

- 1 = Kippschalter 1-0-1
- 2 = Kippschalter 0-1
- 3 = Kipplaster 1-0-1
- 4 = Taster 0-1
- 5 = Schliesserschalter 0-1
- 6 = Pilzschlagschalter
- 7 = Drehschalter
- 8 = Kurzhubtaster 0-1
- 9 = Drehtaster 0-1
- 10 = Kleinmeisterschalter
- 11 = Funktionsanzeige
- 12 = Blindabdeckung
- * = Option

HBC-radiomatic
Hallerstr. 49-53
D-74564 Crailsheim

Senderansicht
FSS spectrum 2
Liebherr EC-HM 112-156
Z.Nr. 4005-22005

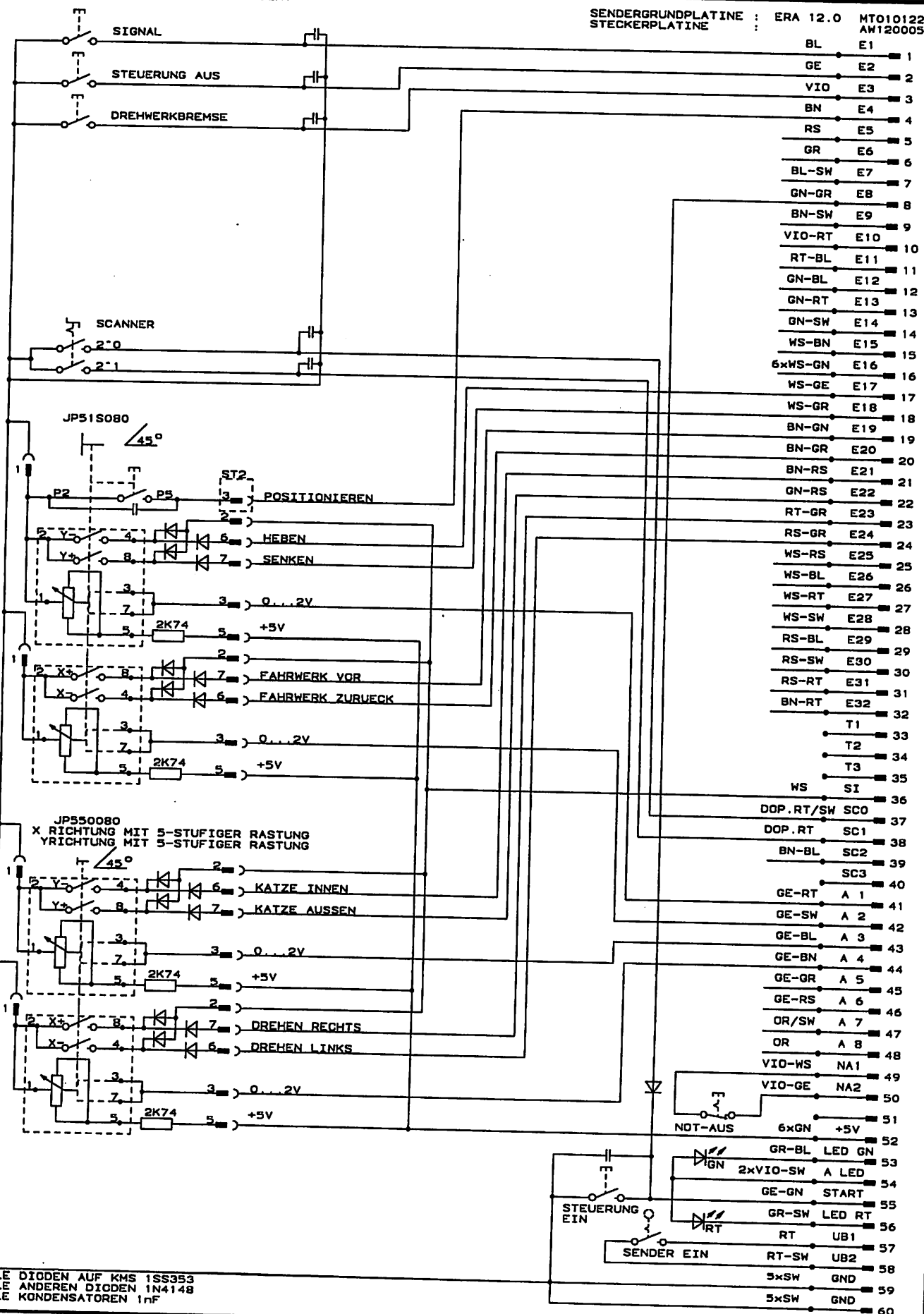
Gez.: PMTS
Datum: 10.01.2005
Blatt 1 von 1
Zeichnungs-Nr.: Ans_22005.CDR



HBC-radiomatic gmbh

CAD - KEINE MANUELLEN AENDERUNGEN!

SENDERGRUNDPLATINE : ERA 12.0 MT010122
STECKERPLATINE : AM120005



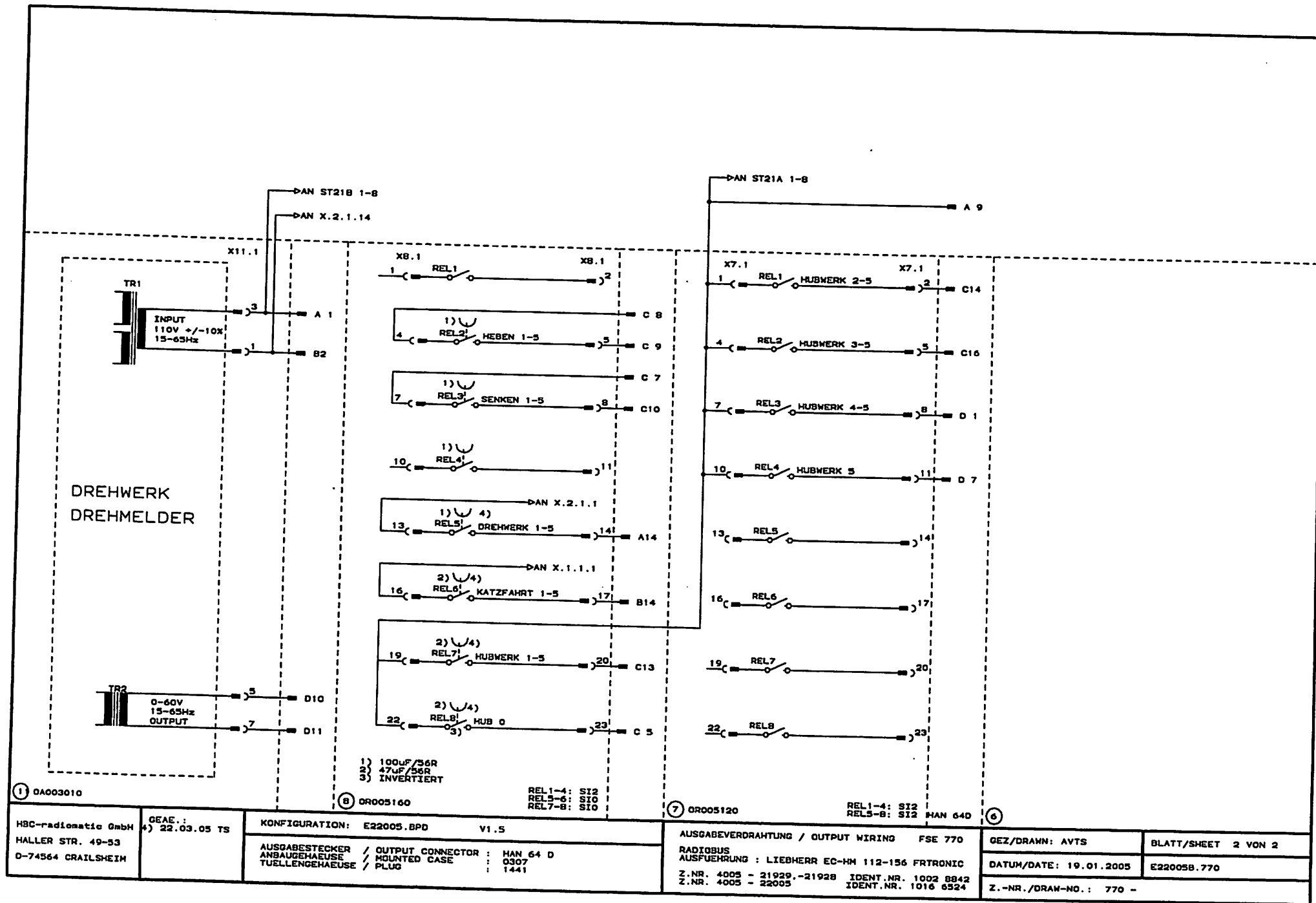
ALLE DIODEN AUF KMS 1SS353
ALLE ANDEREN DIODEN 1N4148
ALLE KONDENSATOREN 1nF

KONF. SLH21005RM.HEX
KONF. SLH22005.HEX
FP: 31.229.CDR
FP: SP3 SPS NEU.CDR
HBC-radiomatic gmbh
D-74564 CRAILSHEIM

☒ KRAN EIN VERR.
MAIN CONT. LOCK
☐ FREIG. EMPF.
RADIO START
☒ APO TIMER 15 min

SENDERVERDRAHTUNG
SYSTEM 735 SNTU 1.0/SPECTRUM 2/3
LIEBHERR OBDREHER EC-HM 112-156
Z.NR. 4005-22005
IDENTNR. 1002 8842 1016 6524

| | |
|-----------------|-----------------|
| AVTS | GEAE. |
| DAT. 27.08.2003 | G:\SLH22005.770 |
| Z-NR. 770 - | |

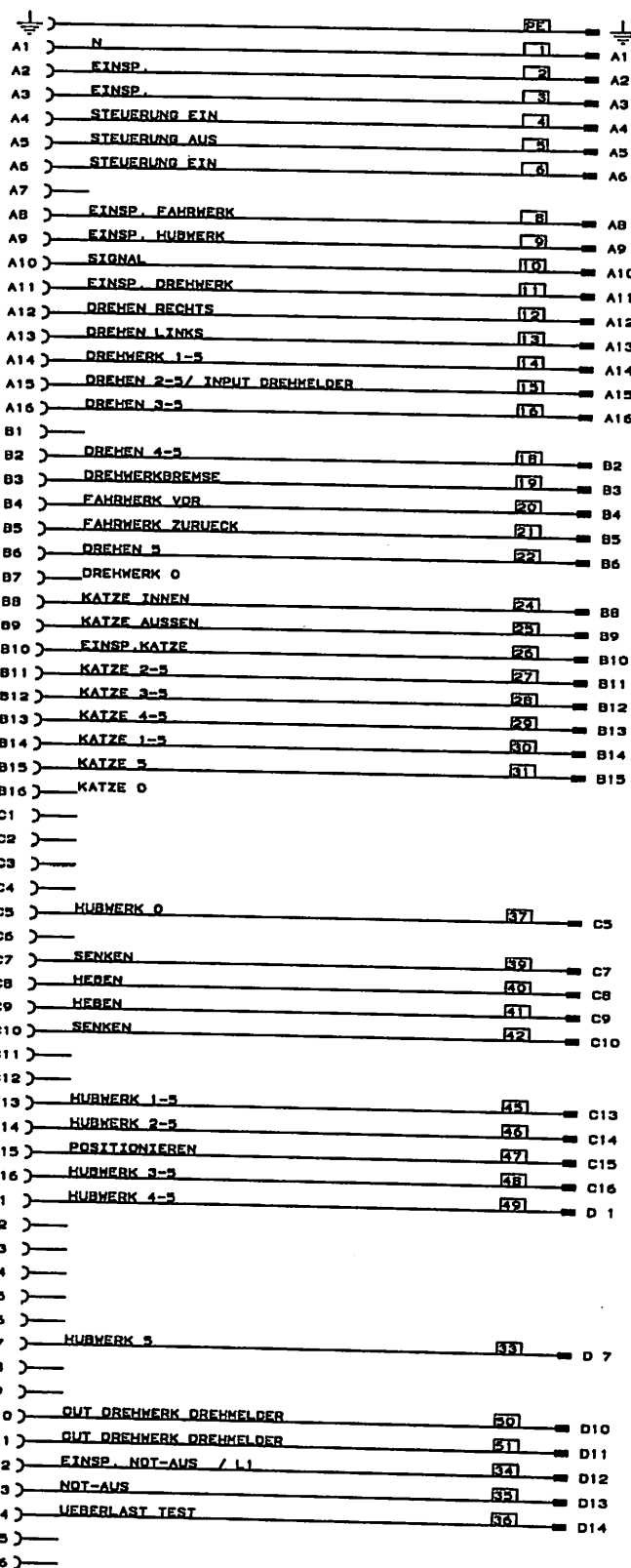




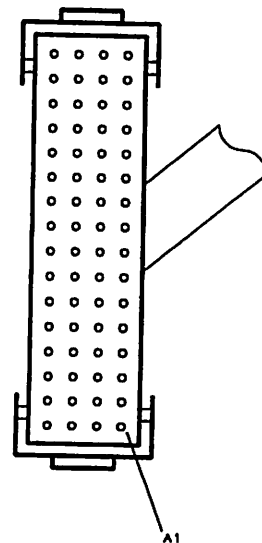
HBC-radiomatic GMBH

CAD - KEINE MANUELLEN ÄNDERUNGEN

STECKVERBINDUNG
FUNKSTEUERUNG
HAN 04D
TUELL.GEH. 0441



STECKVERBINDUNG
KRAH
TUELL.GEH. 1431
HAN 04D



GEAE.:

HBC-radiomatic GMBH
D-74564 CRAILSHEIM

KABELPLAN FST 770
AUF LIEBKERR OBENDREHER EC-KM
4005-21929, -21928 4005-22005
IDENT-NR. 1016 6524

AJST0175

AVTS

DAT. 19.01.2005

Z-NR. 770 -

LAENCE: 6m

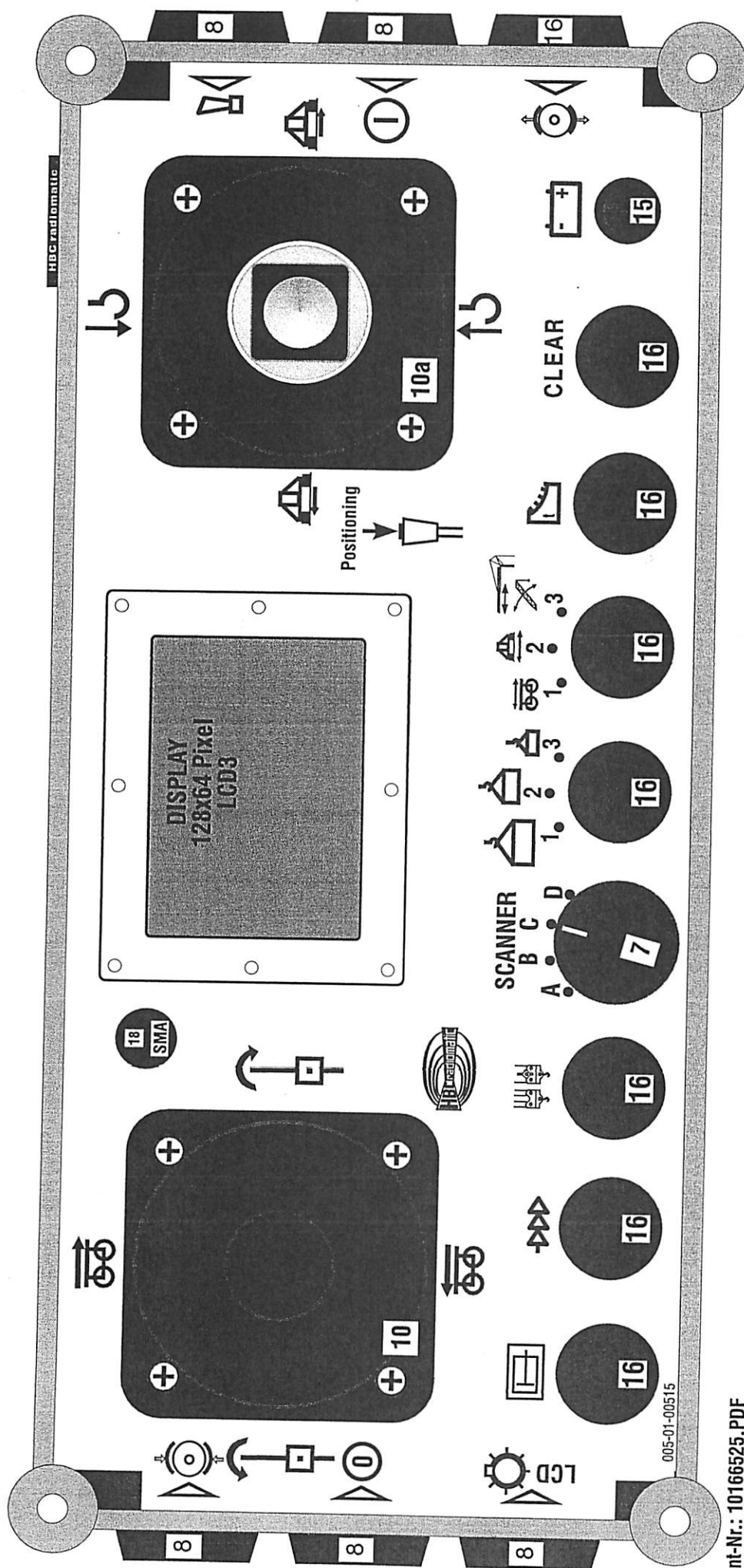
KABEL: 55x1mm

ADER NR.: ☐

E22005C.770

VKLH40

10166524.PDF



Ident-Nr.: 10166525.PDF


| | | | | | | | |
|---|---|---------------------------|-----------------------|-----|---|-----|---------------------------------|
| 1 | toggle switch | (maintained) | 1-0-1 | 53 | I-ON | 13 | coding plug - Bendix |
| 2 | toggle switch | (maintained) | (1-1) 0-1 | 6 | emergency-stop pushbutton | 14 | Euchner joystick |
| 1 | toggle switch | 0-1 (locked) | 0 - maintained locked | 61 | emergency-stop pushbutton (non latched) | 15 | Duo-LED "red/green" |
| 2 | toggle switch | 1-0-1 (locked) | | 62 | HBC em.-stop pushbutton (small) | 16 | Peg |
| | (centre return - 0 - maintained locked) | | | 7 | rotary switch ELMA | 17 | Potentiometer |
| 3 | pull-out safety togg. sw. | (type like in the layout) | | 71 | rotary switch EBE BCD | 18 | Antenna |
| 3 | toggle switch | (centre return) | 1-0-1 | 72 | rotary switch EBE BCD Kompl. | 19 | thumbwheel contraves |
| 1 | toggle switch | (centre return) | 0-1 | 8 | short stroke key metall (HBC B-900026) | 20 | LED (colour like in the layout) |
| 2 | toggle switch | 1-0-1 (maintained) | 0 - centre return | 9 | rot.sw. non latching ELMA | 100 | customized component |
| 4 | DJET - pushbutton | 0-1 | | 91 | rot.sw. non latching EBE | 101 | display |
| 4 | DJET - pushbutton | 0-1 | | 10 | HBC compact joystick | 102 | HBC linear lever |
| 5 | key switch | 0-1 (large) | protective collar | 10a | HBC comp. joy. with pushbutton | 103 | Telemechanique joystick |
| 1 | key switch | 0-1 (small) (micron 4) | | 10b | HBC comp. joy. with rot. knob | 104 | IR-Diodes in the front (left) |
| 1 | key sw. | non latched | 0-1 | 11 | LED with "red" lens | | |
| 2 | key sw. | Master Key | 0-1 | 12 | LED with "green" lens | | |

| | |
|----|---------------------------------|
| 13 | coding plug - Bendix |
| 14 | Euchner joystick |
| 15 | Duo-LED "red/green" |
| 16 | Peg |
| 17 | Potentiometer |
| 18 | Antenna |
| 19 | thumbwheel contraves |
| 20 | LED (colour like in the layout) |
| 00 | customized component |
| 01 | display |
| 02 | HBC linear lever |
| 03 | Telemecanique joystick |
| 04 | IR-Diodes in the front (left) |

- 53 I-ON
- 6 emergency-stop pushbutton
- 61 emergency-stop pushbutton (non latched)
- 62 HBC em.-stop pushbutton (small)
- 7 rotary switch ELMA
- 71 rotary switch EBE BCD
- 72 rotary switch EBE BCD Kompl.
- 8 short stroke key metall (HBC B-900026)
- 9 rot.sw. non latching ELMA
- 91 rot.sw. non latching EBE
- 10 HBC compact joystick
- 10a HBC comp. joy. with pushbutton
- 10b HBC comp. joy. with rot. knob
- 11 LED with "red" lens
- 12 LED with "green" lens

| | |
|---|--|
| 2 | toggle switch (maintained) (1-1) 0-1 |
| 2 | toggle switch 0-1 (locked) 0 - maintained (locked) |
| 2 | toggle switch 1-0-1 (locked) |
| | (centre return - 0 - maintained locked) |
| 3 | pull-out safety togg. sw. (type like in the layout) |
| 3 | toggle switch (centre return) 1-0-1 |
| 1 | toggle switch (centre return) 0-1 |
| 2 | toggle switch 1-0-1 (maintained - 0 - centre return) |
| 4 | DET - pushbutton 0-1 |
| 1 | DET - pushbutton 0-1 w. protective collar |
| 5 | key switch 0-1 (large) |
| 1 | key switch 0-1 (small) (micron 4) |
| 1 | key sw. non latched 0-1 |
| 2 | key sw. Master Key 0-1 |

Frontplate FST770
Spectrum3
Com.: ECHM 112-156

| | | | | | |
|---|---|--------|--|--|----|
|  | Heraeus-radiomatic GmbH D-74564 Crailsheim | white | | | |
| | | black | | | |
| | | orange | | | |
| | | orange | | | |
| | | | | | |
| | | | | | DR |

☐ MASTERKEY
☐ INFR-KEY
☐ RADIO STAIR
☐ MAIN CONTACT LOCK
APD 15 MIN

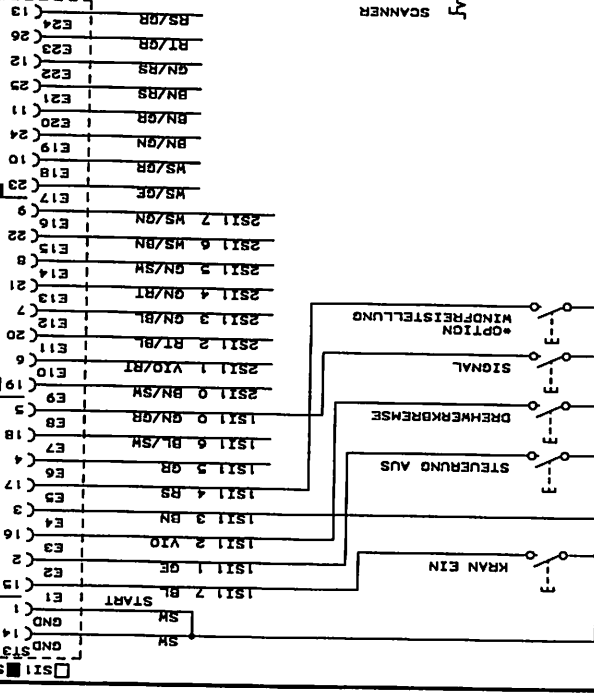
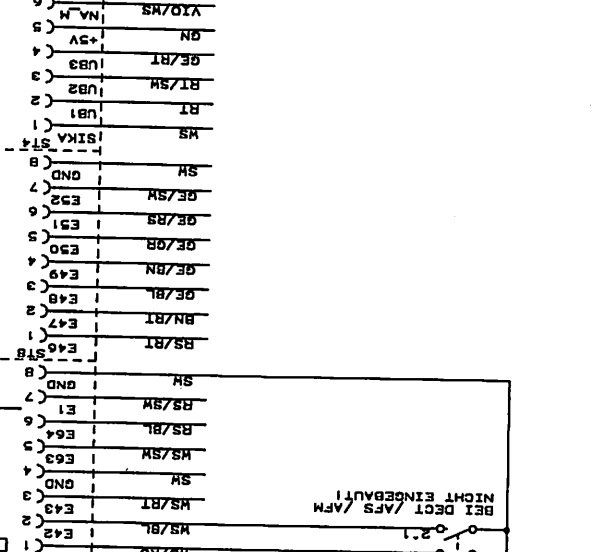
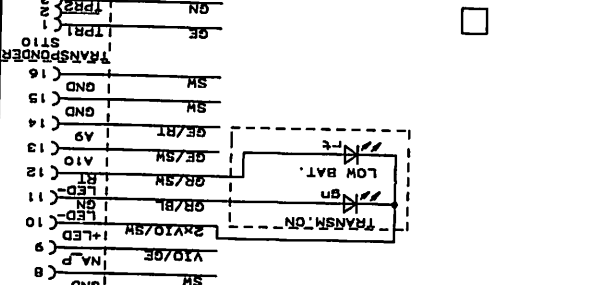
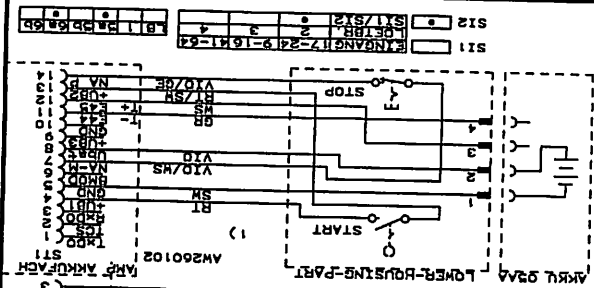
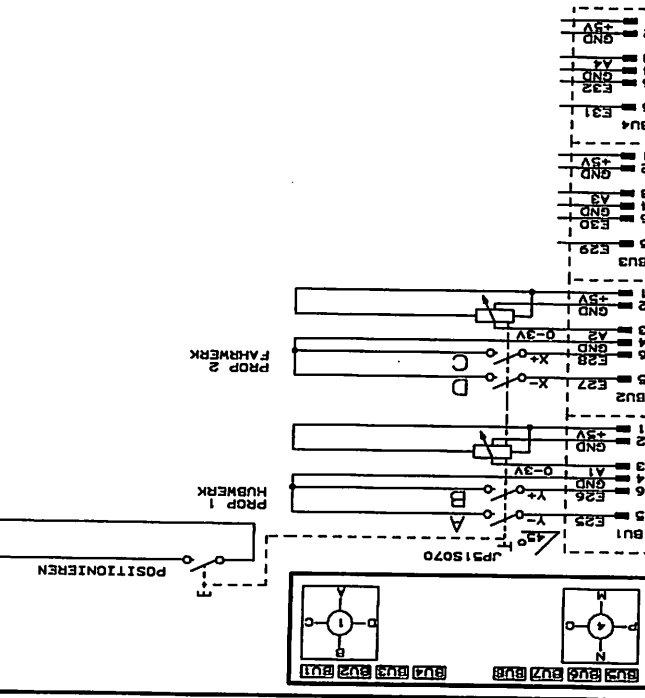
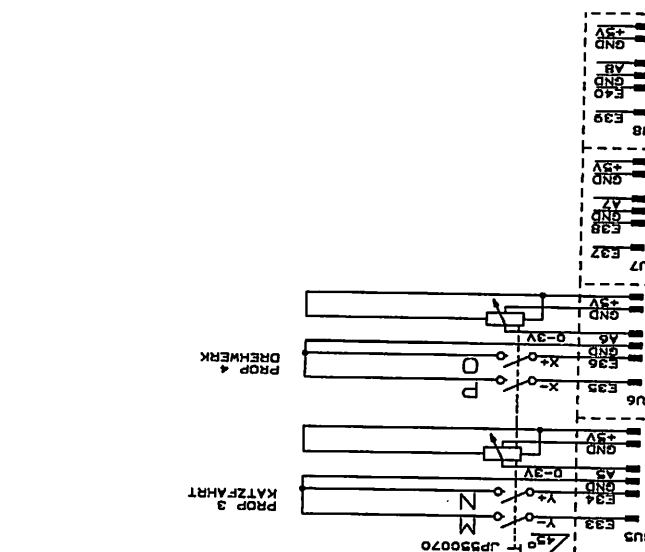
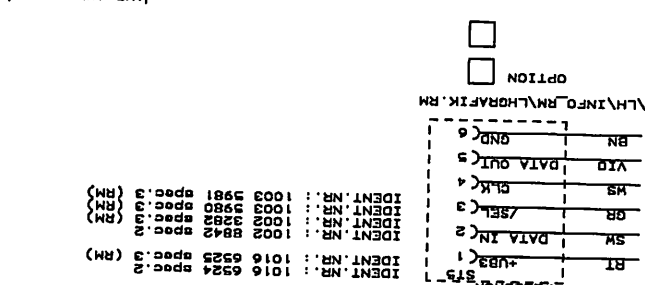
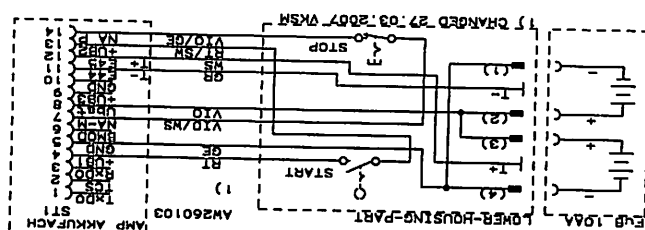
S1 : ROTARY SWITCH MSB/MED
☒ APD ON (S1 = 0)
☐ APD OFF (S1 = 4)

GEAR: 10.03.2008 PMSEH/MC

[illegible]

DRAW-NO.: 770 -
 DATE: 06.09.2006
 VKSM/PMTS

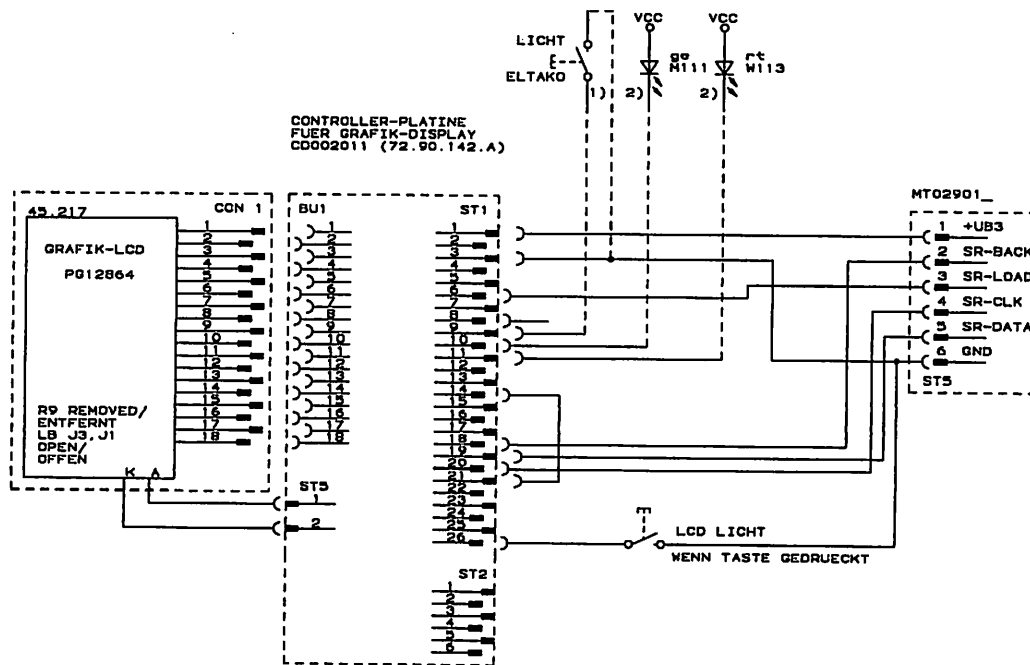
Ident-Nr.: 10166525.PDF





HBC-radiomatic GMBH

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1) OPTION

2) OPTION FRANKREICH AUSFUEHRUNG

CAD-ZEICHNUNG, KEINE MANUELLEN AENDERUNGEN !

| | | | | |
|--|---|--|------------------|----------------|
| | HBC-radiomatic GMBH D-74564 CRAILSHEIM | TRANSMITTER PCB: MT02901_ | | |
| | GEAE.: | SENDER-VERORAHTUNG RUECKMELDE-DISPLAY LIEBHERR SYSTEM 735/770 SPECTRUM 3 SOFTWARE | VKSH | |
| | | ALLG.: 770_05_03289L.s19 MK100: 735_06_03419L.s19 | DATE: 30.08.2006 | G:\LHGRAFIK.RM |
| | | | DRAW-NO.: | 2/2 |

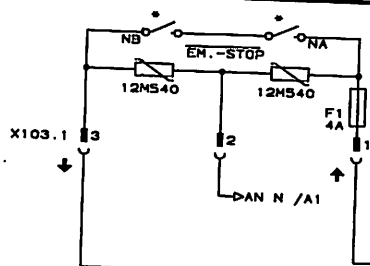
DE00105

• IM BETRIEBSZUSTAND GESCHLOSSEN

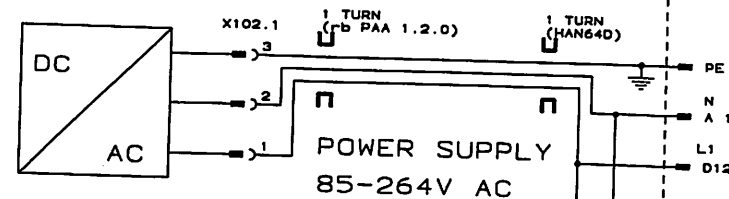
DIE NOT-AUS-KETTE MUSS IN DER NACHGESCHALTETEN ANLAGE DURCH EINEN VON DEN ÜBRIGEN SCHALTBEFEHLEN UNABHÄNGIGEN KREIS AUSGEWERTET WERDEN!

• CLOSED IN OPERATED CONDITION

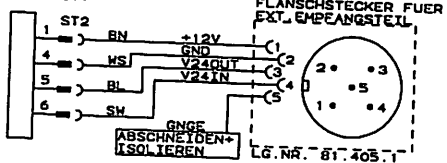
THE EMERGENCY STOP CONTACTS HAVE TO BE UTILIZED TO CONTROL A MAIN EMERGENCY STOP CIRCUIT WHICH IS TO BE INDEPENDENT FROM ALL OTHER CONTROL FUNCTIONS.



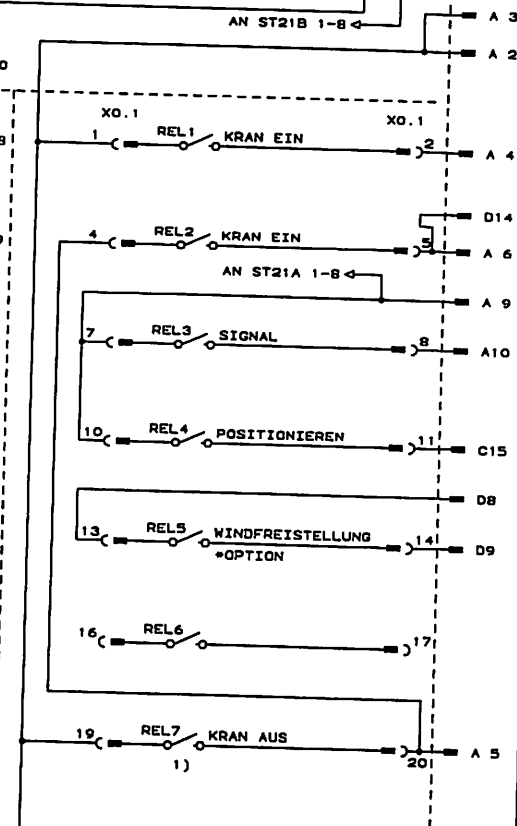
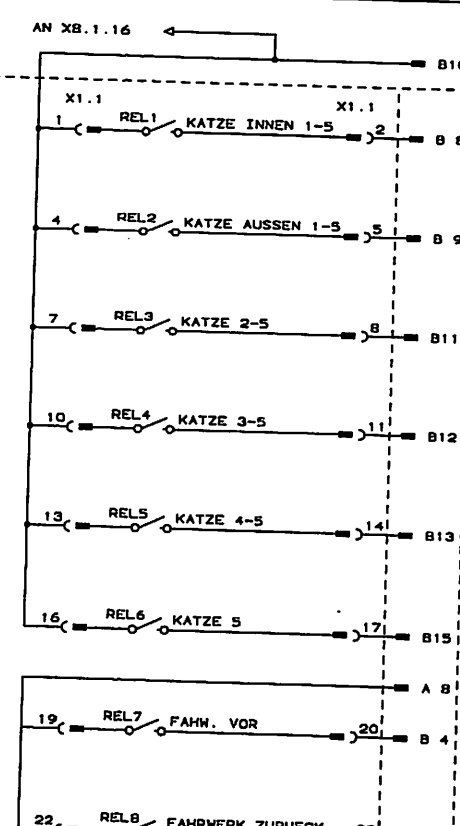
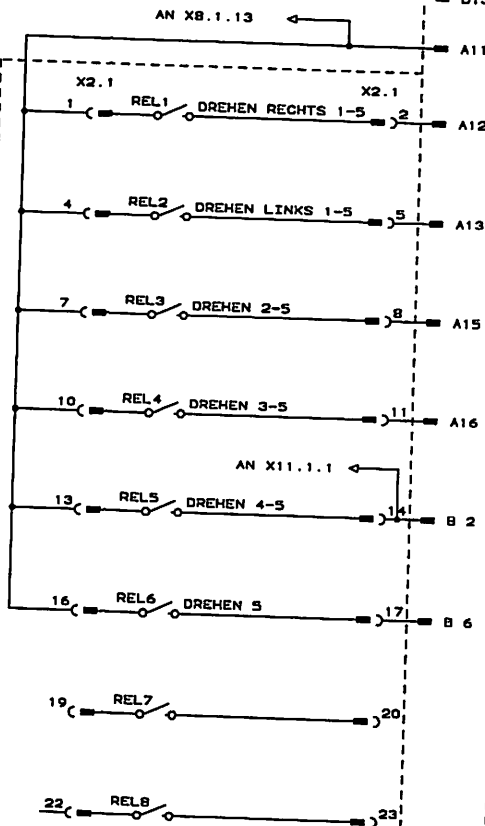
PA003011



CR004010
AB004011



EXT. DECT



② OR005120

REL1-4: S12
REL5-8: S12 HAN 64D

① OR005120

REL1-4: S12
REL5-8: S12 HAN 64D

③ OR005120

REL1-4: S11
REL5-6: S11
REL7-8: S10 HAN 64D

HBC-radiomatic GmbH
HALLER STR. 49-53
D-74564 CRAILSHEIM

1) INVERTIERT
GEAE:
WINDFREIST.
02.07.07 VKSM

KONFIGURATION: E22005RM.BPD V1.6

AUSGABESTECKER / OUTPUT CONNECTOR : HAN 64 D
ANBAUGEHÄUSE / MOUNTED CASE : 0307
TUELLANGEHÄUSE / PLUG : 1441

AUSGABEVERDRAHTUNG / OUTPUT WIRING FSE 770

RADIOBUS
AUSFÜHRUNG: LIEBHERR EC-HM 112-156 FRTRONIC

Z.Nr. 4005- 21929-21928 IDENT.NR. 1002 3282
Z.Nr. 4005- 22005 IDENT.NR. 1016 6525

GEZ/DRAWN: AVTS

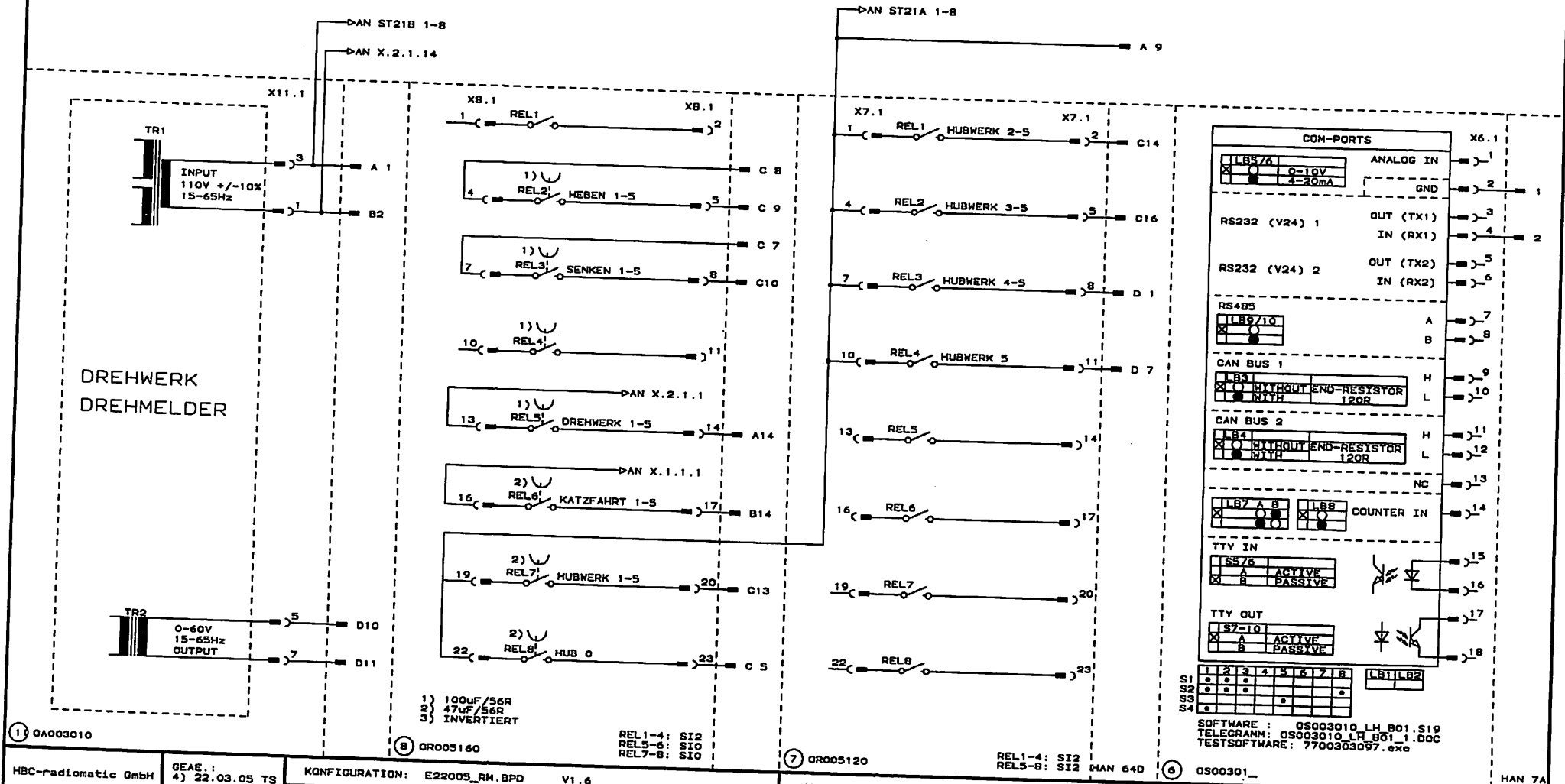
BLATT/SHEET 1 von 3

DATUM/DATE: 17.02.2005

E22005RA.770

Z.-NR./DRAW-NO.: 770 -

Ident-Nr.: 10166525.PDF



① 0A003010

⑧ 0R005160

⑦ 0R005120

⑤ 0S003010

HBC-radiomatic GmbH
HALLER STR. 49-53
D-74564 CRAILSHEIM

GEAE.: 4) 22.03.05 TS

CONFIGURATION: E22005_RM.BPD V1.6

AUSGABESTECKER / OUTPUT CONNECTOR : HAN 64 D
ANBAUGEHÄUSE / MOUNTED CASE : 0307
TUELENGEHÄUSE / PLUG : 1441

AUSGABEVERDRÄHTUNG / OUTPUT WIRING FSE 770
RADIOBUS
AUSFÜHRUNG : LIEBHERR EC-HM 112-156 FRTRONIC
Z.NR. 4005 - 21929 - 21928 IDENT.NR. 1002 3282
Z.NR. 4005 - 22005 IDENT.NR. 1016 6525

GEZ/DRAWN: AVTS/VKSM

BLATT/SHEET 2 VON 3

DATUM/DATE: 07.02.2006

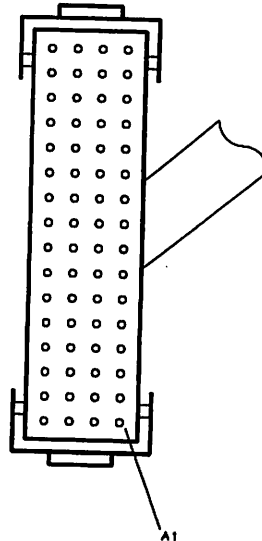
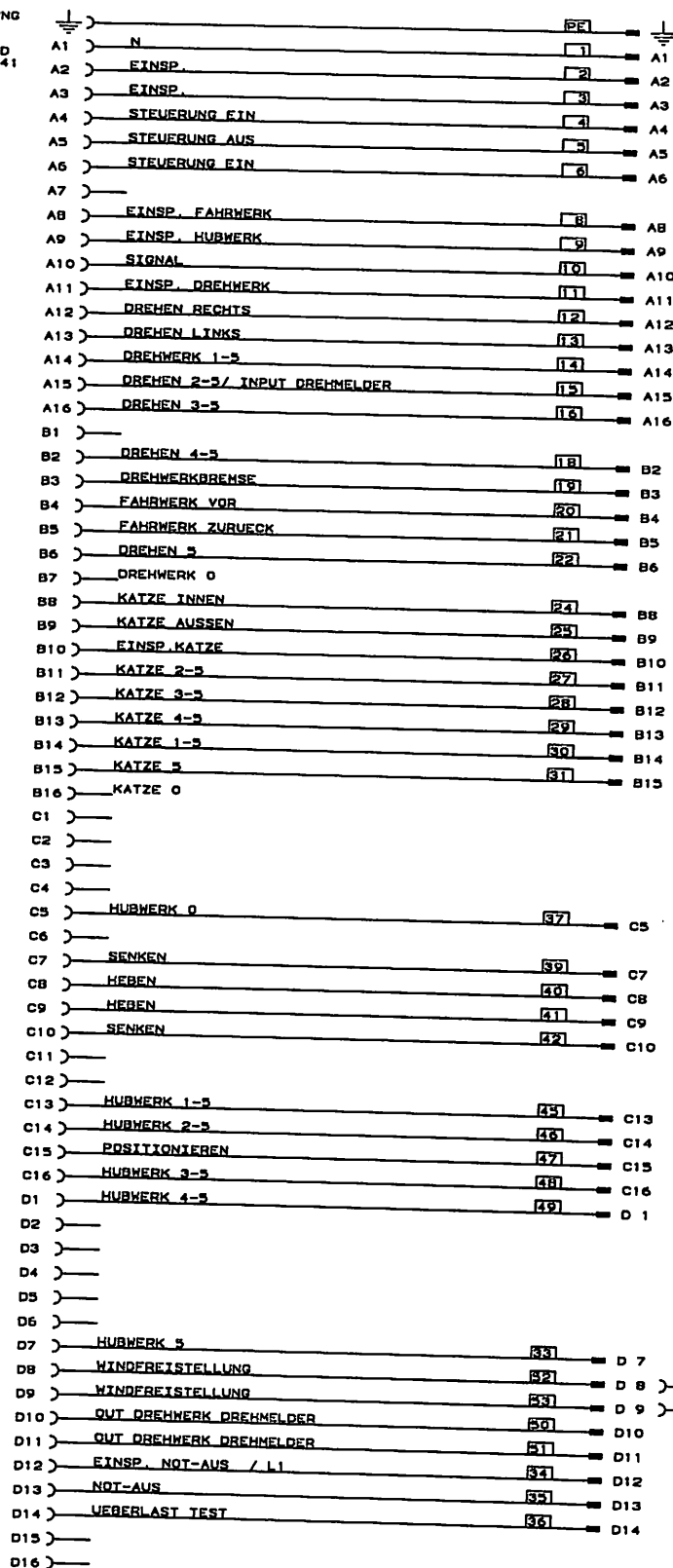
E22005RB.770

Z.-NR./DRAW-NO.: 770 -

HAN 7A

CAD - KEINE MANUELLEN ÄNDERUNGEN!

STECKVERBINDUNG
 FUNKSTEUERUNG
 HAN 64D
 TUELL.GEH. 0441



→ AN X1/246 MUSS KRANSEITIG
 → AN X1/245 NOCH AUFGEGLEGT WERDEN

GEAE.:

HBC-radiomatic GMBH
 D-74564 CRAILSHEIM

KABELPLAN FST 770
 AUF LIEBHERR OBENDREHER EC-HM

AJST0175

AVTS/VKSM

DAT. 29.03.2003

Z-NR. 770 -

LAENGE: 6m

KABEL: 55*1mm²

ADER NR.: ☐

E22005C.WF

VKLH40.WF

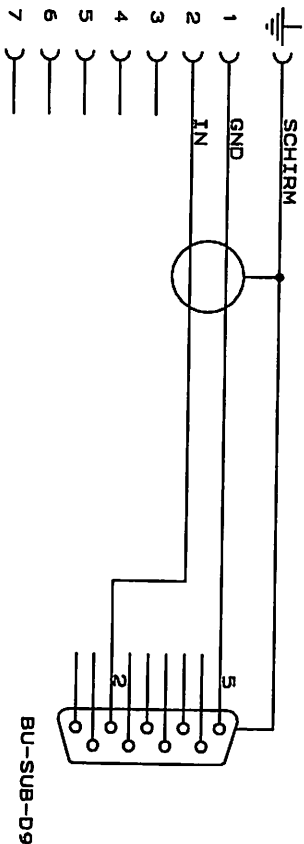


STECKVERBINDUNG
FUNKSTEUERUNG

HAN
TUELL. GEH. 0420

STECKVERBINDUNG
KRAN

SUB-D9
BUCHSE



AJST0082

GEAE.:

UEBERTRAGUNGSRATE: 9600 BAUD
SOFTWAREPROTOKOLL: X on, X off

LAENGE: 10mtr

KABEL: LITYC
8*014mm

ADER NR.: ☐

HBC-radiomatic

D-74564 CRAILSHEIM

VERBINDUNGSKABEL FUER
LIEBHERR RUECKMELDUNG
SERIELLE ANBINDUNG
OBENDREHER

AVTS/VKSM

DAT. 11.08.2006

Z-NR.:



HBC-radiomatic gmbh

Technische Info – OS003010 LH B01 1

LH 32TTR(21945); LH98RM;120K(21809); 120K.1(22009);
770 SPS; EC-HM 112-156(22005); LC30-100(22033);
71K(21806); HCL160(21942); AC31(21898)

| Byte | Parameterkennung | Benennung | | Anzeigebereich |
|------|------------------|------------------------------|----------|-----------------|
| 0 | I301= | Ausladung float | Exponent | |
| 1 | | | Mantissa | - 99,9 – 99,9 |
| 2 | | | Mantissa | |
| 3 | | Last float | Exponent | |
| 4 | | | Mantissa | - 99,9 – 99,9 |
| 5 | | | Mantissa | |
| 6 | | Senktiefe float | Exponent | |
| 7 | | | Mantissa | - 99,9 – 99,9 |
| 8 | | | Mantissa | |
| 9 | | Drehwinkel float | Exponent | |
| 10 | | | Mantissa | - 999,9 – 999,9 |
| 11 | | | Mantissa | |
| 12 | | Fahrwerk float | Exponent | |
| 13 | | | Mantissa | - 99,9 – 99,9 |
| 14 | | | Mantissa | |
| 15 | | Windgeschwindigkeit float | Exponent | |
| 16 | | | Mantissa | - 999 – 999 |
| 17 | | | Mantissa | |
| 18 | I303= | Fehlernummer word | MSB | 0 – 9999 |
| 19 | | | LSB | |
| 20 | | Wartungsnummer word | MSB | 0 – 9999 |
| 21 | | | LSB | |
| 22 | | Meldungsnummer word | MSB | 0 – 9999 |
| 23 | | | LSB | |
| 24 | | Statusnummer word | MSB | 0 – 9999 |
| 25 | | | LSB | |
| 26 | I312= | | | |
| 27 | | | | |
| 28 | Checksumme | Xor Byte 0 - 27 | | |

| | S1-1 | S1-2 | S1-3 | S1-4 | BIT/S | Parity |
|----|------|------|------|------|-------|--------|
| 0 | | | | | ---- | ---- |
| 1 | * | | | | 1200 | Keine |
| 2 | | * | | | 1200 | Gerade |
| 3 | * | * | | | 2400 | Keine |
| 4 | | | * | | 2400 | Gerade |
| 5 | * | | * | | 4800 | Keine |
| 6 | | * | * | | 4800 | Gerade |
| 7 | * | * | * | | 9600 | keine |
| 8 | | | | * | 9600 | gerade |
| 9 | * | | | * | 14400 | keine |
| 10 | | * | | * | 14400 | gerade |
| 11 | * | * | | * | 19200 | keine |
| 12 | | | * | * | 19200 | gerade |
| 13 | * | | * | * | 38400 | keine |
| 14 | | * | * | * | 38400 | gerade |

* Schalter on

* Schalter on

c) Maximaler Ausgabezyklus

| S2-1 | S2-2 | S2-3 | ms |
|------|------|------|-------|
| * | | | 100 |
| | * | | 250 |
| * | * | | 500 |
| | | | 1000 |
| * | | * | 2000 |
| | | * | 5000 |
| | * | * | 8000 |
| * | * | * | 10000 |

* Schalter on

| S2-4 | S2-5 | S2-6 | Ms |
|------|------|------|------|
| * | | | 50 |
| | * | | 100 |
| * | * | | 200 |
| | | * | 300 |
| * | | * | 400 |
| | * | * | 600 |
| * | * | * | 800 |
| | | * | 1000 |

d) SPI mode (radiobus)

| | |
|------|--------------|
| S2-8 | |
| ON | Standartmode |
| OFF | Extendedmode |



HBC-radiomatic gmbh

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registration of a utility model or design.

e) Ausgabeprotokoll

| S3 1-4 | Protokoll | |
|--------|-----------|--------|
| 00 | --- | |
| 01 | A | |
| 02 | B | AC31-S |
| 03 | | |

f) Eingabeprotokoll

| S3 5-8 | Protokoll | |
|--------|-----------|--------|
| 00 | --- | |
| 01 | A | LIKAS |
| 02 | B | AC31-S |
| 03 | | |