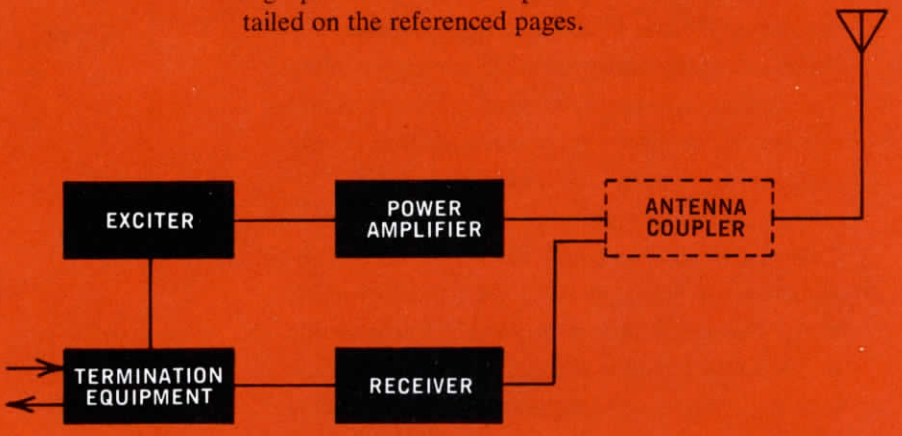
Typical HF Communication Systems

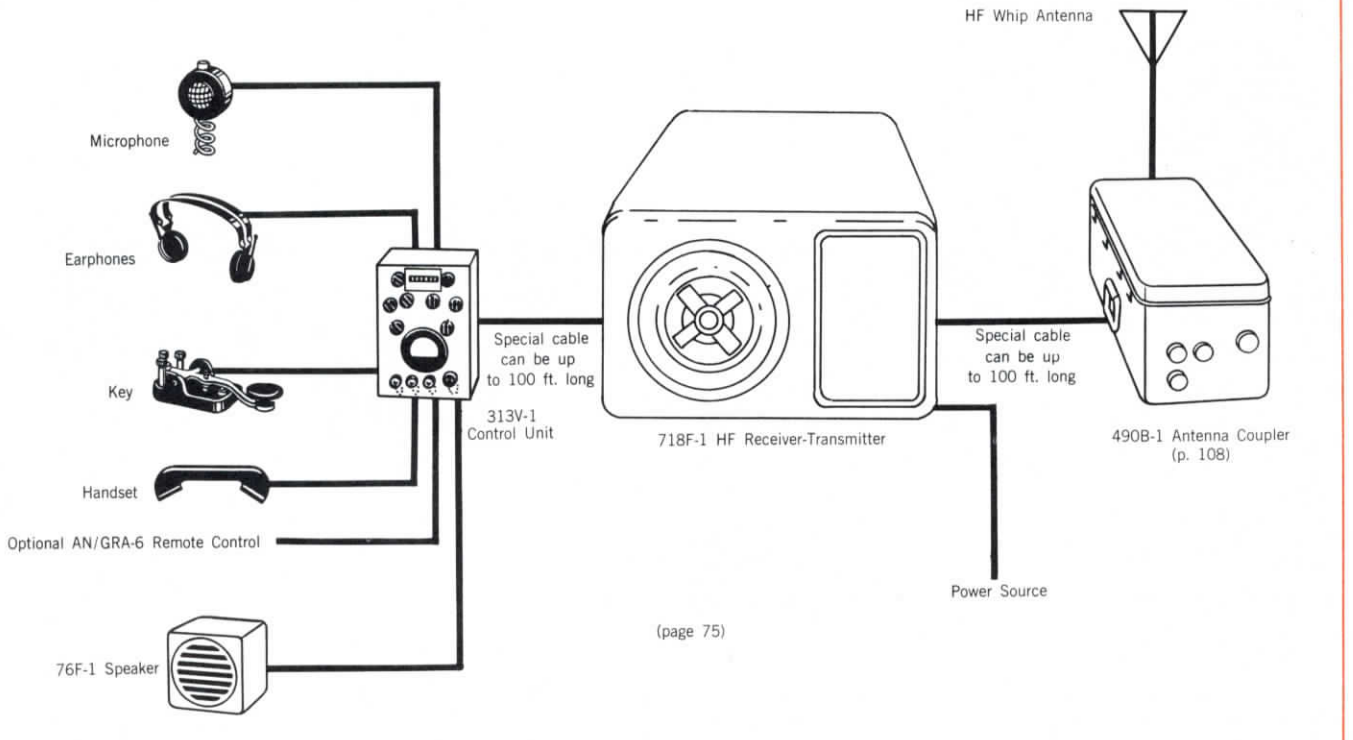
Collins Radio Company, a pioneer in high frequency single sideband equipment development, offers a wide selection of integrated systems, as well as individual receivers, transmitters and transceivers to greatly improve the quality and flexibility of communication. Outlined in this section are typical systems, together with salient features and characteristics, for airborne, fixed point-to-point, shipboard, mobile, transportable and tactical military communication applications. Information regarding specific units and options are detailed on the referenced pages.



Mobile HF Communication Systems

VC-102 HF Communication System

The VC-102 is a multipurpose communication system to meet varied tactical requirements. Automatic tuning insures on-frequency operation. The drip-proof transceiver case is watertight when nonoperating; the antenna coupler is watertight when operating, making the system suitable for a wide environmental range. Output power is 400 watts PEP or 100 watts in AM operation. A choice of 28,000 automatically tuned channels is provided over the 2.0-29.999 mc frequency range. Multiple unit construction allows easy installation in Jeeps, trucks, tanks, transportable shelters, as well as small boats or landing craft.



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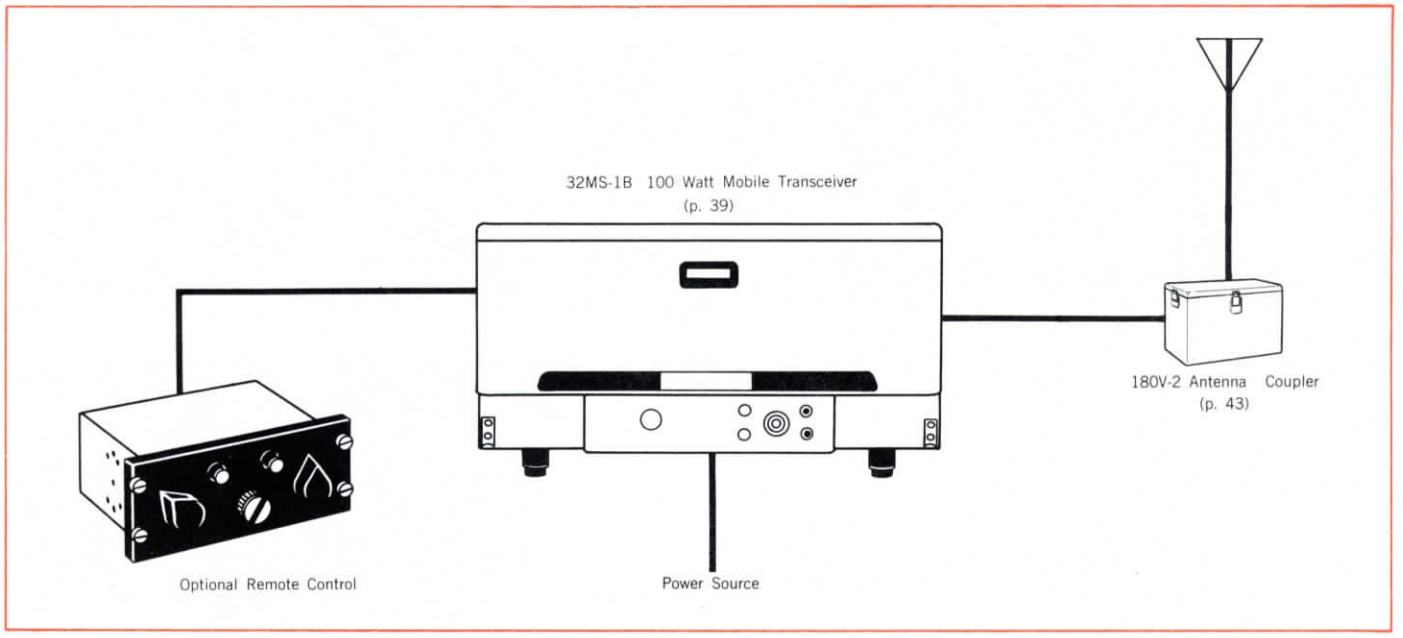
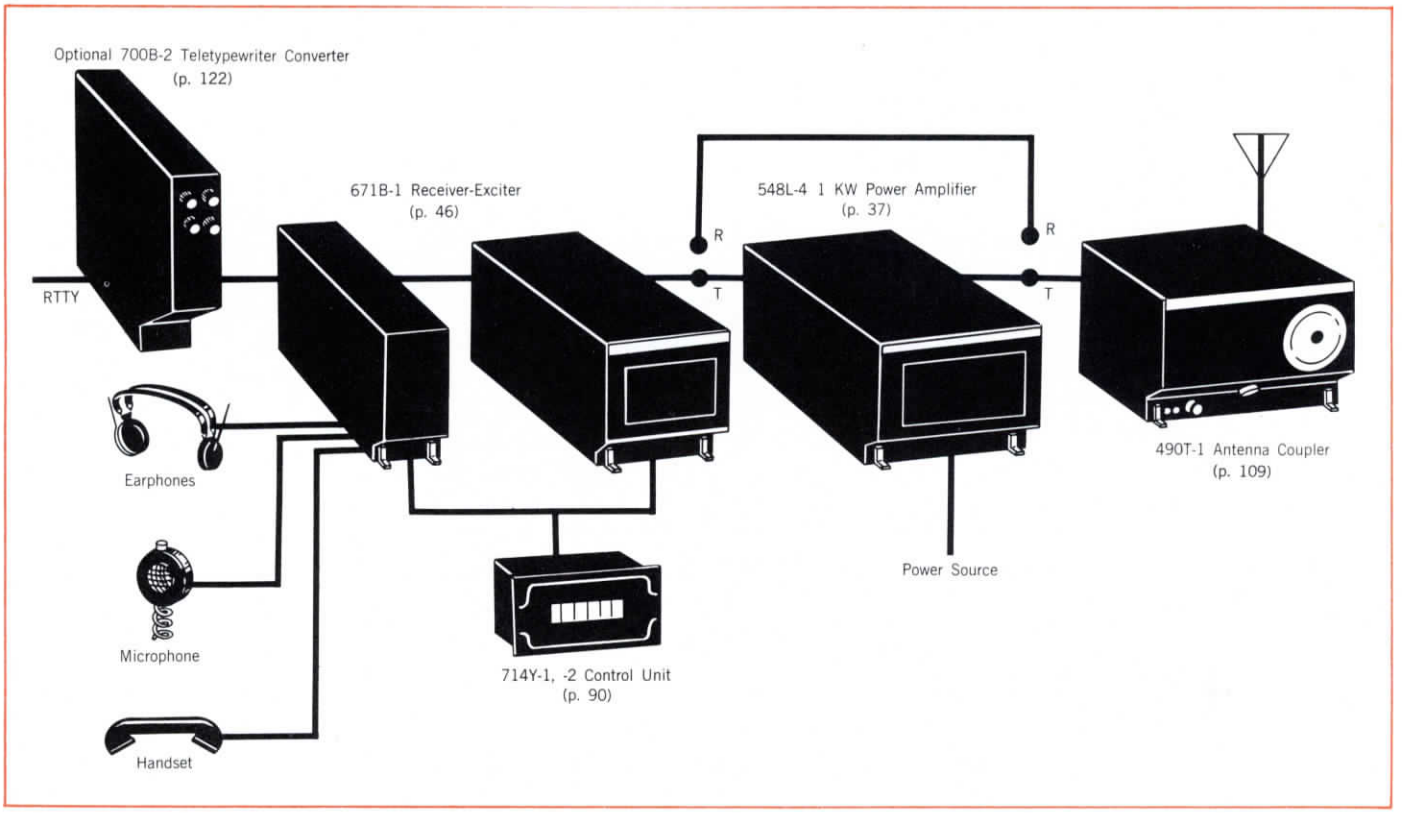
32MS-1B 100 Watt Mobile Transceiver

The 32MS-1B is a compact 100 watt PEP SSB transceiver with a choice of single sideband or compatible AM on any of four preset frequencies in the 1.6-15.0 mc range. Plug-in power supplies permit operation from either 12 v dc, 28 v dc or 115 v or 230 v, 50-400 cps sources. Three optional control unit styles will meet most installation requirements.



Universal Radio Group

The Collins Universal Radio Group equipment provides a mobile HF system of extreme installation flexibility. Specific system components can be selected to meet individual needs. Equipment can be chosen for a receiver, transmitter or transceiver to operate on either 28,000 or 280,000 automatically tuned channels in the 2.0-29.9999 mc frequency range. Mode choice includes USB, LSB, ISB, AM, optional FSK. Primary power can be 27.5 v dc or 120 v or 208 v, 400 cps, 3 phase.

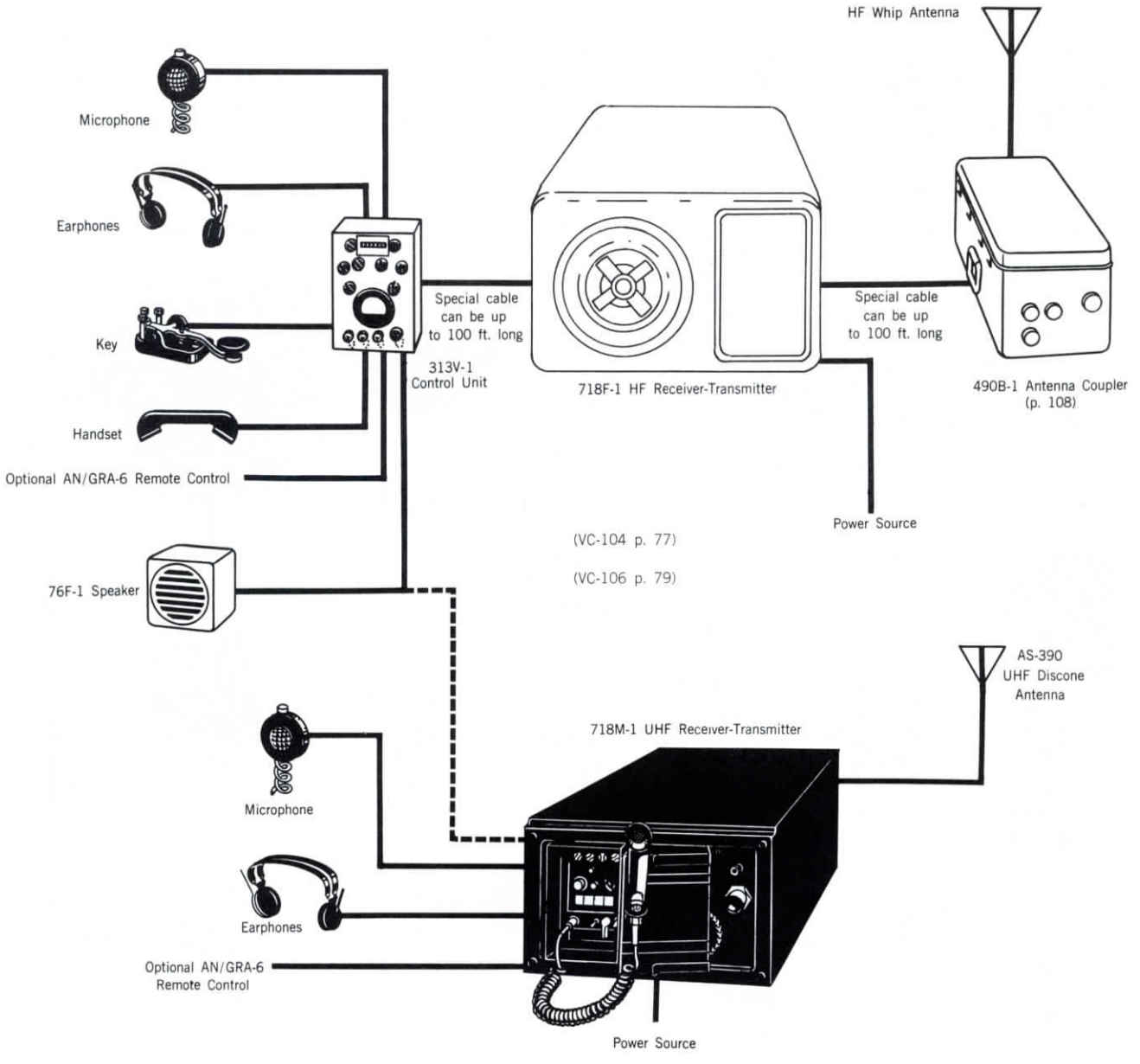


VC-104 Vehicular HF-UHF Communication System

The VC-104 HF-UHF System is normally installed in a standard M38A 4 x 4 ¼-ton military vehicle. It provides 400 watts PEP or 100 watts in AM, CW and FSK on 28,000 automatically tuned channels in the 2.0-29.999 mc range. In UHF, output power is 20 watts in AM on any of 1750 100 kc increments in the 225.0-399.9 mc frequency range.

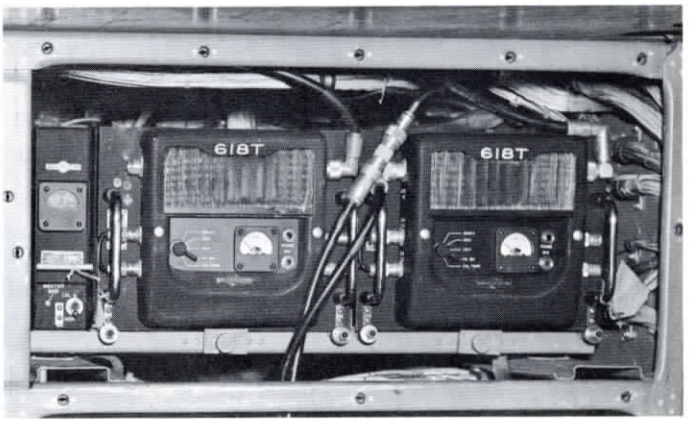
VC-106 Vehicular HF-UHF Communication System

The VC-106 HF-UHF System is designed for installation in a 4 x 4 ¼-ton M151 military vehicle. It provides 400 watts PEP or 100 watts in AM, CW or FSK on 28,000 automatically tuned channels in the 2.0-29.999 mc range. In UHF operation, it has 20 watts AM power output on any of 1750 100 kc channel increments in the 225.0-399.9 mc range.



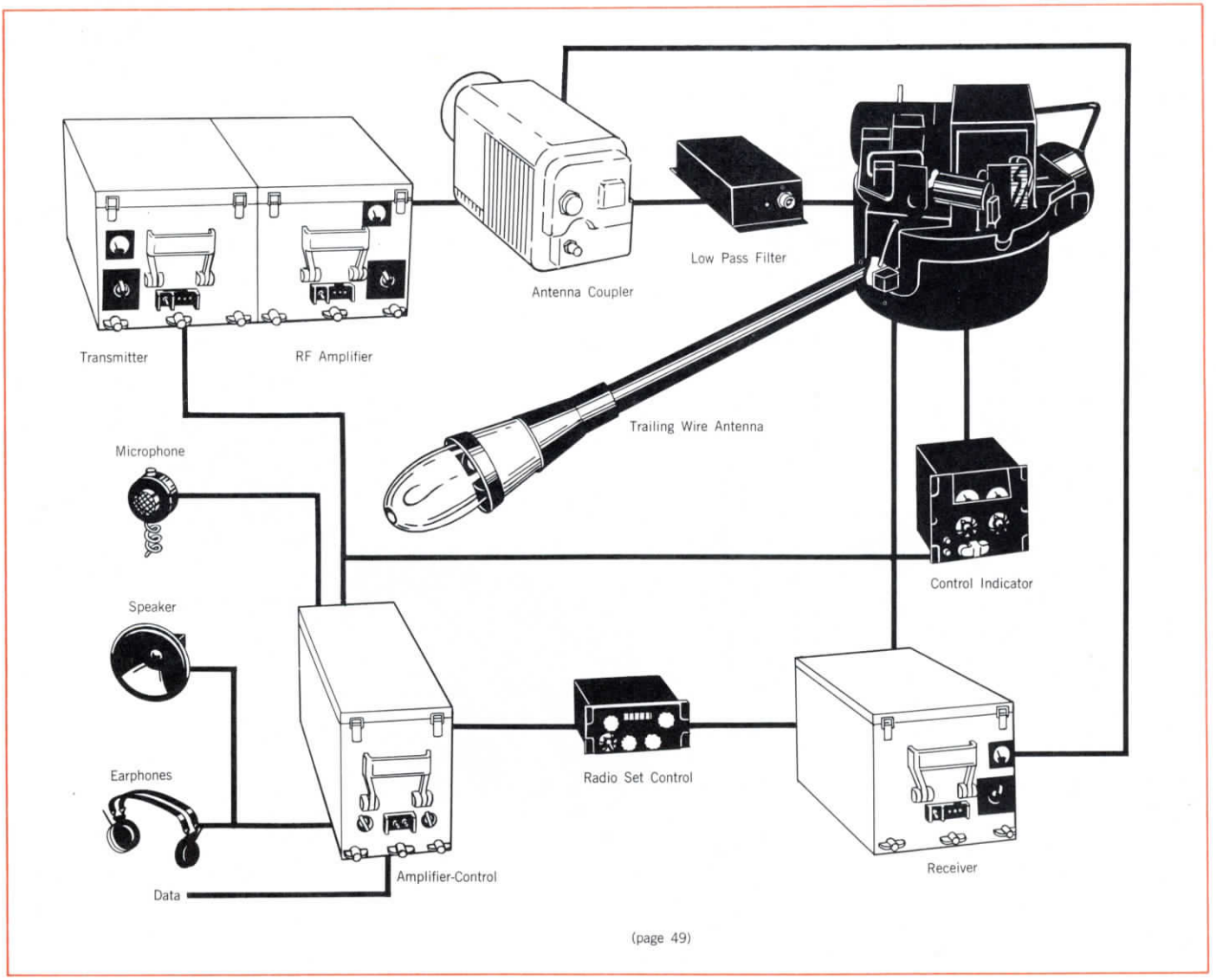
VC-104 or VC-106 Vehicular HF-UHF Communication System

Airborne Systems



AN/ARC-80 Airborne HF Communication System

The AN/ARC-80 is an airborne single sideband system especially suited for data handling, as well as voice or CW communication. It offers a choice of LSB, USB or ISB modes on channels spaced 1 kc throughout the 2.0-29.999 mc range. Transmit power is 900 watts PEP. An efficient trailing wire antenna for speeds up to 300 knots is adjusted automatically to the correct frequency. Frequency variation can be manually adjusted to zero with a received standard signal.



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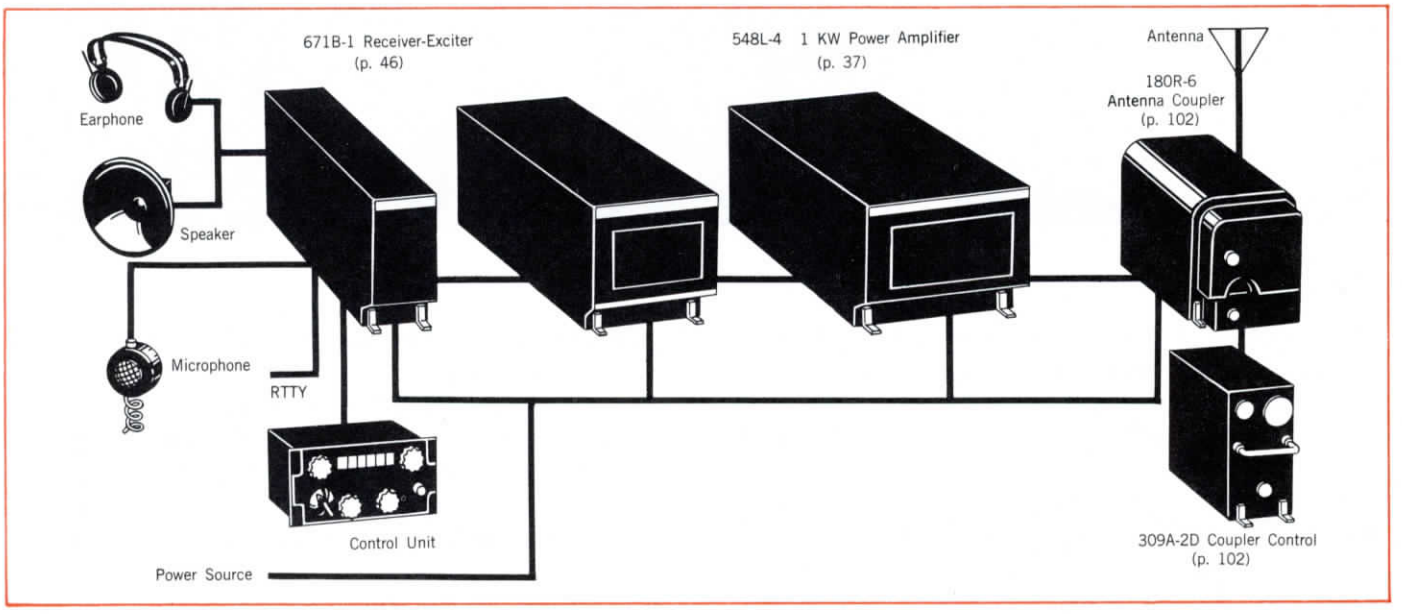
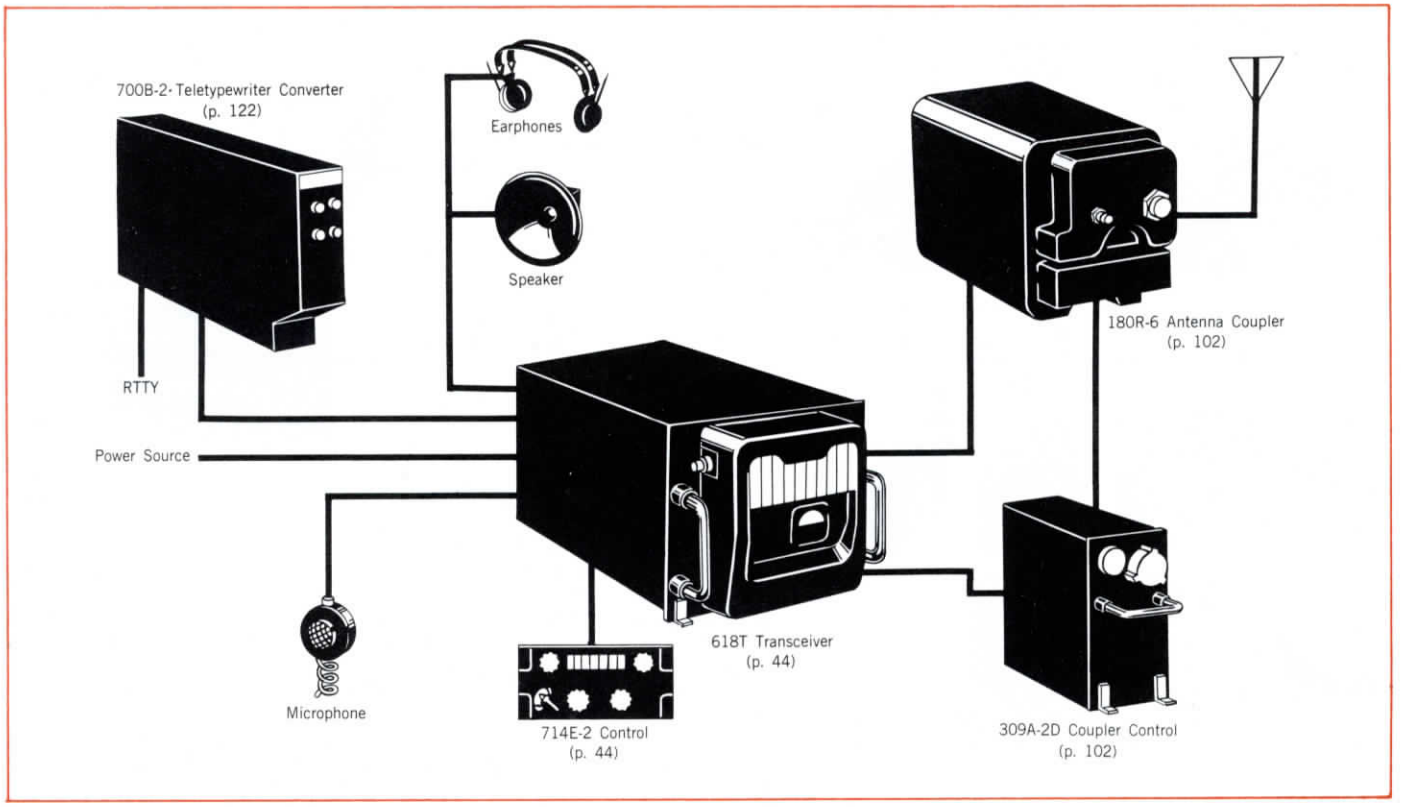
Universal Radio Group

The Collins Universal Radio Group offers a choice of operating modes and installation flexibility for airborne applications in the 2.0-29.9999 mc frequency range. A choice of either 1.0 kc or 0.1 kc channel increments is available. Modes of operation, implemented by plug-in circuit cards, include USB, LSB with 3 kc or 6 kc bandwidths, or AM. Power output is 1 kw PEP. Individual units are housed in ATR, ARINC Specification 404 cases. System control mounts in standard aircraft console. Primary power source can be 27.5 v dc; or 120 v or 208 v, 400 cps, 3 phase. Receive-only or transmit-only systems can be selected, as well as the transceiver shown below.

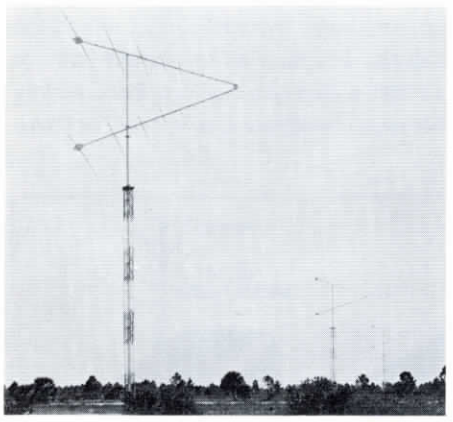


618T Transceiver

The versatile 618T provides 1 kc channel increments throughout the 2.0-29.999 mc range with 400 watts PEP output on single sideband or 100 watts on AM, CW or FSK. A teletypewriter can be used with an optional converter.

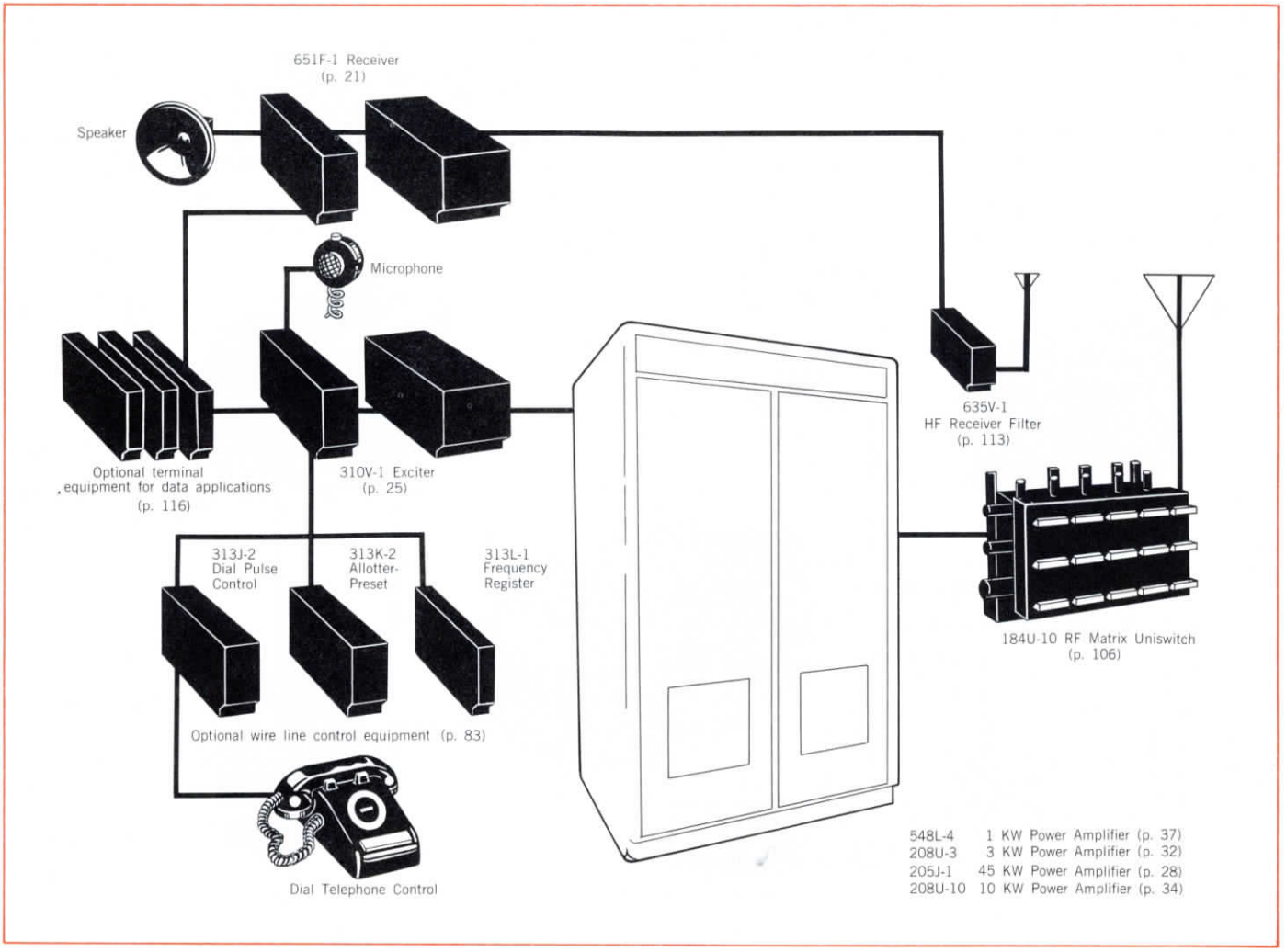


Fixed Station HF Communication Systems



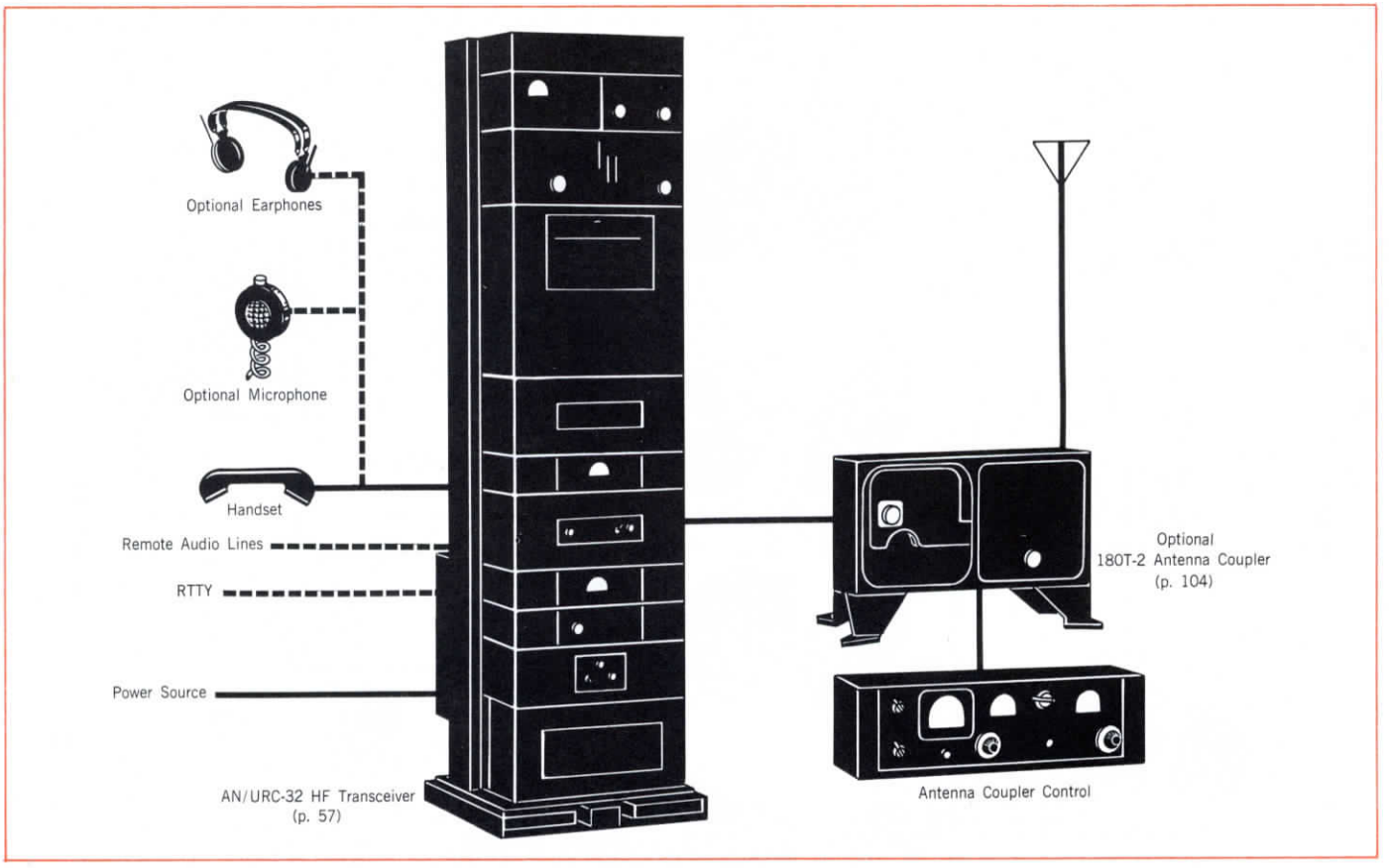
Universal Radio Group

A wide choice of modular components can be selected to meet all HF communication requirements from single channel transceivers to complex data handling terminals which can be remotely controlled over ordinary telephone lines. Equipment can be chosen for a receiver, transmitter or transceiver operation with up to four multiplexed communication channels on a single channel frequency assignment. RF frequencies can be selected in either 1.0 kc or 0.1 kc increments throughout the 2.0-29.9999 mc range. A choice of 1 kw, 3 kw, 10 kw or 45 kw power amplifiers, together with a variety of antennas to meet specific circuit path requirements, insures highly reliable communication. Accessories include antenna switching matrices, Kinesig® data modems, remote control equipment and selective calling systems.



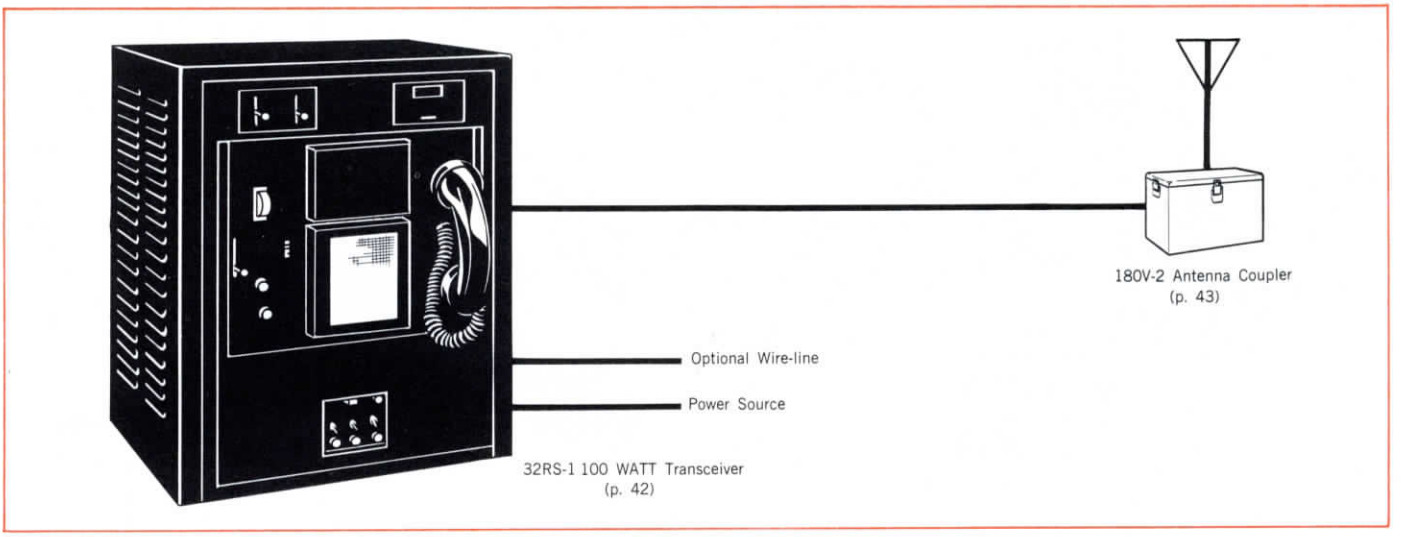
AN/URC-32 Transceiver

The AN/URC-32 provides simplex operation in USB, LSB, both sidebands independently, AM, RTTY or CW modes over the 2-30 mc frequency range. It is manually tuned in 1 kc channel increments. Transmit power output is 500 watts PEP in sideband or 125 watts carrier in compatible AM. It includes an integral, high stability frequency standard. The AN/URC-32 employs a standard 19″ rack configuration which can be shockmounted in transportable installations.



32RS-1 100 Watt Transceiver

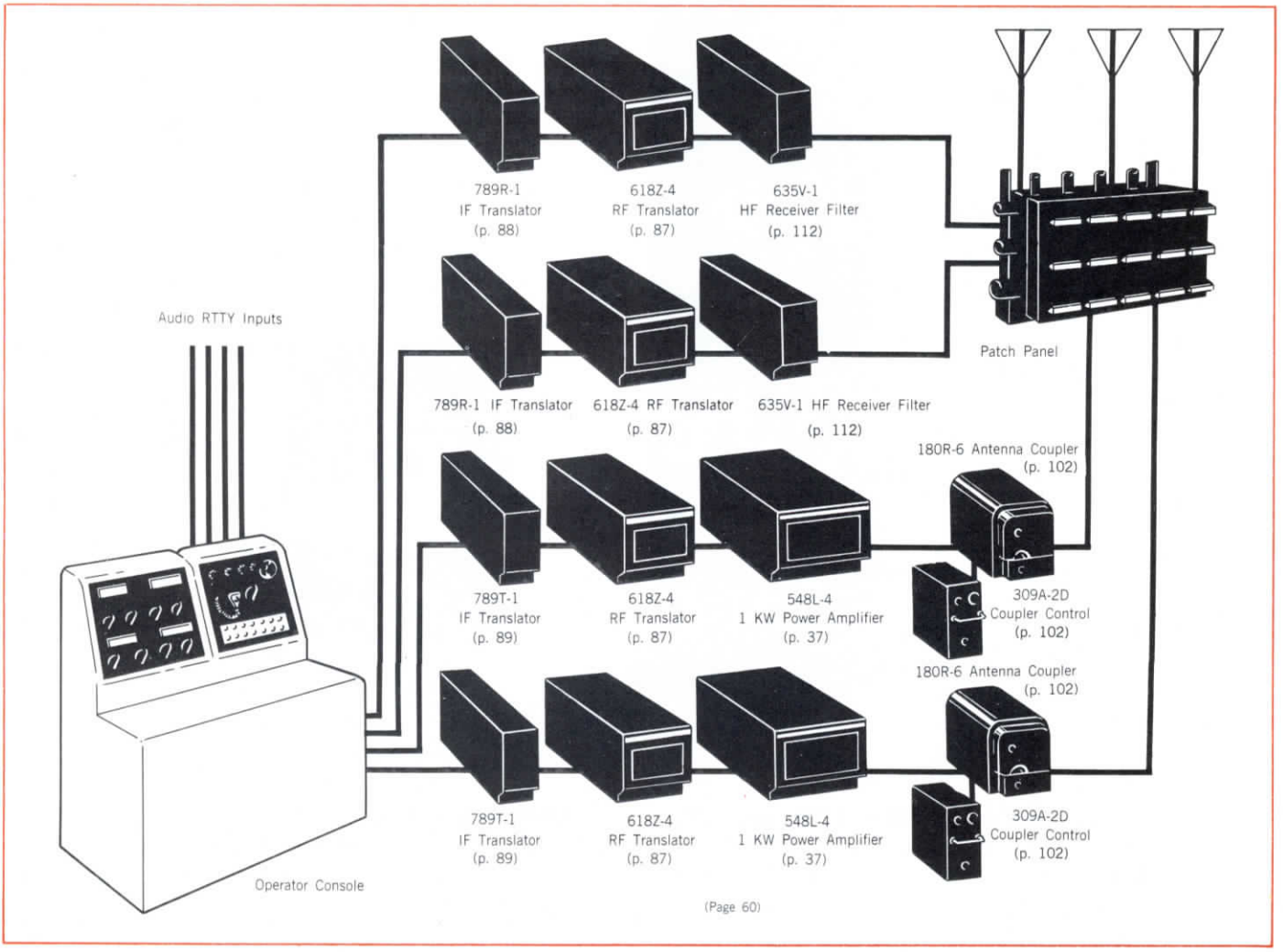
The 32RS-1 Transceiver has an output of 100 watts PEP on any of four preset channels in the 1.6-15.0 mc frequency range. It features VOX control and can be operated by non-technical personnel. Installation is very simple requiring only an antenna and power source. An optional phone patch allows termination over wirelines. Other accessories include a directional wattmeter and an antenna coupler for either high or low impedance antennas.



Transportable HF Communication Systems

ANNA-1 Air Transportable HF Communication System

The ANNA-1 is a complete air transportable HF communication terminal, including a maintenance facility, housed in two S-141A/G style shelters. It provides either simplex or full duplex operation on two independent radio circuits, which are automatically tuned in 0.1 kc channel increments throughout the 2.0-29.9999 mc frequency range. Choice of modes includes USB, LSB, ISB or AM. Voice frequency telegraph facilities may be employed. Basic system units are of the highly reliable Universal Radio Group type. Power is supplied by a 30 kw diesel generator.



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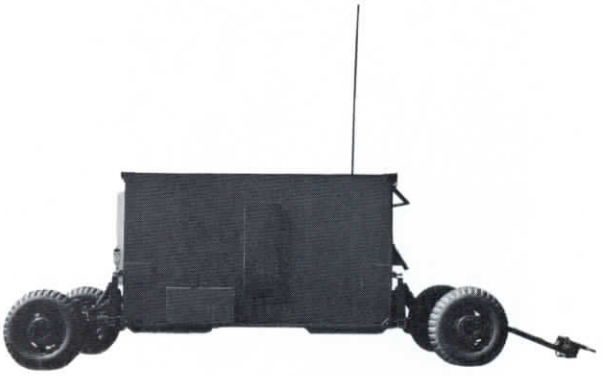
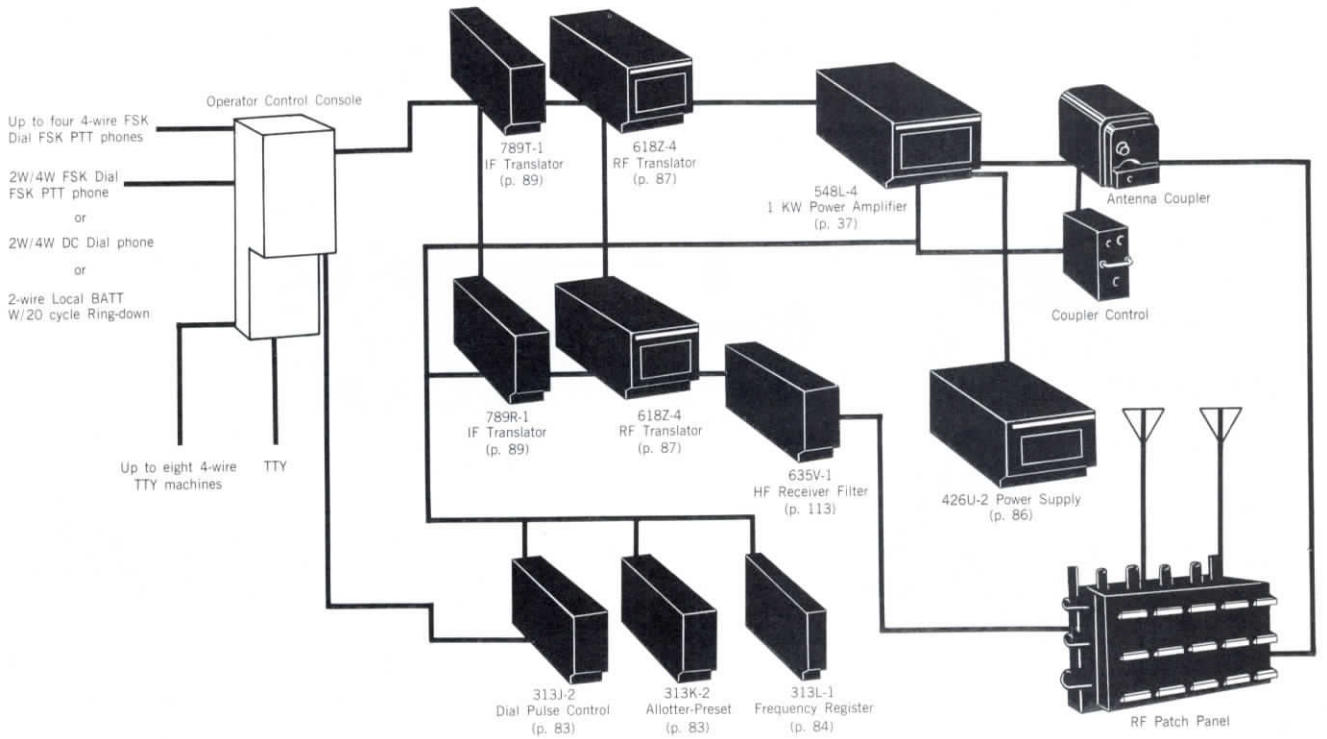
AN/TSC-38 Transportable HF Communication Central

The AN/TSC-38 is a transportable HF terminal housed in two mobile units. One S-141 shelter houses all radio equipment, and the second unit carries generators, antennas and ancillary equipment. It offers two simultaneous communication circuits with a 10 kw power output level which will handle 16 TTY and 3 voice channels, together with a 1 kw circuit for two TTY and three voice channels. The system can be automatically tuned to a new operating frequency in a maximum interval of 30 seconds. The 2.0-29.9999 mc frequency range is covered in 280,000 channel increments. Primary power is supplied by two 45 kw, 400 cps generator sets. Twelve 2- or 4-wire external subscriber circuits can also be accommodated. AN/TSC-38 radio system can be controlled from a remote location.



TCS-110-1 HF Communication Terminal

The TCS-110-1, easily transported by fixed-wing aircraft, helicopter or truck, is a full duplex HF terminal with cryptographic and limited message center capabilities. It is automatically tuned in 0.1 kc tuning increments over the 2.0-29.9999 mc frequency range. Transmit power output is 1 kw PEP average in SSB, CW, RTTY and compatible AM operational modes. It is housed in an S-144/G size shelter and operates from an external 120 v, 1 phase, or 208 v, 3 phase, 50-60 cps or 400 cps power source. Optional remote control facility by means of FSK dial pulses over a 2-wire or 4-wire telephone line. Five 2- or 4-wire external telephone lines or eight 4-wire, 60 ma neutral TTY lines can be accommodated. When used in duplex operation the receiver can be operated with only 10% frequency separation from the transmitter. The transmitter antenna is mounted on top of the shelter to minimize transmission line length, which reduces undesired radiation and loss. The receiving antenna is located at ground level a short distance from the communication terminal.



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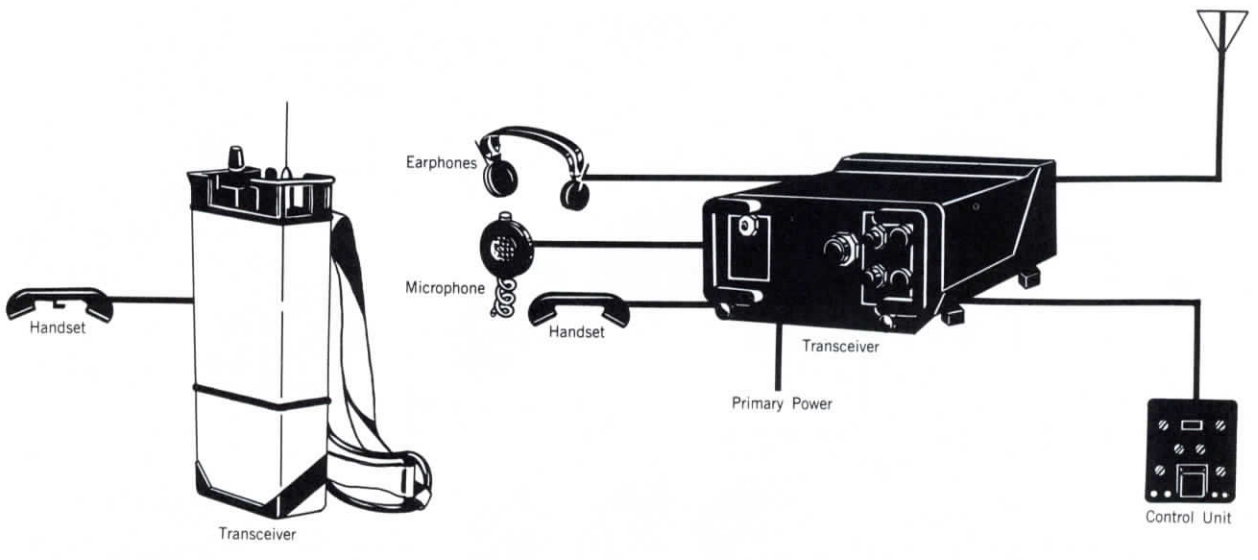
HF Pack Sets

AN/PRC-38 SSB-FM Man Pack Transceiver

The AN/PRC-38 Transceiver, with 40 watts PEP output in SSB or 20 watts on FM over the 20.0-69.99 mc frequency range, is suitable for man pack, vehicular, aircraft, shipboard, or semifixed station applications. It fulfills a distinct need for compatible short range communication. In mobile installations, it will operate directly from the vehicle battery.



Field Use

Mobile Application

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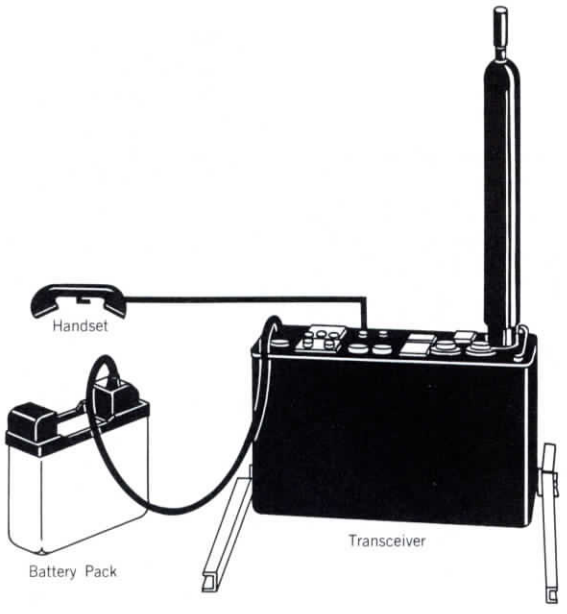
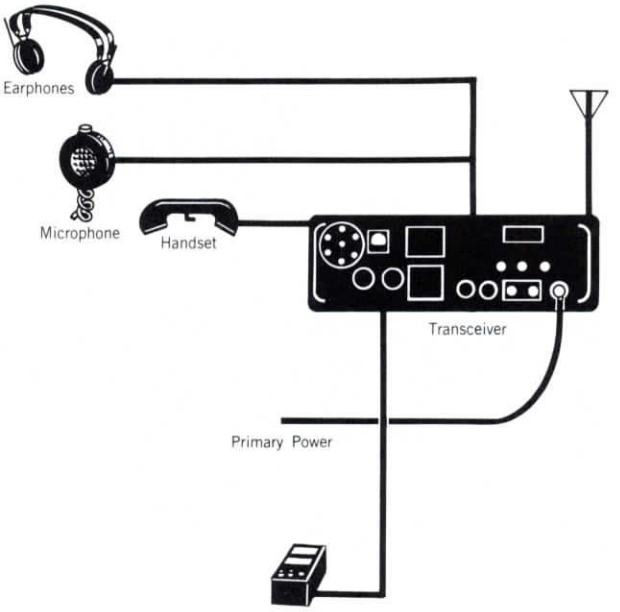
AN/PRC-47 Man Pack HF Transceiver

The AN/PRC-47 is a two-man pack transportable HF transceiver providing 100 watts PEP output on any one of the 10,000 channels in the 2.0-11.999 mc frequency range. Mode choice includes USB-voice, CW or optional FSK RTTY. A watertight case is available for storage or transit. Accessories are available for mobile or semifixed installations.



Field Use



Mobile Application

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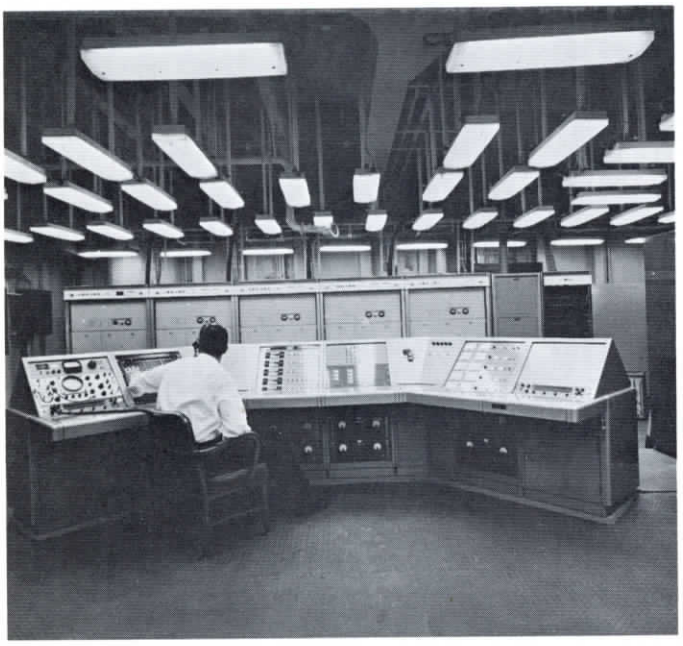
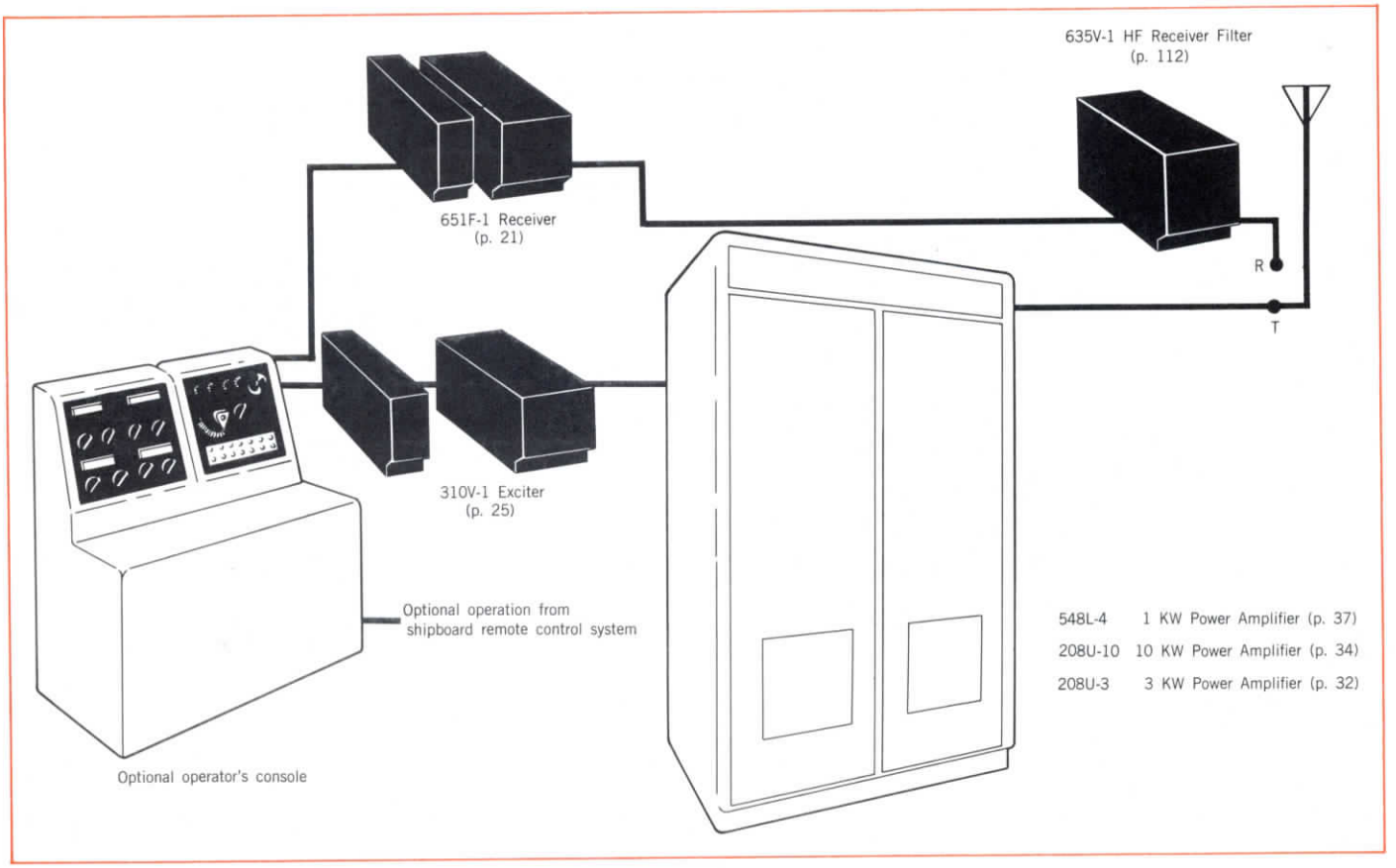
Shipboard HF Communication Systems



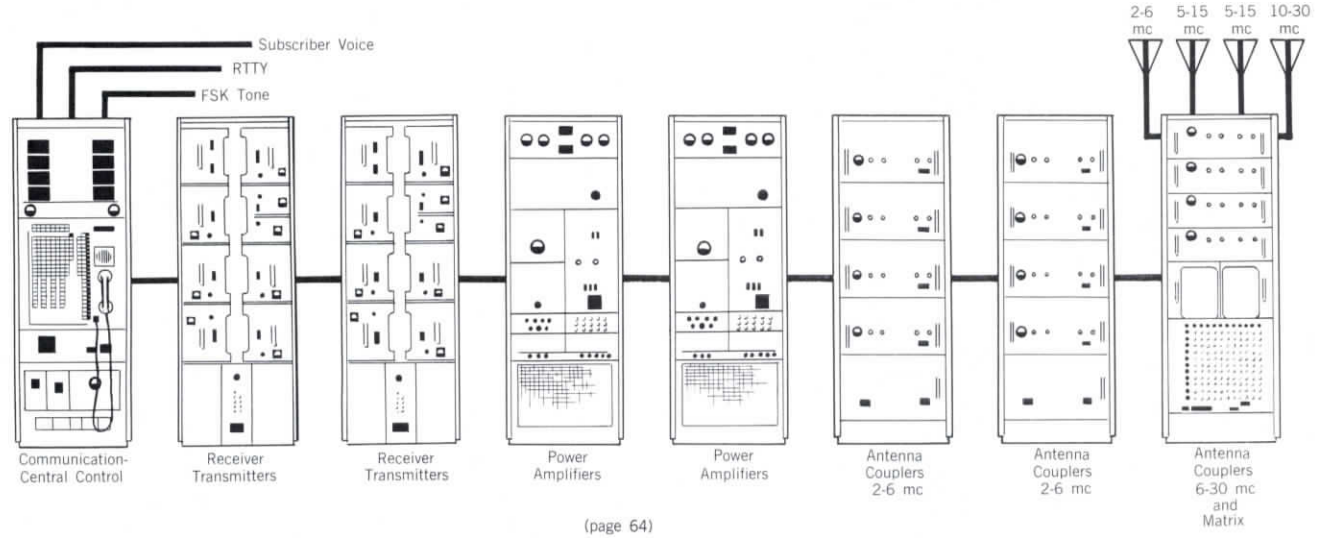
Universal Radio Group

The Collins Universal Radio Group offers an HF communication system to meet specific operating requirements, together with flexibility of installation by the selection of modular components. Equipment can be chosen for receive, transmit or transceive operation with up to four multiplexed audio channels on a single frequency assignment, in the 2.0-29.9999 mc range. RF channel increments may be spaced either 1.0 kc or 0.1 kc. A choice of 1 kw, 3 kw or 10 kw power amplifiers is available. Accessories include switchboards, antenna switching matrices, racks and RTTY converters.



AN/SRC-16 Shipboard HF Communication System

The AN/SRC-16 provides long range, high capacity communication in the 2-30 mc frequency range. Modes of operation include data, SSB, AM, FSK and CW, any of which can be used on four independent transmit and receive channels. The system includes two 5 kw power amplifiers which can be switched into any two channels in lieu of the normally used 500 watt amplifiers. Tuning is completely automatic in 1 kc channel increments. An independent frequency standard maintains the system stability at one part in 10^8 per 30 days. Integral test facilities simplify system maintenance.



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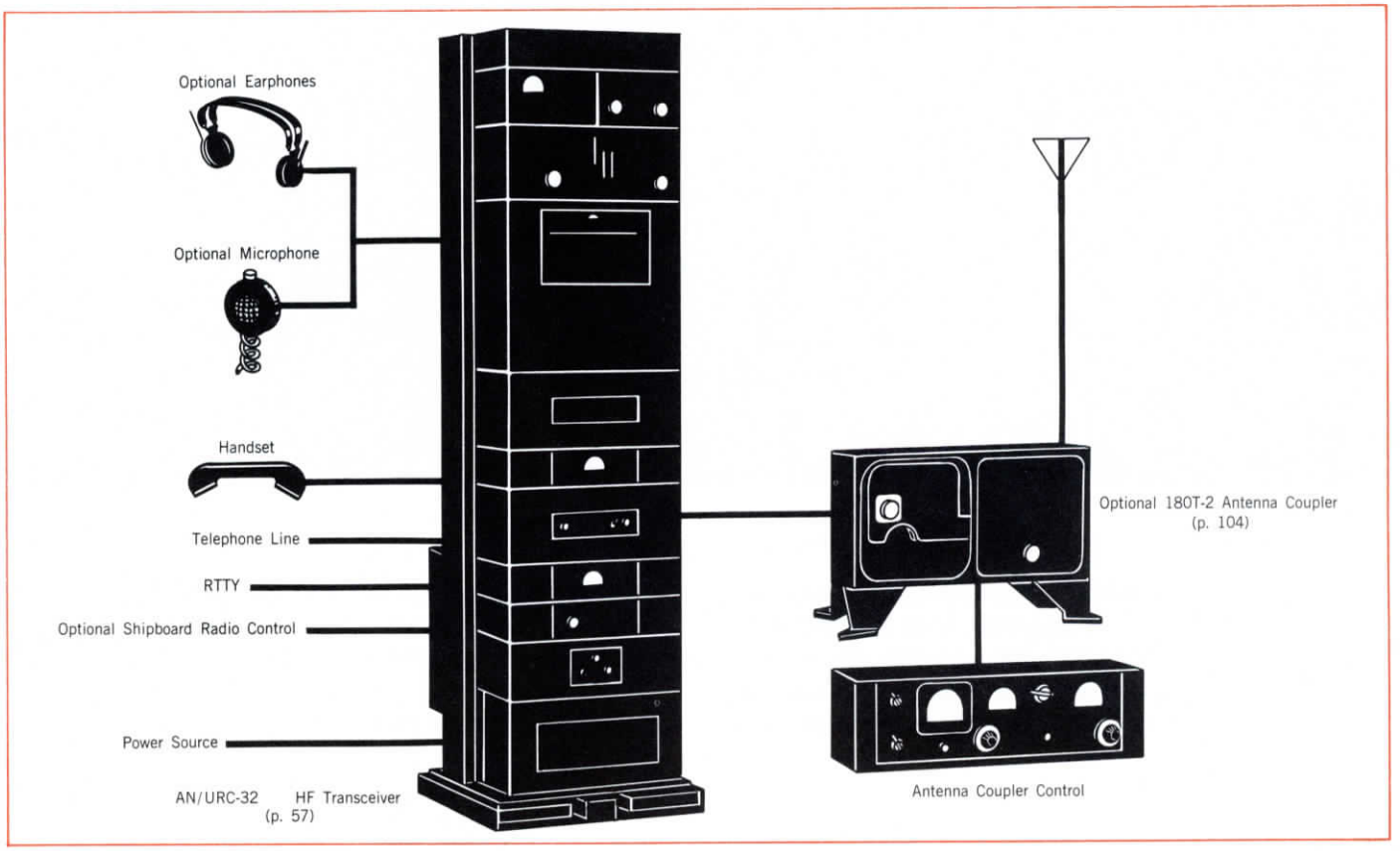
AN/SRC-23 Shipboard HF Communication System

The AN/SRC-23 is a single channel facility which uses the same basic subunits as the AN/SRC-16 system. It provides reliable communication on any of 28,000 automatically tuned channels in the 2-30 mc range. Output power is 500 watts PEP or 500 watts average. Modes of operation include data, either SSB or AM and voice, FSK or CW. The AN/SRC-23 meets all complex data transmission and reception requirements.

AN/URC-32 HF Transceiver

The AN/URC-32 is well suited to shipboard installation by use of an optional integral rack shockmount. It provides simplex operation in USB, LSB, both sidebands independently, AM, RTTY or CW modes over the 2-30 mc frequency range in 1 kc channel increments. An illuminated, digital dial which directly indicates operating frequency greatly simplifies tuning. Transmit power output is 500 watts PEP in sideband, or 125 watts carrier in compatible AM. An integral transistorized standard insures excellent frequency stability. A comparator permits frequency checks with an external standard.



HF-105, -106, -107, -108, -109 Shipboard HF Systems

These multiple purpose shipboard systems feature ease of installation, operation and maintenance with optimum tactical communication range for small boats, landing craft or ships. Transmit power is 400 watts in sideband operation or 100 watts in AM, CW or optional FSK, on any of 28,000 channels in the 2.0-29.999 mc frequency range. Automatic tuning is initiated by a separate control unit which indicates channel frequency directly and can be located in the command center. Complete operation of the system requires no technical background.