

# KENWOOD

## INSTRUCTION MANUAL



VHF FM TRANSCEIVER

# TK-285

UHF FM TRANSCEIVER

# TK-385

KENWOOD CORPORATION

© B62-1264-00 (K,K3,M,E)  
09 08 07 06 05 04 03 02 01 00

## THANK YOU

We are grateful you chose **KENWOOD** for your land mobile radio applications. We believe this easy-to-use transceiver will provide dependable communications to keep personnel operating at peak efficiency.

**KENWOOD** transceivers incorporate the latest in advanced technology. As a result, we feel strongly that you will be pleased with the quality and features of this product.

## MODELS COVERED BY THIS MANUAL

- **TK-285:** VHF FM Transceiver
- **TK-385:** UHF FM Transceiver

## NOTICES TO THE USER

- ◆ *GOVERNMENT LAW PROHIBITS THE OPERATION OF UNLICENSED RADIO TRANSMITTERS WITHIN THE TERRITORIES UNDER GOVERNMENT CONTROL.*
- ◆ *ILLEGAL OPERATION IS PUNISHABLE BY FINE OR IMPRISONMENT OR BOTH.*
- ◆ *REFER SERVICE TO QUALIFIED TECHNICIANS ONLY.*

**SAFETY:** It is important that the operator is aware of and understands hazards common to the operation of any transceiver.



### **WARNING**

***EXPLOSIVE ATMOSPHERES (GASES, DUST, FUMES, etc.)***

*Turn off your transceiver while taking on fuel, or while parked in gasoline service stations.*

## One or more of the following statements may be applicable:

### **FCC WARNING**

*This equipment generates or uses radio frequency energy. Changes or modifications to this equipment may cause harmful interference unless the modifications are expressly approved in the instruction manual. The user could lose the authority to operate this equipment if an unauthorized change or modification is made.*

### **INFORMATION TO THE DIGITAL DEVICE USER REQUIRED BY THE FCC**

*This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.*

*This equipment generates, uses and can generate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that the interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:*

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer for technical assistance.



### **ATTENTION (U.S.A. Only):**

The RBRC Recycle seal found on **KENWOOD** nickel-cadmium (Ni-Cd) battery packs indicates **KENWOOD's** voluntary participation in an industry program to collect and recycle Ni-Cd batteries after their operating life has expired. The RBRC program is an alternative to disposing Ni-Cd batteries with your regular refuse or in municipal waste streams, which is illegal in some areas.

For information on Ni-Cd battery recycling in your area, call (toll free) 1-800-8-BATTERY (1-800-822-8837).

**KENWOOD's** involvement in this program is part of our commitment to preserve our environment and conserve our natural resources.

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# UNPACKING AND CHECKING EQUIPMENT

**Note:** The following unpacking instructions are for use by your **KENWOOD** dealer, an authorized **KENWOOD** service facility, or the factory.

Carefully unpack the transceiver. We recommend that you identify the items listed in the following table before discarding the packing material. If any items are missing or have been damaged during shipment, file a claim with the carrier immediately.

## Supplied Accessories

Item		Part Number	Quantity
Battery pack (E only)		W09-0090-XX	1
Antenna	TK-285 (K,E only)	T90-0733-XX	1
	TK-285 (M only)	T90-0734-XX	
Belt clip		J29-0658-XX	1
Univeral connector cap		B09-0363-XX	1
Screw set		N99-2004-XX	1
Warranty card (K,K3 only)		—	1
Instruction manual		B62-1264-XX	1



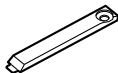
Antenna (TK-285)



Antenna (TK-385)



Belt clip



Universal connector cap



Screw set

# PREPARATION

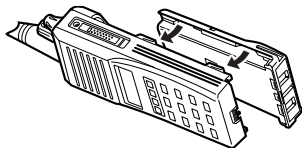
## Installing/ Removing the (Optional) NiCd Battery Pack



### CAUTION

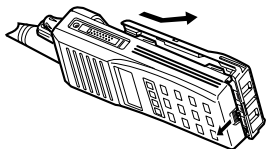
- ◆ *DO NOT RECHARGE THE BATTERY PACK IF IT IS ALREADY FULLY CHARGED. DOING SO MAY CAUSE THE LIFE OF THE BATTERY PACK TO SHORTEN OR THE BATTERY PACK MAY BE DAMAGED.*
- ◆ *AFTER RECHARGING THE BATTERY PACK, DISCONNECT IT FROM THE CHARGER. IF THE CHARGER POWER IS RESET (TURNED ON AFTER BEING TURNED OFF), RECHARGING WILL START AGAIN AND THE BATTERY PACK WILL BECOME OVERCHARGED.*
- ◆ *DO NOT SHORT THE BATTERY TERMINALS OR DISPOSE OF THE BATTERY BY FIRE.*
- ◆ *NEVER ATTEMPT TO REMOVE THE CASING FROM THE BATTERY PACK.*

1 Match the four grooves of the battery pack with the corresponding guides on the back of the transceiver.



2 Slide the battery pack along the back of the transceiver until the release latch on the base of the transceiver locks.

3 To remove the battery pack, pull back on the release latch and slide the pack away from the transceiver.



## Installing the Antenna

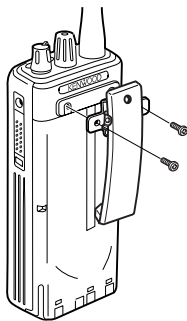
Screw the antenna into the connector on the top of the transceiver by holding the antenna at its base and turning it clockwise until secure.



## Installing the Belt Clip

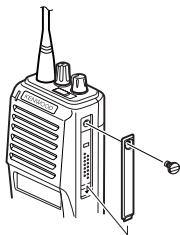
If necessary, attach the belt clip using the two supplied 3 x 6 mm screws.

**Note:** If the belt clip is not installed, its mounting location may get hot during continuous transmission or when left sitting in a hot environment.



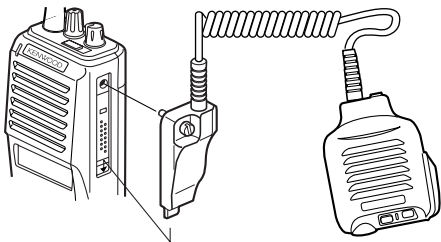
## Installing the Cover over the Universal Connector

If you are not using the optional KMC-25 speaker/ microphone, install the cover over the universal connector using the supplied 4 x 6 mm screw.



## Installing the (Optional KMC-25) Speaker/ Microphone

- 1 Insert the guide of the speaker/ microphone connector into the groove of the universal connector.

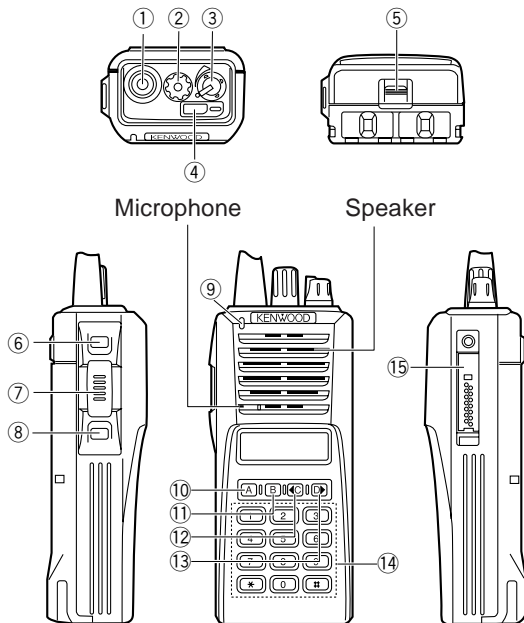


- 2 Secure the connector in place using the attached screw.



# THE BASICS

**Note:** Features listed in this section are available for both Trunking and Conventional modes. Mode specific features can be found in their corresponding sections in this manual.



① **Antenna connector**

Connect the supplied antenna here.

② **Rotary encoder**

③ **POWER switch/ VOLUME control**

Turn clockwise to switch ON the transceiver. Rotate to adjust the volume. Turn counterclockwise fully to switch OFF the transceiver.

- ④ **Auxiliary (orange) key**
- ⑤ **Battery pack release latch**  
Pull back on this latch to release the battery pack.  
See “Installing/ Removing the (Optional) NiCd Battery Pack” on page 2.
- ⑥ **Call key**
- ⑦ **PTT (Push-To-Talk) switch**
- ⑧ **Clear key**
- ⑨ **Transmit/ Receive indicator**
- ⑩ **A key**
- ⑪ **B key**
- ⑫ **◀C key**
- ⑬ **D▶ key**
- ⑭ **DTMF keypad**
- ⑮ **Universal connector**  
Connect the (optional KMC-25) speaker/ microphone here. Otherwise, keep the supplied cover in place.

## ■ Switching Power ON/ OFF

Turn the **Power** switch/ **Volume** control clockwise to switch the transceiver ON. The power on text or unit number appears for 2 seconds.

Turn the **Power** switch/ **Volume** control counterclockwise to switch the transceiver OFF.

## ■ Adjusting the Volume

Rotate the **Power** switch/ **Volume** control to adjust the volume. Clockwise increases the volume and counterclockwise decreases it.

## Key Functions

*Note: The numbers correspond to the diagram on page 5.*

② **Rotary encoder**

Rotate this encoder to select your desired call address (voice calls) or status (status calls).

④ **Auxiliary (orange) key** (default setting: **None**)

Press to activate its auxiliary function {page 8}.

⑥ **Call key**

Press to call the displayed call address.

⑦ **PTT (Push-To-Talk) switch**

Press to transmit. Also press to initiate a call if “PTT to Initiate Call” has been programmed.

⑧ **Clear key**

Press to end the current call.

⑨ **Transmit indicator**

Lights red while transmitting.

⑩ **A key** (default setting: **Status/ Stack**)

Press to activate its auxiliary function {page 8}.

⑪ **B key** (default setting: **Redial**)

Press to activate its auxiliary function {page 8}.

⑫ **◀C key** (default setting: **Home**)

Press to activate its auxiliary function {page 8}. Also press to scroll left while viewing stack entries.

⑬ **▶D key** (default setting: **None**)

Press to activate its auxiliary function {page 8}. Also press to scroll right while viewing stack entries.

⑭ **DTMF keypad**

Press to input a call address or dialing function.

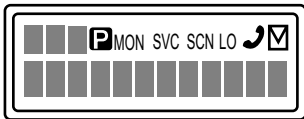
## Programmable Auxiliary Functions

The **Auxiliary, A, B, ◀C, and D▶** keys can be programmed with the auxiliary functions listed below. Contact your dealer for details on these functions.

**Note:** Some of these functions cannot be programmed onto certain keys. Ask your dealer for details.

- AUX A
- Conventional
- Dialing
- Emergency
- Home
- Key Lock
- Network Select
- None
- Redial
- Scrambler
- Status/ Stack

## Display



■■■■ displays the strength of received signals, the output power (high or low), status numbers, and received call types.

SVC appears when a control channel is found. It flashes while the transceiver is searching for a control channel.

☞ flashes when you activate call diversion.

☑ appears while there is data in the stack. It flashes when there is new data in the stack.

■■■■■■■■■■■■■■■■■■■■ displays call addresses, the call duration timer, data messages, and the current operating status of the transceiver.

## Searching for a Control Channel

After switching the power ON, press any key while the power on text or unit number is displayed to begin searching for a control channel. Or, wait for 2 seconds to allow the transceiver to start searching for a control channel automatically.

- The *SVC* indicator flashes and an arrow scrolls across the display while the transceiver is searching for a control channel.

## Voice Calls

### ■ Making a Voice Call

- 1 Select a call address using one of the following four methods:
  - i) *Select a call address from memory:* Select your desired call address using the **Rotary encoder** if a call address has been stored in the transceiver memory.
  - ii) *Use a pre-programmed key:* Press key **A**, **B**, **◀C**, or **D▶** to select a call address if they have been pre-programmed with call addresses.
  - iii) *Select a call address from the stack:* Use a received voice call from the stack as a call address (refer to “Viewing the Stack”, on page 14).
  - iv) *Enter a call address using the keypad:* Enter your desired call address using the DTMF keypad (keys **0** ~ **9**, **\***, and **#**). Refer to the appendix {page 20} for the available dial strings and control codes.

- 2 Initiate the call, depending on how you selected the call address.

**i, ii, and iii** (of step 1):

When selecting a call address from memory or the stack, press the **Call** key (or the **PTT** switch if “PTT to Initiate Call” has been programmed) to initiate the call.

**iv** (of step 1):

When using MPT1343 dialing, press the **#** key to initiate the call.

- “Calling” appears on the display.

- 3 When the call is connected, a timer appears on the display.

- The timer can be set up to either count up (increasing number) or count down (decreasing number).

- 4 Press the **PTT** switch to transmit; release it to receive.

- The LED lights red while transmitting.
- The 3-digit sub-display shows your transmit power. A single triangle (▲) represents low power while dual triangles (▲▲) represents high power.

- 5 Press the **Clear** key to end the call. If the call time expires before you press the **Clear** key, the call will be automatically terminated.

- “END” momentarily appears on the display before returning to the call address of the call you just made.

## ■ Receiving a Voice Call

- 1 When a call is received, the caller's unit number appears on the main display and "CAL" appears on the 3-digit sub-display.
  - If you have the caller's address set up in your transceiver, the call address is displayed instead of the unit number.
  - Group conference calls are represented by "GRP" rather than "CAL". Group broadcast calls are represented by "BCC".
  - Special calls are denoted as follows:
    - I-Fleet*: A call from a different fleet (Inter Fleet).
    - I-Prefix*: A call from a different prefix (Inter Prefix).
    - PABX*: A call from a PABX telephone system.
    - PSTN*: A call from a PSTN telephone system.
- 2 Press the **PTT** switch to respond to the call.
  - The remaining call time appears on the display.
- 3 When the call ends, the display returns to the call address which was previously displayed. However, if you end the call by pressing the **Clear** key, "END" momentarily appears on the display before returning to the call address.



# Status Calls

## ■ Making a Status Call

- 1 Select a call address using one of the following two methods:
  - i) *Select a call address from memory:* Select your desired call address using the **Rotary encoder** if a call address has been stored in the transceiver memory.
  - ii) *Enter a call address using the keypad:* Enter your desired call address using the DTMF keypad (keys **0 ~ 9**, **\***, and **#**). Refer to the appendix {page 20} for the available dial strings and control codes.
- 2 Press the **Status/ Stack** key (default is the **A** key), then rotate the **Rotary encoder** to select your desired status.
  - The status number appears on the 3-digit sub-display.
- 3 Press the **Call** key (or **PTT** switch if “PTT to Initiate Call” is programmed in the transceiver) to send the status.
  - “Calling” appears on the display.
- 4 When the status has been received by the called party, “Complete” momentarily appears on the display before returning to the call address of the call you just made.



## ■ Receiving a Status/Short Data Message Call

- 1 When a call is received, the  indicator appears on the display and flashes.
  - The  indicator remains on the display when there is data in the stack.
- 2 To view the status or message, refer to “Viewing the Stack”, on page 14.

## Call Displays

The following messages may appear on the display under certain circumstances:

*Holding:* The transceiver is confirming the call made by the base station.

*Engaged:* The called party is in another call.

*Queued:* All communication channels are currently in use; your status will be sent when a channel becomes free.

*Fail:* The control station received an invalid call.

*NU:* You entered an invalid call address.

*No Reply:* The called party has been called, but they did not respond to the call.

*Call Back:* The called party has set their transceiver to queue all incoming calls.

*Sys Busy:* The system is currently busy.

## Viewing the Stack

- 1 Press the **Status/ Stack** key (default is the **A** key) twice to enter the stack.
  - If there is no data in the stack, “-----” appears on the main display and “-00” appears on the 3-digit sub-display.
- 2 Rotate the **Rotary encoder** to view the stack entries.
  - “NEW” represents a new entry, “S” represents a status stack entry, “V” represents a voice stack entry, and “D” represents a data stack entry.
- 3 Press the **◀C** and **D▶** keys to scroll through the selected entry, to view the entire entry.
- 4 To erase an entry, select the desired entry and press the **Clear** key.

## Call Diversions

### ■ Diverting Your Own Calls

- 1 Enter control code “\*41”.
- 2 Press the \* key, then enter the unit number where you want to divert the calls.
- 3 Press the # or **Call** key.
  - “Calling” appears on the display. While your request is being processed, “Holding” appears on the display. When the call divert is set, “Complete” momentarily appears on the display before returning to the previously selected call address. The **📞** indicator appears on the display and flashes.

- 4 To end the call diversion, enter control code “#41”, then press the **#** or **Call** key.
  - “Calling” appears on the display. While your request is being processed, “Holding” appears on the display. When the call divert is cleared, “Complete” momentarily appears on the display before returning to the previously selected call address.

## ■ Diverting Third Party Calls

- 1 Enter control code “\*44”.
- 2 Press the **\*** key, then enter the unit number of the transceiver which you want to divert the calls.
- 2 Press the **\*** key, then enter the unit number where you want to divert the calls.
- 3 Press the **#** or **Call** key.
  - “Calling” appears on the display. While your request is being processed, “Holding” appears on the display. When the call divert is set, “Complete” momentarily appears on the display before returning to the previously selected call address.
- 4 To end the call diversion, enter control code “#44”, press the **\*** key, enter the unit number of the transceiver whose calls are being diverted, then press the **#** or **Call** key.
  - “Calling” appears on the display. While your request is being processed, “Holding” appears on the display. When the call divert is cleared, “Complete” momentarily appears on the display before returning to the previously selected call address.

## Key Functions

*Note: The numbers correspond to the diagram on page 5.*

② **Rotary encoder**

Rotate this encoder to select your desired channel.

⑥ **Call key**

Press to turn the squelch OFF in order to monitor your selected channel.

⑦ **PTT (Push-To-Talk) switch**

Press this switch, then speak into the microphone to call a station.

⑧ **Clear key**

Press to return to Trunking mode.

⑨ **Receive indicator**

Lights green while receiving a signal.

⑩ **A key**

Press to turn Scan ON (or OFF).

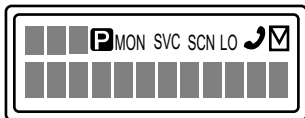
⑪ **B key**

Press to add/remove channels to/from Scan.

⑬ **D▶ key**

Press to turn the display and keypad backlight ON. The backlight remains ON for 5 seconds.

## Display



■■■■ displays the strength of received signals.

MON appears while you are monitoring a channel by pressing the **Call** key.

SCN appears while you are scanning.

■■■■■■■■■■■■■■■■■■■■ displays channel numbers and the current operating status of the transceiver.

## Entering Conventional Mode

Depending on how your transceiver is programmed, you can enter Conventional mode in one of two ways:

*Manual:* Press the key programmed as **Conventional** to change the operating mode.

*Auto:* The transceiver automatically changes to Conventional mode when you are outside the network area.

## Returning to Trunking Mode

Depending on how your transceiver is programmed, you can return to Trunking mode in one of three ways:

*Manual:* Press the **Clear** key to change the operating mode.

*Auto:* While in Conventional mode, the transceiver periodically searches for the network. When it finds the network, the transceiver automatically changes to Trunking mode. An alert tone sounds to notify you when the operating mode changes.

*Alert:* While in Conventional mode, the transceiver periodically searches for the network. When it finds the network, an alert tone sounds. Press the **Clear** key to change the operating mode.

## Conventional Mode Operation

- 1 Rotate the **Rotary encoder** to select your desired channel.
- 2 Press the **Call** key to turn squelch OFF in order to monitor any activity on the channel.
  - The **MON** indicator appears on the display.
  - The LED lights green and you will hear background noise.
- 3 Press the **PTT** switch to transmit; release it to receive.

## Scanning

Press the **A** key to turn Scan ON (or OFF).

While scanning, the **SCN** indicator and “-SCAN-” appear on the display.

When a call is received, scanning stops and the channel number appears. Press the **PTT** switch and speak into the microphone to respond to the call. The transceiver will continue scanning after an adjustable time delay if the **PTT** switch is released and no further signal is received.

Only channels added to the scanning sequence will be scanned. Channels which are added to the scanning sequence all have an add indicator ( ▼ ) in the left-most segment of the main display.

To add a channel to the scanning sequence, select the desired channel, then press the **B** key.

- ▼ appears on the display.

To remove a channel from the scanning sequence, select the desired channel, then press the **B** key.

- ▼ no longer appears on the display.

## Lamp

To light up the display and keypad, press the **D▶** key. The lamp will remain ON for approximately 5 seconds.

# APPENDIX

## 2 Digit Dialing

Function	Dial String
Individual number	20 ~ 89
Group number	90 ~ 99

## 3 Digit Dialing

Function	Dial String
Individual number	200 ~ 899
Group number	900 ~ 998
Emergency operator	999
Enter the open channels	101 ~ 110
Network operator services	100, 111, 121, 131, 141, 151, 161, 171, 181, 191

## 4 Digit Dialing

Function	Dial String
PABX call	1000 ~ 8999

## 5 Digit Dialing

Function	Dial String
PABX call (Single address word calls)	First string (3 ~ 6) + Second string (1000 ~ 8999)
PABX call (Extended addressing protocol)	First string (0, 7, or 8) + Second string (0000 ~ 9999)



## 6 Digit Dialing

<b>Function</b>	<b>Dial String</b>
Common prefix Inter-fleet individual call	Fleet # (2001 ~ 6050) + Individual # (20 ~ 89)
Common prefix Inter-fleet group call	Fleet # (2001 ~ 6050) + Group # (90 ~ 99)
PABX call (extended addressing protocol)	First string (0, 7, or 8) + Second string (00000 ~ 99999)

## 7 Digit Dialing

<b>Function</b>	<b>Dial String</b>
Common prefix Inter-fleet individual call	Fleet # (2001 ~ 6050) + Individual # (200 ~ 899)
Common prefix Inter-fleet group call	Fleet # (2001 ~ 6050) + Group # (900 ~ 998)
PABX call (extended addressing protocol)	First string (0, 7, or 8) + Second string (000000 ~ 999999)

## 8 Digit Dialing

<b>Function</b>	<b>Dial String</b>
PSTN call	First string (0) + Second string (0000000 ~ 9999999)
PABX call (extended addressing protocol)	First string (7 or 8) + Second string (0000000 ~ 9999999)

## 9 Digit Dialing

Function	Dial String
Inter-prefix Inter-fleet individual call	Prefix # (200 ~ 327) + Fleet # (2001 ~ 6050) + Individual # (20 ~ 89)
Inter-prefix Inter-fleet group call	Prefix # (200 ~ 327) + Fleet # (2001 ~ 6050) + Group # (90 ~ 99)
PSTN call	First string (0) + Second string (00000000 ~ 99999999)
PABX call (extended addressing protocol)	First string (7 or 8) + Second string (00000000 ~ 99999999)

## 10 Digit Dialing

Function	Dial String
Inter-prefix Inter-fleet individual call	Prefix # (200 ~ 327) + Fleet # (2001 ~ 6050) + Individual # (200 ~ 899)
Inter-prefix Inter-fleet group call	Prefix # (200 ~ 327) + Fleet # (2001 ~ 6050) + Group # (900 ~ 998)
PSTN call	First string (0) + Second string (000000000 ~ 999999999)

## 11 Digit Dialing

Function	Dial String
PSTN call	First string (0) + Second string (0000000000 ~ 9999999999)

## Control Codes

Function	Dial String
Call setup abandoned, call complete	*#
Send status for dispatcher (status 0)	*0
Send status for dispatcher (status nn)	*0nn
Conference call	*1
Broadcast call	*11
Priority voice system-wide-call	*1981#
Emergency voice system-wide-call	*1982#
Priority np data system-wide-call	*1983#
Emergency np data system-wide-call	*1984#
Short data system-wide-call	*1985#
Standard voice system-wide-call	*1987#
Divert own calls	*41, *411, *412
Divert third party calls	*44, *441, *442
Queue incoming calls	*48#
Don't disturb (both, voice, data)	*49#, *491#, *492#
Priority call	*8
Emergency call	*9
End dialed string	#
Send status for dispatcher (status 31)	#0
Cancel divert own calls	#41, #411, #412
Cancel divert third party calls	#44, #441, #442
General cancellation by recipient	#45, #451, #452
Cancel queue incoming calls	#48#
Cancel don't disturb (both, voice, data)	#49#, #491#, #492#