

MODULE 27
887B-1 ELECTRICAL FREQUENCY SYNTHESIZER
FAULT ISOLATION

OBJECTIVE

Given TO 31S1-2TSC60-12, isolate 887B-1 Electrical Frequency Synthesizer faults IAW Table 5-59.

PREREQUISITES

1. Must complete Modules 1, 2, 3, 15, 20, 21, 25, and 26.
2. You must be able to use the following test equipment:
 - a. HP-5245L Electrical Frequency Counter
 - b. Fluke 8300A Digital Voltmeter
 - c. Tektronix 454 Oscilloscope
 - d. 340 RMS Voltmeter

INFORMATION

If you suspect the 887B-1 Synthesizer of having a defect, you should refer to the performance test in Table 5-59 for the procedure to check it out. In addition, the performance test should be accomplished, after repairing the Synthesizer and periodically, as directed by the maintenance supervisor, to ensure that everything is up to "snuff." Remember, the performance tests are a little more detailed than the PMIs. Also, the performance test provides you a

method of isolating a malfunction to the defective circuit card.

The performance test is separated into two parts. Part A is written to utilize the van's existing control system. Part B is written to utilize the 7404A-1 Test Set. You only need to perform Part B if there is a problem with the control system in the van. Since there are three control heads in the van, it would be difficult not to be able to come up with one that worked. If you couldn't, you wouldn't be able to operate the radio after you were finished anyway. However, remember that the procedure is there should you ever need it. Read para 5-139 thru 5-143 and Table 5-59 in the -12 TO, and then we'll discuss the performance test.

Once the 887B-1 is installed on the extender cable and the dust cover is removed, you can apply power and begin the tests. You need to let the unit warm up before making frequency measurements, but the first measurements are logic levels. So, by the time you get these tests done and are ready for the frequency measurements, enough time has probably passed that you can just keep right on working.

Right off the bat, there's a possibility of confusion. The first step tells you to measure a voltage at A2TP1. Just exactly where is A2TP1? Turn to Figure 5-34.

There are three kinds of test point layouts in the 887B-1. Some cards have a connector on the top with a single row of pins. As the unit sets in the rack, the top pin is pin 1, and the test points are counted from top to bottom. Some cards have two rows of pins for test points. On this type the top pin towards the rear of the unit is pin 1, the top pin towards the front is pin 2, and so on with the odd numbered pins toward the rear and the even ones towards the front. The third type is used on shielded

cards. Each test point is separated on this type and is numbered from top to bottom.

From here on you shouldn't have any problems following the instructions in the performance test. The procedures will isolate a malfunction to the defective circuit card for you.

ADDITIONAL INSTRUCTIONS

Answer the review questions and check your answers with the confirmation key. Review the references in the module for any questions you missed. Next, ask your trainer for the KEP questions. After your trainer checks your answers and reviews the questions missed with you, go on to the performance procedures.

REVIEW QUESTIONS

1. On a circuit card with a test connector containing a single row of pins, how are the pins numbered?
2. How long should the unit be operating before any frequency measurements are made?
3. When should the performance tests be accomplished?
4. On a circuit card with a test connector containing two rows of pins, how are the pins numbered?

PERFORMANCE PROCEDURES

Have your trainer demonstrate the 887B-1 performance test. Practice performing the test under the supervision of your trainer until you feel confident. While you are practicing the procedure, do not skip any steps even though the procedure may tell you to. Your trainer will annotate your training records when he/she feels you are proficient.