PMR-446 HANDHELD TRANSCEIVER

INSTRUCTION MANUAL

DYNASCAN R-89

License-free PMR-446 two-way radio for instant free communication!

CE · RoHS

English

INDEX

1.- <u>LEGAL INFORMATION</u>:

This transceiver is designed for free communication, so it is not necessary to purchase administrative authorization or licences in order to use it and it is intended for use in the following Member States of the European Union:						
AT	BE	BG	HR	CY	CZ	DK
EE	FI	FR	DE	EL	HU	IE
IT	LV	LT	LU	MT	NL	PL
PT	RO	SK	SI	ES	SE	UK

This equipment complies whit Directive 2012/19/EU on waste electrical and electronic equipment (WEEE). This means that this product must be disposed of at a designated collection point for the recycling of waste electrical and electronic equipment, with the intention of being either recycled or dismantled in order to reduce any impact on the environment. For more information, please contact your distributor, salesperson or regional administration.

Electronic products that have not been disposed of in this way are potentially dangerous for the environment and public health due to the possible presence of dangerous substances.

This equipment complies with Directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS). The restricted substances are: Lead (<0.1%); Mercury (<0.1%); Hexavalent chromium (<0.1%); PBB (<0.1%); PBDE (<0.1%); Cadmium (<0.01%).

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2.- <u>INTRODUCTION</u>:

Thank you for buying this DYNASCAN PMR-446 transceiver.
It is a transceiver of latest design, multi-functionality, stable performance and easy operation. You will be pleased with the high quality and powerful functions.
Read this manual completely before using the transceiver.
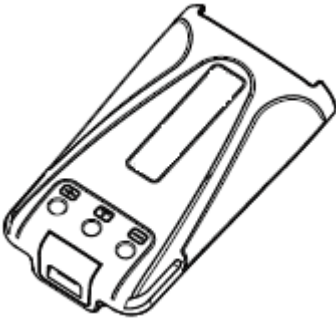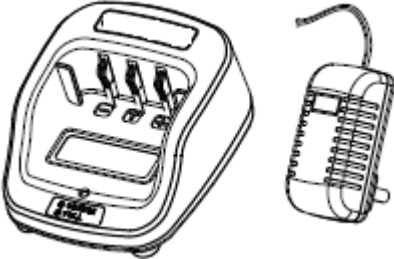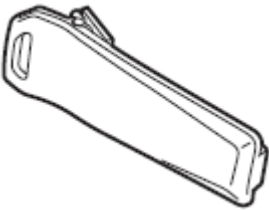
3.- <u>PRECAUTIONS</u>:

This transceiver is with excellent design and advanced technology.
Follow the below suggestions and warning to assist you to carry out the responsibilities on warranty term, and learn the safety before using the transceiver.
1. Keep the transceiver and accessories out of the reach of children.
2. Do not disassemble the transceiver to avoid damaging the device, contact with Technical Service for any repairs.
3. Use only the supplied battery pack and charger to avoid the possibility of damaging the transceiver.
4. Never expose the transceiver directly to the sunlight or high-temperature places for a long time.
5. Keep the transceiver away from the dusty or humid places.
6. Clean the transceiver and its accessories with a mild brush or soft cloth moistened with a product to clean electronic devices, do not use alcohol or solvents, as this could damage the transceiver or its accessories.
7. Do not transmit if the antenna is damaged.
8. If any abnormal odor or smoke is detected from the transceiver, power it off immediately, remove the battery pack and contact with the Technical Service.
9. The manufacturer and the salesperson are not responsible for any damage caused to the transceiver by the use of non-original or incompatible accessories.

4.- UNPACKING AND CHECKING THE EQUIPMENT:

Carefully unpack the transceiver. We suggest that you identify the items on the following table before discarding the package material. If any item is missing or have been damaged, contact your salesperson immediately.

PMR-446 handheld transceiver	**Li-ion battery pack**	**Intelligent charger**
Belt clip	**Handstrap**	**User´s manual**

Note:
- The articles supplied in the package may be different from those listed in the table above, depending on the country of purchase and the version of the equipment. For more information, contact your salesperson.

5.- CHARACTERISTICS:

● License-free, for instant free communication.
● Up to 256 programmable channels.
● CTCSS/DCS scan.
● VOX function.
● Battery save function.
● TOT function.
● 107 CTCSS groups and 50 DCS groups.
● Non-standard CTCSS and non-standard DCS programmables.
● 8 groups of scrambler.
● Side keys with programmable functions.
● Compander function that minimizes the background noise.
● Frequency or channel display.

6.- TECHNICAL SPECIFICATIONS:

General	
Frequency range	446.00625 MHz – 446.09375 MHz
Channels number	Up to 256 (8 x 32)
Modulation	11K0F3E
Working temperature	-20 ºC to +55 ºC
Antenna type	Integral
Power supply	7.4 V Li-Ion battery pack
Weight	340 g.
Dimensions	132 x 62 x 37 mm.

Transmitter	
Transmission power (E.R.P.)	500 mW
Adjacent channel power	≥60 dB
Spurious emissions	≥60 dB
Audio response	+1 ~ -3 dB (0.3 ~ 2.55 kHz)
Frequency stability	±2.5 ppm
Distortion	≤5 %.

Receiver	
Sensibility	0.25 µV (12 dB SINAD)
Adjacent channel selectivity	≤60 dB
Intermodulation	≤60 dB
Spurious radiations	≤70 dB
Audio response	+1 ~ -3 dB (0.3 ~ 2.55 kHz)
Distortion	≤5 %.

CHANNELS AND FREQUENCIES TABLE:

Channel no.	Frequency (MHz)
1	446.00625
2	446.01875
3	446.03125
4	446.04375
5	446.05625
6	446.06875
7	446.08125
8	446.09375

7.- LCD DISPLAY:

Battery save
VOX function
DCS
Channel no.
Current frequency
Busy channel lockout
TX power

Keypad lockout
Battery power level
Menu no.
Signal streng

DCS VOX S 🔒
CH-1   16
446.00625
BUSY H ▪▫▪▪▫▪▪▪▪
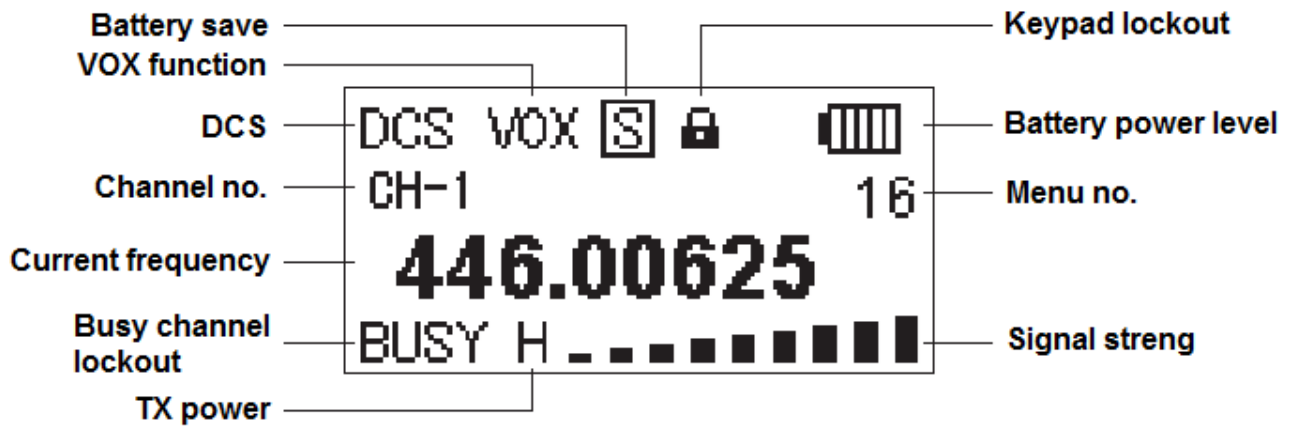
Note:
- It is possible that some icons are not available according to the programming of the transceiver.

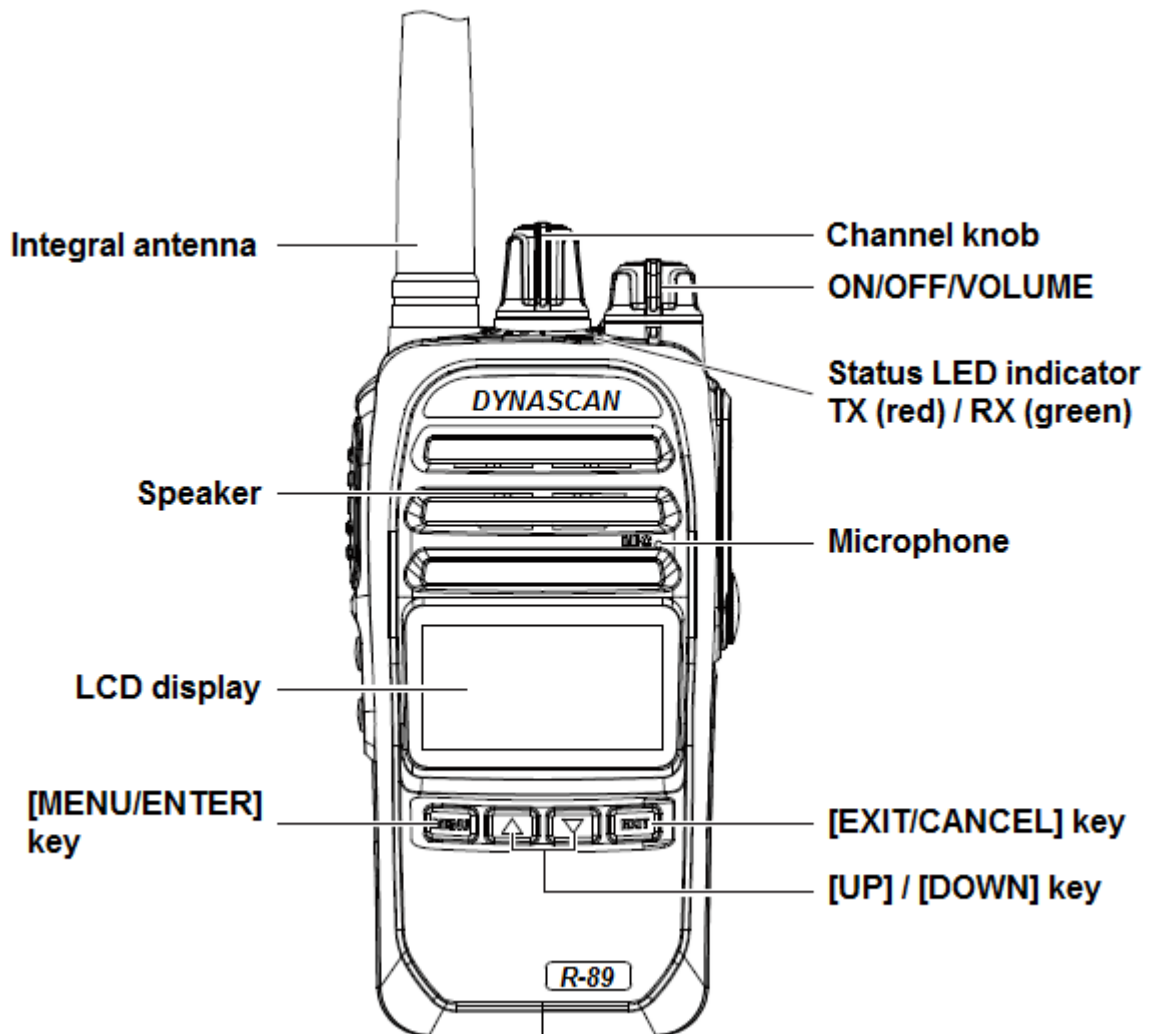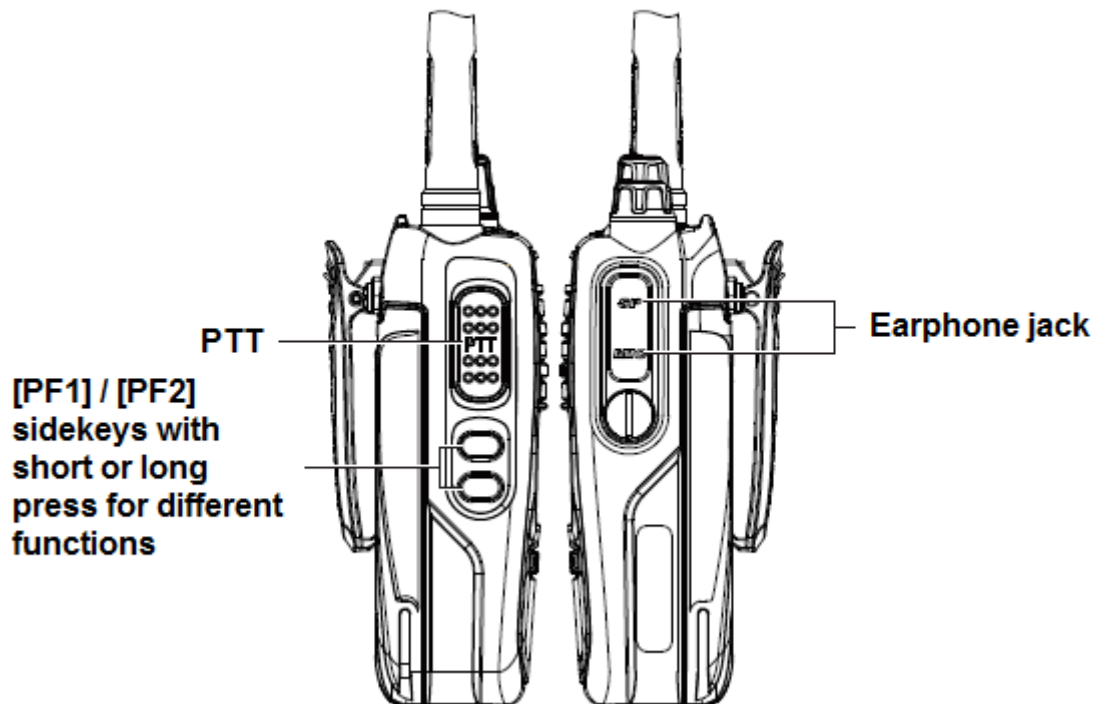## 8.- GETTING ACQUAINTED:

Integral antenna

Speaker

LCD display

[MENU/ENTER] key

Channel knob
ON/OFF/VOLUME

Status LED indicator
TX (red) / RX (green)

Microphone

[EXIT/CANCEL] key

[UP] / [DOWN] key

DYNASCAN

R-89

PTT

[PF1] / [PF2]
sidekeys with
short or long
press for different
functions

Earphone jack

9.- <u>BASIC OPERATIONS:</u>

Turn on / off the transceiver and volume adjusts:

1. Turn the power switch / volume control knob clockwise to turn on the transceiver. Adjust the volume by rotating this same button. Turn anticlockwise to turn off the transceiver.

2. Turn the channel selector knob to select the desired channel. Turn clockwise to increase the channel and anticlockwise to decrease. You will hear the announcement of the selected channel on the transceiver's speaker.

Quick search:

Use the [UP] / [DOWN] keys to quickly select the functions and parameters.

Channels groups:

Your distributor can program up to 16 groups of channels, selectable by the channel selector knob.

Channel number:

Your distributor can program up to 256 channels (8 x 32), each with a CTCSS or DCS code. Press the [UP] / [DOWN] key to select the channel.

Key lockout:

Press and hold the [EXIT] key for 2 seconds to lock and unlock the keypad.

Single tone pulse:

Press [PTT] + [PF1] to transmit the frequency with the preprogrammed single tone pulse.

10.- <u>SETTINGS MENU</u>:

Press the [MENU] key to enter the settings menu, press the [UP] / [DOWN] key to select the desired parameter, press the [ENTER] key to save, and press the [MENU] key to return to the menu. Press the [EXIT] key to cancel and exit.

> **Note:**
> **- Some settings can only be performed by means the programming software. For more information, consult your salesperson.**

Menu 1: Squelch (SQL-LE):

This function to make the speaker mute when there is no signal. If the squelch level setting is correct, it is only heard the communication when a signal is received. The higher squelch level requires the stronger signal.
Settings: 0 to 9.
Default: 3.

> **Note:**
> **- When you select 0, the squelch is turn off.**

Menu 2: Battery save (SAVE):

When save function is ON, the transceiver automatically activates the battery save mode 10 seconds after there is no signals or any operation.
Settings: ON/OFF.
Default: ON.

Menu 3: Output power (TXP):

Settings: HIGH/MIDLE/LOW.
D: HIGH.

> **Note:**
> **- The maximum transmission power (E.R.P.) of this transceiver is 500 mW.**

Menu 4: TX Roger (ROGER):

The "Roger beep" can be heard after press and release the [PTT].
Settings: Off/BOT/EOT/BOTH.
Default: Off.
BOT: Beep after pressing the [PTT].
EOT: Beep after loosening the [PTT].
BOTH: Beep after pressing and loosening the [PTT].

Menu 5: Transmit overtime timer (TOT):

Time out timer refers to set the limited time each transmitting. It may automatically stop transmitting if reach the limited time, regardless you press the [PTT], the transceiver may issue the "time out timer" at the same time.
Settings: 15 to 600 seconds, step 15 seconds.
Default: 90 seconds.

> **Note:**
> **- There is a 10 second TOT punishment when the transmitting time beyond the limited time, it is invalid to press the [PTT]. The TOT punishment is effective for the keypad transmission and VOX transmission.**

Menu 6: VOX function (VOX):

Settings: Off/1 to 5 seconds.
Default: Off.

> **Notes:**
> **- VOX function is usable for the selected operation channel.**
> **- In receiving state, the VOX function is off.**

Menu 7: Bandwidth (W/N):

This menu is not available to the user.

Menu 8: Voice guide (VOICE):

By means this function, you will hear a voice prompt when performing any operation on the transceiver.
Settings: OFF/ENGLISH.
Default: ENGLISH.

Menu 9: Time over alarm (TOA):

This function notifies you before reaching the maximum transmission time (TOT).
Settings: OFF/1 to 10 seconds.
Default: 5 seconds.

Menu 10: Beep function (BEEP):

This function alerts you with a "beep" when operate the transceiver, operation error or fault.
Settings: On/Off.
Default: On.

Menu 11: Busy channel lockout (BCL):

This function locked the transmission while the channel is busy.
Settings: ON/OFF.

Default: OFF.

Menu 12: Auto lockout (AUTO LOCK):

The keypad will be locked after 15 seconds.
Settings: ON/OFF.
Default: OFF.

> **Notes:**
> **- Press and hold the [EXIT] key for 2 seconds to unlock the keyboard.**
> **- All keys except the [PTT] and the channel selector are locked in the lockout mode.**

Menu 13: RX CTCSS (R-CTC):

Settings: OFF/50 groups of standard CTCSS or non-standard analogue codes from 60.0 to 259.9 Hz.
Default: OFF.

Menu 14: TX CTCSS (T-CTC):

Settings: OFF/50 groups of standard CTCSS or non-standard analogue codes from 60.0 to 259.9 Hz.
Default: OFF.

Menu 15: RX DCS (R-DCS):

Settings: OFF/105 groups of digital standard DCS codes or non-standard from 001 to 777.
Default: OFF.

> **Notes:**
> **- Press the [MENU] key and then the [PF2] key to select the positive or negative code.**
> **- 001-777 except codes including 8 or 9, ie. 680/719 is illegal non-standard codes.**
> **- Non-standard DCS codes are programmed by software.**

Menu 16: TX DCS (T-DCS):

Settings: OFF/105 groups of digital standard DCS codes or non-standard from 001 to 777.
Default: OFF.

Menu 17: Scan mode (SC-REV):

Settings: TO/CO/SE.
Default: SE.
TO: Scanning will stop when a signal is received and will resume automatically after 5 seconds if no operation is performed on the transceiver. Press [PTT] to turn off scan function.
CO: Scanning will stop when a signal is received, it will resume automatically after 3 seconds when the signal disappears. Press [PTT] to turn off the scan function.
SE: Scan will stop when receiving a signal.

The transceiver will return to the appointed channel after transmitting if there is no operation in 10 seconds.

Menu 18: CTCSS/DCS scan (QTSEEK)):

This function allows saved the detected CTCSS/DCS tones during scanning.
Settings: RX QT, TX QT, RX/TX QT.
Default: RX QT.

> **Notes:**
> **- The scan will not be enabled if no signal is received.**
> **- Press [UP] / [DOWN] key to change the scan direction.**
> **- Press [PF1] key to switch CTCSS and DCS scanning and press [PF2] key to switch the positive and negative DCS codes.**
> **- The detected CTCSS or DCS code will be shown on the LCD during the scanning, and press [MENU] key to save it if need.**
> **- Program the save mode by software.**

Menu 19: Side key [PF1] settings (PF1):

You can program the functions of this key by short or long press.
Programmable functions: MONI/LAMP/SCAN/BATT-V/OFF.
Default: Short press is SCAN function and long press is MONI function.
MONI: Turn on/off the monitor function.
LAMP: Turn on/off the backlight function.
SCAN: Turn on/off the scan function.
BATT-V: Check the current battery voltage.
OFF: Without function.

Menu 20: Side key [PF2] settings (PF2):

You can program the functions of this key by short or long press.
Programmable functions: MONI/LAMP/SCAN/BATT-V/OFF.
Default: Short press is SCAN function and long press is MONI function.
MONI: Turn on/off the monitor function.
LAMP: Turn on/off the backlight function.
SCAN: Turn on/off the scan function.
BATT-V: Check the current battery voltage.
OFF: Without function.

Menu 21: Channel mode (CH-MDF):

There are two operating modes, frequency mode (VFO) and channel mode (CH).
Settings: CH/CHFREQ/NAME/FREQ.
Default: CH.
CH: Displayed the channel number.
CHFREQ: Displayed the channel number and frequency.
NAME: Displayed the channel name.
FREQ: Displayed the frequency.

Menu 22: Compander function (COMPANDER):

It helps to decrease the background noise especially in large distance communications.
Settings: ON/OFF.
Default: OFF.

Menu 23: Scrambler function (SCRAMBLER):

It allows keeping the communication confidential if necessary.
Settings: ON/OFF.
Default: OFF.

Menu 24: Channel selection in dual watch (DW-CH):

It allows selecting the channels for dual watch.
Settings: All channels.
Default: OFF.

> **Note:**
> **- Press [MENU] key and then [UP] / [DOWN] key to select the channel or channel groups for dual watch function, select the channel when the icon flashes and then press [MENU] to save.**

Menu 25: Channel switch in dual watch standby mode (DW-SW):

It allows turning on/off the dual watch function. If it is on, the transceiver remains in the current operating channel and standby channel for dual watch function if a signal is received.
Settings: ON/OFF.
Default: OFF.

Menu 26: Scan add (SC-ADD):

Specify the channel you want to add to the scan list.
Settings: ADD/DEL.
Default: ADD.

Menu 27: Backlight (ABR):

Turn on and off the LCD backlight.
Settings: ON/OFF.
Default: OFF.

Menu 28: Programming channels (MEM-CH):

This menu is not available to the user.

Menu 29: Delete channels (DEL-CH):

This menu is not available to the user.

Menu 30: Reset (RESET):

It allows you to reset the parameters on the transceiver to the factory default.
Settings: VFO/ALL.
Default: VFO.
VFO: All menus are restored to the factory settings.
ALL: All parameters and menus are restored to the factory settings.
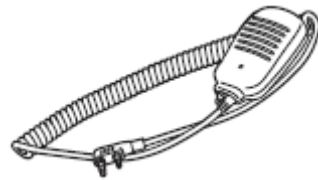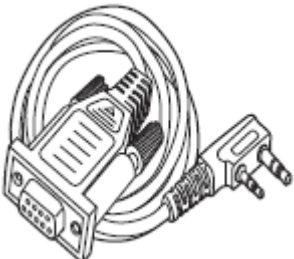
11.- CTCSS TABLE:

CTCSS

1	67.0	11	94.8	21	131.8	31	171.3	41	203.5
2	69.3	12	97.4	22	136.5	32	173.8	42	206.5
3	71.9	13	100.0	23	141.3	33	177.3	43	210.7
4	74.4	14	103.5	24	146.2	34	179.9	44	218.1
5	77.0	15	107.2	25	151.4	35	183.5	45	225.7
6	79.7	16	110.9	26	156.7	36	186.2	46	229.1
7	82.5	17	114.8	27	159.8	37	189.9	47	233.6
8	85.4	18	118.8	28	162.2	38	192.8	48	241.8
9	88.5	19	123.0	29	165.5	39	196.6	49	250.3
10	91.5	20	127.3	30	167.9	40	199.5	50	254.1

12.- DCS TABLE:

DCS

1	D023N	16	D074N	31	D165N	46	D261N	61	D356N	76	D462N	91	D627N
2	D025N	17	D114N	32	D172N	47	D263N	62	D364N	77	D464N	92	D631N
3	D026N	18	D115N	33	D174N	48	D265N	63	D365N	78	D465N	93	D632N
4	D031N	19	D116N	34	D205N	49	D266N	64	D371N	79	D466N	94	D645N
5	D032N	20	D122N	35	D212N	50	D271N	65	D411N	80	D503N	95	D654N
6	D036N	21	D125N	36	D223N	51	D274N	66	D412N	81	D506N	96	D662N
7	D043N	22	D131N	37	D225N	52	D306N	67	D413N	82	D516N	97	D664N
8	D047N	23	D132N	38	D226N	53	D311N	68	D423N	83	D523N	98	D703N
9	D051N	24	D134N	39	D243N	54	D315N	69	D431N	84	D526N	99	D712N
10	D053N	25	D143N	40	D244N	55	D325N	70	D432N	85	D532N	100	D723N
11	D054N	26	D145N	41	D245N	56	D331N	71	D445N	86	D546N	101	D731N
12	D065N	27	D152N	42	D246N	57	D332N	72	D446N	87	D565N	102	D732N
13	D071N	28	D155N	43	D251N	58	D343N	73	D452N	88	D606N	103	D734N
14	D072N	29	D156N	44	D252N	59	D346N	74	D454N	89	D612N	104	D743N
15	D073N	30	D162N	45	D255N	60	D351N	75	D455N	90	D624N	105	D754N

13.- <u>OPTIONAL ACCESORIES:</u>

Battery pack eliminator	**Car charger**	**Speaker/Mic**
Programming cable		**Headset**

14.- <u>TROUBLESHOOTING</u>:

Please check the transceiver according to the trouble shooting in the following table before recognizing the transceiver as the fault. Reset the transceiver if the following problems happen often.

Problem	Possible solutions
Transceiver cannot be power on.	>> Replace the battery pack with a fully charged one or recharge the battery. >> Remove and reinstall the battery pack, it may have been installed incorrectly.
The battery pack discharges quickly.	>> Replace the battery pack with a new one, the battery life is over. >> Make sure the battery pack is fully charged before removing it from the charger.
The transceiver status LED indicator flashes green but nothing is heard on the speaker.	>> Make sure that the volume level is set correctly. >> Check that the CTCSS or DCS codes are the same as those programmed in your user transceivers group. >> Make sure that the squelch is set correctly.
The keypad does not work.	>> Check whether the keypad is set to key lock. >> Check whether there are any keys pressed.
The transceiver transmits without pressing the [PTT].	>> Check whether VOX function is on, and whether the set level is too low.
Some functions cannot be programmed.	>> Some functions must be programmed through the software.
There are others transceivers that interfering the communication.	>> Change the CTCSS or DCS codes of all the transceivers in your user group.
Once these checks have been performed, if you still have problems with the transceiver, consult your salesperson or Technical Service.	