

# Technical News



**SAILOR**



**FOR GLOBAL COMMUNICATION**

NUMMER 3

FEBRUAR 1995

Det er med glæde, at vi hermed kan fremsende SAILOR Teknisk Nyt nummer 3.

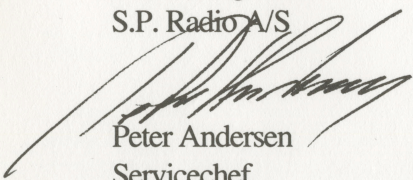
I denne udgave kan De bl.a. finde oplysninger om ATIS i forbindelse med SAILOR VHF RT2048 og DSC 2042, hvor SAILOR RM2042 nu også kan varetage denne funktion.

Der er også information om, hvordan der kan spares en N2165 strømforsyning, hvis duplex modtageren R2120 installeres sammen med en H2192 konsol.

I det seneste nummer af Inmarsats magasin "Inside Track" fandt vi to artikler, som vil være af interesse for teknikere, der arbejder med Inmarsat Terminaler. Den ene artikel handler om områdebestemte forstyrrelser, og den anden omhandler de forskellige services på Inmarsat M og B systemerne, og hvor langt man er kommet med udbygningen af disse systemer. Begge artikler er gengivet i denne udgave af teknisk nyt.

Idet vi håber, at De kan få gavn af de fremsendte oplysninger, vil vi samtidigt gøre opmærksom på, at vi gerne hører fra Dem, hvis De har oplysninger, som de øvrige SAILOR forhandlere kan få gavn af.

Med venlig hilsen  
S.P. Radio A/S



Peter Andersen  
Servicechef



## SOFTWARE VERSIONER

- RM2042 Seneste versioner er C1109C (SP nr. 728221) og C1110 (SP nr. 728222). Den seneste ændring er forbedring af direkte gennemstilling ved opkald med telefonnum-  
mer. Programmering af ATIS call sign er ændret. OBS! Denne version kan kun anvendes  
i processor moduler op til version 626942G, som ikke kan anvendes til VTS.
- RM2042 Seneste versioner er C1123 (SP nr. 729653) og C1124 (SP nr. 729654). Denne software  
kan anvendes til VTS. OBS! Denne version kan kun anvendes i processor moduler fra ver-  
sion 626942K.
- RT2047/D C1112B (SP nr. 728228) og C1111 (SP nr. 728229).  
Nyeste version for tilslutning af RM 2042 til RT 2047/D (SP nr. 862047). De skal være  
opmærksom på at den tidligere version af RT 2047 (SP nr. 802047) ikke kan tilsluttes til  
RM 2042.
- H2098
- Sat-C Seneste version er 1.50F.  
Version 1.50F er til H2098, der tilsluttes H2095 (gammel version) med software version  
1.51A. Presentation manager er magen til version 2.10, som anvendes til H2095B (ny ver-  
sion).
- H2095 Seneste version er 1.51A.
- H2095B Seneste version er 2.10.
- R2120 Seneste version er C1114C.
- I A versionen er indført mulighed for flere adresser, som kun anvendes ved kyststations  
installationer.
- I B versionen er indført Hang AGC, som kun anvendes ved kyststations installationer.
- I C versionen er indført mulighed for tilslutning til H1240 telexmodem. Denne version er  
ikke klar før ultimo februar.
- T2131
- T2135 Seneste version er C1096O.  
Forbedring af S.P. Bus protokol til RE2100.

## NICD LADER SP3911/110-120V AC

Vi har konstateret, at ovennævnte ladere er leveret med en forkert sikring monteret.

Den anvendte sikring er 50mA (SP nr. 45.500), hvorimod der skulle have været anvendt en 100mA (SP nr. 45.515). De skal være opmærksom på, at den medleverede reservesikring er af den rigtige type 100mA (SP nr. 45.515).

## VHF RT2048 MED ATIS

De skal være opmærksom på, at der til RT2048 med monteret ATIS modul ikke kan tilsluttes VHF DSC RM2042.

Ønskes en installation bestående af RT2048 og RM2042 med ATIS funktion, så skal denne funktion programmeres i RM2042. Programmeringen foretages i samme menu, som anvendes til MMSI nummeret. De skal være opmærksom på, at ATIS funktionen kun kan anvendes i RM2042 med software version C1109C (SP nr. 728221), C1110C (SP nr. 728222) eller højere.

I forbindelse med godkendelse af denne konfiguration, kontakt venligst den lokale SAILOR general agent.



## TILSLUTNING AF R2120 TIL T2130 UDEN N2165 I INSTALLATIONER MED KONSOL H2192.

R2120	T2130	COLOUR	SIGNAL
J1-5	ST2		
1	1	SORT	RX MUTE
2	<b>ST7-10</b>	BRUN	GROUND
10	14	BLÅ	-18V
11	3	VIOLET	+9V
12	4	GRÅ	+18V
15	2	BRUN/GUL	VF/AE CURRENT
17	12	BRUN/PINK	0dBm OUT
18	9	HVID/PINK	0dBm OUT
19	11	HVID/GUL	EXT.RF CONTROL
21	13	HVID/BLÅ	TX-KEY
24	4	GRÅ/PINK	+18V

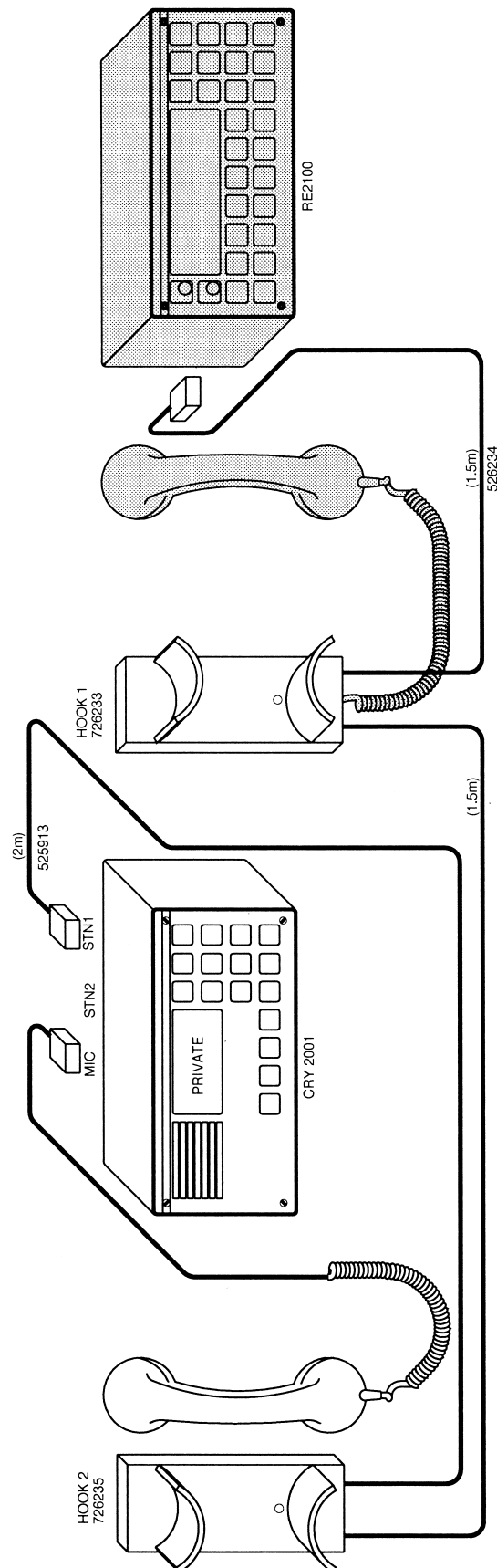
## CRY 2001 TILSLUTTET RE2100

Det er konstateret, at med RE2100 tilsluttet CRY2001 (stn 1), vil RE2100 vise HF-OCC selv når CRY2001 anvendes på den tilsluttede VHF (stn. 2).

Ovennævnte rettes ved indførelse af modificationen beskrevet på de vedlagte sider.

### 3.1.2. HANDSET ASSEMBLY FOR INTERCONNECTION TO SAILOR HF SSB RE2100

CRY2001 B



() : Distance in brackets is factory delivered length.

26172B



### 3.1.2. HANDSET ASSEMBLY FOR INTERCONNECTION TO SAILOR HF SSB RE2100 cont.:

Special installation with two Hook Assemblies, 726233 as Hook 1, 726235 as Hook 2.

#### Hook 1 - RE2100 / C2140.

The Hook Assembly is delivered with multicable mounted in Supply Terminal Block ST1, this cable is connected to either RE2100 J3 or C2140 J1. Plug in the normal microtelephone in Hook Assembly 1's J1 plug. Remove any jumpers on P7 and P1 and mount a jumper on P8 pin 1-2. Mount multicable in Supply Terminal Block ST2. ST2 serves as interconnection to Hook 2.

#### Hook 2 - CRY2001.

Mount multicable from Hook 1 ST2 in Hook 2 ST1. Mount jumpers on P7 pin 1-2, P1 pin 2-3 and on P8 pin 1-2. Mount cable in Hook 2's Supply Terminal Block ST2. ST2 serves as interconnection to CRY2001's STN2 plug. Plug in CRY2001's microtelephone in MIC. plug on CRY2001. Please observe that modification of CRY2001's STN2 input must be made.

### Quick Installation Hints

Strap settings with special installation RE2100 / C2140 and CRY2001:

#### Hook 1 (RE2100 / C2140 Hook):

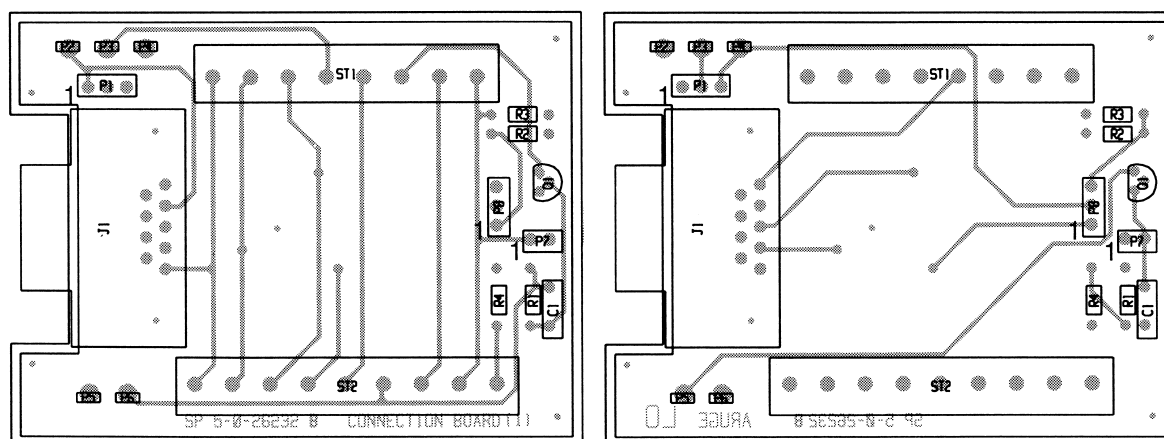
Remove any jumpers on P1 and P7.  
Mount jumper on P8 pin 1-2.

#### Hook 2 (CRY2001 Hook):

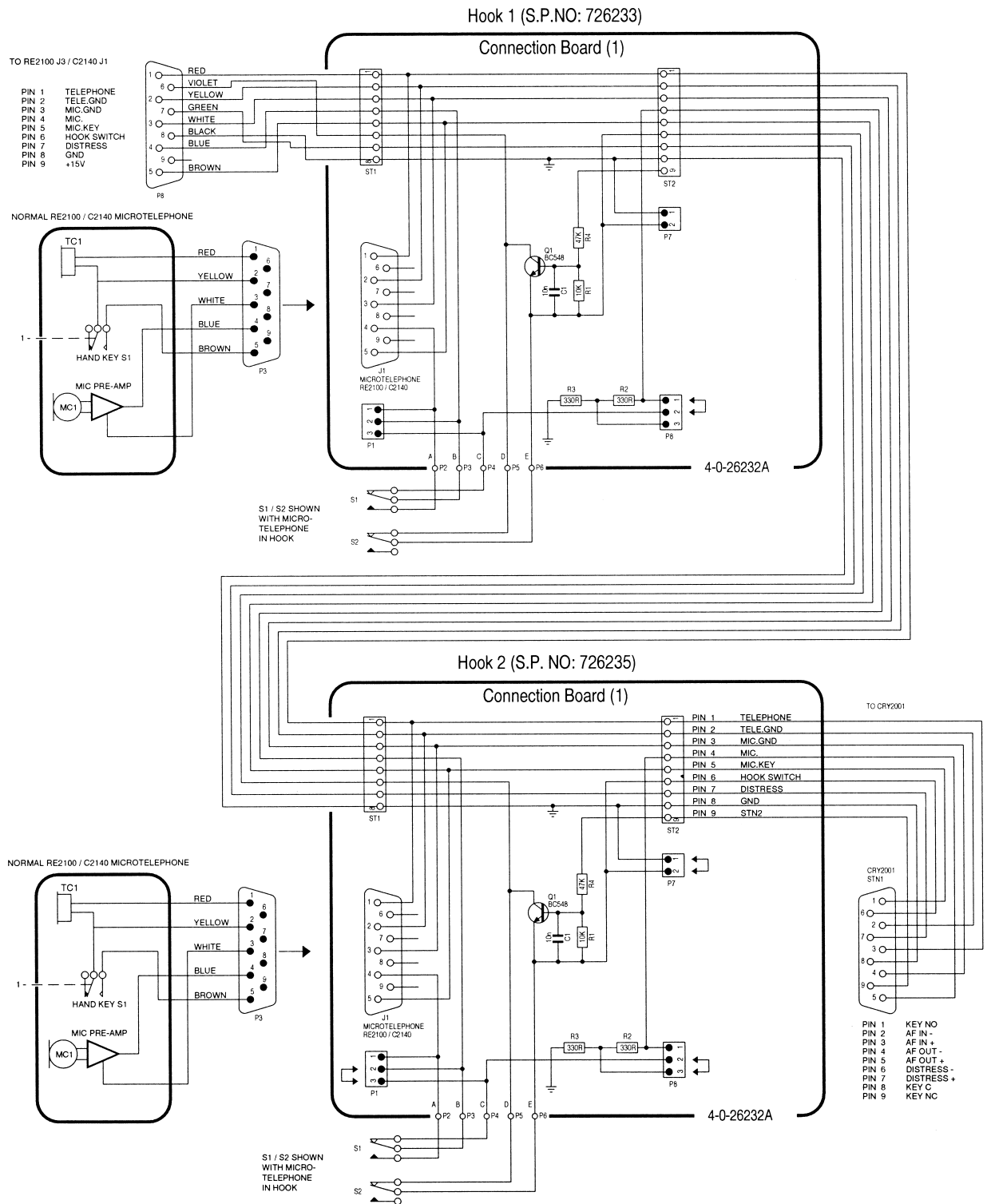
Mount jumper on P7 pin 1-2.  
Mount jumper on P1 pin 2-3.  
Mount jumper on P8 pin 2-3.

**NOTE! Remember to modify the Scrambler CRY2001 (STN1 input) and the Receiver RE2100.**

CRY2001 C



### 3.1.2. HANDSET ASSEMBLY FOR INTERCONNECTION TO SAILOR HF SSB RE2100 cont.:



29922

This diagram is valid for PCB rev. 5-0-26232B

### 3.1.2. HANDSET ASSEMBLY FOR INTERCONNECTION TO SAILOR HF SSB RE2100 cont.:

#### MODIFICATION OF CRY2001

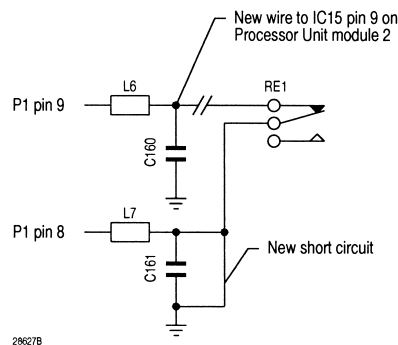
It is necessary to modify the CRY2001 to avoid the RE2100 from going in HF OCC mode, when the Scrambler handset is removed from the hook and STN2 is selected.

This modification must always be carried out, regardless of you have to connect a VHF or not.

This modification has to be carried out on STN1. Therefore you have to connect your RE2100 or C2140 to STN1 and your VHF to STN2.

#### Modification of CRY2001 when used with RE2100 or C2140.

- A: Disassemble CRY2001 as described in chapter 6.0.
- B: Remove the F&T unit module (1).
- C: Locate the coil L6 and the relay RE1.
- D: Cut the wire on the PCB (component side) between RE1 and L6.



- E: Solder a wire from the conjunction of L6/C160 to IC15 pin 9 on the Processor Unit module 2.
- F: Solder a wire from the conjunction of L7/C161 to ground (across the C161) so that P1 pin 8 is grounded.
- G: Reassemble the CRY2001, connect all cables and perform a function check on all units.

After the modification, the CRY2001 will supply 7.5V out on P1 (STN1) pin 9, when STN2 is selected. This will drive Q1 in the hook on STN2 in saturation and thus prevent RE2100/C2140 from going into HF OCC mode.

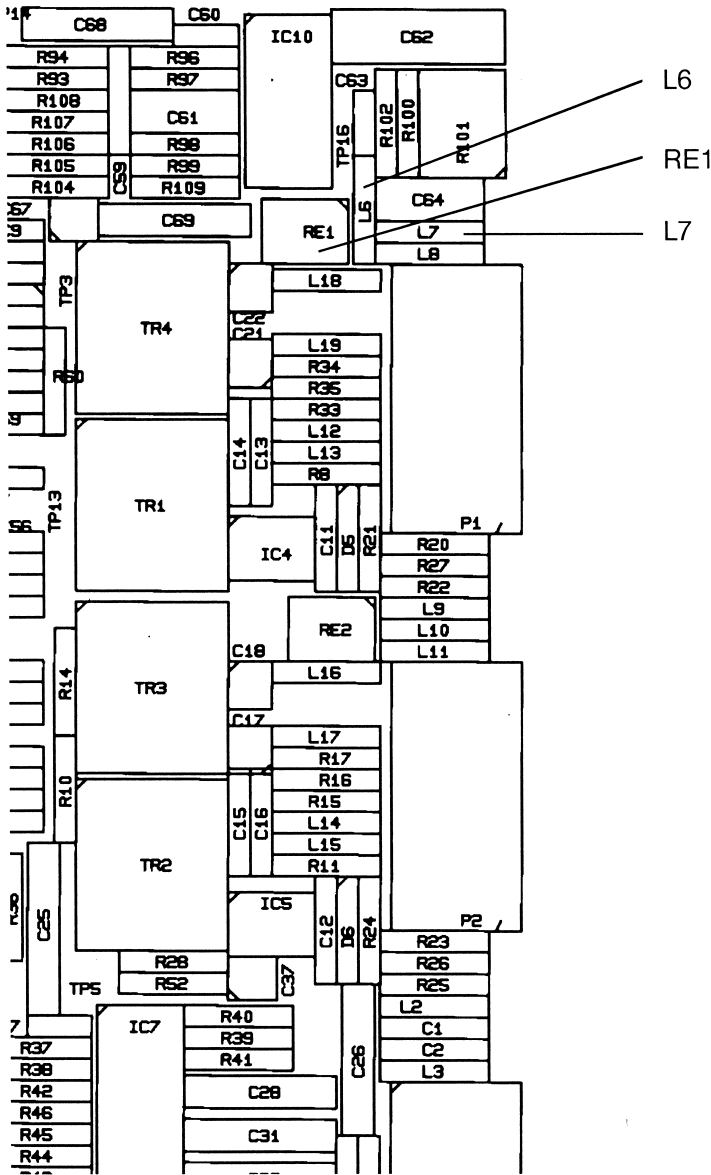
#### Modification of RE2100

OBS! Inside the RE2100:

- A: You must set the jumper P01 to 1-2. (The earpiece is now independent of squelsh setting). The jumper P01 is placed on the Receiver Unit module 1.
- B: Cut the connection to U8 pin 11 and make a connection from pin 11 to ground. (The earpiece is now independent of the Hook Switch). U8 is placed on the receiver unit module 1.



CRY2001 D



## SAILOR R2122

Det er konstateret, at RE1 på strømforsyningsmodul 8 (SP nr. 626588) kan brænde af.

Problemet afhjælpes ved at skifte relæet ud med en kraftigere type (SP nr. 21.296). Det nye relæ kan bestilles uden beregning hos S.P. Radio A/S mod oplysning af apparatets serienummer.

## DC STRØMFORSYNING FOR H1252B

### Printertype Microline 182 og 280.

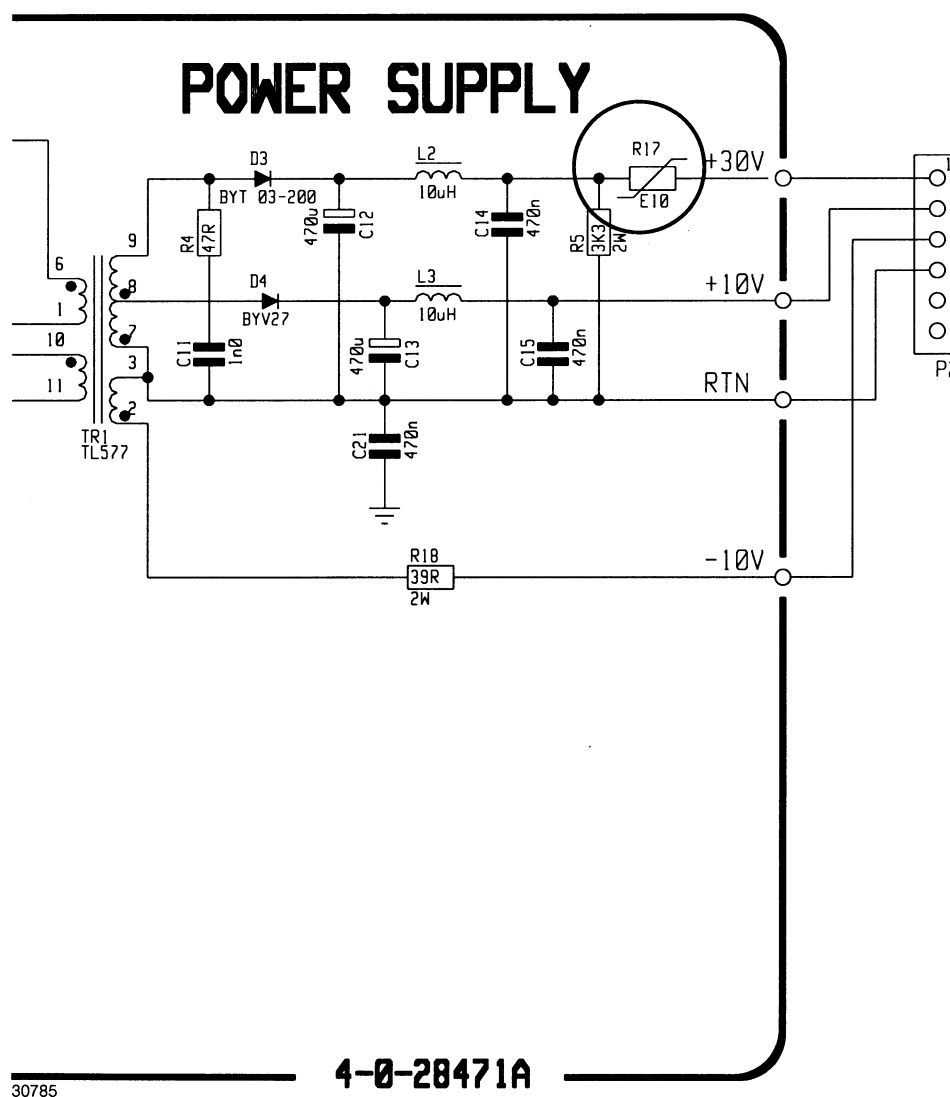
Det er konstateret en forøget fejlfrekvens på DC printere med strømforsyningen (SP nr. 628471), som er vist på vedlagte side, tegning nr. 4-0-28471. Tegningsnummeret findes også på printet.

Fejlen viser sig ved, at dioden D3 kortslutter.

Gentagne fejl undgået ved at montere en autosikring (SP nr. 07162), som vist på vedlagte diagram og printtegning. Autosikringen er en PTC modstand fra Bourns (MR-R-110).

Ved printere med ovennævnte strømforsyning skal kortslutningen over D28 (D10) fjernes, idet denne kortslutning kan forårsage afbrænding af dioden D3 på DC strømforsynings printet.

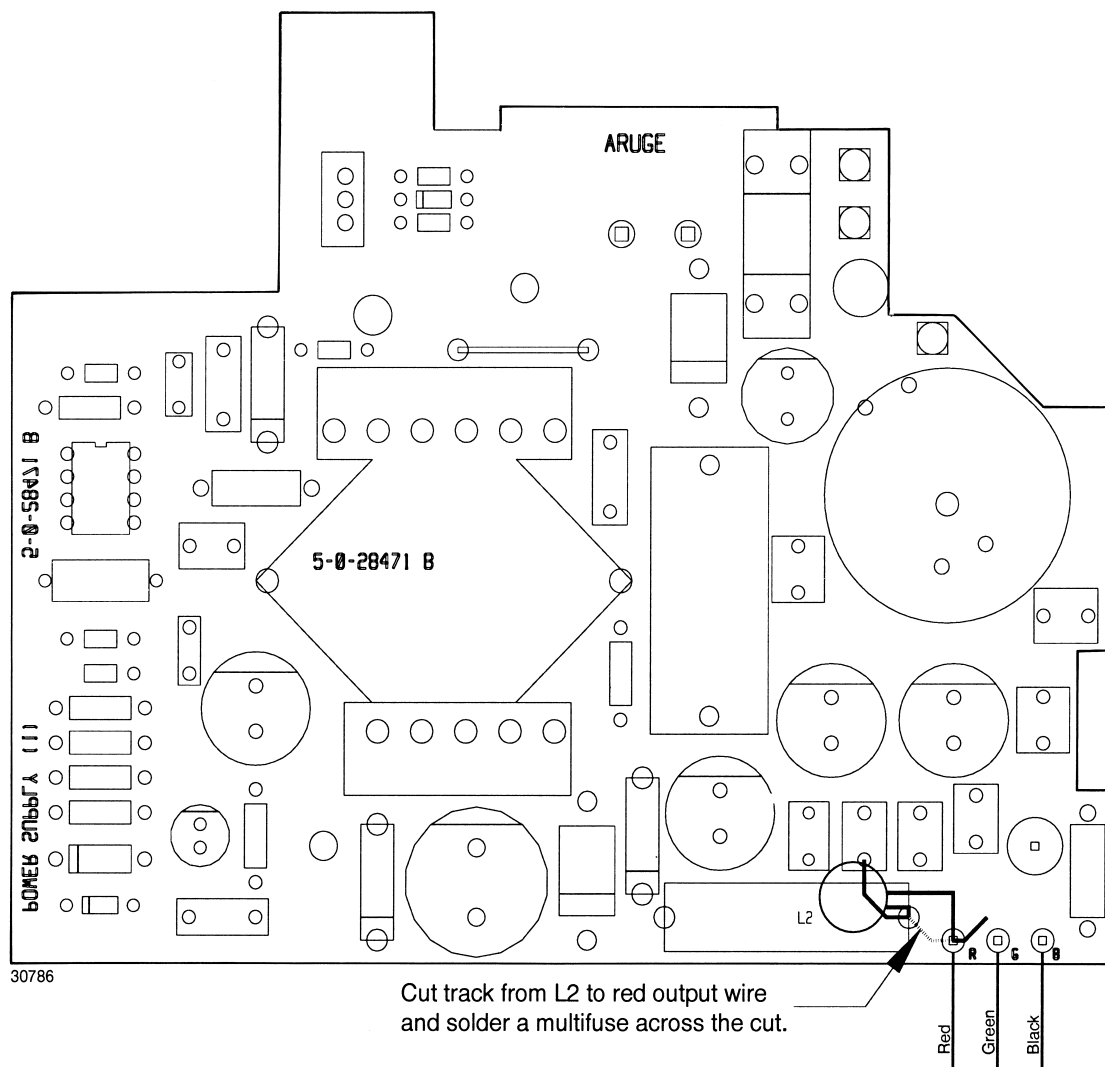
Modificerede printere er fra fabrikken mærket med et modified record label med felt A afkrydset.



This diagram is valid for PCB rev. 28471C



# MODIFICATION OF POWER SUPPLY FOR OKI 280 (180) PRINTER

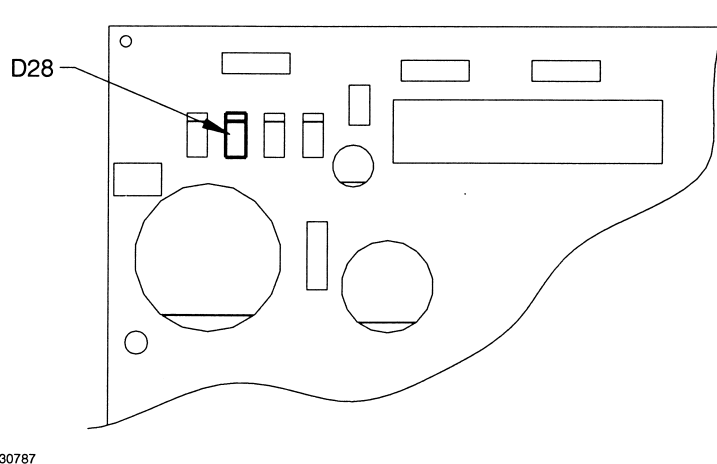


1.1A Multifuse from BOURNS with Part No. MF-R110

View from below side with lower side tracks.

PCB rev. 28471C

## MODIFICATION OF THE PRINTER MAIN BOARD



# INMARSAT FORSTYRRELSE

I november udgaven af Inmarsats magasin "Inside Track" var vedlagte artikel om områdebestemte forstyrrelser på Inmarsat netværket. Vi har ofte været udsat for en fejlmelding og periodiske afbrydelser af kommunikationen, hvor vore undersøgelser har vist, at årsagen til problemet var områdebestemte forstyrrelser, så derfor vær opmærksom på disse områder.

## Crowded harbours cause interference

Investigation has shown that some instances of reported difficulty in sending and receiving messages are caused by interference from terrestrial transmissions or emissions on frequencies assigned to Inmarsat systems.

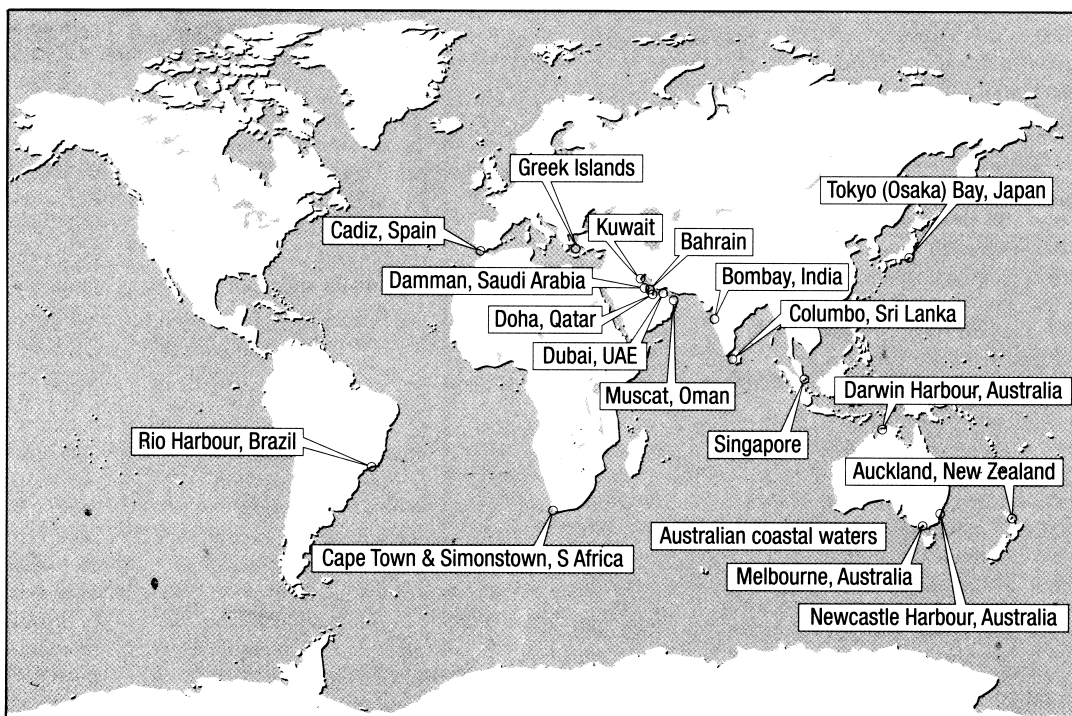
A characteristic symptom is the inability of the mobile earth station (MES) to synchronise with the NCS or land earth station channel.

This can sometimes be overcome by pointing the antenna away from the source of the interference and using an alternative satellite.

Inmarsat is currently in negotiation with regulatory authorities to iron out problems with interference on frequencies. More defined frequency allocation would help alleviate many of the problems encountered by users since competition for available frequencies lies at the root

of the problem.

Locations where interference has been reported are outlined on the map below. If you have experienced problems in any other areas, please let Brian Garstang know by writing to him at Inmarsat HQ or contacting him on, tel: +44 71 728 1055. ■



*Interference areas tend to be small (approximately 10km at the most) and also tend to be located in harbours where several ships are in close proximity.*

# INMARSAT INFORMATION

I november udgaven af Inmarsats Magasin "Inside Track" nedenstående artikel om status på de forskellige B og M services, samt beskrivelse om M data som kommer i 1995.

## LAND EARTH STATION UPDATE

## M data available in '95

### INMARSAT-M/B

Land earth stations (LESs) have been operational in all four ocean regions for a year. There are 23 Inmarsat-M/B LESs currently in operation - another three are planned to be in operation by the end of 1994, with many more planned for 1995.

The current emphasis is on the introduction of Inmarsat-M data and Inmarsat-B high speed data (HSD), as well as the global consolidation of all services. This effort should result in the provision of all baseline Inmarsat-M/B services by mid-1995, enabling effort to be concentrated on operational readiness for Inmarsat-M evolution (Mini-M) by mid-1996.

### INMARSAT-C

Two new services were introduced in September by Station 12 (Burum). One of the services introduced was PC-based software that allows communication with mobile terminals from a fixed location. All that is required is a PC, modem and the software.

There is also a gateway service between Inmarsat-C terminals and X.400, allowing messages

and data to be exchanged via an X.400 compatible network.

The greetings telex letter service available from Goonhilly, which serves Atlantic Ocean Region (AOR) East and West, is now on two-digit code 24, rather than code 25 used previously. All letter services are now accessed using this number. The format of telex and greetings telex letter messages remains the same.

A new LES was introduced to the AOR East (AOR-E) in mid-April. Fucino LES offers store and forward to and from mobile messaging, as well as polling, unreserved data reporting, distress alerting and a variety of advice and assistance two-digit codes. ■

### Inmarsat M/B LES service availability

Service	AORE	AORW	IOR	POR
Mvoice	✓	✓	✓	✓
MFAX	✓	✓	✓	✓
MDATA	2095	2095	2095	2095
BVOICE	✓	✓	✓	✓
BFAX	4094	4094	✓	✓
BTELEX	4094	4094	✓	✓
BHSD	4094	4094	4094	4094
BDATA	2095	2095	2095	2095

Ticks indicate services already available; numbers indicate expected introduction dates of new services (quarter and year)

### Inmarsat M/B LES status

Ocean region	LES name	LES operator	Manufacturer	Status (in service)*
AORE	Southbury	CMC	COMSAT/RSI	MV, BV, MF
AORE	Goonhilly	BT	SED	MV, MF, BV
AORE	Burum	PTT Telecom	ABB	MV, MF, BV
AORE	Aussaguel	France Telecom	ABB	MV, MF, BV
AORW	Southbury	CMC	COMSAT/RSI	MV, MF, BV
AORW	Goonhilly	BT	SED	MV, MF, BV
IOR	Yamaguchi	KDD	NEC	MV, BV, MF, BF, BT
IOR	Perth	TELSTRA	SED	MV, MF, BV
IOR	Burum	PTT Telecom	ABB	MV, MF, BV
IOR	Aussaguel	France Telecom	ABB	MV, MF, BV
IOR	Eik	NT	ABB	MV, MF, BV
IOR	Hong Kong	HKTI	NEC	MV, BV, MF, BT, BF
IOR	Kuantan	Malaysia Telecom	COMSAT/RSI	MV, BV, MF
IOR	Comsat Eurasia	CMC	COMSAT/RSI	MV, BV, MF
IOR	Sentosa	Singapore Telecom	SED	MV, BV, MF
POR	Santa Paula	CMC	COMSAT/RSI	MV, BV, MF, BT
POR	Yamaguchi	KDD	NEC	MV, BV, MF, BF, BT
POR	Perth	TELSTRA	SED	MV, MF, BV
POR	Hong Kong	HKTI	NEC	MV, BV, MF, BT, BF
POR	Sentosa	Singapore Telecom	SED	MV, MF, BV

\* M = Inmarsat-M; B = Inmarsat-B; F = Fax; V = Voice; T = Telex



## T2131/N2170

Det har vist sig, at enkelte strømforsyninger N2170 ikke starter ved aktivering, samt at enkelte N2170 ikke leverer fuld effekt.

Årsagen til begge fejl kan være støj på inputspændingen til sense indgangen på U2 på converter controller modulet.

Fejlen afhjælpes ved at montere en 220 nf. kondensator over R10, som vist på vedlagte diagram og printtegning.

Ovennævnte rettelse er indført på alle enheder, der leveres fra S.P. Radio A/S efter 03.01.95.

### 5.3 CONVERTER CONTROLLER (MODULE 3) PART NO. 626423

The internal 12V supply voltage is produced by the fixed 12 Volt regulator U3 and Q1. Q1 protects the voltage regulator against voltage spikes. The input voltage to U3 is limited to approx. 15V DC.

C6, C3 and C7 are decoupling capacitors.

The 5V reference voltage of U2 is used as an internal 5V supply voltage.

The 5 Volt clock signal from the regulator module is shaped by the first NAND Schmitt trigger U1,2 and a well-defined pulse is produced by the one-shot formed by NAND-gates U1,1 and U1,3 and C1, D2 and R1. This pulse is used for two purposes. The first purpose is to make a saw tooth signal by D3, R3 and C5. This voltage signal is converted to a current signal by Q3 and R12 and used for slope compensation to ensure loop stability. The other purpose for the pulse is to override the internal clock of PWM regulator U2 via U1,4 and R8 and Q2.

The control voltage from the regulator module is sensed by the internal control voltage amplifier in U2. This amplifier is connected as a common mode amplifier (R2, C2, R7, R13, C10 and R11) to reduce noise sensitivity.

The current signal from the output transistors on the converter module is connected to the current sense amplifier inside U2. C8 is a noise decoupling capacitor.

The first output transistor pair is turned on by the clock pulse and the current running through it starts to increase. The current is sensed and the amplified current signal is then compared with the control voltage by U2. When the current signal is higher than the control voltage, the transistors are turned off. During the next clock period the other output transistor pair is turned on/off in the same way. The output current is controlled by the control voltage. The peak output current is limited by limiting the output voltage of the control voltage amplifier. The limit is determined by voltage of pin 1 of U2. This voltage is controlled by R4 and R5. C5 is a soft start capacitor.

If the voltage on the shut down terminal pin 16 on U2 is higher than 350 mV the output transistors are instantaneously turned off. This feature is used as a shut down in case of an overvoltage on the 24V supply voltage. The voltage is divided by R9, D4 and R10.

The shut down terminal is also connected to an overvoltage protection circuit for the output voltage on the converter module.

To reset the shut down function, it is necessary to switch off the relay R1 on the filter module by switching off the 28V ON signal.

The two output signals from U2 are passed on to the converter module as gate signals.

## PAGE 5-12



PAGE 5-12



PAGE 5-12

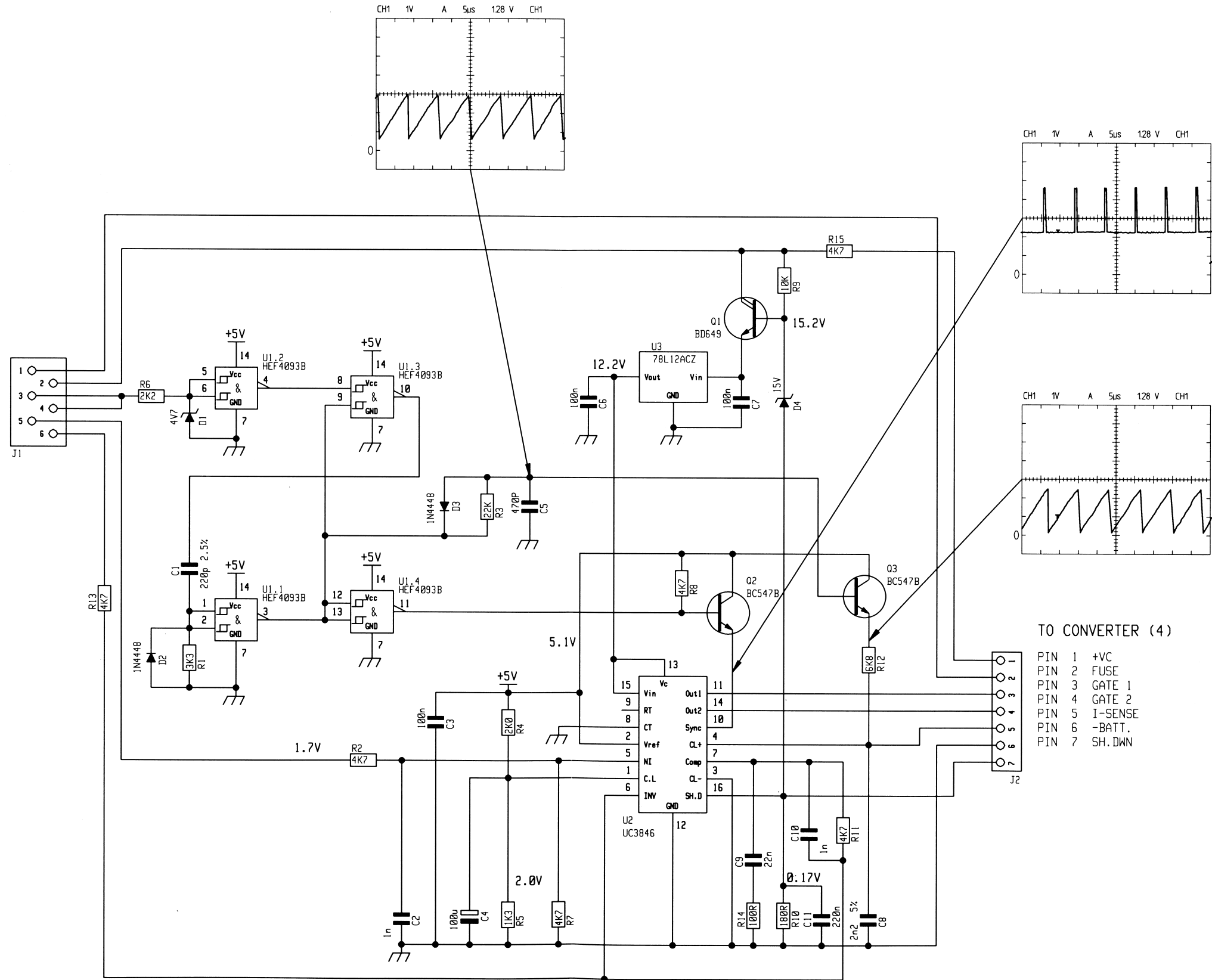
PAGE 5-12

CONVERTER CONTROLLER MODULE 3

Converter Controller (3)

TO 28V & 42V  
REGULATOR (2)

- PIN 1 FUSE
- PIN 2 +24V
- PIN 3 PHASE
- PIN 4 PHASE
- PIN 5 CONTROLE VOLTAGE
- PIN 6 -BATT



TO CONVERTER (4)

- PIN 1 +VC
- PIN 2 FUSE
- PIN 3 GATE 1
- PIN 4 GATE 2
- PIN 5 I-SENSE
- PIN 6 -BATT.
- PIN 7 SH. DWN

## INMARSAT-M ERROR CODES

- 1 0 0 1      MES is clearing the call as instructed by the relevant MES terminal equipment (i.e. normal clearing due to MES terminal "on-hook" etc.)
- 1 0 1 1      MES is rejecting the call because the specified MES terminal number is currently busy, and MES has not been authorized to divert calls which are addressed to that number.
- 1 0 1 2      MES is clearing the fixed-originated call because, subsequent to the acceptance of the call and the signalling of the identity of the mobile terminal, to which the call will actually be routed, the terminal has become busy, and hence cannot be rung.
- 1 0 2 1      MES is clearing the call because appropriate "off-hook" signalling has been received from the addressed MES terminal (including any authorized diversions) within the allowed time limit.
- 1 0 8 1      MES is rejecting the call because the specified MES terminal number has not been installed, and MES has not been authorized to divert calls which are addressed to that number.
- 1 0 9 1      MES is rejecting the call because the specified MES terminal number is currently out-of-service, and MES has not been authorized to divert calls which are addressed to that number.
- 1 0 9 2      MES is clearing the fixed-originated call because, subsequent to the acceptance of the call and the signalling of the identity of the mobile terminal, to which the call will actually be routed, the terminal has become out-of-service, and hence cannot be rung.
- 1 1 4 1      MES is clearing the call, because the call has been pre-empted by an MES user instruction to establish a higher priority call from the MES.
- 1 1 4 2      MES is prematurely clearing the fixed-originated call, which is in the process of being established, because the MES user has initiated a distress priority call.
- 1 1 4 3      MES is prematurely clearing the fixed-originated call, which is in the process of being established, because the MES user has initiated a non-distress priority call from a terminal which is authorized to automatically pre-empt an existing fixed-originated call.
- 1 1 4 4      MES is prematurely clearing the mobile-originated call, which is in process of being established, because the MES user has initiated a distress priority call.
- 1 1 4 5      MES is prematurely clearing the mobile-originated call, which is in the process of being established, because the MES user has initiated a non-distress priority call from a terminal which is authorized to automatically pre-empt an existing mobile-originated call.
- 1 1 4 6      MES is prematurely clearing the mobile-originated call, which is in the process of being established, because the MES user has abandoned the call (by placing the originated terminal "on-hook").
- 1 1 D 1      LES is rejecting the call because the "Service-nature" and/or "Service type" and/or "Channel parameter" information received from the MES is invalid (e.g, not currently defined in the SDM, mutually contradictory, or not applicable to an MES-originated call).
- 1 1 D 2      LES is clearing the call because the "Service address" information received from the MES is invalid (i.e, less than 2 digits).



- 1 1 D 3 LES is clearing the call because the "Service address" information received from the MES is a currently undefined 2 digit address.
- 1 1 D 4 LES is clearing the call because "credit card data" information received from the MES is invalid. [This does **not** imply that the credit card itself is invalid].
- 1 C 6 1 Reserved.
- 1 F 0 1 LES is clearing the call because of the receipt of "on-hook" signalling from the relevant terrestrial circuit (i.e, normal clearing).
- 1 F 1 1 LES is clearing the call because the terrestrial called party is engaged (Busy).
- 1 F 2 1 LES is clearing the call because appropriate "off-hook" signalling from the terrestrial called party has not been received by the LES within the allowed time limit.
- 1 F 6 1 LES is clearing the call because of the detection of a failure in the relevant terrestrial circuit.
- 1 F 6 2 The LES is clearing the call because the terrestrial calling party, or the terrestrial network, has cleared the call before the "MES connect" message has been received by the LES.
- 1 2 0 1 MES is acknowledging the receipt of a simplex call.
- 1 2 6 1 MES is acknowledging the receipt of a simplex call, but has reason to believe that the intended recipient may not have received the complete content thereof.
- 1 2 6 2 MES is clearing the Telephony "Distress Test" call because 120s has elapsed (and the call has not already been cleared by the MES Operator or the terrestrial-side party).
- 1 2 8 1 MES is rejecting the call because the MES is not equipped to provide the specified service.
- 1 2 9 1 MES is rejecting the call because although it **has been** equipped to provide the specified service, it is not currently able to do so.
- 1 2 B 1 MES is rejecting or clearing the call for a reason which is not covered by any of the currently defined "Cause" events.
- 1 2 C 1 MES is clearing the call because "a scrambling Vector Acknowledge" message (type 95h) has not been received by the MES within the allowed time limit.
- 1 2 C 2 MES is clearing the call because a "Credit card valid" message (type A7H) has not been received by the MES within the allowed time limit.
- 1 2 C 3 MES is clearing the call because a "LES Connect" message (type 8Ch) has not been received by the MES within the allowed time limit.
- 1 2 D 1 LES is rejecting the call because the "spot-beam ID" information received from the MES is invalid (i.e, ID is not allocated on satellite in use).
- 1 2 D 2 LES is clearing the call because the "Scrambling Vector" information received from the MES is invalid (i.e, 0000h, 6959h or 7FFFh).
- 1 3 6 1 MES is clearing the call because the Above-deck equipment is about to "Cable unwrap".

- 1 3 6 2 MES is clearing the call because a long-term interruption in reception has occurred (the definition of a "long-term interruption" depends upon the service type).
- 1 3 6 3 Secondary Functional Centre for Multi-channel MES is clearing the call, because the Primary Functional Centre has commanded the Above-deck equipment to repoint to a different Ocean Region.
- 1 4 5 1 LES is rejecting the call because an appropriate terrestrial circuit is not currently available at this specific LES.
- 1 4 5 2 LES is rejecting the call because an appropriate channel unit and associated terrestrial circuit are not currently available at this LES. [This "cause" is only utilized when there is permanent "one-to-one" connections between appropriate channel units and their terrestrial circuits].
- 1 5 4 1 LES is clearing the call because it is being pre-empted by a higher priority call.
- 1 5 5 1 LES is rejecting the call because an appropriate satellite channel is not currently available at this specific LES.
- 1 5 5 2 Reserved.
- 1 5 8 1 LES is rejecting the call because the requested service is not provided by this specific LES.
- 1 5 9 1 LES is rejecting the call because the requested service is temporarily not available at this specific LES.
- 1 5 9 2 LES is clearing the call because the specified credit card type is not currently supported by this specific LES.
- 1 5 A 1 LES is rejecting the call because the specified MES is not authorized for any service (except for Distress calls) at this specific LES.
- 1 5 A 2 LES is rejecting the call because the specified MES is not authorized to use specific requested service (except for Distress calls) via this specific LES.
- 1 5 A 3 LES is clearing the call because the "Credit card data" information received from the MES has been rejected by the credit card authorization process.
- 1 5 B 1 LES is rejecting or clearing the call for a reason which is not covered by any of the currently defined "Cause" events.
- 1 5 C 1 LES is rejecting the call because an appropriate "Channel Assignment" message has not been received by the LES within the allowed time limit.
- 1 5 C 2 LES is clearing the call because the "Service address" information has not been received by the LES within the allowed time limit (does not apply for Distress priority calls).
- 1 5 C 3 LES is clearing the call because a "Scrambling Vector" message (type 8Dh) has not been received by the LES within the allowed time limit.
- 1 5 C 4 LES is clearing the call because neither the "Service address" information nor a "Scrambling Vector" message (type 8Dh) has been received by the LES within the allowed time limit.
- 1 5 C 5 LES is clearing the call because the complete "credit card data" information has not been received by the LES within the allowed time limit.

- 1 5 C 6      LES is clearing the call because a "Return Carrier Identifier" message (type 8Bh) has not been received by the LES within the allowed time limit.
- 1 5 C 7      LES is clearing the call because an "MES Connect" message (type 99h) has not been received by the LES within the allowed time limit.
- 1 5 C 8      Reserved.
- 1 5 D 1      LES is rejecting the call because the "Channel Assignment" message received from the NCS contains inappropriate or conflicting information.
- 1 5 D 2      LES is clearing this MES ID and channel number in the busy lists at LES and NCS, because a **new** call to/from this MES is being set-up (and thus any previous call to/from this MES must be cleared).
- 1 5 E 1      LES is attempting to clear an MES which has sent an SCPC channel release message but is found still to be transmitting 5.12 s later.
- 1 6 5 1      LES is rejecting the call because an appropriate channel unit is not currently available at this specific LES.
- 1 6 6 1      LES is clearing the call because of an interruption in reception of the MES carrier, exceeding the allowed time limit.
- 1 6 C 1      Reserved.
- 1 6 C 2      LES is clearing the call because an appropriate SCPC MES carrier has not been received by the LES (at the announcement of the call) within the allowed time limit.
- 1 8 1 1      NCS is rejecting the call because the specified MES ID is in the "MES busy" list at the NCS.
- 1 8 5 1      NCS is rejecting the call because an appropriate SCPC channel is not currently available.
- 1 8 A 1      NCS is rejecting the call because the specified MES ID was not found in the "Forward and Return MES ID" cross-reference table.
- 1 8 B 1      NCS is rejecting or clearing the call for a reason which is not covered by any of the currently defined "Cause" events.
- 1 8 C 1      NCS is rejecting the call because no message was received from the specified MES (in reaction to a Call Announcement message) within the allowed time limit.
- 1 8 E 1      NCS is rejecting the call because the specified MES ID is in the "MES busy" list at the NCS, **and** is listed as being busy with a call through the **same** LES as is now requesting a "call announcement" addressed to that MES.

NCS = Network Coordination Station

MES = Mobile Earth Station

LES = Land Earth Station



**Inmarsat**

99 City Road,  
London EC1Y 1AX  
United Kingdom

**TO: All Operators and Licensees of Inmarsat Land Mobile Earth Stations and their respective Routing Organizations**

**FROM: Inmarsat Commissioning Manager**

**DATE: 7 October 1994**

**SUBJECT: Amendment to Terms and Conditions for Utilization of the Inmarsat Space Segment for Land Mobile Earth Stations**

All Inmarsat Land Mobile Earth Stations (LMESs) are subject to the Terms and Conditions for Utilization of the Inmarsat Space Segment, which are published at the back of all commissioning application forms. Those Terms and Conditions have now been amended for all LMESs.

In accordance with the Terms and Conditions for Utilization of the Inmarsat Space Segment, you are hereby notified of an amendment to those Terms and Conditions, adopted by the Inmarsat Council at its Fiftieth Session held from 28 July - 2 August 1994. The amendment is the addition of a new Article 2.E, Suspension for Non-Payment of Accounts and Other Causes, as printed on the back of this page. The amendment will become effective on 1 December 1994.

The revision specifically identifies the authority of Inmarsat Land Earth Station (LES) Operators and of Inmarsat to suspend service to MESs for a variety of reasons, particularly for non-payment of accounts.

It also provides that LES Operators may act in concert to completely suspend service to an MES throughout the Inmarsat system.

pp Edna Kim  
Manager, Inmarsat Commissioning

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**New Paragraph to Article 2 of the Terms and Conditions for Utilization of the Inmarsat Space Segment for Land Mobile Earth Stations:**

**"Article 2.E Suspension for Non-Payment of Accounts and Other Causes**

- (1) Without prejudice to any of the other remedies and provisions of these Terms and Conditions or at law, Inmarsat and any or all of the land earth station (LES) Operators in the Inmarsat system may, individually or jointly, suspend the authorisation due to non-payment of accounts for the telecommunications services provided by the LESSs, unauthorized use of the LMES, loss or theft of the LMES, fraudulent abuse of or by the LMES, any other non-compliance with these Terms and Conditions, insolvency of the LMES Licensee, the LMES Operator or their designated entity responsible for payment of accounts, or any other reason established under the Inmarsat Barring Procedures.
- (2) Upon being satisfied that the causes of the suspension have been remedied, Inmarsat and the LES Operators may lift the suspension.
- (3) The disclaimer of Inmarsat and other persons and other persons and entities under Article 4 (Telecommunications Disclaimer) of these Terms and Conditions shall apply to any claims arising from suspension of this authorization by Inmarsat and the LESSs for reasons specified in this Article."

## T2130

Det har været nødvendigt at indføre en ændring på connection board, da det, på grund af komponentspredning, ikke altid har været muligt at holde TX-KEY lav. Det er ikke nødvendigt at indføre disse ændringer i allerede leveret udstyr, da disse enheder er testet og i orden.

På connection board modul 6 er der indført en transistor Q2 ved OC2, således at dette kredsløb kan trække mere strøm. Moduler med denne ændring har version "H" eller højere. Denne nye version af connection board 6 kan anvendes sammen med alle versioner af TX-Processor modul 8.

## T2131

Det har været nødvendigt at indføre en ændring på connection board og processor board, da det, på grund af komponentspredning, ikke altid har været muligt at holde TX-KEY lav. Det er ikke nødvendigt at indføre disse ændringer i allerede leveret udstyr, da disse enheder er testet og i orden.

På connection board modul 13 er der indført en transistor Q2 ved OC2, således at dette kredsløb kan trække mere strøm. Moduler med denne ændring har version "N" eller højere. Denne nye version af connection board 13 kan anvendes sammen med alle versioner af TX-Processor modul 8.

På TX-Processor board modul 8 er modstanden R80 ændret til 100 Ohm. Dette medfører, at TX-Processor modul 8 version 626408EH kun kan anvendes sammen med connection board modul 14 version "N" eller højere.



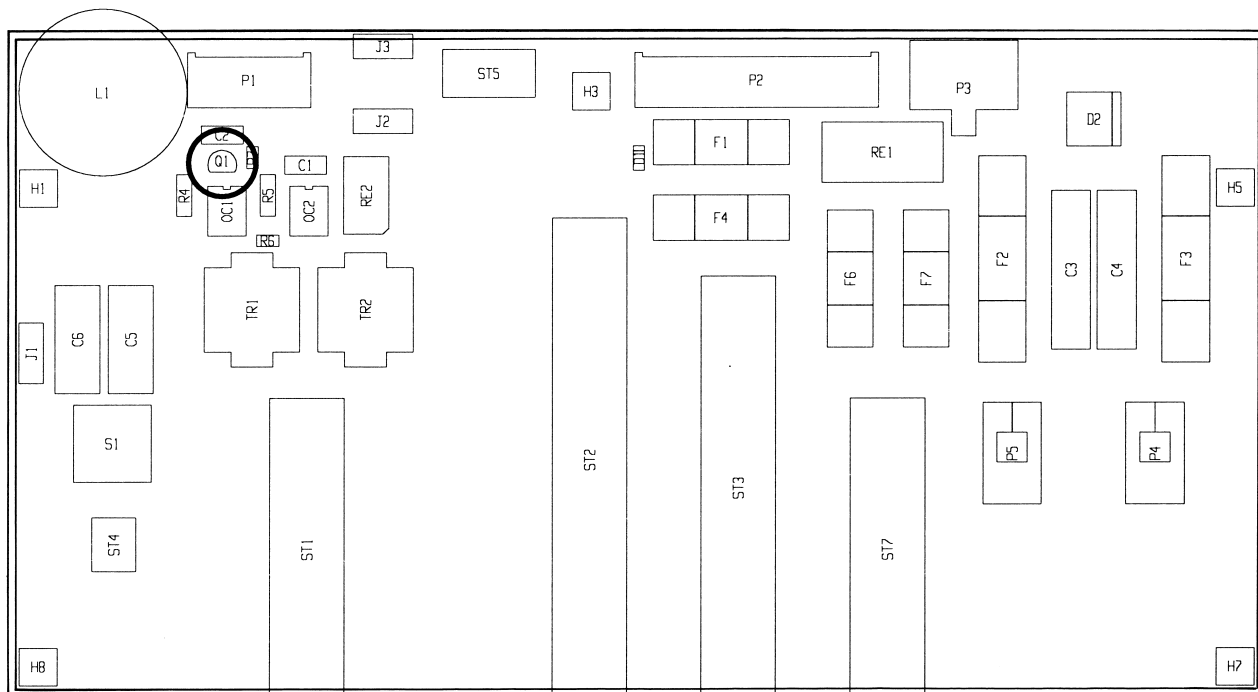
## T2135

Det har været nødvendigt at indføre en ændring på connection board og processor board, da det, på grund af komponentspredning, ikke altid har været muligt at holde TX-KEY lav. Det er ikke nødvendigt at indføre disse ændringer i allerede leveret udstyr, da disse enheder er testet og i orden.

På connection board modul 14 er der indført en transistor Q2 ved OC2, således at dette kredsløb kan trække mere strøm. Moduler med denne ændring har version "N" eller højere. Denne nye version af connection board 14 kan anvendes sammen med alle versioner af TX-Processor modul 8.

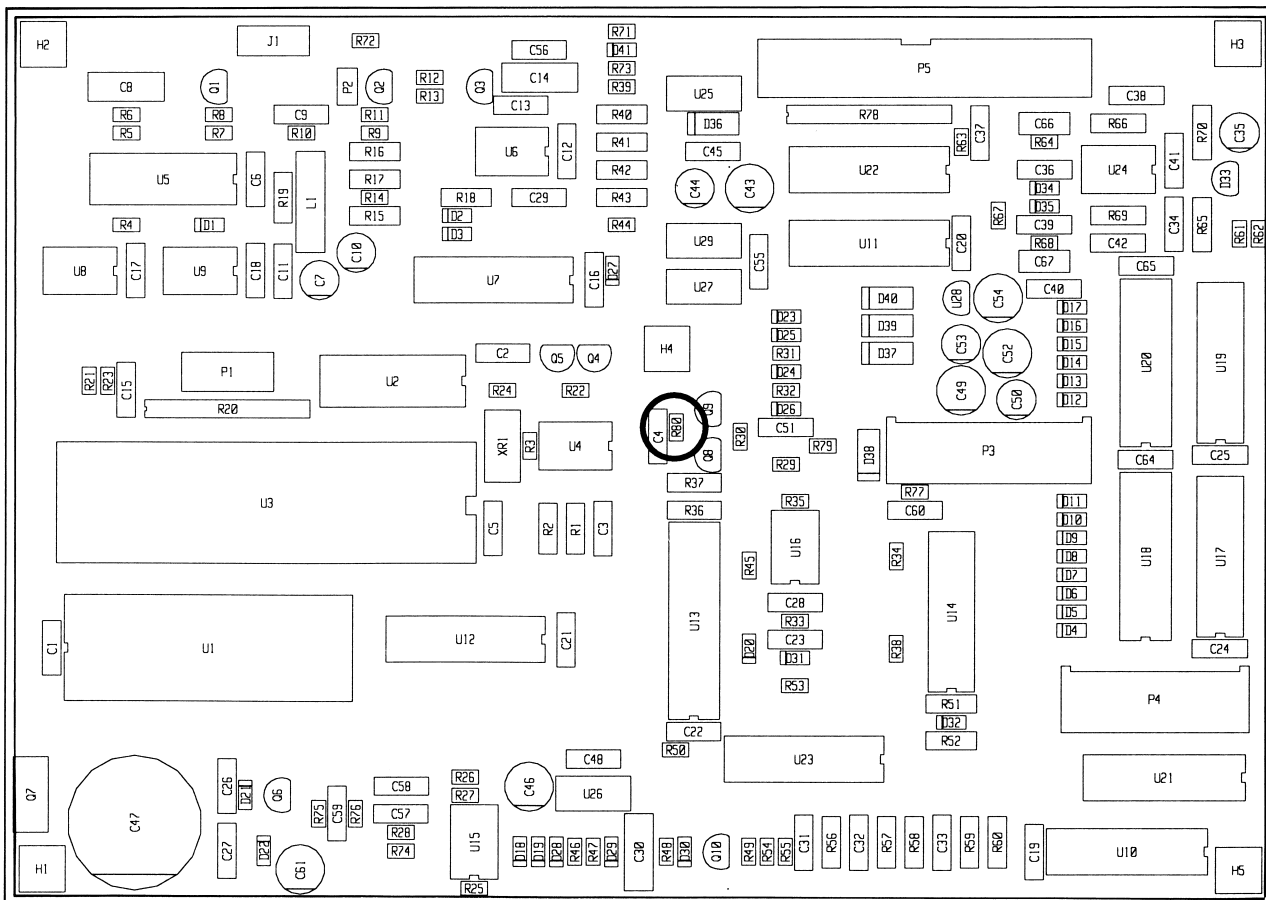
På TX-Processor board modul 8 er modstanden R80 ændret til 100 Ohm. Dette medfører, at TX-Processor modul 8 version 626408EH kun kan anvendes sammen med connection board modul 14 version "N" eller højere.

# COMPONENT LOCATION CONNECTION BOARD MODULE 6



PCB rev. 25646H

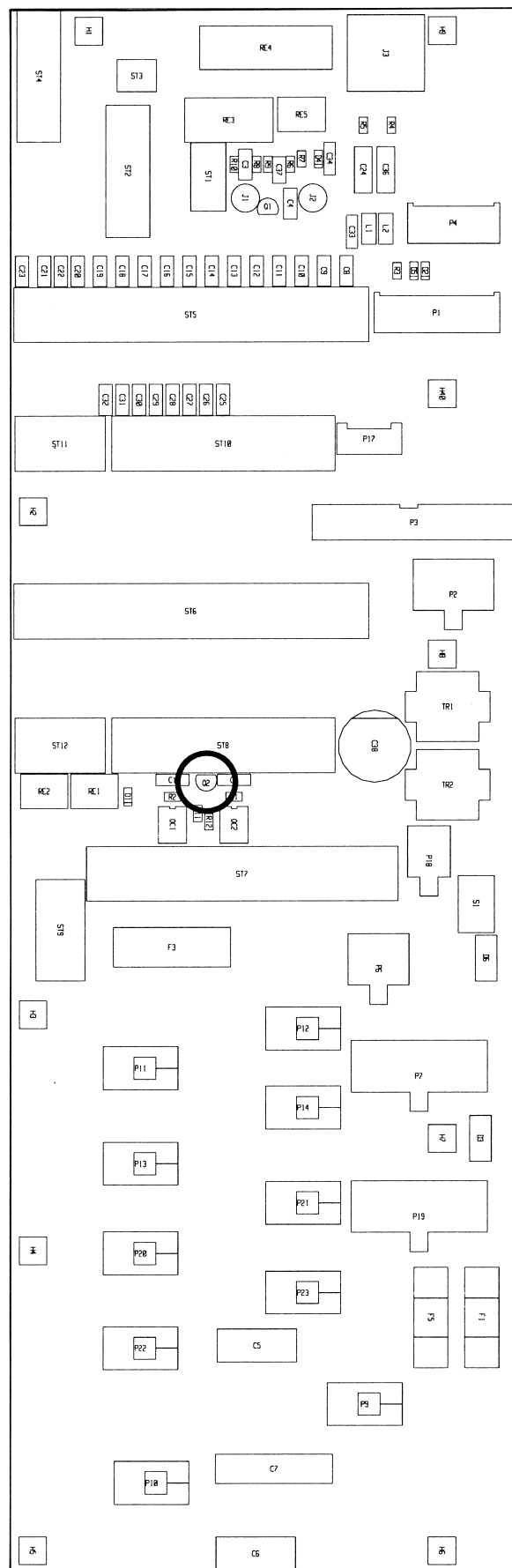
# COMPONENT LOCATION TX PROCESSOR MODULE 8



PCB rev. 26408E

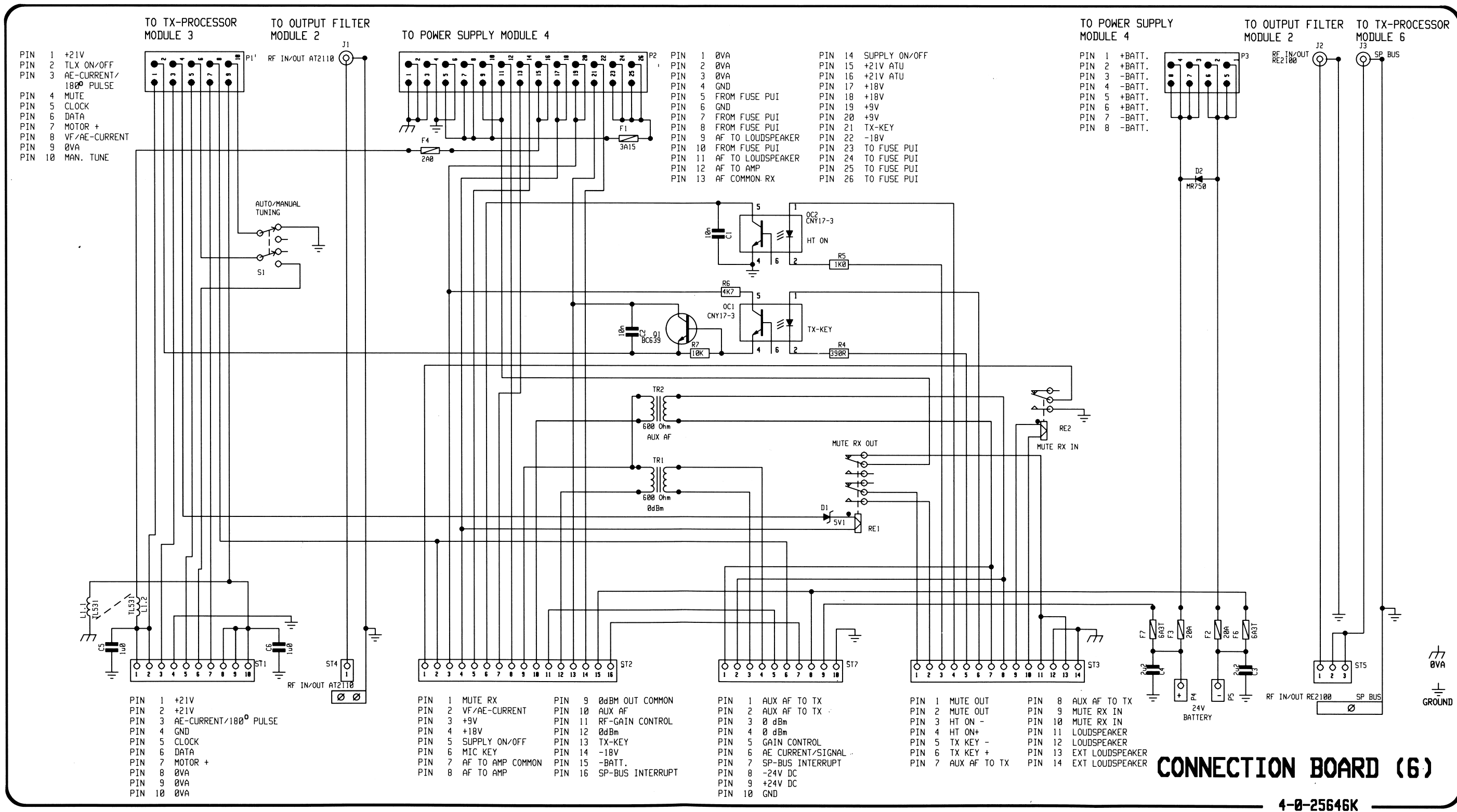
## COMPONENT LOCATION

### CONNECTION BOARD MODULE 14



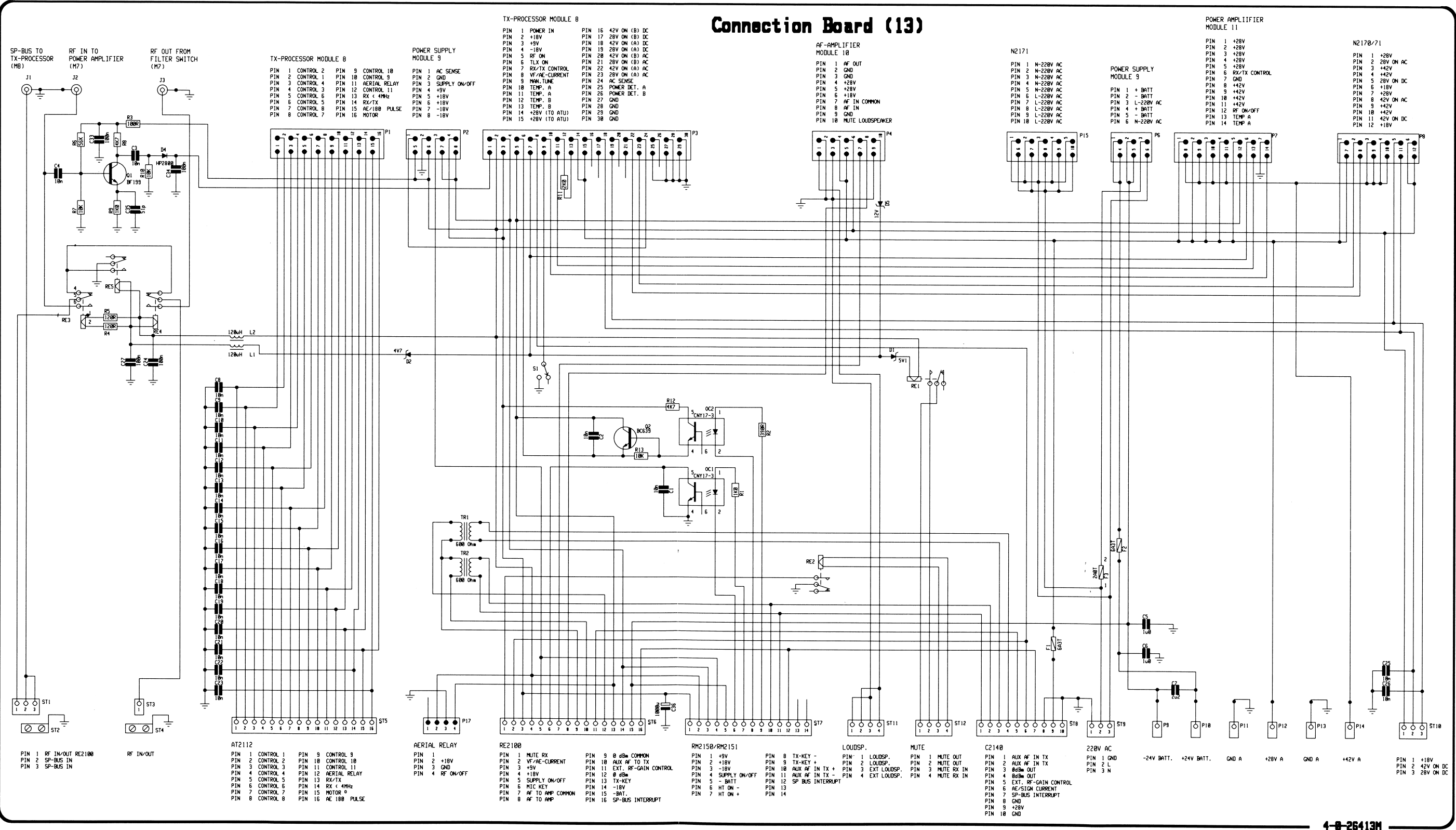
PCB rev. 26414N

## CONNECTION BOARD MODULE 6





CONNECTION BOARD MODULE 13



This diagram is valid for PCB rev. 26413N

CONNECTION BOARD MODULE 14

