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Parts Catalog

COUNTERWEIGHT PROPELLERS

Hub Models

2B20	3D40
2D30	3E50
2E40	12D40

(Hamilton Standard)

1 May 1945
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SECTION I INTRODUCTION

1. The Hamilton Standard Counterweight type propeller is composed of two major assemblies; the hub assembly and the blade assembly. Since the propeller model designation is not affected by the blade, blade assemblies are shown separately (grouped together) in section II. Any Counterweight blade design which fits properly into the hub and meets all operational requirements of the installation may be used in any given hub; consequently, the hub model is not changed by a change in blade design.

2. The Counterweight type propeller is identified by a model designation system which explains in part the type and use of the propeller. The numbers and letter group in front of the dash indicates the basic hub model, and the number group which follows the dash indicates the minor modifications incorporated in the basic model. In the model 2D30-235 propeller, the numbers and letter group preceding the dash indicates the following:

a. The first number, "2", specifies the number of blades in the propeller, and the Counterweight type is manufactured with either two or three blades.

b. The first letter, "D", indicates the blade shank size. Counterweight propeller blade shank sizes are B, D, and E, which are approximately equivalent in shank diameter to SAE sizes 1, 1-1/2, and 2.

c. The two digits immediately preceding the dash, "30" in this case, are the SAE propeller shaft spline size. Counterweight propellers are built in SAE Nos. 20, 30, 40, and 50 spline sizes. (In addition to these numbers and letter, one Counterweight propeller model, the 12D40, contains the extra designation number "1". This indicates that one major change has been incorporated in the basic model.) In the original example, the numbers group following the dash identifies the minor modifications that have been incorporated in the basic model; i.e., the propeller is modified to a "-235" model. Propellers designed for right-hand rotation have odd "dash numbers", and left-hand propellers have even dash numbers. In each case, an even dash number indicates that the propeller is the left-hand version of the propeller bearing the next lower odd dash number. By selecting the parts list (or by referring to the Parts Catalog) having the particular dash number etched on the propeller barrel, plus the parts list for the blade involved, it is possible to determine exactly the parts and assemblies by name

and number which compose the complete propeller assembly.

Note

Direction of propeller rotation is determined by viewing the propeller from the slip stream, whereas direction of engine rotation is determined by viewing the engine shaft from the rear of the engine. Right-hand propellers turn clockwise and left-hand propellers turn counterclockwise.

3. In addition to the hub model designation, the blades are identified by design numbers stamped on the circumference of the butt end of each blade. The blade designation system is similar to that of the hub in that it points out in part the use and type of the unit. As an example, on a blade designated as a C6167A-12, the numbers and letters indicate the following:

a. The first letter, in this case "C", indicates that a molded rubber fairing has been added to the blade shank. Various styles of fairings are identified by changes in this letter designation.

b. The first number group, "6167", is the basic blade design.

c. The letter "A" which follows the basic blade design indicates that this is a blade assembly. An assembly usually includes the bearing assembly, the bushing, the bushing drive pins, the bushing screws, and the balancing plug assembly. The blade assembly is sometimes considered to be the blade itself and the two thrust washers; however, when these parts alone are desired, the blade assembly indicated by the designation number should be specified minus the parts which are not wanted. The first dash number group following the basic blade design number indicates the number of inches the propeller is reduced from that of the basic design. In this example, the basic blade design diameter has been reduced 12 inches by shortening each blade six inches. If the basic blade design is used with no reduction in diameter, the complete designation would be C6167A-0.

4. The following symbols are used in this Parts Catalog:

ar	As Required
+	Oversize Part
-	Undersize Part
*	See Note

5. The following abbreviations are used in this Parts Catalog:

Assy.	Assembly
Bal.	Balancing
Brg.	Bearing
Bush.	Bushing
Cwt.	Counterweight
Cyl.	Cylinder
Lk.	Lock
Pack.	Packing
Retain.	Retaining
Scr.	Screw

6. The following tabulation lists the hub assemblies and blade assemblies shown and tabulated in this Catalog.

HUB ASSEMBLIES

2B20-209	2D30-237	3D40-57
2B20-213	2D30-243	3D40-209
2B20-223	2D30-247	3D40-213
2B20-225	2D30-249	3D40-225
2B20-229	2D30-259	3D40-227
2B20-241	2D30-261	3D40-231
2B20-249		3D40-235
2B20-251	12D40-201	3D40-267
2B20-317	12D40-211	3D40-271
2B20-329	12D40-217	
2B20-337		3E50-61
		3E50-65
2D30-29	2E40-201	3E50-201
2D30-207	2E40-209	3E50-203
2D30-209	2E40-213	3E50-219
2D30-227		3E50-253
2D30-233		3E50-319
2D30-235		3E50-345

BLADE ASSEMBLIES

6091A	6109A	6165A
6095A	6111A	6167A
6101A	6127A	6227A
6103A	6135A	6237A
6105A	6157A	6241A

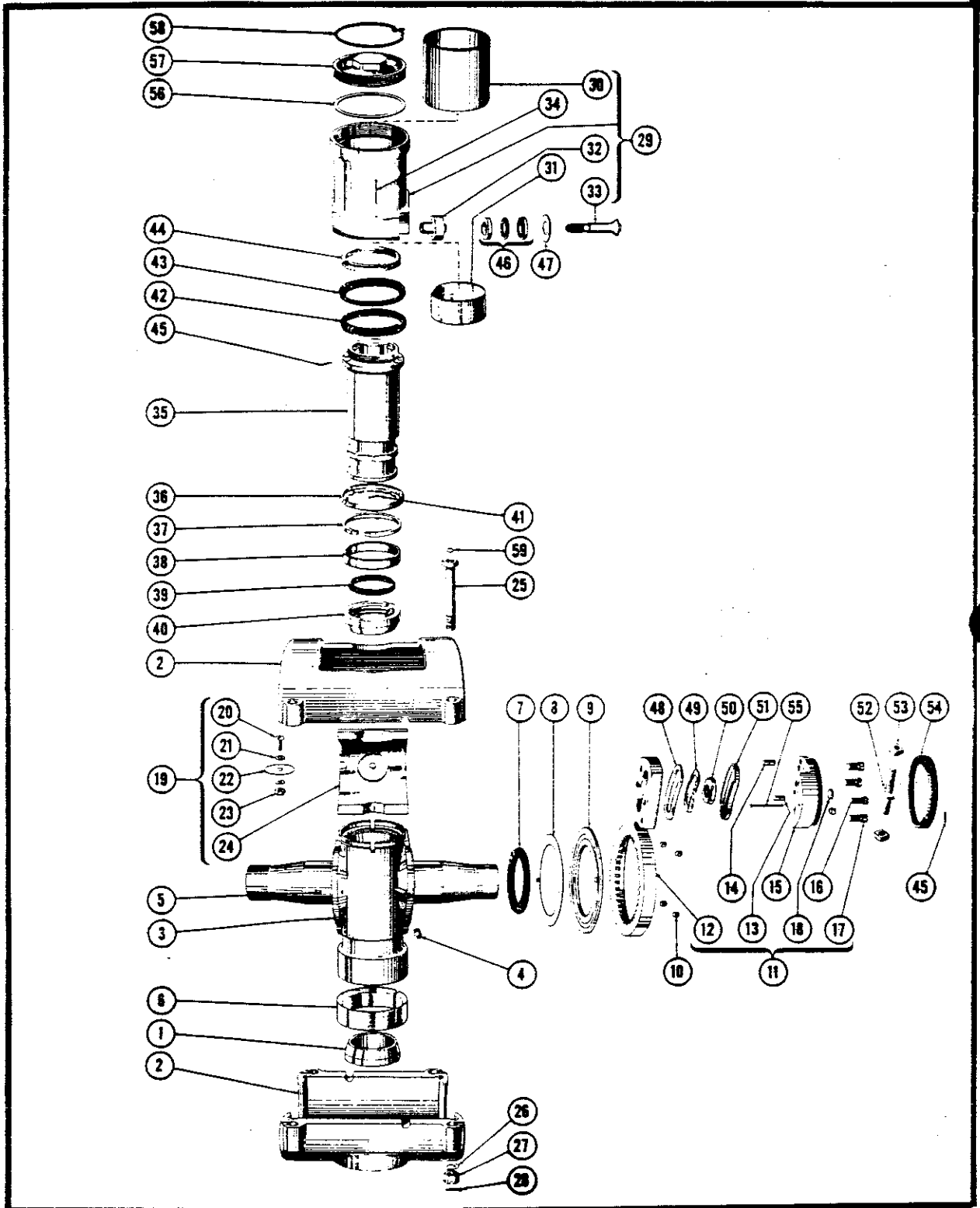


Figure 18—Hub Assembly Model 2D30-237

FIGURE & INDEX NUMBER	PART NUMBER	NOMENCLATURE	UNITS PER ASSY.
18	2D30-237	Hub Assembly	1
18-1	AN5008-30	Cone—Rear	1
18-2	S8462	Barrel Assembly	1
18-3	51459	Spider	1
18-4	51259	Fitting—Grease	2
18-5	50296	Dowel—Shim Plate	2
	+50296-6	Dowel—Shim Plate—(.006 inch oversize)	+
18-6	S8482	Ring—Spider (Phenolic)	1
18-7	51368	Retainer Assembly—Grease	2
18-8	52987	Shim—Spider—(.005 to .025 inch thick in .001 inch increments)	2
18-9	51399	Plate—Shim	2
18-10	S8441	Pin—Blade Bushing Index	8
	+S8441-1	Pin—Blade Bush. Index—(.0005 in. oversize)	+
	+S8441-2	Pin—Blade Bush. Index—(.001 in. oversize)	+
	+S8441-3	Pin—Blade Bush. Index—(.0015 in. oversize)	+
	+S8441-4	Pin—Blade Bush. Index—(.002 in. oversize)	+
	+S8441-5	Pin—Blade Bush. Index—(.0025 in. oversize)	+
	+S8441-6	Pin—Blade Bush. Index—(.003 in. oversize)	+
	+S8441-7	Pin—Blade Bush. Index—(.0035 in. oversize)	+
	+S8441-8	Pin—Blade Bush. Index—(.004 in. oversize)	+
	+S8441-9	Pin—Blade Bush. Index—(.0045 in. oversize)	+
	+S8441-10	Pin—Blade Bush. Index—(.005 in. oversize)	+
	+S8441-11	Pin—Blade Bush. Index—(.0055 in. oversize)	+
	+S8441-12	Pin—Blade Bush. Index—(.006 in. oversize)	+
	+S8441-13	Pin—Blade Bush. Index—(.0065 in. oversize)	+
	+S8441-14	Pin—Blade Bush. Index—(.007 in. oversize)	+
	+S8441-15	Pin—Blade Bush. Index—(.0075 in. oversize)	+
	+S8441-16	Pin—Blade Bush. Index—(.008 in. oversize)	+
	+S8441-17	Pin—Blade Bush. Index—(.0085 in. oversize)	+
	+S8441-18	Pin—Blade Bush. Index—(.009 in. oversize)	+
	+S8441-19	Pin—Blade Bush. Index—(.0095 in. oversize)	+
	+S8441-20	Pin—Blade Bush. Index—(.010 in. oversize)	+
18-11	51455	Bracket Assy.—Counterweight	2
18-12	51430	Bracket—Counterweight	2
18-13	50306	Dowel—Cwt. (Small)	2
18-14	50307	Dowel—Cwt. (Large)	6
18-15	51431	Counterweight	2
18-16	50091	Screw—Counterweight (Small)	2
18-17	50092	Screw—Counterweight (Large)	6
18-18	53597	Plug—Welch	2
18-19	62034	Support Assembly—Barrel	2
18-20	AN526-428-10	Screw	2

FIGURE & INDEX NUMBER	PART NUMBER	NOMENCLATURE	
			1
18-21	AN960-416L	Washer	
18-22	56831	Washer—Balancing (Lead)	
18-23	AN364-428	Nut	
18-24	51463	Support—Barrel (Phenolic)	
18-25	50083	Bolt—Barrel	
18-26	AN960-816	Washer	
18-27	50095	Nut—Barrel Bolt	
18-28	AN380-3-3	Pin—Cotter	
18-29	51539	Cylinder Assembly	
18-30	51035	Liner—Cylinder (Steel)	
18-31	51572	Liner—Cylinder (Phenolic)	
18-32	51124	Bushing—Cwt. Bearing Shaft	
18-33	53546	Shaft—Counterweight Bearing	
18-34	AN380-3-6	Pin—Cotter	
18-35	50416	Piston	
18-36	50101	Ring—Piston Lock	
18-37	AN5009-30	Ring—Snap	
18-38	S8467	Spacer—Front Cone	
18-39	S8480	Washer—Front Cone Packing	
18-40	S8478	Cone—Front	
18-41	AN380-3-2	Pin—Cotter	
18-42	50285	Gasket—Piston (Inboard)	
18-43	S8464	Gasket—Piston (Outboard)	
18-44	50697	Nut—Piston Gasket	
18-45	AN380-2-2	Pin—Cotter	
18-46	52771	Bearing Assy.—Cwt. Thrust	
18-47	51129	Washer—Thrust	
	+51129-15	Washer—Thrust—(.015 inch oversize)	
	+51129-30	Washer—Thrust—(.030 inch oversize)	
18-48	53213	Race—Cwt. Bearing (Inner)	
18-49	53214	Retainer Assy.—Cwt. Bearing	
18-50	53216	Race—Cwt. Bearing (Outer)	
18-51	53599	Spacer—Cwt. Bearing Retainer	
18-52	50359	Screw Assy.—Cwt. Adjusting	
18-53	S8474	Nut—Cwt. Adjusting Screw	
18-54	S8501	Cap—Counterweight	
18-55	AN392-45	Pin—Clevis	
18-56	50003	Gasket—Cylinder Head	
18-57	50156	Head—Cylinder	
18-58	50004	Ring—Cylinder Head Lock	
18-59	51171	Plug—Welch	
	51218	Wire—Safety	