

INSTRUCTION SUPPLEMENT
FOR
WJ-8718A AND WJ-8718A/MFP
10-Hz BFO OPTION

(TENTATIVE MANUAL)

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WARNING

This equipment employs dangerous voltages which may be fatal if contacted. Exercise extreme caution in working with this equipment with any of the protective covers removed.

NOTICE

This is not the original Instruction Manual of the 10-Hz BFO Option for the WJ-8718A Receiver Series, it is only an attempt to write one from scratch.

It is based upon visual inspection and visual circuit tracing on existing and unmodified WJ-8718A and WJ-8718A/MFP receivers including this rare option.

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The work is still in progress, so any contribution and suggestion is very welcome. The author also apologizes for eventual ad unwanted mistakes, misprints or omissions of which he cannot be held as responsible.

La Spezia, Italy, June 2017

Revisions:

- Version 1.0 – June 2017

FIELD MODIFICATIONS INSTRUCTIONS
FOR INSTALLING THE 10-Hz BFO OPTION IN
THE WJ-8718A OR IN THE WJ-8718A/MFP HF RECEIVER

The following tools are necessary to perform the modification steps:

Phillips screwdriver;
Soldering gun and solder.

Perform the following steps to install the 10-Hz BFO Option in the WJ-8718A or in the WJ-8718A/MFP receiver:

1. Remove power from the unit.
2. Remove top and bottom covers from the unit.

3. For the WJ-8718A:

Remove the six screws mounting the manual front panel to the unit. Disconnect all cable assemblies from the old manual front panel except A10P1. Disconnect A10P1 from the Front Panel Interconnect board A6A2. Remove the manual front panel from the unit.

For the WJ-8718A/MFP:

As the stock “/MFP” receivers are already equipped with a 4-digit BFO frequency display, a front panel replacement is not needed unless also the 1-Hz Option has to be installed. Should it be the case, please follow the instructions shown in the 1-Hz Option Installation Manual.

4. Place the unit with the bottom side facing up.

NOTES

- The 10-Hz BFO Option is normally Factory-installed in conjunction with the 1-Hz Option, although this is not mandatory. It is recommended to have at hand and to read carefully also the 1-Hz Option Manual anyway.
- For the WJ-8718A/MFP: before starting the 10-Hz BFO Option installation, please check and ascertain that all the Field Modifications considered in the “WJ-8718A/MFP INSTRUCTION MANUAL REVISION A CHANGE 1”- February 1991 have been already performed as described.
- This Manual can also be used for installing the 10-Hz BFO Option on WJ-8716 and WJ-8716/MFP receivers.
- The J1 strip-line socket (terminals 1 thru 29) is the very adjacent to the lower edge of the A6 I/O mainboard (look at the WJ-8718A Manual).
- Terminals E1 thru E59 are adjacent to the double row of capacitors C1 thru C58 depicted in Figure 6-14's side view of the A5 Synthesizer mainboard (on the WJ-8718A Manual). Terminals E1 thru E29 are located on the right side of the double row of capacitors (looking from the front of the unit with the unit flipped over). Terminals E30 thru E58 are located on the left side (E1, E29, E30 and E58 are labeled on the board).

For all receivers:

5. Find the A6 I/O MB (Type number 791580) location by referring to Figure 5-8 of the WJ-8718A HF Receiver Instruction Manual.
 - a. Install A6JW1 by wire wrapping one end of a wire to A6X7, pin 12 and solder the opposite end to J1, pin 8.
 - b. Install A6JW2 by wire wrapping one end of a wire to A6X7, pin 20 and solder the opposite end to J1, pin 6.
 - c. Install A6JW3 by wire wrapping one end of a wire to A6X7, pin 55 and solder the opposite end to J1, pin 9.
 - d. Install A6JW4 by wire wrapping one end of a wire to A6X7, pin 58 and solder the opposite end to J1, pin 7.

6. Find the A5 Synthesizer MB (Type number 791570) location by referring to Figure 5-8 of the WJ-8718A HF Receiver Instruction Manual.
 - a. Install JW4 by wire wrapping one end of a wire to XA3, pin 11 and solder the opposite end to E6.
 - b. Install JW5 by wire wrapping one end of a wire to XA3, pin 13 and solder the opposite end to E7.
 - c. Install JW6 by wire wrapping one end of a wire to XA3, pin 15 and solder the opposite end to E8.
 - d. Install JW7 by wire wrapping one end of a wire to XA3, pin 46 and solder the opposite end to E9.

7. Place the unit with the top side facing up.

NOTES

- Figures 1 and 2 (on this Manual) show the bottom side (partial) of an A6 I/O and of an A5 Synthesizer mainboard; both of them had been already Factory set up for installation of the 10-Hz Option (red wires) and of another option (white wires). In Figure 3 is shown a detail of the bottom side of these mainboards as they appear in a WJ-8718A/MFP with the 10-Hz BFO Option Factory installed.

- Instead of using wire-wrapping technique, all the required wire connections can be installed by using PTFE-insulated stranded wires and standard strip-line female connectors that have to be inserted into the proper socket pins at one end and to be properly soldered at the opposite end. In this case one five-pole, two two-pole and two three-pole female connectors are required (as shown in Figure 4).

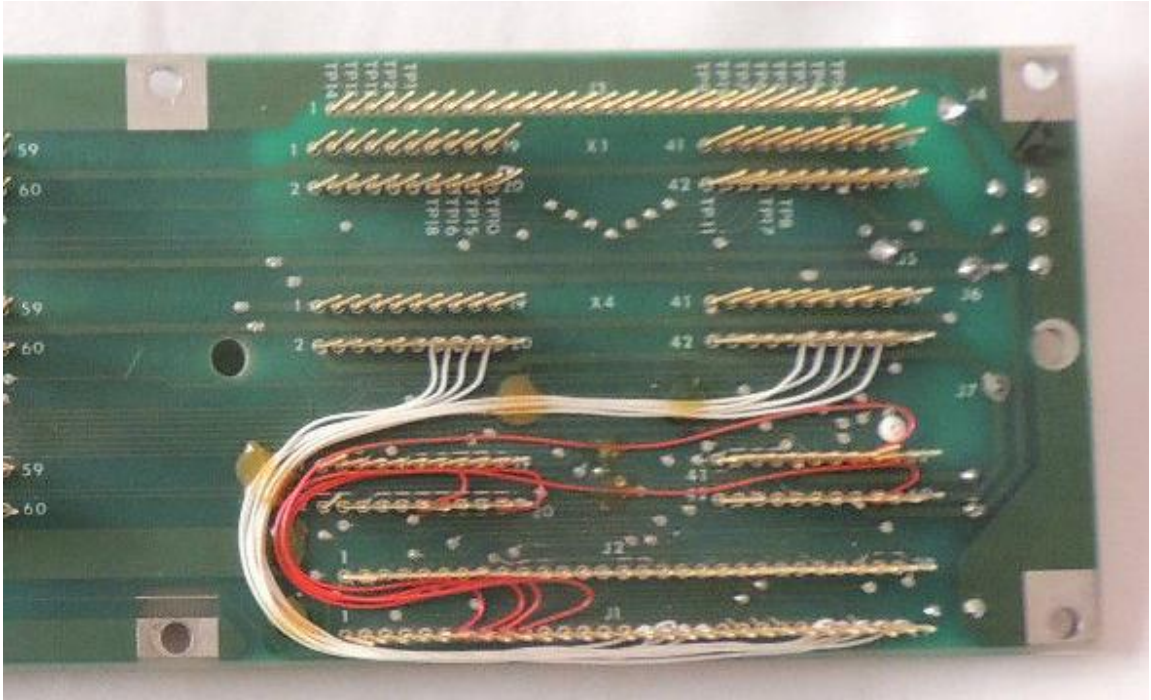


Figure 1: Bottom side of an A6 I/O mainboard set up for the 10-Hz BFO Option (red wires).

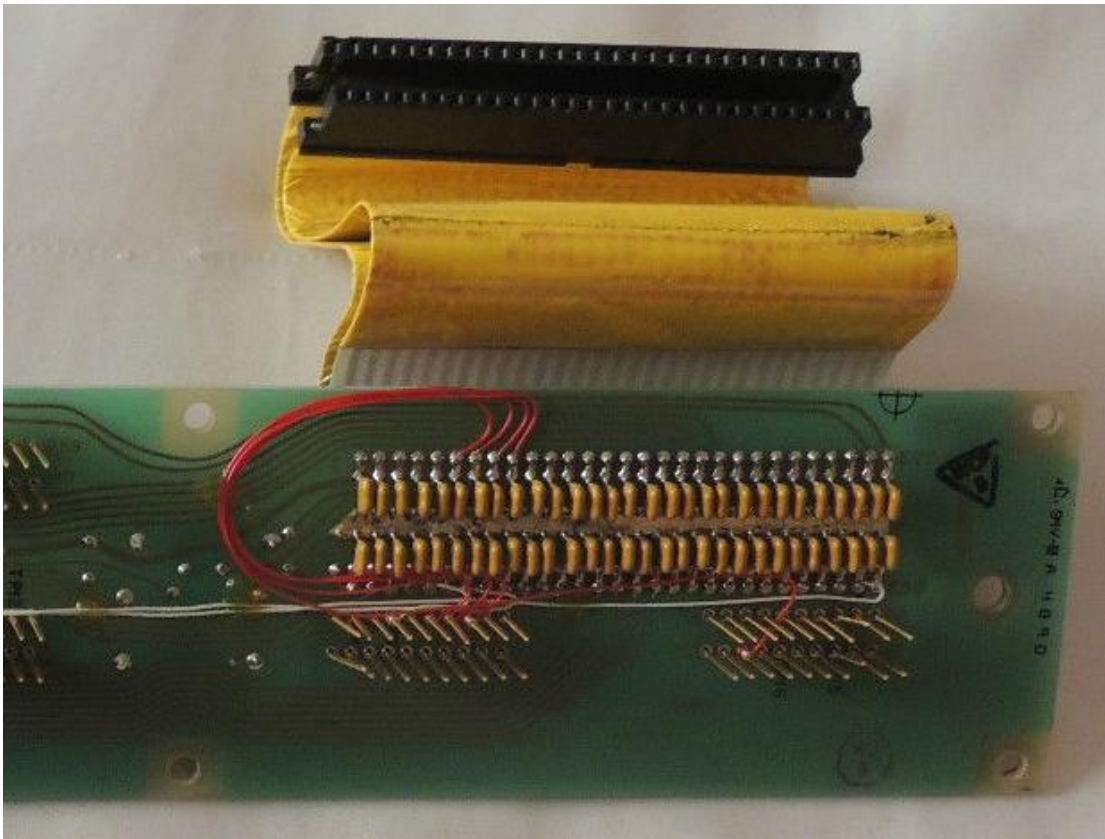


Figure 2: Bottom side of an A5 Synth. MB set up for the 10-Hz BFO Option (red wires).

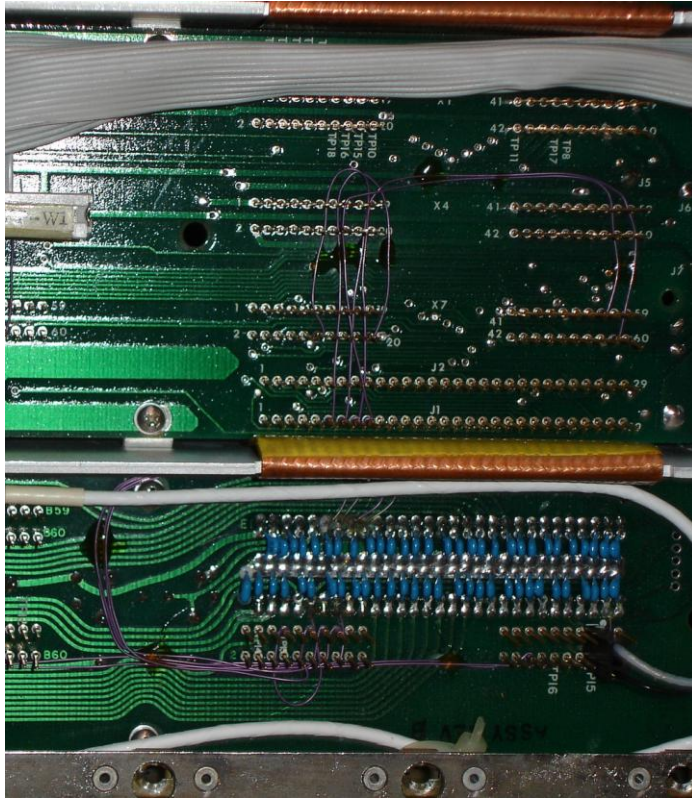


Figure 3: Details of the chassis bottom of a WJ-8718A with the 10-Hz BFO Option installed.

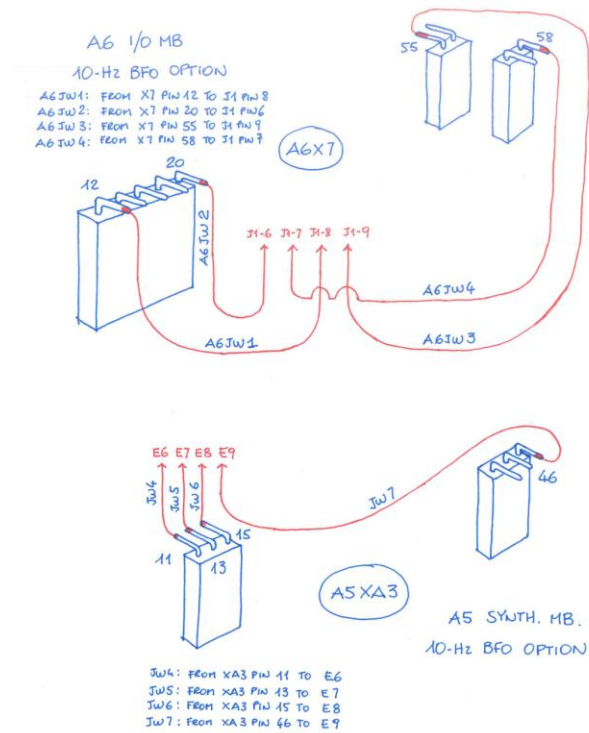


Figure 4: Alternative wiring on the A6 I/O MB and on the A5 Synth MB for the 10-Hz BFO Option; some strip-line female connectors and stranded wires are needed.

7. Final steps (**for all receivers**):

- a. Locate the A5A3 stock BFO card (791576-X) on the A5 Synth mainboard, sockets XA3; unplug, remove it and set apart for possible future use.
- b. Insert the new A5A3 10-Hz BFO Option card (796181-X) into the A5 XA3 socket.
- c. Eventually replace the receiver front panel if needed (for the WJ-8718As with manual tuning a new front panel provided with a 4-section thumbwheel switch [+/- sign and three more digits, Figure 5] is required, while the stock WJ-8718A/MFP front panel is already provided with a 4-digit BFO Frequency display).
Eventually reconnect to the proper front panel sockets all the plugs that had been previously disconnected: the ones coming from J4 (A7P1 to Manual Tuning board), J2 (A8P1 to display), and J3 (A9P1 to BFO thumbwheel switch) on the A6A1 board.
Reconnect also the A10P1 plug to J1 (on the A6A2 Front Panel Interconnect card).
- d. Replace the top and bottom covers using the same screws removed in step (2) above.
- e. Apply power to the receiver and check it for proper operation.

NOTES

- Figures 6 and 7 show the front and the rear sides of a 796181-X 10-Hz BFO Option card (A5A3, that has to be inserted into the XA3 socket on the A5 Synth mainboard after having performed all the above listed modifications). This enables the 10-Hz BFO tuning.



Figure 5: The four- section thumbwheel switch of a WJ-8718A provided with the 10-Hz BFO Option.

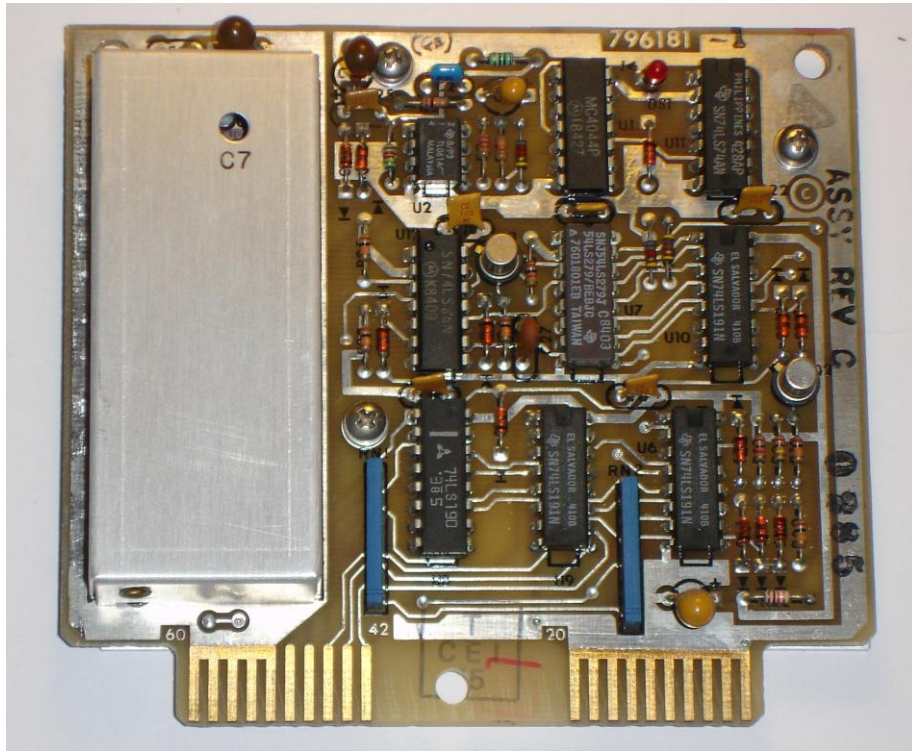


Figure 6a: The 796181-X 10-Hz BFO Option card for the WJ-8718 Series of receivers (front side).

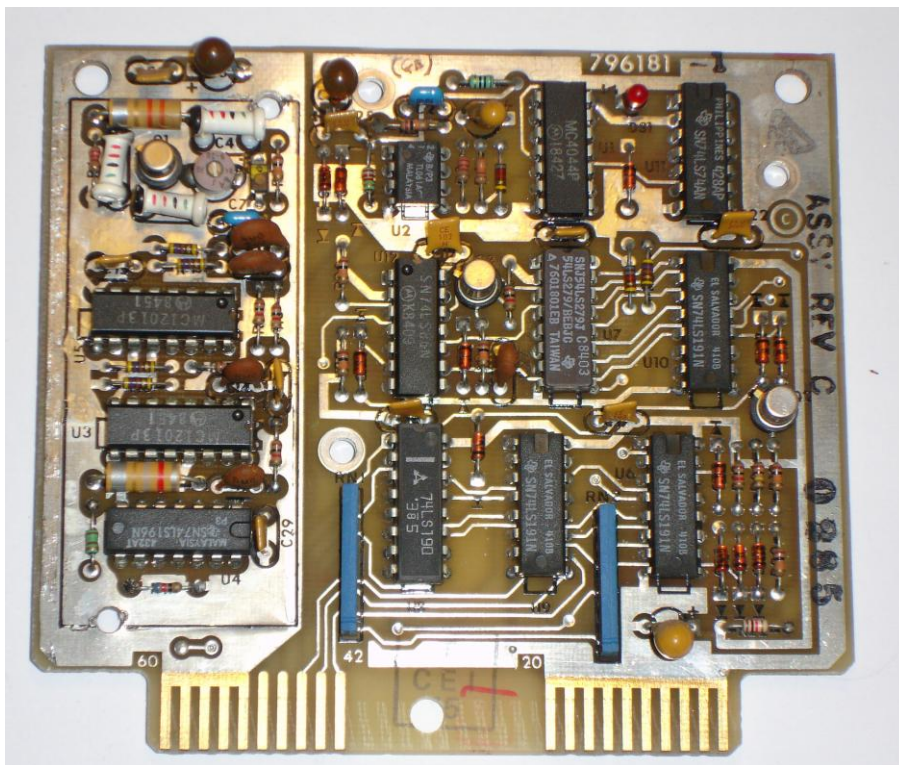


Figure 6a: The 796181-X 10-Hz BFO Option card for the WJ-8718 Series of receivers (front side, shield removed).



Figure 7a: The rear (shielded) side of the same 796181-X 10-Hz BFO Option card.

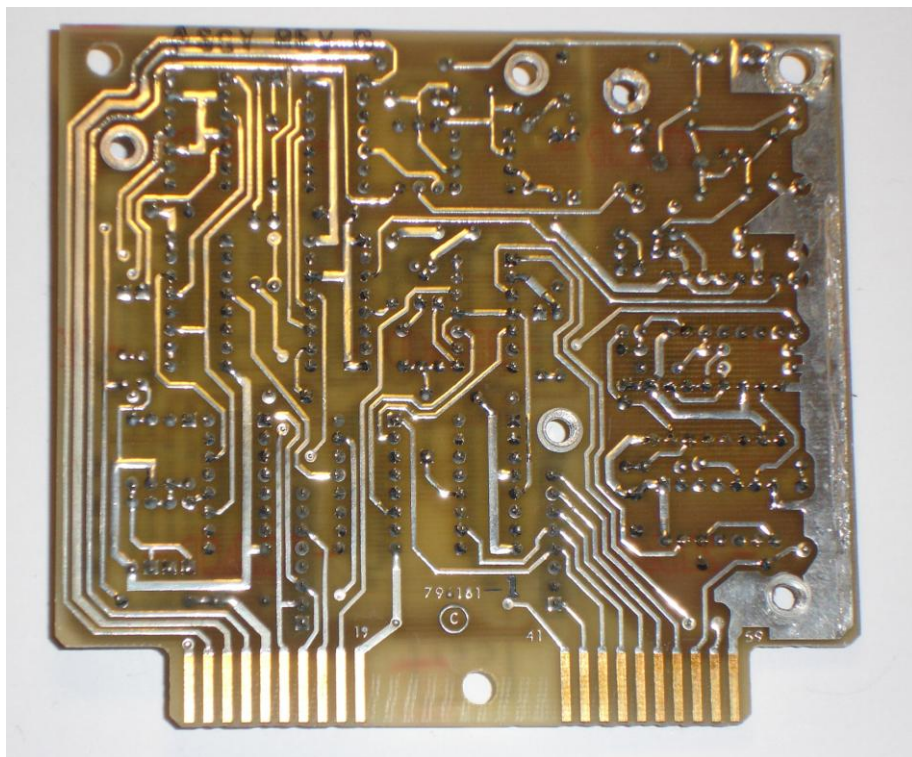


Figure 7b: The rear side of the 796181-X 10-Hz BFO Option card PCB (shield removed).

NOTES

- As specified in the WJ-8718A/MFP Instruction Manual (Para 2.4.4.5.4, Page 2-9), if a /MFP is not equipped with the 10-Hz BFO Option, the LSD of the displayed BFO frequency is not connected to the synthesizer. Hence, if for the "manual" WJ-8718A receiver it is necessary to replace the original front panel with a new one that is provided with a 4-section thumbwheel switch (+/- sign and three more digits) and an 8-digit frequency display (if also the 1-Hz readout option has to be installed, in the case of a stock "/MFP" receiver - that already has a 4-digit BFO frequency display - a new MFP front panel provided with an 8-digit frequency readout is needed only if also the 1-Hz Option has to be installed).

WJ-8718A & WJ-8718A/MFP 10-Hz BFO OPTION

PRINCIPLES OF OPERATION AND CIRCUIT DESCRIPTION

(work in progress)