

5. INSTALLATION

Correct installation of the equipment is important for maximum performance and reliability. Antennas and earth connections must be installed with the greatest care using corrosion resistant materials. Cable routing shall be made so the cables are protected from physical damage. Cable bends especially on coaxial cables may not be sharp and a sufficient number of clips or straps should be used for securing the cables. Before installing the equipment make sure that the Configuration PROM is properly programmed, see section 5.12.

5.1 Mounting the Control Unit

The Control Unit can be tabletop or bulkhead mounted. Fig. 5.1 shows overall dimensions and a drilling plan for the necessary holes. The unit is bolted through two holes on the bottom part of the cabinet. The unit must be opened when bolting. Loosen the two front panel screws and lift off the front panel. The front panel is hinged to the bottom part by means of two flexible straps. To enable cable entry from either side of the unit, the bottom part of the cabinet may be turned 180 degrees relative to the front panel. To alter the position, open the unit and loosen the screws of the hinges in the bottom part of the cabinet and release the hinges. Turn the front panel and fix the hinges in the opposite side of the cabinet bottom. Be careful not to damage any components or to drop any conducting objects onto the printed circuit boards of the unit. The front panel can be tilted for convenient operation. To adjust the angle loosen the two front panel screws and open the unit. Move the two stop pins in each side of the unit to the appropriate holes and refit the front panel.

5.2 Mounting the Transceiver Unit

The Transceiver Unit may be mounted up to 100 metres from the Control Unit using a screened 16 x 0.5 mm sq. multiwire cable for interconnection. The unit should be installed in a dry place and consideration should be given to accessibility for servicing. The brackets supplied allow for bulkhead or bench mounting. Fig. 5.2 shows mounting details. It is important to provide plenty of airspace below and above the unit, for adequate air circulation through the heatsink at the back of the unit.

5.3 Mounting the Antenna Tuning Unit

The Antenna Tuning Unit may be mounted up to 100 metres from the Transceiver Unit using RG-213/U (RG-8A/U) coaxial cable and a screened 16 x 0.5 mm sq. multiwire cable for interconnection. The unit should be installed near the antenna feed point. Fig. 5.3 shows mounting details.

5.4 Power Supply

The TRP 8250 D operates at voltages between 10.6 and 41.6 VDC and is to be powered from a 12, 24 or 32 volt battery or from a separate AC Power Supply Unit. The supply leads are connected to the Transceiver Unit through the cable entry at the rear of the cabinet.

The supply terminal strip is adapted for screened power supply cable as required by some administrations. The screen of the cable is connected to the center terminal. The terminal strip may be removed from the chassis for easier access.

Attention should be paid to CCIR Rec. 218-1 which recommends that cables in the vicinity of the receiving antennas or the radio receiving room, and cables within the radio room, are screened by enclosing them in metal conduits, unless the cables themselves are effectively screened.

The earth connection of the equipment will not cause the battery to be earthed. Maximum permissible peak voltage between the battery terminals and earth is 100 V.

Note that fuses must be provided in the supply leads. Installation diagram fig. 5.3 shows the necessary cable cross sections and external fuse ratings.

5.5 Earth Connections

5.5.1 Antenna Tuning Unit

As the earth connection of a transmitter is part of the total antenna system, it is of the utmost importance that the earth connection to the Antenna Tuning Unit is constructed to have the lowest possible RF-impedance. Losses in the earth connection will result in a decrease in radiated power which means that the range of the transmitter will be reduced.

In steel ships a 100 x 0.5 mm copper strap as short as possible is connected between the earth terminal at the bottom of the Antenna Tuning Unit and two 1/2" or M12 bolts welded to the superstructure.

Vessels constructed of non-conducting materials must be equipped with a copper earth plate having a minimum area of 1 square metre mounted below the water line. From a copper earth bolt hard soldered to the earth plate a 100 x 0.5 mm copper strap is run, preferably uninterrupted to the earth terminal at the bottom of the Antenna Tuning Unit.

Should it be necessary to break the copper strap, for example to pass through a deck, two 1/2" or M12 bolts should be used for this feed through.

The copper strap may not be passed through iron pipes and should be kept at minimum distance of 0.5 m from iron parts of some extent. If this minimum distance cannot be kept the copper strap must be effectively connected to these parts using a strap having the same dimensions.

On wooden ships having a superstructure of metal, this superstructure should also be effectively connected to the copper strap by using stainless steel bolts and preferably pieces of stainless steel strips between the metal parts.

5.5.2 Other Units

All other units must be grounded separately to the ships metal in the shortest possible way. The Control Unit is connected to ground from the ground frame at the cable entries using a 2.5 mm sq. wire. In the Transceiver Unit a ground strap is connected to the ground terminal at the cable entry. On vessels with no metallic superstructure the ground connection at the Control Unit and the Transceiver Unit may be omitted.

5.6 Antennas

The standard equipment is used with separate transmitting and receiving antennas. If, however, the Antenna Tuning Unit is fitted with the optional Antenna Relay Board 641 a common antenna may be used for transmission and reception. The antennas should be erected well in the clear, away from any objects whose influence on the antenna may vary, such as derricks etc. Insulators should be of the best type having low leakage even when wet. Stays, wires, steel masts etc. should be either effectively earthed or insulated. The receiving antenna should be kept as far as possible from electrical equipment in order to minimize noise. Electrical installation such as cable braiding (screens) and instruments in the vicinity of the receiving antenna should be earthed effectively, and the instruments in question should be fitted with noise-interference suppression devices, effective in the range 0.1 MHz to 30 MHz.

5.6.1 Transmitter Antenna The Antenna Tuning Unit will tune on any frequency in the range 1.6 to 30 MHz to wire and/or whip antennas of 7 to 30 metres total length. A long antenna is preferable with regard to radiated power. The antenna is terminated at the insulator at the top of the Antenna Tuning Unit. The insulator must be relieved from mechanical stress by using max. 1 metre flexible wire between the insulator and a support.

5.6.2 Receiver Antenna Length: 7-30 m. The antenna feed-in should be coaxial cable. The receiver antenna terminal is a UHF-connector (PL 259 type) located in the Transceiver Unit. If a long cable is used an impedance matching transformer should be inserted at the antenna end of the feeder. In one antenna installations using the optional Antenna Relay Board 641 this transformer is built-in.

5.7 Interconnection of Units

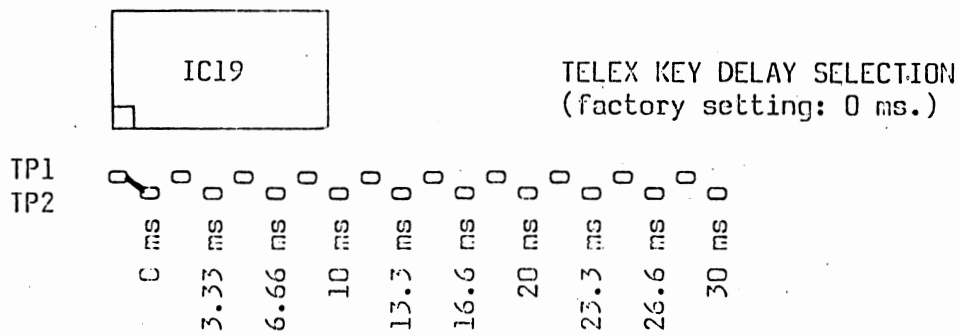
5.7.1 Control Unit-to-Transceiver Unit connections The units are interconnected by a length of 16 x 0.5 mm sq. screened multiwire cable (max. 100 metres). In order to connect the cable to the Control Unit the front panel is removed. The cable is entered through the threaded cable entry and the wires are then connected to the terminal strip marked 601-TS2 Transceiver Unit. NOTE: Wire ends should be fitted with cable end sleeves before mounting. The screen is connected to the ground frame at the cable entry. To connect the cable to the Transceiver Unit the front must be opened. The cable is entered through the cable entry at the back of the unit and the wires are connected to the terminal strip marked 620-TS3 Control Unit. The screen must be connected to the chassis bracket. For connections see installation diagram fig. 5.3.

5.7.2 Transceiver Unit-to-Antenna Tuning Unit connections The units are interconnected by an RG-213/U (RG-8A/U) coaxial cable and a 16 x 0.5 mm sq. screened multiwire cable (max. 100 metres). In one-antenna installations using the optional Antenna Relay Board 641 an additional RG-213/U coaxial cable is used. The coaxial cables are terminated in UHF-connectors (PL 259 type). The sockets in the Transceiver Unit may be removed from the chassis for easier access. The multiwire cable is mounted in the same way in the Transceiver Unit as the cable from the Control Unit. The wires are connected to the terminal strip marked 620-TS1 Antenna Tuning Unit, see fig. 5.3. NOTE: If the TRP 8250 D is not operated with an ATU 8250 Antenna Tuning Unit a strap must be placed between terminal no. 6 (TUNE) and terminal no. 7 (TPR) of 620-TS1. A missing strap will cause the Power Meter display to flash 11 sec. after a TUNE sequence has been initiated. The cables enter the Antenna Tuning Unit through the threaded cable entries at the bottom of the unit. The wires must be connected as shown in fig. 5.3. The screen of the multiwire cable must be connected to the receptacle at the grounding tab next to the terminal strip. NOTE: Wire ends of the multiwire cable should be fitted with cable end sleeves before mounting. In installations with long earth straps to the Antenna Tuning Unit, high RF voltages may be present on the ATU ground terminal. To avoid this voltage being coupled to the Transceiver Unit the interconnection cables must be run from the Transceiver Unit to the point where the copper strap from the Antenna Tuning Unit is connected to earth. From this point the cables must follow the copper strap to the Antenna Tuning Unit. The cables should be placed upon the center of the copper strap to ensure good coupling. The part of the cable-run between earth and the Transceiver Unit must not be run in parallel with the earth strap within a distance of at least 1 metre.

5.8 Connection of External Equipment

Auxiliary terminals in the Control Unit and the Transceiver Unit allows various external equipment to be connected to the TRP 8250 D. In tables 5.2 and 5.5 terminal assignments are listed for the Control Unit and the Transceiver Unit respectively. Screened cable should be used with the screen connected to ground frame or chassis.

5.8.1 Timing of TELEX KEY signal The transmitter pre-keying time should be approx. 7 ms. not less. Telex modems with programmable pre-keying time must be programmed to this value. In case of telex modems with a fixed pre-keying time longer than 7 ms. a time delay may be introduced by the TELEX KEY DELAY circuit on PCB 601 in the Control Unit. The leading edge of the TELEX KEY signal may be delayed by up to 30 ms. in steps of 3.33 ms. by moving a strap to the appropriate position.

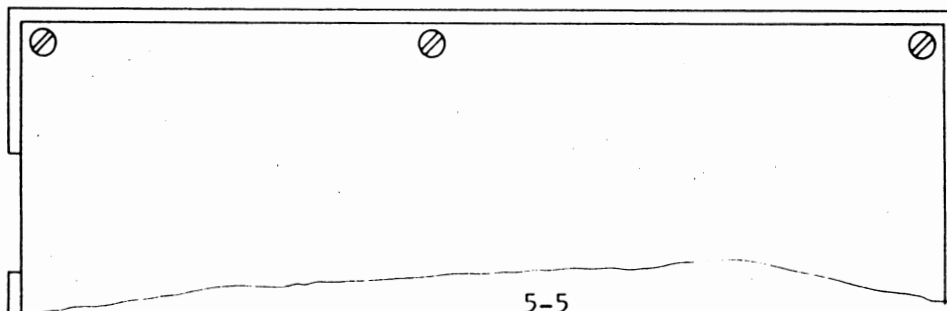
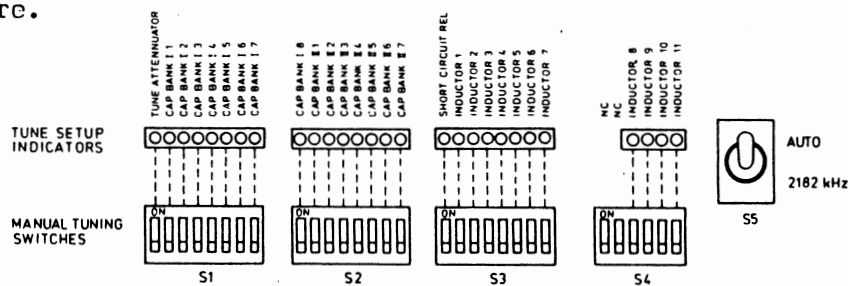


Telex modem pre-keying time minus selected telex key delay time must be equal to 7 ms. or more.

5.9 Final Installation Check

5.9.1 For operation of the equipment please refer to chapter 3. Note that an appropriate programmed Configuration PROM must be installed in the Control Unit, see section 5.12. The Antenna Tuning Unit will tune automatically to the transmitter antenna when the equipment is keyed or the TUNE button is pressed. The standing wave ratio (SWR) at the input of the tuning unit is automatically measured after the tuning sequence. If the SWR exceeds approx. 3 the Power Annunciator on the Control Unit will flash, indicating that correct tuning has not been obtained. In this case, investigate the antenna installation and control that the antenna length is within the boundaries.

5.9.2 2182 kHz Manual Tune Set-up To enable manual tuning on 2182 kHz the Manual Tuning Switches in the Antenna Tuning Unit must be preset on the final antenna installation. Remove the cover of the Antenna Tuning Unit and follow below procedure.



Control that all Manual Switches are in position off. With the switch AUTO/2182 kHz (S5) in position "AUTO", a normal tuning procedure is performed on 2182 kHz. The Manual Tuning Switches are then switched "ON", as indicated by light in the Tune Set-up Indicators. Ensure that the transmitter is not keyed. Check correct setting of the Manual Tuning Switches by switching S5 to position 2182 kHz and simultaneously control that none of the Tune Set-up Indicators change. If any of the indicators change, repeat the procedure. When S5 is switched back to "AUTO" the Tune Set-up will be reset.

5.10 Remote Frequency Control

TRP 8250 D is equipped with a serial interface for remote telex operation. That is, the receiver and/or transmitter frequencies may be remote controlled whereas telex mode will be automatically selected. The remote control terminals are the 601-TS1 Auxiliary Terminals no. 1 to 4, see Table 5.2. The interface, when used, has to be enabled by the appropriate Configuration PROM programming, see section 5.12. PROM addr. FEDh/4077d AUTOTELEX.

The interface circuit conforms electrically to the EIA standard RS-232C using the following:

Baud rate	: 2400 bps
Parity	: Odd
Word length	: 8 bits
Start bits	: 1
Stop bits	: 1

DATA FORMAT

Address word: This word, when transmitted to TRP 8250 D, initiates the command cycle. To identify the address word bits 6 and 7 shall both be set to 1. Thus, any other word types used will have to be less than C0h/192d.

Reserved addresses:
C2h/194d : Receiver
C3h/195d : Transmitter
FFh/255d : Broadcast

Command word: The word immediately following the address word contains the command.

Reserved commands:
00h/0d : Reset.
The TRP 8250 D will run the power-up sequence.
14h/20d : Frequency input.
The next 4 words will be interpreted as a frequency.

Frequency words: After a frequency command 4 words are used to specify the frequency in packed BCD:

- | | | |
|----|---------|--------|
| 1. | 10 MHz | 1 MHz |
| 2. | 100 kHz | 10 kHz |
| 3. | 1 kHz | 100 Hz |
| 4. | 10 Hz | 0 |

Status word: After having received the frequency command and all four frequency words, the TRP 8250 D transmits a status word having the following format:

Bit

7 : Interface error. When set to 1 this bit identifies either a parity, framing, overrun or data format error. The command cycle must be repeated.

6 : Always 0.

5 : Busy. When set to 1 this bit identifies that the TRP 8250 D is not ready. The command cycle must be repeated.

0-4 : Address echo. This field contains the five LSB's of the received address word.

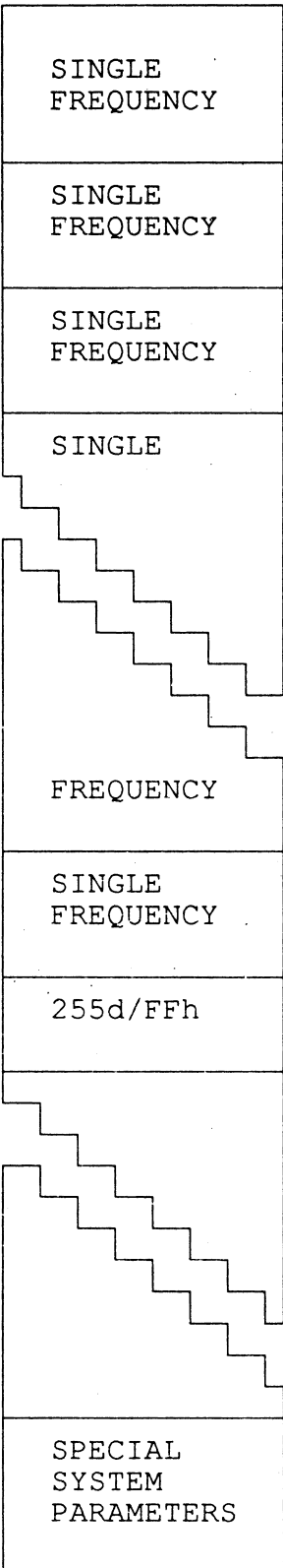
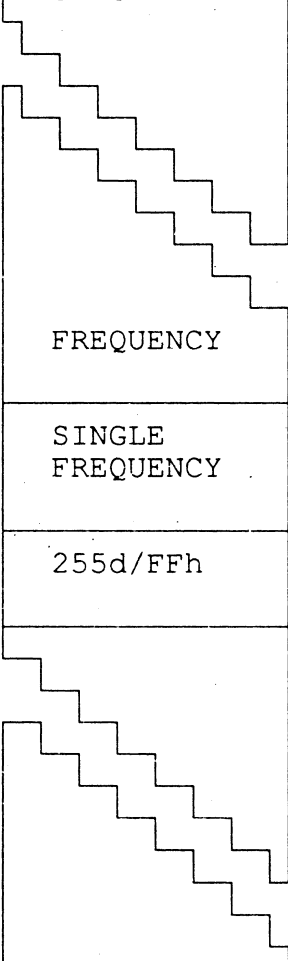
5.11 Configuration PROM Programming

The Configuration Prom contains 4 kbytes in which legal frequencies, frequency bands and special system parameters can be programmed for customizing the equipment. Legal frequencies and frequency bands are stacked in the lower part of the Prom together with legal modulation beginning at Prom address 0 and progressing upward in 4 byte steps until a limiter byte containing the data 255d/FFh are located. Special system parameters are stacked in the higher part of the Prom beginning at Prom address 4095d/FFFh progressing downward.

5.11.1 APPLICABLE PROMS

TEXAS:	TMS2532JL
	TMS25L32JL
HITACHI:	HN462532
	HN462532G
	HN462532G-2

5.11.2 CONFIGURATION PROM MAP

Address		
DEC	HEX	
0	000	
4	004	
8	008	
12	00C	
		LEGAL FREQUENCIES
		
		LIMITER BYTE
4095	FFF	SPECIAL SYSTEM PARAMETERS

5.11.3 SINGLE FREQUENCY FORMAT

		D7	D6	D5	D4	D3	D2	D1	D0
ADDR	n	TX	RX	ITU	ITU-BAND	BCD x 10 MHz			
	n + 1	BCD x 1 MHz				BCD x 100 kHz			
	n + 2	BCD x 10 kHz				BCD x 1 kHz			
	n + 3	BCD x 100 Hz				MODULATION			

5.11.3.1 MODULATION HEXADECIMAL

0 : J3E
 1 : R3E
 2 : H3E
 3 : A1A
 4 : H2A
 5 : F1B
 6 : LSB
 7 : J3E & R3E
 8 : reserved for future use
 9 : reserved for future use
 A : reserved for future use
 B : reserved for future use
 C : reserved for future use
 D : reserved for future use
 E : reserved for future use
 F : don't care

5.11.3.2 RX AND TX BITS

0 : Frequency and modulation do not apply to RX or TX respectively.
 1 : Frequency and modulation apply to RX or TX respectively.
 Both bits may be programmed in the same array.

5.11.3.3 ITU BIT

0 : ITU channel apply to programmed frequency in accordance with selected channel-number.
 1 : ITU channel do not apply to programmed frequency.

5.11.3.4 ITU BAND-BIT

0 : The programmed frequency is within the band specified by the short-number.
 1 : The programmed frequency is 1 MHz above the band specified by the shortnumber.

5.11.3.5 ITU CHANNELS

When programming a "LEGAL FREQUENCY" table consisting of the ITU channel frequencies and/or other frequencies to be selected by the "RECALL ITU - - -" syntaxes, it is necessary to consider the search-algorithm used. This algorithm initiates the search at PROM addr. 0 and progresses until either the "LIMITER BYTE" (255d/FFh) or the desired "SINGLE FREQUENCY" is found. The "RECALL ITU FREQUENCY PAIRS FROM PROM" syntax utilizes 2 separate searches to obtain the pair.

Having entered "RX"-"RCL"-"8"-"1"-"5"-"ENTER" the desired frequency is found as the 15th "SINGLE FREQUENCY" in the 8 MHz band (if ITU BAND-BIT = 0) having the RX-BIT = 1, ITU-BIT = 0 and the modulation nibble validating the present receiver mode.

5.11.4 FREQUENCY BAND FORMAT

The single frequency format may be used in pairs to form a frequency band format as shown below. This format is used to additionally limit the transmitter frequency range. When programmed, transmission outside this band is not possible. More than one band may be programmed. Please note that the bit- and modulation nibbles must be 0.

	D7	D6	D5	D4	D3	D2	D1	D0	
ADDR	n	always 0				BCD x 10 MHz			
	n + 1	BCD x 1 MHz				BCD x 100 kHz			
	n + 2	BCD x 10 kHz				BCD x 1 kHz			
	n + 3	BCD x 100 Hz				always 0			
	n + 4	always 0				BCD x 10 MHz			
	n + 5	BCD x 1 MHz				BCD x 100 kHz			
	n + 6	BCD x 10 kHz				BCD x 1 kHz			
	n + 7	BCD x 100 Hz				always 0			

lower
frequency

upper
frequency

5.11.5 SPECIAL SYSTEM PARAMETERS

ADDR	DATA	DESCRIPTION
4095d/FFFh		Telex audio center frequency
		Display of assigned frequency
	21d/15h :	1500 Hz
	22d/16h :	1600 Hz
	:	:
	:	:
	37d/25h :	2500 Hz

4095d/FFh**Display of carrier frequency**

149d/95h : 1500 Hz
 150d/96h : 1600 Hz
 :
 :
 :
 153d/99h : 1900 Hz
 160d/A0h : 2000 Hz
 :
 :
 :
 165d/A5h : 2500 Hz

When assigned frequency display is used, an input at the programmed audio center frequency will be transmitted at the displayed frequency. When carrier frequency display is used, an input at the programmed audio center frequency will be used as an USB signal at the displayed frequency + the audio center frequency.

Any other data are defaulted to 23d/17h

4094d/FFh**Transmitter frequency status**

165d/A5h : Free transmitter frequencies
 255d/FFh : Only transmitter frequencies contained in lower part of the Prom
 Any other data are defaulted to 255d/FFh

4093d/FFDh**Dummy load during alarm test**

0d/00h : Enable dummy load incl. 2182 kHz
 180d/B4h : Enable dummy load excl. 2182 kHz
 255d/FFh : Disable dummy load
 Any other data are defaulted to 255d/FFh

4092d/FFCh**Morse**

4d/04h : Enable 500, CW, MCW, FILTER and BFO keys.
 Disable transmitter in MCW mode above 1605 kHz.
 195d/C3h : Disable 500, CW, MCW, FILTER and BFO keys
 255d/FFh : Enable - - - - -
 Any other data are defaulted to 255d/FFh

4091d/FFBh**AGC and Sensitivity**

195d/C3h : Disable AGC and Sensitivity keys
 255d/FFh : Enable - - - - -
 Any other data are defaulted to 255d/FFh

4090d/FFAh**RF Amplifier and Antenna Attenuator**

195d/C3h : Disable RF-AMP and ANT-ATT keys
 255d/FFh : Enable - - - - -
 Any other data are defaulted to 255d/FFh

4089d/FF9h		Alarm
	195d/C3h :	Disable 500, 2182 and ALARM keys
	0d/00h :	Enable 500,2182 and ALARM keys plus continuous alarm
	255d/FFh :	Enable 500, 2182 and ALARM keys Any other data are defaulted to 255d/FFh
4088d/FF8h		R3E
	195d/C3h :	Disable R3E key
	255d/FFh :	Enable - - Any other data are defaulted to 255d/FFh
4087d/FF7h		LSB
	195d/C3h :	Disable LSB key
	255d/FFh :	Enable - - Any other data are defaulted to 255d/FFh
4086d/FF6h		SCAN
	210d/D2h :	Enable SCAN key
	255d/FFh :	Disable - - Any other data are defaulted to 255d/FFh
4085d/FF5h		Fast AGC & Slow AGC
	210d/D2h :	Enable AGC-SLOW and AGC-FAST keys
	255d/FFh :	Disable - - - - Any other data are defaulted to 255d/FFh
4084d/FF4h		LSB Transmitting
	6d/06h :	Enable transmitter in LSB mode
	255d/FFh :	Disable - - - - Any other data are defaulted to 255d/FFh
4083d/FF3h		H3E Transmitting
	2d/02h :	enable transmitter in H3E mode
	255d/FFh :	disable - - - - Any other data are defaulted to 255d/FFh
4082d/FF2h		VERY NARROW FILTER
	195d/C3h :	Disable VERY-NARROW key
	255d/FFh :	Enable - - - - Any other data are defaulted to 255d/FFh
4081d/FF1h		Antenna in TX-Off-State
	180d/B4h :	Antenna disconnected
	255d/FFh :	Antenna connected Any other data are defaulted to 255d/FFh

4080d/FF0h**Distress mode**

0d/00h : Select J3E when "2182" is pressed
 255d/FFh : Select H3E when "2182" is pressed
 Any other data are defaulted to 255d/FFh

4079d/FEFh**Numeric keyboard type**

32d/20h : CCITT. Top left key = "1"
 255d/FFh : Standard. Top right key = "9"
 Any other data are defaulted to 255d/FFh

4078d/FEEh**Alarm Band.**

22d/16h : Disable alarm below 1605 kHz.
 255d/FFh : Enable alarm in all bands.
 Any other data are defaulted to 255d/FFh.

4077d/FEDh**Autotelex**

82d/52h : Enable Autotelex interface.
 210d/D2h : Enable Maritex interface.
 255d/FFh : Disable telex interface.
 Any other data are defaulted to 255d/FFh

4076d/FECh**Receiver frequency status**

32d/20h : Only receiver frequencies contained in lower part of the Prom
 255d/FFh : Free receiver frequencies
 Any other data are defaulted to 255d/FFh

4075d/FEBh**Frequency Display**

195d/C3h : Disable frequency display. Only channel numbers can be entered and displayed except using special procedure.
 255d/FFh : Enable frequency display
 Any other data are defaulted to 255d/FFh

4074d/FEAh**Maximum output power**

255d/FFh : Full output power range
 BCD : Programming a packed BCD number will limit the maximum output power to 10 times the programmed value
 Ex: Data Output power
 16d/10h 100 W
 24d/18h 180 W

Any non-BCD data or BCD-data outside the range 10 - 25 are defaulted to 255d/FFh

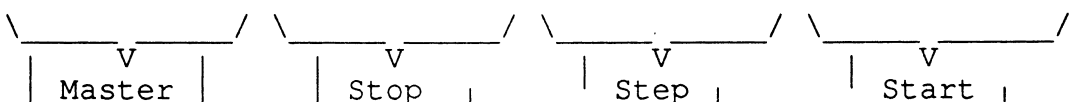
4073d/FE9h**Reduced output power between 1.6 and 4 MHz**

117d/75h : Output power reduced to 150 W when the transmitter frequency is between 1.6 and 4 MHz

255d/FFh : No output power reduction
Any other data are defaulted to 255d/FFh

4072d/FE8h**External scan control**

D7	D6	D5	D4	D3	D2	D1	D0
dis- able	RX/TX keys	dis- able	tran- sition	dis- able	tran- sition	dis- able	tran- sition



> Disable: Transition: <
 0 = enable 0 = high to lo
 1 = disable 1 = low to high

RX/TX keys:

> 0 = enable use of
 RX key to enable external scan and
 TX key to disable external scan
 1 = disable use of keys to control
 external scan

> 0 = enable use of external scan
 1 = disable external scan and neglect D6 - D0

Terminal No.	Designation	Direction	Signal level	Remarks
1	TX REM	Input	RS-232C	Remote Control Serial Data.
2	GND	-		
3	RX REM	Output	RS-232C	Remote Control Serial Data.
4	GND	-		
5	2182 SEL	Output	74LS00	High when 2182 is selected.
6	GND	-		
7	SCAN S/S	Input	0/12 V	Start/Stop of scanning (user programmable).
8	GND	-		
9	TELEX KEY	Input	0/12 V	Keyes Tx in TELEX mode when LOW.
10	GND	-		
11	AUX KEY	Input	0/12 V	Keyes Tx in USB, LSB, AM or R3E modes when LOW.
12	GND	-		
13	TELEX IN	Input	-16 to +10 dBm	600 ohms audio input. Open in TELEX mode. *
14	GND	-		
15	AUX IN	Input	-16 to +10 dBm	600 ohms audio input. Open in USB, LSB, AM or R3E modes when AUX KEY is LOW. *
16	GND	-		
17	LINE OUT	Output	-10 to +10 dBm	600 ohms audio output. Internally adjustable. *
18	GND	-		
19	SPEAKER -	Output	0 to 5 W	Load impedance 8 ohms.
20	SPEAKER +	-	-	
21	KEY INHIBIT	Input	0/12 V	Inhibit keying when LOW. **
22	GND	-		
23	OPTIONAL IN	Input	0/12 V	Reserved for future use.
24	GND	-		

* An optional Line Transformer Board 603 is available providing balanced input/output.

** KEY INHIBIT input is applicable only when Preset bit 4 = "1", see second function 284.

601-TS1 AUXILIARY TERMINALS, CONTROL UNIT
Table 5.2

HANDSET SOCKET:

Terminal No.	Designation	Direction	Signal level	Remarks
1	MIC	Input	50 mV - 1 V	Internally adjustable +/-8 dB. 500 ohms, Controlled by VOLUME. Supply for MIC. Amplifier. Keyes Tx in USB, LSB, AM or R3E when LOW.
2	GND	-		
3	EARPIECE	Output	0 - 10 mW	
4	+ 12 V	Output	+ 12 V	
5	HANDSET KEY	Input	0/12 V	

HEADPHONE SOCKET:

Terminal No.	Designation	Direction	Signal level	Remarks
1	-	Output	0 TO 10-160 mW	Mono or stereo headphones may be used. 8 ohm - 5 kohm Built-in speaker is disconnected when jack is inserted
2	-			
3	- LS			

MORSE KEY SOCKET:

Terminal No.	Designation	Direction	Signal level	Remarks
1	MORSE KEY	Input	0/12 V	Keyes Tx in CW or MCW when LOW
2	GND	-		

EXTERNAL CONNECTIONS, CONTROL UNIT

Table 5.3

Terminal No.	Designation	Direction	Remarks
1	+	Input	Supply from 12/24/32 V battery or P 8250
2	GND	-	Screen
3	-	Input	Supply from 12/24/32 V battery or P 8250

TS 1 SUPPLY TERMINALS, TRANSCEIVER UNIT

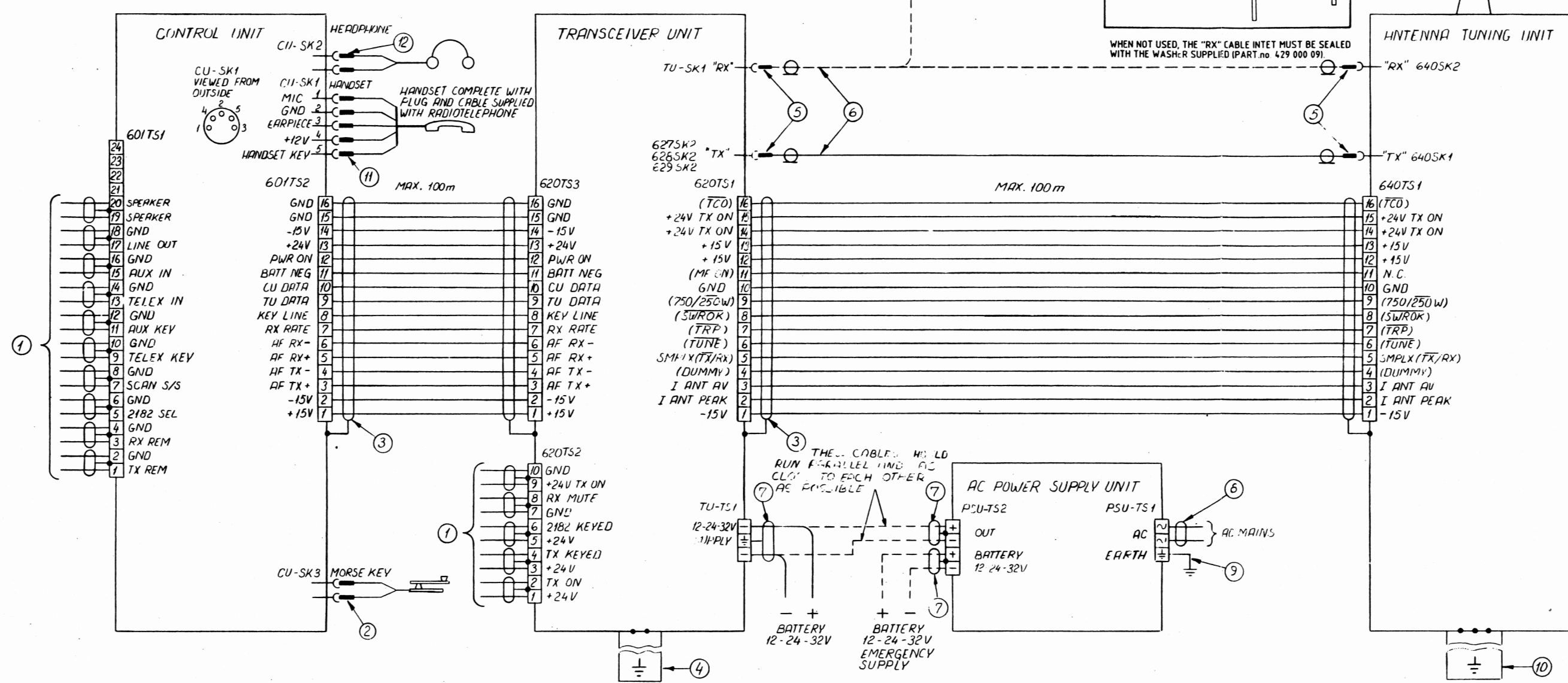
Table 5.4

Terminal No.	Designation	Direction	Max. Current	Remarks
1	+ 24 V	Output	Note 1	+ 24 V available when equipment is ON.
2	TX ON	Output	250 mA	Open collector, low when TX on.
3	+ 24 V	Output	Note 1	+ 24 V available when equipment is ON.
4	TX KEYED	Output	250 mA	Open collector, low when TX KEYED.
5	+ 24 V	Output	Note 1	+ 24 V available when equipment is ON.
6	2182 KEYED	Output	250 mA	Open collector, low when TX KEYED on 2182 kHz.
7	GND	-		
8	RX MUTE	Input	0/12 V.	Rx is muted when connected to GND.
9	+ 24 V	Output	Note 1	+ 24 V available when TX is ON.
10	GND	-		

Note 1: Max. total current 1000 mA

620 TS 2 AUXILIARY TERMINALS, TRANSCEIVER UNIT

Table 5.5



POS	CONNECTORS AND CABLE TYPES
1	SCREENED CABLE 2 x 0.25mm - 2 x 1.5 mm Sq *
2	2-POLE JACK PLUG Ø 6.35
3	SCREENED MULTIWIRED CABLE 16 x 0.5mm Sq
4	COPPER STRAP 50 x 0.5mm
5	CONNECTOR TYPE PL 259
6	COAXIAL CABLE TYPE RG-213/U OR RG-8A/U
7	SCREENED CABLE (SEE NOTE 3)
8	CABLE (SEE NOTE 2)
9	WIRE 1 x 2.5mm Sq
10	COPPER STRAP 100 x 0.5 mm
11	5-POLE CONNECTOR (DIN 41524)
12	2 OR 3-POLE JACK PLUG Ø 6.35

*MULTIWIRED CABLE MAY BE USED IF CONVENIENT

NOTE 1			
THE EQUIPMENT MAY BE USED WITH SEPARATE TRANSMITTING AND RECEIVING ANTENNAS.			
IF, HOWEVER, THE ANTENNA TUNING UNIT IS FITTED WITH THE OPTIONAL ANTENNA RELAY BOARD 641 A COMMON ANTENNA MAY BE USED FOR TRANSMISSION AND RECEPTION.			
NOTE 2			
AC-MAINS	CONDUCTOR AREA	EXTERNAL FUSES	
110 - 120V	2 x 1.5mm Sq	20A	
220 - 240V	2 x 1.5mm Sq	15A	
SEE DIAGRAM OF P8250 FOR SUPPLY VOLTAGE SETTING			
NOTE 3			
BATTERY VOLTAGE	MAX. CABLE LENGTH TO BATTERY	RECOMMENDED CONDUCTOR AREA	EXTERNAL FUSES
12V	2.5m	2 x 16 mm Sq	100A
	4.0m	2 x 25 mm Sq *	
24V	7.5m	2 x 6 mm Sq	50A
	12.0m	2 x 10 mm Sq	
	19.6m	2 x 16 mm Sq	
32V	12.0m	2 x 6 mm Sq	40A
	21.0m	2 x 10 mm Sq	
	34.0m	2 x 16 mm Sq	
* USE PIN TERMINAL ADAPTER (PART No. 343 428 1X)			

PREPARATION OF MULTIWIRED CABLE

MAX. 5mm STRIPPING

TWIST SCREEN BEFORE CRIMPING

FIT WIRE ENDS WITH A CLEEVE (PART NO. 772 000 41) BEFORE MOUNTING IN TERMINAL STRIP

UNIT	L1	L2
601TS1	55	55
601TS2	55	55
620TS1	95	50
620TS2	50	50
620TS3	115	50
640TS1	130	115

CONNECTOR TO CABLE ASSEMBLY

TO BE TINNED WITHOUT DAMAGING THE INSULATION MATERIAL

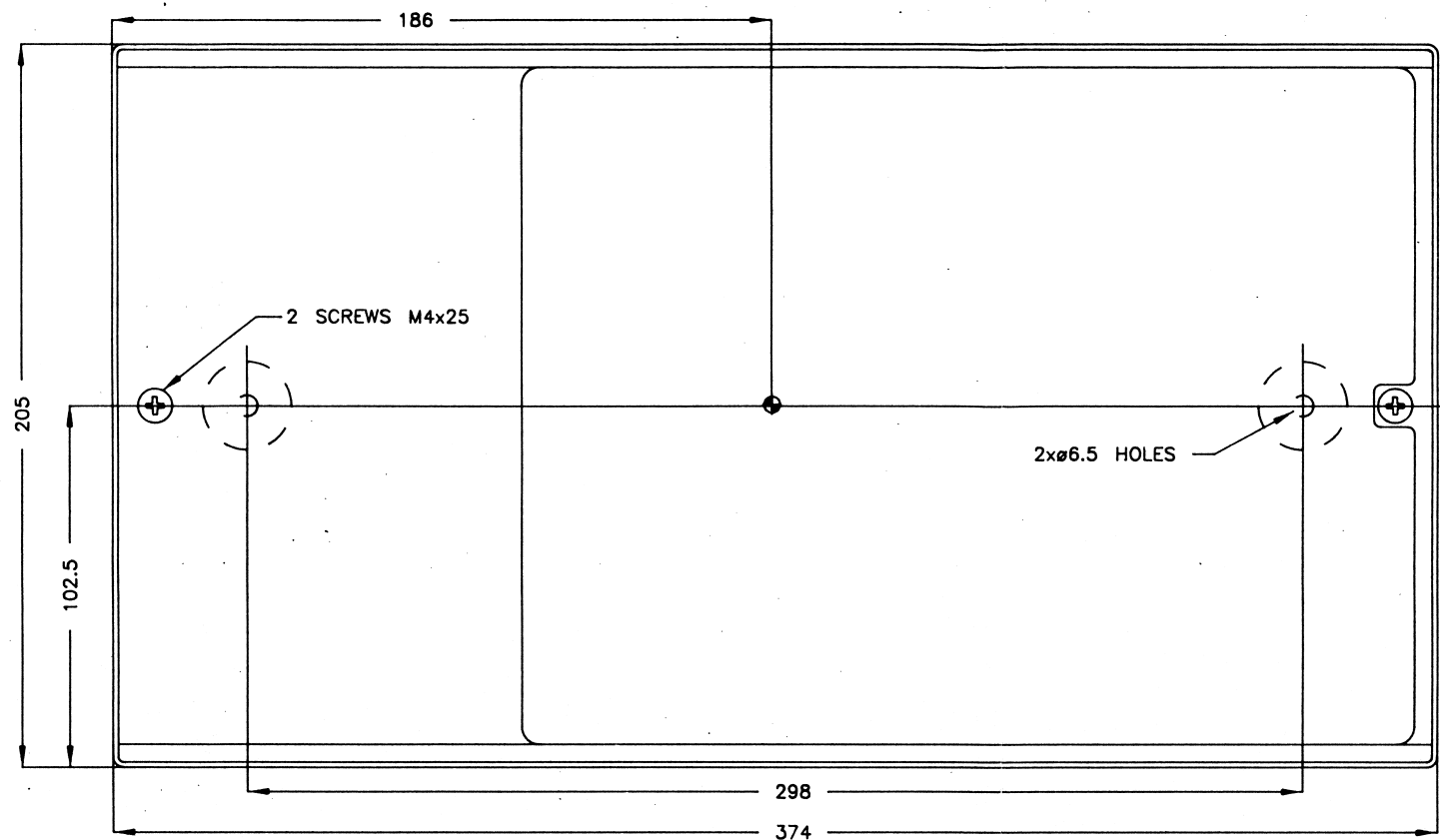
ALL 4 HOLES ARE SLOTTED BY A ROUND-FILE

TO BE SCREWED TIGHTLY

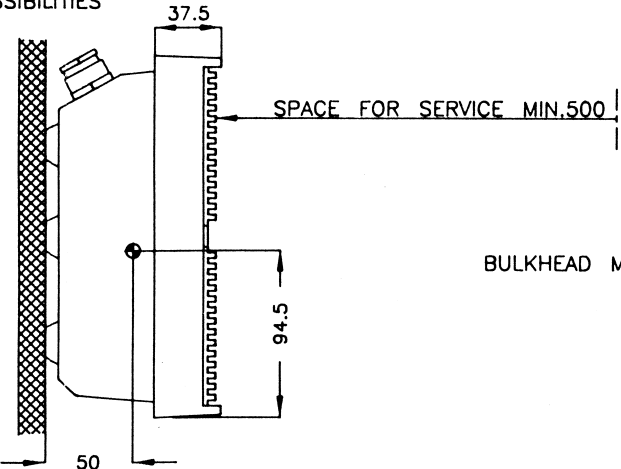
TO BE SOLDERED-COOLED IN ALCOHOL AFTER EACH SOLDERING

CONNECTOR PL 259

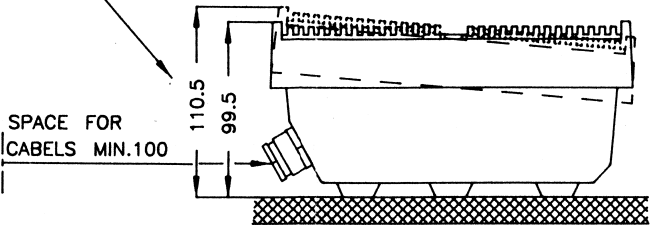
REMOVE SUPERFLUOUS TIN



MOUNTING POSSIBILITIES

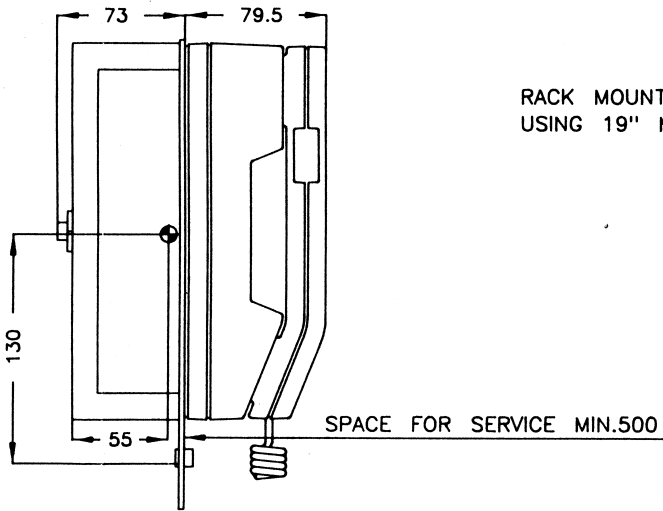
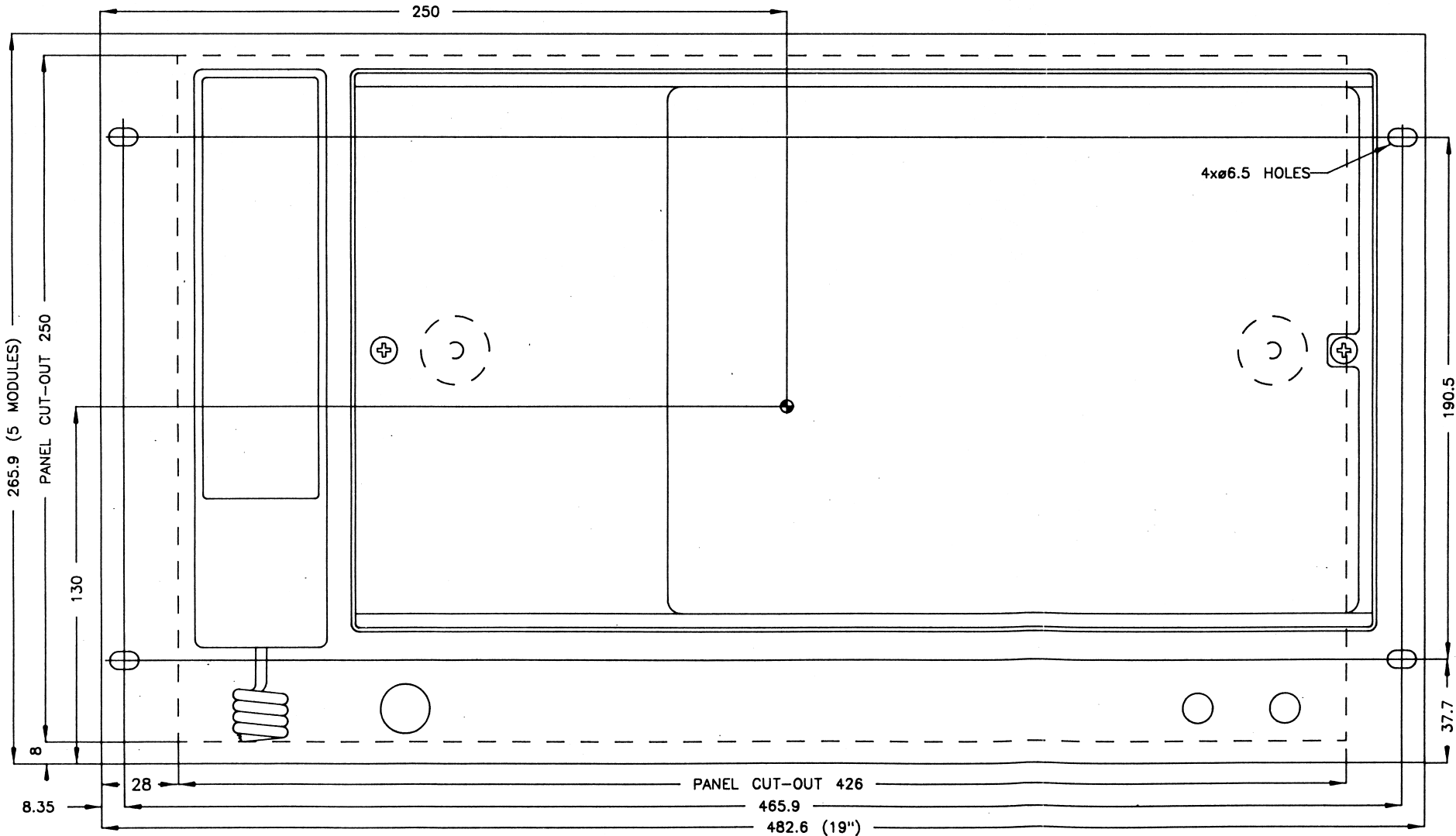


BULKHEAD MOUNTING

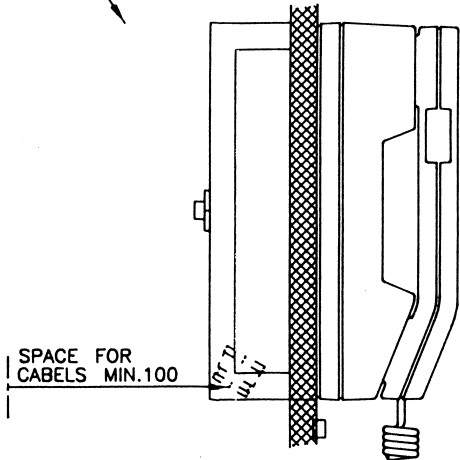


TABLETOP MOUNTING

DRILLING PLAN AND CUT-OUT FOR 19" MOUNTING FRAME



RACK MOUNTING
USING 19" MOUNTING

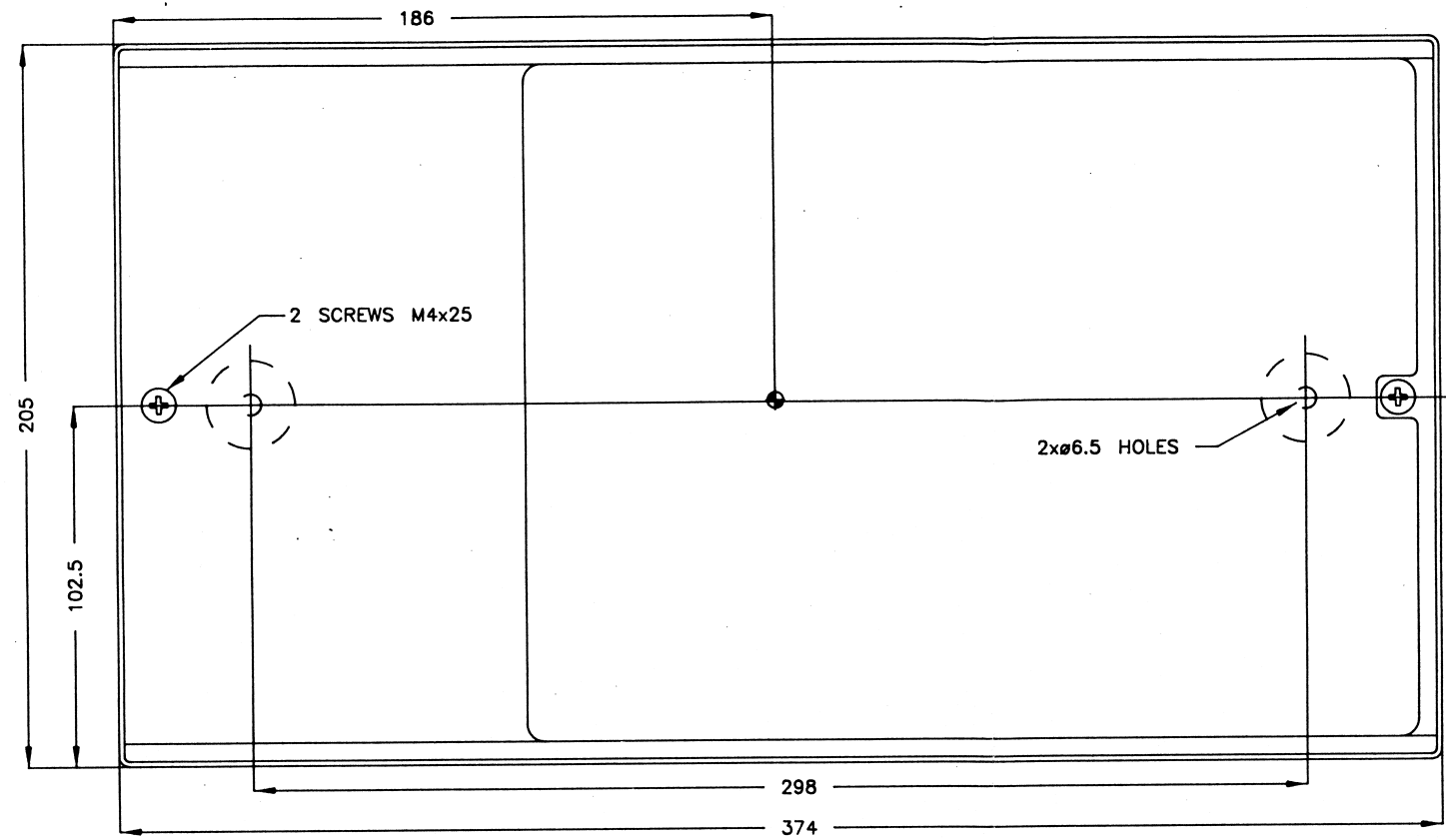


PANEL MOUNTING
USING 19" MOUNTING FRAME

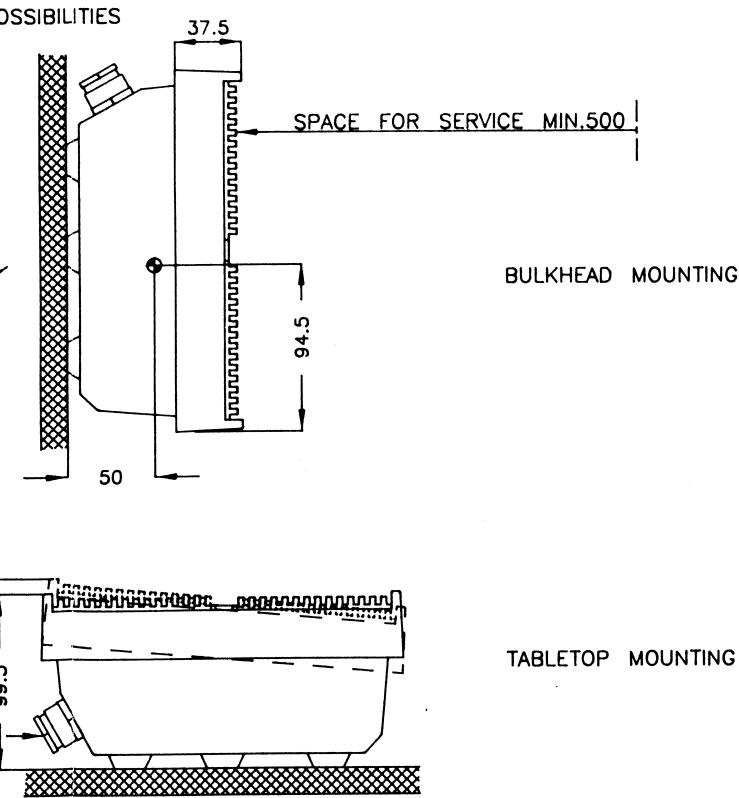
TYPE	APPROX WEIGHT:
CONTROL UNIT 8000	4.0 Kg.
19" MOUNTING FRAME 108 600 00	1.0 Kg

DIMENSIONS ARE IN MM
TOLERANCE ± 1
● CENTRE OF GRAVITY

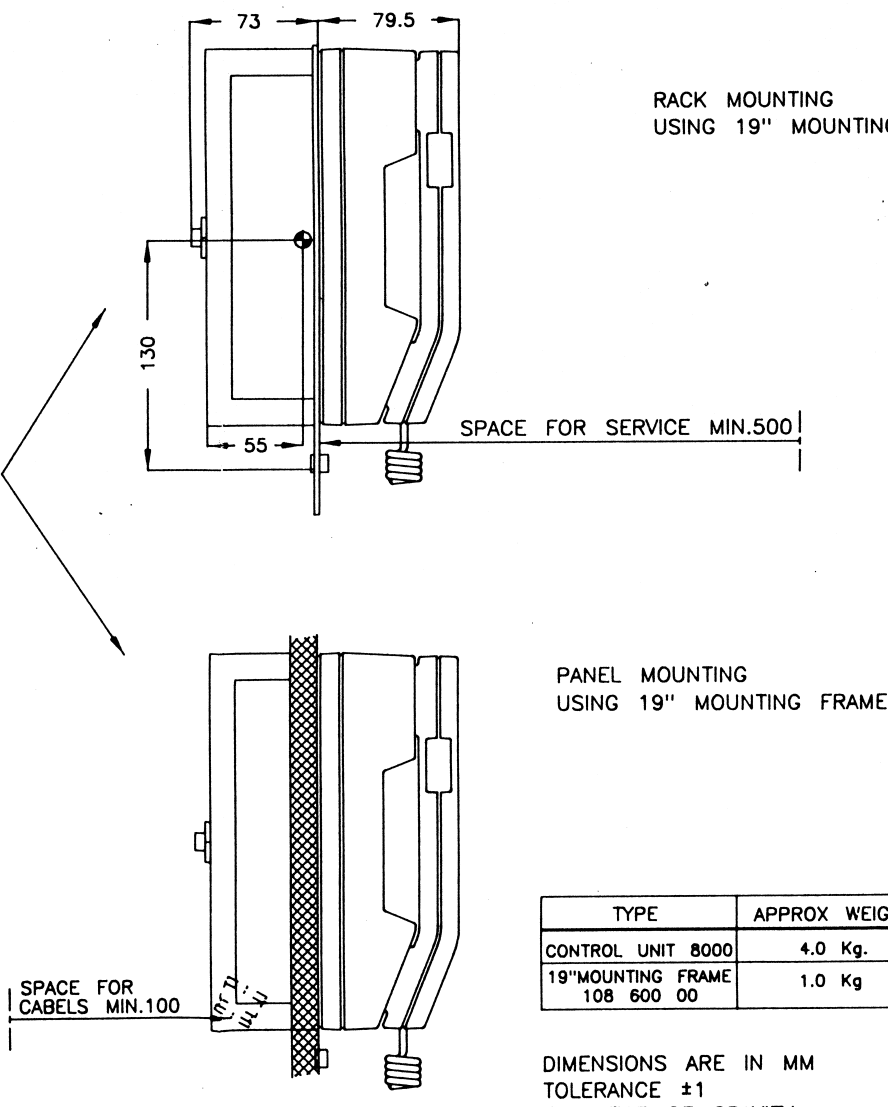
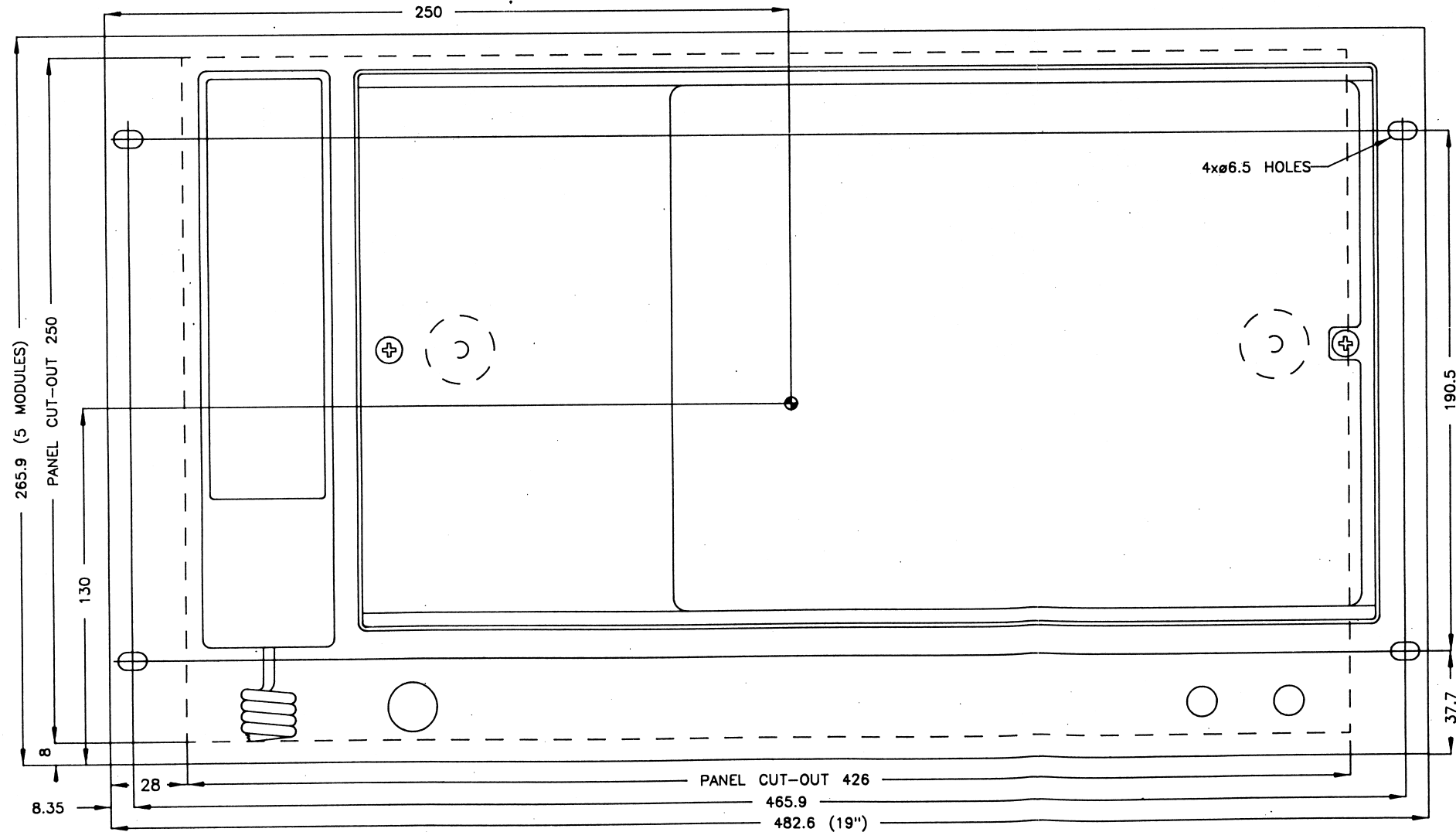
MOUNTING OF CONTROL UNIT 8000



MOUNTING POSSIBILITIES



DRILLING PLAN AND CUT-OUT FOR 19" MOUNTING FRAME

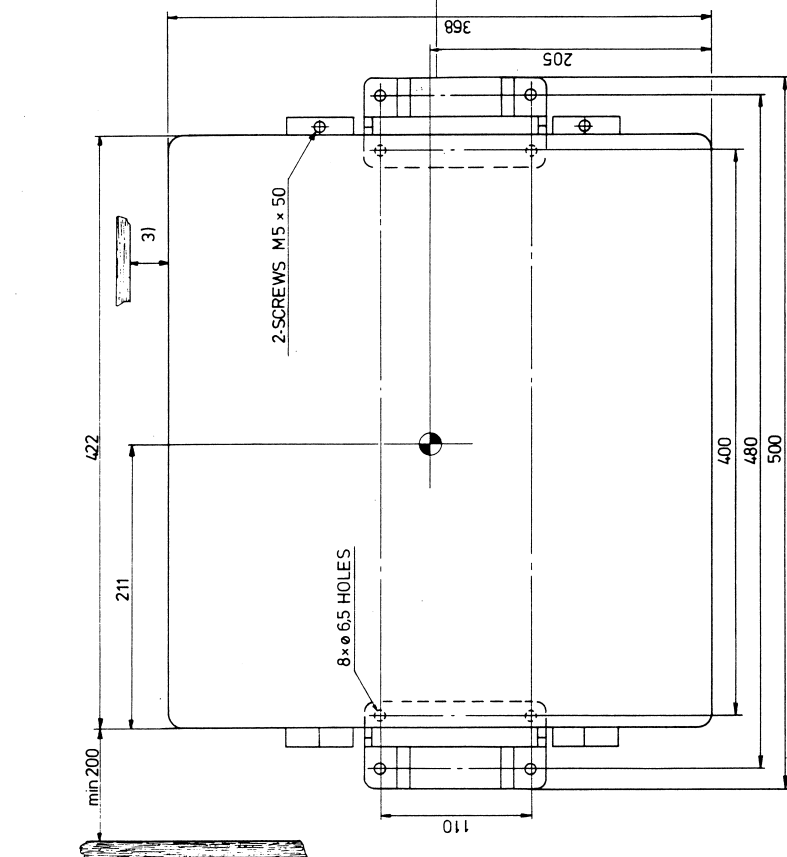


TYPE	APPROX WEIGHT:
CONTROL UNIT 8000	4.0 Kg.
19" MOUNTING FRAME 108 600 00	1.0 Kg

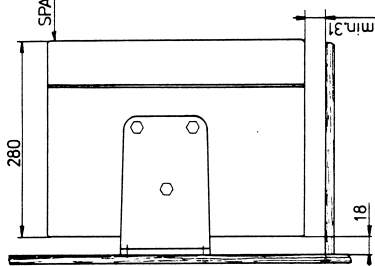
DIMENSIONS ARE IN MM
TOLERANCE ± 1
● CENTRE OF GRAVITY

MOUNTING OF CONTROL UNIT 8000

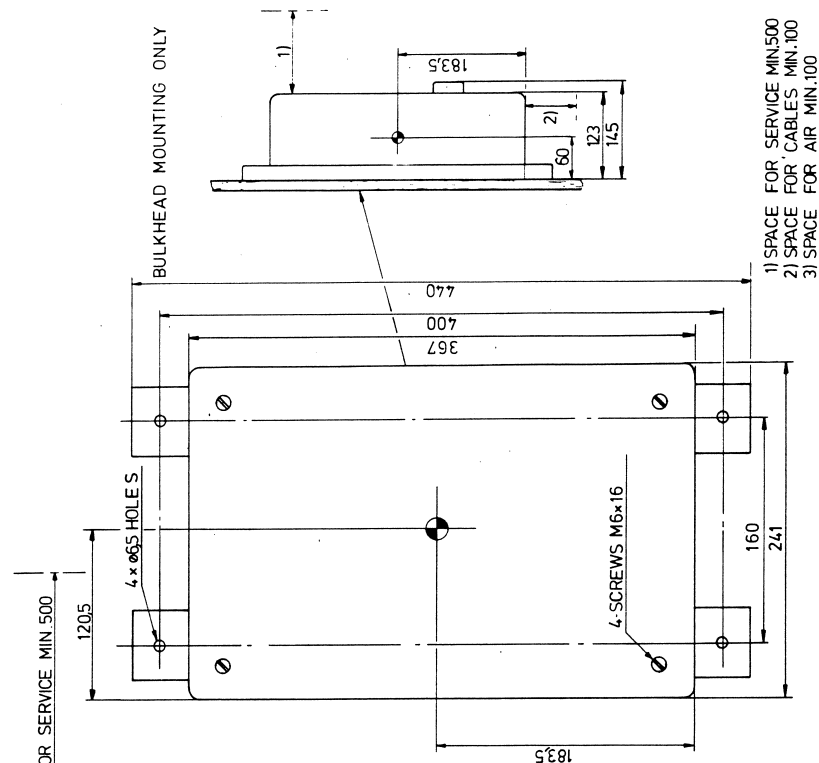
DRILLING PLAN FOR TRANSCEIVER UNIT 8250 S/D



BULKHEAD MOUNTING



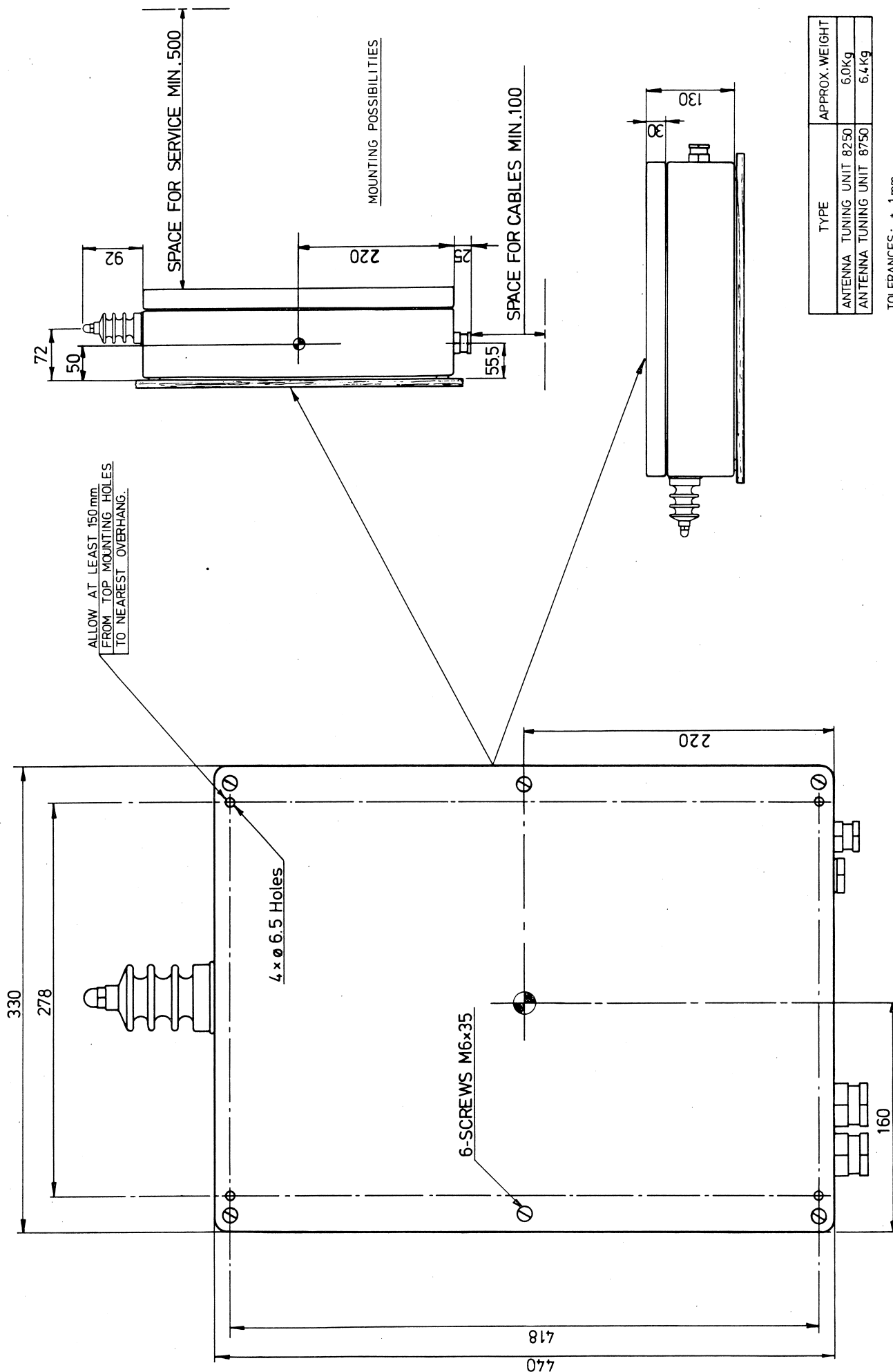
DRILLING PLAN FOR AC POWER SUPPLY UNIT 8250



TYPE	APPR. WEIGHT:
TRANSCEIVER UNIT 8250 S	260 Kg.
TRANSCEIVER UNIT 8250 D	284 Kg.
AC POWER SUPPLY UNIT 8250	170 Kg.

DIMENSIONS IN mm
TOLERANCES: ± 1mm
CENTRE OF GRAVITY

MOUNTING OF TRANSCEIVER UNIT 8250 S/D AND AC POWER SUPPLY UNIT 8250



TYPE	APPROX. WEIGHT
ANTENNA TUNING UNIT 8250	6.0Kg
ANTENNA TUNING UNIT 8750	6.4Kg

TOLERANCES: ± 1 mm
 DIMENSIONS IN mm
 ● CENTRE OF GRAVITY

MOUNTING OF ANTENNA TUNING UNIT 8250/8750

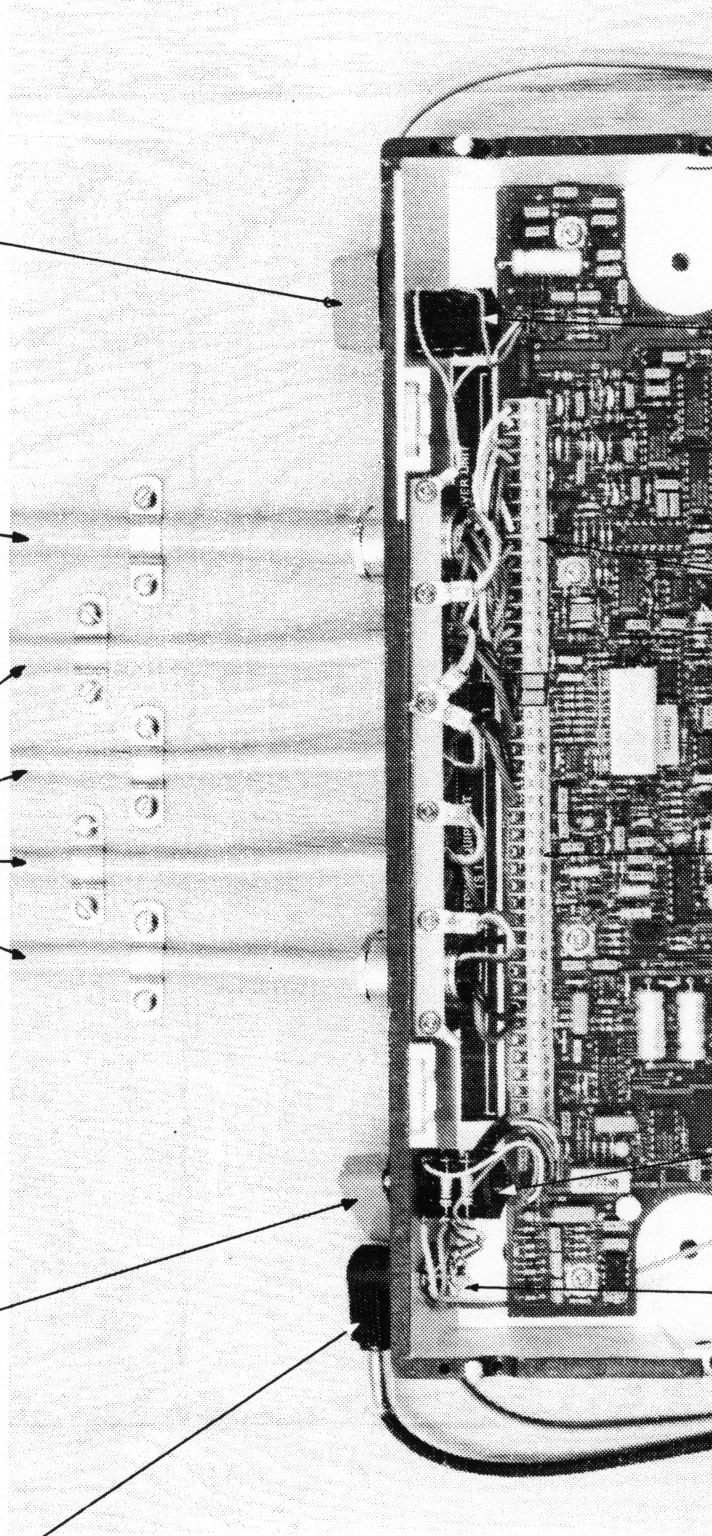
"HANDSET"
5-POLE CONNECTOR

SCREENED CABLES
2 x 0.25 - 2 x 1.5mm Sq

"MORSE KEY"
2-POLE JACK PLUG

"HEADPHONE"
2 OR 3 POLE JACK PLUG

SCREENED MULTIWIRE
CABLE 16 x 0.5mm Sq



CU-SK1

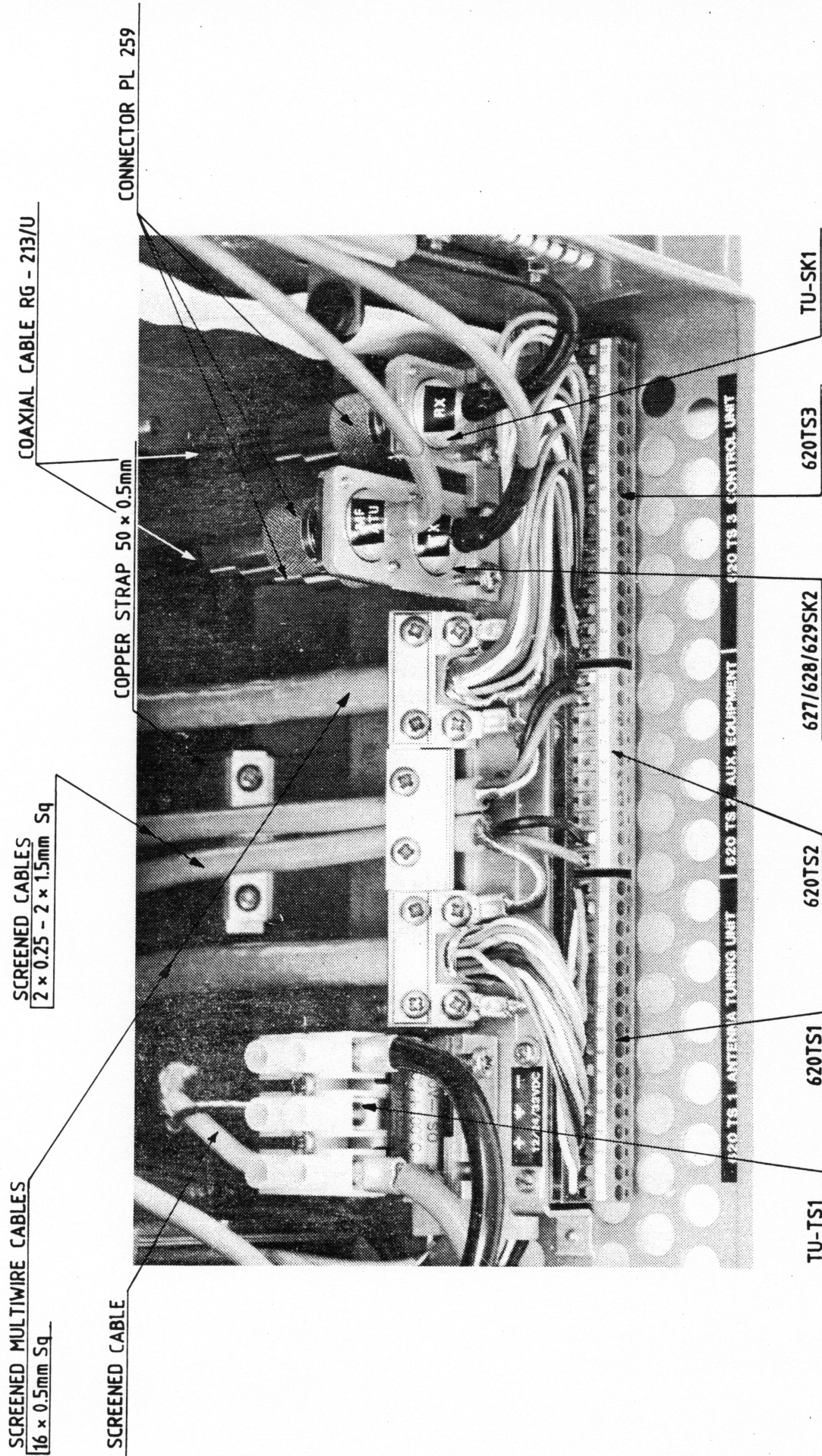
CU-SK2

601TS1

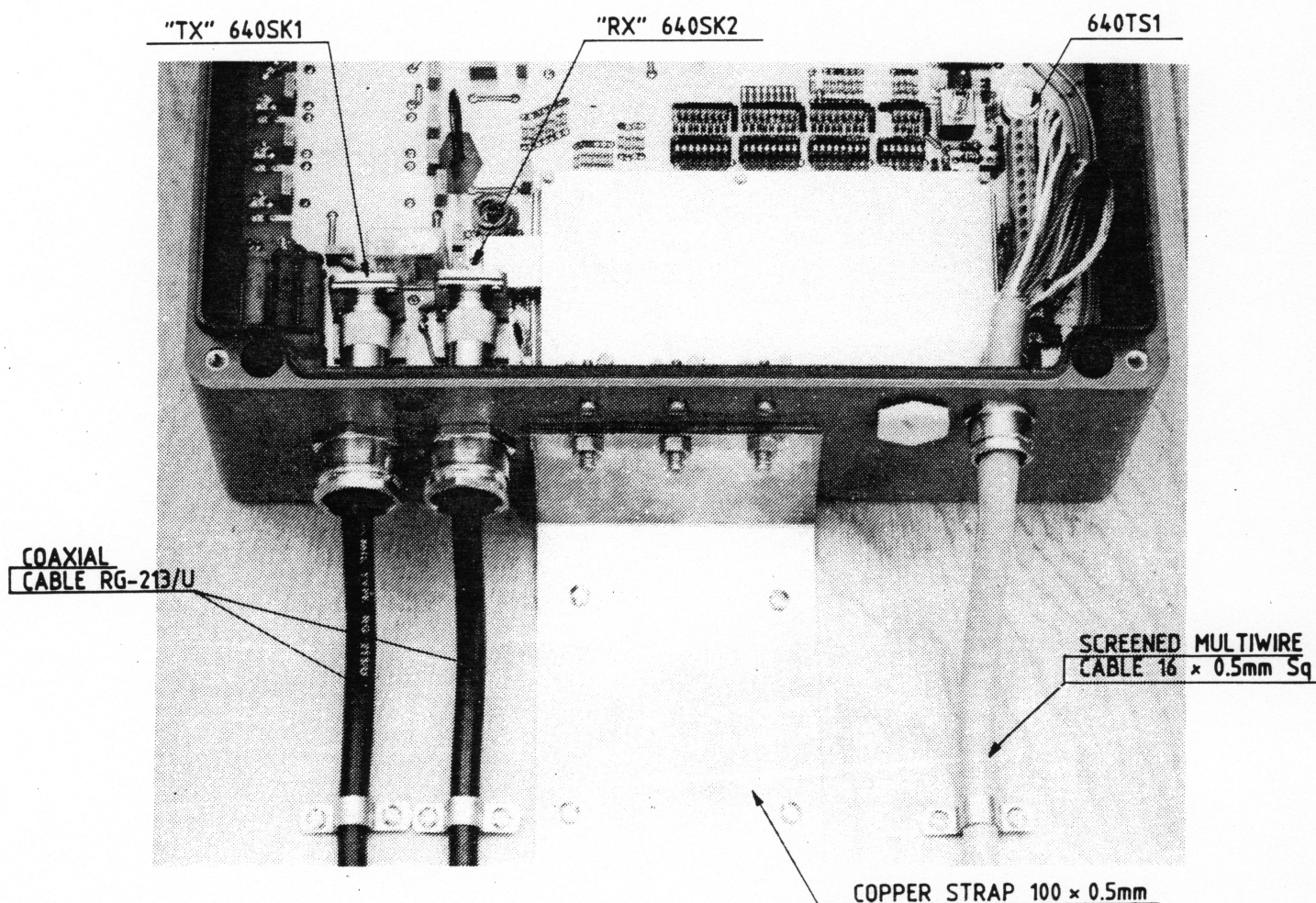
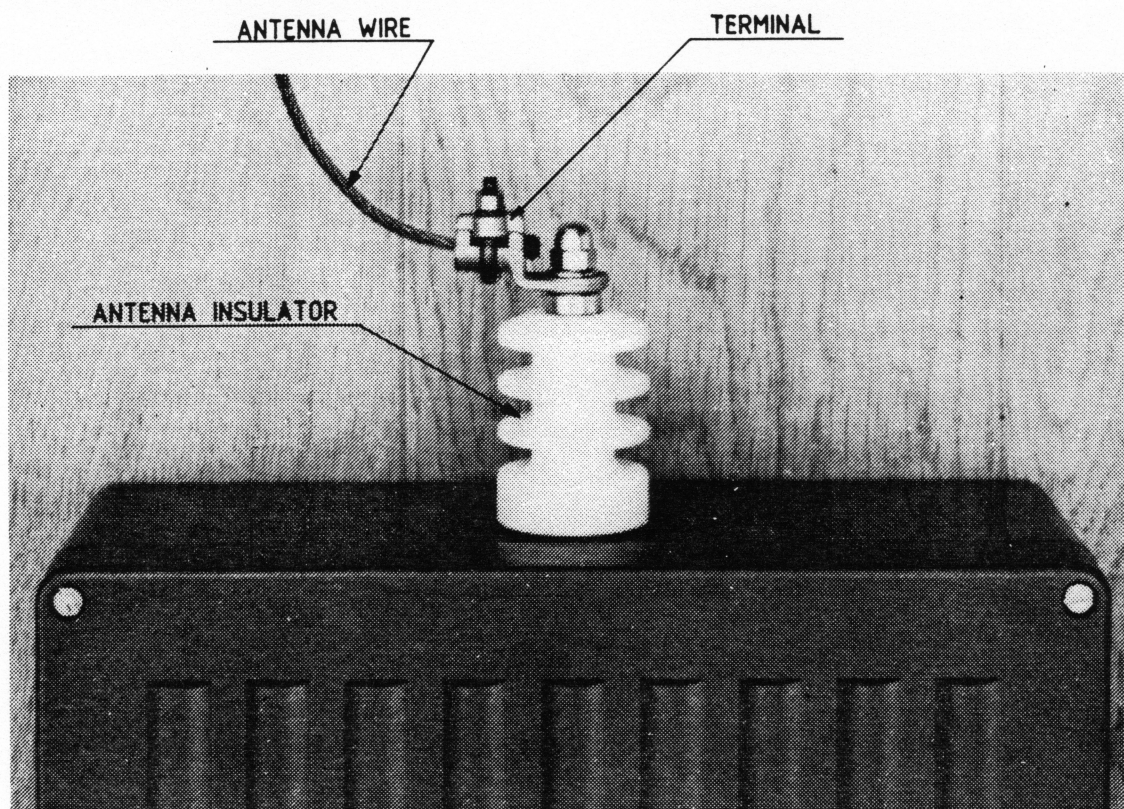
601TS2

CU-SK3

INSTALLATION WIRING OF CONTROL UNIT 8000



INSTALLATION WIRING OF TRANSCEIVER UNIT 8250



INSTALLATION WIRING OF ANTENNA TUNING UNIT 8250

PSU-TS2

PSU-TS1

WIRE 1 x 2.5mm Sq

CABLE

SCREENED CABLES

INSTALLATION WIRING OF AC POWER SUPPLY UNIT 8250

