KIT-287
5100

TMC SPECIFICATION			NO. S 1100
REV: Ø A			
COMPILED: RRH	CHECKED:	APPD:	SHEET 1 OF 8
TITLE:			
Typed by mtp 5/17/66			

KIT-287

MODIFICATION INSTRUCTIONS

for

CONVERSION OF STR-1A TO AM RECEPTION MODE

I. KIT-287 is applicable to STR-1A Strip Receiver. After conversion, the receiver becomes STR-2X1.

II. The purpose of this modification is to change the receiver for optimum reception in the AM mode.

III. Accomplishment of the modification can be determined by inspecting the IF circuit board. If the conversion has been completed, the IF board will be A4020.

IV. MATERIALS SUPPLIED:

ITEM NO.	QTY.	TMC PART NO.	DESCRIPTION
1	1	A4020	IF Circuit Board
2	1	NP360-8	KIT-287 Nameplate
3	3"	MWC 22(7)U93	Wire, Ins., WHITE/ORANGE
4	6"	WL100-7	Wire, Buss
5	6"	PX104-1-034	Insulation, BLACK

V. DOCUMENTS SUPPLIED

QTY.	TMC NUMBER	TITLE
1	CK 1126	Schematic Diagram, STR-2X1
1	A4020	Printed Circuit Board Assembly, IF AMPL.
1	CA 901	Cable Drawing

VI. MODIFICATION PROCEDURE

A. Preliminary

1. Unsolder connections to IF board, A3189.
2. Remove 5 screws holding A3189 and remove the board. Replace with new board, A4020, Item 1, using same hardware.

VI. MODIFICATION PROCEDURE - Cont'd

B. Rewiring (Refer to cable drawing CA901)

1. Jumper the following terminals on A4020 using Buss wire, Item 4; #2, 6, 11, 13, and 15. Use BLACK insulation, Item 5, where buss wire passes over other terminals. Resolder ground leads from ground lug near Term.#5 to Terms. #2 and #5.
2. Solder center conductor of shielded, jacketed lead (Item 21 of CA901) to Terminal #1 of A4020. (White conductor).
3. Solder WHITE/BLUE wire (Item 22 of CA901) to Terminal #3 of A4020.
4. Solder WHITE/RED wire (Item 23 of CA901) to Terminal #4 of A4020.
5. Solder BLACK lead (Item 49 of CA901) to Terminal #5 of A4020.
6. Solder WHITE/RED lead (Item 19 of CA901) to Terminal #7 of A4020.
7. Solder WHITE/ORANGE lead (Item 6 of CA901) to Terminal #8 of A4020.
8. Reconnect .01 disc ceramic capacitor (C1548) to Terminal #8 of A4020.
9. Solder VIOLET lead (Item 11 of CA901) to Terminal #9 of A4020.
10. Solder center conductor, WHITE/BROWN, of shielded jacketed lead (Item 5 of CA901) to Terminal #10 of A4020. Solder the braid of this lead to Terminal #11 of A4020.

VI. MODIFICATION PROCEDURE - Cont'd

B. Rewiring

11. Using WHITE/ORANGE wire (supplied as Item 3 of this Kit), jumper from Terminal #14 of A4020 to Terminal #8.

12. There is no connection to Terminal #12 of A4020. This may be used as a test point for IF signal.

C. Test

1. Instruments required:

a. Frequency Counter - Hewlett-Packard HP524C, or equivalent.

b. Vacuum Tube Voltmeter - Hewlett-Packard HP410, or equivalent.

c. A-c Vacuum Tube Voltmeter - Ballantine Model 314, or equivalent.

d. R.F. Signal Generator - Hewlett-Packard HP606A, or equivalent.

e. 4 ohm Loudspeaker

f. 600 ohm, 1 watt Resistor

g. Audio Generator - H.P. Mod. 200 cd or equivalent.

2. Test Procedure:

a. IF Alignment - Remove RF Module

(1) Set the RCVR sideband to LSB and turn R1554 and R1555 fully clockwise.

(2) Connect the counter to left side of R1804 and adjust C1832 for a frequency of 1.5 ±2 cps as registered on the counter. Leave counter connected.

(3) Set the RCVR sideband switch to USB

(4) Adjust C1834 for a frequency of 2.0 mc ±2 cps as registered on the counter. Remove the counter.

VI. MODIFICATION PROCEDURE - Cont'd

C. Test

1. Test Procedure:

a. IF Alignment -

(5) Connect the HP VTVM between Terminal 9 on the RCVR IF printed circuit board and GND. The meter should read approximately +1.8 volts d-c. Remove meter.

(6) Set the RCVR sideband switch to LSB and remove the 1.5 mc crystal Y1801.

(7) Connect the Ballantine between the left side of C1806 and GND.

(8) Connect the HP 606A RF generator between Terminals 1 & 2 on the RCVR IF board with the generator's output control at zero.

(9) Set the generator at 1.75 mc ±50 cps using the frequency counter, and increase the generator output to approximately 1.0 mv. The Ballantine should indicate some voltage present at the base of Q1802. (left side of C1806).

(10) Adjust C1804 and C1802 for a peak indication on the Ballantine Meter. Peak reading should be 10 mv minimum.

(11) Reduce generator output to zero and remove meter.

(12) Remove the signal generator input connections.

(13) Re-insert the RF module.

(14) Re-insert 1.5 mc crystal.

D. Receiver Testing - Overall

1. Set VOLUME control on front panel to the mid-position. Connect loudspeaker to Terminals 9 and 10 of TB1501, and 600 ohm resistor across Terminals 3 and 5.

VI. MODIFICATION PROCEDURE - Cont'd

D. Receiver Testing - Overall

2. Set SQUELCH control maximum clockwise.

3. Connect the HP606A to the antenna jack, J1502, on the rear apron of the STR-2X. Set at zero output.

4. Connect the Ballantine VTVM between Terminals 3 and 5 on TB1501.

5. Set the signal generator for an output of 100 mv at the operating frequency noted on the receiver converter frequency nameplate (±50 cps), and modulate 30% at 1 KC.

6. Listen to a 1 KC note on the speaker. Reduce signal generator output until beat note just exceeds noise.

7. Adjust VOLUME control for a comfortable listening level, and obtain reading on the Ballantine VTVM.

8. Adjust receiver converter tuning capacitors A through E, in that order, for peak indication on the Ballantine. Signal generator output should be reduced to maintain signal level just above noise.

9. Adjust LSB ADJUST, R1554, for a peak reading and back off slightly. Set sideband selector to USB and adjust USB ADJUST, R1555, for a peak reading and back off slightly. Balance USB and LSB as close as possible.

10. Signal + Noise-to-Noise Ratio:

a. Set the signal generator for an output of 3 uv at the operating frequency ±50 cps noted on the receiver converter frequency nameplate, and modulate 30% at 1 KC.

b. Readjust R1822 to obtain .78V on the Ballantine.

VI. MODIFICATION PROCEDURE - Cont'd

D. Receiver Testing - Overall

10. Signal + Noise-to-Noise Ratio:

c. Disconnect the signal generator from the STR-2X and observe the new reading. The difference in db is the Signal + Noise-to-Noise ratio, and should be a minimum of 10 db.

11. Dynamic Range:

a. In gradual steps, increase output of signal generator from 3 uv to 0.1 volt. The output on the Ballantine should not vary more than 10 db.

12. IF Response:

a. Set the signal generator for an output of 3 uv at the operating frequency ±50 cps noted on the receiver converter nameplate, (no modulation).

b. Connect the scope to the top of R1808 and observe the amplitude of the signal.

c. Set the signal generator to a lower frequency until the amplitude of the signal is approximately 1/3 from the amplitude observed in Step "b".

d. Set the signal generator to external a-c modulation and modulate 30% at 1 KC, with Audio Generator.

e. Read the output on the a-c Ballantine meter and use this reading as a 0 db reference point.

f. Change audio generator frequency down to 300 cps and up to 3 KC. The change in audio output as measured on the Ballantine should not be more than 4 db.

VIII. FINAL

Install KIT-287 nameplate on front panel between power light and LSB/USB switch.

This completes conversion of the STR-1 to STR-2X1.

REVISION SHEET	THE TECHNICAL MATERIEL CORP. MAMARONECK NEW YORK	S 1100 LIST NO.

DATE	REV.	SHEET	EMN #	DESCRIPTION Sheet 8 of 8	APP.
5/18/66	Ø			ORIGINAL RELEASE FOR PRODUCTION	
6/15/66	A	all	16372	Revised per EMN	

TMC FORM MLR-1 2-65—AINS.