



# SERVICE BULLETIN

FUJI HEAVY INDUSTRIES LTD.

HEAD OFFICE

: SUBARU BLDG,

SHINJUKU, TOKYO, JAPAN

NO FAS-032

DATE : March 15, 1971

1. SUBJECT : Change of fuel system.
2. AIRCRAFT AFFECTED : FA-200 Series Serial Nos. 1 thru 100.
3. PRIORITY : Desirable
4. REASON : For uneven fuel consumption.
5. DESCRIPTION : Fuel shut-off valve will be changed to fuel selector valve to prevent this uneven fuel consumption.
6. ACCOMPLISHMENT : Optional.
7. APPROVAL : JCAB Approved.  
This modification will be a minor alteration and therefore subject to the Aircraft Administration rework inspection. Prior to starting this rework, contact Fuji Heavy Industry Ltd., for direction and then proceed, since this directive contains structural repair of firewall.
8. PARTS REQUIRED : The following parts are required to perform the rework as shown in next list.

PART NO.	PART NAME	QTY	REMARKS
CA-092002-3	SEAL	2	
CA-092002-5	SEAL	1	
CA-092002-7	SEAL	2	

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8. PARTS REQUIRED : (cont.)

PART NO.	PART NAME	QTY	REMARKS
200-924132-029	TUBE ASSY	1	
200-583001-119	TUBE ASSY	1	
200-924202-003	TUBE ASSY	1	
200-924202-005	TUBE ASSY	1	
200-924202-007	TUBE ASSY	1	
200-924202-009	TUBE ASSY	1	
200-924202-011	TUBE ASSY	1	
200-924202-013	TUBE ASSY	1	
200-924202-015	TUBE ASSY	1	
200-924202-017	TUBE ASSY	1	
200-924202-019	TUBE ASSY	1	
200-924203-003	SHAFT	1	
200-924204-001	HANDLE	1	
200-924205-001	COVER	1	
200-924207-003	PLACARD	1	USE JAPANESE PLACARD (U.S GAL)
200-924207-051	PLACARD	1	USE ENGLISH PLACARD (U.S GAL)
200-924207-101	PLACARD	1	USE ENGLISH PLACARD (IMP. GAL)
200-924208-003	DRAIN PIPE	1	
200-924209-003	TEE	1	
200-924213-001	PLATE	1	
200-924214-001	BRACKET INST	1	
200-924113-051	SUMP TANK ASSY	1	

8. PARTS REQUIRED : (cont.)

PART NO.	PART NAME	QTY	
200-324131-113	PLACARD	1	USE FOR FA-200-160
200-324131-113	PLACARD	1	USE FOR FA-200-180
AN3-3A	BOLT	4	
AN565D1032H-4	SET SCREW	1	
AN735D4	CLAMP	1	
AN735D6	CLAMP	1	
AN735D8	CLAMP	3	
AN737TW30	CLAMP	4	
AN742D8	CLAMP	6	5 REQ'D
AN815-8D	UNION	3	
AN832-8D	UNION	1	
AN919-12D	REDUCER	1	
AN924-8D	NUT	1	
AN935-6L	WASHER	4	
AN935-10L	WASHER	2	
AN960-6L	WASHER	4	
AN960D8	WASHER	11	5 REQ'D
AN960D10	WASHER	4	
AN960-10L	WASHER	2	
AN960D1216	WASHER	2	

8. PARTS REQUIRED : (cont.)

MS20823-8D	ELBOW	1
MS24693-S50	SCREW	2
MS25083-1BB4	JUMPER	3
MS29512-08	PACKING	1
MS35206-245	SCREW	12
MS35206-263	SCREW	2
NAS679A08W	NUT	12
NAS681A08	NUT-PLATE	2
F-0454-08016	HOSE	2

203-324131-113	PLACARD	1	USE FOR FA-200-180 (U.S GAL)
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203-324131-113	PLACARD	1	USE FOR FA-200-180 (IMP . GAL)
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TS4850 or CCA-4850	DRAIN VALVE	3
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52-022-094-0500	ROLL PIN	1
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HE-737-2	FUEL SELECTOR VALVE	1
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MIL-D-5553	DOPE	AR
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CEMEDINE #570	ADHESIVE	AR
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CEMEDINE #575	ADHESIVE	AR
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AN743-12	CLAMP	1
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MS35206-230	SCREW	4
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9. SPECIAL TOOL : None required.

10. WEIGHT AND BALANCE : Negligible.

11. REFERENCE : None.

12. MANHOUR REQUIRED : 65 manhours required.

13. DETAILED INSTRUCTIONS:

- a. Drain out fuel from fuel tank and fuel system.
- b. Remove the seat (L.H & R.H front seat) in Service Manual para. 7-7-1.
- c. Remove the root cover of L.H & R.H main wing. (See Service Manual Fig. 7-8.)
- d. Remove the First Aid Kit and portable fire extinguisher. For removal of them, refer to Service Manual para. 12-3-2 and 12-3-3.
- e. Remove the carpet reaching main spar.
- f. Remove rear seat by Service Manual para. 7-8-1.
- g. Remove floor access cover from No. 5 to No. 12 as shown in Fig. 3-5 in Service Manual and access cover from No. 1 to No. 3 in the lower fuselage.
- h. Remove two tubes running from back of firewall to shut-off valve.
- i. Remove a tube running from shut-off valve to sump tank.
- j. Remove the check valve at the both end of sump tank and remove the tube running from sump tank to the root of L.H & R.H main wing.
- k. Remove first vent tube from sump tank.
- l. Remove fuel shut-off valve.
- m. Remove sump tank.
- n. Drain out hydraulic oil from R.H brake system.
- o. Remove the brake piping, 200-583001-113, as shown in Fig. 1.
- p. Plug the all opening.
- q. The following procedures are required to perform structure reconstruction.

- (a) Make two holes to STA2070 bulkhead web as shown at View G-G'-G'' and View I-I'-I'' in Fig. 1 and Fig. 2.
- (b) Make the hole at stiffener between central pedestal on the forward area of the sump tank as shown at View I-I'-I'' in Fig. 1 and Fig. 2.
- (c) Enlarge a hole ( $12.7^R \rightarrow 15.0^R$ ) at left structure member of center pedestal as shown at view D-D in Fig. 5.
- (d) Change the hole size and hole shape for front aux spar bulkhead web as shown in View C-C of Fig. 6.
- (e) Make the hole to the lower side surface of the fuselage as shown in View E-E of Fig. 7. and adhere CA-092002-5 seal (L.H side only) with adhesive cemedine #575.
- (f) Make the hole at the right hand of lower outer skin of fuselage at STA2560, BP276.5 as shown View F-F of Fig. 8. And adhere CA-092002-7 seal with adhesive cemedine #575 to L.H & R.H side of them.
- (g) Remove the bracket, 200-432100-028, at the front of STA 2070 bulkhead, existed in inside of L.H side of center pedestal with fourteen rivets. (See Fig. 10) Rivet the unnecessary hole with same size rivet to the structure member.
- (h) Assemble the bracket, 200-924214-003, and channel, 200-924214-005 as shown in Fig. 10.
- (i) Attach the bracket and channel assembled in step (8) to the forward position of bulkhead at STA 2070, inboard of left hand face of center pedestal as shown in Fig. 10. Install the bracket, 200-924214-003, to be paid attention for up and down position of the bracket. (66.5 mm down position from upper surface of the pedestal at wp 1660)
- (j) Coat the dope (MIL-D-5553) previously to fuselage outer skin (L.H & R.H) penetrating main fuel tube as shown in the Detail J of Fig. 3. Adhere CA-092002-3 seal with adhesive cemedine #575.
- (k) Make the dimple  $100^\circ \times 0.332^{\text{IN}}$  to the nutplate installation position as shown in the note. Detail A, of Fig. 4. Use two nutplates NAS681-A08 for the nutplate NAS680-A08.
- (l) Enlarge the hole at R.H structure member of center pedestal as shown in the Detail K of Fig. 1. ( $0.567\text{IN} \rightarrow 0.775\text{IN}$  &  $0.562\text{IN} \rightarrow 0.750\text{IN}$  ).

- r. Install fuel selector valve, HE-737-2, with two screws, MS35206-263, two washers, AN960-10L, and two washers, AN935-10L to the bracket and channel attaching in step 17-(9). (See Fig. 1)
- s. Install new sump tank, 200-924113-051, to the original position with four bolts, AN-3A and four washers, AN960D10.
- t. Attach the elbow, MS20823-8D, to the fuel selector valve and install an union, AN832-8D, to the position in step 17-(12), with two washers, AN960D-1216 and one nut, AN924-8D.
- u. Install the tube, 200-924202-007 as described in step 20. Support the tube with the clamp, AN743-12, and AN742D8, two screws, MS35206-245, two nuts, NAS679A08W at the position as shown in Detail L of Fig. 1.
- v. Install the tube, 200-924202-005 and 200-924202-003 with the reducer, AN919-12D to the union described in step 20. Connect the tube, 200-924202-003, with union on firewall.
- w. Install the bonding jumper, MS25083-1BB4, with a clamp, AN735-D8, a screw, MS35206-245, a washer, AN960D8, and a screw, NAS679A08W to the tube, 200-924202-005, and center pedestal at the position shown in Detail K of Fig. 1.
- x. Install the bonding jumper, MS25083-1BB4 with a clamp, AN735D8 and a clamp, AN735D6, two screws, MS35206-245, two washers, AN960D8, two nuts, NAS679A08W, to the midway of the tube, 200-924202-005 and tube, 200-924202-003, as shown in Fig. 1.
- y. Install the brake piping, 200-583001-119 for the original brake piping, 200-583001, removed at step 19. in Fig. 1.
- z. Install the tube, 200-924202-015 and 200-924202-017 with the union, AN815-8D, to the fuel selector valve, HE737-2 and sump tank, 200-924113-015 as shown in Fig. 1.
- aa Install the tube, 200-924202-009, 200-924202-011 and 200-924202-013 with union, AN815-8D, and tee, 200-924209-003, to the line between the fuel selector valve, HE737-2, and the root of main wing as shown in Fig. 1. Install the bracket, 200-924209-003, with two screws, MS35206-245, two screws, NAS679A08W, washer, AN960D8, as shown at Q zone in Fig. 3. And then install the tube, 200-924202-013, to the former bracket with clamp, AN742D8, screw, MS35206-245, and nut, NAS679A08W.
- ab Secure the tube, 200-924202-009, 200-924202-017, with two clamps, AN742-D8, a screw, MS35206-245, and a nut, NAS679A08W.

- ac. Support the tube, 200-924202-011, with the clamp, AN742D8, screw, MS-35206-245, and nut, NAS679A08 as shown in "N" position of Fig. 1. (Use original parts)
- ad. Install new vent tube, 200-924132-029, to the position found original vent tube, 200-924132-013, which removed in above mentioned step 14. Secure the tube with clamp, AN735D4, screw, MS35206-245, and nut, NAS-679A-08W.
- ae. Install the union, AN815-8D, with packing, MS29512-D8, to the sump tank and then connect the tube, 200-924202-019.
- af. Install the hose, F-0454-08016, and two clamps, AN737TW30, to the edge of the tube, 200-924202-013, and 200-924202-019, which installed in step 30 and step 34. Connect it to the piping of main wing.
- ag. Install the bonding jumper, MS25083-1BB4 with screw, MS35206-245, nut, NAS679A08W, clamp, AN735D8, washer, AN960D8, to the tube, 200-924202-019, and sump tank mounting ("P" position) installed in step 34.
- ah. Install the drain tube, 200-924208-003 and the drain valve, TS4850 or CCA-4850 for fuel selector valve.
- ai. Connect the shaft, 200-924203-003 to the fuel selector valve and drill the hole with tolerance from 0.097IN to 0.094IN for roll pin, and insert the roll pin, 52-022-094-0500.
- aj. Install the cover, 200-924205-001, with a placard (U.S GAL -- in case of Japanese), 200-924207-003, or a placard (U.S GAL -- in case of English), 200-924207-051, or a placard (IMP GAL -- in case of English), 924207-101, as necessary.
- ak. Pass the shaft of fuel selector valve assembled in the former step, secure it to the center pedestal with seven screws, MS35206-245. Cut away the structure member to prevent the contact the nutplate of plate as shown in zone R of Fig. 4.  
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- al. Install the handle, 200-924204-001 with pin, AN565D1032H-4, to the shaft described in former step 38.
- am. Install the drain valve, TS4850 or CCA-4850, to the sump tank, 200-924113-051 and tee described in former step 30.
- an. Change the placard as shown in instrument panel in Fig. 9. For FA-200-200-18- Airplane, use US GAL Japanese Sentence placard, 203-324131-103, US GAL English Sentence placard, 203-324131-113, IMP GAL English Sentence placard, 203-324131-113.

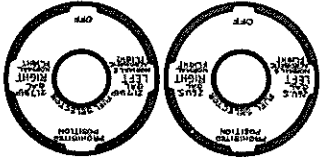


an (cont.)

For FA-200-160 Airplane, use US GAL Japanese Sentense placard, 200-324131-103, US GAL English Sentense placard, 200-324131-113, and IMP GAL English Sentense placard, 200-324131-113.

- ao Install the parts removed from former step 1 to step 13 and step 15 reversed order of removal procedure.
- ap Fill hydraulic oil for R.H brake system and bleed air from this system in accordance with Service Manual para. 9-5-11 and check leak.
- aq Flush the fuel system. Fill the fuel tank and fuel system. Check the leakage for fuel tank and fuel system.

14. REVISION OF FLIGHT MANUAL: Upon completion of above modification, the application flight manual shall also be revised as stated below and subject to approval of Aviation Bureau.

ITEM	DESCRIPTION	STATEMENT BEFORE REVISION	REVISED STATEMENT								
1-9 REVISED ITEM 1-10	PLACARDS	FUEL BOOSTER PUMP ON DURING ACROBATIC FLIGHT	FUEL BOOSTER PUMP "ON" AND FUEL SELECTOR VALVE "LEFT" DURING ACROBATIC FLIGHT								
1-9	PLACARDS	ON FUEL SHUT-OFF VALVE  <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>ON</td> <td>F</td> </tr> <tr> <td></td> <td>U</td> </tr> <tr> <td></td> <td>E</td> </tr> <tr> <td>OFF</td> <td>L</td> </tr> </table>	ON	F		U		E	OFF	L	ON FUEL SELECTOR VALVE  
ON	F										
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3-1-1	ENGINE FAILURE DURING TAKE OFF	(3) FUEL SHUT-OFF VALVE --- OFF	(3) FUEL SELECTOR VALVE ----- OFF								
3-1-1	WHEN SUFFICIENT LENGTH OF RUNWAY IS NOT LEFT IN CASE OF ENGINE FAILURE AFTER LIFT-OFF	(4) FUEL SHUT-OFF VALVE --- OFF	(4) FUEL SELECTOR VALVE ----- OFF								
3-1-3	ENGINE FAILURE DURING FLIGHT	(2) (a) FUEL SHUT-OFF VALVE ----- CHECK ON	(2) (a) FUEL SELECTOR VALVE --- CHECK, FULLEST TANK.								

14. REVISION OF FLIGHT MANUAL: (cont.)

ITEM	DESCRIPTION	STATEMENT BEFORE REVISION	REVISED STATEMENT
3-1-3	ENGINE FAILURE DURING FLIGHT	(3) (e) FUEL SHUT-OFF VALVE ----- OFF	(3) (e) FUEL SELECTOR VALVE --- OFF
3-2-1	ENGINE FIRE DURING ENGINE START	(3) FUEL SHUT-OFF VALVE ----- OFF	(3) FUEL SELECTOR VALVE -- OFF
3-2-2	ENGINE FIRE DURING FLIGHT	(3) FUEL SHUT-OFF VALVE ----- OFF	(3) FUEL SELECTOR VALVE -- OFF
2-2	ENGINE STARTING	(1) FUEL SHUT-OFF VALVE ----- ON	(1) FUEL SELECTOR VALVE ----- FULLEST TANK
2-6	CHECK BEFORE TAKE-OFF	(2) FUEL SHUT-OFF VALVE ----- ON	(2) FUEL SELECTOR VALVE ----- FULLEST TANK
2-9	CRUISE		During Cruise, fuel should be used from the left and right tanks alternately, to avoid wing-heaviness. The difference of the fuel remaining in each tank should not exceed 1/8.
2-12	CHECK BEFORE LANDING	(2) FUEL SHUT-OFF VALVE ----- ON	(2) FUEL SELECTOR VALVE --- CHECK. FULLEST TANK
2-10	ACROBAT	(2) Before acrobatic maneuvers, fuel booster pump ----- ON	(2) Before acrobatic maneuvers, set fuel selector valve "LEFT" and fuel booster pump ON.
2-16	STOP	(7) FUEL SHUT-OFF VALVE ----- OFF	(7) FUEL SELECTOR VALVE -- OFF





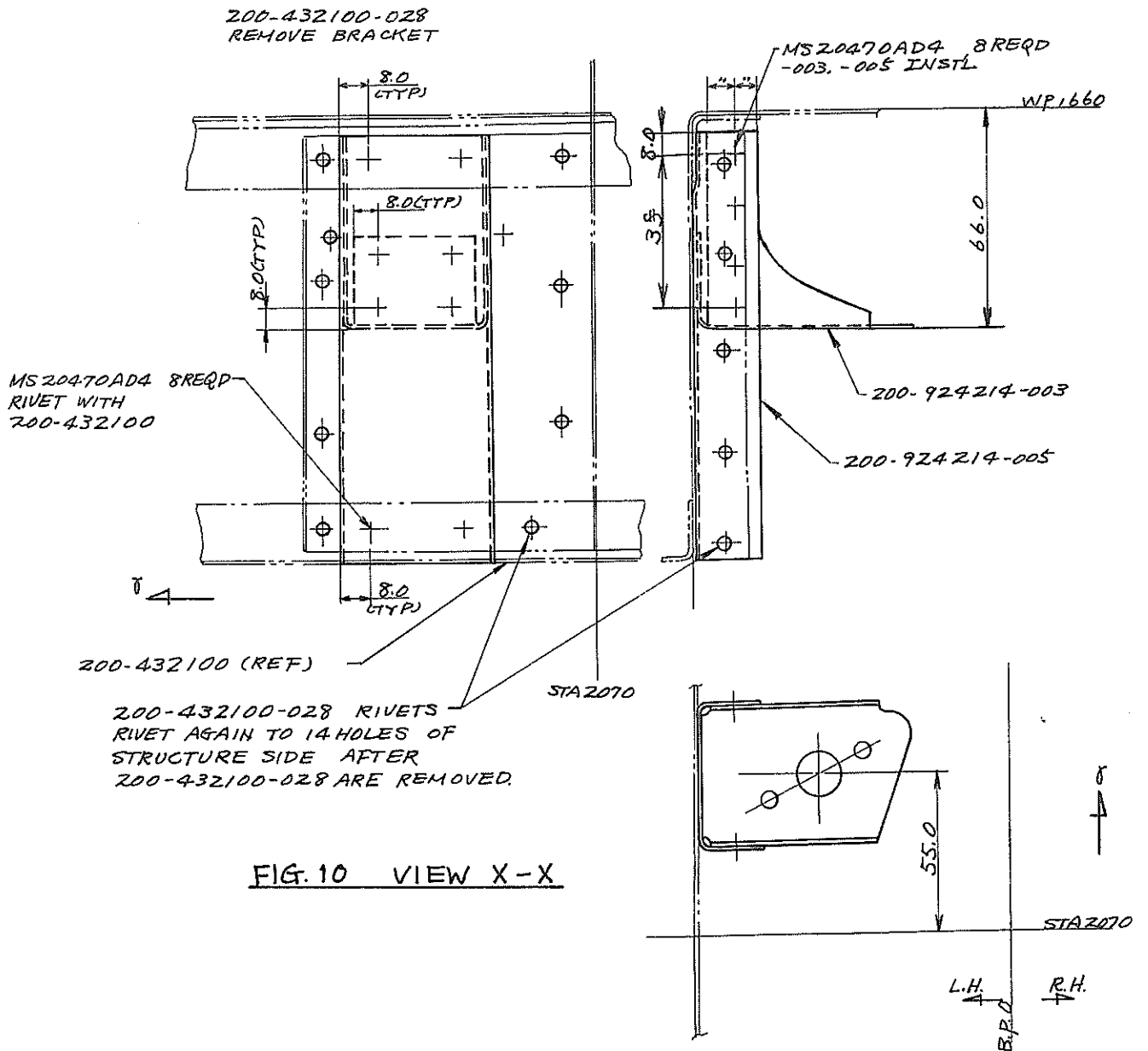


FIG. 10 VIEW X-X