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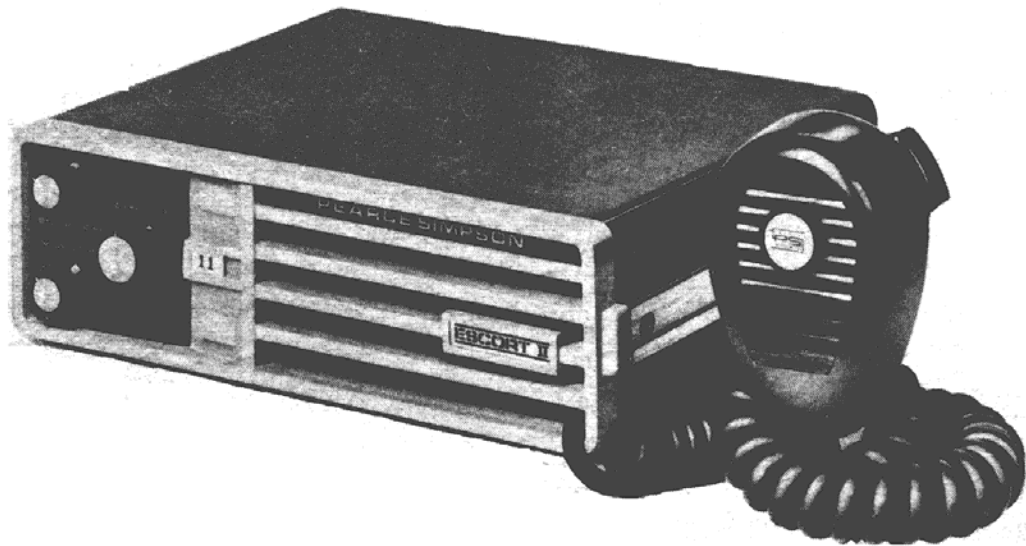
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ESCORT II

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SECTION I

GENERAL INFORMATION

1.1 DESCRIPTION

Your new Pearce-Simpson ESCORT II is a compact all-transistorized 11 channel Citizens Band Transceiver. This radio, because of its low current drain, it ideally suited for mobile operation from a 12.6 negative ground DC power source. Included with your ESCORT II is a 12 VDC power cord and an adjustable universal mounting cradle. To provide the crystal-controlled 11 channel operation, the Pearce-Simpson transistorized Mono-Crystal HetroSync[®] circuit was designed for use in the ESCORT II. This circuit allows you to add new channels to your radio by adding only one crystal for each new channel.

The receiver is a sensitive superheterodyne circuit featuring: Dual conversion, low noise RF stage, adjustable squelch, automatic noise limiting, external speaker jack, and instantaneous selection of any of the 11 crystal-controlled channels.

The transmitter section was designed around highly reliable silicon transistors and the Mono-Crystal circuit. This circuit makes use of the output of 2 crystal-controlled oscillators which are beat together to produce the desired frequency. The oscillator frequencies were chosen such that the spurious beat frequencies are spaced far enough outside the passband of the transmitter so that they are attenuated to an insignificant level. The transmitter final is a conservatively rated stud-mounted high gain RF power transistor, which feeds into a double Pi-Network Output Circuit and a TVI low-pass filter for harmonic suppression.

The modulator provides high level amplitude modulation employing saturation limiting and negative peak clipping. This allows high talk power without splatter.

1.2 SPECIFICATIONS

1.2.1 GENERAL

Channels:	11 Crystal-Controlled
Size	8-1/2" Wide x 2-3/4" High x 8-1/2" Deep
Weight:	6 Pounds
Antenna:	52-Ohm Coaxial
Primary Power:	Input Voltage - 13.8 VDC (EIA Standard)

Transistor Complement:

Q1	2N2672	RF Amplifier
Q2	2N2672	1st Receiver Mixer
Q3	2N2672	2nd Receiver Mixer
Q4	2N2672	1st IF Amplifier
Q5	2N2672	2nd IF Amplifier
Q6	MPS2716	1st Receiver Audio Amplifier
Q7	MPS2716	2nd Receiver Audio Amplifier
Q8	2N1540	Audio Power Amplifier
Q9	MPS2716	1st Transmit Audio Amplifier
Q10	MPS2716	2nd Transmit Audio Amplifier
Q11	MPS706	33 mc Oscillator
Q12	MPS706	Transmit Mixer
Q13	MPS706	Transmit Buffer
Q14	SM7991	Transmit Driver
Q15	SM7989	Transmit Final
Q101	MPS706	Receiver 6 mc Oscillator
Q102	MPS706	Transmit 6 mc Oscillator

Diode Complement:

CR1	1N34A	Detector
CR2	1N34A	A.N.L. Gate
CR3	11V Zener	Voltage Regulator
CR4	1N2069	Reverse Polarity Protector
CR5	1N2069	Negative Peak Clipper
CR6	1N2069	Squelch Gate
CR7	1N34A	A.G.C. Detector
CR8	1N2069	Reverse Polarity Protector
CR9	1N2069	Transient Suppressor

1.2.2 RECEIVER

Frequency Range:	26.965 – 27.255 mc
Sensitivity:	12 db S+N/N at 1 uv using 1000 cps, 30% modulation
Selectivity:	6 db Bandwidth – 6 kc 20 db Bandwidth – 12 kc 50 db Bandwidth – 20 kc
Image Rejection:	70 db Minimum
Spurious Rejection:	80 db Minimum
Adjacent Channel Rejection:	50 db Minimum
Squelch Range:	Adjustable From 0.5 uv – 2000 uv
Squelch Sensitivity:	0.5 uv or Less Will Open Squelch
Noise Limiter:	Preset Automatic
1st IF Frequency:	5995kc
2nd IF Frequency:	455kc
Speaker:	2-1/4" x 6-1/2" Oval

1.2.3 TRANSMITTER

Frequency Range:	26.965 – 27.255 mc
Carrier Frequency Stability:	± .003% -30° to +65°C
Collector Power Input To Final:	5 Watts Maximum
Output Power:	3 Watts into 52 Ohms with 13.8 VDC Supply
Emission:	8A3
Modulation Capability:	100%
Spurious & Harmonic Suppression:	60 db Minimum

1.3 CITIZENS RADIO SERVICE

According to FCC Rules and Regulations, Part 95, Section 95.1, the Citizens Radio Service is intended "to provide for private short-distance radiocommunications service for the business or personal activities of licensees".

The following are some of the rules and regulations of particular importance to the new licensee:

95.3 (A) CITIZENS RADIO SERVICE. "A radiocommunications service of fixed, land and mobile stations intended for short-distance personal or business radiocommunications, radio signaling and control or remote objects or devices by radio; all to the extent that these uses are not specifically prohibited in this part."

95.3 (B) CLASS D STATION. "A station in the Citizens Radio Service licensed to be operated on an authorized frequency in the 26.96-27.23 Mc/s band or on the frequency 27.255 Mc/s, with input power of 5 watts or less and for radiotelephony only."

95.105 CURRENT COPY OF RULES REQUIRED. "Each licensee in this service shall maintain as part of his station records, a current copy of Part 95, Citizens Radio Service, of this chapter."

TRANSMITTER IDENTIFICATION CARD. "In accordance with Rule 95.101, an identification card, legibly indicating the call sign and the licensee's name and address must be affixed to the transmitter. Attach this card to the side of the transmitter in a readily visible location."

DO NOT TRANSMIT WITH YOUR EQUIPMENT UNTIL YOU HAVE RECEIVED YOUR LICENSE FROM THE FCC. Illegal operation can result in severe penalties. Be sure that you have read and understand Part 95 of the FCC Rules and Regulations before operating your station.

FREQUENCIES AVAILABLE FOR CLASS D OPERATOR

CHANNEL	Mc/s	CHANNEL	Mc/s	CHANNEL	Mc/s
1	26.965	9	27.065*	17	27.165
2	26.975	10	27.075*	18	27.175
3	26.985	11	27.085*	19	27.185
4	27.005	12	27.105*	20	27.205
5	27.015	13	27.115*	21	27.215
6	27.025	14	27.125*	22	27.225
7	27.035	15	27.135	23	27.255*
8	27.055	16	27.155		

*Channels available for communications between units of different stations.
(In accordance with FCC Part 95.41 (d) (2).

1.4 H.E.L.P.

The HIGHWAY EMERGENCY LOCATING PLAN was originated by the Automobile Manufacturers Association as a means of promptly summoning aid in the event of a highway emergency. C.B. CHANNEL 9 has been designated as the channel to be monitored and used for this program.

Operation for this purpose is simple:

1. To initiate a call for aid, turn on your ESCORT II, rotate the channel selector to CHANNEL 9.
2. Listen to be sure that the channel is not in use.
3. When the channel is clear, press the microphone button and speak as follows – “THIS IS (Give Radio License Number) CALLING A H.E.L.P. MONITOR. I NEED (Police, Garage, Doctor). GO AHEAD PLEASE.
4. Release the microphone button and listen for a reply. If none is heard, repeat the message.
5. When message is acknowledged, give specific information on – Name and location; description and license number of vehicle; the nature of your problem; kind of help desired.

Your ESCORT II is delivered to you with the crystals for CHANNEL 9 already installed for this use. Sockets are provided for additional Citizens Band crystals. When additional frequencies are specifically authorized for H.E.L.P. use, your ESCORT II can easily be modified to operate on these by inserting one crystal into the available socket.

Other features which are included in your ESCORT II to make it desirable for H.E.L.P. use:

1. The ESCORT II remains operational at battery voltages even below 9.5 volts. This means that when the battery is too low to operate the starter, a call for assistance can still be transmitted.
2. Sufficient channels are provided to accommodate not only special H.E.L.P. channels, but several Citizens Band channels as well.

SECTION II

INSTALLATION AND INITIAL ADJUSTMENT

IMPORTANT

BEFORE DISCARDING ANY OF THE PACKING MATERIALS, EXAMINE THEM CAREFULLY FOR ITEMS YOU MAY HAVE OVERLOOKED.

2.1 MOBILE STATION INSTALLATION

2.1.1 MOUNTING

For mobile installation, the adjustable universal mounting cradle serves as a means of mounting your ESCORT II in any position and attitude which will be convenient to the user (See Figure 2.1 for a typical automobile installation). After you have determined the most convenient location in your vehicle, hold the ESCORT II, mounted in the cradle, in the exact location desired. If nothing will interfere with mounting it in the desired position, remove the cradle from the ESCORT II 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 installing of the mounting bolts.



2.1.2 POWER CONNECTION

The ESCORT II is constructed to be used in vehicles using negative ground systems ONLY. The red power lead is to be connected to the positive terminal of the battery. The black lead is to be connected to ground. (The radio is reverse polarity protected. If you make a mistake in connecting the power leads, the radio will not be damaged. It will be inoperative until the power is connected correctly.) If existing wiring is used, be sure that it is heavy enough to prevent voltage drop to the radio. A good source of positive battery voltage is at the accessory connection on the ignition switch. Using this as a power source insures the radio will be off when the ignition switch is turned "OFF", and power will be supplied to the radio when it is in the "ON" or "ACCESSORY" position.

2.1.3 ANTENNAS

Your ESCORT II has been adjusted at the factory to give optimum performance using a 52-ohm antenna. There are a number of 52-ohm antennas available for mobile citizens band use.

For an automobile installation, a whip may be used with good efficiency because the automobile acts as a counterpoise and reduces detuning effects. The mounting location also has a great effect on the efficiency.

The most efficient and practical installation is a full quarter wave whip mounted on the left rear deck or fender top midway between the rear window and bumper.

The so-called "shorted whip" is a less efficient antenna because the radiation area is reduced. However, full use of its capability may be achieved since a shorter antenna may be mounted in a more advantageous position on an automobile, such as in the middle of the top.

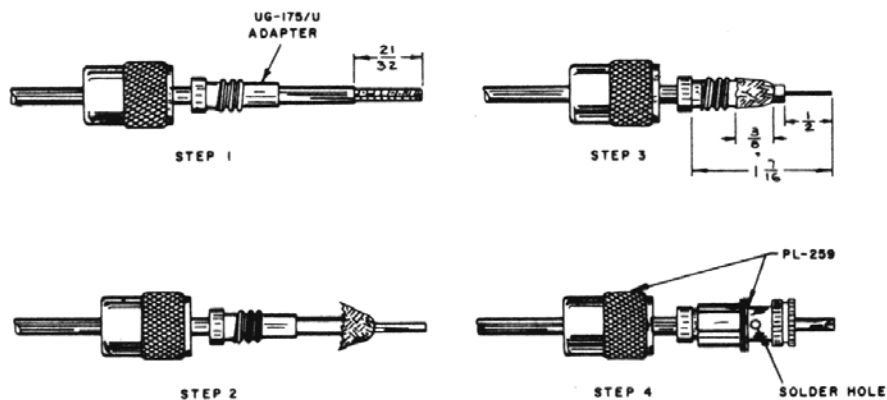
There are also newer mobile antennas on the market which are made to replace the entertainment radio antenna and are similar in appearance. These antennas serve three purposes: AM and FM entertainment broadcast reception and Citizens Band transmission and reception. With some of these antennas, it is possible to simultaneously transmit on CB and receive on AM broadcast without interaction. These antennas are quite efficient for all three types of operation when properly adjusted.

For a marine installation, the full-length quarter wave whip antenna is very efficient, however it requires radials which make it hard to mount in small boats. Another excellent antenna is the coaxial sleeve type which requires no radial. A similar antenna is the centerloaded 1/2 wave which is about the same as the full-length 1/4 wave whip and it requires no radials. Care must be used when choosing one of the shortened type antennas as considerable variation in efficiency will be found between the various makes and models. As a general rule, avoid those with short radiating elements because the greater the radiating area, the stronger the radiated signal will be.

Your PEARCE-SIMPSON dealer is prepared to offer advice and will help you choose the most desirable antenna for your needs.

2.1.4 TRANSMISSION LINE

To connect an antenna to the transceiver, a 52 coaxial transmission line is required. RG-8/U coax is recommended for lengths in excess of 50 feet and RG-58/U coax is recommended for lengths less than 50 feet to connect to the transceiver. The RG-8/U requires a PL-259 type connector and the RG-58/U coax requires a PL-259 connector with a UG-175/U adaptor. (See Figure 2.2 for assembling connector to RG-58/U.)



ASSEMBLING ANTENNA PLUG TO RG-58U
OR OTHER 1/4" COAXIAL CABLE

FIGURE 2.2

2.2 INITIAL ADJUSTMENTS

This unit HAS BEEN PRECISELY TUNED at the factory and is set for maximum power efficiency to conventional mobile and base antennas, provided the antenna is installed per manufacturer's instructions.

It is, therefore, NOT NECESSARY to make any adjustments in the field.

If a malfunction occurs, it will be necessary to follow Section 4.5 using the test equipment listed.

2.3 NOISE SUPPRESSION

The ESCORT II contains a built-in automatic noise limiter and input power filtering. In most vehicular installations, the noise suppression for the entertainment radio will be sufficient. Vehicles and boats not having this suppression may require that it be installed. In most cases, installation of distributor suppressors and generator condensers will be sufficient. In severe cases, the services of a qualified technician may be required. See your Pearce-Simpson Dealer for advice.

2.4 ADDING NEW CHANNELS

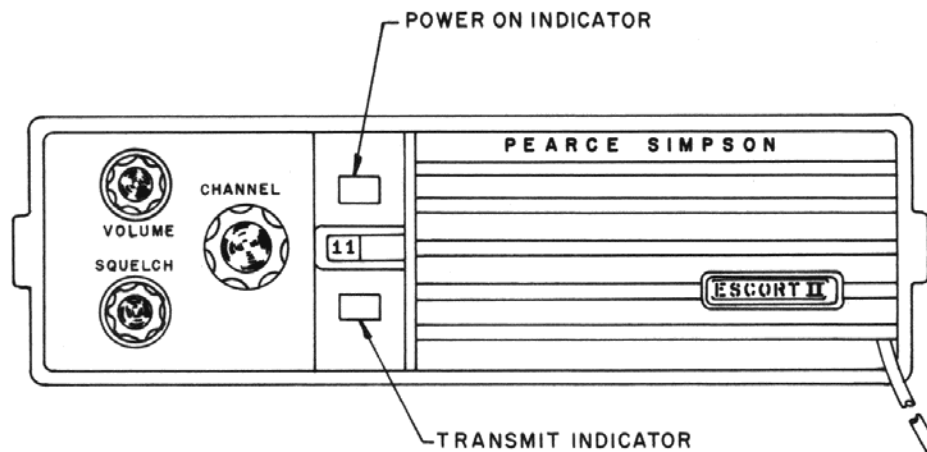
Because your ESCORT II has the new PEARCE-SIMPSON Mono-crystal HetroSync[®] circuit, you need to add only one crystal for both transmit and receive to add a new channel. Crystals should be ordered from your local dealer or directly from Pearce-Simpson, Inc.

To install your new crystals, remove the top cover from your ESCORT II. Refer to Figure 4.3 "Component Layout" in order to determine which socket to insert the crystal for the channel (A through K) you wish to use. See Figure 4.2 "Crystal Chart" to select the crystal required for the channel you wish to add.

SECTION III OPERATING INSTRUCTIONS

3.1 CONTROLS AND INDICATORS

There are three controls and two indicators on the front panel of your ESCORT II. See Figure 3.1



ESCORT II FRONT PANEL
FIGURE 3.1

3.1.1 Channel Selector

The Channel Selector Switch has 11 operating positions. This switch sets both transmit and receive frequencies simultaneously by switching the proper crystal into the Pearce-Simpson Mono-crystal HetroSync^R circuit for any one of the selected 11 CB channels.

3.1.2 Squelch Control

The Squelch Control is used to silence background noises (atmospheric or man-made noise) in the absence of a received radio signal. In the full counterclockwise position, the ESCORT II is unsquelched, (No noise silencing at all). In the fully clockwise position, the unit is squelched for even very strong signals.

3.1.3 Volume Control and ON-OFF Switch

This control turns the power ON and OFF and adjusts the loudness of receiver signals.

3.1.4 Power On Indicator

This Indicator is a red light which is turned on when the ON-OFF Switch is in the ON position and remains illuminated at all times when your ESCORT II unit is transmitting or receiving.