

W.G. Order _____

Date 08-17-2022

Customer AlliedSignal Aerospace

By [REDACTED]

Prod. Order _____

W.G. P/N 8070-260

T2 Simulator _____

AlliedSignal P/N 893561-20

Test Stand No. 184

W.G. S/N 1440716

Case # _____

AlliedSignal PSC No. 893561-V

All input settings should consistently be made while approaching set points as follows:

PT2 Approach all inlet pressure settings from a lower pressure setting.

TT2 Approach all inlet temperature settings from a higher temperature setting.

PS3 Approach all compressor pressure settings from a lower pressure setting except when checking deceleration schedules.

MFL Approach all manual fuel lever angular settings from a lower setting.

Pressure Test

Operate unit at the underspeed governor Min. set point. Actuate fuel discharge shutoff valve. Do not shut off discharge flow for more than 2 seconds.

Checked by _____

1 STANDARD ACCELERATION SCHEDULE

Sea level start flow checking procedure: (Test pt. 1.2 only) Start flow(s) to be accomplished in the following sequence:

CAUTION: At no time in this calibration procedure is PT2 to be set above PS3.

1 STANDARD ACCELERATION SCHEDULE (Continued)

- A. Preset speed, TT2. Underspeed governor lever, main metering valve lever as specified on data sheet.
- B. Set PS3 at 20 PSIA Min.
- C. Set PT2 from a low pressure to the required set point without overshoot.
- D. Reset PS3 to 15 PSIA without undershoot.
- E. Read start fuel flow.

HOLD CONSTANT: TT2 = 59 deg. F PT2 = 14.7 PSIA											
TEST POINT	(INLET FLOW PPH)	REQ'D LEVER POSITION DEG.		INPUT SPEED +/-25 RPM	PS3 PSIA	PFN PSIG	WF - PPH		WF - PPH	HYSTERESIS	
		USG	MFL	REQ'D	REQ'D	REQ'D	REQ'D	ACTUAL DEC.	ACTUAL INC.	SPEC	ACT.
1.1	150	Min.	0	450	15	150	Record	8	—	—	—
1.2	450	Min.	0	1000	15	85	46+/-2	50	—	—	—
1.3	450	Max.	0	1000	15	85	46+/-2	50	—	—	—
1.4**	450	Min.	0	1000	19.2+/-1	85	46+/-2	56	—	—	—
1.5***	450	Min.	0	1000	21.2+/-1	210	70	60	—	—	—
1.6	1000	Max.	0	2025	25	220	110+/-5	117	—	—	—
1.7	1400	Max.	0	3000	50	300	208+/-8	222	—	—	—
1.8	1750	Max.	0	3600	70	295	280+/-10	290	—	—	—
1.9	1950	Max.	0	4000	90	335	325+/-12	334	335	3	1
1.10	1950	Max.	0	4000	120	420	413+/-15	422	426	6	4
1.11	1950	Max.	0	4000	135	540	498+/-21	498	—	—	—
1.12	1950	Max.	0	4000	150	750	565+/-12	584	—	—	—

REMARKS: ** With WF as specified, increase PS3 until WF starts to increase. Record PS3.

***Adjust PS3 from a lower setting to a higher setting for exact WF of 70 PPH. Record PS3.

TEST DATA SHEET
ALTITUDE ACCELERATION SCHEDULES

2 15,000 FOOT ACCEL SCHEDULE

HOLD CONSTANT: TT2 = 59 deg. F PT2 = 8.8 PSIA								
TEST POINT	(INLET FLOW PPH)	REQ'D LEVER POSITION (DEG.)		INPUT SPEED RPM	PS3 PSIA	PFN PSIG	WF - PPH	
		USG	MFL				REQ'D	ACTUAL
2.1	450	Min.	0	1000	8.8	80	46+/-6	51
2.2	1400	Max.	0	3100	30	230	123+/-6	143
2.3	1950	Max.	0	4000	60	270	205+/-9	221
2.4	1950	Max.	0	4000	75	300	267+/-12	272
2.5	1950	Max.	Max.	4000	90	355	356+/-15	355

3 30,000 FOOT ACCEL SCHEDULE

HOLD CONSTANT: TT2 = 59 deg. F PT2 = 4.4 PSIA								
TEST POINT	(INLET FLOW PPH)	REQ'D LEVER POSITION (DEG.)		INPUT SPEED RPM	PS3 PSIA	PFN PSIG	WF - PPH	
		USG	MFL				REQ'D	ACTUAL
3.1	1950	Max.	0	4000	25	225	86+/-4	114
3.2	1950	Max.	0	4000	35	240	112+/-5	136
3.3	1950	Max.	0	4000	50	265	203+/-10	211

4 HOT DAY ACCEL SCHEDULE

HOLD CONSTANT: TT2 = 103 deg. F PT2 = 14.7 PSIA								
TEST POINT	(INLET FLOW PPH)	REQ'D LEVER POSITION (DEG.)		INPUT SPEED RPM	PS3 PSIA	PFN PSIG	WF - PPH	
		USG	MFL				REQ'D	ACTUAL
4.1	450	Min.	0	1000	15	95	48+/-6	52
4.2	1600	Max.	0	3400	50	260	211+/-10	227
4.3	1950	Max.	0	4000	90	340	340+/-13	343
4.4	1950	Max.	0	4000	135	560	509+/-22	520

5 COLD DAY ACCEL SCHEDULE

HOLD CONSTANT: TT2 = 103 deg. F PT2 = 14.7 PSIA								
TEST POINT	(INLET FLOW PPH)	REQ'D LEVER POSITION (DEG.)		INPUT SPEED RPM	PS3 PSIA	PFN PSIG	WF - PPH	
		USG	MFL				REQ'D	ACTUAL
5.1	450	Min.	0	1000	15	80	46+/-6	49
5.2	1400	Max.	0	3000	50	250	178+/-8	198
5.3	1850	Max.	0	3800	90	315	288+/-11	299
5.4	1950	Max.	0	4000	135	455	430+/-19	450
5.5	1950	Max.	101	4000	175	685	510 Min.	597

6 UNDERSPEED GOVERNOR 65% SPEED

HOLD CONSTANT: MFL = 0 deg. TT2 = 59 deg. F PT2 = 14.7 PSIA								
TEST POINT	USG LEVER POSITIONS (DEG.)		INPUT SPEED +/- 5 RPM	(INLET FLOW PPH)	PS3 PSIA	PFN PSIG	WF - PPH	
	REQ'D	ACTUAL	REQ'D		REQ'D	REQ'D	REQ'D	ACTUAL
6.1	3.75 +/- 2.50 deg.	5	2847 Min.	1300	45	235	160 Min.	177
6.2	3.75 +/- 2.50 deg.	"	2948	1300	45	235	108 +/- 5	136
6.3	3.75 +/- 2.50 deg.	"	2970	1300	45	235	*	126
6.4	3.75 +/- 2.50 deg.	"	2948	1300	45	235	128	

3016

REMARKS: *A minimum of 5 PPH less than the fuel flow at DATA POINT 6.2.

7 UNDERSPEED GOVERNOR - 96% SPEED

HOLD CONSTANT: MFL = 0 deg. TT2 = 59 deg. F PT2 = 14.7 PSIA								
TEST POINT	USG LEVER POSITIONS (DEG.)		INPUT SPEED +/- 5 RPM	(INLET FLOW PPH)	PS3 PSIA	PFN PSIG	WF - PPH	
	REQ'D	ACTUAL	REQ'D		REQ'D	REQ'D	REQ'D	ACTUAL
7.1	39.75 +/- .75 deg.	41	4304 Min.	2050	135	360	252 Min.	298
7.2	39.75 +/- .75 deg.	"	4355	2150	110	315	180 +/- 5	183
7.3	39.75 +/- .75 deg.	"	4420	2150	110	315	175	
7.4	39.75 +/- .75 deg.	"	4355	2150	110	315	183	
7.5	14 +/- 1 deg.	16	3400**	1500	55	250	122 +/- 3	

REMARKS: **Set speed and fuel flow. Record speed lever angle.
Req.: 14 +/- 1 deg.

8 OVERSPEED GOVERNOR

HOLD CONSTANT: MFL = Max. Tt2 = 59 deg. F Pt2 = 14.7 PSIA							
TEST POINT	USG LEVER POSITIONS (DEG.)	INPUT SPEED +/- 5 RPM	(INLET FLOW PPH)	PS3 PSIA	PFN PSIG	WF - PPH	
	REQ'D	REQ'D		REQ'D	REQ'D	REQ'D	ACTUAL
8.1	Max.	4536	2300	160	590		582
8.2	Max.	4581	2350	160	590	*	571
8.3	Max.	4717	2400	160	375	220+/-10	233
8.4	Max.	4800	2500	160	350	109+/-5	105
8.5	Max.	4800	2500	160	350	**	96
8.6	Max.	4717	2400	160	350	Record	233

REMARKS: *12 PPH Max. drop from the actual flow of preceding data point 8.1.

**Record fuel flow with MFL at Min. position.

9 DECELERATION SCHEDULE

HOLD CONSTANT: TT2 = 59 deg. F (Inlet Flow = 2300 PPH) USG = Min. Speed = 4536 RPM MFL = 0 deg.					
TEST POINT	PT2 PSIA	PS3 PSIA	PFN PSIG	WF = PPH	
	REQ'D	REQ'D	REQ'D	REQ'D	ACTUAL
9.1	14.7	135	340	182+/-7	192
9.2	14.7	75	270	108+/-7	110
9.3	14.7	35	160	Record	50

10 MAIN METERING VALVE SCHEDULE - TT2 CORRECTION

HOLD CONSTANT: PT2 = 14.7 PSIA (Inlet Flow = 2300 PPH) Speed = 4536 RPM USG = Max.										
NOTE: Approach all MMV settings from a lower setting.										
TEST POINT	MFL POSITION +/- .5 deg.	TT2 deg. F	TT2 MIKE	PS3 PSIA	PFN PSIG	WF = PPH				
						REQ'D	ACT. DEC.	ACT. INC.	HYSTERESIS	
									SPEC.	ACTUAL
10.1**	101	103	.823	160	545	449+/-10	517	----	---	---
10.2	101	59	.800	160	635	515+/-12	579	571	11	8
10.3**	101	38	.788	180	705	545+/-13	603	----	---	----
10.4	101	25	.781	180	705	*	604	----	---	----
10.5	40	103	.823	90	285	201+/-5	141	----	---	----
10.6	40	59	.800	90	285	214+/-5	141	141	4	0
10.7	40	-60	.735	90	305	253+/-5	157	----	---	----

REMARKS: *Record flow change when USG lever is changed from the Max. to the Min. speed stop. The change in flow must not exceed 10 PPH.

**WF between T.P. 10.1 & 10.3 to be 93 +/-5 PPH

RECORD

11 MAIN METERING VALVE SCHEDULE - TT2 CORRECTION - 10,000 FT.

HOLD CONSTANT: PT2 = 10.1 PSIA (Inlet Flow = 2300 PPH) Speed = 4536 RPM USG = Max.										
NOTE: Approach all MMV settings from a lower setting.										
TEST POINT	MFL POSITION +/- .5 deg.	TT2 deg. F	TT2 MIKE	PS3 PSIA	PFN PSIG	WF = PPH				
						REQ'D	ACTUAL	DELTA WF REQ'D	DELTA WF ACTUAL	
11.1	101	59	.800	140	420	354+/-10	457	-----	-----	
11.2	101	103	.823	140	385	-----	----	43+/-15	406	
11.3	101	-65	.733	140	565	-----	----	132+/-15	572	

12 MAIN METERING VALVE SCHEDULE - PT2 CORRECTION

HOLD CONSTANT: TT2 = 59 deg. F Speed = 4536 RPM USG = Max. (Inlet Flow = 2300 PPH) NOTE: Approach all MMV settings from a lower setting.									
TEST POINT	MFL POSITION +/- .5 deg.	PS3 PSIA	PS3 PSIA	PFN PSIG	WF = PPH				
					REQ'D	ACT. DEC.	ACT. INC.	HYSTERESIS	
								SPEC.	ACTUAL
12.1	101	4.4	50	250	155+/-6	----	---	---	216
12.2	101	8.8	130	375	309+/-10	401	----	---	---
12.3	101	14.7	160	635	515+/-12	569	585	9	16
12.4	101	17.6	180	750	590+/-14	609	----	---	---
12.5	40	6.8	40	240	RECORD	115	----	---	---
12.6	40	8.8	50	250	128+/-5	118	----	---	---
12.7	40	14.7	90	285	214+/-5	139	141	4	2
12.8	40	17.6	90	305	256+/-5	143	----	---	---

13 LEVER SHAFT TORQUE

TEST POINT		REQ'D TORQUE IN.LB.	ACT. TORQUE RANGE
13.1	MMV	7 Max.	2
13.2	USG	10 Max.	8

14 MMV ANGULAR TRAVELS

TEST POINT	FLAT		ANGLE, DEG.	
			REQ'D	ACTUAL
14.1	GI		0	
14.2	FI	Min.	35 - 37	
		Max.	43 - 45	
14.3	MP	Max.	93 - 97	
14.4	MP	Max.	101+/- .5	

15 ACCELERATION SCHEDULE TT2 HYSTERESIS

MMV = Max. USG = Max.		PT2 = 14.70 PSIA N = 4000 +/- 10 RPM		(INLET FLOW = 1950 PPH)				
TEST POINT	TT2 deg. F	SENSOR SIM. SETTING	PS3 PSIA	PFN PSIG	FUEL FLOW - PPH			
					ACTUAL DEC.	ACTUAL INC.	HYSTERESIS	
							REQ'D	ACTUAL
15.1	135	.843	113	450	541	-----	---	----
15.2	103	.823	113	400	525	524	4	1
15.3	-60	.735	113	360	457	456	4	1
15.4	-75	.727	113	350	450	-----	---	----

16 MAX WF ADJ. CHECK

TEST
POINT

- 16.1 Record WF at test point 11.1 RECORD _____
- 16.2 Adjust Max. power adjustment upward.
Must be 34 PPH more than 11.1 RECORD _____
- 16.3 Adjust Max. power adjustment downward.
Must be 14 PPH less than 11.1 RECORD _____
NOTE: Reset adjustment of level to T.P. 11.1.

WOODWARD GOVERNOR COMPANY
Rockford, Illinois
CAGE 66503

TSP-7121
Page 11 of 11
Rev. F

PIN 8070-260
ASAE PIN 893561-20
S/N _____
CASE X-RAY NO. _____
TEST STAND NO. _____
T2 SIMULATOR NO. _____
FUEL PUMP S/N _____
AUDIT SHEET
Sp. Gr. Setting = .77 or two clicks CW of A-1
FUEL INLET TEMP. = 75-80 deg. F.
FUEL INLET PRESS. = 15+/-2 PSIG

SETTING SEQUENCER CODE		PARAMETER SEQUENCE SETTING	REQUIRED SETTING PARAMETERS										FUEL CONTROL DISCHARGE FUEL TEMP. deg. F		FUEL FLOW - PPH							
			A	B	C	D	E	F	G	USG STOP	MMV deg. +/- 0.5	SPEED RPM +/- 10 RPM	TT2 deg. F +/- 2 deg.	PT2 "Hg A +/- 0.1" Ng	PS3 PSIA +/- 0.2 PSI	REF. FUEL DISCH. PRESS. PSIG	W.G. CO.	ASAE	REQ'D	W.G. CO.	ASAE	
T E S T	TEST POINT DESCRIPTION																					
P O I N T																						
1	USG MIN. STOP 65%	ABDEFCG	Min.	0	2948+/-5	59	29.92	45	235										108+/-5			
2	USG MAX. STOP (1) 96%	ABDEFCG	Max.	0	4355+/-5	59	29.92	110	315										180+/-5			
3	OSG SET POINT 104%	ABDEFCG	Max.	101	4717+/-5	59	29.92	160	375										220+/-10			
4	S STD DAY	ABCDEF	Max.	0	2025	59	29.92	25	220										110+/-5			
5	E STD DAY	ABCDEF	Min.	0	1000	59	29.92	21.2+/-1	210										70	**		
6	A START FLOW	SEE Para. 1.0	Min.	0	1000	59	29.92	15	85										46+/-2			
7	L BREAKPOINT	SAME AS TP6	Min.	0	1000	59	29.92	19.2+/-1	85										-	**		
8	E HOT DAY	ABCDEF	Max.	0	4000	103	29.92	135	560										509+/-22			
9	V STD DAY	ABCDEF	Max.	0	4000	59	29.92	135	540										498+/-21			
10	E MAX.	ABCDEF	Max.	0	4000	59	29.92	150	750										565+/-12			
11	L ALTITUDE	ABCDEF	Max.	0	4000	59	8.98	50	265										203+/-10			
12	DECELERATION SCHEDULE	ABCDEF	Min.	0	4536	59	29.92	135*	340										182+/-7			
13		ABCDEF	Min.	0	4536	59	29.92	75*	270										108+/-7			
14	FLIGHT IDLE	ACFBEDG	Max.	40	4536	59	29.92	90	285										214+/-5			
15	POWER	ACFBEDG	Max.	101	4536	103	20.58	140	385										***			
16	LEVER	ACFBEDG	Max.	101	4536	59	20.58	140	420										354+/-10			
17	FUEL	ACFBEDG	Max.	101	4536	-65	20.58	140	565										****			
18	SCHEDULE	ACFBEDG	Max.	101	4536	59	8.98	50	250										155+/-6			
19	BREAKPOINT	ACFBEDG	-	44																		
										Set Conditions Same As Item 14												

* Adjust PS3 from a higher setting
(1) Total rotation of USG from Min. stop to Max. stop shall be 35 - 1/2 +/- 3 deg.
T2 SIMULATOR WT-118820
INLET TEMP. deg. F
-65 .733
59 .800
103 .823
MICROMETER SETTING
T2 LINKAGE CHECK
MIN. REQUIRED .955
MICROMETER SETTING
ACTUAL
**Record PS3
***Record Delta Wf from T.P. 16
Required = 43 PPH +/- 15 PPH
**** Record Delta Wf from T.P. 16
Required = 132 PPH +/- 15 PPH
SIGNATURE
W.G. CO. TECH.
W.G. CO. Q.C.

HG = PSIA
29.92 = 14.7
8.98 = 4.4
20.58 = 10.0

WOODWARD GOVERNOR COMPANY
Rockford, Illinois
CAGE 66503
VENDOR CODE 23245

AS RECEIVED

TSP-325
Page 9 of 15
Rev. AH

CONSTANT SPEED PROP GOVERNOR - TEST REPORT
Use with Governors 210560 (869120-1), 210563 (893615-3) (See Below)

OIL INLET TEMP. 140 ± 5 DEG. F. OIL INLET PRESSURE 95 ± 10 PSIG

S/N 1107124

P/N 8210-260

PT.	TSP PARAGRAPH NUMBER		SPEED (RPM)		OIL PRESSURE (PSIG)		OIL FLOW (QTS./MIN.)	
			REQUIRED	ACTUAL	REQUIRED	ACTUAL	REQUIRED	ACTUAL
1	C1	CHECK VALVE PRESS. CHECK	0	0	15 Max.	8	START FLOW	START FLOW
2	C2	TOTAL LEAK CHECK	0	0	200±10	200	.5 MAX.	.3
3	C3	RELIEF VALVE CHECK a.	3500±15	3500	465±20	495	0	0
4	C4	PUMP CASE PRESSURE b.	3500±15	3500	525 PSI MAX.	500		
5	C4	PUMP CAPACITY CHECK	3500±15	3500	150±5	150	9.0 MINIMUM	9.9
6	C5	EXTERNAL LEAK	3500±15	3500	RELIEF VALVE		0	NONE
7	C6	OVERSPEED SETTING	3942±10	N/A	150±5	N/A		
8	C7	MAXIMUM RPM	3754±10	3848	150±5	150		
9	C8	MINIMUM RPM	2815±10	3587	150±5	150	USE	
10	C9	ARM TRAVEL - MAX. TO MIN.	55 DEG. - 65 DEG.	16			BLEED	
11	C10	INCREASE SPEED TO OBTAIN		3828	200±5	200	ORIFICE	
12	C10	INCREASE SPEED TO OBTAIN		3845	50±5	50		
13	C10	PRESSURE GAIN = PT12-PT11 20-40 RPM		37				
14	C11	DECREASE SPEED TO OBTAIN		3828	200±5 PSI	200		
15	C11	SPEED HYSTERESIS = PT11-PT 14 -15 TO +40 RPM		0				
16	C12	INTERNAL LEAK	AS REQUIRED	3848	150±5	150	NEW 1.40 MAX. O'HAUL 1.7 MAX.	N/A 1.8
17	C13	MAGNETIC PICKUP VOLTAGE	3700±10	3700	Adjust pickup to 4.5V±.2 peak-to-peak			3.0 volts
18	C13	PICKUP INDICATED RPM	925±3*	925				
19	C16	ELECTRICAL SPEED CHANGE	50±5	N/A	28 VDC APPLIED TO COIL			

Use with Governors:
210736 (869120-6,-7,-8,-9) 8210-260 (893615-13)
210738 (893615-7,-12) 8210-100 (893615-17)
210743 (897382-1) 8210-266 (893615-18)
REMARKS: If governor is shipped without a lever, test
with P/N 210039

*Applied to 210743 prior to "D" change only.
Indicated pickup RPM (62)

SIGNATURE	DATE
TECHNICIAN	08/17/2022
GARRETT PURCHASE ORDER #	
W.G. SALES ORDER # 3820519	

* max screw at 98 degrees
min screw at 82 degrees
1/2 d. distance