Beechcraft

# MANDATORY SERVICE BULLETIN

76

No. 2081
ATA Code 32-10

**SUBJECT:** **LANDING GEAR - INSPECTION OF MAIN LANDING GEAR SIDE BRACE OVER CENTER TRAVEL AND LIMIT SWITCH ADJUSTMENT**

**EFFECTIVITY:** BEECHCRAFT Duchess 76, serials ME-1, ME-4 through ME-149, ME-151 through ME-184, ME-186 through ME-217, ME-219, ME-220, ME-222 through ME-226, ME-229 through ME-243, ME-245 through ME-251, and ME-257.

**REASON:** To minimize the possibility of inadvertent retraction of the main landing gear.

**COMPLIANCE:** Beech Aircraft Corporation considers this to be a mandatory modification and it should be accomplished as soon as possible after receipt of this Service Bulletin, but no later than the next 25 service hours, unless previously accomplished by BEECHCRAFT Service Instructions No. 1092.

This Service Bulletin supersedes and cancels BEECHCRAFT Service Instructions No. 1092.

No Airworthiness Directive has been issued on the matter covered by this Service Bulletin as of the issue date shown herein.

**APPROVAL:** Engineering data contained in this Service Bulletin is FAA approved.

**MANPOWER:** The following information is for planning purposes only:

Estimated man-hours: 15 hours per airplane.

Suggested number of men: 1 man.

Allocation of man-hours is as follows:

1.5 man-hours for fabrication of metal blocks.
13.5 man-hours for accomplishment of the check/modification procedure.

**MATERIAL:** None.

**WARRANTY:** Warranty credit for parts and labor to the extent noted under MATERIAL and MANPOWER will be allowed on all affected airplanes.

DB-203 M

**Issued: May, 1985**



MANDATORY

Beech Aircraft Corporation issues service information for the benefit of owners and fixed base operators in the form of two classes of Service Bulletins. MANDATORY (Red Border) Service Bulletins are changes, inspections and modifications that could affect safety. The factory considers compliance with these Service Bulletins mandatory. OPTIONAL (No Border) Service Bulletins cover changes, modifications, improvements or inspections the factory feels will benefit the owner and although highly recommended, they are not considered mandatory compliance at the time of issuance, unless so stated in the publication. Due to the wide range of information covered by the OPTIONAL Service Bulletin, each owner/operator is responsible for conducting a thorough review of each Optional Service Bulletin and determine if compliance is required based on the applicability of the OPTIONAL Service Bulletin to his particular set of operating conditions. Both classes are mailed to:

(a) BEECHCRAFT Authorized Outlets.
(b) Owners of record on the FAA Aircraft Registration Branch List and the BEECHCRAFT International Owner Notification Service List.
(c) Those having a publications subscription.

Information on Owner Notification Service or Subscriptions can be obtained through any BEECHCRAFT Authorized Outlet. As Service Bulletins are issued, temporary notification in the Service Bulletin Master Index should be made until the index is revised. Warranty will be allowed only when specifically defined in the Service Bulletin and in accordance with the Beech Aircraft Corporation Warranty Policy.

Unless otherwise designated, Beech Aircraft Corporation Service Bulletins as well as BEECHCRAFT kits are approved for installation on BEECHCRAFT airplanes in original or BEECHCRAFT modified configurations only. BEECHCRAFT Service Bulletins and Kits may not be compatible with airplanes modified by STC installations or modifications other than BEECHCRAFT Approved kits.

98-39071D

Member of GAMA
General Aviation Manufacturers Association

Beechcraft
A Raytheon Company

**NOTE**

If the metal blocks are to be fabricated by an outside facility (i.e. machine shop, etc.) the BEECHCRAFT facility accomplishing this Service Bulletin will be entitled to only 13.5 man-hours for direct labor on warranty and an additional 1.5 man-hours and material for outside labor, billed on a separate invoice at the current shop rate for the outside facility. (Only one set of blocks will be allowed per each Aero or Aviation Center or International Distributor and Dealer).

If Steps 5 through 10 of ACCOMPLISHMENT INSTRUCTIONS are performed by an outside facility (i.e. machine shop, etc.) this would reduce the BEECHCRAFT facility accomplishment hours by 2 man-hours at the current shop rate for the outside facility.

All warranty reimbursements are handled through franchised BEECHCRAFT Aero or Aviation Centers and International Distributors and Dealers. Owners and operators should arrange with these outlets to perform the work and have them submit the standard Beech Aircraft Corporation warranty claim form through BEECHCRAFT Parts and Equipment Marketing Wholesalers or International Distributors.

**SPECIAL TOOLS:** The metal blocks to be used as inspection and adjustment aids are to be fabricated locally as directed in ACCOMPLISHMENT INSTRUCTIONS.

**WEIGHT AND BALANCE:** None.

**REFERENCES:** BEECHCRAFT Duchess 76 Maintenance Manual, P/N 105-590000-7 or subsequent, Chapter 32-10 and 32-30.

**PUBLICATIONS AFFECTED:** It is recommended that a note to "See Service Bulletin No. 2081" be made in the following:

BEECHCRAFT Duchess 76 Maintenance Manual copies, P/N 105-590000-7 or subsequent, Chapter 32-10 and 32-30.

**ACCOMPLISHMENT INSTRUCTIONS:** This Service Bulletin may be accomplished as follows:

1. Fabricate four metal blocks (aluminum is a suitable material) as shown in Figure 1.

**NOTE**

Test Block C width should be 1.000 inch for affected airplanes which have not complied with BEECHCRAFT Service Instructions No. 1145.

Test Block C width should be .935 inch wide for affected airplanes which have complied with BEECHCRAFT Service Instructions No. 1145.

The four blocks consist of two each of block A and one each of blocks B and C. If Steps 5 through 10 are to be accomplished by a machine shop, adjustable parallel bars may be used in lieu of the metal blocks.

2. Place the airplane on jacks, using the jack pads located inboard of the main landing gear and a tail stand. The tail tie down ring must be anchored to a ground tie down or a weight of 450 pounds must be secured to the tail tie down ring when jacking the airplane.

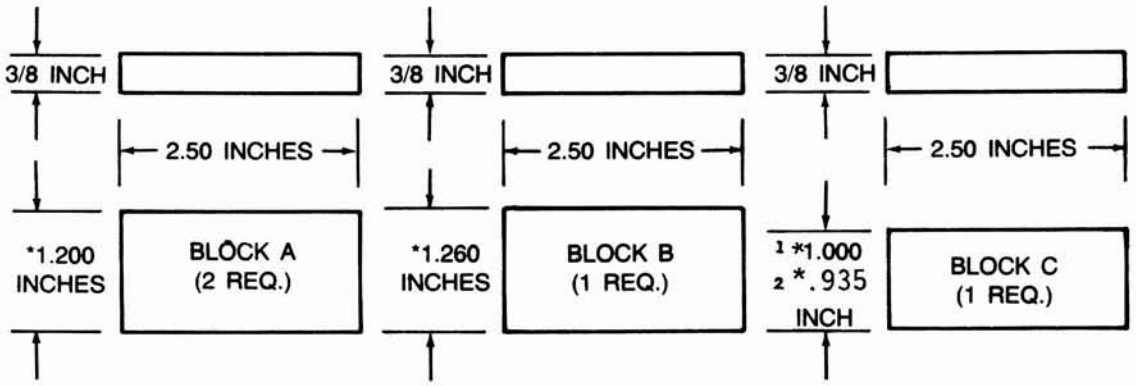
**CAUTION**

The landing gear circuit breaker must be pulled and the emergency landing gear extension valve must be open to relieve pressure in the hydraulic system. This will reduce the possibility of inadvertent retraction of the landing gear when an airplane is jacked.

3. Cut the Ty-wraps which secure the landing gear limit switch wires to the side brace and remove the limit switch from the mounting bracket.

4. Remove the left main landing gear side brace assembly from the airplane as directed in Chapter 32-10 of the Maintenance Manual. Do not disassemble the lower brace (P/N 105-810023-43) from the A frame weld assembly (P/N 105-810023-3).

5. Using the landing gear side brace as a guide, lay out the metal blocks on a smooth, flat surface as shown in Figure 2. (If available, use a machinist's surface table.)




[1] 1.000* INCH (AIRPLANES SHOWN IN EFFECTIVITY WHICH HAVE NOT COMPLIED WITH S.I. 1145)

* ± .003 INCH MUST BE MAINTAINED

[2] .935* INCH (AIRPLANES SHOWN IN EFFECTIVITY WHICH HAVE COMPLIED WITH S.I. 1145)

**Figure 1**

**NOTE**

If a machinist's surface table is not available, a piece of plate glass or a table which has been trued using an accurate straight edge and accurate leveling device may be used. Shims may be placed under the blocks as necessary to achieve a trued condition.

6. Insert the 3 existing mounting bolts and bushings into the respective holes in the side brace assembly. (See Figure 2.)

7. Place the side brace assembly on the blocks as shown in Figure 2.

8. Rotate the spring pivot upward so it will not contact the table. Press downward on the knee section of the side brace assembly with a force of approximately two pounds and measure the gap between the bushing and block C. Pull upward slightly on the bushing to remove free play when taking this measurement.

9. The gap between the bushing and block C should measure between .010 inch and .030 inch. If the gap exceeds this measurement, remove material as required from the inside of the A frame assembly where it contacts the button rest on the lower brace using a small file. (See Figure 3.)

10. If the gap is less than the measurement indicated in Step 9, insert P/N AN960-416L washers (obtain locally) as required under the button rest. Repeat Step 9 as required.

**NOTE**

Washers may be fabricated from laminated shim stock if required. The button rest is press fitted into the lower brace and may be removed with a drift punch.

11. Install the side brace assembly as instructed in the Maintenance Manual. Use torque values specified in the Maintenance Manual except for the P/N 278-368-1 bolt which attaches the lower brace to the landing gear housing. Torque this bolt to 350 inch-pounds.

12. Check the main landing gear actuator cylinder adjustment as indicated in the Maintenance Manual.

13. Disable the hydraulic pump by pulling the landing gear motor circuit breaker and open the emergency landing gear extension valve. Insert a .028 inch thick shim between the button rest and the A frame assembly and allow the landing gear to extend and lock by spring tension.

14. Install the landing gear limit switch and adjust it to just activate with the landing gear in this position. An audible click will be heard as the switch activates.

15. To check the adjustment, insert a .028 inch thick shim between the channel portion of the upper drag leg and the rest button on the upper end of the lower drag leg and adjust the limit switch to activate the pump and in transit light at this point.

16. Remove the .028 inch thick shim and insert a .018 shim between the upper and lower drag legs. The pump in-transit light should now be off.

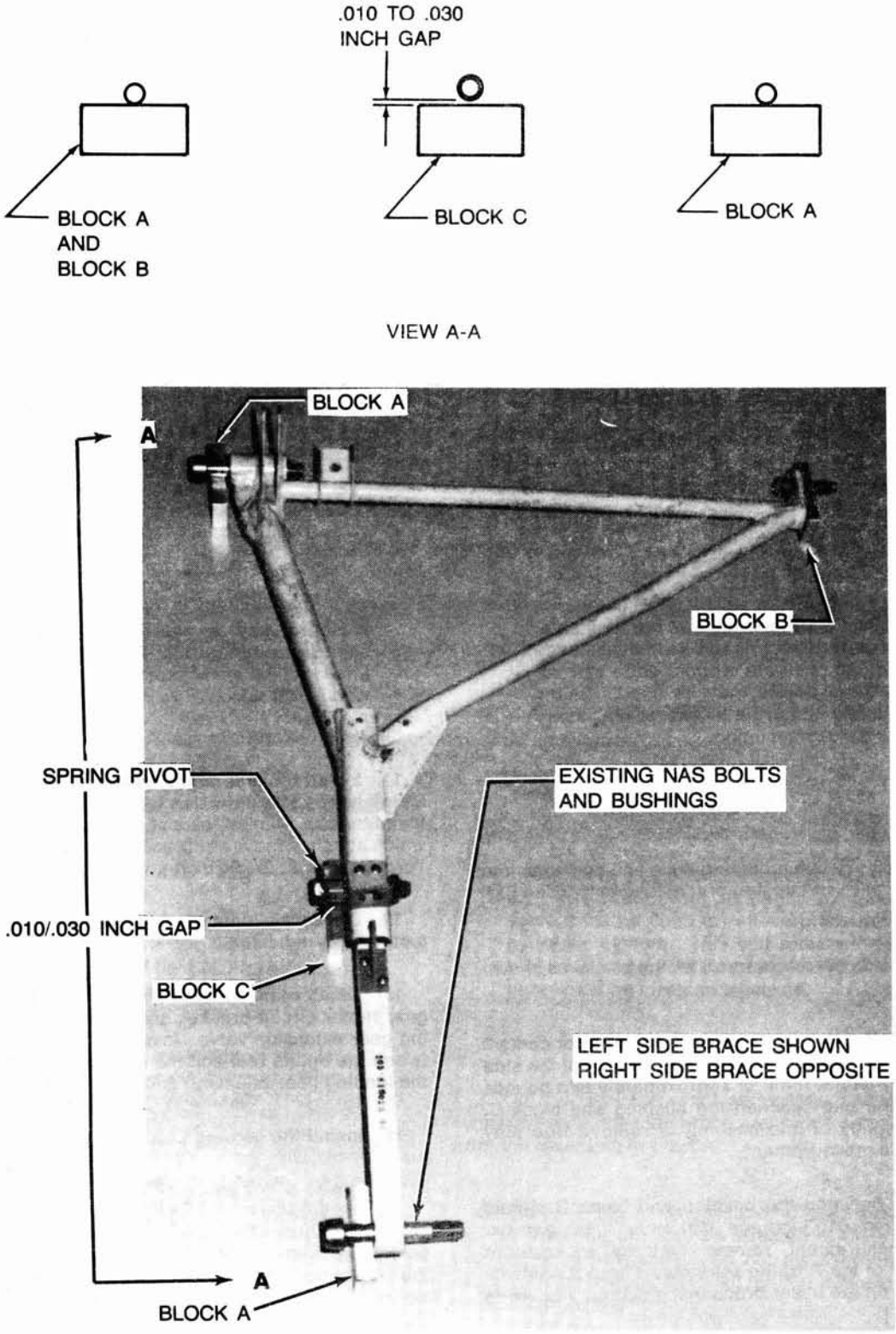

.010 TO .030
INCH GAP
BLOCK A
AND
BLOCK B
BLOCK C
BLOCK A
VIEW A-A
BLOCK A
A
BLOCK B
SPRING PIVOT
EXISTING NAS BOLTS
AND BUSHINGS
.010/.030 INCH GAP
BLOCK C
LEFT SIDE BRACE SHOWN
RIGHT SIDE BRACE OPPOSITE
A
BLOCK A

Figure 2

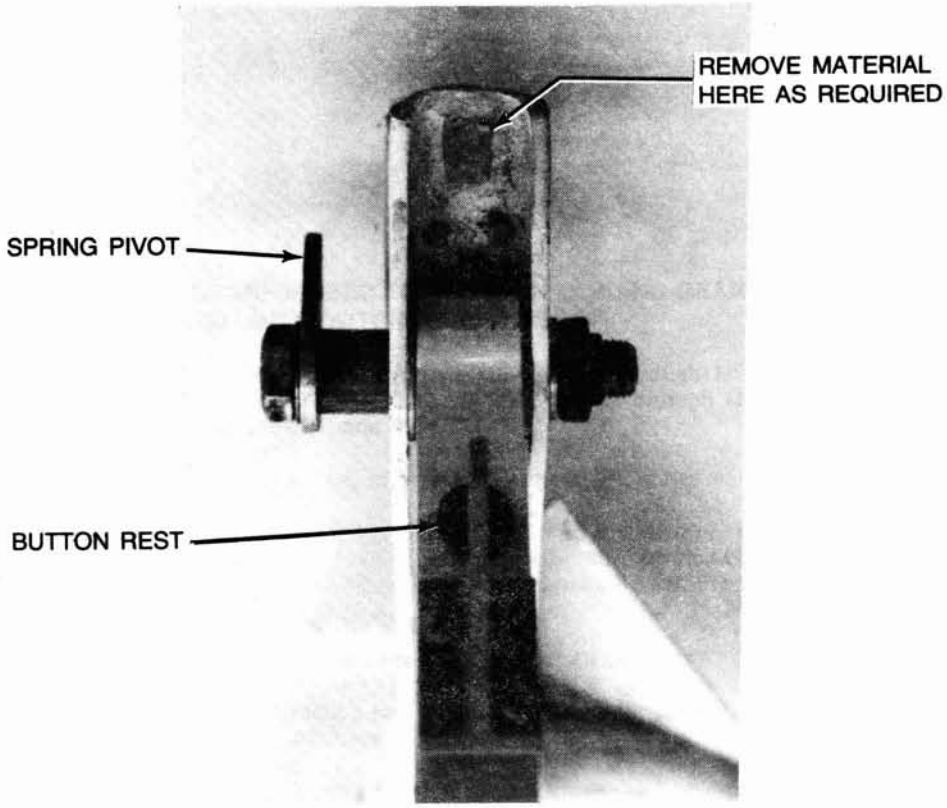



**Figure 3**

17. Secure the limit switch wires with Ty-wraps.

18. Safety wire the landing gear limit switch.

19. Repeat Steps 3 through 16 on the right hand main landing gear.

20. Close the emergency landing gear extension valve and reset the landing gear motor circuit breaker.

21. Perform retraction test and emergency landing gear extension as instructed in the Maintenance Manual.

---

**RECORD COMPLIANCE:** Upon completion of this Service Bulletin, make an appropriate maintenance record entry.