DATE 11/9/62 SHEET 1 OF 6	TMC SPECIFICATION NO. S 695	B
JNS COMPILED / CHECKED	TITLE: AX386 TEST PROCEDURE	
APPROVED	(HFS) 10KC SELECTOR DECK	

AX-386 TEST PROCEDURE

(HFS) 10KC SELECTOR DECK

OGILVIE PRESS, INC., BROOKLYN 17, N. Y. STOCK NO. 4004

DATE 11/9/62 SHEET 2 OF 6	TMC SPECIFICATION NO. S 695	B
JNS COMPILED / N.P. CHECKED	TITLE: AX386 TEST PROCEDURE	
APPROVED	(HFS) 10KC SELECTOR DECK	

I FUNCTION & DESCRIPTION

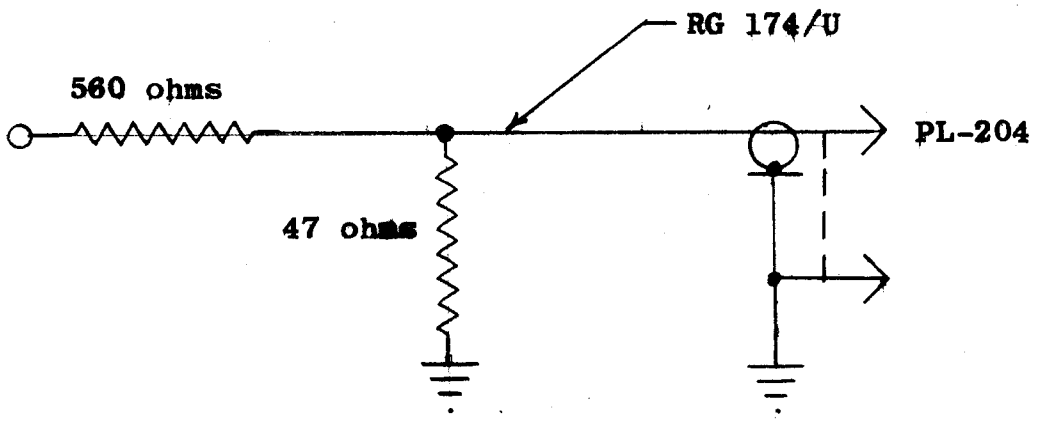
The function of the 3300 deck is to generate a signal of 350.1KC through 450KC to be passed on to the 100KC selector deck, AX-387, and divide a 100KC pulse down to 10KC. The signal is derived by mixing the output from the 10KC selector deck AX-386, which may vary from 30.1KC through 40KC with the 320KC through 410KC signal generated within the 10KC selector deck. A 100KC pulse is converted into 10 signals 10KC apart, in the frequency range of 320KC through 410KC.

The 100KC pulse is fed into a phantastron divider which divides the frequency by 10 and feeds it into a cathode follower. This 10KC pulse has a sharp rise time and thus rich harmonic content. The crystals select the 32nd thru 41st harmonics of this pulse. The selected signal is applied to a single stage high Q amplifier where the spurious pulse is attenuated and the signal is amplified. The mixing is accomplished in a balanced modulator which feeds the signals into a two stage amplifier with 10KC bandwidth tuned to amplify only the sum of the mixed frequencies.

II REQUIRED TEST EQUIPMENT:

A. Oscilloscope - Tektronix 545A.or equivalent.
B. A-C VTVM - Hewlett Packard 410B.or equivalent.
C. Power supply - Lambda Mo. 26 or equivalent.
D. Test cable (Fig. B)
E. TMC Modified CHL (15V peak-to-peak output of sinc pulse).
F. 56 ohm ½ watt load mounted in P1204.
G. Burroughs nixie (B5031) with TMC cable CA668.
H. Audio Generator - Heath Mo. AG-8 or equivalent.
I. Matching Pad, 560 ohms & 47 ohm resistors - connection to be made as shown.(Fig. A)

FIG. A.



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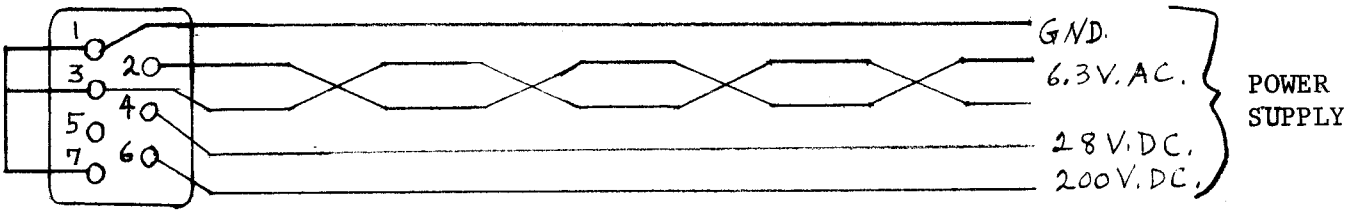
APPROVED	(HFS) 10KC SELECTOR DECK	

TMC JJ216 FIG. B



To mate with J3305

III PRELIMINARY

A. Inspect unit carefully, see if unit is clear of loose parts, short circuits, etc.

B.* Check Resistance of B+ line to ground, reading should be greater than 70K ohm.

C. Connect unit to power supply through test cable. Turn on A-C. Turn on B+ and set level to 200VDC. Allow 5 minutes to warm up before continuing tests.

IV ALIGNMENT PROCEDURE

A. Phantastron Divider

1. Connect 100KC pulse output from modified CHL to J3301.
2. Attach scope probe to TP3301 & check amplitude of incoming pulse. Pulse should be between 15 to 20V peak-to-peak.
3. Connect scope probe to TP3302.
4. Adjust potentiometer R3303 for 10KC pulse at TP3302.
5.* Set potentiometer in middle of 10KC range and lock.
6.**Remove scope from TP3302 & attach to J3302. 10KC pulse should be between 8 to 12V peak-to-peak.

B. Harmonic Selector Bank

1. Insert crystals in their respective sockets.
2. Insert indicator cable assembly in J3306.
3. Remove scope probe from TP3302 & connect to TP3303.
4. Set switch so that indicator reads "0".
5. Adjust C3328 first and then C3370 for maximum amplitude at TP3303.
6. Set switch so that indicator reads "1" and adjust C3329 for maximum amplitude at TP3303.
7.* Repeat step 6 for all positions, 2 through "9" adjusting C3330 through C3337.
8. Set switch back at "0" again and run through positions "0" through "9" noting the amplitude on ach position. Adjust C3370 so that amplitudes of all positions are within 3db of one another.

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C. Balanced Modulator and Sum Amplifiers

1. Attach scope probe to J3803 and adjust R3330 for minimum amplitude. Lock R3330.
2. Remove scope probe from J3303 and attach audio generator through "T" pad to J3303.
3. Place 56 ohm load on J3304.
4. Set audio generator at frequency of 31 KC and adjust output load to .2V RMS across 47 ohm input load on J3303.
5. Attach scope probe to TP3304.
6. Set switch so that indicator reads "0".
7. Adjust C3371 for maximum reading in this position.
8. Run switch through remaining positions, and if necessary, re-adjust C3371 to make amplitudes in all positions within 3db of each other.
9. Remove scope probe from TP3304 and attach it to TP3305.
10. Set audio generator to 39KC and adjust output level to .2V RMS across 47 ohm input load on J3303.
11. Repeat steps 6, 7 and 8 using C3372 instead of C3371 to adjust amplitude.
12. Attach VTVM to J3304 across 56 ohm load and set selector switch to "0" position.
13. Vary frequency of audio generator between 30KC to 40KC. The output voltage must be between .18V& .25 RMS for the entire range.
14. Repeat step 13 for all selector switch positions through "9".

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The DC voltages in the voltage chart are for reference only. These voltages should be within ±10%, no signal applied.

D-C VOLTAGE CHART

TUBE	TYPE	1	2	3	4	5	6	7	8	9
V3301	6AS6	14	14	-	0	155	75	5.5		
V3302	6AB4	175	-	-	0	-	0	4.6		
V3303	6AH6	0	1.5	-	0	130	105	1.5		
V3304	6AU6	0	1.1	-	0	140	112	1.1		

- INDICATES NO MEASUREMENT TO BE TAKEN

The voltages shown below, are with signal applied and for reference only.

TP3301	15 to 20V peak to peak
TP3302	60V peak to peak
TP3303	2.5 to 4V peak to peak
TP3304	.30 to .40V peak to peak
TP3305	.5 to 1V peak to peak
J3302	8 to 12V peak to peak
J3304	.18 to .25 RMS

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THE TECHNICAL MATERIEL CORPORATION
MAMARONECK, N. Y.
AX-386 TEST DATA SHEET

MFG. NO._____

1. Resistance B+ to ground_____ohms. (70K Min.)

2. 100KC to 10KC divider division frequency_____ check OK.
   Peak to Peak voltage J3302_____Volts. (10 to 12 V)

3. Harmonic Selector output TP3303_____ check OK.
   Switch positions "0" through "9" (2.5V4V peak to peak)

4. Summing amplifier output voltage (J3304 with 56 ohm load attached) .18V to .25 RMS. For positions listed below.

Position 0.	440.1-450KC	_____VRMS
1.	430.1-440KC	_____VRMS
2.	420.1-430KC	_____VRMS
3.	410.1-420KC	_____VRMS
4.	400.1-410KC	_____VRMS
5.	390.1-400KC	_____VRMS
6.	380.1-390KC	_____VRMS
7.	370.1-380KC	_____VRMS
8.	360.1-370KC	_____VRMS
9.	350.1-360KC	_____VRMS

DATE_____

TESTER_____

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REVISION SHEET

THE TECHNICAL MATERIEL CORP.
MAMARONECK NEW YORK

S695.
LIST NO.

DATE	REV.	SHEET	EMN #	DESCRIPTION	APP.
4/23/64	A	2,3	11283	Revised SHts.2,3 per EMN	
11/2/66	B	3,5,6	17185	Revised per EMN	