

MANUAL ~~38~~ 138

AP 2000 MOBILE

4 M BAND

This manual covers the type numbers:

AP 2455, AP 2456, AP 2457, AP 2458

AP 2460, AP 2461

AP 2465, AP 2466, AP 2475, AP 2476

AP 2415, AP 2425

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Print boardDrawing number

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## Technical Data AP 2000 Series 4 m.

### General:

The equipment is homologated in several countries where the technical requirements are based on the CEPT Recommendation T/R 17.

Frequency range:	68 - 88 MHz
Principle:	Digital frequency synthesizer
Number of channels:	Max. 80
Channel spacing:	25 kHz or 20 kHz
RF-bandwidth:	typ. 2 MHz at 1 dB reduction
Mode of operation:	Simplex, semi-duplex.
Supply voltage:	12 V DC chassis negative - nom. 13,2V. DC-DC converter available for 6V, 24V and 12V chassis positive operation. A 220V AC supply is available too.
Supply voltage variations:	10,8V to 15,6V
Operation Temperature:	% 25°C to + 60°C
Frequency stability:	typ. + 10 ppm for the above specified temperature and supply voltage variations
Loudspeaker:	External 4Ω
Microphone:	1 kΩ condenser microphone or 200Ω dynamic close talk micro- phone with push-button
Antenna impedance:	50Ω
Power consumption:	At 13,2 V reception approx. 0,25 A transmission { 25W approx. 5,5A { 6W       "       2,0A

### Receiver:

Sensitivity:	typ. 0,4μV ( $\frac{1}{2}$ E.M.F.) for 20 dB SINAD.
Adjacent channel sensitivity:	typ. 75 dB (CEPT Method)
Spurious and image rejection:	typ. 80 dB (CEPT Method)
Intermodulation attenuation:	typ. 71 dB (CEPT Method)
Undesired conducted power:	typ. 0,5 nW
Deemphasis:	Following 6dB per octave curve from 0,3 to 3 KHz within +1-3dB relative level at 1000 Hz

Audio output power:	3 Watts into 4 $\Omega$ at 10 per cent distortion, 13,2V supply voltage
Output for microtelephone:	1mW in 300 $\Omega$
Hum and noise:	Typ. 50 dB (CEPT Method)
Function of limiter:	Less than 1dB variation in output voltage for RF-input levels between 1 $\mu$ V and 100 mV EMF
 <u>Transmitter:</u>	
Power output:	6 W $\pm$ 0,5 dB, 10-25 W -1 + 0,5 dB from $\%$ 25 $^{\circ}$ C to + 60 $^{\circ}$ C and supply voltages between 10,8V and 15,6V with external PA: 25W + 0dB $\%$ 2dB from $\%$ 25 $^{\circ}$ C to + 60 $^{\circ}$ C and supply voltages between 10,8V and 15,6V
Spurious outputs and harmonics:	typ. each less than 2 $\mu$ W into 50 $\Omega$
Adjacent channel power:	typ. 80dB below the output power
Frequency deviation:	max. $\pm$ 5 kHz
Preemphasis:	Following 6dB per octave curve from 0,3 to 3 kHz within $\pm$ 1-3dB relative level at 1000 Hz
Harmonic distortion:	typ. 1 per cent at $\pm$ 3kHz deviation and 1000 Hz modulation frequency
Hum and noise:	typ. 45 dB relative $\pm$ 3kHz deviation and 1000 Hz modulation frequency (CEPT Method)

## Technical description for AP 2000 4 M

### RECEIVER (Fig. 1)

#### Aerial switch (75127-4E2 or 75129-4E2)

The aerial switch is made by a relay, while C 1, TR 1 and D 1 makes a forward power sensing circuit for the transmitter.

#### 1st mixer (75128-4E2)

The front end consist of three tuned circuits to give the necessary selectivity.

The first mixer converts the RF-signal 68-88 Mc to 21,4 Mc with an oscillator injection of 89,4-109,4 Mc on gate 2. Matching of the mixer output impedance to the crystal filter is made by the tuned circuit L 6.

#### 21,4 Mc and 455 kc IF (75076-3E2)

The 21,4 Mc crystal filter is followed by a dual-gate Mos-amplifier which gives approximately 20 dB gain. This stage is followed by the second mixer which converts 21,4 Mc to the low IF 455 kc. The second mixer consists of an integrated double-balanced transistor mixer, in which one section is used as the crystal oscillator. An emitter follower with some RC low-pass sections feeds the signal to IC 2, which is an integrated high gain amplifier/limiter and quadrature detector. The coil L 4 is the detector phase shift network. AF output is supplied by the emitter follower Q 3.

#### AF-amplifier, squelch and key circuit (75017-3E2)

The AF-signal goes through an amplifier stage Q 6 to the volume control circuit. Here, the diodes D 1, D 2 and D 3 act as an

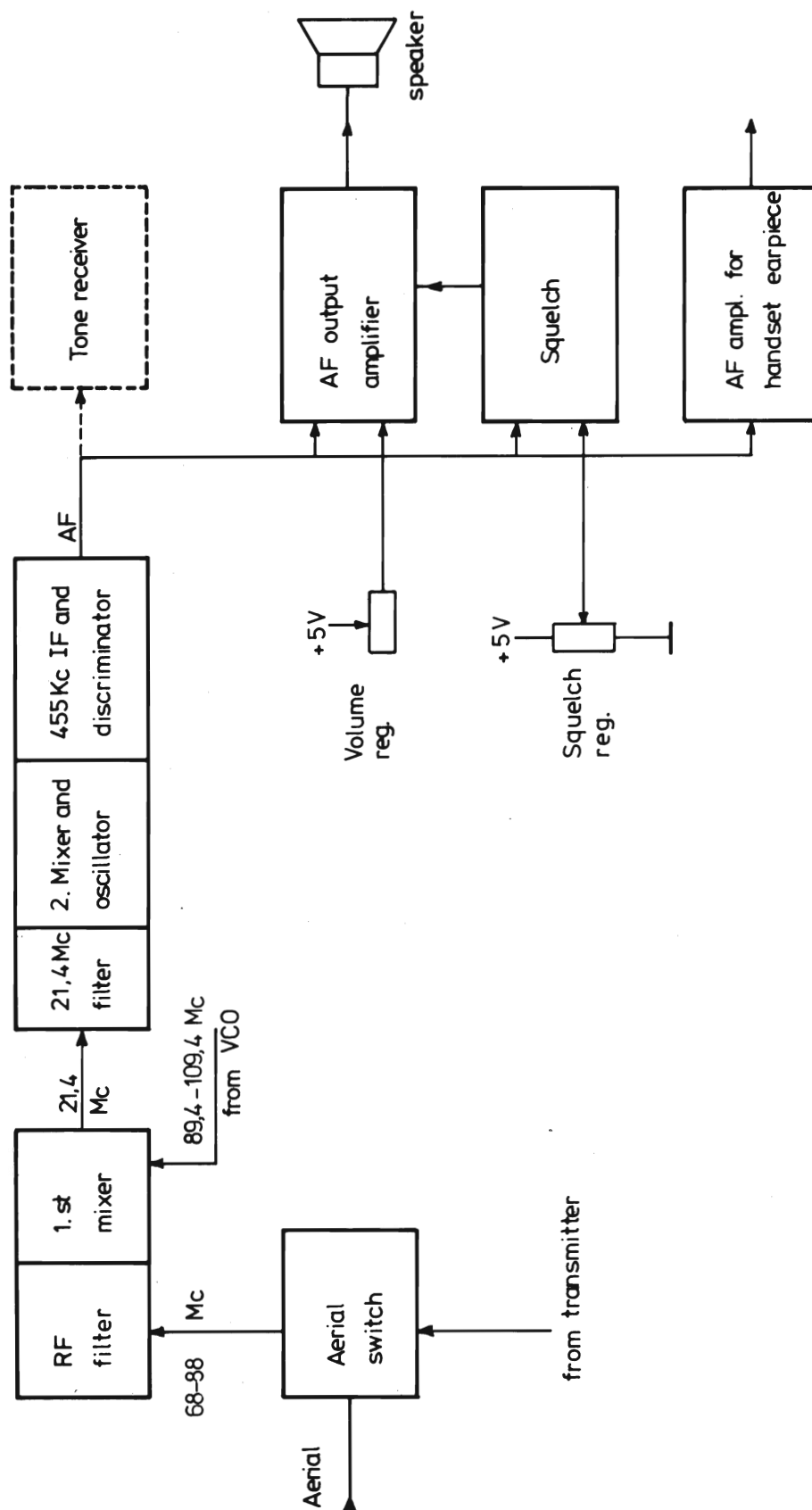


Fig. 1

Rettet:     	Technical description for AP 2000, 4m band		Tegn.: 30-4-75 AC	Kontr.:
			Page: 2	
	<b>AP-RADIOTELEFON 4m</b>		Tegn. nr.: 75375-4E2	

electronic attenuator regulated by the diode current. This circuit is also used for external AF-blocking and squelch. An integrated AF output amplifier is used for the 3 W loudspeaker output and here the feedback-capacitors C 6 and C 7 produce the deemphasis.

For the handset earpiece Q 4 and Q 5 makes an amplifier while D 15 is blocking. The squelch circuit consists of an 8 kHz tuned amplifier Q 3 followed by a detector D 11 and D 12.

With increasing noise level on the AF-input the voltage on the negative side on C 19 will decrease from + 5 V. Getting lower than the squelch reg. voltage on point 7, the amplifier IC 2 switches over to an output voltage of + 5 V and thus blocking the AF-output through the volume control circuit.

In the key control circuit Q 1 and Q 2 goes ON when button in the handset connects point 11 to chassis, thus producing + 12 V on point 14. A positive voltage applied on point 10 will inhibit this function.

#### TRANSMITTER (Fig. 1, 3 and 4)

##### Transmitter mixer and amplifier (78031-3E2)

Because the VCO has a frequency 21,4 MHz higher than the operating Rx-frequency, this signal fed to the transmitter mixer and converted to the desired transmitting frequency. For simplex operation the necessary 21,4 MHz signal comes from a combined crystal oscillator/doubler. Thus the crystal will be 10,7 MHz. For good suppression of VCO - and 21,4 MHz injection the Tx-mixer is an integrated circuit IC 1, which is balanced on both inputs. Amplifier stages Q 1, Q 2 and Q 3 gives further suppression of unwanted sidebands and the necessary amplification to reach an output level of approx. 35 mW.

##### 6 W power amplifier (75146-4E2)

The 6 W power amplifier consists of two stages Q 1 and Q 2 where the output level can be regulated by varying the supply voltage for Q 1.

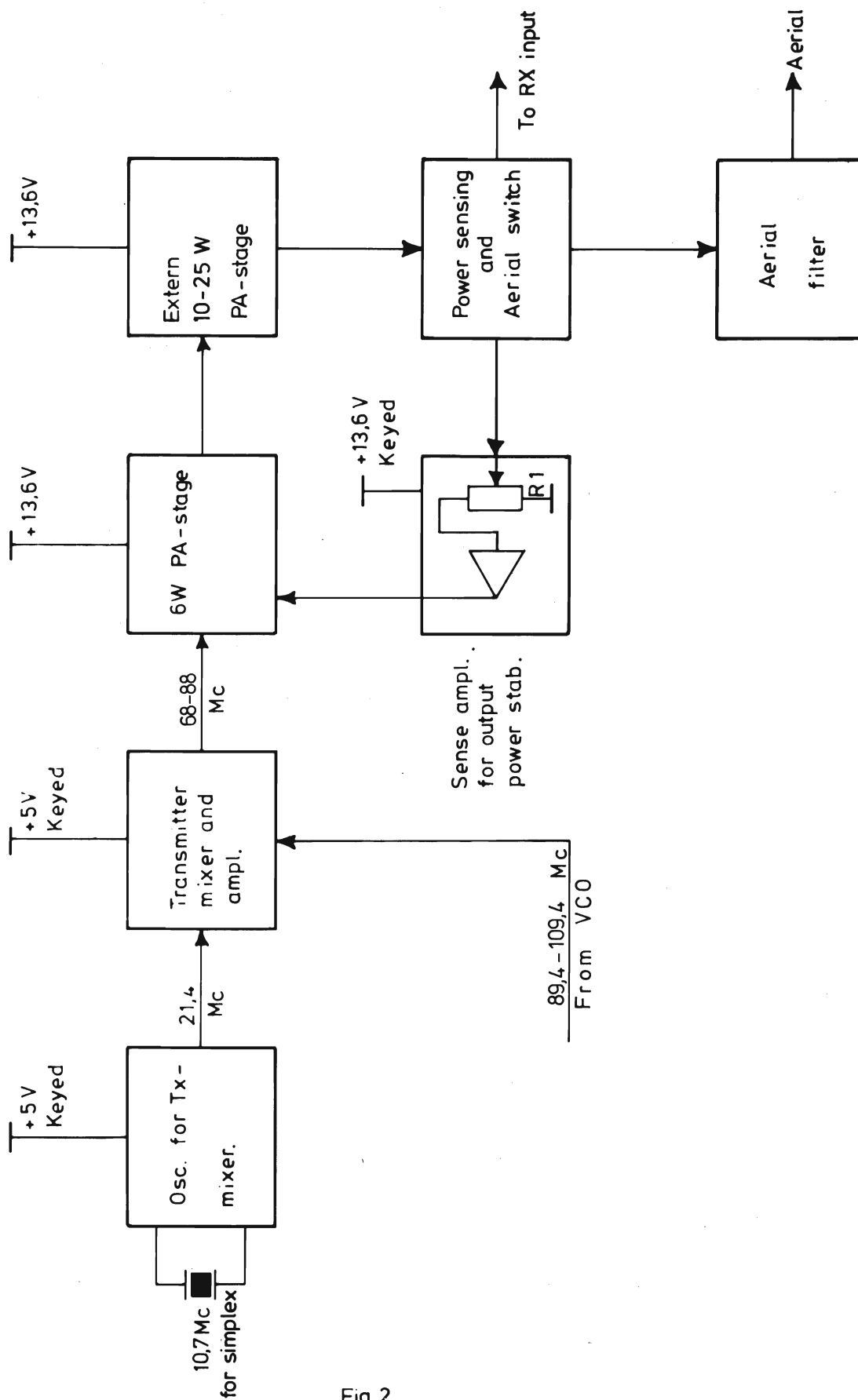


Fig. 2

Rettet:

Technical description for AP 2000,4 m band  
10-25W extern

AP-RADIOTELEFON 4

Tegn.: 6-8-75  
AC

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Page: 4

Tegn. nr.:

75375-4E2

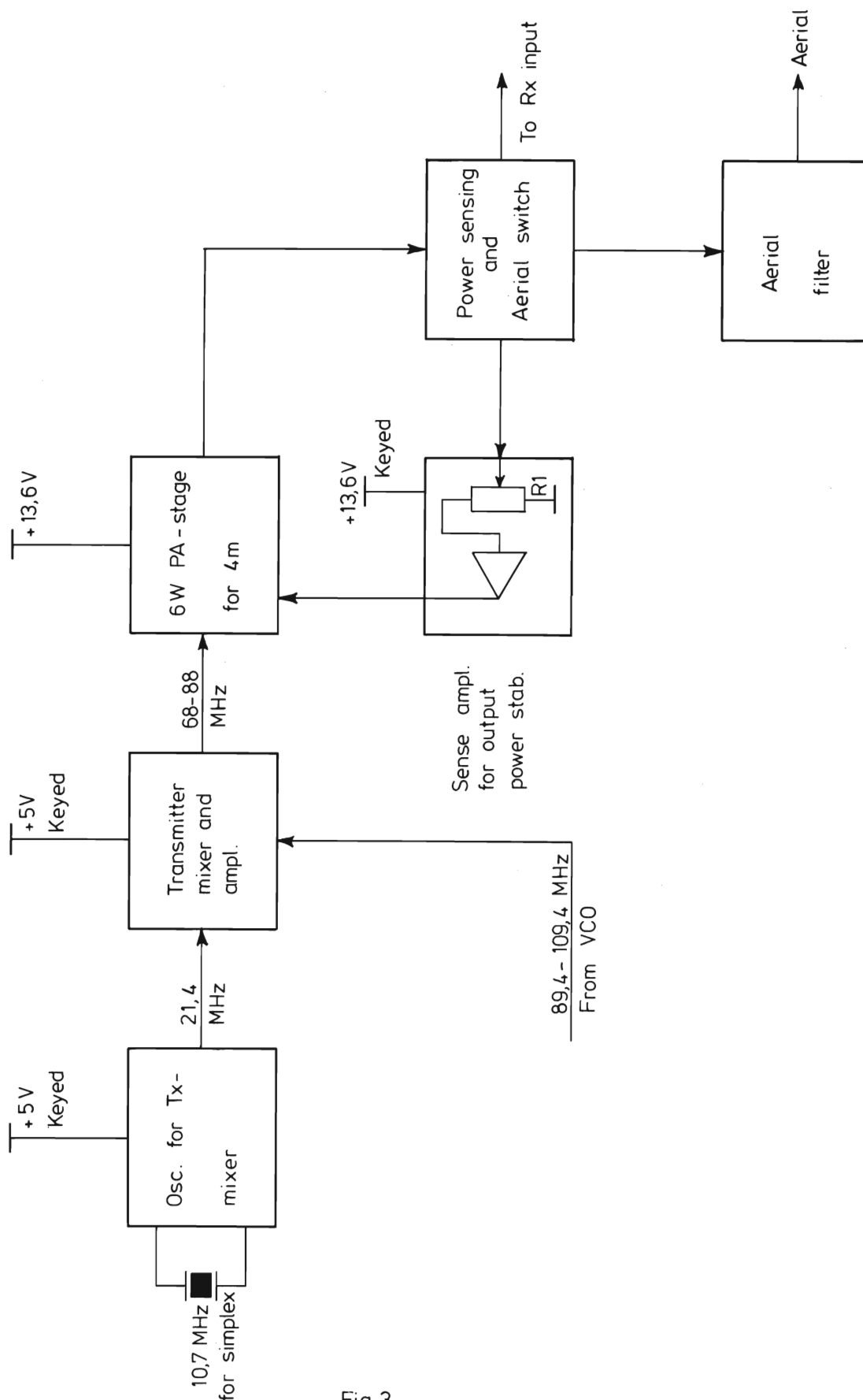


Fig.3

Rettet:	Technical description for AP 2000 4m band 6 W PA-stage	Tegn.: 7-6-78 AMC		Kontr.:
		Stykl. nr.: Page:5		
		AP-RADIOTELEFON A/s	Tegn. nr.: 75375- 4E2	

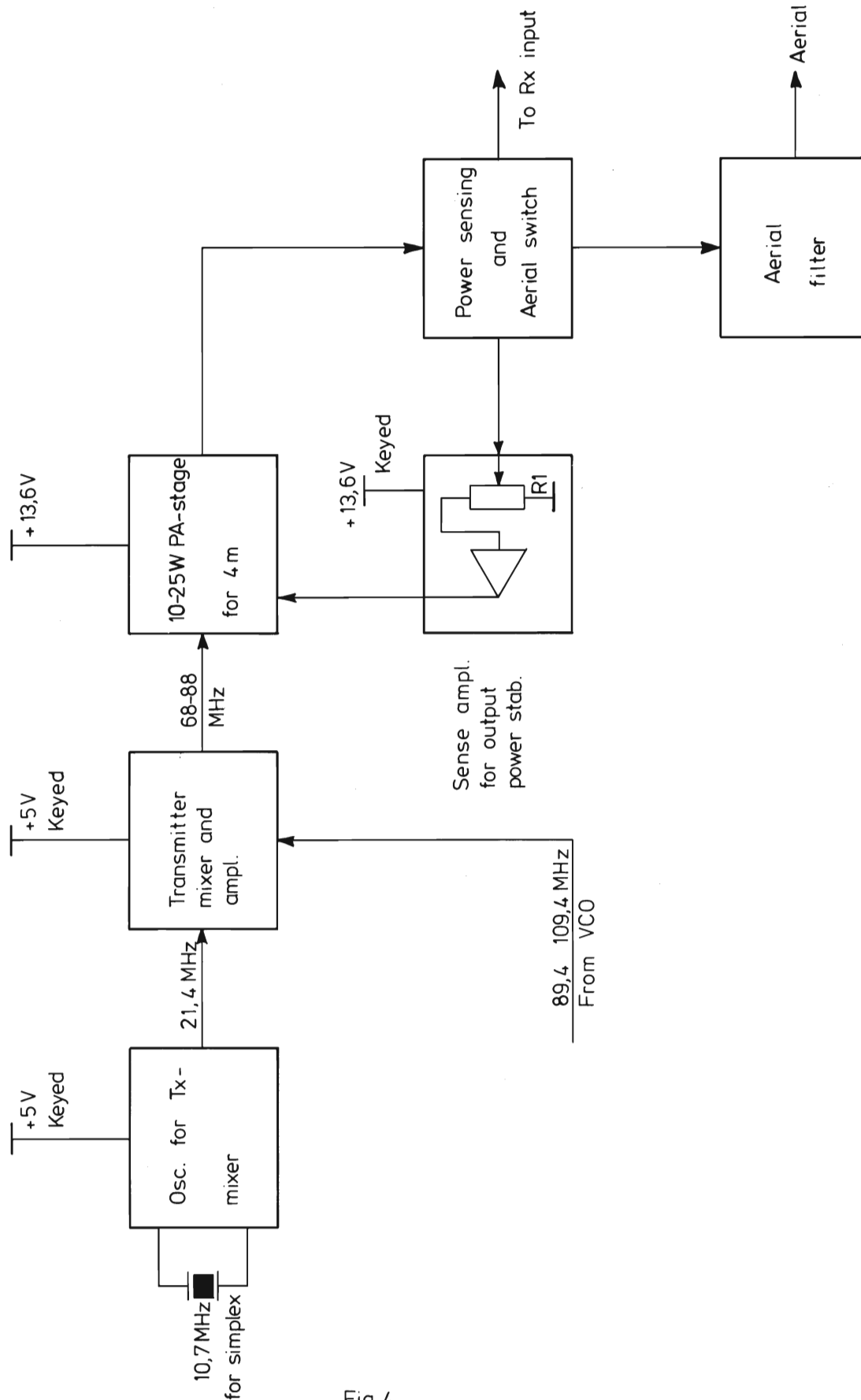


Fig. 4

Rettet:     	Technical description for AP2000, 4 m band 10-25W PA-stage	Tegn.: 7-6-78 AMC	Kontr.:
		Stykl. nr.: Page: 6	
	<b>AP-RADIOTELEFON A/s</b>	Tegn. nr.: 75375 -4E2	

#### 10-25 W power amplifier (76348-4E2)

This power amplifier consists of three stages Q 1, Q 2 and Q 3 of which Q 1 is getting its power supply from the power regulation circuit. In this way it is possible to adjust the output power to any desired value between 10-25 W. This amplifier is only intended for intermittent service. It is therefore provided with a thermal shutdown circuit. (76328-4E2)

#### 10-25 W power cassette (75152-4E2)

This stage consists only of one transistor Q 1, here as well the output goes through a forward power sensing circuit, making it possible to adjust the output power by means of a potentiometer located on print board B 24.

This stage is intended for continuous operation and is therefore located in an external cassette in order to get sufficient cooling.

#### Output power stabilizing (75622-4E2 and 76325-4E2)

From the power-sensing circuit a DC voltage proportional to the forward power is led to an amplifier. Here it is compared to a zener-voltage, and if it is greater than this threshold level, the amplifier IC 1 will give a lower output voltage for the supply of Q 1 and thus reducing the drive level. This will act in the following manner:

For low supply voltages (~11 V) the output power will increase with increasing supply voltage, and when the output reaches the desired value it will be constant for further increase in supply voltage. The output level is adjustable with R 1 on B 57 for internal PA-stage, and with R 2 on B 24 for external PA-stages. Note that the oscillator for Tx-mixer, the transmitter mixer and amplifier, and sense amplifier have keyed supply lines, while the final transistor in the 6 W stage and the 10-25 W external stage are supplied independent of the key. In the 10-25 W internal PA-stage the last two transistor are supplied independent of the key.

#### Aerial filter (75130-4E2)

The aerial filter is a low-pass filter for suppression of the harmonics from the transmitter.

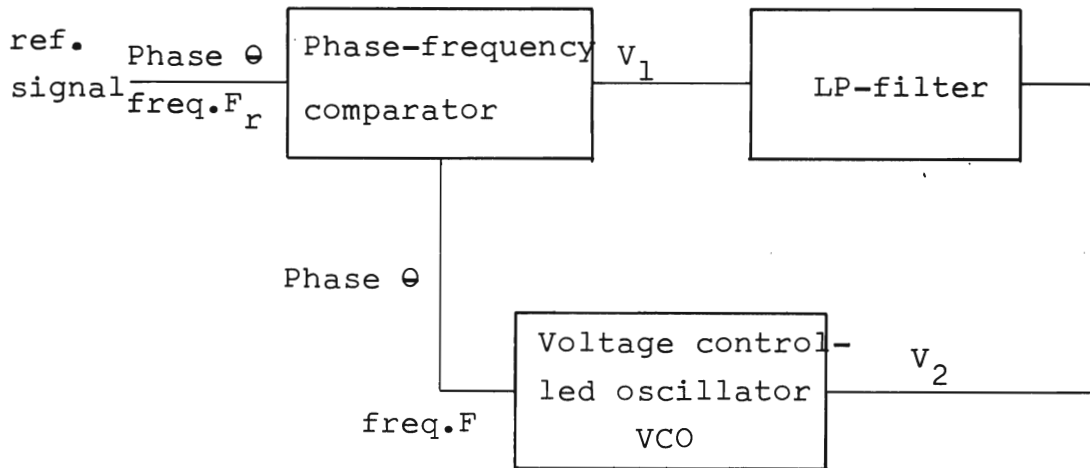
### Modulation amplifier (75018-3E2)

The modulation amplifier has a preamplifier Q 1 for the most sensitive input (input 1). Using the less sensitive input 2, the Mic. switch terminal shall have + 5 V so that Q 1 will be blocked via D 3 and D 4 will be conducting for the input signal to IC 1 is blocked via D 2. D 5 is used for blocking of the modulation amplifier while receiving in simplex mode. IC 1 and the first part of IC 2 work as a compressor/amplifier to limit the maximum output AF-voltage. When using a variable gain type amplifier as IC 1 it is possible to avoid the distortion for high AF-levels, which occurs in a conventional clipper-circuit. The other amplifier in IC 2 is used as a 3 kHz active low-pass filter. A tuning diode in the VCO is used for modulation.

## FREQUENCY SYNTHESIZER CIRCUIT

### Basic phase locked loop operation

A simple phase locked loop consists of 3 elements, a phase comparator, a filter and the VCO (Fig. 1).



(Fig. 1) Basic phase locked loop

### Phase-frequency comparator

If the VCO-frequency  $F = F_r$ , the comparator gives out a DC-level proportional to the phase difference between  $F$  and  $F_r$  (Fig. 2). We have  $V_1 = K_1 \times (\Theta_r - \Theta)$  where  $K_1$  is a constant. When there is a frequency difference between  $F$  and  $F_r$ ,  $V_1$  will be low for  $F$  greater than  $F_r$  and high for  $F$  less than  $F_r$ .

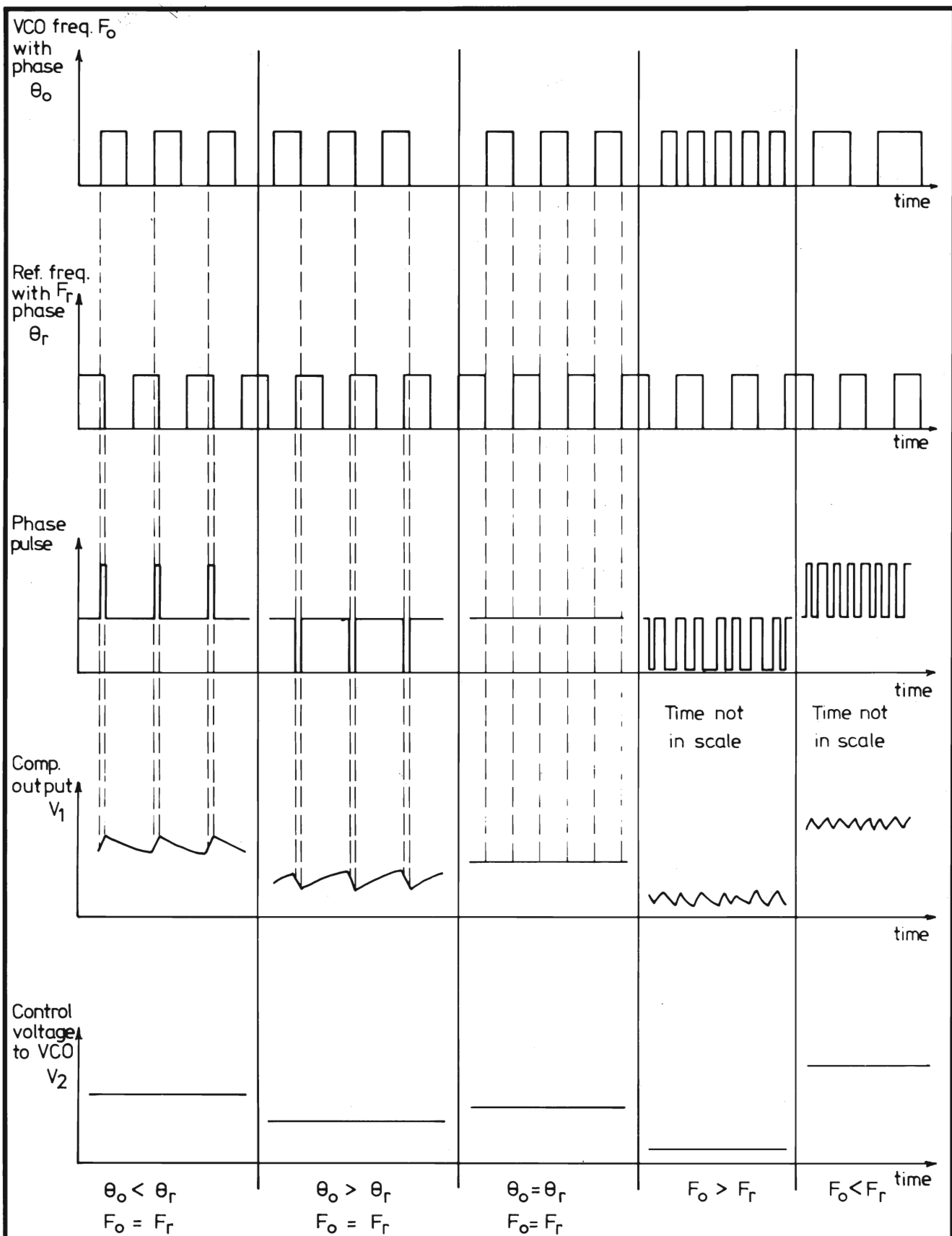
### Voltage controlled oscillator

This can be a LC-oscillator whose frequency is controlled with a varicap.  $F = K_2 \times V_1$  where  $K_2$  is a constant.

### LP-filter

This filter removes the ripple on  $V_1$  (Fig. 2) and determines the dynamic behaviour (stability, step response) of the loop.

Let us consider a situation where the loop is out of lock and



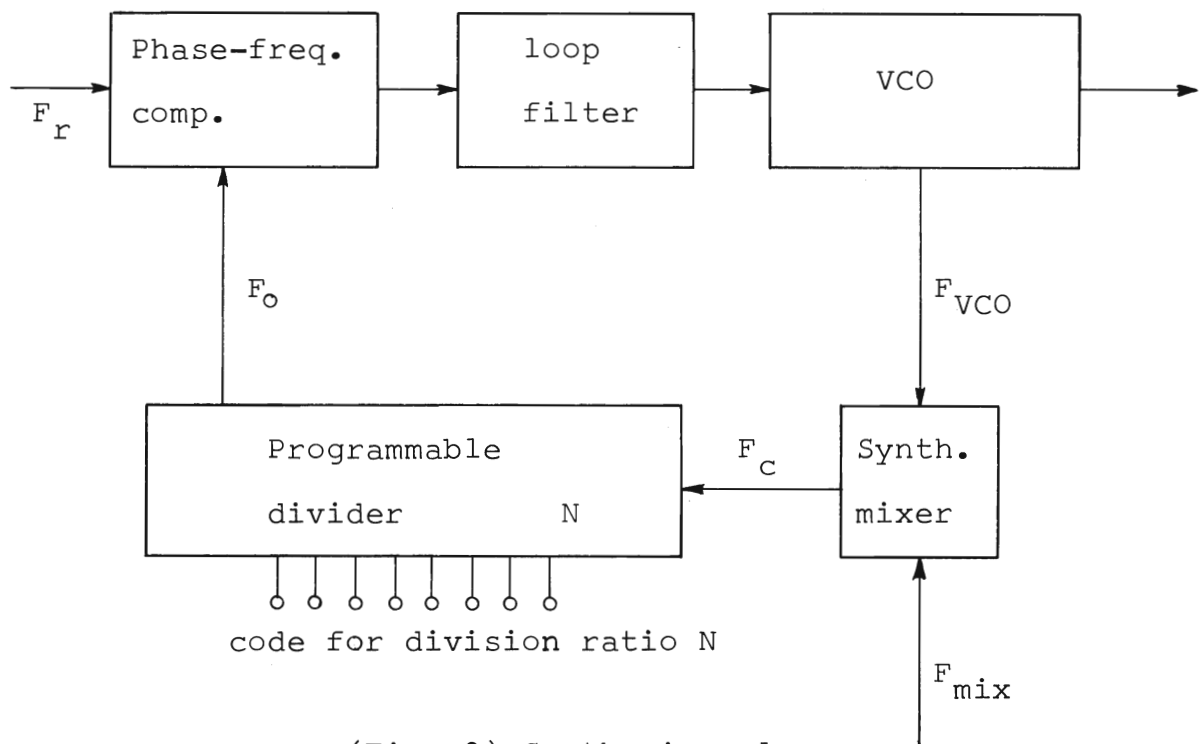
SIMPLIFIED OPERATION of frequency and phase comparator.

Fig. 2

Rettet:	Figure for synthesizer description	Tegn.: 13-6-77 H.J.	Kontr.:	
		Page: 2		
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		AP-RADIOTELEFON ½		

$F_o$  is greater than  $F_r$ . The comparator output voltage  $V_1$  will contain the normal ripple with frequency  $F_r$  and a beat note, but the mean DC level ( $= V_2$  after the filter) will be low (Fig. 2). Thus the VCO frequency will decrease and at the time  $F$  reaches  $F_r$  the loop will go in lock. Now  $F_o = F_r$  and the phase difference will assume a level for  $V_2$  sufficient to hold the VCO frequency in lock with  $F_r$ . If the tuning of the VCO is changed (such as by varying the value of the tuning capacitor) the frequency  $F_o$  from the VCO will attempt to change. This will result in a change in phase angle between  $F_o$  and  $F_r$ , resulting in a change in DC-level of  $V_1$  which will act to maintain frequency lock. In this way tuning of the VCO will change the ripple and the DC-level on  $V_1$  but as long as lock is maintained  $F_o$  will be equal  $F_r$ .

A multichannel synthesizer (Fig. 3)



(Fig. 3) Synthesizer loop

To build a multichannel synthesizer we have to add some more components (Fig. 3) but the basic function is the same. Here the VCO frequency is converted to a lower frequency  $F_c$  suitable

for the digital divider.  $F_c = F_{vco} - F_{mix}$  (1). When the loop is in lock the incoming frequencies  $F_r$  and  $F$  are equal, but they can have a phase difference.  $F = F_r$  (2). The programmable divider divides frequency  $F_c$  with a number  $N$ , which can be selected by a binary code.  $F_c = N \times F$  (3).

Combining equations (1), (2) and (3) give

$$F_{vco} = F_{mix} + N \times F_r \quad (4).$$

By changing the division ratio  $N$  we can get a lot of VCO-frequencies with the spacing  $F_r$ , and the stability depends only on  $F_{mix}$  and  $F_r$  which can be crystal oscillators.

#### The synthesizer circuit (Fig. 4)

##### Synthesizer logic (75062-3E2 25 kHz and 77201-3E2 for 20 kHz)

The 25 (20) kHz reference frequency is produced by dividing a 400 (320) kHz crystal oscillator (X 1 and Q 4) by 16 in the counter IC 6.

The input signal to the programmable divider is amplified in Q 1 and Q 2, while the two gates from IC 1 shape the waveform to narrow pulses. IC 2 and IC 3 from the programmable divider, where the division ratio  $N$  is the binary number on the eight channel code lines. The numbers on the code lines correspond to the binary value of each line. In this way a division ratio  $N = 168$  will have a channel code:

Number of code lines	128	64	32	16	8	4	2	1
Binary value	128	64	32	16	8	4	2	1
Code for $N = 168$	1	0	1	0	1	0	0	0

where 0 means 0 V and 1 means + 5 V.

The two cascaded counters IC 2 and IC 3 count down from 168.

When the counters reach zero a borrow pulse is generated and used to preset the number 168, thus starting a new count cycle.

The very narrow pulses with a repetition rate of 25 (20) kHz are used as input to the frequency-phase comparator IC 4.

The comparator output voltage  $V_1$  (Fig. 2) can be seen on a test point TP 1. To suppress the 25 (20) kHz ripple on the comparator output voltage Q 3 is connected as an active lowpass filter.

IC 5 is for DC-amplification.

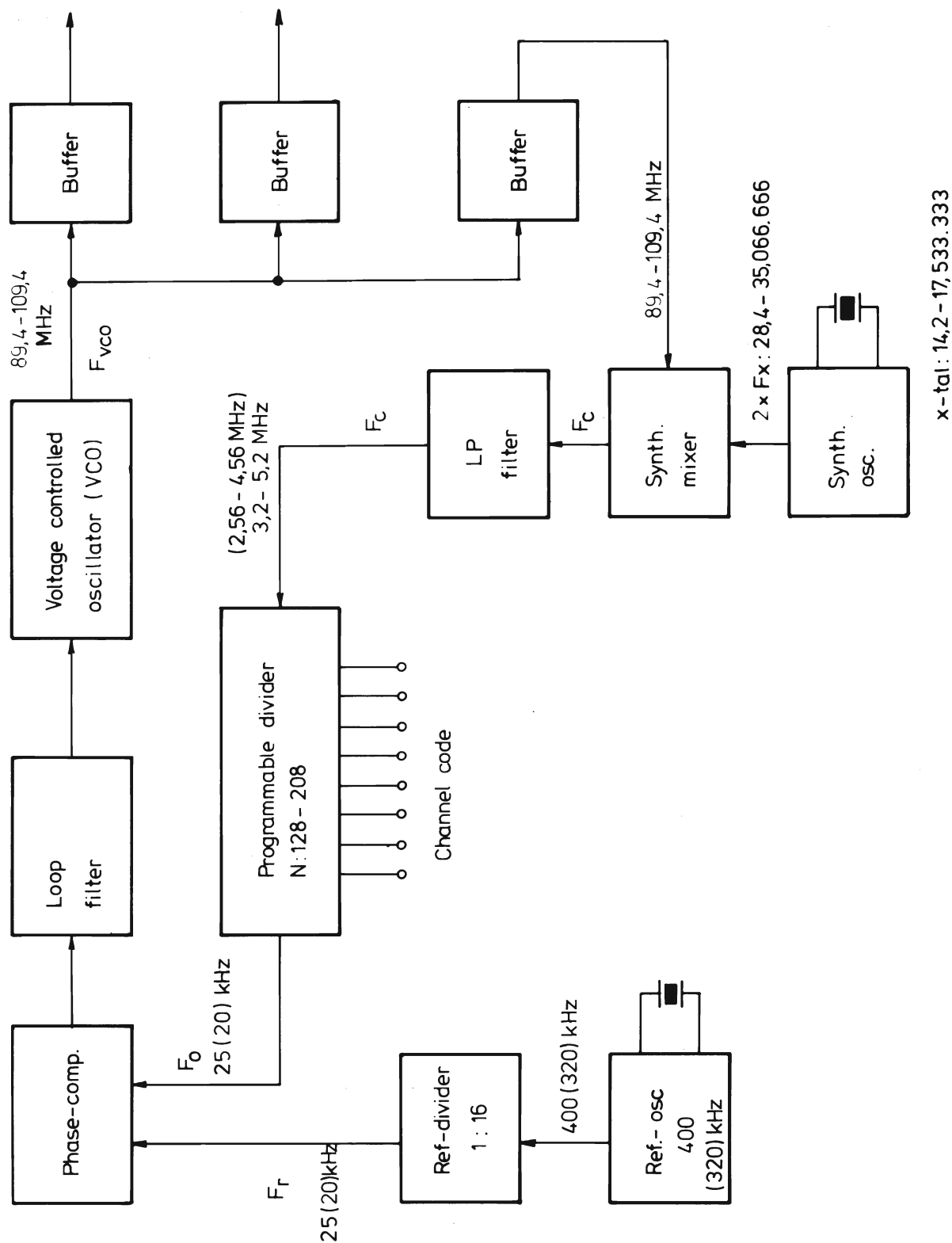


Fig. 4

Rettet:

Figure for synthesizer description

AP-RADIOTELEFON ⅞

Tegn.:  
13-6-77 H.J.

Kontr.:

Page: 5

Tegn. nr.:  
77238 - 4E2

### Voltage controlled oscillator (75155-3E2)

The transistor Q 1 is used to switch between two loop filters. When Q 1 is 'ON', the slow filter R 1, R 5 and C 3 are in function, while R 1, R 4 and C 1 give the loop a fast step response for Q 1 'OFF'. The fast loop filter is only used in connection with automatic channel scanning. Diode D 1 is used to clamp the control voltage, thus preventing too great VCO frequency excursions when the loop is out of lock. The frequency of oscillator Q 2 is controlled by tuning diode D 2, D 4 while diode D 3 is for modulation. Transistors Q 3 to Q 6 make the three output buffers with ferrite core transformers TR 1 to TR 4.

### Synthesizer mixer (75166-3E2)

In the synthesizer mixer Q 1 and Q 2 work in a balance configuration as a 30 Mc oscillator with a fundamental crystal X 1 (15 Mc). This frequency is fed via L 1 to the mixer transistor Q 4. The VCO-signal goes through the dual gate Mos-transistor buffer Q 3 which gives high backward isolation but no amplification. Reaching the base of Q 4, the VCO-signal is mixed with the third harmonic of the 30 Mc to give an output signal of 3,2 - 5,2 Mc. DR 1 and DR 2 are part of a 10 Mc low-pass filter connected to the amplifier stage Q 5.

### Channel code

From the blockschematic of the Synthesizer circuit (Fig. 4) we have:

$$F_{\text{VCO}} = 6 F_x + N \times 0,025 (0,020) \text{ MHz where } 128 \leq N \leq 208.$$

The VCO frequency lies 21,4 Mc above the receiver frequency leading to:

$$\text{Receiver frequency } F_m = 6 F_x + N \times 0,025 (0,020) - 21,4 \text{ MHz (5).}$$

Here N is the division ratio and  $F_x$  is the synthesizer mixer crystal.

1. Computation example of the receiver frequency with 25 kHz spacing:

Known is: Crystal frequency  $F_x$  and channel code.

Example:  $F_x = 15,2 \text{ MHz}$

Code: 1 0 0 1 0 0 1 1

Division ratio  $N = 128 + 16 + 2 + 1 = 147$

Using equation (4):

$$F_m = 6 \times 15,2 + 147 \times 0,025 - 21,4 = \underline{73,475 \text{ MHz}}$$

2. Computation example of the channel code:

Known is: Crystal frequency  $F_x$  and desired receiver frequency  $F_m$ .

Rearranging equation (5) gives

$$N = \frac{F_m - 6 F_x + 21,4}{0,025}$$

Example:  $F_x = 15,2 \text{ MHz}$ ,  $F_m = 74,625 \text{ MHz}$ .

$$N = (74,625 - 6 \times 15,2 + 21,4) / 0,025 = 193$$

$$N = 128 + 64 + 0 + 0 + 0 + 0 + 0 + 1$$

Channel code 1 1 0 0 0 0 0 1

1. Computation example of the receiver frequency with 20 kHz spacing:

Known is: Crystal frequency  $F_x$  and channel code.

Example:  $F_x = 15,2 \text{ MHz}$

Code: 1 0 0 1 0 0 1 1

Division ratio  $N = 128 + 16 + 2 + 1 = 147$

Using equation (4):

$$F_{Rx} = 6 \times 15,2 + 147 \times 0,020 - 21,4 = \underline{72,740 \text{ MHz}}$$

2. Computation example of the channel code:

Known is: Crystal frequency  $F_x$  and desired receiver frequency  $F_m$ .

Rearranging equation (5) gives

$$N = \frac{F_{Rx} - 6 F_x + 21,4}{0,020}$$

Example:  $F_x = 15,2 \text{ MHz}$ ,  $F_{Rx} = 73,625 \text{ MHz}$

$$N = (73,625 - 6 \times 15,2 + 21,4) / 0,020 = 191$$

$$N = 128 + 0 + 32 + 16 + 8 + 4 + 2 + 1$$

Channel code 1 0 1 1 1 1 1 1

## DIVISION RATIO AND CHANNELCODE

The division ratio N corresponds to the 8 - bit channel code in this way.

Bit number	8	7	6	5	4	3	2	1
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Value of each bit	128	64	32	16	8	4	2	1
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Example: channel code = 1 1 0 0 0 0 0 1

$$N = 193 = 128 + 64 + 0 + 0 + 0 + 0 + 0 + 1$$

Logic 1 = +5 Volts. Logic 0 = 0 Volts

Div. ratio	Channel code							
N	128	64	32	16	8	4	2	1
128	1	0	0	0	0	0	0	0
129	1	0	0	0	0	0	0	1
130	1	0	0	0	0	0	1	0
131	1	0	0	0	0	0	1	1
132	1	0	0	0	0	1	0	0
133	1	0	0	0	0	1	0	1
134	1	0	0	0	0	1	1	0
135	1	0	0	0	0	1	1	1
136	1	0	0	0	1	0	0	0
137	1	0	0	0	1	0	0	1
138	1	0	0	0	1	0	1	0
139	1	0	0	0	1	0	1	1
140	1	0	0	0	1	1	0	0
141	1	0	0	0	1	1	0	1
142	1	0	0	0	1	1	1	0
143	1	0	0	0	1	1	1	1
144	1	0	0	1	0	0	0	0
145	1	0	0	1	0	0	0	1
146	1	0	0	1	0	0	1	0
147	1	0	0	1	0	0	1	1
148	1	0	0	1	0	1	0	0
149	1	0	0	1	0	1	0	1
150	1	0	0	1	0	1	1	0
151	1	0	0	1	0	1	1	1
152	1	0	0	1	1	0	0	0
153	1	0	0	1	1	0	0	1
154	1	0	0	1	1	0	1	0
155	1	0	0	1	1	0	1	1
156	1	0	0	1	1	1	0	0
157	1	0	0	1	1	1	0	1
158	1	0	0	1	1	1	1	0
159	1	0	0	1	1	1	1	1
160	1	0	1	0	0	0	0	0
161	1	0	1	0	0	0	0	1
162	1	0	1	0	0	0	1	0
163	1	0	1	0	0	0	1	1
164	1	0	1	0	0	1	0	0
165	1	0	1	0	0	1	0	1
166	1	0	1	0	0	1	1	0
167	1	0	1	0	0	1	1	1

Div. ratio	Channel code							
N	128	64	32	16	8	4	2	1
168	1	0	1	0	1	0	0	0
169	1	0	1	0	1	0	0	1
170	1	0	1	0	1	0	1	0
171	1	0	1	0	1	0	1	1
172	1	0	1	0	1	1	0	0
173	1	0	1	0	1	1	0	1
174	1	0	1	0	1	1	1	0
175	1	0	1	0	1	1	1	1
176	1	0	1	1	0	0	0	0
177	1	0	1	1	0	0	0	1
178	1	0	1	1	0	0	1	0
179	1	0	1	1	0	0	1	1
180	1	0	1	1	0	1	0	0
181	1	0	1	1	0	1	0	1
182	1	0	1	1	0	1	1	0
183	1	0	1	1	0	1	1	1
184	1	0	1	1	1	0	0	0
185	1	0	1	1	1	0	0	1
186	1	0	1	1	1	0	1	0
187	1	0	1	1	1	0	1	1
188	1	0	1	1	1	1	0	0
189	1	0	1	1	1	1	0	1
190	1	0	1	1	1	1	1	0
191	1	0	1	1	1	1	1	1
192	1	1	0	0	0	0	0	0
193	1	1	0	0	0	0	0	1
194	1	1	0	0	0	0	1	0
195	1	1	0	0	0	0	1	1
196	1	1	0	0	0	1	0	0
197	1	1	0	0	0	1	0	1
198	1	1	0	0	0	1	1	0
199	1	1	0	0	0	1	1	1
200	1	1	0	0	1	0	0	0
201	1	1	0	0	1	0	0	1
202	1	1	0	0	1	0	1	0
203	1	1	0	0	1	0	1	1
204	1	1	0	0	1	1	0	0
205	1	1	0	0	1	1	0	1
206	1	1	0	0	1	1	1	0
207	1	1	0	0	1	1	1	1
208	1	1	0	1	0	0	0	0

## Tuning instructions for 4 m band

### 1. Tuning of the synthesizer circuit

#### A. Synthesizer oscillator

Connect a high input resistance DC-voltmeter to TP on print board B 25. By tuning coil L 1 to max. a reading of approx. 2,5 V should be obtained. The trimmer C 7 is later used for frequency adjustment.

#### B. Phase locked loop

If the set contains more than one channel, turn the channel selector to a channel with frequency in the middle of the used band. Check the channel code with a voltmeter on points 1, 2 ..... 64 and 128 on printboard B 17. Computation of the channel code is contained in the technical description of the synthesizer circuit. Connect the voltmeter to point 1 on the VCO print board and an oscilloscope (sensitivity 1 V/div.) to test point TP 1 on the logic print (print board B 17). Adjust the VCO-trimmer until the loop goes in lock. The loop is in lock when a stable 25 (20) kHz ripple sawtooth is appearing on the scope, and the voltage on the voltmeter increases while turning the VCO trimmer clockwise. Adjust the VCO so that the loop voltage is 3 V. This loop voltage corresponds to min. 25 (20) kHz ripple on TP. For multichannel sets, turn the channel selector to the lowest and highest frequency and check that the loop will go in lock. Considering a set with the max. possible bandwidth 2 MHz, the loop voltage shall lie between 2 and 4 V, going from the lowest channel to the highest in such a manner that increasing voltage corresponds to increasing frequency.

#### C. Rx-frequency

Select the mid-frequency channel and connect a 200 MHz counter to the VCO-output point 5. The reading will be Rx frequency + 21,4 MHz and for fine tuning of the Rx-frequency, use trimmer C 7 on synthesizer mixer print board B 25.

## 2. Tuning of the receiver

### A. 21,4 MHz and 455 kHz IF (print board B 01)

Connect a 21,4 MHz sweep generator (a 10,7 MHz sweep generator normally contains sufficient second harmonics to be used on 21,4 MHz) to point TP 1 on the RF and mixer print board B 30 and the (DC) probe on point TP 1 on the IF print board B 01. Adjust L 5 (print B 30) and L 1 (print B 01) for minimum ripple. L 2 is tuned to max. amplitude while L 3 is tuned to best possible symmetry. Use the lowest possible input level to prevent limiting in the second mixer. Connect the probe to the AF output from the detector (a suitable point is pin 1 on the ampl. print B 09) and adjust L 4 in the IF to max. discriminator slope and the best linearity.

### B. RF amplifier and mixer (print board B 30)

With the voltmeter on TP 2 (print board B 30) C 7 and C 9 are adjusted to max. deflection (approx. 0,8 V DC). With the signal generator connected to the receiver input, C 2, C 3 and C 5 are now tuned to give optimum sensitivity.

### C. Alternative method for tuning of Rx front and IF without a sweep generator

Adjust C 7 and C 9 as described under 'B'. Connect the RF-signal generator output to TP 1 in the RF-amplifier and use the horizontal deflection voltage from an oscilloscope for modulation (FM) of the generator. Now the IF can be tuned as previously described. By connecting the signal generator output to the aerial input, all the capacitors in the RF-amplifier and mixer can be tuned to max. deflection with the probe on TP 1 in the IF-amplifier.

### D. AF-amplifier, squelch and key circuit(print board B 09)

Adjust the output level for the handset earpiece to 60 mV with potmeter R 31. (3,5 kHz dev., 1 kHz modulation).

## 3. Tuning of the transmitter

### A. Transmitter mixer and amplifier (print board C 15)

In the first place, remove C 3 if Tx x-tal frequency is in the range 8,8 - 11,3 MHz, or C 4 if it is in the range 11,3 - 14,8 MHz. In the extreme case that x-tal frequency is below 7 MHz, replace both C 3 and C 4 with a 390 pF ceramic capacitor (f.ex. Miniwatt no.2222 632 70391).

Key the transmitter and tune L 1 to max. DC-voltage on TP 1. It may be necessary to pre-adjust C 6 and C 9 in order to get enough signal to the diode. For example, pre-adjust C 6 and C 9 to near full capacitance for lower band Tx-frequencies, and near minimum capacitance for higher band Tx-frequencies. When the signal on TP 1 is visible on the DC-voltmeter (internal resistance more than 10 M $\Omega$ ), tune L 1, C 6 and C 9 to maximum (0,1 - 0,35 V).

Connect the voltmeter to TP 2 and tune C 15 to max. reading (0,3 - 0,7 V).

Connect the voltmeter to TP 3 (can of Q 3 = emitter), and tune C 21 to max. reading (0,1 - 0,15 V).

Connect a 50  $\Omega$  wattmeter to the output, and tune C 24 to maximum output power, which should be approximately 35 mW. NB: Do not try to adjust C 6 and C 9 for maximum output power, because the signal is compressed in the last stage.

B. 6 W PA-stage (print board B 29)

Turn the potmeter R 1 (print board B 57) counter-clockwise to get the output power stabilization out of function. Connect a wattmeter (50  $\Omega$ , 10 W) to the transmitter output and set the supply voltage to 12,0 V. Now tune all trimmers to max. output power, and finish with a fine adjustment of C 11 on the transmitter amplifier board B 28. Check the output power on the highest and lowest channel. It may be necessary to remove C 14 at high frequencies. Now increase the supply voltage 13,2 V and turn the potmeter R 1 clockwise until the output power is decreased to the desired value.

C. 10-25 W PA-stage

Turn the potmeter R 1 (print board B 57) counterclockwise to get the power stabilization out of function. Now connect a RF-wattmeter (50  $\Omega$  - 50 W) to the transmitter output, and set the supply voltage to 12,0 V. Then tune all the trimmers in the PA-stage to max. output power and finish with a fine adjustment of C 11 on the transmitter amplifier (print board B 28). Then turn the potmeter R 1 clockwise until the output power is decreased to the desired value. Check the power at the band limits.

D. 10-25 W external power cassette (print board B 27)

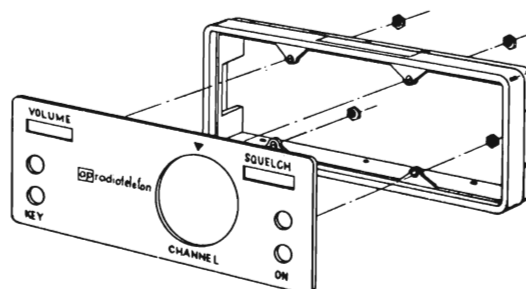
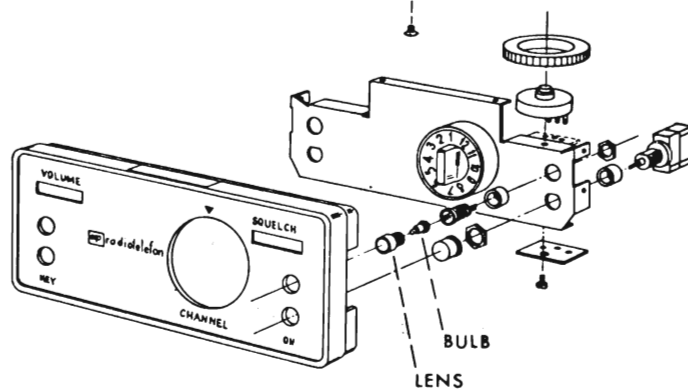
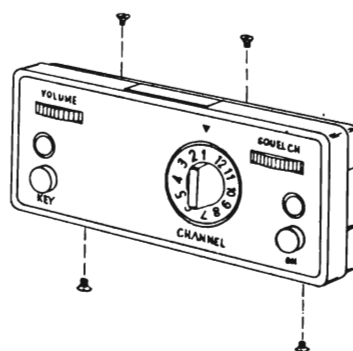
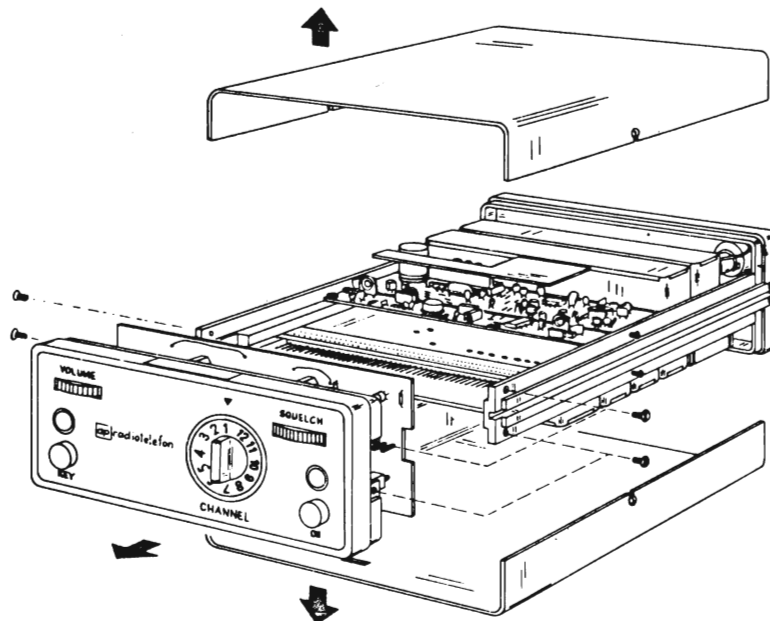
First of all the 6 W PA-stage in the radio unit must be tuned up according to the above procedure. Then push the radio unit into the power cassette. Connect a RF-wattmeter to the transmitter output and adjust C 1, C 2, C 8 and C 9 to max output power with a supply of 12,0 V. Be certain that the regulation circuit is out of function when tuning up. Then increase the supply voltage 13,2 V and adjust R 2 to the desired output power level. For a 25 W set the power level might drop for supply voltage below 13,2 V, but above it should be held constant on 25 W. Check the power on the lowest and highest channel. It may be necessary to remove C 4 and C 11 at high frequencies.

E. Transmitter frequency

Connect a frequency counter to a wattmeter with attenuated output and adjust the transmitter frequency with the capacitor C 33 in the Tx-oscillator (print board B 25).

F. Modulation amplifier (print board B 10)

Connect a modulation meter to the transmitter and a tone generator to the microphone input 1. The generator must have a low impedance. Turn the 3 potentiometers to centre position and set the generator to 1000 Hz. With an input level of 20 mV, potmeter R 27 is adjusted to give  $\pm 5$  kHz deviation on the modulation meter. Decrease the input level to 2 mV and adjust potmeter R 3 to a deviation of  $\pm 3$  kHz. Repeat the procedure to check and fine adjust R 27 and R 3 if necessary. If the station is equipped with a handset, R 27 is adjusted to  $\pm 5$  kHz with an input level (1000 Hz) of 4 V. When the level is decreased to 400 mV R 28 is set to give a deviation of  $\pm 3$  kHz.



Rettet: 29-11-76 H.J.

Disassembling of AP 2000

AP-RADIOTELEFON ½

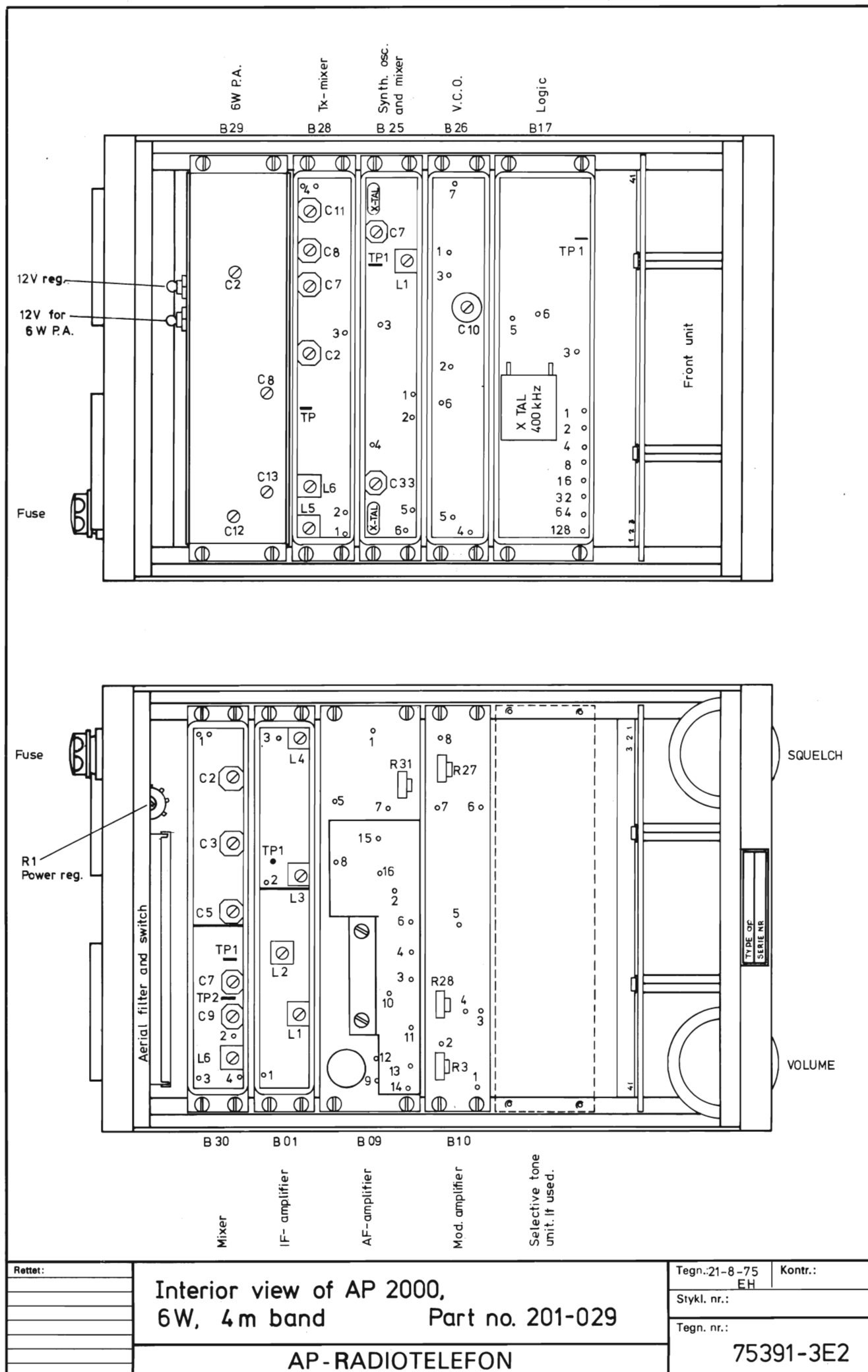
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AC

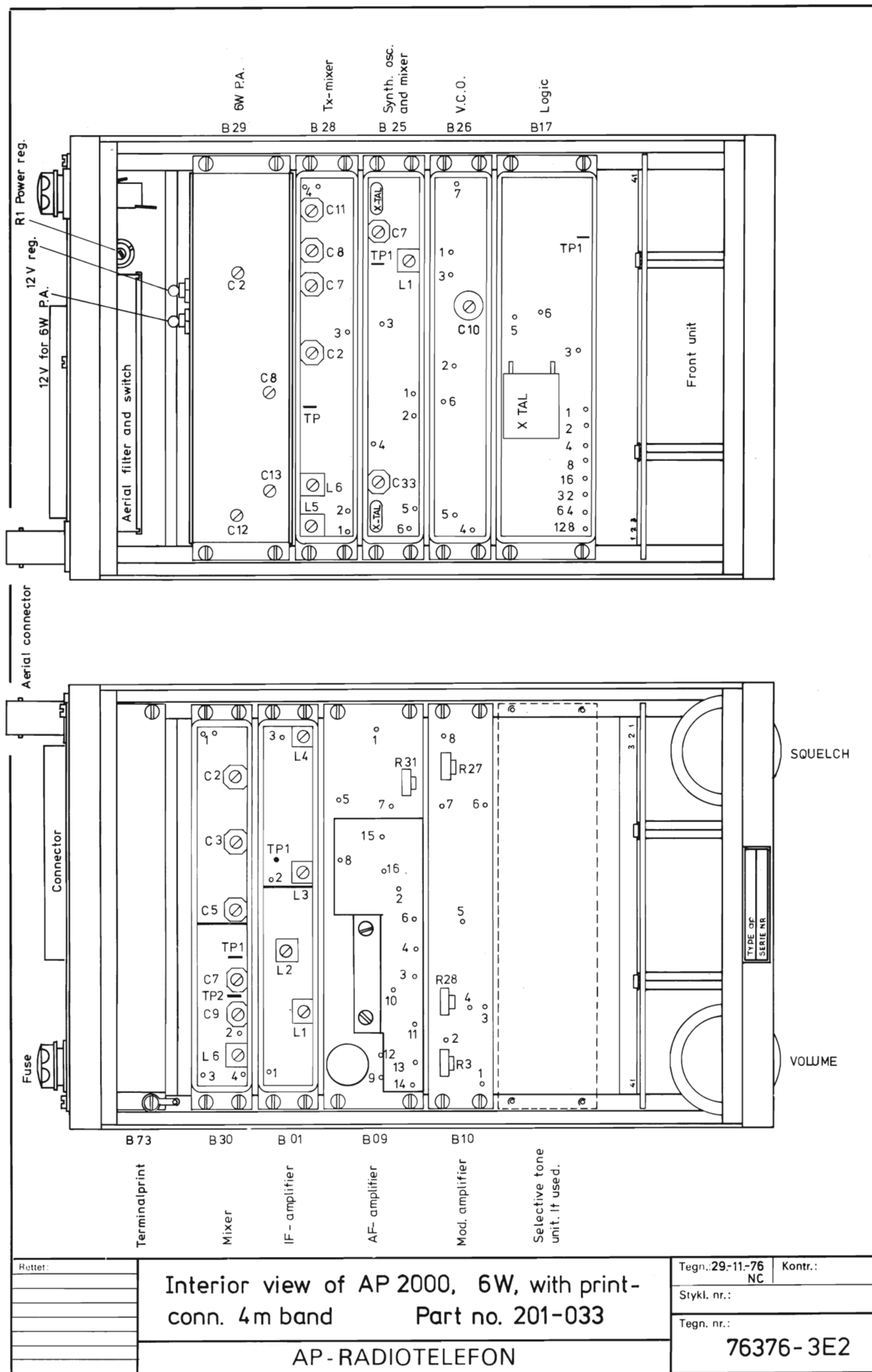
Kontr.:

Stykl. nr.:

Tegn. nr.:

76218 - 4M2

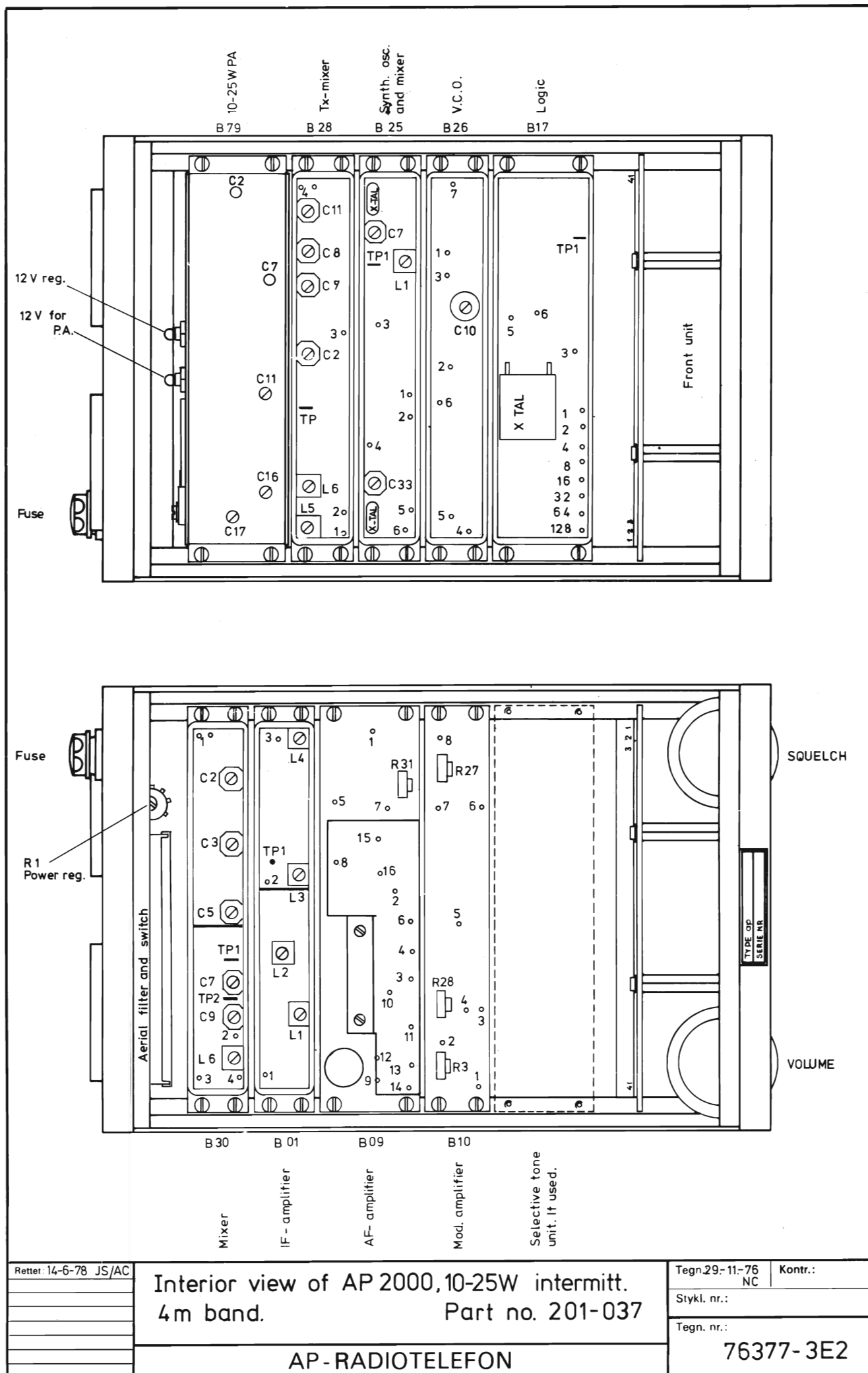


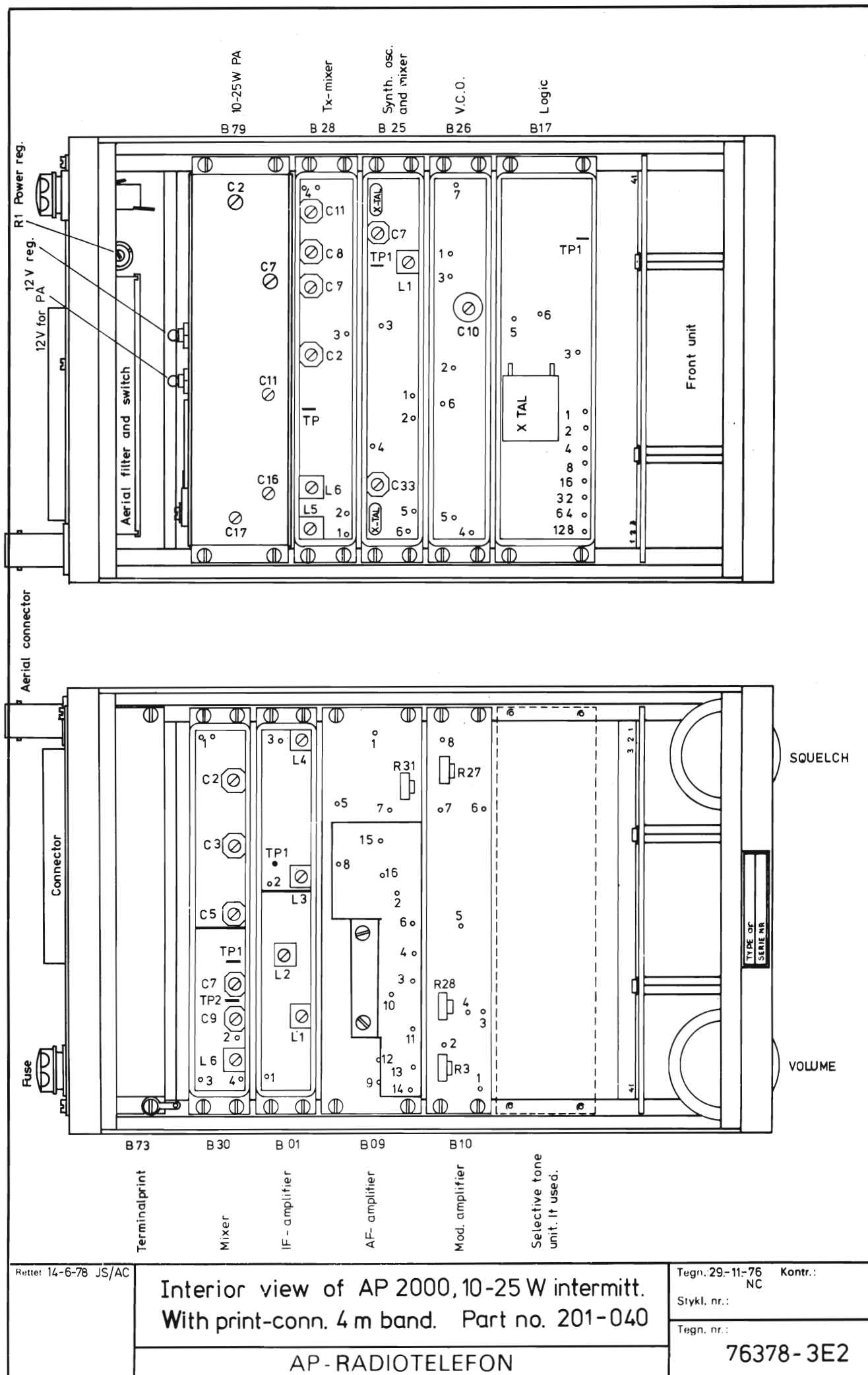


Interior view of AP 2000, 6W, with print-conn. 4m band Part no. 201-033

AP-RADIOTELEFON

Tegn.: 29-11-76 NC	Kontr.:
Stykl. nr.:	
Tegn. nr.:	76376-3E2





Rutter 14-6-78 JS/AC

Interior view of AP 2000, 10-25 W intermitt.  
With print-conn. 4 m band. Part no. 201-040

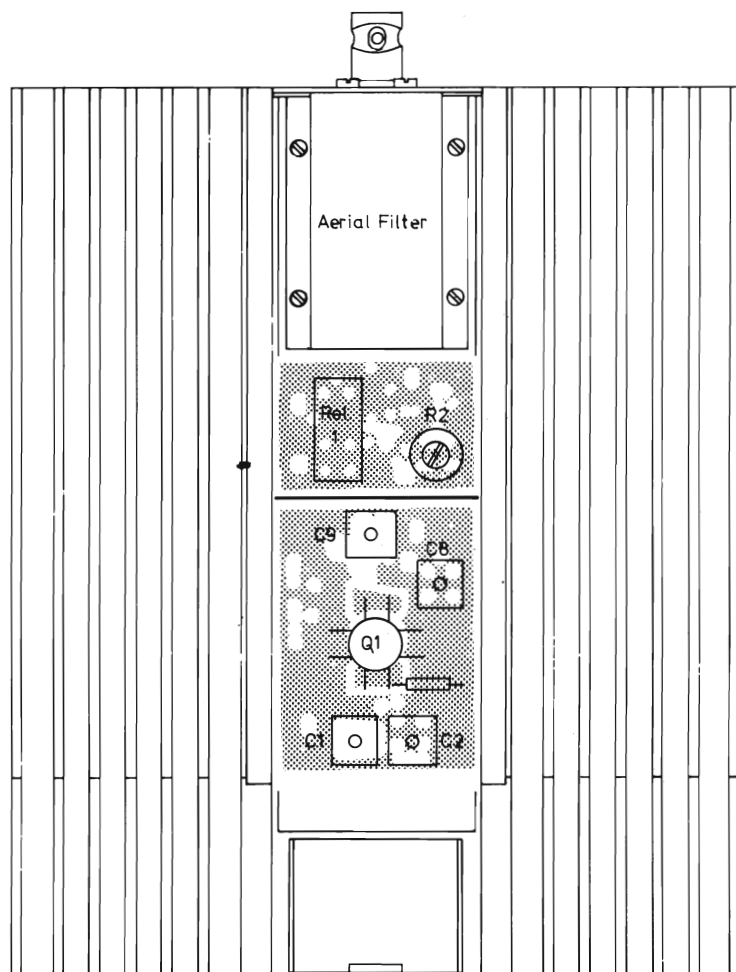
AP-RADIOTELEFON

Tegn. 29-11-76 Kontr.:  
NC  
Stykl. nr.:

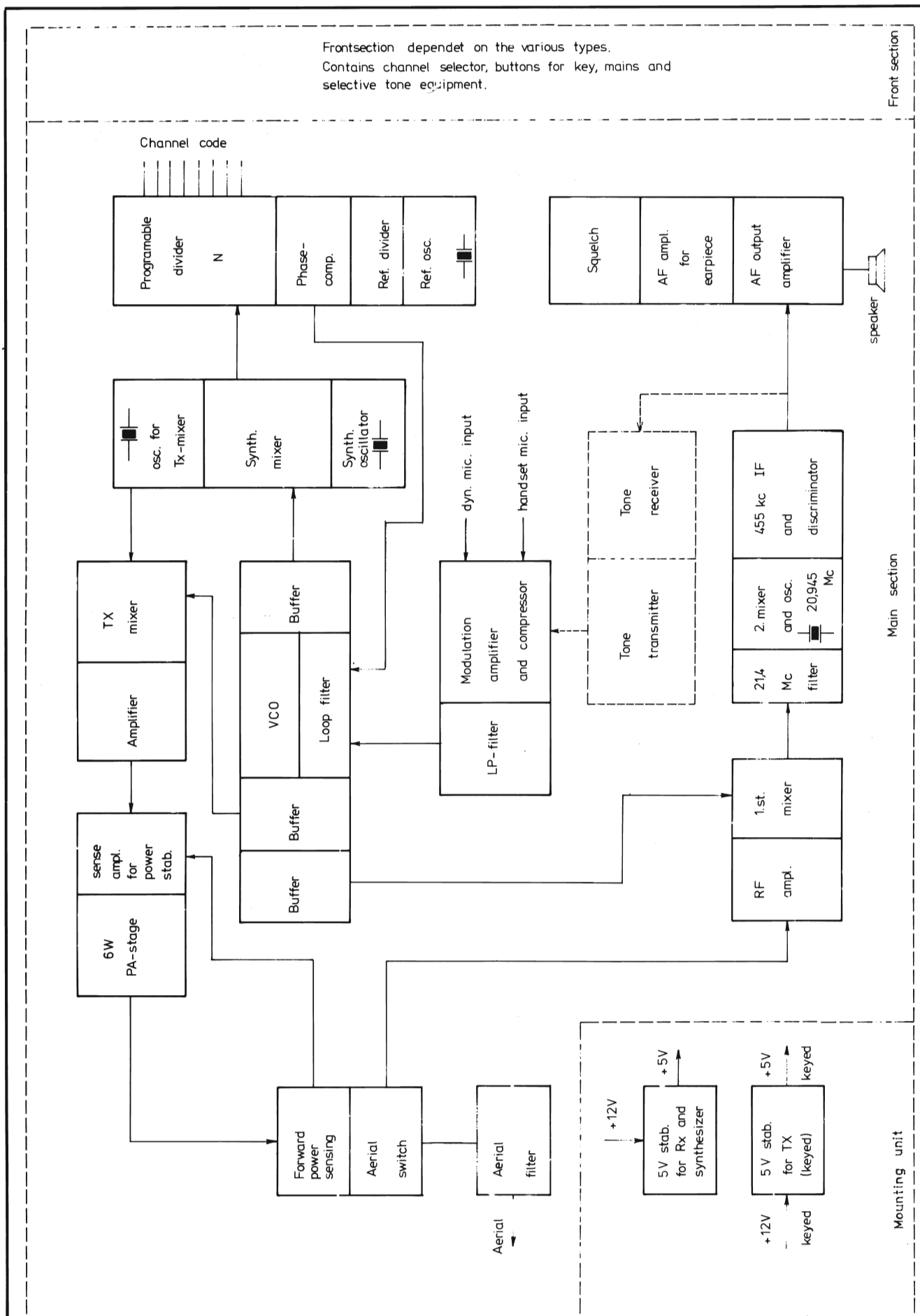
Tegn. nr.:

76378-3E2





Retter:	Interior view of 4 m band Ext. PA-stage	Tegn.: 28- 6-78 AMC	Kontr.:
		Stykl. nr.:	
		Tegn. nr.:	
		78084 - 3E2	
		AP-RADIOTELEFON	



Retter: 15- 6-78 JS/AC

Blockschematic for AP 2000, 6W

4 m

AP - RADIOTELEFON

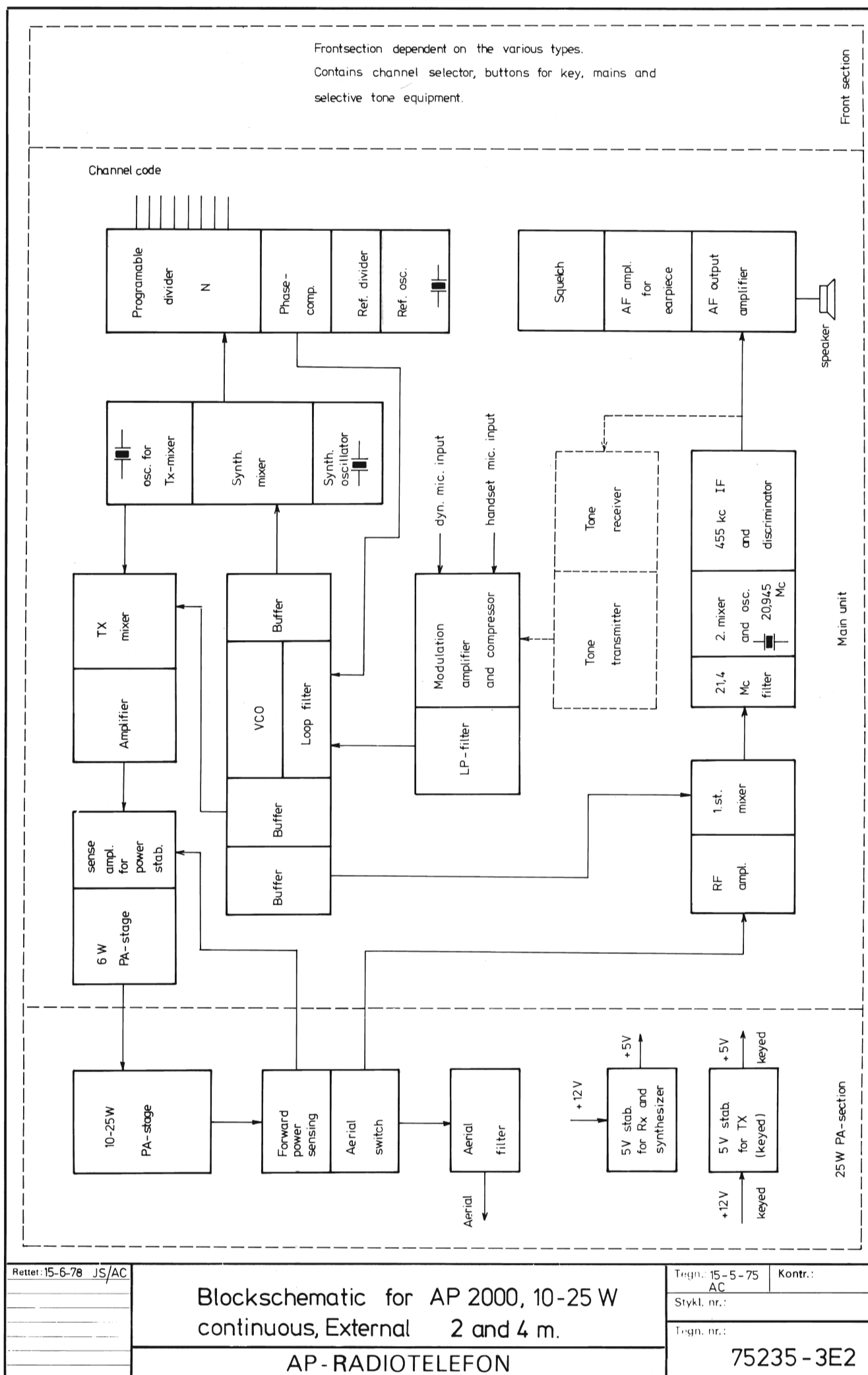
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Kontr.:

Stykt. nr.:

Tegn. nr.:

75373-3E2



Retter: 15-6-78 JS/AC

Blockschematic for AP 2000, 10-25 W  
continuous, External 2 and 4 m.

AP-RADIOTELEFON

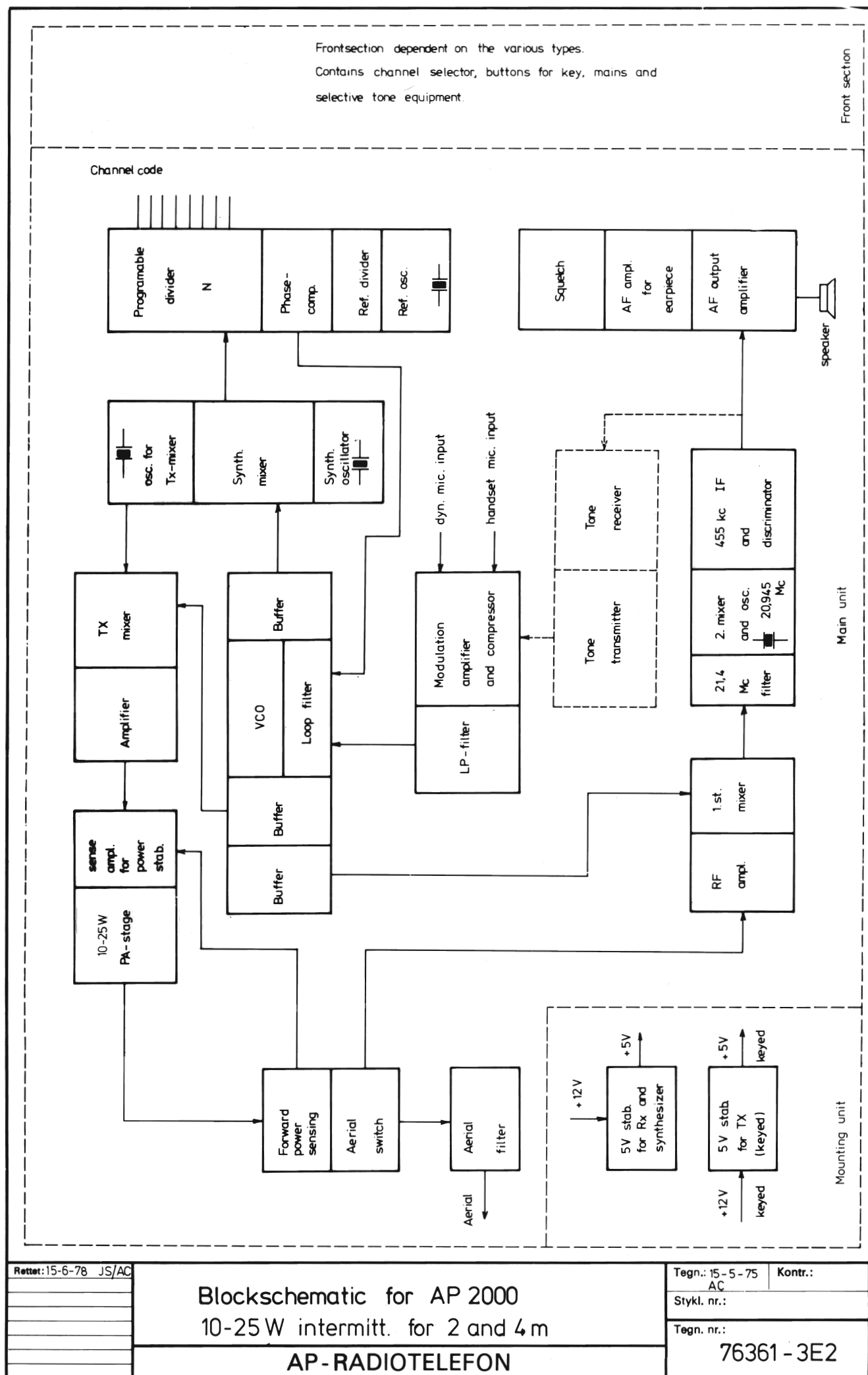
Tegn.: 15-5-75  
AC

Stykt. nr.:

Tegn. nr.:

Kontr.:

75235-3E2



Rettet: 15-6-78 JS/AC

Blockschematic for AP 2000  
10-25 W intermitt. for 2 and 4 m  
**AP-RADIOTELEFON**

Tegn.: 15-5-75  
AC

Stykl. nr.:

Tegn. nr.:

76361-3E2

Mode of operation:  $F_{Rx}$  higher than or equal to  $F_{Tx}$

$F_{Tx}$  70,450 N 146

SPECIFICATION  
for Quartz Crystal Unit

AP 22

Division ratio  $N = \frac{21,4 + F_{Rx} - 6 F_x}{0,025}$

Example:

Known receiver freq. = 81 MHz

Found from the table  $F_x = 16,3666$  MHz

Calculated  $N = 168,016$  as  $N$  is integer

the decimal places are deleted so  $N = 168$

1. Mode of operation : AT-Fundamental

2. Holder : HC-42/U

3. Frequency range : 10-22 MHz

4. Resonance : Parallel (30 pF)

5. Calibration tolerance :  $\pm 15$  ppm at 25°C

6. Temperature tolerance :  $\pm 10$  ppm % 20°C to + 70°C

7. Drive level : 1 mW

8. Equivalent serie resistance : Max. 40  $\Omega$

9. Marking : AP 22 frequency in MHz

14,3666 14,7000 15,0333 15,3666 15,7000 16,0333 16,3666 16,7000 17,0333 17,3666 MHz

68 70 72 74 76 78 80 82 84 86 88 MHz

14,2000 14,5333 14,8666 15,2000 15,5333 15,8666 16,2000 16,5333 16,8666 17,2000 17,5333 MHz

14,3687 14,7020 15,0354 15,3687 15,7020 16,0354 16,3687 16,7020 17,0354 17,3687 MHz

68,0125 70,0125 72,0125 74,0125 76,0125 78,0125 80,0125 82,0125 84,0125 86,0125 88,0125 MHz

14,2020 14,5354 14,8687 15,2020 15,5354 15,8687 16,2020 16,5354 16,8687 17,2020 17,5354 MHz

Min. frequency of transmitter mixer crystal is 5,7 MHz (when  $F_{Tx} > F_{Rx}$ )

25 kHz Channel spacing

For channels ending with

00 kHz  
25 kHz  
50 kHz  
75 kHz

For channels ending with

12,5 kHz  
37,5 kHz  
62,5 kHz  
87,5 kHz

Transmitter mixer oscillator

Calculation of the crystal frequency for the transmitter mixer oscillator

$$F_{Tx \text{ mix}} = \frac{21,4 + F_{Rx} - F_{Tx}}{2}$$

Rettet:
14-2-77 NC
22-6-78 JS/AC

Standard crystals for AP 2000 4m band. range: 1. for channels ending with 00-25-50-75 kHz and 12,5-37,5-62,5-87,5 kHz
AP-RADIOTELEFON ¼

Tegn.: 6-1-77 AC	Kontr.:
Stykl. nr.:	
Tegn. nr.:	75376-4E2

Rettet:		Standard crystal for AP 2000 4m band		Tegn.:		Kontr.:	
22-6-78 JS/AC		range:1 for channels ending with		12-5-77 HJ			
		10,30,50,70,90 kHz		Stykl. nr.:			
		AP-RADIOTELEFON %		Tegn. nr.:		77192 - 4E 2	

1. Mode of operation

2. Holder

3. Frequency range

4. Resonance

5. Calibration tolerance

6. Temperature tolerance

7. Drive level

8. Equivalent serie resistance

9. Marking

: AT-Fundamental

: HC-42/U

: 10-22 MHz

: Parallel (30 pF)

: ± 15 ppm at 25°C

: ± 10 ppm % 20°C to + 70°C

: 1 mW

: Max. 40 Ω

: AP 22 frequency in MHz

Division ratio N =  $\frac{21,4 + F_{Rx} - 6 F_x}{0,020} \times$

Example:

Known receiver freq. = 81 MHz

Found from the table F<sub>x</sub> = 16,3666 MHz

Calculated N = 210,02 as N is integer

the decimal places are deleted so N = 210.

Mode of operation F<sub>Rx</sub> higher than or equal to F<sub>Tx</sub>

AP 22

14,3083 14,6416 14,9750 15,3083 15,6416 15,9750 16,3083 16,6416 16,9750 17,3083 MHz

F<sub>x</sub>

66,01 67,01 69,01 71,01 73,01 75,01 77,01 79,01 81,01 83,01 85,01 87,01 MHz

F<sub>Rx</sub>

14,1416 14,4750 14,8083 14,1416 15,4750 15,8083 16,1416 16,4750 16,8083 16,1416 17,475 MHz

F<sub>x</sub>

SPECIFICATION

for Quartz Crystal Unit

AP 22

1. Mode of operation

2. Holder

3. Frequency range

4. Resonance

5. Calibration tolerance

6. Temperature tolerance

7. Drive level

8. Equivalent serie resistance

9. Marking

: AT-Fundamental

: HC-42/U

: 10-22 MHz

: Parallel (30 pF)

: ± 15 ppm at 25°C

: ± 10 ppm % 20°C to + 70°C

: 1 mW

: Max. 40 Ω

: AP 22 frequency in MHz

20 kHz Channel spacing

Transmitter mixer oscillator

SPECIFICATION

for Quartz Crystal Unit

AP 22

1. Mode of operation

2. Holder

3. Frequency range

4. Resonance

5. Calibration tolerance

6. Temperature tolerance

7. Drive level

8. Equivalent serie resistance

9. Marking

: AT-Fundamental

: HC-42/U

: 10-22 MHz

: Parallel (30 pF)

: ± 15 ppm at 25°C

: ± 10 ppm % 20°C to + 70°C

: 1 mW

: Max. 40 Ω

: AP 22 frequency in MHz

Calculation of the crystal frequency for the transmitter mixer oscillator

F<sub>Tx</sub> mix. =  $10,7 + \frac{F_{Rx} - F_{Tx}}{2}$  Spec. AP 22

Min. frequency of transmitter mixer crystal is 5,7 MHz (when F<sub>Tx</sub>>F<sub>Rx</sub>)

SPECIFICATION for Quartz Crystal Unit AP 22		Mode of operation.F <sub>Rx</sub> higher than or equal to F <sub>Tx</sub>	
1. Mode of operation	: AT-Fundamental	<div>Division ratio N = <math>\frac{21,4 + F_{Rx} - 6 F_x}{0,020}</math></div> <div>Example:</div> <div>Known receiver freq. = 81 MHz</div> <div>Found from the table F<sub>x</sub> = 16,3666 MHz</div> <div>Calculated N = 210,02 as N is integer</div> <div>the decimal places are deleted so N = 210.</div> <div><div>14,30916 14,64250 14,97583 15,30916 15,64250 15,97583 16,30916 16,64250 16,97583 17,30916 MHz</div><div>F<sub>x</sub></div><div>66,015 67,015 69,015 71,015 73,015 75,015 77,015 79,015 81,015 83,015 85,015 87,015 MHz</div><div>F<sub>Rx</sub></div><div>14,14250 14,47583 14,80916 15,14250 15,47583 15,80916 16,14250 16,47583 16,80916 17,14250 17,47583 MHz</div><div>F<sub>x</sub></div></div>	
2. Holder	: HC-42/U		
3. Frequency range	: 10-22 MHz		
4. Resonance	: Parallel (30 pF)		
5. Calibration tolerance	: + 15 ppm at 25°C		
6. Temperature tolerance	: + 10 ppm % 20°C to + 70°C		
7. Drive level	: 1 mW		
8. Equivalent serie resistance	: Max. 40 Ω		
9. Marking	: AP 22 frequency in MHz		
20 kHz Channel spacing			
SPECIFICATION for Quartz Crystal Unit AP 22		Transmitter mixer oscillator	
1. Mode of operation	: AT-Fundamental	<div>Calculation of the crystal frequency for the transmitter mixer oscillator</div> <div>F<sub>Tx</sub> mix. = <math>10,7 + \frac{F_{Rx} - F_{Tx}}{2}</math> Spec. AP 22</div> <div>Min. frequency of transmitter mixer crystal is 5,7 MHz (when F<sub>Tx</sub> &gt; F<sub>Rx</sub>)</div>	
2. Holder	: HC-42/U		
3. Frequency range	: 10-22 MHz		
4. Resonance	: Parallel (30 pF)		
5. Calibration tolerance	: + 15 ppm at 25°C		
6. Temperature tolerance	: + 10 ppm % 20°C to + 70°C		
7. Drive level	: 1 mW		
8. Equivalent serie resistance	: Max. 40 Ω		
9. Marking	: AP 22 frequency in MHz		

Rettet:	Tegn.:	Kontr.:
22-6-78 JS/AC	18-5-77 HJ	
	Stykl. nr.:	
	Tegn. nr.:	77197-4E2
AP-RADIOTELEFON %		

SPECIFICATION  
for Quartz Crystal Unit  
AP 22

Mode of operation:  $F_{Rx}$  higher than or equal to  $F_{Tx}$

1. Mode of operation : AT-Fundamental
2. Holder : HC-42/U
3. Frequency range : 10-22 MHz
4. Resonance : Parallel (30 pF)
5. Calibration tolerance :  $\pm 15$  ppm at 25°C
6. Temperature tolerance :  $\pm 10$  ppm  $\times$  20°C to  $+ 70^\circ\text{C}$
7. Drive level : 1 mW
8. Equivalent serie resistance : Max. 40  $\Omega$
9. Marking : AP 22 frequency in MHz

$$\text{Division ratio } N = \frac{21,4 + F_{Rx} - 6 F_x}{0,020}$$

Example:

Known receiver freq. = 81 MHz  
Found from the table  $F_x = 16,3666$  MHz  
Calculated  $N = 210,02$  as  $N$  is integer  
the decimal places are deleted so  $N = 210$ .

14,3666 14,7000 15,0333 15,3666 15,7000 16,0333 16,3666 16,7000 17,0333 17,3666 MHz  $F_x$

67,360 69,360 71,360 73,360 75,360 77,360 79,360 81,360 83,360 85,360 87,360 MHz  $F_{Rx}$

14,2000 14,5333 14,8666 15,2000 15,5333 15,8666 16,2000 16,5333 16,8666 17,2000 17,5333 MHz  $F_x$

20 kHz Channel spacing

Transmitter mixer oscillator

SPECIFICATION  
for Quartz Crystal Unit  
AP 22

1. Mode of operation : AT-Fundamental
2. Holder : HC-42/U
3. Frequency range : 10-22 MHz
4. Resonance : Parallel (30 pF)
5. Calibration tolerance :  $\pm 15$  ppm at 25°C
6. Temperature tolerance :  $\pm 10$  ppm  $\times$  20°C to  $+ 70^\circ\text{C}$
7. Drive level : 1 mW
8. Equivalent serie resistance : Max. 40  $\Omega$
9. Marking : AP 22 frequency in MHz

Calculation of the crystal frequency for  
the transmitter mixer oscillator

$$F_{Tx \text{ mix.}} = 10,7 + F_{Rx} - \frac{F_{Tx}}{2} \quad \text{Spec. AP 22}$$

Min. frequency of transmitter mixer crystal is  
5,7 MHz (when  $F_{Tx} > F_{Rx}$ )

Rettet:

14-2-77 NC  
22-6-78 JS/AC

Standard crystal for AP 2000 4m band  
range: 1 for channels ending with  
00, 20, 40, 60, 80 kHz

AP-RADIOTELEFON  $\%$

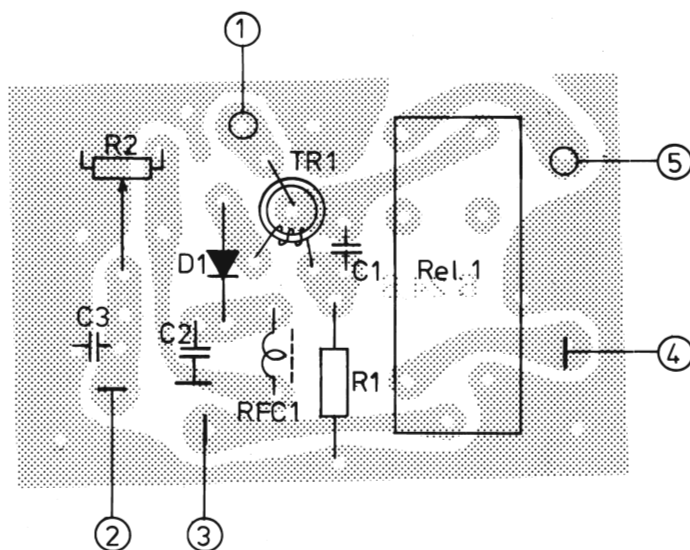
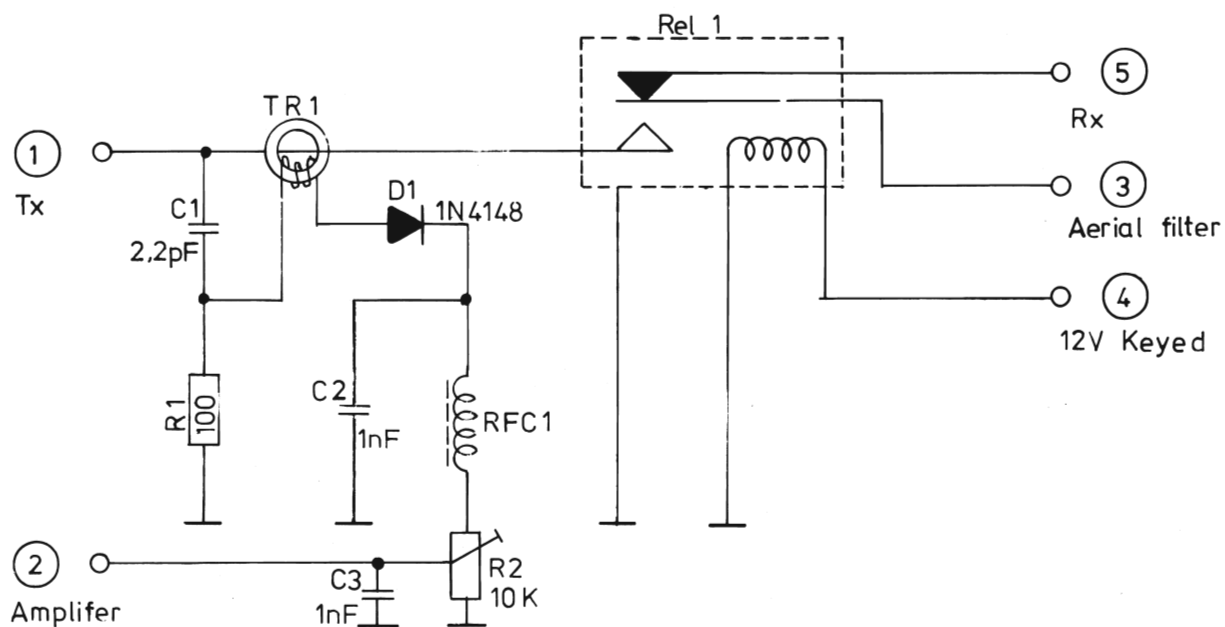
Tegn.: 7-2-77  
AC

Kontr.:

Stykl. nr.:

Tegn. nr.:

77108 - 4E2



B24 C1 relay RS-12V

B24 C4 without relay

B24 C6 relay RS-6V

Rettet:

22-2-78 AMC/JM  
7-4-78 AMC/JH

Aerial switch for 4m, External PA  
Print board B24 C 1, 4 and 6

Tegn.: 3-6-75  
E.H.

Kontr.: 9-6-75  
B.J.

Stykl. nr.:

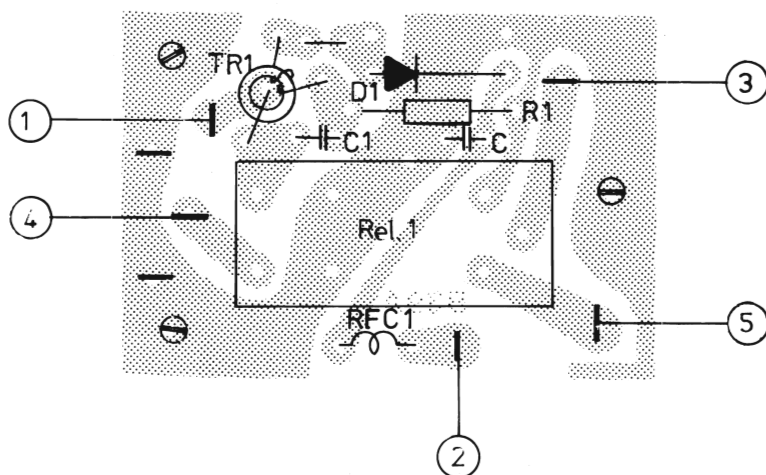
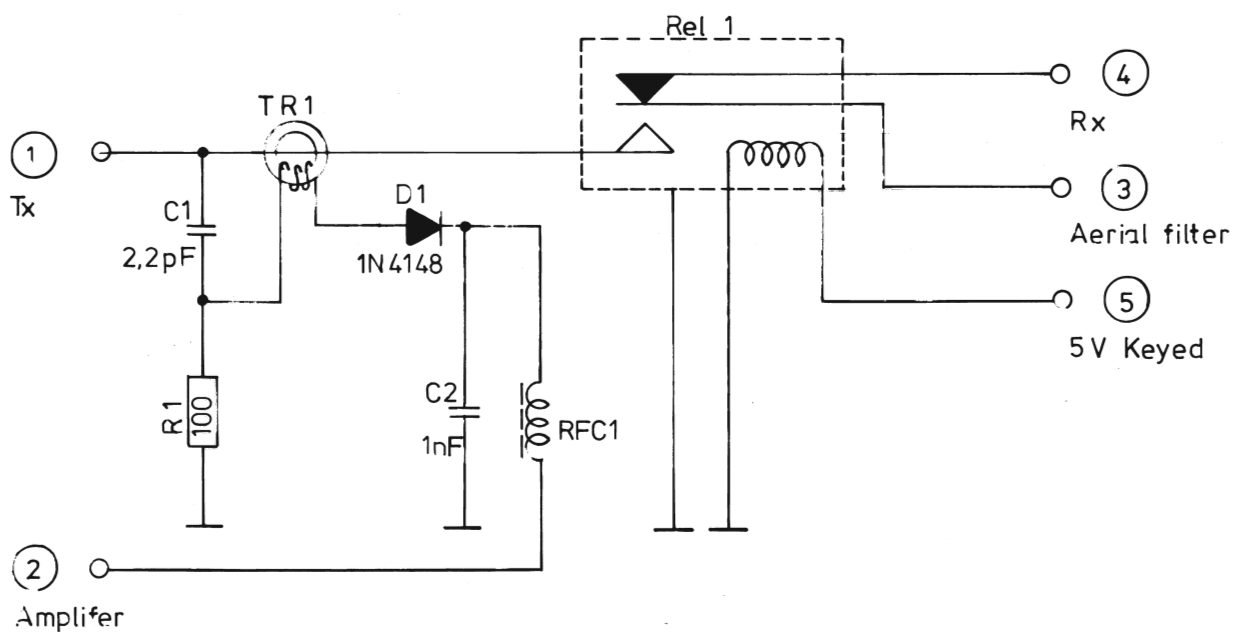
Tegn. nr.:

75127-4E2

AP-RADIOTELEFON 1/5

# AP-RADIOTELEFON

Nr.	Kode	Data	Nr.	Kode	Data
R1	13-259	100 $\Omega$ $\frac{1}{4}$ W CR 25			
R2	19-258	10k $\Omega$ pot. ligg.			
C1	11-363	2,2 pF ker.			
C2	11-409	1 nF ker.			
C3	11-409	1 nF ker.			
RFC- 1		78064-4E2			
TR1		75332-4E2			
D1	04-062	1N4148			
Rel. 1	17-056	AE 5612-02, RS-12V. National or			
	17-059	AE 5612-02, RS- 6V. National			
Aerial switch 4 m. Ext. PA Print board B 24 C1,4 and 6 Tilhører tegn. nr.: 75127-4E2			Rettet:		<div>Tegn.:</div> <div>Kontr.:</div>
					Stykl. nr.: 75127-4S2



Rettet:

23-6-78 JH/AC

Aerial switch for 4m internal PA  
Print board B 39 A 2

AP-RADIOTELEFON 1/2

Tegn.: 3-6-75  
EH.

Kontr.: 9-6-75  
B.J.

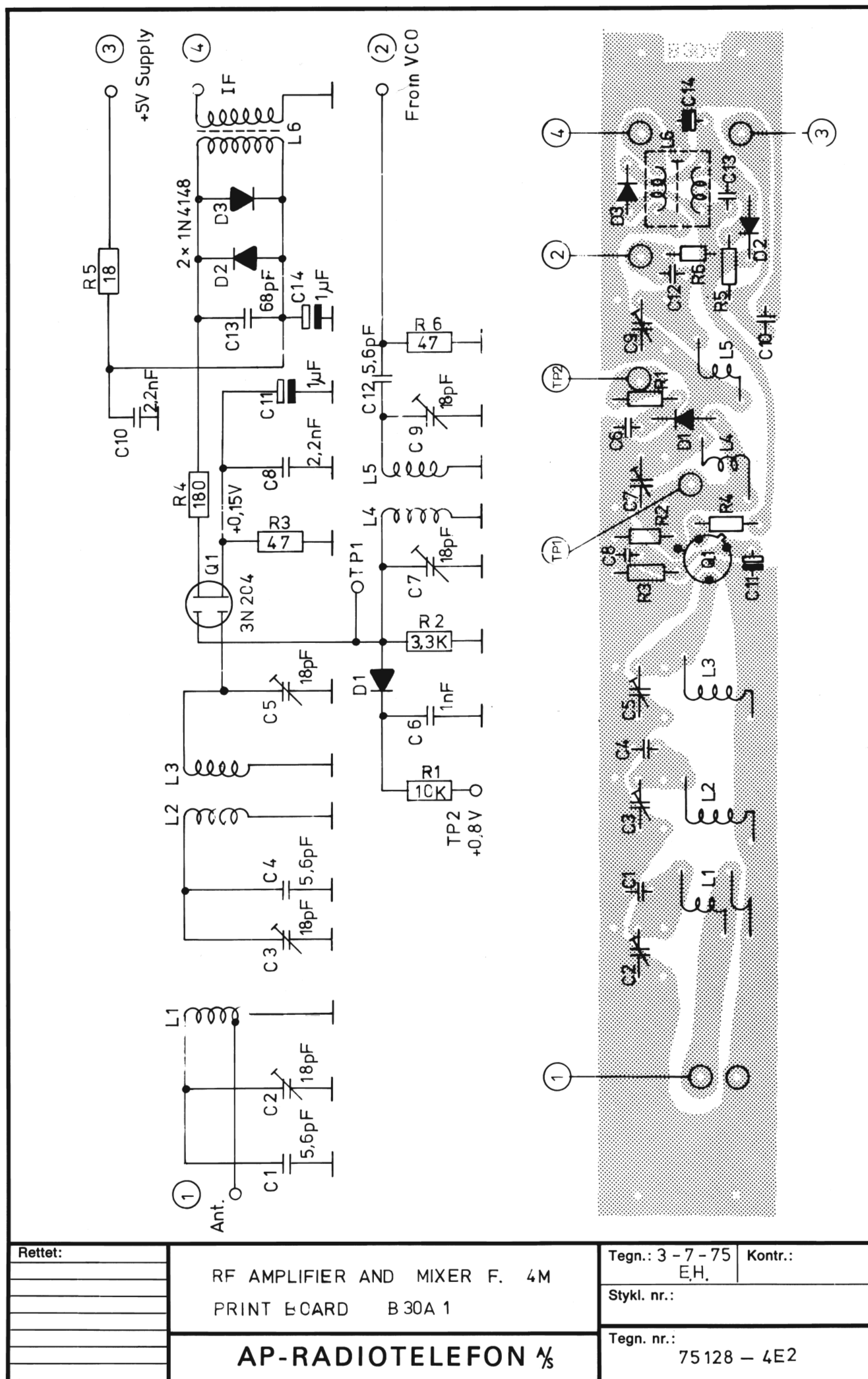
Stykl. nr.:

Tegn. nr.:

75129 - 4E 2

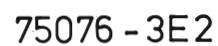
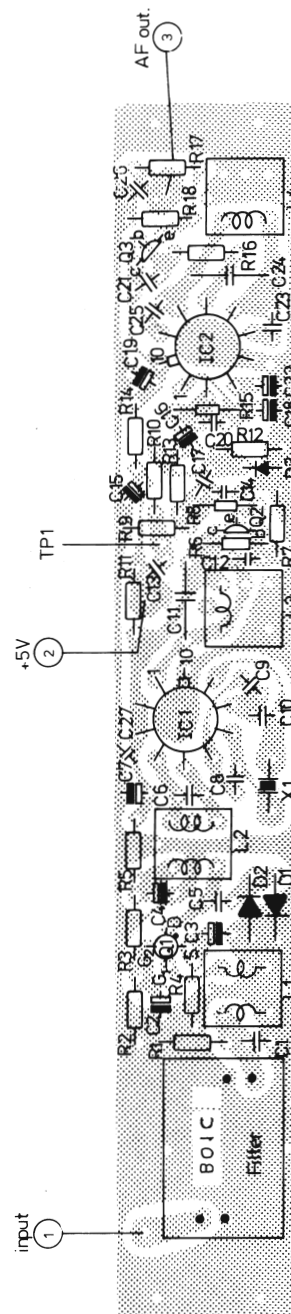
# AP-RADIOTELEFON

Nr.	Kode	Data	Nr.	Kode	Data
R1	13-359	100 $\Omega$ $\frac{1}{4}$ W CR 25			
C1	11-363	2,2 pF Ker.			
C2	11-409	1 nF "			
RFC- 1		75290-4E2			
TR1		78064-4E2			
D1	04-062	1N4148			
RE 1	17-059	AE 5612-02, RS-6V, National			
Aerial switch for 4m internal PA Print board B 39 A 2 Tilhører tegn. nr.: 75129-4E2			Tegn.: Kontr.: Stykl. nr.: 75129-4E2		



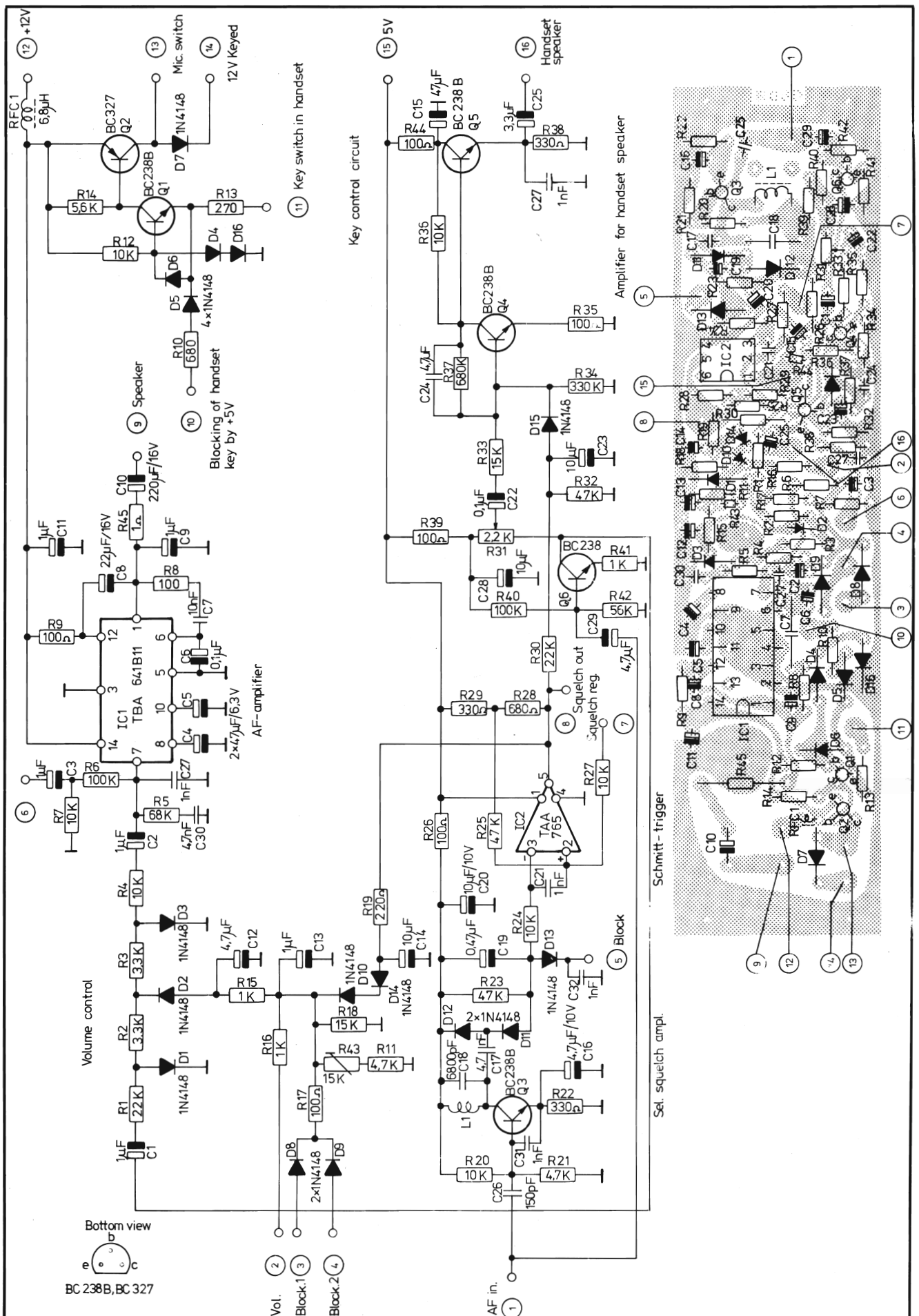
# AP-RADIOTELEFON

Nr.	Kode	Data	Nr.	Kode	Data
R1	13-295	10 kΩ 1/8 w	D1	04-062	1N 4148
R2	13-289	3,3 kΩ "	D2	04-062	1N 4148
R3	13-267	47 Ω "	D3	04-062	1N 4148
R4	13-274	180 Ω "			
R5	13-262	18 Ω "			
R6	13-267	47 Ω "			
C1	11-370	5,6 pF ker.			
C2	19-330	18 pF trim.			
C3	19-330	18 pF trim.			
C4	11-370	5,6 pF ker.			
C5	19-330	18 pF trim.			
C6	11-409	1 nF ker.			
C7	19-330	18 pF trim.			
C8	11-412	2,2 nF ker.			
C9	19-330	18 pF trim.			
C10	11-412	2,2 nF ker.			
C11	11-502	1 μF/35V tant.			
C12	11-370	5,6 pF ker.			
C13	11-397	68 pF ker.			
C14	11-502	1 μF/35V tant.			
L1		75297-4E2			
		75299-4E2			
L2		75364-4E2			
L3		75364-4E2			
L4		75299-4E2			
L5		75299-4E2			
L6		76222-4E2			
Q1	19-185	3N 204			
RF-mixer 4 m. Print board B 30 A 1 Tilhører tegn. nr.: 75128-4E2			Rettet:		<div>Tegn.:</div> <div>Kontr.:</div> <div>Stykl. nr.: 75128-4S2</div>



# AP-RADIOTELEFON

Nr.	Kode	Data	Nr.	Kode	Data
R1	13-290	3,9 KΩ 1/8W CR 16	C19	11-504	4,7 μF/10V Tant.
R2	13-302	47 KΩ " "	C20	11-409	1 nF Ker.
R3	13-302	47 KΩ " "	C21	11-416	4,7 nF "
R4	13-272	120 Ω " "	C22	11-504	4,7 μF/10V Tant.
R5	13-263	22 Ω " "	C23	11-404	150 pF Ker.
R6	13-295	10 KΩ " "	C24	11-461	2,2 nF MKM
R7	13-295	10 KΩ " "	C25	11-404	150 pF Ker.
R8	13-271	100 Ω " "	C26	11-416	4,7 nF "
R9	13-279	470 Ω " "	C27	11-409	1 nF "
R10	13-295	10 KΩ " "	D1	04-062	1N4148
R11	13-267	47 Ω " "	D2	04-062	1N4148
R12	13-306	100 KΩ " "	D3	04-036	0A90
R13	13-271	100 Ω " "			
R14	13-267	47 Ω " "	Q1	19-128	40673
R15	13-279	470 Ω " "	Q2	19-104	BF199
R16	13-263	22 Ω " "	Q3	19-093	BC238B
R17	13-281	680 Ω " "			
R18	13-289	3,3 KΩ " "	IC1	09-007	SO42E
			IC2	09-006	SO41E
C1	11-403	120 pF Ker.			
C2	11-504	4,7 μF/10V Tant.	L1		75282-4E2
C3	11-502	1 μF/35V "	L2		75281-4E2
C4	11-504	4,7 μF/10V "	L3		75280-4E2
C5	11-409	1 nF Ker.	L4		75279-4E2
C6	11-396	56 pF "			
C7	11-504	4,7 μF/10V Tant.	X1	11-815	AP 22 20,945 Mhz
C8	11-404	150 pF Ker.	X2	11-854	21,4 Mhz
C9	11-396	56 pF "			
C10	11-404	150 pF "			
C11	11-461	2,2 nF MKM			
C12	11-416	4,7 nF Ker.			
C13	11-416	4,7 nF "			
C14	11-409	1 nF "			
C15	11-502	1 μF/35V Tant.			
C16	11-500	0,1 μF/35V "			
C17	11-416	4,7 nF Ker.			
C18	11-504	4,7 μF/10V Tant.			
21,4 MHz IF Print B 01 C Tilhører tegn. nr.: 75076-3E2			Rettet:		Tegn.: Kontr.:
					Stykl. nr.: 75076-4S2



Rettet: 12-4-77 JH/AC  
7-6-77 JH/AC  
13-4-78 POR/AMC

AF-amplifier, squelch and key circuit  
Print board B09 D 1

AP-RADIOTELEFON

Tegn.: 15-1-75  
AC  
Stykl. nr.:  
Tegn. nr.:

75017-3E2

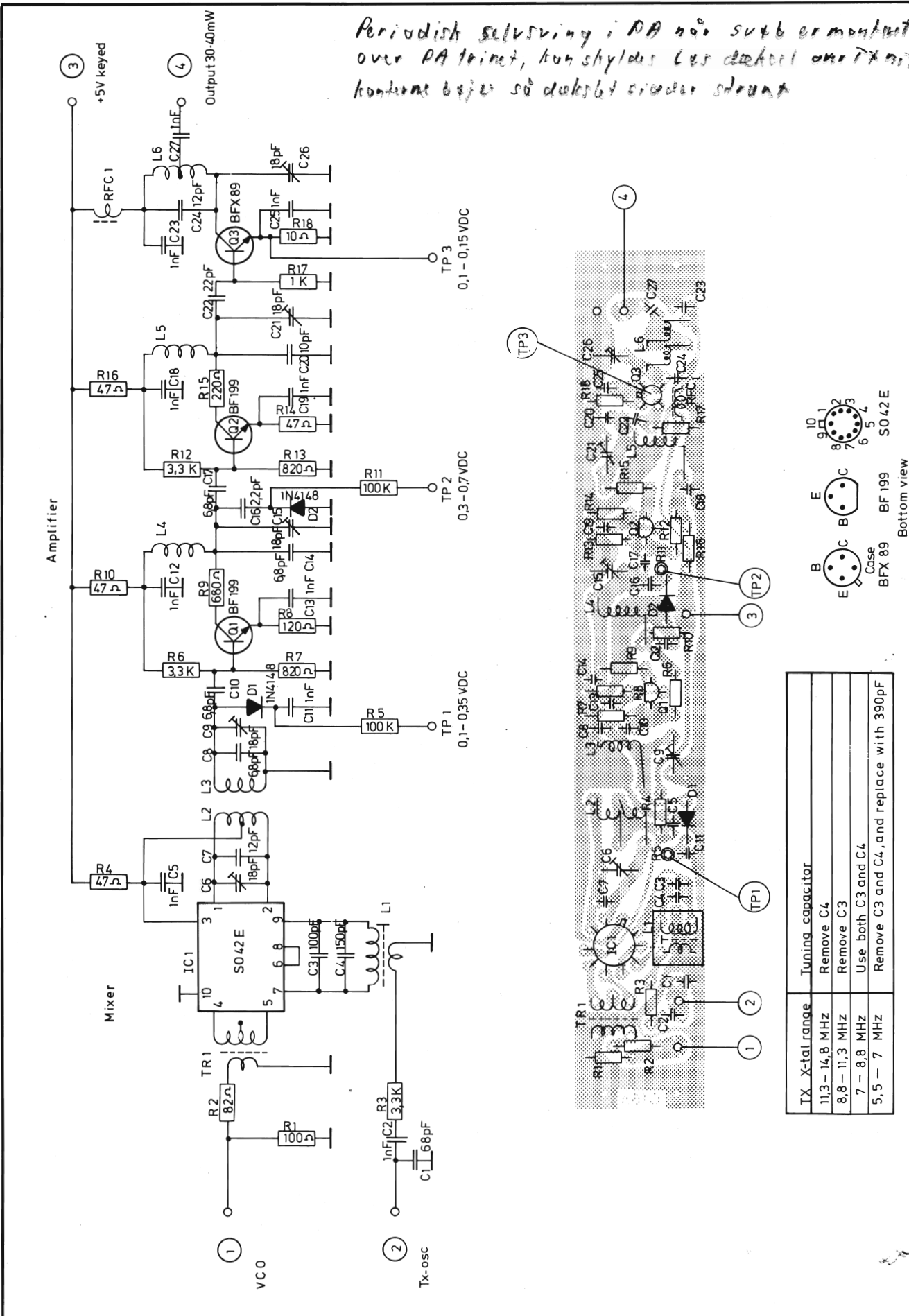
# AP-RADIOTELEFON

Nr.	Kode	Data	Nr.	Kode	Data
R1	13-299	22 K $\Omega$ 1/8W CR 16	R38	13-277	330 $\Omega$ 1/8W CR 16
R2	13-289	3,3 K $\Omega$ " "	R39	13-271	100 $\Omega$ " "
R3	13-289	3,3 K $\Omega$ " "	R40	13-306	100 K $\Omega$ " "
R4	13-295	10 K $\Omega$ " "	R41	13-283	1 K $\Omega$ " "
R5	13-304	68 K $\Omega$ " "	R42	13-303	56 K $\Omega$ " "
R6	13-306	100 K $\Omega$ " "	R43	13-663	15 K $\Omega$ NTC
R7	13-295	10 K $\Omega$ " "	R44	13-271	100 $\Omega$ 1/8W CR 16
R8	13-271	100 $\Omega$ " "	R45	13-409	1 $\Omega$ 1/2W CR 37
R9	13-271	100 $\Omega$ " "	C1	11-502	1 $\mu$ F/35V Tant.
R10	13-281	680 $\Omega$ " "	C2	11-502	1 $\mu$ F/35V "
R11	13-291	4,7 K $\Omega$ " "	C3	11-502	1 $\mu$ F/35V "
R12	13-295	10 K $\Omega$ " "	C4	11-509	47 $\mu$ F/6,3V "
R13	13-276	270 $\Omega$ " "	C5	11-509	47 $\mu$ F/6,3V "
R14	13-292	5,6 K $\Omega$ " "	C6	11-500	0,1 $\mu$ F/35V "
R15	13-283	1 K $\Omega$ " "	C7	11-350	10 nF Laco
R16	13-283	1 K $\Omega$ " "	C8	11-507	22 $\mu$ F/16V Tant.
R17	13-271	100 $\Omega$ " "	C9	11-502	1 $\mu$ F/35V "
R18	13-297	15 K $\Omega$ " "	C10	05-024	220 $\mu$ F/16V Elko
R19	13-275	220 $\Omega$ " "	C11	11-502	1 $\mu$ F/35V Tant.
R20	13-295	10 K $\Omega$ " "	C12	11-504	4,7 $\mu$ F/10V "
R21	13-291	4,7 K $\Omega$ " "	C13	11-502	1 $\mu$ F/35V "
R22	13-277	330 $\Omega$ " "	C14	11-506	10 $\mu$ F/25V "
R23	13-302	47 K $\Omega$ " "	C15	11-509	47 $\mu$ F/6,3V "
R24	13-295	10 K $\Omega$ " "	C16	11-504	4,7 $\mu$ F/10V "
R25	13-302	47 K $\Omega$ " "	C17	11-416	4,7 nF Ker.
R26	13-271	100 $\Omega$ " "	C18	11-465	6,8 nF MKH
R27	13-295	10 K $\Omega$ " "	C19	11-501	0,47 $\mu$ F/35V Tant.
R28	13-281	680 $\Omega$ " "	C20	11-506	10 $\mu$ F/25V "
R29	13-277	330 $\Omega$ " "	C21	11-409	1 nF Ker.
R30	13-299	22 K $\Omega$ " "	C22	11-500	0,1 $\mu$ F/35V Tant.
R31	19-255	2,2 K $\Omega$ Trim.	C23	11-506	10 $\mu$ F/25V "
R32	13-302	47 K $\Omega$ 1/8W CR 16	C24	11-416	4,7 nF Ker.
R33	13-297	15 K $\Omega$ " "	C25	11-519	3,3 $\mu$ F/16V Tant.
R34	13-310	330 K $\Omega$ " "	C26	11-404	150 pF Ker.
R35	13-271	100 $\Omega$ " "	C27	11-409	1 nF "
R36	13-295	10 K $\Omega$ " "	C28	11-506	10 $\mu$ F/25V Tant.
R37	13-311	680 K $\Omega$ " "	C29	11-504	4,7 $\mu$ F/10V "
AF-amplifier, squelch and key circuit Print board B 09 D 1 Tilhører tegn. nr.: 75017-3E2				Tegn.:	Stykl. nr.:
				Kontr.:	75017-4S2

# AP-RADIOTELEFON

Nr.	Kode	Data	Nr.	Kode	Data
C30	11-416	4,7 nF ker.			
C31	11-409	1 nF "			
C32	11-409	1 nF "			
D1	04-062	1N4148			
D2	04-062	1N4148			
D3	04-062	1N4148			
D4	04-062	1N4148			
D5	04-062	1N4148			
D6	04-062	1N4148			
D7	04-062	1N4148			
D8	04-062	1N4148			
D9	04-062	1N4148			
D10	04-062	1N4148			
D11	04-062	1N4148			
D12	04-062	1N4148			
D13	04-062	1N4148			
D14	04-062	1N4148			
D15	04-062	1N4148			
D16	04-062	1N4148			
Q1	19-093	BC 238B			
Q2	19-095	BC 327			
Q3	19-093	BC 238B			
Q4	19-093	BC 238B			
Q5	19-093	BC 238B			
Q6	19-093	BC 238B			
IC1	09-004	TBA 641B11			
IC2	09-003	TAA 765A			
RFC 1	04-114	74016-4E2 drossel			
L1		75295-4E2			
AF-amplifier, squelch and key circuit. Print board B 09 D1 Tilhører tegn. nr.: 75017-3E2			Rettet:		<div>Tegn.:</div> <div>Kontr.:</div>
					Stykl. nr.: 75017-4S2

Periodisk selvstyrt i PA n<sup>o</sup> supplerment over PA trinnet, kun skyldes det d<sup>o</sup>kket om i PA trinnet.  
kontrollen b<sup>o</sup>jer s<sup>o</sup> d<sup>o</sup>kket er der s<sup>o</sup> skruet



Retter:	Transmitter mixer and amplifier 4m Print board C15 A1	Tegn.: 8-3-78 H.J.	Kontr.: J.H.
		Stykl. nr.:	
		Tegn. nr.:	78031-3E 2
AP-RADIOTELEFON			

# AP-RADIOTELEFON

Nr.	Kode	Data	Nr.	Kode	Data
R1	13-271	100 $\Omega$ 1/8 W CR16	C19	11-409	1 nF Ker
R2	13-270	82 $\Omega$ " "	C20	11-376	10 pF "
R3	13-289	3,3 K $\Omega$ " "	C21	19-330	18 pF Trim
R4	13-267	47 $\Omega$ " "	C22	11-385	22 pF Ker
R5	13-394	100 K $\Omega$ 1/4 W CR25	C23	11-409	1 nF "
R6	13-289	3,3 K $\Omega$ 1/8 W CR16	C24	11-379	12 pF "
R7	13-282	820 $\Omega$ " "	C25	11-409	1 nF "
R8	13-272	120 $\Omega$ " "	C26	19-330	18 pF Trim
R9	13-281	680 $\Omega$ " "	C27	11-409	1 nF "
R10	13-267	47 $\Omega$ " "			
R11	13-394	100 K $\Omega$ 1/4 W CR25	D1	04-062	1N4148
R12	13-289	3,3 K $\Omega$ 1/8 W CR16	D2	04-062	1N4148
R13	13-282	820 $\Omega$ " "			
R14	13-267	47 $\Omega$ " "	Q1	19-104	BF 199
R15	13-275	220 $\Omega$ " "	Q2	19104	BF 199
R16	13-267	47 $\Omega$ " "	Q3	19-102	BFX 89
R17	13-283	1 K $\Omega$ " "			
R18	13-259	10 $\Omega$ " "	L1		75517-4E2
			L2		2x 78029-4E2
C1	11-397	68 pF Ker	L3		78030-4E2
C2	11-409	1 nF "	L4		78030-4E2
C3	11-401	100 pF "	L5		78030-4E2
C4	11-404	150 pF "	L6		2x 78029-4E2
C5	11-409	1 nF "			
C6	19-330	18 pF Trim	RFC		
C7	11-379	12 pF "	1		75290-4E2
C8	11-373	6,8 pF Ker			
C9	19-330	18 pF Trim	TR1		75289-4E2
C10	11-373	6,8 pF Ker	IC1	09-007	SO 42 E
C11	11-409	1 nF "			
C12	11-409	1 nF "			
C13	11-409	1 nF "			
C14	11-373	6,8 pF "			
C15	19-330	18 pF Trim			
C16	11-439	2,2 pF Ker NPO			
C17	11-373	6,8 pF Ker			
C18	11-409	1 nF "			
Transmitter mixer and ampli. 4m . Print board C 15 A 1 Tilhører tegn. nr.: 78031-3E			Rettet:		<div>Tegn.:</div> <div>Kontr.:</div>
					Stykl. nr.: 78031-4S2



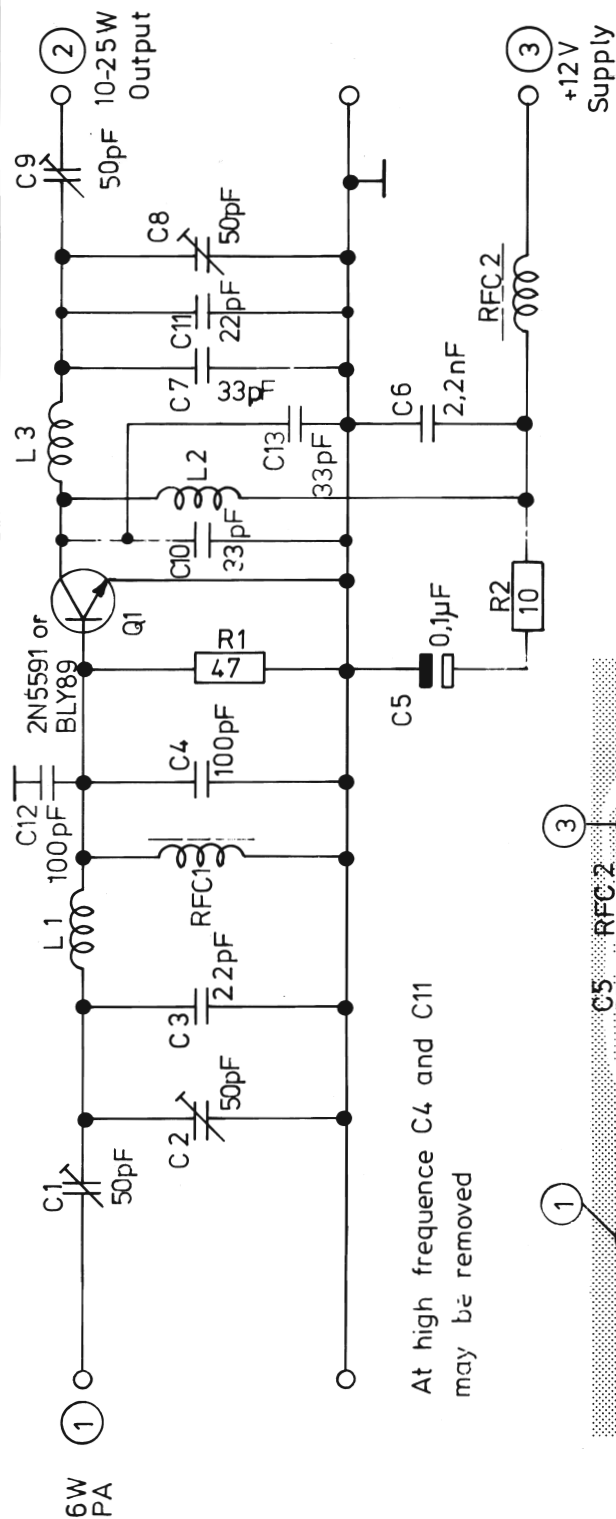
# AP-RADIOTELEFON

Nr.	Kode	Data	Nr.	Kode	Data
R1	13-267	47 $\Omega$ 1/8 W CR16			
R2	13-283	1 K $\Omega$ " "			
R3					
R4	13-259	10 $\Omega$ " "			
R5	13-259	10 $\Omega$ " "			
C1	11-388	27 pF Ker			
C2	19-332	56 pF Trim			
C3	11-353	0,1 $\mu$ F Laco			
C4	11-381	15 pF Ker			
C5	11-412	2,2 nF "			
C6	11-294	47 pF "			
C7	11-401	100 pF "			
C8	19-332	56 pF Trim			
C9	11-401	100 pF Ker			
C10	11-500	0,1 $\mu$ F/35 V Tant			
C11	11-412	2,2 nF Ker			
C12	19-332	56 pF Trim			
C13	19-332	56 pF "			
C14	11-390	33 pF Ker			
C15	11-401	100 pF "			
C16	11-401	100 pF "			
C17	11-401	100 pF "			
L1		75306-4E2			
L2		75307-4E2			
L3		75310-4E2			
RFC					
1		75290-4E2			
RFC					
2		75290-4E2			
RFC					
3		75290-4E2			
Q1	19-165	2N 6080			
Q2	19-179	2N 5590 or BLY88C			
6 W PA-stage 4 m. Print board B 29 Tilhører tegn. nr.: 75146-4E2			Rettet:		<div>Tegn.:</div> <div>Kontr.:</div>
					Stykl. nr.: 75146-4S2

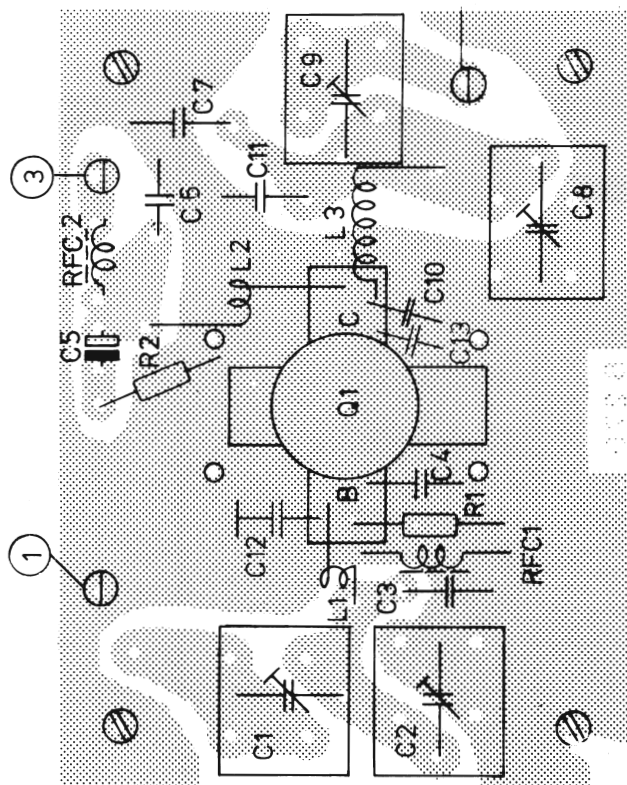


# AP-RADIOTELEFON

Nr.	Kode	Data	Nr.	Kode	Data
R1	13-284	1,2 K $\Omega$ 1/8 W	RFC		
R2	13-267	47 $\Omega$ "	1		75290-4E2
R3	13-259	10 $\Omega$ "	RFC		
R4	13-267	47 $\Omega$ "	2		75290-4E2
			RFC		
C1	11-502	1 $\mu$ F Tant.	3		75290-4E2
C2	11-412	2,2 nF Ker.	RFC		
C3	11-582	1 $\mu$ F Tant.	4		75290-4E2
C4	11-412	2,2 nF Ker.	RFC		
C5	11-502	1 $\mu$ F Tant.	5		75290-4E2
C6	11-412	2,2 nF Ker.	RFC		
C7	11-401	100 pF "	6		75290-4E2
C8	11-388	27 pF "			
C9	19-334	50 pF Trim.			
C10	11-394	47 pF Ker.			
C11	11-401	100 pF "			
C12	19-334	50 pF Trim.			
C13	11-404	150 pF Ker.			
C14	11-391	33 pF N150 400V			
C15	19-334	50 pF Trim.			
C16	11-401	100 pF Ker.			
C17	11-394	47 pF "			
C18	11-391	33 pF N150 400V			
C19	19-334	50 pF Trim.			
C20	19-334	50 pF "			
Q1	19-165	2N6080			
Q2	19-122	BLY 88c			
Q3	19-111	BLY 89c			
L1		76356-4E2			
L2		76354-4E2			
L3		76355-4E2			
L4		76354-4E2			
L5		76355-4E2			
L6		76357-4E2			
10-25 W PA 4 m			Rettet:		Tegn.:
Print board B 79 A 2					Stykl. nr.:
Tilhører tegn. nr.: 76348-4E2					Kontr.:
					76348-4S2



At high frequency C4 and C11 may be removed



Rettet: 6-8-75 AC  
29-10-75. EH/BJ  
9-3-75 AC/BJ  
18-2-77 AC/BJ  
9-1-78 AC/IM  
7-4-78 AMC/JH  
16-6-78 JS/AC

Extern 10-25W PA-stage for 4m  
Print Board B 27 E 1

AP-RADIOTELEFON 4m

Tegn.: 11-4-75  
E.H.

Kontr.: 9-6-75  
B.J.

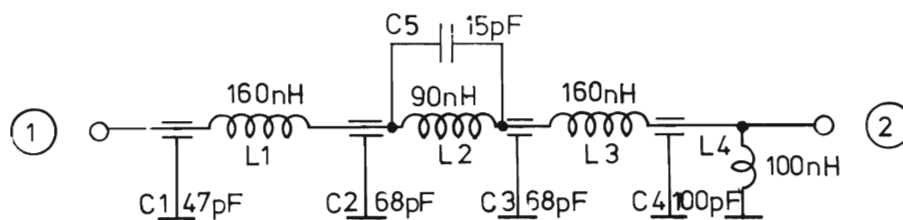
Stykl. nr.:

Tegn. nr.:

75152-4E2

# AP-RADIOTELEFON

Nr.	Kode	Data	Nr.	Kode	Data
R1	13-356	47 $\Omega$ $\frac{1}{4}$ W			
R2	13-350	10 $\Omega$ "			
C1	19-334	50 pF trim.			
C2	19-334	50 pF "			
C3	11-385	22 pF ker.			
C4	11-401	100 pF ker. black			
C5	11-500	0,1 $\mu$ F/35 V tant.			
C6	11-412	2,2 nF ker.			
C7	11-391	33 pF N150 400 V			
C8	19-334	50 pF trim.			
C9	19-334	50 pF "			
C10	11-390	33 pF ker.			
C11	11-386	22 pF N150 400 V			
C12	11-401	100 pF ker.			
C13	11-390	33 pF "			
L1		75303-4E2			
L2		75302-4E2			
L3		75301-4E2			
RFC-1		75290-4E2			
RFC-2		75290-4E2			
Q1	19-180	2N 5591 m. underlagsskive 76018-4M2			
Extern 10-25 W PA-stage Print board B 27 E 1 Tilhører tegn. nr.: 75152-4E2			Rettet:		<div>Tegn.:</div> <div>Kontr.:</div>
					Stykl. nr.: 75152-4S2



Rettet: 3-6-75, E.H.  
23-6-78 JH/AC

Aerial filter for 4m

**AP-RADIOTELEFON ½**

Tegn.: 3-6-75  
E.H.

Kontr.:

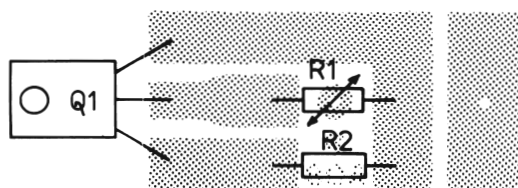
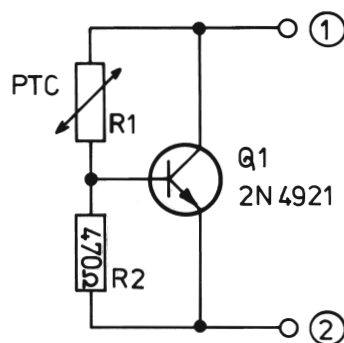
Stykl. nr.:

Tegn. nr.:

75130 - 4E 2

# AP-RADIOTELEFON

Nr.	Kode	Data	Nr.	Kode	Data
C1	11-450	47 pF feed-thru Philips 2222 700 03479			
C2	11-451	68 pF feed-thru Philips 222 702 07689			
C3	11-451	68 pF feed-thru Philips 2222 702 07689			
C4	11-452	100 pF feed-thru Philips 2222 700 04101			
C5	11-381	15 pF ker.			
L1		75310-4E2			
L2		76356-4E2			
L3		75310-4E2			
L4		75308-4E2			
Aerial filter for 4m.			Rettet:		Tegn.:
Tilhører tegn. nr.: 75130-4E2					Kontr.:
					Stykl. nr.: 75130-4E2



Rettet: 15-6-78 JS/AC

Thermal protection of 10-25 W internal PA  
Print board B80A 1

Tegn.: 5-11 -76  
AC

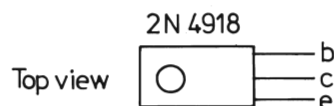
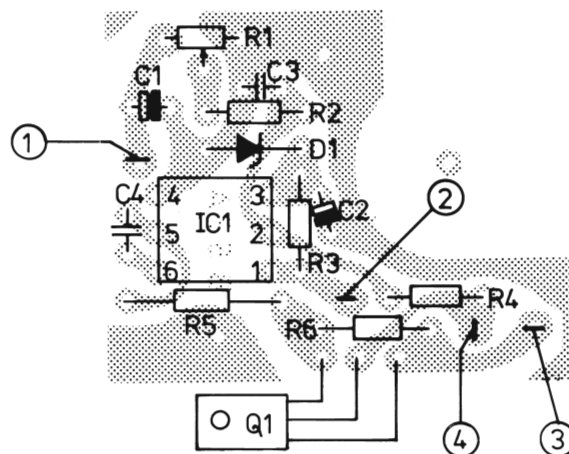
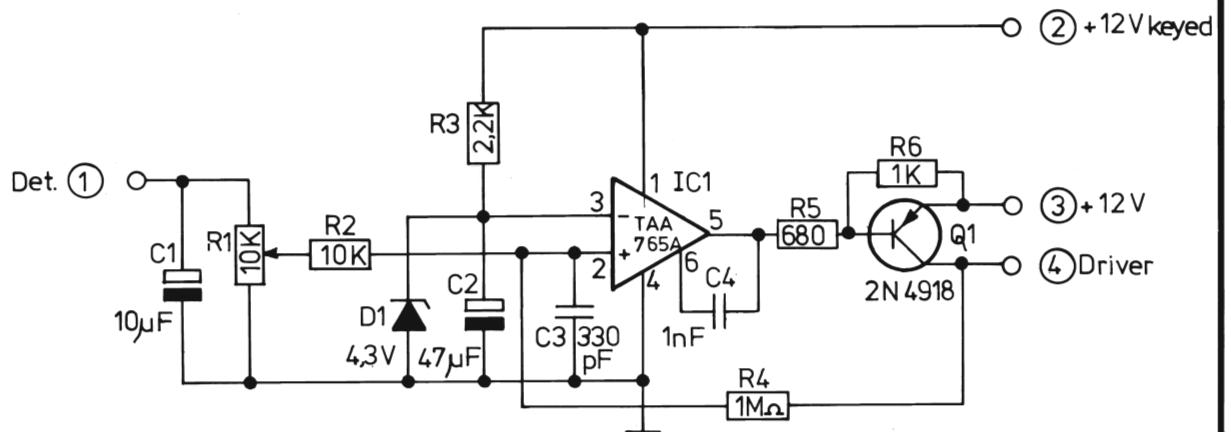
Kontr.:

Stykl. nr.:

Tegn. nr.:

76328 - 4E2

**AP-RADIOTELEFON 1/5**



Rettet: 21-4-77 JH/ac

Sense amplifier for output power stabilizing of internal PA. Print board B 57 B 1

AP-RADIOTELEFON 1/2

Tegn.: 29-12-75  
AC

Kontr.:

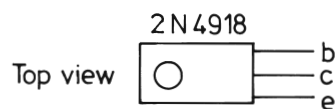
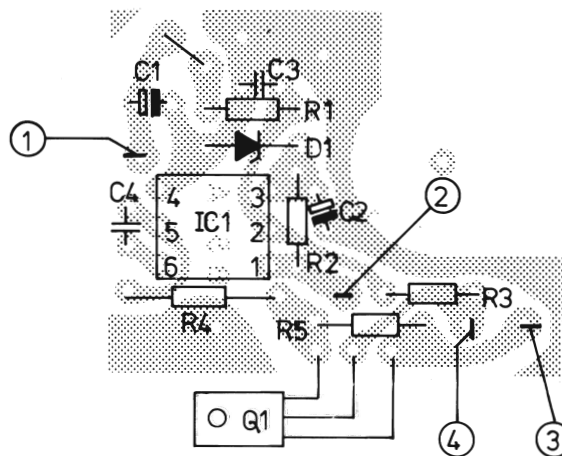
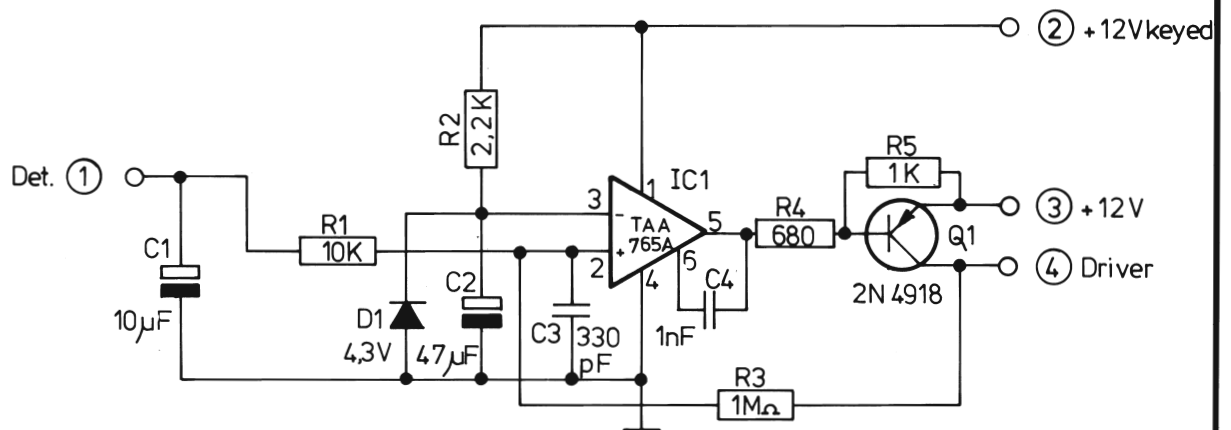
Stykl. nr.:

Tegn. nr.:

75622-4E2

# AP-RADIOTELEFON

Nr.	Kode	Data	Nr.	Kode	Data
R1	19-258	10 K $\Omega$ Trim.			
R2	13-295	10 K $\Omega$ 1/8W CR 16			
R3	13-287	2,2 K $\Omega$ " "			
R4	13-312	1 M $\Omega$ " "			
R5	13-368	680 $\Omega$ $\frac{1}{4}$ W CR 25			
R6	13-283	1 K $\Omega$ 1/8W CR 16			
C1	11-506	10 $\mu$ F/25V Tant.			
C2	11-509	47 $\mu$ F/6,3V "			
C3	11-406	330 pF Ker.			
C4	11-409	1 nF "			
D1	04-045	4,3 V Zener			
Q1	19-176	2N4918			
IC1	09-003	TAA765A			
Sense amplifier for output power stabilizing of internal PA Print board B 57B 1					
Tilhører tegn. nr.: 75622-4E2					
			Tegn.:		Stykl. nr.:
			Kontr.:		75622-4S2



Rettet: 21-4-77 B./pc

Sense amplifier for output power stabilizing  
of external PA  
Print board B57B 2

**AP-RADIOTELEFON 1/2**

Tegn.: 3-11-76  
AC

Kontr.:

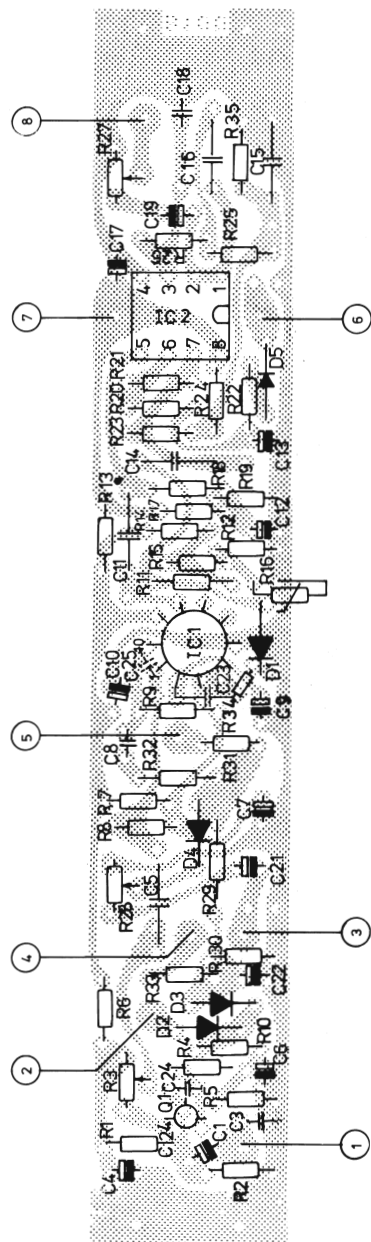
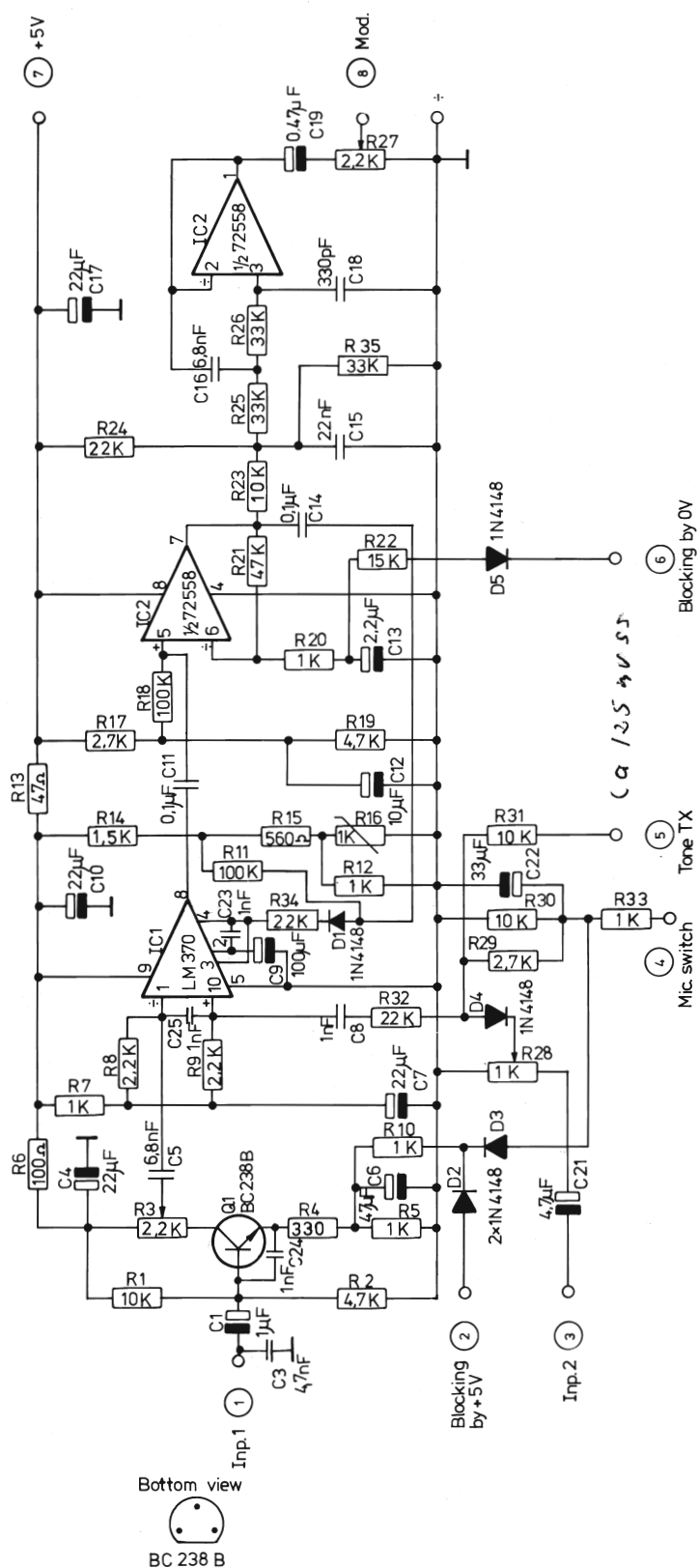
Stykl. nr.:

Tegn. nr.:

76325 - 4E2

# AP-RADIOTELEFON

Nr.	Kode	Data	Nr.	Kode	Data
R1	13-295	10 K $\Omega$ 1/8W CR 16			
R2	13-287	2,2 K $\Omega$ " "			
R3	13-312	1 M $\Omega$ " "			
R4	13-368	680 $\Omega$ $\frac{1}{4}$ W CR 25			
R5	13-283	1 K $\Omega$ 1/8W CR 16			
C1	11-506	10 $\mu$ F/25V Tant.			
C2	11-509	47 $\mu$ F/6,3V "			
C3	11-406	330 pF Ker.			
C4	11-409	1 nF "			
D1	04-045	4,3 V Zener			
Q1	19-176	2N4918			
IC1	09-003	TAA765A			
Sense amplifier for output power stabilizing of external PA. Print board B 57 B 2 Tilhører tegn. nr.: 76325-4E2			Tegn.: Kontr.: Stykl. nr.: 76325-4S2		



Rettet:  
7-9-76 JH/NC  
1-2-77 HJ.  
27-5-77 LT/AC  
9-6-77 LT/AC  
22-6-77 JH/AC  
9-2-78 HJ.

Modulation amplifier  
Print board B10D1

AP-RADIOTELEFON

Tegn.: 8-1-75  
AC  
Stykl. nr.:  
Tegn. nr.:

Kontr.:

75018-3E2

# AP-RADIOTELEFON

Nr.	Kode	Data	Nr.	Kode	Data
R1	13-295	10 KΩ 1/8W CR 16	C4	11-507	22 μF/16V Tant.
R2	13-291	4,7 KΩ " "	C5	11-466	6,8 nF Ker.
R3	19-255	2,2 KΩ Trim.	C6	11-509	47 μF/6,3V Tant.
R4	13-277	330 Ω 1/8W CR 16	C7	11-507	22 μF/16V "
R5	13-283	1 KΩ " "	C8	11-409	1 nF Ker.
R6	13-271	100 Ω " "	C9	11-510	100 μF/3V Tant.
R7	13-283	1 KΩ " "	C10	11-507	22 μF/16V "
R8	13-287	2,2 KΩ " "	C11	11-470	0,1 μF MKH
R9	13-287	2,2 KΩ " "	C12	11-506	10 μF/25V Tant.
R10	13-283	1 KΩ " "	C13	11-503	2,2 μF/25V "
R11	13-306	100 KΩ " "	C14	11-470	0,1 μF MKH
R12	13-283	1 KΩ " "	C15	11-489	22 nF "
R13	13-267	47 Ω " "	C16	11-465	6,8 nF MKH
R14	13-285	1,5 KΩ " "	C17	11-507	22 μF/16V Tant.
R15	13-280	560 Ω " "	C18	11-430	330 pF N750 Ker.
R16	13-664	1 KΩ NTC	C19	11-501	0,47 μF/35V Tant.
R17	13-288	2,7 KΩ 1/8 W "	C20		
R18	13-306	100 KΩ " "	C21	11-504	4,7 μF/10V Tant.
R19	13-291	4,7 KΩ " "	C22	11-508	33 μF/10V Tant.
R20	13-283	1 KΩ " "	C23	11-409	1 nF Ker.
R21	13-307	47 KΩ " "	C24	11-409	1 nF "
R22	13-297	15 KΩ " "	C25	11-409	1 nF "
R23	13-295	10 KΩ " "			
R24	13-299	22 KΩ " "	D1	04-062	1N4148
R25	13-300	33 KΩ " "	D2	04-062	1N4148
R26	13-300	33 KΩ " "	D3	04-062	1N4148
R27	19-255	2,2 KΩ Trim.	D4	04-062	1N4148
R28	19-252	1 KΩ " "	D5	04-062	1N4148
R29	13-288	2,7 KΩ 1/8W CR 16			
R30	13-295	10 KΩ " "	Q1	19-093	BC 238B
R31	13-295	10 KΩ " "			
R32	13-299	22 KΩ " "	IC1	09-005	LM 370
R33	13-283	1 KΩ " "	IC2	09-075	SN 72558 p
R34	13-299	22 KΩ " "			
R35	13-300	33 KΩ " "			
C1	11-502	1 μF/35V Tant.			
C3	11-416	4,7 nF Ker.			
Modulation amplifier Print board B 10 D1 Tilhører tegn. nr.: 75018-3E2			Rettet:		Tegn.: Kontr.: Stykl. nr.: 75018-4S2



# AP-RADIOTELEFON

Nr.	Kode	Data	Nr.	Kode	Data
R1	13-295	10 KΩ 1/8WCR16	R38	13-302	47 KΩ 1/8WCR16
R2	13-295	10 KΩ " "	R39	13-306	100 KΩ " "
R3	13-279	470 Ω " "	R40	13-287	2,2 KΩ " "
R4	13-307	120 KΩ " "	R41	13-299	22 KΩ " "
R5	13-283	1 KΩ " "	R42	13-291	4,7 kΩ " "
R6	13-275	220 Ω " "	R43	13-271	100 Ω " "
R7	13-295	10 KΩ " "	R44	13-382	10 KΩ ¼ W CR25
R8	13-295	10 KΩ " "			
R9	13-295	10 KΩ " "	C1	11-385	22 pF Ker
R10	13-295	10 KΩ " "	C2	11-416	4,7 nF "
R11	13-295	10 KΩ " "	C3	11-416	4,7 nF "
R12	13-295	10 KΩ " "	C4	11-404	150 pF "
R13	13-295	10 KΩ " "	C5	11-409	1 nF "
R14	13-295	10 KΩ " "	C6	11-409	1 nF "
R15	13-271	100 Ω " "	C7	11-409	1 nF "
R16	13-271	100 Ω " "	C8	11-409	1 nF "
R17	13-271	100 Ω " "	C9	11-409	1 nF "
R18	13-271	100 Ω " "	C10	11-409	1 nF "
R19	13-271	100 Ω " "	C11	11-409	1 nF "
R20	13-271	100 Ω " "	C12	11-409	1 nF "
R21	13-271	100 Ω " "	C13	11-416	4,7 nF "
R22	13-271	100 Ω " "	C14	11-504	4,7 µF/10V Tant
R23	13-259	10 Ω " "	C15	11-416	4,7 nF Ker
R24	13-283	1 KΩ " "	C16	11-481	10 nF Pol.
R25	13-283	1 KΩ " "	C17	11-478	6,8 nF "
R26	13-291	4,7 KΩ " "	C18	11-476	2,2 nF "
R27	13-291	4,7 KΩ " "	C19	11-508	33 µF/10V Tant
R28	13-291	4,7 KΩ " "	C20	11-504	4,7 µF/10V "
R29	13-299	22 KΩ " "	C21	11-409	1 nF Ker
R30	13-299	22 KΩ " "	C22	11-401	100 pF "
R31	13-271	100 Ω " "	C23	11-504	4,7 µF/10V Tant
R32	13-287	2,2 KΩ " "	C24	11-394	47 pF Ker
R33	13-295	10 KΩ " "	C25	11-409	1 nF "
R34	13-299	22 KΩ " "	C26	11-444	560 pF "
R35	13-313	27 KΩ " "	C27	11-504	4,7 µF/10V Tant
R36	13-287	2,2 KΩ " "	C28	11-444	560 pF Ker.
R37	13-300	33 KΩ " "	C29	11-509	47 µF/6,3VTant.
Synthesizer logic				Tegn.:	Stykl. nr.:
Print board B 17 C 1 B 22 C 1				Kontr.:	75062-4S 2
Tilhører tegn. nr.: 75062-3E					

# AP-RADIOTELEFON

Nr.	Kode	Data	Nr.	Kode	Data
Q1	19-093	BC 238B			
Q2	19-093	BC 238B			
Q3	19-093	BC 238B			
Q4	19-093	BC 238B			
Q5	19-093	BC 238B			
IC1	09-077	SN74LS02N			
IC2	09-052	SN74193N			
IC3	09-076	SN74LS193N			
IC4	09-008	MC4044P			
IC5	09-003	TAA765A			
IC6	09-078	SN74LS93N			
RFC1	04-114	74016-4E			
X1	11-816	AP 21 400 Khz			
Synthesizer logic Print board B 17C 1+B 22 C 1 Tilhører tegn. nr.: 75062-3E 2			Tegn.: Kontr.: Stykl. nr.: 75062-4S 2		

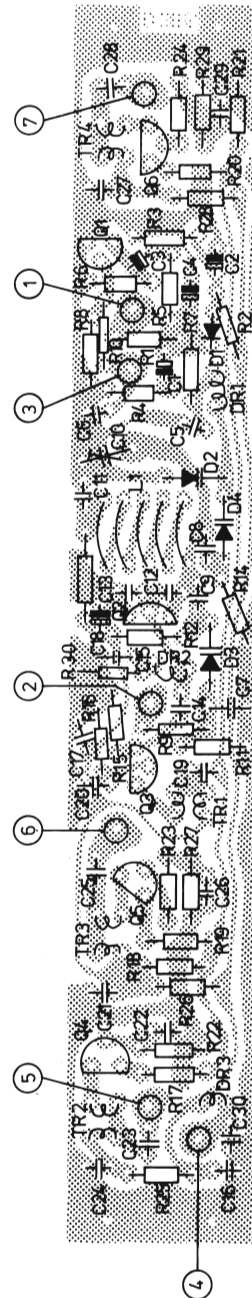
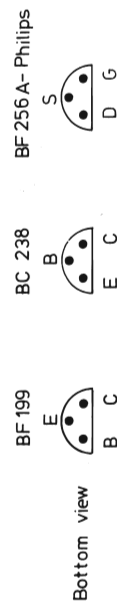


# AP-RADIOTELEFON

Nr.	Kode	Data	Nr.	Kode	Data
R1	13-295	10 K $\Omega$ 1/8WCR16	R38	13-302	47 K $\Omega$ 1/8WCR16
R2	13-295	10 K $\Omega$ " "	R39	13-306	100 K $\Omega$ " "
R3	13-279	470 $\Omega$ " "	R40	13-287	2,2 K $\Omega$ " "
R4	13-307	120 K $\Omega$ " "	R41	13-299	22 K $\Omega$ " "
R5	13-283	1 K $\Omega$ " "	R42	13-291	4,7 k $\Omega$ " "
R6	13-275	220 $\Omega$ " "	R43	13-271	100 $\Omega$ " "
R7	13-295	10 K $\Omega$ " "	R44	13-382	10 K $\Omega$ $\frac{1}{4}$ W CR25
R8	13-295	10 K $\Omega$ " "	C1	11-385	22 pF Ker
R9	13-295	10 K $\Omega$ " "	C2	11-416	4,7 nF "
R10	13-295	10 K $\Omega$ " "	C3	11-416	4,7 nF "
R11	13-295	10 K $\Omega$ " "	C4	11-404	150 pF "
R12	13-295	10 K $\Omega$ " "	C5	11-409	1 nF "
R13	13-295	10 K $\Omega$ " "	C6	11-409	1 nF "
R14	13-295	10 K $\Omega$ " "	C7	11-409	1 nF "
R15	13-271	100 $\Omega$ " "	C8	11-409	1 nF "
R16	13-271	100 $\Omega$ " "	C9	11-409	1 nF "
R17	13-271	100 $\Omega$ " "	C10	11-409	1 nF "
R18	13-271	100 $\Omega$ " "	C11	11-409	1 nF "
R19	13-271	100 $\Omega$ " "	C12	11-409	1 nF "
R20	13-271	100 $\Omega$ " "	C13	11-416	4,7 nF "
R21	13-271	100 $\Omega$ " "	C14	11-504	4,7 $\mu$ F/10V Tant
R22	13-271	100 $\Omega$ " "	C15	11-416	4,7 nF Ker
R23	13-259	10 $\Omega$ " "	C16	11-481	10 nF Pol.
R24	13-283	1 K $\Omega$ " "	C17	11-478	6,8 nF "
R25	13-283	1 K $\Omega$ " "	C18	11-476	2,2 nF "
R26	13-291	4,7 K $\Omega$ " "	C19	11-508	33 $\mu$ F/10V Tant
R27	13-291	4,7 K $\Omega$ " "	C20	11-504	4,7 $\mu$ F/10V "
R28	13-291	4,7 K $\Omega$ " "	C21	11-409	1 nF Ker
R29	13-299	22 K $\Omega$ " "	C22	11-401	100 pF "
R30	13-299	22 K $\Omega$ " "	C23	11-504	4,7 $\mu$ F/10V Tant
R31	13-271	100 $\Omega$ " "	C24	11-394	47 pF Ker
R32	13-287	2,2 K $\Omega$ " "	C25	11-409	1 nF "
R33	13-295	10 K $\Omega$ " "	C26	11-409	1 nF "
R34	13-299	22 K $\Omega$ " "	C27	11-504	4,7 $\mu$ F/10V Tant
R35	13-313	27 K $\Omega$ " "	C28	11-444	560 pF Ker.
R36	13-287	2,2 K $\Omega$ " "	C29	11-509	47 $\mu$ F/6,3VTant.
R37	13-300	33 K $\Omega$ " "			
Synthesizer logic				Tegn.:	Stykl. nr.:
Print board B 17 C2 and B 22 C1				Kontr.:	77201-4S2
Tilhører tegn. nr.: 77201-3E2					

# AP-RADIOTELEFON

Nr.	Kode	Data	Nr.	Kode	Data
Q1	19-093	BC 238B			
Q2	19-093	BC 238B			
Q3	19-093	BC 238B			
Q4	19-093	BC 238B			
Q5	19-093	BC 238B			
IC1	09-077	SN74LS02N			
IC2	09-052	SN74193N			
IC3	09-076	SN74LS193N			
IC4	09-008	MC4044P			
IC5	09-003	TAA765A			
IC6	09-078	SN74LS93N			
RFC1	04-114	74016-4E			
X1	11-816	AP 21 320 Khz			
Synthesizer logic Print board B 17 C2 and B 22 C1 Tilhører tegn. nr.: 77201-3E2			Tegn.: Kontr.: Stykl. nr.: 77201-4S2		



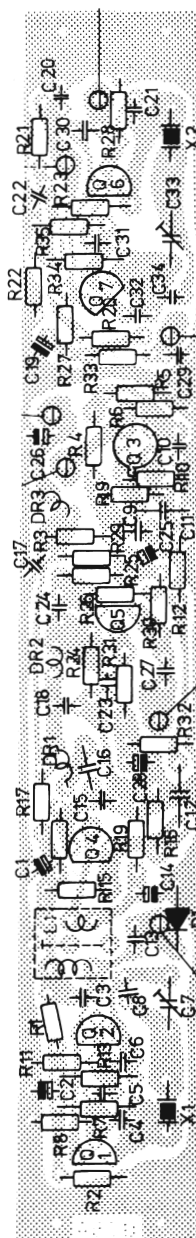
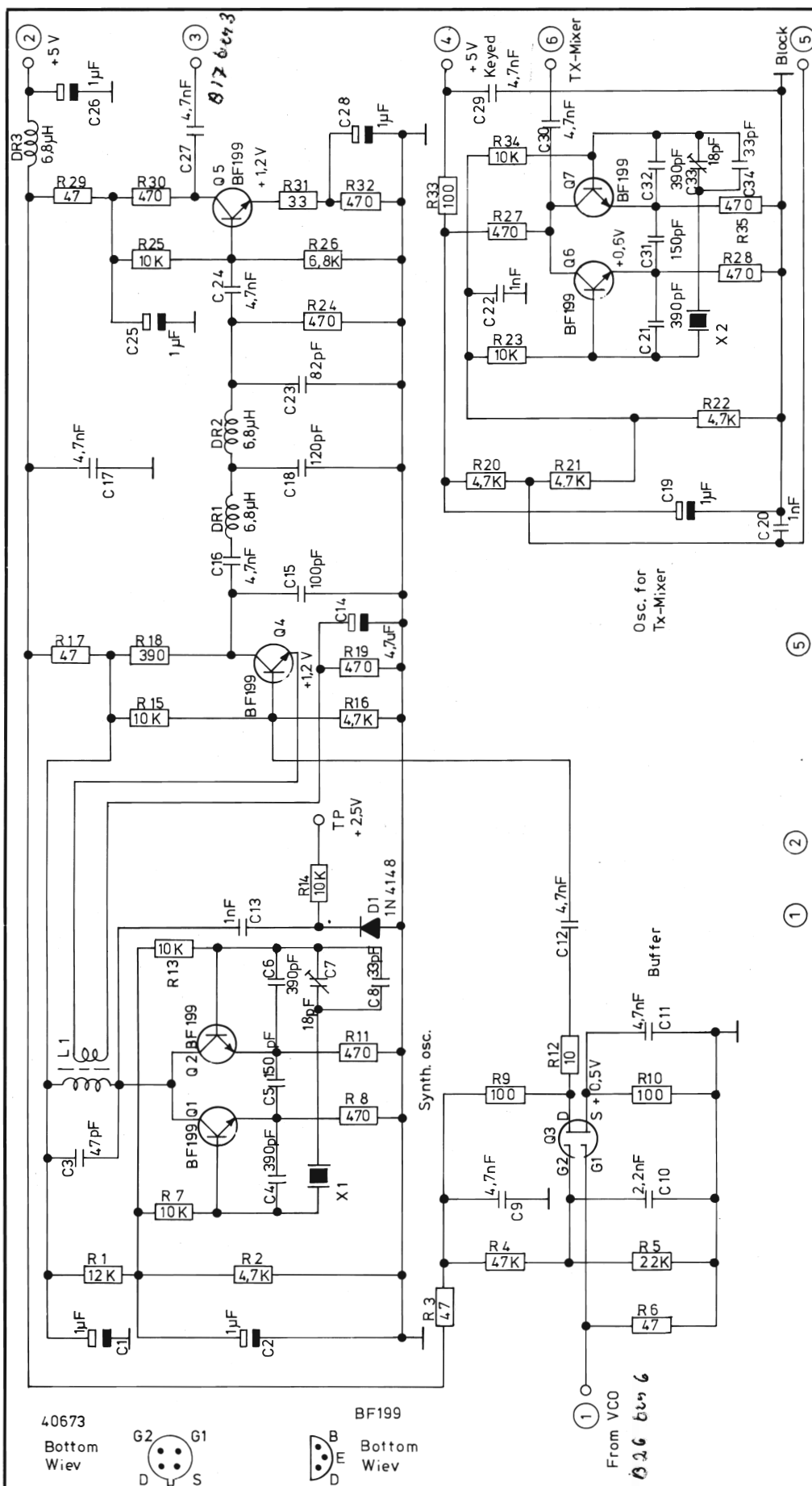
Tegn.: 23-3-76 AC	Kontr.:
Stykl. nr.:	
Tegn. nr.:	
75155-3E2	

# AP-RADIOTELEFON

Nr.	Kode	Data	Nr.	Kode	Data
R1	13-300	33 KΩ 1/8W CR 16	C8	11-409	1 nF Ker.
R2	13-289	3,3 KΩ " "	C9	11-437	3,9 pF N750
R3	13-287	2,2 KΩ " "	C10	19-328	9 pF Tek.Trim.
R4	13-281	680 Ω " "	C11	11-412	2,2 nF Ker.
R5	13-273	150 Ω " "	C12	11-374	8,2 pF "
R6	13-306	100 KΩ " "	C13	11-428	33 pF N750
R7	13-295	10 KΩ " "	C14	11-409	1 nF Ker.
R8	13-295	10 KΩ " "	C15	11-412	2,2 nF "
R9	13-295	10 KΩ " "	C16	11-412	2,2 nF "
R10	13-295	10 KΩ " "	C17	11-412	2,2 nF "
R11	13-387	2,2 KΩ " "	C18	11-509	47 μF/6,3V Tant.
R12	13-302	47 KΩ " "	C19	11-409	1 nF Ker.
R13	13-262	18 Ω " "	C20	11-412	2,2 nF "
R14	13-312	1 MΩ " "	C21	11-412	2,2 nF "
R15	13-295	10 KΩ " "	C22	11-412	2,2 nF "
R16	13-267	47 Ω " "	C23	11-412	2,2 nF "
R17	13-263	22 Ω " "	C24	11-412	2,2 nF "
R18	13-285	1,5 KΩ " "	C25	11-412	2,2 nF "
R19	13-263	22 Ω " "	C26	11-412	2,2 nF "
R20	13-263	22 Ω " "	C27	11-412	2,2 nF "
R21	13-284	1,2 KΩ " "	C28	11-412	2,2 nF "
R22	13-275	220 Ω " "	C29	11-412	2,2 nF "
R23	13-259	10 Ω " "	C30	11-412	2,2 nF "
R24	13-259	10 Ω " "			
R25	13-267	47 Ω " "	D1	04-062	1N4148
R26	13-262	18 Ω " "	D2	04-009	BB105G
R27	13-276	270 Ω " "	D3	04-009	BB105G
R28	13-267	47 Ω " "	D4	04-009	BB105G
R29	13-276	270 Ω " "			
R30	13-263	22 Ω " "			
C1	11-503	2,2 μF/25V Tant.	Q1	19-093	BC238b
C2	11-507	22 μF/16V "	Q2	19-113	BF256A Philips
C3	11-508	33 μF/10V "	Q3	19-113	BF256A Philips
C4	11-500	0,1 μF/35V "	Q4	19-104	BF199
C5	11-416	4,7 nF Ker.	Q5	19-104	BF199
C6	11-409	1 nF "	Q6	19-104	BF199
C7	11-409	1 nF "			
Voltage controlled oscillator Print board B 26 C 1 4 m. Tilhører tegn. nr.: 75155-3E2			Rettet:		Tegn.: Kontr.: Stykl. nr.: 75155-4S2

# AP-RADIOTELEFON

Nr.	Kode	Data	Nr.	Kode	Data
DR1	04-114	6,8 $\mu$ H			
DR2	04-114	6,8 $\mu$ H			
DR3	04-114	6,8 $\mu$ H			
TR1		75288-4E2			
TR2		75288-4E2			
TR3		75288-4E2			
TR4		75288-4E2			
L1		75292-4E2			
Voltage controlled oscillator Print board B 26 C 1 4 m. Tilhører tegn. nr.: 75155-3E2			Rettet:		<div>Tegn.:</div> <div>Kontr.:</div>
					Stykl. nr.: 75155-4S2



Rettet: 20-8-75E.H.

Synth. Mixer and TX-oscillator 4m  
Print board B 25A 1

AP-RADIOTELEFON

Tegn.: 17-4-75

E.H.

Stykl. nr.:

Tegn. nr.:

Kontr.: 17-4-75

B.J.

75166-3E2

# AP-RADIOTELEFON

Nr.	Kode	Data	Nr.	Kode	Data
R1	13-296	12 kΩ 1/8 w	C1	11-502	1 μF/35 V tant.
R2	13-291	4,7 kΩ "	C2	11-502	1 μF/35 V tant.
R3	13-267	47 Ω "	C3	11-394	47 pF ker.
R4	13-302	47 kΩ "	C4	11-427	390 pF N1500ker.
R5	13-299	22 kΩ "	C5	11-404	150 pF ker.
R6	13-267	47 Ω "	C6	11-427	390 pF N1500ker.
R7	13-295	10 kΩ "	C7	19-330	18 μF trim.
R8	13-279	470 Ω "	C8	11-390	33 pF ker.
R9	13-271	100 Ω "	C9	11-416	4,7 nF ker.
R10	13-271	100 Ω "	C10	11-412	2,2 nF ker.
R11	13-279	470 Ω "	C11	11-416	4,7 nF ker.
R12	13-259	10 Ω "	C12	11-416	4,7 nF ker.
R13	13-295	10 kΩ "	C13	11-409	1 nF ker.
R14	13-382	10 kΩ 1/4 w	C14	11-504	4,7 μF/10 V tant.
R15	13-295	10 kΩ 1/8 W	C15	11-401	100 pF ker.
R16	13-291	4,7 kΩ "	C16	11-416	4,7 nF ker.
R17	13-267	47 Ω "	C17	11-416	4,7 nF ker.
R18	13-278	390 Ω "	C18	11-403	120 pF ker.
R19	13-279	470 Ω "	C19	11-502	1 μF/35 V tant.
R20	13-291	4,7 kΩ "	C20	11-409	1 nF ker.
R21	13-291	4,7 kΩ "	C21	11-427	390 pF N1500ker.
R22	13-291	4,7 kΩ "	C22	11-409	1 nF ker.
R23	13-295	10 kΩ "	C23	11-399	82 pF ker.
R24	13-279	470 Ω "	C24	11-416	4,7 nF ker.
R25	13-295	10 kΩ "	C25	11-502	1 μF/35 V tant.
R26	13-293	6,8 kΩ "	C26	11-502	1 μF/35 V tant.
R27	13-279	470 Ω "	C27	11-416	4,7 nF ker.
R28	13-279	470 Ω "	C28	11-502	1 μF/35 V tant.
R29	13-267	47 Ω "	C29	11-416	4,7 nF ker.
R30	13-279	470 Ω "	C30	11-416	4,7 nF ker.
R31	13-265	33 Ω "	C31	11-404	150 pF ker.
R32	13-279	470 Ω "	C32	11-427	390 pF N1500ker.
R33	13-271	100 Ω "	C33	19-330	18 pF trim.
R34	13-295	10 kΩ "	C34	11-390	33pF ker.
R35	13-279	470 Ω "			
Synthesizer mixer and Tx-oscillator 4 m.				Tegn.:	Stykl. nr.:
Print board B 25 A 1				Kontr.:	75166-4S2
Tilhører tegn. nr.: 75166-3E2					

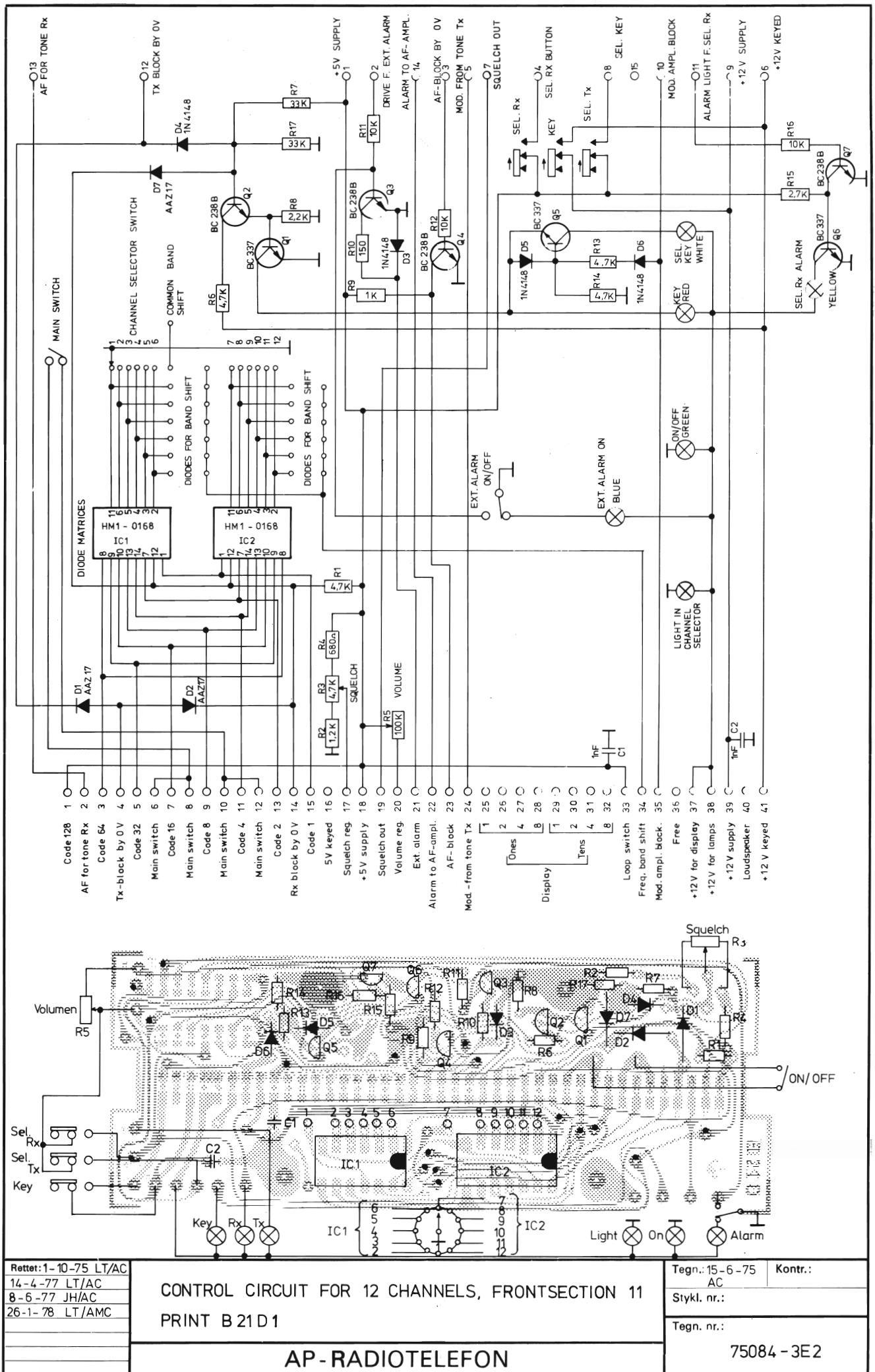
# AP-RADIOTELEFON

Nr.	Kode	Data	Nr.	Kode	Data
DR1	04-114	6,8 $\mu$ H			
DR2	04-114	6,8 $\mu$ H			
DR3	04-114	6,8 $\mu$ H			
D1	04-062	1N 4148			
Q1	19-104	BF 199			
Q2	19-104	BF 199			
Q3	19-128	40673			
Q4	19-104	BF 199			
Q5	19-104	BF 199			
Q6	19-104	BF 199			
Q7	19-104	BF 199			
L1		75287-4E2			
X1		Frequency dependent on desired band spec. AP 22			
X2		Frequency dependent on mode operation (simplex duplex ect.) spec. AP 22			
Synthesizer mixer and Tx-oscillator 4 m			Tegn.:		
Print board B 25 A 1			Stykl. nr.:		
Tilhører tegn. nr.: 75166-3E2			Kontr.:		
			75166-4S2		



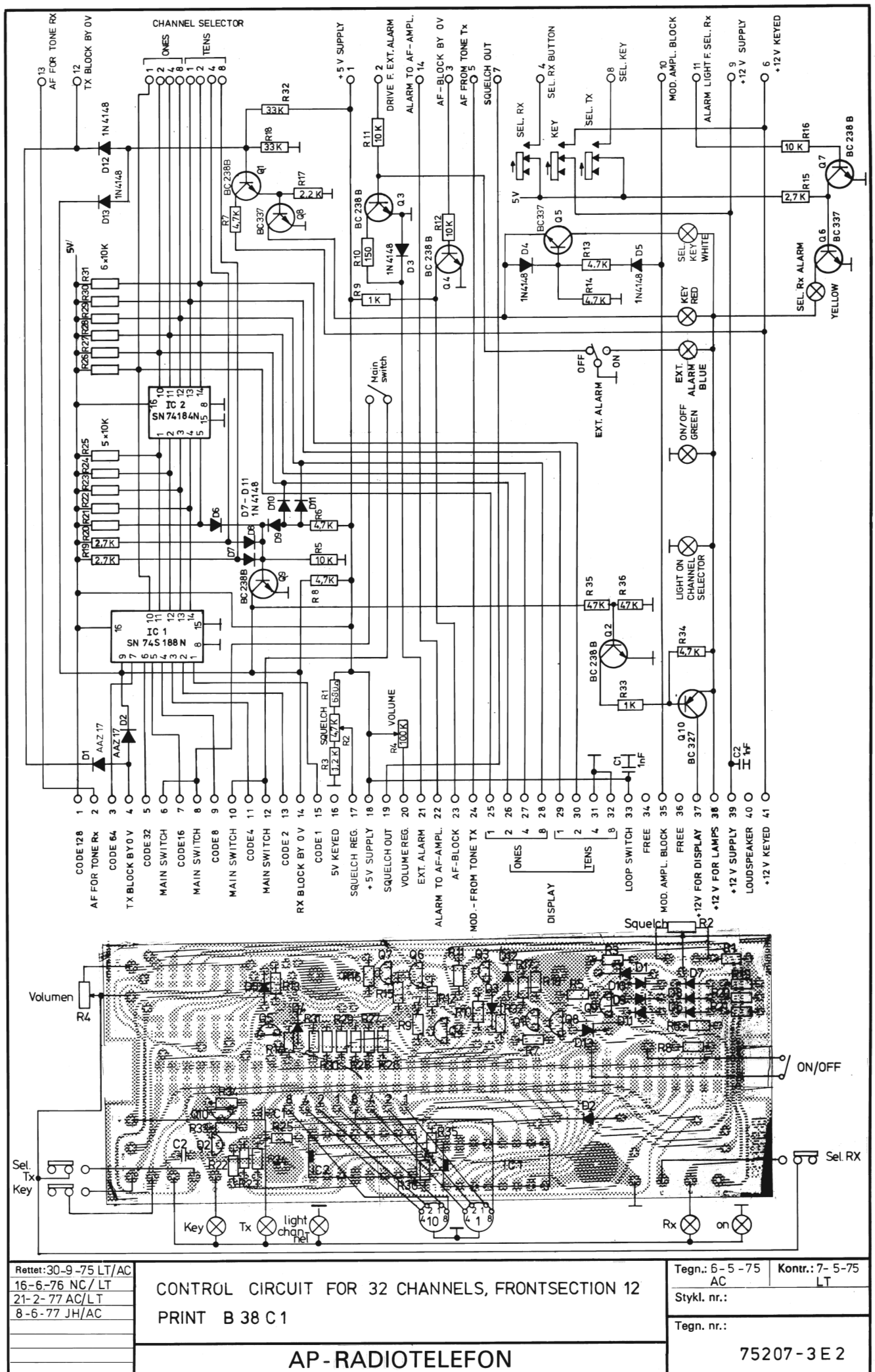
# AP-RADIOTELEFON

Nr.	Kode	Data	Nr.	Kode	Data
R1	13-291	4,7 K $\Omega$ 1/8 W CR16			
R2	13-281	680 $\Omega$ " "			
R3	16-022	4,7 K $\Omega$ Potm.			
R4	13-284	1,2 K $\Omega$ 1/8 W "			
R5	16-023	100 K $\Omega$ Lin.Potm.			
R6	13-291	4,7 K $\Omega$ 1/8 W CR16			
R7	13-300	33 K $\Omega$ " "			
R8	13-287	2,2 K $\Omega$ " "			
R9	13-283	1 K $\Omega$ " "			
R10	13-273	150 $\Omega$ " "			
R11	13-295	10 K $\Omega$ " "			
R12	13-295	10 K $\Omega$ " "			
R13	13-291	4,7 K $\Omega$ " "			
R14	13-291	4,7 K $\Omega$ " "			
R15	13-288	2,7 K $\Omega$ " "			
R16	13-295	10 K $\Omega$ " "			
R17	13-300	33 K $\Omega$ " "			
C1	11-409	1 nF Ker.			
C2	11-409	1 nF Ker.			
D1	04-062	1N4148			
D2	04-062	1N4148			
D3	04-062	1N4148			
D4	04-062	1N4148			
D5	04-002	AAZ17			
Q1	19-093	BC238B			
Q2	19-096	BC337			
Q3	19-093	BC238B			
Q4	19-093	BC238B			
Q5	19-096	BC337			
Q6	19-096	BC337			
Q7	19-093	BC238B			
Control Circuit for 1 channel, frontsection 04. Print B 20 D1 Tilhører tegn. nr.: 75083-3E2			Rettet:		<div>Tegn.:</div> <div>Kontr.:</div>
					Stykl. nr.: 75083-4S2



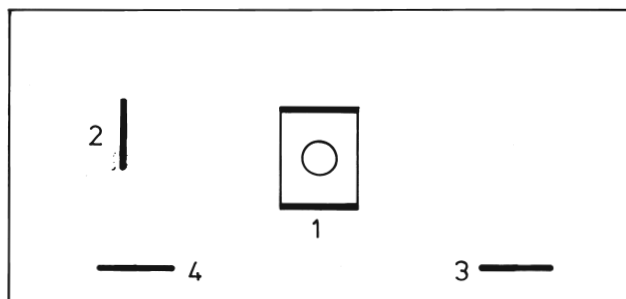
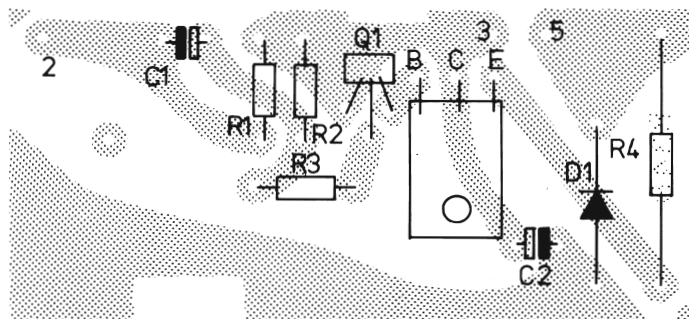
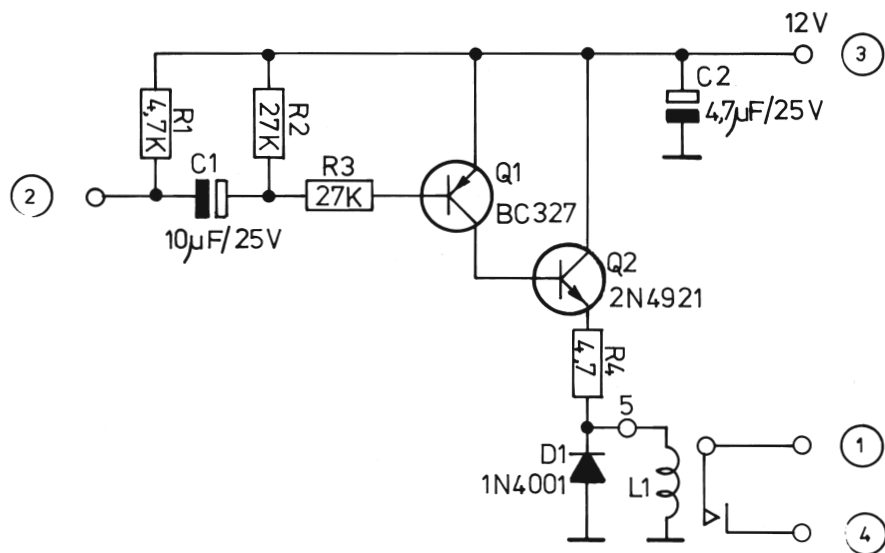
# AP-RADIOTELEFON

Nr.	Kode	Data	Nr.	Kode	Data
R1	13-291	4,7 K $\Omega$ 1/8 W CR16	IC1	09-067	HM1-0168
R2	13-284	1,2 K $\Omega$ " "	IC2	09-067	HM1-0168
R3	16-022	4,7 K $\Omega$ Potm.			
R4	13-281	680 $\Omega$ 1/8 W "			
R5	16-023	100 K $\Omega$ Lin.Potm.			
R6	13-291	4,7 K $\Omega$ 1/8 W CR16			
R7	13-300	33 K $\Omega$ " "			
R8	13-287	2,2 K $\Omega$ " "			
R9	13-283	1 K $\Omega$ " "			
R10	13-273	150 $\Omega$ " "			
R11	13-295	10 K $\Omega$ " "			
R12	13-295	10 K $\Omega$ " "			
R13	13-291	4,7 K $\Omega$ " "			
R14	13-291	4,7 K $\Omega$ " "			
R15	13-288	2,7 K $\Omega$ " "			
R16	13-295	10 K $\Omega$ " "			
C1	11-409	1 nF Ker.			
C2	11-409	1 nF Ker.			
D1	04-002	AAZ17			
D2	04-002	AAZ17			
D3	04-062	1N4148			
D4	04-062	1N4148			
D5	04-062	1N4148			
D6	04-062	1N4148			
D7	04-002	AAZ17			
Q1	19-096	BC337			
Q2	19-093	BC238B			
Q3	19-093	BC238B			
Q4	19-093	BC238B			
Q5	19-096	BC337			
Q6	19-096	BC337			
Q7	19-093	BC238B			
Control circuit for 12 channel frontsection 11. Print B 21 D1 Tilhører tegn. nr.: 75084-3E2			Rettet:		<div>Tegn.:</div> <div>Kontr.:</div> <div>Stykl. nr.: 75084-4S2</div>



# AP-RADIOTELEFON

Nr.	Kode	Data	Nr.	Kode	Data
R1	13-281	680 $\Omega$ 1/8 W CR16	C1	11-409	1nF Ker.
R2	16-022	4,7 K $\Omega$ Potm.	C2	11-409	1nF Ker.
R3	13-284	1,2 K $\Omega$ 1/8 W CR16			
R4	16-023	100 K $\Omega$ Lin.Potm.	D1	04-002	AAZ17
R5	13-295	10 K $\Omega$ 1/8 W CR16	D2	04-002	AAZ17
R6	13-291	4,7 K $\Omega$ " "	D3	04-062	1N4148
R7	13-291	4,7 K $\Omega$ " "	D4	04-062	1N4148
R8	13-291	4,7 K $\Omega$ " "	D5	04-062	1N4148
R9	13-283	1 K $\Omega$ " "	D6	04-062	1N4148
R10	13-273	150 $\Omega$ " "	D7	04-062	1N4148
R11	13-295	10 K $\Omega$ " "	D8	04-062	1N4148
R12	13-295	10 K $\Omega$ " "	D9	04-062	1N4148
R13	13-291	4,7 K $\Omega$ " "	D10	04-062	1N4148
R14	13-291	4,7 K $\Omega$ " "	D11	04-062	1N4148
R15	13-288	2,7 K $\Omega$ " "	D12	04-062	1N4148
R16	13-295	10 K $\Omega$ " "	D13	04-062	1N4148
R17	13-287	2,2 K $\Omega$ " "			
R18	13-300	33 K $\Omega$ " "	Q1	19-093	BC238B
R19	13-288	2,7 K $\Omega$ " "	Q2	19-093	BC238B
R20	13-288	2,7 K $\Omega$ " "	Q3	19-093	BC238B
R21	13-295	10 K $\Omega$ " "	Q4	19-093	BC238B
R22	13-295	10 K $\Omega$ " "	Q5	19-096	BC337
R23	13-295	10 K $\Omega$ " "	Q6	19-096	BC337
R24	13-295	10 K $\Omega$ " "	Q7	19-093	BC238B
R25	13-295	10 K $\Omega$ " "	Q8	19-096	BC337
R26	13-295	10 K $\Omega$ " "	Q9	19-093	BC238B
R27	13-295	10 K $\Omega$ " "	Q10	19-095	BC327
R28	13-295	10 K $\Omega$ " "			
R29	13-295	10 K $\Omega$ " "	IC1	09-066	SN74S188N
R30	13-295	10 K $\Omega$ " "	IC2	09-051	SN74184N
R31	13-295	10 K $\Omega$ " "			
R32	13-300	33 K $\Omega$ " "			
R33	13-283	1 K $\Omega$ " "			
R34	13-291	4,7 K $\Omega$ " "			
R35	13-302	47 K $\Omega$ " "			
R36	13-302	47 K $\Omega$ " "			
Control Circuit for 32 channel frontsection 12. Print B38C1 Tilhører tegn. nr.: 75207-3E2			Rettet:		<div>Tegn.:</div> <div>Kontr.:</div>
					Stykl. nr.: 75207-4S2



Relay box

Rettet: 23-3-76 AQLT

Extern timing for hornrelay  
Print board B 34 B 1

**AP-RADIOTELEFON ½**

Tegn.: 21-4-75  
AC

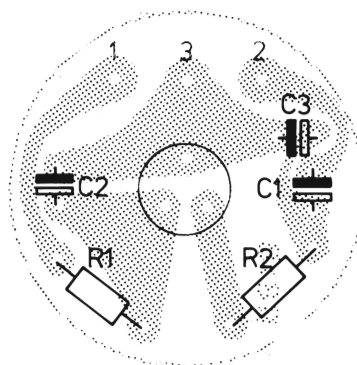
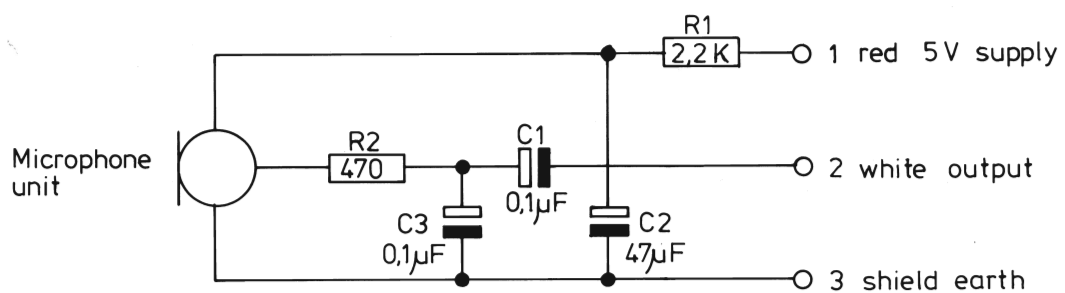
Kontr.: 21-4-75  
TJ

Stykl. nr.: 75169-4S2

Tegn. nr.: 75169-4E2

# AP-RADIOTELEFON

Nr.	Kode	Data	Nr.	Kode	Data
R1	13-291	4,7 K $\Omega$ 1/8W CR16			
R2	13-313	27 K $\Omega$ " "			
R3	13-313	27 K $\Omega$ " "			
R4	13-687	4,7 $\Omega$ 6 W Dale			
C1	11-506	10 $\mu$ F/25V Tant.			
C2	11-505	4,7 $\mu$ F"25V "			
D1	04-060	1N4001			
Q1	19-095	BC327			
Q2	19-175	2N4921			
L1	17-054	Relæ 274-10			
Extern timing hornrelay Print board B 34 B 1 Tilhører tegn. nr.: 75169-4E2			Rettet:		<div>Tegn.:</div> <div>Kontr.:</div>
					Stykl. nr.: 75169-4S2



Rettet:	Microphone 213-020  Print board B 81 B1	Tegn.: 4-3-77	Kontr.:
25-5-77 LT/AC		AC	
		Stykl. nr.:	
		Tegn. nr.:	77127-4E2
	AP-RADIOTELEFON 1/5		

# AP-RADIOTELEFON

Nr.	Kode	Data	Nr.	Kode	Data
R1	13-287	2,2 K $\Omega$ 1/8W CR 16			
R2	13-279	470 $\Omega$ " "			
C1	11-500	0,1 $\mu$ F/35 V tant.			
C2	11-509	47 $\mu$ F/6,3 V "			
C3	11-500	0,1 $\mu$ F/35 V "			
	13-062	Mic. EM-10LB			
Microphone 213-020 Print board B 81 B1 Tilhører tegn. nr.: 77127-4E2			Rettet:		<div>Tegn.:</div> <div>Kontr.:</div>
					Stykl. nr.: 77127-4S2

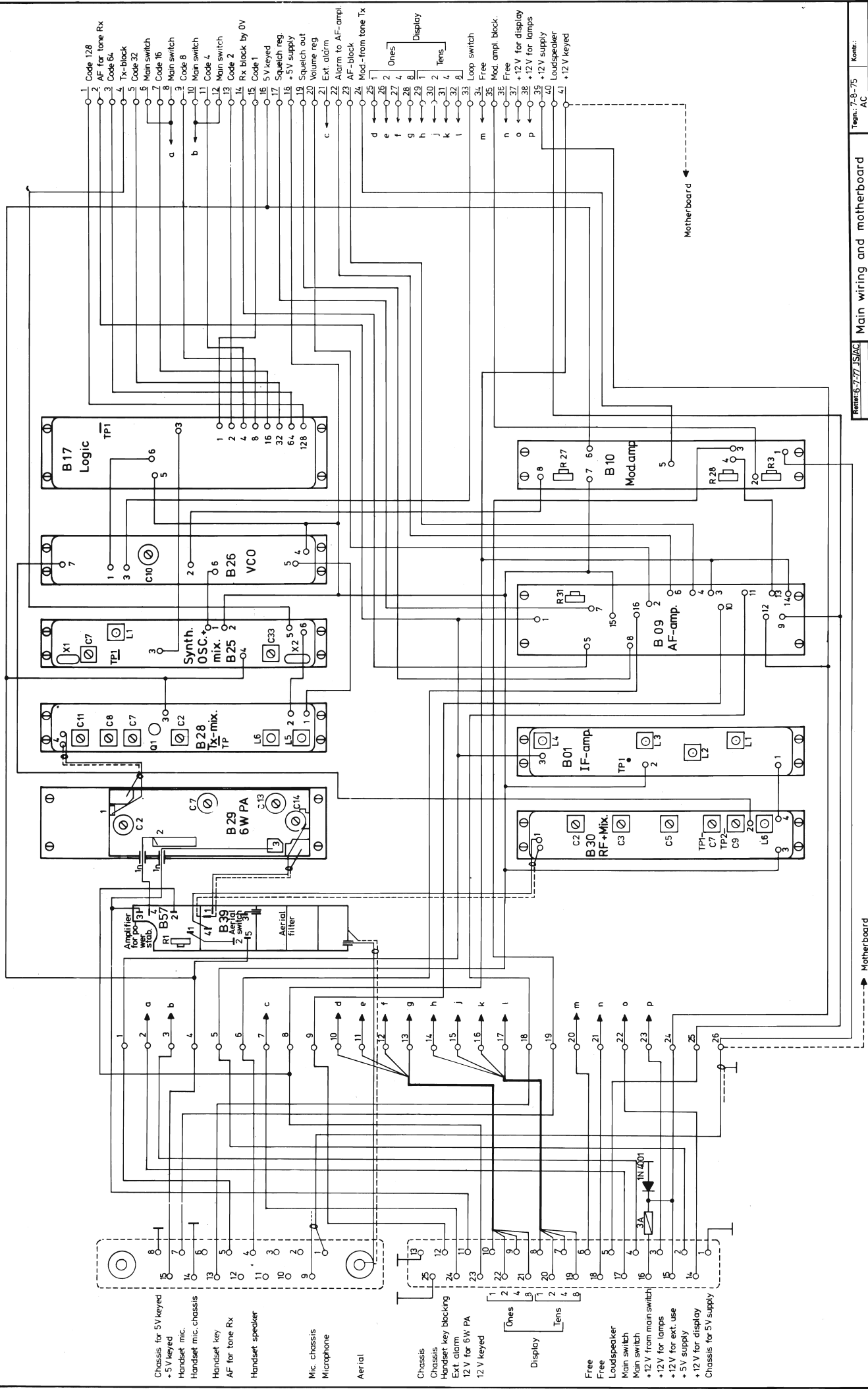
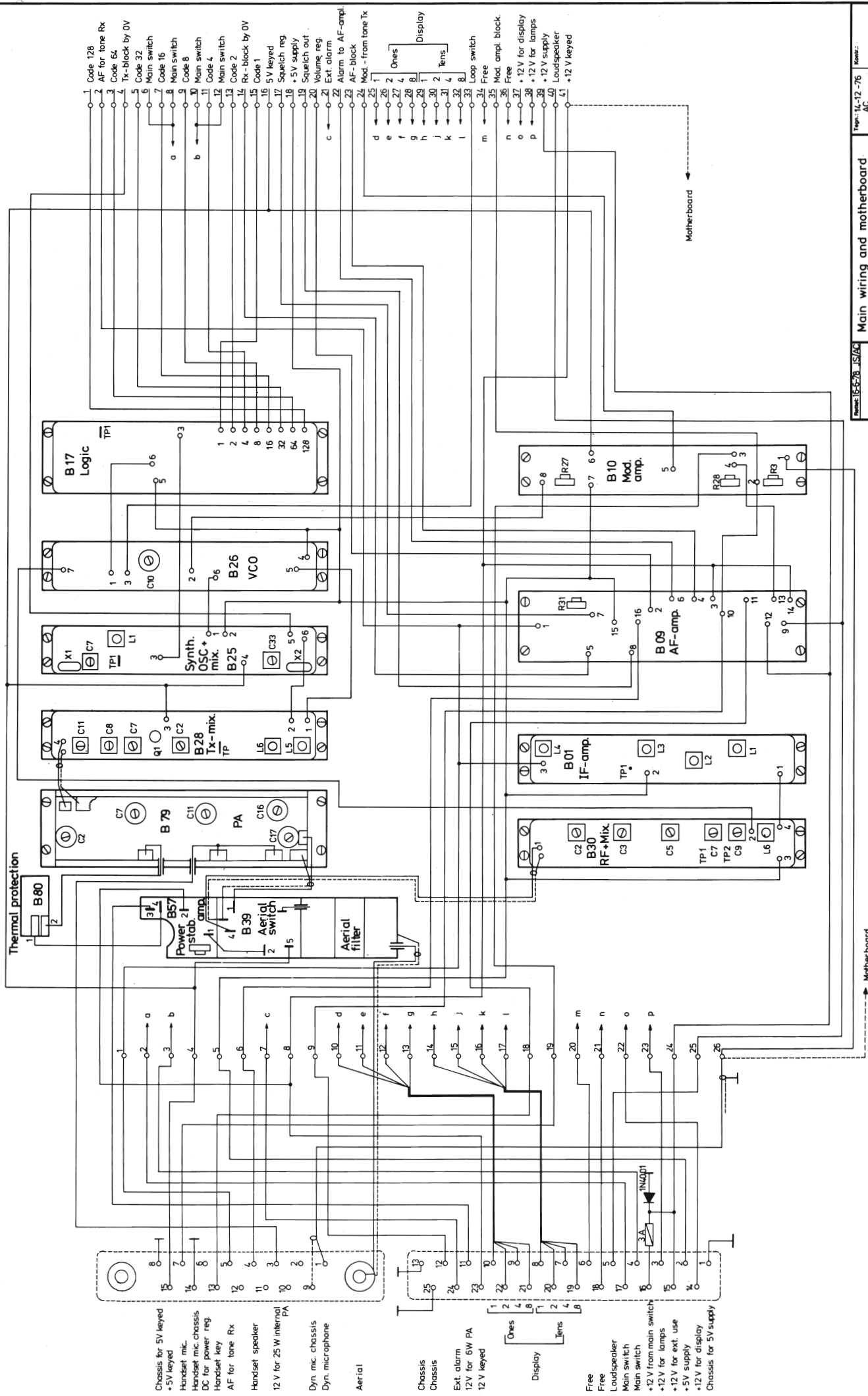


Fig. 6-7-77 JS/AC	Main wiring and motherboard	Techn.: 7-8-75	Contr.:
	6W. 4m.	AC	
	Print B 23C	Syst. nr.:	
		Techn. nr.:	75378-2E2
AP-RADIOTELEFON			





Part no. 15-78 JS/A	Page: 14-12-76	Mod.: AC
	By: 11-76	
Main wiring and motherboard 10-25W intermitt. 4m Print B 23 C		
AP-RADIOTELEFON 76404-2E2		

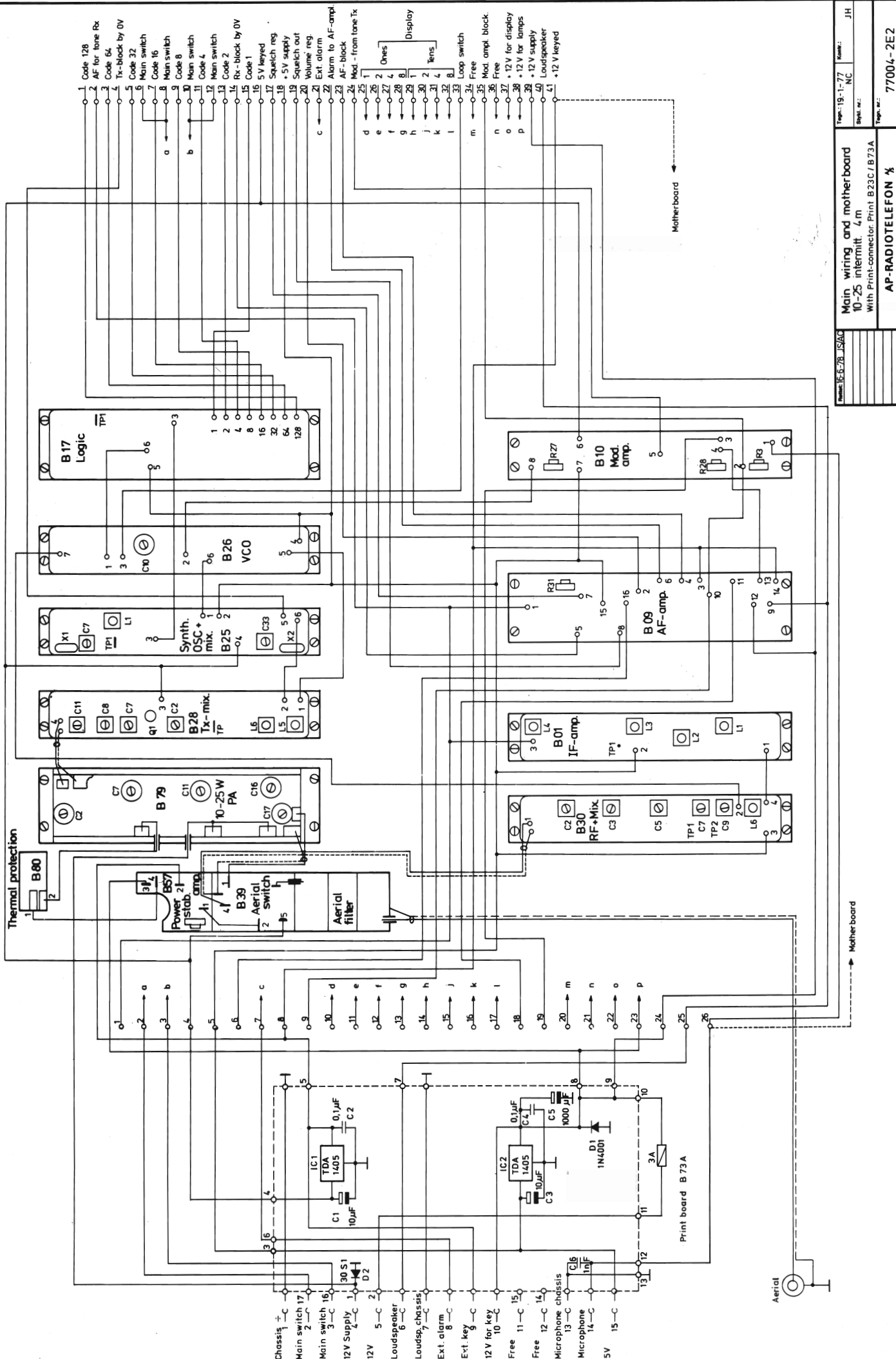


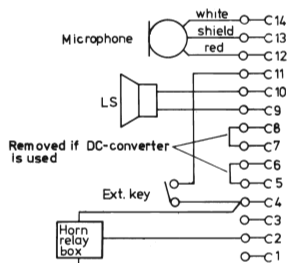
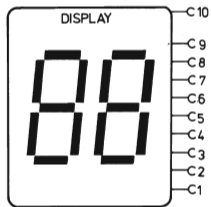
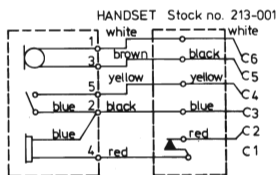
Diagram: 16-6-78-JSAC	Page: 19-1-77	Model: NC	JH
Main wiring and motherboard			
10-25 intermit. 4m			
With Print-connector. Print B23C/B73A			
AP-RADIOTELEFON 77004-2E2			





# AP-RADIOTELEFON

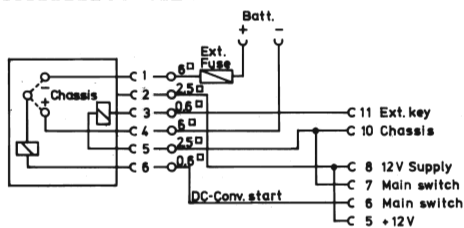
Nr.	Kode	Data	Nr.	Kode	Data
R1	13-359	100 $\Omega$ $\frac{1}{4}$ W CR 16			
C1	11-506	10 $\mu$ F/25V Tant.			
C2	11-353	0,1 $\mu$ F Laco			
C3	11-506	10 $\mu$ F/25V Tant.			
C4	05-030	1000 $\mu$ F/16V Elko			
C5	11-409	1 nF Ker.			
C6	11-353	0,1 $\mu$ F Laco.			
C7	11-409	1 nF Ker.			
D1	04-040	30S1			
IC1	09-081	TDA 1405			
IC2	09-081	TDA 1405			
Installation for AP 2000,ext PA			Tegn.:		
Print board B 14 B 1			Kontr.:		
Tilhører tegn. nr.: 75058-2E2			Stykl. nr.: 75058-4S2		



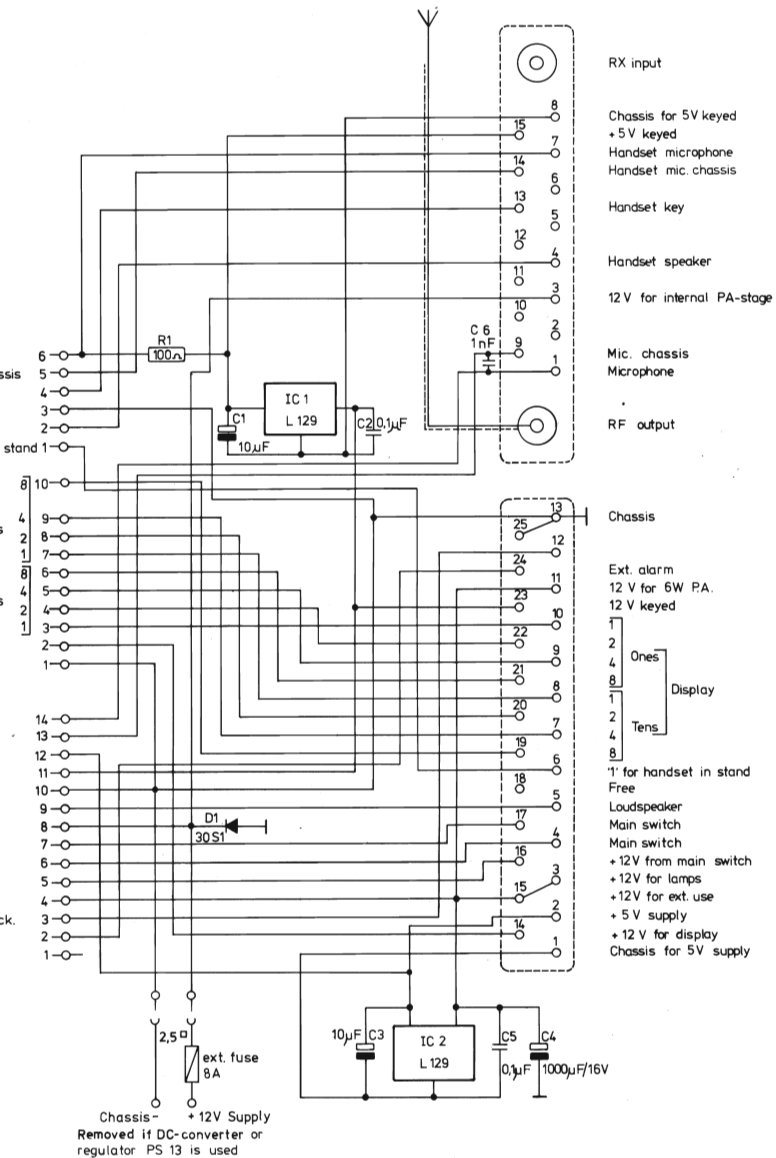
Handset mic.  
Handset mic. chassis  
Handset key  
Chassis  
Handset speaker  
"1" for handset in stand 1

BCD-code tens  
BCD-code ones  
12 V Supply  
Display chassis

Microphone  
Mic. chassis  
+5V  
Ext. key  
Chassis  
Loudspeaker  
12 V supply  
Main switch  
Main switch  
+12V  
+12V for key  
Handset key block.  
External alarm



Connections for AP DC-Converter  
6V or 12V: Dwg.no 68171/4 Stock no. 203-001  
24V: Dwg.no. 68194/4 Stock no. 203-002  
(Can not be used at 25W UHF)



RX input

Chassis for 5V keyed  
+5V keyed  
Handset microphone  
Handset mic. chassis

Handset key

Handset speaker

12 V for internal PA-stage

Mic. chassis  
Microphone

RF output

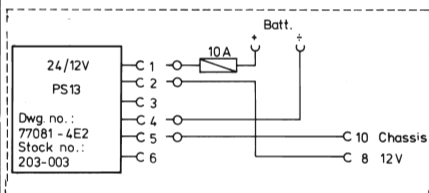
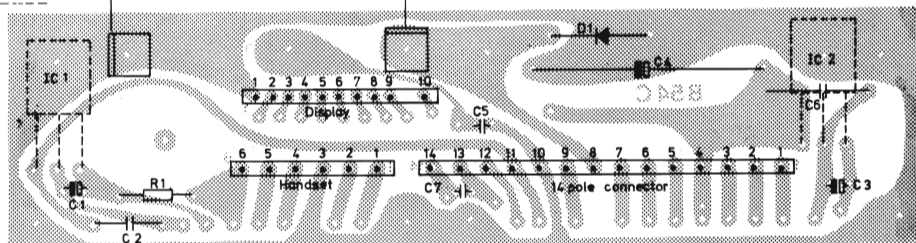
Chassis

Ext. alarm  
12 V for 6W P.A.  
12 V keyed

Ones  
Tens  
Display

"1" for handset in stand  
Free  
Loudspeaker  
Main switch  
Main switch  
+12V from main switch  
+12V for lamps  
+12V for ext. use  
+5 V supply  
+12 V for display  
Chassis for 5V supply

Chassis 12V Supply



Retter:  
6-9-76 LT/NC  
16-3-77 TP/AC  
4-5-77 TE/AC  
7-6-77 BU/AC

Installation for AP 2000  
with internal PA-stage  
Print board B54C2

AP-RADIOTELEFON

Tegn.: 14-2-75  
AC  
Stykt. nr.:  
Kont.:  
Tegn. nr.: 75061-2E2

# AP-RADIOTELEFON

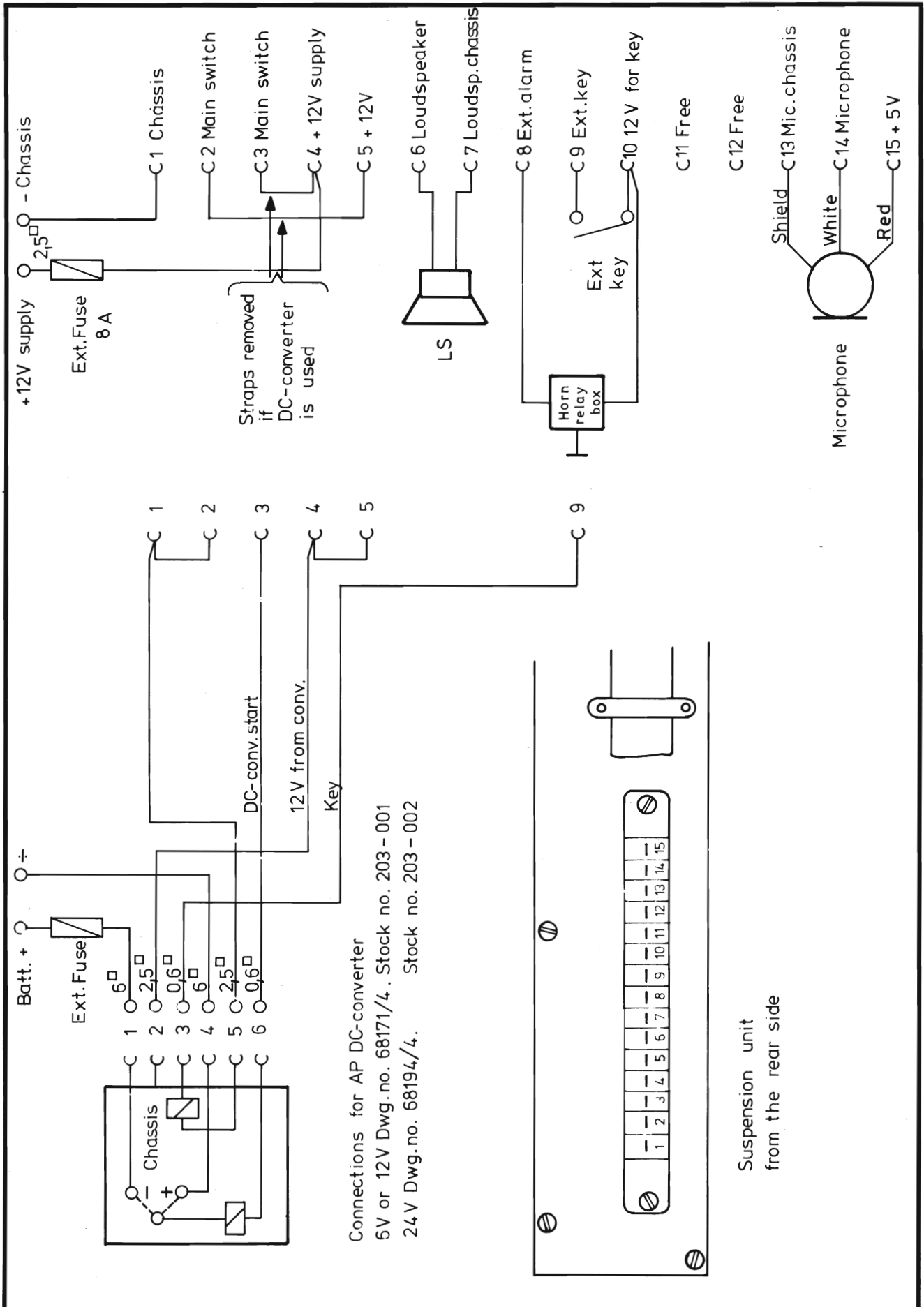
Nr.	Kode	Data	Nr.	Kode	Data
R1	13-359	100 $\Omega$ $\frac{1}{4}$ W CR 25			
C1	11-506	10 $\mu$ F/25V Tant.			
C2	11-353	0,1 $\mu$ F Laco			
C3	11-506	10 $\mu$ F/25V Tant.			
C4	05-030	1000 $\mu$ F/16V Elko			
C5	11-353	0,1 $\mu$ F Laco			
C6	11-409	1 nF ker.			
D1	04-040	30S1			
IC1	09-081	TDA 1405			
IC2	09-081	TDA 1405			
Installation for AP 2000 int. Print board B 54 C 2 PA Tilhører tegn. nr.: 75061-2E2			Rettet:		<div>Tegn.:</div> <div>Kontr.:</div> <div>Stykl. nr.: 75061-4S2</div>

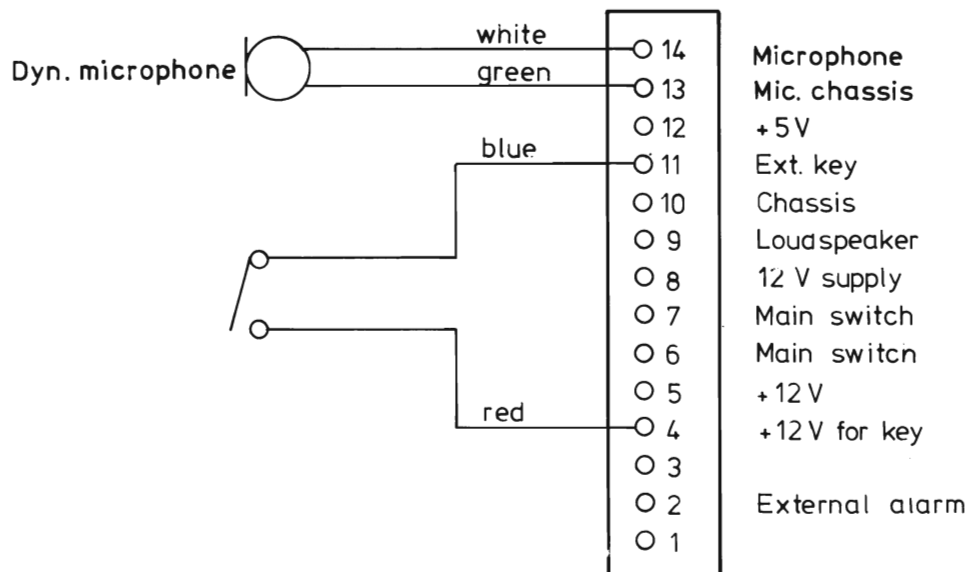
Rettet:
30-3-77 LT/NC
16-6-77 HM/AC

Installation for AP 2000 with  
printconnector

AP-RADIOTELEFON  $\frac{1}{2}$

Tegn.:	Kontr.:
10-1-77 H.J.	12-1-77 B.J.
Stykl. nr.:	
Tegn. nr.:	77001-4E 2.





Rettet:	Installation for close talk microphone, AP 2000	Tegn.: 4 - 11 - 76	Kontr.:
		AC	
		Stykl. nr.:	
		Tegn. nr.:	
		76327 - 4E2	
AP-RADIOTELEFON $\frac{1}{2}$			