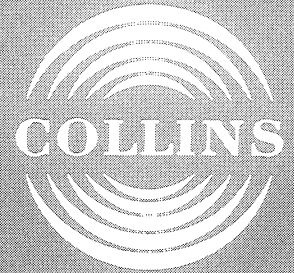


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instruction book

Collins Radio Company of Canada Ltd., Toronto, Ontario, Canada

32RS-1C

Transceiver

GUARANTEE

The equipment described herein is sold under the following guarantee:

Collins agrees to repair or replace, without charge, any equipment, parts, or accessories which are defective as to design, workmanship or material, and which are returned to Collins at its factory, transportation prepaid, provided

- (a) Notice of the claimed defect is given Collins within one(1) year from date of delivery and goods are returned in accordance with Collins' instructions.
- (b) Equipment, accessories, tubes, and batteries not manufactured by Collins or from Collins' designs are subject to only such adjustments as Collins may obtain from the supplier thereof.
- (c) No equipment or accessory shall be deemed to be defective if, due to exposure or excessive moisture in the atmosphere or otherwise after delivery, it shall fail to operate in a normal or proper manner.

Collins further guarantees that any radio transmitter described herein will deliver full radio frequency power output at the antenna lead when connected to a suitable load, but such guarantee shall not be construed as a guarantee of any definite coverage or range of said apparatus.

The guarantee of these paragraphs is void if equipment is altered or repaired by others than Collins or its authorized service center.

No other warranties, expressed or implied, shall be applicable to any equipment sold hereunder, and the foregoing shall constitute the Buyer's sole right and remedy under the agreements in this paragraph contained. In no event shall Collins have any liability for consequential damages, or for loss, damage or expense directly or indirectly arising from the use of the products, or any inability to use them either separately or in combination with other equipment or materials, or from any other cause.

HOW TO RETURN MATERIAL OR EQUIPMENT. If, for any reason, you should wish to return material or equipment, whether under the guarantee or otherwise, you should notify us, giving full particulars including the details listed below, insofar as applicable. If the item is thought to be defective, such notice must give full information as to nature of defect and identification (including part number if possible) of part considered defective. (With respect to tubes we suggest that your adjustments can be speeded up if you give notice of defect directly to the tube manufacturer.) Upon receipt of such notice, Collins will promptly advise you respecting the return. Failure to secure our advice prior to the forwarding of the goods or failure to provide full particulars may cause unnecessary delay in handling of your returned merchandise.

ADDRESS:

Collins Radio Company of Canada Limited
150 Bartley Drive,
Toronto 16,
Ontario

INFORMATION NEEDED:

- (A) Type number, name, and serial number of equipment
- (B) Date of delivery of equipment
- (C) Date placed in service
- (D) Number of hours of service
- (E) Nature of trouble
- (F) Cause of trouble if known
- (G) Part number (9 or 10 digit number) and name of part thought to be causing trouble
- (H) Item or symbol number of same obtained from parts list or schematic
- (I) Collins number (and name) of unit sub-assemblies involved in trouble
- (J) Remarks

HOW TO ORDER REPLACEMENT PARTS.

When ordering replacement parts, you should direct your order as indicated below and furnish the following information insofar as applicable. To enable us to give you better replacement service, please be sure to give us complete information.

ADDRESS:

Collins Radio Company of Canada Limited
150 Bartley Drive,
Toronto 16,
Ontario

INFORMATION NEEDED:

- (A) Quantity required
- (B) Collins' part number (9 or 10 digit number) and description
- (C) Item or symbol number obtained from parts list of schematic
- (D) Collins' type number, name, and serial number of principal equipment
- (E) Unit sub-assembly number (where applicable)



instruction book

32RS-1C Transceiver

• *Collins Radio Company of Canada Ltd. 1964*

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Figure 1-1. Transceiver 32RS-1C

SECTION I GENERAL DESCRIPTION

1.1 PURPOSE OF INSTRUCTION BOOK.

This instruction book provides information for installation, operation, and maintenance of Transceiver 32RS-1.

1.2 PURPOSE OF EQUIPMENT.

Transceiver 32RS-1 is a complete fixed station for single-sideband high-frequency radio communication in the range of 1.6 to 15 mc. It operates on the upper

sideband of any one of four channels as selected at the front panel.

1.3 EQUIPMENT SUPPLIED.

Transceiver Model 32RS-1C is shown in figure 1-1 and consists of a cabinet with the 32RS-1 chassis and power supply mounted in it. Table 1-1 lists equipment supplied.

TABLE 1-1. EQUIPMENT SUPPLIED

UNIT	COLLINS PART NUMBER	DIMENSIONS (in.)			WEIGHT (lb)
		DEPTH	WIDTH	HEIGHT	
Transceiver 32RS-1C	522-1189-00	14-3/4	22	24-1/2	97
Transceiver	543-7336-00	7	19	12-1/4	20
Power Supply	543-7335-00	7	19	7	35

1.4 EQUIPMENT REQUIRED BUT NOT SUPPLIED.

Equipment required but not supplied is listed in table 1-2.

TABLE 1-2
EQUIPMENT REQUIRED BUT NOT SUPPLIED

ITEM	QUANTITY PER TRANSCIVER	DESCRIPTION
Antenna and antenna feed system	One required (separate antennas may be used for each channel if desired).	50-ohm characteristic impedance antenna and 50-ohm unbalanced feed system with swr not to exceed 2.5 to 1.
Power source	One	115 or 230 volts a-c. 50-60 cps. single phase. 350 watts.

TABLE 1-2 (Cont)

EQUIPMENT REQUIRED BUT NOT SUPPLIED

ITEM	QUANTITY PER TRANSCIVER	DESCRIPTION
Crystals	One per channel.	CR-27/U, as required by frequency assignment.
Coil sets	One set of 6 each per channel.	As required by frequency assignment.
Crystal ovens	One oven for two channels.	As required by frequency, stability 1.5 parts in 10 ⁶ .

1.5 ACCESSORIES.

Accessories available for use with Transceiver 32RS-1 are listed in table 1-3.

SECTION I
General Description

TABLE 1-3

ACCESSORIES

ITEM	DESCRIPTION
Antenna Coupler 180V-1	Reversible L-network that matches the following antennas to a 52-ohm transmission line: 50-foot whip - 1.6 to 2.5 mc 30-foot whip - 2.5 to 12.0 mc 100-foot long wire - 1.6 to 12.0 mc
Phone Patch 152J-1	Allows operation into or out of a phone line.
Directional Wattmeter. 302E-2	0 to 200 watts, forward or reverse power indicator.

1.6 EQUIPMENT SPECIFICATIONS.

Frequency range 1.6-15 mc.

Mode Single sideband, upper sideband only. (Crystals for lower sideband are available on special order.)

Stability 1.5 parts per million.

Transmit power output . . . 100 watts PEP.

Transmit output impedance . 52 ohms with swr not to exceed 2.5 to 1.

Harmonic and other spurious radiation

Second harmonic At least 50 db down from peak signal.

Carrier, static 50 db below peak output.
dynamic 30 db below peak output.

Lower sideband At least 50 db below peak output.

Spurious radiation 9-12 mc, 40 db down
2-9 mc, 60 db down from peak signal.
12-15 mc, 35 db below

Distortion products At least 25 db down from peak signal (2-tone signal).

Transmit audio input . . . - Telephone handset with provisions for external 4-wire telephone connection. Input range - .1 to 2 volts.

Audio-frequency response . ±3 db, 500 to 3000 cps.

Automatic load control . . . Capable of at least 6 db compression.

Receiver selectivity 3 kc nominal.

Receiver sensitivity Less than 1.0-microvolt input signal required for 10 db signal-to-noise ratio.

Receiver image rejection . . 50 db from 1.6 to 12 mc.
40 db from 12 to 13 mc.
30 db 13 to 15 mc.

Receiver audio output power 2.0 watts maximum.
More than 50 mw with 1-microvolt input signal.

Receive audio distortion . . Less than 10% harmonic.

1.7 TUBE, FUSE, AND SEMICONDUCTOR COMPLEMENT.

Table 1-4 lists tubes, fuses, and semiconductors of Transceiver 32RS-1.

TABLE 1-4. TUBE, FUSE, AND SEMICONDUCTOR COMPLEMENT

SYMBOL	TYPE	FUNCTION
TRANSCEIVER		
V1A	1/2 6CQ8	455-kc oscillator.
V1B	1/2 6CQ8	Isolation amplifier.
V2	12AT7	Transmit balanced mixer.

TABLE 1-4. TUBE, FUSE, AND SEMICONDUCTOR COMPLEMENT (Cont)

SYMBOL	TYPE	FUNCTION
TRANSCEIVER		
V3	6DC6	Transmit and receive r-f amplifier.
V4	6CL6	Driver.
V5	6146A	Power amplifier.
V6	6146A	Power amplifier.
V7A	1/2 6CQ8	First speech amplifier on OPERATE position.
		Tone oscillator on TUNE position.
V7B	1/2 6CQ8	Vox amplifier.
V8A	1/2 12AT7	Second speech amplifier.
V8B	1/2 12AT7	Vox relay control.
V9A	1/2 6AL5	ANTI-VOX rectifier.
V9B	1/2 6AL5	Vox rectifier.
V10A	1/2 6CQ8	Channel oscillator.
V10B	1/2 6CQ8	Phase inverter.
V11	6BA7	Receive mixer.
V12	6BA6	Receive first i-f amplifier.
V13	6BA6	Receive second i-f amplifier.
V14	12AT7	Product detector.
V15A	1/2 12AT7	First a-f amplifier.
V15B	1/2 12AT7	Second a-f amplifier.
V16	6AQ5	Receiver a-f power amplifier.
V17A	1/2 6AL5	Agc rectifier.
V17B	1/2 6AL5	R-f gain gating.
V18	6AL5	Alc rectifier.
CR1	1N270	Switching diode.
CR4, 5, 6, and 7	1N67's	Quaddiode ring balanced modulator.
Y1, Y2, Y3, Y4	CR-27/U	Channel crystals.
Y5		455 kc bfo crystal.