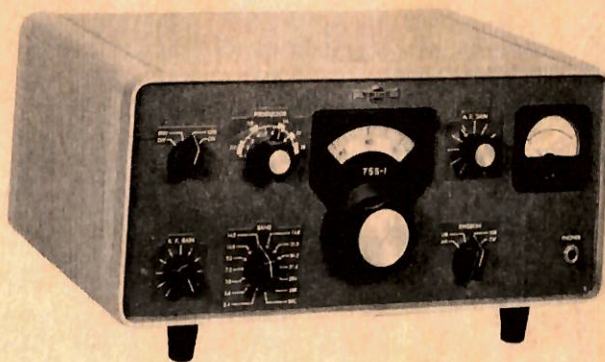


I N S T R U C T I O N B O O K

RECEIVER

75S-1



COLLINS RADIO COMPANY



COLLINS AMATEUR EQUIPMENT GUARANTEE

The Collins Amateur 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 workmanship or materials and which are returned to Collins at its factory, transportation prepaid, provided:

- (a) Buyer has completed and returned to Collins promptly following his purchase the Registration Card included in the Instruction Book or furnished with the equipment.
- (b) Notice of the claimed defect is given Collins or an authorized service agency, or an authorized distributor, in writing, within 90 days from the date of purchase and goods are returned in accordance with Collins instructions.
- (c) 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.
- (d) Any failure due to use of equipment in excess of that contemplated in normal amateur operations shall not be deemed a defect within the meaning of these provisions.

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

Collins reserves the right to make any change in design or to make addition to, or improvements in, Collins products without imposing any obligations upon Collins to install them in previously manufactured Collins products.

No other warranties, expressed or implied, shall be applicable to said equipment, and the foregoing shall constitute the Buyer's sole right and remedy under the agreements contained in these paragraphs. 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.

IMPORTANT: It is necessary that the business reply card included herewith be filled out and mailed to the Company promptly in order for this guarantee to be effective.

INQUIRIES: If there are any questions concerning the operation of this equipment, first contact the distributor from which you purchased the equipment or the distributor nearest you. They are qualified to make the proper recommendations to you.

NOTE: See Distributor List.

WARRANTY REPAIRS

On the opposite page are listed the Service Agencies authorized to perform warranty repair on Collins Amateur Equipments.

If you should wish to return material or equipment direct to Collins under the guarantee, you should notify Collins, 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. 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
Amateur Product Office
Cedar Rapids, Iowa*

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) Name of distributor from whom the equipment was purchased

OUT OF WARRANTY REPAIR, MODIFICATIONS, ADDITION OF ACCESSORIES, ALIGNMENT, ETC.:

For information on service of this type write to the address shown below. If you wish to return your equipment for repairs, etc., without prior correspondence, be sure to

include the following information attached to the equipment inside the packing carton:

- (1) Complete instructions detailing work to be performed.
- (2) Your return address.
- (3) Method of shipment by which the equipment should be returned.
- (4) Special instructions.

DIRECT YOUR CORRESPONDENCE TO:

*Collins Radio Company
Service Repair Department
Service Building, Main Plant
Cedar Rapids, Iowa*

HOW TO ORDER REPLACEMENT PARTS.

When ordering replacement parts, you should direct your order to one of the listed Collins distributors.

Please furnish the following information insofar as applicable:

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 or schematic
- (D) Collins type number, name, and serial number of principal equipment
- (E) Unit subassembly number (where applicable)

NOTE: See Distributor List.

COLLINS AUTHORIZED AMATEUR DISTRIBUTORS AND SERVICE AGENCIES

ALABAMA

Ack Radio Supply Company
3101 4th Avenue S.
Birmingham 3
Phone: FAirfax 2-0588
Rep: E. C. Atkerson
SEE ALSO: Atlanta, Georgia

ALASKA

Alaskan Electronics Supply, Inc.
833 Gambell Street
Anchorage
Phone: 6-2844
Rep: Harold W. Green

ARIZONA

Elliott Electronics, Inc.
418 No. 4th Avenue
Tucson
Phone MAin 4-2473
Rep: T. M. Elliott
Southwest Wholesale Radio, Inc.
(P.O. Box 3647) 126 S. 2nd Street
Phoenix
Phone: ALpine 2-1743
Rep: Herman A. Middleton

ARKANSAS

Lavender Radio Supply Company, Inc.
(P.O. Box 596) 529 E. 4th Street
Texarkana
Phone: 2-4195
Rep: Joe Lavender

Moory's Radio & Appliance Company
12th & Jefferson
DeWitte
Phone: WHitney
Rep: Ed Moory

CALIFORNIA

Dow Radio, Inc.
1759 East Colorado Street
Pasadena 4
SYcamore 3-1196
Rep: Arthur Duhamell

Eckert Enterprises
17647 Sherman Way
Van Nuys
Phone: DI 2-5143
Rep: Fred Rice

Elmar Electronics,
140 11th Street at Madison
Oakland 7
Phone: HIgate 4-7011 (TWX-OA73)
Rep: Elvin Feige/Mario Chirone

**Henry Radio
(P.O. Box 64398)
11240 W. Olympic Blvd.
Los Angeles 64
Phone: GRanite 7-8701
Rep: Ted Henry

Larry Lynde Electronics
1526 E. 4th Street
Long Beach
Phone: HEMlock 7-4807
Rep: Larry Lynde

Northern California Amateur Supply
3425 Balboa Street
San Francisco
Phone: SKyline 1-4861
Rep: John Mayes

Frank Quement, Inc.
P.O. Box 527
161 San Fernando
San Jose
Phone: CYpress 4-0464
Rep: Frank Quement

Radio Products Sales, Inc.
1501 S. Hill Street
Los Angeles 15
Phone: RIchmond 9-7471
Rep: Ken Raustin

Valley Electronic Supply Company
1302 W. Magnolia Blvd.
Burbank
Phone: THornwall 5-1521
Rep: Frank Eckert

Western Radio & TV Supply Company
(P.O. Box 1728) 1415 India Street
San Diego 1
Phone: BElmont 9-0361
Rep: Wayne Prather/Lorin Lee

COLORADO

Radio Products Sales Company
1237 16th Street
Denver 2
Phone: CHerry 4-6591
Rep: Walter Nettles/Willard Wright

CONNECTICUT

Hatry of Hartford, Inc.
203 Ann Street
Hartford
Phone: JACkson 7-1881
Rep: Edward Gedney

Radio Shack Corp.
230 Crown Street
New Haven 10
Phone: SPRuce 7-8871
Rep: Myron Friedman

SEE ALSO: Boston, Massachusetts

SERVICE AGENCY ONLY:

Huntress Electronics
93 Talcott Road
West Hartford 10
Phone: ADAMS 6-0990
Rep: Bob Resconstin

DELAWARE

Willard S. Wilson, Inc.
403-405 Delaware Avenue
Wilmington 1
Phone: OLYmpia 5-4321
Rep: W. S. Wilson

DISTRICT OF COLUMBIA

Electronic Wholesalers, Inc.
2345 Sherman Avenue NW
Washington 1
Phone: HUDson 3-5200
Rep: Ray Avey

FLORIDA

**Electronic Supply Company
61 N.E. 9th Street
Miami 32
Phone: FRanklin 7-2511
Rep: Frank Gantz

Grice Electronics, Inc.
(P.O. Box 1911) 300 E. Wright Street
Pensacola
Phone: HEMlock 3-4616
Rep: F. G. Grice, Jr.

**Kinkade Radio Supply
1719 Grand Central Avenue
Tampa
Phone: 8-6043
Rep: Elmer Kinkade
Peard Electronic Supply Company
535 Washington Street
Jacksonville
Phone: ELgin 5-3473
Rep: Robert C. Peard

GEORGIA

Ack Radio Supply Company
331 Luckie Street NW
Atlanta 13
Phone: JA 4-8477
Rep: T. E. Atkerson

Specialty Distributing Company, Inc.
763 Juniper Street NE
Atlanta 8
Phone: TRinity 3-2521
Rep: J. E. Eaton

HAWAII

Kaimuki Radio Company, Ltd.
3620 Waiialae Avenue
Honolulu 16
Phone: 709085
Rep: Thomas Teruya

ILLINOIS

Allied Radio Corp.
100 N. Western Avenue
Chicago 80
Phone: HAYmarket 1-8800
Rep: Oliver Goad/Lewis T. Stein

Klaus Radio & Electric Company
403 E. Lake
Peoria
Phone: RH 8-3401
Rep: Clifford Morris

Newark Electric Company
223 W. Madison Street
Chicago 6
Phone: STate 2-2944
Rep: John Mack/A. L. Poncher/
Ireal Treger

INDIANA

Graham Electronics Supply, Inc.
122 S. Senate Street
Indianapolis 4
Phone: MElrose 4-8487
Rep: Clair Gould/Thorion Graham

Radio Distributing Company
(P.O. Box 1499) 1212 High Street
South Bend 15
Phone: ATLantic 8-4665
Rep: William A. Davidson

IOWA

Bob and Jack's
611 Forest Avenue
Des Moines 14
Phone: ATLantic 2-0852
Rep: Robert M. Evans/Jack Landis

Ken-Els Radio Supply Company
428 Central Avenue
Fort Dodge
Phone: 3-8801
Rep: Ken Stinogel

Radio Trade Supply Company
1224 Grand Avenue
Des Moines 9
Phone: ATLantic 8-7237
Rep: Vince Davis

World Radio Laboratories, Inc.
3415-27 W. Broadway
Council Bluffs
Phone: 2-0277
Rep: Alan McMillan/Leo Meyerson/
C. H. Williams

KANSAS

The Overton Electric Company, Inc.
522 Jackson Street
Topeka
Phone: CEntal 3-1367
Rep: S. D. Thacher

KENTUCKY

Radio Equipment Company
(P.O. Box 1212) 480 Skain Avenue
Lexington
Phone: 3-1577
Rep: A. A. Abraham

LOUISIANA

**Radio Parts, Inc.
807 Howard Avenue
New Orleans 12
Phone: JACkson 2-0217
Rep: Irvine J. Levi

MARYLAND

Amateur Radio Center
2203 Fulton Avenue
Baltimore 17
Phone: LAfayette 3-5215
Rep: Ernest Dobos

EMCO Electronic Wholesalers
1123 Fidler Lane
Silver Spring
Phone: JUUniper 5-1800
Rep: Richard Alexander

MASSACHUSETTS

DeMambro Radio Supply, Inc.
1095 Commonwealth Avenue
Boston 15
Phone: ALgonquin 4-8000
Rep: Frank DeMambro

Radio Shack Corp.
730 Commonwealth Avenue
Boston 17
Phone: REgency 4-1000
Rep: A. E. Coe

SERVICE AGENCY ONLY:

Douglas Instrument Laboratory
178 Norfolk Avenue
Boston 19
Phone: HIGHLand 5-4636
Rep: H. D. Miller

MICHIGAN

SERVICE AGENCY ONLY:

Communication Service Company
201 S. Lincoln
Charlotte
Phone: 1770-W
Rep: Bart Rypstra

M.N. Duffy & Company
2040 Grand River Avenue W.
Detroit 26
Phone: WOODward 3-2270
Rep: M. N. Duffy/Joe Gardella

Purchase Radio Supply
327 E. Hoover Avenue
Ann Arbor
Phone: NOrmandy 8-8696 or 8-8262
Rep: Roy J. Purchase

Warren Radio Company
1710 Westnedge
Kalamazoo
Phone: FRESide 2-5720 or 2-7127
Rep: Frank Smith

MINNESOTA

Lew Bonn Company
1211 LaSalle Avenue
Minneapolis 3
Phone: FEderal 9-8351
Rep: Lew Bonn/Bob Woodrow

**Electronic Center, Inc.
107 3rd Avenue N.
Minneapolis 1
Phone: FEderal 8-8678
Rep: Ward Jensen

Stark Radio Supply Company
154 W. University Avenue
St. Paul 3
Phone: CApitol 2-8705
Rep: Pep Huber/Dale G. Hagen
(Hall Electric Co.)

MISSISSIPPI

Swan Distributing Company
342 N. Gallatin Street
Jackson
Phone: FLEetwood 2-5516
Rep: Leo Swan

MISSOURI

Walter Ashe Radio Company
1125 Pine Street
St. Louis 1
Phone: CHEstnut 1-1125
Rep: Walter Ashe/Joe Novak

Burstein-Applebee Company
1012-1014 McGee Street
Kansas City 6
Phone: BALtimore 1-1155
Rep: R. H. Friesz

Henry Radio Company
221 North Main
Butler
Phone: ORchard 9-3127
Rep: Bob Henry/Helen DeArmond

Radiolab
1612 Grand Avenue
Kansas City 8
Phone: HARRison 1-0171
Rep: Bob Smith/Bud Willis/
E. Krakenbuhl

MONTANA

Modern Equipment Company
113 Central Avenue
Great Falls
Phone: GL 2-6451
Rep: Frank Anderson

NEW HAMPSHIRE

****Evans Radio**
(P.O. Box 312) Bow Junction
Route 3A
Concord
Phone: Capital 5-3358
Rep: Roger Britton

NEW JERSEY

Federated Purchaser, Inc.
1021 U.S. Route 22
Mountainside
Phone: ADams 2-8200
Rep: Hal Thorne
Hudson Radio & Television Corp.
35 Williams Street
Newark 2
Phone: Market 4-5154
Rep: Joseph Prestia

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Warner Engineering Company, Inc.
239 Lorraine Avenue
Upper Montclair
Phone: Pioneer 6-7900
Rep: Charles Atwater

NEW YORK

Adirondack Radio Supply
(P.O. Box 88) 185-191 W. Main Street
Amsterdam
Phone: Victor 2-8350
Rep: Ward Hinkle

Ft. Orange Radio Distributing Co., Inc.
904-16 Broadway
Albany 7
Phone: ALbany 5-1594
Rep: Harry Miller

Genesee Radio & Parts Company
2550 Delaware Avenue
Buffalo 16
Phone: CLevland 1970
Rep: Martin Feigenbaum

Harrison Radio Corporation
225 Greenwich Street
New York 7
Phone: BARclay 7-7777
Rep: W. E. Harrison/Ben Snyder

Harvey Radio, Inc.
103 W. 43rd Street
New York 18
Phone: JUdson 2-1500
Rep: Harvey Sampson/George Zarrin

NORTH CAROLINA

Dalton-Hege Radio Supply Co., Inc.
938 Burke Street
Winston-Salem
Phone: PARK 5-8711
Rep: Wayne Yelverton

****Freck Radio & Supply Company**
38 Biltmore Avenue
Asheville
Phone: ALpine 3-3631
Rep: T. T. Freck

Southeastern Radio & Supply Co., Inc.
414 Hillsboro Street
Raleigh
Phone: TE 3-1936
Rep: Stanley Kahn

OHIO

Custom Electronics, Inc.
1918 S. Brown Street,
Dayton 9
Phone: BALdwin 3-3157
Rep: Richard Sauer/Clem Wolford

Pioneer Electronic Supply Company
2103 E. 21st Street
Cleveland 15
Phone: SUperior 1-5277
Rep: Dick Bratnord/Herb Farr

Selectronic Supplies, Inc.
3185 Bellevue Road
Toledo 6
Phone: GReenwood 4-5477
Rep: D. E. Petty

Steinberg's Inc.
633 Walnut Street
Cincinnati 2
Phone: CHerry 1-1880
Rep: Jule Burnett

****Universal Service**
114 N. Third Street
Columbus 15
Phone: CApitol 1-2335
Rep: Francis R. Gibb

OKLAHOMA

General Electronics, Inc.
1032 Classen Blvd
Oklahoma City
Phone: FO 5-1448
Rep: Fred F. Zelinger

Radio, Inc.
1000 South Main Street
Tulsa
Phone: GIBson 7-9127
Rep: Ronnie Durham

OREGON

Portland Radio Supply Company
1234 S.W. Stark Street
Portland 5
Phone: CApitol 8-8647
Rep: C. B. Lucas

PENNSYLVANIA

George D. Barbey Company
155-157 Penn Street
Reading
Phone: FR 6-7451
Rep: Lee Wentz

Cameradio Company
1121 Penn Avenue
Pittsburgh 22
Phone: EXpress 1-4000
Rep: Harry Kaplan

Radio Electric Service Co. of Pa., Inc.
N.W. Cor. 7th & Arch Streets
Philadelphia 6
Phone: WALnut 5-5840
Rep: Edward Miller

RHODE ISLAND

W. H. Edwards
94-96 Broadway
Providence 3
Phone: GASpee 1-6158
Rep: Sal Infantilino

SOUTH DAKOTA

Burghardt Radio Supply
(P.O. Box 746) 621 4th Street S.E.
Watertown
Phone: TURner 6-5749
Rep: Stan Burghardt

TENNESSEE

Electra Distributing Company
1914 West End Avenue
Nashville 4
Phone: ALpine 5-8444
Rep: Richard B. Harris

W. & W. Distributing Company
(P.O. Box 436) 644-646 Madison Ave.
Memphis
Phone: JACKson 7-4828
Rep: Mrs. S. D. Woolen, Jr.

TEXAS

****Busacker Electronic Equipment Co.**
1218 W. Clay Street
Houston 19
Phone: JACKson 6-2578
Rep: Garth Johnson
Central Electronics
4117 Maple Avenue
Dallas
Phone: LAKeside 8-8675
Rep: Clayton Baker

Crabtree's Wholesale Radio
2608 Ross Avenue
Dallas
Phone: RIVERSide 8-5361
Rep: R. B. Bryant/Harold Gross

Electronic Equipment Co., Inc.
917 Florence Street
Ft. Worth
Phone: ED 6-5591
Rep: R. J. Crump/Jim Seigler

Electronic Equipment & Engineering Co.
805 S. Staples Street
Corpus Christi
Phone: TULip 3-9271
Rep: Bob Douglas

The Hargis-Austin Company
(P.O. Box 716) 410 Baylor Street
Austin
Phone: GReenwood 8-8618
Rep: Mrs. Paul Hargis/Bill Chapman

Howard Radio
1475 Pine Street
Abilene
Phone: ORchard 2-9501
Rep: R. L. Howard

Modern Electronics Company
(P.O. Box 1361) 2000 Broadway
San Antonio
Phone: CApitol 7-7388
Rep: Fro Holtz

Radio & Television Parts Company
1828 N. Saint Mary's Street
San Antonio 2
Phone: CApitol 7-7503
Rep: Don Fitzsimon

WASHINGTON

****C & G Radio Supply Company**
2502-6 Jefferson Avenue
Tacoma 2
Phone: BRoadway 2-3181
Rep: Lloyd Norberg

Northwest Electronics Distributors
East 730 First Avenue
Spokane 3
Phone: KE 4-2644
Rep: J. P. McGoldrick

WISCONSIN

Harris Radio Corporation
289 N. Main Street
Fond du Lac
Phone: WALnut 2-4670
Rep: Harry Sierman/Terry Sierman

Amateur Electronic Supply
3832 West Lisbon Avenue
Milwaukee 8
Phone: WESt 3-3262
Rep: Terry Sierman

Satterfield Electronics, Inc.
1900 S. Park Street
Madison 5
Phone: ALpine 7-4801
Rep: A. W. Satterfield/Bill Uhalt/
Don Wentland

COLLINS AUTHORIZED SERVICE AGENCIES**CALIFORNIA**

****Henry Radio**
(P.O. Box 64398)
11240 W. Olympic Blvd.
Los Angeles 64
Phone: GRANite 7-6701
Rep: Ted Henry

CONNECTICUT

Huntress Electronics
93 Talcott Road
West Hartford 10
Phone: ADams 6-0890
Rep: Bob Resconsin

FLORIDA

****Electronic Supply Co.**
61 N.E. 9th Street
Miami 32
Phone: FRanklin 7-2511
Rep: Frank Gantz

****Kinkade Radio Supply**
1719 Grand Central Ave.
Tampa
Phone: 8-6043
Rep: Elmer Kinkade

LOUISIANA

****Radio Parts, Inc.**
807 Howard Avenue
New Orleans 12
Phone: JACKson 2-0217
Rep: Irvine J. Levi

MASSACHUSETTS

***Douglas Instrument Lab.**
176 Norfolk Avenue
Boston 19
Phone: HIGHLand 5-4836
Rep: H. D. Miller

MICHIGAN

***Communication Service Co.**
201 South Lincoln
Charlotte
Phone: 1770-W
Rep: Bart Rypstra

MINNESOTA

****Electronic Center, Inc.**
107 Third Avenue N.
Minneapolis 1
Phone: FEderal 8-8678
Rep: Ward Jensen

NEW HAMPSHIRE

****Evans Radio**
(P.O. Box 312)
Bow Junction, Route 3A
Concord
Phone: CApitol 5-3358
Rep: Roger Britton

NEW JERSEY

***Warner Engineering Co., Inc.**
239 Lorraine Avenue
Upper Montclair
Phone: PIONEer 6-7900
Rep: Charles Atwater

NORTH CAROLINA

****Freck Radio & Supply Co.**
38 Biltmore Avenue
Asheville
Phone: ALpine 3-3631
Rep: T. T. Freck

OHIO

****Universal Service**
114 N. Third Street
Columbus 15
Phone: CApitol 1-2335
Rep: Francis R. Gibb

TEXAS

****Busacker Electronic Equip. Co.**
1216 W. Clay Street
Houston 19
Phone: JACKson 6-2578
Rep: Garth Johnson

WASHINGTON

****C & G Radio Supply Co.**
2506-2 Jefferson Avenue
Tacoma 2
Phone: BRoadway 2-3181
Rep: Lloyd Norberg

*SERVICE AGENCY ONLY

**ALSO AUTHORIZED DISTRIBUTOR

INSTRUCTION BOOK

75S-1 RECEIVER

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6th EDITION, 15 FEBRUARY 1960

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1958, 1959, 1960

CEDAR RAPIDS, IOWA, U.S.A.

PRINTED IN THE UNITED STATES OF AMERICA

COLLINS

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SECTION I INSTALLATION

1.1 UNPACKING.

Open carton carefully to avoid damaging receiver. Carefully lift the receiver out of packing material. Examine for visible damage. If receiver has been damaged in shipment, save box and packing material and notify the transportation company. Fill out and mail the guarantee card. Check that all tubes and crystals are properly seated in sockets. Check tuning controls and switches for freedom of action.

1.2 MOUNTING AND CABLING.

The 75S-1 may be mounted on table or desk for fixed station operation. It may be mounted in a car, boat, or plane by use of special brackets or clamps. Figure 1-1 shows receiver external connections. Figure 1-2 shows complete station interconnection for 75S-1, 32S-1, and 312B-4 Station Control. If the 75S-1 is to be operated from 516E-1 DC Power Supply, modify 516E-1 as follows: Connect all 516E-1 grounds to same terminal of TB1 (1). Connect a small silicon power diode (400-volt peak inverse, 125-ma forward current) with cathode to now unused ground pin (2),

and anode to junction of low-voltage transformer secondary and C11.



DO NOT connect the a-c power cord to the 110-v a-c line until the power plug P6 is first plugged into J13. It is possible to force P6 into J13 far enough to burn out tube filaments when P6 and J13 keyways are not properly aligned.

1.3 INITIAL CHECKS.

Lift the top cover, and make sure the dummy load (see figure 4-1) is plugged into XTAL OSC OUTPUT jack unless the receiver is connected for transceiver service with the 32S-1 Transmitter. Make sure the dummy load is *not* plugged into VFO OUTPUT jack.

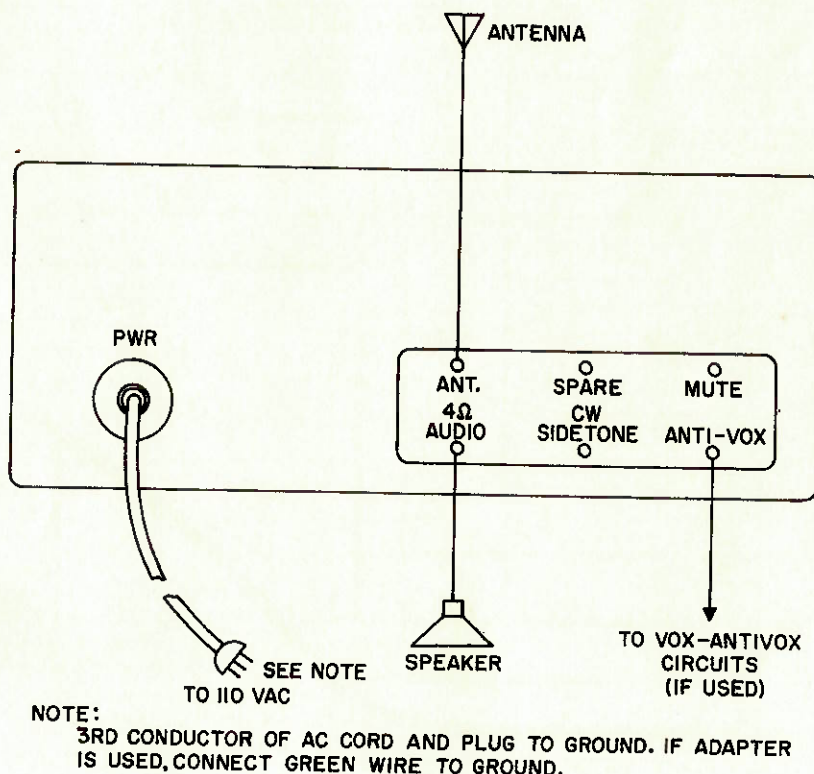
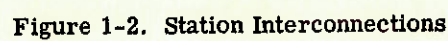


Figure 1-1. External Connections

2



SECTION II OPERATION

2.1 CALIBRATION.

- After making external connections, set controls as shown in figure 2-1.
- Set BAND switch (7) to desired frequency band. Set dial to 0, 100, or 200 with tuning knob (3).
- Adjust PRESELECTOR (2) for maximum signal or noise output.
- Tune back and forth near 0, 100, or 200 until calibrate signal is zero beat.
- Adjust zero set knob (10) until dial is calibrated.

2.2 SINGLE-SIDEBAND TUNING.

- Set controls as shown in figure 2-1, except set OFF-STBY-OPR-CAL switch (1) to OPR.
- Set EMISSION switch (8) to desired sideband.
- Peak PRESELECTOR control (2) for maximum signal or noise output.
- Tune in signal, and adjust A.F. GAIN (4) for desired audio output level.

To read frequency, add the dial setting to the BAND switch setting. As an example, if the BAND switch is set to 3.8 and the dial is set to 5, the frequency is 3.805 mc. If the BAND switch is set to 3.8 and the dial to 170, the frequency is 3.970 mc.

2.3 AM TUNING.

- Set controls as in paragraph 2.2, step a.
- Set EMISSION switch (8) to AM.
- Peak PRESELECTOR control (2) for maximum signal or noise output.
- Tune in signal, and adjust A.F. GAIN (4) for desired audio output level.

2.4 CW TUNING.

- Set up and tune as in paragraph 2.2.
- CW may be tuned in either USB or LSB position of the EMISSION switch. True frequency of received CW signal can be read on dial when signal is zero beat, but receiver output amplitude at zero beat is reduced by the attenuation of the filter. With the 2.1-kc filter supplied, the audible CW beat note frequency is 1350 cps when the signal is centered in the filter passband. This beat note is tunable with the receiver tuning control to a minimum of 500 cps. When the accessory 500-cps filter is used, but the matching bfo crystal is not used, the CW beat note will be 1350 cps with the signal centered in the passband. When both the accessory 500-cps filter and its matching bfo crystal are used, the CW beat note is approximately 800 cps with the signal centered in the filter passband, and zero beat cannot be heard. Without the accessory filter, the receiver is dead when the EMISSION switch is in CW position.
- To copy CW with avc, set R.F. GAIN to maximum and adjust A.F. GAIN for desired level. If avc action is not desired, reduce R.F. GAIN setting until S-meter does not kick with signals, and leave A.F. GAIN set as above. This method of operating results in optimum signal-to-noise ratio as well as more pleasing sidetone level. The practice of operating with A.F. GAIN at maximum and adjusting R.F. GAIN will degrade signal-to-noise performance of the receiver.

2.5 OPERATION OUTSIDE AMATEUR BANDS.

All amateur bands are covered except the 10-meter band for which only one crystal is furnished (for 28.5 to 28.7 mc). Two extra sockets are provided for additional crystals in this band. Figure 2-2 gives calibration curves for PRESELECTOR logging scale.

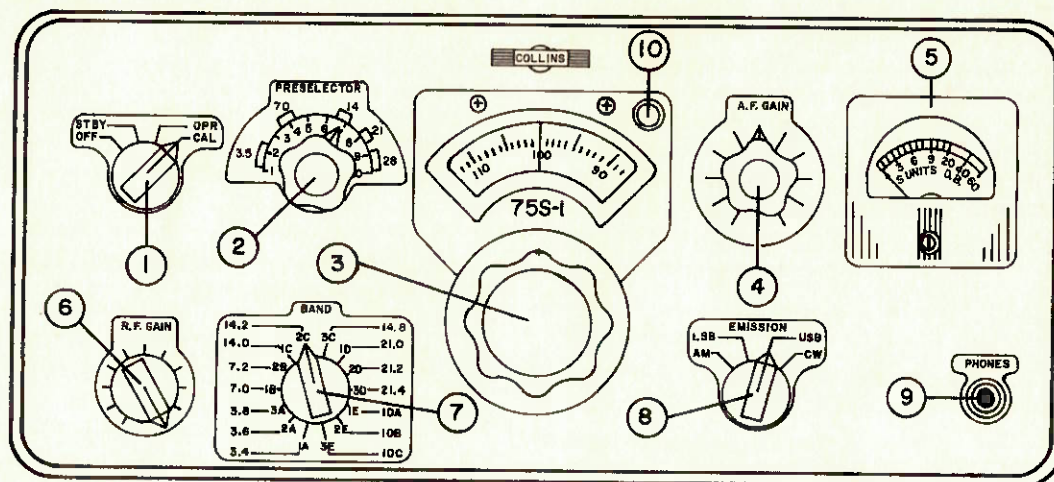


Figure 2-1. Panel Controls

SECTION II Operation

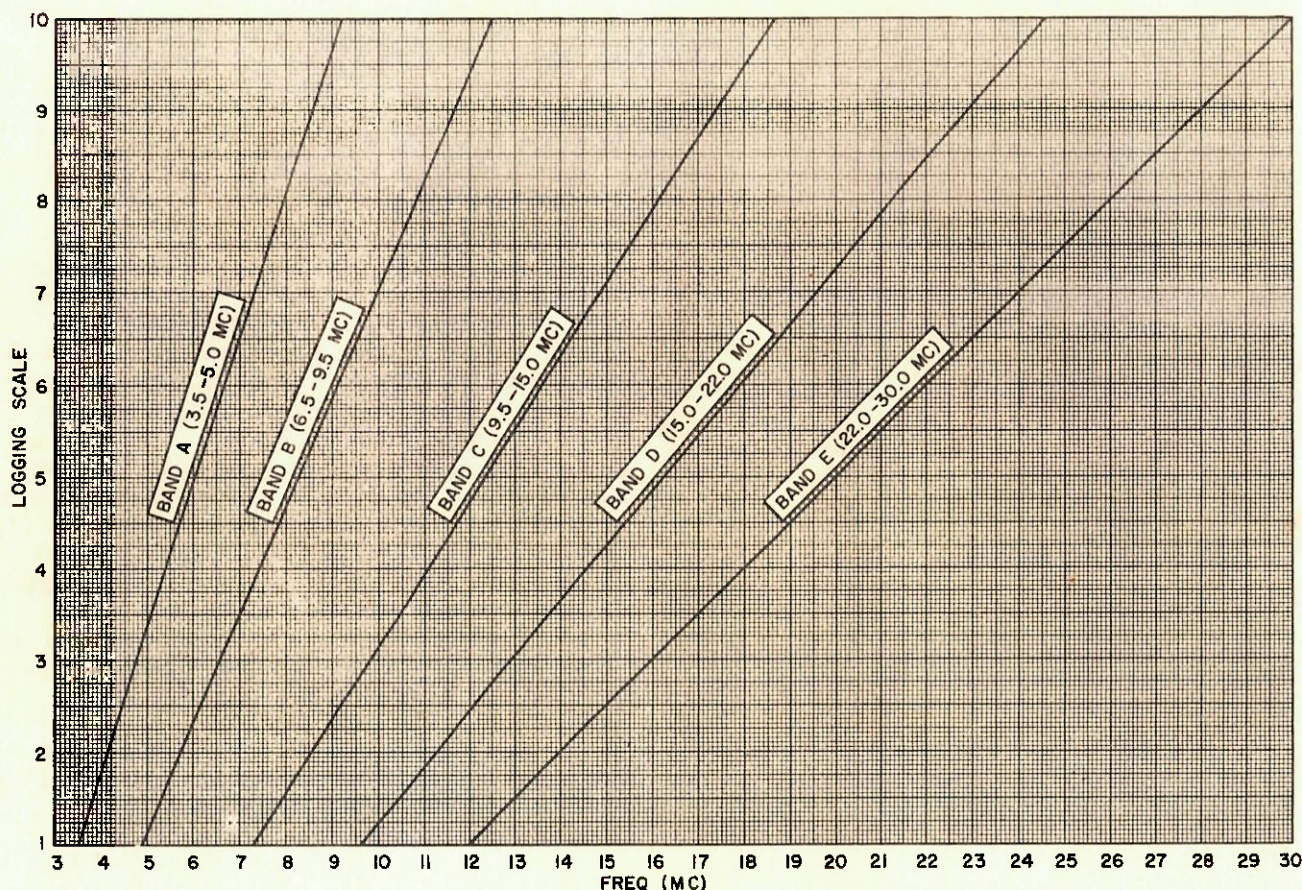


Figure 2-2. Preselector Calibration Curves

The 75S-1 Receiver can be operated at other frequencies outside the specified amateur bands or at other 10-meter frequencies by plugging the proper crystals into the mounting board. Select these crystals as follows:

a. If the lower edge of the desired 200-kc band is less than 11.800 mc, the required crystal frequency is equal to the lower edge of the desired band plus 3.155 mc. As an example, if the desired band is 4.0 to 4.2 mc, 4.0 mc plus 3.155 mc equals 7.155 mc.

b. If the lower edge of the desired 200-kc band is 12.00 mc or higher, the required crystal frequency is half the sum of the lower desired band edge and 3.155 mc. As an example, if the desired band is 14.4 mc to 14.6 mc,

$$\frac{14.4 + 3.155}{2} = 8.7775 \text{ mc.}$$

The plate circuit of the oscillator is tuned to twice the crystal frequency when crystal frequencies are this high.

c. Substitute or extra crystals should be plugged into the appropriate socket on the mounting board according to the best location in one of the five bands. The example cited in step b above should place the crystal

in one of the sockets marked C. If two additional 10-meter crystals are used, they should be plugged into the sockets marked E. Table 2-1 lists crystal socket designations, switch positions (BAND), crystal frequencies furnished, and frequency range limitations. Figure 2-3 shows crystal socket locations. Extra crystals available are listed in section VI, Parts List.

NOTE

Do not attempt operation outside the total coverage band limits specified for BAND switch positions as given in table 2-1.

2.6 OPERATION IN TRANSCEIVER SERVICE WITH 32S-1 TRANSMITTER.

a. Using patch cables furnished with the 32S-1, connect the receiver vfo and high-frequency oscillator outputs to the transmitter as follows:

b. Remove the 100-ohm load plug from the XTAL OSC OUTPUT jack, J1, on the receiver, and connect one of the patch cables from J1 through the rear of the receiver and transmitter cabinets and into the XTAL OSC INPUT jack, J7, on transmitter chassis.

TABLE 2-1. CRYSTAL FREQUENCIES AND OPERATING BANDS

| BAND SWITCH POSITION | FREQUENCY BAND | CRYSTAL SUPPLIED | CRYSTAL SOCKET CONNECTED | TOTAL COVERAGE |
|-------------------------------------|----------------------------------------------------|--------------------------------------------|--------------------------|------------------|
| 1A - 3.4 2A - 3.6 3A - 3.8 | 3.4 - 3.6 mc 3.6 - 3.8 mc 3.8 - 4.0 mc | 6.555 mc 6.755 mc 6.955 mc | 1A 2A 3A | A 3.4 - 5.0 mc |
| 1B - 7.0 2B - 7.2 | 7.0 - 7.2 mc 7.2 - 7.4 mc | 10.155 mc 10.355 mc | 1B 2B | B 6.5 - 9.5 mc |
| 1C - 14.0 2C - 14.2 3C - 14.8 | 14.0 - 14.2 mc 14.2 - 14.4 mc 14.8 - 15.0 mc | 8.5775 mc 8.6775 mc 8.9775 mc | 1C 2C 3C | C 9.5 - 15.0 mc |
| 1D - 21.0 2D - 21.2 3D - 21.4 | 21.0 - 21.2 mc 21.2 - 21.4 mc 21.4 - 21.6 mc | 12.0775 mc 12.1775 mc 12.2775 mc | 1D 2D 3D | D 15.0 - 22.0 mc |
| 1E - 28A 2E - 28B 3E - 28C | 28.5 - 28.7 mc As selected As selected | 15.8275 mc Not supplied Not supplied | 2E 2E 3E | E 22.0 - 30.0 mc |

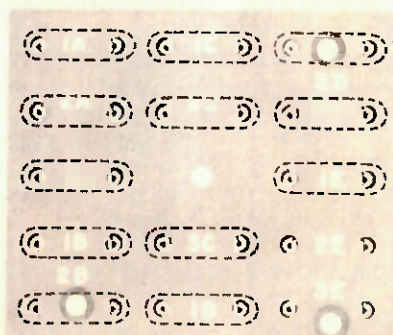


Figure 2-3. Crystal Socket Locations

c. Connect the other patch cable between the VFO OUTPUT jack, J2, and VFO INPUT jack, J8, on transmitter chassis. Make sure all other interconnections shown in figure 1-1 are made.

d. Be sure both transmitter and receiver EMISSION switches are set to the same sideband position. Be sure both BAND switches are in the same position. Set OFF-STBY-OPR-CAL switch to STBY position.

e. Turn the transmitter FREQ CONTROL switch to REC VFO position. The transmitter dial light goes out, and the receiver oscillators control the transmitter frequency.

f. Tune receiver to desired dial frequency or desired signal, peak the receiver PRESELECTOR and the transmitter EXCITER TUNING controls. If both these controls are peaked near the middle of the 200-kc band, the equipments may be operated across the selected band without further peaking. However, either or both may require repeaking on the lower frequency bands.

g. Tune and load the transmitter power amplifier as in normal operation. Switching FREQ CONTROL back to TRANS VFO position will allow separate operation

of the two units within the 200-kc band in use. *Do not* attempt this type of operation on different 200-kc bands; the receiver high-frequency crystal oscillator is controlling injection frequency to the transmitter second mixer.

WARNING

When operating 75S-1 and 32S-1 in transceiver service, *do not* operate transmitter while receiver is tuned outside band limits; transmitted signal will be out of band. In this service, transmit frequency is always the same as receive frequency. Keep receiver tuned within band, or return receiver to frequency within band before transmission.

h. To restore both receiver and transmitter to normal operation, remove the two patch cables connecting oscillator signals, replace P1 in J7 on the transmitter chassis, and replace the 100-ohm load plug, P1, in the XTAL OSC OUTPUT jack, J1 on receiver chassis.

2.7 USE OF 75S-1 WITH OTHER COLLINS TRANSMITTERS.

2.7.1 75S-1 WITH KWS-1. - Mute by connecting pin 5 and 6 on J102 (Rec. Disable) to MUTE jack on 75S-1. Connect 75S-1 ANTIVOX jack to 500-ohm audio (pin 7) on J102 of KWS-1. Set OFF-STBY-OPR-CAL switch to STBY position.

2.7.2 75S-1 WITH 32V-3. - Connect MUTE jack on 75S-1 to receiver disabling (pins 24 and 25). Set OFF-STBY-OPR-CAL switch to STBY.

SECTION III
Principles of Operation

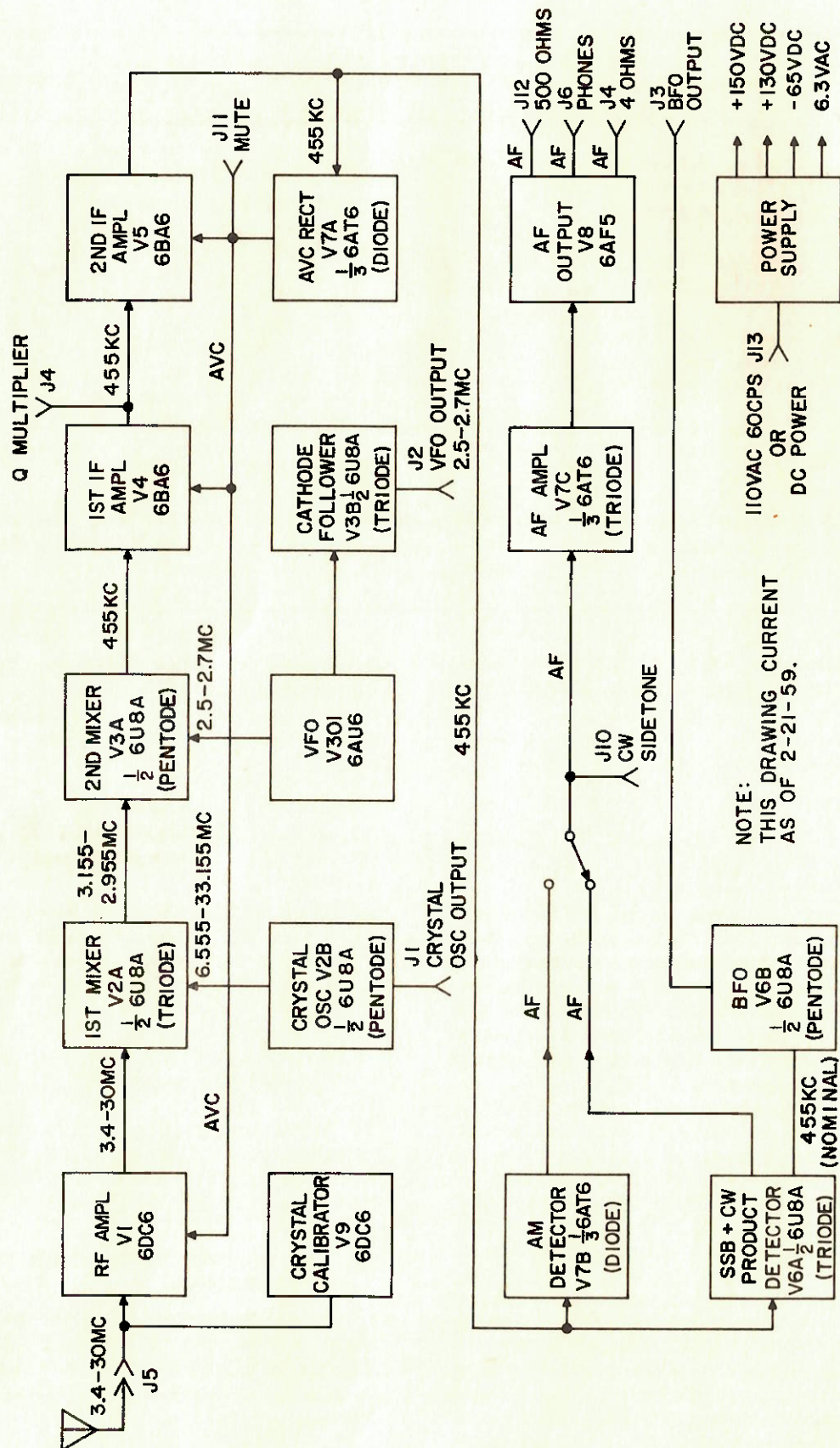


Figure 3-1. Block Diagram

SECTION III PRINCIPLES OF OPERATION

3.1 BLOCK DIAGRAM.

Figure 3-1 is a block diagram of 75S-1 Receiver. The 75S-1 is a double-conversion receiver with crystal-controlled high-frequency oscillator and band-pass i-f. Separate detectors for AM and SSB are provided. Outputs from the high-frequency oscillator and the vfo are available at jacks on the chassis for controlling frequencies of companion 32S-1 Transmitter when used in transceiver service. Figure 7-1 is a schematic diagram of the receiver.

3.2 R-F CIRCUITS.

One set of slug-tuned coils is used to cover the entire tuning range with appropriate capacitance switched in by BAND switch sections S2, S3, and S4. The r-f amplifier tube, V1, is a type 6DC6. Its output is applied to the grid of the first mixer, V2A. High-frequency injection signal is coupled from the crystal oscillator to the cathode of V2A. On any band selected, the crystal oscillator output frequency is 3.155 mc higher than the lower edge of the desired band. The difference between the crystal oscillator frequency and the desired frequency is between 3.155 mc and 2.955 mc, or the band-pass i-f frequency.

3.3 I-F CIRCUITS.

The 3.155- to 2.955-mc variable i-f frequency is coupled through a band-pass network, consisting of T1 and L4, to the grid of the second mixer, V3A. This mixer is the pentode section of a type 6U8A with vfo injection signal at its cathode. Depending on the setting of EMISSION switch S2, the 455-kc second mixer output is coupled through CW filter FL1 (not supplied with receiver), AM i-f transformers T8 and T7, or SSB filter FL2 to the first i-f amplifier, V4. The i-f amplifiers, V4 and V5, are conventionally coupled. The second i-f amplifier, V5, also operates the S-meter.

3.4 A-F CIRCUITS.

Output from the second i-f amplifier, V5, is coupled from transformer T2 to the grid of CW/SSB product

detector, V6A, and to the diodes of V7. Beat-frequency oscillator injection signal is coupled to the cathode of the product detector. Product detector output is filtered and connected to EMISSION switch section S8 where it is selected and fed to the grid of the triode section of V7. The AM audio signal from one of the V7 diode plates is also connected to S8. Output from the triode amplifier section of V7 is coupled to the audio output tube, V8, from which it may be fed to phones, speaker, or phone patch by plugging into J6, J8, or J12, respectively.

3.5 OSCILLATOR CIRCUITS.

The receiver contains four oscillators. They are crystal calibrator, crystal oscillator, vfo and bfo. The 100-kc crystal calibrator, V9, is a type 6DC6 tube. Its output is coupled to the antenna coil, T5. The high-frequency crystal oscillator, V2B, is the pentode section of 6U8A. For high-frequency injection up to 14.955 mc, the oscillator operates on crystal fundamental frequencies. For injection frequencies higher than 14.955 mc, the oscillator doubles the crystal frequency in its plate circuit. Oscillator output is available at J1 for frequency control of companion transmitter such as the 32S-1. Unless this jack is connected to external equipment, the load resistor and plug, P1, is left plugged into J1 to provide proper oscillator plate circuit impedance. Instructions for calculating crystal frequencies required for desired bands are given in section II. The vfo is a 70K-2 Oscillator installed as an integral unit. Its frequency range is 2.5 to 2.7 mc. Oscillator output is fed to the cathode of the second mixer and to the grid of a cathode follower, V3B. The cathode follower (triode section of a 6U8A) isolates the vfo from load variations when a companion transmitter, such as the 32S-1, is connected to it in transceiver service. The bfo is crystal controlled by one of two crystals for CW and SSB signals. If the accessory CW filter is used, a matched crystal is installed. EMISSION switch section S9 selects Y16 for CW and USB positions and Y15 for LSB position. Output from the bfo is connected to the product detector and to the BFO TEST jack, J3.

SECTION IV SERVICE INSTRUCTIONS

4.1 GENERAL.

Included in this section are signal tracing procedures, alignment procedures, and voltage and resistance measurements.

4.2 SIGNAL TRACING.

Table 4-1 lists significant test points and normal signal levels. The first three measurements were made with one-watt audio power output as reference level. An audio power meter was connected to the AUDIO output jack at the back of the receiver, and the output of the audio oscillator (for first two readings) was monitored with a sensitive a-c vtvm. For the second measurement, it may be necessary to connect a resistive voltage divider across the a-f oscillator output terminals and use the tap voltage for injection and measurement. This divider may be made of an 8200-ohm resistor and a 220-ohm resistor in series from the hot

terminal to the ground terminal. Connect with the 220-ohm resistor to the ground terminal. The third measurement was made with 455-kc signal from an r-f signal generator, using one-watt audio output power as reference. All other measurements, except as indicated in table 4-1, were made with agc threshold as reference. The signal generator voltage is injected at the test point, and agc threshold is monitored on a d-c vtvm (use low range). Agc threshold voltage is the point at which the d-c vtvm indication just changes with slightly increased signal level. Make sure the signal generator frequency is adjusted to produce an agc peak indication. This is necessary when the signal must pass through the mechanical filter. The receiver was tuned to 14.1 mc and the signal generator voltage was injected at the indicated test points. The signal voltage values were taken from signal generator output attenuator. All values are nominal and may vary plus or minus 20 percent without degrading performance.

TABLE 4-1. SIGNAL LEVELS

| TEST POINT | FREQUENCY | SIGNAL VOLTAGE | REFERENCE | MEASURING INSTRUMENT |
|------------|---------------------------------|-----------------|---------------------|------------------------------------|
| V8-1 | 1000 Cps | 5.4 volts | 1-watt audio output | A-c vtvm |
| V7-1 | 1000 Cps | 0.2 volt | 1-watt audio output | A-c vtvm |
| V6A-9 | 455 kc | 75 millivolts | 1-watt audio output | Signal generator output attenuator |
| V6A-8 | 455 kc (BFO INJECTION) | 1.65 volts | | R-f vtvm |
| V5-1 | 455 kc | 48 millivolts | Agc threshold | Signal generator output attenuator |
| V4-1 | 455 kc | 350 microvolts | Agc threshold | Signal generator output attenuator |
| V3A-6 | 455 kc | 1400 microvolts | Agc threshold | Signal generator output attenuator |
| V3A-7 | 2.5 - 2.7 mc (VFO INJECTION) | 2.0 - 2.5 volts | | R-f vtvm |
| V3A-2 | 3.055 mc | 100 microvolts | Agc threshold | Signal generator output attenuator |
| V2A-8 | 17.155 mc (HF OSC INJECTION) | 0.8 - 2.0 volts | | R-f vtvm |
| V2A-9 | 14.1 mc | 30 microvolts | Agc threshold | Signal generator output attenuator |
| V1-1 | 14.1 mc | 9 microvolts | Agc threshold | Signal generator output attenuator |
| J5 (ANT) | 14.1 mc | 1.1 microvolt | Agc threshold | Signal generator output attenuator |

4.3 VOLTAGE AND RESISTANCE MEASUREMENTS.

Table 4-2 lists voltage and resistance measurements on all tube sockets of the 75S-1 except that of the vfo tube, V301. *Do not open* the oscillator can. Measurements were made under the following conditions:

a. All measurements with vtvm and with all tubes in sockets. Unless otherwise noted in table, all measurements made with R.F. GAIN at maximum, A.F. GAIN

at minimum, EMISSION switch in USB position, BAND switch in 14.2 position, vfo dial at 100, and OFF-STBY-OPR-CAL switch in OPR position.

b. Resistances of less than one ohm listed as zero.

c. Voltage measurements made with the equipment operating.

d. Resistance measurements made with power supply connection removed from J13.

e. All measurements made from socket pin to ground.

TABLE 4-2. VOLTAGE AND RESISTANCE MEASUREMENTS

| TUBE | | PIN NUMBER | | | | | | | | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|------------|---------|--------|------|---------|--------|--------|------|------|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| V1 | D-C V | -1.0 | 0 | 0 | | +130 | +66 | 0 | | |
| | A-C V | | | | 6.3 | | | | | |
| | Ohms | 6 meg | 0 | 0 | 0 | 35K** | 70K** | 0 | | |
| V2 | D-C V | +120 | -5.0*** | +120 | 0 | | +120 | 0 | +2.7 | 0 |
| | A-C V | | | | | 6.3 | | | | |
| | Ohms | 35K** | 90K | 35K** | 0 | 0 | 35K** | 0 | 1000 | 230K |
| V3 | D-C V | +111 | 0 | +111 | | 0 | +111 | +3.8 | +4.7 | +2.3 |
| | A-C V | | | | 6.3 | | | | | |
| | Ohms | 35K** | 67 | 35K** | | | 35K** | 1000 | 640 | 94K |
| V4 | D-C V | -0.86 | 0 | 0 | | +130 | +68 | +1.05 | | |
| | A-C V | | | | 6.3 | | | | | |
| | Ohms | 3.3 meg | | 0 | 0 | 35K** | 35K** | 216 | | |
| V5 | D-C V | -0.9 | 0 | 0 | | +130 | +67 | +0.5 | | |
| | A-C V | | | | 6.3 | | | | | |
| | Ohms | 3.2 meg | 0 | 0 | 0 | 35K** | 35K** | 80 | | |
| V6 | D-C V | +53 | -3.6 | +40 | | 0 | +115 | 0 | +2.2 | 0 |
| | A-C V | | | | 6.3 | | | | | |
| | Ohms | 150K** | 1 meg | 250K** | 0 | 0 | 35K** | 0 | 3200 | 1200 |
| V7 | D-C V | +0.9 | +2.5 | | 0 | -0.9 | 0 | +98 | | |
| | A-C V | | | 6.3 | | | | | | |
| | Ohms | 600K | 12K | 0 | 0 | 3.1 meg | inf | 140K** | | |
| V8 | D-C V | -10.5 | 0 | 0 | | +122 | +118 | -10.5 | | |
| | A-C V | | | | 6.3 | | | | | |
| | Ohms | 240K | 0 | 0 | 0 | 35K** | 35K** | 240K | | |
| V9* | D-C V | -36* | +0.55* | 0* | | +97* | +41* | 0* | | |
| | A-C V | | | | 6.3* | | | | | |
| | Ohms | 1 meg | 950 | 0 | 0 | 260K** | 260K** | 0 | | |
| *OFF-STBY-OPR-CAL switch in CAL position. **Resistance may vary with diode and electrolytic condition. ***May vary from -1.0 to -6.0 v, depending upon crystal activity. | | | | | | | | | | |

SECTION IV
Service Instructions

4.4 ALIGNMENT PROCEDURE. (Refer to figure 4-1.)

4.4.1 455-KILOCYCLE I-F ALIGNMENT.

- Remove vfo tube, V301, from socket.
- Set EMISSION switch to USB.
- Connect signal generator to pin 2 of V3, and increase signal generator output until S-meter shows slight indication (S3). Rock the signal generator frequency if necessary to approximately center in the filter pass band.

NOTE

If a vtvm is available, it may be connected to the avc bus and used as alignment peak indicator.

- Adjust the slugs of L6 and T2 for peak indication on S-meter. Reduce signal generator output as necessary to keep S-meter indication low. Repeat L6 and T2 as in any standard alignment procedure.

- Replace vfo tube.

4.4.2 BAND-PASS I-F ALIGNMENT.

- Set BAND switch to an unused 28-mc position. If all 28-mc crystal sockets are filled, remove one crystal and set BAND switch to that position. This disables the crystal oscillator, V2B. Set EMISSION switch to CW.
- Connect a signal generator to the XTAL OSC OUTPUT jack, J1, and set to 3.055 megacycles. Set the receiver tuning dial to 100, and increase signal generator output until signal is heard in speaker.
- Make two swamping tools by connecting a 0.01-uf capacitor in series with a 1000-ohm resistor and connecting alligator clips to the two remaining pigtails.
- Connect one swamping network from T1 primary (terminal 1) to ground and the other from L4 (terminal 1) to ground.
- Peak the secondary of T1 (top of can) using a Walsco 2543 tuning tool.
- Remove both swamping networks and swamp T1 secondary (terminal 3 to ground). Peak T1 primary (bottom of can) and peak L4.

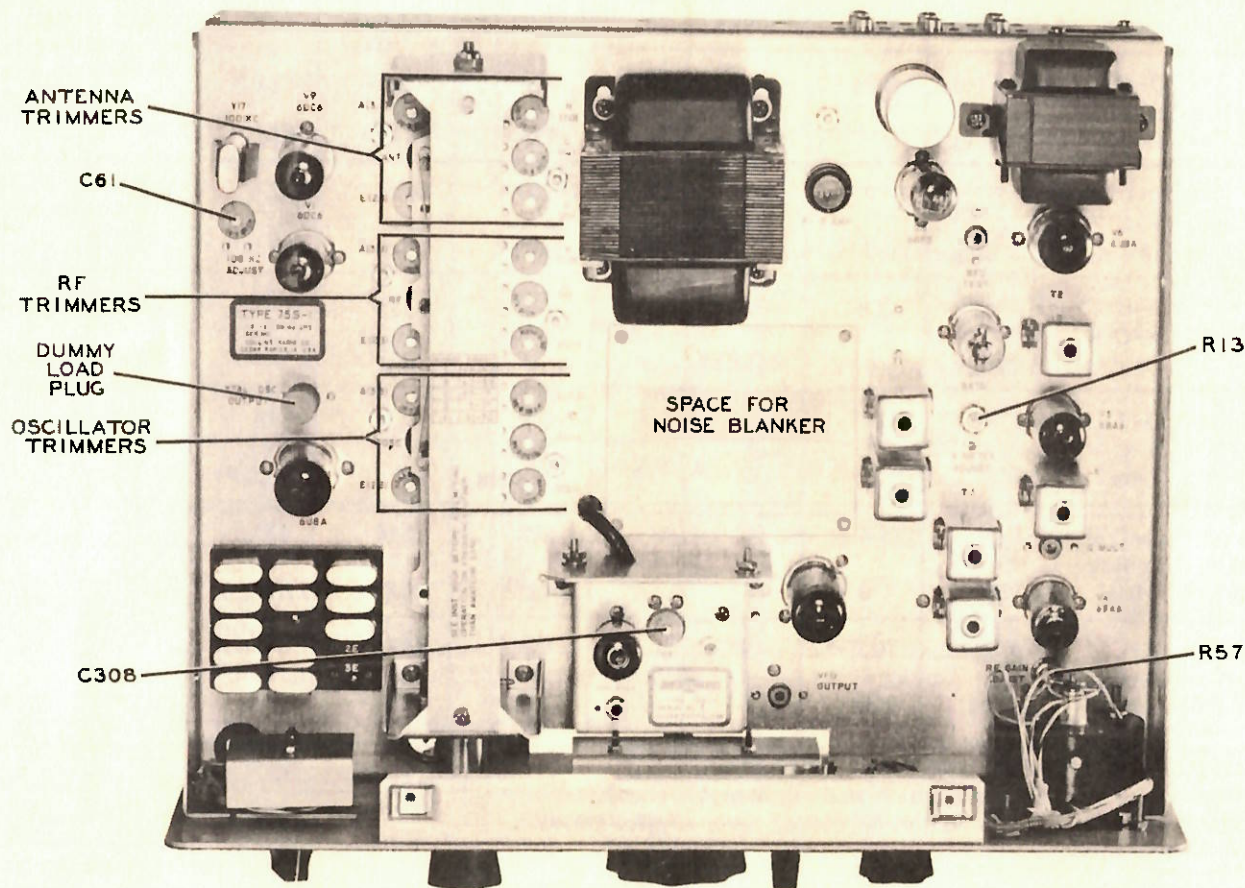


Figure 4-1. Location of Adjustments

g. Remove swamping network from T1 secondary. This completes band-pass i-f alignment.

4.4.3 R-F CIRCUIT ALIGNMENTS. (Refer to figure 4-1 for trimmer identification.)

a. Set both (A) 3.8 RF and ANT trimmer capacitors so the large notches point straight to the rear of the chassis. Set the (A) 3.8 OSC trimmer so its large notch points at V1. Leave tuning dial set at 100 for the following steps.

b. Set EMISSION switch to AM, OFF-STBY-OPR-CAL switch to OPR, BAND switch to 3.6, and PRE-SELECTOR to 1.9 on the logging scale.

c. Remove load plug, P1, from XTAL OSC OUTPUT jack, J1, on top of the chassis, and connect an r-f vtvm to J1 across a 100-ohm resistor.

d. Connect a signal generator output to the ANT jack across a 47-ohm, noninductive resistor. Set signal generator frequency to 3.7 mc. Rock the signal generator dial slightly to peak the S-meter indication. Adjust signal generator output as necessary to keep S-meter indication low (S3 or less).

e. Adjust (A) 3.8 OSC tuning slug for maximum output on vtvm.

f. Adjust (A) 3.8 RF and ANT slugs for peak S-meter indication.

g. Set BAND switch to 28A, PRESELECTOR to 9.1 on the logging scale, and signal generator frequency to 28.6 mc. Rock signal generator dial to peak the S-meter reading. Keep S-meter reading at S-3 by adjusting signal generator output level control as necessary.

h. Adjust (E) 28 OSC trimmer for peak vtvm indication.

i. Adjust (E) 28 RF and ANT trimmers for peak S-meter indication. Adjust signal generator output level as necessary to keep S-meter indication at S-3.

j. Set BAND switch to 21.0. Set PRESELECTOR to 8.0 on the logging scale. Set signal generator to 21.1 mc. Rock signal generator dial to peak S-meter reading, and adjust its output level as necessary to keep S-meter indication at S-3.

k. Adjust (D) 21 OSC trimmer for peak vtvm indication.

l. Adjust (D) 21 RF and ANT trimmers for maximum S-meter indication, adjusting signal generator output as necessary to keep S-meter indication at S-3.

m. Set BAND switch to 14.8. Set PRESELECTOR to 7.0 on the logging scale.

n. Adjust (C) 14 OSC trimmer for peak vtvm indication.

o. Set BAND switch to 14.2. Set PRESELECTOR to the point between 6.0 and 7.0 on the logging scale which produces the peak vtvm indication. Set signal generator frequency to 14.3 mc and rock signal generator dial to peak the S-meter indication.

p. Adjust (C) 14 RF and ANT trimmers for peak S-meter indication. Adjust signal generator output level as necessary to keep S-meter indication at S-3.

q. Set BAND switch to 7.0. Set PRESELECTOR to 3.9 on the logging scale. Set signal generator frequency to 7.1 mc and rock signal generator dial to peak the S-meter indication.

r. Adjust (B) 7 OSC trimmer for peak vtvm indication.

s. Adjust (B) 7 RF and ANT trimmers for peak S-meter indication. Adjust signal generator output as necessary to keep S-meter indication at S-3.

t. Disconnect the signal generator and vtvm. Replace P1 in J1. This completes the r-f alignment.

u. If signal generator and vacuum-tube voltmeter are not available for this alignment, alignment using only the receiver's calibration signal and S-meter indication will be satisfactory. However, alignment with the test equipment will result in optimum receiver sensitivity.

4.4.4 VFO SIDEBAND FREQUENCY SHIFT ADJUSTMENT.

a. Set BAND switch to 3.6 position. Set PRESELECTOR to approximately 1.9 on logging scale. Set EMISSION switch to LSB, and set OFF-STBY-OPR-CAL switch to CAL position. Tune dial near 100 until calibrated signal is zero beat, and do not touch for following procedure.

b. Switch to USB, and adjust C308 (on vfo) to zero beat.

4.4.5 I-F GAIN AND S-METER ZERO ADJUSTMENTS.

a. Set receiver to middle of favorite operating band, and peak PRESELECTOR for maximum output. Set R.F. GAIN control (front panel) to maximum clockwise position. Tune calibrated signal generator to same frequency as receiver, and set A.F. GAIN control to maximum counterclockwise position.

b. Short ANTENNA jack to ground, and adjust S-METER ADJUST (R13) so S-meter reads zero.

c. Connect a signal generator to the ANTENNA jack J5 through a 47-ohm resistor (series). Adjust the signal generator for 1.5 microvolt output. Connect a d-c vtvm to the 75S-1 agc bus. Tune the receiver to the generator signal.

d. Adjust R57 for agc threshold. This is the point (signal level) at which the vtvm just begins to indicate an increase in agc voltage. Disconnect test equipment.

4.4.6 CRYSTAL CALIBRATOR ADJUSTMENT.

a. Tune WWV to zero beat at 15.0 mc at a time when the station is not transmitting a tone.

b. Turn the OFF-STBY-OPR-CAL switch to CAL position. Adjust 100 KC ADJUST trimmer, C61, for zero beat of calibrator signal.

4.4.7 VFO DIAL CALIBRATION.

In case the 75S-1 vfo has drifted and there is no end-point spread, the dial can be calibrated by loosening the setscrews on the dial hub and slipping the dial mechanism on the oscillator shaft until zero beat occurs at center of window. Make certain there is not more than ± 1 -kc end-point spread (after nut-band calibration) before making this adjustment. End-point spread means that zero beat does not occur at both 0 and 200 ± 1 -kc on the dial.

SECTION V

Specifications

If there is end-point spread and zero beat does not coincide at 0 and 200 \pm 1 kc on the dial, make the following adjustments:

- a. Set OFF-STBY-OPR-CAL switch to CAL position and tune in the calibrate signal for zero beat near 200 on the dial (on any band).
- b. With ZERO SET knob, set hairline to 200.
- c. Tune calibrate signal to zero beat at the 0 end of the dial. Note the difference in kilocycles between the hairline and the dial zero (example:1.5 kc).
- d. Without moving the hairline, move the dial to the other side of zero at twice the noted error (example: 3 kc).

e. Adjust L302 for zero beat. The slug-tuned inductor, L302, is accessible at the top of the vfo can.

f. With ZERO SET knob, move the hairline to dial zero.

g. Tune the calibrate signal to zero beat at the 200 end of the dial. If zero beat does not occur at exactly 200, repeat steps b through e.

h. If, after adjustment of end points, the hairline is not vertical in the window, loosen the setscrews on the dial hub and move the dial with respect to the oscillator shaft so that zero beat occurs with the end points (0 to 200) set at center.

i. After these adjustments of the vfo calibration, make the vfo sideband frequency shift adjustment according to paragraph 4.4.4.

SECTION V

SPECIFICATIONS

5.1 75S-1 RECEIVER.

The 75S-1 receives single-sideband, CW, or AM signals in all amateur bands between 3.4 and 30.0 mc.

5.2 FREQUENCY COVERAGE.

The receiver coverage is in 14 bands, each 200 kilocycles wide. With crystals furnished, they cover the entire amateur bands of 80 meters, 40 meters, 20 meters, 15 meters, a 14.8- to 15.0-mc band including WWV, and the 28.5- to 28.7-mc portion of the 10-meter band. The two remaining crystal sockets may be used for crystals selected to provide two additional 200-kc bands within the 10-meter band. Other crystals

may be substituted for those furnished to place the receiver at other frequencies throughout the range.

5.3 REQUIREMENTS FOR OPERATION.

The receiver requires a 110-volt, 50- to 60-cps, a-c power source and consumes approximately 90 watts of power from the line. It may be operated mobile from a d-c power supply by using the proper connector. In this service, the receiver requires +150 volts d-c at 125 ma, -70 volts d-c at 5 ma, and 6.0 volts d-c at 5.5 amperes, or 12.0 to 14.0 volts d-c at 2.75 amperes, or 24.0 to 28.0 volts d-c at 1.375 amperes. The 75S-1 should be connected to a speaker with 4-ohm voice coil. Any type headphones may be used.

5.4 SPECIFICATIONS.

| | |
|-----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Frequency range | 3.4 to 30.0 megacycles. With crystals furnished, bands are as follows: 3.4 to 3.6 mc, 3.6 to 3.8 mc, 3.8 to 4.0 mc, 7.0 to 7.2 mc, 7.2 to 7.4 mc, 14.0 to 14.2 mc, 14.2 to 14.4 mc, 14.8 to 15.0 mc, 21.0 to 21.2 mc, 21.2 to 21.4 mc, 21.4 to 21.6 mc, and 28.5 to 28.7 mc. |
| Mode | Single sideband (selectable), CW, or AM. |
| Sensitivity | One microvolt for 15-db signal-plus-noise to noise ratio for SSB operation. |
| Selectivity | SSB: 2.1 kc at 6 db down, 4.2 kc at 60 db down. CW: 0.5 kc at 6 db down, 1.0 kc at 60 db down. (with accessory filter) AM: 4.5 kc at 6 db down, 25 kc at 60 db down. |
| Spurious response | Image rejection better than 50 db. Internal spurious signals below one microvolt equivalent antenna input. |

Frequency stability After warmup, stable to within 100 cps.

Dial accuracy (after midband calibration) Better than one kc on any band.

Dial backlash Less than 50 cycles.

Output level 0.25 watt at avc threshold. 1.8 watts maximum.

Size 6-9/16 inches high, 14-3/4 inches wide, 11-1/2 inches deep.

Weight 20 pounds.

5.5 TUBE, FUSE, AND SEMICONDUCTOR COMPLEMENT.

TABLE 5-1. TUBES, FUSES, AND SEMICONDUCTORS

| SYMBOL | FUNCTION | TYPE | SYMBOL | FUNCTION | TYPE |
|--------|-------------------------------------------|----------|--------|-------------------------------|----------------|
| V1 | R-f amplifier | 6DC6 | V8 | A-f output power amplifier | 6BF5 |
| V2A | First mixer | 1/2 6U8A | V9 | Crystal calibrator | 6DC6 |
| V2B | Crystal oscillator | 1/2 6U8A | V301 | Variable-frequency oscillator | 6AU6 |
| V3A | Second mixer | 1/2 6U8A | CR1 | Power rectifier | 1N1084 |
| V3B | Vfo isolation amplifier | 1/2 6U8A | CR2 | Power rectifier | 1N1084 |
| V4 | First i-f amplifier | 6BA6 | CR3 | Bias rectifier | 50 ma selenium |
| V5 | Second i-f amplifier | 6BA6 | CR301 | Frequency shift switch | 1N34A |
| V6A | Product detector | 1/2 6U8A | F1 | Power supply fuse | 2 amperes |
| V6B | Beat-frequency oscillator | 1/2 6U8A | | | |
| V7 | AM detector, avc rectifier, a-f amplifier | 6AT6 | | | |

5.6 AVAILABLE ACCESSORIES.

TABLE 5-2. AVAILABLE ACCESSORIES

| ITEM | FUNCTION | COLLINS PART NUMBER |
|------------------------|----------------------------------------------------------------------------|------------------------|
| 136A-1 Noise Blanker | Eliminates noise pulses. | 522 1582 00 |
| F455Q-5 Filter | 0.5 kc band pass for CW. | 526 9367 00 |
| 455.8-Kc Crystal | BFO. | 290 8707 00 |
| 312B-3 Speaker Box | Station speaker. | 522 1166 00 |
| 312B-4 Station Control | Speaker, phone patch, directional wattmeter, and station control switches. | 522 1167 00 |

SECTION VI
Parts List

TABLE 5-2. AVAILABLE ACCESSORIES (Cont)

| ITEM | FUNCTION | COLLINS PART NUMBER |
|------------------------|-------------------------------------------------------------------------------------|--------------------------------|
| 516E-1 DC Power Supply | Mobile power supply for 12-volt source. Supplies power for both 32S-1 and 75S-1. | 522 0846 005 |
| 516E-2 DC Power Supply | Mobile power supply for 24-volt source. Supplies power for both 32S-1 and 75S-1. | 522 0846 00 |
| 351E-1 Mounting Plate | Table mount for 75S-1/32S-1. | 522 1479 00 |
| 351E-2 Mounting Plate | Table mount for 312B-4/516F-2. | 522 1480 00 |
| 351E-3 Mounting Plate | Table mount for 312B-3. | 522 1481 00 |
| Extra crystals | Additional band coverage. | See section VI, Parts List. |

SECTION VI PARTS LIST

75S-1 Receiver

| ITEM | DESCRIPTION | COLLINS PART NO. |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------|
| 75S-1 RECEIVER | | 522 1188 00 |
| C1, C2, C81 | CAPACITOR, FIXED, MICA: 510 uuf $\pm 5\%$; 300 vdcw | 912 2867 00 |
| C3, C5, C7, C16, C18, C20, C22, C61, C69, C71, C73, C75, C76 | CAPACITOR, VARIABLE, CERAMIC: 8 to 50 uuf, 350 vdcw | 917 1075 00 |
| C4, C95 | CAPACITOR, FIXED, MICA: 240 uuf $\pm 5\%$; 500 vdcw | 912 2843 00 |
| C6 | CAPACITOR, FIXED, MICA: 100 uuf $\pm 5\%$; 500 vdcw | 912 2816 00 |
| C8, C97 | CAPACITOR, FIXED, PAPER: 0.1 uf $\pm 20\%$; -10%; 200 vdcw | 931 0165 00 |
| C9, C10, C23 | CAPACITOR, VARIABLE, CERAMIC: 5 to 25 uuf, 350 vdcw | 917 1073 00 |
| C11, C14, C32, C37 C49, C77, C90, C105 C12, C51 | CAPACITOR, FIXED, CERAMIC: 1000 uuf $\pm 100\%$ -20%; 500 vdcw | 913 3009 00 |
| C13, C15, C25, C30, C31, C38, C40, C42, C43, C45, C48, C52, C54, C55, C57, C58, C62, C65, C66, C80, C85 thru C89, C98 thru C101, C104, C109 thru C119, C98 C17 | CAPACITOR, FIXED, CERAMIC: 1.0 uuf $\pm 1/4$ uuf; 500 vdcw | 916 0070 00 |
| C19, C33, C70 | CAPACITOR, FIXED, CERAMIC: 10,000 uuf $\pm 100\%$ -20%; 500 vdcw | 913 3013 00 |
| C21, C74 | CAPACITOR, FIXED, MICA: 510 uuf $\pm 2\%$; 300 vdcw | 912 2866 00 |
| C24 C26 | CAPACITOR, FIXED, MICA: 220 uuf $\pm 5\%$; 500 vdcw | 912 2837 00 |
| C27, C78, C93 | CAPACITOR, FIXED, MICA: 88 uuf $\pm 10\%$; 500 vdcw | 912 2805 00 |
| C28 C29 | PART OF T1 | |
| C34, C72 | CAPACITOR, FIXED, MICA: 15 uuf $\pm 10\%$; 500 vdcw | 912 2760 00 |
| C35 C36 C39 | PART OF L4 PART OF T1 CAPACITOR, FIXED, MICA: 130 uuf $\pm 5\%$; 500 vdcw | 912 2825 00 |
| | PART OF T7 | |
| | PART OF L6 | |

| ITEM | DESCRIPTION | COLLINS PART NO. |
|---------------------------------|--------------------------------------------------------------------------------------------------------|----------------------------|
| C41, C83, C64, C94 | CAPACITOR, FIXED, MICA: 100 uuf $\pm 10\%$; 500 vdcw | 912 2817 00 |
| C44 C46 | PART OF T2 CAPACITOR, FIXED, MICA: 10 uuf $\pm 10\%$; 500 vdcw | 912 2754 00 |
| C50, C102 | CAPACITOR, FIXED, PAPER: 0.05 uf $\pm 30\%$; -10%; 200 vdcw | 931 0163 00 |
| C53, C84, C106 | CAPACITOR, FIXED, MICA: 470 uuf $\pm 10\%$; 300 vdcw | 912 2865 00 |
| C56 | CAPACITOR, FIXED, DRY ELECTRO- LYTIC: 100 uf -10% $\pm 75\%$; 6 vdcw | 183 1782 00 |
| C59 | CAPACITOR, FIXED, DRY ELECTRO- LYTIC: 3 section, 40 uf ea; -10% $\pm 40\%$; 150 vdcw | 183 1701 00 |
| C60 | CAPACITOR, FIXED, DRY ELECTRO- LYTIC: 40 uf -10% $\pm 100\%$; 150 vdcw | 183 1044 00 |
| C67, C82 | CAPACITOR, FIXED, MICA: 20 uuf $\pm 10\%$; 500 vdcw | 912 2766 00 |
| C79 | CAPACITOR, FIXED, MICA: 150 uuf $\pm 10\%$; 500 vdcw | 912 2829 00 |
| C83 | CAPACITOR, FIXED, MICA: 120 uuf $\pm 10\%$; 500 vdcw | 912 2823 00 |
| C91 C92 | PART OF L4 CAPACITOR, FIXED, CERAMIC: 3 uuf $\pm 1/4$; 500 vdcw | 916 0144 00 |
| C103 C107 | PART OF T8 CAPACITOR, FIXED, DRY ELECTRO- LYTIC: 10 uf -10% $\pm 100\%$; 150 vdcw | 183 1040 00 |
| C108 CR1, CR2 CR3 | PART OF T8 DIODE: type 1N1084 RECTIFIER, METALLIC: selenium, single phase half wave | 353 1567 00 353 0153 00 |
| DS1 | LAMP, INCANDESCENT: 6.3 v, 0.15 amp; 1-1/8 in. lg; clear | 262 3240 00 |
| DS2 F1 | PART OF M1 FUSE, CARTRIDGE: 2 amp, 250 v dc, ferrule terminal | 262 3240 00 264 4070 00 |
| FL1 | FILTER, BAND PASS: optional, 455.0 kc oper freq, 500 cps bandwidth; Collins Type F455Q-5 | 526 9367 00 |
| FL2 | FILTER, BAND PASS: 455.0 kc oper freq, 2,125 kc bandwidth, 17,000 ohms input and output; Collins | 526 9337 00 |
| J1 thru J5, J8, J10 J11, J12 | JACK, TIP: accommodates 1/8 in. plug; ceramic insulation, brass contacts | 360 0088 00 |

| ITEM | DESCRIPTION | COLLINS PART NO. |
|---------------------------------------------------|----------------------------------------------------------------------------------------------------------|---------------------|
| J6, J9 | JACK, TELEPHONE: spring leaf contacts, J1-1B contact arrangement | 380 0138 00 |
| J13 | CONNECTOR, RECEPTACLE, ELECTRICAL: 11 male pin contacts | 372 1757 00 |
| L1 | NOT USED | |
| L2 | COIL, RADIO FREQUENCY: 15 turns, single layer wound, #28 AWG wire, phenolic core; Collins | 543 8025 00 |
| L3 | NOT USED | |
| L4 | TUNING UNIT, RADIO FREQ: 2.945 to 3.185 kc, 1 adjustment included with T1 assembly | 278 1721 00 |
| L5, L9, L10 | COIL, RADIO FREQUENCY: 3 pi wound, 225 turns ea, 2.0 mh, #40 AWG | 240 0084 00 |
| L6 | TUNING UNIT, RADIO FREQUENCY: frequency range 440 kc to 470 kc | 278 0277 00 |
| L7 | COIL, RADIO FREQUENCY: single layer wound, 10 uh inductance | 240 0149 00 |
| L8 | NOT USED | |
| L11, L13 | COIL, RADIO FREQUENCY: 3 universal wound pi sections, 112 turns per section; copper wire #36 AWG; 500 uh | 240 0073 00 |
| L12 | REACTOR: 3.0 hy, 0.120A, 100 ohms resistance | 668 0020 00 |
| M1 | METER: Carrier level 0-1 Ma, calibrated in S-units | 458 0044 00 |
| P1 | XTAL OSC LOAD: 100 ohm load and plug assembly, Collins | 544 3143 00 |
| P2 thru P4 | NOT USED | |
| P5 | CABLE ASSEMBLY: 3 conductor #18 AWG, 2 male contacts | 426 1464 00 |
| P6 | CONNECTOR, PLUG, ELECTRICAL: 11 female socket contacts, Amphenol 78-811T or Cinch 13786 | 372 1759 00 |
| P7 thru P13 | NOT USED | |
| R1, R24, R63 | RESISTOR, FIXED, COMPOSITION: 3.3 megohms $\pm 10\%$; 1/2 w | 745 1499 00 |
| R2, R16, R30, R53 | RESISTOR, FIXED, COMPOSITION: 47K ohms $\pm 10\%$; 1/2 w | 745 1422 00 |
| R3, R5, R6, R9, R10, R14, R18, R22, R38, R45, R49 | RESISTOR, FIXED, COMPOSITION: 1000 ohms $\pm 10\%$; 1/2 w | 745 1352 00 |
| R4, R23, R35, R37, R48 | RESISTOR, FIXED, COMPOSITION: 220K ohms $\pm 10\%$; 1/2 w | 745 1450 00 |
| R7 | RESISTOR, FIXED, COMPOSITION: 68K ohms $\pm 10\%$; 1/2 w | 745 1429 00 |
| R8, R12, R21 | RESISTOR, FIXED, COMPOSITION: 68 ohms $\pm 10\%$; 1/2 w | 745 1303 00 |
| R11, R19, R28, R34, R39, R43, R44, R60, R64 | RESISTOR, FIXED, COMPOSITION: 100K ohms $\pm 10\%$; 1/2 w | 745 1436 00 |
| R13 | RESISTOR, VARIABLE, COMPOSITION: 250 ohms $\pm 30\%$; 0.2 w | 376 4602 00 |
| R15 | RESISTOR, FIXED, COMPOSITION: 15K ohms $\pm 10\%$; 1 w | 745 3401 00 |
| R17, R27 | RESISTOR, FIXED, COMPOSITION: 100 ohms $\pm 10\%$; 1/2 w | 745 1310 00 |
| R36, R46 | RESISTOR, FIXED, COMPOSITION: 1.0 megohm $\pm 10\%$; 1/2 w | 745 1478 00 |
| R25, R67 | RESISTOR, FIXED, COMPOSITION: 1200 ohms, $\pm 10\%$; 1/2 w | 745 1356 00 |
| R26 | RESISTOR, FIXED, COMPOSITION: 820 ohms $\pm 10\%$; 1/2 w | 745 1349 00 |
| R29, R32 | RESISTOR, FIXED, COMPOSITION: 6800 ohms $\pm 10\%$; 1/2 w | 745 1387 00 |
| R31 | RESISTOR, VARIABLE, COMPOSITION: 500K ohms $\pm 30\%$; 1/4 w | 376 7401 00 |
| R33 | RESISTOR, FIXED, COMPOSITION: 330 ohms $\pm 10\%$; 1/2 w | 745 1331 00 |
| R40 | RESISTOR, FIXED, COMPOSITION: 68K ohms $\pm 10\%$; 1/2 w | 745 1429 00 |
| R41 | PART OF P1 | |
| R42 | RESISTOR, FIXED, COMPOSITION: 680 ohms $\pm 10\%$; 1/2 w | 745 1345 00 |
| R47 | RESISTOR, FIXED, COMPOSITION: 2.2 megohms $\pm 10\%$; 1/2 w | 745 1492 00 |
| R20, R50, R66 | RESISTOR, FIXED, COMPOSITION: 4700 ohms $\pm 10\%$; 1/2 w | 745 1380 00 |
| R51 | RESISTOR, FIXED, COMPOSITION: 470 ohms $\pm 10\%$; 2 w | 745 5638 00 |
| R52 | RESISTOR, FIXED, COMPOSITION: 3900 ohms $\pm 10\%$; 2 w | 745 5677 00 |
| R54 | RESISTOR, FIXED, COMPOSITION: 27K $\pm 10\%$; 1/2 w | 745 1412 00 |
| R55, R58 | RESISTOR, FIXED, COMPOSITION: 12K ohms $\pm 10\%$; 1/2 w | 745 1398 00 |
| R56 | RESISTOR, VARIABLE, COMPOSITION: 10K ohms $\pm 30\%$; 1/4 w | 376 7402 00 |
| R57 | RESISTOR, VARIABLE, COMPOSITION: | |
| R59 | 500 ohms $\pm 30\%$; 0.2 w | 376 4603 00 |

| ITEM | DESCRIPTION | COLLINS PART NO. |
|----------------------------------------------------|----------------------------------------------------------------------------------------|---------------------|
| R59 | RESISTOR, FIXED, COMPOSITION: 1000 ohms $\pm 10\%$; 2 w | 745 5652 00 |
| R61, R66 | RESISTOR, FIXED, COMPOSITION: 470 ohms $\pm 10\%$; 1/2 w | 745 1338 00 |
| R62 | RESISTOR, FIXED, COMPOSITION: 10K $\pm 10\%$; 2 w | 745 5694 00 |
| S1 | SWITCH, ROTARY: 1 circuit, 14 position, 1 section, 1 moving, 16 fixed contacts | 259 0981 00 |
| S2, S3, S4 | SWITCH SECTION, ROTARY: 1 circuit, 14 position; 1 moving, 10 fixed contacts | 269 2027 00 |
| S5 | SWITCH SECTION, ROTARY: 1 section, 4 positions, 3 circuit; 12 fixed, 3 moving contacts | 259 0949 00 |
| S6 | SWITCH SECTION, ROTARY: 2 circuit, 12 position; 2 moving, 11 fixed contacts | 269 1999 00 |
| S7 | SWITCH SECTION, ROTARY: 2 circuit, 12 position; 2 moving, 11 fixed contacts | 269 1996 00 |
| S8 | SWITCH SECTION, ROTARY: 2 circuit, 12 position; 2 moving, 10 fixed contacts | 269 2025 00 |
| S9 | SWITCH SECTION, ROTARY: 3 circuit, 12 position; 3 moving, 12 fixed contacts | 269 2024 00 |
| S11 | SWITCH SECTION, ROTARY: 1 circuit, 4 position, 30° detent | 259 1129 00 |
| T1 | TRANSFORMER, I-F: 2.945 to 3.165 kc included with L4 as a set | 278 1721 00 |
| T2 | TRANSFORMER, I-F: 455 kc | 278 0276 00 |
| T3 | TRANSFORMER, AUDIO FREQUENCY: pri 2500 ohms; sec 500 ohms and 4 ohms | 667 0302 00 |
| T4 | TRANSFORMER, POWER: pri 115 v, 50/60 cps, sec 1 overall 220 v CT; sec 2, 6.3 v | 662 0301 00 |
| T5 | TRANSFORMER, R-F: 3.4 to 30 mc; Collins | 543 6120 002 |
| T6 | TRANSFORMER, R-F: 3.4 to 30 mc; Collins | 543 6122 002 |
| T7 | TUNING UNIT, R-F: 440 to 470 kc freq range | 278 0278 00 |
| T8 | TUNING UNIT, R-F: same as T7 | 278 0278 00 |
| V1, V9 | ELECTRON TUBE: type 6DC6 | 255 0226 00 |
| V2, V3, V6 | ELECTRON TUBE: type 608A | 255 0328 00 |
| V4, V5 | ELECTRON TUBE: type 6BA6 | 255 0185 00 |
| V7 | ELECTRON TUBE: type 6AT6 | 255 0190 00 |
| V8 | ELECTRON TUBE: type 6BF5 | 255 0330 00 |
| Y1 thru Y12 | CRYSTALS: ML-C-3098 type CR18/U, holder type HC-6 $\pm 0.005\%$ freq tolerance | |
| | CRYSTAL FOR OPERATING FREQUENCY | |
| Y1 | 6.555 mc | 290 8728 00 |
| Y2 | 6.755 mc | 290 8729 00 |
| Y3 | 6.955 mc | 290 8730 00 |
| Y4 | 10.155 mc | 290 8731 00 |
| Y5 | 10.355 mc | 290 8732 00 |
| Y6 | 8.5775 mc | 290 8733 00 |
| Y7 | 8.8775 mc | 290 8734 00 |
| Y8 | 8.9775 mc | 290 8735 00 |
| Y9 | 12.0775 mc | 290 8736 00 |
| Y10 | 12.1775 mc | 290 8737 00 |
| Y11 | 12.2775 mc | 290 8738 00 |
| Y12 | 15.8275 mc | 290 8691 00 |
| Y13 | NOT FURNISHED | |
| Y14 | NOT FURNISHED | |
| | CRYSTALS: ML-C-3098 type CR46/U, holder type HC-6/U $\pm 0.01\%$ frequency tolerance | |
| Y15 | 453.650 kc | 290 8705 00 |
| Y16 | 456.350 kc | 290 8706 00 |
| Y17 | 100.000 kc | 290 8454 00 |
| 70K-2 Oscillator Consisting of following parts: | | 522 1093 00 |
| C301 | Select per operational requirement | |
| | CAPACITOR, FIXED, CERAMIC: 20 uuf $\pm 5\%$, 500 vdcw; Centralab no. DA933-002 (X) | 913 0053 00 |
| | CAPACITOR, FIXED, CERAMIC: 20 uuf $\pm 5\%$, 500 vdcw; Centralab no. DA933-006 (X) | 913 0054 00 |
| | CAPACITOR, FIXED, CERAMIC: 20 uuf $\pm 5\%$, 500 vdcw; Centralab no. DA933-007 (X) | 913 0055 00 |
| | CAPACITOR, FIXED, CERAMIC: 20 uuf $\pm 5\%$, 500 vdcw; Centralab no. DA933-008 | 913 0056 00 |
| | CAPACITOR, FIXED, CERAMIC: 20 uuf $\pm 5\%$, 500 vdcw; Centralab no. DA934-017 (X) | 913 0057 00 |
| | CAPACITOR, FIXED, CERAMIC: 20 uuf $\pm 5\%$, 500 vdcw; Centralab no. DA934-018 (X) | 913 0058 00 |
| | CAPACITOR, FIXED, CERAMIC: 20 uuf $\pm 10\%$, 500 vdcw; Centralab no. DA934-023 (X) | 913 0232 00 |
| | CAPACITOR, FIXED, CERAMIC: 20 uuf $\pm 10\%$, 500 vdcw; Centralab no. DA934-024 (X) | 913 0233 00 |
| | CAPACITOR, FIXED, CERAMIC: 20 uuf $\pm 10\%$, 500 vdcw; Centralab no. DA934-025 (X) | 913 0234 00 |
| C302 | CAPACITOR, FIXED, MICA: 1100 uuf $\pm 2\%$, 500 vdcw; Electromotive type DM -20 | 912 1747 00 |
| C303 | CAPACITOR, FIXED, MICA: 3000 uuf $\pm 10\%$, 500 vdcw; Electromotive type DM -20 | 912 1748 00 |

SECTION VI
Parts List

75S-1 Receiver

| ITEM | DESCRIPTION | COLLINS PART NO. | ITEM | DESCRIPTION | COLLINS PART NO. |
|------|---------------------------------------------------------------------------------------------------------------|---------------------|------------|-----------------------------------------------------------------------------------------------|---------------------|
| C304 | CAPACITOR, FIXED, MICA: 200 uuf $\pm 2\%$, 500 vdcw; Electromotive no. VCM15E201G | 912 0514 00 | CR301 | DIODE: germanium, type 1N34A; Sylvania Electric | 353 0103 00 |
| C305 | CAPACITOR, FIXED, CERAMIC: 100 uuf $\pm 2\%$, 500 vdcw; Centralab | 913 0074 00 | L304 | COIL, RADIO FREQUENCY: single layer wound, magnet wire, 3.30 uh; Jeffers Electronics type 102 | 240 0695 00 |
| | CAPACITOR, FIXED, CERAMIC: 100 uuf $\pm 2\%$, 500 vdcw; Centralab no. DA933-017 (X) | 913 0246 00 | R301, R303 | RESISTOR, FIXED, COMPOSITION: 0.10 megohms $\pm 10\%$, 1/2 w; MIL RC20GF104K | 745 1436 00 |
| C306 | CAPACITOR, FIXED, CERAMIC: dual section, ea section 0.01 uf plus 60 minus 40%, 250 vdcw; Centralab type DA148 | 913 2096 00 | R302 | RESISTOR, FIXED, COMPOSITION: 82,000 ohms $\pm 10\%$, 1/2 w; MIL RC20GF823K | 745 1433 00 |
| C307 | CAPACITOR, FIXED, CERAMIC: 0.02 uf plus 60 minus 40%, 250 vdcw; Centralab type DA148 | 913 2097 00 | T301 | TRANSFORMER, RADIO FREQUENCY: pri 380 uhy nom, 790 kc; sec 2.7 uhy nom, 2.6 mc; Comm. Coll | 240 0665 00 |
| C308 | CAPACITOR, VARIABLE, CERAMIC: 5.0 uuf min to 37.5 uuf max, 350 vdcw; Erie Resistor type 557 | 917 1073 00 | V301 | ELECTRON TUBE: 6AU6 type; G. E. | 255 0202 00 |

GENERAL COVERAGE CRYSTALS AVAILABLE

| CRYSTAL FREQUENCY (kc) | FOR OPERATING FREQUENCY (mc) | PART NUMBER | CRYSTAL FREQUENCY (kc) | FOR OPERATING FREQUENCY (mc) | PART NUMBER | CRYSTAL FREQUENCY (kc) | FOR OPERATING FREQUENCY (mc) | PART NUMBER |
|------------------------------|---------------------------------------|----------------|------------------------------|---------------------------------------|----------------|------------------------------|---------------------------------------|----------------|
| 6555.000 | 3.4-3.6 | 290 9009 00 | 8277.500 | 13.4-13.6 | 290 9058 00 | 12477.500 | 21.8-22.0 | 290 9101 00 |
| 6755.000 | 3.6-3.8 | 290 9010 00 | 8377.500 | 13.6-13.8 | 290 9060 00 | 12577.500 | 22.0-22.2 | 290 9102 00 |
| 6955.000 | 3.8-4.0 | 290 9011 00 | 8477.500 | 13.8-14.0 | 290 9061 00 | 12677.500 | 22.2-22.4 | 290 9103 00 |
| 7155.000 | 4.0-4.2 | 290 9012 00 | 8577.500 | 14.0-14.2 | 290 9062 00 | 12777.500 | 22.4-22.6 | 290 9104 00 |
| 7355.000 | 4.2-4.4 | 290 9013 00 | 8677.500 | 14.2-14.4 | 290 9063 00 | 12877.500 | 22.6-22.8 | 290 9105 00 |
| 7555.000 | 4.4-4.6 | 290 9014 00 | 8777.500 | 14.4-14.6 | 290 9064 00 | 12977.500 | 22.8-23.0 | 290 9106 00 |
| 7755.000 | 4.6-4.8 | 290 9015 00 | 8877.500 | 14.6-14.8 | 290 9065 00 | 13077.500 | 23.0-23.2 | 290 9107 00 |
| 7955.000 | 4.8-5.0 | 290 9016 00 | 8977.500 | 14.8-15.0 | 290 9066 00 | 13177.500 | 23.2-23.4 | 290 9108 00 |
| 8155.000 | 5.0-5.2 | 290 9017 00 | 9077.500 | 15.0-15.2 | 290 9067 00 | 13277.500 | 23.4-23.6 | 290 9109 00 |
| 8355.000 | 5.2-5.4 | 290 9018 00 | 9177.500 | 15.2-15.4 | 290 9068 00 | 13377.500 | 23.6-23.8 | 290 9110 00 |
| 8555.000 | 5.4-5.6 | 290 9019 00 | 9277.500 | 15.4-15.6 | 290 9069 00 | 13477.500 | 23.8-24.0 | 290 9111 00 |
| 8755.000 | 5.6-5.8 | 290 9020 00 | 9377.500 | 15.6-15.8 | 290 9070 00 | 13577.500 | 24.0-24.2 | 290 9112 00 |
| 8955.000 | 5.8-6.0 | 290 9021 00 | 9477.500 | 15.8-16.0 | 290 9071 00 | 13677.500 | 24.2-24.4 | 290 9113 00 |
| 9155.000 | 6.0-6.2 | 290 9022 00 | 9577.500 | 16.0-16.2 | 290 9072 00 | 13777.500 | 24.4-24.6 | 290 9114 00 |
| 9355.000 | 6.2-6.4 | 290 9023 00 | 9677.500 | 16.2-16.4 | 290 9073 00 | 13877.500 | 24.6-24.8 | 290 9115 00 |
| 9555.000 | 6.4-6.6 | 290 9024 00 | 9777.500 | 16.4-16.6 | 290 9074 00 | 13977.500 | 24.8-25.0 | 290 9116 00 |
| 9755.000 | 6.6-6.8 | 290 9025 00 | 9877.500 | 16.6-16.8 | 290 9075 00 | 14077.500 | 25.0-25.2 | 290 9117 00 |
| 9955.000 | 6.8-7.0 | 290 9026 00 | 9977.500 | 16.8-17.0 | 290 9076 00 | 14177.500 | 25.2-25.4 | 290 9118 00 |
| 10155.000 | 7.0-7.2 | 290 9027 00 | 10077.500 | 17.0-17.2 | 290 9077 00 | 14277.500 | 25.4-25.6 | 290 9119 00 |
| 10355.000 | 7.2-7.4 | 290 9028 00 | 10177.500 | 17.2-17.4 | 290 9078 00 | 14377.500 | 25.6-25.8 | 290 9120 00 |
| 10555.000 | 7.4-7.6 | 290 9029 00 | 10277.500 | 17.4-17.6 | 290 9079 00 | 14477.500 | 25.8-26.0 | 290 9121 00 |
| 10755.000 | 7.6-7.8 | 290 9030 00 | 10377.500 | 17.6-17.8 | 290 9080 00 | 14577.500 | 26.0-26.2 | 290 9122 00 |
| 10955.000 | 7.8-8.0 | 290 9031 00 | 10477.500 | 17.8-18.0 | 290 9081 00 | 14677.500 | 26.2-26.4 | 290 9123 00 |
| 11155.000 | 8.0-8.2 | 290 9032 00 | 10577.500 | 18.0-18.2 | 290 9082 00 | 14777.500 | 26.4-26.6 | 290 9124 00 |
| 11355.000 | 8.2-8.4 | 290 9033 00 | 10677.500 | 18.2-18.4 | 290 9083 00 | 14877.500 | 26.6-26.8 | 290 9125 00 |
| 11555.000 | 8.4-8.6 | 290 9034 00 | 10777.500 | 18.4-18.6 | 290 9084 00 | 14977.500 | 26.8-27.0 | 290 9126 00 |
| 11755.000 | 8.6-8.8 | 290 9035 00 | 10877.500 | 18.6-18.8 | 290 9085 00 | 15077.500 | 27.0-27.2 | 290 9127 00 |
| 11955.000 | 8.8-9.0 | 290 9036 00 | 10977.500 | 18.8-19.0 | 290 9086 00 | 15177.500 | 27.2-27.4 | 290 9128 00 |
| 12155.000 | 9.0-9.2 | 290 9037 00 | 11077.500 | 19.0-19.2 | 290 9087 00 | 15277.500 | 27.4-27.6 | 290 9129 00 |
| 12355.000 | 9.2-9.4 | 290 9038 00 | 11177.500 | 19.2-19.4 | 290 9088 00 | 15377.500 | 27.6-27.8 | 290 9130 00 |
| 12555.000 | 9.4-9.6 | 290 9039 00 | 11277.500 | 19.4-19.6 | 290 9089 00 | 15477.500 | 27.8-28.0 | 290 9131 00 |
| 12755.000 | 9.6-9.8 | 290 9040 00 | 11377.500 | 19.6-19.8 | 290 9090 00 | 15527.500 | 27.9-28.1 | 290 9132 00 |
| 12955.000 | 9.8-10.0 | 290 9041 00 | 11477.500 | 19.8-20.0 | 290 9091 00 | 15577.500 | 28.0-28.2 | 290 9133 00 |
| 13155.000 | 10.0-10.2 | 290 9042 00 | 11577.500 | 20.0-20.2 | 290 9092 00 | 15627.500 | 28.1-28.3 | 290 9134 00 |
| 13355.000 | 10.2-10.4 | 290 9043 00 | 11677.500 | 20.2-20.4 | 290 9093 00 | 15677.500 | 28.2-28.4 | 290 9135 00 |
| 13555.000 | 10.4-10.6 | 290 9044 00 | 11777.500 | 20.4-20.6 | 290 9094 00 | 15727.500 | 28.3-28.5 | 290 9136 00 |
| 13755.000 | 10.6-10.8 | 290 9045 00 | 11877.500 | 20.6-20.8 | 290 9095 00 | 15777.500 | 28.4-28.6 | 290 9137 00 |
| 13955.000 | 10.8-11.0 | 290 9046 00 | 11977.500 | 20.8-21.0 | 290 9096 00 | 15827.500 | 28.5-28.7 | 290 9138 00 |
| 14155.000 | 11.0-11.2 | 290 9047 00 | 12077.500 | 21.0-21.2 | 290 9097 00 | 15877.500 | 28.6-28.8 | 290 9139 00 |
| 14355.000 | 11.2-11.4 | 290 9048 00 | 12177.500 | 21.2-21.4 | 290 9098 00 | 15927.500 | 28.7-28.9 | 290 9140 00 |
| 14555.000 | 11.4-11.6 | 290 9049 00 | 12277.500 | 21.4-21.6 | 290 9099 00 | 15977.500 | 28.8-29.0 | 290 9141 00 |
| 14755.000 | 11.6-11.8 | 290 9050 00 | 12377.500 | 21.6-21.8 | 290 9100 00 | 16027.500 | 28.9-29.1 | 290 9142 00 |
| 14955.000 | 11.8-12.0 | 290 9051 00 | | | | 16077.500 | 29.0-29.2 | 290 9143 00 |
| 7577.500 | 12.0-12.2 | 290 9052 00 | | | | 16127.500 | 29.1-29.3 | 290 9144 00 |
| 7677.500 | 12.2-12.4 | 290 9053 00 | | | | 16177.500 | 29.2-29.4 | 290 9145 00 |
| 7777.500 | 12.4-12.6 | 290 9054 00 | | | | 16227.500 | 29.3-29.5 | 290 9146 00 |
| 7877.500 | 12.6-12.8 | 290 9055 00 | | | | 16277.500 | 29.4-29.6 | 290 9147 00 |
| 7977.500 | 12.8-13.0 | 290 9056 00 | | | | 16327.500 | 29.5-29.7 | 290 9148 00 |
| 8077.500 | 13.0-13.2 | 290 9057 00 | | | | 16377.500 | 29.6-29.8 | 290 9149 00 |
| 8177.500 | 13.2-13.4 | 290 9058 00 | | | | 16477.500 | 29.8-30.0 | 290 9150 00 |

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ELECTRICAL WIRE CODE

EXAMPLES

UNSHIELDED WIRE, MIL TYPE B #22 AWG, WHITE WITH RED AND GREEN TRACERS:

| | | | | |
|--------------|--------------|---------------|------------------|------------------------------------------------------------|
| <u>D</u> | <u>A</u> | <u>9</u> | <u>25</u> | <u>4-1/4</u> |
| Type of Wire | Size of Wire | Color of Body | Color of Tracers | Length of Wire in Inches (Includes Stripping & Tinning) |

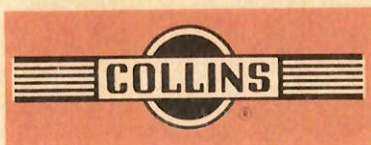
SHIELDED WIRE (SINGLE), MIL TYPE C, #15 AWG, WHITE WITH RED AND GREEN TRACERS:

| | | | | | |
|--------------|--------------|----------|---------------|------------------|------------------------------------------------------------|
| <u>R</u> | <u>D</u> | <u>S</u> | <u>9</u> | <u>25</u> | <u>4-1/4</u> |
| Type of Wire | Size of Wire | Shielded | Color of Body | Color of Tracers | Length of Wire in Inches (Includes Stripping & Tinning) |

SHIELDED WIRE (MULTIPLE), MIL TYPE B, #22 AWG, WHITE, AND WHITE WITH RED TRACER:

| | | | | | |
|--------------|--------------|----------|-----------------|------------------|------------------------------------------------------------|
| <u>D</u> | <u>A</u> | <u>S</u> | <u>(9)</u> | <u>(92)</u> | <u>4-1/4</u> |
| Type of Wire | Size of Wire | Shielded | First Conductor | Second Conductor | Length of Wire in Inches (Includes Stripping & Tinning) |

| TYPE OF WIRE CODE | | | SIZE OF WIRE CODE | | COLOR CODE | |
|-------------------|----------------------------------------------------|---------------------------|-------------------|---------|------------------|--------------|
| LETTER | TYPE OF WIRE | FAMILY USUALLY FOUND IN | LETTER | SIZE | NUMBER OR LETTER | COLOR |
| A | Cotton Braid Over Plastic (Formerly AN-J-C-48) | 440 Plain 443 Shielded | A | #22 AWG | 0 | Black |
| B | Busbar, Round Tinned | 421 | B | #20 | 1 | Brown |
| C | MIL-W-16878 Type B (#20 and Larger) (600 Volts) | 439 | C | #18 | 2 | Red |
| D | Miniature Wire, MIL-W-16878 Type B (#22 & Smaller) | 439-7000 Series | D | #16 | 3 | Orange |
| E | | | E | #14 | 4 | Yellow |
| F | Extra Flexible Varnished Cambric | 423 | F | #12 | 5 | Green |
| G | | | G | #10 | 6 | Blue |
| H | Kel-F (Monochlorotrifluoroethylene) | 422 | H | #8 | 7 | Violet |
| J | | | J | #6 | 8 | Gray (Slate) |
| K | Neon Sign Cable (15,000 Volts) | 423 0004 00 | K | #4 | 9 | White |
| L | Silicone | 425 0942 00 | L | #2 | a | Clear |
| M | | | M | #1 | b | Tan |
| N | Single Conductor Stranded (Not Rubber Covered) | 422 | N | #0 | c | Pink |
| P | Single Conductor Stranded (Rubber Covered) | 423 | P | #00 | d | Maroon |
| Q | | | Q | #000 | e | Light Green |
| R | MIL-W-16878 Type C (1000 Volts) | 439 1000 Series | R | #0000 | f | Light Blue |
| T | Teflon, MIL-W-16878 Type E (600 Volts) | 439 4000 Series | T | #28 | | |
| V | MIL-W-16878 Type D (3000 Volts) | 439 3000 Series | V | #26 | | |
| W | Teflon, MIL-W-16878 Type EE (1000 Volts) | 439 0000 Series | W | #24 | | |
| X | | | X | #19 | | |
| Y | | | Y | #30 | | |
| Z | Acetate Yarn Telephone Type | 428 | Z | | | |



COLLINS RADIO COMPANY