

Service Letter

Technical Aspects are FAA Approved

Number: L05-09 B

Replaces L05-09 A

Date: 10/24/2006

Subject: Superior PMA replacement Piston Ring gap information for Teledyne Continental engines with steel or nitrided cylinder bores or chrome plated cylinder bores.

Application: **Make** **Models**
 TCM C, 200, 300, 360, E, 470, 520 and 550 series

Compliance: Any time new Superior piston rings are installed.

Superior Piston Rings:

The applicable engine models, when equipped with steel or nitrided bore cylinders, use the piston ring part numbers shown in Table 1:

TABLE 1 - STEEL AND NITRIDED CYLINDERS

Engine Models	Ring Part Numbers and Location
C, 200 and 300 Series (Including GO-300)	SA2000 – Top Compression Ring SA1000 – Second Compression Ring SA1000 – Third Compression Ring SA10206 – Oil Control Ring
360 Series	SA639570 – Top Compression Ring SA639579 – Second Compression Ring SA639758 – Oil Control Ring SA630678 – Scraper Ring
E and 470 Series	SA4001 – Top Compression Ring SA4003 – Top Compression Ring SA4001 – Second Compression Ring SA4003 – Second Compression Ring SA4705 – Oil Control Ring SA4707 – Oil Control Ring SA4709 – Scraper Ring
520 and 550 Series	SA5003 – Top Compression Ring SA5004 – Second Compression Ring SA5208 – Oil Control Ring SA5209 – Scraper Ring

Note: These rings also are available in plus .005, .010 and .015 (P05, P10, & P15) oversize. The ring gap data in this document applies to standard and plus .005, .010 and .015 Superior piston rings.

The applicable engine models, when equipped with chrome plated bore cylinders, use the piston ring part numbers shown in Table 2.

TABLE 2 - CHROME PLATED CYLINDERS

Engine Models	Ring Part Numbers and Location
C, 200 and 300 Series (Including GO-300)	SA1000 – Top Compression Ring SA1000 – Second Compression Ring SA1000 – Third Compression Ring SA1007 – Oil Control Ring
360 Series	SA3364 – Top Compression Ring SA3364 – Second Compression Ring SA3365 – Oil Control Ring SA630678 – Scraper Ring
E and 470 Series	SA4700 – Top Compression Ring SA4701 – Top Compression Ring SA4700 – Second Compression Ring SA4701 – Second Compression Ring SA4706A – Oil Control Ring SA4707 – Oil Control Ring SA4709 – Scraper Ring
520 and 550 Series	SA5201 – Top Compression Ring SA5202 – Second Compression Ring SA5205A – Oil Control Ring SA5209 – Scraper Ring

Piston Ring Gaps:

Table 3 provides the correct gaps for Superior piston rings, when installed in the cylinder bore.

TABLE 3 – PISTON RING GAPS

Part No.	Ring Type	Ring Gap
SA1000 SA2000	Top Compression	.023 - .036 inch
SA1000	Second and Third Compression	.015 - .028 inch
SA10206 SA1007	Oil Control	.015 - .028 inch
SA639570 SA3364	Top Compression	.026 - .042 inch
SA639579 SA3364	Second Compression	.032 - .048 inch *
SA639758 SA3365	Oil Control	.019 - .035 inch
SA630678	Scraper	.015 - .031 inch
SA4001 SA4003 SA4700 SA4701	Top Compression	.026 - .042 inch

TABLE 3 – PISTON RING GAPS – Cont.

Part No.	Ring Type	Ring Gap
SA4001 SA4003 SA4700 SA4701	Second Compression (Cont.)	.032 -.048 inch *
SA4705 SA4706A SA4707	Oil Control	.018 - .034 inch
SA4709	Scraper	.015 - .031 inch
SA5201 SA5003	Top Compression	.028 - .044 inch
SA5004 SA5202	Second Compression	.034 - .050 inch *
SA5208 SA5205A	Oil Control	.020 - .036 inch
SA5209	Scraper	.015 - .031 inch

* Second Compression ring gap must be a minimum of .006 in larger than the top compression ring gap.

The ring should be inserted into the cylinder bore and pushed in to the barrel, using a piston (to approximately 1.2 inches from the bottom of the cylinder barrel). Always apply a small amount of engine oil to the cylinder bore and ring face before inserting in the cylinder bore and ring face before inserting in the cylinder bore. Use of a piston will assure the ring is square with the cylinder. If the ring is not squared up in the bore, erroneous reading will occur. Measure the gap using a feeler gage. The oil control ring gap is measure without the expander spring installed.

Caution: The ring gap must also be measure at the top of the ring travel for 360, 470, 520 and 550 cylinders. This is particularly necessary in chrome plated cylinders where the choke may exceed the original OEM limits. Failure to do so may result in damage and loss of power. For 360 series engines, check the compression ring gaps at approximately 6.12 inches from the bottom and the oil rings 5.62 inches from the bottom. For E, 470, 520 and 550 series engines, check the compression at approximately 6.38 inches from the bottom and the oil control ring 5.75 inches from the bottom. **The minimum gap at the top of the ring travel is .0075 inch.** Always gap rings in the same cylinder in which they will be installed.

Again, a piston should be used to push the ring to the correct position. A piece of intake coupling hose may be trimmed to length and set into the combustion chamber to stop the piston and ring from accidentally going past the top end of the barrel and becoming lodged in the cylinder. Measure the ring gap with a feeler gage.

If a ring gap is below the minimum limit at either the 1.2 location or the top of the ring travel locations, it must be dressed until the acceptable gap is reached. It is recommended that a ring gap dressing tool be used. These are available from most mechanic tool suppliers. If a file is used for this purpose, care must be exercised to keep the ends of the ring square and true. After dressing the ring gap, break the edges very lightly (.005 inch or less) to remove sharp edges and burrs, using a fine flat file.

Note: Cylinders with choke in excess of that in OEM new cylinders may slightly exceed the maximum gap at the 1.2 location when gapped to .0075 at the top of the ring travel.