

CHAPTER 63

MAIN ROTOR DRIVE SYSTEM

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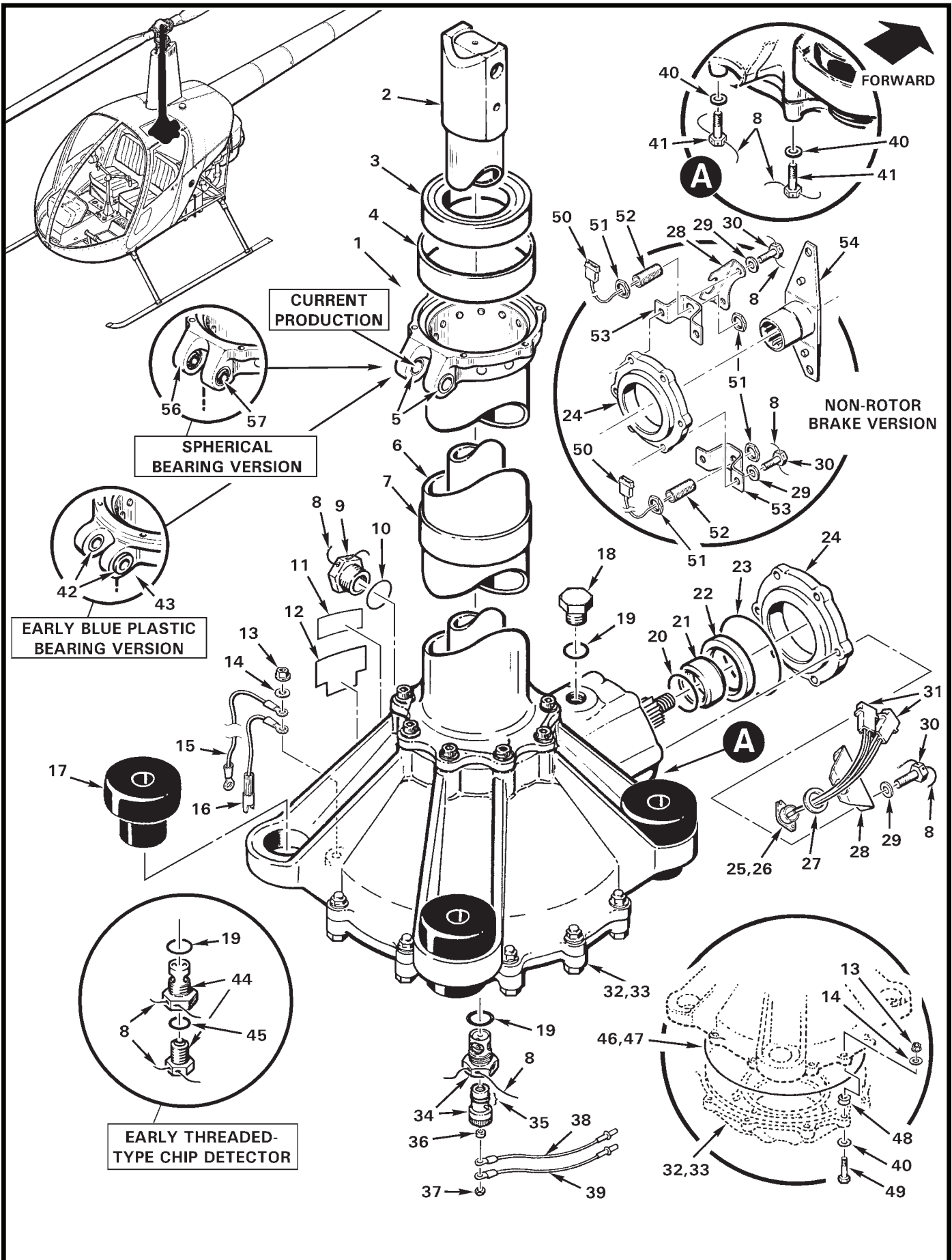


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
		MAIN ROTOR GEARBOX AND MAST ASSEMBLY		
63-1-1	A006-1 *	Main Rotor Gearbox and Mast Assembly (Ref, no longer available. Upgrade to A006-6 or A006-6R requires R8245 kit.)		
	A006-6	Main Rotor Gearbox and Mast Assembly (Ship S/N 3540 and subsequent. Includes items 2 thru 4, 6 thru 25, 28 thru 30, 32, 34, 36, 38 thru 41, 46, 48, 49, 55 and 65. Does not include rotor brake, senders or yoke assemblies.)	X	1
	A006-6R	Main Rotor Gearbox and Mast Assembly (Overhaul exchange. Includes items 2 thru 4, 6, 9 thru 25, 28 thru 30, 32, 34, 38, 40, 41, 46, 48, 49, 55 and 65.)	X	1
	R8245	A283-5 Mast Tube Upgrade Kit (Ref, see also Figure 67-29) . .	X	1
2	A251-1	Shaft – Main Rotor	O	1
3	A647-1	Bearing – Mast Tube	O	1
4	A280-1	Sleeve	O	1
5	C648-2	Bearing	X	2
6	A283-5	Mast Assembly (Incl item 5)	O	1
7	B407-1	Tape	X	1
8	MS20995C32	0.032-in. dia Safety Wire (see R22 SL-61)	X	A/R
9	B563-2	Sight Gage	X	1
10	A215-020	O-Ring	X	1
11	F110-4	Telatemp (temperature recorder, 220° – 270°F)	X	1
12	A654-56	Decal	X	1
13	D210-4	Nut	X	8
14	A141-11	Washer	X	8
15	B049-4	Harness Assembly – Ground	X	1
16	B049-3**	Harness Assembly – Ground Test	X	1
17	A653-1	Mount	X	4
18	A880-1208***	Filler Plug (safety wire not required)	X	1
19	A215-017	O-Ring	X	2
20	A215-024	O-Ring (install using item 58)	X	1
21	A266-1	Spacer	X	1
22	A966-3	Seal	X	1
23	A215-152	O-Ring (install using item 58)	X	1
24	A270-1	End Cover	X	1
25	A058-2	Over-Temp Switch Assembly (Includes items 26, 27, 31, and wires)	X	1
26	A688-1	Over-Temp Switch (switch only)	X	1

NOTES * A006-1 gearboxes returned to RHC will be upgraded to A006-6R main rotor gearbox and mast assembly.
 ** Ship S/N 0501 and subsequent.
 *** See *Introduction* for allowable part numbers.

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
		MAIN ROTOR GEARBOX AND MAST ASSEMBLY (Cont'd)		
63-1-27	A141-21	Washer	X	1
28	A244-1	Bracket	X	1
29	NAS1149FN432P	Washer	X	6
30	MS20074-04-06	Bolt	X	6
31	B263-12	Housing – Pin	X	2
	B263-1	Pin ([2] per housing)	X	4
	B158-3	Heat Shrink (for each connector)	X	A/R
32	A263-2	Sump (requires item 46)	O	1
33	A263-1	Sump (requires item 47)	O	1
34	B566-1	Drain Plug and Chip Detector (“Quick-release”, includes items 35 and 37. Requires MT054-1 tool to drain gearbox. See also Figure 99-35.)	X	1
35	O12C	O-Ring	X	2
36	A130-14	Spacer	X	1
37	—	Nut (see item 34)	O	1
38	B049-2	Harness Assembly – Chip Detector (to warning light)	X	1
39	B049-2*	Harness Assembly – Chip Detector (to test switch)	X	1
40	NAS1149F0463P	Washer	X	10
41	MS20074-04-10	Bolt (drilled head, located under input shaft)	X	2
42	A139-1	Bearing – Plastic (use only with item 43)	X	2
43	A283-2	Mast Assembly (Ref, superseded by item 6)		
44	A7260	Chip Detector (Ref; no longer available. Requires MT053-1 tool to drain gearbox. See Figure 99-35.)		
45	AS111	O-Ring (used only with item 44)	X	1
46	A215-373	O-Ring (use only with item 32, install using item 58)	X	1
47	A215-271	O-Ring (use only with item 33, install using item 58)	X	1
48	—	Shims (Ref, adjusted at RHC as required for proper backlash)		
49	AN4-13A	Bolt	X	8
50	B263-14	Housing	X	1
	B263-1	Pin	X	3
51	—	Nut (see item 52)	O	2
52	B320-2	Hall Effect Sender Assembly (Includes items 50 and 51, wires and heat shrink.)	X	2
53	A284-1	Bracket	X	2
54	A006-4	Yoke Assembly (Ref, no longer available. Order item 59 for replacement.)		

NOTES * Ship S/N 0457 and subsequent.

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
		MAIN ROTOR GEARBOX AND MAST ASSEMBLY (Cont'd)		
63-1-55	A257-2*	Oil – Gear (1 gallon)	X	A/R
	A257-2LT*	Oil – Gear (1 liter)	X	A/R
	A257-22*	Oil – Gear (1 gallon)	X	A/R
	A257-22QT*	Oil – Gear (1 quart)	X	A/R
56	A283-4	Mast Assembly (Ref, superseded by item 6)		
57	B115-1	Bearing – Spherical	X	2
58	A257-19	Lubricant (5.3-oz tube)	X	A/R
59	KI-60B	A908-4 Yoke Conversion Kit (For non-rotor brake equipped R22s. Order items 60 thru 64.)	O	1
60	A908-4**	Yoke Assembly (includes magnets)	X	1
61	B252-6**	Bracket	X	1
62	A130-43**	Spacer	X	2
63	MS20074-04-15**	Bolt	X	2
64	MS24665-210**	Cotter Pin	X	1
65	A146-1	Pinion – Main Rotor Gearbox (not shown)	O	1

NOTES * Use correct gearbox oil per R22 MM § 22-10 Part C.
 ** Not shown; see Figure 63-7.

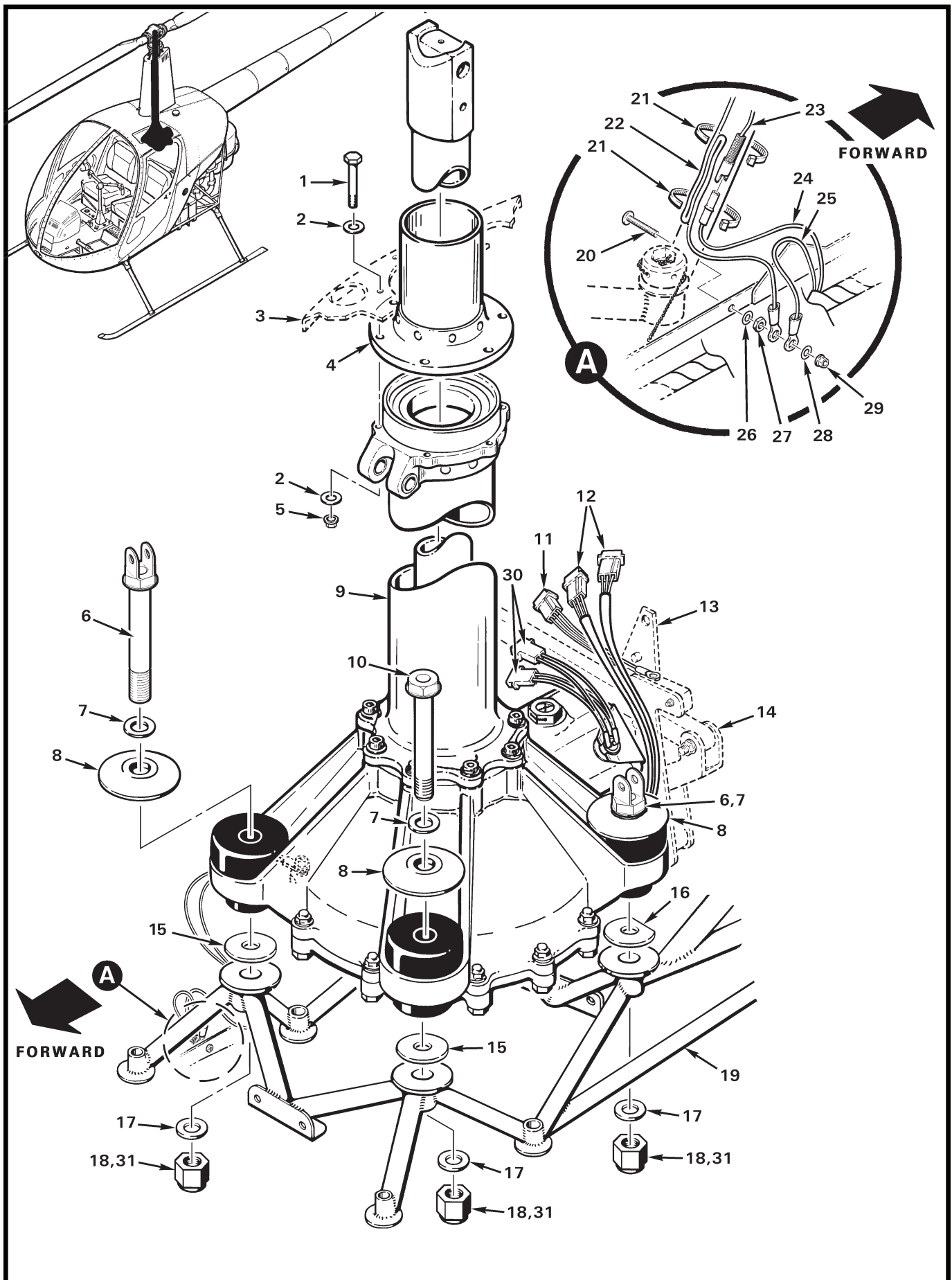


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
MAIN ROTOR GEARBOX INSTALLATION				
63-5-1	AN3-16A	Bolt	X	6
2	NAS1149F0332P	Washer	X	12
3	A261	Mast Fairing (Ref)		
4	B491-1	Tube Assembly – Slider (Ref)		
5	D210-3	Nut	X	6
6	A650-3*	Fitting	X	3
7	NAS1149F1063P	Washer (or NAS1149F1032P [optional] for correct thread engagement)	X	4
8	A267-1	Washer	X	4
9	A006	Main Rotor Gearbox and Mast Assembly (Ref, see Figure 63-1)		
10	AN10-40A	Bolt (forward left mount)	X	1
11	B049-8**	Harness Assembly (Ref)		
12	B320-2**	Tach Sender Assembly (Ref)		
13	A908-4**	Yoke Assembly (Ref)		
14	B033**	Rotor Brake (Ref)		
15	A796-1	Shim (0.020-inch thick, 2 forward mounts)	X	A/R
16	A796-2	Shim (0.020-inch thick, 2 aft mounts)	X	A/R
17	A141-21	Washer	X	4
18	D210-10	Nut (install using item 31)	X	4
19	A020	Frame Assembly – Upper (Ref)		
20	AN515UB8R10	Screw	X	1
21	MS3367-5-9	Ty-Rap	X	2
22	B049-4	Harness Assembly – Ground (wire no. 62)	X	1
23	B049-3	Harness Assembly – Ground Test (wire no. 501***)	X	1
24	—	Wire (Ref; no. 501, from test switch)		
25	—	Wire – Ground (Ref; no. 59 from fuel quantity sender)		
26	NAS1149DN832H	Washer	X	1
27	B301-8	Nut (brass)	X	1
28	NAS1149FN816P	Washer	X	1
29	MS21042L08	Nut	X	1
30	A058-2	Over-Temp Switch Assembly (Ref, see Figure 63-1)		
31	A257-9	Anti-Seize	X	A/R

NOTES * When replacing upper frame, order new A650-3 fittings if old fitting shank is less than 4.460 inches long.
 ** See also Figures 63-1 and 63-7.
 *** Ship S/N 0501 and subsequent.

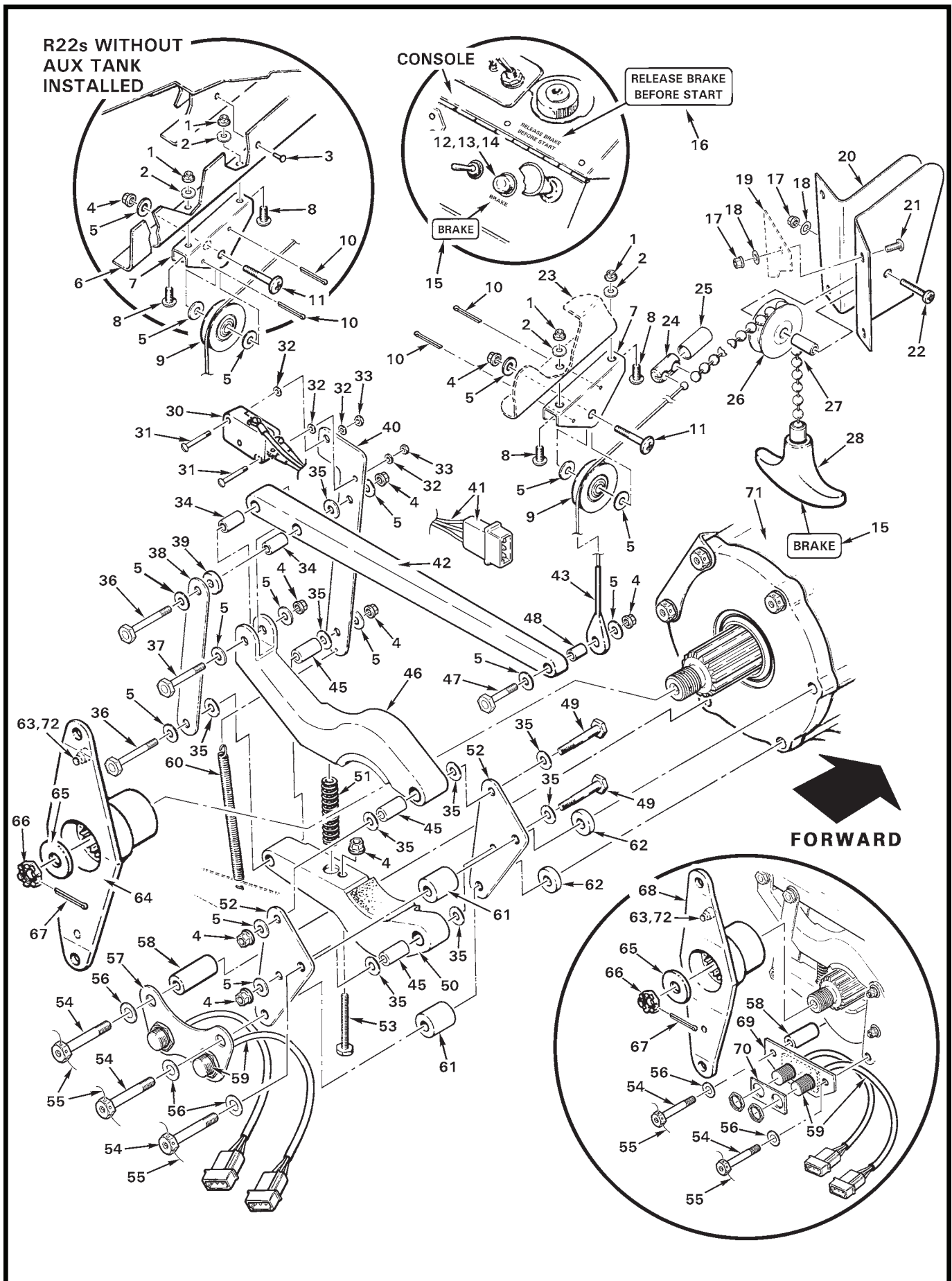


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
ROTOR BRAKE ASSEMBLY				
63-7-1	MS21042L06	Nut	X	2
2	NAS620-6	Washer	X	2
3	MS20470AD3	Rivet (Ref)		
4	D210-3	Nut	X	7
5	NAS1149F0332P	Washer	X	13
6	B156-1	Angle – Rotor Brake (required on ships without aux fuel tank)	X	1
7	B157-1	Mount (fuel tanks without bladders)	X	1
	B157-2	Mount (fuel tanks with bladder; not shown)	X	1
8	MS35206-228	Screw	X	2
9	MS24566-1B	Pulley	X	1
10	MS24665-134	Cotter Pin	X	2
11	MS27039C1-12	Screw	X	1
12	B049-5	Light Assembly (includes items 13, 14, and wiring)	X	1
13	B198-1	Warning Light	X	1
14	B196-1	Bulb	X	1
15	A654-53*	Decal – “Brake”	X	1
16	A654-52*	Decal – “Release Brake Before Start”	X	1
17	MS21042L08	Nut	X	5
18	NAS1149FN816P	Washer	X	5
19	—	Bulkhead – Vertical (Ref)		
20	B118-3	Bracket (fuel tanks without bladders)	X	1
	B118-5	Bracket (fuel tanks with bladder; not shown)	X	1
21	MS27039C0806	Screw	X	4
22	MS27039C0812	Screw	X	1
23	B321-8	Channel (Ref, supplied with aux fuel tank)		
24	B125-2	Connector	X	1
25	B158-6	Heat Shrink	X	A/R
26	BP4100	Pulley	X	1
27	A130-34	Spacer	X	1
28	B033-6	Knob Assembly (includes knob and chain)	X	1
29	B033-5	Rotor Brake Sub-Assembly (Incl items 4, 5 and 30 thru 53) . .	X	1
30	D049-4	Harness Assembly	X	1
31	MS35206-219	Screw	X	2
32	NAS620-4	Washer	X	4

NOTES * If installed.

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
ROTOR BRAKE ASSEMBLY (Cont'd)				
63-7-33	MS21042L04	Nut	X	2
34	A130-40*	Spacer	X	2
35	NAS1149D0316J	Washer	X	9
36	NAS6603-11	Bolt	X	2
37	NAS6603-10	Bolt	X	1
38	B113-1	Link	X	1
39	A141-27	Washer	X	1
40	B113-2	Link	X	1
41	B049-8	Harness Assembly (includes connector)	X	1
42	B112-1	Lever	X	1
43	B126-1	Cable Assembly	X	1
44	A257-1	Grease	X	A/R
45	A130-39*	Spacer	X	3
46	B110-1	Arm Assembly	X	1
47	NAS6603-8	Bolt	X	1
48	A130-4*	Spacer	X	1
49	NAS6603-12	Bolt	X	2
50	B109-1	Arm Assembly	X	1
51	D774-5	Spring	X	1
52	B111-1	Bracket	X	2
53	NAS428-3A-12	Bolt	X	1
54	MS20074-04-15	Bolt	X	3
55	MS20995C32	0.032-inch dia Safety Wire	X	A/R
56	NAS1149F0432P	Washer	X	3
57	B252-6	Bracket (use only with item 64)	X	1
58	A130-43	Spacer	X	1
59	B320-2	Tachometer Sender Assembly	X	2
60	E0240-037-3500S	Spring	X	1
61	A130-41	Spacer	X	2
62	A130-42	Spacer	X	2
63	B570-1	Magnet Assembly (install using item 72, on bottom of magnet housing and threads)	X	2
	102MG11	Magnet (Ref, no longer available; refer to R22 SB-107)		
64	A908-4**	Yoke Assembly (Includes item 63, magnets spaced 4.90 inches apart. Use only with item 57.)	X	1

NOTES * Install using item 44.
 ** If equipped.

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
ROTOR BRAKE ASSEMBLY (Cont'd)				
63-7-65	A141-10	Washer	X	1
66	AN320-8	Nut	X	1
67	MS24665-210	Cotter Pin	X	1
68	A006-5*	Yoke Assembly (Ref; magnets spaced 3.65 inches apart)		
69	B114-1	Bracket (available for spares)	X	2
70	B114-2	Bracket (available for spares)	X	2
71	A006	Main Rotor Gearbox (Ref)		
72	B270-9	Adhesive	X	A/R
* * *				
73	KI-60A	A908-4 Yoke Conversion Kit (For rotor-brake equipped R22s; includes items 57, 64, and 67.)	X	1

NOTES * No longer available. Order item 73 for replacement.

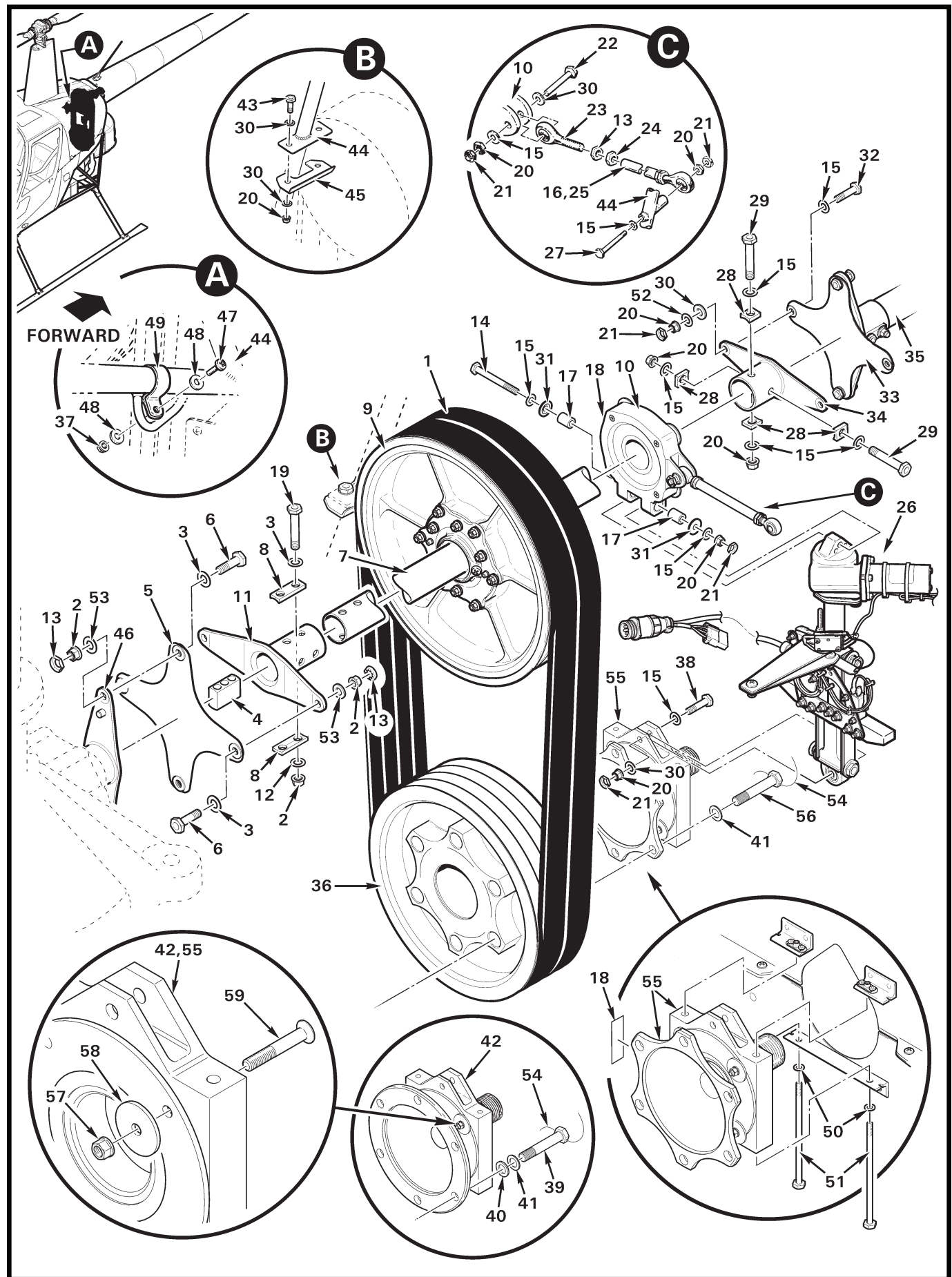


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
DRIVE SYSTEM				
63-11-1	A190-2	V-Belts (matched set of two)	X	1
2	D210-5	Nut	X	6
3	NAS1149F0532P	Washer	X	6
4	A553-1	Block	X	1
5	A947-1	Flex Plate	X	1
6	NAS6605-6	Bolt	X	4
7	A166-1	Shaft – Clutch	O	1
8	A191-1	Block	X	2
9	A018-1	Clutch Assembly (includes items 4, 7, and 10; anodized)	X	1
	A018-2	Clutch Assembly (includes items 4, 7, and 10; metalized) . . .	X	1
10	A184-3*	Bearing Assembly	X	1
11	A907-4	Yoke (replaces A907-1 and -2)	X	A/R
	A907-5	Yoke (replaces A907-3)	X	A/R
12	NAS1149F0563P	Washer	X	2
13	B330-16	Palnut	X	6
14	NAS6604-30	Bolt	X	1
15	NAS1149F0432P	Washer	X	11
16	A007-4	Strut Assembly (Incl items 13, and 23 thru 25)	X	1
17	A105-1	Journal – Bearing (0.58-inch length)	X	2
18	F110-2	Telatemp (temperature recorder, 140° – 190°F)	X	2
19	NAS6605-26	Bolt	X	2
20	D210-4	Nut	X	10
21	B330-13	Palnut	X	6
22	NAS6604-10	Bolt	X	1
23	A101-4	Rod End	X	2
24	AN316-5R	Nut	X	2
25	A344-1	Strut	X	1
26	A051-1	Belt Tension Actuator Assembly (Ref, see Figure 63-19)		
27	NAS6604-27	Bolt	X	1
28	A207-3	Block	X	4
29	NAS6604-21	Bolt	X	2
30	NAS1149F0463P	Washer	X	8
31	D214-1	Washer (counterbore toward journal)	X	2
32	NAS6604-3	Bolt (or NAS6604-4; select bolt length which, after correct torque is applied, exposes 2 to 4 threads beyond nut)	X	2

NOTES * Bearing has modified internal clearance by RHC, do not substitute.

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
DRIVE SYSTEM (Cont'd)				
63-11-33	A947-2	Flex Plate	X	1
34	A195-1	Yoke	X	1
35	B224-1	Tail Rotor Drive Shaft (Ref)		
36	A493-1	Sheave – Lower	X	1
37	D210-3	Nut	X	1
38	NAS6604-12	Bolt	X	1
39	NAS6606H24	Bolt	X	6
40	NAS1149F0663P*	Washer	X	6
41	NAS1149F0632P*	Washer	X	6
42	A007-5	Shaft and Bearing Assembly (includes A181-4 bearing assembly, A642-2 shaft, and item 18)	X	1
	A181-4	Bearing Assembly	O	1
	A642-2	Shaft	O	1
43	NAS6604-2	Bolt	X	2
44	A020	Upper Frame (Ref)		
45	A992-2	Guide – V-Belt	X	1
46	A908-4	Yoke Assembly	X	1
47	MS27039C1-07	Screw	X	1
48	NAS1149F0363P	Washer	X	7
49	AN742D12	Clamp	X	1
50	NAS620-10L	Washer	X	2
51	AN3-41A	Bolt	X	2
52	NAS1149F0432P	Washer (or NAS1149F0463P as required which, after correct torque is applied, exposes 2 to 4 threads beyond nut)	X	4
53	NAS1149F0563P	Washer (or NAS1149F0532P as required which, after correct torque is applied, exposes 2 to 4 threads beyond nut)	X	4
54	MS20995C41	0.041-inch dia Safety Wire	X	A/R
55	A007-6	Shaft and Bearing Assembly (includes A181-4 bearing assembly, A642-3 shaft, and item 18)	X	1
	A181-4	Bearing Assembly	O	1
	A642-3	Shaft	O	1
56	NAS6606H23	Bolt (Items 39 thru 41 securing A007-5 shaft and bearing assembly [item 42] to lower sheave [item 36] may be used to secure A007-6 shaft and bearing assembly [item 55] to lower sheave.)	X	6

NOTES * Position is optional when installed with item 39.

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
DRIVE SYSTEM (Cont'd)				
63-11-57	MS21042L3	Nut	X	4
58	AN970-3	Washer	X	4
59	MS24694-S61	Screw	X	4
* * *				
60	A007-3	Fanshaft and Bearing Assembly (Ref, not shown. No longer available; refer to Figure 71-19.)		
NOTES				

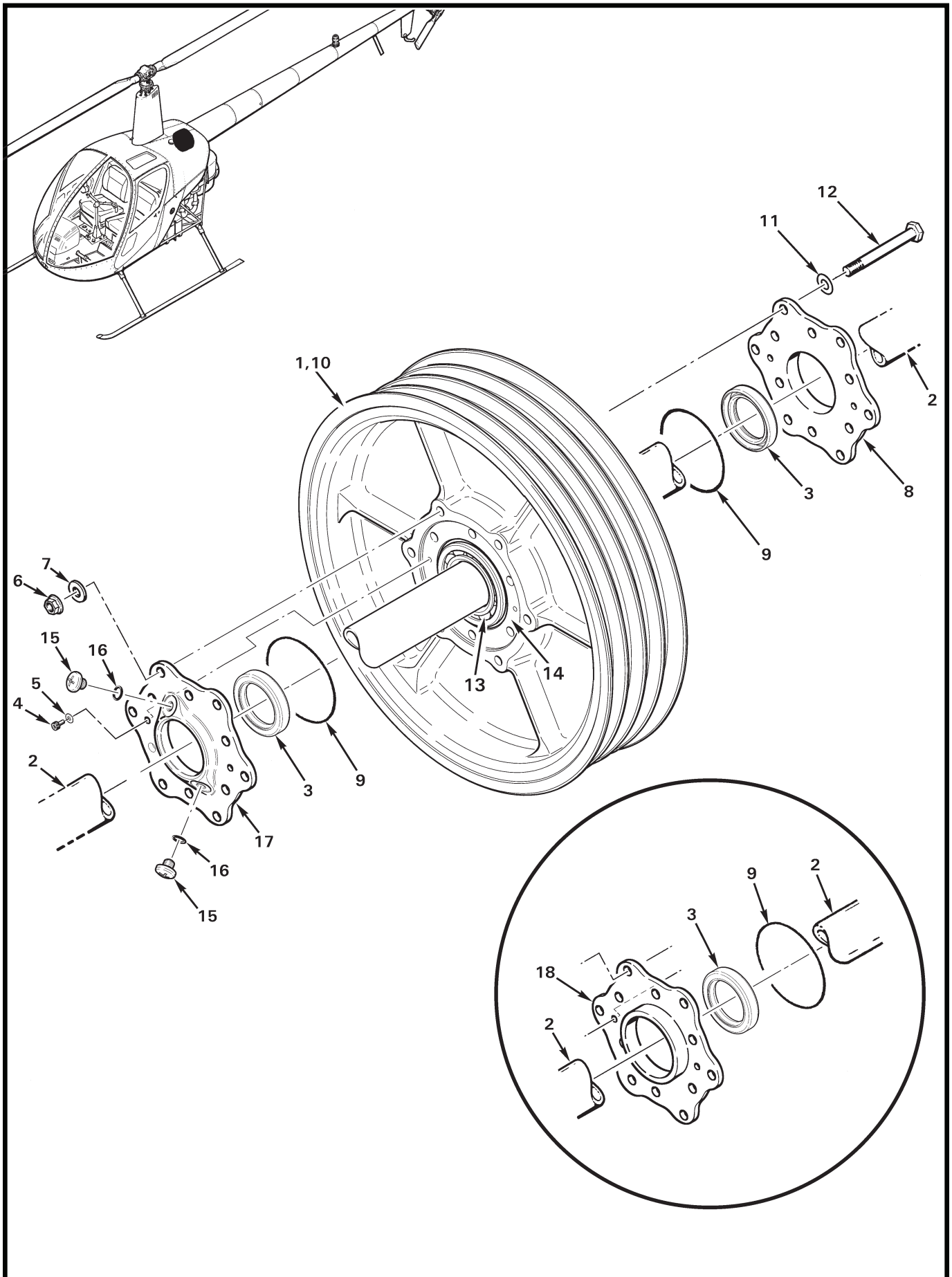


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
CLUTCH ASSEMBLY				
63-15-1	A018-1 *	Clutch Assembly (Ref)		
	A018-2 *	Clutch Assembly (Ref)		
2	A166-1	Shaft – Clutch (Ref)		
3	A966-1	Seal	X	2
4	NAS1352-08LE6P	Screw	X	4
5	NAS620-8	Washer	X	4
6	NAS21042L4	Nut	X	12
7	NAS1149F0463P	Washer	X	12
8	A168-3	Retainer (use only with A167-2 housing [item 14]; A168-3 retainer(s) originally installed on ship S/N 3377 and subsequent)	X	A/R
9	A215-035	O-Ring	X	2
10	A170-1 *	Sheave, Anodized (Ref)		
	A170-2 *	Sheave, Metalized (Ref, steel-sprayed)		
11	NAS1149F0432P	Washer	X	12
12	NAS6604-30	Bolt	X	12
13	A257-4	Lubricant – Oil (sprag and bearing cavity)	X	A/R
14	A167-2	Housing (Ref; use only with item 8 and 18)	O	1
15	B289-3	Screw (Incl item 16)	X	2
16	A215-902	O-ring	X	2
17	A168-4	Retainer (use only with A167-2 housing [item 14]; forward location only)	X	1
18	A168-3	Retainer (use only with A167-2 housing [item 14]; forward location, installed on earlier R22s)	X	1

NOTES * See also Figures 63-11 and 63-17.

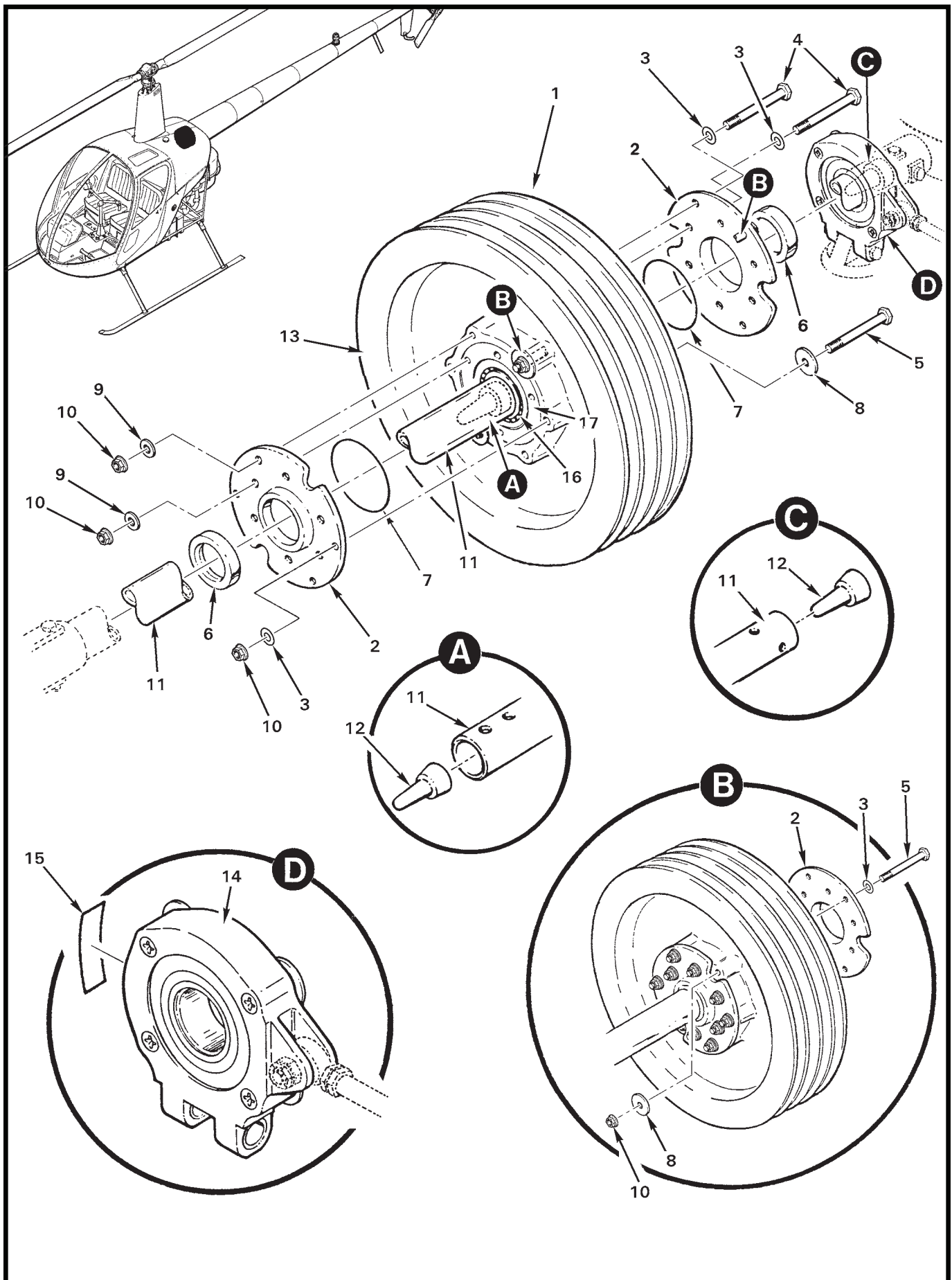


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
CLUTCH ASSEMBLY				
63-17-1	A018-1	Clutch Assembly (Includes items 2 thru 14, 16 and 18; anodized sheave.)	X	1
	A018-2	Clutch Assembly (Includes items 2 thru 14, 16 and 18; metalized sheave.)	X	1
2	A168-2*	Retainer (Ref; use only with item 17. A168-1 and -2 retainers originally installed on ship S/N 3376 and prior.)	O	2
3	NAS1149F0432P	Washer	X	12
4	NAS6604-30	Bolt	X	8
5	NAS6604-28	Bolt	X	4
6	A966-1	Seal	X	2
7	A215-035	O-Ring	X	2
8	A141-14	Washer	X	4
9	NAS1149F0463P	Washer	X	8
10	D210-4	Nut	X	12
11	A166-1	Shaft – Clutch	O	1
12	A967-1	Plug	O	2
13	A170-1	Sheave – Upper (anodized)	O	1
	A170-2	Sheave – Upper (metalized, optional)	O	1
14	A184-3**	Bearing Assembly – Upper (also order item 15)	X	1
15	F110-2	Telatemp (temperature recorder, 140° – 190°F)	X	1
16	A257-4	Lubricant – Oil (sprag and bearing cavity)	X	A/R
17	A167-1*	Housing (Ref; use only with item 2)	O	1
18	A188-2	Sprag clutch (not shown)	O	1

NOTES * No longer available. Contact RHC for replacement.
 ** Bearing has modified internal clearance by RHC. Do not substitute.

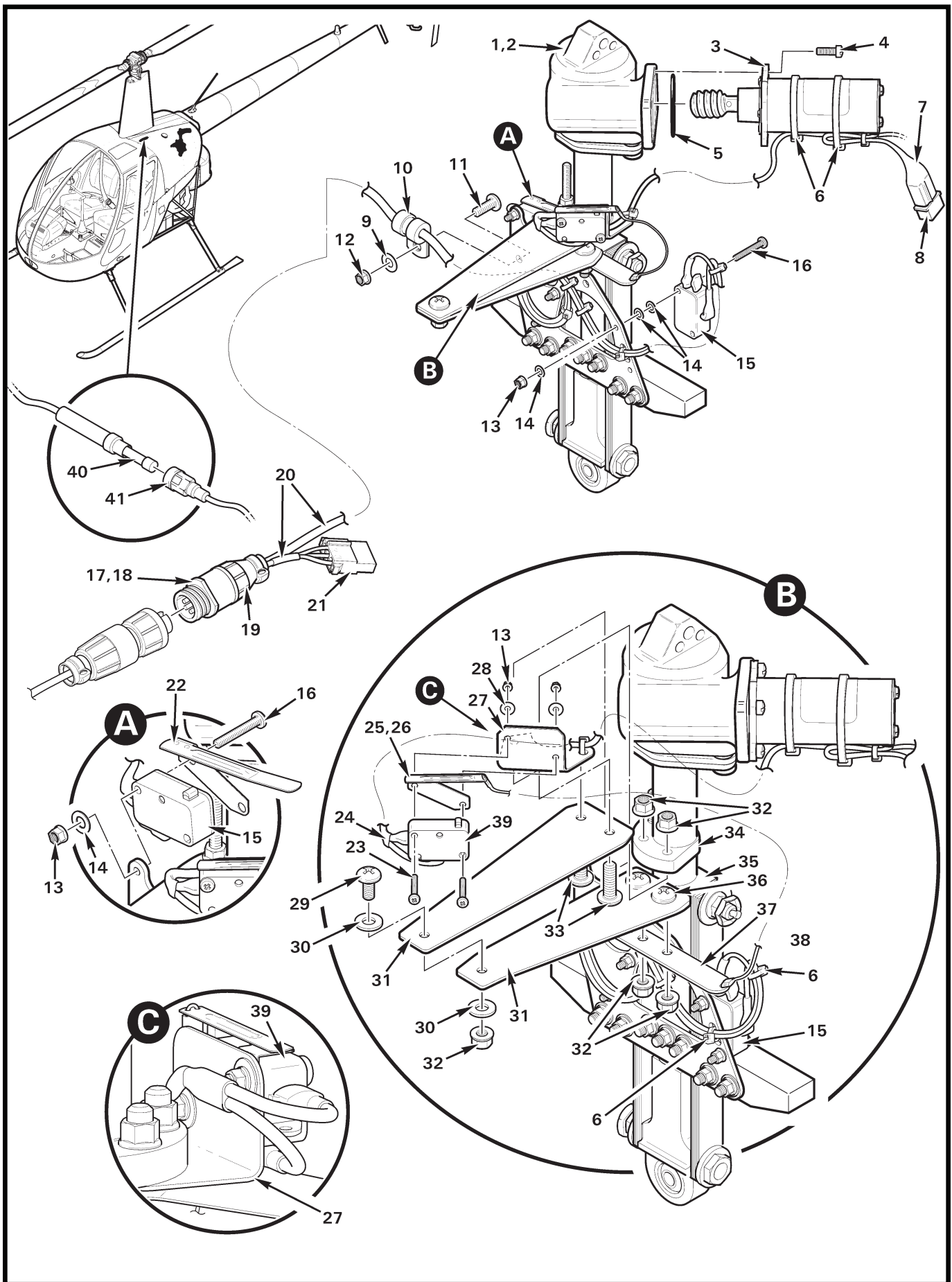


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
BELT TENSION ACTUATOR				
63-19-1	A051-1	Belt Tension Actuator Assembly (Incl items 2 thru 39)	X	1
2	A501-2	Housing	O	1
3	A051-2	Gearmotor Assembly (Incl items 7 and 8)	X	1
4	NAS1352N08-6	Screw	X	4
5	A215-116	O-Ring	X	1
6	MS3367-4-9	Ty-Rap	X	A/R
	MS3367-5-9	Ty-Rap	X	A/R
7	B158-8	Heat Shrink (wraps around connector and wires; 0.5-inch dia, black)	X	A/R
8	B263-12	Housing	X	1
	B263-1	Pin	X	2
9	NAS1149FN816P	Washer	X	1
10	MS21919WDG3	Clamp	X	1
11	MS27039C0807	Screw	X	1
12	MS21042L08	Nut	X	1
13	MS21042L04	Nut	X	8
14	NAS620-4	Washer	X	18
15	V3-1001	Switch	X	3
16	MS35206-219	Screw	X	6
17	A053-5	Switches Assembly (Includes item 15, 18 thru 21, and wires.)	X	1
18	206153-1	Receptacle	X	1
	B264-1	Pin	X	2
	B264-3	Pin	X	2
19	206062-1	Cable Clamp	X	1
20	B158-3	Heat Shrink	X	A/R
21	B263-15	Housing	X	1
	B263-2	Socket	X	2
	B263-4	Socket	X	1
22	JV-72	Actuator	X	1
23	MS35206-218	Screw	X	2
24	B201-1	Switch Assembly (Incl item 39)	X	1
25	A482-1	Switch Actuator Assembly (Incl items 26, 27, 37 and 38)	X	1
26	A482-2	Actuator	O	1
27	A481-2	Bracket – Upper	X	1

NOTES

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
BELT TENSION ACTUATOR (Cont'd)				
63-19-28	NAS1149FN416P	Washer	X	2
29	MS27039C1-06	Screw	X	1
30	NAS1149F0332P	Washer	X	2
31	A510-1	Scissor	X	2
32	D210-3	Nut	X	5
33	MS27039C1-09	Screw	X	2
34	A502-2	Housing	O	1
35	A512-1	Block	O	1
36	MS27039C1-07	Screw	X	2
37	A481-1	Bracket – Lower	O	1
38	A482-3	Cable	O	1
39	V3-1001	Switch	X	1
40	AGC-1.5	Fuse	X	1
41	B304-10	Actuator Fuse Holder (ship S/N 2479 and prior)	X	1

NOTES