

TB SIG E12

WAR DEPARTMENT TECHNICAL BULLETIN

GERMAN RADIO SETS

Feldfu. b
and
Feldfu. c

WAR DEPARTMENT
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TB SIG E12 German Radio Sets Feldfu. b and Feldfu. c is published for the information and guidance of all concerned.

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(For explanation of symbols see FM 21-5.)

RESTRICTED

GERMAN RADIO SETS

Feldfu. b and Feldfu. c

1. **DESCRIPTION.** The German radio sets **Feldfunk-Sprecher b** and **Feldfunk-Sprecher c** (field radiotelephone b and field radiotelephone c)*, abbreviated **Feldfu. b** and **Feldfu. c**, may hereafter be referred to as the "set." The nameplate of the **Feldfu. b** is shown in figure 1. The set is a compact, self-contained, v-h-f portable transceiver, designed for voice operation, and can be used in nets with American amplitude-modulated sets within the frequency and distance range. The set is housed with all accessories in a molded plastic case, which is ribbed for additional strength. It can be carried and operated by one man so that both his hands are free, as shown in figure 2. The accessories supplied with the set are:

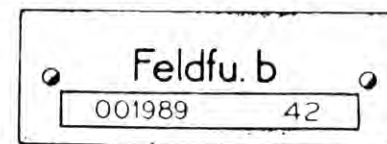


Figure 1. Nameplate of German radio set **Feldfu. b**.

- 1 Two-section rod antenna, German type b for **Feldfu. b** and type c for **Feldfu. c**.
- 1 2.4-volt nickel-iron storage battery, German type **2.4 NC 28**.
- 1 Remote control unit, German type b.
- 1 Remote control cord, German type b.
- 2 Headsets, German type f.
- 1 Throat microphone, German type c.

2. **PERFORMANCE DATA.** The following table lists the performance data of the set:

PERFORMANCE DATA

Frequency range:

Radio set		Transmitting	Receiving
Feldfu. b	red dot	100-119 mc	100-119 mc
Feldfu. c	green dot	120-138 mc	120-138 mc

* In this bulletin the German words are followed by the American military equivalents in parentheses.



Figure 2. German radio set Feldfu. b, ready for operation.

PERFORMANCE DATA (contd)

Types of signals emitted voice, amplitude-modulated
 Number of channels 30
 Frequency separation between channels 0.6 mc approximately
 Types of signals which may be received voice or tone, amplitude-modulated
 Weight complete 30 lb approximately

Distance range:

Feldfu. b 1 mile approximately
 Feldfu. c $\frac{3}{4}$ mile approximately

Antenna type:

Feldfu. b vertical, 31½ inches long
 Feldfu. c vertical, 27½ inches long

Type of transmitter

modulated oscillator

Type of receiver

superregenerative

Number of tubes

3

Type of tube

RL2.4T1
 RL2.4P2
 RV2.4P700

Receiving function

detector
 audio amplifier
 r-f amplifier

Transmitting function

oscillator
 modulator
 monitor

Type of modulation

amplitude

Method of modulation

plate

Zero-beat transmitter to receiver

impossible

Power supply

2.4-volt storage battery and synchronous vibrator

Current drain:

Transmitting 2.75 amp
 Receiving 1.5 amp

3. **CONTROLS.** The more important controls on the front panel and a brief statement of their functions are listed below (fig. 3).

a. The **Frequenz-Einstellung** (tuning control) is a frequency selector divided into 30 channels with indents for indexing the pointer at each channel.

b. The **Frequ.-Prüfg.** (calibration trimmer) is a trimmer capacitor used to align the receiver for net operation.

c. The **Lautstärke** (volume) is the receiver volume control.

d. The **Empf.-Nachstimmung** (receiver fine tuning) is a vernier tuning control for peaking the receiver on each channel.

e. The **Spannung normal—Sammler bereitet** (voltage normal—battery low) is a neon lamp that indicates the battery condition when the small check button is pressed.

f. The **Ein Aus** (on off) is a power switch used to turn the set on and off. This switch can be operated with the front cover on.

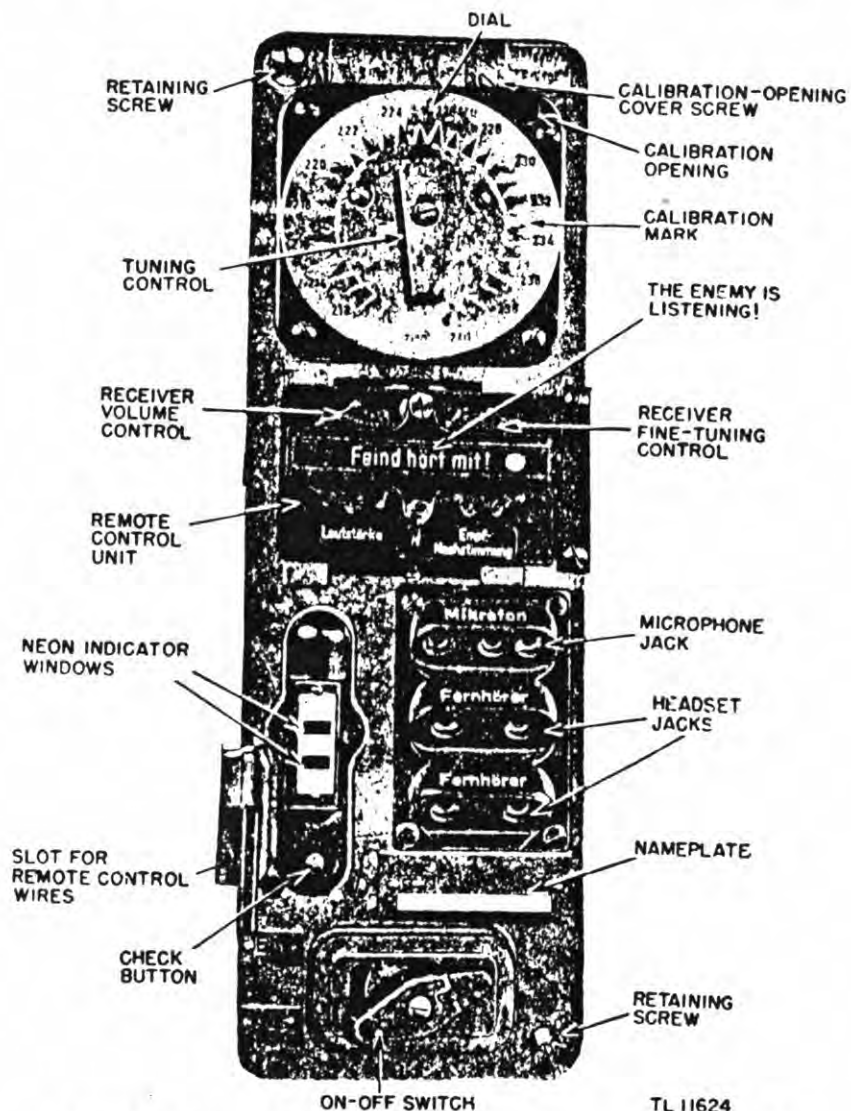


Figure 3. German radio set Feldfu. b, front view, cover removed.

g. The microphone switch is a send-receive switch in the microphone cord which operates two relays in the set to change from transmit to receive and vice versa. This switch is marked **E.** (receive) and **S.** (transmit), and can be fastened by means of a spring clip to the front of the operator's uniform (fig. 2).

circuit, they will also serve to check the vibrator output. To replace the vibrator, loosen the two red-ringed retaining screws (figs. 3 and 4), and slide the chassis out of the case. The vibrator plugs in, and has a wire handle attached for pulling.

4. PREPARATION FOR USE

a. **Portable Operation.** (1) Make sure the **Ein Aus** (on-off) switch is in the **Aus** (off) position.

d. If the set receives but does not transmit, the fault will not be in the tube.

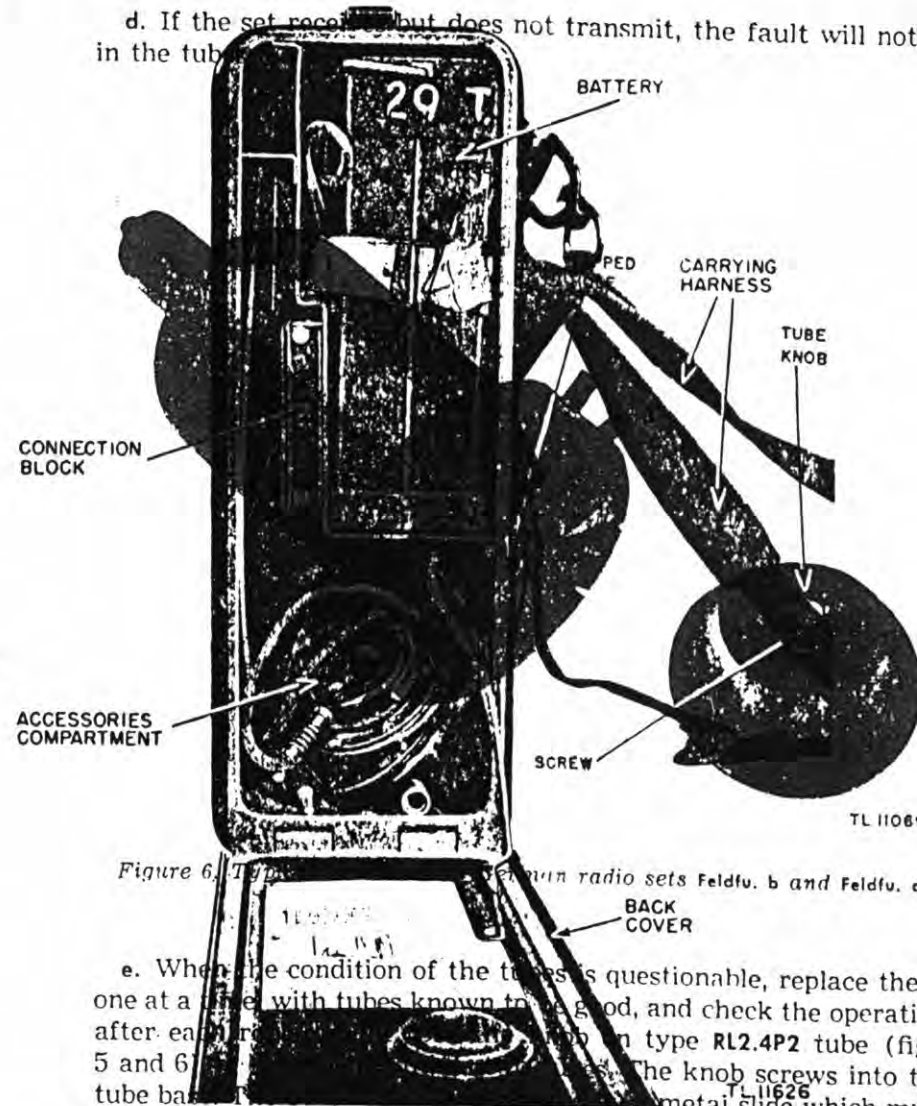


Figure 4. German radio set Feldfu. b, back view, cover open.

e. When the condition of the tubes is questionable, replace the one at a time with tubes known to be good, and check the operation after each replacement. The knob screws into the tube base. The knob screws into the metal slide which must be moved to make the tubes accessible.

(2) Open the back cover of the set and remove the accessories from the case (fig. 4).
(3) Make sure the battery terminals and the leads of the battery leads are clean. Connect the positive battery lead to the red post of

the battery, and the negative lead to the blue post of the battery. Strap the battery in place and close the back cover.

(4) Assemble the two-section antenna and plug it into the receptacle on top of the case. Make sure the top section is straight.

(5) Remove the front cover, slide the remote control unit to the left, and remove it from the panel. Plug the remote control cord into the remote control socket on the panel, and attach the other end to the remote control unit. This unit may now be fastened to the operator's belt as shown in figure 2.

(6) Plug the throat microphone into the jack marked **Mikrofon** (microphone) and a headset into one of the jacks marked **Fernhörer** (headphones). Any high-impedance headset or single-button carbon microphone may be used if fitted with the proper plug.

(7) Place the microphone, headset, and remote control cords through the slot provided for them (fig. 3).

(8) Set the **Ein Aus** (on off) switch to **Ein** (on).

(9) Press the small check button just below the neon indicator windows labelled **Spannung normal** (voltage normal) and **Sammler bereitst** (battery low). If both the indicators glow, the battery is well charged. If only the lower indicator glows, the battery is weak and will only operate the set for approximately $\frac{1}{2}$ hour before recharging is necessary. If neither indicator glows, either the battery is discharged or the vibrator is defective.

b. Stationary Operation. Preparation of the set for stationary operation is the same as for portable operation, except that the remote control unit need not be removed from the panel.

5. OPERATION.

a. Portable. After the set has been prepared for operation as directed in paragraph 4, proceed as follows (refer to fig. 3):

(1) Set the **Frequenz-Einstellung** (tuning control) to the desired frequency channel.

(2) Set the microphone switch to **E.** (receive) position.

(3) Replace the front cover, and set the **Ein Aus** (on off) switch to **Ein** (on) by lifting the hinged tip of the knob and turning it to the right.

(4) Turn the **Lautstärke** (volume) control to the right until a rushing sound is heard in the headset, or until the desired signal is heard.

(5) Adjust the control marked **Empf.-Nachstimmung** (receiver fine tuning) for maximum volume.

(6) To transmit, set the microphone switch to the **S.** (transmit) position and start speaking.

b. Stationary. Stationary operation is the same as portable operation, except that the front cover may be left off.

6. CALIBRATION.

a. If the station cannot be tuned in by means of the **Empf.-Nachstimmung** (receiver fine tuning) control, it will be necessary to readjust the **Frequ.-Prüfg.** (calibration trimmer).

b. Uncover the calibration opening by turning the calibration-opening cover screw to the left (fig. 3). The adjustment of this trimmer is possible only with the use of another set.

c. Set the **Frequenz-Einstellung** (tuning control) of both sets to the channel marked with red. Then set the **Empf.-Nachstimmung** (receiver fine tuning) control of the set requiring adjustment, so that the red dot is visible through the guard strap hole. This is the normal position of this control.

d. With the other set transmitting a modulated signal, set the **Ein Aus** (on off) switch to **Ein** (on), adjust the **Frequ.-Prüfg.** (calibration trimmer) for maximum signal and close the cover of the calibration opening. The **Empf.-Nachstimmung** (receiver fine tuning) control can now be used to tune in any station close to the frequency to which the **Frequenz-Einstellung** (tuning control) is set.

7. BATTERY CHARGING. Charging requirements of nickel-iron-alkali batteries are different from the more common lead-acid batteries, and the following instructions should be observed:

a. Remove the two metal filler plugs before charging, and check the electrolyte level. If the plates are not covered, add enough distilled water to cover them.

CAUTION: Never put acid in this battery.

b. Charge the battery 10 hours at a 4.2-ampere rate, or 7 hours at a 6-ampere rate. The higher charging rate is preferable. The charge is complete when the voltage at the battery terminals measures 3.6 volts and remains at this value for 2 hours with the charger connected and delivering 6 amperes.

c. After the battery is charged, clean the filler plugs and replace them. Clean the top of the battery and the terminals, then go over the entire battery with a lintless oily cloth.

f. The Ein Aus (on off) is a power switch used to turn the set on and off. The battery will give better service if it is short-circuited and completely discharged just before charging. A hydrometer cannot be used to check the electrolyte, since its specific gravity remains practically constant during

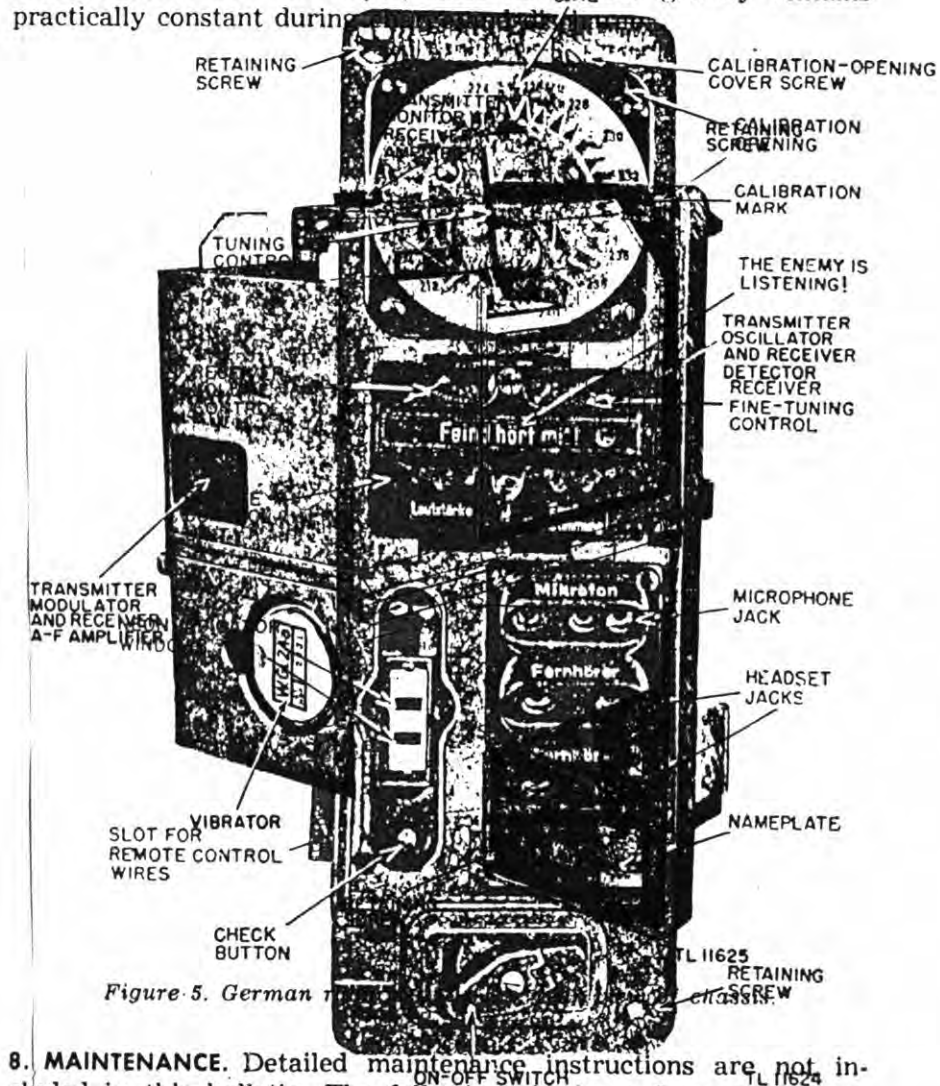


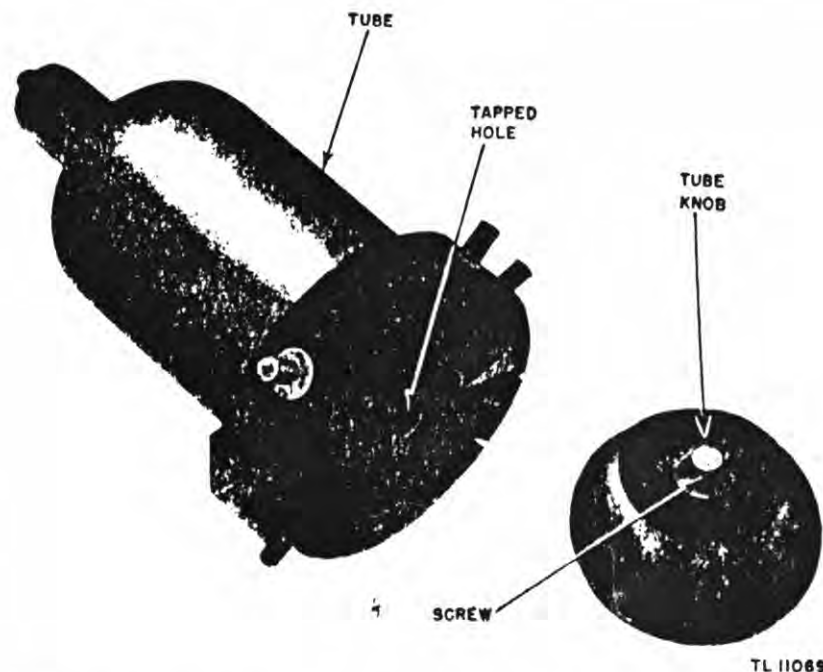
Figure 5. German radio set Feldfu. b, front view, cover removed.

8. MAINTENANCE. Detailed maintenance instructions are not included in this bulletin. The following checks and operating precautions should be observed when the set fails to operate:

- Check the battery connections and make sure they are clean and tight.
- Check the cord and plugs of the microphone and headset.
- Check the condition of the battery by means of the neon indicators on the panel. Since these indicators are in the high-voltage

circuit, they will also serve to check the vibrator output. To replace the vibrator, loosen the two red-ringed retaining screws (figs. 3 and 5), and slide the chassis out of the case. The vibrator plugs in, and has a wire handle attached for pulling.

d. If the set receives but does not transmit, the fault will not be in the tubes.



TL 11089

Figure 6. Typical tube used in German radio sets Feldfu. b and Feldfu. c.

e. When the condition of the tubes is questionable, replace them, one at a time, with tubes known to be good, and check the operation after each replacement. Use the knob on type RL2.4P2 tube (figs. 5 and 6) to remove the other two tubes. The knob screws into the tube base. The other tubes are covered by a metal slide which must be moved to make the tubes accessible.

f. If the simple procedures outlined above do not make the set operate, send it back to a signal depot. The components may be used to repair other sets. WE CAN USE THE GERMAN PARTS TO REPAIR OUR OWN AS WELL AS GERMAN SETS.

9. GLOSSARY OF TERMS. The German terms on the sets and their American military equivalents are as follows:

German

American

Audion-u.Sende-Rö.	detector and oscillator tube
Aus	off
Bei Röhrenaustausch Frequenzkontrolle vornehmen.	Check calibration after changing tubes.
Ein	on
Empf.-Nachstimmung	receiver fine tuning
Feind hört mit!	The enemy is listening!
Feldfu. b	field radio telephone b
Fernhörer	headset
Frequenz-Einstellung	tuning control
Frequ.-Prüfg.	frequency (calibration) check
H.F.-u.Mithör-Rö.	r-f amplifier and monitor tube
Lautstärke	volume
Mikrofon	microphone
Mod.-Rö.u.NF.-Rö.	modulator and a-f amplifier tube
Spannung normal	voltage normal
Sammler bereitst	battery low



DESTRUCTION NOTICE

DESTROY THIS SET COMPLETELY! THIS IS VITALLY IMPORTANT!

WHY — THIS IS THE ENEMY'S OWN EQUIPMENT! HE IS ALREADY FAMILIAR WITH ITS OPERATION. HE HAS ADEQUATE SUPPLIES OF REPLACEMENT PARTS. DON'T LET THIS SET FALL INTO HIS HANDS!

WHEN —When ordered to do so by your commander.

HOW —

1. Smash — Use sledges, axes, handaxes, pickaxes, hammers, crowbars, heavy tools, etc.
2. Cut — Use axes, handaxes, machetes, etc.
3. Burn — Use gasoline, kerosene, oil, flame throwers, incendiary grenades, etc.
4. Explosives — Use firearms, grenades, TNT, etc.
5. Disposal — Bury in slit trenches, fox holes, other holes. Throw in streams. Scatter.

USE ANYTHING IMMEDIATELY AVAILABLE FOR DESTRUCTION OF THIS EQUIPMENT.

WHAT —

1. Smash — Tubes, capacitors, coils, keys, headsets, microphones, panels, frames, antenna mast sections, and other electrical parts.
2. Cut — All cables, wiring, and cords.
3. Burn — Diagrams, charts, instruction books, wire.
4. Bury or scatter — Any or all of the above pieces after destroying them.

DESTROY EVERYTHING!