

SUZUKI

AUDIO - SYSTEM

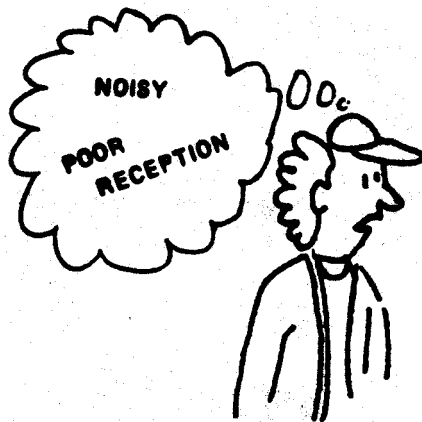
Troubleshooting Guide

99923-12851



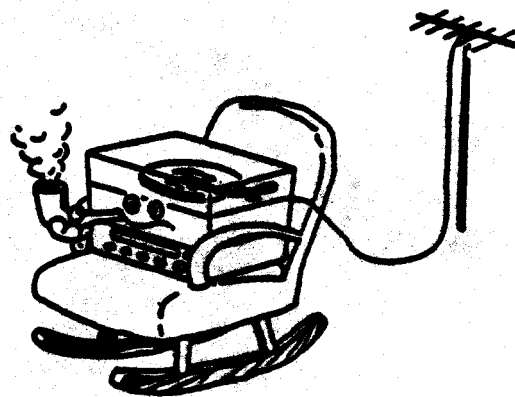
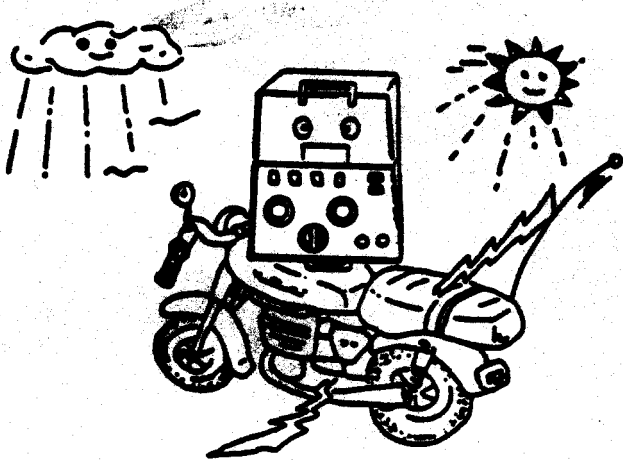
RADIO CHARACTERISTICS

Motorcycle radio receivers are more sophisticated than other receivers, so it will be beneficial to assist the consumer in understanding wave propagation. Radios can be divided into AM (Amplitude Modulation) and FM (Frequency Modulation). Radio signals and reception are affected by certain factors, including atmospheric conditions, strength of radio station signals, physical location of motorcycle electrical accessories on motorcycle, etc. Understanding these limitations, will help you minimize these conditions.

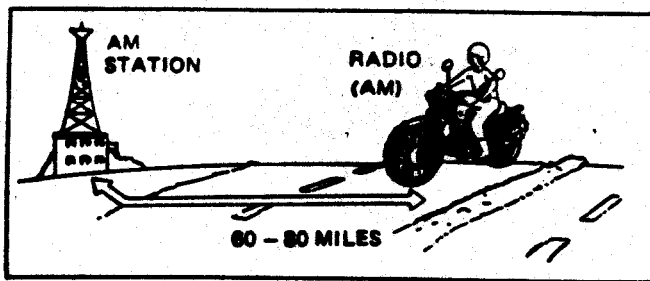


MOTORCYCLE RADIO vs. HOME STEREO

The radio in a moving vehicle has more difficulty with reception, especially with FM, than a home receiver with a fixed antenna, often located high on the roof. Not only is the motorcycle's antenna relatively short and a compromise in design between the best for AM and FM, but the incoming signal is subject to changes in direction, strength and interference conditions as the vehicle moves. Three kinds of problems are most often encountered in moving vehicles. They are strong signal interference, skip noise (due to weak signal) and multipath noise.

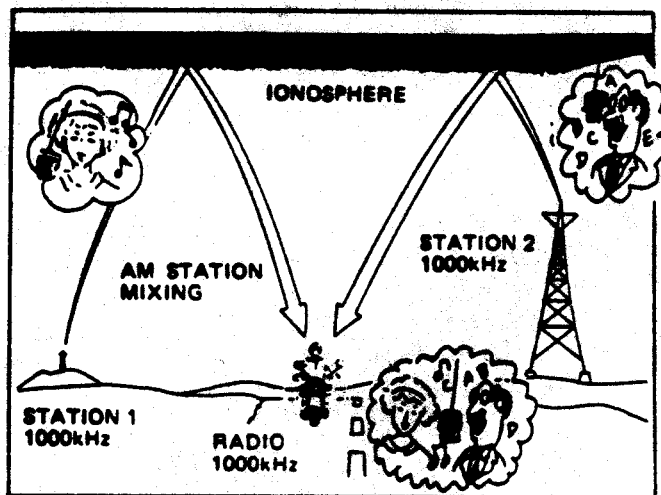


AM SIGNALS



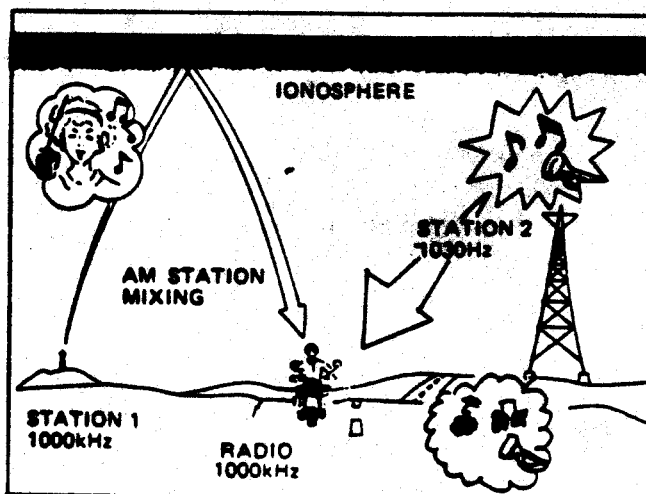
SERVICE AREA

Beyond a distance of 60 to 80 miles from an AM station, the station signal weakens. This causes station mixing and interference on the radio.



STATION MIXING

AM waves bend around objects such as buildings or mountains, and bounce off the ionosphere. Because of this, two stations might be picked up on the same frequency at night. This is called Station Mixing.

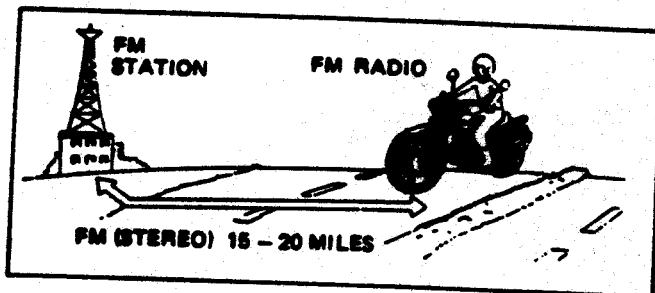


INTERFERENCE

When an adjacent station has a very strong signal, annoying noises may occur while receiving a weaker station. In the worst cases, the adjacent station may interfere. **THIS IS NOT RECEIVER TROUBLE.** This is caused by particular wave conditions.

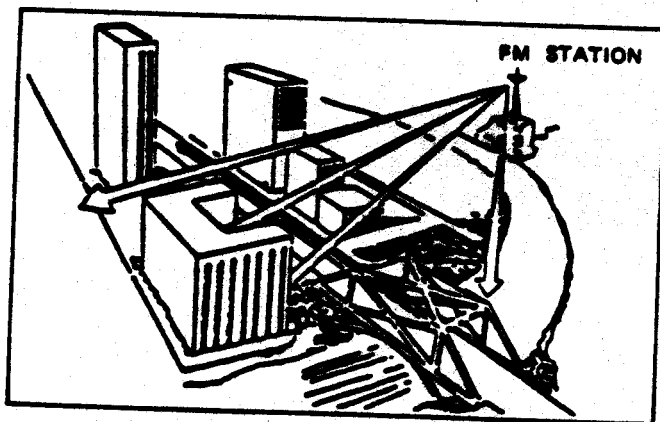
FM SIGNALS

Since stereo FM is a two channel system it has a fuller sound than monaural FM, and a more complex signal. This means the reception range of stereo FM is usually shorter, and reception problems are more apt to occur.



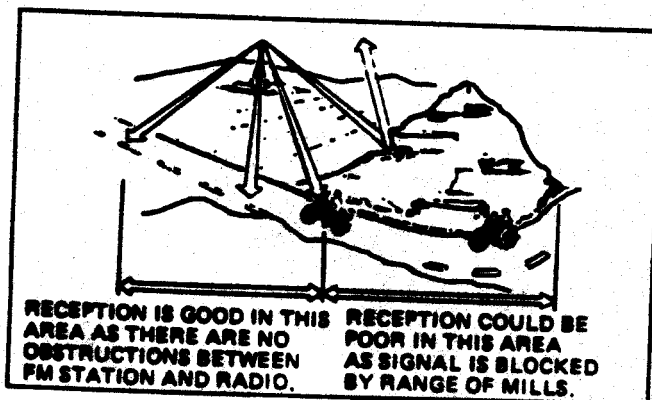
SERVICE AREA

Beyond a distance of 15 to 20 miles FM stations may fade out completely or fade in and out. When driving in weak signal areas, such as hills, valleys, tunnels, etc., unusual noise interference may occur.



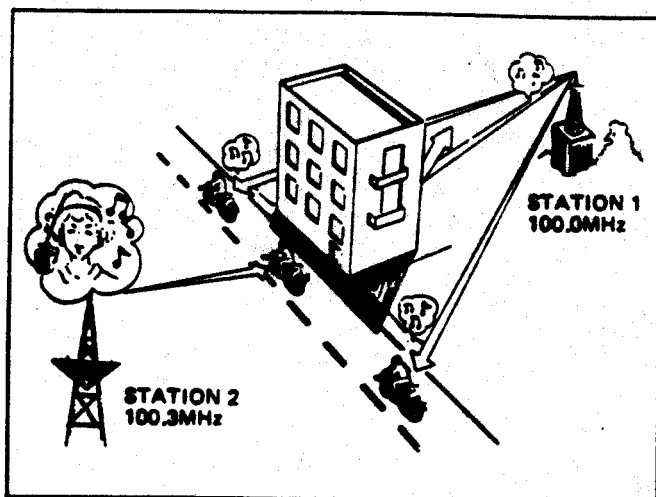
STATION FLUTTER

FM signals are easily reflected by solid objects. Therefore FM signals are blocked by tall buildings or other obstructions. This is called a flutter area, and results in POPS AND HISSES in the radio.



FADING

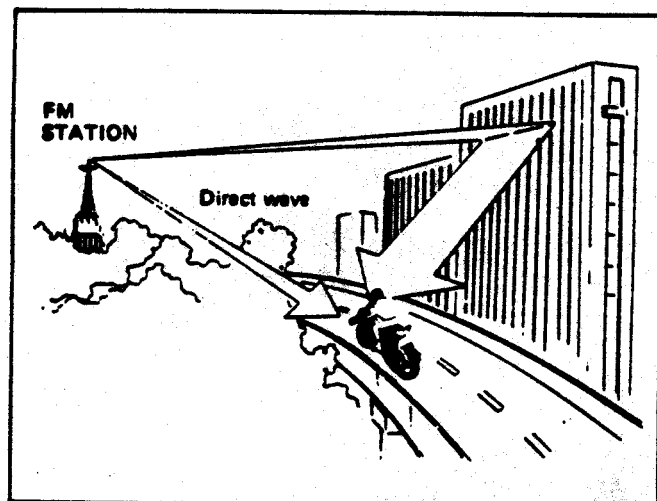
Since FM signals are easily reflected by solid objects, it is possible for an area to be blocked from the FM station. Fading occurs when an object blocks the path between the FM station and radio.



STATION JUMPING (STATION SWAPPING)

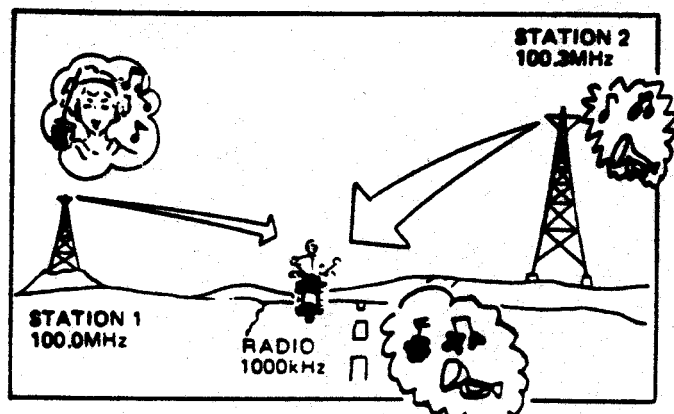
FM has a special characteristic called station jumping. This occurs when the frequency of two stations are near each other and a tall building temporarily blocks the desired signals.

The Automatic Frequency Control in the radio tunes to the adjacent station until the desired signal returns.



MULTIPATH

Because of the reflecting characteristics of FM signals, like light, direct and reflected signals may reach the motorcycle antenna at the same time, which is called "The multipath effect". Sometimes the direct and reflected signals cancel each other out, causing dead spots. As the motorcycle moves through these spots, the listener will hear a fluctuation of sound. These are the same characteristics as so called "Ghost" images on a TV screen when reflection of TV waves occur.



INTERFERENCE

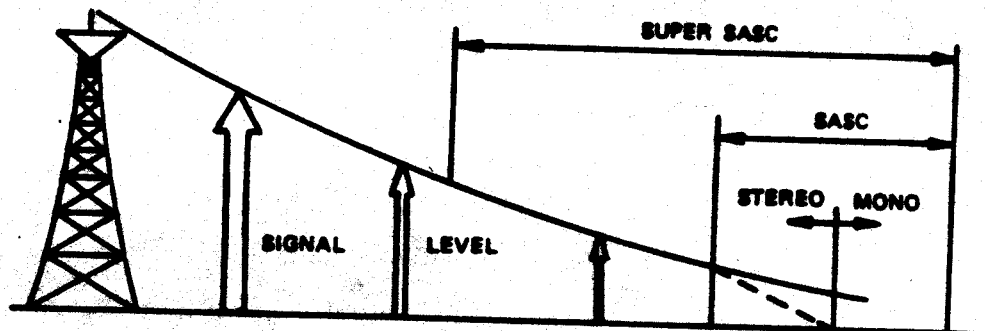
When an adjacent station has a very strong signal, annoying noises may occur while receiving a weaker station. In the worst cases, the adjacent station may interfere.

SASC FEATURE

The Suzuki motorcycle radio has a signal actuated stereo control (SASC) feature. When listening to a stereo station and the station signal becomes weak, you will get static and interference. If this should happen, the SASC will automatically switch from stereo to monaural, thereby eliminating or reducing the static and interference. When the station signal becomes stronger, the SASC will automatically switch from monaural back to stereo. When the SASC switches back and forth from stereo to monaural, the stereo light on the radio will go on and off accordingly. This is not a malfunction, but is an indication that the SASC is functioning properly, as it was designed to do. The SASC circuit extends the listenable service range by about 20%.

SUPER SASC FEATURE

SUPER SASC is the latest circuit developed by Clarion to reduce annoying multipath distortion in addition to the SASC which improves weak signal reception. SUPER SASC continuously monitors "multipath distortion" and eliminates unacceptable noise automatically by reducing high frequency response.



TROUBLESHOOTING

The best way to troubleshoot the audio system is to exchange the audio set with an extra audio set. If the same trouble occurs with the extra set, the failure is caused by display, handle switch, CB unit or wiring, etc.

The following troubleshooting guide will assist in locating unusual failures.

- Check that the battery is fully charged
- Check that all connectors are clean, tight and dry

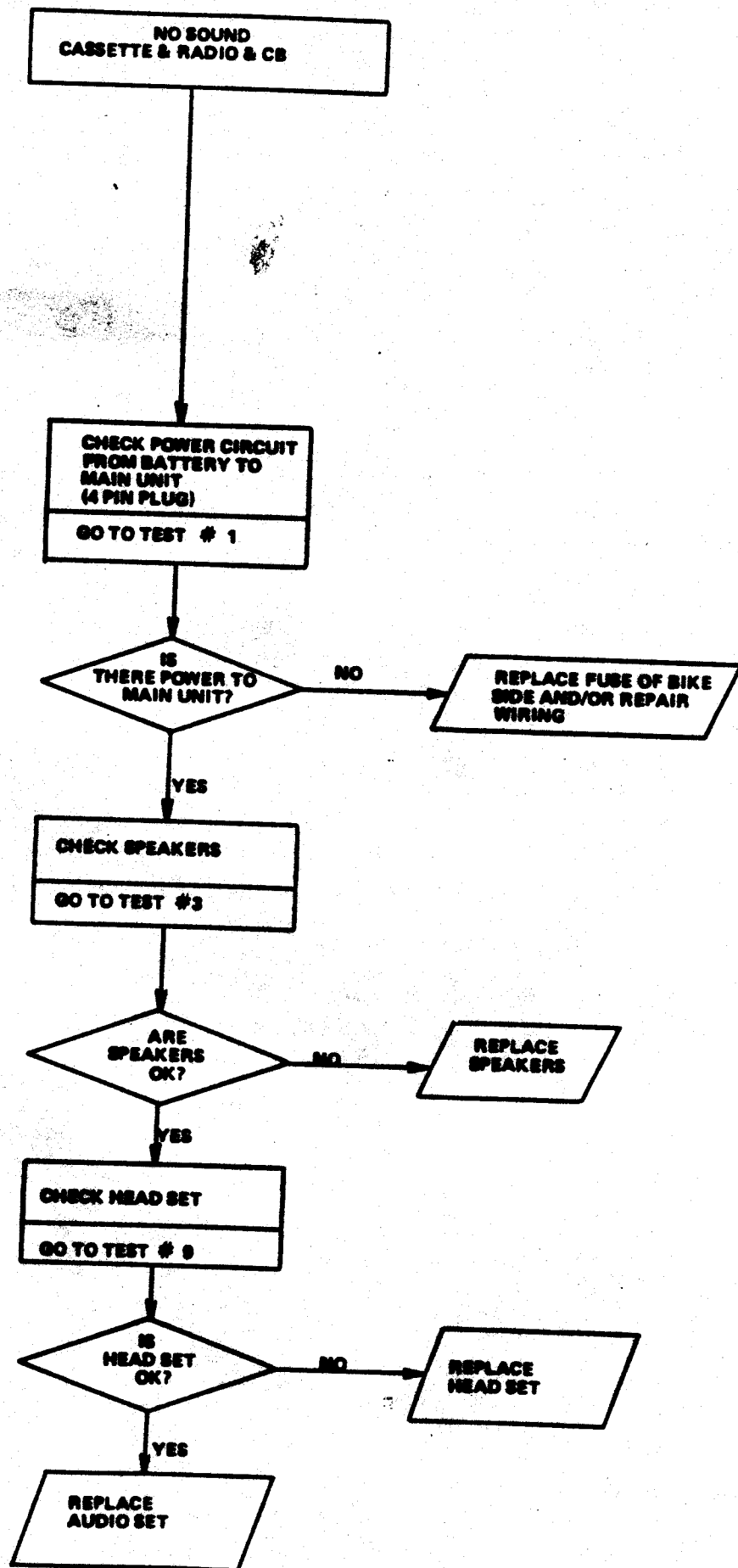
NOTE:

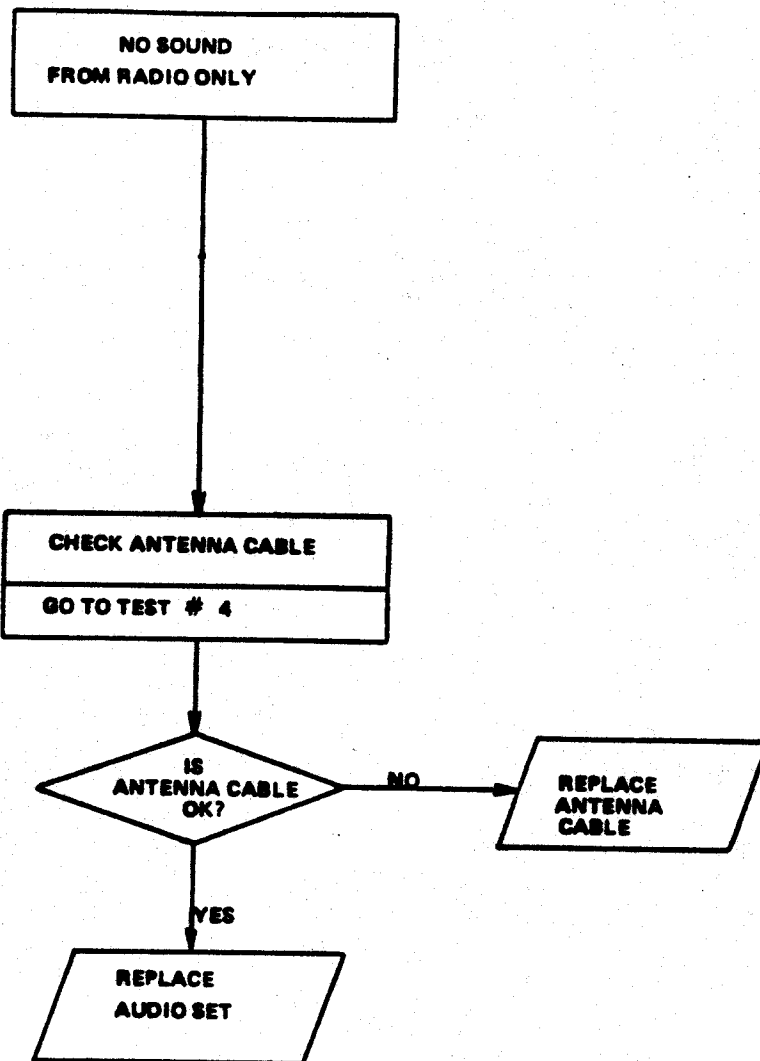
All suggested numbers of measurement should be read with tolerance of 15%.

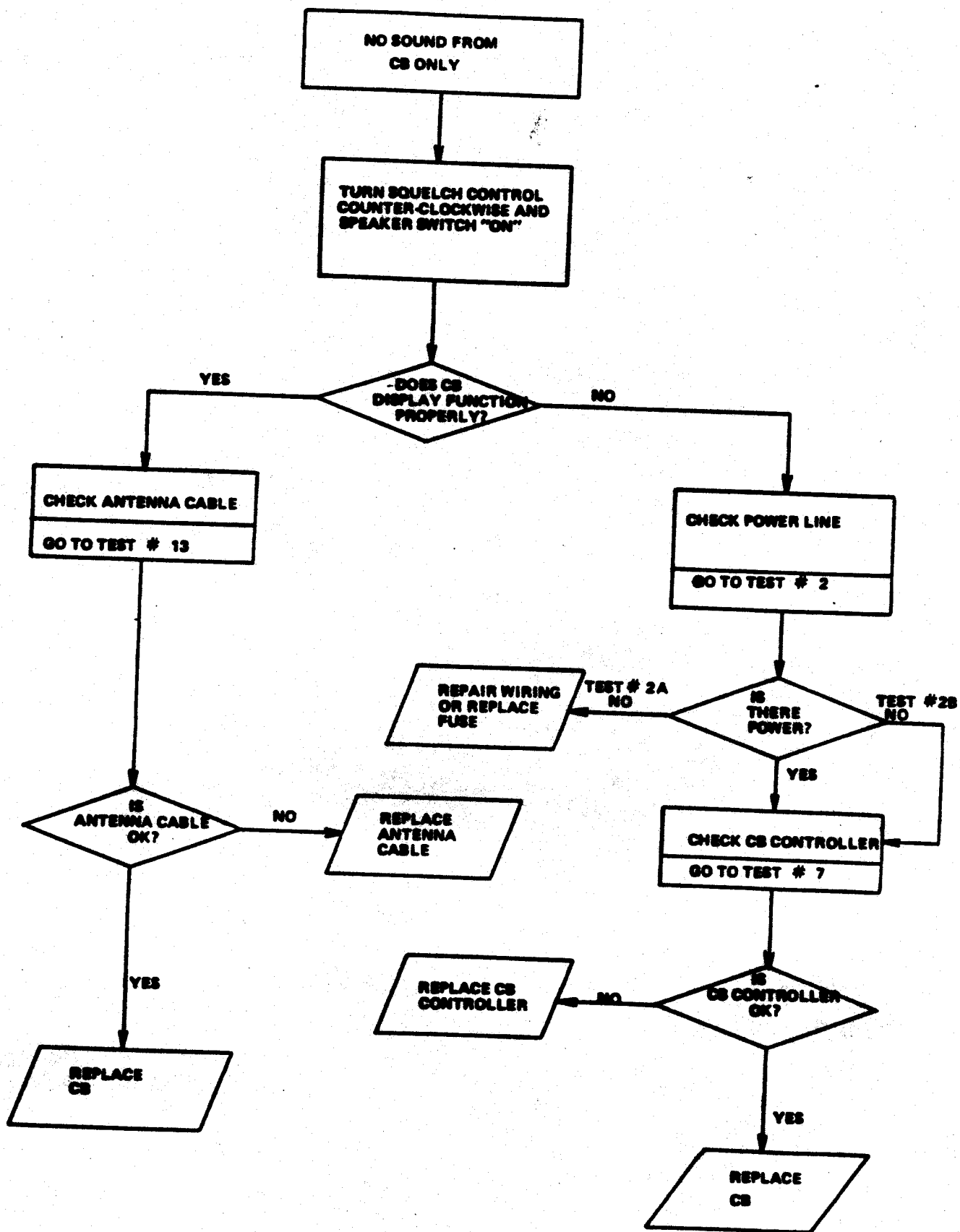
For example: Voltage = 12 volts

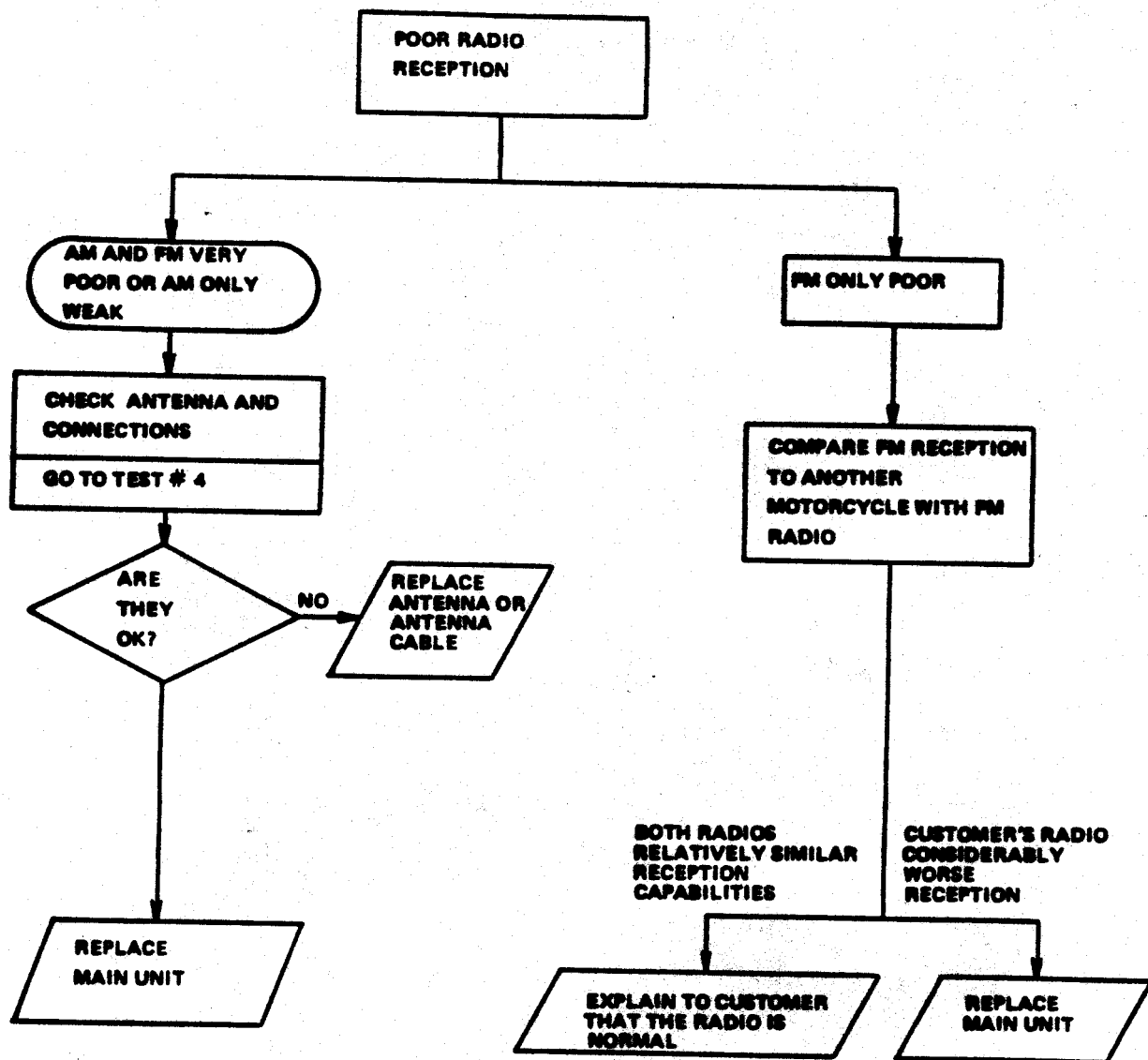
$$112 \text{ V} \pm 15\% = 10.2\text{V} - 13.8 \text{ V}$$

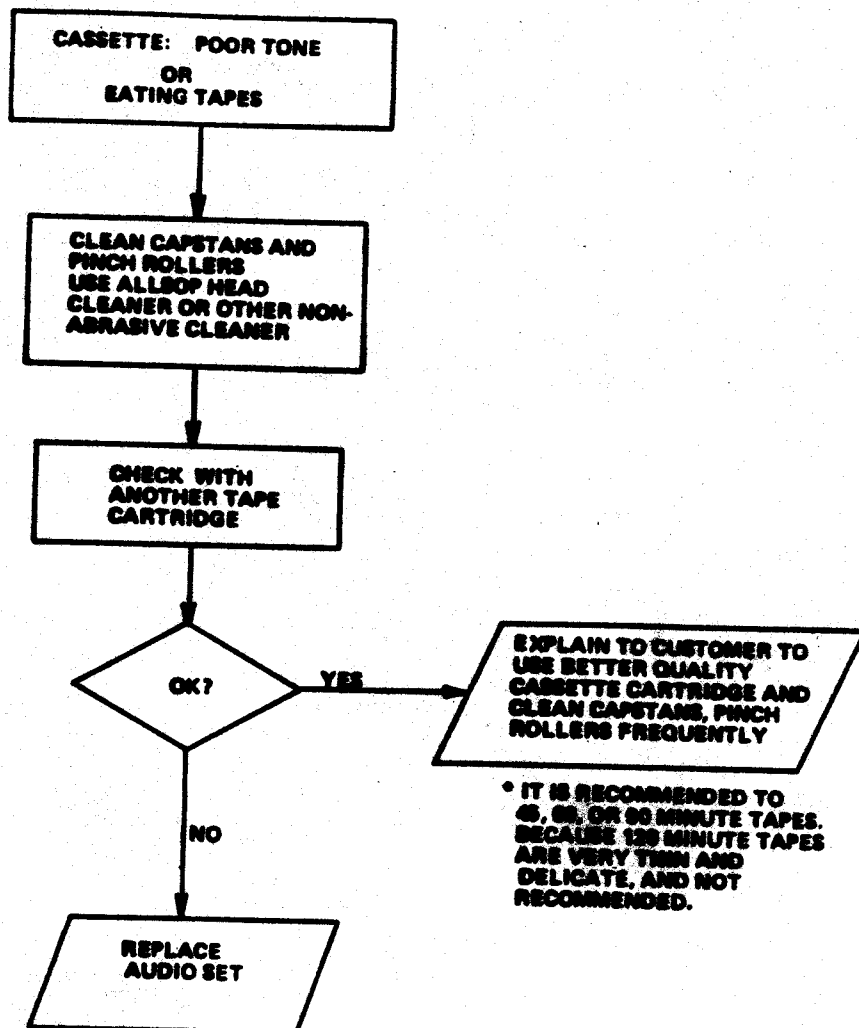
Caution: Do not cause a short circuit when making necessary measurements.

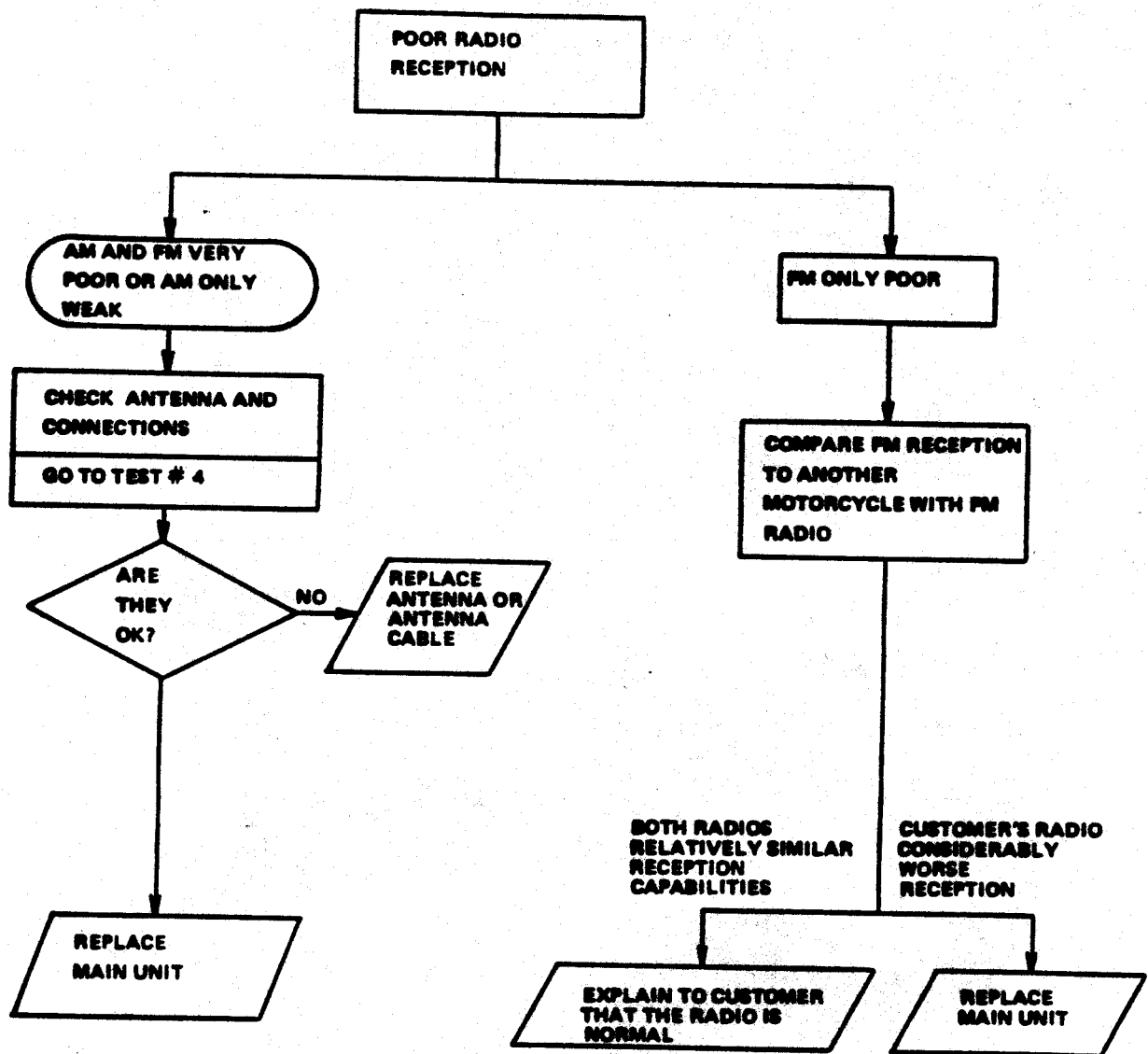


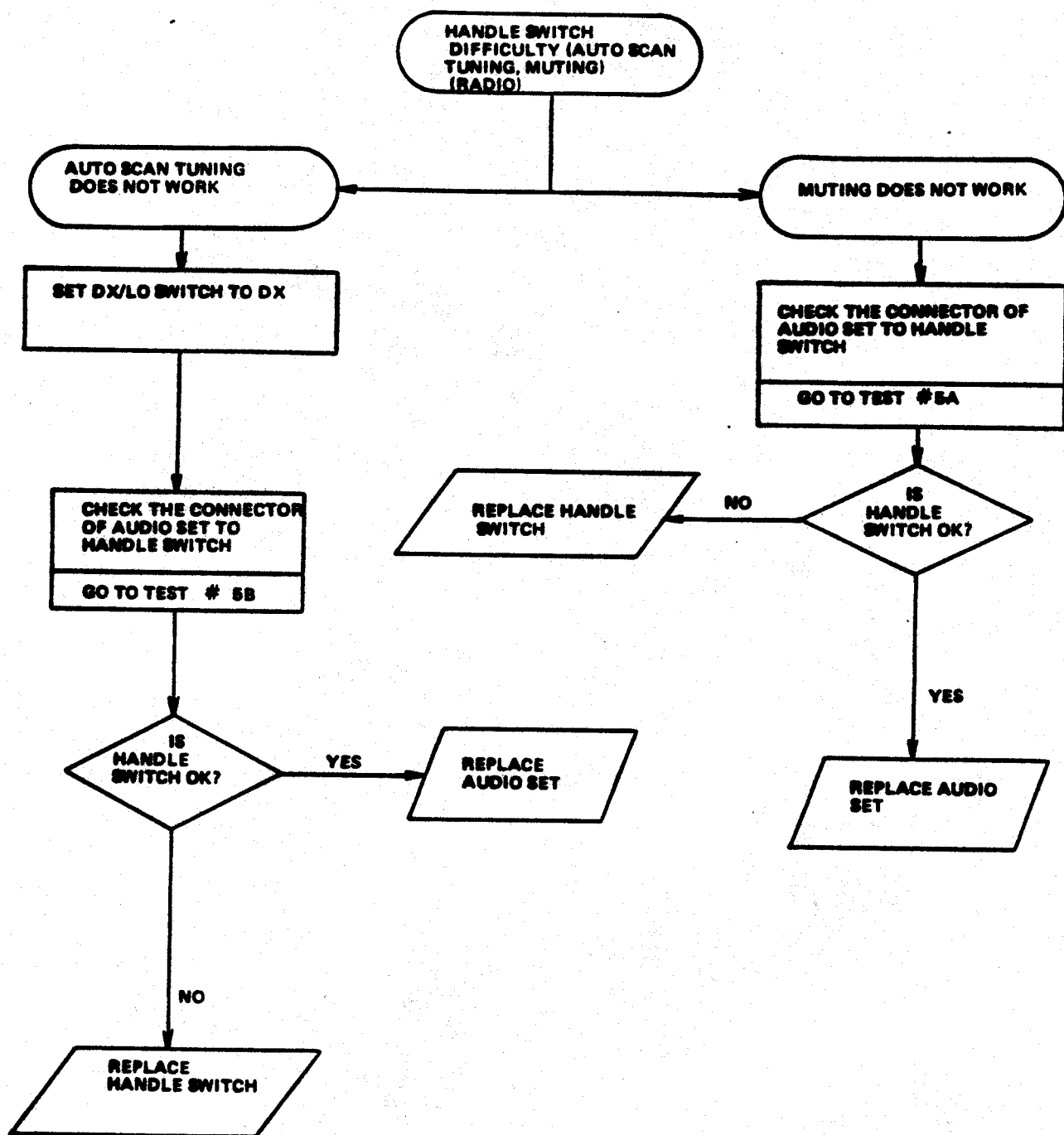






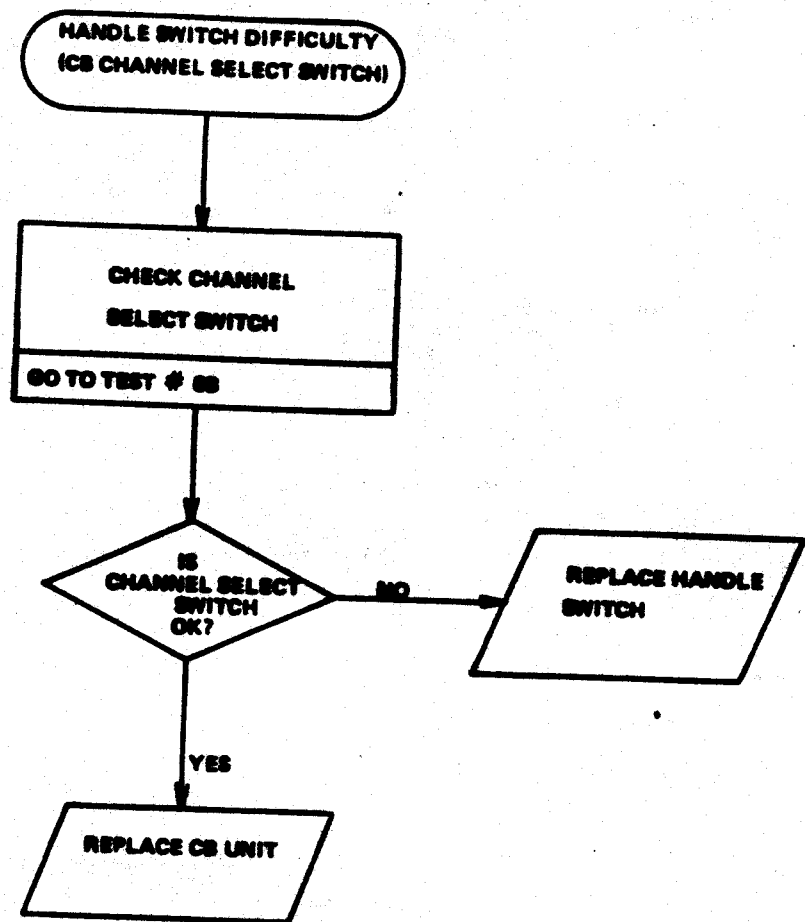


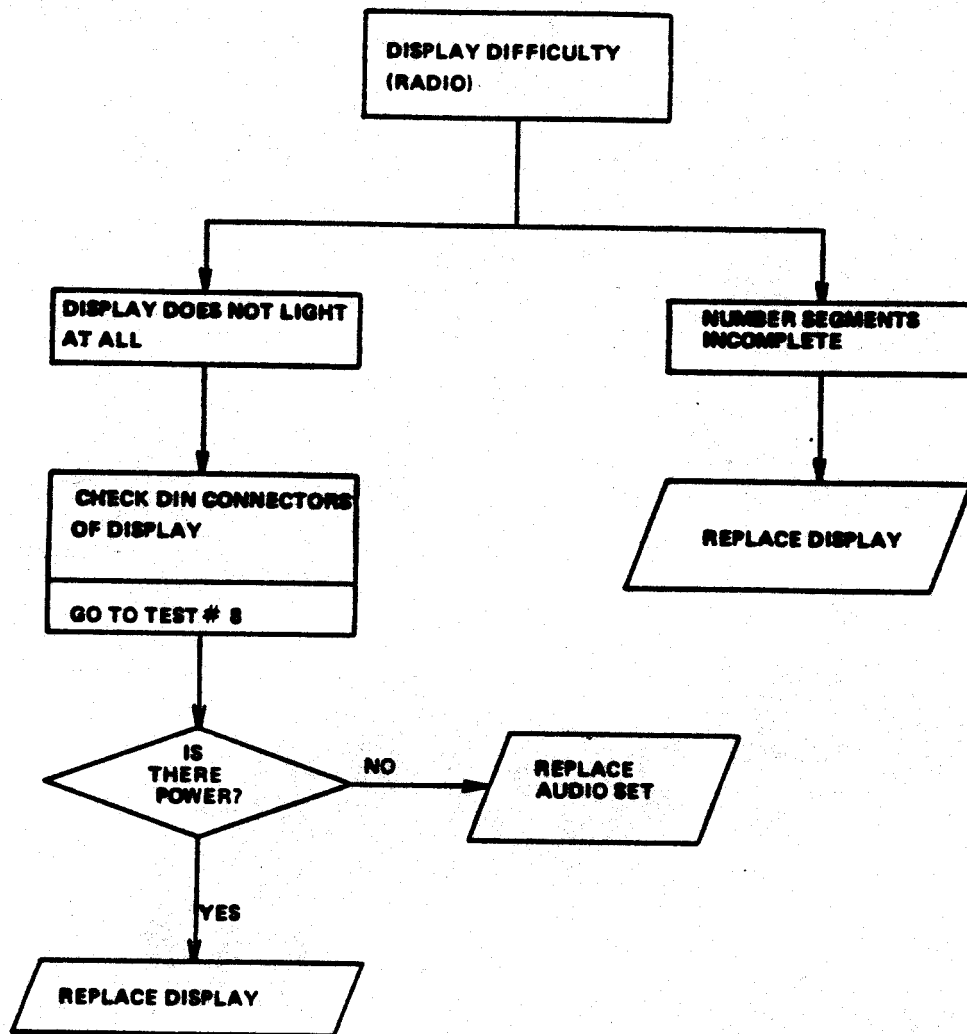


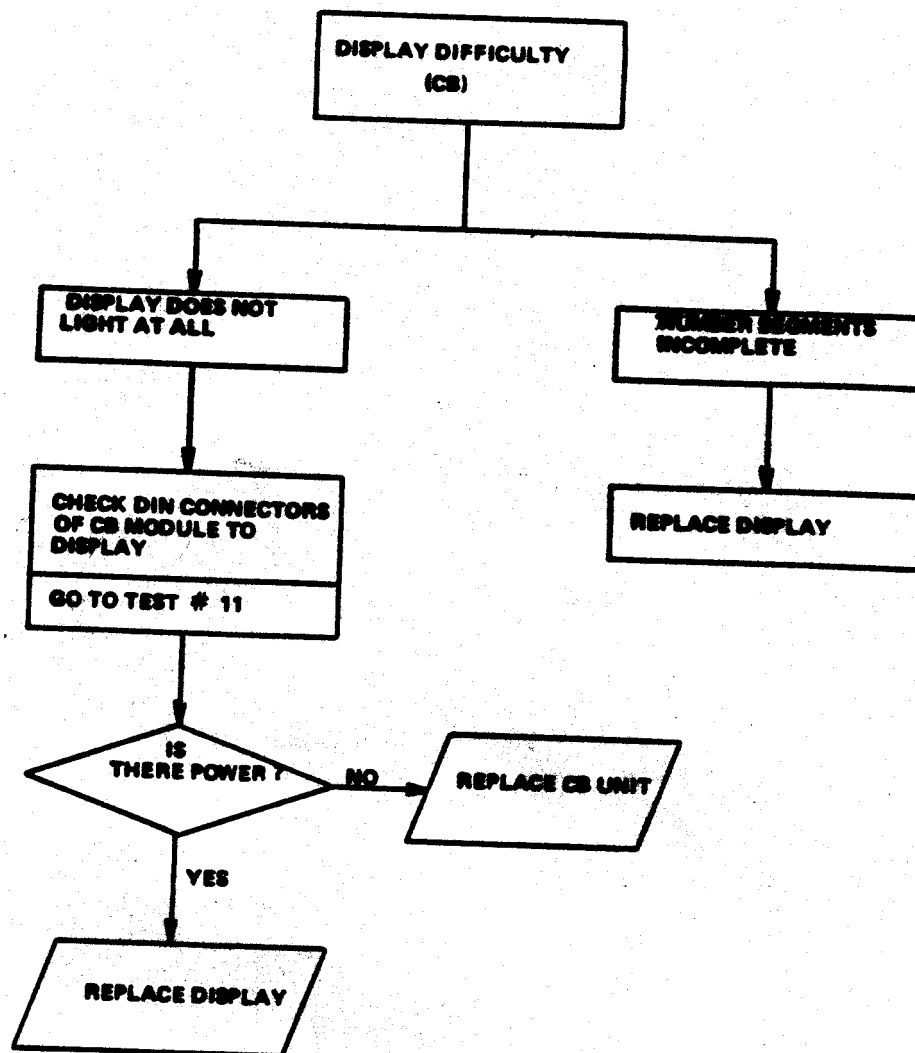


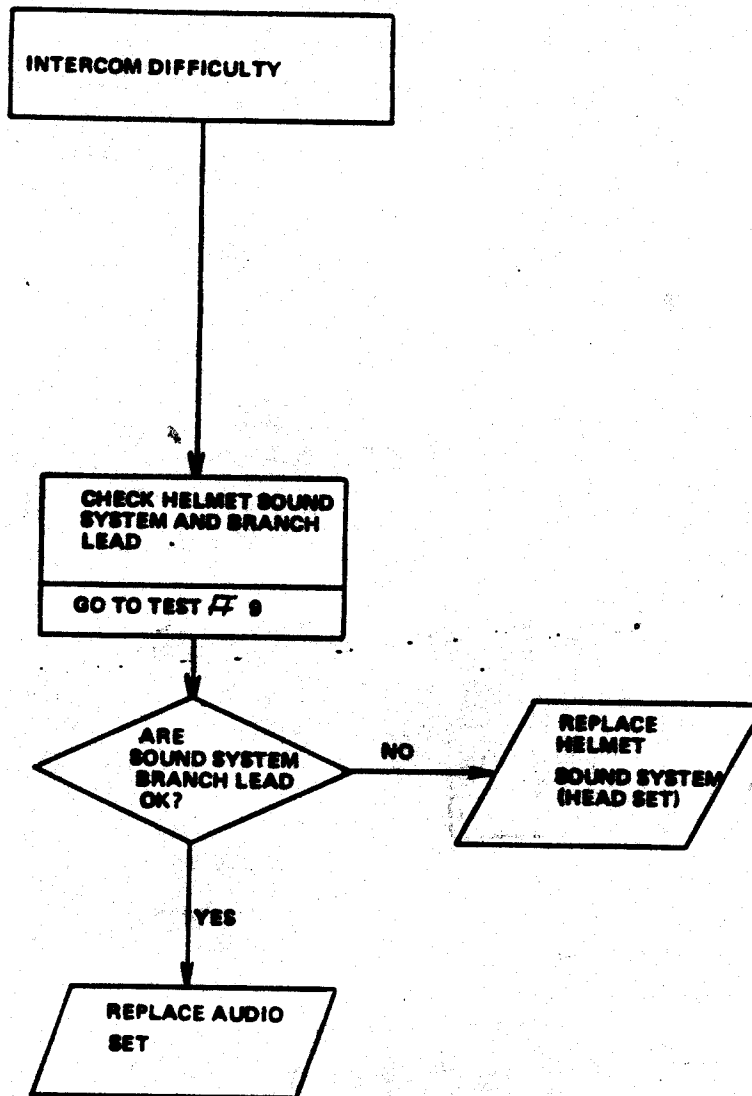
NOTE:

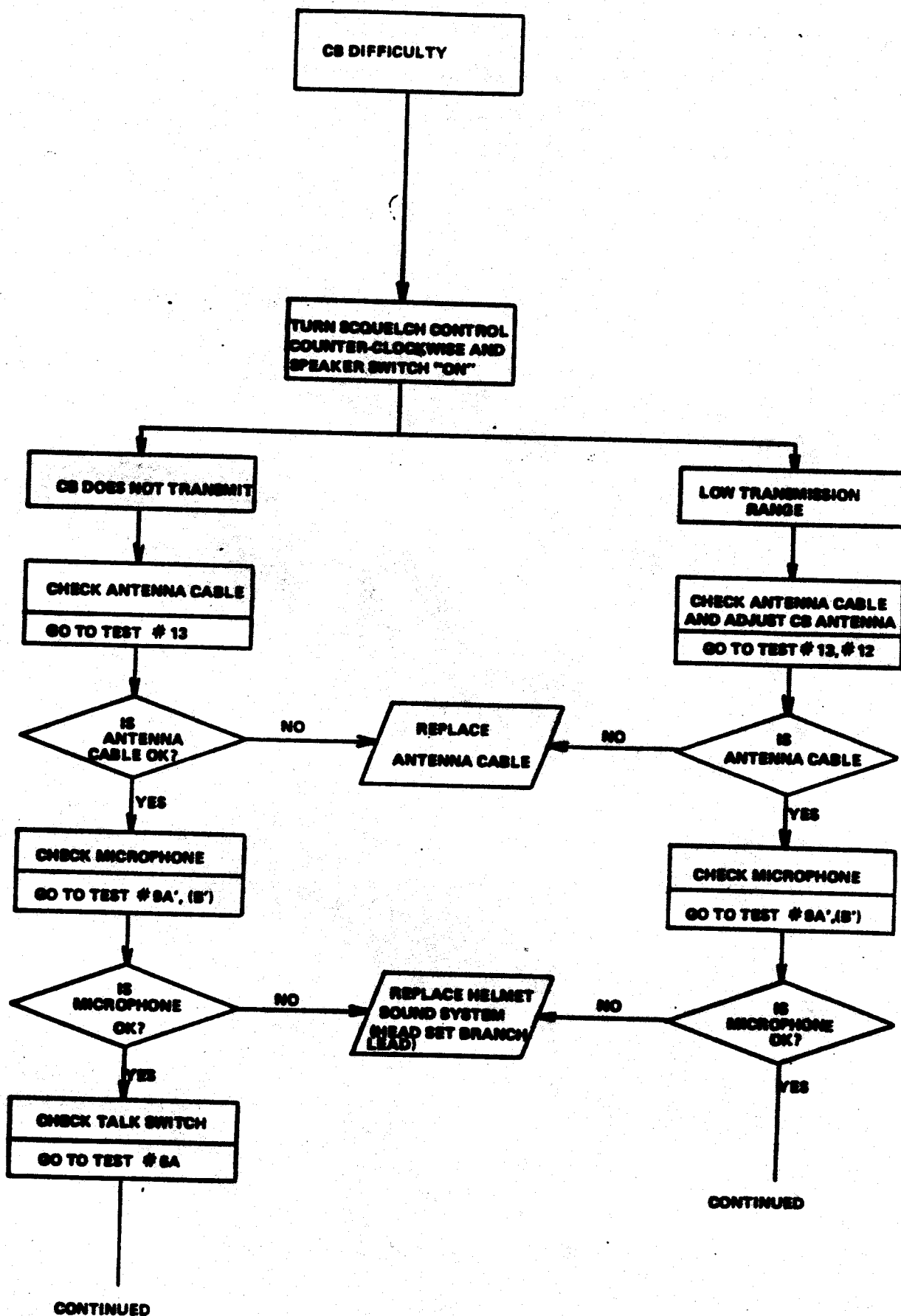
DX/LO SWITCH ONLY OPERATES DURING AUTO SEEK TUNING AND DOES NOT AFFECT RADIO RECEPTION.

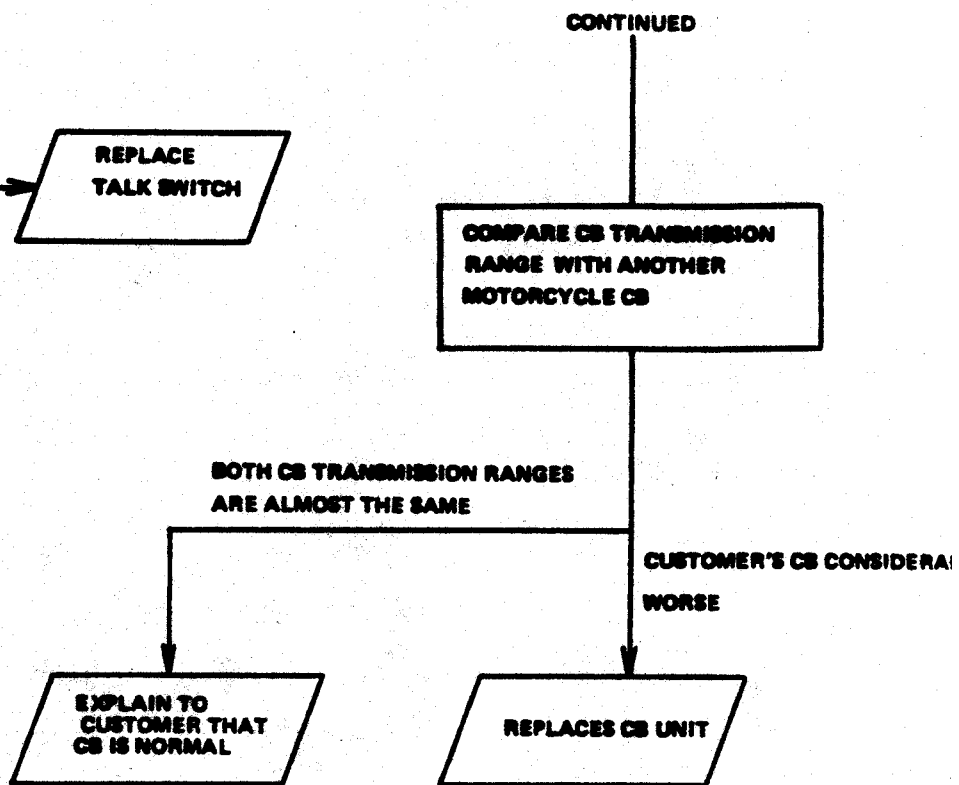
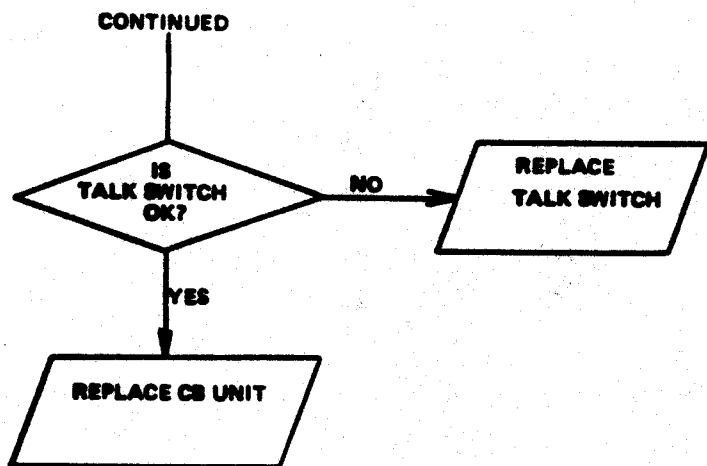




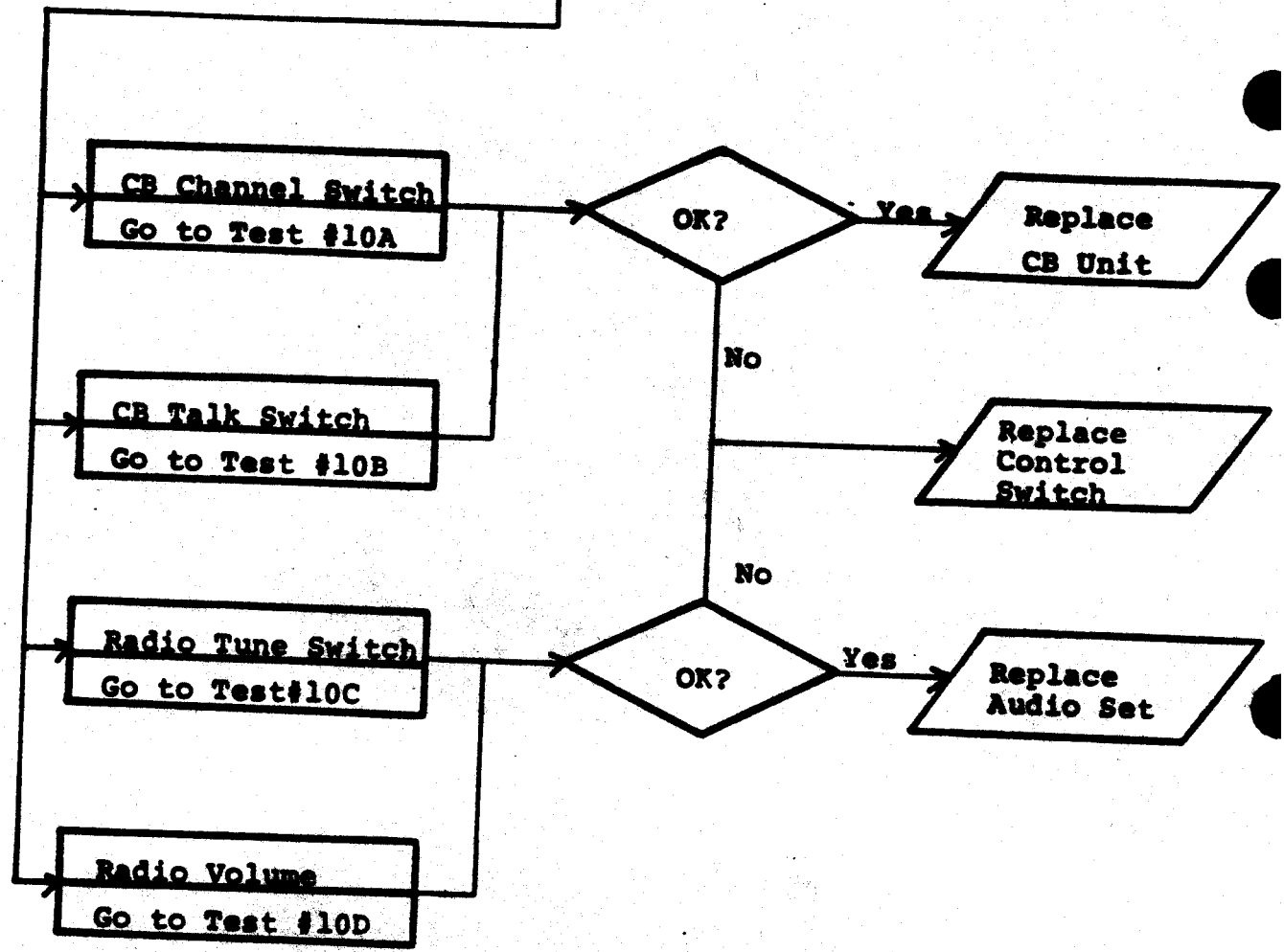






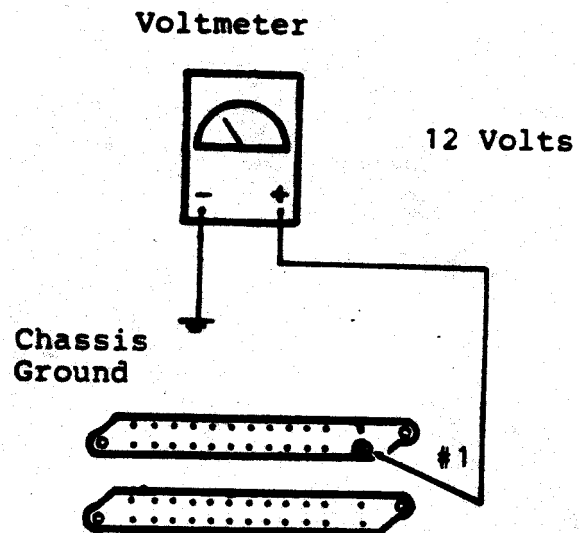


PASSENGER
CONTROL
SWITCH DIFFICULTY



**TEST #1 POWER LINE TEST
(AUDIO SET)**

- Turn ignition key to Acc.

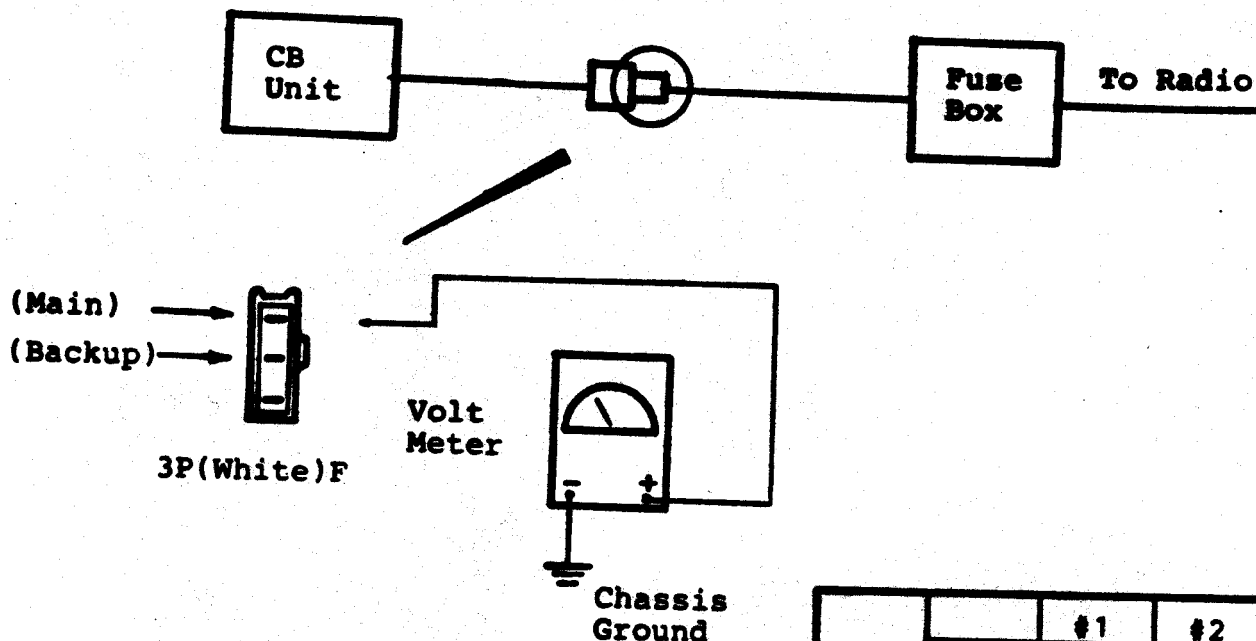


TEST #2

POWER LINE TEST (CB UNIT)

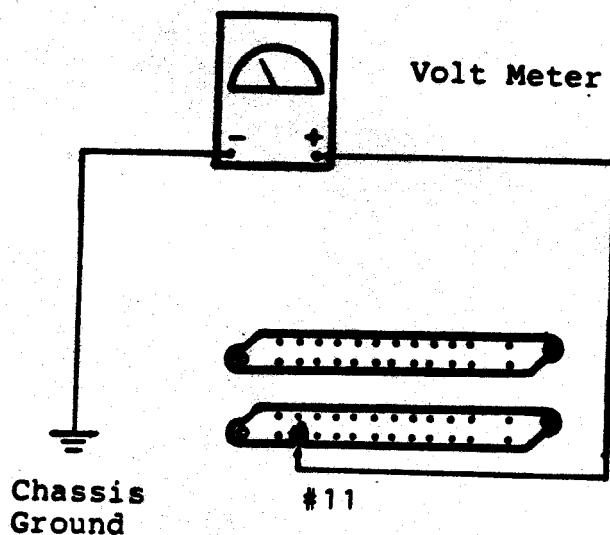
•Turn ignition key to Acc.

Test #2A Main/backup power line test



CB SW		#1	#2
	On	0V	12V
	Off	12V	12V

Test #2B Remote Control Power Line Test



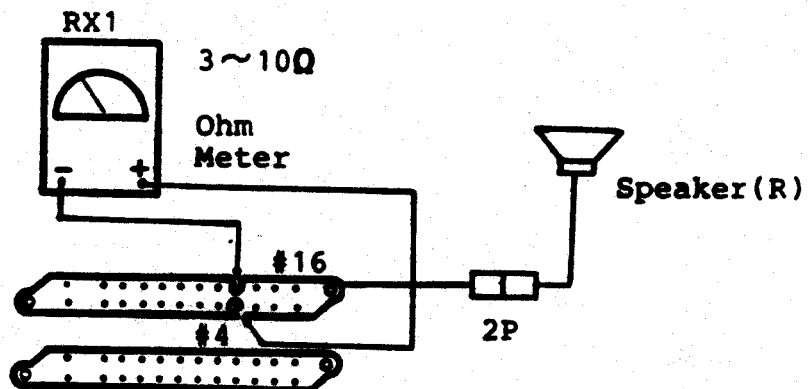
CB CONTROLLER SW/VOL

ON - 12V
OFF - 0V

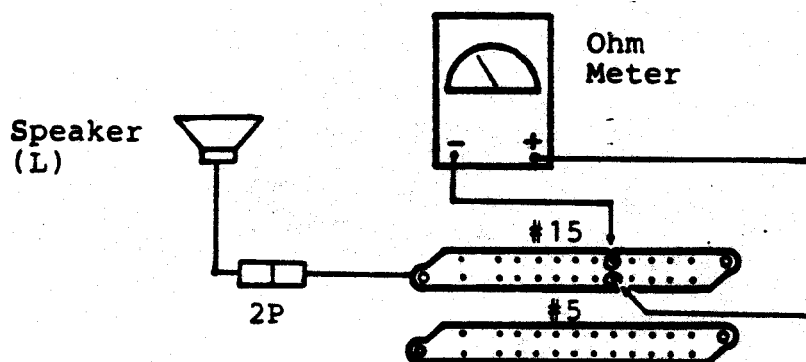
TEST #3 SPEAKER TEST

•Turn ignition key to Off

•Right Channel



•Left Channel



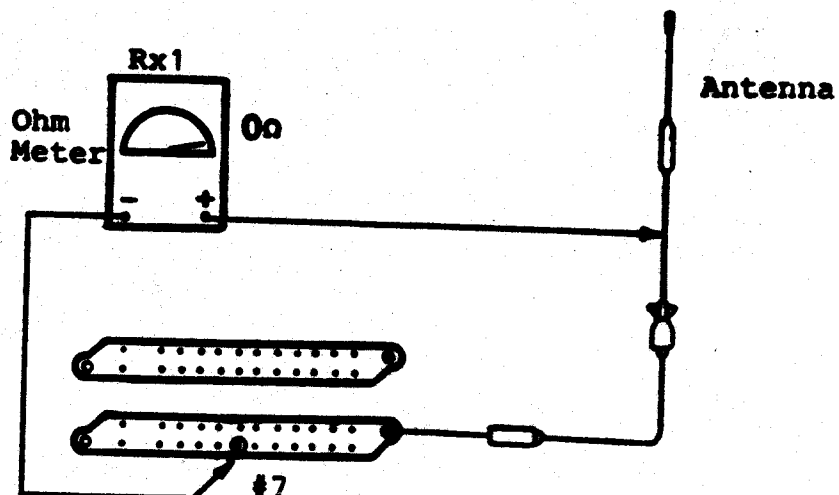
Use a multitester in the R x 1 ohm range. Do not use a digital tester or any tester in which the reading of the resistance value cannot be carried out to the unit of a few ohms because there will be no sound when such testers are used.

First, check the voice coil for any breaks. If there is a break there will be neither continuity nor sound. When the coil is in normal condition, there will be a scratching sound. The indication of the resistance value between 3 and 10 ohms means that the coil is in good condition; the indicated resistance value below 1 ohm means that there is a short in the coil. Check for a damaged voice coil which will produce either no sound or a distorted sound.

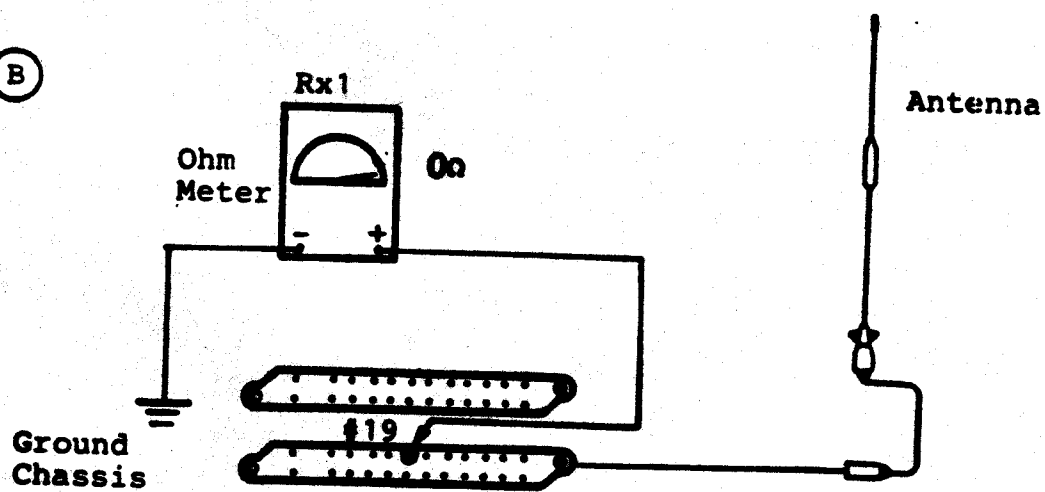
TEST #4 RADIO ANTENNA WIRING TEST

•Turn ignition key to Off

(A)



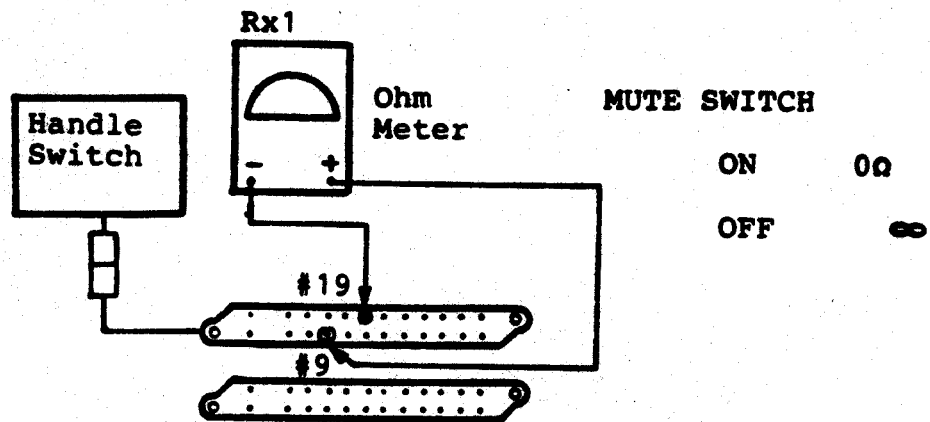
(B)



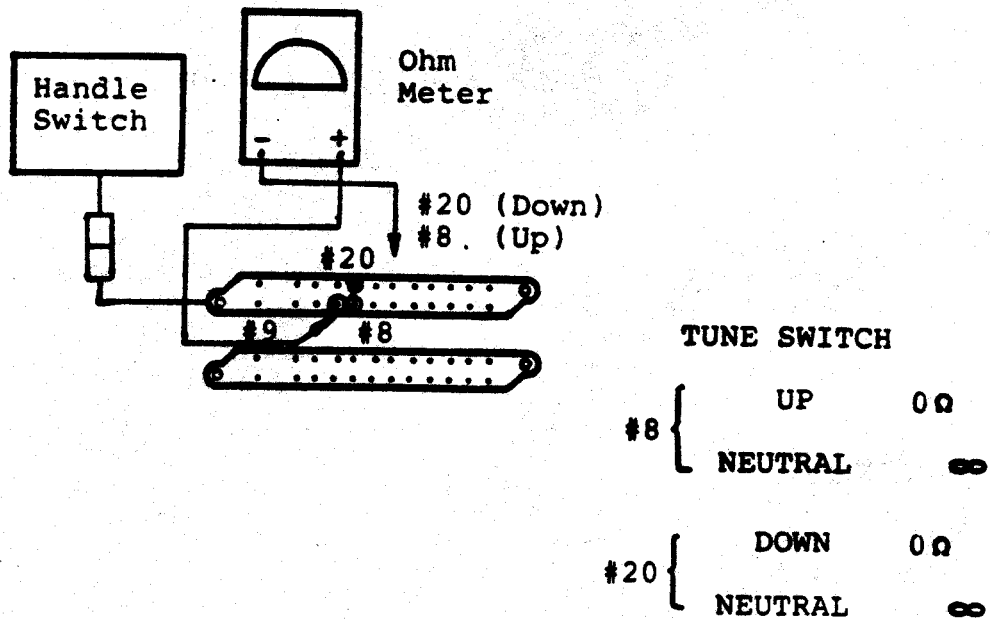
TEST #5 HANDLE SWITCH (MUTE/TUNE) TEST

- Turn ignition key to Off

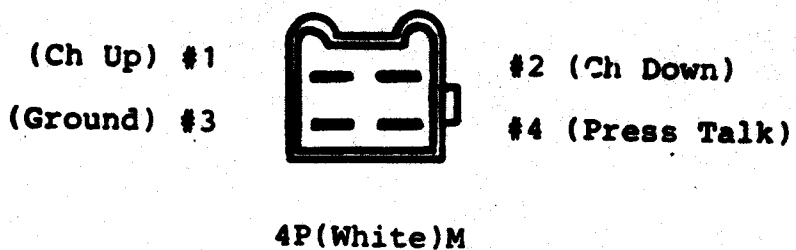
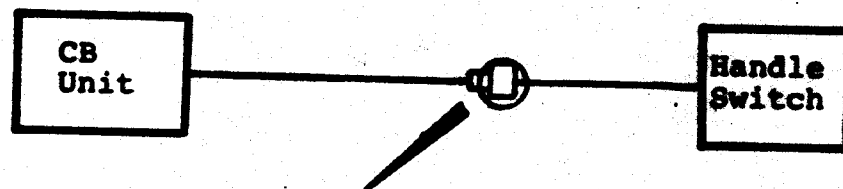
Test #5A Mute Switch Test



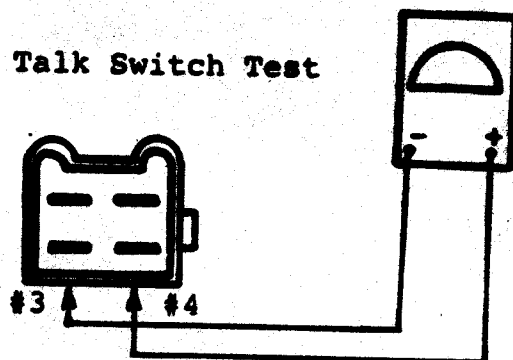
Test #5B Tune Switch Test



TEST #6 HANDLE SWITCH (CB TALK/CHANNEL) TEST



Test #6A CB Talk Switch Test

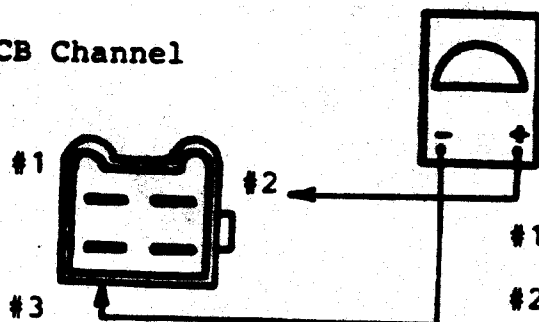


Talk Switch

On 0Ω

Off ∞

Test #6B CB Channel



CB Channel Switch

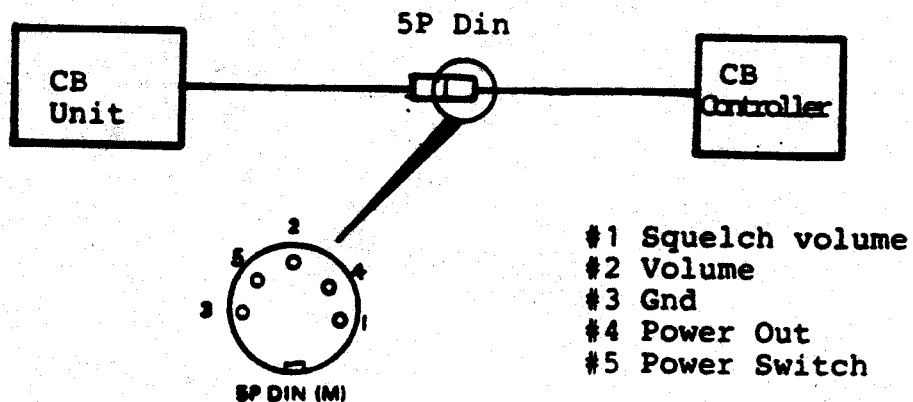
#1 { Up 0Ω
Neutral ∞

#2 { Down 0Ω
Neutral ∞

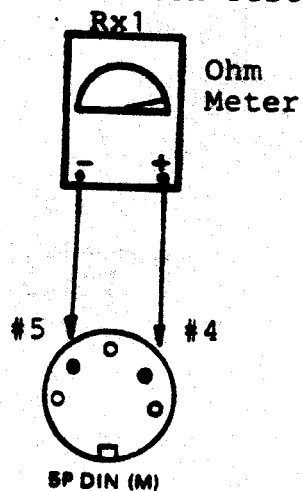
#1 (Ch Up)

#2 (Ch Down)

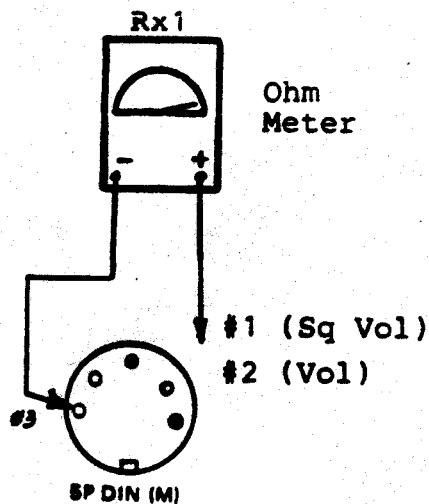
TEST #7 CB CONTROLLER TEST



Test #7A Power Switch Test



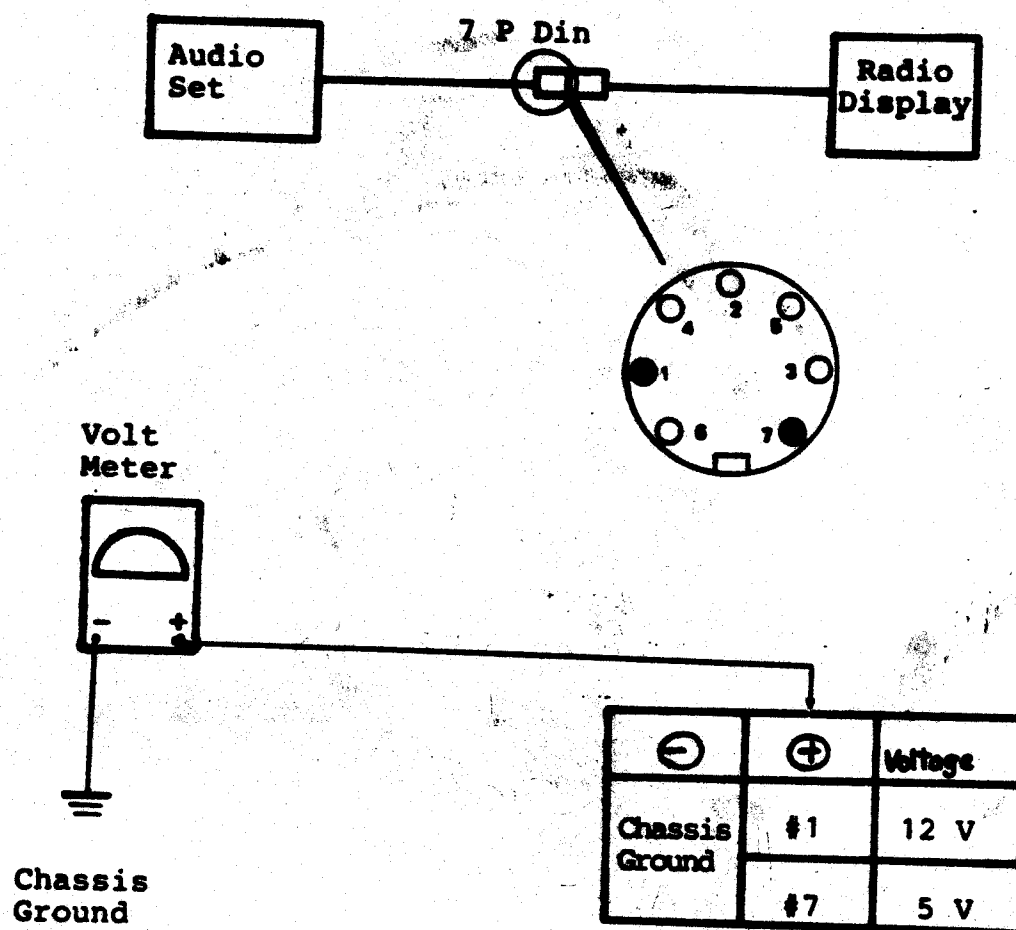
Test #7B Volume/Squelch Volume Test



#1 (Sq Vol) 0 ~ 5K Ω
#2 (Vol) 0 ~ 30K Ω

TEST #8 RADIO DISPLAY TEST

- Turn ignition key to Acc.
- Audio set on



#1 (Illumination)

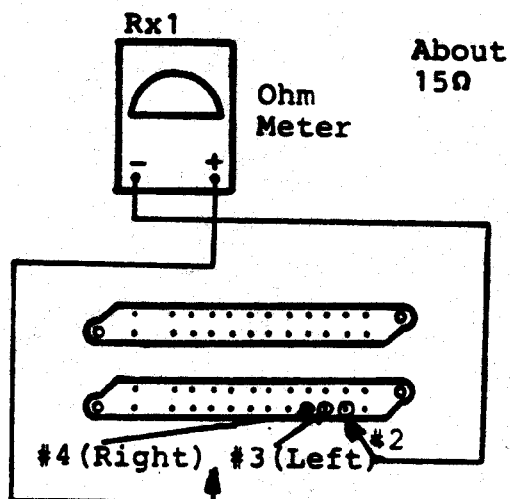
#7 (Power For Display)

NOTE: Even though above test is O.K., display still has possibility of failure.

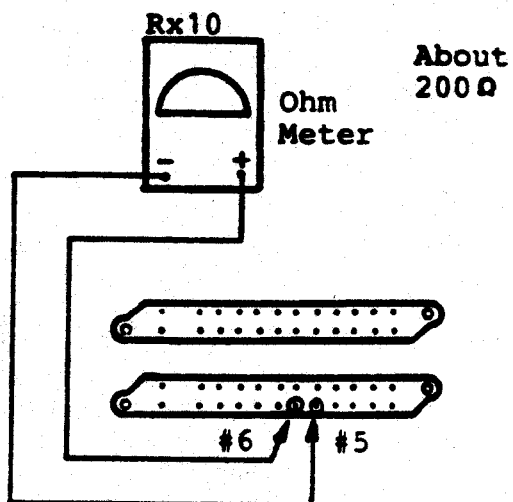
TEST #9 HEADPHONE TEST

•Connect headphone(s) to audio set

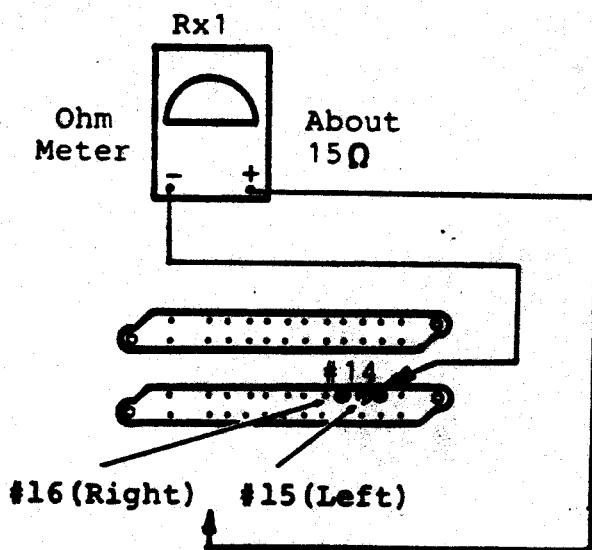
● (Front Headphone) Test #9A Speaker Test



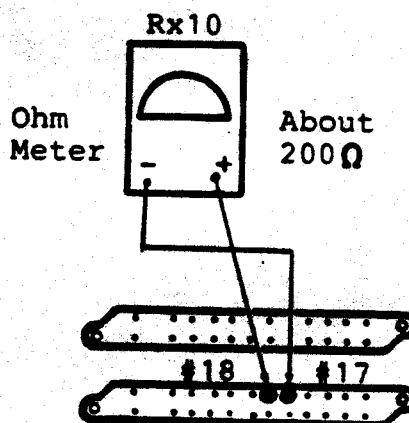
Test #9A' Microphone Test



● (Rear Headphone) Test #9B Speaker Test



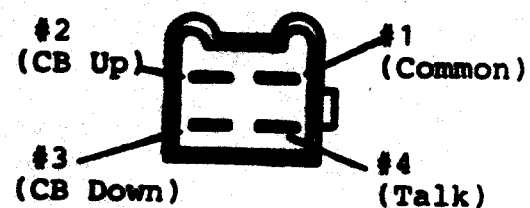
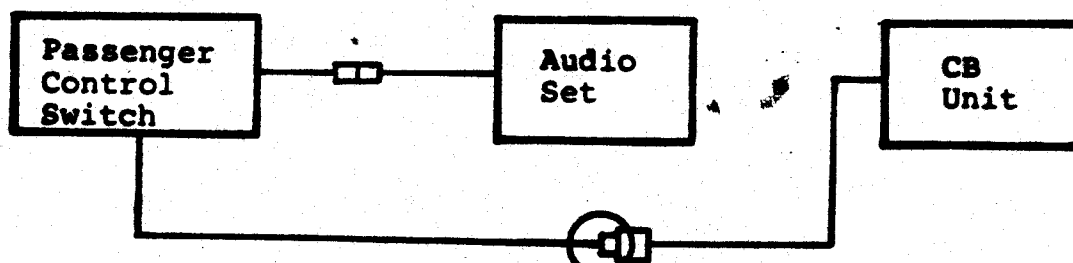
Test #9B' Microphone Test



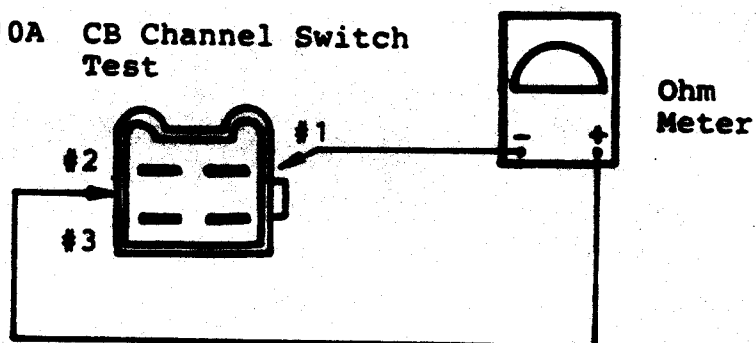
TEST #10 PASSENGER CONTROL SWITCH

Page 1

•Turn ignition key to Off

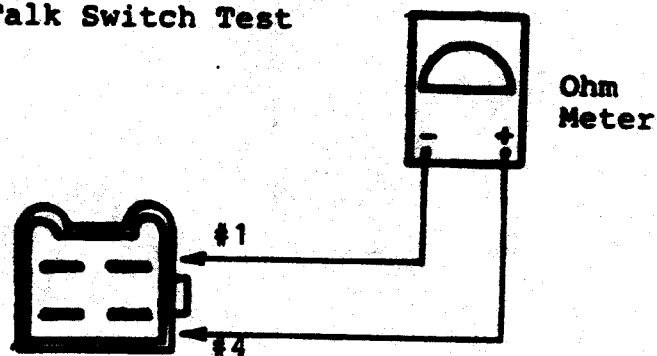


Test #10A CB Channel Switch Test



#2	Up	0 Ω
	Neutral	∞
#1	Down	0 Ω

Test #10B Talk Switch Test

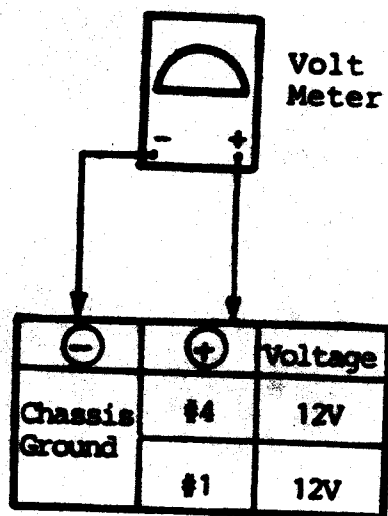
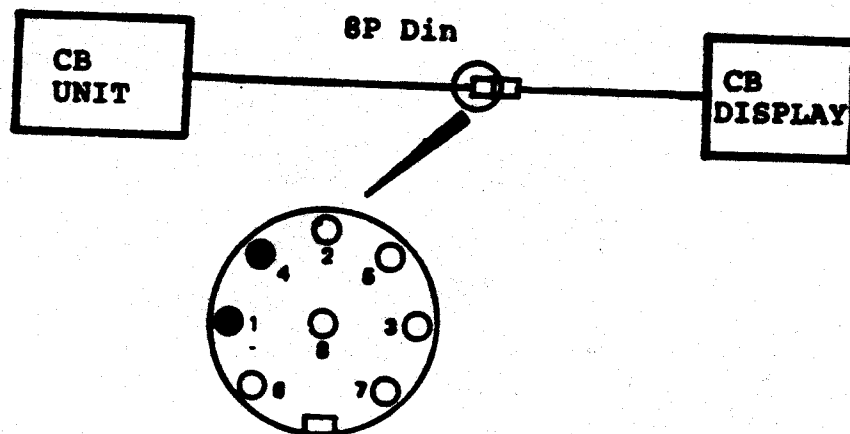


Talk Switch

On	0 Ω
Off	∞

TEST #11 CB DISPLAY TEST

- Turn ignition key to Acc.
- CB Switch On



NOTE: Even though the above test is O.K., display still has possibility of failure.

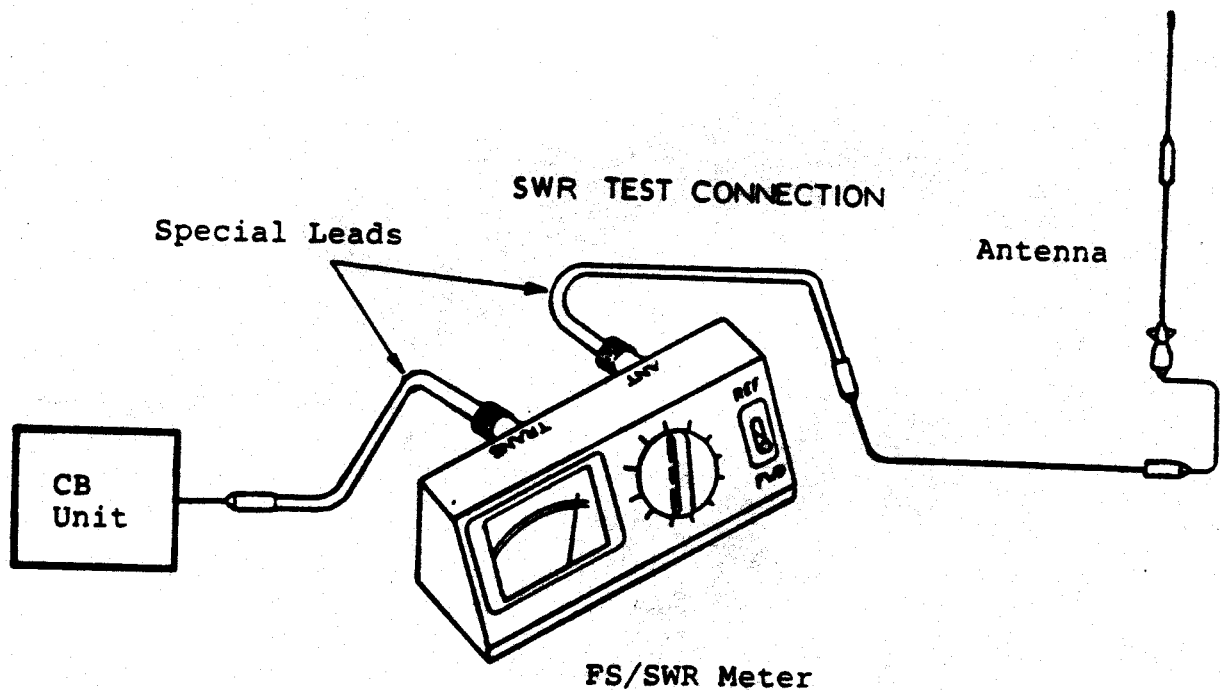
TEST #12 CB ANTENNA ADJUSTMENT

To adjust CB antenna, an FS/SWR meter is required. This type of meter is commonly available at electronic supply stores such as Radio Shack for about \$20.00.

CB adjustments must be performed outdoors, in an open area, away from any electrical interference.

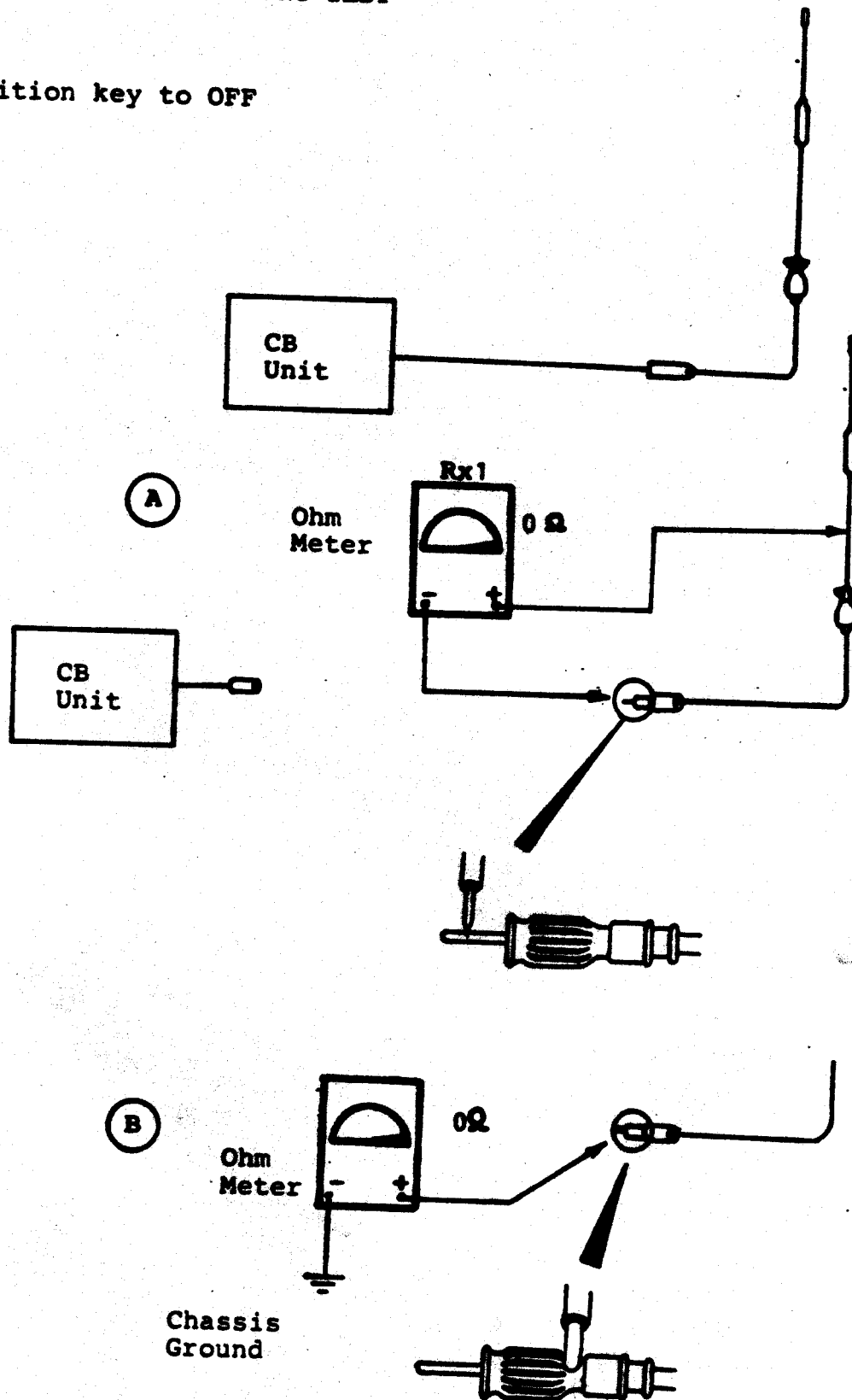
•STANDING WAVE RATIO (S.W.R.)

- Connect the meter as shown.
- Turn the vehicle ignition switch to ACC.
- Set the FORWARD/REFLECTED switch on the meter to the FORWARD position.
- Set the CB on CHANNEL 20.
- While holding down the CB TALK button, adjust the calibration knob so that the meter indicates CAL.
- Release the talk button.
- Flip the FORWARD/REFLECTED switch to the REFLECTED position.
- Depress the talk button and read the SWR meter. If the antenna is tuned properly, the meter will indicate an SWR of 1.5 or less.



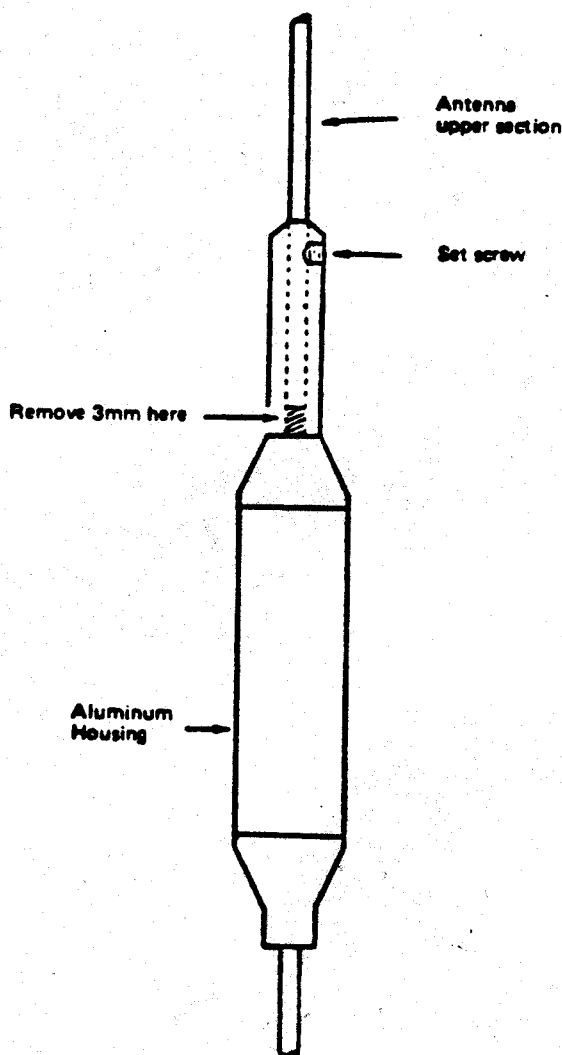
TEST #13 CB ANTENNA WIRING TEST

•Turn ignition key to OFF

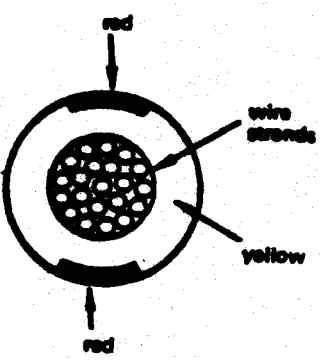


ANTENNA ADJUSTMENT

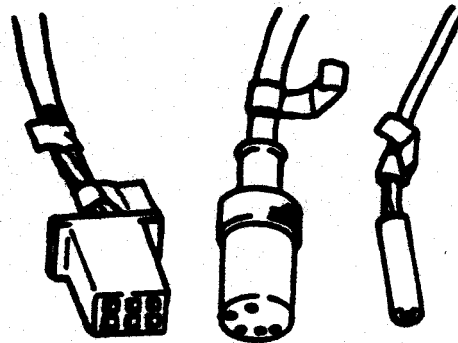
- If the SWR is higher than 1.5, loosen the set screw and remove the antenna upper section from the aluminum housing.
- Cut 3 mm from the bottom of the antenna upper section.
- Reinstall the antenna upper section in the housing and repeat the SWR test procedure.
- Continue cutting 3 mm at a time from the antenna upper section repeating the SWR test procedure until the SWR begins to increase.
- Raise the antenna upper section in the aluminum housing until the SWR drops again to the lowest meter reading, then tighten the set screw.



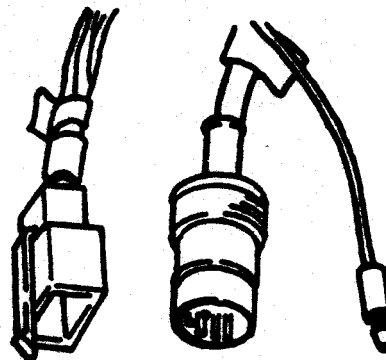
ATTACHMENT I WIRING AND CONNECTOR IDENTIFICATION

Two-color Lead Identification	
Lead (cross-section)	
Name of Wire Color	yellow/red (YEL/RED)

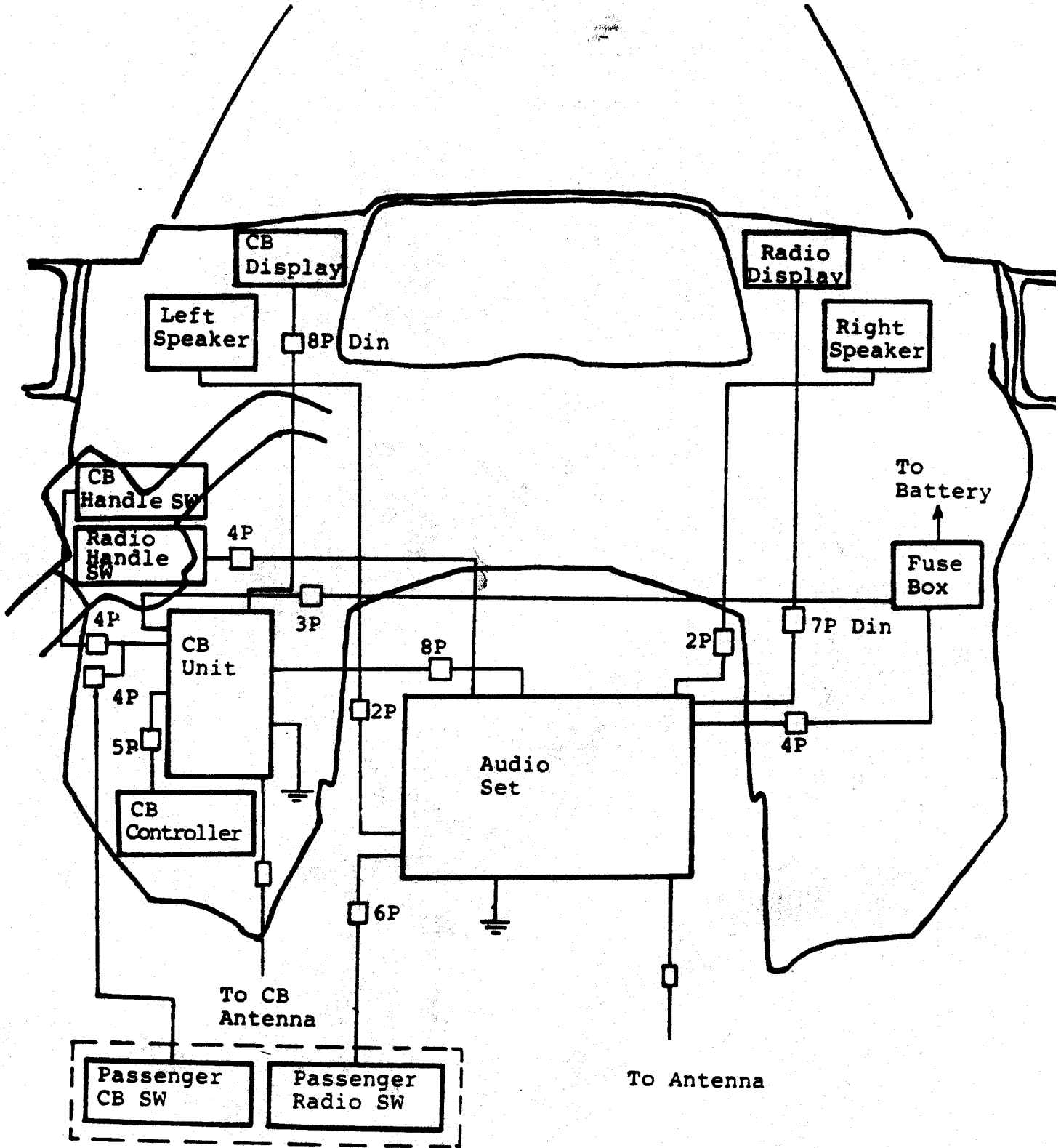
Electrical connectors:
Female Connectors (F)

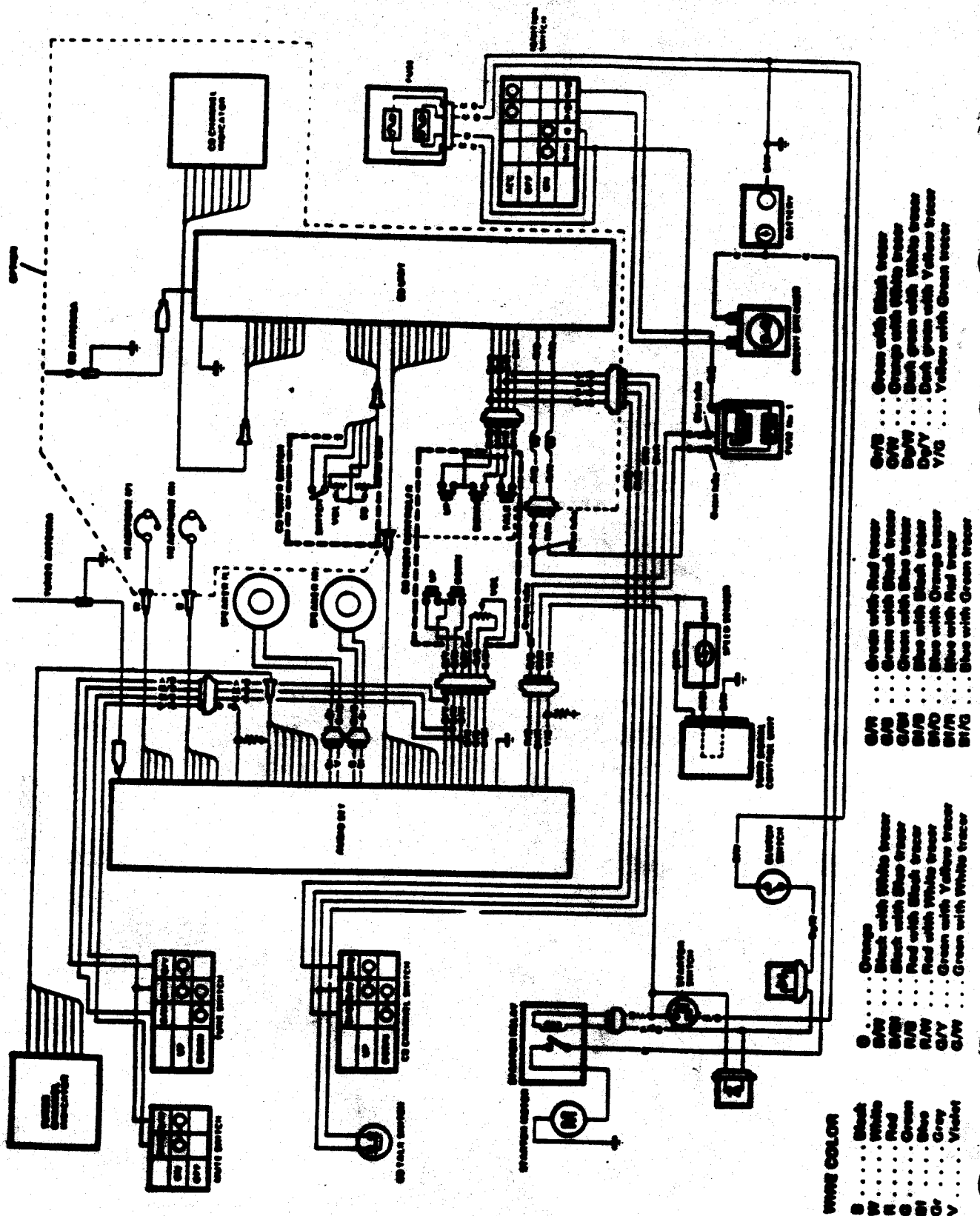


Male Connectors (M)

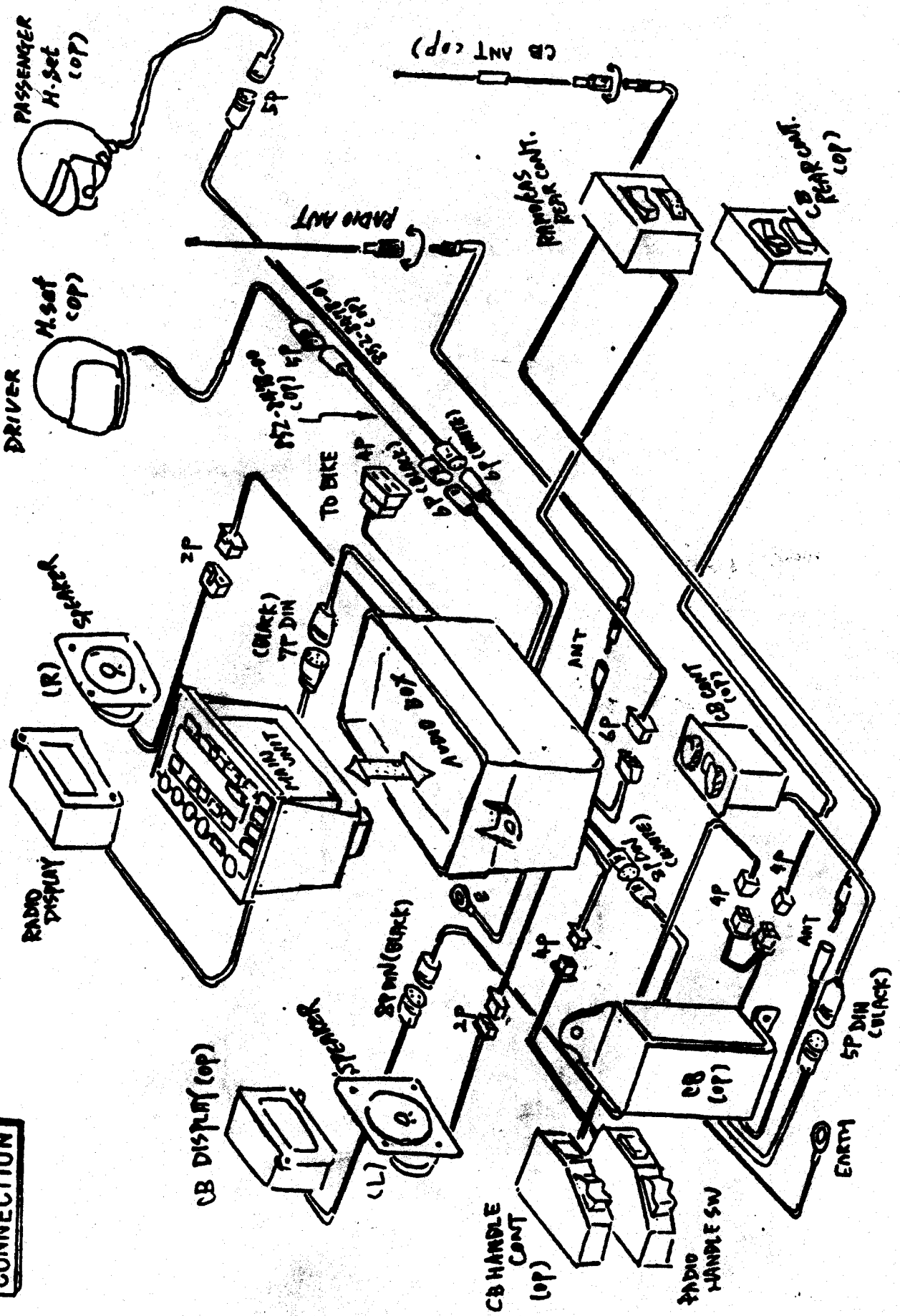


ATTACHMENT II WIRING DIAGRAM





CONNECTION



TERMINAL ARRANGEMENT (MOTORCYCLE HARNESS SIDE)

