

**Cobra 29GTL**  
**40-Channel**  
**Citizens Band 2-Way**  
**Mobile Radio**



Cobra Communications Product Group

DYNASCAN CORPORATION

6460 W. Cortland Street  
Chicago, Illinois 60635

**Instruction Manual**  
**for**  
**Cobra 29GTL**  
**40-Channel**  
**Citizens Band Solid State**  
**2-Way Mobile Radio**



Cobra Communications Product Group

**DYNASCAN CORPORATION**

6460 W. Cortland Street

Chicago, Illinois 60635

## THE CB STORY

The Citizens Band lies between the shortwave broadcast and 10-meter amateur radio bands, and was established by law in 1949. The Class D two-way communications service was opened in 1959. (CB also includes a Class A business band and Class C remote control frequencies.) Acquiring the Class D license requires no detailed technical or Morse-code knowledge that is required for a "Ham" license.

Although the FCC has eliminated the requirement for the \$4.00 CB license fee, a license is still required. Filing procedure remains unchanged. One license can be good for any number of sets used by a given family or business. Once you receive your Class D license for your equipment, anyone may use it.

For example, though the equipment must be licensed to someone over 18 years of age, a child can use the equipment to talk to another child, or an employee can use the equipment as part of his or her routine services. However, final responsibility of legal operation rests with the CB licensee.

### NOTE

FCC regulations permit only "transmissions" (one party to another) rather than "broadcasts" (to a wide audience). Thus, advertising is not allowed on CB channels because it is broadcasting.

**HAVE  
A GOOD DAY  
TODAY  
AND  
A BETTER DAY  
TOMORROW!**

## TABLE OF CONTENTS

|                                                 | Page |
|-------------------------------------------------|------|
| Section I: Introduction                         |      |
| Frequency Range .....                           | 4    |
| FCC Warning .....                               | 5    |
| Section II: Specifications .....                | 6    |
| Section III: Installation                       |      |
| Location .....                                  | 8    |
| Mounting and Connection .....                   | 8    |
| Ignition Noise Interference .....               | 9    |
| Antenna .....                                   | 9    |
| Tuning the Antenna for Optimum SWR .....        | 10   |
| Base Station Operation .....                    | 12   |
| Remote Speaker .....                            | 12   |
| Public Address .....                            | 12   |
| Section IV: Operation                           |      |
| Controls and Indicators .....                   | 13   |
| A. Control Functions .....                      | 13   |
| B. Indicator Functions .....                    | 16   |
| Operating Procedure to Receive .....            | 17   |
| Operating Procedure to Transmit .....           | 17   |
| Alternate Microphones and Installation .....    | 18   |
| Section V: Maintenance and Adjustment .....     | 21   |
| Section VI: Appendix                            |      |
| Ten Code .....                                  | 22   |
| A Few Rules That Should Be Obeyed .....         | 23   |
| How Your CB Can Serve You .....                 | 24   |
| Use Channel 9 for Emergency Messages Only ..... | 25   |
| Warranty Service Instructions .....             | 26   |
| Limited 90-Day Warranty .....                   | 27   |

# Section I

## Introduction

### FREQUENCY RANGE

The COBRA 29GTL provides high level, trouble-free performance in the Citizens Radio Service which is comprised of the following frequency assignments:

| Channel | Channel Frequency<br>in MHz | Channel | Channel Frequency<br>in MHz |
|---------|-----------------------------|---------|-----------------------------|
| 1       | 26.965                      | 21      | 27.215                      |
| 2       | 26.975                      | 22      | 27.225                      |
| 3       | 26.985                      | 23      | 27.255                      |
| 4       | 27.005                      | 24      | 27.235                      |
| 5       | 27.015                      | 25      | 27.245                      |
| 6       | 27.025                      | 26      | 27.265                      |
| 7       | 27.035                      | 27      | 27.275                      |
| 8       | 27.055                      | 28      | 27.285                      |
| 9       | 27.065                      | 29      | 27.295                      |
| 10      | 27.075                      | 30      | 27.305                      |
| 11      | 27.085                      | 31      | 27.315                      |
| 12      | 27.105                      | 32      | 27.325                      |
| 13      | 27.115                      | 33      | 27.335                      |
| 14      | 27.125                      | 34      | 27.345                      |
| 15      | 27.135                      | 35      | 27.355                      |
| 16      | 27.155                      | 36      | 27.365                      |
| 17      | 27.165                      | 37      | 27.375                      |
| 18      | 27.175                      | 38      | 27.385                      |
| 19      | 27.185                      | 39      | 27.395                      |
| 20      | 27.205                      | 40      | 27.405                      |

These frequencies are generated and accurately controlled by a phase lock loop (PLL) circuit, comprised of the latest state-of-the-art integrated circuit technology, thereby ensuring high reliability and excellent frequency stability on the above channels.

To obtain maximum performance from your COBRA 29GTL, please read carefully the following descriptions and operating instructions.

## **WARNING**

1. Operation of this equipment requires a valid Station License issued by the Federal Communications Commission. Do not transmit with your equipment until you have received your License or complied with procedures explained on FCC Temporary License Form 555-B. A copy of FCC Application Form 505, FCC Temporary License Form 555-B, and Part 95 of the Commission Rules, are packed with this combination transceiver for your convenience.
2. You are required to complete FCC License Application Form 505 and submit it to the FCC, Gettysburg, Pa. 17362, in order to receive your license.
3. You are required to read and understand Part 95 of the FCC Rules and Regulations, before operating your station. FCC Rules require you to always have on hand a current copy of Part 95 of the FCC Rules, as part of your Station Records.
4. All transmitter adjustments other than those supplied by the manufacturer as front panel operating controls, must be made by, or under the supervision of, the holder of an FCC-issued 1st or 2nd Class Radio Operator License.
5. Replacement or substitution of crystals, transistors, regular diodes or other part of a unique nature, with parts other than those recommended by Dynascan, may cause violation of the technical regulations of Part 95 of the FCC Rules, or violation of the Type Acceptance requirements of Part 2 of the Rules.

# Section II

## Specifications

### GENERAL

|                              |                                                                                                  |
|------------------------------|--------------------------------------------------------------------------------------------------|
| Channels:                    | 40.                                                                                              |
| Frequency Range:             | 26.965 to 27.405MHz.                                                                             |
| Frequency Control:           | Phase Lock Loop (PLL) synthesizer.                                                               |
| Frequency Tolerance:         | 0.005%.                                                                                          |
| Operating Temperature Range: | -30°C to +50°C.                                                                                  |
| Microphone:                  | Plug-in type; dynamic.                                                                           |
| Input Voltage:               | 13.8 VDC nom. (positive or negative ground).                                                     |
| Current Drain:               | <i>Transmit:</i> AM full mod., 1.5A.<br><i>Receive:</i> Squelched, 0.3A; full audio output 1.2A. |
| Size:                        | 8-5/8"L x 7-9/32"W x 2-13/64"H.                                                                  |
| Weight:                      | 4.6 pounds.                                                                                      |
| Antenna Connector:           | UHF, SO-239.                                                                                     |
| Semiconductors:              | 26 transistors, 26 diodes, 4 integrated circuits.                                                |
| Meter:                       | Illuminated; indicates relative power output, standing wave ratio and received signal strength.  |

### TRANSMITTER

|                     |                                                                                                                                                                               |
|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Power Output:       | 4 watts.                                                                                                                                                                      |
| Modulation:         | High- and low-level, Class B amplitude modulation.                                                                                                                            |
| Frequency Response: | 300 – 3000 Hz.                                                                                                                                                                |
| Output Impedance:   | 50 ohms, unbalanced.                                                                                                                                                          |
| Output Indicators:  | Meter shows relative RF output power; standing wave ratio.<br>Transmit LED shows red when transmitter is in operation. Receive LED shows green when receiver is in operation. |

### RECEIVER

|              |                                      |
|--------------|--------------------------------------|
| Sensitivity: | Less than 1 $\mu$ V for 10dB(S+N)/N. |
| Selectivity: | 6dB @ 7KHz, 60dB @ 10KHz.            |

|                                     |                                                                                |
|-------------------------------------|--------------------------------------------------------------------------------|
| Image Rejection:                    | 50dB.                                                                          |
| Adjacent-Channel Rejection:         | 60dB.                                                                          |
| I.F. Frequencies:                   | Double conversion, 1st: 10.695MHz.<br>2nd: 455KHz.                             |
| Automatic Gain Control:<br>(AGC):   | Less than 10dB change in audio output for inputs from 10 to 50,000 microvolts. |
| RF Gain Control:                    | Adjustable for optimum signal reception.                                       |
| Noise Blanker:                      | RF type.                                                                       |
| Delta Tune Range:                   | ±1.5KHz, continuously adjustable.                                              |
| Squelch:                            | Adjustable; threshold less than 1μV.                                           |
| Audio Output Power:                 | 4 watts.                                                                       |
| Frequency Response:                 | 300 – 3000 Hz.                                                                 |
| Distortion:                         | Less than 7% @ 3 watts @ 1000 Hz.                                              |
| Built-in Speaker:                   | 16 ohms, round.                                                                |
| External Speaker:<br>(Not Supplied) | 8 ohms; disables internal speaker when connected.                              |

## **PA SYSTEM**

|                                            |                                                                                                        |
|--------------------------------------------|--------------------------------------------------------------------------------------------------------|
| Power Output:                              | 4 watts into external speaker.                                                                         |
| External Speaker for PA:<br>(Not Supplied) | 8 ohms; when PA-CB switch in in PA, the PA speaker also monitors the receiver; separate jack provided. |



# Section III

## Installation

### LOCATION

Plan the location of the transceiver and microphone bracket before starting the installation. Select a location that is convenient for operation and does not interfere with the driver or passengers in the vehicle. In automobiles, the transceiver is usually mounted to the underneath of the dash panel, with the microphone bracket beside it.

### MOUNTING AND CONNECTION

The COBRA 29GTL is supplied with a universal mounting bracket. The transceiver is held in the bracket by four bolts, permitting adjustment at the most convenient angle.

The bracket must be mounted with the machine screws and nuts supplied. The mounting must be mechanically strong and also provide a good electrical connection to the chassis of the vehicle. Proceed as follows to mount the transceiver:

1. After you have determined the most convenient location in your vehicle, hold the COBRA 29GTL with mounting bracket in the exact location desired. If nothing will interfere with mounting it in the desired position, remove the mounting bracket and use it as a template to mark the location for the mounting bolts. Before drilling the holes, make sure nothing will interfere with the installation of the mounting bolts.
2. Connect the antenna cable plug to the standard receptacle on the rear panel. Most CB antennas are terminated with a type PL-259 plug and mate with the receptacle.
3. Connect the red DC power input wire with the fuse to +13.8 VDC. This wire extends from the rear panel. In automobile installation, +13.8 VDC is usually obtained from the accessory contact on the ignition switch. This prevents the set from being left on accidentally when the driver leaves the car and also permits operating the unit without the engine running. Locate the accessory contact on most ignition switches by tracing the power wire from the AM broadcast receiver in the car.

#### NOTE

In positive ground automobiles the red wire goes to the chassis and the black wire is connected to the ignition switch.

4. Connect the black lead to -13.8 VDC. This is usually the chassis of the car. Any convenient location with good electrical contact (remove paint) may be used.
5. Mount the microphone bracket on the right side of the transceiver or near the transceiver, using two screws supplied. When mounting in an automobile, place the bracket under the dash so the microphone is readily accessible.

#### IGNITION NOISE INTERFERENCE

Use of a mobile receiver at low signal levels is normally limited by the presence of electrical noise. The primary source of noise in automobile installations is from the generator and ignition system in the vehicle. Under most operating conditions, when signal level is adequate, the background noise does not present a serious problem. Also, when extremely low level signals are being received, the transceiver may be operated with vehicle engine turned off. The unit requires very little current and therefore will not significantly discharge the vehicle battery.

Even though the COBRA 29GTL has a selective automatic noise blanker and a selective automatic noise limiter, in some installations ignition interference may be high enough to make good communications impossible. The electrical noise may come from several sources. Many possibilities exist and variations between vehicles require different solutions to reduce the noise. Consult your COBRA dealer or a 2-way radio technician for help in locating and correcting the source of severe noise.

#### ANTENNA

Since the maximum allowable power output of the transmitter is limited by the FCC, the antenna is one important factor affecting transmission distance. Only a properly matched antenna system will allow maximum power transfer from 50-ohm transmission line to the radiating element. In mobile installations (cars, trucks, boats, etc.), an antenna system that is non-directional should be used.

A vertically polarized quarter-wavelength whip antenna provides the most reliable operation and greatest range. The shorter loaded-type whip antennas are more attractive, compact and adequate for applications where the maximum possible distance is not required. Also the loaded whips do not present the problems of height imposed by the full quarter-wavelength whip.

Mobile whip antennas utilize the metal body of the vehicle as a ground plane. When mounted at a corner of the vehicle they are slightly directional, in the direction of the body of the vehicle. For all practical purposes, however, the radiation pattern is non-directional. The slight directional characteristic will be observed only at extreme distances. A standard antenna connector (Type SO-239) is provided on the transceiver for easy connection to a standard PL-259 cable termination.

If the transceiver is not mounted on a metal surface, it is necessary to run a separate ground wire from the unit to a good metal electrical ground in the vehicle. When installed in a boat, the transceiver will not operate at maximum efficiency without a ground plate, unless the vessel has a steel hull.

Before installing the transceiver in a boat, consult your dealer for information regarding an adequate grounding system and prevention of electrolysis between fittings in the hull and water.

## **TUNING THE ANTENNA FOR OPTIMUM SWR**

Since there is such a wide variety of base and mobile antennas, this section will strictly concern itself to the various types of mobile adjustable antennas.

Because the antenna length is directly related to the channel frequency, it must be tuned to resonate optimally all 40 channels of the transceiver. Channel 1 requires a longer antenna than Channel 40 because it is lower in frequency.

Due to the various methods of adjusting antennas for proper SWR we have chosen what we think is the optimum method:

### **A. Antennas with adjustment screws (set screws).**

1. Start with the antenna extended and tighten the set screw lightly enough so that the antenna can be lightly tapped with your finger for easy adjustment.

2. Set your COBRA 29GTL to Channel 21. Press the PTT (push-to-talk) switch, and tap the antenna (making it shorter) The SWR meter will show a lower reading each time the antenna is tapped. By continuing to shorten the antenna you will notice the SWR reading will reach a low point and then start rising again. This means that you have passed the optimum point for Channel 21. Extend the antenna a short distance and again follow the procedure above.

When the lowest point has been reached, switch to Channel 1 and then to Channel 40 and compare SWR readings. They should be almost equal.

**B. Antennas which must be cut to proper lengths.**

1. Follow the same procedure as above, but adjust the length by cutting in 1/8" increments until a good match is obtained.

*Be very careful not to cut too much at one time, as once it is cut, it can no longer be lengthened.*

The whip is easily cut by filing a notch all the way around and breaking the piece off with pliers.

**NOTE**

THE PROPER SETTING IS ACHIEVED WHEN THE SWR IS 1.5 OR BELOW, AND WHEN IT HAS THE SAME READING FOR CHANNELS 1 AND 40.

If you are having difficulties in adjusting your antenna, check the following:

- A. All doors must be closed when adjusting the antenna.
- B. Make sure the antenna base is grounded.
- C. Check your coaxial cable routing (it may be pinched when rounded into the car).
- D. Try a different location on your car (keeping in mind the radiation pattern you wish).

E. Is the antenna perfectly vertical?

F. Try a different location in your neighborhood. Stay away from large metal objects when adjusting (metal telephone or light posts, fences, etc.).

## **BASE STATION OPERATION**

### **(Operation from 120 VAC, House Current)**

To operate your transceiver from your home or office, using the regular house current as the power source, you will require the DYNASCAN Model CA-20 PowerPak which has been specially designed for the purpose. It is available as optional equipment from your dealer. It consists of a precision-built AC-DC power converter that delivers the required power for the operation of the transceiver. The CA-20 operates from any 120-volt, 60 Hz power source. Simply connect the red (+) and black (-) leads of the transceiver to the corresponding terminals of the CA-20.

#### **NOTE**

Do not attempt to operate this transceiver by connecting directly to 120 VAC.

When the CA-20 Power Pak is used with the transceiver for base station operation, any Citizens Band beam, dipole, ground plane or vertical antenna may be used. A ground plane vertical antenna will provide the most uniform horizontal coverage.

## **REMOTE SPEAKER**

The external speaker jack (EXT. SP.) on the rear panel is used for remote receiver monitoring. The external speaker should have 8 ohms impedance and be able to handle at least 4 watts. When the external speaker is plugged in, the internal speaker is disconnected.

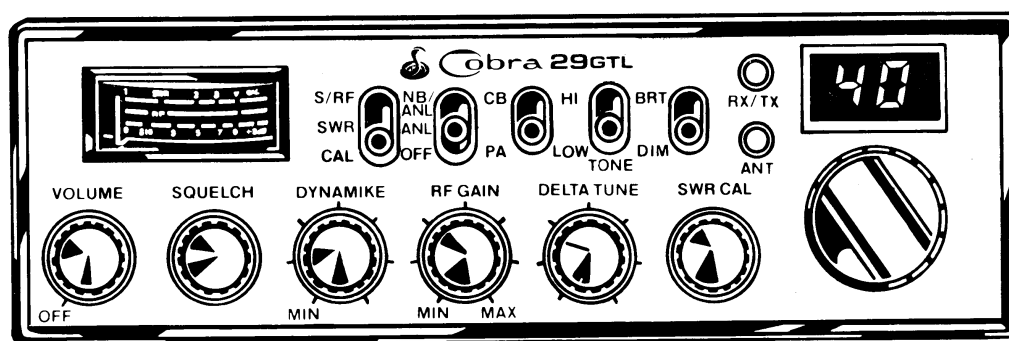
## **PUBLIC ADDRESS**

An external 8-ohm, 4-watt speaker must be connected to the PA SPKR. jack located on the rear panel when the transceiver is used as a public address system. The speaker should be directed away from the microphone to prevent acoustic feedback. Physical separation or isolation of the microphone and speaker is important when operating the PA at high output levels.

# Section IV Operation

## CONTROLS AND INDICATORS

There are 12 controls and 3 indicators and a meter on the front panel of your COBRA 29GTL.



### A. CONTROL FUNCTIONS

1. **OFF/ON/VOLUME.** Turn clockwise to apply power to the unit and to set the desired listening level.
2. **SQUELCH.** This control is used to cut off or eliminate receiver background noise in the absence of an incoming signal. For maximum receiver sensitivity it is desired that the control be adjusted only to the point where the receiver background noise or ambient background noise is eliminated. Turn fully counterclockwise then slowly clockwise until the receiver noise disappears. Any signal to be received must now be slightly stronger than the average received noise. Further clockwise rotation will increase the threshold level which a signal must overcome in order to be heard. Only strong signals will be heard at a maximum clockwise setting.
3. **DYNAMIKE.** Adjusts the microphone gain in the transmit and PA modes. This controls the gain to the extent that full talk power is available several inches away from the microphone. In the Public Address (PA) mode, the control functions as the volume control.

4. **RF GAIN.** Adjust as required to optimize signal. This control is used primarily to optimize reception in strong signal areas. Gain is reduced by counterclockwise rotation of the control.
5. **DELTA-TUNE.** For normal operation set the control to the center position. This feature has several uses and can greatly enhance receiver operation. First, if a received signal is slightly off frequency, the Delta-Tune control can be operated as required to optimize the received signal level.

The effectiveness of the Delta-Tune feature under these conditions can be observed either by listening for a more readable signal at the speaker or by noting the S-meter reading when the Delta-Tune control is operated. Another effective application of this control is in eliminating adjacent channel interference. If it is verified that an exceptionally high level signal from an adjacent channel is creating interference on the channel being used, the Delta-Tune can be used to minimize or eliminate the interference. Operate the control as required to obtain minimum adjacent channel interference.

6. **SWR CAL CONTROL.** Used to calibrate the meter for SWR (standing wave ratio) measurements. Simply switch to "CAL", press the PTT switch on the microphone and calibrate the meter.
7. **CHANNEL SELECTOR.** This switch selects any one of the forty Citizens Band channels desired. The selected channel appears on the LED readout directly above the Channel Selector knob. Channel 9 has been reserved by the FCC for emergency communications involving the immediate safety of life of individuals or immediate protection of property. Channel 9 may also be used to render assistance to a motorist.
8. **S-RF/CAL/SWR SWITCH.** When in the S-RF position, the meter swings proportionally to the strength of the received signal. When transmitting, the meter indicates relative RF output power.

When in the "CAL" position, the SWR meter can be calibrated by adjusting the "SWR CAL" control to the "CAL" mark on the meter face.

When in the “SWR” position, the standing wave ratio is measured.

9. **OFF/ANL/NB + ANL SWITCH.** In the ANL position only the automatic noise limiter in the audio circuits is activated. When the switch is placed in the NB + ANL position, the RF noise blanker also is activated. The RF noise blanker is very effective for repetitive impulse noise such as ignition interference.
10. **PA/CB SWITCH.** Selects the mode of operation. In the CB position, the PA function is disabled and the unit will transmit and receive on the selected frequency. *The PA function should not be used unless a PA speaker is connected.* In the PA mode, incoming CB transmission will be heard through the PA speaker. This allows you to monitor message while outside of your vehicle.

To use this PA feature, a speaker having a voice coil impedance of 8 ohms and a power handling capability of at least four watts should be used. This speaker must be plugged into the PA SPKR jack at the rear of the transceiver. If the public address feature is to be used primarily for outdoor applications, the use of a weatherproof horn type public address speaker is recommended. The durability of this type speaker plus the inherent efficiency of such a speaker will provide more than adequate results when combined with the high audio output level available from the COBRA 29GTL. With the PA speaker connected as outlined previously, be sure that there is physical separation between the microphone and the speaker itself. If the speaker is located close to the microphone, acoustic feedback will result when the public address system is operated at high volume. A directional type outdoor speaker reduces the amount of isolation required. Some experimentation will determine the minimum amount of isolation required for a given sound level from the public address system.

NOTE

PA volume is controlled by adjusting the DYNAMIKE knob to the desired volume.



**11. HI/LOW TONE SWITCH.** This filter helps to reduce high-pitched sound and helps to reduce noise in the absence of an incoming signal.

**12. BRIGHT/DIM SWITCH.** Controls the brightness of the LED channel indicator and meter for optimum intensity for day or nighttime driving.

## **B. INDICATOR FUNCTIONS**

**S-METER.** Swings proportionally to the strength of the incoming signal.

**RF METER.** Swings proportionally to the RF output power. The S/RF-SWR-CAL switch must be in the S/RF position.

**SWR METER.** Measures the ratio of standing wave voltage of the antenna system. Used to properly adjust the length of the antenna, and to monitor the quality of the coaxial cable and all RF electrical connections. If there is any degradation whatsoever in any of the above, due to humidity, salt spray, vibration or corrosion, the SWR meter reading will rise, thereby indicating that a problem exists.

To calibrate, switch to the "CAL" position, transmit by pressing the mike switch, and adjust the SWR control to the "CAL" mark on the meter then switch to "SWR" position for the SWR measurement.

**RECEIVE/TRANSMIT INDICATOR.** The receiver/transmit LED indicator is located next to the channel selector switch. When in receive, the LED will be green. When in transmit the LED will be red.

**ANT INDICATOR.** This LED will light when high SWR conditions exist, thereby warning of poor antenna performance.

**CHANNEL INDICATOR.** The selected channel appears on the LED readout directly above the channel selector knob. The light intensity is controlled by the "DIMMER" control to the left of the readout.

**PRESS-TO-TALK MICROPHONE.** The receiver and transmitter are controlled by the press-to-talk switch on the microphone. Press the switch and the transmitter is activated; release switch to receive. When transmitting, hold the microphone two inches from the mouth and speak clearly in a normal "voice". The radios come complete with a low-impedance

(500 ohm) dynamic microphone. For installation instructions on other microphones, see next section, **ALTERNATE MICROPHONES AND INSTALLATION**.

### **OPERATING PROCEDURE TO RECEIVE**

1. Place the CB/PA switch in the CB position.
2. Turn the set ON by turning the VOLUME control clockwise, until a click is heard.
3. Set the VOLUME for a comfortable listening level.
4. Set the Channel selector switch to the desired channel.
5. Set the RF GAIN fully clockwise.
6. Set the DELTA TUNE control to the center position.
7. Listen to the background noise from the speaker. Turn the SQUELCH control slowly clockwise, until the noise JUST disappears. (No signal should be present). Leave the control at this setting. The SQUELCH is now properly adjusted. The receiver will remain quiet until a signal is actually received. Do not advance the control too far, or some of the weaker signals will not be heard.

### **OPERATING PROCEDURE TO TRANSMIT**

1. Select the desired channel of transmission.
2. Set the DYNAMIKE control fully clockwise.
3. If the channel is clear, depress the push-to-talk switch on the microphone and speak in a normal voice. The TX indicator will light, indicating proportional output power.

#### **CAUTION**

Be sure the antenna is properly connected to the radio before transmitting. Prolonged transmitting without an antenna, or a poorly matched antenna, could cause damage to the transmitter.

## ALTERNATE MICROPHONES AND INSTALLATION

For best results, the user should select a low-impedance dynamic type microphone or a transistorized microphone. Transistorized type microphones have a low output impedance characteristic. The microphones must be provided with a four-lead cable. The audio conductor and its shielded lead comprise two of the leads. The third lead is for transmit control and the fourth lead is ground (see schematic, Fig. 3). The microphone should provide the functions shown below:

### 4-Wire Mic Cable

| Pin Number | Mic Cable Lead   |
|------------|------------------|
| 1          | Audio Shield     |
| 2          | Audio Lead       |
| 3          | Transmit Control |
| 4          | Receive Control  |

If the microphone to be used is provided with pre-cut leads, they must be revised as follows:

1. The leads should be cut so that they extend  $7/16''$  beyond the plastic insulating jacket of the microphone cable. See Fig. 1 below.
2. All leads should be cut to the same length. Strip the ends of each wire  $1/8''$  and tin the exposed wire.

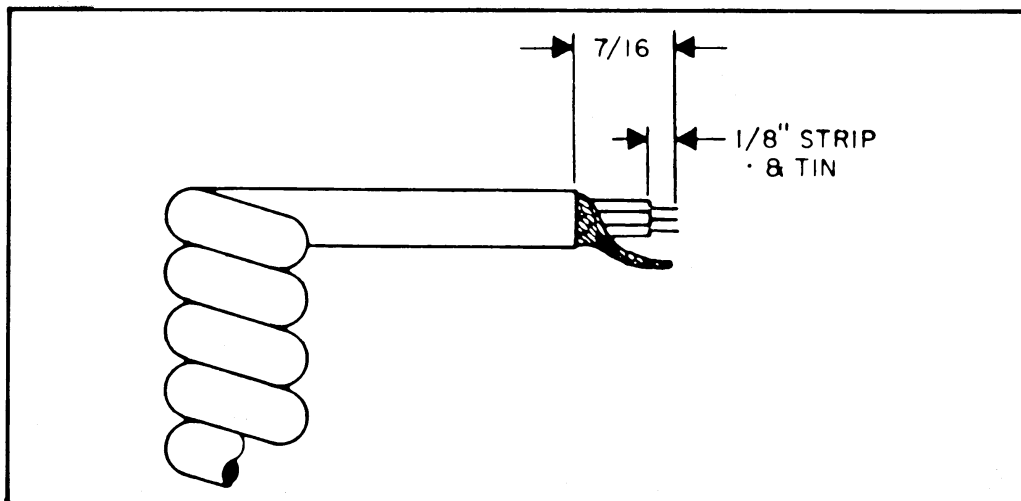


Fig. 1. Microphone cable preparation.

Before beginning the actual wiring, read carefully the circuit and wiring information provided with the microphone you select. Use the minimum heat required in soldering the connections. Keep the exposed wire lengths to a minimum to avoid shorting when the microphone plug is reassembled.

To wire the microphone cable to the plug provided, proceed as follows (see Fig. 2):

1. Remove the retaining screw.
2. Unscrew the housing from the pin receptacle body.
3. Loosen the two cable clamp retainer screws.
4. Feed the microphone cable through the housing, knurled ring and washer below.

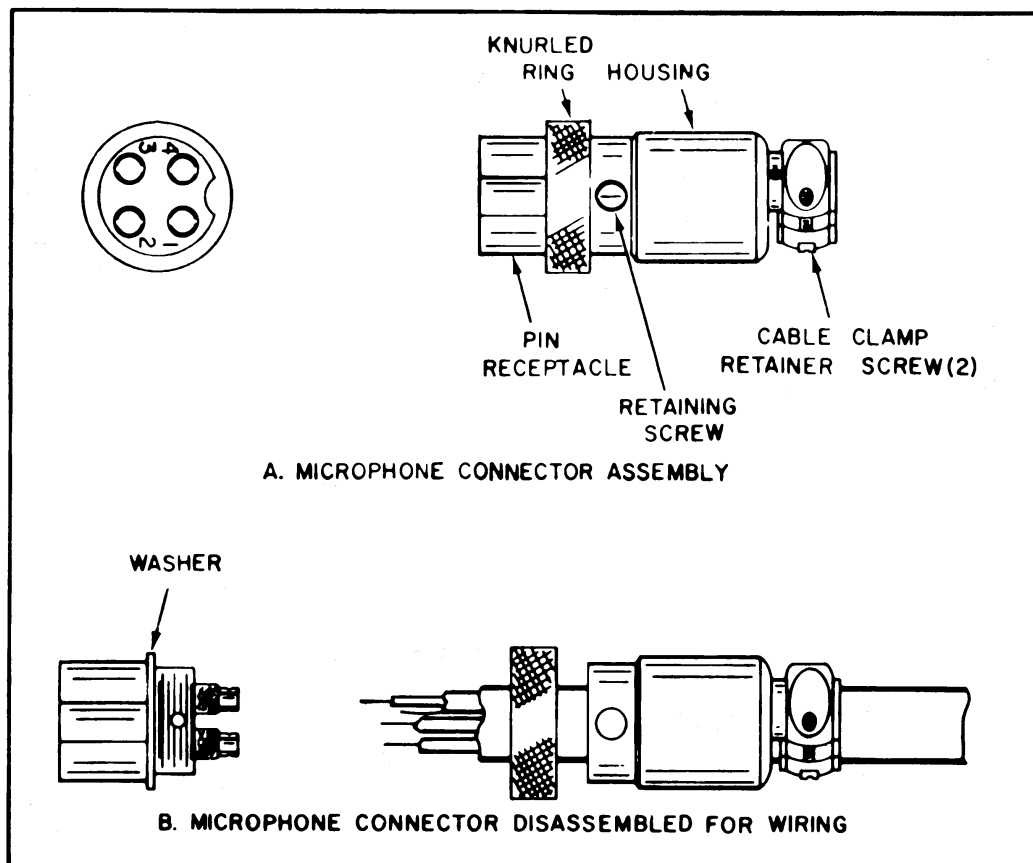


Fig. 2. Microphone plug wiring.

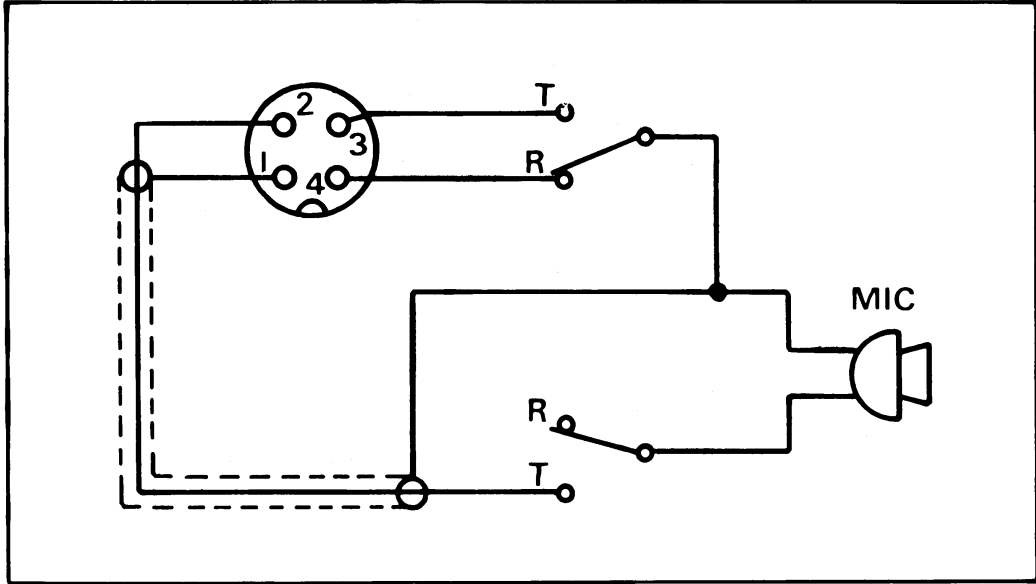


Fig. 3. Microphone and connector wiring diagram.

# Section V

## Maintenance and Adjustment

The COBRA 29GTL transceiver is specifically designed for the environment encountered in mobile installations. The use of all solid state circuitry and its light weight result in high reliability. Should a failure occur, however, replace parts only with identical parts. Do not substitute. Refer to the schematic diagram and parts list.

### NOTE

If the performance described in the OPERATION and MAINTENANCE AND ADJUSTMENT sections is not obtained, review the operating instructions to insure that proper procedures were followed. If a problem still exists, refer to WARRANTY SERVICE INSTRUCTIONS on the last page of this manual.

### FCC WARNING

Federal law required that adjustment of the radio frequency section of this transceiver may not be made by a Citizens Band operator. Only a United States licensed First or Second Class commercial license holder may tune the transmitter section of this transceiver, per FCC part 95 section 95.97d.

# Section VI

## Appendix

Citizens Band radio operators have largely adopted the “10-code” for standard questions and answers. Its use permits faster communications and better understanding in noisy areas. The following table lists some of the more common codes and their meanings.

### 10 CODE

| <b>Code</b> | <b>Meaning</b>                      | <b>Code</b> | <b>Meaning</b>                        |
|-------------|-------------------------------------|-------------|---------------------------------------|
| 10-1        | Receiving poorly                    | 10-29       | Time is up for contact                |
| 10-2        | Receiving well                      | 10-30       | Does not conform to FCC rules         |
| 10-3        | Stop transmitting                   | 10-32       | I will give you a radio check         |
| 10-4        | OK, message received                | 10-33       | EMERGENCY TRAFFIC                     |
| 10-5        | Relay message                       | 10-34       | Trouble at this station               |
| 10-6        | Busy, stand by                      | 10-35       | Confidential information              |
| 10-7        | Out of service, leaving air         | 10-36       | Correct time is                       |
| 10-8        | In service, subject to call         | 10-37       | Wrecker needed at                     |
| 10-9        | Repeat message                      | 10-38       | Ambulance needed at                   |
| 10-10       | Transmission completed, standing by | 10-39       | Your message delivered                |
| 10-11       | Talking too rapidly                 | 10-41       | Please turn to channel                |
| 10-12       | Visitors present                    | 10-42       | Traffic accident at                   |
| 10-13       | Advise Weather/Road conditions      | 10-43       | Traffic Tie up at                     |
| 10-16       | Make pick up at                     | 10-44       | I have a message for you              |
| 10-17       | Urgent business                     | 10-45       | All units within range please report  |
| 10-18       | Anything for us?                    |             |                                       |
| 10-19       | Nothing for you, return to base     | 10-50       | Break channel                         |
| 10-20       | My location is                      | 10-60       | What is next message number?          |
| 10-21       | Call by telephone                   | 10-62       | Unable to copy, use phone             |
| 10-22       | Report in person to                 | 10-63       | Net directed to                       |
| 10-23       | Stand by                            | 10-64       | Net clear                             |
| 10-24       | Completed last assignment           | 10-65       | Awaiting your next message/assignment |
| 10-25       | Can you contact                     | 10-67       | All units comply                      |
| 10-26       | Disregard last information          |             |                                       |
| 10-27       | I am moving to channel              | 10-70       | Fire at                               |
| 10-28       | Identify your station               |             |                                       |

## 10 CODE (Continued)

| Code  | Meaning                               | Code   | Meaning                             |
|-------|---------------------------------------|--------|-------------------------------------|
| 10-71 | Proceed with transmission in sequence | 10-91  | Talk closer to mike                 |
| 10-77 | Negative contact                      | 10-93  | Check my frequency on this channel  |
| 10-81 | Reserve hotel room for                | 10-94  | Please give me a long count         |
| 10-82 | Reserve room for                      | 10-99  | Mission completed, all units secure |
| 10-84 | My telephone number is                |        |                                     |
| 10-85 | My address is                         | 10-200 | Police needed at                    |

### A FEW RULES THAT SHOULD BE OBEYED

1. You must identify your official licensed call sign at the beginning and end of every conversation.
2. You are not allowed to carry on a conversation with another station for more than five minutes at a time without taking a one-minute break, to give others a chance to use the channel.
3. You are not allowed to blast others off the air by over-powering them with illegally amplified transmitter power, or illegally high antennas.
4. You can't use CB to promote illegal activities.
5. You are not allowed to use profanity.
6. You may not play music in your CB.
7. You may not use your CB to sell merchandise or professional services.



## HOW YOUR CB CAN SERVE YOU

- Warn of traffic tie ups ahead.
- Provide weather and road information.
- Provide help fast in event of emergency or breakdown.
- Suggest good spots to eat and sleep.
- Make long trips more interesting, and help keep you awake.
- Provide direct contact with your office or home.
- Make friends for you as you travel.
- Provide “local information” to find your destination.
- Help law enforcement officers by reporting drunk and reckless drivers.

Colonel Samuel S. Smith of the Missouri Highway Patrol called the number of drunken drivers, wrong-way drivers and speeders reported by CBers as “amazing.” He said, that even the “Smokey Bear” warnings don’t shake their beliefs that “the potential benefits of CB radio to law enforcement are so great that they far outweigh the disadvantages.” In regards to CB radar warnings to other CBers, Colonel Smith said cheerfully that “We’ve overheard warnings being relayed to truckers long after our operations have been discontinued . . . so we actually receive a residual benefit from these warnings.”

## USE CHANNEL 9 FOR EMERGENCY MESSAGES ONLY

FCC gives the following examples of permitted and prohibited types of communications for use on Channel 9. These are guidelines and are not intended to be all-inclusive.

| Permitted | Example Message                                                                                             |
|-----------|-------------------------------------------------------------------------------------------------------------|
| Yes       | “A tornado sighted six miles north of town.”                                                                |
| No        | “This is observation post number 10. No tornado sighted.”                                                   |
| Yes       | “I am out of gas on Interstate 95.”                                                                         |
| No        | “I am out of gas in my driveway.”                                                                           |
| Yes       | “There is a four-car collision at Exit 10 on the Beltway, send police and ambulance.”                       |
| No        | “Traffic is moving smoothly on the Beltway.”                                                                |
| Yes       | “Base to Unit 1, the Weather Bureau has just issued a thunderstorm warning. Bring the sailboat into port.”  |
| No        | “Attention all motorists. The Weather Bureau advises that the snow tomorrow will accumulate 4 to 6 inches.” |
| Yes       | “There is a fire in the building on the corner of 6th and Main Streets.”                                    |
| No        | “This is Halloween patrol unit number 3. Everything is quiet here.”                                         |

## WARRANTY SERVICE INSTRUCTIONS

1. Refer to the MAINTENANCE section of your Cobra instruction manual for adjustments that may be applicable.
2. If the above-mentioned procedures do not correct the problem you are experiencing with your unit, pack it securely (preferably in the original carton or double-packed). Enclose a letter describing the problem and include your name and address. Deliver to, or ship PREPAID (UPS preferred) to the nearest Cobra authorized service agency (see list enclosed with unit).

If your list of authorized Cobra service agencies has been misplaced, contact your local dealer for the name of your nearest service agency, or write to:

### *Service Department*

Cobra Product Group  
DYNASCAN CORPORATION  
2815 West Irving Park Road  
Chicago, Illinois 60618

## LIMITED 90-DAY WARRANTY

DYNASCAN CORPORATION warrants to the original purchaser that its COBRA Citizens Band Radios, and the component parts thereof, will be free from defects in **workmanship and materials** for a period of ninety (90) days from the date of purchase.

DYNASCAN will, without charge, repair or replace, at its option, defective radios or component parts upon delivery to an authorized COBRA service contractor or the factory service department, accompanied by proof of the date of purchase in the form of a sales receipt.

To obtain warranty coverage, this CB radio must be registered by completing and mailing the enclosed warranty registration card to DYNASCAN Cobra Communications, P.O. Box 35148, Chicago, Illinois 60635 within five (5) days from the date of purchase.

**Exclusions: This warranty does not apply in the event of misuse or abuse of the product or as a result of unauthorized alterations or repairs. It is void if the serial number is altered, defaced or removed.**

As indicated in your product instruction booklet, certain COBRA models are suitable for dash board installation without modification of the dash. In other cases professional installation is recommended. In either event, DYNASCAN is not responsible for damages to the product or the automobile resulting from improper installation.

DYNASCAN shall not be liable for any consequential damages, including without limitation damages resulting from loss of use or cost of installation. Some states do not allow limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

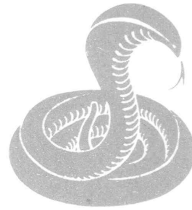
This warranty gives you specific rights and you may also have other rights which vary from state to state.

For your convenience we suggest you contact your dealer, who may be authorized to make repairs or can refer you to the nearest service contractor. If warranty service cannot be obtained locally, please send the unit to Cobra Communications Service, 2815 West Irving Park Road, Chicago, Illinois 60618, properly packaged to avoid damage in shipment.

### NOTE

For future reference, jot down the serial number (shown on the FCC identification plate of your COBRA 29GTL) below:

SERIAL NO. \_\_\_\_\_



**Cobra**<sup>®</sup>

Cobra Communications Product Group

**DYNASCAN CORPORATION**

6460 W Cortland Street

Chicago, Illinois 60635