

DATE 2-9-61

SH. 1 OF 6

COMPILED BY

J. Linger

APPROVED

TMC

SPECIFICATION NO. S_529

TITLE:

JOB

TEST PROCEDURE FOR CHG-1 REGENERATIVE DIVIDER

DATE 2-9-61

SH. 2 OF 6

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A. FUNCTION & DESCRIPTION

The function of the Regenerative Divider is to convert a 1 Mc standard signal into a standard 250 Kc source for the operation of the CBE.

This is accomplished by tuning the plate circuit of the 6U8 triode (pin 1) to the 750Kc component of the noise spectrum present in the tube. This 750Kc signal is then fed to the signal grid of the mixer tube, 6BE6 pin 7, where it beats with the 1Mc input signal thereby generating a 250 Kc signal which is tuned in the mixer Plate circuit and then fed into the output pentode stage of the 6U8 where it is further amplified and fed to an output jack. (J1602)

B. REQUIRED TEST EQUIPMENT

Oscilloscope, Tektronics Type 545A.

Signal Generator, Measurements Model 82.

R.F. Voltmeter, Hewlett-Packard 410B.

Power Supply, Lambda Model 25 and Cable Ass'y.

Multimeter, Simpson #260 or equivalent.

Pulse Transformer (10:1 step up) cable assembly.

C. D.C. VOLTAGE

1. Inspect unit carefully see if unit is clear of short circuits, loose parts, etc.
2. Check B+ line pin H of J1603 to ground with ohm meter--reading should be infinite.
3. Connect to power supply through power cable ass'y.
4. Connect 68 ohm $\frac{1}{2}$ W. load across output jack J1602.
5. Turn AC. on, set DC. output voltage to 200V. then turn DC. switch on.

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6. Measure D.C. voltages as per chart voltages should be within $\pm 10\%$.

D.C. VOLTAGE CHART

| SYMB. | TYPE | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|-------|------|------|----------------|-------|-------|------|-------|--------------|------|---|
| V1601 | 6BE6 | -.2 | +1.7 | 6.3AC | 0 | +170 | +85 | approx. 0 | | |
| V1602 | 6U8 | +195 | -.6 approx. | +50V | 6.3AC | 0 | +200V | +1.8V | +5.3 | 0 |

* This voltage varies with the noise present in tube, by pass plate pin 1 with .01 Mf. capacitor to obtain voltages shown.

D. ALIGNMENT

1. 750Kc. circuit, L1602

- 1.1-Connect Signal Generator to Pin 9 of V1602, 6U8 Tube.
- 1.2-Set Generator frequency to 750Kc. Output to .2V RMS.
- 1.3-Connect Oscilloscope to pin 1 of V1602 6U8 Tube.
- 1.4-Tune L1602 for maximum output on Oscillograph, 1.8V PP Approx.

2. 250Kc. CIRCUIT, L1601

- 2.1-Connect Signal Generator to input, J1601.
- 2.2-Set Generator frequency to 250Kc. Output to 50MV RMS.
- 2.3-Connect Oscilloscope to pin 5 of V1601 6BE6 Tube.
- 2.4-Tune L1601 for maximum output on Oscilloscope, 3.3V PP approx.

3. Final Alignment and Gain Measurement

- 3.1-Connect Signal Generator through 10:1 step-up transformer and cable assembly to input J1601.
- 3.2-Set Generator frequency to 1 Mc.
- 3.3-Set Generator Attenuator to produce 6 volts RMS at J1601.

Measure with RF Meter.

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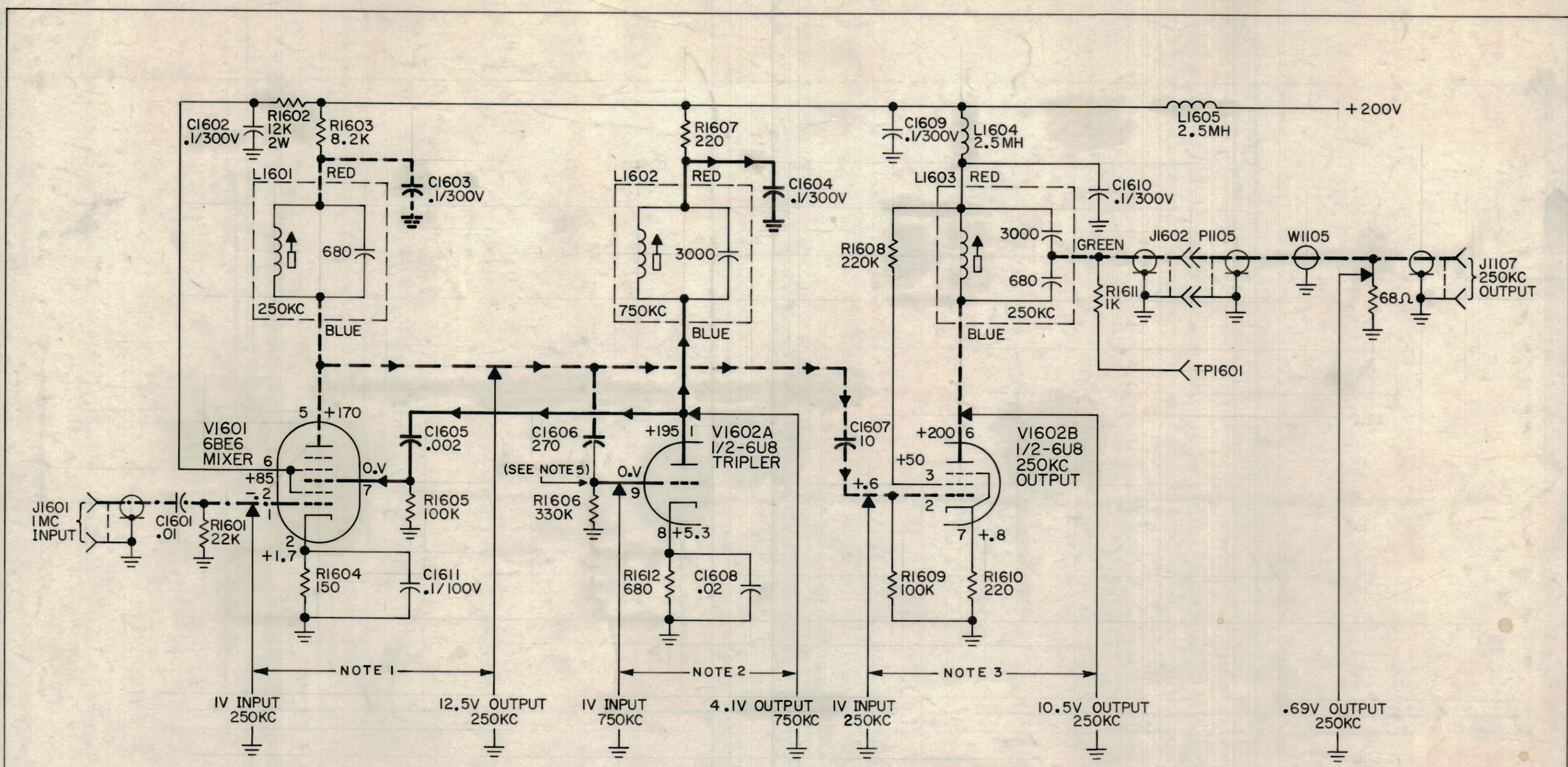
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TEST REPORT SHEET REGENERATIVE DIVIDER, CHG.-1

1. D.C. Voltage check within $\pm 10\%$ _____ check O.K.
2. Output frequency 250Kc ± 20 Kc _____ Kcs.
3. Output Voltage across 68 ohms
minimum 1V maximum 1.5V _____ V. RMS
for 6V input of 1 Mc ± 50 Kc.

TESTED BY: _____ ACCEPTED: _____

DATE: _____ APPROVED: _____



| LEGEND | |
|---------|--------------------|
| --- | 250KC SIGNAL PATH |
| — | 750KC SIGNAL PATH |
| - · - · | 1000KC SIGNAL PATH |

- NOTES :
- 1- ALIGNMENT OF L1601 TO OBTAIN INPUT/OUTPUT VOLTAGES SHOWN .
 - 2- ALIGNMENT OF L1602 TO OBTAIN INPUT/OUTPUT VOLTAGES SHOWN .
 - 3- ALIGNMENT OF L1603 TO OBTAIN INPUT/OUTPUT VOLTAGES SHOWN .
 - 4- OVERALL ALIGNMENT SHOULD GIVE 0.69V OUTPUT (250KC) FOR IV INPUT (IMC)
 - 5- INITIAL INPUT TO V1602A IS NOISE SPECTRUM. SUBSEQUENTLY BY REGENERATION INPUT IS 250KC AND V1602A AMPLIFIES THIRD HARMONIC (750KC).

FIGURE III (G) - 2a
INFORMATION SCHEMATIC OF REGENERATIVE DIVIDER (P/O CHG-1 UNIT)

| SYM | ZONE | DESCRIPTION | DATE | CH. NO. | DRAFTS | CHECKER | ENG. APP. |
|--------------------------------|------|-------------|------|--|--------|---------|-----------|
| UNLESS OTHERWISE SPECIFIED: | | | | | | | |
| DIMENSIONS ARE IN INCHES | | | | SCALE | | | |
| TOLERANCES ON FRACTIONS ± 1/64 | | | | MAXIMUM ALLOWABLE TOLERANCES HAVE BEEN DETERMINED AND ANY DEVIATIONS WILL BE CAUSE FOR REJECTION. REMOVE ALL BURRS & SHARP EDGES | | | |
| DECIMALS ± .005 | | | | | | | |
| ANGLES ± 1/2° | | | | | | | |

| REQ. PER UNIT | MODEL | SECTION | ASS'Y. NO. | DATE |
|---------------|-------|---------|------------|------|
| | | | | |

| REQ. ITEM | PART NO. | DESCRIPTION | SYMBOL |
|--|----------|-----------------|---------|
| THE TECHNICAL MATERIEL CORP. MAMARONECK, NEW YORK | | | |
| REGENERATIVE DIVIDER | | | |
| MATERIAL | | JOHN C. BIELE | |
| TYPE & TEMPER | | DRAWN | CHECKED |
| HEAT TREAT. SPEC. | | FINAL APPROVAL | |
| FINISH & SPEC. NO. | | S-529 | |
| ELEC. DES. APP. | | MECH. DES. APP. | |
| | | SHEET 6 OF 6 | |