GRUNDIG

SATELLIT®

INTERNATIONAL 650

PROFESSIONAL 650

Bedienungsanleitung
Operating Instructions
Notice d'emploi
Istruzioni per l'uso
Betjeningsvejledning
Gebruiksaanwijzing
Bruksanvisning
Instrucciones de manejo

TR


GRUNDIG
SATELLIT
PROFESSIONAL 650
AUX. LW MW SW FM
MOTORIC TUNING-IN PRESELECTOR
DF AERIAL
LAUTST./VOLUME
BÄSSE/BASS
HÖHEN/TREBLE
BANDWIDTH
AM RF GAIN CONTROL
MODE
BFO SSB CLARIFY
DISPLAY
STORE STATION
STORE
STATION
AUTO/MAN. PRESELECT TUNING
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
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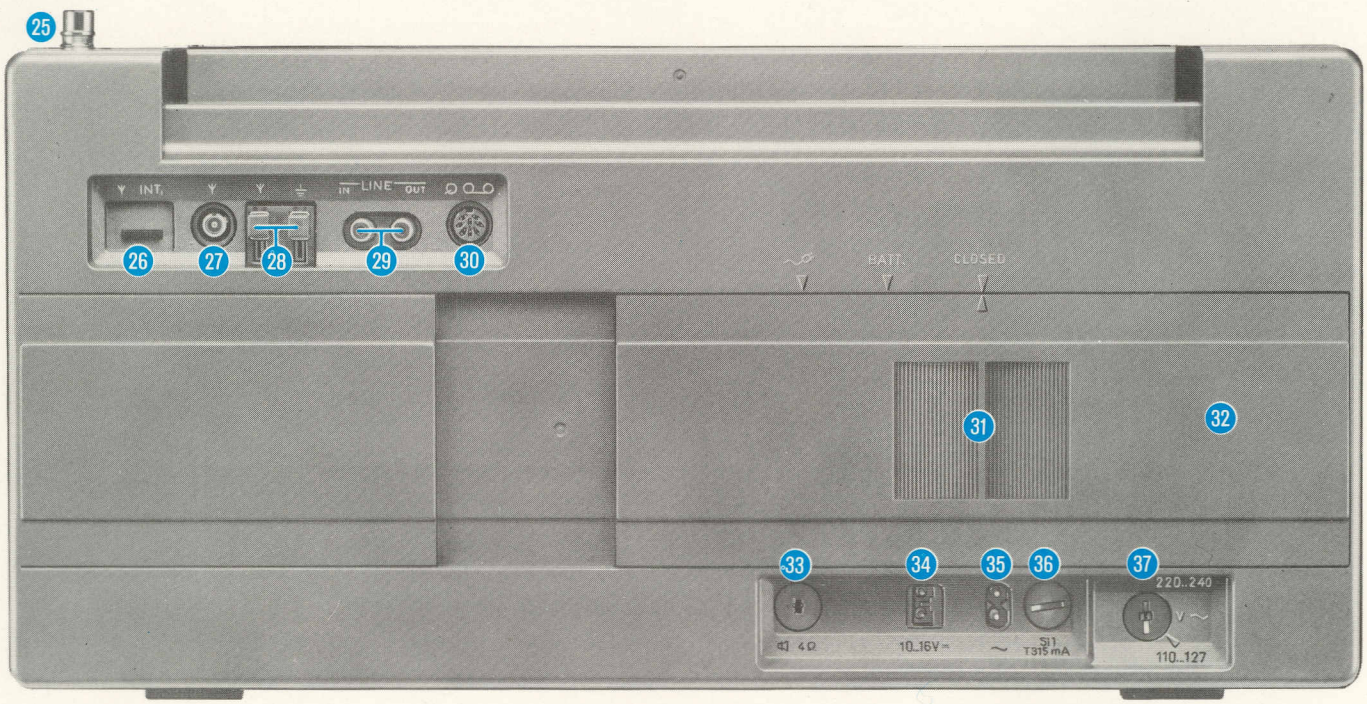
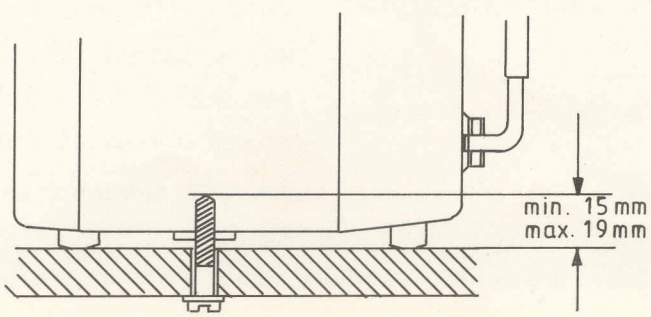

INT.
LINE
IN
OUT
BATT.
CLOSED
220..240
110..127
4 Ω
10..16V
25
26
27
28
29
30
31
32
33
34
35
36
37


min. 15 mm
max. 19 mm

Your Satellit at a Glance

The figures in brackets refer to the page(s) with the extensive description.

① **Function Switch**
AUT. = radio switches on and off automatically;
three switching on times and three switching off times can be programmed.
⏻ = radio off
● = radio on
Even when the radio is switched off, it remains connected to the power supply. To disconnect the radio from the power supply disconnect it from the wall socket.

② **Headphone Socket**

③ **Loudspeaker Switch** **(12)**
🔊🔊 = broadband speaker and tweeter switched on
🔊 = tweeter switched off.
Ext. = buillt-in speakers switched off.

④ **Battery Check/Illumination** **(11)**
BATT. = battery condition check
☼ = temporary illumination

⑤ **ANL-Switch** **(13)**
ANL = automatic noise limiter circuit switched on

⑥ **VOLUME Control**
volume level

⑦ **BASS Control**

⑧ **TREBLE Control**

⑨ **AM Bandwidth Switch** **(13)**
⎍ = narrow
⎍ = broad
⎍ = super-broad

⑩ **AM RF-GAIN Control** **(14)**
Locking position AGC = automatic gain control on normal AM radio reception
Adjusting range MGC = manual gain control. Recommended for single sideband reception.

⑪ **Operating Mode Switch for AM Wavebands** **(14)**
LSB = lower side band
AM = normal AM radio reception
USB = upper side band

⑫ **Fine Tuning** BFO/SSB-CLARIFY **(14)**

⑬ **Coaxial Socket** (DIN 45325)
for LW direction aerial (DF aerial)

⑭ **LW-Ferrite Aerial Switch**
DF = LW-DF aerial being connected to socket ⑬ in circuit
BC = LW-ferrite aerial connected

⑮ **Manual Tuning Control** **(12)**
The control is magnetically notched.
When the control is turned slowly, the bands are scanned step by step.
When the control is turned rapidly the sound is muted and the steps are increased.

⑯ **Preselector** **(13)**
On AM reception, the aerial input and IF circuits can be fine tuned to the correct frequency either manually or by motor drive. For this purpose, the knob ⑯ can either be used as fine tuning control or as switch (press centre part of the knob) for the automatic fine tuning control. When the automatic fine tuning circuit (motor drive) is switched on, AUT. PRESEL. will appear in the display ⑳.

⑰ **Programme Source Buttons**
AUX. = playback from cassette/tape recorder or record deck
LW = longwave reception
MW = mediumwave reception
SW = shortware reception
FM = VHF (FM) reception
(LW, MW, SW = AM bands)

⑱ **Auxiliary Tuning Scale**
for the AM wave bands.
Roughly indicates the frequencies tuned to in the aerial and the IF circuits.

⑲ **Indicator**
for optimum tuning and accu/battery condition

⑳ **Display**
provides the following informations depending on the mode of operation:
- TIME = time of day (24 hours clock)
- ON-TIME = switch-on time
- OFF-TIME = switch-off time
- DATE = date
- FREQ. = frequency tuned to in MHz
- LW, MW, SW or FM = selected waveband
- STAT. 1–32 = number of memory position
- AUT. PRESEL = automatic fine tuning with preselector switched on
- 88888 = incorrect control operation
- ✱ ✱ ✱ ✱ ✱ and BATT. = standby batteries exhausted

㉑ **DISPLAY Keys**
for displaying the respective information
DATE
TIME = time of day
FREQ. = frequency tuned to.

㉒ **Numeric Keyboard** **(12,13,14)**
for entering numeric data.
Press button CL for clearing incorrect entries.

㉓ **RECALL-Button**
for displaying
switch-on time (ON-TIME)
switch-off time (OFF-TIME)
preset stations (STATION)

㉔ **SET Buttons**
for storing the entered data in the memory.
Switch-on times (ON-TIME)
Switch-off times (OFF-TIME)
Preset Stations (STORE STATION)
DATE
Time of day (TIME)
Frequency tuned to (FREQ.)

㉕ **Telescopic Aerial**
for FM and SW reception.
Can be extended and tilted.

㉖ **Aerial Switch**
button pressed in: telescopic aerial connected
button released: external aerial connected to socket ㉗ or to clamping terminals ㉘ in circuit.

㉗ **Coaxial Socket** (DIN 45325/75 Ohm)
aerial connection for reception on all wavebands

㉘ **Clamping Terminals for External Aerial and Earth**

㉙ **Cinch-Sockets LINE** (Phono Sockets)
IN = for playback from a tape recorder; press button AUX ⑰ to switch socket into circuit
OUT = high-level output for driving amplifier systems.

㉚ **Universal Socket (ΩΩΩ)**
Input socket for record players with crystal or ceramic cartridge. Record players with a magnetic cartridge require a preamplifier.
Input and output for recording and playing back with a tape recorder.

㉛ **Battery Compartments**
for 6 "Mono" batteries (HP 2) or two "Mignon" batteries (HP 7).

㉜ **Mains Lead Compartment**

㉝ **Socket for External Loudspeaker**
(≧ 4 Ohm)

㉞ **Socket for External DC Supply**
10...16 DC

㉟ **Mains Supply Socket**

㊱ **Fuse Holder with Mains Fuse**
Fuse T 315 mA

㊲ **Voltage Selector**
switchable by means of a coin.
In the factory the radio is set to 220...240 V.

Information as which shortwave bands can be received are given on the upper side of the unit (AB = amateur bands).

Power Supply

It is possible to operate the Satellit in four different ways:
- mobile operation with batteries or accumulator
- stationary operation on the mains or from a d.c. voltage supply.

Independent of the operating mode, a set of standby batteries must always be fitted for the clock and the memory.
These batteries are two "Mignon" batteries IEC LR 6 or R 6.

Inserting the Standby Batteries

- Remove the sliding cover from the back of the set.

This cover has three positions:
CLOSED
BATT. = cover can be removed. Battery compartment and mains lead compartment are open.

= mains lead compartment open

- Insert the batteries with correct polarity (polarity symbols are provided in the compartment).
- Secure the batteries with the plastic holder.

When the set is switched off and the display ⑳ indicates "BATT." and 5 horizontal dashes are blinking, you must
- replace the complete set of batteries
- When replacing batteries, connect the set to the power supply (mains) to save the stored data.

Battery Operation

The battery set consists of:
- 6 "Mono" batteries IEC LR 20 or R 20.
- For battery life see technical data.
- Alkaline-manganese batteries usually have the longest life time and are highly leakage-proof.
- Always remove exhausted batteries.
- If the set is not in use for long periods, remove batteries even if they are new.
- No responsibility can be accepted for damage due to leaking batteries.

Operation with the GRUNDIG Dryfit Accumulator

Insert the GRUNDIG dryfit accumulator 476 instead of the batteries into the battery compartment.
- For the life time of the accumulator see technical data.
- The accumulator can be recharged at any time.
- The charging time for a fully discharged accumulator is approximately 15 hours.
- Longer charging cannot distroy the accumulator, as this is provided with an automatic charging circuit which prevents overcharging.
- For charging the accumulator, it is not necessary to switch on the set if the following conditions are met:
  a) set connected to the mains
  b) d.c. voltage supply of 12 – 16 V on socket ㉞.
- To ensure a long life of the accumulator, this should never be stored in discharged condition.

Checking the Condition of the Batteries or the Accumulator

- Set switch ④ to position BATT.
  Meter ⑲ now indicates the condition of the batteries or of the accumulator:
- pointer **in** the red field =
  a) batteries are satisfactory
  b) accumulator is charged
- pointer **in front of** the red field =
  a) batteries are exhausted and must be changed
  b) the accumulator must be recharged.

Mains Operation

The set can be operated from 50 – 60 Hz mains.
- In the factory the set is adjusted to 220...240 V. This setting can be changed to 110...127 V.
- Before changing the setting of the voltage selector ㊲, the set must be switched off.
- Connect the mains lead to socket ㉟.
  In doing so, the batteries in the battery compartment are disconnected.
- If the set is operated from the mains for long periods, remove the batteries from the battery compartment.

Additional Information for Units Sold in Great Britain

Units sold in GB are suitable for operation from a 240 V AC, 50 Hz mains supply.
We recommend that a 13 A 3-pin plug fitted with a 3-5 A fuse be used.The brown lead must be connected to the live pin (marked "L" or "brown" or "red") and the blue lead to the neutral pin (marked "N" or "blue" or "black"). On no account should either wire be connected to the earth pin (marked "E" or "green/yellow").
If other mains plugs are used ensure that they are protected by a 3 – 5 A fuse.

Changing Fuses

- Unplug the set form the mains.
- Never make improvised repairs to defective fuses.

The fuse holder ㊱ can be opened with a coin.
- The fuse must only be replaced by one of the same rating, i.e. Si I = T 315 mA (T = "slow blow").

Operation from an External DC Source

The set will operate from an external 10...16 V DC source connected to socket ㉞. This facility is intended for use in cars, boats or campers.
- Connect the DC source with a GRUNDIG battery adapter cable II. The batteries in the battery compartment are disconnected.
- If the set is to be operaded for a long period from the external DC source, remove the batteries from the battery compartment.

Aerials

for all wavebands.

Built-in Aerials for Mobile Operation

Telescopic aerial ㉕ for FM (VHF) and SW reception.
- For FM reception, pull out the lower part of the aerial then swivel and rotate the aerial until best results are achieved.
- For SW reception fully extend the telescopic aerial and place it vertically.

The set is provided with a built-in ferrite rod aerial for MW and LW reception.
- The best position for receiving a station should be found by rotating the set about its vertical axis.

Aerial Connections for Stationary Operation with an External Aerial

An externa aerial system can be connected to socket ㉗.
To the clamping terminals ㉘ a long wire aerial and an earth wire can be connected.
- Use switch ㉖ to switch from telescopic aerial to external aerial connection.
  To socket ⑬ a DF aerial for long wave reception can be connected.
- Use ferrite aerial switch ⑭ to select between ferrite aerial or DF aerial connection.

General Operation of the Set

Switching On and Off with the Function Switch ①

Postion ● = on
position ⏻ = off.
- When the set is operated from the mains, the meter ⑲ and the display ⑳ are permanently illuminated.
- When the set is switched off but connected to the mains, the display ⑳ is faintly illuminated.
- When the set is operated from the mains, the scale ⑱ is permanently illuminated when receiving AM stations.
  When the set is operated from batteries, short illumination is obtained by pressing switch ④ ☼.

When the set is switched off, its primary side remains connected to the mains. To disconnect the set completely from the mains, remove the mains plug from the wall socket.

Programme Source Selector ⑰

AUX. = playback from a cassette/tape recorder or from a record player
LW = Longwave *
MW = Mediumwave *
SW = Shortwave *
FM = VHF

* To receive on these wavebands, two buttons must be set as follows:

- Operating mode switch ⑪ to **AM**.
- AGC switch ⑩ to **AGC**.
- AUT. PRESEL. must be indicated in the display ⑳. If this is not the case
- press button ⑯.
- When the set is switched on and no button ⑰ is pressed 88888 will appear in the display ⑳ (incorrect operation).
- If one of the waveband buttons is pressed, the receiver will be tuned to the frequency received last in this band and the display ⑳ indicates the frequency.
- With the AUX. button pressed the time of the day will be indicated on the display ⑳.

Volume and Tone

Adjust the volume and tone to suite your taste with the controls
⑥ VOLUME
⑦ BASS
⑧ TREBLE.

Loudspeaker Switch ③

with three settings.

🔊🔊 = broadband speaker and tweeter in operation for
- FM reception
- playback of disks or tapes
- local AM reception with the band width selector ⑨ BANDWIDTH in position "super broad" (⌐‾‾¬).

🔊 = tweeter out of operation

EXT. = internal speakers out of operation when:
- a headphone is connected to socket ②
- an external speaker is connected to socket ㉝.

Tuning to Stations

1. Manual Tuning

- with the magnetically notched tuning control ⑮.

Each notch of the rotary knob alters the tuning frequency by 1 kHz in the case of AM reception (LW, MW, SW) and by 10 kHz in the case of FM reception.
When turning the tuning control knob slowly, the audio stage remains in circuit and there will be a certain amount of tuning noise. This tuning noise can be muted by turning the tuning control more quickly. In this case, the tuning steps will be increased:
on LW from 1 kHz to 3 kHz,
on MW from 1 kHz to 5 kHz,
on SW from 1 kHz to 11 kHz or 111 kHz, respectively
on FM from 10 kHz to 110 kHz.

This of course reduces the time required to tune through rather large changes in frequency. The display ⑳ always indicates the frequency tuned to in MHz.
When the meter ⑲ shows its maximum reading, the best possible tuning point is obtained.

2. Tuning with the Numerical Buttons ㉒

In this case, the frequency of the station to be tuned to must be known (frequency data may be found in transmitter tables or local radio programme guides).

- Enter the frequency number with the **numerical buttons** ㉒.

The following programming steps must be performed **within 30 seconds.** If this time is exceeded, programming must be started again.

- **To correct wrong entries immediately,** press the clear key CL.

Entering the frequency with the numerical keyboard is slightly different for the individual wavebands.
Please use the following tables to obtain correct results.

Some points are the same for all wavebands:
- The display ⑳ always shows the frequency tuned to in MHz.
- Trailing zeroes behind the decimal point **may be,** but **need not** be entered.

Common points for the AM wavebands:
- It is possible to enter the frequency in **kHz** or **MHz.**
- For even thousands only one figure must be entered and the zeroes as well as the decimal point may be deleted. (Example 4).

LW + MW	Some possible entries	!	Indication in display ⑳
Example 1 200 kHz	200 (kHz) 0.200 (MHz)	Confirm entries with button ㉔ FREQ.	0.200 (MHz)
Example 2 801 kHz	801 (kHz) 0.801 (MHz)		0.801 (MHz)
Example 3 1.107 MHz	1 107 (kHz) 1.107 (MHz)		1.107 (MHz)
SW			
Example 4 6 MHz	6 000 (kHz) 6.000 (MHz) 6 (MHz)		6.000 (MHz)
Example 5 9.625 MHz	9 625 (kHz) 9.625 (MHz)		9.625 (MHz)
Example 6 21.690 MHz	21 690 (kHz) 21.690 (MHz)		21.690 (MHz)

On the FM waveband
- the frequency must always be entered in MHz

FM (VHF)	Some possible entries	!	Indidation in display ⑳
Example 1 91 MHz	91 91.	Confirm entries with button ㉔ FREQ.	91.00 (MHz)
Example 2 97.9 MHz	97.9		97.90 (MHz)
Example 3 101.75 MHz	101.75		101.75 (MHz)

When entering the data, the adjustments of the set are not modified. Only after having confirmed the entered data with the set button ㉔ **FREQ.** the entered data are accepted by the memory. Bad frequency entries are indicated by blinking 88888 in the display ⑳.

When the set does not accept the entries.....

If there are strong distoring impulses (interferences) emitted in your area (for example caused by badly screened household appliances), it may happen, that the set does not accept the entered data.
In this case, switch off the set, take out the two standby batteries ("Mignon" batteries) for about 1 minute, reinsert the batteries and switch the set on again.
Now the set will accept the data, However, it will be necessary to enter the time of day, the date and the switching times again.
The stored stations remain stored.

Particularities on AM

Preselector

When receiving AM stations, the input and intermediate circuits of the receiver can be tuned in two different ways:

1) Automatically with motor drive. In this case "AUT. PRESEL." will appear in the display ⑳.
   The automatic fine tuning with the motor drive can be switched on and off with the inner part of control ⑯ (press button).
2) Manually with the knob ⑯ (outer part of control ⑯ which can be rotated).
   When this operating mode is used, it must be differentiated between:
   - **optimizing** the recpetion when the **motor drive** is in operation
   - **manual fine tuning** with switched off motor drive.

You should use the automatic fine tuning with the motor drive in the following cases:

- generally when receiving on the LW band
- generally when changing the wave band
- in the MW and SW bands when
  a) you are tuning to the stations rapidly
  b) you are entering the frequencies with the numeric buttons ㉒
  c) you call stored stations with the numeric buttons ㉒.

After having performed these operations, you may optimize reception by manual fine tuning (outer rotating part of control ⑯).

You should switch off the automatic motor drive in the following cases:

- when receiving MW or SW stations, especially on SSB reception, when you are tuning through the waveband in small steps.
- on battery operation to save battery life (because of the considerable power consumption of the motor).

When using the preselector, the scale ⑱ will give an **approximate indication** of the frequency tuned to. In addition, scale ⑱ will deliver informations about the centre frequencies of the individual radio or amateur wave bands (e.g. 11.8 MHz on the 25 m radio band).

ANL Switch ⑤

- ANL on = switch ⑤ in bottom position.

The ANL circuit (automatic noise limiter) limits irregular interferences which may be caused by lightning discharges, switching functions of electrical appliances, etc.)
The cut-off level is automatically adjusted to the degree of modulation of the incoming station.
When you are using a headphone, the ANL circuit provides an effective protection against damage to your hearing.
Of course, the ANL circuit will not give any improvement in the case of high frequency interferences (crackle).

AM Bandwidth ⑨

- On the AM bands (LW, MW, SW) the band width can be set to three different values.

In all three settings an interference filter is in operation which is matched to the respective AM bandwidth.

⌐¬ = narrow. In this position it is possible to separate two closely adjacent stations.

⌐¬ = broad. In this setting the AM bandwidth is increased to improve the sound quality when receiving fairly strong stations.

⌐¬ = super broad. In this position of the switch, the AM bandwidth is further increased. This can be useful to obtain optimum sound quality when a strong local station is received.

Storing of Stations

The receiver is provided with a memory in which up to 60 stations can be entered and stored. The number of stations which can be stored in the memory varies from band to band as follows:

4 stations on the LW band
8 stations on the MW band
16 stations on the FM (VHF) band and
32 stations on the SW band.

Each station you are listening to at the moment can be stored:

- Enter the number of the memory position to which you want to allocate the station with the numeric keyboard ㉒.
- Depress the SET key ㉔ STORE STATION.
  The display ⑳ now additionally indicates STAT and the number of the memory location. The stored station can still be heard.

Recalling Stored Stations

- Select the desired waveband with button ⑰ (LW, MW, SW, FM).
- Enter the number of the memory location to which you want to allocate the station with the numeric keyboard ㉒.
- Press the station recall button ㉓ STATION.

- If the called memory location is not yet allocated to a station, the set is automatically tuned to the lower cut-off frequency of the selected wave bande (e.g. 510 kHz on MW).
- When receiving on the AM wavebands, the automatic motor drive should be switched on. The outer rotating part of the Preselector control ⑯ then permits to optimize the quality of reception (fine tuning).

Setting the Clock and the Date

The maximum 30 seconds interval between each programming step also applies when setting the clock and the date.
Entering of the data is possible in several ways, e.g. with or without decimal point, with three or four digits, etc. In the following, only the simpliest way of entering the data is shown. If any particularity must be oberserved, this will be indicated.
The time of day, the date and the switching times can be entered even when the set is switched off.

Setting the Clock to the Time of Day

Example: 6.30 hours:

- Subsequently enter the figures 630 with the numeric keyboard ㉒.
  When the reference clock changes form 6.29.59 to 6.30.00
- press the set button ㉔ **TIME** and the clock starts running.

Indication of the Time of Day

When the set is switched off, the time of day is permanently indicated,
When the set is switched on and with button AUX. ⑰ being depressed, the time of day is also permanently indicated.
With the set switched on and with radio reception, the time indication can be switched on and off as follows:

- Press the display button ㉑ **TIME.**
  The time is displayed instead of the frequency.
  To return to frequency indication
- press the display button ㉑ **FREQU.** or
- turn the tuning control knob ⑮.

Setting the Date

For setting the date, the German way of writing is used, i.e. day - month.

Please note two particularities:

- A point must be entered after the day.
- Day and month must be entered with two digits each.

Example: July, 9:

- Subsequently enter 09.07 with the numeric key board ㉒.
- Press the date set button ㉔ **DATE** to store the date.
  Now the date will be indicated in the display ⑳ for about 30 seconds.

Recalling the Date

Independent from the indication in the display ⑳, the date can be recalled at any desired time.

- Press the date display button ㉑ **DATE.**
  The date will be indicated in the display for 30 seconds.

It is also possible to immediately switch over to another indication, e.g.:

to indication of the time of the day. To do so

- press the time display button ㉑ **TIME.**

Frequency indication:

- press the frequency display button ㉑ **FREQ.**
  or another waveband button ⑰
  or turn the tuning knob ⑮.

Programming the Switching Times

The set can be programmed to switch on and off automatically at preset times up to three times a day. You may enter the switching times in random sequence, they will be chronologically sorted by the set after entering.

Example: Entering a switch-on time of 16.00 hours.

- Press the RECALL button ㉒ **ON-TIME** to call the first memory location.
  In the display apppears ON-TIME and --:-- if the memory location is free
  or a random time indication if a time was already entered.
  In the second case, simply "overwrite" the old entry.
- Subsequently enter the figures 1600 with the numeric keyboard ㉒.
- Press the set key ㉔ **ON-TIME**.
  ON-TIME and 16:00 will now appear in the display ⑳.

If you wish to key in further switch on times, start again as described above with the RECALL button ㉓ **ON-TIME** and call the next memory location (2nd, 3rd, etc.).

The entered switch on times can be checked at any time:

- Press the RECALL button ㉓ **ON-TIME** three times. The display will indicate whether the memory location is occupied or not and if it is occupied, the programmed switch on time.

It is also possible to erase or change the entered switch on times at any time.

- Repeatedly press the RECALL button ㉓ **ON-TIME** until the display ⑳ indicates the respective switch on time.
- Overwrite the old entry with the numeric keyboard ㉒ or clear the old entry with button CL.
- Press the set button ㉔ **ON-TIME**.

Proceed in a similar way with the switch off times.

- Call the respective memory locations with the RECALL key ㉓ **OFF-TIME** if you want to enter, check or clear the switch off times.
- Enter new switch off times with the numeric keyboard ㉒ or clear old times with button CL.
- Confirm the keyed in times with the set button ㉔ **OFF-TIME**.

Automatic Switching On and Off of the Radio

For this operating mode, the following conditions must be met:

The radio must be tuned to the desired station and the volume must be set to the required level.

- Set the function switch ① to AUT.
  The radio now will be automatically switched on and off at the preprogrammed times.

If you possess a GRUNDIG cassette recorder with Start/Stop remote control facility, it is possible to record radio programmes at the preset times. To do so

- connect your cassette recorder by means of a cable STK 227 to the tape recorder socket ㉚ of the receiver (use the universal socket on the cassette recorder).
- Switch the cassette recorder to Recording/Start.
  When the receiver is automatically switched on at the preset time, the cassette recorder is started too and the received programme is recorded.

SSB Reception (Single Side Band)

Single side band reception is a special reception mode beside the normal radio reception.
In this operating mode, already known controls obtain new functions.
Knob ⑫ BFO/SSB-CLARIFY is exclusively used for SSB reception.

- Knob ⑩ AM RF-GAIN CONTR.
  Set the knob to AGC when receiving strong SSB stations.
  When receiving weak SSB stations, optimize the reception quality manually with the knob set to the control range MGC.
- Knob ⑪ MODE
  In the same way as with normal stations, SSB stations can also be found in position AM of the knob.
  However, the set then must be switched to SSB mode.
  Select the **lower side band** (LSB) in the 40 and 80 m bands and the **upper side band** (USB) in the 15 and 20 m bands

As experience has shown, SSB transmitters are most frequently found in the 80, 40, 20 and 10 meter amateur bands.
For frequencies see the specification section of these operating instructions.

Even more than with normal SW reception, the following points are very important for SSB reception:

Area of reception (radio shadowing through buildings)
Atmospheric conditions
Aerial set-up (a specific SW aerial would be ideal).

For training single side band reception, follow the given examples:

- Switch on the set and select the SW waveband.
  Knob ⑩ still remains in position AGC.
  Knob ⑪ still remains in position AM.
- Set knob ⑫ to its centre position.
- Tune to 7.000 MHz (beginning of the 40 m amateur band) and switch on the automatic motor drive of the preselector.
- Switch off the preselector (press centre part of knob ⑯).
- Slowly scan the band step by step with the tuning knob ⑮ and always follow the tuning point with the outer rotating part of the preselector control ⑯.

Please consider that the carrier is suppressed on SSB transmissions. For this reason, reception is only possible when the transmitter is actually operating (mostly emitting speech). During pauses, no tuning is possible.

When having found a station:

- Adjust the tuning control ⑮ and the Preselector ⑯ so that a maximum reading is obtained on the meter ⑲.
- You will notice, that the pointer deflects in the rythm of the still not intelligible speech.
  If the pointer does not reach the centre of the scale
- set knob ⑩ AM RF-GAIN CONTR. to manual gain control (control range MGC) and adjust the gain until the pointer reaches the centre part of the scale.
- Set the knob ⑪ MODE to position LSB (lower side band). In most cases, the speech now will be intelligible.
- Slowly turn the CLARIFY knob ⑫ to the left or right to improve the intelligibility of the speech.

Particularly when receiving weak stations, it may occur that the optimum tuning point cannot been recognized on the meter ⑲ even with fully turned up control ⑩ AM RF-GAIN CONTR. In this case, it might be necessary to repeat the adjustments in the following sequence:

- Manual tuning control ⑮
- Preselector ⑯
- Clarify control ⑫

If you wish to terminate the reception of SSB stations, switch back to normal AM radio reception in the following way:

- set knob ⑩ AM RF-GAIN CONTR. to AGC and
- set operating mode switch ⑪ MODE to AM.

Checks to Perform if the Satellit Seems to be Defective

If it should happen that your Satellit fails to operate, it must not necessarily be defective. For this reason, perform the following checks:

The Satellit remains mute

- Are the batteries correctly inserted?
- Are the batteries O.K.?
- Is the mains lead ㉟ or battery lead ㉞ correctly connected? See section "Power Supply" on page 11.
- No key or AUX.-key ⑰ pressed in. See section "Programme Source Selector" on page 12.
- Switch ③ is set to position EXT. See section "Loudspeaker Switch" on page 12.

No or weak reception on AM (SW, MW, SW)

- Control for manual amplification control ⑩ not set to "AGC" (see page 12.)
- Preselector ⑯ not set to "AUT. PRESEL" (see page 13.).
- Check position of aerial switches ㉖ and ⑭ (see page 11.).

Distorted reception of strong AM stations

Control for manual amplification control not set to "AGC" (see page...).

The radio whistles when receiving AM-RF stations

Operating mode switch ⑪ not set to "AM" (see page 12.).

Operation in Watercrafts and Land Vehicles

The Satellit can be secured for mobile operation.
For this two threaded holes M4 are provided in the base.
Use screws which are **at least** 15 mm and **maximal** 19 mm longer than the thickness of the material to which the Satellit is secured. (See illustration on page 3).
Leave enough space at the back so that sockets and controls remain accessible.

Maintenance

This case of the set should only be cleaned with a soft, dust removing cloth. Do not use aggressive polishes or cleaning agents.

The set should not be exposed to a temperature higher than 60° C. Remember that this temperature may well be exceeded if the set is exposed to strong sunlight.

Prescriptions and Regulations

This set complies with the safety regulations according to VDE 0860 and thus with the international safety regulations according to IEC 65 and CEE 1.

The Satellit professional 650

has the FTZ-No 36/501 S.

Because of the highest receivabel SW frequency of 30 MHz, the Satellit international must be operated in **West Germany** according to the prescriptions of the German Post Office.

Accessories

Accessories available for your Satellit are listed in the "Grundig Revue" which you can obtain from your GRUNDIG dealer.

Subject to alterations and corrections.

Specification

Power Supply Requirements

Battery operation 9 V =
with 6 "mono cells" 1.5 V (IEC LR 20 or R 20) or with GRUNDIG dryfit accumulator 476.

For LCD clock and memory:
2 "mignon cells" 1.5 V (IEC LR 6 or VR 6).

Via external power supply socket:
10...16 V =.

From mains:
adjustable to 220...240 V or 110...127 V ± 10 % (50/60 Hz).

Audio peak power:
30 W

Battery life
(to DIN 45 314)
AM values with the preselector not in circuit:

IEC LR 20 (alcali-mangan)	AM: approx. 80 hours
	FM: approx. 78 hours
IEC R 20	AM: approx. 45 hours
	FM: approx. 44 hours
GRUNDIG dryfit accumulator 476	AM: approx. 21 hours
	FM: approx. 20 hours

Tuned circuits
FM: 6 (4 tunable) + 3 ceramic filters
AM: 11 (3 tunable) + 2 crystal filters + 1 ceramic filter

AGC
AM: on 3 stages

Wavebands

FM:	87.5 –	108	MHz
LW:	148 –	420	kHz
MW:	510 –	1620	kHz
SW:	1.6 –	26.1	MHz
	1.6 –	30.0	MHz (Satellit international 650)

Receivable SW bands

Band	Frequency (MHz)
160-m-amateur	1.815 – 1.890
120-m-radio	2.300 – 2.498
90-m-tropical	3.200 – 3.400
80-m-amateur	3.500 – 3.800
75-m-radio	3.900 – 4.000
60-m-tropical	4.750 – 5.060
49-m-radio	5.950 – 6.200
41-m-radio	7.100 – 7.300
40-m-amateur	7.000 – 7.100
31-m-radio	9.500 – 9.900
30-m-amateur	10.100 – 10.150
25-m-radio	11.650 – 12.050
22-m-radio	13.600 – 13.800
20-m-amateur	14.000 – 14.350
19-m-radio	15.100 – 15.600
17-m-amateur	18.068 – 18.168
16-m-radio	17.550 – 17.900
15-m-amateur	21.000 – 21.450
13-m-radio	21.450 – 21.850
12-m-amateur	24.890 – 24.990
11-m-radio	25.670 – 26.100

Tuning steps with knob ⑮
when turning slowly
on AM (LW, MW, SW) in steps of 1 kHz
on FM (VHF) in steps of 10 kHz
rapid tuning on LW steps of 3 kHz
on MW steps of 5 kHz
on SW steps of 11 or 111 kHz, respectively
on FM steps of 110 kHz

Built-in aerials
telescopic aerial for VHF/FM (810 mm) and SW (1440 mm)
ferrite rod aerial for LW and MW

Terminal clamps
for external aerial and earth

Connecting sockets for
- mains lead with battery/mains switch
- headphone with 6.3 mm ⌀ jack plug (approx. 1000 Ohm)
- cassette-/tape recorder deck or record player [7-pin standard socket (universal)]
- external aerial (75 Ohm coaxial socket for all wavebands)
- LINE IN/OUT [two phono ("cinch") sockets]
- external loudspeaker ≧ 4 Ohm
- 10...16 V d.c. power supply
- LW DF aerial

Weight
8.5 kg (without batteries)

Dimensions
approx. 504 x 242 x 202 mm (W x H x D)
(depth including handles)

The type plate is located on the bottom of the set.