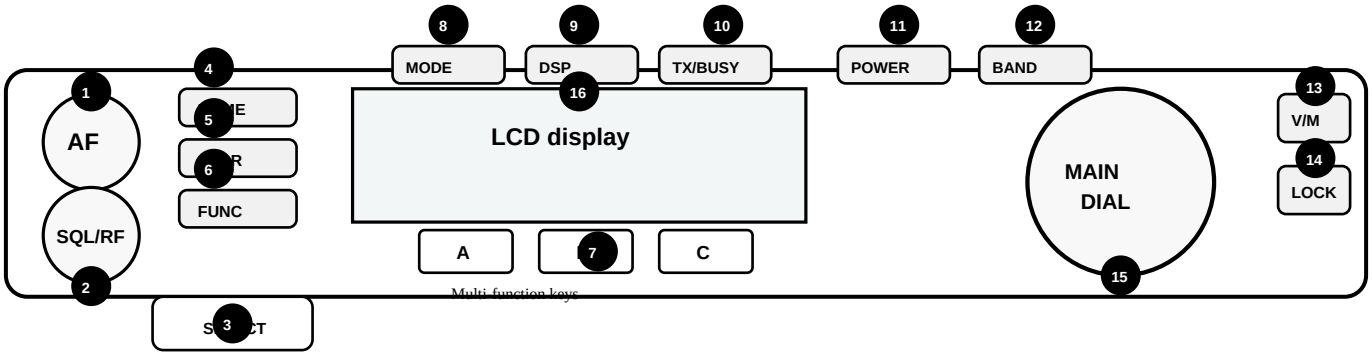
YAESU FT-857D

Mini Field Reference Manual

Front panel map: use callout numbers with the control table.



Purpose: fast operation, field troubleshooting, and safe transmit checks for the FT-857D HF/VHF/UHF ultra-compact transceiver.

Operating rule: every task states what to press, what happens, and how to know it worked.

Source: transformed from the Yaesu FT-857D Operating Manual. Wording, structure, diagrams, and task layout are original for field use.

1. Quick Start

Power, band, mode, frequency

Procedure
Steps:
1. Connect 13.8 V DC power with red to positive and black to negative. Supply must handle at least 22 A.
2. Connect the correct antenna: HF/50 MHz to HF/50 MHz ANT; 144/430 MHz to 144/430 MHz ANT.
3. Hold [POWER] for one second.
4. Press [BAND(UP)] or [BAND(DWN)] to choose band.
5. Press [MODE LEFT] or [MODE RIGHT] to choose LSB, USB, CW, CWR, AM, FM, DIG, or PKT.
6. Rotate [DIAL] for SSB/CW/DIG fine tuning; rotate [SELECT] for AM/FM/PKT channel tuning.
7. Rotate [AF] for listening level.

You should see:
-> Display shows VFO frequency, mode, band, and meter. Audio is controlled by [AF].

Field note:
Start with [AF] low, especially on FM. FM noise can be very loud when squelch is open.

Fast first contact: SSB

Procedure
Steps:
1. Select a legal band and frequency.
2. Press [MODE LEFT] or [MODE RIGHT] to select LSB below 10 MHz or USB above 10 MHz.
3. Press [FUNC], rotate [SELECT] to Row i [MTR, -, DISP].
4. Press [A](MTR) until ALC is selected.
5. Press PTT and speak normally.
6. Adjust Menu No-081 [SSB MIC GAIN] if ALC is absent or excessive.
7. Release PTT to receive.

You should see:
-> TX/BUSY glows red during transmit. ALC moves on voice peaks but does not stay pinned.

Field note:
Use the lowest RF power that completes the contact. Set Menu No-075 [RF POWER SET] when needed.

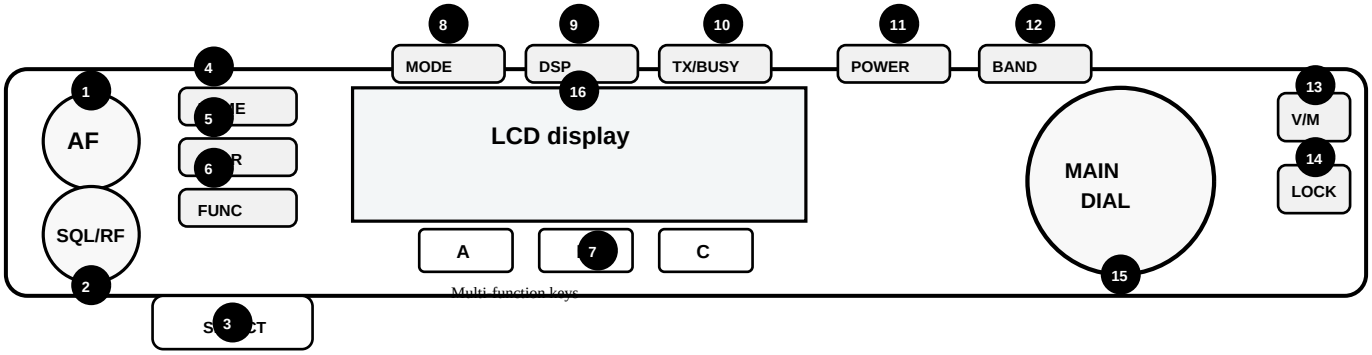
2. Fast Troubleshooting

Symptom	Press / check	You should see	Field fix
No power	Hold [POWER]; check 13.8 V DC, 25 A fuse, polarity	LCD lights	Use correct fuse only. Do not connect 24 V.
No audio	Rotate [AF]; check SP/PH switch if using earphones	Speaker audio returns	Set SP-PH to PH before earphones.
Cannot tune AM/FM with DIAL	Rotate [SELECT]	Frequency changes by channel steps	Set No-004 [AM&FM DIAL] ENABLE if MAIN DIAL is required.
Keys locked	Press [LOCK]	Lock icon disappears	Set No-054 [LOCK MODE] if lock behaviour is wrong.
Weak RX	Check SQL/RF; disable ATT; disable IPO if needed	S-meter/audio improves	Use IPO/ATT only when noise or overload is high.
Noise/ignition pulses	Row l, Press [A](NB)	NB marker appears	Hold [A](NB), set No-063 only as high as needed.
Tone/heterodyne in audio	Press [DSP], Press [B](DNF)	Tone drops	Do not use DNF for CW.
High SWR	Stop TX; select SWR meter; check antenna/coax/tuner	SWR falls below danger zone	Do not transmit into HI SWR.
Repeater not opening	Row d [RPT]; Row e [TON]; set No-083	Tone/shift icons correct	Use [REV] to check input path.
Scan stops incorrectly	Set No-077 and No-078	Resume matches preference	TIME resumes after delay; BUSY waits for signal to drop; STOP stays stopped.

Immediate safe state: release PTT, lower power with No-075 [RF POWER SET], turn off tuner/ATAS motion, and verify antenna connection before transmitting again.

3. Front Panel Control Map

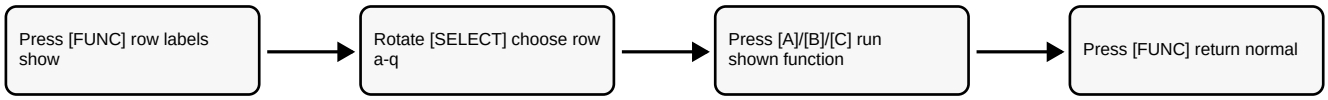
Front panel map: use callout numbers with the control table.



No	Control	Field action
1	AF knob	Rotate [AF] for speaker or headphone volume.
2	SQL/RF knob	Rotate [SQL/RF] for RF gain or squelch depending on No-080.
3	SELECT knob	Rotate [SELECT] for functions, AM/FM tuning, memory/channel selection. Press for secondary action.
4	HOME	Press [HOME] to recall HOME channel.
5	CLAR	Press [CLAR] for RIT. Hold [CLAR] for IF SHIFT.
6	FUNC	Press [FUNC] to change function rows. Hold [FUNC] for Menu.
7	[A] [B] [C]	Press the key under the shown label.
8	MODE keys	Press [MODE LEFT] or [MODE RIGHT] to cycle modes.
9	DSP	Press [DSP] for Row p [DNR, DNF, DBF]. Hold for No-048 [DSP MIC EQ].
10	TX/BUSY	Green = squelch open. Red = transmit. Blue = CW center or matching FM tone/DCS.
11	POWER	Hold [POWER] on/off. Press briefly while on for fast tuning.
12	BAND keys	Press [BAND(UP)]/[BAND(DWN)] to change band.
13	V/M	Press [V/M] for VFO/Memory. Hold to store VFO to QMB.
14	LOCK	Press [LOCK] to lock controls.
15	MAIN DIAL	Rotate [DIAL] for fine frequency and menu values.
16	LCD	Read frequency, mode, meter, icons, function row labels.
17	MIC jack	Connect MH-31A8J hand microphone.
18	SP-PH switch	Set PH before using earphones; set SP for speaker use.
19	METER jack	Connect analog external meter; configure No-060 and No-061.
20	SP/PH jack	Connect external speaker or earphones; level follows [AF].

4. Interface Model

Interface model: [FUNC] -> [SELECT] -> [A]/[B]/[C]



The rule

The FT-857D front panel is a row-driven interface. [FUNC] exposes a row. [SELECT] chooses the row. [A], [B], and [C] perform the labels shown above them.

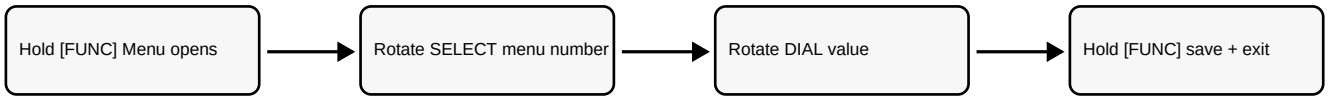
Use a function row

Procedure
Steps:
1. Press [FUNC] once.
2. Rotate [SELECT] until the required row label appears.
3. Press [A], [B], or [C] under the function label.
4. Press [FUNC] again when finished.

You should see:
-> The bottom of the LCD changes to the selected row. The chosen function shows a marker or icon when active.

Field note:
If a key does nothing, confirm the current row. The same physical key changes job with each function row.

Menu model



Use a menu item

Procedure
Steps:
1. Hold [FUNC] for one second.
2. Rotate [SELECT] to the menu number.
3. Rotate [DIAL] to change value.
4. Press [HOME] if you need the factory default for that item.
5. Hold [FUNC] for one second to save and exit.

You should see:
-> Normal frequency display returns after saving.

Field note:
Hold [C] for one second while in Menu to exit without saving.

5. Function System: Full Grid

Use this grid as the operating index for the [A], [B], and [C] keys. First Press [FUNC], then Rotate [SELECT] to the row.

Row	LCD labels	[A]	[B]	[C]
MFa	[A/B, A=B, SPL]	VFO-A/B toggle	Copy Main VFO to Sub VFO	Split on/off
MFb	[MW, SKIP, TAG]	Memory write/check	Scan skip memory	Frequency/tag display
MFc	[STO, RCL, PROC]	Store QMB	Recall QMB	Speech processor
MFd	[RPT, REV, VOX]	Repeater shift +/-/simplex	Reverse repeater TX/RX	VOX
MFe	[TON/ENC, DEC, TDCH]	CTCSS/DCS encoder	Decoder if split tone on	Tone/DCS search
MFf	[ARTS, SRCH, PMS]	ARTS	Smart Search	PMS scan
MFg	[SCN, PRI, DW]	Scan	Priority scan	Dual Watch
MFh	[SCOP, WID, STEP]	Spectrum scope	Scope width	Scope step / max hold
MFi	[MTR, -, DISP]	Meter select	Alternate meter select	Large/small display

Row	LCD labels	[A]	[B]	[C]
MFj	[SPOT, BK, KYR]	CW spot tone	CW break-in	Electronic keyer
MFk	[TUNE, DOWN, UP]	Tuner/ATAS tune	ATAS down	ATAS up
MFl	[NB, AGC, -]	Noise blanker	AGC on/off	AGC fast/slow/auto
MFm	[IPO, ATT, NAR]	Preamp off IPO	10 dB attenuator	Narrow FM
MFn	[CFIL, -, -]	Ceramic IF filter	Optional FIL-1	Optional FIL-2
MFo	[PLY1, PLY2, PLY3]	Send CW beacon text 1	Send CW beacon text 2	Send CW beacon text 3
MFp	[DNR, DNF, DBF]	DSP noise reduction	DSP notch	DSP bandpass / CW peak
MFq	[MONI, QSPL, ATC]	Monitor squelch	Quick split +5 kHz	1750 Hz tone call

Fast row memory: Receive cleanup lives on Row l, Row m, and DSP Row p. Repeater operation lives on Row d and Row e. Scanning lives on Row g. Tuner/ATAS lives on Row k. VFO split lives on Row a.

6. Core Operation

Band and mode

Procedure
Steps:
1. Press [BAND(UP)] or [BAND(DWN)] to select the operating band.
2. Press [MODE LEFT] or [MODE RIGHT] to select mode.
3. Use LSB on 7 MHz and lower for normal voice.
4. Use USB on 14 MHz and higher for normal voice.
5. Use FM for repeaters and local VHF/UHF channels.

You should see:
-> The LCD mode field matches the desired mode. Frequency remains in the chosen VFO or memory.

Field note:
VFO-A and VFO-B keep their own band, mode, and frequency.

Tune

Procedure
Steps:
1. For SSB/CW/DIG, Rotate [DIAL] for fine tuning.
2. For AM/FM/PKT, Rotate [SELECT] for channelized tuning.
3. Press [POWER] briefly for fast tuning.
4. Press [POWER] briefly again for slow tuning.
5. Press [SELECT] briefly, then Rotate [SELECT] for 1 MHz steps when moving quickly.

You should see:
-> Fast-tuning icon appears when fast tuning is active.

Field note:
Set No-035 [DIAL STEP], No-006 [AM STEP], No-052 [FM STEP], and No-082 [SSB STEP] to match operating habits.

Clarifier and IF Shift

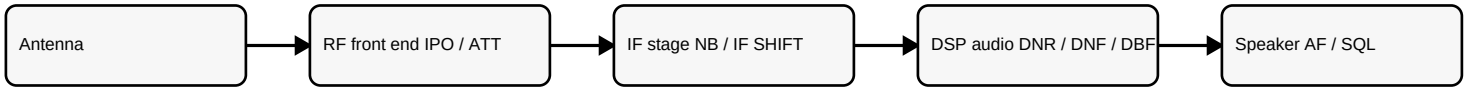
Procedure
Steps:
1. Press [CLAR] to turn Clarifier on.
2. Rotate [SELECT] to move receive frequency up/down without moving transmit.
3. Press [CLAR] again to turn it off.
4. Hold [CLAR] for one second to activate IF SHIFT.
5. Rotate [SELECT] to move the IF passband away from interference.
6. Hold [CLAR] again to turn IF SHIFT off.

You should see:
-> Clarifier or IF SHIFT icon appears. Audio pitch or interference changes while the displayed transmit frequency is preserved.

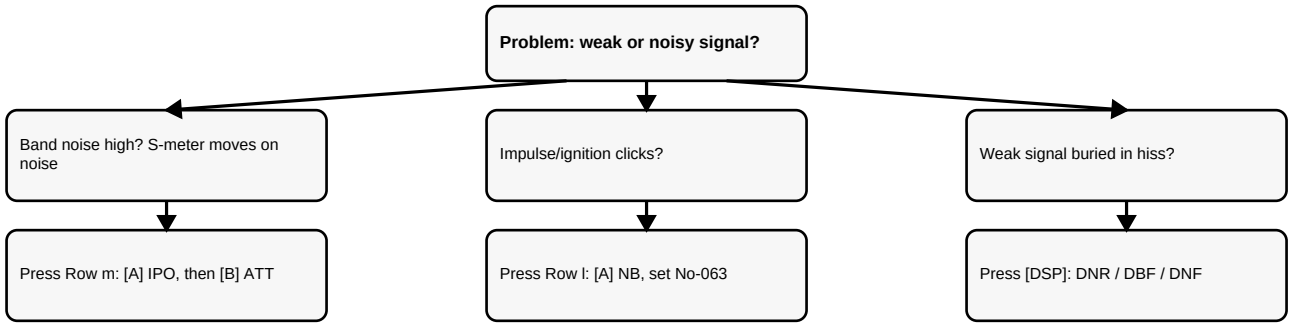
Field note:
To clear Clarifier offset: turn Clarifier off, then move [DIAL] one step.

7. Receive Improvement

Receive signal path: where each control acts



Receive improvement decision tree



Use controls in signal-path order: first reduce overload at RF, then remove impulse noise, then shape audio with DSP.

IPO and ATT

Procedure
Steps:
1. Press [FUNC], Rotate [SELECT] to Row m [IPO, ATT, NAR].
2. Press [A](IPO) when band noise already moves the S-meter.
3. Press [B](ATT) when very strong signals or noise overload the receiver.
4. Press the same key again to turn the function off.

You should see:
-> IPO or ATT icon appears. Background noise drops; wanted signal should remain readable.

Field note:
IPO and ATT do not function on 144/430 MHz.

7. Receive Improvement continued

DSP: DNR, DNF, DBF

Procedure
Steps:
1. Press [DSP] to open Row p [DNR, DNF, DBF].
2. Press [A](DNR) for broad noise reduction.
3. Hold [A](DNR), Rotate [DIAL] to set No-049 [DSP NR LEVEL].
4. Press [B](DNF) for a carrier/heterodyne notch.
5. Press [C](DBF) for bandpass filtering or CW peaking.

You should see:
-> DSP indicator appears. Noise, carrier tone, or off-frequency audio is reduced.

Field note:
For CW, do not use DNF on wanted CW tones; use DBF/CW peaking instead.

Noise blanker and AGC

Procedure
Steps:
1. Press [FUNC], Rotate [SELECT] to Row l [NB, AGC, -].
2. Press [A](NB) to reduce impulse noise.
3. Hold [A](NB), Rotate [DIAL] to set No-063 [NB LEVEL].
4. Press [B](AGC) only if you intentionally need AGC off.
5. Press [C] to choose AGC AUTO, FAST, or SLOW.

You should see:
-> NB marker appears when active. AGC timing changes receiver recovery.

Field note:
Use NB only as high as needed. In crowded bands, too much NB can worsen strong-signal handling.

8. Transmit Setup

PWR	Use enough power, not more than needed	Low	Normal	High
ALC	Speak so ALC moves, not pinned	None	Active	Too high
SWR	Protect finals and antenna system	1.1:1	1.5:1	3:1+ stop

If HI SWR appears or SWR exceeds 3:1: stop transmitting, reduce power, check antenna/coax/tuner.

Set RF power

Procedure
Steps:
1. Hold [FUNC] for Menu.
2. Rotate [SELECT] to No-075 [RF POWER SET].
3. Rotate [DIAL] to the desired maximum power for the current band.
4. Hold [FUNC] to save and exit.
5. Select Row i [MTR, -, DISP].
6. Press [A](MTR) until PWR, ALC, SWR, or MOD is shown for the check you need.

You should see:
-> Transmit meter mode changes. During PTT the meter shows the selected value.

Field note:
RF output maximums: HF/50 MHz 100 W, 144 MHz 50 W, 430 MHz 20 W; AM carrier is lower. Use less power near people, on battery, or while tuning.

Set microphone gain

Procedure
Steps:
1. Select the mode: SSB, AM, or FM.
2. Use Menu No-081 [SSB MIC GAIN], No-005 [AM MIC GAIN], or No-051 [FM MIC GAIN].
3. Select ALC meter for SSB/AM; select MOD for FM if required.
4. Press PTT and speak normally.
5. Rotate [DIAL] in the menu until audio indication is active but not excessive.
6. Hold [FUNC] to save.

You should see:
-> TX/BUSY glows red. ALC/MOD moves on speech and drops when speech stops.

Field note:
Too much mic gain causes distortion even when the other station reports a strong signal.

8. Transmit Setup continued

VOX

Procedure
Steps:
1. Press [FUNC], Rotate [SELECT] to Row d [RPT, REV, VOX].
2. Press [C](VOX).
3. Hold [C](VOX) to open No-088 [VOX GAIN].
4. Set No-087 [VOX DELAY] for hang time.
5. Speak and pause to test.

You should see:
-> Radio transmits when you speak and returns to receive after the delay.

Field note:
Disable VOX in noisy vehicles unless carefully adjusted.

Transmit safety meter check

Procedure
Steps:
1. Select Row i [MTR, -, DISP].
2. Press [A](MTR) until SWR appears.
3. Transmit briefly at low power.
4. Stop immediately if HI SWR appears or the SWR zone reaches 3:1.
5. Switch to ALC or MOD and test speech at normal distance from the microphone.

You should see:
-> SWR stays below the danger zone. ALC/MOD moves but does not stay pinned.

Field note:
Fix antenna or drive level problems before increasing power.

9. Mode-Specific Operation

SSB / AM voice

Procedure
Steps:
1. Select LSB/USB or AM with [MODE LEFT] or [MODE RIGHT].
2. Set frequency with [DIAL].
3. Select Row i and choose ALC meter.
4. Set No-081 [SSB MIC GAIN] or No-005 [AM MIC GAIN].
5. Optional: Row c, Press [C](PROC) for speech processor.
6. Hold [C](PROC) to set No-074 [PROC LEVEL].
7. Press PTT and speak.

You should see:
-> Signal is transmitted. ALC moves on voice peaks. Processor marker appears if PROC is on.

Field note:
Use processor lightly. If reports say audio is harsh, lower PROC LEVEL or mic gain.

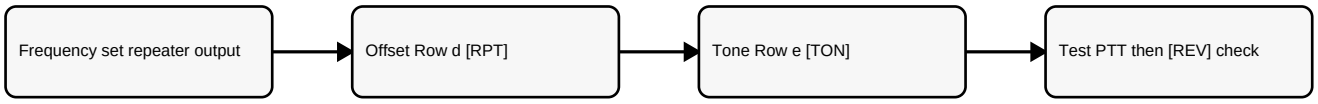
FM / repeater voice

Procedure
Steps:
1. Select FM with [MODE LEFT] or [MODE RIGHT].
2. Set repeater output frequency.
3. Row d: Press [A](RPT) until +, -, or simplex is correct.
4. Hold [A](RPT) to set No-076 [RPT SHIFT] if needed.
5. Row e: Press [A](TON) to enable CTCSS/DCS.
6. Hold [A](TON) and set No-083 [TONE FREQ].
7. Press PTT and test.

You should see:
-> Shift icon and tone status appear. Repeater responds or other station hears you.

Field note:
Use [B](REV) on Row d to listen on the repeater input and confirm path.

Repeater setup flow



9. Mode-Specific Operation continued

CW

Procedure
Steps:
1. Select CW or CWR with [MODE LEFT] or [MODE RIGHT].
2. Connect straight key or paddle to KEY jack using a 3-conductor plug.
3. Row j: Press [C](KYR) for built-in keyer if using paddles.
4. Row j: Press [B](BK) for semi-break-in.
5. Hold [C](KYR) to set No-030 [CW SPEED].
6. Set No-027 [CW PITCH] for preferred sidetone/filter pitch.
7. Use [A](SPOT) to match received tone before calling.

You should see:
-> Sidetone is heard while keying. TX/BUSY glows red during key-down.

Field note:
If paddles are reversed, set No-025 [CW KEY REV].

Digital AFSK / PSK / RTTY

Procedure
Steps:
1. Connect TNC/soundcard audio to DATA jack.
2. Select DIG with [MODE LEFT] or [MODE RIGHT].
3. Set No-038 [DIG MODE] to RTTY-L, RTTY-U, PSK31-L, PSK31-U, USER-L, or USER-U.
4. Set No-037 [DIG GAIN] for input level.
5. Set No-040 [DIG VOX] only if audio-triggered transmit is required.
6. Transmit from terminal software and watch ALC/power.

You should see:
-> DATA input keys the transmitter when configured. The front MIC is cut off during rear DATA digital operation.

Field note:
Keep ALC low on digital modes. Overdrive makes a wide, dirty signal.

Packet

Procedure
Steps:
1. Select PKT with [MODE LEFT] or [MODE RIGHT].
2. Connect TNC to DATA jack.
3. Set No-073 [PKT RATE] to 1200 or 9600 bps.
4. Set No-071 [PKT1200] or No-072 [PKT9600] input level.
5. Use TNC PTT or data control to transmit.

You should see:
-> Packet data is sent through the DATA jack. SQL status is available on the DATA connector.

Field note:
1200 bps uses normal packet audio. 9600 bps needs the correct TNC and level setup.

10. Memory & Scanning

QMB quick memory

Procedure
Steps:
1. Tune the desired VFO frequency and mode.
2. Hold [V/M] to store the VFO to QMB.
3. Or select Row c [STO, RCL, PROC].
4. Press [A](STO) to store QMB.
5. Press [B](RCL) to recall QMB.

You should see:
-> QMB channel recalls instantly with stored frequency and mode.

Field note:
Use QMB for a temporary working frequency, not for long-term channel storage.

Regular memory store

Procedure
Steps:
1. Set VFO frequency, mode, repeater shift/tone, and other operating details.
2. Press [FUNC], Rotate [SELECT] to Row b [MW, SKIP, TAG].
3. Press [A](MW) briefly for memory check.
4. Rotate [SELECT] to an empty channel.
5. Hold [A](MW) for one second to write.
6. Press [V/M] to enter memory mode and verify.

You should see:
-> Memory channel number appears and recalls the stored data.

Field note:
For split memory, configure VFO-A/VFO-B split before storing.

Label memory

Procedure
Steps:
1. Recall the memory channel.
2. Hold [FUNC] for Menu.
3. Select No-056 [MEM TAG].
4. Press [SELECT] to edit.
5. Rotate [DIAL] for character; Rotate [SELECT] to move position.
6. Hold [FUNC] to save.
7. Row b: Press [C](TAG) to toggle tag/frequency display.

You should see:
-> Memory shows the alpha tag when TAG display is active.

Field note:
Use short operational tags: RPT-NORTH, HF-CALL, APRS, WX, etc.

10. Memory & Scanning continued

Basic scan

Procedure
Steps:
1. Set squelch so noise is just closed.
2. Press [FUNC], Rotate [SELECT] to Row g [SCN, PRI, DW].
3. Press [A](SCN).
4. Rotate [DIAL] or [SELECT] opposite direction to reverse scan if required.
5. Press PTT or [A](SCN) to stop.

You should see:
-> Frequency or memories advance. Scan pauses or stops according to No-077 [SCAN MODE].

Field note:
No squelch = scanning will not behave correctly. Set SQL first.

Scan skip memory

Procedure
Steps:
1. Recall the memory channel to skip.
2. Press [FUNC], Rotate [SELECT] to Row b.
3. Press [B](SKIP).
4. Start memory scan from Row g [SCN].

You should see:
-> The skip marker appears for the channel. Scan passes over it.

Field note:
Use skip for noisy repeaters, birdies, and temporary interference.

Priority, PMS, Dual Watch

Procedure
Steps:
1. For priority scan, store the priority channel first.
2. Row g: Press [B](PRI).
3. For PMS, store lower and upper limits in PMS memories.
4. Row f: Press [C](PMS).
5. For Dual Watch, set the watch VFO/memory and Press [C](DW) on Row g.

You should see:
-> PRI, PMS, or DW indicator appears. Radio checks the programmed channel/range.

Field note:
Use No-077 [SCAN MODE] and No-078 [SCAN RESUME] to control scan restart.

11. Tuner / Antenna / Power

Antenna ports and SWR

Procedure
Steps:
1. Use HF/50 MHz ANT for HF and 50 MHz.
2. Use 144/430 MHz ANT for 144 and 430 MHz.
3. Before transmitting, select Row i and choose SWR meter.
4. Transmit briefly at low power.
5. Stop if HI SWR appears or SWR is near/above 3:1.

You should see:
-> SWR indication stays in the safe zone during transmit.

Field note:
The protection circuit reduces power when load impedance is far from 50 ohms. Fix the antenna system rather than forcing power.

FC-30 / ATAS setup

Procedure
Steps:
1. Hold [FUNC] for Menu.
2. Select No-085 [TUNER/ATAS].
3. Choose TUNER for FC-30, or ATAS(HF), ATAS(HF&50), or ATAS(ALL) for ATAS-120A.
4. Hold [FUNC] to save.
5. Press [FUNC], Rotate [SELECT] to Row k [TUNE, DOWN, UP].
6. Press [A](TUNE) to activate.
7. Hold [A](TUNE) for one second to initiate tuning/retuning.

You should see:
-> Tuner/ATAS status icon appears. During tuning, the tuning-progress indication appears, then normal display returns.

Field note:
If out-of-band or HI SWR icon appears, stop and check antenna range, coax, grounding/counterpoise, and selected port.

Power safety essentials

Use 13.8 V DC +/-15%, negative ground. Current capacity must be at least 22 A. The supplied cable uses a 25 A fast-blow fuse. Mobile installations should connect directly to the battery, not the cigarette lighter or accessory fuse box.

Minimum practical operating voltage is about 11.73 V at the radio. Below this, erratic operation or shutdown can occur.

11. Tuner / Antenna / Power continued: connector map

Use this connector map before field wiring. Do not hot-swap power or antenna connections during transmit.

Connector	What it does	Field check
INPUT	13.8 V DC power input; red positive, black negative; 22 A supply required. BATT SENS can force reduced power.	Voltage stable; 25 A fast-blow fuse; no reverse polarity.
HF/50 MHz ANT	50 ohm antenna port for HF and 50 MHz.	Correct antenna and tuner/counterpoise connected.
144/430 MHz ANT	50 ohm antenna port for 144 and 430 MHz.	Correct VHF/UHF antenna connected.
CAT/LINEAR	CAT computer control, FC-30 tuner, or VL-1000/linear control depending on No-020.	No-020 [CAT/LIN/TUN] matches connected device.
DATA	AFSK, packet, fixed receive audio, PTT, SQL status, ground.	Digital interface levels set with No-037, No-071, No-072, No-073.
ACC	External ALC on tip; TX request on ring; ground on shaft.	Linear/tuner control uses correct ALC and TX request wiring.
KEY	Straight key or paddle input.	Stereo plug used; paddle polarity checked with No-025.
EXT SPKR	External speaker output, 4 to 16 ohms.	Speaker impedance correct; level set by [AF].
MIC	Hand mic or configured remote/CAT use.	No-059 [MIC SEL] matches equipment.
SP/PH + SP-PH	Front-panel speaker/headphone output and selector.	Switch set to PH before earphones.

12. Menu System: grouped by field use

Menu entry: Hold [FUNC] -> Rotate [SELECT] -> Rotate [DIAL] -> Hold [FUNC].

RF / receiver

No	Menu	Plain-language meaning	When to adjust
004	AM&FM DIAL	Enable MAIN DIAL in AM/FM	Use if SELECT channel steps are too coarse.
006	AM STEP	AM SELECT tuning step	Set for broadcast/airband spacing.
021	CLAR DIAL SEL	Clarifier control knob	Choose SELECT or MAIN for RIT offset.
035	DIAL STEP	MAIN DIAL fine/coarse	Use COARSE for faster tuning.
052	FM STEP	FM SELECT tuning step	Match channel spacing.
053	HOME->VFO	Copy HOME to VFO by tuning	Leave on for quick edits from HOME.
054	LOCK MODE	What [LOCK] disables	Choose DIAL/FREQ/PANEL/ALL.
057	MEM/VFO DIAL MODE	SELECT secondary action	Choose quick parameter for SELECT press.
058	MIC SCAN	Mic UP/DWN scan	Enable for microphone scanning.
060	MTR ARX SEL	External meter receive mode	Set SIG/CTR/VLT/FS/OFF.
063	NB LEVEL	Noise blanker level	Raise only enough to reduce impulse noise.
080	SQL/RF GAIN	SQL/RF knob role	Choose RF gain or squelch.
082	SSB STEP	SSB SELECT tuning step	Set quick tuning step.

12. Menu System continued

DSP / audio / display

No	Menu	Plain-language meaning	When to adjust
005	AM MIC GAIN	AM microphone gain	Set if AM audio is weak or overdriven.
013	BEEP TONE	Key beep pitch	Adjust for comfort.
014	BEEP VOL	Key beep volume	Lower for quiet operation.
041	DISP COLOR	Display colour mode	Adjust for visibility.
042	DISP CONTRAST	LCD contrast	Set for viewing angle.
043	DISP INTENSITY	LCD brightness	Dim for night, bright for daylight.
044	DISP MODE	LCD lamp mode	AUTO2 for external power, OFF for stealth.
045	DSP BPF WIDTH	CW DSP filter width	Narrow for crowded CW.
046	DSP HPF CUTOFF	DSP low-cut frequency	Raise to reduce low audio rumble.
047	DSP LPF CUTOFF	DSP high-cut frequency	Lower for voice interference rejection.
048	DSP MIC EQ	Transmit mic EQ	Shape transmitted voice.
049	DSP NR LEVEL	DSP noise reduction level	Increase until noise drops without watery audio.
051	FM MIC GAIN	FM microphone gain	Set if FM audio is low or distorted.
061	MTR ATX SEL	External meter transmit mode	Set PWR/ALC/MOD/SWR/VLT/OFF.
062	MTR PEAK HOLD	Meter peak hold	Use to catch peaks during transmit.
081	SSB MIC GAIN	SSB microphone gain	Set with ALC during speech.

12. Menu System continued

Transmit / monitoring

No	Menu	Plain-language meaning	When to adjust
005	AM MIC GAIN	AM microphone gain	Set if AM audio is weak or overdriven.
040	DIG VOX	Digital VOX gain	Use for audio-triggered digital transmit.
048	DSP MIC EQ	Transmit mic EQ	Shape transmitted voice.
051	FM MIC GAIN	FM microphone gain	Set if FM audio is low or distorted.
061	MTR ATX SEL	External meter transmit mode	Set PWR/ALC/MOD/SWR/VLT/OFF.
074	PROC LEVEL	Speech processor compression	Set for SSB/AM punch without distortion.
075	RF POWER SET	Max RF power for band	Reduce for battery, heat, nearby people, or tuning.
084	TOT TIME	Transmit timeout timer	Protect finals and prevent stuck PTT.
086	TX IF FILTER	Transmit IF filter	Use installed filter if needed.
087	VOX DELAY	VOX hang time	Set delay before returning to receive.
088	VOX GAIN	VOX trigger gain	Set so voice keys TX, noise does not.

CW

No	Menu	Plain-language meaning	When to adjust
022	CW AUTO MODE	KEY jack outside CW	Enable if sending CW while in SSB/FM.
023	CW BFO	CW injection side	Use AUTO unless you need fixed USB/LSB.
024	CW DELAY	CW break-in recovery	Lengthen if receiver returns too quickly.
025	CW KEY REV	Paddle polarity	Reverse if dots/dashes are swapped.
026	CW PADDLE	Paddle or mic keying	Use MICKEY only for mic UP/DWN keying.
027	CW PITCH	CW sidetone/filter pitch	Set to preferred CW tone.
028	CW QSK	QSK keying delay	Leave low unless keying needs timing change.
029	CW SIDE TONE	CW sidetone level	Set comfortable monitor volume.
030	CW SPEED	Internal keyer speed	Set sending speed.
031	CW TRAINING	Morse practice source	Use off-air practice only.
032	CW WEIGHT	Dot:dash ratio	Adjust keyer feel.

12. Menu System continued

Repeater / tone / FM

No	Menu	Plain-language meaning	When to adjust
002	144MHz ARS	Automatic repeater shift on 144 MHz	Use for local 2 m repeater defaults.
003	430MHz ARS	Automatic repeater shift on 430 MHz	Use for local 70 cm repeater defaults.
033	DCS CODE	DCS encode/decode code	Set for DCS repeaters.
034	DCS INV	DCS normal/inverted	Change only if repeater needs inverted DCS.
052	FM STEP	FM SELECT tuning step	Match channel spacing.
076	RPT SHIFT	Repeater offset amount	Set regional offset value.
077	SCAN MODE	Scan resume rule	TIME, BUSY, or STOP.
078	SCAN RESUME	Scan resume delay	Set hold time after signal.
079	SPLIT TONE	Separate CTCSS/DCS encode/decode	Use for mixed tone systems.
083	TONE FREQ	CTCSS tone frequency	Set repeater tone, default 88.5 Hz.

Memory / scan / system / CAT

No	Menu	Plain-language meaning	When to adjust
001	EXT MENU	Show extended menu items	Turn on before deep configuration.
007	APO TIME	Auto power-off timer	Use on battery operations.
008	ARTS BEEP	ARTS alert behaviour	Set alerts for range monitoring.
009	ARTS ID	CW ID during ARTS	Enable if ID is required.
010	ARTS IDW	ARTS CW callsign	Store callsign for ARTS ID.
011	BEACON TEXT 1	CW beacon text	Store message before beacon use.
012	BEACON TIME	Beacon interval	Use only when unattended beaconing is allowed.
019	CAT RATE	CAT baud rate	Match computer/control software.
020	CAT/LIN/TUN	Rear CAT/LINEAR jack role	Set CAT, LINEAR, or TUNER to match connected device.
055	MEM GROUP	Memory groups on/off	Use when many memories are stored.
056	MEM TAG	Memory alpha tag	Label memory channels.
059	MIC SEL	MIC jack equipment	NOR mic, RMT remote mic, CAT via mic jack.
064	OP FILTER 1	Optional filter slot	Configure optional IF filter slot when installed.
065	PG A	Program MFq [A]	Assign preferred shortcut.
066	PG B	Program MFq [B]	Assign preferred shortcut.
067	PG C	Program MFq [C]	Assign preferred shortcut.
068	PG ACC	Remote mic ACC assignment	Set MH-59A8J shortcut.
069	PG P1	Remote mic P1 assignment	Set MH-59A8J shortcut.
070	PG P2	Remote mic P2 assignment	Set MH-59A8J shortcut.
071	PKT1200	1200 bps packet input level	Set TNC audio drive.
072	PKT9600	9600 bps packet input level	Set TNC audio drive.
073	PKT RATE	Packet rate	Choose 1200 or 9600 bps.
085	TUNER/ATAS	TUNE key device	Select FC-30 or ATAS-120A.
089	XVTR A FREQ	Transverter A display offset	Set direct readout for transverter.
090	XVTR B FREQ	Transverter B display offset	Set second transverter readout.
091	XVTR SEL	Enable transverter display	Select OFF, XVTR A, or XVTR B.

12. Menu System: full numerical index 001-046

No	Name	Meaning	Adjust when
001	EXT MENU	Show extended menu items	Turn on before deep configuration.
002	144MHz ARS	Automatic repeater shift on 144 MHz	Use for local 2 m repeater defaults.
003	430MHz ARS	Automatic repeater shift on 430 MHz	Use for local 70 cm repeater defaults.
004	AM&FM DIAL	Enable MAIN DIAL in AM/FM	Use if SELECT channel steps are too coarse.
005	AM MIC GAIN	AM microphone gain	Set if AM audio is weak or overdriven.
006	AM STEP	AM SELECT tuning step	Set for broadcast/airband spacing.
007	APO TIME	Auto power-off timer	Use on battery operations.
008	ARTS BEEP	ARTS alert behaviour	Set alerts for range monitoring.
009	ARTS ID	CW ID during ARTS	Enable if ID is required.
010	ARTS IDW	ARTS CW callsign	Store callsign for ARTS ID.
011	BEACON TEXT 1	CW beacon text	Store message before beacon use.
012	BEACON TIME	Beacon interval	Use only when unattended beaconing is allowed.
013	BEEP TONE	Key beep pitch	Adjust for comfort.
014	BEEP VOL	Key beep volume	Lower for quiet operation.
015	CAR LSB R	LSB receive carrier point	Only adjust for passband preference.
016	CAR LSB T	LSB transmit carrier point	Only adjust if TX audio alignment requires it.
017	CAR USB R	USB receive carrier point	Only adjust for passband preference.
018	CAR USB T	USB transmit carrier point	Only adjust if TX audio alignment requires it.
019	CAT RATE	CAT baud rate	Match computer/control software.
020	CAT/LIN/TUN	Rear CAT/LINEAR jack role	Set CAT, LINEAR, or TUNER to match connected device.
021	CLAR DIAL SEL	Clarifier control knob	Choose SELECT or MAIN for RIT offset.
022	CW AUTO MODE	KEY jack outside CW	Enable if sending CW while in SSB/FM.
023	CW BFO	CW injection side	Use AUTO unless you need fixed USB/LSB.
024	CW DELAY	CW break-in recovery	Lengthen if receiver returns too quickly.
025	CW KEY REV	Paddle polarity	Reverse if dots/dashes are swapped.
026	CW PADDLE	Paddle or mic keying	Use MICKEY only for mic UP/DWN keying.
027	CW PITCH	CW sidetone/filter pitch	Set to preferred CW tone.
028	CW QSK	QSK keying delay	Leave low unless keying needs timing change.
029	CW SIDE TONE	CW sidetone level	Set comfortable monitor volume.
030	CW SPEED	Internal keyer speed	Set sending speed.
031	CW TRAINING	Morse practice source	Use off-air practice only.
032	CW WEIGHT	Dot:dash ratio	Adjust keyer feel.
033	DCS CODE	DCS encode/decode code	Set for DCS repeaters.
034	DCS INV	DCS normal/inverted	Change only if repeater needs inverted DCS.
035	DIAL STEP	MAIN DIAL fine/coarse	Use COARSE for faster tuning.
036	DIG DISP	Digital display offset	Align display for USER-L/USER-U.
037	DIG GAIN	Digital input level	Set for soundcard/TNC drive.
038	DIG MODE	Digital mode/sideband	Select RTTY, PSK31, or user mode.
039	DIG SHIFT	Digital carrier offset	Align USER-L/USER-U carrier offset.
040	DIG VOX	Digital VOX gain	Use for audio-triggered digital transmit.
041	DISP COLOR	Display colour mode	Adjust for visibility.
042	DISP CONTRAST	LCD contrast	Set for viewing angle.
043	DISP INTENSITY	LCD brightness	Dim for night, bright for daylight.
044	DISP MODE	LCD lamp mode	AUTO2 for external power, OFF for stealth.
045	DSP BPF WIDTH	CW DSP filter width	Narrow for crowded CW.
046	DSP HPF CUTOFF	DSP low-cut frequency	Raise to reduce low audio rumble.

12. Menu System: full numerical index 047-091

No	Name	Meaning	Adjust when
047	DSP LPF CUTOFF	DSP high-cut frequency	Lower for voice interference rejection.
048	DSP MIC EQ	Transmit mic EQ	Shape transmitted voice.
049	DSP NR LEVEL	DSP noise reduction level	Increase until noise drops without watery audio.
050	EMERGENCY	Alaska 5167.5 kHz enable	USA Alaska emergency use only.
051	FM MIC GAIN	FM microphone gain	Set if FM audio is low or distorted.
052	FM STEP	FM SELECT tuning step	Match channel spacing.
053	HOME->VFO	Copy HOME to VFO by tuning	Leave on for quick edits from HOME.
054	LOCK MODE	What [LOCK] disables	Choose DIAL/FREQ/PANEL/ALL.
055	MEM GROUP	Memory groups on/off	Use when many memories are stored.
056	MEM TAG	Memory alpha tag	Label memory channels.
057	MEM/VFO DIAL MODE	SELECT secondary action	Choose quick parameter for SELECT press.
058	MIC SCAN	Mic UP/DWN scan	Enable for microphone scanning.
059	MIC SEL	MIC jack equipment	NOR mic, RMT remote mic, CAT via mic jack.
060	MTR ARX SEL	External meter receive mode	Set SIG/CTR/VLT/FS/OFF.
061	MTR ATX SEL	External meter transmit mode	Set PWR/ALC/MOD/SWR/VLT/OFF.
062	MTR PEAK HOLD	Meter peak hold	Use to catch peaks during transmit.
063	NB LEVEL	Noise blanker level	Raise only enough to reduce impulse noise.
064	OP FILTER 1	Optional filter slot	Configure optional IF filter slot when installed.
065	PG A	Program MFq [A]	Assign preferred shortcut.
066	PG B	Program MFq [B]	Assign preferred shortcut.
067	PG C	Program MFq [C]	Assign preferred shortcut.
068	PG ACC	Remote mic ACC assignment	Set MH-59A8J shortcut.
069	PG P1	Remote mic P1 assignment	Set MH-59A8J shortcut.
070	PG P2	Remote mic P2 assignment	Set MH-59A8J shortcut.
071	PKT1200	1200 bps packet input level	Set TNC audio drive.
072	PKT9600	9600 bps packet input level	Set TNC audio drive.
073	PKT RATE	Packet rate	Choose 1200 or 9600 bps.
074	PROC LEVEL	Speech processor compression	Set for SSB/AM punch without distortion.
075	RF POWER SET	Max RF power for band	Reduce for battery, heat, nearby people, or tuning.
076	RPT SHIFT	Repeater offset amount	Set regional offset value.
077	SCAN MODE	Scan resume rule	TIME, BUSY, or STOP.
078	SCAN RESUME	Scan resume delay	Set hold time after signal.
079	SPLIT TONE	Separate CTCSS/DCS encode/decode	Use for mixed tone systems.
080	SQL/RF GAIN	SQL/RF knob role	Choose RF gain or squelch.
081	SSB MIC GAIN	SSB microphone gain	Set with ALC during speech.
082	SSB STEP	SSB SELECT tuning step	Set quick tuning step.
083	TONE FREQ	CTCSS tone frequency	Set repeater tone, default 88.5 Hz.
084	TOT TIME	Transmit timeout timer	Protect finals and prevent stuck PTT.
085	TUNER/ATAS	TUNE key device	Select FC-30 or ATAS-120A.
086	TX IF FILTER	Transmit IF filter	Use installed filter if needed.
087	VOX DELAY	VOX hang time	Set delay before returning to receive.
088	VOX GAIN	VOX trigger gain	Set so voice keys TX, noise does not.
089	XVTR A FREQ	Transverter A display offset	Set direct readout for transverter.
090	XVTR B FREQ	Transverter B display offset	Set second transverter readout.
091	XVTR SEL	Enable transverter display	Select OFF, XVTR A, or XVTR B.

13. Reset & Recovery

Soft recovery checklist

Procedure
Steps:
1. Release PTT and stop transmitting.
2. Press [LOCK] if controls do not respond.
3. Check whether [FUNC] row mode is active; Press [FUNC] to return to normal.
4. Check whether Clarifier or IF SHIFT is active; Press or Hold [CLAR] to clear.
5. Check VFO/Memory state with [V/M].
6. Power-cycle: Hold [POWER] off, then Hold [POWER] on.

You should see:
-> Normal VFO or memory display returns and controls respond.

Field note:
Do not reset memories until you have ruled out lock, split, Clarifier, menu, or low-voltage causes.

Microprocessor reset options

Use reset only when configuration is corrupted or recovery steps fail. Record important memories and menu values first.

Need	Action	Result
Reset memories and selected menu values	Hold [V/M] while turning power on.	Resets all memories and Menu #06, #33, #52, #56, #76, #82, and #83 to factory defaults.
Reset menu settings	Hold [FUNC] while turning power on.	Resets all menu settings except Menu #06, #33, #52, #56, #76, #82, and #83.
Full CPU master reset	Hold [HOME] while turning power on.	Clears all memories and menu settings. Use only as a last resort.

After any reset: verify No-080 [SQL/RF GAIN], No-075 [RF POWER SET], No-085 [TUNER/ATAS], repeater shifts/tones, and digital levels before transmitting.

14. Quick Reference

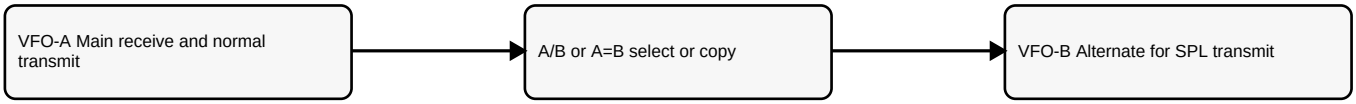
Task	Press this	Confirm
Power on/off	Hold [POWER] 1 second	LCD on/off
Fast tuning	Press [POWER] briefly while on	Fast icon appears
Band	Press [BAND(UP)]/[BAND(DWN)]	Band changes
Mode	Press [MODE LEFT]/[MODE RIGHT]	Mode label changes
VFO/Memory	Press [V/M]	VFOa/VFOb or M-nnn shown
VFO A/B	Row a, Press [A](A/B)	VFO-A/B changes
Copy VFO	Row a, Press [B](A=B)	Sub VFO matches Main
Split	Row a, Press [C](SPL)	Split icon appears
Clarifier	Press [CLAR]	RIT icon/offset appears
IF Shift	Hold [CLAR]	IF SHIFT icon appears
Noise blanker	Row l, Press [A](NB)	NB marker appears
IPO	Row m, Press [A](IPO)	IPO icon appears
ATT	Row m, Press [B](ATT)	ATT icon appears
DSP row	Press [DSP]	DNR/DNF/DBF row appears
Scan	Row g, Press [A](SCN)	Scan starts
Tuner/ATAS	Row k, Press/Hold [A](TUNE)	Tuner icon/progress appears

Mode choice

Use case	Mode	Main controls
HF voice below 10 MHz	LSB	[DIAL], ALC meter, No-081
HF voice above 10 MHz	USB	[DIAL], ALC meter, No-081
Repeater/local VHF/UHF	FM	Row d RPT/REV, Row e TON
Morse	CW/CWR	Row j SPOT/BK/KYR
RTTY/PSK AFSK	DIG	No-038, No-037, DATA jack
Packet	PKT	No-073, No-071/072, DATA jack

14. Quick Reference: VFO and split card

VFO / split roles



Set up split

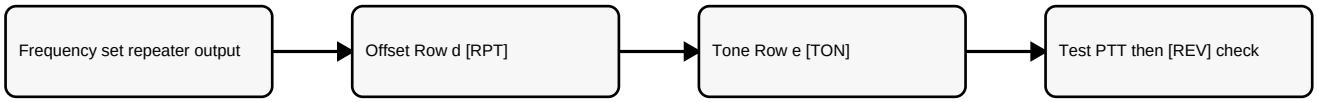
Procedure
Steps:
1. Press [FUNC], Rotate [SELECT] to Row a [A/B, A=B, SPL].
2. Press [A](A/B) to choose the working VFO.
3. Tune receive frequency on the displayed VFO.
4. Press [B](A=B) if you want both VFOs to start identical.
5. Press [A](A/B), tune the other VFO to transmit frequency.
6. Press [C](SPL) to enable split.
7. Transmit briefly only after verifying the correct TX frequency.

You should see:
-> Split icon appears. Receive remains on one VFO and transmit uses the other VFO.

Field note:
For quick split, Row q [QSPL] sets the Sub VFO to Main VFO +5 kHz and engages split.

14. Quick Reference: repeater field card

Repeater setup flow



Program a repeater contact

Procedure
Steps:
1. Select FM with [MODE LEFT] or [MODE RIGHT].
2. Set the repeater output frequency.
3. Row d: Press [A](RPT) until the correct + or - shift appears.
4. Hold [A](RPT) if No-076 [RPT SHIFT] must be changed.
5. Row e: Press [A](TON) to enable tone/DCS operation.
6. Hold [A](TON), set No-083 [TONE FREQ].
7. Press PTT, identify, and ask for a signal check.

You should see:
-> Shift and tone indicators appear. Repeater tail or reply confirms access.

Field note:
If unsure, Press [B](REV) on Row d to listen on the input frequency.

14. Quick Reference: SSB/AM voice card

Voice transmit setup

Procedure
Steps:
1. Select LSB, USB, or AM with [MODE LEFT] or [MODE RIGHT].
2. Tune with [DIAL].
3. Row i: select ALC meter.
4. Set No-081 [SSB MIC GAIN] or No-005 [AM MIC GAIN].
5. Optional: Row c, Press [C](PROC).
6. Hold [C](PROC), set No-074 [PROC LEVEL].
7. Press PTT and speak normally.

You should see:
-> ALC moves on voice peaks. TX/BUSY is red only while transmitting.

Field note:
If the other station reports distortion, lower mic gain first, then lower processor level.

Control	Safe start
SSB MIC GAIN	50, then adjust by ALC
AM MIC GAIN	50, then adjust by ALC
PROC LEVEL	Low to moderate; avoid pinned ALC
RF POWER SET	Lowest power that works

14. Quick Reference: CW field card

CW operation

Procedure
Steps:
1. Connect key or paddle to KEY jack using a stereo plug.
2. Select CW or CWR.
3. Row j: Press [A](SPOT) to match pitch.
4. Row j: Press [B](BK) for semi-break-in.
5. Row j: Press [C](KYR) for internal keyer.
6. Hold [C](KYR), set No-030 [CW SPEED].
7. Set No-027 [CW PITCH] if the sidetone/filter centre is uncomfortable.

You should see:
-> Sidetone is heard and TX/BUSY turns red during keying.

Field note:
Straight keys still require a three-conductor plug; a two-conductor plug can hold the key line shorted.

Menu	Use
No-024 CW DELAY	Receiver recovery after sending
No-025 CW KEY REV	Swap dot/dash paddle sense
No-029 CW SIDE TONE	Monitor volume
No-032 CW WEIGHT	Dot:dash feel

14. Quick Reference: digital / packet field card

Digital or packet setup

Procedure
Steps:
1. Connect DATA jack to TNC or soundcard interface.
2. Select DIG or PKT with [MODE LEFT] or [MODE RIGHT].
3. For DIG, set No-038 [DIG MODE].
4. For DIG, set No-037 [DIG GAIN].
5. For packet, set No-073 [PKT RATE].
6. Set No-071 [PKT1200] or No-072 [PKT9600].
7. Transmit from the terminal/software and monitor power/ALC.

You should see:
-> DATA jack audio/PTT path operates; front microphone is not live during rear DATA digital transmit.

Field note:
Digital signals should not drive hard ALC. Reduce software audio or No-037 if the signal is wide or distorted.

14. Quick Reference: memory field card

Store and recall memory

Procedure
Steps:
1. Tune VFO and set mode, shift, tone, and power as required.
2. Row b: Press [A](MW) briefly.
3. Rotate [SELECT] to choose the target memory.
4. Hold [A](MW) for one second.
5. Press [V/M] to enter memory mode.
6. Rotate [SELECT] to recall the stored channel.

You should see:
-> Memory channel number appears and stored operating data returns.

Field note:
For temporary storage, use QMB: Hold [V/M] or Row c [STO/RCL].

Need	Action
Skip noisy channel	Row b, Press [B](SKIP)
Show tag	Row b, Press [C](TAG)
Edit tag	No-056 [MEM TAG]
Group memories	No-055 [MEM GROUP] ON

14. Quick Reference: scanning field card

Scan

Procedure
Steps:
1. Set squelch so the channel is quiet with no signal.
2. Choose VFO or Memory mode with [V/M].
3. Row g: Press [A](SCN).
4. Rotate [DIAL] or [SELECT] to reverse direction if needed.
5. Press PTT or [A](SCN) to stop.

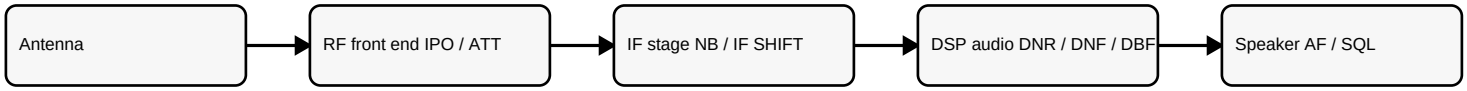
You should see:
-> Scan advances and pauses when squelch opens.

Field note:
Set No-077 [SCAN MODE] to TIME, BUSY, or STOP. Set No-078 [SCAN RESUME] for delay.

Scan mode	Behaviour
TIME	Pauses for No-078 time, then resumes
BUSY	Waits until signal disappears, then resumes
STOP	Stops on first received signal

14. Quick Reference: DSP receive card

Receive signal path: where each control acts



DSP / receiver cleanup

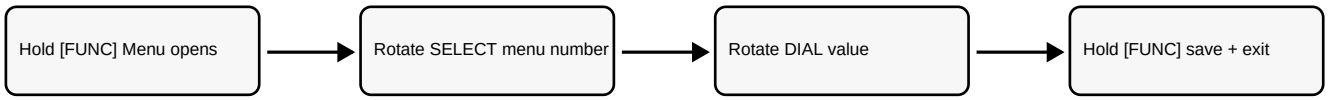
Procedure
Steps:
1. For impulse noise, Row l: Press [A](NB).
2. For overload/noisy band, Row m: Press [A](IPO), then [B](ATT) if needed.
3. For broad hiss, Press [DSP], then [A](DNR).
4. For a steady carrier, Press [DSP], then [B](DNF).
5. For narrow audio passband, Press [DSP], then [C](DBF).

You should see:
-> Noise falls while the wanted signal remains understandable.

Field note:
Change only one receive tool at a time. If the wanted signal gets worse, undo the last tool.

14. Quick Reference: menu field card

Menu navigation



Menu change

Procedure
Steps:
1. Hold [FUNC] for one second.
2. Rotate [SELECT] to the menu item.
3. Rotate [DIAL] to change the value.
4. Press [HOME] to restore the factory default for that item if needed.
5. Hold [FUNC] to save and exit.

You should see:
-> Frequency display returns and the new setting is active.

Field note:
Set No-001 [EXT MENU] ON when the item you need is hidden.

Need	Action
Abort without saving	Hold [C] for one second while in Menu
Mask an item	Press [A] in menu list to mark it when EXT MENU is OFF
Common field menus	075 RF POWER SET, 080 SQL/RF GAIN, 083 TONE FREQ, 085 TUNER/ATAS

14. Quick Reference: meter and SWR card

PWR	Use enough power, not more than needed	Low	Normal	High
ALC	Speak so ALC moves, not pinned	None	Active	Too high
SWR	Protect finals and antenna system	1.1:1	1.5:1	3:1+ stop

If HI SWR appears or SWR exceeds 3:1: stop transmitting, reduce power, check antenna/coax/tuner.

Meter and SWR check

Procedure
Steps:
1. Row i: Press [A](MTR) repeatedly.
2. Choose PWR, ALC, SWR, MOD, or VLT.
3. Transmit briefly at low power for SWR checks.
4. Stop immediately if HI SWR appears.
5. Check antenna port, coax, tuner setting, and antenna range.
6. Retest at low power before normal transmit.

You should see:
-> Meter label changes and the bar graph responds during transmit.

Field note:
A good contact at lower power is better than a stressed final amplifier at high SWR.

14. Quick Reference: lock, display, and field comfort card

Lock and display setup

Procedure
Steps:
1. Press [LOCK] to prevent accidental changes.
2. Press [LOCK] again to unlock.
3. Set No-054 [LOCK MODE] for DIAL, FREQ, PANEL, or ALL.
4. Set No-043 [DISP INTENSITY] for brightness.
5. Set No-042 [DISP CONTRAST] for viewing angle.
6. Set No-044 [DISP MODE] for lamp behaviour.

You should see:
-> Lock icon or display brightness/contrast changes.

Field note:
For mobile night use: lock the dial, dim the display, and avoid menu work while driving.

14. Quick Reference: pre-transmit checklist

Pre-transmit checklist

Procedure
Steps:
1. Confirm you are licensed for the frequency and mode.
2. Confirm correct antenna port and antenna for the band.
3. Select meter: SWR first, then PWR/ALC/MOD as needed.
4. Set No-075 [RF POWER SET] to the lowest practical power.
5. Check people, pets, and bystanders are clear of the antenna.
6. Transmit briefly and watch for HI SWR, high ALC, or abnormal voltage.
7. Continue only if the meter behaviour is normal.

You should see:
-> No HI SWR warning, stable voltage, normal ALC/MOD, and expected RF power.

Field note:
When uncertain, stop transmitting. Receive, inspect, lower power, and test again.

15. Safety

Power and wiring

Connect only to 13.8 V DC +/-15%, negative ground. Red lead goes to positive. Black lead goes to negative. Use a supply capable of at least 22 A. Replace the fuse only with the specified 25 A fast-blow fuse.

Never connect AC, reverse-polarity DC, or a 24 V battery system. Permanent damage can result.

RF exposure and antennas

Do not transmit while people or animals are close to the antenna. Do not stand in front of a directional antenna during transmit. Use low power when stopped in a vehicle and people are nearby.

Locate antennas where they cannot contact power lines. Disconnect antenna, rotator, and power cables before a storm reaches the area. Do not disconnect cables during an active nearby lightning storm.

Headphones and mobile operation

Set the rear SP-PH switch to PH before inserting earphones into the SP/PH jack. Never wear dual-earmuff headphones while driving. Do not operate autopatch or dial DTMF while driving; pull over first.

Heat and ventilation

Keep side intake and rear exhaust clear. Do not mount the radio in a confined space. Do not place equipment, books, or papers on top. Avoid direct sun and hot vents; operating range is -10 C to +60 C.

Final field rule:
Before transmit: correct antenna port, legal frequency/mode, safe power, SWR checked, people clear of antenna, and no HI SWR warning.