

Yaesu FT-991A MAIN V02-07

Combined HF/6 m + VHF/UHF Full TX Unlock - Flash and Rollback Guide

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This guide accompanies the experimental combined MAIN firmware for the **Yaesu FT-991A**. This file set is for the FT-991A only; do not use it on the original FT-991.

The modified image bypasses two conditional branches so the radio uses Yaesu's own built-in expanded transmit-range objects. It does not rewrite the frequency tables, PA calibration tables, ALC tables, TX-gain tables, DSP image, or RF routing tables.

Flashing modified firmware carries risk. Back up or write down memories and menu settings first. Use a stable DC supply and do not interrupt power or USB during the write. Initial RF checks should be made at low power into a properly rated 50-ohm dummy load. Transmit only where authorized.

What this build changes

0x284F0	47 1A -> 00 00	HF / 6-meter expanded-TX gate
0x28502	47 08 -> 00 00	VHF / UHF expanded-TX gate

Built-in expanded transmit ranges selected by those paths:

- **HF / 6 m:** 1.800000-29.999999 MHz and 50.000000-53.999999 MHz
- **VHF / UHF:** 137.000000-163.999999 MHz and 420.000000-469.999999 MHz

Modified MAIN file	CUSTOM/AH067_V0207.SFL
Stock rollback	STOCK_ROLLBACK/AH067_V0207.SFL
Yaesu updater	YFSW024.exe
Official manual	FT-991A_Firmware_Ver_Up_Manual_ENG_2405-C.pdf

Flash the combined unlock

These steps apply only to the MAIN firmware. The included original Yaesu manual remains the authoritative reference for the normal updater sequence.

1. Confirm the radio is powered off. Disconnect the DC cable and other cables from the transceiver.
2. Install the Yaesu virtual COM-port driver before connecting the USB cable. Connect the radio USB port to the PC with a standard USB A-B cable.
3. With the external power supply OFF, reconnect the DC cable.
4. Press and hold **TXW + SPLIT** on the radio front panel, then switch ON the external power supply. Do not press the radio POWER switch. The display should remain blank; this is MAIN program mode.
5. Run **YFSW024.exe**. Click Configure and select the radio's **Enhanced COM port**.
6. Click Browse and select **CUSTOM/AH067_V0207.SFL**. Double-check that the model and file name match this guide before continuing.
7. Click WRITE and leave the radio, USB cable, and DC power undisturbed until the updater reports completion / OK.
8. Click OK, turn OFF the external power supply, and disconnect the USB cable.
9. Turn the external power supply back ON.
10. Perform the MAIN firmware reset: press and hold **F(M-LIST)** while pressing and holding **POWER** to turn the radio on.
11. After the radio starts, power it off normally and then power it on again. Re-enter any memories or settings cleared by the reset.

First RF checks

- Verify normal receive and normal amateur-band transmit first.
- Verify fan, ALC, indicated power, and basic controls behave normally.
- Test newly enabled ranges at low power into a suitable dummy load before attempting higher power.
- Do not assume filtering, matching, spectral purity, or output power is identical at every software-enabled frequency.

Rollback to untouched stock MAIN firmware

If the radio behaves unexpectedly, use the exact factory MAIN image included in the STOCK_ROLLBACK folder.

1. Power the radio down and enter MAIN program mode again using TXW + SPLIT while switching on the external DC supply.
2. Run YFSW024.exe, select the Enhanced COM port, and browse to **STOCK_ROLLBACK/AH067_V0207.SFL**.
3. Click WRITE and allow the update to finish without interruption.
4. Turn the external supply off, disconnect USB, turn the supply back on, and perform the same F(M-LIST) + POWER reset.

Build verification

Stock SFL SHA-256	17e24a1a96403c9e8a2075db0ccd6586a1591404fa62239178c491d7ef4622cd
Custom SFL SHA-256	a5372decae1e0eb4fbc7545b53935613cb5aab7d155514614a74d65714b89fed
Custom BIN SHA-256	079a9fd54ddd083f1181dcbdfafc98daf52667798979d20bdba3fe97197931ca
Decoded checksum	Stock 036D3CAE / Custom 036D3BFE
Decoded differences	Exactly four bytes - the two conditional branch pairs listed on page 1.

Verification performed

- Exact known stock SFL hash verified before patching.
- Expected original bytes at both patch sites verified before modification.
- Stock SFL decode/re-encode round-trip matched the original byte-for-byte.
- Custom SFL decoded back to the exact intended patched firmware image.
- Motorola S-record byte counts and checksums validated.
- No decoded firmware bytes outside the four patch bytes differ from stock.

Keep both this guide and the original Yaesu firmware-update manual with the package. The original manual includes Yaesu's illustrations and full updater documentation.