

CHAPTER 63**MAIN ROTOR DRIVE SYSTEM**

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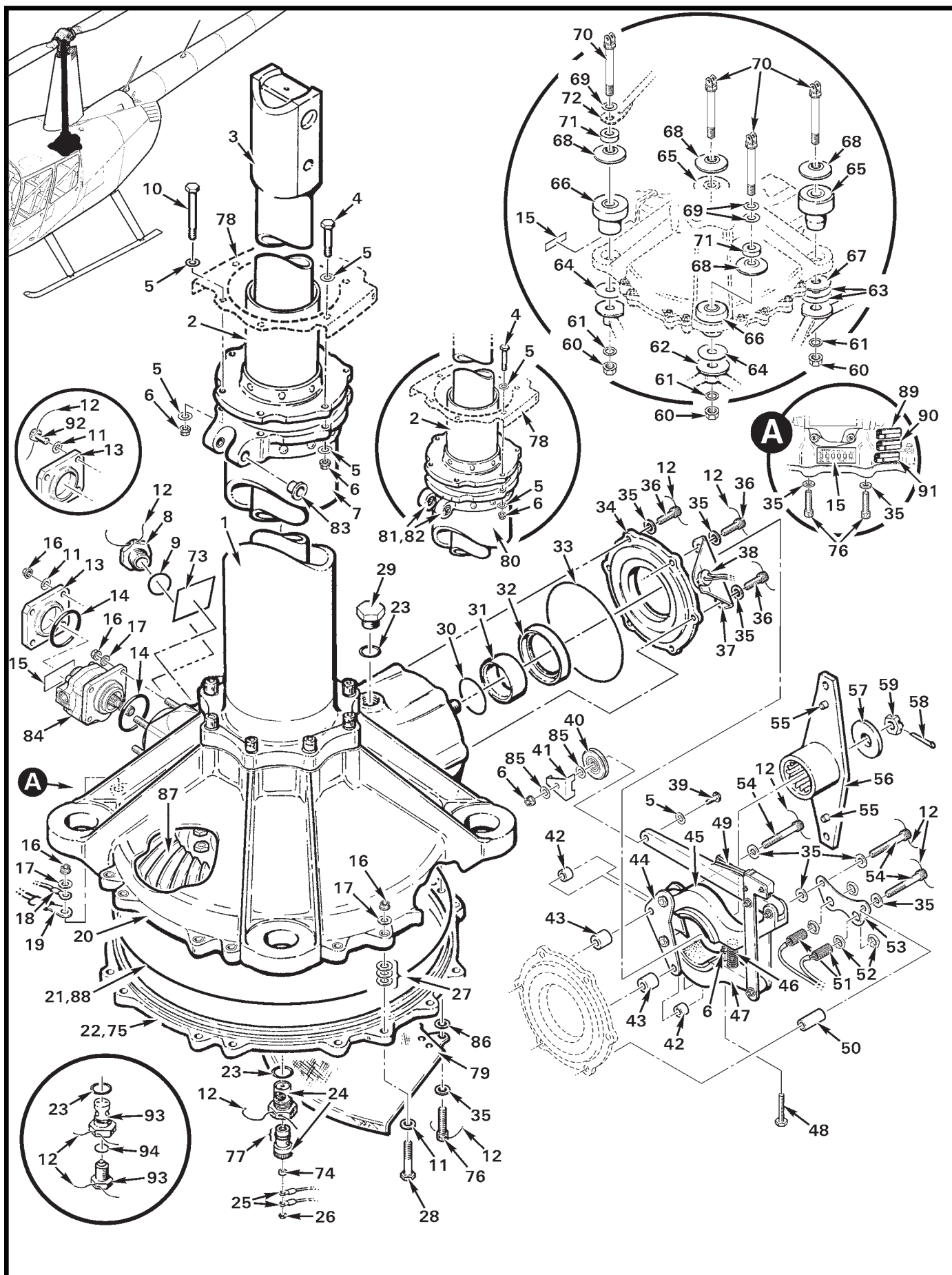


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
63-1-1	MAIN ROTOR GEARBOX AND MAST ASSEMBLY			
	C006-7*	Main Rotor Gearbox and Mast Assembly (Includes items 3 thru 11, 13 thru 59, 65, 66, 73, 76, 77, 79, and 83 thru 87; also items 8, and 12 thru 14 from Figure 29-17. Includes rotor brake, yoke, slider tube, and hydraulic pump.)	X	1
	C006-8*	Main Rotor Gearbox and Mast Assembly (Includes items 3, 7 thru 9, 11, 13 thru 38, 65, 66, 73, 76, 77, 79, 83, and 87; also items 8, and 12 thru 15 from Figure 29-17. <u>Does not</u> include rotor brake, yoke, slider tube, or hydraulic pump**.)	X	1
	C006-8R*	C006-8 Main Rotor Gearbox and Mast Assembly (overhaul exchange)	X	1
	C006-6*	Main Rotor Gearbox and Mast Assembly (Ship S/N 10001 thru 13838, and ship S/N 0001 thru 2408 with R8206 Upgrade Kit. Includes items 3, 7 thru 9, 11 thru 17, 19 thru 38, 65, 66, 73, 74, 76, 77, 79, 83, and 87; also items 8, and 12 thru 15 from Figure 29-19. <u>Does not</u> include rotor brake, yoke, slider tube, or hydraulic pump**.)	O	1
	C006-1 or -3	Main Rotor Gearbox and Mast Assembly (Ref, no longer available. Superseded by C006-6 assembly.)		
	R8206	C283-3 Mast Tube Upgrade Kit (For ship S/N 0001 thru 9999 with C283-1 Mast Assembly originally installed.)	X	1
	2 C284-1	Tube Assembly – Swashplate (Ref)	X	1
	3 C251-2	Shaft – Main Rotor Drive	O	1
	C251-1	Shaft – Main Rotor Drive (Ref, not shown. Superseded by C251-2.)		
	4 NAS6603-24	Bolt ([6] required with item 80)	X	4
	5 NAS1149F0332P	Washer	X	14
	6 D210-3	Nut	X	6
	7 F283-3	Mast Assembly (Incl item 83)	O	1
	8 B563-2	Sight Gage	X	1
	9 A215-020	O-Ring	X	1
	10 NAS6603-40	Bolt	X	2
	11 NAS1149F0432P	Washer	X	12
	12 MS20995C32	0.032 in. dia. Safety Wire	X	A/R
	13 C257-2	Cover (non-hydraulic ship, or when item 85 is removed)	X	1
	14 A215-222	O-Ring	X	1
	15 110-4	Telatemp (temperature recorder, 220°–270°F)	X	2
	16 D210-4	Nut	X	16
	17 A141-11	Washer	X	16
	18 B049-3	Harness Assembly	X	1
NOTES * See Figure 99-23 for shipping crate. ** For hydraulic R44s only; see Figure 29-17.				
				Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
		MAIN ROTOR GEARBOX AND MAST ASSEMBLY (Cont'd)		
63-1-19	C049-2	Harness Assembly	X	1
20	C264-2	Housing (Rev. K and subsequent)	O	1
	C264-1	Housing (Ref; Rev. J and prior, no longer available)		
21	A215-382	O-Ring (use only with C263-2 sump; install using item 88)	X	1
	C215-279	O-Ring (use only with C263-1 sump; install using item 88)	X	1
22	C263-2	Sump (requires A215-222 o-ring)	O	1
	C263-1	Sump (requires C215-279 o-ring)	O	1
23	A215-017	O-Ring	X	2
24	B566-1*	Chip Detector ("quick release", includes items 26, 74, and 77) . .	X	1
25	C049-4	Harness Assembly	X	1
26	—	Nut	O	1
27	AN960PD416L	Washer (or A141-0XX; XX = thickness in thousandths in.) . . .	X	A/R
28	NAS1304-15	Bolt (vary length as required)	X	12
29	AN814-8D	Filler Plug	X	1
30	A215-029	O-Ring	X	1
31	C266-1	Spacer	X	1
32	C966-3	Seal	X	1
33	A215-156	O-Ring	X	1
34	C270-1	End Cover	X	1
35	NAS1149F0463P	Washer	X	17
36	NAS1352-4-12	Screw ([6] required for C006-3 assembly)	X	3
37	C244-1	Bracket	X	1
38	C049-5	Harness Assembly – Overtemp Switch	X	1
39	NAS6603-8	Bolt	X	1
40	MS24566-1B	Pulley (or AN210-1A)	X	1
41	D117-1	Guard	X	1
42	A130-41	Spacer	X	2
43	C130-3	Spacer	X	2
44	C006-2	Rotor Brake Assembly (see Figure 63-7)	X	1
45	D110-1	Arm Assembly – Upper	X	1
46	D774-4	Spring (Associated Spring part no. C0420-063-2000S)	X	1
47	D123-1	Arm Assembly – Lower	X	1
48	NAS428-3-14	Bolt	X	1
49	D049-4	Harness Assembly	X	1
50	C130-4	Spacer	X	1

NOTES * Requires MT054-1 tool to drain gearbox.

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
		MAIN ROTOR GEARBOX AND MAST ASSEMBLY (Cont'd)		
63-1-51	B320-2	Sender Assembly (Incl item 52)	X	2
52	—	Nut	O	4
53	D114-1	Bracket	X	1
54	NAS1352-4-30	Screw	X	3
55	B570-1	Magnet Assembly	X	2
56	C908-1	Yoke Assembly (Includes item 55. Coat splines of C146-2 pinion with B270-21 protectant before installing yoke assembly.)	X	1
57	C141-10	Washer	X	1
58	MS24665-283	Cotter Pin	X	1
59	AN320-8	Nut (B270-11 on threads)	X	1
60	D210-10	Nut (install with A257-9 anti-seize on threads)	X	4
61	A141-21	Washer	X	4
62	C020-1	Upper Frame (Ref)		
63	C796-2	Shim (3 maximum per aft pad)	X	A/R
64	A796-1	Shim (3 maximum per fwd pad)	X	A/R
65	C653-3*	Mount	X	2
66	A653-2*	Mount (supersedes A653-1; if replacing a -1 mount replace both forward mounts)	X	2
67	C796-3	Spacer	X	2
68	A267-1	Washer	X	4
69	NAS1149F1063P	Washer	X	A/R
70	A650-4	Fitting	X	4
71	C130-21	Spacer	X	2
72	C345-1	Strut Weldment (Ref)		
73	A654-56	Decal (Ref; main rotor gearbox fill/oil instructions. No longer available. Superseded by F654-13 decal. See Figure 11-5.)		
74	A130-14	Spacer	X	1
75	A257-2LT	Oil – Gearbox (one-liter bottle)	X	A/R
	A257-2	Oil – Gearbox (one-gallon bottle)	X	A/R
76	NAS1352-4-16	Screw	X	6
77	O12C	O-Ring	X	2
78	C261-1	Mast Fairing Assembly (Ref, see also Figure 53-11)	X	2
79	C747-1	Baffle Assembly	X	1
80	C283-1	Mast Assembly (Ref; ship S/N 0001 thru 9999; used with item 81)		

NOTES * Installed with water as lubrication or A257-8 rubber lubricant.

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
		MAIN ROTOR GEARBOX AND MAST ASSEMBLY (Cont'd)		
63-1-81	B115-1	Bearing (install using item 82)	X	2
82	B270-10	Adhesive	X	A/R
83	C648-2	Bearing – Journal	X	2
84	D500-1	Pump (Ref, see Figure 29-19 for installation)		
85	NAS1149D0316J	Washer	X	2
86	NAS1149F0432P	Washer (or NAS1149F0463P to fill gap)	X	A/R
87	C146-5	Gear Set	O	1
	C146-1	Gear Set (Ref, earlier R44's)		
88	A257-19	Lubricant	X	1
89	—	Data Plate (C146 Gear Set, Ref)		
90	—	Data Plate (MRGB Housing, Ref)		
91	—	Data Plate (C006 MRGB, Ref)		
		* * *		
92	MS20074-04-04	Bolt (earlier non-hydraulic R44s)	X	4
93	A7260	Chip Detector (Ref; no longer available)		
94	AS111	O-Ring (use only with item 92)	X	1
95	C647-1	Bearing (main rotor shaft upper bearing, not shown)	O	1
NOTES				

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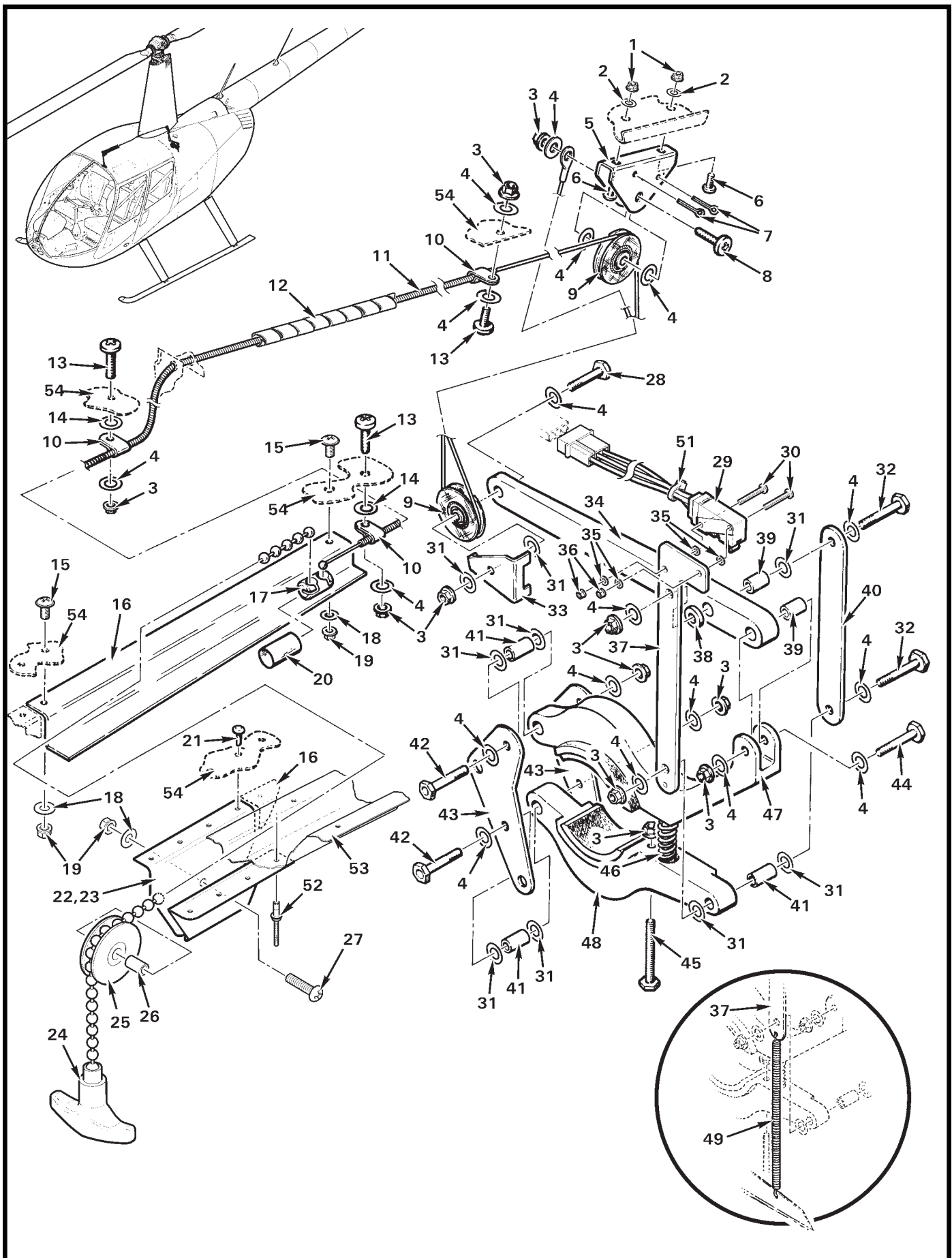


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
		ROTOR BRAKE ASSEMBLY		
63-7-1	MS21042L06	Nut	X	2
2	NAS620-6	Washer	X	2
3	MS21042L3	Nut	X	10
4	NAS1149F0332P	Washer	X	17
5	B157-1	Mount	X	1
6	MS35206-228	Screw	X	2
7	MS24665-134	Cotter Pin	X	2
8	MS27039C1-11	Screw	X	1
9	MS24566-1B	Pulley (supersedes AN210-1A)	X	2
10	AN742-3	Clamp	X	3
11	D126-1	Cable Assembly	X	1
12	B161-4	Spirap	X	A/R
13	MS27039C1-07	Screw	X	3
14	NAS620-10L	Washer	X	2
15	AN526C832R6	Screw	X	2
16	D117-2	Guard	X	1
17	B125-2	Connector	X	1
18	NAS1149FN816P	Washer	X	3
19	MS21042L08	Nut	X	3
20	B158-8	Heat Shrink	X	A/R
21	MS20470AD4	Rivet	X	4
22	D118-1	Bracket Assembly (Includes MS21071L06 nutplate. Seal around edges with item 23.)	X	1
23	B270-2	Sealant – Metal (silver)	X	A/R
24	B033-6	Knob Assembly (includes knob and chain)	X	1
25	BP4100	Pulley	X	1
26	A130-34	Spacer	X	1
27	MS27039C0812	Screw	X	1
28	NAS6603-8	Bolt	X	1
29	D049-4	Harness Assembly (includes housing, pins, wires, and switch) . .	X	1
30	MS35206-219	Screw	X	2
31	NAS1149D0316J	Washer	X	9
32	NAS6603-12	Bolt	X	2
33	D117-1	Guard	X	1
34	D112-1	Lever	X	1
NOTES				
Continues				

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
		ROTOR BRAKE ASSEMBLY (Cont'd)		
63-7-35	NAS620-4	Washer	X	4
36	MS21042L04	Nut	X	2
37	D113-2	Link	X	1
38	A141-27	Washer	X	1
39	A130-40	Spacer	X	2
40	D113-1	Link	X	1
41	A130-39	Spacer	X	3
42	NAS6603-11	Bolt	X	2
43	D111-1	Bracket	X	2
44	NAS6603-10	Bolt	X	1
45	NAS428-3A-14	Bolt	X	1
46	D774-4	Spring (alternate part no. C0420-063-2000S)	X	1
47	D110-1	Arm Assembly	X	1
48	D123-1	Arm Assembly	X	1
49	E0240-037-3500S	Spring	X	1
50	C006-2	Rotor Brake Assembly (Incl items 3 [7], 4 [11], 9 [1], and 28 thru 48)	X	1
51	MS3367-5-9	Ty-Rap	X	A/R
52	NAS9301B-4-02	Rivet	X	4
53	C238-23	Support (Ref)		
54	C273-1	Roof (Ref)		
NOTES				

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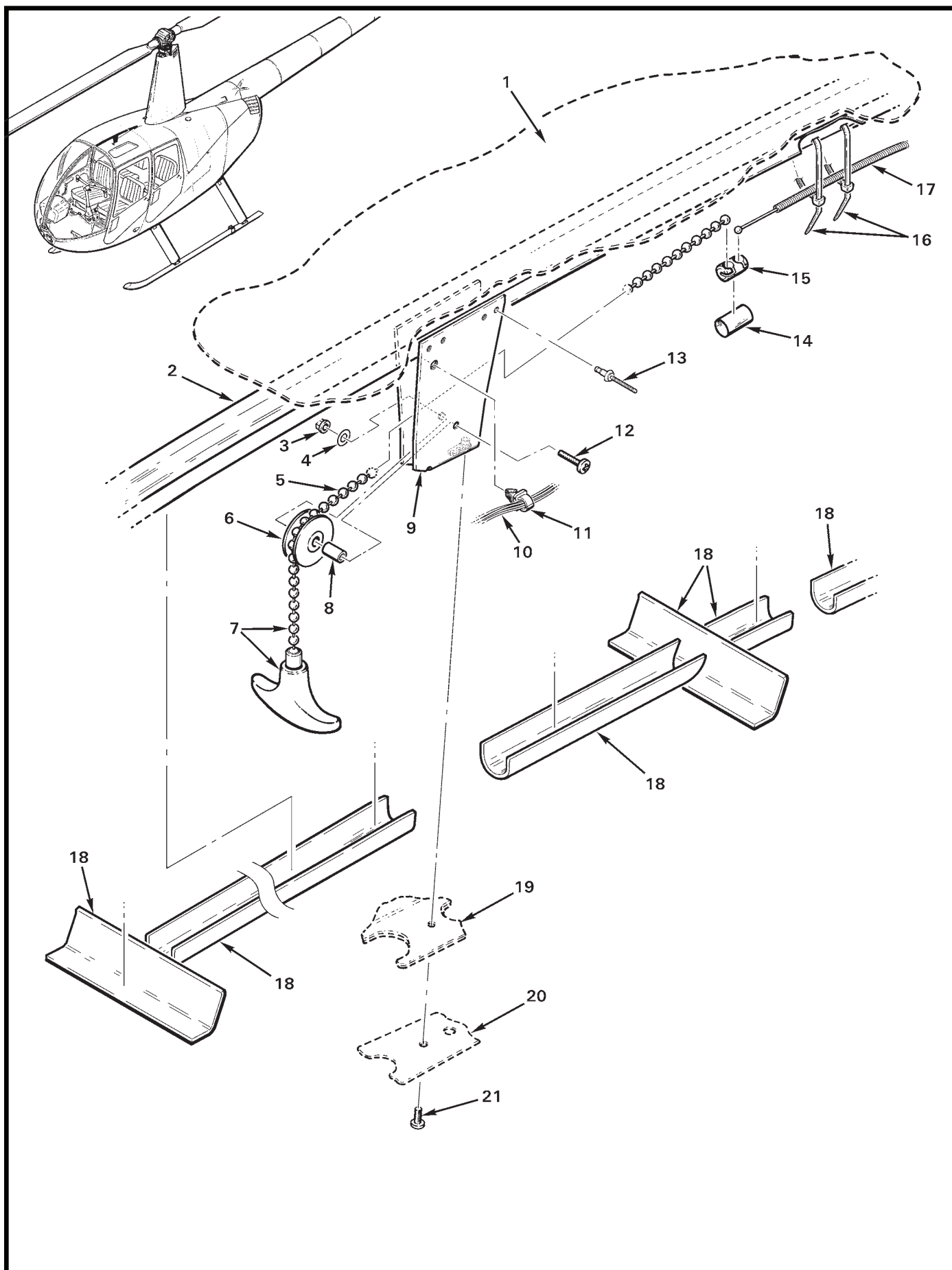


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
		KNOB ASSEMBLY - ROTOR BRAKE*		
63-11-1	C273-1	Roof Panel (Ref)		
2	C238-23	Support - Roof (Ref)		
3	MS21042L08	Nut	X	1
4	NAS1149FN816P	Washer	X	1
5	01960	Bead Chain	X	1
6	BP4100	Pulley	X	1
7	B033-6	Knob Assembly - Rotor Brake (Incl item 5)	X	1
8	A130-34	Spacer	X	1
9	D122-1	Bracket Assembly (includes nutplate)	X	1
10	—	Wire Harness (Ref)		
11	220-242400-09	Clip	X	1
12	MS27039C0812	Screw	X	1
13	NAS9301B-4-02	Rivet	X	8
14	B158-8	Heat Shrink	X	A/R
15	B125-2	Connector	X	1
16	MS3367-5-9	Ty-Rap	X	2
17	D126-1	Cable Assembly (Ref, see Figure 63-7)		
18	5541K11	Pipe Wrap (self-adhesive)	X	A/R
19	D796-1	Duct Assembly (Ref, see Figure 21-31)		
20	D122-6	Plate (Ref, see Figure 21-33)		
21	MS27039C0806	Screw (Ref, see Figure 21-33)		
NOTES * Air-conditioned ships.				

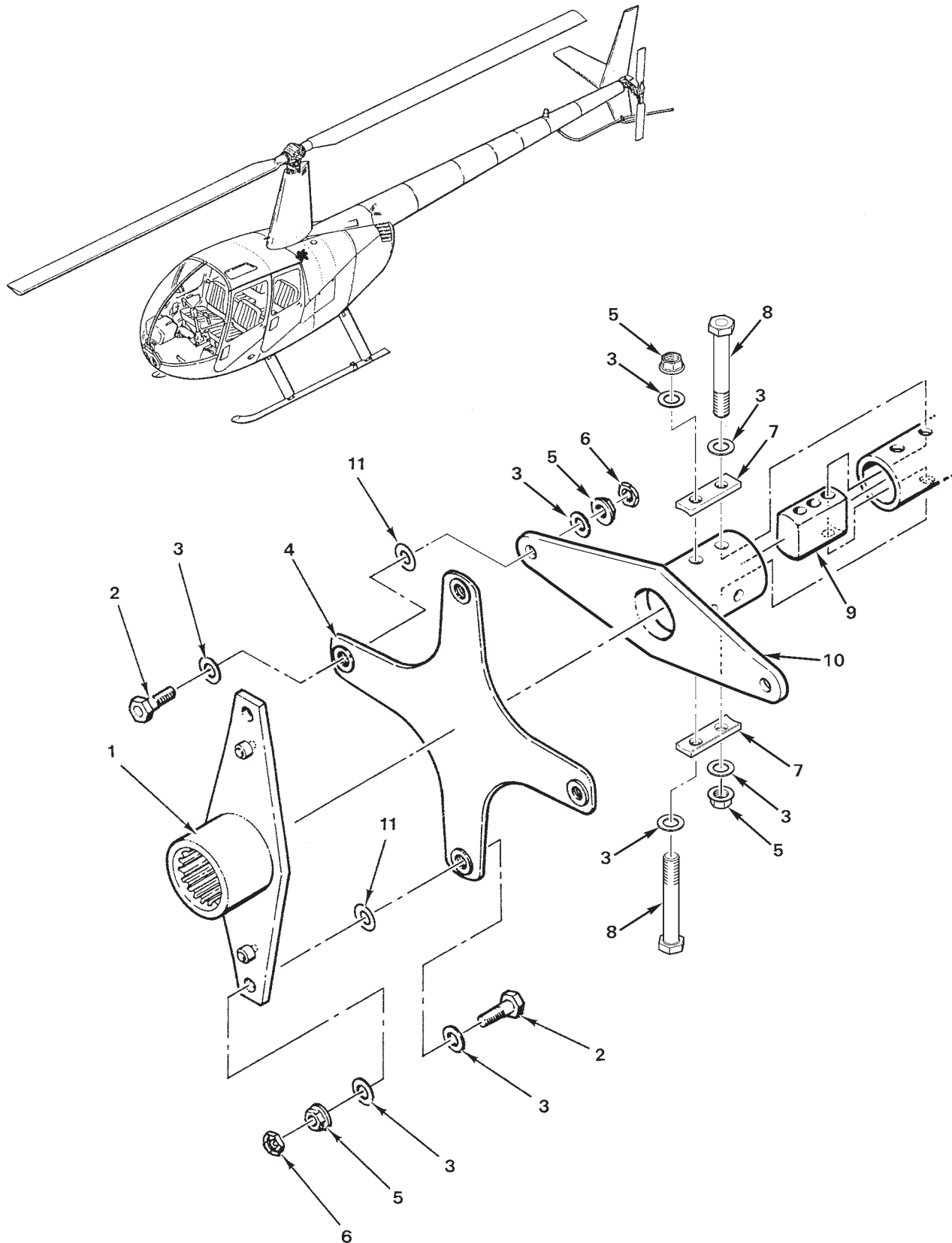


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
		FORWARD FLEX PLATE INSTALLATION		
63-13-1	C908-1	Yoke (Ref)		
2	NAS6606-5	Bolt	X	4
3	NAS1149F0632P	Washer	X	12
4	C947-1	Flex Plate Assembly	X	1
5	D210-6	Nut	X	6
6	B330-19	Palnut	X	4
7	C191-1	Block	X	1
8	NAS6606-31	Bolt	X	2
9	C553-1	Block	X	1
10	C907-1	Yoke (shaft length – 2.76 in.)	X	1
	C907-2	Yoke (shaft length – 2.90 in.)	X	1
11	NAS1149F0632P*	Washer	X	A/R
NOTES * Determine shim washers required for sheave alignment per R44 Maintenance Manual Section 7.230.				

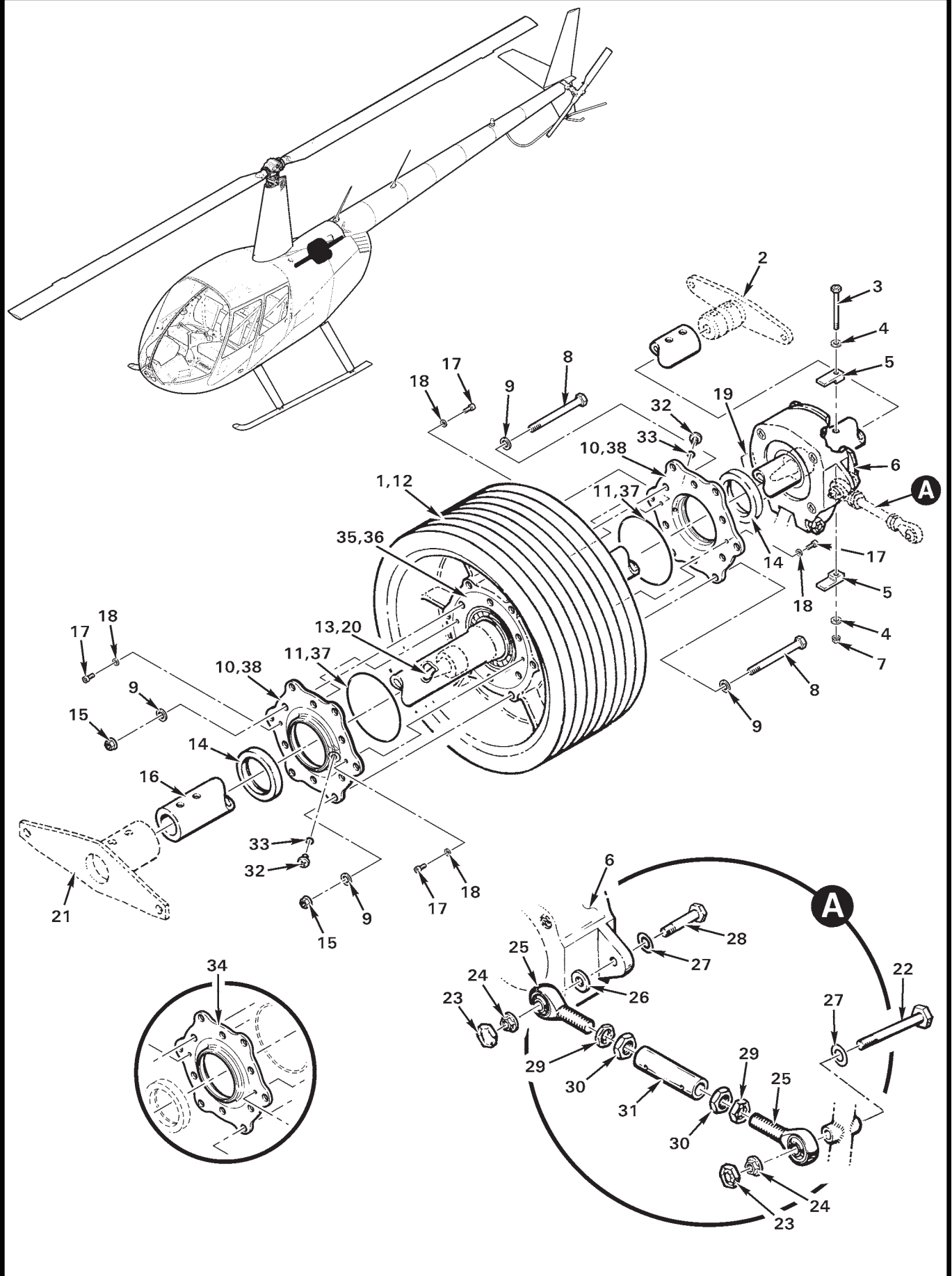


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
		CLUTCH ASSEMBLY		
63-15-1	C018-2*	Clutch Assembly (Anodized sheave. Includes items 3 thru 11, 12 [C170-2], 13 thru 20, 32, 33 and C188-3 sprag clutch.)	X	1
	C018-2R	C018-2 Clutch Assembly (overhaul exchange; includes new C166-4 shaft)	X	1
	C018-3*	Clutch Assembly (Metalized sheave. Includes items 3 thru 11, 12 [C170-3], 13 thru 20, 32, 33 and C188-3 sprag clutch.)	X	1
	C018-3R	C018-3 Clutch Assembly (overhaul exchange; includes new C166-4 shaft)	X	1
2	C195	Yoke (Ref, see Figure 65-1)		
3	NAS6603-28	Bolt	X	1
4	NAS1149F0332P	Washer	X	2
5	C191-5	Stop	X	2
6	C184-2	Bearing Assembly – Upper	X	1
	C184-2R	C184-2 Bearing Assembly – Upper (overhaul exchange)	X	1
7	MS21042L3	Nut	X	1
8	NAS6605-42	Bolt	X	12
9	NAS1149F0532P	Washer	X	24
10	C168-5	Retainer (supersedes item 34; includes items 32 and 33)	X	2
11	A215-152	O-Ring (used <u>only</u> with item 35)	X	2
12	C170-2	Sheave – Upper (anodized)	O	1
	C170-3	Sheave – Upper (metalized)	O	1
13	C967-1	Plug	O	2
14	C966-5	Seal	X	2
15	MS21042L5	Nut	X	12
16	C166-4	Shaft – Clutch (Ref)	O	1
17	NAS1352-08LE6P	Screw	X	4
18	NAS620-8	Washer	X	4
19	110-3	Telatemp (temperature recorder 180°-230°F)	X	1
20	A257-4	Oil – Type “A” ATF (Dexron III)	X	A/R
21	C907	Yoke (Ref, see Figure 63-13)		
22	NAS6604-21	Bolt	X	1
23	B330-13	Palnut	X	2
24	D210-4	Nut	X	2
NOTES * Originally installed on ship S/N 1902 and subsequent, and S/N 12323 and subsequent. Refer to Service Bulletin SB-79 to retrofit earlier clutch assemblies with serviceable retainers.				
Continues				

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
CLUTCH ASSEMBLY (Cont'd)				
63-15-25	A101-4	Rod End	X	2
26	MS20002-4	Washer	X	1
27	NAS1149F0432P	Washer	X	2
28	NAS6604-11	Bolt	X	1
29	B330-16	Palnut	X	2
30	AN316-5R	Nut	X	2
31	A344-2	Strut	X	1
32	B289-3	Screw (Incl item 33)	X	2
33	—	O-Ring	O	2
34	C168-4	Retainer (Ref; no longer available)		
35	C167-5	Housing (Ref)		
36	C167-3	Housing (Ref)		
37	A215-042	O-Ring (used <u>only</u> with item 36)	X	2
* * *				
38	KI-202	Retainer Upgrade Kit (Ref; includes items 10, 14, 32, and 37)	X	1
NOTES				

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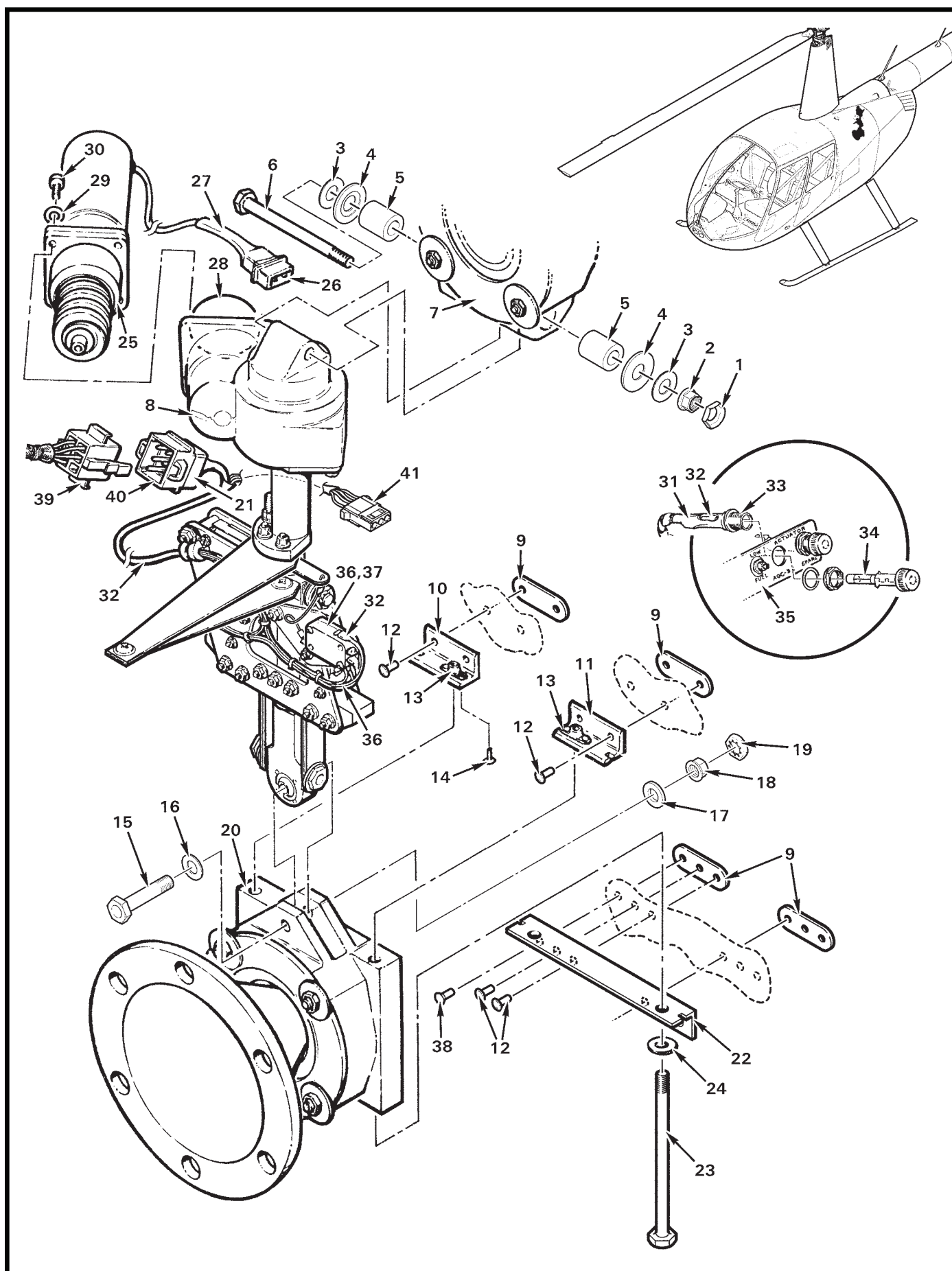


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
		BELT TENSION ACTUATOR INSTALLATION		
63-19-1	B330-16	Palnut	X	1
2	D210-5	Nut	X	1
3	NAS1149F0532P	Washer	X	2
4	D214-2	Washer (install with counterbore toward journal)	X	2
5	C105-2	Journal	X	2
6	NAS6605-38	Bolt	X	1
7	C184-2	Upper Bearing Assembly (Ref, see Figure 63-15)	X	1
8	C051-1	Actuator Assembly (14-volt ships; includes items 26 [D276-1], 29 thru 32, and 38)	X	1
	C051-1R	C051-1 Actuator Assembly (overhaul exchange)	X	1
	C051-2	Actuator Assembly (28-volt ships; includes items 26 [D276-3], 29 thru 32, and 38)	X	1
	C051-1R	C051-2 Actuator Assembly (overhaul exchange)	X	1
9	A185-3	Plate	X	4
10	A185-2	Bracket	X	1
11	A185-5	Bracket	X	1
12	MS20470AD4	Rivet	X	8
13	MS21075L3E	Nutplate	X	2
14	MS20426AD3	Rivet	X	4
15	NAS6604-13	Bolt	X	1
16	NAS1149F0432P	Washer	X	1
17	NAS1149F0463P	Washer	X	1
18	D210-4	Nut	X	1
19	B330-13	Palnut	X	1
20	C007-5	Shaft and Bearing Assembly (Incl C181-3 lower bearing)	X	1
	C007-5R	C007-5 Shaft and Bearing Assembly (overhaul exchange)	X	1
	C181-3	Bearing (Ref)	O	1
21	B158-12	Heat Shrink (around item 40)	X	A/R
22	A185-1	Bracket	X	1
23	AN3-41A	Bolt	X	2
24	NAS620-10L	Washer	X	2
25	D276-1	Gearmotor Assembly (14-volt ships; includes items 27 and 28)	X	1
	D276-3	Gearmotor Assembly (28-volt ships; includes items 27 and 28)	X	1
NOTES				
Continues				

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
		BELT TENSION ACTUATOR INSTALLATION (Cont'd)		
63-19-26	B263-12	Housing (14-volt ships)	X	1
	B263-14	Housing (28-volt ships)	X	1
	B263-1	Pin	X	2
27	B158-8	Heat Shrink (14-volt ships)	X	1
28	C215-029	O-Ring (lubricate with A257-1 grease)	X	4
29	NAS1149F0332P	Washer	X	4
30	MS27039C1-09	Screw	X	4
31	B158-6	Heat Shrink (around fuse holder)	X	A/R
32	B158-3	Heat Shrink (around wires, terminals)	X	A/R
33	D262-11	Fuse Holder	X	1
34	AGC-3	Fuse (3 amp, for 14-volt ships)	X	1
	AGC-1.5	Fuse (1.5 amp, for 28-volt ships)	X	1
35	A938-3	Mount – Test Switches (Ref; 14 volt)		
	A938-5	Mount – Test Switches Ref; 28 volt)		
36	C053-2	Switches Assembly (Incl items 34, 39 [4], 42, and 54)	X	1
37	V3-1001	Switch (use B158-2 or -3 [item 34] around terminals)	X	4
	B158-2	Heat Shrink	X	A/R
38	MS20426AD4	Rivet (at outboard positions)	X	2
39	B263-19*	Housing	X	1
	B263-4	Socket	X	5
40	B263-18*	Housing	X	1
	B263-1	Pin	X	1
	B263-3	Pin	X	4
	A15A	Diode (between pins 3 and 5)	X	4
41	B263-15	Housing	X	1
	B263-2	Socket	X	2
	B263-4	Socket	X	12

NOTES * See Figure 96-55.

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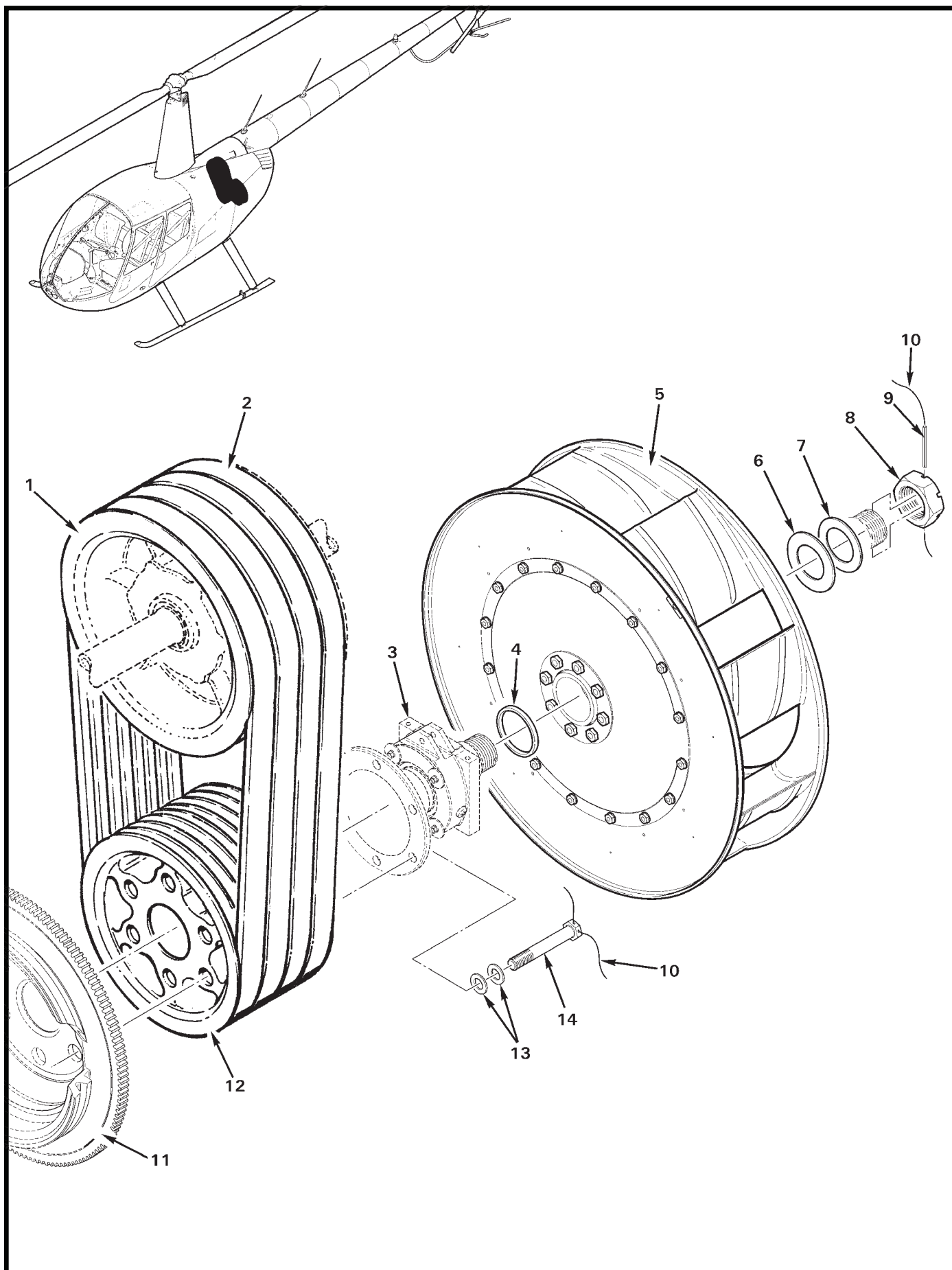


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
		COOLING FAN, DRIVE BELTS AND LOWER SHEAVE		
63-23-1	C018	Clutch Assembly (Ref, see Figure 63-15)		
2	A190-3	V-Belts (matched set of four banded belts)	X	1
3	C007	Shaft and Bearing Assembly (Ref, see Figure 63-19)		
4	C192-1	Spacer	X	1
5	D174-2	Fanwheel Assembly	X	1
	D174-2R	D174-2 Fanwheel Assembly (overhaul exchange)	X	1
6	MS20002-24	Washer (against hub)	X	1
7	NAS1149F2432P	Washer (as required to install item 9)	X	A/R
8	C182-1	Nut.	X	1
9	B350-3	Spring Pin	X	1
10	MS20995C41	0.041 in. dia. Safety Wire	X	A/R
11	31M22972*	Engine Starter Ring Gear Assembly (supersedes LW-16471* and 31M21951* starter ring gear assembly used on O-540 engine)	X	1
12	C493-1	Sheave – Lower	X	1
13	NAS1149F0863P	Washer	X	12
14	NAS6608H42	Bolt	X	6
NOTES * Lycoming part no.				

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