Rudder Flying Controls Functional Check

AFSC
43151 43171
42152 42172

TIME EST

Safety and Servicing Notes are to be complied with throughout the work detailed on this card.

SPECIAL TOOLS AND EQUIPMENT

Rudder travel gauge (26DK/95286).
Control column setting rig (26DK/95778) (F53).
Control column setting rig (26DK/95828) (T55).
Auto-stabilizer neutral setting pin (26DK/95134).
Locating pin (26DK/95127).
Spring balance (0-10 LBS) (1A/1943999).
Spring balance (0-33 LBS) (1A/4675025).
Pitot/Static test set (6C/1042139).
Clinometer (1A/4046).

ASSOCIATED PROCEDURES

SP602(AF)
603(AF)

43151

1. PREPARATION

1.1	Aircraft.	(i) Raise on jacks until all wheels are clear of ground. (ii) Trestle at frame 59.

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2. PREPARATION

2.1	Ground air charging/ release connexion (Access panel 63P (left)).	Remove blank.
2.2	Services system hydraulic pressure.	Release pressure by operating brake lever.
2.3	Hydraulic test trolleys.	(i) Prime. (ii) Bleed.
2.4	No.1 Services ground test connexions (Access panel 45P (left)).	Connect hydraulic test trolleys.
2.5	No.1 Controls ground test connexions (Access panel 45P (left)).	Connect hydraulic test trolleys.
2.6	No.2 Controls ground test connexions (Access panel 67P (left)).	Connect hydraulic test trolleys.
2.7	Hydraulic reservoirs.	Replenish (SP 603(AF)).

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2. PREPARATION (Contd)

2.8	Hydraulic accumulators.	Check pressures (SP 602(AF)).
2.9	Tyre inflation rig (4G/1050542).	(i) Connect to ground air charging/release connexion (Access panel 63P (left). (ii) Set rig to deliver a pressure of between 16 and 18 lbf/in2.
2.10	External d.c. power supply.	(i) Connect. (ii) Set to ON.
2.11	External a.c. power supply.	(i) Connect. (ii) Set to ON.
2.12	MRG switch.	Set to OFF.
2.13	STAB switch (On controller) (See Fig.1).	Set to OFF.
2.14	Autopilot engage switch (on control column) (See Fig.1).	Set to OFF.
2.15	Instrument master switch (See Fig.1).	Set to OFF.
2.16	Autopilot master switch (on controller) (See Fig.1).	Set to OFF.
2.17	Rudder auto-stabilizer actuator.	(i) Set to neutral using aircraft hand pump. (ii) Check neutral using setting pin (26DK/95134).
2.18	Rudder auto-stabilizer actuator.	Remove setting pin.
2.19	Rudder travel gauge.	Fit (26DK/95286).
2.20	Main undercarriage.	Ensure ground locks fitted.
2.21	Nose undercarriage.	Remove ground lock.
2.22	Pitot/Static test set.	Connect.
2.23	Pitot/Static system.	Pressurize to equivalent of 165 Kt.

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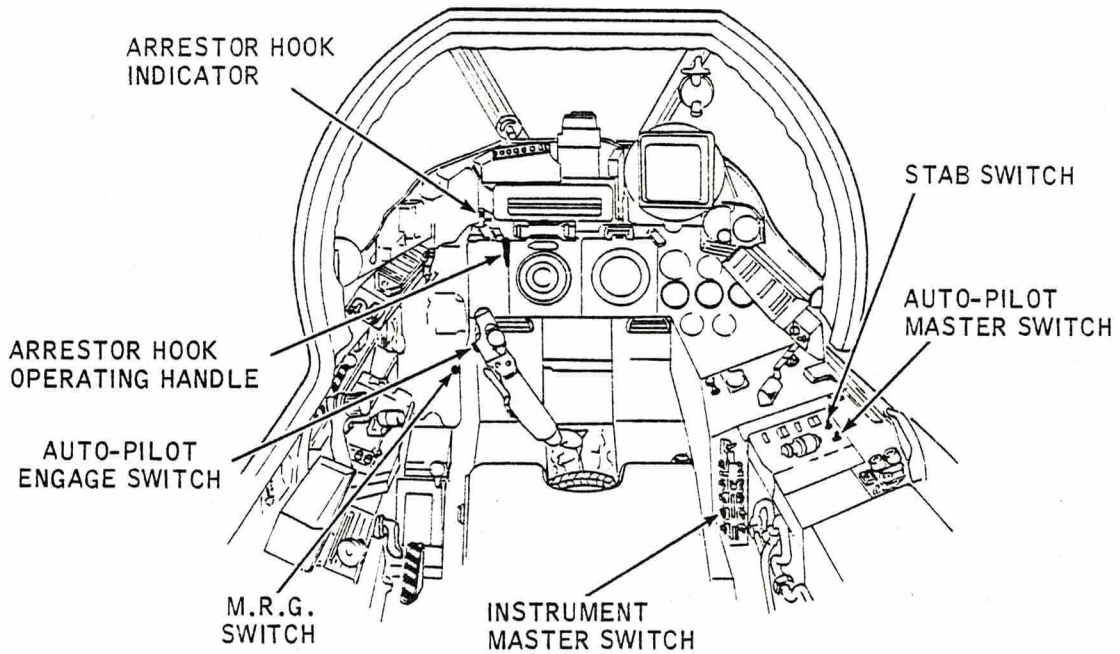
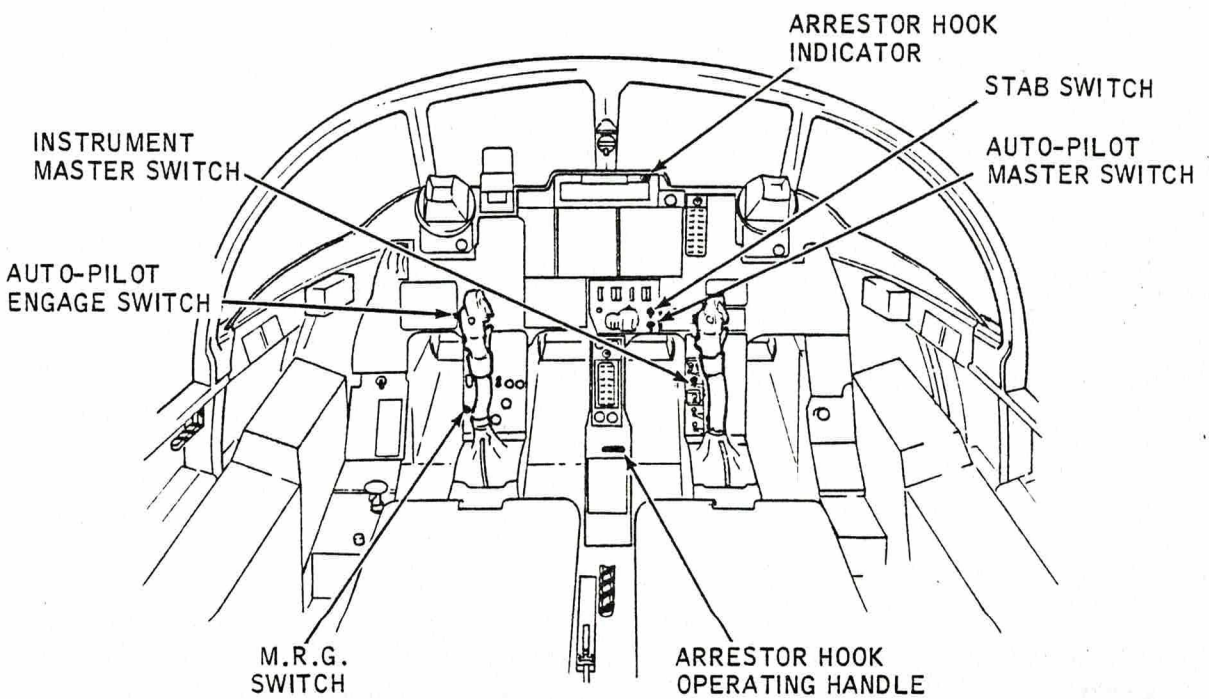


MK.53



MK.55

INSTRUMENT AND AUTO-PILOT SWITCHES MK F53 AND T55
FIGURE 1

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2. PREPARATION (Contd)

2.24 Undercarriage toggle switch.	Select to UP.
2.25 Nose Undercarriage.	Raise, using test trolley hand pump until indicator lamp is extinguished.
2.26 Services system.	Pressurize to 3000 lbf/in2.
2.27 No.1 Controls.	Pressurize to 3000 lbf/in2.
2.28 Pitot/Static system.	Pressurize to equivalent of 650 Kt.
2.29 Feel selector.	Ensure set to ON.
2.30 Rudder trim.	Trim to neutral ensuring indication on gauge is correct.
2.31 Rudder control system vertical torque shaft (Access panel 26S (right) (F53)),(Access panel 20S (right) (T55)).	Fit locating pin (26DK/95127).

NOTE: In item 2.32 ascertain from airframe log card any deviation from the standard detailed.

2.32 Rudder.	Ensure neutral.
2.33 Rudder control system vertical torque shaft.	Remove locating pin.
2.34 Pitot/Static system.	Release pressure.
2.35 Autopilot master switch.	Set to OFF.
2.36 Instrument master switch.	Set to OFF.
2.37 External d.c. power supply.	Set to OFF.
2.38 External a.c. power supply.	Set to OFF.
2.39 Rudder bar(right rudder bar (T55)).	Fit control column setting rig (26DK/95778-F53), (26DK/95828-T55).

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Safety and Servicing Notes are to be complied with throughout the work detailed on this card.

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2. PREPARATION (Contd)

2.40	Rudder.	Ensure neutral.
2.41	Rudder bar.	Remove control column setting rig.

NOTE: Items 3 to 11 inclusive are applicable to pilot's controls F53 aircraft, and instructor's and pupil's controls T55 aircraft.

3. SMOOTHNESS CHECK (FEEL ON AND OFF)

3.1	Rudder bar.	Operate through full range.
3.2	Rudder.	(i) Ensure consistent smoothness of movement. (ii) Ensure correct sense of movement.

4. CENTRING CHECK (FEEL ON)

4.1	Rudder bar.	(i) Set fully to left. (ii) Permit to return under restraint. (iii) Check feet off position is within 0.25in of neutral - F53 (1.5 degrees - T55). (iv) Set fully to right. (v) Permit to return under restraint. (vi) Check feel off position is within 0.25in of neutral - F53 (1.5 degrees - T55).

5. CENTRING CHECK (FEEL OFF)

5.1	External d.c. power.	Set to ON.
5.2	Feel.	Set to OFF (raise guard and depress switch).
5.3	Rudder bar.	(i) Set fully to left. (ii) Permit to return under restraint. (iii) Check feet off position is within 2.5 degrees of neutral - F53 (0.40in. T55).

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Safety and Servicing Notes are to be complied with throughout the work detailed on this card.

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5. CENTRING CHECK (FEEL OFF) (Contd)

5.3	Rudder bar (contd).	(iv)	Set fully to right.
		(v)	Permit to return under restraint.
		(vi)	Check feet off position is within 2.5 degrees of neutral - F53 (0.40in - T55)

6. FRICTION CHECK

6.1	Left rudder pedal.	(i)	Connect spring balance (1A/1943999).
		(ii)	Check initial pull on spring balance required to move rudder does not exceed 2 lbs - F53 (8 lbs - T55).
		(iii)	Remove spring balance.
6.2	Right rudder pedal.	(i)	Connect spring balance (1A/1943999).
		(ii)	Check initial pull on spring balance required to move rudder does not exceed 4 lbs - F53 (6 lbs - T55).
		(iii)	Remove spring balance.

7. RANGE OF MOVEMENT CHECK (FEEL ON)

7.1	Rudder bar.	Set to neutral.	
7.2	Rudder.	Ensure neutral.	
7.3	Trim indicator.	Ensure neutral.	
7.4	Rudder bar (Right T55).	Move fully to left.	
7.5	Rudder.	(i)	Check rudder is 21.5 degrees PLUS OR MINUS 0.5 degrees to left.
		(ii)	Adjust Rudder bar stops if required.
7.6	Rudder bar (Right T55).	Move fully to right.	
7.7	Rudder.	(i)	Check rudder is 21.5 degrees PLUS OR MINUS 0.5 degrees to right.
		(ii)	Adjust Rudder bar stops, if required.
7.8	Rudder bar (Right T55).	Return to neutral.	
7.9	Rudder bar (Left T55).	Adjust left rudder bar limit stops in line with right rudder bar stops.	

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7. RANGE OF MOVEMENT CHECK (FEEL ON) (Contd)

7.10	Input lever stops.	(i) Operate rudder bar fully left. Check appropriate input lever stop clearance is 0.020 in. (ii) Operate rudder bar fully right. Check appropriate input lever stop clearance is 0.020 in.
8.	TRIM RANGE CHECK	
8.1	External d.c. power supply.	Set to ON.
8.2	External a.c. power supply.	Set to ON.
8.3	Pitot/Static system.	Pressurize to equivalent of 650 Kt.
8.4	Feel selector.	Set to ON.
8.5	Trim switch.	Set to LEFT.
8.6	Rudder.	Check trim range is 3 degrees 43 minutes to left.
8.7	Trim indicator.	Ensure indication is correct.
8.8	Trim switch.	Set to right.
8.9	Rudder.	Check trim range is 3 degrees 43 minutes to right.
8.10	Trim indicator.	Ensure indication is correct.
8.11	Trim switch.	Set to NEUTRAL.
8.12	Pitot/Static system.	Release pressure.
9.	SPRING FEEL CHECK	
9.1	No.1 control system.	Release hydraulic pressure.
9.2	No.2 control sustem.	Pressurize to 3000 lbf/in2.
9.3	Feel selector.	Set to OFF.
9.4	Rudder bar.	Ensure neutral.
9.5	Right rudder pedal.	(i) Displace 1.5 ins forward. (ii) Check that force is 68 lbs PLUS OR MINUS - 5 lbs F53 (60 lbs PLUS OR MINUS 5 lbs - F53). (iii) Displace 3 ins. forward.

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Safety and Servicing Notes are to be complied with throughout the work detailed on this card.

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9. SPRING FEEL CHECK (Contd)

9.5	Right rudder pedal. (Contd)	(iv) Check that force is 130 lbs PLUS OR MINUS 10 lbs - F53 (115 lbs PLUS OR MINUS 10 lbs - T55).
9.6	Left rudder pedal.	(i) Displace 1.50 in. forward. (ii) Check that force is 63 lbs PLUS OR MINUS 5 lbs - F53, (60 lbs PLUS OR MINUS 5 lbs - T55). (iii) Displace 3.0 in. forward. (iv) Check that force is 128 lbs. PLUS OR MINUS 10 lbs - F53 (110 lbs PLUS OR MINUS 10 lbs - T55).

10. FEEL PERFORMANCE CHECK

10.1	Rudder bar.	Ensure trimmed neutral.
10.2	Feel selector.	Set to ON.
10.3	Right rudder pedal.	(i) Displace 2.0in forward. (ii) Check force is 158 lbs PLUS OR MINUS 10 lbs - F53, (125 lbs PLUS OR MINUS 10 lbs - T55).
10.4	Rudder bar.	Move to neutral.
10.5	Left rudder pedal.	(i) Displace 2.0 in. forward. (ii) Check force is 138 lbs PLUS OR MINUS 10 lbs - F53, (120 lbs PLUS OR MINUS 10 lbs - T55).
10.6	Rudder bar.	Move to neutral.
10.7	Pitot/Static system.	Pressurize to equivalent of 500 Kt.
10.8	Right rudder pedal.	(i) Displace 0.75 in. forward. (ii) Check force is 135 lbs PLUS OR MINUS 15 lbs - F53, (120 lbs PLUS OR MINUS 15 lbs - T55).
10.9	Rudder bar.	Move to neutral.

Continued

Safety and Servicing Notes are to be complied with throughout the work detailed on this card.

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10. FEEL PERFORMANCE CHECK (Contd)

10.10	Left rudder pedal.	(i) Displace 0.75ins forward. (ii) Check force is 100lbs PLUS OR MINUS 15lbs - F53, (110lbs PLUS OR MINUS 15lbs - T55).
10.11	Rudder bar.	Move to neutral.

11. INTERACTION CHECK

11.1	Control column.	(i) Fit control column setting rig (26DK/95778 - F53 and 26DK/95828 - T55). (ii) Using clinometer (1A/4046) on platform of rig, move aft to approximately 3 degrees off stop. (iii) Attach spring balance (1A/1943999) 15.50 in. from pivot.
11.2	Instrument master switch.	Ensure set to ON.
11.3	Pitot/Static system.	Pressurize to equivalent of 250 Kt.

NOTE: In sub-item 11.4 one stroke is defined as a movement of pedals from neutral to stated position and back to neutral.

11.4	Rudder bar.	Allow 2 minutes for instruments to stabilize, then operate to give approximately 15 degrees of rudder movement, left and right at a rate of 2 strokes per sec.
11.5	Control column.	(i) Check pulse felt at control column does not exceed 2lbs on spring balance. (ii) Remove spring balance. (iii) Remove control column setting rig.

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12. INSPECTION STAGE

12.1	Inspect.	After component replacement or if system has been disassembled.

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13. GENERAL

13.1	Feel selector.	Set to OFF.
13.2	Instrument master switch.	Set to OFF.
13.3	Undercarriage toggle switch.	Set to DOWN.
13.4	Pitot/Static test set.	(i) Release pressure. (ii) Remove.

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14. INDEPENDENT CHECKS

NOTE: The independent checks detailed in this item are to ensure that the undercarriage hydel selector slide valve is correctly positioned and must be carried out by specialist inspectors who have not been directly concerned with the operations detailed in this servicing procedure, before lowering the aircraft off jacks.

14.1	Undercarriage toggle switch.	Ensure set to down.
14.2	Services system.	Pressure to 3000lbf/in2.
14.3	Undercarriage indicator lamps (green) (F53: quantity 3, T55: quantity 6).	Ensure lit.
14.4	Undercarriage ground locks.	Fit.
14.5	Aircraft job card.	Endorse as follows: Certified I have personnaly carried out the independent checks detailed in servicing procedure BAC F53 and T55 (SA) 5A3A Section 1 SP 115(AF).

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15. COMPLETION

15.1	External d.c. power supply.	(i) Set to OFF. (ii) Disconnect.

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15. COMPLETETION (Contd)

15.2	External a.c. power supply.	(i) (ii)	Set to OFF. Disconnect.
15.3	Ground equipment.	(i) (ii)	Operate to lower aircraft. Remove from vicinity of aircraft.
15.4	Tyre inflation rig (4G/1050542).	(i) (ii)	Disconnect at ground air charging/release connexion. Fit blank and wirelock.
15.5	Hydraulic test trolleys.	(i) (ii)	Disconnect. Remove.
15.6	Hydraulic pump quick release connexions (Services and No.1 controls) (Access panel 45P(left)).	(i) (ii)	Reconnect to aircraft. Wirelock.
15.7	Hydraulic pump quick release connexions (No.2 controls) (Access panel 67P (left)).	(i) (ii)	Reconnect to aircraft. Wirelock.
15.8	Hydraulic reservoirs.	Replenish (SP 603(AF)).	
15.9	Access panels.	Refit.	

NOTE: All wirelocking to be of 22 SWG stainless steel locking wire unless otherwise stated.