THOMSON-CSF

SKYHOPPER

TRC 350H

TRANSCEIVER

OPERATING INSTRUCTION

MAE 269 GB 88060095 ISSUE 1 - 9203

PREAMBLE

The TRC 350 H is a tactical portable transceiver providing HF communications in PTT mode. It can be used:

- in portable configuration, on man's back or on ground,
- in hand-held configuration,
- as disembarkable radio in a more powerful station.

This equipment allows two operating modes:

1) "FF" fixed frequency

In this mode, the equipment ensures conventional HF communications in J3E, J2A, DATA and AM compatible.

2) "ECC" frequency hopping

This operating mode allows setting up communications in J3E when the "FF" communication is impossible due to a jammer on the usable frequency or if a higher confidentiality of the transmitted information is desired, and it is specially adapted to withstand counter-measures.

* FF : Fixed Frequency Mode: J3E - J2A - DATA - AM

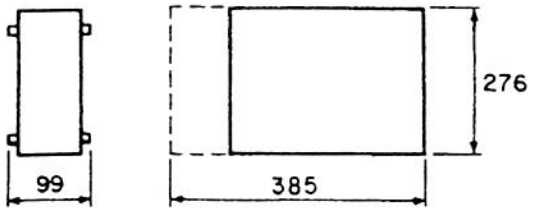
RGS/GNV/NOT - 767C2

SUMMARY

Page

GENERAL

- Single side band transceiver ensuring transmission of a telephone or telegraph signal in PTT mode.
  - Frequency range: 1.5 MHz to 29.9999 MHz in 100 Hz steps.
  - Number of channels: 285,000 channels.
  - Transmitter power: 20 W PEP.
  - Operating modes : SSB telephony, J3E (A3J)
    Frequency hopping protected SSB telephony
    J2A telegraphy (A2J)
    DATA transmission (with external modem)
    AM compatible telephony { H3E in transmit mode / J3E in receive mode }
  - Possibility for operation in A1 telegraphy by displacement of internal switch.
- Operation:
  - Simplex PTT for all modes and all frequencies.
  - Half-duplex PTT for the 10 preset channels in J3E.
  - Antenna tuning : automatic.
  - Possibility for HF gain manual adjustment in receive mode.
- Power supply: 12.6 V to 18 V DC voltage (by Ni-Cd batteries : 14.5 V - 4 Ah rated voltage).
- In conformity with the military standard.
- Overall dimensions with battery:

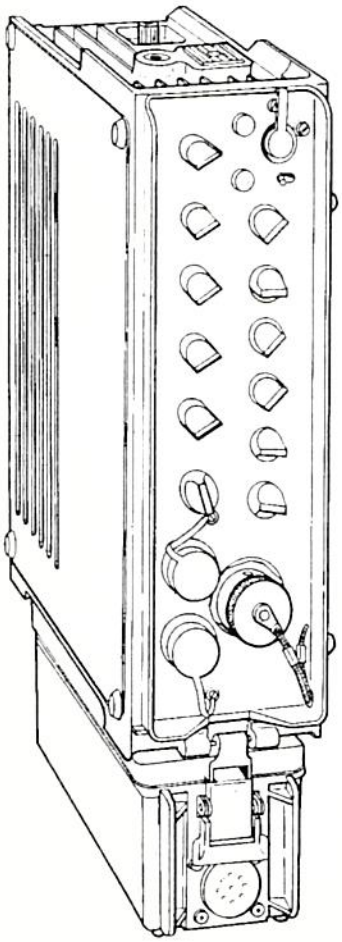


- Weight : 8.5 kg with battery unit ALI 116.

COMPOSITIONS

2.1 MINIMUM BASIC UNIT

- Transceiver TRC 350 H **(1)**
- Battery unit ALI 116 **(2)**
- Handset EX COT 205-10 **(3)**
- Carrying bag POR 150 B **(4)**
- Antenna ANT 112-B **(5)**



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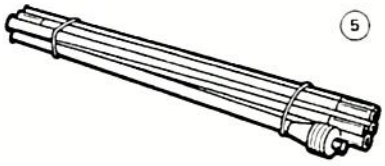

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2.2 OPTIONAL ACCESSORIES

a) Electro-acoustic and telegraphic accessories:
- handset : COT 101-10,
- handset : COT 205-10,
- handset : COT 206-10 (4 preset frequencies),
- telephone headset : CAT 106-10,
- morse key : MAT 102-10,
- morse key : MAT 101-10,
- portable loudspeaker : HPA 106-10,
- headset : ETT 109-10,
- headset : ETT 110-10,
- headset : ETT 112-10 (single earphone).

b) Antennas:
- 2.4 m fiberglass whip antenna : ANT 112-B,
- 1.2 m short antenna : ANT 136,
- wire antenna : ANT 113-1,
- field horizontal antenna : ANT 142-1,
- antenna counterweight : AEA 104,
- vehicle antenna : ANT 117-1,
- rigid orientable antenna base : AMA 106,
- flexible coupling : AMA 113.

c) Power supplies and chargers:
- charger C/10 : ALT 101-3,
- auxiliary power supply : ALT 123 A3,
- hand-driven generator : KIT 103 (ALG 103-3 and its accessories),
- charger for 10 batteries : ALT 131-3,
- solar panel : GES 101-3.

d) Carrying equipment and supports:
- carrying bag for transceiver : POR 150-B,
- bag for accessories : POR 102,
- rigid support : SUP 102,
- rigid support : SUP 155,
- vehicle support with shock-absorber : SUP 155-1,
- carrying bag for tripod ALG 102 : POR 103,
- carrying frame : POR 104.

e) Remote control:
- remote control unit PUP 111-3.

2.3 TRANSCEIVER OPERATION UNITS

1 Audio socket: (with pins for "RS 232 C" remote control).

2 Audio socket: (only for connections to TRC 745H).

3 Eight-position switch:

3 positions : (0, 1, 2) MHz setting

5 positions :  Code entry

 Synchronization stop

 Call of an ECC network

? Entry of identification number

4 10-position switch : 1 MHz setting

5 10-position switch : 100 kHz setting

6 10-position switch : 10 kHz setting

7 10-position switch : 1 kHz setting

8 10-position switch : 100 Hz setting

Or identification n° setting

Or ECC code setting

9 Service socket

10 8-position mode switch :

AM : H3E in transmit mode, J3E in receive mode.

⊖ { : Lower band telegraphy (J2A-).
: SSB, lower band (J3E-).

ECC { H : Frequency hopping (FH)
HQ : High quality frequency hopping

⊕ { : SSB, upper band (J3E+).
: Upper band telegraphy (J2A+)

DATA : Data transmission

11 Control :

: "On" position of the AGC.

: "Off" position of the AGC and HF gain manual adjustment.

12 4-position "Power" switch :

O : Transceiver off.

RX : Reception only

: Reduced power or reception without pressing on handset

: Normal power or reception without pressing on handset

MEM { or : Entry of stored frequencies
: Entry of stored codes.

13 AF volume control.

14 Stored frequency selector :

- 0 : All frequencies : see **3** to **8**.
- : Access to the first 4 frequencies stored by COT 206-10 (or COT 106-10).
- 1 à 10 : Frequencies stored.

15 Antenna selector :

-  : Whip antenna.
-  : Whip antenna on vehicle.
-  : Wire antenna
- 50 Ω : Output on 50 Ω : **17**.

16 Squelch control : switch up = squelch in service.

17 50 Ω BNC socket (wide band HF input).

18 Push-button :

- When **12** is set to "MEM" and 3 to "0, 1, 2" : validates a preset frequency in a channel.
- When **12** is set to "MEM" and 3 to "  " : validates part of the ECC code in a channel.
- When **12** is set to "FF" :
  - . brief pressure : initiates a slaved tuning,
  - . long pressure** : initiates a test.
- When **10** is set to "ECC H" : transmission of a synchronization sequence.
- When **10** is set to "ECC HQ" :
  - . brief pressure : transmission of a synchronization sequence,
  - . long pressure** :
    - for network manager transceiver : transmission of a clarifying sequence to obtain a high quality link,
    - for slave transceiver : switching to standby waiting for clarifying.

* FF : Fixed Frequency Mode : J3E - J2A - DATA - AM
** A pressure is considered as "long" when indicator lamp **19** lights up.

19 Indicator lamp : test response and standby waiting for synchronization.

20 Wire antenna terminal.

21 Ground terminal

22 2 connectors (+) and (-) for battery input.

23 2 drying plugs.

24 Fuse protecting the battery voltage available on audio sockets **1** - **2** and on **9** (1.6 A delayed).

25 Whip antenna terminal.

26 Socket for battery recharging.

27 Fuse protecting the battery power supply ALI 116.

28 Spare fuse cartridge for **24**.

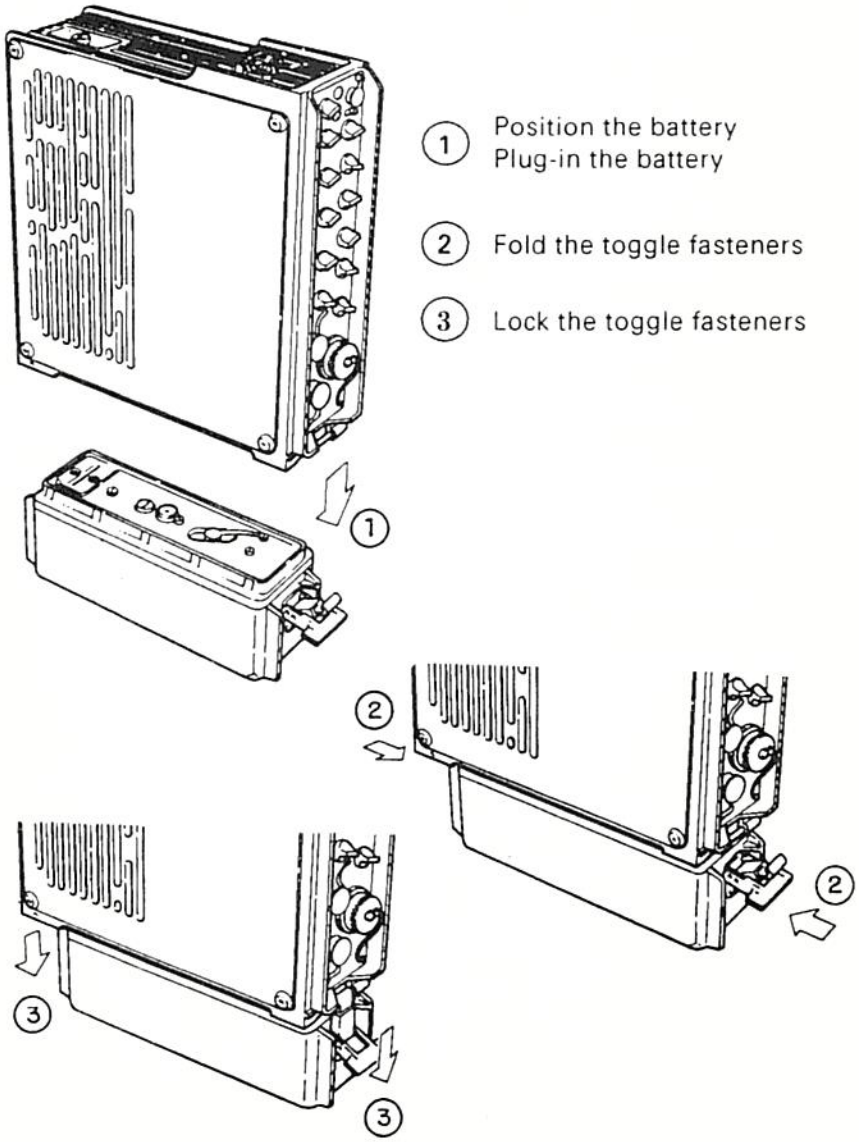
29 Spare fuse cartridge for **27**.

30 Female polarizer.

31 Male polarizer.

PREPARATION

3.1 INSTALLATION OF THE BATTERY



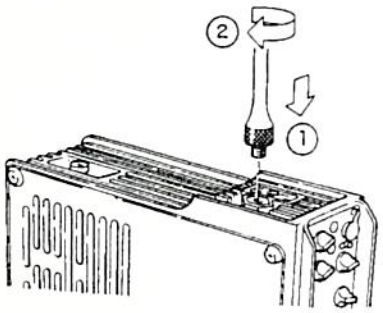
① Position the battery
Plug-in the battery

② Fold the toggle fasteners

③ Lock the toggle fasteners

3.2 INSTALLATION OF THE ANTENNAS

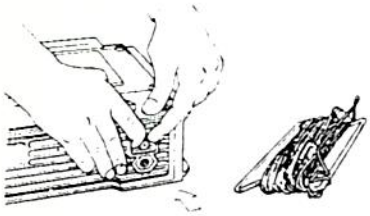
3.2.1 Whip antenna
(ANT 112 B, ANT 135, ANT 136)



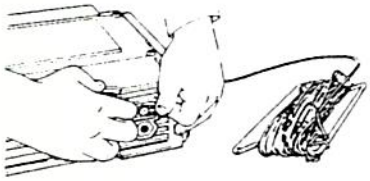
(1) Position and
(2) screw

- Set **15** to position

3.2.2 **Wire antenna** (ANT 113-1)

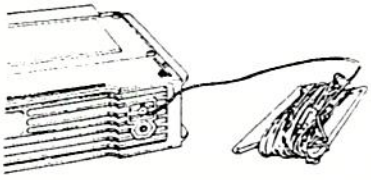


(1) Press (with both hands)



(2) Hold with one hand

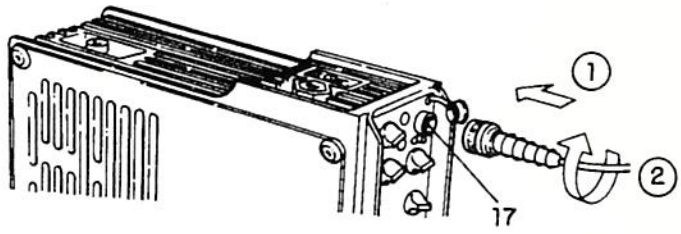
(3) Plug in



(4) Release

- Set **15** to

3.2.3 **Field antenna** (ANT 142-1)

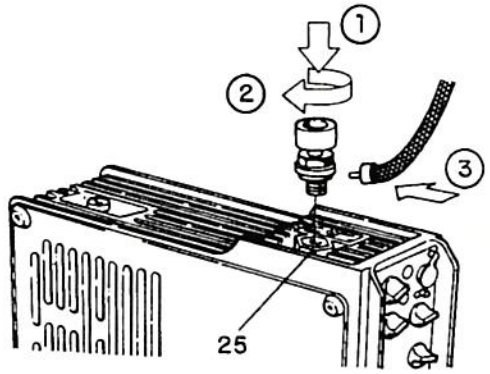


(1) Position on **17**

(2) Lock

- Set **15** to 50 Ω position.

3.2.4 **Vehicle whip antenna** (see appendix 4.3.3)



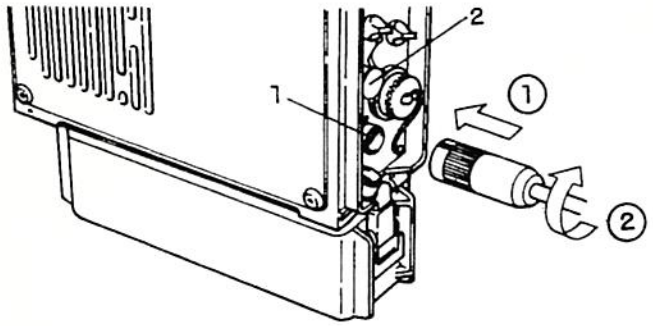
(1) Position the adapter on **25**

(2) Screw on **25**

(3) Tighten the stripped wire on the adapter

- Set **15** to  position

3.3 INSTALLATION OF THE TELEPHONE HANDSET OR OF THE MORSE KEY



① Position on **1** or **2**

② Lock

3.4 CHECK OF THE BATTERY CHARGE

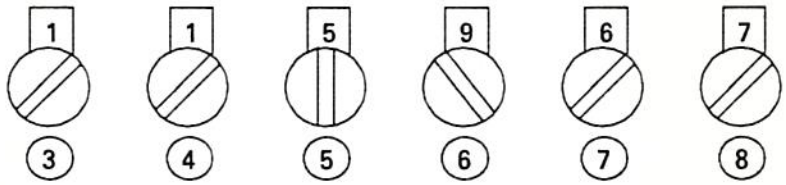
- Switch the unit to ON : **12** to RX or ↗ or ↗
- If the battery is discharged (V < 12.6 V), a single BIP will be heard in the listening return.
- Replace or recharge the battery.

OPERATION

4.1 FIXED FREQUENCY OPERATION

4.1.1 Operation without preset frequencies

- Set **15** to the type of antenna used.
- Set **10** to the desired operating mode (except ECC).
- Set **14** to 0.
- Set **12** to ON : RX Receive only, reduced power or normal power depending on the desired transmitting power.
- SELECT THE OPERATING FREQUENCY : 11.5967 MHz for instance



THE EQUIPMENT IS READY FOR OPERATION.

4.1.2 Operation with preset frequencies

Preliminary step: store the frequencies

a) Set **12** to "MEM" (a tone is heard).

b) On **14**, set the channel number (1 to 10) (Lamp **19** lights up).

c) Set the value of the transmitting frequency : switches **3** to **8**.

d) Briefly press push-button **18** (1) (short extinguishing of indicator lamp 19).

e) Set the value of the receiving frequency : switches **3** to **8**.

f) Briefly press push-button **18** (1) (indicator lamp extinguishing).

g) Repeat operations a) to f) for all frequencies to be stored.

(1) A brief cut in the permanent tone indicates that the frequency is stored.

NOTA : To modify the value of a stored frequency, perform operations a) to f). When pressing **18**, the previous value is erased from memory and replaced by the new one.

h) Set **12** to 0 (end of preparation)

Operation

- Set **15** to the type of antenna used.
- Set **10** to the operating mode used.
- Set **14** to the channel used.
- Set **12** to ON : RX Receive only - reduced power - or normal power depending on the desired transmit power.
- SELECT THE OPERATING FREQUENCY : 11.5967 MHz for instance

4.1.3 Receiver adjustment

- Set to extreme position.

AGC

IN RECEIVE MODE :if the communication is disturbed by a jammer, decrease the AGC.

- Adjust the monitoring level with **13**.
- Standby with squelch ON (1) or OFF (0)

4.1.4 Operation with handset COT 206-10

The operation is the same as described in paragraph 4.1.2, but sequence j) becomes :

- Set **14** to

- Set the handset switch to the desired frequency number. The four positions correspond to the frequencies stored on positions 1, 2, 3 and 4, respectively, of **14** on the TRC 350 H.

CAUTION : Handset COT 206-10 cannot be used with remote control console PUP III-3.

4.1.5 Antenna tunings

Antenna tunings are automatic.

In receive mode :

Automatic tunings with no HF transmission, thus providing radio discretion.

In transmit mode :

Slaved tunings performed at first pressure on the PTT control.

During operation, if the environment is modified and results in heavy antenna mismatching, a slaved tuning is automatically restarted at the next pressure on the PTT control.

NOTE : If reception is difficult, low or not audible, the operator can start a slaved tuning to improve reception by pressing **18** when switch **12** is set to ↗ or to ↘ and 10 set off ECC positions.

4.1.6 Emergency clearing of stored frequencies and keys

- Set **12** to 0.
- Permently depress **18**.
- Set **12** to Rx.
- Wait until indicator **19** lights up.
- Release **18**.

A brief cut in the permanent tone indicates that the frequencies and keys are cleared.

TELEPHONY

USE OF THE DYNAMIC MICROPHONE

ETT 110-10
ETT 112-10
COT 206-10

NORMAL

YELLOW DOTS

PRESS
to transmit

RELEASE
to receive

ETT 109-10
ETT 110-10
ETT 112-10

ROTATE

WHITE DOTS

ANTI-NOISE SPEAK NEAR THE MICROPHONE

PRESS
to transmit

RELEASE
to receive

COT 101-10
COT 206-10

TELEGRAPHY

ACTUATE THE LEVER
to transmit

RELEASE
to receive

MAT 101-10

MAT 102-10

4.2 FREQUENCY HOPPING OPERATION

The equipment allows transmitting a telephone signal in frequency hopping, simplex PTT, on both ECC positions of switch **10**.

- ECC H : Frequency hopping on all channels available according to the selected frequency.
- ECC HQ : Frequency hopping with channel occupation management, allowing a high quality monitoring.

To provide a high security for the transmitted information, a key is associated to each initial frequency. To set up an ECC communication network, it is thus necessary that each station in the network uses the same key which consists of 4 groups of 5 digits, from 0 to 7.

4.2.1 Initialization

4.2.1.1 Access to "All frequencies"

- Select "0" on selector **14**.
- Set switch **12** to "MEM" (a tone is heard).
- Set "  " on switch **3** (indicator lamp **19** lights up).
- Using code switches **4** - **5** - **6** - **7** - **8**, set the first 5-digit group of the key (0 to 7).
- Press push-button **18** (a permanent tone cutoff and indicator lamp briefly going off indicate group storage).
- Set the 2nd, 3rd and 4th 5-digit groups from 0 to 7 on switches **4** to **8**, by pressing push-button **18** once a group has been set.

  When the 4th group has been validated, indicator lamp **19** remains permanently off.

NOTA : - In case of error in the key contents, it is necessary to repeat the procedure when the indicator lamp has gone off, by pressing push-button **18** again, thus causing indicator lamp **19** to light up again and permits entering four new 5-digit groups.

- After frequency changing, the key used always remains the last key stored in memory on position "0" of selector **14**.

- Set switch **12** to RX or ↗ or ↗ .
- Using switches **3** to **8**, set the initial frequency.

4.2.1.2 Stored frequencies

a) In ECC mode, stored channels are common with the FF mode. Frequencies preset in FF mode can be used in ECC mode, according to the two following cases :

1) The channel was preset in simplex, $F_{TX} = F_{RX}$.

The ECC operating frequency is that preset on the channel.

2) The channel was preset in half-duplex, F_{TX} different from F_{RX}.

The ECC operating frequency is the higher of F_{TX} and F_{RX} frequencies.

Example : F_{TX} = 4.5678 MHz, F_{RX} = 6.7890 MHz
F_{ECC} = 6.7890 MHz

New programming of a channel (refer to paragraph 4.1.2 = Frequency storing).

b) Entry of the key :

- Using switch **14** , select the channel you want to program.
- Set switch **12** to "MEM" (indicator lamp **19** lights up).
- Set switch **3** to ↑ .

- Press push-button **18** (a permanent tone cutoff and indicator lamp briefly going off indicate group storage).

- Set the 2nd, 3rd and 4th 5-digit (from 0 to 7) groups on switches **4** to **8**, by pressing push-button 18 once a group has been set.

  When the 4th group has been validated, indicator lamp **19** remains permanently off.

  NOTE : - In case of error in the key contents, it is necessary to repeat the procedure when the indicator lamp has gone off, by pressing push-button **18** again, thus causing indicator lamp **19** to light up again and permits entering four new 5-digit groups.

  - The stored frequencies and key will be erased :

    . through emergency clearing (see paragraph 4.1.6, emergency clearing),

    . when entering another frequency and another key.

  - It is possible to only change the frequency or key storage by only applying paragraph 4.2.1.2.a or 4.2.1.2.b.

- Set switch **12** to RX or  or

- Set selector **14** to the desired channel No.

4.2.1.3 Equipment identification

It is possible to assign an identification number to the equipment, ranging from 1 to 999.

- Set **3** to : ? (a tone is heard, indicator lamp **19** lights up).
- Using switches **6**, **7** and **8** set the number corresponding to the identification number assigned to the equipment.
- Press **18** to validate (the tone is briefly cut, indicator lamp **19** goes off).

To suppress the identification :

- Set **3** to : ?.
- Set **6**, **7**, **8** to 0 and "briefly" press **18** to validate.

4.2.2 Network synchronization

Before synchronizing the network, it is imperative to proceed with the equipment initialization phase (para. 4.2.1).

- Set selector **15** to the desired type of antenna.
- Set selector **14** to the desired position.
- Set **12** to  or  depending on the desired transmitting power.
- Set switch **10** to "ECC H" or "ECC HQ".

  The equipment is then on standby and indicator lamp **19** flashes in rate with this phase.
- By pressing push-button **18**, the network manager starts the synchronization sequence audible in his monitoring return.

  All the radios in the network receive the synchronization sequence consisting of successive 2-tone combinations.

  The operators are warned of the synchronization completion and possible operation when indicator lamp **19** goes off.

NOTE : - If switch **10** is set to an ECC position which does not correspond to the network manager position, "ECC H" instead of "ECC HQ" and vice-versa, when indicator lamp **19** goes off, a permanent tone in the earphone warns the operator that **10** is set to the wrong position.

- In "ECC HQ" mode, the synchronization phase is longer than in "ECC H".
- In case of specially difficult communication and if radio silence is not imposed, before proceeding with the network synchro-nization sequence, it is recommended to perform a slaved antenna tuning in mode "FF" by pressing **18**.

4.2.3 Frequency hopping operation

After initialization and network synchronization, links are set up as in fixed frequency, simplex PTT voice mode.

In traffic phase, signalling are identical to those transmitted in fixed frequency to indicate a fault.

a) **Network synchronized in "ECC H" mode**

- Switching to "ECC H" mode to "FF"* mode and from "FF"* to "ECC H" (switch **10**) is possible without loosing network synchronization.
- Channel changing (selector **14**) is possible without loosing network synchronization.
- Operation in "ECC HQ" mode is not possible :

  If the operator leaves switch **10** on "ECC HQ", two cases are possible :

  1) "Slave" equipment :

     Indicator lamp **19** flashes, the equipment is on standby waiting for synchronization.

* "FF" : Fixed Frequency mode : J3E, J2A, DATA, AM.

2) "Network manager" equipment :

A permanent tone in the monitoring return warns the operator that he can perform network synchronization in "ECC HQ" mode, by pressing push-button **18**.

b) **Network synchronized in "ECC HQ" mode**

- Switching to "ECC H" mode or to one of the "FF"* modes is possible without loosing network synchronization.
- Channel changing (selector **14**) is possible without loosing network synchronization in "ECC H" or "FF*" modes.
- In "ECC HQ" mode, channel changing requires a new synchronization sequence. If the operator sets selector **14** to another channel, two cases are possible :

1) "Slave" equipment :

Indicator lamp **19** flashes, the equipment is on standby waiting for synchronization.

2) "Network manager" equipment :

A permanent tone in the monitoring return warns the operator that he can perform network synchronization in "ECC HQ" mode on the new channel, by pressing push-button **18**.

- Network clarifying.

Depending on the propagation condition variations, it may be necessary after a long communication period, to perform a clarifying sequence so as to improve listening comfort.

In manual mode

On order from the "network manager", the network performs the following operations :

1) "Slave" equipment :

The operator makes a long pressure on push-button **18** until indicator lamp **19** lights up. The equipment is then on standby waiting for synchronization.

* "FF" : Fixed Frequency mode : J3E, J2A, DATA, AM.

2) "Network manager" equipment :

The operator makes a long pressure on push-button **18** until indicator lamp **19** lights up. The equipment is then in clarifying phase and transmits the new synchronization to the network.

In automatic mode

"Network manager" equipment :

The operator, after making sure all network member are well in receive mode, applies a long pressure to pushbutton **18** until indicator lamp **19** lights up. The equipment sends such order to the network, which compels the slave stations to step to standby and transmits the new synchronization to the network.

4.2.3.1 Automatic synchronization

The "network manager" equipment which sent the network initial synchronization, automatically and periodically sends a synchronization hold sequence to the stations forming the network. The stations operating in "ECC H" or "ECC HQ" mode automatically switch to receive mode to receive this sequence. This sequence is not sent when the equipment is set to radio silence (switch **12** set to RX).

4.2.3.2 Antenna tunings

Antenna tunings are automatic.

In receive mode :

Automatic tunings without HF transmission, ensuring radio discretion.

In transmit mode :

Slaved tunings performed at first pressure on the PTT control on initial frequencies, except if tunings have already been stored in memory during another session.

NOTE : In case of difficult communication, the operator can start a slaved tuning after having set switch **10** to "FF"* and briefly pressed push-button **18**.

* "FF" : Fixed Frequency mode : J3E, J2A, DATA, AM.

4.2.3.3 Recovery of non synchronized radios

A short pressure on push-button **18** in "ECC H" or "ECC HQ" mode initiates the transmission of a synchronization sequence enabling to recover radios in standby phase on the network.

4.2.3.4 Synchronism maintenance

The network synchronization is maintained for 5 minutes if **12** is set to OFF 0, or when the power supply is cut off.

4.2.3.5 Quitting a synchronized network

To quit a synchronized network , for example to enter another ECC network, proceed as follows :

- Set switch **3** to ⮆ (a tone is heard).
- Briefly press push-button **18** to validate (short tone cut).
- Set switch **3** back to an operating position (the tone is no longer heard).

4.2.4 Call to enter an already synchronized network

- Call and entry to an already synchronized network is possible on one of the 10 preset channels **14** after entry of the frequency and key of the network to be called and only if the equipment is not already synchronized (otherwise, see paragraph 4.2.3.5 Quitting a synchronized network).
  - Set **14** to the channel number corresponding to the network.
  - Set **10** to "ECC H" or "ECC HQ" depending on the network traffic mode.

* "FF" : Fixed Frequency mode : J3E, J2A, DATA, AM.

- Set **3** to 🔔 .
- "Briefly" press push-button **18**.
- A network automatic call sequence is initiated.
- This call sequence is cancelled :
  - by a new pressure on **18** or by modifying the position of switch **3**.

The called ECC network receives the call during standby periods, thus generating a ring in the earphone (successive tones).

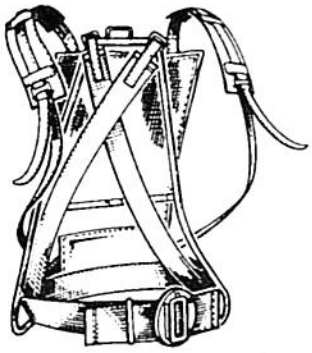
Entry of the calling equipment into the network is made at network initiative (see paragraph 4.2.3.3 Recovery of non synchronized radios).

When the equipment has received a synchronization from the called network, a permanent beep warns the operator that he should set **3** to an operating position (0, 1 or 2), if the permanent beep persists, change switch **10** from "ECC H" to "ECC HQ" or vice-versa.

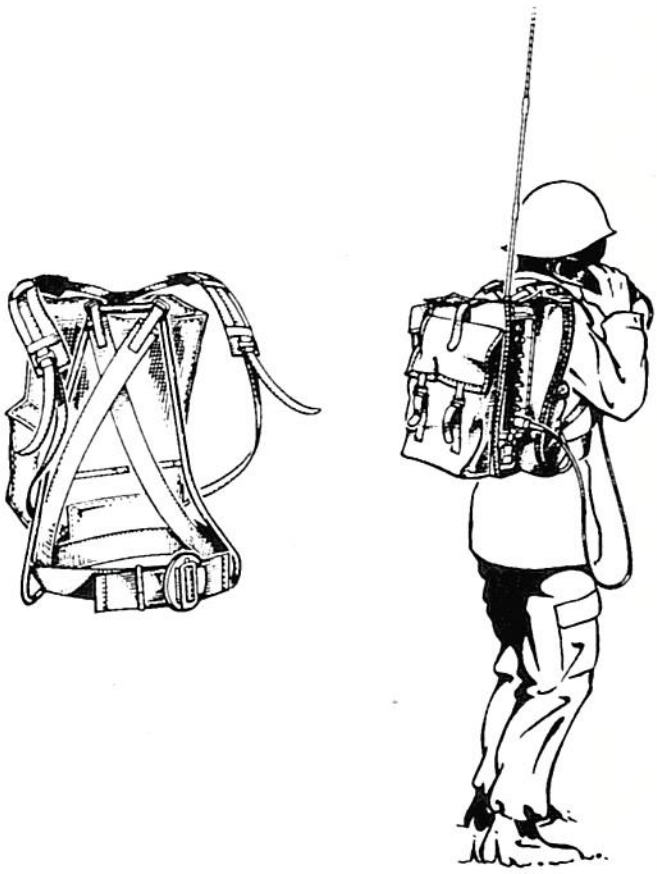
INSTALLATION

5.1 OPERATION ON MAN'S BACK

5.1.1 Use of the carrying harness POR 120-1



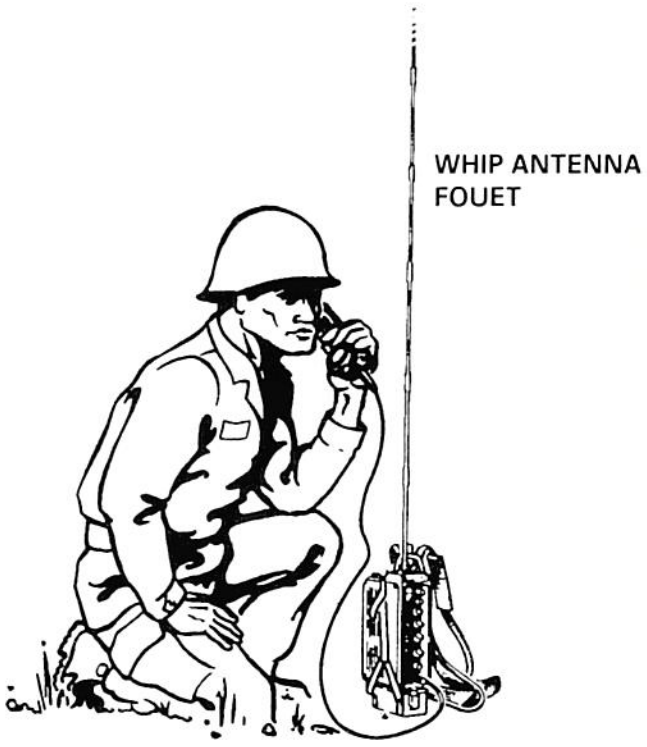
5.1.2 Use of the carrying bag POR 150 B



5.2 OPERATION ON THE GROUND

5.2.1 Installation of the transceiver with whip antenna

5.2.1.1 Installation of the antenna



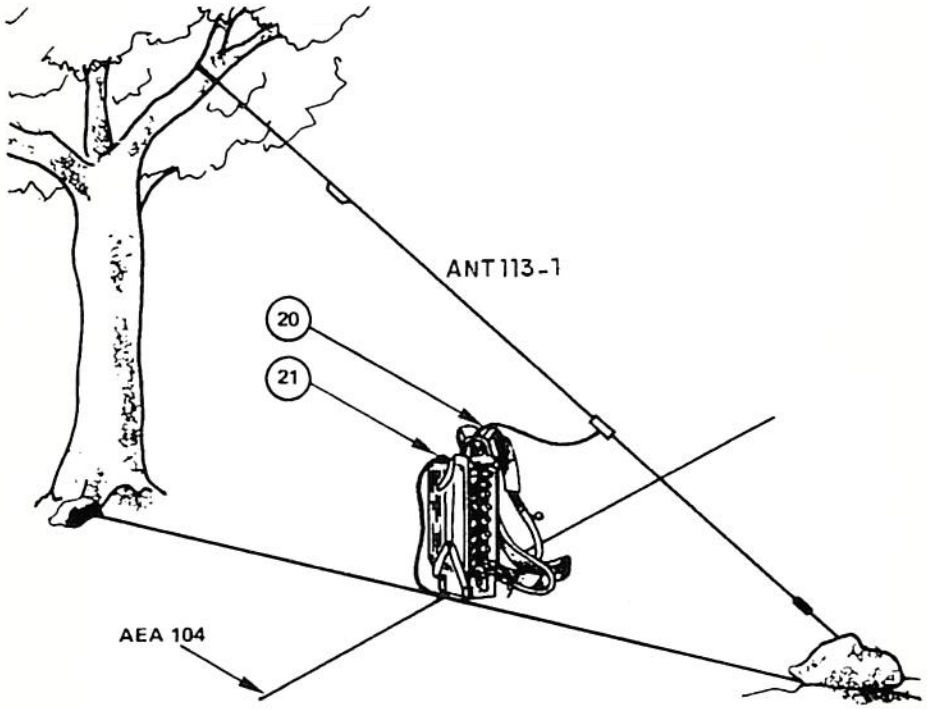
5.2.1.2 Use of an antenna counterweight AEA 104

Use of the antenna counterweight is recommended from 2 to 10 MHz.

1 Lay the counterweight AEA 104 around the transceiver laid on the ground.

2 Connect the ground terminal to the end of counterweight AEA 104 (see para. 3.4).

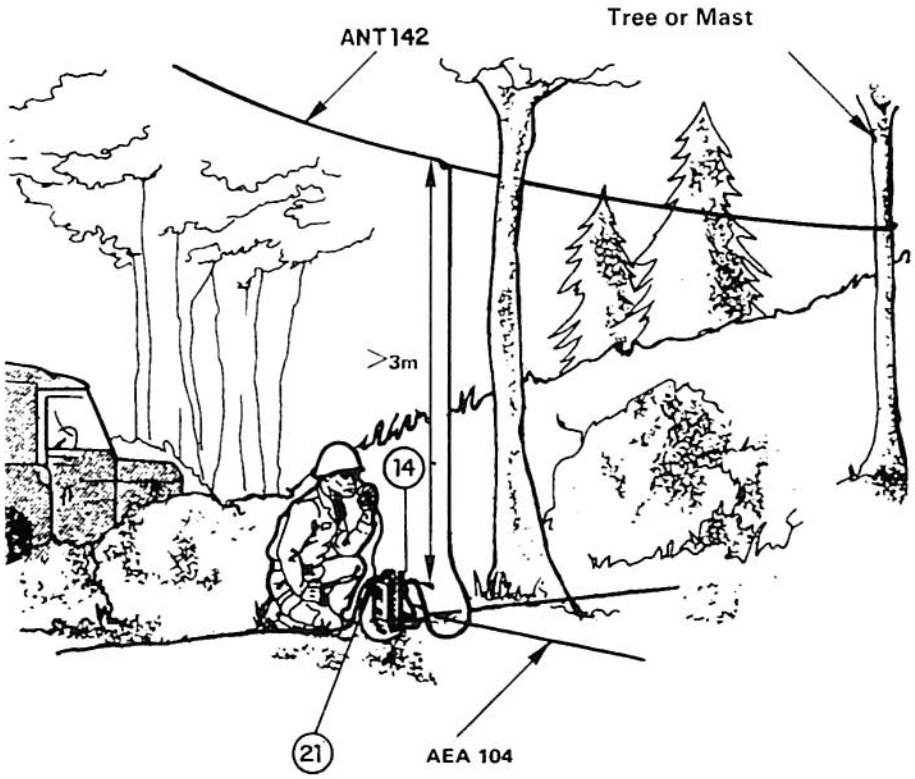
5.2.2 Installation of the transceiver with wire antenna ANT 113-1



ANT 113-1 adjustment :

- Adjust the wire antenna length according to the frequency,
- Antenna counterweight AEA 104 :
  - . recommended from 2 to 10 MHz,
  - . not recommended above 10 MHz.

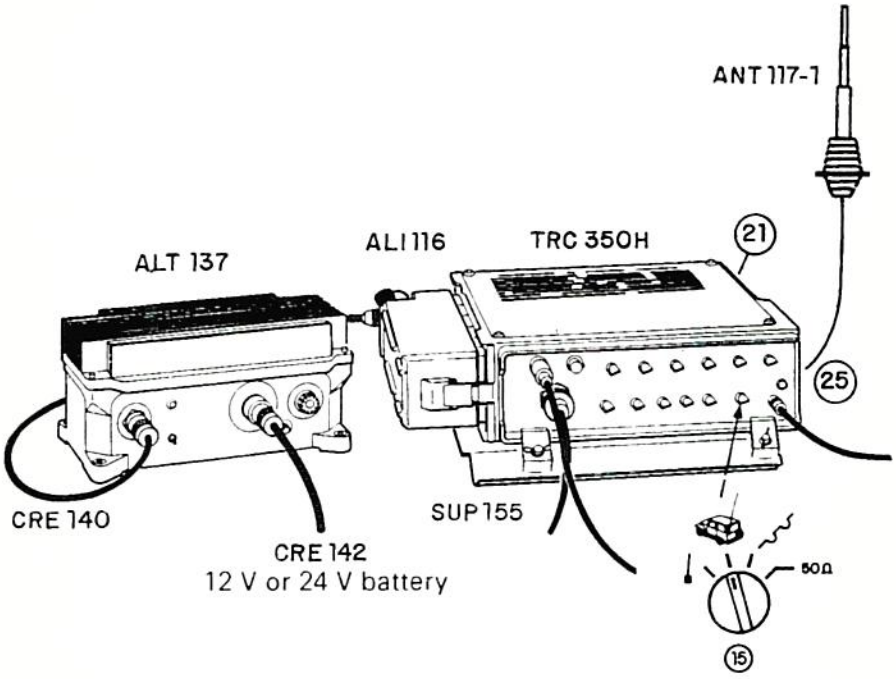
5.2.3 Installation of the transceiver with horizontal field antenna ANT 142-1



See installation details in the manual specific to the ANT 142.

- Antenna counterweight AEA 104 :
  - recommended from 2 to 10 MHz,
  - not recommended above 10 MHz.

5.3 MOBILE OPERATION



5.3.1 Antenna ANT 117-1

See paragraph 3.2.4 as concerns connection of the feeder to **25**.

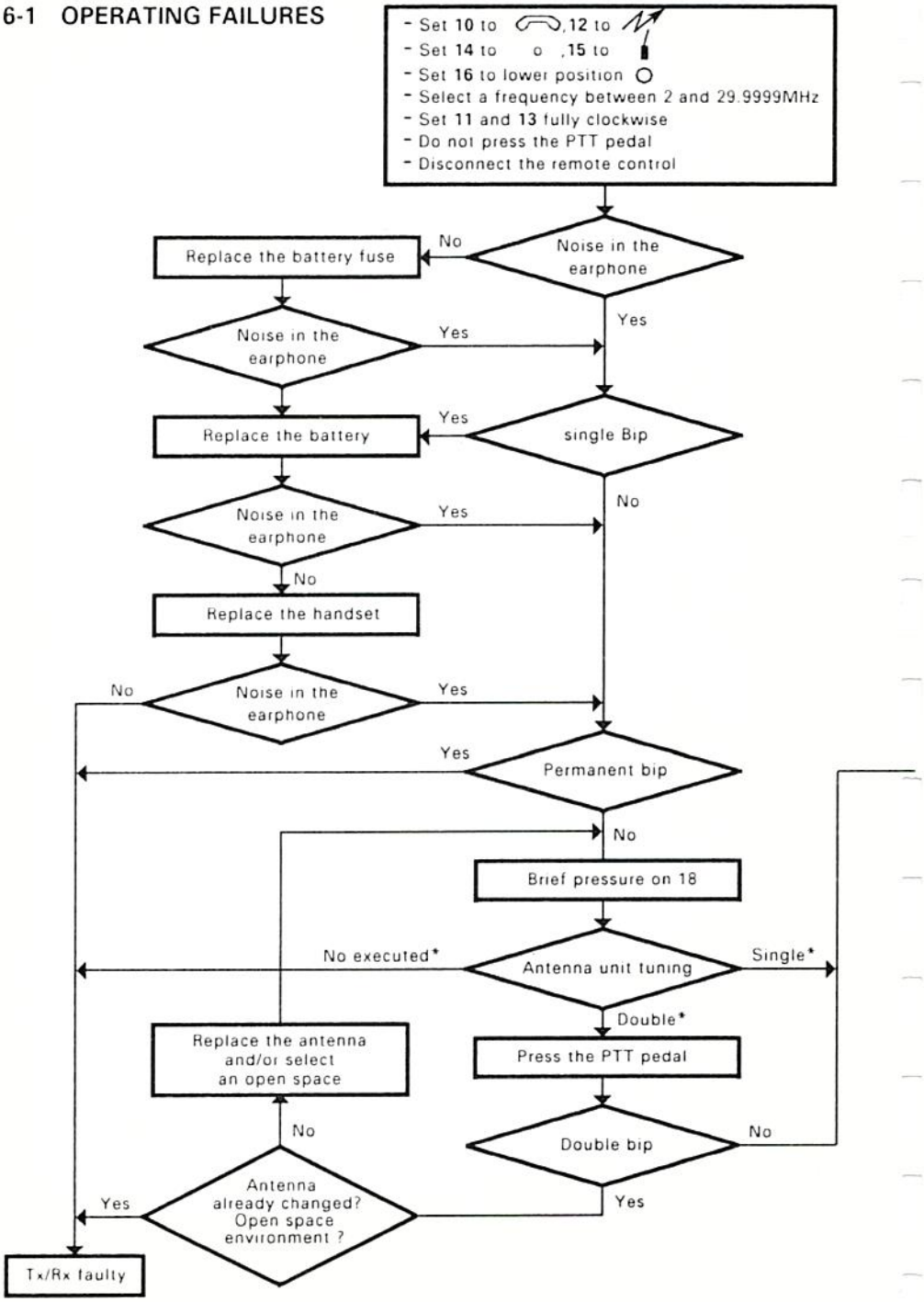
5.3.2 ANT 117-1 utilization table

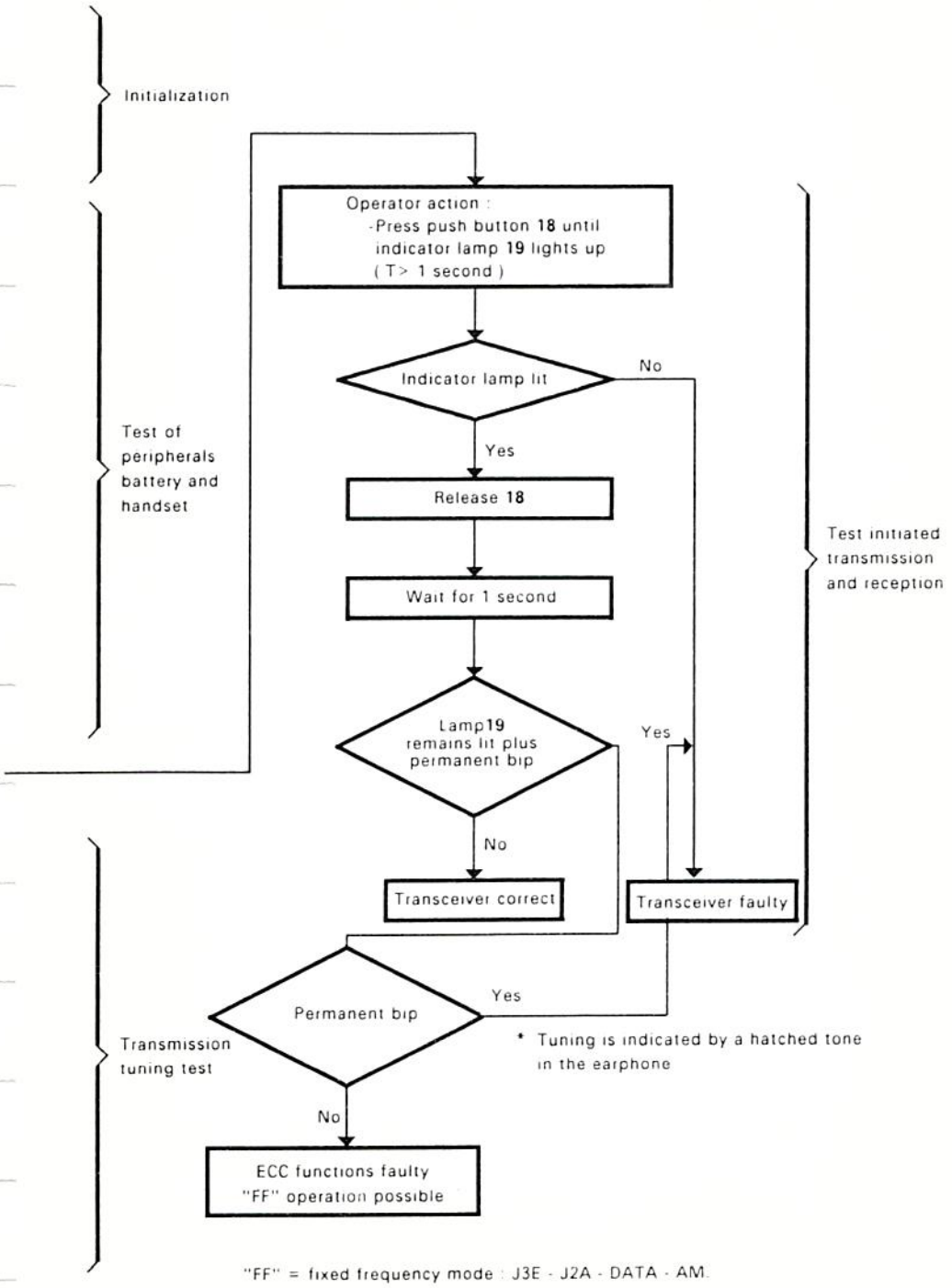
Table giving, according to the frequency, the ANT 117-1 wires usable to increase the efficiency of the communication.

Antenna wires	Antenna length	Operating frequency
2 wires : 1 MS 117 + 1 MS 118	2.20 m	1.8 to 30 MHz
3 wires : 1 MS 116 + 1 MS 117 + 1 MS 118	3.10 m	1.5 to 18 MHz
5 wires : 3 MS 116 + 1 MS 117 + 1 MS 118	5.00 m	1.5 to 12 MHz

MAINTENANCE

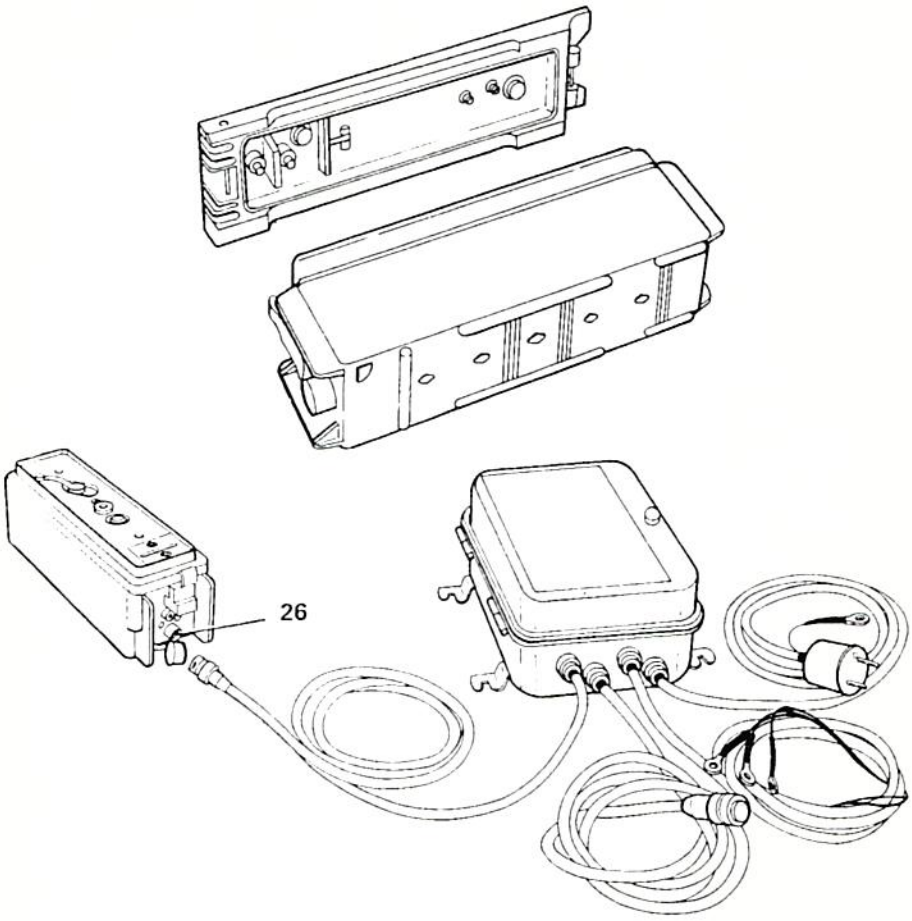
6-1 OPERATING FAILURES





"FF" = fixed frequency mode : J3E - J2A - DATA - AM.

6.2 BATTERY RECHARGING (14.5 V - 4 Ah) WITH ALT 101-3



(1) Remove unit ALI 116

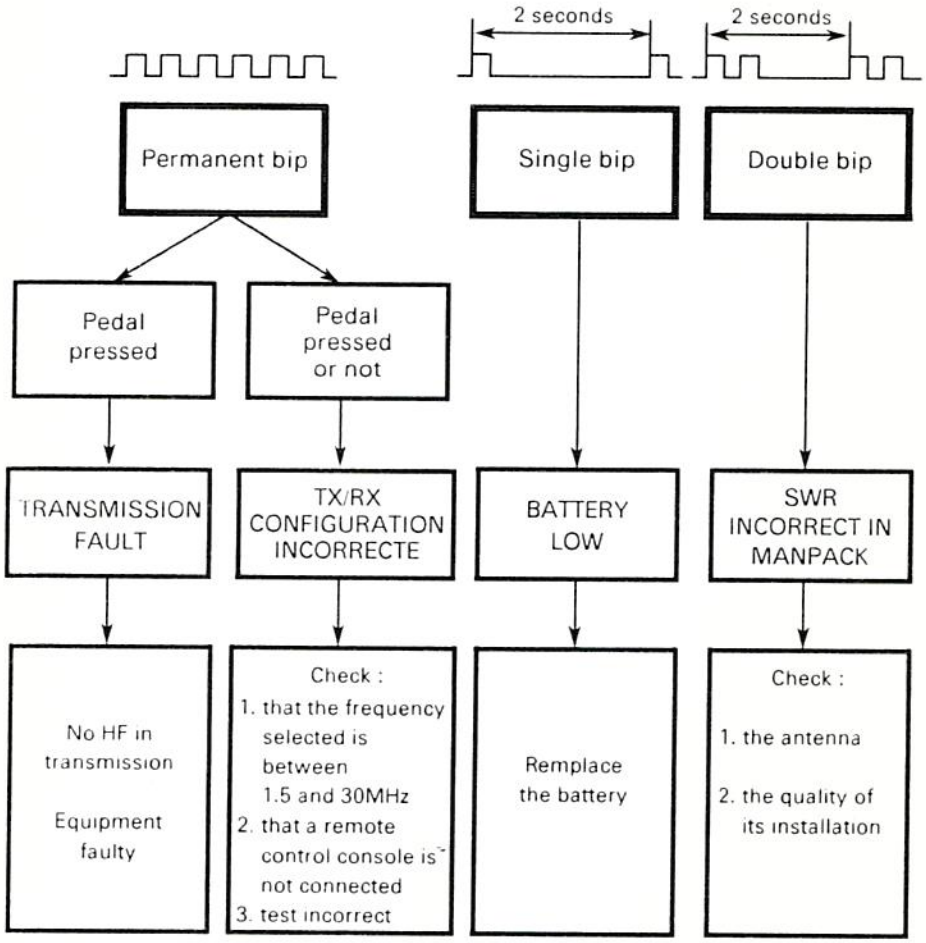
(2) Remove the plug from **26**
Connect cable CRE 133 to **26**

(3) Charge at a temperature ranging from 15 to 25° C
Charging time :
14 hours (for a completely discharged battery)

6.3 MAINTENANCE OF THE EQUIPMENT WHEN NOT OPERATING

- Remove the battery. Recharge it if necessary.
- Store the unit and its battery separately in cool and ventilated premises.
- Periodically check that the battery charge is correct.

SUMMARY TABLE OF ALARMS



See Summary Table of Tones.

SUMMARY TABLES OF TONES AND INDICATOR LAMP ILLUMINATION DURING OPERATION

Operating mode	Indicator lamp	Tone
Entry of stored frequencies. 12 in MEM. 14 in position 1 to 10. Brief pressure on push-button.	- On, with brief extinguishing during transmit frequency entry. - Off, after receive frequency entry.	Permanent (brief cut of permanent tone during frequency entry).
Key entries. 12 in MEM. 3 in  . Brief pressure on push-button.	- On, with brief extinguishing during digit group entry. - Off, after entry of four 5-digit groups.	Permanent (brief cut of permanent tone during entry of key digit groups).
Identification No. entry. 3 in ?. 6, 7 and 8 in position 0 to 9.	- On. - Off, after identification No. entry.	Permanent (brief cut of permanent tone during identification No. entry).
Exit from an ECC network (synchronization stop). 3 in  .	Off.	Permanent (brief cut of permanent tone during synchronization stop).
Emergency clearing : - 12 in 0. - Permanent pressure on push-button. - 12 in RX, RP or NP. - Release push-button.	- Lit. → Short extinguishing. - Lit for 2 seconds. - Off.	- Permanent tone. - Short tone cut. - Tone permanent for 2 s. - Tone stop.

Operating mode	Indicator lamp	Tone
Inoperables modes : - Frequency out of tolerances. - Channel empty. - No key on the channel (mode H or HQ). - Position "call" (3 in 🔔) in FF or on a synchronized unit. - Position ⊡ .	Off.	Permanent beep.
Standby.	Indicator light flashing every 1,5 s.	-
Sync. reception in progress.	Indicator lamp double flash every 1,5 s.	-
Wait for new clarifying confirmation.	-	Permanent tone.
ECC moderm on switch 10 is not conforming with received synchronization.	-	Permanent beep.
Battery weak.	-	Single beep every 2 seconds.
SWR not correct.	-	Double beep every 2 seconds.
Search for operable frequencies in ECC-HQ mode.	-	Waiting tone (succession of 2 tones).
Transceiver in station and switch 15 not in position 50 Ω.	On.	-
Reception of a call to enter the network.	Off.	Fast beep for 2 seconds.
"Batterie weak" in dication during a sync. sending.	Off.	Fast beep for 5 seconds.

APPENDIX

OPERATION WITH REMOTE CONTROL CONSOLE PUP 111-3

PUP 111-3 allows the transceiver remote control.

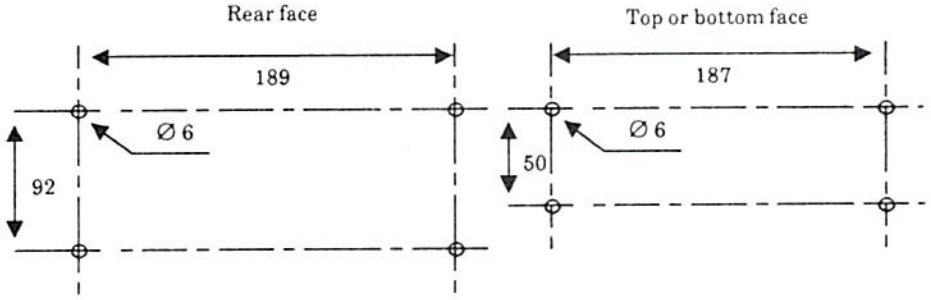
- Short range with cable CBF 137 (supplied with requested length, 8 meters maximum).
- Long range with cables CBF 137 and CBF 106-10 (90 meters).

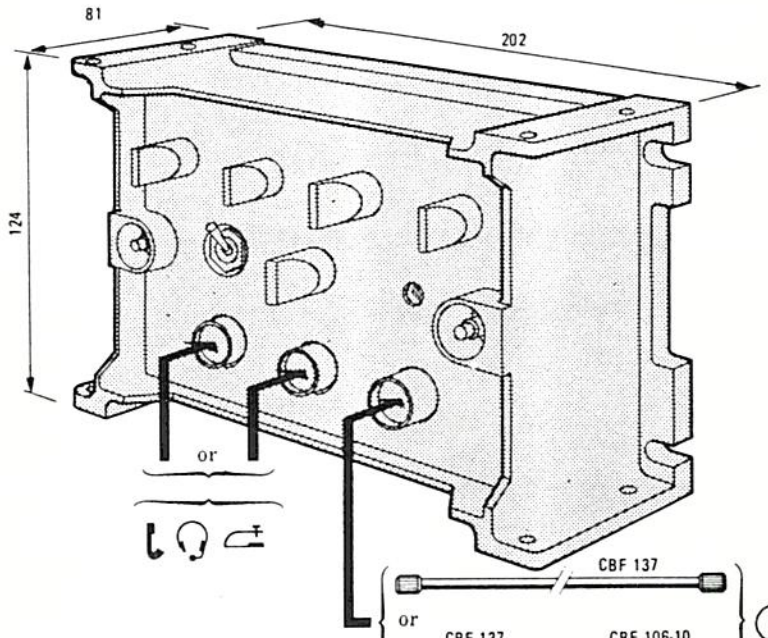
INSTALLING AND CONNECTING THE TRANSCEIVER

See PREPARATION item in the manual.

A.1 INSTALLING AND CONNECTING PUP 111-3 (dimensions in mm)

Drilling jig for securing PUP 111-3





or any device which can be connected to TRC 350 H receptacles (1) or (2).

A.2 OPERATION

Important remark :

- When PUP 111-3 is connected to (1) or (2) on TRC 350 H, the following transceiver operating units :
  - (10), (11), (13), (14), (16), (18) are disconnected (position indifferent).
  - (12) performs only the "ON OFF" function.

    OFF : 0.

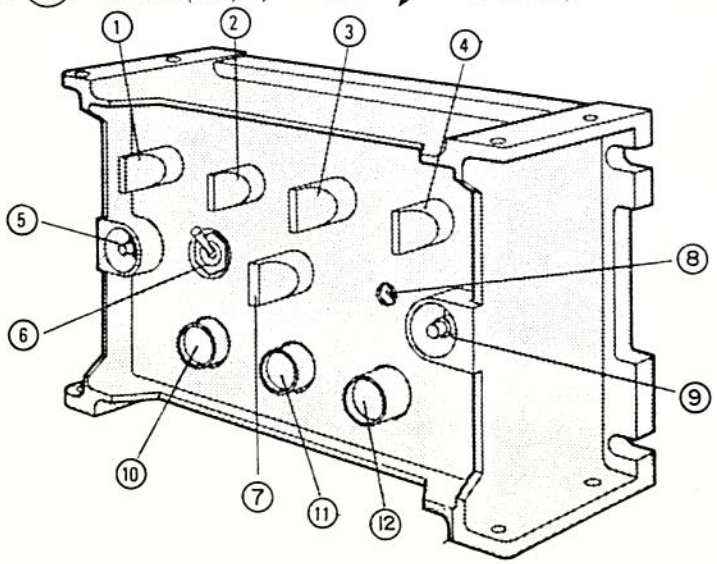
    ON : in one of the four positions : RX, ↗ or ↘ or MEM.

Operating is performed from console PUP 111-3.

- If a handset with preset frequency, COT 206-10, remains connected to (1) or (2) on TRC 350 H, it prevents PUP 111-3 from operating.

PRELIMINARY OPERATIONS ON TRC 350 H (see transceiver OPERATION item).

- Set (15) to the type of antenna used.
- Set (12) to ON (RX, ↗ or ↘ or MEM).



OPERATIONS ON PUP 111-3

INDICATING LAMP (8)

After changing (1), (2), (3), (4) or (6) position, or after pressing (5) or (9).

Correct operation	The indicator lamp lights up and then extinguishes.
Faulty operation	The indicator lamp does not light up or remains lit.

PUSH-BUTTON (9)

If the link is not correct, to try to improve it :

- Release handset or manipulator pedal.
- Make sure (1) is not in ECC mode.
- Briefly press (9) (antenna tuning reset).

A long action on (9) initializes transceiver automatic test (see transceiver MAINTENANCE).

Operation without stored frequencies

With PUP 111-3 connected to transceiver.

TRC 350 H	1 Set frequency value : switches (3) through (8).
	2 Store the keys if operating in ECC Mode : see transmitter OPERATION item.
PUP 111-3	3 Set (1) to the operating mode used.
	4 Set (2) to N (Normal Operation).
	5 Set (3) depending on the transmission power used (↗ reduced ; ↗ normal or to RX, Radio Silence).
	6 Set (4) to 0.

THE EQUIPMENT IS READY TO OPERATE

Operation with stored frequencies

TRC 350 H	(1) Disconnect PUP 111-3 from (1) or (2).
	(2) Store frequencies and keys if operating in ECC mode (see transceiver OPERATION item).
PUP 111-3	(3) Connect PUP 111-3 to (1) or (2) on TRC 350 H.
	(4) Check for (2) in N.
	(5) Set (1) to the operating mode used.
	(6) Set (3) to the power used (reduced ; normal, or RX Radio Silence).
	(7) In (4) display the number (1 to 10) of the frequency used (channel).

THE EQUIPMENT IS READY TO OPERATE

PUP 111-3	(8) EMERGENCY CLEARING OF STORED FREQUENCIES : BRIEFLY PRESS (5).

Operation with preset-frequency handset, COT 206-10

Operations (1) through (6) and (8) are identical with those described for operating with stored frequencies.

Operation (7) is replaced by :

PUP 111-3	(7) Set (4) to . Display the number of the frequency used (channel) on the handset switch. The four positions of COT 206-10 correspond to the frequencies stored in positions 1, 2, 3, 4, respectively, of (14) on TRC 350 H.

Adjustments in receive mode

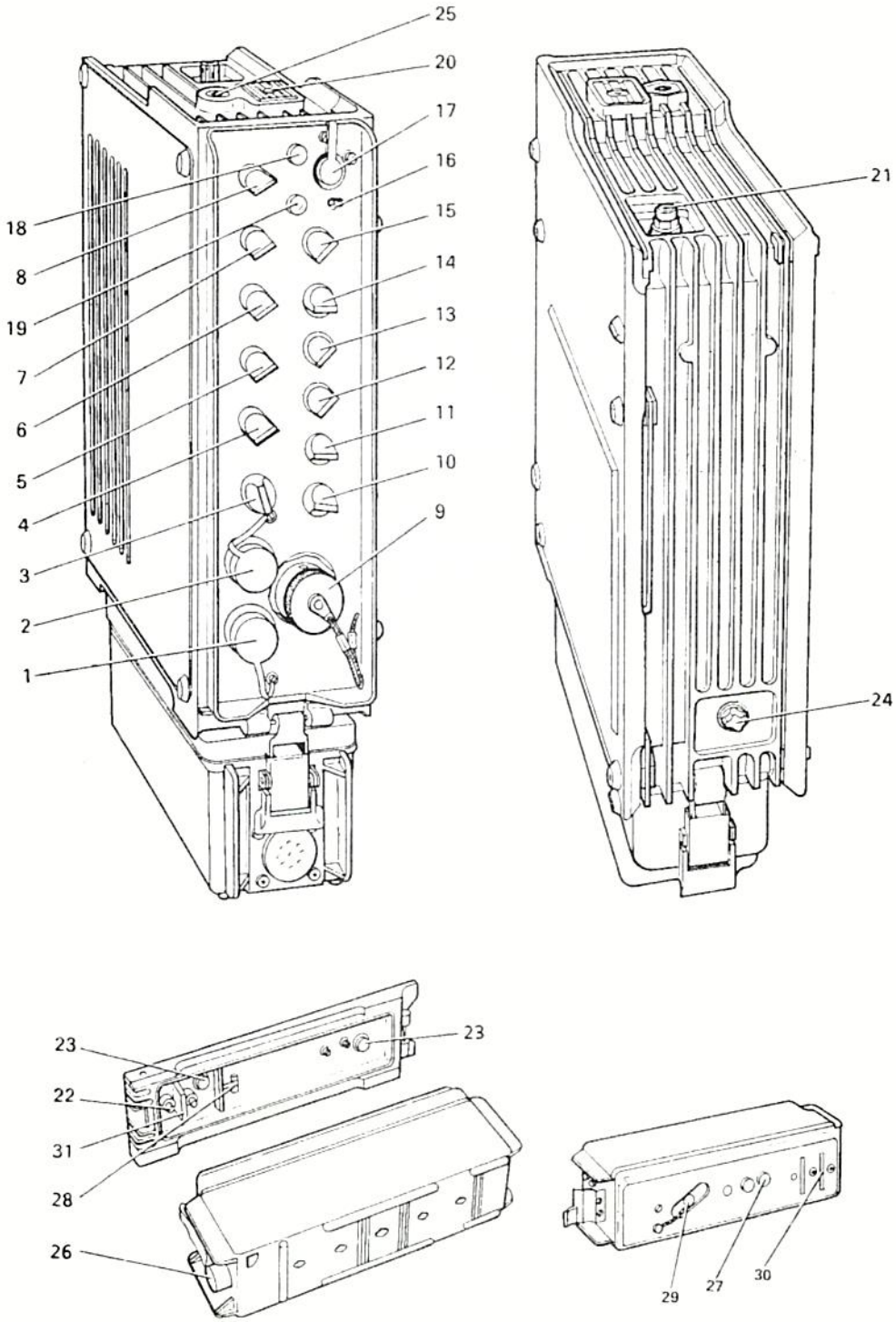
PUP 111-3	Listening-in adjustment through (7) . Standby without squelch, set (6) to: 0. Standby with squelch, set (6) to : 1.

Functions specific to ECC mode (2)

To operate ⎘ (exit from synchronized network) and 🔔 (call), functions, refer to OPERATION item.

TRC 350 H pushbutton (9) replaces (8) during procedures in ECC mode.

IMPORTANT REMARK : TRC 350 H returns to individual operation : after disconnecting PUP 111-3, perform ON/OFF on TRC 350 H switch (12) .



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