YAESU
Choice of the World's top DX'ers℠

HF EXCITEMENT

FT-857

ULTRA-COMPACT HF/VHF/UHF
100 W* ALL-MODE TRANSCEIVER
(HF/6 m 100 W, 2 m 50 W, 70 cm 20 W)

Blending leading-edge technologies developed on the FT-897 and MARK-V FT-1000MP transceivers, the FT-857 is the world's smallest* HF/VHF/UHF Multimode Transceiver, and it's available now!

*Jan. 2003

ACTUAL SIZE

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HF EXCITEMENT

The FT-857, the world's smallest HF/VHF/UHF Mobile transceiver, provides base station performance from an ultra-compact package that's ideal for mobile or external battery portable work. Wide frequency coverage, outstanding receiver performance, and the convenience of remote-head operation* make the FT-857 the expert's choice for high-performance mobile operation!

*Optional YSK-857 Separation Kit required

Actual Size

FT-857 ULTRA-COMPACT HF/VHF/UHF 100 W* ALL-MODE TRANSCEIVER (HF/6 m 100 W, 2 m 50 W, 70 cm 20 W)

OPTIONAL REMOTE MOUNTING KIT

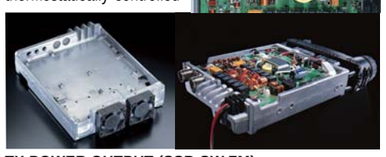
For mobile operation where mounting space is very limited, the optional YSK-857 Separation Kit allows the front panel to be remotely mounted on your dashboard, with the transceiver stashed away in available space. Data is transferred between units at a lightning-fast rate of 31.25 k/bps, for seamless remote

ULTRA COMPACT DESIGN

Measuring just 6.1" x 2" x 9.2" (155 x 52 x 233 mm), the FT-857 is the world's smallest full-power HF/VHF/UHF multimode transceiver! Its rugged case design is a masterpiece of ergonomic design, with often-used switches and knobs conveniently positioned for

RUGGED, HIGH-OUTPUT TRANSMITTER DESIGN

Borrowing extensively from the FT-897 transmitter design, the FT-857's rugged power amplifier section utilizes Bipolar Transistor devices, providing low noise, low distortion, and high reliability. On HF and 6 meters, you get 100 Watts of clean power output, while on 2 meters you get 50 Watts out, and 20 Watts on 70 cm. Reliability is assured thanks to the extensive cooling system, featuring a thermostatically-controlled



TX POWER OUTPUT (SSB,CW,FM)

HF / 6 m	2 m	70 cm
5W ~ 100W	5W ~ 50W	2W ~ 20W

HIGH-PERFORMANCE RECEIVER DESIGN

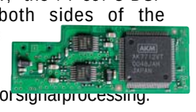
Building on the acclaimed performance of the FT-1000D, Mark-V$_{FT-1000MP}$, and FT-897, Yaesu's engineers have crafted the FT-857's front end for a very low noise floor, along with wide dynamic range. Utilizing an up-conversion architecture for HF with a first IF of 68.33 MHz, the FT-857 features a double-conversion superheterodyne system (single conversion on WFM), with the 2nd IF at 455 kHz. Extensive bandpass filtering in the front end, along with careful device selection and gain distribution, yield a receiver system ready for the strong-signal challenges of today's crowded bands! On VHF and UHF the very-low-noise MOS FET preamplifier is followed by an active DBM mixer, yielding the low noise figure required for weak-

WIDE FREQUENCY COVERAGE

Providing transmitter coverage of the HF, 50 MHz, 144 MHz, and 430 MHz Amateur bands, the FT-857 also includes receive coverage on 100 kHz to 56 MHz, 76 to 108 MHz, 118-164 MHz, and 420-470 MHz. Enjoy the excitement of public safety monitoring, along with weather broadcasts, AM and FM broadcasts, aviation communications, as well as the action on the Hambands!

ENHANCED TRANSCEIVER PERFORMANCE THROUGH DIGITAL SIGNAL PROCESSING (Optional DSP-2 Unit Required)

For superior interference rejection and transmitter "talk power," the FT-857's DSP circuitry enhances both sides of the communications circuit. The FT-857's DSP Unit features a 24-bit high-tech D/A chip for signal processing.



•DSP BANDPASS FILTER : Separate DSP Bandpass Filters for Voice and CW augment the analog filters for enhanced interference rejection. For Voice modes, you get 16 High-Pass Filter cutoff frequency selections, and 32 Low-Pass Filter selections, for a total of 512 combinations. And for CW, you may choose bandwidths of 240 Hz, 120 Hz, or a razor-sharp 60 Hz.

•DSP AUTO-NOTCH FILTER : To reduce interference caused by annoying carriers within the audio passband, the DSP Auto-Notch provides a significant reduction in the interference level. If multiple carriers are present, the DSP will detect and notch all the carriers present.

•DSP NOISE REDUCTION : The very effective Noise Reduction filter of the FT-857 utilizes as many as 16 noise-reduction algorithms, for use in a wide variety of noise environments, without introducing appreciable distortion on the desired signal. Operator fatigue is reduced, and signal-to-noise ratio is significantly enhanced.

•DSP MICROPHONE EQUALIZER : To match the FT-857's TX audio response to the waveform produced by your voice and the microphone in use, the DSP system includes a four-position Mic Equalizer circuit. The result is increased "talk power," as extraneous frequencies are suppressed, allowing all available power to be concentrated into your voice's spatterns.

HIGH-PERFORMANCE PLL DESIGN

The quiet, fast-acting local oscillator system of the FT-857 borrows extensively from the FT-847 and FT-897, using a Direct Digital Synthesizer (DDS) to achieve fast lock times and silky-smooth tuning in steps as fine as 10 Hz. The excellent carrier-to-noise ratio helps preserve spurious-free dynamic range in a crowded band, and the smooth tuning leaves you with

UNMATCHED EASE OF ACCESS TO FEATURES

Despite its compact size, the FT-857 is without peer in ease of access to the features and functions you need the most!

•BIG-RADIO TUNING DIAL AND OUTSTANDING ERGONOMICS : Ease of operation of the FT-857 is enhanced by the large diameter 1.7" (Ø43 mm) Main Tuning Dial (10 Hz steps minimum), similar in size to the tuning knob of many base station rigs. What's more, the SELECT knob allows "channelized" tuning in minimum steps of 1 kHz on SSB/CW, or 5 kHz on FM, for quick and easy tuning around the band. All important keys are strategically placed around the front panel, for quick access.

•EASY-TO-USE "SCROLLING FRONT PANEL" KEYS : The compactness of the FT-857 is made possible by the easy-to-use "multi-function" keys, which allow adjustment of a number of transceiver operating functions during operation. Pressing the [FUNC] key allows selection of the operating function row, using the Selector knob, and you may then press the [A], [B], or [C] key, as needed, to change the

Multi Function Keys

	A key	B key	C key
MFa	A / B (VFO A/B Selection)	A=B (Equalize VFOs A/B)	SPL (Split Operation)
MFb	MW (Write to Memory)	SKIP (Skip during Scan)	TAG (Memory Name Tag)
MFc	STO (Quick Memory Store)	RCL (Quick Memory Recall)	PROC (Speech Processor On/Off)
MFd	RPT (Repeater On/Off)	REV (RPT Shift Reverse)	VOX (VOX On/Off)
MFe*	TON (CTCSS/DCS On/Off)	—	TDCH (Tone/Code Selection)
MFe	ENC (Split Tone Encode)	DEC (Split Tone Decode)	TDCH (Tone/Code Search)
MFf	ARTS (ARTS™ On/Off)	SRCH (Smart Search™ On/Off)	PMS (Band-Limit Scan)
MFg	SCN (Scan Start)	PRI (Priority Ch. Watch)	DW (Dual Watch)
MFh	SCOP (Spectrum Scope)	WID (Scope Bandwidth)	STEP (Scope Steps)
MFi	MTR (Meter Mode)	PWR (Meter Mode)	DISP (Display Size)
MFj	SPOT (CW Spot)	BK (Break-in On/Off)	KYR (CW Keyer On/Off)
MFk	TUNE (ATU/ATAS On/Off)	DOWN (ATAS Down)	UP (ATAS Up)
MFl	NB (Noise Blanker On/Off)	AGC (AGC On/Off)	AUTO (AGC Mode)
MFm	IPO (RX Preamp On/Off)	ATT (RX Attenuator On/Off)	NAR (Narrow Dev.)
MFn	CFIL (RX Normal Fltr.)	N/A (Optional Fltr. 1)	N/A (Optional Fltr. 2)
MFo	PLY1 (Keyer Mem. 1)	PLY2 (Keyer Mem. 2)	PLY3 (Keyer Mem. 3)
MFp	DNR (DSP Noise Fltr.)	DNF (DSP Notch Fltr.)	DBF (DSP BPF)
MFq	MONI* (SQL Disable)	QSPL* (Quick Split)	ATC* (1750 Hz Tone)

*This row of functions is user-programmable (defaults shown).

ADVANCED FEATURES FOR ACTIVE DXers

•IF Shift : Use the IF SHIFT feature to vary the center frequency of the IF passband, so as to eliminate interference above or below the current operating frequency.

•IF Noise Blanker : Optimized for use in the mobile environment, the FT-857 includes a highly-effective IF Noise Blanker specifically designed for suppression of ignition and other pulse-type noises. The Noise Blanker's threshold is adjustable via the Menu.

•Intercept Point Optimization (IPO) : For reception on the lower HF bands, where low Noise Figure is not required, the IPO feature causes the RF preamplifier to be bypassed, allowing direct signal input to the first mixer. An input attenuator is also provided, for very noisy conditions.

•Adjustable AGC : The Automatic Gain Control (AGC) circuitry of the FT-857's receiver may be adjusted, by the operator, for Slow or Fast recovery times. A convenient "Auto" feature programs "Fast" AGC for CW, and "Slow" for voice modes. And the AGC may also be turned off, if desired, allowing manual gain control from the front panel.

•Clarifier (R.I.T.) : For split-frequency pile-ups or to follow drifting signals, the Clarifier control provides up to ±9.99 kHz of adjustment of the receiver's frequency, without changing the transmit frequency. For wider–split pileups, the "Split" mode allows you to use VFO-A and VFO-B separately, too.

•RF Gain Control : For noise reduction and/or variation of the AGC system threshold, the Menu allows the front panel's "Squelch" control to operate as an "RF Gain" control.

•VOX : For hands-free Voice operation, the VOX

CW OPERATING FLEXIBILITY

The FT-857 is without peer in its array of most-asked-for features for the CW expert!

•Built-In Electronic Keyer : The FT-857's built-in Electronic Keyer includes a weight control, as well as Menu capability to reverse the "Dot" and "Dash" contacts on your connector.

•CW Message Memory with Beacon Mode : For repetitive "CQ TEST" and contest exchange messages, the FT-857 includes a three-message memory capability. The "Beacon" mode may be used to send a repetitive message out continuously for up to four hours, ideal for 6-meter use during DX-peditions.

•CW Pitch/Sidetone Control : The CW Pitch control allows the transmitted signal to be offset 400/500/600/700/800 Hz from "zero beat" with the receive frequency. This adjustment simultaneously varies the center frequency of the RX passband (including the DSP BPF), as well as the CW Sidetone pitch. The Sidetone therefore serves as a "Spot" signal during tuning.

•CW Trainer : A popular feature of the FT-857 is the CW Trainer, which will send five-character

EASY DATA-MODE SETUP

For operation on a wide variety of digital modes, including 1200/9600 bps FM packet, RTTY, SSTV, or PSK31, the rear-panel 6-pin mini-DIN connector provides easy to Data I/O lines, plus PTT and Ground. For PSK-31 and other AFSK modes, the injection sideband (USB/LSB) is selectable, along with BFO and Display Shift and

ADVANCED CONVENIENCE FEATURES FOR VHF/UHF OPERATION

The FT-857 is a VHF/UHF operator's dream come true!

•Versatile Tone Control Selections : Both CTCSS and DCS Encoder/Decoders are built in! For easy access to repeaters, a 50-tone CTCSS system works along with a 104-code Digital Code Squelch (DCS) in the FT-857. For applications requiring split CTCSS/DCS access, a convenient "Split Tone" feature is also provided, along with the ability to encode (only) CTCSS or DCS, if desired.

•Automatic Repeater Shift : On the 144 MHz and 430 MHz bands, the FT-857 will automatically activate the repeater shift appropriate for the part of the band in which you are operating.

•Smart Search™ : When visiting a new city, use the Smart Search system to scan the FM/AM Mode for activity. When busy channels are found, they will be automatically loaded into a special Smart Search™ memory bank, for easy recall.

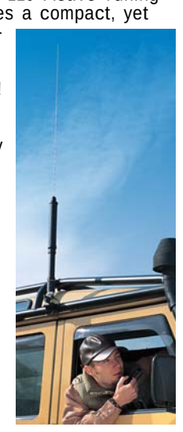
•Spectrum Scope : If you have to be away from your radio for a few minutes, turn on the Spectrum Scope to keep watch on band activity. The Spectrum Scope will create a bar-graph display of activity on channels above and below your current operating frequency.

•ARTS™ (Auto-Range Transponder System) : During Search-and-Rescue operations, the ARTS™

ACTIVE-TUNING ANTENNA SYSTEM (ATAS-120 Option)

Yaesu's patented ATAS-120 Active-Tuning Antenna System provides a compact, yet efficient, automatically-adjusting antenna for mobile, portable, or apartment-balcony use! Utilizing DC voltages fed from the FT-857, the ATAS-120 automatically adjusts its length longer or shorter, with the FT-857 feeding a tiny amount of power for SWR detection by its internal directional coupler. When the best impedance match is found, tuning automatically stops, and operation can begin.

Specified for operation on the 7/14/21/28 MHz Amateur bands, the ATAS-120 contracts fully for use on the 50/144/430 MHz bands, providing a low SWR for local FM work (where vertical polarization is predominant). And if you're an apartment dweller, use the optional ATBK-100 Antenna Base Kit, which provides an outstanding counterpoise to ensure low-angle radiation on the VHF/UHF bands.

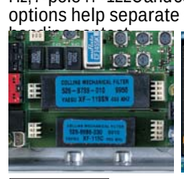


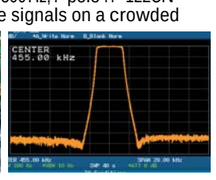
VERSATILE MEMORY SYSTEM!

The FT-857 provides up to 200 "Main" memory channels, each of which may be named with an Alpha-Numeric label of up to eight characters. These 200 Memories may be separated into as many as 10 Memory Groups of 20 Memories each. For added convenience, you also get a "Quick Memory" and a "Home Channel" on each band, plus Five pairs of band-limit memories, to let you restrict operation to a sub-band, if you

UPGRADE WITH COLLINS® MECHANICAL FILTERS FOR SSB AND CW (Option)

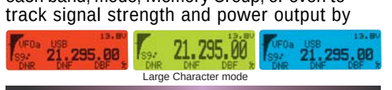
To enhance performance on both receive and transmit, high-performance Collins® Mechanical Filter options are available for both SSB and CW. For SSB, the 2.3 kHz, 10-pole YF-122S option provides a very flat passband response, for natural-sounding transmit audio, along with excellent skirt selectivity. And for CW, the 500 Hz, 7-pole YF-122C and 300 Hz, 7-pole YF-122CN options help separate signals on a crowded





HIGH-RESOLUTION DOT-MATRIX DISPLAY

The large 2.1"x0.69"(53.4x17.2 mm) multi-color display provides easy-to-read indication of many operating functions. The color may be chosen from among 32 different color selections, and may be programmed to show different colors on each band, mode, Memory Group, or even to track signal strength and power output by



Large Character mode

AND MUCH, MUCH MORE. . .

•Battery Voltage Meter •TX Meter Selection Modulation Level, ALC, Power Output, or SWR.
•Two Antenna Connectors Separate jacks for HF/50 MHz and 144/430 MHz, affixed to the rear panel.
•Large, Easy-to-See TX/RX Status LED •Optional High-Stability Reference Oscillator The TCXO-9 provides ±0.5 ppm stability at 77° F/25° C for applications requiring very high frequency accuracy. **•Versatile Scanning Features** VFO Scan, Memory Scan, Band-Limited Scanning (PMS), Priority Scan and Dual Watch. **•Auto Power-Off (APO) and Time-Out Timer (TOT) •CAT System** Computer Programming capability

New Remote Control DTMF Microphone MH-59A8J (Option)

The optional MH-59A8J Remote Microphone provides control of the major functions of the FT-857 from the microphone's keypad. The MH-59A8J includes a rotary control knob for adjusting the operating frequency and the receiver volume level.

ACCESSORIES & OPTIONS

Deluxe, Ultra-High-Quality Desktop Microphone **MD-200A8X**	Remote Control DTMF Microphone **MH-59A8J**	DTMF Microphone **MH-36E8J**	Lightweight Stereo Headphone **YH-77STA**	0.5 ppm High-Stability Reference Oscillator **TCXO-9**	Collins® SSB Filter (2.3 kHz/4.7 kHz: —6 dB/—66 dB) **YF-122S**	Collins® CW Filter (500 Hz/2 kHz: —6 dB/—60 dB) **YF-122C**	Collins® CW Filter (300 Hz/1 kHz: —6 dB/—60 dB) **YF-122CN**	VHF/UHF Antenna Base/ Counterpoise Kit for ATAS-120 **ATBK-100**	Motor Drive Auto-Tuning Antenna System **ATAS-120**
External AC Power Supply (25A) **FP-1030A**	Digital Signal Processing Unit **DSP-2**	Separation Kit **YSK-857**	External Automatic Antenna Tuner **FC-30**	CAT Interface Cable **CT-62**	Packet Cable **CT-39A**	BAND DATA Cable **CT-58**	HF/50 MHz 1 kW Linear Amplifier **VL-1000 + VP-1000**		

Supplied Accessories: Hand Microphone MH-31A8J, Mobile Mounting Bracket MMB-82, DC Power Cord

About this brochure: we have made this brochure as comprehensive and factual as possible. We reserve the right, however, to make changes at any time in equipment, optional accessories, specifications, model numbers, and availability. Some accessories shown herein may not be available in some countries. Some information may have been updated since the time of printing; please check with your Authorized Yaesu Dealer for complete details.

SPECIFICATIONS

General

Frequency Range: Receive: 0.5-56 MHz, 76-108 MHz, 118-164 MHz, 420-470 MHz
Transmit: 160 - 6 Meters, 2 Meters, 70 Centimeters (Amateur Bands Only)
Mode of Emission: A1 (CW), A3 (AM), A3J (LSB/USB), F3 (FM), F1 (9600 bps packet), F2 (1200 bps packet)
Synthesizer Steps (Min.): 10 Hz (CW/SSB), 100 Hz (AM/FM/WFM)
Antenna Impedance: 50 Ohms, Unbalanced
Operating Temp. Range: +14° F to +140° F (–10° C to +60° C)
Frequency Stability: ±4 ppm from 1 min. to 60 min after power on. @25° C: 1 ppm/hour ±0.5 ppm/1 hour @25° C, after warm-up (with optional TCXO-9)
Supply Voltage: Normal: 13.8 VDC ±15 %, Negative Ground
Current Consumption: Squelched: 600 mA (Approx.)
Receive: 1 A
Transmit: 22 A
Case Size (W x H x D): 6.1" x 2.0" x 9.2" (155 x 52 x 233 mm)
Weight (Approx.): 4.6 lb. (2.1 kg)

Transmitter

RF Power Output (@13.8 V DC): SSB/CW/FM / AM Carrier
160- 6 Meters: 100 W / 25 W
2 Meters: 50 W / 12.5 W
70 Centimeters: 20 W / 5 W
Modulation Types: SSB: Balanced Modulator, AM: Early Stage (Low Level), FM: Variable Reactance
FM Maximum Deviation: ±5 kHz (FM-N: ±2.5 kHz)
Spurious Radiation: –50 dB (1.8-29.7 MHz), –60 dB (50/144/430 MHz)
Carrier Suppression: >40 dB
Opp. Sideband Suppression: >50 dB
SSB Frequency Response: 400 Hz-2600 Hz (–6 dB)
Microphone Impedance: 200-10k Ohms (Nominal: 600 Ohms)

Receiver

Circuit Type: Double-Conversion Superheterodyne (SSB/CW/AM/FM), Superheterodyne (WFM)
Intermediate Frequencies: 1st: 68.33 MHz (SSB/CW/AM/FM); 10.7 MHz (WFM) 2nd: 455 kHz

Sensitivity:	SSB/CW	AM	FM
100 kHz-1.8 MHz	—	32 µV	—
1.8 MHz-28 MHz	0.2 µV	2 µV	—
28 MHz-30 MHz	0.2 µV	2 µV	0.5 µV
50 MHz-54 MHz	0.125 µV	1 µV	0.2 µV
144/430 MHz	0.125 µV	—	0.2 µV

(SSB/CW/AM = 10 dB S/N, FM = 12 dB SINAD)

Squelch Sensitivity:	SSB/CW/AM	FM
100 kHz-1.8 MHz	—	—
1.8 MHz-28 MHz	2.5 µV	—
28 MHz-30 MHz	2.5 µV	0.32 µV
50 MHz-54 MHz	1 µV	0.16 µV
144/430 MHz	0.5 µV	0.16 µV

Image Rejection: HF/50 MHz: 70 dB, 144/430 MHz: 60 dB
IF Rejection: 60 dB
Selectivity (–6/–60 dB): SSB/CW: 2.2 kHz/4.5 kHz AM: 6 kHz/20 kHz FM: 15 kHz/30 kHz FM-N: 9 kHz/25 kHz
SSB (optional YF-122S installed): 2.3 kHz/4.7 kHz (-66 dB)
CW (option YF-122C installed): 500 Hz/2.0 kHz
AF Output: 2.5 W (@4 Ohms, 10% THD or less)
AF Output Impedance: 4-16 Ohms

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