

77

No. 2241, Rev. I
ATA Code 32-20
Recurring Inspection

SUBJECT: LANDING GEAR - INSPECTION/REPLACEMENT OF NOSE LANDING GEAR FORK

**SYNOPSIS OF
CHANGE:**

Corrected gap measurement and illustration orientation of Figure 2; added SPARES AFFECTED statement.

REASON:

This Service Bulletin is being issued to inspect for possible cracks in the nose landing gear fork. The nose fork, wheel and tire could separate from the aircraft if a crack progresses sufficiently.

EFFECTIVITY:

BEEHCRAFT Skipper 77, serials WA-1 through WA-312.

COMPLIANCE:

Beech Aircraft Corporation considers this to be a mandatory inspection/modification and it should be accomplished as soon as possible after receipt of this Service Bulletin, but no later than the next scheduled inspection.

A fluorescent penetrant inspection must be performed within 50 service hours after receipt of this Service Bulletin and at each 500 service hour interval thereafter.

A visual inspection is required at each 100 hours between the fluorescent penetrant inspections if the existing fork and axle assembly is not replaced with a new P/N 108-820010-653 fork and axle assembly.

NOTE

UPON REPLACEMENT OF THE EXISTING FORK AND AXLE ASSEMBLY WITH A P/N 108-820010-653 FORK AND AXLE ASSEMBLY, THE INSPECTIONS DESCRIBED IN THIS SERVICE BULLETIN ARE NO LONGER REQUIRED.

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 for inspection: 1 hour.

Estimated man-hours for replacement of the nose landing gear fork, if necessary: 3 hours.

Suggested number of men: 1 man.

The above is an estimate based on experienced, properly equipped personnel complying with this Service Bulletin. Occasionally, after work has started, conditions may be found which could result in additional man-hours.

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1 of 4

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

Information on Owner Notification Service or Subscriptions can be obtained through any BEEHCRAFT 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.

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Service Bulletin No. 2241, Rev. I

MATERIAL: A P/N 108-820010-653 landing gear fork and axle, may be ordered through a BEEHCRAFT Authorized Outlet.

■ SPARES AFFECTED: None.

WARRANTY CREDIT: None.

SPECIAL TOOLS: None.

WEIGHT AND BALANCE: None.

REFERENCES: BEEHCRAFT Skipper 77 Maintenance Manual, P/N 108-590000-7 or subsequent, Chapter 32-20.

PUBLICATIONS AFFECTED: None.

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

UPON REPLACEMENT OF THE EXISTING FORK AND AXLE ASSEMBLY WITH A P/N 108-820010-653 FORK AND AXLE ASSEMBLY, THE INSPECTIONS DESCRIBED IN THIS SERVICE BULLETIN ARE NO LONGER REQUIRED.

1. Visually inspect the nose landing gear fork for cracks. Pay special attention to the forward and aft upper surfaces of the lower "I" section flange, at the transition radius where the flange blends into the piston socket boss. See Figure 1.
2. Perform a fluorescent penetrant inspection as follows:

NOTE

The inspection procedures described in this Service Bulletin are provided as general information on the subject and are not intended to substitute for qualified training. Ensure that only qualified personnel accomplish this inspection.

WARNING

Do not remove paint or primer from the area to be fluorescent penetrant inspected. If the finish absorbs the penetrant so that bleed out prevents satisfactory inspection or if a new finish has not cured for at least 30 days, contact the Customer Support Department, Beech Aircraft Corporation, Wichita, Kansas. Fluorescent liquid-penetrant inspection is a non-destructive method for finding cracks or other discontinuities that are open to the surface of solid and essentially non-porous materials. This method utilizes penetrants which fluoresce brilliantly under ultraviolet (black) light. Indications of discontinuities can be found regardless of the size, configuration, internal structure or chemical composition of the workpiece being inspected and regard-

less of the orientation of the discontinuity. The fluorescent liquid-penetrant inspection method has been developed into three basic processing systems characterized by the penetrant being water-washable, post emulsifiable or solvent removable. For the purpose of conducting the inspection covered in this Service Bulletin, a solvent-removable fluorescent liquid-penetrant system such as the Zyglo (registered trade name of the Magnaflux Corp.) three component kit is recommended. To perform an inspection using the fluorescent liquid-penetrant method, these essential steps must be followed:

- a. **SURFACE PREPARATION** - All surfaces of a workpiece must be thoroughly cleaned with naphtha or methyl ethyl ketone and completely dried before they are subjected to liquid-penetrant inspection.
- b. **PENETRATION** - After the workpiece has been cleaned, liquid penetrant is applied by aerosol spray or a brush to form a film of penetrant over the surface being inspected. This film should remain on the workpiece long enough to allow maximum penetration of the penetrant into any surface openings that are present. For applications described in this Service Bulletin, a minimum of 30 minutes dwell time at a minimum temperature of 60° is required.
- c. **REMOVAL OF EXCESS PENETRANT** - Optimum removal of the excess penetrant is accomplished by wiping off as much of the penetrant as possible with a paper towel or a lint-free cloth; then wipe off the remaining penetrant with a clean cloth slightly dampened with the penetrant system cleaner; and finally, wipe with a dry paper towel or clean cloth.
- d. **DEVELOPMENT** - The developing agent is applied by aerosol spray to form a film over the surface to be inspected. The developer acts as a blotter to assist the natural seepage of the penetrant out of any surface openings and to spread it at the edges to greatly magnify the apparent width of the crack. The developer also pro-

vides a uniform background to assist interpretation. Caution should be used in the application of the developer to provide the optimum coating thickness. If the coating thickness is too thin applied, the penetrant will not be spread and a crack or other discontinuity will not be as easily detected. If the developer coating thickness is too thickly applied, the penetrant might not bleed through the coating.

e. INSPECTION - After being sufficiently developed, the surface is visually examined for indications of penetrant bleedout from surface openings. This examination must be performed under suitably darkened conditions for the penetrant to fluoresce during exposure to ultraviolet light. A model ZB-25 (P/N Magnaflux Corporation) or equivalent ultraviolet (black) light meeting the following minimum requirements must be used for this inspection; (1) 100-watt mercury vapor (2) 3600 to 4200 angstrom wave length (3) 125 foot-candles at 15 inches from the surface to be inspected.

f. POST INSPECTION CLEANING - After completion of the fluorescent liquid-penetrant inspection, the inspection areas are to be thoroughly cleaned to remove the developer coating and any remaining traces of penetrant.

NOTE

All components of the penetrant inspection system must be from the same manufac-

turer and be designed to be used together. For instance, it is not permissible to use a penetrant from one manufacturer and a cleaner/remover from another manufacturer to inspect the same workpiece.

3. Visually reinspect the landing gear nose fork at each 100 service hours.

4. Reinspect the landing gear nose fork, using the liquid-penetrant inspection described herein at each 500 service hour interval.

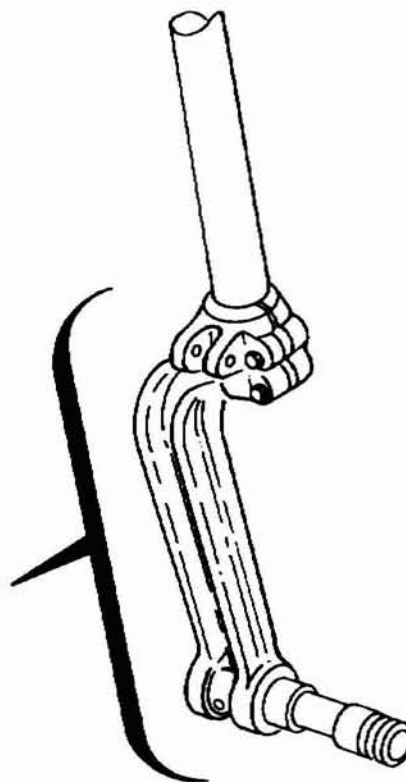
5. If cracks are discovered in the nose landing gear fork and axle assembly, replace the fork with a new P/N 108-820010-653 landing gear fork in accordance with the Maintenance Manual.

NOTE

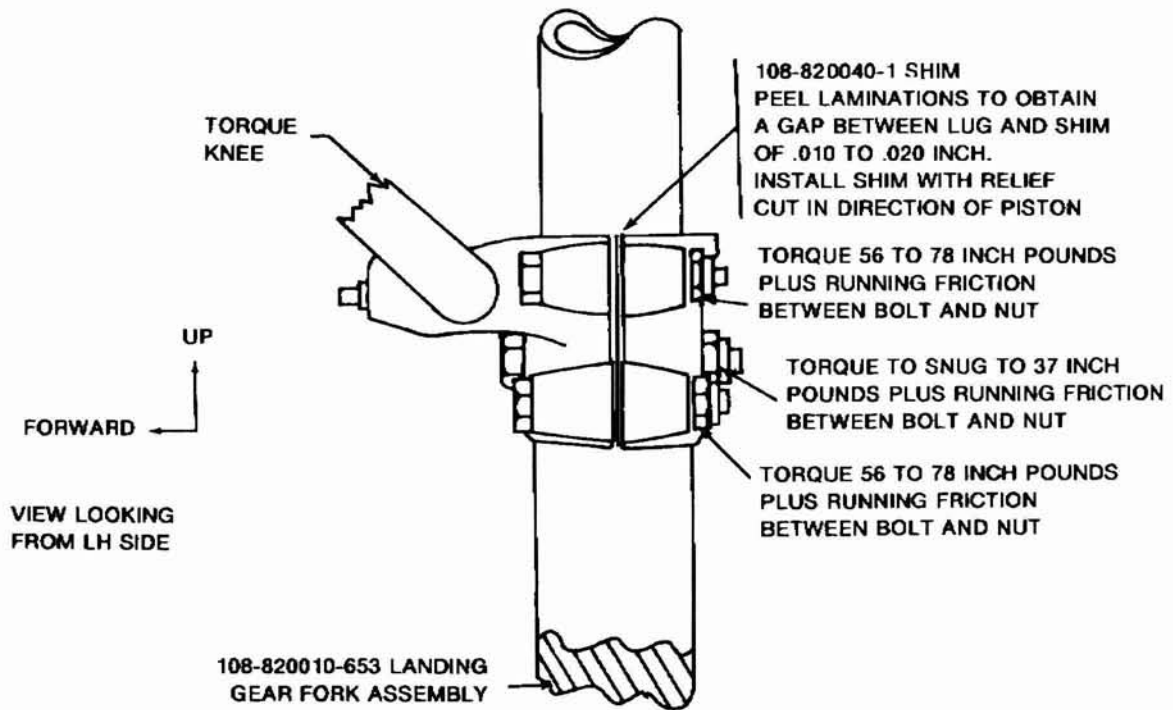
Use Figure 2 in conjunction with the existing Maintenance Manual procedures.

6. Upon installation of a new P/N 108-820010-653 landing gear fork and axle assembly, the 500 service hour liquid-penetrant inspection is no longer required.

EXISTING INSTALLATION
INSPECT ENTIRE SURFACE AREA OF
EXISTING LANDING GEAR FORK



EXISTING FORK INSPECTION
Figure 1



LAMINATED SHIM INSTALLATION
Figure 2

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

NOTE

If you are no longer in possession of this airplane, please forward this information to the present owner.