

	REGISTRO RECORD	REVISÃO REVISION 01
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COMPONENTE Component	O.S W.O	MODELO Model	PN	SN
FUEL CONTROL UNIT		DP-F2 Main Fuel Control Unit		

IDENTIFICAÇÃO IDENTIFICATION	
TÍTULO TITLE	FICHA PARA REGISTROS DE TESTE DA FUEL CONTROL UNIT FUEL CONTROL UNIT TEST SHEET

PUBLICAÇÃO PUBLICATION	REFERÊNCIA REFERENCE	TLN	DATA DATE
COMPONENT MAINTENANCE MANUAL WITH ILLUSTRATED PARTS LIST	73-20-43	TLN02332	Nov. 18,2020 Revision 01
		CONJUNTO MAIOR MAIN PART	
		PN	SN

TESTE APLICÁVEL AOS PART NUMBERS TEST APPLICABLE TO PART NUMBERS
3244786-1

TESTE DA UNIDADE DE CONTROLE DE COMBUSTÍVEL FUEL CONTROL UNIT TEST				
ITEM Item	PROCEDIMENTOS TOLERÂNCIAS Procedures Serviceable limits	Resultado Result	Data Date	Executante Performed by
2.A.(11)	Monte a FCU na bancada de teste, usando o adaptador estriado e o adaptador de montagem. <i>Assemble the Main Fuel Control Unit to the test stand, using spline adapter and mounting adapter, or equivalent.</i>			
	Remova o plugue e instale o acessório especial de teste. Remova o plugue e instale um adaptador padrão nas portas. <i>Remove plug and assemble, special testing fixture. Remove plug and install a standard adapter into ports.</i>			
2.B.(1)	Remova o contra pino, porca e espaçador do eixo de aceleração. Instale o Quadrante de Aceleração na extremidade do eixo de aceleração e torquie de 40-45 lb.in. <i>Remove cotter pin, nut, and spacer from throttle shaft. Assemble throttle quadrant and pointer on the end of throttle shaft and tighten to 40-45 lb.in.</i>			
2.C.(1)	Mantenha uma pressão Po de 10-30 psig na conexão de Po, exceto quando houver outra especificação. Mantenha a pressão P2 dentro de ± 10 psi do valor especificado em pressões abaixo de 300 pph e dentro de ± 25 psig em pressões mais altas, usando a válvula reguladora de contrapressão Pn. <i>Maintain a Po pressure of 10 - 30 psig on Po pressure gage, except where otherwise specified.</i> <i>Maintain P2 pressure within ± 10 psi of the value specified at pressures below 300 pph and within ± 25 psig at higher pressures, using Pn back pressure regulator valve.</i>			
2.C.(4)	Ajuste o parafuso de pressão diferencial P1-P2 para uma pressão de 26 – 42 in.Hg. Ajuste o orifício da <i>sleeve</i> da <i>metering valve</i> até a pressão diferencial P1-P2 e o fluxo de injeção estarem de acordo com os limites especificados. <i>Adjust P1-P2 pressure differential adjustment screw for a pressure of 26 - 42 in.Hg. Adjust metering valve sleeve assembly orifice until P1-P2 pressure differential and nozzle flow are within the limits specified.</i>			
	Torqueie as porcas de 35 – 40 lb.in. Registre todas as pressões diferenciais de P1-P2 e o fluxo de injeção e, adicionalmente, as pressões Pc-Px, Px-PY e P2. <i>Torque nuts to 35 – 40 lb.in. Record all P1-P2 pressures differentials and nozzle flows and additionally, Pc-Px, Px-Py, and P2 pressures.</i>			

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ITEM Item	PROCEDIMENTOS TOLERÂNCIAS Procedures Serviceable limits	Resultado Result	Data Date	Executante Performed by
2.C.(5)	Ajuste a porca até que o fluxo de injeção leia 13-17 pph. <i>Adjust nut until the nozzle flow reads 13 – 17 pph.</i>			
2.C.(6)	Se o fluxo do injetor não estiver de acordo com os limites especificados, troque o fluxo de ar Py. Torqueie o fluxo de ar Py de 9 - 11 lb.in. <i>If the nozzle flow is not within the specified limits, change Py air flow jet. Torque air flow jet to 9 - 11 lb.in.</i>			
2.C.(7)	Após ajustar o parafuso de ajuste da velocidade de marcha lenta, torqueie a porca de 20 – 25 lb.in. <i>After adjustment of idle speed adjustment screw, torque nut to 20 – 25 lb.in.</i>			

PROCEDIMENTO DE TESTE | TEST PROCEDURE

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Test Stand No.	Model	CP-F2/A-27	Serial No.	Test Spec. No.	AETS 4839				
Operator	Parts List	3244736	Date	Sheet No.	1	of	8		

TEST PT.	SPEED RPM	SUPP PPH	THRO DEG	TEMP OF	Pc PSIA	NOZZ FLOW PPH MIN	NOZZ FLOW PPH REC	NOZZ FLOW PPH MAX	P1-P2 "HG	P2 PSI	SHEET	1	2	3	4	5	6	7	8	9	10
REV												B	A	A	A	A	B	A	A		
SHEET	11	12	13	14	15	16	17	18	19	20											
REV																					

A. See AEEI 48403 for location of adjustments and pressure taps.

B. Connect TS-E2 Slave Sensor to control. Mechanically position sensor needle to dial indicator readings as designated on sensor for +105°, +59° and -50° temp. stations.

C. (1) Install throttle quadrant fixture with a 4.0 lb. load applied to throttle stop lever to hold lever against maximum throttle stop.

(2) Index throttle quadrant to 90° T.A. Torque throttle quadrant fixture to 40-45" lbs.

D. Control rotation CW as viewed from control shaft end.

E. Maintain Po pressure of 10 to 30 PSIG at control by-pass tap.

F. P2 must conform to AEEI 48403 Fig. 3 at all nozzle flow test points, except where Pn limit is required.

G. Set test conditions (temp., RPM, supply & Pc) in the sequence indicated by number 1,2,3, etc.

a) When two numbers are listed, set and then trim test condition in the sequence indicated.

b) Approach all speeds, total fuel supplies, and Pc settings from a lower value, except at hysteresis points.

H. All adjustments are to be properly torqued.

Test points indicated (*) require special attention and are to be checked below following proper torquing.

1. Metering valve orifice torque	35		40 in. lbs.	6. Max. throttle, stop torque	20		25 in. lbs.
2. By-pass setting torque	25		35 in. lbs.	7. Idle speed stop torque	20		25 in. lbs.
3. Min. flow M.V. stop torque	25		30 in. lbs.	8. Flow body to drive body	20		25 in. lbs.
4. Max. flow M.V. stop torque	20		25 in. lbs.	9. Drive body adapter to drive body	25		30 in. lbs. in 5 in. lbs. increments
5. Max. gov. eccentric torque	7		7.5 in. lbs.	10. Bleeds	9		11 in. lbs.
				11. Man. override stop nut	20		25 in. lbs.

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Test Stand No.		Model DP-F2/A-27		Serial No.		CODE IDENT. NO. 07213	
Operator		Parts List 3244786		Date		Test Spec. No. AETS 48391	
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TEST PT	SPEED RPM	SUPP PPH	THRO DEG	TEMP OF	Pc PSIA	NOZZ FLOW PPH MIN	REC	MAX	P1-P2 "HG	P2 PSI
I. Speed for Test Points indicated (#) (3.02, 5.01, 5.02, 6.01, 6.02, 8.01), is to be set to ± 2 RPM of specified value. All other points are to be set within ± 20 RPM of specified value. J. Total supply is to be set to ± 20 PPH of the specified value or within limits when shown. When aircraft pump is used and speed is specified, ignore total supply flow and Po pressure settings. K. Before calibration, check for external air leakage using M73/9. Slow bubbling is permitted at the joint of drive body and flow body, at the joint of drive body and drive body adapter, at the torsion shaft cover and at the bellows and torsion shaft locknuts. No leakage is permitted at any other point. Pc = 100 psia. L. After By-Pass valve adjustment has been completed and the detent cup has been locked in position check specific gravity adjustment at min. M/V setting. 1) Rotate the cup 3 clicks cw from original position - nozzle flow must increase at each click. 2) Rotate the cup 3 clicks ccw from original position - nozzle flow must decrease at each click. 3) Return the detent cup to the original position and recheck M/V settings. M. Maintain manual override fully c.c.w. except where otherwise indicated.										

Checked _____

Test Stand No.		Model DP-F2/A-27		Serial No.		CODE IDENT. NO. 07213	
Operator		Parts List 3244786		Date		Test Spec. No. AETS 48391	
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TEST PT	SPEED RPM	SUPP PPH	THRO DEG	TEMP OF	Pc PSIA	NOZZ FLOW PPH MIN	REC	MAX	P1-P2 "HG	P2 PSI
<u>CHECK RELIEF VALVE OPENING</u> (a) Cap outlet port. (b) Increase P1 pressure until fuel supply is within supply limits specified and observe P1-Po differential. (c) If P1-Po differential is out of limits, shim as required. (1) Add shims to increase differential.										
1.01	0	200	MAX	+105	85.0					
		-275								

Relief valve opening P1-Po 950 1000 PSI

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Operator			Parts List 3244786			Date			Sheet No. 4 of 8		
TEST PT	SPEED RPM	SUPP PPH	THRO DEG	TEMP OF	Pc PSIA	NOZZ FLOW PPH			P1-P2 "HG	P2 PSI	
						MIN	REC	MAX			
METERING VALVE ORIFICE AND BY PASS HEAD (P1-P2"HG) SETTING Test points 2.01 thru 2.03 are interrelated and should be recorded after all three (3) adjustments have been made.											
3	4-6	1	2	5							
2.01*	5800	1350	MAX	+105	40.0	203		212			Adjust head & orifice P1-P2 26-42"HG.
.02*	2900	720	30-32	"	"	80		84			Pn 75 - 90 psig Set Min. M.V. stop after removing Py line. Open back press. valve.
.03*	5800	1350	MAX	"	70.0	367		373			Retrim head & readjust 2.01 & 2.02 if out of limits. P2 = 365 415 PSIG Pc-Px 1.0"HG Max. Px-Py 1.2"HG Max.
.04*	5800	"	"	"	100.0	506		520			Set Max. M.V. stop
.05	"	"	"	"	40.0	-10		+10			Hysteresis of Pt. 2.01.

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TEST PT	SPEED RPM	SUPP PPH	THRO DEG	TEMP OF	Pc PSIA	NOZZ FLOW PPH			P1-P2 "HG	P2 PSI	
						MIN	REC	MAX			
ENRICHMENT SPRING SETTING 3-7 4-6 1 2 5 3.01 5800 1350 MAX -50 55.0 X X RECORD NOZZLE FLOW .02# 5100 1170 " " " -13 -17 Set speed enr. - 13 - 17 PPH less than 3.01 Increasing spring tension (CW on adj. nut) increases difference. (Recheck T.P. 3.01 & 3.02 after adj.)											
3	4-6	1	2	5							
4.01	4000	1000	MAX	-50	40.0	172		183			Pn 100 - 110 psig. Pc-Px 8.5 11.5"Hg.

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TEST PT	SPEED RPM	SUPP PPH	THRO DEG	TEMP OF	Pc PSIA	NOZZ FLOW PPH			P1-P2 "HG	P2 PSI
						MIN	REC	MAX		
MAX GOVERNOR SPRING SETTING										
(a) Adjust eccentric shaft to meet flow limits. (b) If unable to set with eccentric, max. T.A. may be varied within T.A. limits. (c) If unable to set with eccentric or max. T.A., maintain eccentric on scribe line and determine amount of RPM off. (d) Split control and adjust gov. spring as required. (CW adj. of gov. spring delays break-approximately 1 flat on adj. nut per 50 RPM). (e) If gov. slope is not in limits, select Py bleed. P/N 2525107 #58 #66 (Higher number bleed to increase difference in flow).										
5.01#	6350	1440		+59	85.0	335		345	Set Gov. Break T.A. at 39°-91°	Px-Py 'Hg
.02#	6500	1530	"	"	"	105		125	Diff. from Pt. 5.01 (Gov. Slope).	Px-Py 'Hg
.03		1440	"	"	"	X		X	Hysteresis within -50 0 R.P.M.	Px-Py 'Hg
of T.P. 5.01.										

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TEST PT	SPEED RPM	SUPP PPH	THRO DEG	TEMP OF	Pc PSIA	NOZZ FLOW PPH			P1-P2 "HG	P2 PSI
						MIN	REC	MAX		
IDLE SPEED STOP SETTING AND PICK-UP ANGLE										
(a) At test point 6.02 increase T.A. until 4 PPH max. fuel flow from 6.01 is observed. (T.A. where flow starts to increase is pick-up angle). (b) If throt. cam pick-up angle is out of limits, replace gov. spring. (1) Use a higher numbered spring if pick-up angle exceeds 56° diff. from Pt. 5.01 (2) Use a lower numbered spring if pick-up angle is less than 52° diff. from Pt. 5.01. (3) Adjust spring tension to same load as set on spring removed. (4) Re-set gov. break at test point 5.01 and rerun test pts. 5.02 and 5.03. (5) Re-set idle stop screw at test point 6.01.										
6.01#	3200	800	30-32	+59	30.0	104		112	Set idle stop screw (CW adj. incr. flow) Dec. & reset speed after adj.	
.02#	"	"		"	"				Throt. cam pick-up angle Diff. 52° 56°	
									of T.Pt. 5.01	Spring Stripe
LOW END OF ACCEL., CURVE, AND THROTTLE MOVEMENT EFFECT										
7.01	815	200	40	+59	Local	60		X	Pn 75 - psig Min.	
.02	2100	670	"	"	25.0	113		124	Pn 95 - 105 psig	
Move T.A. to 30° 5 pph max. dec.										
(a) After recording nozzle flow at test point 7.02 move throt. to 30 T.A. (1) Observe nozzle flow change and record.										

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TEST PT	SPEED RPM	SUPP PPH	THRO DEG	TEMP OF	Pc PSIA	NOZZ FLOW PPH	P1-P2 "HG	P2 PSI
						MIN REC MAX		
MANUAL OVERRIDE At test point 8.01 set max. manual override flow. Rotate override lever C.W. and maintain in contact with max. flow adjusting screw. Rotate adjusting screw C.C.W. to increase flow.								
	1	5	2	3	4			
8.01	5000	1170	32	+59	AMB.	445		455
EXTERNAL LEAKAGE CHECK A. Cap Po at drive flange by-pass tap B. Remove Po line to control and install Po plug C. Cap outlet port D. Set P1 pressure to 1000 PSIG E. Observe leakage for 2-3 minutes F. No Leakage permitted OK REJ.								

Observações Remarks	

Aprovação Approval	Nome Name	Data Date	Assinatura Signature
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