



Service Instruction

ENGINE COMPONENTS, INC.

S.I. No.: 99-1

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Title: REPLACEMENT VALVES, PISTONS AND RINGS FOR R-985, R-1340 AND R-2000 ENGINES.

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Technical Portions are FAA DER Approved.

1.0 MODELS AFFECTED: The following table provides a list of Type Certificated eligible engines in which the parts may be used.

Part Name	Part Number	Installation Eligibility
Valve-Exhaust	AE71166	Pratt & Whitney R-985-AN-1, -3, -4, -6, -6B, -14B, B3, B-4, B-5
Valve-Exhaust	AE71167	Pratt & Whitney R-1340-S1H1, S1H2, S3H1-G, S3H2
Piston 6.1	AE23521	Pratt & Whitney R-1340-S1H1, S1H2, S3H1-G, S3H2
Piston 6.1	AE15373	Pratt & Whitney R-1340-S1H1, S1H2, S3H1-G, S3H2
Ring, Piston, Compression (Tapered Vee)	AE125234	Pratt & Whitney R-1340-S1H1, S1H2, S3H1-G, S3H2 Pratt & Whitney R-2000-D3, D5, 2SD13G

2.0 MILITARY MODELS: The Aviation Safety Release No. 413 by the Civil Aeronautics Administration (predecessor to the FAA) provides a comparison of military engines and eligibility for use on U.S. Type Certificated aircraft. The following data is from that Safety Release.

TYPE CERTIFICATED MODELS	SIMILAR MILITARY MODELS
R1340-S3H1, S1H1	R1340-36, 40, 47, 49, 49M1, 51, AN-1
R1340-S3H1-G	R1340-AN-2
R1340-S1H2	R-1340-51M1, 53, 57
R2000-2SD13G, D3	R2000-9M2, -9M3, -11M2, -11M3
R2000-D5	R2000-7M2, 9M4

3.0 PISTONS: Engine Components, Inc. R1340 piston Part Nos. AE15373V and AE23521V have been FAA Approved with full wedge compression piston ring grooves. The pistons are configured to use the ECi AE125234 piston rings, Pratt & Whitney Part No. 125234 or equivalent FAA PMA rings.

4.0 WEDGE STYLE PISTON RINGS: The Part No. 125234 piston rings were originally developed for the Pratt & Whitney R2000 engines, which have the same cylinder bore diameter as the R1340 engines. However, the proper oversize piston ring must be chosen to provide the correct end gap for the R1340 engine. Typically for the R1340, this is achieved by using the AE125234P10 piston ring and gapping to the following data. The AE125234CC-P10 is a cast iron ring and should be used for chrome plated cylinder bores. The AE125234PL-P10 is a plasma faced ring and should be used for Cerminil® or steel cylinder bores.

5.0 ASSEMBLY DATA: The following data provides Engine Components, Inc. recommendations for piston ring to piston groove side clearance and end gaps for piston rings installed in cylinder bores:

ENGINE TYPE & RING LOCATION	SIDE CLEARANCE	END GAP
R1340 TOP Compression	.002-.006	.067-.077
R1340 2 nd & 3 rd Compression	.002-.006	.0665-.0735
R2000 TOP, 2 ND & 3 RD Compression	.002-.006	.095-.107
R1340 Oil Control	.0035-.007	.0665-.0735
R2000 Oil Control	.004-.0075	.095-.107
R1340 Scraper	.002-.0055	.0265-.050
R2000 Scraper	.003-.0055	.095-.107

Side clearance is checked with the outer face of the piston ring flush with the outer diameter of the piston. More information is provided in the Pratt & Whitney Overhaul Manuals and ECi Service Instruction 94-4-1.

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