

REPLACEMENT PARTS LIST - CONTRACT W535-AC-9131

<u>Part No.</u>	<u>Part Name and Description</u>	<u>No. of Units</u>	<u>Unit Price</u>	<u>Total</u>
500570	Pinion - reduction gear Due to the failure of the bearing on the reduction gear small idler, the original set of reduction gears was put back into the engine. This necessitated a new pinion to accommodate the vibration damper. New part, no change in design.	1	494.38	494.38
503568	Gear - reduction gear large idler The addition of gear number 500570 necessitated the lapping in of this gear with its mating gear to make up a set. Re-work present part.	1	69.00	69.00
503566	Shaft - propeller The re-installation of part number 503568 to the propeller shaft necessitated chrome plating the locating surface on the O.D. and re-grinding to insure a perfect fit. Re-work present part.	1	12.80	12.80
500603	Bearing - reduction gear idler front Due to the previous re-grinding of the journals on the reduction gear idler, new bearings were necessary to fit the set of reduction gears installed at this time. New part, no change, bored in assembly.	1	38.20	38.20
500695	Bearing - reduction gear idler - rear Due to the previous re-grinding of the journals on the reduction gear idler, new bearings were necessary to fit the set of reduction gears installed at this time. New part, no change, bored in assembly.	1	38.20	38.20
503603	Bearing - propeller shaft inner Due to the previous re-grinding of the journals on the reduction gear pinion, a new bearing was necessary to fit the set of reduction gears installed at this time. New part, no change, bored in assembly.	1	49.27	49.27
503784	Piston ring - compression A new set of piston rings was installed at this time having a machined gap. It is thought that the pin breakage might be partly due to the wrong angle filed on the end of the ring where it bears against the pin. New parts.	36	.26	9.36

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<u>Part No.</u>	<u>Part Name and description</u>	<u>No.of Units</u>	<u>Unit Price</u>	<u>Total</u>
503785	Pin - piston ring Due to the continued failure of the piston ring locating pins, all were replaced with pins having a better finish on the body, larger radii under the head and lower tolerance on the fit in the piston. The head size was increased to insure proper clearance with any ring and to give additional strength. The pins in the second groove were moved around the piston 90 degrees so that the pin falls in the plane of the thrust, thus dividing the ring friction equally on each side of the pin. New parts, new design.	36	1.14	41.04
503610 503611	Bearing - connecting rod The Allison Company bearings previously installed have failed on the inner surface. A new set having a harder bronze on the inside as recommended by them was now installed and should give satisfactory service. The price on this set of bearings is materially decreased, due to the fact that the first set required special tools which are now available for subsequent orders. New parts, new material.	6 pr.	56.52 pr.	339.12
500524	Bushing - accessory drive eccentric This bushing was scored badly for no apparent reason as it had been giving satisfactory service for some time. Misalignment of the parts may be the cause. Replaced with no change in design. New part.	1	27.32	27.32
500604	Gear - accessory drive large idler The journal scored in the bushing part number 500524 as noted above. The journal was re-ground to clean up. Re-work present part.	1	3.15	3.15
503686	Crankcase assembly Small cracks appeared in the supporting ribs after 20 hours of endurance running as described in detail in E.S.M.R. NO. E-57-285-63 dated June 23, 1937. Changes as described in E.S.M.R. No. E-57-285-64 dated July 3, 1937 were made to strengthen up the crankcase where failure occurred. The crankcase was replaced complete including all detail parts as called for on Air Corps Parts Lists pages 43886 to 43888, with the exception of the crankcase			

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503686	through bolts part number 503530 and 503820 which were used from the old assembly as they were in perfect condition. The above crankcase necessitated extensive changes in the pattern equipment and these changes as well as the actual material and machining charges are included in the price listed below. New crankcase assembly, revised design.	1	4,693.80	4,693.80
500669	Bearing - crankshaft right - front In order to insure continuous operation and prevent possible bearing trouble, new main bearings were installed in the new crankcase. The material was lead bronze steel backed manufactured by Allison Mfg. Co. Heretofore bearings had been used as manufactured by both Bohn Aluminum Co. and Federal Mogul Co. but these bearings were not 100% satisfactory. New bearing.	1	24.10	24.10
500670	Bearing - crankshaft left front See explanation above under part number 500669. New bearing.	1	24.10	24.10
500618	Bearing - crankshaft right thrust See explanation above under part number 500669. New bearing.	1	46.82	46.82
500667	Bearing - crankshaft left thrust See explanation above under part number 500669. New bearing.	1	46.82	46.82
500619	Bearing - crankshaft right - intermediate and rear See explanation above under part number 500669. New bearings.	5	24.10	120.50
500620	Bearing - crankshaft left - intermediate and rear See explanation above under part number 500669. New bearings.	5	24.10	120.50
503708	Valve rocker support New cam housings listed on Progress Report dated 7-31-37 page 1 were installed at this time and required new valve rocker supports. New parts, no change.	12	9.66	115.92

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503709	Cap - valve rocker support and camshaft bearing. The new cam housings necessitated new camshaft bearings as these are bored in assembly. New parts, no change.	12	10.33	123.96
503733	Cap - camshaft thrust bearing The new cam housings necessitated new camshaft bearing caps as these are bored in assembly. New parts, no change.	2	15.10	30.20
503735	Cap - camshaft rear bearing The new cam housing necessitated new camshaft bearing caps as these are bored in assembly. New parts, no change.	2	14.36	28.72
503736	Cover - cam housing On one of the cam housings a new cover made from an aluminum stamping was installed in order to try out this type of a part. New part, new design.	1	No Charge.	

Total of Replacement parts list dated 8-31-37 ..... \$6,496.98

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Revised 9-21-37

RECAPITULATION

Replacement Parts Previously Reported .....\$16,282.40  
 Total of Replacement Parts List dated 8-31-37 ..... 6,496.98  
 Total Replacement Parts listed to date 8-31-37 .....\$22,779.38

Spare Parts Contract W535-AC-8131  
 P.O. 37-1091 Invoiced 9-16-36 .....\$3,372.11

Spare Parts Contract W535-AC-9573  
 P.O. 37-3067 Invoiced 1-9-37 ..... 2,457.13

Spare Parts Contract W535-AC-9785  
 P.O. 37-4358 Invoiced 4-8-37 ..... 2,776.95  
                   Invoiced 5-24-37 ..... 1,083.11

Total Replacement Parts invoiced to date 8-31-37 ..... 9,689.30

Total Government liability to date 8-31-37, over  
 and above the amount specified in article 17, as  
 provided for in paragraph #3d, Item 3 of article  
 15, subject contract .....\$13,090.08

AIR CORPS INSPECTOR'S CERTIFICATE

I certify that the articles listed on pages one to four inclusive of this report dated 8-31-37 were inspected and accepted by me in the quantities stated, and that they conform to the contract requirements for articles and parts used in the subject engine, and that the above replacement articles and parts were necessary for the continued operation of the subject engine.

*Robert Triggs*  
 Inspector's Signature

Procurement Inspector  
U. S. Army Air Corps  
 Title and Rank

9-10-37  
 Date