



Rockwell
International

instructions

Collins Defense Communications

523-0768671-004211

4th Edition, 1 October 1983

AC-8012 Oven Standard Kit
(622-3460-001)

AC-8012 Oven Standard Kit (622-3460-001)

Printed in USA

1. DESCRIPTION

AC-8012 Oven Standard Kit 622-3460-001 contains an rf oscillator, an external phase-lock card, and all the cables and hardware necessary to install them in the units listed in table 1. When installed, the oven standard provides a high-stability crystal oscillator mounted inside a proportionally controlled oven.

Table 1. AC-8012 Oven Standard Kit, Equipment Used On.

EQUIPMENT	PART NUMBER
HF-8010 Exciter	622-3389-()
HF-8010A Exciter	622-3395-()
HF-8014 Exciter	622-3472-()
HF-8014A Exciter	622-3473-()
HF-8050 Receiver	622-3385-()
HF-8050A Receiver	622-3393-()
HF-8054 Receiver	622-3474-()
HF-8054A Receiver	622-3475-()
HF-8070 Receiver-Exciter	622-3387-()
HF-8070A Receiver-Exciter	622-3394-()
851S-1 Receiver	622-4272-()
851S-2 Receiver	622-4755-()

Note

This kit is factory installed on some configurations of these units.

The AC-8012 rf oscillator provides a 1-MHz sine-wave frequency output at a level of 0.40 volt rms into 50 ohms. Accuracy of the rf oscillator exceeds that of the txco built into the used-on equipments and uses a proportionally controlled oven instead of the temperature-compensating network to improve accuracy over the controlled temperature range, -20 to +70 °C (-4 to +158 °F).

The AC-8012 rf oscillator has two frequency adjustments: a coarse adjustment (FREQ ADJ - COARSE) to adjust the output frequency to $\pm 1.5 \times 10^{-6}$ of the nominal frequency with $\pm 5 \times 10^{-9}$ or better resolution, and a fine adjustment (FREQ ADJ - FINE) to adjust the output frequency to 2.0×10^{-8} minimum to 4.0×10^{-8} maximum with minimum resolution of $\pm 2 \times 10^{-10}$.

The AC-8012 rf oscillator requires +18.0 \pm 0.9 V dc, 8.0 watts maximum during warmup; 2.5 watts nominal after warmup; and +5.0 \pm 0.25 V dc, 20 mA maximum.

2. INSTALLATION (Refer to figure 1)

Installation of AC-8012 Oven Standard Kit (622-3460-001) consists of installation of external phase-lock on the synthesizer reference (REF STD) and installation of oscillator assembly Y1 (637-9135-001).

Note

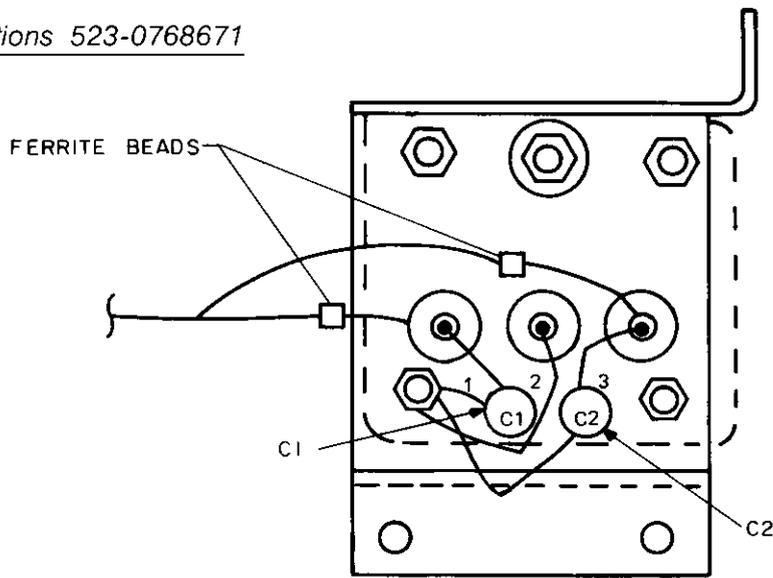
Refer to the depot maintenance instruction book for circuit card repair procedures.

2.1 External Phase-Lock (635-0655-001) Installation

- Remove top cover from unit.
- Remove top cover from synthesizer assembly.
- Remove REF STD from synthesizer assembly.
- Remove cover from left side rf compartment on REF STD, and move jumper clip from INT to EXT position (strap for external operation).

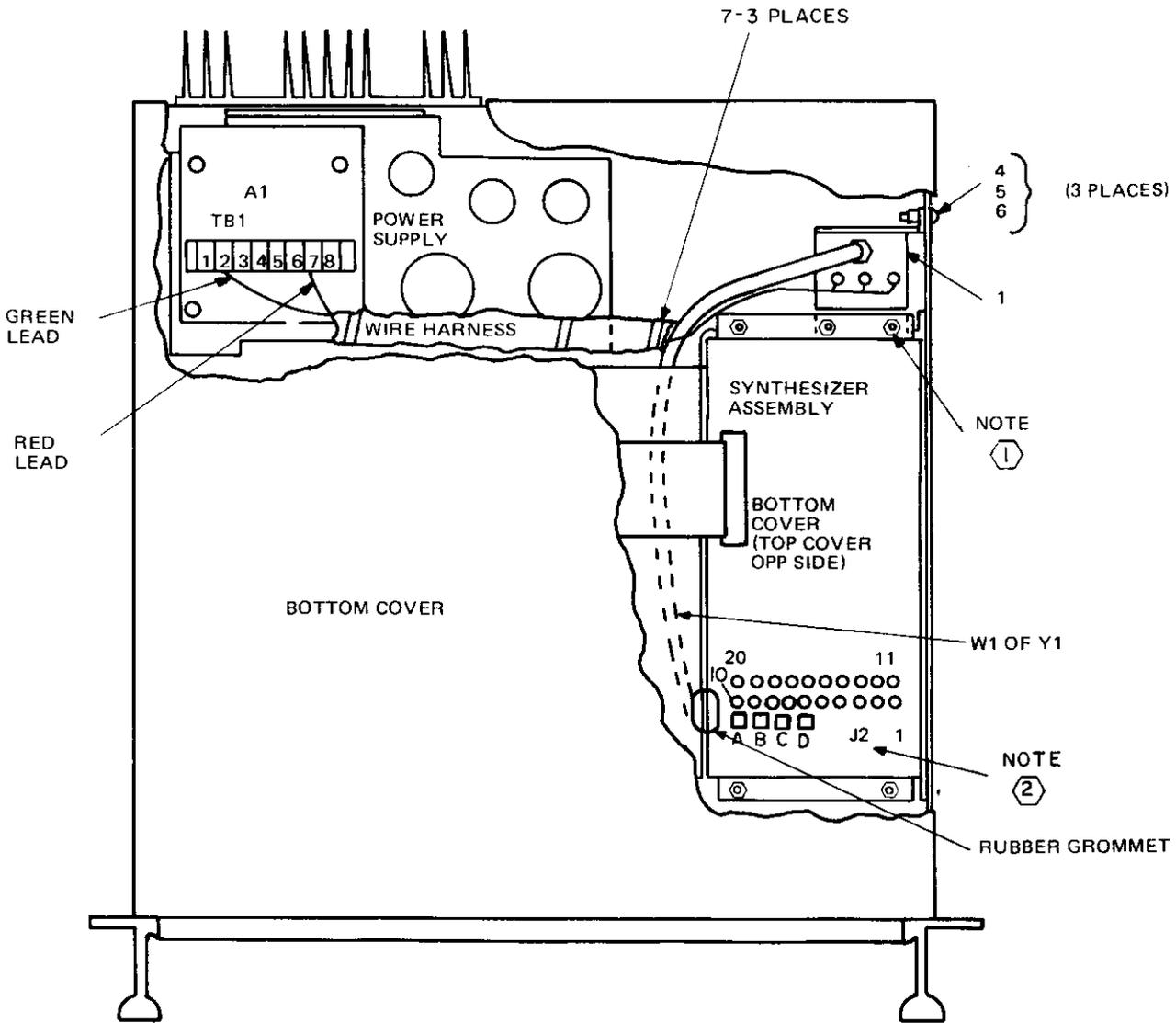
NOTICE: This section replaces third edition dated 1 March 1981.

523-0768671-004211



NOTES:

- ① USE EXISTING HARDWARE (SCREW, LOCKWASHER, AND HEX-NUT).
- ② FREQUENCY SYNTHESIZER J3 ON HF8014/14A AND HF8054/54A APPLICATIONS.



TP5-4257-013

AC-8012 Oven Standard Kit Installation
Figure 1

- e. Reinstall left side rf compartment cover on REF STD.
- f. Mount external phase-lock (table 2, item 2) to REF STD with two lockscrews (table 2, item 3).
- g. Set jumper clip on external phase-lock to 1-MHz position.
- h. Insert REF STD in its original position in synthesizer assembly.
- i. Reinstall synthesizer assembly top cover.
- j. Reinstall unit top cover.

2.2 Oscillator Assembly (637-9135-001) Installation

- a. Remove bottom cover from unit.
- b. Remove attaching hardware referred to in note on figure 1.
- c. Install oscillator assembly (table 2, item 1) to chassis using three screws (table 2, item 4), three lockwashers (table 2, item 5), three hexnuts (table 2, item 6), and attaching hardware removed in step b above.
- d. Install the two wires from oscillator assembly (table 2, item 1) to power supply A1 (green wire to A1TB1-2 and red wire to A1TB1-7).
- e. Using three cable ties (table 2, item 7), tie the two wires that connect the oscillator assembly to power supply A1.
- f. Remove bottom cover of synthesizer assembly and install oscillator assembly cable W1 (table 2, P/O item 1) to synthesizer sideboard as follows:
 1. Thread cable W1 through rubber grommet as shown in figure 1.

Note

Some configurations of the synthesizer assembly do not contain a rubber grommet. In configurations not having a rubber grommet, place W1 in one of the cutouts for wiring, using care not to pinch wires when reinstalling synthesizer assembly bottom cover.

Note

Some configurations of the synthesizer sideboard contain posts on the J2/J3 pad and some only contain solder holes. In the configurations containing solder holes, do not insert leads more than 0.508 cm (0.20 in) into sideboard when soldering.

2. Solder center conductor of W1 (insulated) to J2-A/J3-A post or pad of synthesizer sideboard.
3. Solder shield top of W1 (uninsulated) to J2-B/J3-B post or pad of synthesizer sideboard.
- g. Reinstall synthesizer assembly bottom cover.
- h. Reinstall unit bottom cover.

3. REPAIR

Repair of the AC-8012 Oven Standard Kit is accomplished using standard maintenance and circuit card repair procedures. Refer to the depot maintenance instruction book for circuit card repair procedures.

Table 2. AC-8012 Oven Standard Kit Parts List.

ITEM	DESCRIPTION	COLLINS PART NUMBER	QUANTITY
1	Oscillator assembly	637-9135-001	1
	Radio frequency oscillator	277-0472-010	1
	Capacitor, 0.1 μ F	913-3681-000	2
	Ferrite bead	288-0915-030	2
2	External phase-lock	635-0655-001	1
3	Lockscrew - 0.112 x 40 x 0.187	330-1716-130	2
4	Machined screw - 0.138 x 32 x 0.375	343-0169-000	3
5	Lockwasher - 0.138	310-0096-000	3
6	Hexnut - 0.138 x 32	313-0045-000	3
7	Cable tie	435-1169-200	3
8	Drawing envelope	520-8360-132	1
	Installation kit, oven oscillator -- AC-8012	622-3460-001	1

4. PARTS LIST/DIAGRAMS

This paragraph assists in identification, requisition, and issuance of parts, and in installation/maintenance of the equipment. The Collins part number and description of each nonstandard replacement part are listed in table 2.

Radio Frequency Oscillator 277-0472-010 is a non-repairable assembly and should be returned to factory if defective.

External Phase-Lock 635-0655-001 is repairable and is covered in the following synthesizer reference sections.

- a. Synthesizer Reference (623-2085-001) instructions (523-0767970) included in the following instruction books.
 1. HF-80 Exciters, Receivers, and Controls Depot Maintenance (523-0772963).
 2. 851S-1 Receiver (523-0769210).
- b. Synthesizer Reference (642-2451-001) instructions (523-0770715) included in the HF-80 Exciters, Receivers, and Controls Depot Maintenance instruction book (523-0772963).



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Collins Defense Communications

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AC-8013 External Standard Kit (622-3461-001)

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1. DESCRIPTION

The AC-8013 External Standard Kit 622-3461-001 contains an external phase-lock card, a cable assembly, and the hardware necessary to install them in the units listed in table 1. When installed, the external standard kit allows for an external high-stability frequency source to be connected to the synthesizer reference.

The external phase-lock card (P/O AC-8013 kit), when installed, allows an external reference frequency of 5 MHz, 1 MHz, or 100 kHz to be supplied to the units listed. The external reference signal must be 0.5 to 1.5 volts rms sine wave into 50 ohms with accuracy depending on the accuracy of the signal source.

2. INSTALLATION (Refer to figure 1)

Installation of AC-8013 External Standard Kit (622-3461-001), consists of installation of external phase-lock on the synthesizer reference (REF STD) and installation of cable assembly W1 (637-9136-001).

Note

Refer to the depot maintenance instruction book for circuit card repair procedures.

2.1 External Phase-Lock (635-0655-001) Installation

- Remove top cover from unit.
- Remove top cover from synthesizer assembly.
- Remove REF STD from synthesizer assembly.
- Remove cover from left side rf compartment on REF STD, and move jumper clip from INT to EXT position (strap for external operation).

Table 1. AC-8013 External Standard Kit, Equipment Used On.

EQUIPMENT	PART NUMBER
HF-8010 Exciter	622-3389-()
HF-8010A Exciter	622-3395-()
HF-8014 Exciter	622-3472-()
HF-8014A Exciter	622-3473-()
HF-8050 Receiver	622-3385-()
HF-8050A Receiver	622-3393-()
HF-8054 Receiver	622-3474-()
HF-8054A Receiver	622-3475-()
HF-8070 Receiver-Exciter	622-3387-()
HF-8070A Receiver-Exciter	622-3394-()
851S-1 Receiver	622-4272-()
851S-2 Receiver	622-4755-()

Note

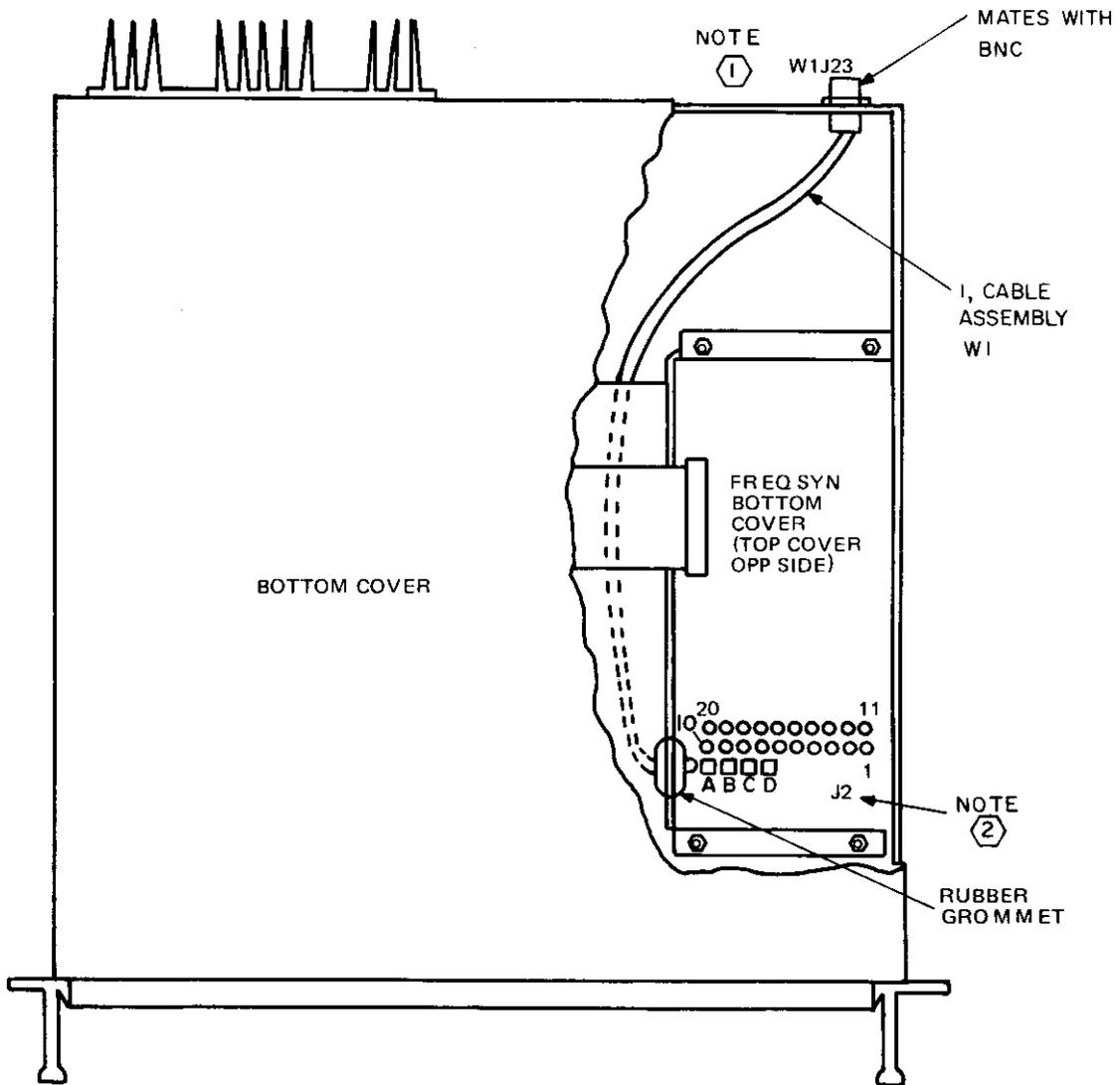
If an oven standard kit is installed, the oven standard must first be removed before the external standard kit is installed.

- Reinstall left side rf compartment cover on REF STD.
- Mount external phase-lock (table 2, item 2) to REF STD with two lockscrews (table 2, item 3).
- Set jumper clip on external phase-lock to 1-MHz position.
- Insert REF STD in its original position in synthesizer assembly.
- Reinstall synthesizer assembly top cover.
- Reinstall unit top cover.

2.2 Cable Assembly W1 (637-9136-001) Installation

- Remove bottom cover from unit.
- Remove bottom cover from synthesizer assembly.

NOTICE: This section replaces fourth edition dated 1 March 1981.



NOTES:

- ① WIJ27 FOR HF8054/54A APPLICATION ONLY.
- ② FREQUENCY SYNTHESIZER J3 FOR HF8014/14A AND HF8054/54A APPLICATIONS.

TP5-4258-013

AC-8013 External Standard Kit Installation
Figure 1

- c. Secure cable assembly W1 (table 2, item 1) to J23/J27 position of rear panel and thread cable through rubber grommet to synthesizer assembly as shown in figure 1.

Note

Some configurations of the synthesizer assembly do not contain a rubber grommet. In configurations not having a rubber grommet, place W1 in one of the cutouts for wiring using care not to pinch wires when reinstalling synthesizer assembly bottom cover.

Some configurations of the synthesizer sideboard contain posts in the J2/J3 pads and some only contain solder holes. In the configurations containing solder holes, do not insert leads more than 0.508 cm (0.20 in) into sideboard when soldering.

- d. Solder center conductor of W1 (insulated) to J2-A/J3-A post or pad of synthesizer sideboard.
- e. Solder shield top of W1 (uninsulated) to J2-B/J3-B post or pad of synthesizer sideboard.
- f. Reinstall synthesizer assembly bottom cover.
- g. Reinstall unit bottom cover.

3. REPAIR

Repair of the AC-8013 External Standard Kit is accomplished using standard maintenance and circuit card repair procedures. Refer to the depot maintenance instruction book for circuit card repair procedures.

4. PARTS LIST/DIAGRAMS

This paragraph assists in identification, requisition, and issuance of parts, and installation/maintenance of the equipment. The Collins part number and description for each nonstandard replacement part are listed in table 2.

External Phase-Lock 635-0655-001 is covered in the following synthesizer reference sections.

- a. Synthesizer Reference (623-2085-001) instructions (523-0767970) included in the following instruction books.
 - 1. HF-80 Exciters, Receivers, and Controls Depot Maintenance (523-0772963).
 - 2. 851S-1 Receiver (523-0769210).
- b. Synthesizer Reference (642-2451-001) instructions (523-0770715) included in the HF-80 Exciters, Receivers, and Controls Depot Maintenance instruction book (523-0772963).

Table 2. AC-8013 External Standard Kit, Parts List.

ITEM	DESCRIPTION	COLLINS PART NUMBER	QUANTITY
1	Cable assembly W1	637-9136-001	1
2	External phase-lock	635-0655-001	1
3	Lockscrew - 0.112 x 40 x 0.187	330-1716-130	2
4	Drawing envelope	520-8360-133	1
	Installation kit-external reference standard, AC-8013	622-3461-001	1



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Collins Defense Communications

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AC-8090 Remote Control Kit (622-3462-())

Printed in USA

AC-8090 Remote Control Kit
(622-3462-())

1. DESCRIPTION

AC-8090 Remote Control Kit 622-3462-001, -002 contains a parallel output, parallel input, and serial interface card. When installed, the AC-8090 Remote Control Kit makes the equipment it is used on (table 1) completely remotable using a compatible remote control.

Table 1. AC-8090 Remote Control Kit, Equipment Used On.

EQUIPMENT	PART NUMBER
HF-8010 Exciter	622-3389-()
HF-8014 Exciter	622-3472-()
HF-8050 Receiver	622-3385-()
HF-8054 Receiver	622-3474-()
HF-8070 Receiver-Exciter	622-3387-()
*851S-1 Receiver	622-4272-()
*851S-2 Receiver	622-4755-()
*This kit is factory installed on some configurations of this unit.	

The AC-8090 Remote Control Kit 622-3462-001 REV — is compatible only with the HF-80 type 2-channel bcd frequency controlled radios (HF-8010, HF-8050, HF-8070).

The AC-8090 Remote Control Kit 622-3462-001 REV A and above is compatible only with the HF-80 type 2-channel radios, continuous tune and bcd frequency controlled radios (HF-8010, HF-8050, HF-8070, 851S-1, 851S-2).

The AC-8090 Remote Control Kit 622-3462-002 and above is compatible with all HF-80 type radios listed in table 1.

2. INSTALLATION

2.1 AC-8090 Remote Control Kit 622-3462-001 REV —

Note

This revision of this kit is compatible only with the following HF-80 type 2-channel radios: HF-8010, HF-8050, HF-8070.

- a. Remove the unit top cover.
- b. Install the cards included in the kit in the following slots:
 1. Parallel input (635-0751-001) in A11 slot
 2. Parallel output (635-0752-001) in A12 slot
 3. Serial interface (635-0742-001) in A13 slot
- c. Reinstall the unit top cover.

2.2 AC-8090 Remote Control Kit 622-3462-001 REV A and Above

Note

This revision of this kit is compatible only with the following HF-80 type 2-channel radios: HF-8010, HF-8050, HF-8070, 851S-1, 851S-2.

- a. Remove the unit top cover.
- b. Install the cards included in the kit in the following slots:
 1. Parallel input (635-0751-001) in A11 slot

NOTICE: This section replaces fourth edition dated 15 March 1981.

523-0768675-005211

2. Parallel output (635-0752-001) in A12 slot
 3. Serial interface (635-0742-001) in A13 slot
- c. Reinstall the unit top cover.

2.3 AC-8090 Remote Control Kit 622-3462-002

Note

This revision of this kit is compatible with all of the following HF-80 type radios: HF-8010, HF-8014, HF-8050, HF-8054, HF-8070, 851S-1, 851S-2.

2.3.1 Installation in HF-8010, HF-8050, HF-8070 Radios

- a. Set input, output, and interface cards for 2-channel operation.
 1. Parallel input switches S1-1 through -8 and S2-1 are open, switches S2-2 through -8 and S3-1 through -8 are closed.
 2. Parallel output E6 strap placed between middle and right pins (facing board, handles up).
 3. Serial interface switch S2-5 is open. Set other switches as required for selected baud rate, signalling, word format, polarity, parity, and address recognition.
- b. Remove the unit top cover.
- c. Install the cards included in the kit (and set in paragraph 2.3.1.b.) in the following slots:
 1. Parallel input (642-3135-001) in A11 slot
 2. Parallel output (642-3137-001) in A12 slot
 3. Serial interface (638-6896-001) in A13 slot
- d. Reinstall the unit top cover.

2.3.2 Installation in 851S-1, 851S-2 Radios

- a. Refer to 851S-1/-2 Service Bulletin 5 (SB 5) to determine if this service bulletin is required in your radio.
- b. Set input, output, and interface cards for 2-channel operation.
 1. Parallel input switches S1-1 through -8 and S2-1 are open, switches S2-2 through -8 and S3-1 through -8 are closed.
 2. Parallel output E6 strap placed between middle and right pins (facing board, handles up).
 3. Serial interface switch S2-5 is open. Set other switches as required for selected baud rate, signalling, word format, polarity, parity, and address recognition.
- c. Remove the unit top cover.
- d. Install the cards included in the kit (and set in paragraph 2.3.2.b.) in the following slots:
 1. Parallel input (642-3135-001) in A11 slot
 2. Parallel output (642-3137-001) in A12 slot

3. Serial interface (638-6896-001) in A13 slot
- e. Reinstall the unit top cover.

2.3.3 Installation in HF-8014, HF-8054 Radios

- a. Set input, output, and interface cards for 4-channel operation.
 1. Parallel input switches S1-1 through -8 and S2-1 are closed, switches S2-2 through -8 and S3-1 through -8 are open.
 2. Parallel input E6 strap placed between middle and left pins (facing board, handles up).
 3. Serial interface switch S2-5 is open. Set other switches as required for selected baud rate, signalling, word format, polarity, parity, and address recognition.
- b. Remove the unit top cover.
- c. Install the cards included in the kit (and set in paragraph 2.3.3.a.) in the following slots:
 1. Parallel input (642-3135-001) in A11 slot
 2. Parallel output (642-3137-001) in A12 slot
 3. Serial interface (638-6896-001) in A13 slot
- d. Reinstall the unit top cover.

3. REPAIR

Repair of the AC-8090 Remote Control Kit is accomplished using standard maintenance and circuit card repair procedures. Refer to the depot maintenance instruction book for circuit card repair procedures.

4. PARTS LIST/DIAGRAMS

This paragraph assists in identification, requisition, and issuance of parts, and in maintenance of the equipment. The Collins part number and description for each replacement part are listed in table 2.

These cards are covered in the following instructions which are included in the HF-80 Exciters, Receivers, and Controls Depot Maintenance instruction book (523-0772963) and the 851S-1 Receiver instruction book (523-0769210).

- a. Parallel input (635-0751-001, -002) instructions (523-0767949).
- b. Parallel input (642-3135-001) instructions (523-0770711).
- c. Parallel output (635-0752-001, -002) instructions (523-0767950).
- d. Parallel output (642-3137-001) instructions (523-0770712).
- e. Serial interface (635-0742-001) instructions (523-0767951).
- f. Serial interface (638-6896-001) instructions (523-0770713).

Table 2. AC-8090 Remote Control Kit Parts List.

PART DESCRIPTION	COLLINS PART NUMBER	QUANTITY USED ON		
		AC-8090 REMOTE CONTROL KIT 622-3462-()		
		-001 REV —	-001 REV A AND ABOVE	-002
Serial interface A13	635-0742-001	1	1	
Serial interface A13	638-6896-001			1
Parallel input A11	635-0751-001	1		
Parallel input A11	635-0751-002		1	
Parallel input A11	642-3135-001			1
Parallel output A12	635-0752-001	1		
Parallel output A12	635-0752-002		1	
Parallel output A12	642-3137-001			1
Drawing envelope	520-8360-215	1	1	1
Installation Kit - Remote Control AC-8090	622-3462-()	1	1	1



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AC-85100 ISB Kit (622-4606-())

Collins Defense Communications

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AC-85100 ISB Kit
(622-4606-())

1. DESCRIPTION

The AC-85100 ISB Kit 622-4606-() contains a channel B if. When installed, the ISB Kit provides LSB and 2-channel ISB (independent sideband) operation. Refer to table 1 for equipments used on.

The AC-85100 ISB Kit channel B if provides a channel B if amplifier and channel B SSB product detected audio outputs. Different configurations of the AC-85100 ISB Kit provide different LSB bandwidth filters.

To maintain a balanced ISB operation, an LSB filter with the same bandwidth as the USB filter is desired. The standard filter in USB is 2.75-kHz bandwidth, thus a 2.75-kHz bandwidth LSB filter should be used. If a filter other than the standard is used in either USB or LSB, kits are available to maintain a balanced ISB system. LSB filters are included in these instructions; USB filters are included in AC-85108 Channel A IF Kit (622-4616-()) instructions.

Table 1. AC-85100 ISB Kit, Equipments, Used On.

EQUIPMENT	COLLINS PART NO
851S-1 Receiver	622-4272-()
851S-2 Receiver	622-4755-()
This kit is factory installed on some configurations of these units.	

2. INSTALLATION

Installation of the AC-85100 ISB Kit 622-4606-() consists of installing a channel B if A8 and, if installed, removing filter A8A2FL2 from filter card A8A2.

- Remove top cover from unit.
- If A8A2 installed, remove A8 CHAN A IF from the unit.
- Remove A8A2 filter card from A8 CHAN A IF.
- If A8A2FL2 is not the only filter on the A8A2 filter card, unsolder and remove A8A2FL2 from the A8A2 filter card.
- Replace A8A2 filter card on A8 CHAN A IF. (If A8A2FL2 is the only filter on the A8A2 filter card, save the removed card. Do not reinstall it in the unit.)
- Reinstall A8 CHAN A IF in its original position in the unit.
- Install A7 CHAN B IF in its allocated position in the unit.
- Reinstall unit top cover.

3. REPAIR

Repair of the AC-85100 ISB Kit is accomplished using standard maintenance and planar card repair procedures. Refer to the maintenance section of this instruction book for planar card repair procedures.

4. PARTS LIST/DIAGRAMS

This paragraph assists in identification, requisition, and issuance of parts, and in maintenance of the equipment. The Collins part number and description for each replacement part are listed in table 2.

Channel B IF 637-2647-() is covered in Channel B IF 637-2647-() instructions (Collins part number 523-0767965) included in this instruction book.

NOTICE: This section replaces first edition dated 1 January 1979.

523-0769222-002211

Table 2. AC-85100 ISB Kit, Parts List.

PART DESCRIPTION	COLLINS PART NO	QUANTITY USED ON AC-85100		
		-001	-002	-003
Channel B if (2.75-kHz LSB)	637-2647-001	1		
Channel B if (3.05-kHz LSB)	637-2647-002			1
Channel B if (3.10-kHz LSB)	637-2647-003		1	
Drawing envelope	520-8360-216	1	1	1
Installation Kit - ISB AC-85100	622-4606-()	1	1	1



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AC-85101 DVBFO Kit (622-4607-001, -002)

Collins Defense Communications

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AC-85101 DVBFO Kit
(622-4607-001, -002)

1. DESCRIPTION

The AC-85101 DVBFO Kit 622-4607-001 contains a vbfo card. When installed, this DVBFO kit provides a vbfo offset frequency for SSB/CW or ISB (channel A only) operation. Refer to table 1 for equipment this kit is used on.

The AC-85101 DVBFO Kit 622-4607-002 contains a jumper card. When installed, this DVBFO kit provides normal operation with no vbfo card installed, thus no vbfo offset frequency.

The AC-85101 DVBFO Kit 622-4607-001 vbfo provides an offset frequency that is summed with the 450-kHz injection frequency and provides a 440.01- to 459.99-kHz channel A if injection frequency when the bfo is enabled. This variable injection frequency provides a CW tone of 0 to 9 990 Hz (in 10-Hz steps) in either USB or LSB.

2. INSTALLATION

Installation of the AC-85101 DVBFO Kit 622-4607-001 consists of installing an A4 VBFO card and removing optical blanker from VBFO display. Installation of the AC-85101 DBVFO Kit 622-4607-002 consists of installing an A4 jumper card.

2.1 VBFO 638-6067-001 Installation

Note

Retain hardware removed during disassembly for use in reassembly. Refer to unit parts list as an aid in disassembly and assembly.

Table 1. AC-85101 DVBFO Kit, Equipment Used On.

EQUIPMENT	COLLINS PART NO
851S-1 Receiver 851S-2 Receiver	622-4272-() 622-4755-()
This kit is factory installed on some configurations of these units.	

- Remove top cover from unit.
- Remove jumper 637-3796-001 from A4 slot.
- Install VBFO 638-6067-001 in A4 slot.
- Remove front panel from unit by removing four hexhead screws and attaching hardware.

Caution

Upper overlay panel (plexiglass) is brittle; exercise care during removal of upper overlay panel.

- Remove upper overlay panel from front panel as follows:
 - Remove four Phillips-head screws and lockwashers that secure back of front panel to upper edge bar.
 - Remove four Phillips-head screws and lockwashers that secure back of front panel to panel support (middle bar on front panel).
 - Lift upper edge bar from front panel.
 - Carefully remove upper overlay panel.
- Carefully remove optical blanker from vbfo frequency display.

NOTICE: This section replaces first edition dated 1 January 1979.

523-0769223-002211

Caution

Upper overlay panel (plexiglass) is brittle; exercise care during replacement of upper overlay panel.

- g. Insert upper overlay panel into slot on panel support (middle bar on front panel).
- h. Replace edge bar on top of front panel ensuring upper overlay panel fits properly.
- i. Secure upper overlay panel to front panel with eight Phillips-head screws and lockwashers.
- j. Secure front panel to unit with four hexhead screws and attaching hardware.
- k. Reinstall unit top cover.

2.2 Jumper 637-3796-001 Installation

Note

This jumper may be used to keep receiver operational while A4 vbfo is being repaired/tested.

Retain hardware removed during disassembly for use in reassembly. Refer to unit

parts list as an aid in disassembly and reassembly.

- a. Remove unit top cover.
- b. Remove vbfo 638-6067-001 from A4 slot
- c. Install jumper 637-3796-001 in A4 slot.
- d. Reinstall unit top cover.

3. REPAIR

Repair of AC-85101 DVBFO Kit is accomplished using standard maintenance and planar card repair procedures. Refer to the maintenance section of this instruction book for planar card repair procedures.

4. PARTS LIST/DIAGRAMS

This paragraph assists in the identification, requisition, and issuance of parts, and im maintenance of the equipment. The Collins part number and description for each replacement part are listed in table 2.

VBFO 638-6067-001 is covered in VBFO 638-6067-001 instructions (Collins part number 523-0769219) included in this instruction book.

Table 2. AC-85101 DVBFO Kit, Parts List.

PART DESCRIPTION	COLLINS PART NO	QUANTITY USED ON AC-85101 DVBFO KIT 622-4607-()	
		-001	-002
VBFO A4	638-6067-001	1	
Jumper A4	637-3796-001		1
Drawing envelope	520-8360-211	1	1
Installation Kit - DVBFO AC-85101	622-4607-()	1	1



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Collins Defense Communications

523-0769224-002211
2nd Edition, 1 March 1981

AC-85102 Decade Expansion Kit (622-4608-001)

Printed in USA

1. DESCRIPTION

The AC-85102 Decade Expansion Kit 622-4608-001 contains a synthesizer 100/10 Hz decade card. When installed, the AC-85102 Decade Expansion Kit provides 10-Hz tuning on all units listed in table 1.

Table 1. AC-85102 Decade Expansion Kit, Equipment Used On.

EQUIPMENT	COLLINS PART NO
851S-1 Receiver	622-4272-()
851S-2 Receiver	622-4755-()
This kit is factory installed on some configurations of these units.	

2. INSTALLATION

Installation of the AC-85102 Decade Expansion Kit 622-4608-001 consists of configuring the synthesizer assembly for 10-Hz operation using the 100/10-Hz decade supplied with the kit.

Note

Retain hardware removed during disassembly for use in reassembly. Refer to unit parts list as an aid in disassembly and assembly.

- a. Remove unit top cover.
- b. Remove synthesizer assembly top cover.
- c. Remove END DECADE from A18 slot and install it in A17 slot.
- d. Install decade card 623-2080-004 in the A18 slot.

- e. Remove front panel from unit by removing four hexhead screws and attaching hardware.

Caution

Upper overlay panel (plexiglass) is brittle; exercise care during removal of upper overlay panel.

- f. Remove upper overlay panel from front panel as follows:
 1. Remove four Phillips-head screws and lockwashers that secure back of front panel to upper edge bar.
 2. Remove four Phillips-head screws and lockwashers that secure back of front panel to panel support (middle bar on front panel).
 3. Lift upper edge bar from front panel.
 4. Carefully remove upper overlay panel.
- g. Carefully remove optical blanker from 10-Hz frequency digit of frequency display.

Caution

Upper overlay panel (plexiglass) is brittle; exercise care during replacement of upper overlay panel.

- h. Insert upper overlay panel into slot on panel support (middle bar on front panel).
- i. Replace edge bar on top of front panel ensuring upper overlay panel fits properly.
- j. Secure upper overlay panel to front panel with eight Phillips-head screws and lockwashers.
- k. Secure front panel to unit with four hexhead screws and attaching hardware.

NOTICE: This section replaces first edition dated 1 January 1979.

- l. Reinstall synthesizer assembly top cover.
- m. Reinstall unit top cover.

3. REPAIR

Repair of AC-85102 Decade Expansion Kit is accomplished using standard maintenance and planar card repair procedures. Refer to the maintenance section of this instruction book for planar card repair procedures.

4. PARTS LIST/ DIAGRAMS

This paragraph assists in identification, requisition, and issuance of parts, and in maintenance of the equipment. The Collins part number and description for each replacement part are listed in table 2.

Synthesizer Decade 623-2080-004 is covered in Synthesizer Decade 623-2080-001, -002, -003, -004 instructions (Collins part number 523-0767972) included in this instruction book.

Table 2. AC-85102 Decade Expansion Kit, Parts List.

PART DESCRIPTION	COLLINS PART NO	QUANTITY USED ON AC-85102 DECADE EXPANSION KIT 622-4608-001
Synthesizer decade	623-2080-004	1
Drawing envelope	520-8360-212	1
Installation Kit-Decade Expansion AC-85102	622-4608-()	1



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AC-85104 AFC Kit (622-4610-001, -002)

Collins Defense Communications

523-0771078-001211

1 March 1981

Printed in USA

AC-85104 AFC Kit
(622-4610-001, -002)

1. DESCRIPTION

The AC-85104 AFC Kit 622-4610-001 contains a jumper card. When installed, this AFC kit provides normal operation with no AFC card installed, thus no automatic frequency control (AFC).

The AC-85104 AFC Kit 622-4610-002 contains an AFC card. When installed, this AFC kit provides normal operation with automatic frequency control (AFC).

The AC-85104 AFC Kit 622-4610-002 AFC provides automatic frequency control when the AFC is on and the received, translated 450-kHz if carrier signal is ± 50 Hz of the 450-kHz if injection signal. When this occurs, AFC will lock and stay locked to the carrier signal so long as it remains ± 1000 Hz of the tuned carrier. This is maintained by the voltage control of the 9.9-MHz injection signal and varying the 9.9-MHz signal to cause a steady 450-kHz if carrier signal.

2. INSTALLATION

Installation of the AC-85101 AFC Kit 622-4607-001, -002 consists of installing an A3 card.

Note

Jumper 637-3796-001 may be used to keep unit operational while A3 AFC is being repaired/tested.

- a. Remove top cover from unit.
- b. Remove jumper 637-3796-001 or AFC 642-3224-001 from A3 slot.

Table 1. AC-85104 AFC Kit, Equipment Used On.

EQUIPMENT	COLLINS PART NO
851S-1 Receiver	622-4272-()
851S-2 Receiver	622-4755-()
This kit is factory installed on some configurations of these units.	

- c. Install AFC 642-3224-001 or jumper 637-3796-001 in A3 slot.
- d. Reinstall unit top cover.

3. REPAIR

Repair of AC-85104 AFC Kit is accomplished using standard maintenance and planar card repair procedures. Refer to the maintenance section of this instruction book for planar card repair procedures.

4. PARTS LIST/DIAGRAMS

This paragraph assists in identification, requisition, and issuance of parts and in maintenance of the equipment. The Collins part number and description for each replacement part are listed in table 2.

AFC 642-3324-001 is covered in AFC 642-3324-001 instructions (Collins part number 523-0770518) included in this instruction book.

523-0771078-001211

Table 2. AC-85104 AFC Kit, Parts List.

PART DESCRIPTION	COLLINS PART NO	QUANTITY USED ON AC-85104 AFC KIT 622-4610-()	
		-001	-002
Jumper A3	637-3796-001	1	
AFC A3	642-3324-001		1
Drawing envelope	520-8360-231	1	1
Installation Kit - AFC AC-85104	622-4610-()	1	1



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Collins Defense Communications

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AC-85105 Optional Filters Kit (622-4611-())

Printed in USA

AC-85105 Optional Filters Kit
(622-4611-())

523-0769226-002211

1. DESCRIPTION

AC-85105 Optional Filters Kit 622-4611-() contains an if filter card and two sets of decals to mark the front-panel BANDWIDTH switch. When installed, the AC-85105 Optional Filters Kit allows selection of filters using the front-panel MODE switch and BANDWIDTH switch. Normally selection of specific filters is made in SSB/CW or AM modes. The if filter card is installed in the local unit and one set of decals is used to appropriately mark the front-panel BANDWIDTH switch of the local unit. The second set of decals is used to mark the front-panel BANDWIDTH switch on the associated control unit (if applicable). Refer to table 1 for equipment this kit is used on.

2. INSTALLATION

Installation of AC-85105 Optional Filters Kit 622-4611-() consists of installing an if filter card and front-panel decals.

Table 1. AC-85105 Optional Filters Kit, Equipment Used On.

EQUIPMENT	COLLINS PART NUMBER
*851S-1 Receiver	622-4272-()
*851S-2 Receiver	622-4755-()
**HF-8095 Receiver Control	622-3489-()
*This kit is factory installed on some configurations of these units. **Control, associated only with 851S-() Receiver with remote control or 851S-() Receiver with AC-8090 Remote Control Kit installed.	

2.1 Filter 637-2515-() Installation

- Remove top cover from unit.
- Remove A8 CHAN A IF from the unit.
- Plug filter into A8 CHAN A IF.
- Secure filter in place using screw and washers supplied in this kit.
- Insert A8 CHAN A IF in its original position in unit.
- Reinstall unit top cover.

2.2 Decal Installation

Note

Extra decals in kit to be installed on associated control unit (if applicable).

Install adhesive-backed decals in front-panel recess at BANDWIDTH switch positions as shown in table 2.

3. REPAIR

Repair of the AC-85105 Optional Filters Kit is accomplished using standard maintenance and planar card repair procedures. Refer to the maintenance section of this instruction book for planar card repair procedures.

4. PARTS LIST/DIAGRAMS

This paragraph assists in identification, requisition, and issuance of parts, and in maintenance of the equipment. The Collins part number and description for each nonstandard replacement part are listed in table 3.

Filter 637-2515-() is covered in Filter 637-2515-() instructions (Collins part number 523-0767967) included in this instruction book.

NOTICE: This section replaces first edition dated 1 January 1979.

Table 2. Decal Installation.

BANDWIDTH SWITCH POSITION	DECALS INSTALLED							
	KIT 622-4611-()							
	-001	-002	-003	-004	-005	-006	-007	-008
A	6	-	6	6			3	6
B	3	-	3	3			1	
C	1	-	1	1		1	0.5	0.37
D	0.5	-	0.5	0.5			0.3	0.2
E	0.2	-	0.2	0.1	0.37	0.2	0.2	

Table 3. AC-85105 Optional Filters Kit Parts List.

PART DESCRIPTION	COLLINS PART NUMBER	QUANTITY USED ON							
		AC-85105 OPTIONAL FILTERS KIT 622-4611-()							
		-001	-002	-003	-004	-005	-006	-007	-008
Filter	637-2515-001	1							
Filter	637-2515-004		1						
Filter	637-2515-005			1					
Filter	637-2515-006				1				
Filter	637-2515-008					1			
Filter	637-2515-009						1		
Filter	637-2515-012							1	
Filter	637-2515-014								1
Decal, 0.1	635-9700-001				2				
Decal, 0.2	635-9700-002						2		2
Decal, 0.5	635-9700-003	2		2	2		2		2
Decal, 1	635-9700-004	2		2	2		2		
Decal, 3	635-9700-005	2		2	2			2	
Decal, 6	635-9700-006	2		2	2				2
Decal, 0.37	635-9700-011					2			2
Decal, 0.3	635-9700-012							2	
Drawing envelope	520-8360-134	1	1	1	1	1	1	1	1
Installation Kit-Optional Filters, AC-85105	622-4611-()	1	1	1	1	1	1	1	1



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AC-85106 RF Translator Kit (622-4612-())

Collins Defense Communications

523-0769227-002211
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AC-85106 RF Translator Kit
(622-4612-())

523-0769227-002211

1. DESCRIPTION

The AC-85106 RF Translator Kit 622-4612-() contains a replacement rf module.

When installed, the 622-4612-001 provides 10 1/2-octave bandpass filters for receive filtering and a narrowband 109.35-MHz if filter (± 7.50 kHz at 3-dB points).

When installed, the 622-4612-002, -003, -004 provides three broadband rf filters and a 109.35-MHz if filter.

Refer to table 1 for equipment this kit is used on.

Table 1. AC-85106 RF Translator Kit, Equipment Used On.

EQUIPMENT	COLLINS PART NUMBER
851S-1 Receiver	622-4272-()
851S-2 Receiver	622-4755-()
This kit factory installed on some configurations of these units.	

2. INSTALLATION

Installation of the AC-85106 RF Translator Kit 622-4612-() consists of installing an rf translator A9 and checking that the correct strapping is in place on the control card A10.

- Remove top cover from unit.
- Remove A10 CONTROL from unit.
- Check filter strapping on A10 CONTROL.

Note

If AC-85106 RF Translator Kit 622-4612-001 is being installed (RF Translator 637-3757-001), set strapping for 1/2-Octave filtering. Set four filter straps (from SF) to OF.

Note

If AC-85106 RF Translator Kit 622-4612-002, -003, -004 is being installed (RF Translator 637-1767-()), set strapping for standard filtering. Set four filter straps (from OF) to SF.

- Reinstall A10 CONTROL in its original position in unit.
- Remove rf translator A9 from unit.
- Install new rf translator (637-3757-001 or 637-1767-()) in its allocated position in unit.
- Reinstall unit top cover.

3. REPAIR

Repair of the AC-85106 1/2-Octave Filter Kit is accomplished using standard maintenance and planar card repair procedures. Refer to the maintenance section of this instruction book for planar card repair procedures.

4. PARTS LIST/DIAGRAMS

This paragraph assists in identification, requisition, and issuance of parts, and in installation of the equipment. The Collins part number and description of

NOTICE: This section replaces first edition dated 1 January 1979.

Table 2. AC-85108 Channel A IF Kit, Parts List.

PART DESCRIPTION	COLLINS PART NO	QUANTITY USED ON AC-85108 CHANNEL A IF KIT 622-4624-()		
		-001	-002	-003
Channel A if (2.75-kHz USB)	637-2650-001			1
Channel A if (5.8-kHz USB)	637-2650-005		1	
Channel A if (3.10-kHz filter)	637-2650-003	1		
Drawing envelope	520-8360-210	1	1	1
Installation Kit-RF Translator AC-85106	622-4614-()	1	1	1

AC-85108 Channel A IF Kit (622-4614-())



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Collins Defense Communications

523-0769225-002211

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Printed in USA

AC-85108 Channel A IF Kit
(622-4614-())

523-0769225-002211

1. DESCRIPTION

The AC-85108 Channel A IF Kit 622-4614-() contains a channel A if. A channel A if must be installed in the receiver for operation. Each receiver is shipped with a channel A if installed. The channel A if provides USB, SSB/CW, AM, and 2-channel ISB (when AC-85100 ISB Kit installed) operation. Refer to table 1 for equipments used on.

The channel A if card provides a channel A if, a channel A SSB product detected audio output, and an AM detected audio output. Different configurations of the AC-85108 Channel A IF Kit provide different USB bandwidth filters.

To maintain a balanced ISB operation, an LSB filter with the same bandwidth as the USB filter is desired. The standard filter in USB is 2.75-kHz bandwidth, thus a 2.75-kHz bandwidth LSB filter should be used. If a filter other than the standard is used in either USB or LSB, kits are available to maintain a balanced ISB system. USB filters are included in these instructions; LSB filters are included in AC-85100 ISB Kit (622-4606-()) instructions.

When installed, the 637-4614-001 provides a 3.10-kHz bandwidth filter for USB 450-kHz receive if filtering.

Refer to table 1 for equipment this kit is used on.

2. INSTALLATION

Installation of the AC-85108 Channel A IF Kit 622-4614-() consists of installing a channel A if A8.

- Remove top cover from unit.
- Remove A8 CHAN A IF from unit.

Table 1. AC-85108 Channel A IF Kit, Equipment Used On.

EQUIPMENT	COLLINS PART NUMBER
851S-1 Receiver	622-4272-()
851S-2 Receiver	622-4755-()
This kit is factory installed on all configurations of these units.	

- If filter A8A2 is mounted on A8 CHAN A IF, remove it and mount it to new channel A if.
- Install new channel A if in its allocated position in unit.
- Reinstall unit top cover.

3. REPAIR

Repair of the AC-85108 Channel A IF Kit is accomplished using standard maintenance and planar card repair procedures. Refer to the maintenance section of this instruction book for planar card repair procedures.

4. PARTS LIST/DIAGRAMS

This paragraph assists in identification, requisition, and issuance of parts, and in installation of the equipment. The Collins part number and description of each nonstandard replacement part are listed in table 2.

Channel A IF 637-2650-() is covered in Channel A IF (637-2650-()) instructions (Collins part number 523-0767962) included in this instruction book.

NOTICE: This section replaces first edition dated 1 January 1979.

instructions 523-0769227

each nonstandard replacement part are listed in table 2.

a. RF Translator (637-3757-001) instructions (Collins part number 523-0769220).

The cards in this kit are covered in the following instructions which are included in this instruction book.

b. RF Translator (637-1767-()) instructions (Collins part number 523-0767959).

Table 2. AC-85106 RF Translator Kit, Parts List.

PART NUMBER	COLLINS PART NO	QUANTITY USED ON AC-85106 RF TRANSLATOR KIT 622-4612-()			
		-001	-002	-003	-004
Rf translator (1/2-octave rf filtering)	637-3757-001	1			
Rf translator (narrow-band if filtering)	637-1767-001			1	
Rf translator (broadband if filtering)	637-1767-002		1		
Rf translator (special sensitivity)	637-1767-005				1
Drawing envelope	520-8360-214	1	1	1	1
Installation Kit--RF Translator AC-85106	622-4612-()	1	1	1	1



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Collins Defense Communications

523-0767968-004211

4th Edition, 1 January 1982

TS-8010 Card Extender Kit (622-3431-001, -002)

Printed in USA

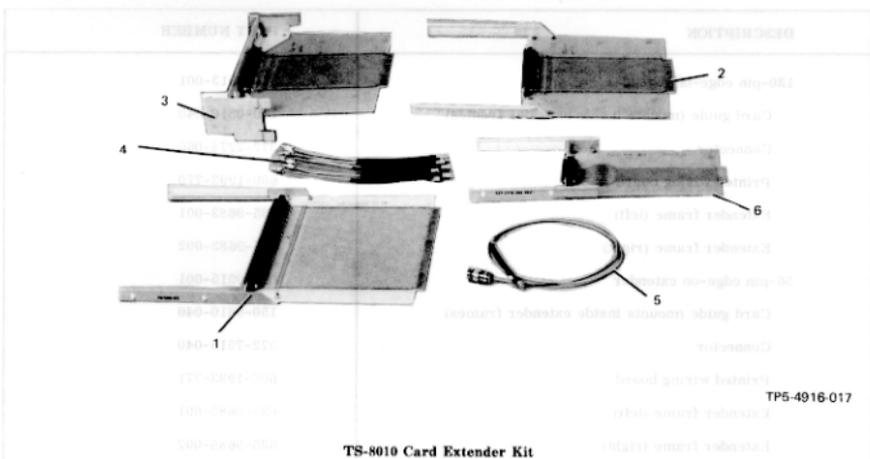
1. DESCRIPTION

The TS-8010 Card Extender Kit 622-3431-001, -002 contains all cables and extender cards necessary for extending cards and modules in the HF-80 series receivers, exciters, and controls. These extenders enable testing and troubleshooting of individual circuit cards in hot mockup or in on-line situations without the need of sophisticated test fixtures or test equipment.

The TS-8010 622-3431-001 contains all cables and extenders necessary for testing and troubleshooting the HF-80 series receivers, exciters, receiver-exciters, and controls; and the 851S() series receivers.

The TS-8010 622-3431-002 contains only those extenders necessary for testing and troubleshooting the HF-80 series controls.

Refer to figure 1 and table 1 for the complement of these card extender kits.



NOTICE: This section replaces third edition dated 1 January 1981.

Table 1. TS-8010 Card Extender Kit Complement.

ITEM NO	PART NUMBER	DESCRIPTION	622-3431-	
			001	002
1	635-0913-001	130-pin edge-on extender	X	X
2	635-0915-001	56-pin edge-on extender	X	X
3	635-0915-002	Rf module extender	X	
4	635-9686-001	Subminiax coax extender	7	
5	635-9686-002	Subminiax coax/BNC extender	X	
6	637-2843-001	Synthesizer extender	X	

2. REPAIR

Repair of the TS-8010 Card Extender Kit is accomplished using standard planar card repair procedures.

equipment. The part number and description for each nonstandard replacement part are listed in table 2.

All pins and shields of the extenders are one-to-one connections; therefore a schematic diagram of the extenders is not shown.

3. PARTS LIST/DIAGRAMS

This paragraph assists in identification, requisition, and issuance of parts, and in maintenance of the

Table 2. TS-8010 Card Extender Kit Parts List.

DESCRIPTION	PART NUMBER
130-pin edge-on extender	635-0913-001
Card guide (mounts inside extender frames)	150-0810-040
Connector	372-2274-060
Printed wiring board	600-1993-770
Extender frame (left)	635-9683-001
Extender frame (right)	635-9683-002
56-pin edge-on extender	635-0915-001
Card guide (mounts inside extender frames)	150-0810-040
Connector	372-7515-040
Printed wiring board	600-1993-771
Extender frame (left)	635-9685-001
Extender frame (right)	635-9685-002

Table 2. TS-8010 Card Extender Kit Parts List (Cont).

DESCRIPTION	PART NUMBER
Rf module extender	635-0915-002
Connector	372-7515-040
Printed wiring board	600-1993-771
Extender frame	635-9681-001
Subminiax coax extender	635-9686-001
Rf connector	357-7207-010
Rf connector	357-7207-020
Coaxial cable, RG-316/U	425-0146-010
Subminiax coax/BNC extender	635-9686-002
Rf connector	357-7207-010
Rf connector, BNC	357-7279-010
Coaxial cable, RG-316/U	425-0146-010
Synthesizer extender	637-2843-001
Card guide (mounts inside extender brackets)	150-0810-030
Connector	372-7515-050
Printed wiring board	600-1993-050
Extender bracket (left)	637-1775-001
Extender bracket (right)	637-1776-001