. Narrow Low 500 c/s ± 20 C243 GREAT. C Tune 500 c/s ± 20 C239 LOW. C	Instruments As in 8(A) Connections As in 8(A)	Conditions As in 8(A) System Switch - Cal. Procedure Set Audio Oscillator to 500 c/s. Tune the Signal Generator to 499-5 Kc/s C.W. and adjust for an ellipse on the oscilloscope. Adjust the audio oscillator to 3,050 c/s, turn System Switch to F.S.K. Wide High, adjust tuning slug (B.F.O. coil) for an ellipse. To ensure B.F.O. frequency is 502.55 Kc/s and not 496.45 Kc/s, withdrawing slug slightly will increase audio output frequency.

Section 2 - Performance Tests Cont'd.

All signal generator voltages are given in terms of attenuator settings

Test No. (1)	Performance (2)	Test Rig (3)	Conditions and Procedure (4)
8 Cont'd	B.F.O. OPERATION Cont'd		Procedure Cont'd frequency. Adjust Audio Oscillator to 2,050 c/s Turn system switch to F.S.K. wide low. Adjust F.S.K. wide low trimmer (C.247) for ellipse. If two are observed set at the point of greatest capacity. Tune audio oscillator to 1,500 c/s. Turn system switch to F.S.K. narrow high and adjust trimmer (C.243) for an ellipse. If there are two, set the trimmer at the point of lowest capacity. Re-tune audio oscillator to 500 c/s. Turn system switch to F.S.K. narrow low. Adjust trimmer (C.245) for an ellipse. If two are observed set the trimmer to point of greater capacity. Turn system switch to tune, adjust trimmer (C.239) for an ellipse. If two are observed set at point of lowest capacity.
9	OVERALL GAIN For a receiver output of 500 mW into 600 ohms, the signal generator output should not exceed 35 µV (See Page 3, Para 4.1.)	Instruments R.F. Signal Generator A.F. Power Output Meter Connections:- Connector '8' joined between the signal generator output and receiver aerial input socket.	Conditions (a) Initially as in Test 5 to set up the I.F. attenuator. (b) Subsequently system switch - R.T. Turret switch)as indicated Tuning dial)in Test)Certificate. B40A - Manual.

Section 2 - Performance Tests Cont'd

All signal generator voltages are given in terms of attenuator settings

Test No. (1)	Performance (2)	Test Rig (3)	Conditions and Procedure (4)
9 Cont'd	OVERALL GAIN (ATT IN) (Cont'd)	Connections Cont'd I.F. Attenuator made of a 68 ohm resistor in series with a 0.01 μF capacitor, or preferably a 100 ohm non-inductive variable resistance in series with the 0.01 μF capacitor.	Conditions Cont'd Signal generator set up for M.C.W. operation, 30% at 400 c/s, and tuned to receiver frequency as indicated by maximum power output meter reading. Procedure (a) Carry out check as in Test 5. Receiver system Sw. - R.T. Inject M.C.W. signal from signal generator to give 500 mW of receiver output. Note input level. Insert I.F. attenuator between grid of 2nd I.F. valve and chassis. Increase input by 40dB. Adjust either 68 ohm resistance or 100 ohm. variable resistance to give original 500 mW level. The I.F. attenuator is now set up to give the correct attenuation. (b) Actual Test. Adjust signal generator output and find level required to produce 500 mW. at receiver output. On completion of test remove I.F. Attenuator. NOTE: If complete re-alignment is required, commence R.F. tuning on Band 5. This will ensure that oscillations can be obtained at 30 mc/s. and the ganging and 'cal' circuits are satisfactory.

Section 2 - Performance Tests Cont'd

All signal generator voltages are given in terms of attenuator settings.

<table>
<tr><th>Test No. (1)</th><th>Performance (2)</th><th>Test Rig (3)</th><th>Conditions and Procedure (4)</th></tr>
<tr><td>10</td><td>IMAGE REJECTION (ATT. OFF)

This should be

<table>
<tr><th>Receiver Frequency mc/s</th><th>Input Signal Ratio dB</th></tr>
<tr><td>1/1.05</td><td>>95</td></tr>
<tr><td>2/2.6</td><td>>80</td></tr>
<tr><td>3/6.4</td><td>>60</td></tr>
<tr><td>4/13.1</td><td>>50</td></tr>
<tr><td>5/23.0</td><td>>40</td></tr>
</table></td><td>As for Test 9(b)</td><td>Conditions:-
Receiver Controls:-
System Switch - R/T.
Crystal Switch - OFF
Turret Switch) as indicated
Tuning dial) in Test Certificate

Signal generator set up for M.C.W. operation 30% at 400 c/s and tune to Receiver frequency as indicated by maximum Power Output Meter reading, Output level set to 1.0 µV. and Receiver R.F. Gain Control set to produce 500 mW. at Receiver output.

Procedure
Tune signal generator to 1.0 mc/s higher than the frequency to which the Receiver is tuned: Increase the output of the signal generator to obtain the correct tuning point, and until 500 mW. is produced at the receiver output.</td></tr>
<tr><td>11</td><td>(SIGNAL + NOISE)/NOISE RATIO (ATT OUT)

With the signal generator set to give 1.0 µV. C.W. signal the (S + N)/N ratio should be better than 22dB</td><td>Instruments
R.F. Signal Generator
A.F. Power Output meter.

Connections
Connector '8' joined between signal generator connector and receiver aerial input socket</td><td>Conditions
Receiver controls:-
Turret Switch) as indicated
Tuning dial) in Test Certificate.

Signal generator set up for C.W. operation output set to 1.0 µV., and tuned to receiver as indicated by zero beat.</td></tr>
</table>

Section 2 - Performance Tests Cont'd.

All signal generator voltages are given in terms of attenuator settings.

Test No. (1)	Performance (2)	Test Rig (3)	Conditions and Procedure (4)
11 Cont'd	(SIGNAL + NOISE)/NOISE RATIO (Cont'd)		Conditions (Cont'd) Receiver System Switch set to C.W. Low (B40D F.S.K. Narrow Low, B40A Manual), and R.F. Gain control adjusted to give 500 mW. at receiver output. Procedure Switch off the signal generator, and note by how much the receiver output falls.
12	CRYSTAL CONTROLLED OPERATION With a 2,500 Kc/s crystal plugged into the Local oscillator the receiver should operated crystal controlled at:- 2,000 Kc/s 4,500 Kc/s 7,000 Kc/s 9,500 Kc/s.	As for Test 9.	Conditions Receiver controls:- System Switch - R.T. Crystal Switch - ON (Crystal plugged in) Turret switch - 2 Tuning dial - 2 mc/s. Signal generator set up for H.C.W. operation, 30% at 400 c/s. and tune to receiver frequency as indicated by maximum Power Output Meter reading. Output level adjusted to 2.0µV., and receiver R.F. gain control set to produce 500 mW. at the receiver output. Procedure Tune receiver to the frequencies indicated in Col. 2 and check for satisfactory operation

Section 2 - Performance Tests Cont'd

All signal generator voltages are given in terms of attenuator settings.

Test No. (1)	Performance (2)	Test Rig (3)	Conditions and Procedure (4)
13	A.G.C. ACTION The A.G.C. should become operative for an input signal of 1.6 µV. and the output of the receiver should not change by more than 3.3dB when the input voltage is increased by 70dB (5 mV.)	As for Test 11.	Conditions Receiver controls:- System Switch - R/T. A.G.C. Switch - ON Turret Switch - 1 Tuning dial - 1.05 mc/s. The signal generator is set up for M.C.W. operation. 30% at 400 c/s and tuned to the receiver frequency as indicated by maximum Power Output Meter reading. Output level set to 1.6 µV. and receiver A.F. gain control set to produce 200 mW. at the receiver output. Procedure Increase the signal generator output to 5 mV. (i.e. 70dB up on 1.6 µV.), and note the change in the receiver output.
14	ANTI-CROSS MODULATION CONTROL With the anti-cross modulation control set fully anti-clockwise, an increase of more than 15dB in receiver input should be required to reproduce standard output.	As for Test 11.	Conditions B4OC/D Receiver controls:- Turret Switch - 1 Tuning dial - 1.05 mc/s B4OA System switch - manual Signal generator set for C.W. operation at 50 µV. output and tuned to 1.05 mc/s. B4OC Receiver system switch to tune. Tune receiver for minimum output reading. Reset system switch to C.W. low, and adjust R.F. gain control to produce 500 mW. output.

Section 2 - Performance Tests Cont'd.

All signal generator voltages are given in terms of attenuator set.

Test No. (1)	Performance (2)	Test Rig (3)	Conditions and Pr (4)
14 Cont'd	ANTI-CROSS MODULATION CONTROL (Cont'd)		B40D Receiver system switch to C.W. low. Tune for maximum output. Adjust R.F. gain to give 500 mW. output. Procedure Set receiver anti-cross mod-control fully anti-clockwise, and increase signal generator output until 500 mW. is reproduced at the receiver output. Note: The increase in signal generator output relative to 50 μV.
15	OUTPUTS FOR RECORDING With the signal generator adjusted to give 500 μV. C.W. signal, the D.C. output at SK.203 should not be less than 0.2 volts. The output at SK.202 should not be less than 0.05 volts A.C.	Instruments As for Test 9. plus CT.54 Valve Voltmeter. A.C. Valve Milli-voltmeter. Connections As for Test 11. Use connectors '9' to join CT.54 Valve Voltmeter to SK.203 and the Valve Milli-voltmeter to SK.202 respectively	Conditions Receiver controls:- System Switch - Tune A.G.C. Switch - ON Turret Switch - 1 Tuning dial - 1 Mc/s Signal generator set up for C.W. operation at 500 μV. output, and tuned to receiver frequency as indicated by minimum Power Output Meter reading. Procedure Set receiver system switch to R/T., and check voltages indicated in Col.2.
16	NOISE FACTOR AND SENSITIVITY Noise Fac[illegible] This should be better than 7.0dB on all bands. Noise Gain To be recorded. NOTE: 0-db on noise generator output meter with the 'AUDIO IN' switch set to 'high' is equivalent to 16.0dB with the 'AUDIO IN' switch set to Low.	Instruments A.P.67166 Noise Generator. Connections Noise generator, 'Noise Out' joined to receiver aerial input socket through A.P. 64960 Connector noise generator, 'Audio In' joined to receiver 'phone jack' with an A.P.5438 connector	Conditions Receiver controls: System Switch - Tune Bandwidth 3 Kc/s Output switch at) In rear of receiver) direction of arrow L.S. Switch - ON Turret Switch) As indicated Tuning dial) in Test Certificate B4OA. System Switch Manual.

Section 2 - Performance Tests Cont'd

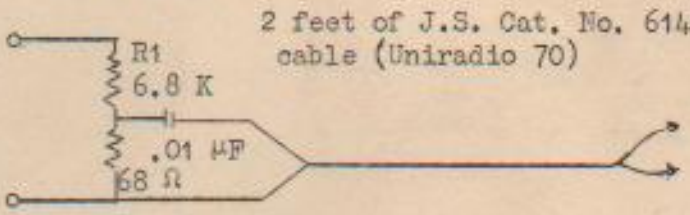
All signal generator voltages are given in terms of attenuator settings.

Test No. (1)	Performance (2)	Test Rig (3)	Conditions and Procedure (4)
16 Cont'd	NOISE FACTOR AND SENSITIVITY (Cont'd)	Connections (Cont'd) Note reading, relative to 0 dB, add 16 dB if the 'Audio in' switch is to High. Subtract "Noise factor" to obtain "Noise gain".	Conditions (Cont'd) Noise Generator controls Noise out Switch - 75ohm Audio in Switch - Low Diode current switch - OFF Diode current cont. - Fully anti-clockwise. Receiver A.F. gain control adjusted for mid scale reading on noise generator output meter, e.g. 10 dB. Noise Factor Procedure Increase Noise generator Diode current until Output meter reading has increased by 3 dB. Read off Noise generator on 75 ohm scale on Noise Factor meter. Noise Gain Procedure Switch Noise generator Diode Current 'OFF' and Audio IN Switch to High. Set receiver A.F. gain control to maximum. (Note if no reading is obtainable, set Noise Generator, Audio IN switch to 'Low'.)

CONNECTORS, ADAPTORS ETC.

The following leads have been designed for use with the Signal Generator CT.218 and Oscilloscope Type 13A.

1. 100:1 A.F. Attenuator



2 feet of J.S. Cat. No. 6145-99-910-0298 cable (Uniradio 70)

2 in No. crocodile clips J.S. Cat. No. 5940-99-940-0856 (formerly A.P. W5845)

Components mounted on Paxolin tagboard.

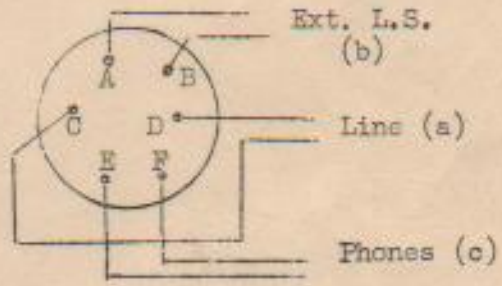
100:1 Attenuator made to the above specification.

For a 10:1 Attenuator substitute a 680 ohm resistor for R1.

2. Connector consisting of 3 feet of 6 core cable, terminated at one end in:-

Socket, free, 6 way	..	056-0120 for B.40C or 972-9117 for B.40D
Gasket, outlet	..	097-0058
Gasket union	..	097-0108
Outlet, straight consisting of:-	..	097-0062
Nut, union	..	097-0128
Ring, thrust	..	097-0096
Ring, compression	..	097-0102
Cable sleeve		

and the other end in spade terminals J.S. Cat. No. 5940-99-972-8519 (Black) - 3 in No. and J.S. Cat. No. 5940-99-972-8577 (Red) - 3 in No.



3. Oscilloscope connector - one in the series 10HA/6169 - 6174 provided with Patt. 10S/831 Oscilloscope Type 13A.

4. Three feet of J.S. No. 6145-99-910-0298 cable terminated at one end in Telephone plug No. 5935-99-972-8743, the other end in spade terminals (one each of No. 5940-99-972-8519 and 972-8577).

5. Connector No. 5995-99-982-8342 (formerly A.P. 60861).
Six feet of No. 6145-99-910-0298 cable with No. 5935-99-054-0022 socket and No. 5935-99-972-8177 plug.

6. Six inches of No. 6145-99-910-0298 cable with No. 5935-99-972-8082 Socket (formerly A.P. 67170) and two No. 5940-99-940-0856 clips (formerly A.P. 5845), the output lead to include a series capacitor of 0.01 micro-farad.