

HAM RADIO HF GUIDE

Your First HF Radio

A Practical Guide for New General Class Operators

Focus: Mobile & Home Station

Presented by Your Club — 2025 Car Show Series



Why HF? The General Class Opportunity



Global Range

Talk to stations across the country and around the world — no internet required.



New Bands

General opens 80m, 40m, 20m, 15m, 10m — the most active HF bands for DX and contests.



Mobile Freedom

Take HF on the road. Mobile HF is a growing hobby within a hobby.



POTA / SOTA

Parks on the Air and Summits on the Air — portable HF activations are hugely popular.

Technician class gives limited HF access (mostly 10m). General class unlocks the full HF spectrum.

SECTION 1

New Radios

Top picks — purchased new with full manufacturer warranty

1. Yaesu FT-891
2. Yaesu FT-991A
3. Yaesu FT-710 AESS
4. Yaesu FT-DX10
5. Yaesu FTX-1 Optima/Field

1. Icom IC-7100
2. Icom IC-7300
3. Icom IC-7300 MK2
4. Kenwood TS-590SG
5. FlexRadio 6400

Yaesu FT-891

The Purpose-Built Mobile HF Champion

~\$700

KEY SPECS

Power:	100W (HF) / 50W (6m)
Bands:	HF + 6m
ATU:	No (external rec.)
SDR/Waterfall:	No waterfall
Modes:	SSB, CW, AM, FM, RTTY/DATA
Faceplate:	Detachable face


✓ PROS

- Compact body — easily hidden under seat or in trunk
- Detachable faceplate with long cable
- Very popular in POTA / portable ops
- 100W HF output in a small package
- Excellent mobile-first design

★★★ Mobile

x CONS

- No built-in ATU — need external tuner
- No SDR waterfall display
- VHF/UHF requires separate radio
- Basic display by modern standards

 Real-world example: FT-891 body mounted under back seat of a 2018 Nissan Titan with custom 3D-printed dash mount for the faceplate.

Yaesu FT-991A

The All-In-One Solution — HF through 70cm

~\$900

★★ Mobile

KEY SPECS

Power: **100W HF, 50W VHF, 20W UHF**

Bands: **HF / 6m / 2m / 70cm**

ATU: **Yes — built-in ATU**

SDR/Waterfall: **No waterfall**

Modes: **SSB, CW, AM, FM, C4FM, RTTY/DATA**

Faceplate: **Non-detachable face**

✓ PROS

- Only one radio needed for HF AND VHF/UHF
- Built-in ATU is convenient
- C4FM digital voice built-in
- Strong resale value
- Great club radio — covers everything

✗ CONS

- Face does not detach — full radio must mount visibly
- Larger footprint than FT-891
- No SDR waterfall
- Not officially supported as mobile by Yaesu



Best single-radio solution for a new ham wanting HF + VHF/UHF. Runner-up to FT-891 for mobile but a strong option if you accept its size.



<https://www.yaesu.com/indexVS.cfm?cmd=DisplayProducts&ProdCatID=102&encProdID=490C4A71117C50E7F5E8B8C57F8FA1B8>

Yaesu FT-710 AE5S

Modern SDR HF — Compact and Feature-Rich

~\$950

★ Mobile

KEY SPECS

Power:	100W
Bands:	HF + 6m
ATU:	Yes — built-in ATU
SDR/Waterfall:	Yes — SDR waterfall
Modes:	SSB, CW, AM, FM, RTTY/DATA
Faceplate:	Non-detachable face

✓ PROS

- Excellent SDR waterfall — great for finding signals
- Built-in ATU
- Compact for a full-featured radio
- Strong direct sampling SDR receiver
- Great value for features offered

✗ CONS

- Face does not detach
- No VHF/UHF coverage
- Some members mount full body on console — tight fit in modern vehicles
- Display smaller than IC-7300



A strong modern HF base radio. Some operators do mobile installs, but a non-detachable face limits mount flexibility in today's vehicles.



<https://www.yaesu.com/indexVS.cfm?cmd=DisplayProducts&ProdCatID=102&encProdID=A74EE7A11AE7C90CD7C7B7F1B8E1A7AA>

Yaesu FT-DX10

Contest-Grade Performance in a Mid-Size Package

~\$1,500

★ Mobile

KEY SPECS


Power:	100W
Bands:	HF + 6m
ATU:	Yes — built-in ATU
SDR/Waterfall:	Yes — SDR + spectrum scope
Modes:	SSB, CW, AM, FM, RTTY/DATA
Faceplate:	Non-detachable face

✓ PROS

- Outstanding receiver — contest-grade performance
- Excellent spectrum scope / SDR display
- Built-in ATU
- High dynamic range for crowded bands
- Great for serious DX and contesting

x CONS

- Premium price point
- Face does not detach
- Larger size — not mobile-friendly
- Overkill for a brand new ham
- Best suited as a base station radio

 Exceptional HF base station radio. Not a first choice for mobile, but a dream shack centerpiece for a ham ready to step up.

Yaesu FTX-1 Optima / Field

The Ultimate All-Band Radio — But Know Its Limits

~\$1,200–\$1,400

KEY SPECS

Power:	100W HF, 50W VHF, 20W UHF
Bands:	HF / 6m / 2m / 70cm + WIRES-X
ATU:	Yes — built-in ATU
SDR/Waterfall:	Yes — advanced SDR display
Modes:	SSB, CW, AM, FM, C4FM, RTTY/DATA
Faceplate:	Non-detachable face

✓ PROS

- Best-of-everything in one box
- HF through 70cm coverage
- Advanced SDR display and spectrum scope
- C4FM digital voice
- Impressive feature set for the price

X Mobile

x CONS

- Yaesu does NOT classify it as a mobile radio
- No manufacturer-supported mobile mount
- Full radio must mount — challenging in modern vehicles
- Newer model — fewer community resources vs FT-991A
- No detachable faceplate



Ham Radio Outlet confirmed: Yaesu does not consider the FTX-1 a mobile radio and no mount is available. The FT-991A is the better mobile choice in the Yaesu line.



<https://www.yaesu.com/indexVS.cfm?cmd=DisplayProducts&ProdCatID=102&encProdID=FTX1OPTIMA>

Icom IC-7100

HF through 70cm with Detachable Face — With Caveats

~\$900

★★ Mobile

KEY SPECS

Power: **100W HF, 50W VHF, 35W UHF**

Bands: **HF / 6m / 2m / 70cm**

ATU: **Yes — built-in ATU**

SDR/Waterfall: **No waterfall**

Modes: **SSB, CW, AM, FM, RTTY/
DATA, D-Star**

Faceplate: **Detachable face (large)**

✓ PROS

- Full HF through 70cm in one radio
- Face separates from body
- D-Star digital voice built-in
- Built-in ATU
- Touchscreen display

✗ CONS

Control head is

notably large and bulky

- Finding a secure, safe vehicle mount is very difficult
- Windshield mounts reported to fail — a safety hazard
- Touchscreen can be difficult to use while driving
- D-Star requires repeater or internet gateway



Personal experience: Went through 3 different windshield mount solutions — control head fell off while driving and turning. Traded in after 3 months. The bulky control head is a real-world challenge.

Icom IC-7300

The Gold Standard Recommendation for New Hams

~\$1,100

★ Mobile

KEY SPECS

Power:	100W
Bands:	HF + 6m
ATU:	Yes — built-in ATU
SDR/Waterfall:	Yes — excellent SDR waterfall
Modes:	SSB, CW, AM, FM, RTTY/DATA
Faceplate:	Non-detachable face

✓ PROS

- Largest community / most online resources
- Excellent SDR waterfall — perfect for learning bands
- Built-in ATU
- Direct sampling SDR receiver
- Outstanding value for features
- Huge resale market

x CONS

- No VHF/UHF coverage
- Face does not detach
- Full body mount required for mobile use
- Some mobile installs exist but tight in modern vehicles



The most recommended 'first HF radio' on the market. If you are unsure what to buy — this is the safe choice. Enormous community support.

Icom IC-7300 MK2

Updated Classic — Improvements and Trade-offs

~\$1,200

★ Mobile

KEY SPECS

Power:	100W
Bands:	HF + 6m
ATU:	Yes — built-in ATU
SDR/Waterfall:	Yes — improved SDR display
Modes:	SSB, CW, AM, FM, RTTY/DATA
Faceplate:	Non-detachable face

✓ PROS

- Improved display over original IC-7300
- Enhanced receiver performance
- Built-in ATU
- Compatible with CI-V control software
- Strong Icom support ecosystem

✗ CONS

- Face does not detach
- 'Sweet and sour' — some improvements, some regressions vs original
- Newer model — fewer long-term reviews
- No VHF/UHF
- Not a mobile-friendly form factor



Owner's assessment: 'Sweet and sour' — some genuine improvements over the original IC-7300, but not a slam-dunk upgrade. Worth comparing carefully to the original.

Kenwood TS-590SG

Serious DX Performance — The Contester's Choice

~\$1,400

KEY SPECS

Power:	100W
Bands:	HF + 6m
ATU:	Yes — built-in ATU
SDR/Waterfall:	No waterfall
Modes:	SSB, CW, AM, FM, RTTY/DATA
Faceplate:	Non-detachable face

✓ PROS

- Exceptional receiver — excellent for DX and weak signals
- Outstanding CW performance
- Built-in ATU
- Well-regarded by serious operators
- Excellent build quality

X Mobile

X CONS

- No SDR waterfall display
- Not a mobile radio
- Higher price point
- Less beginner-friendly interface
- No VHF/UHF coverage



Best suited for hams who want top-tier receiver performance for DX chasing or contesting. Not a first choice for a new mobile-focused ham.

FlexRadio 6400

Software Defined Radio — The Future of Ham Radio

~\$2,800

KEY SPECS

Power:	100W
Bands:	HF + 6m
ATU:	External only
SDR/Waterfall:	Yes — full SDR, PC-based display
Modes:	All modes via software
Faceplate:	PC required — no front panel

✓ PROS

- Most advanced SDR on the list
- Incredible spectrum visualization
- Highly flexible — software defined
- Remote operation capable
- Future-proof platform

X Mobile

X CONS

- Requires PC or tablet to operate — no front panel
- Highest price on the list
- Steep learning curve
- Not a beginner-friendly first radio
- Definitely not mobile in the traditional sense



An incredible radio for experienced operators. Not recommended as a first HF radio for a new General — learn the fundamentals first, then consider Flex.

Mobile Friendliness at a Glance

Yaesu FT-891

★★★ BEST MOBILE

Detachable

Body hides away, face mounts on dash

Yaesu FT-991A

★★ GOOD MOBILE

Non-detach

Full radio must mount — larger footprint

Icom IC-7100

★★ POSSIBLE (CAUTION)

Detachable*

**Control head is large — mount security issues*

Yaesu FT-710 AESS

★ CHALLENGING

Non-detach

Some installs exist — tight in modern cars

Icom IC-7300 / MK2

★ CHALLENGING

Non-detach

Full radio must mount — space premium

Yaesu FT-DX10

✗ NOT RECOMMENDED

Non-detach

Base station radio

Yaesu FTX-1 Optima

✗ NOT SUPPORTED

Non-detach

Yaesu does not classify as mobile

Kenwood TS-590SG

✗ NOT RECOMMENDED

Non-detach

Base station radio

FlexRadio 6400

✗ NOT APPLICABLE

Requires PC

No front panel — PC/tablet required

SAFETY FIRST

Mobile Radio Installations & Vehicle Safety

AIRBAG ZONES

Modern vehicles have airbags throughout the dash, steering wheel, pillars, and seats. A radio or mount in an airbag deployment zone becomes a high-speed projectile in a crash — potentially causing fatal injuries.

MOUNT SECURITY

A radio that falls off its mount while driving is a serious distraction. It can strike the driver, jam under the brake pedal, or cause an accident. Test every mount before driving.

CABLE MANAGEMENT

Loose cables near the steering column, pedals, or gear shift can snag at the worst moment. Route all cables carefully and secure with proper clips.

DRIVER DISTRACTION

Operating a radio while driving is a distraction. Know your local laws. Program your radio before you drive — not while driving.

Detachable Faceplate — Why It Matters for Mobile

A detachable faceplate allows the radio body to be hidden while only the small control head is mounted in the cab. This is the key feature separating purpose-built mobile radios from base station radios pressed into mobile service.

✓ **RADIOS WITH DETACHABLE FACE**

- Yaesu FT-891 — body hidden, compact face on dash
- Icom IC-7100 — face detaches (but head is large)
- Radio body can be hidden in trunk or under seat
- Smaller cab footprint reduces airbag risk zone
- Better theft deterrence — remove face when parked

✗ **RADIOS WITHOUT DETACHABLE FACE**

- FT-991A, FT-710, FT-DX10, IC-7300, IC-7300 MK2, FTX-1
- Entire radio must be mounted visibly in the vehicle
- Requires significant cab space — hard in modern cars
- Higher mass near driver = greater crash projectile risk
- Can still be done — but requires careful planning

SECTION 2

Buying Strategies

Because not every ham has the same budget, goals, or situation

1. Strategy 1: Single Radio — Get it Right the First Time
2. Strategy 2: Buy Used First, Upgrade Later
3. Strategy 3: Buy New — Warranty & Peace of Mind
4. Strategy 4: Club Loans, Loaners & Elmers

Which Strategy Is Right for You?



Strategy 1 — Budget Single Radio

If budget is limited, invest in one solid radio and learn it well. The FT-891 (mobile) or IC-7300 (base) give you years of use without needing an upgrade. Don't buy cheap and replace — buy mid-range and stay.



Strategy 2 — Buy Used First, Upgrade Later

Purchase a used radio to learn the hobby at lower cost, then sell it and upgrade once you know what you want. Risk: condition unknowns, no warranty. Tip: buy from club members or reputable dealers like HRO with a return policy.



Strategy 3 — Buy New with Warranty

New radios come with full manufacturer warranty — peace of mind for a first-time buyer. Recommended for those uncomfortable with used gear or who had a bad used experience. Prices are stable and resale value is strong on quality brands.



Strategy 4 — Club Loaners & Elmers

Many clubs have loaner radios for new members. Borrow before you buy! Talk to an Elmer — experienced members who can guide your purchase and let you try their radio. This is the most underused and most valuable resource.

Buying Used — What to Look For

✓ GOOD SIGNS

- Purchased from a known club member or Elmer
- Sold at Ham Radio Outlet or dealer with return policy
- Original box, accessories and manual included
- Seller demonstrates radio operating on the air
- Recent model — parts and firmware still supported
- eHam reviews for that specific model are strong
- Price reflects condition (not suspiciously cheap)

✗ RED FLAGS

- No demo offered — seller won't power it up for you
- Missing microphone, cables, power cord or manual
- Cosmetic damage suggesting rough handling
- eBay or Craigslist with no return policy
- Price seems too good to be true — it usually is
- Unknown ownership or service history
- Vague description — 'powers on' is not a test

Budget for the Whole Setup — Not Just the Radio



Antenna

HF Dipole or Vertical

\$50–\$300

The antenna is as important as the radio. Don't skimp!



Power Supply

25–30A regulated DC

\$80–\$200

Required for base station. Must handle full TX current.



Feedline / Coax

LMR-400 or equivalent

\$50–\$150

Quality coax matters — cheap coax loses signal.



Antenna Tuner

If no built-in ATU

\$100–\$300

Many radios include one. Verify before buying external.



Mobile Antenna

Screwdriver or HF whip

\$100–\$600

Mobile HF antennas are a significant separate investment.



Logging Software

N1MM, Log4OM, etc.

Free–\$50

For contests, POTA/SOTA, digital modes (FT8 via WSJT-X).



Headset / Mic

Desk mic or headset

\$30–\$150

Reduces fatigue on long sessions.

Summary & Recommendations

MOBILE FIRST

Yaesu FT-891

Purpose-built mobile, detachable face, 100W HF, hides under seat. The FT-891 is the mobile HF champion.

ALL-IN-ONE

Yaesu FT-991A

One radio does HF + VHF/UHF. Best single radio for a new ham wanting everything.

BASE STATION

Icom IC-7300

The most recommended first HF base radio. Huge community, excellent SDR, outstanding value.

BUDGET NEW

Yaesu FT-710 AESS

Modern SDR at a competitive price. Great HF base radio under \$1,000 with built-in ATU.

STEP UP

Yaesu FT-DX10

Contest-grade receiver. For the ham who wants to be serious about DX from day one.

ADVANCED SDR

FlexRadio 6400

The ultimate SDR platform — but learn the basics first. Not a first radio.

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Questions? Comments? Let's Talk Radio!

Presented as part of the 2025 Car Show Preparation Series

[eHam.net](#) • [QRZ.com](#) • [Ham Radio Outlet](#) • [DXEngineering.com](#) • [ARRL.org](#)