SUPERIOR AIR PARTS, INC

Service Letter

Technical Aspects are FAA Approved

Number: L97-03 D

Replaces L97-03 C

Date: 04/18/2005

Subject: Overhaul and repair of SL32000NA Cylinders.

Application:

CYLINDER & VALVE ASSEMBLY	APPLICATIONS – Textron Lycoming Engines
SL32000NA-A1 Stud Assembly (Narrow Deck Spot Faced)	O-320, O-320-A1A, A1B, A2A, A2B, A2C, A3A, A3B, A3C, E1A, E1B, E2A

Compliance: Any time the above cylinders are removed for overhaul or repair.

This service letter covers specific differences between the Superior Air Parts, Inc., SL32000 Series Millennium Cylinder® and the original equipment manufacturer's cylinder, as it pertains to repair and overhaul. If a specific procedure is not addressed in this service letter, the applicable procedure in the original equipment manufacturer's current overhaul manual applies. The cylinders are identified by part number and serial number on the cylinder flange, as shown in Figure 1.

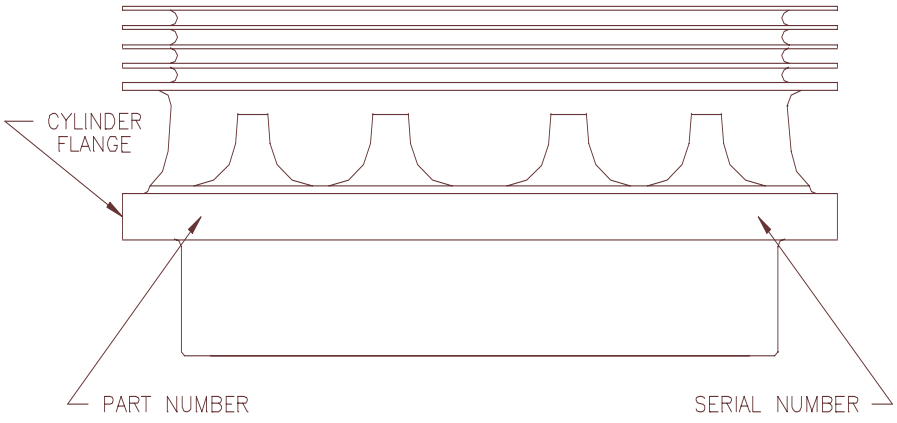

Figure 1

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Cylinder Bore:

The Millennium Cylinder® barrels are manufactured from AMS 6382 steel and through hardened with a choke bore that should be maintained during any boring or honing operation. Cylinders manufactured before March 2003 were manufactured using the "honed in" process. After that date, cylinders were manufactured using what Superior refers to as the "Natural Choke" process. Cylinders manufactured by this process have two advantages over the "honed in" process. First, the cylinder bore, at operating temperature, is much rounder and straighter than a "honed in " cylinder bore. This results in better ring seating and seal over the life of the cylinder. The second advantage, is the result of the state of the art cylinder finishing process used to put the crosshatch finish in the barrel. This process results in much quicker ring seating, while producing much less metal than a traditionally honed cylinder bore. See Figure 2 for standard cylinder dimensions and finish specifications for "honed in" choke cylinders. The "Natural Choke" cylinder bore contour is shown in Figure 3.

Any time a cylinder is removed, the diameter and out-of-round condition should be checked, as well as cylinder scoring, galling, low spots and ring step. Inspection results should be compared to the dimensions in Figures 2 and 3, as applicable, and to information in the original equipment manufacturer's current overhaul manual. Through hardened steel cylinders that are worn, can be undersized to .010 or plated back to standard dimensions. This applies to both "honed in" and "Natural Choke" cylinders. Piston rings listed for use in nitrided honed bores must be used in through hardened cylinder bores.

Cylinder Rebarreling

A Millennium Cylinder® may have the cylinder bores returned to new steel limits by having the cylinder barrel replaced by a Superior Air Parts licensed FAA Repair Station. The old worn barrel is removed and a new Superior Air Parts FAA-PMA Millennium Cylinder® barrel (the same high quality barrel used in new Millennium Cylinder® assemblies) is installed. This procedure returns the cylinder bore to the new steel limits shown in Figure 2, as well as, assuring that other critical dimensions, such as, compression height and cylinder barrel flange hole alignment, are returned to new limits. Superior Air Parts Customer Service may be contacted for approved sources of this repair.

Cylinder Heads

The Superior Air Parts Inc., Millennium Cylinder® heads for the engines listed in this service letter have been manufactured by investment casting ASTM B26 Aluminum Alloy.

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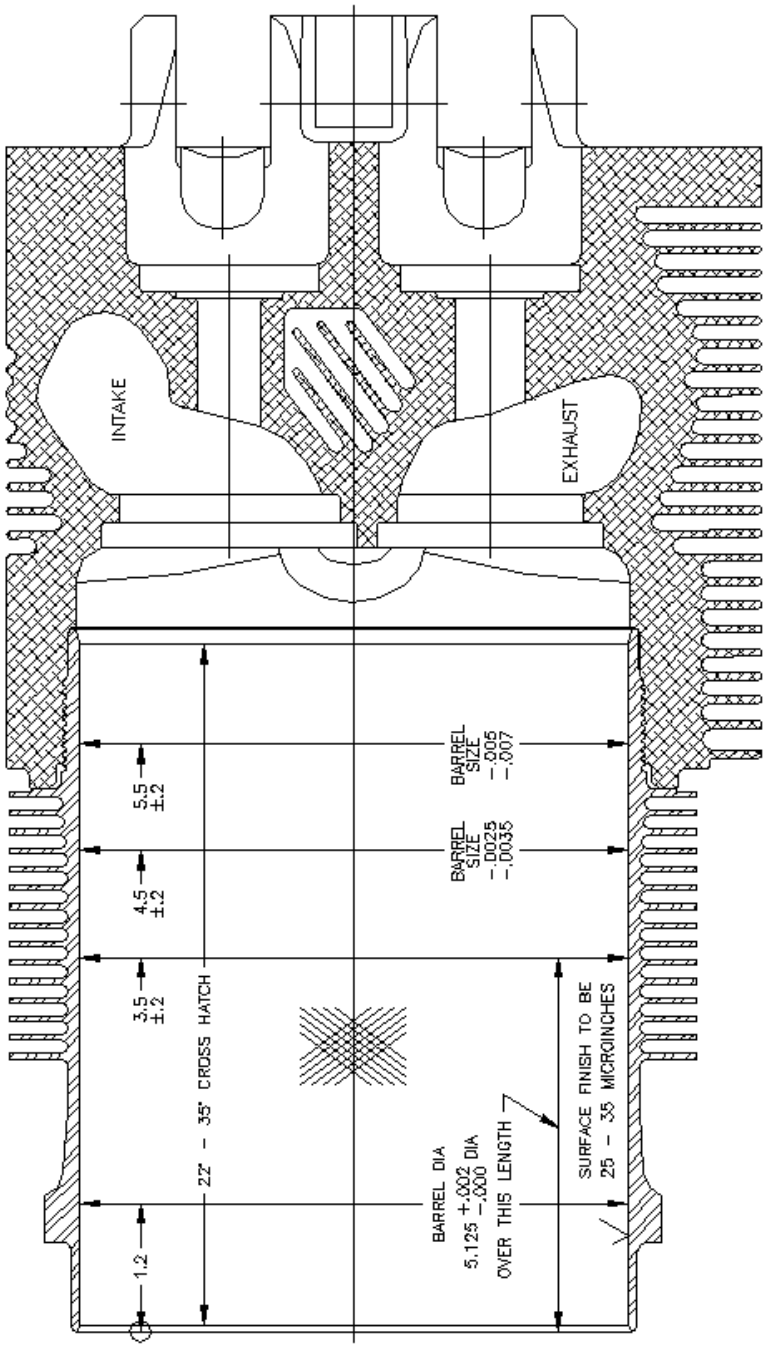

Cylinder Dimensions - Standard
SL32000NA

Figure 2

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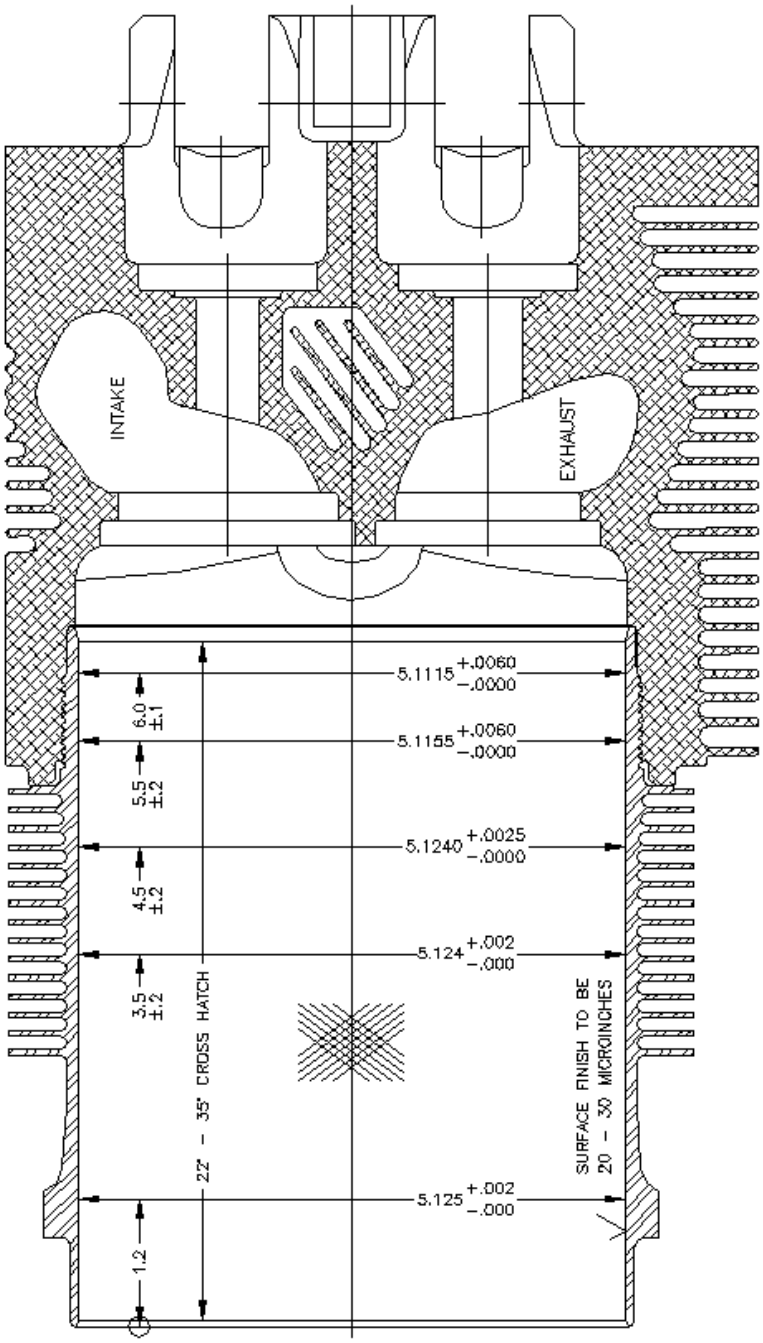

Cylinder Dimensions – Natural Choke
SL32000NA

Figure 3

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Cylinder Parts

The following list of parts is used in new production of the SL32000NA-A1 stud assemblies.

SL32000NA-A1

SL74230A	Exhaust Valve Guide - High Chrome Ni-Resist
SL61681A	Intake Valve Guide - Aluminum Bronze
SL31C-12	Exhaust Stud
SL72058A	Exhaust Seat
SL72057A	Intake Seat
MS9018-05/2-52	Helical Coil, Spark Plug
MS49005-2Z	Pipe Plug
MS20823-6D	Elbow, Oil Drainback
SL66610	Bushing, Rocker Shaft
SL-STD-1872	Insert, Tapered Pipe Thread
SL25C-9	Stud

Additional Related Cylinder Assembly Parts

SL19001A	Exhaust Valve
SL73938	Intake Valve
SL11795	Valve Spring - Inner
SL11800	Valve Spring - Outer
SL13323	Lower Spring Seat, Exhaust
SL65441	Lower Spring Seat, Intake
SL16475	Upper Spring Seat, Exhaust
SL10077	Upper Spring Seat, Intake
MS13998-3	Rotor Cap, Exhaust
MS13997-3	Valve Key, Exhaust
SL60009	Valve Key, Intake

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