

ADDENDUM TO OPERATION MANUAL

WRAASE WSD-690rx Weather Satellite Receiver
Ser. # 690800 to 690999

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WARRANTY

All parts of the Weather Satellite Receiver System are warranted by VOLKER WRAASE ELEKTRONIK of Germany against defects in material or workmanship for a period of one year from the date of delivery. In the event of a defect occurring during the warranty period, VOLKER WRAASE ELEKTRONIK will repair or replace this product within a reasonable period of time after notification, free-of-charge, provided that: It is returned to VOLKER WRAASE ELEKTRONIK or its US Maintenance Location ; has not been misused; has not been damaged by an act of God; and that the user has followed the instructions in the operation manual.

Any unauthorized modification, repair, or attempt to repair will render this warranty void.

IN NO EVENT SHALL VOLKER WRAASE ELEKTRONIK BE LIABLE TO THE CUSTOMER FOR ANY DAMAGES, INCLUDING LOST PROFITS, OR OTHER INCIDENTAL OR CONSEQUENTIAL DAMAGES, ARISING OUT OF THE USE OR INABILITY TO USE THESE PRODUCTS.

All requests for repair or replacement under this warranty must be made as soon as possible after the defect has been noticed and must be directed to VOLKER WRAASE ELEKTRONIK or its representative in your area.

ADDRESS INFORMATION:

VOLKER WRAASE ELEKTRONIK
Kronsberg 10
D-2300 ALTENHOLZ / KIEL-17
West-Germany
Phone: 431-32528 (country code 49)
Telex: 292373 wrael d
FAX: 431-32579.

US Maintenance Representative:

F.G.L. Inc.
Frank Greuhalgh Laboratories
151 Broadway
Amityville, N.Y. 11701
Telephone: (516) 598-0011
FAX: (516) 598-2074

Installation Instructions

II.1 INSTALLATION PRECAUTIONS

II.2 AMBIENT TEMPERATURE RANGES:

CTM-12 MONITOR	:	-10	to	+50° C
VIDEO PRINTER	:	+13	to	+32° C
ALL OTHER PARTS	:	-20	to	+55° C

Caution:

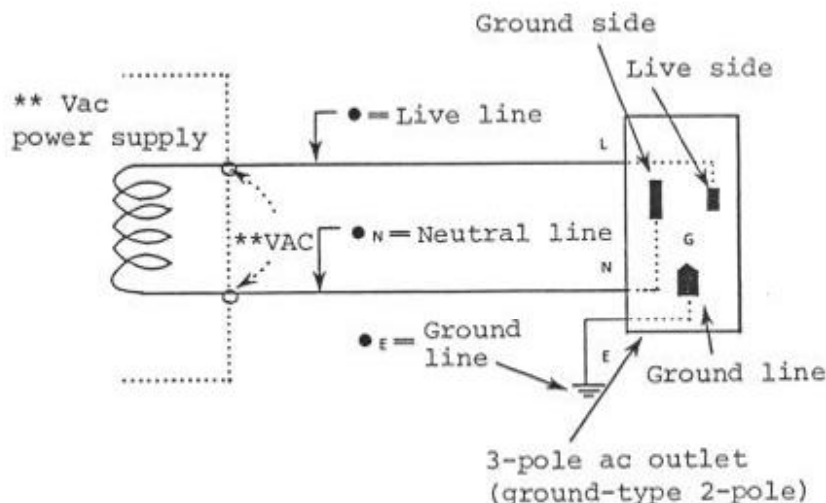
If the WSD-690rx RECEIVER, CTM-12 MONITOR or the VIDEO PRINTER are used after being stored or used at a low temperature for a long time, condensation may occur inside the equipment and may cause short circuits. Always ensure that the equipment, especially the monitors, are thoroughly dry before turning on the power.

II.3 POWER CORD POLARITY

Since the 3-pole (ground-type 2-pole) power cord is connected to the live line (L), neutral line (N), and ground line, the Weather Satellite Receiver System with the step-up-transformer is designed so that the power supply polarity is always matched when the plug is inserted into a 3-pole (ground-type 2-pole) supply outlet.

When a 3-pole ac outlet is not available, ground the WSD-690rx terminal directly to earth potential.

When a 3-pole (ground-type 2-pole) ac outlet is available, the WSD-690rx, CTM-12 and PRINTER frames are connected to earth potential when the power cord is plugged into ac outlet.



The ANTENNA SYSTEM for the WSD-690rx WEATHER SATELLITE RECEIVER consists of the following components:

- a) PARABOLIC DISH ANTENNA model PD-900 with FEEDER (dipole) for geostationary satellites and MAST MOUNT.
- b) S-BAND CONVERTER MRC-17A (attached at rear of dish antenna) with a 30-cm cable for connection to dish feed.
- c) OMNIDIRECTIONAL VHF ANTENNA model KD-137 (crossed dipoles) for polar orbiter satellites in the 137 MHz range.
- d) VHF PREAMPLIFIER model AA-137 for 137 MHz.
- e) TELESCOPIC MAST (9m heigh) for VHF ANTENNA with guy wires and pins.
- f) TRIPOD with adjustable legs.

It is not necessary to erect the complete antenna system, if only one type of satellite shall be received. If only geostationary satellites are to be received (METEOSAT, GOES, GMS), the DISH ANTENNA with FEED and S-BAND-CONVERTER, all mounted on the TRIPOD, will be sufficient.

For POLAR ORBITERS only, the dish antenna with feed and S-Band-Converter is not needed.

II.5 GUIDELINES for ANTENNA INSTALLATION and POSITIONING

II.6 DISH ANTENNA for GEOSTATIONARY SATELLITES

There must be a line-of-sight between the DISH and the geostationary satellite at least as wide as the dish diameter. Satellite radiation will not pass through walls, buildings, trees etc. If, however, a weaker signal is tolerable, installation behind a glass window or in a tent may be possible. As long as the line-of-sight principle is satisfied, the height above surface is not important, but to avoid damages by strong winds, the dish should be located close to the surface. In difficult locations, however, when strong winds are not expected, it is possible to mount the dish on a higher segment of the telescopic mast in order to reach the line-of-sight (for example in a yard, surrounded by buildings). In such situations, the guy wires must be securely fastened.

II.7 ASSEMBLING and ADJUSTING the DISH ANTENNA (Fig.1, 2, 3)

Insert the FEEDER tube into the center hole of the dish. Before tightening the plastic nut on the rear, make sure that the dipole legs under the white plastic can are strictly aligned according to the satellite radiation polarization (normally horizontal, see Fig. 3). After satellite contact has been achieved, alignment may be corrected by watching the fieldstrength meter on the receiver. The Feeder is in the correct focus point of the dish, if the distance between the center hole and the top screw on the plastic can is 38 cm.

Connect the short (30cm) cable leading to the S-BAND-CONVERTER MRC-17A to the end of the feeder tube.

After installation of the feeder, make sure that the lid of the plastic can is closed. The purpose of the plastic can is to keep humidity off the feeders interior. As humidity inside the feeder tube will decrease antenna performance, make sure that the plastic can is replaced immediately if damaged.

Mount the DISH on the TRIPOD. Caution! Do not fasten the nuts too strong to avoid crushing of the aluminum tube.

For finding the satellite and adjusting the dish, the receiver should be positioned close to the antenna to be able to watch the fieldstrength meter during adjustment.

Connect the "to RECEIVER" socket on the MRC-17A to the "MRC-17A"-socket on the rear of the WSD-690rx.

After power has been applied to the receiver, allow 2 to 4 minutes warming-up-time to the converter, before beginning to search the satellite.

Make sure, that you have selected the correct channel at switch #4 (CH.1 = 1691 MHz for GOES and GMS, and METEOSAT ~~CH.2 = 1691 MHz for METEOSAT~~ that the timer is switched off (switch #25 in the middel position) and that the "CHANNEL" selector switch (# 2) is either in position "MetS" (GOES/METEOSAT) or GMS (for Japanese GMS).

After you have found the satellite signal and aligned the dish for maximum signal meter reading, check that the dish and TRIPOD is securely fastened (guy wires?). Don't underestimate the force of the wind when blowing into the dish. Damage to the antenna system is not covered by commercial warranty!

II.8 ASSEMBLING the OMNIDIRECTIONAL VHF-ANTENNA KD-137

If reception of the polar orbiter satellites is desired, the OMNIDIRECTIONAL VHF-ANTENNA (crossed dipoles) has to be assembled and mounted on the top of the telescopic mast. For assembling instructions refer to Fig. 4 & 5, which are self-explanatory. Note that the layout has to be exactly as shown!

Mount the PREAMPLIFIER AA-137 below the crossed dipoles so that the connector can reach the "ANTENNA" input socket of the PREAMP. Connect the "RECEIVER" socket on the PREAMP to the "VHF RX Inp" marked socket on the rear of the WSD-690rx.

Normally it is not necessary to bring up the mast to its full length, except when surrounded by buildings or if it is desired to observe far satellite passes.

It is strongly recommended to secure the mast with the guy wires. Damage to the mast and antenna is not covered by commercial warranty!

When connected to the receiver, the polar orbiter antenna system is ready for operation, no warm-up-time or adjustment is required.

The complete antenna system, VHF and S-band, was designed for easy and quick field installation. Therefore both antenna systems were combined. It is, however, possible to separate the two antenna systems and, for example, erect the mast with the guy wires on a hill for best VHF results and have the tripod with the dish put somewhere else, maybe closer to the receiver where it is easier to turn the dish to the satellite(s).

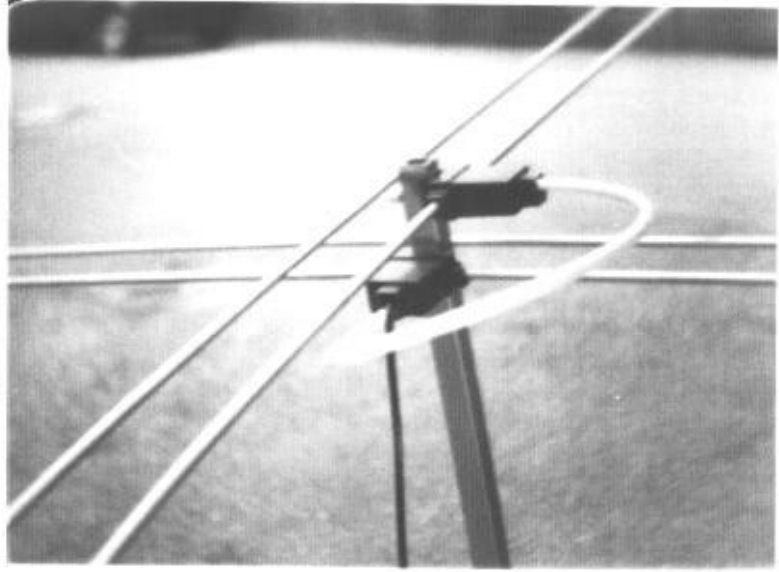


Fig.4

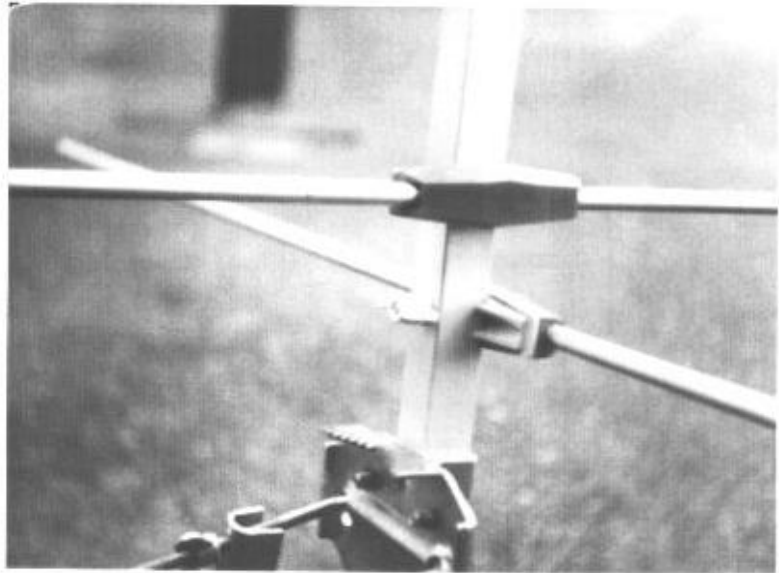


Fig.5

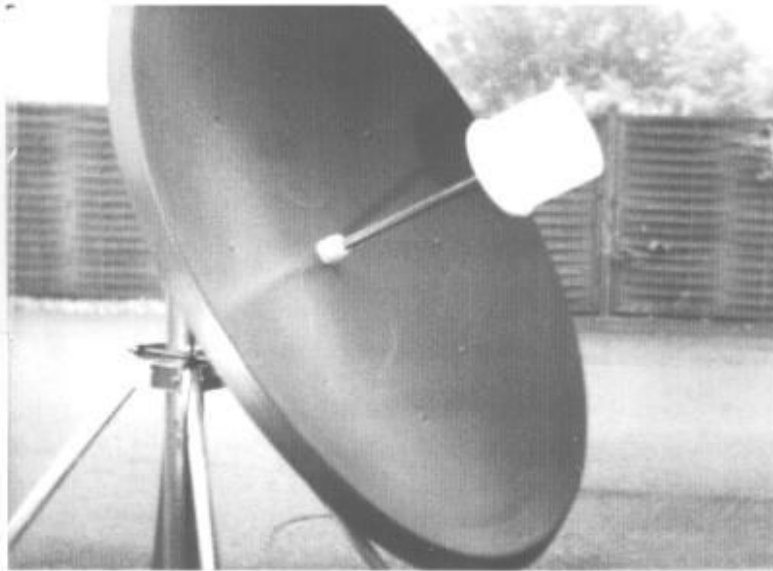


Fig.1

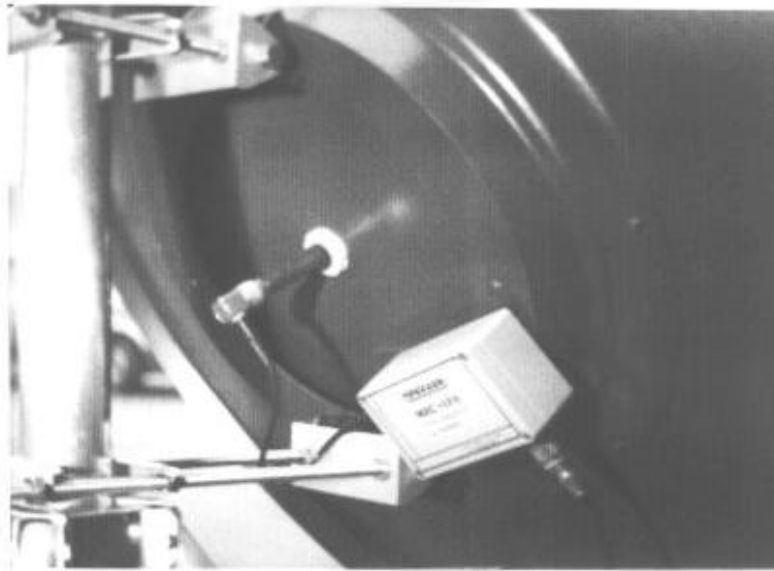


Fig.2

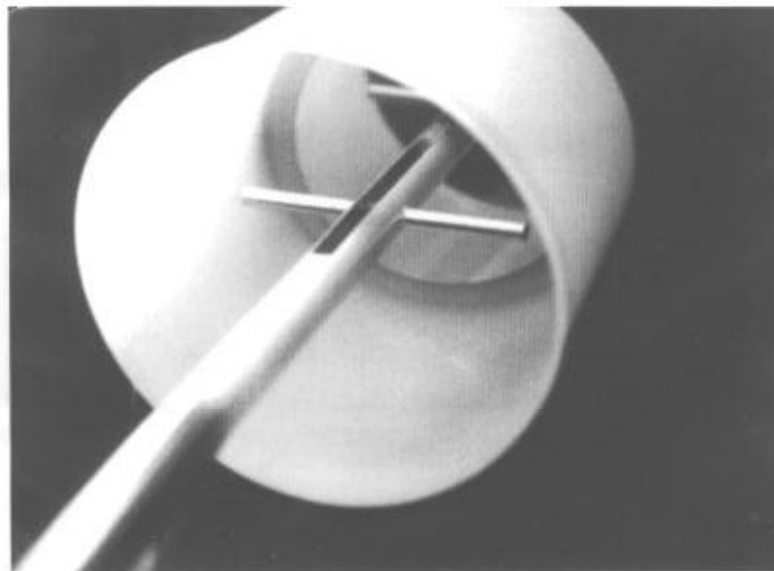
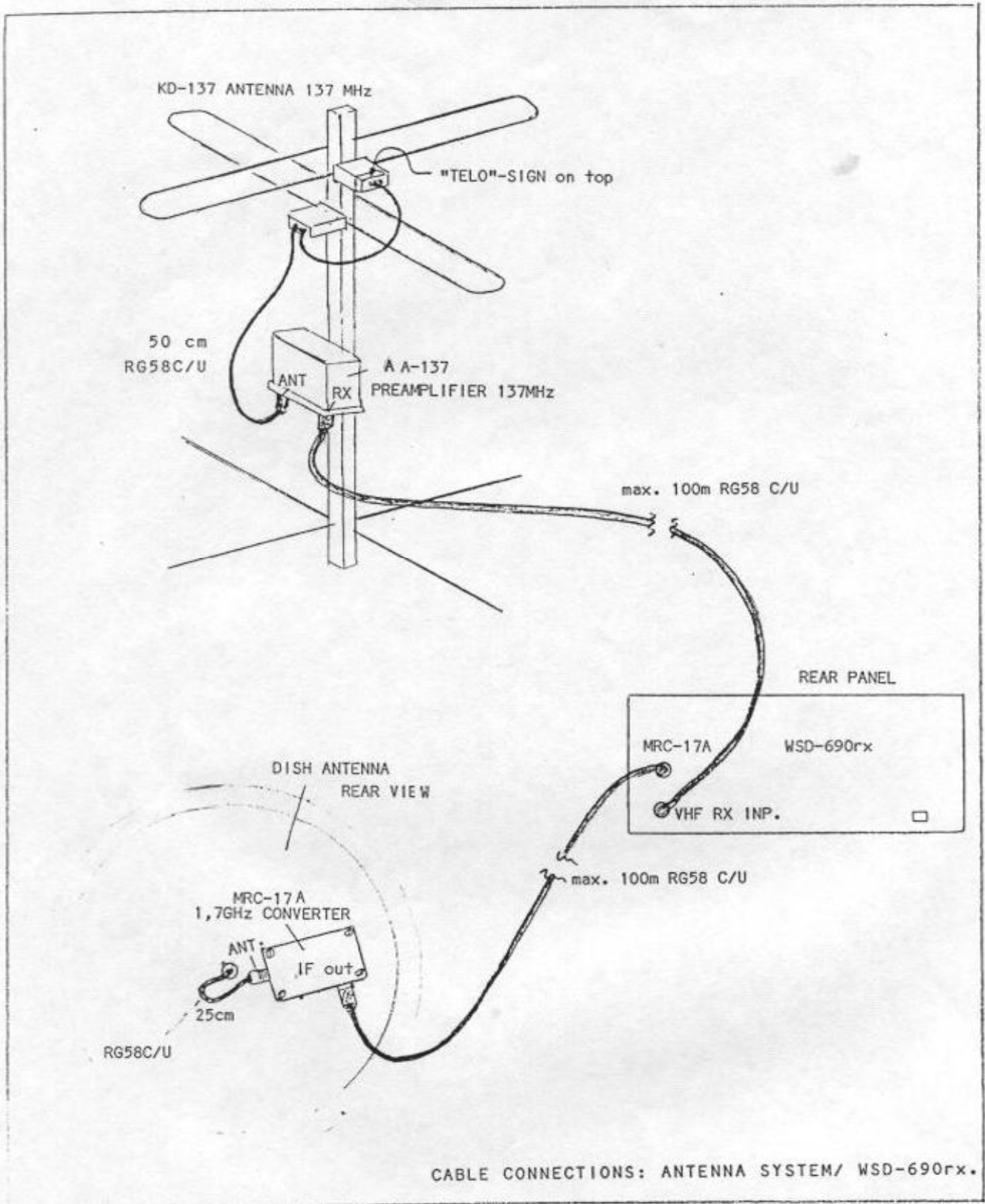


Fig.3

CABLE CONNECTIONS: Antenna System / WSD-690rx



III. WSD-690RX: NEW ADDITIONAL FEATURES

Your model WSD-690rx includes some additional features which are not covered by the general instruction book:

- A. Reception capability for the GMS geostationary satellite.
- B. Scanning capability for the VHF channels with auto-stop (squelch-controlled).
- C. Receiving capability for the USSR METEOR polar orbiters.

The additional controls are located in the right (receiver) section of the front panel:

- 1A: "PHASE"
- 2A: "SQUELCH"
- 2: "CHANNEL" , positions "GMS" and "Scan".

III.1 RECEIVING The JAPANESE GMS SATELLITE.

Set the CHANNEL Selector rotary switch (#2) to "GMS" and have switch #4 "CH/Lp" in the up-position (1691 MHz).

All other functions will be the same as during reception of METEOSAT or GOES imagery.

A different setting of the BRIGHTN. (#14) and CONTRAST (#15) controls may be necessary.

III.2 AUTOMATIC SCANNING of the VHF-CHANNELS

The scanning mode is active in the "Scan" position of the CHANNEL selector rotary switch (#2). To start scanning, turn the SQUELCH control knob (#2A) clockwise beyond the squelch threshold. The speaker will then be quiet until a signal is detected on one of the channels. If so, the scanner will stop on that channel and the APT signal can be heard through the loudspeaker. As there is no indication yet, on which channel the signal is received, you should now leave the "Scan" position and look for the satellite on the positions "1" ... "6" of the CHANNEL selector.

As soon as the signal has come up to a noise-free tone, start reception by pressing the START button (#13). See chapter 4.14 for further instructions.

When the pass is over, you may return to the scanning mode until the next satellite is available.

III.3 RECEIVING the USSR METEOR SATELLITES.

The METEOR satellites will appear on the VHF channels
 4 = 137,850 5 = 137,300 and 6 = 137,400 MHz.
 These satellites use a transmission speed of 120 lines
 per minute which is automatically selected when the
 CHANNEL rotary switch is in positions 4,5,6 or in
 the "Scan" position. Therefore you may remain in the
 "Scan" position when the scanner has locked to a
 METEOR satellite. To avoid restart of the scanning
 during a short signal decrease, the squelch control
 should then be turned to the counterclock end position.

Sometimes satellite signals with a transmission speed
 of 240 lines per minute appear on these frequencies.
 To get into this mode turn the VOLUME control knob
 (#1) counterclockwise beyond the click to the
 *-marked position.

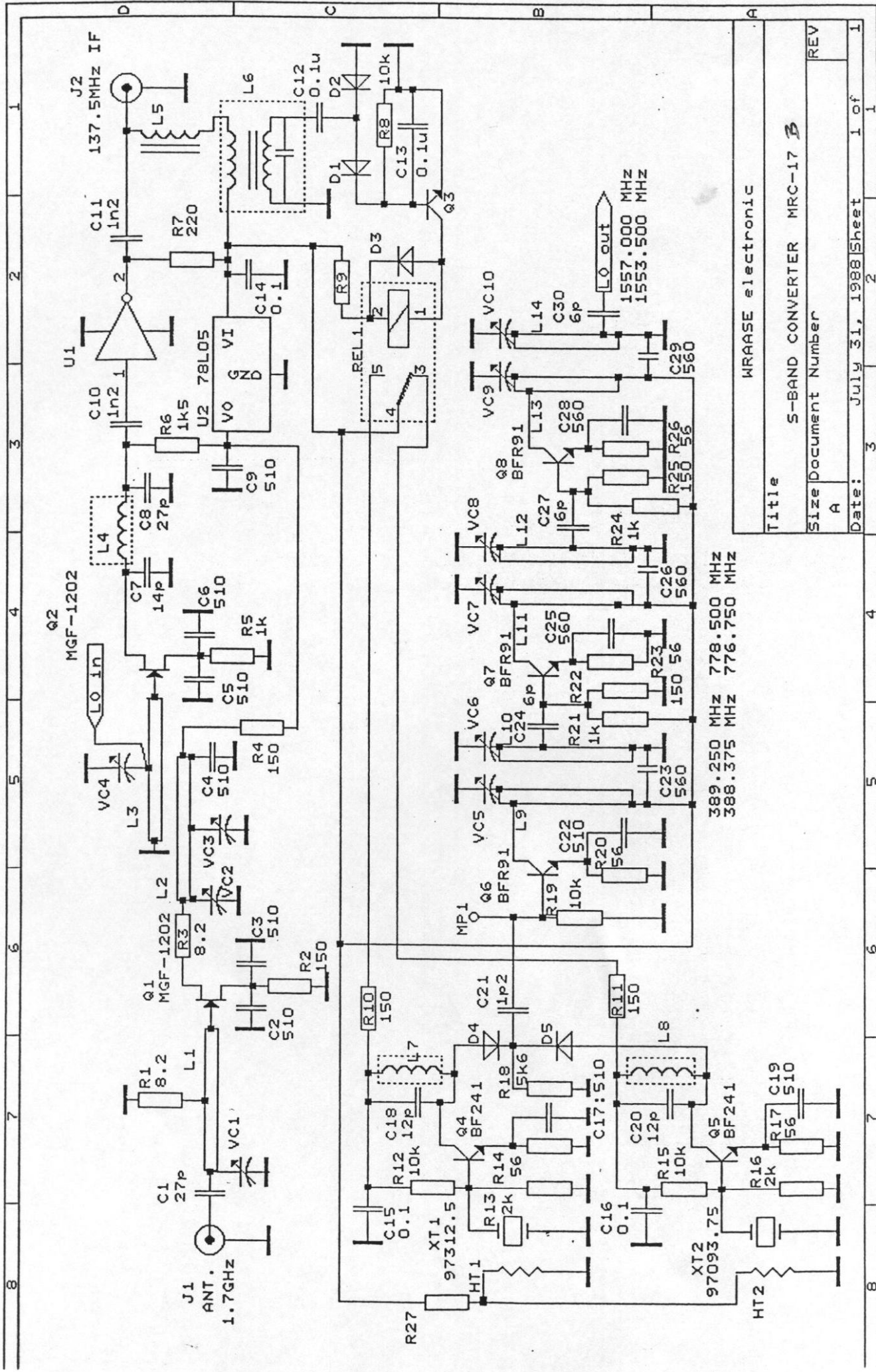
After pressing the START button (#13) the received
 image data of METEOR satellites may not yet be correctly
 phased (horizontally divided picture). To correct this
 press the PHASE button (#1A) while watching the incoming
 lines until the lines are correctly centered.

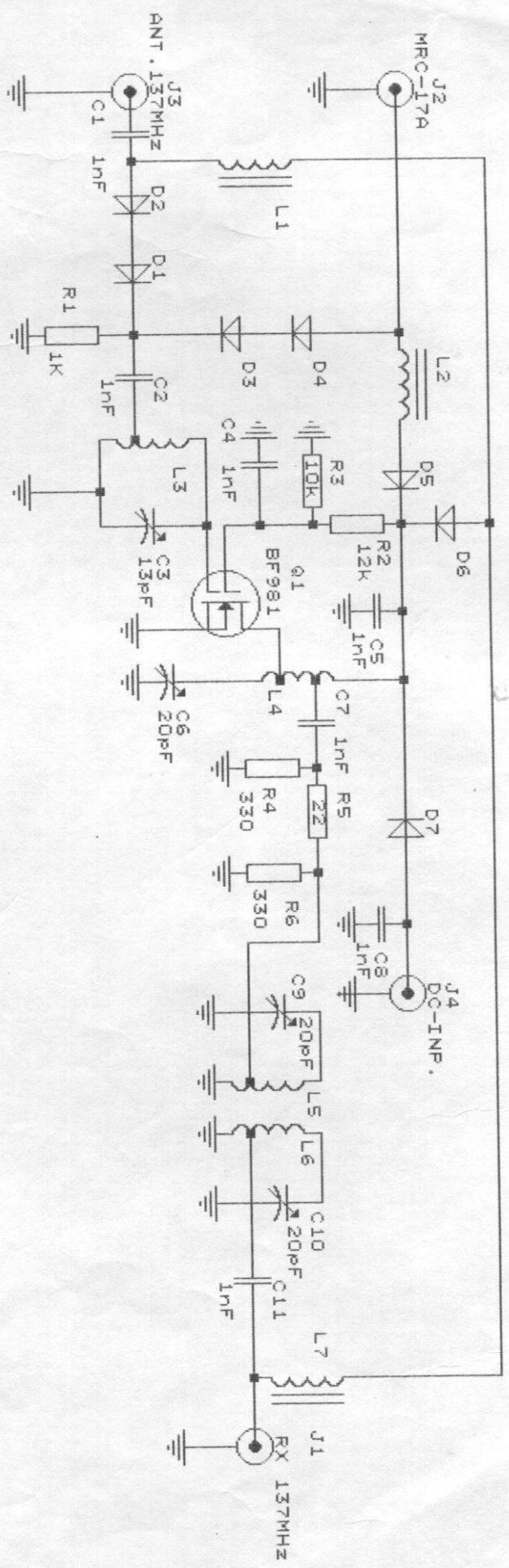
As METEOR satellites do not transmit visible and infrared
 information simultaneously like the NOAA satellites, the
 IR/VIS selector (#22) has no function in the METEOR mode
 and the image will go into Bu or Aux memory as selected
 by DISPLAY SELECTOR (#5).

For further information see chapter 4.14 .

III.4 AVAILABLE SPEEDS (lines per minute)

CHANNEL	SPEED (lpm) with VOLUME on	SPEED with VOL. in *-pos. (off)	Frequency
Scan	120 all lines	240 all lines	CH1 thru 6
1	240 IR or VIS	240 IR or VIS	137,500
2	240 IR or VIS	240 IR or VIS	137,620
3	240 IR or VIS	240 IR or VIS	137,000
4	120 all lines	240 all lines	137,850
5	120 all lines	240 all lines	137,300
6	120 all lines	240 all lines	137,400
MetS	240	240	





Note: J2 and J4 in special versions only!

WRAASE electronic

D-2300 KIEL-17

Kronsberg 10

West-Germany

Phone: 0431-32528, Telex 292373 Wraas1 d

Title VHF PREAMPLIFIER MODEL AA-137

Size Document Number 456-88

REV

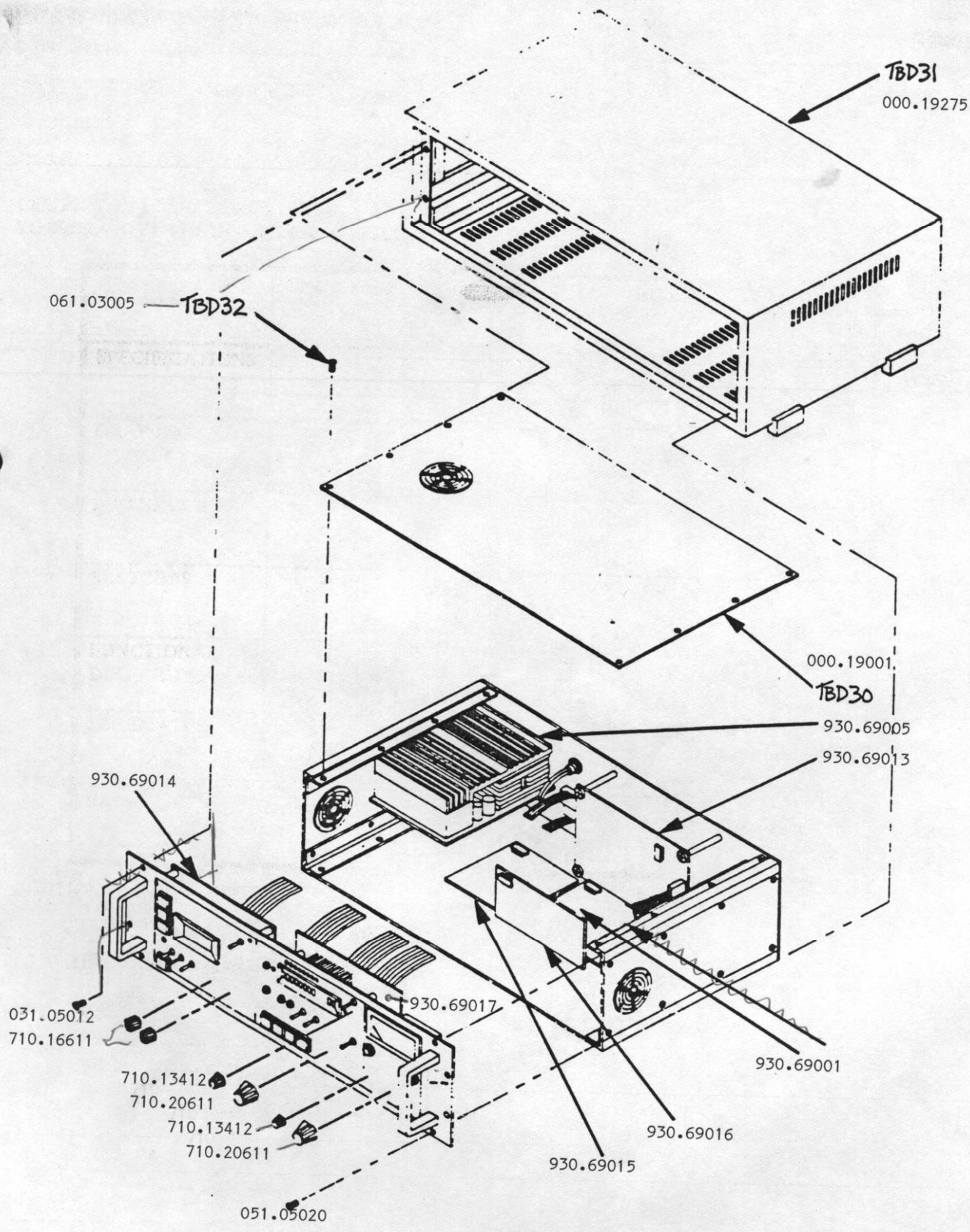
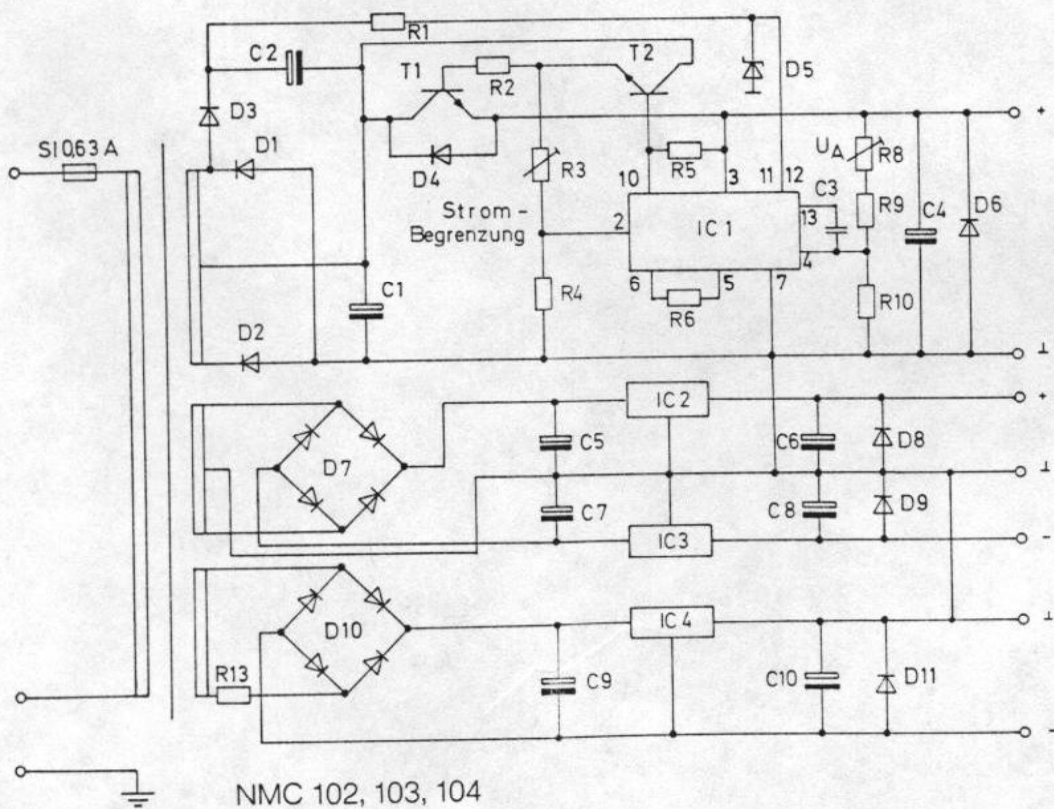
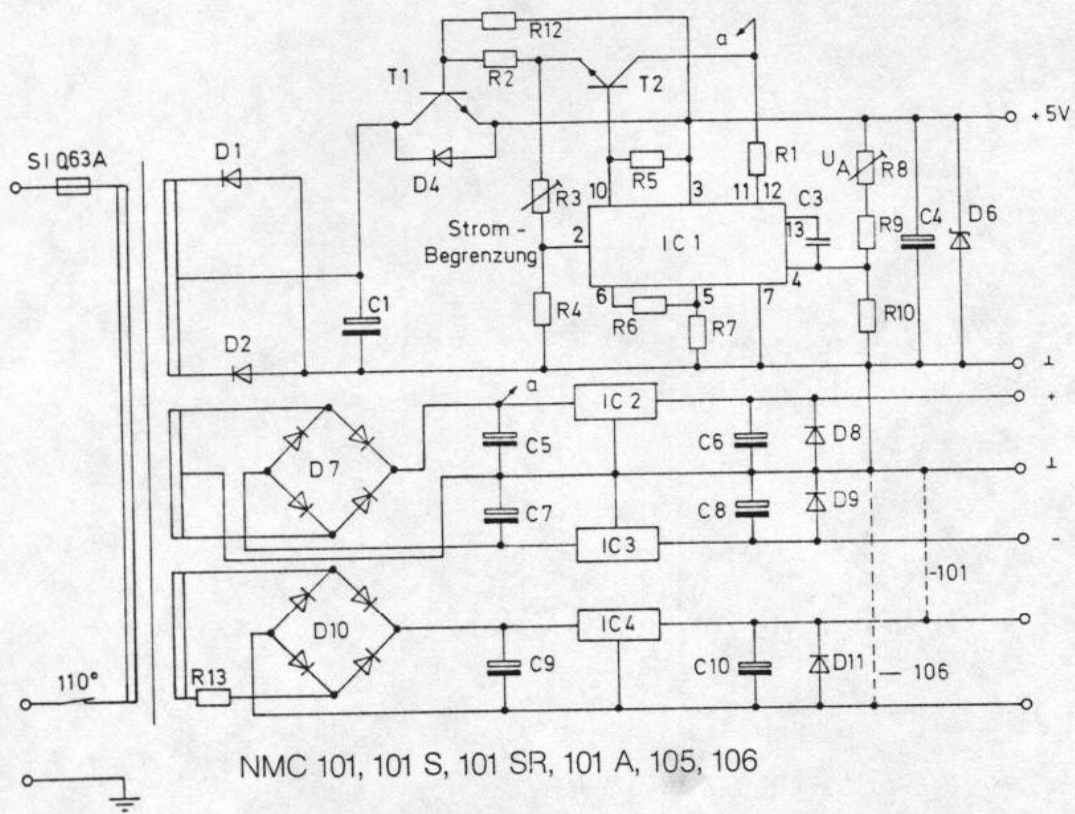


Figure 10. R-2451/GRQ-27(V) Digital Data Receiver

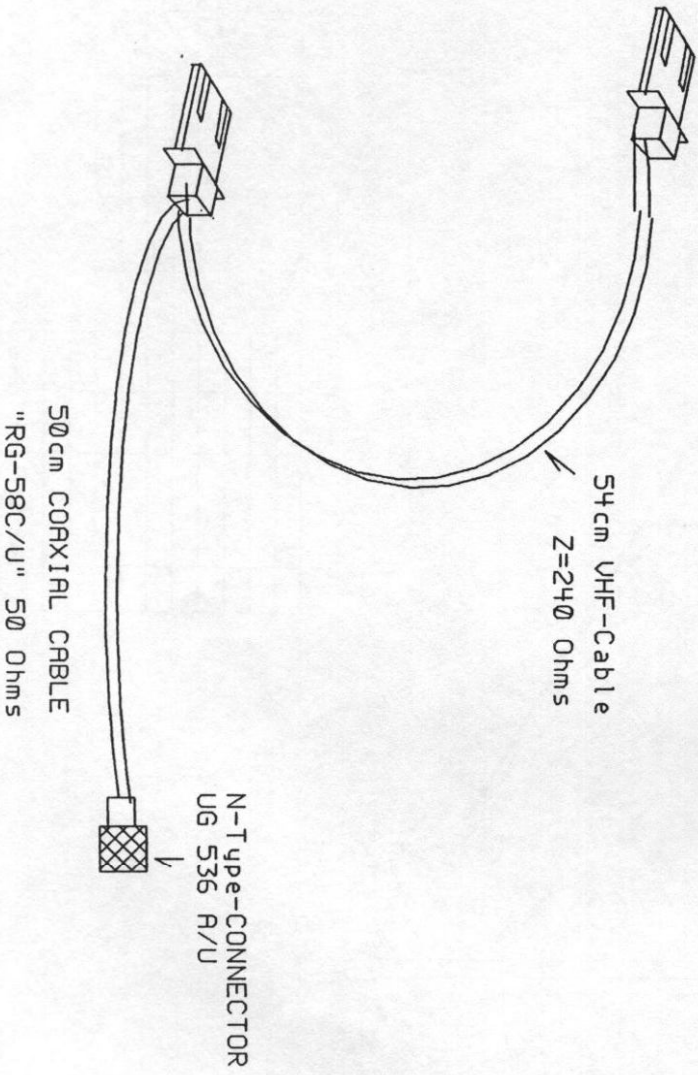
Schaltungen

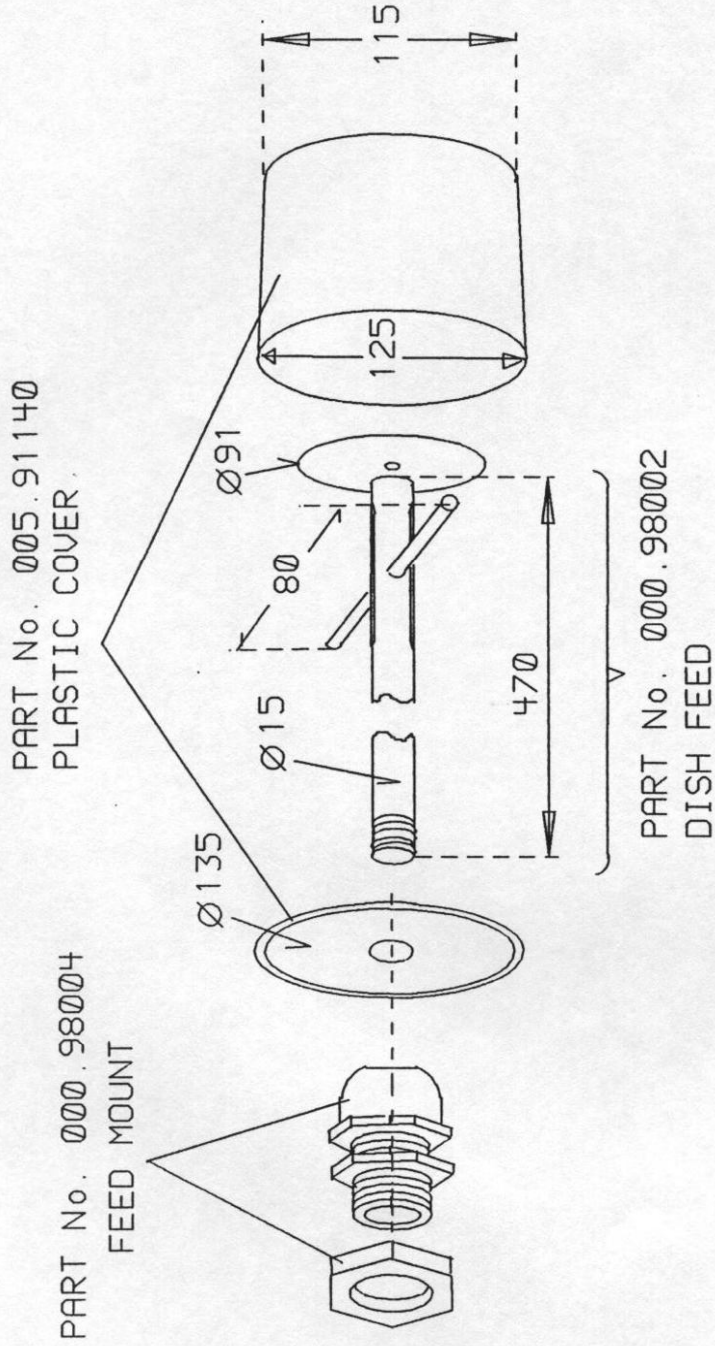


Bestückung

Position	101	101 S	101 A	102	103	104	105	106
D1/D2	MR2500	MR2500	MR2500	MR2500	MR2500	MR2500	MR2500	MR2500
D3/4/8/9/11	1N4001	1N4001	1N4001	1N4001	1N4001	1N4001	1N4001	1N4001
D5	—	—	—	ZPD33	—	ZPD33	—	—
D6	PKE6,8	PKE6,8	PKE6,8	1N4001	1N4001	1N4001	1N4001	PKE6,8
D7	B40C3000	B40C3000	B40C3000	—	B40C3000	B40C3000	B40C3000	B40C3000
D10	B80C1500	B80C1500	B80C1500	—	B80C1500	—	—	B80C1500
T1	MJ802	MJ802	MJ802	MJ802	MJ802	MJ802	MJ802	MJ802
T2	BD239	BD239	BD239	BD239	BD239	BD239	BD239	BD239
C1	22000µF/10V	22000µF/10V	22000µF/10V	3300µF/50V	4700µF/25V	3300µF/50V	22000µF/10V	22000µF/10V
C2	—	—	—	220µF/40V	220µF/25V	220µF/25V	—	—
C3	470p	470p	470p	470p	470p	470p	470p	470p
C4	220µF/16V	220µF/16V	220µF/16V	220µF/25V	220µF/16V	220µF/25V	220µF/16V	220µF/16V
C5	2200µF/25V	2200µF/25V	2200µF/25V	—	4700µF/16V	4700µF/16V	4700µF/25V	2200µF/16V
C7	2200µF/25V	2200µF/25V	2200µF/25V	—	2200µF/16V	2200µF/16V	2200µF/16V	2200µF/16V
C9	470µF/16V	470µF/16V	470µF/16V	—	220µF/25V	—	—	100µF/40V
C6/8/10	2,2µF/25V	2,2µF/25V	2,2µF/25V	—	2,2µF/25V	2,2µF/25V	2,2µF/25V	2,2µF/25V
IC1	MC1723	MC1723	MC1723	MC1723	MC1723	MC1723	MC1723	MC1723
IC2	7812	78S12	7815	—	78S05	78S05	78T12	7812
IC3	7912	7912	7915	—	7905	7905	7912	7912
IC4	7805	7805	7805	—	7812	—	—	78M24
R1	470Ω	470Ω	470Ω	6,8kΩ	1kΩ	3,3kΩ	470Ω	470Ω
R2	4,7Ω	4,7Ω	4,7Ω	4,7Ω	4,7Ω	4,7Ω	4,7Ω	4,7Ω
R3	Poti5kΩ	Poti5kΩ	Poti5kΩ	Poti5kΩ	Poti5kΩ	Poti5kΩ	Poti5kΩ	Poti5kΩ
R4	2,2kΩ	2,2kΩ	2,2kΩ	22kΩ	10kΩ	22kΩ	2,2kΩ	2,2kΩ
R5	2,2kΩ/2,2kΩ	2,2kΩ	2,2kΩ	2,2kΩ	2,2kΩ	2,2kΩ	2,2kΩ	2,2kΩ
R6	3,9kΩ	3,9kΩ	3,9kΩ	1kΩ	1kΩ	1kΩ	3,9kΩ	3,9kΩ
R7	3,9kΩ	3,9kΩ	3,9kΩ	—	—	—	3,9kΩ	3,9kΩ
R8	Poti5kΩ	Poti5kΩ	Poti5kΩ	Poti10kΩ	Poti5kΩ	Poti5kΩ	Poti5kΩ	Poti5kΩ
R9	100Ω	100Ω	100Ω	3,3kΩ	12kΩ	10kΩ	100Ω	100Ω
R10	6,8kΩ	6,8kΩ	6,8kΩ	5,6kΩ	22kΩ	5,1kΩ	6,8kΩ	6,8kΩ
R12	22Ω	22Ω	22Ω	—	—	—	22Ω	22Ω
R13 (Sicherungs- widerstand)	0,33Ω	0,33Ω	0,33Ω	—	0,33Ω	—	—	0,33Ω

PART No. 0000.97008
FEED/MATCHING ASSEMBLY
FOR "KD-137" VHF-SATELLITE ANTENNA

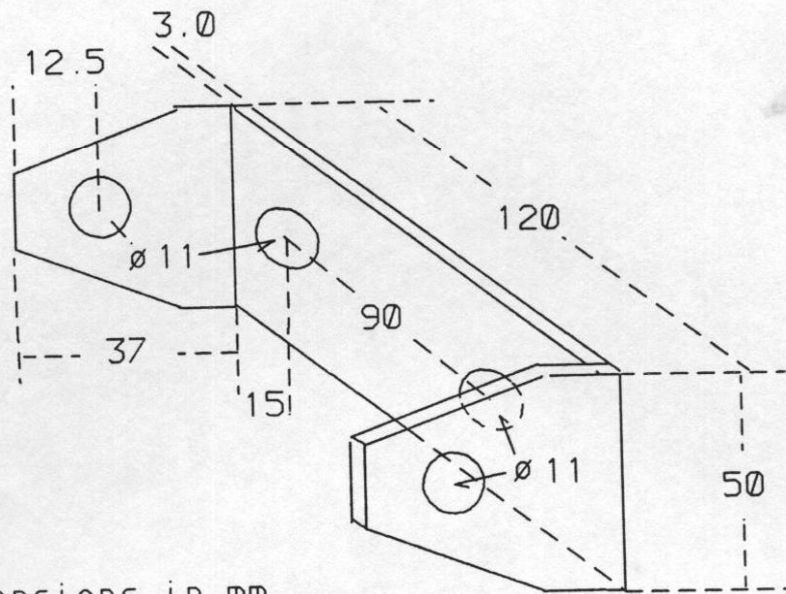




DIMENSIONS in mm

PART No. 000.98005

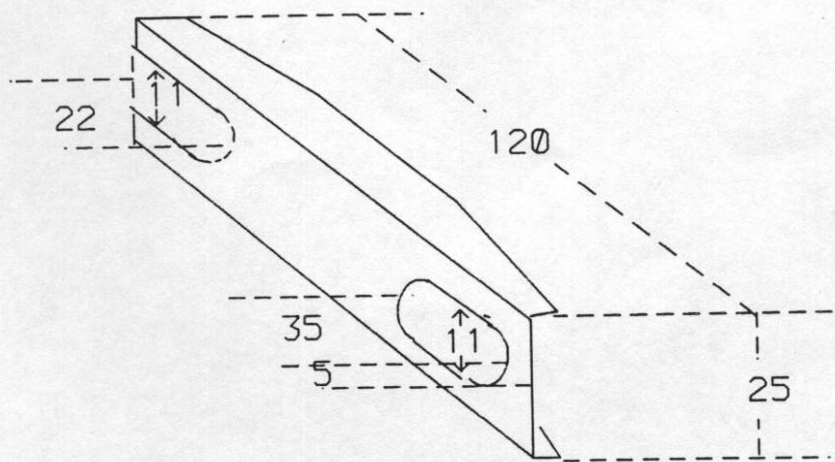
Aluminum Bracket



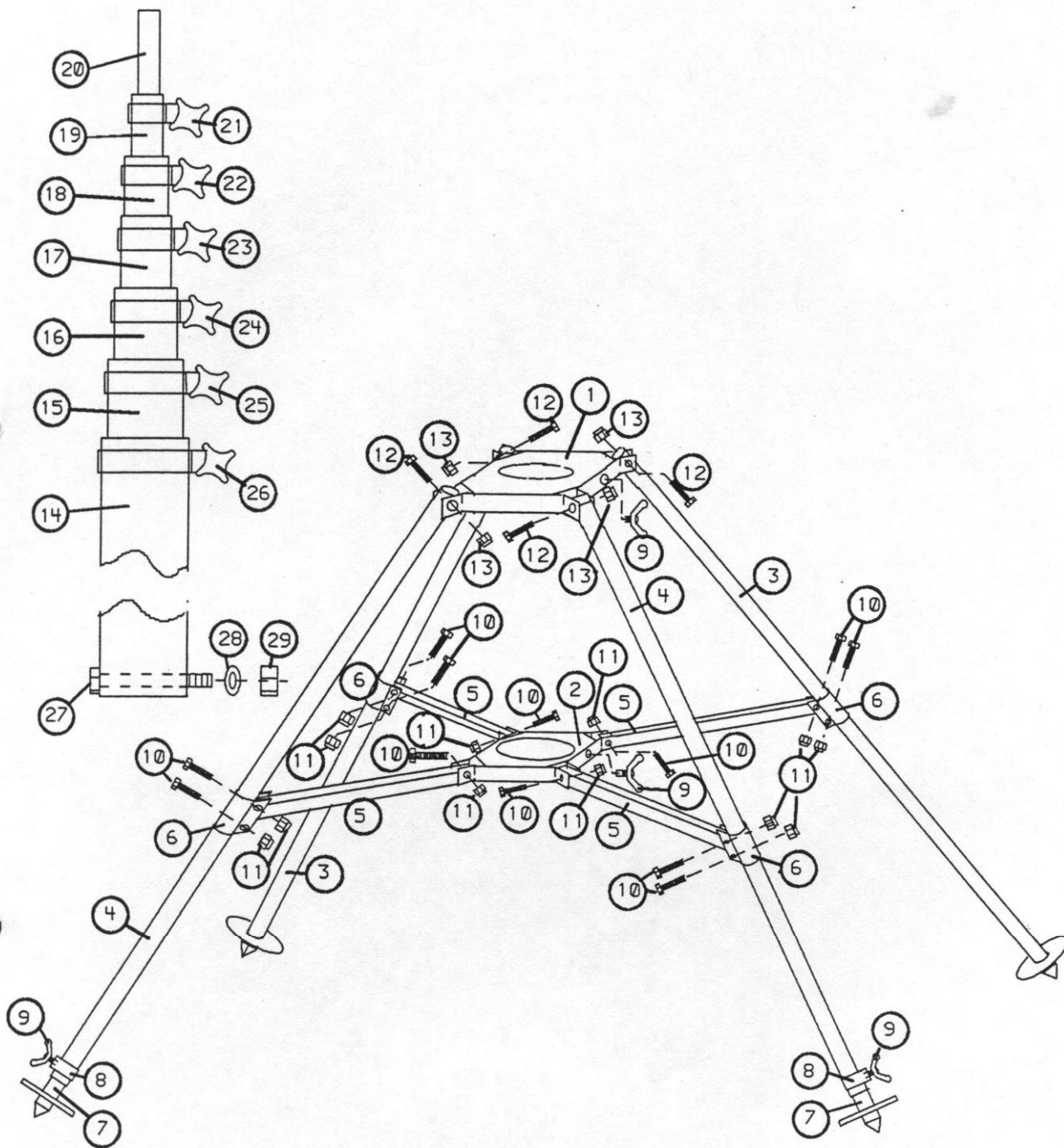
Dimensions in mm
+/- 0.5 mm

PART No. 000.98008 MAST CLAMP

Material: Galvanized steel, 2mm thick.



Dimensions in mm +/- 0.5 mm



WRAASE electronic
2300 Kiel-17, W-Germany

ANDERG.	TAG	NAME
	Bearb	28.8.89
	Gepr.	
	Norm	

TELESCOPIC MAST TM-9000

Maßstab

ANDERG. TAG NAME