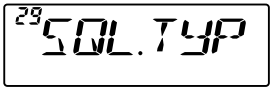
CTCSS Operation

Many repeater systems require that a very-low-frequency audio tone be superimposed on your FM carrier in order to activate the repeater. This helps prevent false activation of the repeater by radar or spurious signals from other transmitters. This tone system, called "CTCSS" (Continuous Tone Coded Squelch System), is included in your **FT-3185R**, and is very easy to activate.

CTCSS setup involves two actions: setting the Tone Mode and then setting of the Tone Frequency. These actions are set up by using the Set (Menu) mode, selections #29 (SQL.TYP) and #30 (TN FRQ).

1. Press and hold in the [**F**(**MENU**)] key for one second, then rotate the **DIAL** knob to select "29 SQL.TYP".



2. Press the **DIAL** knob, then rotate the **DIAL** knob so that "TONE" appears on the display; this activates the CTCSS Encoder, which allows repeater access.
3. Rotating the **DIAL** knob one more click clockwise in the above step will cause "TON. SQL" to appear. When "TON.SQL" appears, this means that the Tone Squelch system is active, which mutes your **FT-3185R**'s receiver until it receives a call from another radio sending out a matching CTCSS tone. This can help keep your radio quiet until a specific call is received, which may be helpful while operating in congested areas.

1) You may notice a "RV TON" indication on the display while you rotate the DIAL knob in this step; this means that the Reverse Tone Squelch system is active, which mutes your FT-3185R's receiver (instead of opening the squelch) when it receives a call from the radio sending a matched CTCSS tone. The "T SQL" icon will blink on the display when the Reverse Tone Squelch system is activated.

2) You may notice a "DCS" indication on the display while you rotate the DIAL knob still more. We'll discuss the Digital Code Squelch system shortly.

4. When you have made your selection of the CTCSS tone mode, press the **DIAL** knob momentarily, then rotate the **DIAL** knob one more clik clockwise to select Menu "30 TON.FRQ". This Menu selection allows setting of the CTCSS tone frequency to be used.

5. Press the **DIAL** knob to enable adjustment of the CTCSS frequency.
6. Rotate the **DIAL** knob until the display indicates the Tone Frequency you need to be using.

CTCSS TONE FREQUENCY (Hz)									
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	159.8	162.2	165.5	167.9
171.3	173.8	177.3	179.9	183.5	186.2	189.9	192.8	196.6	199.5
203.5	206.5	210.7	218.1	225.7	229.1	233.6	241.8	250.3	254.1

7. Press the [**F**(**MENU**)] key to save the new setting and exit to normal operation.

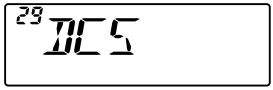
DCS Operation

Another form of tone access control is Digital Code Squelch, or DCS. It is a newer, more advanced tone system which generally provides more immunity from false paging than does CTCSS. The DCS Encoder/Decoder is built into your **FT-3185R**, and operation is very similar to that just described for CTCSS. Your repeater system may be configured for DCS; if not, it is frequently quite useful in Simplex operation if your friend(s) use transceivers equipped with this advanced feature.

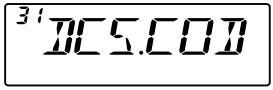
Just as in CTCSS operation, DCS requires that you set the Tone Mode to DCS and that you select a Tone Code.

1. Press and hold in the [**F**(**MENU**)] key for one second, then rotate the **DIAL** knob to select “29 SQL.TYP”.

2. Press the **DIAL** knob, then rotate the **DIAL** knob until “DCS” appears on the display; this activates the DCS Encoder/Decoder.



3. Now press the **DIAL** knob momentarily, then rotate the **DIAL** knob to select Menu “31 DCS.COD”.



4. Press the **DIAL** knob momentarily to enable the adjustment of the DCS code.
5. Rotate the **DIAL** knob to select the desired DCS Code (a three-digit number).
6. Press the [**F**(**MENU**)] key to save the new setting and exit to normal operation.

1) Remember that the DCS is an Encode/Decode system, so your receiver will remain muted until a matching DCS code is received on an incoming transmission. Switch the DCS off when you’re just tuning around the band.

DCS CODE														
023	025	026	031	032	036	043	047	051	053	054	065	071	072	073
074	114	115	116	122	125	131	132	134	143	145	152	155	156	162
165	172	174	205	212	223	225	226	243	244	245	246	251	252	255
261	263	265	266	271	274	306	311	315	325	331	332	343	346	351
356	364	365	371	411	412	413	423	431	432	445	446	452	454	455
462	464	465	466	503	506	516	523	526	532	546	565	606	612	624
627	631	632	654	662	664	703	712	723	731	732	734	743	754	-

Tone Search Scanning

In operating situations where you don't know the CTCSS tone or DCS code being used by another station or stations, you can command the radio to listen to the incoming signal and scan in search of the tone being used. Two things must be remembered in this regard:

- ❒ You must be sure that your repeater uses the same tone type (CTCSS vs. DCS).
- ❒ Some repeaters do not pass the CTCSS tone or DCS code; you may have to listen to the station(s) transmitting on the repeater uplink (input) frequency in order to allow Tone Search Scanning to work.

To scan for the tone in use:

1. Set the radio up for either CTCSS or DCS Decoder operation (see the previous discussion). In the case of CTCSS, "T SQ" will appear on the display; in the case of DCS, "DCS" will appear on the display.
2. Press and hold the Microphone's [**UP**] or [**DWN**] key to start scanning for the incoming CTCSS or DCS tone/code.
3. When the radio detects the correct tone or code, it will halt on that tone/code, and audio will be allowed to pass.
4. Press the Microphone's [**UP**] or [**DWN**] key momentarily to lock in that tone/code and exit to normal operation.

If the Tone Scan feature does not detect a tone or code, it will continue to scan indefinitely. When this happens, it may be that the other station is not sending any tone. You can press the Microphone's [UP] or [DWN] key to halt the scan at any time.

You may listen to the (muted) signals from the other stations during Tone Scanning when Set Mode Item "34 TS MUT" is set to "OFF". You can also change the Tone Search scanning speed, using Set Mode Item "35 TS SPD".
Tone Scanning works either in the VFO or Memory mode.

EPCS (Enhanced Paging & Code Squelch) Operation

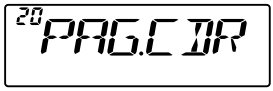
The **FT-3185R** includes an Enhanced CTCSS tone encoder/decoder and a dedicated microprocessor providing paging and selective calling features. This allows you to place a call to a specific station (Paging), and to receive calls of your choice directed only to you (Code Squelch).

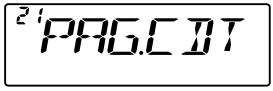
The paging and code squelch systems use two pairs of (alternately switched) CTCSS tones which are stored in the pager memories. Basically, your receiver remains silent until it receives the CTCSS tone pair that matches those stored in the Receiving Pager Memory. The squelch then opens so the caller is heard, and the paging ringer immediately sounds, if activated. When you close the **PTT** switch to transmit, the CTCSS tone pair which is stored in the Transmitting Pager Memory will be transmitted automatically.

On the paged radio, the squelch will close automatically after the incoming page ends.

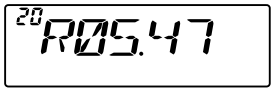
Storing the CTCSS Tone Pairs for EPCS Operation

1. Press and hold in the [**MHz**(**SET**)] key for one second to enter the Set mode.
2. Rotate the **DIAL** knob to select “20 PAG.CDR” for the Receiving CTCSS Tone Pair or “21 PAG.CDT” for the Transmitting CTCSS Tone Pair.
3. Press the **DIAL** knob to enable adjustment of this Set Mode Item.





4. Rotate the **DIAL** knob to set the CTCSS Tone number which corresponds to the first tone of the CTCSS Tone Pair.



5. Press the **DIAL** knob, then rotate the **DIAL** knob to set the CTCSS Tone number which corresponds to the second tone of the CTCSS Tone Pair.
6. Press the [**F**(**MENU**)] key to save the new setting and exit to normal operation.

.**The FT-3185R does not recognize the order of the 1st tone and the 2nd tone. In other words, for example, the FT-3185R considers both CTCSS pairs “10, 35” and “35, 10” to be identical.**

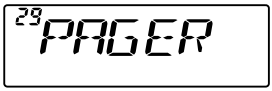
CTCSS Tone Number

No.	Hz	No.	Hz	No.	Hz	No.	Hz	No.	Hz
01	67.0	11	94.8	21	131.8	31	171.3	41	203.5
02	69.3	12	97.4	22	136.5	32	173.8	42	206.5
03	71.9	13	100.0	23	141.3	33	177.3	43	210.7
04	74.4	14	103.5	24	146.2	34	179.9	44	218.1
05	77.0	15	107.2	25	151.4	35	183.5	45	225.7
06	79.7	16	110.9	26	156.7	36	186.2	46	229.1
07	82.5	17	114.8	27	159.8	37	189.9	47	233.6
08	85.4	18	118.8	28	162.2	38	192.8	48	241.8
09	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

Activating the Enhanced Paging & Code Squelch System

1. Press and hold in the [**F**(**MENU**)] key for one second, then rotate the **DIAL** knob to select “29 SQL.TYP”.

2. Press the **DIAL** knob, then rotate the **DIAL** knob to set the display to “PAGER”.

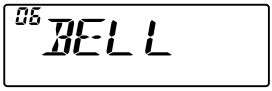


3. Press the [**F**(**MENU**)] key to save the new setting and exit to normal operation.

CTCSS/DCS/EPCS Bell Operation

During CTCSS Decode, DCS, or EPCS operation, you may set up the **FT-3185R** such that a ringing “bell” sound alerts you to the fact that a call is coming in. Here is the procedure for activating the CTCSS/DCS/EPCS Bell:

1. Set the transceiver up for CTCSS Decode (“Tone Squelch”), DCS, or EPCS operation, as described previously.
2. Adjust the operating frequency to the desired channel.
3. Press and hold in the [**F**(**MENU**)] key for one second, then rotate the **DIAL** knob to select “6 BELL”.



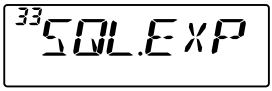
4. Rotate the **DIAL** knob to set the desired number of rings of the Bell. The available choices are 1, 3, 5, or 8 rings, CONTI (continuous ringing), or OFF.
5. Press the [**F**(**MENU**)] key to save the new setting and exit to normal operation.

When you are called by a station whose transceiver is sending a CTCSS tone, DCS code, or CTCSS code pair which matches that set into your Decoder, the Bell will ring in accordance with this programming.
When the CTCSS/DCS/EPCS Bell is activated, the “ 🔔 ” icon will appear on the display.

Split Tone Operation

The **FT-3185R** can be operated in a “Split Tone” configuration, to enable operation on repeaters using a mix of both CTCSS and DCS control via the Set mode.

1. Press and hold in the [**F**(**MENU**)] key for one second, then rotate the **DIAL** knob to select “33 SQL.EXP”.



2. Press the **DIAL** knob, then rotate the **DIAL** knob to set this Menu item to “ON” (to enable the Split Tone feature).
3. Press the [**F**(**MENU**)] key to save the new setting and exit to normal operation.

When the Split Tone feature is activated, you can see the following additional parameters following the “PAGER” parameter (while selecting the tone mode by Set mode item “29 SQL.TYP”):

D CODE: DCS Encode only (the “**DCS**” icon will blink during operation)
T DCS: Encodes a CTCSS Tone and Decodes a DCS code
(the “**T**” icon will blink and the “**DCS**” icon will appear during operation)
D TONE: Encodes a DCS code and Decodes a CTCSS Tone
(the “**T SQ**” icon will appear and “**DCS**” icons will blink during operation)
Select the desired operating mode from the selections shown above.

DTMF Operation

The Microphone's 16-button keypad allows easy DTMF dialing for Autopatch, repeater control, or Internet-link access purposes. Besides numerical digits [**0**] through [**9**], the keypad includes the [∗] and [**#**] digits, plus the [**A**], [**B**], [**C**], and [**D**] tones often used for repeater control.

Manual DTMF Tone Generation

You can generate DTMF tones during transmission manually.

1. Press and hold in the [**F**(**MENU**)] key for one second, then rotate the **DIAL** knob to select "9 DTMF".

2. Press the **DIAL** knob, then rotate the **DIAL** knob to set this Set Mode Item to "MANUAL" (thus enabling the Manual DTMF Tone Generation).
3. Press the [**F**(**MENU**)] key to save the new setting and exit to normal operation.
4. Press the **PTT** switch to begin transmission.
5. While transmitting, press the desired numbers on the keypad.
6. When you have sent all the digits desired, release the **PTT** switch.

DTMF Autodialer

Nine DTMF Autodialer memories are available on the **FT-3185R**. These DTMF Autodialer memories can store up to 16 digits of a telephone number for repeater autopatch or other use.

To load DTMF Autodialer memories, use the following procedure:

1. Press and hold in the [**F**(**MENU**)] key for one second, then rotate the **DIAL** knob to select "11 DT MEM".

2. Press the **DIAL** knob, then rotate the **DIAL** knob to select the DTMF Autodialer memory channel number into which you wish store a telephone number ("C0" to "C9").
3. Press the **DIAL** knob momentarily, then rotate the **DIAL** knob to select the first digit of the telephone number you wish to store.
4. When you have selected the correct digit, press the **DIAL** knob momentarily. Now, rotate the **DIAL** knob to select the second of 16 available numbers in the current DTMF Autodialer memory register.
5. Repeat this procedure for each digit in the telephone number. If you a mistake, press the [**PMG**(**PW**)] key to move back to the left digit, then re-enter the correct number.
6. When entry of all digits is complete, press the **DIAL** knob.
7. If you wish to store another DTMF string, repeat steps 2 through 6 above.
8. Press the [**F**(**MENU**)] key to save the new setting and exit to normal operation.

To transmit the memorized telephone number, use the following procedure:

1. Press and hold in the [**F**(**MENU**)] key for one second, then rotate the **DIAL** knob to select “9 DTMF”.

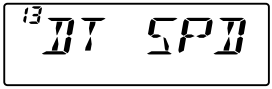
2. Press the **DIAL** knob, then rotate the **DIAL** knob to set this Set Mode Item to “AUTO”.
3. Press the [**F**(**MENU**)] key to save the new setting and exit to normal operation.
4. In the Autodialer mode, which you just engaged, first press the **PTT** switch, then press the microphone’s numeric key ([**0**] through [**9**]) corresponding to the DTMF memory string you wish to send. Once the string begins, you may release the **PTT** switch, as the transmitter will be held “on the air” until the DTMF string is completed.

While the DTMF Autodialer is activated, the “ ☎ ” icon will appear on the LCD.

To disable the Autodialer function mode, select “MANUAL” in step 2 above.

The speed at which the DTMF digits are sent can be changed. Two speed levels are available: Low (10 digits per second) and High (20 digits per second: default). To toggle between Low and High speed, use the following procedure:

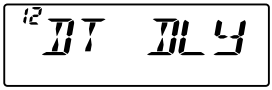
1. Press and hold in the [**F**(**MENU**)] key for one second, then rotate the **DIAL** knob to select “13 DT SPD”.



2. Press the **DIAL** knob, then rotate the **DIAL** knob to select the desired speed (“50MS”: High speed or “100MS”: Low speed).
3. Press the [**F**(**MENU**)] key to save the new setting and exit to normal operation.

You can also set a longer delay between the time your transmitter is keyed and the first DTMF digit is sent. To set the delay time, use the following procedure:

1. Press and hold in the [**F**(**MENU**)] key for one second, then rotate the **DIAL** knob to select “12 DT DLY”.



2. Press the **DIAL** knob, then rotate the **DIAL** knob to select the desired speed (50MS/2 50MS/450MS/750MS/1000MS).
3. Press the [**F**(**MENU**)] key to save the new setting and exit to normal operation.

Memory Operation

The **FT-3185R** provides a wide variety of memory system resources. These include:

- ❒ 200 “basic” memory channels, numbered “0” through “199”.
- ❒ A “Home” channel, providing storage and quick recall of one prime frequency.
- ❒ 10 sets of band-edge memories, also known as “Programmable Memory Scan” channels, labeled “L0/U0” through “L9/U9”.

Each memory may be appended with an alpha-numeric label of up to six characters, for quick channel recognition.

Memory Storage

1. In the VFO mode, select the desired frequency, repeater shift, CTCSS/DCS tone, and TX power level.
2. Press and hold in the [**V/M**(**MW**)] key for one second. A memory number will appear in the top left-hand corner of the display.
3. Within five seconds of pressing the [**V/M**(**MW**)] key, use the **DIAL** knob to select the desired memory into which you wish to store the frequency.
4. Press and hold the [**V/M**(**MW**)] key, to store the displayed data into the selected memory channel slot.
5. To store other frequencies, repeat steps 1 through 4, remembering to set the repeater shift, CTCSS/DCS tone, and TX power level, as appropriate.

Storing Independent Transmit Frequencies (“Odd Splits”)

1. Store the receiving frequency using the method already described.
2. Tune to the desired transmit frequency, then press and hold in the [**V/M**(**MW**)] key for one second.
3. Within five seconds of pressing the [**V/M**(**MW**)] key, use the **DIAL** knob or microphone [**UP**]/[**DWN**] buttons to select the same memory channel number used in step 1 above.
4. Press and hold in the **PTT** switch, and press and hold the [**V/M**(**MW**)] key while holding in the **PTT** switch. This will not cause transmission, but rather it will instruct the transceiver that you are *programming* a separate *transmit* frequency into memory.

Whenever you recall a memory which contains independently stored transmit and receive frequencies, the “**− +**” indication will appear in the display.

Memory Recall

Once you have stored the memory or memories desired, you must now switch from the "VFO" mode to the "Memory Recall" mode, so you can operate on the just-stored memory channels.

1. Press the [**V/M**(**MW**)] key, repeatedly if necessary, until the " M " icon and a memory channel number appear on the display; this indicates that the "Memory Recall" mode is now engaged.
2. When more than one memory has been stored, use the **DIAL** knob to select any of the programmed memories for operation. Alternatively, the microphone's [**UP**] or [**DWN**] button may be used to step or scan through the available memories. When using the microphone's buttons, press the button momentarily to move one step up or down; press and hold in the [**UP**] or [**DWN**] button for one second to begin memory scanning.

Memory Recall from the Microphone's Keypad:

While operating in the Memory Recall mode, the keypad of the **SSM-85D** Microphone may be used for direct recall of memory channels.
To do this, press the numeric keys "**0**" to "**9**" in the memory mode to enter the memory channel.

Examples: To recall Memory cyannnel "**123**"

[**1**] ➠ [**2**] ➠ [**3**]

To recall Memory cyannnel "**16**"

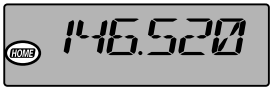
[**1**] ➠ [**6**] ➠ [**Press and hold any numeric key**]

Home Channel Memory

Recall from the Function List

1. Press the [**F**(**MENU**)] key.
2. Rotate the **DIAL** knob, select "14 HOME", then press the **DIAL** knob.

3. " HOME " and the home channel frequency of the currently selected band appears on the LCD.



Memory-Only Mode

Once memory channel programming has been completed, you may place the radio in a "Memory Only" mode, whereby VFO and Home Channel operation are impossible. This may be particularly useful during public-service events where a number of operators may be using the radio for first time, and ultimate simplicity of channel selection is desired.

To place the radio into the Memory Only mode, turn it OFF. Now press and hold in the [**VM**(**MW**)] key while turning the radio ON. The VFO and Home Channel will now be disabled.

To return to normal operation, repeat the above power-on procedure.

Scanning

The **FT-3185R**'s scanning capability provides the operator with many convenient methods of rapid frequency navigation.

Basic Scanner Operation

Before activating the scanner, make sure that the Squelch is set to silence the background noise when no signal is present. Scanning is not possible while the Squelch is open (if noise or signals are being heard).
Scanning may be started or stopped using the microphone's [**UP**] or [**DWN**] button. The following techniques are used for scanning:

- ❒ Pressing and holding in either the [**UP**] or [**DWN**] button for one second in the *VFO mode* will cause upward or downward *band* scanning, respectively, to begin.
- ❒ Pressing and holding in either the [**UP**] or [**DWN**] button for one second in the *Memory mode* will cause memory channel scanning toward a higher- or lower-numbered *memory channel*, respectively.
- ❒ Scanning pauses when a signal opens the squelch, and the decimal point on the display will blink. You can choose one of three scan-resume modes (described later).
- ❒ To halt the scan manually, the easiest way is to push the **PTT** switch on the microphone momentarily (no transmission will occur while you are scanning). The scan may also be halted manually by pressing the microphone's [**UP**] or [**DWN**] key.

Scan-Resume Options

Three scan-resume modes are available on the **FT-3185R**:

- ❒ In the "BUSY" mode, the scanner will remain halted for as long as there is carrier present on the channel; after the carrier drops at the end of the other station's transmission, scanning will resume.
- ❒ In the "HOLD" mode, the scanner will halt on a signal it encounters. It will not restart automatically; you must manually re-initiate scanning if you wish to resume.
- ❒ In the "3SEC/5SEC/10SEC" mode, the scanner will halt for the selected resume time, after which scanning will resume (whether or not the other station is still transmitting).

The default scan-stop mode is "BUSY". To change the scan-resume mode, use the following procedure:

1. Press and hold in the [**F**(**MENU**)] key for one second, then rotate the **DIAL** knob to select "27 SCN.RSM".

2. Press the **DIAL** knob, then rotate the **DIAL** knob to select the desired scan-resume mode.
3. Press the [**F**(**MENU**)] key to save the new setting and exit to normal operation.

Programmable Band-Scan Limits

Besides band and memory scanning, this transceiver can be set to tune or scan only the frequencies between user-defined lower and upper limits. For example, you may wish to limit tuning/scanning to 144.3 - 148.0 MHz, to avoid encroachment on the SSB/CW sub-band between 144.0 and 144.3 MHz.

These scanning limits are stored in special “Sub-Band Limit Memories”, labeled L0/U0 through L9/U9, with “L” and “U” designations representing the Lower and Upper limits, respectively.

To utilize this feature, use the following steps:

1. Store the lower edge of the desired scanning/tuning range in memory “L0”, and the upper edge in memory “U0” (or, alternatively, in memories “L1/U1” through “L9/U9”).
2. With any of these memories recalled, press the [**V/M**(**MW**)] key momentarily to activate the Programmable Band-Scan Limits. The “ PMS ” icon will appear. Tuning and scanning will now be limited within the just-programmed range.

To cancel the Band-Scan Limits and return to normal memory operation, press the [**VM**(**MW**)] key momentarily.

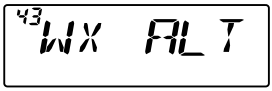
Weather Alert Scan

This feature allows you to check the Weather Broadcast Memory Channels for the presence of the NOAA Alert Tone while operating using VFO scan or Memory channel scan.

When the Weather Alert Scan feature is engaged, the **FT-3185R** will check the Weather Broadcast Memory Channels for activity every five seconds while scanning. If you watch the display carefully, you’ll observe the scanner periodically shifting to the Weather Broadcast bank, scanning the Weather channels quickly in search of the Alert Tone, after which regular scanning will resume for another five seconds.

To enable the Weather Alert Scan feature:

1. Press and hold in the [**F**(**MENU**)] key for one second, then rotate the **DIAL** knob to select “43 WX ALT”.



2. Press the **DIAL** knob, then rotate the **DIAL** knob to set this Menu item to “ON”.
3. Press the [**F**(**MENU**)] key to save the new setting and exit to normal operation.
4. To disable the Weather Alert Scan feature, select “OFF” in step 2 above.

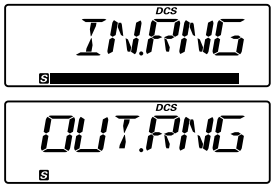
You can change the Weather Alert Tone volume level to maximum regardless the **VOL** knob setting, using Menu item “44 WX VOL”.

ARTS™ (Automatic Range Transponder System)

The ARTS™ feature uses DCS signaling to inform both parties when you and another ARTS™-equipped station are within communications range. This may be particularly useful during Search-and Rescue situations, where is important to stay in contact with other members of your group.

Both stations must set up their DCS codes to the same code number, then activate their ARTS™ feature using the command appropriate for their radio. Alert ringers may be activated, if desired.

Whenever you push the **PTT** switch, or every 25 (or 15) seconds after ARTS™ is activated, your radio will transmit a signal which includes a (subaudible) DCS signal for about 1 second. If the other radio is in range, the beeper will sound (if enabled) and the display will show “IN.RNG” as opposed to the out of range display “OUT.RNG” in which ARTS™ operation begins.



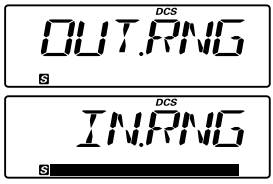
Whether you talk or not, the polling every 15 or 25 seconds will continue until you de-activate ARTS™. Every 10 minutes, moreover, you can have your radio transmit your callsign via CW, so as to comply with identification requirements. When ARTS™ is de-activated, DCS will also be deactivated (if you were not using it previously in non-ARTS™ operation).

If you move out of range for more than one minute (four pollings), your radio will sense that no signal has been received, three beeps will sound, and the display will revert to “OUT.RNG”. If you move back into range, your radio will again beep, and the display will change back to the “IN.RNG” indication.

During ARTS™ operation, your operating frequency will continue to be displayed, but no changes may be made to it or other settings; you must terminate ARTS™ in order to resume normal operation. This is a safety feature designed to prevent accidental loss of contact due to channel change, etc.

Basic ARTS™ Setup and Operation

1. Assign the ARTS™ feature to the microphone’s programmable button ([**P1**], [**P2**], [**P3**], or [**P4**]).
2. Set your radio and the other radio(s) to the same DCS code number.
3. Press the assigned microphone’s programmable button momentarily. You will observe the “OUTRNG” display on the LCD. ARTS™ operation has now commenced.
4. Every 25 seconds, your radio will transmit a “polling” call to the other station. When that station responds with its own ARTS™ polling signal, the display will change to “IN. RNG” to confirm that the other station’s polling code was received in response to yours.



5. Press the assigned microphone’s programmable button momentarily to exit ARTS™ operation and resume normal functioning of the transceiver.

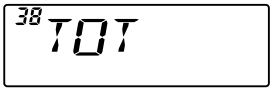
Time-Out Timer (TOT)

The “Time-Out Timer” (TOT) feature is designed to force the transceiver into the “receive” mode after a preset time period of continuous transmission (the default is 3 minutes). This feature prevents your transceiver from transmitting a “dead carrier” for a long period of time in the event that the microphone **PTT** switch is accidentally locked in the “TX” condition.

The Time-Out Timer’s “switch-to-receive” time may be adjusted to 1/2/3/5/10/15/20/30 minutes, or OFF.

To change the default (3 minutes) time setting:

1. Press and hold in the [**F**(**MENU**)] key for one second, then rotate the **DIAL** knob to select “38 TOT”.



2. Press the **DIAL** knob, then rotate the **DIAL** knob to select the desired interval (1/2/3/5/10/15/20/30 minutes), or OFF.
3. Press the [**F**(**MENU**)] key to save the new setting and exit to normal operation.

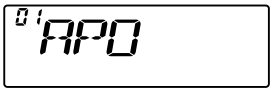
When your transmission time is within 10 seconds of the Time-Out Timer expiration, an Alert bell will provide an audible warning from the speaker.

Automatic Power-Off (APO)

The “Automatic Power-Off” (APO) feature will turn the radio completely *OFF* after a user-defined period of **PTT** or key/button inactivity. If you do not press any front panel keys or buttons, rotate the **DIAL** knob, use the microphone’s keys and buttons, or transmit, and so long as the transceiver is not scanning or engaged in priority monitoring, the radio will shut itself off after the specified time period. The available selections for the time before power-off are 0.5/1/3/5/8 hours, as well as APO OFF. This feature is useful in minimizing battery drain in a mobile installation if you forget to turn the transceiver off when you leave your vehicle.

To activate the APO feature:

1. Press and hold in the [**F**(**MENU**)] key for one second, then rotate the **DIAL** knob to select “01 APO”.



2. Press the **DIAL** knob, then rotate the **DIAL** knob to select the desired “switch-off” time or OFF.
3. Press the [**F**(**MENU**)] key to save the new setting and exit to normal operation.

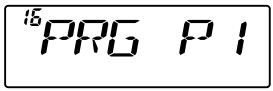
If there is no action by you within the time interval programmed, an Alert bell will provide an audible warning from the speaker within 1 minute of the APO Timer expiration, then the microprocessor will shut down the radio automatically.

Programming the Key Assignments

Default **FT-3185R** key functions have been assigned to the Microphone's [**P1**]/[**P2**]/[**P3**]/[**P4**] keys at the factory. These may be changed by the user, if you wish to assign quick access to another function.

To change the assignments for the programmable keys:

1. Press and hold in the [**F**(**MENU**)] key for one second, then rotate the **DIAL** knob to select the Menu Item to be configured ("16 PRG P1", "17 PRG P2", "18 PRG P3" or "19 PRG P4").



2. Press the **DIAL** knob, then rotate the **DIAL** knob to select the function you wish to assign to the key you selected in the previous step. The available choices are vary slightly among the four keys you may program, and they include:

key	Default
[**P1**]	SQLOFF
[**P2**]	HOME
[**P3**]	DW
[**P4**]	WX CH

ARTS: Engages the ARTS™ operation
SCAN ON: Engages the Scan operation
HOME: Recalls the HOME channel
RPT.SFT: Sets the repeater shift direction
REV: Reverses the transmit and receive frequencies in repeater mode or split memory
TX PWR: Selects the transmit power output level
SQLOFF: Opens the Squelch to allow un-muted reception
T-CALL: Activates 1750 Hz Tone Burst
DW: Operation setting of dual receive function
WX CH: Switches operation to the Weather channels bank

or one of the Set Menu items that has been already assigned before.
If you want to assign your desired Set Mode item on the programmable key, see the description in the box shown below.

3. Press the **DIAL** knob momentarily to save the new setting, then rotate the **DIAL** knob to select another programmable key to modify, if desired, and repeat the above steps.
4. Press the [**F**(**MENU**)] key to save the new setting and exit to normal operation.

You may assign Set Mode items to the Microphone's [**P1**]/[**P2**]/[**P3**]/[**P4**] keys, as well, to do this:

1. Press and hold in the [**F**(**MENU**)] key for one second to enter the Set mode.
2. Rotate the **DIAL** knob to select the Set Mode Item which you wish to assign to the key as a Menu short-cut.
3. Press and hold in the Microphone's [**P1**], [**P2**], [**P3**], or [**P4**] key for one second to assign the Set Mode Item to that key.
4. Now you can recall this preferred Set Mode Item by simply pressing the Microphone's key momentarily.

FM Bandwidth & TX Deviation Level

You can reduce the receiver bandwidth and microphone deviation level when operating on tightly-clustered frequencies (channel spacing of 12.5 or 15kHz). This will reduce the transmitter deviation, thus minimizing interference to other users.

To configure for the narrower bandwidth, use the following procedure:

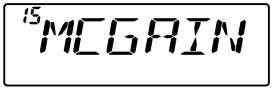
1. Press and hold in the [**F**(**MENU**)] key for one second, then rotate the **DIAL** knob to select “42 WIDTH”.

2. Press the **DIAL** knob, then rotate the **DIAL** knob to change the display to “NARROW.
3. Press the [**F**(**MENU**)] key to save the new setting and exit to normal operation.
4. To return to wide bandwidth and deviation, repeat the above procedure, selecting “WIDE” in step 2 above.

MIC Gain Setting

At the factory, a microphone gain has been programmed that should be satisfactory for the supplied **SSM-85D** Microphone. If you use an after-market microphone, you may wish to set a different Mic Gain level, using Set Mode item “15 MCGAIN”.

1. Press and hold in the [**F**(**MENU**)] key for one second, then rotate the **DIAL** knob to select “15 MCGAIN”.



2. Press the **DIAL** knob, then rotate the **DIAL** knob to set the desired level (Default: NORMAL).
3. Press the [**F**(**MENU**)] key to save the new setting and exit to normal operation.

Reset Procedure

In some instances of erratic or unpredictable operation, the cause may be corruption of data in the microprocessor (due to static electricity, etc.). If this happens, resetting of the microprocessor may restore normal operation. Note that all memories will be erased if you do a complete microprocessor reset, as described below.

Microprocessor Resetting

To clear all memories and other settings to factory defaults:

1. Turn the radio OFF.
2. Press and hold in the [**F**(**MENU**)] key and **DIAL** knob while turning the radio ON.
3. Press the **DIAL** knob to reset all settings to their factory defaults.

Set Mode Resetting

To reset the Set (Menu) mode settings to their factory defaults, while leaving other settings unchanged:

1. Turn the radio OFF.
2. Press and hold in the [**S-DX**] and **DIAL** keys while turning the radio ON.
3. Press the **DIAL** knob to reset the Set (Menu) mode settings to their factory defaults.

The **FT-3185R** Set (Menu) mode, already described in parts of many previous chapters, is easy to activate and set. It may be used for configuration of a wide variety of transceiver parameters, some of which have not been detailed previously. Use the following procedure to activate the Set (Menu) mode:

1. Press and hold in the [**F**(**MENU**)] key for one second to enter the Set mode.
2. Rotate the **DIAL** knob to select the Menu Item to be adjusted.
3. Press the **DIAL** knob to enable adjustment of the selected Menu item, then rotate the **DIAL** knob to perform the actual adjustment.
4. After completing your selection and adjustment, press and hold in the [**F**(**MENU**)] key for one second to exit the Set mode and resume normal operation.

Menu Item	Function	Available Values	Default
1APO	Enables/Disables the Automatic Power Off feature.	0.5H / 1.0H / 3.0H / 5.0H / 8.0H / OFF	OFF
2AR MOD	Selects the Beep option during ARTS™ operation.	INRANG / OUTRNG / OFF	INRANG
3AR INT	Selects the Polling Interval during ARTS™ operation.	30 SEC / 1 MIN	30 SEC
4BCLO	Enables/Disables the Busy Channel Lock-Out feature.	ON / OFF	OFF
5BEEP	Enables/Disables the key beeper.	OFF / LOW / HIGH	LOW
6BELL	Selects the CTCSS/DCS/EPCS Bell Ringer repetitions.	1TIME / 3TIMES / 5TIMES / 8TIMES / CONTI / OFF	OFF
7CLK.TYP	Shifting of the CPU clock frequency.	TYP A / TYP B	TYP A
8DIMMER	Setting of the front panel display's illumination level.	OFF / MID / HIGH	OFF
9DTMF	Enables/Disables the DTMF Autodialer feature.	MANUAL / AUTO	MANUAL
10DT TX	Loading of the DTMF Autodialer Memories.	---	---
11DT MEM	Set the DTMF auto dialer channel and code (16 characters).	C1 - C9	---
12DT DLY	Setting of the DTMF Autodialer's TX Delay Time.	50MS / 250MS / 450MS / 750MS / 1SEC	450MS
13DT SPD	Setting of the DTMF Autodialer Sending Speed.	50MS / 100MS	50MS
14HOME	Recall the home channel.	---	---
15MCGAIN	Adjust the microphone gain level.	MIN / LOW / NORMAL / HIGH / MAX	NORMAL
16PRG P1	Programming the function assigned to Microphone's [P1] key.	ARTS / SCN ON / HOME / RPT.SFT / REV / TX PWR / SQL OFF / T-CALL / DW / WX-CH one of the Set Menu items	SQL OFF
17PRG P2	Programming the function assigned to Microphone's [P2] key.		HOME
18PRG P3	Programming the function assigned to Microphone's [P3] key.		DW
19PRG P4	Programming the function assigned to Microphone's [P4] key.		WX-CH
20PAG.CDR	Setting the Receiver Pager Code for the Enhanced CTCSS Paging & Code Squelch function.	---	05_47
21PAG.CDT	Setting the Transmitting Pager Code for the Enhanced CTCSS Paging & Code Squelch function.	---	05_47

Menu Item	Function	Available Values	Default
22RPT.REV	Reverses the transmit and receive frequencies while working through a repeater.	ON / OFF	OFF
23RPT.SET	Sets the Repeater Shift direction.	SIMP / -RPT / +RPT	SIMP
24RPT.ARS	Activates/Deactivates the Automatic Repeater Shift feature.	ON / OFF	ON
25RPT.SFT	Sets the magnitude of the Repeater Shift.	0.00 - 99.95MHz	0.60MHz
26SCN.ON	Engages the Scan operation.	---	---
27SCN.RSM	Selects the Scan Resume mode.	3SEC / 5SEC / 10SEC / BUSY / HOLD	BUSY
28DW.RVT	The transmission operation during dual receive always transmits on the priorty channel.	ON / OFF	OFF
29SQL.TYP	Selects the Tone Encoder and/or Decoder mode.	OFF / TONE / TON.SQL / DCS / RV TN / PAGER / (D CODE / T DCS / D TONE)	OFF
30TN FRQ	Setting of the CTCSS Tone Frequency.	50 standard CTCSS tones	100.0 (Hz)
31DCS CD	Setting of the DCS code.	104 standard DCS codes	023
32DCS RV	Enables/Disables “Inverted” DCS code decoding.	ENABLE / DISABL	DISABL
33SQL EXP	Separate squelch type setting for transmit and receive.	ON / OFF	OFF
34TS MUT	Enables/Disables the receiver audio output during the Tone Search Scanner is activated.	ON / OFF	ON
35TS SPD	Selects the Tone Search Scanner speed.	FAST / SLOW	FAST
36STEP	Sets the Synthesizer steps.	AUTO / 5.0k / 6.25k 10.0k / 12.5k / 15.0k / 20.0k / 25.0k / 50.0k / 100.0k	AUTO
37TEMP	Indicats the current temperature inside the transceiver’s case.	---	---
38TOT	Sets the Time-Out Timer.	OFF / 1MIN / 3MIN / 5MIN / 10MIN / 15MIN /20MIN / 30MIN	3MIN
39TXL.PWR	Set the transmit LOW power level.	L1 (5W) / L2 (20W) / L3 (50W)	L1 (5W)
40VER.DSP	Display the software version.	---	---
41DC VLT	Indicates the DC Supply Voltage.	---	---
42WIDTH	Reduction of the Microphone Gain/Deviation and receiver bandwidth.	WIDE / NARROW	WIDE
43WX ALT	Enables/Disables the Weather Alert feature.	ON / OFF	OFF
44WX VOL	Selects the audio output level of the Weather Alert.	NOR.VOL / MAX.VOL	NOR.VOL

General

Frequency Range:	Tx 144 - 148MHz Rx 136 - 174MHz
Channel Step:	5/6.25/10/12.5/15/20/25/50/100kHz
Standard Repeater Shift:	±600kHz
Frequency Stability:	Better than ±5ppm (–4°F to +140°F)
Modes of Emission:	F2D/F3E
Antenna Impedance:	50 Ohms, unbalanced
Supply voltage:	13.8V DC ±15%, negative ground
Current Consumption (typical):	Rx: less than 0.7A, less than 0.5A (squelched) Tx: 16A (85W) / 11A (50W) / 7A (20W) / 3A (5W)
Operating Temperature Range:	–4°F to +140°F
Case Size (WxHxD):	5.5” x 1.7” x 5.9” (w/o knobs)
Weight (Approx.):	3.8lb

Transmitter

Output Power:	85W / 50W / 20W / 5W
Modulation Type:	Variable Reactance
Maximum Deviation:	±5kHz (Wide) ±2.5kHz (Narrow)
Spurious Radiation:	Better than –60dB
Microphone Impedance:	2k-Ohms

Receiver

Circuit Type:	Double Conversion Superheterodyne
Ifs:	21.7MHz & 450kHz
Sensitivity (for 12dB SINAD):	Better than 0.16μV (136 - 140MHz) Better than 0.14μV (140 - 150MHz) Better than 0.19μV (150 - 174MHz)
Selectivity (–60dB):	30kHz
Maximum AF Output:	3W into 8ohms @10% THD

Specifications subject to change without notice or obligation. Specifications guaranteed only within Amateur band.
Frequency ranges will vary according to transceiver version; check with your dealer.

After-market Services

The warranty period is 3 years from the date of purchase

The warranty certification is enclosed with the product. Malfunction resulting from normal use of the product in accordance with the Operating Manual instructions, shall be repaired free-of-charge within a 3-year period from the date of purchase.

Keep the warranty certificate in a safe location

When the warranty certificate is lost, failures which occur during the warranty period will be treated as chargeable non-warranty claims.

Contact Yaesu Service Center for non-warranty repairs

Repairs will be made at the user's expense if normal functions can be maintained after the repair. Please check with the retail store or Yaesu service center for more information.

YAESU

Declaration of Conformity

Type of Equipment:	VHF FM Transceiver
Brand Name:	YAESU
Model Number:	FT-3185R
Manufacturer:	YAESU MUSEN CO., LTD.
Address of Manufacturer:	Omori Bellport Building D-3F 6-26-3 Minami-Oi, Shinagawa-ku, Tokyo, 140-0013, Japan

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions; (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

The technical documentation as required by the Conformity Assessment procedures is kept at the following address:

Company: Yaesu U.S.A.
Address: 6125 Phyllis Drive, Cypress, CA 90630, U.S.A.
Telephone: (714) 827-7600

1. Changes or modifications to this device not expressly approved by YAESU MUSEN could void the user's authorization to operate this device.
2. This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference including received, interference that may cause undesired operation.
3. The scanning receiver in this equipment is incapable of tuning, or readily being altered, by the User to operate within the frequency bands allocated to the Domestic public Cellular Telecommunications Service in Part 22.

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

DECLARATION BY MANUFACTURER

The Scanner receiver is not a digital scanner and is incapable of being converted or modified to a digital scanner receiver by any user.

WARNING: MODIFICATION OF THIS DEVICE TO RECEIVE CELLULAR RADIOTELEPHONE SERVICE SIGNALS IS PROHIBITED UNDER FCC RULES AND FEDERAL LAW.

Note: 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 radiate 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 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 into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

YAESU

Radio for Professionals

YAESU MUSEN CO., LTD.
Omori Bellport Building D-3F
6-26-3 Minami-Oi, Shinagawa-ku, Tokyo, 140-0013, Japan

YAESU USA
6125 Phyllis Drive, Cypress, CA 90630, U.S.A.

YAESU UK
Unit 4, Concorde Park, Concorde Way, Segensworth North,
Fareham, Hampshire PO15 5FG, United Kingdom.

2312x-AS
Printed in Japan

EH087N200