

CHAP	2	SP 109	SERVICING PROCEDURES										AP. 101B-1000-5A3 E Section 1 (1st Edition)				TIME	ACT
TRADE	NAV INST		LIGHTNING															
SHEET	1	OF	13	SHEET/S						3		5	6	AL NO	DATE		EST	
TITLE	Air Data System and Flight Control System Variable Height Gearing Calibration Tests.													SERVICING RECORD AC NO . . . . . DATE . . . . .				
Safety and Servicing Notes are to be complied with throughout the work detailed on this Card.														(1)	(2)	(3)	(4)	(5)
<u>Special Tools and Equipment</u> Test Set Type 8A Mod Inst T133. Test Set Pitot/Static Mk 3. Test Set P-V Mk 1. Control Valve Independent.														MAN HOURS	TRADESMAN INIT	BRIEF DETAILS OF DEFECT OR SUSPECTED DEFECT	F. 720B NO	N.C.O. INITIALS
NB This Procedure is applicable only to aircraft incorporating Variable Height Gearing, and may be used separately, or in conjunction with existing Air Data and Flight Control Tests.																		
NAV INSTRUMENTS NB Tables 7 and 8 referred to in this Procedure, are to be found in the test set calibration chart.																		
1. <u>Preparation</u> 1.1 Pitot/Static test set Mk 3. (a) External supply lead. Connect to external supply. (b) Test set. Connect to pressure head. (c) Pitot and static control valves. Close.																		
1.2 P-V test set. (a) Supply outlets. Connect to appropriate connectors on Mk 3 test set. (b) Pressure and vacuum controls. Close. (c) Supply lead. Connect to external supply.																		
1.3 Independent control valve. (a) Inlet. Tee into pitot line between pressure head and Mk 3 test set. (b) Outlet. Ensure open to atmosphere.																		
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ASSOCIATED PROCEDURE CARDS

ASSOCIATED TRADES

SP NO

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CHAP	2	NAV INST	SERVICING PROCEDURES LIGHTNING		AP101B-1000-5A3 E Section 1 (1st Edition)				
SP NO	109	CONTINUED			AC NO . . . . . DATE . . . . .				
SHEET	2								
Safety and Servicing Notes are to be complied with throughout the work detailed on this card.					SERVICING RECORD				
					(1)	(2)	(3)	(4)	(5)
NAV INSTRUMENTS									
1. <u>Preparation</u> (Contd)									
1.4 Test socket J. Remove shorting plug.									
1.5 Test set Type 8A.									
(a) PL1 Connect to AD4 on air data computer.									
(b) PL2. Connect to FC5 on flight control computer.									
(c) PL3. Connect to test sockets F and L on aircraft test panel.									
(d) PL4. Connect to test socket J on FSDB.									
1.6 External power supplies. (A.c. and d.c.)									
(i) Connect.									
(ii) Switch on.									
1.7 In this Sub-item, if runaway of pointer occurs, the instrument master switch is to be set to 'OFF' immediately. Instrument master switch. Set to 'ON'.									
1.8 Height and speed display units power failure warning flags. Ensure show Black.									
2. <u>Air Data System</u>									
2.1 System. Allow 3 minutes warm up period.									
2.2 P-V test set.									
(a) Pressure valve. )									
(b) Vacuum valve. ) Close.									
(c) Pump switch Set to 'OFF'.									
(d) Source selector. Set to 'PRESSURE'.									
2.3 Independent control valve. Close.									
2.4 Equalizing valve. (Mk 3 test set). Open.									
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CHAP	2	FLT SYSTEMS	SERVICING PROCEDURES		AP101B-1000-5A3E	
SP NO	109	CONTINUED	LIGHTNING		Section 1 (1st Edition)	
SHEET	3	AL 14			AC NO . . . . . DATE . . . . .	
Safety and Servicing Notes are to be complied with throughout the work detailed on this card.					SERVICING RECORD	
					(1)	(2)
					(3)	(4)
					(5)	
<p align="center">FLT SYST</p> <p>2. <u>Air Data System</u></p> <p>2.5 Test set Type 8A.</p> <p>(a) Switch S1. Set to 'TEST 2'.</p> <p>(b) Servo Ensure indicates 00000 indicator. PLUS OR MINUS 00002.</p> <p>2.6 Mk 3 test set.</p> <p>(a) Main switch. Set to 'ON'.</p> <p>(b) Pitot/Static selector.</p> <p>(c) Supply selector. Set and adjust as necessary to give P-S mb indication '0', and S mb indication of 1013.25.</p> <p>(d) Pitot control valve.</p> <p>(e) Static control valve.</p> <p>2.7 Switch S1. Set to 'OFF'. (Test set 8A).</p> <p>2.8 Vacuum valve. Open. (P-V test set).</p> <p>2.9 Mk 3 test set.</p> <p>(a) Pitot control valve. Close.</p> <p>(b) Pitot/Static selector. Set to 'STATIC INPUT'.</p> <p>(c) Supply selector. Set to 'EXTERNAL SUCTION'.</p> <p>NB During Sub-items 2.10 to 2.31 inclusive, P-S mb indication is to remain at '0'.</p> <p>2.10 Pump switch. Set to 'ON'. (P-V test set).</p> <p>2.11 Static control valve. (Mk 3 test set). Operate to give S mb indication of 696.814.</p> <p>2.12 Test set Type 8A.</p> <p>(a) Switch S1. Set to 'f(H)/f(M)'.</p> <p>(b) Switch S12. Set to 'f(H)'.</p> <p>(c) Switch S13. Set to '1'.</p> <p>(d) Servo indicator. Ensure indication is within PLUS OR MINUS 800 of the relevant figure in table 8 of the test set calibration chart.</p>						
SMS/81/384/8					Continued	

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CHAP	2	FLY SYST	SERVICING PROCEDURES LIGHTNING	AP101B-1000-5A3E Section 7 (1st Edition)				
SP NO	109	CONTINUED		AC NO . . . . . DATE . . . . .				
SHEET	4	AL 14		SERVICING RECORD				
Safety and Servicing Notes are to be complied with throughout the work detailed on this card.				(1)	(2)	(3)	(4)	(5)
<p style="text-align: center;">FLT SYST</p> <p>2.    <u>Air Data System</u>    (Contd)</p> <p>2.13   Static control    Operate to decrease S mb valve.                    indication to 280.9.</p> <p>2.14   Servo indicator.    Ensure indication is                               within PLUS OR MINUS                               1600 of relevant figure                               in table 8.</p> <p>2.15   Static control    Operate to decrease S mb valve.                    indication to 121.68.</p> <p>2.16   Servo indicator.    Ensure indication is                               within PLUS OR MINUS                               2400 of relevant figure                               in table 8.</p> <p>2.17   Static control    Operate to decrease S mb valve.                    indication to 115.97.</p> <p>2.18   Servo indicator.    Ensure indication is                               within PLUS OR MINUS                               2400 of relevant figures                               in table 8.</p> <p>2.19   Static control    Close. valve.</p> <p>2.20   Pitot/Static       Set to 'STATIC VENT'. selector.</p> <p>2.21   Static control    Operate to increase S mb valve.                    indication to 121.68.</p> <p>2.22   Servo indicator.    Ensure indication is                               within PLUS OR MINUS                               2400 of relevant figure                               in table 8.</p> <p>2.23   Static control    Operate to increase S mb valve.                    indication to 280.9.</p> <p>2.24   Servo indicator.    Ensure indication is                               within PLUS OR MINUS                               1600 of relevant figure                               in table 8.</p> <p>2.25   Static control    Operate to increase S mb valve.                    indication to 696.814.</p>								
SMS/81/384/8A				Continued				

CHAP	2	FLT SYST	SERVICING PROCEDURES LIGHTNING		AP101B-1000-5A3E Section 7 (1st Edition)				
SP NO	109	CONTINUED			AC NO . . . . . DATE . . . . .				
SHEET	5	AL 14			SERVICING RECORD				
Safety and Servicing Notes are to be complied with throughout the work detailed on this card.					(1)	(2)	(3)	(4)	(5)
FLT SYST									
2. <u>Air Data System</u> (Contd)									
2.26 Servo indicator. Ensure indication is within PLUS OR MINUS 800 of the relevant figure in table 8.									
2.27 Static control valve. Close.									
2.28 Pitot/Static selector. Set to 'STATIC INPUT'.									
2.29 Switch S12. (Test set type 8A). Set to 'f(M)'.									
2.30 Static control valve. Operate to set S mb indication to 300.9.									
NB: During Sub-item 2.31 to 2.51 inclusive S mb indication is to remain at 300.9.									
2.31 Equalizing valve (Mk 3 test set). Close carefully.									
2.32 Independent control valve. Operate to increase P-S mb indication to 19.07.									
2.33 Servo indicator. Ensure indication is within PLUS OR MINUS 2300 of relevant figure in table 7 of calibration chart.									
2.34 Independent control valve. Operate to increase P-S mb indication to 33.59.									
2.35 Servo indicator. Ensure indication is within PLUS OR MINUS 5000 of relevant figure in table 7.									
2.36 Independent control valve. Operate to increase P-S mb indications to 79.28.									
2.37 Servo indicator. Ensure indication is within PLUS OR MINUS 630 of relevant figure in table 7.									
2.38 Independent control valve. Operate to increase P-S mb indication to 147.38.									
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CHAP	2	FLT SYSTEMS	SERVICING PROCEDURES LIGHTNING		AP101B-1000-5A3 E Section 1 (1st Edition)				
SP NO	109	CONTINUED							
SHEET	6	AL 14			AC NO . . . . . DATE . . . . .				
Safety and Servicing Notes are to be complied with throughout the work detailed on this card.					SERVICING RECORD				
					(1)	(2)	(3)	(4)	(5)
FLT SYST									
2. <u>Air Data System</u> (Contd)									
2.39 Servo indicator. Ensure indication is within PLUS OR MINUS 300 of relevant figure in table 7.									
2.40 Independent control valve. Operate to increase P-S mb indication to 237.39.									
2.41 Servo indicator. Ensure indication is within PLUS OR MINUS 250 of relevant figure in table 7.									
2.42 Independent control valve. Close.									
NB During Sub-items 2.43 and 2.51 inclusive, the static control valve is to be operated as required to maintain the S mb indication of 300.9.									
2.43 Equalizing valve. (Mk 3 and set). Operate to decrease P-S mb indication to 147.38.									
2.44 Servo indicator. Ensure indication is within PLUS OR MINUS 300 of relevant figure in table 7.									
2.45 Equalizing valve. Operate to decrease P-S mb indication to 79.28.									
2.46 Servo indicator. Ensure indication is within PLUS OR MINUS 600 of relevant figure in table 7.									
2.47 Equalizing valve. Operate to decrease P-S mb indication to 33.59.									
2.48 Servo indicator. Ensure indication is within PLUS OR MINUS 5000 of relevant figure in table 7.									
2.49 Equalizing valve. Operate to decrease P-S mb indication to 19.07.									
2.50 Servo indicator. Ensure indication is within PLUS OR MINUS 2300 of relevant figure in table 7.									
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CHAP.	2	NAV INST	SERVICING PROCEDURES LIGHTNING		AP101B-1000-5A3 E Section 1 (1st Edition)				
SP NO	109	CONTINUED			AC NO . . . . . DATE . . . . .				
SHEET	7								
Safety and Servicing Notes are to be complied with throughout the work detailed on this card.					SERVICING RECORD				
					(1)	(2)	(3)	(4)	(5)
NAV INSTRUMENTS									
2.	<u>Air Data System</u> (Contd)								
2.51	Equalizing valve.	Open fully carefully.							
2.52	Static control valve.	Close.							
2.53	Pitot/Static selector.	Set to 'STATIC VENT'.							
2.54	Static control valve.	Operate to reduce static pressure to ambient.							
2.55	Test set Type 8A								
	(a) Pump switch.	Set to 'OFF'.							
	(b) Vacuum valve	Close.							
2.56	Static control valve. (Mk 3 test set).	Close.							
3.	<u>Flight Control System</u>								
NB 1	Ensure all IAS, Mach No. and Height switch lamps on test set 8A are extinguished throughout the test.								
NB 2	Meter M2 positive indications are to right of centre, negative indications to left.								
3.1	PCU.								
	(a) Master switch.	Set to 'ON'.							
	(b) Stab switch.	Set to 'STAB'.							
	(c) Mode switch.	Set to 'HEIGHT'.							
3.2	System.	Allow 3 minutes warm up period.							
3.3	Mk 3 test set.								
	(a) Main switch.	Set to 'ON'.							
	(b) Pitot control valve.	Close.							
	(c) Static control valve.								
	(d) Equalizing valve.	Open.							
	(e) Supply selector.	Set to 'HANDPUMP'.							
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CHAP	2	NAV INST	SERVICING PROCEDURES		AP101B-1000-5A3 E	
SP NO	109	CONTINUED	LIGHTNING		Section 1 (1st Edition)	
SHEET	8				AC NO . . . . . DATE . . . . .	
Safety and Servicing Notes are to be complied with throughout the work detailed on this card.					SERVICING RECORD	
					(1)	(2)
					(3)	(4)
					(5)	
NAV INSTRUMENTS						
3.	<u>Flight Control System</u> (Contd)					
3.3	Mk 3 Test set.					
	(f) Pitot/Static selector.	}	Operate to give S mb indication of 1013.25.			
	(g) Pitot control valve.					
	(h) Static control valve.					
	(j) Handpump.					
3.4	Test set Type 8A.					
	(a) Switch S1.	Set to 'f(H)/f(M)'.				
	(b) Switch S3.	Set to 'AP TAILPLANE'.				
	(c) Switch S12.	Set to 'f(H)'.				
	(d) Switch S13.	Set to 'POS 1'.				
3.5	FD/AP switch. Set to 'AP'.					
3.6	Meter M2. (Test set 8A). Ensure indicates OV PLUS OR MINUS ).IV.					
3.7	Mk 3 test set.					
	(a) Pitot/Static selector.	Set to 'STATIC INPUT'.				
	(b) Pitot control valve.	Close.				
	(c) Static control valve.	}	Operate to reduce S mb indication to 1006.00			
	(d) Handpump.					
3.8	Test set Type 8A.					
	(a) Meter M2.	Ensure indicates plus 1.08V PLUS OR MINUS 0.15V.				
	(b) Switch S13	Set to 'POS 2'.				
	(c) Meter M2.	Ensure indicates plus 0.68V PLUS OR MINUS 0.13V				
		Note indication .				
	(d) Switch S13.	Set to 'POS 3'.				
	(e) Meter M2.	Ensure indicates plus 0.60V PLUS OR MINUS 0.12V				
		Indication is to be at least 0.05V lower than that noted in Sub-sub-item 3.8 (c).				
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CHAP	9	NAV INST	SERVICING PROCEDURES LIGHTNING		AP101B-1000-5A3 E	
SP NO	109	CONTINUED			Section 1 (1st Edition)	
SHEET	9				AC NO . . . . . DATE . . . . .	
Safety and Servicing Notes are to be complied with throughout the work detailed on this card.					SERVICING RECORD	
					(1)	(2)
NAV INSTRUMENTS						
3.	<u>Flight Control System</u> (Contd)					
3.9	Mk 3 test set.					
	(a)	Static control Close. valve.				
	(b)	Pitot/Static selector.	Set to 'STATIC VENT'.			
	(c)	Static control valve.	Operate to increase S mb indication to 1013.25.			
3.10	FD/AP switch.		(i) Set to 'OFF'. (ii) Set to 'AP'.			
3.11	Meter M2.		Ensure indicated OV PLUS OR MINUS 0.1V.			
3.12	Mk 3 test set.					
	(a)	Pitot/Static selector.	Operate to increase S mb indication to 1020.5			
	(b)	Static control valve.				
	(c)	Handpump.				
3.13	Test set Type 8A.					
	(a)	Meter M2.	Ensure indicates minus 0.60V PLUS OR MINUS 0.12V Note indication.			
	(b)	Switch S13.	Set to 'POS 2'.			
	(c)	Meter M2.	Ensure indicates minus 0.68V PLUS OR MINUS 0.13V Indication is to be at least 0.05V more than that noted in Sub-sub-item 3.13 (a).			
	(d)	Switch S13	Set to 'POS 1'.			
	(e)	Meter M2.	Ensure indicates minus 1.08V PLUS OR MINUS 0.15V			
3.14	Mk 3 test set.					
	(a)	Static control valve,	Close.			
	(b)	Pitot/Static selector.	Set to 'STATIC VENT'.			
	(c)	Static control valve.	Operate to reduce static pressure to ambient.			
3.15	FD/AP switch.		Set to 'OFF'.			
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CHAP	2	NAV INST	SERVICING PROCEDURES		AP101B-1000-5A3 E	
SP NO	109	CONTINUED	LIGHTNING		Section 1	
SHEET	10				(1st Edition)	
					AC NO . . . . . DATE . . . . .	
Safety and Servicing Notes are to be complied with throughout the work detailed on this card.					SERVICING RECORD	
					(1)	(2)
					(3)	(4)
					(5)	
NAV INSTRUMENTS						
3. <u>Flight Control System</u> (Contd)						
3.16 PCU.						
(a) Stab switch. } Set to 'OFF'.						
(b) Master switch. }						
3.17 Test set Type 8A.						
(a) Switch S1. } Set to 'OFF'.						
(b) Switch S3. }						
(c) Switch S12. Set to 'f(H)'.						
(d) Switch S13. Set to 'OFF'.						
3.18 Mk 3 test set.						
(a) Static control valve. } Open.						
(b) Pitot control valve. }						
(c) Supply selector. Set to 'SAFE POSITION'.						
(d) Main switch. Set to 'OFF'.						
4. <u>General</u>						
4.1 Instrument master switch. Set to 'OFF'.						
4.2 Test socket J. (i) Disconnect PL4. (Test set 8A).						
(ii) Refit shorting plug.						
5. <u>Air Data and Flight Control Systems</u>						
<u>VHG Confidence Checks</u>						
5.1 Instrument master switch. Set to 'ON'.						
5.2 PCU.						
(a) Master switch Set to 'ON'.						
(b) Stab switch. Set to 'STAB'.						
5.3 This Sub-item is applicable only if MRG Mk 1D or 1E is fitted.						
MRG master switch. Set to 'ON'.						
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CHAP	2	NAV INST	SERVICING PROCEDURES		AP101B-1000-5A3 E	
SP NO	109	CONTINUED	LIGHTNING		Section 1	
SHEET	11				(1st Edition)	
					AC NO . . . . . DATE . . . . .	
Safety and Servicing Notes are to be complied with throughout the work detailed on this card.					SERVICING RECORD	
					(1)	(2)
					(3)	(4)
					(5)	
NAV INSTRUMENTS						
5.	<u>Air Data and Flight Control Systems</u> <u>VHG Confidence Checks</u> (Contd)					
5.4	Attitude indicator display.	On completion of MRC starting cycle, ensure shows aircraft attitude PLUS OR MINUS 2 degrees.				
5.5	Mode switch. (PCU).	Set to 'ATTITUDE'.				
5.6	Trim indicator.	Ensure pointer central.				
5.7	FD/AP switch.	Set to 'AP'.				
5.8	VSC. (PCU).	Operate up rapidly until indicator pointer moves approximately 10 degrees.				
5.9	Trim indicator.	Ensure pointer moves towards centre.				
5.10	VSC.	Return to centre detent.				
5.11	FD/SP switch.	Set to 'OFF'.				
5.12	Switch S3. (Test set 8A).	Set to 'A/P TAILPLANE'.				
5.13	Mode switch. (PCU).	Set to 'HEIGHT'.				
5.14	Mk 3 test set.					
	(a) Main switch.	Set to 'ON'.				
	(b) Pitot/Static selector.	Set to 'STATIC INPUT'.				
	(c) Supply selector.	Set to 'EXTERNAL SUCTION'.				
	(d) Pitot control valve.	Close.				
	(e) Static control valve.					
5.15	P-V test set					
	(a) Pump switch	Set to 'ON'.				
	(b) Pressure valve.	Close.				
	(c) Vacuum valve.	Open				
5.16	Static control valve. (Mk 3 test set).	Operate to give S mb indication of 1013.25.				
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CHAP	2	NAV INST	SERVICING PROCEDURES		AP101B-1000-5A3E	
SP NO	109	CONTINUED	LIGHTNING		Section 1 (1st Edition)	
SHEET	12				AC NO . . . . . DATE . . . . .	
Safety and Servicing Notes are to be complied with throughout the work detailed on this card.					SERVICING RECORD	
					(1)	(2)
					(3)	(4)
					(5)	
NAV INSTRUMENTS						
5.	<u>Air Data and Flight Control Systems</u> <u>VHG Confidence Checks (Contd)</u>					
5.17	Tailplane trim switch.	Operate to give full nose down trim.				
5.18	FD/AP switch.	Set to 'AP'.				
5.19	Static control valve.	Operate to reduce S mb indication to 1006.00				
5.20	Meter M2. (Test set 8A).	Ensure indicates plus 1.08V PLUS OR MINUS 0.3V.				
5.21	FD/AP switch.	Set to 'OFF'.				
5.22	Mk 3 test set.					
	(a) Static control valve.	Close.				
	(b) Pitot/Static selector.	Set to 'STATIC VENT'.				
	(c) Static control valve.	Open slowly to bring static pressure to ambient.				
5.23	P-V test set.					
	(a) Pump switch.	Set to 'OFF'.				
	(b) Vacuum valve.	Close.				
5.24	Static control valve. (Mk 3 test set).	Close.				
5.25	PCU.					
	(a) Stab switch	Set to 'OFF'.				
	(b) Master switch.					
6.	<u>General</u>					
6.1	Instrument master switch.	Set to 'OFF'.				
6.2	External power supplies. (A.c. and d.c.).	(i) Switch off. (ii) Disconnect.				
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