

The background features abstract, overlapping green geometric shapes, primarily triangles and polygons, in various shades of green, creating a modern and dynamic visual effect.

B-25 Radio Project

or How many Boat Anchors can a B-25 Carry!

Presented by Mike Laney, KEØGHU

mwlaney16@gmail.com

The B-25 History Project



- More Information Here: <https://b-25history.org/index.htm>

The B-25 Bomber

- ▶ The work horse medium bomber in World War II
 - ▶ Used by all three services, USAAF, USN, USMC (Navy called it the PBJ)
 - ▶ First bomber to drop bombs on an Axis nation by US Forces (Doolittle Raid)
 - ▶ Served in combat in all Theaters, ETO, MTO, CBI, Pacific, Aluetian Islands, ZI
 - ▶ Used by all our Allies (Britain, Australia, Dutch, Russia, Brazil, Free French)
- ▶ Was found to be extremely adaptable and resilient
 - ▶ In Pacific they added additional 50 caliber machine guns to nose for a strafing version.
 - ▶ Later added a 75mm tank cannon for sea sweeps and close support missions (became the G and H models).
 - ▶ In the Aleutian Campaign, they added directional radio antennas to sniff out anti-aircraft radar sites. This was the grandfather of the Wild Weasels in Vietnam.
- ▶ 6,680 B-25D and J models were built in Wyandot County at the North American Fairfax Plant. Today this site is occupied by the GM Fairfax Plant.

The B-25 Bomber



The B-25 Bomber



The B-25 Bomber



The B-25 Bomber



The USAAF Radio Operator



- ▶ The Radio Operator on a B-25 had the following duties:
 - ▶ Manage and Log all Aircraft Comms
 - ▶ Operated target camera (located under their seat)
 - ▶ Manned defensive waist guns (both of them)
 - ▶ Provide first aid to crew as needed, counted and recorded parachutes seen from other downed aircraft
 - ▶ Release chaff for radar interdiction
- ▶ 22 weeks of radio operator training, 6 weeks of flexible gunnery school
 - ▶ Morse code
 - ▶ Radio Theory, Procedures, and Repair
 - ▶ Turret maintenance, ballistics, aircraft recognition.
- ▶ Upon graduation were promoted to NCO (Sergeant)

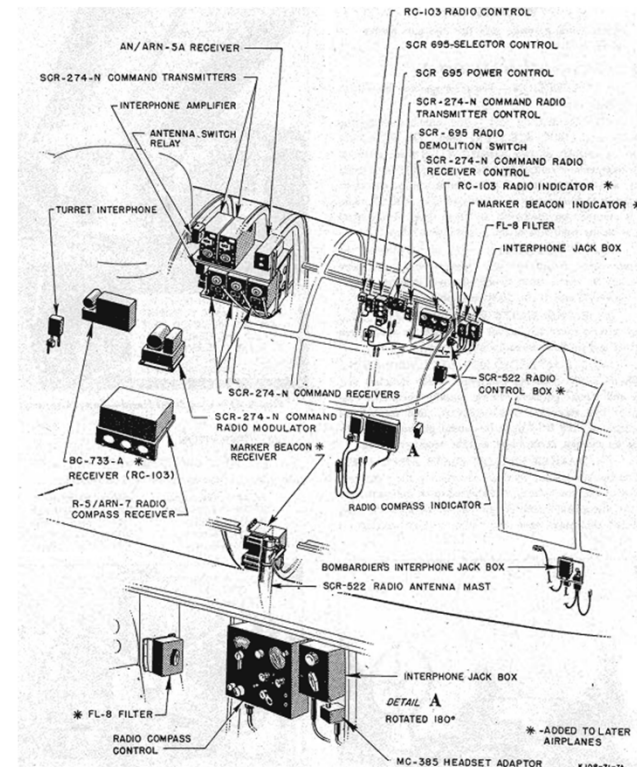
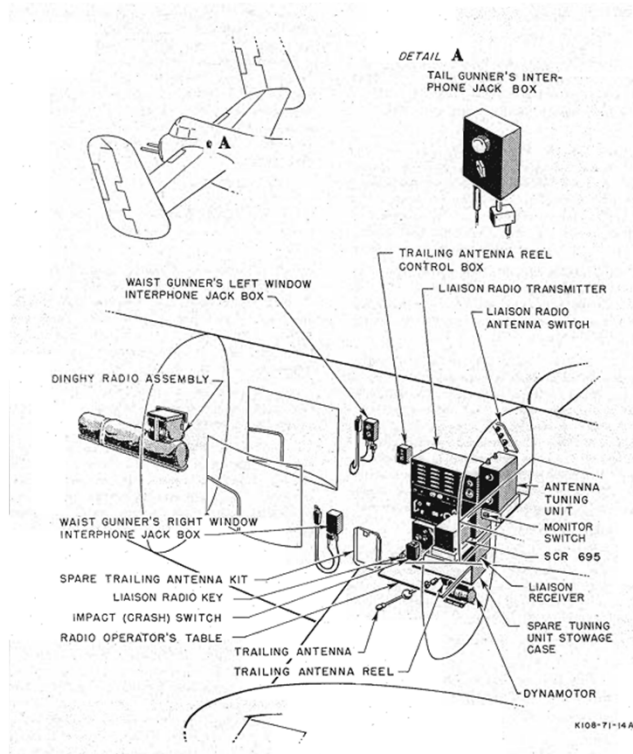


The USAAF Radio Nomenclature

- ▶ SCR- Set Complete Radio
- ▶ BC- Basic Component
- ▶ PL- Plug
- ▶ J- Key
- ▶ AN/ANR- Army-Navy nomenclature system



The B-25 Radios



The B-25 Radios

- ▶ Liaison Set (SCR-287-A)
 - ▶ BC-348 Receiver
 - ▶ FT-154 Mount
 - ▶ BC-375 Transmitter
 - ▶ PE-73C Dynamotor
 - ▶ J-37 or J-38 Telegraph Key
 - ▶ T-17 Microphone
 - ▶ 7 Tuning Units Cartridges (they carried 2 of them)
 - ▶ FT-151 Mount
 - ▶ BC-306 Tuning Unit
 - ▶ FT-142 Mount
 - ▶ RL-42 Antenna Reel with MC-163 Trailing Antenna
 - ▶ B10A16 Antenna Switch

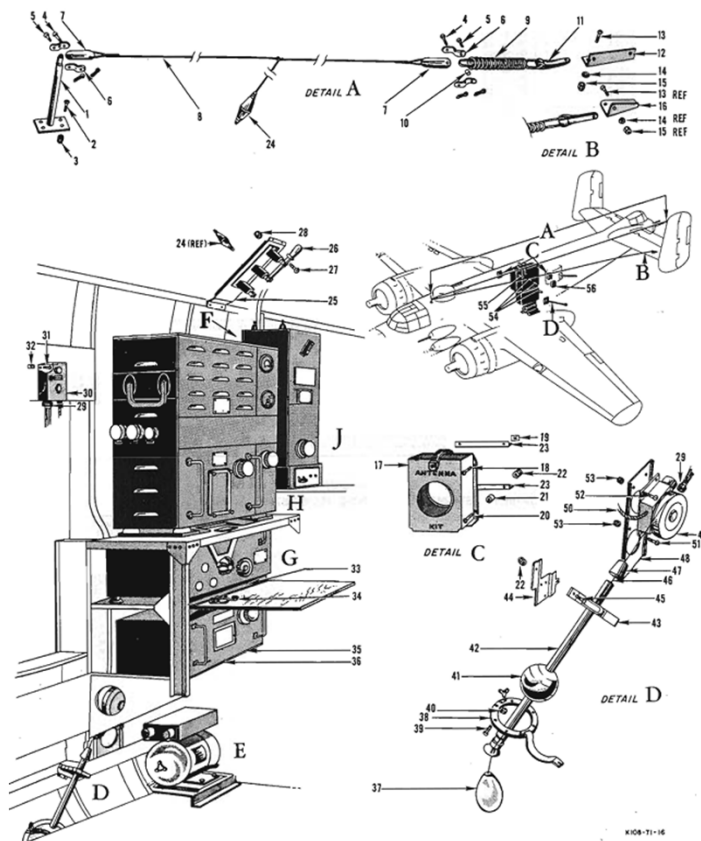
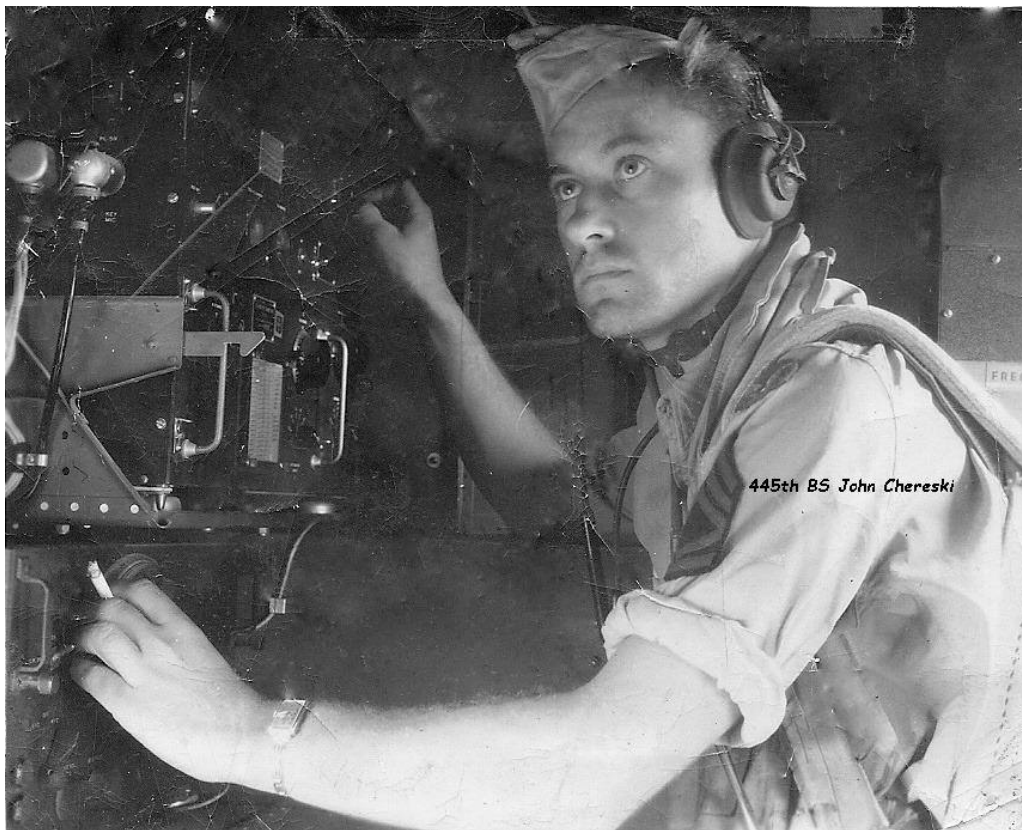


Figure 254 LIAISON SET-MEDIUM RANGE (SCR-287-A) (B-25J)

The B-25 Radios



The B-25 Radios



The B-25 Radios



The B-25 Radios

- ▶ BC-348 Receiver
 - ▶ 1,500 to 18,000 kHz (160m, 80m, 40m, 30m, 20m bands)
 - ▶ 28 Vdc powered
 - ▶ AM and CW
 - ▶ Single Conversion Superheterodyne with IF Frequency of 915 kHz.
 - ▶ Switchable AVC of Manual RF gain
 - ▶ Beat Frequency Oscillator
 - ▶ Crystal filter
 - ▶ 2 RF Stages
 - ▶ 3 IF Amplification Stages
 - ▶ More than 100,000 produced by Belmont Radio and Wells Gardner (80%), and RCA and Stromberg-Carlson (20%).
 - ▶ USSR copied it as the US-9 and used through the 1970s
 - ▶ 44 lbs!

The B-25 Radios

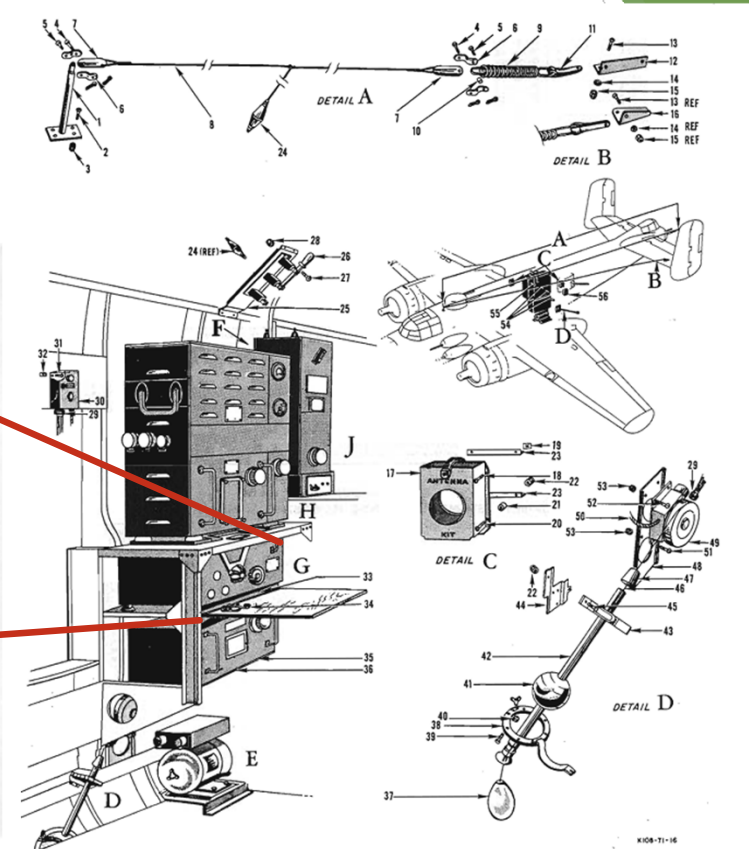
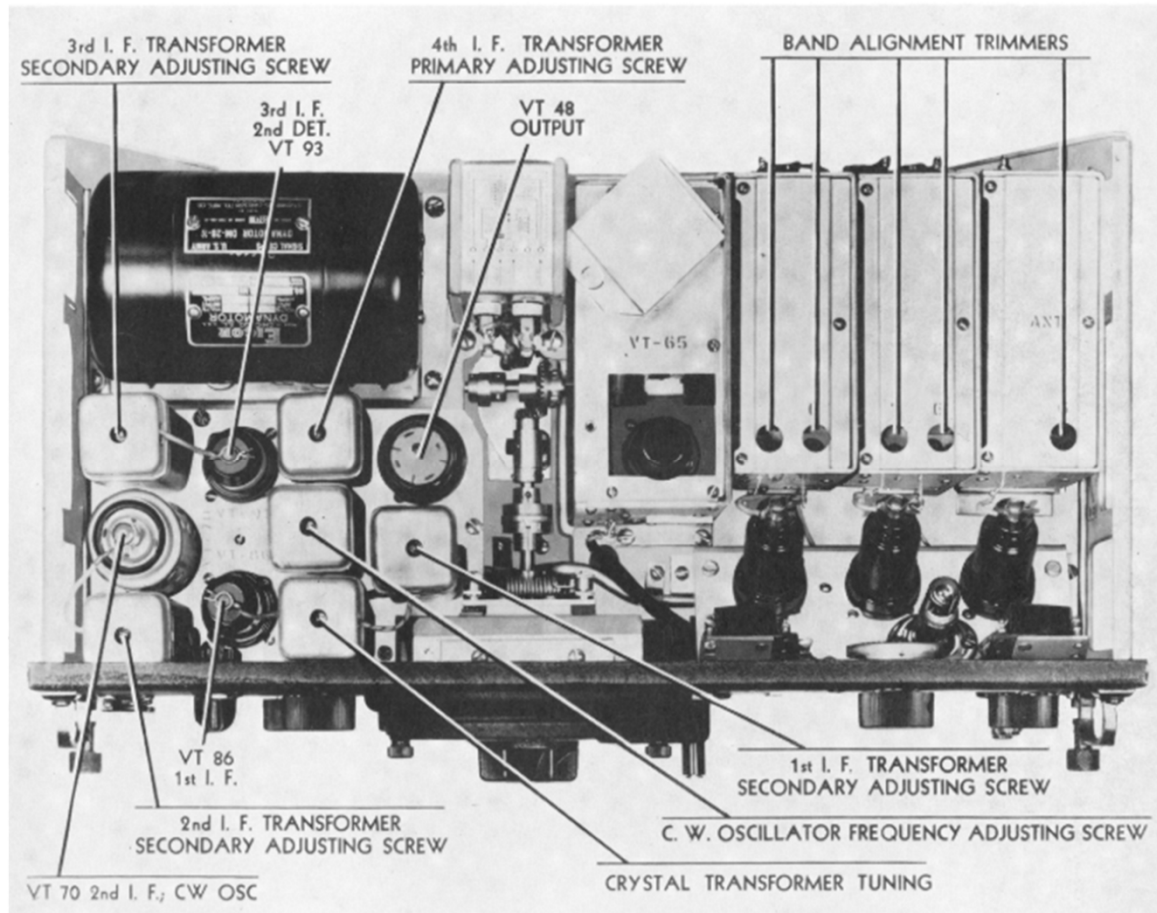
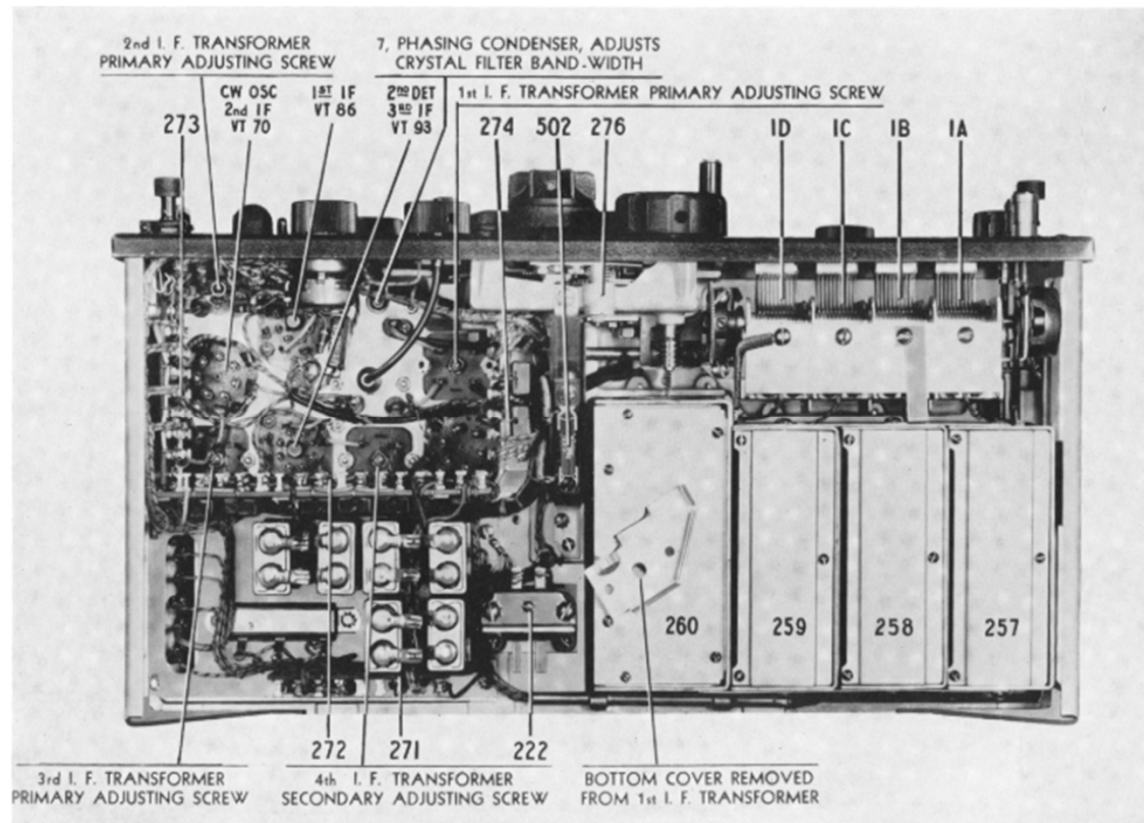


Figure 254 LIAISON SET—MEDIUM RANGE (SCR-287-A) (B-25J)

The B-25 Radios



The B-25 Radios



The B-25 Radios

- ▶ BC-375 Transmitter
 - ▶ Master Oscillator Power Amplifier (MOPA) design
 - ▶ AM and CW Modulation
 - ▶ Frequency based on Tuning Unit
 - ▶ TU-26 200 to 500 kHz
 - ▶ TU-5 1,500 to 3,000 kHz (160m band)
 - ▶ TU-6 3,000 to 4,500 kHz (80m band)
 - ▶ TU-7 4,500 to 6,200 kHz
 - ▶ TU-8 6,200 to 7,700 kHz (40m band)
 - ▶ TU-9 7,700 to 10,000 kHz
 - ▶ TU-10 10,000 to 12,500 kHz (30m band)
 - ▶ 4 VT4C (211) Tubes and 1 VT25 (#10) tube
 - ▶ 50 TO 90 Watts output
 - ▶ Over 100,000 made, primarily by GE
 - ▶ 53 lbs!



The B-25 Radios

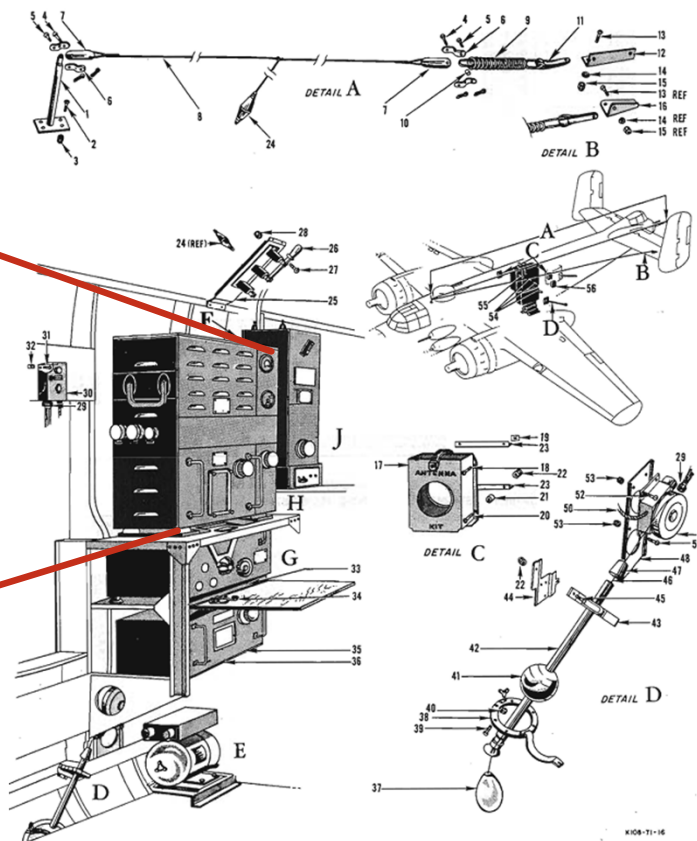
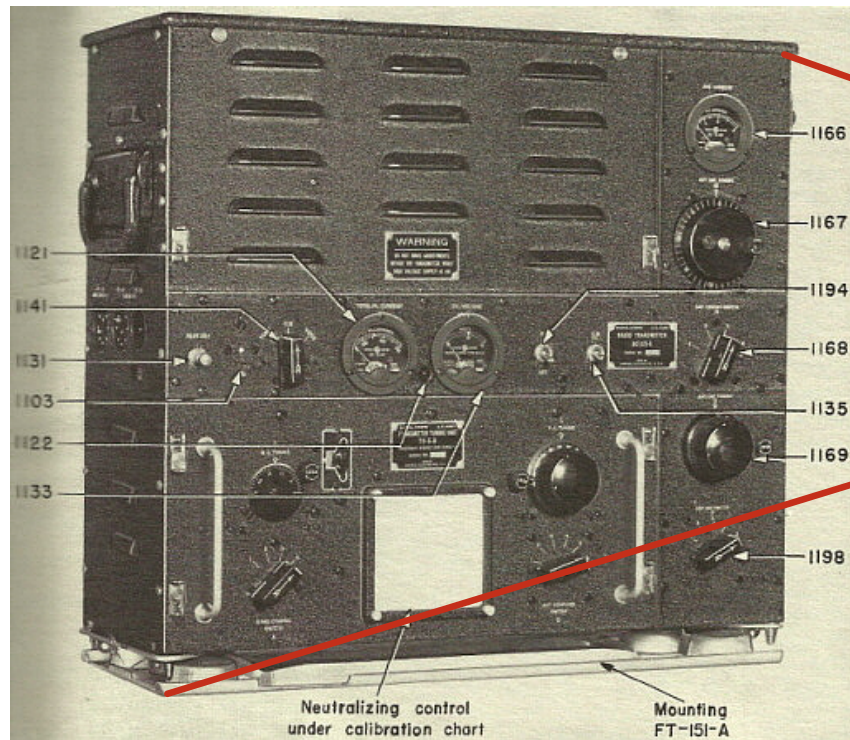


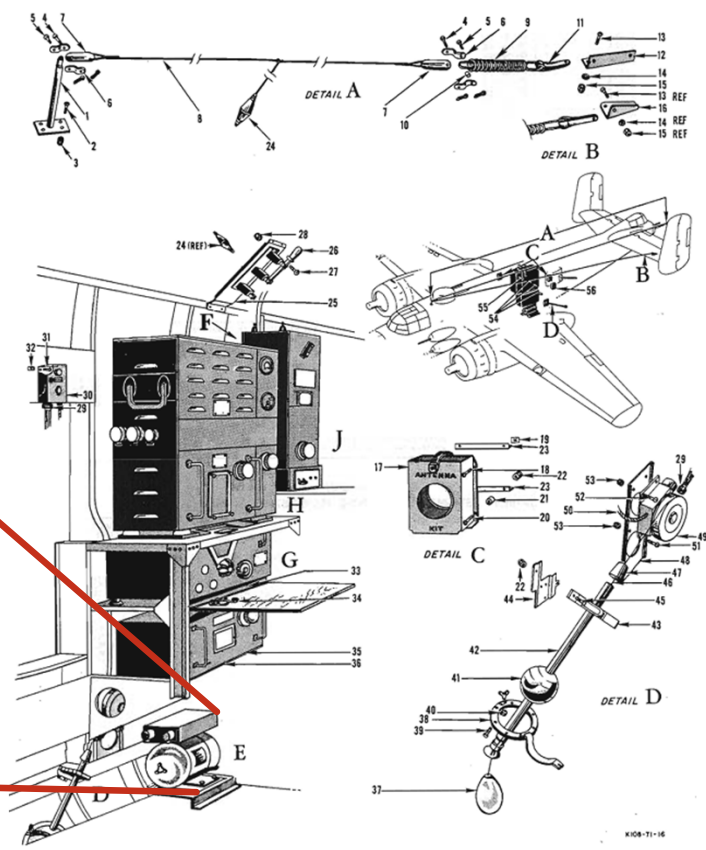
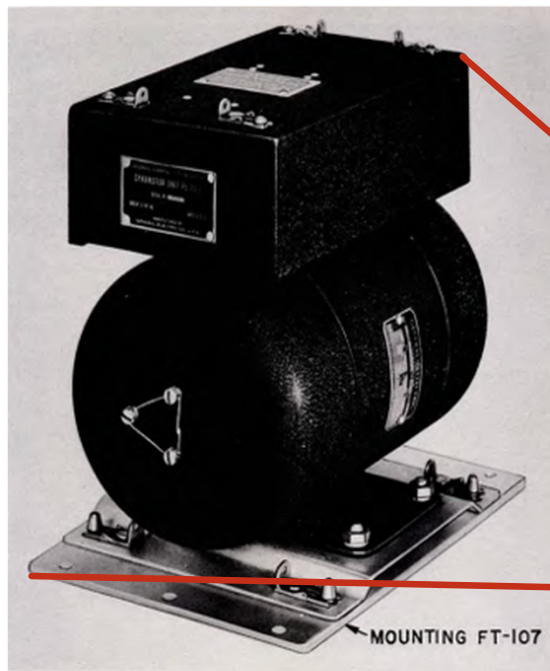
Figure 254 LIAISON SET-MEDIUM RANGE (SCR-287-A) (B-25J)

The B-25 Radios

- ▶ BC-375 Transmitter
 - ▶ Powered by PE-73C Dynamotor
 - ▶ 24/28Vdc in
 - ▶ 1050 Vdc out at 350 mA
 - ▶ Built Primarily by GE.
 - ▶ 38 lbs!



The B-25 Radios



The B-25 Radios

- ▶ BC-306 Tuning Unit
 - ▶ Variometer Antenna Tuner for Low Frequency Transmissions
 - ▶ It electronically lengthens antenna
 - ▶ Range 150 to 800 kHz (TU-26)



The B-25 Radios

► BC-306 Tuning Unit

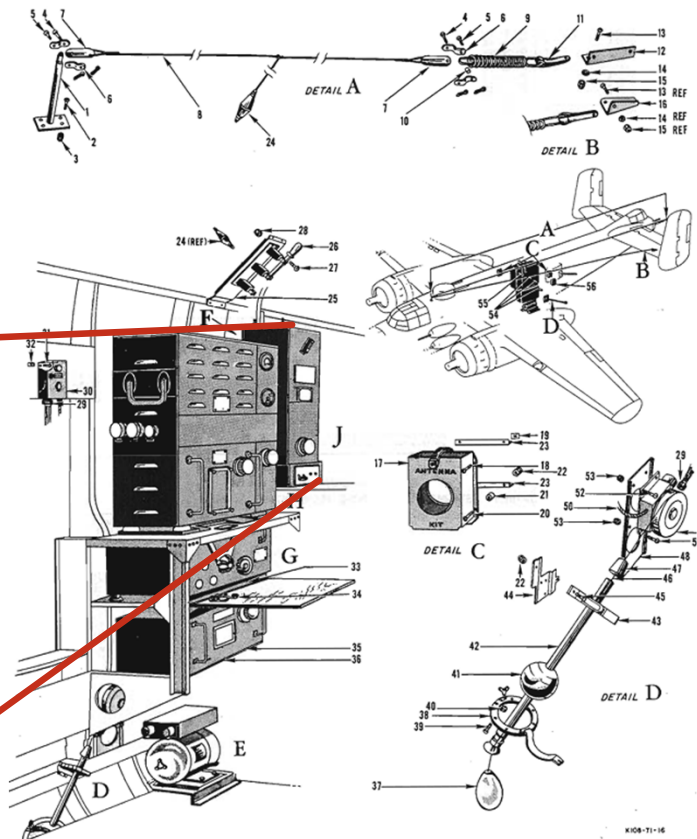


Figure 254 LIAISON SET—MEDIUM RANGE (SCR-287-A) (B-25J)

The B-25 Radios

- ▶ Command Set (SCR-274-N)
 - ▶ Receivers
 - ▶ BC-453 (190 to 550 kHz)
 - ▶ BC-454 (3 to 6 MHz)
 - ▶ BC-455 (6 to 9.1 MHz)
 - ▶ FT-220 Mount
 - ▶ Transmitters
 - ▶ BC-457 (4 to 5.3 MHz)
 - ▶ BC-458 (5.3 to 7 MHz)
 - ▶ BC 456 Modulator with DM-33A Dynamotor
 - ▶ FT-226 Mount
 - ▶ Remote Controllers
 - ▶ BC-450 (up to 3 receivers)
 - ▶ BC-496 (up to 2 transmitters)
 - ▶ BC-422 Antenna Relay Box

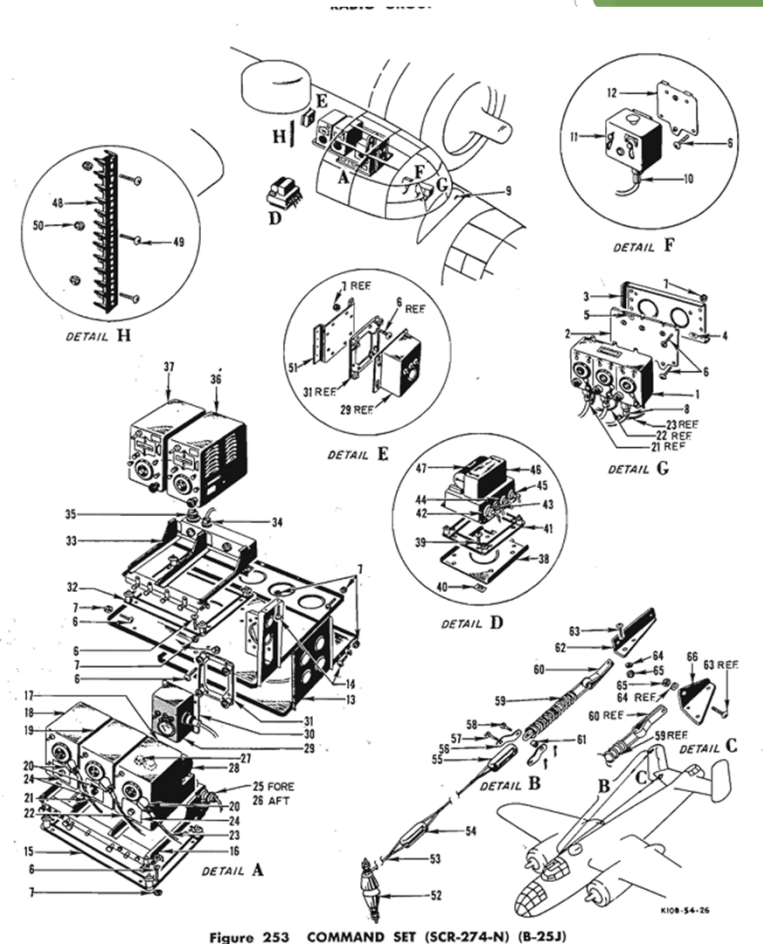
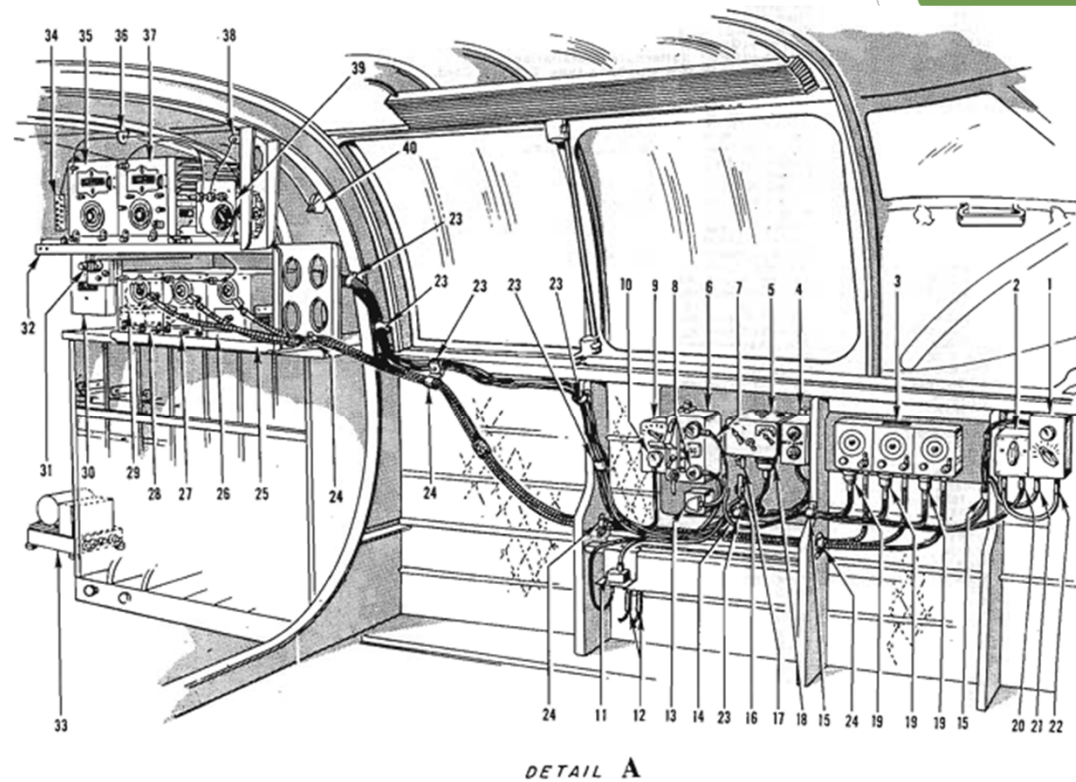
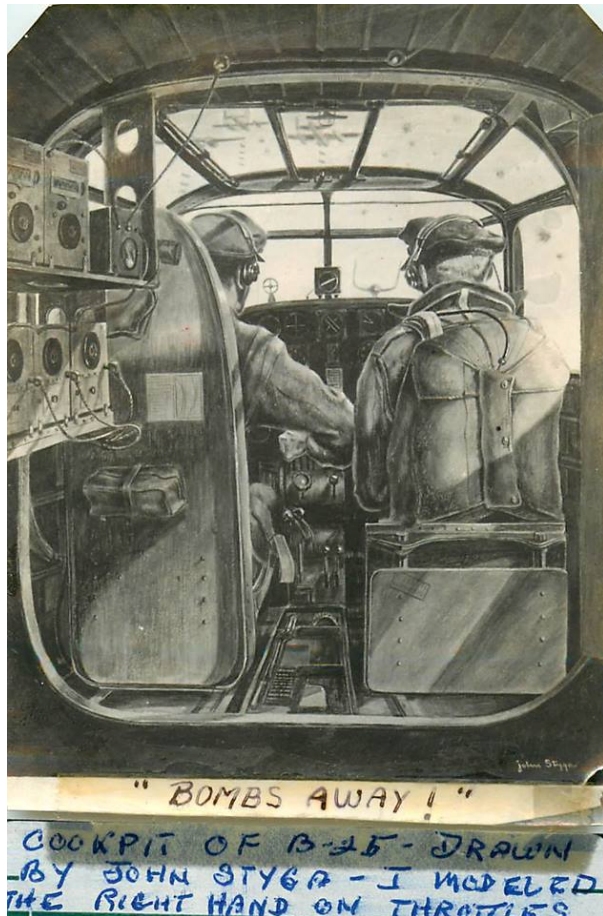


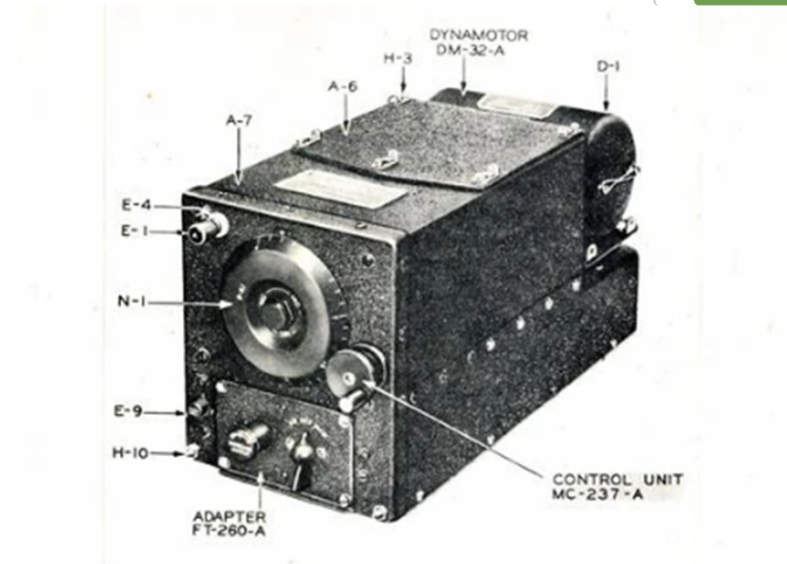
Figure 253 COMMAND SET (SCR-274-N) (B-25J)

The B-25 Radios

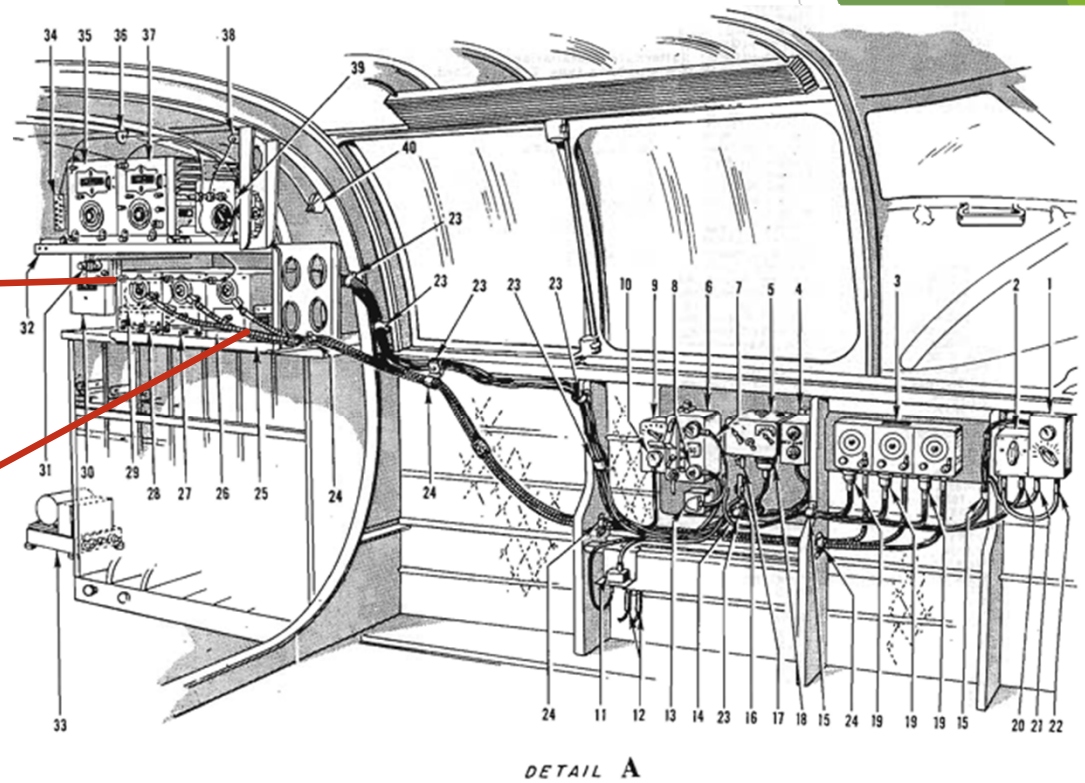


The B-25 Radios

- ▶ Command Set Receivers
 - ▶ BC-453 (190 to 550 kHz)
 - ▶ BC-454 (3 to 6 MHz)
 - ▶ BC-455 (6 to 9.1 MHz)
 - ▶ Uses DM-32 dynamotor
 - ▶ 24/28Vdc in
 - ▶ 250Vdc out at 60mA
 - ▶ 11 lbs each (total of 35 pounds with mount)



The B-25 Radios



98-71-83A

The B-25 Radios

► Command Set Transmitters

- BC-457 (4 to 5.3 MHz)
- BC-458 (5.3 to 7 MHz)
- Powered by BC 456 Modulator with DM-33A Dynamotor
- FT-226 Mount
- Weight each transmitter 7.5 lbs and modulator is 18 lbs, for a total of 35 lbs with mounts

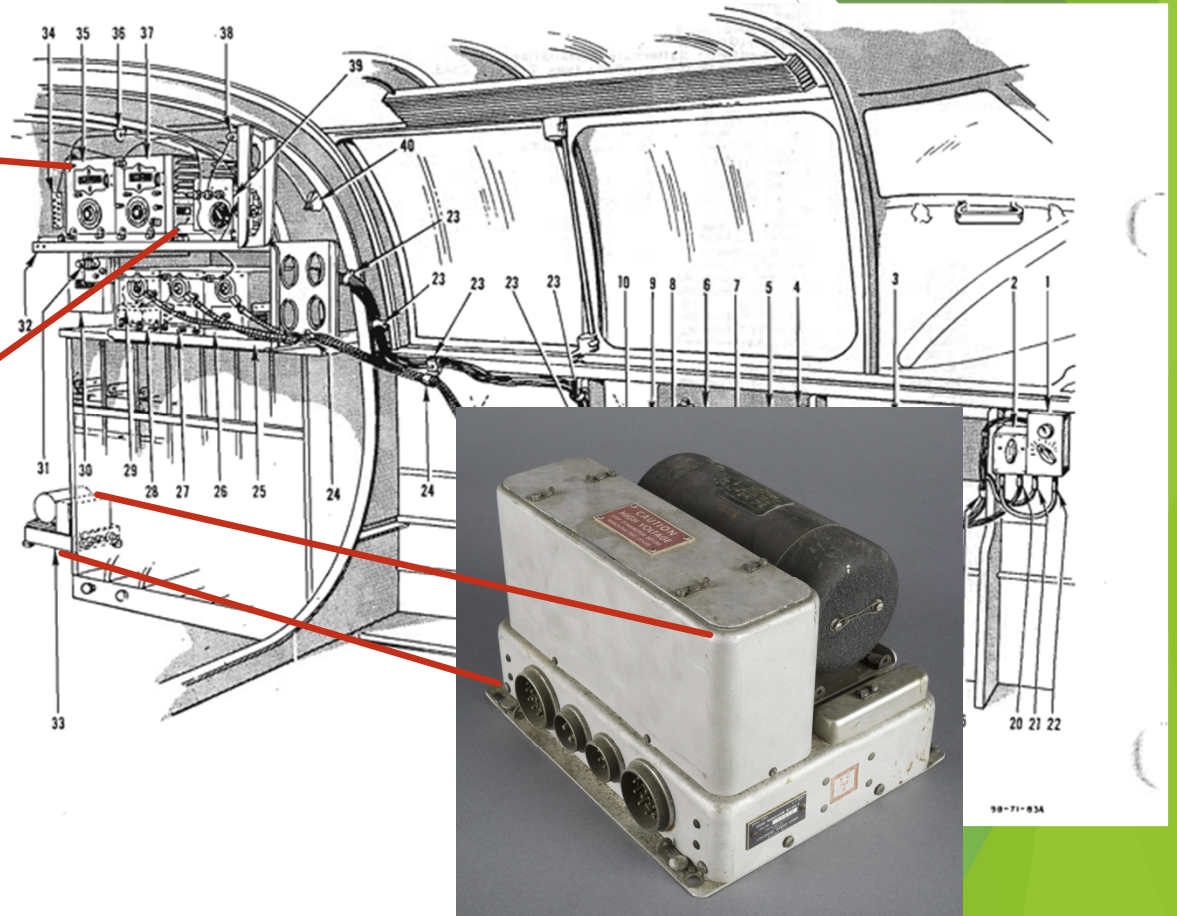


Radio Transmitters BC-457, BC-458



Modulator Unit BC-456

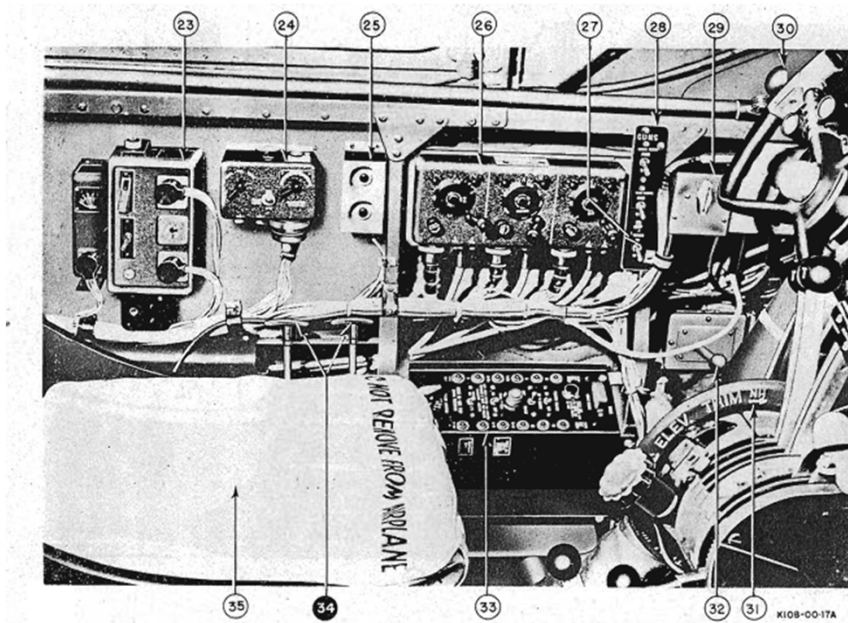
The B-25 Radios



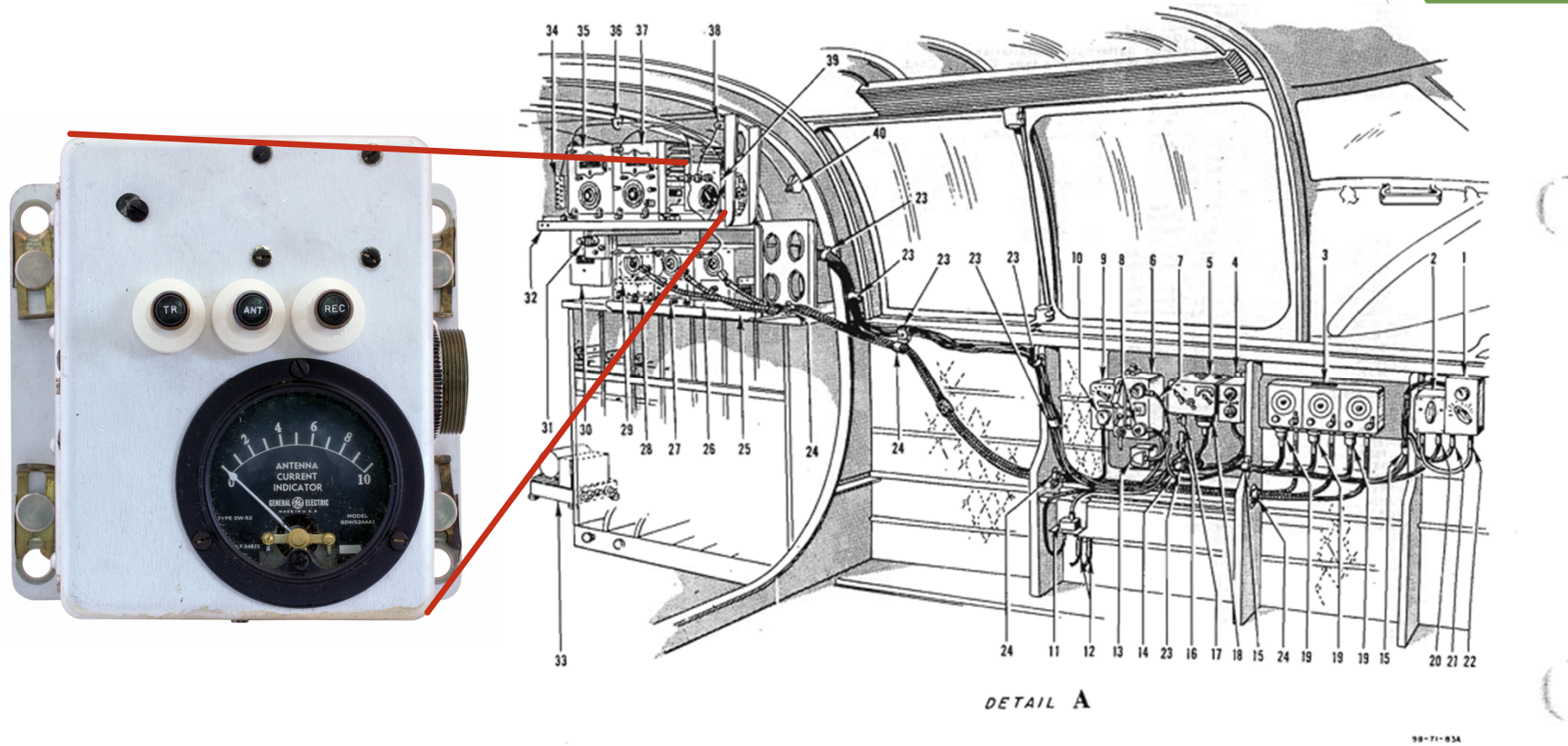
The B-25 Radios

► Command Set Remote Controllers

- BC-450 (up to 3 receivers)
- BC-451 (up to 4 transmitters)



The B-25 Radios

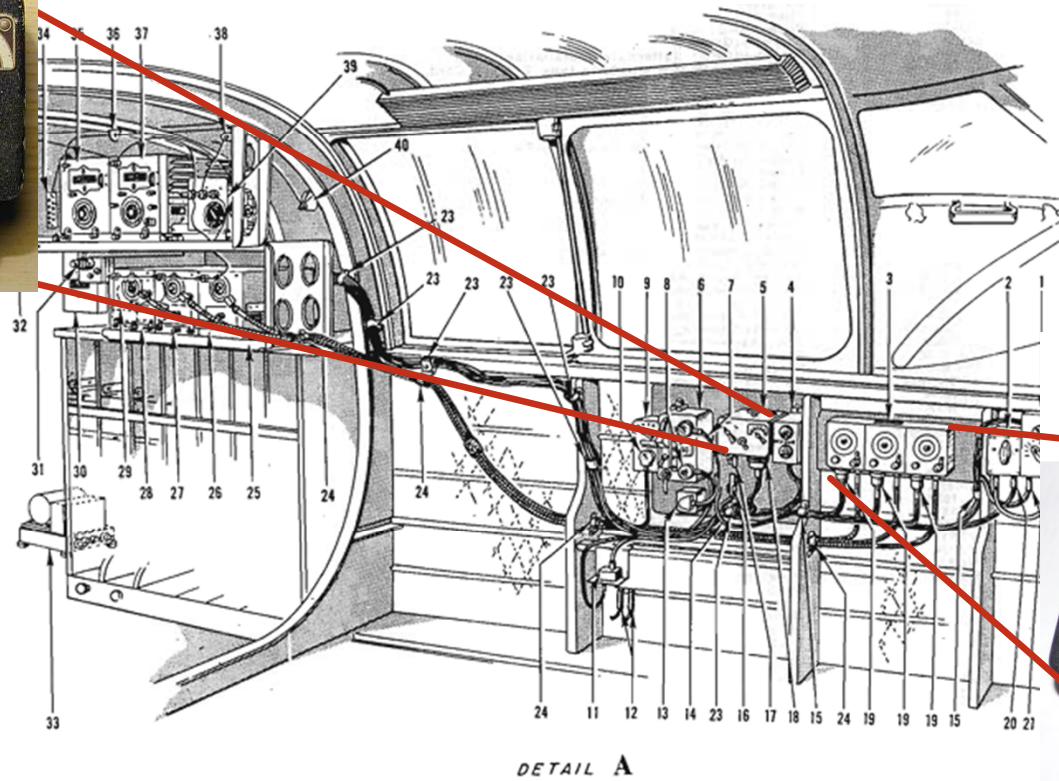
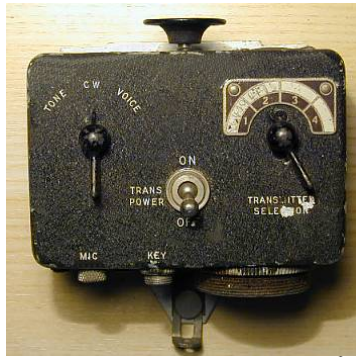


The B-25 Radios

- ▶ Command Set (SCR-274-N)
 - ▶ BC-422 Antenna Relay Box



The B-25 Radios



98-71-83A

A vertical banner image. The right half features a green geometric pattern with various shades of green triangles and polygons. The left half, separated by a thin white line, shows a collection of yellow firefighting equipment against a white background. The equipment includes a yellow helmet, a yellow boot, a yellow belt, and several yellow tools (likely pike poles) with metal heads and wooden handles.

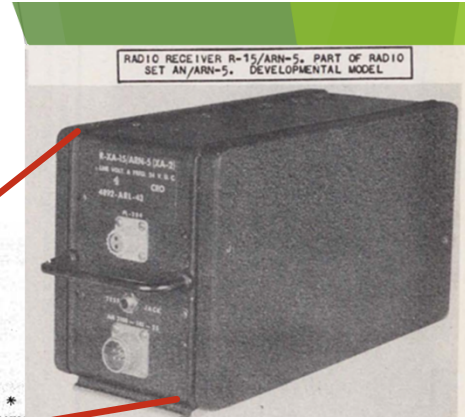
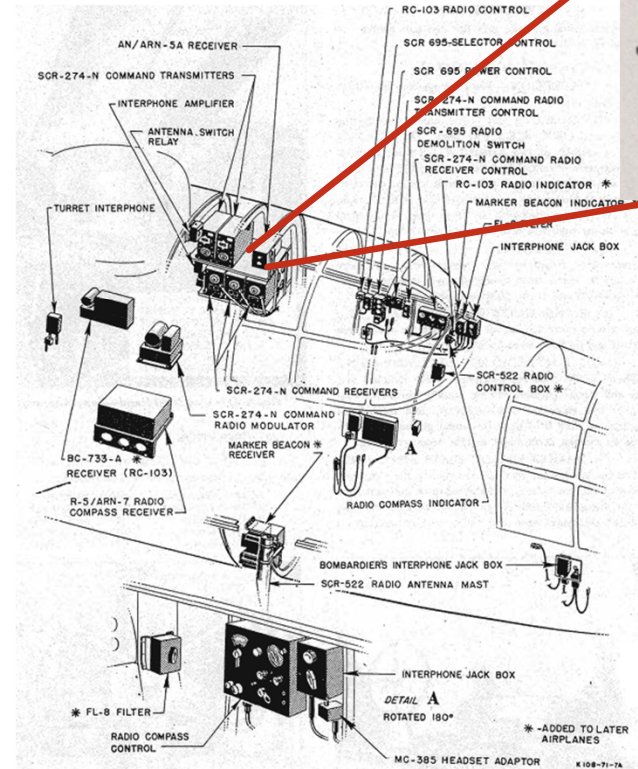
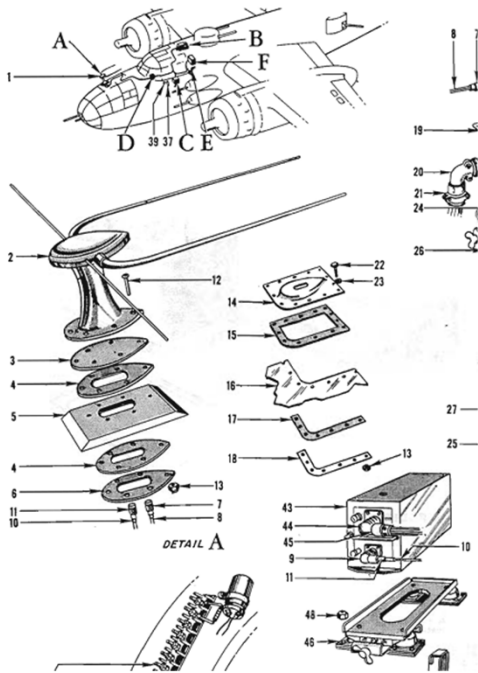


-
- A collection of vintage firefighting equipment. The central item is a yellow fire engine with a black handle and a gauge. To its left is a fire hose with a yellow nozzle. In front of the engine are several small containers, including a fire extinguisher and a fire bucket. To the right is a fire hose reel. The equipment is arranged on a white background.

► AN/ARN-5 Airborne Glidepath Receiver

- AS-27A/ARN-5 Antenna

- ▶ I-101 Cross-point Instrument on Instrument Panel



The Other B-25 Radios

► RC-103 Airborne (ILS) Localizer Receiver

- Paired with RC-103
- BC-733 radio with BC-732 Control Box
- 108 to 110 MHz
- AN-100 Antenna
- I-101 Cross-point Instrument on Instrument Panel

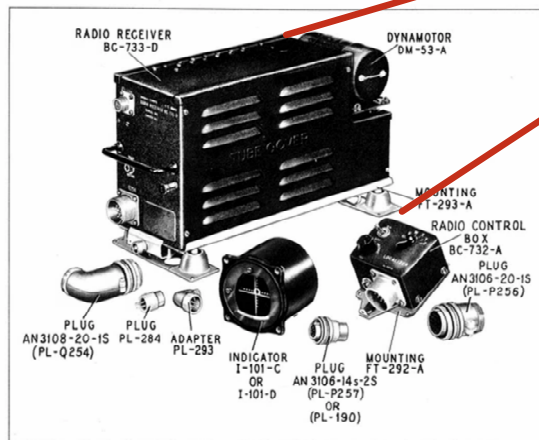
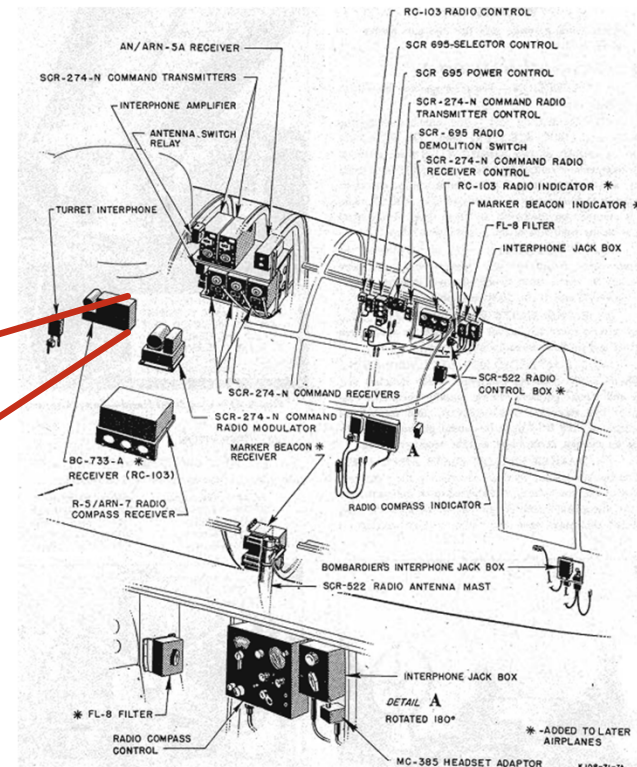


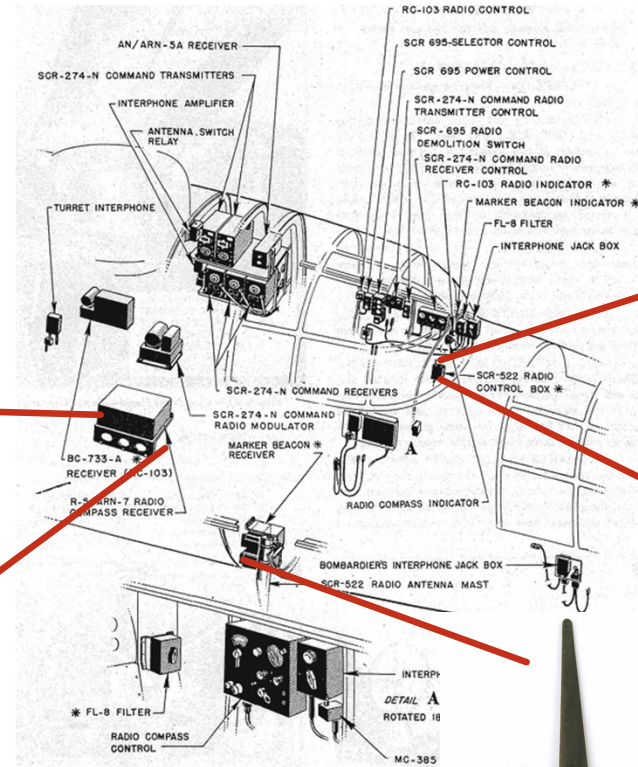
Figure 1-1. Radio Receiving Equipment RC-103-A—Major Components



The Other B-25 Radios

► SCR-522 VHF Transceiver

- AM Modulation
- 100 to 156 MHz
- AN-104 Antenna
- 4 preset channels (crystals)

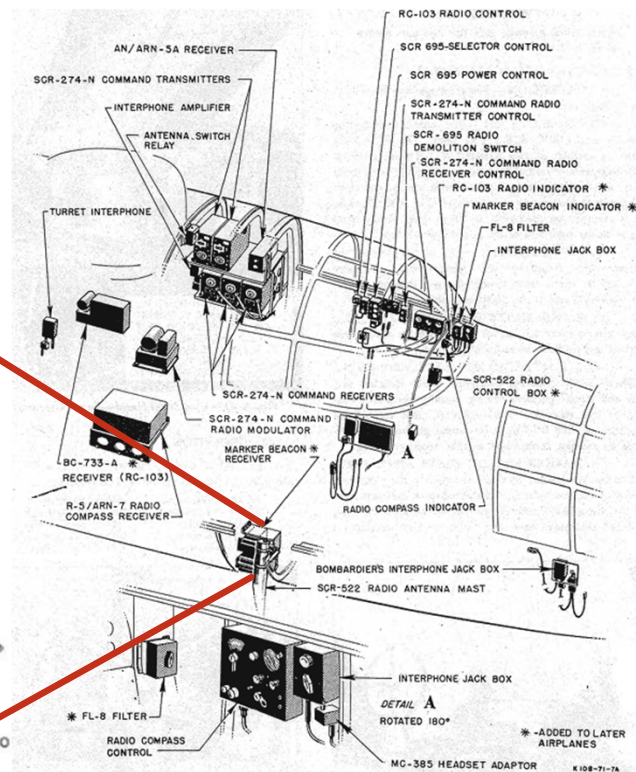


The Other B-25 Radios

- ▶ RC-43 Marker Beacon and Receiver

- ▶ BC-357 Receiver

- ▶ 75 MHz

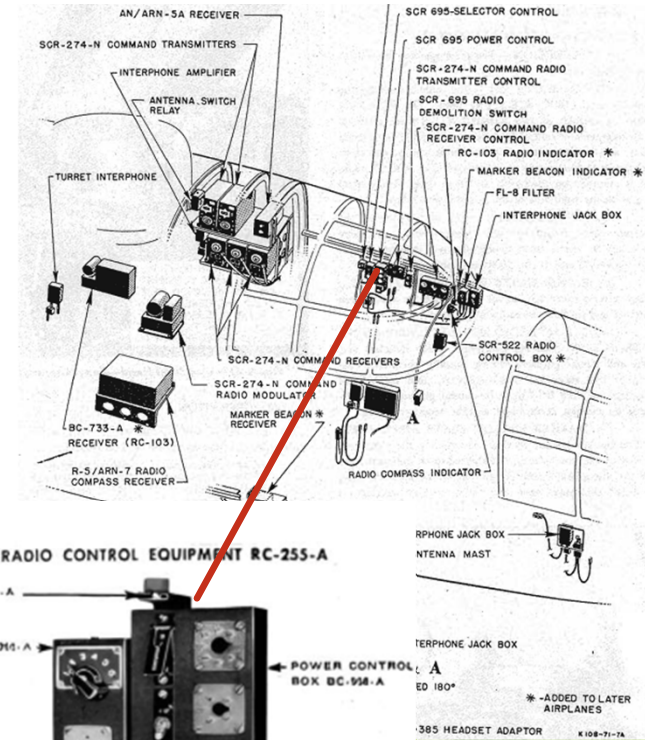
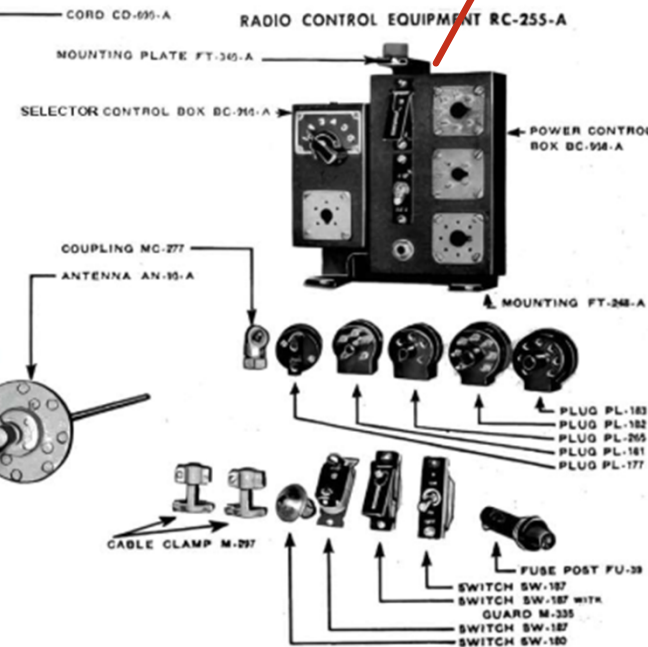
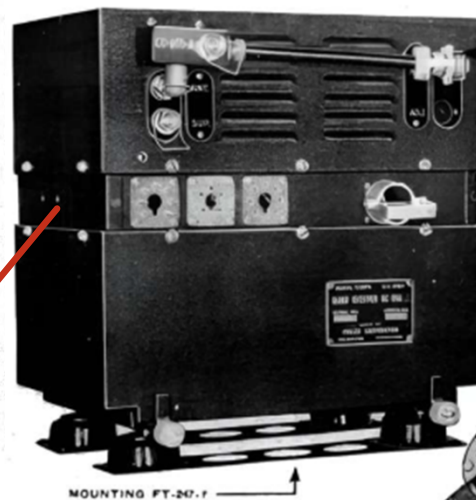
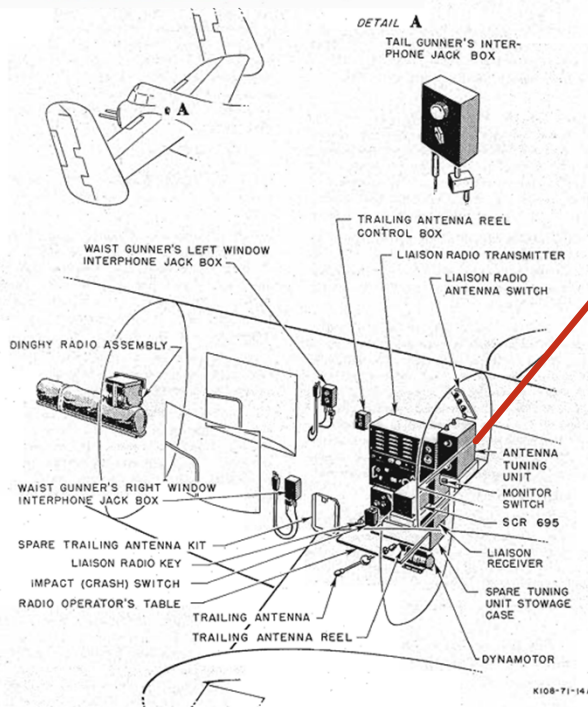


The Other B-25 Radios



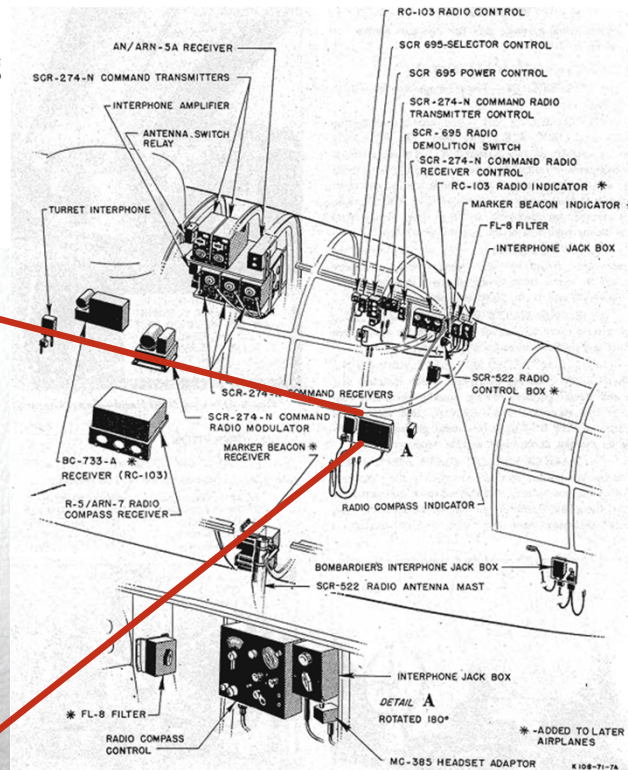
► SCR-695 Airborne Transponder (IFF)

- VHF Band
- Had Explosive Charge Installed
- Weighs 60 lbs



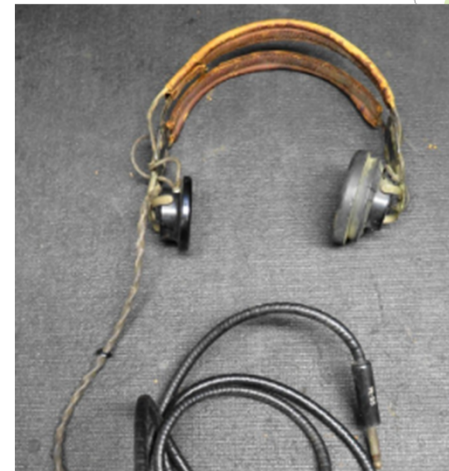
The Other B-25 Radios

- ▶ SCR-269 Radio Compass
 - ▶ BC-434 Receiver
 - ▶ Directional Finding and Homing
 - ▶ 200 to 1750 KHz
 - ▶ LP-21 Rotatable Loop Antenna

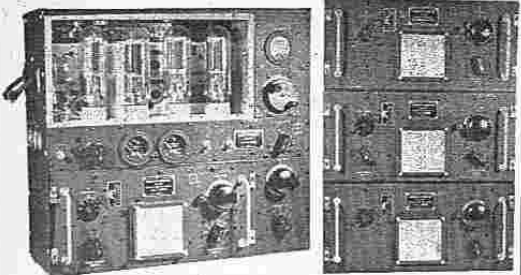


The B-25 Radio Accessories

- ▶ J-37 or J-38 Telegraph Key
- ▶ T-17 Microphone
- ▶ HS-33 Headset



The B-25 Radios



BC-375 GE MOPA TRANSMITTER

The most famous of all surplus transmitters. Was used by the Army bombers and ground stations during the War. Frequency range is covered by means of plug-in tuning units as shown below. Each tuning unit has its own oscillator and power amplifier coils and condensers, and antenna tuning circuits all designed to operate at top efficiency within its particular frequency range. Transmitter and accessories are finished in black crackle, and the milliammeter, voltmeter, and RF ammeter are mounted on the front panel. **Frequency Range:** 200-500 Kc. and 1500-12,500 Kc. (Will operate on 10 and 20 meter band with slight modification). **Oscillator:** self-excited, thermocompensated, and hand calibrated. **Power Amplifier:** neutralized class "C" stage, using 211 tube, and equipped with antenna coupling circuit which matches practically any length antenna. **Modulator:** Class "B"—uses two 211 tubes. **Power Supply:** Dynamotor which furnishes 1000 V. at 350 Ma. **Conversion** instructions and diagram for 110 V. AC furnished upon request for **\$1.00.**

PRICES: As follows—

Transmitter only.....	\$12.50
Tuning units TU-5B, TU-6B, TU-7B, TU-8B, TU-9B, TU-10B, TU-26B, choice.....	\$2.50
Dynamotor PE-73C.....	\$3.95
Antenna tuning unit (BC-306A).....	\$4.95

1946 CQ Magazine
\$12.50 is \$206 today



NEW! BC-348 COMMUNICATIONS RECEIVER **\$69.50**

It's the best surplus communications receiver value in the world, in our opinion, and you may never have another opportunity to get a brand new BC-348 at this extremely low price. Guaranteed absolutely new and unused, they are shipped you in the original, unopened, wood cases in which the AAF received them. Complete with built-in dynamotor, crystal filter, full set of tubes, and detailed technical manual . . . at the low price of only \$69.50.

DON'T WAIT—ORDER YOUR BC-348 TODAY!

Shpg. wt. 61 lbs.; size, packed 3 cu.-ft.

Kit for conversion to 110 volt a-c operation, with full instructions\$6.50

Transformer for 220 volt stepdown to 110 volts, 60 cycles\$6.50

1947 CQ Magazine
\$1,500 today

Any Questions?



Thank You!!!

