

Handbook for Motorola MC-Micro Series

MC-Micro
MC-Micro TRC
MC-Micro MPT1237
MC-Compact
MC-Centro
Radius M110
Storno 5500

Field Programmer

Created by
servicetools.org

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This are Scans from PX4 Handbook, but PC Software is most identical.
Non interest sites are removed or changed.

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3. Installation:

First: The ansi.sys must be installed in Config.sys , all software runs only from pure DOS.

Copy ansi.sys to c:

Edit Config.sys and ad this on the end: device=c:\ansi.sys * Restart PC !!! *****

Ansi.sys useally in DOS folder, when not, just search in google for this.

Copy MC-Micro soft in your desired folder.

Run Motorola.com / Storno.com and select the right Modul:

Modul:	For Model:	Remarks:
mcev9.chn	MC-Micro EVA 9, Select 5	Standardversion
mcev9r.chn	MC-Micro EVA 9, Select 5	Repairversion (Create new EEPROM)
mcev9m.chn	MC-Micro EVA 9, Select 5	Masterversion (Few more Options)
mcez9.chn	MC-Micro EZA 9, Select 5	Standardversion
mcez9r.chn	MC-Micro EZA 9, Select 5	Repairversion (Create new EEPROM)
mcez9m.chn	MC-Micro EZA 9, Select 5	Masterversion (Few more Options)
mcez13.chn	MC-Micro EZA 1/3, CSQ/PL	Standardversion
mcez13r.chn	MC-Micro EZA 1/3, CSQ/PL	Repairversion (Create new EEPROM)
mcez13m.chn	MC-Micro EZA 1/3, CSQ/PL	Masterversion (Few more Options)
mcevm13.chn	MC-Micro TRC, MC-Compact	Standardversion
mcevm13m.chn	MC-Micro TRC, MC-Compact	Masterversion (Few more Options)
mccentr.chn	MC-Centro	Standardversion
mccentrm.chn	MC-Centro	Masterversion (Few more Options)
cqmev9.chn	CQM5500 EVA 9, Select 5	Storno Version
cqmez9.chn	CQM5500 EZA 9, Select 5	Storno Version
cqmez13.chn	CQM5500 EZA 1/3, CSQ/OL	Storno Version

The software is from 1985, you need a old PC 386SX or lower without FIFO RS232 Port or you can use the DOS Box Emulater

The MC-Micro MPT1237 (Bündelfunk) use own soft, but I don't know which one !

The Radius M110 use a own soft, much more comfortable like the GP300 or MX100 software.

The Copyright on the Original Manual is by Motorola !

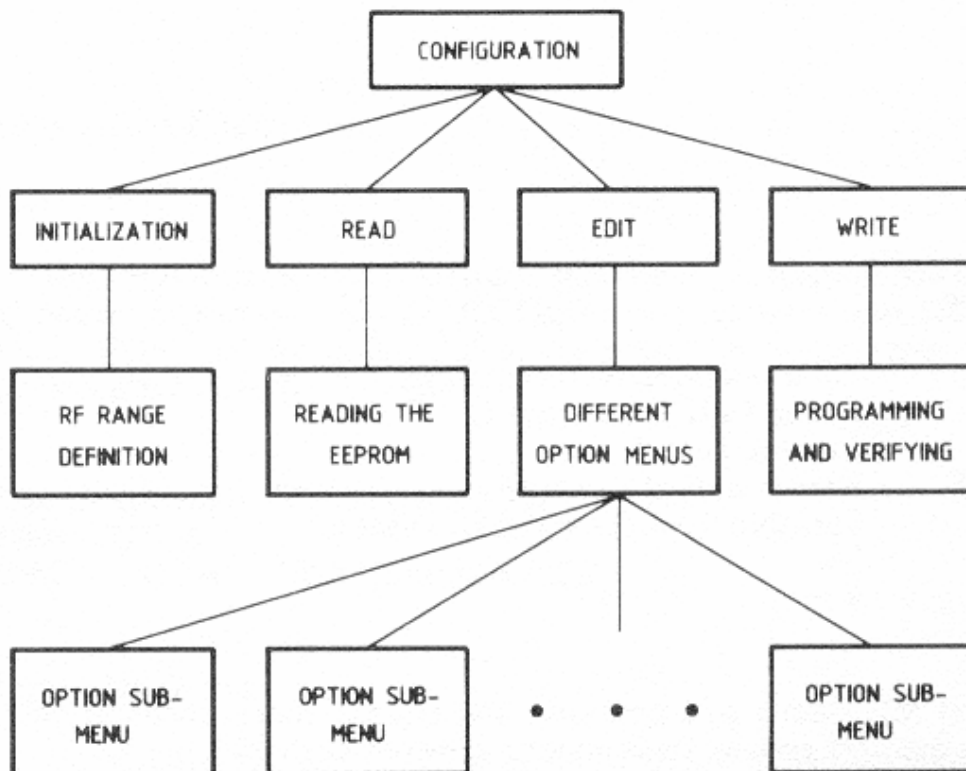
This Copy is only for education or non profit using for Radio Amatuers.

All Programming Software are under Copyright from Motorola !!!

Refer to the PX-4 handbook for general computer operation.

4.1 Programming Structure

The programming software is organized in a tree structure where each branch is represented by a menu. You may walk through this tree by entering special control characters. The structure of the tree is shown in Table 1. Each box represents a menu. Most of the menus, shown in table 1, contain items that point to other, lower-level menus that may again hold items that point to the next lower level, and so on. This builds up a four-level tree structure of menus. You may enter a lower level menu by selecting the item of the current menu that points to the destination menu and then typing RETURN. In the opposite direction you can return to the next higher level menu by hitting the escape (ESC) key.



GEPO-3416

Table 1
Programmer Tree Structure

Control Character

data	Data Entry Character (Table 3)
esc	Return to next higher level menu
T (PF2)	List all programmed timers
D (PF3)	Deletes a selected option
F (PF4)	Find a specified option/function
L (PF5)	List all programmed options
Cursor Left	Menu backward switching
Cursor Right	Menu forward switching
Cursor Up	Cursor control character
Cursor Down	Cursor control character
RETURN	Enter next lower menu level or enable option

Table 2
Control Characters

Data Entry Character

0....9	Tone Number/Numeric Digit
G	Group Call Tone Type G
R	Repeat Tone *
B, C, D, F	Non-standard tones **
X	Variable Tone/Group Call Disable
N	No
Y	Yes

* The MC micro will generate the repeat tones automatically. However, an explicit repeat tone may be entered with "R".

** The non-standard tones may be entered in the MC micro EVA Series (SEL-5-HT only). The frequencies are defined in Table 4.

Table 3
Data Entry Characters

Tone	Std ZVEI	MAB804 FZVEI	MAB283 MZVEI	MAB137 CCIR	MAB440 MCCIR	MAB441 EEA
1	1060	1060	970	1124	1124	1124
2	1160	1160	1060	1197	1197	1197
3	1270	1270	1160	1275	1275	1275
4	1400	1400	1270	1358	1358	1358
5	1530	1530	1400	1446	1446	1446
6	1670	1670	1530	1540	1540	1540
7	1830	1830	1670	1640	1640	1640
8	2000	2000	1830	1747	1747	1747
9	2200	2200	2000	1860	1860	1860
0	2400	2400	2200	1981	1981	1981
R	2600	970	2400	2110	2110	2110
G	2800	885	885	2400	2400	1055
* B	810	810	810	930	930	930
* C	970	2600	2600	2247	2247	2247
* D	885	2800	2800	991	991	991
* F	930	930	930	873	873	873

* These frequencies can be entered in EVA9J (SEL-5-HT) models only

Table 4
Select 5 Frequencies (Hz)

4.2 Configuration of Software

4.2.1 Default Menu

After the required ROM cartridge has been installed in the field programmer and power is turned on, the display comes up with the DEFAULT menu and MOTOROLA COM software should be selected by using the yellow cursor buttons and pressing RETURN.

```
55.5k CP/M 06/13 (FRI) 16:50:13 1/1
B:MOTOROLA
C:BASIC COM  B:MOTOROLA COM
```

4.2.2 Configuration Menu

The CONFIGURATION MENU is entered after selecting the MOTOROLA COM software. The programmer software type (SEL-5-LT, CS/PL or SEL-5-HT) has to be selected by pressing the assigned number.

```
MC micro FIELD PROGRAMMER LOADER
Copyright (c) 1985 by MOTOROLA GmbH
```

```
1: SEL-5-HT - PROGRAMMER
```

```
ENTER PROGRAM NUMBER OR<ESC>:
```

4.2.3 MAIN menu

The MAIN menu shows you four steps you have to go through in a sequence. First you have to READ out the radio data before you are allowed to EDIT some radio options. After editing is done, you may reprogram the EEPROM in the radio with the new customer data using the WRITE command.

SELECT 5 FIELD PROGRAMMER MC micro VX.X

READ	DATA	- 2
EDIT	DATA	- 3
WRITE	DATA	- 4

ENTER NUMBER ? data, stop

Repair Vesion has Initialization Menu here as 4. Point

4.2.4 INITIALIZATION Menu

Some radios require a special initialization which appears automatically when necessary. It sets up the field programmer with the algorithm to calculate the correct RX/TX frequency for the different RF ranges. After defining the RF RANGE and, if required, the channel spacing, the MAIN MENU comes up again.

RF-RANGE

66 - 88	MHZ	- 1
136 - 174	MHZ	- 2
174 - 225	MHZ	- 3
403 - 470	MHZ	- 4

ENTER NUMBER ? data

On some models, the channel spacing must also be defined:

CHANNEL SPACING

12.5 KHZ	- 1
20 KHZ	- 2
25 KHZ	- 3

ENTER NUMBER ? data

4.2.5 READ DATA

To load the EEPROM data out of the radio into the field programmer the READ DATA command must be selected by pressing the key "1". The display will change to READING RECORD n, and all records that were read are shown on the display. When the message READING OK appears on the display, then the red RETURN button switches back to the MAIN MENU.

READING
RECORD 4

READING OK

PRESS ANY KEY TO CONTINUE

4.2.6 EDIT Menu

The EDIT DATA menu is entered by pressing key "2". Now all radio system data can be viewed or edited. To leave the edit mode the ESC key on the top row of the programmer must be pressed. Data can be edited only after the EEPROM was read out (Step 4.2.5). Refer to section 5 to edit system data.

4.2.7 WRITE DATA

After editing system data, all data must be written to the radio by pressing key "3". The display will change to WRITING RECORD n, and all records that were written are shown on the display. When the message WRITING OK appears in the display, the field programmer can be disconnected from the radio and the radio functions can be checked.

WRITING
RECORD 4

WRITING OK

PRESS ANY KEY TO CONTINUE

5 HOW TO EDIT SYSTEM DATA

The option menu's display format is uniform for all options. It consists of two fields separated by a blank field. The first field contains the standard name or the option number whereas the second field gives a brief description of the option itself. The bottom line of the display shows the commands that will be accepted (if the option allows).

Options cannot be modified with the field programmer when they are incompatible with other selected options or when they require hardware changes. A long warning tone sounds when attempting to enable an incompatible option. To check for incompatibility of options, please refer to the MC micro REFERENCE BOOK, section 10 which shows options that can always be modified and those that are limited in field programming.

5.1 Editing Options without Sub-Menus

After selecting the EDIT DATA (4.2.7) menu the field programmer display comes up with the positions that were programmed in the radio. By using the Cursor Left or Cursor Right key the various option families can be viewed. The option programmed in the radio is shown in inverse characters. All options shown on a display page are mutually exclusive, i.e. you can select only one.

FORMAT	ZVEI
MAB 283	MODIFIED ZVEI
MAB 804	FRENCH ZVEI
MAB 137	CCIR
MAB 440	70 ms CCIR
MAB 441	EEA

ESC,T,D,F,L, <-,|,|->

By using the Cursor Up or Cursor Down keys the cursor appears between the option number and the option description.

FORMAT	ZVEI
MAB 283	MODIFIED ZVEI
MAB 804	FRENCH ZVEI
MAB 137 <>	CCIR
MAB 440	70 ms CCIR
MAB 441	EEA

ESC,T,D,F,L, <-,|,|->

After selecting the option and pressing the red RETURN button the new option will come up in inverse characters (if the option type allows, refer to section 10). Data that has been changed is now stored in the computer memory.

FORMAT	ZVEI
MAB 283	MODIFIED ZVEI
MAB 804	FRENCH ZVEI
MAB 137 <>	CCIR
MAB 440	70 ms CCIR
MAB 441	EEA

ESC,T,D,F,L, <-,|,|->

5.2 Editing Options with Sub-Menus

After selecting the option and pressing the red RETURN button, the display comes up with the Option Sub-Menu that allows changing any option specific data. Refer to the example for changing the Select 5 decoder code below.

Option Menu:

ENC/DEC	ENCODE/DECODE
MAB 445	ENCODE ONLY
MAB 446	DECODE ONLY

ESC,T,D,F,L, <-,|,|->

Selecting the ENC/DEC function containing the decoder code:

ENC/DEC < >	ENCODE/DECODE
MAB 445	ENCODE ONLY
MAB 446	DECODE ONLY

ESC,T,D,F,L, <-,|,|->

ENC/DEC Sub-Menu:

If no modification is necessary, pressing RETURN will switch to the option menu. New data has to be entered and confirmed by pressing RETURN in order to change the decoder code.

TYPE IN DECODER CODE: 18121

SPECIAL FUNCTIONS

6.1 How to use the FIND function (PF4 key)

If only one or a few options require modification, the FIND function is a comfortable tool to select this option. The FIND (PF4) key on the top row of the keyboard must be pressed. The bottom row of the display asks for the option number to be searched. If it is a standard option, then the option name must be entered, e.g.:

FORMATS, PRETIME, ENC/DEC, TIMEOUT,
AUTORES, GROUPCA, AUTOACK, BASECAL,
CHANNEL, SHORTCA, SQUELCH, CARRIER.

Press the FIND (PF4) key and search the channel menu:

```
PRETIME          ENCODE PRETIME 140 ms STD
MAB 378          NONSTANDARD ENCODE PRETIME
```

TYPE IN OPTION: CHANNEL

After pressing RETURN, the CHANNEL menu comes up.

```
CHANNEL <>  RX/TX CHANNEL DATA
```

```
ESC,T,D,F,L, <-,|,|->
```

6.2 How to use the TIMER function (PF2 key)

Pressing the TIMER (PF2) key on the top row of the keyboard will show all radio and system timings, e.g. RX/TX delay, encoder pretime, encoder hold time, intersequence delay, synthesizer lock time, etc.

Pressing the gray SHIFT key and also the yellow Cursor Up or Cursor Down key will scroll the display to view other timings.

```
203 ms          RX/TX DELAY
140 ms          ENCODER PRETIME
0 ms            ENCODER HOLD TIME
296 ms          SEQUENCE DELAY
50 ms           LOCK TIME
60 sec          TX TIME OUT
7 sec           AUTO RESET TIME
PRESS ANY KEY TO CONTINUE
```

6.3 How to use the LIST function (PF5 key)

Pressing the LIST (PF5) key on the top row of the programmer will show all programmed options. Pressing the gray SHIFT key and also the yellow Cursor Up or Cursor Down key will scroll the display to view all programmed options.

```
MAB 137         CCIR
PRETIME         Encode Pretime 140 ms Std
ENC/DEC         Encode/Decode
TIMEOUT         Time-Out-Timer 60 sec Std
AUTORES         Auto Reset Standard
MAB 879         Single Enc/Delete Multicall
MAB 901         Omit Group Call
AUTOACK         Standard Auto Acknowledge
MAB 880         Omit Basecall
CONTROL         8 Channel
```

Pressing any key jumps back to the last EDIT menu.

6.4 How to use the DELETE function (PF3 key)

Pressing the DELETE (PF3) key on the top row of the programmer will delete the option selected by the cursor. This option must be a "Type A" option which is allowed to be deleted (refer to section 10 for option types) otherwise an error tone will be generated.

Selecting the option:

MAB 860 < > AUTORES WITH CARRIER OVERRIDE

ESC,T,D,F,L, <-,|,|->

Deleting the option:

MAB 860 < > AUTORES WITH CARRIER OVERRIDE

ESC,T,D,F,L, <-,|,|->

6.5 How to obtain a printout

Refer to the PX-40 manual and to the printer handbook to connect and set up the printer.

Note

Make sure the field programmer is switched off while connecting the printer.

6.5.1 EZA1J/EZA3J series (CS/PL radios), EZA9J (SEL-5-LT radio)

The field programmer supports a complete printout routine for these radio models showing every programmed option and data. After selecting the LIST function key PF5 (refer to section 6.3) the field programmer asks for the device the listing should be sent to:

Enter P for printer or D for display ?

If "P" is selected, the display comes up with:

Enter text (max. 40 char.)_

A text string of 40 characters can now be defined (customer name, date, etc.) which will appear on the documentation listing. When pressing RETURN, the display comes up with:

PRINTING and the option list is sent to the printer.

If no printer is connected, the display also comes up with the PRINTING message but the programmer will not accept any input except pressing the CTRL key and the red STOP key which resets the printing mode.

6.5.2 EVA9J Series (SEL-5-HT radio)

For these models the field programmer supports a Screen Dump function. Every display information can be hardcopied by pressing the gray CTRL key and also the PF5 function key. The display contents will then be routed to the printer. If there is no printer connected, the field programmer will not accept any input except pressing the CTRL key and also the red STOP key which resets the printing mode.

7 ENDING PROGRAMMER OPERATION

In PC Software press Control - C to return to Loader Menu.

For return to DOS press F10

Make sure you have transfered all Data to Radio
The Soft don't store it !

8 MESSAGES

8.1 Charge Battery

Removed, is not availble in PC Software

8.2 Device not Ready

The message DEVICE NOT READY comes up if you try to read or write to the radio while it is switched off or when the field programmer was connected while the radio was switched off.

Disconnect the programming connector from the radio, switch the radio on and connect the field programmer again (refer to section 3 for correct field programmer setup). If this does not cure the problem, the RS232 interface of the field programmer might be down because of undefined spikes on the power line; press the RESET switch on the right side of the unit to initialize it. Use a ball point pen or the like to press this switch.

8.3 Code Error

The message CODE ERROR tells you to check the programmer software to make sure that it is the correct software for programming the radio. Open the cover of the ROM cartridge and compare the part numbers of the software:

5102080B40	MC micro Field Programmer	EZA CS/PL	VX.X
5102080B41	MC micro Field Programmer	EZA SEL5.1	VX.X
5102455M05	MC micro Field Programmer	EZA SEL5.2	VX.X
5102080B42	MC micro Field Programmer	EVA SEL5.1	VX.X
5102080B43	MC micro Field Programmer	EVA SEL5.2	VX.X

The message CODE ERROR comes up e.g. when attempting to read the data of a CS/PL radio models with the SEL5 software package.

8.4 Checksum Error

The field programmer calculates a checksum of the EEPROM data when they are read out or after writing to the EEPROM. The calculated checksum is then compared with the programmed one to make sure that the data is correct. When the field programmer detects any difference between the calculated checksum and the programmed checksum, the message

CHECKSUM ERROR

comes up. Try to READ or WRITE to the radio again.

Note

If this message comes up after writing to the radio, do not try to initialize the field programmer or to read out the EEPROM again, since you then lose the capability to edit data or write data to the radio, because the incorrect checksum will inhibit those functions.

If still not work, use Repair Versions Initialization Menu to create new correct EEPROM Data and try to write it to Radio, if still not work, replace EEPROM by 24C01.

Warning !!! , faster PC as 386SX can gets this Error too, first try slower PC.

8.5 Long Beep in the speaker

A long beep is heard in the speaker:

- when an error occurred during the writing or reading of the EEPROM,
- when an option is selected that is not allowed for the specific radio, or
- when an option is incompatible with other selected options.

8.6 Two Short Beeps in the speaker

Two short beeps are heard in the speaker when reading or writing to the EEPROM has been successful.

9 SPECIAL OPTION HANDLING

9.1 EZA1J/EZA3J Series (CS/PL radio)

9.1.1 Frequencies vs. channel spacing

The field programmer does not verify the programmed receiver and transmitter frequencies in relation to the radio's channel spacing. This has to be done by the user who decides whether a realignment is necessary or not.

9.1.2 Standard PL Encode/Decode MAB 94, MAB 463, MAB 868

The field programmer only accepts standard "Private-Line" frequencies which are defined in CTCSS, IEC Group A, IEC Group B, IEC Group C. See table 5 for a complete list of allowed "Private-Line" frequencies.

9.1.3 MAB 868 (Channel Slaved Functions)

Modification of this option requires that the "Private-Line" (PL) encoder and decoder frequencies (10 max each) are defined and assigned to the various channels. Only frequencies from table 5 can be used. The maximum number of PL frequency pairs (decoder and encoder frequency on one customer channel) is limited to 32 and can be decreased by the number of channels and by hardware restrictions.

9.2 EZA9J/EVA9J Series (SEL-5-LT/SEL-5-HT)

9.2.1 Frequencies vs. channel spacing

The field programmer does not verify the programmed RX/TX frequencies in relation to the radio's channel spacing. This has to be done by the user who has to decide whether a realignment is necessary or not.

9.2.2 MAB445/MAB446 (Encode Only/Decode Only)

When these options have been changed, MAB 907 (Channel Slaved Functions) must be checked and corrected if it was enabled before, since MAB 445 and MAB 446 will reset the assigned channel slaved bits to standard values.

9.2.3 MAB 447, MAB 448, MAB 449, MAB 450, MAB 451, MAB 879

These multicall options will automatically change MAB 318 (Call Forwarding). The Call Forwarding code is removed from the Multicall entry.

9.2.4 MAB 20 (Telephone Interconnect)

This option is detected as standard BASECALL, since MAB 20 uses the same handling and memory as standard BASECALL. Only the button symbol is different.

9.2.5 MAB 589 (Public Address Manual)

This option is detected as MAB 116 (External Alarm), since MAB 589 provides exactly the same functions as MAB 116. Only the button and external hardware are different.

9.2.6 MAB 463

The field programmer will only accept standard PL frequencies as defined in CTCSS, IEC Group A, IEC Group B, IEC Group C. Refer to the table below for a complete list of allowed PL tones.

IEC Group A:	67.0	77.0	88.5	100.0	107.2	114.8	123.0
	131.8	141.3	151.4	162.2	173.8	186.2	203.5
	218.1	233.6	250.3				
IEC Group B:	71.9	82.5	94.8	103.5	110.9	118.8	127.3
	136.5	146.2	156.7	167.9	179.9	192.8	210.7
	225.7	241.8					
IEC Group C:	74.4	97.7	85.4	91.5			
Additional:	69.3	97.4	206.5				

Table 5
"Private-Line" Frequencies
(Hz)

9.3 EVA9J Series (SEL-5-HT models)

9.3.1 MAB 906 (Secret with forced reset)

Do not change the standard decoder tone length to less than 5 tones, otherwise the option will be lost. When changing the decoder tone length, option MAB 906 should be updated to match the new decoder requirements.

9.3.2 EVA9J Series

The EVA9J series provide a test channel for tuning the radio. The test channel is entered by shorting the test pins near the microprocessor on the logic board (refer to the service manual). The frequency of the test channel is shown in the channel menu under channel "0".

10 OPTION CLASSIFICATION LIST

10.1 EZA1J Series (CS Radio)

The following list shows the options, supported by the programmer.

- A: This option can be activated, deleted, or codes/frequencies/durations can be changed.
- B: This option must be ordered with the radio; it cannot be activated or deleted. Only code, frequency or duration can be changed.
- B*: Option type "B". In addition, it can be changed to an option of the same index group.
- C: This option must be ordered with the radio but can be deleted; codes/frequencies/durations can be changed. Deleted options, however, cannot be re-activated.
- C*: Option type "C". In addition, it can be changed to an option of the same index group or can be changed to an option type "B" which is part of the option group.

MAB 458	Omit Busy Light	A
MAB 671	TX Inhibit on busy channel	A
MAB 891	1 Channel Control Head 1 Standard	B
MAB 887	2 Channel Control Head 1	B
STANDARD	8 Channel Control Head 2 Standard	B
MAB 871	20 Channel Control Head 2	B
MAB 888	32 Channel Control Head 2	B
MAB 943	75 Channel Control Head 2	B
MAB 909	99 Channel Control Head 2	B
MAB 889	RF Power Level	B
MAB 75	Omit Time-Out-Timer	B
STANDARD	Time-Out-Timer	CI
MAB 287	Non-Standard Time-Out-Timer	CI

10.2 EZA3J Series (PL Radio)

The following list offers an overview of the options, supported by the field programmer.

- A: This option can be activated, deleted, or codes/frequencies/durations can be changed.
- B: This option must be ordered with the radio. The option cannot be activated or deleted; it can be changed in code, frequency or duration.
- B*: Option type "B". In addition, it can be changed to an option of the same index group.
- C: This option must be ordered with the radio but can be deleted; codes/frequencies/durations can be changed. Deleted options, however, cannot be re-activated.
- C*: Option type "C". In addition, it can be changed to an option of the same index group or can be changed to an option type "B" which is part of the option group.

MAB 458	Omit Busy Light	A
MAB 671	TX Inhibit on busy channel	A
MAB 891	1 Channel Control Head 1 Standard	B
MAB 887	2 Channel Control Head 1	B
STANDARD	8 Channel Control Head 2 Standard	B
MAB 871	20 Channel Control Head 2	B
MAB 888	32 Channel Control Head 2	B
MAB 943	75 Channel Control Head 2	B
MAB 909	99 Channel Control Head 2	B
MAB 889	RF Power Level	B
MAB 868	Channel Slaved PL	B
MAB 75	Omit Time-Out-Timer	B
STANDARD	Time-Out-Timer	C1
MAB 287	Non-Standard Time-Out-Timer	C1
STANDARD	PL Encode/Decode	B2
MAB 91	PL Decode Only	B2
MAB 94	PL Encode Only	B2
MAB 463	Selectable PL Encoder (up to 10 frequencies)	B3
MAB 899	Selectable PL Encode/Decode	B3

10.3 EZA9J Series (SEL-5-LT models)

The following list offers an overview of the options, supported by the field programmer.

- A: This option can be activated, deleted, or codes/frequencies/durations can be changed.
- B: This option must be ordered with the radio. The option cannot be activated or deleted; it can be changed only in code, frequency or duration.
- B*: Option type "B". In addition, it can be changed to an option of the same index group.
- C: This option must be ordered with the radio but can be deleted; codes/frequencies/durations can be changed. Deleted options, however, cannot re-activated.
- C*: Option type "C". In addition, it can be changed to an option of the same index group or can be changed to an option type "B" which is part of the option group.

FORMAT	ZVEI	A
MAB 283	MZVEI	A
MAB 804	FZVEI	A
MAB 137	CCIR	A
MAB 440	CCIR 70 ms	A
MAB 441	EEA	A
PRETIME	Encode Pretime 140 ms	A
MAB 378	Non-standard Pretime	A
ENC/DEC	Encode/Decode (Single Decoder Code)	A
MAB 445	Encode Only	A
MAB 446	Decode Only (Single Decoder Code)	A
TIMEOUT	Time-Out-Timer	CI
MAB 75	Omit Time-Out-Timer	B
MAB 287	Non-standard Time-Out-Timer	CI
AUTORES	Auto Reset (Timed)	A
MAB 858	Omit Auto Reset	A
MAB 861	Auto Reset, Non-standard Reset Time	A
MAB 860	Auto Reset with carrier override	A
MAB 453	Extended 1 st Tone 600 ms	A
MAB 377	Non-standard Extended 1 st Tone	A
MAB 454	Auto Call Repeat	C
MAB 889	RF Power Level	B

MAB 907	Channel Slaved Functions	B
MAB 472	Auto RAT 1 Tone	B2
MAB 473	Auto RAT 2 Tone Sequential	B2
MAB 864	Auto RAT X Tone Sequential	B2
MAB 904	Auto RAT 1 Tone Selectable	B3
MAB 284	Auto RAT 2 Tone 2 nd Selectable	B3
MAB 865	Auto RAT X Tone 1 Selectable	B3
MAB 455	Manual RAT 1 Tone	B4
MAB 801	Manual RAT 2 Tones Fixed	B4
MAB 285	Manual RAT 5 Tone Sequential	B4
MAB 313	Manual RAT 1 Tone Selectable	B5
MAB 765	Manual RAT 2 Tone 2 nd Selectable	B5
MAB 286	Manual RAT 5 Tone 1 Selectable	B5
MAB 867	Manual + Auto RAT	C
MAB 856	Manual RAT + Unit ID	C
MAB 94	Private-Line Encode	B
MAB 463	Selectable PL Encode	B
MAB 312	Single Tone Encode Call I	B
MAB 456	Single Tone Encode Call I & II	B
MAB 448	Multicall 100	B
MAB 447	Multicall 10	B
MAB 879	Single Encode/Delete Multicall	B
GROUPCA	Standard Group Call	C6
MAB 677	Expanded Group Call	C6
MAB 901	Omit Group Call	B
MAB 866	Group Lock Out Type O, G	B
AUTOACK	Standard Auto Acknowledge Code	B
MAB 863	Auto Acknowledge with status	B
MAB 902	Omit Auto Acknowledge	B
MAB 903	Auto Acknowledge (1 Tone)	B
BASECAL	Standard Base Call	B
MAB 880	Omit Base Call	B
MAB 869	Unit ID before call	B7
MAB 708	Unit ID after call	B7
MAB 814	Unit ID before and after call	B7
MAB 452	Unit ID on PTT	C
MAB 862	Unit ID Repeat	C

MAB 116	External Alarm (MAB 589 Public Address Manual)	B
MAB 300	Secondary Call with external alarm	B
MAB 318	Call Forwarding	B
MAB 470	Emergency Scheme D	B
MAB 671	TX Inhibit on Busy Channel	A
MAB 458	Omit Busy Light	A
MAB 289	Omit Alert Tones	A
CHANNEL	RX/TX Channel Data	A
CONTROL	Control Head 2 8 Channel	B
MAB 887	Control Head 1 2 Channel	B
MAB 891	Control Head 1 1 Channel	B

10.4 EVA9J Series (SEL-5-HT models)

The following list offers an overview of the options, supported by the field programmer.

- A: This option can be activated, deleted, or codes/frequencies/durations can be changed.
- B: This option must be ordered with the radio. The option cannot be activated or deleted; it can be changed only in code, frequency or duration.
- B*: Option type "B". In addition, it can be changed to an option of the same index group.
- C: This option must be ordered with the radio but can be deleted; codes/frequencies/durations can be changed. Deleted options, however, cannot be re-activated.
- C*: Option type "C". In addition, it can be changed to an option of the same index group or can be changed to an option type "B" which is part of the option group.

FORMAT	ZVEI	A
MAB 283	MZVEI	A
MAB 804	FZVEI	A
MAB 137	CCIR	A
MAB 440	CCIR 70 ms	A
MAB 441	EEA	A
PRETIME	Encode Pretime 140 ms	A
MAB 378	Non-standard Pretime	A
ENC/DEC	Encode/Decode (Single Decoder Code)	A
MAB 445	Encode Only	A
MAB 446	Decode Only (Single Decoder Code)	A

TIMEOUT	Time-Out-Timer, 60 sec Standard	C1
MAB 75	Omit Time-Out-Timer	B
MAB 287	Non-standard Time-Out-Timer	C1
AUTORES	Auto Reset (timed) 7 sec Standard	A
MAB 858	Omit Auto Reset	A
MAB 861	Auto Reset/Nonstandard Reset Time	A
MAB 860	Auto Reset with carrier override	A
ENDOFME	End of Message Tone Standard	A
MAB 900	Omit End of Message Tone	A
SHORTCA	Short Call Standard	B
MAB 897	Omit Short Call	B
MAB 453	Extended 1 st Tone 600 ms	A
MAB 377	Non-standard Extended 1 st Tone	A
MAB 454	Auto Call Repeat	C
MAB 898	Programmed Channel Display	B
MAB 889	RF Power Level	B
MAB 907	Channel Slaved Functions	B
MAB 472	Auto RAT 1 Tone	B2
MAB 473	Auto RAT 2 Tone Sequential	B2
MAB 864	Auto RAT X Tone Sequential	B2
MAB 904	Auto RAT 1 Tone Selectable	B3
MAB 284	Auto RAT 2 Tone 2 nd Selectable	B3
MAB 865	Auto RAT X Tone 1 Selectable	B3
MAB 455	Manual RAT 1 Tone	B4
MAB 801	Manual RAT 2 Tones Fixed	B4
MAB 285	Manual RAT 5 Tone Sequential	B4
MAB 313	Manual RAT 1 Tone Selectable	B5
MAB 765	Manual RAT 2 Tone 2 nd Selectable	B5
MAB 286	Manual RAT 5 Tone 1 Selectable	B5
MAB 867	Manual + Auto RAT	C
MAB 856	Manual RAT + Unit ID	C
MAB 94	Private-Line Encode	B
MAB 463	Selectable PL Encode	B
MAB 312	Single Tone Encode Call I	B
MAB 456	Single Tone Encode Call I & II	B
MAB 879	Single Encode/Delete Multicall	B

MAB 447	Multicall 10	B
MAB 448	Multicall 100	B
MAB 449	Multicall 1000 Standard	B
MAB 450	Multicall 10 000	B
MAB 451	Multicall 100 000	B
GROUPCA	Standard Group Call	C6
MAB 677	Expanded Group Call	C6
MAB 901	Omit Group Call	B
MAB 866	Group Lock Out Type O, G	B
AUTOACK	Standard Auto Acknowledge Code	B
MAB 863	Auto Acknowledge with status	B
MAB 902	Omit Auto Acknowledge	B
MAB 903	Auto Acknowledge (1 Tone)	B
BASECAL	Standard Basecall (MAB 20 Telephone Interconnect)	B
MAB 880	Omit Base Call	B
MAB 869	Unit ID before call	B7
MAB 708	Unit ID after call	B7
MAB 814	Unit ID before and after call	B7
MAB 452	Unit ID on PTT	C
MAB 862	Unit ID Repeat	C
MAB 116	External Alarm (MAB 589 Public Address Manual)	B
MAB 300	Secondary Call with external alarm	B
MAB 853	Secondary Call on a preprogrammed channel	B
MAB 318	Call Forwarding	B
MAB 704	Secret Operation with 7 second reset	B8
MAB 906	Secret Operation with forced reset	B8
MAB 876	Emergency Scheme A	C9
MAB 688	Emergency Scheme B	C9
MAB 873	Emergency Scheme C	C9
MAB 896	Emergency on a preprogrammed channel	B
MAB 671	TX Inhibit on busy channel	A
MAB 458	Omit Busy Light	A
MAB 289	Omit Alert Tones	A
MAB 459	Omit Sidetones	A
CHANNEL	08 Channel	B
MAB 871	20 Channel	B
MAB 888	32 Channel	B
MAB 909	99 Channel	B
MAB 874	Trakmode	B