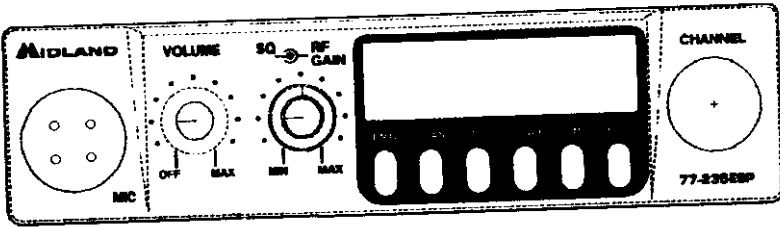


APPENDIX 5
USERS MANUAL

USER'S MANUAL (ELEVEN (11) PAGES) FOLLOWS THIS SHEET

USERS MANUAL
FCC ID: MMA77235ESP

APPENDIX 5



77-235ESP

40 Channel CB With Weather Receiver

Your 40 channel CB represents the state of the art in high tech engineering. This unit is not only a full feature CB transceiver but incorporates a high performance 10 channel NOAA weather bureau VHF receiver. The full 10 channel weather receiver allows use on all current and future NOAA weather bureau channels plus Canadian and international channels. The unit incorporates microprocessor controlled PLL circuitry for precise tuning and increased function. Receiver noise and interference can now be largely eliminated by the new ESP® noise reduction system. Also included is a backlighted Liquid Crystal Display (LCD) digital information center that out-dates CB's with LED readouts.

How to install your Midland mobile CB

This transceiver may be installed in any **12 volt negative ground-system** car or truck. Almost all current U.S. and foreign vehicles use a negative system, but some older models and some newer large trucks may have a positive ground.

Check the requirements for your vehicle before you begin installation.

Generally, you have a **negative-ground** system if the minus (-) battery terminal is connected to the motor block. Contact your dealer in the event you are unable to determine your vehicle's polarity system.

Installation and operating accessories furnished with your Midland CB:

1. Easy removal mounting bracket system.
2. Microphone bracket system.
3. All main-unit and microphone mounting hardware needed for normal installation.
4. Plug-in microphone with coil cord.
5. FCC part 95, Subpart D.
6. Owner's Manual.

Where to locate your CB transceiver.

Your new Midland CB is designed to be installed under the dash or vertically on a console of your vehicle.

Safety and convenience are the primary considerations in deciding exactly where to locate your radio.

Caution: Be sure that the unit is located so that it does not interfere with the driver or impair access to any controls. Connecting cables must be routed and secured in such a manner as not to interfere with the operation of the brake, accelerator or other controls. Interference from either the unit or connecting cables may contribute to the loss of control of the vehicle.

Mechanical mounting

Note: Extreme care should be exercised when drilling into dash to avoid damage to under-dash electronic ignition, cruise control, instrument and / or accessory wiring. Your unit must be mounted so as not to interfere with air bag (SRS) operation.

Step 1: Heeding the caution, use the mounting bracket as a template for marking the location of screwholes under the dash. Use an awl, nail or other sharp pointed object to mark the metal.

Step 2: Drill a 1/8" hole for each screwhole in the mounting bracket. Attach the bracket to the dash with the 3/8" phillips machine screws provided.

Step 3: Locate and secure the radio into the mounting bracket allowing working space for later power connections.

Power wiring (negative ground only).

Step 1: If you have not determined whether your vehicle has a negative or positive ground, do so now. Then disconnect the negative lead from the battery to prevent short circuits that can occur during wiring.

Step 3: With negative ground, connect the red wire (the one with in-line fuse holder) to either the (a) fuse block radio circuit (filtered), (b) cigarette lighter (unfiltered for noise), or (c) directly to the positive post on your battery.

Where you locate your antenna does make a difference.

Some general rules for antenna location that can aid CB performance:

1. Put your antenna mount as high on the vehicle as possible.
2. The higher the proportion of antenna length that is above the roof, the better.
3. If possible, mount the antenna in the center of whatever surface you choose.
- 3
4. Keep antenna cables away from noise sources, such as the ignition system, gauges, electric fuel pumps, etc.
5. Make sure you have a solid metal - to - metal ground.
6. Exercise care to prevent cable damage.

Essentially, you have five location choices: the roof, gutter, rear deck, front cowl or rear bumper. Where you decide to locate your antenna will determine the type of antenna you install. Again consult your Midland CB dealer for advice and guidance, and measure your needs against the attributes of the various Midland antenna models he carries.

Antenna installation.

Follow the manufacturer's installation instructions carefully.

Warning: Never operate your CB radio without attaching an antenna or with a broken antenna cable. This can result in damage to transmitter circuitry.

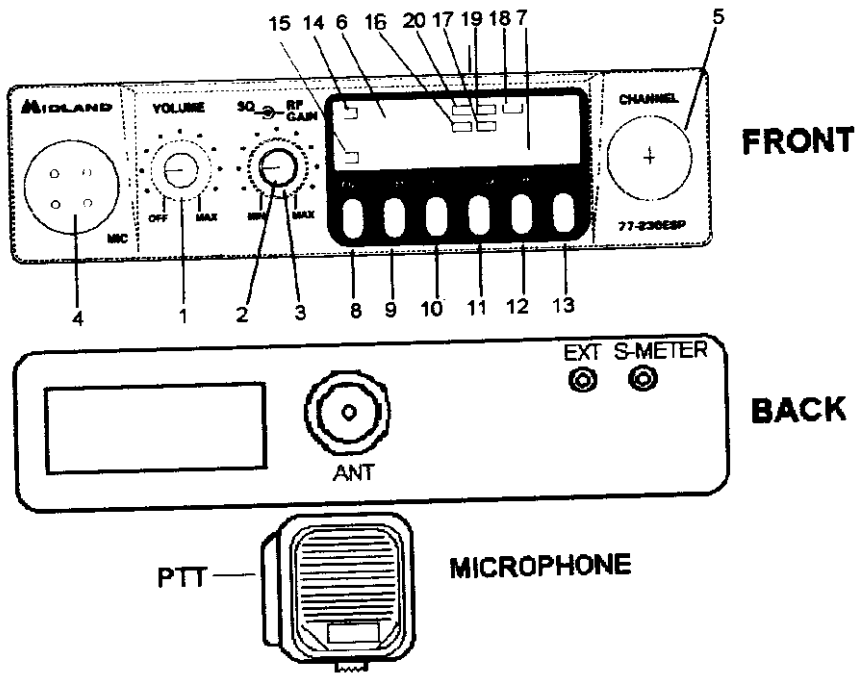
Tuning your antenna.

Some antennas are factory tuned. However, performance can usually be improved by slightly lengthening or shortening its length, using a Standing Wave Ratio (SWR) meter. For the exact procedures to be used, refer to the antenna manufacturer's installation manual.

You can buy an SWR meter separately or have your antenna checked by your Midland CB Dealer's service department or a two-way comm shop.

77-235ESP

FUNCTION AND LOCATION OF CONTROLS



FRONT PANEL CONTROLS

1. **ON/OFF VOLUME:** In the off position your transceiver's power is off. Turn this control clockwise to switch on the unit and adjust the volume.
2. **SQUELCH CONTROL:** Adjust this control until background noise just disappears. If the control is adjusted too far clockwise it may cause muting of weaker signals.
3. **RF GAIN CONTROL:** This control adjusts the receiver, sensitivity. Adjust the control for best reception of distant or local stations. Begin with control fully clockwise. To reduce reception of unwanted distant stations, turn control counter-clockwise until only desired stations are heard.
4. **MICROPHONE CONNECTOR:** Plug in the supplied microphone to this connector. The collar ring has a screw on locking ring. Push the ring onto the units collar and screw on until it is tight.
5. **ROTARY CHANNEL SELECTOR:** This easy to operate control allows changing of weather or CB channel, either up or down. This control will not operate when emergency channel 9 has been selected by using the "EMG" button or when the channel "LOCK" function has been activated.
6. **CHANNEL DISPLAY:** LCD (liquid crystal display) read-out of selected CB or weather channel.
7. **S/RF DISPLAY:** LCD read-out of received signal strength and relative transmitter power output.
8. **EMG BUTTON:** Press this button for quick selection of emergency channel 9. All keyboard buttons are locked out when channel 9 is activated by using the "EMG" button. To return to normal CB operation press the "EMG" button again.
9. **SCAN BUTTON:** This button when pressed and when the squelch is closed causes the channels to be scanned until a signal opens the squelch. Pressing the button again cancels scanning.
10. **MIC BUTTON:** When this button is pressed "MIC" will be displayed and the microphone will become less sensitive. Pressing again returns the microphone to normal operation.

11. **CB/WX:** This button causes your unit to change modes between NOAA weather bureau receiver and CB operation.
12. **DIM:** Pressing this button causes the backlighting of the display to switch between dimmed and full brightness.
13. **ESP:** Pressing this button controls the ESP® audio system. Channel noises are reduced and voices enhanced when ESP® is active.
14. **TX INDICATOR:** LCD indicator for showing the unit is transmitting.
15. **RX INDICATOR:** This indicator is active when unit is receiving.
16. **WX INDICATOR:** When this indicator is illuminated it indicates your unit is in the weather receive mode. Weather channels are displayed.
17. **MIC INDICATOR:** When this LCD is illuminated it indicates the microphone gain is lowered.
18. **SCAN INDICATOR:** This indicates channel scanning is operating.
19. **EMG. INDICATOR:** Indicates the "EMG" button has been pressed to select channel 9. The channel selector is locked out in this mode.
20. **DIM INDICATOR:** This indicates display lighting is dimmed.

BACK PANEL

ANTENNA CONNECTOR: Connect a standard 50 ohm CB antenna to this connector.

S-METER JACK: A DC voltmeter may be connected to this jack for precision monitoring of received signal strength.

EXT SPEAKER JACK: When a speaker is connected to this jack the internal speaker is by-passed. All received signals will be heard through the external speaker when it is connected. The speaker connected to the "EXT" jack should be rated at 8 ohms and 5 watts or more.

HOW TO OPERATE YOUR TRANSCEIVER FOR CB USE

You should become familiar with the controls and complete the preceding installation instructions before attempting operation of your CB.

1. Adjust the squelch control fully counter-clockwise
2. Rotate the on/off volume control clockwise to turn the unit on. Adjust the volume for a normal listening level.
3. Select the desired channel by the rotary channel selector. Rotate the squelch control until the background noise is just quieted. You are now in the receive mode.

NOTE: If the channel will not change, check that the "EMG" button has not been pressed. In this case press the "EMG" button to deactivate this function

4. To transmit press the PTT bar on the side of the microphone. Hold the microphone 2 to 3 inches from your lips and speak in a normal voice.
5. To receive simply release the PTT bar.

TO OPERATE YOUR TRANSCEIVER FOR WEATHER RECEIVE

1. Follow steps 1 and 2 above.
2. Press the "WX" button.
3. Using the rotary channel selector select the active channel in your area.

How ESP® works to make your CB sound better.

The ESP® noise reduction system constantly monitors the signal strength and the type of noise present. When the signal strength is too low for good reception, the receiver sound is automatically adjusted to dramatically reduce the noise that comes through the speaker. While the noise is decreased the actual sounds you need to hear are increased.

Skip interference can cause whistles and howling sounds. Electrical interference from power lines, ignition systems or other sources can produce low humming and buzzing noise. These high and low sounds are not needed for communications. ESP® can determine the difference between undesired noises and sounds you want to hear and filter the noises out.

These results ESP® can accomplish without decreasing receiver range (it usually increases range). Most importantly, ESP® works by itself and does not need to be listening to other ESP® equipped CB's to be 100% effective.

LIMITED WARRANTY.

Midland Consumer Radio will repair or replace, at its option without charge, any Midland Mobile, Base Station, or full power Hand-Held Citizens Band transceiver which fails due to a defect in material or workmanship within one year following the initial consumer purchase.

This warranty does not include any carrying cases, earphones, or telescoping antennas which may be a part of or included with the warranted product, or the cost of labor for removal or re-installation of the product in a vehicle or other mounting.

Performance of any obligation under this warranty may be obtained by returning the warranted product, freight prepaid, along with proof of purchase date, to Midland Consumer Radio, Warranty Service Department 1670 North Topping, Kansas City, Missouri 64120, or to any "Midland Authorized Warranty Service Station," or to the place of purchase (if a participating dealer).

Warranty information and the location of the nearest "Midland Authorized Warranty Service Station," may be obtained by writing Midland Consumer Radio, Warranty Service Department.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

Note: The above warranty applies only to merchandise purchased in the United States of America or any of the territories or possessions or from U.S. military exchange. For warranty coverage on merchandise purchased elsewhere, consult the supplemental warranty information included with this product or ask your dealer.

SERVICE

If it ever becomes necessary to return your unit for service:

Pack the unit in its original box and packing. Improper packing may result in damage during shipment. Include \$7.50 for return postage and handling. (Note: Some states do not require you to pay for postage and handling).

Include a full description of any problems. Include your telephone number.

You do not need to return accessory items (brackets, screws, power cord, antenna, etc.) unless they may be directly related to the problem.

Include a photocopy of the bill of sale or other proof of purchase showing the date of sale. This information must be included before warranty service can be considered.

A flat rate of \$45.00 will apply to repairs not covered by warranty. Send only cashiers check, money order or Master Card or Visa card number.

MIDLAND

CONSUMER RADIO

1670 N. Topping

Kansas City, Mo. 64120

Phone 816-241-8500. Fax 816-241-5713 E-mail: midlndcb@midlandradio.com

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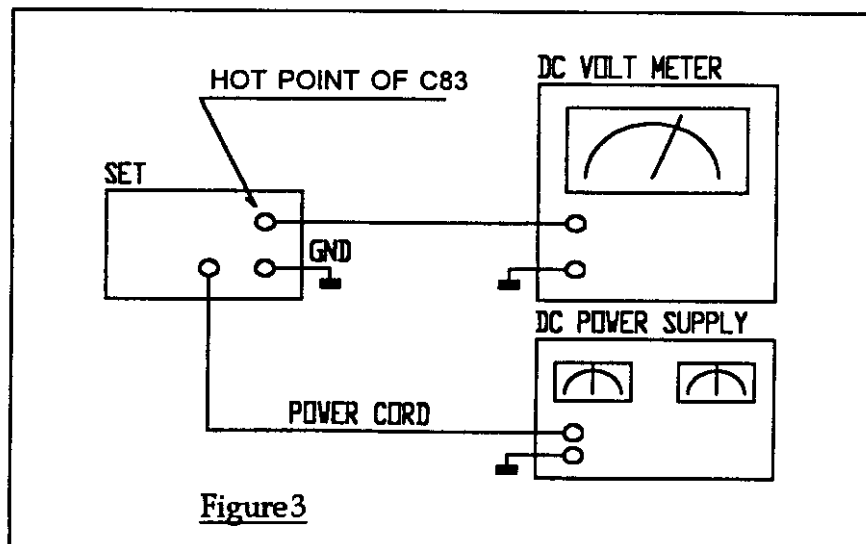
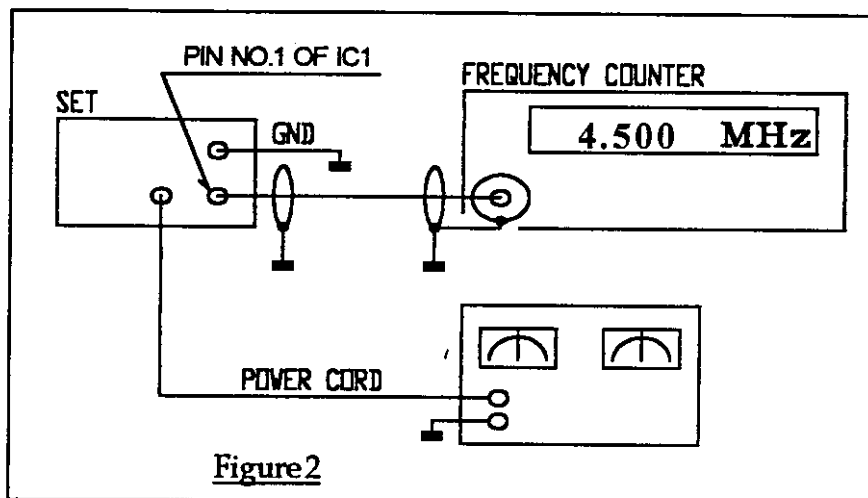
A. PLL SECTION

1. Test Equipment Required

- a. Frequency Counter
- b. DC Voltmeter (about 100K ohm)
- c. DC Power Supply (13.8V, 2.5Amp.)

NOTE : Figure 1 provides test point and all alignment location information.

2. Test Set-Up



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3. Alignment Procedure (VCO)

STEP	CONTROL SETTING	OUTPUT INDICATOR CONNECTION	ADJUST	ADJUST FOR
1.	Alignment of Ref. Osc.			
	Mic :Receive POWER :On VOLUME :Optional SQUELCH :Optional Channel Selector : optional	Connect frequency counter to PIN NO.1 of IC1 .(Figure 2)	TC1	Adjust for 4.500 MHz $\pm$ 20Hz indication on frequency counter
2.	Alignment of VCO			
	MIC :Tx or Rx POWER :On VOLUME :Optional SQUELCH :Optional Channel Selector : Channel 40	Connect DC voltmeter to hot point of C83. (Figure 3)	T7	Adjust for 3.8V indication on DC voltmeter. (Before adjust T7 must select high VCO voltage mode.)
3.	MIC :Tx or Rx POWER :On VOLUME :Optional SQUELCH :Optional Channel Selector : Channel 1	Same as step 2.	Check the indication on DC voltmeter (must be over 2.0V). If DC voltmeter under 2.0V, readjust T7 and return to step 2.	

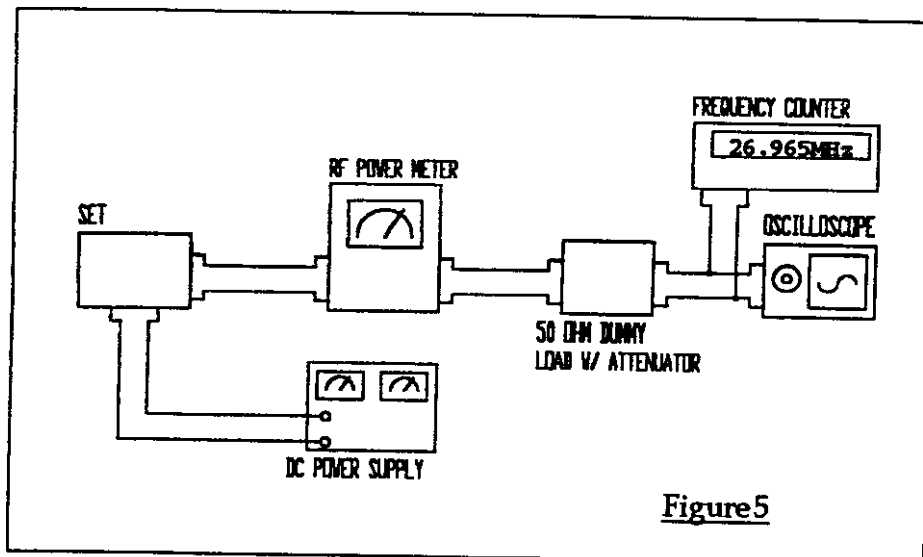
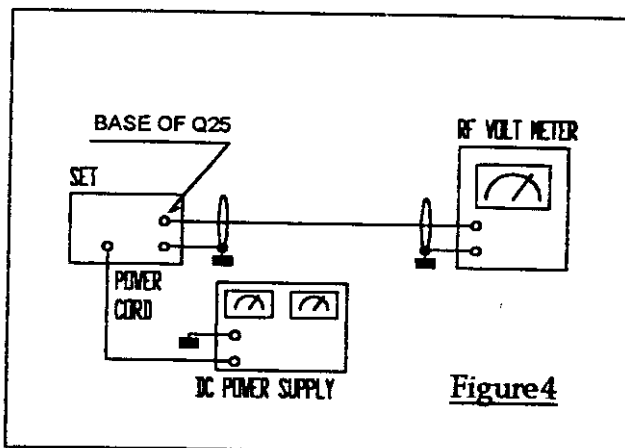
B. TRANSMITTER SECTION

1. Test Equipment Required

- a. RF Power Meter
- b. 50 ohm dummy w/ attenuator
- c. RF Voltmeter
- d. DC Power Supply (13.8V, 2.5Amp)

NOTE : Figure 1 provides test point and all alignment location information.

2a. Test Set-Up



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2b. Test Set-up

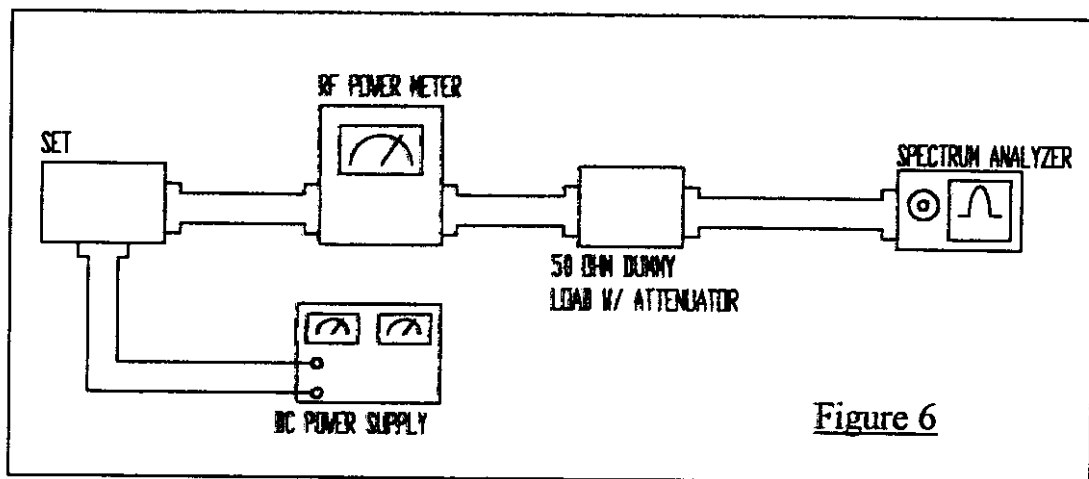


Figure 6

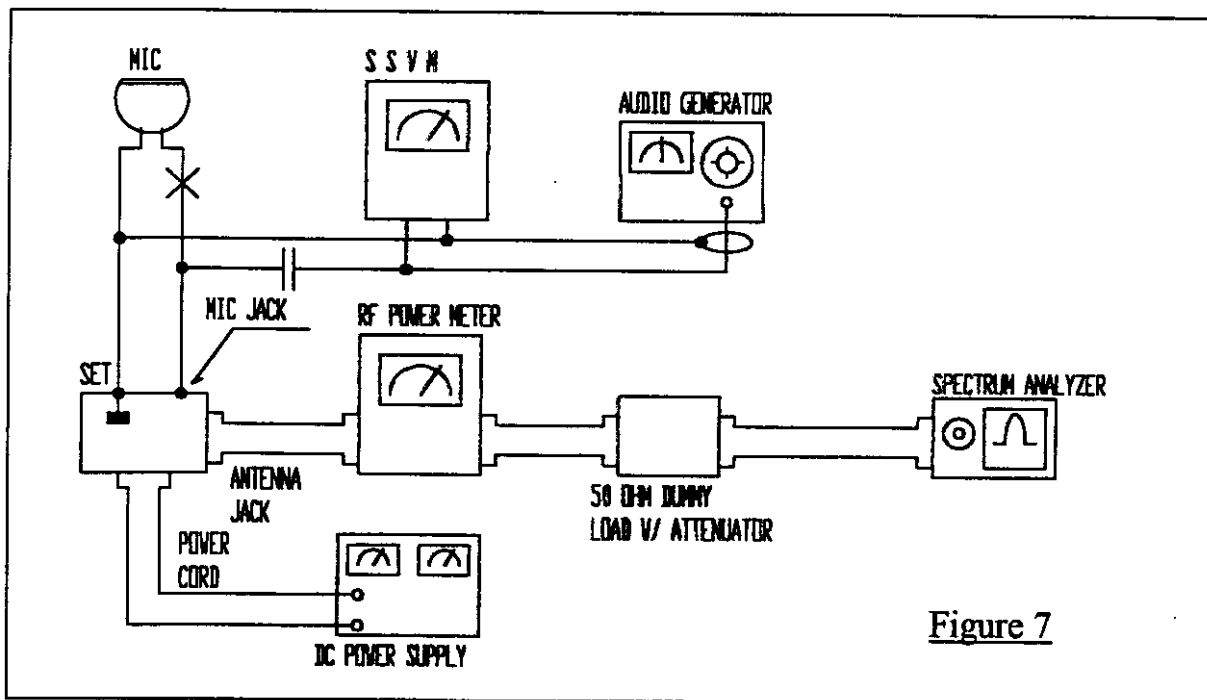


Figure 7