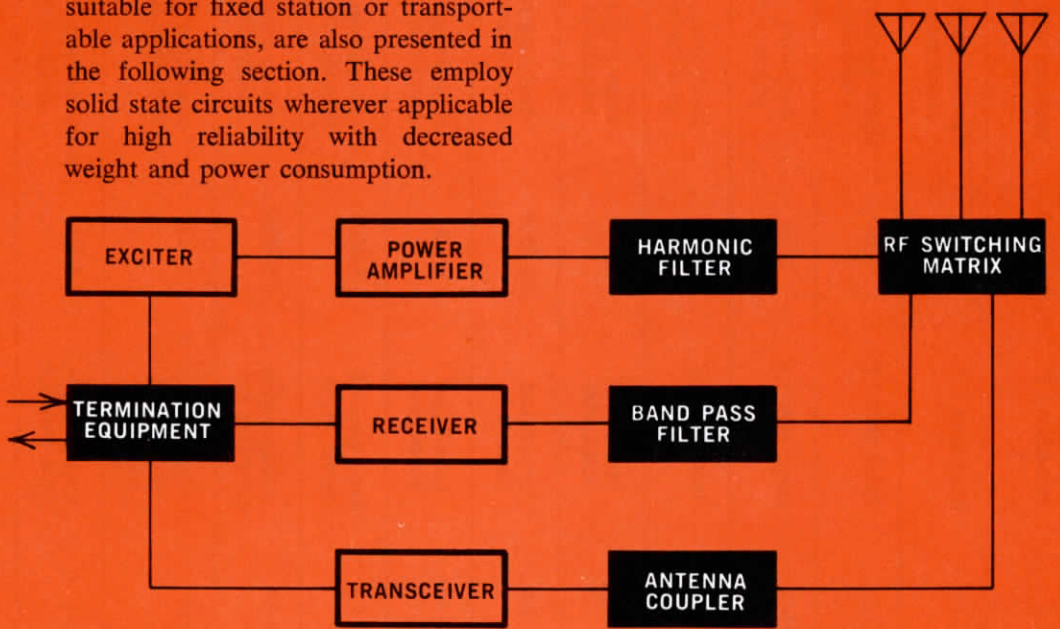
Antenna Couplers and Accessories

Collins offers a complete line of antenna couplers, line flatteners, receiver band-pass filters and RF switching units for use in HF communication systems. The accessory line also includes 400 cps primary power inverters.

The first HF airborne coupler built by Collins appeared in the late 1940's. Since that time approximately 25,000 units have been produced and about 80% of these have been automatic types. Highly efficient couplers are available for airborne, vehicular, transportable, fixed station and marine communication applications.

Receiver filters allow closely spaced receivers and transmitters to function properly with minimum frequency separation. An RF Uniswitch building block for antenna switching enables the assembly of RF matrices which can be remotely controlled.

Automatic dial service switchboards, suitable for fixed station or transportable applications, are also presented in the following section. These employ solid state circuits wherever applicable for high reliability with decreased weight and power consumption.



180L-2, -3, -3A Antenna Couplers

Features	Applications
Automatic Operation	*Airborne HF System*
FAA-TSO Certification	*Wire Antenna*
VSWR Indicator	

The 180L-2,-3,-3A Antenna Couplers automatically resonate a fixed wire or grounded antenna within the frequency range of 2-22 mc. An effective 50 ohm nominal antenna resistance is maintained while compensating for reactance at all operating frequencies. The 180L series can be used with transmitters or transceivers with average power output levels between 50 and 180 watts and up to 500 watts PEP.

180L-3 Antenna Coupler

SYSTEM APPLICATION

Especially suited for use with HF airborne transceivers, such as the Collins 618S and 618T, these couplers will match any fixed wire antenna between 45 and 100 ft. in length, as well as similar grounded end antennas. A front panel VSWR indicator provides an independent check on tuning operation.

RELAY OPTIONS

The 180L-2,-3,-3A Couplers are identical in design with the exception of an antenna transfer relay included in the 180L-3 and 180L-3A and an antenna grounding relay in the 180L-3A. The transfer relay connects the antenna to the receiver when the transmitter is unkeyed. The grounding relay connects the unused antenna to ground in a dual installation.

Specifications

FREQUENCY RANGE: 2-22 mc.

TUNING ACCURACY: Better than 1.3:1 VSWR at most frequencies within the range.

POWER REQUIREMENTS: 27.5 v, 3.5 amps maximum; 115 v, 400 cps, 1 phase, 20 va maximum; 250 v dc, or 400 v dc, 35 ma maximum.

RF POWER INPUT: 500 watts PEP and 50-180 watts average.

INPUT IMPEDANCE: 50 ohms nominal.

RF DUTY CYCLE: 5 minutes on, 5 minutes off for full power.

TUNING TIME: 30 seconds maximum; as low as 5 seconds minimum.

ALTITUDE: 30,000 ft. maximum.

AMBIENT TEMPERATURE: −40° C to +55° C.

SIZE AND WEIGHT:

	Size			*Weight**
	W	*H*	*D*	
180L-2 (without shock-mount)	10⅜" 26.35 cm	7 11/16" 19.53 cm	11⅜" 28.89 cm	20 lbs. 9.07 kg
180L-3,-3A (without shock-mount)	10⅜" 26.35 cm	7 11/16" 19.53 cm	13⅞" 35.24 cm	21 lbs. 9.53 kg
350D-3 mounting	10⅜" 26.35 cm	1½" 3.81 cm	11¾" 29.85 cm	

*Weights include shockmount.

180R-4 Antenna Coupler and 309A-1 Coupler Control Unit

Features	Applications
Automatic Operation	*Airborne HF System*
Low VSWR	*Tail-Cap Antenna*
FAA-TSO Certification	
Lightning Protection	
Explosion Proof	

Together the 180R-4 and the 309A-1 automatically match HF communication transmitters or receivers to an aircraft tail-cap antenna and can be used at power levels of 50-1000 watts PEP, 400 watts average, covering the 2-30 mc frequency range. A remote indicator can be used to show completion of tuning cycle.

ASSOCIATED HF TRANSMITTER-RECEIVERS

Antenna coupler systems are compatible with the following

309A-1 180R-4 180R-4 309A-1

transmit-receive systems: Collins 18Z-3,-4, 18S-4, 618S, 618T, AeroCom Atom-Star-Pack HF systems and military equivalents.

ANTENNA COUPLER CONFIGURATIONS

A type 452A-1 Lightning Arrester is mounted rigidly to the airframe adjacent to the antenna feed point. Either one or two 180R-4 couplers can be clamped to this assembly, permitting a single or dual transmit-receive system to use the antenna. The single coupler and associated control comprise a Collins AT-101 System, and the dual coupler and controls, the AT-102 System. Control circuits are located in the separate 309A-1 Coupler Control Units to simplify system installation and to facilitate maintenance. Two optional type 156G-1 receiver coupler modules plug into the 309A-1, permitting additional receivers to be used for monitoring.

EFFICIENT COOLING

A pressurized case with an internal blower permits operation to 50,000 feet with only 25 cubic inches of make-up air per hour to compensate for minor leaks. The coupler system is explosion-proof and meets Paragraph 4.13.2, Procedure 2 of MIL-E-5272 Specification.

Specifications

FREQUENCY RANGE: 2-30 mc.

TUNING ACCURACY: Within 1.3:1 VSWR for all service conditions at nominal supply voltages.

POWER REQUIREMENTS: 115 v, 380-420 cps, single phase, 2.5 amps maximum.

RF POWER INPUT: 50-1000 watts PEP; 400 watts average maximum.

ANTENNA TERMINAL VOLTAGE: Must not exceed 9000 v peak.

INPUT IMPEDANCE: 50 ohms.

RF DUTY CYCLE: 5 minutes on and 5 minutes off for high power transmitters. Continuous duty operation for 100 watt transmitters.

TUNING TIME: Below 2.5 mc, 10 seconds maximum; above 2.5 mc, 7 seconds maximum.

ALTITUDE: 50,000 feet with 25 cubic inches/hour (409.75 cu. cm/hr.) external make-up air to compensate for minor enclosure leaks.

AMBIENT TEMPERATURE: −55° C to +60° C.

SIZE:

	W	*H*	*D*
452A-1	7½″ 19.05 cm	14 7/32″ 36.12 cm	16⅝″ 42.23 cm
180R-4	7 7/16″ 18.89 cm	11 5/32″ 28.34 cm	5 9/16″ 14.13 cm
309A-1 and mount, including sway space	4 19/32″ 11.67 cm	9 5/16″ 23.65 cm	16 21/32″ 42.31 cm

WEIGHT:

AT-101 System (180R-4, 309A-1, 452A-1)	39.35 lbs. 17.85 kg
AT-101A System (AT-101 with an additional 156G-1 plug-in receiver coupler module)	40.35 lbs. 18.3 kg
AT-102 System (two 180R-4's, two 309A-1's and one 452A-1)	68.4 lbs. 31.03 kg

DESIGNATION: Antenna Tuning Systems AT-101, AT-101A and AT-102 meet FAA-TSO-C31a, Category A.

180R-6 Antenna Coupler and 309A-2, -2D Coupler Controls

Features	Applications
Automatic Operation	*Airborne HF System*
Low VSWR	*Wire Antenna*
Installation Flexibility	
Lightning Protection	

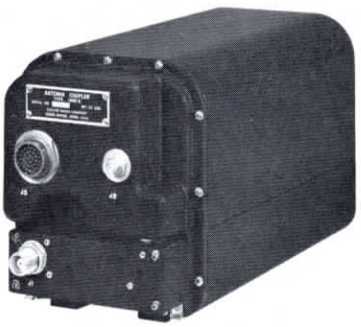
The 180R-6 and the 309A-2,-2D comprise a complete antenna tuning system to automatically resonate 45-100 ft. wire antennas over the 2-30 mc frequency range. It will handle 50-1000 watt PEP, 400 watt average power levels. A transfer relay permits use of a separate transmitter and receiver with a common antenna.

SYSTEM APPLICATION

The 180R-6 and 309A-2,-2D Controls are especially suited for operation with the Collins 18Z-3,-4 or 618T HF Transceivers. The 309A-2 Coupler Control is used with the 18Z-3, -4 and the 309A-2D with the 618T.

EASILY INSTALLED

The 180R-6 houses only the loading and phasing components



180R-6 Antenna Coupler

309A-2D Coupler Control

for resonating the antenna and matching the 50 ohm transmission line impedance, while all control circuits are located in the 309A. This arrangement allows the 180R-6 to be located at the antenna feed point for maximum efficiency. The 309A can be placed in the radio rack to facilitate inspection and maintenance. The addition of optional plug-in 156G-1 modules in the coupler control permits the use of up to three additional receivers for monitoring other frequencies. The coupler control uses plug-in subassemblies to simplify inspection and maintenance procedures.

Specifications

FREQUENCY RANGE: 2-30 mc.

TUNING ACCURACY: Within 1.3:1 VSWR for all service conditions at nominal supply voltages.

POWER REQUIREMENTS: 115 v, 380-420 cps, 2 amps, maximum.

RF POWER INPUT: 50-1000 watts PEP; 400 watts average maximum.

INPUT IMPEDANCE: 50 ohms nominal.

RF DUTY CYCLE: Continuous for SSB and AM; 5 minutes on, 5 minutes off, maximum for continuous 400 watt single tone.

TUNING TIME: 30 seconds maximum.

ALTITUDE: 20,000 ft. maximum, nonpressurized model. A pressurized model, 180R-7, may be operated to 75,000 ft.

AMBIENT TEMPERATURE: −55° C to +71° C, operating; −65° C to +85° C, storage.

SIZE AND WEIGHT:

	Size *W*	*H*	*D*	*Weight*
180R-6	7" 17.78 cm	9½" 24.13 cm	17 7/32" 43.74 cm	21.5 lbs. 9.75 kg
180R-6 with lightning arrestor	7" 17.78 cm	9½" 24.13 cm	29 19/32" 75.17 cm	24.5 lbs. 11.1 kg
309A-2,-2D	3 11/16" 9.37 cm	7⅝" 19.37 cm	14½" 36.83 cm	12.4 lbs. 5.62 kg
309A-2,-2D with three optional 156G-1 receiver couplers				14 lbs. 6.35 kg

180R-6A Line Flattener and 309A-2E Control

Features

Automatic Operation
Fifty Ohm Coaxial Lines
Low VSWR
Easily Installed

Applications

Fixed Station
Transportable
Shipboard

309A-2E Control

180R-6A Line Flattener

The 180R-6A and 309A-2E comprise an efficient system to automatically match the 50 ohm output of a power amplifier, transmitter or transceiver to an antenna feed line over the 2-30 mc frequency range. It will maintain a 1.3:1 VSWR from terminations with up to 3:1 VSWR at power levels of up to 1 kw PEP, 400 watts average.

SYSTEM APPLICATION

Designed specifically for use with SSB power amplifiers, such as the Collins 548L-4, it is ideally suited for fixed station, transportable or shipboard installations. The loading and phasing components are housed in the 180R-6A, while the control circuits are housed in the 309A-2E. Plug-in subassemblies in the 309A-2E simplify maintenance.

Specifications

FREQUENCY RANGE: 2-30 mc.

VSWR: 1.3:1 VSWR or less.

ANTENNA: 3:1 VSWR maximum.

POWER REQUIREMENTS: 115 v, 380-420 cps, and 27.5 v dc, 2 amps.

RF POWER INPUT: 50-1000 watts PEP; 400 watts average maximum.

INPUT IMPEDANCE: 50 ohms nominal.

RF DUTY CYCLE: Continuous for SSB and AM; 5 minutes on, 5 minutes off, maximum for RTTY (1000 watts average power).

TUNING TIME: 30 seconds maximum.

ALTITUDE: 20,000 ft. maximum.

SIZE AND WEIGHT:

	Size *W*	*H*	*D*	*Weight*
180R-6A	7" 17.78 cm	9½" 24.13 cm	17 7/32" 43.74 cm	19.5 lbs. 8.85 kg
309A-2E	3 11/16" 9.37 cm	7⅝" 19.37 cm	14½ 36.83 cm	11.75 lbs. 5.33 kg

180R-12 Antenna Coupler and 309A-9 Coupler Control Unit

Features

Automatic Operation
FAA-TSO Certification
Protective Circuitry

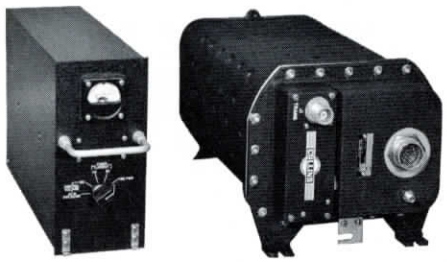
Applications

Boeing 727 Aircraft
Boeing 707 Aircraft
Boeing KC-135 Aircraft

The 180R-12, together with the 309A-9, automatically matches the RF impedance of communication equipment operating in the 2-30 mc frequency range to an aircraft probe-type antenna. The system is automatically tuned in 16 seconds maximum. Typical tuning time is five seconds.

AIRCRAFT APPLICATIONS

The 180R-12 Antenna Coupler, designed for the Boeing 727, can be retrofitted for the 707 or KC-135 aircraft by the addition of airframe cabling and moving a tap on an RF coil. It



309A-9 Coupler Control 180R-12 Antenna Coupler

will operate up to 1200 watt PEP RF power levels and is compatible with Collins' 618S, 618T, AN/ARC-58 or AeroCom (Atom-Star and TR-192 transceivers). With minor modifications of the 309A-9 control, the AT-144 and AN/ARC-21 transceivers can also be accommodated.

DEMAND SURVEILLANCE

During transmission, the input to the coupler is continuously monitored for VSWR; however, the servo loop is activated only during tuning or when the VSWR exceeds preset limits, contributing greatly to increased component life. All coupler components are tested for high reliability and provide in excess of 2000 hours MTBF.

PROTECTIVE DEVICES

High voltage protection is provided by a ball gap that will fire at a voltage lower than that required to cause internal or external arcing. This activates a circuit that will cut off the transmitter power within 50 milliseconds. In the event the protective circuits function because of coupler depressurization, the transmitter can be rechanneled to a new operating frequency, and if excessive voltage does not exist at that frequency, the coupler will tune properly.

In the receiving function, the discriminators are protected against lightning transient damage. Temperature sensors maintain the ambient temperature within correct operational limits. A sensor also removes RF power if internal air temperature exceeds 100° C.

COOLING

A blower in the 180R-12 coupler circulates internal air around the components and through the double-walled, sealed case which acts as a heat exchanger. The coupler is impervious to Skydrol 500 hydraulic fluid.

Specifications

FREQUENCY RANGE: 2-30 mc.

TUNING ACCURACY: 1.3:1 VSWR maximum.

POWER REQUIREMENTS: 115 v, 400 cps, 3 phase, 0.6 amp per phase maximum.

RF POWER INPUT: 1200 watts PEP, 500 watts average power.

ANTENNA TERMINAL VOLTAGE: Will withstand 18,000 v peak at 45,000 feet.

INPUT IMPEDANCE: 50 ohms.

RF DUTY CYCLE: 2-3 mc, 5 minutes on and 5 minutes off; above 3 mc, continuous duty. For installations other than 727, the duty cycle is dependent upon the antenna impedance and environmental temperature.

TUNING TIME: 16 seconds maximum.

ALTITUDE: 45,000 ft. maximum.

SHOCK: MIL-E-5400, Paragraph 3.2.21.6.

AMBIENT TEMPERATURE: 180R-12 — −73° C to +71° C. 309A-9 — −54° to +71° C.

SIZE AND WEIGHT:

	Size			*Weight*
	W	*H*	*D*	
180R-12 antenna coupler	8.31″ 21.11 cm	7.5″ 19.05 cm	18.75″ 47.63 cm	21 lbs. 9.53 kg
309A-9 coupler control	3 11/16″ 9.68 cm	7 25/32″ 19.76 cm	14.5″ 36.83 cm	11 lbs. 4.99 kg

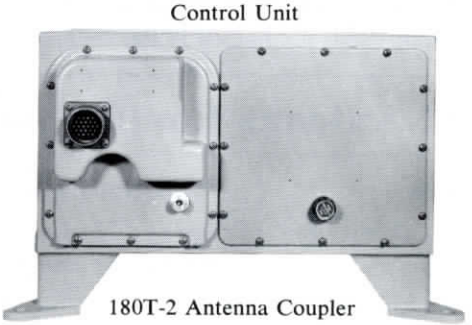
180T-2 Antenna Coupler AN/SRA-22

Features	Applications
Remote Control	*Fixed Station*
Weatherproof Enclosure	*Shipboard*
High Efficiency	*Whip Antenna*

The 180T-2 Antenna Coupler and associated control comprise system to manually tune whip antennas 35 ft. or longer, normally used on ships. The system covers the 2-30 mc frequency range and can be used at power levels of 1000 watts PEP, 500 watts average. The 180T-2 is housed in a watertight enclosure which can be mounted at the base of the antenna.

The separate control unit can be mounted in a 19″ equipment rack, located near the transmitter. A directional wattmeter and function indicators are included in the associated control unit.

Control Unit



180T-2 Antenna Coupler

SYSTEM APPLICATION

The coupler is free of intermodulation distortion, ideally suiting it for single sideband systems, such as the Collins KWT-6 Transceiver. Rugged mechanical design makes it equally applicable to fixed station or shipboard installations.

SIMPLIFIED OPERATION

After the antenna has been tuned to a desired frequency, the coil tap and capacitor dial settings can be recorded on a chart supplied on the remote control unit. These settings can then be used to reset the coupler.

Specifications

FREQUENCY RANGE: 2-30 mc.

TUNING ACCURACY: Within 1.3:1 VSWR for all service conditions at nominal supply voltages.

POWER REQUIREMENTS: 115 v or 230 v, 50-60 cps, 130 watts maximum.

RF POWER INPUT: 1000 watts PEP; 500 watts average.

INPUT IMPEDANCE: 50 ohms.

RF DUTY CYCLE: Continuous.

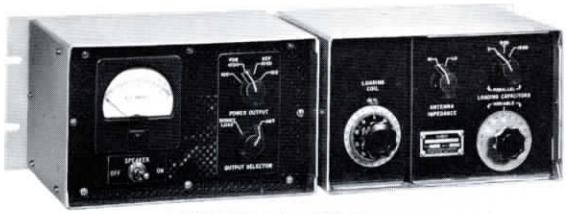
HUMIDITY: Impervious to salt spray.

AMBIENT TEMPERATURE: −28° C to +65° C operating; −50° C to +85° C storage.

SIZE AND WEIGHT:

	Size			*Weight*
	W	*H*	*D*	
Antenna coupler	17¾″ 45.09 cm	11½″ 29.21 cm	19″ 48.26 cm	42 lbs. 19.05 kg
Remote control	19″ 48.26 cm	5¼″ 13.34 cm	6 7/8″ 17.46 cm	17 lbs. 7.71 kg

180U-2, -2A Line Flatteners



180U-2 Line Flattener

Features	Applications
Reversible L Network	*Fixed Station*
Speaker Assembly	*Transportable*
Directional Wattmeter	
VSWR Protection	

The manually tuned 180U-2,-2A Line Flatteners, designed for Collins' KWT-6 equipments, can be used with any HF equipment operating in the 2-30 mc frequency range with 50 ohm RF termination and power level of not more than 500 watts average or 1000 watts PEP. It will reduce antenna transmission line VSWR of 2:1 to 1.1:1 or less.

Loading capacitors are used to adjust the tuning range. An RF wattmeter has two scales, 0-100 watts and 0-1000 watts, which will indicate either forward or reflected power.

A transmit-receive relay includes a set of contacts which can be used in any RF power interlock circuit to protect the power amplifier in the event the antenna is not connected. Type N fittings permit RF connections to be made with standard RG-8/U cable.

REFLECTED POWER PROTECTION

A protective device included on the 180U-2A (CU-737/URC) functions if the reflected SWR power exceeds 30 ±6 watts. An alarm lamp is actuated and the associated transmitter is automatically unkeyed.

Specifications

FREQUENCY RANGE: 2-30 mc.

LINE TUNING CAPABILITY: Reduces 2:1 VSWR to 1.1:1 or less.

POWER REQUIREMENTS: 27.5 v dc, 125 ma for operation of antenna changeover relay.

RF POWER INPUT: 500 watts average; 1000 watts PEP.

RF TERMINATION IMPEDANCE: 50 ohms nominal.

SPEAKER LEVEL: 2 watts maximum.

SIZE: 19″ W, 5¼″ H, 9″ D (48.26 cm W, 13.34 cm H, 22.86 cm D.

WEIGHT: 12¼ lbs. (5.56 kg).

180Y-1 Line Flattener CU-791/URT

Features	Applications
T Network	*Fixed Station*
Bilateral Operation	*Transportable*

The 180Y-1 is a manually operated coupler which matches a 50 ohm transmitter output to a 50 ohm, 1⅝″ rigid coaxial transmission line with a VSWR of up to 3:1. It covers the 2-30 mc frequency range and will handle up to 10 kw PEP or 5 kw average power levels.

The 180Y-1 is a variable, band switched T network configuration, which can be quickly adjusted to give a minimum VSWR when used with a directional wattmeter. The flanges of the rigid coaxial line fasten to opposite sides of the unit to

180Y-1 Line Flattener

permit equipment removal without disturbing the coaxial transmission line.

The coupler is bilateral, allowing either connector to be used as the input or output except for resistances below 25 ohms in the 2.0-2.6 mc frequency band. All controls, together with a tuning chart, are located on the front panel.

Specifications

FREQUENCY RANGE: 2-30 mc.

LINE TUNING CAPABILITY: 3:1 VSWR maximum.

POWER REQUIREMENTS: None.

RF POWER INPUT: Operate — 10 kw PEP; 5 kw average maximum. Tune — 1 kw average maximum.

INPUT IMPEDANCE: 50 ohms.

OUTPUT IMPEDANCE: 50 ohms.

RF DUTY CYCLE: Continuous.

AMBIENT TEMPERATURE: −20° C to +50° C.

AMBIENT HUMIDITY: 0%-95%.

SIZE: 7″ W, 11⅝″ H, 16 11/16″ D (17.78 cm W, 29.53 cm H, 42.39 cm D).

WEIGHT: 23½ lbs. (10.66 kg).

184U-10 RF Matrix Uniswitch

Features

Building Block Flexibility
Improved RF Switching
Mechanical Interlocks
Small Size
Simplified Maintenance
Remotely Controlled

Applications

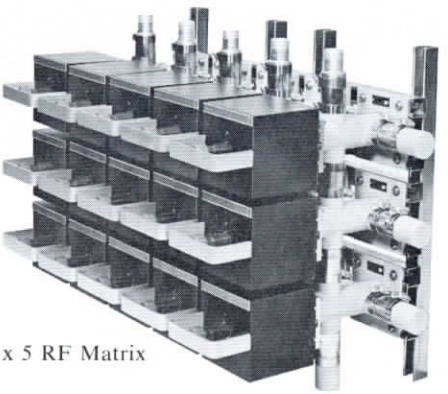
Antenna Transmitter Matrix
Fixed Station
Shipboard

Uniswitch Building Block

The 184U-10 is a single, coaxial crosspoint-switch for building block assembly of an RF matrix to switch any of several transmitters to any of several antennas. The matrix permits either local or remote selection and can be assembled to exactly meet individual requirements. Mechanical and electrical interlocks prevent paralleling or application of power to an open line.

UNISWITCH OPERATION

The 184U-10 Uniswitch employs a simple, single stroke actuating mechanism which moves a dual contact assembly to disconnect both potential RF stubs as the desired crosspoint is established. Long life is assured by the simplicity of the mechanism and controlled contact acceleration.



Typical 3 x 5 RF Matrix

MATRIX ASSEMBLY

Several Uniswitches — one for each crosspoint — are simply bolted on easily constructed Unistrut frame sections to form the desired matrix configuration. The matrix can be modified by adding Uniswitches and frame sections if communication requirements change. Small size permits wall mountings in any position.

SIMPLIFIED MAINTENANCE

Individual Uniswitches can be removed for inspection or maintenance without disturbing other crosspoints. RF lines can be grounded during servicing. Control circuitry is easily accessible while crosspoint is in operation by removal of front cover.

LOW POWER OPERATION

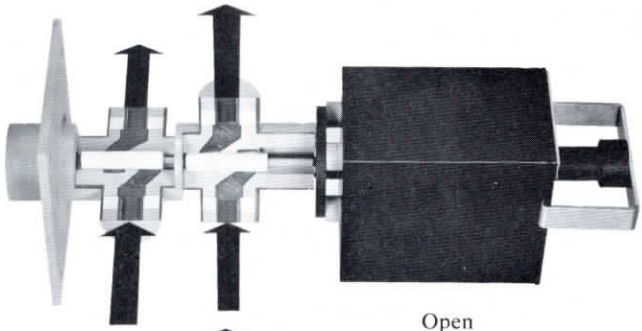
Control wiring is simplified by the low total power requirement of approximately 10 watts, including status display lights and all control relays.

REMOTE CONTROL

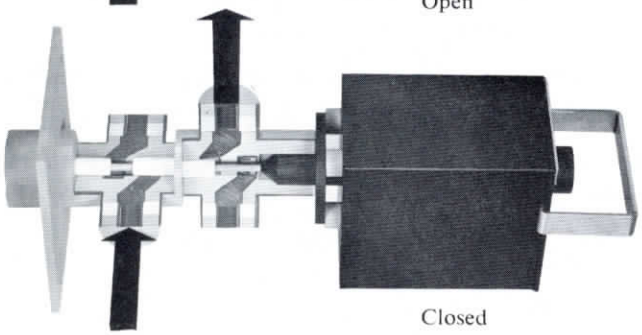
Since RF switching is accomplished by a single relay in each

Uniswitch, wide flexibility in remote control application is possible.

Lighted display pushbuttons, with red and green status lamps, can be conveniently used for remote switching. The red lamp indicates when crosspoint is switching and the green lamp when it is closed. Depressing the button a second time opens the crosspoint and both lamps go out.



Open



Closed

Specifications

RF COAXIAL LINE: 50 ohm EIA, 1⅝", rigid coax.

POWER RATING: 45 kw average with a 1:1 VSWR at 30 mc.

CURRENT RATING: 30 amps rms, 2-30 mc.

VOLTAGE RATING: 2000 v rms, 2-30 mc.

FREQUENCY RANGE: 30 mc maximum.

VSWR: When matrix is terminated in 50 ohm resistive load, the VSWR presented at the input shall not exceed 1.05:1 at 30 mc.

CROSS-TALK: —65 db.

OPERATION: Manual or remote control.

OPERATE TIME: 0.5 second.

REMOTE CONTROL: Single wire ground; other options.

CONTROL POWER: 27.5 v dc at 0.25 amp when switching.

STATUS DISPLAY: SPST.

MANUAL OVERRIDE: Manual operation possible in case of control failure.

RF FITTINGS: Adapters for all common fittings.

SIZE: 5½" W, 5½" H, 18" D (13.97 cm W, 13.97 cm H, 45.72 cm D).

WEIGHT: Manual — 4½ lbs. (2.04 kg). Remote — 6½ lbs. 2.95 kg).

488A-1 DC to AC Inverter

Features	Applications
Continuous Duty	*Airborne*
No Shockmount	*Fixed Station*
Transient Protection	*Transportable*
Lightweight	*Mobile*

The 488A-1 is a dc to 115 v, 400 cps or 26 v, 400 cps inverter. It facilitates use of equipment requiring a small amount of 400 cps power in applications where only 27.5 v dc is available. Output is 250 va at +55° C, with a frequency accuracy of ±5% and an output regulation of ±10%. Transient protection is provided for up to 65 v peaks. Since the 488A-1 can be mounted directly to the aircraft or vehicle, installation is simplified.

Specifications

POWER SOURCE: 27.5 v dc, 4-25 amps, depending on load. Unit will withstand 65 v transients on supply line.

OUTPUT: Continuous — 250 va, 115 v ac, 400 cps at not more than 55° C; or 170 va, 115 v ac, 400 cps at 55°-70° C; or 140 va, 26 v ac, 400 cps at not more than 55° C. Output voltage regulated to within ±10%. Output frequency within ±5%. Distortion is less than 10%. Efficiency is 60%.

DUTY CYCLE: Continuous.

AMBIENT TEMPERATURE: —40° C to +70° C.

AMBIENT HUMIDITY: Up to 95% at 50° C.

ALTITUDE: Up to 10,000 ft. at 70° C; higher altitudes at reduced temperatures or loads.

SHOCK CONDITIONS: Per RTCA paper 100-54/DO-60, except where angles are called out as 45°, use 90°.

VIBRATIONS: Per RTCA paper 100-54/DO-60.

SIZE: 6¾" W, 5⅝" H, 9¾" D (17.15 cm W, 14.29 cm H, 24.77 cm D).

WEIGHT: 9.25 lbs. (4.2 kg).

488A-2 DC to AC Inverter

Features	Applications
Continuous Duty	*Airborne*
Transient Protection	*Transportable*
Lightweight	*Mobile*
High Efficiency	
Regulated Output	

The 488A-2 is a convection cooled, solid state inverter. In one application, it supplies the 400 cps power requirement of the 618T Transceiver and associated antenna coupler and is mounted directly on the associated 618T Transceiver shockmount. It offers continuous duty operation from a 27.5 v dc source and is actuated by simply grounding an external control lead.

CIRCUIT PROTECTION

The inverter will not be damaged by accidental reversal of input leads and is additionally protected from short circuits or peak loads up to 300 va for periods up to one minute.

Specifications

AMBIENT TEMPERATURE: −40° C to +71° C.

AMBIENT HUMIDITY: Up to 95%.

ALTITUDE: Up to 10,000 ft. at 52° C; higher altitudes at reduced temperatures or loads.

POWER SOURCE: 27.5 v dc ±10%; emergency operation to 20 v dc.

OUTPUT: 115 v, 400 cps, 250 va, single phase, 0.8-1.0 pf.

HARMONIC CONTENT: 10% maximum.

EFFICIENCY: 65% minimum at rated input and load.

REGULATION: ±10% for all variations of input and load.

SIZE: 3″ W, 4½″ H, 10″ D (7.62 cm W, 11.43 cm H, 25.4 cm D).

WEIGHT: 8 lbs. 10 oz. (3.91 kg).

490B-1 Automatic Antenna Coupler

Features	Applications
Waterproof Case	*Fixed Station*
Continuous Duty	*Temporary Installation*
Low VSWR	*Transportable*
Automatic Operation	*Small Ship*
Fully Accessible	*Vehicular*

The 490B-1 automatically resonates long wire, dipole or whip antennas over the 2-30 mc frequency range. It can be employed for continuous duty applications at 500 watts PEP or 200 watts average power levels.

SYSTEM APPLICATION

The 490B-1 is especially applicable to HF communication systems using the Collins 618T or similar HF transceivers. It is contained in a waterproof aluminum case which meets the vehicular or transportable vibration environment.

RELIABLE CIRCUITRY

The antenna is resonated by only two servo driven variable elements, a capacitor and an inductor. The inductive element is tuned by automatically winding silver ribbon from an aluminum drum onto a ceramic cylinder. The unused portion of the coil is completely removed from the circuit by shorting. Temperature limit switches protect the coupler from damage in the event of loss of cooling air. Transistors and diodes are used in all circuits. The 490B-1 consists of five modules and a chassis mounted in a waterproof aluminum case. The easily removable modules simplify maintenance and spare parts programs.

Specifications

FREQUENCY RANGE: 2-30 mc.

FREQUENCY ACCURACY: Within 1.3:1 VSWR for all service conditions at nominal supply voltages.

POWER REQUIREMENTS: 115 v, 400 cps.

RF POWER INPUT: 500 watts PEP; 200 watts average.

INPUT IMPEDANCE: 50 ohms.

RF DUTY CYCLE: Continuous.

TUNING TIME: 35 seconds maximum.

ALTITUDE: 15,000 ft.

AMBIENT TEMPERATURE: −40° C to + 50° C.

SIZE: 9 5/16″ W, 9″ H, 26 13/16″ D (23.65 cm W, 22.86 cm H, 68.10 cm D).

WEIGHT: 50 lbs. (22.68 kg).

490T-1 Antenna Coupler

Features	Applications
Automatic Operation	*Airborne System*
Installation Flexibility	*Wire Antenna*
High Speed Tuning	

The 490T-1 is a general purpose HF automatic antenna coupler for 25 ft. or longer whips and wire antennas in the 2-30 mc frequency range. Shorter antennas can be used with proper loading coils. It can be used at RF power levels up to 650 watts PEP or 200 watts average. Tuning time is 3 seconds maximum, less than 2 seconds average. The high speed tuning capability reduces the over-all rechannel time and keeps radiation at a minimum for radio silence operation. Solid state logic circuits, capable of fast decisions with high speed switched and variable tuning elements, are used to insure reliable high speed tuning.

SYSTEM APPLICATIONS

The 490T-1 is especially suited for use with HF airborne transceivers, such as the Collins 618T. Optional application groups include exchange with either the 180L-2 or 180L-3 Antenna Coupler; shielding of high impedance antenna lead in accordance with MIL-I-6181D and MIL-I-26600; termination for low impedance (50 ohm) coaxial antenna systems. These application groups can be factory installed or added in the field. Front panel indicators aid system fault location.

The 490T-1 is especially suited for use with the 437R-1 HF Helical Antenna. This coupler/antenna system is intended for helicopters and other low flying aircraft where surface communication is of special importance.

RELIABLE OPERATION

The short tuning cycle greatly enhances reliability, since operating elements are energized for only brief periods. The servo system is controlled by a demand surveillance technique which allows the coupler to retune if the antenna impedance changes appreciably, but does not require the servo system to remain in constant operation.

The 490T-1 consists of four RF assemblies, three modules, a chassis, frame, front panel and dust cover. All assemblies are easily removed from the unit, simplifying maintenance and support programs.

Specifications

FREQUENCY RANGE: 2-30 mc, continuous tuning.

TUNING ACCURACY: Within 1.3:1 VSWR.

POWER REQUIREMENTS: 115 v, 400 cps, 1 phase, 130 watts maximum during tuning, 20 watts during operate.

RF POWER INPUT: 650 watts PEP, 200 watts average.

INPUT IMPEDANCE: 50 ohms.

DUTY CYCLE: Continuous.

TUNING TIME: 3 seconds maximum; less than 2 seconds average.

ALTITUDE: 0-30,000 ft. operating.

AMBIENT TEMPERATURE: −55° C to +71° C operating; −62° C to +125° C nonoperating.

VIBRATION: 5-500 cps, 5 g operating; solid mounted.

SHOCK: 30 g, 11 millisecond duration.

SIZE: 10.125″ W, 7.625″ H, 10.625″ D (25.717 cm W, 19.367 cm H, 26.987 cm D).

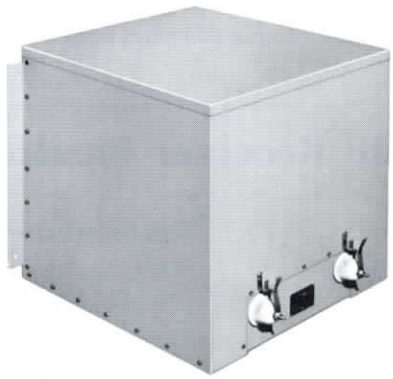
WEIGHT: 18.7 lbs. (8.48 kg.)

512B-2 HF Impedance Conversion Unit

Features	Applications
No Tuning	*Fixed Station*
Lightning Protection	

The 512B-2 is used to connect a transmitter or power amplifier which has a 50 ohm unbalanced output termination to a 300-600 ohm balanced transmission line. Since it is bilateral, the unit can also be used to connect a 300-600 ohm transmission line to a 50 ohm termination.

Power handling capability is 3 kw average or 5 kw PEP, over



the 2-30 mc frequency range. The balun configuration uses broadband circuits, eliminating the need for tuning. When terminated by a resistive load, the 512B-2 will contribute no more than 2:1 SWR.

INSTALLATION

The 512B-2 can be located either inside the transmitter room, on an outside wall, on a pole, or at the transmitter antenna tower. Coaxial cable lengths from the transmitter to the conversion unit are not critical. Lightning protection is provided by static drain chokes and a horn gap located at each output terminal.

Specifications

FREQUENCY RANGE: 2-30 mc.

POWER HANDLING CAPABILITY: 3 kw average or 5 kw PEP.

INPUT RECEPTACLE: Type UG-287/U. Mating connector UG-154/U for RG-17/U cable.

OUTPUT TERMINALS: ¼″ — 20 studs on ceramic insulators.

SIZE: 23″ W, 20¾″ H, 22 7/8″ D (58.42 cm W, 52.71 cm H, 58.10 cm D).

WEIGHT: 75 lbs. (34.02 kg).

512D-1 HF Impedance Conversion Unit

Features	Applications
No Tuning	*Fixed Station*
50 KW Rating	
Maintenance Free	
Easily Installed	

The 512D-1 is an impedance conversion unit for use in high power transmitter installations to permit the interconnection of a balanced open-wire transmission line to unbalanced coaxial terminations. It is bilateral in function and can be used to change the impedance of 600 ohm balanced line to 50 ohm unbalanced, or 50 ohm unbalanced to 600 ohm balanced. It will handle power levels up to 50 kw and covers the 4-30 mc frequency range. Broadband circuits preclude the need for any tuning adjustment.

COMPACT CONSTRUCTION

A partitioned enclosure contains (1) a coaxial impedance changing transformer with a 50 ohm unbalanced line to a 200 ohm balanced line, and (2) a folded exponential line, which transforms the 200 ohms to a balanced 600 ohms.

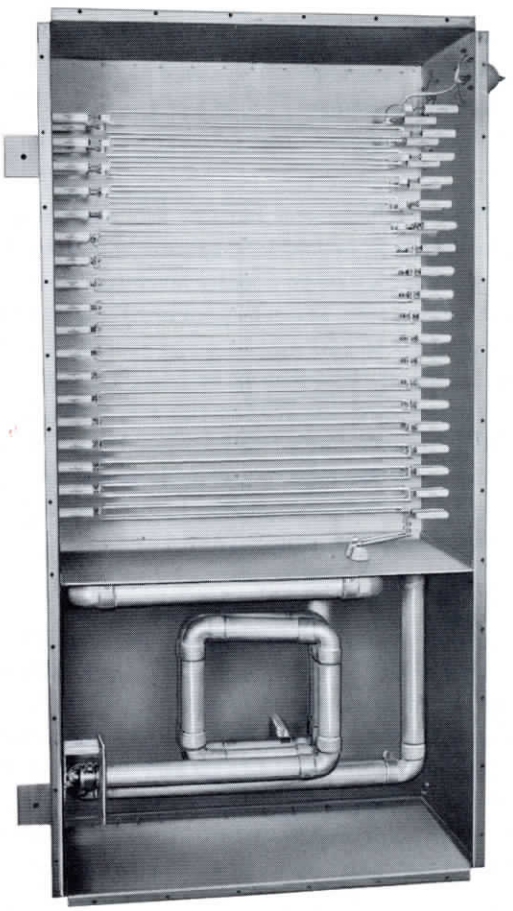
Specifications

FREQUENCY RANGE: 4-30 mc.

POWER HANDLING CAPABILITY: 50 kw.

INPUT IMPEDANCE: Either 50 ohms 3⅛″ coax, or 600 ohms open wire.

OUTPUT IMPEDANCE: Either 600 ohms open wire, or 50 ohms 3⅛″ coax.



SIZE: 37″ W, 74″ H, 16″ D (93.98 cm W, 187.96 cm H, 40.64 cm D).

WEIGHT: 200 lbs. (90.72 kg).

635R-1 HF Receiver Bandpass Filter

Features	Applications
Duplex Operation	*Fixed Station*
Protective Circuits	*Transportable*
	Shipboard

The 635R-1 is a locally controlled, rack mounted receiver antenna filter for duplex operation with closely spaced transmitting and receiving antennas. Simultaneous transmission at powers up to 1 kw PEP and reception on frequencies displaced 10% or greater is possible, if antenna RF level does not exceed 100 v PEP. It is tuned in 1 kc channel increments

635R-1

throughout the 2.0-29.999 mc frequency range. The 635R-1 has a self-contained power supply for operation from a 115 v or 230 v, 50-60 cps source.

RECEIVER PROTECTION

A protection circuit automatically disconnects the 635R-1 from the antenna if RF levels exceed 100 v peak. Tune interlock circuits allow it to be controlled in common with the associated receiver by any control unit using a two-out-of-five frequency information code.

Specifications

FREQUENCY RANGE: 2.0-29.999 mc; 1 kc channel increments.

TYPES OF SIGNALS: AM, SSB and CW.

INPUT IMPEDANCE: 50 ohms unbalanced.

OUTPUT IMPEDANCE: 50 ohms unbalanced.

SELECTIVITY: The gain shall not deviate more than 1 db from the gain at the dial frequency for all frequencies which are within ±0.3% of dial frequency for the 2.0 mc through 14.999 mc range and within ±45 kc of dial frequency for the 15.0 mc through 29.999 mc range. The attenuation at ±10% of the dial frequency shall be not less than 70 db below the referenced dial frequency gain from 2-8 mc, not less than 65 db from 8-12 mc, not less than 60 db from 12-20 mc, and not less than 50 db from 20.0-29.999 mc.

VOLTAGE GAIN: Not greater than 5.0 db or less than 0.5 db at center frequency.

INTERMODULATION: All harmonic and intermodulation distortion at least 50 db below a 10 millivolt PEV output.

CROSS-MODULATION: At least 10 db below a desired 2 millivolt CW signal when receiving an undesired 91 v peak signal (modulated 30% at 400 cps) at least ±10% displaced from the desired frequency.

POWER REQUIREMENTS: 115 v or 230 v, 50-60 cps, 30 watts maximum.

SIZE: 19″ W, 8¾″ H, 7″ D (48.26 cm W, 22.23 cm H, 17.78 cm D). Mounts in 19″ rack.

WEIGHT: 25 lbs. (11.34 kg).

635T-2 HF Receiver Bandpass Filter

Features

Automatic Tuning
Unattended Operation
Protective Circuits

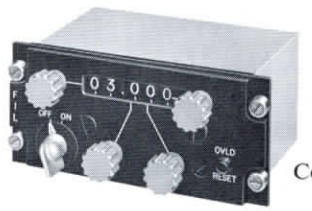
Applications

Fixed Station
Transportable
Shipboard
Airborne

The automatically tuned 635T-2 functions as a frequency selecting circuit between the antenna and receiver input. It is remotely tuned in 1 kc channel increments throughout the 2.0-29.999 mc frequency range by an associated 914B-2 Control Unit. The 635T-2 permits duplex operation where transmitting and receiving antennas are closely spaced with frequencies displaced 10% or greater if antenna RF level does not exceed 100 v PEP. Transmitter power can be up to 1 kw PEP. The 635T-2 has a self-contained power supply for operation from a 22-30 v dc source. It is housed in a standard ½ ATR case.

RECEIVER PROTECTION

RF levels exceeding 100 v peak are eliminated by a protection circuit that automatically disconnects the 635T-2 from the antenna. Tune interlock circuits allow it to be controlled in common with the associated receiver by any control unit using a two-out-of-five frequency information code.



914B-2
Control Unit

Specifications

FREQUENCY RANGE: 2.0-29.999 mc; 1 kc channel increments.

FREQUENCY CONTROL: By remote selection on the 914B-2 Control Unit.

TYPES OF SIGNALS: AM, SSB and CW.

INPUT IMPEDANCE: 50 ohms unbalanced.

OUTPUT IMPEDANCE: 50 ohms unbalanced.

SELECTIVITY: The gain shall not deviate more than 1 db from the gain at the dial frequency for all frequencies which are within ±0.3% of dial frequency for the 2.0-14.999 mc range and ±45 kc of dial frequency for the 15.0-29.999 mc range. The attenuation at ±10% of the dial frequency shall be not less than 70 db below the referenced dial frequency gain from

2-8 mc, not less than 65 db from 8-12 mc, not less than 60 db from 12-20 mc and not less than 50 db from 20.0-29.999 mc.

VOLTAGE GAIN: Not greater than 5.0 db or less than 0.5 db at center frequency.

INTERMODULATION: All harmonic and intermodulation distortion at least 50 db below a 10 millivolt PEV output.

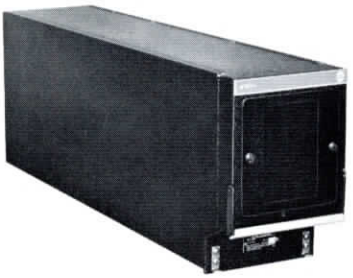
CROSS-MODULATION: At least 10 db below a desired 2 millivolt CW signal when receiving an undesired 91 v peak signal (modulated 30% at 400 cps) at least ±10% displaced from the desired frequency.

POWER REQUIREMENTS: 22-30 v dc. Normal operation 30 watts maximum. During tuning, 65 watts maximum.

SIZE: 4 31/32" W, 7 13/16" H, 19 9/16" D (12.62 cm W, 19.84 cm H, 49.69 cm D). ARINC Specification 404, standard ½ ATR.

WEIGHT: 19.2 lbs. (8.71 kg).

635V-1 HF Receiver Bandpass Filter



Features

Antenna Sharing
Receiver Protection
Remote Control
Distortion Reduction

Applications

Fixed Station
Transportable
Shipboard
Airborne

The 635V-1 is a tunable, active bandpass filter, covering the 2.0-29.999 mc frequency range. It permits normal HF receiver operation in an interference environment that would greatly degrade reception or even damage the front end of a receiver. Distortion caused by strong RF fields is reduced, and the receiver is protected against damage from high RF voltages both on and off the channel frequency.

COMMON ANTENNAS

High impedance capacitive input coupling allows connecting more than one 635V-1 to a common antenna, or, under restricted conditions, the 635V-1 can share a common antenna with a power amplifier.

APPLICATIONS

The 635V-1 can be used in fixed station, transportable, shipboard or airborne installations, where transmitter and receiver antennas are closely spaced or duplex operation of transmitter and receiver on a common antenna is desired. It is compatible with Universal Radio Group HF building block equipment. A 6-16 db gain allows the 635V-1 to be located at a distance from the associated receiver. Plug-in power supply modules permit operation from either a 115 v, 400 cps; 115 v or 230 v, 50-60 cps or 27.5 v dc power source.

CONTROL

The 635V-1 can be controlled in common with an associated receiver using a two-out-of-five wire frequency information code, or a separate 914B-3 Control.

914B-3 Control

The 914B-3 has a two position gain control switch which allows a 6-16 db gain, depending upon frequency in the normal position. In the low position, gain is reduced by a nominal 35 db. This position is used to eliminate distortion caused by overdriving with very strong on-frequency signals.

The 635V-1 can also be dial-pulse controlled with Collins 313 series remote control equipment. This arrangement allows frequency selection over a 4-wire line from a remote dial telephone.

Specifications

FREQUENCY RANGE: 2.0-29.999 mc, continuously tuned.

NOISE FIGURE: No more than 10 db at 2 mc, increasing to no more than 17 db at 30 mc with 50 ohm resistive source.

BANDWIDTH: 12 kc minimum to —1 db points.

STRONG RF SIGNAL INPUT: 1000 v rms to 10,000 ft. at frequencies more than 10% removed from nominal operating frequency. Derated linearly with atmospheric pressure above 10,000 ft.; 50,000 ft. maximum.

CROSS-MODULATION: —30 db from desired signal for above strong signal input.

OUTPUT STRONG SIGNAL: Less than 0.5 v to a 50 ohm load for 1000 v input more than 10% removed from signal.

GAIN: Normal position — 6-18 db. Low position — —30 db minimum, —15 db maximum.

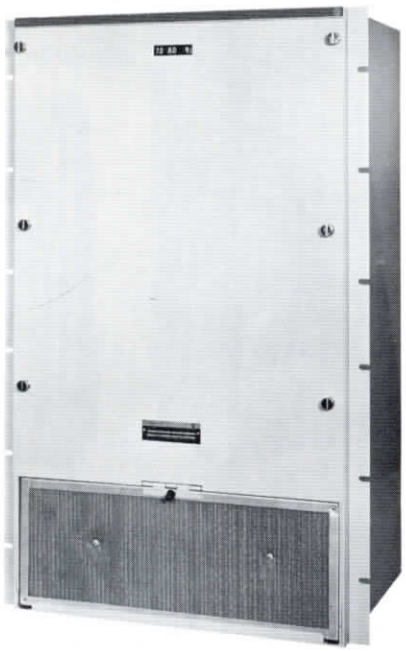
POWER REQUIREMENTS: Dependent upon optional power supply module. 115 v, 400 cps, 1 phase, 85 watts; or 115 v or 230 v, 50-60 cps, 95 watts; or 27.5 v dc, 95 watts.

COOLING AIR: 20 cfm 1" water vacuum to rear port when supplied externally. Can be supplied by optional internal blower.

SIZE: ARINC Specification 404, ½ ATR. 4 31/32" W, 7 13/16" H, 19 9/16" D (12.62 cm W, 19.84 cm H, 49.69 cm D).

WEIGHT: 22 lbs. (9.98 kg).

635W-1 Harmonic Filter



Features	Applications
Automatic Operation	*Fixed Station*
Integral Cooling	*Transportable*
Front Accessibility	*Shipboard*

The 635W-1 is an automatic, continuously tuned, low pass filter designed specifically for operation with Collins 208U-10 Power Amplifier to insure 80 db of harmonic attenuation at the output terminals of the system. The filter is rated for 12 kw average or PEP in the 2-30 mc frequency range. A visual readout of operating frequency is provided.

Ceramic vacuum variable capacitors insure long trouble free operation. A servo sensor insures concurrent tuning of harmonic filter and associated 208U-10 Power Amplifier.

All components are accessible from the front. A safety interlock circuit protects maintenance personnel. Input and output RF connections are made through standard 1⅝" EIA fittings. It is rated for continuous duty operation.

INSTALLATION

A Unistrut cabinet is available as an accessory to house two 635W-1 units. It matches the styling of the 208U-10 Power Amplifier and other Universal Radio Group equipment. Single or multiple wall mounting is also available to meet individual installation requirements.

Specifications

FREQUENCY RANGE: 2-30 mc.

RF POWER INPUT: 12 kw PEP or average, continuous.

INPUT IMPEDANCE: 50 ohms unbalanced; EIA 1⅝" coax.

OUTPUT IMPEDANCE: 50 ohms unbalanced; EIA 1⅝" coax.

VSWR DEGRADATION: From 2.5:1 SWR on the filter output to 3:1 SWR on the filter input.

RF LOSSES: 3% nominal with 50 ohm load.

TUNING TIME: 15 seconds when operating from 60 cps power source, concurrent with power amplifier.

POWER REQUIREMENTS: Normal operation — 115 v, 47-63 cps, 2 watts; 230 v, 47-63 cps, 90 watts; 27.5 v dc, 1.7 watts. During tuning — 115 v, 47-63 cps, 36 watts; 230 v, 47-63 cps, 90 watts; 27.5 v dc, 84 watts.

SIZE: 19" W, 30" H, 15" D (48.26 cm W, 76.2 cm H, 38.1 cm D).

WEIGHT: 105 lbs. (47.63 kg).

SW-1020TA, -1030A Automatic Switchboards

Features	Applications
Termination Flexibility	*Fixed Plant*
Operator Assistance	*Transportable System*
Two-Digit Dialing	
Supervisory Signals	
Through Dialing	

Collins' SW-1020TA and SW-1030A are automatic dial service switchboards providing toll-quality FSK and dc loop dialing with half-duplex radio service capabilities for twenty 4-wire subscribers. The switchboards offer through-dialing on ac or dc lines.

Idle-line hunting (rotary group) can be in any combination by a simple strapping arrangement. Ring/no-ring selection is on a per-line basis. Any line can be used as an inter-office trunk. Immediate direct connection to operator line is completed with minimum strapping.

TRANSPORTABLE APPLICATIONS

The SW-1020TA, when used with Collins' C-8024 signaling dial telephone or other FSK signaling equipment, supplements commercial service and is capable of routing, signaling and completing calls among the 4-wire subscriber units. No auxiliary signaling equipment is required for dc loop dial service. The unit is electrically similar and compatible with Collins' fixed station SW-1030A Switchboard.

The SW-1020TA is contained in an enclosed sliding frame for service and test accessibility. Rugged construction permits transportable applications or use in any environment requiring exceptional shock and vibration tolerances. The SW-1020TA can be operated on an ac/dc dial on per-line basis by making strapping changes on the line panel subassembly.

FIXED PLANT

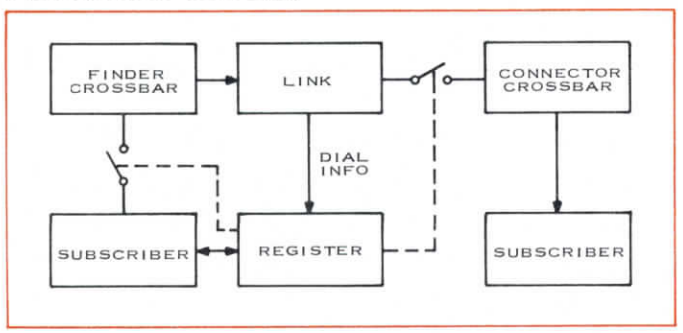
The SW-1030A, for fixed plant installations, has full length front and rear doors to permit complete access to all components and wiring.

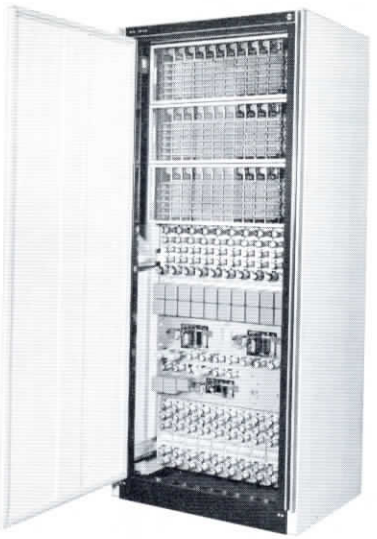
Solid state circuits reduce weight, improve reliabilty and decrease power consumption. The switchboards provide two-party interconnect with optional switchboard attendant facilities. An automatic feature connects subscriber with switchboard attendant when subscriber handset is off-hook 30 seconds without completing call.

When subscriber goes off-hook, the register determines origin of call and locates an idle link through the finder crossbar. Upon receiving the dialed digits, the register completes call through the connector crossbar. When the calling subscriber's handset is replaced on-hook, the link is released and reverts to idle-link status.

The SW-1030A is designed to operate as an ac switchboard; however, it can be converted to dc operation (all lines) by internal strapping.

Functional Circuits

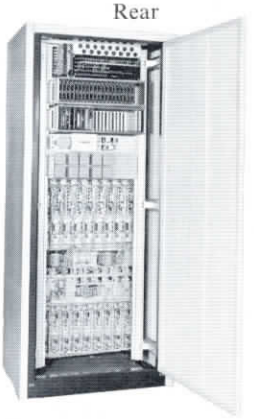


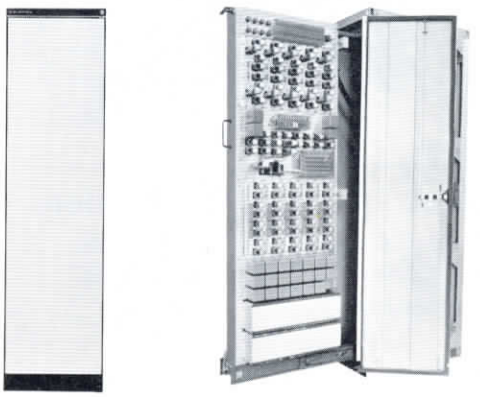


Front

SW-1030A

Rear





SW-1020TA

Specifications

LINE CHARACTERISTICS: Loss — 1 db maximum. Level — 0 dbm nominal; 7 dbm maximum. Impedance — 600 ohms, ±10%. Phase angle — not more than 30° from 200 to 10,000 cps. Longitudinal balance — 40 db or more. Noise and cross-talk — 50 db below 0 dbm signal. Frequency response — ±3 db, 300-10,000 cps (after connection is established). Signaling — percent break, 61% nominal; pulse rate, 10 pps nominal.

PULSE GENERATION LIMITS: 58%-67% break, 9.5-10.5 pps.

PULSE DETECTION LIMITS: 50%-70% break, 8-12 pps.

INTERDIGIT TIMING: At least 600 milliseconds.

SIGNALING LEVEL: −26 dbm to −10 dbm, 6 db signaling level margin.

SIGNALING FREQUENCIES: Off-hook — 2847 cps or loop closure. Dial-pulse — 2762 cps or open loop.

SUPERVISION: Dial tone — 600/120 cps, −15 dbm. Busy tone — 600/120 cps at 60 interruptions per minute, −15 dbm. Ringing tone — 1000/20 cps, 0 dbm, or 20 cps, 100 v. Ringback tone level (SW-1020TA only) — −15 dbm.

SW-1020TA POWER REQUIREMENTS: Basic — 28 v dc, +1, −2 v dc, negative ground, 15 amps; less than 100 millivolt ripple. Loop — 28 v dc nominal, 80 milliamps per line maximum. Provision for building out provided on per-line basis.

SW-1030A POWER REQUIREMENTS: Basic — 48 v dc, ±4 v dc, positive ground, 5 amps; less than 100 millivolt ripple. Loop — 48 v dc, ±4 v dc, 80 milliamps per-line maximum.

OPERATING TEMPERATURE: 0° C to +50° C.

RELATIVE HUMIDITY: 95% at 50° C.

ALTITUDE: 10,000 ft. maximum.

SHOCK: SW-1020TA will withstand 30 g when prepared for normal operation.

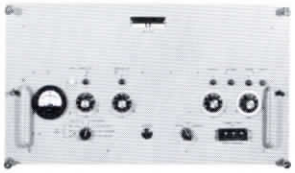
VIBRATION: SW-1020TA — 15-55 cps with total excursion of 0.015″ for a period of 45 minutes along each axis.

SIZE:

	W	*H*	*D*
SW-1020TA	18″ 45.72 cm	69″ 175.26 cm	30″ 76.2 cm
SW-1030A	30″ 76.2 cm	69″ 175.26 cm	24″ 60.96 cm

WEIGHT: 525 lbs. (238.14 kg).

490C-1 Antenna Coupler CU-1169/SRC-16



Features

Automatic Operation
Metered Circuits
Remote Control
Constant Surveillance

Applications

Shipboard
Fixed Station

The 490C-1 (CU-1169/SRC-16) is a rack mounted HF antenna coupler which covers the 2.0-5.999 mc frequency range. It provides proper impedance matching between communication equipment with 50 ohm RF terminations and broadband antennas used for marine and fixed station applications. Receivers and transmitters can be operated with 45 db selectivity at 15% frequency spacing using a common antenna. The coupler is automatically tuned using loading-phasing discriminator information to operate a servo mechanical system. It will match an antenna with up to 4:1 VSWR to a 50 ohm line over the frequency range.

Specifications

FREQUENCY RANGE: 2.0-5.999 mc.

TUNING ACCURACY: 1.3:1 VSWR maximum.

POWER REQUIREMENTS: 115 v, 400 cps, 3 phase, delta connected, 95 watts.

RF POWER INPUT: 6 kw PEP or 3 kw average.

INPUT IMPEDANCE: 50 ohms nominal.

RF DUTY CYCLE: Continuous.

TUNING TIME: 60 seconds maximum.

SIZE: 22 7/8″ W, 13½″ H, 21¾″ D (58.10 cm W, 34.29 cm H, 55.25 cm D).

WEIGHT: 140 lbs. (63.5 kg).

490C-2 Antenna Coupler CU-1170/SRC-16

Features

Automatic Operation
Metered Circuits
Remote Control
Constant Surveillance

Applications

Shipboard
Fixed Station

The 490C-2 (CU-1170/SRC-16) is a rack mounted HF antenna coupler which provides optimum impedance matching between communication equipment with 50 ohm RF terminations and broadband antennas used for marine and fixed station applications in the 6.0-29.999 mc frequency range. Receivers and transmitters can be operated with 45 db selectivity at 15% frequency spacing using a common antenna. The coupler is automatically tuned using loading-phasing discriminator information in conjunction with a servo mechanical system. It will match an antenna with up to a 4:1 VSWR to a 50 ohm line over the frequency range.

Specifications

FREQUENCY RANGE: 6.0-29.999 mc.

TUNING ACCURACY: 1.3:1 VSWR maximum.

POWER REQUIREMENTS: 115 v, 400 cps, 3 phase, delta connected, 90 watts.

RF INPUT POWER: 1.2 kw PEP or 600 watts average.

INPUT IMPEDANCE: 50 ohms nominal.

RF DUTY CYCLE: Continuous.

TUNING TIME: 60 seconds maximum.

SIZE: 21¾″ W, 7 13/16″ H, 22 7/8″ D (55.25 cm W, 19.84 cm H, 58.26 cm D).

WEIGHT: 71 lbs. (32.21 kg).

C-4658/SRC-16 Antenna Coupler Control

Features

Directional Wattmeter
Rack Mounting

Applications

Shipboard
Fixed Station

The C-4658/SRC-16 provides all control functions for either the 490C-1 (CU-1169/SRC-16) or the 490C-2 (CU-1170/SRC-16) antenna couplers. It can be located near the transmitter installation and includes a directional wattmeter in addition to selector switches and status light indicators.

Specifications

POWER REQUIREMENTS: 27.5 v dc, 0.5 amp.

SIZE: 19″ W, 5¼″ H, 7″ D (48.26 cm W, 13.34 cm H, 17.78 cm D). Standard EIA rack mounting.

WEIGHT: 12 lbs. (5.44 kg).

Available only on a production contract.