

BC-348 FAQ

by Buzz Harrah, KE0MS

February 15, 1999

Originally posted to the [MilSurplus Mailing List](#)

Calling all MIL-itants,

Recently you all came to my rescue when I needed "Fatherly" advice on a BC-348 I'd found. Thanks to your info, I've worked a deal with only pickup yet to take place. Your pricing information especially helped the deal "gel".

I was asked by several thru direct mail if I could gather together my info and publish it for all the other BC-348 "wannabe owners" out there, kind of as an FAQ or something. I got almost 2-dozen responses over the weekend to send it, so, (not knowing how many are on this list) I decided it's easier to let you all get it and judge for yourself if you need it. Delete it if you don't.

All of this info was contributed by YOU who responded, the members of this list. You may recognize some of your comments. I moved them around to most logically answer the questions posed in the FAQ I came up with.

However, this info is presented to you AS IT WAS PRESENTED TO ME. I could not/did not attempt to verify every fact I received. (How could I?) And, you all know the "BA-Mantra", imported from another source: "YOUR MILEAGE MAY VARY."

As we all have a perspective, I included all the pertinent data I got and grouped in into the general categories you will see.

Enjoy. I did reading it as well as cutting and pasting it again. And save it; as I think it's a good BC-348 primer.

Buzz

<http://www.ia.net/~harrah/>

<mailto:harrah@ia.net>

THE BC-348 RECEIVER- SO, WHAT IS THIS THING?

- The BC-348 was the main HF receiver in US Airforce bomber aircraft in WW2, in conjunction with the BC-375 and ART-13 transmitters. The original design was the BC-224 (US Army Signal Corps) and the BC-348 was the adaptation for the requirements of the Army

Airforce. The receiver as issued, runs on 24VDC (the standard DC voltage on aircraft) and generates the required plate voltage (around 250VDC) with a dynamotor which is inside the receiver.

- The BC-348 was my first "real" HF receiver in 1964 when I first got my ham license and worked about 100 countries with it. Now I have 2 of them, with an ART-13 transmitter, to functionally duplicate the B-17/24/26 type bomber radio compartment and I use that station quite often, mainly on the East Coast military collectors' net on 75 M.
- These are pretty fair radios for AM and CW use. Not real selective, but they do have a xtal filter and with an added Q-Multiplier, they do nicely.
- Be prepared to replace every coupling/bypass cap. Not a hard job as most are visible and usually strung between two posts on a phenolic board. The filter caps may need help also as will some of the resistors. I did a complete cap changeout and found only 3-4 resistors out of tolerance. The whole job took a few hours, but she played nicely when I finished.
- There were many other modification articles and books out regarding the BC-348, so you can expect the receiver might have some or all. One of mine was completely rewired by a previous owner, redone top to bottom, and equipped with an AC power supply. Oh, yes it is also painted bright shiny lime-green with gold Dymo labels. It worked quite well, and after awhile the looks grew on you (like a fungus?) so I never changed it. The other one is more original.
- The BC-348 is a great receiver, a little broad in the selectivity department, but a neat way to cruise the bands! My first exposure to shortwave came from a BC-348 so the radio has a little sentimental value to me.
- My reason for knowing is that I had an unrestored one in High School (a loooong time ago). It still had the dynamotor.
- Ah, the BC-348! One of my first military BA's. Used as a liason receiver in B-17's and some other aircraft. We gave our boys good stuff.
- Single largest problem with all the radios of this vintage is paper capacitors. The '348 O uses about 18 or so of them and they're all subject to failure. Normal procedure is to replace them all, check tubes, *etc.* and an alignment. If the radio has seen regular use, *vs.* sitting for years they seem to last much better.

THAT FUNNY 117VAC WIRING DYMO THING

Q: OK. This had one of those nasty DYMO label-maker-sticker-tapes saying "117V WIRING." It plugged directly into the wall. Was this unit usable for different voltages with a tapped xfmr

arrangement, or had he modified his do you think?

- The BC-348 was primarily an aircraft receiver with the dynamotor as the only INTERNAL power supply. There were external rack mount 110 vac supplies available in the military to run the radio on the ground. This is probably a homemade conversion.
- When these receivers got to the surplus market, the first things hams did, was to yank out the dynamotor and build a small power supply that mounted where the dynamotor used to sit, for 115VAC to supply the filament and plate voltages to the receiver.
- BC348s were aircraft receivers and used a dynamotor for the high voltage generation. He modified it by removing the dynamotor and replacing it with a power supply.
- Sounds like the BC348 has been modified enough to allow for a built-in power supply. This was common practice when these things came out on surplus market.
- I do know there were some mods that allowed 110 volts, but most radios were just changed by removing the dynamotor and installing a small power supply. I have not put a 110 supply in mine because there is no way I can see to get the 110v into the case with out some type of hole or rewiring the power plug, so for now I run it off the dynamotor and it is a nice little radio with plenty of volume, but the dynamotor is a little loud. I guess that wasn't a problem with 4 1200 HP engines running.
- The "117 wiring" label you noticed probably indicates that someone modified the unit to have a 117-volt AC power supply inside. The original BC-348s used a dynamotor to convert low-voltage DC (28v, 3a for DM-28 dynamotor typically found) to the voltages needed by the receiver. The open space intended for the dynamotor is a good place to build an AC supply and many hams did so.
- Lots of them around, and there was a 117 volt model, but most were modified to run on 110 by hams - they took out the dynamotor.
- Second, all BC-348s were bought by the military as 28 volt aircraft radios, there were no military versions that operated on AC. There was a 12 variant called the BC-224(actually as its number implies, the 12 volt version came first, the 348 was the 28 volt version, but a heck of a lot more of the 348 were built). All the AC conversions you run into are most likely to be done after they were released from military service. Note that a lot of the 348 were bought by the airlines right after the second world war, so some of the conversions were probably very professional looking, most of the ham conversions that I have seen were very sloppy.
- There is a rumor, but no hard evidence that I have seen, that Hallicrafters specifically made a drop in AC supply that replaced the dynamotor, this would be easy to do mechanically-it would just be a screwdriver operation, but if this is true there may be a concern that one side of the AC line would be tied to the chassis-a definite safety concern.

- The AC supply was a common mod and there were many variations. They were normally built onto the same chassis that the dynamotor was mounted on. If you can get the original mount bracket with shock mounts, that is a real plus.
- I have a BC-348Q that is in great shape. Still has the dynamotor in it, and the ac supply is very neatly tucked up underneath it.
- Normally they were 28VDC with a dynamotor. You can bet it was modified.

THAT OUT-OF-PLACE-LOOKING 2 X 6 PANEL

Q: The rig had a approx. 2" x 6" panel screwed on the right side, centered, covering what may have been some sort of --- what? Was there a knockout on these rigs that allowed adding something?

- This pannel is standard equipment on the BC-348. It provides access to the underside of some of the tube sockets. They ALL have them.
- The panel you describe allows one to reach the tube sockets and some capacitors. Designed to look "plain" with 6 screws holding it down.
- I have a BC-348Q and it is complete from the box(no mods) the 2X4 panel is to get at the tube bases for alignment, checking etc.
- The plate you mentioned is original, it is just an access plate to allow service on components in that area. Once you dig into the radio, you will see why they put it there. It was also a good place for hams to mount extra pots and switches.
- This is quite a nice receiver when working properly. The plate you mentioned on the right side of front panel is used to cover the socket connections for several of the tubes. The chassis is an aluminum CASTING, neat stuff for 1943!
- That plate on the front panel is supposed to be there and allows access to the bottom of the tube sockets mounted along the front panel.
- It allowed access to the RF and Mixer stage components under the tube sockets.

VARIANTS OF THE BREED

Q: Were there several variants of this rig? This one went .1-.4 MCs, Then went from 2- about 20

MCs if I remember right. Skipped the BC band.

- BC-348 Receiver, 200-500kHz and 1.5-18mHz, six bands, AM/CW, crystal filter, 915 kHz IF, BFO, MVC/AVC, 28v, 3a for DM-28 dynamotor, 10.5"x18"x9.5", 44lbs, variants:

Model	Manufacturer	Tube line-up
E	RCA	41, 6B8, 6C5, 6F7, 6K7 (3)
H	Belmont Radio	6B8G, 6C5, 6F7, 6J7 6K6GT, 6K7 (3)
J	Wells-Gardner	6SR7, 6K6GT, 6SA7, 6SJ7, 6SK7WA (4)
K	Belmont Radio	same as H
L	Belmont Radio	same as H
M	Stromberg-Carlson	same as E
N	Wells-Gardner	same as J
O	RCA	same as E
P	RCA	same as E
Q	Wells-Gardner	same as J
R	Belmont Radio	same as H
S	RCA	same as E

[different mfrs got their own variant letters as they sometimes used different tubes and had different wiring schemes.]

- Yes, there were some variants, frequency wise, but the one you describe is standard. (Seems that they ALL covered basically the same bands, but variants involved manufacturer differences, or layout differences BECAUSE of different manufacturers. The bands they covered (by my info) seems to tell me they ALL skipped the BC band.)
- The letters (L, Q, S to name a few) in the variants, to keep it short, denote some tube differences (for example some models use 12K7 for the RF amp while others use the 12SK7, etc.) The performance is the same for all models. They all had the VLF band, for picking up Navy distress signals.
- They came in several models, but are all basically the same circuit wise. Mine is a BC348R and is one of the older models. Uses double ended tubes. The newer models use single ended tubes. The 348Q is one of the newer ones and is seen often for sale.
- They do skip the BC band. Guess the AAF didn't want the pilots listening to the radio while attacking Jerry.....
- To answer your questions though, the frequency range is .2 to .5 and 1.5 to 18 mc/s, although

a very few of the early ones did not have the .2 to .5 band on them. There were a few ham conversions that rewound the low freq range for 10 meters or the broadcast band, but these are all ham conversions, not done by the military.

- there were two major versions of the 348. Externally they were interchangeable, operated the same, covered the same frequencies, etc. The J, N, and Q series were made by Wells Gardner and were built differently internally than the others, a different tube lineup and some mechanical differences, plus a different arrangement for the CW OSC on off switch on the front panel.
- Apparently the ID tag is still in place, and that will tell you what series the '348 is.....there were many variations with different suffix's. Mine is an O, which was made by RCA. The series suffix is important because the circuits were different as was the tubes used. Some models were very similar and some were markedly different.
- The Broadcast band is skipped in all of them I think.
- Several models but they all covered the same freq range as you stated.
- Did find a Schematic in the old CQ Surplus Manual - but there wasn't anything else in the mag just a Schematic. I did get a TUBE line-up though.

BC-348-R

.1-.4 MCs

.950 -> 18 MCs (915 KC IF)

1st RF	VT- 117
2nd RF	VT- 117
1st Det/Osc	VT- 150
2nd Det/avc/CW osc	VT- 233
1st IF	VT- 117
2nd IF	VT- 117
3rd IF	VT- 116
Audio	VT- 152

PRICING THUMBNAILS

Editor's note: My unit described as "kinda dirty", but should clean up ok; but no obvious mods other than 117VAC mod. The 117VAC modification was the "ONLY" MOD that seemed to not significantly detract from the desirability of buying one of these units. While the original DYNAMOTOR was preferred by the masses, this mod is so common that it was felt (or at least I detected) that getting one that HADN'T been modded in this way was highly unlikely and should NOT be cause to pass a unit by.

Also, any comments relating to EBAY are indications of PRICING PHENOMENON in today's market ONLY, and do not constitute an endorsement of EBAY selling or indicate that EBAY sold-equipment is better. It simply indicates that more is paid for these rigs on EBAY than at the normal hamfest-type outlets available.

Q: What is one of these things worth? (ballpark estimates are fine.)

- I got one of these beauties (BC-348-R) and it was converted to AC and works very well/ Going prices range from \$80 to \$200 depending on condition, etc.
- Typically bring \$70 to \$150 at swap meets, depending on condition, but sometimes up to \$200 + on the Ebay internet auction site.
- I paid \$45 for mine. Seen them on e-bay for up to \$150. A modified one in fair condition should be about \$35-50. A pure, unmodified, original condition one with dynamotor might go for \$175 or so and in my estimation would be worth it.
- The case should have no other holes, just the cut out for the 8 pin power-audio plug. There are several sites that have the manual on-line. As for price I would say \$150-200. E-bay has changed the price of things lately. I paid \$100 for mine about a year ago.
- Value - anywhere up to \$140.00 depending on condition. Most go for \$50 - \$75.00 at flea markets, \$75.00 up on the internet.
- As far as price, the typical price I have seen for a ham modified unit with no added holes on the panel, an AC supply and missing the shock mount and connector that mounts on the shock mount, is about \$75. Less than that for added S meters, front panel switches and other mods, more if it has the shock mount, connector and original dynamotor. I would say that a military original complete unit would be about 150, but I haven't actually seen one of these offered for sale so that's just a guess.
- The BC 348's go - depending on condition and the owner's willingness to part with them - for anywhere between \$50 for a heavily modified or good parts unit to \$150 for a very good, unmodified radio. It may be even a tad more if the receiver is mint, as issued and has the original dynamotor in it. The dynamotors are scarce and sometimes cost almost as much as the

radio itself. I personally paid \$100 for each of my BC-348's, with homebrew AC supplies in them (good workmanship, however) and good cosmetic shape, in working condition.

- \$50.00 to \$100.00. Sounds like your find would be on the low end.
- I have seen them (348s) occasionally for sale, and I think that Fair radio had some a few years ago. I seem to remember they were around \$100. Could be wrong, but I think that's right.

TO PERSUE OR EVADE?

Q: Can anybody help me with specific info, advice to pursue or evade, etc?

- GET IT..... you'll love it and you'll have a piece of history.
- They are OK radios, but modern radios are MUCH better. On the other hand if you are a tube nut, then they are a must have along with an R390A.
- Just remember that SSB was not in use when they were used, that came later. Even the R390A receiver did not support SSB.
- If you like old tube collectables, then it might be right for you.
- I have a BC-348Q that is in great shape.
- All in all a neat radio.
- I've had several over the years and always enjoyed modifying, using, and abusing them.
- I got mine for repairing a BC radio for a friend, cost me a resistor, two 40 UF 450 volt caps, and two diodes. Had to solid state an old Circa 1930s radio. The rectifier tube had a burnt out filament. No possible spares. I was given the BC-348 even though I didn't really want it at the time. Now I wouldn't mind having it here [while away from home].
- It is a lot lighter than my R-390A!
- Looks like I will be able to buy 2 BC-348s this weekend. Matching transmitter too. There are Antenna tuning units too.

Editor's note: I got almost nothing on Antenna tuning units, other than it is believed there are several, as part of the "Liason Sets", using the ART-13 transmitter, of which this unit is part.

RELATED COMMENTS TO MY ORIGINAL POST (RELEVANT)

Editor's note: About 1/4 of the replies I got tell me I should GRAB the TEST SETS, or GRAB THEM and sell them to THEM! You guys must like these ARC-5s things, too.

And here's what some said about the ARC-5s (relevant to the BC-348):

Q: The now SK had an OS-8B scope, URM-25D sig generator, a mil audio generator (I can't remember make or model right now) and... the BC-348. He also had some ARC-5 stuff, including a BC Band one. But, I have some questions about the BC-348:

- As to the ARC-5 receivers, they're in demand today - they were the "command" radio set for shorter range HF communications on many aircraft in WW2 together with the ARC-5 series transmitters. The BC band ARC-5 receiver was generally used by hams as a second, tunable IF for the BC-348 (which has an IF frequency of 915 KHz) to provide additional selectivity to the BC-348. The ARC-5 antenna terminal can be coupled to one of the BC-348 IF stages with a small capacitor, and use the ARC-5 for the audio output. This gives you a nice selectivity and tunable second IF without hacking into the BC-348 which is getting scarcer and scarcer.

ADDITIONAL REFERENCES AVAILABLE

- There is a ton of information at <http://netnow.micron.net/~kj7f/boatanch/bc348.htm> check it out.
- Contact W7FG at www.w7fg.com for a manual. Only \$18 and a great investment.
- I can find the exact model /manufacturer/tube lineup list for you if you need it, I just have to look into some of my Internet links. mbendror@villagenet.com
- Look for a schematic in the gentlemen's files. Also, the Surplus Conversion Books from the late 40's and up thru the early 60's have tons of info on this radio.
- I have some of the CQ Magazine books on surplus equipment mods for hams, so if you see something that doesn't match the original schematic we might be able to figure out what it was intended to do. (SBJohnston@aol.com) More on these in a bit...
- There is some good info on BC-348s at the Military Commo List site(s):
<http://www.telalink.net/~badger/millist/mi.html>
(specifically) <http://www.telalink.net/~badger/millist/m7.html#a1253>

- There is a lot of information out there in old QST's, 73's, and the Surplus Conversion Manuals I, II, and III.....
- Fair radio does have [copies] of manuals for all of the models for \$12. (<http://www2.wcoil.com/~fairradio/>)
- The CQ Conversion Manual listed sources for 'Conversion Data': CQ MAGAZINE:
September 1956
February 1959
March 1959
- <http://netnow.micron.net/~kj7f/boatanch/bc348.htm>
- <http://www.aade.com/hampedia/military/military.htm>
- <http://www.qsl.net/wf2u/>
- <http://www.qsl.net/wd8das/>

FINAL CLOSING THOUGHTS:

This kind of sums all this old MIL stuff collecting up pretty well. I'd made an off-hand comment on how excited I was finding this little receiver, and here is the comment that I got back. I couldn't have made a better "straight" guy on Vaudeville!

Q: Thank you for all your answers. Very interesting reading. And, this "mil" stuff is starting to grow on me.

A: That's what that 'MFP' coating was for inside the old gear :-) :-) :-)

[Back to Mark's Green Radio Page](#)

