



Reference <b>Airplane 91B, 91B-2, 91C and 91D Rudder</b> Introducing of rudder trim tab and rudder trim tab control	Date <b>January 8, 1960</b>	No.  <b>91.3/4</b>
	Scab Service Dept. <b>B Carlsson</b> <i>[Signature]</i>	
Urgency <b>IV</b>	Scab Design. Dept. <b>J Boklund</b> <i>[Signature]</i>	
	Royal Swedish Board of Civil Aviation <b>S Fogelström</b> <i>[Signature]</i>	

Marking	Effect on weight distribution		
	Weight change lbs	Station in.	Moment change lbsin.

Time of delivery for necessary parts  
**3 months after order**

K/K

Drawings: Not essential

1135115

Trim tab control rudder.

Parts required per plane:

Ref No in Figure I and II

01	1	Pulley	1146389	
02	1	U-Profile	1146391	
03	1	Friction ring	1146393	
04	1	Bearing	1146395	
05	1	Wheel	1146397	
06	1	Coil spring	531299	
07	1	Sign	1151099	Text in English
	1	Sign	1146413	Text in Swedish
08	1	Bracket	SA 9101009	
09	1	Bracket	SA 9101010	
10	1	Trim tab	SA 9101008	
11	1	Bracket	1146431	ur
12	1	Bracket	1146399	ur
13	1	Tube	1146401	ur
14	1	Sheet	1146403	ur
15	1	Bakelite	1146405	ur
16	1	Sheet	1146407	ur
17	1	Bakelite	1146409	ur
18	2	Bakelite	1151115	ur
19	2	Sheet	1151117	ur

Aircraft concerned:

91B, 91B-2, 91C, 91D

Spare parts involved:

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<u>Ref No</u>	<u>in Figure</u>			
20	1	Sheet	1146404	ur
21	2	Screw	AS 212126-M5x22	
22	1	Screw	AS 212124-M5x20	
23	4	Screw	AS 212105-2,1x5	
24	2	Screw	AS 212116-M4x14	
25	2	Clamp	AS 216519-6	
26	2	Nut	AS 215402-M4	
27	4	Nut	AS 215402-M5	
28	2	Washer	AS 215101-4,1	Alumin
29	4	Washer	AS 215101-5,1	Alumin
30	2	Washer	AS 215101-10,1	Alumin
31	1	Split pin	AS 211401-2x18	
32	1	Tapered pin	AS 211201-2,3x26	
33	2	Screw	AS 212126-M5x16	
34	1	Wire	AS 218487-1,8-C-C-H	L=7900 mm
35	1	Piano wire	1146433	ur
36	1	Piano wire	1146435	ur
37	4	Piano wire	1146437	ur
38	2	Bowden cable	AS 218905-2,5	L=1150 mm
39	4	End sleeve	AS 218906-4,5	
40	2	Turn-buckle nut	AS 218496-M4x80	
41	2	Eye screw	AS 218417-M4.V	
42	1	Spacer	1152533	ur Alumin
43	1	Bearing	1154435	
44	1	Stop arm	1154437	
45	1	Spacer tube	AS 215505-4,5x15	
46	1	Screw	AS 212116-M4x24	
47	1	Nut	AS 215402-174	
	6	Rivet	AS 211502-2,5x8	Alumin 3514-3
	26	Rivet	AS 211502-2,5x11	Alumin 3514-3
	1	Rivet	AS 211501-2,5x20	Alumin 3514-3
	7	Rivet	AS 211502-3,2x11	Alumin 3514-3
	4	Rivet	AS 211501-3,2x20	Alumin 3514-3
	6	Rivet	AS 211501-4,0x9	Alumin 3514-3

Parts to be rejected

1	Trim tab	507113	ur
1	Bracket	SA 590223	

In order to facilitate trimming of the rudder a trim tab controllable from the cockpit can be introduced.

Work procedure:

Rivet the bearings item 04 to U-profile item 02 and bearing item 43 to bracket item 12 with rivet LFN 2,5 acc. to fig 1.  
Check that the holes in the bearings is align with the holes in the U-profile and the bracket.  
Remove the cover from the centre casing for the landing gear lever and wing flap lever.  
Drill out 2 rivets in the web for main spar and enlarge the holes in the web and the U-profile by drilling them together using a  $\phi$  5,1 mm (13/64") drill.  
Fit the U-profile with screws item 33 view A-A, fig 1.  
Drill and rivet bracket item 12 and spacer item 42 to main spar acc. to fig 1.  
Use tube item 13 for centration of bracket item 12 in relation to the U-profile item 02.  
Drill a hole  $\phi$  4,1 mm in bracket item 12 and support bracket for sheet panel and fit screw item 46 and spacer tube item 45 acc. to fig 1 and view N-N.  
Fit internal tapered friction ring item 03 and pulley item 01 to tube item 13.  
Mark the hole of the pulley on the tube item 13. Remove the pulley and the bearing and drill a hole across the tube  $\phi$  5,1 mm (13/64").  
Fit stop arm item 44 to the tube acc. to fig 1. The stop arm is later to be riveted to the tube.  
Fit washers item 30, coil spring item 06, bearing item 03 and pulley item 01 view A-A fig 1.  
Fix pulley to the tube by screw item 22. Press the pulley to locking position in friction ring item 03. Drill the friction ring and the U-profile together by a  $\phi$  5,1 mm (13/64") drill and fit the friction ring item 03 to the U-profile item 02 by screw item 21 view D fig 1.  
With the pulley in locked position, mark the tube 43 mm (1 45/64") from the U-profile item 02 and drill a hole  $\phi$  2,1 mm (3/32") across the tube.  
Compress the coil spring item 06 and lock by split pin item 31 view A-A fig 1.  
Check that the locking is in order by turning the tube.  
Press the tube downwards and check that the tube can be turned easily.  
Remove the rear floor and fit the guides for the wires acc. to view B-B, C-C and L-L fig 1.  
The guides for the wires acc. to view B-B fig 1 has to be fitted from the RH wheel well main landing gear.  
Open the inspection door at the left side of the fuselage in front of the stabilizer and slacken the tension of the wires for elevator trim enough to release the bowden cable through the slot in the bracket at sta. 6550.  
Remove the existing bracket by drilling out the rivets and fit the new one item 08 view F-F and E-E fig 2.  
Restore the control wires for elevator trim tab.  
Dismount the rudder and cut a slot in the fabric enough to fit the bracket item 09.

Fit the bracket item 09 on the rudder  $\sim$  242 mm ( $9\frac{1}{2}$ " ) from the trailing edge view KA-KA fig 2.

The slot and the reinforcement of the fabric has to be made similar to the elevator trim.

Remove the existing trim tab by drilling out the rivets. Fit the trim tab item 10 by rivets view K and K-K, fig 2.

Take about 3700 mm ( $12'1\frac{1}{2}$ " ) wire item 34, loosen the screw in pulley item 01 view D fig 1 enough to insert the wire under the head of the screw.

Tighten the screw and wind the wire one turn each way around the pulley.

Pass the wire through all guides back to sta. 6550.

Check that the end pieces is displaced in relation to each other view E-E fig 2.

Fit piano wire item 35 and item 36 to the trim tab and secure by wire item 37 view K and KA-KA fig 2.

Adjust the tension of the wire for elevator and rudder trim just enough to avoid sliding (Overtauting of the wires will cause excessive friction in the guides).

Lock the turnbuckles by lockwire.

Mill a recess in the cover for the centre casing acc. to view N-N.

Drill 4  $\phi$  1,9 mm ( $5/64$ " ) holes in the cover opposite the holes in the sign item 07.

Enlarge the holes in the sign to  $\phi$  2,6 mm ( $7/64$ " ).

Fit the sign.

Put the trim tab neutral, fix the control wheel on the tube at zero position and drill and ream the hole for the tapered pin item 32 fig 1. Fit the tapered pin and bend the splitted ends close to the wheel.

Set the trim tab in neutral position and drill the stop arm item 44 together with the tube item 43 and rivet the stop arm to the tube acc. to fig 1 view N-N.

Note. The play between the stop arm and the bracket item 12 shall be 3 mm ( $1/8$ " ) when the tube is in locked position acc. to fig 1.

Operate the whole unit and check for the centre casing acc. to view N-N.



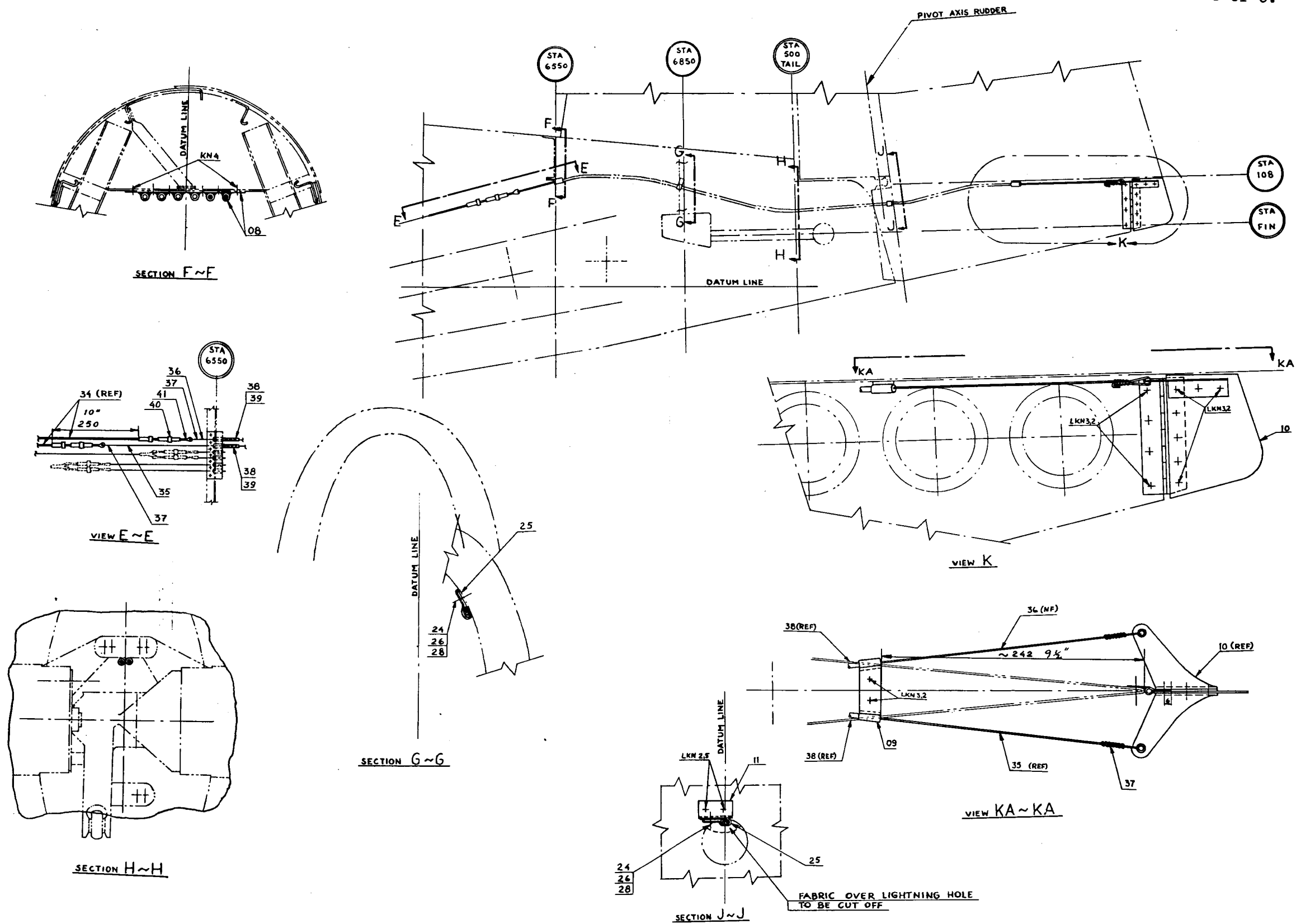


Fig. 2