

Trim Panel Adjustment Procedure

Lancair Columbia 300/350/400

PFI Document: 080AMAN0001 Revision A
Dated 6/13/2003

Scope:

This procedure is for the **manufacturing, and installation**, adjustment of the Precise Flight 080A0100-1 "2 Channel Trim Panel with EL Backlighting" assembly **made per The Lancair Company Procurement Specification RA572800**. Included in this procedure are the initial adjustments for manufacturing, installation, and resetting the adjustable resistors to the original values **for both Precise Flight and The Lancair Company**. **Note: This procedure does not cover the installation or removal of the Trim Panels with the cover installed. The adjustment procedures are identical, with the exception of access to the test points.**

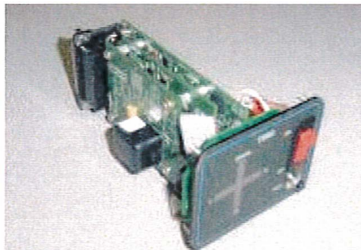


Figure 1 - 2CH EL Backlit Trim Panel

Tools Required:

- Small blade flathead screwdriver
- Small Philips head screwdriver
- Multimeter.

Preliminary Adjustment - Manufacturing:

This adjustment is used to 'pre-set' the variable resistors to be in the range of the final installation. Please Note, the final adjustments will be different that these preset values, but this is to be used as a starting point prior to installation into the aircraft. This procedure and values may also be used to 'reset' the resistor values if during adjustment the values get changed.

1. With the trim panel partially assembled, and disconnected for the test box, or aircraft, adjust the R3, R7, R32, and R33 variable resistors as shown and noted to the following values listed in Table 1. **Table 2** shows the presets for Lancair Trim motors used with a 3.4KO linear position indicator. (These numbers are for reference only for specific aircraft as noted by The Lancair Company.)

Table 1 - Pre-Set Resistor Values for 5KO Elevator Trim Actuators

System	Resistor	Value
Elevator	R32	7.00 kO ± 0.25 kO
	R7	1575 O ± 100 O
Aileron	R33	700 O ± 100 O
	R3	3.80 kO ± 0.25 kO

Table 2 - Pre-Set Resistor Values for 3.4KO Elevator Trim Actuators

System	Resistor	Value
Elevator	R32	1870 O
	R7	1575 O
Aileron	R33	700 O ± 100 O
	R3	3.80 kO ± 0.25 kO

Adjustments are to be made to the resistors noted, and verified by using the test points as shown in [Figure 2](#).

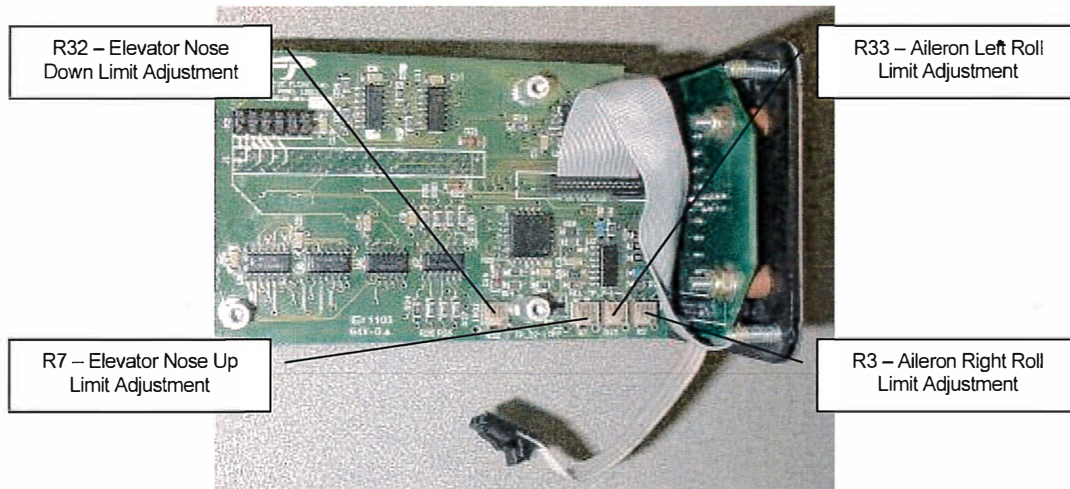


Figure 2 - Adjustment Variable Resistors

2. To adjust the variable resistors, use a multi-meter appropriately set to read resistance in Ohms, to pre-set the variable resistors. To locate the appropriate Test point, refer to [Table 3](#).

Table 3 - Test Points for Variable Resistors

Resistor	Test Point 1	Test Point 2
R3	TP3	TP3-1
R7	TP7	TP7-1
R32	TP32	TP32-1
R33	TP33	TP GND

3. Adjusting **R32** for Elevator Nose Down indication. To adjust, set the Multimeter to read resistance, and place the probes on TP32 and TP32-1 as shown in [Figure 3](#), and adjust the variable resistor.
 - a. To **increase** the resistance, turn the screw **counterclockwise**.
 - b. To **reduce** the resistance, turn the screw **clockwise**.

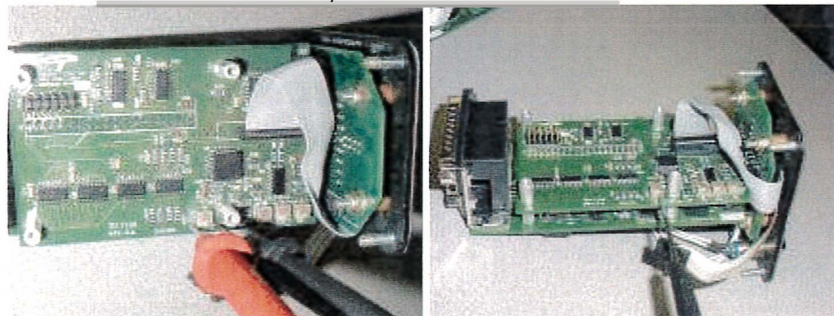


Figure 3 - Adjusting the R32 Variable Resistor

4. Adjusting **R7** for Elevator Nose Up indication. To adjust, set the Multimeter to read resistance, and place the probes on TP7 and TP7-1 as shown in [Figure 4](#), and adjust the variable resistor.

- a. To **increase** the resistance, turn the screw **counterclockwise**.
- b. To **reduce** the resistance, turn the screw **clockwise**.

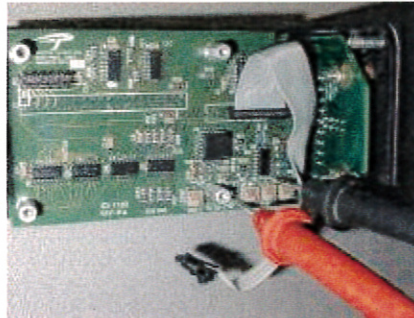


Figure 4 - Adjusting the R7 Variable Resistor

5. Adjusting **R33** for Aileron Full Left Roll indication. To adjust, set the Multimeter to read resistance, and place the probes on TP33 and TP GND as shown in **Figure 5**, and adjust the variable resistor.
 - a. To **increase** the resistance, turn the screw **clockwise**.
 - b. To **reduce** the resistance, turn the screw **counterclockwise**.

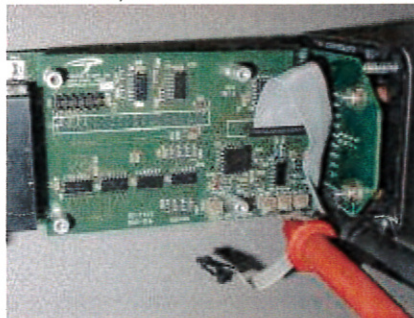


Figure 5 - Adjusting the R33 Variable Resistor

6. Adjusting **R3** for Aileron Full Right Roll indication. To adjust, set the Multimeter to read resistance, and place the probes on TP3 and TP3-1 as shown in **Figure 6**, and adjust the variable resistor.
 - a. To **increase** the resistance, turn the screw **counterclockwise**,
 - b. To **reduce** the resistance, turn the screw **clockwise**.

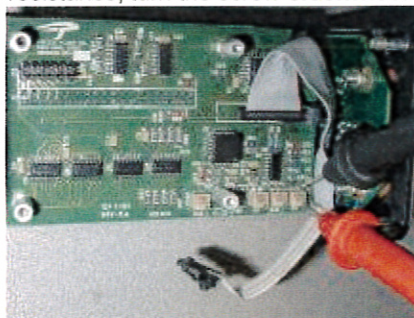


Figure 6 - Adjusting the R3 Variable Resistor

Aircraft Installation and Adjustment (OEM/Service):

This procedure is for the installation into the aircraft. If during installation and adjustment the values of the variable resistors are out of adjustment from the factory presets, then

1. Install the trim panel per Lancair procedures and drawings. Note: leave access to the adjustable resistors located on the bottom display side of the middle board.
2. Adjust trim tabs to correct deflections using The Lancair Company procedures and adjustment templates. **NOTE: Prior to adjustment of the trim Display/Driver the aileron and elevator trim tabs must be correctly adjusted and within design tolerances.**
3. Run the Aileron to the full **Left** position, and the elevator to the full **Nose Down** position.
4. If the Aileron indicates full **LEFT** deflection, move on to the next step.
 - a. If not, adjust the **R33** variable resistor **counterclockwise** to move the indication **Left**, or **clockwise** to move the indication to the **right**. Once the indicator shows full **LEFT** move on to the next step.

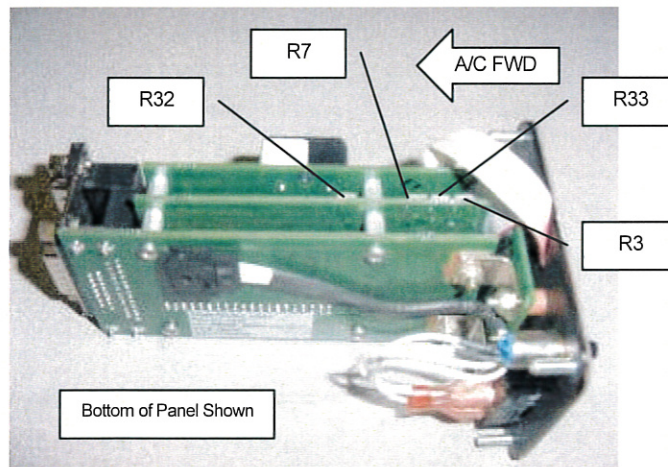


Figure 7 - Adjustment Variable Resistors

5. If the Elevator indicates full **NOSE DOWN** (Dot at top of display), move on to the next step. If not, adjust the **R32** variable resistor **counterclockwise** to move the **dot up** (Nose Down Trim), or **clockwise** to move the **dot down** (Nose Up Trim). Once the indicator shows full **NOSE DOWN**, move on to the next step.
6. Run the Aileron to the full **Right** position, and the elevator to the full **Nose Up** position.
7. If the Aileron indicates full **Right** deflection, move on to the next step. If not, adjust the **R3** variable resistor **clockwise** to move the indication **Right**, or **counterclockwise** to move the indication to the **Left**. Once the indicator shows full **Right** move on to the next step.
8. If the Elevator indicates full **NOSE UP** (Dot at bottom of display), move on to the next step. If not, adjust the **R7** variable resistor **clockwise** to move the **dot Down** (Nose Up Trim), or **counterclockwise** to move the **dot up** (Nose Down Trim). Once the indicator shows full **NOSE DOWN**, move on to the next step.
9. Verify full travel in both directions for both the aileron and elevator, if correct, set up is completed. Re-adjust as needed by using steps 3-9 as needed.

Resetting Variable Pots (OEM/Service):

This procedure is for the removal of the lighting board to allow access to the test points on the display board to reset the variable resistors back to factory settings.

1. Disconnect trim panel from aircraft.
2. Disconnect EL ribbon cable connector.

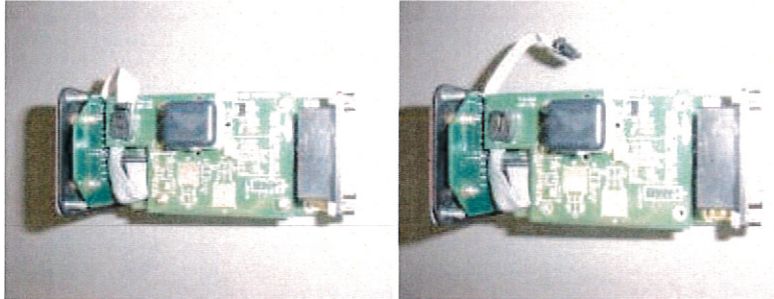


Figure 8 - Disconnecting EL Ribbon Cable

3. Removed 4 screws holding the third "Trim Panel Backlight" board PFI PN 080A0130.

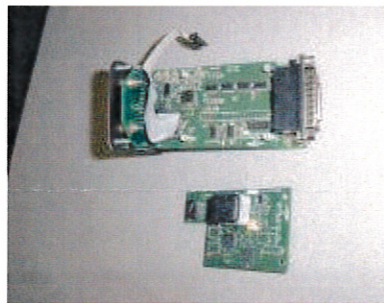


Figure 9 - Removing Screws and Backlight Board

4. Lift off backlight board from the second "Trim Panel Logic" board PFI PN 080A0120.
5. Now with Access to the test points on the logic board, readjust following procedure described in the section titled **Preliminary Adjustment – Manufacturing** of this document.
6. After completion of the adjustment, follow steps 1-4 in reverse order. Note that the pins between the Logic board and the Backlight board must be aligned for the screw holes to line up. (See Figure 10)

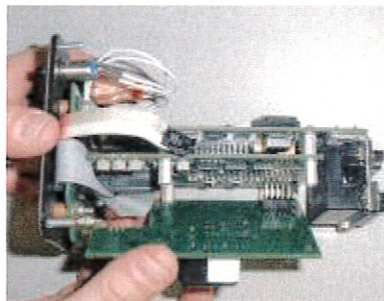


Figure 10 - Aligning Pins During Re-Assembling