

Ground and Flight Checks Century 1 and Tracker

The Century 1 Automatic Flight System has only one adjustment other than the normal controls. This is a trim centering adjustment potentiometer that is located on the rear of the panel-mounted instrument unit. This potentiometer is used to center the normal trim knob during the initial ground check. Other than this adjustment, the operational checks are the same as normal pre-flight and in-flight operational checks and are performed as follows:

PRE-FLIGHT

- 1. Check Century 1 Circuit Breaker - IN.**
- 2. Turn on aircraft master switch and listen for Gyro motor start in Turn and Bank instrument.**
- 3. Turn Century 1 master ON/OFF switch - ON**
- 4. Pull control knob (right side) out and rotate left and right. Observe the control wheel rotates left and right. Center turn control knob.**
- 5. Rotate trim control knob (left side) left and then right and observe the control wheel turns left and right slowly. Place the trim control knob in the center of its travel. If the aircraft control wheel continues to slowly move left or right, then adjust the trim centering potentiometer on the rear of the instrument as necessary to stop all wheel movement.**
- 6. Turn on the VOR receiver and tune a local station whose signal can be received on the aircraft. Rotate the OMNI Bearing Selector (O.B.S.) until the deviation needle centers. Push IN the turn control knob to actuate the electric tracker. Slowly rotate the O.B.S to cause a full scale needle deflection left and then right. Observe the aircraft control wheel follows the VOR deviation needle left and then right. Turn tracker - OFF.**
- 7. Override servo in both directions with aircraft control wheel manually.**
- 8. Press "Autopilot Interrupt" switch on pilot's control wheel and rotate control wheel to check for servo disengagement. Release switch - servo should re-engage.**
- 9. Begin taxi with Century 1 ON - Century 1 should cause a control wheel deflection opposite to the direction of the turn. This completes the ground check portion.**

There are no specific initial in-flight checks required, other than normal operation. If at all possible the initial Flight Test should be conducted in calm air, as this makes an evaluation of performance much easier and more accurate. Some aircraft models might require that a servo threshold voltage adjustment be made to the 52D75 in order to match the servo amplifier electronic threshold to the starting voltage requirements of the individual servo motor used in the installation.

A mismatched threshold is usually manifest by "Wing Rock" or control wheel "Jitter"; "Jitter" if the threshold is too high or by roll overshoot or long term, slow, roll oscillations if the threshold is too low. Generally, no adjustment is required and an adjustment should not be attempted unless a threshold mismatch is known to exist; unless the test flight is conducted in perfectly smooth air it

is almost impossible to determine.

In most cases also some degree of roll overshoot is always present depending on the airspeed used. If an adjustment is deemed necessary, proceed as follows:

52D75 units with serial numbers ending in the letter "D" or later.

- 1. The roll potentiometer is located directly in line with the top left instrument mounting screw, inside the instrument. Access to the potentiometer is made by removing the top left mounting screw and inserting a small, narrow blade screwdriver into the screw hole approximately one inch.**
- 2. The potentiometer is a small, 20-turn trim pot that is manufactured without stops. It should turn very easy throughout its full range, with the only indication of full travel being a slightly audible "click" each revolution once at full travel. If the pot is not easy to turn DO NOT APPLY FORCE TO TURN IT. Pull out the screwdriver and re-insert in a different position. The screw hole is provided with a guide tube, however it might be possible to get the screw driver blade wedged between the "pot" screw head and guide tube. Forcing while in this position might result in damage to the pot. The pot is affixed to the amplifier circuit board.**
- 3. The factory threshold adjustment procedures usually result in the pot being within 3 turns of center. Adjust the pot in 1 turn increments until proper adjustment is obtained. If the roll oscillation is long term, the threshold pot should be tightened (clockwise). If the roll oscillation is short term or if the control wheel jitters or is over active then the threshold must be reduced (counterclockwise). After adjustment replace the mounting screw removed in Step No 1.**

52D75 units with serial numbers ending with no code letter or code letters A through C.

- 1. These units have the same trim potentiometer as the later units, however it is located in a different position on the circuit board, thereby making in-flight adjustments more difficult. Shop adjustments can be made by reference to the 52D75 Overhaul Manual Paragraph 4.2.5.17 or an in-flight adjustment can be made as follows:**
- 2. Remove the instrument from the instrument panel and place it in a suitable holding fixture that will allow operation in flight.**
- 3. Remove the cover from the instrument by removing the tape around the bezel and the single screw at the rear adjacent to the main connector.**
- 4. Locate Trim Pot R25 located on the left circuit board about midway between the instrument face and the connector end. The pot is located at the top of the board and is oriented vertically, with the adjustment screw at the top. Note that there is another pot at the front of the circuit board, nearest the face plate. THIS IS NOT THE THRESHOLD POT - DO NOT ADJUST!**
- 5. Adjust the threshold as discussed in Paragraph 3 for units serial number "D" and later.**
- 6. Replace the sealing tape and cover and reinstall instrument in instrument panel after flight.**