

- (2) Too much resistance in power cable. Voltage into radio substantially below 13.8 volts.
- (3) Vehicle battery voltage low or poor voltage regulation from the vehicle electrical system.
- (4) Too much ignition interference and electrical disturbance due to inadequate noise suppression on the vehicle.
- (5) Antenna poorly located for good propagation characteristics.

## BASE STATION INITIAL CHECKS

Citizen's Band base stations are very similar to mobile transceivers except that they usually have more meters for monitoring radio performance and they usually operate from 120-volt AC power. The power supply usually converts 120-volt AC to 13.8 volt DC, which is the same as the vehicle battery voltage for a mobile radio.

As with mobile transceivers, eliminate all external items as possible troubles before starting a bench check on a base station.

1. Connect the base station to 120-volt AC power. If the station is DC-powered, connect it to its usual power source.
2. Turn on the station. If the channel selector and meter illumination is lit, assume that the power supply voltages are correct.
3. If the channel selector and meter illumination is not lit in step 2, check the fuse and replace if necessary.
  - a. If a new fuse restores operation, proceed to step 4.
  - b. If a new fuse does not restore operation, remove the base station, including its power supply, for bench servicing.
4. a. If the transmitter RF output power is normal, check antenna SWR. Many base stations have a built-in SWR meter for performing this check, but the CB ServiceMaster can be used if the base station is not so equipped. Normally, the SWR for a base station installation is far below 2:1.
  - b. If transmitter RF output power is abnormal, postpone the SWR check until the base station is serviced and returned to the base station site.
5. Check base station microphones by substitution, or include them in the bench check.

## CURRENT DRAIN CHECKS

When a mobile transceiver is set up on the service bench for checkout, it is connected to a power supply. Most power supplies include output voltage and current meters. Voltage should be adjusted to 13.8 volts and current limiting (a feature of many power supplies) should be set at about 2 amperes. If the radio set has been blowing fuses or indicates a high current drain, it will be necessary to find the short circuit or overload and repair it before

continuing with other checks. It is advisable to note the current drain for each radio set when it is initially connected to the power supply. Refer to the transceiver manufacturer's specifications for maximum current drain for a specific radio. Generally, maximum current drains are in the vicinity of:

Standby (receiver squelched)	500 mA
Receive (full rated audio)	1.5 A
Transmit	2.2 A

## DEFINING THE SYMPTOMS

Although the CB ServiceMaster can be used to perform a complete diagnosis of an ailing CB transceiver without a description of its symptoms, a good description of the symptoms can often lead a technician directly to the problem. Servicing time is reduced by eliminating the time required for a complete checkout of all possible symptoms.

When a service order for a CB transceiver is taken, obtain a full description of the symptoms. This description should be defined as precisely as possible. Ask the owner additional questions, if necessary, to refine the description. For example, a symptom of "poor reception" could include the entire range of symptoms from "weak audio" to "short range (poor receiver sensitivity)", "adjacent channel interference (poor receiver selectivity)" or "garbled voice (distortion)". One of the latter terms much more precisely defines the malfunction, and, more importantly, further isolates the probable area in which the trouble is located.

Unless the servicing job is to be started immediately, jot down the description of the symptoms in correct technical terms. Keep the note with the equipment for reference when the troubleshooting job begins.

The troubleshooting procedures in this manual are grouped by symptoms. The symptoms alone localize the trouble within a portion of the radio set. The troubleshooting technique that will isolate the malfunction in the shortest time does not include checks in circuits that are not related to the symptom.

On AM/SSB transceivers, the usual practice is to fully check the AM mode of operation and correct any malfunction before checking the SSB modes.

## SERVICE BENCH DIAGNOSTIC CHECK

The following procedure may be used to determine what is wrong with the transceiver if no description of symptoms is available, or if the technician wishes to verify the symptoms and check for additional symptoms. The procedure may also be used if the technician wishes to perform a complete performance check of the transceiver and correct any subnormal performance.

1. Connect the transceiver to the CB ServiceMaster and associated test equipment in the basic test set-up configuration (Fig. 5).
2. Set up the test equipment to monitor receiver audio on the speaker of the CB ServiceMaster.
3. Set transceiver controls as follows: