Colonel

IC

23 CHANNEL MOBILE/BASE TRANSCEIVER WITH SCANNING FEATURE

OWNER'S GUIDE

Model 324

OPERATION OF CONTROLS

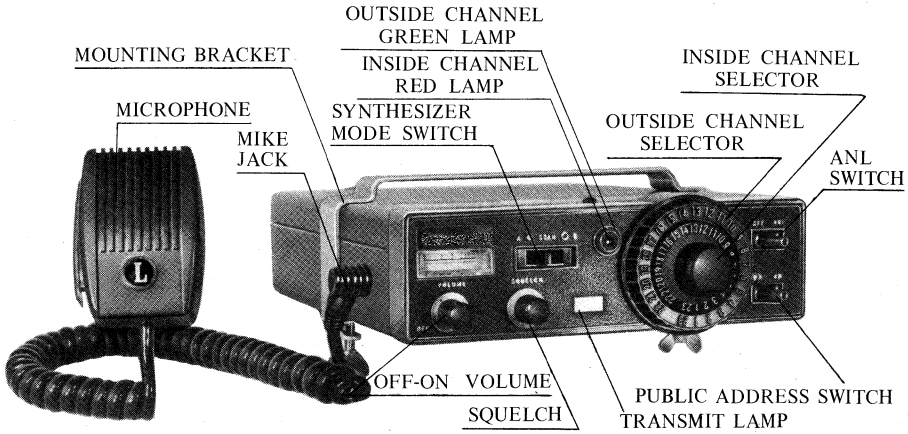


Figure 1

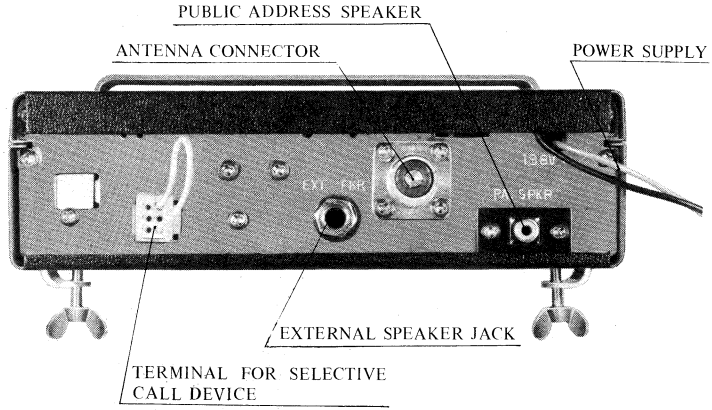


Figure 2

OPERATING CONTROLS AND FUNCTIONS (FIGURES 1 & 2)

VOLUME-ON/OFF

This is the power on/off switch and speaker volume control. Rotate to the right to turn the set on and increase the volume. This control does not affect the transmitting output.

SYNTHESIZER MODE SWITCH

A 3-position slide switch provides selecting the following synthesizer modes.

Position	A	Transmit/Receive on inside channel selector. (Red Light)
Position	SCAN	Receiver scan of inside and outside channel selector, and Transmit on inside channel selector.
Position	B	Transmit/Receive on outside channel Selector. (Green Light)

(NOTE: Transmitter will only operate when synthesizer mode is position "A"or "B".)

CHANNEL SELECTORS

Both inside and outside channel selectors control both transmitter and receiver frequencies simultaneously when synthesizer mode switch is in position "A" or "B". In connection with the synthesizer mode switch, either inside or outside channel selector may be set to any of the 23 positions.

ANY CHANNEL SCANNING FEATURE

This provides you with the unique feature of allowing you to monitor any two channels of all 23 channels.

When all other controls are adjusted for normal operation and the channel selectors are set to any two channels, (one on the inside channel selector and another on the outside channel selector), which you desire the receiver to scan. Set the synthesizer mode switch to the position "SCAN". Then, turn the squelch control knob clockwise until receiver noise is muted (squelched) for automatic scanning. When an incoming signal releases the squelch, the receiver will lock on that channel. When the message on that channel is ended, the receiver will automatically resume scanning the two channels you have set. Or if you desire to respond to the message on that channel, it is necessary to turn the synthesizer mode switch position, "A" or "B", to which that channel belongs. For your convenience the **Colonel** 303.324 has been so designed you can transmit inside channel when the synthesizer mode switch is on "Scan"

SQUELCH

Quiets the receiver when signals are not being received and allows a quiet standby operation. It functions only in the receive mode and does not affect the receiver volume when signals are being received. To adjust: When no signals are present, rotate the squelch control clockwise until the receiver is quieted. Incoming signals will automatically release the squelch. Careful adjustment is necessary, as settings too far to the right will not allow weaker signals to release the squelch.

PA-CB SWITCH

This unit may also be used as a paging amplifier by connecting a suitable 8–16 ohm speaker to the P.A. output jack (Figure 2) and setting the PA-CB switch to the PA position. Press and hold the push-to-talk bar on the microphone and speak into the microphone in a normal tone of voice.

ANL (AUTOMATIC NOISE LIMITER) SWITCH

This switch controls the noise limiter circuit which has been designed to reduce excessive electrical interference, ignition noise, etc. Generally, in mobile operation with the engine running, the ANL should be on.

TX LIGHT

This is a transmit indicator light and will glow red when the push-to-talk bar on the microphone is pressed.

S-RFO METER

This is a dual purpose meter that measures the relative strength of incoming signals when receiving and the relative power output when transmitting.

MOBILE INSTALLATION

Safety and operating convenience are the primary factors to consider when mounting any piece of equipment in an automobile. Be sure that the transceiver controls may be easily reached by the operator. Also be sure that connecting cables do not interfere with the operation of the brake, accelerator, etc.

POWER CONNECTION

When used in mobile operation, the vehicle's battery supplies the power.

CAUTION: The **Colonel** 303.324 is designed to be used in a 12 volt DC negative ground system only. If you are unsure of your vehicle's polarity, ask your dealer or local service station.

The red wire from the **Colonel** 303.324 is positive and may be connected directly to the positive or + battery terminal or to a fuse block or ignition switch or other convenient point.

The black wire is negative or ground and should be connected to a metal part of the vehicle body or frame or - battery terminal.

To insure proper operation, care should also be taken in attaching the transceiver and mounting bracket to the vehicle in such a way as to obtain good ground connection at this point.

MOBILE ANTENNAS

A vertical whip antenna is best suited for mobile operation. A nondirectional antenna should be used for best results in any case. The base-loaded whip antenna will normally provide effective communication or for greater range and more reliable operation a full quarter-wave whip may be used. Either of these antennas use the metal car body as a ground plane and the shield of the base lead as well as the metal case of the transceiver should be grounded. A standard antenna connector (type SO-239) is provided on the transceiver for easy connection to a standard PL-259 coax plug. Following the antenna manufacturer's instructions carefully will insure proper operation.

BASE STATION OPERATION

Although the **Colonel** 303.324 is designed for mobile operation, it will work equally well as a base station when connected to a suitable base station power supply.

When the **Colonel** 303.324 is used as a base station, any Citizens Band beam, dipole, ground plane or vertical antenna may be used. A ground plane type antenna will provide good coverage, and since it is essentially non-directional, it is ideal in base station to mobile operation. From base station to base station or point-to-point operation a directional beam will give greater distance even under adverse conditions. The range of the transceiver also depends on the height of the antenna so whenever possible, select the highest location

GENERAL OPERATING INSTRUCTIONS

The explanations of operating controls and functions should be read and understood before actual operation of this transceiver.

1. Plug in the microphone and check to be sure that the antenna and power cables are properly connected.
   CAUTION: Do not transmit until an antenna or suitable dummy load has been connected to the coax antenna output jack.
2. Set the synthesizer mode switch position to "A" or "B", the channel selector to the desired channel.
3. Initially, set the squelch control fully counterclockwise.
4. Set the PA-CB switch to the CB position.
5. Turn the set on and adjust the volume control to the desired level.
6. To transmit, press the push-to-talk bar on the microphone.
7. For scanning any channel you desire, see ANY CHANNEL SCANNING FEATURE on page 2.

SPECIFICATIONS

GENERAL

Circuitry:	28 transistors, 35 diodes, 1 Integrated Circuit ,1 FET
Frequency Control:	± 0.005% crystal
Channels:	23 – all supplied
Controls:	On/off/volume; PA/CB; variable squelch; ANL on/off; channel selectors; synthesizer mode switch knob

Jacks & Connections:	Provided for 8-ohm speaker, 52-ohm antenna, microphone selective call
Power Source:	12–15 volts, DC
Speaker:	Bottom-mounted 3",8Ω
Microphone:	2,000 ohm, dynamic, low impedance
PA Audio Output:	2.5 watts
Size:	7-¾" x 2-¼ x 9-¾"
Weight:	4-1/2 lbs.
Accessories Included:	Mike and cord, mobile mounting bracket, mike hanger fused DC auto cable, mounting hardware

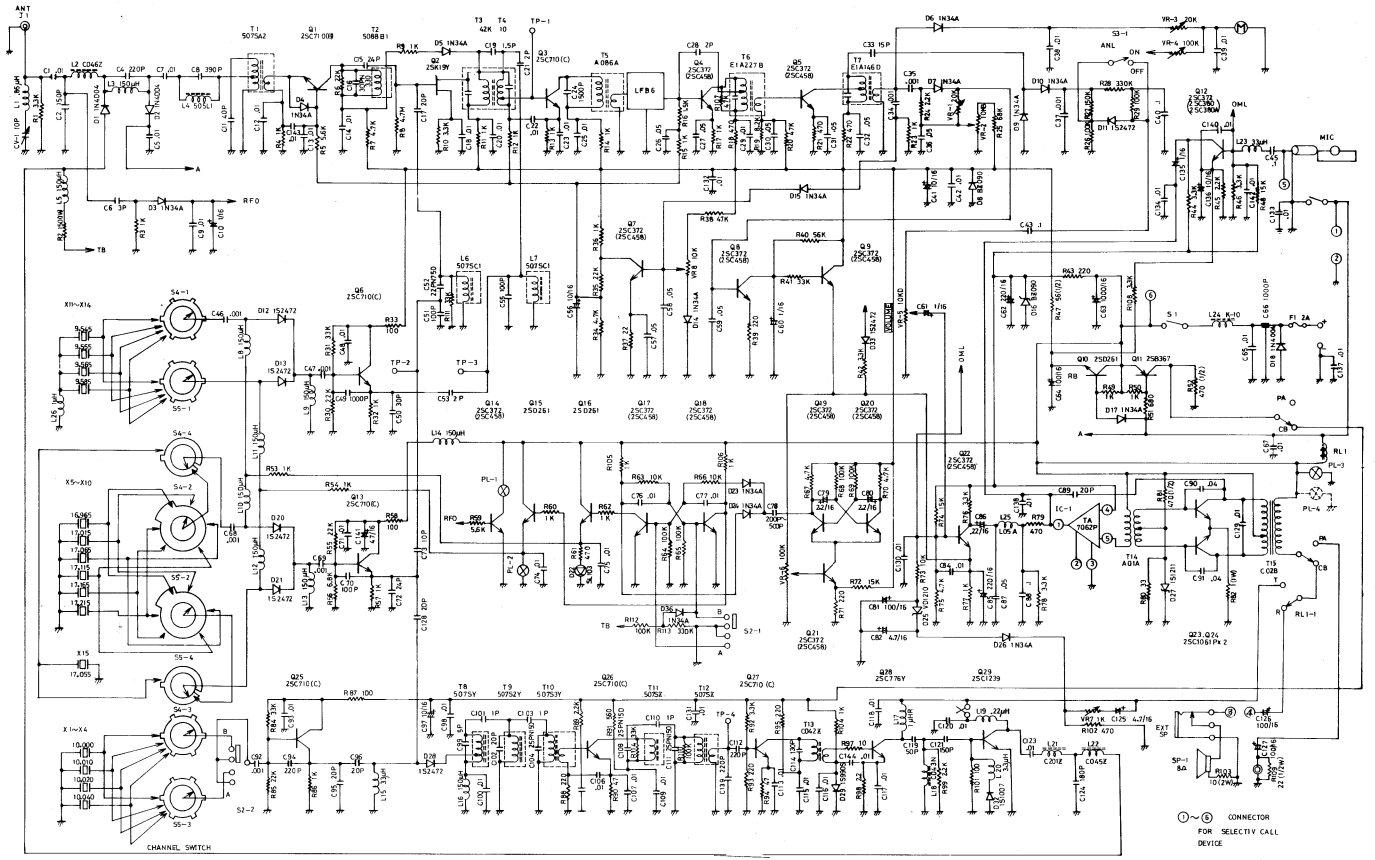
RECEIVER

Receiving System:	Dual conversion superheterodyne
Sensitivity:	0.5 uv for 6 db (S + N)/N
Selectivity:	± 5 KHz at 6 db
Spurious Rejection:	50 db
Audio Output Power:	2.5 watts
Squelch Range:	1 to 500 uv
Intermediate Frequency:	1st Conversion: 10.635 MHz 2nd Conversion: 455 KHz

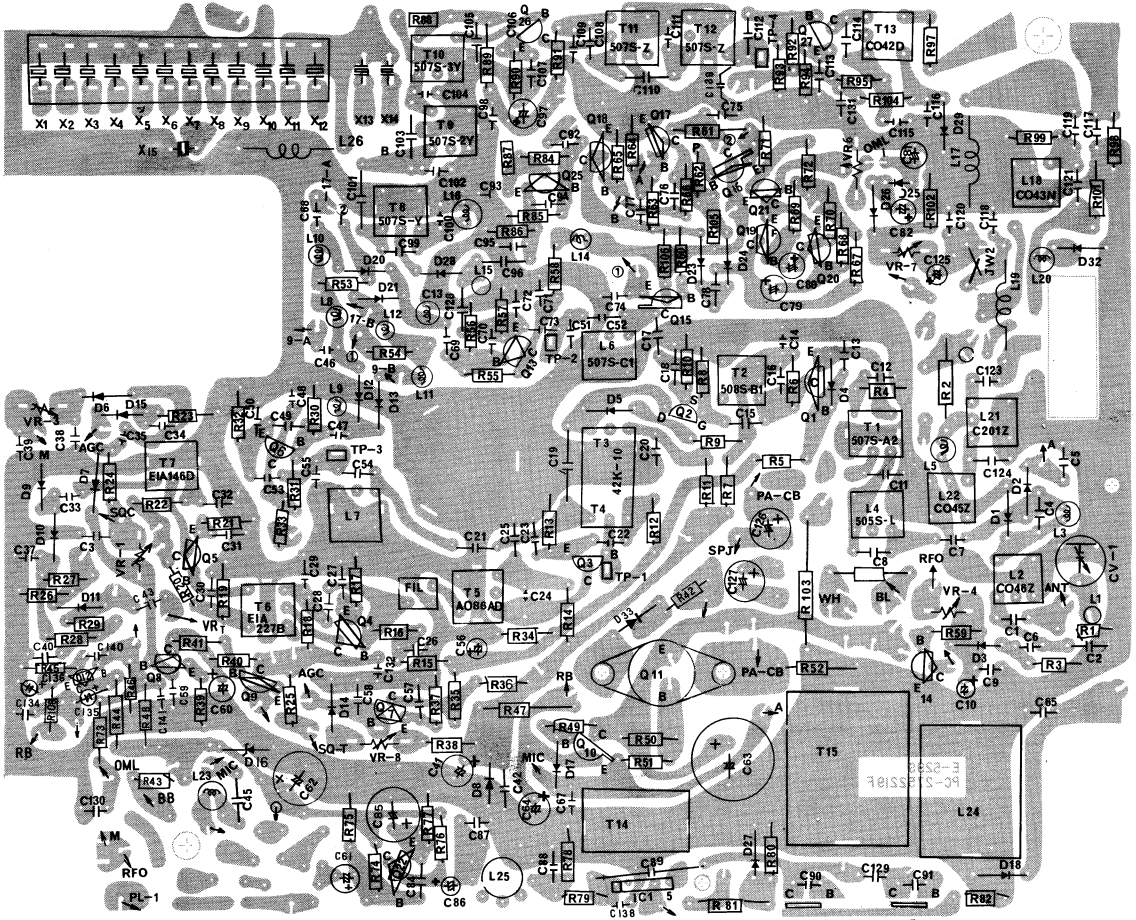
TRANSMITTER

Modulation:	High level Class B
RF Input Power:	5 watts
RF Output Power:	3.1 watts

SCHEMATIC DIAGRAM



PARTS LAYOUT



CRYSTAL SYNTHESIZER LIST

CH	Frequency	1st RX & TX OSC FREQ.				2nd TX OSC FREQ.		2nd RX OSC FREQ.		
1	26.965	26.965	–	16.965	=	10.000	=	9.545	+	.455
2	26.975	26.975	–	16.965	=	10.010	=	9.555	+	.455
3	26.985	26.985	–	16.965	=	10.020	=	9.565	+	.455
4	27.005	27.005	–	16.965	=	10.040	=	9.585	+	.455
5	27.015	27.015	–	17.015	=	10.000	=	9.545	+	.455
6	27.025	27.025	–	17.015	=	10.010	=	9.555	+	.455
7	27.035	27.035	–	17.015	=	10.020	=	9.565	+	.455
8	27.055	27.055	–	17.015	=	10.040	=	9.585	+	.455
9	27.065	27.065	–	17.065	=	10.000	=	9.545	+	.455
10	27.075	27.075	–	17.065	=	10.010	=	9.555	+	.455
11	27.085	27.085	–	17.065	=	10.020	=	9.565	+	.455
12	27.105	27.105	–	17.065	=	10.040	=	9.585	+	.455
13	27.115	27.115	–	17.115	=	10.000	=	9.545	+	.455
14	27.125	27.125	–	17.115	=	10.010	=	9.555	+	.455
15	27.135	27.135	–	17.115	=	10.020	=	9.565	+	.455
16	27.155	27.155	–	17.115	=	10.040	=	9.585	+	.455
17	27.165	27.165	–	17.165	=	10.000	=	9.545	+	.455
18	27.175	27.175	–	17.165	=	10.010	=	9.555	+	.455
19	27.185	27.185	–	17.165	=	10.020	=	9.565	+	.455
20	27.205	27.205	–	17.165	=	10.040	=	9.585	+	.455
21	27.215	27.215	–	17.215	=	10.000	=	9.545	+	.455
22	27.225	27.225	–	17.215	=	10.010	=	9.555	+	.455
Vacant	27.235	27.235	–	17.215	=	10.020	=	9.565	+	.455
11 A	27.095	27.095	–	17.055	=	10.040	=	9.585	+	.455

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SWEDEN

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