

Tim's Aircraft Engines, Inc.

Repair Station No. [REDACTED]
6105 OBISPO AVE
Long Beach, CA 90805
Phone: (562) 634-6120
Fax: (562) 634-6129
Email: tim@timsaircraft.com
Date: 12/30/2015, 4:46 PM

CUSTOMER INFORMATION

Solano Aircraft Services
3473 Airport Dr Hangar 1
Torrance, Ca. 90505
562-331-1116
solanoaircraft@yahoo.com
Engine Make: CONTINENTAL
Engine Model: IO-360-ES
Engine Serial: 357628
A/C Reg. No: N477TC
Tax ID: [REDACTED]

Customer Invoice
Repair Order: 9283

Item: 1 - Airworthy Engine**Discrepancy**

T/I Cont. IO-360-ES Teardown and Inspect

Metal Contamination from piston

NOTE: NO BAFFLING EXCEPT INNER CYLINDER / NO EXHAUST / NO OIL.

Hours

Flat

Subtotal**Corrective Action**

T/I Cont. IO-360-ES Teardown and Inspect

Metal Contamination from piston

NOTE: NO BAFFLING EXCEPT INNER CYLINDER / NO EXHAUST / NO OIL.

Outside Repair:

188262, Labor: 0.00, Parts: 0.00

(Overhaul Oil Cooler)

Qty	Unit	Part Number	Description	Serial Number	Unit Price	Subtotal
4		36025	WASHER .26 DIA HOLE TAB			
24		501867	WASHER TAB .26 DIA ID (P/O: 8312)			
1		530917	SEAL OIL CRKSHAFT (P/O: 8312)			
2		531178	RETAINER MAG COUPLING (P/O: 8175)			
4		626487	BOLT HEX HD .25 20NC 2 THD (P/O: 4533)			
1		631928	HOSE .50 ID (P/O: 8312)			
2		633609-18	BEARING NEEDLE (P/O: 8312)			
6		633958-2	SEAL COMP .15IDX.21THK (P/O: 8312)			
2		636931	NUT LOCK SELF .31 24 (P/O: 8312)			
1		641533	SEAL TACH DRIVE (P/O: 8312)			
12		642338	BEARING CONNECTING ROD (P/O: 8312)			
8		642917-16	HOSE-INTK 1.75 ID 2.50 LN			
2		642917-16	HOSE-INTK 1.75 ID 2.50 LN			
1		646543A1	GASKET SET 360 S (P/O: 8313)			
1		646597A1	BEARING SET (P/O: 8313)			
8		646605	NUT PLAIN (P/O: 8312)			
16		646605	NUT PLAIN (P/O: 8312)			
12		654487	NUT CONNECTING ROD (P/O: 8312)			
4		654584	BOLT .3125 24UNF3A X 1.00			
4		654586	SCREW-.3125-24 X .36 HEX (P/O: 8312)			
12		654693	BOLT-CONN ROD			
4		655269	BUSHING MAG DRIVE COUP (P/O: 8312)			
1		CH48108-1	SPIN-ON OIL FILTER (P/O: 8250)	10-9-14		

Labor: \$ [REDACTED]

Parts: \$ [REDACTED]

Shipping: \$0.00

Item Subtotal: \$ [REDACTED]

Item: 2 - Airworthy Engine

Discrepancy	Hours	Subtotal
Disassemble Engine	Flat	[REDACTED]
Corrective Action		
Disassemble Engine		

Labor: \$ [REDACTED]	Parts: \$ [REDACTED]	Shipping: \$ [REDACTED]	Item Subtotal: \$ [REDACTED]
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Item: 3 - Airworthy Engine

Discrepancy	Hours	Subtotal
Clean Engine	Flat	[REDACTED]
Corrective Action		
Clean Engine		

Labor: \$ [REDACTED]	Parts: \$ [REDACTED]	Shipping: \$ [REDACTED]	Item Subtotal: \$ [REDACTED]
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Item: 4 - Airworthy Engine

Discrepancy	Hours	Subtotal
Magnaflux Crankshaft	Flat	[REDACTED]
Corrective Action		
Magnaflux Crankshaft, REJECTED DUE TO CRACK FROM DOWEL. CUSTOMER SUPPLIED CRANKSHAFT.		

Qty	Unit	Part Number	Description	Serial Number	Unit Price	Subtotal
1		653129	CRANKSHAFT DAMPER ASM CUSTOMER SUPPLIED	N15EA036	[REDACTED]	[REDACTED]

Labor: \$ [REDACTED]	Parts: \$ [REDACTED]	Shipping: \$ [REDACTED]	Item Subtotal: \$ [REDACTED]
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Item: 5 - Airworthy Engine

Discrepancy	Hours	Subtotal
Zyglo Engine Crankcase	Flat	[REDACTED]
Corrective Action		
Zyglo Engine Crankcase		

Labor: [REDACTED]	Parts: \$ [REDACTED]	Shipping: \$ [REDACTED]	Item Subtotal: \$ [REDACTED]
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Item: 6 - Airworthy Engine

Discrepancy	Hours	Subtotal
Inspect Engine	Flat	[REDACTED]
Corrective Action		
#6 piston burnt (possible clogged injector), metal contamination, crankshaft crack from dowel, customer supplied crankshaft, repair cylinders as necessary.		

Labor: \$ [REDACTED]	Parts: \$ [REDACTED]	Shipping: \$ [REDACTED]	Item Subtotal: \$ [REDACTED]
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Item: 7 - Airworthy Engine

Discrepancy	Hours	Subtotal
Ultrasonic Crankshaft	Flat	[REDACTED]
Corrective Action		
Ultrasonic Crankshaft		

Labor: \$ [REDACTED]	Parts: \$ [REDACTED]	Shipping: \$ [REDACTED]	Item Subtotal: [REDACTED]
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Item: 8 - Airworthy Engine

Discrepancy

Cylinder Repair Qty 6

Hours

Flat

Subtotal

Corrective Action

Disassemble / Clean / NDT / Inspect / Reface Valves / Grind Seats / Hone / Assemble and Leak Check
Valves / Paint

Qty	Unit	Part Number	Description	Serial Number	Unit Price	Subtotal
24		627731	KEY VALVE SPRING (P/O: 7783)		[REDACTED]	[REDACTED]
6		646678	SEAL VALVE GUIDE INTAKE (P/O: 7783)		[REDACTED]	[REDACTED]
5		646929P010	INS I VL SEAT (P/O: 8314)		[REDACTED]	[REDACTED]
1		646929P020	INS I VL SEAT (P/O: 8321)		[REDACTED]	[REDACTED]
6		649225P005	RING SET (P/O: 8312)		[REDACTED]	[REDACTED]
1		654861	PISTON 4.44 DIA (WF) (P/O: 8321)		[REDACTED]	[REDACTED]
2		655866	VALVE EXHAUST (P/O: 8321)		[REDACTED]	[REDACTED]
4		655866	VALVE EXHAUST (P/O: 8321)		[REDACTED]	[REDACTED]

Labor: \$ [REDACTED]

Parts: \$ [REDACTED]

Shipping: \$ [REDACTED]

Item Subtotal: \$ [REDACTED]

Item: 9 - Airworthy Engine

Discrepancy

Cylinder - Clean and Blast Piston 5

Hours

Flat

Subtotal

Corrective Action

Clean and Blast Piston

Labor: \$ [REDACTED]

Parts: \$ [REDACTED]

Shipping: \$ [REDACTED]

Item Subtotal: \$ [REDACTED]

Item: 10 - Airworthy Engine

Discrepancy

Cylinder - Fit Rings Qty 6

Hours

Flat

Subtotal

Corrective Action

Fit Rings

Labor: \$ [REDACTED]

Parts: \$ [REDACTED]

Shipping: \$ [REDACTED]

Item Subtotal: \$ [REDACTED]

Item: 11 - Airworthy Engine

Discrepancy

Prep Engine for Assembly

Hours

Flat

Subtotal

Corrective Action

Prep Engine for Assembly

Labor: \$ [REDACTED]

Parts: \$ [REDACTED]

Shipping: \$ [REDACTED]

Item Subtotal: \$ [REDACTED]

Item: 12 - Airworthy Engine

Discrepancy

Assemble Engine

Hours

Flat

Subtotal

Corrective Action

Assemble Engine

Labor: \$ [REDACTED]

Parts: \$ [REDACTED]

Shipping: \$ [REDACTED]

Item Subtotal: \$ [REDACTED]

Item: 13 - Airworthy Engine

Discrepancy

Verify Crankshaft Balance with C'wts

Hours

Flat

Subtotal

Corrective Action

Verify Crankshaft Balance with C'wts

Labor: \$ [REDACTED] Parts: \$ [REDACTED] Shipping: \$ [REDACTED] Item Subtotal: \$ [REDACTED]

Item: 14 - Airworthy Engine

Discrepancy

Additional Parts Needed

Hours

Flat

Subtotal

Corrective Action

Additional Parts Needed

Qty	Unit	Part Number	Description	Serial Number	Unit Price	Subtotal
1		658106	LIFTER ASM HYDRAULIC (P/O: 8314)		[REDACTED]	[REDACTED]
11		658106	LIFTER ASM HYDRAULIC (P/O: 8359)		[REDACTED]	[REDACTED]
2		URHM38E	SPARK PLUG - MASSIVE ELECTRODE (P/O: 8301)		[REDACTED]	[REDACTED]
1		URHM38E	SPARK PLUG - MASSIVE ELECTRODE (P/O: 8301)		[REDACTED]	[REDACTED]

Labor: [REDACTED] Parts: \$ [REDACTED] Shipping: [REDACTED] Item Subtotal: [REDACTED]

Item: 15 - Airworthy Engine

Discrepancy

Install Valve Seat 6

Hours

Flat

Subtotal

Corrective Action

Remove / Inspect / Install Valve Seat 6

Labor: \$ [REDACTED] Parts: \$ [REDACTED] Shipping: [REDACTED] Item Subtotal: [REDACTED]

Item: 16 - Airworthy Engine

Discrepancy

Test run engine in engine test cell to check for leaks and operation.

Hours

Flat

Subtotal

Corrective Action

Test run engine in engine test cell to check for leaks and operation.

Labor: [REDACTED] Parts: [REDACTED] Shipping: [REDACTED] Item Subtotal: [REDACTED]

Item: 17 - Airworthy Engine

Discrepancy

Ship crankshaft to Continental Motors RMA 462585, UPS GRD. 46LB.

Hours

Flat

Subtotal

Corrective Action

Ship crankshaft to Continental Motors RMA 462585, UPS GRD. 46LB.

Labor: \$ [REDACTED] Parts: [REDACTED] Shipping: \$ [REDACTED] Item Subtotal: [REDACTED]

Please see the next page for the totals for this invoice

Additional Charges							Subtotal
Pilot Services	Tire Disposal	EPA Charge	Oil Analysis	Shop Supplies	Fuel	Misc.	
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

Labor Summary	
Shop Labor: [REDACTED]	Outside Repair: \$ [REDACTED]

The estimated total was [REDACTED]

Total Labor:	[REDACTED]
Total Parts:	[REDACTED]
Total Shipping:	[REDACTED]
Additional Charges:	[REDACTED]
Tax:	[REDACTED]
Amount Due:	[REDACTED]
Deposit:	[REDACTED]
Balance Due:	[REDACTED]

Reflects 25.00 % parts discount, saving [REDACTED]

Important Information

Reg. Number: N477TC, Eng. TT: 421.8

Estimate is for normal parts and labor associated with repair. Additional parts and labor may be needed to return to service. Part numbers may change due to OEM or PMA Part Manufacturers. Upon acceptance of estimate a 50% deposit is due to commence work, balance due upon completion. Note: A 5 % insurance charge will be added to all customer-supplied parts. Part prices are subject to change at any time. Invoice Total Balance Due in USD is payable at time of completion. Invoice balance payable in cash, certified check, wire transfer or approved company or personal check.

SIGN NAME PRINT NAME

Solano Aircraft Services or Authorized Representative

Date

014 - M-7

Part 5 - X-30395

TIM'S AIRCRAFT ENGINES INC.
6105 OBISPO AVE.
LONG BEACH, CA. 90805
PH. # (562) 634-6120 FAX: (562) 634-6129
FAA REPAIR STATION # [REDACTED]

ENGINE RECEIVING CHECK LIST

CUSTOMER: SOLANO AIRCRAFT SERVICES W/O: 9283 DATE: 4-10-15
MODEL: 10-360-ES SERIAL #: 357628

PART	P/N	S/N	MODEL #	COMMENTS
LT. MAG		03030911	6314	Slick Red
RT. MAG		03030909	6314	" " 11
DUAL MAG				
STAT. MOTOR	656181 B 24V	03154-0201		15K rpm 24 V
GEN./ALT.				
CARB/SERVO				
FUEL PUMP	649368-46A4	B031A112		
FUEL MANIFOLD	646508-10A6	C031A116		
INJ. LINES	6			
AIR THROTTLE	652844-1A4	A031A116		
METERING VALVE				
VAC. PUMP				
HYD. PUMP				
GOV.				
OIL COOLER	20458A	E03-2152-219		NDM Niagara Falls
TACH. GEN.	No Number			
TURBO				
WASTE GATE				
CONTROLLER				
CONTROLLER				
HOSES 5	OIL FILTER P/N	BAFFLING PIECES 15	SPARK PLUG P/N	RHM-38

CYL. #1 655479 B #2 655479 B #3 655479 B #4 655479 B #5 655479 B #6 655479 B
COMMENTS: AC03HB387 AC03HB457 AC0360958 AC03HB370 AC03HB414 AC03HA882

missing 2 push tube washers, missing 1 inner baffling
retainer spring,

TIM'S AIRCRAFT ENGINES, INC.

6105 OBISPO AVENUE

LONG BEACH, CA 90805

PHONE: (562) 634-6120 • FAX: (562) 634-6129

FAA REPAIR STATION [REDACTED]

CUSTOMER SOIANO AIRCRAFT SERVICES W/O # 9283 DATE 4-10-15ENGINE TYPE CONT- MODEL 10-360-ES (6) SERIAL # 357628

OUTSIDE LABOR

PART	P/N	S/N	VENDER	WORK REQUIRED	OUT	REC'D
Magneto						
Magneto						
Starter						
Gen. - Alt.						
CARB. - Inj.						
Fuel Pump						
Vac. Pump						
Hyd. Pump						
Prop.						
Gov.						
Oil Cooler	<u>20458A/EG32152219</u>		<u>PACIFIC COOLER</u>	<u>OH COOLER</u>	<u>P208172</u>	<u>5-5-15</u>
Tach. Gen.						<u>6-1-15</u>
Turbo						
Waste Gate						
Controller						
F.O. Lines						
Baffles						
Cad. Plate						
Cylinders						
Cases						
Crankshaft						
Parts						

TEAR DOWN INSPECT

Mech.	Date	Rework Required
HMP	<u>5-1-15</u>	<u>DISASSEMBLE</u>
HMP/	<u>5-5-15</u>	<u>CLEAN/BLAST PISTONS</u>
M	<u>5-8-15</u>	<u>MAGNAFLUX</u>
M	<u>5-8-15</u>	<u>ZYGLO CASE</u> ✓
A	<u>7-17-15</u>	<u>INSPECT AD LIST</u>
		<u>ULTRASONIC CRANKSHAFT NEW S/N N15EAC36</u> (M)
M	<u>07-27-15</u>	<u>PREP ENGINE</u>
DB	<u>8-11-15</u>	<u>ASSEMBLE</u>
(M)	<u>8-13-15</u>	<u>TEST RUN ENGINE</u>
M	<u>7/20/15</u>	<u>ZYGLO CYLS. VICTOR</u>
JG	<u>7/20/15</u>	<u>INSPECT</u>
JG	<u>8/3/15</u>	<u>GRIND SEATS/HONE CYLS/LEAK CHECK/FIT RINGS.</u>
DB	<u>8-5-15</u>	<u>VERIFY C/S BALANCE WITH C/WTS</u>

DB 8-5-15 LEAK TEST C/S AT 100 PSI MAINTAIN 62 PSI

REMARKS _____

TIM'S AIRCRAFT ENGINES, INC.

6105 OBISPO AVENUE

LONG BEACH, CA 90805

PHONE: (562) 634-6120 • FAX: (562) 634-6129

FAA REPAIR STATION

360

641992

642337

642338

Customer SOLANO AIRCRAFT SERVICES W/O # 9283 Date 7-12-15
 Engine Type Cont. Model 10-360-ES Serial No. 352628
 Main Cases M80-18 / M90-17 / M92-7 / M93-8 / SB97-6 / SL98-9

Main Bearing Area OK Rear Case OK
 Cam Journals OK Tach. Gear Housing OK
 Cam Follower Guides OK Oil Tank OK
 Push Rod Housing Adpt. OK Oil Screen OK (SB94-2)
 Thru Bolts OK (M77-9) Check Valve
 Case Bolts OK Suction Pipe OK
 Cyl. Base Studs OK Mount Brackets OK
 Intake OK Ign. Harness OK

Oil Pump

Shafts

Oil Pump Housing OK SB96-4

Drive Shaft OK CSB 96-5

Drive Gear OK

Driven Gear OK

Scav. Pump NA

PCW on Flange

0005 / Drive in Case 0019

Drive In Cover 0018

Driven In Case 0016

0004 Driven In Cover 0016

CRANKSHAFT CSB96-8 / MSB96-10 / MSB00-5D / MSB99-3 / SB97-6 /

NEW TCM CRANKSHAFT P/N 653129 VAR

015 Run Out Center Main 0015 (005) Run Out Taper Or Flange 0000

2.2445 / 2.248 Dia. Main Journ. Front 2.2479 2.27733 3.27733 4.27732 5. 6.

1.935 / 1.937 Dia. Main Journ. 1.1.9364 2.1.9362 3.1.9362 4.1.9363 5.1.9363 6.1.9362

C/S Counterweight 1. New 2. New 3. 4. 5. 6.

M93-4 Counterweight 1. New 2. New 3. 4. 5. 6.

C/W Pin New C/W Plates & Snap Rings New

CRANKSHAFT GEARS OK CAMSHAFT GEAR OK GOV. GEAR DR & DRN OK

Idler Gears Str. Adpt. OK Access Gears OK

Fuel Pump Gear OK CSB 01-1 Mag Gears OK Alt. Face Gear NA

Camshaft OK Followers Hyd. Lifters 653106

2.0615 / 2.062 Big End 1.2.0619 2.2062 3.2062 4.2.0619 5.2.0619 6.2062

Rods .001 Twist 64993 1. OK 2. OK 3. OK 4. OK 5. OK 6. OK

.0014 (.004) Bushings 1. OK 2. OK 3. OK 4. OK 5. OK 6. OK

Remarks M81-13 / M83-5 / M87-16 / M92-4 / M93-10 / MSB 93-12 / SB95-3A / CSB97-10 / MSB00-6 /

CSB01-1 / SB 01-5 / SB02-7 / CSB-98-1 / CSB96-13 / CSB08-9 / SB 12-3

2EA SPARK PLUGS

WG RHM38E

600270

Inspector

Approved

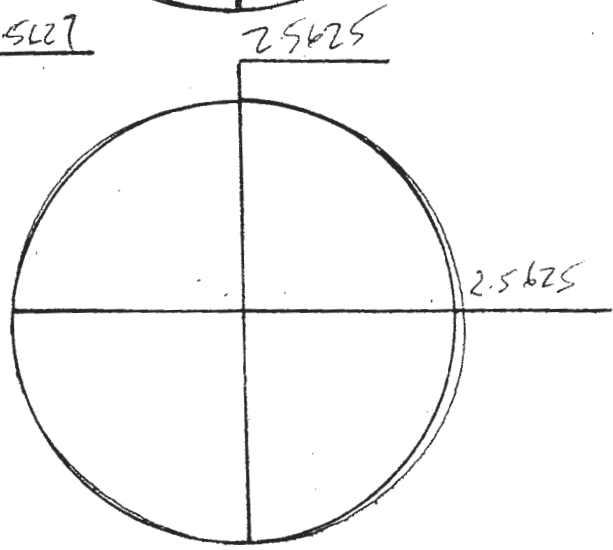
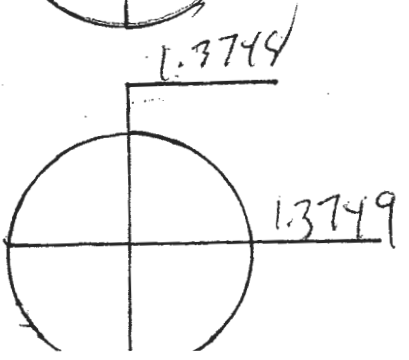
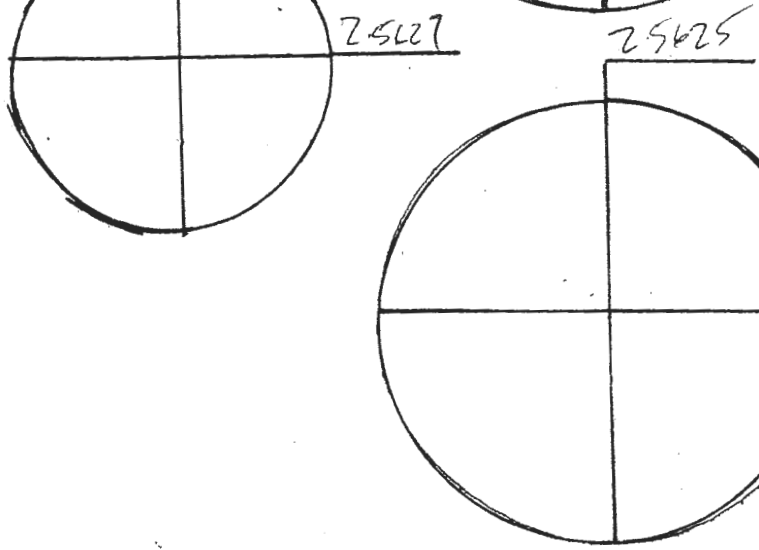
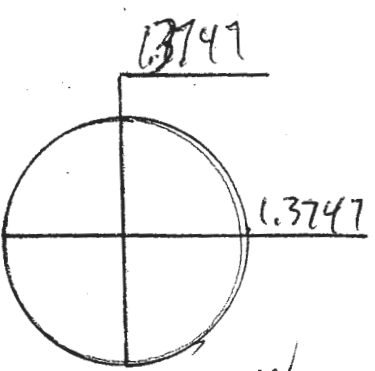
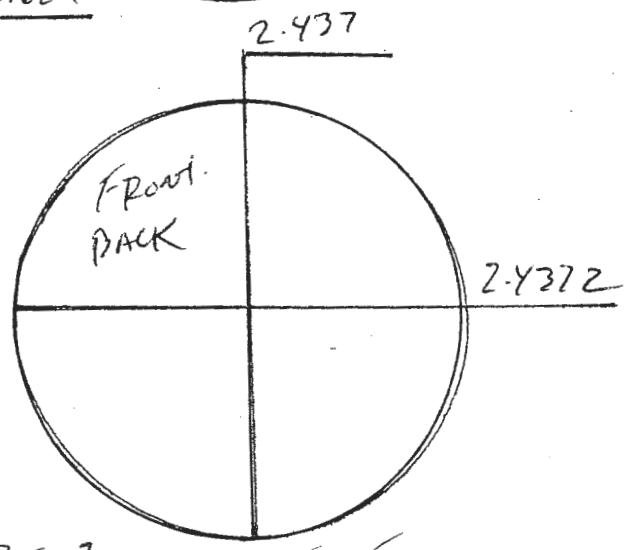
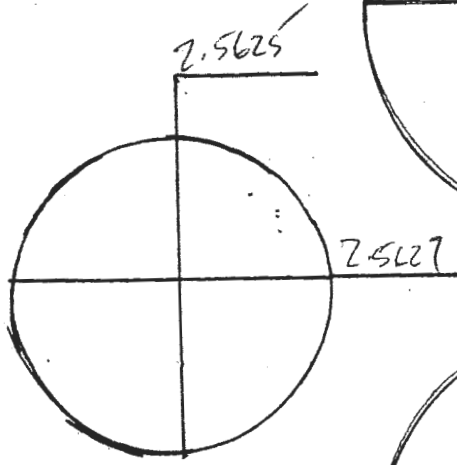
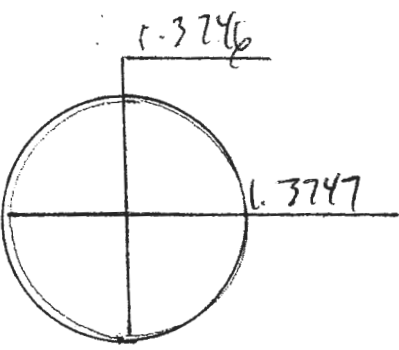
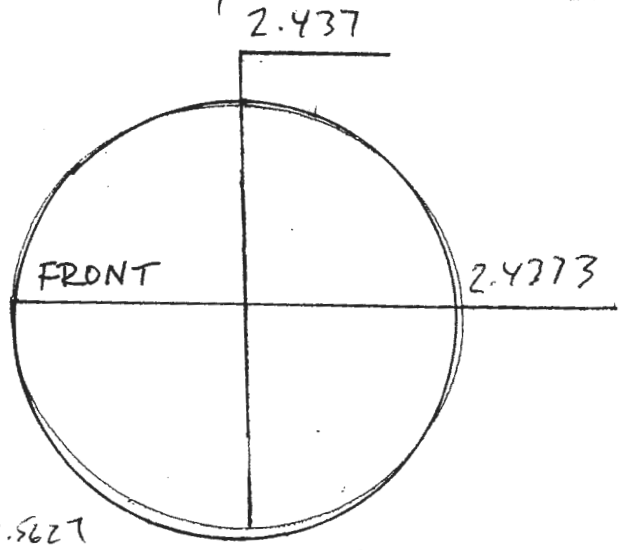
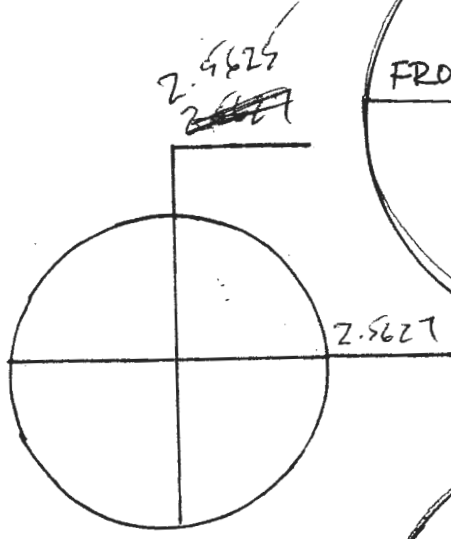
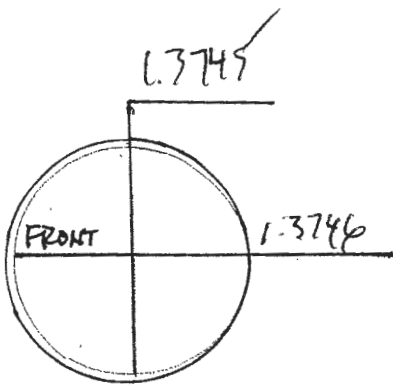
w/o : 9283

CAM : 1.3745/1.3755

MODEL : 10-860-65 (6)

MAINS : 2.5625/2.5635

FRONT : 2.437/2.438



TS10-360
10-360

SOLANO AIRCRAFT SERVICES
W/O 9283 - SN 357628
10-360-ES (6)

CRANKSHAFT THRUST BEARINGS END CLEARANCE $\frac{.008}{.018}$ L-S R-S
.021 .011 .011

CAMSHAFT END CLEARANCE $\frac{.005}{.009}$.014 .007 .007

CRANKSHAFT GEAR TO CAMSHAFT GEAR BACKLASH $\frac{.006}{.009}$.007 .007

CONN ROD SIDE CLEARANCE $\frac{.0056}{.008}$

1 .006
2 .006
3 .006
4 .006
5 .006
6 .006

WITTI 51

Multi-Bal 5000

CWT

Multi-Bal 5000

oz-in

0.01

grams

0.06

oz-in

0.05

grams

0.52

RPM

700

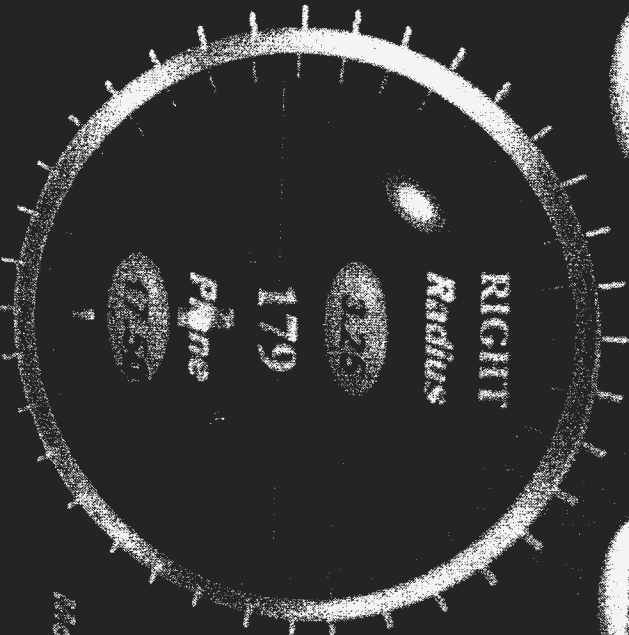
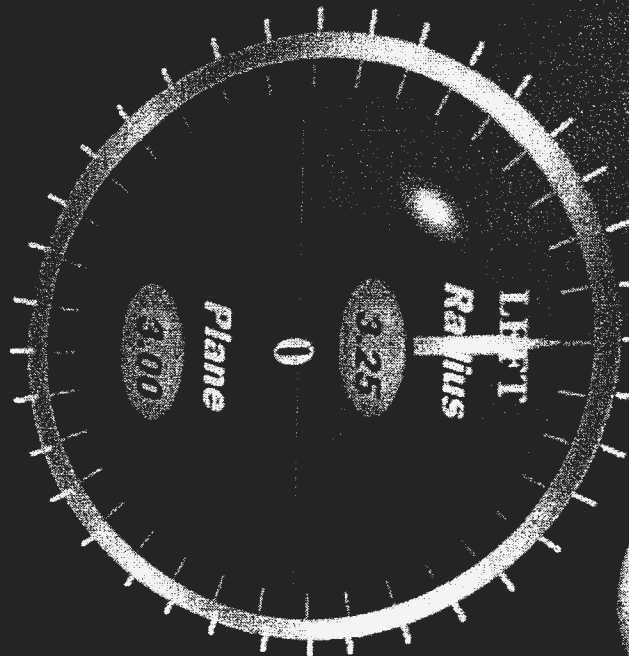
B to B

20.50

Remove

0.500

Tolerance
oz-in



Motor

Balanced to Tolerance!

Depth (in.)

0.01

Diam.

1.0

Force

Depth (m.)

0.01

Diam.

1.0

EXIT

Save

Active File

RO 928310_360_ES

HELP

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TIM'S AIRCRAFT ENGINES, INC.

6105 OBISPO AVENUE

LONG BEACH, CA 90805

PHONE: (562) 634-6120 • FAX: (562) 634-6129

FAA REPAIR STATION [REDACTED]

IO/TS10360

IN

CUSTOMER SOLANO A/C W/O # 9283 DATE 7/17/11

ENGINE TYPE CONT. MODEL IO-360-ES SERIAL # 655479

		CYLINDER INSPECTION						
S/N ACO3		HB387	HB457	GB958	HB370	HB414	HA882	
LIMITS		9-03	9-03	9303	9403	9503	9-036	
Cyl. Dia.	<u>4.437</u>	.0008	.0018	.001	.0015	.001	.003	
Bore Choke		.002	.002	.002	.002	.002	.002	
Bore Taper		.0007	.0006	.0006	.0007	.0005	.0008	
Out of Round		.0003	.0005	.0006	.0005	.0004	.0016	
Cond. Barrel		STD-STEEL						
Cond. Head	<u>2490 ()</u>	OK	OK	OK	OK	OK	OK	
In. Valve Seat		NG	NG	NG	NG	NG	NG	
Ex. Valve Seat		OK	OK	OK	OK	OK	OK	
Spark Plug Bush.		OK	OK	OK	OK	OK	OK	
Cond. Ports		OK	OK	OK	OK	OK	OK	
Ex. Port Face		OK	OK	OK	OK	OK	OK	
Ex. Port Studs		OK	OK	OK	OK	OK	OK	
Cyl. Rocker Boss		OK	OK	OK	OK	OK	OK	
Rocker Shaft	<u>(593/594)</u>	(2) 5932	(2) 5932	(2) 5932	(2) 5932	(2) 5932	(2) 5932	
In Rocker Bush	<u>(599)</u>	.5955	.5955	.5962	.5955	.5960	.596	
Ex. Rocker Bush	<u>639647</u>	.5960	.5960	.5965	.5955	.5960	.5961	
In. Guide	<u>(3785)</u>	.375	.375	.375	.375	.375	.375	
Ex. Guide	<u>(3792)</u>	.375	.375	.374	.375	.375	.375	
In. Valve Stem	<u>(3725)</u>	.3728	.3726	.3725	.3726	.3726	.3726	
In. Valve Cond.		OK	OK	OK	OK	OK	OK	
Ex. Valve Stem	<u>(3712)</u>	.3708	.3707	.3711	.3707	.3700	.3700	
Ex. Valve Cond.		NG	NG	NG	NG	NG	NG	
Piston Pin Bore	<u>(1.000)</u>	WF .994.5	.993.4	.994.6	.994.0	.994.8	.994.8	
Piston Cond.		OK	OK	OK	OK	OK	OK	
Piston Pin Dia	<u>(.9928/.9990)</u>	.998.4	.9984	.9984	.9984	.998.4	.998.4	
Piston Pin Plug								

	Cap	Keepers	Upper Washer	Lwr. Washer	Outer Spring	Inter Spring	Inner Sp.
In.					OK		OK
Ex.							

Remarks ALL INTAKE SEATS NEED TO BE REPLACE. ALL EXHAUST VALVE NG
PISTON #6 IS DAMAGE.

Inspector

Approved

TIM'S AIRCRAFT ENGINES, INC.

6105 OBISPO AVENUE
LONG BEACH, CA 90805

PHONE: (562) 634-6120 • FAX: (562) 634-6129

FAA REPAIR STATION

IO/TS10 360

OUT

CUSTOMER SOLANO A/C W/O # 9283 DATE 7/17/15

ENGINE TYPE CONT. MODEL IO-360-ES SERIAL # 655479

S/N AC03 → CYLINDER INSPECTION HB387 HB451 GB958 HB370 HB414 HA882

	LIMITS	HB387	HB451	GB958	HB370	HB414	HA882
Cyl. Dia. <u>4.437</u>	(.005)	1.0032	1.0038	1.0039	1.0035	1.0034	1.0036
Bore Choke		1.002	1.002	1.002	1.002	1.002	1.002
Bore Taper		1.0005	1.0003	1.0003	1.0005	1.0003	1.0004
Out of Round		1.0001	1.0000	1.0002	1.0003	1.0002	1.0003
Cond. Barrel		STD-STEEL					
Cond. Head	<u>2460 ()</u>	POLO OK	POLO OK	POLO OK	OK	OK	OK
In. Valve Seat	<u>646929 POLO (5) POLO</u>	1.0085T	1.0085T	1.0085T	1.0085T	1.0085T	1.0085T
Ex. Valve Seat		OK					
Spark Plug Bush.		OK					
Cond. Ports		OK					
Ex. Port Face		OK					
Ex. Port Studs		OK					
Cyl. Rocker Boss		OK					
Rocker Shaft <u>(513.594)</u>		2.5932	2.5932	2.5932	2.5932	2.5932	2.5936
In Rocker Bush <u>(.997)</u>		.5955	.5955	.5962	.5955	.5960	.5960
Ex. Rocker Bush		.5960	.5960	.5965	.5955	.5960	.5960
In. Guide <u>(.3785)</u>		.375	.375	.375	.375	.375	.375
Ex. Guide <u>(.3792)</u>		.375	.375	.374	.375	.375	.375
In. Valve Stem <u>(.3725)</u>	<u>655867</u>	.3728	.3726	.3725	.3726	.3726	.3726
In. Valve Cond.		OK					
Ex. Valve Stem <u>(.3712)</u>	<u>655866</u>	NEW	NEW	NEW	NEW	NEW	NEW
Ex. Valve Cond.							
Piston Pin Bore <u>(1.000)</u>	<u>GRAMS 654861-WF</u>	.9945	.9941	.9946	.9940	.9940	.9996
Piston Cond.		OK	OK	OK	OK	OK	NEW
Piston Pin Dia <u>(.9988/.9990)</u>		.9984	.9984	.9984	.9984	.9984	.9984
Piston Pin Plug							

	Cap	Keepers	Upper Washer	Lwr. Washer	Outer Spring	Inter Spring	Inner Sp.
In.		NEW			OK		OK
Ex.							

Remarks GRIND SEATS, HONE CYLS. LEAK CHECK, FIT RINGS.

Inspector

Approved

PROCEDURE FOR REWORKING CYLINDERS

CUSTOMER: SOLANO A/C		WIO: 9283		DATE: 7/17/15	
		OK	SIGN		
1. PERFORM PRELIMINARY INSPECTION		✓			
2. CHECK FOR HIDDEN DAMAGE		✓			
3. CHECK BORE & VISUALLY INSPECT FOR CRACKS, LEAKS ETC.		✓			
4. WRITE US WORK ORDER		✓			
5. PERFORM A.D. SEARCH		✓			
6. STAMP WORK ORDER ON CYLINDER		✓			
7. DISASSEMBLE CYLINDER		✓			
8. BLAST HEAD, PORT AREAS & PARTS		✓			
9. ZYGLO CYLINDER FOR CRACKS		✓			
10. INSPECT CYLINDER AND PARTS		✓			
11. WRITE PARTS LIST		✓			
12. CALL CUSTOMER WITH ESTIMATE FOR REWORK		✓			
13. PULL PARTS AS REQUIRED		✓			
14. PERFORM MACHINE WORK AS REQUIRED		N			
15. BLAST AND ALODYNE CYLINDER		✓			
16. INSTALL BUSHINGS, STUDS, GUIDES, SEATS, ETC.		N			
17. GRIND VALVE SEATS AS REQUIRED		✓			
18. HONE CYLINDER AS REQUIRED		✓			
19. CLEAN CYLINDER (SOLVENT, SOAP & WATER)		✓			
20. ASSEMBLE CYLINDER & LEAK CHECK VALVES		✓			
21. PAINT CYLINDER		✓			
22. FIT RINGS TO CYLINDER & PISTON		✓			
23. PERFORM FINAL INSPECTION		✓			
24. FINALIZE ALL PAPERWORK & TURN IN		✓			
25. ENTER CORE IN CORE BOOK					
COMMENTS:					

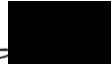
Engine Receiving

INSTRUCTIONS: PLACE A CHECK MARK IN FRONT OF EACH ITEM BELOW WHEN COMPLETED.

R/O 9283 CUSTOMER SOIANO AIRCRAFT SERVICES

MODEL # 10-360-ES SERIAL # 357628

CRANKSHAFT P/N _____ CRANKSHAFT SERIAL # NO3DA219

MECHANICS NAME: PRINT Scott SIGN 

1. CHECK FOR OIL IN ENGINE, DRAIN.
2. LYCOMING, REMOVE PLUG AND CHECK S.B. 505 ON 180 H.P. ON DOWN BEFORE DISASSEMBLY.
3. LYCOMING, WRITE DOWN PART # AND SERIAL # OFF OF FLANGE WITH THE MODEL AND SERIAL # OF ENGINE, HAVE INSPECTOR VERIFY CRANKSHAFT IS NOT EFFECTED BY ANY A.D.'S OR SERVICE BULLETINS BEFORE DISASSEMBLY. REF. S.B. 549, S.B. 566, S.B. 569 etc. INSPECTORS SIGN: _____
4. CONTINENTAL 360'S / 520'S, WRITE DOWN SERIAL # OF CRANKSHAFT LOCATED ON CRANKSHAFT FLANGE ON RECEIVING SHEET, DETERMINE IF CRANKSHAFT IS VAR BEFORE DISASSEMBLY IN ACCORDANCE WITH CSB96-8, IF NOT SURE ASK SUPERVISOR. YOU MIGHT HAVE TO REMOVE CYLINDERS #1 - #3 - #5 TO INSPECT FOR VAR CASTING MARKS LOCATED ON CRANKSHAFT CHEEKS 1 THROUGH 9.
5. TAKE PICTURES. PAY ATTENTION TO FITTINGS, BRACKETS, HOSES, AND ANY SPECIAL ITEMS THAT MIGHT HELP IN REASSEMBLY & LOSS CONTROL.
6. REMOVE ANY CYLINDER (CHT), OIL TEMP PROBES, BAFFLE BARREL NUTS AND PLACE IN PLASTIC BAG WITH LOCATION IT WAS REMOVED FROM. THIS WILL SAVE FROM DAMAGE.
7. REMEMBER BEFORE ENGINE DISASSEMBLY, KNOW THE JOB. IS IT A COMPLETE OVERHAUL? IS IT A PROP STRIKE INSPECTION? EACH JOB MAY BE DIFFERENT. ASK IF YOU ARE NOT SURE WHAT YOU ARE DOING.

Parts List - R/O: 9283 - Solano Aircraft Services

Item No.	Discrepancy	Qty Need	Qty Used	Qty Stk	Part Number	Description	Serial Number	Lot No.
1	T/I Cont. IO-360-ES Teardown and Inspect. Metal Contamination from piston NOTE: NO BAFFLING EXCEPT INNER CYLINDER / NO EXHAUST / NO OIL							
4		0	25	29	36025	✓ WASHER .26 DIA HOLE TAB		
24		0	16	0	501867	✓ WASHER TAB .26 DIA ID		
1		0	0	0	530917	✓ SEAL OIL CRKSHAFT		
2		0	2	0	531178	✓ RETAINER MAG COUPLING		
4		0	4	0	626487	✓ BOLT HEX HD .25 20NC 2 THD		
6		0	33	0	629004	✓ RING RETAINING INTERNAL		
1		0	0	0	631528	✓ HOSE .50 ID		
2		0	0	0	633609-18	✓ BEARING NEEDLE		
6		0	0	0	633958-2	✓ SEAL COMP .15IDX.21THK		
2		0	0	0	636931	✓ NUT LOCK SELF .31 24		
1		0	0	0	641533	✓ SEAL TACH DRIVE		
12		0	0	0	642338	✓ BEARING CONNECTING ROD		
8		0	4	0	642917-16	✓ HOSE-INTK 1.75 ID 2.50 LN		
1		0	0	0	646543A1	✓ GASKET SET 360 S		
1		0	0	0	646597A1	✓ BEARING SET		
24		0	19	0	646605	✓ NUT PLAIN		
6		0	0	0	653143	✓ PLATE RETAINER-PIN GWT		
12		0	0	0	654487	✓ NUT CONNECTING ROD		
4		0	4	0	654584	✓ BOLT .3125 24UNF3A X 1.00		
4		0	0	0	654586	✓ SCREW .3125-24 X .36 HEX		
4		0	0	0	655269	✓ BUSHING MAG DRIVE COUP		
12		0	0	0	655959 654693	✓ BOLT CONNECTING ROD		
					ALTS: 654693 (Qty: 64) - 530213 51 654693 51 655054			
1		0	3	0	CH48110-1	✓ SPIN-ON OIL FILTER		
1		0	31	0	MS35756-8	✓ KEY WOODRUFF .125X.625		

Item No.	Discrepancy	Qty Need	Qty Used	Qty Stk	Part Number	Description	Serial Number	Lot No.
8	Cylinder Repair Qty 6							
24		0	112	0	627731	✓ KEY VALVE SPRING		
6		0	11	0	646678	✓ SEAL VALVE GUIDE INTAKE		
6		0	0	0	649225P005	✓ RING SET		

Parts List - R/O: 9283 - Solano Aircraft Services

1 0 0 654861 ([REDACTED]) ✓ PISTON 4.44 DIA

Item No.	Discrepancy		Additional Parts Needed					
Qty Need	Qty Used	Qty Stk	Part Number	Description	Serial Number	Lot No.		
14								
1	0	0	658106	✓ LIFTER ASM HYDRAULIC				
2 (3)	0	0	10 RHM38E ↓	✓ ✓ SPARK PLUG	URHM38E			

✓ 64
2 64
15 4
↓ 1
655866 ✓ VALVE
646929 P. 10 ✓ SEAT
646929 P 20 ✓ SEAT

2/0
0/1

11 658106 ✓ LIFTERS

[illegible]

RLO 9283

Shop Packet

267195

653129

Order No: 

Item No: 

05/07/2015

Order No	Item No	Description	Routing	Status	Qty	Start Date	Due Date
267195	653129	CRANKSHAFT & DAMPER A	CELL-005	R	15	05/07/2015	06/15/2015
Rev. Ltr.	OE Order No		Promise Date				
B 			N15EA0326				

Part Number

Description

Option

Code

Qty Req

STK

1	652012	CRANKSHAFT ASM		S	1	N
2	652012-1	CRANKSHAFT MACHINING ASM		S	1	N
3	FG649877	FORGING-CRANKSHAFT		S	1	Y
1	639199	COUNTERWEIGHT ASM		S	2	Y

Routing

OP #	Description	Dept	Completed		
			By	Date	Quantity
3 	Pull Material	536		5-8-15	1
9000 	Manuf per Planning/Final Insp	519		7-7-15	1
8100 	Oil and Box	519		7/7/15	1

1. Approving Civil Aviation Authority/Country: FAA/United States		AUTHORIZED RELEASE CERTIFICATE FAA FORM 8130-3, AIRWORTHINESS APPROVAL TAG				3. Form Tracking Number: 410313	
4. Organization Name and Address Continental Motors, Inc. 2039 Broad Street, Mobile, Alabama 36615				PC #508		5. Work Order/Contract/Invoice Number: EPN 463915 Carton 0000174496	
6. Item:	7. Description	8. Part Number:	9. Quantity:	10. Serial Number:	11. Status/Work:		
1	CRANKSHAFT & DAMPER ASM	653129	1	See Block 12	NEW		
12. Remarks: AIRWORTHINESS APPROVAL Serial/Batch Number(s): <u>Serial</u> N15EA036 <u>Description</u> CRANKSHAFT & D R/o 9283							
13a. Certifies the items identified above were manufactured in conformity to: ☒ Approved design data and are in condition for safe operation ☐ Non-approved design data specified in Block 12.							
13b. Authorized Signature: [Redacted Signature]			13c. Approval/Authorization No: [Redacted Number]				
13d. Name (Typed or Printed): Daniel L. Nicholas			13e. Date (dd/mm/yyyy): 07/Jul/2015				
User/Installer Responsibilities							
It is important to understand that the existence of this document alone does not automatically constitute authority to install the aircraft engine/propeller/article. Where the user/installer performs work in accordance with the national regulations of an airworthiness authority different than the airworthiness authority of the country specified in Block 1, it is essential that the user/installer ensures that his/her airworthiness authority accepts aircraft engine(s)/propeller(s)/article(s) from the airworthiness authority of the country specified in Block 1. Statements in Blocks 13a and 14a do not constitute installation certification. In all cases, aircraft maintenance records must contain an installation certification issued in accordance with the national regulations by the user/installer before the aircraft may be flown.							

1. Approving Civil Aviation Authority / County: FAA / United States		2. AUTHORIZED RELEASE CERTIFICATE FAA Form 8130-3, AIRWORTHINESS APPROVAL TAG		3. Form Tracking Number 107196	
4. Organization Name and Address: Pacific Oil Cooler Service, Inc. F.A.A RF3R813L 1677 Curtiss Court, La Verne, CA 91750				5. Work Order/Contact/Invoice No 107196	
6. Item:	7. Description:	8. Part Number:	9. Quantity:	10. Serial Number:	11. Status/Work:
1	OIL COOLER	20458A 646880	1	E03-2152-219	OVERHAULED
12. Remarks: Work Order Number (Block 5) describing the actual work performed is attached. The described work was performed in accordance with F.A.A. approved Pacific Oil Cooler Service, Inc. process specification #001. (See Work Order) No applicable Airworthiness Directives work / status. Certifies that the work specified in Blocks 11/12 was carried out in accordance with EASA part 145, and with respect to that work, the component is considered ready for release to service under EASA part 145 Approval Number: EASA.145.5554					
13a. Certified the items identified above were manufactured in conformity to: ☐ Approved design data and are in a condition for safe operation ☐ Non-approved design data specified in Block 12.			14a ☒ 14 CRF 43.9 Return to Service ☒ Other regulation specified in Block 12 Certifies that unless otherwise specified in Block 12, the work identified in Block 11 and described in Block 12 was accomplished in accordance with Title 14, Code of Federal Regulations, part 43 and in respect to that work, the items are approved for return to service.		
13b. Authorized Signature		13c. Approval /Authorization No:		14b. Authorized Signature: 	
13d. Name (Type or Print):		13e. Date (dd/mmm/yyyy):		14c. Approval/Certificate: 	
				14d. Name (Type or Print): Danny Fernandez	
				14e. Date (dd/mmm/yyyy): 29/May/2015	
User / Installer Responsibilities					
It is important that the existence of the document alone does not automatically constitute authority to install the aircraft engine/propeller/article.					
When the user / installer performs the work in accordance with the national regulations of an airworthiness authority different than the airworthiness authority of the country specified in Block 1, it is essential that that user / installer ensures that his/her airworthiness authority accepts aircraft engine(s)/propeller(s)/article(s) from the airworthiness authority of the country specified in Block 1.					
Statements in Block 13a and 14a do not constitute installation certification. In all cases aircraft maintenance records must contain an installation certification issued in accordance with the national regulations by the user/installer before the aircraft may be flown.					

K10
9283



7/7/2015

4:32:55PM

Continental Motors**MASTER PACKING LIST**

Shipment Number 00090823

Ship Date 7/7/2015

Shipped to:
TIM'S AIRCRAFT ENGINE'S
6105 OBISPO AVE

Bill to: 91000

CONTINENTAL MOTORS WARRANTY
2039 BROAD STREET

LONG BEACH, CA 90805**MOBILE, AL 36615**Ship Via **B - Next Day (under 75 lbs)****Carton # 0000174496**

48.00

Sales Order Cust PO No
124548 JH357628

Part Number
653129

Description
CRANKSHAFT & DAMPER ASM

Ship Qty
1.00

Number of Boxes
1

Total Items
1

It is hereby certified that all materials or parts on this shipment are in conformance with the requirements, specifications, and/or drawings listed for the above engine model/part number.

Michael E. Ward
Director, Compliance

7/7/2015Date

Thank you for purchasing Genuine Continental Engines and Parts!
Go Continental!

W/6 9283 SOLANO AIRCRAFT

START RPM 1200

210 HP
2800 RPM

MP 13.1
OP 600

600.
55

Date: 8-13-15	Location:	Elevation:	OAT: 70	Field Hg: 29.91
Aircraft Make & Model: CONT.		Aircraft Registration #:		
Engine Model: 10-360-ES (6)	Engine Position: Left Right Front Rear			
Engine Serial Number: 357628	Engine Total Time - New - Overhaul			

OIL COOL
IN = 1
OUT = -

Fuel System Adjustment - Record engine specifications and actual guage indications.

				Fuel Pressure																Adjustment	
R.P.M.		M.A.P.		Unmetered		Metered		Fuel Flow		EGT	TIT	Cylinder Head Temp. - °F						Oil		# of turns	
Spec	Actual	Spec	Actual	Spec	Actual	Spec	Actual	Spec	Actual	° F	° F	1	2	3	4	5	6	PSI	° F	CW	CCW
1200			13.7									218	222	222	243	220	197	52	133		50
1500			16.4									224	253	249	218	240	230	52	147		48
1800			17.6									248	289	272	300	259	257	50	148		46
2100			19.6									275	314	291	338	285	285	48	162		43
2500			26.0									288	317	305	345	300	276	51	153		48
2400			21.8									285	314	299	331	293	275	48	172		45
2100			19.6									266	294	281	311	281	265	32	170		46
1800			17.5									254	274	270	288	266	252	30	163		46

10
10
10
10
5
5
5
5

Flight Test Data - Record guage indications

R.P.M.		M.A.P.		Pressure Altitude - (Set altimeter to 29.92" Hg)	Fuel Flow		EGT °F		TIT °F		CHT °F		Oil PSI		Oil Temp. °F		I.A.S. knots
Spec	Actual	Spec	Actual		Spec	Actual	Spec	Actual	Spec	Actual	Spec	Actual	Spec	Actual	Spec	Actual	
900			15.5						240	251	254	261	249	240	40	162	37

2

Remarks: (Idle RPM mixture rise, magneto drop, etc.)

1800 BT
600 BT

2800 - 25 psi (23.0 - 26.0)
600 - 7.0 psi (7.0 - 9.0)

1924° MAGNETO TIMING
✓ FOR LEAKS
✓ SCREEN/FILTER
✓ PICTURES
✓ FOR DELIVERY

Signature

MAKE: Continental
MODEL: IO-360-ES
SERIAL # 357628

N # N477TC
T.T. 421.8

The engine identified above was disassembled for metal contamination due to #6 piston burnt, replace cracked crankshaft with customer supplied New VAR Crankshaft, repair 6ea. cylinders as necessary. This engine was cleaned, inspected, assembled and tested. All work performed with reference to Teledyne Continental Motors Overhaul Manual M-7 and Part Manual X30595. AD research completed. MSB96-10 C/W and CSB96-8 C/W by New VAR crankshaft. All pertinent details are on file at this facility under Inv. 9283. Engine was test run in engine test cell. End.-----

DATE : August 17, 2015

SIGNED

FAA Repair Station

Tim's Aircraft Engines Inc.
6105 Obispo Ave.
Long Beach, Ca. 90805
Ph. (562) 634-6120
Fax (562) 634-6129