DATE 9-28-53 SH. 1 OF 4 COMPILED BY K.Z.	TMC SPECIFICATION NO. S 182	
	TITLE: CFA 1 LB T stprocedur	JOB 245
APPROVED A.J.J. A. J. J.		

Description

This conversion is carried out for the purpose of adapting the CFA -1 to very narrow shift operation. It involves, very simply, moving the two discriminator tuned circuits closer together and increasing their Q so that the circuits which follow will see, at 40 cps shift an input voltage which approximates that formerly obtained at 850 cps shift.

At the same time, to make the monitor more adaptable to the new 20 to 200 cps shift range, a monitor gain control has been installed to allow for the adjustment of wide variations in discriminator output voltage which result of going from one shift extreme to another. Since there is no further need for the Speed Switch, the monitor gain control occupies its former physical position. All of these modifications are fully illustrated in TMC Print numbers CM 107, 1 to 4;

Testprocedure

(1) The CFA 1 LB is received in the testdepartment already converted except for the capacitors which form a part of the discriminator resonant circuits. The test technician must determine th correct value as indicated below.

(2) Install the basic capacitors on left chassis element assembly of the CFA 1 LB. Refer to Print number CK 156 for location of these capacitors on the unit. The basic capacitors are also indicat d by solid lines on Print number CM 107, 1 to 4.

(3) Go through steps 1 to 8 inclusive, as outlined on spec. S 156 (" Testprocedure CFA ")

(4) Set simulator to Zero shift; switch channel I On, channel II Off; sense switch to negative; use 1 mmfd capacitor in series with the scope probe.

(5) Connect probe between ground and pin 7 of V 6; by shunting th basic capacitor C 11A, carefully adjust the resonant frequency of the tank circuit (L2-C11) to 2600 cps (plus or minus 10 cps) as indicated by maximum vertical deflection on th scope. Additional capacitors are supplied for this purpos in kitform. Refer for details to Print number CM 107, 1 to 4. Use counter for accurate indication of frequency.

(6) Connect probe between pin 2 of V 6 and ground; adjust the resonant frequency of the tank circuit (L3-C13) to 2810 cps (plus or minus 10 cps) by shunting the basic capacitor with a suitabl value from the kit.

(7) Switch channel I Off; channel II On.

(8) Connect the probe to pin 7 of V 7; as under (5) adjust th resonant frequency of the tank circuit (L4-C14)to 2600 cps (plus or minus 10 cps).

(9) Connect the probe to pin 2 of V 7; as under (6) adjust the resonant frequency of the tank circuit to 2810 cps (plus or minus 10 cps).

Note : After the completion of the test and calibration procedure all additionally supplied capacitors not used should be returned to the stock room.

(10) Connect V.T.V.M. to D.C. output of discriminator; switch channel I

On, channel II Off. Observe and determine frequency at which V.T.V.M. indicates Zero Volts. Repeat the same operation on channel II. Limits: 2700 cps, plus or minus 10 cps. Effect of reversing sense switch: Less than 10 cps differenc .

(11) Go through steps 9 to 21 inclusive; perform testoperations as outlined with the following exceptions:

Step 9: Set F.S. simulator to 40 cps shift.

Step 13: With threshold control in about midposition, vary mark bias control and check whether the waveform can be shifted positive and negative respective to Zero axis.

Step 14: Vary mark bias control and observe whether mark bias distortion can be obtained toward both sides. Complete by adjusting for Zero mark bias distortion.

(12) Set simulator to 2700 cps, Zero shift; adjust horizontal positioning control of the CRT until the trace appears centered on the screen.

(13) Set simulator alternately at about 2600 and 2800 cps; adjust monitor gain control so that the trace is just visibl at either edge of the screen.

(14) Connect scope probe to Discriminator D.C. output; vary the F.S. simulator frequency between about 2640 and 2760 cps; check the output voltage; should not drop below 30 Volts.

Note: Calibrate and test either channel independently .

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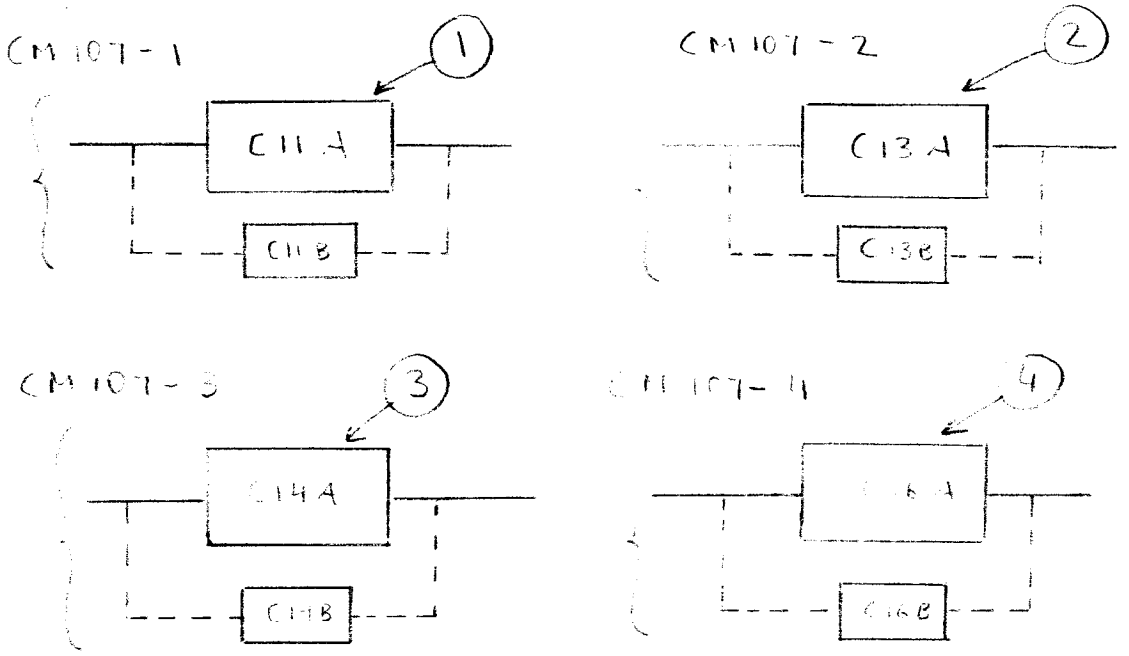

Req.	Item	Part No.	Desription	Symbol
4	14	CM20C511G	Discriminator capacitor	
4	13	CM20C471G	" "	
4	12	CM20C431G	" "	
4	11	CM20C391G	" "	
4	10	CM20C361G	" "	
4	9	CM20C331G	" "	
4	8	CM20C301G	" "	
4	7	CM20C271G	" "	
4	6	CM20C241G	" "	
4	5	CM20C221G	" "	
1	4	CM30C362G	Basic capacitor	C 16A
1	3	CM30C432G	" "	C 14A
1	2	CM30C362G	" "	C 13A
1	1	CM30C432G	" "	C 11A

Note: C 11B, C13B, C14B, C16B to be chosen from among items 5 to 14 inclusive, during calibration of discriminator section.

Note: After the completion of the test and calibration procedur all additionally supplied capacitors not used should be returned to the stock room. (Items 5 to 14 inclusive).