

DATE 3/14/57
SH. 1 OF 10
COMPILED BY
O. I. P.

TMC SPECIFICATION NO. S-323

TITLE: PRODUCTION TESTING OF THE MODEL TRU

JOB

APPROVED

[Signature] A JT

COMPLETE INSTRUCTIONS
FOR THE
PRODUCTION TESTING
OF THE
MODEL TRU

DATE 3/14/57
SH. 2 OF 10

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MP *AJJ*

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1. TEST EQUIPMENT REQUIRED

1. 2 each Heathkit Power Supply Model PS-2 or equivalent.
2. 1 each TRU Test Unit
3. 1 each TTU-1105
4. 1 each Square wave generator
5. 1 each Oscilloscope
6. 1 each Simpson Model 260 volt ohmmeter or equivalent.
7. 1 each Power Supply TMC Model PSP or equivalent.
8. 1 each 0-100 ma. milliammeter if PSP is not used.
9. 1 each 2000 ohm, 10 W load.

2. TEST INSTRUCTIONS

Proceed as outlined in paragraph 4, Test Sequence and Procedure .
Fill in blank spaces on the Report Sheets and submit them to
your supervisor.

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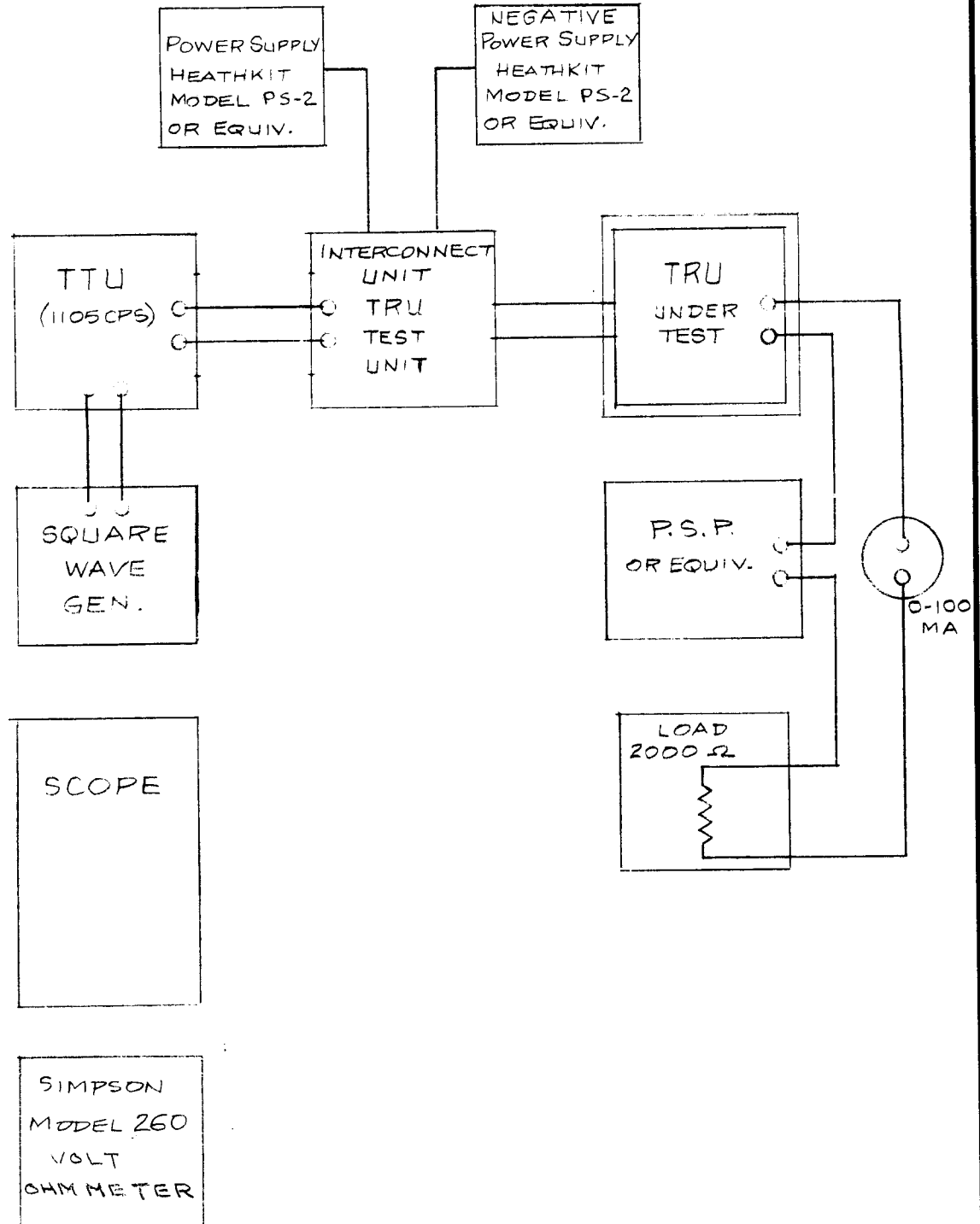
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3. GENERAL INSTRUMENT LAYOUT

A.



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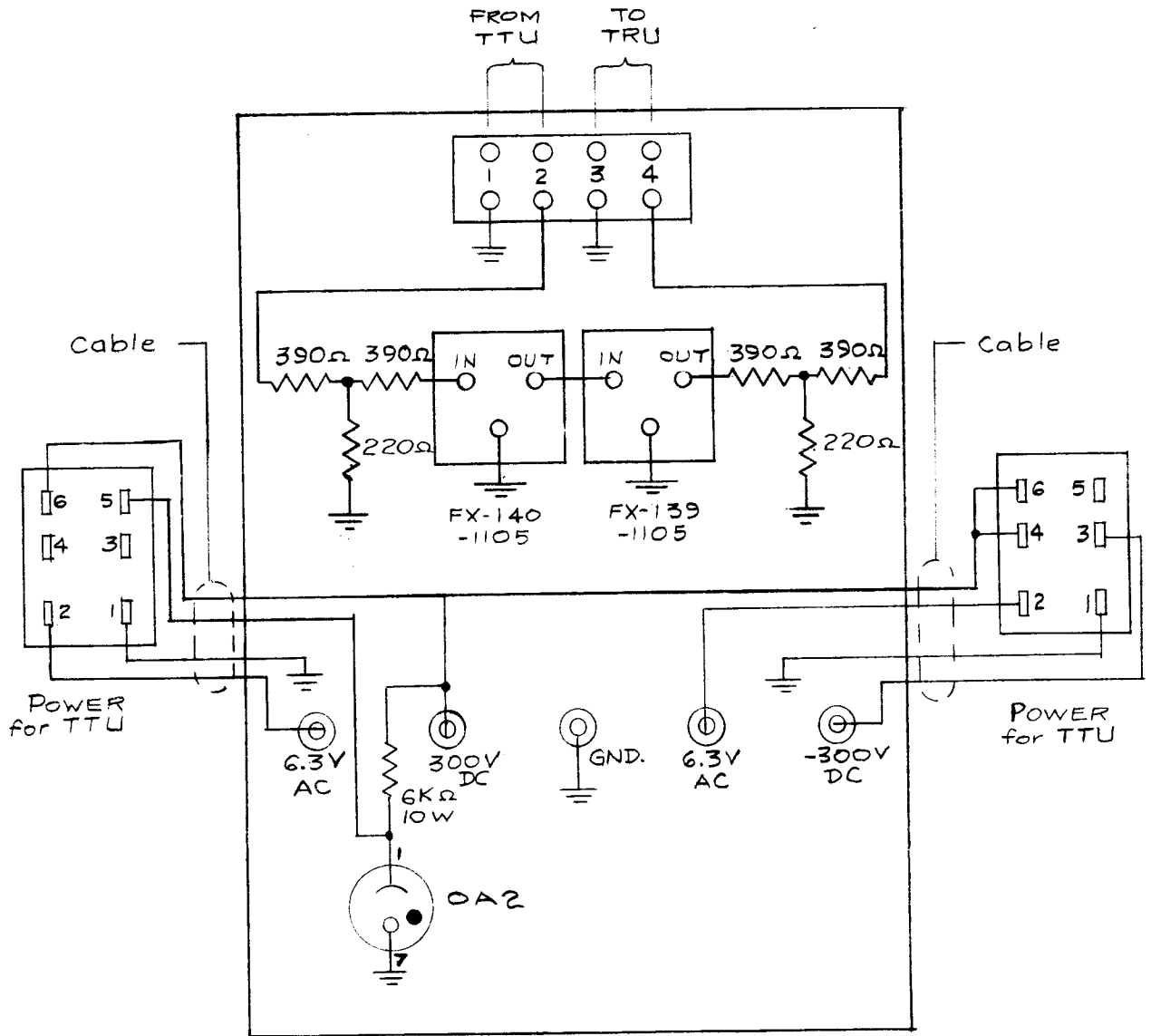
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B. Schematic Diagram of Interconnecting TRU Test Unit.



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4. TEST SEQUENCE AND PROCEDURE

A. GENERAL AND VISUAL INSPECTION

1. Inspect the unit for obvious mechanical and electrical errors.
2. Be sure that all screws are tight.
3. R-521 must be 25,000 ohms

B. RESISTANCE TEST

1. With ohm meter, measure resistance to ground as follows:

Pin 1 of J 501	short
Pin 2 of J 501	.1 - .4 ohms
Pin 3 of J 501	340 K- 440 K
Pin 4 of J 501	600 K- 780 K
Pin 5 of J 501	open
Pin 6 of J 501	open
Pin 4 of E 501 (Term. Strip)	8 K - 12 K
Junction of R 503 and R 504	4 K- 5.4 K
Junction of R 516 and R 518	75K - 105K

C. MARK BIAS ADJUSTMENT

1. Connect the TRU unit under test with the test equipment as described in paragraph 2, General Instrument Layout.
2. Turn on the power and place the TTU into "Space" condition (No tone output)
3. Adjust Mark Bias (R-512) control to the point where the TRU output just falls into the space condition. (The output current meter must read zero)
4. Shock excite the unit by lightly tapping V-501. If the output jumps momentarily to mark position, readjust the Mark Bias control until the unit will be stable.

NOTE: Do not set the Mark bias control too far in space condition direction. Gain in stability means loss in sensitivity.

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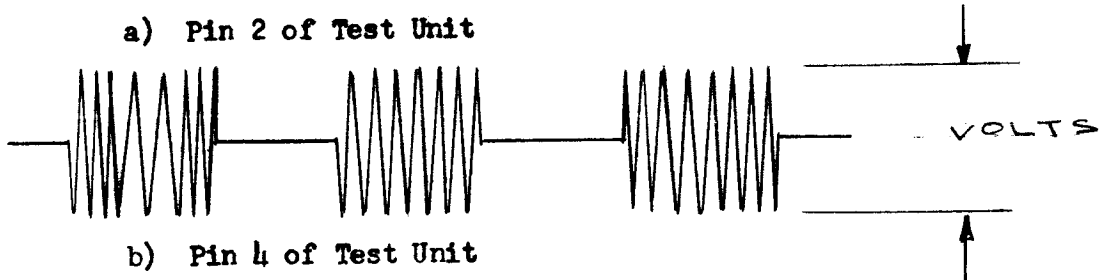
A. J. J.

5. Set the TTU on mark (continuous tone output). Be sure that the output from TTU is set to maximum. The output from TRU (unit under test) must also be on mark. Adjust the output current to 60 ma. by means of line current adjust (R-522).

D. KEYING WAVEFORM

1. Key the system with squarewave generator at 25 cps.
2. With calibrated scope inspect following waveforms.

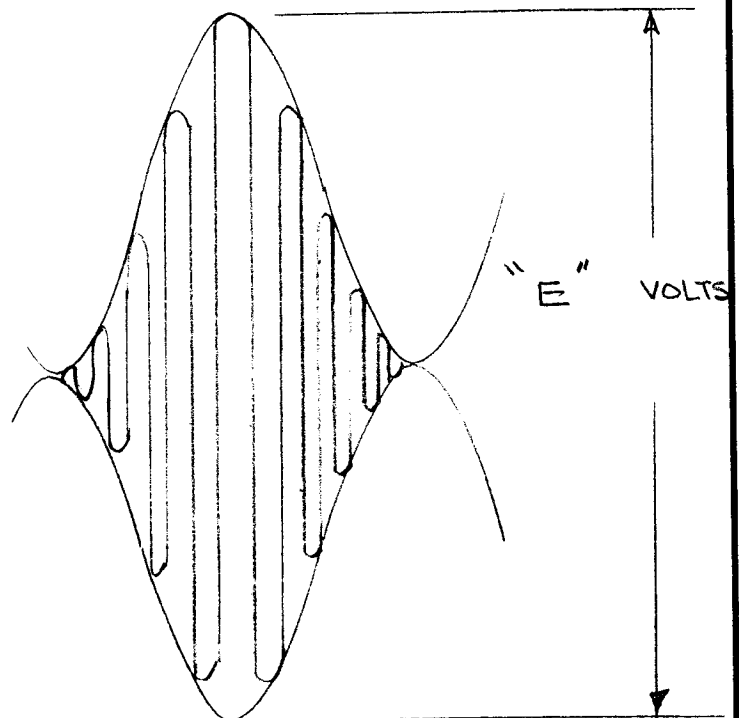
a) Pin 2 of Test Unit



b) Pin 4 of Test Unit

E. V-501 AMPLIFIER WAVEFORM

1. Junction of C502 and R503
2. Pin 6 of V-501

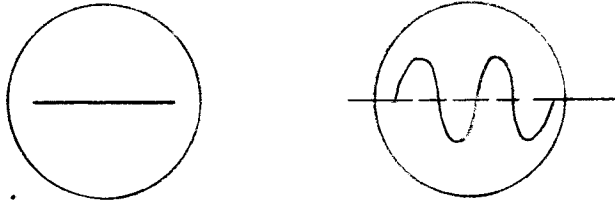


F. V-502 DETECTOR OUTPUT WAVEFORM

NOTE: Set scope on DC Range

Junction of R-510 and R511

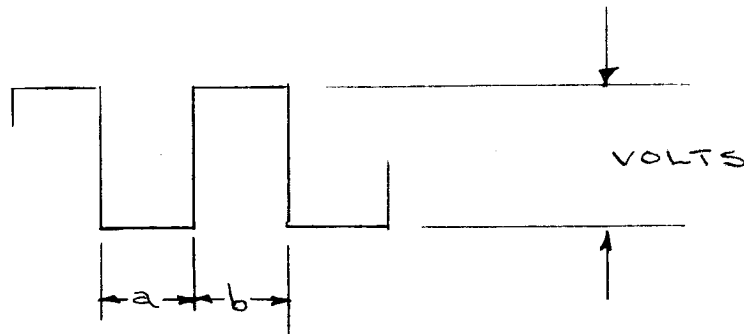
1. Turn off the Square wave generator.
2. Adjust the scope in such a way that the horizontal line will appear in the middle of the screen.
3. Turn on the square wave generator. The ~~square~~ wave (rectified envelop) must appear centered in the middle of the screen.



G. V-503 CLIPPER OUTPUT WAVEFORM

At junction R518, R519, and R520

Distance "a" must be equal to distance "b"



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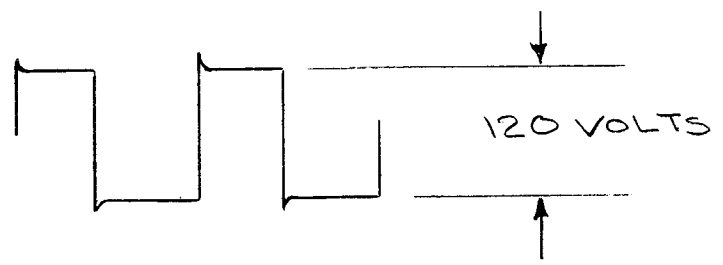
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H. V-504 PULSE OUTPUT WAVEFORM

1. At terminal 2 of E501 (across the load)



- 2.. The output current meter must read approximately 30 ma. during keying.

Unit which has met the specifications above must be placed in its final form with Cover plates or etc. and prepared for shipment. One copy of the Report Sheet must accompany the unit. Submit the other copy of the Report Sheet to your supervisor.

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SAMPLE
TEST REPORT SHEET
MODEL TRU

	<u>ACCEPT</u>	<u>REJECT</u>
A. GENERAL AND VISUAL INSPECTION	_____	_____
B. RESISTANCE TEST	_____	_____
C. MARK BIAS ADJUSTMENT	_____	_____
D. KEYING WAVEFORM	_____	_____
E. V -501 AMPLIFIER	_____	_____
F. V -502 DETECTOR OUTPUT WAVEFORM	_____	_____
G. V -503 CLIPPER OUTPUT WAVEFORM	_____	_____
H. V- 504 PULSE OUTPUT WAVEFORM	_____	_____

SERIAL NO. _____

DATE _____

ACCEPTED _____

TESTED BY _____