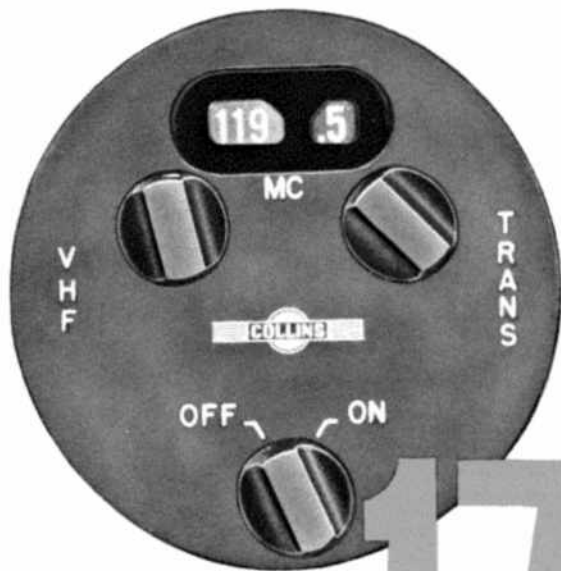


The Collins logo consists of the word "COLLINS" in a bold, sans-serif font, enclosed within a circular emblem that has a textured, metallic appearance.

CREATIVE LEADER IN AVIATION ELECTRONICS



**COLLINS**

**17L-8A**

**VHF TRANSMITTER**

*90 Channel, Panel-Mounted*

*Communication Transmitter*

*Compact transmitter offers discrete selection of 90 channels in 118-126.9 mc range with direct frequency presentation. Mounted in the instrument panel, the 17L-8A operates from 13.5 or 27.5 v dc.*

# COLLINS 17L-8A VHF TRANSMITTER



The panel-mounted 17L-8A provides 90 crystal controlled channels in the 118 to 126.9 mc range, with nominal power output of 3 watts. Space conserving circuits and mechanical arrangement have enabled Collins to achieve this extremely compact size and weight and yet maintain airline-level performance in a transmitter applicable to all types of private, business and commercial carrier aircraft.

RF sections are contained in a small case for mounting on the instrument panel with direct control by the pilot. An external modulator-power supply unit may be mounted anywhere in the aircraft. With the appropriate modulator-power supply, the transmitter operates on either nominal 13.5 or 27.5 volt primary aircraft power. A companion receiver, the 51X-3, is available which shares a modulator-power supply unit with the transmitter and utilizes an antenna switchover relay in the transmitter.

Operation is extremely simple with discrete, detent tuning by two knobs, and a direct, digital indication of frequency. The indicator is integrally lighted.

High reliability is achieved by use of ruggedized ARINC tubes; transistorized modulator and power supply circuits, and simplified circuitry. The equipment meets FCC and FAA TSO performance requirements.

## CIRCUITS

**17L-8A Transmitter**— The 90 channels are obtained by two crystal controlled oscillators and a frequency doubling arrangement. A high frequency oscillator is controlled by 9 quartz crystals selected by the megacycle switch on the face of the transmitter. This signal is mixed with the output of a low frequency oscillator using 10 crystals selected by the one-tenth megacycle switch.

The sum frequency then passes through two doubler stages and the resultant RF signal is applied to the power amplifier. The modulation signal and 250 volts B+ is also applied to this stage by the modulator-power supply unit.

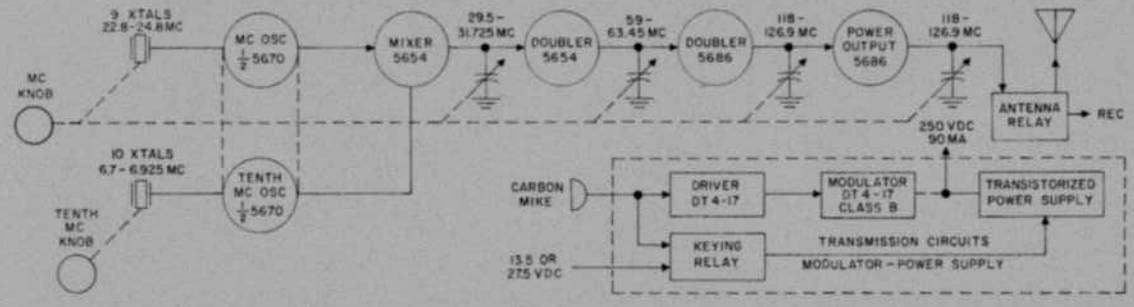
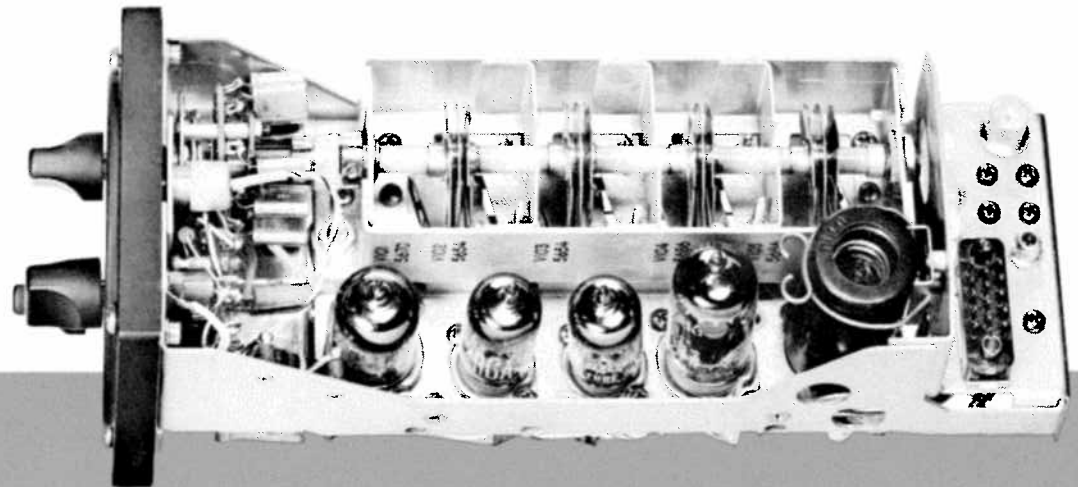
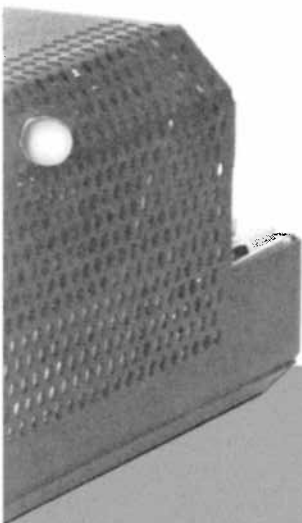
Plate circuits of the RF stages are tuned by capacitors ganged on the megacycle control shaft. The desired tracking accuracy is provided by preset, slug tuned coils and trimmer capacitors.

**427A-1 Modulator-Power Supply Unit**— This completely transistorized unit is utilized for transmission only, operating with 27.5 v dc electrical systems. The input from a carbon microphone is amplified by a driver and fed to the class B push-pull modulator stage. Voice peaks are clipped before the over-modulation point occurs.

The power supply employs a transistor-oscillator, eliminating the requirement for a dynamotor. A pair of transistors alternately conducting set up a square wave-type voltage for the transformer. The stepped-up voltage is then rectified and filtered.

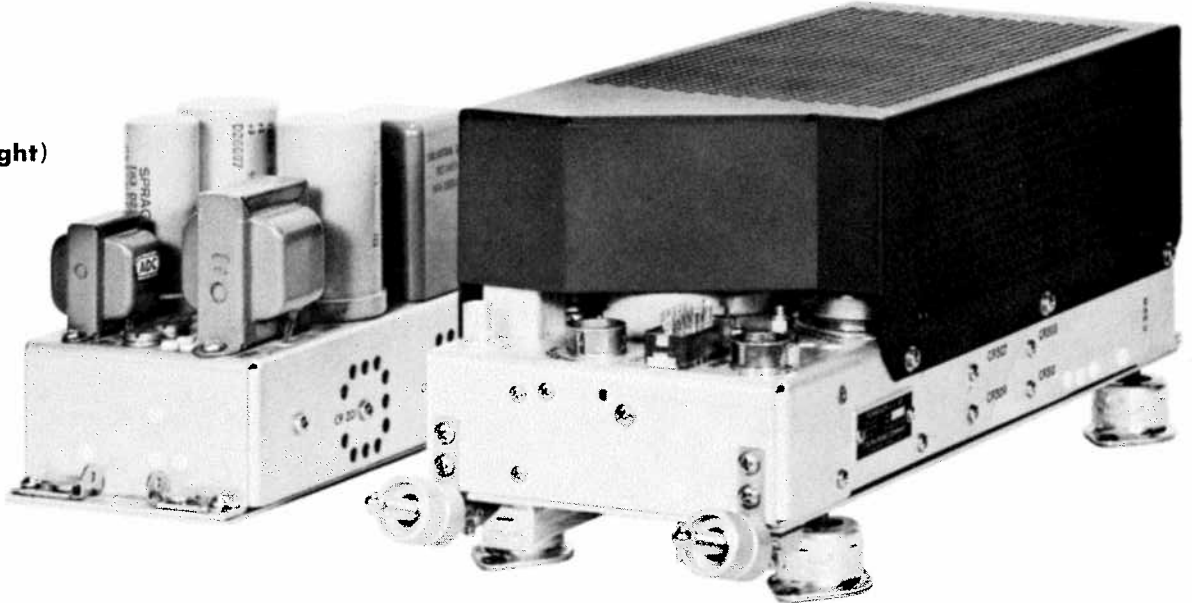
**427B-1, -2 Modulator-Power Supply Units**— Both units include transistorized modulator and power supply circuits similar in operation to those in the 427A-1. The 427B units provide, in addition, B+ voltages for the companion 51X-3 Receiver and include IF and detector stages. The modulator doubles as an audio driver and 4.5 watt push-pull audio amplifier for the receiver. Up to three external audio inputs with levels of 7 v each may also be used to produce 4.5 watts audio output.

The 427B-1 operates with 27.5 v dc aircraft electrical systems and it includes a transient protector circuit. The 427B-2 operates from 13.5 v dc primary power. Since transients at this level do not reach damaging proportions, the protector circuit has been omitted.



**BLOCK DIAGRAM**

427A-1 (left)  
427B-1, or -2 (right)



**SPECIFICATIONS**

FREQUENCY RANGE: 118 to 126.9 mc in 100 kc steps.  
 CHANNELS: 90, crystal controlled.  
 POWER OUTPUT: Nominally 3 watts.  
 OUTPUT IMPEDANCE: 52 ohms.  
 TYPE OF EMISSION: A 3.  
 FREQUENCY STABILITY: 0.01% over temperature range.  
 MODULATION CAPACITY: Nominal 85 to 95%.  
 AUDIO FREQUENCY RESPONSE: Not more than 6 db down, 300 to 3000 cps, with reference to 1000 cps.  
 NUMBER OF TUBES: 17L-8A—5; 427A-1—0 (5 transistors); 427B-1—4 (7 transistors); 427B-2—4 (5 transistors).

AMBIENT TEMPERATURE RANGE: -40° C to +55° C.  
 AMBIENT HUMIDITY RANGE: 0 to 100% relative humidity.  
 ALTITUDE: To 30,000 ft.  
 SHOCK: 15 g operational, 30 g non-operational.  
 VIBRATION: 17L-8A—10 to 55 cycles at 0.02 in. excursion.  
 427A-1—10 to 55 cycles at 0.06 in. excursion.  
 427B-1, -2—10 to 55 cycles at 0.06 in. excursion.  
 PRIMARY POWER: 17L-8A and 427A-1—27.5 v dc at 1.8 amps.  
 17L-8A, 427B-1 and 51X-3—27.5 v dc at 2.1 amps.  
 17L-8A, 427B-2 and 51X-3—13.5 v dc at 4.2 amps.  
 WEIGHT: 17L-8A—2 lbs.; 427A-1—3.25 lbs.; 427B-1—6.5 lbs.; 427B-2—6.5 lbs.

