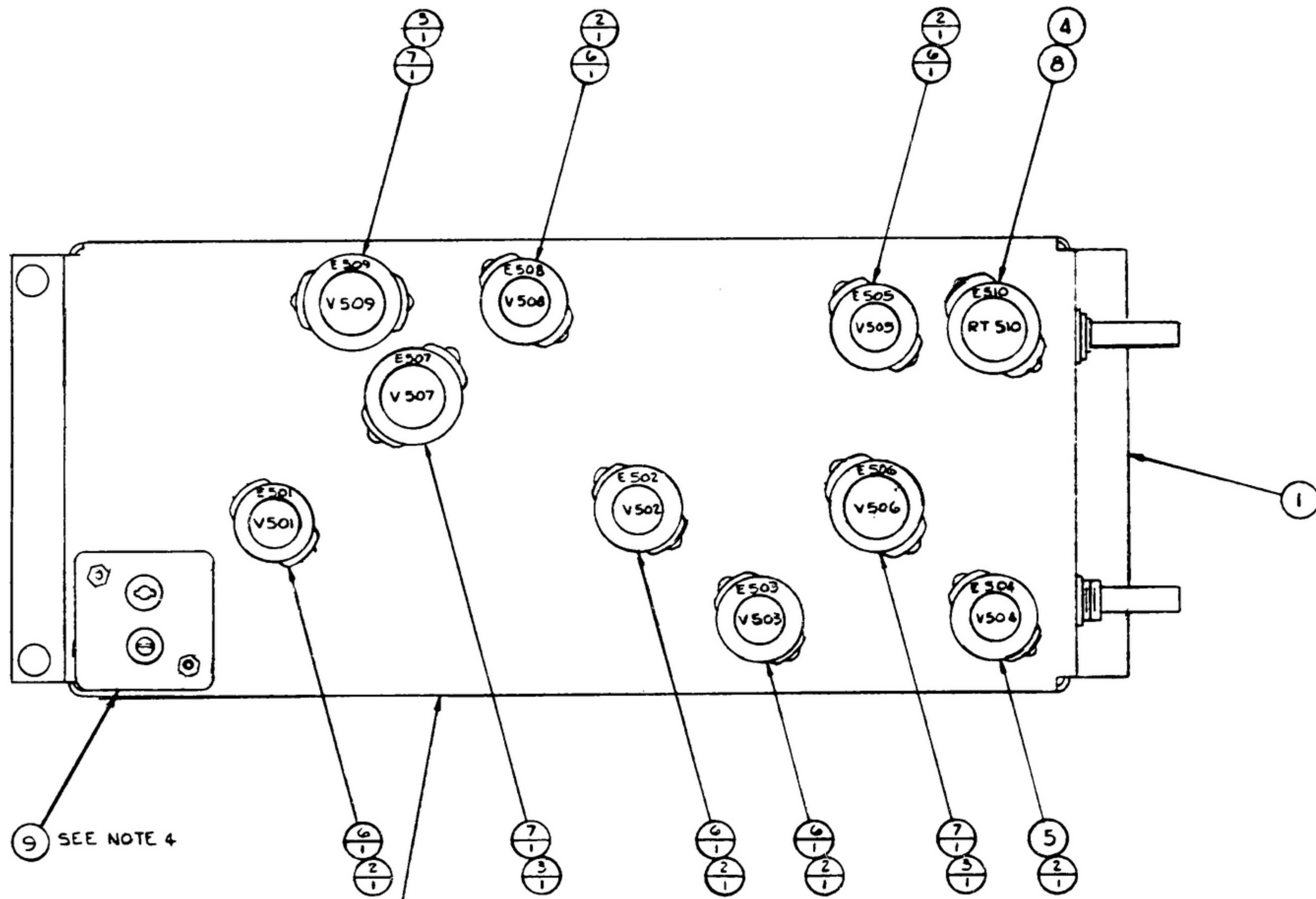


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NOTE: *FOR INFORMATION ONLY. CONTRACTOR MAY AT HIS OPTION DEVIATE FROM THESE PROCESS DETAILS

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A ₁	(1) ITEM 3 WAS SM-B-343639, ITEM 4 WAS SM-B-343635	22 MAR 1965	PNE
B ₁	B ₁ -ITEM 2 MS-24233-2 WAS SM-B-114043.	21 MAR 1966	PNE
C ₁	C ₁ ITEM 1 WAS SM-D-343620	18 APR 68	PNE
D	ADDED SHEETS 2 THRU 7	18 JUN 71	70-C-1194 EC-1 WCR



NOTES
 1 ASSEMBLE AS SHOWN
 2 COAT RUBBER STAMPING OR SILK SCREEN WITH FUNGUS RESISTANT VARNISH (10) PER SPEC MIL-V-175, TYPE I.
 3 IN ALL SPLIT BALLOONS TOP FIGURE IS MATERIAL LIST ITEM INDICATOR & BOTTOM FIGURE IS QUANTITY.
 4 REMOVE SHIELD CAN & INSERT CRYSTAL (9) INTO CLIP C REASSEMBLE.
 5 ALL MARKINGS SHALL MEET THE TEST REQUIREMENTS OF SPEC. MIL-M-13231.

X STAMP, SILK SCREEN OR DECAL DESCRIPTION. PART NO ORDER NO.
 & SERIAL NO. ON THIS SIDE OF CHASSIS IN THIS AREA.
 (SEE NOTE 5)

POS	QTY	AS REQD	PART NO	DESCRIPTION	MATL	MATL SPEC	NOTES
10	1			VARNISH			2
9	1		CE-45/U 452-0000 KC	CRYSTAL		MIL-C-3098	
8	1		SM-B-283222	TUBE-BALLAST			
7	3		5814A	TUBE		MIL-E-1	
6	5		37486BAGW	TUBE		MIL-E-1	
5	1		6AK6	TUBE		MIL-E-1	
4	1		MS-24233-6	SHIELD			
3	3		MS-24232-5	SHIELD			
2	6		MS-24233-2	SHIELD			
1	1		SM-D-505833	MECHANICAL ASSY-IF			

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS DECIMALS ANGLES		STEWART-WARNER 42428-PC-59 SIGNAL CORPS		FINAL ASSEMBLY - IF		DEPARTMENT OF THE ARMY SIGNAL CORPS ENGINEERING LABORATORIES	
Drawn By JS LOCONTE		REVIEWED PNE				FORTY BONDSTOWN NEW JERSEY	
SM-D-343619	SC-DL-248775	Checked By [Signature]		APPROVED PNE		SHEET 1 OF 7	
NEXT ASSY	USED ON	Date Made [Signature]		DATE 9 OCT 59		SM-C-343621	
APPLICATION		[Signature]		SCALE 1/1			

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LIST OF TEST EQUIPMENT

The following test equipment or suitable alternates are required to perform the specified tests herein.

GENERIC NAME

Generator, Signal	Measurement Corp., Model 65B
Voltmeter, Vacuum Tube	Hewlett Packard Co., Model 410B
Voltmeter, Vacuum Tube	Hewlett Packard Co., Model 400 Series
Counter, Frequency	Hewlett Packard Co., Model 524B
Oscilloscope	Tektronix, Inc., Model 531
Attenuator	Jerrold Model AV-50-2
Termination (50Ω)	Military MK-1487/URM-25D
Termination (60Ω)	Dero Research & Development Corp.
Fixture, Test - I.P. Amp.	Dero Research & Development Corp.
Package Tester	Dero Research & Development Corp.
Chamber, Temperature	
Chamber, Altitude	
Chamber, Humidity	
Table, Vibration	

REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED
A,	(1) ITEM 3 WAS SM-B-343639, ITEM 4 WAS SM-B-343635	22 MAR 1965	21582 REVD PME
B,	B, - ITEM 2 MS-24233-2 WAS SM-B-114043	21 NOV 1966	6-00189 REVD
C,	C, ITEM 1 WAS SM-D-343620	16 APR 68	6-00189 REVD EC-2
D	ADDED SHEETS 2 THRU 7	18 JUN 71	70-C-1194 EC-1 WCR

GENERAL INFORMATION

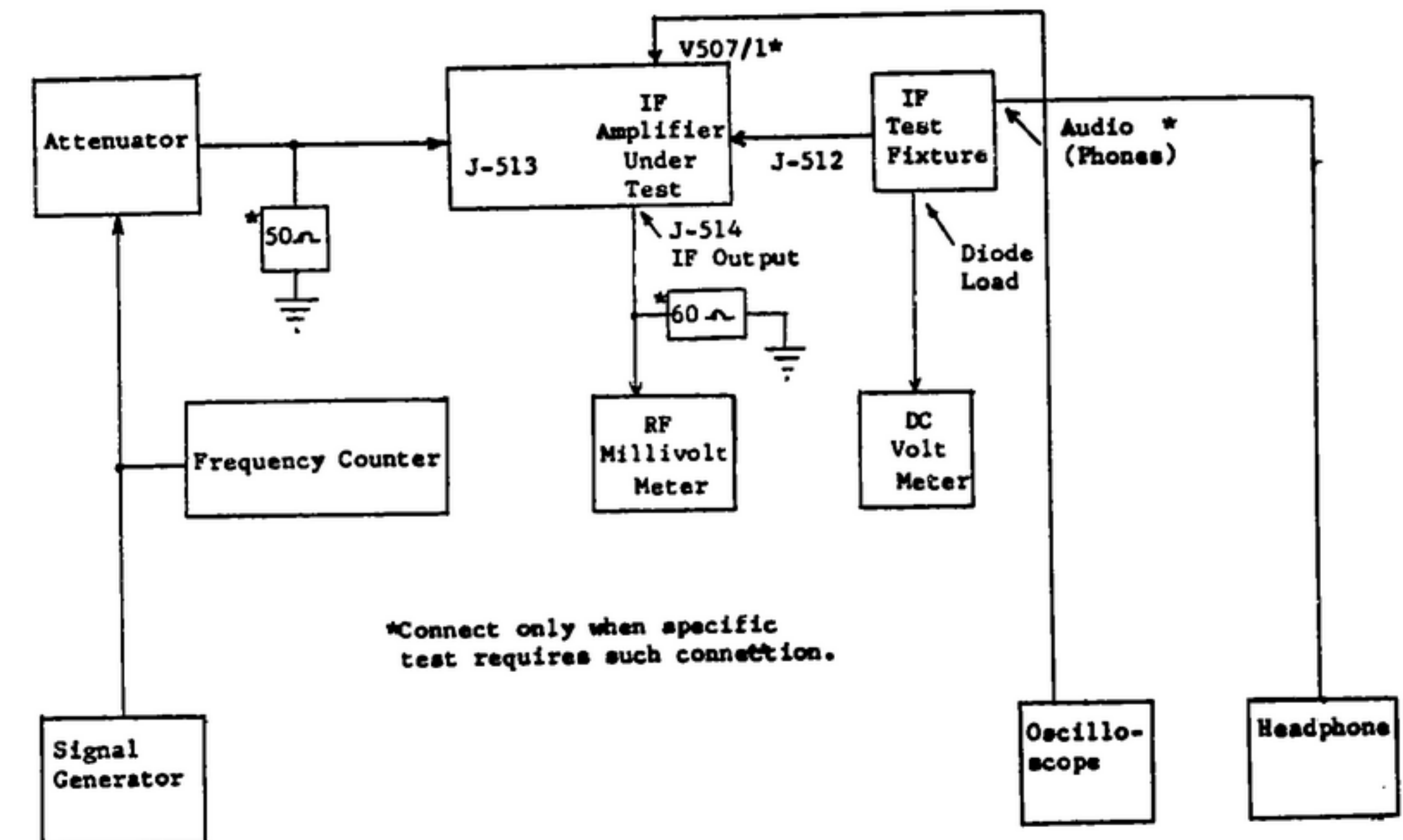
The procedures outlined herein encompass the tests which are requisite to the determination of conformance of the IF Amplifier p/o Radio Receiver R-390()/URR with the applicable equipment specification MIL-R-13947B (SigC) dated 26 October 1960 as modified by Amendment 7 dated 2 June 1966 and as further amended by Contract Number DAAB05-70-C-1194.

The Contract, Number DAAB05-70-C-1194, requires the contractor to prepare an inspection test plan for the IF Amplifier and submit for approval the recommended tests, test limits, inspection groupings, sub-groups and inspection levels for Group A, B, and C acceptance inspection.

The recommended tests and test limits for the IF Amplifier without the need of the end item Radio Receiver R-390()/URR have been arrived at through modifications of requirements of the specific paragraphs listed as applicable in the contract special requirement notes.

Specification paragraphs, indicated in the contract as applicable,

are:	Req. Para.	Insp. Para.
	3.13.31 IF Frequency	4.35
	3.13.34 BFO Neutralization	4.35
	3.13.35 BFO Leakage at IF Output	4.36
	3.13.36 BFO Tuning Range	4.51.1
	3.14.7 Vibration Test	4.55
	3.14.2 Operating-Storage Temperature Test	4.56
	3.14.4 Altitude Test	4.57
	3.14.3 Moisture Resistance Test	



TEST EQUIPMENT CONNECTIONS

FIGURE 1

The tests described in the following paragraphs are to be performed on production models of the IF Amplifier p/o Radio Receiver R-390()/URR as manufactured by Clavier Corporation.

The tests will be performed at the Huntington, New York facility and at other outside testing laboratories located within the general area.

The tests will be conducted under the surveillance of a government quality assurance representative.

FIND NO.	QTY REQD	CODE IDENT.	PART NO. OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	SPECIFICATION	NOTE
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PARTS LIST

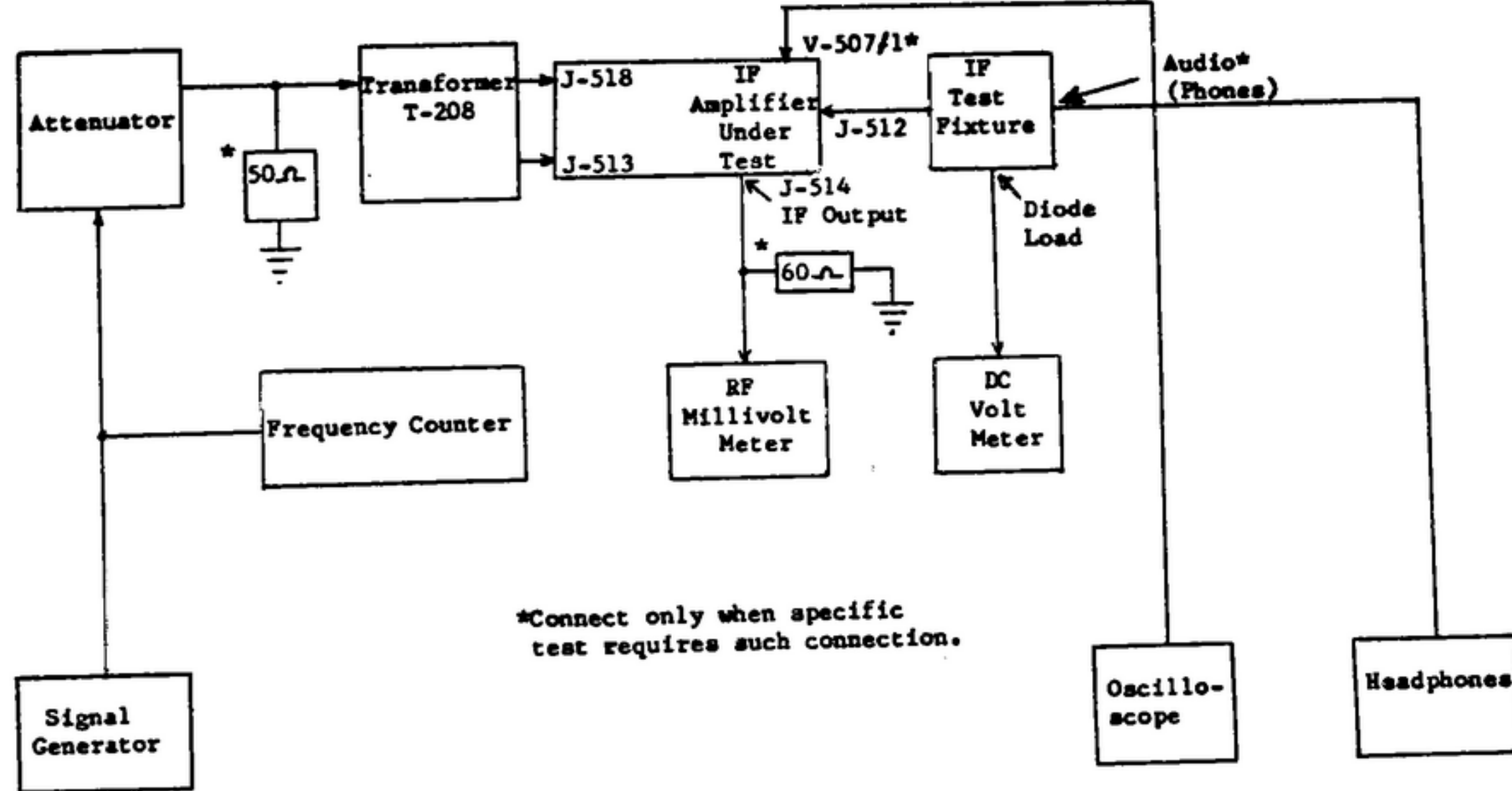
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES TOLERANCES ON: FRACTIONS DECIMALS ANGLES		CLAVIER CORP. HUNTINGTON, N.Y.		U. S. ARMY ELECTRONICS COMMAND PROCUREMENT AND PRODUCTION DIRECTORATE FORT MONMOUTH NEW JERSEY 07703			
		70-C-1194		AMPLIFIER, I.F. (R-390A/URR, RECEIVER)			
		MATERIAL:		ELECTRONICS COMMAND	SIZE C	CODE IDENT NO. 80063	SM-C-343621
		SM-D-343619 NEXT ASSY	SC-DL-248775 USED ON	REVIEWED EC-1 WCR APPROVED EC-1 WCR	DATE 9 OCT 59	SCALE NONE	SHEET 2 OF 7
APPLICATION							

WHEN REFERRING TO THIS DRAWING STATE DRAWING NO., APPLICABLE ISSUE LETTER IF ANY, AND DATE

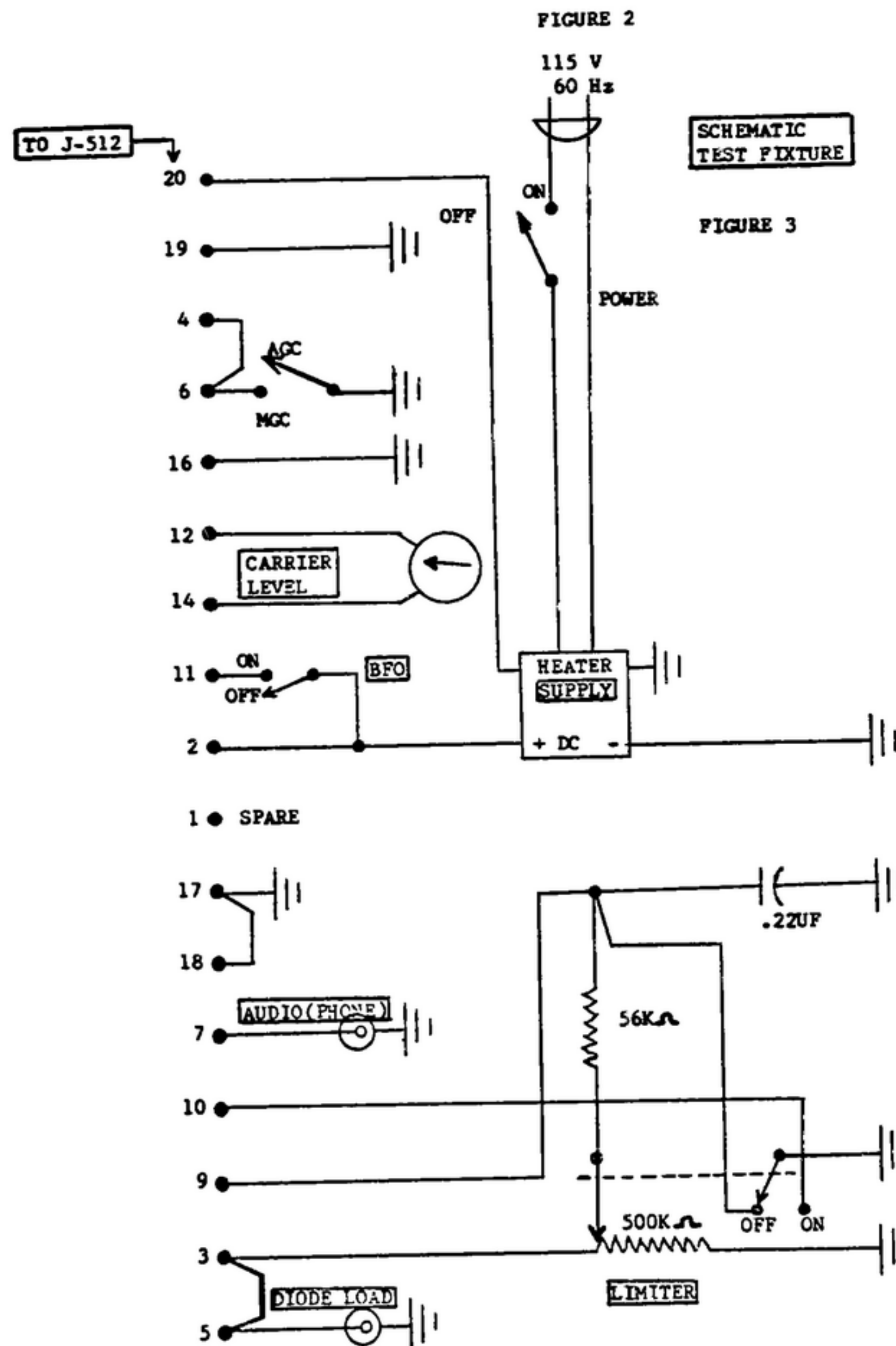
DRAWING 40-105 10278

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TEST EQUIPMENT CONNECTIONS



BOUNCE PRECONDITIONING (Req. Para. 3.15 Insp. Para. 4.6)

Each amplifier which will be subjected to Group "A", Group "B" or Group "C" inspection shall be preconditioned after final assembly.

The amplifier shall be placed in its normal operating position (deenergized) on the table of the Package Tester as made by the L.A.B. Corporation, Skaneateles, N. Y., or equal. The package tester, shafts in phase, shall have a speed such that it is just possible to insert a 1/32-inch-thick strip of material under one corner or edge of the unit to a distance of 3 inches as the unit bounces. The unit shall be subjected to this preconditioning for one minute. After bounce preconditioning, the unit shall not be repaired, aligned, cleaned, or otherwise changed prior to subjection to acceptance inspection.

GROUP "A" INSPECTION - This inspection including sampling, shall conform to Table I below and the ordinary inspection procedures of MIL-STD-105. Group "A" inspection shall be performed in the order indicated below. All Group "A" inspection shall be performed at factory ambient temperature.

TABLE I GROUP "A" INSPECTION

Inspection or Test	Req. Para.	Insp. Para.	AQL	
			Major	Minor
<u>Visual & Mechanical</u>				
I. F. Sub-chassis	3.18	4.59	1.5 DPHU	6.5 DPHU
<u>Electrical</u>				
I. F. Frequency	3.13.31	—	4.0 DPHU for the entire group of electrical characteristics combined.	*
BFO Neutralization	3.13.34	4.35		
BFO Leakage at IF Output	3.13.35	4.35		
BFO Tuning Range	3.13.36	4.36		
Noise Limiter Clipping Level	3.13.43	4.43		

*All electrical defects are in major category

REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED
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B	B, ITEM 2 MS-24233-2 WAS SM-B-114043	21 NOV 1966	6-00189 REVD
C	C, ITEM 1 WAS SM-D-343620	16 APR 68	6-00189 REVD EC-2
D	ADDED SHEETS 2 THRU 7	18 JUN 71	70-C-1194 EC-1 WCR

FIND NO.	QTY REQD	CODE IDENT.	PART NO. OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	SPECIFICATION	NOTE
PARTS LIST						
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES TOLERANCES ON: FRACTIONS DECIMALS ANGLES				CLAVIER CORP. HUNTINGTON, N.Y.		
				70-C-1194		
MATERIAL:				ELECTRONICS COMMAND		
				REVIEWED EC-1 WCR	SIZE C	CODE IDENT NO. 80063
SM D 343619 SC-DL-248775				AMPLIFIER, I.F. (R390A/URR, RECEIVER)		
NEXT ASSY USED ON				APPROVED EC-1 WCR		
APPLICATION				DATE 9 OCT 59		
				SCALE NONE		SHEET 3 OF 7

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IF FREQUENCY (GAIN) - (Reg. Para. 3.13.31

Test Para. _____).

Connect unit under test to test fixture and associated test equipment.

as shown in Figure 1. Preset attenuator to insert 60 db.

Allow the unit under test to "warm-up" five minutes.

Set the BANDWIDTH switch to the 8 khz position.

Set AGC/MGC to the MGC position.

Set the Limiter Control and the BFO Switch on the test fixture to "OFF".

Tune the signal generator to 455 khz and adjust for peak diode load voltage.

Adjust input signal level to produce a 7 volt diode load voltage.

Input signal level shall be not more than 150 microvolts, Enter level onto data sheet. With Attenuator preset at 60 db inserted the signal generator output is divided by 1000.

IF GAIN VARIATION

Connect unit under test to test fixture and associated test equipment as shown in figure 2. Preset attenuator to insert 60 db.

Set the BANDWIDTH switch to the 0.1 khz position.

Set AGC/MGC switch to the MGC position.

Tune the signal generator to 455 khz and adjust for peak diode load voltage.

Adjust input signal level to produce any convenient IF Output millivolt meter reading (J-514) for reference at approximately 25 millivolts.

Rotate Bandwidth switch throughout its range.

Enter onto data sheet maximum db difference on millivoltmeter as BANDWIDTH switch is rotated throughout its range of .1 to 16 khz. Limit of the difference is 3 db.

BFO NEUTRALIZATION - (Reg. Para. 3.13.34 Test Para. 4.35)

Connect unit under test to test fixture and associated test equipment as shown in Figure 2. Preset attenuator to insert 60 db.

Allow the unit under test to "warm-up" five minutes.

Set the BANDWIDTH switch to 0.1 khz and inject a 455 khz signal into the test set-up.

Tune the signal generator for peak diode load voltage of -7 volts.

Tune the BFO switch to "ON" and adjust BFO PITCH control for a zero beat.

Set AGC/MGC switch to AGC and BANDWIDTH switch to 2.0 khz.

Remove the IF input cables from J-513 and J-518 and short circuit the input connector J-513 to ground.

Place 60 ohm load across millivoltmeter.

If the IF output at J-514 is less than 700 microvolts, the unit under test is satisfactory.

If the IF output at J-514 is more than 700 microvolts proceed to readjust circuits controls as follows:

Insert an insulated tuning adjustment tool through access hole in side of chassis, and adjust BFO neutralizing capacitor C-525 for minimum in IF output at J-514.

Detune BFO PITCH control slightly to one side of zero beat to obtain peak in IF output at J-514 and readjust BFO neutralizing capacitor C-525 for minimum output at J-514.

BFO LEAKAGE AT IF OUTPUT (Req. Para. 3.13.45 Insp. Para. 4.35)

Remove IF input cables from J-513 and J-518 and short circuit the input connector J-513 to ground.

Set the BANDWIDTH control on the IF unit under test to 2 khz and the BFO switch to "ON".

Adjust the BFO PITCH control slightly to one side of zero (0) until a null voltage indication is obtained on the millivoltmeter across the 60 ohm loaded IF OUTPUT connector P-514.

If the null voltage indication is greater than 700 microvolt note this level and the level of the residual noise voltage with the BFO switch to "OFF".

Calculate the BFO leakage as $E_{(BFO LEAKAGE)}$ from

$$E^2(BFO LEAKAGE) = E^2(BFO LEAKAGE \& NOISE) - E^2(NOISE)$$

If the null voltage $E_{(BFO LEAKAGE)}$ calculated is more than 700 microvolt, proceed to the readjustment portion of the test for BFO neutralization.

NOISE LIMITER CLIPPING LEVEL - (Req. Para. 3.13.43 Insp. Para. 4.43)

Connect unit under test to test fixture and associated test equipment as shown in figure 2. Preset attenuator to insert 60 db.

Allow the unit to "warm-up" several minutes.

Set the BANDWIDTH switch to the 8 khz position.

Inject a 455 khz signal into the test set-up and adjust the signal generator tuning for a peak in the diode load voltage indication.

Set the AGC/MGC switch to AGC.

Set the signal generator output to 1000 microvolt and its modulation switch to 400 hz.

REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED
A ₁	(1) ITEM 1 WAS SM-B-343639 ITEM 4 WAS SM-B-343635	22 MAR 1965	21582 REVD PME
B ₁	B ₁ - ITEM 2 MS-24233-2 WAS SM-B-114043	21 NOV 1966	6-00189 REVD
C ₁	C ₁ ITEM 1 WAS SM-D-343620	16 APR 68	6-00189 REVD EC-2
D	ADDED SHEETS 2 THRU 7	18 JUN 71	70-C-1194 EC-1 WCR

Adjust the oscilloscope controls until the time base and the wave form presented are synchronized.

Set the "limiter control" on the test fixture to "OFF". Increase the percentage modulation on the signal generator until observable clipping is noted (flattening of the wave form peaks.)

Record the percent modulation at which clipping is first noted. Repeat the test with the "limiter control" on the test fixture turned on at first the minimum setting and second at maximum setting.

With the "limiter control" on the test fixture just turned on and the percent modulation adjusted to the point where clipping just begins, turn the "limiter control" clockwise through its entire range and note that a smooth variation in clipping level results.

FIND NO.	QTY REQD	CODE IDENT.	PART NO. OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	SPECIFICATION	NOTE
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PARTS LIST

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		70-C-1194		AMPLIFIER, I.F. (R-390A/URR, RECEIVER)			
		MATERIAL:		ELECTRONICS COMMAND	SIZE CODE IDENT NO.	SM-C-343621	
		SM-D-343619	SC-DL-248775	REVIEWED EC-1 WCR	C 80063	SHEET 4 OF 7	
APPLICATION		APPROVED EC-1 WCR	DATE 9 OCT 59	SCALE NONE	SHEET 4 OF 7		

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REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED
A1	(1) ITEM 1 WAS SM-B-343639 ITEM 4 WAS SM-B-343635	22 MAR 1965	21582 REVD PMG
B1	B. ITEM 2 MS-24233-2 WAS SM-B-114043	21 NOV 1966	6-00189 REVD
C1	C. ITEM 1 WAS SM-D-343620	16 APR 68	6-00189 REVD EC-2
D	ADDED SHEETS 2 THRU 7	18 JUN 71	70-C-1194 EC-1 WCR

BFO TUNING RANGE - (Req. Para. 3.13.36 Insp. Para. 4.36)

Connect unit under test to test fixture and associated test equipment as shown in figure 2. Preset attenuator to insert 60 db.

Allow the unit to "warm-up" several minutes. Set the AGC/MGC switch to the AGC position. Inject a 455 khz signal into the test set-up and adjust the signal generator tuning for a peak in the diode load voltage indication at -7 volts.

Set the BANDWIDTH switch to 8 khz.

Turn the BFO switch to "ON".

Adjust the BFO PITCH control to zero (0).

Readjust the signal generator to obtain zero beat note in headphones. Note signal generator frequency on frequency counter.

For settings of the BFO PITCH control at +3 and -3, readjust the signal generator frequency to again produce a zero beat note in headphones. The difference in the measured signal generator frequency from that obtained for initial zero beat note shall lie between 2.4 and 3.6 khz.

Note difference frequencies on the data sheet.

An alternate method is indicated below.

For settings of the BFO PITCH control at +3 and -3 the audio beat note obtained at the test fixture headphone output shall be measured with a frequency counter and shall be between 2.4 and 3.6 khz at each setting.

Note difference frequencies on the data sheet.

IF SELECTIVITY (Req. Para. 3.13.32 Insp. Para. 4.33)

Connect unit under test to test fixture and associated test equipment as shown in figure 2. Preset attenuator to insert 66 db.

Set the BANDWIDTH switch on the unit under test to the 0.1 khz position and adjust the signal generator tuning at 455 khz for peak diode load voltage.

Adjust the signal generator attenuator to obtain a reading of -5 volts at the diode load output DC VTVM.

For later reference note the signal generator output amplitude and its output frequency as indicated on the frequency counter.

Note: For convenience in maintaining the same center frequency and same reference level in all cases each BANDWIDTH switch setting will be preceded by signal generator tuning to peak diode load voltage in 0.1 khz position and adjust to -5 diode load voltage in selected BANDWIDTH position for the preset 66 db insertion of external attenuator.

Reset the external attenuator by removing attenuation to increase the level to the required db above the reference level for each BANDWIDTH switch position characteristic required.

For each BANDWIDTH switch position chosen from the tabulation on the data sheet adjust the signal generator tuning to a lower and then a higher frequency until the reading of 5 volts at the diode load output DC VTVM is again obtained. Note frequency counter indications.

Calculate the frequency differences between the center frequency reference and the lower and higher frequencies obtained above and enter onto data sheets as (-) and (+) respectively.

Repeat procedure, with AC VTVM and IF output, for the BANDWIDTH switch setting at 16 khz. For this case use any convenient millivoltmeter reference level at about 25 millivolts.

GROUP "C" INSPECTION - This inspection shall be as listed in Table III.

GROUP "C" INSPECTION - One amplifier for the inspection tests in Table III shall be selected from the first units of production, without regard to quality, by the government quality assurance representative. Thereafter, one amplifier for the inspection tests in Table III shall be selected for each 50 or portion thereof, produced.

Table III - Group "C" Inspection

Inspection or Test	Req. Para.	Insp. Para.
Operating-Storage Temperature	3.14.2	4.55
Moisture Resistance	3.14.3	4.57
Vibration	3.14.7	4.51.1
Altitude	3.14.4	4.56

GROUP "B" INSPECTION - This inspection, including sampling, shall conform to Table II below and to the special procedures for small-sample inspection of MIL-STD-105. The reduced inspection procedure shall be in accordance with Table II-C of MIL-STD-105. Group "B" inspection shall normally be performed on inspection lots that have passed Group "A" inspection and on samples selected from units that have been subjected to and met the Group "A" inspection.

GROUP "B" SAMPLING PLANS - The Group "B" sampling plans as listed in Table II shall be as follows:

Group "B" Plan	AQL	Inspection Level for Normal Inspection	Inspection Level for Reduced Inspection
B-1	4.0%	S4	S3
B-2	6.5%	S4	S3

Table II

Inspection or Test	Req. Para.	Insp. Para.
IF Selectivity	3.13.32	4.33

Take data at all points for which tolerances are given on the Group B Inspection Data Sheet, specifically at 6 and 60 db for 0.1 KHz bandwidth and 1.0 KHz, at 6, 20, 40, and 60 db for 2.0 and 4.0 KHz bandwidth, and at 3, 6, 20, 40 and 60 db for 8.0, and 16.0 KHz bandwidth. Also take all five points at the IF output at 16.0 KHz bandwidth.

FIND NO.	QTY REQD	CODE IDENT.	PART NO. OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	SPECIFICATION	NOTE
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MATERIAL:		70-C-1194		AMPLIFIER, I.F. (R-390A/URR, RECEIVER)	
SM-D-343619 SC-DL-248775		ELECTRONICS COMMAND		REVIEWED EC-1 WCR	
NEXT ASSY USED ON		APPROVED EC-1 WCR		DATE 9 OCT 59	
APPLICATION		DATE 9 OCT 59		SCALE NONE	
		SIZE CODE IDENT NO.		SHEET 5 OF 7	
		C 80063		SM-C-343621	

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OPERATING - STORAGE TEMPERATURE TEST (Req. Para. 3.14.2 Insp. Para. 4.55)

The amplifier shall be temperature cycled in accordance with MIL-STD-169. The bandwidth measured at Steps 1, 3, 8 and 10 shall meet the bandwidth measurements specified on Test Data Sheet.

At Step 1, 77°F ± 3°F relative humidity less than 75%, the amplifier shall be energized and subjected to the tests for IF Gain and IF Selectivity.

At Step 2A, 160°F (+6° -0°) F, the amplifier (de-energized) shall be stored for a period of 24 hours minimum, or to practical thermal equilibrium, whichever occurs first.

At Step 3, 150°F (+6° -0°) F, the amplifier shall be exposed to the temperature step for a period of 24 hours minimum, or to practical thermal equilibrium, whichever occurs first, and then energized. After a suitable warm-up period, the amplifier shall then be subjected to the tests for IF Gain and IF Selectivity.

Step 4 is not required.

Step 5 is not required.

At Step 6A, -80°F (+0° -6°) F, the amplifier (de-energized) shall be stored for a period of 24 hours minimum, or to practical thermal equilibrium, whichever occurs first.

Step 7 is not required.

At Step 8, -40°F (+0° -6°) F, the amplifier shall be exposed to the temperature step for a period of 24 hours minimum, or to practical thermal equilibrium, whichever occurs first, and then energized. After a suitable warm-up period, the amplifier shall then be subjected to the tests for IF Gain and IF Selectivity.

Step 9 is not required.

At Step 10, 77°F ± 3°F Relative Humidity less than 75 %, the amplifier shall be energized and subjected to the tests for IF Gain and IF Selectivity.

MOISTURE RESISTANCE TEST (Req. Para. 3.14.3

Insp. Para. 4.57)

Test Conditions

- Do not move the amplifier from the humidity chamber for measurements.
- Complete measurements as rapidly as possible.
- The amplifier shall be placed in the humidity chamber without further protection. Power shall be applied to the amplifier during the test periods within each cycle. At the completion of the five humidity cycles, and 48 hours thereafter, the amplifier shall be subjected to the tests for IF Gain and IF Selectivity.

Test Method

- Dry the amplifier under test at +130° ±5°F for 24 hours.
- Condition at +77° ±5°F and 40 to 50% relative humidity for 24 hours.
- Subject the amplifier to the tests for IF Gain and IF Selectivity and readjust or realign as necessary to meet the requirements as specified on the Group C Inspection Data Sheet for the IF amplifier, for the characteristic measured.
- Subject the amplifier to continuous cycling for five 48-hour cycles. Temperature, relative humidity and period of time for each portion of the cycle shall conform to MIL-STD-170.
- After cycling has been completed, condition the amplifier for 24 hours at +77° ±5°F and 40 to 60 percent relative humidity. Then adjust amplifier for optimum performance. No repair or replacement of parts shall be made. After adjustment, the amplifier shall be subjected to the tests for IF Gain and IF Selectivity and shall meet the requirements established for the IF Amplifier, for the characteristic measured.

REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED
A ₁	(1) ITEM 1 WAS SM-B-343639 ITEM 4 WAS SM-B-343635	22 MAR 1965	21582 REVD PME
B ₁	B ₁ - ITEM 2 MS-24233-2 WAS SM-B-114043	21 NOV 1966	6-00189 REVD
C ₁	C ₁ ITEM 1 WAS SM-D-343620	16 APR 68	6-00189 REVD EC-2
D	ADDED SHEETS 2 THRU 7	18 JUN 71	70-C-1194 EC-1 WCR

VIBRATION TEST (Req. Para. 3.14.7

Insp. Para. 4.51.1)

The amplifier shall be tested for resonant frequencies below 55 hertz as follows:

- The amplifier shall be fastened in its normal operating position, and as secured in the Receiver R-390/URR, on a vibration table that can be controlled within 10% of the specified amplitude.
- The vibration table shall provide approximate sinusoidal vibration. The amplifier shall be vibrated successively in three mutual perpendicular directions that are respectively parallel to the edges of the amplifier long enough to determine whether a resonance exists. The frequency range from 10 to 55 hertz shall be continually controlled and set in 1 hertz increments with a constant total excursion of the table of .030 inch. Each frequency shall be maintained for at least 10 seconds.
- Resonance of components, structure, and sub-assemblies may be detected visually, by means of a "Strobotac", as made by the General Radio Corporation, West Concord, Massachusetts, or equal. Resonant frequency is defined as that frequency where the amplitude of vibration of any part, sub-assembly, or structural member of the amplifier exceeds twice the amplitude of the vibration applied to the table.
- The effect of vibration may be seen by energizing the amplifier and using electrical output indications. During the period of vibration, the amplifier shall be energized for the purpose of monitoring continuing operation. The amplifier shall be set-up for monitoring continuing existence of a beat note (adjust BFO pitch as desired) for a 455 khz input signal.
- Except for resonance of specified parts and sub-assemblies the amplifier shall have no mechanical resonances below 55 hertz.

FIND NO.	QTY REQD	CODE IDENT.	PART NO. OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	SPECIFICATION	NOTE
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UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES TOLERANCES ON: FRACTIONS DECIMALS ANGLES		CLAVIER CORP. HUNTINGTON, N.Y.		U. S. ARMY ELECTRONICS COMMAND PROCUREMENT AND PRODUCTION DIRECTORATE FORT MONMOUTH NEW JERSEY 07703			
		70-C-1194		AMPLIFIER, I.F. (R-390A/URR, RECEIVER)			
		MATERIAL:		ELECTRONICS COMMAND		SIZE CODE IDENT NO.	
		SM-D-343619 SG-DL-248775 NEXT ASSY USED ON		REVIEWED EC-1 WCR APPROVED EC-1 WCR		C 80063 SM-C-343621	
APPLICATION		DATE 9 OCT 59		SCALE NONE SHEET 6 OF 7			

WHEN REFERRING TO THIS DRAWING STATE DRAWING NO., APPLICABLE ISSUE LETTER IF ANY, AND DATE

BRUNING 40-105 10278

THIS DOCUMENT HAS BEEN PURCHASED BY THE GOVERNMENT AND MAY BE REPRODUCED AND USED IN CONNECTION WITH ANY GOVERNMENT PROCUREMENT OR MAINTENANCE OPERATION

NOTE
DATA MARKED WITH AN ASTERISK (*) IS PECULIAR TO A PRIOR MANUFACTURER. IT DOES NOT TAKE PRECEDENCE OVER ANY OTHER DATA ON THIS DRAWING, AND IS NOT CONTRACTUALLY BINDING ON EITHER THE CONTRACTOR OR THE GOVERNMENT.

REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED
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C ₁	C ₁ ITEM 1 WAS SM-D-343620	16 APR 68	6-00189 REVD EC-2
D	ADDED SHEETS 2 THRU 7	18 JUN 71	70-C-1194 EC-1WCR

ALTITUDE TEST (Req. Para. 3.14.4 Insp. Para. 4.56)

The amplifier shall be placed in an altitude chamber at normal conditions of temperature, pressure, humidity, and shall be subjected to the test for IF Gain. The pressure shall then be reduced to 20 inches of mercury (10,000 ft) and stabilized for 2 hours. The amplifier shall again be subjected to the test for IF Gain. The amplifier shall be de-energized. The pressure shall be lowered to 17 inches of mercury (15,000 ft) and the chamber maintained at this pressure for another 2 hour period. The pressure shall then be increased to 29.9 inches of mercury (sea level) and the amplifier energized and again subjected to the test for IF Gain. Performance shall meet the requirements, as specified on the Group C Inspection Data Sheet for the IF amplifier, for the characteristic measured.

GROUP B INSPECTION DATA SHEET

BANDWIDTH AT DIODE LOAD	SIGNAL GENERATOR ATTENUATOR INCREASE				
	3 DB	6 DB	20 DB	40 DB	60 DB
0.1 KHZ + - KHZ Total					NMT 4.0
1.0 KHZ + - KHZ Total					NMT 4.5
2.0 KHZ + - KHZ Total		NLT .8 1.9-2.3	NMT 3.0	NMT 4.0	NMT 5.0
4.0 KHZ + - KHZ Total		NLT 1.5 3.6-4.4	NMT 5.5	NMT 7.0	NMT 8.5
8.0 KHZ + - KHZ Total	NLT 3.5 7.5	NMT 11.0	NMT 12.0	NMT 15.0	NMT 18.5
16.0 KHZ + - KHZ Total	NLT 6.0 13.5	NMT 16.0	NMT 17.5	NMT 21.5	NMT 27.5
BANDWIDTH AT IF OUTPUT					
16 KHZ + - KHZ Total	NLT 6.5 13.5	NMT 16.0	NMT 17.5	NMT 21.5	NMT 27.5

GROUP C INSPECTION DATA SHEET

BANDWIDTH AT DIODE LOAD	SIGNAL GENERATOR ATTENUATOR INCREASE				
	3 DB	6 DB	20 DB	40 DB	60 DB
0.1 KHZ + - KHZ Total					NMT 4.0
1.0 KHZ + - KHZ Total					NMT 4.5
2.0 KHZ + - KHZ Total		NLT .8 1.9-2.3	NMT 3.0	NMT 4.0	NMT 5.0
4.0 KHZ + - KHZ Total		NLT 1.5 3.6-4.4	NMT 5.5	NMT 7.0	NMT 8.5
8.0 KHZ + - KHZ Total	NLT 3.5 7.5	NMT 11.0	NMT 12.0	NMT 15.0	NMT 18.5
16.0 KHZ + - KHZ Total	NLT 6.0 13.5	NMT 16.0	NMT 17.5	NMT 21.5	NMT 27.5
BANDWIDTH AT IF OUTPUT					
16 KHZ + - KHZ Total	NLT 6.5 13.5	NMT 16.0	NMT 17.5	NMT 21.5	NMT 27.5

IF AMPLIFIER UNIT - (Group A Inspection Data Sheet)

MECHANICAL INSPECTION:	
Check for:	Check if Satisfactory
1. loose solder and wire chips.	_____
2. glyptol and staking on screws, etc.	_____
3. soldered connections.	_____
4. loose screws, nuts, etc.	_____
5. clearance of parts	_____

ELECTRICAL INSPECTION
IF GAIN - NMT 150 uv for 7V diode load voltage 8 khz position μ V

IF GAIN VARIATION - NMT 3 db (Bandwidth .1 to 16 khz) db change

BFO NEUTRALIZATION Check if Satisfactory

BFO LEAKAGE AT IF OUTPUT NMT 700 μ V μ V

NOISE LIMITER CLIPPING LEVEL		
Limiter Setting	Limits (% Mod.)	Clipping Level (% Mod.)
off	NLT 85	_____
1	40 - 55	_____
10	NMT 10	_____

Smooth variation (check if satisfactory)

BFO TUNING RANGE		
BFO Pitch Setting	Limits (khz)	Range
+3	NLT 2.4 NMT 3.6	_____ khz
-3	NLT 2.4 NMT 3.6	_____ khz

Inspector to stamp top left corner of chassis.

IF GAIN - NMT 150 μ V for 7V diode load voltage 8 khz position μ V

NOTE: For measurements made at -40°F and +149°F, the above tolerances on bandwidth are modified by \pm 5%.

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MATERIAL:		70-C-1194		AMPLIFIER, I.F. (R-390A/URR, RECEIVER)	
SM-D-343619 SC-DL-248775		ELECTRONICS COMMAND		SIZE CODE IDENT NO.	
NEXT ASSY USED ON		REVIEWED EC-1 WCR		C 80063 SM-C-343621	
APPLICATION		APPROVED EC-1 WCR		SCALE NONE	
		DATE 9 OCT 59		SHEET 7 OF 7	

WHEN REFERRING TO THIS DRAWING STATE DRAWING NO., APPLICABLE ISSUE LETTER IF ANY, AND DATE

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