

Service Letter

Technical Aspects are FAA Approved

Number: L95-09F

Replaces L95-09E

Date: 2/11/2008

Subject: Installation of A65 Cylinder kit, SA65000S0

Application: TCM Engines A65-1, 3, 6, 6J, 7, 8, 8F, 8FJ, 8J, 9, 9F, 9FJ, 9J, 12, 12F, 12FJ, 12J, 14, 14F, 14FJ, 14J

Compliance:

Superior Air Parts Millennium Cylinder® Power Assemblies Part no. SA65000-A20P, MUST be installed in complete sets of four, as provided in Millennium Cylinder® Kit, part no.SA65000S0. The SA65000-A20P cylinders **CANNOT** be intermixed with original equipment manufacturer's (OEM) cylinders. This service letter shall be used to accomplish STC SE09014SC (copy attached).

1. Remove items 101-106 and 108-110 specified in Figure 1 (page 4). Use the latest revision of Teledyne Continental Motors (TCM) Overhaul Manual X30008 for detailed information.
2. Install items 201, 205, and 206, using items 209-211 as specified in Figure 1. Use the latest revision of TCM Overhaul Manual, X30008 for detailed information. Also use the Supplemental Installation Table of Limits on page 2 and the Recommended Test Schedule on page 3 of this Service Letter.
3. Stamp "MODIFIED" after the Model Number on the original TCM data plate in matching character style and height. If required the following steps may be necessary:
 - A. Remove data plate by removing and discarding mounting screws.
 - B. Stamp "MODIFIED" after the model number in matching character style and height.
 - C. Re-install data plate using six (6) each of Drive screw item 211. If the existing hole is larger than a diameter of .083 inches, a larger drive screw may be required. If so, see specification MS21318 (not included in kit).
4. Position the STC data plate, item 207, as shown in Figure 2 (page 5). Using the STC data plate as a template, drill four (4) mounting holes diameter .080-.083 inches to a minimum depth of $.18 \pm .02$ inches in the crankcase. Use care not to drill through wall of crankcase
5. Permanently affix the STC data plate in its original location on the crankcase using four (4) drive screws, item 211, as shown in Figure 2.
6. Record completion of STC in the engine logbook.

NOTES:

1. The SA65000-A20P Power Assemblies may only be used in complete sets (groups of four).
2. These Power Assemblies are **NOT INTERCHANGEABLE** with OEM power assemblies. The valves, seats, guides, springs, spring seats, piston, and rings are **NOT INTERCHANGEABLE** with the corresponding OEM parts.
3. The engine type-certification ratings are not modified.
4. The engine operating procedures are not modified.

5. Engine weight increases by 1.75 pounds. The installer should account for any effect on weight and balance.
6. An airframe STC is not required for installation of an engine modified by STC SE09014SC.
7. SA65000-A20P Power Assembly parts is listed in Table II.
8. Some early model A65 engines may have cast aluminum valve covers which require AN500-416-20 Fillister head screws for attachment (not included in kit).

Supplemental Installation Table of Limits

The following measurements are in inches:

	New Parts	
	Minimum	Maximum
Piston (SA65100) to Cylinder Bore Clearance		
Above First Land	.0385L	.0425L
Above Second & Third Land	.0345L	.0385L
Top of Skirt	.0125L	.0155L
Bottom of Skirt	.0095L	.0125L
Piston Ring Side Clearance		
Piston Ring Top (SA65120)	.0065L	.0085L
Piston Ring 2nd (SA65120)	.005L	.007L
Piston Ring Oil (SA65130)	.002L	.004L
Piston Ring End Gap		
Piston Ring Top (SA65120)	.017	.028
Piston Ring 2nd (SA65120)	.015	.028
Piston Ring Oil (SA65130)	.012	.028
Piston Pin (SA530856)		
Piston Pin Assembly in Cylinder	.0105L	.0325L
Piston Pin in Piston	.0001L	.0007L
Piston Pin in Connecting Rod	.0014L	.0021L

RECOMMENDED TEST SCHEDULE *

Period	Time (Minutes)	RPM
1	15	Warm up 900 – 2000
2	10**	2000
3	5	500 ± 25 Idle Cooling Period

Stop engine, drain oil, and weigh oil in for oil consumption determination.

SUPPLEMENTAL OIL CONSUMPTION DETERMINATION *

Period	Time (Minutes)	RPM
1	5	Warm up to 2000
2	10**	2000
3	10	2100
4	5	2200
5	5	2275 – 2325 Full Throttle Check Magnetos
6	5	500 ± 25 Idle Cooling Period

Stop engine, drain oil, weigh, and record engine oil consumption.

Magneto drop shall be taken after completion of oil consumption run.

Oil consumption at maximum rate of 0.34 lbs per 1/2 hour is acceptable.

* Install spark plug base thermocouples on all cylinders to monitor CHT for engine run-in.

** Do not begin period until oil reaches 150°F. Maximum oil temperature is 220°F. Maximum cylinder head temperature at anytime during run-in is 500°F.

TABLE I

REMOVE PER TCM OVERHAUL MANUAL X30008				REMOVE PER TCM OVERHAUL MANUAL X30008			
1##				2##			
ITEM	QTY	PART NUMBER	DESCRIPTION	ITEM	QTY	PART NUMBER	DESCRIPTION
101	4	B-3762-A1	CYLINDER & VALVE ASSY	201	4	SA65000-A20P	POWER ASSY
102	4	646295	PISTON, 6.3:1 COMP RATIO	202			PART OF ITEM 201
103	4	530856	ASSY, PISTON PIN & PLUG	203			PART OF ITEM 201
104	4	640157-A2	RING SET	204			PART OF ITEM 201
105	2	4602	1 & 4 INDUCTION ELBOW	205	2	SA40246	1 & 4 INDUCTION ELBOW
106	2	3585	2 & 3 INDUCTION ELBOW	206	2	SA40247	2 & 3 INDUCTION ELBOW
107	1		DATA PLATE	207	1	SA65-DP	STC DATA PLATE
108	8	2437	NUT	208	8	SA646605	NUT
109	8	MS35338-44	LOCK WASHER	209	8	MS35338-44	LOCK WASHER
110	8	20522	FLAT WASHER	210	8	SA20522	FLAT WASHER
111				211	10	MS21318-14	DRIVE SCREW

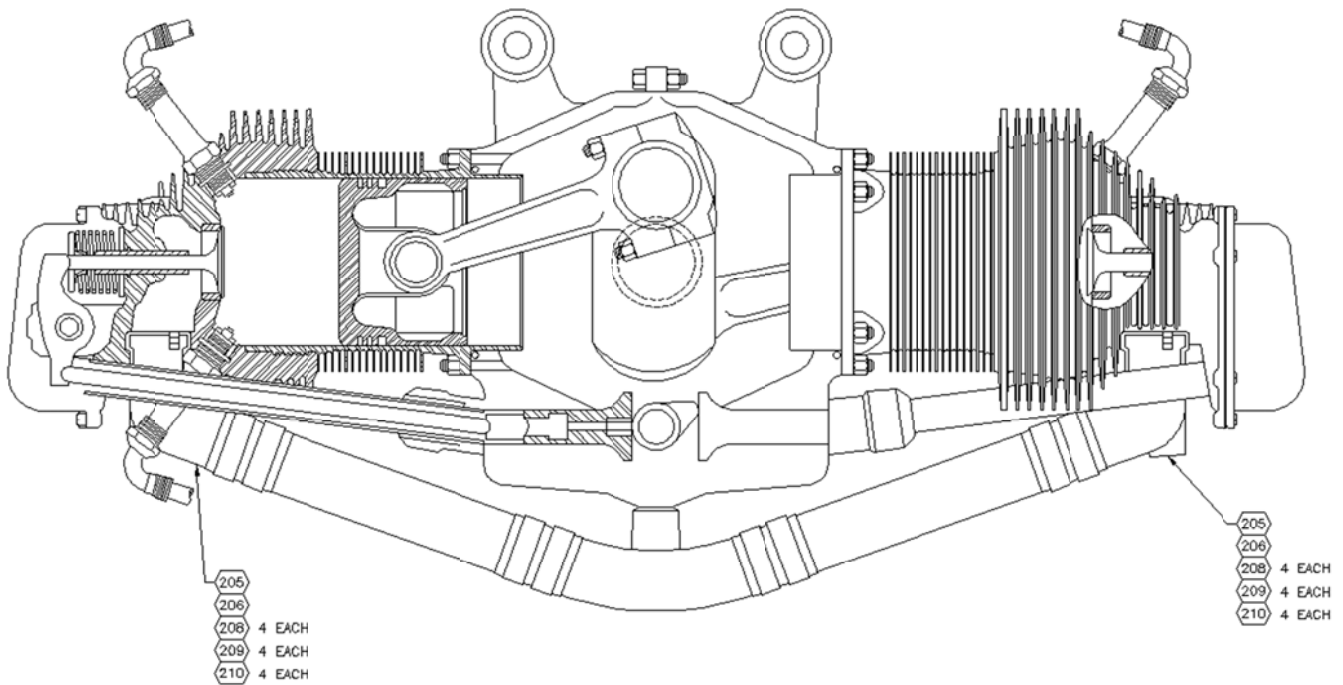


Figure 1

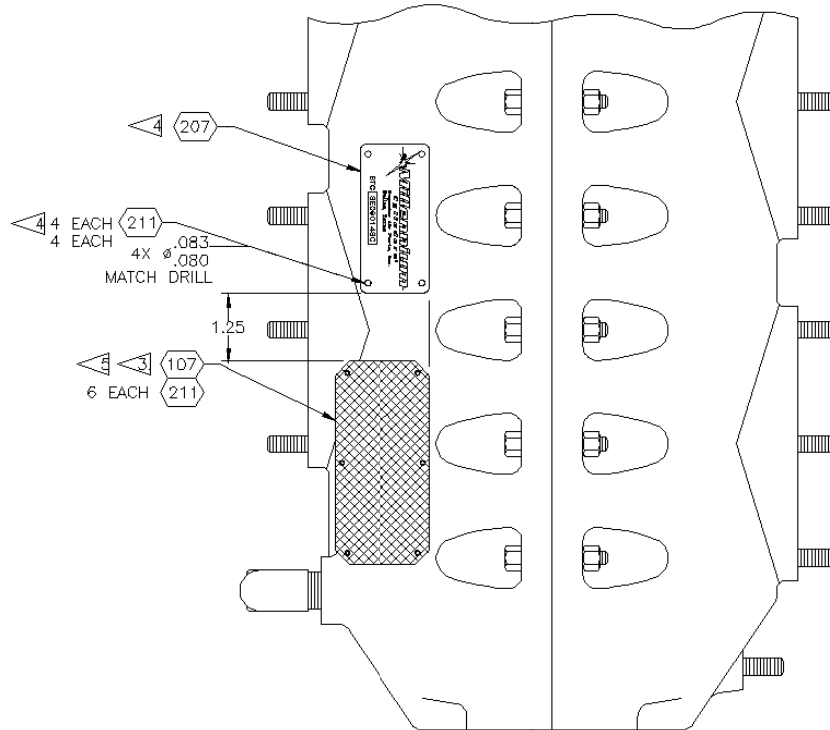
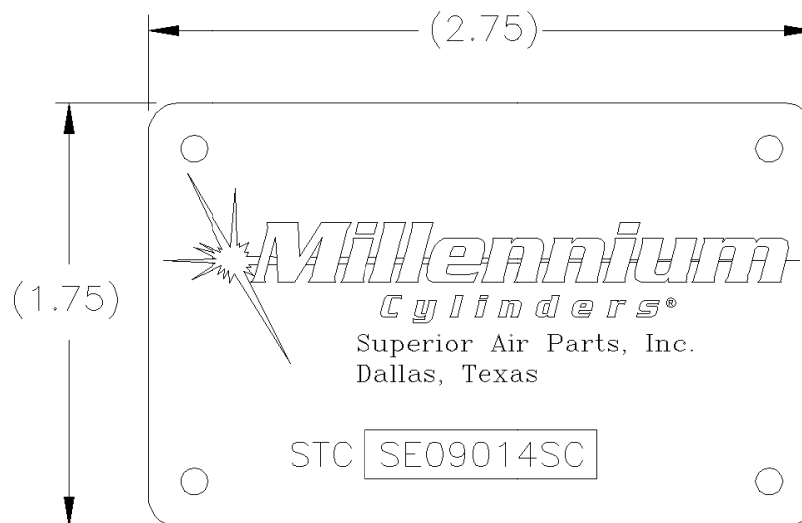


Figure 2



DATA PLATE DETAIL

Figure 3

TABLE II		
SA65000-A20P POWER ASSEMBLY		
QTY	PART NUMBER	DESCRIPTION
1	SA65001	HEAD, CYLINDER
1	SA65030	BARREL
1	SA10205-1	GUIDE, EXHAUST
1	SA10209-1	GUIDE, INTAKE
1	SA65170	SEAT, EXHAUST
1	SA65150	SEAT, INTAKE
2	MS9018-05/2-52	INSERT, HELICAL COIL
4	SA22949 M05	BUSHING, ROCKER SHAFT
2	SA401870	STUD, INTAKE
2	SA402151	STUD, EXHAUST
2	SA21284	TUBE, PUSH ROD
1	MS20913-1	PLUG, PIPE
1	SA65160	VALVE, EXHAUST
1	SA65140	VALVE, INTAKE
1	SA24026	SEAT, SPRING, INTAKE
1	SA24044	SEAT, SPRING, EXHAUST
2	SA24029	SPRING, VALVE
2	SA625958	SPRING, VALVE
2	SA625961	SEAT, VALVE SPRING
4	SA21361	KEEPER, VALVE
1	SA200-T1	GASKET SET, SINGLE CYLINDER
1	SA65100	PISTON
1	SA65-SC	RING SET
1	SA200-HDW1	HARDWARE KIT

United States Of America
Department of Transportation - Federal Aviation Administration
Supplemental Type Certificate

Number SE09014SC

This Certificate issued to Superior Air Parts, Inc.
14280 Gillis Road
Dallas, TX 75244-3792

certifies that the change in the type design for the following product with the limitations and conditions therefor as specified hereon meets the airworthiness requirements of Part 13 of the Civil Air Regulations.

Original Product - Type Certificate Number: E-205
Make: Teledyne Continental
Model: A-65-1, A-65-3, A-65-6, A-65-7, A-65-8, A-65-9
A-65-12, A-65-14

Description of Type Design Change:
Installation of Superior Air Parts, Inc. Millennium series Cylinder Power Assemblies Part Number SA65000-A20P in accordance with Superior Air Parts, Inc. Service Letter No. 95-009, dated 06/30/95, manufactured in accordance with Superior Air Parts, Inc. Drawing No. SA65000SO, I.R., dated 2/24/95, or later FAA approved revision.

Limitations and Conditions: Installation of Superior Air Parts Cylinder assemblies must be installed in complete sets of four and can not be intermixed with the Teledyne cylinder assemblies. An Airframe STC is not required for installation of an engine modified by this STC. Compatibility of this design change with previously approved modifications must be determined by the installer.

This certificate and the supporting data which is the basis for approval shall remain in effect until surrendered, suspended, revoked or a termination date is otherwise established by the Administrator of the Federal Aviation Administration.

Date of application: September 30, 1993

Date reissued:

Date of issuance: March 13, 1995

Date amended: September 15, 1995, Rev. 1



By direction of the Administrator

Gary B. Koach

(Signature)

A. J. Merrill
Manager, Special Certification Office
Southwest Region

(Title)

Any alteration of this certificate is punishable by a fine of not exceeding \$1,000, or imprisonment not exceeding 3 years, or both.