



ZEPHYR AIRCRAFT ENGINES, INC

FAA CERTIFIED REPAIR STATION # VI4R597M

FAX

W.O.# 217272

DATE: 02/20/1018

SARASOTA AVIONICS

PUNTA GORDA, FL 33982

DESCRIPTION OF SERVICES: N27265

LYCOMING O-360-A4A ENGINE SN #L-15972-36A EXPERIMENTAL, DISASSEMBLED, ALL PARTS
CLEANED AND INSPECTED, STEEL PARTS MAGNA FLUXED ENGINE REASSEMBLED MAJOR
OVERHAULED USING LYCOMING DIRECT DRIVE OVERHAUL MANUAL 60294-7 REV 14
TEST RUN.

PRICE PER QUOTE	\$19,400.00
LESS CREDIT FOR CARB	-\$850.00
CRANKSHAFT	\$2,400.00
 SUBTOTAL:	 \$20,950.00
SALES TAX: 6%	
SALES TAX: 1% DISCRETIONARY TAX ON \$5,000.00	
<u>FREIGHT</u>	
<u>TOTAL:</u>	<u>\$20,950.00</u>
<u>LESS DEPOSIT</u>	<u>-\$8,000.00</u>
<u>TOTAL BALANCE DUE</u>	<u>\$12,950.00</u>

<u>WO # 217272</u>	<u>LYCOMING O-360-A4A</u>	<u>SARASOTA AVIONICS</u>	
<u>PART NUMBER</u>	<u>DESCRIPTION</u>	<u>QTY</u>	<u>PAGE 2</u>
CRANKCASE	REPAIRED BY DIVCO	1	MATCH #260
USED REPAIRED	EXPERIMENTAL CRANKSHAFT	1	M06M & M03 SN A55302
SL75439-1	GASKET SET	1	
18A26093M06	FRONT MAIN BEARING	2	
18D26096M06	MAIN BEARING	4	
18M26105M03	ROD BEARING	8	
SL13923A	ROD BUSHING	4	
SL74644	BOLTS ROD	8	
LW12186	NUTS ROD	8	
STD2246	BOLT C/S	1	
SL18840-2R	RE-GRD CAMSHAFT	1	
15B26262	TAPPET BODIES	8	
15B26066	HYDR LIFTER UNITS	8	
15B21319	SOCKETS	8	
13S19646	CRANK GEAR	1	
75072	IDLER GEAR ASSY	1	
74996	IDLER GEAR ASSY	1	
SL1028B	BALL	1	
61804	SPRING	1	
SL53E19600	VERNATHERM VALVE ASSY	1	
23D2677	FUEL PUMP PLUNGER	1	
SL13790A	ROCKER SHAFTS	4	
SL12892	THRUST BUTTONS	8	
75736	OIL GAGE HOUSING	1	
69603	INTAKE HOSES	4	
STD1821	DRAIN BACK HOSE	4	
LW14078	PISTON PINS	4	
SL60398	BUSHING	4	
SL74637	BUSHING	4	
76220	THRU BOLT	1	
AN6-34A	BOLTS	2	
65007	RETAINER	8	
17C19386	EX ROTO CAPS	4	
NICKIE CYL	STUD ASSY	4	
SL68761	DRAIN BACK HOSE	4	
AEL19001	EX VALVES	4	
SL75089	PISTONS	4	
CN203	RING SETS	4	
SL11800	SPRINGS	8	
SL11795	SPRINGS	8	
MS13997-3	KEYS	8	
SL60009	KEYS	8	
4373	NEW SLICK MAG	1	SN 17090620 (LEFT)
4370	NEW SLICK MAG	1	SN 17120214 (RIGHT)
M4004	SLICK HARNESS	1	
REM408E	SPARK PLUGS	8	
149NL	NEW STARTER MOTOR	1	SN H-R030626
AF15472	EXCH O/H FUEL PUMP	1	SN ODNJ23
14H21950	COMPRESS RINGS	8	
CH48110-1	OIL FILTER	1	

Date: Feb. 20, 2018

EXPERIMENTAL ENGINE

Tach Time: _____

Model: O-360-A4A

S/N. L-15972-36A Experimental Engine

S.M.O.H 0:0

ZAE W.O.# 217272

Engine T.T.

EXPERIMENTAL Lycoming O-360-A4A S/N. L-15972-36A. Engine disassembled cleaned & inspected engine, all steel parts magnaflux, all other parts inspected. Engine major overhauled and reassembled using Lycoming Direct Drive overhaul manual 60294-7 rev. 14 as a reference built manual. Used and installed the following parts, repaired crankshaft experimental, repaired crankcase, done By Divco Inc, gasket set, all new (M06)main bearing, new(M03)rod bearing, rod bolts & nuts, rods repaired using [4]SL-13923A upper bushing, crankshaft gear bolt, new 13S19646 crank gear, new vernatherm valve, new 75072 & 74996 idler gears, oil pressure ball & spring, fuel plunger, re-ground SL18840-2R camshaft, [8] new 15B26262 tappet bodies, [8] new 15B26066 hydra lifter units, [8] new 15B21319 sockets, [8]65007 seal retainers, drain back hoses, intake hoses, thru bolts, rocker arm bushing, rocker arm shafts & thrust buttons. [4] fresh nickle barrel cylinder stud assemblies repaired with the following parts, [4] SL75089 pistons [4] CN203 ring sets, [8]SL11795 valve springs inter & SL11800 outer springs, [8]SL60009 keepers, [8]MS13997-3 keepers, [4] new AEL19001 exhaust valves, [4]LW14078 piston pins, [8] 72198 piston pin plugs, exhaust valve roto caps. Installed new Slick magneto's P/N 4373 [L] S/N17090620, & P/N 4370 [R] S/N17120124, new-Slick M4004 ignition harness, [8] new REM-40E spark plugs. Installed O/H fuel pump P/N. AF-15473, S/N.0DNJ23, new 149NL Sky-Tec starter motor S/N H-R030626, new CH48110-1 oil filter. Engine test run. No other engine accessories done or supplied at this time. For complete parts, see parts list supplied. A description of this repair is on file at this agency under W.O. 217272. This engine does not meet the Lycoming TC. Data sheet for a certificated engine, or any other TC Data sheet for a certificated engine. This is a Experimental Engine.

End of work done.

Zephyr Aircraft Engines Inc.

F.A.A. Approved Repair Station # VI4R597M

██████████
Zephyrhills, Florida 33542
██████████

Authorized Signature

Herman Vollrath

Note: Ignition timing is 25 degrees for left & right magneto's.

Authority/Country: FAA/United States		AUTHORIZED RELEASE CERTIFICATE FAA Form 8130-3, AIRWORTHINESS APPROVAL TAG			3. Form Tracking Number: WDC #112076	
4. Organization Name and Address: DIVCO, INC., [REDACTED] TULSA, OK 74115 (DB2R762K)					5. Work Order/Contract/Invoice Number: INVOICE 108057	
6. Item:	7. Description:	8. Part Number:	9. Quantity:	10. Serial Number:	11. Status/Work:	
1	LYC O-360 CRANKCASE	CASTING #72081	1	MATCH #447	REPAIRED	
12. Remarks: REPAIRED CRACKS IN LOWER REAR RIB #1 & LOWER FRONT RIB#2 CYLINDER & REPAIRED FRONT THRUST CRANKCASE REPAIRED PER DIVCO APPROVED PROCESS SPECS 77-002 REV AUGUST 21, 2007. DATE COMPLETED: 10/JUN/2014 WDC #112076 CERTIFIED 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 145-5286						
13a. Certifies 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 CFR 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: [REDACTED]		14c. Approval/Certificate No.: DB2R762K	
13d. Name (Typed or Printed):		13e. Date (dd/mm/yy):	14d. Name (Typed or Printed): LUCAS SCOTT		14e. Date (dd/mm/yy): 10/JUN/2014	
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.						

DIVCO CRANKCASE WORK ORDER

012070



WDC NO. 112076 DATE RECEIVED 5-12-14
 Customer Zephyr aircraft P.O. No. 214095
 Address ZEPHYRHILLS, FL Carrier _____
 Phone 813-788-3305 Model 0-360 C/N. 72081
 Case Mfg. LYC S.N. 1-24914-36 Match No. 447
 Customer Orders and Discrepancies _____

RECEIVING/REPAIR SEQUENCE	DATE	MECH. I.D.
1. Preliminary Insp. clean and Prep. Includes removal of LYC anchored Thru bolts	5-12	
2. Record Previous Repair W.O.s <u>CST-11477</u> <u>77446 Q3</u>	5-12	
3. Record Deck Height LH <u>485</u> RH <u>488</u>	5/19	
4. NDI (HIDDEN DAMAGE) Mark Discontinuities (go to step 8 if weld not required)		
5. Preheat and Arc Insp. (min. 400 F)		
6. Prep. For Welding and weld (Note Weld Areas in description of repair)		
7. Post Heat (4 Hrs. 400 F) Insp. For Crack Indications Visual	5-19	
8. Relocate Stud/Through Bolt Holes		
9. Mach. Cyl. Bore Surface	5-20	
10. Misc Deck Work	5-20	
11. Cut Mating Surface	5/20	
12. Rough Machine Bearing Bores (if required)		
13. If applicable install LYC anchored thru bolts Assemble/Torque	6-4	

Description of Repair FT, LK#1, LK#2

 Cut mating surfaces and
 reamed bores to factory
 limits

Reject Remarks _____

Maint. Rel./8130-3 Issued by _____ Dated 06-10-2014

SERVICEABLE

ZEPHYR AIRCRAFT ENGINES INC.

F.A.A. CERTIFIED REPAIR STATION # VI4R597M

[REDACTED], Zephyrhills, FL 33542 [REDACTED] 1 [REDACTED] 2

ENGINE SALES ORDER

W/O #217272

Name SARASOTA AVIATION

Address [REDACTED] City PUNTA GORDA State FL Zip 33982

Tel 941-769-1564 Fax Email

Ship To same Contact Tel

Address na City na State na Zip na

Bill To same

Address na City na State na Zip na

Engine Make/Model O-360-A4A SN L-15972-36A TT

Aircraft Make/Model N# 27265 S/N Gross T/O Weight _____

Major O/H ☐ Teardown ☒ For: SS ☐ Metal ☐ Other

<u>Flat Rate</u>	\$ 19,400.00
<u>R & I Labor</u>	S NA
<u>Mounts</u>	S NA
<u>Hoses</u>	S NA
<u>New Cyls</u>	\$ O/H CYL
<u>Camshaft</u>	S REGROUND
<u>Mags</u>	S NEW
<u>Carb./Injector</u>	S CREDIT \$850
<u>Fuel Pump</u>	SO/H
<u>Starter</u>	SO/H
<u>Alternator</u>	S NA
<u>Turbo</u>	S NA
<u>Waste Gate</u>	S NA
<u>Controller</u>	S NA
<u>Hvd. Pump</u>	S NA
<u>Vac. Pump</u>	S NA
<u>Prop. Gov.</u>	S NA
<u>Exhaust</u>	S NA
<u>Deposit</u>	SA
<u>Shipping</u>	S
<u>Subtotal</u>	S
<u>Sales Tax</u>	S
<u>Total</u>	S

Notes: DISASSEMBLE AND ADVISE. ENGINE IS USING OIL AND VERY HIGH ON CALENDER TIME.

OVERHAUL ENGINE. REGROUND CAM AND OVERHAULED CYLINDERS. DO NOT TOUCH PRESSURE CARB.

[REDACTED]

[REDACTED] # 1 CS - [REDACTED]

Authorized Signature for Zephyr

Customer Signature

11-1B

Date _____

Revision # 18 Revision Date 06/05/2017

ZEPHYR AIRCRAFT ENGINES INC.

FAA Certified Repair Station No. VI4R597M

ENGINE RECEIVING REPORT

W/O#217272 _ Owner: SARASOTA AVIATION

Engine Model: O-360-A4A Engine S/N: L-15972-36A Total Time: Date:

Aircraft Model: Aircraft S/N: N#: 27265

ITEMS WITH ENGINE	YES	NO	ITEMS WITH ENGINE	YES	NO
Baffles Ventral	☐	☒	Mag. Drive Adapter	☒	☐
Baffles Front	☐	☒	Manifold Pressure Fitting	☒	☐
Baffles Rear	☐	☒	Mount Legs	☐	☒
Baffles Side	☐	☒	Nose Seal Retaining Kit	☒	☐
Breather Fitting	☒	☐	Oil Cooler Fitting	☒	☐
Carb. or Fuel-Injector	☒	☐	Oil Filler Neck & Cap	☐	☒
Carb. or Injector Inlet Fitting	☐	☒	Oil Pressure Fitting	☒	☐
Carb. Heat Box	☐	☒	Oil Screen	☐	☒
Cylinder Head Temp. Fitting	☐	☒	Oil Screen Housing	☐	☒
Cylinder Head Temp. Location	☐	☐	Oil Sump	☒	☐
Dip Stick (Oil)	☒	☐	Oil Temp. Fitting	☐	☒
Dip Stick Tube	☒	☐	Primer Jets and Lines	☐	☒
Exhaust Stacks	☐	☒	Prop. Governor	☐	☒
Filter Condensers	☐	☒	Prop. Governor Lines	☐	☒
Flow Divider	☐	☒	Prop. Hub & Adapter	☐	☒
Fuel Injector Lines & Nozzles	☐	☒	Quick Drain	☒	☐
Fuel Pump	☒	☐	Rocker Box Drain Tubes	☒	☐
Generator or Alternator	☐	☒	Spark Plugs	☒	☐
Generator or Alternator Belt	☐	☒	Starter Motor	☒	☐
Generator or Alternator Bracket	☐	☒	Starter Clutch	☒	☐
Generator or Alternator Arms	☐	☒	Starter Ring Gear Support	☐	☐
Ground Straps	☐	☒	Sump Plugs	☒	☐
Ignition Harness	☒	☐	Tach. Generator	☐	☒
Heat Shields	☐	☒	Throttle & Mixture Arms	☐	☒
Hydraulic Pump	☐	☒	Turbo Charger	☐	☒
Hydraulic Pump Drive Pad	☐	☒	Turbo Charger Controllers	☐	☒
Intake Pipes	☒	☐	Turbo Charger Plenum	☐	☒
Inter Cylinder Baffles	☒	☐	Turbo Charger Waste Gate	☐	☒
Lifting Eye	☒	☐	Vacuum Pump	☐	☒
Log Book	☐	☒	Vacuum Pump Drive Pad	☐	☒
Magnetos	☒	☐	Vernatherm Valve	☒	☐

This engine was received with the accessories indicated above. Please advise immediately of any discrepancy.

Remarks: _____

ZEPHYR AIRCRAFT ENGINES INC.

FAA Certified Repair Station No. VI4R597M

ENGINE PARTS SHEET

W/O# 217272 _ Owner: SARASOTA AVIATION

Engine Model: O-360-A4A

Engine S/N: L-15972-36A

Total Time: Date:

Aircraft Model: Aircraft S/N: N#: 27265

Qty	Part Number	Part Description	Order	Cost	List	Total
1	CRANKCASE	Repaired By Dives Match # 260				
1	USED	Repaired Experimental Crankshaft	MOB H # MO3 #2			S/N - out right A55302
1	SK-75439-1	Gasket set				
2	18A26093	MOB Front Main Bearing				
4	18D26096	MOB Main Bearing				
8	18M26105	MO3 Rod Bearing				
4	SK-13923A	Rod Bushings				
8	SK-74644	Rod Bolts				
8	2W12186	Rod Nuts				
1	STD 2246	Bolt c/s.				
1	SK-18840-2R	Re-grd. Camshaft				
8	15B26262	Tappet Bodies				
8	15B26066	Hyd. Lifters units				
8	15B21319	Socket				
1	13S19646	Crank Gear				
1	75072	Toller Gear Assy.				
1	74996	Toller Gear Assy.				
1	SK-1028-B	Ball				
1	SK-61084	Spring				
1	SK-53519600	Variable Valve Assy.				
1	23D26777	Fuel Pump plunger				
4	SK-13290A	Rockers hood				
8	SK-12892	Thrust Buttons				
1	75736	Oil Gage housing				

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Revision # 18

Revision Date 06/05/2017

ZEPHYR AIRCRAFT ENGINES INC.

FAA Certified Repair Station No. VI4R597M

ENGINE PARTS SHEET

W/O# 217272 Owner: SARASOTA AVIATION

Engine Model: O-360-A4A Engine S/N: L-15972-36A

Total Time: Date:

Aircraft Model: Aircraft S/N: N#: 27265

Qty	Part Number	Part Description	Order	Cost	List	Total
4	69603	Intake Hoses				
4	STD-18	Drain Back Hoses				
4	LW-14078	Piston Pins				
4	SL-60398	Bushings				
4	SL-74657	Bushings				
4	76220	Thru Bolts				
2	AN6-34	Bolts				
8	65007	Retainers				
4	SL-MS13998-3	Ex. Roto Caps				
4	Nickle Cyl. Stud Assy:	From J+J				
1	SL-68761	Drain Tube Assy.				
4	AEK-19001	Ex. Valves				
4	SL-75089	Pistons				
4	CN203	Ring Sets				
8	SL-11800	Spring				
8	SL-11795	Spring				
8	MS-13997-3	Keys				
8	SL-60009	Keys				
1	4323	New Slick Mag S/N. 17090620 (Left)				
1	4370	New Slick Mag S/N 17120124 (Right)				
1	M4004	Slick Hardware				
8	REM 406	Spark Plugs				
1	149N1	New Starter Motor S/N. H-12030626				
1	AF15472	Exch. O/H Fuel Pump S/N. ODNJ23				

1- CH48110-1 O.I Filter

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Revision # 18

Revision Date 06/05/2017

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ZEPHYR AIRCRAFT ENGINES INC.

FAA Certified Repair Station No. VI4R597M

ENGINE TEAR DOWN REPORT

W/O# 217272 Owner: SARASOTA AVIATION

Engine Model: O-360-A4A Engine S/N: L-15972-36A Total Time: Date:

Aircraft Model: Aircraft S/N: L-15972-36A N#: 27265

Major O/H ☐ Teardown ☐ For: SS ☐ Metal ☐ Other _____

	Mechanic
Engine cowling removed and stored.	N/A
Oil drained. Filter and or Screen checked for metal	N/A
Propeller and Spinner removed and stored.	N/A
Exhaust Pipes and Mufflers removed and checked for defects.	N/A
Fluid Hoses, Lines and related plumbing removed.	N/A
Prop, Throttle, Mixture, and Carb. heat cables removed and inspected	N/A
Engine Baffles, Mounting Brackets, and Clamps removed.	
Engine removed and placed on a stand.	
Engine Necelle cleaned and readied for reinstallation of the Engine.	N/A
Aircraft tied down and secured from wind	N/A
Ignition system, Harness and Magnetos removed.	
Starter and Generator/Alternator removed. (note wiring).	
Vacuum Pump and Hydraulic Pump removed	
Prop. Governor and Tach. Generator removed	N/A
Fuel System, Fuel Pump, Intake Pipes and Fuel Nozzles removed	
Turbo Charger and related Controllers removed.	
Rocker Covers, Rocker Arms, Push Rods and Shroud Tubes removed	
Cylinders, Pistons, Piston Pins and Valves removed.	
Accessory Case, Drive Pads, Oil Sump and Pickup Tube	
Crankcase split and Bearings removed. (Check size)	
Crankshaft, Connecting Rods, Counter weights and Gears removed	
Oil Pump, Starter and sub-assemblies disassembled.	N/A

Parts missing or damaged. crank - 57
crankcase - 57

Defects noted. _____

ZEPHYR AIRCRAFT ENGINES INC.

FAA Certified Repair Station No. VI4R597M

ENGINE INSPECTION REPORT

W/O# 217272 Owner: SARASOTA AVIATION

Engine Model: O-360-A4A Engine S/N: L-15972-36A

Total Time: _____ Date: _____

Aircraft Model: Aircraft S/N: N#: 27265

Experimental ENGINE

Terms and Abbreviations:

(N) = Parts meet Mfg.'s New Parts Dimensional Limits.

(S) = Parts meet Mfg.'s Serviceable Wear Limits.

(O) = Parts meet Mfg.'s Oversize Dimensional Limits.

(U or M) = Parts meet Mfg.'s Undersize Dimensional Limits.

(RW) = Parts require rework to restore to Mfg.'s limit.

(RJ) = Parts worn beyond Mfg.'s repairable limits. Rejected.

<Preliminary> Condition of parts prior to rework, in the event no rework is required preliminary will be the same as final condition. <Final Inspection> Condition of parts after rework, dimension of parts reworked will be recorded in the Final Condition column, such as -10, +10, etc. <Final Inspection> <Final Inspection> Parts confirm to Mfg.'s limits for overhaul are approved for return to service. Inspector will initial the column.

Parts Inspected.	Preliminary	Final	Final
Crankshaft and related parts.	Condition	Condition	Inspection
Main Journals.	RW	NH06 EXP.	NV
Crankshaft Pins.	RW	NH03 EXP.	NV
Run out Center Main.	N	N EXP.	NV
Run out Prop. Flange.	N	N EXP.	NV
Damper Pin Bushings in Crank Cheeks.	/	/	/
Damper Pin Bushings in Counter Weights.	/	/	/
Damper Pins.	/	/	/
Oil transfer Collar.	/	/	/
Dowel Pin and threaded Holes	S	S EXP.	NV
Connecting Rods and related parts.			
Upper end Pin Bushings.	RJ	NEW	NV
Twist or curvature.	S	S	NV
Bottom end Rod and Cap Bosses.	S	S	NV
Rod Bolts and Nuts.	RJ	NEW	NV
Camshaft and related parts.			
Camshaft Lobes.	RW	S	NV
Camshaft Main Journals.	S	S	NV
Keyway and threaded Holes.	/	/	/
Hydraulic Valve Lifters.	RW	NEW	NV
Camshaft Follower Tappets.	RJ	NEW	NV
Gears and related parts.			
Crankshaft drive Gear.	RJ	NEW	NV
Camshaft drive Gear.	/	/	/
Alternator Face drive Gear.	/	/	/

ZEPHYR AIRCRAFT ENGINES INC.

FAA Certified Repair Station No. VI4R597M

ENGINE INSPECTION REPORT

Experimental ENGINE

W/O# 217272 Owner: SARASOTA AVIATION

Engine Model: O-360-A4A

Engine S/N: L-15972-36A

Total Time: _____

Date: _____

Aircraft Model: Aircraft S/N: N#: 27265

Parts Inspected	Preliminary Condition	Final Condition	Final Inspection
Gears and related parts (continued).			
Alternator drive Gear.			
Magneto drive Gear.	② S	② S	12
Idler Gear. <i>shuts</i>	② S / ② S	② S / ② S	12
Magneto Coupling.			
Prop. Governor drive Gear.			
Prop. Governor idler Gear and Shaft.			
Accessory drive Gear.			
Oil Pump drive Gear and Shaft. <i>(gear)</i>	S/S	S/S	12
Oil Pump idler Gear.	S	S	12
Tachometer drive Gear or Shaft.	S	S	12
Fuel Pump drive Gear or Plunger.	RT	NEW	12
Starter drive Shaft.			
Starter Worm Wheel.			
Starter Clutch Spring.			
Starter Pilot Shaft.			
Other.			
Other.			
Crankcase and related parts.			
Valve Lifter Guide Bosses.	S	S	12
Bearing Seats	RW	S	12
Camshaft Bearings.	RW	S	12
Oil Passages.	S	S	12
Stud Threads and Threaded Holes	S	S	12
Machined Surfaces. <i>Fretting</i>	RW	S	12
Visual for Cracks.			
Other.			
Other.			
Other.			

ZEPHYR AIRCRAFT ENGINES INC.

FAA Certified Repair Station No. VI4R597M

ENGINE INSPECTION REPORT

Experimental ENGINE

W/O# 217272 Owner: SARASOTA AVIATION

Engine Model: O-360-A4A

Engine S/N: L-15972-36A

Total Time: Date: _____

Aircraft Model:

Aircraft S/N:

N#: 27265

Parts Inspected	Preliminary Condition	Final Condition	Final Inspection
Aluminum Castings and related parts.			
Oil Pump Housing.	S	S	AB
Oil Pump Cover Plate	/	/	/
Starter Housing.	/	/	/
Starter Cover Plate.	/	/	/
Oil Scavenge Pump Housing	/	/	/
Accessory Drive Pads.	/	/	/
Governor Drive Pad.	/	/	/
Oil Sump.	S	S	AB
Accessory Case.	S	S	AB
Intake Tubes.	4S	4S	AB
Push Rod Tubes.	8S	8S	AB
Other.			
Other.			
Other.			

Cylinders and related parts, inspection procedures listed on separate work sheet. The parts identified heron have been inspected both visually and dimensional. They have been found to be serviceable in accordance with the manufacturers overhaul manual and approved for return to service. Parts used during rework, and replacements for rejected items, are listed on supplemental parts sheets.

ZEPHYR AIRCRAFT ENGINES INC.

FAA Certified Repair Station No. VI4R597M

ENGINE MAGNAFLUX REPORT

W/O# 217272 Owner: SARASOTA AVIATION

Engine Model: O-360-A4A

Engine S/N: L-15972-36A

Total Time: _____

Date: 11/7/17

Aircraft Model: _____

Aircraft S/N: _____

N#: 27265

Item	Quantity	Disposition	
		Defective	Serviceable
Crankshaft.	<u>1</u>		<u>AL</u>
Crankshaft Gears and Bolts.	<u>1</u>	<u>—</u>	<u>—</u>
Camshaft.	<u>1</u>		<u>AL</u>
Camshaft Gear and Bolts.	<u>1</u>	<u>—</u>	<u>—</u>
Accessory Drive Gears.	<u>2</u>		<u>AL</u>
Connecting Rods.	<u>4</u>		<u>AL</u>
Connecting Rod Bolts.	<u>1</u>	<u>—</u>	<u>—</u>
Rocker Arms.	<u>8</u>		<u>AL</u>
Rocker Arm Shafts	<u>/</u>	<u>/</u>	<u>/</u>
Piston Pins.	<u>/</u>	<u>/</u>	<u>/</u>
Thru Bolts.	<u>/</u>	<u>/</u>	<u>/</u>
Idle Shafts.	<u>4</u>		<u>AL</u>
Counter weights.	<u>1</u>	<u>—</u>	<u>—</u>
Magneto Drive Gears.	<u>1</u>		<u>—</u>

Description of defects noted: No defects noted this date

The Components identified heron have been inspected and found to be free of defects insofar as Magnetic Particle Inspection will reveal.

Signe [REDACTED] Inspector.

ZEPHYR AIRCRAFT ENGINES INC.

FAA Certified Repair Station No. VI4R597M

ENGINE INSPECTION REPORT

CRANKSHAFT MEASUREMENTS MAIN AND RODS PLUS RUN OUT OF FLANGE AND JOURNALS

W/O# 217272 _ Owner: SARASOTA AVIATION

Engine Model: O-360-A4A

Engine S/N: L-15972-36A

Total Time: Date: 11/2/17

Aircraft Model:

Aircraft S/N:

N#: 27265

	Crankshaft Main Crankshaft Rods	Run out of Crankshaft	Visual Inspection	Remarks 5/28/020	Initials
Main (1)	2.375 2.375 -	- 0 -		CRANK BASE DIA. 77.032	m
Rod (1)	2.1235 2.1235 .0002				
Main (2)	2.375 2.375 -	- 0 -		Main STD	
Rod (2)	2.1235 2.1235 -			Rods at low service.	
Main (3)	2.3744 2.3746 .0002	.0002		Rest. Pitting In. Rod	
Rod (3)	2.1232 2.1232 .0001			Journal Rods in.	
Main (4)	2.3748 2.3748 .0001	-			
Rod (4)	2.1235 2.1234 .0001				
Main (5)	X				
Rod (5)					
Main (6)					
Rod (6)					
Main (7)					m
Rod (7)					
Main (8)				Flange thickness .342	
Rod (8)					
Prop. Flange	Runout	.001			
Prop. Bushing	Good				
Counter Weights	—				
Bolt Holes	Good				
Misc.	prop pilot	.001			
Misc.					

ZEPHYR AIRCRAFT ENGINES INC.

FAA Certified Repair Station No. VI4R597M

CYLINDER OVERHAUL AND RELATED PARTS

W/O# 217272

Owner: SARASOTA AVIATION

Engine Model: O-360-A4A

Engine S/N: L-15972-36A

Total Time:

Manufacturer: ☐ Continental ☒ Lycoming ☐ Other

Reason For Removal: ☒ TBO ☐ Top Overhaul ☐ Other

Work To Be Performed: ☒ Overhaul Cylinder ☐ Iran ☐ Other

Barrel Type: ☐ Chrome ☐ Steel ☐ Nitratd ☒ Cermilnil ☐ Oversize ☐ Other

Parts Received

Preliminary

Final Cond.

Mechanic

Inspector

	N/A	Ser.	R.W.	R.J.	Ser.	New
Cylinder Barrel: <i>Supplied By JSJ</i>	☐	☐	☐	☐	☐	☐
Exhaust Valve:	☐	☐	☐	☒	☐	☒
Intake Valve:	☐	☐	☒	☐	☒	☐
Valve Springs:	☐	☐	☐	☒	☐	☒
Valve Retainers:	☐	☒	☐	☐	☒	☐
Rocker Shafts:	☐	☒	☐	☒	☒	☒
Exhaust Rocker Arm:	☐	☐	☒	☐	☐	☒
Intake Rocker Arm:	☐	☐	☒	☐	☐	☒
Push Rods:	☐	☒	☐	☐	☒	☐
Rocker Box Cover:	☐	☒	☐	☐	☒	☐
Piston:	☐	☒	☐	☐	☒	☐
Piston Pin & Plugs:	☐	☐	☐	☒	☐	☒
Piston Rings (End Gaps):	☐	☐	☐	☒	☐	☒
Exhaust Flange & Studs:	☐	☐	☐	☒	☐	☒
Cylinder Head (Cracks):	☐	☒	☐	☐	☒	☐
Exhaust Valve Guide:	☐	☐	☐	☒	☐	☒
Exhaust Valve Seat:	☐	☐	☒	☐	☒	☐
Intake Valve Guide:	☐	☐	☐	☐	☐	☐
Intake Valve Seat:	☐	☐	☐	☐	☐	☐
Rocker Bosses:	☐	☐	☐	☐	☐	☐
Threaded Holes:	☐	☐	☐	☐	☐	☐

Cylinder Disassemble & Cleaned: ☒

Valves Ground & Lapped, (Leak Checked): ☒

Cylinder Reassembled & Painted: ☒

Cylinder & Related Parts Final Inspection: ☒

Replacement Parts List:

Qty.	Part Number	Qty.	Part Number	Qty.	Part Number
1	Bel 19001 nut	1	C11203 Ring set	1	SL75089 Piston
2	91513997-34	2	SL60009 R	2	SL11800 Ring
2	SL11785 R ring				

ZEPHYR AIRCRAFT ENGINES INC.

FAA Certified Repair Station No. VI4R597M

ENGINE FINAL ASSEMBLY REPORT

Experimental Engine.

W/O# 217272 _ Owner: SARASOTA AVIATION

Engine Model: O-360-A4A

Engine S/N: L-15972-36A

exp Total Time: _____

Date: _____

Aircraft Model: _____

Aircraft S/N: _____

N#: 27265

Crankshaft and related parts	Mechanic
Crankshaft Oil Seal and mount on Buildup Stand.	<i>HN</i>
Counter Weights, Roller Pins, Retainer Plates and Snap Rings.	<i>HN</i>
Crankshaft Drive Gears, Bolts Torqued, Safety Wired, or Lock Tabs.	<i>HN</i>
Oil Transfer Collar, Nuts Torqued, and clearance checked.	<i>HN</i>
Connecting Rods, Bearings and Bolts lubricated, Bolts Torqued. Cotter Pined if applies.	<i>HN</i>
Camshaft and related parts.	
Camshaft drive Gears, Bolts torqued, safety wired, or lock tabs if apply.	<i>HN</i>
Prop. Governor Drive Gear, Keyed and installed.	<i>HN</i>
Camshaft lobes inspected and lubricated for installation.	<i>HN</i>
Crankcase and related parts.	
Oil Galleries Plugs and Piston cooling Nozzles installed.	<i>HN</i>
Finished surfaces sealed and threaded and oil ringed.	<i>HN</i>
Camshaft Followers, Idler Gears, lubricated and installed.	<i>HN</i>
Bearing Inserts, Starter Drive Bearing , installed and lubricated.	<i>HN</i>
Crankcase Final Assembly.	
First half lay up. Thrust Washers . Crankshaft Collar.	<i>HN</i>
Second half lay up. Gears and Camshaft timing. Nose Seal in place.	<i>HN</i>
Backbone Bolts, Thru Bolts, installed and drew to torque.	<i>HN</i>
Engine Mount Brackets and Accessory Drive Pads.	<i>HN</i>
Oil Pump Assembly, Accessory Case, and Oil Pressure Relief Valve installed.	<i>HN</i>
Starter Drive Clutch Assembly installed.	<i>HN</i>
Oil Sump and Oil Pump suction Pickup Tube.	<i>HN</i>

Crankcase Assembly. Final Inspection

Inspector

Notes: *Quartermaster O/P.*

Wickie O/P.

Experimental Engine.

ZEPHYR AIRCRAFT ENGINES INC.

FAA Certified Repair Station No. VI4R597M

ENGINE FINAL ASSEMBLY REPORT

Experimental Engine

W/O# 217272 Owner: SARASOTA AVIATION

Engine Model: O-360-A4A

Engine S/N: L-15972-36A

Total Time: _____

Date: _____

Aircraft Model:

Aircraft S/N:

N#: 27265

Cylinders and related parts.	Mechanic
Cylinder base Seals, and Rocker Shafts installed.	<i>HK</i>
Piston side clearance, Piston Ring gap, and installed.	<i>HK</i>
Lubricate Cylinder, Piston Pin and Plugs. Install Piston in Cylinder.	<i>HK</i>
Install Cylinders on Engine. (#1, #2, #3, #4, #5, #6, #7, #8)	<i>HK</i>
Cylinder hold down Nuts installed and torqued.	<i>HK</i>
Hydraulic Lifters and Tappets installed.	<i>HK</i>
Pushrod Shroud Tubes and Seals installed.	<i>HK</i>
Pushrods, Rocker Arms, Thrust Washers, Bolts and Lock Tabs installed	<i>HK</i>
Intake, Covers and related parts.	
Rocker Box Covers, Gaskets, Seals and Screws torqued.	<i>HK</i>
Inter-cylinder Baffles, and Rocker Cover Drain Lined	<i>HK</i>
Induction System, Gaskets and Hoses. Clamp Bolts torqued.	<i>HK</i>
Intake, Covers, Cylinders and Basic Engine.	<i>HK</i>

Engine Final Inspection

Inspector

Component/ Accessories	Part Numbers	Serial Numbers	Mechanic
Fuel Servo/ Carburetor.	—	—	—
Fuel Flow Divider.	—	—	—
Fuel Pump.	<i>AF15472</i>	<i>0DNJ22</i>	<i>HK</i>
Left Magneto.	<i>4323</i>	<i>17090620</i>	<i>HK</i>
Right Magneto.	<i>4370</i>	<i>17120124</i>	<i>HK</i>
Generator/ Alternator.	/	/	/
Vacuum Pump.	/	/	/
Prop. Governor.	/	/	/
Tachometer Generator.	/	/	/
Hydraulic Pump.	/	/	/
Starter Motor. <i>(12V)</i>	<i>7492L</i>	<i>14-12030626</i>	<i>HK</i>
Spark Plugs	<i>REM 406</i>	—	<i>HK</i>
Ignition Harness.	<i>M4004</i>	—	<i>HK</i>
Oil Filter	<i>CH48110-1</i>	—	<i>HK</i>
Oil Cooler.			

11-12

Revision # 18

Revision Date 06/05/2017

ZEPHYR AIRCRAFT ENGINES INC.

FAA Certified Repair Station No. VI4R597M

ENGINE TEST REPORT (IN TEST CELL)

02-21-18

W/O# 217272 Owner: SARASOTA AVIATION

Engine Model: O-360-A4A

Engine S/N: L-15972-36A

Total Time: _____

Date: _____

Aircraft Model: _____

Aircraft S/N: _____

N#: 27265

O.A.T. 92° B.A.R. 30.8 Start Up Oil Pres. 115 Min./Max. Oil Pres. 80 195

R.P.M.	M.A.P. <u>30.8</u>	OIL P.	FUEL P.	C.H.T.	OIL TEMP.	^{30 min} F.F.	^{WARM} TIME
900	8.8 9.8	8.2 8.2	5	277	123 115/84	—	10m
1200	11.7 12.2	8.2 8.2/114	2	307	1210/58	—	10m
1500	14.1	8.8/152	4	320	136/72	—	10m
1800	17.8	7.4/122	3	324	150/70	—	10m
2100	21.7	8.2/175	3	344	175/82	—	10m

FULL POWER RUN

2510	29.7	79/201	3	378	204	—	6m
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IDLE

650	10.3	46/223	3	372	221/46	—	3m
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MAG. DROP @ 1800 R.P.M. LEFT MAG. 60 RIGHT MAG. 60

MIXTURE CHECK 10-2018 SHUT DOWN CLEAN

Remarks: BORROWED CARB FROM W/O#

DIP COMP OK @

RUN

5.0

02-22-18

1-78/80 2-78/80

3-78/80 4-75/80