Cessna
A Textron Company

Service Bulletin

March 15, 1999

SEB90-1
Revision 3

TITLE

MAIN LANDING GEAR PIVOT INSPECTION

EFFECTIVITY

Model	Year	Serial Numbers
172RG	1980	172RG0001 thru 172RG0570
172RG	1981	172RG0571 thru 172RG0890
172RG		691
172RG	1982	172RG0891 thru 172RG1099
172RG	1983	172RG1100 thru 172RG1144
172RG	1984	172RG1145 thru 172RG1177
172RG	1985	172RG1178 thru 172RG1191
R182	1978	R18200477 thru R18200583
R182/TR182	1979	R18200584 thru R18201313
R182/TR182		R18200001
R182/TR182	1980	R18201314
R182/TR182	1980	R18201316 thru R18201628
R182/TR182	1981	R18201629 thru R18201798
R182/TR182	1982	R18201799 thru R18201928
R182/TR182	1983	R18201929 thru R18201973
R182/TR182	1984	R18201974 thru R18201999
R182/TR182	1985	R18202000 thru R18202031
R182/TR182		R18201315
R182/TR182	1986	R18202032 thru R18202041
FR182	1978	FR18200011 thru FR18200020
FR182	1979	FR18200021 thru FR18200045
FR182	1980	FR18200046 thru FR18200070

PURPOSE

To inspect the main landing gear pivot assemblies for cracks in the spline area. If a crack is detected, the pivot must be replaced.

New replacement pivots are available which have been designed to assist in providing improved fatigue life.

To include the SK172-151 Main Landing Gear Pivot And Actuator Modification for model 172RG airplanes which replaces an existing main landing gear pivot bushing with a new bushing designed to enhance the service life of the pivot.

Original Issue: April 20, 1990
Revision 1; May 11, 1990; Revision 2: September 21, 1990

The Cessna Aircraft Company, Product Support, P.O. Box 7706, Wichita, Kansas 67277, U.S.A. (316) 517-5800, Facsimile (316) 942-9006

COMPLIANCE

Recommended; should be accomplished during the next 100 hours of operation or annual inspection, whichever occurs first, or during an equivalent interval for airplanes utilizing the Cessna Progressive Inspection program.

This inspection must be repeated any time an airplane has experienced a landing gear overload condition or if the brakes have a "spongy" operation that cannot be attributed to brake component wear or improper servicing.

NOTE: New replacement pivot assemblies, P/N 2441100-10 and 2241102-13 will not require this special inspection unless they are subjected to an overload condition or if the brakes exhibit a "spongy" operation that cannot be attributed to brake component wear or improper servicing.

Recompliance requirements for airplanes on which the original issue of SEB90-1 was previously accomplished:

1. For model 172RG airplanes:

   Compliance with SEB90-1 Revision 3 is required and should be accomplished within the next 100 hours of operation or annual inspection or if spongy brakes are noted as described above, which ever occurs first.

2. For model R182/TR182/FR182 airplanes:

   A. If bushing was not removed from pivot shaft, compliance is required with SEB90-1 Revision 3.

   B. If bushing was removed from pivot shaft when performing the inspection, compliance with SEB90-1 Revision 3 is not required.

APPROVAL

FAA approval has been obtained on technical data in this publication that affects airplane type design.

For Reims Aviation airplanes: DGAC approval has been obtained on technical data in this publication that affects airplane type design.

MAN-HOURS

Approximately 10.0 man-hours for one pivot assembly inspection.

Approximately 2.5 man-hours to install SK172-151 concurrent with pivot assembly inspection.

Pivot assembly replacement, not determined.

MATERIAL

The following parts are available from Cessna Parts Distribution through an appropriate Cessna Service Station for the suggested list price shown.

Part Number	Description	Qty/Airplane	Price
SK172-151	Main Landing Gear Pivot And Actuator Modification Kit (for 172RG only)	1	$ 151.00 (A) ea.
EC1300LP	Adhesive	1	$ 25.50 (X) pt.
2241102-13	R/TR/FR182 Pivot Assembly (includes bushing)	As Required	$ 2,390.00 (D) ea.
2441100-10	172RG Pivot Assembly (See Note 5)	As Required	$ 2,783.00 (D) ea.
2241119-1	Bushing (See Note 1)	2	$ 54.30 (S) ea.
2241120-1	Bushing (See Note 2)	2	$ 43.70 (S) ea.
1820085-1	Deburr Tool	(See Note 3)	$ 85.90 (S) ea.
1820085-2	Deburr Tool	(See Note 4)	$ 135.00 (S) ea.

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE

Note 1: Replacement bushing for use on existing installed 2241102-7 pivot assembly only.

Note 2: Replacement bushing for use on the 2241102-13 pivot assembly only. Replacement bushings should be required only if the new design replacement pivot is being inspected for the reasons stated in the Compliance section of this Service Bulletin.

Note 3: One deburring tool required for each Cessna Single Engine Service Station.

Note 4: This tool is required only if the replacement 2241102-13 or 2441100-9 pivot assembly is being inspected for the reasons as stated in the Compliance section.

Note 5: Initial installation requires concurrent installation of SK172-151.

ACCOMPLISHMENT INSTRUCTIONS

Revised Main Landing Gear Pivot Assemblies Inspection Accomplishment Instructions are attached.

SK172-151 Main Landing Gear Pivot And Actuator Modification instructions are attached.

CREDIT

Not Applicable.

OWNER NOTIFICATION

A. On May 4, 1990 the following Owner Advisory message was sent to applicable owners of record in SEB90-1A.

Dear Cessna Owner:

An Inspection of the main gear pivots for cracks is required on your airplane.

Compliance is recommended; should be accomplished within the next 100 hours of operation, or annual inspection, whichever occurs first, or during an equivalent interval for airplanes utilizing the Cessna Progressive Care Inspection program.

This inspection must also be accomplished any time your airplane has experienced a landing gear overload condition or if the brakes have a "spongy" operation that cannot be attributed to brake component wear or improper servicing.

Please contact a Cessna Single Engine Service Station for details and arrange to have this inspection accomplished.

B. On May 11, 1990 the following Owner Advisory message was sent to applicable Owners of record in SEB90-1AR1.
Dear Cessna Owner:

On May 4, 1990 you were mailed Owner Advisory SEB90-1A concerning compliance with SEB90-1, Main Landing Gear Pivot Inspection. That owner Advisory is revised as follows.

Airplane serials R18200001 thru R18200476 are not affected by this Service Bulletin.

Airplane serials 172RG0001 thru 172RG1191 and R18200477 thru R18202041 should not comply with the original issue of SEB90-1. SEB90-1 Revision 2 is in development and will be issued in the near future to provide revised compliance and accomplishment instructions.

C. On October 5, 1990 the following Owner Advisory message was sent to applicable Owners of record in SEB90-1AR2.

Dear Cessna Owner:

Revised procedures are now available for a required inspection for cracks in the main gear pivots on your airplane.

Compliance is recommended; should be accomplished within the next 100 hours of operation, or annual inspection, whichever occurs first, or during an equivalent interval for airplanes utilizing the Cessna Progressive Care Inspection program.

This inspection must also be accomplished any time your airplane has experienced a landing gear overload condition or if the brakes have a "spongy" operation that cannot be attributed to brake component wear or improper servicing.

Compliance with SEB90-1 Revision 2 may be required if the original issue of SEB90-1 has been accomplished on your airplane.

Please contact a Cessna Single Engine Service Station for details and arrange to have this inspection accomplished.

D. On March 15, 1999, the following Owner Advisory message will be sent to applicable Owners of record in SEB90-1AR3.

Dear Cessna Owner:

This is to inform you that Single Engine Service Bulletin SEB90-1 Revision 3 has been issued and announces Service Kit SK172-151 Main Landing Gear Pivot And Actuator Modification for model 172RG airplanes. This modification replaces an existing main landing gear pivot bushing with a new bushing designed to enhance the service life of the pivot.

Compliance is recommended; should be accomplished during the next 100 hours of operation or annual inspection, whichever occurs first, or during an equivalent interval for airplanes utilizing the Cessna Progressive Inspection program.

This inspection must be repeated any time an airplane has experienced a landing gear overload condition or if the brakes have a "spongy" operation that cannot be attributed to brake component wear or improper servicing.

Recompliance requirements for airplanes on which the original issue of SEB90-1 was previously accomplished:

1. For model 172RG airplanes:

   Compliance with SEB90-1 Revision 3 is required and should be accomplished within the next 100 hours of operation or annual inspection or if spongy brakes are noted as described above, which ever occurs first.

2. For model R182/TR182/FR182 airplanes:

   A. If bushing was not removed from pivot shaft, compliance is required with SEB90-1 Revision 3.

   B. If bushing was removed from pivot shaft when performing the inspection, compliance with SEB90-1 Revision 3 is not required.

Please contact a Cessna Single Engine Service Station for detailed information and, if applicable, make arrangements to have Cessna Service Bulletin SEB90-1 Revision 3 accomplished on your airplane.

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March 15, 1999

SEB90-1
Revision 3

TITLE

MAIN LANDING GEAR PIVOT ASSEMBLIES INSPECTION

EFFECTIVITY

Model	Year	Serial Numbers
172RG	1980	172RG0001 thru 172RG0570
172RG	1981	172RG0571 thru 172RG0890
172RG		691
172RG	1982	172RG0891 thru 172RG1099
172RG	1983	172RG1100 thru 172RG1144
172RG	1984	172RG1145 thru 172RG1177
172RG	1985	172RG1178 thru 172RG1191
R182	1978	R18200477 thru R18200583
R182/TR182	1979	R18200584 thru R18201313
R182/TR182		R18200001
R182/TR182	1980	R18201314
R182/TR182	1980	R18201316 thru R18201628
R182/TR182	1981	R18201629 thru R18201798
R182/TR182	1982	R18201799 thru R18201928
R182/TR182	1983	R18201929 thru R18201973
R182/TR182	1984	R18201974 thru R18201999
R182/TR182	1985	R18202000 thru R18202031
R182/TR182		R18201315
R182/TR182	1986	R18202032 thru R18202041
FR182	1978	FR18200011 thru FR18200020
FR182	1979	FR18200021 thru FR18200045
FR182	1980	FR18200046 thru FR18200070

DESCRIPTION

The following procedures provide instructions to perform a fluorescent penetrant inspection of the main landing gear pivot assemblies, to check for cracks in the area of the splines.

The Cessna Aircraft Company, Product Support, P.O. Box 7706, Wichita, Kansas 67277, U.S.A. (316) 517-5800, Facsimile (316) 942-9006

ACCOMPLISHMENT INSTRUCTIONS

APPROVAL

FAA approval has been obtained on technical data in this publication that affects airplane type design.

For Reims Aviation Airplanes: DGAC Approval has been obtained on technical data in this publication that affects airplane type design.

REFERENCE

SEB90-1 Revision 3

CHANGE IN WEIGHT AND BALANCE

MODEL ..... 172RG - R182 - TR182 - FR182

WEIGHT CHANGE ..... Negligible

MATERIAL INFORMATION

PART NUMBER	QUANTITY	DESCRIPTION
SK172-151	1	Main Landing Gear Pivot And Actuator Modification Kit (For model 172RG airplanes only)
1820085-1	1	Deburr Tool (used with existing 2241102-7 & 2441100-1 pivot with .7514 inch diameter shaft)
2241119-1	2	Bushing (used with existing 2241102-7 pivot only with .7514 inch diameter shaft)
2241102-13	2 (If Required)	Pivot Assembly - R182, TR182 & FR182
2441100-10	2 (If Required)	Pivot Assembly - 172RG
1820085-2	1 (See Note 1)	Deburr Tool (pivot with .8455 inch diameter shaft)
2241120-1	1 (See Note 2)	Bushing (used on 2241102-13 pivot only with .8455 inch diameter shaft)
*ZL-22	(As Required)	Penetrant
*ZP-9	(As Required)	Developer
*ZC-7	(As Required)	Cleaner
*ZB-23A	1	Portable Black Light
*8x to 10x	1	Magnifying Glass

* Product of: Magnaflux Corporation
7300 W. Lawrence Avenue
Chicago, IL 60656

*or equivalent inspection material, per QPL-25135 and MIL SPEC MIL-I-25135.

NOTE 1: This tool is required only if the replacement 2241102-13 or 2441100-9 is being inspected for the reasons as stated in the Compliance section of this Service Bulletin.

NOTE 2: Replacement bushing for use on the 2241102-13 Pivot Assembly only. Replacement bushing is required only if the new design replacement pivot is being inspected for reasons stated in the Compliance section of this Service Bulletin.

ACCOMPLISHMENT INSTRUCTIONS

ACCOMPLISHMENT INSTRUCTIONS

A. INSPECTION PROCEDURES:

NOTE: Inspection procedures are same for all pivots. Deburr tools and bushings are the only differences as stated in Material Information. The following procedures reference existing pivots.

1. Move front seats to the forward position and remove rear seat assembly. Peel back carpet as necessary to uncover access panels above the main landing gear pivot assemblies. Remove and retain panel assemblies and hardware.

2. Place airplane on jacks in accordance with procedures outlined in section 2 of the 172RG Service Manual or section 2 of the R182 Service Manual.

3. Place MASTER switch in the OFF position and move gear handle to the UP position. Turn MASTER switch ON and allow gear to retract halfway, turn MASTER switch OFF and pull GEAR PUMP circuit breaker to prevent accidental activation of the pump, then move gear handle to the DOWN position.

4. (Refer to Figure 1, Detail A, Sheet 2.) Remove both right and left main landing gear springs with pivot assemblies (2). Removal of both right and left wheel assemblies may be required to remove the main landing gear springs. Refer to section 5 of the appropriate Service Manual for removal procedures.

   NOTE: Removal of main landing gear spring from pivot assembly is not required for pivot assembly inspection.

   CAUTION: DO NOT NICK OR GOUGE SHAFT DURING BUSHING REMOVAL. PIVOT REPLACEMENT WILL BE REQUIRED IF SHAFT IS NICKED OR GOUGED.

5. Remove bushing (4) from pivot assembly shaft. Use a vise-grip type pliers or suitable tool to remove press fit bushing. Removal of bushing is required to inspect area (1A) between bushing (4) and spline (3). Discard bushing.

6. (Refer to Figure 1, Detail A, Sheet 2.) Perform a fluorescent penetrant inspection in areas (1A & 1B) on each pivot assembly as follows:

   a. Using a magnifying glass inspect the radius of area (1A) for burrs that may be present as a result of the press fit bearing installation. If the inspection reveals the presence of a burr, continue with Step b. If the radius is free of burrs, continue with Step c.

      CAUTION: SANDING OR FILING ON SHAFT OR IN SHAFT RADIUS IS NOT ALLOWED. SANDING OR FILING WILL CAUSE PARTS TO BE UNDERSIZE AND REQUIRE REPLACEMENT. ONLY THE DEBURR TOOL IS ALLOWED TO BE USED FOR BURR REMOVAL.

   b. Using part number 1820085-1 Deburr Tool (6), remove the burr in the radius of area (1A). Place tool on pivot shaft per Detail B and rotate completely around shaft to shave off burr.

   c. Clean each pivot assembly (2) in inspection areas (1A & 1B) with ZC-7 Cleaner using a lint free cloth.

   d. Apply ZL-22 Penetrant to the areas previously cleaned in Step c. and allow penetrant to remain on these areas for thirty minutes.

   e. Clean the penetrant from the pivot assemblies using a clean lint free cloth dampened with ZC-7 cleaner. The inspection area is considered clean with a absence of background fluorescences.

ACCOMPLISHMENT INSTRUCTIONS

f. Mix ZP-9 Developer per the manufacturer's instructions on the container and apply a thin coat to the inspection areas (1A, 1B). Allow 15 minutes for developing time.

g. Examine the areas under black light. A 8x to 10x magnifying glass should be used in the examination as some cracks are difficult to see with the naked eye.

h. If a crack is detected the pivot assembly must be replaced. The new part numbers are 2441100-10 pivot assembly for the model 172RG and 2241102-13 pivot assembly for models R182, TR182 and FR182. For R182, TR182 and FR182 models; a bushing is included and preinstalled on the pivot. Proceed to Step 8.

NOTE: For 172RG models; initial installation of a 2441100-10 pivot will also require concurrent installation of SK172-151.

i. If no crack is detected proceed to Step 7.

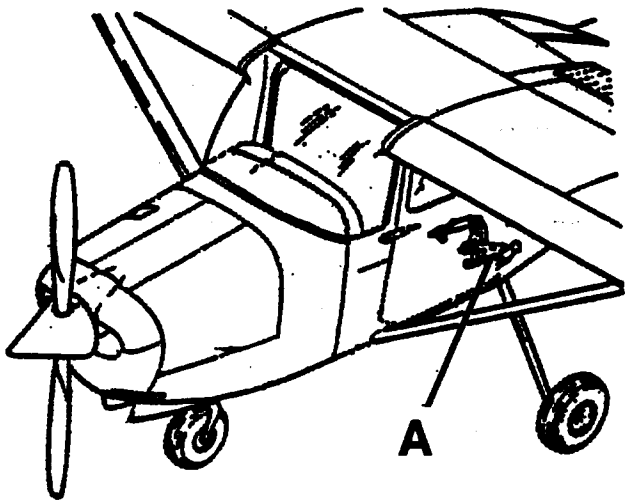
7. For models R182, TR182 and FR182; install new bushing (4) on pivot assembly shaft (5). Press bushing on shaft and ensure the bushing contacts the splined area shoulder. For model 172RG; install bushing in accordance with SK172-151. Reinstall the landing gear spring and pivot assembly. Repeat procedure for opposite gear. Refer to section 5 of applicable Service Manual for installation and rigging procedures. Proceed to Step 9.

8. For models R182, TR182 and FR182; install new pivot assembly with existing landing gear. For model 172RG; install SK172-151 concurrent with new pivot assembly. Repeat procedure for opposite gear. Refer to section 5 of the applicable Service Manual for installation and rigging procedures.

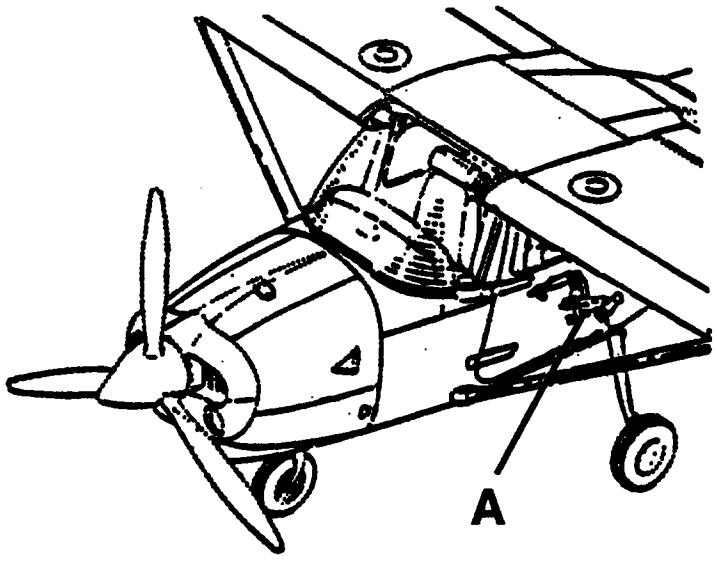
9. After rigging and checking landing gear operation, remove jacks from airplane and reinstall all items removed in reverse order of removal.

B. Make an entry in the airplane logbook stating this service bulletin has been complied with and method of compliance.

ACCOMPLISHMENT INSTRUCTIONS



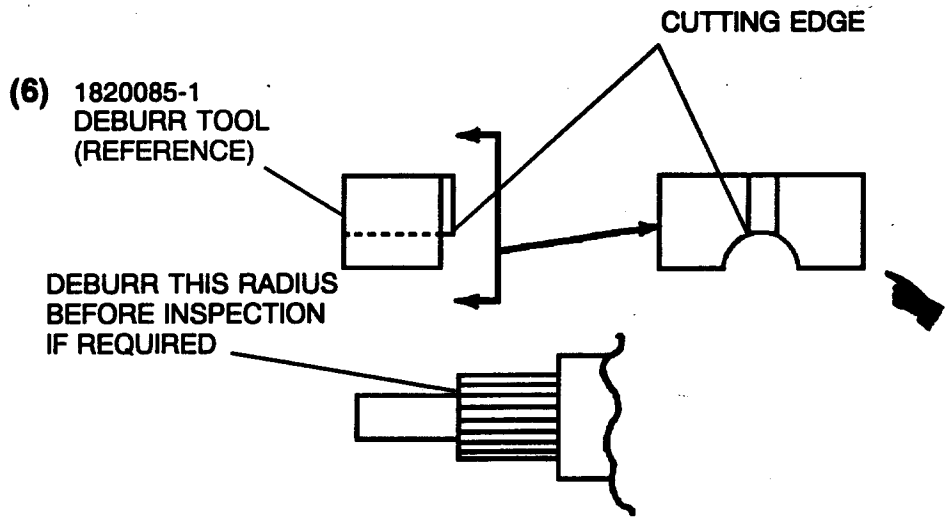
MODEL 172RG



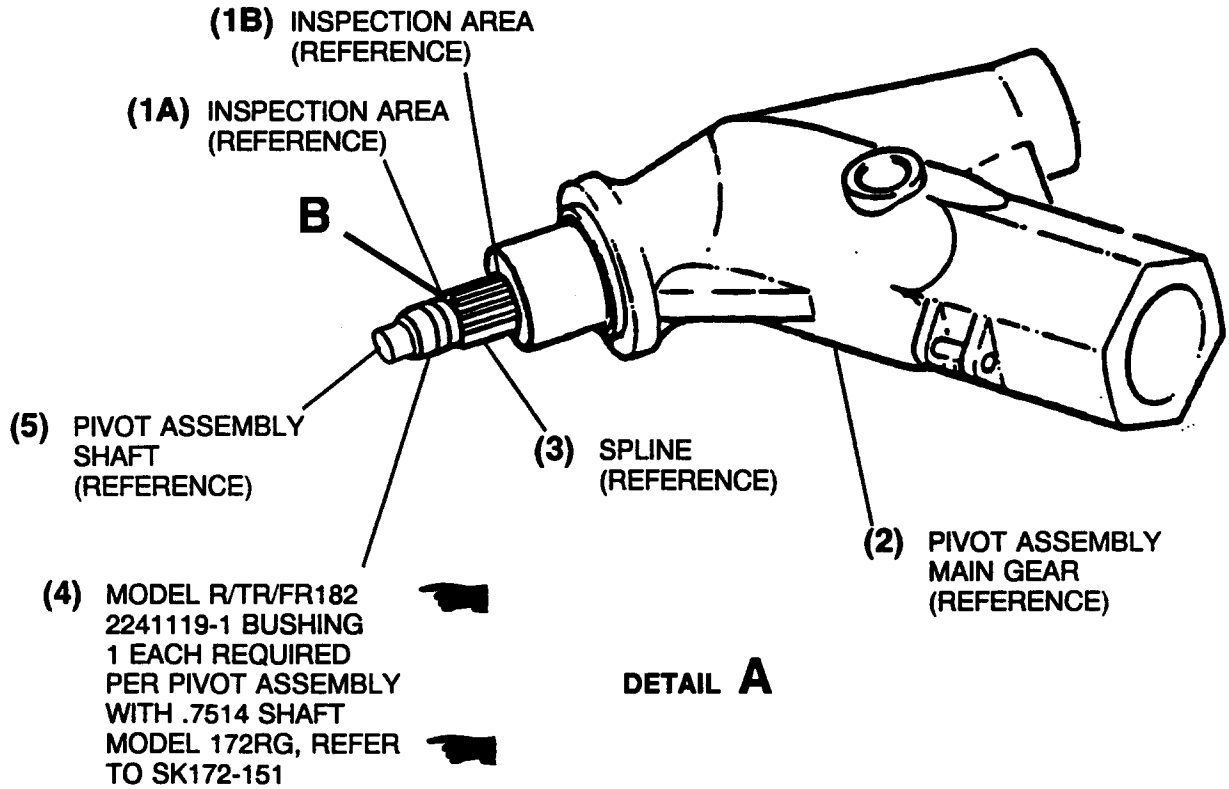
MODEL TR182 AND FR182

Figure 1. Main Landing Gear Pivot Assembly (Sheet 1 of 2)

ACCOMPLISHMENT INSTRUCTIONS



DETAIL B
PIVOT ASSEMBLY SHAFT AND
SPLINE WITH BUSHING REMOVED



DETAIL A

Figure 1. Main Landing Gear Pivot Assembly (Sheet 2)

SK172-151

TITLE MAIN LANDING GEAR PIVOT AND ACTUATOR MODIFICATION

EFFECTIVITY

MODEL	SERIAL NUMBERS
172RG	172RG0001 thru 172RG1191
172RG	691

DESCRIPTION

This kit provides parts and instructions to replace the inboard bushing on the Main Landing Gear Pivot and the bushing in the actuator cap with a single bushing of softer material.

APPROVAL

FAA approval has been obtained on technical data in this publication that affects airplane type design.

REFERENCE

SEB90-1 Revision 3

CHANGE IN WEIGHT AND BALANCE

Negligible

The Cessna Aircraft Company, Product Support, P.O. Box 7706, Wichita, Kansas 67277, U.S.A. (316) 517-5800 Facsimile (316) 942-9006

SERVICE KIT

SK172-151

MATERIAL INFORMATION

PART NUMBER	QUANTITY	DESCRIPTION
SK172-151	1	Kit, Consisting of the following parts:
2490002-1	2	Bushing
2490002-2	2	Bushing
	1	Instructions

NOTE: In addition to SK172-151, the following material, or equivalent, is required for the accomplishment of this service kit.

EC1300L		Adhesive
SEB90-1 Revision 3 or (latest revision)	1 Copy	Single Engine Service Bulletin
182005-1 or equivalent 0790005-1	1 as required	Deburr Tool
182005-2 or equivalent 0790005-2	1 as required	Deburr Tool

ACCOMPLISHMENT INSTRUCTIONS

1. Remove Main Landing Gear Pivot. (Refer to Model 172RG Series Service Manual.)

2. (Refer to Figure 1, Detail A.) Remove and discard existing bushing from Main Landing Gear Pivot.

3. Inspect Main Landing Gear Pivot per Cessna Service Bulletin SEB90-1 Revision 3 (or latest revision).

   NOTE: 1820085-1 or 1820085-2 Deburr Tool will be required for use with SEB90-1.

4. (Refer to Figure 1, Detail D.) Remove 9882003 Actuator Cap from Main Landing Gear Actuator.

5. (Refer to Figure 1, Detail C.) Remove bushing from 9882003 Actuator Cap.

6. (Refer to Figure 1, Detail D.) Install 2490002-1 or 2490002-2 Bushing in 9882003 Actuator Cap. Secure 2490002 Bushing to 9882003 Actuator Cap by applying a thin, even coat of EC1300L Adhesive to both surfaces. Ensure 2490002 Bushing flange is installed to inboard side of actuator cap.

   NOTE: The 2490002-1 Bushing has a 0.75 inch inside diameter. The 2490002-2 Bushing has a 0.85 inside diameter. Select 2490002-1 or 2490002-2 Bushing to be glued into 9882003 Actuator Cap, as required, to fit over pivot in place of removed bronze Bushing.

7. Install Main Landing Gear Pivot. (Refer to Model 172RG Series Service Manual, Section 5.)

8. (Refer to Figure 1, Detail D.) Reinstall 9882003 Actuator Cap onto Main Landing Gear Actuator. Reinstall brakeline fittings and brake lines. Bleed Brakes. (Refer to Model 172RG Series Service Manual, Section 5.)

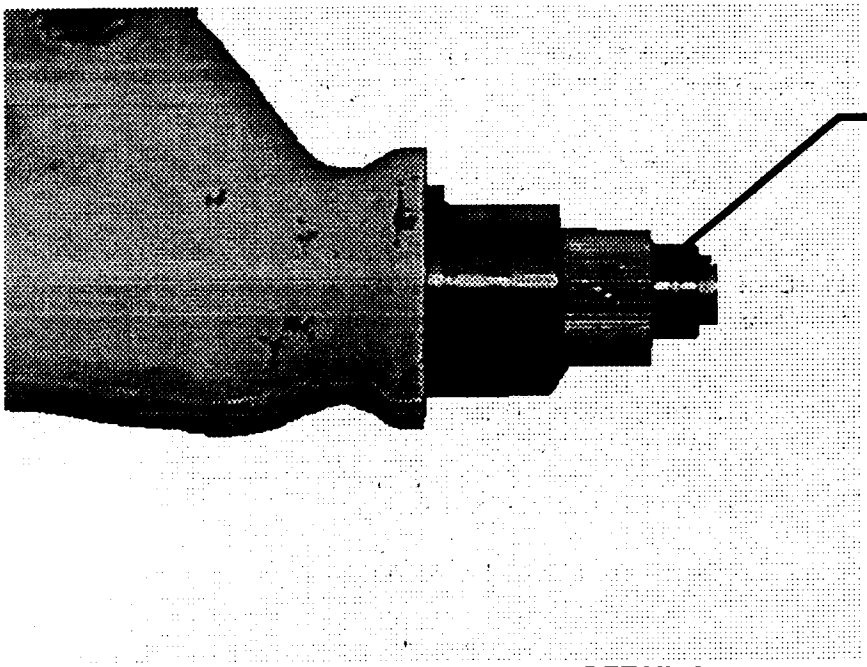
   NOTE: Non-flange end of 2490002 Bushing will be visible protruding from actuator cap.

   CAUTION: CLEAR PATH OF LANDING GEAR TRAVEL DURING RETRACTION TEST. DO NOT TRY TO OBSERVE ANY PART OF LANDING GEAR MECHANISM BY LOOKING THROUGH EITHER MAIN DOOR OR BAGGAGE DOOR.

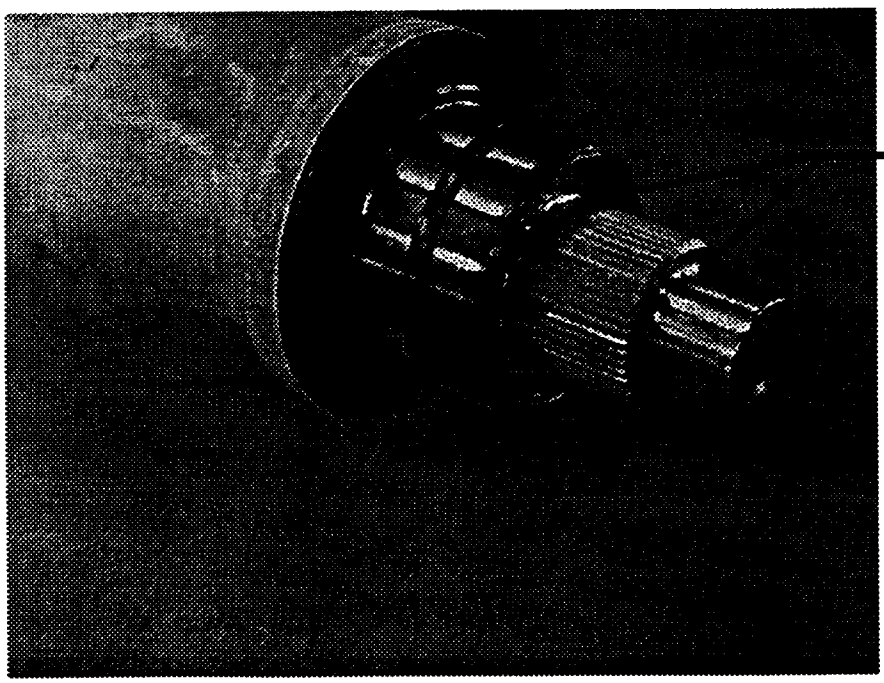
9. Perform gear retraction test to ensure smooth gear operation with special attention to 2490002 Bushing. Once gear has cycled, check 2490002 Bushing for any signs of damage or dislocation. (Refer to Model 172RG Series Service Manual, Section 5.)

10. Remove airplane from jacks and install any removed components.

11. Make an entry in the airplane logbook stating this service kit has been installed.

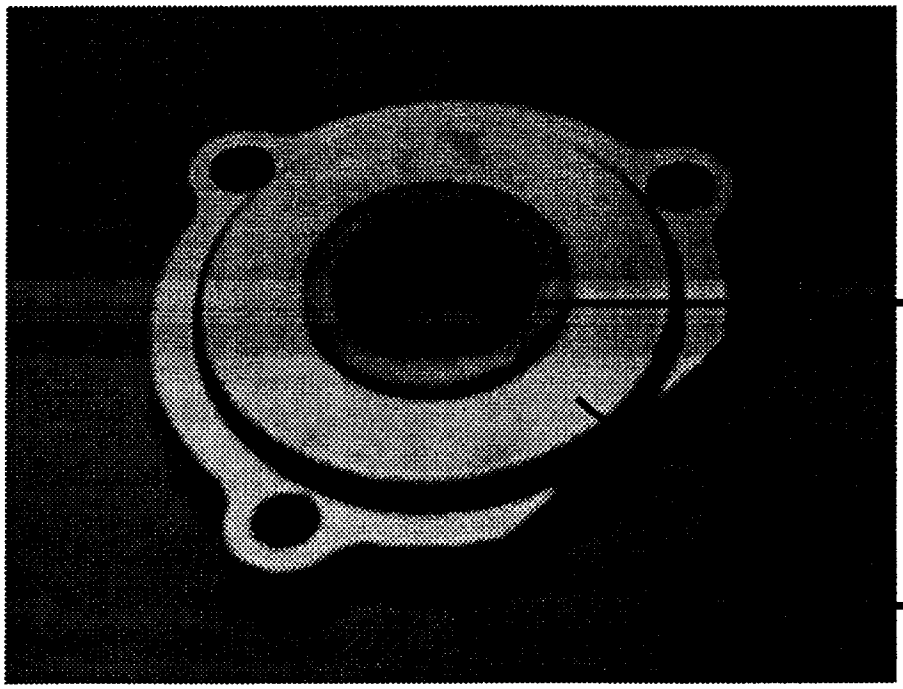


DETAIL A

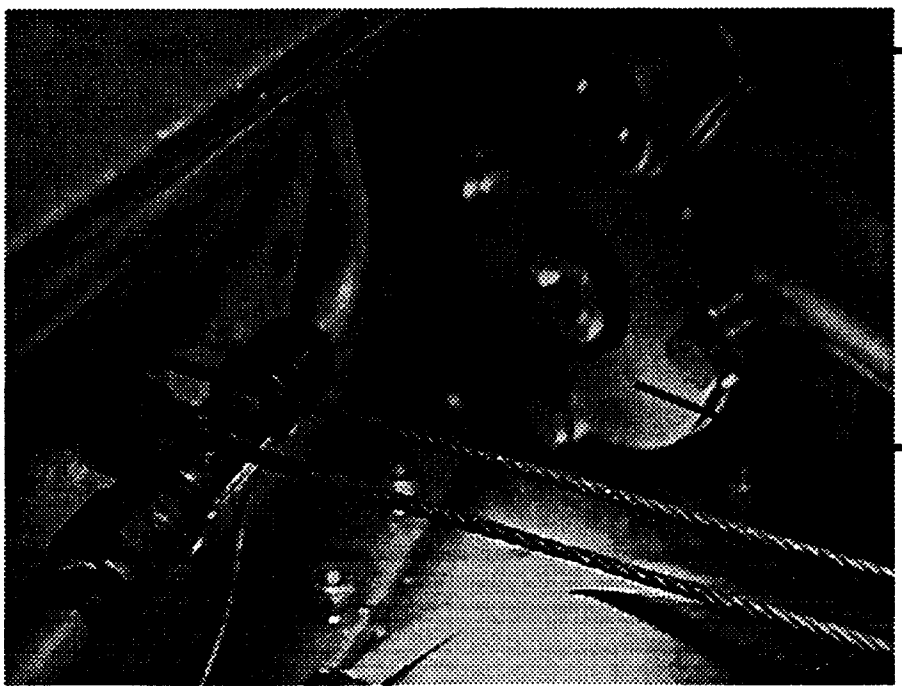


DETAIL B

Figure 1. Main Landing Gear Pivot Modification (Sheet 1 of 2)



DETAIL C



DETAIL D

Figure 1. Main Landing Gear Pivot Modification (Sheet 2)