

LINE TO RADIO
System LR 1
MANUAL 108

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Line to Radio Adaptor LR 1.

Preface.

Line to Radio unit LR 1 is designed for direct contact between a local exchange subscriber and a mobile operator. LR 1 makes the interface between a PAB (private automatic branch exchange) and the basestation's control equipment.

The basestation has to be duplex operated, and the talk through function is manual or semi-automatic.

Technical description.

The LR 1 adaptor is mounted in a black enameled 220 x 250 x 70 mm housing and designed to be mounted to a wall or placed on table. For wall mounting the unit has to be provided with special mounting brackets with turn locks which attach a wall bracket, and by this an easy removal in case of service is possible.

The in- and outlets of the unit is made by an 18-pin male "Painton" connector. To this connector is the connection to the "Sinus" control console and to the 6-pin "Hirschmann" connector. The 6-pin connector is designed for a wall socket receptacle, installed nearby the normal standard telephone wall socket receptacle.

Operation instruction.

By means of the button "RETRANS" on "Sinus" control console, every conversation going on via the telephone apparatus can be switched to a mobile station. The mobile operator converse in simplex or in duplex if the mobile is provided with this. As long as the "Talk through" is switched on, the transmitter is keyed for duplex operation and this is indicated by a key-lamp. When the mobile answers, the busy lamp (OPT) will lit constantly (local control) or twinkle with the voice (remote control). During the conversation with the mobile the conversation is monitored from the loudspeaker and thus make the operator able to hear when the conversation has finished. If this is not heard or forgotten there is a possibility for the mobile operator to cancel the talk through function, just by pressing his selective call button for normal call to the base station operator. By this the decoder on the base station will be activated and cancel the talk through. On the console this indicated by the "RETRANS" lamp which extinguishes. Now, when the "RETRANS" button is depressed, and another talk through is wanted, the "RETRANS" button has to be released, and once more depressed and the talk through is reestablished.

This possibility for the mobile operator to cancel the talk through saves time for the base station operator.

Night Key.

If the operator leaves the control site there is a build in option in LR 1 for automatic control, but only in direction from a subscriber to a mobile. The subscriber dials the local telephone number, and the station will be in the air, but only vocally. Therefore, with "night key" operation, all mobiles will have to switch off their selective call, and as a matter of fact, no calls from the mobile to a subscriber is possible.

This night key operation is only possible, if the exchange has been modified for this option. The modification has to be made by technicians from the company which are responsible for the exchange. To control this function, an extra telephone line has to be used, with an 48 V DC which keyes the transmitter in duplex operation, and simultaneously the black switch button on the housing, has to be switched on (down). When the subscriber has finished, the 48 V DC disappears, and talk through is cancelled.

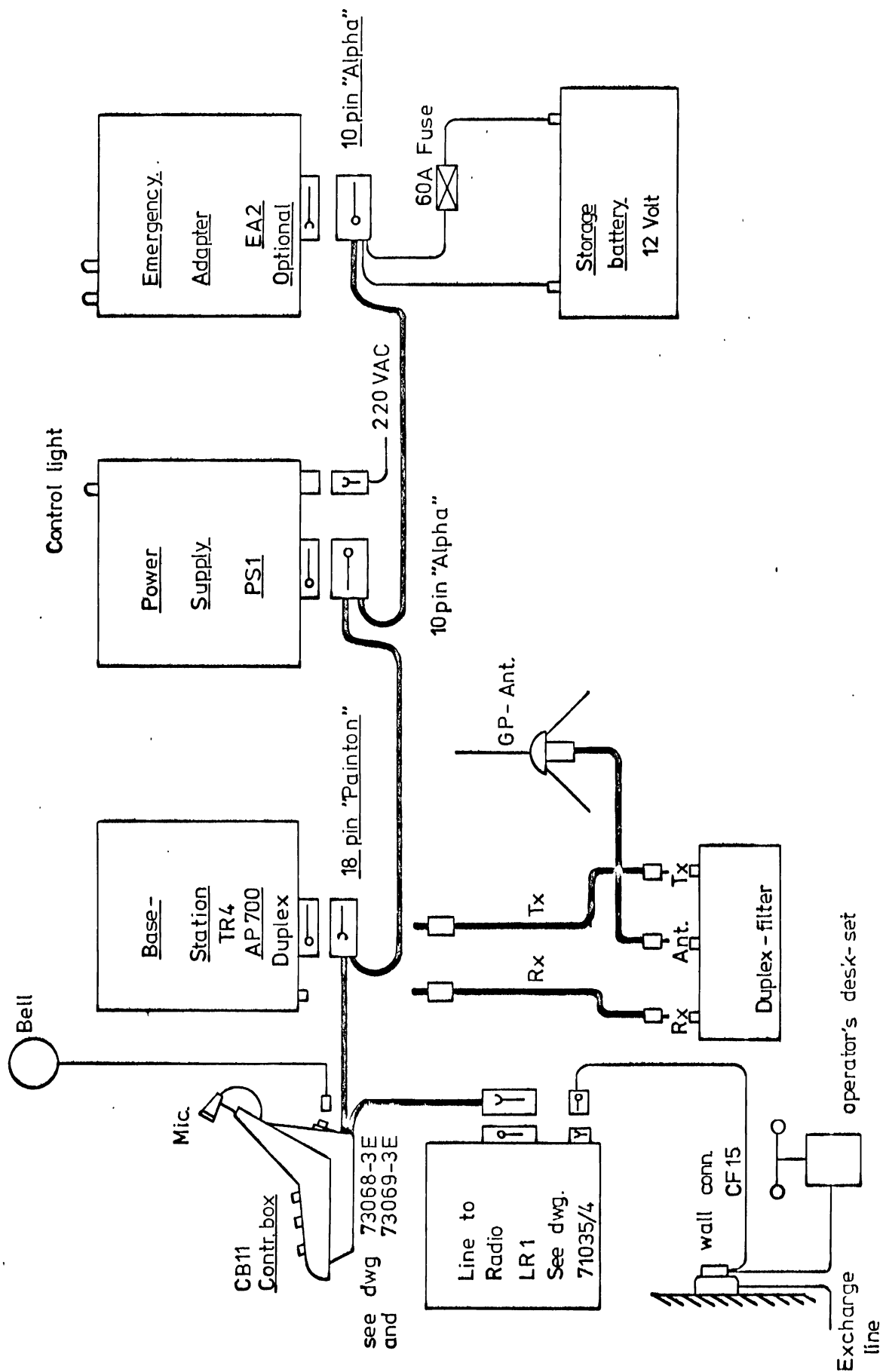
Authorities.

Generally the telephone companies and the Post-& Telegraph Companies deny allowance to have the subscriber radio number with possibility to switch to a mobile, if the subscriber is from the public site. In this way the radio number has to be L- (for local) coupled, so that no one outside the local exchange can be connected to a mobile station.

E.Folling

1.10.1972.

In case of emergency look
for Emergency Adaptor EA2
see Instruction Manual 57



Rettet:

Line to Radio system LR1
for local control.

Tegn.: 29-6-73
AC

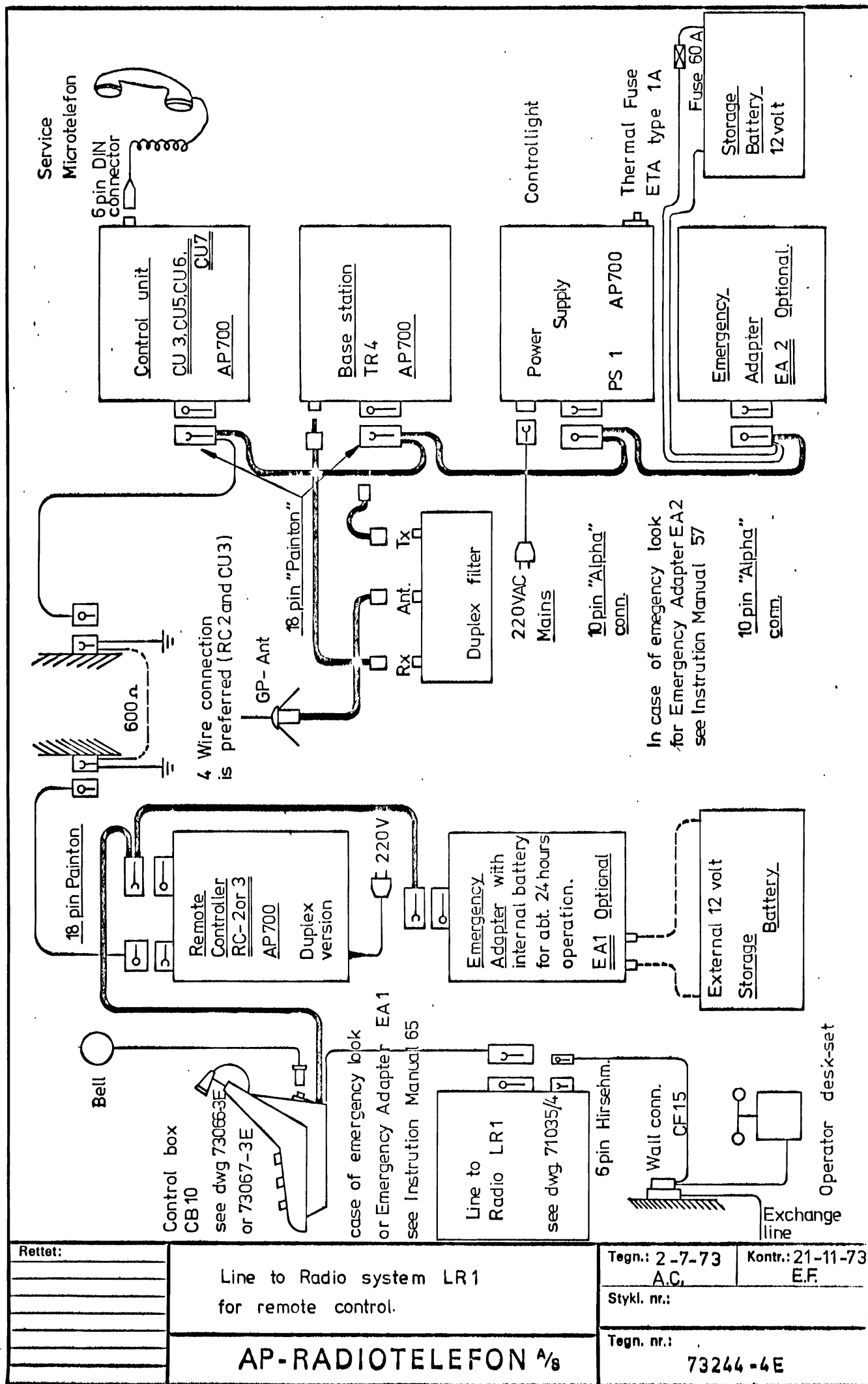
Kontr.: 20-11-73
E.F.

Stykl. nr.:

Tegn. nr.:

AP-RADIOTELEFON A₈

73242 -4F



Rettet:

Line to Radio system LR1
for remote control.

AP-RADIOTELEFON A/8

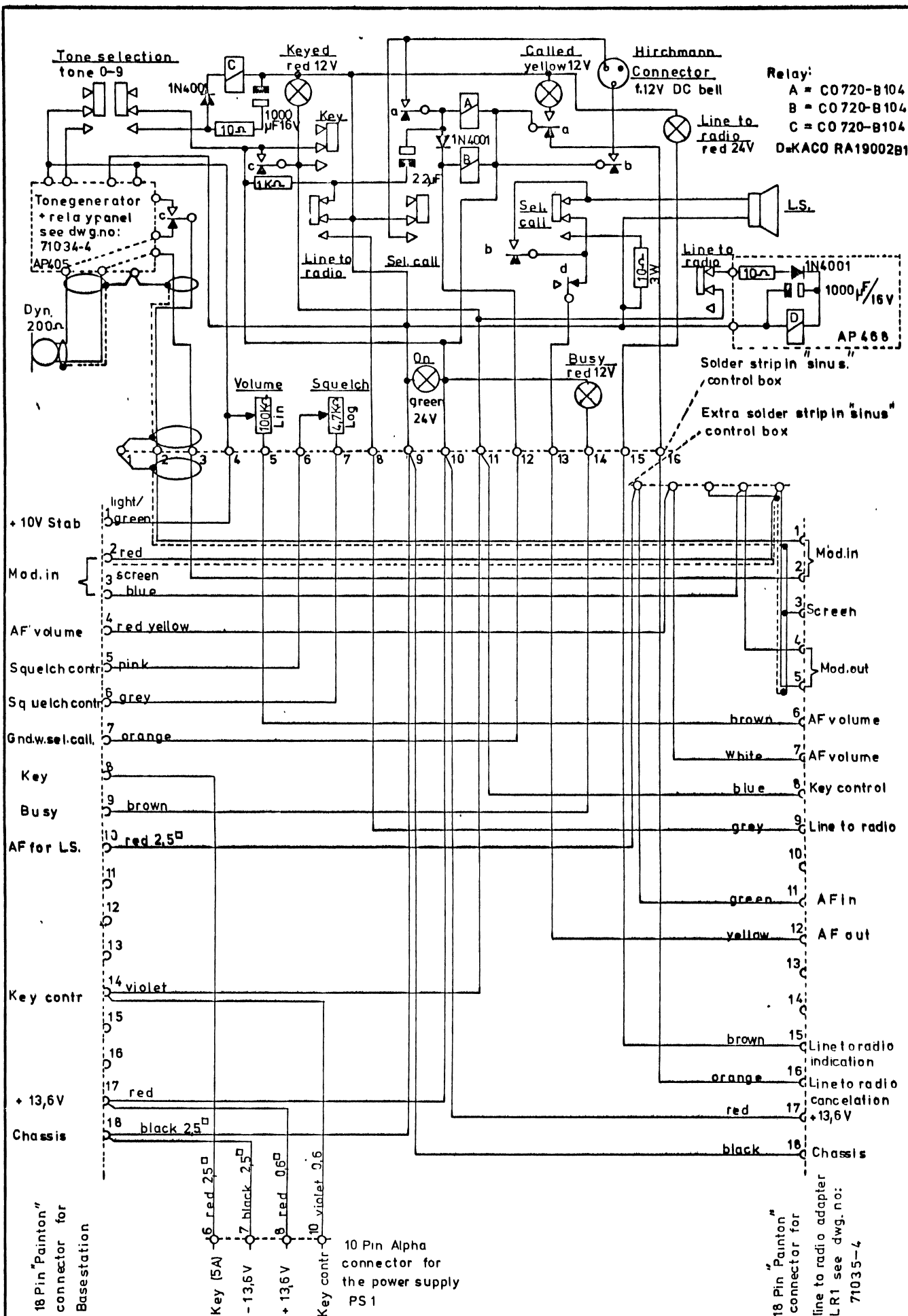
Tegn.: 2-7-73
A.C.

Stykl. nr.:

Tegn. nr.:

73244-4E

Kontr.: 21-11-73
E.F.



Rettel:

Sinus Control box CB11 for local control

(designed for line to radio LR1)

AP-RADIOTELEFON

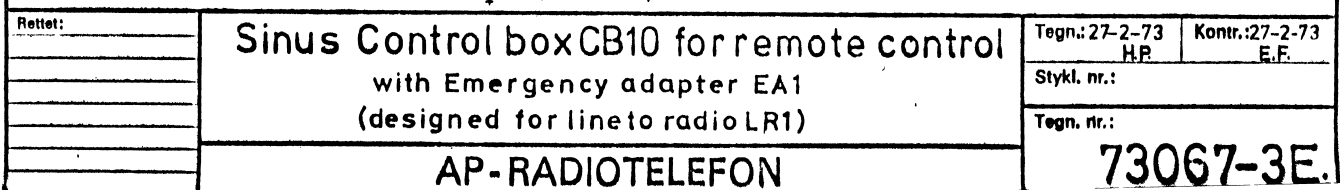
Tegn.: 1-3-73

Kontr.: 1-3-73

Stykl. nr.:

Tegn. nr.:

73068-3E



Adjustment procedure for LR 1. - See diagram 71o35/4.

LR 1 must be connected to the control equipment. The "repeater-button" is pushed down and R 18 = 220 Ω , the monitoring potmeter, is turned on, until signal is audible in the loud speaker. Then a 600 Ω resistor is to be connected between pin 3 and pin 5 at the 6-pin "Hirschman" connector. An AC millivoltmeter shunted with an oscilloscope is shunted to the 600 Ω resistor, and the volume potmeter R 17 = 100 k Ω is adjusted to 0 dBm (0,775 V). At R 18 faint monitoring is adjusted. The AC millivoltmeter is connected across R 19. It is placed below one of the line-transformers. R 16 = 2,2 k Ω must be adjusted for min. signal. By this the hybrid balance is adjusted. Now a tonegenerator must be connected (impedance more than 5k Ω across the 600 Ω resistor on Hirschman connector. The output voltage of the tonegenerator must be adjusted to 0,775 V (0 dBm) and R 15 adjusted to 0,775 V on the line from RC 2 or RC 3 as far as the distant controlled version is concerned. By the local controlled version the transmitter deviation is adjusted to 3,5 kHz frequency swing per transmitter.

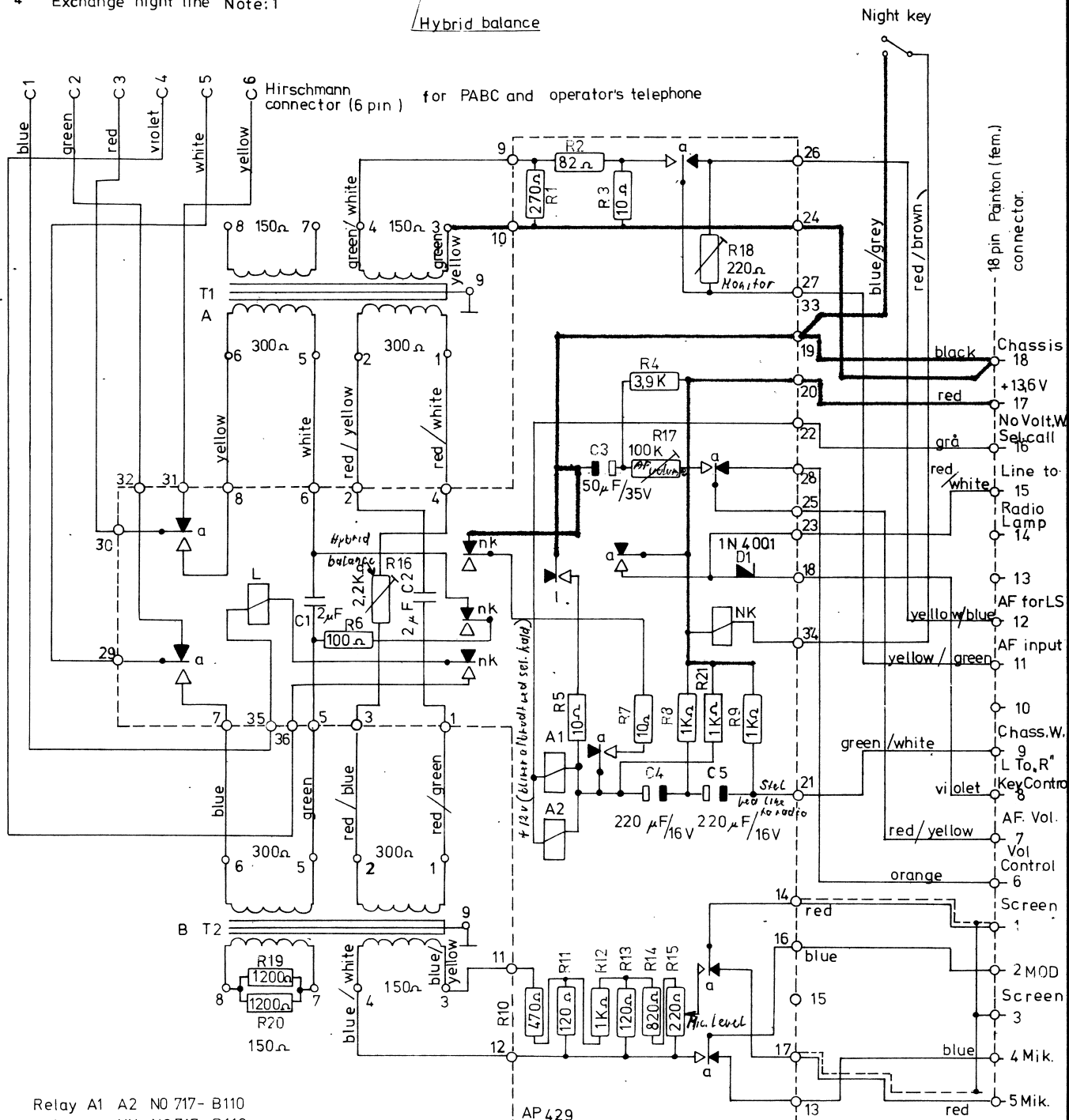
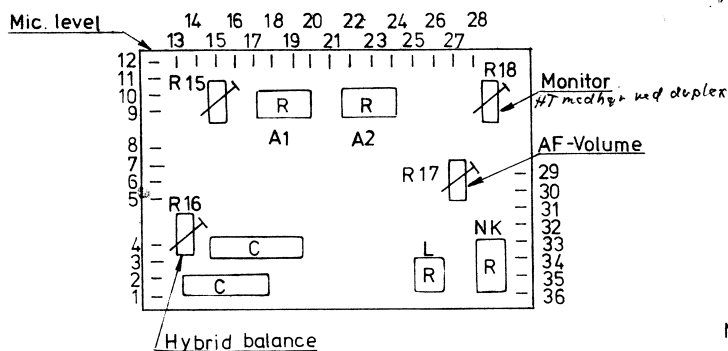
By pressing down the KEY-button the REPEATER-button releases. Even if the REPEATER-button is pressed down, the "line to radio" talk through connection can be cancelled as it is prepared for cancelling from the mobile site, when the operator has finished his conversation. The mobile makes a call for the main-station; by this the talk through connection will be cancelled. If the talk through connection is wanted again, the operator of the base station must release the REPEATER-button and press this down again.

The LR 1 unit is provided with a night-key switch to utilize a semi-automatic function of talk through connection. Switched on LR 1 is changed over to be activated by a line voltage across pin 1 and 4 of 25-50 V DC. Hereby the line relay L will key the transmitter and the talk through connection is established.

This extra line voltage has to come from a special line, available in the exchange. This line is only to be established on approval by the local authorities for the telephone exchange.

75506-4E

- 2- 6 Operator's telephone
3- 5 Exchange line
1- 4 Exchange night line Note:1



Relay A1 A2 NO 717- B110
Relay NK NO 717- B110
Relay L Arco 1402
T1 - T2 Linetra 2 x 150n ; 2 x 300n

Note 1: Night key operation

The exchange must be installed with facility to connect 48V to pin1, and 4 each time the number is called.

Rettet: 29-10-73 HP
22-10-75 AC/EF

OPERATOR CONTROLLED LINE TO RADIO ADAPTER.
LR1 AP 429a/1

AP-RADIOTELEFON

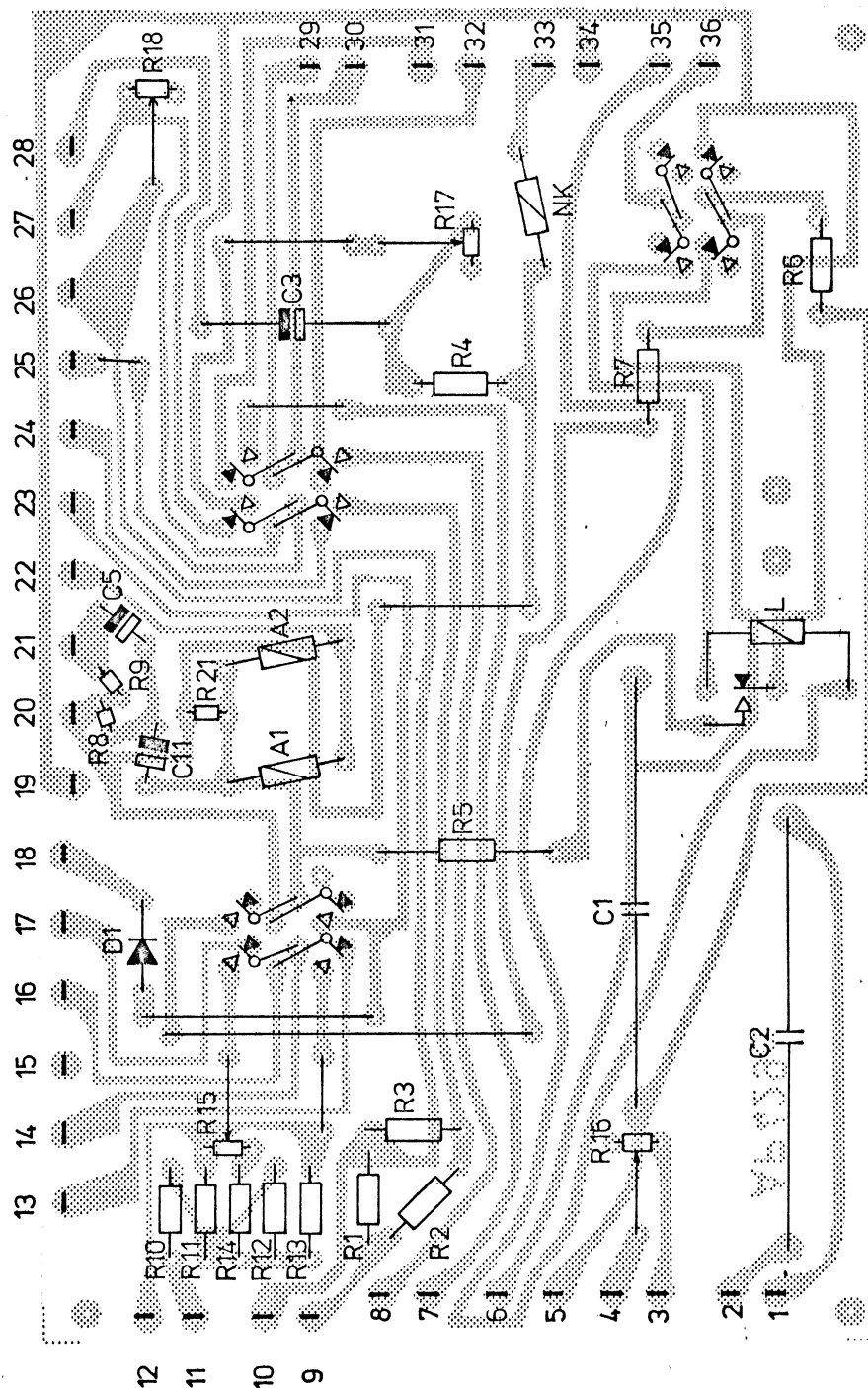
Tegn.: 18.1.71
BEP

Kontr.: 4.2.77
GAV

Stylk. nr.: 71051-4S

Tegn. nr.:

71035-3E.



Rettet:

Operator controlled line to radio adapter
LR1 AP429a/1

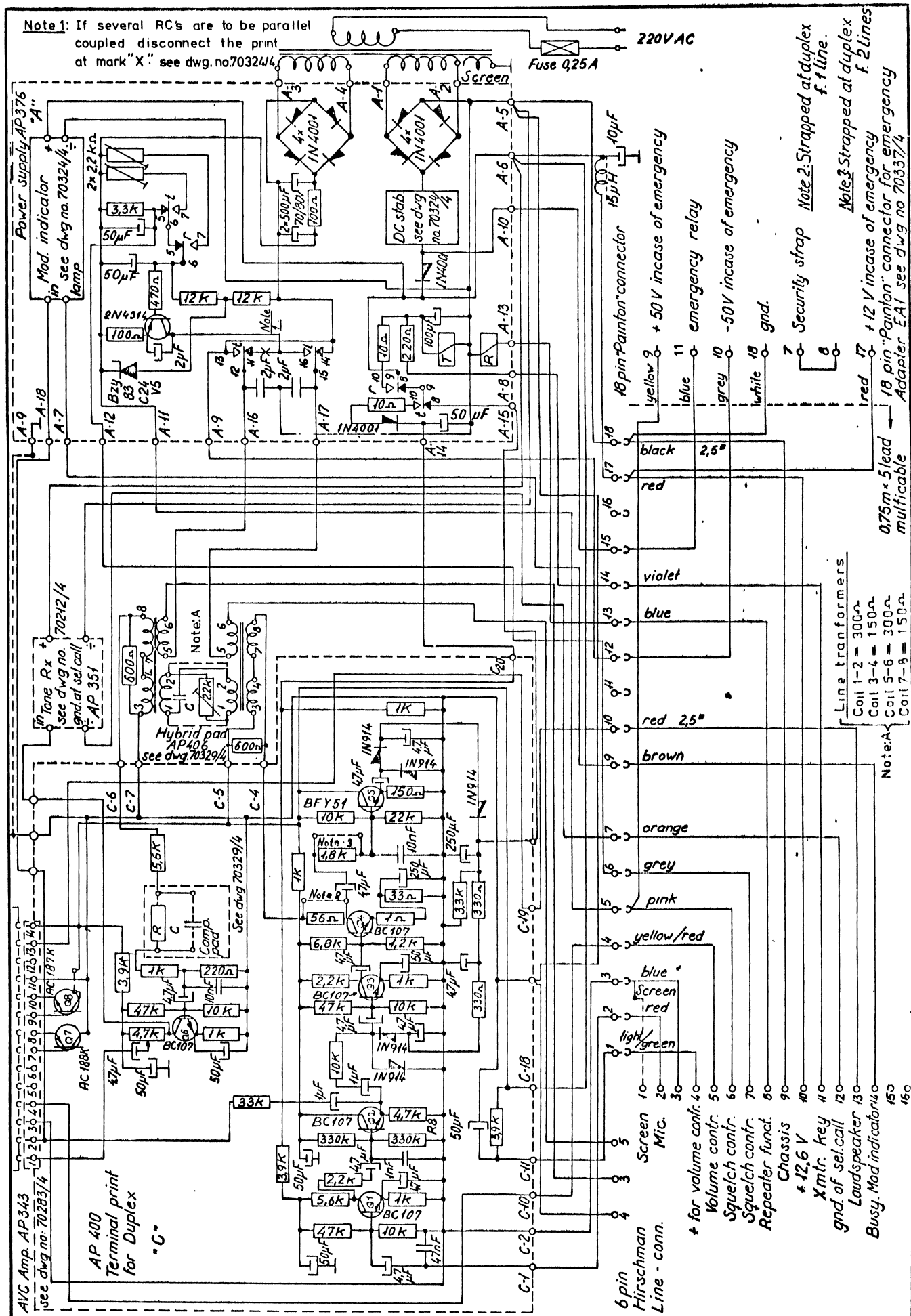
AP-RADIOTELEFON 1/2

Tegn.: 22-10-75 Kontr.:
AC

Side: 2

Tegn. nr.:
71035-4E

Nr.	Kode	Data	Nr.	Kode	Data
R 1		270 Ω $\frac{1}{4}$ w			
R 2		82 Ω $\frac{1}{4}$ w			
R 3		10 Ω $\frac{1}{4}$ w			
R 4		3,9 k Ω $\frac{1}{4}$ w			
R 5		10 Ω $\frac{1}{4}$ w			
R 6		100 Ω $\frac{1}{4}$ w			
R 7		10 Ω $\frac{1}{4}$ w			
R 8		1 k Ω $\frac{1}{4}$ w			
R 9		1 k Ω $\frac{1}{4}$ w			
R10		470 Ω $\frac{1}{4}$ w			
R11		120 Ω $\frac{1}{4}$ w			
R12		1 k Ω $\frac{1}{4}$ w			
R13		120 Ω $\frac{1}{4}$ w			
R14		820 Ω $\frac{1}{4}$ w			
R15		220 Ω $\frac{1}{4}$ w			
R16		2,2 k Ω $\frac{1}{4}$ w			
R17		100 k Ω $\frac{1}{4}$ w			
R18		220 Ω $\frac{1}{4}$ w			
R19		1200 Ω $\frac{1}{4}$ w			
R20		1200 Ω $\frac{1}{4}$ w			
R21		1 k Ω $\frac{1}{4}$ w			
C 1		2 μ F MP Kond			
C 2		2 μ F MP Kond			
C 3		50 μ F/35V			
C 4		220 μ F/16V			
C 5		220 μ F/16V			
D 1		1N 4001			
Operator Controlled Line to radio adapter. LR 1 Tilhører tegn. nr.: 71035-3E			Rettet:		Tegn.: HP Konf.: EF
					Stykl. nr.: 71051-4S



73329-3E.

Service hand-set TA3

Mic.

Key

telephone

blue

red

red

yellow

yellow

black

6 pin DIN connector

6599



CU5

Tegn.: 6-9-73
H.P.

Kontr.: 6-9-73
E.F.

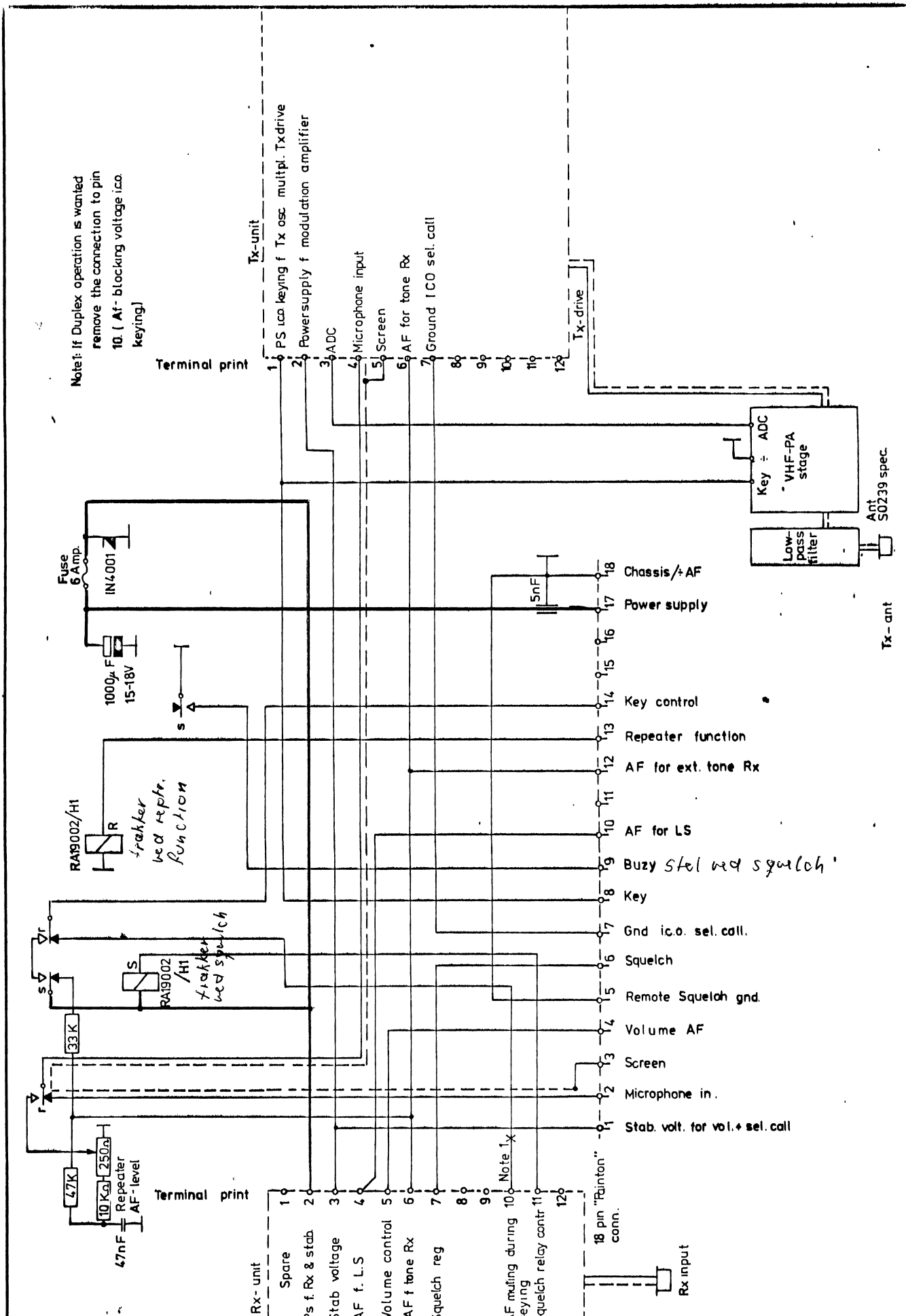
Stykl. nr.: 73323-45

Tegn. nr.:

73323-3E

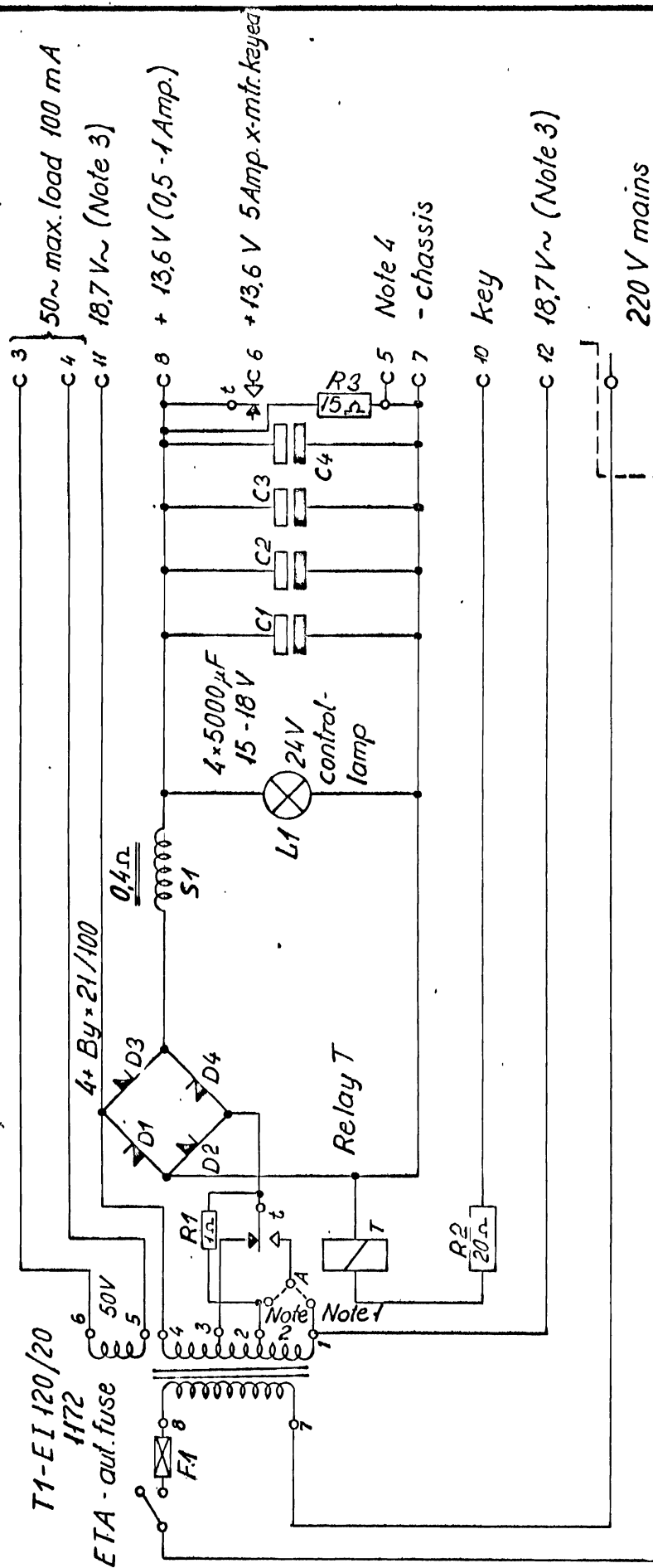
Nr.	Kode	Data	Nr.	Kode	Data
T 1		Linetrafo 42aK/3966			
T 2		Linetrafo 42aK/3966			
		partlist see 406 Drawing no. 73333-4E			
		partlist see 388 Drawing no. 70367/4			
Control unit for Duplex, 1 line manual controlled repeater function Tilhører tegn. nr.: CU 5 73323-3E			Rettet:		<div>Tegn.: HP</div> <div>Kontr.: EF</div>
					Stykl. nr.: 73323-4S

Nr.	Kode	Data	Nr.	Kode	Data
T 1		Linetrafo 42aK/3966			
T 2		Linetrafo 42aK/3966			
R 1		270 Ω			
		partlist see 388 Drawing. no. 70367/3			
Control unit for Duplex 12 lines man.contr.Repeater function art: CU 3 Tilhører tegn. nr.: 73329-3E			Rettet:		<div>Tegn.: HP</div> <div>Kontr.: EF</div> <div>Stykl. nr.: 73329-4S</div>

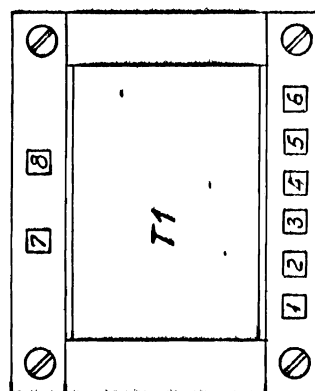


Rettet: 	BASESTATION WITH REPEATER, SEL. CALL AND DUPLEX OPERATION. AP700. TR4	Tegn.: 10 11. 70 BEP	Kontr.: 10 11. 70 EF
		Stykl. nr.:	
		Tegn. nr.:	
		70415 / 4	

10 pin "Alfa" conn. (female)



- Note 1: With 25 W connect A to pin 1
Note 2: With 6 W connect A to pin 2
Note 3: May not be used with galvanic connection to the 13.6 V DC.
Note 4: Remove strap if power supply shall be used in connection with a emergency adapter.



Notice: As the PS when not in connection with an emergency adapter, can destroy the base station. The PS should be tagged clearly that the strapping (Note 4) is removed.

Erstatter 68146/4

Rettet:

AP 700 PS1
Power supply for base station

AP-RADIOTELEFON

Tegn.: UK.

Kontr.:
1/9-70 E.F.

Stykl. nr.: 70245/4

Tegn. nr.: 70240/1

Nr.	Kode	Data	Nr.	Kode	Data
R1		1 ohm 3 W			
R2		20 ohm "			
R3		15 ohm 15 W			
C1		5000 mF/15-18v			
C2		5000 mF/15-18v			
C3		5000 mF/15-18v			
C4		5000 mF/15-18v			
S1		0,4 ohm choke			
D1		BY 21/100 R			
D2		BY 21/100 R			
D3		BY 21/100 N			
D4		BY 21/100 N			
F1		Aut. Fuse ETA			
Rel. -T		V23006-A0008-A192			
L1		24v/3W lamp			
T1		EI 120/20 1172 trafo			
Power Supply for Base Station PS1 AP 700 Tilhører tegn. nr.: 70240/4			Rettet:		Tegn.: EB Kontr.:
					Stykl. nr.: 70245/4