

*UNCLAS*  
**CF-105 SERVICE DATA**

Section **Flying Controls** *25 sets*

*11* **Mechanical** *ABully*

**CONFIDENTIAL** *AVBS*

*ANALYZED*

ANALYZED

CONFIDENTIAL

CF-105 SERVICE DATA

Section 11

Classification cancelled / Changed to UNCLASS

By authority of AVRS

Date 27 SEP 66

Signature [Signature]

Unit / Rank / Appointment AVRS

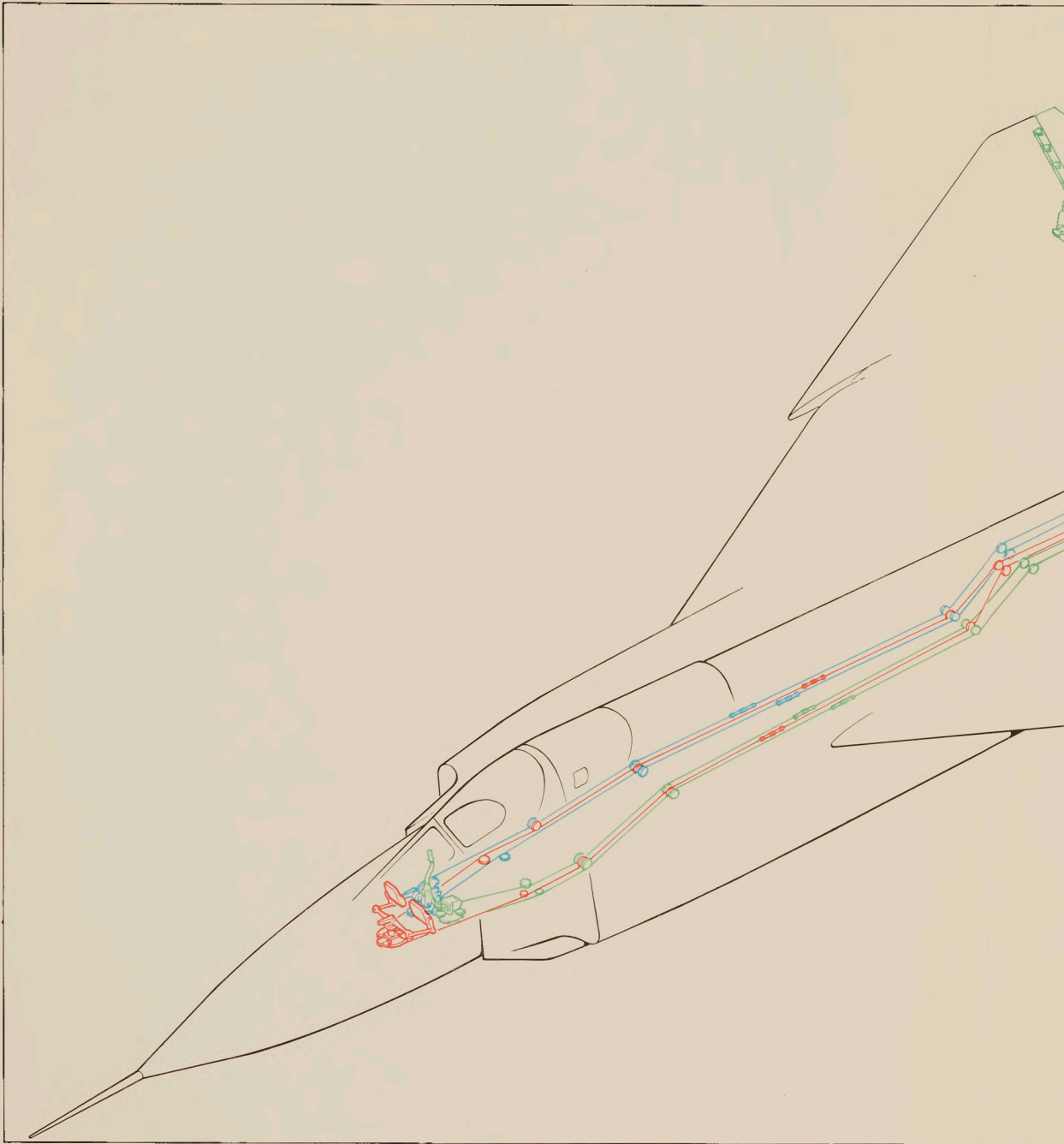
FLYING CONTROLS MECHANICAL

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CF-105 SERVICE DATA



FIG. 1 FLYING CONTROLS - SCHEMATIC

CF-105 SERVICE DATA  
SYSTEM DATA SHEET

SYSTEM	SUB-SYSTEM	AIRCRAFT EFFTY	REF. NO.
FLYING CONTROLS MECHANICAL		25201	15
<p>DESCRIPTION</p> <p>General</p> <p>1. The flying controls are fully power operated by a system which comprises mechanical, hydraulic and electrical components. Power operation eliminates the necessity for mass balancing and also permits the entire surfaces to be trimmed, thus eliminating the need for trimmer tabs. No control is possible without hydraulic power.</p> <p>2. The system will give full rate operation throughout a hydraulic fluid temperature range of 0°F to 275°F. A limited rate performance will be given at temperatures down to -20°F, but at temperatures below -20°F it is necessary to warm up the hydraulic fluid before flight by running the engines and operating the controls. Warm-up from -65°F to 0°F takes approximately six minutes.</p> <p>3. Incorporated in the flying control system is an automatic artificial damping system which has the effect of adjusting the control surfaces to suit the aircraft stability requirements.</p> <p>Modes of Control</p> <p>4. There are three modes of control:</p> <p>(a) Normal mode.</p> <p>(b) Automatic flight mode.</p> <p>(c) Emergency mode.</p> <p>Normal Mode</p> <p>5. The normal mode is the primary mode of operation. Forces exerted on the control column are converted into electrical signals by an electrical force transducer incorporated in the aileron and elevator circuits in the front fuselage. The signals are then passed through magnetic amplifiers to control command servos in the respective control circuits. The command servos are electro-hydraulic units which convert the amplified signals into hydraulic power to operate a hydraulic actuator for each control surface. A control valve fitted on each actuator, directs the fluid to the appropriate side of the actuator piston, which is linked mechanically to the control surface.</p> <p>6. During command servo operation, rudder movement for turn co-ordination is controlled by the damping system and its associated electronics.</p> <p>7. Intentional yawing is achieved by pushing the rudder pedal with sufficient force, (approximately 30 lb) to overcome a force switch which breaks the turn co-ordination circuit. The force switch is located on the rudder bar assembly.</p>			
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8. Pilot 'feel' in the normal mode is provided by the electronic system.

Automatic Flight Mode

9. During automatic flight mode of control, signals received from ground control stations or from the aircraft fire control system, are fed to the automatic flight control system and are then relayed to the command servos, to be converted as described in para 5 into control surface movements.

10. Override of the automatic control is achieved by applying to the control column a force of approximately 60 lb for the elevator system, or 30 lb for the aileron system, to overpower the relief settings of the command servos.

11. An automatic flight control disconnect switch is mounted on the control column handgrip in the front cockpit.

Emergency Mode

12. In case of failure of the normal mode, the system automatically changes over to the emergency mode. This mode is inferior to the normal mode as it has a less elaborate feel system, and the aircraft damping system is restricted to the yaw axis only.

13. Movement of the control column and rudder bar, when in this mode, operates a conventional cable and mechanical link system to the appropriate hydraulic actuator control valve.

14. Pilot 'feel' is provided by the use of spring-loaded feel units built into each control circuit. A "g" bob weight is also incorporated into the elevator control circuit. The rudder feel unit incorporates a hinge moment limitation system and is designed to prevent high loads being inadvertently applied to the rudder at high air speeds.

Artificial Damping System

15. Artificial damping is provided about all three axes by a rate-gyro system feeding through an electronic network to damping servo units mounted on the control surface actuator control valves.

16. The complete damping system is fully operative during the normal and automatic modes of control only. During the emergency mode of control, only yaw damping is provided.

17. If electrical failure occurs, necessitating emergency mode of control, the damping servo units in the aileron and elevator circuits automatically neutralize themselves and so shut off the damping system. The damping system can also be controlled manually by a master switch situated on the LH console in the front cockpit.

18. The damping servo unit for the yaw axis is a duplicated unit including duplicate electrical and hydraulic power supplies. An emergency alternator provides the electrical supply for yaw damping when the normal a-c supply is not available.

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SYSTEM DATA SHEET

SYSTEM	SUB-SYSTEM	AIRCRAFT EFFTY	REF. NO.
FLYING CONTROLS MECHANICAL		25201	15
<p>Aileron Control Circuit</p> <p>19. The control column in the front cockpit is connected by mechanical linkage to an aileron cable tension regulator quadrant situated below the cockpit floor in the nose wheel well. Travel limit stops are incorporated in the regulator quadrant mounting bracket. An aileron artificial feel and trim unit is attached, by means of a lever, to the cable tension regulator quadrant torque tube at one end, and to the aircraft structure at the other end. Control cables attached to the quadrant run aft along the top left hand side of the armament bay. From the rear of the armament bay the cables then pass upwards and aft, to terminate at a quadrant attached to a mounting bracket which is secured to the bottom skin of the inner wing in the engine bay. At this point the command servo is connected to a lever on the quadrant torque shaft. Linkage from this quadrant is connected to further cable tension regulators situated in each inner wing. Cables from these regulators run along the rear face of the rear spars, to a quadrant mounted on the pivot point of each aileron actuator. A push rod connects each quadrant to the damping servo unit and actuator control valve operating linkage. The actuator piston rod is attached to a system of mechanical linkage to convey movement to the control surfaces.</p> <p>Elevator Control Circuit</p> <p>20. The control column in the front cockpit is connected by mechanical linkage to an elevator cable tension regulator quadrant situated below the cockpit floor at the right hand side of the nose wheel well. An elevator "g" bob weight is connected to the regulator quadrant torque tube. Travel limit stops are incorporated on a lever arm in the linkage assembly. Control cables attached to the quadrant run aft along the top right hand side of the armament bay. At the rear of the armament bay the cables then pass upwards and aft, to terminate at a quadrant mounted on a horizontal torque shaft in the engine bay. At this point the command servo and the elevator feel and trim unit are attached to the quadrant. The torque shaft is linked mechanically to the pivot point of each elevator actuator and to the damping servo unit and actuator control valve operating linkage. The actuator piston rod is attached to a system of mechanical linkage to convey movement to the control surfaces.</p> <p>Rudder Control Circuit</p> <p>21. The rudder pedals in the front cockpit are connected by mechanical linkage to a rudder cable tension regulator quadrant situated below the cockpit floor in the nose wheel well, directly below the centre of the rudder bar. Travel limit stops are incorporated above the cockpit floor, slightly forward of the rudder bar and on each side of the aircraft centre line. Control cables attached to the quadrant run aft along each side of the roof of the armament bay. At the rear of the armament bay the cables then pass upwards and aft to the end of the duct bay where they pass up into the vertical stabilizer, and terminate at a rudder quadrant to which is attached the rudder feel and trim unit. The quadrant is linked mechanically to the pivot point of the rudder actuator and to the damping servo unit and actuator control valve operating linkage. The actuator piston rod is attached to a system of mechanical linkage to convey movement to the control surfaces.</p>			
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Damping Servo Unit and Control Valve Operating Linkage

22. The damping servo unit and control valve operating linkage is identical for the aileron, elevator and rudder circuits. The linkage extends from an arm of the bellcrank which is pivot-mounted to the actuator, to the piston rod of the damping servo unit and to the spool of the control valve. The linkage transmits the movement of the command servo and the damping servo to the control valve. The control valve in turn controls the movement of the actuator piston.

Control Column

23. The control column, located in the front cockpit, is of the conventional stick type. The control column handgrip incorporates a four-way switch control for aileron and elevator trim. Nose wheel steering and automatic flight control disconnect switches and a missile firing trigger are also fitted. The handgrip is riveted to the control column which in turn is secured to an aileron pivot lever. The aileron pivot lever is pivot-mounted to an aileron pivot support.

24. The maximum travel at the handgrip for elevator movement is 10.99 inches, and the maximum travel at the handgrip for aileron movement is 9.96 inches.

Rudder Pedals

25. The rudder pedals are suspended from an overhead hinge joint and are connected by push rods to the rudder bar which is mounted on a vertical torque tube passing through the cockpit floor into the nose wheel well. The rudder cable tension regulator quadrant is fitted to the lower end of the torque tube. The fore and aft position of the rudder pedals is adjustable by means of spring-loaded pawls engaging with serrated quadrants. The pawls are connected by cables to a handle located in the centre of the front cockpit instrument panel.

26. The maximum rudder pedal travel is 6.65 inches.

Cable Tension Regulator Quadrants in Fuselage

27. Three of these units are located in the nose wheel well and compensate for temperature changes and structural deflections affecting the ailerons, elevators, and rudder control cables.

28. The regulator quadrants give a total compensation range of 2.50 inches, and a compensation scale with each increment measuring 0.125 inch, is etched on both sides of the quadrant.

Cable Tension Regulators in Wings

29. The aileron cable tension regulators located in the inner wings are of the revolving type, comprising two pulleys, one immediately above the other. A cable attached to each of the pulleys transmits movement through the wing to the actuator control valves. These regulators have a total compensation range of 1.28 inches for each cable, and two compensation scales are etched on one side of the regulator only.

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SYSTEM DATA SHEET

SYSTEM	SUB-SYSTEM	AIRCRAFT EFF'TY	REF. NO.
FLYING CONTROLS MECHANICAL		25201	15
<p>Aileron Feel and Trim Unit</p> <p>30. The aileron feel and trim unit allows adjustment of the ailerons to achieve lateral trim, and also provides pilot 'feel' during the emergency mode of flight control. Trim is controlled from the four-way switch on the control column handgrip.</p> <p>31. One end of the feel and trim unit is connected by means of a lever to the aileron cable tension regulator quadrant torque tube in the nose wheel well, and the other end is attached to the aircraft structure by a shear pin, which will shear if the unit should jam. The unit comprises a cylinder and telescopic sliding member, housing a spring and an inner sliding member. The unit can be extended or retracted by an electrical actuator to obtain trim.</p> <p>32. The inner sliding member and the spring are allowed to move freely in the normal and automatic modes, but the spring is automatically secured by a clutch mechanism on change over to the emergency mode. In this mode the spring is compressed by movement of the control column from neutral, thus providing feel.</p> <p>Elevator Feel and Trim Unit</p> <p>33. The elevator feel and trim unit allows adjustment of the elevators to achieve longitudinal trim. Trim is controlled from the four-way switch on the control column handgrip. The unit also provides pilot 'feel' during the emergency mode of flight control.</p> <p>34. One end of the feel and trim unit is connected to the elevator rear quadrant in the engine bay, and the other end is attached to the aircraft structure by a shear pin, which will shear if the unit should jam. The elevator feel and trim unit is identical in construction and operation to the aileron feel and trim unit. A bob weight in the elevator control circuit in the nose wheel well is provided to supplement the feel unit.</p> <p>Rudder Feel and Trim Unit and Hinge Moment Limitation System</p> <p>35. The rudder feel and trim unit and hinge moment limitation system, located in the vertical stabilizer, performs the following functions:</p> <p>(a) Resets the position of the rudder quadrant to achieve directional trim when a rudder trim switch on the LH console in the pilot's cockpit is operated.</p> <p>(b) Supplies pilot 'feel' during the emergency mode of flight control.</p> <p>(c) Prevents inadvertent application of large rudder deflections at high air speeds.</p> <p>36. The rudder feel and trim unit and hinge moment limitation system consists of a trim actuator mounted on the rudder rear quadrant, and a hinge moment limitation linkage mechanism consisting of an electric screw jack, an upper and lower feel unit and a fulcrum lever. The trim actuator jack is extended or retracted by selecting LEFT or RIGHT on the rudder trim switch on the LH console in the Pilot's cockpit, thereby resetting the position of the quadrant to obtain trim.</p>			
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37. The electric screw jack is extended or retracted by signals which are proportionate to the indicated air speed and altitude of the aircraft. When the screw jack is in its retracted position, only the lower feel unit is operative and the rudder is moveable over its full range. As the screw jack extends, the fulcrum lever brings the upper feel unit into operation, and progressively restricts the movement of the rudder.

Ranges of Movement of Control Surfaces

38. The ranges of movement of the control surfaces, are as follows:

- (a) Aileron Up - 19° 17.96 inches  
Aileron Down - 19° 17.96 inches
- (b) Elevator Up - 30° 32 inches  
Elevator Down - 20° 21.46 inches
- (c) Rudder Left - 30° 23.96 inches  
Rudder Right - 30° 23.96 inches

Speed Brakes

39. Two hydraulically operated speed brakes are installed on the under surface of the fuselage aft of the armament bay, one on each side of the centre line of the aircraft. The power to operate the speed brakes is derived from the Utility Hydraulic System.

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**CF-105 SERVICE DATA**  
**COMPONENT DATA SHEET**

SYSTEM FLYING CONTROLS MECHANICAL		SUB-SYSTEM		COMPONENT Control Column		REF. NO. 15-1	
AVRO PART NO. 7-1552-3		MANUFACTURER		MAN'FR'S PART NO.		AIRCRAFT EFFECTIVITY 25201	
OVERHAUL LIFE:		KNOWN-		ESTIMATED-		1500 hours	
FUNCTION  Pilot's control for operation of the ailerons and elevators.							
LOCATION  Front cockpit.							
ACCESS  Accessible in front cockpit and nose wheel well.						MEN X MINUTES	
REPLACEMENT PROCEDURE  Bolt the aileron pivot lever to the aileron pivot support. Bolt the aileron pivot lever to the aileron control link. Connect the electrical connection. Install the dust cover over the control column at the cockpit floor.						MEN X MINUTES	

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INSPECTION		MEN X MINUTES	
Check for security, damage, corrosion, wear, and freedom and range of movement.			
FUNCTIONAL CHECKS		MEN X MINUTES	
GROUND HANDLING AND GROUND TEST EQUIPMENT			
Hydraulic ground test rig. Cockpit access stand. B4 stand.			
SPECIAL TOOLS TO REMOVE OR SERVICE			
REMARKS			
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CF-105 SERVICE DATA  
COMPONENT DATA SHEET

SYSTEM FLYING CONTROLS MECHANICAL	SUB-SYSTEM	COMPONENT Aileron Electrical Force Transducer	REF. NO. 15-2
AVRO PART NO. 7-1552-342	MANUFACTURER Control Components Co.	MAN'FR'S PART NO.	AIRCRAFT EFFECTIVITY 25201
OVERHAUL LIFE:      KNOWN-		ESTIMATED-      500 hours	
<p>FUNCTION</p> <p style="text-align: center;">To transmit signals proportional to control column movement to the electro-hydraulic command servo units, via magnetic amplifiers.</p>			
<p>LOCATION</p> <p style="text-align: center;">At base of control column.</p>			
<p>ACCESS</p> <p style="text-align: center;">accessible in front cockpit.</p>			MEN X MINUTES
<p>REPLACEMENT PROCEDURE</p>			MEN X MINUTES

INSPECTION		MEN X MINUTES							
Check for security and damage.									
FUNCTIONAL CHECKS		MEN X MINUTES							
GROUND HANDLING AND GROUND TEST EQUIPMENT									
Hydraulic ground test rig. Electrical ground power unit. Cockpit access stand. B4 stand.									
SPECIAL TOOLS TO REMOVE OR SERVICE									
REMARKS									
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CF-105 SERVICE DATA  
COMPONENT DATA SHEET

SYSTEM FLYING CONTROLS MECHANICAL		SUB-SYSTEM		COMPONENT Elevator Electrical Force Transducer		REF. NO. 15-3	
AVRO PART NO. 7-1552-349		MANUFACTURER Control Components Co.		MAN'FR'S PART NO.		AIRCRAFT EFFECTIVITY 25201	
OVERHAUL LIFE:		KNOWN-		ESTIMATED-		500 hours	
FUNCTION  To transmit signals proportional to control column movement to the electro-hydraulic command servo units, via magnetic amplifiers.							
LOCATION  On elevator cable tension regulator quadrant torque tube in nose wheel well.							
ACCESS  Accessible in nose wheel well.						MEN X MINUTES	
REPLACEMENT PROCEDURE						MEN X MINUTES	

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INSPECTION		MEN X MINUTES	
Check for security and damage.			
FUNCTIONAL CHECKS		MEN X MINUTES	
GROUND HANDLING AND GROUND TEST EQUIPMENT			
Hydraulic ground test rig. Electrical ground power unit. B4 stand.			
SPECIAL TOOLS TO REMOVE OR SERVICE			
REMARKS			
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<p>INSPECTION</p> <p>Check for security, damage, wear, cleanliness, and freedom and range of movement. Check operation of pedal adjustment and parking brake.</p>		<p>MEN X MINUTES</p>	
<p>FUNCTIONAL CHECKS</p>		<p>MEN X MINUTES</p>	
<p>GROUND HANDLING AND GROUND TEST EQUIPMENT</p> <p>Hydraulic ground test rig. Cockpit access stand.</p>			
<p>SPECIAL TOOLS TO REMOVE OR SERVICE</p>			
<p>REMARKS</p>			
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**CF-105 SERVICE DATA**  
**COMPONENT DATA SHEET**

SYSTEM FLYING CONTROLS MECHANICAL		SUB-SYSTEM		COMPONENT Aileron Feel and Trim Unit		REF. NO. 15-5
AVRO PART NO. 7-1552-341		MANUFACTURER Airesearch		MAN'FR'S PART NO.		AIRCRAFT EFFECTIVITY 25201
OVERHAUL LIFE :		KNOWN-		ESTIMATED-		500 hours
FUNCTION  To provide trim adjustment, and Pilot's artificial feel in the emergency mode of flight control.						
LOCATION  Nose wheel well.						
ACCESS  Accessible in nose wheel well.						MEN X MINUTES
REPLACEMENT PROCEDURE  Connect the aileron feel and trim unit to the lever on the aileron cable tension regulator quadrant torque tube in the nose wheel well, and to the aircraft structure. Connect the electrical cable to the trim unit.						MEN X MINUTES

CONFIDENTIAL

INSPECTION		MEN X MINUTES	
Check for security, damage, corrosion and wear.			
FUNCTIONAL CHECKS		MEN X MINUTES	
GROUND HANDLING AND GROUND TEST EQUIPMENT			
B4 Stand.			
SPECIAL TOOLS TO REMOVE OR SERVICE			
REMARKS			
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**CF-105 SERVICE DATA**  
**COMPONENT DATA SHEET**

SYSTEM FLYING CONTROLS MECHANICAL		SUB-SYSTEM		COMPONENT Elevator Feel and Trim Unit	REF. NO. 15-6
AVRO PART NO. 7-1562-247	MANUFACTURER Airesearch	MAN'FR'S PART NO.		AIRCRAFT EFFECTIVITY 25201	
OVERHAUL LIFE: KNOWN-		ESTIMATED- 500 hours			
FUNCTION  To provide trim adjustment, and Pilot's artificial feel in the emergency mode of flight control.					
LOCATION  Engine bay.					
ACCESS  Accessible through No.3 service panel.				MEN X MINUTES	
REPLACEMENT PROCEDURE  Connect the elevator feel and trim unit to the elevator rear fuselage quadrant, and to the aircraft structure. Connect the electrical connection to the trim unit.				MEN X MINUTES	

<p>INSPECTION</p> <p>Check for security, damage, corrosion, and wear.</p>		MEN X MINUTES	
<p>FUNCTIONAL CHECKS</p>		MEN X MINUTES	
<p>GROUND HANDLING AND GROUND TEST EQUIPMENT</p> <p>B4 stand.</p>			
<p>SPECIAL TOOLS TO REMOVE OR SERVICE</p>			
<p>REMARKS</p>			
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**CF-105 SERVICE DATA**  
**COMPONENT DATA SHEET**

SYSTEM FLYING CONTROLS MECHANICAL		SUB-SYSTEM		COMPONENT Rudder Feel and Trim Unit and Hinge Moment Limitation System		REF. NO. 15-7	
AVRO PART NO. 7-1583-145		MANUFACTURER		MAN'FR'S PART NO.		AIRCRAFT EFFECTIVITY 25201	
OVERHAUL LIFE:		KNOWN-		ESTIMATED-		500 hours	
FUNCTION To provide trim adjustment, and Pilot's artificial feel in the emergency mode of flight control. To prevent inadvertent application of large rudder deflections at high speeds.							
LOCATION In the vertical stabilizer, between ribs 4 and 5.							
ACCESS  Accessible through access panel in the vertical stabilizer.						MEN X MINUTES	
REPLACEMENT PROCEDURE						MEN X MINUTES	

INSPECTION  Check for backlash and range of movement. Check for security, damage, corrosion and wear.		MEN X MINUTES	
FUNCTIONAL CHECKS		MEN X MINUTES	
GROUND HANDLING AND GROUND TEST EQUIPMENT  Electrical ground power unit. B5 stand.			
SPECIAL TOOLS TO REMOVE OR SERVICE			
REMARKS			
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**CF-105 SERVICE DATA**  
**COMPONENT DATA SHEET**

SYSTEM FLYING CONTROLS MECHANICAL		SUB-SYSTEM		COMPONENT Aileron Cable Tension Regulator Quadrant in Fuselage		REF. NO. 15-8
AVRO PART NO. 7-1552-165	MANUFACTURER Pacific Scientific	MAN'FR'S PART NO. XR86-5001-50-00	AIRCRAFT EFFECTIVITY 25201			
OVERHAUL LIFE:      KNOWN-		ESTIMATED- 500 hours				
FUNCTION  To compensate for temperature changes and structural deflections affecting the aileron cables in the fuselage.						
LOCATION  Nose wheel well.						
ACCESS  Accessible in nose wheel well.					MEN X MINUTES	
REPLACEMENT PROCEDURE  Position the aileron cable tension regulator quadrant beneath the cockpit floor in the nose wheel well. Secure the quadrant to the mounting bracket torque tube by means of two threaded taper pins. Connect the aileron control cables in the fuselage to the aileron cable tension regulator quadrant. Tension the control cables. Attach the control cable guards to the aileron cable tension regulator quadrant.					MEN X MINUTES	

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<p>INSPECTION</p>  <p style="text-align: center;">Check for security, damage, corrosion and wear. Check cable tensions and attachments.</p>	<p>MEN X MINUTES</p> <table border="1" style="width: 100%; height: 150px;"> <tr> <td style="width: 50%;"></td> <td style="width: 50%;"></td> </tr> </table>																				
<p>FUNCTIONAL CHECKS</p>    	<p>MEN X MINUTES</p> <table border="1" style="width: 100%; height: 150px;"> <tr> <td style="width: 50%;"></td> <td style="width: 50%;"></td> </tr> </table>																				
<p>GROUND HANDLING AND GROUND TEST EQUIPMENT</p> <p style="text-align: center;">* Cable tension meter. 34 stand.</p>																					
<p>SPECIAL TOOLS TO REMOVE OR SERVICE</p>  																					
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**CF-105 SERVICE DATA**  
**COMPONENT DATA SHEET**

SYSTEM FLYING CONTROLS MECHANICAL		SUB-SYSTEM		COMPONENT Elevator Cable Tension Regulator Quadrant		REF. NO. 15-9	
AVRO PART NO. 7-1552-165		MANUFACTURER Pacific Scientific		MAN'FR'S PART NO. XR86-5001-50-00		AIRCRAFT EFFECTIVITY 25201	
OVERHAUL LIFE:		KNOWN-		ESTIMATED-		500 hours	
FUNCTION  To compensate for temperature changes and structural deflections affecting the elevator cables.							
LOCATION  Nose wheel well.							
ACCESS  Accessible in nose wheel well.						MEN X MINUTES	
REPLACEMENT PROCEDURE  Secure the elevator cable tension regulator quadrant to the torque tube by means of two threaded taper pins. Bolt the quadrant assembly support bracket to the aircraft structure. Connect the push-pull rod from the elevator control linkage to the lever on the inboard end of the quadrant torque tube. Connect the elevator control cables to the elevator cable tension regulator quadrant. Tension the control cables. Attach the control cable guards to the elevator cable tension regulator quadrant.						MEN X MINUTES	

<p><b>INSPECTION</b></p> <p style="text-align: center;">Check for security, damage, corrosion and wear. Check cable tensions and attachments.</p>	<p style="text-align: center;"><b>MEN X MINUTES</b></p> <table border="1" style="width: 100%; height: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;"></td> <td style="width: 50%;"></td> </tr> </table>																				
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<p><b>GROUND HANDLING AND GROUND TEST EQUIPMENT</b></p> <p style="text-align: center;">Cable tension meter. B4 stand.</p>																					
<p><b>SPECIAL TOOLS TO REMOVE OR SERVICE</b></p>																					
<p><b>REMARKS</b></p>																					
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**CF-105 SERVICE DATA**  
**COMPONENT DATA SHEET**

SYSTEM FLYING CONTROLS MECHANICAL		SUB-SYSTEM		COMPONENT Rudder Cable Tension Regulator Quadrant		REF. NO. 15-10
AVRO PART NO. 7-1552-165	MANUFACTURER Pacific Scientific	MAN'F'R'S PART NO. XR 86-5001-50-00	AIRCRAFT EFFECTIVITY 25201			
OVERHAUL LIFE: KNOWN-		ESTIMATED- 500 hours				
FUNCTION  To compensate for temperature changes and structural deflections affecting the rudder cables.						
LOCATION  Nose wheel well.						
ACCESS  Accessible in nose wheel well.						MEN X MINUTES
REPLACEMENT PROCEDURE  Insert the rudder cable tension regulator quadrant torque tube into the rudder pedestal bearing housing. Secure the torque tube to the rudder bar cross tube fitting in the cockpit with two threaded taper pins. Install and secure the nose wheel steering quadrant to the torque tube. Connect the rudder control cables to the rudder cable tension regulator quadrant. Tension the control cables. Attach the control cable guards to the cable tension regulator quadrant.						MEN X MINUTES

<p>INSPECTION</p>  <p style="text-align: center;">Check for security, damage, corrosion and wear. Check cable tensions and attachments.</p>	<p>MEN X MINUTES</p> <table border="1" style="width: 100%; height: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;"></td> <td style="width: 50%;"></td> </tr> </table>								
<p>FUNCTIONAL CHECKS</p>    	<p>MEN X MINUTES</p> <table border="1" style="width: 100%; height: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;"></td> <td style="width: 50%;"></td> </tr> </table>								
<p>GROUND HANDLING AND GROUND TEST EQUIPMENT</p>  <p style="text-align: center;">Cable tension meter. Cockpit access stand. B4 stand.</p>									
<p>SPECIAL TOOLS TO REMOVE OR SERVICE</p>   									
<p>REMARKS</p>          									
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**CF-105 SERVICE DATA**  
**COMPONENT DATA SHEET**

SYSTEM FLYING CONTROLS MECHANICAL	SUB-SYSTEM	COMPONENT Aileron Rear Fuselage Quadrant	REF. NO. 15-11
AVRO PART NO. 7-1562-143	MANUFACTURER	MAN'FR'S PART NO.	AIRCRAFT EFFECTIVITY 25201
OVERHAUL LIFE:      KNOWN-		ESTIMATED- 500 hours	
<p style="text-align: center;">FUNCTION</p> <p style="text-align: center;">To relay the required control movement to the aileron actuator control valve.</p>			
<p style="text-align: center;">LOCATION</p> <p style="text-align: center;">Engine bay.</p>			
<p style="text-align: center;">ACCESS</p> <p style="text-align: center;">accessible through No. 3 service panel.</p>			MEN X MINUTES
<p style="text-align: center;">REPLACEMENT PROCEDURE</p> <p style="text-align: center;">With the aileron rear fuselage quadrant secure in its housing, bolt the assembly to the inner wing skin. Connect the push-pull rods that lead to the aileron cable tension regulators in the wings, to the assembly. Connect the aileron control cables in the fuselage to the aileron rear fuselage quadrant. Tension the control cables.</p>			MEN X MINUTES

TM-3913-2-5

<p>INSPECTION</p> <p>Check for security, damage, corrosion and wear.</p>		<p>MEN X MINUTES</p>	
<p>FUNCTIONAL CHECKS</p>		<p>MEN X MINUTES</p>	
<p>GROUND HANDLING AND GROUND TEST EQUIPMENT</p> <p>Cable tension meter. 34 stand.</p>			
<p>SPECIAL TOOLS TO REMOVE OR SERVICE</p>			
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**CF-105 SERVICE DATA**  
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SYSTEM FLYING CONTROLS MECHANICAL		SUB-SYSTEM		COMPONENT Elevator Rear Fuselage Quadrant		REF. NO. 15-12	
AVRO PART NO. 7-1562-163		MANUFACTURER		MAN'F'R'S PART NO.		AIRCRAFT EFFECTIVITY 25201	
OVERHAUL LIFE:		KNOWN-		ESTIMATED-		500 hours	
FUNCTION  To relay the required control movement to the elevator actuator control valve.							
LOCATION  Engine bay.							
ACCESS  Accessible through No. 3 service panel.						MEN X MINUTES	
REPLACEMENT PROCEDURE  With the elevator rear fuselage quadrant secure in its housing, bolt the assembly to the inner wing skin. Connect the push-pull rods to the lever on each end of the torque shaft. Connect the electro-hydraulic command servo unit to the quadrant. Connect the elevator feel and trim unit to the quadrant. Connect the elevator control cables to the elevator rear fuselage quadrant. Tension the control cables.						MEN X MINUTES	

INSPECTION  Check for security, damage, corrosion and wear.		MEN X MINUTES	
FUNCTIONAL CHECKS		MEN X MINUTES	
GROUND HANDLING AND GROUND TEST EQUIPMENT  Cable tension meter. B4 stand.			
SPECIAL TOOLS TO REMOVE OR SERVICE			
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**CF-105 SERVICE DATA**  
**COMPONENT DATA SHEET**

SYSTEM FLYING CONTROLS MECHANICAL	SUB-SYSTEM	COMPONENT Aileron Cable Tension Regulators in Wings	REF. NO. 15-13
AVRO PART NO. 7-1562-51	MANUFACTURER Pacific Scientific	MAN'FR'S PART NO. R 75-9006-50-00	AIRCRAFT EFFECTIVITY 25201
OVERHAUL LIFE:    KNOWN-		ESTIMATED-    500 hours	
FUNCTION  To compensate for temperature changes and structural deflections affecting the aileron cable run through the wings.			
LOCATION  In the inner wing, adjacent to the elevator actuator.			
ACCESS  Accessible through the elevator actuator compartment panel. (On top surface of inner wing).			MEN X MINUTES
REPLACEMENT PROCEDURE  Bolt the aileron cable tension regulator in its position between the upper and lower skins of the inner wing. Connect the push-pull rod attached by a lever to the aileron rear fuselage quadrant, to the lever on the lower end of the regulator torque shaft. Connect the aileron control cables in the wings to the pulleys of the cable tension regulators. Tension the control cables.			MEN X MINUTES

141-3413-2-5

INSPECTION		MEN X MINUTES	
Check for security, damage, corrosion and wear. Check cable tensions.			
FUNCTIONAL CHECKS		MEN X MINUTES	
GROUND HANDLING AND GROUND TEST EQUIPMENT			
Cable tension meter. B4 stand. Wing mats.			
SPECIAL TOOLS TO REMOVE OR SERVICE			
REMARKS			
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TW1-3433-2-6

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