DJ196 INSTRUCTION MANUAL

1. INNOVATIVE AND NEW FEATURES
    . Comes equipped 39 CTCSS Tone Squelch function.
    . Comes equipped 104DCS Digital code squelch function.
    . TOT(Time Out Timer) can be set to a Duty Cycle most accommodating to the user's
    requirements.
    . Alphanumeric channel name function.
    . Tone burst function   1750,2100,1000,1450Hz
    . Nine Autodial memories easily accessed from the DTMF keypad with redial function.
    . Direct frequency entry from DTMF function.
    . Burglary Alarm Function
    . Mosquito Repel sound function.

2.   SPECIFICATIONS
   GENERAL
   Frequency coverage   T: TX 144-147.995MHz   RX 135-173.995MHz
                        E: TX 144-145.995MHz   RX 144-145.995MHz

                        TA2: TX 150-173.995MHz   RX 135-173.995MHz

   Mode   F3E   (FM)
   Channel steps   5,10,12.5,15,20,25,& 30kHz
   Memory channels   40 channels   1CALL channel
   Antenna connector   BNC(50ohm unbalanced
   Frequency stability   +/-5 ppm
   Microphone input impedance   2Kohm   nominal
   Power supply requirement   6.0 - 16.0 V DC (negative ground)
   Current drain (at 13.8 V DC) 1.2 A(typical) Transmit high at 5W
                                 200 mA(typical)   Receive at 280mW
                                 50 mA(typical)   standby
   Usable temperature range   -10 - +60 deg.
   Dimensions   56(124(H)   40(D)mm (with EBP-48N)
      (Projections not included)
   Weight   Approx.375   with EBP-48N
   DTMF   16 Buttons Keypad
   Subaudible Tone(CTCSS) encoder/decoder installed(39tones)
   Subaudible Tone (DCS) encoder/decoder installed(104codes)

   TRANSMITTER
   Output power   Approx. 5 W   EBP-48N installed
                                 Approx. 5 W   13.8 V DC
                                 Approx. 0.8 W (LOW)
   Modulation system   Variable reactance frequency modulation
   Spurious emissions   Less than -60dB
   Max.frequency deviation   +/-5Hz

RECEIVER

Receive system	Double conversion superheterodyne
Intermediate frequencies	1st 21.7MHz 2nd 450kHz
Sensitivity(12dB SINAD)	Less than –14.0 dBu(0.2uV) [144-147.995MHz]
	Less than –12.0 dBu(0.25uV)[135-173.995MHz]
Selectivity	-6dB:12kHz or more
	-60 dB:24kHz or less
Audio output power	280 mW (typical with an 8ohm load)
	200 mW 8ohm10 THD

3. ACCESSORIES

Standard Accessories

. EBP-48N 9.6V DC 700mAh Ni-Cd battery
. EDC-93 120V AC Wall charger version **
. EDC-94 230V AC Wall charger E version **
. Flexible rubber helical antenna
. Belt clip
. Hand strap
. Instruction Manual
** Accessories may differ depending on the version you bought.

Optional Accessories

. EBP-48N(9.6V DC 700mAh) Ni-Cd battery
. EDC-36 Mobile Cigarette lighter adapter with active noise filter
. EDC-37 External DC supply cable
. EDC-88 Rapid charger
. EDC-93(120V)Wall charger
. EDC-94(230V)Wall charger
. EMS-9 Speaker microphone
. EMS-51 Speaker microphone
. EME-12 Headset with VOX
. EME-13 Earphone and mic with VOX
. EME-15 Tie-pin mic with VOX
. EME-6 Earphone
. EBC-6 Mobile bracket
. EJ-39D SmartTrunk Logic Board
. ESC-36 Softcase(for use with EBP-48N)

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5   Operation 1 (Basics)

5-1 Adjusting the Volume

. [VOL   appears on LCD when VOL key is pressed, volume level is displayed.
   The initial value is 00 (minimum). The volume can be increased or decreased by
   rotating the dial. The maximum value is 20.
   There are 21 steps from 00-20 in volume adjustment. The setting value can be
   kept even while the power is off.
. When the volume point data is (00), the voice can not be heard.
 Press any key (except for FUNC, MONI key) to complete the setting. The LCD
   returns to the ordinal mode.
 When no operation is continued for 5 seconds, the setting is completed automatically.
   Then the LCD will return to the ordinal mode.
    Operation   The volume increases as the setting value increases.

5-2 Adjusting the Squelch

 Press the SQL key, and "SQL" icon appears on the LCD. Then the squelch level is displayed.
 The initial setting value is 00 (minimum). The squelch level can be increased or decreased by
 rotating the dial. This value can be kept while the power is turned OFF.
. There are 21 steps from 00-20 in the squelch level.
. Press any key (except for FUNC and MONI keys) to complete the setting. Then the LCD
returns to the ordinal mode.
. When no operation is continued for 5 seconds, the setting is completed automatically. Then the
LCD will return to the ordinal mode.
    Operation   The squelch will be opened with the strong signal when the high value is set.

5-3 Receiving

1. Turn the power SW ON.
2. Press the VOL key to increase the volume. Rotate the dial to set to the proper
     volume.
3. Press and hold the SQL key, and rotate the dial until the noise disappears.
4. Select the desired frequency. [BUSY] appears on the LCD as soon as the signal is
     received in the desired frequency. Then receiving voice is heard. At the same time green RX
      indicator lights up.

5-4 Transmitting

1. Select the desired frequency.
2. Press the PTT key, and the red TX indicator lights up to show the unit starts transmitting.
    While pressing PTT key, speak to the internal microphone on the front of the unit
     with your normal voice.
3. The transmission will be completed when the PTT key is released, then the unit
     returns to the receiving mode.

Note: Press and hold the PTT key, then press MONI key to transmit the tone burst.
Note: If the PTT key is pressed outside the transmission frequency range, [OFF] will
        appear on the LCD and you can not transmit.

5-5 Frequency Selection

1. Each time the V/M key is pressed, the mode is switched between VFO mode and memory mode.
2. VFO mode is selected by V/M key

[   ] or [   ] is not displayed on the LCD in the VFO mode.

[UP/DOWN with channel step]
1. Rotating the dial clockwise increases frequency 1 channel step/1 click, and rotating
    counterclockwise decreases the frequency 1 channel step/1 click.

[1MHz UP/DOWN]
1. Press the [F] key then rotate the dial while [F] icon is ON, the frequency increases
    or decreases by 1MHz depending on the direction of the rotation.

[Keypad Direct Entry]
The frequency is set with the numerical keys of 0~9.
   Setting
1. Enter the 100MHz digit.
2. Enter the 10MHz digit.
3. Enter the 1MHz digit.
4. Enter the 100kHz digit.
5. Enter the 10kHz digit.
    Depending on the channel step, entry may be required to the 1kHz digit or 10kHz
    digit.A confirmation tone sounds when the final digit is entered, then the setting has
    been completed. The entry method of each channel step is described as follows.

Channel step	Entry completion digit	Entry method of for the final digit
5.0kHz	1kHz	Enter up to 1kHz digit.
10.0kHz	10kHz	Enter up to 10kHz digit.
12.5kHz	10kHz	Enter 10kHz digit and 1kHz digit.

         0…..00.0   1…..12.5   2…..25.0   3…..37.5   4……invalid
         5….50.0   6…..62.5   7…..75.0   8……87.5   9……invalid

| 15.0kHz | 1kHz | Enter up to 1kHz digit. |
| 25kHz | 10kHz | Enter 10kHz digit, and 1kHz digit is determined. |

         0…00.0   2…..25.0   5…..50.0   7……75.0   Others are invalid.

| 30kHz | 10kHz | Enter 10kHz digit, and 1kHz digit is determined. |

…………………………………………………………………………………………..

5-6 Channel Step
1. Press and hold the [F] key, then rotate the dial while [F] icon is ON. The frequency
    increases or decreases by 1MHz depending on the direction of rotation.
    In VFO mode press and hold [F] key, then press 1/STEP key while [F] icon is ON,
    and the current channel step will appear.
2.   Rotate the dial, the channel step toggles as follows.
      …... Downward……………………………upward………………………………….
     ……...STP- 5…...STP-10…...STP-12.5…...STP-15……STP-20……STP-25……STP-30…..
      …………………………………………………………………………………………...
3.   Press any key (except for MONI and FUNC keys) to complete the setting. The LCD returns
     to the ordinal mode.
    Or press and hold the FUNC key, then press the 1/STEP key to complete the setting.
4. The Lamp and MONI keys are activate even while channel step appears on the LCD.
5. In the memory mode the channel step can not be selected.
     Note: When the step values are changed from 5kHz, 10kHz, 15kHz, 20kHz or

30kHz to either 12.5kHz or 25kHz, or changed in reverse, the frequency and shift width may be compensated.

5-7 Shift Direction and Offset Frequency

Usually the repeater is used in the duplex mode.

Namely the signal received with a certain frequency is transmitted with another frequency. The difference between these frequencies is the offset frequency. The setting range of the offset frequency is from 0 to 99.995MHz.

1. Press and hold the F key, then press 2/SHIFT key while [F] icon is ON. The current offset frequency and shift direction will appear. Then each time 2/SHIFT key is pressed, the shift direction toggles as follows:

……... -0.60……. +0.60……...OST-OF………
……………………………………………….

2. While shift frequency is d isplayed, rotating the dial clockwise increases the frequency by 1 channel step/1 click and rotating the dial counterclockwise decreases the frequency by 1 channel step/1 click.

3. Press and hold the F key, then rotate the dial. The frequency increases or decreases by 1MHz depending on the rotating direction.

Press any key (except for MONI and FUNC keys) to complete the setting. The LCD returns to the ordinal mode.

4. The Lamp and MONI keys are activate while shift frequency is displayed on the LCD.

Also the setting can be completed by pressing 2/STEP key while holding the FUNC key.

5-8 Memory Channel Operation

This unit is provided with 40 memory channels (0-9 CH) and one call channel (C).

The memory can not be increased.

(1) Calling of memory channel

1. Press V/M key, and [ ] will appear on the LCD indicating the unit enters the memory mode. [M] icon flashes to show the CH's memory has not been programmed, and the VFO frequency is displayed.

2. Rotating the dial clockwise increases the memory channel number by 1 channel.

Rotating the dial counterclockwise decreases the memory channel number by 1 channel.

(2) Programming a memory channel

Memory Programming

1. In VFO mode select the desired frequency, then set Shift and Tone Function as necessary.

2. Press V/M key to enter the memory mode.

3. Rotate the dial to select the desired memory channel number.

4. The unprogrammed memory CH's number flashes.

5. Press and hold the FUNC key, then press the MW key while FUNC icon is ON. A beep sounds indicating the completion, and the VFO frequency has been programmed in the selected memory channel.

*If a memory CH whose memory has been programmed is selected at 4. in the operation of 5. the memory will be erased and [M] will start flashing.

6. When CH-C is selected, the CALL channel is also reprogrammed.

[C] will not flash.

The content of the memory should be erased beforehand to be reprogrammed.

(3) Erasing of a memory channel

1. Press the V/M key to select the memory mode.

2. Rotate the dial to select the desired memory channel number.

   When the memory channel is programmed, [   ] appears on the LCD.

3. Press and hold the FUNC key, then press MW key while [F] icon is ON. A beep

   sounds, and the programmed frequency will be erased. Then [   ] starts flashing.

4. While [   ] is flashing, the erased memory is still displayed on the LCD.

   Press and hold the F key then press the MW key again, the erased memory can be

   recovered. If CH or mode had been changed, the recovery is not available.

(4) Programmable Data

The followings can be programmed in the memory channels 0~39 and the CALL channel:

.   Frequency

.   Shift frequency

.   Shift direction(+/-)

.   Tone encoder frequency

.   Tone decoder frequency

.   Tone encoder/decoder setting

.   DCS code

.   DCS setting

.   Skip CH setting

.   Busy Channel Lock Out (BCLO)

.   TX power H/L

.   Battery save setting

.   Clock shift setting

5-9 CALL Channel Operation

The initial setting is 145.00MHz.

(1) Calling the CALL channel

1.   Press the CALL key, and CALL channel is called. [C] (Right justification) appears

   on the LCD and the unit enters the CALL mode.

   In CALL mode the frequency and memory channel number can not be changed by dialing.

   The offset setting and tone setting can be changed and operated temporarily.

2. Press the CALL key again to return to VFO mode or memory mode.

   Also pressing the V/M key causes to return to the previous VFO mode or memory mode.

3. Scanning can not be done in the CALL mode.

(2) Changing the Frequency of the CALL Channel

The CALL channel is allocated as a memory channel. So when you change the

   CALL frequency and other settings, call the memory channel C from the VFO or

      memory mode to reprogram.

   Note: CALL channel frequency can be changed but can not be erased.

5-10 Scanning

   This function varies the frequency automatically to search for the signals being received.

Timer Scan (After pausing the scan, the frequency goes to the next channel when 5

   seconds elapsed even if a signal is picked up.)

Busy Scan (After pausing the scan, the frequency goes to the next channel when the

   signal is disappeared.

While scanning 1. the rotary encoder determines the direction of the channel UP/DOWN.

                2. Monitor function is activate.

. Scanning can be released by pressing any key (except for the MONI key).

. The last direction of UP/DOWN is defined as the scan direction.

(1) VFO SCAN
1. Press the V/M key to enter VFO mode.
2. Press the SCAN key to start scanning.
    The decimal point of the frequency on the LCD starts flashing to indicate the
     scanning is started.
    The unit scans by a channel step to the last direction of operation.
3. Rotate the dial clockwise to scan upward and counterclockwise to scan downward.
    VFO SCAN covers all receiving frequency range for scanning.
4. Press any key (except for MONI key) to stop scanning.

(2) Memory Scan
1. Press the V/M key to enter the memory mode.
2. Press the SCAN key to start memory scanning.
3. Rotate the dial clockwise to scan upward and counterclockwise to scan downward.
    The memory scan scans only programmed channels.
4. Press any key (except for MONI key) to stop scanning.
    The scanning pauses at the channel or frequency where a signal is picked up, then
     resumes when the signal is dropped.

(3) Skip Channel Setting
    The memory channel that is programmed in the skip channel will be skipped when
     the memory scanning.
    In the memory mode press and hold the function key, then press C/SKIP while [F]
    icon is ON, the selecting memory channel is programmed to the skip channel.
    The skip channel is determined at this point without memory programming.
    The skip channel is released with the same operation.
. The 10MHz decimal point of the memory channel will appear when the skip
     channel is programmed to the channel.

5-11 Output Power Switching
  The output power can be switched.
    Press and hold the F key, then press 5/H/L key while [F] icon is ON. Output power
    can be switched between High and Low.
 When the power is LOW, "LO" will appear. Nothing is displayed when the power is High.
  The initial setting is LOW power.
  RF meter shows 3 dots in LOW power, and 6 dots in HIGH power.
. H/L power switching can not be done while transmitting.

5-12 Key Lock Function
  Press and hold the F key, then press B/KL key to set the key lock.
. In key lock mode only PTT, LAMP, MONI, VOL, SQL and TONE BURST/MONI
     keys are activate.
. In the key lock mode [KEY mark] appears.
Press and hold the F key, then press B/KL key while [F] icon is ON to release the key lock mode.

5-13 Tone Burst Function
 This is the required function to access the European repeater.
. Press and hold the PTT key then press the MONI key, the tone burst signal will be transmitted.

The initial value of the tone frequency is 1750Hz, and it is changeable in the set mode.

When tone and DCS are set, the signal will be transmitted with tone frequency and
   DCS code.

5-14 Auto Power Off Function

The function prevents the battery from consuming when you forget to turn off the power switch.

(1) Setting

Press and hold the F key, then press 6/APO key while F icon is ON. [APO] appears
   on the LCD and the auto power off function is programmed.

. The initial setting is OFF.

. To release the APO, press and hold the F key then press 6/APO key while F is ON .

(2) APO Operation

If no operation is performed for more than 30 minutes while APO icon is ON, a beep
   sounds and the transceiver will be turned off.

   Turn the power switch ON again to resume the power.

.   APO function is not prolonged by picking up a signal but the key operation only.

5-15 Battery Save (BS) Function

This function saves the current consumption while waiting for a signal for the long
use of the battery.

. ON/OFF is switched in the set mode.

. The factory's initial setting is ON.

. The battery save function is set to OFF automatically while scanning.

. When no signal and no operation are continued for 5 seconds, the battery save
   function will be resumed automatically.

When a signal is received or an operation is performed, battery save function is
   released temporarily.

5-16 Lamp Function

. Press and hold the F key, then press MONI key while F icon is ON. The LCD
   backlight will be turned on.

When no operation is continued for 5 seconds, the lamp will be turned off automatically.

If you press any key except for the LAMP key while the lamp is on, the lamp goes
   out 5 seconds after the last key operation.

Press and hold the MONI key, then turn the power ON, and the lamp will be always ON.

Press and hold the F key then press MONI key, the lamp can be turned ON/OFF
   even you set the lamp to be always ON.

The lamp will be always ON even if you turn the power OFF and ON when the lamp
   is set to be always ON.

5-17 Monitor Function

The squelch operation is released regardless of the setting mode of SQL only while
   pressing the MONI key, and a sound is heard from the speaker.

. The weak signal under the threshold level can be heard.

5-18 Beep Function

This function produces a beep during operation.

. The beep can be muted in the set mode.

5-19 Clock Shift Function

In the unlikely event that CPU clock noise is present on a particular operating frequency programmed into the radio, you can shift the CPU clock frequency to avoid the CPU clock noise, which normally is so weak that it is inaudible even if the radio is tuned exactly to its frequency.

CPU clock can be shifted in the set mode.

6 Operation 2   Applications

6-1 Selective Calling

When you communicate with the specific station, tone squelch function or DCS function is useful.

The tone squelch function allows to transmit one of 39 kinds of sub-audible tones with a voice. Then the voice can be heard when the sub-audible tones match at the receiving side.

The DCS function allows to transmit one of 104 kinds of digital codes with a voice. Then the voice can be heard when the programmed codes match at the receiving side.

. The tone squelch function and DCS function can not be used at the same time.

6-2 Tone Encoder and Tone Squelch Function

1. Press and hold the F key, then press 4/TSQL key while F icon is ON, the current mode and tone frequency are displayed. Each time 4/TSQ key is pressed, the mode is switched as follows:

          T   T/SQ
    … 88.5 ……. 88.5 … TCS-OF …...
          ……………………………………

. Only T appears indicating the encoder function setting only is allowed.
. T SQ appears indicating encoder/decoder function setting.
. While the tone frequency is displayed, the lamp function and MONI key are available.

Press any key (except for FUNC and MONI keys) to complete the setting. The LCD returns to the ordinal mode with T/TSQ indication.

2. While the tone frequency is displayed, rotate the dial clockwise to increase or counterclockwise to decrease the tone frequency. The tone frequency for use can be selected from 39 reference tones described below.

67.0	69.3	71.9	74.4	77.0	79.7	82.5	85.4	88.5	91.5
94.8	97.4	100.0	103.5	107.2	110.9	114.8	118.8	123.0	127.3
131.8	136.5	141.3	146.2	151.4	156.7	162.2	167.9	73.8	179.9
186.2	192.8	203.5	210.7	218.1	225.7	233.6	241.8	250.3	

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3. Press any key (except for FUNC and MONI keys) to complete the setting. The LCD returns to the frequency indication mode.

6-3 Tone Encoder Frequency/Tone Decoder Frequency Programming

The tone encoder frequency and tone decoder frequency can be programmed

respectively to each memory CH.

    Changing both of tone encoder/tone decoder frequencies
1. Set the tone encoder in the tone squelch setting mode. (T icon is ON.)
 Change the tone encoder frequency with dialing, then the setting is completed.
2. When memory is programmed in this mode, the current tone frequency will be
    programmed to both of encoder frequency and decoder frequency.
    Changing the tone decoder frequency only
1. The tone squelch is programmed in the tone squelch setting mode. (T.SQL icon is ON.)
2. Change the tone decoder frequency with dialing, then the setting is completed.
3. When memory is programmed in this mode, the current tone frequency will be
    programmed as the decoder frequency. In this case, encoder frequency is not reprogramed.
    Tone squelch operation
The squelch is released when received tone frequency accords with the rogrammed tone frequency.

6-4 DCS (Digital Code Squelch) Function
    DCS setting
Press and hold the F key, then press 7/DCS key while F icon is ON. [DCS] icon is
    turned ON and DSQ code appears. The initial mode is [023]. Each time you
     press the 7/DCS key, the mode is switched.
          DCS
    …….. 023 ……… DCS-OF …..

     …………………………………
The lamp function and MONI key are available while indicating the code on the LCD.
Press any key (except for FUNC and MONI keys) to complete the setting. The
    LCD returns to the ordinal mode with DCS indication.
    DCS code changing
[When you change the DCS code]
1. Set the DCS code in the DCS code setting mode. (DCS icon is ON.)
2. Change the DCS code with dialing, then the setting is completed.
3. When the memory is programmed in this mode, the current tone frequency will be
    programmed to both of encoder frequency and decoder frequency.
    DCS operation
The squelch will be released when the received code is accordant with programmed
     code.

6-5 Manual DTMF Transmitting
 This function allows you to transmit DTMF code manually by pressing one of 16 keys
 during transmitting.
1. Press and hold the PTT key, then press one of 16 keys.
2. DTMF code that is accordant with one of 16 keys will be transmitted.
 . Manually transmitted DTMF code is stored until 16 digits automatically, and it will
    be redialed when necessary as well as the auto dialer.

6-6 Auto Dialer Memory Setting
 The function stores the DTMF code that is transmitted by the auto dialer to the memory.
There are 16 kinds of codes in DTMF with maximum 16 digits. They are entered with 16 keys.
 . There are 9 channels of 1CH~9CH, and the channel can be selected by dialing.

    Auto dialer code setting

1. Press and hold the F key, then press 9/ dial M key, the unit enters the dialer setting mode. 6 digits are displayed, and nothing appears at first.
2. Select the dialer memory NO. with the dial.
3. For example, when you input 1 2 3 4 5 6 7 8 9, the LCD displays as shown below:

   [   ]   [   ]   [   ]
   [   ]   [   ]   [   ]
    [   ]   [   ]

4. Press and hold the F key, then press 0 key while F icon is ON, pause can be set instead of the code. Pause is indicated by [-]. Entering a pause puts a gap between transmission of codes.

Press and hold the F key, then rotate the dial while F icon is ON, and the display scrolls within the range in which the codes are programmed.

5. If you enter the wrong code, press and hold the F key, then press C/CALL(SKIP) to clear.
6. Press the PTT key to complete the setting.
. The auto dialer can be programmed up to 16 digits including the pause.

6-7 Auto Dialer Function
 This function automatically sends pre-programmed DTMF codes.
    Operation in receiving mode
1. In receiving mode press D/A dial key, [DIAL] appears on the LCD and a confirmation tone sounds.

Press a key of 1-9, the dialer memory that is accordant with the key No. (max. 16 digits) will be output from the speaker automatically.
. In this case the code is not sent.

If nothing is stored in the memory, a beep tone sounds indicating that the operation is invalid when you press a key of 1-9.

    Operation in transmitting mode
1. Press F key in the transmitting mode. [DIAL] appears on the LCD.
2. Press a key of 19, the dialer memory that is accordant with the key No. (max. 16 digits) will be transmit automatically.
. In this case, a beep tone does not sound if you press the unprogrammed key.

6-8 Redial
 This function transmits the last transmitted DTMF codes again.
1. Press D key in receiving mode. A reception tone will sound.
2. Press 0 key. If the code to be redialed is not stored, a beep tone sounds indicating the operation is invalid when 0 key is pressed.

The last transmitted DTMF codes (either of auto dialer codes or manually transmitted DTMF code) will be output automatically from the speaker. In this case the codes are not sent.

Press and hold the F key, then press 0 key in transmitting mode, and redialing becomes available. In this case the code is sent.

6-9 DTMF Time Setting
 This function changes the settings of the wait time of auto dialer, burst/pause time and burst time of the first digit.
. The settings can be changed in the set mode.
    DTMF WAIT time
When the DTMF code is transmitted using the auto dialer, the code transmission

starts after the programmed WAIT time elapsed. The initial setting is 100ms.
DTMF burst/Pause time

1.   When the DTMF code is transmitted using the auto dialer, the code is transmitted
with programmed burst/ pause time. The initial setting is 60ms.
DTMF first digit's burst time

2. When the DTMF code is transmitted using the auto dialer, the code will be
transmitted at the programmed first digit burst time. The initial setting is 60ms.

3. WAIT time cannot be changed while CH is displayed.

6-10 Alphanumeric Function
 In the memory mode this function allows to display optional alphabet, number or code
 instead of frequency.
    Alphanumeric function setting
1. In memory mode select the desired channel.
2. Press and hold the F key, then press the D/NAME key while F icon is ON.
3.   Flashing [A   ] will appear on the LCD.
4. Rotate the dial to select the desired letter.
5.   Press [   ] key, the flashing will be stopped indicating the letter is stored.
6. The same letter flashes on the right of the stored letter waiting to be stored.
7. Press the [   ] key to store in the memory.   Store desired letters in turn.
8. If you press the C key while storing, the stored letters will be erased.
9. Press the PTT key to complete the operation.
    Operation of alphanumeric function
1. When the unit enters the memory mode, if the channel is programmed
    alphanumeric function, the frequency display part will be showed with the stored
     alphanumeric letters.   The CH number will be displayed as it was.
Press F key, and the frequency will appear for 5 seconds on the LCD.   If any key is
    pressed within 5 seconds, the LCD returns to the display with the alphanumeric
      letters.)

6-11 TOT (Time Out Timer) Function
    TOT setting
1. Press and hold the F key, then press the 3/TOT key while F icon is ON.
     [T-OFF] will appear on the LCD.
2. The display is toggled as follows by dialing, and the setting of TOT will be changed.
3. The number indicated on *** is the current Time Out Time.
4. Change the TOT time by rotating the dial. The TOT time can be programmed up to
     max. 450 seconds.
                       ……downward   upward …..
     ….. OFF….. 30 …...60 …...90 ……….…….450…..
     ……………………………………………...
Press any key (except for FUNC and MINI keys) to complete the setting. The
    LCD will return to the ordinal mode.

    Operation of TOT
1. If the continuous transmission time is over the programmed time, a beep sounds 5
    seconds before the time is up. Then the transceiver enters the receiving mode
     automatically.
2. In this case, unless the PTT key is turned OFF, the next transmission is deactivate.

(When the TOT Penalty is set, transmission can not be done even if you turn OFF the PTT then ON again within the programmed time.)

6-12 TOT Penalty Function

When the transmission is completed by the TOT function, the transmission will be inhibited within the programmed TOT Penalty time. The transmission is inhibited during the penalty time.

1. TOT Penalty function and its penalty time can be programmed in the set mode.
If the PTT key is pressed during the TOT Penalty time, an alarm tone will sound.

2. The penalty will be cancelled if you keep holding down the PTT key until TOT expires and also TOT Penalty time elapses.

5-13 BCLO (Busy Channel Lock Out) Function

BCLO disables the transmission according to the receiving condition.

. BCLO function can be turned ON/OFF in the set mode.

. When the BCLO is set, transmission is possible only in following cases and transmission is inhibited in the other cases.
  If PTT key is pressed while the transmission is inhibited, an alarm tone will sound.
  In this time transmission is deactivate.

1. No signal is picked up. (BUSY disappears.)
2. The tone frequencies match and the squelch is opened while using the tone squelch.
3. The codes match and the squelch is opened while using DCS.

7   Operation 3   Others

7-1 Cable Clone

With an interface cable the entire memory channel data of one transceiver can be transferred and copied to another transceiver.

  Connection

As shown in the figure, connect the external speaker jacks of two transceivers; transmitting side and receiving side, with 3.5mm stereo plug cord on the market.

. Be sure to turn the power OFF at cable connecting.

. Please use the directly connected cable including no resistors inside. Be careful not to use the cable that contains any resisters.

  Operation of data receiving side

1. Turn the power ON. The unit enters the data receiving mode.
2. When the data is sent from the transmitting side, "LD ***" appears on the LCD.
   Then the data transfer is started.
3. When the transfer is completed, "PASS" is appears on the LCD.
Turn the power OFF. If the data transfer is failed, "PASS" does not appear on the LCD.

  Operation of data transmitting side

1. Turn the power ON.
2. Press and hold the MON key, then press the PTT key 3 times, "CLONE" will appear on the LCD. The unit enters the Clone mode.
3. Press the PTT key, "SD 000" appears on the LCD. The internal memory channel

data is transferred to the other transceiver.

4. The transfer is completed, "PASS" appears on the LCD.

5. Turn the power OFF, and the Clone mode is released.

   If data transfer is failed, "PASS" does not appear on the LCD. Try again from the first.

7-2 Burglary Alarm Function

 If someone tries to steal your transceiver, an alarm goes off from the speaker.

   Setting   Be sure to set the battery pack.

1. Plug the external DC power plug cord to the car battery, etc.

2. Set to SCR-ON in the set mode.

3. Turn off the power switch of the unit.

. To release the setting, set to SCR-OF in the set mode.

    Operation

. If someone unplug the power code to bring out your transceiver, an alarm goes off.

. Once the alarm goes off, it does not stop until you remove the battery pack.

. Set the battery pack and turn the power ON to release this function in the set mode.

   Please set to SCR-OF in the normal operation.

7-3 External Terminal Control

 "5V" is output from MIC jack terminal when the speaker is ON.

. Set to EXP-ON in the set mode.

. When receiving (The tone and code should match when the TSQ/DCS is set),
   DC5V(5mA max.) is output from the center terminal of MIC stereo jack.

. Set to EXP-OF in the set mode to cancel this function.

   The optional VOX MIC, etc. (EME-12, EME-13, EME-15) can not be used at EXP- ON.

7-4 MPS (Mosquito Repel Sound) Function

 This function generates the supersonic that repels mosquitos from the speaker.

. Set to MPS-ON in the set mode.

. The ordinal operation is available when MPS is set.

. As the unit always generates supersonic when MPS is set, battery operating time
    may become shorter.

. Set to MPS-OF to cancel the function in the set mode.

Set Mode

 The transceiver can program the various function using the set mode.

8-1 Setting of the Set Mode

1. Press the FUNC key for more than 2 seconds, the unit enter the set mode.

2. Press the MONI key to select the menu. The monitor does not work here.

3. Rotate the dial to change the setting contents.

4. Press any key (except for the MONI key) to complete the setting. The LCD
    returns to the ordinal mode.

8-2 Functions Set in the Set Mode

 The following functions can be programmed in the set mode.

Here is the explanation of each function.

[No.1] Battery Save Function ON/OFF
1. [BS-ON] appears on the LCD.
2. Rotate the dial, and the display toggles as shown below. Then ON and OFF are switched repeatedly.

    ..downward   upward…..
    ……BS-ON   BS-OF ……….
    ………………………………….

[No.2] Scan Type Selection
1. [TIMER] appears on the LCD.
2. Rotate the dial, and the display toggles as shown below. The scan types are switched repeatedly.

    .downward   upward…..
    …..TIMER …..BUSY …..
    ………………………...

[No.3] Beep Tone ON/OFF
1. [BEP-ON] appears on the LCD.
2. Rotate the dial to set to [BEP-OF].
3. Each time the dial is rotated, ON and OFF are switched repeatedly.

[No.4] Tone Burst Frequency Setting
1. [1750] appears on the LCD.
2. Rotate the dial, and the display toggles as shown below. Then the tone burst frequency will be changed.

    …… Downward   Upward……
    ……… 1750…….. 2100…… 1000….. 1450……
    ……………………………………………

[No.5] Clock Shift Setting
1. [SFT-OF] appears on the LCD.
2. Rotate the dial, and the display toggles as shown below. Then the setting of the CLOCK will be changed.

    ….. Downward…… Upward…….
    ………SFT-OF… SFT-ON………..
    ………………………………….

[No.6] Busy Channel Lock Out Setting
1. [BCL-OF] appears on the LCD.
2. Rotate the dial, and the display toggles as shown below. Then the setting of the BCLO will be changed.

    …… Downward……Upward ……….
    ………..BCL-OF……BCL-ON……….
    ………………………………….....

[No.7] TOT Penalty Time
1. [TP-OFF] appears on the LCD.
2. Rotate the dial, and the display toggles as shown below. The setting of TOT penalty will be changed.
3. ** shows the current TOT penalty time.
    The initial setting is 0 second. [TP-OFF] appears on the LCD.

4. Rotate the dial to change the TOT penalty time.

…... Downward…….Upward…………
……. TP-0FF…... TP-1…… TP-4…… TP-15……….
……………………………………………………..
The setting is available up to max. 15 seconds.

[No.8] DTMF WAIT time
1.   [DWT-01] appears on the LCD.
2. Rotate the dial, and the display toggles as shown below. Then the DTMF WAIT time will be changed.
3. ** shows the current DTMF WAIT time.
    The initial setting is 0.1 second, and [DWT-01] appears on the LCD.
4. Rotate the dial to change the DTMF WAIT time.
    ……Downward…………………..Upward……………
    …...DWT-01….DWT-04……DWT-07…... DWT-10 ……
    ……………………………………………………...

[No.9] DTMF Burst/Pause Time
1.   [DP-60] appears on the LCD.
2. Rotate the dial, and the display toggles as shown below. Then the DTMF burst/pause time will be changed.
3. ** shows the current DTMF burst/pause time.
    The initial setting is 60 msec, and [DP-60] appears on the LCD.
4. Rotate the dial to change the DTMF burst/pause time.
    …….Downward……………Upward………………...
    …..…..DP-60 …...DP-80 ……DP-160……DP-200……...
    …………………………………………………………

[No.10] The First Digit Burst Time of DTMF
1. [DB-60] appears on the LCD.
2. Rotate the dial, and the display toggles as shown below. Then the first digit of DTMF burst time will be changed.
3. ** shows the current the first digit of DTMF burst time.
    The initial setting is 60 msec, [DB-60] appears on the LCD.
4. Rotate the dial to change the first digit of DTMF burst time.
    ….Downward……Upward…………………………..
    …...DB-60.……DB-80…... DB-160…... DB-200……
    …………………………………………………………

[No.11] Burglary Alarm Function
1. [SCR-OF] appears on the LCD.
2. Rotate the dial, and the display toggles as shown below. Then the ON/OFF of the burglary alarm function is switched.
    ………..Downward…….……Upward……………
    ………..SCR-OF……….... SCR-ON………………
    ……………………………………………………..

[No.12] External Terminal Controller Output
1. [EXP-OF] appears on the LCD.
2. Rotate the dial, and the display toggles as shown below.   The ON/OFF of the controller output to external terminal will be switched repeatedly.
    ……Downward……Upward…………..
    ……….EXP-OF…… EXP-ON……….
    ……………………………………………

[No.13] Mosquito Repel Sound Function
1. [MRS-OF] appears on the LCD.

2. Rotate the dial, and the display toggles as shown below.   The ON/OFF of the
    Mosquito repel sound will be switched repeatedly.
    …… Downward…….Upward………...
    …………MRS-OF …...MRS-ON………..
    ………………………………………………

RESET Function

Press and hold the F key, then turn on the power. The unit returns to the factory's default setting.
………………………………………………………………………………………………...

Destination	DJ196T	DJ196E	DJ196TA2	DJ496T	DJ496E
VFO frequency	145.00MHz	145.00MHz	145.00MHz	445.00MHz	433.00MHz
CALL frequency	145.00MHz	145.00MHz	145.00MHz	445.00MHz	433.00MHz
Memory channel	a blank	a blank	a blank	a blank	a blank
SHIFT setting	none	none	none	none	none
SHIFT frequency	600kHz	600kHz	600kHz	5MHz	7.6MHz
Channel step	5kHz	12.5kHz	5kHz	5KHz	12.5KHz

………………………………………………………………………………………………..
. Press and hold the F key, the LCD's all segments are turned ON. When you
   release the F key, the reset will be performed.
   Press and hold the F key, then turn the power OFF. In this case the reset function
   will not be performed. This function is useful to check whether the LCD's all
   segment lights or not without the RESET function.