



# SERVICE BULLETIN

No. 697

Piper Aircraft Corporation

Lock Haven, Pennsylvania, U.S.A.

FAA Approved

August 11, 1980

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Subject: PA-31, PA-31-325 Takeoff Flaps

Models Affected: Serial Numbers Affected:

PA-31, PA-31-325 Navajo 31-2 through 31-8012086

Compliance Time:

PART I: Within the next twenty-five (25) hours of operation from the effective date of this Service Bulletin accomplish Instructions, PART I, below.

PART II: Within sixty (60) days of the effective date of this Service Bulletin, accomplish Instructions, PART II, below.

Purpose:

The use of flaps during takeoff under certain combinations of aircraft weight, configuration, ambient conditions, and airspeeds will not permit positive climb.

This Service Bulletin provides instructions for the modification of some flap position indicator gauges, new flap gauge numbers, and revisions to the appropriate Airplane Flight Manual (AFM) or Pilot's Operating Handbook (POH) to reflect the takeoff procedures and performance data for flap position of zero degrees.

Instructions:

PART I:

1. Fabricate a placard (minimum 1/4" high lettering) which states the following:  
"TAKEOFF FLAPS — 'O' DEGREES".
2. Install the placard immediately above the flap position indicator gauge, in full view of the pilot in command.
3. Install the necessary revisions to the Airplane Flight Manual or Pilot's Operating Handbook as follows:

For PA-31 with Serial Numbers 31-2 through 31-659 and 31-661 through 31-711, PAC Report 1362, Revision 30 (PR 800603 to Pilot's Operating Manual, Part Number 761 456).

For PA-31 with wing lockers with Serial Numbers 31-660 and 31-712 through 31-751, PAC Report 1686, Revision 9 (PR 800808 to Pilot's Operating Manual, Part Number 761 483).

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Instructions: (continued)

## PART I:

## 3. continued

For PA-31 without winglockers with Serial Numbers 31-712 through 31-751, PAC Report 1655, Revision 11 (PR 800604 to Pilot's Operating Manual, Part Number 761 472).

For PA-31 with Serial Numbers 31-752 through 31-7612110, PAC Report 1702, Revision 21 (PR 800602 to Pilot's Operating Manual Part Number 761 501).

For PA-31 with Serial Numbers 31-7712001 through 31-7912124, PAC Report 2045, Revision 9 (PR 800530 to Pilot's Operating Handbook Part Number 761 626).

For PA-31 with Serial Numbers 31-8012001 through 31-8012086, PAC Report LK-1206, Revision 3 (PR 800707 to Pilot's Operating Handbook Report LK-1206).

For PA-31-325 with Serial Numbers 31-7300932 through 31-7612110, PAC Report 1860, Revision 10, and PAC Report 1861, Revision 8 (PR 800619 to Pilot's Operating Manual Part Number 761 571).

For PA-31-325 with Serial Numbers 31-7712001 through 31-7912124, PAC Report 1964 Revision 8 (PR 800620 to Pilot's Operating Handbook Part Number 761 627).

For PA-31-325 with Serial Numbers 31-8012001 through 31-8012086, PAC Report LK-1207, Revision 3 (PR 800708 to Pilot's Operating Handbook Report LK-1207).

## 4. Make appropriate logbook entry of compliance with Service Bulletin 697, PART I.

## PART II

1. Inspect the face of aircraft's flap position indicator gauge to determine if the words "TAKEOFF RANGE" are marked on the face of the indicator.
2. If the words "TAKEOFF RANGE" DO NOT APPEAR on the indicator, proceed to Instruction 5.
3. If the words "TAKEOFF RANGE" appear on the indicator, it must be removed from the aircraft and modified by an approved instrument repair station, or replaced with a new gauge as shown in the Material Required Section, below. If indicator is to be modified see NOTE 2, below.
4. Reinstall the indicator (modified or new) in the airplane (if removed to comply with Instruction 3) and conduct functional check.
5. Make logbook entry of compliance with Service Bulletin No. 697, PART II.

NOTE 1: Upon compliance with PART II of this Service Bulletin, the placard installed in PART I must be removed.

NOTE 2: If the indicator is to be reworked, the following instructions are to be followed:

- A. For indicators of the AC or Rochester type Part Number 55650-2, 55567-2, 55991-3, and 55991-4, use the following instructions:
  1. Place indicator "face down" on a firm, protected surface.

Instructions: (continued)

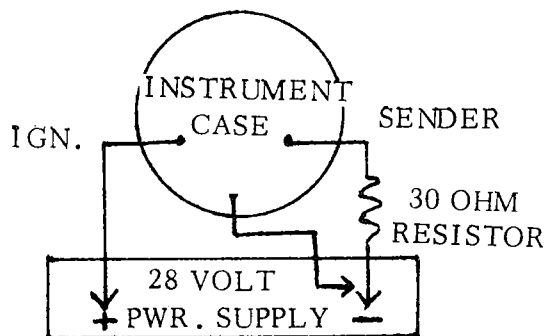
## PART II:

## 5. continued

- A.
  2. Use a standard slot head screwdriver (approx. 3/8" wide) and progressively work around the perimeter of the bezel until crimp is removed enough to allow the bezel and lens to be removed.
- CAUTION: Be very careful when removing and reinstalling the crimping of the bezel. Excessive pressure could crack glass lens or plastic instrument case.
3. Remove or cover up the words "TAKEOFF RANGE" with flat black paint that matches the instrument dial.
4. Inspect instrument for foreign material contamination.
5. Clean glass lens.
6. Reinstall bezel and lens.
7. Very carefully, work progressively around the perimeter and recrimp the bezel using the flat side of the screwdriver or a piece of hard wood. Check that the crimp is adequate to prevent lens rattle.
8. Check indicator calibration as follows:

AC Indicator

- a. Connect DC power supply to indicator: ignition terminal, negative to one side of 30 ohm resistor.
- b. Connect other side of resistor to sender terminal.
- c. Ground indicator case to power supply.



- d. Needle should point to "down" position with the above connections.
- e. Needle should point to "up" position when 28 volts connected to Ign. term. and sender term. is connected directly to ground.
- f. Needle should move smoothly through entire travel.

Rochester Indicator

Calibrate the Rochester indicator the same as the AC unit except connect center term. on indicator to power supply ground.  
(Rochester instrument case is plastic.)

- B. For the indicator of the Hickok type, P/N 71128-5, and 71128-6, use the following instructions:
  1. Using due care and caution, remove the four (4) screws located around the case near the base of the instrument.
  2. Place indicator on its base (glass face "up").

(over)

Instructions: (continued)

## PART II:

5. B. 3. Slide the case up, vertically off the instrument while holding the base connector.  
 NOTE: The glass, bezel will lift off as a single unit.
4. Revise dial markings by covering the words "TAKEOFF RANGE" with flat black paint that matches the indicator face.
5. Inspect indicator for foreign material contamination.
6. Reassemble unit.
7. Check calibration of the unit by connecting a DC power supply to the indicator. Polarity is marked next to the terminal; adjust power supply for 5 volt output.  
 Zero voltage ----- Needle must point to "off".  
 Five volts ----- Needle must point to "DN".

Material Required:

- The appropriate AFM or POH revision indicated in PART I, Instruction 3.
- Following is a summary of the indicators that are to be modified or replaced with a new indicator:

<u>EXISTING INDICATOR</u>		<u>REPLACEMENT INDICATOR</u>	
<u>PAC PART NUMBER</u>		<u>PAC PART NUMBER</u>	<u>PAC CODE NUMBER</u>
1. 55567-2		55567-3	548 554
2. 55650-2		55650-3	548 553
3. 55991-3		55991-6	548 556
4. 55991-4		55991-7	548 557
5. 71128-5		71128-9	548 545
6. 71128-6		71128-10	548 546

Availability of Parts:

POH revision enclosed -- additional revisions are available from your Piper Distributor, or Piper Aircraft Corporation, Lock Haven, Pennsylvania 17745 USA. Indicators are available from your Piper Field Service Facility.

Effectivity Date:

This Service Bulletin is effective upon receipt.

Summary:

Please contact your local Piper Field Service Facility to make arrangements for compliance with the provisions of this Service Bulletin in accordance with Compliance Time, above.