

# **COLLINS 30S-1**

( OS-1 manual addendum )

These are unofficial corrections for the 12<sup>th</sup> edition of the Rockwell Collins 30S-1 manual. This data was compiled during a recent rebuild and refurbishment of a 30S-1, part-by-part. Corrections listed here are not endorsed, nor confirmed, by Rockwell Collins. Listed below is what I found to be in error.

### **Page 3-1, Section 3.5:**

- Under Power Supply Circuits, sentence two and three are redundant. What I believe they are trying to say in the second sentence is: "The power supply may be connected to a 115-volt, single-phase, a 230-volt 3-wire, single-phase, or the later 230-volt, 4 wire, single-phase source."
- If the above is true, then the third sentence should be changed to read, "The 230-volt 4-wire connection is recommended." Note that this change conforms to the AC input wiring note 3, figure 7-1, on schematic diagram.
- For total safety, Insure that there is no current through the ground lead.

### **Page 3-3, Figure 3-3:**

- Terminal strip TB101 should be changed to read TB102.
- R203, the 35-ohm rheostat Filament Adjust, should be corrected to read R230.
- The jumper across TB201-3 and TB201-4 in the lower right hand AC input wiring is not used in all cases. Refer to note 3 on schematic diagram 7-1.
- The 4<sup>th</sup> wire, or AC Ground wire, is not illustrated here.

### **Page 3-4 section 3.6.1:**

- The sixth sentence, "RF compartment interlock switch S102" should read: "RF compartment interlock switch S103"

### **Page 3-6, sub-section I, Calibration Chart:**

- The second sentence contains the word, "invlived." Correct it to read "involved."  
Upper RF Section

### **Figure 6-1 sheet 2:**

- Item 25 reads S205. Change it to read S203.
- Next to item 20, add S207.

### **Figure 6-1 sheet 3:**

- The left photo representing DETAL B shows L112 as item 132. Correct it to read 133. The right hand photo shows C147 as item 112. Change that to read item 117.

### **Figure 6-2 sheet 1:**

- Item 58A and 58 are reversed. The left-hand terminal strip is item 58 and the right-hand terminal strip is 58A. Note: These terminal strip contacts are numbered 5 through 1, top-to-bottom on this photo. (Parts listing 6-2 on page 6-13 for items 58 and 58A are correct.)

### **Figure 6-2 sheet 2:**

- Item 166, V101, the 4CX1000A, is listed incorrectly on page 6-10. Change Part Number column from 4X250B0R4CX250B to read, 4CX1000A. I assume the Collins part number is correct.

### **Figure 6-2 sheet 2:**

- On page 6-29, within the right side listing, change 4X250B0R4CX250B, that references Fig ? Item 6-2-166, to read 4CX1000A.

### **Lower Power Supply Section**

Page 6-18, figure 6-4:

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- Reverse the item numbers over V201 and V202. V201 should be identified as item 1 and V202 should be item 2.

Page 6-20, figure 6-5:

- In the lower photo item 59 incorrectly indicates C209. It should read C207.
- In the top left photo, delete the item marked 67. Item 67 is a duplicate and should be removed.
- In the top left photo items 34 and 36 are reversed. Change item 34 to read R207 and change item 36 to read R205.
- Item 20, in the upper right photo, is correct but the pointer terminates at a cable clamp screw. Item 20 refers to, and should point to, the AC cable-duct.

Page 6-21:

- In the description column for item 34, change R205 to read R207.
- For item 36, change R207 to read R205. The Numerical Index Section for these two items is correct.

Page 6-33/34, Table 6.4:

- Locate R205. Change the middle column to read 6-5-36.
- Locate R207. Change the middle column to read 6-5-34.

Page 6-23, figure 6-6 (sheet 1 of 2):

- Item 25 should be corrected to read TB201-A.
- Item 12A, L203, is in error. Change 12A to read 13.
- Locate item 10, C203. Just to the right of this component is an unlabeled resistor. Disregard this resistor since it is not used in production versions referenced by this edition of the manual. This unlabeled component (R234) was removed under Service Bulletin 3 and was part of V203 the 12AL5 ALC rectifier. [Ref: Tag B3 on page 7-3/7-4.]

Page 6-24, figure 6-6 (sheet 2 of 2):

- Delete item 35. Item 35 is correctly represented on page 6-23.
- Item 26 should be corrected to read C217.
- Item 22 should read CR208.
- Item 24 should read CR205.

Page 6-25:

- The description column for item 22 should read CR208, and item 24 should read CR205.

Page 6-32:

- CR205 and CR208 are reverses. Correct the Fig-Item column to read CR205 as 6-6-24, and CR208 as 6-6-22, respectfully.

Page 6-32:

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- R205 should be changed to read "6-5-36," and R207 should read "6-5-34.  
Schematic Diagram Section

## **Fig 7-1:**

- V201 and V202, the two 3B28 half-wave rectifiers, do not have pin identifiers. You may add the following to the 30S-1 schematic. The top filament pin is 4; the bottom filament pin is 5. The plate cap is designated. Pin 1. Pins 2 and 3 have no internal connections and not shown.
- K202, the 3-minute time delay drawing may be labeled as follows: Left filament is pin 3 and the right filament is pin 2. Thermal-armature pin on the right should be labeled pin 7, and the left hand N/O stationary contact is pin 5.
- The identifier B5 located just below and to the right of R104 is in the wrong location and should be deleted.
- Identifier B4, pointing to C147 in the RF section, is in error. This identifier should be changed to read B5.
- Below CR207, and above CR208, insert 1N4005.
- CR205 should read 1N4005.
- For troubleshooting, S103 should be ganged (dash line) to S101, and S205 ganged to S206.

### **Troubleshooting the Interlock circuit:**

Troubleshooting the AC Interlock in the 30S-1 is difficult due to a lack of an indication as to when the interlock circuit is closed. One not too difficult procedure is to drop the front panel and change the source of voltage supplying the two dial lamps. After removing and taping-back the hot lead at dial-lamp socket DS201, run a new lead from that DS201 terminal to either contact at the rear of the HV "OFF" switch, S208. Now, when AC power is applied, only the two panel meters will illuminate. When the interlock circuit closes, and the 3-minute time delay expires, both dials will illuminate indicating that the interlock circuit is good.

### **Available 30S-1 Parts & Sources**

To those interested in a replacement parts list for the 30S-1, a list:

Misc. Parts:

Grommets Front Door, bottom 5167-159 Mouser

RCA RF Cable Phone Plug 502-3507 Mouser

J201-203 RCA Jack w/ground tab CANRCACJ Surplus sales

Mtg Bracket small (R203) 13F098 Newark

Mtg Bracket large (R201) 13F099 Newark

Ceramic Standoff Insulators 534-series Mouser

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AC Cable 4/12 SJ, 10-20ft. (300vac) 12/4SJ [see note 1] Aetna Elect.

Note 1. When purchasing 4 conductor, #12awg AC cable [20amps], be sure to specify 300vac rated cable. Do not use 600v cable as it will not fit through the cable duct.

### **Push button switches and HV indicator:**

The two push button switches and single HV indicator lamp housing used on the 30S-1 front panel is now available from the original source, Rafi of Germany, through any ITT-CK Cannon distributor. If ordered in a set of two switches and an indicator, the estimated cost per set is around \$25. These are the current production, made to order versions of what are the exact replacements. No enlargement of the mounting holes is necessary.

The H.R.Kirkland & Co. provided the production parts as we see them in our 30S-1. My thanks to Mr. Bruce Kirkland who provided me with information need to search out and obtain these parts. Not only did he provided a copy of the original engineering diagrams, but also provided the contact information I need to proceed. H.R.Kirkland & Co. modified the indicator assembly by replacing the European supplied screw-base lamp socket [#40] with a #47 socket. I was quite successful in doing the same by cutting off the rear lamp socket as supplied and epoxy back the original socket. Other than that, one could just install a #40 lamp and be done with it.

Figure 1, below, shows these parts as they were ordered through my ITT-CK Cannon distributor. Basically, only the push-button and plunger are different now to allow for various removable lens-caps and legend plates. The custom plunger mechanism used in the originals, a solid block of plastic fuse to the plunger, is long gone. While the housings are still identical, save the old metal locking rings (and the lamp socket from the indicator). The plastic rings supplied will suffice, but don't toss your (aluminum) treaded rings if they're still in hand. A spanner tool is available if you feel it's necessary to lock-down the new plastic rings (p/n 5.58002.019).

I was not disappointed with the lens caps provided, but I felt a more original "look" was necessary. I then searched out the chap who engraves our club's call-letter badges. For a dollars each he cut a few "OFF" and "ON" plates using the same shade of red and black plastic. It took two tries to match the size and fit, but he succeeded. One dab of plastic cement and it was done. Figure 2 illustrates the end result. A long lasting, Collins-looking, engraved cap.

For those in need of replacing the front panel switches in a 30S-1, the Cannon order numbers are listed below. I'm sure someone can host the purchase of the minimum 50 quantity required. At \$25 per, it is well worth it for parts out of production for 40 years.

Collins description and part number: ITT-CK Cannon order number: (with optional lens caps.

OFF Switch - 260-2697-000: 1.10101.011 add: -1301 Red "OFF"

ON Switch - 260-2696-000: 1.10101.001 add: - 0104 Black "ON"

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DC Indicator/socket - 262-0627-000: 1.50509.081.1301 with red front-cap

Be sure to ask for the Legend inserts when ordering lens caps unless you prefer the engraved ID badge method of Figure 2.



*As ordered from Rafi*

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*Fig 2. With engraved lens caps*

Figure 1, As ordered from Rafi

**Figure 2, With engraved lens caps**

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Rev: 06-08-05