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COMPONENTE Component	O.S W.O	MODELO Model	PN	SN
FUEL CONTROL UNIT		DP-M1		

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
OVERHAUL MANUAL AND ILLUSTRATED PARTS LIST	SECTION VIII	TLN02355	July 30,1973 Revision 0
		CONJUNTO MAIOR MAIN PART	
		PN	SN

TESTE APLICÁVEL AOS PART NUMBERS TEST APPLICABLE TO PART NUMBERS
2524384-7

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
A	Monte o controle no suporte usando o acessório de montagem do suporte de calibração (PN 2550136) e adaptador estriado (PN 2550139). <i>Mount the control on the stand using the (PN 2550136) Calibration Stand Mounting Fixture and (PN 2550139) Spline Adapter.</i>			
B	Instale o Quadrante de Aceleração (PN 2550183) na extremidade do eixo de aceleração. Posicione o ponteiro no adaptador de montagem. <i>Install the (PN 2550183) Throttle Quadrant on the end of the throttle shaft. Position the pointer on the mounting adapter.</i>			
C	Instale o acessório (PN 2550113) no lugar da tampa da alavanca do <i>bellows</i> . <i>Install fitting (PN 2550113) in place of bellows lever cover.</i>			
F	Faça todos os pontos de teste na ordem indicada. Se qualquer ajuste for necessário, cheque novamente todos os pontos de teste. <i>Perform all test points in the order indicated. If any adjustments are required, recheck all previously run test points.</i>			

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PROCEDIMENTOS E LIMITES DE CALIBRAÇÃO FINAL | FINAL CALIBRATION PROCEDURES AND LIMITS

Engine Model: 250-B15G

Engine Manufacturer: Detroit Diesel Allison Division, GMC

Control Model: DP-M1

Part Number: 2524384-7

Date Issued: 6-1-73

Date Revised:

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- A. See Figure 8-2 for location of adjustments and pressure taps.
- B. Install throttle quadrant fixture and index to 0 degree throttle angle with stop lever on minimum stop. Tighten fixture to 40-45 pound inches. Install cutoff quadrant fixture and index to 0 degree with lever in cutoff position (leaf spring in slot). Tighten fixture to 9-10 pound inches.
- C. Control rotation CCW as viewed from control shaft end.
- D. Maintain Po pressure of 30 ± 10 psi, at control bypass tap.
- E. Set test conditions (Pc, Fuel Supply, RPM) in the sequence indicated by number 1, 2, 3, etcetera.
 - (a) When two numbers are listed, set and then trim test conditions in the sequence indicated.
 - (b) Approach all speed, fuel supply, and Pc setting from a lower value, except those marked by an asterisk (*). Conditions identified by an asterisk shall be established in the decreasing direction.
- F. All adjustments are to be properly torqued.
- G. Maintain cutoff lever in wide open position unless otherwise specified.

Test
Point

1.00 BYPASS COVER TORQUE AND CUTOFF LEAKAGE.

- .02 A. At TPT 1.02 check cutoff leakage.
 - (a) Remove nozzle outlet line from control.
 - (b) Set fuel supply with lever in 0 degree position (leaf spring in slot) to obtain 50 psig Pl pressure.
 - (c) Increase lever angle to permit nozzle flow out the outlet fitting.
 - (d) Decrease lever angle as required until no leakage is observed at outlet fitting.
 - (e) If cutoff angle is out of limits, reshim cutoff sleeve.

2.00 RELIEF VALVE OPENING AND RELIEF VALVE CAPACITY CHECK

- .01 (a) Cap outlet port.
 - (b) At TPT point 2.01 increase Pl pressure until required fuel supply is within fuel supply limits specified and observe Pl-Po differential.
 - (c) If Pl-Po differential is out of limits, add shims to increase differential.
- .02 (a) Cap outlet port.
 - (b) At TPT point 2.02 increase total supply to required value and observe Pl-Po differential.
 - (c) If Pl-Po differential is out of limits, remove shims to decrease differential.
 - (d) Recheck TPT point 2.01 if shims are removed.

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Test
Point

3.00 START DERICHMENT

- .02 (a) Adjust derichment bellows to meet limits.

4.00 METERING VALVE LINEARITY PREFLOW.

- thru (a) TPT 4.01 thru 4.03 are interrelated and should be recorded after all three (3) adjustments have been made.
- .04 (b) These three (3) points are set points only, and do not need to be rechecked if trim adjustments are required later to meet flow sheet limits.

5.00 ACCELERATION CURVE ~ (START DERICHMENT UNIT BLANKED OFF) TPT 5.01 thru 5.04

- thru (a) Blank off Pa bleed vent on the start derichment unit.

.04

5.05 ACCELERATION CURVE ~ (START DERICHMENT NOT BLANKED OFF) TPT 5.05 thru 5.07

- thru (a) Remove plug from Pa bleed vent on the start derichment unit.

.07

6.00 SPEED ENRICHMENT SETTING

- .01 (a). Adjust speed enrichment spring. (CW on adjustment nut decreases nozzle flow) -
- (b). Decrease and reset speed after adjustment.
- .03 (a). Select Px bleed as specified on the parts list to obtain as close to 28 inches Hg Pc-Px as possible.
- (b). Trim Pl-P2 head (30-45 inches Hg) to meet flow limits.
- (c). If Px bleed change is made recheck TPT's 6.01 and 6.02
- (d). If Pl-P2 head adjustment and/or metering sleeve adjustment is made recheck TPT's 5.01 thru 5.07 and 6.01 and 6.02.

7.00 METERING VALVE MAXIMUM STOP ADJUSTMENT

- .01 (a) Hold throttle balance spring in correct position when tightening maximum stop jam nut to its proper torque value (CW to decrease nozzle flow).

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Test Point			
9.00	<u>MAX. GOVERNOR SPRING SETTING</u>		
.01	(a) At TPT 9.01 adjust eccentric shaft to meet nozzle flow limits.		
	(b) If unable to set with eccentric, maximum throttle angle may be varied within throttle angle limits of 87-93 degrees.		
	(c) If unable to set with eccentric or maximum throttle angle, maintain eccentric on scribe line and determine amount of RPM off.		
	(d) Split control and adjust governor spring as required. (CW adjustment of governor spring delays break. Approximately 1 flat on adjustment nut per 50 Rpm).		
	(e) At TPT 9.02 if governor slope not in limits, select Py bleed, as specified on the parts list. (Higher number bleed to decrease Rpm). If a Py bleed change is required recheck paragraph 3 and 5 and TPT 9.01. If a Px or Py bleed change was required and the start derichment was removed, tighten mounting screws 9-10 pound inches and recheck paragraphs 3,5,6 and 9.		
10.00	<u>IDLE SPEED STOP SETTING AND CAM PICKUP ANGLE</u>		
.01	(a) Adjust idle stop (CW to increase nozzle flow).		
.02	(a) If pickup angle is not in limits the maximum throttle stop may be reset within throttle angle limits of 87-93 degrees. A lower maximum throttle angle provides an earlier cam pickup angle. Recheck paragraph 9 if the maximum throttle stop is reset.		
11.00	<u>WF/Pc MINIMUM FLOW</u>		
	(a) Select Py bleed, as specified on part list, to meet limits.		
	(b) If a Py bleed change is required, recheck paragraphs 3,5,9 and 10.		
13.00	<u>EXTERNAL LEAKAGE CHECK</u>		
.01	Remove Po line to control and install Po plug. Cap outlet Port. Observe for leakage for 2-3 minutes.		

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Test Point	Torque Pound-Inches Min Max		
1.01	19.0 ~ 21.0	Bypass Cover Screws	
.02	9.0 ~ 10.0	Cutoff Sleeve Screws	
3.01	20.0 ~ 25.0	Derichment Bellows Adjustment	
.02	9.0 ~ 10.0	Locking Clamp Screws	
4.01	(a) 35.0 ~ 40.0	Metering Valve Orifice	
	(b) 25.0 ~ 35.0	Bypass Head Adjustment	
.02	25.0 ~ 30.0	Metering Valve Min. Stop	
.03	25.0 ~ 35.0	Bypass Head Adjustment	
5.01	25.0 ~ 30.0	Metering Valve Minimum Stop	
6.03	(a) 9.0 ~ 11.0	Px Bleed	
	(b) 45.0 ~ 50.0	Pc Fitting	
	(c) 25.0 ~ 30.0	Bypass Head Adjustment	
	(d) 9.0 ~ 10.0	Derichment Body Screws	
.06	35.0 ~ 40.0	Metering Valve Sleeve	
7.01	20.0 ~ 25.0	Metering Valve Stop	
9.01	(a) 9.0 ~ 11.0	Py Bleed	
	(b) 9.0 ~ 10.0	Derichment Body Screws	
.02	7.0 ~ 7.5	Eccentric	
.05	45.0 ~ 50.0	Pc Fitting	
10.01	3.0 ~ 30.0	Idle Stop Screw	
11.01	9.0 ~ 11.0	Py Bleed	
.02	45.0 ~ 50.0	Pc Fitting	
13.03	11.0 ~ 12.0	Bellows Ratio Lever Cover Screws	

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Test Point	Speed Rpm	Fuel Supp Phr	Throt Angle deg	Pc psia	Nozzle Flow Phr	P1-P2 Hg	Pc-Py Hg	Pc-Px Hg
1.00 Bypass Cover Screws and Cutoff Leakage								
.01	2	3	4	1				
.02	0	AsReq	Max	Local 0	1cc/Minute			
.03	"	0	"	"	Maximum stop to minimum stop to maximum stop.			Record cutoff torque, 5.5 maximum pound inches.
.04	"	"	"	"	Check that torque required to move cutoff lever from maximum stop to minimum stop is not less than zero.			
.05	"	"	"	"	Record cutoff travel from 0 to maximum stop, 65 to 75 degrees.			
.06	"	"	"	"	Record cutoff travel from 0 to minimum stop, -2 to -8 degrees.			
.07	"	"	"	"	Record throttle torque 5.5 pound inches maximum (maximum to 0 to maximum degree).			
.08	"	"	"	"	Check that torque required to move throttle from maximum to 0 degree is not less than zero.			
.09	"	"	"	"	Insert rigging pin thru slot in throttle stop lever and into hole in main body. Throttle angle must be 39 to 41 degrees. Record.			
2.00 Relief Valve Opening and Relief Valve Capacity								
.01	0	100-175	W0	100				Relief valve opening P1-Po minimum 650 psi
.02	"	1350	"	"				Relief valve capacity P1-Po, 800 psi maximum
.03	Fuel supply not to exceed 150 Phr at 600 psi P1 using test conditions of TPT 2.01 - Record fuel supply							
3.00 Start Derichment								
	1	2	3	4	Pc-Pa inches Hg	Pc-Py inches Hg		
.01	0	0	Max	5.0		Min Rcd Max 3.5 3.8		
.02	"	"	"	7.7		0.0 0.5		Locking Clamp to be 1/2 to 1 1/2 turns off the locking nut when the pointer position is 40 ± 5 degrees from the CCW stop.
4.00 Metering Valve Linearity								
.01	0	400	Max	22	48			
.02	"	560	"	26	25			
.03	"	840	"	90	194			
1. Remove Py line. (for TPT 4.02 only) 2. Set minimum metering valve stop. Retrim P1-P2 head (30-45 inches Hg) Pc-Py within 1.0 inch Hg of TPT 4.01. Pc-Px " " " " " 4.01.								

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Test Point	Speed Rpm	Fuel Supp Phr	Throt Angle deg	Pc psia	Nozzle Flow Phr	P1-P2 Hg	Pc-Py Hg	Pc-Px Hg
5.00 Acceleration Curve								
.01	2500	560	21-30	26	25			
.02	600	85	Max	14.7	33			
.03	1000	210	"	17	38			
.04	1700	400	"	22	48			
.05	600	85	"	14.7	X			
.06	1000	210	"	17	X			
.07	1700	400	"	22	48			
(Remove Py 1 for TPT 5.01 only)								
(Start derichment unit blanked off) TPT 5.01 thru 5.04. P2 psi must meet limits of paragraph 8-4, b.								
(Start derichment not blanked off) TPT 5.05 thru 5.07.								
6.00 Speed Enrichment Setting								
.01	2400	600	Max	31	72			
.02	3000	755	"	43.5	137			
.03	3400	840	"	56	200			
7.00 Metering Valve Maximum Stop Adjustment								
.01	4200	1050	Max	79	237			P2 psi must meet limits of paragraph 8-4, b.
8.00 Metering Valve Hysteresis Check								
.01	3400*	840	Max	56*	-5.0			Hysteresis difference from TPT 6.03
.02	3000*	755	"	43.5*	-5.0			" " " " 6.02
.03	1700*	400	"	22*	-5.0			" " " " 5.07
9.00 Maximum Governor Spring Setting								
.01		1100		71	195			Rpm limit 4380-4405.
.02		"	"	"	130			Within 95-135 Rpm of recorded Rpm at TPT 9.01.
.03	*	"	"	"	Same			Hysteresis within 43 Rpm of recorded Rpm at TPT 9.01.

