

**TELEDYNE****CONTINENTAL MOTORS***A Teledyne Technologies Company***Aircraft Engine****Final Acceptance Test Certificate**

Engine

Model TSIO-520P7BSerial No. 278936-RCell No. 3Date 9/15/05

37009	1. Check engine for Roughness - Acceleration - Unusual Noise
37009	2. Check exhaust stacks for firing at Idle. (Where applicable)
37009	3. Check mixture control for engine shutoff. (Where applicable)
37009	4. Check for OIL LEAKS - at oil seals, in castings, at parting line surfaces, gasket surfaces, plugs, tube connections and oil sump drain plug boss weld.
37009	5. Check for FUEL LEAKS - at external lines, fuel pump, metering unit, manifold valve, injection nozzles and/or carburetor, plus all fittings.
37009	6. Check Magneto Impulses for operation. (Where applicable)
37009	7. Check operation of accessories - starter - fuel pump.
37009	8. Carburetor does not flood. (Where applicable)
37009	9. Check Log Sheet for completeness of run and all Serial Numbers
37009	10. Check condition of Cylinder Bores.

In addition to the foregoing, all normal and standard test operations have been completed.

Tested and Released

Testor Sign 37009Date 9/15/05



Teledyne Continental Motors, Inc.
A Teledyne Technologies Company

Engine Component Information Sheet

Printed: 09/16/2005

Serial: 278936
Spec: TSI0520P7B
New/Rebuilt: (REBUILT)

Assembled: 09/10/2005
Shipped:
Packed:

Customer Name: PENN YAN AERO
Shipping Address:

Component	Serial Number
CAMSHAFT	Z05HA109
CRANKSHAFT	N00JA074 ✓
CRANKCASE	E209903R ✓
CONNROD	AE05GA714
CONNROD	AE05GA739
CONNROD	AE05GA731
CONNROD	AE05GA751
CONNROD	AE05GA891
CONNROD	AE05GA895
L MAGNETO	05081968 ✓
R MAGNETO	05081971 ✓
FUEL PUMP	B05HA334R ✓
MANIFOLD VALVE	C05HA284R ✓
NOZZLE SIZE	14B —
METERING UNIT	A05HA291R ✓
STARTER	05 74 0029 ✓

Component	Serial Number
OIL COOLER	F05-3907-146 ✓
CYLINDER-1	AC05HA729 ✓
CYLINDER - 2	AC05HA758 ✓
CYLINDER - 3	AC05HA726 ✓
CYLINDER - 4	AC05HA775 ✓
CYLINDER - 5	AC05HA773 ✓
CYLINDER - 6	AC05HA743 ✓

Pack Inspection Stamp

All of the information provided herein is subject to verification by the user. Teledyne Continental Motors, Inc. makes no representation or warranty concerning the accuracy or completeness of the information and assumes no responsibility with respect thereto.



Engine Assembly

Torque Measurement & Control System

CELL 3A

Assembler: 31584

Date: 9/10/2005 9:26 AM

Torque Signature and Bolt Stretch Report

TSI0520

278936

ID	Description	Actual	Target	Minimum	Maximum	Date	Time
01RASBT	Rocker Arm Shaft Bolt Torque Location 1	92.43	95	90	100	9/10/2005	9:24:13 AM
02RASBT	Rocker Arm Shaft Bolt Torque Location 2	96.15	95	90	100	9/10/2005	9:25:06 AM
03RASBT	Rocker Arm Shaft Bolt Torque Location 3	96.28	95	90	100	9/10/2005	9:25:14 AM
04RASBT	Rocker Arm Shaft Bolt Torque Location 4	96.07	95	90	100	9/10/2005	9:25:18 AM
05RASBT	Rocker Arm Shaft Bolt Torque Location 5	96.15	95	90	100	9/10/2005	9:25:21 AM
06RASBT	Rocker Arm Shaft Bolt Torque Location 6	96.23	95	90	100	9/10/2005	9:25:26 AM
07RASBT	Rocker Arm Shaft Bolt Torque Location 7	95.83	95	90	100	9/10/2005	9:25:37 AM
08RASBT	Rocker Arm Shaft Bolt Torque Location 8	96.1	95	90	100	9/10/2005	9:25:39 AM
09RASBT	Rocker Arm Shaft Bolt Torque Location 9	95.28	95	90	100	9/10/2005	9:25:44 AM
10RASBT	Rocker Arm Shaft Bolt Torque Location 10	95.36	95	90	100	9/10/2005	9:25:47 AM
11RASBT	Rocker Arm Shaft Bolt Torque Location 11	95.96	95	90	100	9/10/2005	9:25:50 AM
12RASBT	Rocker Arm Shaft Bolt Torque Location 12	95.7	95	90	100	9/10/2005	9:25:54 AM
01RASTA	Rocker Arm Shaft Bolt Torque Angle Location 1	190	100	0	3200	9/10/2005	9:24:13 AM
02RASTA	Rocker Arm Shaft Bolt Torque Angle Location 2	49	100	0	3200	9/10/2005	9:25:06 AM
03RASTA	Rocker Arm Shaft Bolt Torque Angle Location 3	52	100	0	3200	9/10/2005	9:25:14 AM
04RASTA	Rocker Arm Shaft Bolt Torque Angle Location 4	47	100	0	3200	9/10/2005	9:25:18 AM
05RASTA	Rocker Arm Shaft Bolt Torque Angle Location 5	55	100	0	3200	9/10/2005	9:25:21 AM
06RASTA	Rocker Arm Shaft Bolt Torque Angle Location 6	45	100	0	3200	9/10/2005	9:25:26 AM
07RASTA	Rocker Arm Shaft Bolt Torque Angle Location 7	41	100	0	3200	9/10/2005	9:25:37 AM
08RASTA	Rocker Arm Shaft Bolt Torque Angle Location 8	57	100	0	3200	9/10/2005	9:25:39 AM
09RASTA	Rocker Arm Shaft Bolt Torque Angle Location 9	49	100	0	3200	9/10/2005	9:25:44 AM
10RASTA	Rocker Arm Shaft Bolt Torque Angle Location 10	50	100	0	3200	9/10/2005	9:25:47 AM
11RASTA	Rocker Arm Shaft Bolt Torque Angle Location 11	52	100	0	3200	9/10/2005	9:25:50 AM
12RASTA	Rocker Arm Shaft Bolt Torque Angle Location 12	51	100	0	3200	9/10/2005	9:25:54 AM



Engine Assembly
Torque Measurement & Control System
Station 20

Assembler: 31701

Date: 9/9/2005 12:42 PM

Torque Signature and Bolt Stretch Report

TSI0520P

278936

ID	Description	Actual	Target	Minimum	Maximum	Date	Time
01CRBT	Connecting Rod Bolt Torque (Journal 1 - Right Side)	700	700	690	710	9/9/2005	12:31:39 PM
02CRBT	Connecting Rod Bolt Torque (Journal 1 - Left Side)	697	700	690	710	9/9/2005	12:31:44 PM
03CRBT	Connecting Rod Bolt Torque (Journal 2 - Right Side)	698	700	690	710	9/9/2005	12:31:50 PM
04CRBT	Connecting Rod Bolt Torque (Journal 2 - Left Side)	698	700	690	710	9/9/2005	12:31:55 PM
05CRBT	Connecting Rod Bolt Torque (Journal 3 - Right Side)	698	700	690	710	9/9/2005	12:32:02 PM
06CRBT	Connecting Rod Bolt Torque (Journal 3 - Left Side)	699	700	690	710	9/9/2005	12:32:06 PM
07CRBT	Connecting Rod Bolt Torque (Journal 4 - Right Side)	697	700	690	710	9/9/2005	12:32:14 PM
08CRBT	Connecting Rod Bolt Torque (Journal 4 - Left Side)	697	700	690	710	9/9/2005	12:32:19 PM
09CRBT	Connecting Rod Bolt Torque (Journal 5 - Right Side)	699	700	690	710	9/9/2005	12:32:26 PM
10CRBT	Connecting Rod Bolt Torque (Journal 5 - Left Side)	699	700	690	710	9/9/2005	12:32:31 PM
11CRBT	Connecting Rod Bolt Torque (Journal 6 - Right Side)	698	700	690	710	9/9/2005	12:32:40 PM
12CRBT	Connecting Rod Bolt Torque (Journal 6 - Left Side)	697	700	690	710	9/9/2005	12:32:46 PM
01CRTA	Connecting Rod Torque Angle (Journal 1 - Right Side)	54	60	40	80	9/9/2005	12:31:39 PM
02CRTA	Connecting Rod Torque Angle (Journal 1 - Left Side)	52	60	40	80	9/9/2005	12:31:44 PM
03CRTA	Connecting Rod Torque Angle (Journal 2 - Right Side)	51	60	40	80	9/9/2005	12:31:50 PM
04CRTA	Connecting Rod Torque Angle (Journal 2 - Left Side)	50	60	40	80	9/9/2005	12:31:55 PM
05CRTA	Connecting Rod Torque Angle (Journal 3 - Right Side)	49	60	40	80	9/9/2005	12:32:02 PM
06CRTA	Connecting Rod Torque Angle (Journal 3 - Left Side)	53	60	40	80	9/9/2005	12:32:06 PM
07CRTA	Connecting Rod Torque Angle (Journal 4 - Right Side)	53	60	40	80	9/9/2005	12:32:14 PM
08CRTA	Connecting Rod Torque Angle (Journal 4 - Left Side)	51	60	40	80	9/9/2005	12:32:19 PM
09CRTA	Connecting Rod Torque Angle (Journal 5 - Right Side)	51	60	40	80	9/9/2005	12:32:26 PM
10CRTA	Connecting Rod Torque Angle (Journal 5 - Left Side)	56	60	40	80	9/9/2005	12:32:31 PM
11CRTA	Connecting Rod Torque Angle (Journal 6 - Right Side)	54	60	40	80	9/9/2005	12:32:40 PM
12CRTA	Connecting Rod Torque Angle (Journal 6 - Left Side)	58	60	40	80	9/9/2005	12:32:46 PM
01CRGBT	Crank Gear Bolt Torque Location 1	403	400	380	420	9/9/2005	12:20:43 PM
02CRGBT	Crank Gear Bolt Torque Location 2	404	400	380	420	9/9/2005	12:20:50 PM
03CRGBT	Crank Gear Bolt Torque Location 3	403	400	380	420	9/9/2005	12:20:57 PM
04CRGBT	Crank Gear Bolt Torque Location 4	402	400	380	420	9/9/2005	12:21:04 PM
05CRGBT	Crank Gear Bolt Torque Location 5	401	400	380	420	9/9/2005	12:21:12 PM
06CRGBT	Crank Gear Bolt Torque Location 6	403	400	380	420	9/9/2005	12:21:20 PM
01CRGTA	Crank Gear Torque Angle Location 1	27	125	10	150	9/9/2005	12:20:43 PM
02CRGTA	Crank Gear Torque Angle Location 2	29	125	10	150	9/9/2005	12:20:50 PM

03CRGTA	Crank Gear Torque Angle Location 3	27	125	10	150	9/9/2005	12:20:57 PM
04CRGTA	Crank Gear Torque Angle Location 4	28	125	10	150	9/9/2005	12:21:04 PM
05CRGTA	Crank Gear Torque Angle Location 5	28	125	10	150	9/9/2005	12:21:12 PM
06CRGTA	Crank Gear Torque Angle Location 6	30	125	10	150	9/9/2005	12:21:20 PM
01CMGBT	Cam Gear Bolt Torque Location 1	253	250	240	260	9/9/2005	12:21:28 PM
02CMGBT	Cam Gear Bolt Torque Location 2	254	250	240	260	9/9/2005	12:21:33 PM
03CMGBT	Cam Gear Bolt Torque Location 3	253	250	240	260	9/9/2005	12:21:38 PM
04CMGBT	Cam Gear Bolt Torque Location 4	254	250	240	260	9/9/2005	12:21:43 PM
01CMGTA	Cam Gear Torque Angle Location 1	23	125	10	150	9/9/2005	12:21:28 PM
02CMGTA	Cam Gear Torque Angle Location 2	27	125	10	150	9/9/2005	12:21:33 PM
03CMGTA	Cam Gear Torque Angle Location 3	25	125	10	150	9/9/2005	12:21:38 PM
04CMGTA	Cam Gear Torque Angle Location 4	26	125	10	150	9/9/2005	12:21:43 PM

TCM Engine Model	TSIO-520P7B
TCM Serial#	278936-R
Test Document	TH-3205 Rev B
Software Release#	1.98, 05/13/04
Start Time	9/15/05, 06:43:39
Accepted Time	9/15/05, 10:01:38
Cell# & Operator	3, 37009
Sea Level Power	310 HP @ 2700RPM
Vapor Pressure	0.83 in HG
Temp, Wet Baro	84.20 F, 30.09 in HG

Teledyne Continental Motors Aircraft Engine Standard Acceptance Test Log

Test Club#	C3023A
Rqrd Pitch	21° ± .5°
Actual Pitch	22 21.5
Mixture Check	PASS
Alternator Check	

Mag Data	Required	Actual
Eng Speed Both	2100	2080
Eng Speed Right	N/A	1958
Right Mag Drop	150	122
Eng Speed Left	N/A	1976
Left Mag Drop	150	105
Mag Drop Spread	50	18
Fuel Flow (Ref.)	74	84

Note: Magneto check between Run 2 & 3

Run Information	Run 1	Run 2	Run 3	Run 4	Run 5	Run 6	Run 7	Run 8
Time Of Day	07:04:32	07:06:32	07:15:03	09:04:05	09:15:03	09:26:35	09:35:03	09:52:17
Run Time Rqd (MM:SS)	01:00	01:00	01:00	10:00	10:00	01:00	10:00	05:00
Run Time	01:00	01:44	01:00	10:00	10:00	01:00	10:00	05:00
Prop Speed Rqd (RPM)	1175-1225	1575-1625	2425-2475	2700-2750	2466-2491	575-625	2466-2491	2466-2491
Prop Speed	1204	1600	2448	2722	2478	622	2479	2478
Manifold Press Rqd (inHg)	N/A	N/A	N/A	36.3-36.7	31.0 REF	18.5 MAX	31.0 REF	31.0 REF
Manifold Press	12.5	16.7	30.8	36.3	30.6	17.1	32.3	32.1
Turbo Dis Press Rqd (inHg)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Turbo Dis Press	29.3	29.3	36.1	36.5	33.3	29.5	36.5	36.2
Fuel Flow Rqd (lb/hr)	N/A	N/A	N/A	182.3-188.3	128.1-134.1	N/A	N/A	N/A
Fuel Flow	21.7	39.5	155.8	182.3	130.3	6.9	145.6	142.3
Nozzle Press Rqd (PSID)	N/A	N/A	N/A	18.8-19.4	11.8-12.4	N/A	N/A	N/A
Nozzle Press	3.7	3.9	16.1	19.2	11.8	2.4	13.7	13.4
Fuel Pump Press Rqd (PSIG)	N/A	N/A	N/A	34.5 REF	N/A	5.5-6.5	N/A	N/A
Fuel Pump Press	9.5	11.9	34.8	32.7	22.0	5.9	29.8	28.9
Fuel Temp Rqd (°F)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Fuel Temp	62	59	52	65	65	73	61	63
Ambient Temp Rqd (°F)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Ambient Temp	80	81	83	87	92	90	90	92
Eng Inlet Oil Temp Rqd (°F)	90-240	120-240	165-240	180-240	165-240	130-240	165-240	165-240
Eng Inlet Oil Temp	100	120	169	207	203	180	168	188
Eng Oil Press Rqd (PSIG)	30.0 MIN	30.0 MIN	30.0 MIN	40.6-51.6	30.0 MIN	15.4 MIN	30.0 MIN	30.0 MIN
Eng Oil Press	71.1	71.1	58.7	46.2	46.6	18.6	61.1	52.4
Min Cylinder Temp Rqd (°F)	150 MIN	175 MIN	225 MIN	250 MIN	250 MIN	N/A	250 MIN	250 MIN
Max Cylinder Temp Rqd (°F)	460 MAX	460 MAX	460 MAX	460 MAX	460 MAX	460 MAX	460 MAX	460 MAX
Cylinder 1 Temp	227	267	337	420	376	269	344	359
Cylinder 2 Temp	209	266	355	419	370	265	364	378
Cylinder 3 Temp	206	247	322	386	320	240	334	353
Cylinder 4 Temp	201	255	338	405	306	230	351	366
Cylinder 5 Temp	207	246	308	394	365	269	323	335
Cylinder 6 Temp	171	217	276	356	331	233	295	306
Collar Press Differential Rqd (PSID)	N/A	N/A	N/A	12.3 MAX	N/A	N/A	N/A	N/A
Collar Press Differential	0.6	1.0	-0.3	-0.4	-0.4	-1.6	0.2	-0.3

Engine S/N: 278936			Spec/Assy#: R-TSI0520P7B			Graphics Ref#:			
Operation#: 135			Revision#: 008			Rev Date: 08/23/2005			
Item	Part Number	Qty	Nomenclature	Titem	Tool Part#	Tool Name			
060	641931-10.75	6	BOLT .50-20 X 10.75						
061	641931-9.81	1	BOLT-.50-20 X 9.81 LG						
062	641931-10.52	1	BOLT .50-20 X 10.52 LG.						
063	652887-8.88	2	BOLT-THRU .4375-20						
074	627433	3	SCREW-.31-18X5.25						
075	AN960-516	AR	WASHER-PL .31 X .063 THK						
076	AS3570-011	1	O'RING						
135-06 1. INSTALL THE 1-3-5 C'CASE HALF OVER THE ODD NUMBER POSITION CONNECTING RODS AND AGAINST THE 2-4-6 C'CASE HALF. 2. CAUTION: USE CARE TO PREVENT DAMAGE TO NOSE SEAL OR SILK THREAD. 3. TAP THRU BOLTS ◀P-060▶ THROUGH C'CASE USING A NON MARRING HAMMER. POS. #1, 4, 10, 13, 30, & 33. INSTALL BOLT ◀P-061▶ IN POSITION #22, SHORT END TO 1-3-5 & BOLT ◀P-062▶ AT POS. #19, END STAMPED "L" 2-4-6 SIDE. 4. CENTER BOLTS (EQUAL THREADS BOTH SIDES). 5. INSTALL THRU BOLT ◀P-063▶ AT UPPER & LOWER THRU HOLE POSITION #27 & 28. 6. TAP IN PLACE WITH NON MARRING HAMMER. 7. INSTALL SCREWS ◀P-074▶ AND WASHER ◀P-075▶ AND O-RING ◀P-076▶ AT ACCESSORY CASE UPPER END ON #1 SIDE. SNUG WITH AIR GUN.						Torque/Measurement		Perf	Vrfy

Engine S/N: 278936

Spec/Assy#: R-TSI0520P7B

Graphics Ref#:

Operation#: 135

Revision#: 008

Rev Date: 08/23/2005

Item	Part Number	Qty	Nomenclature	TItem	Tool Part#	Tool Name
074	627433	3	SCREW-.31-18X5.25			
075	AN960-516	AR	WASHER-PL .31 X .063 THK			
077	AN5-13A	1	BOLT .31-24X1.47 LG			
078	AN315-5R	1	NUT-PLAIN .31-24			
041	646941	AR	SEALANT/ADHESIVE			
079	628321-.38	4	BOLT-10-24NC3 .38 LG			
080	641361	2	PLATE-OIL SEAL RETAINER			

135-06 (Cont'd)

8. INSTALL SCREW ◀P-074▶ AND WASHER ◀P-075▶ AT EACH END OF C'CASES, LOW ON #1 SIDE. HAND TIGHT ONLY.
9. INSTALL SCREW ◀P-074▶ AND 5 WASHERS ◀P-075▶ AT ACCESSORY END OF C'CASE AT #2 CYLINDER. SNUG WITH AIR GUN.
10. INSTALL BOLT ◀P-077▶, 2 WASHERS ◀P-075▶ AND 1 NUT ◀P-078▶ AND INSTALL IN #1 BOLT HOLE FROM FRONT.
11. APPLY PRIMER ◀P-041▶ AND SEALANT ◀P-041▶ TO BOLT ◀P-079▶ AND INSTALL OIL SEAL RETAINER PLATES ◀P-080▶ ON BOTH SECTIONS OF C'CASE.
12. TORQUE BOLT.

Torque/Measurement

Perf

Vrify

21-25 INCH POUNDS

09-29-05

Engine S/N: 278936

Spec/Assy#: R-TSI0520P7B

Graphics Ref#:

Operation#: 140

Revision#: 008

Rev Date: 08/23/2005

Item	Part Number	Qty	Nomenclature	TItem	Tool Part#	Tool Name
081	25171	4	SPACER-CRKCASE THRU BOLT			
063	652887-8.88	2	BOLT-THRU .4375-20			
082	652422	4	NUT .4375-20 UNF-3B FLGD			
083	AN123862	2	*N* SEAL "O" RING .36 ID			
084	630693-10.44	1	BOLT .38-24X10.44 LG			
007	530231-2	1	GRADE 50 MHS 27 OIL APP.			
085	24239	2	WASHER-.375 PLAIN			
057	2441	2	NUT-PLAIN HEX .38-24			

140-01

1. UNLESS OTHERWISE SPECIFIED, ALL TORQUE LOADS LISTED FOR NUTS, BOLTS AND SCREWS ARE FOR USE WITH THREADS LUBRICATED WITH 50 WEIGHT ENGINE OIL.
2. REFERENCE GRAPHIC NO RB00247 BOLT LOCATION.
3. INSTALL SPACER ◀P-081▶ ON BOLTS ◀P-063▶ AND SECURE WITH NUTS ◀P-082▶. SNUG NUTS.*
4. INSTALL O-RING ◀P-083▶ ON THRU BOLT ◀P-084▶. LUBRICATE O-RING AND THREADS OIL ◀P-007▶.
5. INSTALL THRU BOLT ◀P-084▶ THROUGH C'CASE AT THE UPPER ACCESSORY CASE END. POS. #39. INSTALL WASHER ◀P-085▶ AND NUT ◀P-057▶ ON THE 1-3-5 SIDE.
6. ON OPPOSITE END OF BOLT ABOVE, USE WASHER AND NUT AS ABOVE. SNUG NUTS.*

Torque/M Measurement

Perf

Vrfy

09 0905

Engine S/N: 278936		Spec/Assy#: R-TSI0520P7B		Graphics Ref#:			
Operation#: 140		Revision#: 008		Rev Date: 08/23/2005			
Item	Part Number	Qty	Nomenclature	TItem	Tool Part#	Tool Name	
086	630943-10.50	4	BOLT-THRU.4375-20NF-3THD				
081	25171	4	SPACER-CRKCASE THRU BOLT				
082	652422	4	NUT .4375-20 UNF-3B FLGD				
140-01 (Cont'd) 7. INSTALL BOLT ◀P-086▶ BELOW CAM BORE AT POS. #9, 18, 29, & 38. INSTALL SPACERS ◀P-081▶ AND NUTS ◀P-082▶. SNUG NUTS.* *TO BE FINAL TORQUED AT A LATER OPERATION.				Torque/Measurement		Perf	Vrfy
				09 0900		 	

Engine S/N: 278936			Spec/Assy#: R-TSI0520P7B			Graphics Ref#:			
Operation#: 140			Revision#: 008			Rev Date: 08/23/2005			
Item	Part Number	Qty	Nomenclature	TItem	Tool Part#	Tool Name			
087	634326-12A2	1	METERED ASM FUEL						
088	AN5-14A	1	BOLT .31-24X1.59 LG						
075	AN960-516	AR	WASHER-PL .31 X .063 THK						
078	AN315-5R	AR	NUT-PLAIN .31-24						
089	538650	1	EYE-LIFTING						
090	AN5-15A	2	BOLT .31-24X1.72 LG						
091	AN5-12A	1	BOLT .31-24X1.34 LG						
092	AN960-516L	4	WASHER-PL .31 X .032 THK						
077	AN5-13A	7	BOLT .31-24X1.47 LG						
140-02 1. INSTALL THE METERED FUEL ASSY ◀P-087▶ AT THE #7 AND #8 BOLT HOLES FROM NOSE OF ENGINE. VENT TO 2-4-6 SIDE. 2. INSTALL BOLT ◀P-088▶ IN THE #7 BOLT HOLE FROM FRONT , WITH 2 WASHERS ◀P-075▶ AND 1 NUT ◀P-078▶. 3. INSTALL LIFTING EYE ◀P-089▶ TO BOLT HOLES #8 AND 9 FROM FRONT, (POSITINO #46 AND 48) ON THE 1-3-5 SIDE. INSTALL BOLTS ◀P-090▶ 5 WASHERS ◀P-075▶ (1 WASHER BETWEEN LIFT EYE AND MANIFOLD BRACKET AT POSITION #46 AND 2 WASHERS BETWEEN LIFT EYE AND C'CASE AT POSITION #48). SECURE WITH 2 NUTS ◀P-078▶. SNUG NUTS. 4. INSTALL BOLT ◀P-091▶ AT POSITION #54 WITH 2 WASHERS ◀P-092▶. 5. INSTALL BOLTS ◀P-077▶, WASHERS ◀P-075▶ AND NUTS ◀P-078▶ IN POSITIONS #45, 47, 50, 51, 53, AND 55. BOLT HEADS TO BE ON THE 1-3-5 SIDE OF FLANGES. INSTALL 17 WASHERS ◀P-075▶ AND 9 NUTS ◀P-078▶. TO BE TORQUED AT A LATER OPERATION.						Torque/Measurement		Perf	Vrfy

Engine S/N: 278936

Spec/Assy#: R-TSI0520P7B

Graphics Ref#:

Operation#: 140

Revision#: 008

Rev Date: 08/23/2005

Item	Part Number	Qty	Nomenclature	TItem	Tool Part#	Tool Name
814	646435-1	1	BRACKET - SUPPORT			

140-02 (Cont'd)

6. INSTALL BRACKET ◀P-814▶ AT THE #10 BOLT HOLE FROM FRONT OF ENGINE ON THE 1-3-5 SIDE. POINT TOWARDS 2-4-6 SIDE. USE EXISTING HARDWARE.

Torque/Masurement

Perf

Vrfy

09 0905

[illegible]

Engine S/N: 278936

Spec/Assy#: R-TSI0520P7B

Graphics Ref#:

Operation#: 145

Revision#: 008

Rev Date: 08/23/2005

Item	Part Number	Qty	Nomenclature	TItem	Tool Part#	Tool Name
145-05 (Cont'd)						
9. ON CYLINDER NO 1, TORQUE DECK STUD NUTS POSITION #31, 32, 34, 35, 36, AND 37.						
10. TORQUE THRU BOLTS POSITION #30 & 33.						
11. TORQUE THRU BOLTS #9, 18, 29, & 38.						
12. TORQUE THRU BOLTS #27 & 28.						
13. TORQUE DECK STUD NUTS & THRU BOLT NUTS IN THE FOLLOWING SEQUENCE: #1, 2, 3, 4, 5, 6, 7, 8.						
14. TORQUE DECK STUD NUTS AND THRU BOLT NUTS IN THE FOLLOWING SEQUENCE: #10, 11, 12, 13, 14, 15, 16, 17.						
15. TORQUE DECK STUD NUTS AND THRU BOLTS IN THE FOLLOWING SEQUENCE: #19, 20, 21, 22, 23, 24, 25, 26.						
16. TORQUE DECK STUD NUTS AND THRU BOLT NUTS IN THE FOLLOWING SEQUENCE: #30, 31, 32, 33, 34, 35, 36, 37.						
					Torque/M Measurement	Perf Vrfy
					350 INCH POUNDS	
					350 INCH POUNDS	
					250 INCH POUNDS	091005
					350 INCH POUNDS	
					500 INCH POUNDS	
					500 INCH POUNDS	
					500 INCH POUNDS	
					500 INCH POUNDS	

Engine S/N: 278936			Spec/Assy#: R-TSI0520P7B			Graphics Ref#:		
Operation#: 145			Revision#: 008			Rev Date: 08/23/2005		
Item	Part Number	Qty	Nomenclature	TItem	Tool Part#	Tool Name		
145-05 (Cont'd) 17. TORQUE NUTS #9, 18, 29, & 38. 18. TORQUE NUTS #27 & 28. 19. MOVE ENGINE TO FINAL TORQUING STATION. 20. TORQUE THRU BOLT NUTS POSITION #1 AND 4. 21. TORQUE THRU BOLTS POSITION #10 AND 13. 22. TORQUE THRU BOLT NUTS POSITION #19 AND 22, 2-4-6 SIDE. 23. TORQUE THRU BOLT NUTS POSITION #19 AND 22, 1-3-5 SIDE. 24. TORQUE THRU BOLTS POSITION #30 AND 33, ON 1-3-5 SIDE. 25. TORQUE THRU BOLTS POSITION #30 AND 33, ON 2-4-6 SIDE. 26. TORQUE THRU BOLT IN POSITION #39. Torque/Measurement 450 INCH POUNDS 450 INCH POUNDS 800 INCH POUNDS 800 INCH POUNDS 800 INCH POUNDS 625 INCH POUNDS 800 INCH POUNDS 625 INCH POUNDS 275-325 INCH POUNDS Perf <i>C.V.M.</i>  091008 Vrfy								

Engine S/N: 278936			Spec/Assy#: R-TSI0520P7B			Graphics Ref#:		
Operation#: 145			Revision#: 008			Rev Date: 08/23/2005		

Item	Part Number	Qty	Nomenclature	Titem	Tool Part#	Tool Name
218	530231-10	AR	EC 1252 PUTTY, WHITE	024	520-1681	BREAK AWAY TOOL

145-05 (Cont'd) 27. TORQUE NUT IN POSITION #64. 28. TORQUE SCREWS IN POSITIONS #40, 41, 42, 43, 44. 29. TORQUE SCREWS IN POSITIONS #45 - 57, IN SEQUENCE SHOWN. 30. TORQUE BRACKET NUTS POSITIONS #58, 59, 60, 61, 62, AND 63. 31. TORQUE CAM COVER SCREWS. 32. TORQUE VERNATHERM OR PLUG AS APPLICABLE. 33. VERIFY MATING FACES OF C'CASE AT ACCESSORY END ARE FLUSH, USE STRAIGHT EDGE. ADJUST AS REQUIRED. 34. MEASURE CRANKSHAFT BREAK-AWAY TORQUE USING TOOL ◀T-024▶ AND RECORD VALUE. TORQUE 450 INCH LBS. MAX <u>200</u>. 35. APPLY A STRIPE OF PUTTY ◀P-218▶ TO THE CYLINDER DECK STUD NUTS, THRU-BOLT NUTS AND CAM TIE-BOLT NUTS. BETWEEN NUTS AND CRANKCASE INTERFACE.	Torque/Masurement 180-220 INCH POUNDS 155-175 INCH POUNDS 180-220 INCH POUNDS 500 INCH POUNDS 75-85 INCH POUNDS 310-320 INCH POUNDS 450 INCH POUNDS	Perf  <u>C.W.M.</u>	Vrfy 091005
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Graphics Ref#:

Operation#: 145

Revision#: 008

Rev Date: 08/23/2005

Item	Part Number	Qty	Nomenclature	TItem	Tool Part#	Tool Name
114	626972-24	6	CAPPLUGS-PLASTIC TYPE A	019	146-4	DIAL INDICATOR
115	22671	12	PLUG-SPARK PLUG HOLE			
004	535011	AR	WIRE-LOCK			
218	530231-10	AR	EC 1252 PUTTY, WHITE			

145-06

1. INSTALL CAPPLUGS ◀P-114▶ INTO THE SIX EXHAUST PORTS AND PLUG ◀P-115▶ INTO THE SPARK PLUG HOLES.
2. SECURE BOLTS WITH LOCK-WIRE ◀P-004▶ AT REAR OF 2-4-6, 1-3-5 HALVES AND VERNATHERM OR PLUG ON 1-3-5 SIDE FRONT.

145-07

1. VERIFY THE FOLLOWING:
 - A. TORQUE ON THRU BOLTS AND CYLINDER DECK STUDS.
 - B. APPLICATION OF PUTTY ◀P-218▶ HAS BEEN APPLIED TO CYLINDER DECK STUD NUTS.
 - C. CRANKSHAFT END CLEARANCE USING DIAL INDICATOR ◀T-019▶, RECORD 0.006.
 - D. THERE IS NO CYLINDER FIN DAMAGE.

Torque/M Measurement

Perf

Vrfy

091005



0.004-0.016 INCHES

X

p.w.m