CF-105 SERVICE DATA Flying Control Hydraulics

SECTION 12.

FLYING CONTROLS HYDRAULIC SYSTEM

MALYZED

TABLE OF CONTENTS

TITLE		PAGE
GVSTEM SE	RVICE DATA	
DESCRI		
	neral	5
Pun	np	5
Man	ifold	5
Fil	ter - Multi-outlet	6
	cumulator	6
	lve - Pressure Control	6
	mpensator - Dual Pressure	6
	tch - Pressure	7
	upling - Expansion	8
	ter - High Pressure - Dual	8
	custors - Control Surface	8
	vos - Damping	8
Ser	vos - Command	9
	at Exchangers	9
The	ermometer	10
THE PART OF THE	(m) (m) (m)	
FUNCTI	ON TESTING (To be issued later)	
INSPEC	TION (To be issued later)	
	(10 00 11001)	
COMPONENT	SERVICE DATA	
Pur		11
Cou		13
Man	nifold - Pump Delivery	
Fil		17
	cumulator	
		21 23
	· 바이트	25
		27
		29
		31
Fil	lter - High Pressure - Dual 3.3 gpm	33
	cuator - Aileron 3	
	tuator - Elevator	
	uator - Rudder 3	
		17
	Lve - Aileron Control	
	rvo - Elevator Damping	
	vo - Aileron Damping	
Ser	rvo - Rudder Damping	51
Ser	rvo - Elevator Command 5	53
Ser	rvo - Aileron Command	55
		57
		59
Gat	nge - Sight Bleed	51

TABLE OF CONTENTS (Cont'd)

TITLE		PAG
	Couplings and Caps - Self-sealing	63
	Indicator - Fluid Level	65
	Thermometer - Fluid Temperature	67

LIST OF ILLUSTRATIONS

FIGURE	TITLE	PAGE
1.	Flying Control Hydraulic System - Schematic	3

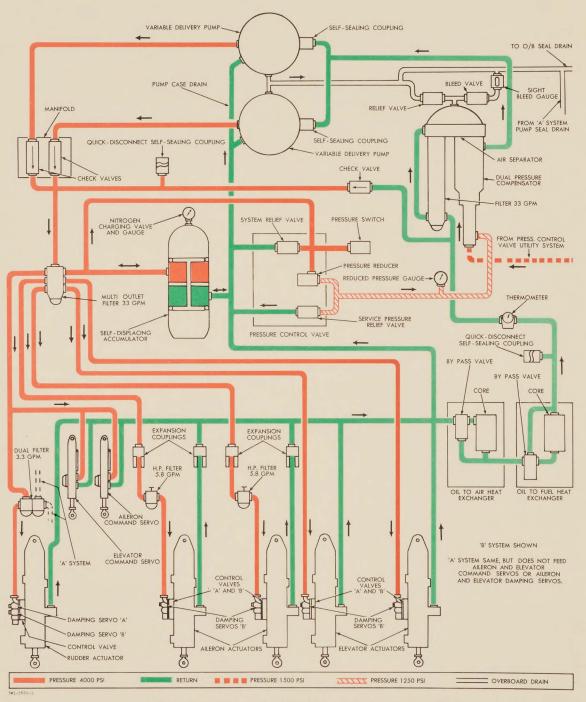


FIG. 1 FLYING CONTROL HYDRAULIC SYSTEM - SCHEMATIC

SYSTEM DATA SHEET

SYSTEM	SUB-SYSTEM	AIRCRAFT EFFTY	REF. NO.
FLYING CONTROLS HYDRAULICS		25201	32

DESCRIPTION

General.

- 1. The aileron, elevator and rudder flying control surfaces are operated by two self-contained airless hydraulic circuits, each pressurized by two engine driven pumps. The pumps supply hydraulic fluid at 4000 psi through filters and pressure control valves to the flying control surface actuators and their control valves and damping servos. The return fluid passes via heat exchangers and filters to the compensators and pump inleta at a pressure of 90 psi.
- 2. The two circuits are known as 'A' circuit and 'B' circuit. 'A' circuit supplies the control valves of the aileron and elevator actuators, and the control valve and damping servo of the rudder actuator. 'B' circuit duplicates the supplies of 'A' circuit and additionally supplies the damping and command servos for the ailerons and elevators.
- 3. Normal flight can be sustained with fluid temperatures ranging from -29°C (-20°F) to a maximum permissible temperature of 135°C (275°F). The hydraulic fluid when excessively heated, is cooled by oil-to-air and oil-to-fuel heat exchangers.
- 4. All pipeline connections are of the flareless type, giving greater resistance to fatigue. Quick-disconnect self-sealing couplings are fitted into the circuits to enable the system to be operated from a ground test rig. No flexible hoses are used in the pressure side of the circuits. Flexing steel pipelines are used to absorb movement between the flying control surface actuators and their filters.

Pumps

5. Two Vickers variable-delivery pumps, one for each circuit, are located on the aft face of each engine driven accessories gear box. The pumps supply each circuit with fluid at 4000 psi. The inlet of each pump is fitted with a quick-disconnect, self-sealing coupling to facilitate removal and to minimize loss of fluid during pump removal.

Manifold

6. The pressure lines from the two pumps in each circuit are connected to a manifold containing two check valves, one for each pump. These check valves prevent a back flow of fluid through an inoperative pump and also isolate the pumps and compensator when the system is being operated by a ground test rig. A common outlet from the manifold is fed to the inlet of a multi-outlet filter.

ISSUE	1	-			
DATE	23 Nov 56				

Multi-outlet Filter

7. A multi-outlet high pressure filter with a maximum flow rate of 33 gpm is located at the lower, rear, inboard side of the engine bay. The filter passes fluid to the control valves at each of the five flying control surface actuators, and to the aileron and elevator command servos in 'B' circuit. A further outlet passes fluid to the self-displacing accumulator and to the pressure control valve. Cut off valves are fitted to minimize loss of fluid during removal of the filter bowl. A by-pass relief valve is incorporated which opens when a pressure differential of 45-55 psi exists across the in-line type filter element.

Accumulator

- 8. The self-displacing 100 cubic inch accumulator pre-charged with nitrogen to 1500 psi, is fitted below the multi-outlet filters and performs the following functions:
- (a) Supplies immediate high pressure fluid to an actuator when its control valve is operated.
- (b) Compensates for pressure variations caused by rapid movements of the controls.
- (c) Maintains a atatic pressure on the pressure side of the circuit when the pumps are not operating.

Pressure Control Valve Unit

- 9. The pressure control valve unit, located between the accumulators, comprises three valves:
- (a) A system relief valve for the pressure circuit. This valve commences to relieve at a pressure of 4315 psi. Full flow occurs at 4700 psi.
- (b) A pressure reducer converting 4000 psi to 1250 psi for "Stand By" pressurization of the compensator.
- (c) A service pressure relief valve for the "Stand By" circuit.
- 10. A pressure gauge is installed in the circuit to check the reduced pressure from the valve during ground test operations.

Dual Pressure Compensator

11. The dual pressure compensator, located aft and above the engine driven pumps, performs the following functions:

ISSUE	1				
DATE	23 Nov 56				

7×1-3×13-2-4

SYSTEM DATA SHEET

SYSTEM	SUB-SYSTEM	AIRCRAFT EFFTY	REF. NO.
FLYING CONTROLS HYDRAULICS (Cont'd)		25201	32

- (a) Maintains a steady pressure on the return side of the circuit to ensure a constant supply of hydraulic fluid to the inlet ports of the pumps.
- (b) Acts as a chamber of variable volume to compensate for fluid diaplacement or requirements during the operation of the various units and for absorbing volumetric changes due to temperature changes.
- (c) Maintains a static pressure of 90 psi over the return circuit when the pumps are not operating.
- (d) Traps any air encountered in the circuit by meana of an air separator compartment in the head.
- 12. A pressure of 1500 psi is fed to the base of the compensator from the separate aircraft utility hydraulic system. Due to area difference on floating pistons in different sized cylinders in the compensator, the 1500 psi input gives a pressure of 90 psi on the return side of the circuit. A relief valve in the head relieves fluid into an overboard drain line if the pressure on the return side of the circuit builds up to over 165 psi. In the event of a failure in the utility system, a pressure of 1250 psi, which gives a pressure of 75 psi on the return side of the circuit, is delivered from the pressure control valve.
- 13. A manually operated bleed valve is incorporated in the air separator compartment in the head of the compensator for bleeding off any trapped air into the overboard drain line. A sight bleed gauge in this line gives a visual check that all air has been dispelled from the compensator.
- 14. A temperature calibrated rod indicates the correct position of the large piston during topping up operations. A bleed screw is incorporated at the bottom of this rod to bleed off air collected in the pressure side of the compensator during filling of the utility hydraulic system. A 33 gpm filter is fitted at the inlet side of the compensator. A self sealing arrangement is incorporated in this filter to minimize fluid loss during removal of the bowl. A by-pass valve is also fitted in the filter.
- 15. A pipeline from the inlet side of the compensator is connected to the common outlet of the manifold. This is to keep a static pressure of 90 psi on the pressure side of the circuit when the pumps are not operating and the accumulator piaton is at the bottom of its stroke. A check valve is fitted in the pipeline to prevent high pressure from reaching the compensator during normal operation.

Pressure Switch

16. A pressure switch which operates an amber cockpit warning light is connected into the high pressure line to the relief valve. This light illuminates at a falling pressure of 1000 psi. A failure of any of the pumps will only be noticed when the controls are rapidly cycled.

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ISSUE	1				
DATE	23 Nov 56				

Expansion Couplings

17. Expansion couplings are installed in the lines between the multi-outlet filter and the aileron actuators and in the return lines from the aileron actuators. The couplings are variable in length by approximately one inch and their movement compensates for thermal expansion and contraction of the pipe lines and for any flexing of the wing during flight.

High Pressure Filter

18. A high pressure filter with a maximum flow rate of 5.8 gpm is installed in the pressure line to each alleron actuator. A by-pass relief valve is incorporated in the filter element.

High Pressure Dual Filter

19. A filter with twin elements situated side-by-side in a common casting, is installed in the pressure lines to the rudder actuator. One filter element caters to the 'A' hydraulic circuit and the other element caters to the 'B' hydraulic circuit. Each element has a maximum flow rate of 3.3 gpm. A by-pass relief valve is incorporated.

Control Surface Actuators

- 20. The hydraulic flying control surface actuators are tandem, dual piston and cylinder types. Each cylinder is supplied by a separate hydraulic circuit. There are five actuators in the system:
- (a) Two aileron actuators, located in the outer wing, forward of the ailerons.
- (b) Two elevator actuators, located in the inner wing, forward and inboard of the elevators.
- (c) One rudder actuator, located in the vertical stabilizer, forward of the rudder.

Control Valves

21. A control valve is mounted on each flying surface control actuator. These valves are pressurized by both 'A' and 'B' circuits through individual pressure and return ports.

Elevator and Aileron Damping Servos

22. The damping servos are quick-acting, electro hydraulic actuators which

	ISSUE	1					*	
	DATE	23 Nov 56						

SYSTEM DATA SHEET

SYSTEM	SUB-SYSTEM	AIRCRAFT EFF'TY	REF. NO.
FLYINC CONTROLS HYDRAULICS (Cont'd)		25201	32

transform the electrical damping signals from the aircraft stabilization system into hydraulic power, thereby correcting pitch or roll of the aircraft.

23. The servos are identical and receive hydraulic fluid under pressure from the 'B' circuit through internal connections from the flying control surface actuator control valves.

Rudder Damping Servo

24. The rudder damping servo is similar in operation to the elevator and aileron damping servos, but it is a duplicated unit, receiving power from both 'A' and 'B' hydraulic systems at the same time.

Elevator and Aileron Command Servos

- 25. The elevator and aileron command servos, located beneath the lower skin of the inner wing in the engine bay, are electro-hydraulic actuators which transform the electrical signals from the normal stick force mode or from the automatic flight control systems, into hydraulic motion to operate the control surface actuator control valves through linkages. Hydraulic power is supplied from the 'B' circuit only. The servo can be disengaged at any time by a solenoid valve. It is possible to overpower the elevator command servo, by a force of 60 lbs on the stick grip, and to overpower the aileron command servo by a force of 30 lbs on the stick grip.
- 26. There is no command servo for the rudder actuator, as its operation is co-ordinated with the aileron movement by the aircraft damping system.

Heat Exchangers

27. The heat exchangers are utilised in the return circuits to dissipate the heat of the hydraulic oil generated by the system components. For efficient cooling, an oil-to-air heat exchanger and an oil-to-fuel heat exchanger are used.

Oil-to-air Heat Exchanger

28. The oil-to-air heat exchangers are located below the engines and use air flow through a hydraulic fluid filled core for heat dissipation. A by-pass valve diverts the hydraulic fluid past the core when the fluid temperature is below 90.5°C (195°F).

Oil-to-fuel Heat Exchanger

29. If the oil-to-air heat exchanger does not cool the hydraulic fluid sufficiently, the operation of a thermal element in the by-pass valve of the oil-to-fuel

1	ISSUE					
ŀ	DATE	1				
	DATE	23 Nov 56				

heat exchanger diverts the hydraulic fluid through a fuel cooled core and thence to the compensator.

Thermometer

30. A thermometer located in the return line above the compensator indicates fluid temperature. This thermometer is used in conjunction with the temperature calibrated rod in the compensator, when topping the system up to the correct level.

ISSUE	1								
DATE	23 Nov 56								

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	The state of the s								
SYSTEM	SUB-SYSTEM		COMPON	NENT	REF. NO.				
FLYING CONTROLS HYDRAULICS			Pump - Hydrau	lic	32-1				
AVRO PART NO.	MANUFACTURER	MAN'F	'R'S PART NO.	AIRCRAFT E	FFECTIVITY				
7-3258-13	Vickers Inc.	AA 60	659 - L2	25201					
OVERHAUL LIFE: KNC	WN-	ES	TIMATED- 500 ho	ours					
FUNCTION	To supply hydraulic pr	essure t	o the flying						
LOCATION	In the fuselage, stati	on 621.							
ACCESS	ME	N X MINUTES							
REPLACEMENT PROCEDU	Position the pump. Install and tighten nu mounting studs (six). Left hand lower pump of the "A" system retu passes the pump. Right hand lower pump of the "B" system retu passes the pump. Connect the self-seali other three hydraulic Fill the pump with oil the pump at the case d	install rn pipe - install rn pipe ing coupl pipeline and ble	the section line that I the section line that ing and the s to the pump. ed the air from	ME	N X MINUTES				
2M-3M3-2-5									

INSPECTION							MEN	MEN X MINUTES		
Check for leaks, security, damage, cracks and corrosion.										
FUNCTIO	NAL CHECK	(S						MEN	X MINUTES	
GROUND	HANDLING	AND GRO	UND TEST	EQUIPMEN	т				8	
			Hy	draulic ha	nd filling	g pump.				
SPECIAL	TOOLS TO	REMOVE O	R SERVICE							
REMARKS	5									
ISSUE	1									
DATE	23 Nov 56									

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SYSTEM	SUB-SYSTEM		COMPON	NENT	REF. NO.		
FLYING CONTROIS HYDRAULICS			Coupling - Qui Self-sealin		32 - 2		
AVRO PART NO.	MANUFACTURER	MAN'F	'R'S PART NO.	AIRCRAFT E	RAFT EFFECTIVITY		
7-3258-45, 47, 48	Eastern Aircraft Products			2520	וו		
OVERHAUL LIFE: KN	NOWN-	ES	TIMATED- 500	hours			
FUNCTION							
	To seal the hydraulic p	pipelines	when the pumps	are removed.			
LOCATION				-			
200711011	In the fuselage, Static	n 621.5.					
ACCESS	МЕ	EN X MINUTE					
	Through the No. 2 servi	ce door	- 42 camlocs.				
	·						
REPLACEMENT PROCED	URE			ME	N X MINUTES		
REPLACEMENT PROCED	Install the halves on thydraulic pipeline. Connect the coupling hableed the system on eng	lves.		ME	N X MINUTE		
REPLACEMENT PROCED	Install the halves on thydraulic pipeline. Connect the coupling ha	lves.		ME	N X MINUTE		
REPLACEMENT PROCED	Install the halves on thydraulic pipeline. Connect the coupling ha	lves.		ME	N X MINUTE:		
REPLACEMENT PROCED	Install the halves on thydraulic pipeline. Connect the coupling ha	lves.		ME	N X MINUTE:		
REPLACEMENT PROCED	Install the halves on thydraulic pipeline. Connect the coupling ha	lves.		ME	N X MINUTE:		
REPLACEMENT PROCED	Install the halves on thydraulic pipeline. Connect the coupling ha	lves.		ME	N X MINUTE:		
REPLACEMENT PROCED	Install the halves on thydraulic pipeline. Connect the coupling ha	lves.		ME	N X MINUTES		
REPLACEMENT PROCED	Install the halves on thydraulic pipeline. Connect the coupling ha	lves.		ME	N X MINUTES		
REPLACEMENT PROCED	Install the halves on thydraulic pipeline. Connect the coupling ha	lves.		ME	N X MINUTE:		
REPLACEMENT PROCED	Install the halves on thydraulic pipeline. Connect the coupling ha	lves.		ME	N X MINUTE:		

INSPECTION	MEN X MINUTES								
Check for leaks.									
FUNCTIONAL CUESUS									
FUNCTIONAL CHECKS	MEN X MINUTES								
GROUND HANDLING AND GROUND TEST EQUIPMENT									
SPECIAL TOOLS TO REMOVE OR SERVICE									
REMARKS									
ISSUE 1									
DATE 23 Nov 56									

SYSTEM	SUB-SYSTEM		COMPO	NENT	REF. NO.
FI.YING CONTROLS HYDRAULICS			Manifold - Pum Delivery	р	32-3
AVRO PART NO.	MANUFACTURER	MAN'F	'R'S PART NO.	AIRCRAFT E	EFFECTIVITY
7=3258=16	Aviation Electric	AE	1-417	25	201
OVERHAUL LIFE: KNO	-NWC	ES	TIMATED-	500 hours	
FUNCTION	To unite the feeds fro	om the pu	mps and to isola	te a	
LOCATION					
ACCESS	Through the No. 3 serv	vice door	- 36 camlocs.	ME	EN X MINUTE:
REPLACEMENT PROCEDU	JRE			МЕ	EN X MINUTE
	Attach the manifold to attachment bolts. Connect the five hydra Connect the hydraulic Prime the system.	aulic pip	pelines.		
• (41)-7-2	,				

INSPECTION							MEN X MINUTES			
			Che	ck for se	curity,	damage,	cracks,			
			001	1051011, 1	cans.					
FUNCTIO	NAL CHECK	KS							MEN Y	MINUTES
									MEIS X	MINOTES
GROUND	HANDLING	AND GRO	UND TEST	EQUIPMEN	ΙT					
			Hyd B4	raulic gr	ound tes	t rig.				
SPECIAL	TOOLS TO	REMOVE O	R SERVICE							
REMARK	5									
ISSUE										
DATE	1 23 Nov 56									

COMPONENT DATA SHEET

SYSTEM		SUB-SYSTEM		COMPONENT			REF. NO.		
FLYING CONTROLS HYDRAULICS				Filter - Multi-	outlet		32-4		
AVRO PART NO		MANUFACTURER	MAN'F	'R'S PART NO.	AIRCRAI	FT EF	FECTIVITY		
7-3258-43	Pat	rmatic Engineering			2	25201			
OVERHAUL LIFE: KN	OWN	V -	ES	TIMATED- 500	hours				
FUNCTION	ν.	0171	0 11 07	2.F 2.2 k 2.7 1 3					
		ain pressure filter o	I the II	ying control hyd	raulic				
LOCATION									
At rear of V strut. Station 697.									
ACCESS						MEN	X MINUTES		
	T	hrough the No. 4 serv	ice door	- 28 camlocs.					
REPLACEMENT PROCEDU	JRE					MEN	X MINUTES		
	Co Co	ttach the filter by tonnect the seven hydronnect the hydraulic rime the system.	aulic pi	pelines.					

7M1-3413+2-5

INSPECTION											
Check for security, damage, cracks and leaks. Clean the element.											
FUNCTIONAL CHECKS MEN											
GROUND HANDLING AND GROUND TEST EQUIPMENT											
Hydraulic ground test rig.											
SPECIAL TOOLS TO REMOVE OR SERVICE											
REMARKS											
ISSUE 1											
DATE 23 Nov 56											

SYSTEM	SUB-SYSTEM		COMPONENT		REF. NO.					
FLYING CONTROLS HYDRAULICS			Accumula	tor	32-5					
AVRO PART NO.	MANUFACTURER	MAN'F	'R'S PART NO.	AIRCRAFT EFFECTIVIT						
7-3258-41	Aviation Electric			252	01					
OVERHAUL LIFE: KNO	-NWC	ES	TIMATED- 500 h	ours						
FUNCTION	To provide quick respon	nse contr	ol movements.							
LOCATION Inside the fuselage. Station 690-715.										
ACCESS Through the No. 3 service door - 36 camlocs and the No. 4 service door - 28 camlocs.										
REPLACEMENT PROCEDU	Attach the clamps and Tighten the nuts onto Connect the two hydrau Charge with dry nitrog Connect the hydraulic Prime the system.	the clamp lic pipel en to 150	oing bolts (two). ines. O psi.		EN X MINUTES					

									_	
INSPECTION							м	EN X	MINUTES	
				(1500 psi	security,	sure on ga				
				0011001011	did Todio					
FUNCTIO	NAL CHECK	KS.						м	FN X	MINUTES
TOMOTIO	TALL OFFICE							*	EIN A	MINOTES
GROUND	HANDLING	AND GRO	UND TEST							
				Air-nitro Hydraulic	gen trolle ground te	y. st rig.				
SPECIAL	TOOLS TO	REMOVE O	R SERVICE							
REMARK	5									
ISSUE	1									
DATE	23 Nov 56									

7M1=3413-2-6

_								
	SYSTEM	SUB-SYSTEM		COMPON	NENT	REF. NO.		
	FLYING CONTROLS HYDRAULICS			Valve - Press	aure Control	32-6		
	AVRO PART NO.	MANUFACTURER	MAN'F	R'S PART NO.	AIRCRAFT E	FFECTIVITY		
	7-3258-14	Vinson Manufacturing Co.	Α-	-50029	25201			
	OVERHAUL LIFE: KNOW	WN-	ES	TIMATED- 500 H	nours			
	FUNCTION	To keep the system pro at 1250 psi for stand hydraulic compensators	by pressu					
LOCATION In the fuselage - Station 697.								
	ACCESS	ME	N X MINUTES					
	REPLACEMENT PROCEDUR	RE			ME	N X MINUTES		
		Replace three mountin Connect the six hydra pipeline to the press Connect the hydraulic Prime the system.	ulic pip	elines including ch.	the			
	N)3-7-5							

INSPECTION	MEN X MINUTES
Check for security, damage, cracks, corrosion and leaks.	
FUNCTIONAL CHECKS	MEN X MINUTES
GROUND HANDLING AND GROUND TEST EQUIPMENT	
Hydraulic ground test rig.	
SPECIAL TOOLS TO REMOVE OR SERVICE	
REMARKS	
ISSUE 1	
DATE 23 NOV 56	

		-				
HYDRAULICS AVRO PART NO. MANUFACTURER MANYFR'S PART NO. AIRCRAFT EFFECTIVIT 7-3258-29 Aviation Electric AEP-20084 25201 OVERHAUL LIFE: KNOWN- ESTIMATED- 500 hours. FUNCTION Indicates the pressure in the compensator emergency pressurizing line. LOCATION On the V strut - Station 644.63. ACCESS Through the No. 2 service door - 42 camlocs. MEN X MINUTE Slide the gauge into the clamp. Tighten the clamp. Connect the hydraulic pipeline. Connect the hydraulic ground test rig.	SYSTEM	SUB-SYSTEM		COMPON	NENT	REF. NO.
7-3258-29 Aviation Electric AEP-20084 25201 OVERHAUL LIFE: KNOWN- Indicates the pressure in the compensator emergency pressurizing line. LOCATION On the V strut - Station 644.63. ACCESS Through the No. 2 service door - 42 camlocs. MEN X MINUTE Slide the gauge into the clamp. Tighten the clamp. Connect the hydraulic pipeline. Connect the hydraulic ground test rig.				Gauge - Reduced	d Pressure	32-7
OVERHAUL LIFE: KNOWN- ESTIMATED- 500 hours. FUNCTION Indicates the pressure in the compensator emergency pressurizing line. LOCATION On the V strut - Station 644.63. ACCESS MEN X MINUTE Through the No. 2 service door - 42 camlocs. MEN X MINUTE Slide the gauge into the clamp. Tighten the clamp. Connect the hydraulic pipeline. Connect the hydraulic ground test rig.	AVRO PART NO.	MANUFACTURER	MAN'F	'R'S PART NO.	AIRCRAFT E	FFECTIVITY
FUNCTION Indicates the pressure in the compensator emergency pressurizing line. LOCATION On the V strut - Station 644.63. ACCESS MEN X MINUTE Through the No. 2 service door - 42 camlocs. MEN X MINUTE Slide the gauge into the clamp. Tighten the clamp. Connect the hydraulic pipeline. Connect the hydraulic ground test rig.	7=3258=29	Aviation Electric	AEP-	20084	25201	-
Indicates the pressure in the compensator emergency pressurizing line. LOCATION On the V strut - Station 644.63. ACCESS Through the No. 2 service door - 42 camlocs. MEN X MINUTE Slide the gauge into the clamp. Tighten the clamp. Connect the hydraulic pipeline. Connect the hydraulic ground test rig.	OVERHAUL LIFE: KNO	WN-	ES	TIMATED- 500	hours.	
On the V strut - Station 644.63. ACCESS MEN X MINUTE Through the No. 2 service door - 42 camlocs. MEN X MINUTE MEN X MINUTE Slide the gauge into the clamp. Tighten the clamp. Connect the hydraulic pipeline. Connect the hydraulic ground test rig.	FUNCTION		e in the	compensator emer	rgency	le .
Through the No. 2 service door - 42 camlocs. REPLACEMENT PROCEDURE Slide the gauge into the clamp. Tighten the clamp. Connect the hydraulic pipeline. Connect the hydraulic ground test rig.	LOCATION	On the V strut - St	ation 64.	4.63.		
REPLACEMENT PROCEDURE Slide the gauge into the clamp. Tighten the clamp. Connect the hydraulic pipeline. Connect the hydraulic ground test rig.	ACCESS				ME	N X MINUTES
Slide the gauge into the clamp. Tighten the clamp. Connect the hydraulic pipeline. Connect the hydraulic ground test rig.		Through the No. 2 ser	vice door	c - 42 camlocs.		
Tighten the clamp. Connect the hydraulic pipeline. Connect the hydraulic ground test rig.	REPLACEMENT PROCEDU	RE .			МЕ	N X MINUTES
		Tighten the clamp. Connect the hydraulic Connect the hydraulic	pipeline ground	e. test rig.		
M(-)(1):2-5	NI -2413 -2-6			****		

INSPECTION			MEN X MINUTES
	Visual (Press-to-test). Check for security, dama and discoloration of dis	age, leaks.	
FUNCTIONAL CHECKS			MEN X MINUTES
GROUND HANDLING AND GROUND T	EST EQUIPMENT		
	Hydraulic ground test ri	ig.	
SPECIAL TOOLS TO REMOVE OR SERV	ICE		
	,		
REMARKS			
ISSUE 1			
DATE 23 Nov 56			

CVCTTL	CUID CVCTT		6011501	UENT	REF. NO.
SYSTEM	SUB-SYSTEM	1	COMPON		
FLYING CONTROLS HYDRAULICS			Compensator -	Dual Pressure	32-8
AVRO PART NO.	MANUFACTURER	MAN'F'	R'S PART NO.	AIRCRAFT E	FFECTIVITY
7-3258-123	H.W. Loud		7875	252	01
OVERHAUL LIFE: KNOW	WN-	EST	TIMATED- 500	hours	
FUNCTION	To compensate for v				
LOCATION	Inside the fuselage	e at Stati	on 644.43.		
ACCESS Front com	nensator			ME	N X MINUTE
220110	Through the No. 2 s	ervice do	oor - 42 camlocs		
Rear comp	pensator				
110012	Through the No. 3 s				
REPLACEMENT PROCEDUR	RE.			ME	N X MINUTE
	D	tor throug	th the access pa		N A MINOTE
Front compensators	Locate the top lug on the V support. Attach the compensa attachment bolt. Attach the filter t Connect the six hyd	of the control of the control of the com	mpensator on the s bracket by the apensator.	e pin	
Rear compensator:	Raise the compensat Support the compensa access hole and loc sator on the pin on Attach the compensa attachment bolt. Connect the six hyd Connect the hydraul Prime the system. Manually bleed both	tor through ator with cate the the the V surator to it draulic pilic ground	th the access part a crutch through a crutch through a comport. It is bracket by the pelines. It test rig.	gh the ompen-	
-11/1/-7-1					

INSPECT	ION	м	IEN X MINUTES
	Check for secur external leaks. Remove the drain leaks; clean the	ir, check the fluid level. ity, damage, cracks and n plug to check for internal e air and fluid filters, heck the fluid level.	
FUNCTIO	NAL CHECKS	м	IEN X MINUTES
GROUND	HANDLING AND GROUND TEST EQUIPMENT		
	Hydraulic groun Hydraulic filli Crutch to suppo:		
SPECIAL	Hydraulic filli	ng hand pump.	
SPECIAL	Hydraulic fillin Crutch to suppor	ng hand pump.	
SPECIAL	Hydraulic fillin Crutch to suppor	ng hand pump.	
SPECIAL REMARKS	Hydraulic fillin Crutch to support	ng hand pump.	
	Hydraulic fillin Crutch to support	ng hand pump.	
	Hydraulic fillin Crutch to support	ng hand pump.	
	Hydraulic fillin Crutch to support	ng hand pump.	
	Hydraulic fillin Crutch to support	ng hand pump.	
	Hydraulic fillin Crutch to support	ng hand pump.	
	Hydraulic fillin Crutch to support	ng hand pump.	

SYSTEM	SUB-SYSTEM		COMPON	NENT	REF. NO.
FLYING CONTROLS HYDRAULICS	×		Switch - Pre	essure P.1.	32-9
AVRO PART NO.	MANUFACTURER	MAN'F	'R'S PART NO.	AIRCRAFT E	FFECTIVIT
7=3258=35	Meletron Corporation			252	01
OVERHAUL LIFE: KN	IOWN-	ES	TIMATED-		
FUNCTION	To warn the pilot of system.	` malfunc	tioning of each	flying contr	ol
LOCATION	At the flying contro	ls syste	m accumulator St	ation 702.	
ACCESS				ME	N X MINUTE
	Through the No. 4 se	ervice do	or - 28 camlocs.		
REPLACEMENT PROCED	URE			ME	и х мійите
	Slide the switch int Tighten two bolts se clamp. Connect the hydrauli Connect the electric Connect the hydrauli Bleed the air at the	curing t c pipeli c cable. c ground	he switch to the ne. test rig.		

INSPECT	ION							MEI	X MINUTES
			;	shut down	and start: security,	re to be ning of the damage, c:	engines.		
FUNCTIO	NAL CHECK	(S						MEN	X MINUTES
GROUND	HANDLING	AND GRO	OUND TEST	EQUIPMEN	т				
				Hydraulic	ground tes	et rig.			
SPECIAL	TOOLS TO	REMOVE C	R SERVICE		70.0				
REMARKS	5								
ISSUE	1								
DATE	23 Nov 56								

7H1-3413-2-B

SYSTEM	SUB-SYSTEM		COMPON	NENT	REF. NO.
FLYING CONTROLS HYDRAULICS			Coupling - F	Expansion	32-10
AVRO PART NO.	MANUFACTURER	MAN'F	R'S PART NO.	AIRCRAFT E	FFECTIVIT
7-3262-14, 16	Dowty Equipment	14XP3	053	2520	01
OVERHAUL LIFE: KN	OWN-	ES ⁻	TIMATED- 500 H	ours.	
FUNCTION	To allow for the then pipelines.	rmal expa	nsion and contra	ection of the	
LOCATION	Inside the elevator	control b	ox.		
ACCESS		***		ME	N X MINUTE
	By removing the lower box (approximately 50				
REPLACEMENT PROCEDU	JRE			ME	N X MINUTE
	Connect the hydraulic Connect the hydraulic Prime the system.	c pipelin c ground	es. test rig.		

SYSTEM	SUB-SYSTEM		COMPOR	NENT	R	EF. NO.
FLYING CONTROLS HYDRAULICS			Filter - High 5.8 gpm	Pressure		32-11
AVRO PART NO.	MANUFACTURER	MAN'F	'R'S PART NO.	AIRCRAFT	EFFE	CTIVITY
7=3264=65, 66,67,68	Avro Aircraft, Aircraft Porous Media			25	201	
OVERHAUL LIFE: KNO	-NWC	ES	TIMATED- 500 h	ours		
FUNCTION	To filter the hydraul	ic fluid	flowing to the	aileron ac	tuator	•
LOCATION	Forward face of the c	outer win	g rear spar.			
ACCESS					MEN X	MINUTES
	Through the aileron a	ectuator	access panel -			
REPLACEMENT PROCEDU	JRE				MEN X I	MINUTES
	Position the filter a bolts. Connect the hydraulic Connect the hydraulic Prime the system.	pipelin	e.	ent		

INSPECT	ON		MEN X MINUTES
		Check for leakage through the elevator control linkage inspection panels on the upper skin of the control box.	
FUNCTIO	NAL CHECKS		MEN X MINUTES
GROUND	HANDLING AND GROUND T	EST EQUIPMENT	<u> </u>
		Hydraulic ground test rig. B4 stand.	
SPECIAL	TOOLS TO REMOVE OR SERV	VICE	
REMARK	5		
ISSUE	1		
DATE	23 Nov 56		

7#1-3413-2-6

							Annual Control of the			
INSPECT	ION							МЕ	:N X	MINUTES
						i esta de				
				multi-outl trouble is actuators	et filter experien or the co	ss the main s show dir- ced with th ntrol valve cleaned an	t, or ne aileron es.			
FUNCTIO	NAL CHEC	<s< td=""><td></td><td></td><td></td><td></td><td></td><td>МЕ</td><td>N X</td><td>MINUTES</td></s<>						МЕ	N X	MINUTES
GROUND	HANDLING	AND GRO	UND TEST	r EQUIPMEN	IT					
				Hydraulic B4 stand.	ground te	st rig.				
SPECIAL	TOOLS TO	REMOVE O	R SERVICE	Ξ.						
REMARK	5			*						
ISSUE									T	
DATE	1 22 N 56									
DAIL	23 Nov 56									

SYSTEM	SUB-SYSTEM	no 4	COMPON	NENT	REF. NO.
FLYING CONTROLS HYDRAULICS			Filter - Hig Dual 3.3		32-12
AVRO PART NO.	MANUFACTURER	MAN'F	'R'S PART NO.	AIRCRAFT E	FFECTIVITY
7-3283-11	Avro Aircraft. Aircraft Porous Media			252	01
OVERHAUL LIFE: KN	OWN-	ES	TIMATED- 500	hours	
FUNCTION	To filter the hydrau	lic fluid	flowing to the	rudder actua	tor.
LOCATION	Aft face of spar No.	5 in the	e vertical stabil	lizer.	
ACCESS				ME	N X MINUTES
	Through the rudder ac vertical stabilizer.	ctuator a	eccess door in the	ne	
REPLACEMENT PROCEDU	JRE			МЕ	N X MINUTES
	Position the filter and Connect the four hydraulic Attach the hydraulic Prime the system.	raulic pi	pelines.	polts.	
74(-)5(3)-2-5					

INSPECTI	ON							MEN	X MINUTES
			1	Do not ins multi-outl trouble is actuators The elemen	et filters experience or the cor	s show dir ced with t atrol valv	t, or he aileron es.		
FUNCTIO	NAL CHECK	<s< td=""><td>41</td><td></td><td></td><td></td><td></td><td>MEN</td><td>X MINUTES</td></s<>	41					MEN	X MINUTES
GROUND	HANDLING	AND GRO	UND TEST	EQUIPMEN	г				
				Hydraulic B5 stand.		st rig.			
	TOOLS TO			Hydraulic B5 stand.		st rig.			
	TOOLS TO			Hydraulic B5 stand.		et rig.			
				Hydraulic B5 stand.		et rig.			
SPECIAL				Hydraulic B5 stand.		et rig.			
SPECIAL				Hydraulic B5 stand.		et rig.			
SPECIAL				Hydraulic B5 stand.		et rig.			
SPECIAL		REMOVE O		Hydraulic B5 stand.		et rig.			

SYSTEM	SUB-SYSTEM		COMPON	NENT	REF. NO.	
FLYING CONTROLS HYDRAULICS			Actuator -	Aileron	32-13	
AVRO PART NO.	MANUFACTURER	MAN'F	'R'S PART NO.	AIRCRAFT E	FFECTIVITY	
-3264-23 LH, 24 RH Jarry Hydraulics				252	25201	
OVERHAUL LIFE: KN	NOWN-	ES	TIMATED- 500	hours		
FUNCTION	Operation of the ail	erons.				
LOCATION			1.00mm/d d.			
	At the outer wing tr	ailing e	dge.			
ACCESS				МЕ	N X MINUTE	
	Through the access p lower skin. 106 scr					
REPLACEMENT PROCED	DURE		3-3-4-W-19.	ME	N X MINUTE	
	Position the actuator attach the actuator Align the piston end crank and insert the Connect the four hydractuator. Connect the electric Connect the push rod Connect the hydrauli Prime the system. Function test the actuator	to the best of the second cables to the coground	earing by four beactuator with the ipelines to the s. bell crank arm.	olts.		

INSPECTION	MEN X MINUTES
Check for security, damage, cracks and leakage.	
FUNCTIONAL CHECKS	MEN X MINUTES
GROUND HANDLING AND GROUND TEST EQUIPMENT	
Hydraulic ground test rig. Electric ground power unit. B4 stand.	
SPECIAL TOOLS TO REMOVE OR SERVICE	
REMARKS	
IGGUE	
DATE 23 Nov 56	

SYSTEM	SUB-SYSTEM		COMPO	NENT	REF. NO.
FLYING CONTROLS HYDRAULICS			Actuator -	Elevator	32-14
AVRO PART NO.	MANUFACTURER	MAN'F'R'S P	ART NO.	AIRCRAFT E	FFECTIVITY
7-3262-15	Jarry Hydraulics	1020		25201	
OVERHAUL LIFE: KNO	N-	ESTIMAT	ED- 500	hours	
FUNCTION	Operation of the ele	evators.			
LOCATION				8	
	Inboard trailing ed	ge of the L.H.	and R.H.	inner wing.	
ACCESS				МЕ	N X MINUTES
	Through the access pakin - 100 screws.	panel in the u	apper wing		
REPLACEMENT PROCEDU	RE			ME	N X MINUTES
	Position the actuator attach the actuator Align the piston endormal and insert the Connect the electric Connect the four hydractuator. Connect the push row Connect the hydraulity Prime the system. Function test the actuator	to the bearing of the actual education to the bellic ground test	g by four tor with the nes to the crank arm.	bolts. ne bell	

INSPECTION		MEN X MINUTES
	Check for security, damage, cracks and leakage.	
FUNCTIONAL CHECKS		MEN X MINUTES
GROUND HANDLING AND G	ROUND TEST EQUIPMENT	
	Hydraulic ground test rig. Electric ground power unit. B4 stand.	
SPECIAL TOOLS TO REMOVE	OR SERVICE	
REMARKS		
ISSUE 1		
DATE 23 Nov 56		

SYSTEM	SUB-SYSTEM		COMPON	NENT	REF. NO.
FLYING CONTROLS HYDRAULICS			Actuator - 1	Rudd er	32-15
AVRO PART NO.	MANUFACTURER	MAN'F	'R'S PART NO.	AIRCRAFT E	FFECTIVITY
7-3283-6	Jarry Hydraulics			2520)1
OVERHAUL LIFE: KNO	WN-	ES	TIMATED- 500	hours	
FUNCTION	Actuation of the ru	dder.			
LOCATION	At trailing edge of	the ver	tical stabilizer	•	
ACCESS	Salah dahari da			МЕ	N X MINUTES
	Through the access the vertical stabil				
REPLACEMENT PROCEDUR	RE			МЕ	N X MINUTES
	Position the actuat connect with attach Align the piston en bell-crank and inse Connect the four hy actuator. Connect the electri Connect the push ro Connect the hydraul Prime the system. Function test the a	ment bold of the rt the bodraulic part cable do to the ic ground	t. actuator with the lt. pipelines to the les. bell-crank arm.		

INSPECT	ION							MEN	X MINUTES
			Che	eck for se	mnity do	maga ara	alce.		
			and	l leakage.	currey, da	mage, crac	KS		
FUNCTIO	NAL CHECK	KS						MEN :	X MINUTES
GROUND	HANDLING	AND GRO	OUND TEST	EQUIPMEN	т				
				draulic gro					
				stand.	F				
SPECIAL	TOOLS TO	REMOVE O	R SERVICE						
REMARKS	5								
ISSUE	1								
	1 23 Nov 56								

	SUB-SYSTEM			COMPON	IENT	REF, NO
FLYINC CONTROLS HYDRAULICS				Valve - Elevat	or Control	. 32-16
AVRO PART NO.		MANUFACTURER	MAN'F	"R'S PART NO.	AIRCRAF	T EFFECTIVIT
7-3262-33	Minn	eapolis Honeywell			2	:5201
OVERHAUL LIFE: H	KNOWN	_	ES	TIMATED- 500) hours	
FUNCTION						¥
	То	direct the flow of	hydrauli	c fluid to the a	ctuator.	
LOCATION		***************************************				10-2-10-00-00-00-00-00-00-00-00-00-00-00-00-
	Мо	unted on the elevator	r actuat	or.		
ACCESS						MEN X MINUT
		rough the elevator a		access door.		
	70	x 1/4 inch N.A.S. s	crews.			
REPLACEMENT PROCE	EDURE					MEN X MINUT
REPLACEMENT PROCE		unt the control velv	re on the	elevator actuat	or	MEN X MINUTE
REPLACEMENT PROCE	Мо	unt the control valv			or	MEN X MINUTE
REPLACEMENT PROCE	Mo an Mo	d secure with four munt the elevator dam	nounting uping ser	bolts.		MEN X MINUTE
REPLACEMENT PROCE	Mo an Mo Co	d secure with four munt the elevator dam nnect the control va	nounting uping ser	bolts.		MEN X MINUTE
REPLACEMENT PROCE	Mo an Mo Co li	d secure with four munt the elevator dan nnect the control vankage.	nounting nping ser alve rod	bolts. vo end to the contr	01	MEN X MINUTI
REPLACEMENT PROCE	Mo an Mo Co li Co	d secure with four munt the elevator dan nnect the control vankage. nnect the damping senkage.	nounting aping ser alve rod	bolts. vo end to the contr end to the contr	01	MEN X MINUTI
REPLACEMENT PROCE	Mo an Mo Co li Co li In	d secure with four munt the elevator daminect the control vankage. nnect the damping senkage. stall the elevator a	nounting uping ser alve rod ervo rod actuator	bolts. vo end to the contr end to the contr in to the wing.	01	MEN X MINUTI
REPLACEMENT PROCE	Mo an Mo Co li Co li In	d secure with four munt the elevator dannect the control vankage. nnect the damping senkage. stall the elevator annect the hydraulic	nounting uping ser alve rod ervo rod actuator	bolts. vo end to the contr end to the contr in to the wing.	01	MEN X MINUTE
REPLACEMENT PROCE	Mo an Mo Co li Co li In Co	d secure with four munt the elevator daminect the control vankage. nnect the damping senkage. stall the elevator a	nounting serulve rod ervo rod ectuator ground t	bolts. vo end to the contr end to the contr in to the wing.	01	MEN X MINUTE
REPLACEMENT PROCE	Mo an Mo Co li Co li In Co	d secure with four munt the elevator dannect the control vankage. nnect the damping senkage. stall the elevator annect the hydraulichime the system.	nounting serulve rod ervo rod ectuator ground t	bolts. vo end to the contr end to the contr in to the wing.	01	MEN X MINUTE
REPLACEMENT PROCE	Mo an Mo Co li Co li In Co	d secure with four munt the elevator dannect the control vankage. nnect the damping senkage. stall the elevator annect the hydraulichime the system.	nounting serulve rod ervo rod ectuator ground t	bolts. vo end to the contr end to the contr in to the wing.	01	MEN X MINUTI
REPLACEMENT PROCE	Mo an Mo Co li Co li In Co	d secure with four munt the elevator dannect the control vankage. nnect the damping senkage. stall the elevator annect the hydraulichime the system.	nounting serulve rod ervo rod ectuator ground t	bolts. vo end to the contr end to the contr in to the wing.	01	MEN X MINUTI
REPLACEMENT PROCE	Mo an Mo Co li Co li In Co	d secure with four munt the elevator dannect the control vankage. nnect the damping senkage. stall the elevator annect the hydraulichime the system.	nounting serulve rod ervo rod ectuator ground t	bolts. vo end to the contr end to the contr in to the wing.	01	MEN X MINUTE
REPLACEMENT PROCE	Mo an Mo Co li Co li In Co	d secure with four munt the elevator dannect the control vankage. nnect the damping senkage. stall the elevator annect the hydraulichime the system.	nounting serulve rod ervo rod ectuator ground t	bolts. vo end to the contr end to the contr in to the wing.	01	MEN X MINUTE
REPLACEMENT PROCE	Mo an Mo Co li Co li In Co	d secure with four munt the elevator dannect the control vankage. nnect the damping senkage. stall the elevator annect the hydraulichime the system.	nounting serulve rod ervo rod ectuator ground t	bolts. vo end to the contr end to the contr in to the wing.	01	MEN X MINUTE
REPLACEMENT PROCE	Mo an Mo Co li Co li In Co	d secure with four munt the elevator dannect the control vankage. nnect the damping senkage. stall the elevator annect the hydraulichime the system.	nounting serulve rod ervo rod ectuator ground t	bolts. vo end to the contr end to the contr in to the wing.	01	MEN X MINUTE
REPLACEMENT PROCE	Mo an Mo Co li Co li In Co	d secure with four munt the elevator dannect the control vankage. nnect the damping senkage. stall the elevator annect the hydraulichime the system.	nounting serulve rod ervo rod ectuator ground t	bolts. vo end to the contr end to the contr in to the wing.	01	MEN X MINUTI
REPLACEMENT PROCE	Mo an Mo Co li Co li In Co	d secure with four munt the elevator dannect the control vankage. nnect the damping senkage. stall the elevator annect the hydraulichime the system.	nounting serulve rod ervo rod ectuator ground t	bolts. vo end to the contr end to the contr in to the wing.	01	MEN X MINUTE

INSPECT	ON					MEN	X MINUTES
		Check for seand leaks.	curity, cr	racks, cor	rosion,		
FUNCTIO	NAL CHECKS					MEN	X MINUTES
GROUND	HANDLING AND GROUND						
		Hydraulic ground Electric ground B4 stand.	und test	rig. supply.			
SPECIAL	TOOLS TO REMOVE OR SER	VICE			-		
REMARKS	5						
ISSUE	1						
DATE	23 Nov 56						

				·		
SYSTEM FLYING CONTROLS		SUB-SYSTEM		COMPON	NENT	REF. NO.
HYDRAULICS				Valve - Ail	Leron Contro	32-17
AVRO PART NO.		MANUFACTURER	MAN'F	"R'S PART NO.	AIRCRAFT	EFFECTIVITY
7-3264-12	Mi	nneapolis Honeywell			252	01
OVERHAUL LIFE: KN	own	V -	ES	TIMATED- 500 1	nours	
FUNCTION					_	
		To direct the flow	of hydra	aulic fluid to the	ne actuator.	
LOCATION			St. 7 (1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		* *	
		Mounted on the ails	eron acti	uator.		
ACCESS					M	EN X MINUTES
		Through the aileron		or access door -		
		106 x 5/16 inch sc	rews.			
REPLACEMENT PROCEDI	UKE				M	EN X MINUTES
		Mount the control				
		Mount the aileron	damping s	ervo.	SS.	
		Connect the control control linkage.	l valve r	rod end to the	-	
		Connect the damping	g servo i	rod end to the		
		control linkage. Install the aileron	n actuato	or in to the		
		wing. Connect the hydrau	lic grour	nd test rig.		
		Prime the system.				
		Function test the	alleron s	ac cua cor.		
7#1-3413-2-5						

INSPECT	ION	MEN X MINUTES
	Check for security, damage, cracks, corrosion and leaks.	
FUNCTIO	NAL CHECKS	MEN X MINUTES
GROUND	HANDLING AND GROUND TEST EQUIPMENT	
	Hydraulic ground test rig. Electric ground power supply.	
SPECIAL	TOOLS TO REMOVE OR SERVICE	
REMARKS	s	
		-1
		W. J.
ISSUE	1	
DATE	23 Nov 56	

SYSTEM						
31312		SUB-SYSTEM		COMPO	NENT	REF. NO.
FLYING CONTROLS HYDRAULICS				Valve - Rudder	Control	32-18
AVRO PART NO.		MANUFACTURER	MAN'F	'R'S PART NO.	AIRCRAFT	EFFECTIVITY
7-3283-8	Minn	neapolis Honeywell			2520	01
OVERHAUL LIFE: KN	IOWN-	-	ES	TIMATED- 500	hours	
FUNCTION	То	direct the flow of	fluid to	the rudder actu	ator.	
LOCATION	Mot	unted on to the rudd	er actua	tor.		
ACCESS					N	MEN X MINUTES
		rough the rudder act 4 x 1/4 inch screws.		cess door -		
REPLACEMENT PROCEDU	11/			cess door -	N	IEN X MINUTES

INSPECTION	N							МЕ	EN X	MINUTES
			Ch co	eck for se	ecurity, d	amage, cra	cks,			
FUNCTIONA	AL CHECK	(S						МЕ	EN X	MINUTES
GROUND H	IANDLING	AND GRO	OUND TEST	EQUIPMEN	Т					
			Ele	draulic ground stand.	ound test	rig. supply.				
SPECIAL TO	DOLS TO	REMOVE C	R SERVICE							
REMARKS										
ISSUE	1									
DATE 23	Nov 56									

		**			1
SYSTEM FLYING CONTROLS	SUB-SYSTEM		COMPON	NENT	REF. NO
HYDRAULICS		1	Servo - Elevat	or Damping	32-19
AVRO PART NO. 7÷3260−11	MANUFACTURER	MAN'F	R'S PART NO.	AIRCRAFT 25201	EFFECTIVIT
OVERHAUL LIFE: KN	NOWN-	ES.	TIMATED- 500	hours	
FUNCTION	To actuate the ele signals from the d			te-gyro	
LOCATION	Mounted on the ele	vator act	tuator.		
ACCESS				М	EN X MINUTE
	Through the elevat	or actuat	tor access panel	-	
REPLACEMENT PROCED	URE			M	EN X MINUTE
	Position the servo and attach by thre Connect the electr Connect the mechan Connect the hydrau Prime and function hydraulic and elec	e bolts. rical consical link alic ground test the	nector. ks using two bol nd test rig. e elevator		

INSPECT	ION						N	MEN X	MINUTES
			Cor Che	eck for se rrosion and ock the med e electrica	l leaks. chanical c	onnections			
FUNCTIO	NAL CHECK	(S					M	1EN X	MINUTES
GROUND	HANDLING	AND GRO	OUND TEST	EQUIPMEN	Т				
			Ele B5	raulic greetrical greated.	ound test cound supp	rig. ly unit.			
SPECIAL	TOOLS TO	REMOVE C	R SERVICE						
REMARKS	5								
ISSUE	1								

SYSTEM		SUB-SYSTEM		COMPON	NENT	R	EF. NO
FLYING CONTROLS HYDRAULICS				Servo - Aileron	n Damping	1	32 - 20
AVRO PART NO.		MANUFACTURER	MAN'F	R'S PART NO.	AIRCRAFT	EFFE	CTIVIT
7-3260-11					2	5201	
OVERHAUL LIFE: K	NOWN	!-	ES.	TIMATED- 500 h	nours		
FUNCTION							
		To actuate ailero signals from the	ns in res damping s	ponse to rate-gy ystem.	ro		
LOCATION	- constant		100				
		Mounted on to the	aileron	actuator.			
ACCESS						MEN X	MINUTE
		m					
		Through the ailer 106 screws.	on actuat	or access panel	-		
REPLACEMENT PROCE	DURE		on actuat	or access panel		MEN X	MINUTE
REPLACEMENT PROCE	DURE	106 screws.			1	MEN X	MINUTE
REPLACEMENT PROCE	DURE		o on to t ee bolts. rical con nical lin ulic grou n test th	he control valve mector. ks using three b	polts.	MEN X	MINUTE
REPLACEMENT PROCE	DURE	Position the serve and attach by the Connect the mechanic Connect the hydra Prime and function	o on to t ee bolts. rical con nical lin ulic grou n test th	he control valve mector. ks using three b	polts.	MEN X	MINUTE
REPLACEMENT PROCE	DURE	Position the serve and attach by the Connect the mechanic Connect the hydra Prime and function	o on to t ee bolts. rical con nical lin ulic grou n test th	he control valve mector. ks using three b	polts.	MEN X	MINUTE
REPLACEMENT PROCE	DURE	Position the serve and attach by the Connect the mechanic Connect the hydra Prime and function	o on to t ee bolts. rical con nical lin ulic grou n test th	he control valve mector. ks using three b	polts.	MEN X	MINUTE
REPLACEMENT PROCE	DURE	Position the serve and attach by the Connect the mechanic Connect the hydra Prime and function	o on to t ee bolts. rical con nical lin ulic grou n test th	he control valve mector. ks using three b	polts.	MEN X	MINUTE
REPLACEMENT PROCE	DURE	Position the serve and attach by the Connect the mechanic Connect the hydra Prime and function	o on to t ee bolts. rical con nical lin ulic grou n test th	he control valve mector. ks using three b	polts.	MEN X	MINUTE

INSPECTION		MEN X MINUTES
	Check for security, demage, cracks, corrosion and leaks. Check the mechanical connections to the electrical feedback.	
ELINCTIONAL CHECKS		
FUNCTIONAL CHECKS		MEN X MINUTES
GROUND HANDLING AND GROUND	TEST EQUIPMENT	
	Hydraulic ground test rig. Electrical ground supply unit. B4 stand.	
SPECIAL TOOLS TO REMOVE OR SE	RVICE	
REMARKS		
		11
ISSUE 1		
DATE 23 Nov 56		

SYSTEM	SUB-SYSTEM		COMPON	NENT	REF. NO.
FLYING CONTROLS HYDRAULICS			Servo - Rudo	der Damping	32-21
AVRO PART NO.	MANUFACTURER	MAN'F	"R'S PART NO.	AIRCRAFT E	FFECTIVITY
7-3283-7	Minneapolis Honeywell			252	01
OVERHAUL LIFE: KN	-NWC	ES	TIMATED- 500	hours	
FUNCTION	To actuate the ru			rate-gyro	
LOCATION	Mounted on to the	rudder	actuator.		
ACCESS				ME	N X MINUTES
	Through the rudde on the L.H. side 114 x 1/4 inch sc	of the v		er.	
REPLACEMENT PROCEDU	JRE			ME	N X MINUTES
	Position the serv and attach by thr Connect the elect Connect the mecha Connect the hydra Prime and functio and electrical sy	ee bolts rical co nical li ulic gro n test t	nnector. nks using three l und test rig.	polts.	
741-3435-2-5					

INSPECT	ON		MEN X MINUTES
		Check for security, damage, cracks, corrosion and leaks. Check the mechanical connections to the electrical feedback.	
FUNCTIO	NAL CHECKS		MEN X MINUTES
GROUND	HANDLING AND GRO	UND TEST EQUIPMENT	
		Hydraulic ground test rig. Electrical ground power unit.	
SPECIAL	TOOLS TO REMOVE C	Electrical ground power unit.	
SPECIAL	TOOLS TO REMOVE C	Electrical ground power unit.	
SPECIAL		Electrical ground power unit.	
		Electrical ground power unit.	
		Electrical ground power unit.	

					1
SYSTEM	SUB-SYSTEM		COMPO	NENT	REF. NO
FLYING CONTROLS HYDRAULICS			Servo - Elevat	or Command	32=22
AVRO PART NO.	MANUFACTURER	MAN'F	'R'S PART NO.	AIRCRAFT E	FFECTIVIT
7-3262-11	Minneapolis Honeywell	М	G55B	252	201
OVERHAUL LIFE: KNO	To actuate the elevators in response to the signals from the automatic flight control system. CATION Near the lower wing skin at Station 668.		ours		
FUNCTION					
LOCATION	<u> </u>	ng skin	at Station 668.		
ACCESS				ME	N X MINUTE
	Through the No. 3	service	door - 36 camlo	cs.	
REPLACEMENT PROCEDU	JRE			ME	N X MINUTE
REPLACEMENT PROCEDU	Position the serv Attach the lever Connect the elect Connect the two h Connect the hydra Prime and function	bolt. crical ca nydraulic aulic gro	ble. pipelines. und test rig.		N X MINUTE
REPLACEMENT PROCEDU	Position the serv Attach the lever Connect the elect Connect the two h Connect the hydra Prime and function	bolt. crical ca nydraulic aulic gro	ble. pipelines. und test rig.		N X MINUTE

INSPECT	TION			Visual Check : corros:	for securi	ty, damage and backl	e, cracks, ash.	N	IEN X	MINUTES
FUNCTIO	DNAL CHECK	<s< td=""><td></td><td></td><td></td><td></td><td></td><td>N</td><td>IEN X</td><td>MINUTES</td></s<>						N	IEN X	MINUTES
GROUNE	HANDLING	AND GRO	UND TEST	Hydrau	lic ground ical groun	test rig.	init.			
SPECIAL	TOOLS TO	REMOVE O	R SERVICE							
REMARK	S									
DATE	1 23 Nov 56									
	1.57 1.01 70		-							

					1
SYSTEM	SUB-SYSTEM		COMPO	VENT	REF. NO
FLYING CONTROLS HYDRAULICS			Servo - Ailero	n Command	32-23
AVRO PART NO.	MANUFACTURER	MAN'F'R	'S PART NO.	AIRCRAFT E	FFECTIVIT
7-3262-11	Minneapolis Honeywell	MG	55B	252	01
OVERHAUL LIFE: KN	OWN-	ESTI	MATED- 500	hours	
FUNCTION	To actuate the aile from the automatic	rons in re flight con	sponse to the strol system.	signals	
LOCATION	Near lower wing ski	n at Stat	ion 697.		
ACCESS				ME	N X MINUTE
	Through the No. 3 s	ervice doo	r - 36 camlocs	•	
REPLACEMENT PROCEDU	JRE			ME	N X MINUTE
	Position the servo Attach the lever bo Connect the electri Connect the two hyd Connect the hydraul Prime and function	lt. cal cable. raulic pip ic ground	elines. test rig.	S.	

INSPECT	ION							MEN	X MINUTES
					for securi	ty, damage			
FUNCTIO	NAL CHEC	KS						MEN :	K MINUTES
CDOUNE	. HANDI INC	S AND CDC	NIND TEST	FOLUDIATION					
GROUNL) HANDLING	AND GRO	DOND TEST	Hydrau	lic ground ical groun	test rig. d supply u	init.		
SPECIAL	TOOLS TO	REMOVE C	OR SERVICE	:			× ×		
REMARK	S								
40.04									
ISSUE	1								

FLYING CONTROLS HYDRAULICS AVRO PART NO. 7-3256-3 Garrett Corporation OVERHAUL LIFE: KNOWN- FUNCTION Uses ram air to cool the flying control hydraulic fluid. LOCATION Underneath the engines at Station 5777/581. ACCESS By removing the engine. Position the heat exchanger and attach using four screws. Attach the slip joint by four nuts. Connect the hydraulic pipelines. Connect the hydraulic test rig. Prime the system. Install the engine.	EF. NO.
7-3256-3 Garrett Corporation OVERHAUL LIFE: KNOWN- Uses ram air to cool the flying control hydraulic fluid. LOCATION Underneath the engines at Station 577/581. ACCESS By removing the engine. MEN X M Position the heat exchanger and attach using four screws. Attach the slip joint by four nuts. Connect the hydraulic pipelines. Connect the hydraulic test rig. Prime the system.	32=24
OVERHAUL LIFE: KNOWN- ESTIMATED- 500 hours FUNCTION Uses ram air to cool the flying control hydraulic fluid. LOCATION Underneath the engines at Station 577/581. ACCESS By removing the engine. MEN X N Position the heat exchanger and attach using four screws. Attach the slip joint by four nuts. Connect the two hydraulic pipelines. Connect the hydraulic test rig. Prime the system.	CTIVITY
Uses ram air to cool the flying control hydraulic fluid. LOCATION Underneath the engines at Station 577/581. ACCESS By removing the engine. MEN X N Position the heat exchanger and attach using four screws. Attach the slip joint by four nuts. Connect the two hydraulic pipelines. Connect the hydraulic test rig. Prime the system.	
Uses ram air to cool the flying control hydraulic fluid. LOCATION Underneath the engines at Station 577/581. ACCESS By removing the engine. MEN X M Position the heat exchanger and attach using four screws. Attach the slip joint by four nuts. Connect the two hydraulic pipelines. Connect the hydraulic test rig. Frime the system.	
Underneath the engines at Station 577/581. ACCESS By removing the engine. MEN X M Position the heat exchanger and attach using four screws. Attach the slip joint by four nuts. Connect the two hydraulic pipelines. Connect the hydraulic test rig. Prime the system.	
REPLACEMENT PROCEDURE Position the heat exchanger and attach using four screws. Attach the slip joint by four nuts. Connect the two hydraulic pipelines. Connect the hydraulic test rig. Prime the system.	
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Position the heat exchanger and attach using four screws. Attach the slip joint by four nuts. Connect the two hydraulic pipelines. Connect the hydraulic test rig. Prime the system.	MINUTES
Position the heat exchanger and attach using four screws. Attach the slip joint by four nuts. Connect the two hydraulic pipelines. Connect the hydraulic test rig. Prime the system.	2000 10
Position the heat exchanger and attach using four screws. Attach the slip joint by four nuts. Connect the two hydraulic pipelines. Connect the hydraulic test rig. Prime the system.	
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using four screws. Attach the slip joint by four nuts. Connect the two hydraulic pipelines. Connect the hydraulic test rig. Prime the system.	MINUTES

INSPECTION	MEN X MINUTES
Check for security, damage, corrosion and leaks. Check for any internal leakage by observing the exhaust air exit. Check for obstruction of air flow.	
FUNCTIONAL CHECKS	MEN X MINUTES
GROUND HANDLING AND GROUND TEST EQUIPMENT	
Engine removal equipment.	
SPECIAL TOOLS TO REMOVE OR SERVICE	
"Wig-o-Flex" tools.	
REMARKS	
ISSUE 1	
DATE 23 NOV 56	

SYSTEM	SUB-SYSTEM		СОМРОІ	VENT	REF.	NO
FLYING CONTROLS HYDRAULICS			Heat Exchanger	-	32=2	25
AVRO PART NO.	MANUFACTURER	MAN'F	R'S PART NO.	AIRCRAF	T EFFECTI	VIT
7-3256-5, 6	Airesearch	15	1170		25201	
OVERHAUL LIFE: KNO	-NWC	ES	TIMATED- 50	00 hours		
FUNCTION	Uses the fuel to cool: (a) the engine oil. (b) the gearbox oil a (c) the flying contro (d) the utility hydra	and the C	lic fluid.			
LOCATION	Inside the fuselage at	t Station	538.			
ACCESS					MEN X MINI	UTE
	Through the hydraulics 52 camlocs.	s access	door -			
REPLACEMENT PROCEDU	JRE				MEN X MINU	JTE
	Position the heat exchattachment bolt. Attach the lower four upper bolts at the fuc Connect the flying contility hydraulic, the engine oil pipelines to Connect the electrical Prime all the affected Refuel the aircraft.	teen bolt el flange ntrol hyd e gearbox to the hell cables.	s and the six joints. raulic, the and C.S.U. and at exchanger.			

INSPECT	ION							MEN	X MINUTES
				corre	for secu sion. for inte	rity, dama	ge, crack	9,	
				Carry		essure tes ge.	t for any		
FUNCTIO	NAL CHECK	(S						MEN	X MINUTES
GROUND	HANDLING	AND GRO	UND TEST	EQUIPMEN	Т				
SPECIAL	TOOLS TO	REMOVE O	R SERVICE						
REMARK	5), 41 12-4						
									,
ISSUE	1								
DATE	23 Nov 56						12		

COMPONENT DATA SHEET

SYSTEM	SUB-SYSTEM		COMPOR	NENT	REF. NO.
FLYING CONTROLS HYDRAULICS			Gauge - Sight	Bleed	32-26
AVRO PART NO.	MANUFACTURER	MÁN'F	R'S PART NO.	AIRCRAFT E	FFECTIVITY
CS-G-108				2520	1
OVERHAUL LIFE: KN	OWN-	ES	TIMATED- 500) hours	
FUNCTION					
	Visual check fo	r air dur	ing bleeding of	the system.	
LOCATION				, , , , , , , , , , , , , , , , , , , ,	
	In the fuselage	at Stati	on 644.43.		
ACCESS					N X MINUTES
	Through the No.	2 servic	ee door - 42 cam	.008.	
REPLACEMENT PROCEDI	JRE			ME	N X MINUTES
					-
	Install the gau		the mounting bra	acket	
	Connect the hydend and to the	raulic pi	pelines to the a	ipper	
			the hydraulic he	and	

741-3413-2-5

INSPECT	ION							MEN	X MINUTES
				Check	for leaks	3.			
FUNCTIO	NAL CHECK	(S						MEN	X MINUTES
									T
GROUND	HANDLING	AND GRO	UND TEST	FOLIPMEN	т				
		,,,,,							
				Hydra	ulic hand	filling p	ump.		
SPECIAL	TOOLS TO	REMOVE O	R SERVICE			-			
OI LOIAL	10020 10	KEMOVE O	TO DEITHIOL						
REMARKS	5								
, Linear N									
									L - 1
ISSUE	1								

FACTURER Aeroquip connection points est rig for the governulic system. In the fuselage at	MAN'F'R'S F ESTIMAT for attach ground operated to Station 6.	ing the hydration of the	Caps - g AIRCRAFT 252 ours aulic grour flying cor	201 nd
Aeroquip connection points est rig for the g draulic system.	MAN'F'R'S F ESTIMAT for attach ground operated to Station 6.	Self-sealing PART NO. TED- 500 horizontation of the	g AIRCRAFT 252 ours aulic grour flying cor	EFFECTIVI 201 and ntrols
Aeroquip connection points est rig for the g draulic system.	for attach ground operated to Station 6.	ing the hydration of the	ours aulic grour flying cor	201 nd ntrols
onnection points est rig for the g vdraulic system.	for attach ground opera t Station 6	ing the hydration of the	aulic grour flying cor	ntrols
est rig for the godraulic system.	for attach ground opera t Station 6	ing the hydration of the	aulic grour flying cor	ntrols
est rig for the godraulic system.	ground operation 6	ation of the	flying cor	ntrols
				MEN X MINUT
nrough the No.2 s	service doo:	r - 42 camlo		MEN X MINUT
rough the hose t		, and dumino		
	lic pipeli	ne to the		IEN X MINUT
rime the system.				
	oupling.	oupling. onnect the hydraulic ground	oupling. onnect the hydraulic ground test rig.	oupling. connect the hydraulic ground test rig.

INCOCCT	IONI							MEN	X MINUTES
INSPECT	ION							MEN	A MINUTES
				Visus	al check f	or leaks.			
FUNCTIO	NAL CHECK	<s< td=""><td></td><td></td><td></td><td></td><td></td><td>MEN</td><td>X MINUTES</td></s<>						MEN	X MINUTES
GROUND	HANDLING	AND GRO	UND TEST	EQUIPMEN	Т				
				Hvdre	ulic grou	nd test ri	ď		
				11,010	dire grou	na dest 11	5•		
SPECIAL	TOOLS TO	REMOVE O	R SERVICE						
REMARK	5								
									17
ISSUE									
	1								
DATE	23 Nov 56								

SYSTEM	SUB-SYSTEM		COMPON	NENT	REF. NO.
FLYINC CONROLS HYDRAULICS			Indicator - Fl	uid Level	32-28
AVRO PART NO.	MANUFACTURER	MAN'F	R'S PART NO.	AIRCRAFT E	FFECTIVITY
7=3258=145				25201	
OVERHAUL LIFE: KN	OWN-	ES.	TIMATED-		¥
FUNCTION	To indicate the the flying cont	e quantit trol h yd r	y of hydraulic f aulic system.	luid in	
LOCATION	On the compense	ators at	Station 644.13.		
ACCESS					N X MINUTE
			ce door - 42 cam ce door - 28 cam		
REPLACEMENT PROCEDU	JRE			МЕ	N X MINUTE
	end of the indi	icator to It securi	ttaching the low the compensator ng the upper end or rod.		
3413-7-5					

INSPECTION	MEN X MINUTES
Check the fluid level. Check the indicator for security and legibility of the scale.	
FUNCTIONAL CHECKS	MEN X MINUTES
GROUND HANDLING AND GROUND TEST EQUIPMENT Hydraulic topping filler rig.	
Maranta oppand rate	
SPECIAL TOOLS TO REMOVE OR SERVICE	
REMARKS	
ISSUE 1	
DATE 23 Nov 56	

SYSTEM	SUB-SYSTEM		COMPON		REF. NO.		
FLYING CONTROLS HYDRAULICS		Thermometer - Fluid Temperature			32-29		
AVRO PART NO.	MANUFACTURER	MAN'F	R'S PART NO.	AIRCRAFT	EFFECTIVITY		
7-3258-327	7–3258–327						
OVERHAUL LIFE: KN	-NWC	ES ⁻	FIMATED- 500	hours			
FUNCTION	Indicates the hydraulic syst		ure of fluid in	the	e.		
LOCATION	In the fuselag	e at Stat	tion 644.				
ACCESS	Flying control service door -	. hydrauli 42 camlo	cs - Through the		EN X MINUTES		
REPLACEMENT PROCEDU	JRE			М	EN X MINUTES		
	pipeline.	mometer 1	on to the hydra				
7x(-3x()-2-5							

INSPECT	ION									МЕ	N X	MINUTES
					compari indicat Check t	son wit or. he them	perature th the fl rmometer egibility	uid leve	urity	r, .∈.		
FUNCTIO	NAL CHECK	(S								МЕ	:N X	MINUTES
GROUND	HANDLING	AND GRO	UND TEST	EQUIF	PMENT							
SPECIAL	TOOLS TO	REMOVE O	R SERVICE									
REMARK	S											
ISSUE	1											
DATE	23 Nov 56		THIS									