

SERVICE BULLETIN

FUJI HEAVY INDUSTRIES LTD.

HEAD OFFICE

: SUBARU BLDG,

SHINJUKU, TOKYO, JAPAN

NO : FAS-041

DATE : February 15, 1971

1. SUBJECT : Improvements, Steering Mechanism.
2. AIRCRAFT AFFECTED : FA-200 Series Serial Nos. 1 thru 75.
3. PRIORITY : Optional.
4. REASON : In order to improve steering performance and also to facilitate maintenance.
5. DESCRIPTION : This Service Bulletin provides instructions for two type of modification, Change No. 1 and Change No. 2, either of which will be adopted at your option.

Change No. 1 : To provide new, improved steering mechanism, and also to modify rudder torque tube and related parts.

Change No. 2 : To modify nose landing gear steering installation, in addition to the modification contained in Change No. 1.
6. ACCOMPLISHMENT : Optional.
7. APPROVAL : JCAB Approved.
8. PARTS REQUIRED : The following parts are required to perform the modification:

FAS - 041

PAGE 1 OF 8

8. PARTS REQUIRED : (cont.)

Change No. 1:

PART NO.	PART NAME	QTY
200-822052-011	FLEXIBLE LINK ASSY	1
200-822055-003	ROD	1
MS24665-132	PIN, COTTER	2
200-430070-203	COVER	1
AN316-6L	NUT	1

Change No. 2:

PART NO.	PART NAME	QTY
200-822130-201	CYLINDER ASSY	1
200-822140-11	FITTING ASSY	1
200-822052-001	FLEXIBLE LINK ASSY	1
200-822055-005	ROD	1
MS24665-132	PIN, COTTER	3
200-430070-203	COVER	1
AN6227-6	"O" RING	1
AN6230-1	"O" RING	1
AN6230-2	"O" RING	1
MS24665-359	PIN, COTTER	1
MS24665-161	PIN, COTTER	1
MS24665-283	PIN, COTTER	1
MS24665-285	PIN, COTTER	1
MS24665-300	PIN, COTTER	1
AN316-6L	NUT	1

8. PARTS REQUIRED : (cont.)

Change No. 2:

PART NO.	PART NAME	QTY
MIL-L-5606	HYDRAULIC OIL	AR
200-822176-003	PLACARD	2
EC-870	ADHESIVE	AR

9. SPECIAL TOOL : None required.

10. WEIGHT AND BALANCE : Negligible.

11. REFERENCE : Not applicable.

12. MANHOUR REQUIRED :

Change No. 1 : 45 manhours required.

Change No. 2 : 120 manhours required.

13. DETAILED INSTRUCTIONS:

Change No. 1 (Refer to figures 1 thru 3):

- a. Remove each two nuts, AN4-12 and AN4-10, four nuts, AN310-4, twelve washers, AN960-416, and four pins, MS24665-132 from nose landing gear cylinder and rudder torque tube side. And then remove two flexible link assemblies, 200-822018-001 and each cable assembly, NAS305R01-0117 and NAS305R01-0104.
- b. Separate each two rod ends, HF-4 and HM-4, and each two lock nuts, AN316-4R and AN316-4L, from the above flexible link and cable assemblies.
- c. Remove fuselage No. 1 access cover, 200-430070-157.
- d. Rework rudder rear torque tube as illustrated in figure 2.
- e. Rework rudder front torque tube as illustrated in Fig 3.

- f. Assemble new flexible link assembly, 200-822052-001, and rod end, 200-822055-003, using each rod end, HF-4 and HM-4, two lock nuts, AN316-4R, that have been removed in the above step 13-1-2, and another lock nut, AN316-6L.
- g. Install new fuselage No. 1 access cover, 200-430070-203.
- h. Attach the new flexible link assembly and rod, with piston end afterward, to rudder front torque tube and to nose landing gear right side lug as shown in figure 1. Temporarily secure with existing each bolt, AN4-10, two nuts, AN310-4, six washers, AN960-416, and new two pins, MS24665-132.

NOTE

Temporary secured hardware should be tightend after steering adjustment. Refer to step 13-1-10.

- i. Adjust steering so that nose landing gear will be parallel with airframe center line when rudder pedal set in neutral position (using rig pin).
- j. Properly tighten each nut and secure with cotter pins.
- k. Check for proper operation of nose landing gear and also of all the related system.

Change No. 2 (Refer to figure 2 thru 4):

- a. Remove each two nuts, AN4-12 and AN4-10, four nuts, AN310-4, twelve washers, AN960-416, and four pins, MS24665-132 from nose landing gear cylinder and rudder torque tube side. And then remove two flexible link assemblies, 200-822018-001 and each cable assembly, NAS305R01-0117 and NAS305R01-0104.
- b. Separate each two rod ends, HF-4 and HM-4, and each two lock nuts, AN316-4R and AN316-4L, from the above flexible link and cable assemblies.
- c. Remove fuselage No. 1 access cover, 200-430070-157.
- d. Jack up airframe.
- e. Cut lockwire, MS20995C32, remove four bolts, 200-822160-003 securing nose landing gear upper stopper, 200-822152-003, and then remove the stopper.

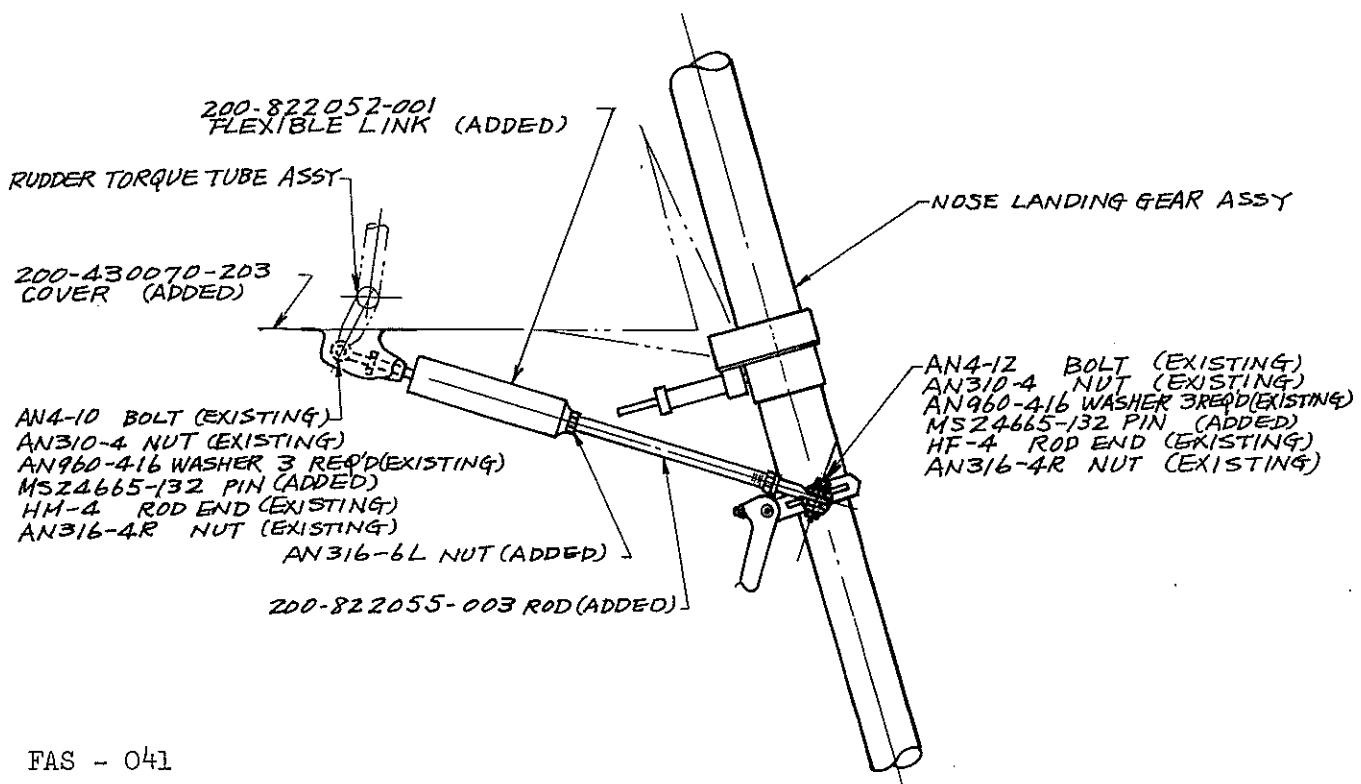
- f. Remove belt, AN3-6, nut, AN310-3, each washer, AN960-10 and AN960-10L, bush, F-0460-206007, and pin, MS24665-161, from rod, and washers, AN960D616L, and three special washers, 200-822050-003, from nose landing gear. And then remove shimmy damper, 200-822185-001.
- g. Remove the following attaching parts securing nose landing gear fitting, 200-822140-001: each bolt, 200-822041-003 and AN8-37, each nut, AN310-7 and AN310-8, one washer, AN960D716, two washers, AN960D816, and each pin, MS24665-285 and MS24665-300.
- h. Remove nose landing gear assembly from airframe.
- i. Remove the fitting, 200-822140-001, from nose landing gear assembly.
- j. Disassemble nose landing gear assembly in accordance with Service Manual, para. 9-4-8.
- k. Reassemble nose landing gear assembly in accordance with Service Manual, para. 9-4-9. Replace existing cylinder assembly, 200-822130-101, with new cylinder assembly, 200-822130-201, and also replace all O-rings on reassembly. Stamp required information on #1 and #2 placards as illustrated in figure 5, and using EC-870 adhesive, bond to nose shock strut on the area as indicated in figure 4. Hand write pressure indication marking (lettering) on the area as shown in figure 4, referring to the instruction in figure 6.
- l. Install new fitting, 200-822140-11, on reassembled nose landing gear assembly.
- m. Install nose landing gear assembly on airframe, securing with existing hardware except for cotter pins. Torque values for installing the fitting, 200-822140-11, as follow:
 - 520 to 630 IN-LBS for 200-822041-003 BOLT
 - 125 ± 25 IN-LBS for AN8-37 BOLT
- n. Install shimmy damper on nose landing gear assembly, and apply torque of approximate 180 IN-LBS.
- o. Lower and remove jack.
- p. Rework rudder rear torque tube, 200-524054-1, as illustrated in figure 2.
- q. Rework rudder front torque tube, 200-524053-1, as illustrated in figure 3.

- r. Install new fuselage No. 1 access cover, 200-430070-203.
- s. Assemble new flexible link assembly, 200-822052-001, and rod, 200-822055-003, using each rod end, HF-4 and HM-4, two lock nuts, AN316-4R, that have been removed in the above step 13-2-2, and another lock nut, AN316-6L.
- t. Attach the new flexible link assembly and rod, with piston end afterward, to rudder front torque tube and to nose landing gear cylinder as shown in figure 4. Temporarily secure with existing each bolt, AN4-12 and AN4-10, two nuts, AN310-4, six washers, AN960-416, and new two pins, MS24665-132.

NOTE

Temporarily secured hardware should be tightened after steering adjustment. Refer to step 3-2-22.

- u. Adjust steering so that nose landing gear will be parallel with airframe center line when rudder pedal set in neutral position (using rig pin).
- v. Properly tighten each nut and secure with cotter pins.
- w. Check for proper operation of nose landing gear and also of all the related systems.
- x. Check for leaking of nose landing gear assembly after 24 hour application of airplane load.



FAS - 041

PAGE 6 OF 8

FIG. 1 MODIFICATION OF STEERING MECHANISM - CHANGE NO. 1

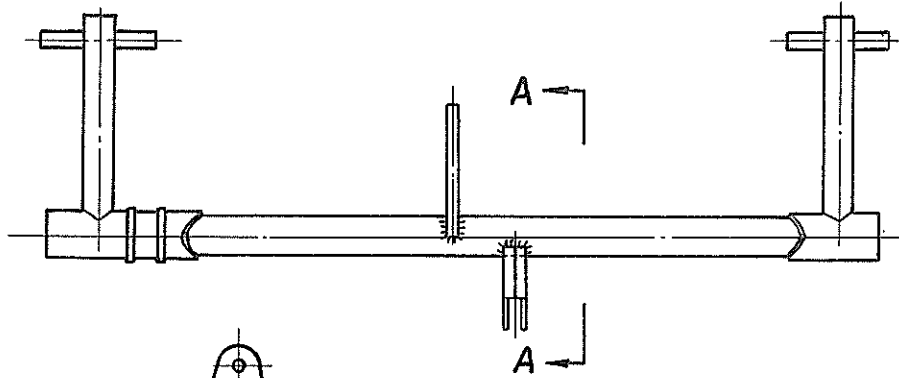
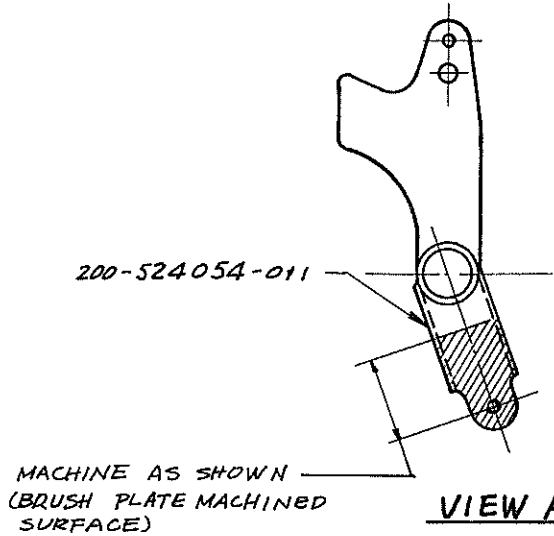


FIG. 2 RUDDER REAR TORQUE TUBE



VIEW A-A

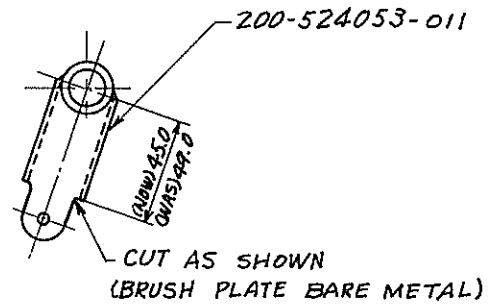


FIG. 3 RUDDER FRONT TORQUE TUBE ARM

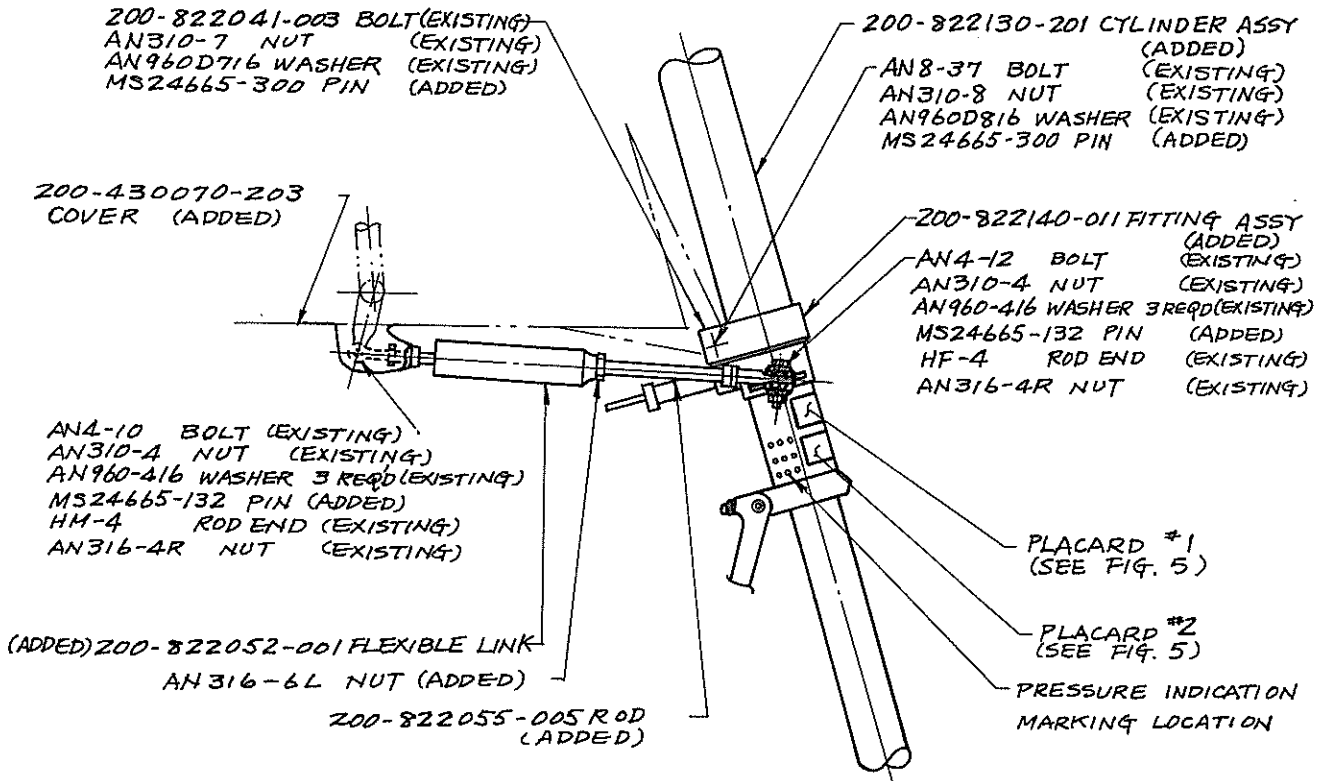


FIG. 4 MODIFICATION OF STEERING MECHANISM - CHANGE NO. 2

#1

NOSE SHOCK STRUT

200-822100-005

PART NO.

DATE	SERIAL NO.

FUJI HEAVY INDUSTRIES LTD.
UTSUNOMIYA DIVISION

#2

NOSE SHOCK STRUT

200-822100-009

PART NO.

DATE	SERIAL NO.

FUJI HEAVY INDUSTRIES LTD.
UTSUNOMIYA DIVISION

Enter existing part no. date, and serial No.

Enter new part No. modification date and the same serial No. as #1.

Figure 5 Placard Entering Information

OLEO PRESSURE

[] psi

TIRE PRESSURE

[] psi

For applicable pressure values, refer to Service Manual, para. 3-2-12 and fill in the blanks.

Figure 6 Pressure Indication Marking.