

REPLACEMENT PARTS LIST - CONTRACT W535-AC-8131

Progress Report Date	Part No.	Part Name and Description	No. of Units	Unit Price	Total
5-31-36	500516	Gear - accessory drive shaft drive large idler for torsimeter. Shaft of gear broke leaving the gear unsupported on one end, cutting off the oil supply, allowing the gear to run at an angle with its mating gear, cracking the housing and ruining the rest of the gears in this train. The stress in the gear shaft under load is high but not excessive. However, this was a temporary set-up to be used only in taking torsigraphs and is not used as a standard part in the engine. Due to lack of clearance no other arrangement to take torsigraphs could be made. Replaced with a new gear part number 500556 having a heavier shaft where the break occurred and supported on a special bushing with more bearing surface which should eliminate any further trouble from this source. Special for torsimeter set-up.	1	No Charge	
5-31-36	503508	Housing - reduction gear rear. Cracked through eccentric bushing boss due to failure of gear part number 500516. Replaced with new part complete with all new bushings and studs except reduction gear bearings part numbers 503605 and 503587. An extra re-inforcing rib was added between the front accessory bushing boss and case mounting flange where the crack occurred.	1	946.10	946.10

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5-31-36	500524	Bearing accessory drive eccentric. Damaged from overload and misalignment due to failure of 500516 gear. Replaced with same type, no change.	1	Included in price of part number 503508 assembly	
5-31-36	500557	Bearing accessory drive eccentric to be used in reduction gear housing with torsionmeter set-up to give increased bearing length for new gear number 500556. Special for torsionmeter set-up.	1	No Charge	
5-31-36	501013	Bushing - 1-1/4 I.D. x 1-15/32 O.D. x 1-3/8 shouldered. Damaged from overload and misalignment due to failure of 500516 gear. Replaced with same type, no change	1	Included in price of part number 503508 assembly	
5-31-36	501008	Bushing - 1-7/16 I.D. x 1-21/32 O.D. x 1-11/16 shouldered. Damaged from overload and misalignment due to failure of 500516 gear. Replaced in crankcase with same type, no change.	1	10.86	10.86
5-31-36	500524	Bearing accessory drive eccentric. Damaged from overload and misalignment due to failure of 500516 gear. Replaced in the crankcase with same type, no change.	1	27.32	27.32

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5-31-36	503536	Gear - accessory drive shaft drive. Teeth damaged due to failure of 500516 gear. Replaced with same type, no change	1	145.34	145.34
5-31-36	503564	Gear accessory drive shaft front. Teeth damaged due to failure of 500516 gear. Replaced with same type, no change.	1	94.61	94.61
5-31-36	503580	Housing - oil pump scavenge. Scored by small particles taken through scavenge line from reduction gear housing due to failure of 500516 gear. Replaced with new part of same type, no change	1	44.44	44.44
5-31-36	503579	Plate - oil pump. Scored by small particles taken through scavenge line from reduction gear housing due to failure of 500516 gear. Replaced with new part of same type, no change.	1	12.16	12.16
5-31-36	503582	Gear - oil pump pressure driven. Cracked around keyway. Replaced with new part having heavier section through central part of shaft.	1	31.84	31.84
5-31-36	503565	Shaft accessory drive. Front bearing burned and scratched due to failure of 500516 gear. Bearings re-ground and all parts of shaft carefully checked for alignment and parallelism.	1	17.35	17.35

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5-31-36	503502 & 503503	Crankcase R. H. & L. H. Bushing bosses in front end of case were forced out of round and diaphragm was sprung slightly from overload and misalignment due to failure of 500516 gear. The bearing holes were re-bored oversize and fitted with oversize bushings. The second and third diaphragms were forced out of alignment and it was necessary to re-bore the accessory drive shaft bearings in these diaphragms and bush them up with thin bronze sleeves pressed and pinned in place. Crankcase was checked throughout.	1	178.32	178.32
5-31-36	501011	Bushing - 1-1/8 I.D. x 1-11/32 O.D. x 1-3/8 shouldered. This bushing was not damaged but was forced out of position by the springing of the front diaphragm in the crankcase and replacement was necessary after the crankcase had been re-bored oversize in its proper position. Replaced same type, oversize.	1	10.26	10.26
5-31-36	503785	Pin - piston ring. Pin became loose in piston, replaced with new part fitting tighter in piston.	1	1.14	1.14

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5-31-36	503632	Cylinder assembly. No. 1 R. cylinder was slightly scored 1" wide on front side only. This spot was honed and lapped by hand to a smooth finish and the same assembly replaced.	1	No Charge	
5-31-36	503650	Pin - piston. No. 6 L. piston pin had a fine groove around O.D. in center probably caused by a small particle from one of the parts that were damaged due to the failure of 500516 gear.	1	8.95	8.95
5-31-36	503717	Valve - intake. No. 1 R. intake valve cracked across stellite seat. All valves of the old type were replaced with new type having 1/64 heavier section through the head made of austenitic steel. As seven had previously been changed this now completes the replacement of the intake valves of the type first used.	5	No Charge	
5-31-36	501109	Retainer - perfect oil, These retainers were assembled backwards in error allowing the oil to leak into the distributor. Replaced and assembled correctly, same type.	2	No Charge	
5-31-36	500544	Shaft - crankshaft reduction gear drive. A new quill shaft was made to reduce the natural frequency of the crankshaft system, from 70 c.p.s. to 65 c.p.s. in order			

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		to eliminate the 1-1/2 order of harmonics at 3000 RPM by bringing it in at a lower speed. This part is to be used in place of part number 503533.	1	174.69	174.69

The following parts while not damaged were made up new for the new reduction gear housing assembly because it would be impossible to remove same from the cracked assembly and use them again. The price of these parts is included in the charge for the reduction gear housing assembly.

501011	Bushing 1-1/8 I.D. x 1-11/32 O.D. x 1-3/8 shouldered	1
501012	Bushing 1-1/8 I.D. x 1-5/16 O.D. x 1 shouldered	4
501007	Bushing 1-13/16 I.D. x 2-1/32 O.D. x 1-1/2 shouldered	2
501009	Bushing 1-13/16 I.D. x 2-1/32 O.D. x 1-1/8 shouldered	1
501033	Pin - 1/4 dia. x 11/16 shouldered	1
501017	Stud 5/16-18; 5/16-24 x 2-3/32 drilled	8
501020	Stud 5/16-18; 5/16-24 x 1-27/32 drilled	20
501019	Stud 5/16-18; 5/16-24 x 3-9/32 drilled	2
501018	Stud 5/16-18; 5/16-24 x 2-11/32 drilled	2
501021	Stud 5/16-18; 5/16-24 x 1-5/32 drilled	1
501022	Stud 3/8-16; 3/8-24 x 1-21/32 drilled	12

Total of Replacement Parts List dated 6-30-36 \$1,703.38

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RECAPITULATION

Total of Replacement Parts List dated 6-15-36..... \$1,668.73

Total of Replacement Parts List dated 6-30-36..... 1,703.38

*Approved by
A.F.P.*

Total Government liability to date, over and above the amount specified in Article 17, as provided for in paragraph #3d, Item 3 of Article 15, subject contract \$3,372.11

AIR CORPS INSPECTOR'S CERTIFICATE

I certify that the articles listed on pages one to seven inclusive of this report dated 6-30-36 were inspected and accepted by me in the quantities stated, and that they conform to the contract requirements for the 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.

Silas C. Snyder
Inspector's Signature

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

10-36