MODULE 44
C-8333 LOOP CURRENT ADJUSTMENT

OBJECTIVE

Given TO 31S1-2TSC60-12, adjust the C-8333 loop current IAW para 5-121.

PREREQUISITES

Must complete Modules 1, 8, 42, and 43.

INFORMATION

In this module we'll discuss DC teletype operation and control. We have concentrated our efforts thus far on VFTG teletype because this is the mode you will most likely encounter during your career. However, there still are some systems that operate DC teletype; so you need to know how to work with it.

The best way to explain DC teletype is the "coil and contact" method. This method relates the teletype signals to relays. DC teletype operates on the presence or absence of current in a loop. Look at Figure 44-1. On the coil side of the loop, the presence of current would energize the relay. On the contact side of the loop, the closed contacts would allow current to flow.

Notice the rheostats in both loops of Figure 44-1. These rheostats limit the current in the loop. You'll be adjusting rheostats to set the loop current. The adjustment procedures are self-explanatory. Read para 5-121 in the -12

TO, and then we'll take a look at DC patching.

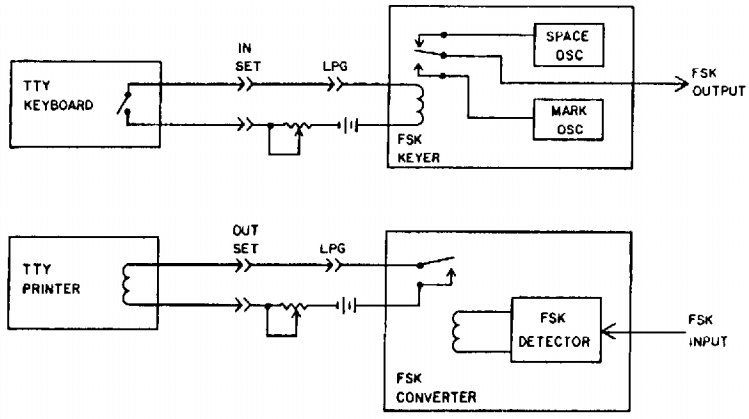

Figure 44-1. DC Teletype

When patching DC loop lines you must be more careful than when patching audio. This is because of the voltage on the loop. This voltage can be as high as 130 volts. When working with teletype, this line voltage is called "battery." If you insert one end of a patch cord into a jack that has battery on it, you could have 130 volts on the tip of the other end of the patch cord in your hand. This not only presents a hazard to you, but it's very easy for that tip to touch ground and short out the battery. Let's discuss the jacks on the jackfield for a moment.

Each jack has a tip, ring, and a sleeve. Usually the sleeve is grounded to act as a shield. When you insert a patchcord into a jack, the chances of the tip of that patchcord touching the sleeve of the jack are fairly high. In audio applications this is usually no problem since all of our audio output circuits are protected against shorts. In DC applications touching the tip of the patchcord to the sleeve of the jack could cause shorting the 120-volt power supply to ground. Obviously, this is going to cause a spark at the very least. The equipment is not usually affected by this action, but there are times when this will blow fuses.

The way to eliminate this hazard is to always patch to the jack that has battery on it last.

The rules for patching DC teletype are similar to those for patching audio signals. You still must patch OUT to IN but there are no Line, Equipment, or Monitor jacks on the DC patch panel. The DC patch panel contains Set and LPG (Looping) jacks. Look at Figure 44-1 again.

If you patched the Milliameter to the Set jack of the keyer, you would be replacing the keyboard with the meter. Since the meter is effectively a short, the loop would be in a mark condition and current would flow.

If you patched the meter to the LPG jack, the meter would be effectively in series with the loop, and you would again see a current indication on the meter. So, what is the difference in which jack you patch the meter?

With the meter in the LPG jack, you measure the loop current in its normal operating condition. With the meter in the Set jack, you replace part of the loop (the keyboard) with the meter. Since the loop now has different equipment connected to it, the current could be a little different. Unless the lines to the teletype equipment are very long, the difference is not usually very much; but the recommended procedure is to use the LPG jack. Now let's look at a different situation.

If you wanted to adjust the loop current controls, but there was no DC teletype equipment available to provide the normal load, you would have to patch the meter to the Set jack to provide the loop. This method provides you with a loop current that will be accurate enough to use when the proper teletype equipment becomes available.

ADDITIONAL INSTRUCTIONS

Answer the review questions and check your answers with the confirmation key. Review the material 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. Explain why you may see different loop current readings when patching the meter into the Set jack versus the LPG jack.

2. When patching the meter into the LPG jack, which jack should you plug the patchcord into first, and why?

3. Explain the difference between patching into the Set and LPG jacks.

4. What is the safety hazard when patching DC teletype?

PERFORMANCE PROCEDURES

Have your trainer demonstrate performance of the loop current adjustment. Practice performing this adjustment under the supervision of your trainer until you feel confident. Your trainer will annotate your training records when he/she feels you are proficient.