5. edition 1979-06-13

Technical description for AP 2000, UHF, 2 M and 4 M.

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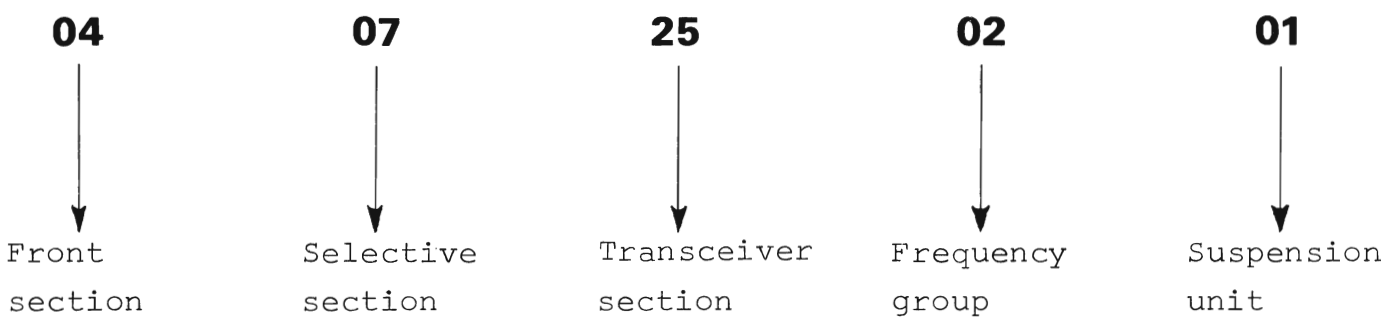
Ordering number for complete radio

The frequency group number must always be stated in connection with an order for a radio or a radio section. The frequency group number can be found in this table.

Frequency/ group number	Receiverfrequency	Band
01	140-160 Mhz	2m-VHF
02	160-174 Mhz	2m-VHF
03	68- 88 Mhz	4m-VHF
04	406-432 Mhz	0,7m-UHF
05	432-450 Mhz	0,7m-UHF
06	450-470 Mhz	0,7m-UHF

In the same way the type number (PTT number) must always be stated when ordering. The type number is found on the following page's. However, you must make sure,that the type number which is stated when making an order, is in agreement with the type number which is given to the radio by the authorities in the country in question.
It is also important that it is stated how much output power the radio in question must be equipped with.

The order number is stated as follows:
On the order to AP Radiotelefon it will say:
1 piece 25 Watt AP 2000 mobile radio.
Number 04-07-25-02-01 type AP 2225.



Stock numbers for frontsections.

When numbering frontsections with different text, the first figure in the second half of the stock no. (206-X00), is used in the following way:

X
- 0 - English
- 1 - Danish
- 2 - German
- 3 - French
- 4 - Spanish
- 5 - Italian
- 6 -
- 7 - Symbols
- 8 - Special text
- 9 - For special systems

Exampel: 206 - 003 1 channel, without sel. English
206 - 103 1 channel, without sel. Danish
206 - 203 1 channel, without sel. German

Stock no. for frontsections

T E X T

Front-sections no.	0 English	1 Danish	2 German	3 French	4 Spanish	5 Italian	6	7 Symbols	8 Spec.	9 Spec. Syst.	Remarks
01	206-001										
02	206-002										
03	206-003		206-203					206-703			206-703 not compl.
04	206-004		206-204					206-704			206-704 not compl.
05	206-005		206-205					206-705			206-705 not compl.
06	206-006										(only f. spec. pur-
07	206-007										poses)
08	206-008										
09	206-009										
10	206-010										
11	206-011										
12	206-012										
13	206-013										
14	206-014										
15		206-115									Norwegian pub.tel.
16	206-016										
17	206-017										
18		206-118									MTD w. scanning
19		206-119									MTD
20	206-020										
21	206-021										
22			206-222								
23			206-223								
24											
25	206-025										Spec.french n.c.
26											
27											
28											
29											
30											
31				206-331							Spec.french n.c.
32				206-332							
33									206-833		Falck
34									206-834		(finnish pub.tel.)

Remark: When a frontsection with the desired text is not available, one with english text is delivered

Correction dates 5/10 77

77364-4E2

1.3

TYPE NUMBER FOR

AP 2000

The type number has the following construction:

AP XXXX - XX

The first half of the number is determinative for transmitter/receiver. The second half of the number is determinative for operation and the front unit.

The first "X" will always be a "2", number two "X" shall state the operating band, which is :

4 m = 4
3 m = 3
2 m = 2
0,7m = 1

The two following numbers are important for the output and possible differences, if any. When a station is in compact cassette, i.e. without ext. PA-stage, the last two numbers in the first half may be from 50-99. All units with ext. PA-stage have the numbers from 00-49.

Thus the function of the station, number of channels, and output are determined by the type number. As an example a 2m, 25W with 12 channels and selective Tx/Rx is numbered:

AP 2225 - 11
Serial no. 1975.

The serial number must always be stated on the type plate and chassis.

Type no. for complete sets in AP 2000 series.

UHF band 406-470 MHz

AP type no.	Main unit	RF-power	Channel spacing	Ext. PA	Int. PA	Print con.	Socket con.	Interm.	Contin.	Duplex	Remarks
AP 2115	201-027	15 W	25 kHz	x			x		x		
AP 2116	201-027	15 W	25 "	x			x			x	
AP 2120-18	201-032	25 W	25 "	x			x			x	MTD scanning
AP 2125	201-027	25 W	25 "	x			x		x		
AP 2126	201-027	25 W	25 "	x			x			x	
AP 2126-19	201-027	25 W	25 "	x			x			x	MTD
AP 2155	201-030	6 W	25 "		x		x		x		
AP 2156	201-034	6 W	25 "		x	x			x		
AP 2157	201-030	6 W	20 "		x		x		x		
AP 2158	201-034	6 W	20 "		x	x			x		
AP 2160	201-030	10 W	25 "		x		x		x		
AP 2161	201-034	10 W	25 "		x	x			x		
AP 2162-18	201-030	10 W	25 "		x		x		x		MTD simp. scanning
AP-2163	201-034	10 W	20 "		x	x			x		

Type no. for complete sets in AP 2000 series. 2 M band 146-179 MHz

AP type no.	Main units	RF-pow.	channel spacing	Ext.PA	Int.PA	Print conn.	Socket conn.	Intern	Contin.	Duplex	Remarks
AP 2215	201-025	15 W	25 kHz	x			x		x		
AP 2216	201-025	15 W	25 kHz	x			x			x	
AP 2216-15	201-025	15 W	25 kHz	x			x			x	Norwegian publ.tele.
AP 2225	201-025	25 W	25 kHz	x			x		x		
AP 2226	201-025	25 W	25 kHz	x			x			x	
AP 2227	201-025	25 W	20 kHz	x			x		x		
AP 2253	201-048	6 W	20 kHz		x		x		x		
AP 2255	201-028	6 W	25 kHz		x		x		x		
AP 2256	201-031	6 W	25 kHz		x	x			x		
AP 2257	201-028	6 W	20 kHz		x		x		x		
AP 2258	201-031	6 W	20 kHz		x	x			x		
AP 2259	201-048	6 W	25 kHz		x		x		x		dual rec.
AP 2260	201-028	10 W	25 kHz		x		x	x			
AP 2261	201-031	10 W	25 kHz		x	x		x			
AP 2262	201-028	10 W	20 kHz		x		x	x			
AP 2263	201-031	10 W	20 kHz		x	x		x			
AP 2265	201-036	15 W	25 kHz		x		x	x			

Type no. for complete sets in AP 2000 series. 2 M band 146-179 MHz

AP type no.	Main units	RF-pow.	channel spacing	Ext.PA	Int.PA	Print conn.	Socket conn.	Intern	Contin.	Duplex	Remarks
AP 2265-15	201-036	15 W	25 kHz		x		x	x			Norwegian publ.tele.
AP 2266	201-039	15 W	25 kHz		x	x		x			
AP 2266-15	201-039	15 W	25 kHz		x	x		x			Norwegian publ.tele.
AP 2267-34	201-044	15 W	25 kHz		x		x	x			Finnish publ.tele.
AP 2269	201-048	10 W	25 kHz		x		x	x			Dual rec.
AP 2275	201-036	25 W	25 kHz		x		x	x			
AP 2276	201-039	25 W	25 kHz		x	x		x			
AP 2277-33	201-043	25 W	25 kHz		x		x	x			FALCK
AP 2279	201-046	15 W	25 kHz		x		x	x			Dual rec
AP 2281	201-051	25 W	12,5 kHz		x		x	x			160 channels
AP 2282	201-053	25 W	12,5 kHz		x	x		x			160 channels
AP 2289	201-046	25 W	25 kHz		x		x	x			Dual rec

Type no. for complete sets in AP 2000 series. 4 M band 68-88 MHz

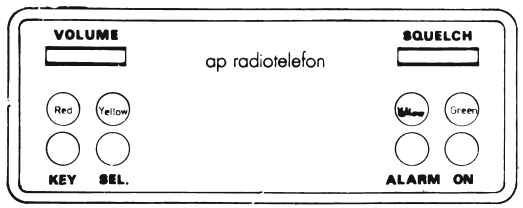
AP type no.	Main units	RF-pow.	channel spacing	Ext.PA	Int.PA	Print conn.	Socket conn.	Intern	Contin.	Duplex	Remarks
AP 2415	201-026	15 W	25 kHz	x			x		x		
AP 2416	201-026	15 W	25 kHz	x			x			x	
AP 2425	201-026	25 W	25 kHz	x			x		x		
AP 2426	201-026	25 W	25 kHz	x			x			x	
AP 2455	201-050	6 W	12,5 kHz		x		x		x		spec. Dutch.pol.
AP 2456	201-033	6 W	25 kHz		x	x			x		
AP 2457	201-029	6 W	20 kHz		x		x		x		
AP 2458	201-033	6 W	20 kHz		x	x			x		
AP 2459	201-049	6 W	25 kHz		x		x		x		Dual rec.
AP 2460	201-029	10 W	25 kHz		x		x	x			
AP 2461	201-033	10 W	25 kHz		x	x		x			
AP 2462	201-029	10 W	2o kHz		x		x	x			
AP 2463	201-033	10 W	20 kHz		x	x		x			
AP 2464	201-054	10 W	12,5 kHz		x		x	x			spec.dual Rx Dutch,pol.
AP 2465	201-037	15 W	25 kHz		x		x	x			
AP 2466	201-040	15 W	25 kHz		x	x		x			
AP 2472	201-054	25 W	12,5 kHz		x	x		x			

Type no. for complete sets in AP 2000 series. 4 M band 68-88 MHz

AP type no.	Main units	RF-pow.	channel spacing	Ext.PA	Int.PA	Print conn.	Socket conn.	Intern	Contin.	Duplex	Remarks
AP 2475	201-037	25 W	25 kHz		x		x	x			
AP 2476	201-040	25 W	25 kHz		x	x		x			
AP 2481	201-052	25 W	12,5 kHz		x		x	x			160 channels
AP 2482	201-054	25 W	12,5 kHz		x	x		x			160 channels

Frontsections for AP 2000

01



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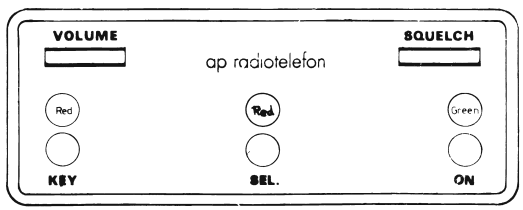

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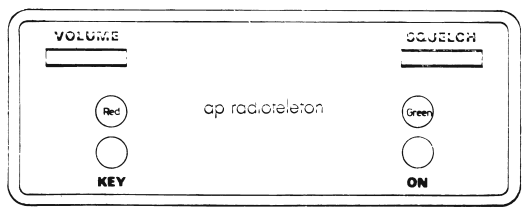

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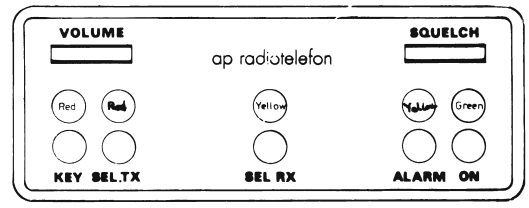

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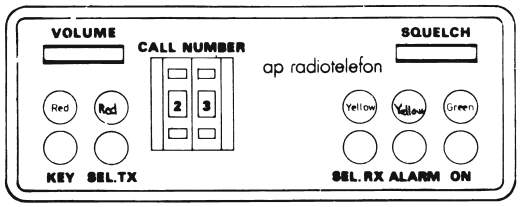

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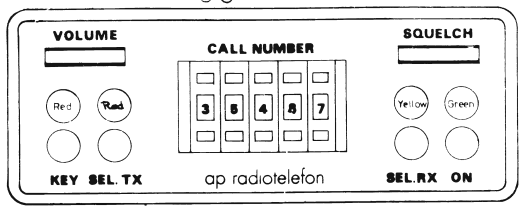

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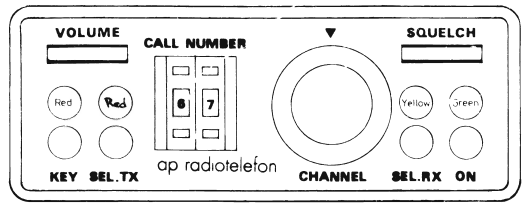

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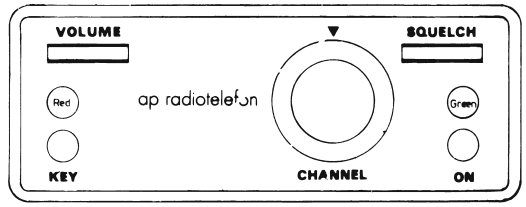

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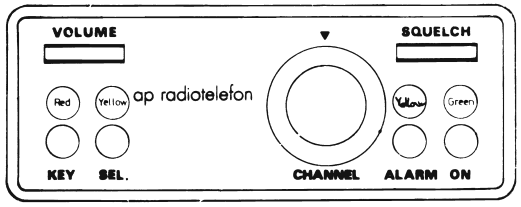

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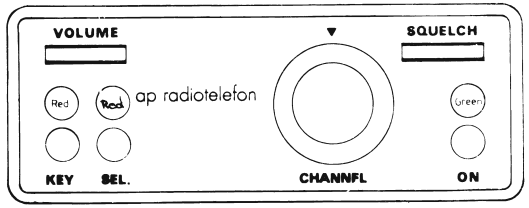

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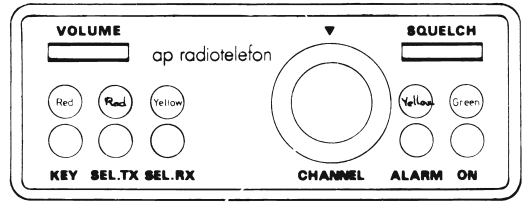

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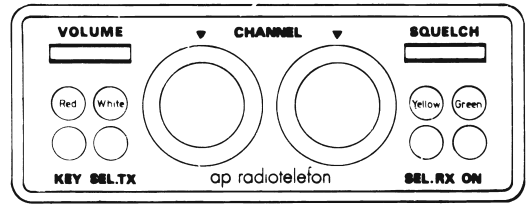

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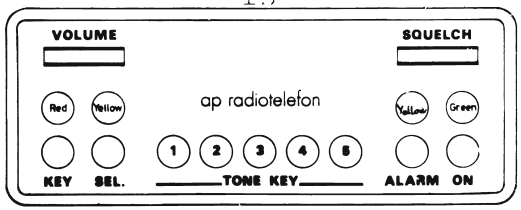

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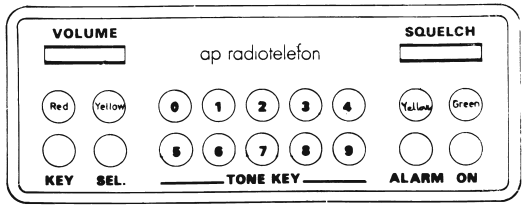

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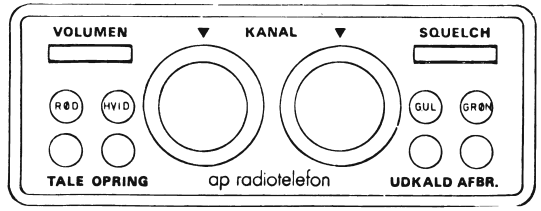

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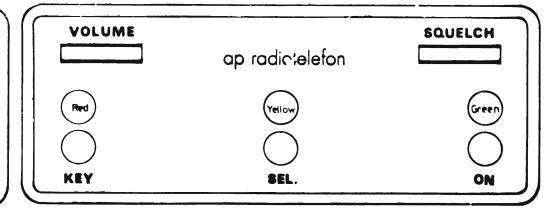

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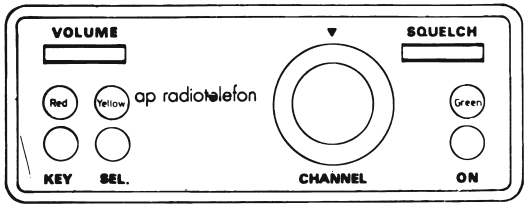

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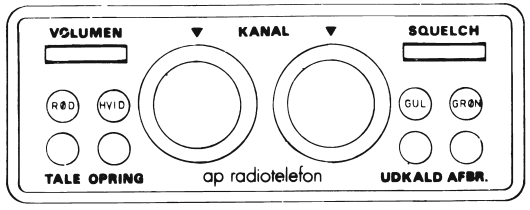

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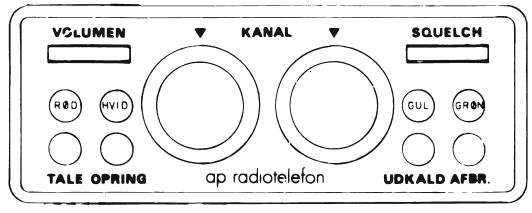

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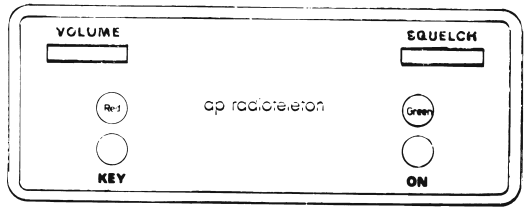

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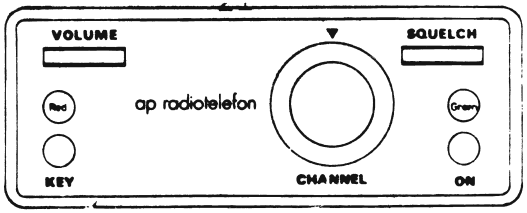

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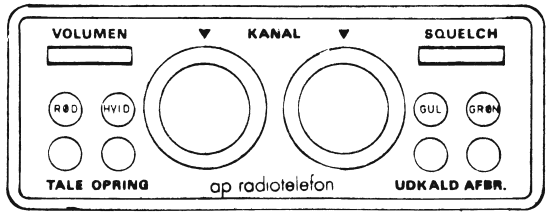

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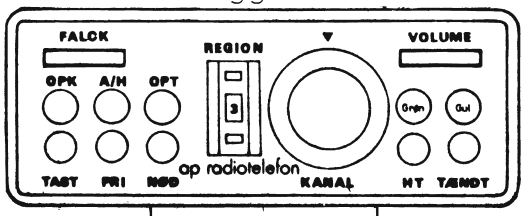
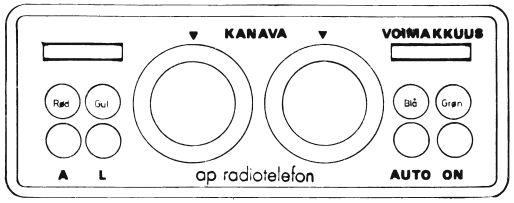
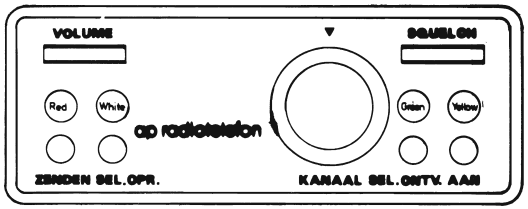


Plug in unit

34



36 S



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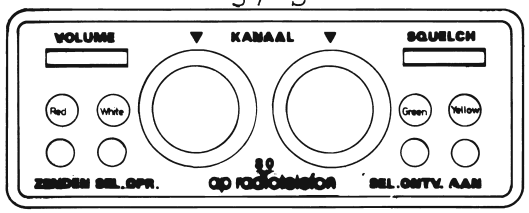
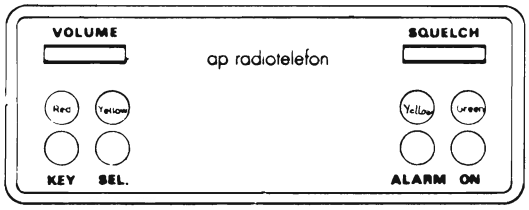


FRONT SECTION NO. 01.



APPLICATION: 1 channel Tx/Rx with selective receiver and external alarm.

BUTTONS:

ON: Push for on/off, green lamp indicating.

Key: Push for talk, red lamp indicating.

Sel: When pushing, the yellow lamp goes on and off. The yellow lamp indicates that the loud-speaker and key are blocked. When receiving a selective call the yellow lamp flashes.

ALARM: External alarm is connected when the yellow lamp is lit.

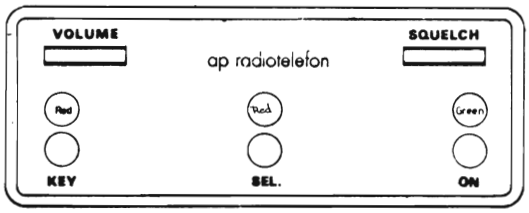
Front section no. 206-001 fits to the following units/mountings:

Spec.	Channel spacing	Frekv. MHz	6 W	6 W m.printconn.	25 W kon.	25W/UHF 10W intermitt.	25W/UHF 10W m. printconn. intermitt.	25 W duplex
	&20 kHz 25 kHz	68-88	201-029 215-004	201-033 215-006	201-026 215-002	201-037 201-004	201-040 215-006	201-026 215-005 204-006
Dual Rx	&20 kHz 25 kHz	68-88	201-049 215-004	201-048 215-006			201-047 215-006	
	12,5kHz	68-88				201-052 215-004	201-054 215-006	
	&20 kHz 25 kHz	146-174	201-028 215-004	201-031 215-006	201-025 215-001	201-036 215-004	201-039 215-006	201-025 215-005 204-004
Dual Rx	&20 kHz 25 kHz	146-174				201-046 215-004		
	12,5kHz	146-174				201-051 215-004	201-053 215-006	
	&20 kHz 25 kHz	406-470	201-030 215-004	201-034 215-006	201-027 215-003	201-030 215-004	201-034 215-006	201-027 215-005 204-005

Tone units:

2-tones Rx	Tones:	AP	219-009
3-tones Rx	Tones:	AP	219-011
5-tones Rx	Tones:	CCIR	219-010
5-tones Rx	Tones:	ZVEI	219-014

FRONT SECTION NO. 02



APPLICATION: 1 channel Tx/Rx with tone transmitter.

BUTTONS:

On: Push for on/off, green lamp indicating.

Key: Push for talk, red lamp indicating.

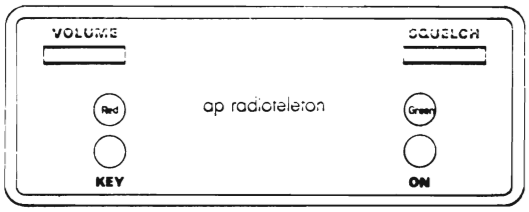
Sel: Push for talk with tone modulation, red lamps indicating.

Front section no. 206-002 fits to the following units/mountings:

Spec.	Channel spacing	Frekv. MHz	6 W	6 W m.printconn.	25 W kon.	25W/UHF 10W intermitt.	25W/UHF 10W m. printconn. intermitt.	25 W duplex
	&20 kHz &25 kHz	68-88	201-029 215-004	201-033 215-006	201-026 215-002	201-037 201-004	201-040 215-006	201-026 215-005 204-006
Dual Rx	&20 kHz &25 kHz	68-88	201-049 215-004	201-048 215-006			201-047 215-006	
	12,5kHz	68-88				201-052 215-004	201-054 215-006	
	&20 kHz &25 kHz	146-174	201-028 215-004	201-031 215-006	201-025 215-001	201-036 215-004	201-039 215-006	201-025 215-005 204-004
Dual Rx	&20 kHz &25 kHz	146-174				201-046 215-004		
	12,5kHz	146-174				201-051 215-004	201-053 215-006	
	&20 kHz &25 kHz	406-470	201-030 215-004	201-034 215-006	201-027 215-003	201-030 215-004	201-034 215-006	201-027 215-005 204-005

Tone units:
2-tones Tx tones : AP 219-031
3-tones Tx tones : AP 219-030
5-tones Tx tones : CCIR 219-029
5-tones Tx tones : ZVEI 219-028

FRONT SECTION NO. 03



APPLICATION: 1 channel Tx/Rx without selective system.

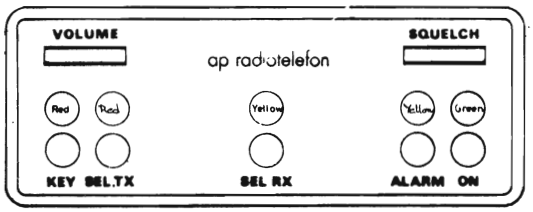
BUTTONS:

On: Push for on/off, green lamp indicating.

Key: Push for talk, red lamp indicating.

Front section no. 206-003 fits the following units/mounting:

Spec.	Channel spacing	Frekv. MHz	6 W	6 W m.printconn.	25 W kon.	25W/UHF 10W intermitt.	25W/UHF 10W m. printconn. intermitt.	25 W duplex
	&20 kHz 25 kHz	68-88	201-029 215-004	201-033 215-006	201-026 215-002	201-037 201-004	201-040 215-006	201-026 215-005 204-006
Dual Rx	&20 kHz 25 kHz	68-88	201-049 215-004	201-048 215-006			201-047 215-006	
	12,5kHz	68-88				201-052 215-004	201-054 215-006	
	&20 kHz 25 kHz	146-174	201-028 215-004	201-031 215-006	201-025 215-001	201-036 215-004	201-039 215-006	201-025 215-005 204-004
Dual Rx	&20 kHz 25 kHz	146-174				201-046 215-004		
	12,5kHz	146-174				201-051 215-004	201-053 215-006	
	&20 kHz 25 kHz	406-470	201-030 215-004	201-034 215-006	201-027 215-003	201-030 215-004	201-034 215-006	201-027 215-005 204-005



APPLICATION: 1 channel Tx/Rx with selective transmitter and receiver with switch for external alarm.

BUTTONS:

ON: Push for on/off, green lamp indicating.

KEY: Push for talk, red lamp indicating.

SEL. RX: The button switches the yellow lamp on/off. When the yellow lamp is lit, the loudspeaker is blocked. When receiving a selective call the yellow lamp flashes.

ALARM External alarm is connected when the yellow lamp is lit.

SEL. TX: Button with tone modulation, red lamps indicating.

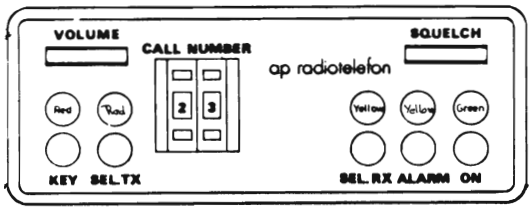
Front section no. 206-004 fits to the following units/mountings:

Spec.	Channel spacing	Frekv. MHz	6 W	6 W m.printconn.	25 W kon.	25W/UHF 10W intermitt.	25W/UHF 10W m. printconn. intermitt.	25 W duplex
	&20 kHz &25 kHz	68-88	201-029 215-004	201-033 215-006	201-026 215-002	201-037 201-004	201-040 215-006	201-026 215-005 204-006
Dual Rx	&20 kHz &25 kHz	68-88	201-049 215-004	201-048 215-006			201-047 215-006	
	12,5kHz	68-88				201-052 215-004	201-054 215-006	
	&20 kHz &25 kHz	146-174	201-028 215-004	201-031 215-006	201-025 215-001	201-036 215-004	201-039 215-006	201-025 215-005 204-004
Dual Rx	&20 kHz &25 kHz	146-174				201-046 215-004		
	12,5kHz	146-174				201-051 215-004	201-053 215-006	
	&20 kHz &25 kHz	406-470	201-030 215-004	201-034 215-006	201-027 215-003	201-030 215-004	201-034 215-006	201-027 215-005 204-005

Tone units:

2-tones Rx + 2-tones Tx	tones: AP	219-054	(219-005)
2-tones Rx + 2-tones Tx+answerback	tones: AP	219-042	(219-007)
5-tones Rx + 5-tones Tx+answerback	tones: CCIR	219-044	(219-020)
5-tones Rx + 5-tones Tx+answerback	tones: ZVEI	219-045	(219-021
2-tones parallel Tx/Rx	tones: Storno	219-024	
2-tones paralles Tx/Rx	tones: Storno	219-026	
2-tones Rx/Tx	tones: AGA	219-055	(219-032)
2-tones Rx/Tx with answerback	tones: AGA	219-046	(219-033)
3-tones Rx/Tx with answerback	tones: AP	219-043	
3-tones Rx/Tx with answerback	tones: AGA	219-047	

FRONT SECTION NO. 05



APPLICATION: 1 channel transmitter/receiver with selective transmitter and receiver with switch for external alarm. Selection of 2 figures in the tone transmitter code.

BUTTONS:

ON: Push for on /off, green lamp indicating.

KEY: Push for talk, red lamp indicating.

SEL. RX: The button switches the yellow lamp on/off. When the yellow lamp is on the loudspeaker and the key are blocked. When receiving a selective call the yellow lamp flashes.

ALARM: External alarm is connected when the yellow lamp indicates.

SEL.TX: Button with tone modulation, red lamps indicating.

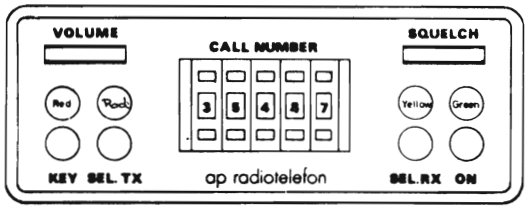
CALL NUMBER: Two of the figures in the transmitter code will be equal to the figures selected.

Front section no. 206-005 fits to the following units/mountings:

Spec.	Channel spacing	Frekv. MHz	6 W	6 W m.printconn.	25 W kon.	25W/UHF 10W intermitt.	25W/UHF 10W m. printconn. intermitt.	25 W duplex
	&20 kHz &25 kHz	68-88	201-029 215-004	201-033 215-006	201-026 215-002	201-037 201-004	201-040 215-006	201-026 215-005 204-006
Dual Rx	&20 kHz &25 kHz	68-88	201-049 215-004	201-048 215-006			201-047 215-006	
	12,5kHz	68-88				201-052 215-004	201-054 215-006	
	&20 kHz &25 kHz	146-174	201-028 215-004	201-031 215-006	201-025 215-001	201-036 215-004	201-039 215-006	201-025 215-005 204-004
Dual Rx	&20 kHz &25 kHz	146-174				201-046 215-004		
	12,5kHz	146-174				201-051 215-004	201-053 215-006	
	&20 kHz &25 kHz	406-470	201-030 215-004	201-034 215-006	201-027 215-003	201-030 215-004	201-034 215-006	201-027 215-005 204-005

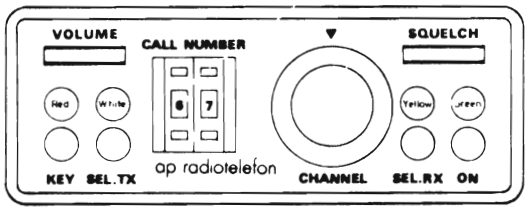
Tone units: all with answerback.

5-tones Rx + 5-tones Tx selection of number 4+5. Tones: CCIR 219-048(022)
5-tones Rx + 5-tones Tx selection of number 4+5. Tones: ZVEI 219-049(023)
5-tones Rx + 5-tones Tx selection of number 3+5. Tones: CCIR 219-050(019)
5-tones Rx + 5-tones Tx selection of number 3+5. Tones: ZVEI 219-051(018)



APPLICATION: The application of this unit is not decided yet. In principle the switches may be used for selection of both channels and numbers (max. 2) to the code of the tone transmitter.

Spec.	Channel spacing	Frekv. MHz	6 W	6 W m.printconn.	25 W kon.	25W/UHF 10W intermitt.	25W/UHF 10W m. printconn. intermitt.	25 W duplex
	&20 kHz &25 kHz	68-88	201-029 215-004	201-033 215-006	201-026 215-002	201-037 201-004	201-040 215-006	201-026 215-005 204-006
Dual Rx	&20 kHz &25 kHz	68-88	201-049 215-004	201-048 215-006			201-047 215-006	
	12,5kHz	68-88				201-052 215-004	201-054 215-006	
	&20 kHz &25 kHz	146-174	201-028 215-004	201-031 215-006	201-025 215-001	201-036 215-004	201-039 215-006	201-025 215-005 204-004
Dual Rx	&20 kHz &25 kHz	146-174				201-046 215-004		
	12,5kHz	146-174				201-051 215-004	201-053 215-006	
	&20 kHz &25 kHz	406-470	201-030 215-004	201-034 215-006	201-027 215-003	201-030 215-004	201-034 215-006	201-027 215-005 204-005



APPLICATION: Transmitter/Receiver with 2 to 12 channels. Selective transmitter and receiver with selection of 2 figures in the tone transmitter code.

BUTTONS:

ON: Push for on/off, green lamp indicating.

KEY: Push for talk, red lamp indicating.

SEL. RX: The button activates the yellow lamp. When the yellow lamp is activated the loudspeaker is closed and the key is blocked. When receiving a selective call the yellow lamp flashes.

SEL.TX: Button with tone modulation, red and white lamp indicating.

CALL NUMBER: 2 figures, in the transmitter code will be equal to the figures selected.

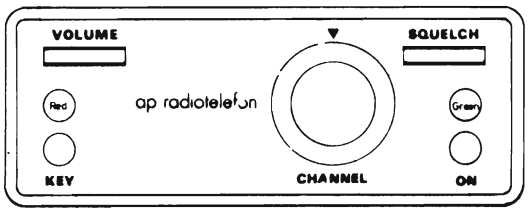
CHANNEL: Selection of channel.

Front section no. 206-007 fits to the following units/mounting:

Spec.	Channel spacing	Frekv. MHz	6 W	6 W m.printconn.	25 W kon.	25W/UHF 10W intermitt.	25W/UHF 10W m. printconn. intermitt.	25 W duplex
	&20 kHz &25 kHz	68-88	201-029 215-004	201-033 215-006	201-026 215-002	201-037 201-004	201-040 215-006	201-026 215-005 204-006
Dual Rx	&20 kHz &25 kHz	68-88	201-049 215-004	201-048 215-006			201-047 215-006	
	12,5kHz	68-88				201-052 215-004	201-054 215-006	
	&20 kHz &25 kHz	146-174	201-028 215-004	201-031 215-006	201-025 215-001	201-036 215-004	201-039 215-006	201-025 215-005 204-004
Dual Rx	&20 kHz &25 kHz	146-174				201-046 215-004		
	12,5kHz	146-174				201-051 215-004	201-053 215-006	
	&20 kHz &25 kHz	406-470	201-030 215-004	201-03' 215-0	201-027 215-003	201-030 215-004	201-034 215-006	201-027 215-005 204-005

Tone units: All with answerback

5-tones Rx + 5-tones Tx selection of number 4 +5. Tones: CCIR 219-048(022)
5-tones Rx + 5-tones Tx selection of number 4 +5. Tones: ZVEI 219-049(023)
5-tones Rx + 5-tones Tx selection of number 3 +5. Tones: CCIR 219-050(019)
5-tones Rx + 5-tones Tx selection of number 3 +5. Tones: ZVEI 219-051(018)



APPLICATION: Transmitter/Receiver 8 from 2 to 12 channels without selective system.

BUTTONS:

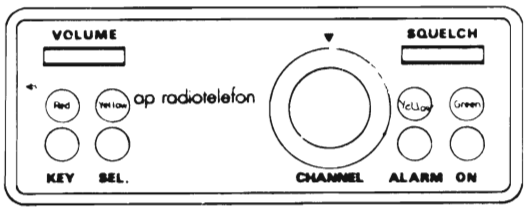
ON: Push for on/off, green lamp indicating.

KEY: Push for talk, red lamp indicating.

CHANNEL: Selection of channel.

Front section no. 206-008 fits to the following units/mountings:

Spec.	Channel spacing	Frekv. MHz	6 W	6 W m.printconn.	25 W kon.	25W/UHF 10W intermitt.	25W/UHF 10W m. printconn. intermitt.	25 W duplex
	&20 kHz &25 kHz	68-88	201-029 215-004	201-033 215-006	201-026 215-002	201-037 201-004	201-040 215-006	201-026 215-005 204-006
Dual Rx	&20 kHz &25 kHz	68-88	201-049 215-004	201-048 215-006			201-047 215-006	
	12,5kHz	68-88				201-052 215-004	201-054 215-006	
	&20 kHz &25 kHz	146-174	201-028 215-004	201-031 215-006	201-025 215-001	201-036 215-004	201-039 215-006	201-025 215-005 204-004
Dual Rx	&20 kHz &25 kHz	146-174				201-046 215-004		
	12,5kHz	146-174				201-051 215-004	201-053 215-006	
	&20 kHz &25 kHz	406-470	201-030 215-004	201-034 215-006	201-027 215-003	201-030 215-004	201-034 215-006	201-027 215-005 204-005



APPLICATION: Transmitter/Receiver with from 2 to 12 channels. Selective receiver with switch for external alarm.

BUTTONS:

ON: Push for on/off, green lamp indicating.

KEY: Push for talk, red lamp indicating.

SEL. The button activates the yellow lamp. When the yellow lamp is activated the loudspeaker and the key are switched off. When receiving of selective call the yellow lamp is flashing.

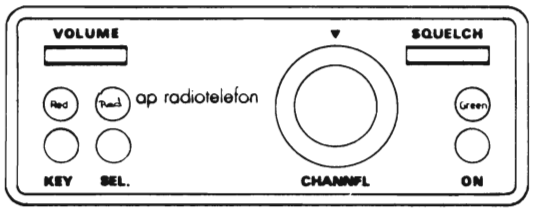
ALARM: External alarm is connected when the yellow lamp is lit.

CHANNEL: Selection of channels.

Front section no. 206-009 fits to the following units/mountings:

Spec.	Channel spacing	Frekv. MHz	6 W	6 W m.printconn.	25 W kon.	25W/UHF 10W intermitt.	25W/UHF 10W m. printconn. intermitt.	25 W duplex
	&20 kHz &25 kHz	68-88	201-029 215-004	201-033 215-006	201-026 215-002	201-037 201-004	201-040 215-006	201-026 215-005 204-006
Dual Rx	&20 kHz &25 kHz	68-88	201-049 215-004	201-048 215-006			201-047 215-006	
	12,5kHz	68-88				201-052 215-004	201-054 215-006	
	&20 kHz &25 kHz	146-174	201-028 215-004	201-031 215-006	201-025 215-001	201-036 215-004	201-039 215-006	201-025 215-005 204-004
Dual Rx	&20 kHz &25 kHz	146-174				201-046 215-004		
	12,5kHz	146-174				201-051 215-004	201-053 215-006	
	&20 kHz &25 kHz	406-470	201-030 215-004	201-034 215-006	201-027 215-003	201-030 215-004	201-034 215-006	201-027 215-005 204-005

Tone units: 2-tones Rx tones: AP 219-009
3-tones Rx tones: AP 219-011
5-tones Rx tones: CCIR 219-010
5-tones Rx tones: ZVEI 219-014



APPLICATION: Transmitter/Receiver from 2 to 12 channels and tone transmitter.

BUTTONS:

ON: Push for on/off, green lamp indicating.

KEY: Push for talk, red lamp indicating.

SEL.: Button for tone modulation, red lamps indicating.

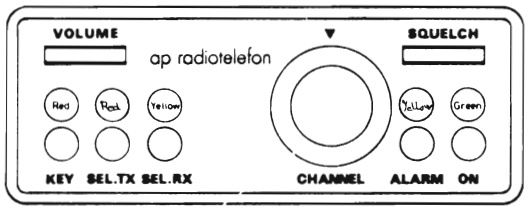
CHANNEL: Selection of channels.

Front section no. 206-010 fits to the following units/mountings:

Spec.	Channel spacing	Frekv. MHz	6 W	6 W m.printconn.	25 W kon.	25W/UHF 10W intermitt.	25W/UHF 10W m. printconn. intermitt.	25 W duplex
	&20 kHz &25 kHz	68-88	201-029 215-004	201-033 215-006	201-026 215-002	201-037 201-004	201-040 215-006	201-026 215-005 204-006
Dual Rx	&20 kHz &25 kHz	68-88	201-049 215-004	201-048 215-006			201-047 215-006	
	12,5kHz	68-88				201-052 215-004	201-054 215-006	
	&20 kHz &25 kHz	146-174	201-028 215-004	201-031 215-006	201-025 215-001	201-036 215-004	201-039 215-006	201-025 215-005 204-004
Dual Rx	&20 kHz &25 kHz	146-174				201-046 215-004		
	12,5kHz	146-174				201-051 215-004	201-053 215-006	
	&20 kHz &25 kHz	406-470	201-030 215-004	201-034 215-006	201-027 215-003	201-030 215-004	201-034 215-006	201-027 215-005 204-005

Tone units:

2-tones Tx	tones: AP		219-031
3-tones Tx	tones: AP		219-030
5-tones Tx	tones: CCIR		219-029
5-tones Tx	tones: ZVEI		219-028



APPLICATION: Transmitter/Receiver from 2 to 12 channels. Tone transmitter/receiver with switch for external alarm.

BUTTONS:

ON: Push for on/off, green lamp indicating.

KEY: Push for talk, red lamp indicating.

SEL. RX: The button activates the yellow lamp. When the yellow lamp is activated the loudspeaker and the key are blocked. When receiving a selective call the yellow lamp is flashing.

ALARM: External alarm is connected when the yellow lamp is indicating.

SEL.TX: Button with tone modulation, red lamps indicating.

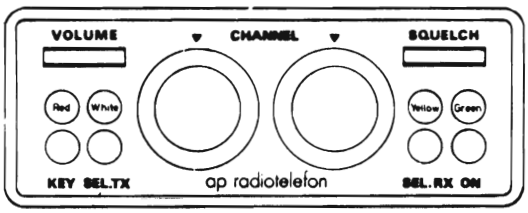
CHANNEL: Selection of channels.

Front section no. 206-011 fits to the following units/mountings:

Spec.	Channel spacing	Frekv. MHz	6 W	6 W m.printconn.	25 W kon.	25W/UHF 10W intermitt.	25W/UHF 10W m. printconn. intermitt.	25 W duplex
	&20 kHz &25 kHz	68-88	201-029 215-004	201-033 215-006	201-026 215-002	201-037 201-004	201-040 215-006	201-026 215-005 204-006
Dual Rx	&20 kHz &25 kHz	68-88	201-049 215-004	201-048 215-006			201-047 215-006	
	12,5kHz	68-88				201-052 215-004	201-054 215-006	
	&20 kHz &25 kHz	146-174	201-028 215-004	201-031 215-006	201-025 215-001	201-036 215-004	201-039 215-006	201-025 215-005 204-004
Dual Rx	&20 kHz &25 kHz	146-174				201-046 215-004		
	12,5kHz	146-174				201-051 215-004	201-053 215-006	
	&20 kHz &25 kHz	406-470	201-030 215-004	201-034 215-006	201-027 215-003	201-030 215-004	201-034 215-006	201-027 215-005 204-005

Tone units:

2-tones Tx + 2-tones Rx	tones: AP	219-054	(219-005)
2-tones Tx + 2-tones Rx answerback	tones: AP	219-042	(219-007)
5-tones Tx + 5-tones Rx answerback	tones: CCIR	219-044	(219-020)
5-tones Tx + 5-tones Rx answerback	tones: ZVEI	219-045	(219-021)
2-tones parallel Tx/Rx	tones: Storno	219-024	
2-tones parallel Tx/Rx	tones: Storno	219-026	
2-tones Rx/Tx	tones: AGA	219-055	(219-032)
2-tones Rx/Tx with answerback	tones: AGA	219-046	(219-033)
3-tones Rx/Tx with answerback	tones: AP	219-043	
3-tones Rx/Tx with answerback	tones: AGA	219-047	



APPLICATION: Transmitter/Receiver with maximum 32 channels. Tone transmitter and receiver.

BUTTONS:

ON: Push for on/off, green lamp indicating.

KEY: Push for talk, red lamp indicating.

SEL. RX: The button activates the yellow lamp. When the yellow lamp is activated the loudspeaker and the key are blocked. When receiving a selective call the yellow lamp flashes.

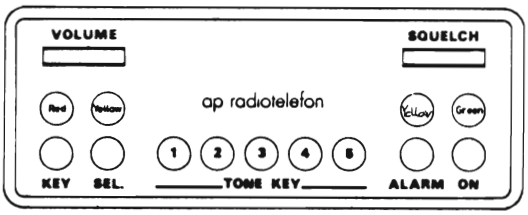
SEL. TX: Button with tone modulation, red and white lamp indicating.

Front section no. 206-012 fits to the following units/mountings:

Spec.	Channel spacing	Frekv. MHz	6 W	6 W m.printconn.	25 W kon.	25W/UHF 10W intermitt.	25W/UHF 10W m. printconn. intermitt.	25 W duplex
	&20 kHz &25 kHz	68-88	201-029 215-004	201-033 215-006	201-026 215-002	201-037 201-004	201-040 215-006	201-026 215-005 204-006
Dual Rx	&20 kHz &25 kHz	68-88	201-049 215-004	201-048 215-006			201-047 215-006	
	12,5kHz	68-88				201-052 215-004	201-054 215-006	
	&20 kHz &25 kHz	146-174	201-028 215-004	201-031 215-006	201-025 215-001	201-036 215-004	201-039 215-006	201-025 215-005 204-004
Dual Rx	&20 kHz &25 kHz	146-174				201-046 215-004		
	12,5kHz	146-174				201-051 215-004	201-053 215-006	
	&20 kHz &25 kHz	406-470	201-030 215-004	201-034 215-006	201-027 215-003	201-030 215-004	201-034 215-006	201-027 215-005 204-005

Tone units:

2-tones Tx + 2-tones Rx	tones: AP	219-054 (219-005)
2-tones Tx + 2-tones Rx answerback	tones: AP	219-042 (219-007)
5-tones Tx + 5-tones Rx answerback	tones: CCIR	219-044 (219-020)
5-tones Tx + 5-tones Rx answerback	tones: ZVEI	219-045 (219-021)
2-tones parallel Tx/Rx	tones: Storno	219-024
2-tones parallel Tx/Rx	tones: Storno	219-026
2-tones Tx + 2-tones Rx	tones: AGA	219-055 (219-032)
2-tones Tx + 2-tones Rx	tones: AGA	219-046 (219-033)
3-tones Rx/Tx with answerback	tones: AP	219-043
3-tones Rx/Tx with answerback	tones: AGA	219-047



APPLICATION: 1 channel transmitter/receiver with 2 or 3 tone receiver. Tone transmitter is activated by 5 tone buttons.

BUTTONS:

ON: Push for on/off, green lamp indicating.

KEY: Push for talk, red lamp indicating.

SEL.: The button activates the yellow lamp. When the yellow lamp is activated, the loudspeaker and the key are blocked. When receiving a selective call, the yellow lamp is flashing.

ALARM: External alarm is connected when the yellow lamp is lit.

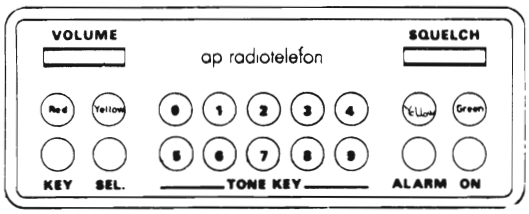
TONE KEY: Key with tone modulation, corresponding to the number of the button, red lamp indicating. When one of the tone buttons are unactivated, tone R will automatically be transmitted.

Front section no. 206-013 fits to the following units/mountings:

Spec.	Channel spacing	Frekv. MHz	6 W	6 W m.printconn.	25 W kon.	25W/UHF 10W intermitt.	25W/UHF 10W m. printconn. intermitt.	25 W duplex
	&20 kHz &25 kHz	68-88	201-029 215-004	201-033 215-006	201-026 215-002	201-037 201-004	201-040 215-006	201-026 215-005 204-006
Dual Rx	&20 kHz &25 kHz	68-88	201-049 215-004	201-048 215-006			201-047 215-006	
	12,5kHz	68-88				201-052 215-004	201-054 215-006	
	&20 kHz &25 kHz	146-174	201-028 215-004	201-031 215-006	201-025 215-001	201-036 215-004	201-039 215-006	201-025 215-005 204-004
Dual Rx	&20 kHz &25 kHz	146-174				201-046 215-004		
	12,5kHz	146-174				201-051 215-004	201-053 215-006	
	&20 kHz &25 kHz	406-470	201-030 215-004	201-034 215-006	201-027 215-003	201-030 215-004	201-034 215-006	201-027 215-005 204-005

Tone units:

tone Tx + 2-tones Rx	tones: AP	219-006
tone Tx + 2-tones Rx answerback	tones: AP	219-008
tone Tx + 3-tones Rx	tones: AP	219-015
tone Tx + 3-tones Rx answerback	tones: AP	219-016
tone Tx + 3-tones Rx	tones: AGA	219-034
tone Tx + 3-tones Rx answerback	tones: AGA	219-035



APPLICATION: 1 channel transmitter/receiver with 2 or 3-tone receiver. Tone transmitter is activated by the 10 tone buttons.

BUTTONS:

ON: Push for on/off, green lamp indicating.

KEY: Push for talk, red lamp indicating.

SEL.RX: The button activates the yellow lamp. When the yellow lamp is activated, the loudspeaker and the key are blocked. When receiving a selective call the yellow lamp is flashing.

ALARM: External alarm is connected when the yellow lamp is lit.

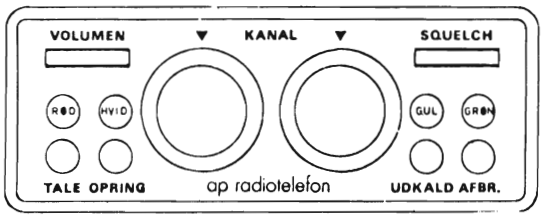
TONE KEY: Key with tone modulation, corresponding to the number of the button, red lamp indicating. When one of the tone buttons are unactivated tone R will automatically be transmitted.

Front section no. 206-014 fits the following units/mountings:

Spec.	Channel spacing	Frekv. MHz	6 W	6 W m.printconn.	25 W kon.	25W/UHF 10W intermitt.	25W/UHF 10W m. printconn. intermitt.	25 W duplex
	&20 kHz &25 kHz	68-88	201-029 215-004	201-033 215-006	201-026 215-002	201-037 201-004	201-040 215-006	201-026 215-005 204-006
Dual Rx	&20 kHz &25 kHz	68-88	201-049 215-004	201-048 215-006			201-047 215-006	
	12,5kHz	68-88				201-052 215-004	201-054 215-006	
	&20 kHz &25 kHz	146-174	201-028 215-004	201-031 215-006	201-025 215-001	201-036 215-004	201-039 215-006	201-025 215-005 204-004
Dual Rx	&20 kHz &25 kHz	146-174				201-046 215-004		
	12,5kHz	146-174				201-051 215-004	201-053 215-006	
	&20 kHz &25 kHz	406-470	201-030 215-004	201-034 215-006	201-027 215-003	201-030 215-004	201-034 215-006	201-027 215-005 204-005

Tone units:

tone Tx + 2-tones Rx	tones: AP	219-006
tone Tx + 2-tones Rx answerback	tones: AP	219-008
tone Tx + 3-tones Rx	tones: AP	219-015
tone Tx + 3-tones Rx answerback	tones: AP	219-016
tone Tx + 3-tones Rx	tones: AGA	219-034
tone Tx + 3-tones Rx answerback	tones: AGA	219-035



APPLICATION: 65 channels transmitter/receiver with 5-tones receiver and 1-tone transmitter for VHF public telephone service.

BUTTONS:

AFBR.: Push for on/off, green lamp indicating.

TALE: Push for talk, red lamp indicating.

UDKALD: The button activates the yellow lamp. When the yellow lamp is activated, the loudspeaker is closed, the key blocked and the display, if any, is closed. When receiving a selective call the yellow lamp is flashing.

OPRING: Automatic key with tone modulation for 1 sec. after which a new call may be done after 10 sec.

FRONT SECTION: 206-015 is used as duplex VHF public car telephone together with:

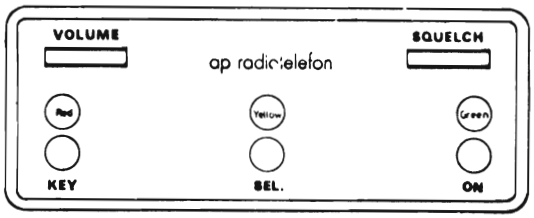
Tone unit:	219-012
Unit:	201-025
Mounting:	215-005
Duplex filter with PA-stage:	204-004

FRONT SECTION: 206-015 is used as 25W VHF simplex (intermitt.) public car telephone together with:

Tone unit:	219-012
Unit:	201-036
Mounting:	215-004

FRONT SECTION: 206-015 is used as 25W VHF simplex public car telephone with printconnector together with:

Tone unit:	219-012
Unit:	201-039
Mounting:	215-006



APPLICATION: 1 channel transmitter/receiver with pilot tone system consisting of 1 tone transmitter and receiver.

BUTTONS:

ON: Push for on/off, green lamp indicating

KEY: Push for talk, red lamp indicating.

SEL.: The button activates the yellow lamp. When the yellow lamp is lit, the loudspeaker is blocked.

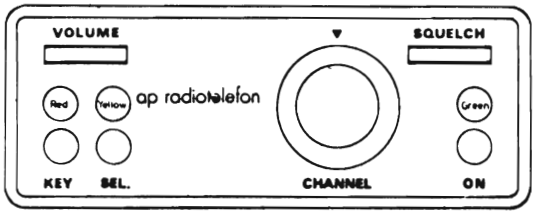
NOTE: When the unit is ON the tone receiver is always stand-by, i.e. the yellow lamp is lit and the loudspeaker is blocked.
When a call is received the loudspeaker opens and the yellow lamp is turned off. A few seconds after the carrier disappears, the tone receiver is stand-by again.
When the transmitter is activated it always starts with a 200 ms tone call.
For further description see drwg. no. 76274-4E2.

Front Section no 206-016 fits the following units/ mountings:

Spec.	Channel spacing	Frekv. MHz	6 W	6 W m.printconn.	25 W kon.	25W/UHF 10W intermitt.	25W/UHF 10W m. printconn. intermitt.	25 W duplex
	&20 kHz &25 kHz	68-88	201-029 215-004	201-033 215-006	201-026 215-002	201-037 201-004	201-040 215-006	201-026 215-005 204-006
Dual Rx	&20 kHz &25 kHz	68-88	201-049 215-004	201-048 215-006			201-047 215-006	
	12,5kHz	68-88				201-052 215-004	201-054 215-006	
	&20 kHz &25 kHz	146-174	201-028 215-004	201-031 215-006	201-025 215-001	201-036 215-004	201-039 215-006	201-025 215-005 204-004
Dual Rx	&20 kHz &25 kHz	146-174				201-046 215-004		
	12,5kHz	146-174				201-051 215-004	201-053 215-006	
	&20 kHz &25 kHz	406-470	201-030 215-004	201-034 215-006	201-027 215-003	201-030 215-004	201-034 215-006	201-027 215-005 204-005

Tone unit:

Pilot tone unit 1-tone Rx + 1-tone Tx 219-001



APPLICATION: Transmitter/receiver with from 2 to 12 channels and pilot tone system consisting of 1 tone receiver and 1 tone transmitter.

BUTTONS:

ON: Push for on/off, green lamp indicating.

KEY: Push for talk, red lamp indicating.

SEL.: The button activates the yellow lamp. When the yellow lamp is lit the loudspeaker is blocked.

CHANNEL: Channel selector.

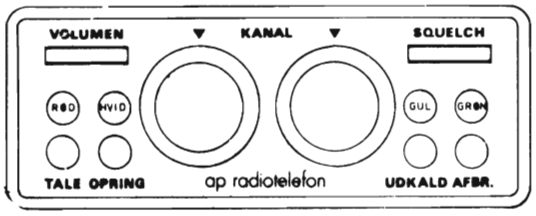
NOTE: When the unit is ON the tone receiver is always stand-by, i.e. the yellow lamp is activated and the loudspeaker is blocked.
When a call is received the loudspeaker opens and the yellow lamp is turned off. A few seconds after the carrier disappears, the tone receiver is stand-by again.
When activating the transmitter it always starts with a 200 ms tone call.
For further description see drwg. no. 76274-4E2.

Front section no. 206-017 fits the following units/mounting:

Spec.	Channel spacing	Frekv. MHz	6 W	6 W m.printconn.	25 W kon.	25W/UHF 10W intermitt.	25W/UHF 10W m. printconn. intermitt.	25 W duplex
	&20 kHz &25 kHz	68-88	201-029 215-004	201-033 215-006	201-026 215-002	201-037 201-004	201-040 215-006	201-026 215-00[illegible] 204-00[illegible]
Dual Rx	&20 kHz &25 kHz	68-88	201-049 215-004	201-048 215-006			201-047 215-006	
	12,5kHz	68-88				201-052 215-004	201-054 215-006	
	&20 kHz &25 kHz	146-174	201-028 215-004	201-031 215-006	201-025 215-001	201-036 215-004	201-039 215-006	201-025 215-005 204-004
Dual Rx	&20 kHz &25 kHz	146-174				201-046 215-004		
	12,5kHz	146-174				201-051 215-004	201-053 215-006	
	&20 kHz &25 kHz	406-470	201-030 215-004	201-034 215-006	201-027 215-003	201-030 215-004	201-034 215-006	201-027 215-005 204-005

Tone unit:

Pilottone unit: 1-tone Rx + 1-tone Tx 219-001



APPLICATION: 80 channels duplex or simplex (81 if private channel is used) with channel watch.
5-tones receiver with 1000 Hz tone as answerback and 1-tone transmitter. For UHF public car telephone in Denmark, Norway and Sweden.

BUTTONS:

AFBR.: Push for on/off, green lamp indicating.

TALE: Push for talk, red lamp indicating.

OPRING: Button with tone for call and closing, white lamp indicating.

UDKALD: 1st push: Loudspeaker disconnected, yellow lamp indicating, talk functions blocked, display is closed.
2nd push: loudspeaker is re-connected, yellow lamp is closed, key functions, display is connected.

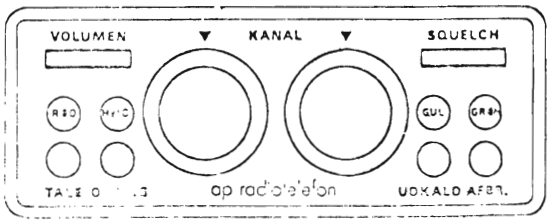
NOTE: 5-tones receiver is always connected. When a selective call is received, the loudspeaker makes an alarm tone, the yellow lamp is flashing, answerback is transmitted and the external alarm, if any, is activated. The yellow lamp is still flashing and first when the call is cancelled by pushing the CALL-button, is it possible to use the transmitter. Channel watch is activated when the channel selector is in position 00. Private channel may be coded into position 81 on the channel selector.

Front Section no. 206-018 is used as 25 W UHF duplex public car telephone with channel watch together with:

Unit no.:	201-032	mounting:	215-005
Duplex filter with PA-stage:			204-005
Tone unit:			219-013

Front Section no. 206-018 is used as 10W UHF simplex public car telephone with channel watch together with:

Unit:	201-042	mounting:	215-004
Tone unit:	219-013		



APPLICATION: 80 channels transmitter/receiver with 5-tones receiver and 1-tone transmitter for UHF public car-telephone without channel watch.

BUTTONS:

AFBR.: Push for on/off, green lamp indicating.

TALE: Push for talk, red lamp indicating

UDKALD: The button activates the yellow lamp. When the yellow lamp is lit the loudspeaker is closed, the key is blocked and the display, if any, is closed. When receiving a selective call the yellow lamp flashes.

OPRING: Automatic key with tone modulation for 1 sec., after which a new call can be made after 10 sec.

Front section no 206-019 is used as 25W UHF duplex public car telephone together with:

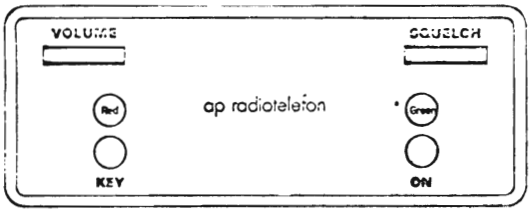
Tone unit:	219-012
Unit:	201-027
Mounting:	215-005
Duplex filter	
PA-stage	204-005

Front section no 206-019 is used as 10W UHF simplex public car telephone together with:

Tone unit:	219-012
Unit:	201-034
Mounting:	215-006

Front section no 206-019 is used as 10W UHF simplex public car telephone together with:

Tone unit:	219-012
Unit:	201-030
Mounting:	215-004



APPLICATION: 1 channel transmitter/receiver. Tone transmitter for ID.

BUTTONS:

ON: Push for on/off, green lamp indicating.

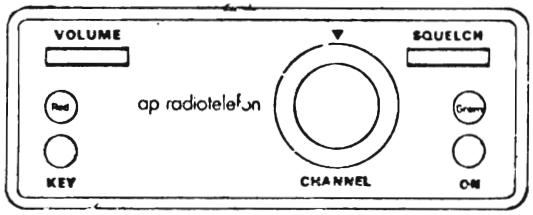
KEY: Push for talk, red lamp indicating. When activating the key a 5-tones code (ID) will be transmitted before the modulation amplifier is opened.

Front section no. 206-020 fits the following units/mountings:

Spec.	Channel spacing	Frekv. MHz	6 W	6 W m.printconn.	25 W kon.	25W/UHF 10W intermitt.	25W/UHF 10W m. printconn. intermitt.	25 W duplex
	&20 kHz &25 kHz	68-88	201-029 215-004	201-033 215-006	201-026 215-002	201-037 201-004	201-040 215-006	201-026 215-005 204-006
Dual Rx	&20 kHz &25 kHz	68-88	201-049 215-004	201-048 215-006			201-047 215-006	
	12,5kHz	68-88				201-052 215-004	201-054 215-006	
	&20 kHz &25 kHz	146-174	201-028 215-004	201-031 215-006	201-025 215-001	201-036 215-004	201-039 215-006	201-025 215-005 204-004
Dual Rx	&20 kHz &25 kHz	146-174				201-046 215-004		
	12,5kHz	146-174				201-051 215-004	201-053 215-006	
	&20 kHz &25 kHz	406-470	201-030 215-004	201-034 215-006	201-027 215-003	201-030 215-004	201-034 215-006	201-027 215-005 204-005

Tone units:

1 tone Rx + 5-tones Tx tones:ZVEI 219-025
1 tone Rx + 5-tones Tx tones:CCIR 219-027



APPLICATION: Transmitter/receiver with 2 to 12 channels.
Tone transmitter for ID.

BUTTONS:

ON: Push for on/off, green lamp indicating.

KEY: Push for talk, red lamp indicating. When activating the key a 5-tone code (ID) will be transmitted before the modulation amplifier is opened.

CHANNEL: Selection of channel.

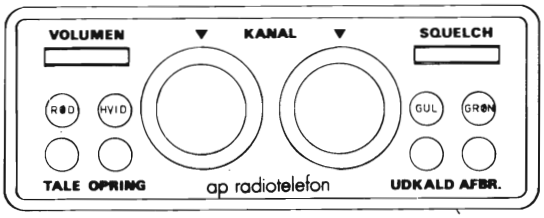
Front section no. 206-021 fits the following mountings/units:

Spec.	Channel spacing	Frekv. MHz	6 W	6 W m.printconn.	25 W kon.	25W/UHF 10W intermitt.	25W/UHF 10W m. printconn. intermitt.	25 W duplex
	&20 kHz &25 kHz	68-88	201-029 215-004	201-033 215-006	201-026 215-002	201-037 201-004	201-040 215-006	201-026 215-005 204-006
Dual Rx	&20 kHz &25 kHz	68-88	201-049 215-004	201-048 215-006			201-047 215-006	
	12,5kHz	68-88				201-052 215-004	201-054 215-006	
	&20 kHz &25 kHz	146-174	201-028 215-004	201-031 215-006	201-025 215-001	201-036 215-004	201-039 215-006	201-025 215-005 204-004
Dual Rx	&20 kHz &25 kHz	146-174				201-046 215-004		
	12,5kHz	146-174				201-051 215-004	201-053 215-006	
	&20 kHz &25 kHz	406-470	201-030 215-004	201-034 215-006	201-027 215-003	201-030 215-004	201-034 215-006	201-027 215-005 204-005

Tone units:

1 tone Rx + 5 tones Tx tones: ZVEI 219-025
1 tone Rx + 5-tones Tx tones: CCIR 219-027

FRONTSECTION NO. 24



APPLICATION: Multichannel transmitter/receiver with dual receiver and 5-tone receiver and 1-tone transmitter for VHF public telephone service. The channel number 80.....99 can be used for single frequency private channels.

BUTTONS:

AFBR.: Push for on/off, green lamp indicating.

TALE: Push for talk, red lamp indicating.

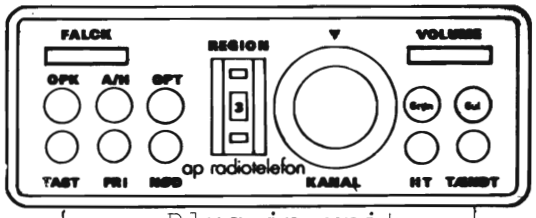
UDKALD: The button activates the yellow lamp. When the yellow lamp is activated, the loudspeaker is closed, the key blocked and the display, if any, is closed. When receiving a selective call the yellow lamp is flashing.

OPRING: Automatic key with tone modulation for 1 sec. after which a new call may be done after 10 sec.

FRONTSECTION: 206-024 is used as 15-25 W VHF simplex (int.) public car telephone together with:

Tone unit: 219-012
Unit: 201-046
Mounting: 215-004
Order no. 24 - 12 - 46 - 02 - 04
AP type no. 2279-24

Frontsection no. 33



Plug in unit

APPLICATION: 5-tone encoder/decoder with 1-6 channels.
5-tone decoder with 1-tone transponds.
5-tone encoder.

PLUG IN UNIT: The exchangeable plug in unit contains the codes for the encoder/decoder and the channel frequencies.

BUTTONS:

TÆNDT: Pushing the "TÆNDT" button for on/off. Yellow lamp indicating.

TAST: Pushing the "TAST" button for keying. White lamp indicating.

HT: Pushing the "HT" button for blocking or opening the loudspeaker. When the green lamp is off the loudspeaker is blocked.
A selectiv call opens the loudspeaker and activetes the green lamp. If the "TAST" button is not activates within 30 sec. the green lamp will start flashing and the loudspeaker will be blocked.
Pushing the "HT" button will open the loudspeaker and turn the green lamp off.

OPT.,A/H, OPK., FRI or NØD: Pushing one of the buttons activates the 5-tone encoder and codes digit no. 5 of the sequence.
The code of digit no. 5 depends on the position of the "REGION" and "KANAL" selector switches.

REGION: The positions 1-4 of the "REGION" selector, selectcs together with the "KANAL" selector, the codes of digit no. 5 for the encoder.
The other positions of the "REGION" selector are blocked.

KANAL: Channel celector.

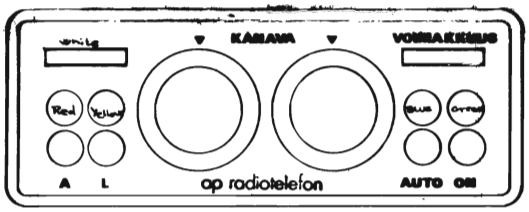
Frontsection no. 206-033 can be used with:

Main unit: 201-043

Mounting: 215-004

Tone unit: 219-036

Frontsection no. 34



APPLICATION: 80 channel transceiver with a 1-tone transmitter and 5-tone receiver, for the finnish public telephone service VHF simplex with aut. scanning.

BUTTONS:

ON: Push for main supply on/off, green lamp indicating.

AUT: Push for automatic scanning on/off blue lamp indicating.

A: 1. In the manual position: push to call on free channel (red busy lamp must be off).

2. In position automatic: a push on the button "A" will start the scanning within a preselected channelgroup (ex. 10-19) and the call will automatically take place on a free channel.
The channel group is selected by the left channel selector. The "CALL" button is blocked when the handset is in the cradle.

KEY: Keying and conversation can only take place with the handset. Key and loudspeaker are blocked until the 1800 Hz reservation tone is received from the central. Keying is indicated by the white lamp.

L: After conversation the "L" button is pushed for clearing,the button is blocked until call is transmitted and reservation tone is received.

CALL: Is carried out with the "A" button as desribed under "A".

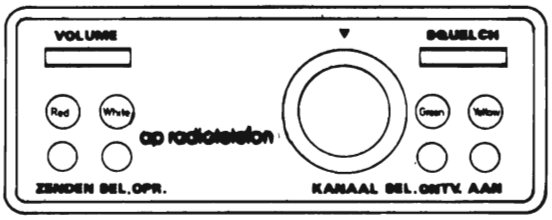
CALL FROM CENTRAL: This call will always take place on channel 00, on which the radio always is stand by, listening, when the handset is in the cradle.
When receiving the 1800 Hz call, the loudspeaker will open and a message may be received from the central.
Answering can not take place on channel 00.

When receiving a 5-tone selective call, the set will emit a short acoustic alarm in the loudspeaker and the yellow lamp is lit.

ANSWERING A CALL: After received call, the handset is taken, hereby turning the yellow lamp off, a channel is found on which the call and following conversation takes place.

Frontsection 206-034 is used in connection with radio unit 201-044 and suspension 215-004 and handset 213-002.

FRONTSECTION NO. 36/S



APPLICATION: Transmitter/receiver with max. 80 channels.
Tone transmitter and receiver.
No. 36 is for 12 channels.

BUTTONS:

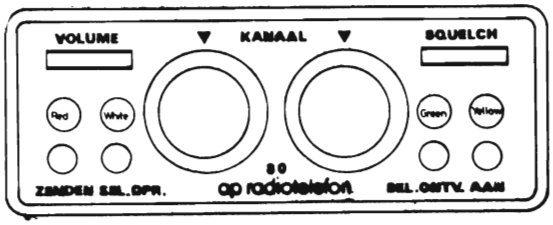
ON (AAN) Push for on/off, green lamp indicating.

KEY (ZENDEN): Push for talk, red lamp indicating.

SEL. Rx (SEL. ONTV.): The button activates the yellow lamp . When the lamp is activated the loudspeaker and the key are blocked. When receiving a selective call the yellow lamp flashes.

SEL. Tx (SEL. OPR.): Button with tone modulation, red and white lamp indicating.

FRONTSECTION NO. 37/S



APPLICATION: Transmitter/receiver with max. 80 channels.
Tone transmitter and receiver.
No. 37 is for 80 channels.

BUTTONS:

ON (AAN): Push for on/off, green lamp indicating.

KEY (ZENDEN): Push for talk, red lamp indicating.

SEL. Rx (SEL. ONTV.) : The button activates the yellow lamp. When the lamp is activated the loudspeaker and the key are blocked. When receiveing a selective call the yellow lamp flashes.

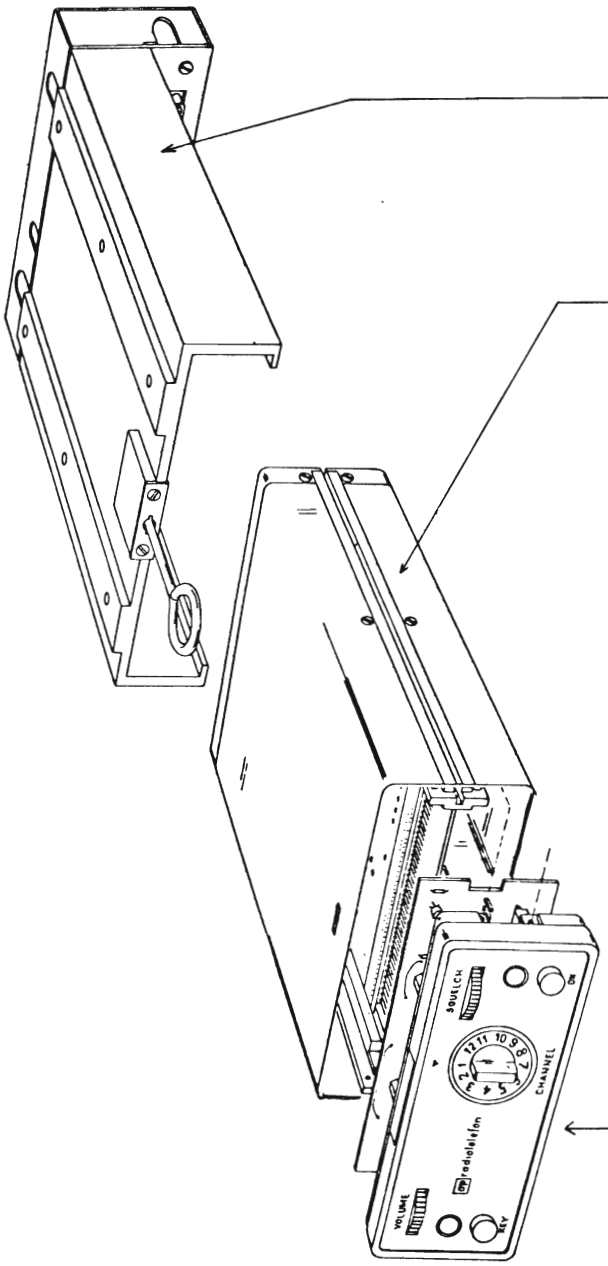
SEL. Tx (SEL. OPR.): Button with tone modulation, red and white lamp indicating.

CARRYING BAGS - SUMMARY

Frequency band	Radio unit	Carrying bag	RF-power as portable	RF-power with ext. 12 V	Battery lifetime as portable at 10% key.
4 m	6W 201-029 25W 201-037 Intermitt.	215-015	2W 6W	6W 25W	10 hours 7 hours
2 m	6W 201-028 25W 201-036 Intermitt.	215-015	2W 6W	6W 25W	10 hours 7 hours
UHF	6W 201-030 10W 201-030	215-015	2W 2W	6W 10W	10 hours 10 hours
4 m	25W 201-026 continuous	215-016 with PA-stage	6W	25W	7 hours
2 m	25W 201-025 continuous	215-017 with PA-stage	6W	25W	7 hours
UHF	25W 201-027 continuous	215-018 with PA-stage	5W	25W	7 hours
Danish Norwegian 80 channel UHF MTD	25W 201-027	215-018 with PA-stage	5W	25W	6 hours
80 channel UHF MTD with scan.	25W 201-032	215-019 extended and with PA-stage	5W	25W	6 hours
65 channel 2 m Norwegian. Public telephone	25W 201-025	215-017 with PA-stage	6W	25W	6 hours
Norwegian 2m dual Rx Finnish public telep.	15W 201-046 15W 201-044	215-020 without PA-stage	6W	15W	6 hours

7-5-79 BC/BJ

77386-4E2

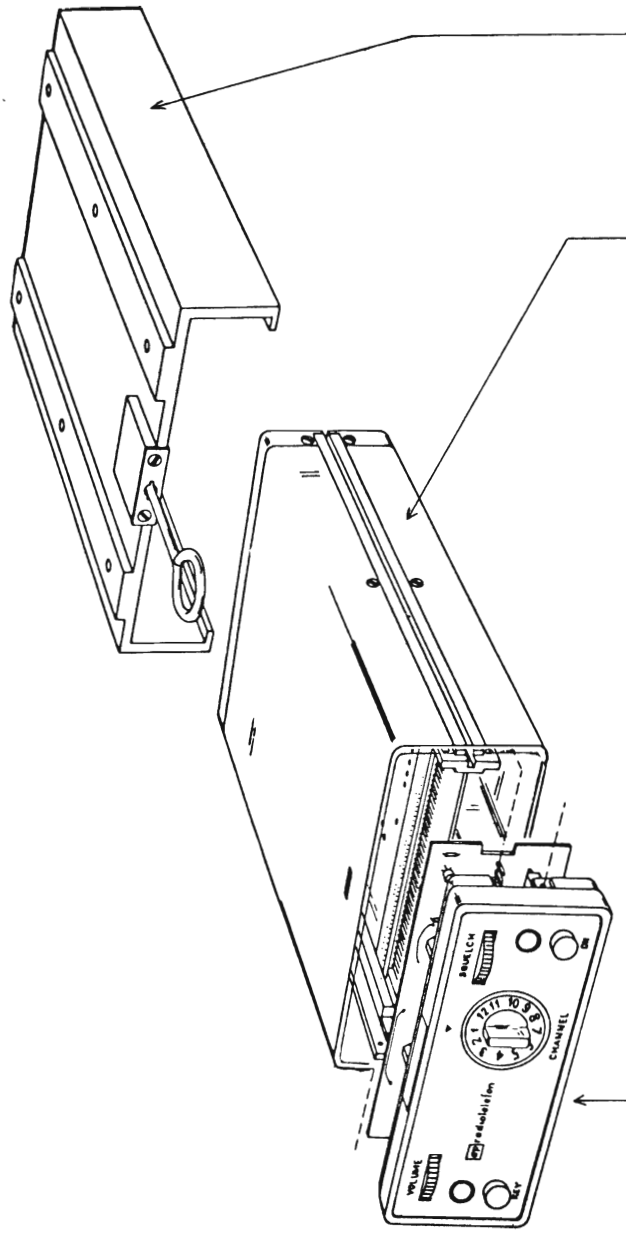


Frequency Mhz	Main unit	Mounting
68-88	201-029 201-049	215-004
146-174	201-028	
406-470	201-030	

FRONT SECTION

Front section number according to the desired number of channels and the selective tone unit

Rettet: 21-6-79LT/AC	Units for AP 2000 set 6 W	Tegn.:	Kontr.:
		Stykl. nr.:	
	AP-RADIOTELEFON A/S	Tegn. nr.: 76265-4E2	



Frequency Mhz	Main unit	Mounting
68-88	201-033 201-048	215-006
146-174	201-031	
406-470	201-034	

FRONT SECTION

Front section number according to the desired number of channels and the selective tone unit.

Rettet: 21-6-79LT/AC	Units for AP 2000 set 6 W. Special version with print-connector.	Tegn.:	Kontr.:
		Stykl. nr.:	
	AP-RADIOTELEFON A/S	Tegn. nr.: 76266-4E2	

Rettet:

AP-RADIOTELEFON A/S

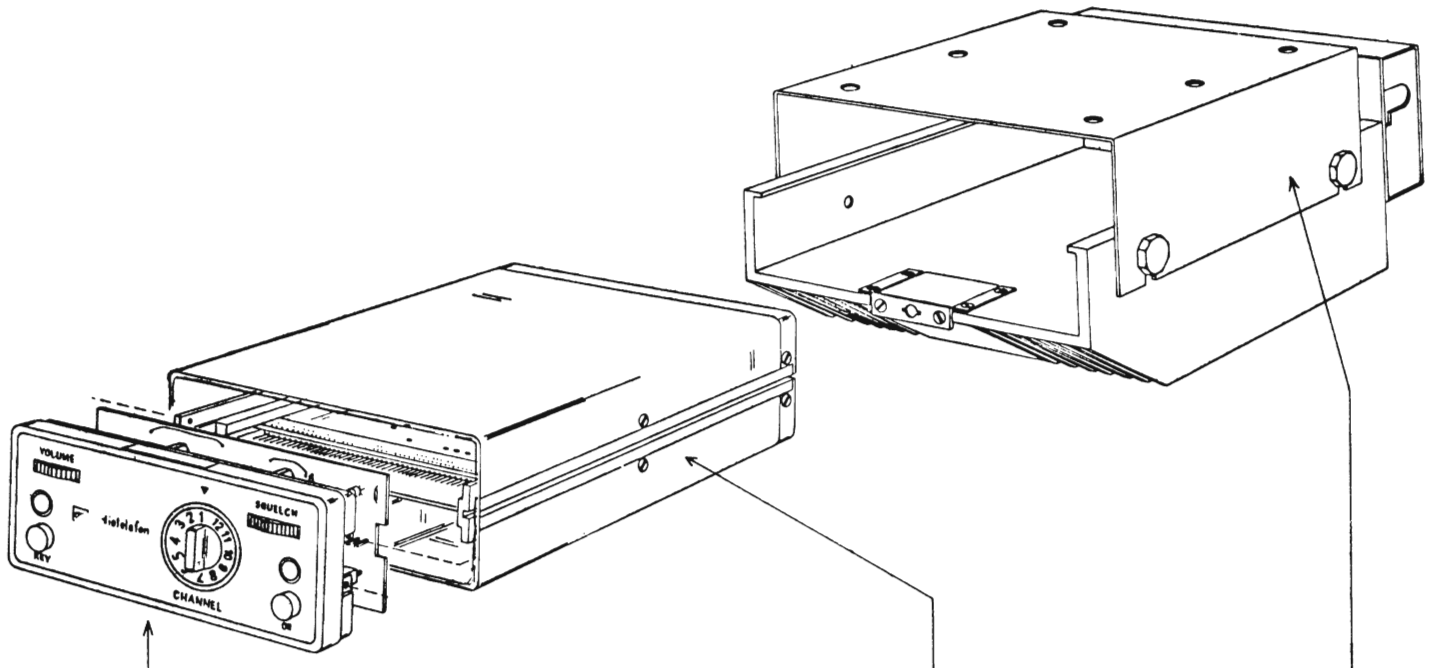
Units for AP 2000 set
25 W continuous

Tegn.:

Kontr.:

Stykl. nr.:

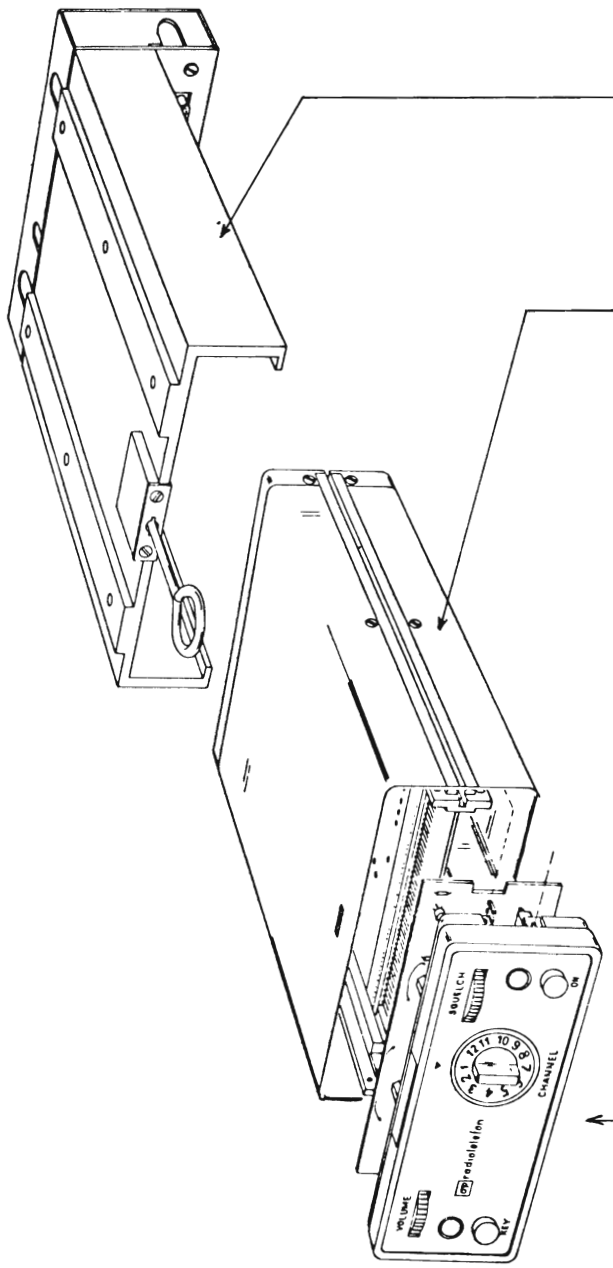
Tegn. nr.: 76264-4E2



FRONT SECTION

Front section number according to the desired number of channels and the selective tone unit.

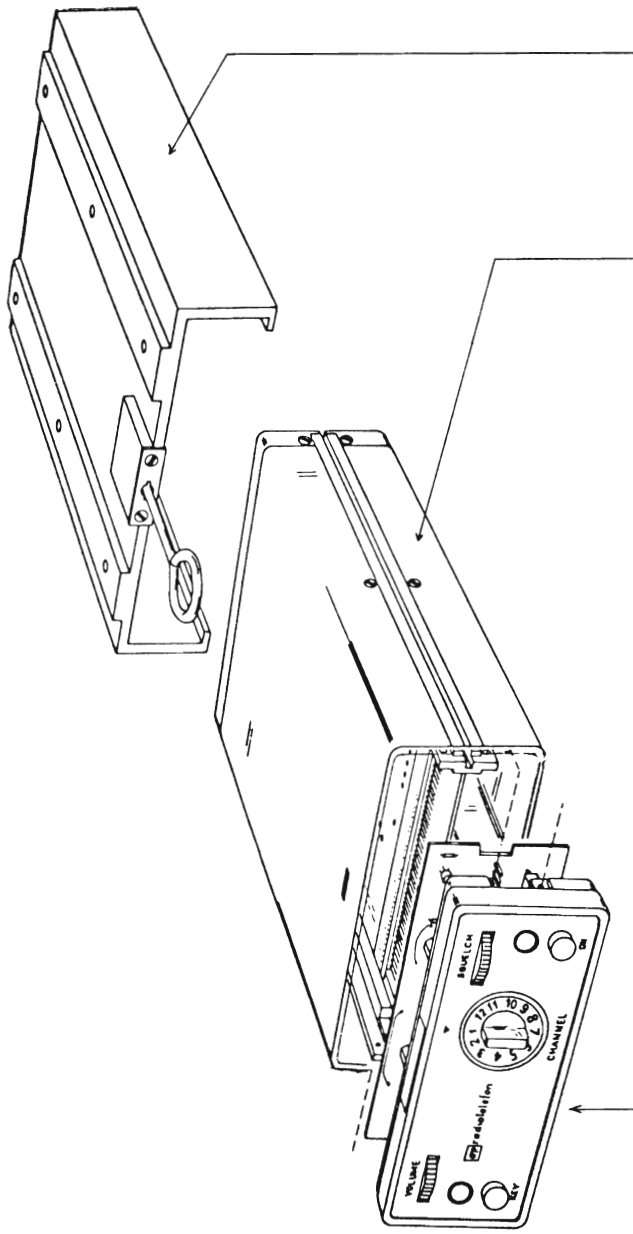
Frequency Mhz	Main unit	Mounting and external PA-stage
68-88	201-026	215-002
146-174	201-025	215-001
406-470	201-027	215-003



Frequency Mhz	Main unit	Mounting
68-88	201-037 201-052	215-004
146-174	201-036 201-046 201-051	
406-470	201-030	

FRONT SECTION
Front section number according to the desired number of channels and the selestive tone unit

Rettet: 21-6-79AC/LT	Units for AP 2000 set 25 W/UHF 10W intermitt. use	Tegn.: / Kontr.: Stykl. nr.:
	AP-RADIOTELEFON ⅛	Tegn. nr.: 76281-4E2



Frequency Mhz	Main unit	Mounting
68-88	201-040 201-047 201-054	215-006
146-174	201-039 201-053	
406-470	201-034	

FRONT SECTION

Front section number according to the desired number of channels and the selective tone unit

Rettet: ~~21-6-79LT/AC~~	Units for AP 2000 set. 25 W/UHF 10 W intermitt. with printconnector.	Tegn.:	Kontr.:
		Stykl. nr.:	
	AP-RADIOTELEFON ⅞	Tegn. nr.: 76267-4E2	

Rettet:

AP-RADIOTELEFON A/S

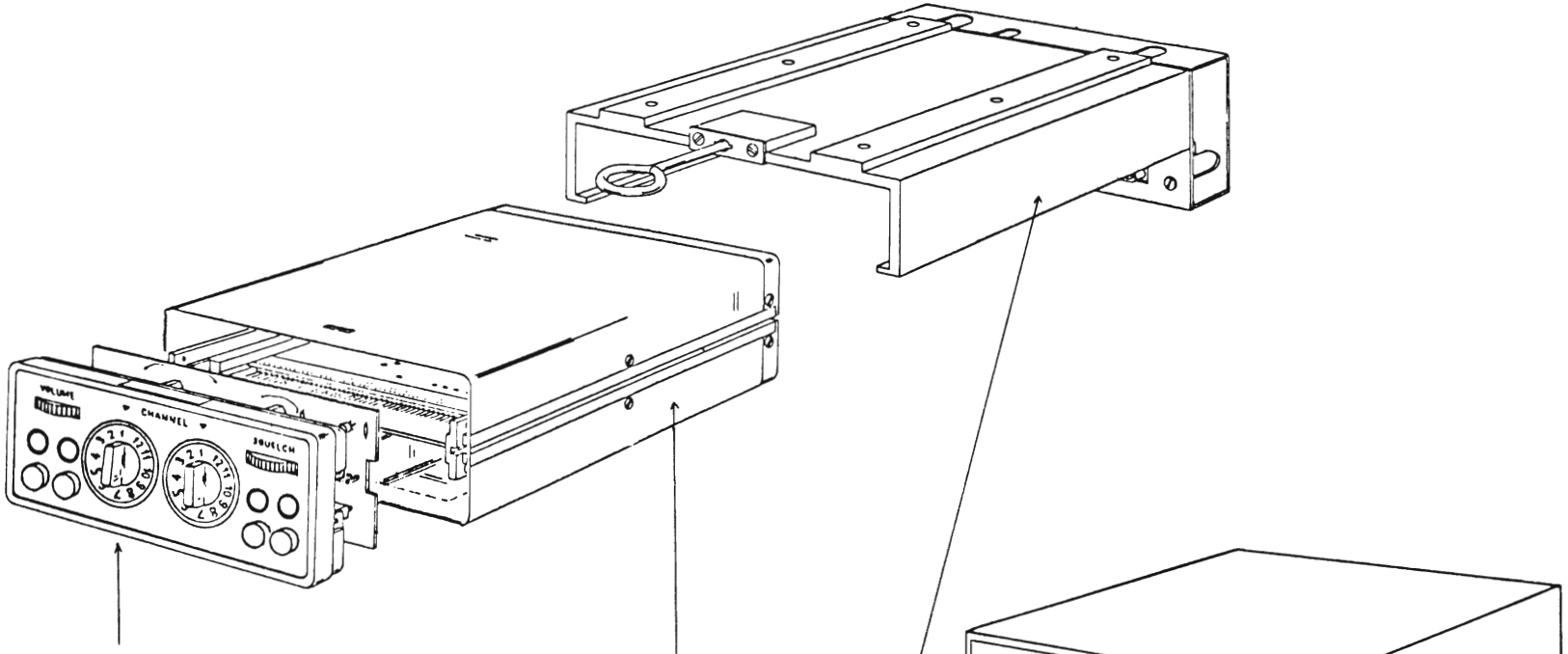
Units for AP 2000 set with external PA-stage and duplexf.

Tegn.:

Kontr.:

Stykl. nr.:

Tegn. nr.: 76284-4E2



FRONT SECTION

Front section number according to the desired number of channels and the selective tone unit

Frequency Mhz	Main unit	Mounting	External PA-stage and duplexfilter.
68-88	201-026	215-005	204-006
146-174	201-025		204-004
406-470	201-027		204-005

Stock no.	Tones	Aut. resp.	Function	Drawing number
			5-tone encoder/decoder with automatic transponding and group call	
219 - 040			C 07A1/C 08A1 ZVEI	78049-2E2
219 - 041			C 07A2/C 08A2 CCIR	78053-2E2
			Technical description	78076-4E2
Relay with timing for ext. alarm				75169-4E2

Stock no.	Tones	Aut. resp.	Function	Drawing number
219 - 015	AP			
219 - 016	AP	x	3-tone Rx + tone Tx	
219 - 034	AGA			
219 - 035	AGA		Technical description	
			Diagram (print board B 86 + B 67)	77337-2E2
(219 - 018)	ZVEI	x	5-tone Rx/Tx	
(219 - 019)	CCIR	x	Technical description	76315-4E2
(219 - 020)	CCIR	x	Adjustment procedure	76316-4E2
(219 - 021)	ZVEI	x	Diagram (print board B 76 + B 77)	76294-2E2
(219 - 022)	CCIR	x		
(219 - 023)	ZVEI	x		
219 - 051	ZVEI	x		
219 - 050	CCIR	x	Technical description	78101-4E2
219 - 044	CCIR	x		
219 - 045	ZVEI	x	Diagram (print board C 16 + C 14)	78132-2E2
219 - 048	CCIR	x		
219 - 049	ZVEI	x		
219 - 052	CCIR	x	Remarke: 219-052 and 053 only for controlbox 202-020	
219 - 053	ZVEI	x		
219 - 031			2-tone Tx Diagram	77358-2E2
219 - 030			3-tone Tx Diagram	77357-2E2
219 - 028			5-tone Tx Diagram	77348-2E2
219 - 029				
219 - 025			1-tone Rx+5-tone Tx Diagram	77352-2E2
219 - 027			Technical description	
			Print board for all units B 85	
219 - 043			3-tone Rx/Tx	78162-2E2
219 - 047				
			Technical description	78100-4E2
			Print boards C 16/C 14	

Tone unit

Stock no.	Tones	Aut. resp.	Function	Drawing number
219 - 001	AP		1-tone Rx 1-tone Tx Spec. pilottone unit	
			Technical description	78042-4E2
			Diagram (print board B 68)	78002-2E2
(219 - 005)	AP		2-tone Rx/Tx	
(219 - 007)	AP	x	Technical description	76235-4E2
(219 - 032)	AGA		Diagram (print board B 74 +	76223-2E2
(219 - 033)		x	B 67	
219 - 042	AP	x	Technical description	78100-4E2
219 - 054	AP			
219 - 046	AGA	x	Diagram (print board C 14 +	78161-2E2
219 - 055	AGA		C 16)	
(219 - 006)	AP		2-tone Rx/Tx	
(219 - 008)	AP	x	Technical description	76352-4E2
			Diagram (print board B 66	
			B 67	76231-2E2
219 - 057	AP		Technical description	
219 - 058	AP	x	Diagram (print board B 86 + B 67)	77337-2E2
219 - 009	AP		2-tone Rx	
219 - 011	AP		3-tone Rx	
219 - 010	CCIR		5-tone Rx	
219 - 014	ZVEI		5-tone Rx	
			Technical description	76314-4E2
			Diagram (print board B 69)	76236-2E2
219 - 024	Storno 1+1		2-tone parallel Rx+	
219 - 026	Storno 1+2		2-tone parallel Tx	
			General description	77116-4E2
			Technical description	77117-4E2
			Diagram (print board B 84)	77405-2E2

() old types

Summary of tone units for AP 2000

GENERAL:

Tone receiver:

To the tone receiver belongs a button marked "SEL.RX" and a yellow lamp. At repeated push on the button the yellow lamp will go on/off. When the yellow lamp is lit the loudspeaker is blocked and the key functions of the unit are blocked (red lamp will not be activated when using the key-button). No matter if the yellow lamp is lit or not, a received call will be indicated in the following way:

Indication of a call:

The loudspeaker gives an alarm tone (1000 Hz for 1 sec.). The external alarm, if any, is activated. The yellow lamp flashes, until the call is cancelled by pushing the button "SEL.RX".
The transmitter cannot be activated until the call is cancelled. All tone receivers have the possibility for by means of a strapping to be connected in such way that the loudspeaker automatically opens when receiving a call. Still you have to cancel the call before the transmitter can be keyed.
For time limited (1 sec.) external alarm a relay no. 217-001 is used. See drwg. no. 65169-4E2.

Description of tone unit	
1 tone Rx + 1 tone Tx Pilot tone unit Description: see design no. 76274-4E2 Front unit: 16 and 17	Printnumber B 68 A1 Stocknumber 219-001

Description of tone units	
2 tone Rx and 2 tone Tx Tones: AP Durability: about 1 sec. The encoder and decoder have each their own tone code. When receiving an ID-call automtic transponding is transmitted including the ID-code or the Tx-code. Front sections: 4, 11, 12.	Print number C 16 A2 C 14 A1 Stock number 219-042 replaces 219-007 print B 74+B 67
2 tone Rx and 2 tone Tx Tones: AP Durability: about 1 sec. The encoder and decoder have each their own tone code. No automatic transponding Front sections: 4, 11, 12.	Print number C 16 A13 C 14 A1 Stock number 219-054 replaces 219-005 print B 74+B 67
2 tone Rx and 2 tone Tx Tones: AGA Durability: about 1 sec. Function as 219-042 Front sections: 4, 11, 12.	Print number C 16 A5 C 14 A1 Stock number 219-046 replaces 219-033 print B 74+B 67
2 tone Rx and 2 tone Tx Tones: AGA Durability: about 1 sec Function as 219-054 Front sections: 4, 11, 12.	Print number C 16 A14 C 14 A1 Stock number 219-055 replaces 219-032 print B 74+B 67

Description of tone units	
3 tone Rx and 3 tone Tx Tones: AP Durability: about 1 sec. The encoder and decoder have each their own tone code. When receiving an ID-call automatic transponding is transmitted including the ID-code or the Tx-code. The automatic transponding can be cancelled Front sections: 04, 11, 12.	Print number C 16 A3 C 14 A1 Stock number 219-043
3 tone Rx and 3 tone Tx Tones: AGA Durability: about 1 sec. Function as 219-043 Front sections: 04, 11, 12	Print number C 16 A6 C 14 A1 Stock number 219-047

Description of tone units	
2 tones Rx and tone Tx Tones: AP Durability: about 1 sec. The tone transmitter is operated by 10 tone keybuttons, one for each tone, 0-9. The tone transmitter is in action with the choosen tone as long as the button is operated and it is transmitting tone R in 1 sec. automatically when the button is slipped. Front section: 13, 14, 25	Print number B 86 B5 B 67 B1 Stock number 219-057 replaces 219-006 print B 66+B 67
2 tones Rx and tone Tx Tones: AP Durability: about 1 sec. The tone transmitter is operated by 10 tone keybuttons, one for each tone, 0-9.The tone transmitter is in action with the choosen tone as long as the button is operated and it is transmitting tone R in 1 sec. automatically when the button is slipped. When receiving a call, the answerback is send automatically. The answerback is composed of 2 tones from which the first number can be coded as wished, but the second number must always be tone R. Front sections: 13, 14 , 25	Print number B 86 B6 B 67 B1 Stock number 219-058 replaces 219-008 print B 66+ B 67

Description of tone unit	
2 tones Rx alone Tones: AP Durability: about 1 sec. Front section: 1, 9	Print number B 69 A1 Stock number 219-009
2 tones Tx alone Tones: AP Durability: about 1 sec. The tone transmitter is operated by the button "SEL.TX" Front sections: 2, 10	Print number B 85 A6 Stock number 219-031

Description of tone unit	
2 tone parallel Rx/Tx with transpond Storno tones: 970Hz - 2900Hz Frontsections: 4, 11, 12	Print board B84B1 Stock number 219-024
2 tone parallel Rx/Tx with transpond Storno tones: 970Hz - 2900Hz 615Hz - 2200Hz Frontsections: 4, 11, 12	Print board B84B2 Stock number 219-026
2 tone parallel Rx/Tx with transpond Storno tones: 615Hz - 2200Hz Front sections: 4, 11, 12	Print board B84B3 Stock number 219-038

Description of tone unit	
3 tones Rx alone Tones: AP Durability: about 1 sec. Front sections: 1, 9	Print number B 69 A2 Stock number 219-011
3 tones Tx alone Tones: AP Durability: about 1 sec. The tone transmitter is operated by the button "SEL.CALL" Front Sections: 2, 10	Print number B 85 A5 Stock number 219-030

Description of tone unit	
3 tones Rx and tone Tx Tones: AP Durability: about 1 sec. The tone transmitter is operated by 10 tone keybuttons one for each tone, 0-9. The tone transmitter is in action with the choosen tone as long as the button is operated and is transmitting tone R in 1 sec. automatically when the button is slipped. Front sections: 13, 14, 25	Print number B 86 A1 B 67 A1 Stock number 219-015
3 tones Rx and tone Tx Tones: AP Durability: about 1 sec. The tone transmitter is operated by 10 tone keybuttons one for each tone, 0-9. The tone transmitter is in action with the choosen tone as long as the button is operated and is transmitting tone R 1 sec. automatically when the button is slipped. When receiving a call the answerback is transmitted automatically. The answerback is composed of 2 tones, of which the first number can be coded as you wish but the second number must always be tone R. Frontsections: 13, 14, 25	Print number B 86 A2 B 67 A1 Stock number 219-016
3 tones Tx and tone Tx Tones: AGA Durability: about 1 sec. The tone transmitter is operated by 10 tones keybuttons, one for each tone, 0-9. The tone transmitter is in action with the choosen tone as long as the button is operated. Front sections: 13, 14, 25	Printnumber B 86 A3 B 67 A1 Stock number 219-034

Description of tone unit	
3 tone Rx and tone Tx Tones: AGA Durability: about 1 sec. The tone transmitter is operated by 10 tone keybuttons, one for each tone, 0 - 9. The tone transmitter is in action with the chosen tone as long as the button is operated. When receiving a call the answerback is transmitted automatically. The answerback consists of the repeat tone (R). Front sections: 13, 14, 25	Print number B 86 A4 B 67 A1 Stock number 219-035

Description of tone unit	
5 tone Rx alone Tones: CCIR Durability: 100 ms Front section: 1,9	Print number B 69 A3 Stock number 219-010
5 tone Rx alone Tones: ZVEI Durability: 70 ms Front sections: 1,9	Print number B 69 A4 Stock number 219-014
5 tone Tx alone Tones: ZVEI Durability: 70 ms The tone transmitter is operated by the button "SEL. Tx" Front sections: 2,10	Print number B 85 a3 Stock number 219-028
5 tone Tx alone Tones: CCIR Durability: 100 ms The tone transmitter is operated by the button "SEL. Tx" Front sections: 2, 10	Print number B 85 A4 Stock number 219-029

Description of tone units	
5 tone Rx and 5 tone Tx Tones: CCIR Durability: 100 ms The encoder and decoder have each their own tone code, but the first three digits are allways the same. When receiving an ID-call automatic transponding is transmitted including the ID-code or the Tx-code. The automatic transponding can be cancelled. Front sections: 04, 11, 12.	Print number C 16 A1 C 14 A1 Stock number 219-044 replaces 219-020 print B 76+B 77
5 tone Rx and 5 tone Tx Tones: ZVEI Durability: 70 ms Function as described above, except that the blocking functions of the toneunit are cancelled too by activating the key. Front sections: 04, 11, 12	Print number C 16 A4 C 14 A2 Stock number 219-045 replaces 219-021 Print B 76+B 77

Description of tone units	
5 tone Rx and 5 tone Tx Tones: CCIR Durability: 100 ms The encoder and decoder have each their own tone code, but the first three digits are allways the same. In the Tx-mode the last two digits can be programmed by thumbwheel switches, or by remotecontrol box 202-021 for basestation. When receiving an ID call automatic transponding is transmitted including the ID-code or the Tx-code. The automatic transponding can be cancelled. Front sections: 5, 7.	Print number C 16 A7 C 14 A1 Stock number 219-048 replaces 219-022 print B 76+B 77
5 tone Rx and 5 tone Tx Tones: ZVEI Durability: 70 ms Functions as described above, except that the blockingfunctions of the tone unit are cancelled too by activating the key. Front sections: 5, 7.	Print number C 16 A8 C 14 A2 Stock number 219-049 replaces 219-023 print B 76+B 77
5 tone Rx and 5 tone Tx Tones: CCIR Durability: 100 ms The encoder and decoder have each their own tone code, but digit 1, 2 and 4 are allways the same. In the Tx-mode digit 3 and 5 can be programmed by thumbwheel switches. When receiving an ID-call automatic transponding is transmitted including the ID-code or the Tx-code. The automatic transponding can be cancelled. Front sections: 5, 7.	Print number C 16 A9 C 14 A1 Stock number 219-050 replaces 219-019 print B 76+B 77

Description of tone units	
5 tone Rx and 5 tone Tx Tones: ZVEI Durability: 70 ms Functions as described 219-050, except that the blockingfunctions of the tone unit are cancelled too by activating the key. Front sections: 5, 7	Print number C 16 Alo C 14 A2 Stock number 219-051 replaces 219-018 print B 76+B 77
5 tone Rx and 5 tone Tx (spec. for box 202-020) Tones: CCIR Durability: 100 ms The encoder and decoder have each their own tone code, but the first two digits are allways the same. In the Tx-mode the three last digits can be programmed by remotecontrol box 202-020 for base station. When receiving an ID-call automatic transponding is transmitted including the ID-code or the Tx-code. The automatic transponding can be cancelled.	Print number C 16 All C 14 Al Stock number 219-052
5 tone Rx and 5 tone Tx (spec. for box 202-020) Tones: ZVEI Durability: 70 ms Functions as described above, except that the blockingfunctions of the tone unit are cancelled too by activating the key	Print number C 16 Al2 C 14 A2 Stock number 219-053

Description of tone unit	
5-tone encoder/decoder with automatic transponding and group call Tone: ZVEI Durability: 70 ms Front sections: 04, 05, 07, 11, 12.	Print number C07A1/C08A1 Stock number 219-040
5-tone encoder/decoder with automatic transponding and group call Tone: CCIR Durability: 100 ms Front sections: 04, 05, 07, 11, 12.	Print number C07A2/C08A2 Stock number 219-041

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

AP-RADIOTELEFON A/S

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

25 kHz Channel spacing

Tegn.: 6-1-77 AC | Kontr.:

Stykl. nr.:

Tegn. nr.: 75376-4E2

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 : ± 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

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

Min. frequency of transmitter mixer crystal is 5,7 MHz (when FTx > FRx)

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

F_{Rx}: 68 70 72 74 76 78 80 82 84 86 88 MHz

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

For channels ending with
00 kHz
25 kHz
50 kHz
75 kHz

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

F_{Rx}: 68,0125 70,0125 72,0125 74,0125 76,0125 78,0125 80,0125 82,0125 84,0125 86,0125 88,0125 MHz

F_x: 14,2020 14,5354 14,8687 15,2020 15,5354 15,8687 16,2020 16,5354 16,8687 17,2020 17,5354

For channels ending with
12,5 kHz
37,5 kHz
62,5 kHz
87,5 kHz

Transmitter mixer oscillator

SPECIFICATION
for Quartz Crystal Unit
AP 22

Calculation of the crystal frequency for the transmitter mixer oscillator

$F_{Tx}\ mix = 10,7 + \frac{F_{Rx} - F_{Tx}}{2}$

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

AP-RADIOTELEFON A/S

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

20 kHz Channel spacing

Tegn.: 7-2-77 AC

Kontr.:

Stykl. nr.:

Tegn. nr.: 77108-4E2

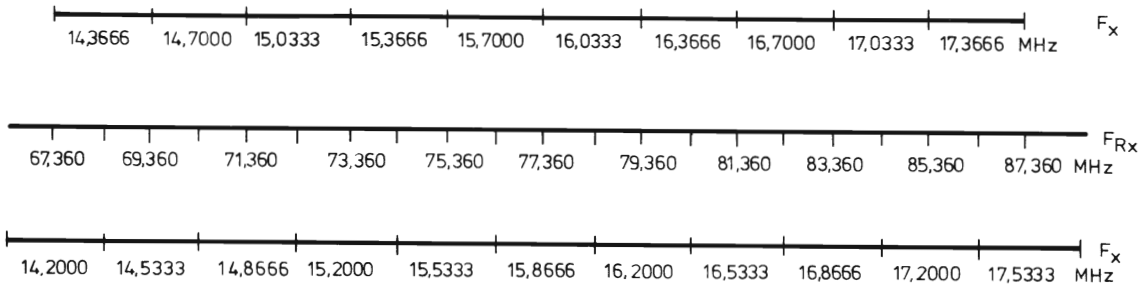
SPECIFICATION
for Quartz Crystal Unit
AP 22

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 : ± 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

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.



SPECIFICATION
for Quartz Crystal Unit
AP 22

Transmitter mixer oscillator

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 : ± 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

Calculation of the crystal frequency for the transmitter mixer oscillator

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

Min. frequency of transmitter mixer crystal is 5,7 MHz (when FTx>FRx)

Form. 5-77-2-0.5 J & K

Rettet:

AP-RADIOTELEFON A/S

Standard crystals for AP 2000
4m band
12,5 kHz channel spacing

Tegn.: 25-10-78 BC
Kontr.:
Stykl. nr.:
Tegn. nr.: 78160-4E2

12,5 kHz Channel spacing

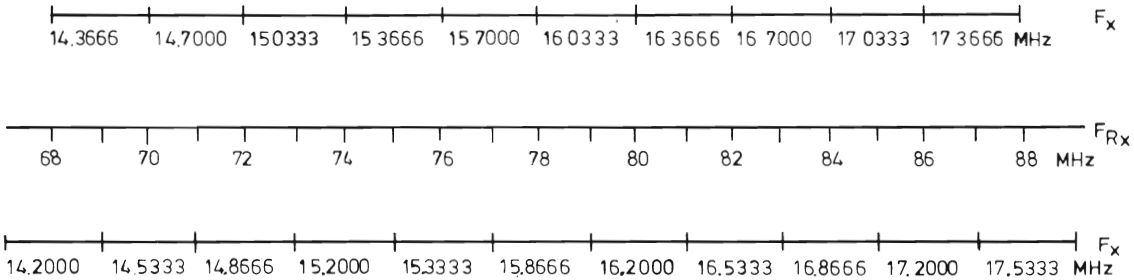
SPECIFICATION
for Quartz Crystal Unit
AP 22

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 : ± 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

Division ratio $N = \frac{21,4 + F_{Rx} - 6\,F_x}{0,0125}$

Example:
Known receiver freq. = 81 MHz
Found from the table F_x = 16,3666 MHz
Calculated N = 336,032 as N is integer
the decimal places are deleted so N = 336



Min. frequency of transmitter mixer crystal is 5,7 MHz (when FTx = FRx)

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 : ± 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

Calculation of the crystal frequency for the transmitter mixer oscillator

$$F_{Tx}\ mix = 10,7 + \frac{F_{Rx} - F_{Tx}}{2}$$

Rettet: 14-2-77 NC

AP-RADIOTELEFON A/S

Standard crystals for AP 2000 2m band
low range: 1, high: 2
For channel frequencies ending with
00, 25, 50, 75 ..... kHz

25 kHz Channel spacing

Tegn.: 16-5-75 AC

Kontr.:

Stykl. nr.:

Tegn. nr.: 75237-4E2

Synth. mixer x-tal F_x

SPECIFICATION
for Quartz Crystal Unit
AP 20

1.	Mode of operation	: 3rd overtone
2.	Holder	: HC-42/U
3.	Frequency range	: 40-48 MHz
4.	Adjustment tolerance	: ± 10 ppm at 25°C
5.	Temperature tolerance	: ± 10 ppm % 20°C to + 70°C
6.	Drive level	: 1 mW
7.	Load	: 0,5 µH
8.	Shunt capacitance (C_o)	: 5 pF max.
9.	Equivalent series resistance	: 40 Ω max.
10.	Marking	: AP 20 frequency in MHz

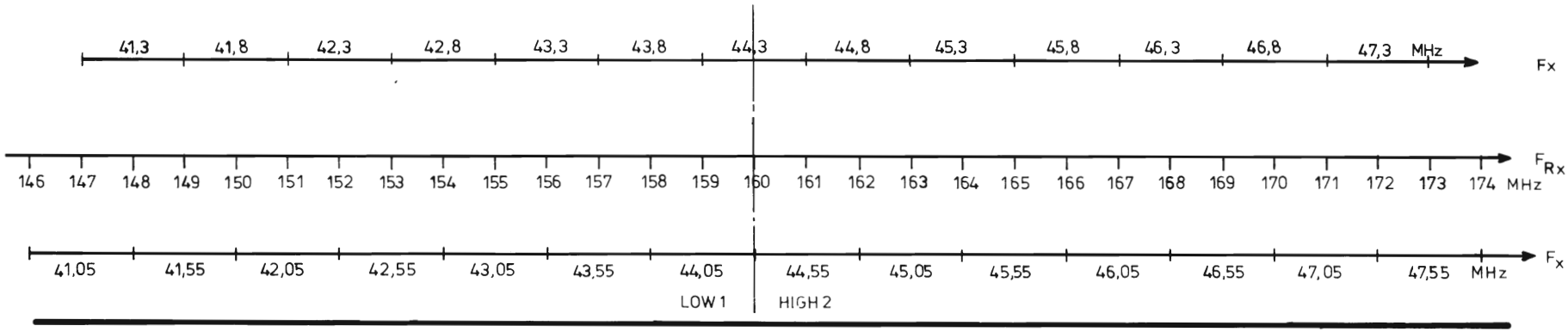
Calculation of the division ratio N

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

Example:

F_x = 42,05 MHz, F_{Rx} = 151,625 MHz

$$N = \frac{(151{,}625 - 4 \times 42{,}05 + 21{,}4)}{0{,}025} = 193$$



SPECIFICATION
for Quartz Crystal Unit
AP 22

Transmitter mixer oscillator

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	: ± 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

Calculation of the crystal frequency for the transmitter mixer oscillator

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

Normal mode of operation: F_{Rx} higher than or equal to F_{Tx}. However F_{Rx} can be lower than F_{Tx} if $F_{Tx} - F_{Rx}$ is less than 5 MHz.

Rettet: 14-2-77 NC

AP-RADIOTELEFON A/S

Standard crystals for AP 2000 2m band
low range: 1, high: 2
For channel frequencies ending with
12,5, 37,5, 62,5, 87,5 ..... kHz

25 kHz Channel spacing

Tegn.: 31-1-77 AC

Kontr.:

Stykl. nr.:

Tegn. nr.: 77078-4E2

Synth. mixer x-tal F_x

SPECIFICATION
for Quartz Crystal Unit
AP 20

1.	Mode of operation	: 3rd overtone
2.	Holder	: HC-42/U
3.	Frequency range	: 40-48 MHz
4.	Adjustment tolerance	: ± 10 ppm at 25°C
5.	Temperature tolerance	: ± 10 ppm ⅔ 20°C to + 70°C
6.	Drive level	: 1 mW
7.	Load	: 0,5 µH
8.	Shunt capacitance (C_o)	: 5 pF max.
9.	Equivalent series resistance	: 40 Ω max.
10.	Marking	: AP 20 frequency in MHz

Calculation of the division ratio N

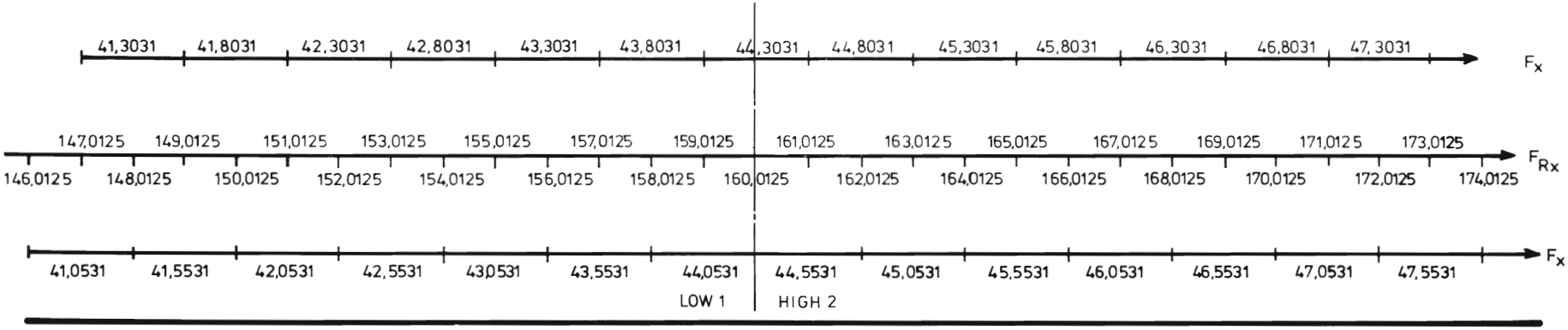
$$N = \frac{F_{Rx} - 4 F_x + 21,4}{0,025}$$

Example:

F_x = 42,0531 MHz, F_{Rx} = 151,6375

$$N = \frac{(151,6375 - 4 \times 42,0531 + 21,4)}{0,025} = 193,004$$

N = 193



Transmitter mixer osc.

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	: ± 15 ppm at 25°C
6.	Temperature tolerance	: ± 10 ppm ⅔ 20°C to + 70°C
7.	Drive level	: 1 mW
8.	Equivalent serie resistance	: Max. 40 Ω
9.	Marking	: AP 22 frequency in MHz

Calculation of the crystal frequency for the transmitter mixer oscillator

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

Normal mode of operation: F_{Rx} higher than or equal to F_{Tx} however F_{Rx} can be lower than F_{Tx} if $F_{Tx} - F_{Rx}$ is less than 5 MHz.

Rettet: 14-2-77 NC

AP-RADIOTELEFON A/S

Standard crystals for AP2000 2m band
low range: 1, high: 2
For channel frequencies ending with
00,20,40,60,80 ..... kHz

Tegn.: 31-1-77 AC

Kontr.:

Stykl. nr.:

Tegn. nr.: 77077-4E2

20 kHz Channel spacing

Synth. mixer x-tal F_X

SPECIFICATION
for Quartz Crystal Unit
AP 20

1.	Mode of operation	: 3rd overtone
2.	Holder	: HC-42/U
3.	Frequency range	: 40-48 MHz
4.	Adjustment tolerance	: ± 10 ppm at 25°C
5.	Temperature tolerance	: ± 10 ppm % 20°C to + 70°C
6.	Drive level	: 1 mW
7.	Load	: 0,5 µH
8.	Shunt capacitance (C_o)	: 5 pF max.
9.	Equivalent series resistance	: 40 Ω max.
10.	Marking	: AP 20 frequency in MHz

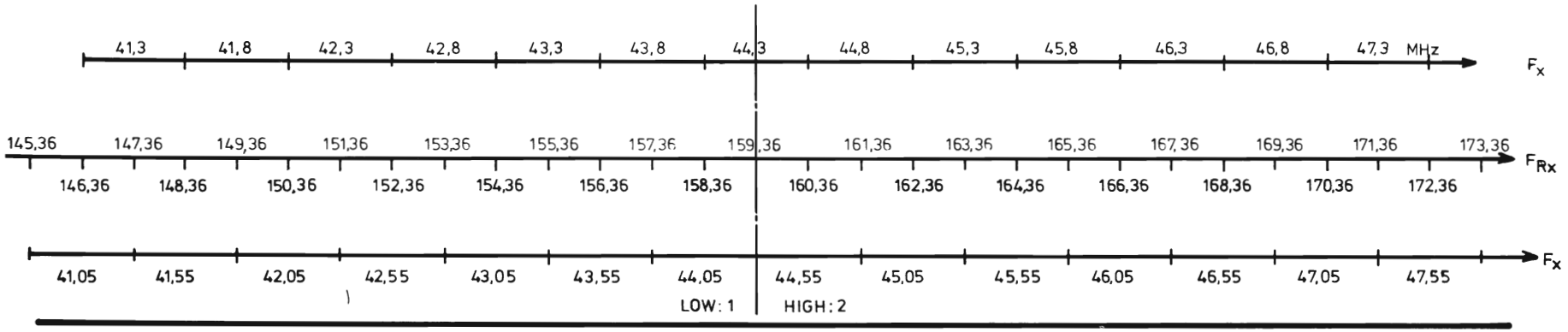
Calculation of the division ratio N

$$N = \frac{F_{Rx} - 4\,F_x + 21,4}{0,02}$$

Example:

F_x = 42,05 MHz, F_{Rx} = 150,660 MHz

$$N = \frac{(150,66 - 4 \times 42,05 + 21,4)}{0,02} = 193$$



Transmitter mixer osc.

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	: ± 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

Calculation of the crystal frequency for the transmitter mixer oscillator

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

Normal mode of operation: F_{Rx} higher than or equal to F_{Tx} however F_{Rx} can be lower than F_{Tx} if $F_{Tx} - F_{Rx}$ is less than 5 MHz.

Rettet:

AP-RADIOTELEFON A/S

Standard crystals for AP 2000 2m band
low range 1, high 2
For 12,5 KHz channel spacing

Tegn.: 6-10-78 BC

Kontr.:

Stykl. nr.:

Tegn. nr.: 78148 - 4E2

Synth mixer x-tal F_x

SPECIFICATION
for Quartz Crystal Unit
AP 20

1.	Mode of operation	: 3rd overtone
2.	Holder	: HC-42/U
3.	Frequency range	: 40-48 MHz
4.	Adjustment tolerance	: ± 10 ppm at 25°C
5.	Temperature tolerance	: ± 10 ppm % 20°C to + 70°C
6.	Drive level	: 1 mW
7.	Load	: 0,5 µH
8.	Shunt capacitance (C_o)	: 5 pF max.
9.	Equivalent series resistance	: 40 Ω max.
10.	Marking	: AP 20 frequency in MHz

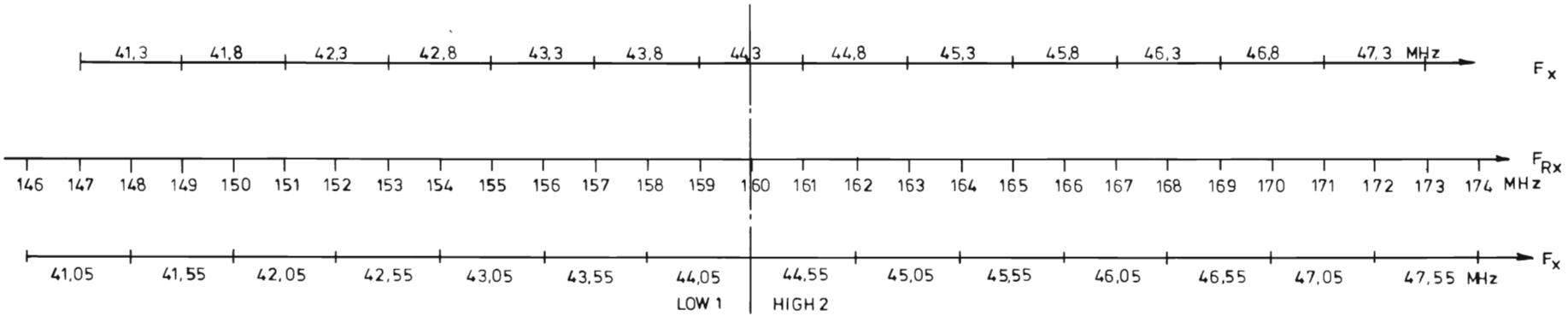
Calculation of the division ratio N

$$N = \frac{F_{Rx} - 4 F_x + 21,4}{0,0125}$$

Example:

F_x = 42,05 MHz, F_{Rx} = 151,625 MHz

$$N = \frac{(151,625 - 4 \times 42,05 + 21,4)}{0,0125} = 386$$



12,5 KHz Channel spacing

SPECIFICATION
for Quartz Crystal Unit
AP 22

Transmitter mixer oscillator

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**	: ± 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**

Calculation of the crystal frequency
for the transmitter mixer oscillator

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

Normal mode of operation: F_{Rx} higher than or equal to F_{Tx} however F_{Rx} can be lower than F_{Tx} if $F_{Tx} - F_{Rx}$ is less than 5 MHz.

Rettet: 15-2-77 NC

AP-RADIOTELEFON A/S

Standard crystals for AP 2000 low UHF band low range: 1 for channel ending with 00, 25, 50, 75 kHz

25 kHz Channel spacing

Tegn.: 30-10-75 EH

Kontr.: 30-10-75 CHB

Stykl. nr.:

Tegn. nr.: 75499-4E2

SPECIFICATION
for Quartz Crystal Unit
AP 25

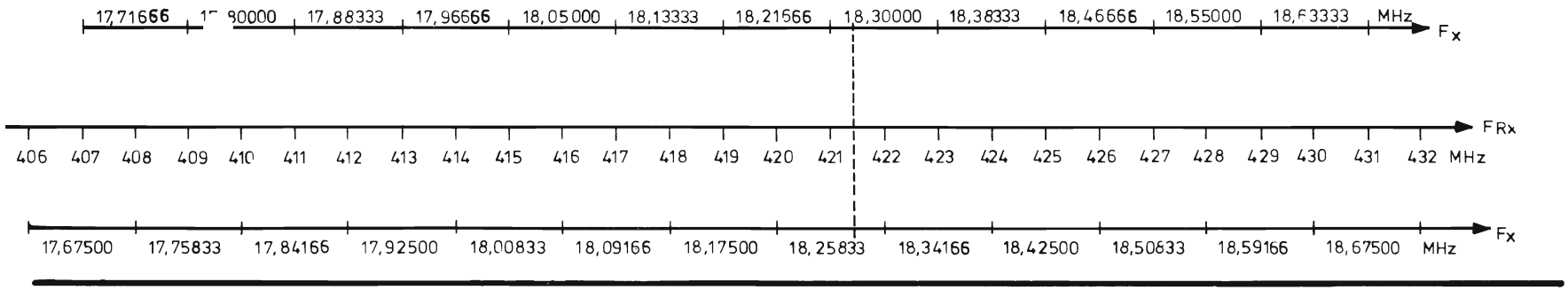
Mode of operation: F_{Rx} higher than or equal to F_{Tx}

1.	Mode of operation	:	AT-Fundamental
2.	Holder	:	HC-42/U
3.	Frequency range	:	10-22 MHz
4.	Resonance	:	Parallel (15 pF)
5.	Calibration tolerance	:	± 10 ppm at 25°C
6.	Temperature tolerance	:	± 5 ppm ⅔ 20°C to + 70°C
7.	Drive level	:	1 mW
8.	Equivalent series resistance	:	Max. 40 Ω
9.	Marking	:	AP 25 frequency in MHz

Division ratio $N = \frac{F_{Rx} + 21,4 - 24\ F_x}{0,025}$

Example:

Known receiver freq. = 421,375 MHz
Found from the table F_x = 18,25833 MHz
Claculated N = 183,0032 as N is an integer the decimal places are deleted so N = 183.



SPECIFICATION
for Quartz Crystal Unit
AP 22

Transmitter mixer oscillator

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	:	± 15 ppm at 25°C
6.	Temperature tolerance	:	± 10 ppm ⅔ 20°C to + 70°C
7.	Drive level	:	1 mW
8.	Equivalent serie resistance	:	Max. 40 Ω
9.	Marking	:	AP 22 frequency in MHz

Calculation of the crystal frequency for the transmitter mixer oscillator

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

Rettet: 15-2-77 NC

AP-RADIOTELEFON A/S

Standard crystals for AP2000 UHF band low range: 1 for channels ending with 00,20,40,60,80 kHz

20 kHz Channel spacing

Tegn.: 3-2-77 AC

Kontr.: CHB

Stykl. nr.:

Tegn. nr.: 77105-4E2

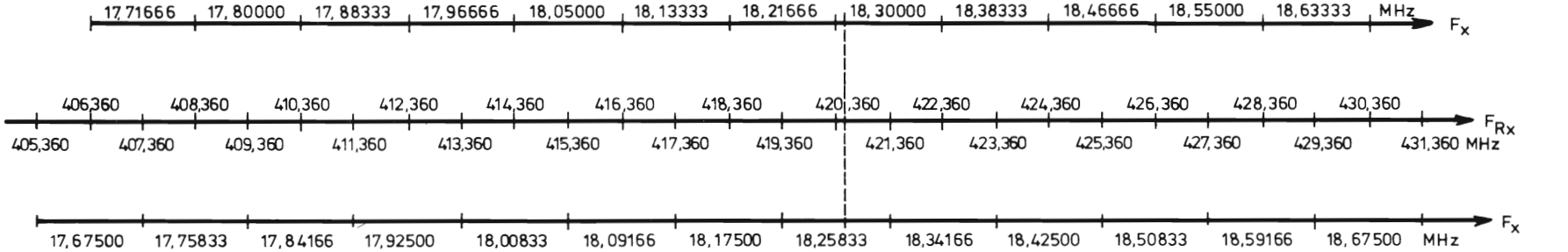
SPECIFICATION for Quartz Crystal Unit AP 25

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 (15 pF)
5.	Calibration tolerance	:	± 10 ppm at 25°C
6.	Temperature tolerance	:	± 5 ppm % 20°C to + 70°C
7.	Drive level	:	1 mW
8.	Equivalent series resistance	:	Max. 40 Ω
9.	Marking	:	AP 25 frequency in MHz

Division ratio $N = \frac{F_{Rx} + 21,4 - 24\ F_x}{0,020}$

Example:
Known receiver freq. = 420,460 MHz
Found from the table F_x = 18,25833 MHz
Calculated N = 183,004 as N is an integer
the decimal places are deleted so N = 183.



SPECIFICATION for Quartz Crystal Unit AP 22

Transmitter mixer oscillator

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**	:	**± 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**

Calculation of the crystal frequency for the transmitter mixer oscillator

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

Rettet: 15-2-77 NC

AP-RADIOTELEFON A/S

Standard crystals for AP 2000
UHF band, medium range: 2. For channels ending with 00, 25, 50, 75 khz

25 kHz Channel spacing

Tegn.: 27-10-76 AC

Kontr.: 27-10-76 CHB

Stykl. nr.:

Tegn. nr.: 76312-4E2

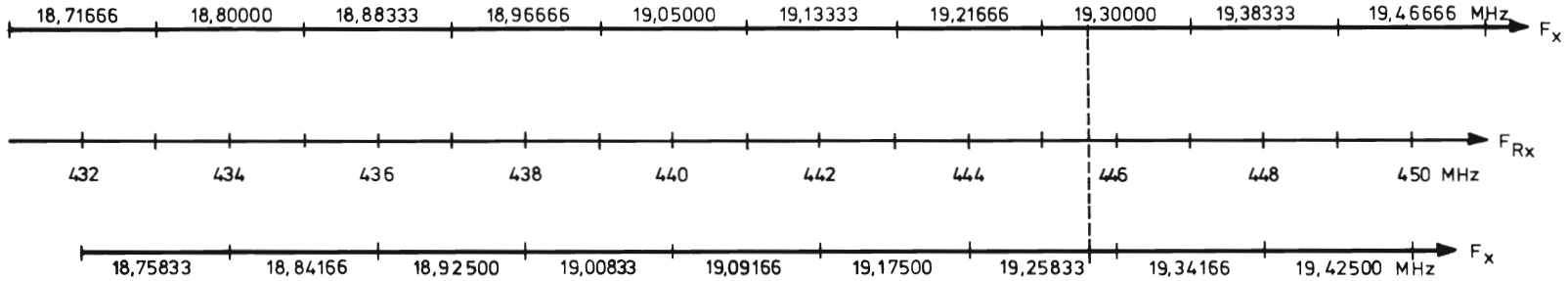
SPECIFICATION
for Quartz Crystal Unit
AP 25

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 (15 pF)
5. Calibration tolerance : ± 10 ppm at 25°C
6. Temperature tolerance : ± 5 ppm % 20°C to + 70°C
7. Drive level : 1 mW
8. Equivalent series resistance : Max. 40 Ω
9. Marking : AP 25 frequency in MHz

Division ratio $N = \frac{F_{Rx} + 21,4 - 24\ F_x}{0,025}$

Example:
Known receiver freq. = 445,650 MHz
Found from the table F_x = 19,25833 MHz
Calculated N = 194,0032 as N is an integer
the decimal places are deleted so N = 194.



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 : ± 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

Calculation of the crystal frequency for the transmitter mixer oscillator

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

Rettet: 15.-2.-77 NC

AP-RADIOTELEFON A/S

Standard crystals for AP2000 UHF band medium range: 2 for channels ending with 00,20,40,60,80 kHz

20kHz Channel spacing

Tegn.: 7-2-77 AC

Kontr.: CHB

Stykl. nr.:

Tegn. nr.: 77106 - 4E2

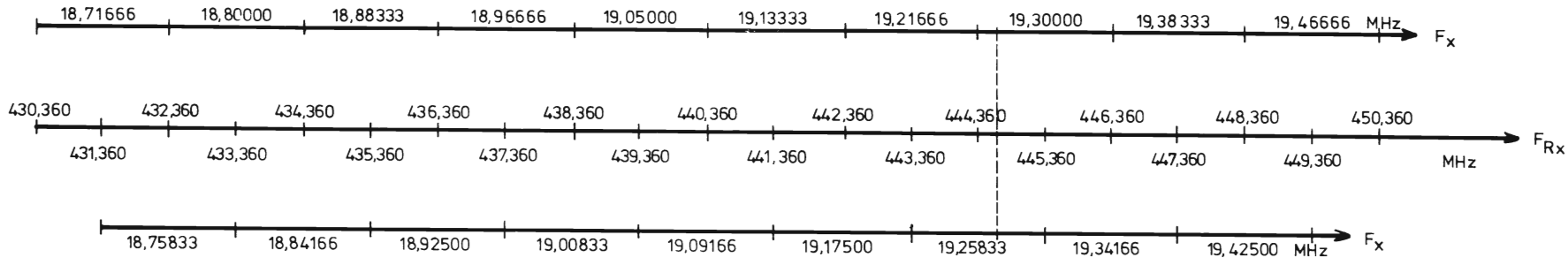
SPECIFICATION
for Quartz Crystal Unit
AP 25

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 (15 pF)
5. Calibration tolerance : ± 10 ppm at 25°C
6. Temperature tolerance : ± 5 ppm % 20°C to + 70°C
7. Drive level : 1 mW
8. Equivalent series resistance : Max. 40 Ω
9. Marking : AP 25 frequency in MHz

Division ratio $N = \frac{F_{Rx} + 21,4 - 24\ F_x}{0,020}$

Example:
Known receiver freq. = 444,680 MHz
Found from the table F_x = 19,25833 MHz
Calculated N = 194,004 as N is an integer
the decimal places are deleted so N = 194.



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** : **± 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**

Calculation of the crystal frequency for the transmitter mixer oscillator

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

Rettet: 29-2-76 AC
15-2-77 NC

AP-RADIOTELEFON A/S

Standard crystals for AP2000
UHF band, high range: 3. For channels ending with 00, 25, 50, 75 kHz

25kHz Channel spacing

Tegn.: 30-10-75 EH
Kontr.: 30-10-75 CHB
Styk. nr.:
Tegn. nr.: 75500-4E2

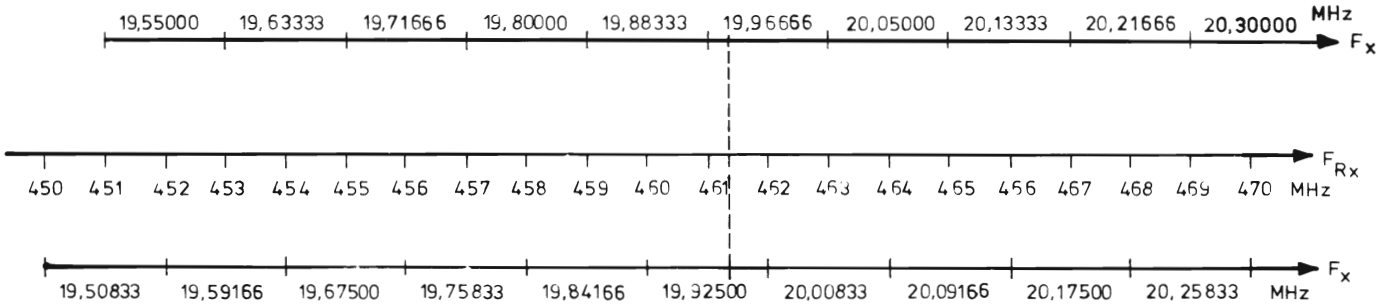
Mode of operation: F_{Rx} higher than or equal to F_{Tx}

SPECIFICATION
for Quartz Crystal Unit
AP 25

1.	Mode of operation	:	AT-Fundamental
2.	Holder	:	HC-42/U
3.	Frequency range	:	10-22 MHz
4.	Resonance	:	Parallel (15 pF)
5.	Calibration tolerance	:	± 10 ppm at 25°C
6.	Temperature tolerance	:	± 5 ppm ⁄ 20°C to + 70°C
7.	Drive level	:	1 mW
8.	Equivalent series resistance	:	Max. 40 Ω
9.	Marking	:	AP 25 frequency in MHz

Division ratio $N = \frac{F_{Rx} + 21,4 - 24\ F_x}{0,025}$

Example:
Known receiver freq. = 461,325 MHz
Found from the table F_x = 19,96666 MHz
Calculated N = 141,0064 as N is an integer
the decimal places are deleted so N = 141.



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	:	± 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

Calculation of the crystal frequency for the transmitter mixer oscillator
F_{Tx} mix. = 10,7 + $\frac{F_{Rx} - F_{Tx}}{2}$ Spec. AP 22

Rettet: 15-2-77 NC

AP-RADIOTELEFON A/S

Standard crystals for AP 2000 UHF-band high range: 3 for channels ending with 00,20,40,60,80 kHz

20kHz Channel spacing

Tegn.: 7-2-77 AC

Kontr.: CHB

Stykl. nr.:

Tegn. nr.: 77107-4E2

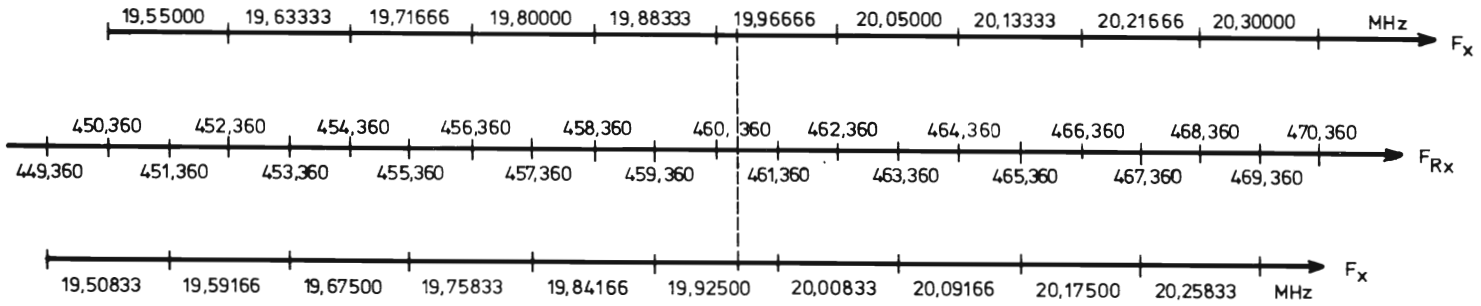
Mode of operation: F_{Rx} higher than or equal to F_{Tx}

SPECIFICATION
for Quartz Crystal Unit
AP 25

1.	Mode of operation	:	AT-Fundamental
2.	Holder	:	HC-42/U
3.	Frequency range	:	10-22 MHz
4.	Resonance	:	Parallel (15 pF)
5.	Calibration tolerance	:	± 10 ppm at 25°C
6.	Temperature tolerance	:	± 5 ppm ved 20°C to + 70°C
7.	Drive level	:	1 mW
8.	Equivalent series resistance	:	Max. 40 Ω
9.	Marking	:	AP 25 frequency in MHz

Division ratio $N = \frac{F_{Rx} + 21,4 - 24\ F_x}{0,020}$

Example:
Known receiver freq. = 460,620 MHz
Found from the table F_x = 19,96666 MHz
Calculated N = 141,008 as N is an integer
the decimal places are deleted so N = 141.



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	:	± 15 ppm at 25°C
6.	Temperature tolerance	:	± 10 ppm ved 20°C to + 70°C
7.	Drive level	:	1 mW
8.	Equivalent serie resistance	:	Max. 40 Ω
9.	Marking	:	AP 22 frequency in MHz

Calculation of the crystal frequency for the transmitter mixer oscillator

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

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
Value of each bit	128	64	32	16	8	4	2	1
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

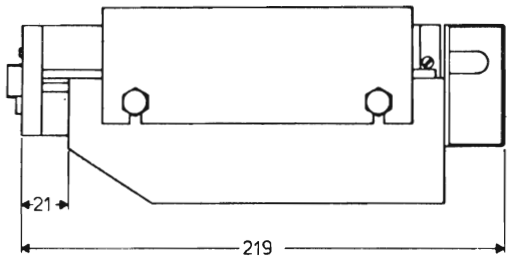
Div. ratio	Channel code							
N	128	64	32	16	8	4	2	1
128	1	0	0	0	0	0	0	0
129	1	0	0	0	0	0	0	1
130	1	0	0	0	0	0	1	0
131	1	0	0	0	0	0	1	1
132	1	0	0	0	0	1	0	0
133	1	0	0	0	0	1	0	1
134	1	0	0	0	0	1	1	0
135	1	0	0	0	0	1	1	1
136	1	0	0	0	1	0	0	0
137	1	0	0	0	1	0	0	1
138	1	0	0	0	1	0	1	0
139	1	0	0	0	1	0	1	1
140	1	0	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

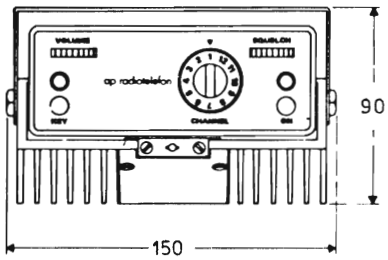
Div. ratio	Channel code							
N	128	64	32	16	8	4	2	1
168	1	0	1	0	1	0	0	0
169	1	0	1	0	1	0	0	1
170	1	0	1	0	1	0	1	0
171	1	0	1	0	1	0	1	1
172	1	0	1	0	1	1	0	0
173	1	0	1	0	1	1	0	1
174	1	0	1	0	1	1	1	0
175	1	0	1	0	1	1	1	1
176	1	0	1	1	0	0	0	0
177	1	0	1	1	0	0	0	1
178	1	0	1	1	0	0	1	0
179	1	0	1	1	0	0	1	1
180	1	0	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

Dimensions and weights in milimeters and kg.

Cassette station with external PA-stage 25W continuous

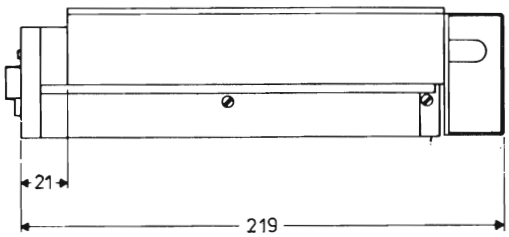
Total weight: 3,1 kg

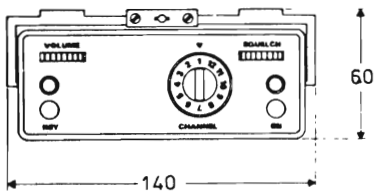




Cassette station without external PA-stage 6W and 25W/UHF 10W intermittent

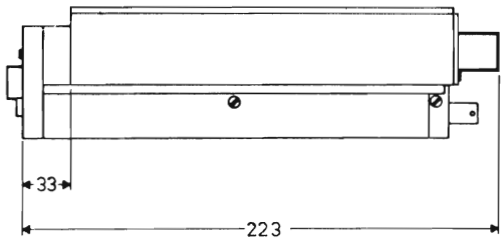
Total weight: 2,2 kg

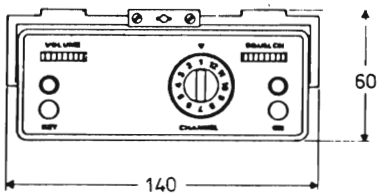




Cassette station without external PA-stage 6W and 25W/UHF 10W intermittent, with printconnector.

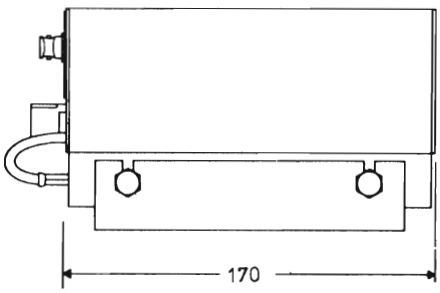
Total weight: 2,2 kg

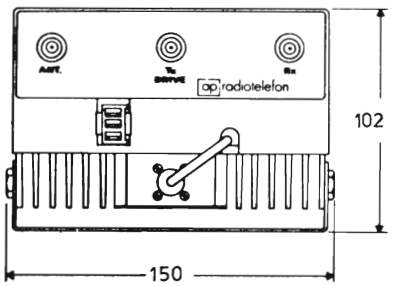




Duplexfilter with external PA-stage

Total weight: 3,1 kg

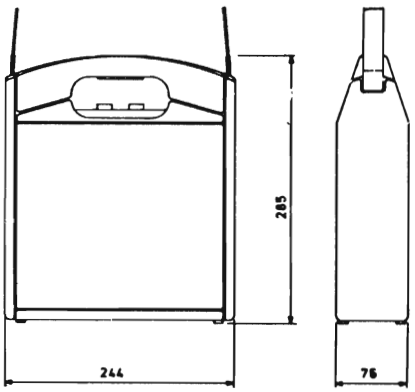




Portable station

Total weight with batteri unit: 5,2 kg

Cassette station alone: 1,5 kg
Cassette dimensions: 50x170x200 mm.

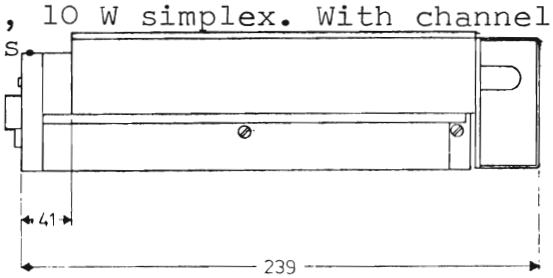


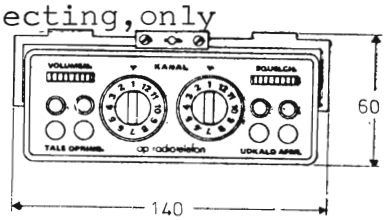
UHF public car telephone, 25 W duplex. With channel selecting
UHF public car telephone, 10 W simplex. With channel selecting, only system unit and mountings.

Measure and weight in mm and kg.

System unit with mountings

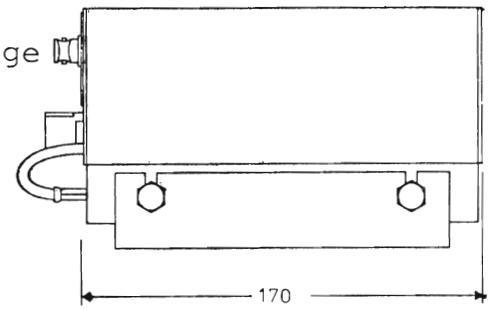
Total weight: 2,4 kg

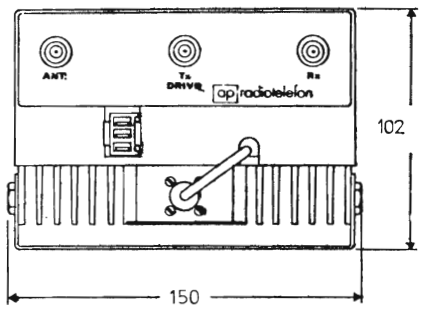




Duplexfilter with PA-stage

Total weight: 3,1 kg

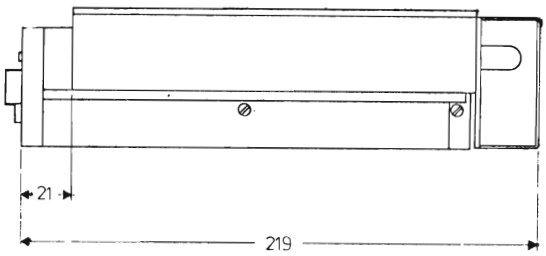


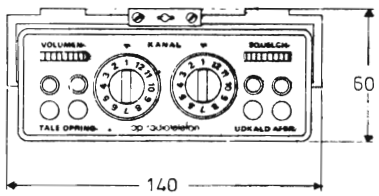


UHF public car telephone, 25 W duplex

System unit with mountings

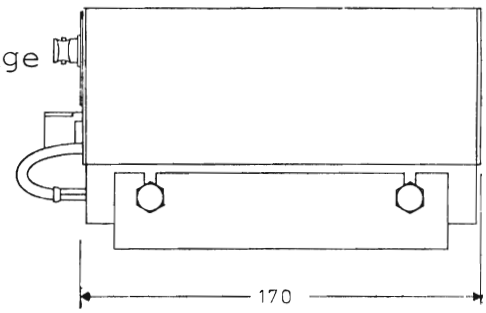
Total weight: 2,2 kg

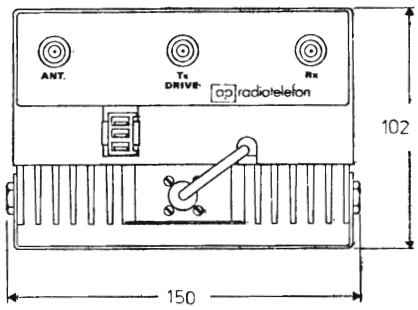




Duplexfilter with PA-stage

Total weight: 3,1 kg

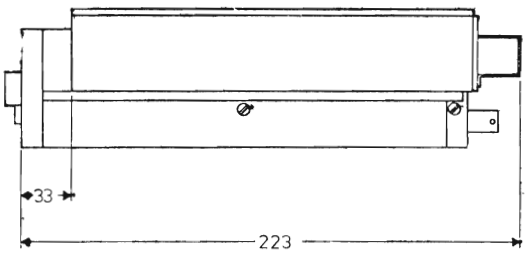


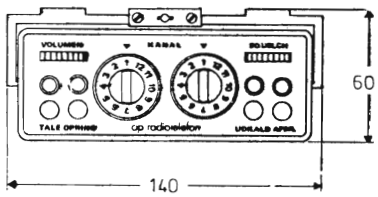


UHF public car telephone, 10 W simplex, with printconnector

System unit with mountings

Total weight: 2,2 kg

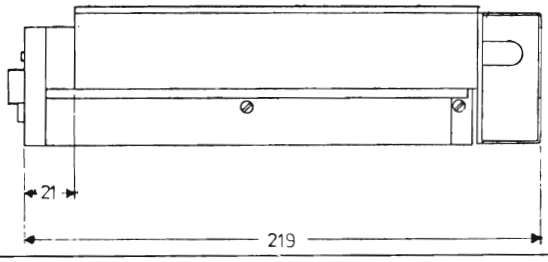


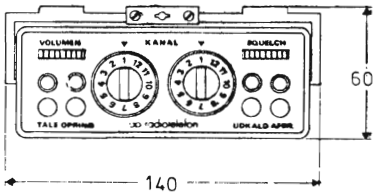


UHF public car telephone, 10 W simplex

System unit with mountings

Total weight: 2,2 kg



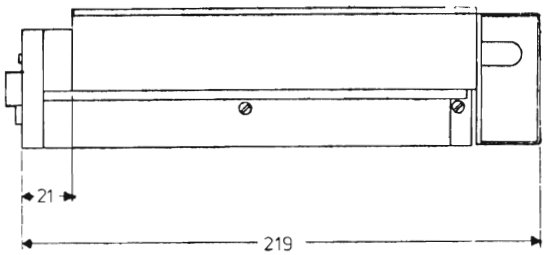


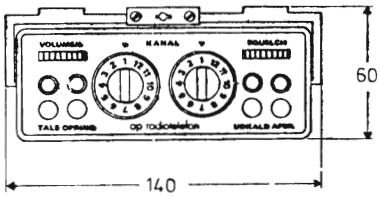
VHF public car telephone, 25 W duplex

Measure and weight in mm and kg

System unit with mountings

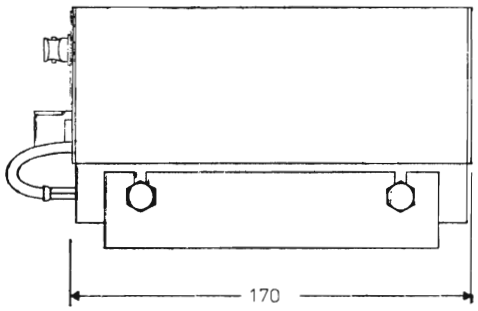
Total weight: 2,2 kg

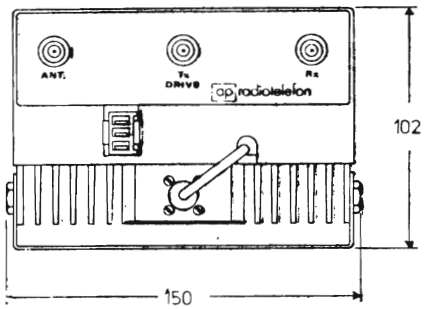




Duplexfilter with PA-stage

Total weight: 3,1 kg

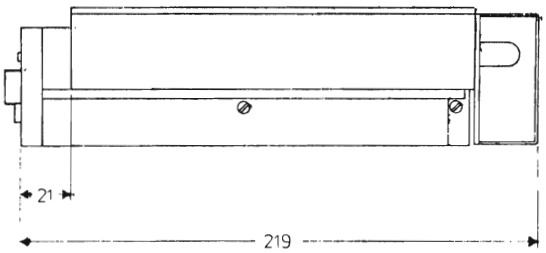


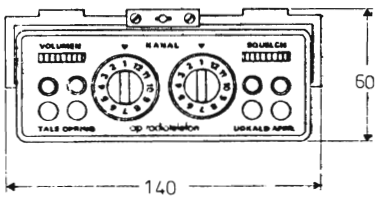


VHF public car telephone, 25 W simplex

System unit with mountings

Total weight: 2,2 kg

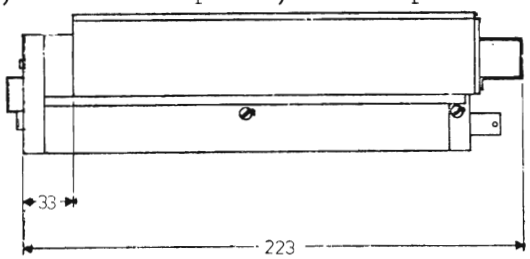


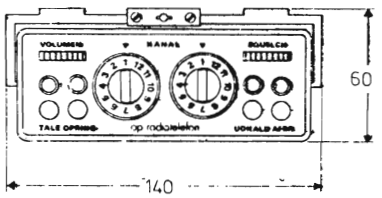


VHF public car telephone, 25 W simplex, with printconnector

System unit with mountings

Total weight: 2,2 kg





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 (½ 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 Ω at 10 per cent distortion, 13,2V supply voltage
Output for microtelephone:	1mW in 300Ω
Hum and noise:	Typ. 50 dB (CEPT Method)
Function of limiter:	Less than 1dB variation in output voltage for RF-input levels between 1µV and 100 mV EMF
Transmitter:	
Power output:	6 W ± 0,5 dB, 10-25 W -1 + 0,5 dB from ⌀ 25°C to + 60°C and supply voltages between 10,8V and 15,6V with external PA: 25W + 0dB ⌀ 2dB from ⌀ 25°C to + 60°C and supply voltages between 10,8V and 15,6V
Spurious outputs and harmonics:	typ. each less than 2µW into 50Ω
Adjacent channel power:	typ. 80dB below the output power
Frequency deviation:	max. ± 5 kHz
Preemphasis:	Following 6dB per octave curve from 0,3 to 3 kHz within +1-3dB relative level at 1000 Hz
Harmonic distortion:	typ. 1 per cent at ± 3kHz deviation and 1000 Hz modulation frequency
Hum and noise:	typ. 45 dB relative ± 3kHz deviation and 1000 Hz modulation frequency (CEPT Method)

Technical data AP 2000 Series 2 m.

General:

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

Frequency range:	146 - 174 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 volatge:	12 V DC chassis negative - nom. 13,2 V. DC-DC converter available for 6 V, 12 V and 24 V chassis positive operation. A 220 V AC supply is available too.
Supply voltage variations:	10,8 V to 15,6 V
Operation temperature:	+ 25°C to + 60°C
Frequency stability:	Typ. ± 10 ppm for the above specified temperature and supply voltage variations
Loudspeaker:	External 4 Ω
Microphone:	1 kΩ condenser microphone or 200 Ω dynamic close talk micro-phone with push-button
Antenna impedance:	50 Ω
Power consumption:	At 13,2 V reception approx. 0,25 A transmission { 25 W approx. 5,5 A { 6 W " 2,0 A

Receiver:

Sensitivity:	Typ. 0,4 µV (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

Deemphassis:	Following 6 dB per octave curve from 0,3 to 3 kHz within + 1- 3 dB relative level at 1000 Hz
Audio power:	3 watts into 4 Ω at 10 per cent distortion, 13,2 V supply voltage
Output for microphone:	1 mW in 300 Ω
Hum and noise:	Typ. 50 dB (CEPT Method)
Function of limiter:	Less than 1 dB variation in output voltage for RF-input levels between 1 µV and 100 mV EMF

Transmitter:

Power output:	6 W ± 0,5 dB, 10-25 W + 0,5 - 1,0 dB from + 25°C to + 60° and supply voltages between 10,8 V and 15,6 V. With external PA: 25 W + 0 dB + 2 dB from + 25°C to 60°C and supply voltages between 10,8 V and 15,6 V.
Spurious outputs and harmonics:	Typ. each less than 2 µW into 50 Ω
Adjacent channel power:	Typ. 80 dB below the output power
Frequency deviation:	Following 6 dB per octave curve from 0,3 to 3 kHz within + 1-3 dB relative level at 1000 Hz
Harmonic distortion:	Typ. 1 per cent at ± 3 kHz deviation and 1000 Hz modulation frequency.
Hum and noise:	Typ. 45 dB realtive ± 3 kHz deviation and 1000 Hz modulation frequency (CEPT Method).

Technical Data AP 2000 Series UHF

General:

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

Frequency range:	406-432 MHz and 450-470 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. 13,2 V. DC-DC converter available for 6 V, 24 V and 12 V chassis positive operation. A 220 V AC supply is available too.
Supply voltage varations:	10,8 V to 15,6 V
Operation Temperature:	- 25°C to + 60°C
Frequency stability:	typ. ± 3 ppm for the above specified temperature and supply voltage variations
Loudspeaker:	External 4 Ω
Microphone:	1 kΩ condenser microphone or 200 Ω dynamic close talk microphone with push-button
Antenna impedance:	50 Ω
Power consumption:	At 13,2 V reception approx. 0,4 A transmission { 25 W approx. 7,5 A { 6 W " 2,0 A

Receiver:

Sensitivity:	typ. o,4 µV ($\frac{1}{2}$ E.M.F.) for 2o dB SINAD.
Adjacent channel sensitivity:	typ. 72 dB (CEPT Method)
Spurious and image rejection:	typ. 82 dB (CEPT Method)
Intermodulation attenuation:	typ. 72 dB (CEPT Method)
Undesired conducted power:	typ. o,5 nW
Deemphasis:	Following 6 dB per octave curve from o,3 to 3 KHz within + 1-3 dB relative level at looo Hz
Audio output power:	3 watts into 4 Ω at 1o per cent distortion, 13,2 V supply voltage.
Output for microtelephone:	1 mW in 3oo Ω
Hum and noise:	typ. 45 dB (CEPT Method)
Function of limiter:	Less than 1 dB varation in output voltage for RF-input levels between 1 µV and 1oo mV EMF.
Transmitter:	6 W ± o,5 dB, 1o W - 1 + o,5 dB from % 25°C to + 6o°C and supply voltages between 1o,8 V and 15,6 V with external PA: 1o-25 W + O dB % 2 dB from % 25°C to 6o°C and supply voltages between 1O,8 V and 15,6 V
Spurious outputs and harmonics:	typ. each less than 2oo nW into 50 Ω
Adjacent channel power:	typ. 82 dB below the output power.
Frequency deviation:	Max. ± 5 kHz.
Preemphasis:	Following 6 dB per octave curve from O,3 to 3 kHz within + 1 - 3 dB relative level at looo Hz.
Harmonic distortion:	typ. 1 per cent at ± 3 kHz deviation and looo Hz modulation frequency.
Hum and noise:	typ. 45 dB relative ± 3 kHz deviation and looo Hz modulation frequency (CEPT Method).