

DATE 6/19/58
 SH. 1 OF 3
 COMPILED BY
 P. L. K.

TMC SPECIFICATION NO. S-379

TITLE: REACTANCE MODULATOR MODIFICATION OF

JOB

APPROVED P.L.K. JER FFRD-7 & FFRD-8

The output range of the Reactance Modulator is reduced thereby reducing the shift of the H.F. Oscillator frequency.

I. FFRD-7 MODIFICATION:

1. Cathode bias resistor R720 is changed from a 3.3 K ohm resistor (RC20GF332K) to a 2.2 K ohm resistor (RC20GF222K).
2. Reactance tube coupling capacitor C725 a 68 uufd (CC-101-5) changed to a 8.0 uufd (CC21SLO80D).

Adjustment:

The tuning drawer should be adjusted as described in the instruction book for a balanced shift when tuned to 8.0 Mc. This point will be found when C723 is adjusted to its half position. The shift should also be checked at 12.0 and 16.0 Mc. After the shift has been checked, the receiver must be realigned.

The resulting shift will be approximately as follows:

Signal Frequency	HFO Shift	
8.0 Mc	+ 5.8 Kc	- 5.8 Kc
12.0 Mc	+ 8.5 Kc	- 9.0 Kc
16.0 Mc	+11.2 Kc	-13.2 Kc.

The following data as taken from a modified tuning drawer shows the resultant shift for various positions of C723.

Signal Frequency C723 Capacity	-8.0 Mc HFO Shift	
min.	+2.7 Kc	-6.8 Kc
$\frac{1}{4}$	+4.4 Kc	-7.0 Kc
$\frac{1}{2}$	+5.8 Kc	-5.8 Kc
$\frac{3}{4}$	+5.0 Kc	-4.4 Kc
max.	+4.2 Kc	-3.8 Kc

Signal Frequency C723 Capacity	-12.0 Mc HFO Shift	
min.	+9.6 Kc	-12.6 Kc
$\frac{1}{4}$	+4.7 Kc	-12.0 Kc
$\frac{1}{2}$	+8.5 Kc	- 9.0 Kc
$\frac{3}{4}$	+5.4 Kc	- 6.9 Kc
max	+4.2 Kc	- 5.4 Kc

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PLK

FFRD-7 & FFRD-8

Signal Frequency	-16.0 Mc	
C723 Capacity	HFO Shift	
min	+20.0 Kc	-21.2 Kc
$\frac{1}{4}$	+17.6 Kc	-18.8 Kc
$\frac{1}{2}$	+11.2 Kc	-13.2 Kc
$\frac{3}{4}$	+ 7.2 Kc	- 9.6 Kc
max.	+ 4.8 Kc	- 7.2 Kc

II. FFRD-8 MODIFICATION:

1. Change C823 a 3-12 uufd variable ceramic capacitor (CV11A120) to a 4-30 uufd (CV11C300).
2. Change R820 a 1.5 K ohm resistor (RC20GF152K) to a 1.0 K ohm (RC20GF102K).
3. Change C825 a 47 uufd capacitor (CC21SL470K) to a 10 uufd (CC21SL100D).

Adjustment:

The tuning drawer should be adjusted as described in the instruction book for a balanced shift at 16.0 Mc. This point will be found when C823 is adjusted to a position between one quarter and one half capacity. The shift should also be checked at 24 and 31 Mc. After the shift has been checked the receiver must be realigned.

The resulting shift will be approximately as follows:

Signal Frequency	HFO Shift	
16.0 Mc	+8.0 Kc	-8.0 Kc
24.0 Mc	+ 18 Kc	- 16 Kc
31.0 Mc	+ 19 Kc	- 19 Kc

The following data as taken from a modified tuning drawer shows the resultant shift for various positions of C723.

Signal Frequency	-16 Mc	
C823 Capacity	HFO Shift	
min.	+3.6 Kc	-7.2 Kc
$\frac{1}{4}$	+4.8 Kc	-8.0 Kc
$\frac{3}{8}$	+6.1 Kc	-6.3 Kc
$\frac{1}{2}$	+6.0 Kc	-5.6 Kc
$\frac{3}{4}$	+4.0 Kc	-4.8 Kc
max.	+3.5 Kc	-4.0 Kc

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AMB

FFRD-7 & FFRD-8

Signal Frequency C823 Capacity	24 Mc	
	HFO Shift	
min.	+16.2 Kc	-21.0 Kc
$\frac{1}{4}$	+18.0 Kc	-21.0 Kc
$\frac{3}{8}$	+14.0 Kc	-16.0 Kc
$\frac{1}{2}$	+11.4 Kc	-11.4 Kc
$\frac{3}{4}$	+4.8 Kc	-4.8 Kc
max.	+3.0 Kc	-3.2 Kc

Signal Frequency C823 Capacity	30 Mc	
	HFO Shift	
min.	+23.2 Kc	-26.4 Kc
$\frac{1}{4}$	+21.0 Kc	-25.6 Kc
$\frac{3}{8}$	+19.5 Kc	-20.5 Kc
$\frac{1}{2}$	+16.4 Kc	-11.2 Kc
$\frac{3}{4}$	+3.2 Kc	-3.2 Kc
max.		