

ROBINSON HELICOPTER COMPANY

R22 ILLUSTRATED PARTS CATALOG

RTR 060 VOLUME II

Production Certificate Number 424WE

Type Certificate Number H10WE



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 Serial Number(s): _____
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TECHNICAL PUBLICATIONS
RECOMMENDED CHANGE REPORT

Please direct recommended changes to RHC Technical Publications via the email address listed below, by phone, or by submitting a duplicate of this completed form by fax or mail. Please include or have available the information detailed by this form.

Recommended changes may include but are not limited to: general comments, corrections, omitted information, or clarification of instructions.

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Date: _____
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Chapter: _____
Section: _____
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COMMENTS:

CATALOG FEATURES**INTRODUCTION**

The catalog features:

1. A table of contents located in the front of the catalog.
2. Alphabetical and numerical indexes located in the back of the catalog.

PART DESIGNATION

Robinson parts are designated with a part number prefix "A", "B", "C", etc., followed by three digits and a dash number, such as A101-1. Robinson special tools are designated with a part number prefix "MT". For standard hardware items such as bolts, nuts, screws, etc., "AN", "MS", and "NAS" part numbers are used. When a rivet length is not specified, length must be determined by the installer. In some instances, vendor part numbers are also used.

PARTS AVAILABILITY

"X" indicates part is available as a separate spares item.

"O" indicates part is no longer available , or only available as part of a higher assembly.

CHANGE BARS

Change bars are located on the outside edge of the page, and indicate new or revised data. Change bars between lines indicate data was removed, and parts renumbered as required. Change bars on figure pages indicate changes to the figure somewhere across the page in the area of the change bar. A change bar encompassing the figure title and item 1 indicates the figure number changed. Change bars that are the full length of the page indicate all new data, usually a new figure and parts data.

ABBREVIATIONS

Assy – assembly	max – maximum	RH – right hand
A/R – as required	min – minimum	RHC – Robinson Helicopter Company
A.O.G. – Aircraft On Ground	MM – Maintenance Manual	§ – Section
Cont'd – continued	MR – main rotor	TR – Tail Rotor
Incl – includes	Ref – Part(s) "referenced" for clarity	TRDS – Tail Rotor Drive Shaft
LH – left hand	rev. – Revision	

ORDERING AND SHIPPING

All orders must include instructions for shipping. All parts or components shipped to RHC must include a signed Component Return/Authorization Form. Return shipments must be paid for by the dealer or distributor. NOTE: Handling fees will be applied to all orders received which are under \$1,000.00. Orders shipped on an A.O.G. basis (24 hours domestic, 48 hours foreign) will be assessed additional charges.

WARRANTY

RHC will apply the same 1-year or 1000-hour RHC limited warranty to all parts and components purchased from RHC.

RETURNS

No unused parts may be returned to RHC for credit if the parts show any indication whatsoever of use or damage, or if the cost of the individual part was less than \$25 (U.S.). Parts returned within 30 days of purchase will be assessed a 20% restocking fee. No parts may be returned after 30 days without prior RHC approval. Any parts approved for return after 30 days will be assessed a 50% restocking fee.

CATALOG FEATURES (Cont'd)

REVISIONS

Before using this catalog, be sure it is current. A list of pages is located in Chapter 100, Revision Log, at the back of this catalog. If a new parts catalog is purchased, be sure to complete and mail the Subscription Order and Renewal Form found on page ii of this catalog; this will ensure receipt of revisions for a two-year period. Revision status of Robinson Technical Publications is at www.robinsonheli.com.

RHC reserves the right to cancel, add, or change the parts and assemblies described in this catalog without notice.

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PART INTERCHANGEABILITY

The following parts are interchangeable. Unless noted otherwise, whenever one part is referred to in this manual, its substitute part is also permitted.

<u>PART:</u>	<u>INTERCHANGEABLE WITH:</u>
110-__ Telatemp	F110-__ Telatemp
22K1-048 Cap nut	B340-10 Cap nut
22K1-82 Cap nut	B340-4 Cap nut
354601 Fuse block	D262-1 Fuse block
354602 Fuse block	D262-2 Fuse block
4509 & Q4509 Lamp	B196-26 Lamp
4591 Lamp	B196-27 Lamp
511TS1-3 Switch	B300-4 Switch
94830A030 Nut	21FKF-518 Nut
AN340 Nut	MS35649 Nut per NASM35649 except AN340B8 Nut
AN340B8 Nut	B301-8 Nut
AN345 Nut	MS35650 Nut per NASM35650
AN364 Nut	MS21083 Nut per NASM21083
AN507 Screw	MS24693 Screw per NASM24693
AN509 Screw	MS24694 Screw per NASM24694
AN515 Screw	MS35206 Screw per NASM35206
AN515C Screw	MS51957 Screw
AN515UB8R10 Screw	B567-43 Screw
AN515UB8R12 Screw	B567-44 Screw
AN515UB8R20 Screw	MS35214-47 Screw per NASM35214
AN525 & AN526 Screw	MS27039C Screw per NASM27039, or B526-6 or -8 Screw and B527-08 Washer per R22 SL-65. Except where noted.
AN814 & MS24391 Plug	AS5169 Plug
AN815 & MS24392 Union	AS5174 Union
AN818-__D Nut	AN818-__W Nut
AN819 & MS20819 Sleeve	AS5176 Sleeve
AN822 & MS20822 Elbow	AS5195 Elbow
AN823 & MS20823 Elbow	AS5196 Elbow
AN825 & MS20825 Tee	AS5197 Tee
AN826 & MS20826 Tee	AS5198 Tee
AN894 & MS24398 Bushing	AS5173 Bushing
AN900 Gasket	MS35769 Gasket per AS35769
AN924 & MS24400 Nut	AS5178 Nut
AN931 Grommet	MS35489 Grommet
AN935 Lockwasher	B332-__ Lockwasher, dash number per MS35338
AN936 Lockwasher	MS35335 Lockwasher
AN960-4L Washer	NAS1149FN416P Washer
AN960-4 Washer	NAS1149FN432P Washer
AN960-6L Washer	NAS1149FN616P Washer
AN960-6 Washer	NAS1149FN632P Washer
AN960-8L Washer	NAS1149FN816P Washer
AN960-8 Washer	NAS1149FN832P Washer
AN960-10L Washer	NAS1149F0332P Washer
AN960-10 Washer	NAS1149F0363P Washer

PART INTERCHANGEABILITY (continued)

<u>PART:</u>	<u>INTERCHANGEABLE WITH:</u>
AN960-416L Washer	NAS1149F0432P Washer
AN960-416 Washer	NAS1149F0463P Washer
AN960-516L Washer	NAS1149F0532P Washer
AN960-516 Washer	NAS1149F0563P Washer
AN960-616L Washer	NAS1149F0632P Washer
AN960-616 Washer	NAS1149F0663P Washer
AN960-816L Washer	NAS1149F0832P Washer
AN960-816 Washer	NAS1149F0863P Washer
AN960-1016L Washer	NAS1149F1032P Washer
AN960-1016 Washer	NAS1149F1063P Washer
AN960PD8L Washer	NAS1149DN816J Washer
AN960PD416L Washer	NAS1149D0416J Washer
AN960PD516L Washer	NAS1149D0516J Washer
AN960PD616L Washer	NAS1149D0616J Washer
AVDEL 16__ Rivet	B204-__ Rivet
MS26574-__ Circuit breaker	B297-__ Circuit breaker, except B297-25 and B297-120
MS3320-20 Circuit breaker	B297-120 Circuit breaker
LW-18959-150-25 Clamp	B444-1 Clamp
LW-18959-163-25 Clamp	B444-2 Clamp
LW-18959-175-25 Clamp	B444-3 Clamp
MS20604ML4W1 Rivet	MS20604M4W1 Rivet per NASM20604
MS21042L3 thru L6 Nut	D210-3 thru -6 Nut*
MS21209__ Insert	MS21209__ L or NAS1130__ Insert
MS21919__ Clamp	AS21919__ Clamp
MS24665 CAD plated steel cotter pin	MS24665 CRES cotter pin per NASM24665
MS27039C080__ Screw	B526-__ screw and B527-08 washer (see R22 SL-65)
MS27151-__ Palnut	B330-__ Palnut
NAS1067 Nutplate	MS21086 Nutplate per NASM21086
NAS1068A__ Nutplate	MS21075L__ E Nutplate per NASM21075
NAS1291-04 thru -08 Nut	MS21042 Nut per NASM21042
NAS1291-3 thru -10 Nut	D210-3 thru -10 Nut*
NAS1303 thru NAS1320 Bolt, except 1307 Bolt	NAS6603 thru NAS6620** Bolt, except 6607 Bolt
NAS1919B0__ S0__ Rivet	NAS9301B-__ 0__ Rivet
NAS1921B0__ S0__ Rivet	NAS9302B-__ 0__ Rivet
NAS428-__ -__ Bolt	NAS428-__ A__ Bolt
NAS487 Instrument nut	MS33737 Instrument nut per NASM33737
NAS679A__ Nut	NAS1291-__ Nut
NAS679C__ M Nut	NAS1291C__ M Nut
NAS696 Nutplate	MS21071 Nutplate per NASM21071
NAS697 Nutplate	MS21069 & MS21070 Nutplate per NASM21069 & NASM21070
NAS698 Nutplate	MS21073 Nutplate per NASM21073

* One-way interchangeability, only D210 nut shall be used for listed sizes.

** The following bolts must be NAS1300 series only: NAS1304-17 and NAS1305-35.

**ROBINSON HELICOPTER COMPANY, INC.
LIMITED AIRCRAFT WARRANTY**

Effective R22 S/N 3318 & on; R44 S/N 1202 & on

Robinson Helicopter Company, Inc. (hereafter referred to as RHC) warrants each new helicopter to be free from defects in material and workmanship appearing within two years from the date of delivery from the RHC factory or during the first one thousand (1000) hours of operation, whichever event occurs first; provided, the aircraft has been subjected to normal use and service. This Warranty is limited to repair or replacement on an exchange basis, as selected by RHC, of any part, which upon examination by RHC is deemed to have been defective when the aircraft left the factory. A new warranty period is not established for parts replaced under the terms of this Warranty. Such replacement parts are warranted only for the remainder of the original warranty period. This Warranty shall not apply to any helicopter or part which has been repaired or altered outside the factory, and which, in RHC's judgment, has affected the performance or reliability of the helicopter or part. This Warranty shall not apply to any helicopter or part which has been subject to corrosion, misuse, negligence or accident, nor to any parts normally replaced during routine maintenance, such as, air cleaners, skid shoes, rod end or spherical bearings, light bulbs, etc. This Warranty shall not apply to any helicopter which has been crated for shipping unless such crating is performed by RHC. RHC is not responsible for the cost of shipping parts under the terms of this Warranty. However, RHC will credit the RHC Dealership, which sold and delivered the new helicopter to its original owner, with an allowance for labor performed by that Dealership for removing and reinstalling the defective part. No credit will be issued for trouble-shooting.

RHC makes no Warranty with respect to batteries, instruments, avionics or other trade accessories since they are usually warranted separately by their respective manufacturers. New aircraft are equipped with new engines which have a separate Lycoming limited warranty.

ADDITIONAL WARRANTY FOR MAIN & TAIL GEARBOXES

In addition to the warranty specified above, an extended pro-rated warranty shall apply to the main and tail gearboxes for the first 2200 hours of service or three years from the date of manufacture, whichever event occurs first. During this period, if a gearbox must be overhauled due to failure of a part which was defective when it left the factory, RHC will pro-rate the cost of the overhaul by dividing the hours in service by 2200 or the months in service by thirty-six (36), whichever fraction is greater.

THE FOREGOING WARRANTY IS EXCLUSIVE AND IS GIVEN AND ACCEPTED IN LIEU OF ANY AND ALL OTHER WARRANTIES AND REPRESENTATIONS, EXPRESS, IMPLIED, OR STATUTORY, WHETHER WRITTEN OR ORAL, INCLUDING WITHOUT LIMITATION ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR TRADE USAGE, THE REMEDIES OF THE BUYER SHALL BE LIMITED TO THOSE PROVIDED HEREIN. IN NO EVENT WILL THE MANUFACTURER BE LIABLE FOR LOSSES RESULTING FROM LOSS OF USE OF THE HELICOPTER, COLLATERAL, CONSEQUENTIAL OR SPECIAL DAMAGES, OR ANY OTHER COSTS.

Warranty adjustments with respect to any helicopter or parts manufactured by RHC will be made only upon compliance with the following procedure:

- (1) The defective part or assembly, together with a written Warranty Claim, must be returned to RHC not later than thirty (30) days after discovery of the defect nor more than thirty (30) days after expiration of the Warranty period.*
- (2) RHC will, after inspection, determine whether the material or part was defective when it left the factory and will respond accordingly. Final determination of a Warranty adjustment rests with RHC.*

**ROBINSON HELICOPTER COMPANY, INC.
2901 Airport Drive
Torrance, California 90505 U.S.A.**

Effective 1 February 2003

**ROBINSON HELICOPTER COMPANY, INC.
LIMITED PARTS WARRANTY**

Robinson Helicopter Company, Inc. (hereafter referred to as RHC) warrants each new and factory overhauled helicopter part to be free from defects in material and workmanship appearing within one year from the date of delivery from the RHC factory or during the first one thousand (1000) hours of operation, whichever event occurs first; provided, the part has been subjected to normal use and service. This Warranty is limited to repair or replacement on an exchange basis, as selected by RHC, of any part, which upon examination by RHC is deemed to have been defective when the part left the factory. A new warranty period is not established for parts replaced under the terms of this Warranty. Such replacement parts are warranted only for the remainder of the original warranty period. RHC is not responsible for the cost of removing, shipping or reinstallation of parts under the terms of this Warranty. This Warranty shall not apply to any part which has been repaired or altered outside the factory, and which, in RHC's judgment, has affected the performance or reliability of the part. This Warranty shall not apply to any part which has been subject to corrosion, misuse, negligence or accident, nor to any parts normally replaced during routine maintenance, such as, air cleaners, skid shoes, rod end or spherical bearings, light bulbs, etc.

RHC makes no Warranty with respect to engines, batteries, instruments, avionics or other trade accessories since they are usually warranted separately by their respective manufacturers.

ADDITIONAL WARRANTY FOR MAIN & TAIL GEARBOXES

In addition to the warranty specified above, an extended pro-rated warranty shall apply to new and factory overhauled main and tail gearboxes installed, on all R22 & R44 helicopters for the first 2200 hours of service, on all R44 Cadet helicopters for the first 2400 hours of service, on all R66 helicopters for the first 2000 hours of service, or three years from the date of manufacture, whichever event occurs first. During this period, if a gearbox must be overhauled due to failure of a part which was defective when it left the factory, RHC will pro-rate the cost of the overhaul by the hours in service or the months in service, whichever fraction is greater.

THE FOREGOING WARRANTY IS EXCLUSIVE AND IS GIVEN AND ACCEPTED IN LIEU OF ANY AND ALL OTHER WARRANTIES AND REPRESENTATIONS, EXPRESS, IMPLIED, OR STATUTORY, WHETHER WRITTEN OR ORAL, INCLUDING WITHOUT LIMITATION ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR TRADE USAGE, THE REMEDIES OF THE BUYER SHALL BE LIMITED TO THOSE PROVIDED HEREIN. IN NO EVENT WILL THE MANUFACTURER BE LIABLE FOR LOSSES RESULTING FROM LOSS OF USE OF THE HELICOPTER, COLLATERAL, CONSEQUENTIAL OR SPECIAL DAMAGES, OR ANY OTHER COSTS.

Warranty adjustments with respect to any parts manufactured by RHC will be made only upon compliance with the following procedure:

- (1) The defective part or assembly, together with a written Warranty Claim, must be returned to RHC not later than thirty (30) days after discovery of the defect nor more than thirty (30) days after expiration of the Warranty period.
- (2) RHC will, after inspection, determine whether the material or part was defective when it left the factory and will respond accordingly. Final determination of a Warranty adjustment rests with RHC.

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Effective 01 June 2016

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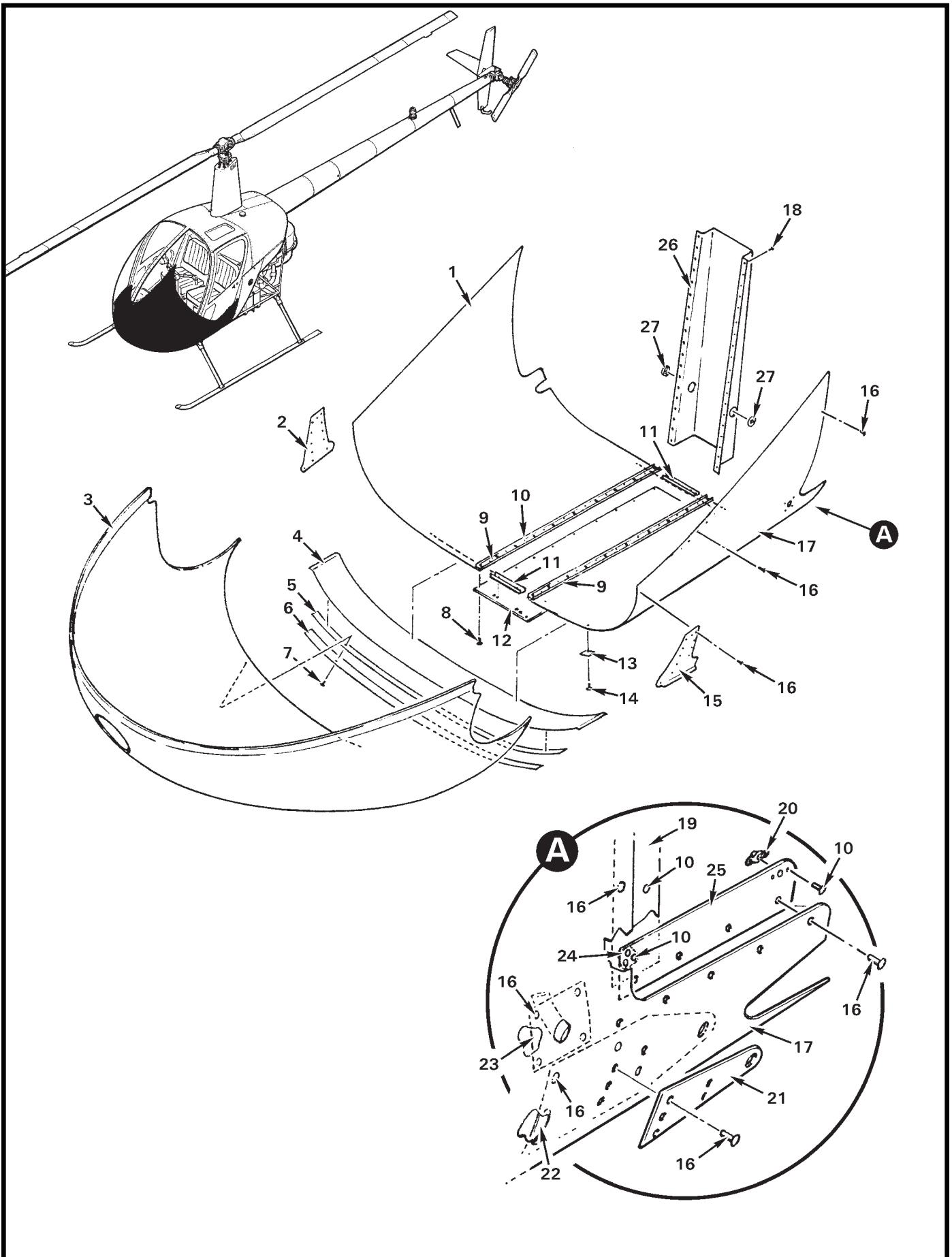


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
ACCESS PANELS – BELLY				
6-1-1	A015-4	Panel (RH)	X	1
2	A015-6	Skin (RH)	X	1
3	A272-1	Chin	X	1
4	A475-2	Cover – Cross Tube	X	1
5	A475-4	Spacer	X	1
6	A475-3	Retainer	X	1
7	MS20470AD3	Rivet	X	A/R
8	MS27039C0807	Screw	X	25
9	A738-4	Gang Channel	X	2
10	MS20426AD3	Rivet (gang channel attach)	X	14
11	A738-8	Gang Channel	X	2
12	A794-2	Panel – Center Belly	X	1
13	A475-5	Retainer	X	8
14	MS27039C0806	Screw	X	8
15	A015-5	Skin (LH)	X	1
16	MS20470AD4	Rivet	X	A/R
17	A015-3	Skin (LH)	X	1
18	MS20615-3M3	Rivet	X	1
19	A015-11	Strip (LH and RH)	X	1
20	MS21069L08	Nutplate	X	5
21	A286-1	Doubler (LH and RH)	X	2
22	A286-2	Doubler (LH and RH)	X	2
23	A458-1	Drain – Fuel	X	1
24	MS21086L08	Nutplate	X	1
25	B356-2	Strip (LH and RH)	X	2
26	A233-3	Tunnel (vertical firewall)	X	1
27	A231-9	Plug Assembly	X	2

NOTES

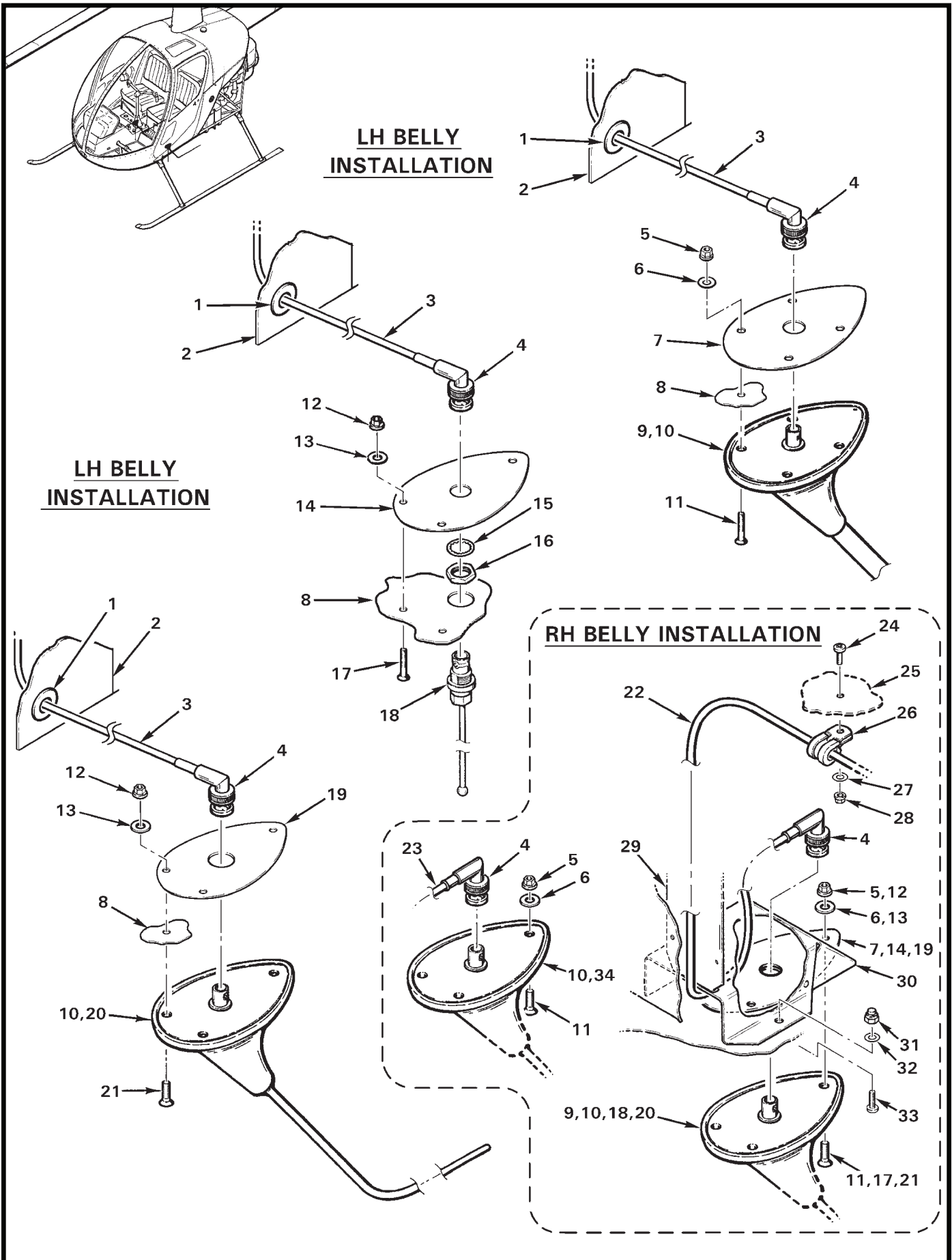


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
BELLY ANTENNAS				
6-3-1	MS35489-40	Grommet	X	1
2	A292-1	Keel Panel (LH, Ref)		
3	-482	Cable (Ref)		
4	5225973-4	Plug	X	1
5	MS21042L08	Nut	X	A/R
6	NAS1149FN832P	Washer	X	A/R
7	B322-4	Cover	X	1
8	—	Belly Panel (Ref)		
9	CI-177-20	Antenna (UHF/FM, 450-470 MHz; install using item 10)	X	1
10	B270-1	Sealant (seal around antenna base)	X	A/R
11	MS24694-C7	Screw	X	A/R
12	MS21042L3	Nut	X	3
13	NAS1149F0332P	Washer	X	3
14	B322-9	Cover	X	1
15	—	Washer (Ref)		
16	—	Nut (Ref)		
17	MS27039C1-05	Screw	X	3
18	CI-273	Antenna (UHF, 403-512 MHz; includes items 14 thru 16)	X	1
	CI-271*	Antenna (UHF, 400-430 MHz; includes items 14 thru 16)	X	1
19	B322-6	Cover	X	1
20	CI-292-3	Antenna (VHF/FM, 138-174 MHz; install using items 10 and 19)	X	1
21	MS24694-C51	Screw	X	3
22	-552	Cable (Ref, used with items 9, 18, and 20)		
23	-212	Cable (Ref, used with item 34)		
24	MS27039C0806	Screw (Ref)		
25	—	Panel (Ref)		
26	MS21919WDG4	Clamp	X	1
27	NAS1149FN832P	Washer (Ref)		
28	MS21042L08	Nut (Ref)		
29	D384-4**	Cover (Ref)		
30	D384-3**	Cover	X	1
31	B340-4	Nut	X	2
32	NAS1149FN816P	Washer	X	2
33	MS27039C0806	Screw	X	2
34	CI-122	Antenna (VHF, 118-137 MHz; install using items 7 and 10)	X	1

NOTES * Used with Kenwood TK-860GK3 FM transceiver.
 ** Included if no cabin heater or engine fuel primer is installed.

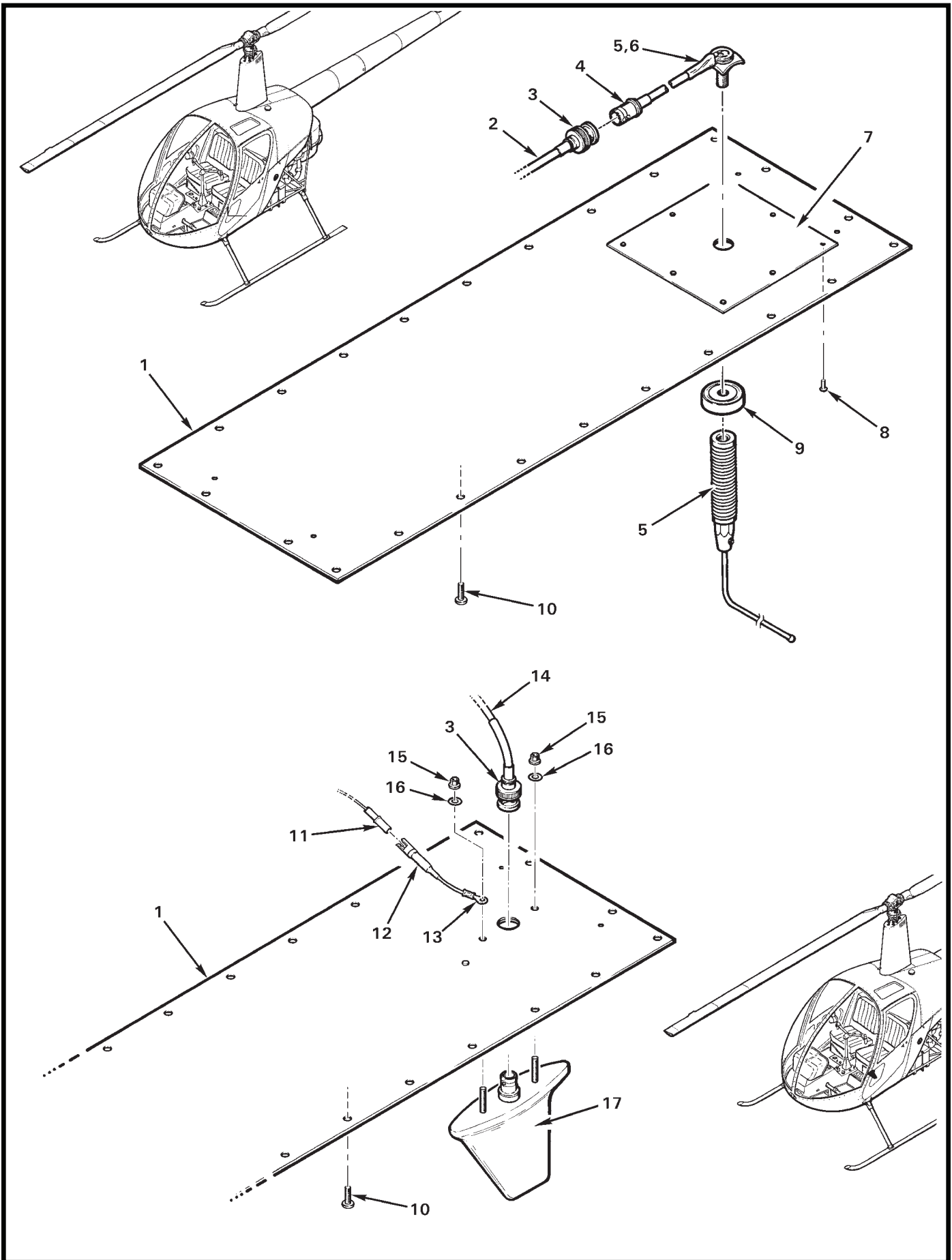


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
FM/DME/TRANSPONDER ANTENNAS				
6-5-1	A794-2	Panel – Center Belly (Ref)		
2	A850-682	Cable (Ref)		
3	5225395-6	Plug	X	1
4	5225396-1	Jack	X	1
5	LM WBQ K	Antenna (VHF, 134-160 MHz; install using item 6 on threads) . .	X	1
6	B270-11	Adhesive	X	A/R
7	A830-3	Doubler	X	1
8	MS20470AD3	Rivet	X	8
9	—	Spacer (Ref)	O	1
10	MS27039C0807	Screw (Ref)		
11	B263-11	Housing (Ref)	X	1
	B263-2	Socket (Ref)	X	1
12	B263-10	Housing	X	1
	B263-1	Pin	X	1
13	B260-3	Terminal (Ref)		
14	A850-452	Cable (Ref, DME installation)		
	A859-264	Cable (Ref, transponder installation)		
15	MS21042L08	Nut	X	2
16	NAS1149FN816P	Washer	X	2
17	CI-105-16	Antenna – DME/Transponder (see also Figure 97-13)	X	1

NOTES

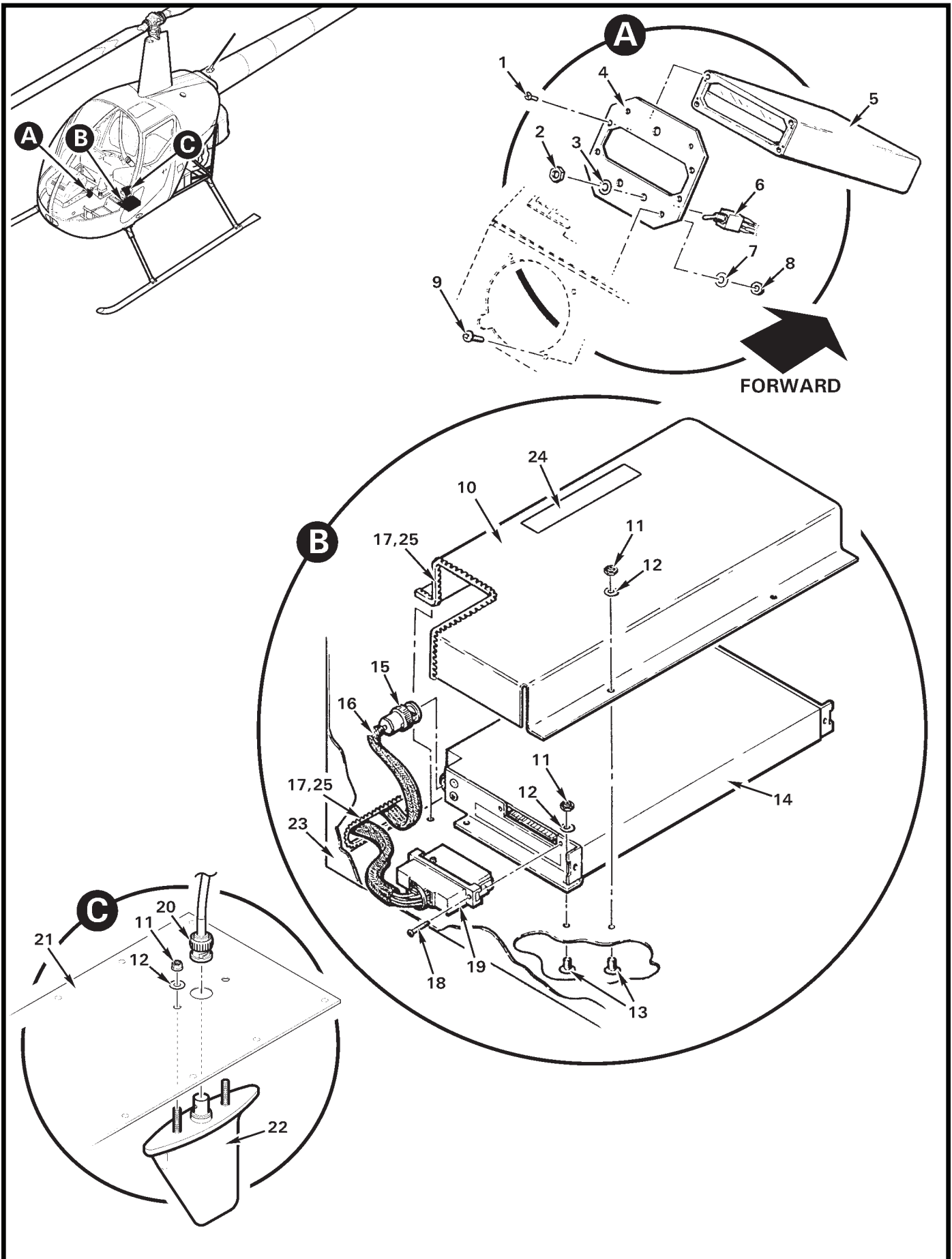


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
DME INSTALLATION				
6-7-1	AN507-4-40	Screw	O	4
2	B227-4	Dress Nut	X	3
3	B227-3	Lockwasher	X	3
4	A590-1	Cover	X	1
5	066-02069-0000	DME Indicator (Bendix/King KDI 574; includes item 1)	O	1
6	B300-1	Switch (Incl items 2 and 3)	X	3
7	NAS1149FN616P	Washer	X	3
8	MS21042L06	Nut	X	3
9	MS35206-228	Screw	X	3
10	A603-2	Cover (Incl item 24)	X	1
11	MS21042L08	Nut	X	10
12	NAS1149FN816P	Washer	X	10
13	MS27039C0806	Screw	X	8
14	066-01070-0001	DME (Bendix/King KN63)	O	1
15	030-0005-00	BNC Connector	O	1
16	B274-518	Cable (wire no. A850-452)	X	A/R
	B266-20	Sleeving	X	A/R
17	MS21266-1N	Grommet (12-inch length, install using item 25)	X	A/R
18	—	Screw	X	2
19	—	Connector	X	1
20	5225395-6	Plug	X	1
21	A794-2	Panel	X	1
22	CI-105-16	Antenna – DME/Transponder (see also Figure 6-5)	X	1
23	A291-1	Seat Support Assembly (LH, Ref)		
24	A603-6	Decal	X	1
25	B270-8qt	Adhesive	X	A/R

NOTES

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
NAV ANTENNA INSTALLATION				
6-9-1	B161-4	Spirap	X	A/R
2	A850-241	Cable (Ref; antenna-to-diplexer, if equipped)		
	A850-240	Cable (Ref; antenna-to-NAV receiver)		
3	5225973-4	Plug	X	1
4	CI-505	Diplexer – Dual (for use when two NAV receivers and glideslope are installed)	X	1
5	CI-507	Diplexer	X	1
6	MS21042L08	Nut	X	2
7	NAS1149FN816P	Washer	X	2
8	MS27039C0806	Screw	X	2
9	—	Cable (Ref, to radio; NAV)		
10	—	Cable (Ref, to radio; glideslope)		
11	A033	Panel – Console (LH, Ref)		
12	A669-3	Doubler (Ref)	X	A/R
13	B162-4	Clipnut	X	4
14	5225395-6	Plug	X	1
15	MS21042L3	Nut	X	1
16	NAS1149F0332P	Washer	X	1
17	MS27039C1-07	Screw	X	4
18	B159-1	Bracket (forward)	X	1
19	B159-2	Bracket (aft)	X	1
20	CI-259E	Antenna (NAV; 108-118 MHz [VOR/LOC], 329-335 MHz [glideslope])	X	1
21	MS27039C1-12	Screw	X	4

NOTES

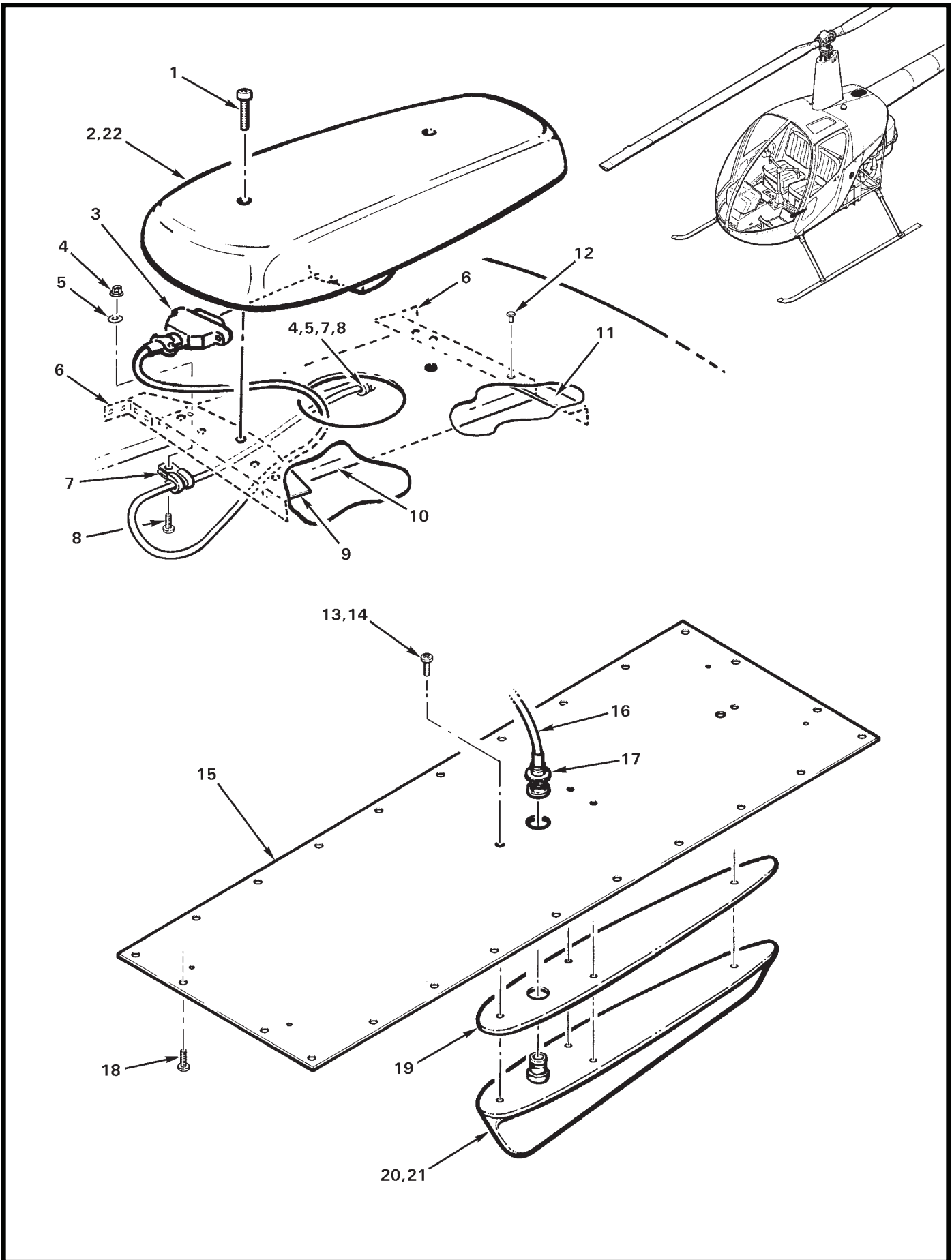


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
ADF/MARKER BEACON ANTENNAS				
6-11-1	089-05534-0020	Screw	X	2
2	KA44B	Antenna – ADF (includes items 1 and 3; fill screw holes using item 22)	O	1
3	200-02586-0000	Cable	O	1
4	MS21042L08	Nut	X	2
5	NAS1149FN816P	Washer	X	2
6	A787-1	Angle	X	2
7	MS21919WDG4	Clamp	X	2
8	MS27039C0806	Screw	X	2
9	A788-1	Stiffener	X	1
10	047-04956-0003	Doubler Plate	O	1
11	A788-2	Stiffener	X	1
12	MS20470AD3	Rivet (used to install items 6, 9, and 11)	X	18
13	MS27039C1-07	Screw (install using item 14 on threads)	X	4
14	B270-11	Adhesive	X	A/R
15	A794-2	Panel – Center Belly (Ref)		
16	A850-210	Cable (Ref)		
17	5225395-6	Plug	X	1
18	MS27039C0807	Screw (Ref)		
19	—	Pad	O	1
20	CI-102	Antenna – Marker Beacon (75 MHz, includes item 19; install using item 21 around base)	O	1
21	B270-1	Adhesive	X	A/R
22	B270-4	Sealant (for screw holes)	X	A/R

NOTES

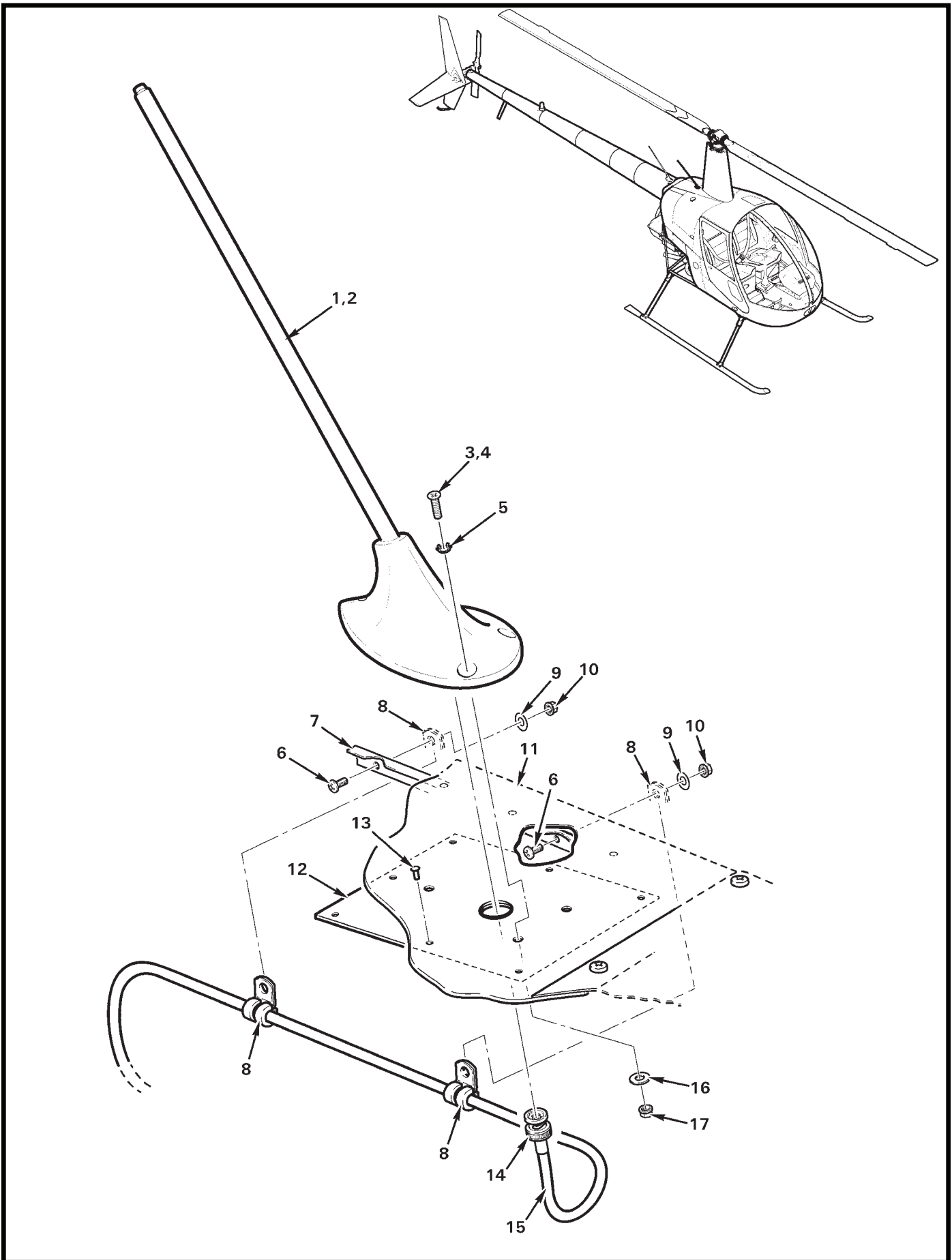


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
KANNAD ELT ANTENNA INSTALLATION*				
6-13-1	AV-300	Antenna (install using item 2)	O	1
2	B270-1	Sealant	X	A/R
3	24-84-5	Screw (install using item 4; included with item 1)	O	3
4	B270-4	Sealant	X	A/R
5	11-33-2	Lockwasher (countersunk; included with item 1)	O	3
6	MS27039C0806	Screw	X	2
7	B423-3	Stiffener (Ref)		
8	MS21919WDG3	Clamp	X	2
9	NAS1149FN816P	Washer	X	2
10	MS21042L08	Nut	X	2
11	B429-2	Skin (Ref)		
12	A837-2	Doubler	X	1
13	MS20470AD3	Rivet	X	8
14	5225395-6	Plug (BNC)	X	1
15	B274-518	Cable – Coaxial	X	A/R
16	NAS1149F0316P	Washer	X	3
17	MS21042L3	Nut	X	3

NOTES * Kannad ELT model AF Integra.

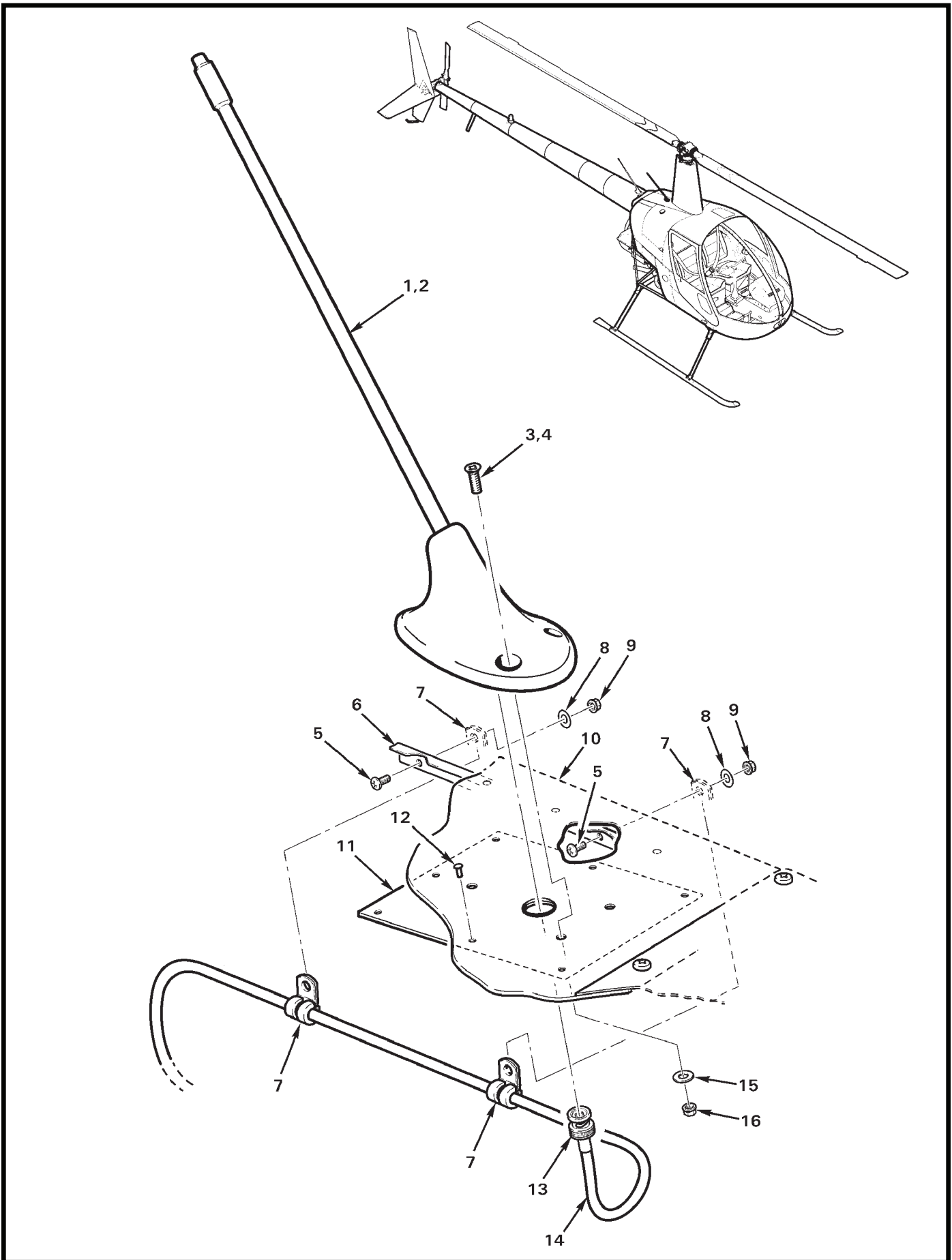


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
KANNAD ELT ANTENNA INSTALLATION*				
6-15-1	1327-82	Antenna (install using item 2)	O	1
2	B270-1	Sealant	X	A/R
3	MS24694-C51	Screw (install using item 4)	X	3
4	B270-4	Sealant	X	A/R
5	MS27039C0806	Screw	X	2
6	B423-3	Stiffener (Ref)		
7	MS21919WDG3	Clamp	X	2
8	NAS1149FN816P	Washer	X	2
9	MS21042L08	Nut	X	2
10	B429-2	Skin (Ref)		
11	A837-2	Doubler	X	1
12	MS20470AD3	Rivet	X	8
13	5225395-6	Plug (BNC)	X	1
14	B274-518	Cable – Coaxial	X	A/R
15	NAS1149F0316P	Washer	X	3
16	MS21042L3	Nut	X	3

NOTES * Kannad ELT model 406 AF.

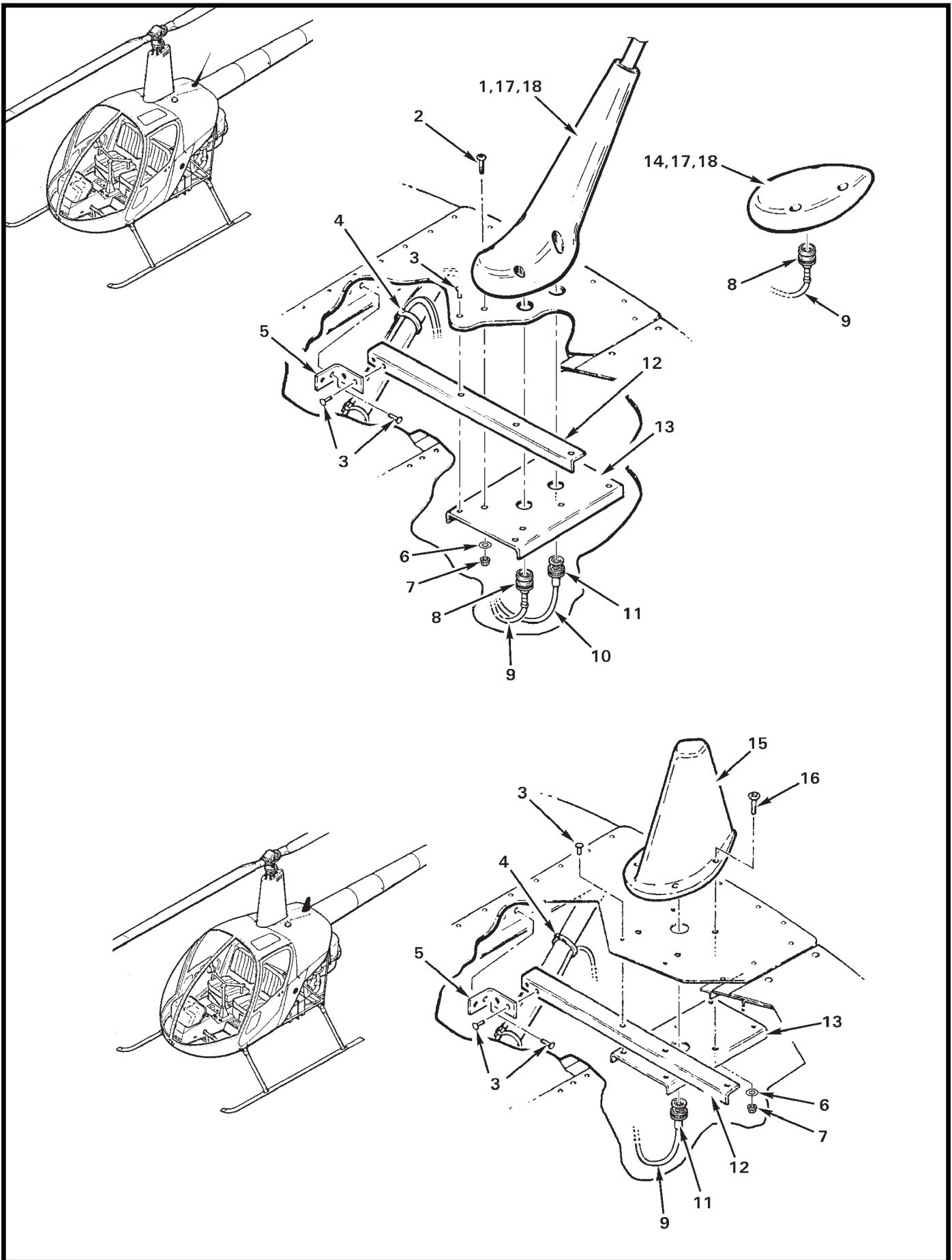


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
GPS ANTENNA INSTALLATION				
6-17-1	CI-4510-7C*	Antenna (Ref, VHF/GPS; 118-137 MHz [VHF], 1575.42 MHz [GPS]. No longer available; order item 15 on Figure 6-23. For use when ELT is not installed.)		
2	MS27039C0813	Screw (install using item 17)	X	4
3	MS20470AD3	Rivet	X	9
4	MS3367-4-9	Ty-Rap	X	A/R
5	A787-1	Angle	X	1
6	NAS1149FN816P	Washer	X	4
7	MS21042L08	Nut	X	4
8	5225555-6	Plug (GPS)	X	1
9	A850-468	Cable – GPS (Ref)		
10	A850-212	Cable – COM (Ref)		
11	5225395-6	Plug (COM)	X	1
12	A788-1	Stiffener	X	1
13	A904-1	Doubler	X	1
14	010-00174-03*	Antenna – GPS** (Garmin model GA 29F. For use when ELT is installed. Install using items 17 and 18.)	X	1
15	011-00013-00*	Antenna – GPS** (Garmin part no.)	O	1
16	MS24694-C5	Screw	X	4
17	B270-1	Sealant	X	A/R
18	B270-4	Sealant	X	A/R

NOTES * Install using item 17 around base and using item 18 to fill screw holes.
 ** Garmin part no.

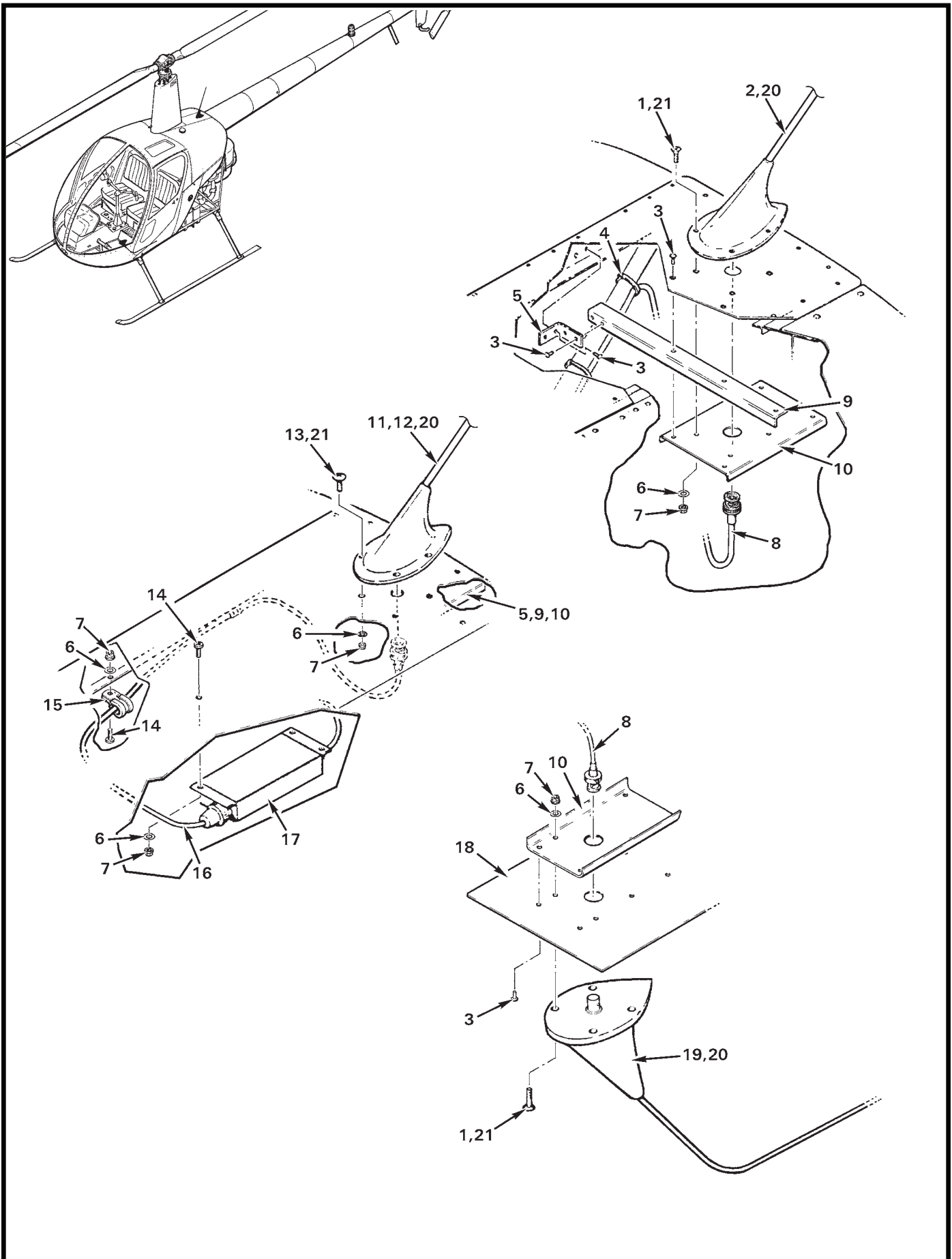


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
LORAN ANTENNA INSTALLATION				
6-19-1	MS24693-S51	Screw (install using item 21)	X	4
2	A-16*	Antenna – Loran (Apollo I and II installations; install using item 20. No longer available.)	O	1
3	MS20470AD3	Rivet	X	9
4	MS3367-4-9	Ty-Rap	X	A/R
5	A787-1	Angle	X	1
6	NAS1149FN816P	Washer	X	4
7	MS21042L08	Nut	X	4
8	A850-468	Cable (Ref)		
9	A788-1	Stiffener	X	1
10	A904-1	Doubler	X	1
11	AN100*	Antenna – Loran (Northstar; install using item 20)	O	1
12	KA0083*	Antenna – Loran (Bendix/King KLN 88; install using item 20. No longer available.)	O	1
13	MS24694-C5	Screw (install using item 21)	X	4
14	MS27039C0806	Screw	X	3
15	MS21919WDG4	Clamp	X	1
16	—	Cable Assembly (Ref)		
17	2210	Coupler (used with item 11; includes item 16)	O	1
18	A794-2	Panel – Belly (Ref)		
19	A-23A*	Antenna – Loran (Apollo, for use when ADF is installed; install using item 20. No longer available.)	O	1
20	B270-1	Sealant	X	A/R
21	B270-4	Sealant	X	A/R

NOTES * Earlier R22s.

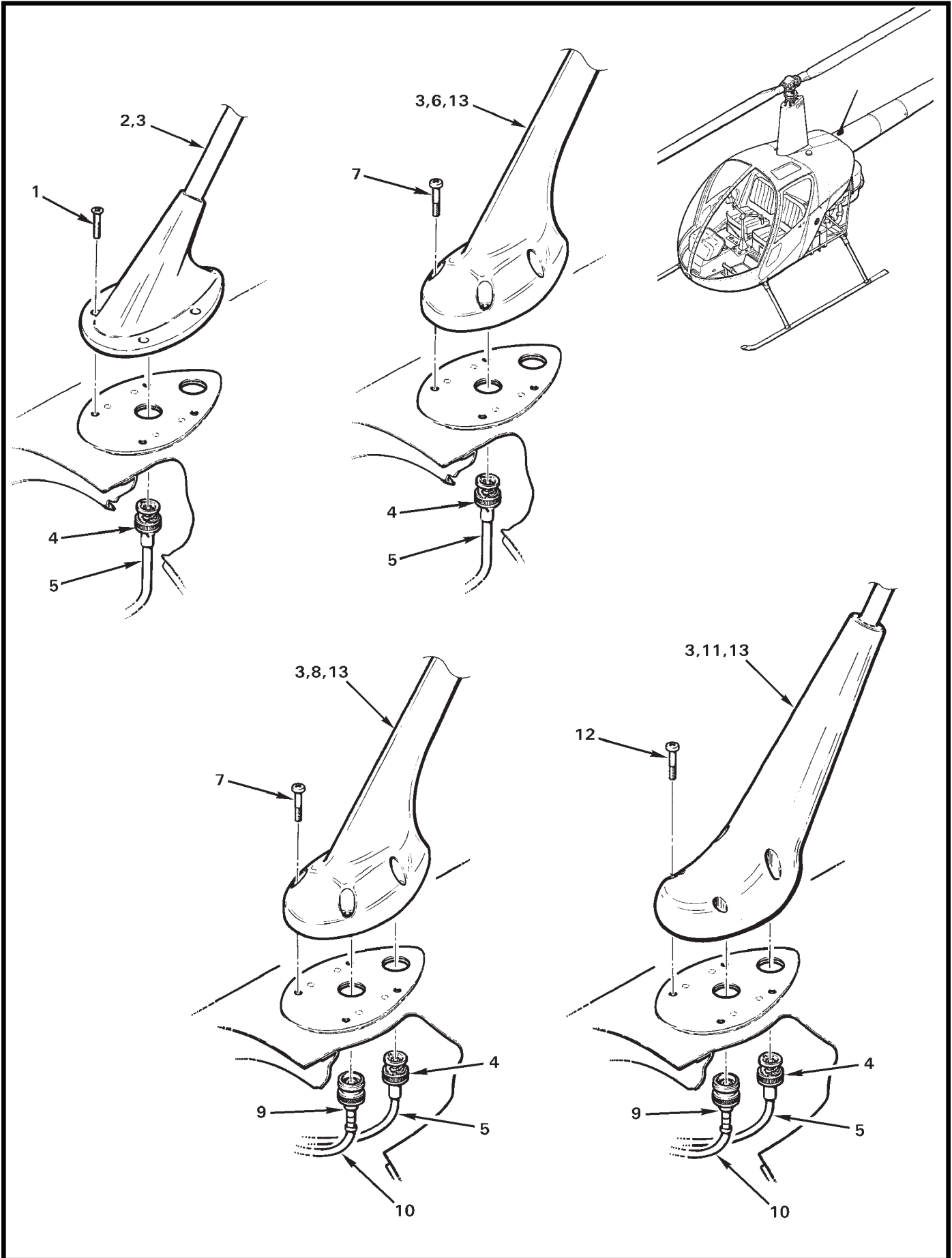


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
FORWARD UPPER TAILCONE ANTENNAS				
6-21-1	MS24694-C7	Screw	X	4
2	CI-121	Antenna (VHF, 118-137 MHz; install using item 3 around base)	X	1
3	B270-1	Sealant	X	A/R
4	5225395-6	Plug	X	1
5	A850-212	Cable – COM (Ref)		
6	CI-248-5*	Antenna (VHF, 118-137 MHz)	X	1
7	MS27039C0815	Screw (install using item 13)	X	4
8	CI-2480-201*	Antenna (GPS/COM; 118-137 MHz [VHF], 1575.42 MHz [GPS])	X	1
9	5225555-6	Plug	X	1
10	A850-468	Cable – GPS (Ref)		
11	CI-4510-7C*	Antenna (Ref, VHF/GPS; 118-137 MHz [VHF], 1575 MHz [GPS]. No longer available, order item 8.)		
12	MS27039C0813	Screw (install using item 13)	X	4
13	B270-4	Sealant	X	A/R

NOTES * Install using item 3 around base and using item 13 to fill screw holes.

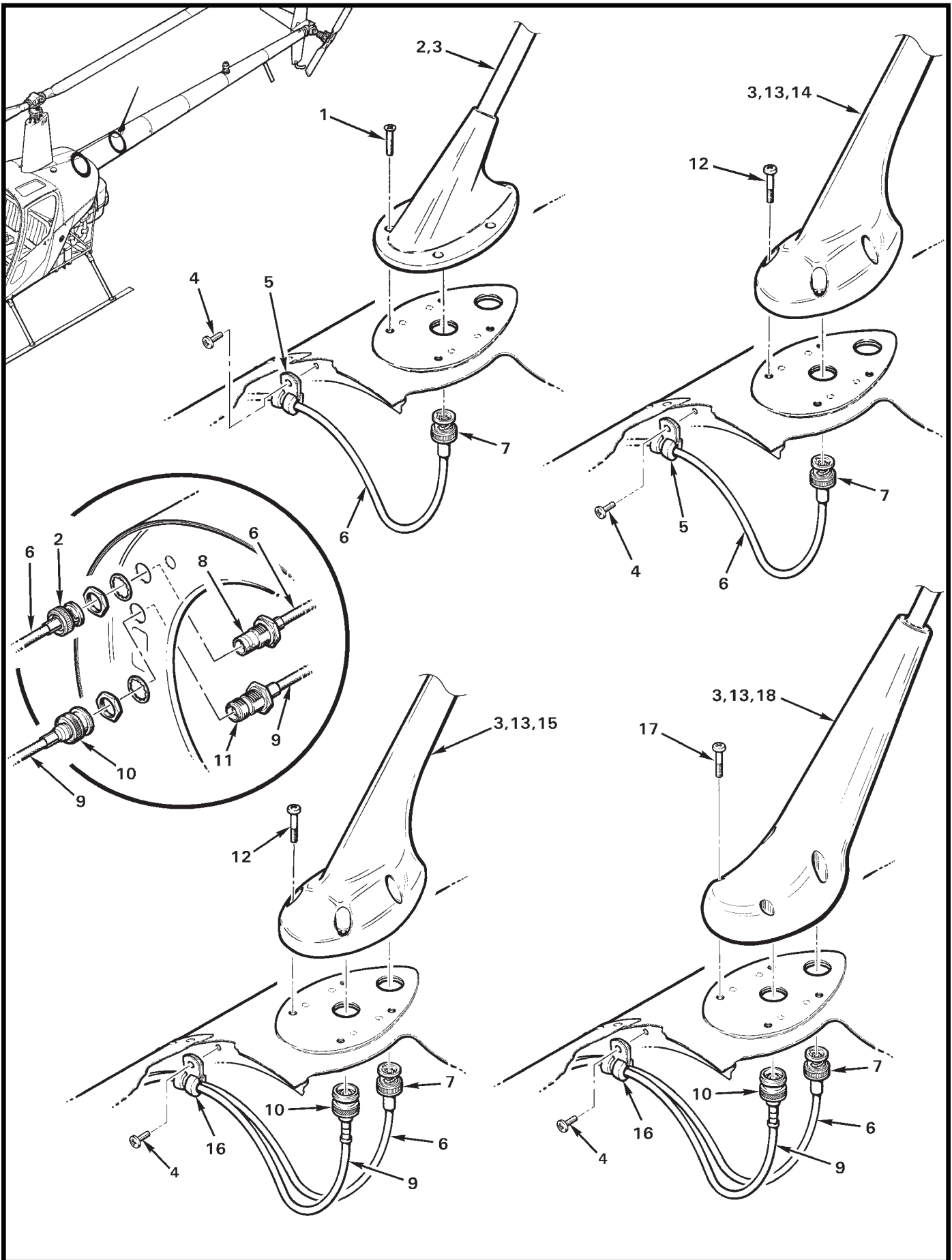


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
AFT UPPER TAILCONE ANTENNAS				
6-23-1	MS24694-C7	Screw	X	4
2	CI-121	Antenna (VHF, 118-137 MHz; install using item 3 around base)	X	1
3	B270-1	Sealant	X	A/R
4	MS27039C0810	Screw	X	1
5	MS21919WDG3	Clamp	X	1
6	A850-212	Cable – COM (Ref)		
7	5225395-6	Plug	X	2
8	5225398-6	Jack – Bulkhead (includes washer and nut)	X	1
9	A850-468	Cable – GPS (Ref)		
10	5225555-6	Plug	X	2
11	5225557-6	Jack – Bulkhead (includes washer and nut)	X	1
12	MS27039C0815	Screw (install using item 13)	X	4
13	B270-4	Sealant	X	A/R
14	CI-248-5*	Antenna (VHF, 118-137 MHz)	X	1
15	CI-2480-201*	Antenna (GPS/COM; 118-137 MHz [VHF], 1575 MHz [GPS]) . .	X	1
16	MS21919WDG6	Clamp	X	1
17	MS27039C0813	Screw (install using item 13)	X	4
18	CI-4510-7C*	Antenna (Ref, VHF/GPS; 118-137 MHz [VHF], 1575.42 MHz [GPS]. No longer available, order item 15.)		

NOTES * Install using item 3 around base and using item 13 to fill screw holes.

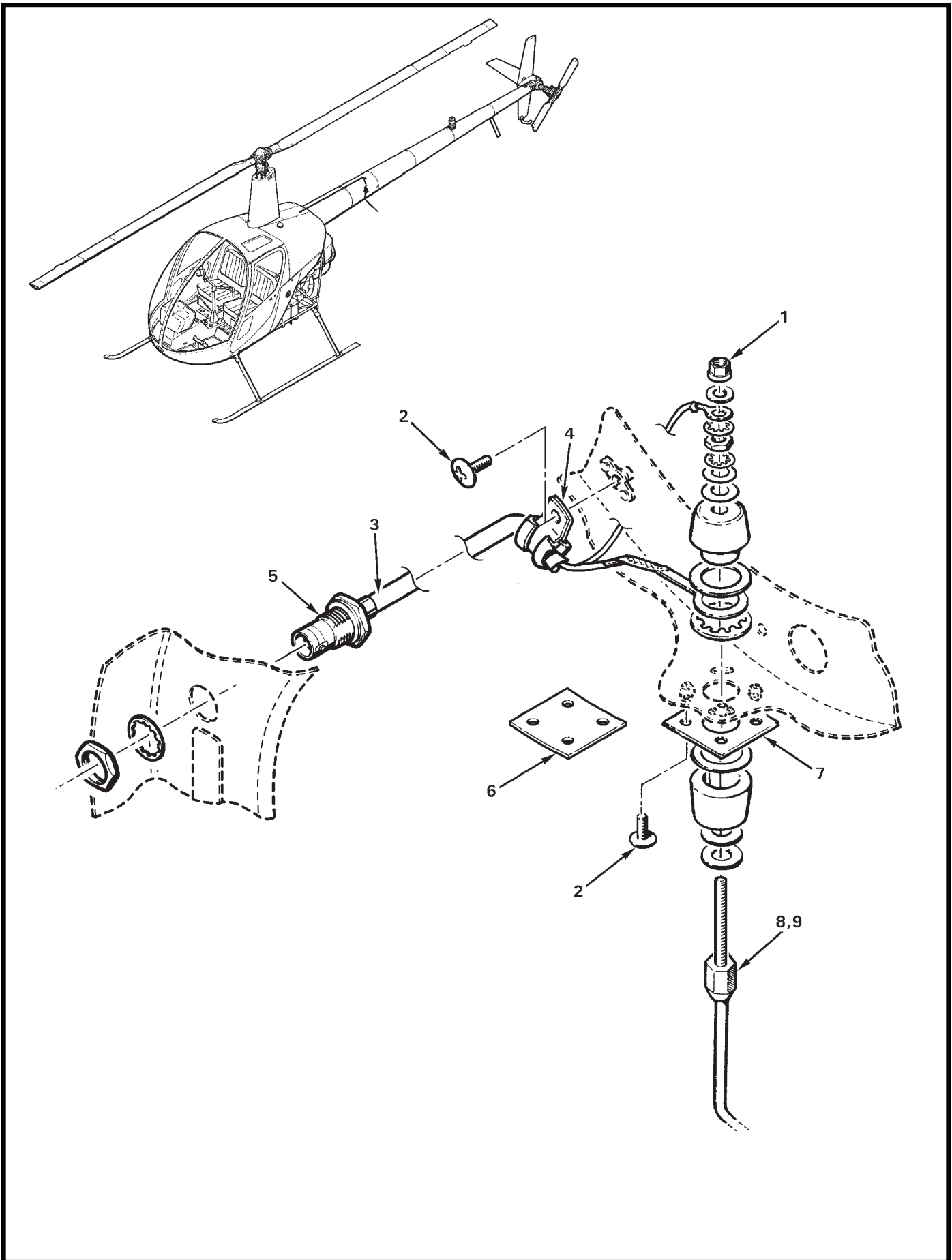


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
LOWER TAILCONE ANTENNA				
6-25-1	MS21042L3	Nut	X	1
2	MS27039C0806	Screw	X	5
3	—	Belden Cable – COM	O	1
4	MS21919WDG3	Clamp	X	4
5	5225398-6	Jack – Bulkhead (includes washer and nut)	X	1
6	A746-2	Plate (in place when AV-534L antenna not installed)	X	1
7	A746-1	Plate	X	1
8	AV-534L	Antenna – COM (VHF)	X	1
* * *				
9	KI-5	COM Antenna Installation Kit (Incl items 1 thru 5, 7, 8, and 10)	X	1
10	MS3367-4-9*	Ty-Rap	X	5
11	5225395-6**	Plug	X	1
12	B274-518**	Cable – COM (cabin side)	X	1

NOTES * Not shown; used to secure item 12 to upper frame.
 ** Not shown.

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CHAPTER 8
WEIGHT AND BALANCE

<i>Figure</i>	<i>Title</i>	<i>Page</i>
8-1	Ballast Installation	8.0

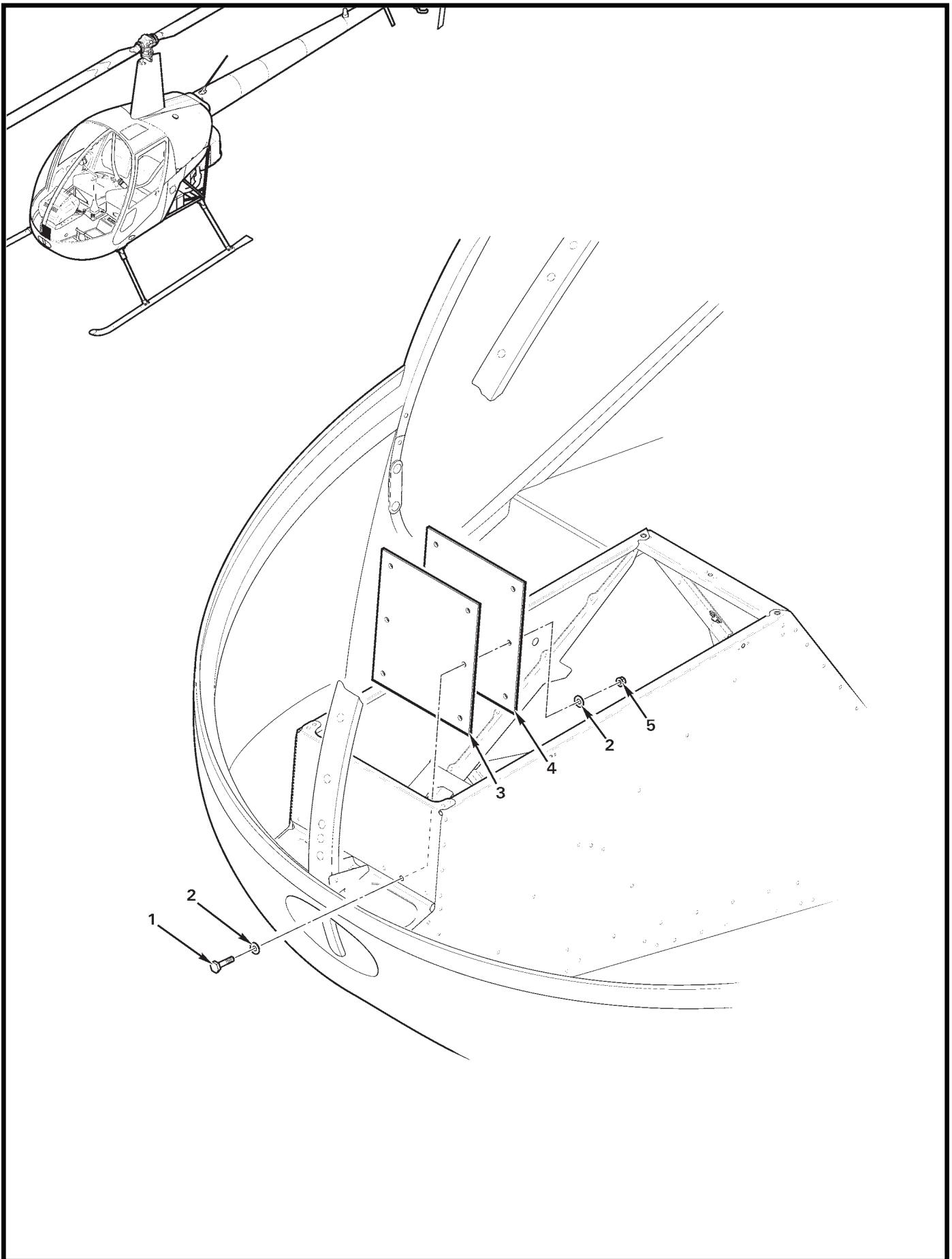


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
BALLAST INSTALLATION				
8-1-1	NAS6603 *	Bolt	X	2
2	NAS1149F0332P	Washer	X	4
3	A941-3	Plate – Ballast (1.0 lb)	X	A/R
4	A941-2	Plate – Ballast (0.25 lb)	X	A/R
5	MS21042L3	Nut	X	2

NOTES * Select bolt length which, after correct torque is applied, exposes 2 to 4 threads beyond nut.

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CHAPTER 9
GROUND HANDLING

<i>Figure</i>	<i>Title</i>	<i>Page</i>
9-1	Ground Handling Wheel Assembly	9.0
9-3	Ground Handling Wheel Assembly – Fixed Floats	9.2
9-5	Ground Handling Ball Installation	9.4

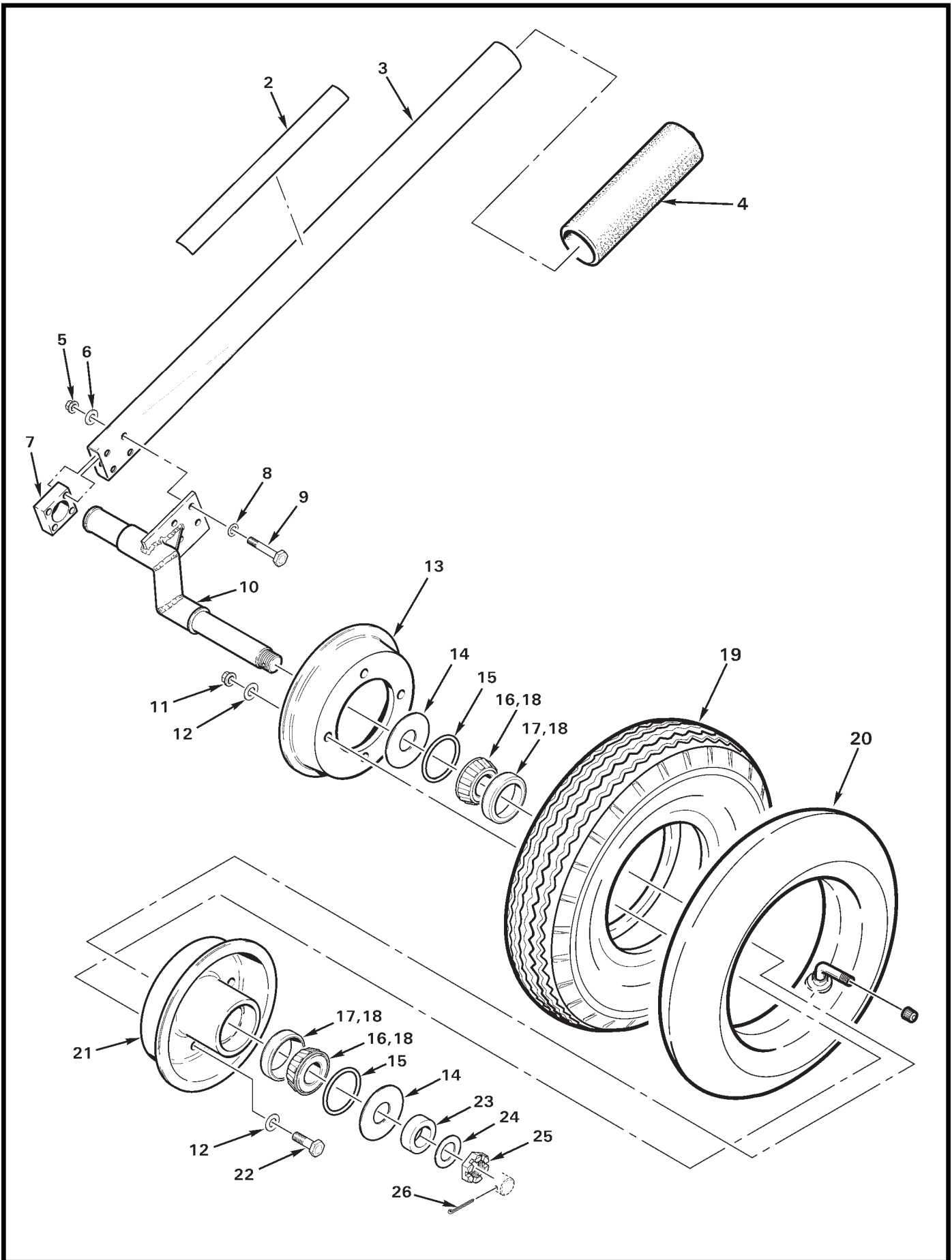


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
GROUND HANDLING WHEEL ASSEMBLY				
9-1-1	A063-1	Ground Handling Wheel Assembly (Incl items 3, and 5 thru 26)	X	1
2	A654-81	Decal (wheel installation instructions)	X	1
3	A718-2	Lever Assembly (Incl items 2 and 4)	X	1
4	A601-5	Grip	X	1
5	MS21042L3	Nut	X	4
6	NAS1149F0363P	Washer	X	4
7	A915-2	Spacer Block	X	1
8	NAS620-10L	Washer	X	4
9	NAS6603-9	Bolt	X	4
10	A717-10	Shaft Assembly	X	1
	A717-9	Shaft Assembly (Ref; no longer available, not shown)	O	1
11	MS21042L4	Nut	X	4
12	NAS1149F0432P	Washer	X	4
13	MT947-2*	Rim	X	4
14	A214-12	Washer (use [1] on nut side with A717-10 assembly)	X	A/R
	MT141-3	Washer (use [2] with A717-9 assembly, [1] with A717-10 assembly on lever side)	X	A/R
15	A215-123	O-Ring	X	2
16	C646-9**	Cone	X	2
17	C646-10**	Cup (contact RHC Customer Service for replacement)	O	2
18	A257-5	Grease	X	A/R
19	MT936-7	Tire	X	1
20	MT936-8	Tube – Inner	X	1
21	MT947-1*	Rim	X	1
22	NAS6604-6	Bolt	X	4
23	MT920-15	Spacer (used only with A717-9 shaft assembly)	X	A/R
24	NAS1149F0832P	Washer (shim)	X	A/R
25	AN320-8	Nut	X	1
26	MS24665-285	Cotter Pin	X	1

NOTES * Rim assembly will fit earlier shaft assembly.
 ** Install using item 18.

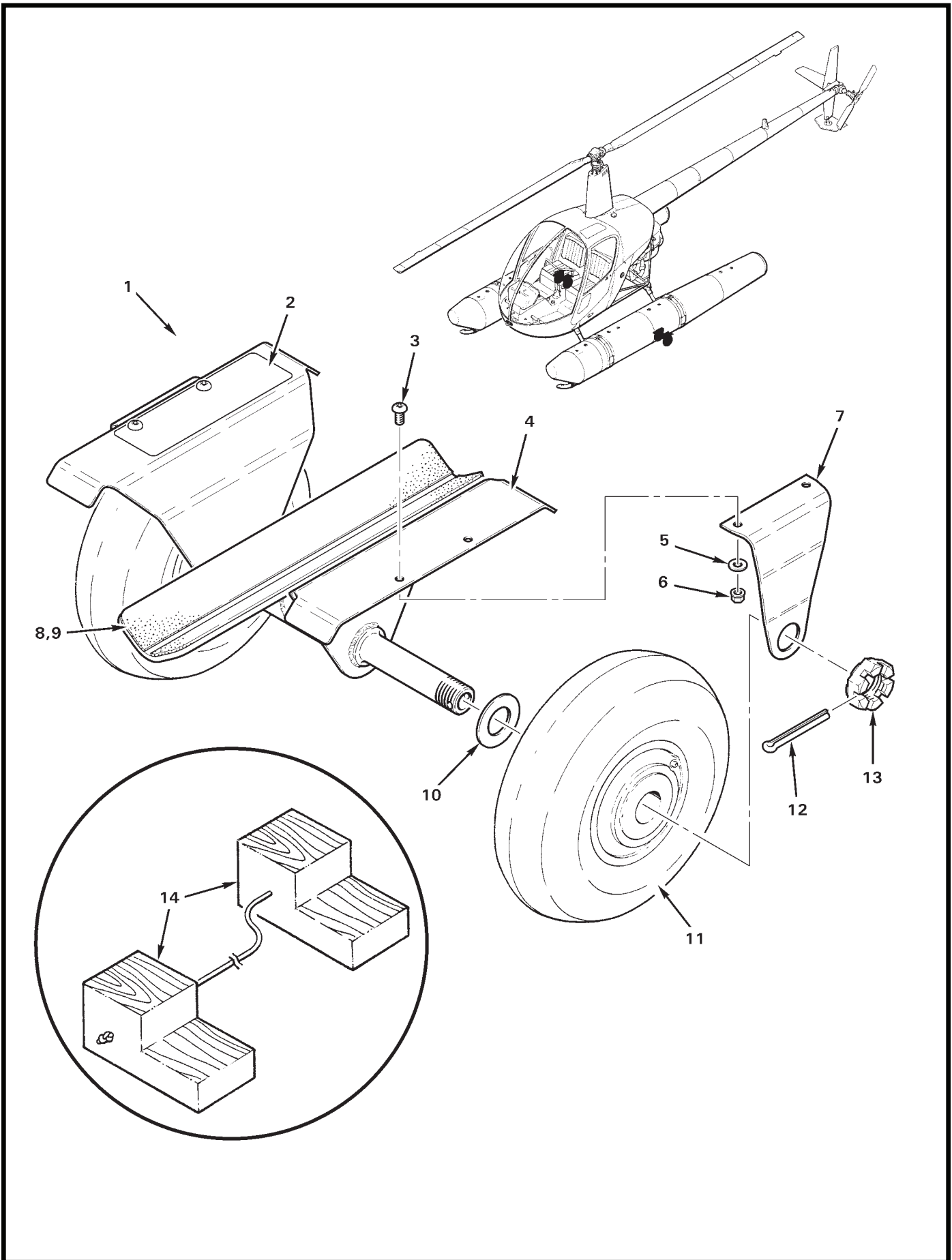


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
GROUND HANDLING WHEEL ASSEMBLY – FIXED FLOATS				
9-3-1	B132-1*	Float Ground Handling Wheel Assembly (Incl items 2 thru 13) . .	X	1
2	MT935-11	Decal (wheel installation instructions)	X	1
3	A142-2	Screw	X	4
4	B131-1	Frame Weldment	O	1
5	NAS1149FN816P	Washer	X	4
6	MS21042L08	Nut	X	4
7	B294-2	Support	X	1
8	B132-3	Strip (install using item 9)	X	2
9	B270-7	Adhesive (substitute B270-8qt)	O	A/R
10	NAS1149F1032P	Washer	X	2
11	B132-2	Wheel	X	2
12	MS24665-355	Cotter Pin	X	2
13	AN320-10	Nut	X	2
14	B133-1*	Block Assembly	X	1

NOTES * Usable on Mariner.

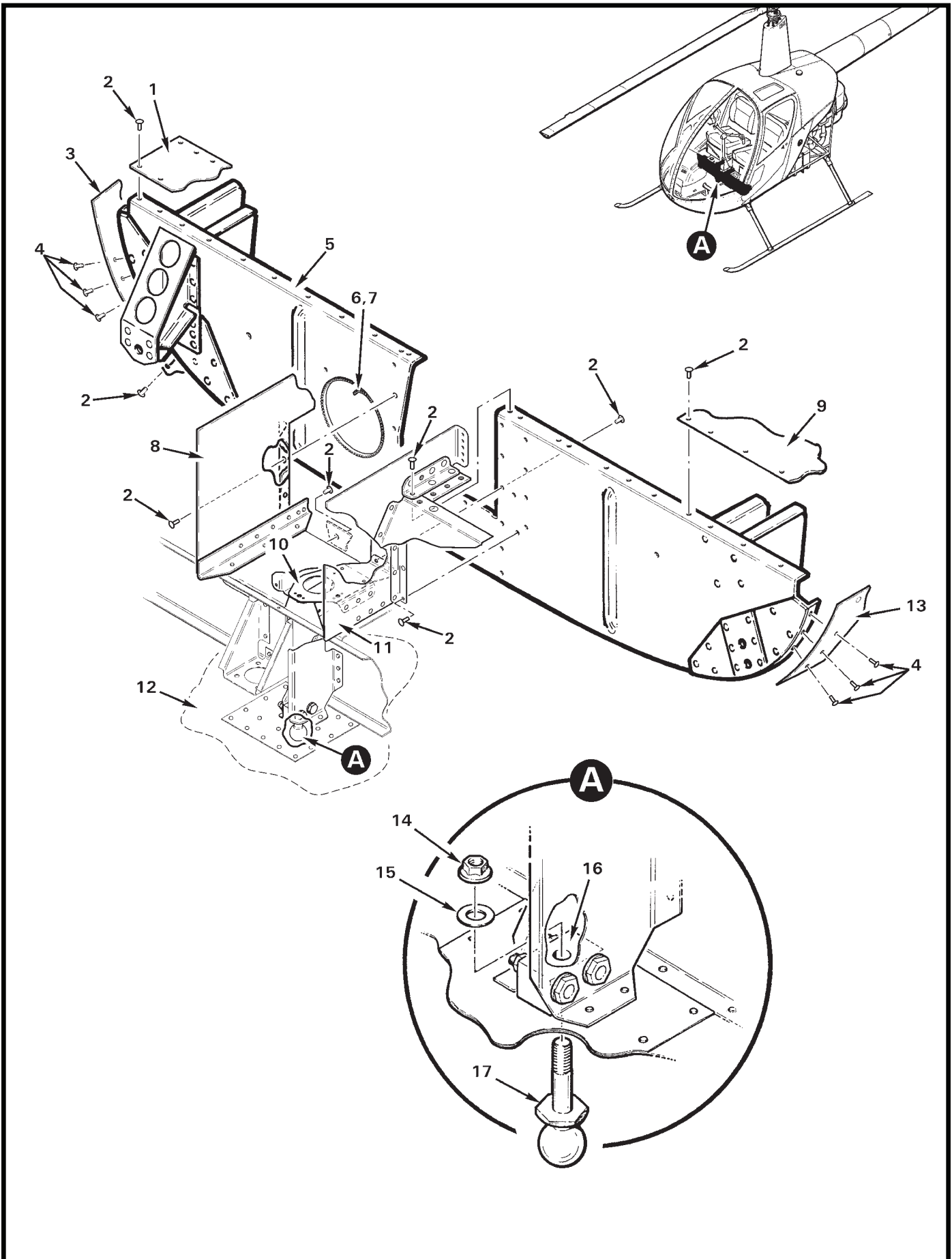


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
GROUND HANDLING BALL INSTALLATION				
9-5-1	A304-2 or -4*	Cap (RH, Ref)		
2	MS20470AD4	Rivet	X	A/R
3	A015-4*	Skin (RH, Ref)		
4	MS20426AD3	Rivet	X	A/R
5	A294-1	Frame Assembly – Skid Mount (Ref)		
6	MS21266-1N	Grommet (12-inch length; install using item 7)	X	A/R
7	B270-8qt	Adhesive	X	A/R
8	A293-2	Panel (RH, Ref)		
9	A304-1*	Cap (LH, Ref)		
10	A500-1	Support Assembly (Ref, cyclic friction assembly)		
11	A293-1	Panel (LH, Ref)		
12	A272-1	Chin (Ref, fiberglass)		
13	A015-3*	Skin (LH, Ref)		
14	MS21042L5	Nut	X	1
15	NAS1149F0532P	Washer	X	1
16	C700-1	Block (Ref)		
17	C700-7**	Ball – Ground Handling	X	1

NOTES * See also Figure 25-7.
 ** Ship S/N 2510 and subsequent.

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CHAPTER 10
PARKING AND STORAGE

<i>Figure</i>	<i>Title</i>	<i>Page</i>
10-1	Main Rotor Blade Tie-Downs	10.0
10-3	Cabin Cover	10.2
10-5	Tie-Down Installation	10.4
10-7	Hardpoint Hinge and Tie-Down Ring Installations	10.6
10-9	Mariner Accessories	10.8

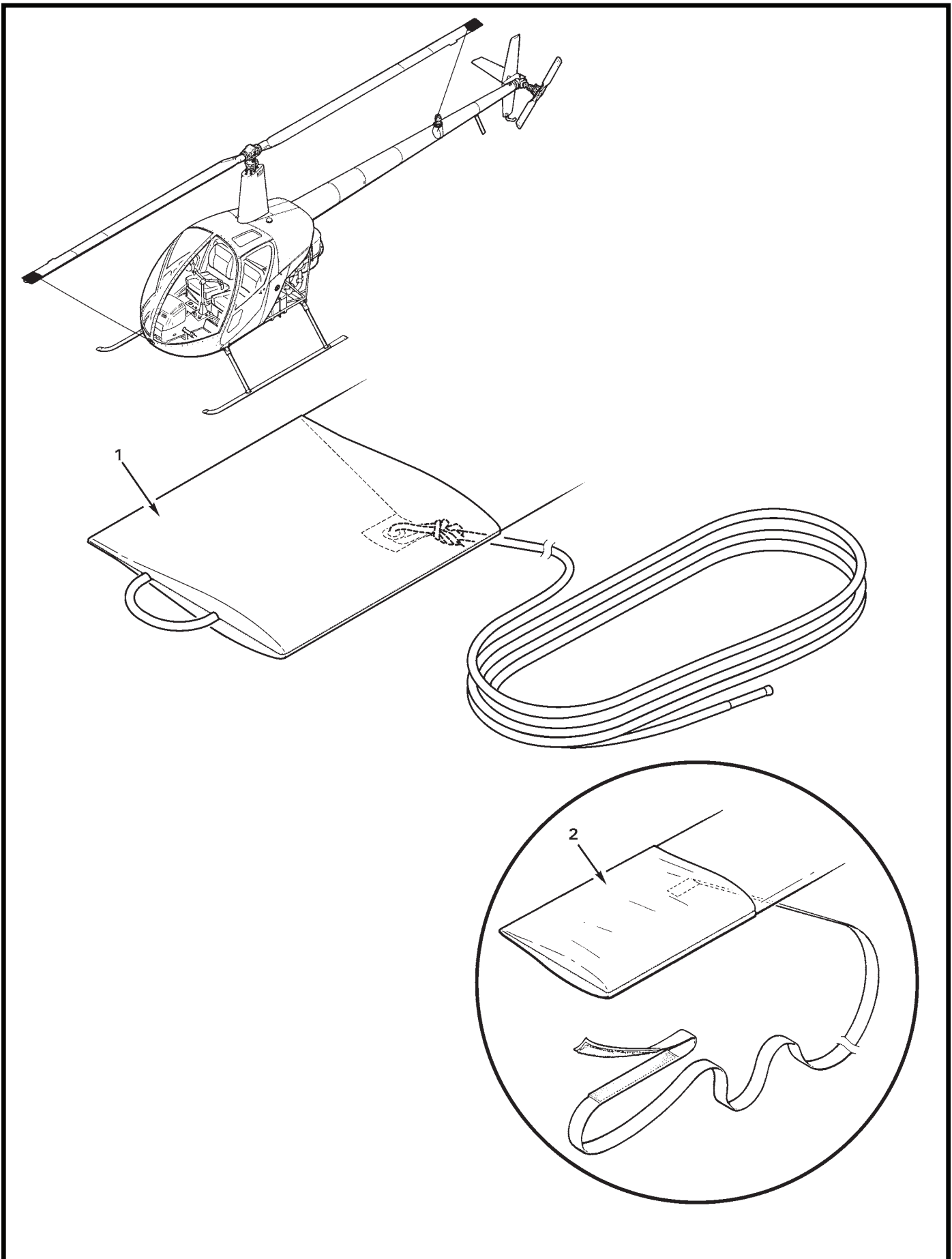


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
10-1-1	MT290-1	<p style="text-align: center;">MAIN ROTOR BLADE TIE-DOWNS</p> Main Rotor Blade Tie-Down (revision "H" and subsequent, nylon rope)	X	2
	MT290-1	Main Rotor Blade Tie-Down (Ref, revision "G" and prior, nylon webbing with hook-and-loop tape.)	O	2
NOTES				

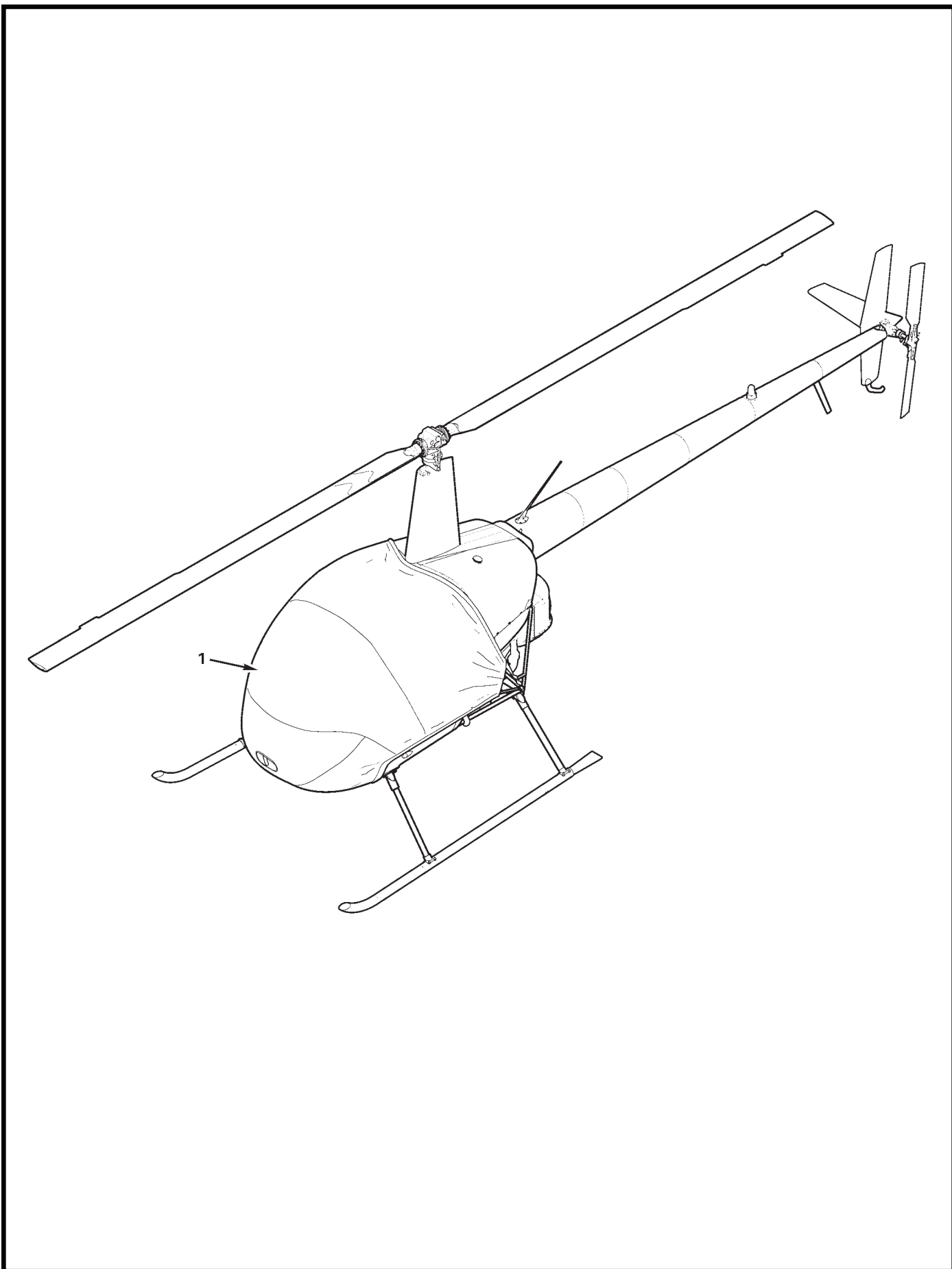


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
10-3-1	BCC-R22-000	Cover – Windshield	X	1
	BCC-R22-700	Cover – Tuna Boat (Includes extended windshield cover, main rotor blade covers, tail rotor cover, main rotor hub cover, and engine cover. Not shown.)	X	1

NOTES

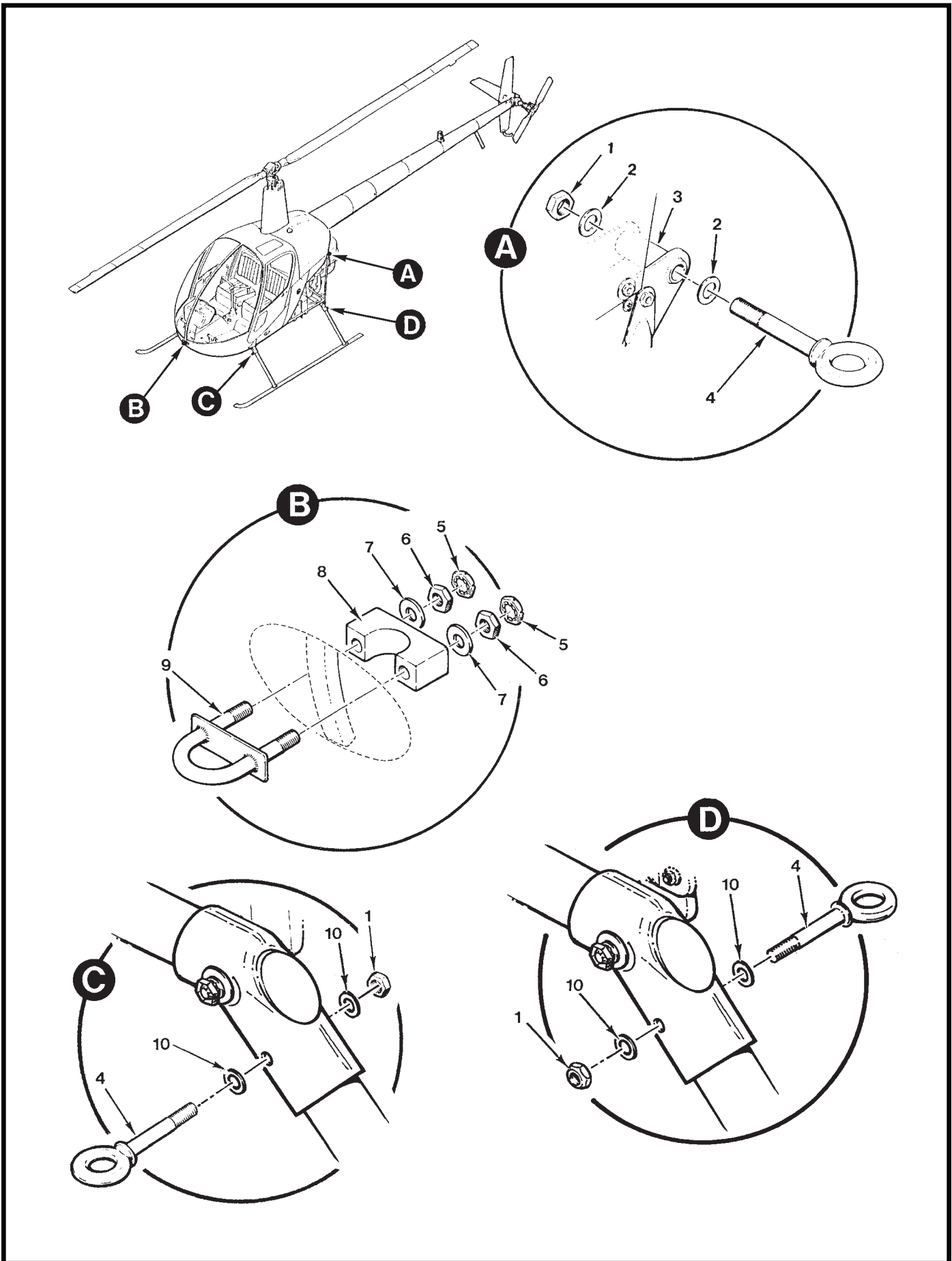


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
TIE-DOWN INSTALLATION				
10-5-1	21FKF-616	Nut (or 27FKF-616)	X	4
2	NAS1149F0663P	Washer	X	4
3	A047-1	Upper Frame Assembly (Ref, see also Figure 53-9)		
4	A964-2	Eyebolt	X	4
5	B330-16	Palnut	X	2
6	AN316C5R	Nut	X	2
7	NAS1149F0532P	Washer	X	2
8	A969-4	Brace	X	1
9	A969-5	U-Bolt Assembly	X	1
10	NAS1149F0632P	Washer	X	A/R
* * *				
11	B124-2	Tie-Down – Field Installation (For R22s with A020-2 Frame Assembly. Includes items 1, 4, 5, 6, 7 [2], 8, 9, and 10 [8].)	X	1

NOTES

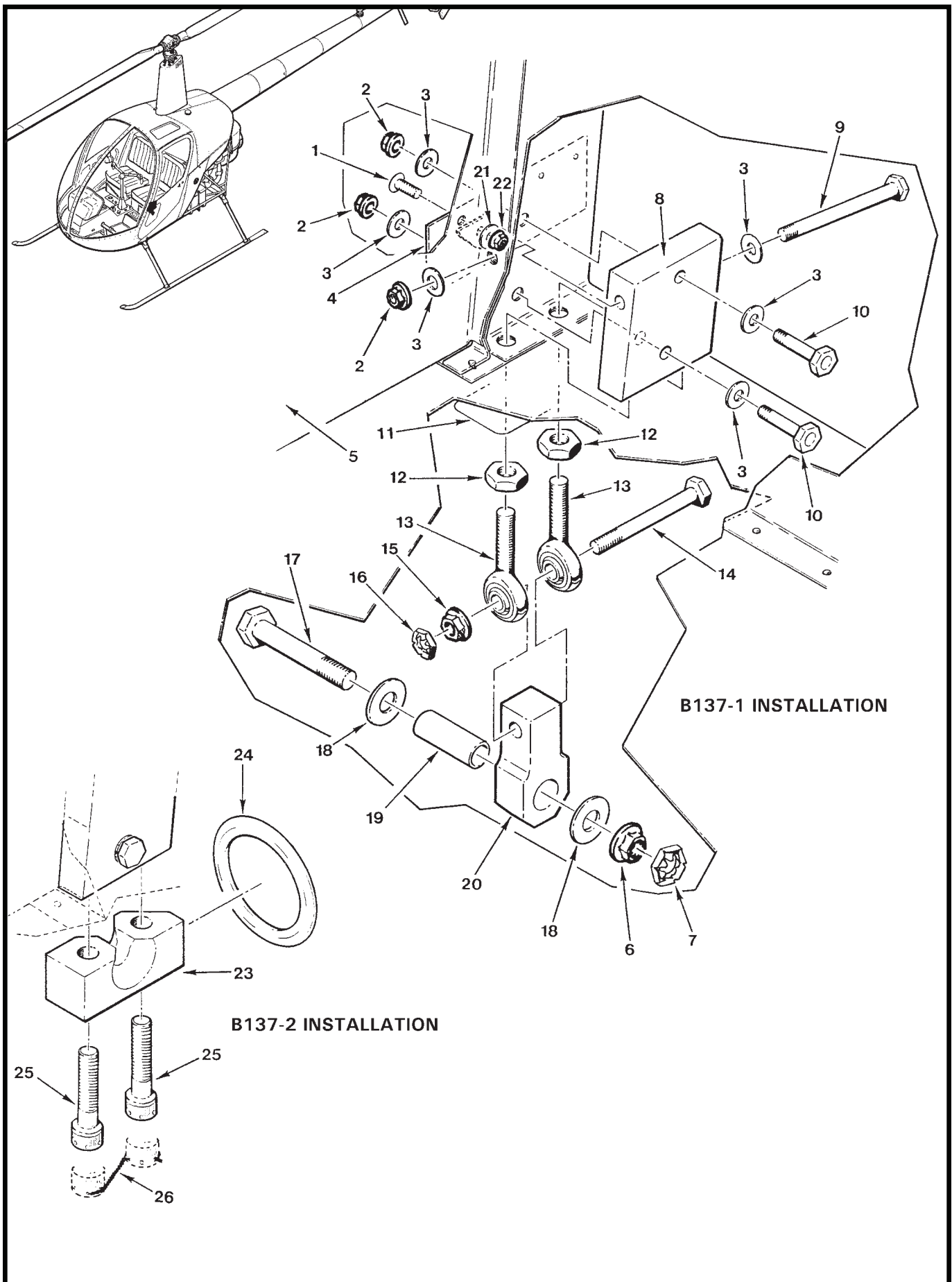


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
		HARDPOINT HINGE AND TIE-DOWN RING INSTALLATIONS		
10-7-1	MS27039C0806	Screw	X	1
2	D210-3	Nut	X	3
3	NAS1149F0332P	Washer	X	6
4	B135-1	Doubler	X	1
5	A292-1	Keel Panel (Ref)		
6	D210-6	Nut	X	1
7	B330-19	Palnut	X	1
8	B134-2	Block	X	1
9	NAS6603-29	Bolt	X	1
10	NAS6603-9	Bolt	X	2
11	A654-55	Decal (load limit)	X	1
12	AN316-5R	Nut	X	2
13	A101-4	Rod End	X	2
14	NAS6604-24	Bolt	X	1
15	D210-4	Nut	X	1
16	B330-13	Palnut	X	1
17	NAS6606-17	Bolt	X	1
18	A214-1	Washer	X	2
19	B139-1	Journal	X	1
20	B136-2	Support	X	1
21	NAS1149FN816P	Washer	X	1
22	MS21042L08	Nut	X	1
23	B253-1	Anchor	X	1
24	3779T43	Ring	X	1
25	NAS1351-5H-20P	Cap Screw	X	2
26	MS20995C32	0.032-inch dia Safety Wire	X	A/R
		* * *		
27	MT350-1	Drill Guide (not shown.)	X	1
28	M39-0630-10	Clip (Hole plug; install when not in use. Not shown.)	X	2

NOTES

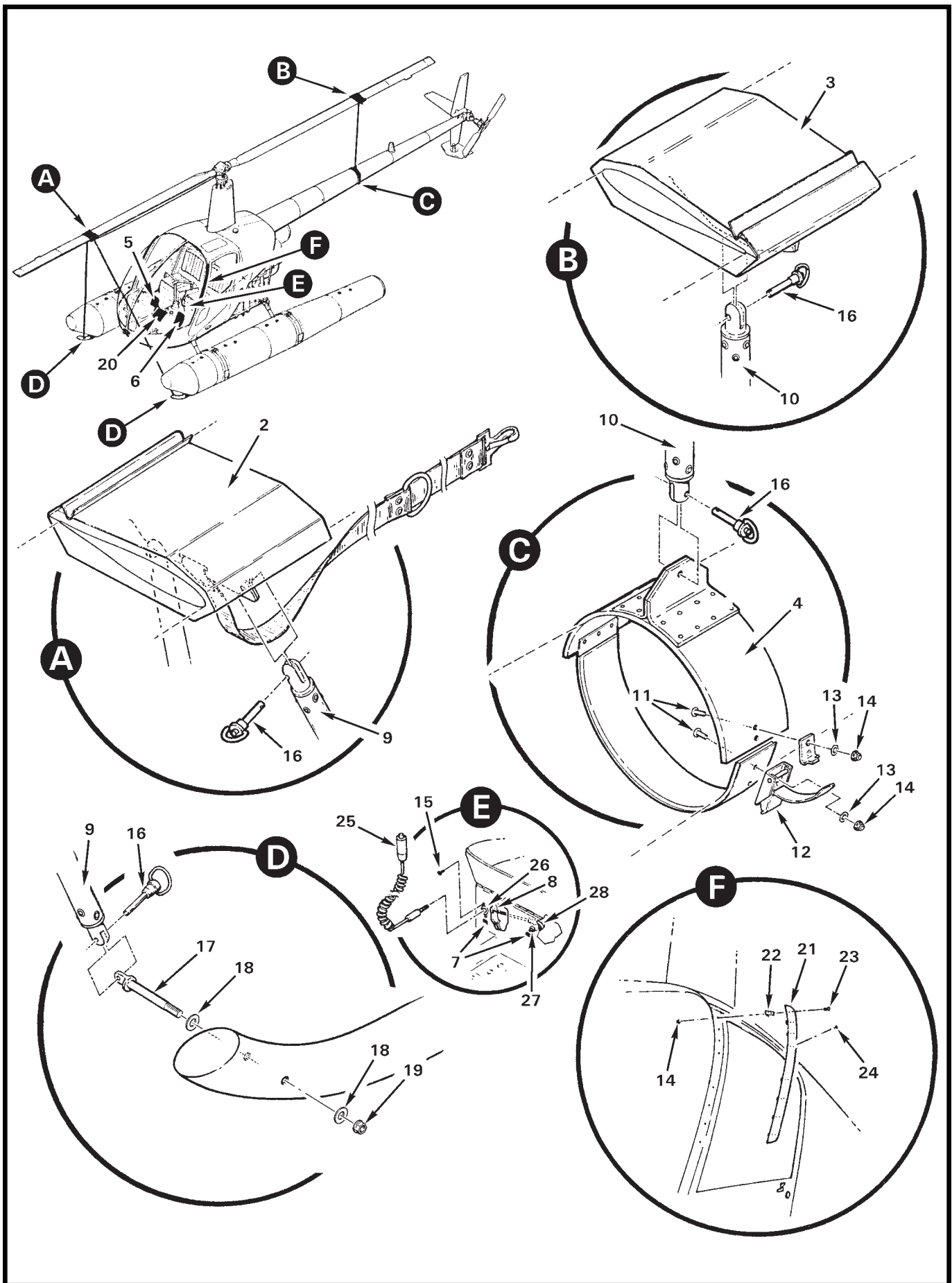


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
MARINER ACCESSORIES				
10-9-1	MT349-1	Main Rotor Blade Support Assembly (includes MT349-2 and MT349-3 support assemblies)	X	1
	MT349-2	Support Assembly – Aft (Incl items 3, 4, 10, and 16)	X	1
	MT349-3	Support Assembly – Forward (Incl items 2, 9, and 16)	X	1
2	MT346-1*	Cradle Assembly (forward blade)	X	1
3	MT346-2*	Cradle Assembly (aft blade)	X	1
4	MT348-1*	Clamp Assembly (Incl items 11 thru 14)	X	1
5	363X*	Vega Radar Transponder	O	1
6	IC-3230A*	ICOM 2 Meter FM Transceiver	O	1
7	A654-86	Decal – “Transmit”	X	2
8	MS25171-2S	Nipple	X	1
9	MT347-5*	Strut Assembly	X	2
10	MT347-4*	Strut Assembly	X	1
11	MS27039C0806	Screw	X	3
12	97-51-215-12	Latch (includes lug)	X	1
13	NAS1149FN816P	Washer	X	3
14	MS21042L08	Nut	X	20
15	MS35206-215	Screw	X	2
16	92384A034	Pin	X	6
17	B218-1	Eyebolt (alternate part no. AN44-24A)	X	2
18	NAS1149F0532P	Washer	X	4
19	MS21042L5	Nut	X	2
20	IC M55*	ICOM Marine VHF Transceiver (or IC M56*)	O	1
	B225	Face – Avionics (Ref)		
21	B228-1*	Wind Deflector (LH or RH)	X	2
22	B228-2*	Angle	X	16
23	MS27039C0808	Screw	X	16
24	MS20470AD4	Rivet (to attach angle)	X	32
25	B121-1*	Remote Transmit Switch	X	1
26	TJ-120	Jack	X	1
27	B227-2	Switch	X	1
28	MS25171-1S	Nipple	X	1

NOTES * Tuna spotter accessory.

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CHAPTER 11

PLACARDS AND MARKINGS

<i>Figure</i>	<i>Title</i>	<i>Page</i>	
11-1	Placards and Markings	11.0	
11-7	Placards and Markings (Japanese)	11.6	I

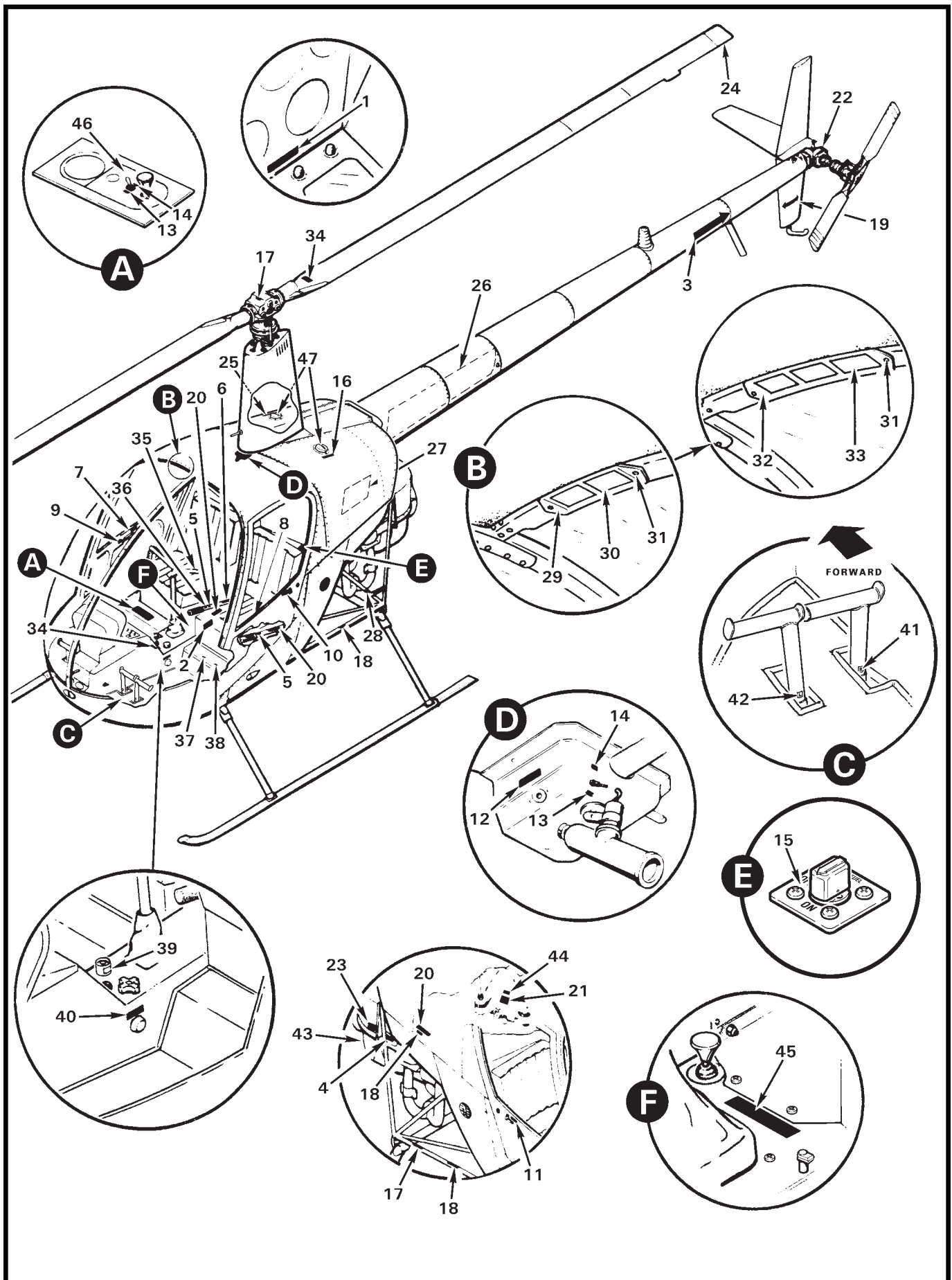


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
PLACARDS AND MARKINGS*				
11-1-1	A743-1 **	Call Letters Plate (instrument console)	X	1
2	A654-2	Decal – “Caution...” (baggage compartment)	X	2
	B841-11	Brazilian Version	X	2
	B842-36	Chinese Version	X	2
	B830-34	Russian Version	X	2
3	A654-3	Decal – Tail Rotor “Danger” Arrow	X	2
	B841-12	Brazilian Version	X	2
	B842-11	Chinese Version	X	2
	B830-22	Russian Version	X	2
4	A654-38	Decal – “Push to Open” (oil cooler door)	X	1
	B841-25	Brazilian Version	X	1
	B830-47	Russian Version	X	1
5	A654-6	Decal – “Throttle Open” (collective)	X	2
6	A654-7	Decal – “Friction Increase” (collective)	X	1
7	A654-8	Decal – “Latch” (door)	X	2
	B841-13	Brazilian Version	X	2
	B842-37	Chinese Version	X	2
	B830-33	Russian Version	X	2
8	A654-9	Decal – “Open” (white letters; LH, inside)	X	1
	B841-14	Brazilian Version	X	1
	B842-12	Chinese Version	X	1
	B830-24	Russian Version (Red letters on white background; LH, inside; RH outside.)	X	2
9	A654-10	Decal – “Open” (white letters; RH, inside)	X	1
	B841-15	Brazilian Version	X	1
	B842-13	Chinese Version	X	1
	B830-25	Russian Version (Red letters on white background; RH, inside; LH outside.)	X	2
10	A654-11	Decal – “Open” (black letters; LH, outside)	X	1
	B841-16	Brazilian Version	X	1
	B842-14	Chinese Version	X	1
11	A654-12	Decal – “Open” (black letters; RH, outside)	X	1
	B841-17	Brazilian Version	X	1
	B842-15	Chinese Version	X	2
12	A654-16	Decal – “Headset”	X	2

NOTES * Country specific decals available only to dealers in noted country.
 ** Customer to specify Letters/Numbers.

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
PLACARDS AND MARKINGS* (Cont'd)				
11-1-13	A654-13	Decal – “Off” (fuel, heater, spotlight)	X	3
14	A654-15	Decal – “On” (fuel, heater, spotlight)	X	3
15	A798-3	Plate – Fuel Valve	X	1
16	C654-3	Decal – Fuel Fill (100 octane)	X	1
	B841-40	Brazilian Version	X	1
	B842-48	Chinese Version	X	1
	C654-4**	Decal – Fuel Fill (100 octane)	X	1
	B841-41	Brazilian Version	X	1
	B842-49	Chinese Version	X	2
	A654-1	Decal – Fuel Fill (80/87 octane, O-320-A2B or -A2C engine) . .	X	1
	A654-75**	Decal – Fuel Fill (80/87 octane, O-320-A2B or -A2C engine) . .	X	1
	A654-40	Decal – Fuel Fill (91/96 octane)	X	1
	A654-76**	Decal – Fuel Fill (91/96 octane)	X	1
17	A654-18	Decal – “Level Here”	X	2
	B841-19	Brazilian Version	X	2
18	A654-19	Decal – “No Step”	X	3
	B841-20	Brazilian Version	X	3
	B830-41	Russian Version	X	3
19	A654-80	Decal – “Danger” Arrow (LH and/or RH)	X	2
	B842-44	Chinese Version	X	2
	B830-21	Russian Version	X	2
20	A654-21	Decal – “No Stowage Keep Area Clear”	X	4
	B841-21	Brazilian Version	X	4
	B842-17	Chinese Version	X	4
	B830-50	Russian Version	X	4
21	A654-56	Decal – M.R.G.B. Fill and Oil Specs	X	1
22	A654-23	Decal – Tail Rotor and Oil Data	X	1
23	A654-24	Decal – “Danger Hot Exhaust”	X	1
	B841-22	Brazilian Version	X	1
	B842-43	Chinese Version	X	1
	B830-48	Russian Version	X	1
24	A654-25	Decal – “Never Pull Down” (main rotor blade)	X	2
	B842-18	Chinese Version	X	2
	B830-61	Russian Version	X	2

NOTES * Country specific decals available only to dealers in noted country.
 ** For dark colored ships.

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
PLACARDS AND MARKINGS* (Cont'd)				
25	C654-5	Decal – Fuel Fill (100 octane; aux fuel tank)	X	1
	B841-42	Brazilian Version	X	1
	B842-47	Chinese Version	X	1
	C654-6**	Decal – Fuel Fill (100 octane; aux fuel tank)	X	1
	B841-43	Brazilian Version	X	1
	B842-52	Chinese Version	X	1
	A654-57	Decal – Fuel Fill (91/96 octane; aux fuel tank)	X	1
	A654-77**	Decal – Fuel Fill (91/96 octane; aux fuel tank)	X	1
26	R5049***	Decal – Registration Letters/Numbers	X	A/R
	R5378***	Stencil – Registration Letters/Numbers	X	A/R
27	R5051	Decal – “R22 Alpha” (stencil set, RH and LH)	X	1
	R5052	Decal – “R22 Beta” (stencil set, RH and LH)	X	1
	R5053	Decal – “R22 HP” (stencil set, RH and LH)	X	1
	R22BETA2	Decal – “R22 Beta II” (stencil set, RH and LH)	X	1
28	A654-30	Decal – “Step Here”	X	1
	B841-24	Brazilian Version	X	1
29	A725-1	Mount – MAP Limits Decal (2-graph)	X	1
30	A654-29	Decal – Flight Limitations (Ref; used on Standard, no longer available)		
	A654-41	Decal – Flight Limitations (used on HP and Alpha)	X	1
	A654-64	Decal – Flight Limitations (used on Beta)	X	1
	A654-90	Decal – Flight Limitations (used on Beta II)	X	1
31	B204-2	Blind Rivet	X	2
32	A725-2	Mount – MAP Limits Decal (3-graph, used on Mariner)	X	1
33	A654-65	Decal – MAP Limits (131 hp Takeoff, used on Mariner)	X	1
	A654-91	Decal – Flight Limitations (used on Mariner II)	X	1
34	A654-44	Decal – “Tip Weights Installed” ([1] decal on console and [1] decal on underside of each main rotor blade)	X	3
35	A654-43	Decal – “Solo From Right Seat Only”	X	1
36	A654-79	Decal – “Gov, On-Off” (see also Figure 96-21)	X	1
37	A654-14	Decal – “DME”	X	1
38	A654-70	Decal – “Gov” (earlier R22s; see also Figure 96-21)	X	1
39	A654-45	Decal – “Mixture Control Guard”	X	1
40	A654-63	Decal – Cyclic Trim Adjust	X	1
41	A654-51	Decal – “R” (removable right pedal)	X	1

NOTES * Country specific decals available only to dealers in noted country.
 ** For dark colored ships.
 *** Customer to Specify Letters/Numbers.

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
PLACARDS AND MARKINGS* (Cont'd)				
42	A654-50	Decal – "L" (removable left pedal)	X	1
43	A654-37	Decal – "R22 Robinson Helicopter"	X	1
44	110-4	Telatemp (temperature recorder 220° – 270°F)	X	1
45	A654-61	Decal – Flight Limitations (used on Mariner)	X	1
46	B170-1	Data Plate – Cabin Heat (replaces all heater decals)	X	1
47	D682-44	Decal (fuel cap instructions)	X	2
	B841-36	Brazilian Version	X	2

NOTES * Country specific decals available only to dealers in noted country.

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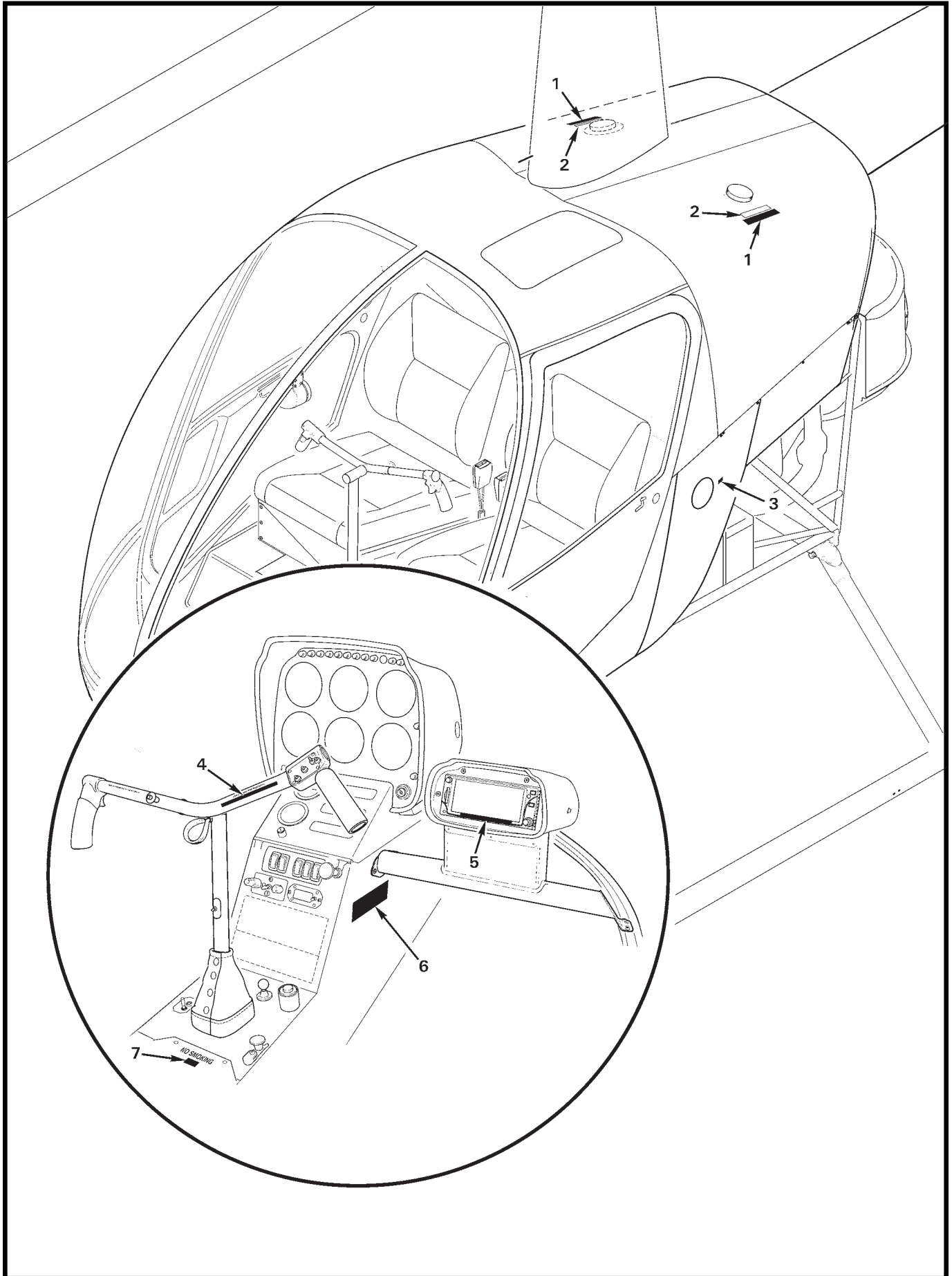


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
PLACARDS AND MARKINGS (JAPANESE)*				
11-7-1	B840-10**	Decal – Fuel Grade (Japanese version of item 2; white lettering)	X	2
	B840-11**	Decal – Fuel Grade (Japanese version of item 2)	X	2
	B840-12***	Decal – Fuel Grade (Japanese version of item 2; white lettering)	X	2
	B840-13***	Decal – Fuel Grade (Japanese version of item 2)	X	2
2	A654-40	Decal – Fuel Grade (Ref, main tank)		
	A654-57	Decal – Fuel Grade (Ref, aux tank)		
3	B840-21	Decal – Engine Oil (white lettering)	X	A/R
	B840-22	Decal – Engine Oil	X	A/R
4	B840-19	Decal – Low-G Pushovers Prohibited (Japanese version)	X	1
5	B840-23	Decal – This GPS is Approved for VFR Only (Japanese Version)	X	1
6	B840-17	Decal – Flight Limitations (Japanese version)	X	1
	B840-18	Decal – Flight Limitations (Mariner; Japanese version)	X	1
7	B840-16	Decal – No Smoking (Japanese version)	X	1

NOTES * Country specific decals available only to dealers in noted country.
 ** Standard R22 with O-320-A2B or O-320-B2C engines.
 *** R22 Alpha, Beta, Mariner or Standard R22 with O-320-B2C engine.

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CHAPTER 12

SERVICING

<i>Figure</i>	<i>Title</i>	<i>Page</i>
–	Lubricants	12.1

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FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
LUBRICANTS				
12-1-1	A257-1	Grease – Moly Grease 101	X	A/R
2	A257-2	Gear Oil – 201 (SAE 90, 1-gallon container)	X	A/R
	A257-2LT	Gear Oil – 201 (SAE 90, 1-lt/qt container)	X	A/R
3	A257-3	Grease – Aeroshell 14 (MIL-G-25537, 14-oz container)	X	A/R
4	A257-4	Oil – Type “A” ATF (Dexron III)	X	A/R
5	A257-5	Grease – Sta-Lube 3120 (water-resistant)	X	A/R
		Grease – Lubrimatic 11402 (water-resistant)	X	A/R
6	A257-6	Grease – Fuelube (fuel-resistant)	X	A/R
		Grease – EZ Turn	X	A/R
7	A257-7	Dry Film Lube – Lubri-Kote Type A1040CR	X	A/R
8	A257-8	Rubber Lube – International P-80	X	A/R
9	A257-9	Anti-Seize – Loctite 767	X	A/R
10	A257-10	Spark Plug Lube – Champion 2612	X	A/R
		Spark Plug Lube – T-556 Unison Industries (Autolite brand) . .	X	A/R
11	A257-12	Grease – Mobilgrease 28 (MIL-G-81322, 12.5-oz container) . .	X	A/R
	A257-12.1oz	Grease – Mobilgrease 28 (MIL-G-81322, 1-oz container)	X	A/R
12	A257-16	Engine Oil (SAE 20W-50, mineral oil for engine break-in. Approved for 0-90° F ambient, substitute -24 as req’d.)	X	A/R
13	A257-18	Lube – O-Ring (Dow Corning no. 55)	X	A/R
14	A257-19	Valve Lube and Sealant (Dow Corning no. 111)	X	A/R
	A257-19.25oz	Valve Lube and Sealant (Dow Corning no. 111)	X	A/R
15	A257-21	Lube – Petrolatum (Panef Corp. no. P-16)	X	A/R
16	A257-22qt	Gear Oil – Synthetic	X	A/R
17	A257-24	Engine Oil (SAE 50, mineral oil for engine break-in. Approved for > 60° F ambient.)	X	A/R

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CHAPTER 18

TRACK AND BALANCE

<i>Figure</i>	<i>Title</i>	<i>Page</i>
18-1	TEC ACES Balancing System	18.0
18-3	TEC ACES Balancing System	18.2
18-5	Chadwick-Helmuth Balancing System	18.4

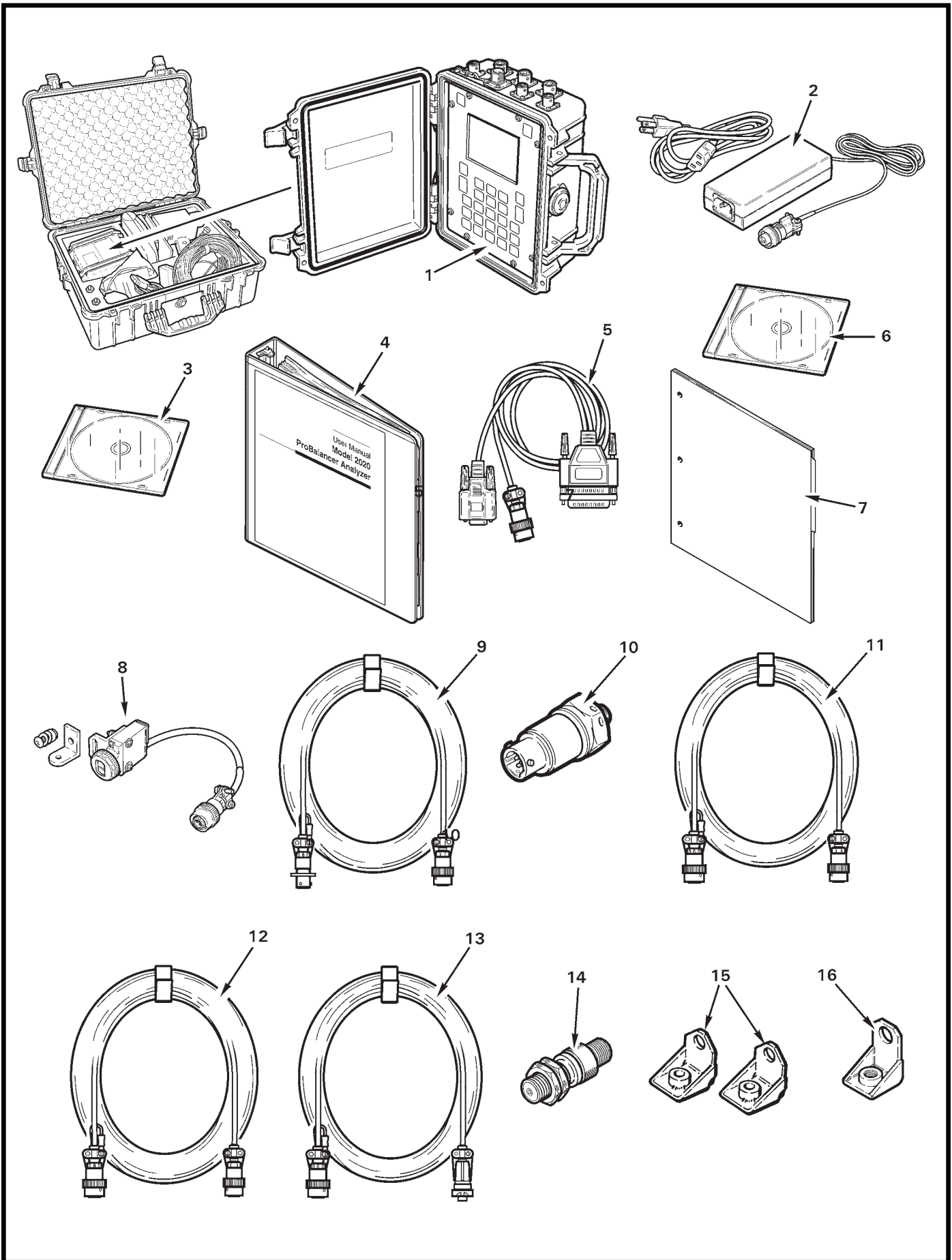


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
TEC ACES BALANCING SYSTEM				
18-1-1	2020HR	Tec Aces Analyzer and Turbo Probalancing System (Incl items 1 thru 16)	X	1
	Z2020-LGCASE KIT	Carry Case – “Aces 2020”	X	1
2	Z10-320-4043-110V	Charger – NiMH Battery (110V)	X	1
3	75-900-0193D	DVD – “Aces 2020”	X	1
4	75-900-2020	Manual – “Aces 2020” User’s Manual	X	1
5	10-320-0157	Cable – “Aces 2020” (6 ft)	X	1
6	10-700-0102	Software – “Avtrend Bronze”	X	1
7	75-900-2026	Manual – “Avtrend Bronze” User’s Manual	X	1
8	10-100-1773	Tachometer – Optical Photocell	X	1
9	10-320-0126	Cable – Tachometer (50 ft)	X	1
10	69-100-0075	Sensor – Vibration Transducer	X	2
11	10-320-0162	Cable – Sensor (25 ft)	X	1
12	10-320-0163	Cable – Sensor (50 ft)	X	1
13	10-320-0052	Cable – Magnetic Pickup (25 ft)	X	1
14	75-900-0187	Sensor – Magnetic Pickup	X	1
15	22-420-0035	Mount (1/4-inch hole)	X	2
16	22-430-0036	Mount (5/16-inch hole)	X	1
NOTES				

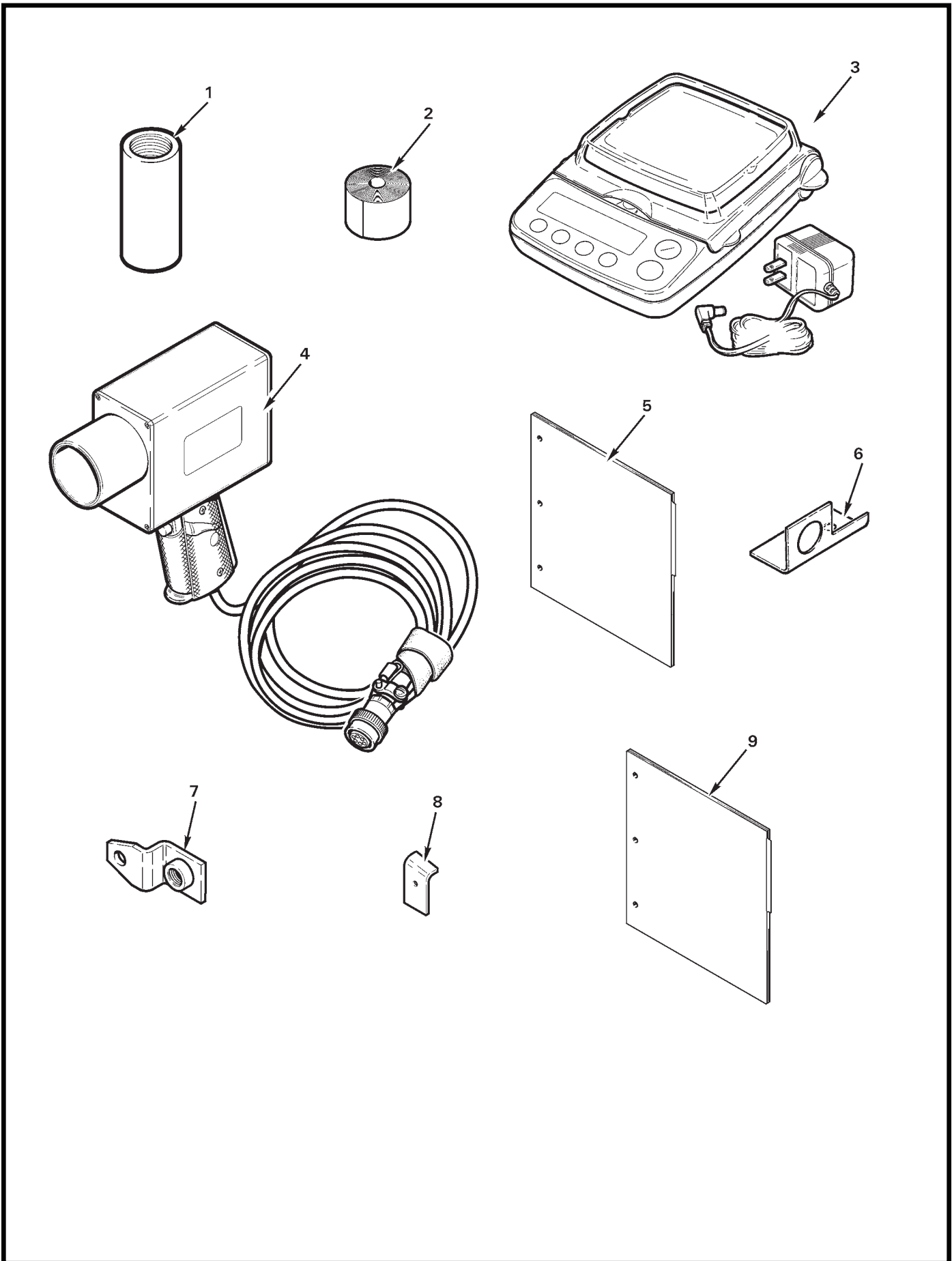


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
TEC ACES BALANCING SYSTEM				
18-3-1	22-430-0096	Sun Shield – Tachometer	X	1
2	10-400-0176	Reflective Tape (10-ft roll)	X	1
3	75-900-0507	Scale	X	1
4	75-900-0542	Tracker – Optical	X	1
5	—	Manual – Optical Tracker (supplement)	X	1
6	22-430-0066	Mount – Multipurpose	X	1
7	22-430-0037	Mount – Sensor	X	1
8	22-430-0082	Interrupter	X	1
9	75-900-2022	Manual – EPS Supplement	X	1
NOTES				

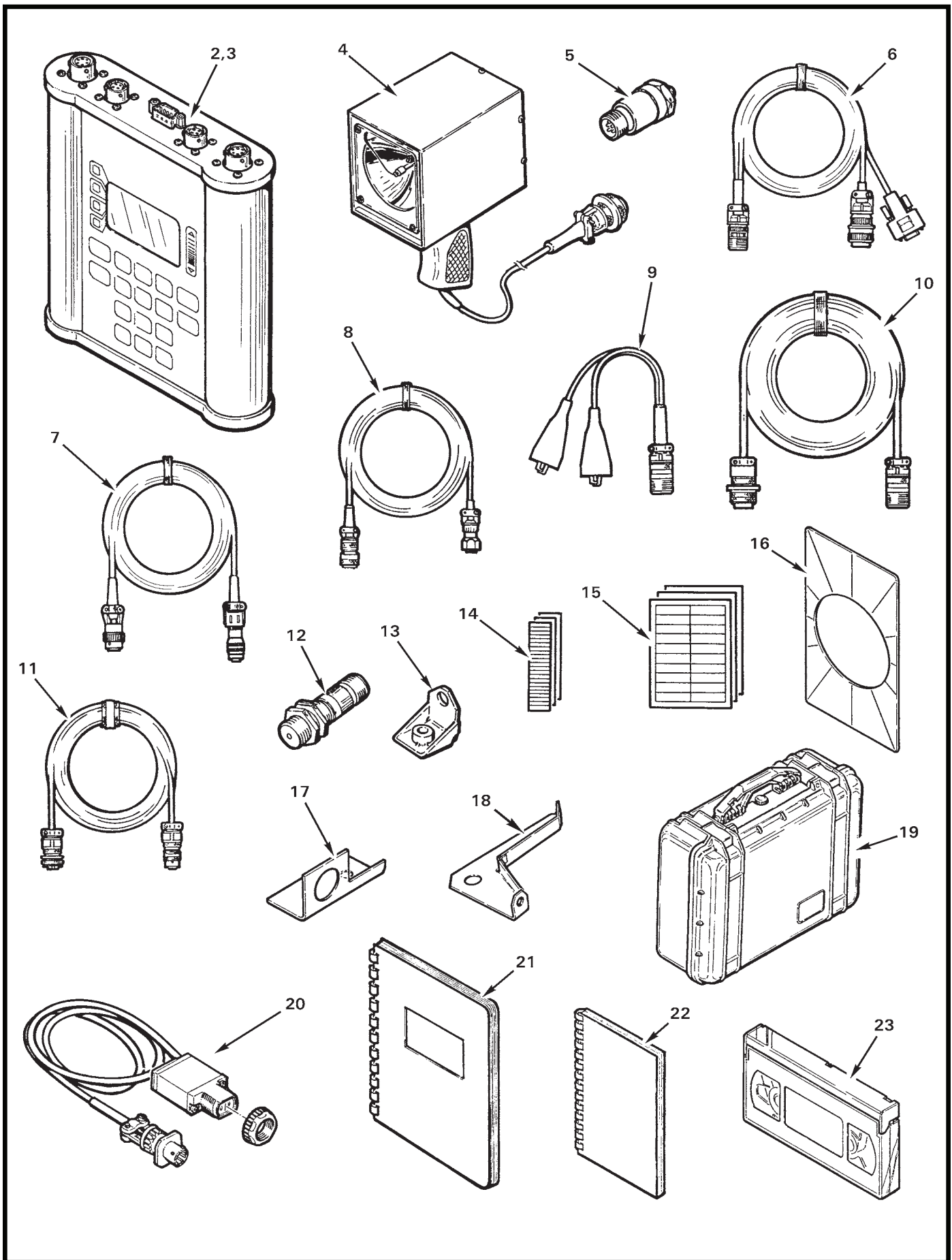


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
CHADWICK-HELMUTH BALANCING SYSTEM				
18-5-1	KI-68	Chadwick-Helmuth Balancing System (Incl items 2, and 4 thru 23)	O	1
	KI-68A	Chadwick-Helmuth Balancing System (Incl items 3 thru 23) . .	O	1
2	13590	Balancer – Vibrex 2000	O	1
3	14990	Balancer – Vibrex 2000 Plus (includes spectrum viewer)	O	1
4	8620	Strobex Tracker (135M-12)	O	1
5	901-7310	Velocimeter	O	1
6	13797	Cable Assembly – Vibrex 2000/Strobex	O	1
7	11247-50	Cable Assembly – Optical (50 feet)	O	1
8	11210-50	Cable Assembly – Velocimeter (50 feet)	O	1
9	902-3140-5	Cable Assembly – DC (with battery clips)	O	1
10	902-3529	Cable Assembly – DC (50-foot extension)	O	1
11	10808-25	Cable Assembly – Magnetic Pickup (25 feet)	O	1
12	5876	Magnetic Pickup (3030)	O	1
13	3382-1	Bracket – Transducer (0.28 HL SS)	O	1
14	907-3300	Target Patch Set (sheet of 20)	X	1
15	C701-1	Tip Target Tape (one [1] target)	X	1
	907-4270-1	Tip Target (laminated, sheet of 20)	O	1
16	13871	Protractor – Vibrex 2000 (tail rotor)	O	1
17	10423-1	Bracket – Vibrex 2000 (generic)	O	1
18	5635	Bracket – Magnetic Pickup (R22 only)	O	1
	MT121-1	Bracket – Magnetic Pickup (R22 only)	X	1
19	13842	Carrying Case – Vibrex 2000	O	1
20	12900	Photocell	O	1
21	9076	Operation/Maintenance Manual	O	1
22	13841-6	User Guide – Vibrex 2000/2000 Plus	O	1
23	610-453	Video – Vibrex 2000	O	1
24	13A	Converter – 12V DC to 24V DC (Chadwick part no.; not included, not shown.)	X	A/R

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CHAPTER 21

ENVIRONMENT CONTROL

<i>Figure</i>	<i>Title</i>	<i>Page</i>
21-1	Cabin Vent Control	21.0
21-3	Cabin Heater – Forward Outlet	21.2
21-7	Cabin Heater – Dual Forward Outlet	21.6
21-9	Cabin Heater – Aft Outlet	21.8

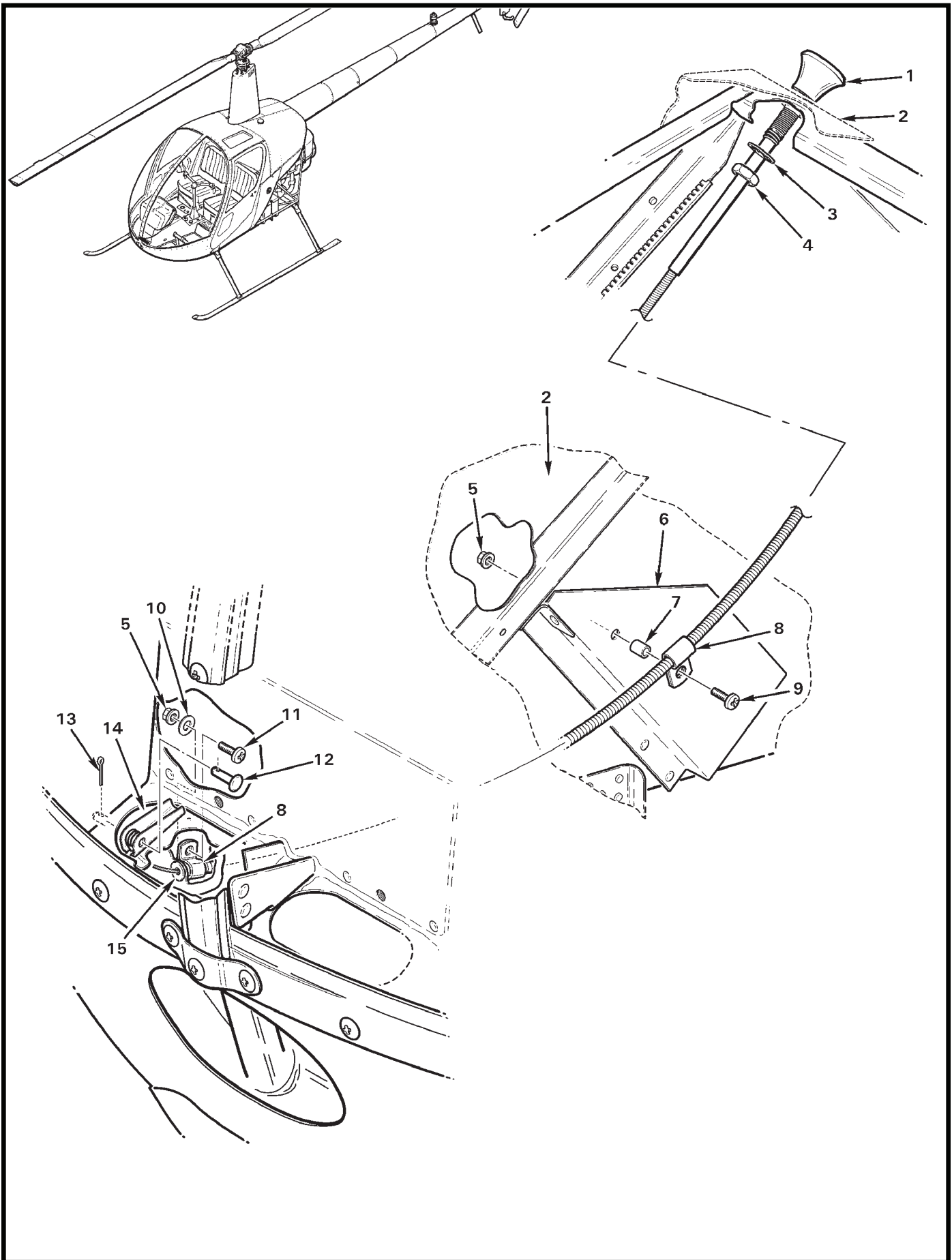


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
CABIN VENT CONTROL				
21-1-1	A522-1	Control – Cabin Air Vent (Incl items 3 and 4)	X	1
2	A033	Console Assembly (Ref)		
3	—	Washer (Ref)		
4	—	Nut (Ref)		
5	D210-3	Nut	X	2
6	A371-2	Stiffener (RH, Ref)		
7	A130-25	Spacer	X	1
8	AN742-3	Clamp	X	2
9	MS27039C1-10	Screw	X	1
10	NAS1149F0332P	Washer	X	1
11	MS27039C1-06	Screw	X	1
12	MS20392-2C13	Pin	X	1
13	MS24665-69	Cotter Pin	X	1
14	A523-5	Flap – Vent Box (Ref)		
15	MS35489-1	Grommet	X	1

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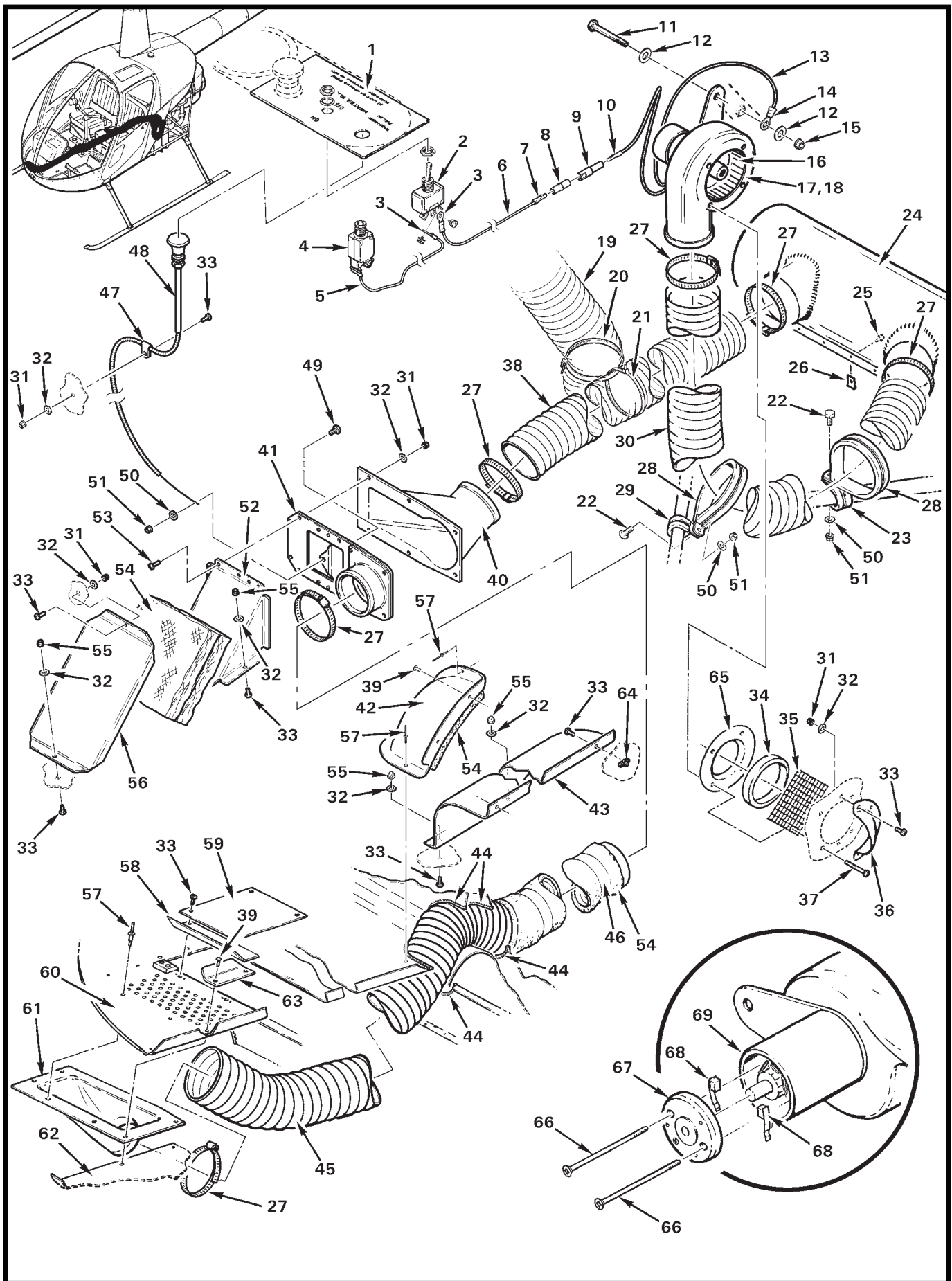


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
		CABIN HEATER – FORWARD OUTLET*		
21-3-1	B170-1	Data Plate	X	1
2	B300-4	Switch	X	1
3	B260-2	Terminal	X	3
4	B297-10	Circuit Breaker (10-amp)	X	1
5	A019-130	Wire (switch-to-circuit breaker)	O	1
6	A019-131	Wire (blower-to-switch)	O	1
7	B263-4	Socket	X	1
8	B263-11	Housing (plug-power side)	X	1
9	B263-10	Housing (blower side)	X	1
10	B263-3	Pin	X	1
11	AN4-20A	Bolt	X	1
12	NAS1149F0432P	Washer	X	2
13	A019-132	Wire (blower-to-ground)	O	1
14	B260-5	Terminal	X	1
15	D210-4	Nut	X	1
16	AA-300-101-2-1	Impeller (blower wheel)	X	1
17	A782-4	Housing (housing only)	X	1
18	A643-2	Blower Assembly (Incl items 8, 9, 10, 13, 14, 16, 17, 65 and wires)	X	1
19	A785-1	Hose – Intake (Ref)		
20	MS3367-6-0	Ty-Rap	X	2
21	MS3367-7-9	Ty-Rap	X	1
22	AN3-4A	Bolt	X	1
23	MS21919WDG14	Clamp	X	1
24	A169-3	Shroud Assembly – Muffler (Incl items 25 and 26)	X	1
25	MS51861-35	Screw	X	7
26	C6352-10Z1	Tinnerman Nut	X	7
27	B277-36	Clamp	X	7
28	MS21919WDG40	Clamp	X	2
29	MS21919WDG10	Clamp	X	1
30	A785-5	Hose (blower-to-muffler shroud; used on Standard and HP)	X	1
	A785-8	Hose (aft battery installation; used on Alpha)	X	1
31	MS21042L08	Nut	X	19
32	NAS1149FN816P	Washer	X	25
33	MS27039C0806	Screw	X	22

NOTES * Ship S/N 0484, 0500, and subsequent.

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
CABIN HEATER – FORWARD OUTLET* (Cont'd)				
21-3-34	A629-1	Spacer	X	1
35	A640-1	Screen – Air Inlet	X	1
36	A911-1	Scoop – Outside Air	X	1
37	MS27039C0816	Screw	X	4
38	A785-3	Hose (valve assembly-to-muffler shroud)	X	1
39	MS20470AD3	Rivet	X	11
40	B282-1	Inlet (engine side of firewall)	X	1
41	B019-3	Valve Assembly	X	1
42	B165-1	Cover	X	1
43	A631-1	Cover – Baggage Compartment	X	1
44	MS21266-1N	Grommet (12-inch length, install using B270-8qt adhesive)	X	A/R
45	A785-9	Hose	X	1
46	A701-1	Foil Tape (180-foot roll)	X	A/R
47	AN742-3	Clamp	X	4
48	A522-4	Control – Cabin Heat	X	1
49	A462-1	Fitting (slider-to-control attach)	X	1
50	NAS1149F0332P	Washer	X	3
51	D210-3	Nut	X	3
52	A625-1	Box – Outlet	X	1
53	MS27039C0808	Screw	X	8
54	R5111	Insulation (One layer around hose, under item 42, and between items 52 and 56; 4 square feet.)	X	A/R
55	B340-4	Nut	X	8
56	A753-1	Cover – Box Outlet	X	1
57	NAS1919B04S01	Rivet	X	10
58	B189-2	Deflector – Aft	X	1
59	A412-1	Cover	X	1
60	A232-2	Floor Panel (RH)	X	1
61	B164-1	Outlet (Ref)		
62	A232-3	Floor Panel (center, Ref)		
63	B189-1	Deflector	X	1
64	MS21069L08	Nutplate	X	4
65	A903-1	Inlet – Outside Air	X	1
66	—	Screw (Ref)		
67	—	Cover (Ref)		

NOTES * Ship S/N 0484, 0500, and subsequent.

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
<p>21-3-68</p> <p>69</p>	7041101-2-1	<p>CABIN HEATER – FORWARD OUTLET* (Cont'd)</p> <p>Brush (no longer available; for use in Aerospace Systems blowers only)</p>	0	2
	A643-1	Blower Assembly (Ref, no longer available. See item 18.)		

NOTES * Ship S/N 0484, 0500, and subsequent.

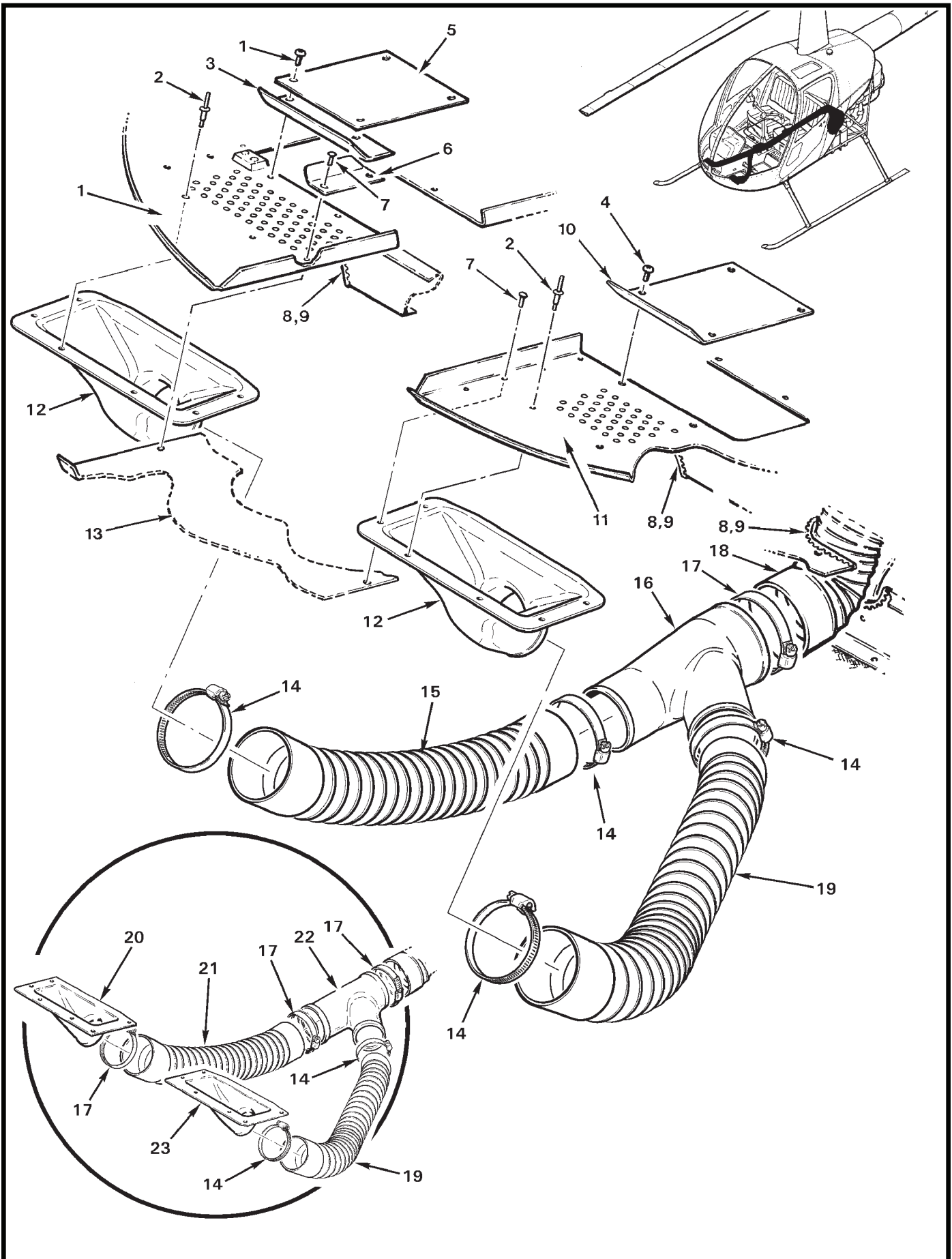


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
CABIN HEATER – DUAL FORWARD OUTLET				
21-7-1	A232-1	Floor Panel (RH, Ref)		
2	NAS1919B04S01	Rivet	X	8
3	B189-2	Deflector (RH, aft)	X	1
4	MS27039C0806	Screw	X	8
5	A412-1	Cover	X	1
6	B189-1	Deflector (inboard)	X	1
7	MS20470AD3	Rivet	X	4
8	MS21266-1N	Grommet (12-inch length, attach using item 9)	X	A/R
9	B270-8qt	Adhesive	X	A/R
10	B189-4	Deflector (LH)	X	1
11	A232-1	Floor Panel (LH, Ref)		
12	B164-3	Outlet	X	2
13	A232-3	Floor Panel (center, Ref)		
14	B277-28	Clamp	X	4
15	A785-34	Hose	X	1
16	B391-2	Splitter	X	1
17	B277-36	Clamp	X	1
18	A785-8	Hose (Ref, valve assembly-to-splitter [item 16]. See Figure 21-3.)	X	1
19	A785-25	Hose	X	1
* * *				
20	B164-1	Outlet (RH, Ref; no longer available. To replace, order items 12, and 14 thru 16.)		
21	A785-27	Hose	X	1
22	B391-1	Splitter (Ref, no longer available. To replace, order items 12, and 14 thru 16.)		
23	B164-2	Outlet (LH, Ref; no longer available. To replace, order item 12.)		

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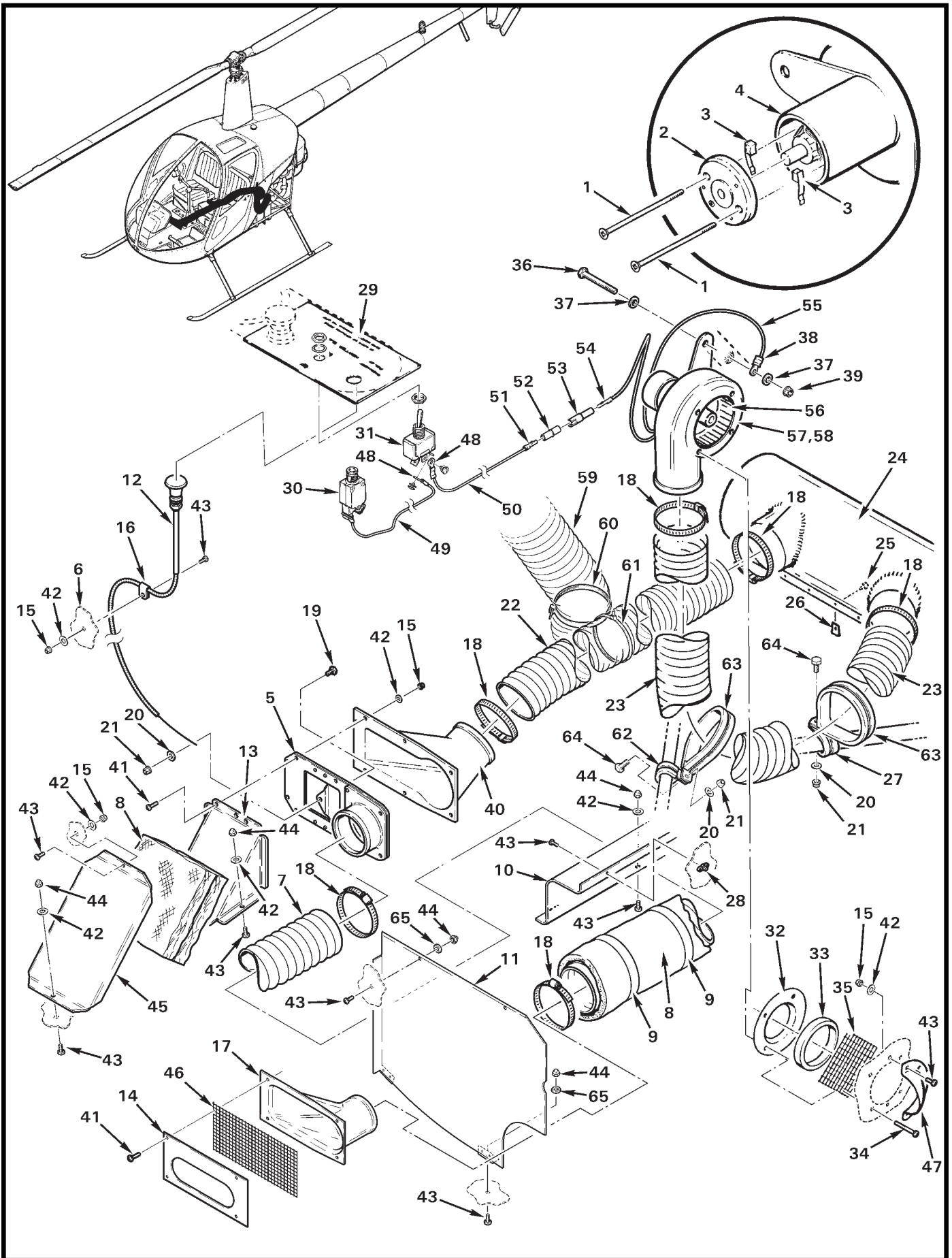


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
CABIN HEATER – AFT OUTLET				
21-9-1	—	Screw (Ref)		
2	—	Cover (Ref)		
3	7041101-2-1	Brush (no longer available; for use in Aerospace Systems blowers only)	O	2
4	A643-1	Blower Assembly (Ref, no longer available. Superseded by item 58.)		
5	B019-3	Valve Assembly	X	1
6	A294-1	Frame Assembly – Skid Mount (Ref)		
7	A785-4	Hose (cabin outlet-to-firewall valve)	X	1
8	R5111	Insulation (One layer around hose, two layers between items 13 and 45; 4 square feet.)	X	A/R
9	A701-1	Foil Tape (180-foot roll)	X	A/R
10	A631-1	Cover – Baggage Compartment	X	1
11	A748-1	Cover – Baggage Compartment	X	1
12	A522-4	Control – Cabin Heat	X	1
13	A625-1	Box – Outlet	X	1
14	A630-1	Cover – Cabin Outlet Screen	X	1
15	MS21042L08	Nut	X	19
16	AN742-3	Clamp	X	4
17	A623-2	Outlet – Cabin	X	1
18	B277-36	Clamp	X	6
19	A462-1	Fitting (slider-to-control attach)	X	1
20	NAS1149F0332P	Washer	X	3
21	D210-3	Nut	X	3
22	A785-3	Hose (valve assembly-to-muffler shroud)	X	1
23	A785-5	Hose (blower-to-muffler shroud)	X	1
	A785-8	Hose (aft battery installation)	X	1
24	A169-3	Shroud Assembly – Muffler (Incl items 25 and 26)	X	1
25	MS51861-35	Screw	X	7
26	C6352-10Z1	Tinnerman Nut	X	7
27	MS21919WDG14	Clamp	X	1
28	MS21069L08	Nutplate	X	4
29	B170-1	Data Plate	X	1
30	B297-10	Circuit Breaker (10-amp)	X	1
31	B300-4	Switch	X	1
32	A903-1	Inlet – Outside Air	X	1

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Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
CABIN HEATER – AFT OUTLET (Cont'd)				
21-9-33	A629-1	Spacer	X	1
34	MS27039C0816	Screw	X	4
35	A640-1	Screen – Air Inlet	X	1
36	AN4-20A	Bolt	X	1
37	NAS1149F0432P	Washer	X	2
38	B260-5	Terminal	X	1
39	D210-4	Nut	X	1
40	B282-1	Inlet (engine side of firewall)	X	1
41	MS27039C0808	Screw	X	12
42	NAS1149FN816P	Washer	X	25
43	MS27039C0806	Screw	X	22
44	B340-4	Nut	X	8
45	A753-1	Cover – Box Outlet	X	1
46	A019-6	Grille – Cabin Inlet	X	1
47	A911-1	Scoop – Outside Air	X	1
48	B260-2	Terminal	X	3
49	A019-130	Wire (switch-to-circuit breaker)	X	1
50	A019-131	Wire (blower-to-switch)	O	1
51	B263-4	Socket	X	1
52	B263-11	Housing (socket, power side)	X	1
53	B263-10	Housing (pin, blower side)	X	1
54	B263-3	Pin	X	1
55	A019-132	Wire (blower-to-ground)	O	1
56	AA-300-101-2-1	Impeller (blower wheel)	X	1
57	A782-4	Housing (housing only)	X	1
58	A643-2	Blower Assembly (Includes wiring and items 32, 38, and 53 thru 57.)	X	1
59	A785-1	Hose Intake (Ref)		
60	MS3367-6-0	Ty-Rap	X	1
61	MS3367-7-9	Ty-Rap	X	1
62	MS21919WDG10	Clamp	X	1
63	MS21919WDG40	Clamp	X	2
64	AN3-4A	Bolt	X	2
65	NAS1149FN832P	Washer	X	4

NOTES

CHAPTER 25
FURNISHINGS

<i>Figure</i>	<i>Title</i>	<i>Page</i>
25-1	Interior Furnishings	25.0
25-5	Interior Furnishings	25.4
25-9	Seat Support and Floor Installation	25.8
25-13	Seat Compartment Covers	25.12
25-15	Fire Extinguisher Installation	25.14
25-17	Fire Extinguisher Installation	25.16
25-19	Kannad ELT Installation	25.18
25-23	Kannad ELT Installation	25.22
25-25	Pointer ELT Installation	25.24

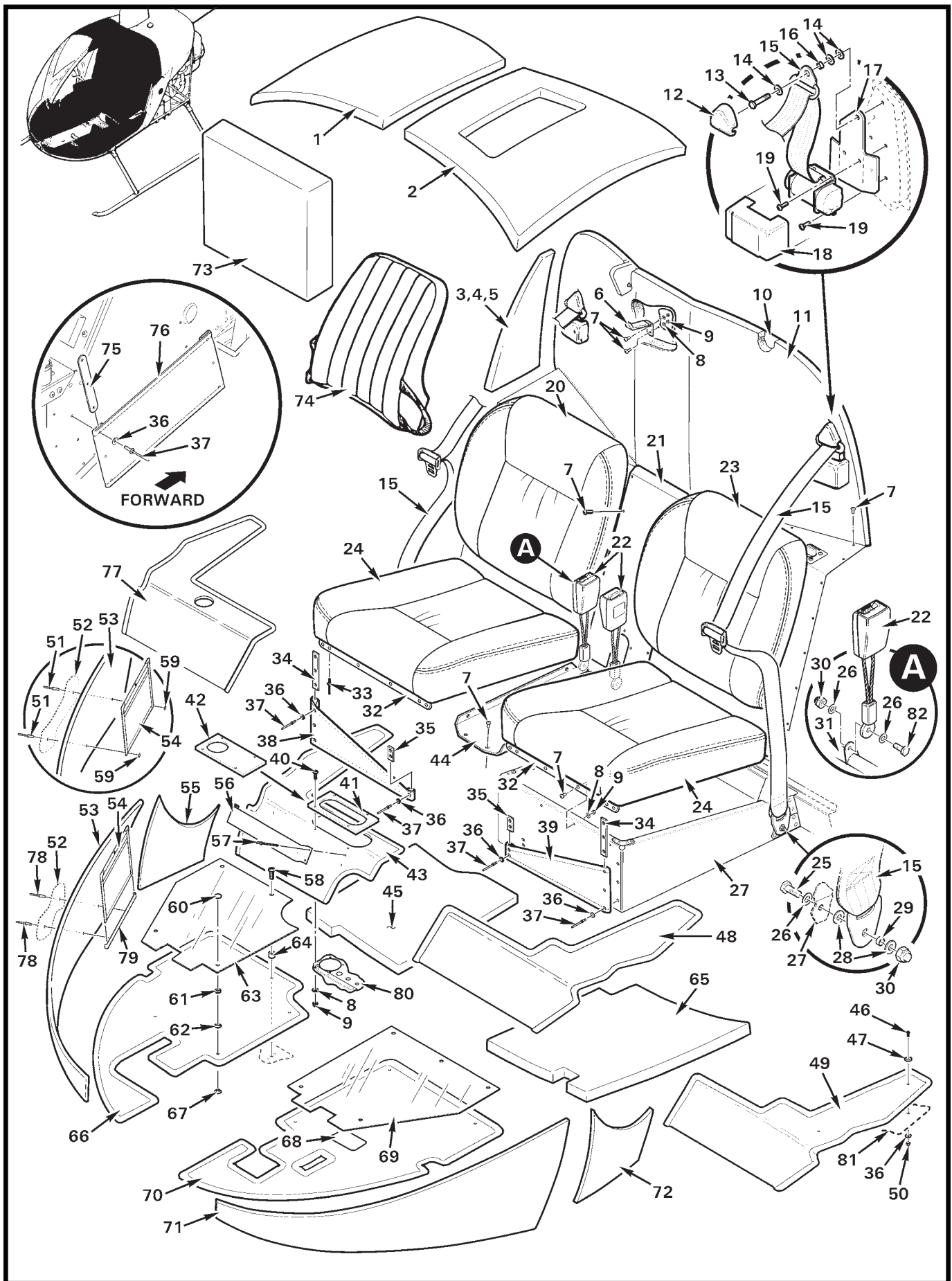


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
INTERIOR FURNISHINGS				
25-1-1	A003-3XX*	Foam Insulation (RH; install using item 5)	X	1
2	A914-1XX*	Foam Insulation (LH; install using item 5)	X	1
3	A003-15XX*	Foam Insulation (RH; install using item 5)	X	1
4	A003-10XX*	Foam Insulation (LH, not shown; install using item 5)	X	1
5	B270-8qt	Adhesive	X	A/R
6	A752-2	Angle – Headset Hanger	X	1
7	MS27039C0806	Screw	X	73
8	NAS1149FN816P	Washer	X	19
9	MS21042L08	Nut	X	13
10	A259	Bulkhead (Ref)		
11	A003-2XX*	Foam Insulation (install using item 5)	X	1
12	505798-1	Cover – Running Loop (Ref, included with item 15)	O	1
13	NAS6604-11	Bolt	X	2
14	A141-14	Washer	X	6
15	A628-6	Seat Harness Assembly (LH or RH; includes items 12 and 18)	X	2
16	A130-44	Spacer	X	2
17	B127-2	Guard (LH)	X	1
	B127-3	Guard (RH)	X	1
18	505663-3	Cover – Inertia Reel	X	1
19	MS27039C1-09	Screw	X	8
20	A003-14**	Seat Back Assembly (RH, used with A932-7 seat back. Revision "AY" and subsequent.)	X	1
21	A465-4	Panel Assembly	X	1
22	F628-8	Buckle Assembly (push-button release, RH or LH)	X	2
23	A003-13**	Seat Back Assembly (LH, used with A932-7 seat back. Revision "AY" and subsequent.)	X	1
24	A928-7**	Seat Assembly – Bottom (Incl item 32)	X	2
25	NAS6604-4	Bolt	X	2
26	NAS1149F0432P	Washer	X	6
27	A291	Seat Support (Ref)		
28	NAS1149F0463P	Washer	X	10
29	A130-28	Spacer	X	2
30	B340-10	Nut	X	4
31	A348-1	Anchor – Harness (Ref; see also Figure 25-9)	X	1
32	A928-5	Seat Hinge (install using item 33 [6])	X	1
33	B204-4	Rivet	X	A/R

NOTES * Please specify color (replace XX with BL for blue, GR for gray, or TN for tan).
 ** Please specify color (blue, gray, or tan) and leather or velour.

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
INTERIOR FURNISHINGS (Cont'd)				
25-1-34	A913-1	Strip (long)	X	2
35	A913-2	Strip (short)	X	2
36	NAS1149FN632P	Washer	X	15
37	B204-2	Blind Rivet	X	17
38	A912-1	Pocket (RH)	X	1
39	A912-4	Pocket (LH, ship S/N 2900 and subsequent)	X	1
40	MS27039C0808	Screw	X	4
41	A750-2*	Cover (cabin heater, used on Standard and HP)	X	1
	A750-4*	Cover (cabin heater, used on Alpha and Beta)	X	1
42	A750-1*	Cover (no cabin heater, used on Standard and HP)	X	1
	A750-3*	Cover (no cabin heater, used on Alpha and Beta)	X	1
43	A469-27**	Carpet Assembly (RH aft, w/heater outlet)	X	1
44	A445-2	Cover	X	1
45	A003-4	Foam Insulation (RH, no cabin heater)	X	1
	A003-16	Foam Insulation (RH, cabin heater)	X	1
46	MS24693-S27	Screw (earlier R22s)	X	4
47	A3236-012-24A	Washer (earlier R22s)	X	4
48	A469-18**	Carpet Assembly (LH, aft; ship S/N 0333 and subsequent) . .	X	1
49	A469-3**	Carpet Assembly (LH, aft; ship S/N 0002 thru 0332)	X	1
50	MS21042L06	Nut (earlier R22s)	X	4
51	NAS9301B-4-05	Blind Rivet (use when items 54 and 56 are chin-mounted) . . .	X	6
52	A272	Chin (Ref, see Figure 6-1)		
53	A469-12**	Carpet (RH, carpet only)	X	1
54	13-07900	License Holder	X	1
55	A469-14**	Carpet (RH, carpet only)	X	1
56	A745-1	Strap	X	1
57	B204-1	Blind Rivet	X	4
58	AN525-832R10	Screw (NOT interchangeable with MS27039C1-10)	X	6
59	NAS620-5	Washer	X	2
60	MS27981-1B	Button	X	2
61	MS27981-3B	Socket	X	2
62	MS27981-4B	Stud	X	2
63	A469-24	Scuff Plate Assembly (RH, forward heater outlet; includes items 60 and 61)	X	1
64	A130-33	Spacer	X	6

NOTES * A750-3 and -4 for ships with aft battery (except instrument trainers); all others use -1 or -2.
 ** Please specify color (blue, gray, or tan).

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
INTERIOR FURNISHINGS (Cont'd)				
25-1-65	A003-5	Foam Insulation (LH)	X	1
66	A469-34*	Carpet Assembly (RH floor, with heater and screwed-down scuff plate. Includes items 62, 63, and 67.)	X	1
	A469-32*	Carpet Assembly (RH floor, with screwed-down scuff plate, not shown. Includes item 62, 63, and 67.)	X	1
67	MS27981-5B	Eyelet	X	2
68	A654-85	Decal – “DANGER TAIL ROTOR AND HOT EXHAUST”	X	1
69	A469-9	Scuff Plate Assembly (LH; includes items 60, 61, and 68)	X	1
70	A469-33*	Carpet Assembly (LH floor, with heater and screwed-down scuff plate. Includes items 62, 67 and 69.)	X	1
	A469-31*	Carpet Assembly (LH floor, with screwed-down scuff plate, not shown. Includes items 62, 67, and 69.)	X	1
71	A469-11*	Carpet (LH, carpet only)	X	1
72	A469-13*	Carpet (LH, carpet only)	X	1
73	A693-1	Cushion (for shorter pilots)	X	1
74	A693-2BLV	Cushion (optional, for shorter pilots; blue velour)	X	1
	A693-2BLL	Cushion (optional, for shorter pilots; blue leather)	X	1
	A693-2GRV	Cushion (optional, for shorter pilots; gray velour)	X	1
	A693-2GRL	Cushion (optional, for shorter pilots; gray leather)	X	1
	A693-2TNV	Cushion (optional, for shorter pilots; tan velour)	X	1
	A693-2TNL	Cushion (optional, for shorter pilots; tan leather)	X	1
75	A913-3	Strip	X	2
76	A912-5	Pocket Assembly	X	1
77	A469-4*	Carpet Assembly (RH, aft; no cabin heater)	X	1
78	NAS9301B-4-05	Blind Rivet (or NAS9301B-4-04)	X	6
79	B632-1	Channel	X	1
80	A304-4	Cap (RH, Ref)		
81	A287-1	Panel (RH, Ref)		
82	NAS6604-4	Bolt	X	2

NOTES * Please specify color (blue, gray, or tan).

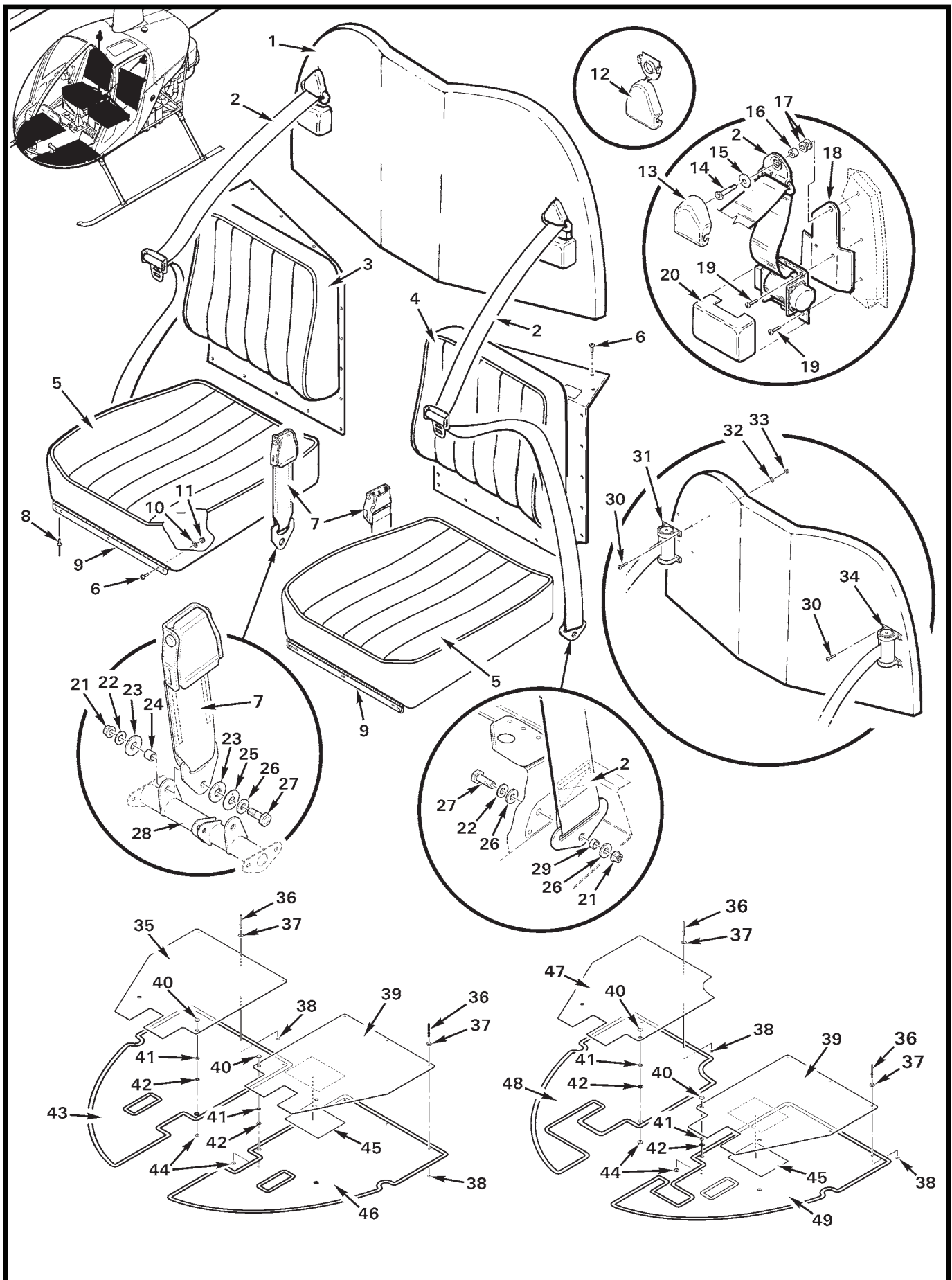


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
INTERIOR FURNISHINGS				
25-5-1	A003-2	Foam Insulation (Ref, see Figure 25-1)		
2	A628-4	Connector Assembly (Ref, used with item 7. No longer available; see Figure 25-1, item 15.)		
3	A003-14	Seat Back Assembly (RH, revision "AX" and prior. Used with A932-1* seat back.)	X	1
4	A003-13	Seat Back Assembly (LH, revision "AX" and prior. Used with A932-1* seat back.)	X	1
5	A928-1	Seat Assembly – Bottom (Incl items 8 and 9)	X	2
6	MS27039C0806	Screw	X	54
7	A628-5	Buckle Assembly (Used with item 2. No longer available; see Figure 25-1, item 22.)	O	2
8	B204-4	Rivet	X	A/R
9	A928-5	Hinge (install using item 8)	X	1
10	NAS1149FN816P	Washer	X	54
11	MS21042L08	Nut	X	54
12	FCGD1010	Cover – Web Guide (replaces earlier A628-4 assembly cover)	X	1
13	504779-3	Cover – Running Loop (Ref)	O	1
14	NAS6604-11	Bolt	X	2
15	AN970-4	Washer	X	2
16	A130-44	Spacer	X	2
17	A141-14	Washer	X	2
18	B127-2	Guard (LH)	X	1
	B127-3	Guard (RH)	X	1
19	MS27039C1-09	Screw	X	8
20	502260	Cover – Inertia Reel	X	1
21	MS21042L4	Nut	X	4
22	NAS1149F0432P	Washer	X	4
23	D041-5	DU Washer	X	4
24	A130-52	Washer	X	2
25	A041-6	Spring Washer	X	2
26	MS20002-4	Washer	X	6
27	NAS6604-5	Bolt	X	4
28	A348-1	Anchor Assembly (Ref)		
29	A130-28	Spacer	X	2
30	MS27039C1-12	Screw	X	8
31	R7177*	Seat Harness Assembly (RH, Ref; no longer available)		
32	NAS1149F0332P	Washer (right side only)	X	4
33	MS21042L3	Nut (right side only)	X	4

NOTES * Ship S/N 0002 thru 0435.

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
INTERIOR FURNISHINGS (Cont'd)				
25-5-34	R7175 *	Seat Harness Assembly (LH, Ref; no longer available)		
35	A469-10	Scuff Plate Assembly (RH, no heater; includes items 40, and 41)	X	1
36	B204-4	Rivet	X	A/R
37	A3236-012-193	Washer	X	2
38	90183A213	Washer	X	15
39	A469-9	Scuff Plate Assembly (LH, includes items 40, 41, and 45) . . .	X	1
40	MS27981-1B	Button	X	2
41	MS27981-3B	Socket	X	2
42	MS27981-4B	Stud	X	2
43	A469-2**	Carpet Assembly (RH floor, no heater; with riveted-down scuff plate. Includes items 35 thru 38, 42, and 44.)	X	1
44	MS27981-5B	Eyelet	X	2
45	A654-85	Decal – "DANGER TAIL ROTOR AND HOT EXHAUST"	X	1
46	A469-1**	Carpet Assembly (LH floor, no heater; with riveted-down scuff plate. Includes items 36 thru 39, 42 and 44.)	X	1
47	A469-24	Scuff Plate Assembly (RH, forward heater outlet; includes items 40 and 41)	X	1
48	A469-23**	Carpet Assembly (RH floor, with heater and riveted-down scuff plate. Includes items 36 thru 38, 42, and 44.)	X	1
49	A469-29**	Carpet Assembly (LH floor, with heater and riveted-down scuff plate. Includes items 36 thru 39, 42, and 44.)	X	1

NOTES * Ship S/N 0002 thru 0435.
 ** Please specify color (blue, gray, or tan).

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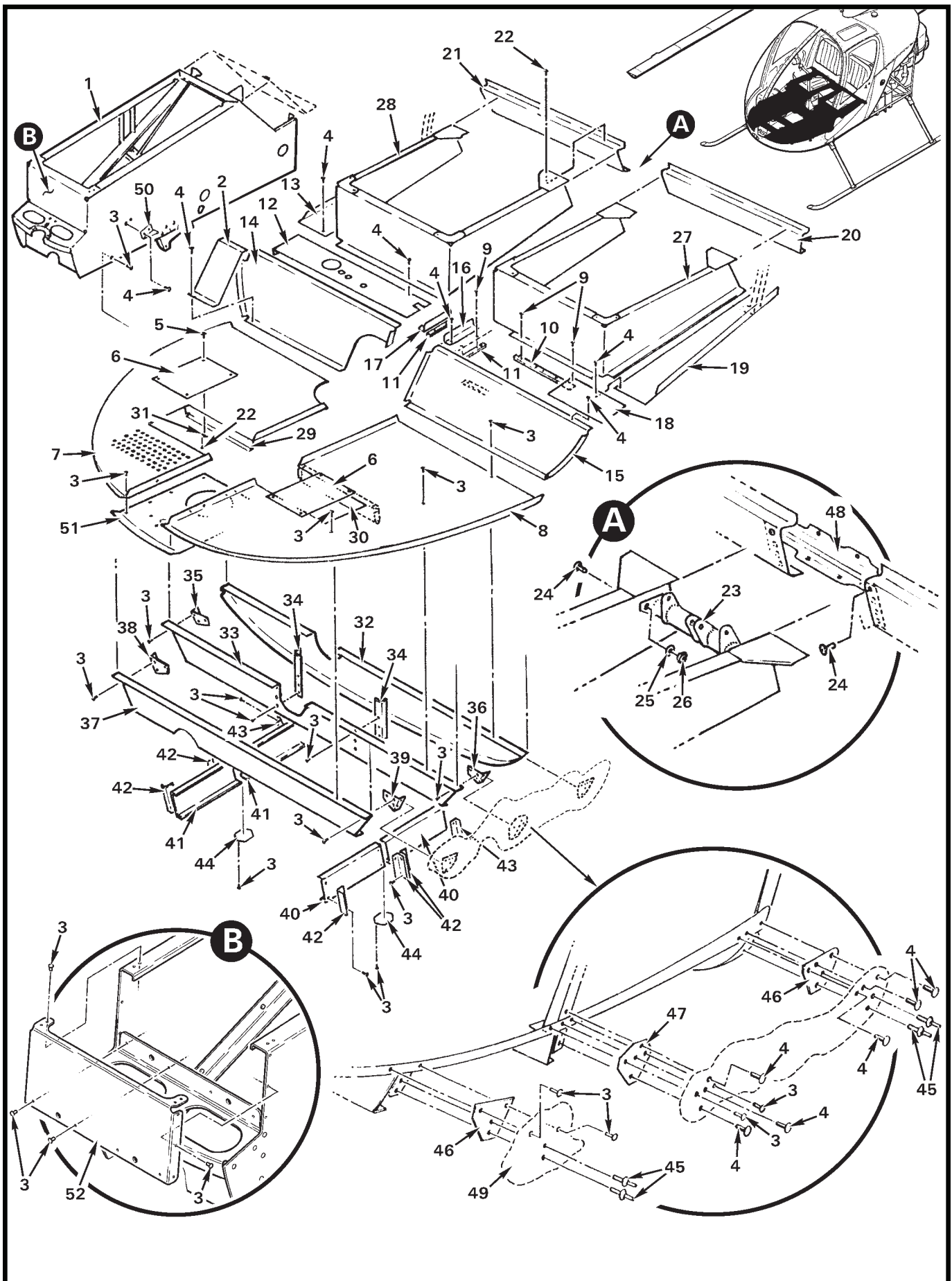


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
SEAT SUPPORT AND FLOOR INSTALLATION				
25-9-1	A033-1	Console Assembly – Lower	X	1
2	A391-1	Doubler	X	1
3	MS20470AD3	Rivet	X	A/R
4	MS20470AD4	Rivet	X	A/R
5	MS27039C0806	Screw	X	A/R
6	A412-1	Cover	X	2
7	A232-2	Panel – Floor (RH)	X	1
8	A232-1	Panel – Floor (LH)	X	1
9	1693-0414	Rivet	X	12
10	A738-7	Gang Channel (attach with item 9)	X	2
11	A738-3	Gang Channel (attach with item 9)	X	1
12	A304-4*	Cap (RH)	X	1
	A304-2**	Cap (RH, not shown)	X	1
13	A287-2	Panel (RH)	X	1
14	A350-4	Panel (RH)	X	1
15	A350-1	Panel (LH)	X	1
16	A373-3	Angle (LH)	X	1
17	A373-4	Angle (RH)	X	1
18	A304-1	Cap (LH)	X	1
19	A287-1	Panel (LH)	X	1
20	A288-1	Cross Beam – Seat Support (LH)	X	1
21	A288-2	Cross Beam – Seat Support (RH)	X	1
22	MS20426AD3	Rivet	X	A/R
23	A348-1	Anchor – Seat Belt Harness	X	1
24	MS27039C0807	Screw	X	4
25	NAS1149FN832P	Washer	X	4
26	MS21042L08	Nut	X	4
27	A291-1	Seat Support Assembly (LH)	X	1
28	A291-2	Seat Support Assembly (RH)	X	1
29	A410-2	Channel (RH)	X	1
30	A410-1	Channel (LH)	X	1
31	MS21069L08K	Nutplate	X	8
32	A275-1	Frame	X	1
33	A407-2	Beam (must be ordered with items 34 thru 36)	O	1
34	A407-5	Angle – Center	X	2

NOTES * Ship S/N 2600 and subsequent with forward carb heat control.
 ** Ship S/N 0002 thru 2599 with aft carb heat control.

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
SEAT SUPPORT AND FLOOR INSTALLATION (Cont'd)				
25-9-35	A407-4	Angle (RH)	X	1
36	A407-3	Angle (LH)	X	1
37	A406-2	Beam (must be ordered with items 38 and 39)	X	1
38	A406-4	Angle (RH)	X	1
39	A406-3	Angle (LH)	X	1
40	A408-1	Beam (LH)	X	2
41	A408-2	Beam (RH)	X	2
42	A409-1	Angle	X	4
43	A409-2	Angle	X	2
44	A411-1	Splice	X	2
45	NAS1919B04S	Blind Rivet (or MS20600AD4)	X	8
46	A417-2	Doubler	X	4
47	A417-1	Doubler	X	2
48	A405-1	Brace Assembly (Ref)	O	1
49	A272-1	Chin (Ref, see also Figure 6-1)		
50	A366-1	Stop – Rudder Pedal (LH)	X	1
	A366-2	Stop – Rudder Pedal (RH)	X	1
51	A232-3	Panel (Center)	X	1
52	A363-1	Cover	X	1

NOTES

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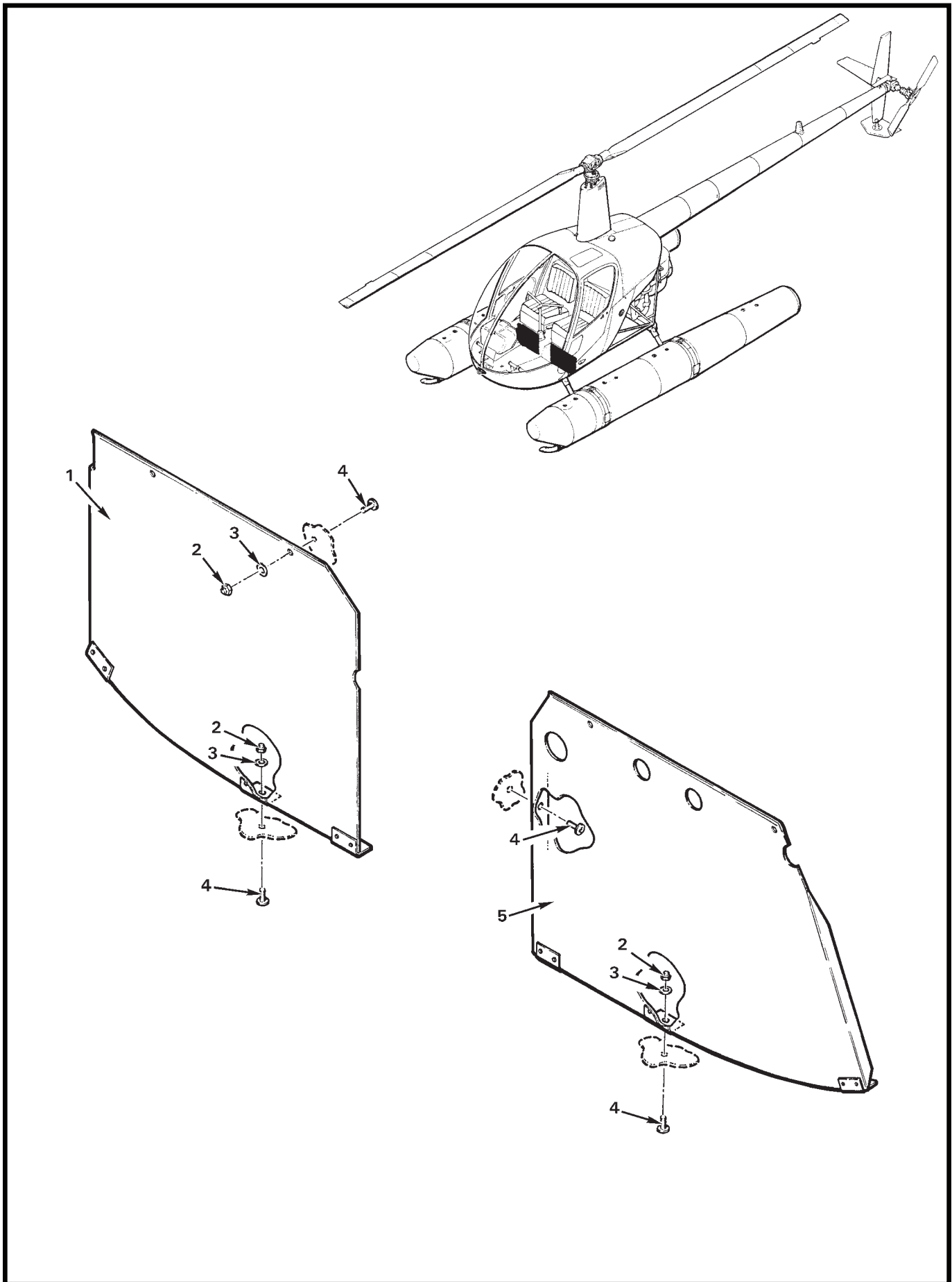


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY	
SEAT COMPARTMENT COVERS					
25-13-1	A748-4	Cover Assembly – Seat Compartment Cover (RH, without cabin heater. Used on Mariner.)	X	1	
	A748-1	Cover Assembly – Baggage Compartment (RH, Ref; with cabin heater, not shown. See Figure 21-9.)			
	2	B340-4	Nut	X	11
	3	NAS1149FN832P	Washer	X	11
	4	MS27039C0806	Screw	X	12
	5	A748-6	Cover Assembly – Seat Compartment Cover (LH, used on Mariner)	X	1
NOTES					

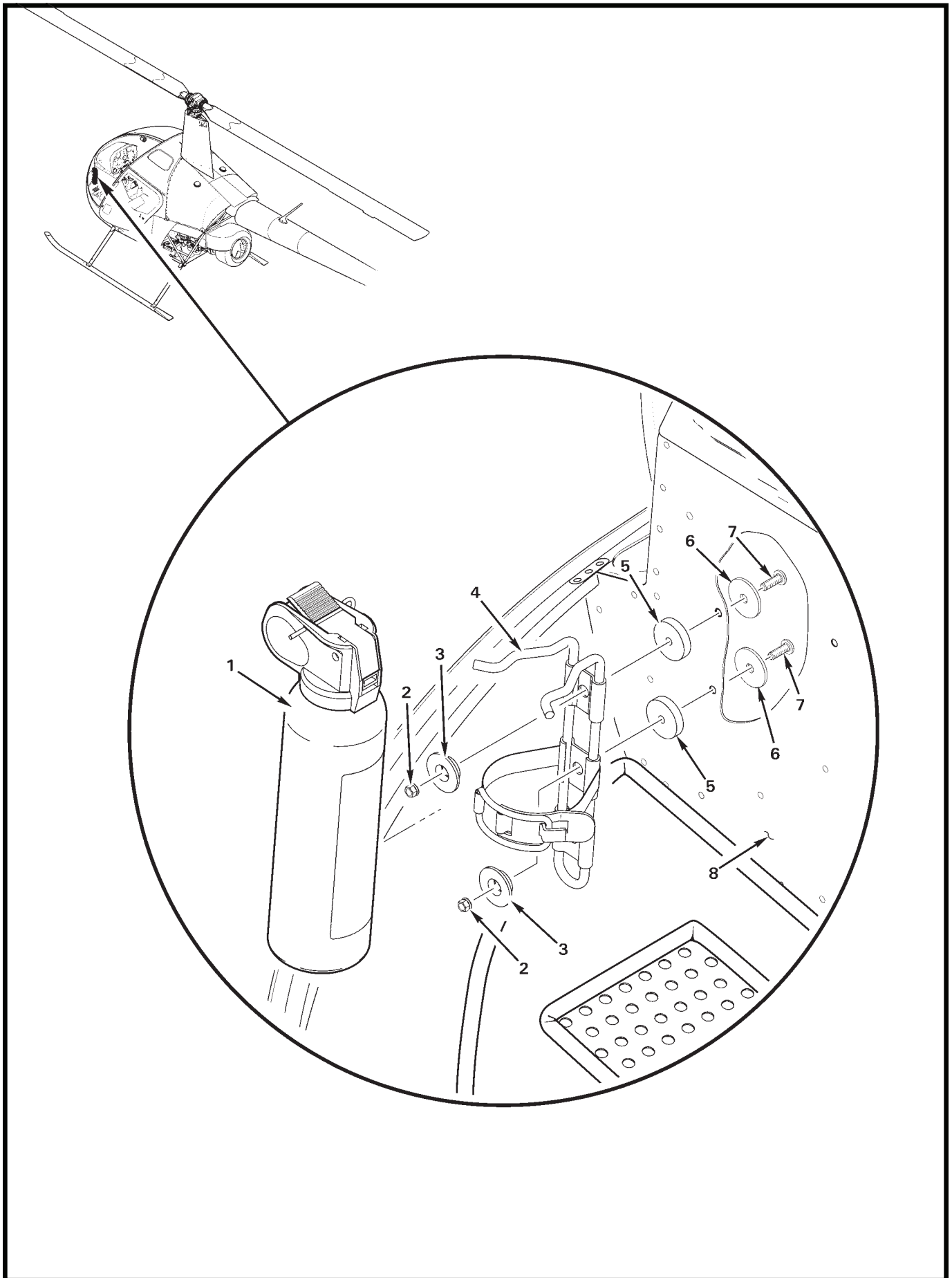


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
FIRE EXTINGUISHER INSTALLATION				
25-15-1	B381-1	Fire Extinguisher (halon, 14-oz)	X	1
2	MS21042L08	Nut	X	2
3	G220-1	Retainer	X	2
4	B381-3	Bracket	X	1
5	C130-54	Spacer	X	2
6	AN970-3	Washer	X	2
7	MS27039C0808	Screw	X	2
8	A359	Panel (LH, Ref)		
NOTES				

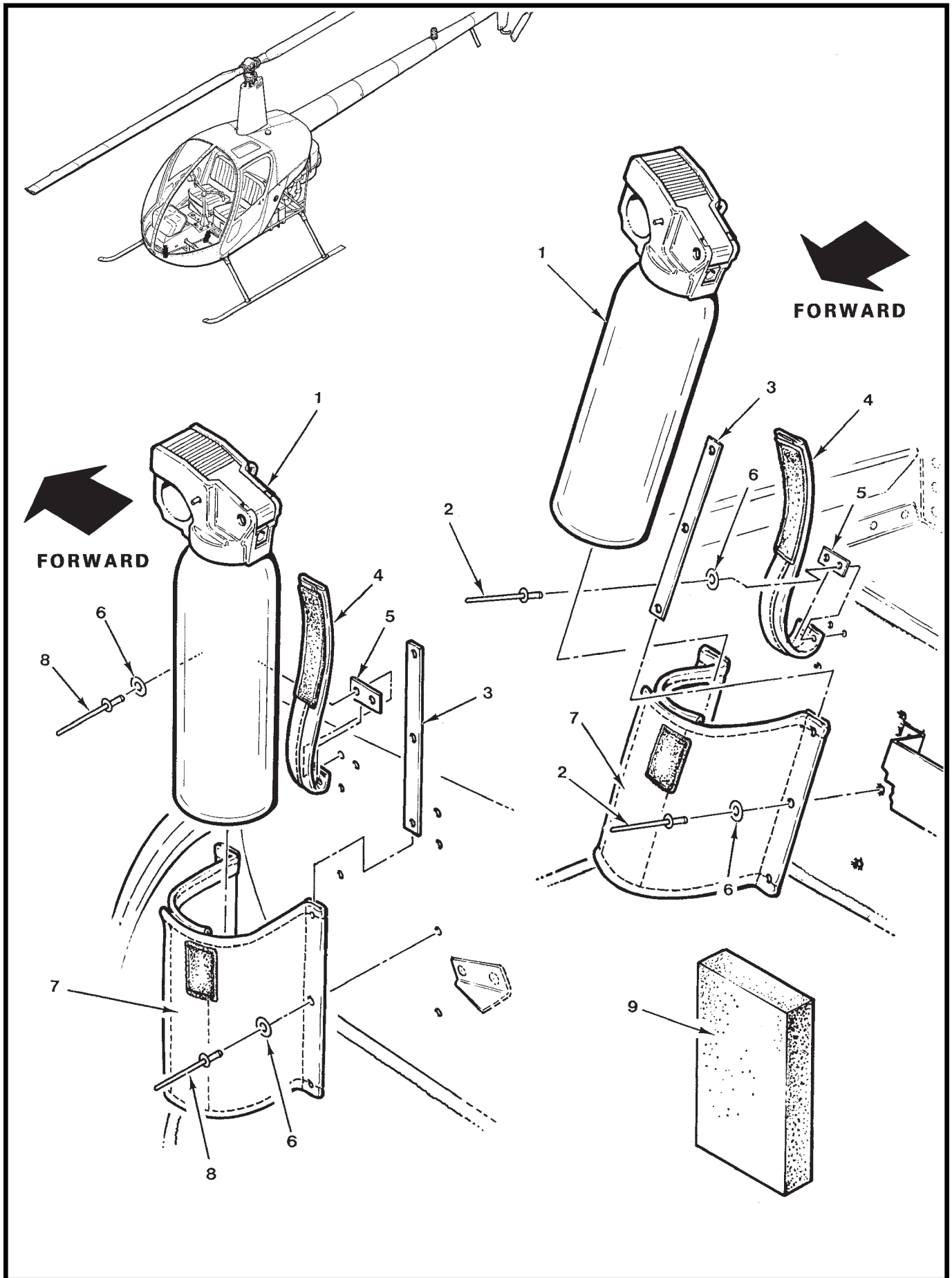


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
FIRE EXTINGUISHER INSTALLATION				
25-17-1	B381-1	Fire Extinguisher* (halon, 14-oz)	X	1
	2 AD46BS	Rivet (aft installation)	X	8
	3 A913-1	Strip	X	2
	4 B219-4BL	Strap Assembly (blue)	X	1
	B219-4GR	Strap Assembly (gray)	X	1
	B219-4TN	Strap Assembly (tan)	X	1
	5 A913-2	Strip	X	1
	6 NAS1149FN616P	Washer	X	8
	7 B219-3BL	Pocket Assembly (blue, 2-piece)	X	1
	B219-3GR	Pocket Assembly (gray, 2-piece)	X	1
	B219-3TN	Pocket Assembly (tan, 2-piece)	X	1
	8 1693-0414	Rivet (forward installation)	X	8
	9 B816-1 *	Spacer Pad	X	1

NOTES * For earlier R22s with one-piece pocket assembly; order when replacing fire extinguisher if not previously accomplished.

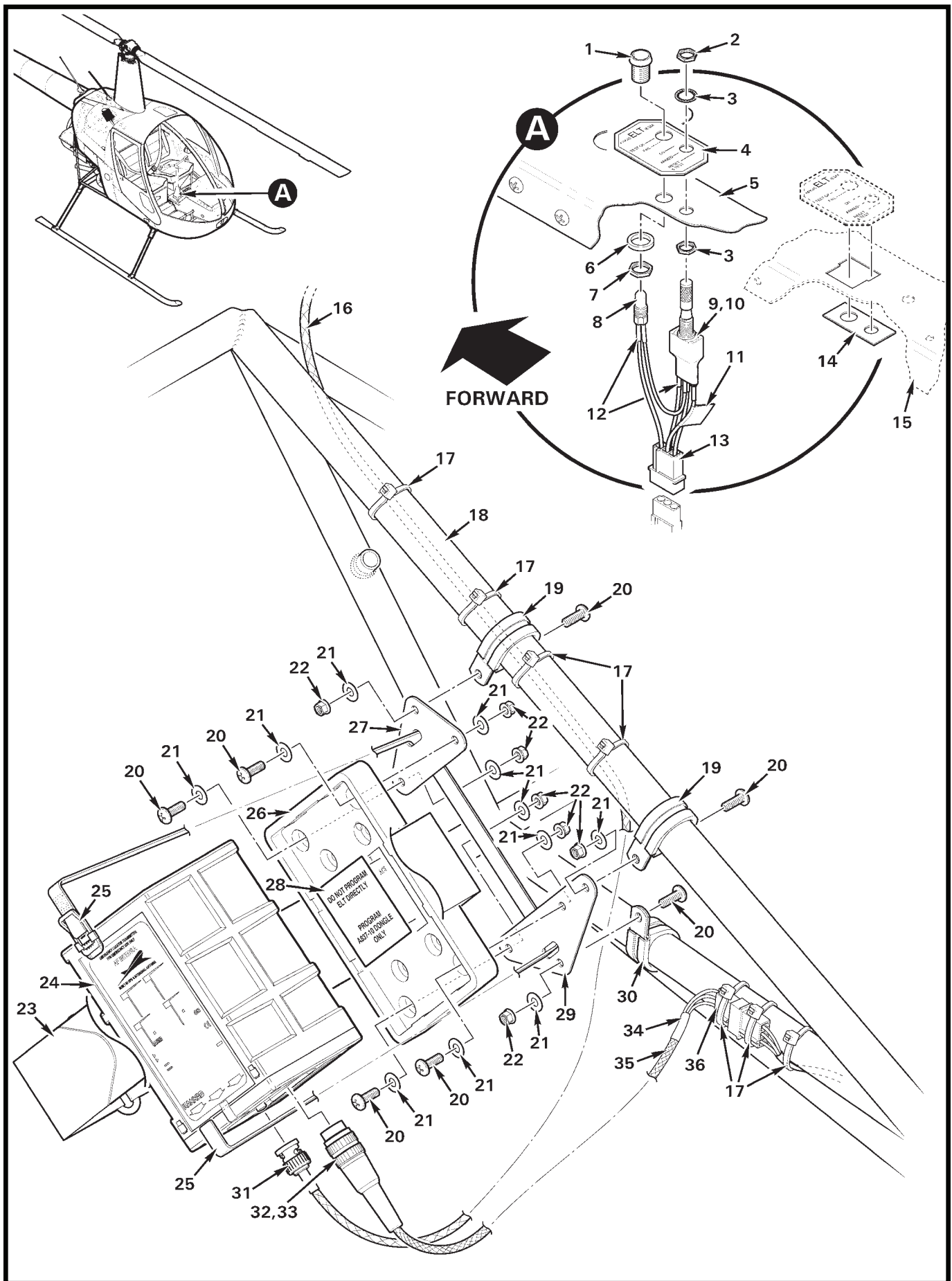


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
KANNAD ELT INSTALLATION*				
25-19-1	—	Mount – LED	O	1
2	—	Nut	O	1
3	—	Lockwasher	O	2
4	—	Panel (switch)	O	1
5	A444-11	Cover – Cyclic (Ref)		
	A444-13	Cover – Cyclic (Ref)		
6	—	Ring	O	1
7	—	Nut	O	1
8	—	LED (bi-polar, red)	O	1
9	—	Switch (remote control; 3-position, locking)	O	1
10	F837-3	Switch Assembly (includes items 1 thru 4, 6 thru 9, 11 thru 13, and wires)	X	1
11	—	Production Stamp	O	1
12	B158-1	Heat Shrink	X	A/R
13	B263-14	Housing	X	1
	B263-1	Pin	X	3
14	A837-3	Plate – Backing	X	1
15	A444-1	Cover – Cyclic (Ref)		
	A444-7	Cover – Cyclic (Ref)		
	A444-9	Cover – Cyclic (Ref)		
16	B274-518	Cable – Coaxial	X	A/R
17	MS3367-5-9	Ty-Rap	X	A/R
18	A020	Frame – Upper (Ref)		
19	MS21919WDG14	Clamp	X	2
20	MS27039C1-07	Screw	X	7
21	NAS1149F0316P	Washer	X	11
22	MS21042L3	Nut	X	7
23	—	Strap	O	1
24	S1851501-02	ELT Unit (model AF Integra)	O	1
25	D693-4	Strap Assembly	X	1
26	S1840502-01	Mounting Bracket	O	1
27	A837-12	Bracket	X	1
28	F654-25	Decal	X	1
29	A837-11	Bracket	X	1
30	MS21919WDG12	Clamp	X	1

NOTES * Kannad ELT model AF Integra.

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
KANNAD ELT INSTALLATION* (Cont'd)				
25-19-31	5225395-6	Plug (BNC; lead free)	X	1
32	A837-10	Harness Assembly (includes items 33 thru 36, and wires) . . .	X	1
33	S1820514-01	Dongle (requires programming)	O	1
34	B158-1	Heat Shrink	X	A/R
35	B266-4	Sleeving	X	A/R
36	B263-15	Housing	X	1
	B263-2	Socket	X	3

NOTES * Kannad ELT model AF Integra.

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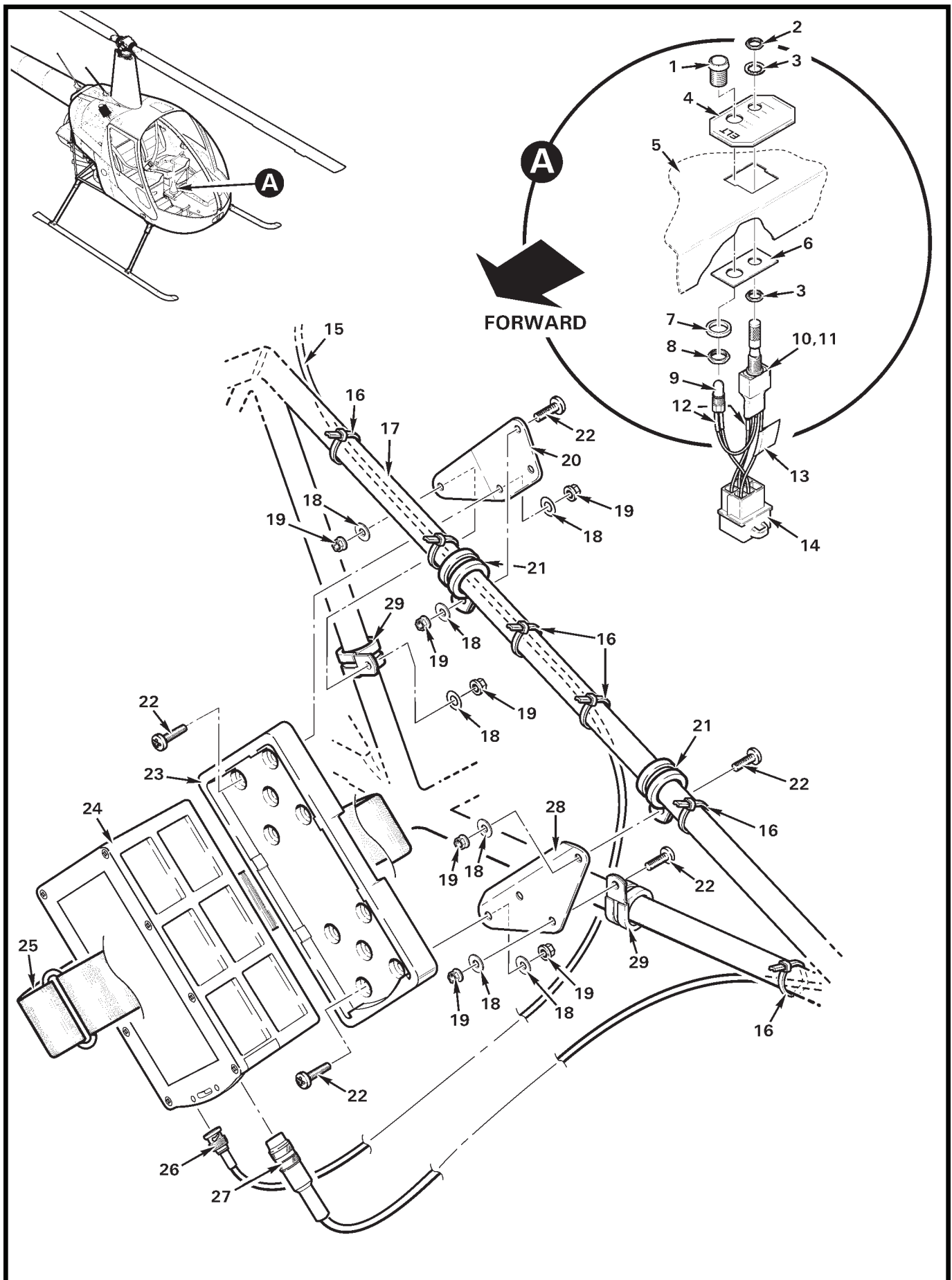


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
KANNAD ELT INSTALLATION*				
25-23-1	—	Mount – LED	O	1
2	—	Nut	O	2
3	—	Lockwasher	O	1
4	—	Panel (switch)	O	1
5	A444	Cover – Cyclic (Ref)		
6	A837-3	Plate – Backing	X	1
7	—	Ring	O	1
8	—	Nut	O	1
9	—	LED (bi-polar, red)	O	1
10	—	Switch (remote control; 3-position, locking)	O	1
11	A837-6	Switch Assembly (includes items 1 thru 4, 7 thru 10, 12 thru 14, and wires)	X	1
12	—	Production Stamp	O	1
13	B158-1	Heat Shrink	X	A/R
14	B263-18	Housing	X	1
	B263-1	Pin	X	4
15	B274-518	Cable – Coaxial	X	A/R
16	MS3367-5-9	Ty-Rap	X	A/R
17	A020	Frame – Upper (Ref)		
18	NAS1149F0316P	Washer	X	8
19	MS21042L3	Nut	X	8
20	A837-5	Bracket	X	1
21	MS21919WDG14	Clamp	X	2
22	MS27039C1-07	Screw	X	8
23	S1820511-01	Bracket – Mount (ELT)	O	1
24	S1821502-02	ELT Unit (model 406 AF)	O	1
25	—	Strap	O	1
26	225395-6	Plug (BNC)	X	1
27	S1820514-03	Connector	O	1
28	A837-4	Bracket	X	1
29	MS21919WDG12	Clamp	X	1

NOTES * Kannad ELT model 406 AF.

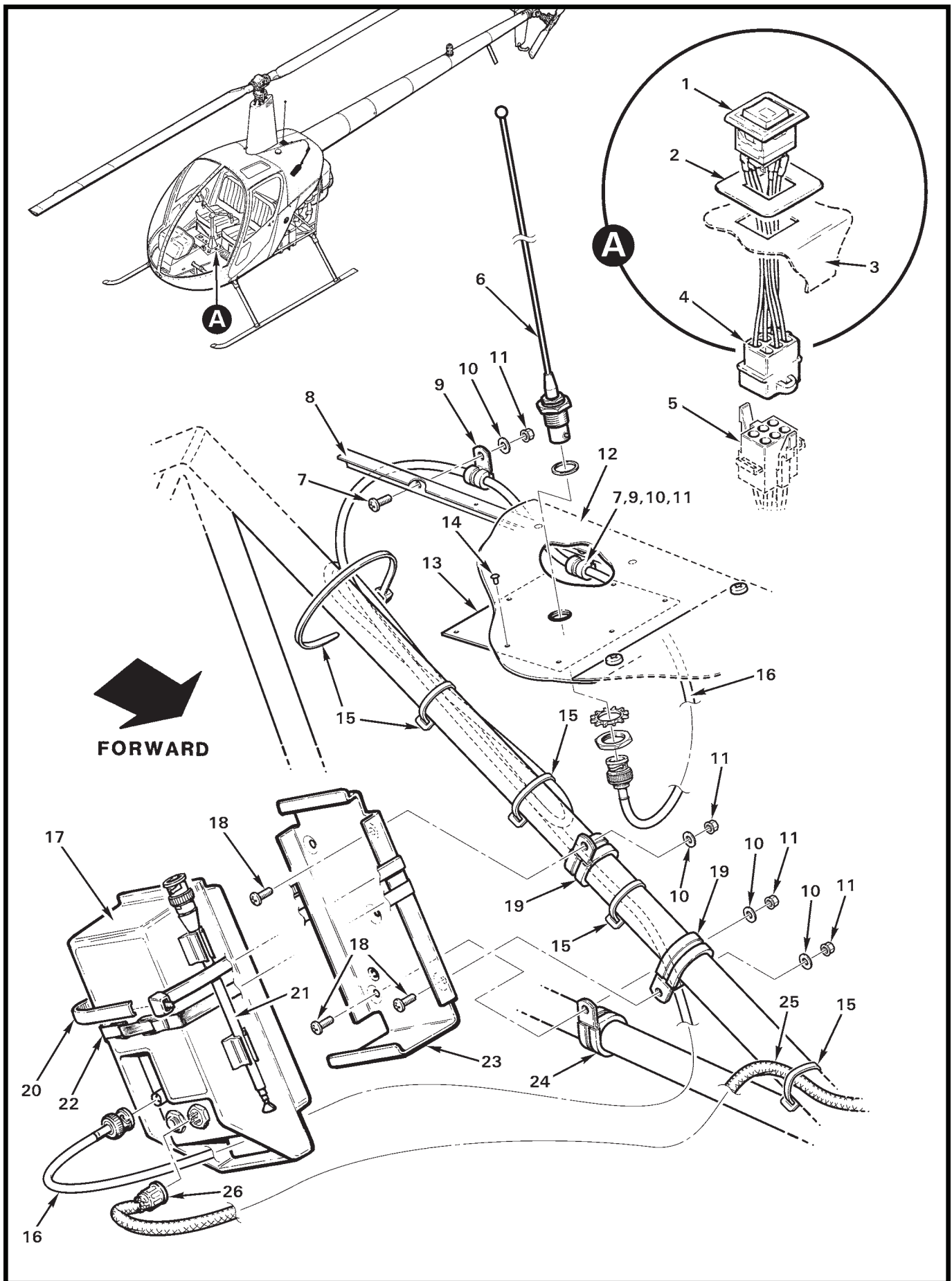


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
POINTER ELT INSTALLATION				
25-25-1	C830-1A	Switch Sub-Assembly ('On, Reset'; includes switch, wires, heat shrink, and pins)	X	1
2	—	Decal – “On, Reset” (included with item 17)	O	1
3	A444	Cover (Ref)		
4	B263-18	Connector	X	1
	B263-1	Pin	X	5
5	B263-19	Housing	X	1
	B263-2	Socket	X	5
6	3001*	Antenna (includes all hardware as shown)	O	1
7	MS27039C0806	Screw	X	2
8	B423-3	Stiffener (Ref)		
9	MS21919WDG3	Clamp	X	2
10	NAS1149FN816P	Washer	X	5
11	MS21042L08	Nut	X	5
12	B429	Skin (Ref)		
13	A830-3	Doubler	X	1
14	MS20470AD3	Rivet	X	8
15	MS3367-5-9	Ty-Rap	X	4
16	3002*	Cable (coax)	O	1
17	3000-10*	ELT Unit (U.S. and other areas except Canada)	O	1
	4000-10*	ELT Unit	O	1
18	MS27039C0807	Screw	X	3
19	MS21919WDG14	Clamp	X	2
20	B359-1	Ty-Rap	X	1
21	2006-10*	Antenna (secondary; telescopic)	O	1
22	—	Strap (supplied with unit)	O	1
23	2017*	Mounting Bracket	O	1
24	MS21919WDG12	Clamp	X	1
25	KI-89B	Wire Harness	X	1
26	126-223*	Connector	O	X
27	KI-79-1	ELT Field Installation Kit** (U.S. and other areas except Canada. Includes items 1, 2, 4, 6 thru 16, 17 [3000-10], 18 thru 21, 23, and 24; no longer available.)	O	1
	KI-79-2	ELT Field Installation Kit** (Canada only. Includes items 1, 2, 4, 6 thru 16, 17 [4000-10], 18 thru 21, 23, and 24; no longer available.)	O	1

NOTES * Pointer part no.
 ** Requires tailcone-mounted COM antenna. Order KI-5 kit to relocate antenna (see Figure 6-25).

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
<p>POINTER ELT INSTALLATION (Cont'd)</p>				
25-25-28	KI-89	ELT Remote Switch Installation Kit (Includes items 2, 4, 5, 25, and 29 thru 31; no longer available. Not shown.)	O	1
	29 B260-3	Terminal	X	1
	30 B261-2	Splice	X	1
	31 MS3367-5-9	Ty-Rap	X	20
<p>NOTES</p>				

CHAPTER 28
FUEL SYSTEM

<i>Figure</i>	<i>Title</i>	<i>Page</i>
28-1	Fuel System Installation	28.0
28-5	Main Tank Assembly	28.4
28-7	Main Tank Assembly	28.6
28-9	Auxiliary Tank Assembly	28.8
28-13	Vent Lines Installation	28.12
28-15	Fuel System Installation (All-Aluminum Tanks)	28.14
28-19	Auxiliary Tank Assembly (All-Aluminum Tanks)	28.18
28-23	Primer System	28.22

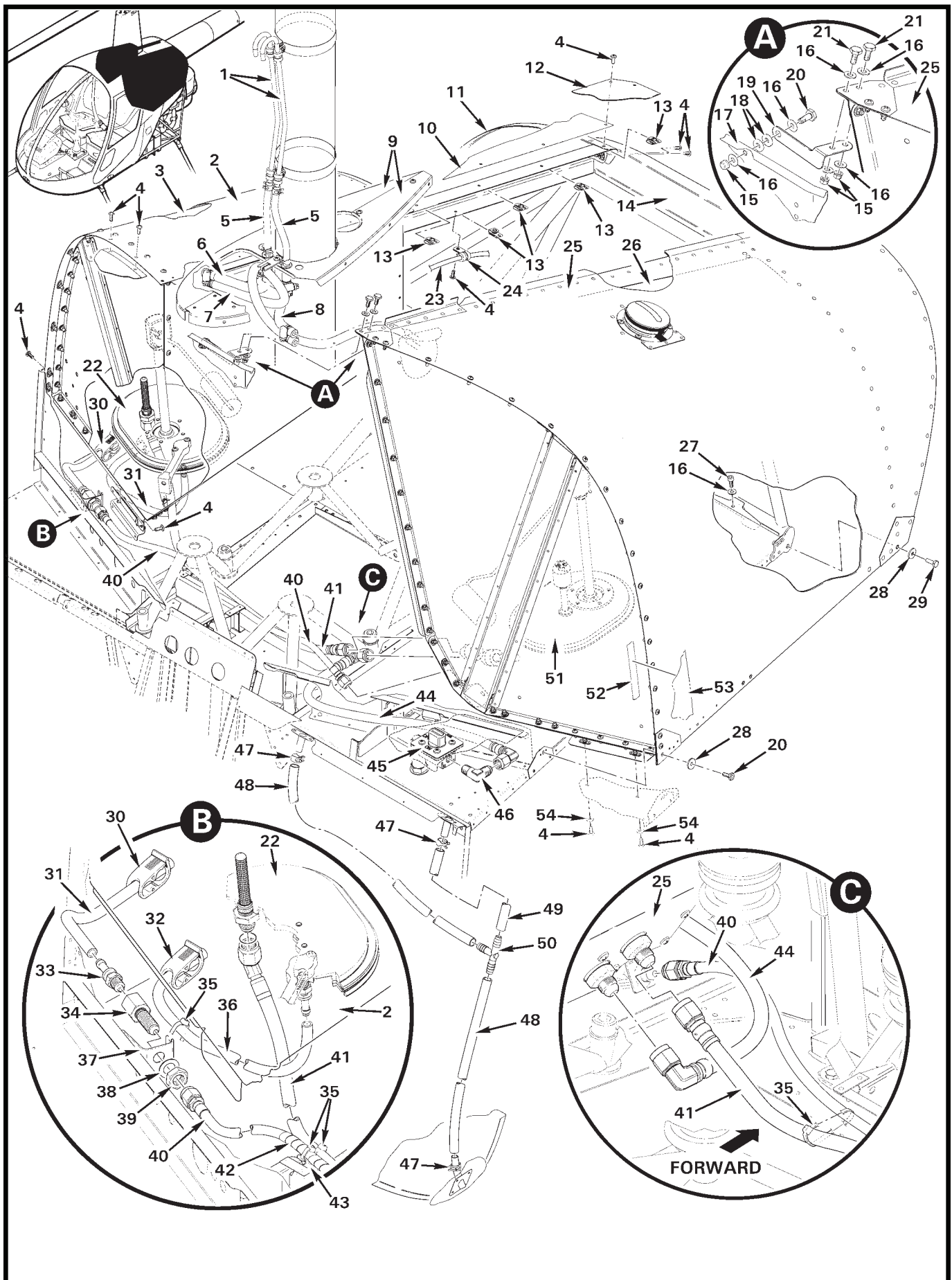


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
FUEL SYSTEM INSTALLATION				
28-1-1	A731-4	Vent Tube (Ref, see Figure 28-13)		
2	A010-15	Tank – Auxiliary (Ref, see Figure 28-9)		
3	B028-2	Bladder (Ref, see Figure 28-9)		
4	MS27039C0806	Screw	X	14
5	A729-61	Tube (Ref, see Figure 28-13)		
6	A729-48	Tube (Ref, see Figure 28-13)		
7	A729-49	Tube (see Figure 28-13)	X	1
8	A729-62	Tube (Ref, see Figure 28-13)		
9	A261	Rib (Ref, see Figure 28-13)		
10	B430-4	Skin (Ref)		
11	B429-5	Frame (Ref)		
12	B429-1	Skin (Ref)		
13	B162-3	Clipnut	X	5
14	B428-1	Frame (Ref)		
15	D210-3	Nut	X	3
16	NAS1149F0332P	Washer	X	7
17	—	Bulkhead (Ref)		
18	NAS1149F0363P	Washer (between items 17 and 19)	X	2
19	A713-1	Strap	X	1
20	NAS6603-3	Bolt	X	1
21	NAS6603-2	Bolt	X	2
22	D250-8	Cover Assembly (Ref, see Figure 28-9)		
23	A729-6	Tube – Static Pressure (Ref, see Figure 95-61)		
24	MS21919WDG4	Clamp	X	1
25	A028-21	Tank Assembly – Main (Ref, see Figure 28-5)		
26	B028-1	Bladder (Ref, see Figure 28-5)		
27	NAS1351-3-8P	Screw	X	1
28	A141-17	Washer	X	2
29	NAS6603-4	Bolt	X	1
30	D663-1	Clamp	X	1
31	A729-17	Tube	X	1
32	D663-1	Clamp (Ref)		
33	A761-1	Drain	X	1
34	D255-4	Connector	X	1
35	MS3367-5-9	Ty-Rap	X	4

NOTES

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
FUEL SYSTEM INSTALLATION (Cont'd)				
28-1-36	A729-60	Tube (Ref, see Figure 28-9)		
37	B576-5	Angle (Ref)		
38	NAS1149F0732P	Washer	X	1
39	AN924-4D	Nut	X	1
40	D205-34	Hose Assembly	X	1
41	D205-33	Hose Assembly	X	1
42	B161-8	Spirap	X	A/R
43	B580-3	Support (Ref)		
44	D205-32	Hose Assembly	X	1
45	A670-1	Valve – Fuel Shut-Off (Ref)		
46	MS20822-6D	Elbow (Ref)		
47	D277-8	Clamp	X	3
48	A729-3	Tube	X	2
49	A729-2	Tube	X	1
50	A457-1	Tee	X	1
51	D250-6	Cover Assembly (Ref, see Figure 28-7)		
52	A701-3	Tape (polyethylene)	X	A/R
53	A015-9	Skin (Ref)		
54	NAS1149FN832P	Washer	X	2

NOTES

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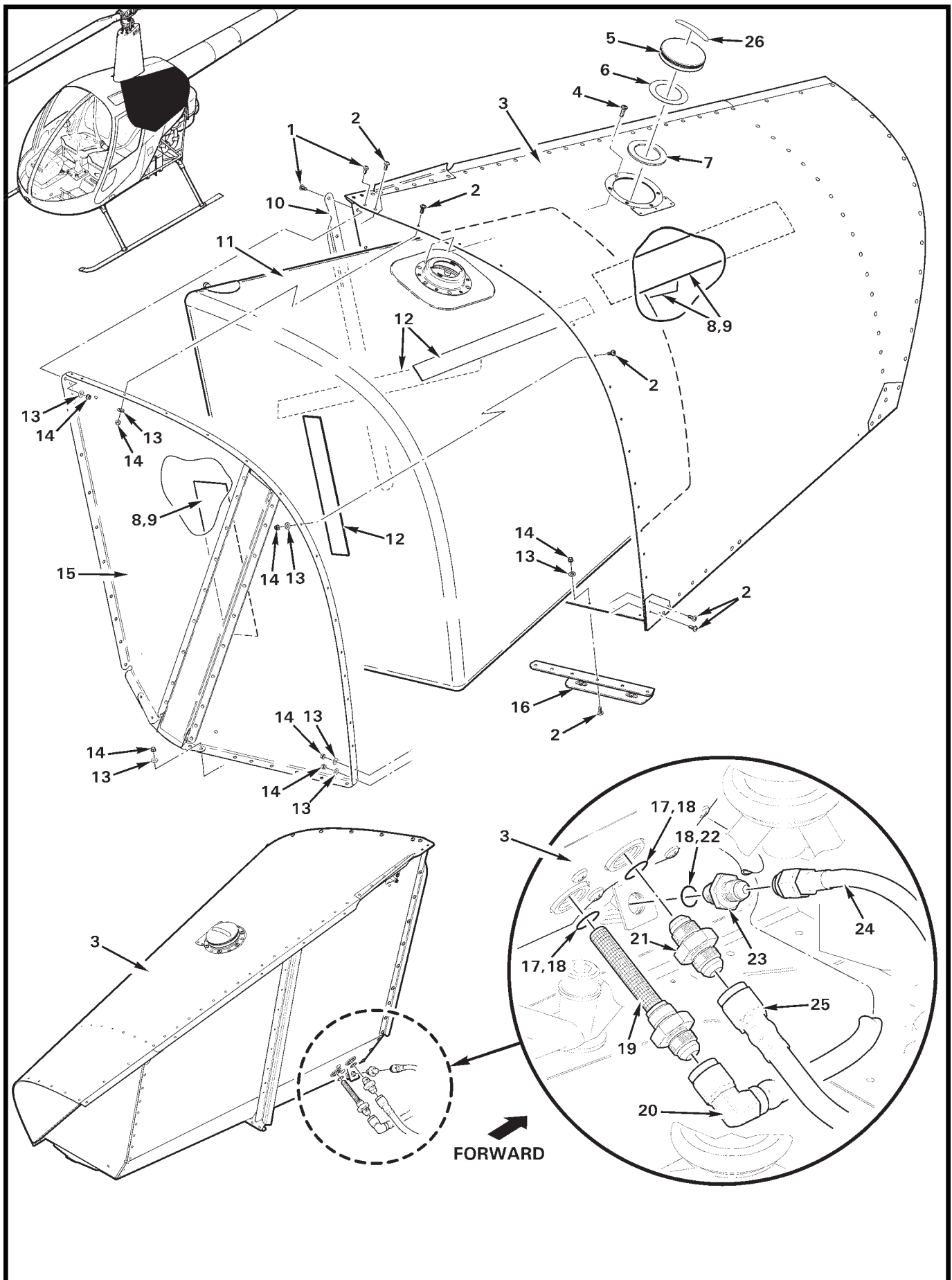


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
MAIN TANK ASSEMBLY				
28-5-1	MS27039C0805	Screw	X	2
2	MS27039C0806	Screw	X	37
3	A028-21	Main Tank Assembly (Incl items 1, 2, 8 thru 10, and 13 thru 16)	X	1
4	A142-1	Screw	X	6
5	R7998	Cap Assembly (primered; includes items 6, 7, and 26)	X	1
	R7295*	Cap Assembly (painted; includes items 6, 7, and 26)	X	1
6	A689-8	Washer	X	1
7	A689-7	Gasket	X	1
8	B175-4	Loop Tape (install using item 9)	X	A/R
9	B270-8qt	Adhesive	X	A/R
10	B575-5	Stiffener	X	1
11	B028-1	Bladder – Fuel (Incl item 12)	X	1
12	B175-1	Hook Tape (Ref)		
13	NAS1149FN816P	Washer	X	39
14	MS21042L08	Nut	X	39
15	B578-1	Bulkhead (Ref)		
16	B575-4	Channel	X	1
17	MS29512-06	Packing (o-ring, install using item 18)	X	2
18	A257-6	Grease	X	A/R
19	B254-3	Strainer Assembly	X	1
20	D205-32	Hose Assembly (Ref)		
21	AN815-6D	Union	X	1
22	MS29512-04	Packing (o-ring, install using item 18)	X	1
23	AN815-4D	Union	X	1
24	D205-34	Hose Assembly (Ref)		
25	D205-33	Hose Assembly (Ref)		
26	D682-44	Decal – "Caution: Align Stripes"	X	1

NOTES * Painted white.

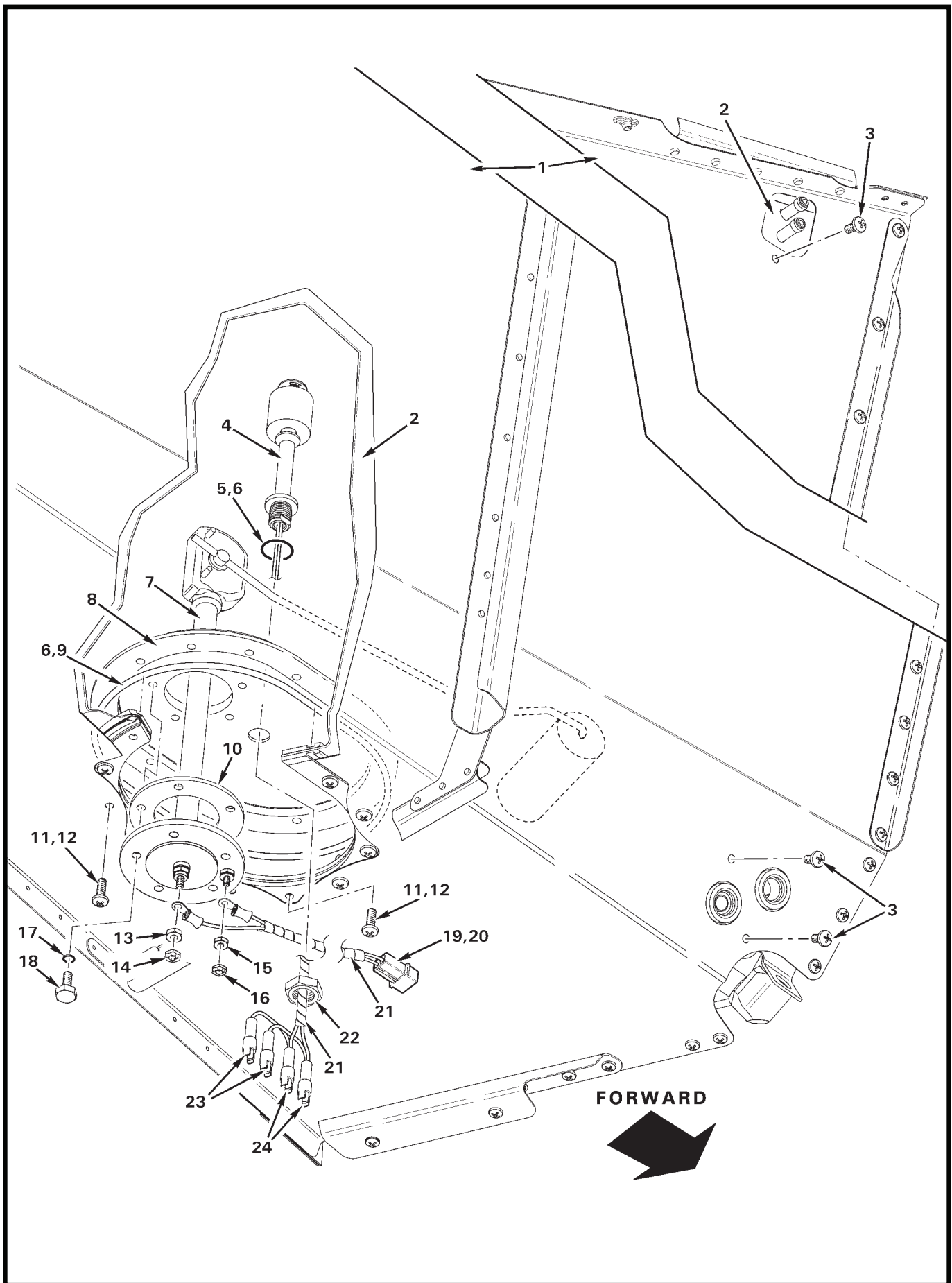


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
MAIN TANK ASSEMBLY				
28-7-1	A028-1	Main Fuel Tank Assembly (Ref)		
2	B028-1	Bladder – Fuel (Ref)		
3	MS27039C1-06	Screw	X	3
4	A521-3	Switch Assembly – Low-Fuel (Incl items 20, 22, and 23)	X	1
5	MS29512-05	Packing (o-ring; install using item 6)	X	1
6	A257-6	Grease	X	A/R
7	D252-3	Sender – Fuel Quantity (Incl items 10, 13, and 15)	X	1
8	D250-6	Cover Assembly	X	1
9	MS29513-260	Packing (o-ring; install using item 6)	X	1
10	15-423	Gasket	X	1
11	MS27039C1-09	Screw (install using item 12)	X	14
12	A257-9	Lubricant (anti-seize)	X	A/R
13	0044-00408	Nut (Ref)		
14	B330-6	Palnut	X	1
15	44-121	Nut (Ref)		
16	B330-5	Palnut	X	1
17	5-108	O-ring (5-108 N674-70, Parker P/N)	X	1
18	B289-1	Bolt (Incl item 17)	X	5
19	C049-11	Harness Assembly (Incl items 20 and 21)	X	1
20	B263-12	Housing	X	1
	B263-1	Pin	X	2
21	B161-2	Spirap	X	A/R
22	AN924-5D	Nut	X	1
23	B263-30	Housing	X	2
	B263-1	Pin	X	2
24	B263-10	Housing	X	2
	B263-3	Pin	X	2

NOTES

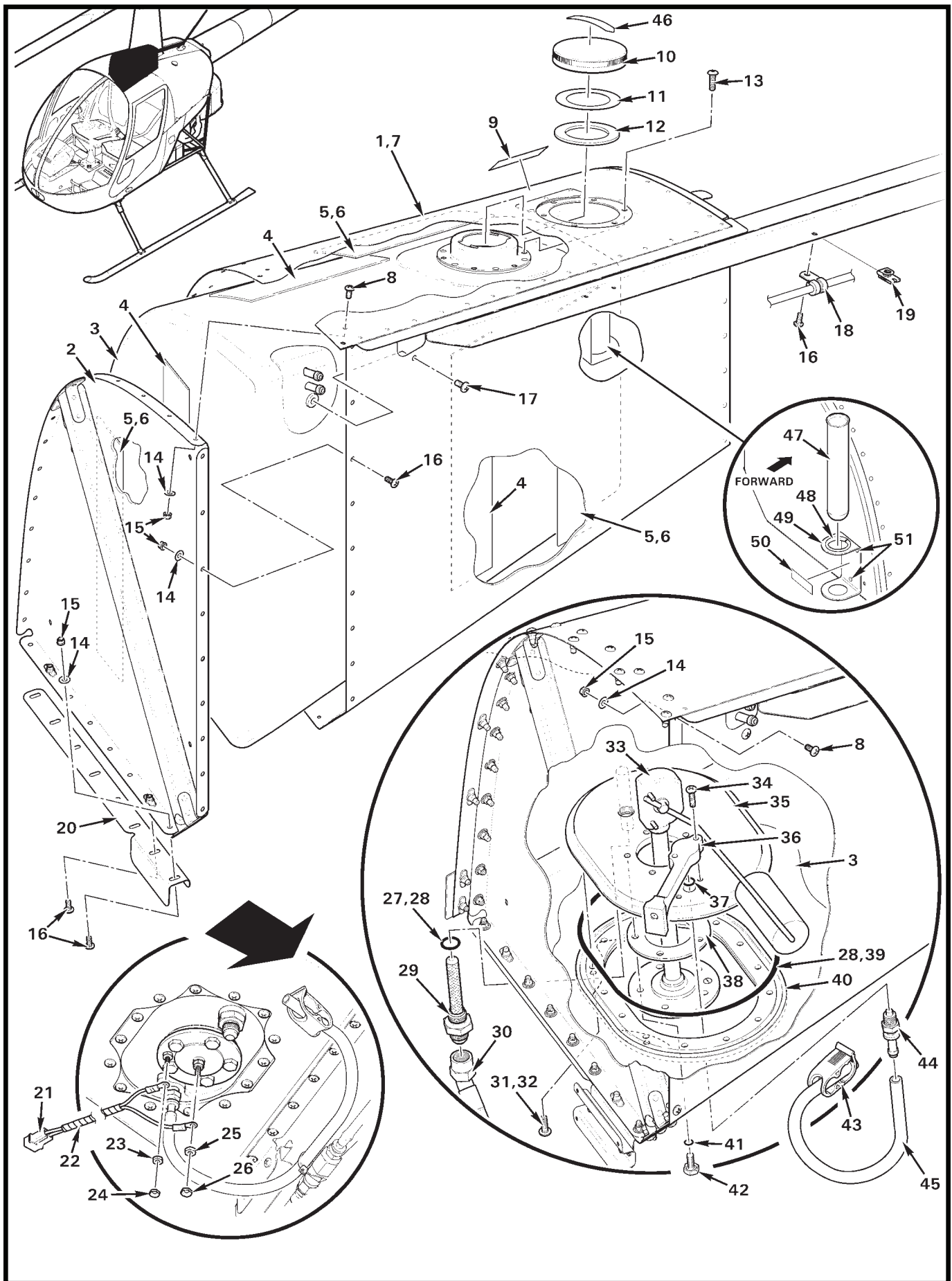


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
AUXILIARY TANK ASSEMBLY				
28-9-1	A010-15	Aux Fuel Tank Assembly (Incl items 3, 7, 9 thru 13, 18, 19, 21, 24, 26 thru 29, and 42 thru 45)	X	1
2	B579-1	Bulkhead Assembly	X	1
3	B028-2	Bladder Assembly (Incl items 4 and 40)	X	1
4	B175-1	Hook Tape (Ref)		
5	B175-4	Loop Tape (install using item 6)	X	A/R
6	B270-8qt	Adhesive	X	A/R
7	B044-8	Tank Assembly (aluminum enclosure; includes items 2, 5, 6, 8, 14 thru 16, and 20)	X	1
8	MS27039C0805	Screw	X	2
9	A654-57	Decal – Fuel Fill (91/96 octane; aux fuel tank)	X	1
	A654-77*	Decal – Fuel Fill (91/96 octane; aux fuel tank)	X	1
	C654-5	Decal – Fuel Fill (100 octane; aux fuel tank)	X	1
	C654-6*	Decal – Fuel Fill (100 octane; aux fuel tank)	X	1
10	R7998	Cap Assembly (primered; includes items 11, 12, and 46)	X	1
	R7295**	Cap Assembly (painted; includes items 11, 12, and 46)	X	1
11	A689-8	Washer (plastic)	X	1
12	A689-7	Gasket (rubber)	X	1
13	A142-1	Screw	X	6
14	NAS1149FN816P	Washer	X	33
15	MS21042L08	Nut	X	33
16	MS27039C0806	Screw	X	34
17	MS27039C1-06	Screw	X	1
18	MS21919WDG4	Clamp	X	1
19	B162-3	Clipnut	X	1
20	B577-2	Stiffener	X	1
21	B049-7	Wire Harness Assembly (Incl item 22)	X	1
22	B161-2	Spirap	X	A/R
23	—	Nut	O	1
24	B330-5	Palnut	X	1
25	—	Nut	O	1
26	B330-6	Palnut	X	1
27	MS29512-06	Packing (install using item 28)	X	1
28	A257-6	Grease	X	A/R
29	B254-3	Strainer Assembly	X	1

NOTES * For dark colored ships.
 ** Painted white.

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FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
AUXILIARY TANK ASSEMBLY (Cont'd)				
28-9-30	D205-33	Hose Assembly (Ref)		
31	MS27039C1-09	Screw	X	14
32	A257-9	Anti-seize	X	A/R
33	D252-4	Sender – Fuel Quantity (Incl items 23, 25 and 38)	X	1
34	MS27039C0810	Screw	X	2
35	D250-8	Cover Assembly	X	1
36	B574-1	Siphon Assembly	X	1
37	A215-112	Packing (o-ring)	X	1
38	15-423	Gasket	X	1
39	MS29513-260	Packing (install using item 28)	X	1
40	D250-5	Ring (Ref)		
41	5-108	O-ring (5-108 N674-70, Parker P/N)	X	1
42	B289-1	Bolt (Incl item 41)	X	5
43	D663-1	Clamp	X	1
44	A761-1	Drain	X	1
45	A729-60	Tube	X	1
46	D682-44	Decal – "Caution: Align Stripes"	X	1
47	MT106-3	Fuel Sample Tube (Pyrex®)	X	1
48	NAS557-16A	Grommet	X	1
49	G926-7	Holder (Ref)		
50	G682-21	Decal – "STOW MT106-3 FUEL SAMPLE TUBE HERE"	X	1
51	MS20470AD4	Rivet	X	3
		* * *		
52	KI-230	Fuel Sample Tube Installation Kit (if not previously installed) . .	X	1

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FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
VENT LINES INSTALLATION				
28-13-1	A283-5	Mast Assembly (Ref)		
2	MS21042L08	Nut	X	3
3	NAS1149FN816P	Washer	X	3
4	B277-56	Clamp	X	2
5	A731-4	Tube – Vent	X	2
6	MS21919WDG4	Clamp	X	4
7	MS27039C0807	Screw	X	2
8	D277-6	Clamp	X	4
9	A729-61	Tube	X	2
10	A261-1	Mast Fairing Assembly (Ref)		
11	MS35489-6	Grommet	X	2
12	MS27039C0806	Screw	X	1
13	B576-6	Tab	X	1
14	MS3367-5-9	Ty-Rap	X	1
15	B044-8	Aux Fuel Tank Assembly (Ref)		
16	A729-49	Tube	X	1
17	D251-1	Valve Assembly	X	2
18	A729-63	Tube	X	1
19	MS3367-7-9	Ty-Rap	X	1
20	B277-4	Clamp	X	6
21	A729-48	Tube	X	1
22	A729-62	Tube	X	1
23	A028-21	Main Fuel Tank Assembly (Ref)		

NOTES

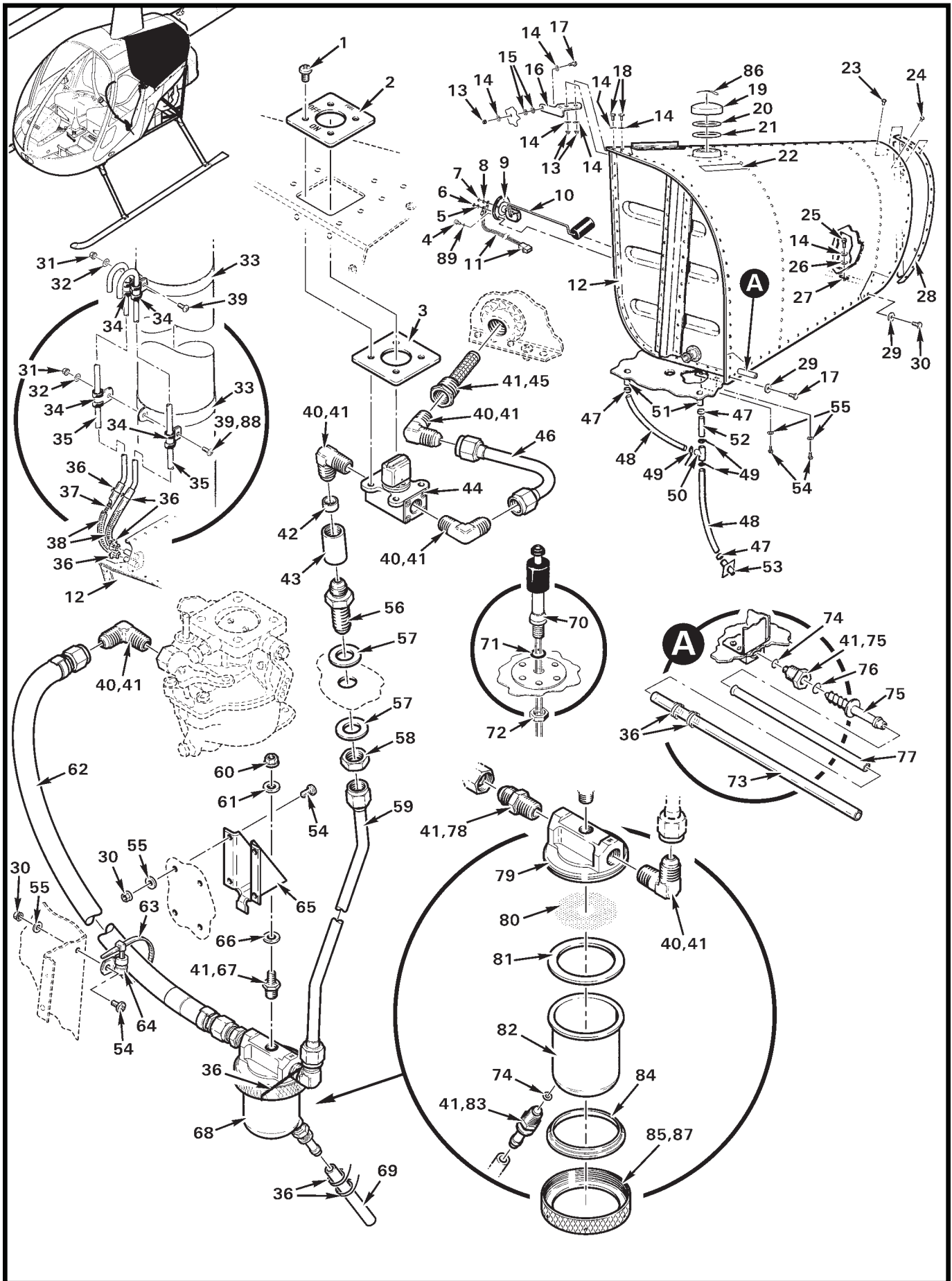


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
		FUEL SYSTEM INSTALLATION (ALL-ALUMINUM TANKS)		
28-15-1	MS27039C1-06	Screw	X	4
2	A798-3	Plate	X	1
3	A798-1	Plate	X	1
4	B289-1	Bolt (Incl item 89)	X	5
5	—	Nut (small)	O	1
6	B330-5	Palnut	X	1
7	B330-6	Palnut	X	1
8	—	Nut (large)	O	1
9	15-423	Gasket – Sender	X	1
10	A550-1	Sender – Fuel Quantity (Incl items 5, 8, and 9)	X	1
11	C049-11	Wire Harness Assembly	X	1
12	A010-2*	Fuel Tank Assembly (Includes A028-1 fuel tank and items 4, 6, 7, 10, 11, 19, 36, 38 [2], 45, 70 thru 73, 75, and 77.)	X	1
	A028-1*	Fuel Tank (tank only)	X	1
13	MS21042L3	Nut	X	4
14	NAS1149F0332P	Washer	X	7
15	NAS1149F0363P	Washer	X	2
16	A713-1	Strap	X	1
17	NAS6603-3	Bolt	X	2
18	NAS6603-2	Bolt	X	3
19	R7998	Cap Assembly (primered; includes items 20, 21, and 86)	X	1
	R7295*	Cap Assembly (painted; includes items 20, 21, and 86)	X	1
20	A141-38	Washer (plastic)	X	1
21	A689-7	Gasket – Fuel Cap (black rubber)	X	1
22	A654-1	Decal – Fuel Fill (black letters)	X	1
	A654-75	Decal – Fuel Fill (white letters, for dark-colored ships)	X	1
23	MS20470AD4	Rivet	X	2
24	MS20470AD3	Rivet	X	11
25	NAS1351-3-8P	Screw	X	2
26	AN960PD10L	Washer (for shimming, [4] maximum)	X	A/R
27	MS21069L3	Nutplate (install using MS20605R3W2 rivets [2])	X	1
	MS20605R3W2	Rivet	X	2
28	A028-7	Frame	X	1
29	A141-17	Washer	X	2
30	NAS6603-4	Bolt	X	1

NOTES * Painted white.

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
FUEL SYSTEM INSTALLATION (ALL-ALUMINUM TANKS; Cont'd)				
28-15-31	MS21042L08	Nut	X	7
32	NAS1149FN816P	Washer	X	2
33	A695-1	Clamp (bolted mast tube)	X	2
	A695-3	Clamp (welded mast tube)	X	2
34	MS21919WDG4	Clamp	X	4
35	A731-3	Vent Tube	X	2
36	MS20995C32	0.032-inch dia Safety Wire	X	A/R
37	B408-2	Spring	X	2
38	A729-7	Tube	X	2
39	MS27039C0807	Screw	X	2
40	MS20822-6D*	Elbow (or AN822-6D)	X	5
41	B270-6	Sealant (4-oz tube)	X	A/R
42	A656-1	Sleeve (inside item 43)	X	1
43	A657-1	Nut	X	1
44	A670-1	Valve – Fuel Shut-Off (revision "I" and subsequent)	X	1
45	B254-1*	Strainer – Fuel	X	1
46	A726-2	Line Assembly	X	1
47	B277-4	Clamp	X	3
48	A729-3	Tube	X	2
49	MS3367-4-9	Ty-Rap	X	3
50	A457-1	Tee	X	1
51	A456-1**	Drain (install using MS20470AD4 rivets [2])	X	2
52	A729-2	Tube	X	1
53	A458-1	Drain	X	1
54	MS27039C0806	Screw	X	7
55	NAS1149FN832P	Washer	X	7
56	O363-6-6	Bulkhead Union (Incl item 58)	X	1
57	NAS1149F0932P***	Washer (minimum of [2], one each side of firewall)	X	A/R
58	—	Nut	O	1
59	A726-1	Line Assembly	X	1
60	MS21042L4	Nut	X	1
61	NAS1149F0463P	Washer	X	1
62	B283-2	Hose Assembly (O-320 engine)	X	1
	B283-6	Hose Assembly (O-360 engine)	X	1
63	MS3367-7-9	Ty-Rap	X	1

NOTES * Install using item 41.
 ** Apply B270-1 sealant between channel and drain. Seal rivets after installation.
 *** Use additional washers as required to adjust height of valve.

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
FUEL SYSTEM INSTALLATION (ALL-ALUMINUM TANKS; Cont'd)				
28-15-64	MS21919WDG3	Clamp	X	1
65	A454-1	Support	X	1
66	NAS1149FO463P	Washer	X	A/R
67	A455-1 *	Plug	X	1
68	A666-1	Gascolator (revision "M" and subsequent; includes 74, and 79 thru 85)	X	1
69	A729-5	Tube	X	1
70	A521-1	Switch Assembly – Low Fuel	X	1
71	MS29512-5	Packing (o-ring)	X	1
72	AN924-5D	Nut	X	1
73	A729-1	Tube (plastic)	X	1
74	A215-006	O-Ring	X	2
75	A761-1 *	Drain Valve Assembly (Incl items 74 [1] and 76)	X	1
76	5-108	O-Ring	X	1
77	A728-1	Stiffener (aluminum)	X	1
78	AN816-6D*	Nipple	X	1
79	B402-3	Top	O	1
80	10543-2	Screen	X	1
81	10536-1	Gasket – Gascolator (Viton, replaces 10536)	X	1
82	10541	Bowl	O	1
83	CAV-110H-4 *	Drain Valve	X	1
84	B416-2	Ring	O	1
85	B416-1	Collar (lubricate threads using item 87)	O	1
86	D682-44	Decal – "Caution: Align Stripes"	X	1
87	A257-6	Grease	X	A/R
88	MS27039C0806	Screw (used in place of MS27039C0807 screw at lower A695-1 clamp)	X	1
89	5-108	O-ring (5-108 N674-70, Parker P/N)	X	1
* * *				
90	KI-118-1	Fuel Tank Vent Upgrade Kit (For R22s <u>without</u> auxiliary fuel tank. Includes items 32 [1], 33 [1], 35 [1], and 38 [1].)	X	1

NOTES * Install using item 41.

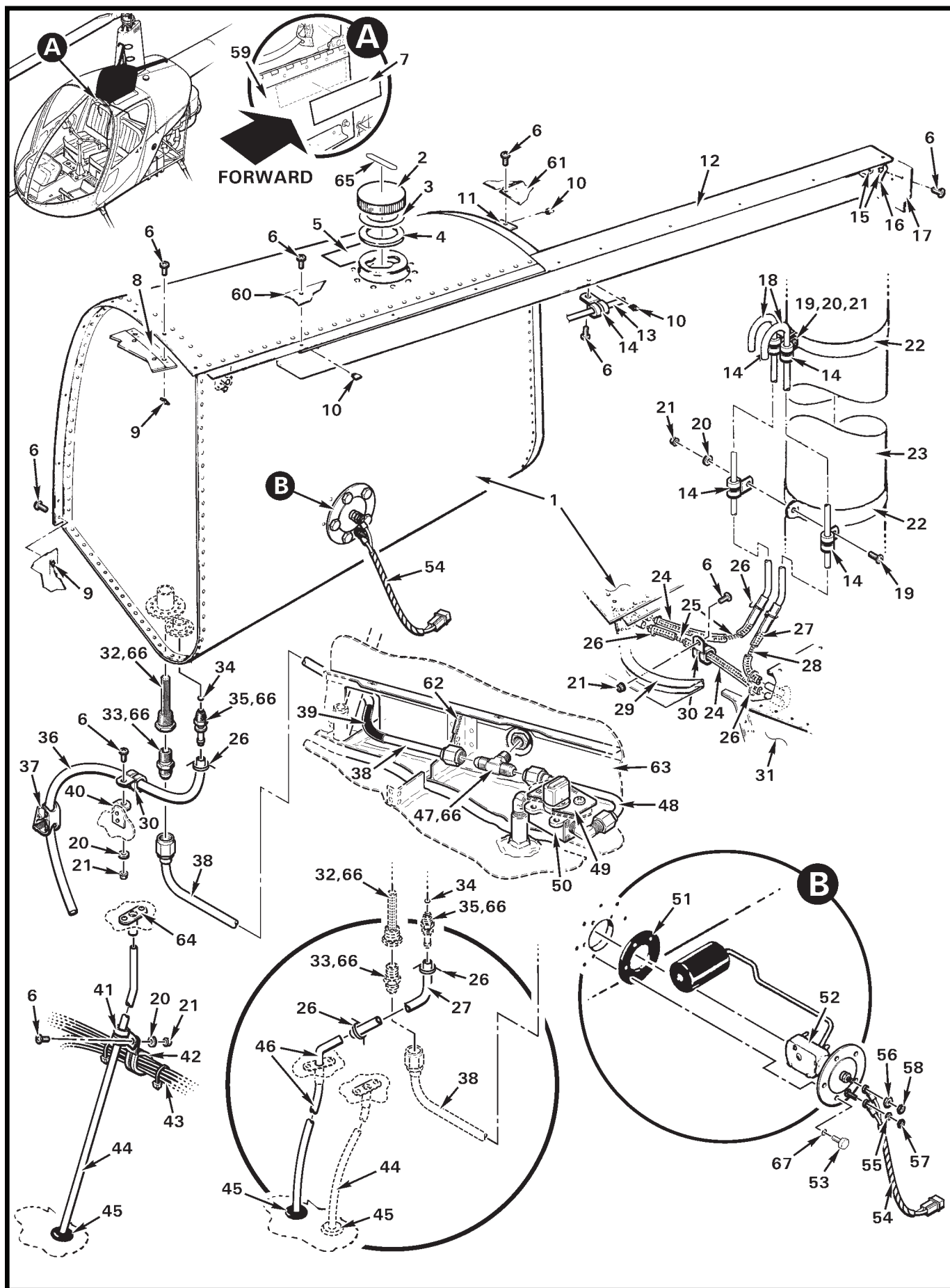


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
		AUXILIARY TANK ASSEMBLY (ALL-ALUMINUM TANKS)		
28-19-1	B043-2*	Aux Fuel Tank Assembly (Incl items 11, 12, 24 [1], 25, 32, 33, 35, and 52 thru 55)	X	1
2	R7998	Cap Assembly (primered; includes items 3, 4, and 65)	X	1
	R7295**	Cap Assembly (painted; includes items 3, 4, and 65)	X	1
3	A141-38	Washer ([1] or [2] as required)	X	A/R
4	A689-7	Gasket	X	1
5	A654-57	Decal – Fuel Fill (black letters)	X	1
	A654-77	Decal – Fuel Fill (white letters; for dark-colored ships)	X	1
6	MS27039C0806	Screw	X	A/R
7	A654-93	Decal (fuel drain instructions)	X	1
8	A015-14	Strip	X	1
9	MS21069L08	Nutplate	X	9
10	B162-3	Clipnut	X	16
11	B143-2	Angle (Ref)		
12	B321-8	Channel (Ref)		
13	A729-6	Tube – Static Pressure (Ref, see Figure 95-61)		
14	MS21919WDG4	Clamp	X	5
15	MS21086L08	Nutplate	X	2
16	B143-1	Angle	X	1
17	B429-5	Frame – Cowling (Ref, see Figure 53-5)		
18	A731-3	Vent Tube	X	2
19	MS27039C0807	Screw	X	2
20	NAS1149FN816P	Washer	X	4
21	MS21042L08	Nut	X	4
22	A695-1	Clamp	X	2
23	A283	Mast Assembly (Ref)		
24	A729-17	Tube – Vent (long)	X	2
25	B408-1	Spring (long)	X	2
26	MS20995C32	0.032-inch dia Safety Wire	X	2
27	A729-7	Tube – Vent (short)	X	1
28	B408-2	Spring (short)	X	1
29	B423-1	Channel (Ref, see Figure 53-5)		
30	MS21919WDG6	Clamp	X	2
31	A010-2	Main Fuel Tank (Ref, see Figure 28-15)		
32	B254-1*	Strainer	X	1

NOTES * Ship S/N 0457 and subsequent. Fuel tank painted white.
 ** Painted white.

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
AUXILIARY TANK ASSEMBLY (ALL-ALUMINUM TANKS, Cont'd)				
28-19-33	AN816-6D*	Nipple	X	1
34	A215-006	O-Ring	X	1
35	A761-1*	Drain Valve (Incl item 34)	X	1
36	A729-37	Drain Tube	X	1
37	D663-1	Clamp	X	1
38	B141-1	Fuel Line Assembly	X	1
39	B158-8	Heat Shrink	X	A/R
40	C365-9	Clip	X	1
41	MS21919WDG5	Clamp (around drain tube)	X	1
42	MS21919WDG10	Clamp (around wire harness)	X	1
43	A059	Wire Harness (Ref)		
44	B128-1	Drain Tube	X	1
45	MS35489-9	Grommet ([2] required when item 46 is installed)	X	1
46	B128-2	Drain Tube Assembly (Ref, no longer available. Superseded by item 36.)		
47	MS20825-6D*	Tee Fitting	X	1
48	A726-2	Line Assembly	X	1
49	A798-3	Plate (mounts <u>above</u> A465-1 panel)	X	1
	A798-1	Plate (mounts <u>below</u> A465-1 panel)	X	1
50	A670-1	Valve – Fuel Shut-Off	X	1
51	15-423	Gasket – Fuel Quantity Sender (neoprene)	X	1
52	B122-1	Sender Assembly (Incl items 51, 55, and 56)	X	1
53	B289-1	Bolt (includes washer and item 67)	X	5
54	B049-7	Harness Assembly	X	1
55	—	Nut (#6)	O	1
56	—	Nut (#8)	O	1
57	B330-5	Palnut	X	1
58	B330-6	Palnut	X	1
59	B153-6*	Door Assembly (Ref, see Figure 53-5)		
60	B429-3*	Skin (Ref, see Figure 53-5)		
61	B430-4	Skin (Ref, see Figure 53-5)		
62	MS21266-1N	Grommet (12-inch length, install using B270-8qt adhesive)	X	A/R
63	A259	Bulkhead (Ref)		
64	A456-1**	Drain (install using MS20615-4M rivets [2])	X	1
65	D682-44	Decal – "Caution: Align Stripes"	X	1

NOTES * Install using item 66.
 ** Apply B270-1 sealant between drain and firewall and around joint between items 44 and 64.

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
AUXILIARY TANK ASSEMBLY (ALL-ALUMINUM TANKS, Cont'd)				
28-19-66	B270-6	Sealant (4-oz tube)	X	A/R
67	5-108	O-ring (5-108 N674-70, Parker P/N) * * *	X	1
68	KI-118-2	Fuel Tank Vent Upgrade Kit (For R22s with auxiliary fuel tank. Includes items 18, 19 [1], 20 [1], 22, 24 [1], and 26 [1].)	X	1

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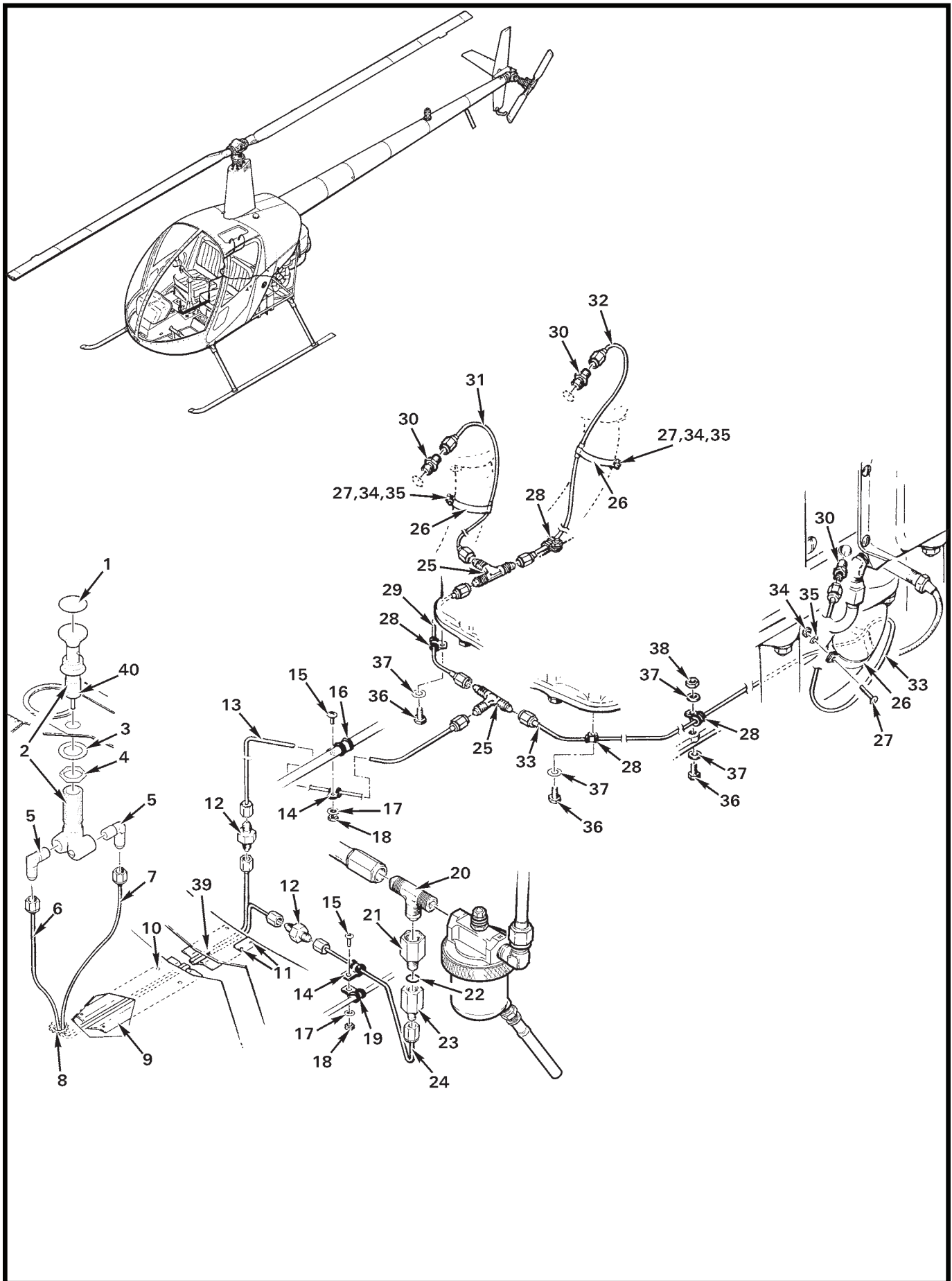


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
PRIMER SYSTEM				
28-23-1	B032-2	Decal	X	1
2	K2404-1/8-4	Primer Pump (Incl items 3, 4, and 40)	X	1
3	—	Washer	O	1
4	—	Nut	O	1
5	MS20822-2D	Elbow (or AN822-2D)	X	2
6	B104-1	Line Assembly (outlet)	X	1
7	B104-3	Line Assembly (inlet)	X	1
8	MS21266-1N	Grommet (12-inch length)	X	A/R
9	B106-1	Channel	X	1
10	MS20470AD3-3	Rivet	X	13
11	MS20470AD4-4	Rivet	X	2
12	AN815-2D	Union	X	2
13	B104-2	Line Assembly (cone fittings*; spares only, earlier R22s)	X	1
	B104-5	Line Assembly (flared-end fittings*)	X	1
14	MS21919WDG2	Clamp	X	2
15	MS27039C0807	Screw	X	2
16	MS21919WDG8	Clamp	X	1
17	NAS1149FN816P	Washer	X	2
18	MS21042L08	Nut	X	2
19	MS21919WDG3	Clamp	X	1
20	MS20826-6D	Tee	X	1
21	AN894D6-4	Bushing	X	1
22	MS29512-4	Gasket	X	1
23	AN894D4-2	Bushing	X	1
24	B104-4	Line Assembly	X	1
25	MS24402-2D	Tee	X	2
26	LW-18959-150-25	Clamp (Lycoming part no., O-320 engine)	X	3
	LW-18959-175-25	Clamp (Lycoming part no., O-360 engine)	X	3
27	MS35206-230	Screw	X	3
28	MS21333-96	Clamp	X	4
29	B103-1	Line Assembly (cone fittings*; spares only, earlier R22s)	X	1
	B103-2	Line Assembly (flared-end fittings*)	X	1
30	B310-1	Injector (cone fittings*; spares only, earlier R22s)	X	3
	B310-2	Injector (flared-end fittings*)	X	3

NOTES * Cone fitting and flared-end fitting line assemblies are not interchangeable.

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
PRIMER SYSTEM (Cont'd)				
28-23-31	B102-1	Line Assembly (cone fittings*; spares only, earlier R22s)	X	1
	B102-2	Line Assembly (flared-end fittings*)	X	1
32	B101-1	Line Assembly (cone fittings*; spares only, earlier R22s)	X	1
	B101-2	Line Assembly (flared-end fittings*)	X	1
33	B100-1	Line Assembly (cone fittings*; spares only, earlier R22s)	X	1
	B100-2	Line Assembly (flared-end fittings*)	X	1
34	MS21042L06	Nut	X	3
35	NAS1149FN616P	Washer	X	3
36	—	Bolt (existing engine bolt, Ref)		
37	—	Washer (existing engine washer, Ref)		
38	—	Nut (existing engine nut, Ref)		
39	MS20426AD4-3.5	Rivet	X	1
40	AS3578-012	O-Ring (alternate part no. MS29513-12)	X	2

NOTES * Cone fitting and flared-end fitting line assemblies are not interchangeable.

CHAPTER 32
LANDING GEAR

<i>Figure</i>	<i>Title</i>	<i>Page</i>
32-1	Landing Gear Assembly	32.0
32-5	Landing Gear Assembly	32.4
32-9	Fixed Floats – Tube Assemblies Installation	32.8

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
LANDING GEAR ASSEMBLY				
32-1-1	A014-19	Landing Gear Assembly (Incl items 2, 18, 19, 25, 27, 32 thru 36, 38 and 45)	X	1
2	A241-3	Cross Tube (Incl item 22 [2 each])	X	2
3	D210-3	Nut	X	4
4	NAS620-10L	Washer	X	8
5	A354-2	Block	X	1
6	NAS1149F0632P	Washer	X	6
7	NAS6606-49	Bolt (or NAS6606-50)	X	1
8	NAS6603-18	Bolt	X	4
9	A391-1	Doubler (Ref)		
10	A350-4	Panel – RH (Ref)		
11	D210-6	Nut	X	5
12	A214-2	Washer	X	2
13	A214-9	Thrust Washer	X	2
14	A105-4	Journal	X	1
15	A014-5	Shackle Assembly	X	1
16	LJS-0816	Bearing	X	2
17	A141-9	Washer	X	1
18	A243-6	Spacer	X	4
19	A239-4	Strut Assembly	X	4
20	A141-23	Washer	X	8
21	NAS6606-42	Bolt (or NAS1306-42)	X	4
22	A247-3	Rain Cap (install using item 46)	X	4
23	A046-1	Frame Assembly – Lower (LH; Ref, see Figure 53-9)		
	A046-2	Frame Assembly – Lower (RH; Ref, see Figure 53-9)		
24	NAS6604-15	Bolt	X	2
25	NAS1149F0432P	Washer	X	5
26	A354-1	Block (Ref)		
27	D210-4	Nut	X	9
28	A141-11	Washer	X	8
29	NAS6604-11	Bolt	X	4
30	A014-6	Support Assembly (forward)	X	1
31	A574-2	Support Assembly (aft)	X	2
32	NAS6605-5	Bolt (or NAS1305-5)	X	16
33	NAS1149F0563P	Washer	X	16

NOTES

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
LANDING GEAR ASSEMBLY (Cont'd)				
32-1-34	NAS1149F0463P	Washer	X	4
35	A719-1	Support Weldment – Ground Handling Wheel	X	2
36	AN4-25A	Bolt	X	2
37	A247-1	Rain Cap (install using item 46)	X	1
38	A014-11	Skid Tube Assembly (LH; includes A242-3, and items 37, 39 thru 41, 43, 44, and 46)	X	1
	A014-12	Skid Tube Assembly (RH; includes A242-4, and items 37, 39 thru 41, 43, 44, and 46)	X	1
	A242-3	Skid Tube (LH)	O	1
	A242-4	Skid Tube (RH)	O	1
39	A142-3	Screw ([4] each side)	X	8
40	A142-1	Screw	X	12
41	A667-6	Skid Shoe – Curved	X	2
42	MS21075L3E	Nutplate	X	8
43	A246-5	Liner (LH, includes item 42, 48 thru 50)	X	1
	A246-6	Liner (RH, includes item 42, 48 thru 50)	X	1
	A246-1	Liner (no longer available)	O	2
44	A667-5	Skid Shoe – Straight	X	2
45	A937-1	Extension (LH)	X	1
	A937-2	Extension (RH)	X	1
46	B270-1	Adhesive	X	A/R
47	NAS1149F0663P	Washer (as required for 2-4 exposed threads)	X	A/R
48	NAS1097AD4	Rivet	X	8
49	A246-3	Spacer	X	4
50	MS21075L5E	Nutplate	X	4

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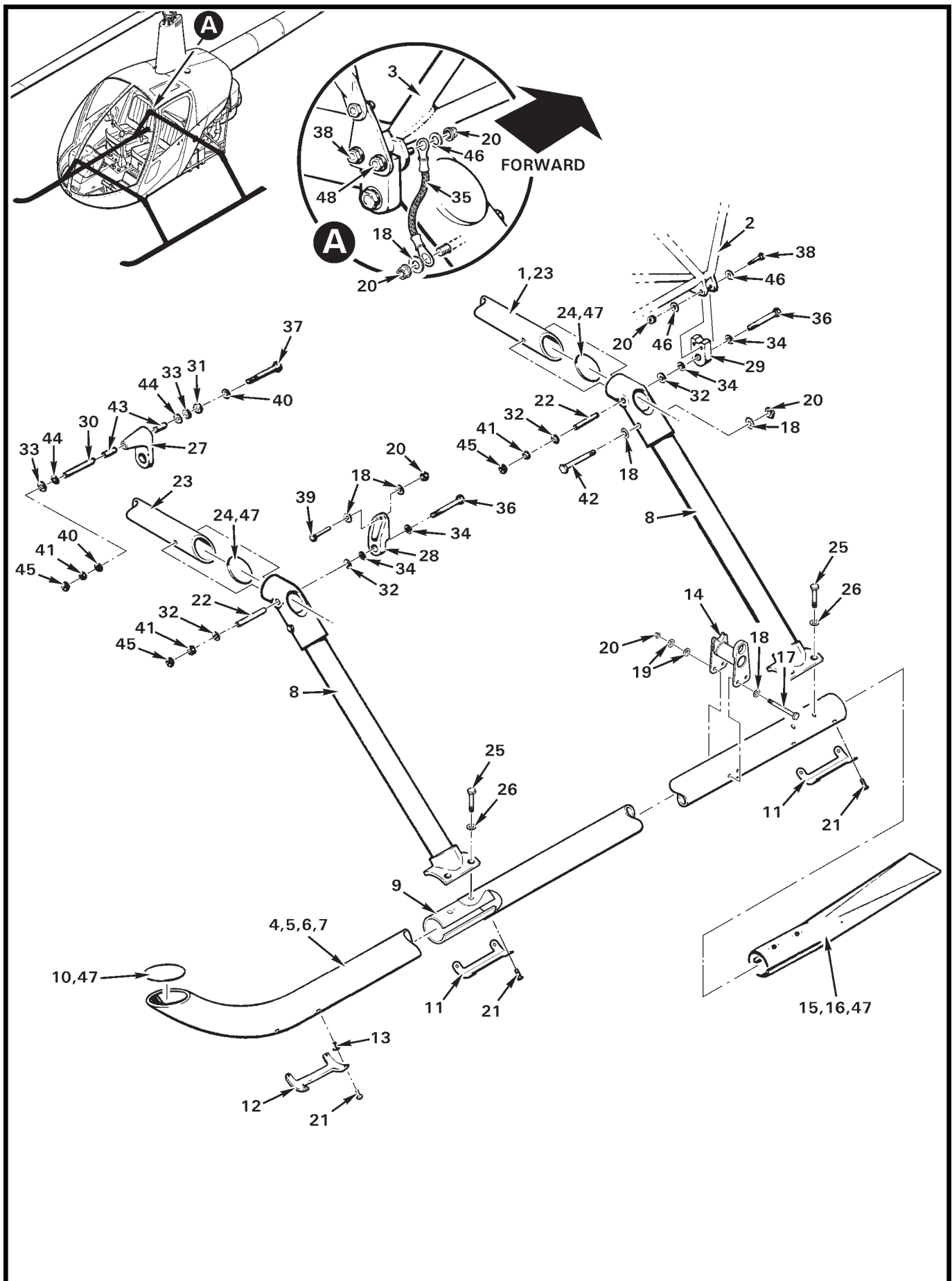


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
LANDING GEAR ASSEMBLY				
32-5-1	A014-8	Landing Gear Assembly (Incl items 4, 5, 8, 14 thru 20, 22, 23, 25, 26, and 42)	X	1
2	A046-1	Frame Assembly – Lower (LH; Ref, see Figure 53-9)		
3	A046-2	Frame Assembly – Lower (RH; Ref, see Figure 53-9)		
4	A014-11	Skid Tube Assembly (LH, revision AI and prior. No longer available; to replace order [1] A014-11 revision AJ and subsequent. See Figure 32-1.)	O	1
5	A014-12	Skid Tube Assembly (RH, revision AI and prior. No longer available; to replace order [1] A014-12 revision AJ and subsequent. See Figure 32-1.)	O	1
6	A242-1	Skid Tube (LH, revision T and prior. See Figure 32-1.)	O	1
7	A242-2	Skid Tube (RH, revision T and prior. See Figure 32-1.)	O	1
8	A014-18	Strut Assembly (No longer available; to replace order [2] A239-4 strut assemblies, and [1] A241-3 cross tube and associated hardware. See Figure 32-1.)	O	4
9	A246-1	Liner (superseded by item 51)	O	2
10	A247-1	Rain Cap (bond in place using item 47)	X	1
11	A667-5	Skid Shoe – Straight	X	2
12	A667-6	Skid Shoe – Curved	X	1
13	NAS1330H3K116L	Rivnut	X	4
14	A719-1	Support Assembly – Ground Handling Wheel	X	2
15	A937-1	Extension (LH, seal gaps with item 47)	X	1
16	A937-2	Extension (RH, seal gaps with item 47)	X	1
17	AN4-25A	Bolt	X	2
18	NAS1149F0432P	Washer	X	10
19	NAS1149F0463P	Washer	X	4
20	D210-4	Nut	X	5
21	A142-1	Screw	X	12
22	A278-1	Spacer (2.030–2.035 inches long)	X	4
23	A241-2	Cross Tube (Incl item 24 [2])	X	2
24	A247-3	Rain Cap (bond in place using item 47)	X	4
25	NAS6605-5	Bolt	X	16
26	NAS1149F0563P	Washer	X	16
27	A014-5	Shackle Assembly	X	1
28	A014-6	Support Assembly (forward)	X	1
29	A014-7	Support Assembly (aft)	X	2
30	A105-4	Journal	X	1

NOTES

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
LANDING GEAR ASSEMBLY (Cont'd)				
32-5-31	A141-9	Washer	X	1
32	A214-1	Washer	X	8
33	A214-2	Washer	X	2
34	A141-23	Washer	X	8
35	A936-2	Ground Wire Assembly	X	1
36	NAS6606-42	Bolt	X	4
37	NAS6606-50	Bolt	X	1
38	NAS6604-11	Bolt	X	3
39	NAS6604-15	Bolt	X	2
40	NAS1149F0632P	Washer	X	2
41	D210-6	Nut	X	5
42	NAS6604-32	Bolt	X	4
43	LJS-0816	Bearing	X	2
44	A214-9	Thrust Washer	X	2
45	B330-19	Palnut	X	5
46	A141-11	Washer	X	8
47	B270-1	Adhesive	X	A/R
48	NAS6604-12	Bolt (right outboard position only)	X	1
NOTES				

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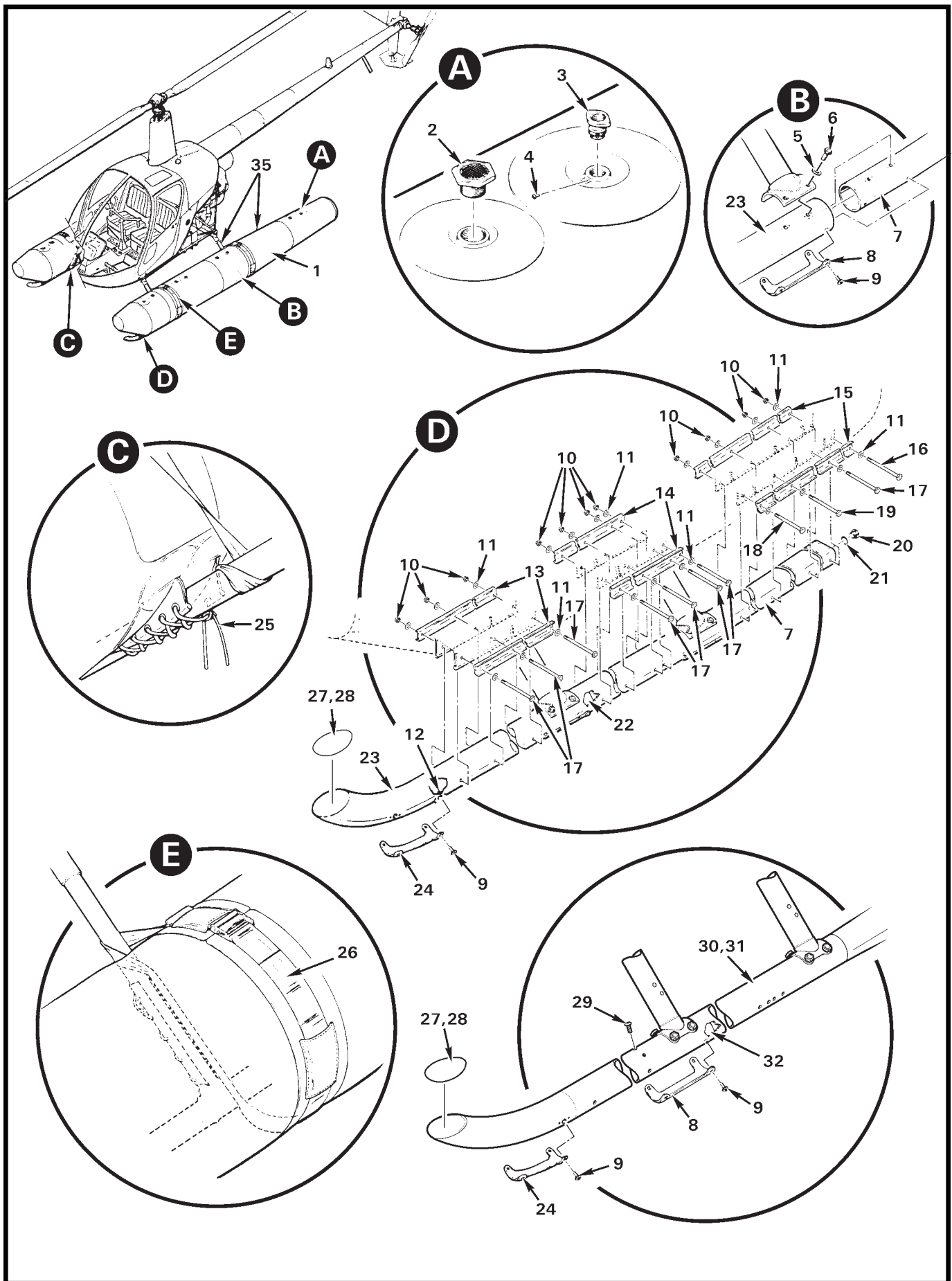


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
		FIXED FLOATS – TUBE ASSEMBLIES INSTALLATION		
32-9-1	A949-1 *	Float Tube Assembly* (LH, black. Includes items 2, 3, 25, and 26.)	X	1
	A949-2 *	Float Tube Assembly* (RH, black. Includes items 2, 3, 25, and 26.)	X	1
2	3MA1009-4	Pressure Relief Valve	X	4
3	4RA1190-2	Hand Pump Fitting (Incl item 4)	X	4
4	—	Screw	O	4
5	NAS1149F0563P**	Washer	X	8
6	NAS6605-5**	Bolt	X	8
7	A945-1	Skid Extension (LH)	X	1
	A945-2	Skid Extension (RH)	X	1
8	A667-5	Skid Shoe – Straight	X	2
9	A142-1	Screw	X	12
10	D210-4***	Nut	X	26
11	NAS1149F0432P	Washer	X	56
12	NAS1330H3K116L	Rivnut	X	4
13	A944-2	Strip	X	2
14	A944-1	Strip (LH)	X	1
	A944-4	Strip (RH)	X	1
15	A944-3	Strip (LH and RH)	X	2
16	NAS6604-34***	Bolt	X	1
17	NAS6604-32***	Bolt	X	20
18	NAS6604-28***	Bolt	X	5
19	NAS6604-30***	Bolt	X	2
20	B202-1	Drain Plug Assembly (Incl item 21)	X	1
21	A215-013	O-Ring	X	1
22	A246-1	Liner (no longer available; see item 32)	O	2
23	A014-15	Skid Tube (LH, revision AI and prior. See item 30)	O	1
	A242-1	Skid Tube (LH; see item 31)	O	1
	A014-16	Skid Tube (RH, revision AI and prior. See item 30)	O	1
	A242-2	Skid Tube (RH; see item 31)	O	1
24	A667-6	Skid Shoe – Curved	X	1
25	—	Lacing	O	2
26	—	Restraint Belt	O	2
27	A247-1	Rain Cap (bond in place using item 28)	X	1

NOTES * Top half painted white; specify B900-6 component modification when ordering.
 ** Cover bolt head and washer with item 28.
 *** Seal under head and nut with item 28.

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
FIXED FLOATS – TUBE ASSEMBLIES INSTALLATION (Cont'd)				
32-9-28	B270-1	Sealant	X	A/R
29	A142-3	Screw (revision AJ and subsequent)	X	4
30	A014-15	Skid Tube Assembly (LH, revision AJ and subsequent; includes items 8, 9, 12, 24, 27, 29, 31 and 32)	X	1
	A014-16	Skid Tube Assembly (RH, revision AJ and subsequent; includes items 8, 9, 12, 24, 27, 29, 31 and 32)	X	1
31	A943-5	Skid Tube (LH, revision U and subsequent. See item 30.) . . .	O	1
	A943-6	Skid Tube (RH, revision U and subsequent. See item 30.) . . .	O	1
32	A246-5	Liner (LH; revision AJ and subsequent)	X	1
	A246-6	Liner (RH; revision AJ and subsequent)	X	1
33	MT340-1	Float Gauge and Fill Gun Kit (not shown)	X	1
34	KI-83-1	Float Repair Kit (not shown)	X	1
35	A034-1	Float Landing Gear Assembly (Incl items 1 thru 27)	X	1

NOTES

CHAPTER 33

LIGHTS

<i>Figure</i>	<i>Title</i>	<i>Page</i>
33-1	Strobe Light Installation	33.0
33-5	Navigation Lights Installation – Right and Left Position	33.4
33-7	Navigation Lights Installation – Tail Position	33.6
33-9	Landing Lights Installation (HID)	33.8
33-11	Landing Lights Installation	33.10
33-13	Spotlight Installation (LED)	33.12
33-15	Spotlight Installation	33.14

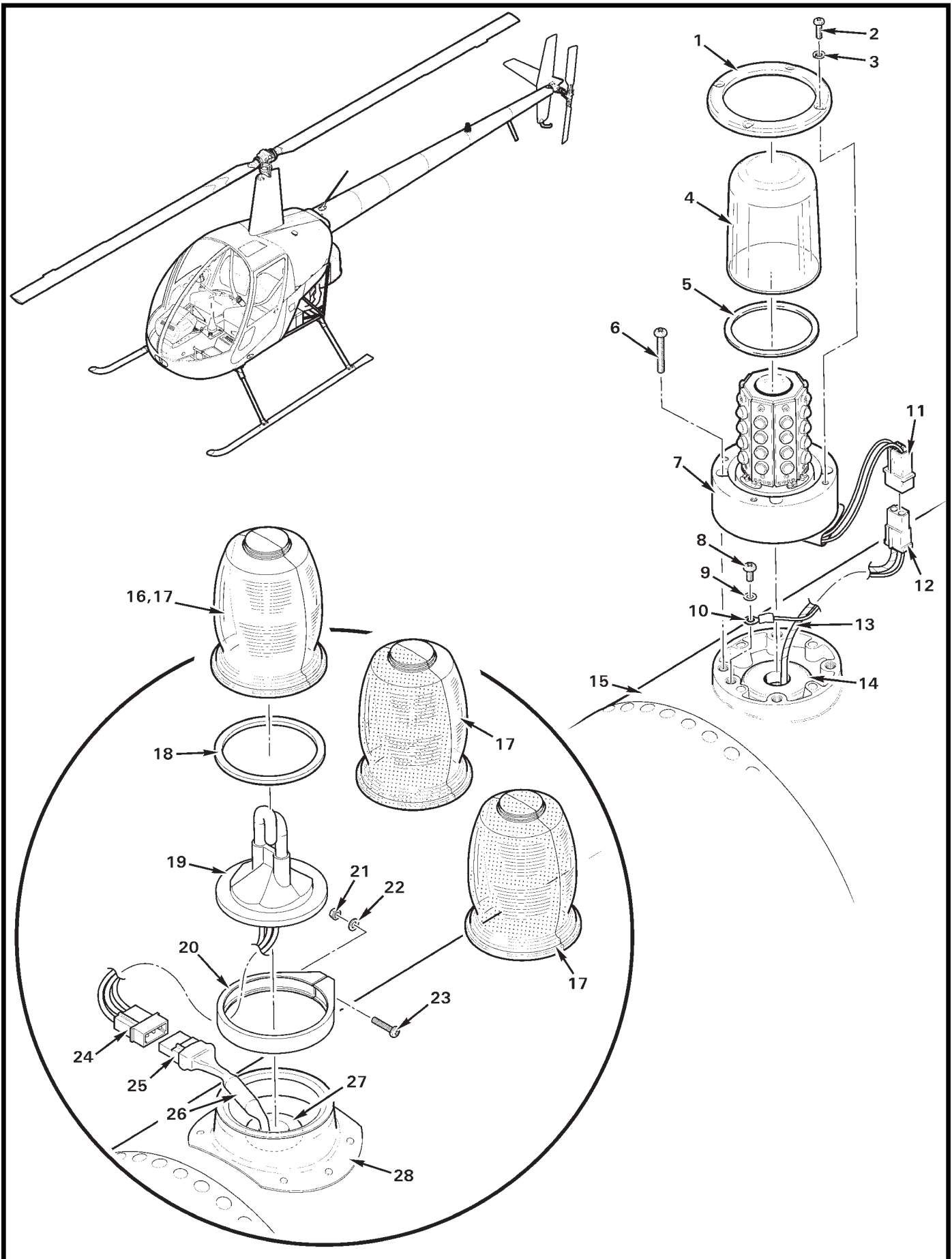


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
STROBE LIGHT INSTALLATION				
33-1-1	19-171047-100*	Retainer	O	1
2	140050505-14*	Screw	O	4
3	16-0050506135*	Lockwasher (or MS35338-135)	O	4
4	68-4971082A30*	Lens (clear)	O	1
5	38-0250885-00*	Gasket	O	1
6	MS35206-234	Screw	X	4
7	A708-14	Strobe Light (includes items 1 thru 5, and 11; 14-volt ships, red)	X	1
8	MS35206-227	Screw	X	1
9	NAS620-6L	Washer	X	1
10	B260-2	Terminal	X	1
11	02-0230007-00*	Housing	O	1
	—	Pin	O	2
12	B263-13	Housing	X	1
	B263-2	Socket	X	2
13	B161-2	Spirap	X	A/R
14	MS35489-15	Grommet	X	1
15	A023	Tailcone Assembly (Ref)		
16	A708-2**	Strobe Light – Assembly (Includes items 17, 18, and 19 thru 24. See Figure 96-25 for power supply installation.)	X	1
	A708-11**	Strobe Light – Assembly (Includes items 17, 18, and 19 thru 24. See Figure 96-25 for power supply installation.)	X	1
17	A708-7	Lens Assembly (red)	X	1
	A708-10	Lens Assembly (white)	X	1
	A708-12	Lens Assembly (red/white***)	X	1
18	A467*	Gasket (use with A708-2 assembly)	X	1
	38-0250429-00*	Gasket (use with A708-11 assembly)	X	1
19	A469B*	Bulb/Flash Tube Assembly	X	1
20	01-0450685-00*	Clamp	X	1
21	MS21042L06	Nut	X	4
22	NAS620-6	Washer	X	1
23	—	Screw	O	1
24	—	Connector (3-pin)	O	1
25	B263-15**	Housing (Ref)		
	B263-4**	Socket (Ref)		
26	B274-450**	Wire (Ref)		

NOTES * Whelen part no.
 ** Earlier R22s. For items 25 thru 28 see Figure 53-19.
 *** Install red lens forward.

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
STROBE LIGHT INSTALLATION* (Cont'd)				
33-1-27 28	MS35489-18* C528-1*	Grommet (Ref) Mount – Strobe Light (Ref)		

NOTES * Earlier R22s. For items 25 thru 28 see Figure 53-19.

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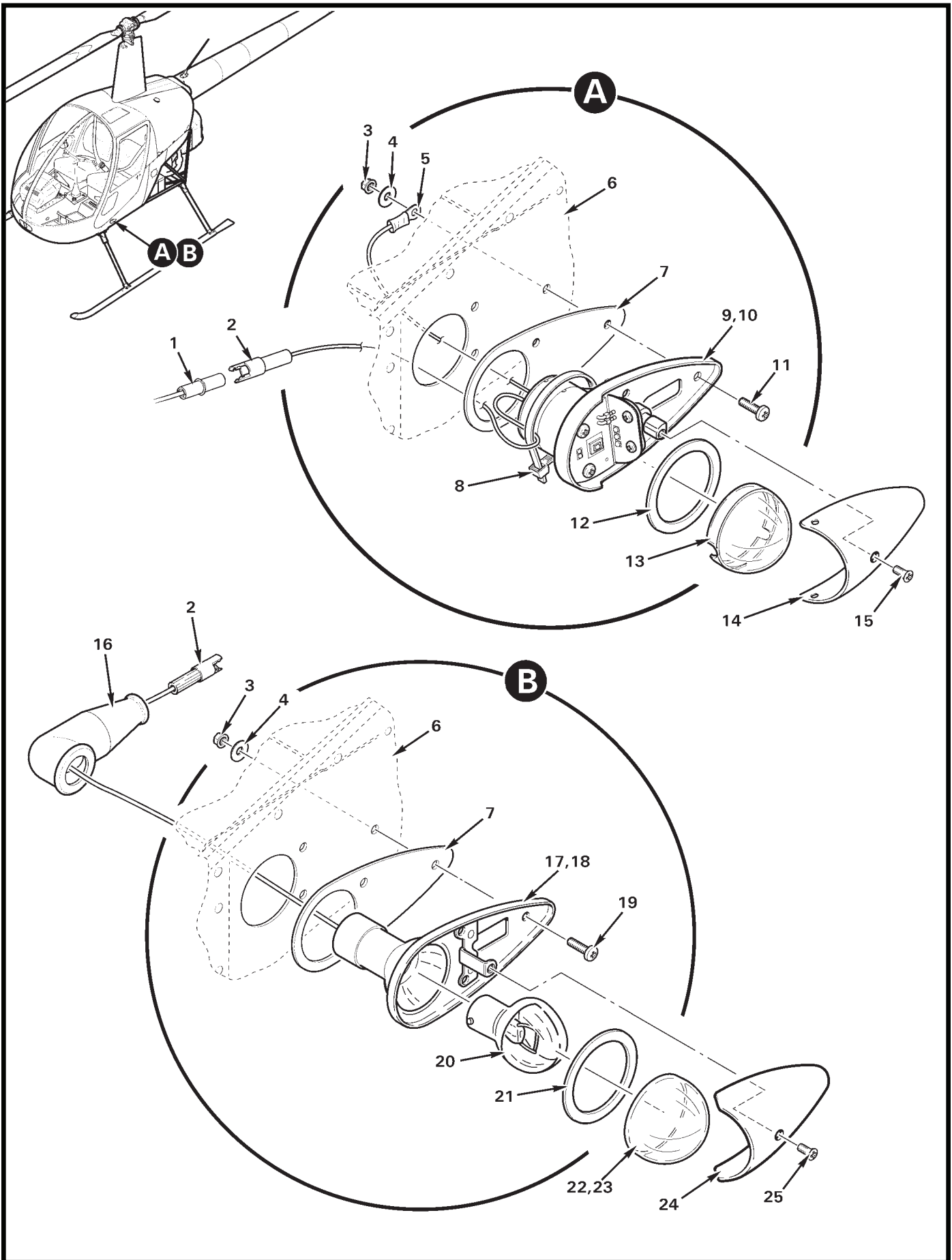


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
		NAVIGATION LIGHTS INSTALLATION – RIGHT AND LEFT POSITION		
33-5-1	B263-11	Housing (Ref)		
2	B263-10	Housing	X	1
	B263-1	Pin	X	1
3	MS21042L06	Nut	X	3
4	NAS1149FN616P	Washer	X	3
5	B260-2	Terminal	X	1
6	A015-3	Skin (LH, Ref)		
	A015-4	Skin (RH, Ref)		
7	A779-1	Gasket	X	1
8	MS3367-5-9	Ty-Rap	X	1
9	A039-21	Position Light Assembly (LH, red LED; includes items 5, and 12 thru 15.)	X	1
10	A039-22	Position Light Assembly (RH green LED; includes items 5, and 12 thru 15. Not shown.)	X	1
11	MS35206-230	Screw	X	3
12	38-0230021-00*	Gasket	O	1
13	68-3950902A30*	Lens (clear)	X	1
14	19-150002-010*	Retainer	O	1
15	14-00505-08-27*	Screw	O	1
16	MS25171-2S	Nipple	X	1
17	A039-4**	Position Light Assembly (LH; includes items 2, 18, 20 thru 22, 24, and 25.)	X	1
	A039-5**	Position Light Assembly (RH; includes items 2, 18, 20 thru 22, 24, and 25.)	X	1
18	W1285-2*	Base Assembly (Ref)	O	1
19	MS35206-229	Screw	X	3
20	W1290-14*	Lamp	X	1
21	W1283*	Gasket	X	1
22	W1284R*	Lens (LH, red)	X	1
23	W1284G*	Lens (RH, green)	X	1
24	W1282*	Lens Retainer	X	1
25	—	Screw	O	1

NOTES * Whelen part no.
** Earlier R22s.

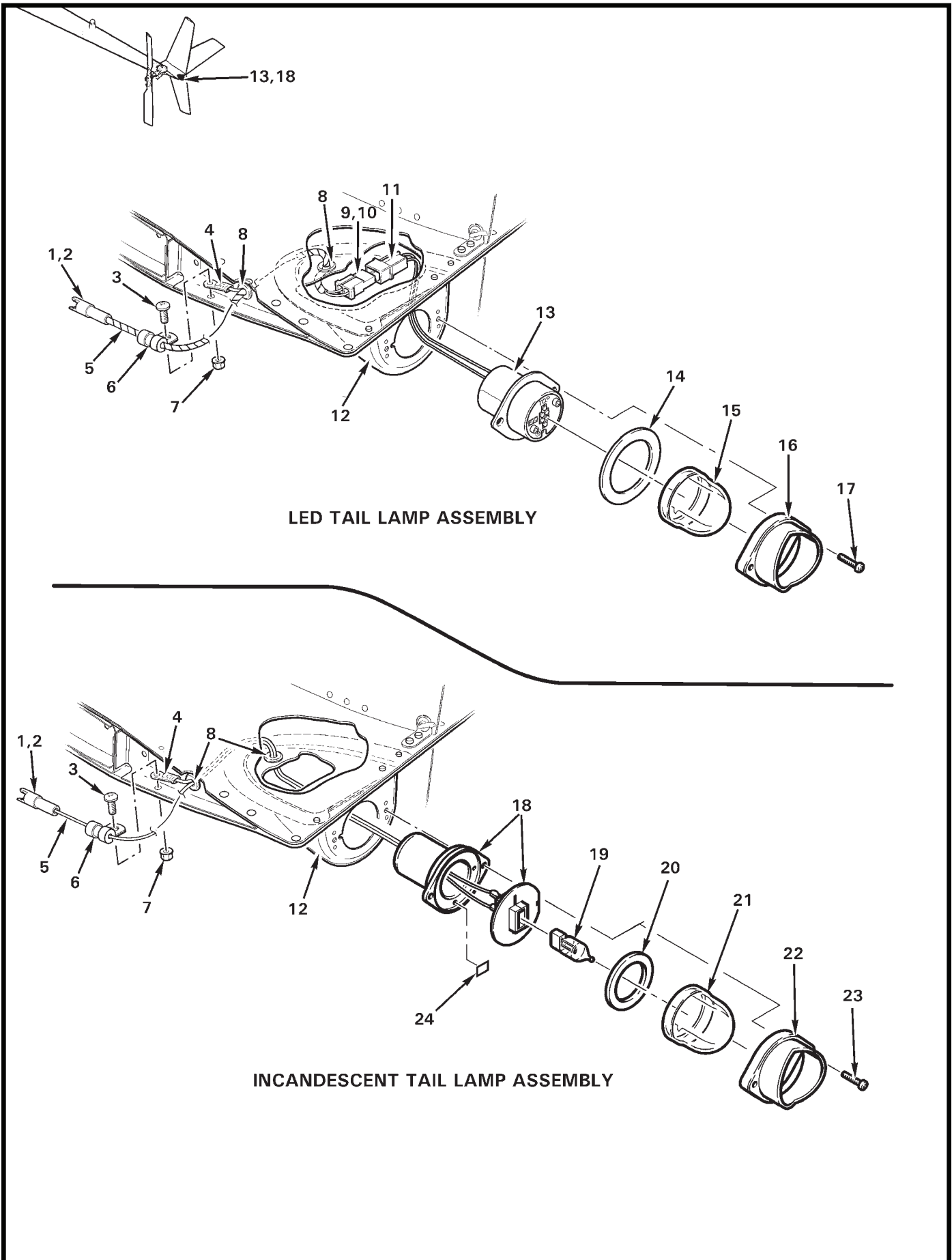


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
NAVIGATION LIGHTS INSTALLATION – TAIL POSITION				
33-7-1	B263-10	Housing	X	1
2	B263-1	Pin	X	1
3	MS27039C0806	Screw	X	1
4	B260-3	Terminal (ring tongue)	X	1
5	B161-2	Spirap	X	A/R
6	MS21919WDG2	Clamp	X	1
7	MS21042L08	Nut	X	1
8	MS35489-4	Grommet	X	2
9	B263-13	Housing	X	1
	B263-2	Socket	X	2
10	D049-5	Harness Assembly – Tail Light (Incl items 2, 4, 5, and 9)	X	1
11	—	Housing	O	1
	—	Pin	O	2
12	A529-1	Mount Assembly (Ref)	X	1
13	01-0771554-11*	Tail Light Assembly (LED; includes items 11, and 14 thru 17)	X	1
14	38-0231060-00*	Gasket	O	1
15	68-3970991-30*	Lens (clear)	O	1
16	01-0271552-11*	Lens Retainer	O	1
17	—	Screw	O	1
18	A698-1	Tail Light Assembly (Ref; no longer available. Superseded by item 13. To replace, order items 10 and 13.)		
19	34-0412070-63*	Lamp (halogen)	X	1
20	A455*	Gasket	X	1
21	A457A*	Lens (clear)	X	1
22	A425*	Lens Retainer	X	1
23	—	Screw	O	1
24	A701-1	Tape (foil)	X	A/R

NOTES * Whelen part no.

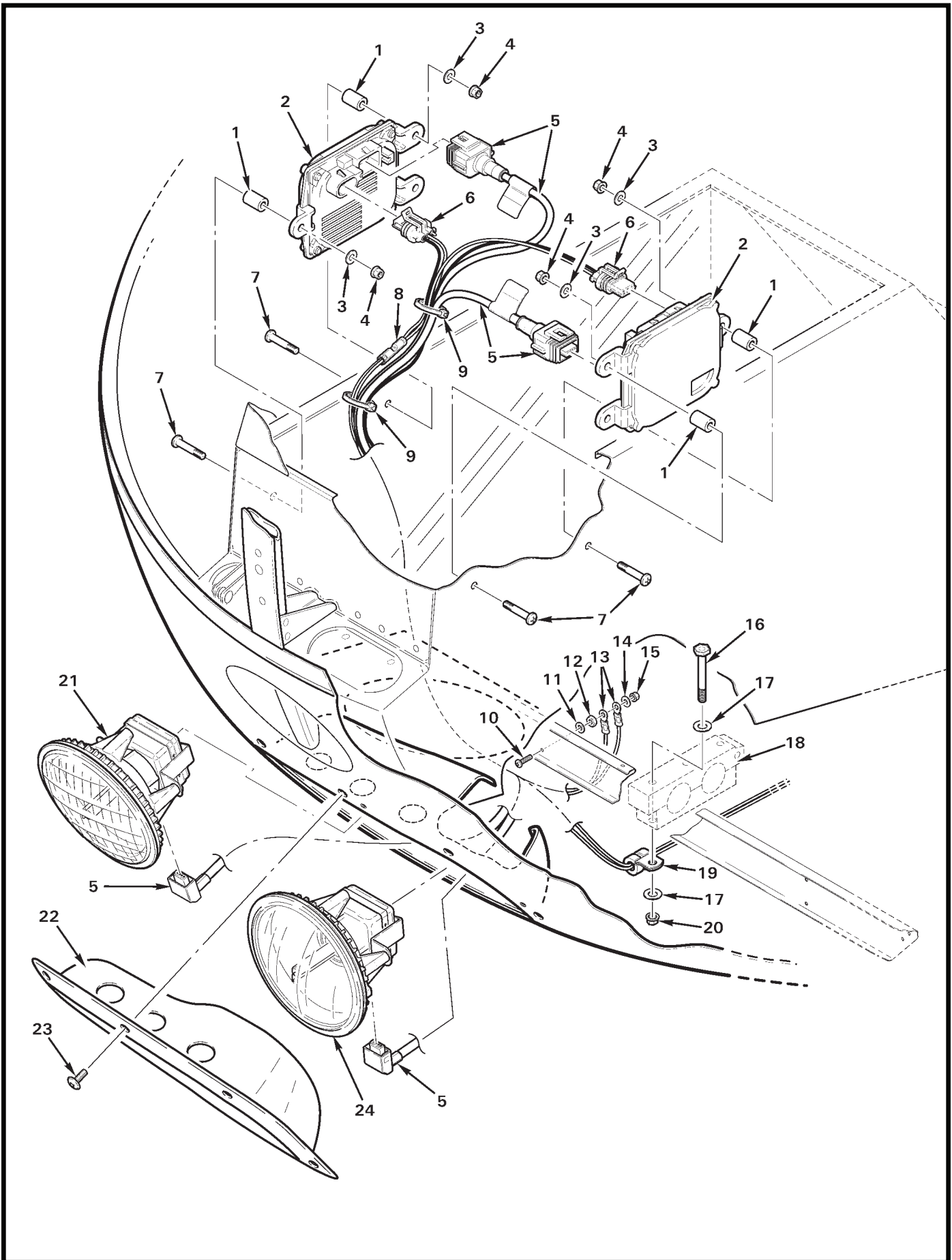


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
LANDING LIGHTS INSTALLATION (HID)				
33-9-1	A130-38	Spacer	X	4
2	B557-5	Ballast (Incl item 6)	X	2
3	NAS1149FN832P	Washer	X	4
4	MS21042L08	Nut	X	4
5	B557-6	Cable	X	2
6	B557-7	Power Cord (connector and wires)	O	2
7	MS27039C0816	Screw	X	4
8	B261-3	Splice (for power [white] wires)	X	1
9	MS3367-4-9	Ty-Rap	X	2
10	B567-43	Screw (brass)	X	1
11	NAS1149DN832H	Washer	X	1
12	B301-8	Nut (brass)	X	1
13	B260-3	Terminal	X	2
14	NAS1149FN816P	Washer	X	1
15	MS21042L08	Nut	X	1
16	NAS6603-20	Bolt (Ref)		
17	NAS1149F0332P	Washer (Ref)		
18	A318-1-2	Bearing Block Set (Ref)		
19	MS21919WDG4	Clamp	X	1
20	D210-3	Nut (Ref)		
21	B557-2	Lamp (RH; HID, flood)	X	1
22	A526-1	Retainer	X	1
23	AN526C832R8*	Screw	X	8
24	B557-1	Lamp (LH; HID, spot)	X	1

NOTES * B526 screws may be used in this location with B527-08 nylon washers (see part interchangeability list, page viii).

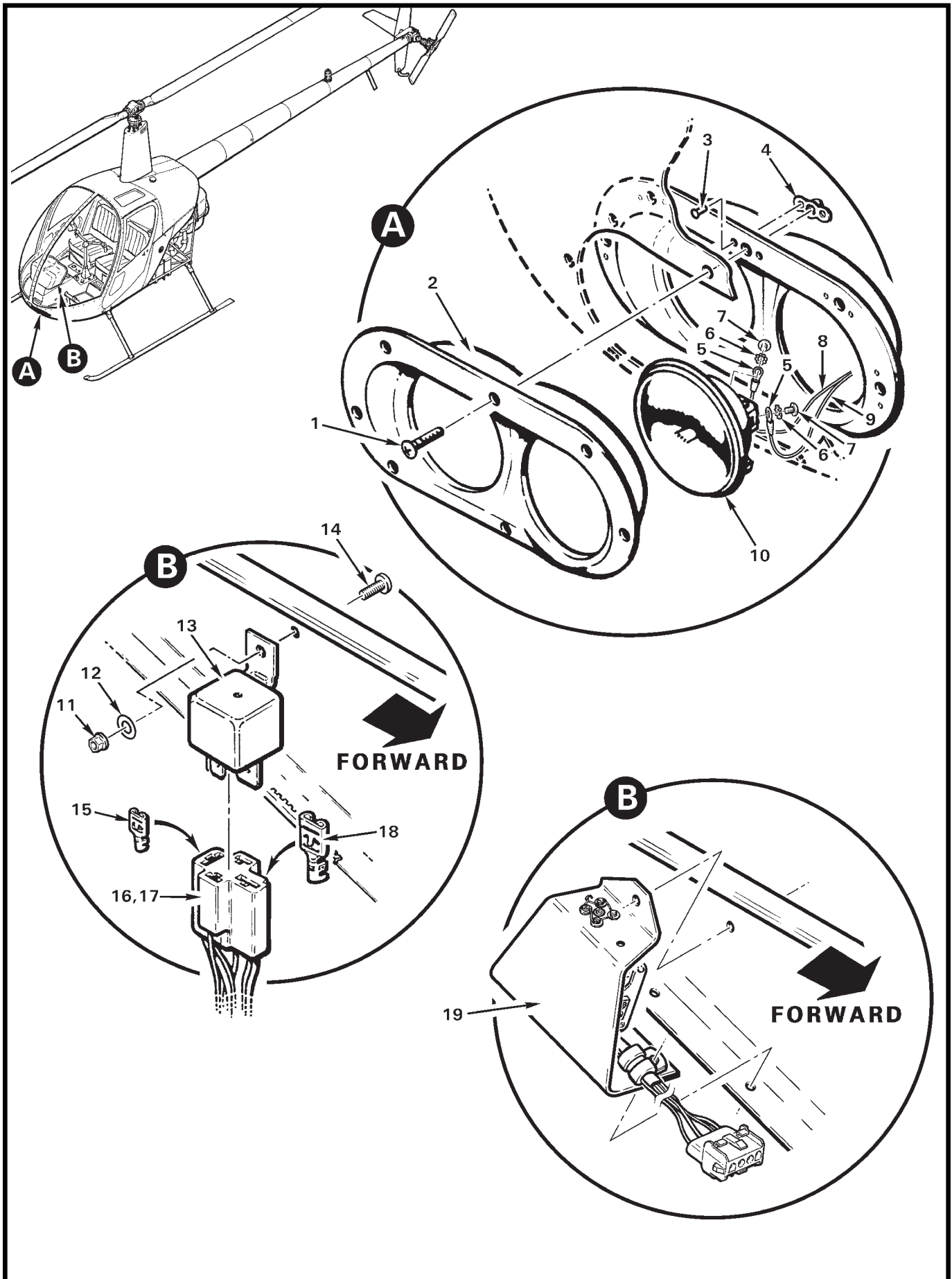


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
LANDING LIGHTS INSTALLATION				
33-11-1	AN526C832R8*	Screw	X	8
2	A526-1	Retainer – Landing Light	X	1
3	MS20426AD3	Rivet	X	16
4	MS21069L08	Nutplate	X	8
5	B260-3	Terminal	X	4
6	—	Lockwasher	O	2
7	—	Screw	O	2
8	A859-117	Wire (Ref)		
9	A859-115	Wire (Ref)		
10	B196-26	Lamp (GE, includes items 6 and 7)	X	2
11	MS21042L08	Nut	X	1
12	NAS1149FN816P	Washer	X	1
13	D260-1	Relay – Landing Lights	X	1
14	MS27039C0806	Screw	X	1
15	B262-6	Receptacle (small, used with item 16)	X	1
16	D260-5	Connector (70 amp)	X	1
17	B803-1	Harness Assembly (Incl items 15, 16 and 18)	X	1
18	B262-7	Receptacle (large, used with item 16)	X	1
19	A039-2	Relay – Landing Lights (Ref; no longer available. To replace, order item 20.)		
20	KI-61	Landing Light Relay Conversion Kit (Replaces A039-2 relay assembly with item 13. Includes items 13 and 17.)	X	1

NOTES * B526 screws may be used in this location with B527-08 nylon washers (see part interchangeability list, page viii).

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
SPOTLIGHT INSTALLATION (LED)				
33-13-1	AN525-832R12	Screw	X	2
2	A039-1858	Wire – Ground	X	1
3	A130-34	Spacer	X	2
4	B263-10	Housing (used with item 9)	X	1
	B263-1	Pin	X	1
5	NAS1149FN816P	Washer	X	2
6	B340-4	Nut	X	2
7	A712-4	Cover	X	1
8	B158-2	Heat Shrink (around leads)	X	A/R
9	B300-5	Switch Assembly (Incl items 20 and 21)	X	1
10	B0207C422R0F5T	Resistor (not shown)	X	1
11	B0207C1K430F5T	Resistor (not shown)	X	1
12	B158-12	Heat Shrink	X	A/R
13	MS21042L06	Nut	X	2
14	NAS620-6L	Washer	X	2
15	NAS557-3A	Grommet	X	1
16	MS21042L04	Nut	X	2
17	NAS1149FN416P	Washer	X	2
18	MS35206-215	Screw	X	2
19	A752-1	Angle	X	1
20	B227-3	Lockwasher	X	1
21	B227-4	Dress Nut	X	1
22	2653	Hole Plug	X	2
23	NAS1352-06-8	Screw	X	2
24	D606-1	Spotlight	X	1
25	A039-14	Spot Light Assembly (LED with ICS; includes items 2, 4, 7 thru 19, 22 thru 24.)	X	1

NOTES

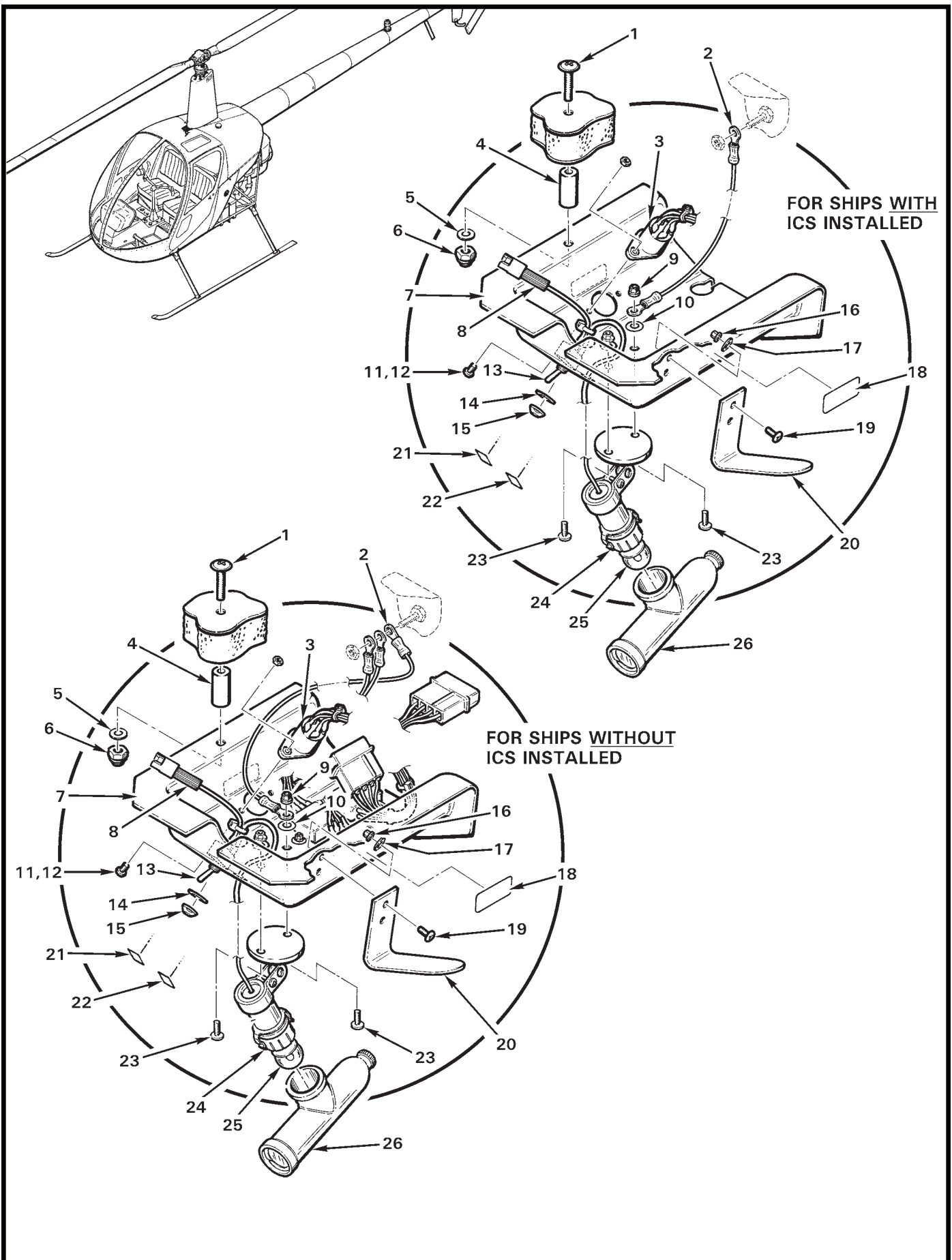


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
SPOTLIGHT INSTALLATION				
33-15-1	AN525-832R12	Screw	X	2
2	A039-120	Wire – Ground	X	1
3	TJ-120	Headset Jack (pilot and co-pilot)	X	2
4	A130-34	Spacer	X	2
5	NAS1149FN816P	Washer	X	2
6	B340-4	Nut	X	2
7	A712-1	Cover	X	1
8	B263-10	Housing (used with item 13)	X	1
	B263-1	Pin	X	1
9	MS21042L06	Nut	X	2
10	NAS1149FN616P	Washer	X	2
11	MS35206-215	Screw (seal threads using item 12)	X	4
12	B270-11	Adhesive	X	A/R
13	B300-1	Switch – Spotlight (Incl items 14 and 15)	X	1
14	B227-3	Lockwasher	X	1
15	B227-4	Dress Nut	X	1
16	MS21042L04	Nut	X	2
17	NAS1149FN416P	Washer	X	2
18	A654-16	Decal – “Headset”	X	1
19	MS35206-215	Screw	X	2
20	A752-1	Angle – Headset Holder	X	1
21	A654-15	Decal – “On”	X	1
22	A654-13	Decal – “Off”	X	1
23	MS35206-228	Screw	X	2
24	A1425A-2*	Spotlight (without bulb)	X	1
25	B196-2	Lamp	X	1
26	A039-14	Spotlight Assembly (Standard Audio. Includes items 2, 7 thru 13, 16, 17, 20, 23, and 24.)	X	1

NOTES * Grimes part no.

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CHAPTER 52

DOORS AND WINDOWS

<i>Figure</i>	<i>Title</i>	<i>Page</i>
52-1	Door Assembly	52.0
52-5	Windshield Assembly	52.4
52-7	Door and Windshield Support	52.6

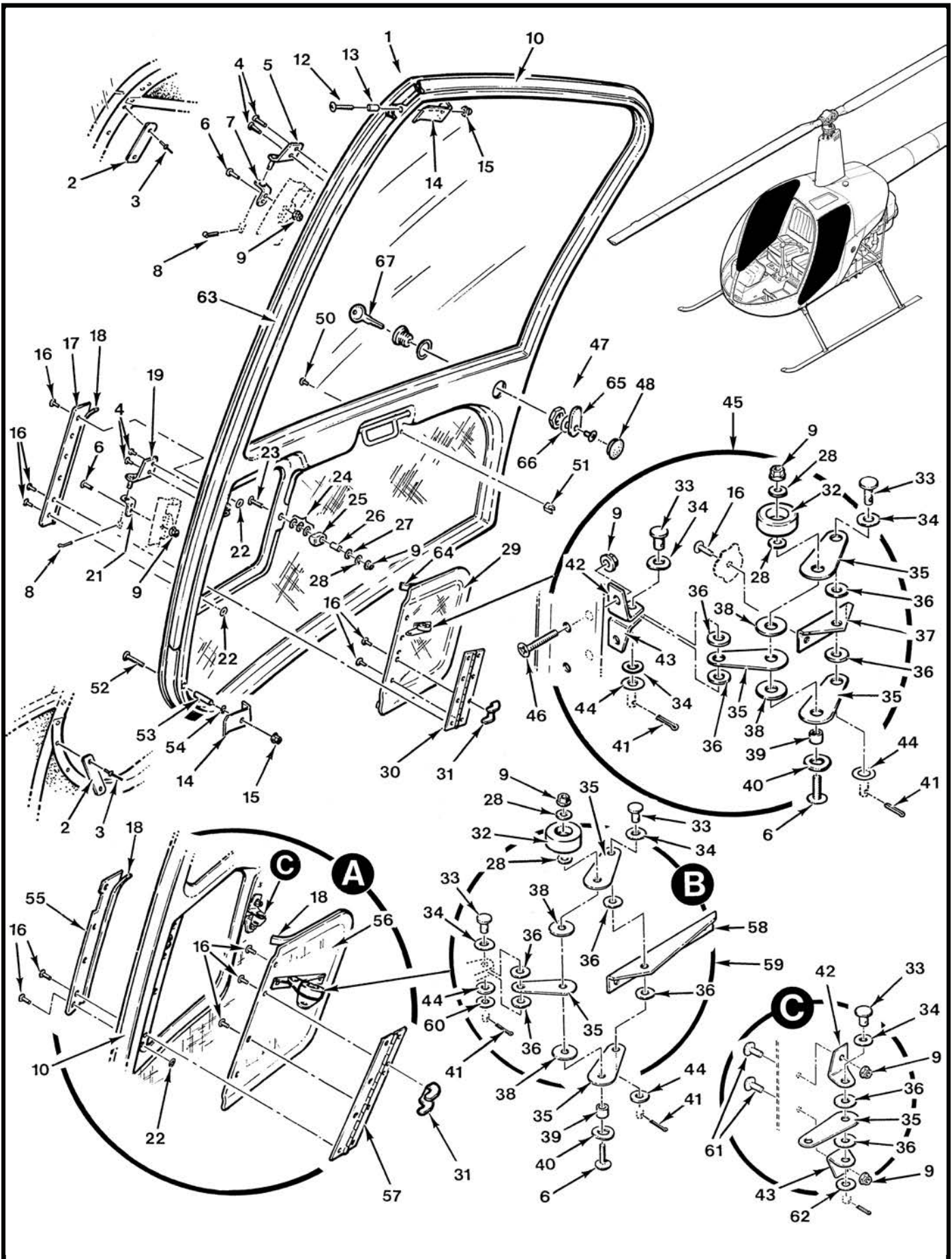


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
		DOOR ASSEMBLY*		
52-1-1	A026-1	Door Assembly (LH; includes items 9 thru 18, 20, 22 thru 24, 26 thru 28, 29 [C425-7], 30 thru 32, 45 thru 49, 52, 53, 63, and 64)	X	1
	A026-11	Door Assembly (LH, tinted; includes items 9 thru 18, 20, 22 thru 24, 26 thru 28, 29 [C425-7], 30 thru 32, 45 thru 49, 52, 53, 63, and 64)	X	1
	A026-2	Door Assembly (RH; includes items 9 thru 18, 20, 22 thru 24, 26 thru 28, 29 [C425-8], 30 thru 32, 45 thru 49, 52, 53, 63, and 64)	X	1
	A026-12	Door Assembly (RH, tinted; includes items 9 thru 18, 20, 22 thru 24, 26 thru 28, 29 [C425-8], 30 thru 32, 45 thru 49, 52, 53, 63, and 64)	X	1
2	A767-1	Rub Strip	X	4
3	B204-1	Rivet (blind)	X	8
4	MS51861-37C	Screw	X	4
5	A227-1	Hinge Assembly (LH, upper; not shown)	X	1
	A227-2	Hinge Assembly (RH, upper)	X	1
6	MS27039C0808	Screw	X	5
7	A228-1	Hinge Assembly (upper)	X	1
8	MS24665-151	Cotter Pin	X	2
9	MS21042L08	Nut	X	8
10	A226-2	Seal (neoprene; install using item 11)	X	A/R
11	B270-8qt	Adhesive	X	A/R
12	AN525-832R12	Screw	X	1
13	A130-34	Spacer	X	1
14	A768-1	Clip (LH, upper [if installed] and lower; not shown)	X	1
	A768-2	Clip (RH, upper and lower)	X	1
15	B340-4	Nut	X	2
16	MS20470AD3	Rivet	X	11
17	C682-2	Barrier	X	1
18	A226-3	Seal (silicon; install using item 20)	X	A/R
19	A227-3	Hinge Assembly (LH, lower; not shown)	X	1
	A227-4	Hinge Assembly (RH, lower)	X	1
20	B270-4	Sealant (silicone, 10-oz tube)	X	A/R
21	A228-2	Hinge Assembly (lower)	X	1
22	NAS1149FN232P	Washer	X	2
23	AN525-832R10	Screw	X	1

NOTES * Ship S/N 2790 and subsequent. For ship S/N 0002 thru 2789, see detail views A, B, and C in Figure 52-1. Doors painted white.

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
DOOR ASSEMBLY (Cont'd)				
52-1-24	NAS1149FN816P	Washer (or NAS1149FN832P as required to obtain proper seal compression)	X	A/R
25	C285-1	Knob	X	1
26	C130-5	Spacer	X	1
27	U216-0100-S	Spring Washer	X	1
28	NAS1149FN816P	Washer	X	3
29	C425-7*	Vent Door (LH; door only, not shown)	X	1
	C425-8*	Vent Door (RH; door only)	X	1
30	C425-5	Hinge	X	1
31	B242-2	Stop	X	1
32	A431-1	Knob	X	1
33	MS20392-2C7	Pin ([3] required with item 56)	X	2
34	U190-0090S	Spring Washer ([4] required with item 56)	X	3
35	A425-7	Arm ([4] required with item 56)	X	3
36	A141-8	Washer ([6] required with item 56)	X	4
37	A425-13	Angle	X	1
38	A141-7	Washer	X	2
39	A105-7	Journal	X	1
40	U250-0185	Spring Washer	X	1
41	MS24665-132	Cotter Pin	X	2
42	A425-10	Clip ([2] required with item 56)	X	1
43	A425-9	Clip ([2] required with item 56)	X	1
44	NAS1149F0332P	Washer	X	2
45	A425-20**	Arm Assembly (LH, includes items 6, 9, 28, and 32 thru 44.) . .	X	1
	A425-21**	Arm Assembly (RH, includes items 6, 9, 28, and 32 thru 44.) . .	X	1
46	MS24694-S9	Screw	X	2
47	A556-1***	Lockset ([1] lock and [2] keys)	X	1
	R7774	Lockset ([2] locks and [4] keys)	X	1
48	B278-1	Hole Plug (install using item 49)	X	1
49	B270-9	Adhesive (2-oz kit)	X	A/R
50	MS35206-213	Screw	X	1
51	A552-1	Catch (ship S/N 0002 thru 0299; install using item 49 on mating surface)	X	1
52	AN525-832R18	Screw	X	1
53	A130-21	Spacer	X	1

NOTES * Painted white.
 ** Use only with item 29.
 *** To match an existing lockset, PK number is required.

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
DOOR ASSEMBLY (Cont'd)				
52-1-54	NAS1149FN816P	Washer (or NAS1149FN832P as required for shimming at this location)	X	A/R
55	A682-1 *	Barrier	X	1
56	A425-3 *	Vent Door** (LH; door only, not shown)	X	1
	A425-4 *	Vent Door** (RH; door only)	X	1
57	A425-8 *	Hinge	X	1
58	A425-5 *	Angle (LH, not shown)	X	1
	A425-6 *	Angle (RH)	X	1
59	A425-15	Arm Assembly (LH, no longer available. To replace, order item 45 [A425-20] and item 58 [A425-5].)		
	A425-16	Arm Assembly (RH, no longer available. To replace, order item 45[A425-21] and item 58 [A425-6].)		
60	NAS1149D0316J*	Washer	X	1
61	AN525-832R6*	Screw	X	2
62	NAS1149F0363P*	Washer	X	1
63	A226-6	Seal (self-adhering, front edge of door only)	X	A/R
64	A226-7	Seal (self-adhering, 3 sides of vent door)	X	A/R
65	B393-1	Cam	X	1
66	NAS1149F0763P	Washer	X	1
67	R8096	Key – Duplicate (specify ship S/N and “PK” numbers when ordering)	X	1

NOTES * Available as spare parts item for ship S/N 0002 thru 2789 with A425-3 or -4 vent doors.
 ** Painted white.

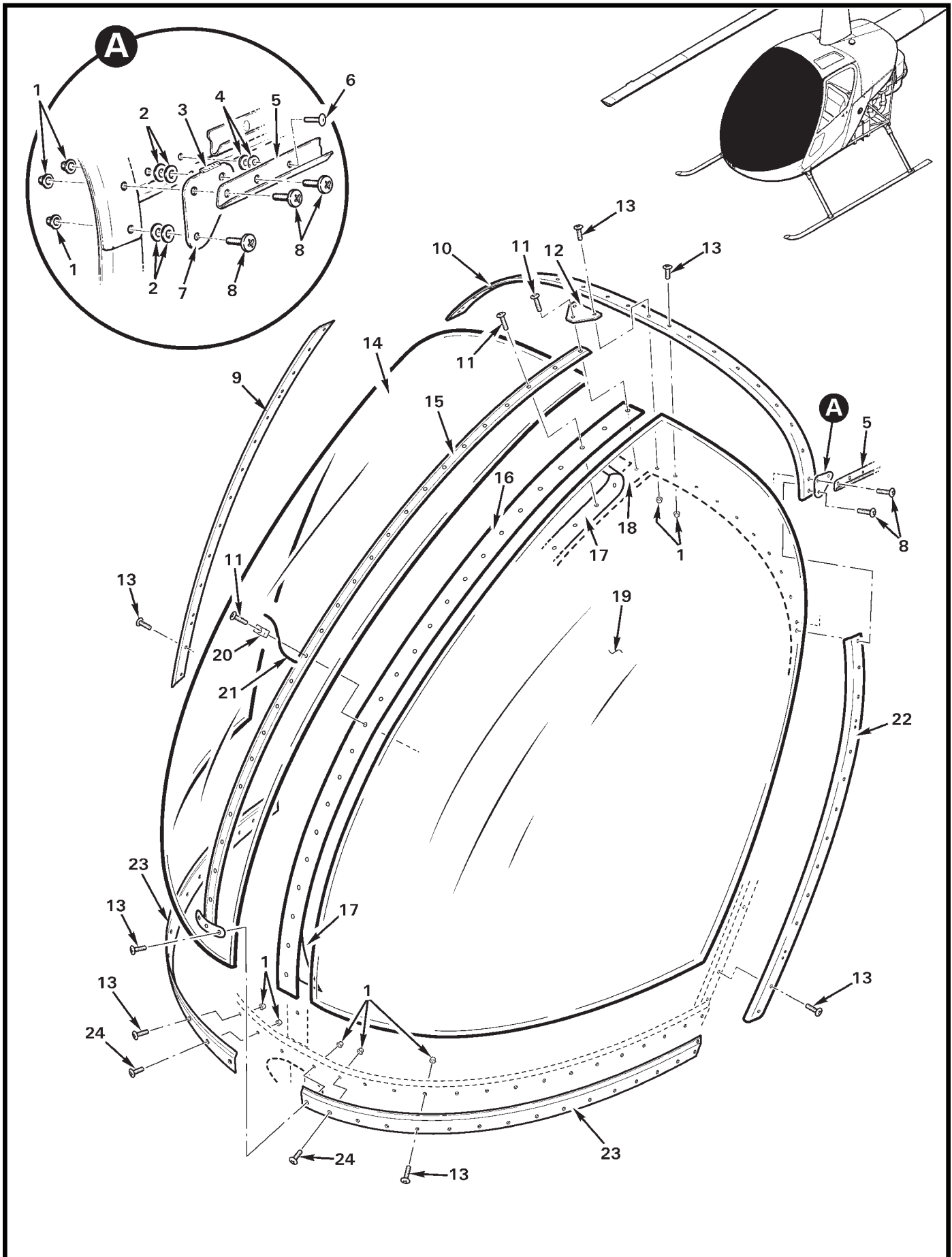


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
WINDSHIELD ASSEMBLY				
52-5-1	MS21042L08	Nut	X	76
2	NAS1149FN832P	Washer (as required to create 0.01 to 0.05-inch gap between restraint and door)	X	A/R
3	B270-1	Sealant	X	A/R
4	NAS620-5	Washer	X	A/R
5	B356	Gutter (Ref, see Figure 52-7)		
6	MS20470AD4	Rivet (Ref)		
7	D805-3*	Restraint (install using item 3)	X	2
8	AN526C832R9	Screw	X	6
9	A238-18**	Retainer – Outside (RH)	X	1
10	A238-16**	Retainer – Upper Outside	X	1
11	AN526C832R12	Screw	X	24
12	B409-5	Gusset	X	1
13	AN526C832R8	Screw	X	74
14	A274-2**	Windshield (RH)	X	1
	A274-4**	Windshield (RH, tinted)	X	1
15	B410-3***	Stiffener	X	1
16	B410-1**	Retainer – Center Outside	X	1
17	B409-8***	Tape (neoprene)	X	A/R
18	B410-2	Retainer (center, inside, Ref)		
19	A274-1**	Windshield (LH)	X	1
	A274-3**	Windshield (LH, tinted)	X	1
20	B295-1	Clip	X	1
21	—	Yaw/Trim String (Ref; yarn, white acrylic, 0.10-inch dia, 3-inch length each side of clip. Source locally.)		
22	A238-17**	Retainer – Outside (LH)	X	1
23	B409-7**	Retainer – Lower Outside (RH and LH)	X	2
24	AN526C832R7	Screw	X	2

NOTES * Ship S/N 4089 and subsequent.
 ** Apply B270-26 sealant under retainers and on windshield edges to ensure water-tight seal.
 *** Ship S/N 0593 and subsequent.

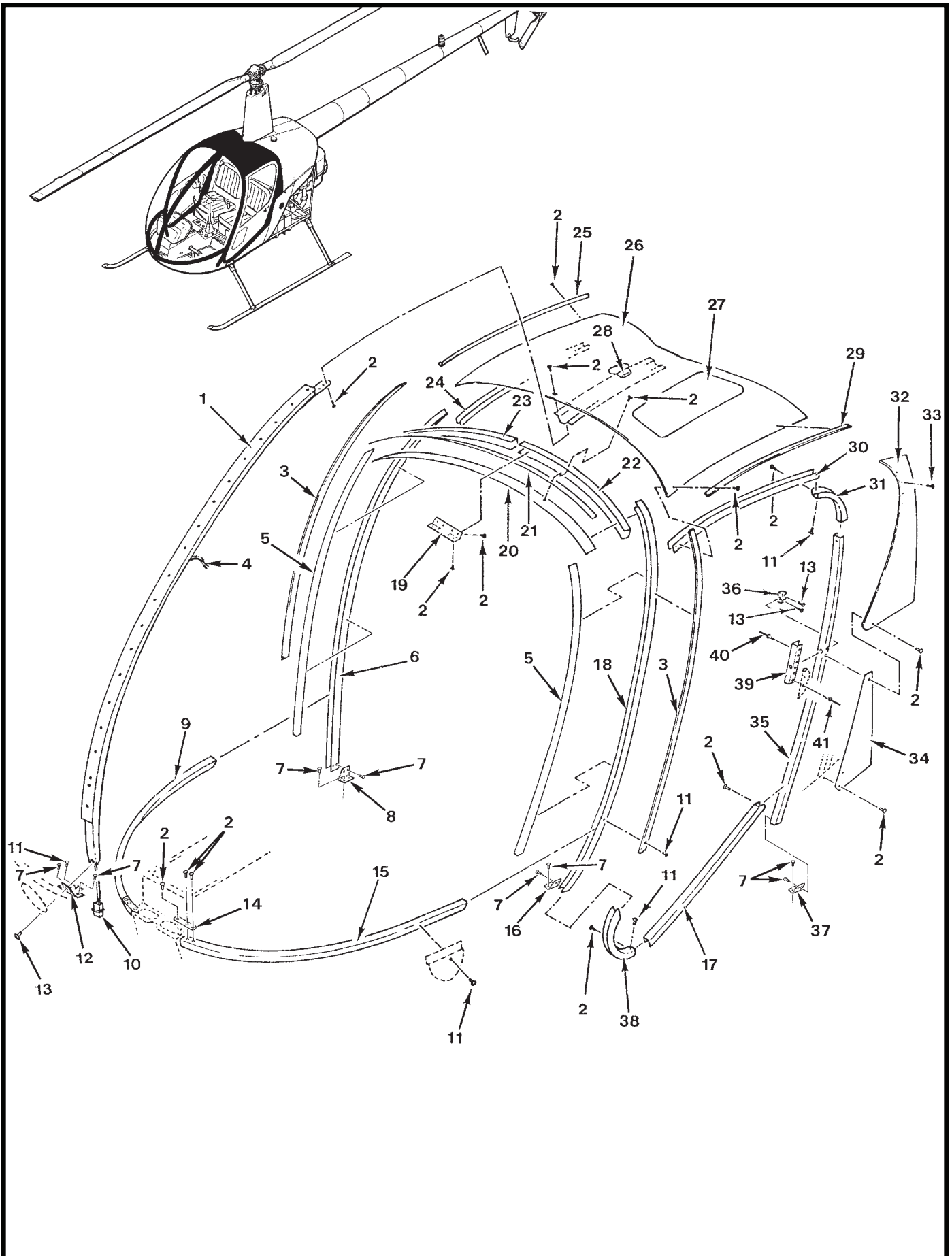


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
DOOR AND WINDSHIELD SUPPORT				
52-7-1	A238-2	Brace Assembly (includes brace, center inside retainer, gang channel, and item 4)	X	1
2	MS20470AD4	Rivet	X	A/R
3	B410-6	Spacer (LH and RH, outside door jamb)	X	2
4	B274-422	Wire (2-conductor, jacketed; wire -125 and -126)	X	A/R
5	A238-23	Retainer – Windshield (LH and RH, inside)	X	1
6	A238-4	Jamb – Door (RH)	X	2
7	MS20470AD3	Rivet	X	A/R
8	A414-2	Angle (RH)	X	1
9	A238-12	Frame (RH)	X	1
10	B263-12	Housing	X	1
	B263-1	Pin	X	2
11	MS20426AD3	Rivet	X	A/R
12	A415-1	Doubler	X	1
13	MS27039C0807	Screw	X	5
14	B409-6	Tab	X	2
15	A238-11	Frame (LH)	X	1
16	A414-1	Angle (LH)	X	1
17	A238-9	Sill (LH)	X	1
	A238-10	Sill (RH, not shown)	X	1
18	A238-3	Jamb – Door (LH)	X	1
19	B409-2	Splice	X	1
20	A238-22	Retainer	X	1
21	A238-34	Spacer	X	1
22	A238-13	Frame (LH)	X	1
23	A238-14	Frame (RH)	X	1
24	A238-6	Jamb – Door (RH, upper)	X	1
25	B356-4	Gutter (RH)	X	1
26	A273-1	Roof (Incl item 27)	X	1
27	A273-3	Window – Roof	X	1
28	A238-15	Support	X	1
29	B356-3	Gutter (LH)	X	1
30	A238-5	Jamb – Door (LH, upper)	X	1
31	A355-3	Fillet (LH and RH, upper)	X	2

NOTES

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
DOOR AND WINDSHIELD SUPPORT (Cont'd)				
52-7-32	A015-9	Skin (LH)	X	1
	A015-10	Skin (RH, not shown)	X	1
33	NAS1919B04S	Blind Rivet (or MS20600AD4; [4] each side on upper portion of A015-9 and A015-10)	X	8
34	B356-1	Skin (LH and RH)	X	2
35	A238-7	Jamb – Door (LH, rear)	X	1
	A238-8	Jamb – Door (RH, rear; not shown)	X	1
36	A537-5	Block – Door Latch (LH)	X	1
	A537-6	Block – Door Latch (RH, not shown)	X	1
37	A414-3	Angle (LH and RH)	X	2
38	A355-1	Fillet (LH and RH, lower)	X	2
39	B800-1	Door Jamb Doubler Installation (if installed; includes B800-2 doubler, and items 40 and 41)	X	1
	B800-2	Doubler	O	1
40	NAS1919B04S01	Rivet (inboard)	X	2
41	NAS1919B04S02	Rivet (outboard)	X	4

NOTES

CHAPTER 53

FUSELAGE

<i>Figure</i>	<i>Title</i>	<i>Page</i>
53-1	Engine Skirts	53.0
53-3	Mast Fairing Assembly	53.2
53-5	Main Gearbox Compartment Access Doors and Cowling	53.4
53-7	Main Gearbox Compartment Access Doors and Cowling	53.6
53-9	Frame Assemblies	53.8
53-13	Horizontal Firewall	53.12
53-17	Tailcone Assembly (LED Strobe)	53.16
53-21	Tailcone Assembly	53.20
53-25	Empennage Assembly	53.24
53-27	Float Stabilizer Installation	53.26

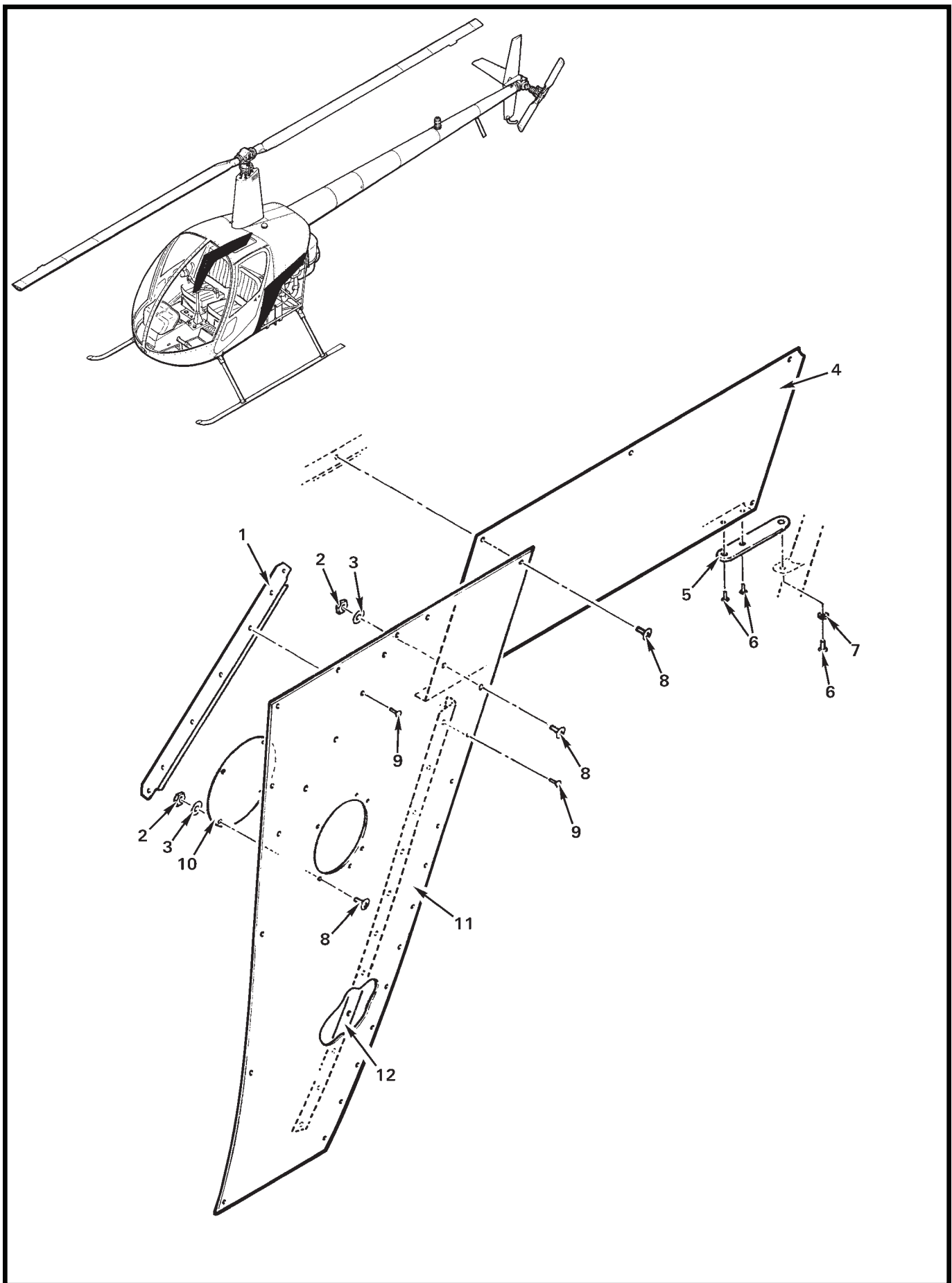


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
ENGINE SKIRTS				
53-1-1	A378-11	Stiffener (LH and RH)	X	1
2	MS21042L08	Nut	X	A/R
3	NAS1149FN816P	Washer	X	A/R
4	A378-3	Panel (LH)	X	1
	A378-4	Panel (RH)	X	1
5	A378-15	Clip Assembly (Incl items 6 and 7)	X	1
6	MS20470AD4	Rivet	X	3
7	A130-14	Spacer	X	1
8	MS27039C0806	Screw	X	A/R
9	MS20470AD3	Rivet	X	16
10	A676-1	Cover – Heater Inlet (LH only, cabin heater not installed)	X	1
11	A378-5	Skirt (LH)	X	1
	A378-14	Skirt (RH)	X	1
	A378-17*	Skirt (RH)	X	1
12	A378-7	Stiffener (LH)	X	1
	A378-8	Stiffener (RH)	X	1

NOTES * Ship S/N 2571 and subsequent.

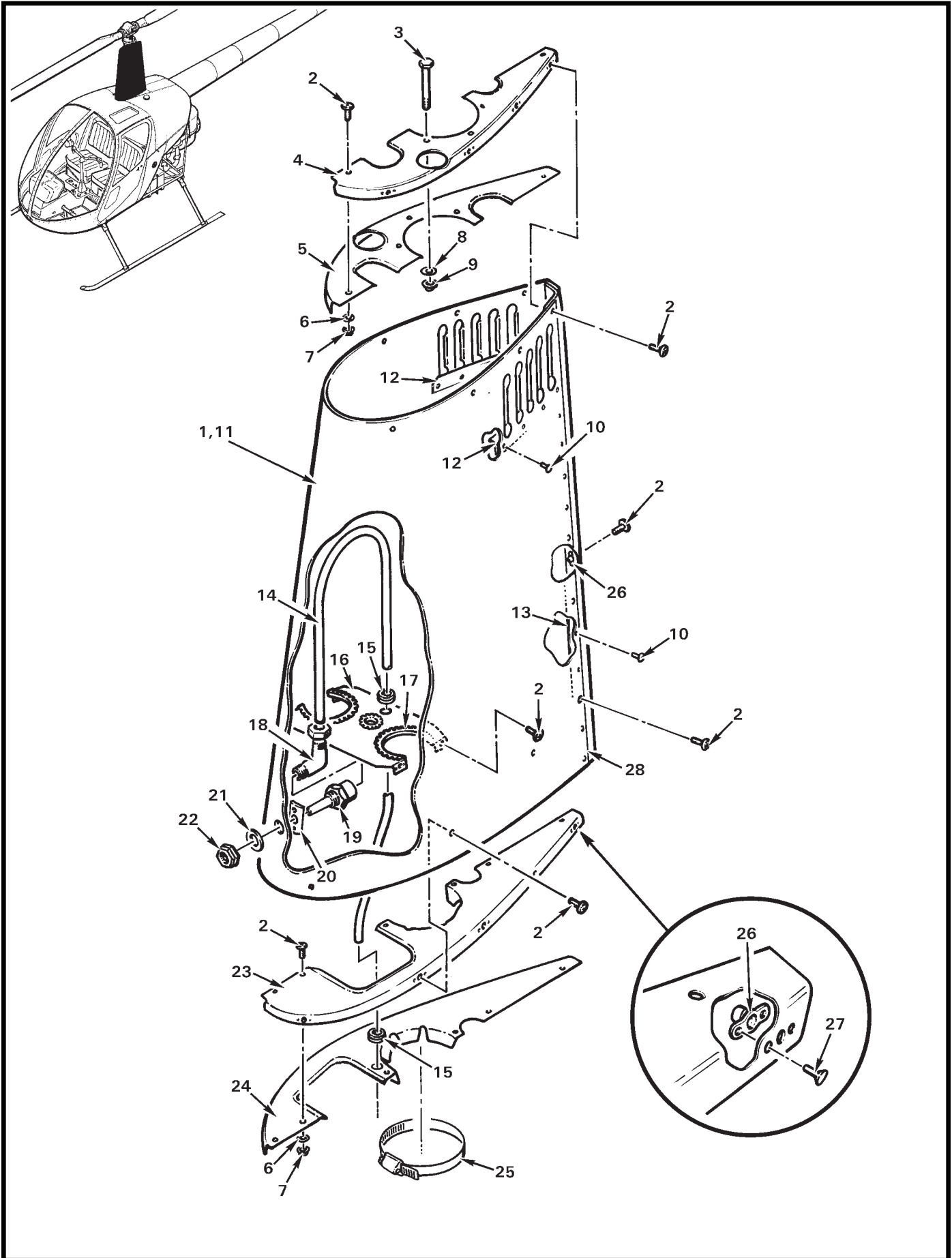


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
MAST FAIRING ASSEMBLY				
53-3-1	A261-1	Mast Fairing Assembly (Includes items 2, 4 thru 7, 10 thru 13, 16, and 23 thru 28. Shipped painted white.)	X	1
2	MS27039C0806*	Screw	X	37
3	AN3-16A	Bolt	X	6
4	A261-5	Rib (LH)	X	1
5	A261-6	Rib (RH)	X	1
6	NAS1149FN816P	Washer	X	7
7	MS21042L08	Nut	X	7
8	NAS1149F0332P	Washer	X	6
9	D210-3	Nut	X	6
10	MS20470AD3	Rivet	X	24
11	A261-2	Skin	X	1
12	A665-3	Scupper	X	2
13	A261-7	Angle	X	1
14	A729-28	Tube – Pitot	X	1
15	MS35489-6	Grommet (or AN931-4-7)	X	2
16	A665-1	Restraint Assembly (Incl items 17, 26, and 27)	X	1
17	MS21266-1N	Grommet (12-inch length)	X	A/R
18	A596-1	Elbow Fitting (with drain hole, includes nut)	X	1
19	A262-1	Fitting – Pitot	X	1
20	A246-3	Spacer	X	1
21	NAS1149D0516J	Washer	X	1
22	MS21083-N5	Nut	X	1
23	A261-3**	Rib (LH)	O	1
24	A261-4**	Rib (RH)	O	1
25	B277-56	Clamp	X	1
26	MS21069L08	Nutplate (used on all ribs and item 13)	X	29
27	MS20426AD3	Rivet	X	60
28	MS21071L08	Nutplate	X	1

NOTES * B526 screws may be used in this location with B527-08 nylon washers (see part interchangeability list, page viii).
 ** Items 23 and 24 must be ordered together as a matched set.

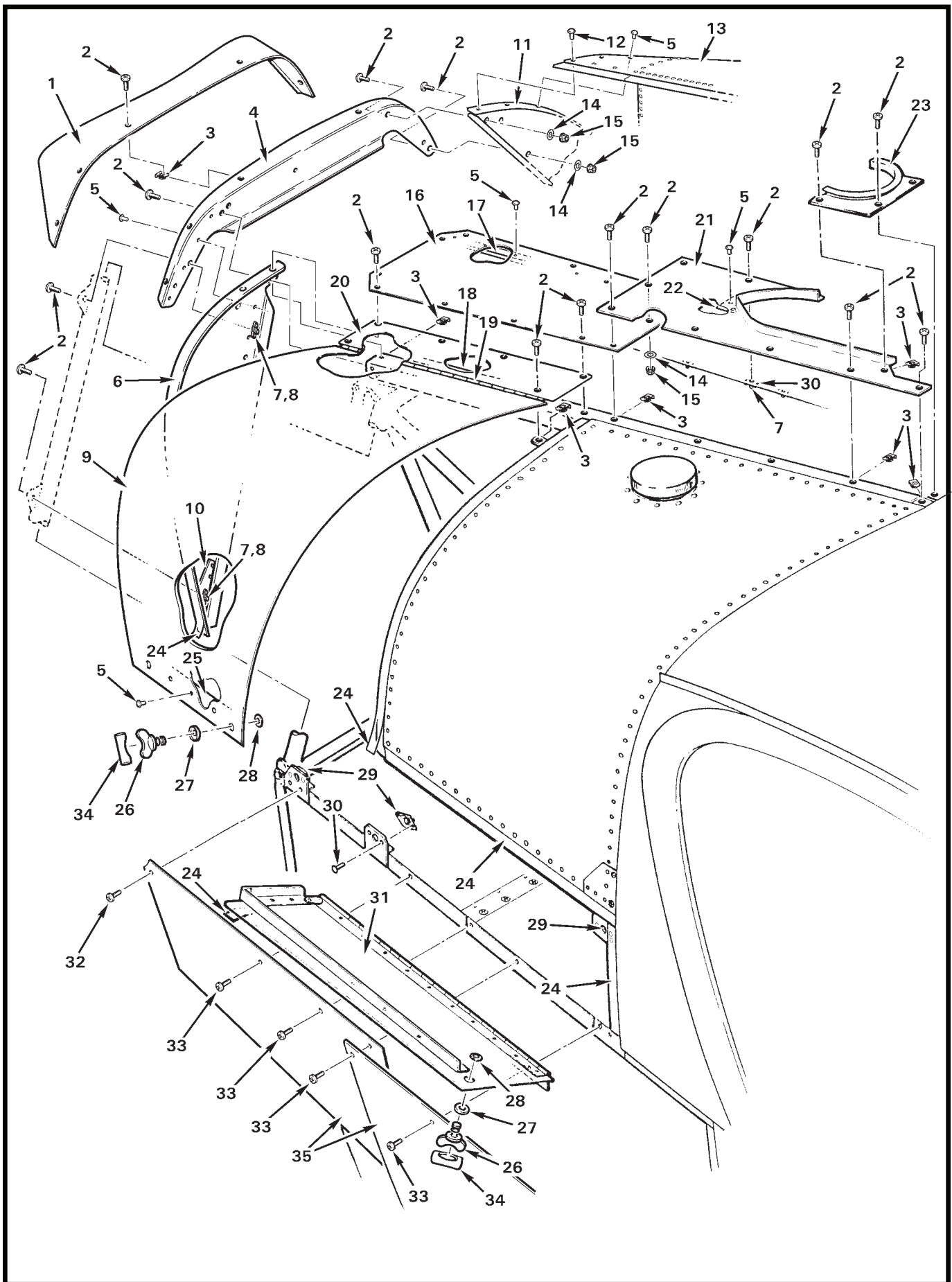


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
		MAIN GEARBOX COMPARTMENT ACCESS DOORS AND COWLING		
53-5-1	A706-1	Fairing	X	1
2	MS27039C0806	Screw	X	31
3	B162-3	Clipnut	X	18
4	B428-1	Frame	X	1
5	MS20470AD3	Rivet	X	39
6	B429-5	Frame	X	1
7	MS21069L08	Nutplate	X	6
8	NAS1097AD3	Rivet	X	4
9	B430-3	Door (must be ordered with item 20)	X	1
10	B423-2	Doubler	X	1
11	A028-7	Frame (Ref, see Figure 28-15)		
12	MS20470AD4	Rivet	X	2
13	A028	Fuel Tank Assembly (Ref, see Figure 28-15)		
14	NAS1149FN816P	Washer	X	3
15	MS21042L08	Nut	X	3
16	B429-1	Skin (must be ordered with item 17)	X	1
17	B423-3	Stiffener (must be ordered with item 16)	X	1
18	B424-2	Stiffener	X	1
19	B424-1	Hinge	X	1
20	B430-4	Skin	X	1
21	B429-3	Skin (must be ordered with item 22)	X	1
22	B423-10	Doubler (must be ordered with item 21)	X	1
23	B423-1	Channel	X	1
24	A701-3	Tape – Polychor (108-foot roll)	X	A/R
25	B424-3	Doubler	X	1
26	85-12-140-16	Stud	X	3
27	85-46-101-39	Washer	X	3
28	85-34-201-20	Retaining Ring	X	3
29	85-35-295-15	Receptacle	X	3
30	MS20426AD3	Rivet	X	14
31	B153-6	Door Assembly	X	1
32	MS27039C0808	Screw	X	2
33	MS27039C0807	Screw	X	4
34	A901-1	Cover (clear plastic)	X	3
35	A378-2	Skirt Assembly – RH (Ref, see also Figure 53-1)		

NOTES

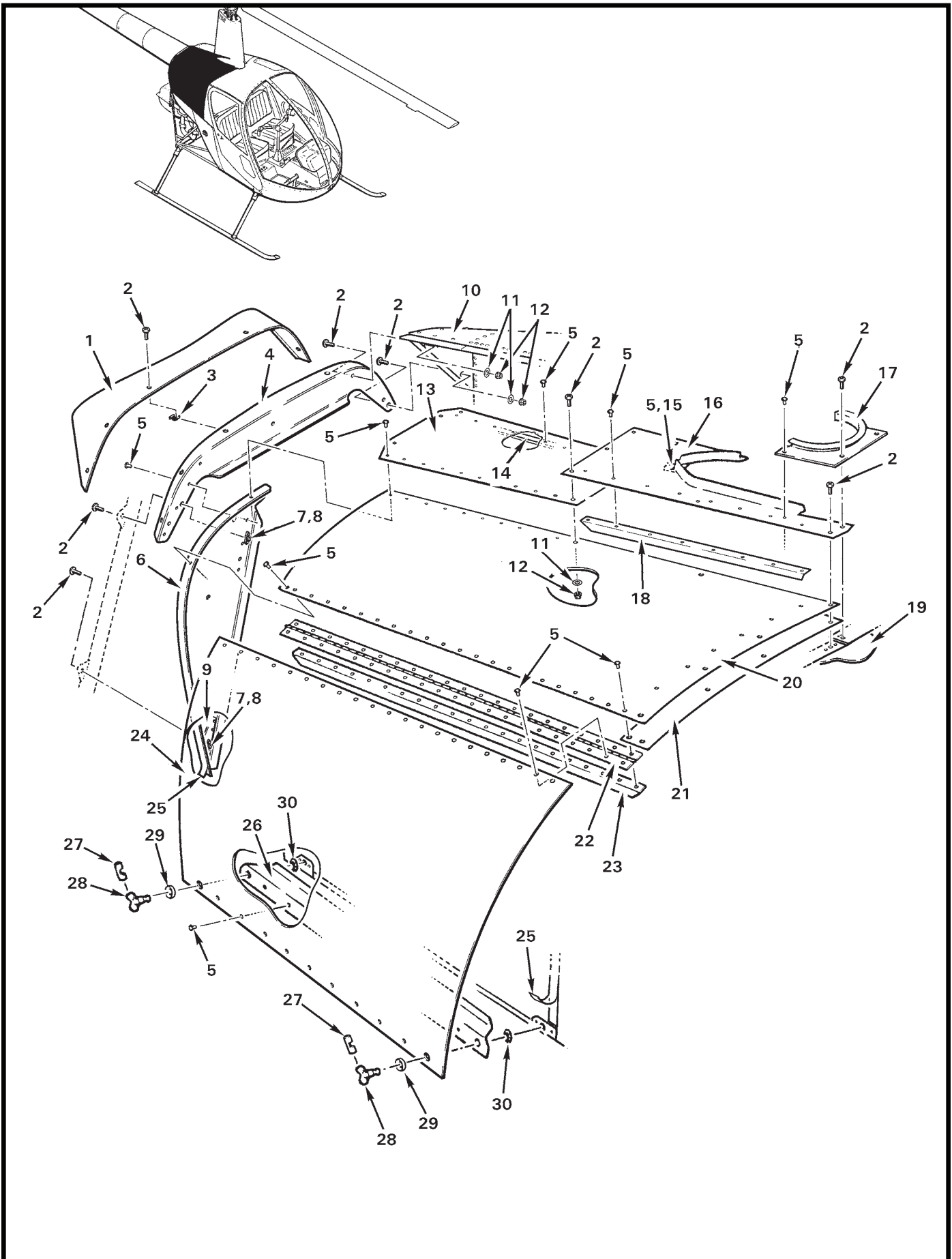


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
		MAIN GEARBOX COMPARTMENT ACCESS DOOR AND COWLING*		
53-7-1	A706-1	Fairing	X	1
2	MS27039C0806**	Screw	X	24
3	B162-3	Clipnut	X	6
4	B428-1	Frame	X	1
5	MS20470AD3	Rivet	X	96
6	B429-5	Frame (RH shown, for LH see Figure 53-5)	X	1
7	MS21069L08	Nutplate	X	10
8	NAS1097AD3	Rivet	X	4
9	B423-2	Doubler	X	1
10	A028	Fuel Tank Assembly (Ref, see also Figure 28-15)		
11	NAS1149FN816P	Washer	X	5
12	MS21042L08	Nut	X	5
13	B429-2	Skin (must be ordered with item 14)	X	1
14	B423-3	Stiffener (must be ordered with item 13)	X	1
15	B423-10	Doubler (must be ordered with item 16)	X	1
16	B429-4	Skin (must be ordered with items 15 and 18)	X	1
17	B423-1	Channel Assembly	X	1
18	B423-4	Stiffener (must be ordered with item 16)	X	1
19	A015	Cabin Assembly (Ref)		
20	B430-1	Skin	X	1
21	B423-11	Doubler	X	1
22	B423-8	Hinge	X	1
23	B423-5	Stiffener	X	1
24	B430-2	Door	X	1
25	A701-3	Tape – UHMW Polyethylene (0.5 in. X 108 ft roll)	X	A/R
26	B423-6	Stiffener	X	1
27	A901-1	Cover – Stud (clear plastic)	X	2
28	85-12-140-16	Stud	X	2
29	85-46-101-39	Washer	X	2
30	85-34-201-20	Retaining Ring	X	2

NOTES * Without auxiliary fuel tank.
 ** B526 screws may be used in this location with B527-08 nylon washers (see part interchangeability list, page viii).

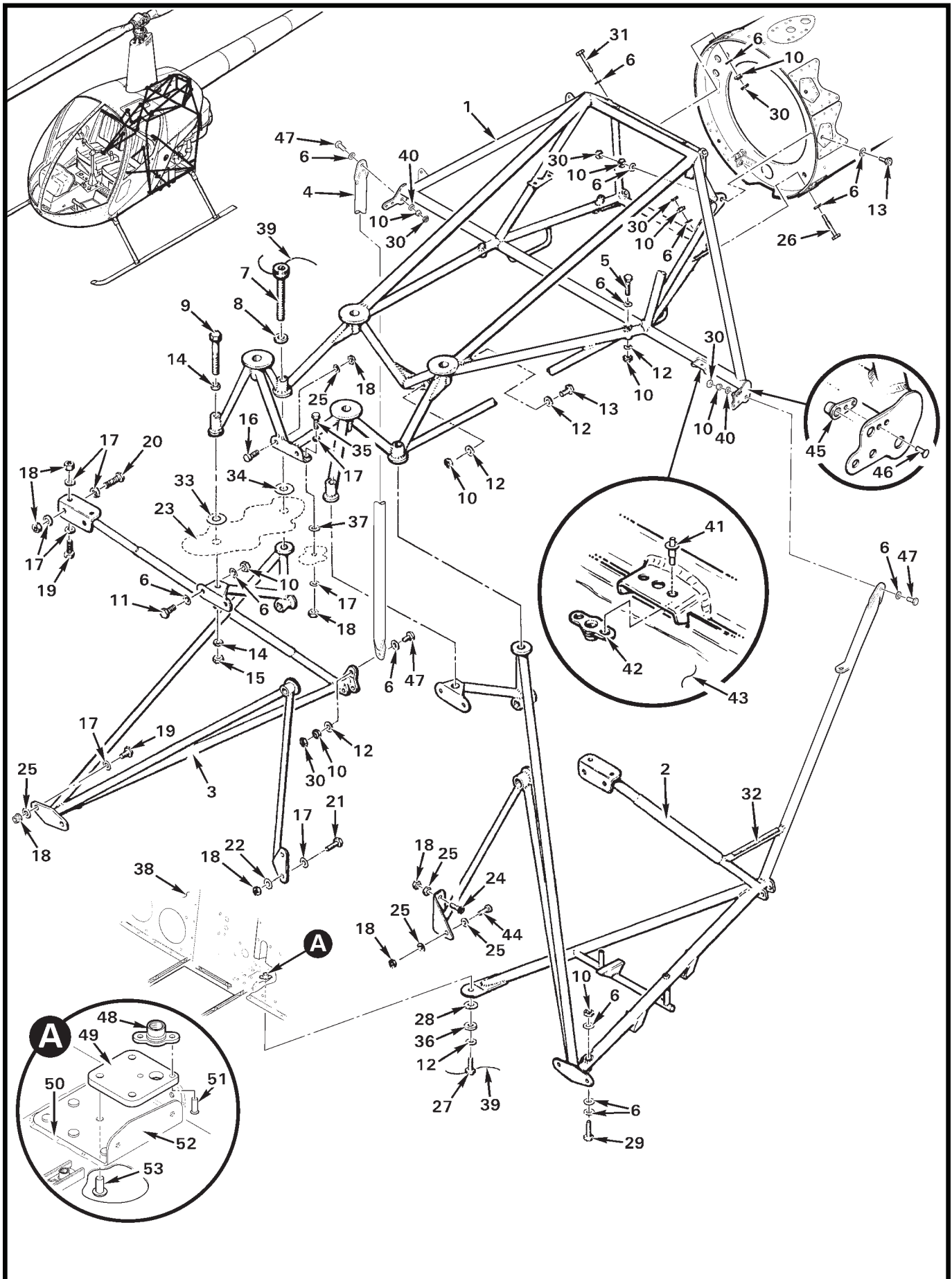


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
FRAME ASSEMBLIES				
53-9-1	A020-90	Frame Assembly – Upper (Revision AN and subsequent. Includes items 45 and 46. Service Letter SL-72 refers.)	X	1
	A020-2*	Frame Assembly – Upper (Revision AM and prior. Includes items 45 and 46.)	X	1
	A047-6	Frame Assembly – Upper (Includes items 45 and 46. Optional on Beta. Includes provision for tie-down installation. See also Figure 10-5.)	X	1
	A047-1	Frame Assembly – Upper (Includes items 45 and 46. Standard on Mariner, optional on Beta. Includes provision for tie-down installation. See also Figure 10-5.)	O	1
2	A020-1	Frame Assembly – Lower (LH, not shown; used on Standard and HP.)	X	1
	A046-1	Frame Assembly – Lower (LH, provision for aft battery; used on Alpha, Beta and Mariner.)	X	1
3	A020-84	Frame Assembly – Lower (RH, not shown; used on Standard and HP.)	X	1
	A046-2	Frame Assembly – Lower (RH; used on Alpha, Beta and Mariner)	X	1
4	A020-3	Strut Assembly (not shown; used on Standard and HP)	X	1
	A046-3	Strut Assembly (used on Alpha, Beta and Mariner)	X	1
5	NAS6604-18	Bolt	X	2
6	NAS1149F0432P	Washer	X	29
7	NAS1351-8H-40P	Screw	X	2
8	MS20002C8	Washer	X	2
9	NAS6606-34	Bolt	X	2
10	D210-4	Nut	X	18
11	NAS6604-4	Bolt	X	4
12	NAS1149F0463P	Washer	X	7
13	NAS6604-3	Bolt	X	3
14	NAS1149F0663P	Washer	X	6
15	D210-6	Nut	X	2
16	B238-1	Bolt	X	2
17	NAS1149F0332P	Washer	X	30
18	D210-3	Nut	X	26
19	NAS6603-3	Bolt	X	8
20	NAS6603-4	Bolt	X	4
21	NAS6603-19	Bolt	X	2

NOTES * When replacing, order new A650-3 fittings if old fitting has a solid shank. When replacing upper frame, tailcone forward bay (or tailcone) usually requires replacement.

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
FRAME ASSEMBLIES (Cont'd)				
53-9-22	NAS620-10L	Washer	X	2
23	—	Firewall – Horizontal (Ref)		
24	NAS1351-3-8P	Screw	X	2
25	NAS1149F0363P	Washer	X	10
26	NAS6604-24	Bolt	X	2
27	NAS6604H9	Bolt	X	1
28	AN970-4	Washer	X	1
29	NAS6604-16	Bolt	X	2
30	B330-13	Palnut	X	7
31	NAS6604-23	Bolt	X	2
32	A751-2	Strip – Safety Walk	X	1
33	A141-29	Washer (between upper frame and horizontal firewall; as required for shimming, [2] maximum)	X	A/R
34	A141-30	Washer (between upper frame and horizontal firewall; as required for shimming, [2] maximum)	X	A/R
35	NAS6603-2	Bolt (or NAS6603-3*)	X	2
36	A130-42	Spacer	X	1
37	A141-15	Washer – Shim ([3] maximum per bolt)	X	A/R
38	A015	Cabin Assembly (Ref)		
39	MS20995C32	0.032-inch dia Safety Wire	X	A/R
40	A141-11	Washer	X	2
41	MS20605R3W2	Rivet ([2] per nutplate)	X	4
42	MS21069L3	Nutplate (see Figures 28-1 and 28-15)	X	2
43	A234-3	Firewall – Horizontal (LH, Ref)		
44	NAS6603-2	Bolt	X	1
45	MS21071L3	Nutplate	X	1
46	MS20426AD3	Rivet	X	2
47	NAS6604-3	Bolt (installed with wet B270-1 sealant on bolt shank)	X	3
48	MS21069L4	Nutplate	X	1
49	A443-1	Doubler (install using item 50)	O	1
50	B270-1	Sealant	X	A/R
51	NAS1097AD3	Rivet	X	2
52	A387-1	Doubler (Ref)		
53	MS20470AD4	Rivet	X	3

NOTES * Select bolt length which, after correct torque is applied, exposes 2 to 4 threads beyond nut.

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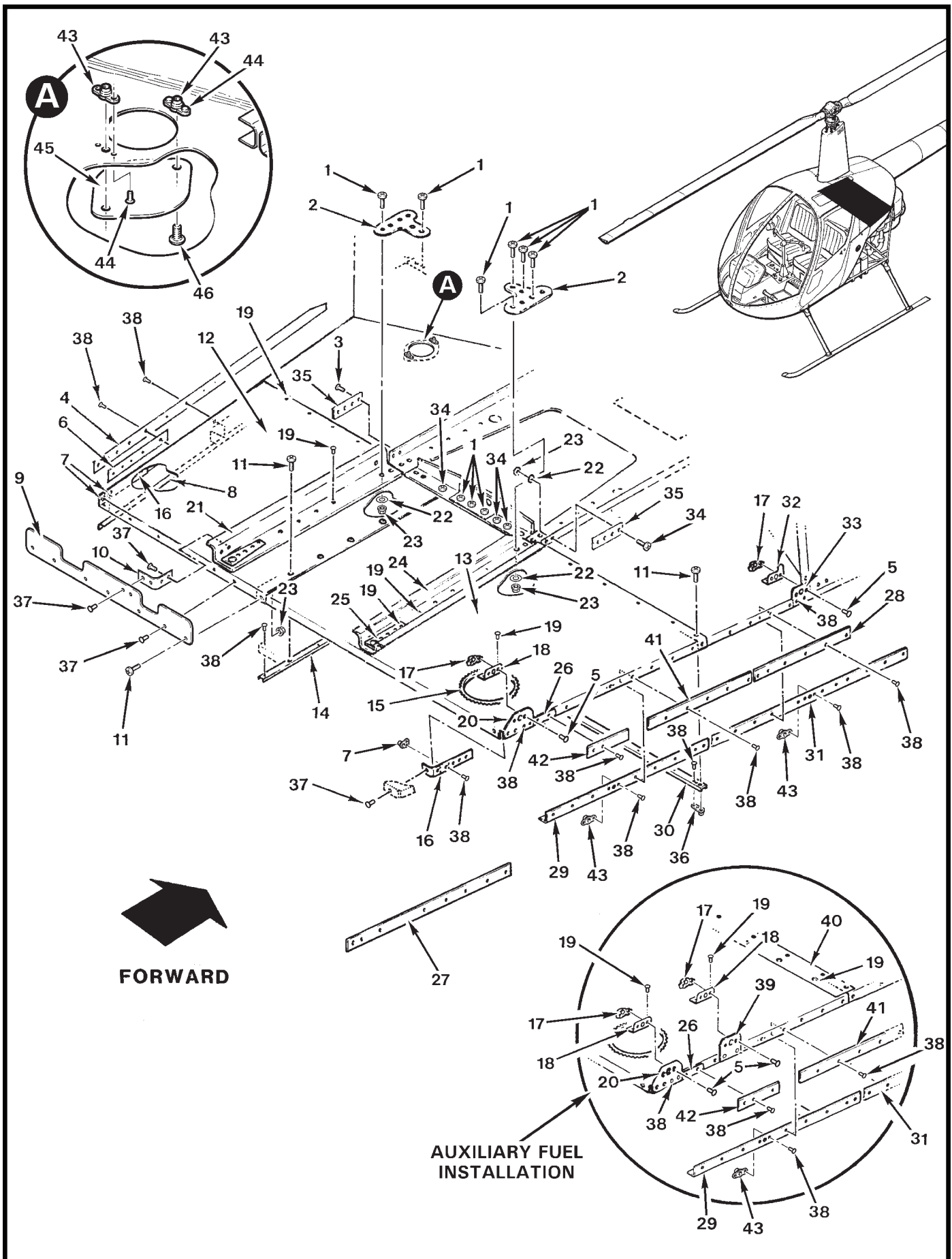


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
HORIZONTAL FIREWALL				
53-13-1	MS27039C0808	Screw	X	13
2	A397-2	Plate	X	2
3	MS20470AD4	Rivet	X	4
4	A419-1	Strip (LH)	X	1
5	MS20426AD4	Rivet	X	A/R
6	A420-1	Spacer	X	1
7	MS21086L08	Nutplate	X	4
8	A557-1	Angle Assembly	X	1
9	A395-1	Scupper	X	1
10	A402-1	Angle	X	1
11	MS27039C0806	Screw	X	10
12	A234-3	Firewall (LH)	X	1
13	A234-2	Firewall (RH, removable)	X	1
14	A738-6	Gang Channel	X	1
15	MS21266-1N	Grommet (12-inch length)	X	A/R
16	A422-1	Angle (LH and RH)	X	2
17	85-35-295-15	Receptacle	X	A/R
18	A379-6	Angle	X	A/R
19	MS20615-3M3	Rivet	X	A/R
20	A379-2	Receptacle Assembly (Incl items 5, 17, and 18)	X	1
21	A394-1	Stiffener	X	1
22	NAS1149FN816P	Washer	X	A/R
23	MS21042L08	Nut	X	A/R
24	A575-1	Stringer	X	1
25	A576-1	Doubler	X	2
26	A420-2	Spacer (shown installed)	X	1
27	A419-3	Strip (RH, for earlier R22s; superseded by items 41 and 42)	X	1
28	A419-2	Strip	X	1
29	A557-3	Angle Assembly (Incl items 38 [4] and 43 [2])	X	1
30	A738-5	Gang Channel	X	1
31	A557-2	Angle Assembly (Incl items 38 [8] and 43 [4])	X	1
32	A379-5	Angle	X	1
33	A379-1	Receptacle Assembly (Incl items 5, 17, and 32)	O	1
34	MS27039C0807	Screw	X	7
35	A397-1	Clip	X	2

NOTES

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
HORIZONTAL FIREWALL (Cont'd)				
53-13-36	MS21071L08	Nutplate	X	4
37	MS20470AD4	Rivet	X	11
38	MS20426AD3	Rivet	X	A/R
39	A379-8	Receptacle Assembly (Incl items 5, 17, and 18)	X	1
40	B142-1	Strip (earlier R22s)	X	1
41	B152-2	Strip	X	1
42	B152-1	Strip	X	1
43	MS21069L08	Nutplate (not shown)	X	8
44	MS20427M3	Rivet	X	4
45	A401-2	Cover	X	1
46	MS27039C0805	Screw	X	2
47	B270-1	Sealant (not shown)	X	A/R
* * *				
48	KI-181	Firewall Access Hole Field Installation Kit (Incl items 43 thru 47)	X	1

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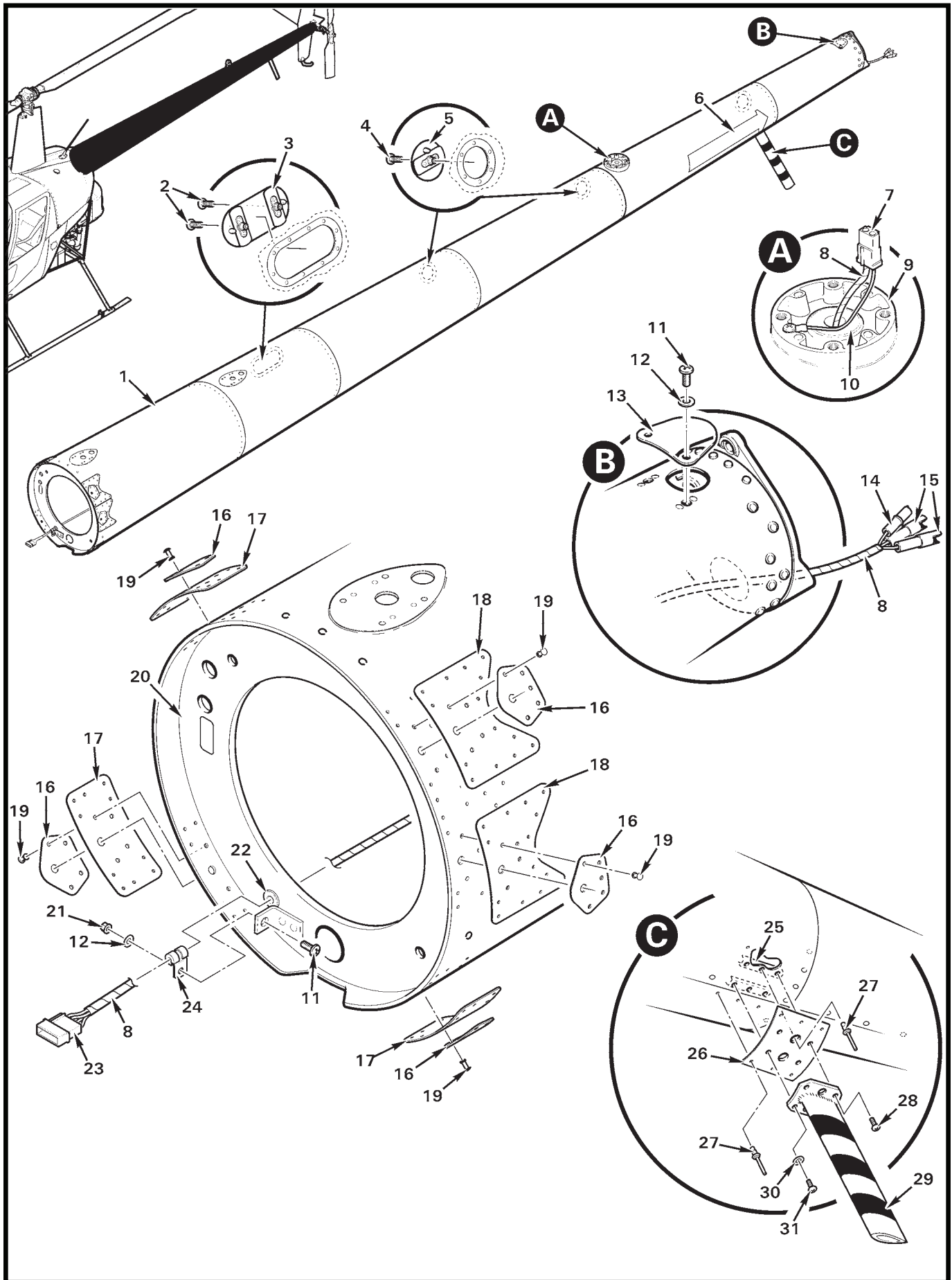


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
		TAILCONE ASSEMBLY (LED STROBE)		
53-17-1	A023-22.CS**	Tailcone Assembly* (Includes items 3, and 5 thru 24; painted white. Used on Standard, HP, and Mariner.)	X	1
	A023-23.CS**	Tailcone Assembly* (Includes items 3, and 5 thru 24; painted white. Used on Alpha and Beta.)	X	1
2	MS27039C0807	Screw	X	2
3	A231-10	Plug Assembly – Inspection (Incl item 2)	X	1
4	MS27039C0807	Screw	X	1
5	A231-1	Plug Assembly – Inspection (Incl item 4)	X	3
6	A654-3	Decal – “Danger” (tailcone)	X	2
7	B263-13	Housing	X	1
	B263-2	Socket	X	2
8	B161-2	Spirap	X	A/R
9	B528-1	Mount – Strobe Light (Ref)		
10	MS35489-15	Grommet	X	1
11	MS27039C0806	Screw	X	10
12	NAS1149FN816P	Washer	X	4
13	A558-1	Cover – Inspection (transparent)	X	1
14	B263-11	Housing	X	1
	B263-2	Socket	X	1
15	B263-10	Housing	X	2
	B263-1	Pin	X	2
16	B288-3	Doubler	X	5
17	B288-1	Doubler	X	3
18	B288-2	Doubler	X	2
19	MS20470AD4	Rivet	X	85
20	B070-1	Bulkhead – Forward (Ref)		
21	MS21042L08	Nut	X	1
22	B401-4	Grommet	X	6
23	B263-16	Housing	X	1
	B263-1	Pin	X	4
24	MS21919WDG2	Clamp	X	1
25	A738-27	Gang Channel	X	2
26	B805-1	Doubler	X	1
27	NAS9301B-4-02	Rivet	X	8
28	MS27039C1-06	Screw	X	2
29	B312-1	Guard – Tail Rotor	X	1
30	NAS1149F0332P	Washer (on tailcone seam)	X	2

NOTES * If ordering a new tailcone and upper frame for the same helicopter, RHC can drill tailcone and install doublers.
 ** Ship S/N 2571 and subsequent. Ship S/N 0002 thru 2570 must order Figure 53-21 item 41 when replacing tailcone, unless previously accomplished.

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
TAILCONE ASSEMBLY (LED STROBE; Cont'd)				
53-17-31 32	MS27039C1-07 A654-80	Screw (on tailcone seam)	X	2
		Decal – "Danger" (For stabilizer; not shown. See Figure 11-1.)	X	2
NOTES				

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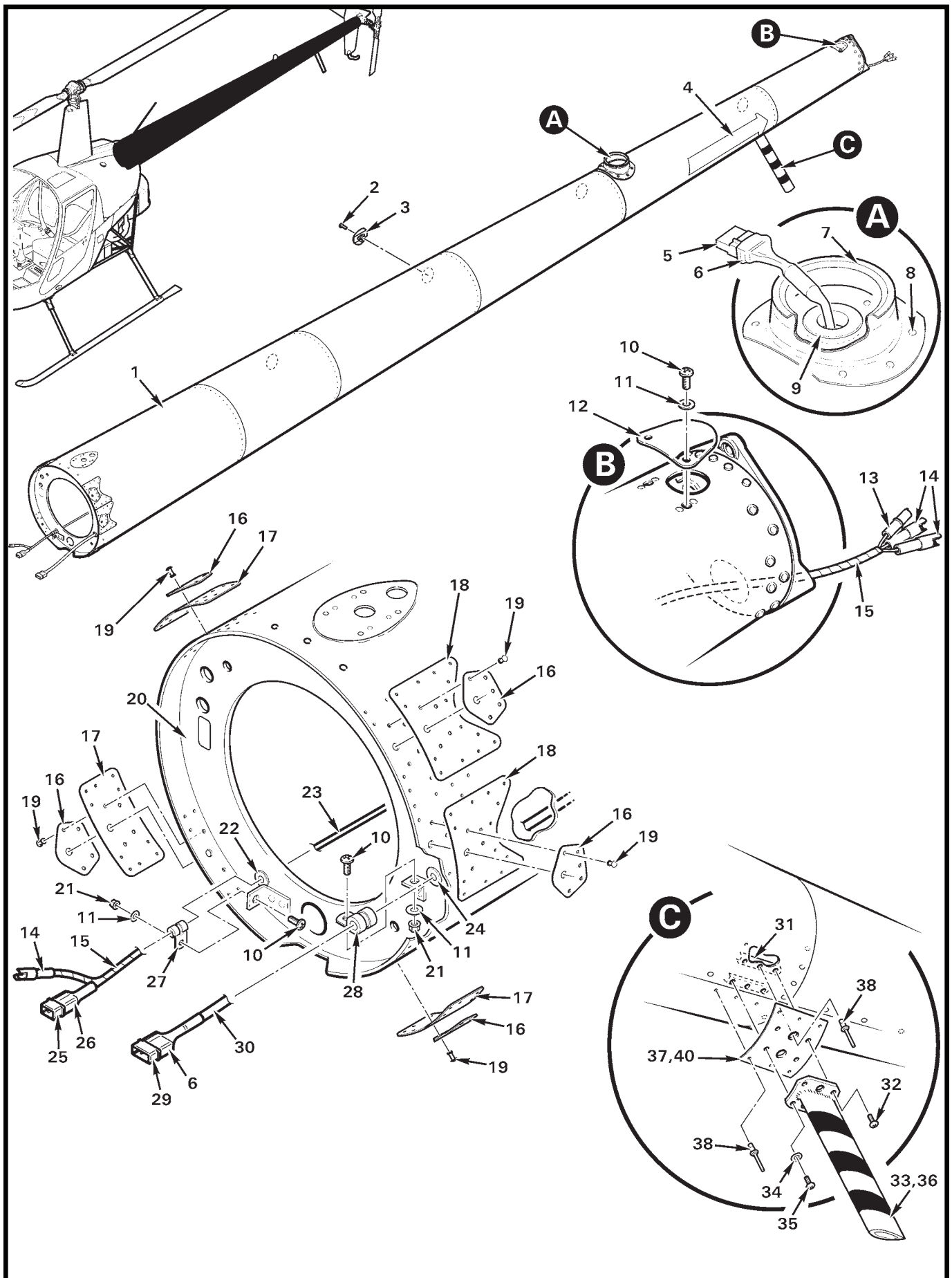


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
TAILCONE ASSEMBLY				
53-21-1	A023-22.CS*	Tailcone Assembly (Includes items 3 thru 31, and 37; painted white. Used on Standard, HP, and Mariner.)	X	1
	A023-23.CS*	Tailcone Assembly (Includes items 3 thru 31, and 37; painted white. Used on Alpha and Beta.)	X	1
	A023-1	Tailcone Assembly (Ref, no longer available. Earlier Standard, HP, and Mariner.)		
	A023-20	Tailcone Assembly (Ref, no longer available. Earlier Alpha and Beta.)		
2	MS27039C0807	Screw	X	4
3	A231-1	Plug Assembly – Inspection	X	4
4	A654-3	Decal – “Danger” (tailcone)	X	2
5	B263-15	Housing	X	1
	B263-4	Socket	X	3
6	B158-6	Heat Shrink (around wires)	X	A/R
	B158-8	Heat Shrink (around housing)	X	A/R
7	C528-1	Mount – Strobe Light (flash-tube type)	X	1
8	NAS9301B-4-02	Rivet	X	6
9	MS35489-18	Grommet	X	1
10	MS27039C0806	Screw	X	10
11	NAS1149FN816P	Washer	X	4
12	A558-1	Cover – Inspection (transparent)	X	1
13	B263-11	Housing	X	1
	B263-2	Socket	X	1
14	B263-10	Housing	X	3
	B263-1	Pin	X	3
15	B161-2	Spirap	X	A/R
16	B288-3	Doubler	X	5
17	B288-1	Doubler	X	3
18	B288-2	Doubler	X	2
19	MS20470AD4	Rivet	X	85
20	B070-1	Bulkhead – Forward (Ref)		
21	MS21042L08	Nut	X	2
22	MS35489-4	Grommet (or AN931-3-5)	X	7
23	A023-22A	Wire Harness (Ref; tail rotor gearbox chip and tail light wires)		
24	MS35489-6	Grommet (or AN931-4-7)	X	4

NOTES * Revision "AM" and prior.

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
TAILCONE ASSEMBLY (Cont'd)				
53-21-25	B263-12	Housing	X	1
	B263-1	Pin	X	2
26	B158-6	Heat Shrink (around housing and wire harness)	X	A/R
27	MS21919WDG2	Clamp	X	2
28	MS21919WDG4	Clamp	X	2
29	B263-14	Housing	X	1
	B263-3	Pin	X	3
30	B274-450	Wire	X	1
31	A738-27	Gang Channel	X	2
32	MS27039C1-06	Screw	X	2
33	B312-1*	Guard – Tail Rotor	X	1
34	NAS1149F0332P	Washer (on tailcone seam)	X	2
35	MS27039C1-07	Screw (on tailcone seam)	X	2
* * *				
36	KI-64A	Tail Rotor Guard Installation Kit (Ship S/N 0002–1889 without previously-installed guard; includes items 31 thru 35, and 37 thru 39.)	X	1
37	B805-1	Doubler	X	1
38	NAS9301B-4-02	Rivet	X	8
39	A654-80	Decal – “Danger” (For stabilizer; not shown. See Figure 11-1.)	X	2
* * *				
40	KI-73	Tail Rotor Guard Doubler Installation Kit (Ship S/Ns 0002 thru 2073 with B312-1 guard installed but without B805-1 doubler installed. Includes items 34, 35, 37, and 38.)	X	1
* * *				
41	KI-94	Damper Conversion Kit (Not shown; ship S/N 2570 and prior. Allows installation of B224-1 tail rotor drive shaft into A023-22 or -23 tailcone. See Figure 65-5.)	X	1

NOTES * Ship S/N 0002 thru 1889, order item 36.

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FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
EMPENNAGE ASSEMBLY				
53-25-1	A004-2*	Empennage Assembly (Includes items 2 thru 8, 12, 15, 17 thru 20, and 25; also order item 28.)	X	1
2	A042-1*	Stabilizer – Upper Vertical	X	1
3	A043-1*	Stabilizer – Lower Vertical (also order item 28)	X	1
4	A044-1*	Stabilizer – Horizontal (Includes items 13, 14, 16, and 21 thru 23; as required order item 20 and MT068-1 Horizontal Stabilizer Rigging Tool.)	X	1
5	A470-1*	Skid Tube	X	1
6	AN3-12A	Bolt	X	2
7	NAS1149F0332P	Washer	X	8
8	D210-3	Nut	X	2
9	NAS1304-28	Bolt	X	2
10	NAS1149F0432P	Washer (under head)	X	2
11	D210-4	Nut	X	2
12	NAS6603-2	Bolt	X	4
13	MS21919WDG2	Clamp	X	1
14	MS27039C0806	Screw	X	1
15	NAS6603-5	Bolt	X	4
16	MS21042L08	Nut	X	1
17	MS35206-228	Screw	X	2
18	NAS1149FN616P	Washer	X	2
19	MS21042L06	Nut	X	2
20	A554-1	Clip	X	2
21	MS35489-4	Grommet (or AN931-3-5)	X	2
22	A529-1	Mount – Tail Light	X	1
23	A698-1	Tail Light Assembly (includes item 24, see also Figure 33-7) . .	X	1
24	—	Screw	O	2
25	A130-51	Spacer	X	4
26	NAS1149F0463P	Washer	X	2
27	B330-13	Palnut	X	2
28	A654-80	Decal – “Danger” (see also Figure 11-1)	X	2

NOTES * Painted white.

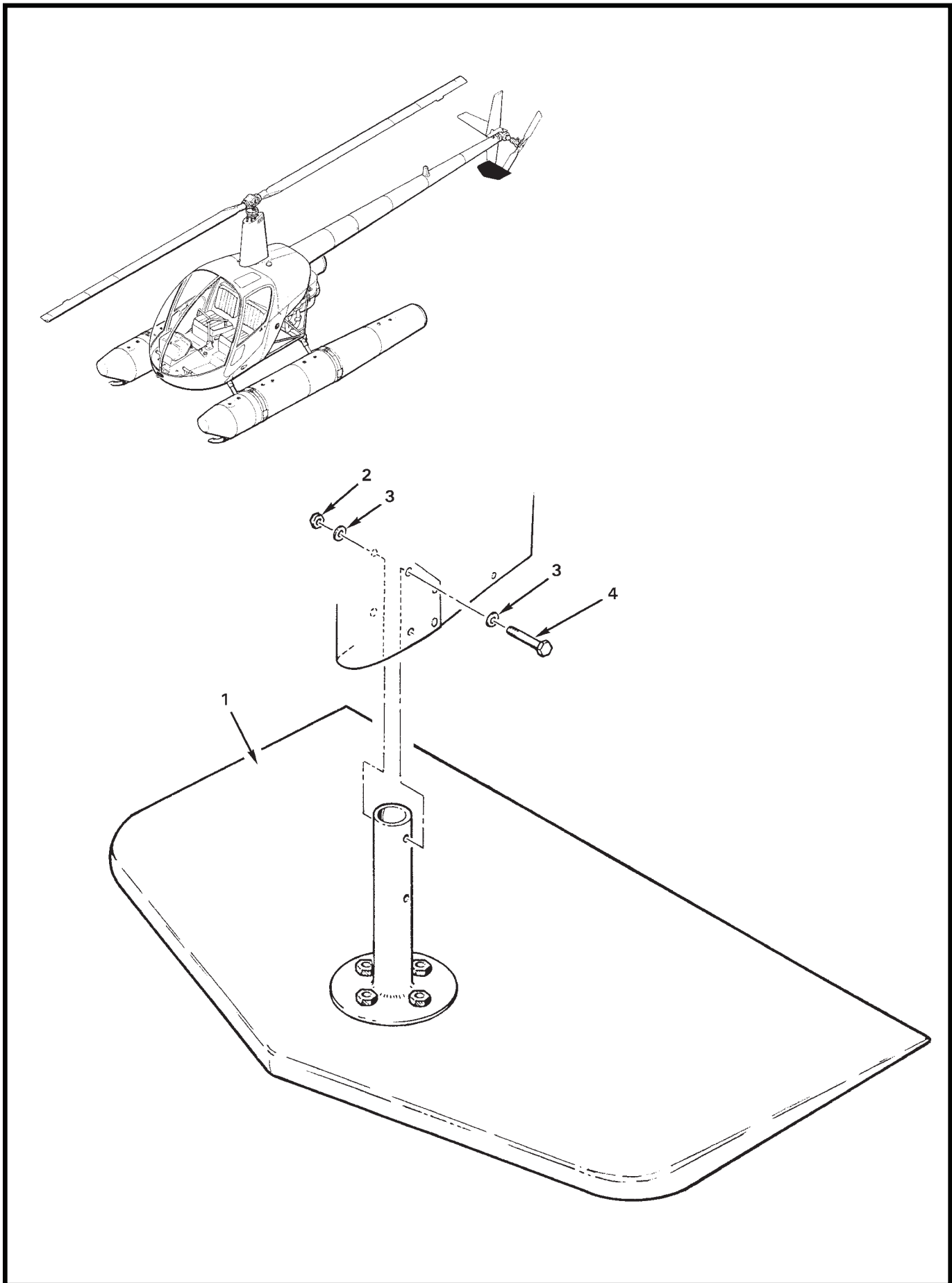


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
FLOAT STABILIZER INSTALLATION				
53-27-1	A050-1 *	Float Stabilizer Assembly (includes items 2 thru 4; used on Mariner)	X	1
	2 D210-3	Nut	X	2
	3 NAS1149F0332P	Washer	X	4
	4 AN3-12A	Bolt	X	2

NOTES * Painted white.

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CHAPTER 62

MAIN ROTOR

<i>Figure</i>	<i>Title</i>	<i>Page</i>
62-1	Main Rotor Blade Assembly	62.0
62-3	Main Rotor Blade Assembly	62.2
62-5	Main Rotor Hub Installation	62.4
62-7	Main Rotor Hub Installation	62.6

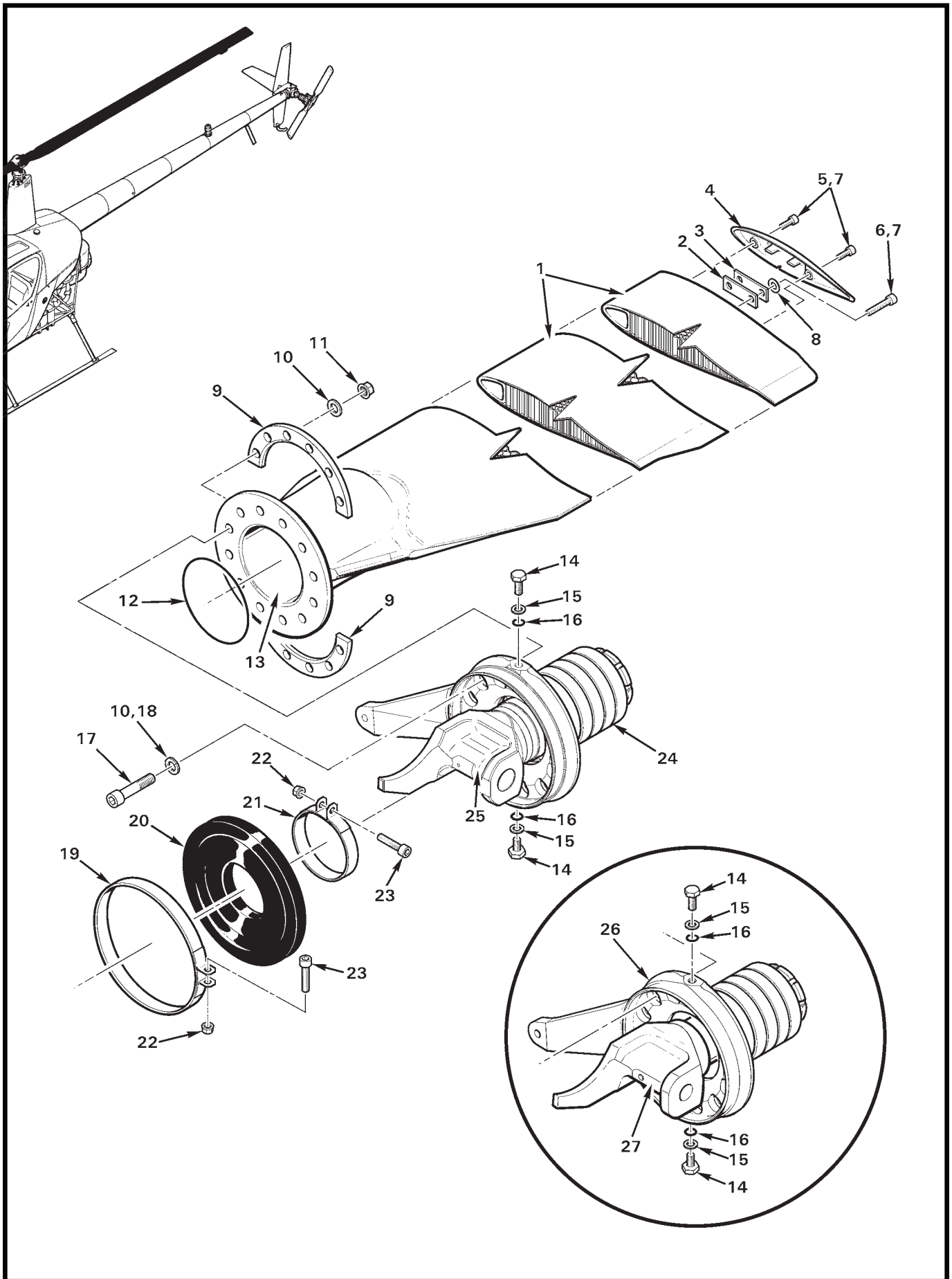


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
		MAIN ROTOR BLADE ASSEMBLY*		
62-1-1	A005-14	Main Rotor Blade and Spindle Assembly (Incl items 1 [A016-6], 9 thru 11, 13, 14, 17 [A722-5], 18 and 24)	X	2
	A005-7	Main Rotor Blade and Spindle Assembly (Incl items 1 [A016-6], 9 thru 11, 13, 14, 17 [A722-2], 18 and 26)	X	2
	A005-7R	Main Rotor Blade and Spindle Assembly (overhaul exchange; R8373 core deposit required)	X	1
	A016-6**	Blade Assembly	O	1
2	A298-2	Balance Strip (15 grams, 0.125-inch thick steel)	X	A/R
3	A298-3	Balance Strip (5 grams, 0.032-inch thick steel)	X	A/R
4	A300-3	Tip Cover (round)	X	1
5	NAS1351N3-10P	Screw (install using item 7)	X	2
6	A722-4	Screw (install using item 7)	X	2
7	A257-9	Anti-Seize – Loctite Silver Grade	X	A/R
8	NAS1149F0332P	Washer (or NAS1149F0363P as required for balance)	X	A/R
9	A253-2	Spacer	O	2
10	NAS1149F0563P	Washer (install using item 18, both sides)	X	24
11	D210-5	Nut	X	12
12	A215-129	O-Ring	O	1
13	A257-4	Oil (to fill blade housing)	X	A/R
14	B289-2	Bolt (Incl items 15 and 16)	X	2
15	—	Washer	O	1
16	A215-902	O-Ring	X	1
17	A722-5	Screw (A005-7 MR blade and spindle assembly revision AM thru AQ, and A005-14 MR blade and spindle assembly revision AR and subsequent)	O	12
	A722-2	Screw (A005-7 MR blade and spindle assembly revision AL)	O	12
18	B270-1	Sealant (2-oz tube)	X	A/R
19	A165-7	Clamp Assembly (Incl items 22 and 23)	X	1
20	A156-3	Boot (gray, cold weather)	X	1
	A156-4	Boot (black, standard)	X	1
21	A165-1	Clamp Assembly (Incl items 22 and 23)	X	1
22	MS21042L08	Nut	X	2
23	NAS1352-08-12P	Screw	X	2
24	A005-15	Spindle Assembly (includes items 12, 19 thru 21, and 25)	O	1
25	A158-3	Spindle	O	1
26	A005-8	Spindle Assembly (includes items 12, 19 thru 21, and 27)	O	1
27	A158-1	Spindle	O	1

NOTES * Aluminum skin blade; see Figure 99-41 for shipping crate.
 ** Critical part; see R22 Maintenance Manual.

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
		MAIN ROTOR BLADE ASSEMBLY*		
62-3-1	A005-6	Main Rotor Blade and Spindle Assembly (Ref, no longer available. see Figure 62-1.)	O	2
	A016-4**	Blade Assembly (Ref; no longer available)	O	1
2	A298-2	Balance Strip (15 grams, 0.125-inch thick steel)	X	A/R
3	A298-3	Balance Strip (5 grams, 0.032-inch thick steel)	X	A/R
4	A300-2	Tip Cover (flat)	X	1
5	MS24694-C54	Screw	X	1
6	MS24694-C51	Screw	X	1
7	NAS1149F0332P	Washer (or NAS1149F0363P as required for balance)	X	A/R
8	A722-4	Screw	X	2
9	A722-2	Screw (A005-2 main rotor blade and spindle assembly revision AF thru AH, and A005-6 main rotor blade and spindle assembly revision AI thru AK)	O	12
	A722-1	Screw (A005-2 main rotor blade and spindle assembly revision S thru AE)	O	12
	NAS1351-4-20	Screw (A005-2 main rotor blade and spindle assembly revision N and prior)	O	12
10	A722-3	Washer (Ref; chamfered)	O	12
11	B270-1	Sealant (2-oz tube)	X	A/R
12	B289-2	Bolt (includes item 13 and 14)	X	2
13	—	Washer	O	1
14	A215-902	O-Ring	X	1
15	A253-1	Spacer	O	2
16	A141-11	Washer	X	12
17	D210-4	Nut	X	12
18	A005-3	Spindle Assembly (Incl items 21, 22, 25, and 26)	O	1
19	A215-039	O-Ring	O	1
20	A257-4	Oil (to fill blade housing)	X	A/R
21	A165-2	Clamp Assembly (Incl items 23 and 24)	X	1
22	A156-1	Boot (black, standard)	X	1
	A156-2	Boot (gray, cold weather)	X	1
23	MS21042L08	Nut	X	2
24	NAS1352-08-12P	Screw	X	2
25	A165-1	Clamp Assembly (Incl items 23 and 24)	X	1
26	A158-1	Spindle (Ref)	O	1
27	A016-2**	Main Rotor Blade (Ref; retired by AD 2004-19-09. Not shown.)		

NOTES * Stainless steel skin blade; see Figure 99-41 for shipping crate.
 ** Critical part; see R22 Maintenance Manual.

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
MAIN ROTOR HUB INSTALLATION				
62-5-1	NAS632-82	Bolt (or MS21250-12082)	X	2
2	A257-9	Anti-Seize – Loctite Silver Grade	X	A/R
3	A152-2	Thrust Washer	X	4
4	A106-7	Journal – Bearing (length = 1.005-inch, bore = 0.750-inch) . .	X	4
5	A005-14	Main Rotor Blade and Spindle Assembly (Ref, see Figure 62-1)		
6	MS24665-355	Cotter Pin	X	3
7	A189-10	Nut – Double Lock	X	1
8	A152-1	Thrust Washer	X	2
9	A117-5	Shim – Washer (thickness = 0.012-inch, bore = 0.625-inch)	X	A/R
10	A117-6	Shim – Washer (thickness = 0.015-inch, bore = 0.625-inch)	X	A/R
11	A117-7	Shim – Washer (thickness = 0.020-inch, bore = 0.625-inch)	X	A/R
12	A117-8	Shim – Washer (thickness = 0.025-inch, bore = 0.625-inch)	X	A/R
13	A106-5	Journal – Bearing (length = 1.260-inch, bore = 0.625-inch) . .	X	A/R
14	A654-18	Decal – "LEVEL HERE"	X	1
15	G682-26	Decal (coning bolt instructions)	X	1
16	A005-12	Hub Assembly (Incl items 14, 15, 17, 18, and 33)	X	1
17	A648-3*	Bearing (teeter hinge)	X	2
18	A648-2*	Bearing (coning hinges)	X	4
19	A117-48	Shim – Washer (thickness = 0.012-inch, bore = 0.755-inch)	X	A/R
20	A117-49	Shim – Washer (thickness = 0.015-inch, bore = 0.755-inch)	X	A/R
21	A117-50	Shim – Washer (thickness = 0.020-inch, bore = 0.755-inch)	X	A/R
22	A117-51	Shim – Washer (thickness = 0.025-inch, bore = 0.755-inch)	X	A/R
23	A189-12	Nut – Double Lock	X	2
24	NAS630-80	Bolt (or MS21250-10080)	X	1
25	NAS6605-46	Bolt (or NAS1305-46)	X	1
26	NAS1149F0516P	Washer	X	2
27	A150-1	Droop Stop	X	2
28	A251-1	Main Rotor Shaft (Ref)		
29	B226-2	Bracket – Teeter Stop	X	2
30	B151-3	Teeter Stop	X	2
31	D210-5	Nut	X	1
32	B330-16	Palnut	X	1
33	B370-1	Hub (Ref; includes item 34)	O	1
34	A651-1	Data Plate	O	1

NOTES * Requires MT329 installation tools. See Figure 99-37.

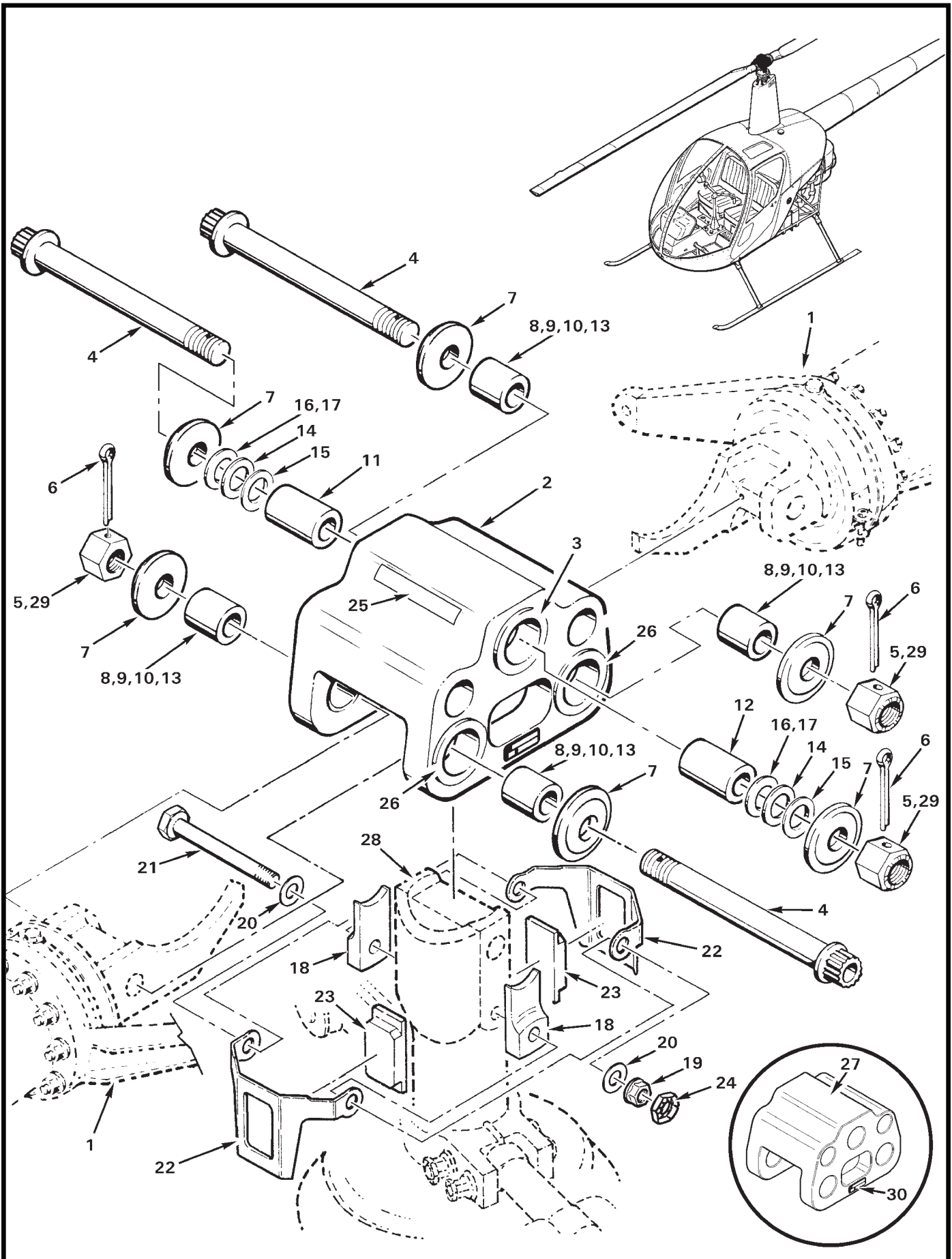


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
MAIN ROTOR HUB INSTALLATION				
62-7-1	A005-6	Main Rotor Blade and Spindle Assembly (Ref, see Figure 62-1)		
2	A005-4	Hub and Bearings (Incl items 3, 25 thru 27)	X	1
3	A648-3*	Bearing (teeter hinge)	X	2
4	NAS630-80	Bolt (or MS21250-10-80)	X	3
5	A189-10	Nut – Double Lock	X	3
6	MS24665-355	Cotter Pin	X	3
7	A152-1	Thrust Washer	X	6
8	A106-1	Journal – Bearing (length = 1.000-inch)	X	A/R
9	A106-2	Journal – Bearing (length = 0.995-inch)	X	A/R
10	A106-3	Journal – Bearing (length = 0.990-inch)	X	A/R
11	A106-4	Journal – Bearing (length = 1.300-inch)	X	A/R
12	A106-5	Journal – Bearing (length = 1.260-inch)	X	A/R
13	A106-6	Journal – Bearing (length = 1.005-inch)	X	A/R
14	A117-5	Shim – Washer (thickness = 0.012-inch)	X	A/R
15	A117-6	Shim – Washer (thickness = 0.015-inch)	X	A/R
16	A117-7	Shim – Washer (thickness = 0.020-inch)	X	A/R
17	A117-8	Shim – Washer (thickness = 0.025-inch)	X	A/R
18	A150-1	Droop Stop	X	2
19	MS21042L5	Nut	X	1
20	NAS1149F0516P	Washer	X	2
21	NAS6605-46	Bolt (or NAS1305-46)	X	1
22	B226-2**	Bracket – Teeter Stop	X	2
23	B151-3**	Teeter Stop	X	2
24	B330-16	Palnut	X	1
25	A654-18	Decal – "LEVEL HERE"	X	1
26	A648-1*	Bearing (coning hinges)	X	4
27	A154-1	Hub (Ref; includes item 30)	O	1
28	A251	Main Rotor Shaft (Ref)		
29	A257-9	Anti-Seize – Loctite Silver Grade	X	A/R
30	A651-1	Data Plate	O	1

NOTES * Requires MT329 installation tools. See Figure 99-37.
 ** May be used only if A158-1 revision "N" (or subsequent revision) spindles are installed.

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CHAPTER 63

MAIN ROTOR DRIVE SYSTEM

<i>Figure</i>	<i>Title</i>	<i>Page</i>
63-1	Main Rotor Gearbox and Mast Assembly	63.0
63-5	Main Rotor Gearbox Installation	63.4
63-7	Rotor Brake Assembly	63.6
63-11	Drive System	63.10
63-15	Clutch Assembly	63.14
63-17	Clutch Assembly	63.16
63-19	Belt Tension Actuator	63.18

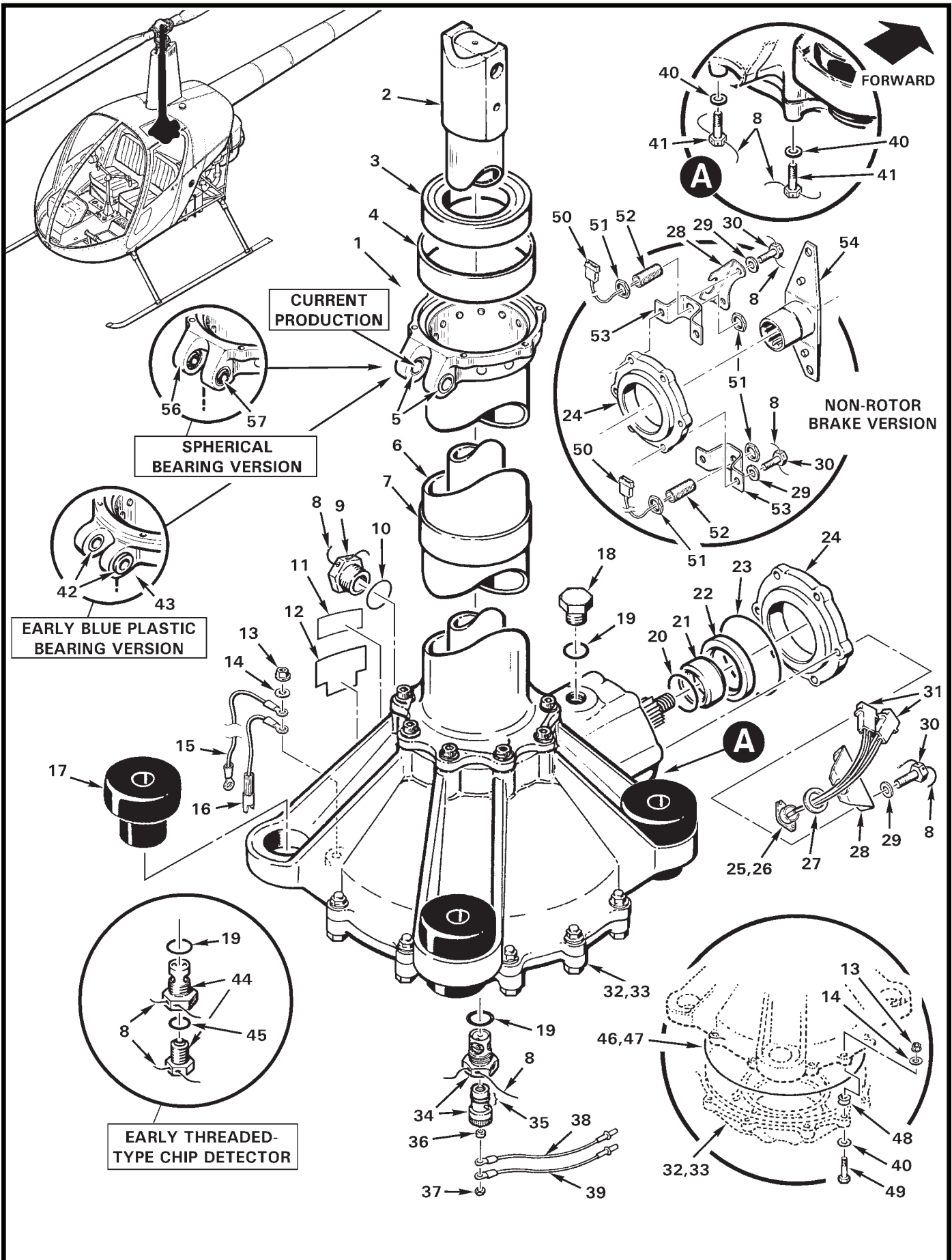


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
		MAIN ROTOR GEARBOX AND MAST ASSEMBLY		
63-1-1	A006-1 *	Main Rotor Gearbox and Mast Assembly (Ref, order A006-6R overhaul exchange.)		
	A006-6	Main Rotor Gearbox and Mast Assembly (Ship S/N 3540 and subsequent. Includes items 2 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. Requires R8245.)	X	1
	R8245	A283-5 Mast Tube Upgrade Kit	X	1
	R8016	A017 Swashplate Kit (For use with item 42 installed. See also Figure 67-29.)	X	1
	R8017	A017 Swashplate Kit (For use with item 57 installed. 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	110-4	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	AN814-8D***	Filler Plug	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

NOTES * Earlier gearboxes will be upgraded to current production mast assembly.
 ** Ship S/N 0501 and subsequent.
 *** No safety wire required; special torque per R22 MM Section 1.330.

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
		MAIN ROTOR GEARBOX AND MAST ASSEMBLY (Cont'd)		
63-1-25	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
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

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)				
63-1-53	A284-1	Bracket	X	2
54	A006-4	Yoke Assembly (Ref, no longer available. Order item 59 for replacement.)		
55	A257-2	Oil – Gear	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. Includes items 60 thru 64.)	X	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 * Not shown; see Figure 63-7.

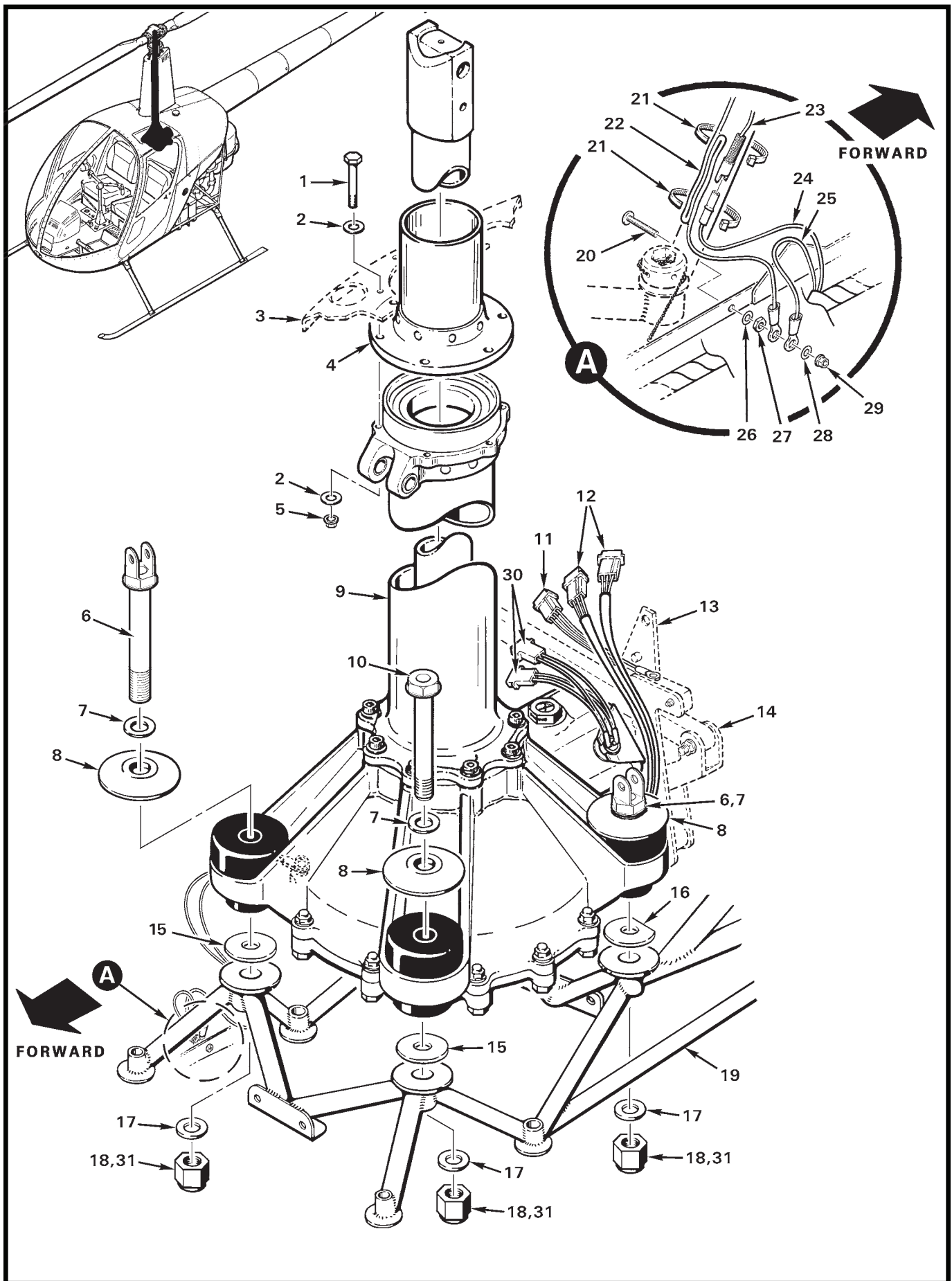


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
MAIN ROTOR GEARBOX INSTALLATION				
63-5-1	AN3-16A	Bolt	X	6
2	NAS1149F0332P	Washer	X	12
3	A261	Mast Fairing (Ref)		
4	B491-1	Tube Assembly – Slider (Ref)		
5	D210-3	Nut	X	6
6	A650-3*	Fitting	X	3
7	NAS1149F1063P	Washer (or NAS1149F1032P [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	110-2	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 and item 18)	X	1
	A181-4*	Bearing Assembly	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

NOTES * Bearing assembly has modified internal clearance by RHC, do not substitute. Additional parts required for ship S/N 2570 and prior (see Figure 71-19).

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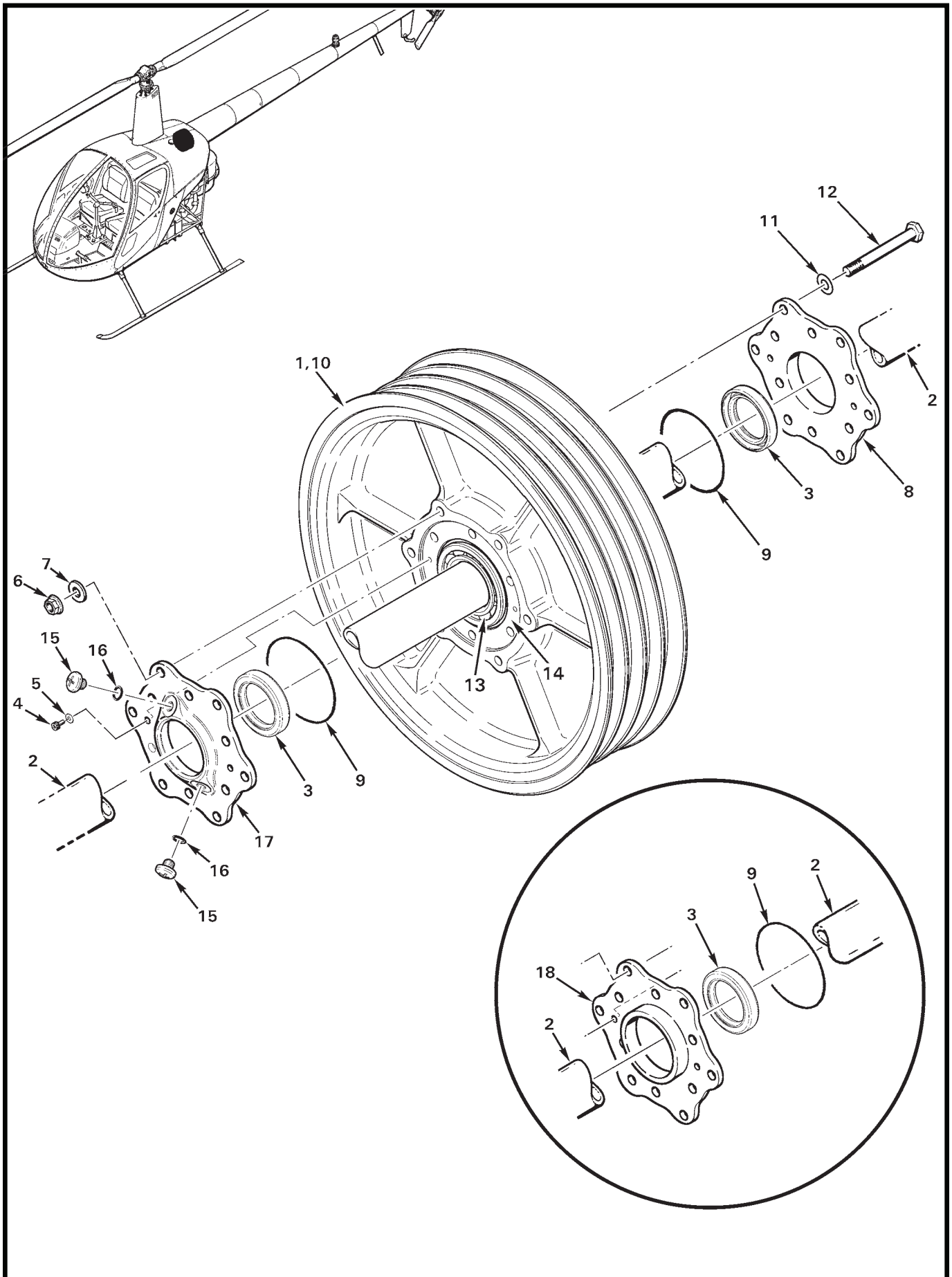


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
CLUTCH ASSEMBLY				
63-15-1	A018-1 *	Clutch Assembly (Ref)		
	A018-2 *	Clutch Assembly (Ref)		
2	A166-1	Shaft – Clutch (Ref)		
3	A966-1	Seal	X	2
4	NAS1352-08LE6P	Screw	X	4
5	NAS620-8	Washer	X	4
6	NAS21042L4	Nut	X	12
7	NAS1149F0463P	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.

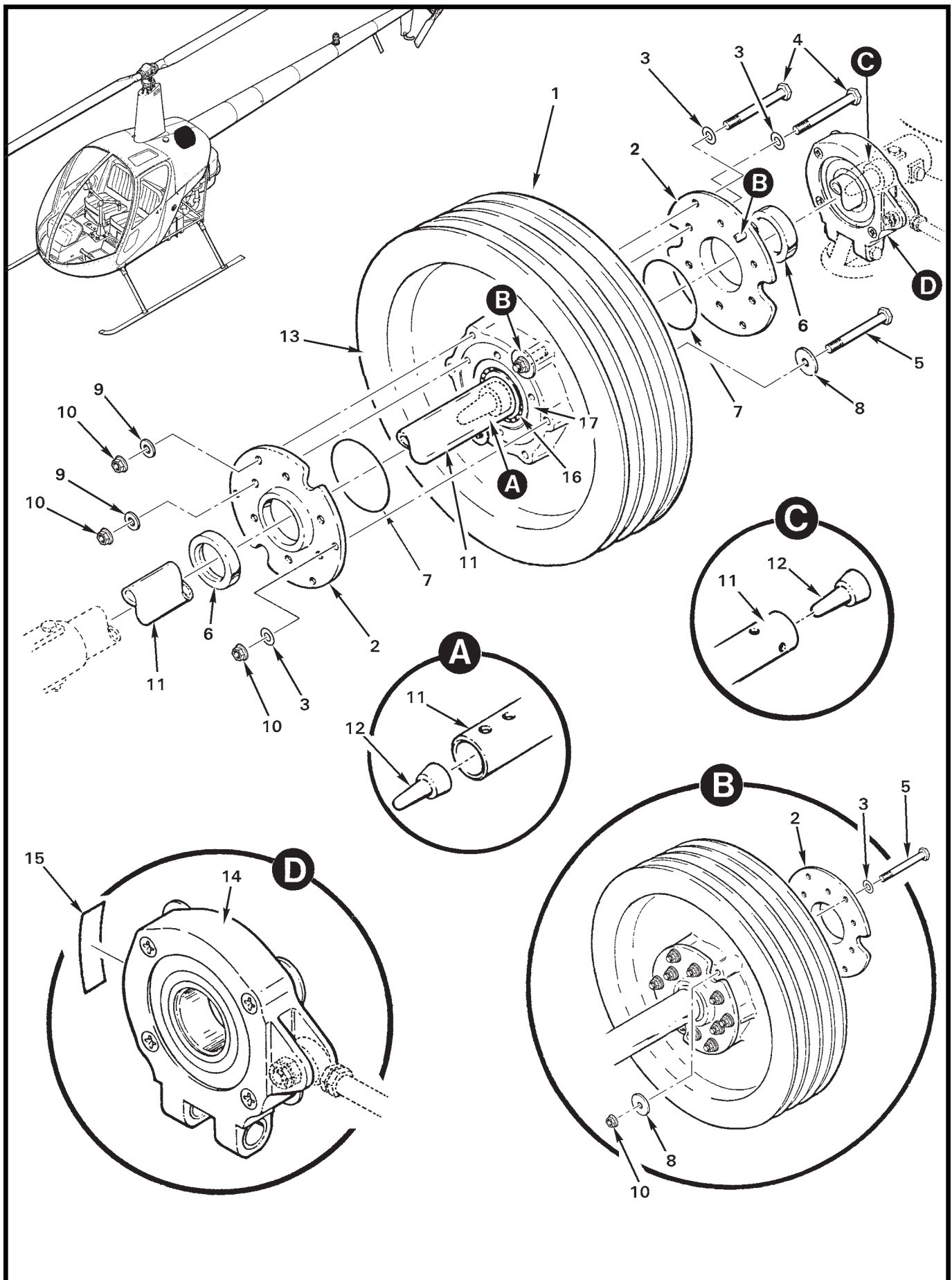


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
CLUTCH ASSEMBLY				
63-17-1	A018-1	Clutch Assembly (Includes items 2 thru 14, 16 and 18; anodized sheave.)	X	1
	A018-2	Clutch Assembly (Includes items 2 thru 14, 16 and 18; metalized sheave.)	X	1
2	A168-2*	Retainer (Ref; use only 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	110-2	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.

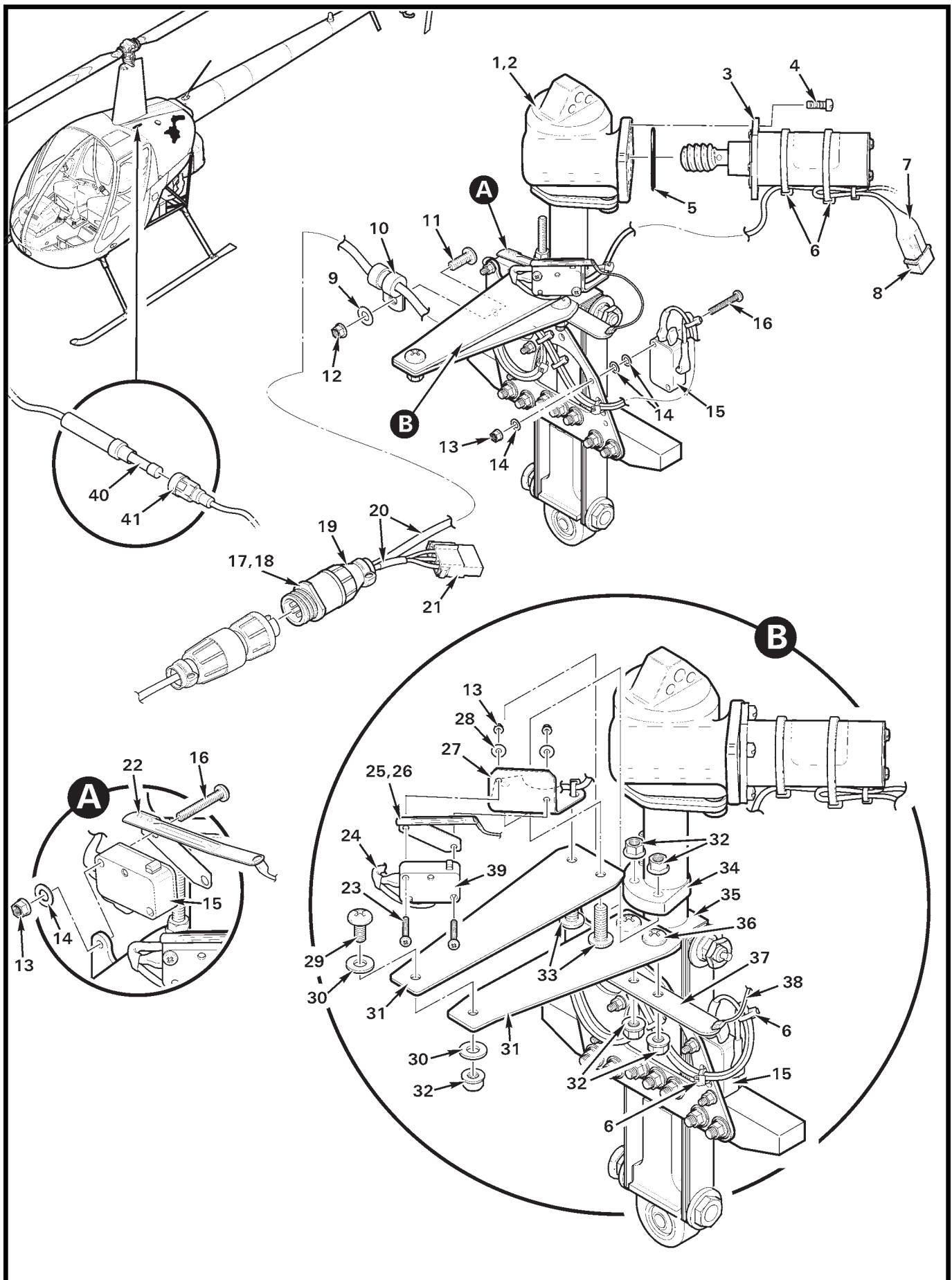


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
BELT TENSION ACTUATOR				
63-19-1	A051-1	Belt Tension Actuator Assembly (Incl items 2 thru 39)	X	1
2	A501-2	Housing	O	1
3	A051-2	Gearmotor Assembly (Incl items 7 and 8)	X	1
4	NAS1352N08-6	Screw	X	4
5	A215-116	O-Ring	X	1
6	MS3367-4-9	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

CHAPTER 64

TAIL ROTOR

<i>Figure</i>	<i>Title</i>	<i>Page</i>
64-1	A008-4 Tail Rotor Assembly	64.0
64-3	A008-2 Tail Rotor Assembly	64.2

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
A008-4 TAIL ROTOR ASSEMBLY				
64-1-1	A008-4	Tail Rotor Assembly (Incl items 2 thru 5, 16, 15 , 17 thru 22, 26, 27, 25, and 30)	X	1
2	A029-2	Blade Assembly (round-tip)	O	2
3	B330-13	Palnut	X	11
4	D210-4	Nut	X	8
5	NAS1149F0432P	Washer	X	8
6	A115-1	Spacer	X	8
7	A214-3	Washer (0.688-inch inside diameter)	X	4
8	NAS6604-16	Bolt	X	2
9	B345-3	Pitch Link (ship S/N 2509 and subsequent; supersedes B345-1)	X	2
10	NAS6604-16 to -21	Bolt (length as required to add washer weights)	X	2
11	A031-1	Pitch Control Assembly (Ref)		
12	NAS6604-38	Bolt	X	1
13	NAS1149F0432P	Washer	X	2
14	B361-1*	Bearing – Elastomeric	X	2
15	NAS1149D0463J	Washer (heavy blade only)	X	4
16	A141-14	Washer (or item 7, 13, NAS1149F0463P, NAS1149D0432J, or NAS1149D0463J as required for balance)	X	A/R
17	NAS1149D0432J**	Washer	X	A/R
	NAS1149F0432P**	Washer	X	A/R
18	NAS1149D0463J**	Washer	X	A/R
	NAS1149F0463P**	Washer	X	A/R
19	A141-14**	Washer	X	A/R
20	AN970-4**	Washer	X	A/R
21	A138-1	Bushing	X	2
22	A062-1	Hub Assembly – Elastomeric Bearing (Ship S/N 2452, 2634 thru 2642, 2765, and subsequent. Includes items 12 thru 14, 23, and 24.)	X	1
	A062-2	Hub–Tail Rotor (serialized, Ref)	O	A/R
23	D210-4	Nut	X	1
24	B330-13	Palnut	X	1
25	A137-1	Spacer	X	6
26	NAS6604-27	Bolt	X	2
27	NAS6604-24	Bolt	X	6
28	A119-1	Bumper	X	1
29	A141-14	Washer (0.750-inch outside diameter)	X	1
30	A137-2	Spacer	X	2

NOTES * MT556-1 tools required to install bearing. See Figure 99-39.
 ** Minimum of [1] washer must be installed.

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
A008-2 TAIL ROTOR ASSEMBLY				
64-3-1	A008-2	Tail Rotor Assembly – Spherical Bearing (No longer available. Superseded by A008-4. See Figure 64-1.)		
2	A030-1	Hub Assembly (No longer available. Superseded by A062-1 Hub Assembly. See Figure 64-1.)		
3	A029-1	Blade Assembly (No longer available. Superseded by A029-2 Blade Assembly. See Figure 64-1.)		
4	NAS1149F0432P	Washer	X	8
5	D210-4	Nut	X	12
6	B330-13	Palnut	X	11
7	A102-4*	Rod End	O	2
8	AN316-5R*	Nut	X	2
9	B330-16*	Palnut	X	2
10	B163-1*	Rod End	X	2
11	NAS6604-24	Bolt	X	6
12	NAS1149F0463P	Washer	X	2
13	A130-1	Spacer	X	2
14	A137-1	Spacer	X	6
15	A137-2	Spacer	X	2
16	A129-2	Hub Plate	O	1
17	A128-1	Hub	O	1
18	A129-1	Hub Plate	O	1
19	B115-1	Bearing – Spherical	X	2
20	NAS1304-38	Bolt	O	1
21	NAS602-10P	Screw (or NAS602-12 or -12P, optional)	X	4
22	A134-1	Balance Weight (0.032-inch thick steel; or NAS1149FN832P or NAS1149FN816P as required for balance)	X	A/R
23	NAS1149F0432P**	Washer (or NAS1149F0463P or A141-14 as required for balance)	X	A/R
24	A214-3	Washer (0.688-inch inside diameter)	X	4
25	A119-1	Bumper	X	1
26	A141-14	Washer (0.750-inch outside diameter)	X	1
27	NAS6604-16 to -21	Bolt (length as required to add washer weights)	X	2
28	NAS6604-16	Bolt	X	2
29	A138-1	Bushing	X	2
30	A115-1	Spacer	X	8
31	NAS1149FN832P	Washer	X	A/R

NOTES * Ship S/N 0002 thru 2508; no longer available as an assembly, see Figure 64-1 item 9.
 ** Minimum of [1] washer must be installed.

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CHAPTER 65

TAIL ROTOR DRIVE SYSTEM

<i>Figure</i>	<i>Title</i>	<i>Page</i>	
65-1	Tail Rotor Drive Shaft Installation	65.0	
65-5	Damper Assembly	65.4	
65-7	B021 Tail Rotor Gearbox & Installation	65.6	
65-11	A021 Tail Rotor Gearbox & Installation	65.10	

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
TAIL ROTOR DRIVE SHAFT INSTALLATION				
65-1-1	B330-13	Palnut	X	8
2	D210-4	Nut	X	10
3	NAS1149F0432P*	Washer (or NAS1149F0463P)	X	4
4	NAS1149F0463P	Washer	X	6
5	NAS1149F0432P	Washer	X	14
6	NAS6604-3*	Bolt (or NAS6604-4)	X	4
7	A041-12	Damper Assembly (Incl items 19 thru 34)	X	1
	A041-1**	Damper Assembly (Ref)	X	1
8	NAS6604-7	Bolt	X	2
9	A195-1	Yoke	X	1
10	A947-2	Flex Plate	X	1
11	A553-2	Block	X	1
12	A207-4	Block	X	2
13	B223-1	Yoke (length 0.900-inch)	X	1
	B223-2	Yoke (length 1.050-inch)	X	1
	B223-3	Yoke (length 1.200-inch)	X	1
	B223-4	Yoke (length 1.350-inch)	X	1
	B223-6	Yoke (length 0.750-inch)	X	1
14	B224-1**	Tail Rotor Drive Shaft (Incl item 7 [A041-1])	X	1
	B224-3	Tail Rotor Drive Shaft (Incl item 7 [A041-12])	X	1
15	A559-1	Spacer	X	2
16	A947-3	Flex Plate	X	1
17	NAS6604-4	Bolt	X	2
18	NAS6604-21	Bolt	X	2
19	A041-13	Arm (thick)	X	1
20	A041-10	Dowel Pin	X	2
21	B330-7	Palnut	X	2
22	D210-3	Nut	X	3
23	NAS1149F0363P	Washer	X	2
24	A141-18	Washer	X	4
25	A141-15	Washer	X	2
26	A041-5	DU Washer	X	4
27	A041-6	Spring Washer	X	2
28	O4DU04	Bushing (bearing)	X	2
29	A105-9	Journal – Bearing	X	2

NOTES * Select hardware which, after correct torque is applied, exposes 2 to 4 threads beyond nut.
 ** Not shown, see Figure 65-5.

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
TAIL ROTOR DRIVE SHAFT INSTALLATION (Cont'd)				
65-1-30	NAS1149F0332P	Washer	X	2
31	NAS6603-8	Bolt	X	2
32	A041-3	Arm (thin)	X	1
33	MS16562-11	Pin – Spring	X	1
34	A041-11	Bearing Assembly (B224 two-piece drive shafts only)	X	1
35	NAS6603-3	Bolt	X	2
36	B288-8	Support (Ref, installed on A023-22 and -23 tailcone) * * *		
37	KI-94	Damper Conversion Kit (For ship S/N 2570 and prior. Allows installation of B224-1 tail rotor drive shaft into A023-22 or -23 tailcone. Includes items 19 thru 27, 28 [1 ea.], 29, 35, 38, and 39.)	X	1
38	A041-10	Pin	X	1
39	A651-1	Data Plate – “KI-94 MOD”	O	1

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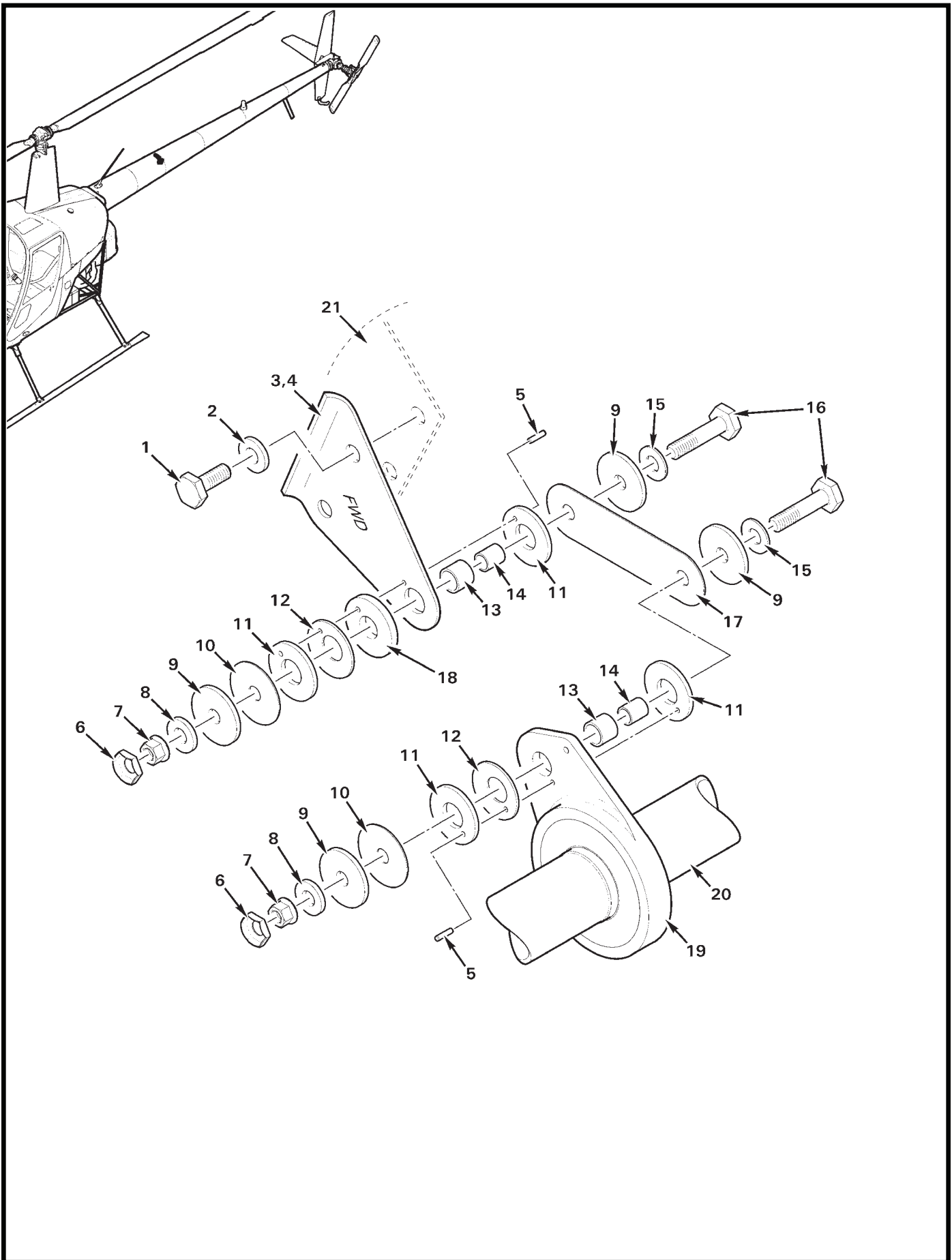


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
DAMPER ASSEMBLY				
65-5-1	NAS6603-3	Bolt	X	2
2	NAS1149F0363P	Washer	X	2
3	A041-1	Damper Assembly (Incl items 4 thru 19)	X	1
4	A041-8	Clip	X	1
5	A041-10	Pin	X	2
6	B330-7	Palnut	X	2
7	D210-3	Nut	X	2
8	NAS1149F0363P	Washer	X	2
9	A141-18	Washer	X	4
10	A141-15	Washer	X	2
11	A041-5	DU Washer	X	4
12	A041-6	Spring Washer	X	2
13	04DU04	Bushing (bearing)	X	2
14	A105-9	Journal	X	2
15	NAS1149F0332P	Washer	X	2
16	NAS6603-8	Bolt	X	2
17	A041-3	Arm	X	1
18	A041-9	Spacer	X	1
19	A041-11	Bearing Assembly (includes bearing and housing)	X	1
	A647-8	Bearing	O	1
	A172-1	Housing	O	1
20	B224-1	Drive Shaft – Tail Rotor (Ref; includes item 3. Used with A041-1 only.)		
21	A023-1	Tailcone Assembly (Ref)		
	A023-20	Tailcone Assembly (Ref)		

NOTES

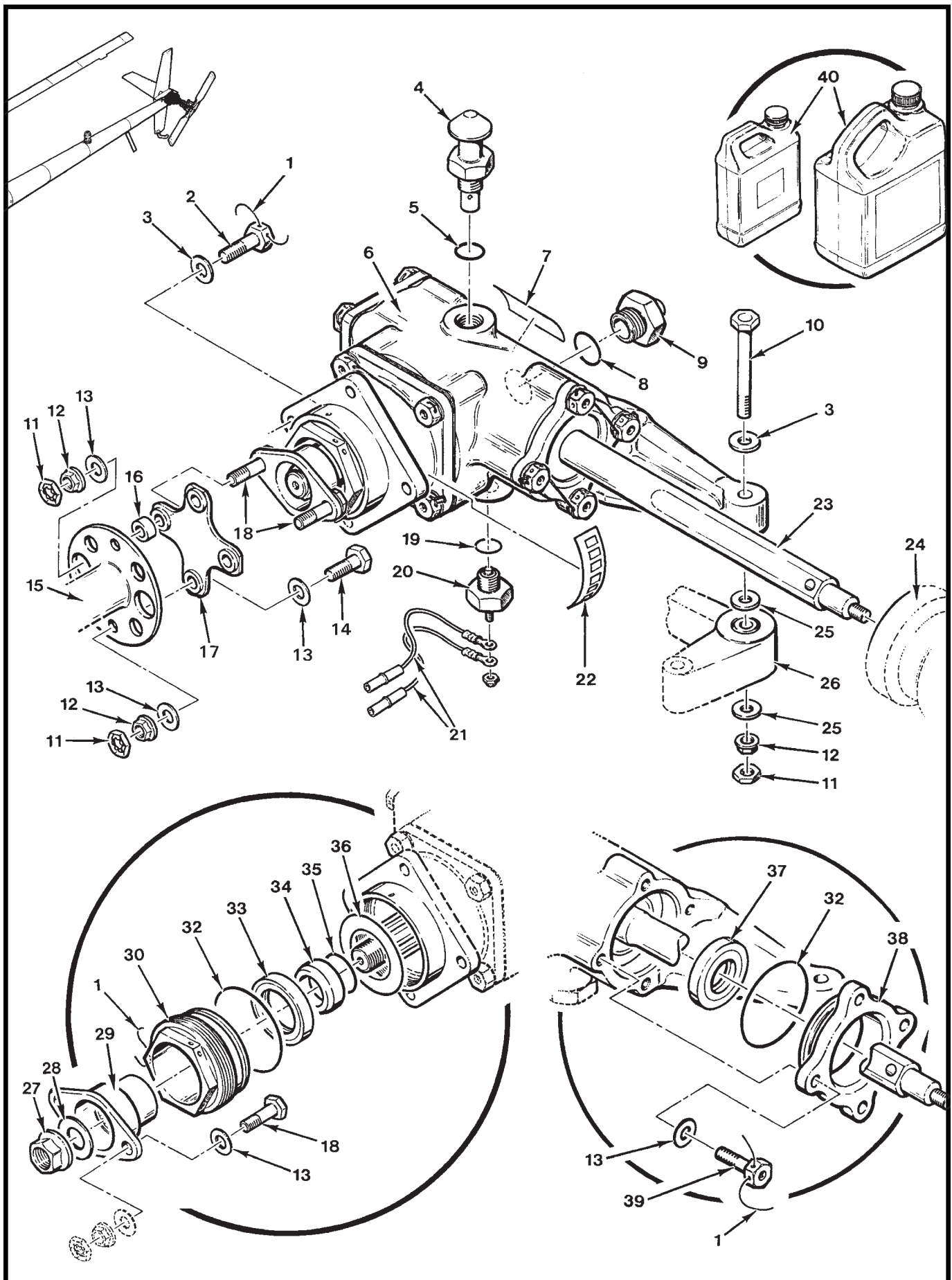


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
B021 TAIL ROTOR GEARBOX & INSTALLATION				
65-7-1	MS20995C32	0.032-inch dia Safety Wire	X	A/R
2	MS20074-04-06*	Bolt (Ref)		
3	NAS1149F0463P*	Washer (Ref)		
4	A610-1	Filler – Vent Plug	X	1
5	MS28778-5	Packing (o-ring)	X	1
6	B021-1**	Tail Rotor Gearbox Assembly (Incl items 1, 4, 5, 7 thru 9, 12, 13, 18 thru 23, 27 thru 40, and 42)	X	1
	B021-1R	Tail Rotor Gearbox Assembly (overhaul exchange)	X	1
7	A654-23	Decal (gearbox fill and oil specification)	X	1
8	MS28775-014	Packing (o-ring)	X	1
9	B563-1	Sight Gage	X	1
10	NAS6604-25*	Bolt (Ref)		
11	B330-13*	Palnut (Ref)		
12	D210-4	Nut	X	2
13	NAS1149F0432P	Washer	X	4
14	NAS6604-4*	Bolt (Ref)		
15	B224-3*	Tail Rotor Drive Shaft (Ref)		
16	A559-1*	Spacer (Ref)		
17	A947-3*	Flex Plate (Ref)		
18	NAS6604-7	Bolt	X	2
19	MS28778-4	Packing (o-ring)	X	1
20	B566-2	Chip Detector (includes nut)	X	1
21	B049-1	Wire Harness	X	2
22	110-2	Telatemp (temperature recorder, 140° – 190°F)	X	1
23	B554-1	Output Shaft	O	1
24	A031-1*	Pitch Control (Ref)		
25	MS20002-4*	Washer	X	2
26	A120-1*	Bellcrank (Ref)		
27	D210-8	Nut (install using item 41)	X	1
28	NAS1149F0832P	Washer	X	1
29	B546-1	Yoke	X	1
30	B549-1	Retainer (install using item 31)	X	1
31	A257-9	Lubricant (anti-seize)	X	A/R
32	MS28775-131	Packing (o-ring)	X	1
33	A966-2	Seal (input)	X	1

NOTES * See Figure 65-11 for tail rotor gearbox installation.
 ** Ship S/N 3100 and subsequent.

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
TAIL ROTOR GEARBOX INSTALLATION (Cont'd)				
65-7-34	A266-2	Spacer	X	1
35	MS28775-018	Packing (o-ring)	X	1
36	A117-44	Shim (Ref)		
37	A966-4	Seal (output)	X	1
38	B552-1	Retainer	X	1
39	MS20074-04-06	Bolt (drilled head)	X	12
40	A257-2LT	Lubricant (one-liter bottle)	X	A/R
	A257-2	Lubricant (one-gallon bottle)	X	A/R
41	B270-11	Adhesive	X	A/R
42	B545-1	Gear Set (not shown)	O	1

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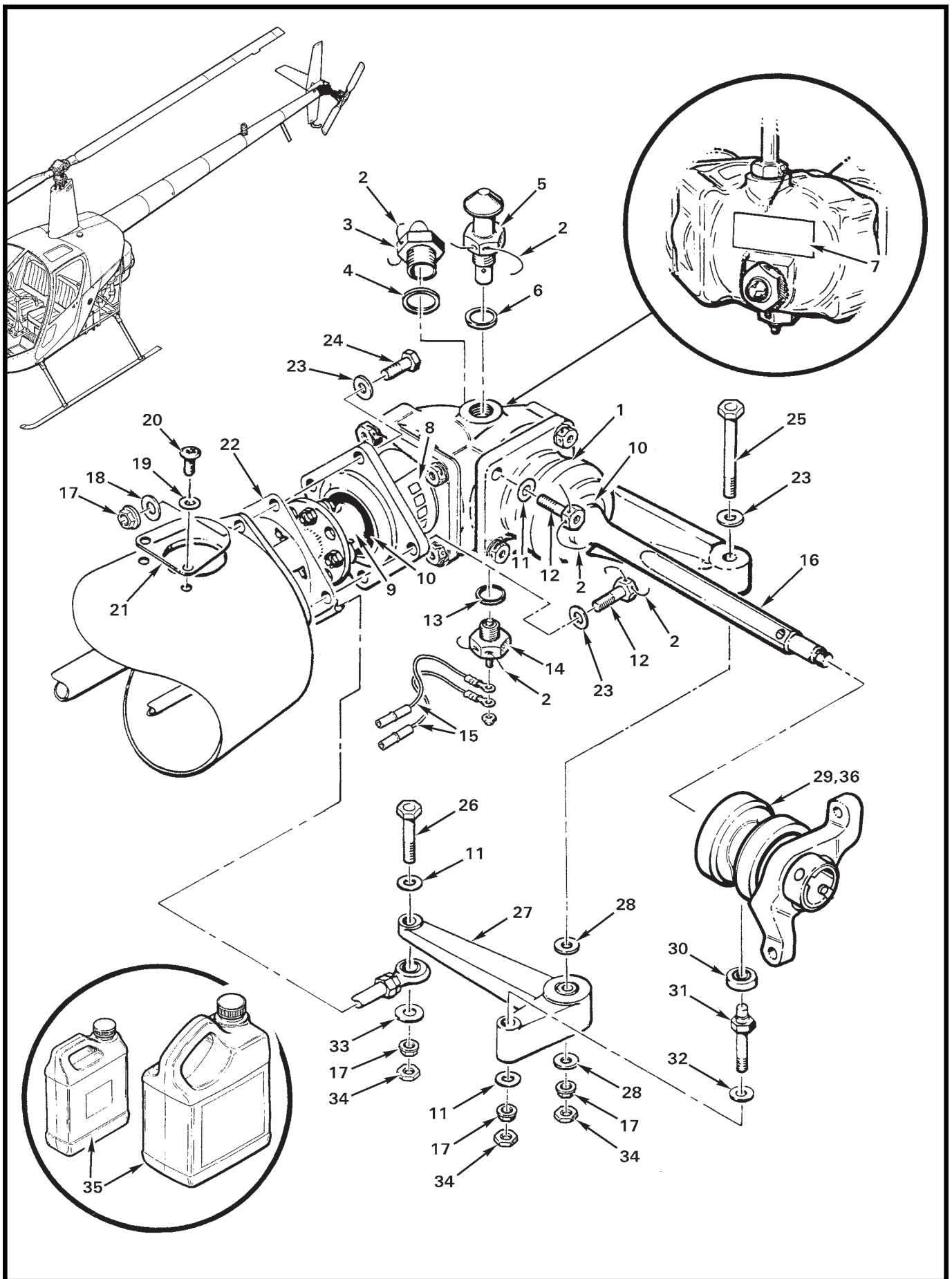


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
A021 TAIL ROTOR GEARBOX & INSTALLATION				
65-11-1	A021-1*	Tail Rotor Gearbox Assembly (Ref, no longer available; superseded by B021-1 Tail Rotor Gearbox Assembly)	O	1
2	MS20995C32	0.032 in. dia Safety Wire	X	A/R
3	B563-1	Sight Gage	X	1
4	MS35769-11	Gasket	X	1
5	A610-1	Filler – Vent Plug	X	1
6	MS35769-9	Gasket	X	1
7	A654-23	Decal (gearbox fill and oil specification)	X	1
8	110-2	Telatemp (temperature recorder, 140° – 190°F)	X	1
9	A116-3	Input Shaft	O	1
10	A966-2	Seal	X	2
11	NAS1149F0432P	Washer	X	10
12	MS20074-04-06	Bolt (drilled head)	X	11
13	MS35769-8	Gasket	X	1
14	T102A	Chip Detector	X	1
15	B049-1	Wire Harness	X	2
16	A107-2	Output Shaft	O	1
17	D210-4	Nut	X	4
18	A141-11	Washer	X	1
19	NAS1149FN816P	Washer	X	2
20	MS27039C0806	Screw	X	2
21	A558-1	Cover – Transparent	X	1
22	A118-4	Spacer – Shim (0.020-inch thick)	X	A/R
	A118-5	Spacer – Shim (0.025-inch thick)	X	A/R
	A118-6	Spacer – Shim (0.032-inch thick)	X	A/R
23	NAS1149F0463P	Washer	X	5
24	NAS6604-8	Bolt	X	1
25	NAS6604-25	Bolt	X	1
26	NAS6604-10	Bolt	X	1
27	A120-1	Bellcrank	X	1
28	MS20002-4	Washer	X	2
29	A031-1**	Pitch Control Assembly (Incl items 30, 31, and 36)	X	1
30	A104-4**	Tail Rotor Pitch Bearing	O	1
31	A125-1**	Stud	O	1

NOTES * Ship S/N 0002 thru 3099.
 ** Must be returned to RHC as an assembly for replacement.

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
TAIL ROTOR GEARBOX INSTALLATION (Cont'd)				
65-11-32	NAS1149D0416J	Shim – Washer (0.016-inch thick)	X	A/R
	A117-21	Shim – Washer (0.020-inch thick)	X	A/R
	A117-22	Shim – Washer (0.025-inch thick)	X	A/R
33	A214-3	Washer	X	1
34	B330-13	Palnut	X	3
35	A257-2LT	Lubricant (one-liter bottle)	X	A/R
	A257-2	Lubricant (one-gallon bottle)	X	A/R
36	A647-6	Bearing – Tail Rotor Pitch Control (not shown)	O	2

NOTES

CHAPTER 67
FLIGHT CONTROLS

<i>Figure</i>	<i>Title</i>	<i>Page</i>
67-1	Cyclic Control System	67.0
67-7	Cyclic Grip Assembly	67.6
67-11	Cyclic Control System	67.10
67-15	Cyclic Friction Assembly	67.14
67-17	Adjustable Cyclic Spring Assembly	67.16
67-21	Collective Control System	67.20
67-27	A121-7 Push-Pull Tube Guide Installation	67.26
67-29	Swashplate Installation	67.28
67-33	Swashplate Installation	67.32
67-37	Swashplate Ball Installation	67.36
67-41	Tail Rotor Control System	67.40

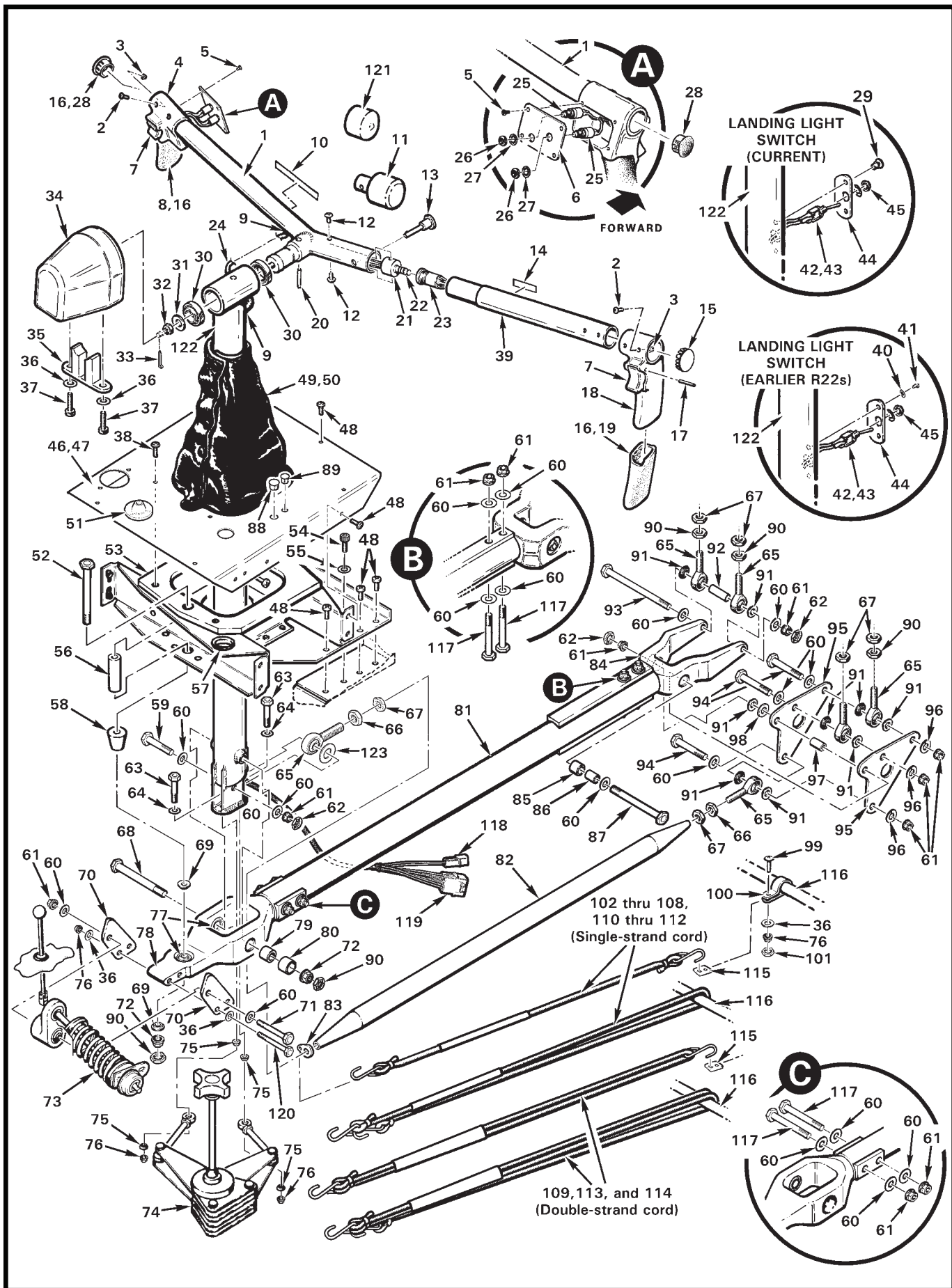


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
CYCLIC CONTROL SYSTEM*				
67-1-1	C058-5**	Grip Assembly – Cyclic (Incl items 2 thru 9, 12, 13, 15 thru 25, 28, and 39)	X	1
2	MS24694-S4	Screw	X	4
3	MS21042L08	Nut	X	4
4	D379-1	Grip (pilot)	X	1
5	MS24693-S2	Screw	X	4
6	C214-5	Plate – "Freq Xfer, User Freq"	X	1
7	U2-279	Trigger Switch	X	2
8	D379-2	Cover	X	1
9	MS35489-4	Grommet	X	2
10	A654-83	Decal – "Low-G Pushovers Prohibited" (earlier R22s)	X	1
11	C683-6	Damper (for use when co-pilot grip is removed; optional)	X	1
12	MS35206-241	Screw	X	2
13	B232-1	Pin	X	1
	B815-1	Pin (oversize; 0.1953/0.1973-inch dia hole)	X	1
	B815-2	Pin (oversize; 0.2170/0.2190-inch dia hole)	X	1
14	A654-43	Decal – "Solo From Right Seat Only" (earlier R22s)	X	1
15	B209-3	Plug (steel, 0.7813-inch dia)	X	1
16	B270-15	Adhesive	X	A/R
17	NAS1407N9L14	Pin	X	2
18	D690-1	Grip (co-pilot)	X	1
19	D690-2	Cover	X	1
20	B350-1	Spring Pin	X	1
21	A776-1	Mount	X	1
22	A781-1	Plug	X	1
	B158-2	Heat Shrink	X	A/R
23	TJT-120	Jack	X	1
	B158-2	Heat Shrink	X	A/R
	B158-3	Heat Shrink	X	A/R
24	B266-4	Sleeving	X	A/R
25	B227-2	Switch – Intercom ("Freq, Ch Sel", includes items 26 & 27)	X	2
	B158-6	Heat Shrink	X	A/R
26	B227-4	Dress Nut	X	1
27	B227-3	Lockwasher	X	1
28	2703	Hole Plug	X	1

NOTES * Ship S/N 2967 and subsequent.
 ** Ship S/N 2967 thru 4635. See Figure 67-7 for ship S/N 4636 and subsequent.

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
CYCLIC CONTROL SYSTEM (Cont'd)				
67-1-29	SR-3035B	Rivet	X	2
30	A647-2	Bearing	X	2
31	A141-14	Washer	X	1
32	MS17825-4	Nut	X	1
33	MS24665-69	Cotter Pin	X	1
34	C683-9*	Damper (For R22s without previously installed damper, order items 35 thru 37.)	X	1
35	C683-5	Clamp	X	1
36	NAS1149F0332P	Washer	X	4
37	NAS1352-3-14	Screw	X	2
38	MS27039C0808	Screw	X	3
39	C058-9	Grip Assembly – Cyclic Removable (Ship S/N 2967 and subsequent. Includes items 2, 3, 7, 13, 15 thru 19, and 23.)	X	1
40	MS35333-36**	Washer	X	2
41	MS35206-212**	Screw (Use B270-10 adhesive on threads; superseded by item 29.)	X	2
42	C049-9	Switch Assembly – Landing Light (Includes item 43, wires, heat shrink, and connector as an assembled unit.)	X	1
43	TT13D2T04	Switch (Incl items 45 and 27)	X	1
44	B306-4	Mount	X	1
45	298D01A56	Dress Nut	X	1
46	A444-13	Cover (Ship S/N 2670 and subsequent.)	X	1
47	A444-11	Cover (Ship S/N 2670 and subsequent with HSI installed. Not shown.)	X	1
48	MS27039C0806	Screw	X	21
49	A677-4	Boot (With snaps; may replace A677-1 boot without snaps. Install using item 50.)	X	1
50	B270-14	Adhesive	X	A/R
51	A589-1	Guide (Ref, for item 73; see Figure 67-17)		
52	NAS6605-56	Bolt	X	1
53	A338-9	Box Assembly	O	1
54	NAS1352-08-8P	Screw	X	2
55	NAS1149FN816P	Washer	X	2
56	A130-6	Spacer (1.940-inch length)	X	1
57	NAS557-6A	Grommet	X	1
58	A339-1	Spacer	X	1

NOTES * Optional on ship S/N 2967 and prior.
 ** Earlier R22s.

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
CYCLIC CONTROL SYSTEM (Cont'd)				
67-1-59	NAS6604-8	Bolt	X	1
60	NAS1149F0432P	Washer	X	14
61	D210-4	Nut	X	11
62	B330-13	Palnut	X	3
63	NAS6603-10	Bolt	X	2
64	NAS620-10L	Washer	X	4
65	A101-4	Rod End	X	6
66	B330-16	Palnut	X	2
67	AN316-5R	Nut	X	6
68	NAS1305-35	Bolt	X	1
69	A340-1	Spacer	X	2
70	A582-1	Plate	X	2
71	NAS1304-17	Bolt	X	1
72	D210-5	Nut	X	2
73	B056	Cyclic Spring Assembly (Ref, see Figure 67-17)		
74	A048	Cyclic Friction Assembly (Ref, see Figure 67-15)		
75	A341-1	Spacer	X	4
76	D210-3	Nut	X	6
77	A103-5	Bearing	O	2
78	A012-20	Pivot Assembly (includes [2] A103-5 spherical bearings)	X	1
79	C105-3	Journal (0.432 to 0.442-inch length)	X	1
80	08DU06	Bearing	O	2
81	A319-3	Torque Tube	X	1
82	A121-1	Push-Pull Tube Assembly (Incl items 65 thru 67, and 83)	X	1
83	A697-6	Tab	X	1
84	A012-19	Yoke Assembly (includes [1] A103-4 spherical bearing)	X	1
85	06DU06	Bearing	X	1
86	A105-6	Journal	X	1
87	NAS1304-35	Bolt	X	1
88	2613	Hole Plug	X	1
89	2603	Hole Plug	X	1
90	B330-16	Palnut	X	5
91	A115-1	Spacer	X	8
92	A130-10	Spacer	X	1
93	NAS6604-44	Bolt	X	1

NOTES

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
CYCLIC CONTROL SYSTEM (Cont'd)				
67-1-94	NAS6604-15	Bolt	X	3
95	A175-1	Bellcrank (for 1300-pound gross weight R22 & R22 HP)	X	2
	A958-1	Bellcrank (for 1370-pound gross weight Alpha, Beta, & Mariner)	X	2
96	B332-441	Lockwasher	X	3
97	A130-8	Spacer (0.63-inch length)	X	1
98	NAS1149F0463P	Washer	X	1
99	MS27039C1-08	Screw	X	1
100	AN742D12	Clamp	X	1
101	B330-7	Palnut	X	1
102	A918-1*	Elastic Cord (0.25-inch dia, load 6 lb)	X	1
103	A918-2*	Elastic Cord (0.25-inch dia, load 8 lb)	X	1
104	A918-3*	Elastic Cord (0.25-inch dia, load 10 lb)	X	1
105	A918-4*	Elastic Cord (0.25-inch dia, load 12 lb)	X	1
106	A918-5*	Elastic Cord (0.25-inch dia, load 14 lb)	X	1
107	A918-6*	Elastic Cord (0.25-inch dia, load 16 lb)	X	1
108	A918-7*	Elastic Cord (0.25-inch dia, load 18 lb)	X	1
109	A918-8*	Elastic Cord (0.25-inch dia, double strand; load 20 lb)	X	1
110	A918-9**	Elastic Cord (0.25-inch dia, load 12 lb)	X	1
111	A918-10**	Elastic Cord (0.25-inch dia, load 14 lb)	X	1
112	A918-11**	Elastic Cord (0.25-inch dia, load 16 lb)	X	1
113	A918-12**	Elastic Cord (0.25-inch dia, double strand; load 18 lb)	X	1
114	A918-13**	Elastic Cord (0.25-inch dia, double strand; load 20 lb)	X	1
115	A697-2	Plate	X	1
116	A315-1	Support (Ref)		
117	NAS6604-21	Bolt	X	4
118	B263-12	Housing (small)	X	1
	B263-1	Pin	X	2
119	B263-20	Housing (large)	X	1
	B263-1	Pin	X	9
120	NAS6603-18	Bolt	X	2
121	A959-5	End Cap (for use when co-pilot grip is removed)	X	1
122	A320-1	Cyclic Stick Assembly	X	1
123	A214-11	Washer (install either side of rod end [item 65])	X	1

NOTES * Load measured when stretched to operating length of 20.1 inches.
 ** Load measured when stretched to operating length of 43.4 inches.

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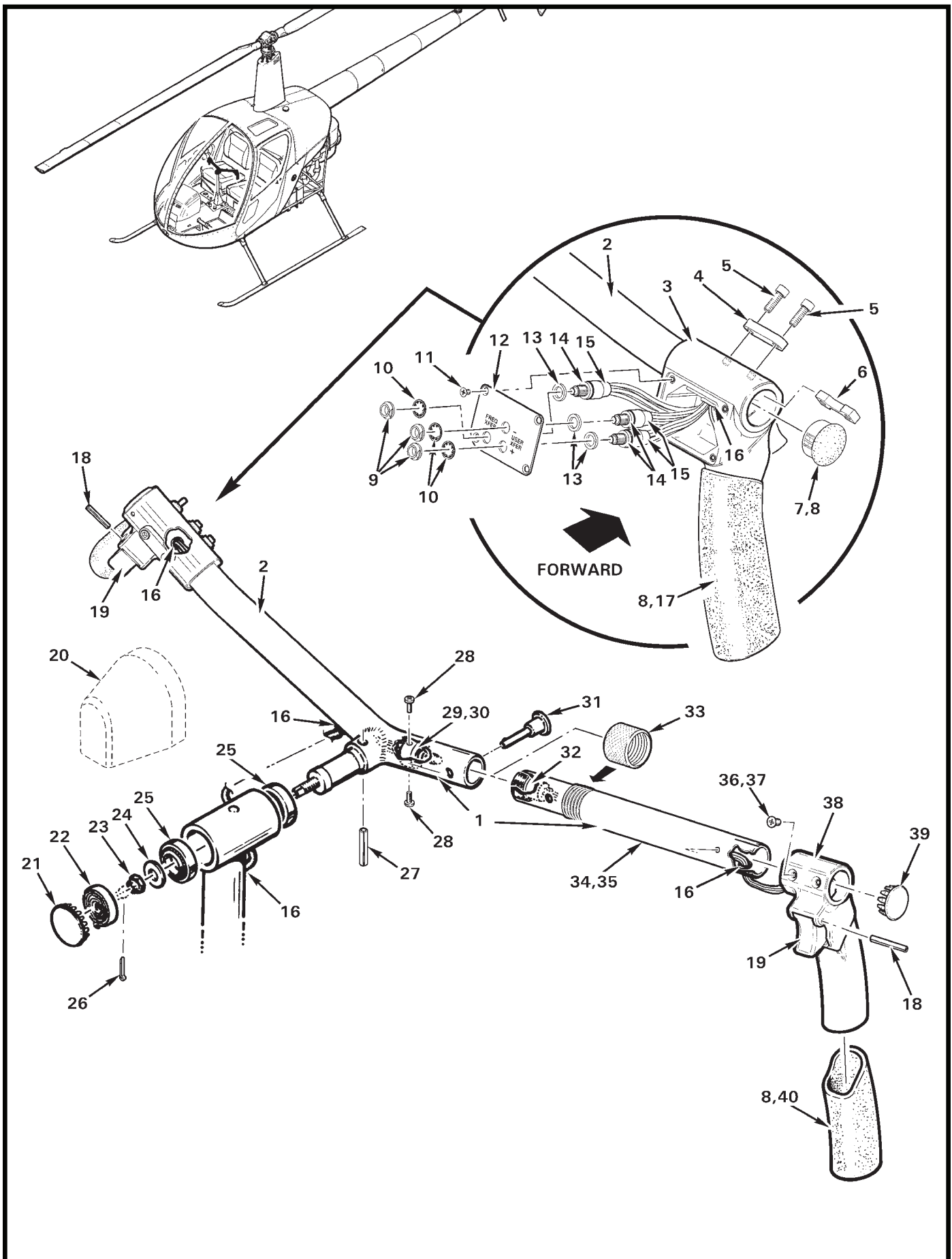


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
CYCLIC GRIP ASSEMBLY				
67-7-1	C058-5*	Grip Assembly – Cyclic (Incl items 2 thru 8, 11, 12, 14 thru 19, 27 thru 34, and 36 thru 40)	X	1
2	A756-18	Grip Weldment	X	1
3	D379-1	Grip	X	1
4	D443-5	Bar	X	1
5	NAS1352-08-8	Screw	X	2
6	D443-3	Block Assembly	X	1
7	2703	Hole Plug (install using item 8)	X	1
8	B270-15	Adhesive	X	A/R
9	B227-4	Dress Nut	X	1
10	B227-3	Lockwasher	X	1
11	MS24693-S1	Screw	X	4
12	C214-23	Plate	X	1
13	94773A770	Washer	X	1
14	B227-2	Switch Assembly (Incl items 9, 10, and 13)	X	3
15	B158-6	Heat Shrink	X	A/R
16	MS35489-4	Grommet	X	4
17	D379-2	Cover (install using item 8)	X	1
18	NAS1407N9L14	Pin	X	2
19	U2-279	Trigger Switch	X	2
20	C683-9	Damper (Ref, see Figure 67-1)		
21	B209-4	Plug	X	1
22	D684-1	Spring	X	1
23	MS17825-5	Nut	X	1
24	A141-40	Washer	X	1
25	A647-2	Bearing	X	2
26	MS24665-69	Cotter Pin	X	1
27	B350-1	Spring Pin	X	1
28	MS35206-241	Screw	X	2
29	A776-1	Mount	X	1
30	A781-1	Plug	X	1
31	B232-1	Pin	X	1
32	TJT-120	Jack	X	1
33	A321-22	Collar	X	1
34	A321-21	Tube	X	1

NOTES * Ship S/N 4636 and subsequent.

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
CYCLIC GRIP ASSEMBLY (Cont'd)				
67-7-35	C058-9	Grip Assembly – Co-Pilot (Incl items 8, 18, 19, 31 thru 34, and 36 thru 40; for spares)	X	1
36	MS24694-S3	Screw	X	2
37	MS21042L08	Nut	X	2
38	D690-1	Grip	X	1
39	B209-3	Plug	X	1
40	D690-2	Cover (install using item 8)	X	1

NOTES

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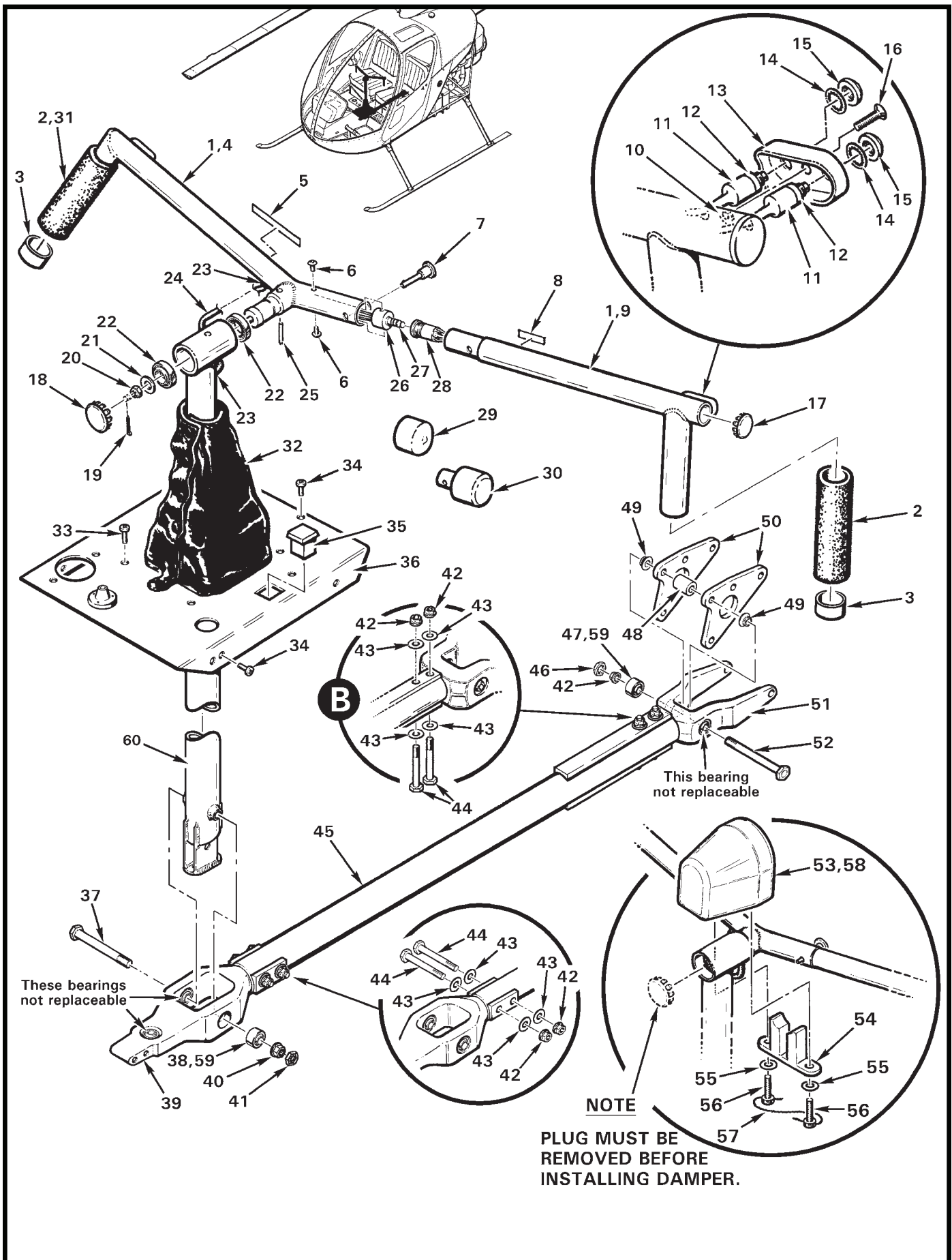


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
CYCLIC CONTROL SYSTEM*				
67-11-1	A012-9	Grip Assembly – Cyclic (Incl items 2 thru 19, 11 thru 13, 16, 17, 23 thru 28, and 31)	X	1
2	A601-2	Grip (install using item 31)	X	2
3	A959-6	Cap	X	2
4	A756-1	Cyclic Grip (RH [pilot], Ref; includes item 10)	O	1
5	A654-83	Decal – “Low-G Pushovers Prohibited”	X	1
6	MS35206-241	Screw	X	2
7	B232-1	Handle Pin	X	1
	B815-1	Pin – Oversize (0.1953/0.1973-inch dia hole)	X	1
	B815-2	Pin – Oversize (0.2170/0.2190-inch dia hole)	X	1
8	A654-43	Decal – “Solo From Right Seat Only”	X	1
9	A756-2	Cyclic Grip (LH [co-pilot], plain; includes item 10)	X	1
10	NAS1329H08K75L	Rivnut	X	1
11	B158-6	Heat Shrink	X	A/R
12	B227-2	Switch (COM, includes items 14 and 15)	X	4
13	A216-1	Housing	X	2
14	B227-3	Lock Washer	X	1
15	B227-4	Dress Nut	X	1
16	MS24693-S51	Screw	X	2
17	SS51334	Hole Plug	X	1
18	SS51149	Plug	X	1
19	MS24665-69	Cotter Pin	X	1
20	MS17825-4	Nut	X	1
21	A141-14	Washer	X	1
22	A647-2	Bearing	X	2
23	MS35489-4	Grommet	X	2
24	B266-4	Sleeving (expandable)	X	A/R
25	B350-1	Spring Pin	X	1
26	A776-1	Mount	X	1
27	A781-1	Connector Plug	X	1
28	TJT-120	Connector Jack	X	2
29	A959-5	End Cap (for use when co-pilot grip [item 9] is removed)	X	1
30	C683-6	Damper (for use when co-pilot grip [item 9] is removed; optional)	X	1
31	B270-15	Adhesive	X	A/R
32	A677-4	Boot (with snaps; may replace A677-1 boot without snaps)	X	1

NOTES * Ship S/N 2966 and prior. See also Figure 67-1.

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
CYCLIC CONTROL SYSTEM (Cont'd)				
67-11-33	MS27039C0808	Screw (Ref)	X	4
34	MS27039C0806	Screw (Ref)		
35	FP-161	Plug	X	1
36	A444-1	Cover (ship S/N 0001 thru 2570, includes item 35)	X	1
	A444-7	Cover (ship S/N 2571 thru 2599, includes item 35)	X	1
	A444-9	Cover (ship S/N 2600 thru 2966, includes item 35)	X	1
37	NAS1305-35	Bolt (do not substitute)	X	1
38	A103-5	Bearing (install using item 59)	X	3
39	A177-4	Pivot (Ref)		
40	D210-5	Nut	X	1
41	B330-16	Palnut	X	1
42	D210-4	Nut	X	5
43	NAS1149F0432P	Washer	X	8
44	NAS6604-21	Bolt	X	4
45	A319-3	Torque Tube Assembly	X	1
46	B330-13	Palnut	X	1
47	A103-4	Bearing (install using item 59)	X	2
48	A130-8	Spacer	X	1
49	A137-1	Spacer	X	2
50	A175-1	Bellcrank (low-gross weight ships)	X	1
	A958-1	Bellcrank (high-gross weight ships)	X	1
51	A176-4	Yoke (Ref)		
52	NAS1304-35	Bolt (do not substitute)	X	1
53	C683-8	Damper (Ref, no longer available; see Figure 67-1)		
54	C683-5	Clamp	X	1
55	NAS1149F0332P	Washer	X	2
56	NAS1352-3H14	Screw	X	2
57	MS20995C32	0.032-inch dia Safety Wire	X	A/R
58	B414-1	Damper Installation (Ref, no longer available; see Figure 67-1)		
59	B270-10	Adhesive	X	A/R
60	A320-1	Cyclic Stick Assembly	X	1

NOTES

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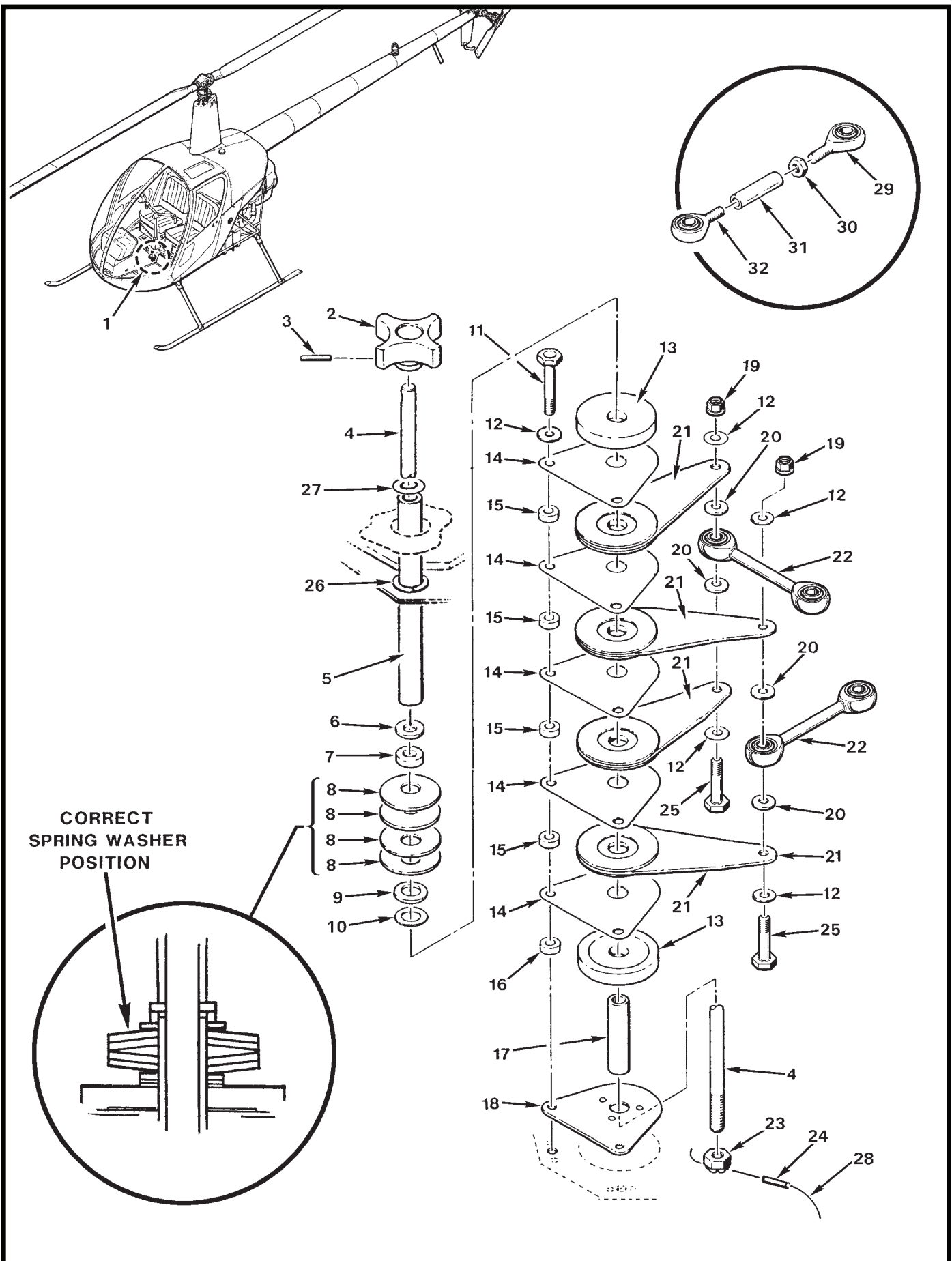


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
CYCLIC FRICTION ASSEMBLY				
67-15-1	A048-1	Cyclic Friction Assembly (Incl items 4 thru 25)	X	1
2	A499-2*	Knob	X	1
3	MS16562-35	Spring Pin	X	1
4	A494-1	Shaft	X	1
5	A130-19*	Spacer	X	1
6	NAS1149F0463P	Washer	X	1
7	A130-18*	Spacer	X	1
8	A478-1	Spring Washer	X	4
9	NAS1149F0632P	Washer	X	1
10	NAS1149D0616J	Washer	X	A/R
11	NAS6603-15	Bolt	X	2
12	NAS1149F0332P	Washer	X	6
13	A497-1	Washer	X	2
14	A496-3	Plate	X	5
15	A130-20	Spacer	X	8
16	A130-21	Spacer	X	2
17	A105-10	Journal	X	1
18	A496-2	Plate (Ref)		
19	D210-3	Nut	X	2
20	NAS1149F0363P	Washer	X	4
21	A048-2	Arm Assembly	X	4
22	B564-1	Link	X	2
23	MS17825-4	Nut	X	1
24	MS16562-14	Spring Pin	X	1
25	NAS6603-9	Bolt	X	2
26	NAS557-6A	Grommet	X	1
27	NAS1149F0432P	Washer (or NAS1149F0463P for proper friction)	X	A/R
28	MS20995C32	0.032-inch dia Safety Wire	X	A/R
29	A127-3	Rod End (male)	X	2
30	AN315-3R	Nut	X	2
31	A430-2	Tube	X	2
32	A498-1	Rod End	X	2

NOTES * Ships before S/N 0428 require all noted items when any one is ordered.

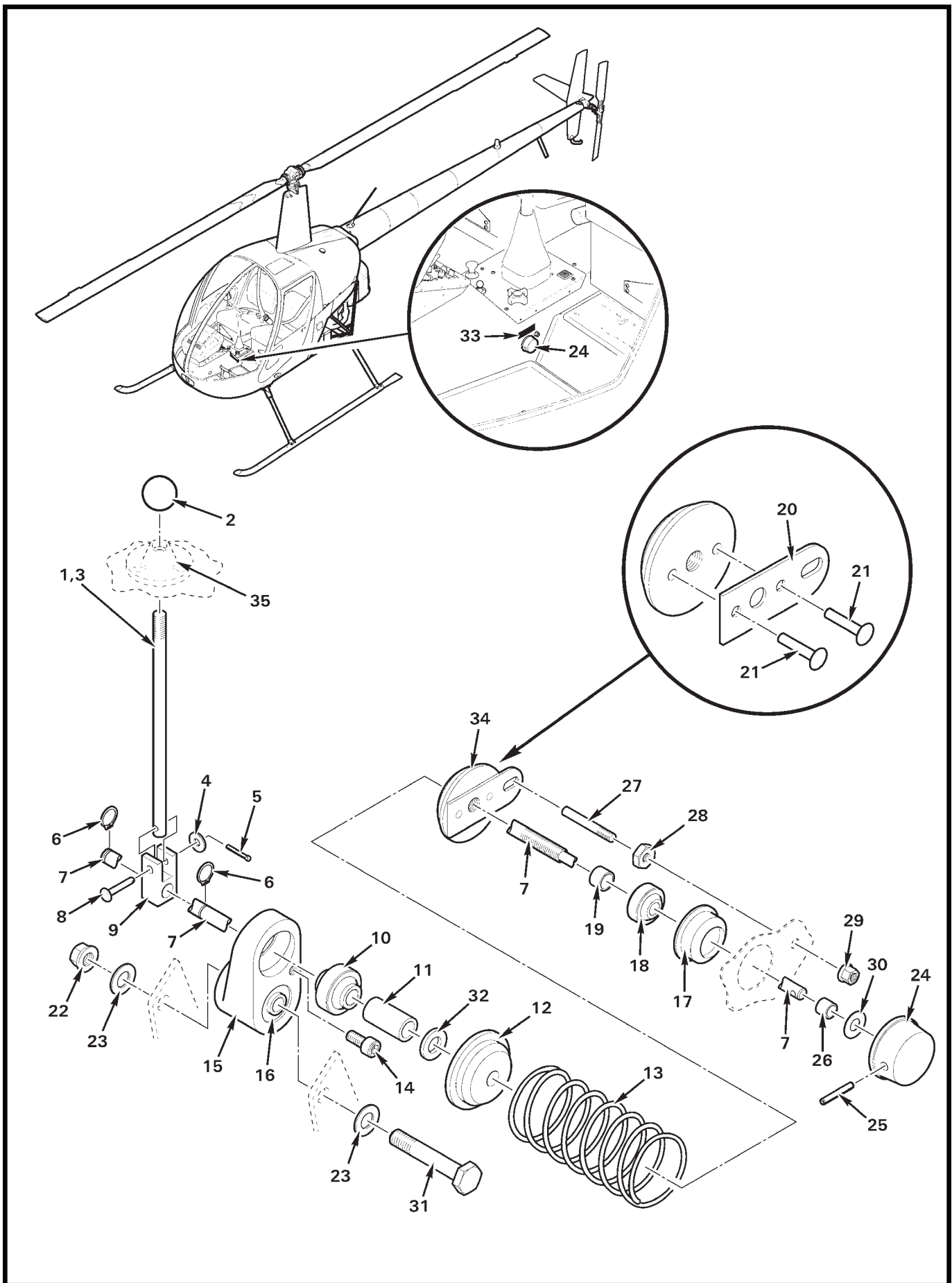


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
ADJUSTABLE CYCLIC SPRING ASSEMBLY				
67-17-1	B056-1 *	Cyclic Spring Assembly (Incl items 3 thru 21, and 34)	X	1
	B056-2 *	Cyclic Spring Assembly (Incl items 3 thru 21, and 34)	X	1
2	4901B	Knob	X	1
3	A587-2	Stem	X	1
4	NAS1149FN432P	Washer	X	1
5	MS24665-132	Cotter Pin	X	1
6	MS16624-2025	Retaining Ring	X	2
7	A585-2	Shaft	X	1
8	MS20392-1C13	Pin	X	1
9	A586-2	Fork	X	1
10	B303-1	Bearing	X	1
11	A588-1	Spacer	X	1
12	A583-1	Cap	X	1
13	A618-1	Spring – Cyclic (primer, 10.7 in.-lb for B056-1 assembly) . . .	X	1
	A618-2	Spring – Cyclic (black, 14.5 in.-lb for B056-2 assembly)	X	1
14	NAS1352-08LE6P	Screw	X	1
15	A581-1	Arm	X	1
16	C647-17	Bearing (Ref)		
17	A584-1	Bearing Support	X	1
18	A104-3	Bearing	X	1
19	A130-46	Spacer	X	1
20	A594-1	Tab	X	1
21	MS20470AD3-7	Rivet	X	2
22	D210-4	Nut	X	1
23	NAS1149F0432P	Washer	X	2
24	A483-1	Knob	X	1
25	MS16562-27	Spring Pin	X	1
26	A130-45	Spacer	X	1
27	B160-1	Pin	X	1
28	B301-8	Nut (or AN340B8)	X	1
29	MS21042L08	Nut	X	1
30	NAS1149D0316J	Washer	X	A/R
31	NAS6604-17	Bolt	X	1
32	NAS1149F0463P	Washer (or NAS1149F0432P; refer to R22 MM for proper shimming at this location)	X	A/R

NOTES * B056-1, -2 with KI-41 kit replaces A056-1, -2 for ship S/N 0002 thru 0549.

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
ADJUSTABLE CYCLIC SPRING ASSEMBLY (Cont'd)				
67-17-33	A654-63	Decal (cyclic trim adjust)	X	1
34	A583-2	Cap (requires items 20 and 21)	X	1
35	A589-1	Guide (Ref)		
NOTES				

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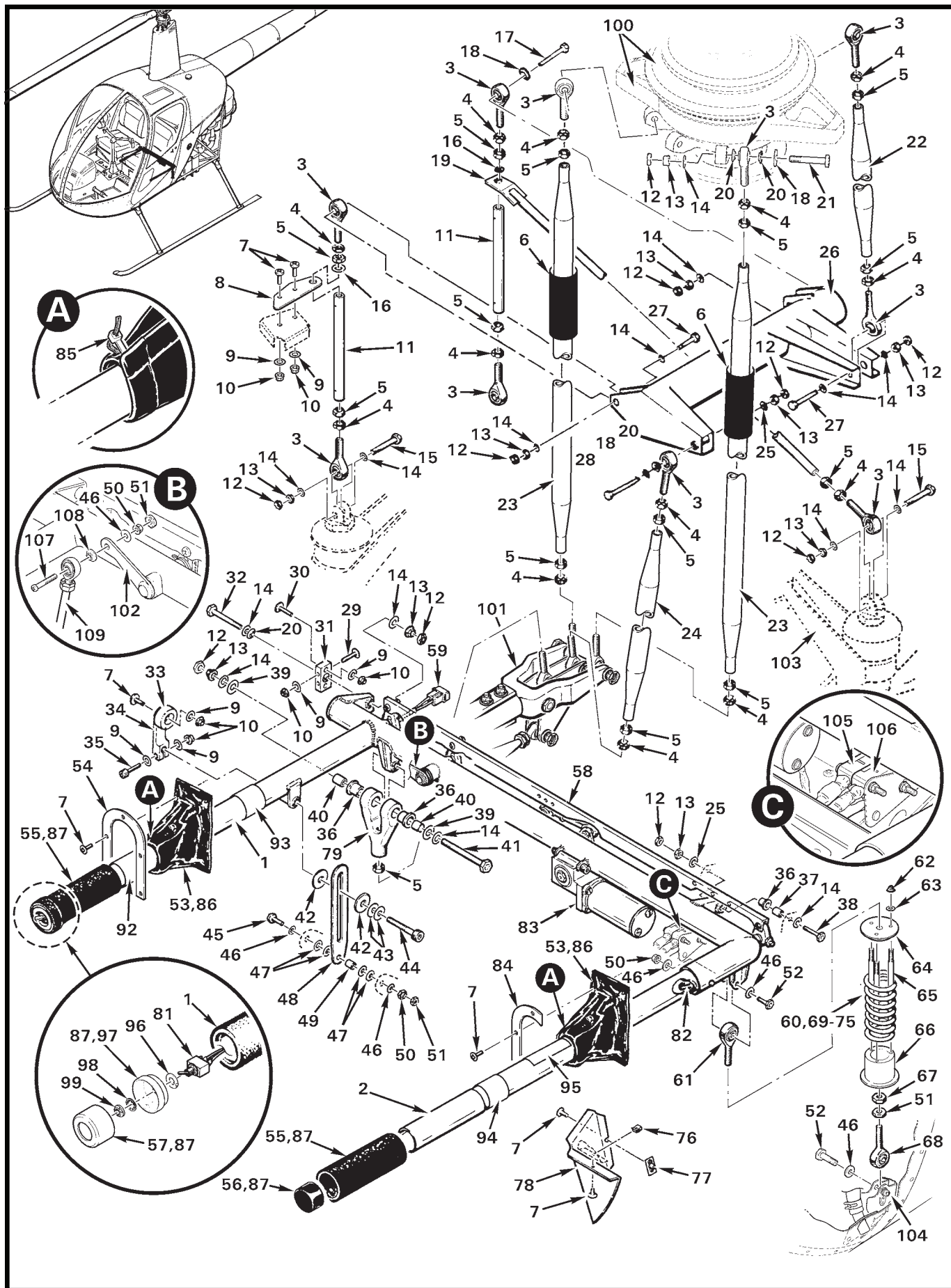


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
		COLLECTIVE CONTROL SYSTEM		
67-21-1	A758-6	Stick Assembly (RH [pilot] assembly. Includes items 36, 46, 50, 52, 55, 57 thru 59, 60 [A038-6], 81, 83, 87, 92, 93, 95, and 103.)	X	1
2	A758-5	Stick Assembly (LH [co-pilot] removable assembly. Includes items 55, 56, 82, 94, and 95.)	X	1
	A758-7	Stick Sub-Assembly (RH [pilot] assembly, provision for governor. Includes items 36, 46, 50, 52, 55, 57 thru 59, 60, 80, 81, 87, 92, 93, 95, and 103.)	X	1
3	A101-4	Rod End	X	10
4	B330-16	Palnut	X	10
5	AN316-5R	Nut	X	10
6	A143-4	Sleeve (push-pull tube)	X	1
7	MS27039C0806	Screw	X	13
8	A437-2	Tab	X	1
9	NAS1149FN816P	Washer	X	9
10	MS21042L08	Nut	X	9
11	A343-1	Strut	X	2
12	B330-13	Palnut	X	10
13	D210-4	Nut	X	10
14	NAS1149F0432P	Washer	X	A/R
15	NAS6604-8	Bolt	X	2
16	NAS1149F0532P	Washer	X	2
17	NAS6604-21	Bolt	X	1
18	A214-3	Washer	X	3
19	A347-5	Strut Assembly	X	1
20	A115-1	Spacer	X	4
21	NAS6604-17	Bolt	X	3
22	A121-5*	Push-Pull Tube Assembly (Incl items 3 thru 5, [2] of each) . . .	X	1
23	A121-7*	Push-Pull Tube Assembly (Incl items 3 thru 6, [1] of each) . . .	X	2
24	A121-3*	Push-Pull Tube Assembly (Incl items 3 thru 5, [1] of each) . . .	X	1
25	NAS1149F0463P	Washer	X	2
26	A337-1	Jackshaft Assembly	X	1
27	NAS6604-7	Bolt	X	2
28	NAS6604-23	Bolt	X	1
29	MS27039C0822	Screw	X	2
30	MS27039C0812	Screw	X	2

NOTES * Push-pull tube rod ends are installed with B270-21 protectant on threads.

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
COLLECTIVE CONTROL SYSTEM (Cont'd)				
67-21-31	A329-1	Bearing Block Assembly	X	1
32	NAS6604-18	Bolt	X	1
33	A431-1	Knob	X	1
34	A332-2	Lever	X	1
35	NAS1352-08-12P	Screw	X	1
36	A139-1	Bearing	X	3
37	A105-6	Journal (0.625-inch length)	X	1
38	NAS6604-11	Bolt	X	1
39	A141-3	Washer	X	2
40	A105-3	Journal (0.522 to 0.525-inch length)	X	2
41	NAS6604-30	Bolt	X	1
42	A141-20	Washer	X	2
43	B0500-022-S	Belleville Washer	X	2
44	NAS1352-4-24P	Screw	X	1
45	NAS6603-5	Bolt	X	1
46	NAS1149F0332P	Washer	X	6
47	NAS1149F0432P	Washer (or NAS1149F0463P as required)	X	A/R
48	A333-1	Stop	X	1
49	A130-4	Spacer (0.250-inch length)	X	1
50	D210-3	Nut	X	3
51	B330-7	Palnut	X	3
52	NAS6603-6	Bolt	X	2
53	A678-1	Boot (includes item 85, install using item 86)	X	2
54	A680-2	Ring – Collective Boot (RH stick)	X	1
55	A601-1	Grip (install using item 87)	X	2
56	A959-1	End Cap (collective, LH)	X	1
57	A959-2	End Cap	X	1
58	B328-1	Connecting Rod Assembly (Ref)		
59	B263-32	Housing	X	1
	B263-1	Pin	X	2
60	A038-5*	Spring Assembly – Collective (weak; includes items 51, 61 thru 68, and 71)	X	1
	A038-6*	Spring Assembly – Collective (standard; includes items 51, 61 thru 68, and 73)	X	1
	A038-7	Spring Assembly – Collective (strong; includes items 51, 61 thru 68, and 74)	X	1

NOTES * A038-5 spring assembly replaces A038-2 assembly, A038-6 spring assembly replaces A038-1, -3, and -4 assemblies. A429-1, -2, and -4 collective springs are available for replacement on earlier R22s with A038-1, -2, -3, and -4 spring assemblies.

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
COLLECTIVE CONTROL SYSTEM (Cont'd)				
67-21-61	B292-3	Rod End (left-hand thread)	X	1
62	MS21042L06	Nut	X	3
63	NAS1149FN632P	Washer	X	3
64	A426-5	Cap – Upper (left-hand thread)	X	1
65	A428-1	Rod	X	3
66	A426-6	Cap – Lower	X	1
67	AN315-3R	Nut	X	3
68	A127-3	Rod End	X	1
69	A429-1*	Spring – Collective (90 in.-lb, silver; 3.40 inches free length) . .	X	1
70	A429-2*	Spring – Collective (35 in.-lb, chromate; 3.83 inches free length)	X	1
71	A429-3	Spring – Collective (weak; 50 in.-lb, gray; 3.70 inches free length)	X	1
72	A429-4*	Spring – Collective (70 in.-lb, black; 3.50 inches free length) . .	X	1
73	A429-5	Spring – Collective (standard; 50 in.-lb, gold; 4.05 inches free length)	X	1
74	A429-8	Spring – Collective (strong; 71 in.-lb, white; 3.75 inches free length)	X	1
75	A429-10	Spring – Collective (114 in.-lb, chromate; 3.55 inches free length, for spares)	X	1
76	B162-3	Clipnut	X	1
77	A231-4	Anchor	X	1
78	A473-1	Guard	X	1
79	A205-1	Fork Assembly	X	1
80	C342-1	Arm	X	1
81	B280-1	Switch Assembly	X	1
82	A795-7	Pin Assembly	X	1
83	B247-5	Governor Assembly (Ref, see Figure 96-21)		
84	A680-1	Ring (LH stick)	X	1
85	MS3367-5-0	Ty-Rap	X	2
86	B270-14	Adhesive	X	A/R
87	B270-15	Adhesive	X	A/R
88	AN525-832R16	Screw	X	1
89	A327-1	Overtravel Spring Assembly (Ref, see Figure 76-1)		
90	MS20995C32	0.032-inch dia Safety Wire	X	A/R
91	MS16562-18	Spring Pin	X	1

NOTES * A038-5 spring assembly replaces A038-2 assembly, A038-6 spring assembly replaces A038-1, -3, and -4 assemblies. A429-1, -2, and -4 collective springs are available for replacement on earlier R22s with A038-1, -2, -3, and -4 spring assemblies.

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
COLLECTIVE CONTROL SYSTEM (Cont'd)				
67-21-92	A654-79	Decal — "Gov, On-Off"; "Throttle Open"	X	1
93	A654-7	Decal — "Friction Increase"	X	1
94	A654-6	Decal — "Throttle Open"	X	1
95	A654-21	Decal — "No Stowage Keep Area Clear"	X	2
96	B227-5	Locking Ring	X	1
97	B252-4	Mount (install using item 87)	X	1
98	B227-5	Lockwasher	X	1
99	B227-4	Dress Nut	X	1
100	A017	Swashplate Assembly (Ref, see Figure 67-29)		
101	A012-2	Cyclic Pivot Assembly (Ref, see Figure 67-1)		
	A012-14	Cyclic Pivot Assembly (Ref, see Figure 67-1)		
102	C341-3	Arm Weldment (Ref, see Figure 76-1)		
103	A006	Main Rotor Gearbox (Ref, see Figure 63-1)		
104	A467-1	Support Assembly – Collective Spring Assembly (Ref)		
105	V3-1	Switch (Ref, hourmeter; see Figure 96-25)		
106	V3-1	Switch (Ref, low RPM horn; see Figure 96-25)		
107	A486-4	Screw	X	1
108	A341-1	Spacer	X	1
109	A327-1	Overtravel Spring Assembly (Ref, see Figure 76-1)		
* * *				
110	KI-180	Removable Collective Stick Retaining Pin Field Modification Kit (Incl items 82, 111, and 112)	X	1
111	A139-1	Bearing (not shown)	X	1
112	MS16562-25	Spring Pin (not shown)	X	1

NOTES

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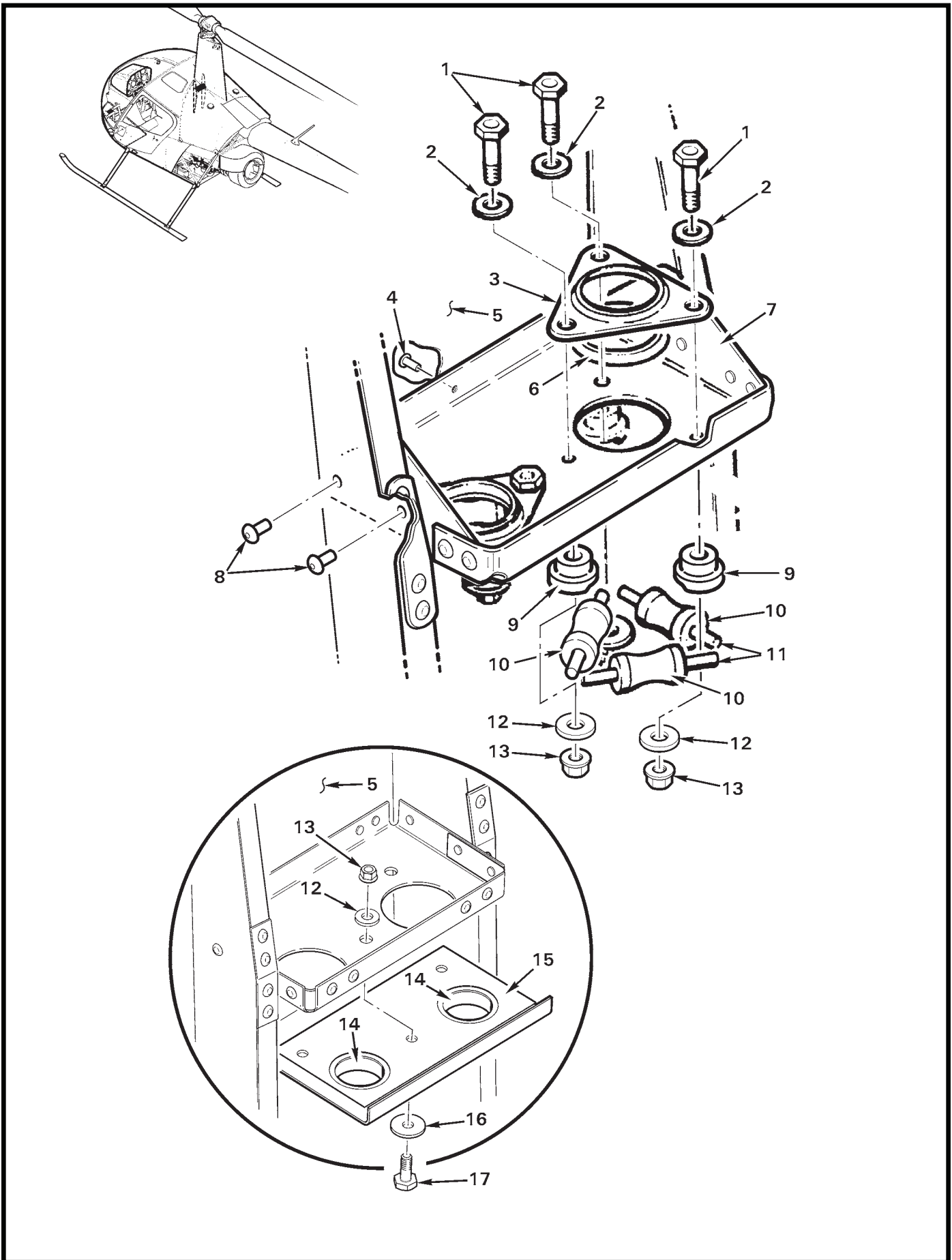


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
A121-7 PUSH-PULL TUBE GUIDE INSTALLATION				
67-27-1	NAS6603-7	Bolt	X	6
2	NAS1149F0332P	Washer	X	6
3	C439-8	Retainer	X	2
4	MS20470AD3	Rivet (forward, at A259 bulkhead assembly)	X	3
5	A259	Bulkhead Assembly (Ref)		
6	C439-9	Bushing	X	2
7	B439-1	Guide Assembly – Push-Pull Tube (Incl items 1 thru 3, 6, 9, and 10 thru 13)	X	1
8	MS20470AD4	Rivet	X	4
9	C439-3	Spacer	X	6
10	C439-4	Roller	X	6
11	C439-5	Pin	X	6
12	NAS1149F0363P	Washer	X	6
13	D210-3	Nut	X	6
14	A230-2	Bushing	X	2
15	A432-1*	Guide Assembly – Push-Pull Tube (Ref, superseded by item 7)		
16	A141-17	Washer	X	3
17	AN3-4A	Bolt	X	3
18	KI-130*	Guide Installation Kit (Incl items 4 [3], 7, and 8 [6])	X	1

NOTES * Ship S/N 0002 thru 2799.

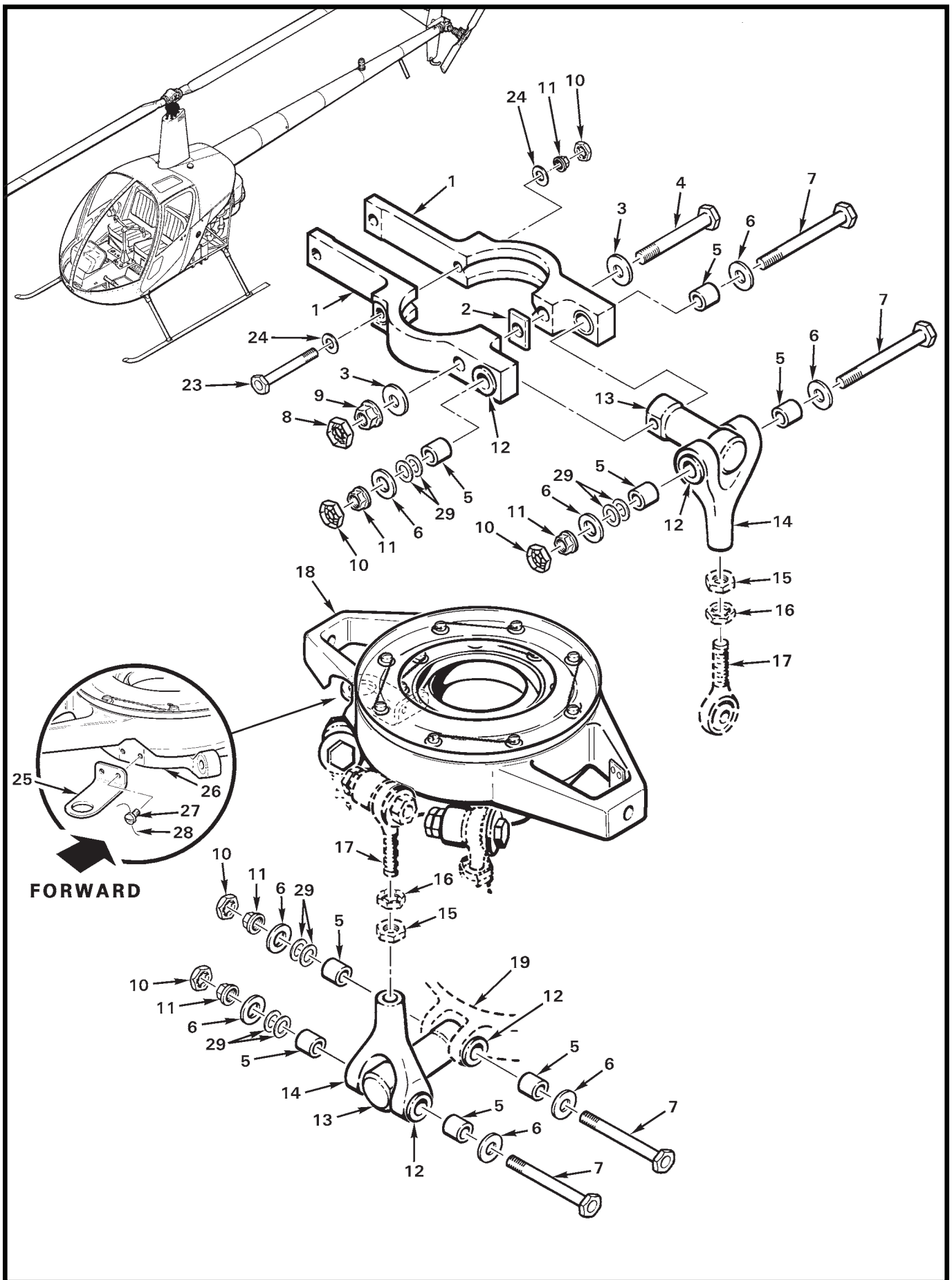


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
SWASHPLATE INSTALLATION*				
67-29-1	A203-8	Yoke Half Assembly (includes A203-9 yoke and item 12) . . .	X	2
	A203-9	Yoke Half (Ref)	O	1
2	A210-1	Key	X	1
3	NAS1149F0532P	Washer	X	1
4	NAS6605-28	Bolt	X	1
5	A105-17	Journal (0.436-inch O.D. x 0.526-inch length)	X	8
6	A141-43	Washer	X	8
7	NAS6604-31	Bolt	X	4
8	B330-16	Palnut	X	1
9	D210-5	Nut	X	4
10	B330-13	Palnut	X	5
11	D210-4	Nut	X	4
12	C648-2	Bearing	X	8
13	A204-1	Arm (Ref, see Figure 67-33)	X	2
14	A205-9	Fork Assembly (includes A205-10 fork and item 12)	X	2
	A205-10	Fork (Ref)	O	1
15	AN316-5R	Nut (Ref, see Figure 67-33)		
16	B330-16	Palnut (Ref, see Figure 67-33)		
17	B163-1	Rod End (Ref, see Figure 67-33)		
18	A017-2	Swashplate Sub-Assembly (Ref, see Figure 67-33)		
19	A283-5	Mast Assembly (Ref; see Figure 63-1)		
20	A017-1.CS	Swashplate Assembly (Includes items 1 thru 5, 7 thru 11, 13, and 14. Also includes items 2, 3, 15, 17 thru 21, 23 thru 27, 33, 38, 40, 52, and 53 from Figure 67-33; items 2, 4, and 5 from Figure 63-5. Ship S/N 3539 and prior, also order item 21 or 22.)	X	1
21	R8016	A017 Swashplate Kit (ship S/N 3539 and prior with A139-1 plastic bearing installed in A283 mast assembly)	X	1
22	R8017	A017 Swashplate Kit (ship S/N 3539 and prior with B115-1 spherical bearings installed in A283 mast assembly)	X	1
23	NAS6604-24	Bolt	X	1
24	NAS1149F0432P	Washer	X	2
25	B769-1	Bracket – Magnetic Pickup (subsequent ship S/Ns)	X	1
26	A198-1	Swashplate – Lower (Ref)		
27	AN503-8-4	Screw	X	2
28	MS20995C20	0.020-inch dia Safety Wire	X	A/R

NOTES * Original equipment on ship S/N 3540 and subsequent.

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
SWASHPLATE ASSEMBLY (Cont'd)				
67-29-29	A117-45*	Shim (thickness = 0.016-inch)	X	A/R
	A117-46*	Shim (thickness = 0.020-inch)	X	A/R
	A117-47*	Shim (thickness = 0.025-inch)	X	A/R
30	R8245	A283-5 Mast Tube Upgrade Kit (For A006-1 to -6 upgrades. Includes items 5 thru 7, 10, 11, and 29.)	X	A/R

NOTES * Select a combination to provide 0.005-inch maximum axial play.

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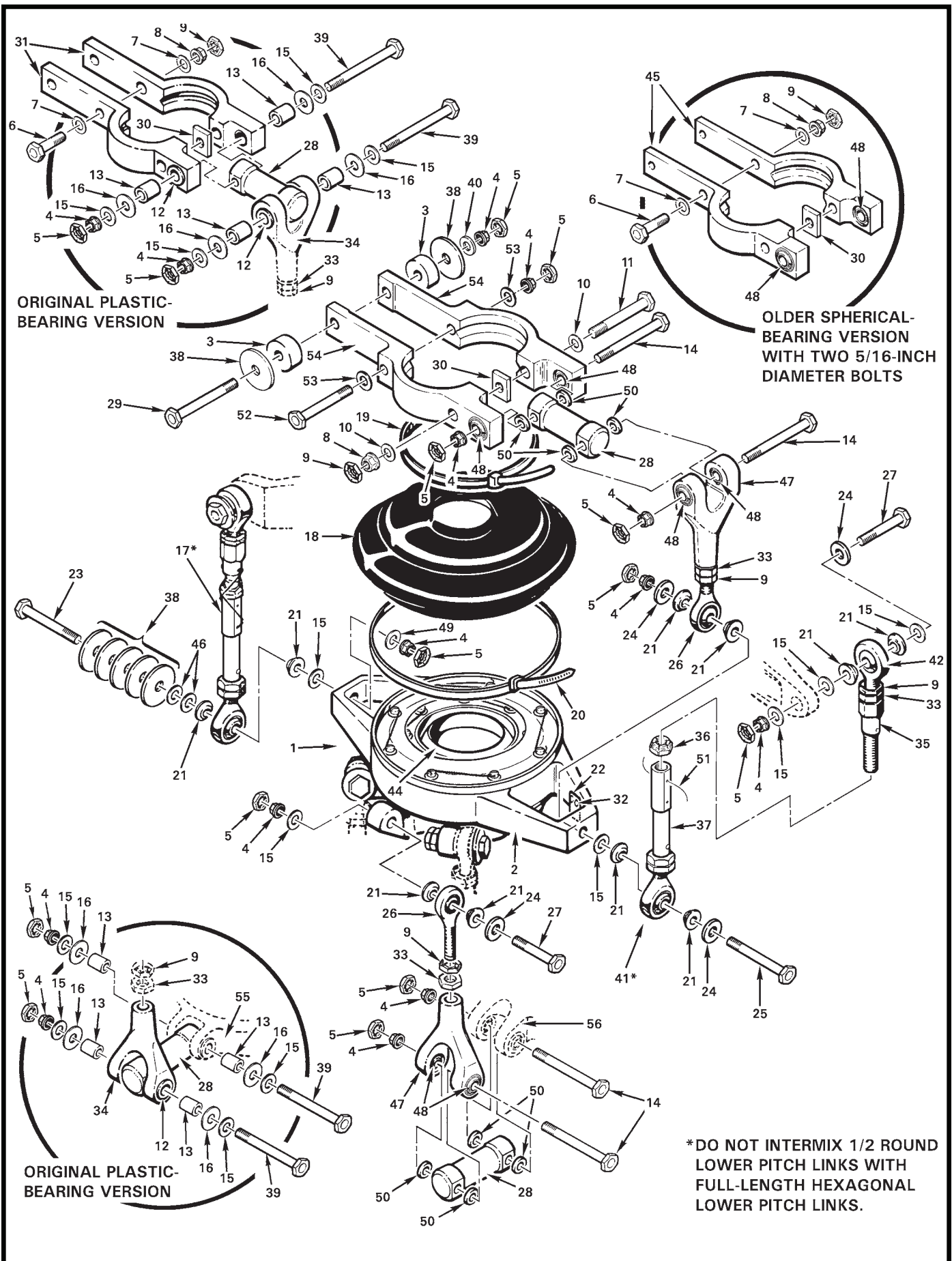


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
SWASHPLATE INSTALLATION*				
67-33-1	A017-1.CS	Swashplate Assembly (Ref; see Figure 67-29)		
2	A017-2	Swashplate Sub-Assembly (Includes items 22 and 32, upper and lower swashplates, item 44, and all internal components.)	X	1
3	A255-1	Counter Weight (1.10-inch O.D.)	X	A/R
	A255-2	Counter Weight (1.90-inch O.D.)	X	A/R
4	D210-4	Nut	X	14
5	B330-13	Palnut	X	12
6	NAS6605-8	Bolt	X	1
7	NAS1149F0532P	Washer	X	2
8	D210-5	Nut	X	2
9	B330-16	Palnut	X	4
10	NAS1149F0532P**	Washer (or NAS1149F0563P)	X	2
11	NAS6605-28	Bolt	X	1
12	A139-1	Bearing	X	4
13	A105-11	Journal (0.374-inch O.D. x 0.547-inch length)	X	4
14	NAS1304-28	Bolt	X	4
15	NAS1149F0432P	Washer	X	A/R
16	A141-3	Washer	X	8
17	A258-1	Pitch Link Assembly (Incl items 9, 33, 35, 36, 41, and 42) . .	X	2
18	A480-1	Boot	X	1
19	MS3367-7-9	Ty-Rap	X	1
20	MS3367-6-0	Ty-Rap	X	1
21	A115-1	Spacer	X	18
22	A769-3	Interrupter – Magnetic Pickup	X	1
23	NAS6604-22	Bolt	X	1
24	A214-3	Washer	X	8
25	NAS6604-27	Bolt	X	1
26	B163-1	Rod End	X	2
27	NAS6604-17	Bolt	X	6
28	A204-1	Arm – Scissor	X	2
29	NAS6604-15 to -31	Bolt**	X	1
30	A210-1	Key	X	1
31	A203-1	Yoke Half Assembly (with A139-1 bearing, Ref; superseded by item 45)		
32	MS20470AD3-8	Rivet	X	2

NOTES * Original equipment on Ship S/N 3539 and prior.
 ** Select hardware which, after correct torque is applied, exposes 2 to 4 threads beyond nut.

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
SWASHPLATE INSTALLATION (Cont'd)				
67-33-33	AN316-5R	Nut	X	2
34	A205-1	Fork Assembly (includes A205-2 fork and item 12)	X	2
	A205-2	Fork (Ref)		
35	A258-2	Fitting	X	1
36	21FKF-616	Nut	X	1
37	A258-3	Link (Ref, to replace order item 41)		
38	AN970-4	Washer ([5] required at this location)	X	5
39	NAS6604-30	Bolt	X	4
40	NAS1149F0432P	Washer (or NAS1149F0463P)	X	A/R
41	A258-4	Pitch Link Sub-Assembly (Includes items 9 [1], 33 [1], 37, 42 [1], and rivet.)	X	1
42	B163-1	Rod End	X	1
43	A769-2	Interrupter (Optional; for use with Strobex Model 135M-10 series, not shown.)	X	1
44	B149-1	Swashplate Ball Assembly (Ref, see Figure 67-37)		
45	A203-5	Yoke Half Assembly (Ref, includes A203-4 yoke half and item 48. Superseded by item 54.)		
	A203-4	Yoke Half (Ref)		
46	NAS1149F0432P	Washer ([2] required at this location)	X	2
47	A205-3	Fork Assembly (includes A205-4 fork and item 48)	X	1
	A205-4	Fork (Ref, fork only)	O	1
48	B115-1	Bearing	X	2
49	NAS1149F0432P	Washer (select washer(s) which, after correct torque is applied, exposes 2 to 4 threads beyond nut; [1] minimum)	X	A/R
50	A130-47	Spacer (0.438-inch OD x 0.097-inch length)	X	8
51	MS20995C32	0.032-inch dia Safety Wire	X	A/R
52	NAS6604-24	Bolt	X	1
53	NAS1149F0432P	Washer	X	2
54	A203-7	Yoke Half Assembly (includes A203-6 yoke half and item 48)	X	2
	A203-6	Yoke Half (Ref, yoke half only)	O	1
55	A283-2	Mast Assembly (Ref, earlier R22s)		
56	A283-4	Mast Assembly (Ref, see Figure 63-1)		
57	NAS1149F0432P	Washer (select washer(s) which, after correct torque is applied, provides proper thread engagement; [1] minimum)	X	A/R

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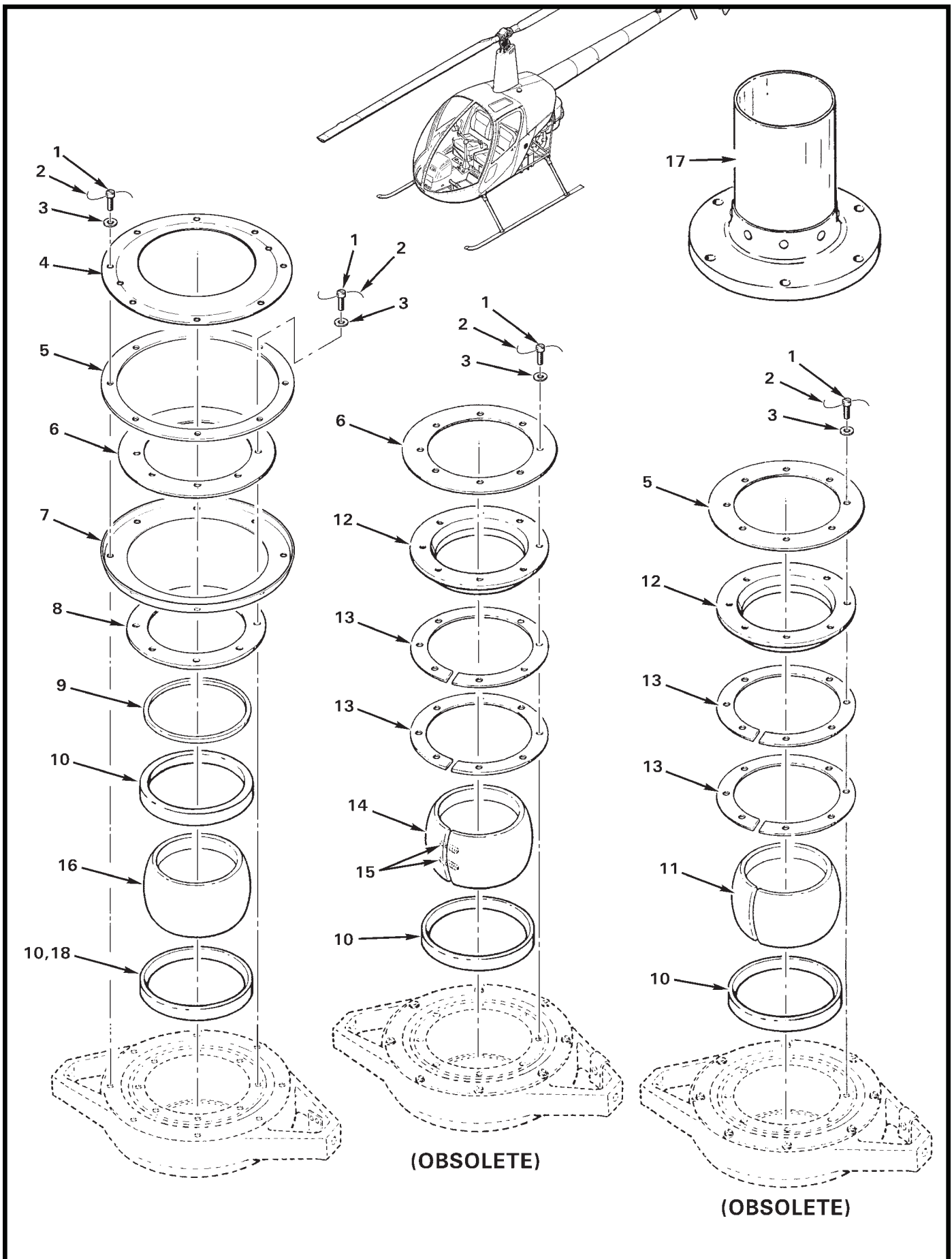


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
SWASHPLATE BALL INSTALLATION				
67-37-1	AN503-8-8	Screw	X	8
2	MS20995C20	0.020-inch dia Safety Wire	X	A/R
3	NAS1149FN832P	Washer	X	8
4	B419-1	Guard – Swashplate Boot	X	1
5	A200-1	Retainer	X	1
6	A218-1	Shield	X	1
7	A206-1	Retainer	X	1
8	A200-2	Retainer	X	1
9	A209-1	Spacer (0.215-inch)	X	1
	A209-2	Spacer (0.210-inch)	X	1
	A209-3	Spacer (0.205-inch)	X	1
	A209-4	Spacer (0.200-inch)	X	1
	A209-5	Spacer (0.195-inch)	X	1
	A209-6	Spacer (0.190-inch)	X	1
	A209-7	Spacer (0.185-inch)	X	1
	A209-8	Spacer (0.180-inch)	X	1
	A209-9	Spacer (0.175-inch)	X	1
	A209-10	Spacer (0.170-inch)	X	1
	A209-11	Spacer (0.165-inch)	X	1
	A209-12	Spacer (0.160-inch)	X	1
	A209-13	Spacer (0.155-inch)	X	1
	A209-14	Spacer (0.150-inch)	X	1
	A209-15	Spacer (0.220-inch)	X	1
	A209-16	Spacer (0.225-inch)	X	1
	A209-17	Spacer (0.230-inch)	X	1
	A209-18	Spacer (0.235-inch)	X	1
	A209-19	Spacer (0.240-inch)	X	1
	A209-20	Spacer (0.245-inch)	X	1
	A209-21	Spacer (0.250-inch)	X	1
	A209-22	Spacer (0.255-inch)	X	1
10	A202-2	Sleeve Assembly (Teflon-lined; one or two required)	X	A/R
11	A201-1 *	Ball (blue Turcite, Ref; no longer available)		
12	B116-2 **	Sleeve Assembly (Ref)		
13	B117-1	Shim (0.016-inch)	X	1
	B117-2	Shim (0.020-inch)	X	1

NOTES * Use B149-1 aluminum ball with A202-2 Teflon-lined sleeve assemblies, A209 spacers, and A200-2 retainer.
 ** Parts no longer available. Use A202-2 Teflon-lined sleeve assembly with A200-2 retainer and A209 spacers.

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY	
SWASHPLATE BALL INSTALLATION (Cont'd)					
67-37-13	B117-3	Shim (0.025-inch)	X	1	
	B117-4	Shim (0.032-inch)	X	1	
	B117-5	Shim (0.040-inch)	X	1	
	B117-6	Shim (0.050-inch)	X	1	
	14	A201-2*	Ball Assembly (blue Turcite ball, Ref; no longer available.)		
	15	C0180-024-1120S*	Spring (Ref)		
16	B149-1	Ball – Aluminum (requires A202-2 Teflon-lined sleeve)	X	1	
17	B491-1	Tube Assembly	X	1	
18	B270-11	Adhesive/Sealant (Loctite 277, 1.69 oz)	X	A/R	

NOTES * Use B149-1 aluminum ball with A202-2 Teflon-lined sleeve assemblies, A209 spacers, and A200-2 retainer.

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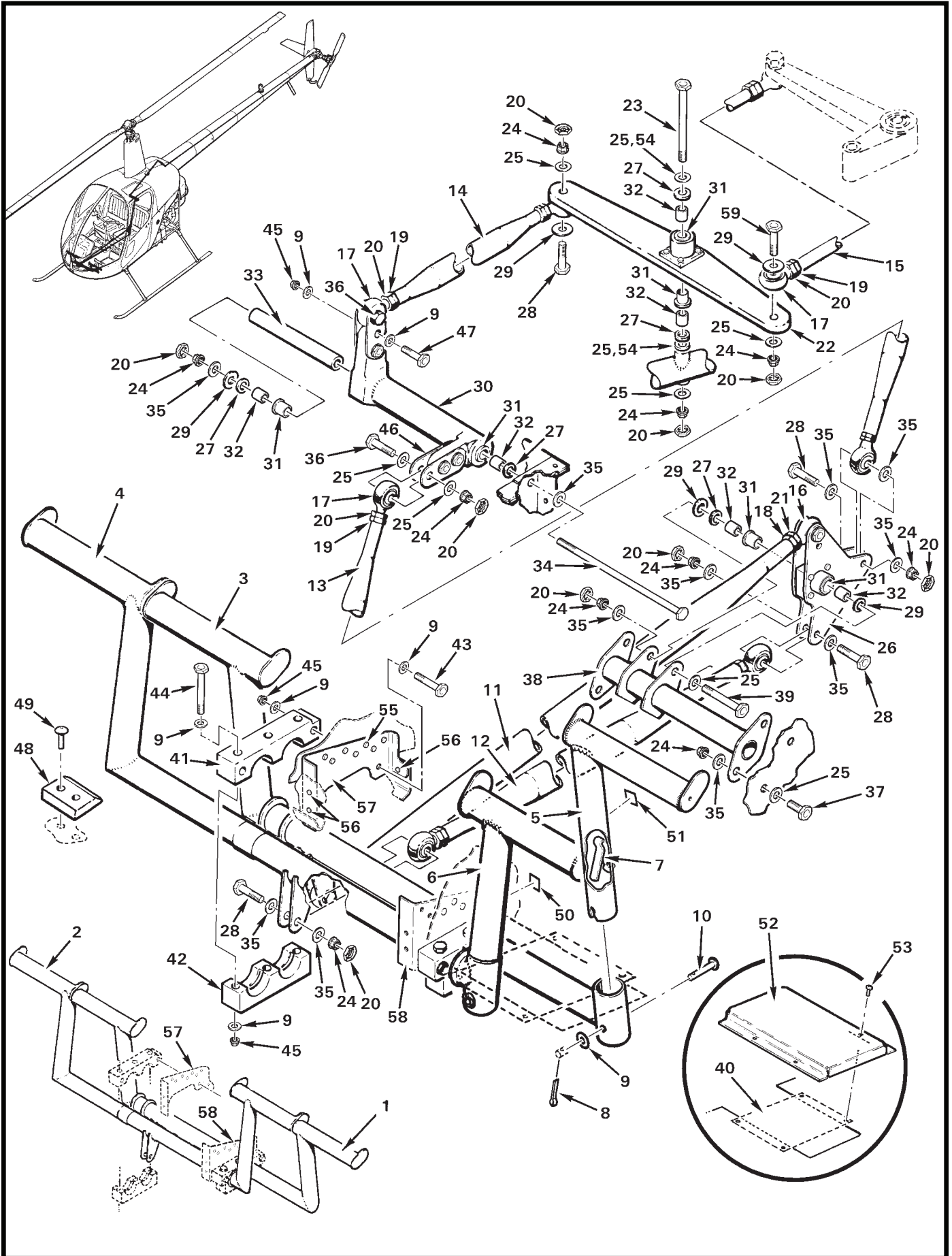


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
TAIL ROTOR CONTROL SYSTEM				
67-41-1	A330-1	Pedal Assembly (LH, standard)	X	1
2	A330-2	Pedal Assembly (RH, standard)	X	1
3	A755-1	Pedal Assembly (LH, removable; includes items 5, and 8 thru 10)	X	1
4	A755-2	Pedal Assembly (RH, removable; includes items 6, and 8 thru 10)	X	1
5	A755-3	Pedal Assembly (LH, removable; includes items 7, and 50) . .	X	1
6	A755-4	Pedal Assembly (RH, removable; includes items 7, and 51) . .	X	1
7	A795-4	Pin Assembly	X	2
8	MS24665-132	Cotter Pin	X	2
9	NAS1149D0316J	Washer	X	22
10	MS20392-2C33	Flathead Pin	X	2
11	A121-9	Push-Pull Tube Assembly – Upper Forward (Incl items 16, 18, and 21)	X	1
12	A121-11	Push-Pull Tube Assembly – Lower Forward (Incl items 16, 18, and 21)	X	1
13	A121-13	Push-Pull Tube Assembly – Vertical (Incl items 17, 19, and 20)	X	1
14	A121-15	Push-Pull Tube Assembly – To Intermediate Bellcrank (Incl items 17, 19, and 20)	X	1
15	A121-17	Push-Pull Tube Assembly – Tailcone (Incl items 17, 19, and 20)	X	1
16	A101-4	Rod End	X	4
17	A127-4	Rod End	X	6
18	AN316-5R	Nut	X	4
19	AN316-4R	Nut	X	6
20	B330-13	Palnut	X	18
21	B330-16	Palnut	X	4
22	A331-1	Bellcrank Assembly	X	1
23	NAS1304-38	Bolt (or NAS1304-40 [with item 54], as required for clearance)	X	1
24	D210-4	Nut	X	20
25	NAS1149F0432P	Washer	X	26
26	A317-1	Bellcrank Assembly	X	1
27	A141-3	Washer	X	6
28	NAS6604-9	Bolt (or NAS1304-9)	X	7
29	A214-3	Washer (next to rod end)	X	4
30	A316-1	Bellcrank	X	1

NOTES

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
TAIL ROTOR CONTROL SYSTEM (Cont'd)				
67-41-31	A139-1	Bearing	X	6
32	A105-3	Journal (0.522 to 0.525-inch length)	X	6
33	A130-12	Spacer (3.540 to 3.550-inch length)	X	1
34	AN4-51A	Bolt	X	1
35	NAS1149F0463P	Washer	X	1
36	NAS6604-7	Bolt (or NAS1304-7)	X	4
37	NAS6604-2	Bolt (or NAS1304-2)	X	4
38	A315-1	Support Assembly – Tail Rotor Bellcrank	X	1
39	NAS6604-19	Bolt (or NAS1304-19)	X	1
40	A412-1	Cover (LH and RH; Ref)		
41	A318-1*	Bearing Block – Upper	O	2
42	A318-2*	Bearing Block – Lower	O	2
43	NAS6603-13	Bolt (or NAS1303-13)	X	4
44	NAS6603-20	Bolt (or NAS1303-20)	X	6
45	D210-3	Nut	X	10
46	A555-1	Plate – Bellcrank Assembly	X	4
47	NAS6603-7	Bolt (or NAS1303-7)	X	4
48	A793-1	Stop – Pedal	X	1
49	MS20470AD5	Rivet	X	2
50	A654-51	Decal – “R”	X	1
51	A654-50	Decal – “L”	X	1
52	B236-1	Cover (for removable pedals)	X	1
53	MS27039C0806	Screw	X	4
54	NAS1149F0463P	Washer (For use with NAS6604-40 bolt; [2] maximum. Exchange for item 25 as required for clearance.)	X	A/R
55	MS20470AD4	Rivet	X	18
56	MS20470AD3	Rivet	X	6
57	A359-2	Support (RH)	X	1
58	A359-1	Support (LH)	X	1
59	NAS6604-9**	Bolt (or NAS1304-9, orient up or down as required)	X	1
* * *				
60	KI-81	Removable Foot Pedal Locking Pin Installation Kit (Replaces A795-1 clip. Includes items 7 and 8.)	X	1

NOTES * Items 41 and 42 are matched set. When replacing, order A318-1-2.
 ** In this location bolt may be installed either direction to provide 0.12-inch minimum clearance at flex plate and scroll.

CHAPTER 71
POWERPLANT

<i>Figure</i>	<i>Title</i>	<i>Page</i>
71-1	Engine Installation	71.0
71-5	Air Induction System	71.4
71-9	Air Induction System	71.8
71-13	Air Induction System	71.12
71-17	Exhaust Muffler Assembly	71.16
71-19	Cooling System	71.18
71-23	Alternator and Starter Installation	71.22
71-27	Kelly Aerospace Starter Installation	71.26
71-29	Sky-Tec Starter Installation	71.28

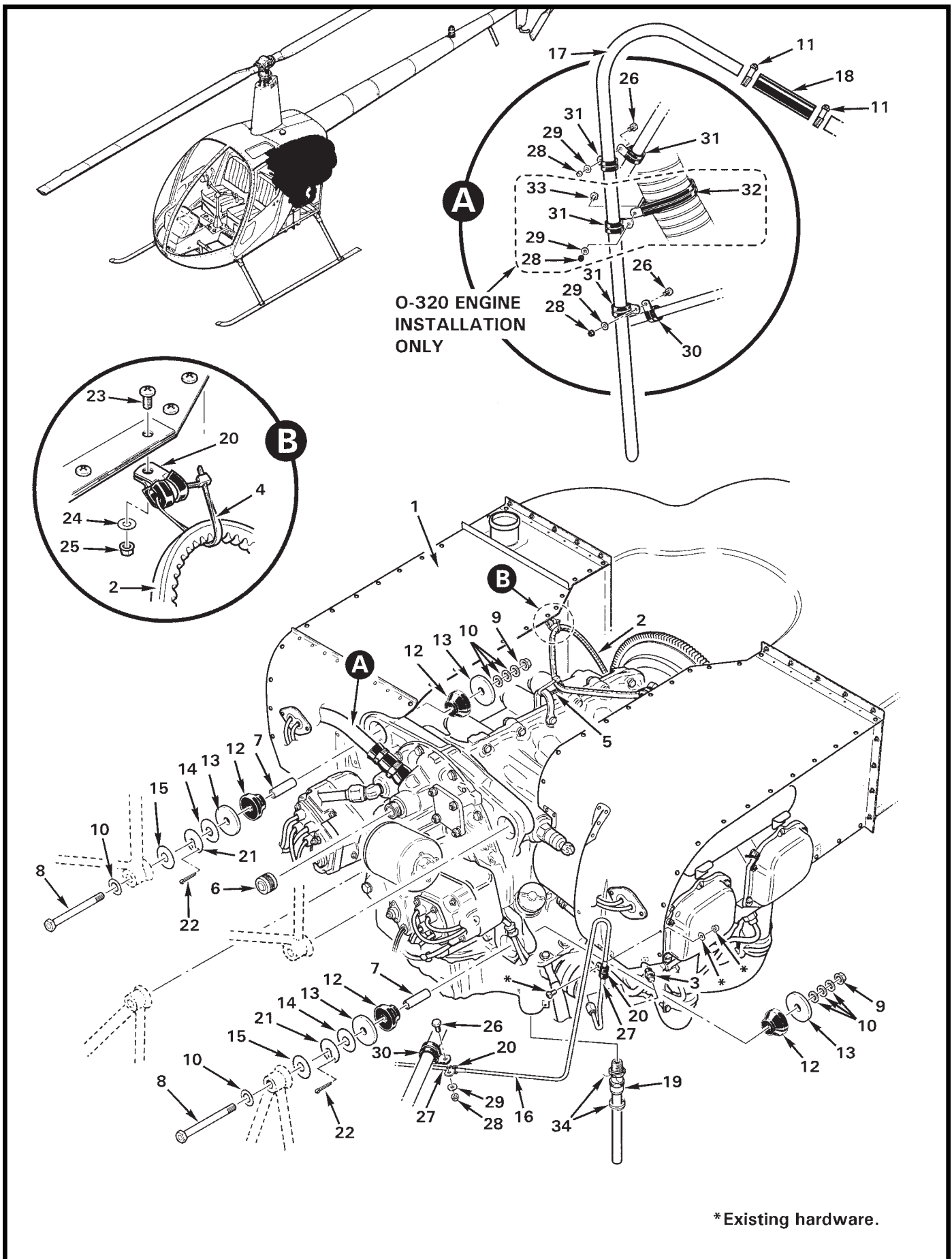


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
ENGINE INSTALLATION				
71-1-1	A145-1	Engine – Textron Lycoming O-320-A2B* (used on Standard) ..	O	1
	A145-2	Engine – Textron Lycoming O-320-A2C* (used on Standard) ..	O	1
	A145-3	Engine – Textron Lycoming O-320-B2C* (used on Alpha, Beta, HP, and Mariner) ..	O	1
	A145-5	Engine – Textron Lycoming O-360-J2A* (used on Beta II and Mariner II) ..	X	1
2	B173-1	Belt – Alternator (emergency, earlier R22s) ..	X	2
3	AN816-3D	Nipple – Manifold Pressure ..	X	1
4	MS3367-4-9	Ty-Rap ..	X	2
5	MS3367-3-9	Ty-Rap ..	X	1
6	62732*	Cap – Tachometer Drive (earlier R22s) ..	X	1
7	A130-3	Spacer (1.860-inch length) ..	X	4
8	NAS6606-54	Bolt ..	X	4
9	D210-6	Nut ..	X	4
10	NAS1149F0663P	Washer ..	X	A/R
11	B277-12	Clamp – Engine Breather ..	X	2
12	71032*	Rubber Pads – Engine Mount ..	X	8
13	A141-12	Washer (engine alignment; 0.190-inch thick) ..	X	A/R
14	A141-24	Washer (engine alignment; 0.032-inch thick) ..	X	A/R
15	A141-25	Washer (engine alignment; 0.063-inch thick) ..	X	A/R
16	A740-1	Manifold Pressure Line (Incl item 27) ..	X	1
17	A727-1	Tube – Engine Breather ..	X	1
18	A729-31	Tube – Engine Breather Coupling ..	X	1
19	B367-1	Drain Valve – Engine Oil ..	X	1
20	MS21919WDG3	Clamp ..	X	4
21	B155-1	Shim (engine alignment; 0.032-inch thick) ..	X	A/R
22	MS24665-132	Cotter Pin ..	X	A/R
23	MS27039C0806	Screw ..	X	2
24	NAS1149FN832P	Washer ..	X	2
25	MS21042L08	Nut ..	X	2
26	AN3-3A	Bolt ..	X	3
27	B158-6	Heat Shrink (black, 3/8 inch dia) ..	X	A/R
28	D210-3	Nut ..	X	A/R
29	NAS1149F0332P	Washer ..	X	A/R
30	MS21919WDG10	Clamp ..	X	2

NOTES * Lycoming part no.

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
ENGINE INSTALLATION (Cont'd)				
71-1-31	MS21919WDG12	Clamp	X	A/R
32	MS21919WDG48	Clamp	X	A/R
33	AN3-4A	Bolt	X	A/R
34	MS20995C32	0.032-inch dia Safety Wire	X	A/R
35	A257-16	Oil – Engine (quart, SAE J1966 20W-50)	X	A/R
NOTES				

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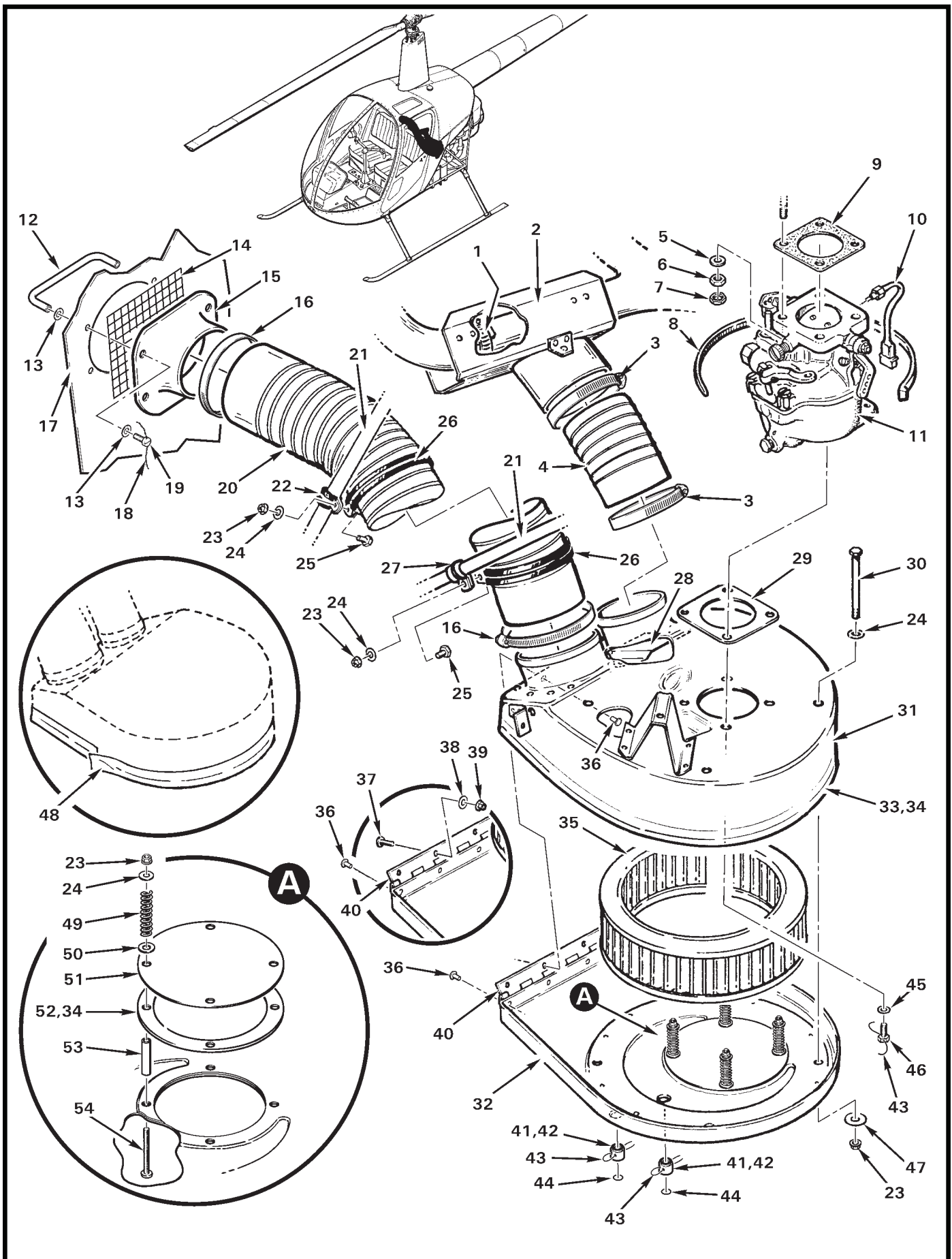


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
AIR INDUCTION SYSTEM*				
71-5-1	B277-024	Clamp	X	2
2	B394-1	Scoop Assembly	X	1
3	B277-32	Clamp	X	2
4	A785-26	Hose	X	1
5	STD-35**	Washer	X	4
6	STD-1410**	Nut	X	4
7	B330-15	Palnut	X	4
8	MS3367-6-0	Ty-Rap	X	1
9	66224**	Gasket (between engine and carburetor)	X	1
10	A058-5	Carb Air Temp Probe	X	1
11	LW-15986**	Carburetor (Ref, Avstar Fuel Systems; part no. AV-6110) . . .	X	1
12	A580-2	Guard	X	2
13	NAS1149FN832P	Washer	X	8
14	A640-2	Screen	X	1
15	C579-2	Inlet	X	1
16	B277-48	Clamp	X	2
17	A378-17	Panel (RH, Ref; see also Figure 53-1)		
18	MS20995C20	0.020-inch dia Safety Wire	X	A/R
19	AN503-8-6	Screw	X	4
20	A785-1	Hose	X	1
21	A046-2	Frame Assembly (lower RH, Ref)		
22	MS21919WDG12	Clamp	X	1
23	D210-3	Nut	X	6
24	NAS1149F0332P	Washer	X	10
25	AN3-4A	Bolt	X	2
26	MS21919WDG48	Clamp	X	2
27	MS21919WDG10	Clamp	X	1
28	A562-1	Slider Valve (carb heat)	X	1
29	A615-1	Gasket	X	1
30	AN3-35A	Bolt	X	4
31	A057-2	Air Box Assembly (Incl items 23 [4], 24 [4], 28, 32 thru 34, 36, and 40)	X	1
32	A057-5	Bottom Cover Assembly (Incl items 42, and 49 thru 54)	X	1
33	A226-8	Seal – Neoprene (4-foot length, install using item 34)	X	1
34	B270-18	Adhesive (5-oz tube)	X	A/R

NOTES * Ship S/N 2665 and subsequent.
 ** Lycoming part no.

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
AIR INDUCTION SYSTEM (Cont'd)				
71-5-35	B771-1*	Air Filter (cleanable, Rev. D and subsequent; supersedes A771-1 air filter)	X	1
36	MS20470AD3	Rivet	X	4
37	MS35206-227**	Screw	X	4
38	NAS1149FN616P**	Washer	X	4
39	MS21042L06**	Nut	X	4
40	A516-1	Hinge	X	1
41	A290-2	Body	O	2
42	A290-1***	Drain Valve (Incl items 41, 43, and 44)	X	2
43	MS20995C32	0.032-inch dia Safety Wire	X	A/R
44	A290-3	Disc	X	2
45	NAS1149F0463P	Washer	X	4
46	MS20074-04-04	Bolt	X	4
47	AN970-3	Washer	X	4
48	A701-1	Foil Tape (seals A057-5 bottom cover, used on Mariner II) . . .	X	A/R
49	D774-7	Spring	X	4
50	NAS1149F0432P	Washer	X	4
51	C565-2	Door	X	1
52	B425-1	Gasket (install using item 34)	X	1
53	C130-41	Spacer	X	4
54	MS27039DD1-26	Screw	X	4

NOTES * Refer to R22 MM §6.435 for air filter cleaning instructions.
 ** Earlier R22s.
 *** Some covers have [1] drain valve only.

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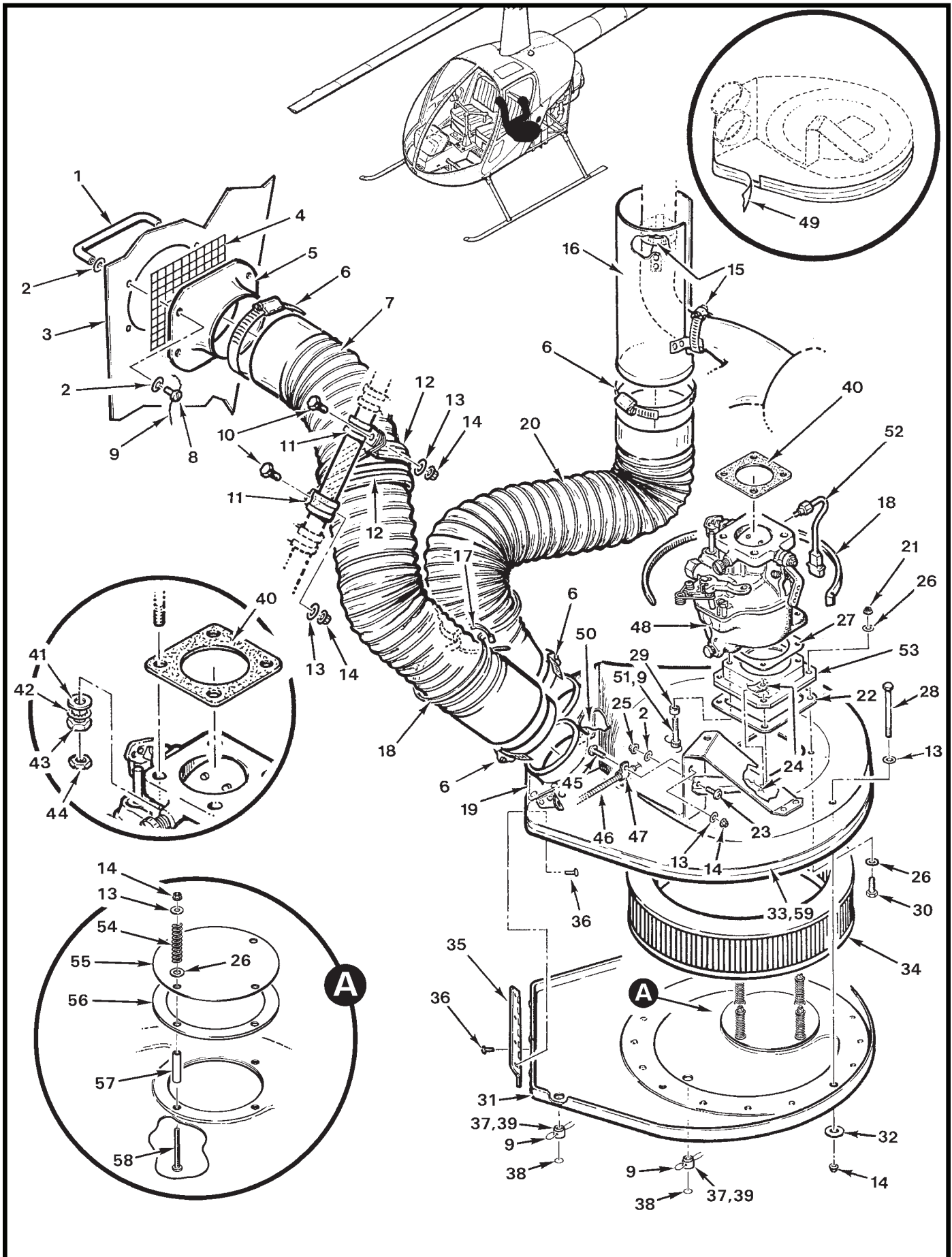


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
AIR INDUCTION SYSTEM*				
71-9-1	A580-2	Guard	X	2
2	NAS1149FN816P	Washer	X	9
3	A378-17	Panel (Ref)		
4	A640-2	Screen	X	1
5	C579-1	Inlet	X	1
6	B277-56	Clamp	X	4
7	A785-21	Hose	X	1
8	AN503-8-6	Screw	X	4
9	MS20995C32	0.032-inch dia Safety Wire	X	A/R
10	AN3-4A	Bolt	X	2
11	MS21919WDG10	Clamp	X	2
12	MS21919WDG56	Clamp	X	4
13	NAS1149F0332P	Washer	X	11
14	MS21042L3	Nut	X	11
15	B277-24	Clamp	X	2
16	B365-1	Scoop Assembly	X	1
17	MS3367-7-9	Ty-Rap	X	1
18	MS3367-6-0	Ty-Rap	X	2
19	C057-5	Air Box Assembly (Incl items 9, 13 [4], 14 [4], 26 [4], 31, 33, 35 thru 37, 50, and 54 thru 59)	X	1
20	A785-20	Hose	X	1
21	MS21042L4	Nut	X	4
22	C615-1	Gasket	X	1
23	MS27039C0806	Screw	X	1
24	B820-2	Brace	X	1
25	MS21042L08	Nut	X	1
26	NAS1149F0432P	Washer	X	12
27	A615-1	Gasket	X	1
28	AN3-35A	Bolt	X	4
29	A130-28	Spacer	X	4
30	NAS6604-4	Bolt	X	4
31	C956-2	Cover (cover only)	O	1
	C057-8	Cover Assembly (For spares; includes items 13 [4], 14 [4], 26 [4], 31, 35, 37, and 54 thru 59.)	X	1
32	AN970-3	Washer	X	4

NOTES * Ship S/N 2571 thru 2664.

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
AIR INDUCTION SYSTEM (Cont'd)				
71-9-33	A226-8	Neoprene Seal (install using item 59)	X	A/R
34	B771-2*	Air Filter (Cleanable, Rev. D and subsequent; supersedes C771-1 air filter.)	X	1
35	A516-1	Hinge	X	1
36	MS20470AD3	Rivet	X	8
37	A290-1	Drain Valve (Incl items 9, 38, and 39)	X	2
38	A290-3	Disc	O	1
39	A290-2	Body	O	1
40	66224**	Gasket	X	1
41	STD-35**	Washer	X	4
42	STD-475**	Washer (internal lock)	X	4
43	STD-1410**	Nut	X	4
44	B330-15	Palnut	X	4
45	MS27039C1-07	Screw	X	1
46	A522-3	Control – Mixture (Ref, see Figure 76-1)		
47	AN742-3	Clamp	X	1
48	LW-15986**	Carburetor (Precision Airmotive Corp. part no. 10-5217)	O	1
	R9128	Carburetor (overhaul exchange)	X	1
49	A701-1	Foil Tape (used on Mariner II)	X	A/R
50	C562-1	Slider Valve (Ref)		
51	NAS1352-4H20P	Cap Screw	X	4
52	A058-5	Carb Air Temp Probe	X	1
53	B819-1	Adapter	X	1
54	12686	Spring	X	4
55	C565-2	Door	X	1
56	B425-1	Gasket (install using item 59)	X	1
57	C130-41	Spacer	X	4
58	MS27039DD1-26	Screw	X	4
59	B270-18	Adhesive (5-oz tube).	X	A/R

NOTES * Refer to R22 MM §6.435 for air filter cleaning instructions.
 ** Lycoming part no.

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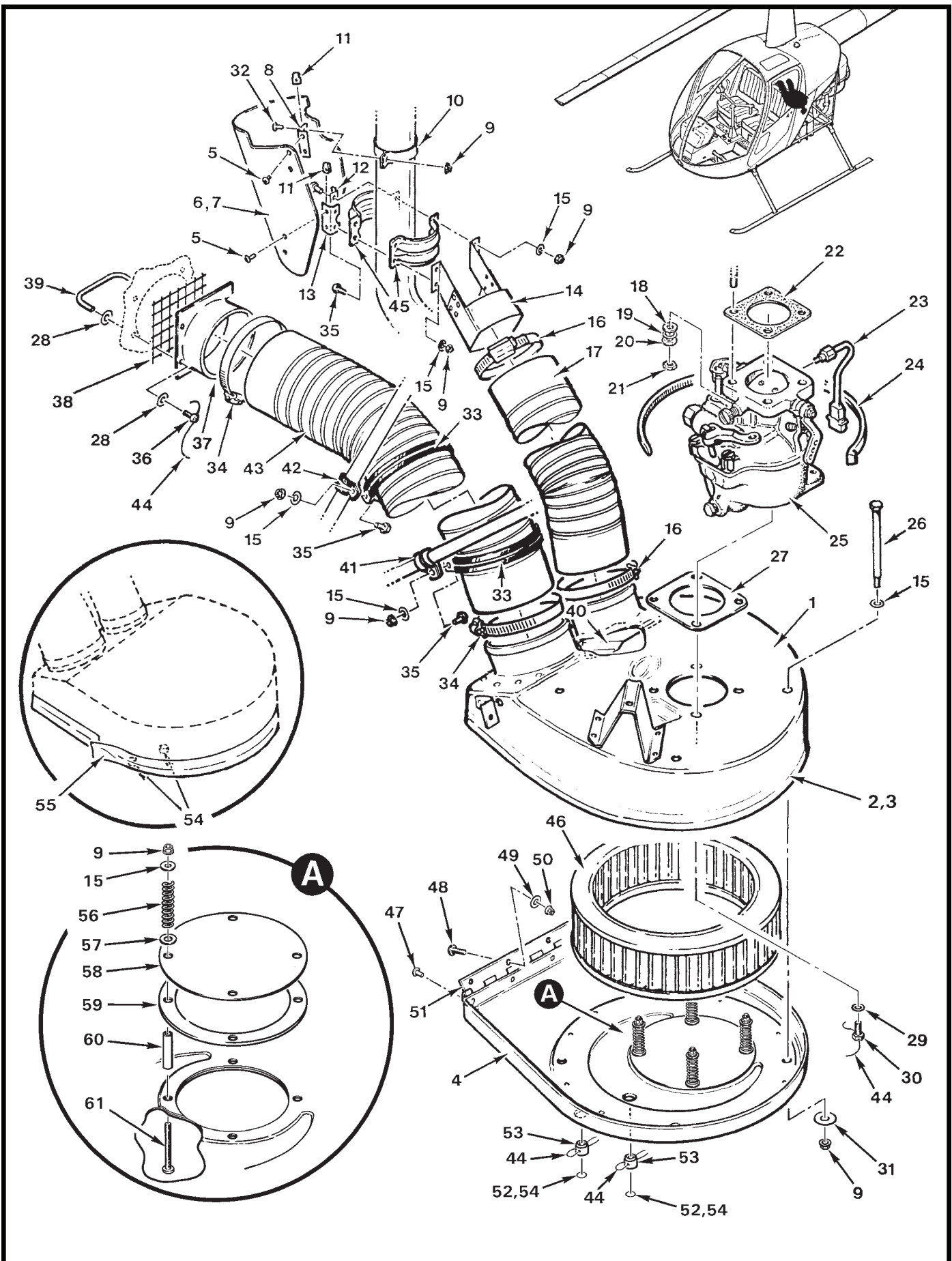


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
AIR INDUCTION SYSTEM*				
71-13-1	A057-2**	Air Box Assembly (Incl items 4, 9 [4], 15 [4], 40, 47 thru 51, 54, and 56 thru 61)	X	1
2	A226-8	Seal – Neoprene (4-foot length, install using item 3)	X	1
3	B270-18	Sealant (5-oz tube)	X	A/R
4	A956-5	Cover (bottom cover only, Ref)		
	A057-5	Bottom Cover Assembly (Incl items 3, 9 [4], 15 [4], 47, 51, 54, and 56 thru 61)	X	1
5	MS35206-228	Screw	X	6
6	A568-1	Scoop Assembly (large, includes items 7, 8, 12, and 13)	X	1
7	A568-5	Sheet	X	1
8	A568-9	Angle	X	1
9	MS21042L3	Nut	X	12
10	A694-1	Clamp (scoop assembly)	X	1
11	B162-1	Clipnut	X	6
12	A568-3	Angle – Carburetor Heat	X	1
13	A568-4	Angle – Carburetor Heat	X	1
14	A568-2	Scoop Assembly – Carb Heat (small)	X	1
15	NAS1149F0332P	Washer	X	10
16	B277-36	Clamp	X	2
17	A785-2	Hose – Hot Air Inlet	X	1
18	STD-35***	Washer	X	4
19	STD-475***	Washer (internal lock)	X	4
20	STD-1410***	Nut	X	4
21	B330-15	Palnut	X	4
22	66224***	Gasket (between engine and carburetor)	X	1
23	A058-5	Carb Air Temp Probe	X	1
24	MS3367-6-0	Ty-Rap	X	1
25	LW-15986***	Carburetor (Ref, Precision Airmotive Corp. part no. 10-5217)		
26	AN3-35A	Bolt	X	4
27	A615-1	Gasket	X	1
28	NAS1149FN816P	Washer	X	8
29	NAS1149F0463P	Washer	X	4
30	MS20074-04-04	Bolt	X	4
31	AN970-3	Washer	X	4
32	MS27039C1-06	Screw	X	2

NOTES * Ship S/N 2570 and prior.
 ** Earlier air box assemblies do not have alternate air door or second drain.
 *** Lycoming part no.

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
AIR INDUCTION SYSTEM (Cont'd)				
71-13-33	MS21919WDG48	Clamp	X	2
34	B277-48	Clamp	X	2
35	AN3-4A	Bolt	X	6
36	AN503-8-6	Screw	X	4
37	A579-1	Inlet – Outside Air	X	1
38	A640-1	Screen	X	1
39	A580-1	Guard	X	2
40	A562-1	Slider Valve (carb heat)	X	1
41	MS21919WDG10	Clamp	X	1
42	MS21919WDG12	Clamp	X	1
43	A785-1	Hose	X	1
44	MS20995C32	0.032-inch dia Safety Wire	X	A/R
45	A169-14	Bead Clamp	X	2
46	B771-1*	Air Filter (Cleanable, Rev. D and subsequent; supersedes A771-1 air filter.)	X	1
47	MS20470AD3	Rivet	X	4
48	MS35206-227**	Screw	X	4
49	NAS1149FN616P**	Washer	X	4
50	MS21042L06**	Nut	X	4
51	A516-1	Hinge	X	1
52	A290-3	Disc	O	1
53	A290-2	Body	O	1
54	A290-1	Drain Valve (Includes items 44, 52, and 53. Some covers only have one [1] drain valve.)	X	2
55	A701-1	Foil Tape (seals A057-5 bottom cover, used on Mariner)	X	A/R
56	12686***	Spring	X	4
57	NAS1149F0432P***	Washer	X	4
58	C565-2***	Door	X	1
59	B425-1***	Gasket (install using item 3)	X	1
60	C130-41***	Spacer	X	4
61	MS27039DD1-26***	Screw	X	4

NOTES * Refer to R22 MM §6.435 for air filter cleaning instructions.
 ** Earlier R22s.
 *** If installed.

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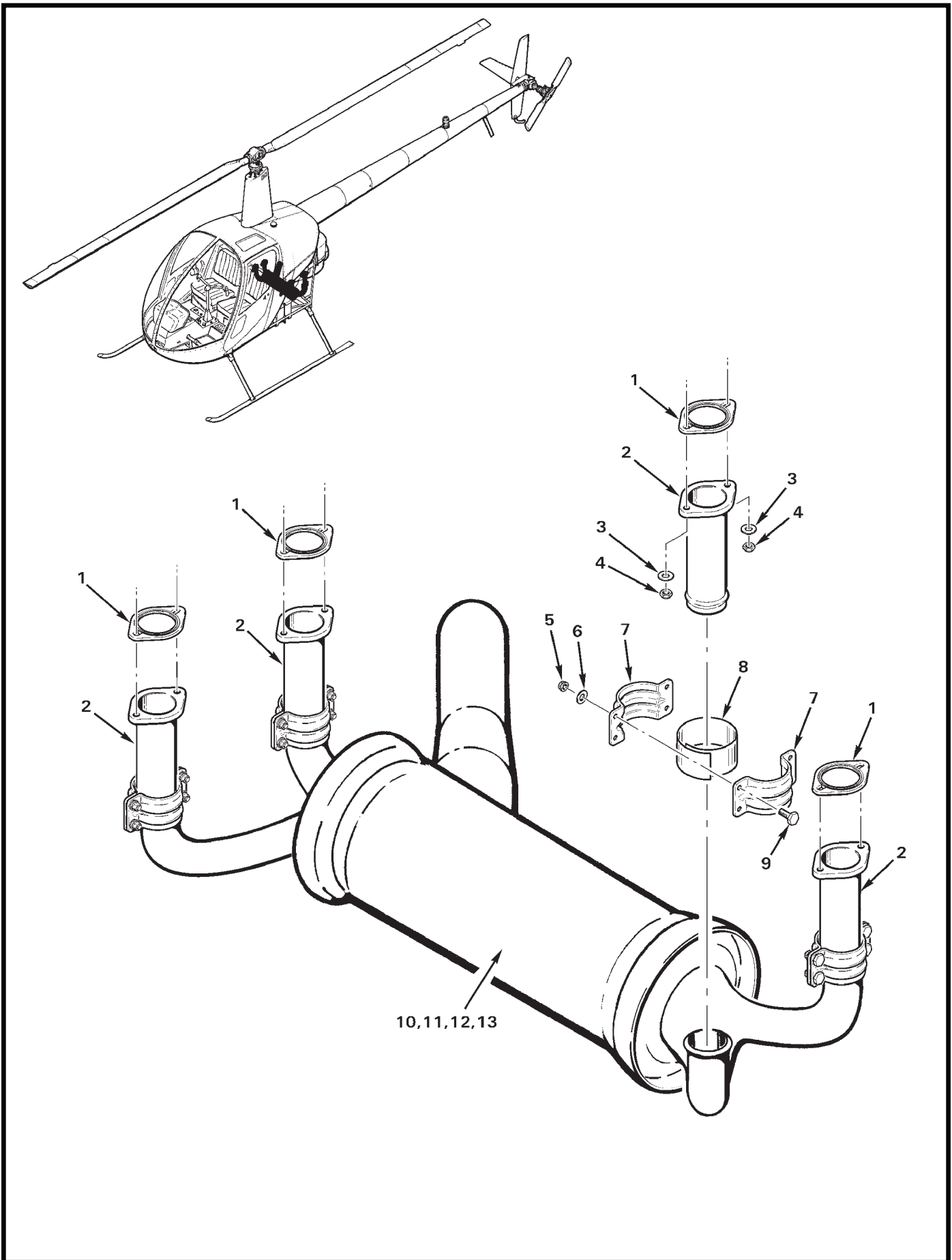


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
EXHAUST MUFFLER ASSEMBLY				
71-17-1	77611*	Gasket	X	4
2	A169-23	Riser	X	4
3	NAS1149F0532P	Washer	X	8
4	21FKF-518	Nut	X	8
5	MS21043-3	Nut (or MS21042L3)	X	16
6	NAS1149F0332P	Washer	X	16
7	A169-14	Bead Clamp	X	8
8	A701-10	Tape (stainless steel)	X	A/R
9	AN3-4A	Bolt (or AN3C4A)	X	16
10	A169-6**	Muffler Assembly (for O-320 engine; includes items 2, 6 thru 9, and 11)	X	1
11	A169-8**	Muffler Assembly (for O-320 engine; welded muffler assembly only)	X	1
12	A169-24**	Muffler Assembly (for O-360 engine; includes items 2, 7 thru 9, and 13)	X	1
13	A169-25**	Muffler Assembly (for O-360 engine; welded muffler assembly only)	X	1

NOTES * Lycoming part no.
 ** Does not include heater shroud. For heater shroud see Figures 21-3 and 21-9.

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
COOLING SYSTEM				
71-19-1	B277-28	Clamp (main rotor gearbox cooling hose)	X	2
2	A747-1	Nozzle Assembly	X	1
3	B277-8	Clamp	X	1
4	A785-6	Hose	X	1
5	MS21266-1N	Grommet (12-inch length)	X	1
	B270-8qt	Adhesive (use to install MS21266-1N grommet)	X	A/R
6	R7156	Scroll Set (For R22s with large [A649-2 or C649-1] oil cooler. Includes upper/lower scrolls and items 13 thru 19, 23, 24, 26, 27, and 32.)	X	1
7	D210-4	Nut	X	1
8	NAS1149F0432P	Washer	X	15
9	MS27039C0806	Screw	X	130
10	NAS1149FN832P	Washer	X	51
11	MS21042L08	Nut	X	131
12	B174-1	Fanwheel Assembly	X	1
13	MS20470AD4-6	Rivet	X	8
14	A185-2	Bracket (LH; without nutplate)	X	1
15	A185-3	Plate	X	4
16	A185-5	Bracket (LH; without nutplate)	X	1
17	MS21075L3E	Nutplate	X	2
18	MS35206-227	Screw	X	2
19	A185-1	Bracket	X	1
20	B161-102	Spirap	X	A/R
21	A141-11	Washer	X	4
22	A141-14	Washer	X	1
23	B169-5	Vane Assembly (install using MS20470AD4 rivets)	X	1
24	MS20426AD3	Rivet	X	16
25	A449-1	Cover Assembly (spark plug access, LH and RH)	X	2
26	D229-4	Cover	X	1
27	B229-2	Lip	X	2
28	A701-1	Foil Tape	X	A/R
29	NAS1149FN816P	Washer	X	99
30	A775-3	Spacer	O	1
31	LW-M-2375	Harness Plate	X	2
32	MS21069L08	Nutplate	X	4

NOTES

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
COOLING SYSTEM (Cont'd)				
71-19-33	A141-32	Washer	X	1
34	A711-1	Strip (Ref, no longer available)		
35	A711-2	Strip (Ref, no longer available)		
36	A711-3	Strip (Ref, no longer available)		
37	A711-4	Strip (Ref, no longer available)		
38	A308-1	Cover (RH, O-320)	X	1
	A308-6*	Cover (RH, O-360)	X	1
39	A312-1	Cover Assembly (LH)	X	1
	A312-6*	Cover Assembly (LH)	X	1
40	A309-1	Panel Assembly (RH, required for small [A649-1] oil cooler; used on Standard, HP and Alpha)	O	1
	A309-15**	Panel Assembly (RH, O-320 engine. Required for large [A649-2 or C649-1] oil cooler; used on Beta and Mariner.)	X	1
	C309-4*	Panel Assembly (RH, O-360 engine; used on Beta II and Mariner II)	X	1
41	A313-9	Panel Assembly (LH; ship S/N 3689 and subsequent)	X	1
42	A305-5	Panel Assembly – Outboard (LH; order also items 46 and 47)	X	1
43	A306-1	Panel Upper (RH)	X	1
44	A310-1	Panel Upper (LH)	X	1
45	A305-6	Panel Assembly – Outboard (RH, includes item 50; order also items 46 and 47)	X	1
46	A305-8	Panel (LH and RH)	X	2
47	A305-7	Panel Assembly (LH and RH)	X	2
48	A487-1	Retainer	X	2
49	D774-13	Spring	X	4
50	A775-1	Cover Assembly (oil cooler access)	X	1
51	B401-1	Grommet (push rod housing; install small diameter inboard)	X	8
52	A310-2	Panel – Lower (LH)	X	1
53	A484-3	Attach Plate	X	4
54	A306-2	Panel Lower (RH)	X	1
55	NAS6604-6***	Bolt (or NAS6604-7)	X	1
56	NAS1352-08-8P	Cap Screw (3 each side)	X	6
57	MS3367-3-9	Ty-Rap (main rotor gearbox cooling hose)	X	3
58	MS21919WDG5	Clamp	X	1
59	MS20995C32	0.032-inch dia Safety Wire	X	A/R
60	NAS1352-4H10P	Screw	X	8

NOTES * Ship S/N 2571 and subsequent.
 ** Required on Standard, HP, and Alpha if A649-2 or C649-1 (large) oil cooler is installed.
 *** Select bolt which, after correct torque is applied, exposes 2 to 4 threads beyond nut.

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
COOLING SYSTEM (Cont'd)				
71-19-61	A487-2	Retainer	X	2
62	NAS1352-3H6P	Screw (thru A309 panel to cylinder head)	X	1
63	B332-43	Lockwasher (or AN935-10L)	X	A/R
64	NAS1352-4H14P	Screw	X	2
65	C130-9	Spacer	X	2
66	B162-2	Clipnut	X	8
67	A007-5*	Fanshaft and Bearing Assembly (Ref)		
68	MS20002-18*	Washer (against fanwheel hub)	X	1
69	NAS1149F1832P*	Washer	X	A/R
70	AN320-18*	Nut	X	1
71	MS20995C41	0.041-inch dia Safety Wire	X	A/R
72	B350-2*	Spring Pin (or MS9048-112)	X	1
73	MS21069L06	Nutplate	X	2
74	D754-4	Baffle Assembly	X	1
75	B277-24	Clamp	X	2
76	A785-32	Hose (1.5-inch diameter)	X	1
77	D747-5	Shroud – Alternator Cooling (Ref, see Figure 71-23)		
78	A313-1	Panel Assembly (LH, ship S/N 2570 and prior)	X	1
79	A313-7	Panel Assembly (LH, ship S/N 2571 thru 3688)	X	1
80	B277-12	Clamp	X	2
81	MS3367-4-9	Ty-Rap (alternator cooling hose)	X	4
82	A785-7	Hose – Alternator Cooling (1.0-inch diameter)	X	1
83	ALU-1062A**	Shroud – Alternator Cooling (Ref; used only with item 82)		
* * *				
84	A007-3	Fanshaft and Bearing Assembly (Ref, ship S/N 2570 and prior. No longer available. Contact RHC for replacement.)		
85	AN320-15	Nut (spares)	X	A/R
86	AN960-1616L	Washer (spares)	X	A/R

NOTES * Ship S/N 2571 and subsequent. See also Figure 63-11.
 ** Kelly Aerospace part no.

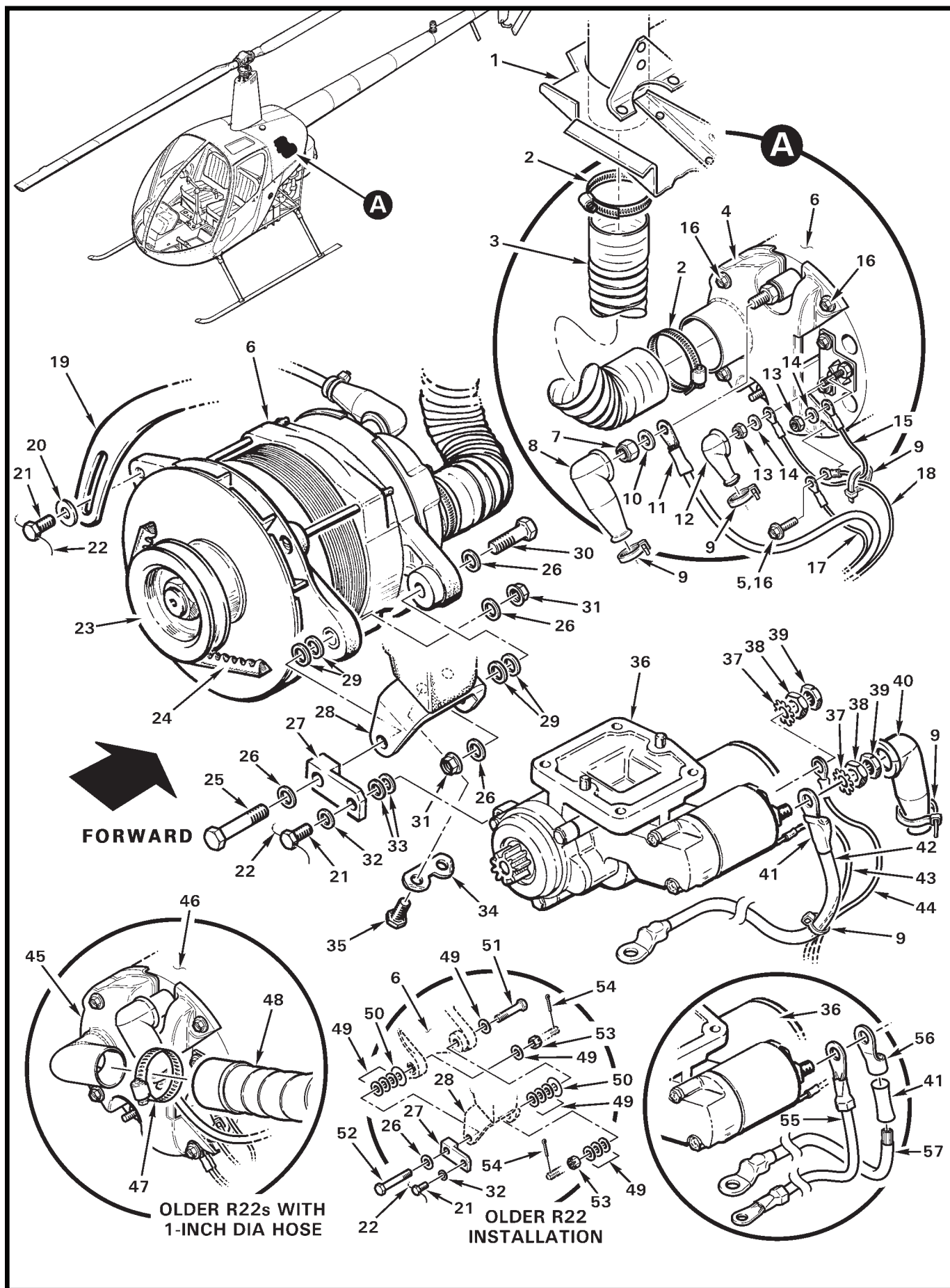


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
ALTERNATOR AND STARTER INSTALLATION				
71-23-1	D754-4	Baffle Assembly (Ref; see Figure 71-19)		
2	B277-24	Clamp (Ref; see Figure 71-19)		
3	A785-32	Hose (1.50-inch dia, Ref; see Figure 71-19)		
4	D747-5	Shroud Weldment (install with item 16; O-360 only)	X	1
5	B270-20	Adhesive	X	A/R
6	D748-3	Alternator Assembly (Includes [new] ALY-8520LS** alternator, items 4, 5, 7, 10, 13, 14, 16, and 23 [pulley]; O-360 only.)	X	1
	LW-14371*	Alternator Assembly (Includes [new] ALY-8520LS** alternator and item 23 [pulley].)	X	1
	ALY-8520LS**	Alternator – 60 Amp (new, without pulley)	X	1
	D748-3R	Alternator – ALY-8520RS** (Overhaul exchange, without pulley [retain pulley from core unit].)	X	1
7	MS21044N4	Nut	X	1
8	MS25171-2S	Nipple	X	2
9	MS3367-4-9	Ty-Rap	X	3
10	NAS1149F0432P	Washer	X	1
11	A059-22	Cable Assembly	X	1
12	MS25171-1S	Nipple	X	1
13	MS21044N06	Nut	X	2
14	NAS1149FN616P	Washer	X	2
15	A059-24	Wire (Ref)		
16	—	Screw (supplied with alternator; install using item 5)	O	4
17	A059-33	Wire (Ref)		
18	A059-23	Wire (Ref)		
19	B200-3	Arm	X	1
20	STD-1727*	Washer	X	1
21	LW-31H0.75*	Bolt (Ref; supplied with engine)		
22	MS20995C32	0.032-inch dia Safety Wire	X	A/R
23	36B19484*	Pulley	X	1
24	B173-1	V-Belt	X	1
25	AN6-16A	Bolt (or AN6-15A, AN6-17A as required for shimming)	X	1
26	NAS1149F0632P	Washer	X	4
27	B299-1	Link	X	1
28	B200-1	Bracket	X	1
29	NAS1149F0663P	Washer (or NAS1149F0632P, NAS1149D0616J as required for shimming)	X	A/R

NOTES * Lycoming part no.
 ** Kelly Aerospace part no.

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
ALTERNATOR AND STARTER INSTALLATION (Cont'd)				
71-23-30	AN6-11A	Bolt (or AN6-12A as required for shimming)	X	1
31	D210-6	Nut	X	2
32	STD-35*	Washer	X	1
33	NAS1149F0532P	Washer (or NAS1149F0516P as required for shimming)	X	A/R
34	73383*	Lockplate	X	1
35	LW-31-0.94*	Bolt (supplied with engine)	X	2
36	BC315-100-2**	Starter (Incl items 37 and 38)	X	1
37	—	Lockwasher (Ref; supplied with starter)		
38	—	Nut (Ref; supplied with starter)		
39	B330-16	Palnut	X	2
40	MS25171-2S	Nipple (aft battery only)	X	1
	MS25171-4S	Nipple (forward battery, not shown)	X	1
41	B158-8	Heat Shrink	X	A/R
42	A067-581	Cable Assembly (aft battery)	X	1
43	A059-582	Wire (Ref)		
44	A059-591	Wire (Ref)		
45	ALU-1062A	Shroud Weldment (Ref)		
46	32B19549*	Alternator Assembly (Includes [new] ALX-8521LS*** alternator and item 23 [pulley]; discontinued option.)	O	1
	ALX-8521LS***	Alternator – 70 Amp (New, without pulley; discontinued option.)	O	1
	D748-2R	Alternator – ALX-8521RS*** (Overhaul exchange, without pulley; discontinued option.)	X	1
47	B277-12	Clamp (Ref; see Figure 71-19)		
48	A785-7	Hose (1.00-inch dia, Ref; see Figure 71-19)		
49	STD-690*	Washer (0.063-inch thick as required for shimming)	X	A/R
50	76534*	Shim (0.005-inch thick as required for shimming)	X	A/R
51	AN6-16	Bolt	X	1
52	AN6-21	Bolt	X	1
53	STD-872*	Nut	X	2
54	STD-713*	Cotter Pin	X	2
55	A067-673	Wire (forward battery)	X	1
56	B260-20	Terminal	X	1
57	A067-587	Wire (forward battery)	X	1

NOTES * Lycoming part no.
 ** B&C Specialty Products part no.
 *** Kelly Aerospace part no.

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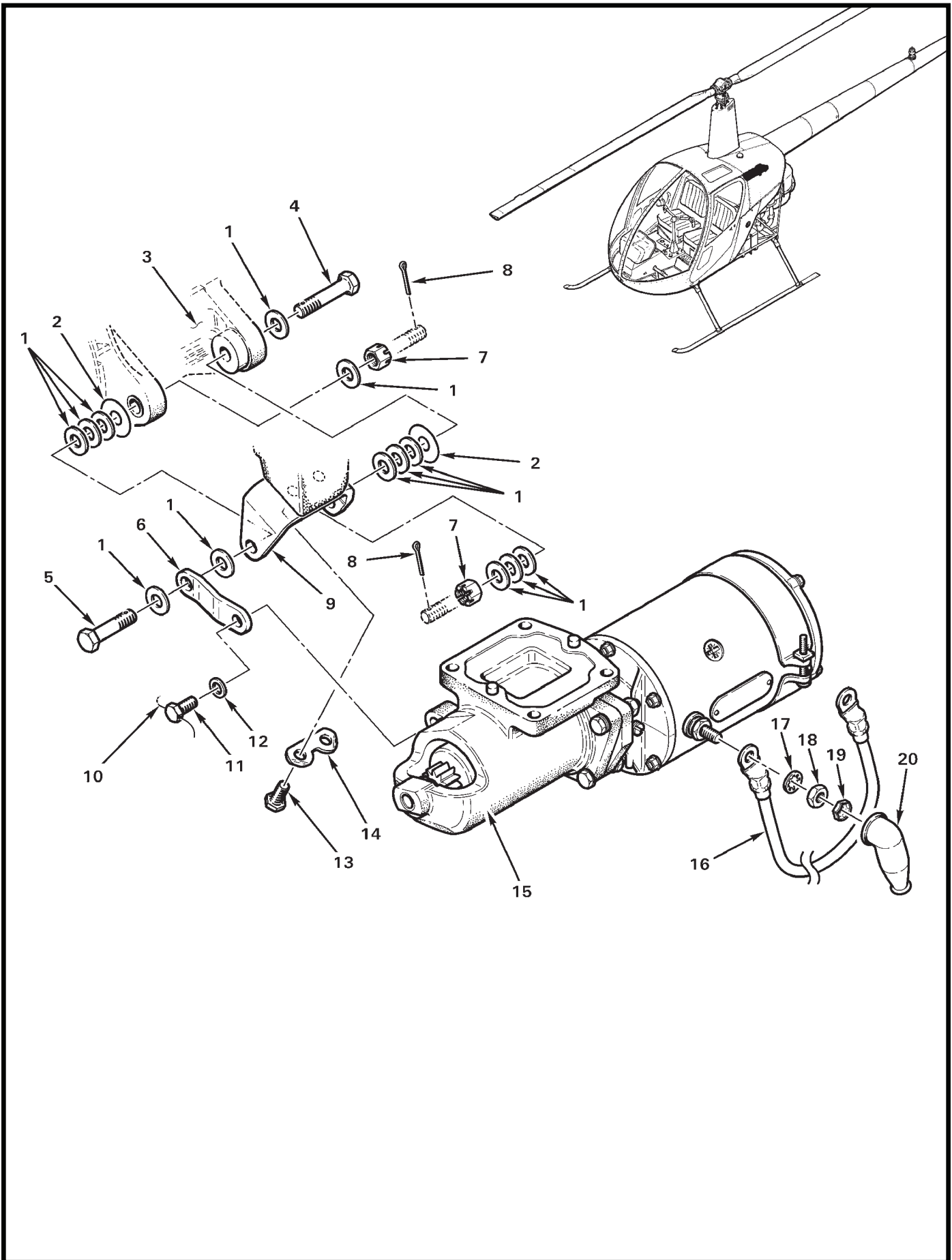


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
KELLY AEROSPACE STARTER INSTALLATION				
71-27-1	STD-690*	Washer (0.063-inch thick as required for shimming)	X	A/R
2	76534*	Shim (0.005-inch thick as required for shimming)	X	A/R
3	—	Alternator (Ref)		
4	AN6-16	Bolt	X	1
5	AN6-14	Bolt	X	1
6	74323*	Strut	X	1
7	STD-872*	Nut	X	2
8	STD-713*	Cotter Pin	X	2
9	07A19474*	Bracket	X	1
10	MS20995C32	0.032-inch dia Safety Wire	X	A/R
11	LW-31H0.75*	Bolt (Ref; supplied with engine)		
12	STD-35*	Washer	X	1
13	LW-31-0.94*	Bolt (supplied with engine)	X	1
14	73383*	Lockplate	X	1
15	MZ4224**	Starter (Incl items 17 and 18)	X	1
16	A059-21	Cable (starter relay-to-starter; Kelly Aerospace starter only) . . .	X	1
17	—	Lockwasher (Ref; supplied with starter)		
18	—	Nut (Ref; supplied with starter)		
19	B330-16	Palnut	X	1
20	MS25171-2S	Nipple	X	1

NOTES * Lycoming part no.
 ** Kelly Aerospace part no.

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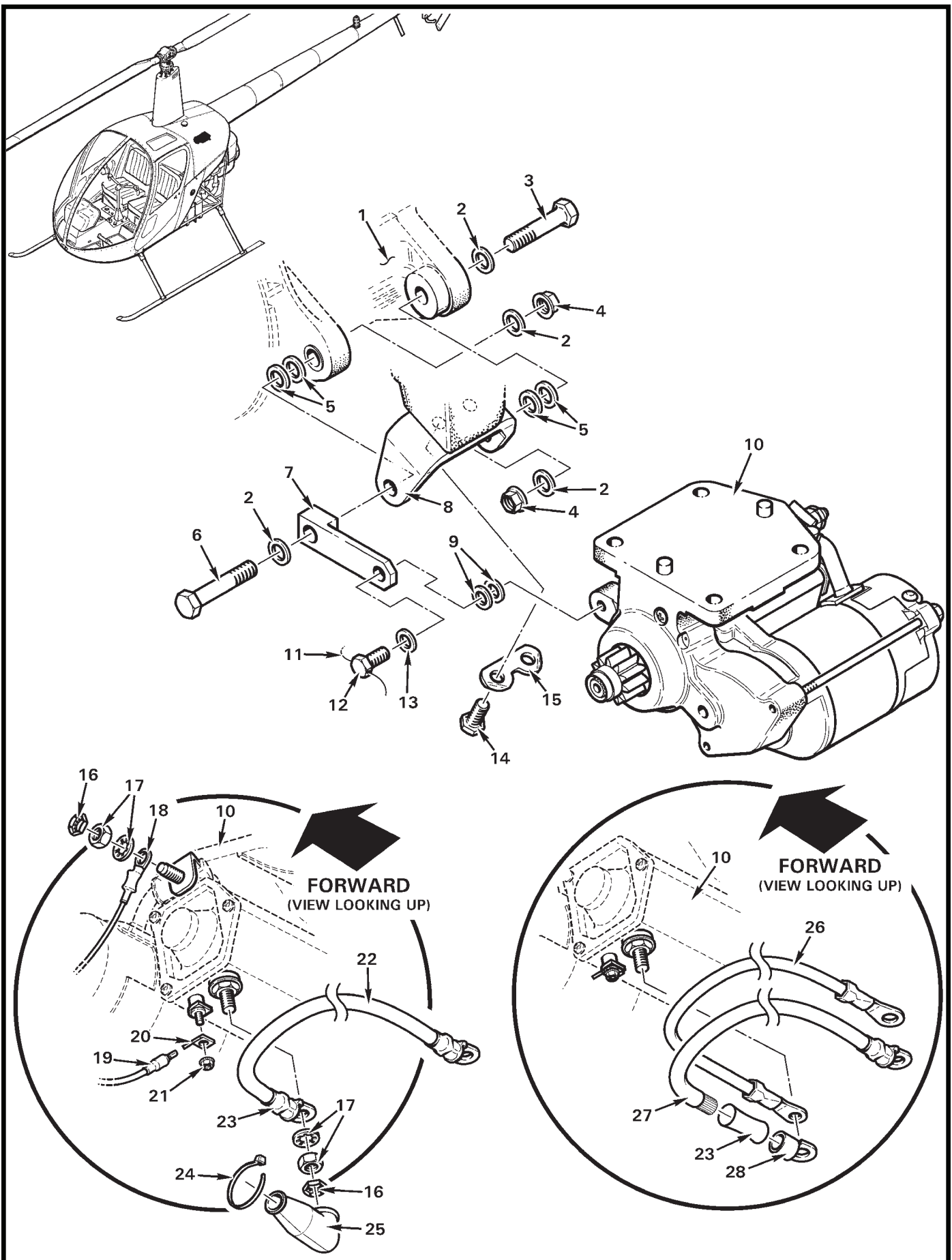


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
SKY-TEC STARTER INSTALLATION				
71-29-1	D748	Alternator Assembly (Ref; see Figure 71-23)		
2	NAS1149F0632P	Washer	X	4
3	AN6-11A*	Bolt (or AN6-12A; as required for shimming)	X	1
4	D210-6	Nut	X	2
5	NAS1149F0663P*	Washer (or NAS1149F0632P, NAS1149D0616J; as required for shimming)	X	A/R
6	AN6-16A*	Bolt (or AN6-15A or AN6-17A)	X	1
7	B299-3	Link	X	1
8	B200-1	Bracket	X	1
9	NAS1149F0532P*	Washer (or NAS1149F0516P; as required for shimming)	X	A/R
10	149-12HT/H**	Starter (Incl items 17, 20, and 21)	O	1
11	MS20995C32	0.032-inch dia Safety Wire	X	A/R
12	LW-31H0.75***	Bolt (Ref; supplied with engine)		
13	STD-35***	Washer	X	1
14	LW-31-0.94***	Bolt (supplied with engine)	X	1
15	73383***	Lockplate	X	1
16	B330-16	Palnut	X	2
17	—	Washer and Nut (Ref; supplied with starter)		
18	A059-591	Wire (Ref)		
19	A059-582	Wire (Ref)		
20	—	Terminal (Ref; supplied with starter)		
21	—	Nut (Ref; supplied with starter)		
22	A067-581	Cable Assembly (aft battery)	X	1
23	B158-8	Heat Shrink	X	A/R
24	MS3367-4-9	Ty-Rap	X	1
25	MS25171-2S	Nipple (aft battery)	X	1
	MS25171-4S	Nipple (forward battery; not shown)	X	1
26	A067-673	Wire (forward battery)	X	1
27	A067-587	Wire (forward battery)	X	1
28	B260-20	Terminal	X	1

NOTES * Select hardware which, after correct torque is applied, exposes 2 to 4 threads beyond nut.
 ** Sky-Tec part no.
 *** Lycoming part no.

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CHAPTER 76
ENGINE CONTROLS

<i>Figure</i>	<i>Title</i>	<i>Page</i>
76-1	Engine Controls	76.0
76-5	Engine Controls	76.4
76-9	Carb Heat Assist and Mixture Control	76.8
76-13	Carb Heat Assist and Vernier Mixture Control	76.12
76-17	Carb Heat Assist Bellcrank Assembly	76.16

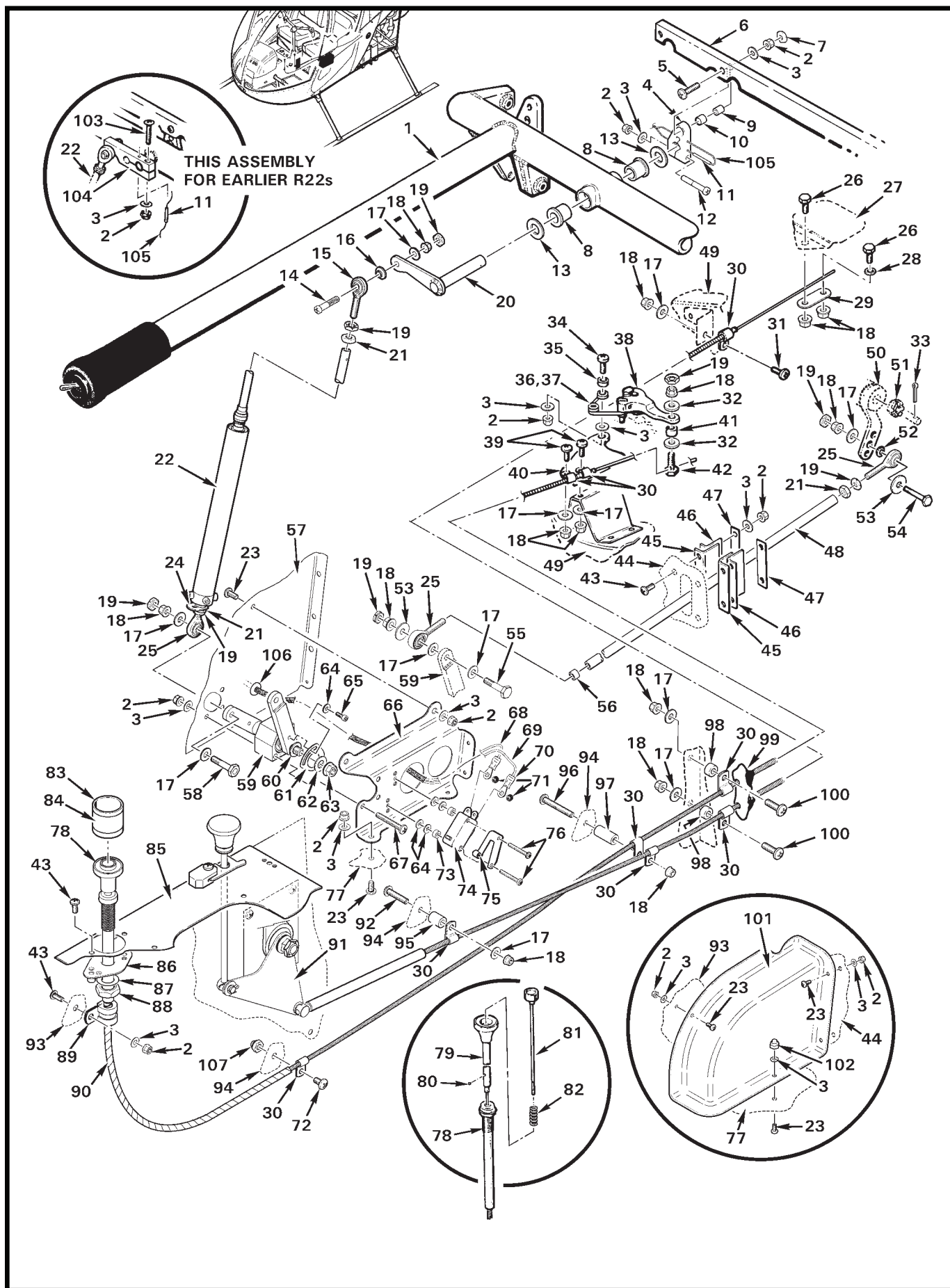


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
ENGINE CONTROLS				
76-1-1	A758	Collective Assembly (Ref)		
2	MS21042L08	Nut	X	27
3	NAS1149FN816P	Washer	X	A/R
4	A325-1	Arm	X	3
5	MS27039C0810	Screw	X	3
6	B328-1	Connecting Rod	X	1
7	B330-6	Palnut	X	3
8	A139-1	Bearing	X	5
9	A105-5	Journal	X	3
10	04DU04	Bushing	X	3
11	MS16562-18	Roll Pin	X	4
12	A486-2	Screw	X	3
13	A141-16	Washer	X	5
14	A486-4	Screw	X	1
15	A127-3	Rod End	X	1
16	A341-1	Spacer	X	1
17	NAS1149F0332P	Washer	X	A/R
18	D210-3	Nut	X	16
19	B330-7	Palnut	X	A/R
20	C341-3	Arm Weldment	O	1
21	AN315-3R	Nut	X	A/R
22	A327-1	Overtravel Spring Assembly (Incl items 15, 19, 21, 24, and 25)	X	1
23	MS27039C0805	Screw	X	A/R
24	A697-2	Plate (Ref)		
25	A933-3	Rod End	X	A/R
26	A462-1	Fitting – Carburetor Heat	X	1
27	A562-1	Slider Valve (Ref)		
28	NAS1149F0316P	Washer	X	1
29	A696-3	Plate	X	1
30	AN742-3	Clamp	X	6
31	MS27039C1-06	Screw	X	1
32	NAS1149E0363R	Washer	X	2
33	MS24665-132	Cotter Pin	X	1
34	MS27039C0807	Screw	X	1
35	A130-13	Spacer	X	1
36	A071-2	Spring Assembly – Mixture Control (Incl items 2, 3, 34, 35, 37, and 40)	X	1

NOTES

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
ENGINE CONTROLS (Cont'd)				
76-1-37	A930-1	Spring	X	1
38	—	Arm – Carburetor Mixture (Ref)		
39	MS27039C1-07	Screw	X	2
40	A929-2	Bracket	X	1
41	A130-48	Spacer (0.200-inch length; lube with A257-1 grease)	X	1
42	A462-4	Fitting – Mixture	X	1
43	MS27039C0806	Screw	X	29
44	A233	Firewall (Ref)		
45	A595-2	Seal (Teflon, white)	X	2
46	A595-1	Seal (neoprene, black)	X	2
47	A597-1	Cover	X	2
48	B364-1	Push-Pull Tube – Throttle (21.20-inch length)	X	1
49	A057-2	Air Box Assembly (Ref)		
50	—	Arm – Throttle (carburetor, Ref)		
51	—	Nut (carburetor arm, Ref)		
	A257-1	Grease	X	A/R
52	NAS1149F0363P	Washer	X	4
53	A141-17	Washer	X	2
54	NAS6603-10	Bolt	X	A/R
55	NAS6603-9	Bolt	X	1
56	A130-54	Spacer ([2] maximum)	X	A/R
57	A292-1	Keel Panel (LH, Ref)		
58	NAS6603-8	Bolt	X	1
59	D756-2	Bellcrank Assembly (Incl items 60 thru 63)	X	1
60	NAS620-416L	Washer	X	1
61	A607-2	Cam	X	1
62	NAS1149F0432P	Washer	X	2
63	D210-4	Nut	X	1
64	NAS1149FN432P	Washer	X	5
65	91251A017	Screw	X	1
66	A607-3	Support	X	1
67	MS27039C0818	Screw	X	3
68	-2488	Wire (Ref, order KI-218-1 if not previously installed)		
69	-2487	Wire (Ref, order KI-218-1 if not previously installed)		
70	B260-1	Terminal	X	2
71	—	Screw (with lockwasher)	O	2
72	MS27039C1-05	Screw	X	1

NOTES

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
ENGINE CONTROLS (Cont'd)				
76-1-73	A130-14	Spacer	X	2
74	V3-1	Switch (Incl item 71)	X	1
75	JV-5	Actuator	X	1
76	MS35206-220	Screw	X	2
77	A015-3	Skin (Ref)		
78	A522-12	Mixture Control (Incl items 79 thru 82, 86, and 87)	X	1
79	A-641R1	Inner Wire (includes knob)	X	1
	A702A *	Knob (red)	O	1
80	R5190*	1/8" Ball	X	1
81	A642A *	Plunger	O	1
82	LC042E7*	Spring	O	1
83	A950-1	Guard – Mixture Control (Incl item 84)	X	1
84	A654-45	Decal (guard instructions)	X	1
85	A444	Panel Assembly (Ref)		
86	A518-2	Cover	X	1
87	—	Washer	O	1
88	—	Nut	O	1
89	MS21919WDG6	Clamp	X	1
90	B161-4	Spirap	X	A/R
91	D334-5	Bellcrank Assembly (Ref, see Figures 76-9 and 76-17)		
92	MS27039C1-14	Screw	X	1
93	A293-2	Keel Panel (RH, Ref)		
94	A292-2	Keel Panel (RH, Ref)		
95	A130-35	Spacer	O	1
96	MS27039C1-20	Screw	X	1
97	A130-26	Spacer	X	1
98	A130-21	Spacer	X	2
99	B270-5	Sealant (one quart)	X	A/R
100	MS27039C1-09	Screw	X	2
101	A606-1 **	Cover	X	1
102	B340-4	Nut	X	2
103	AN525-832R16	Screw	X	1
104	C342-1	Arm	X	1
105	MS20995C32	0.032-inch dia. Safety Wire	X	A/R
106	MS35489-4	Grommet	X	1
107	B340-8	Nut	X	1

NOTES * ACS Products part no.
 ** Rev. I and prior – Fiberglass; rev. J and subsequent – Clear Polycarbonate.

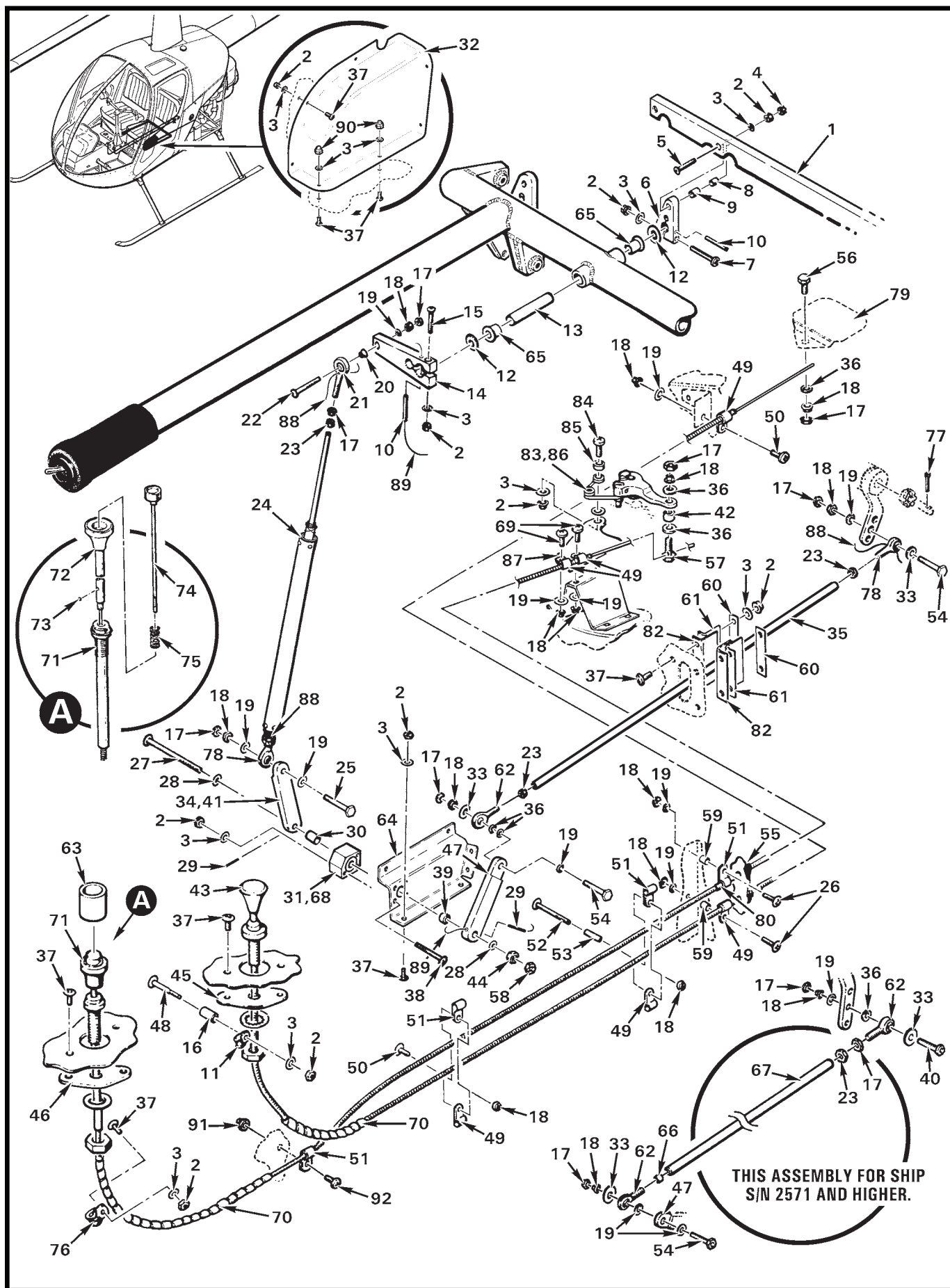


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
ENGINE CONTROLS				
76-5-1	B328-1	Connecting Rod	X	1
2	MS21042L08	Nut	X	27
3	NAS1149FN816P	Washer	X	A/R
4	B330-6	Palnut	X	3
5	MS27039C0810	Screw	X	3
6	A325-1	Arm	X	3
7	A486-2	Screw	X	3
8	A105-5	Journal	X	3
9	O4DU04	Bushing	X	3
10	MS16562-18	Roll Pin	X	4
11	MS21919WDG4	Clamp	X	1
12	A141-16	Washer	X	5
13	A335-1	Torque Tube	X	1
14	C342-1	Arm Assembly – Throttle	X	1
15	MS27039C0816	Screw	X	1
16	A130-34	Spacer	X	1
17	B330-7	Palnut	X	A/R
18	D210-3	Nut	X	16
19	NAS1149F0332P	Washer	X	A/R
20	A341-1	Spacer	X	1
21	A759-1	Rod End – Throttle	X	1
22	A486-1	Screw	X	1
23	AN315-3R	Nut ([2] with item 35, [1] with item 67)	X	A/R
24	A327-1	Overtravel Spring Assembly (Incl items 17, 21, 23, and 78) . .	X	1
25	NAS6603-8	Bolt	X	1
26	MS27039C1-09	Screw	X	2
27	NAS6604-30	Bolt	X	1
28	NAS1149F0432P	Washer	X	2
29	MS16562-15	Roll Pin	O	2
30	A130-30	Spacer	O	1
31	A605-1	Housing (Ref)		
32	A606-1	Cover	X	1
33	A141-17	Washer	X	2
34	D756-2	Arm Assembly (Incl items 27 thru 31, 39, 41, 44, 47, and 68)	X	1

NOTES

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
ENGINE CONTROLS (Cont'd)				
76-5-35	A336-1	Push-Pull Tube – Throttle (17.85-inch length, O-320 engine) . .	X	1
	A336-2	Push-Pull Tube – Throttle (18.25-inch length, O-360 engine) . .	X	1
36	NAS1149F0363P	Washer	X	4
37	MS27039C0806	Screw	X	29
38	MS27039C0818	Screw	X	3
39	A130-29	Spacer	O	1
40	NAS6603-10	Bolt	X	1
41	A609-1	Arm	O	1
42	A130-48	Spacer (0.200-inch length; lube with A257-1 grease)	X	1
43	A522-2	Control – Carburetor Heat (ship S/N 2570 and prior; includes nut and lockwasher)	X	1
44	D210-4	Nut	X	1
45	A518-1	Cover	X	1
46	A518-2	Cover	X	1
47	A609-3	Arm	O	1
48	MS27039C0812	Screw	X	1
49	AN742-3	Clamp	X	6
50	MS27039C1-06	Screw	X	1
51	AN742-4	Clamp	X	4
52	MS27039C1-18	Screw	X	1
53	A130-17	Spacer	X	1
54	NAS6603-9	Bolt ([2] with item 35, [1] with item 67)	X	A/R
55	B270-5	Sealant (one quart)	X	A/R
56	A462-1	Fitting – Carburetor Heat	X	1
57	A462-4	Fitting – Mixture	X	1
58	B330-13	Palnut	X	1
59	A130-21	Spacer	X	2
60	A597-1	Cover	X	2
61	A595-1	Seal (neoprene, black)	X	2
62	A933-3	Rod End	X	A/R
63	A950-1	Guard – Mixture Control	X	1
64	A607-1	Support	X	1
65	A139-1	Bearing	X	5
66	A130-54	Spacer ([2] maximum)	X	A/R
67	B364-1	Push-Pull Tube – Throttle (21.20-inch length; ship S/N 2571 and subsequent)	X	1

NOTES

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
ENGINE CONTROLS (Cont'd)				
76-5-68	MS27647-4	Bearing – Throttle	O	1
69	MS27039C1-07	Screw	X	2
70	B161-4	Spirap	X	A/R
71	A522-3*	Mixture Control (Incl items 72 thru 75)	X	1
72	A-641R	Inner Wire (includes knob; O-320 engine)	X	1
	A-641R1	Inner Wire (includes knob; O-360 engine)	X	1
	A702A**	Knob (red)	O	1
73	R5190**	1/8" Ball	X	1
74	A642A**	Plunger	O	1
75	LC042E7**	Spring	O	1
76	MS21919WDG6	Clamp	X	1
77	MS24665-132	Cotter Pin	X	1
78	A759-2	Rod End	X	A/R
79	A562-1	Slider Valve (Ref)		
80	A701-1	Foil Tape	X	A/R
81	A758-6	Collective Stick Assembly (Removable LH; includes items 1 thru 10, 12 thru 15, and 65. See also Figure 67-21.)	X	1
82	A595-2	Seal (Teflon, white)	X	2
83	A071-2	Spring Assembly – Mixture Control (Incl items 2, 3, and 84 thru 87)	X	1
84	MS27039C0807	Screw	X	1
85	A130-13	Spacer	X	1
86	A930-1	Spring	X	1
87	A929-2	Bracket	X	1
88	MS20995C20	0.020-inch dia Safety Wire	X	A/R
89	MS20995C32	0.032-inch dia Safety Wire	X	A/R
90	B340-4	Nut	X	2
91	B340-8	Nut	X	1
92	MS27039C1-05	Screw	X	1

NOTES * Ship S/N 2570 and prior, 2665 and subsequent.
 ** ACS Products part no.

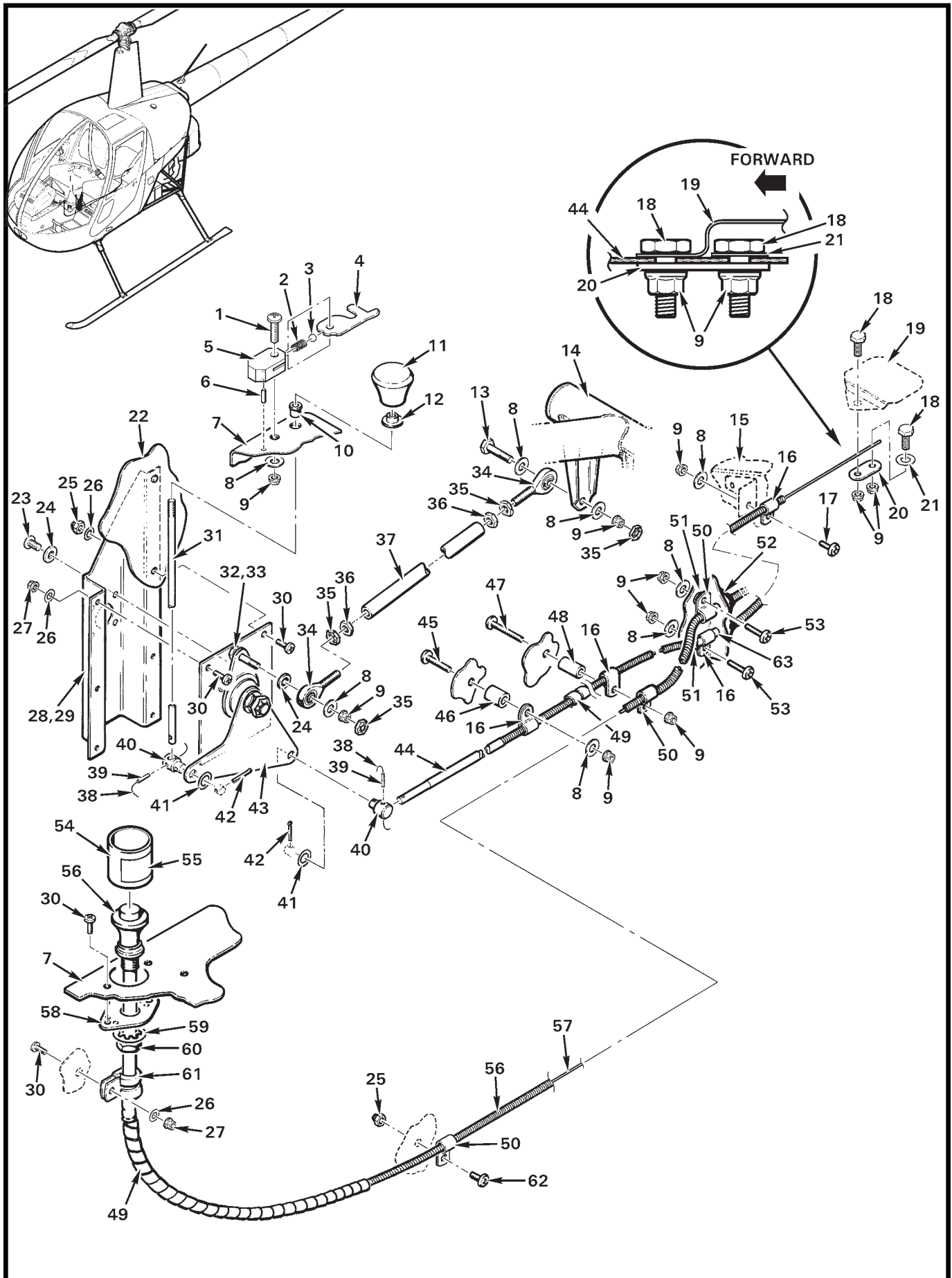


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
CARB HEAT ASSIST AND MIXTURE CONTROL*				
76-9-1	MS27039C1-11	Screw	X	1
2	D774-3	Spring	X	1
3	B208-1	Ball	X	1
4	D333-7	Catch	X	1
5	D333-8	Block	X	1
6	MS16562-23	Spring Pin	X	1
7	A444	Cover – Cyclic (Ref)		
8	NAS1149F0332P	Washer	X	7
9	D210-3	Nut	X	9
10	2010	Bushing	X	1
11	3704-SE	Knob	X	1
12	D333-5	Collar	X	1
13	NAS6603-6	Bolt	X	1
14	A758	Collective Stick (Ref)		
15	A057	Airbox Assembly (Ref)		
16	AN742-3	Clamp	X	4
17	MS27039C1-06	Screw	X	1
18	A462-1	Bolt	X	2
19	A562-1	Valve (Ref)		
20	A696-3	Plate	X	1
21	NAS1149F0316P	Washer	X	1
22	A292	Keel Panel (RH, Ref)		
23	A142-4	Screw	X	2
24	NAS1149F0363P	Washer	X	3
25	B340-4	Nut	X	A/R
26	NAS1149FN816P	Washer	X	A/R
27	MS21042L08	Nut	X	A/R
28	B368-3	Stiffener (cabin heater installed, Ref)		
29	B368-4	Stiffener (cabin heater <u>not</u> installed, Ref; not shown)		
30	MS27039C0806	Screw	X	A/R
31	A587-4	Stem	X	1
32	NAS6603-7	Bolt	X	1
33	AN960PD10L	Washer	X	1
34	A933-3	Rod End	X	2
35	B330-7	Palnut	X	2

NOTES * Ship S/N 2665 and subsequent.

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
		CARB HEAT ASSIST AND MIXTURE CONTROL* (Cont'd)		
76-9-36	AN315-3R	Nut	X	2
37	A336-1	Push-Pull Tube	X	1
38	MS20995C20	0.020-inch dia Safety Wire	X	A/R
39	MS16562-4	Spring Pin	X	2
40	D333-3	Fitting (install using A257-1 grease)	X	2
41	NAS1149F0432P	Washer	X	2
42	MS24665-210	Cotter Pin	X	2
43	D334-5	Bell Crank Assembly – Carb Heat Assist (Ref)		
44	C522-8	Control – Carb Heat	X	1
45	MS27039C1-14	Screw	X	1
46	A130-35	Spacer	X	1
47	MS27039C1-20	Screw	X	1
48	A130-26	Spacer	X	1
49	B161-4	Spirap	X	A/R
50	AN742-4	Clamp	X	3
51	A130-21	Spacer	X	2
52	B270-5	Sealant	X	A/R
53	MS27039C1-09	Screw	X	2
54	A950-1	Guard (Incl item 55)	X	1
55	A654-45	Decal	X	1
56	A522-3	Control – Fuel Mixture (Incl items 57, 60, and 61)	X	1
57	A-641R	Inner Wire (O-320 engine)	X	1
	A-641R1	Inner Wire (O-360 engine)	X	1
58	A518-2	Cover	X	1
59	—	Lockwasher (Ref)		
60	—	Nut (Ref)		
61	MS21919WDG6	Clamp	X	1
62	MS27039C1-05	Screw	X	1
63	A701-1	Tape – Foil	X	A/R

NOTES * Ship S/N 2665 and subsequent.

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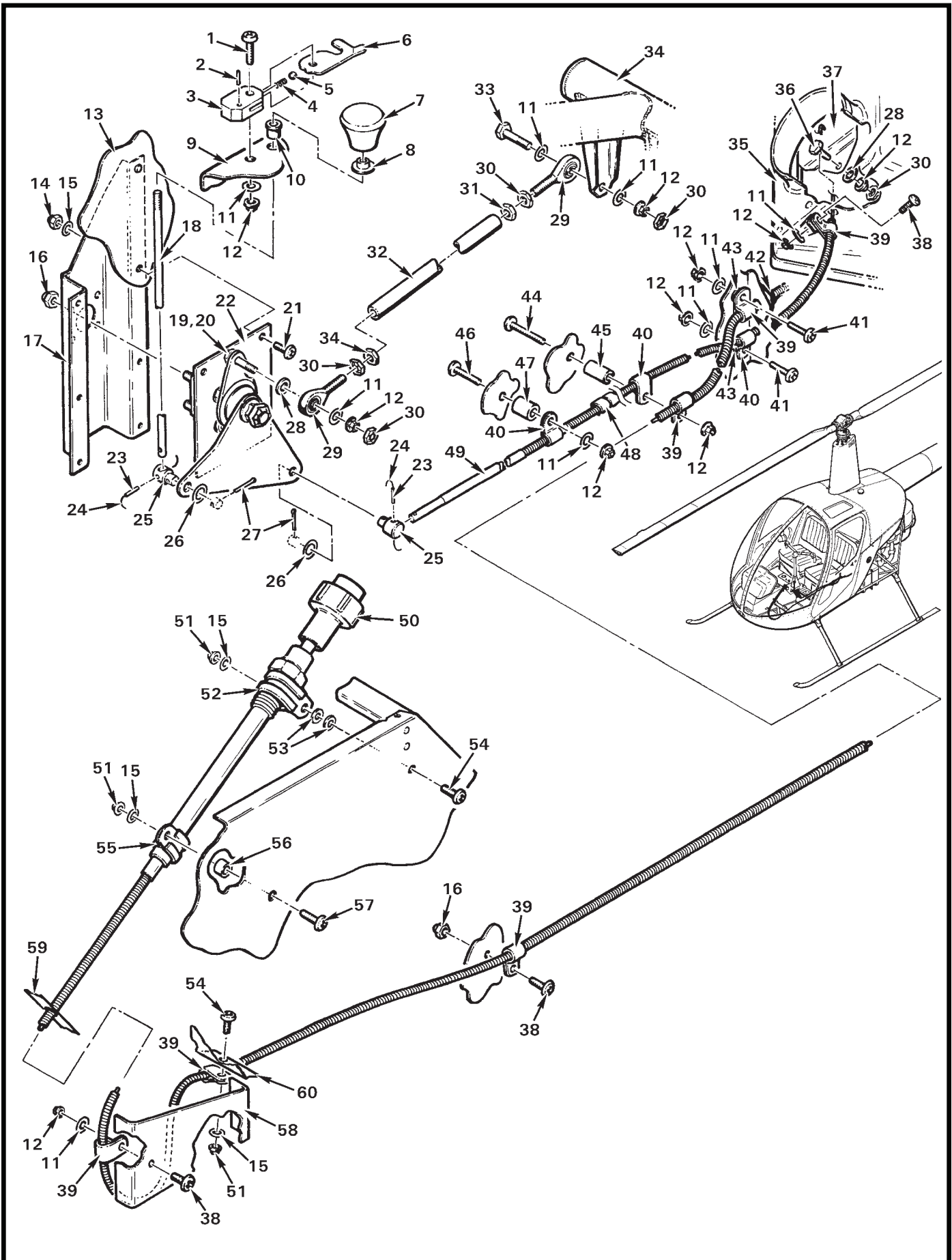


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
		CARB HEAT ASSIST* AND VERNIER MIXTURE CONTROL**		
76-13-1	MS27039C1-11	Screw	X	1
2	MS16562-23	Spring Pin	X	1
3	D333-8	Block	X	1
4	D774-3	Spring – Carb Heat Catch	X	1
5	B208-1	Ball	X	1
6	D333-7	Catch	X	1
7	3704-SE	Knob	X	1
8	D333-5	Collar	X	1
9	A444	Cover – Cyclic (Ref)		
10	2010	Bushing	X	1
11	NAS1149F0332P	Washer	X	9
12	D210-3	Nut	X	9
13	A292-2	Keel Panel (RH, Ref)		
14	B340-4	Nut	X	4
15	NAS1149FN816P	Washer	X	7
16	B340-8	Nut	X	4
17	B368-3	Stiffener (Ref, cabin heater installed)	O	1
	B368-4	Stiffener (Ref, cabin heater not installed; not shown)	O	1
18	A587-4	Stem	X	1
19	NAS6603-7	Bolt	X	1
20	NAS1149D0316J	Washer	X	1
21	MS27039C0806	Screw	X	4
22	D334-2	Bellcrank Assembly (Ref, no longer available. Superseded by item 43 in Figure 76-9.)		
23	MS16562-4	Spring Pin	X	2
24	MS20995C20	0.020-inch dia Safety Wire	X	A/R
25	D333-3	Fitting	X	2
26	NAS1149F0432P	Washer	X	2
27	MS24665-210	Cotter Pin	X	2
28	NAS1149F0363P	Washer	X	2
29	A933-3	Rod End	X	2
30	B330-7	Palnut	X	4
31	AN315-3R	Nut	X	2
32	A336-1	Tube	X	1
33	NAS6603-6	Bolt	X	1

NOTES * Ship S/N 2571 and subsequent.
 ** Ship S/N 2571 thru 2664.

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
CARB HEAT ASSIST* AND VERNIER MIXTURE CONTROL** (Cont'd)				
76-13-34	A758-6	Collective Stick Assembly (RH [pilot], Ref; see Figure 67-21)		
35	C057	Air Box Assembly (Ref)		
36	A462-1	Fitting	X	1
37	A562-1	Slider Valve (Ref)		
38	MS27039C1-06	Screw	X	3
39	AN742-4	Clamp	X	6
40	AN742-3	Clamp	X	3
41	MS27039C1-09	Screw	X	2
42	B270-5	Sealant (one quart)	X	A/R
43	A130-21	Spacer	X	2
44	MS27039C1-18	Screw	X	1
45	A130-17	Spacer	X	1
46	MS27039C1-14	Screw	X	1
47	A130-35	Spacer	X	1
48	B161-4	Spirap	X	A/R
49	C522-8	Control – Carb Heat	X	1
50	B522-1**	Mixture Control (see Figure 76-1 for aft end)	X	1
	A522-3	Mixture Control (or A522-12; for all other ship S/Ns)	X	1
51	MS21042L08	Nut	X	3
52	MS21919WDG11	Clamp	X	1
53	NAS1149FN832P	Washer	X	2
54	MS27039C0807	Screw	X	2
55	MS21919WDG9	Clamp	X	1
56	A130-37	Spacer	X	1
57	MS27039C0809	Screw	X	1
58	A407-1	Beam – Floor (Ref)		
59	A371-1	Stiffener (Ref)		
60	A359-1	Stiffener (Ref)		

NOTES * Ship S/N 2571 and subsequent.
 ** Ship S/N 2571 thru 2664.

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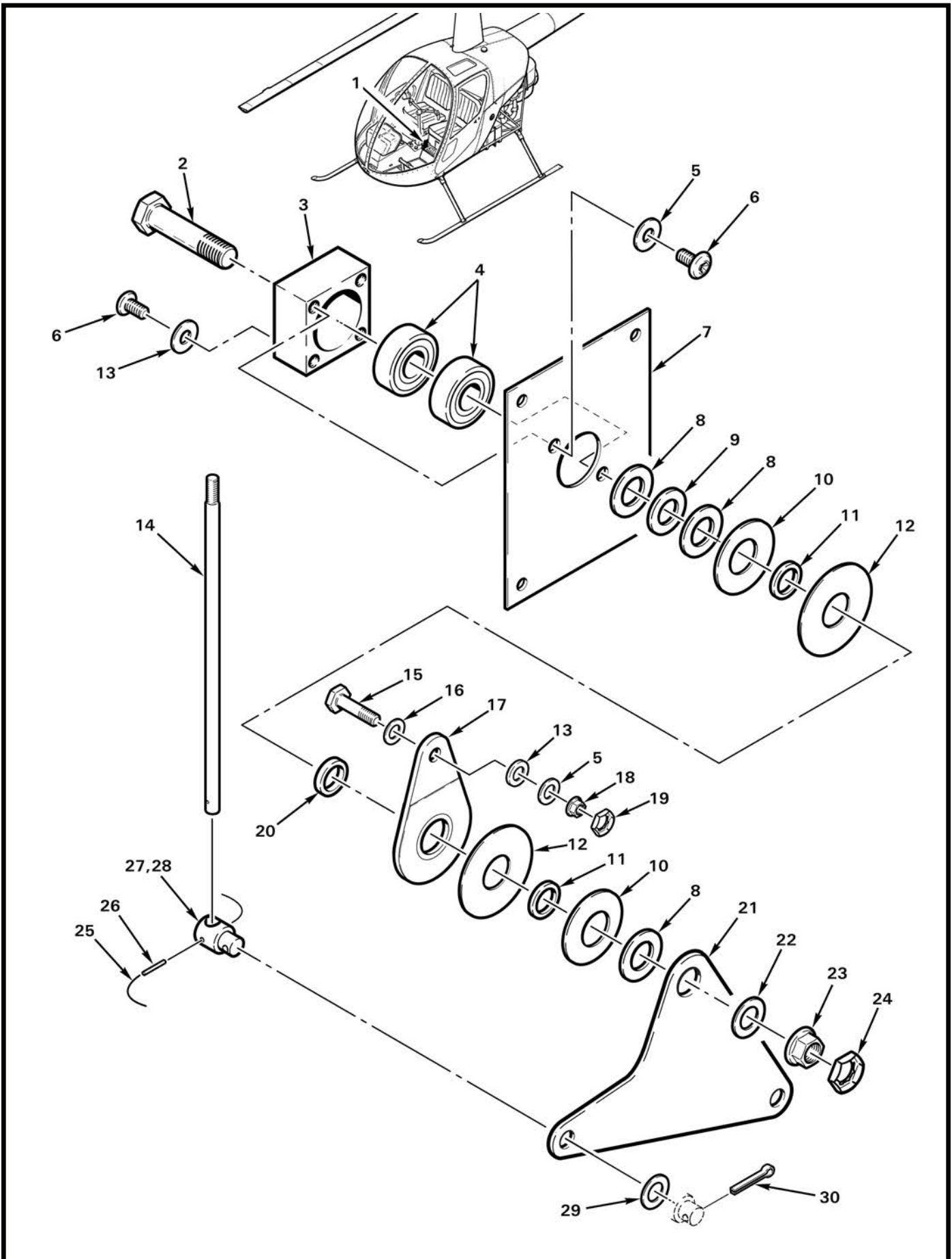


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
CARB HEAT ASSIST BELLCRANK ASSEMBLY				
76-17-1	D334-5	Carb Heat Assembly (Incl items 2 thru 30)	X	1
2	NAS6606-16	Bolt	X	1
3	D333-10	Block	X	1
4	A647-12	Bearing	X	2
5	NAS1149F0332P	Washer	X	3
6	A142-4	Screw	X	4
7	D333-11	Plate	X	1
8	A141-16	Washer	X	3
9	NAS1149F0663P	Washer	X	1
10	B1000-035-S	Spring Washer	X	2
11	B250-5*	Journal (or -6, -7, -10, -12)	X	2
12	A141-35	Washer	X	2
13	NAS1149F0363P	Washer	X	3
14	A587-4	Stem	X	1
15	NAS6603-7	Bolt	X	1
16	NAS1149D0316J	Washer	X	1
17	B249-7	Arm Assembly	X	1
18	D210-3	Nut	X	1
19	B330-7	Palnut	X	1
20	B250-8	Journal	X	1
21	D333-1	Bellcrank	X	1
22	NAS1149F0632P	Washer	X	1
23	D210-6	Nut	X	1
24	B330-19	Palnut	X	1
25	MS20995C20	0.020-inch dia Safety Wire	X	A/R
26	MS16562-4	Spring Pin	X	1
27	D333-3	Fitting (install using item 28)	X	1
28	A257-1	Grease	X	A/R
29	NAS1149F0432P	Washer	X	1
30	MS24665-210	Cotter Pin	X	1

NOTES * If applicable, place thickest journal on bearing side of stack.

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CHAPTER 79
ENGINE OIL SYSTEM

<i>Figure</i>	<i>Title</i>	<i>Page</i>
79-1	Oil Cooler Installation	79.0
79-5	Oil Cooler Installation	79.4
79-7	Oil Filter Installation	79.6

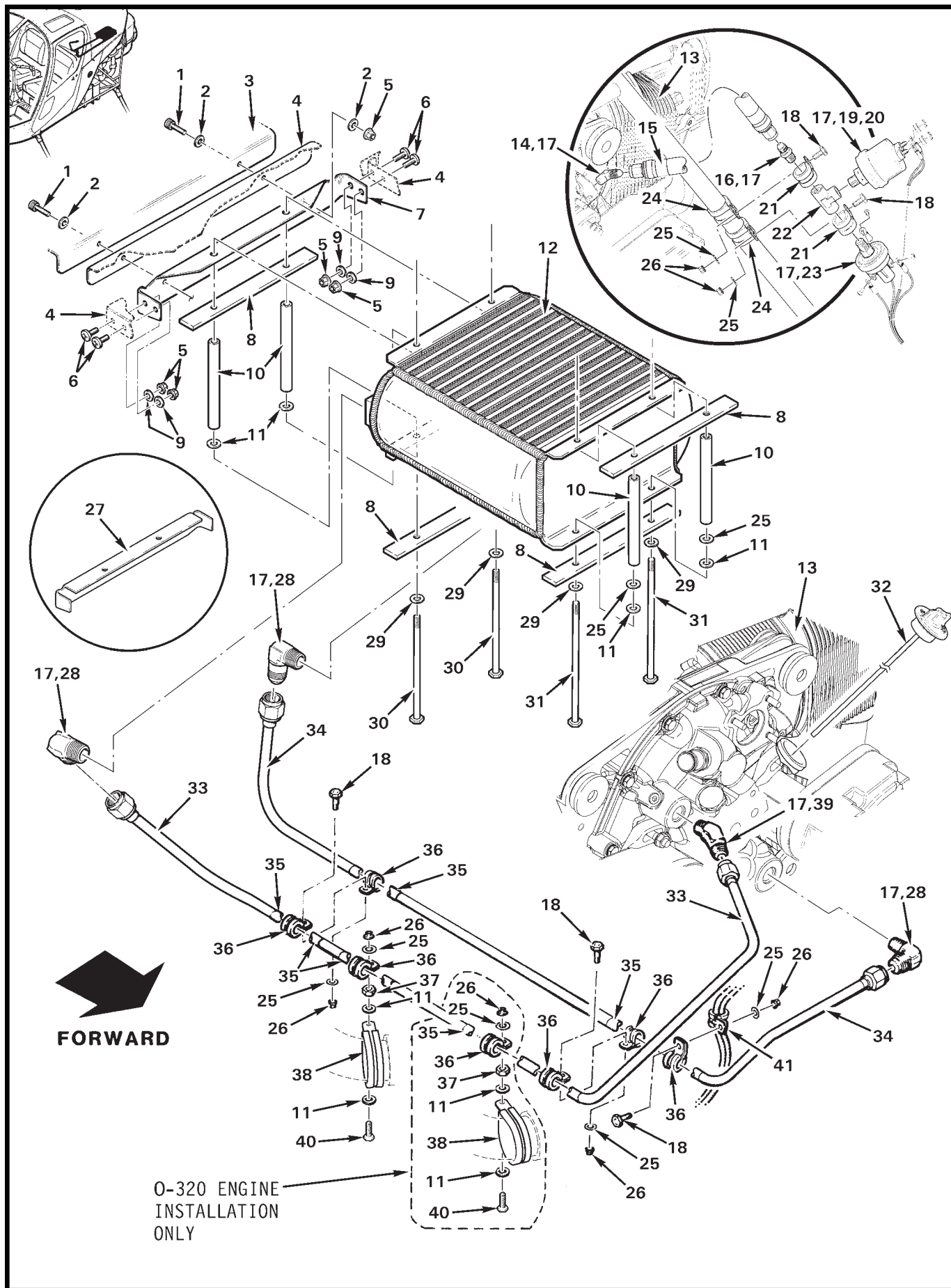


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
OIL COOLER INSTALLATION				
79-1-1	NAS1352-08-8P	Screw	X	2
2	NAS1149FN816P	Washer	X	4
3	A236	Lower Scroll Half (Ref; see also Figure 71-19.)		
4	A309-15	Panel Assembly (Ref; O-320 engine. See also Figure 71-19.)		
	C309-4	Panel Assembly (Ref; O-360 engine)		
5	MS21042L08	Nut	X	6
6	MS27039C0806	Screw	X	4
7	C636-2	Support (C649-1 oil cooler on O-360 engine)	X	1
8	A668-1	Doubler – Oil Cooler	X	4
9	NAS620-8L	Washer	X	4
10	A130-49	Spacer	X	4
11	NAS1149F0363P	Washer	X	4
12	C649-1	Oil Cooler (large)	X	1
13	—	Engine (Ref, see Fig. 71-1)		
14	A571-1	Fitting Assembly – Oil Pressure Hose	X	1
15	B283-1	Hose Assembly – Oil Pressure	X	1
16	AN816-3D	Nipple – Oil Pressure Hose (install using item 17)	X	1
17	B270-6	Sealant/Lubricant (4-oz tube)	X	A/R
18	AN3-3A	Bolt	X	5
19	A058-3	Sender and Line Assembly (Incl items 15 thru 17, 20, 22, and 23)	X	1
20	B308-1	Oil Pressure Sender (replaced part no. 1521003066; install using item 17)	X	1
21	MS21919WDG9	Clamp – Tee Fitting	X	2
22	AN917-1D	Tee – Oil Pressure Hose (install using item 17)	X	1
23	B426-1	Oil Pressure Switch (install using item 17)	X	1
24	MS21919WDG12	Clamp – Frame	X	2
25	NAS1149F0332P	Washer	X	6
26	D210-3	Nut	X	6
27	A636-2	Support (C649-1 oil cooler on O-320 engine)	X	A/R
28	MS20822-8	90° Elbow (install using item 17)	X	2
29	NAS1149F0316P	Washer	X	4
30	AN3-41A	Bolt	X	2
31	AN3-44A	Bolt	X	2
32	LW-16783-13*	Dip Stick – 6 quarts marking (O-320 engine)	X	1
	LW-16783-22P*	Dip Stick – 6 quarts marking (O-360 engine)	X	1

NOTES * Lycoming part no.

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
OIL COOLER INSTALLATION (Cont'd)				
79-1-33	A723-6	Oil Line – Return (Incl item 35)	X	1
34	A723-5	Oil Line – Out (Incl item 35)	X	1
35	B158-212	Heat Shrink	X	A/R
36	MS21919WCH8	Clamp – Oil Line	X	6
37	MS35650-302	Nut	X	1
38	MS21919WDG24	Clamp – Intake Pipe (for O-320 engine)	X	2
	MS21919WDG28	Clamp – Intake Pipe (for O-360 engine, aft location)	X	1
39	MS20823-8	45° Elbow (install using item 17)	X	1
40	NAS428-3A6	Bolt	X	1
41	MS21919WDG8	Clamp – Ignition Harness (use with TCM magnetos)	X	1

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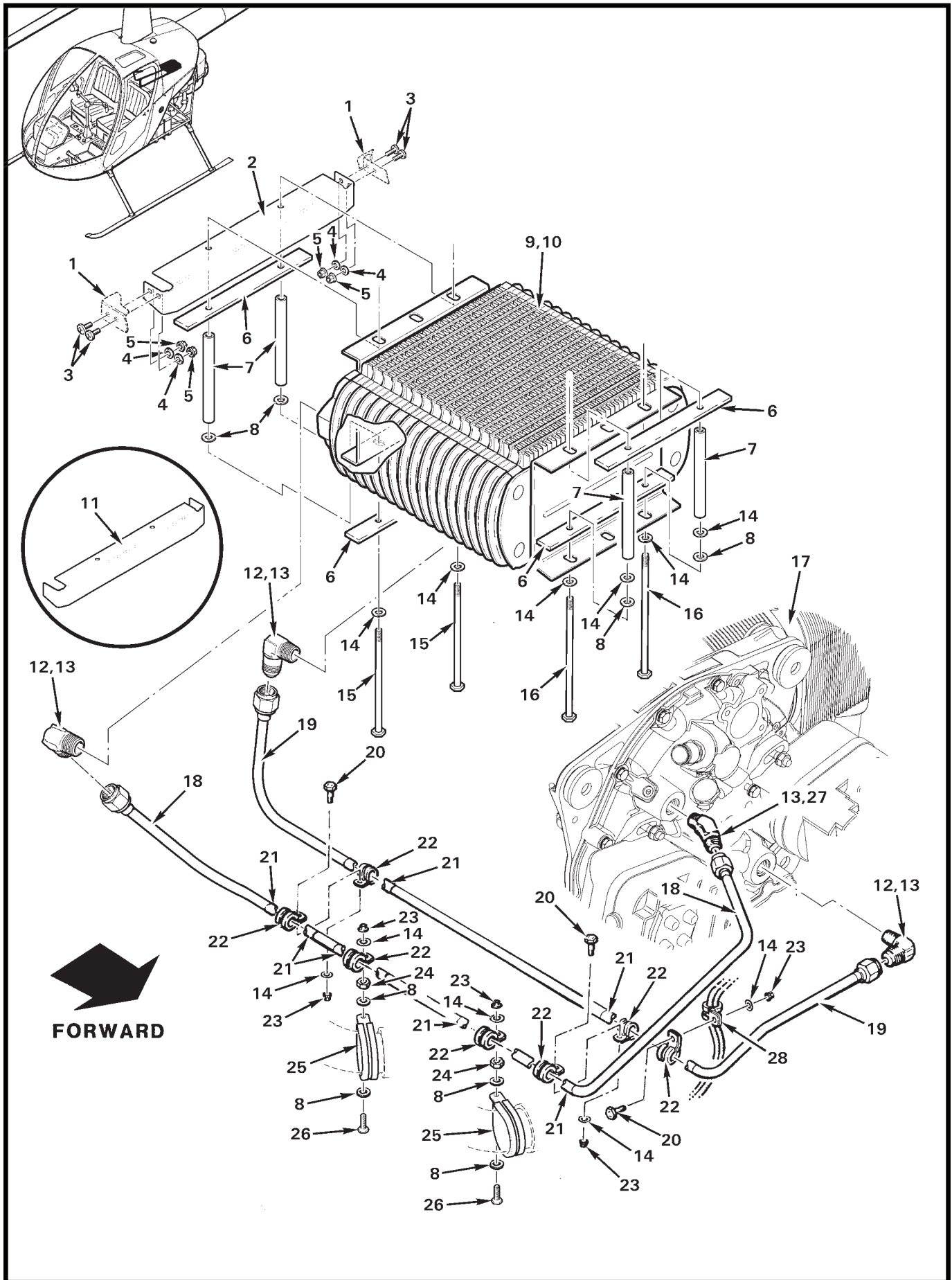


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
OIL COOLER INSTALLATION				
79-5-1	A309-15	Panel Assembly (Ref)		
2	A636-2	Support (used with item 9; Beta and Mariner)	X	1
3	MS27039C0806	Screw	X	4
4	NAS620-8	Washer	X	4
5	MS21042L08	Nut	X	4
6	A668-1	Doubler – Oil Cooler	X	4
7	A130-49	Spacer (3.275-inch length)	X	4
8	NAS1149F0363P	Washer	X	8
9	A649-2*	Large Oil Cooler (Ref; no longer available. Superseded by C649-1 oil cooler. See Figure 79-1.)		
10	A649-1**	Small Oil Cooler (Ref; no longer available. Superseded by C649-1 oil cooler. See Figure 79-1.)		
11	A636-1**	Support (used with item 10)	X	1
12	MS20822-8	90° Elbow (install using item 13)	X	3
13	B270-6	Sealant/Lubricant (4-oz tube)	X	A/R
14	NAS1149F0332P	Washer	X	9
15	AN3-41A	Bolt	X	2
16	AN3-44A	Bolt	X	2
17	—	Engine (Ref)		
18	A723-1**	Oil Line – Out (Includes item 21, used with item 10.)	O	1
	A723-5*	Oil Line – Out (Includes item 21, used with item 9 or C649-1.)	X	1
19	A723-2**	Oil Line – Return (Includes item 21, used with item 10.)	O	1
	A723-6*	Oil Line – Return (Includes item 21, used with item 9 or C649-1.)	X	1
20	AN3-3A	Bolt	X	3
21	B158-212	Heat Shrink	X	A/R
22	MS21919WCH8	Clamp – Oil Line	X	7
23	D210-3	Nut	X	5
24	MS35650-302	Nut	X	2
25	MS21919WDG24	Clamp – Intake Pipe (for O-320 engine)	X	2
26	NAS428-3A6	Bolt	X	2
27	MS20823-8	45° Elbow (install using item 13)	X	1
28	MS21919WDG8	Clamp – Ignition Harness (use with TCM magnetos)	X	1
	MS21919WDG6	Clamp – Ignition Harness (use with Slick magnetos)	X	1

NOTES * Beta and Mariner.
 ** Standard, HP, and Alpha.

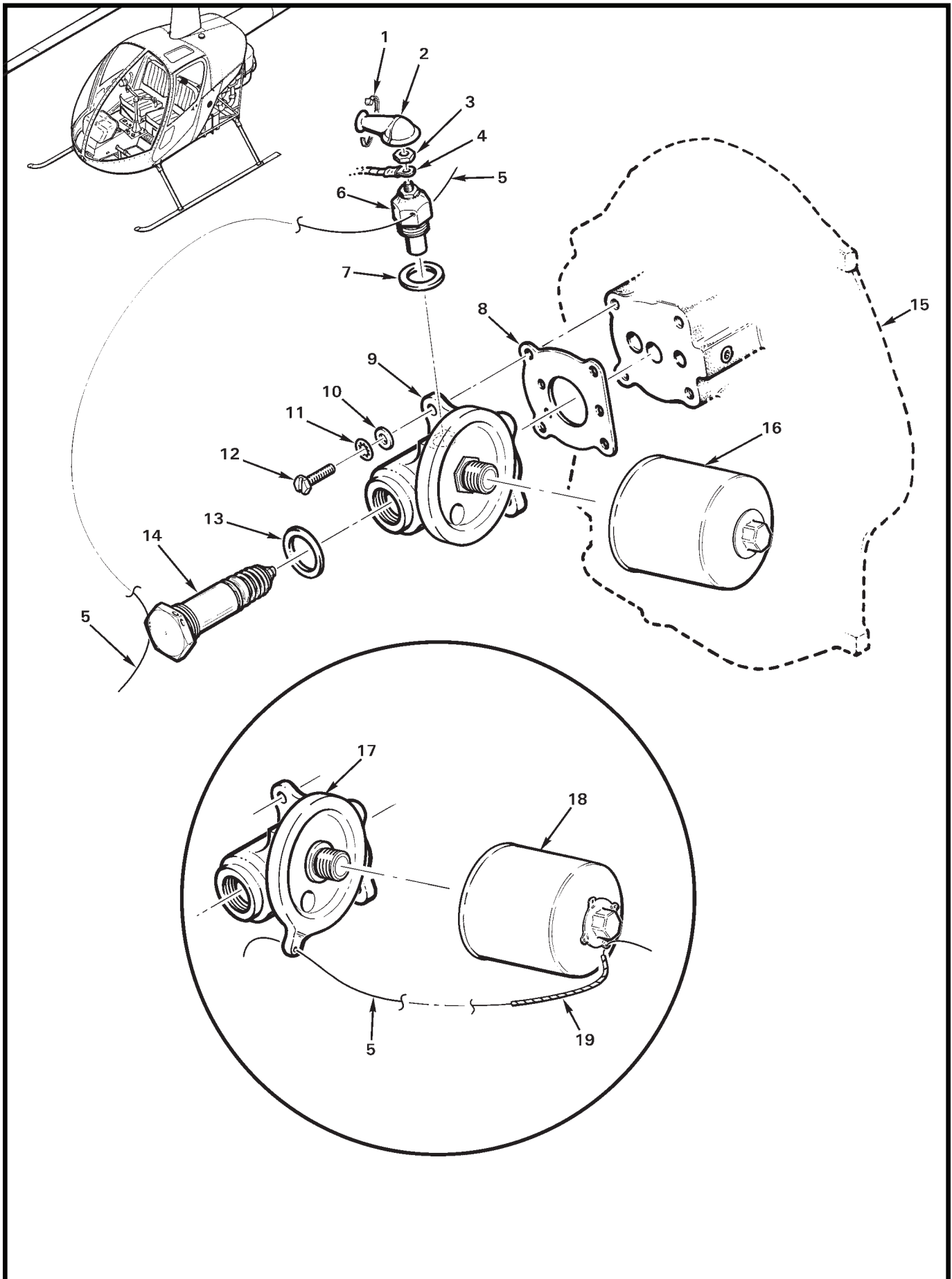


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
OIL FILTER INSTALLATION				
79-7-1	MS3367-4-9	Ty-rap	X	1
2	MS25171-1S	Nipple	X	1
3	—	Nut (Ref, supplied with item 6)		
4	C049-8	Harness Assembly	X	1
5	MS20995C32	0.032-inch dia Safety Wire	X	A/R
6	A760-1	Oil Temperature Sender (Ref)		
7	06E19769-0.63	Gasket	X	1
8	61173*	Gasket – Oil Filter Adapter	X	1
9	D723-1	Adapter – Oil Filter (revision "H" and subsequent)	X	1
10	STD-8*	Washer	X	4
11	STD-160*	Lockwasher	X	4
12	STD-1856*	Screw	X	4
13	76510*	Gasket	X	1
14	53E22144*	Thermostatic Oil Cooler Bypass Valve	X	1
15	—	Accessory Housing (Ref)		
16	B123-2	Oil Filter	X	1
17	D723-1	Adapter – Oil Filter (Revision "G" and prior, provision for safety wire. Ref; no longer available.)		
18	B123-1	Oil Filter (Ref, provision for safety wire; no longer available.)		
19	B161-102	Spirap	X	A/R
* * *				
20	KI-160	Full Flow Oil Filter Kit (for all R22s; includes items 7 thru 9, 11, 13, and 16 thru 18)	X	1
21	A257-19.25oz	Lubricant (0.25-oz tube)	X	1

NOTES * Lycoming part no.

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CHAPTER 90
POLICE VERSION

<i>Figure</i>	<i>Title</i>	<i>Page</i>
90-1	Searchlight Installation	90.0
90-5	Searchlight Components	90.4
90-7	Searchlight Installation	90.6
90-11	PA/Siren Installation	90.10

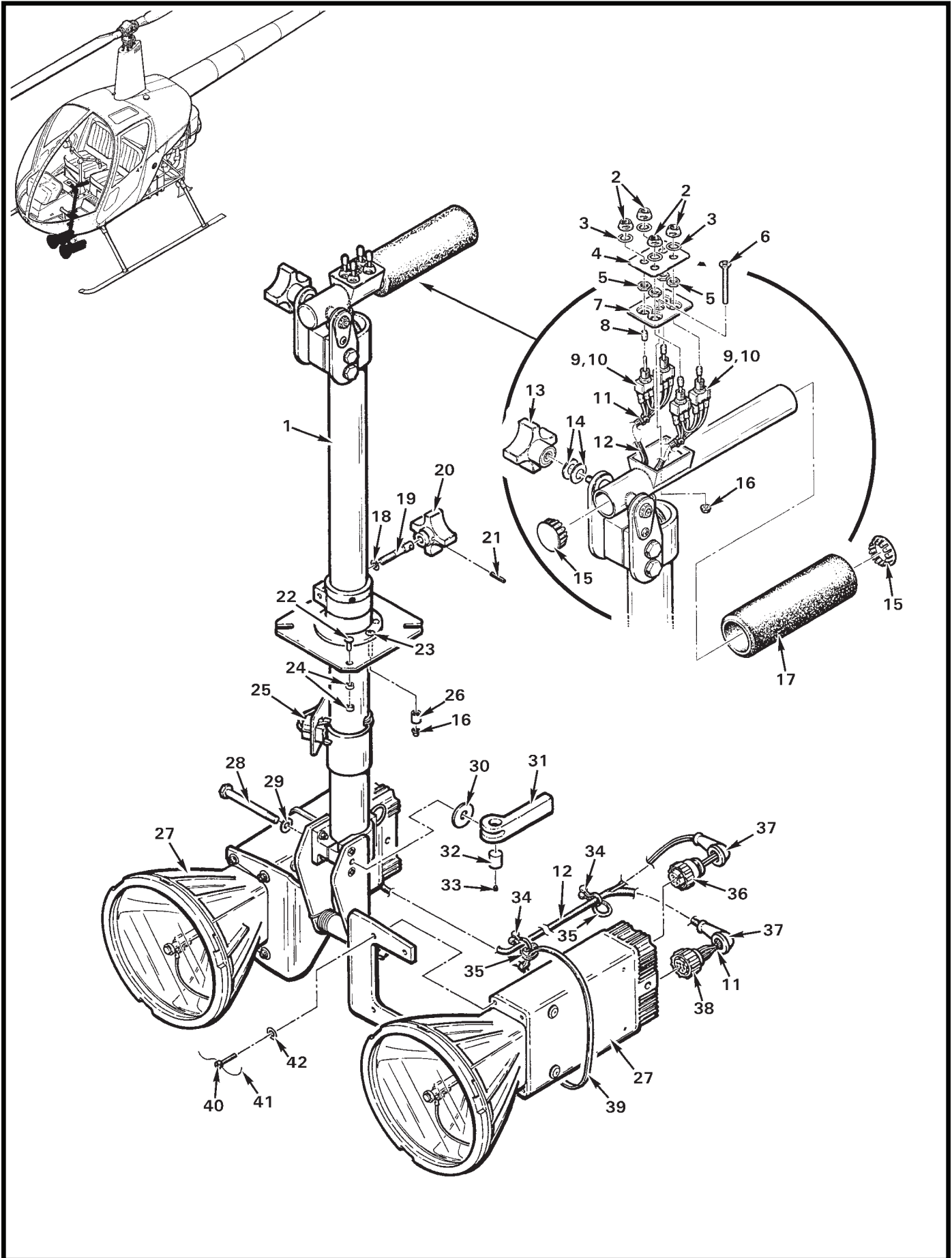


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
SEARCHLIGHT INSTALLATION*				
90-1-1	B035-2	Searchlight Assembly (Incl items 4, 6, 7, 9, 11 thru 42, post assembly, and handle assembly)	O	1
2	B227-4	Dress Nut	X	2
3	B227-3	Lockwasher	X	2
4	B342-6	Plate (no longer available)	O	1
5	—	Nut	X	2
6	MS24694-S17	Screw	X	1
7	B342-5	Plate	O	1
8	7062	Cap (black)	O	2
9	B347-1	Wire Harness Assembly (Incl items 2, 3, 8, 10 thru 12)	O	2
10	7105-S-Y-Z-Q-E	Switch (includes item 5; B158-2 heat shrink around terminals)	X	2
11	B268-3	Tape	X	A/R
12	B266-4	Sleeving (expandable)	X	A/R
13	2820	Knob	X	1
14	B0500-022-S	Spring Washer	X	2
15	SS51334	Hole Plug	X	2
16	MS21042L08	Nut	X	2
17	A601-2	Grip (install using B270-8qt adhesive)	X	1
18	NAS620-10L	Washer	X	1
19	B210-10	Shaft	O	1
20	A499-2	Knob – Friction	X	1
21	MS16562-35	Spring Pin	X	1
22	MS20470AD4	Rivet	X	2
23	MS35206-248	Screw	O	1
24	A130-14	Spacer	X	4
25	B263-19	Housing	X	1
	B263-2	Socket	X	6
26	A130-34	Spacer	X	1
27	MBS-430**	Searchlight	O	2
28	NAS6603-31	Bolt	X	1
29	NAS1149F0332P	Washer	X	1
30	AN970-3	Washer	X	1
31	2ADP4-2	Handle (Ref, no longer available)		
32	7ADPC4	Barrel Nut	O	1
33	M77C640-002E	Set Screw	O	1

NOTES * Peak Beam Systems, Inc. Xenon lamp.
 ** Peak Beam Systems, Inc. part no.

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
SEARCHLIGHT INSTALLATION (Cont'd)				
90-1-34	TL-350	Tie (plastic)	X	4
35	MS3367-5-9	Ty-Rap	X	2
36	206060-1	Plug (use with B264-4 socket, [2] per plug)	X	2
37	MS25171-1S	Nipple	X	4
38	205838-1	Plug (use with 66504-9 socket, [6] per plug)	O	2
39	MS3367-6-0	Ty-Rap	X	2
40	NAS1352-08H10P	Screw	O	8
41	MS20995C20	0.020-inch dia Safety Wire	X	A/R
42	NAS1149FN816P	Washer	X	8

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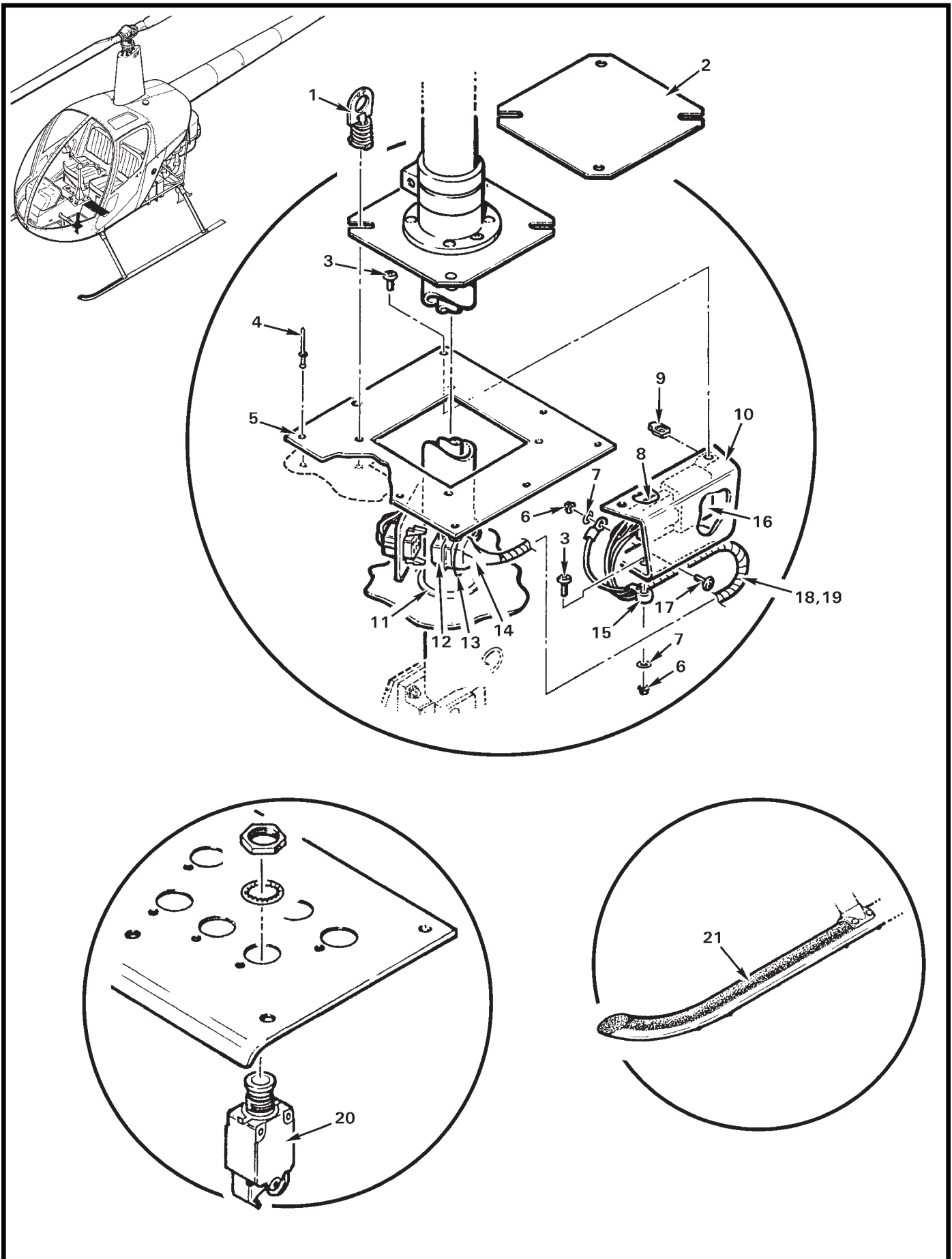


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
SEARCHLIGHT COMPONENTS*				
90-5-1	KM921-1	Fastener	X	2
2	A997-2	Cover (For use when searchlight is removed. Ref, no longer available.)		
3	MS27039C0807	Screw	X	2
4	NAS1919B04S02	Rivet	X	8
5	A995-1	Doubler (Ref, no longer available)		
6	MS21042L08	Nut	X	2
7	NAS1149FN816P	Washer	X	2
8	VCF7-1000	Connector	X	1
	B262-6	Receptacle (small)	X	2
	B262-7	Receptacle (large)	X	2
9	B162-2	Clipnut	X	2
10	A527-1	Guard	O	1
11	NAS557-22A	Grommet (install using B270-8qt adhesive)	X	1
12	B263-18	Housing (use with B263-1 pin, [6] per housing)	X	1
13	A215-116	O-Ring	X	1
14	B158-12	Heat Shrink	X	A/R
15	O8415	Ty-Rap	O	1
16	VF7-41F11	Relay	X	1
17	MS27039C0806	Screw	X	1
18	B309-1	Harness Assembly (Includes items 8, 12 thru 14, 19, wires, and B260-12 terminal.)	O	1
19	B161-4	Spirap	X	A/R
20	B297-20	Circuit Breaker (20-amp)	X	1
21	X-1567	Wing-Walk Compound (black, one-quart can)	X	A/R

NOTES * For additional components see Figure 90-1.

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
		SEARCHLIGHT INSTALLATION		
90-7-1	B031-1	Searchlight Assembly (Ref; includes items 2 thru 15, 19, 20, 30 thru 32, post assembly, and handle assembly. No longer available.)		
2	SS51334	Hole Plug	X	2
3	NAS1329H08K75L	Rivnut	X	1
4	B209-6	Hole Plug	X	1
5	MS24693-S51	Screw	X	1
6	A216-2	Housing (no longer available)	O	1
7	B300-1	Switch (includes washer and nuts)	X	1
8	A601-2	Grip	X	1
	B270-8qt	Adhesive (use to install A601-2 grip, 1-quart can)	X	A/R
9	MS16562-27	Roll Pin	X	1
10	—	Set Screw	O	1
11	A483-1	Knob (Incl item 10)	X	1
12	A130-25	Spacer	X	1
13	B210-6	Shaft (Ref, no longer available)		
14	B263-19	Housing	X	1
	B263-2	Socket	X	6
15	B211-1	Light Assembly (LH and RH; includes items 16 thru 18, and 21 thru 29. No longer available.)	O	2
16	NAS1149FN816P	Washer	X	4
17	MS20995C32	0.032-inch dia Safety Wire	X	A/R
18	AN503-8-6	Screw	X	2
19	MS3367-4-9	Ty-rap	X	A/R
20	B172-4*	Wire Harness Assembly (left lamp, no longer available)	O	1
	B172-6*	Wire Harness Assembly (right lamp, no longer available)	O	1
21	B172-5	Wire Harness Assembly (Includes B264-12 receptacle, B264-3 pin [2], and B260-2 terminal [2]. No longer available.)	O	1
22	MS35489-4	Grommet (or AN931-3-5)	X	2
23	B212-1	End Cap	O	1
24	A215-137	O-Ring	O	1
25	A141-28	Washer	X	1
26	W2132-023	Spring Washer	O	1
27	B212-3	Washer	O	1
28	—	Insulator (Ref)	O	1
29	H2100	Lamp (12-volt, 100-watt)	X	1

NOTES * Includes B264-13 plug, B264-4 socket (2), and B263-2 terminal (2).

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FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
SEARCHLIGHT INSTALLATION (Cont'd)				
90-7-30	NAS6603-5	Bolt	X	2
31	NAS1149FO332P	Washer	X	2
32	MS21042L3	Nut	X	2
33	A997-2	Cover (For use when searchlight is removed. Ref; no longer available.)		
34	MS27039C0808	Screw	X	4
35	MS27039C0807	Screw	X	3
36	B349-1	Doubler (no longer available)	0	1
37	NAS1919B04S02	Rivet	X	8
38	B162-3	Clipnut	X	4
39	B162-2	Clipnut	X	2
40	A527-1	Guard	X	1
41	VF7-41F11	Relay	X	1
42	MS27039C0806	Screw	X	1
43	B161-4	Spirap	X	A/R
44	O8415	Ty-Rap	X	1
45	MS21042L08	Nut	X	2
46	VCF7-1000	Connector	X	1
	B262-6	Receptacle (small)	X	2
	B262-7	Receptacle (large)	X	2
47	B309-1	Harness Assembly (Incl items 43, 44, 46, 48, and 50)	X	1
48	B158-12	Heat Shrink	X	A/R
49	NAS557-22A	Grommet	X	A/R
50	B263-18	Housing	X	1
	B263-1	Pin	X	6
	A215-116	O-Ring	X	1
51	A272-1	Chin (Ref)		
52	B263-19	Housing	X	1
	B263-2	Socket	X	6
53	B297-20	Circuit Breaker (20-amp)	X	1
54	X-1567	Wing-Walk Compound (Black, one-quart can; not shown. See Figure 90-5.)	X	A/R

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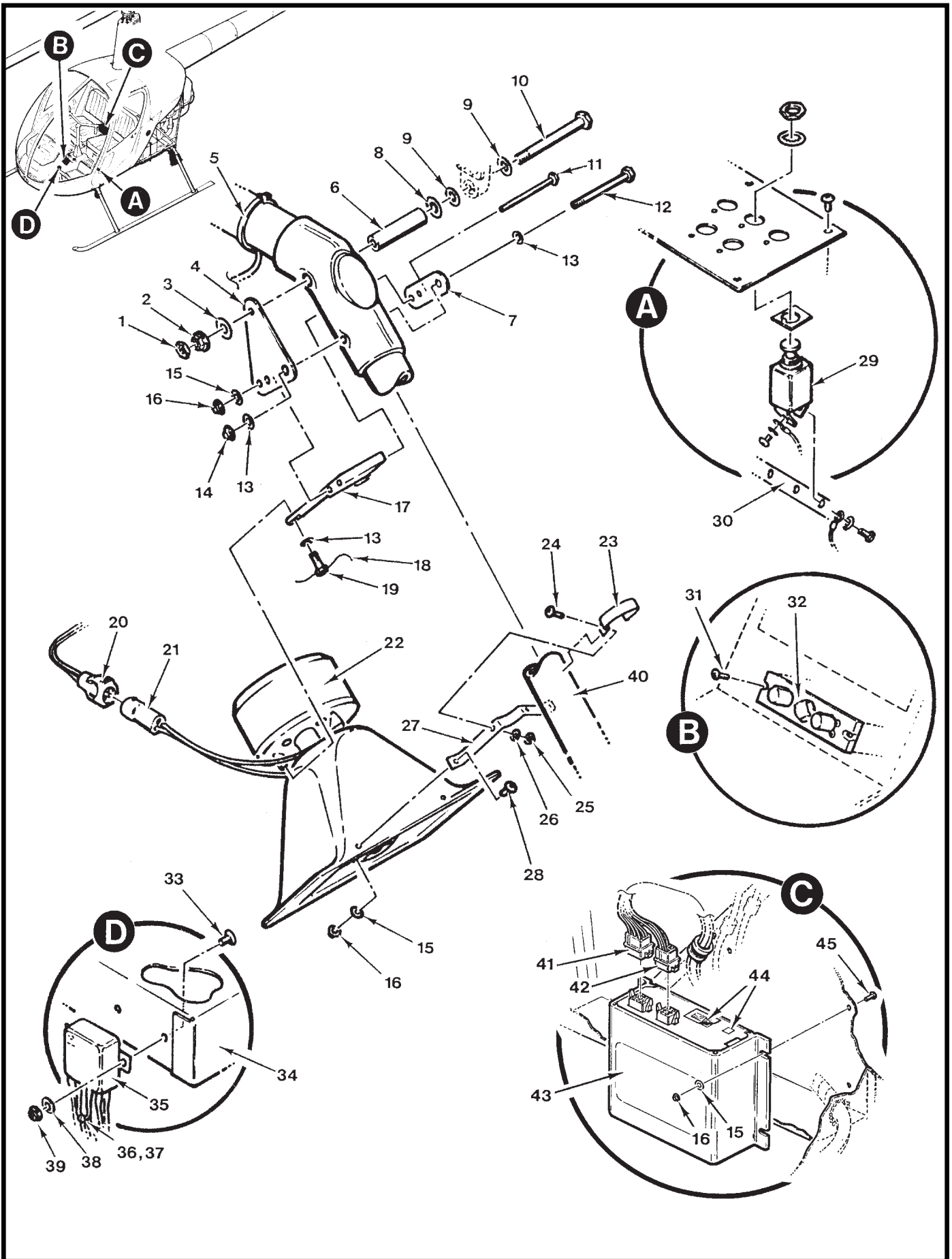


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
PA/SIREN INSTALLATION				
90-11-1	B330-19	Palnut	X	1
2	MS21042L6	Nut	X	1
3	NAS1149F0632P	Washer	X	1
4	A663-1	Plate	X	1
5	MS3367-4-9	Ty-Rap	X	A/R
6	A278-1	Spacer	X	1
7	A663-2	Plate	X	1
8	A214-1	Washer	X	1
9	A141-23	Washer	X	2
10	NAS6606-42	Bolt	X	1
11	NAS6603-36	Bolt	X	2
12	NAS6604-34	Bolt	X	1
13	NAS1149F0432P	Washer	X	5
14	MS21042L4	Nut	X	1
15	NAS1149F0363P	Washer	X	8
16	MS21042L3	Nut	X	8
17	A644-2	Support	X	1
18	MS20995C32	0.032-inch dia Safety Wire	X	A/R
19	MS20074-04-03	Bolt	X	3
20	B264-12	Receptacle	X	1
	B264-3	Pin (for use with item 20)	X	2
21	B264-13	Plug	X	1
	B264-4	Socket (for use with item 21)	X	2
22	SA340TS	Siren Speaker	X	1
23	A662-1*	Bracket (use with 4.34-inch wide speaker cone)	X	1
	A662-3	Bracket (use with 5.20-inch wide speaker cone)	X	1
24	MS27039C0806	Screw	X	2
25	MS21042L08	Nut	X	2
26	NAS1149FN832P	Washer	X	2
27	A662-2*	Bracket (use with 4.34-inch wide speaker cone)	X	1
	A662-4	Bracket (use with 5.20-inch wide speaker cone)	X	1
28	MS27039C1-06	Screw	X	2
29	B297-10	Circuit Breaker (10 amp)	X	1
30	A448-1	Bus Bar (Ref)		
31	MS35206-228	Screw	X	2

NOTES * Earlier R22s.

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
PA/SIREN INSTALLATION (Cont'd)				
90-11-32	A687-3	PA/Siren Control (use only with item 43)	X	1
33	MS35206-215	Screw	X	2
34	—	Radio Tray (Ref)		
35	FW-1111-D00	Relay (if equipped)	X	1
36	A15A	Diode	X	1
37	B158-3	Heat Shrink	X	A/R
38	NAS1149FN416P	Washer	X	2
39	MS21042L04	Nut	X	2
40	A239-1	Strut (Ref)		
41	B263-20	Housing	X	1
	B263-1	Pin	X	6
42	B263-18	Housing	X	1
	B263-1	Pin	X	4
43	BETA112R	Amplifier (use only with item 32)	X	1
44	A701-1	Foil Tape	X	A/R
45	AN525-10R9	Screw	X	4

NOTES

CHAPTER 95
INSTRUMENT SYSTEM

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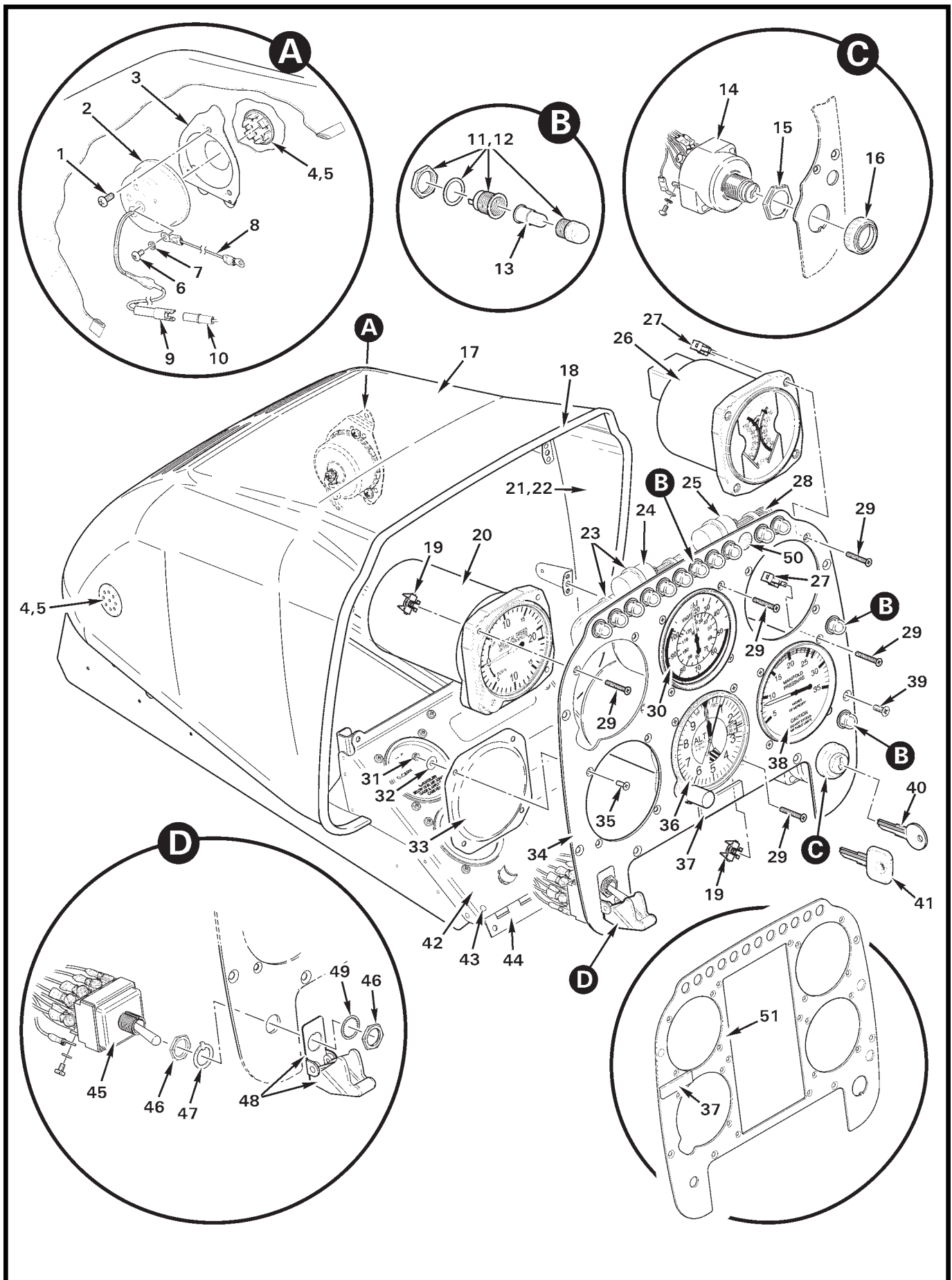


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
SIX-INSTRUMENT CONSOLE ASSEMBLY				
95-1-1	MS27039C0806	Screw	X	3
2	B320-1	Horn Assembly – Low RPM (RH and LH; includes items 6 thru 9)	X	1
3	C479-1	Mount Assembly (Ref)	O	1
4	9688K643	Hole Plug (install using item 5)	X	2
5	B270-18	Adhesive	X	A/R
6	MS35206-241	Screw	X	1
7	B332-42	Lockwasher	X	1
8	A320-79	Wire (to ground)	X	1
9	B263-10	Housing	X	1
	B263-1	Pin	X	1
10	B263-11	Housing (Ref)		
	B263-2	Socket (Ref)		
11	B198-1*	Light (amber; includes washer, nut, and amber lens as shown)	X	A/R
12	B198-2*	Light (red; includes washer, nut, and red lens as shown)	X	2
13	B196-1	Lamp	X	1
14	A661-1	Switch – Ignition (includes items 15, 16, and [2] keys)	X	1
15	—	Nut	O	1
16	—	Nut	O	1
17	G051-11	Shell Assembly (Incl items 18, 21, 22, and 42)	X	1
18	A226-11	Trim	X	A/R
19	MS33737-13C	Nut – Instrument	X	6
20	A602-1	Rate-of-Climb Indicator	X	1
21	G051-13	Visor Liner (install using item 22)	X	A/R
22	B270-8qt	Adhesive	X	A/R
23	MS3367-5-9	Ty-Rap	X	A/R
24	A655-1	Time Delay – Low Fuel Warning	X	1
25	B280-4	Relay Assembly (governor off lamp)	X	1
26	A792-4	Engine/Rotor Tachometer	X	1
27	MS33737-15C	Nut – Instrument	X	12
28	B716-02	Harness Assembly – Console (Ref, includes items 14, 23 thru 25, and 45)	X	1
29	MS24693-S32	Screw	X	18
30	A599-1	Airspeed Indicator (Knots, MPH)	X	1
	A599-2	Airspeed Indicator (KM/H, Knots)	X	1

NOTES * Order item 13 when replacing.

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
SIX-INSTRUMENT CONSOLE ASSEMBLY (Cont'd)				
95-1-31	MS21042L06	Nut	X	4
32	NAS1149FN616P	Washer	X	4
33	B190-6	Cover	X	1
34	G055-10	Face (standard)	X	1
35	MS24693-S27	Screw	X	4
36	A613-1	Altimeter	X	1
37	A743-1	Call Letters Plate (please specify call letters)	X	1
38	A600-5	Manifold Pressure Gage	X	1
39	MS24694-S4	Screw	X	6
40	R8096	Key – Duplicate (specify ship S/N and “PK” number when ordering)	X	1
41	D768-6	Key (blank; black plastic-coated “R22” logo)	X	1
42	G054-5	Face Assembly (Incl items 43 and 44)	X	1
43	MS20426AD3	Rivet	X	4
44	A356-2	Hinge (install using item 43)	X	1
45	MS25068-23	Switch – Clutch (Incl items 46, 47, and 49)	X	1
46	—	Nut	O	2
47	—	Keywasher	O	1
48	MS25224-1	Guard	X	1
49	—	Lockwasher	O	1
50	2633	Hole Plug (additional plug installed in “Carbon Monoxide” hole if no CO detector is installed)	X	1
51	G055-11	Face (optional)	X	1

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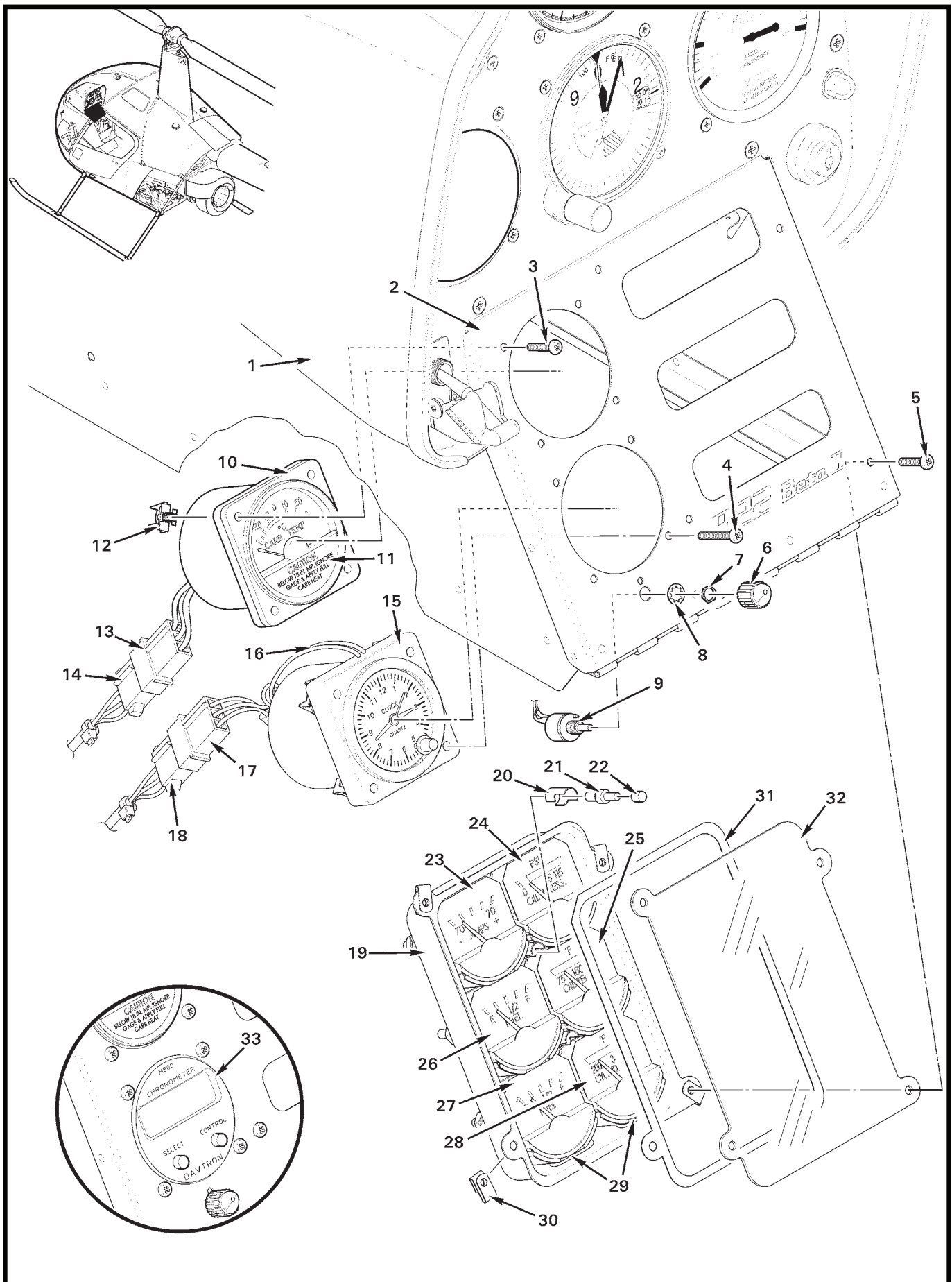


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
		SIX-INSTRUMENT CONSOLE ASSEMBLY – LOWER PANEL HIGH CONSOLE		
95-5-1	G051	Shell Assembly (Ref)		
2	G054	Cluster Panel – Face Assembly (Ref)		
3	MS35206-232	Screw	X	4
4	MS35206-234	Screw	X	4
5	MS35206-230	Screw	X	4
6	MS91528-0C1B	Knob	X	1
7	—	Nut	O	1
8	—	Lockwasher	O	1
9	B398-1	Potentiometer (Incl items 7 and 8)	X	1
10	A604-2	Carb Air Temp Gage (Incl item 13)	X	1
11	A654-66	Decal (carb heat instructions)	X	1
12	MS33737-12C	Nut – Instrument	X	4
13	B263-14	Housing	X	1
	B263-1	Pin	X	3
14	B263-15	Housing (Ref)		
	B263-2	Socket (Ref)		
15	A072-12	Clock Assembly (includes items 16, 17, instrument nuts, and wires)	X	1
16	A072-9	Light Tray Assembly	X	1
17	B263-14	Housing	X	1
	B263-1	Pin	X	3
18	B263-15	Housing (Ref)		
	B263-2	Socket (Ref)		
19	B144-3	Instrument Cluster (Incl items 20 thru 32)	X	1
20	A700-1	Barrier	X	2
21	100057017	Lamp (gray base)	X	2
22	6P47	Cap (for red lighting requirement)	X	2
	17P47	Cap (for white lighting requirement)	X	2
23	6246-00468	Ammeter	X	1
24	6246-00647	Oil Pressure Meter	X	1
25	6246-00090	Oil Temperature Meter	X	1
26	6246-00473	Fuel Quantity Meter (main tank)	X	1
27	6246-00473	Fuel Quantity Meter (aux tank)	X	1
28	6246-00088	Cylinder Head Temp Meter	X	1
29	—	Desiccant Bag (1-gram bag, Ref)	O	2

NOTES

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
SIX-INSTRUMENT CONSOLE ASSEMBLY – LOWER PANEL HIGH CONSOLE (Cont'd)				
95-5-30	B162-1	Clipnut	X	4
31	0015-00723	Gasket	X	1
32	0003-00434	Window Crystal (clear plastic)	X	1
33	A064-3	Digital Clock Assembly (Ref; see Figure 95-55)		

NOTES

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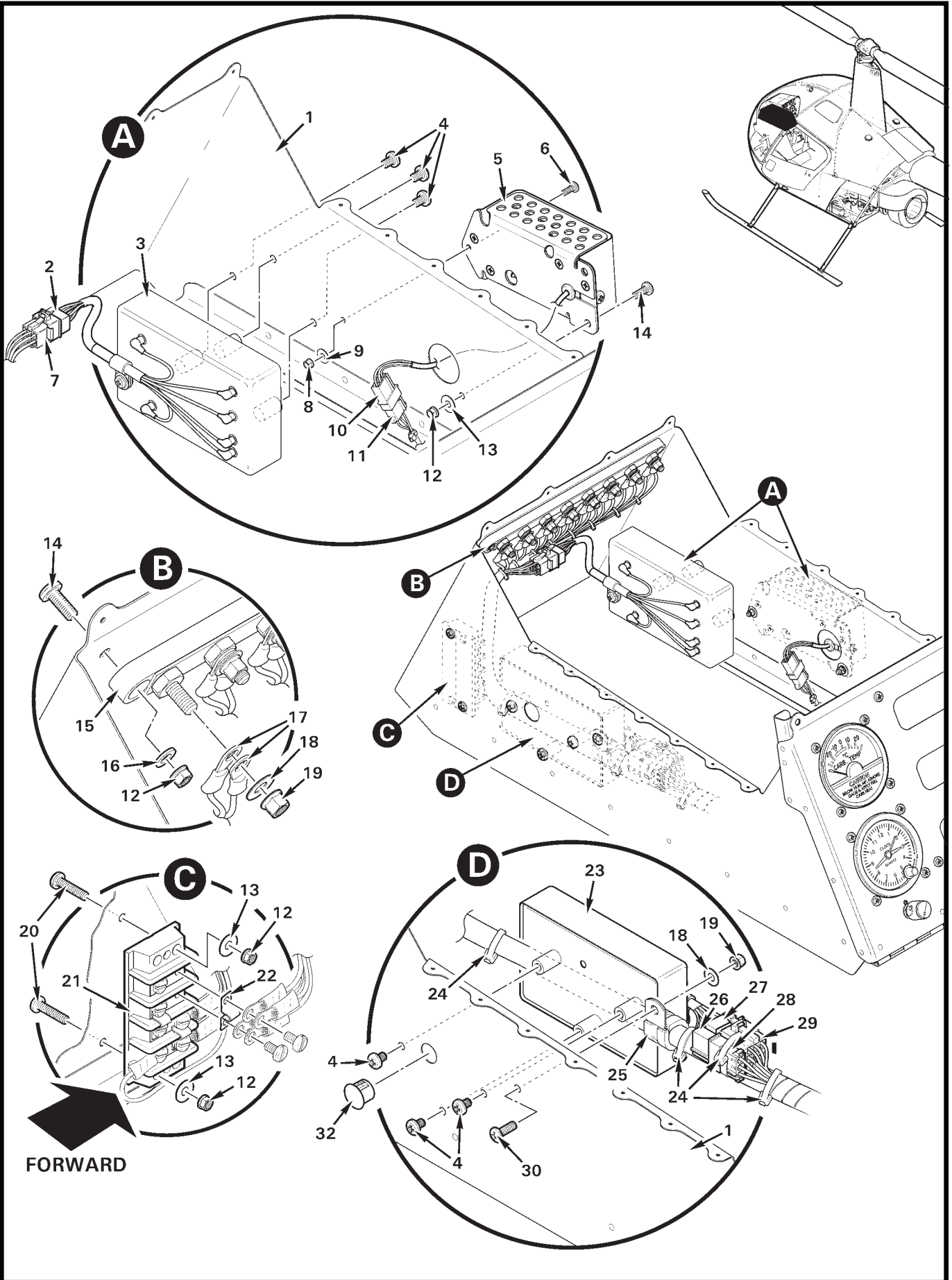


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
		SIX-INSTRUMENT CONSOLE ASSEMBLY – COMPONENTS, HIGH CONSOLE		
95-9-1	G053-9	Upper Console Support (Ref)		
2	B263-18	Housing	X	1
	B263-1	Pin	X	6
3	B395-1	Dimmer Assembly (Incl item 2)	X	1
4	MS35206-241	Screw	X	6
5	C696-1	CO Detector Assembly (Incl item 10)	X	1
6	MS35206-214	Screw	X	1
7	B263-19	Housing	X	1
	B263-2	Socket	X	6
8	MS21042L04	Nut	X	1
9	NAS1149FN416P	Washer	X	1
10	B263-14	Housing	X	1
	B263-1	Pin	X	3
11	B263-15	Housing	X	1
	B263-2	Socket	X	3
12	MS21042L06	Nut	X	3
13	NAS1149FN616P	Washer	X	3
14	MS35206-228	Screw	X	3
15	C448-3	Block Assembly (Includes A448-14 bus bar, B567-43 screws, B301-8 nuts, and B270-9 adhesive.)	X	1
16	NAS620-6	Washer	X	2
17	B260-2	Terminal	X	A/R
18	NAS1149FN816P	Washer	X	9
19	MS21042L08	Nut	X	9
20	MS35206-231	Screw	X	2
21	38TB04F	Terminal Block	X	1
22	601985-2	Jumper Tab	X	3
23	A569-5	Low RPM Warning Unit (Incl items 26 and 27)	X	1
24	MS3367-4-9	Ty-Rap	X	A/R
25	MS21919WDG7	Clamp	X	1
26	B263-16	Housing	X	1
	B263-1	Pin	X	4
27	B263-20	Housing	X	1
	B263-1	Pin	X	8

NOTES

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
SIX-INSTRUMENT CONSOLE ASSEMBLY – COMPONENTS, HIGH CONSOLE (Cont'd)				
95-9-28	B263-17	Housing	X	1
	B263-2	Socket	X	4
29	B263-21	Housing	X	1
	B263-2	Socket	X	8
	B263-3	Terminator	X	1
30	MS27039C0806	Screw	X	1
31	B716-02	Harness Assembly – Console (Ref)		
32	2633	Hole Plug	X	1

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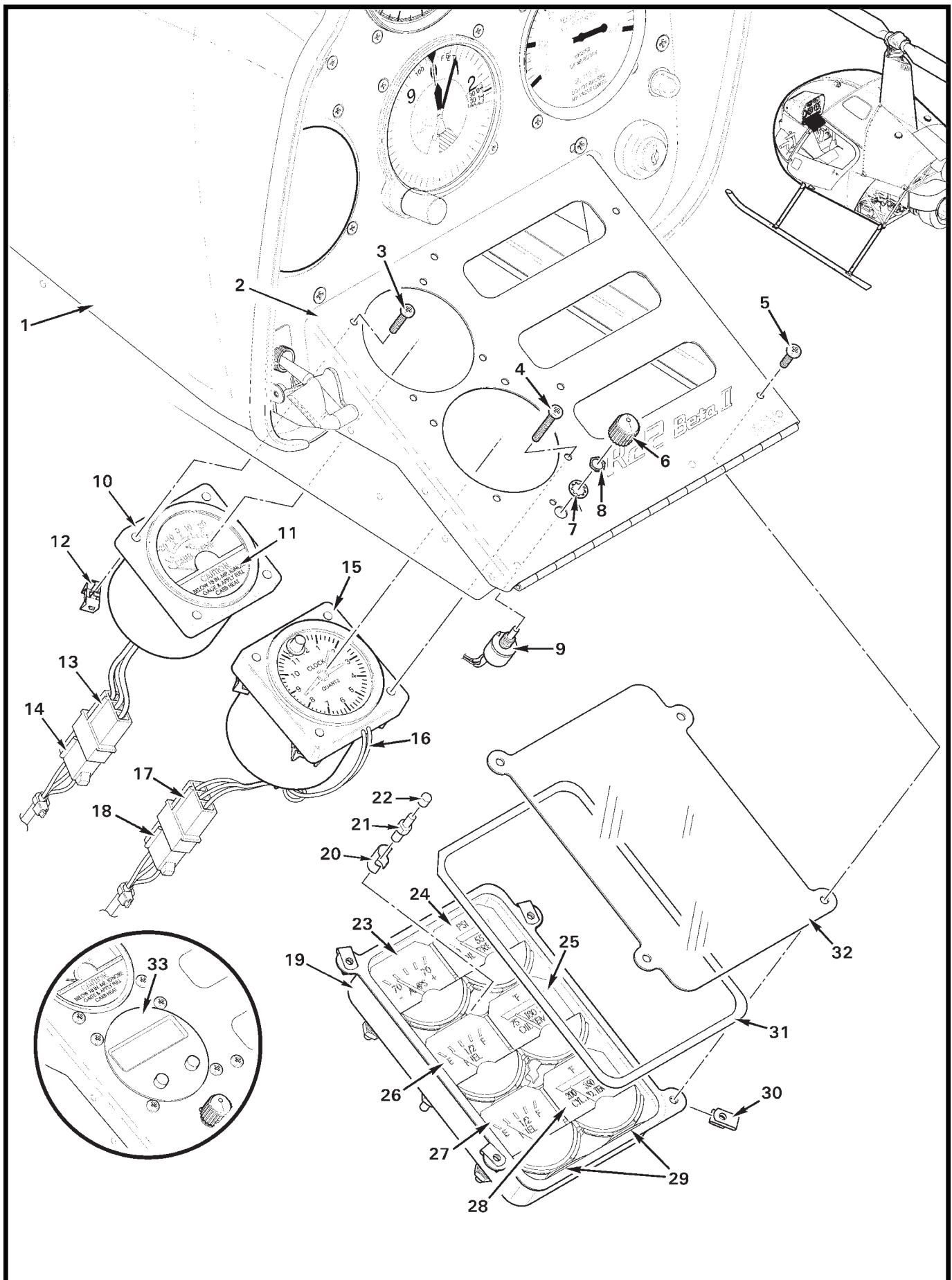


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
		SIX-INSTRUMENT CONSOLE ASSEMBLY – LOWER PANEL LOW CONSOLE		
95-13-1	G051	Shell Assembly (Ref)		
2	G054	Cluster Panel – Face Assembly (Ref)		
3	MS35206-232	Screw	X	4
4	MS35206-234	Screw	X	4
5	MS35206-230	Screw	X	4
6	MS91528-0C1B	Knob	X	1
7	—	Nut	O	1
8	—	Lockwasher	O	1
9	B398-1	Potentiometer (Incl items 7 and 8)	X	1
10	A604-2	Carb Air Temp Gage (Incl item 13)	X	1
11	A654-66	Decal (carb heat instructions)	X	1
12	MS33737-12C	Nut – Instrument	X	4
13	B263-14	Housing	X	1
	B263-1	Pin	X	3
14	B263-15	Housing (Ref)		
	B263-2	Socket (Ref)		
15	A072-7	Clock Assembly (includes items 16, 17, instrument nuts, and wires)	X	1
16	A072-9	Light Tray Assembly	X	1
17	B263-14	Housing	X	1
	B263-1	Pin	X	3
18	B263-15	Housing (Ref)		
	B263-2	Socket (Ref)		
19	B144-3	Instrument Cluster (Incl items 20 thru 32)	X	1
20	A700-1	Barrier	X	2
21	100057017	Lamp (gray base)	X	2
22	6P47	Cap (for red lighting requirement)	X	2
	17P47	Cap (for white lighting requirement)	X	2
23	6246-00468	Ammeter	X	1
24	6246-00647	Oil Pressure Meter	X	1
25	6246-00090	Oil Temperature Meter	X	1
26	6246-00473	Fuel Quantity Meter (main tank)	X	1
27	6246-00473	Fuel Quantity Meter (aux tank)	X	1
28	6246-00088	Cylinder Head Temp Meter	X	1
29	—	Desiccant Bag (1-gram bag, Ref)	O	2

NOTES

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
		SIX-INSTRUMENT CONSOLE ASSEMBLY – LOWER PANEL LOW CONSOLE (Cont'd)		
95-13-30	B162-1	Clipnut	X	4
31	0015-00723	Gasket	X	1
32	0003-00434	Window Crystal (clear plastic)	X	1
33	A064-3	Digital Clock Assembly (Ref; see Figure 95-55)		
NOTES				

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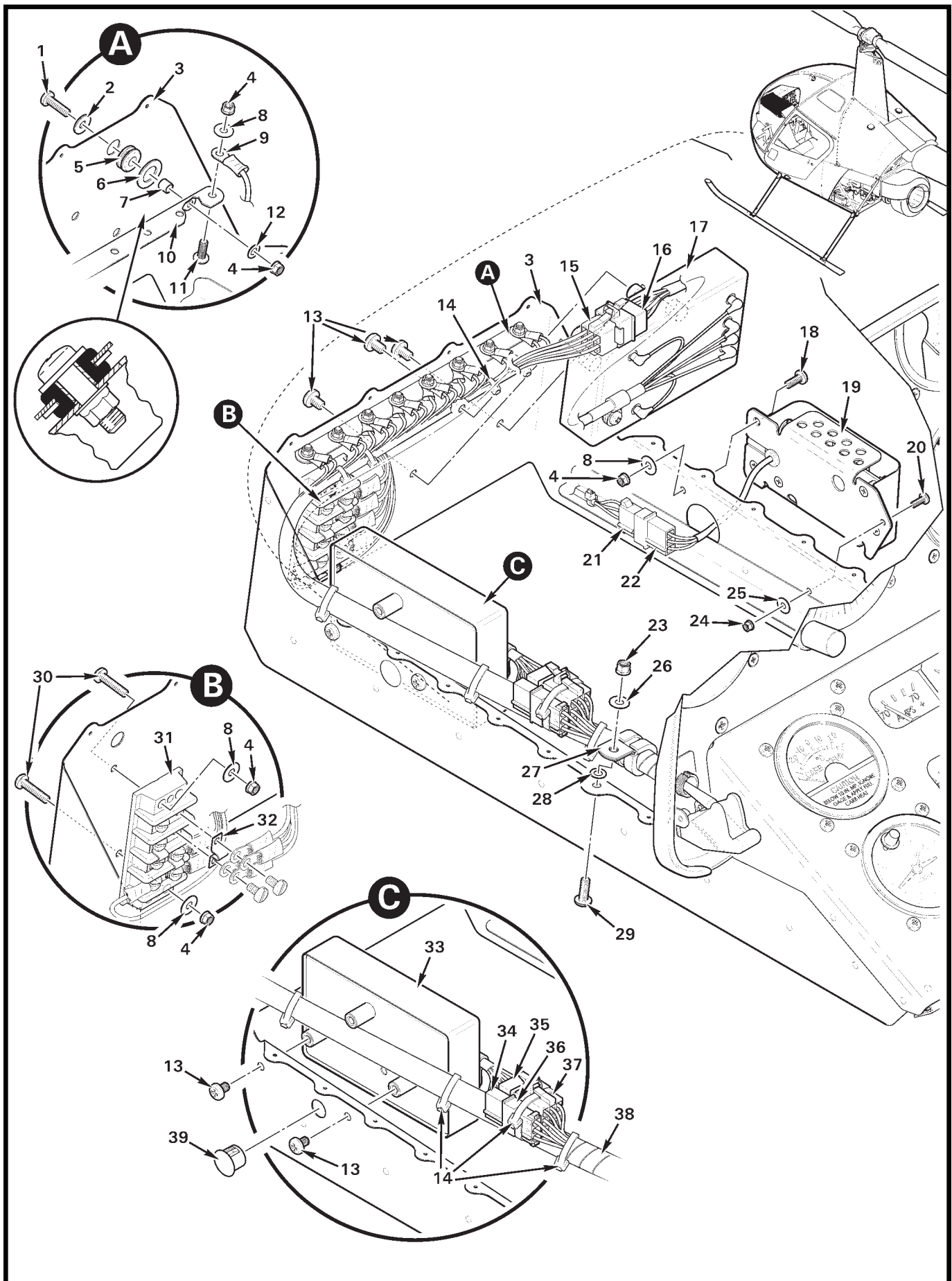


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
		SIX-INSTRUMENT CONSOLE ASSEMBLY – COMPONENTS LOW CONSOLE		
95-17-1	MS35206-230	Screw	X	2
2	NAS1149FN632P	Washer	X	2
3	G053-7	Upper Console Support (Ref)		
4	MS21042L06	Nut	X	13
5	MS35489-4	Grommet	X	2
6	NAS1149F0532P	Washer (install in grommet groove; see detail showing parts assembly)	X	2
7	C130-59	Spacer (install in grommet bore; see detail showing parts assembly)	X	2
8	NAS1149FN616P	Washer	X	11
9	B260-2	Terminal	X	A/R
10	A448-18	Bus Bar	X	1
11	B527-25	Screw	X	8
12	NAS620-6L	Washer	X	2
13	MS35206-241	Screw	X	5
14	MS3367-4-9	Ty-Rap	X	A/R
15	B263-19	Housing	X	1
	B263-2	Socket	X	6
16	B263-18	Housing	X	1
	B263-1	Pin	X	6
17	B395-1	Dimmer Assembly (Incl item 16)	X	1
18	MS35206-228	Screw	X	1
19	C696-1	CO Detector Assembly (Incl item 22)	X	1
20	MS35206-214	Screw	X	1
21	B263-15	Housing	X	1
	B263-2	Socket	X	3
22	B263-14	Housing	X	1
	B263-1	Pin	X	3
23	MS21042L08	Nut	X	1
24	MS21042L04	Nut	X	1
25	NAS1149FN416P	Washer	X	1
26	NAS1149FN816P	Washer	X	1
27	MS21919WDG7	Clamp	X	1
28	NAS620-8	Washer	X	1
29	MS27039C0807	Screw	X	1

NOTES

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
SIX-INSTRUMENT CONSOLE ASSEMBLY – COMPONENTS LOW CONSOLE (Cont'd)				
95-17-30	MS35206-231	Screw	X	2
31	38TB04F	Terminal Block	X	1
32	601985-2	Jumper Tab	X	3
33	A569-5	Low RPM Warning Unit (Incl items 34 and 35)	X	1
34	B263-16	Housing	X	1
	B263-1	Pin	X	4
35	B263-20	Housing	X	1
	B263-1	Pin	X	8
36	B263-17	Housing	X	1
	B263-2	Socket	X	4
37	B263-21	Housing	X	1
	B263-2	Socket	X	8
	B263-3	Terminator	X	1
38	B716-02	Harness Assembly – Console (Ref)		
39	2633	Hole Plug	X	1

NOTES

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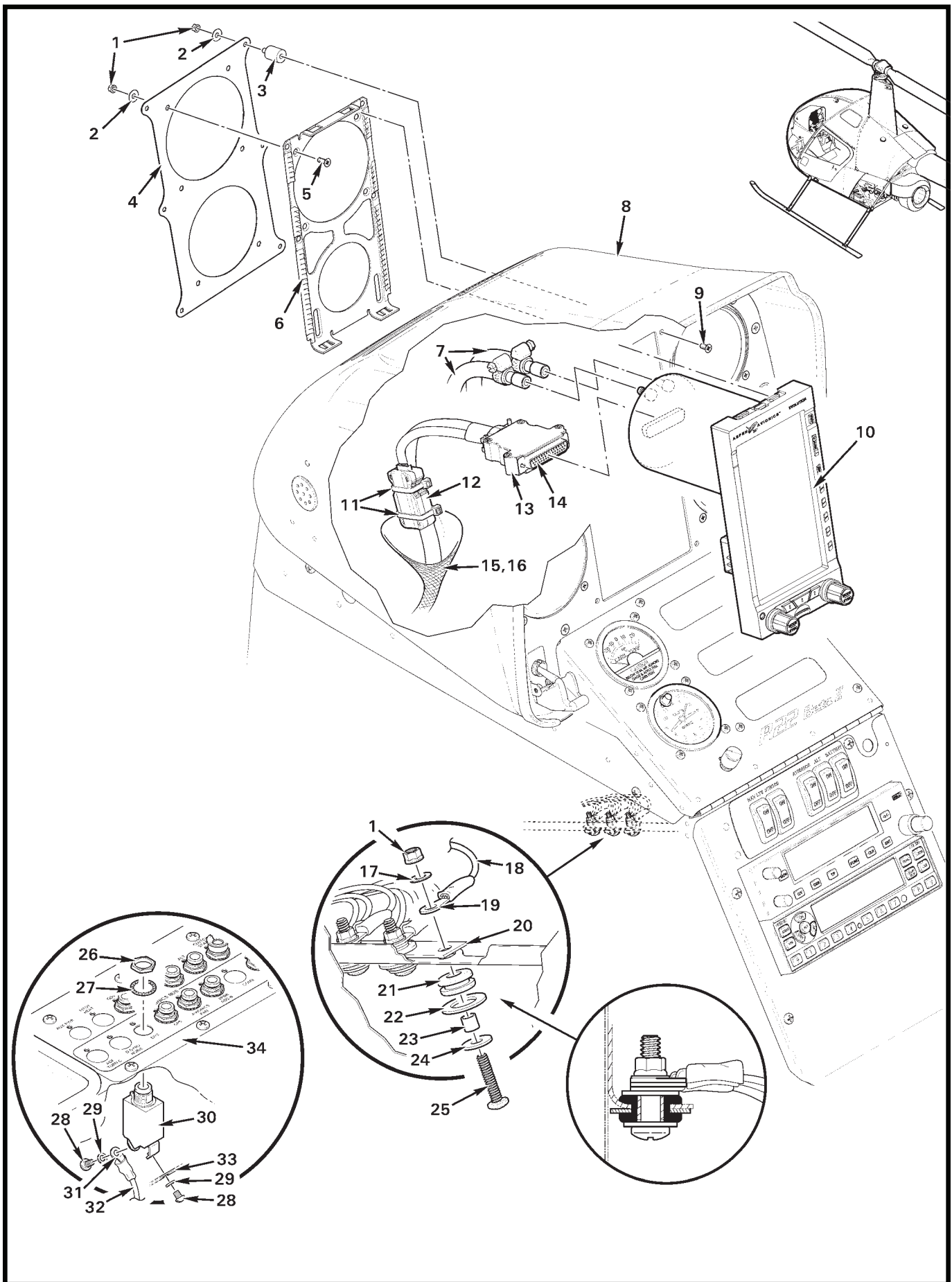


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
ASPEN PFD INSTALLATION				
95-21-1	MS21042L06	Nut	X	13
2	NAS1149FN616P	Washer	X	12
3	248-00002-001	Isolator	O	6
4	C801-1	Panel	X	1
5	MS24693-S26	Screw	X	6
6	403-0003-001	Bracket	O	1
7	A729-48	Tube (Ref, see Figure 95-23)		
8	G050-9	Console (Ref)		
9	MS24693-S24	Screw	X	6
10	EFD1000H*	PFD Display	O	1
11	MS3367-4-9	Ty-Rap	X	2
12	920-00004-117*	Module	O	1
13	116-00026-006*	Backshell	O	1
14	116-00022-002*	Connector	O	1
15	B274-607	Braid	X	A/R
16	7861K46	Heat Shrink	X	A/R
17	NAS620-6L	Washer	X	1
18	-2557	Wire (Ref)		
19	B260-3	Terminal	X	2
20	A448-15	Bus Bar (Ref)		
21	MS35489-4	Grommet	X	1
22	NAS1149F0532P	Washer (install grommet in groove; see detail showing parts assembled)	X	1
23	C130-59	Spacer (install in grommet bore; see detail showing parts assembled)	X	1
24	NAS149FN632P	Washer	X	1
25	B567-28	Screw	X	1
26	—	Nut	O	1
27	—	Lockwasher	O	1
28	—	Screw	O	2
29	—	Washer	O	2
30	B297-7	Circuit Breaker (7.5 amp; includes items 26 thru 29)	X	1
31	B260-2	Terminal	X	1
32	-2555	Wire (Ref)		
33	A448-2	Bus Bar (Ref)		
34	B490-5	Panel – Circuit Breaker (Ref)		

NOTES * Aspen Avionics part no.

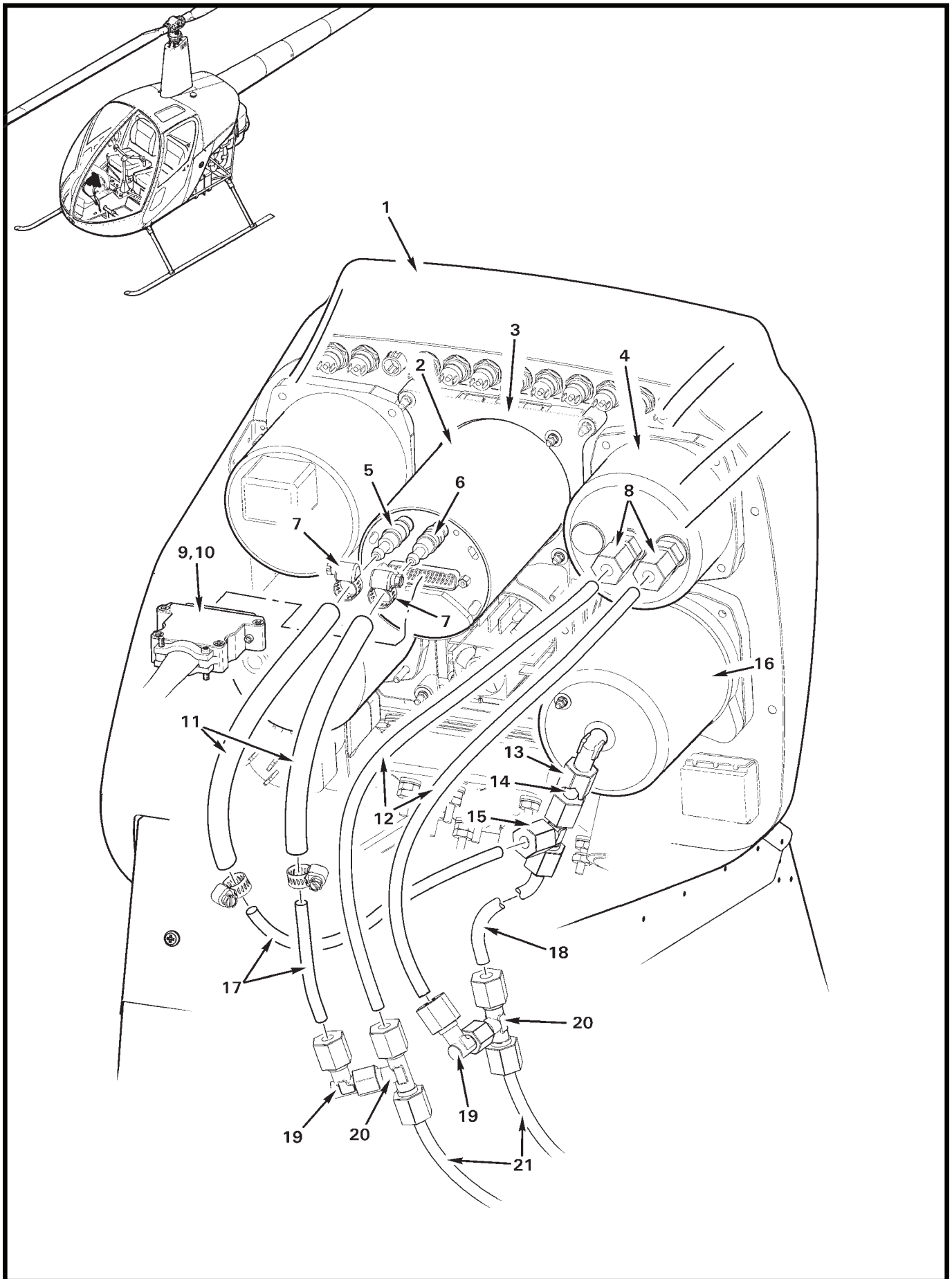


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
ASPEN PFD INSTALLATION – PITOT/STATIC LINES				
95-23-1	G050-11	Console Assembly (Ref)		
2	EFD1000H	PFD Display	O	1
3	C801-1	Plate (Ref)		
4	A599-1	Airpeed Indicator (Ref; Knots, MPH)		
	A599-2	Airpeed Indicator (Ref; KM/H, Knots)		
5	275-00001-001	Coupler (static)	O	1
6	275-00001-002	Coupler (pitot)	O	1
7	271-00001-001	Clamp	X	4
8	10-4-2-N-0	Fitting	X	2
9	116-00022-002	Connector (Ref, see Figure 95-21)		
10	116-00026-006	Backshell (Ref, see Figure 95-21)		
11	A729-48	Tube	X	2
12	A729-23	Tube	X	2
13	40-4-2-N-0	Elbow	X	1
14	A729-27	Tube	X	1
15	70-4-N-0	Tee	X	1
16	A613	Altimeter (Ref)		
17	A729-52	Tube	X	2
18	A729-25	Tube	X	1
19	45-4-2-N-0	Elbow	X	2
20	60-4-2-N-0	Tee	X	2
21	A729-28	Tube (Ref)		

NOTES

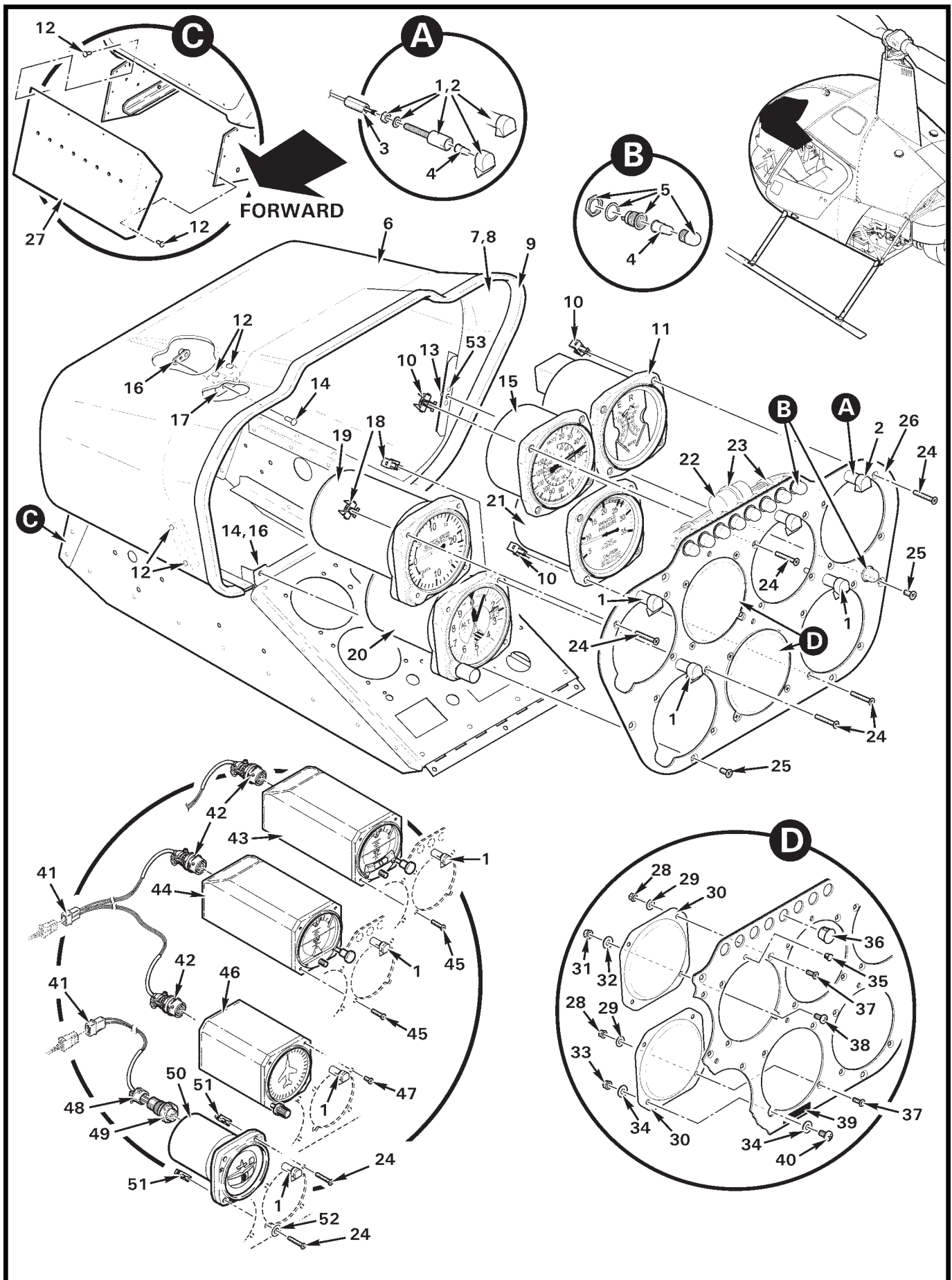


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
UPPER CONSOLE – SEVEN-INSTRUMENT				
95-25-1	B195-10*	Post Light Assembly (Incl item 4)	X	A/R
	02-0350283-06	Head Assembly (for red lighting)	X	1
2	B195-14*	Post Light (Incl item 4)	X	1
3	B195-9	Connector Nut (includes wire)	X	5
4	B196-1	Lamp	X	12
5	B198-1**	Warning Light (yellow)	X	2
	B198-2**	Warning Light (red)	X	5
6	B051-1	Console Assembly	X	1
7	B051-4	Visor Liner (install using item 8)	X	1
8	B270-8qt	Adhesive	X	A/R
9	A226-11	Trim (3-foot length, PVC)	X	A/R
10	MS33737-15C	Instrument Nut	X	12
11	A792-4	Engine/Rotor Tachometer (all R22s)	X	1
	A792-4R	A792-4 Engine/Rotor Tachometer (overhaul exchange)	X	1
	A792-2	Engine/Rotor Tachometer (Ref, ship S/N 0002 thru 2570. No longer available; order overhaul exchange or A792-4.)		
	A792-2R	A792-2 Engine/Rotor Tachometer (overhaul exchange)	X	1
12	MS20470AD3	Rivet	X	20
13	MS21069L08	Nutplate	X	2
14	MS20426AD3	Rivet	X	8
15	A599-1	Airspeed Indicator (Knots, MPH)	X	1
	A599-2	Airspeed Indicator (KM/H, Knots)	X	1
16	MS21071L08	Nutplate	X	4
17	B181-2	Angle	X	2
18	MS33737-13C	Instrument Nut	X	6
19	A602-1	Rate-of-Climb Indicator	X	1
	A602-2	Rate-of-Climb Indicator – IVSI (optional)	X	1
20	A613-1	Altimeter – In. Hg	X	1
	A613-2	Altimeter – Millibar	X	1
	A613-4	Altimeter – Metric	X	1
21	A600-3	Manifold Pressure Gage (used on Beta and Mariner)	X	1
	A600-5	Manifold Pressure Gage (ship S/N 2571M and subsequent)	X	1
22	A655-1	Time Delay – Low Fuel Warning	X	1
23	MS3367-4-9	Ty-Rap	X	3
24	MS24693-S32	Screw	X	18

NOTES * Supplied with blue/white lens; order 02-0350283-06 head assembly when red lighting is required.
 ** Order item 4 when replacing.

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
UPPER CONSOLE – SEVEN-INSTRUMENT (Cont'd)				
95-25-25	MS24694-S4	Screw	X	6
26	B197-1	Face	X	1
27	B182-1	Cover	X	1
28	MS21042L06	Nut	X	6
29	NAS1149FN616P	Washer	X	6
30	B190-6	Cover	X	A/R
31	MS21042L08	Nut	X	1
32	NAS1149FN816P	Washer	X	1
33	MS21042L3	Nut	X	4
34	NAS1149F0332P	Washer	X	1
35	2590	Hole Plug	X	A/R
36	2633	Hole Plug	X	1
37	MS24693-S27	Screw	X	6
38	MS27039C0806	Screw	X	1
39	A743-1	Call Letters Plate (please specify call letters)	X	1
40	MS27039C1-06	Screw	X	1
41	B263-12	Housing	X	1
	B263-1	Pin	X	2
42	MS3116F8-4S	Connector	X	2
43	B823-12	Attitude Indicator with Inclinator (Optional; supersedes B823-3. See Chapter 99 for KI-65/66 field installation kits.)	X	1
44	B823-10	Attitude Indicator (optional; supersedes B823-1)	X	1
45	MS24693-S30	Screw	X	3
46	B823-11	Directional Gyro (Optional; supersedes B823-2. See Chapter 99 for KI-65/66 field installation kits.)	X	1
47	MS24693-S26	Screw	X	1
48	MS3057-4-A	Strain Relief	X	1
49	MS3106A10SL-3S	Connector	X	1
50	B329-1	Turn Coordinator	X	1
51	MS33737-12C	Instrument Nut	X	4
52	A3135-017-24A	Washer (countersunk; alternate part no. A3135-017-935)	X	1
53	NAS1097AD3	Rivet	X	4

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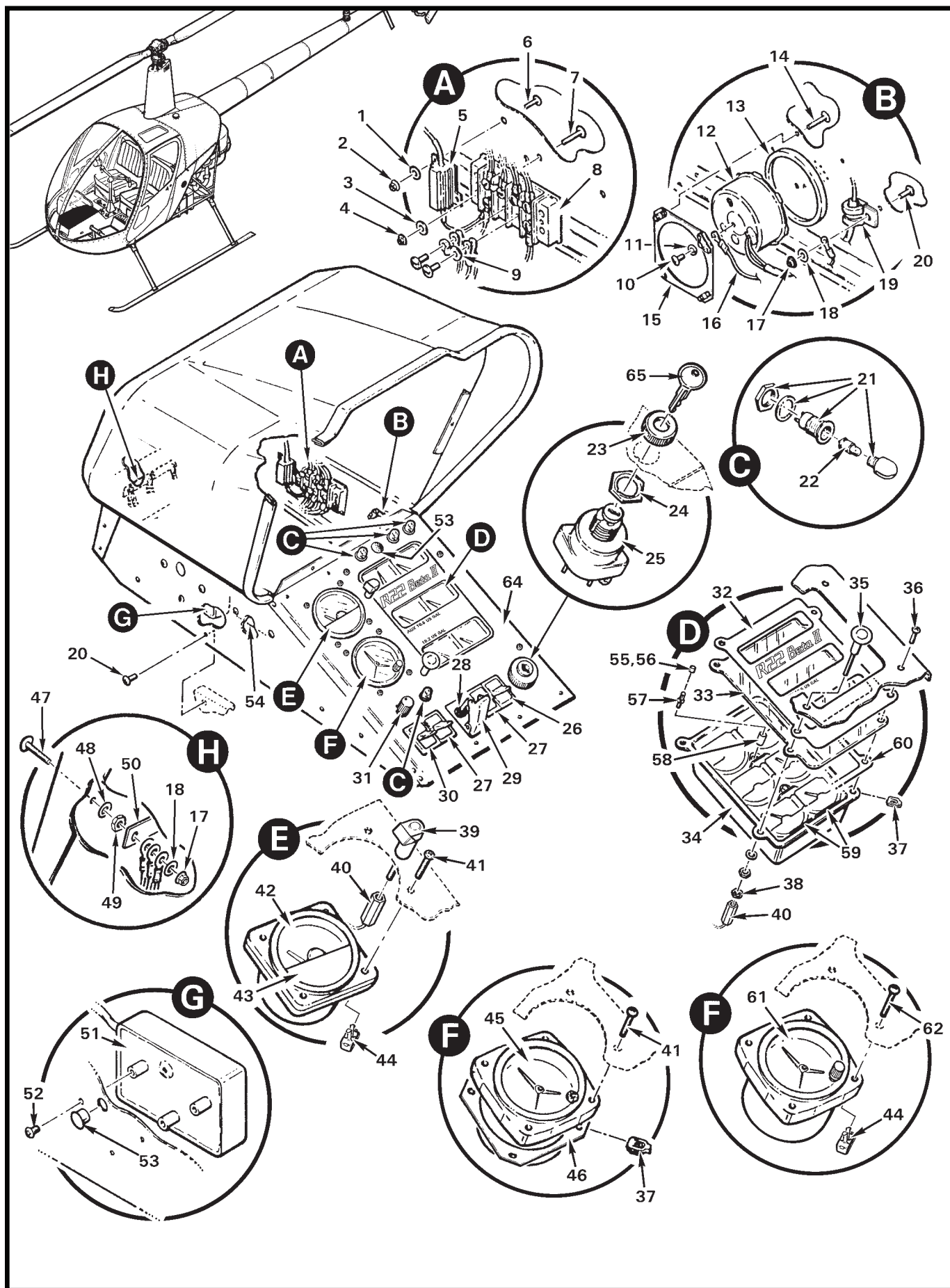


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
LOWER PANEL – SEVEN-INSTRUMENT				
95-29-1	NAS1149FN416P	Washer	X	2
2	MS21042L04	Nut	X	2
3	NAS1149FN616P	Washer	X	4
4	MS21042L06	Nut	X	4
5	RH25	Resistor (1.5 Ω)	X	1
6	MS35206-215	Screw	X	2
7	MS35206-231	Screw	X	4
8	601716-4	Terminal Block (instrument lights)	X	1
9	601985-2	Jumper Tab ([3] for each terminal block)	X	6
10	MS35206-241	Screw	X	1
11	B332-42	Washer	X	1
12	B320-1	Horn Assembly – Low RPM Warning (Incl item 16)	X	1
13	A479-2	Ring	X	1
14	MS27039C0810	Screw	X	4
15	A479-1	Plate	X	1
16	B320-79	Wire (order next assembly B320-1 or-3)	O	1
17	MS21042L08	Nut	X	6
18	NAS1149FN816P	Washer	X	6
19	MS21919WDG2	Clamp	X	1
20	MS27039C0806	Screw	X	3
21	B198-1 *	Warning Light – Alternator, Brake, and “Gov Off” (yellow) . . .	X	3
	B198-2 *	Warning Light – Oil Pressure (red)	X	1
22	B196-1	Lamp	X	4
23	—	Nut (order next assembly A661-1)	O	1
24	—	Nut (order next assembly A661-1)	O	1
25	A661-1	Ignition Switch (Incl items 23, 24, and [2] keys)	X	1
26	B184-2	Switch Assembly – Battery	X	1
27	B184-1	Switch Assembly – Alternator and Strobe	X	2
28	MS25068-23	Switch – Clutch	X	1
29	MS25224-1	Guard	X	1
30	B184-3	Switch Assembly – Nav Lights	X	1
31	RES10R	Rheostat – Panel Light Dimmer	X	1
	50-1WD-1G	Knob	X	1
32	B193-6	Window Plate – “R22 Beta”	X	1
	B193-14	Window Plate – “R22 Beta II”	X	1

NOTES * Order item 22 when replacing.

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
LOWER PANEL — SEVEN-INSTRUMENT (Cont'd)				
95-29-32	B193-7	Window Plate — "R22 Beta" (Instrument Trainer)	X	1
	B193-15	Window Plate — "R22 Beta II" (Instrument Trainer)	X	1
	B193-8	Window Plate — "R22 Beta" (with aux fuel)	X	1
	B193-16	Window Plate — "R22 Beta II" (with aux fuel)	X	1
	B193-11	Window Plate — "R22 Beta" (Instrument Trainer with aux fuel)	X	1
	B193-17	Window Plate — "R22 Beta II" (Instrument Trainer with aux fuel)	X	1
	B193-12	Window Plate — "R22 Mariner"	X	1
	B193-18	Window Plate — "R22 Mariner II"	X	1
	B193-13	Window Plate — "R22 Mariner" (with aux fuel)	X	1
	B193-19	Window Plate — "R22 Mariner II" (with aux fuel)	X	1
33	0003-00434	Window Crystal (clear plastic)	X	1
34	A617-5*	Instrument Cluster (Includes items 33, 37 [3], and 56 thru 60; not shown)	O	1
	B144-3*	Instrument Cluster (with aux fuel, includes items 33, 37 [3], and 56 thru 60)	X	1
35	B195-17**	Light — Switches (blue/white)	X	1
36	MS35206-230	Screw	X	3
37	B162-1	Clipnut	X	7
38	B330-6	Palnut	X	1
39	B195-10	Post Light	X	1
40	B195-9	Connector Nut	X	1
41	MS35206-232	Screw	X	4
42	A604-2	Carb Air Temp Gage (Incl item 43)	X	1
43	A654-66	Decal (carb heat instructions)	X	1
44	MS33737-13C	Instrument Nut	X	4
45	A072-4	Clock Assembly (Ref, no longer available)		
	B196-3	Lamp (blue/white)	X	1
	B196-4	Lamp (red)	X	1
46	A730-5	Cover (Ref, no longer available)		
47	MS35206-247	Screw	X	5
48	NAS1149DN832H	Washer	X	5
49	B301-8	Nut	X	5
50	A448-14	Bus Bar (eight holes)	X	1
	A448-8	Bus Bar (five holes)	X	1

NOTES * Supplied with white lighting. Order two of item 55 when red lighting is required. See Figure 95-47 for individual meters.
 ** Replace lamp with item 22.

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
LOWER PANEL — SEVEN-INSTRUMENT (Cont'd)				
95-29-51	A569-5	Warning Unit – Low RPM (For ship S/N 2115 and subsequent, replaces A569-1 unit and B140-1 relay. See Figure 95-51 for conversion kit for ship S/N's 0002 thru 2114.)	X	1
52	MS35206-241	Screw	X	3
53	2633	Hole Plug	X	1
54	601716-4	Terminal Block (warning lights)	X	1
55	6P47	Cap (for red lighting requirement)	X	2
56	17P47	Cap (for white lighting requirement)	X	2
57	100057017	Lamp (gray base)	X	2
58	A700-1	Barrier	X	2
59	—	Desiccant Bag (Ref, 1-gram bag)	O	2
60	0015-00723	Gasket	X	1
61	A072-7	Clock (analog; includes items 63, 66, and connector)	X	1
62	MS35206-234	Screw	X	4
63	MS33737-12C	Instrument Nut	X	4
64	B051-2	Face Assembly	X	1
65	R8096	Key – Duplicate (specify ship S/N and "PK" numbers when ordering)	X	1
66	A072-9	Light Tray Assembly (not shown)	X	1

NOTES

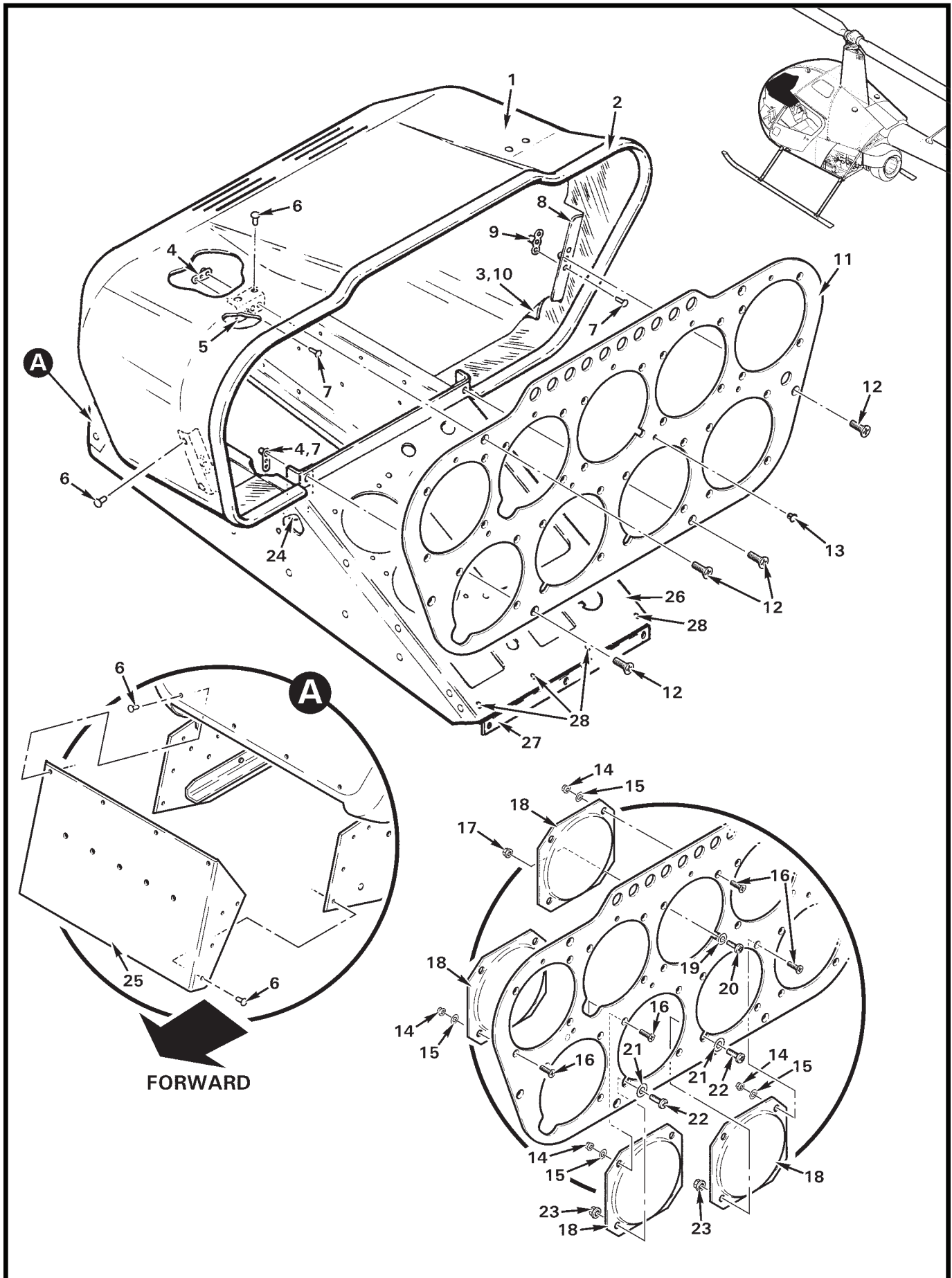


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
UPPER CONSOLE – NINE-INSTRUMENT				
95-33-1	B051-5	Nine-Instrument Console Assembly (Includes items 2 thru 10, lower panels, and hinge as shown. Contact RHC Customer Service for replacement.)	O	1
2	A226-11	Trim (3-foot length, PVC)	X	A/R
3	B270-8qt	Adhesive	X	A/R
4	MS21071L08	Nutplate	X	4
5	B181-2	Angle	X	2
6	MS20470AD3	Rivet	X	20
7	MS20426AD3	Rivet	X	12
8	B181-3	Angle	X	2
9	MS21069L08	Nutplate	X	2
10	B051-8	Liner (vinyl, install using item 3)	X	1
11	B206-1	Face	X	1
12	MS24694-S3	Screw	X	6
13	2590	Hole Plug	X	A/R
14	MS21042L06	Nut	X	13
15	NAS1149FN616P	Washer	X	13
16	MS24693-S27	Screw	X	13
17	MS21042L08	Nut	X	1
18	B190-6	Cover	X	A/R
19	NAS1149FN816P	Washer	X	1
20	MS27039C0806	Screw	X	1
21	NAS1149F0332P	Washer	X	2
22	MS27039C1-06	Screw	X	2
23	MS21042L3	Nut	X	2
24	A365-11	Channel	X	2
25	B182-2	Cover	X	1
26	B051-2	Face Assembly (Incl items 27 and 28)	X	1
27	A356-2	Hinge	X	1
28	MS20426AD	Rivet	X	4

NOTES

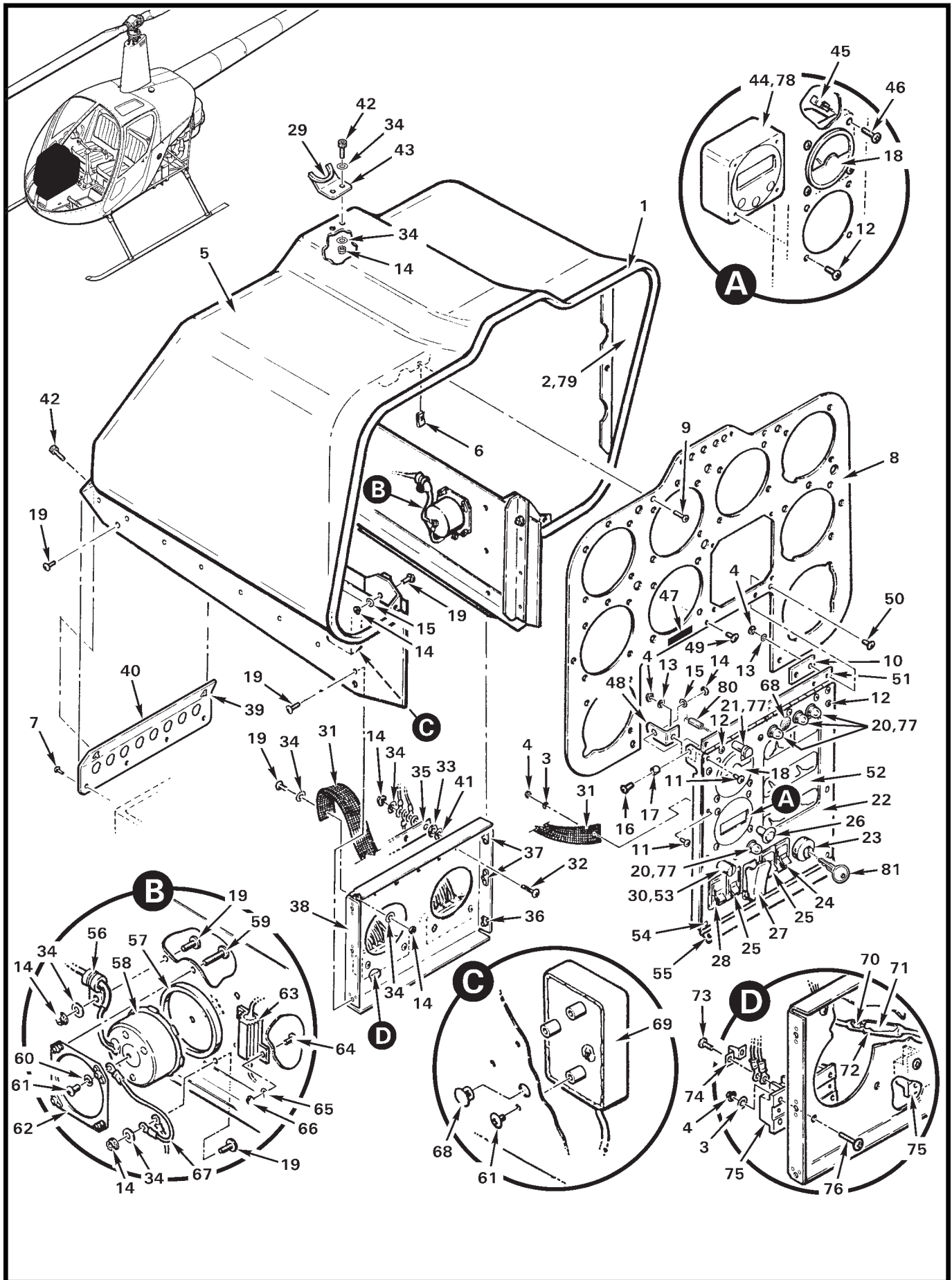


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
		UPPER CONSOLE – TEN-INSTRUMENT/IFR TRAINER		
95-35-1	A226-11	Trim	X	A/R
2	A077-2	Liner (install using item 79)	X	1
3	NAS1149FN616P	Washer	X	6
4	MS21042L06	Nut	X	13
5	A077-1	Shell Assembly (Includes items 1, 2, 14 [2], 15, 19 [8], 38, and [1] A978-1 shell. Contact RHC Customer Service for replacement.)	O	1
	A978-1	Shell (console shell only)	O	1
6	B162-2	Clipnut	X	6
7	MS20470AD4	Rivet	X	4
8	A981-1	Face	X	1
9	MS24694-S3	Screw	X	6
10	A988-1	Doubler	X	2
11	MS35206-229	Screw	X	4
12	MS35206-228	Screw	X	A/R
13	NAS1149FN632P	Washer	X	17
14	MS21042L08	Nut	X	12
15	NAS1149FN832P	Washer	X	4
16	MS27039C0808	Screw	X	2
	MS24694-S3	Screw (if DME installed)	X	2
17	A130-37	Spacer	X	2
	B220-1	Spacer (if DME installed)	X	2
18	A604-2	Carb Air Temp Gage (includes A654-66 decal)	X	1
19	MS27039C0806	Screw	X	13
20	B198-1	Warning Light (yellow; order item 77 when replacing)	X	2
	B198-2	Warning Light (red; order item 77 when replacing)	X	1
21	B195-10	Post Light (blue with hood; includes item 77)	X	1
22	A980-2 (A033-3)	Face Assembly (Ship S/N 0002 thru 0500. Includes items 54 and 55.)	X	1
	A980-2 (B192-1)	Face Assembly (Ship S/N 0501 and subsequent. Includes items 54 and 55.)	X	1
23	A661-1	Switch – Ignition (includes [2] keys; see also Figure 95-47)	X	1
24	B184-2*	Switch – Battery	X	1
25	B184-1*	Switch Assembly – Alternator and Strobe Light	X	1
26	B195-17	Light – Panel (blue/white light; replace lamp with item 77)	X	1
	A200CNRDBKSH14	Light – Panel (red light; replace lamp with item 77)	X	1

NOTES * Ship S/N 0002 thru 0500, see Figure 95-39.

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
		UPPER CONSOLE — TEN-INSTRUMENT/IFR TRAINER (Cont'd)		
95-35-27	MS25068-23	Switch – Clutch (7664K5 switch on earlier R22s)	X	1
	MS25224-1	Guard (red plastic)	X	1
28	B184-3*	Switch Assembly – Nav Lights	X	1
29	MS35489-16	Grommet (or AN931-9-13)	X	1
	B270-17	Adhesive (3 gram size, attaches grommet)	X	A/R
30	50-1WD-1G	Knob	X	1
31	A989-1	Strap	X	2
32	MS35206-247	Screw	X	5
33	B301-8	Nut	X	5
34	NAS1149FN816P	Washer	X	7
35	A448-8	Bus Bar	X	1
36	MS21086L08	Nutplate	X	2
37	MS21075L08E	Nutplate	X	4
38	A974-1	Web Assembly (Incl items 36 and 37)	X	1
39	MS21070L08	Nutplate	X	2
40	A140-1	Stiffener	X	1
41	NAS1149DN832H	Washer	X	5
42	NAS1352C08-6	Screw	X	2
43	B255-1	Console Support Assembly (Incl item 29)	X	1
44	A064-3	Chronometer (Digital clock; includes items 12 and 78. Standard equipment on IFR Trainer; optional on Ten-Instrument panel. For analog clock installation, see Figure 95-29.)	X	1
45	MS33737-13C	Instrument Nut	X	4
46	MS35206-232	Screw	X	4
47	A743-1	Call Letters Plate (please specify call letters)	X	1
48	A963-1	Angle	X	2
49	MS24693-S26	Screw (center position)	X	1
50	MS24693-S27	Screw	X	4
51	A986-2	Hinge	X	1
52	A617-5**	Instrument Cluster Assembly (aux fuel tank not installed; not shown)	O	1
	B144-3**	Instrument Cluster Assembly (aux fuel tank installed)	X	1
	6P47	Cap (order two when red lighting is required)	X	2
53	RES10R	Rheostat – Panel Lights	X	1
54	MS20426AD3	Rivet (flush)	X	7

NOTES * For ship S/N 0002 thru 0500, see Figure 95-47.
 ** Supplied with white lighting. See also Figures 95-47 and 95-29 for complete assembly.

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
		UPPER CONSOLE — TEN-INSTRUMENT/IFR TRAINER (Cont'd)		
95-35-55	A356-2	Hinge	X	1
56	MS21919WDG2	Clamp	X	1
57	A479-2	Ring	X	1
58	B320-1	Horn Assembly – Low RPM Warning (Incl items 60, 61, and 67)	X	1
59	MS27039C0810	Screw	X	4
60	B332-42	Lockwasher	X	1
61	MS35206-241	Screw	X	4
62	A479-1	Plate	X	1
63	RH25	Resistor (1.5 Ω, 25W)	X	1
64	MS35206-215	Screw	X	2
65	NAS1149FN416P	Washer	X	2
66	MS21042L04	Nut	X	2
67	B320-79	Wire	O	1
68	2633	Hole Plug	X	1
69	A569-5*	Low RPM Warning Unit	X	1
70	B261-2	Splice	X	1
71	R5277	Resistor (20 Ω, 10W)	X	1
72	B158-6	Heat Shrink	X	A/R
73	—	Screw	O	8
74	601985-2	Jumper Tab	X	3
75	601716-4	Terminal Block (warning lights; includes item 73 and 74)	X	2
76	MS35206-231	Screw	X	4
77	B196-1	Lamp	X	4
78	B196-5	Lamp	X	1
79	B270-8qt	Adhesive	X	A/R
80	B195-9	Connector Nut	X	2
81	R8096	Key – Duplicate (specify ship S/N and “PK” numbers when ordering)	X	1

NOTES * Replaces A569-1 warning unit and B140-1 relay. See page 95.51 for conversion kit (ship S/N 2114 and prior).

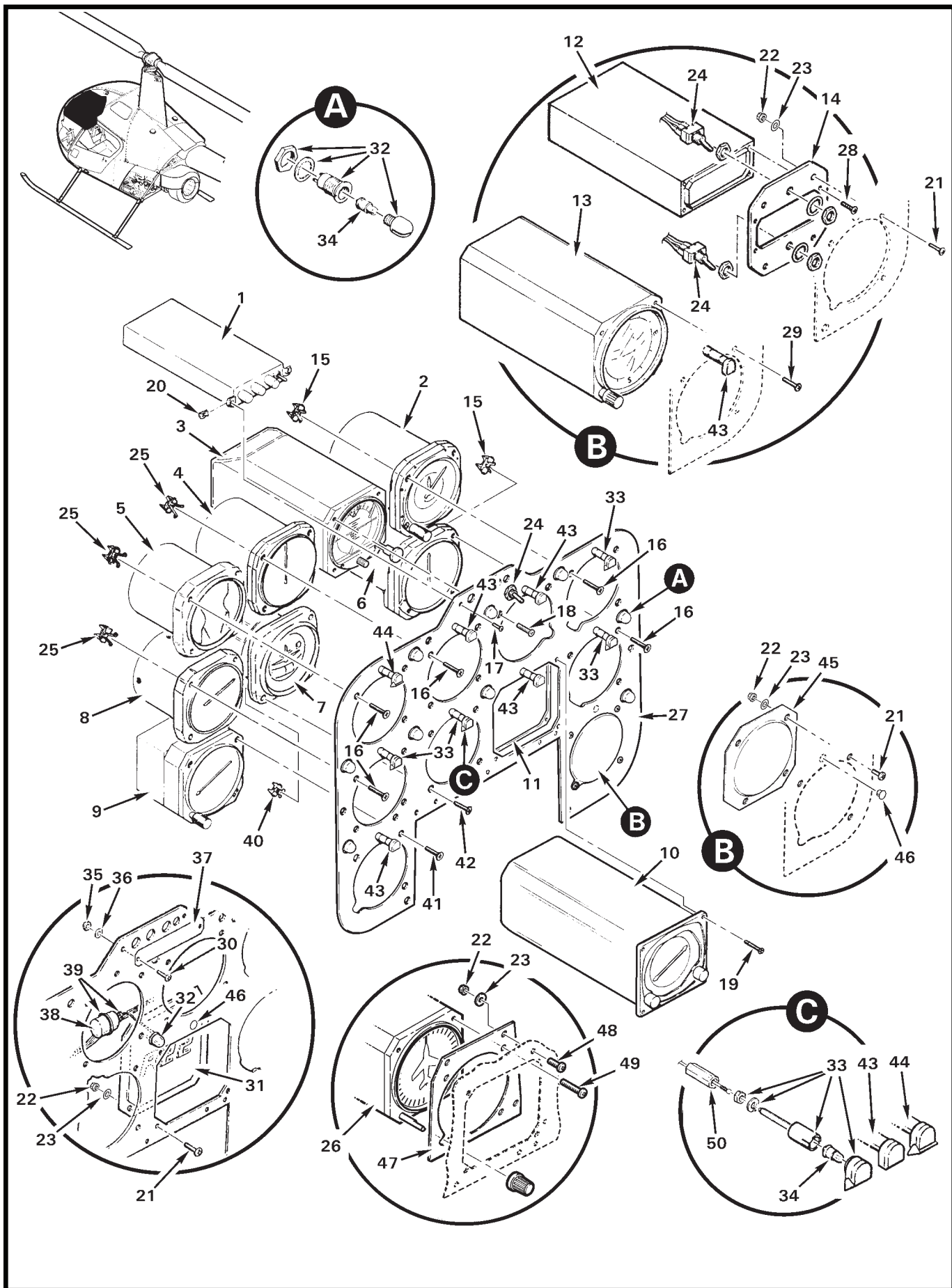


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
UPPER PANEL – TEN-INSTRUMENT/IFR TRAINER				
95-39-1	KR0022-00*	Marker Beacon (Incl items 17 and 20)	O	1
2	KEA 129*	Altimeter (encoding)	O	1
	5035-P2-P42	Altimeter (encoding; United Instruments)	O	1
3	B823-10	Attitude Indicator	X	1
4	A599-1	Airspeed Indicator (Knots, MPH)	X	1
	A599-2	Airspeed Indicator (KM/H, Knots)	X	1
5	A792-2	Engine/Rotor Tachometer (ship S/N 0002 thru 2570)	X	1
	A792-4	Engine/Rotor Tachometer (ship S/N 2571M and subsequent)	X	1
6	A602-1	Rate-of-Climb Indicator	X	1
	A602-2	Rate-of-Climb Indicator IVSI (optional)	X	1
7	B329-1	Turn Coordinator (1394-T100-7Z)	X	1
8	A600-2	Manifold Pressure Gauge (Used on Alpha)	X	1
	A600-3	Manifold Pressure Gauge (Used on Beta and Mariner)	X	1
	A600-5	Manifold Pressure Gauge (ship S/N 2571M and subsequent)	X	1
9	KI 227-01*	ADF Indicator	O	1
	KI 227-00*	ADF Indicator (ten-instrument panel only)	O	1
10	KI 525A*	Pictorial Nav Indicator** (Ref)	O	1
11	047-03937-0001*	Plate** (Ref)		
12	KDI 574*	DME Indicator	O	1
13	066-03034-0000*	VOR Indicator (KI 203, VOR/LOC)	O	1
	066-03034-0002*	VOR Indicator (KI 204, VOR/LOC/GS)	O	1
	GI 106B	VOR Indicator (Garmin part no., VOR/LOC/GS/GPS)	O	1
	066-03056-0000*	VOR Indicator (KI 208, earlier aircraft)	O	1
14	A590-1	Cover Plate (required if item 12 installed)	X	A/R
15	MS33737-13C	Instrument Nut	X	6
16	MS24693-S32	Screw	X	26
17	—	Screw	X	2
18	MS24693-S30	Screw	X	3
19	089-05115-0012*	Screw** (Ref)		
20	—	Clipnut	O	2
21	MS35206-228	Screw	X	7
22	MS21042L06	Nut	X	A/R
23	NAS1149FN616P	Washer	X	A/R
24	B300-1	Switch (includes washer and nut)	X	A/R
25	MS33737-15C	Instrument Nut	X	12

NOTES * Bendix/King part no.
 ** See Figure 95-53 for installation.

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
UPPER PANEL – TEN-INSTRUMENT/IFR TRAINER (Cont'd)				
95-39-26	B823-11	Directional Gyro	X	1
27	A981-1	Face (Ref, see Figure 95-35)		
28	—	Screw	O	4
29	MS35206-231	Screw	X	2
30	MS35206-215	Screw	X	2
31	B190-2	Cover (Ref, no longer available)		
32	B198-1*	Warning Light (yellow)	X	9
	B198-2*	Warning Light (red)	X	A/R
33	B195-10	Post Light (Incl item 34)	X	A/R
34	B196-1	Lamp	X	11
35	MS21042L04	Nut	X	2
36	NAS1149FN416P	Washer	X	2
37	A173-2	Cover (when marker beacon is not installed)	X	1
38	A655-1	Time Delay – Low Fuel Warning	X	1
39	MS3367-4-9	Ty-Rap	X	2
40	MS33737-12C	Instrument Nut	X	4
41	MS24693-S27	Screw	X	3
42	MS24693-S32	Screw	X	4
43	B195-3	Post Light (Incl item 34)	X	A/R
44	B195-14	Post Light (clear, narrow beam, includes item 34)	X	1
45	B190-6	Cover (required if items 12 or 13 not installed)	X	A/R
46	2590	Hole Plug (if no post light installed)	X	A/R
47	B258-1	Adapter	X	1
48	MS35206-230	Screw	X	3
49	MS35206-233	Screw	X	3
50	B195-9	Connector Nut	X	A/R

NOTES * Order item 34 when replacing.

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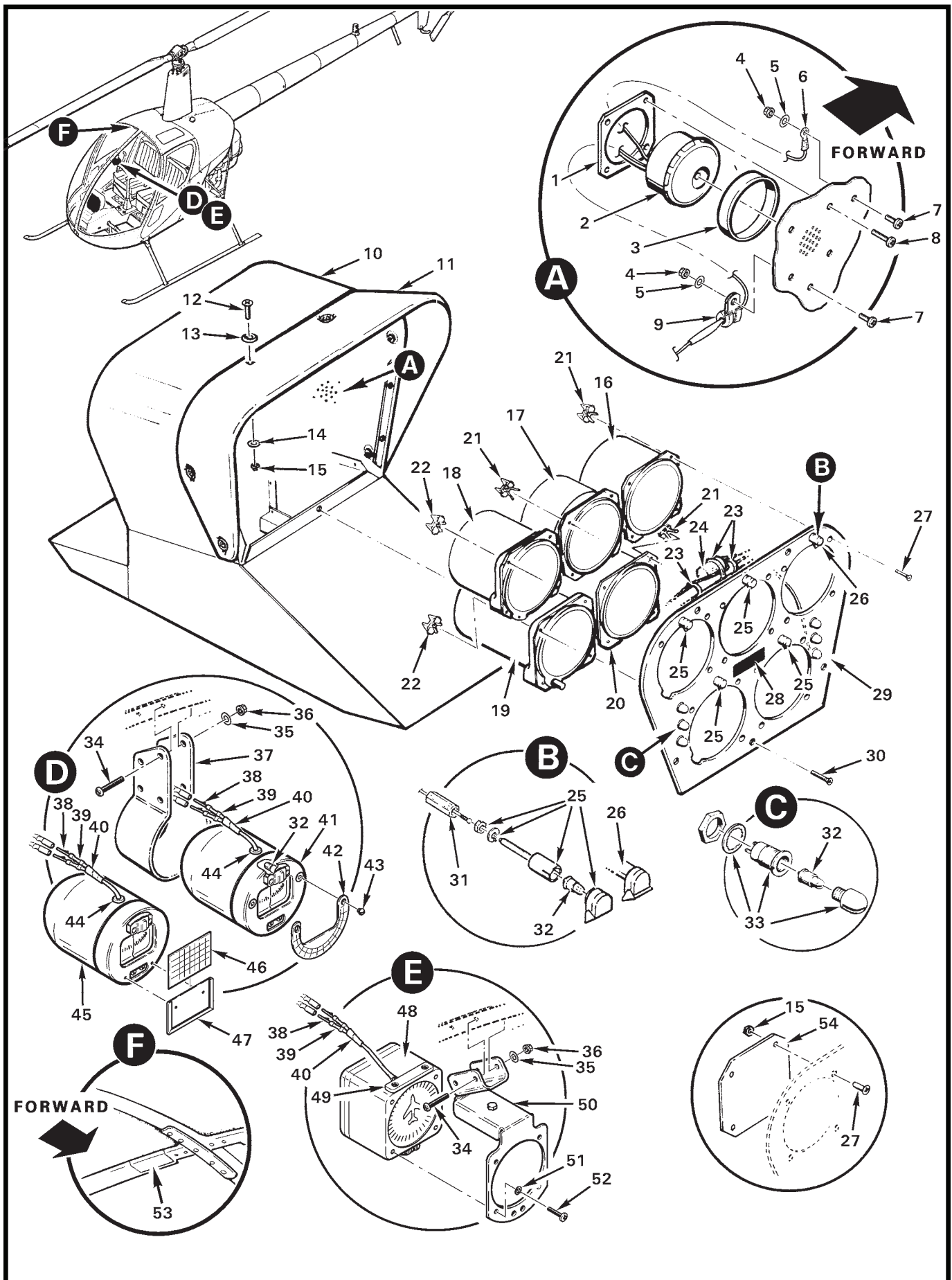


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
UPPER CONSOLE – FIVE-INSTRUMENT				
95-43-1	A479-1	Plate	X	1
2	B320-1	Horn Assembly – Low RPM Warning	X	1
3	A479-2	Ring	X	1
4	MS21042L08	Nut	X	2
5	NAS1149FN816P	Washer	X	2
6	B320-79	Wire	O	1
7	MS27039C0806	Screw	X	2
8	MS27039C0810	Screw	X	4
9	MS21919WDG2	Clamp	X	1
10	A033-2	Upper Console (Ref)		
11	A519-1	Shield	X	1
12	MS24693-S27	Screw	X	6
13	A3236-012-24A	Washer	X	6
14	NAS1149FN632P	Washer	X	6
15	MS21042L06	Nut	X	6
16	A792-2*	Engine/Rotor Tachometer (Ref, no longer available. Order overhaul exchange or A792-4.)		
	R9022	A792-2 Engine/Rotor Tachometer (overhaul exchange)	X	1
	A792-4	Engine/Rotor Tachometer (all R22s)	X	1
	R9024	A792-4 Engine/Rotor Tachometer (overhaul exchange)	X	1
17	A599-1	Airspeed Indicator (Knots, MPH)	X	1
	A599-2	Airspeed Indicator (KM/H, Knots)	X	1
18	A602-1	Rate-of-Climb Indicator	X	1
	A602-2	Rate-of-Climb Indicator – IVSI (optional)	X	1
19	A613-1	Altimeter – In. Hg	X	1
	A613-2	Altimeter – Millibar (optional)	X	1
20	A600-1	Manifold Pressure Gage (ship S/N 0002 thru 0199 except 0175)	X	1
	A600-2	Manifold Pressure Gage (ship S/N 0175 and 0200 thru 0500)	X	1
21	MS33737-15C	Instrument Nut (airspeed, manifold pressure, tachometer)	X	8
22	MS33737-13C	Instrument Nut (rate-of-climb and altimeter)	X	6
23	MS3367-4-9	Ty-Rap	X	3
24	A655-1	Time Delay – Low Fuel Warning	X	1
25	B195-10**	Post Light Assembly (Incl item 32)	X	4
26	B195-14**	Post Light Assembly (Incl item 32)	X	1

NOTES * For ship S/N 0002 thru 0470, order KI-40-1 Dual Tach installation kit and tachometer. See Chapter 99.
 ** Supplied with blue/white lens; order 02-0350283-06 head assembly when red lighting required.

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
UPPER CONSOLE – FIVE-INSTRUMENT (Cont'd)				
95-43-27	MS24693-S32	Screw	X	18
28	A743-1	Call Letters Plate (please specify call letters)	X	1
29	A777-1	Face	X	1
30	MS24694-S3	Screw	X	5
31	B195-9	Connector Nut	X	5
32	B196-1	Lamp	X	11
33	B198-1*	Warning Light (yellow)	X	6
	B198-2*	Warning Light (red; as required for earlier R22s)	X	A/R
34	AN515UB8R20	Screw	X	4
35	NAS1149DN816J	Washer	X	4
36	NAS1291C08M	Nut	X	4
37	A685-1	Mount – Compass	X	1
38	B263-1	Pin	X	2
39	B158-2	Heat Shrink (0.125 in. dia, black)	X	A/R
40	B158-3	Heat Shrink (0.187 in. dia, black)	X	A/R
41	A022-3	Compass Assembly (Revision “AL” and subsequent. Includes items 32, 38 thru 40, 42 and 44.)	X	1
42	C23-807	Deviation Plate	X	1
43	—	Screw	O	2
44	MS35489-4	Grommet	X	1
45	A022-3	Compass Assembly (Revision “AK” and prior; Ref. No longer available. Superseded by item 41. For earlier R22s with items 46 and 47 installed.)		
46	C23-807	Deviation Card	X	1
47	C23-805M	Mount – Deviation Card	X	1
48	B148-2	Compass Assembly – Vertical Card (Optional; includes items 39, 40, 49, and 51 thru 53.)	X	1
49	PAI - 14V	Light Bar (Ref)		
50	B339-1	Mount (vertical card compass)	X	1
51	MS35338-136B	Lockwasher	X	4
52	—	Screw	O	4
53	PAI-DE-CARD	Deviation Placard	X	1
54	A730-1	Cover (if no instrument installed)	O	A/R
	B190-6	Cover (if no instrument installed)	X	A/R

NOTES * Order item 32 when replacing.

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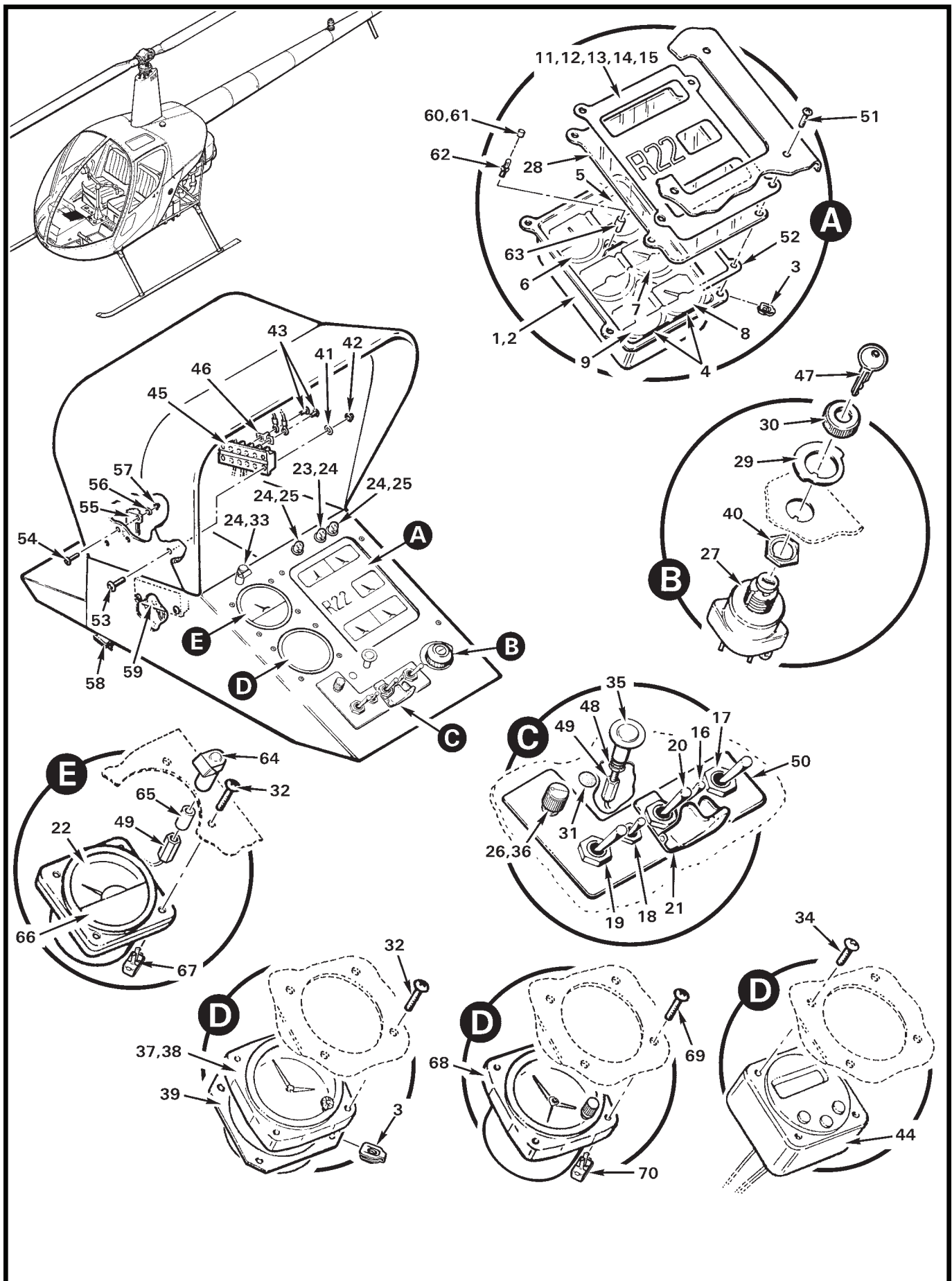


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
		LOWER INSTRUMENT PANEL*		
95-47-1	A617-5**	Instrument Cluster Assembly without Aux Fuel (Incl items 3 thru 9, 28, 52, and 61 thru 63)	O	1
2	B144-3**	Instrument Cluster Assembly with Aux Fuel (includes items 3 thru 10, 28, 52, and 61 thru 63; not shown)	X	1
3	B162-1	Clipnut	X	4
4	—	Desiccant Bag (1-gram bag, Ref)	O	2
5	6246-00089	Oil Pressure Meter (O-320)	X	1
	6246-00647	Oil Pressure Meter (O-360)	X	1
6	6246-00468	Ammeter	X	1
7	6246-00090	Oil Temperature Meter	X	1
8	6246-00088	Cylinder Head Temperature Meter	X	1
9	6246-00473	Fuel Quantity Meter (main fuel)	X	1
10	6246-00473	Fuel Quantity Meter (aux fuel, not shown)	X	1
11	B193-5	Window Plate – “R22 Alpha” (with aux fuel)	X	1
12	B193-1	Window Plate – “R22”	X	1
13	B193-2	Window Plate – “R22 HP”	X	1
14	B193-3	Window Plate – “R22 Alpha”	X	1
15	B193-4	Window Plate – “R22 Alpha” (Instrument Trainer)	X	1
16	B300-1*	Switch – Alternator	X	1
17	B300-4*	Switch – Battery	X	1
18	B300-1*	Switch – Strobe Light	X	1
19	B300-4*	Switch – Nav Lights	X	1
20	MS25068-23	Switch – Clutch	X	1
21	MS25224-1	Guard	X	1
22	A604-2	Carb Air Temp Gauge (Incl item 66)	X	1
23	B198-2***	Warning Light – Oil Pressure (red)	X	1
24	B196-1	Lamp	X	4
25	B198-1***	Warning Light – Alternator and Gov off (amber)	X	2
26	RES10R	Rheostat – Panel Lights	X	1
27	A661-1	Switch – Ignition/Starter (Incl items 30, 40, and [2] keys)	X	1
28	0003-00434	Window Crystal (clear plastic)	X	1
29	10-126676*	Placard	X	1
30	—	Nut	O	1
31	DP-250	Hole Plug	X	1
32	MS35206-232	Screw	X	4

NOTES * Ship S/N 0002 thru 0500.
 ** Supplied with white lighting. Order two of item 60 when red lighting is required.
 *** Order item 24 when replacing.

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
LOWER INSTRUMENT PANEL* (Cont'd)				
95-47-33	B195-10**	Post Light (This position for earlier R22s with CAT gauge in top position. Includes item 24 and 66.)	X	1
34	MS35206-228	Screw	X	4
35	B195-17***	Light – Panel (blue/white; includes item 24)	X	1
	A200CNRDBKSH14	Light*** – Panel (red)	X	1
36	MS91528-0C1B	Knob	X	1
37	A072-4	Clock Assembly (Ref, no longer available)		
38	B196-3	Lamp (blue/white)	X	1
	B196-4	Lamp (red)	X	1
39	A730-5	Cover (Ref, no longer available)		
40	–	Nut	O	1
41	NAS1149FN616P	Washer	X	4
42	MS21042L06	Nut	X	4
43	–	Screw	O	6
44	A064-3	Chronometer Assembly – Digital (Optional; ship S/N 0425 and subsequent, includes B196-5 lamp. See Figure 95-55.) . .	X	1
45	601716-4	Terminal Block (upper; instrument lights)	X	1
46	601985-2	Jumper Tab	X	3
47	R8096	Key – Duplicate (specify ship S/N and “PK” numbers when ordering)	X	1
48	B330-6	Palnut	X	1
49	B195-9	Connector Nut	X	2
50	A724-1	Name Plate (ship S/N 0002 thru 0411, not shown)	X	1
	A724-2	Name Plate (ship S/N 0412 thru 0500)	X	1
51	MS35206-230	Screw	X	4
52	0015-00723	Gasket	X	1
53	MS35206-231	Screw	X	4
54	MS35206-215	Screw	X	2
55	RH25	Resistor (1.5Ω)	X	1
56	NAS1149FN416P	Washer	X	2
57	MS21042L04	Nut	X	2
58	A701-3	Tape – Polychor	X	A/R
59	601716-4	Terminal Block – (lower; warning lights)	X	1
60	6P47	Cap (for red lighting requirement)	X	2
61	17P47	Cap (for white lighting requirement)	X	2

NOTES * Ship S/N 0002 thru 0500.
 ** Supplied with blue/white lens; order 02-0350283-06 head assembly when red lighting required.
 *** Replace lamp with item 24.

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
LOWER INSTRUMENT PANEL * (Cont'd)				
95-47-62	100057017	Lamp (gray base)	X	2
63	A700-1	Barrier	X	2
64	B195-10**	Post Light (Incl items 24 and 49)	X	1
65	A130-34**	Spacer	X	1
66	A654-66	Decal (carb heat instructions)	X	1
67	MS33737-13C	Instrument Nut	X	4
68	A072-7**	Clock – Analog (Includes items 70, 71, and connector, assembled)	X	1
69	MS35206-234**	Screw	X	4
70	MS33737-12C	Instrument Nut	X	4
71	A072-9	Light Tray Assembly (not shown)	X	1

NOTES * Ship S/N 0002 thru 0500.
 ** If installed.

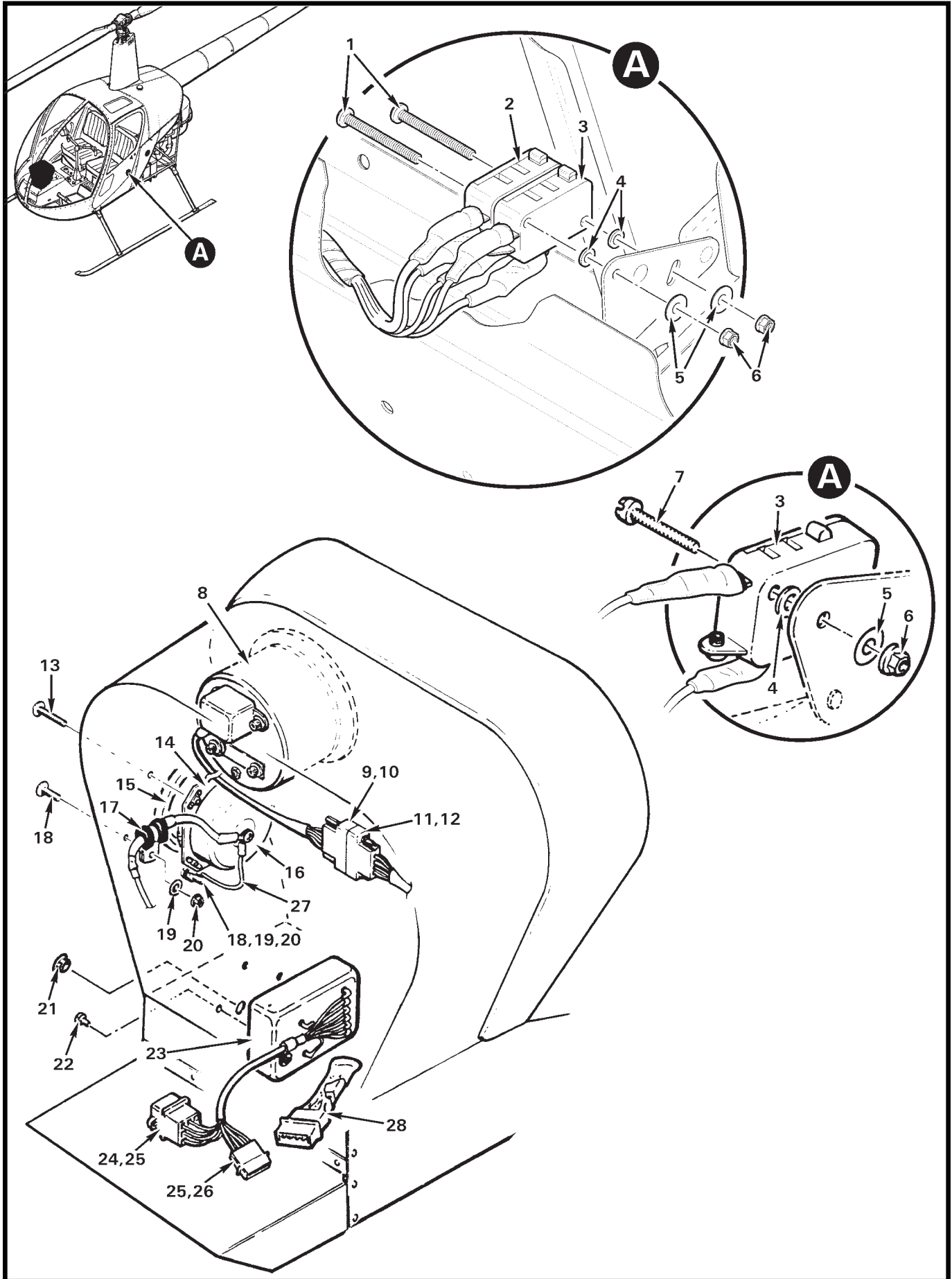


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
TACHOMETER AND LOW RPM WARNING UNIT				
95-51-1	MS35206-222	Screw	X	2
2	V3-1	Switch – Micro (hourmeter)	X	1
3	V3-1	Switch – Micro (low RPM warning)	X	1
4	NAS620-4	Washer	X	2
5	NAS1149FN416P	Washer	X	2
6	MS21042L04	Nut	X	1
7	AN500-4-12	Screw	X	2
8	A792-2*	Dual Tachometer Assembly (Incl items 9 and 10)	O	1
9	201298-1	Block (tachometer side)	X	1
10	B264-1	Pin	X	9
11	201355-1	Connector (ship side)	X	1
12	B264-2	Socket	X	9
13	MS27039C0810	Screw	X	4
14	A479-1	Plate	X	1
15	A479-2	Ring	X	1
16	B320-1	Horn Assembly (Incl item 27)	X	1
17	MS21919WDG3	Clamp	X	1
18	MS27039C0806	Screw	X	2
19	NAS1149FN816P	Washer	X	2
20	MS21042L08	Nut	X	2
21	2633	Hole Plug	X	1
22	MS35206-241	Screw	X	3
23	A569-5**	Warning Unit – Low RPM (Incl items 24 thru 26)	X	1
24	B263-20	Housing	X	1
25	B263-1	Pin (used in items 24 and 26)	X	12
26	B263-16	Housing	X	1
27	B320-79	Wire (Ref; supplied with item 16)	O	1
28	B140-1***	Relay Assembly – Low RPM Horn (Ref)		
* * *				
29	KI-69-7	Low RPM Warning Unit Conversion Kit (For ship S/N 0002 thru 2114. Replaces A569-1 warning unit and B140-1 relay. Includes items 22, 23, and 30 thru 33.)	X	1
30	B263-21	Plug (dummy)	X	1
31	KI-69-5	Plug	O	1
32	MS3367-5-9	Ty-Rap	X	1
33	KI-69-6	Template	O	1

NOTES * No longer available; order A792-2R (overhaul exchange) or A792-4.
 ** Ship S/N 2115 and subsequent.
 *** No longer available. To replace, order item 29.

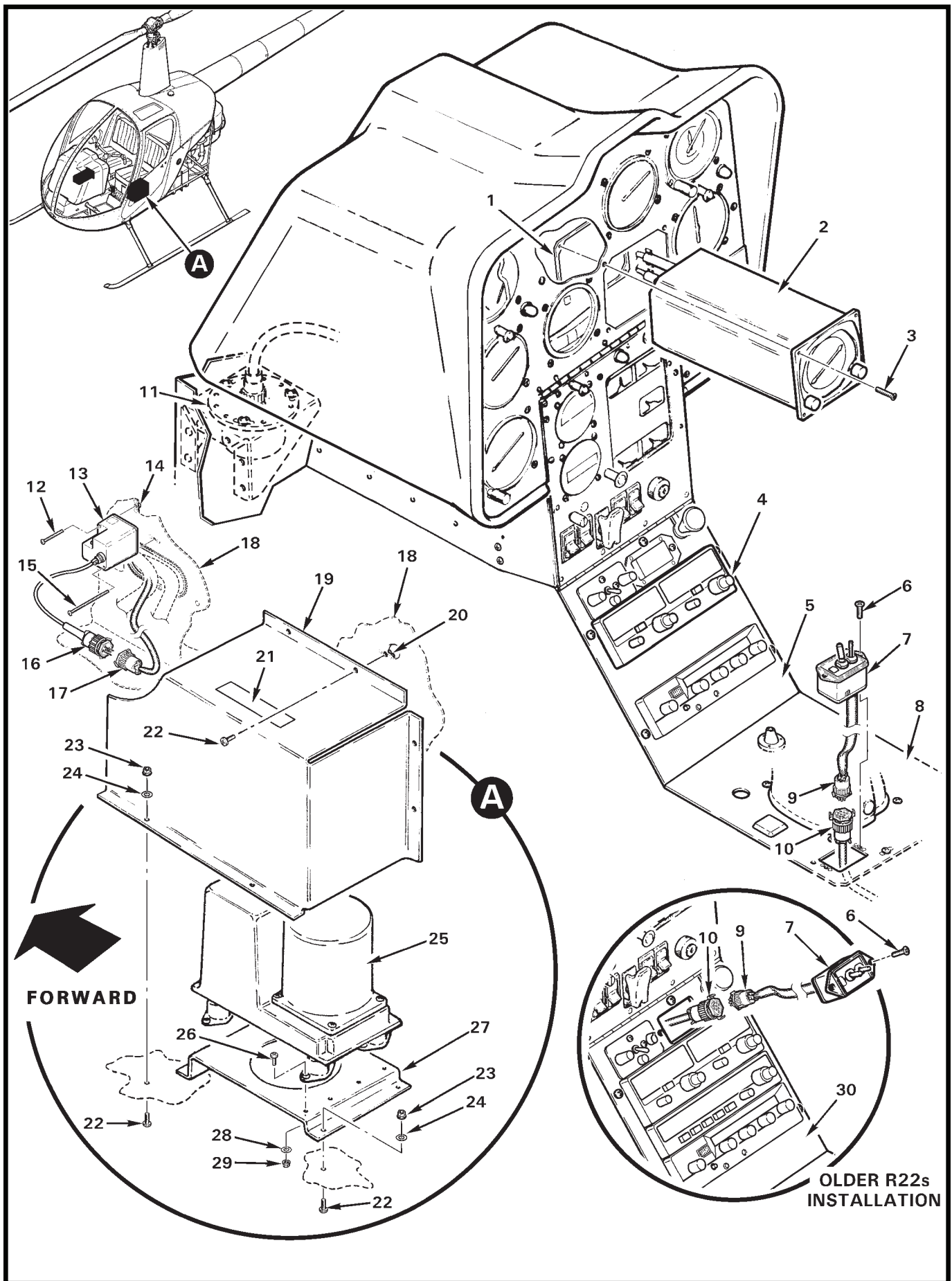


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
		PICTORIAL NAVIGATION SYSTEM (HSI)		
95-53-1	047-03937-0001 *	Plate	O	1
2	KI 525A *	Pictorial Nav Indicator (Ref; order R9116 overhaul exchange)		
	KI525AR	KI 525A HSI Indicator (overhaul exchange; includes items 1 and 3)	X	1
3	089-05115-0012 *	Screw	O	4
4	KX 165 *	VHF NAV/COM Transceiver	O	1
5	B641-XX	Face (ICS and OAT at top, -11 shown, specify dash no.)	X	A/R
6	089-6163-08 *	Screw	O	2
7	KA 51B *	Slaving Accessory (Incl item 6)	O	1
8	A444-11	Cover (Ref, see Figure 67-1)		
9	P102 *	Connector (Ref; 9-pin, on slaving accessory)		
10	KPN 0030-2421-00 *	Mating Connector (Ref; 9-socket, for compensator)		
11	KMT 112 *	Magnetic Azimuth Transmitter (Flux Gate; Ref, see Figure 97-19)		
12	—	Screw (short; included with item 13)	O	1
13	KA 51A *	Compensator Assembly (Ref; includes items 12 and 15)	O	1
14	MS21069L04	Nutplate	X	2
15	—	Screw (long; included with item 13)	O	1
16	P101 *	Connector (Ref; 5-pin, on compensator)		
17	KPN 0030-2423-00 *	Mating Connector (Ref; 5-socket, for compensator)		
18	A292-1	Keel Panel (Ref)		
19	A603-1	Gyro Cover Assembly (Incl item 21)	X	1
20	MS21069L08	Nutplate	X	4
21	A603-5	Decal	X	1
22	MS27039C0806	Screw	X	10
23	MS21042L08	Nut	X	6
24	NAS1149FN816P	Washer	X	6
25	KG 102A *	Directional Gyro	O	1
26	MS35206-228	Screw	X	8
27	A987-1	Bracket	X	1
28	NAS1149FN616P	Washer	X	8
29	MS21042L06	Nut	X	8
30	A983-4	Face (for KA 51B slaving accessory; earlier R22s)	X	A/R

NOTES * Bendix/King part no.

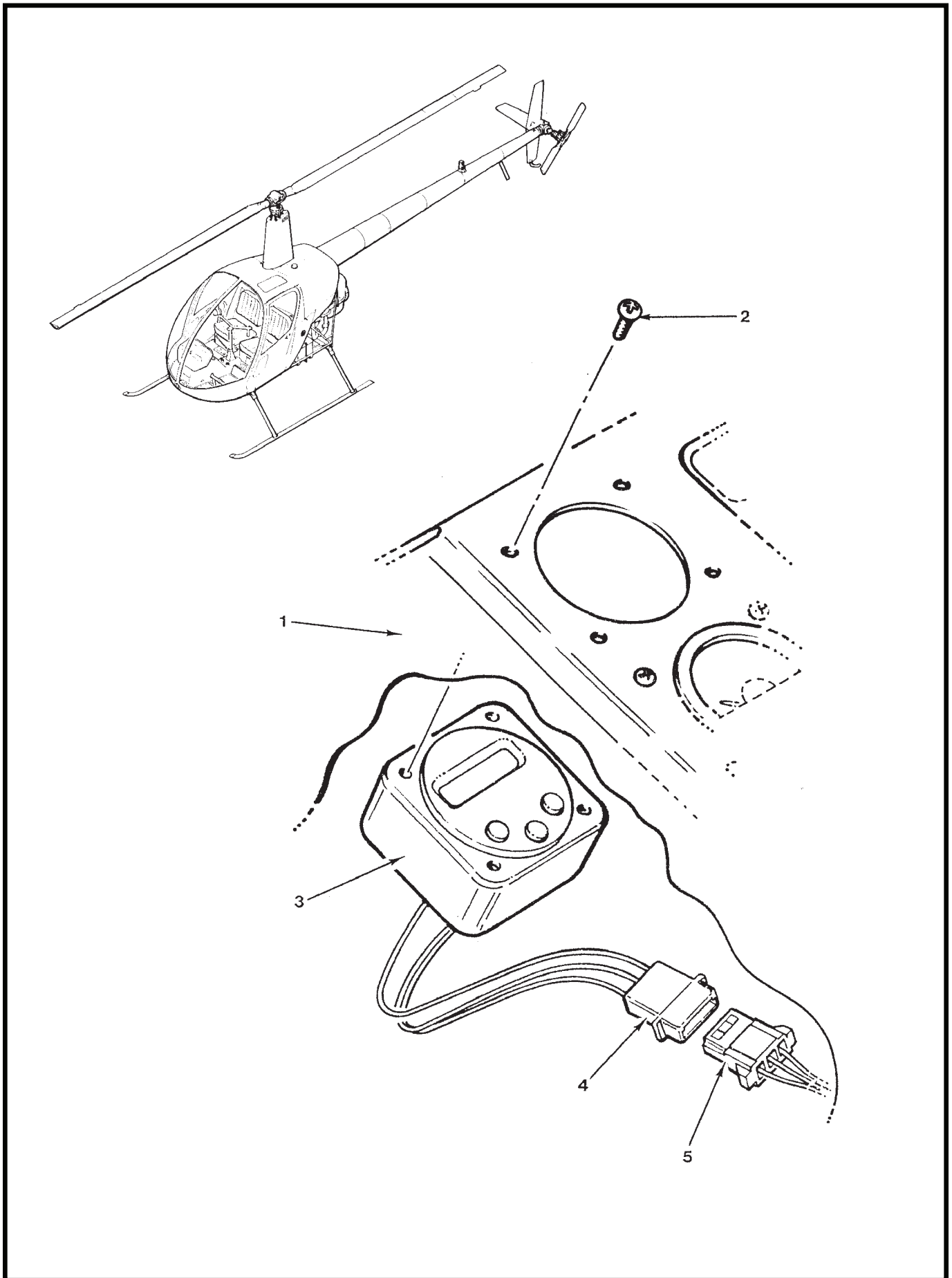


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
DIGITAL CLOCK INSTALLATION				
95-55-1	B050	Console Assembly (Ref)		
2	MS35206-228	Screw	X	4
3	A064-3	Chronometer Assembly (Incl items 4 and 6)	X	1
4	B263-14	Housing	X	1
	B263-1	Pin	X	3
5	B263-15	Housing	X	1
	B263-2	Socket	X	3
6	B196-5	Lamp (not shown)	X	1
NOTES				

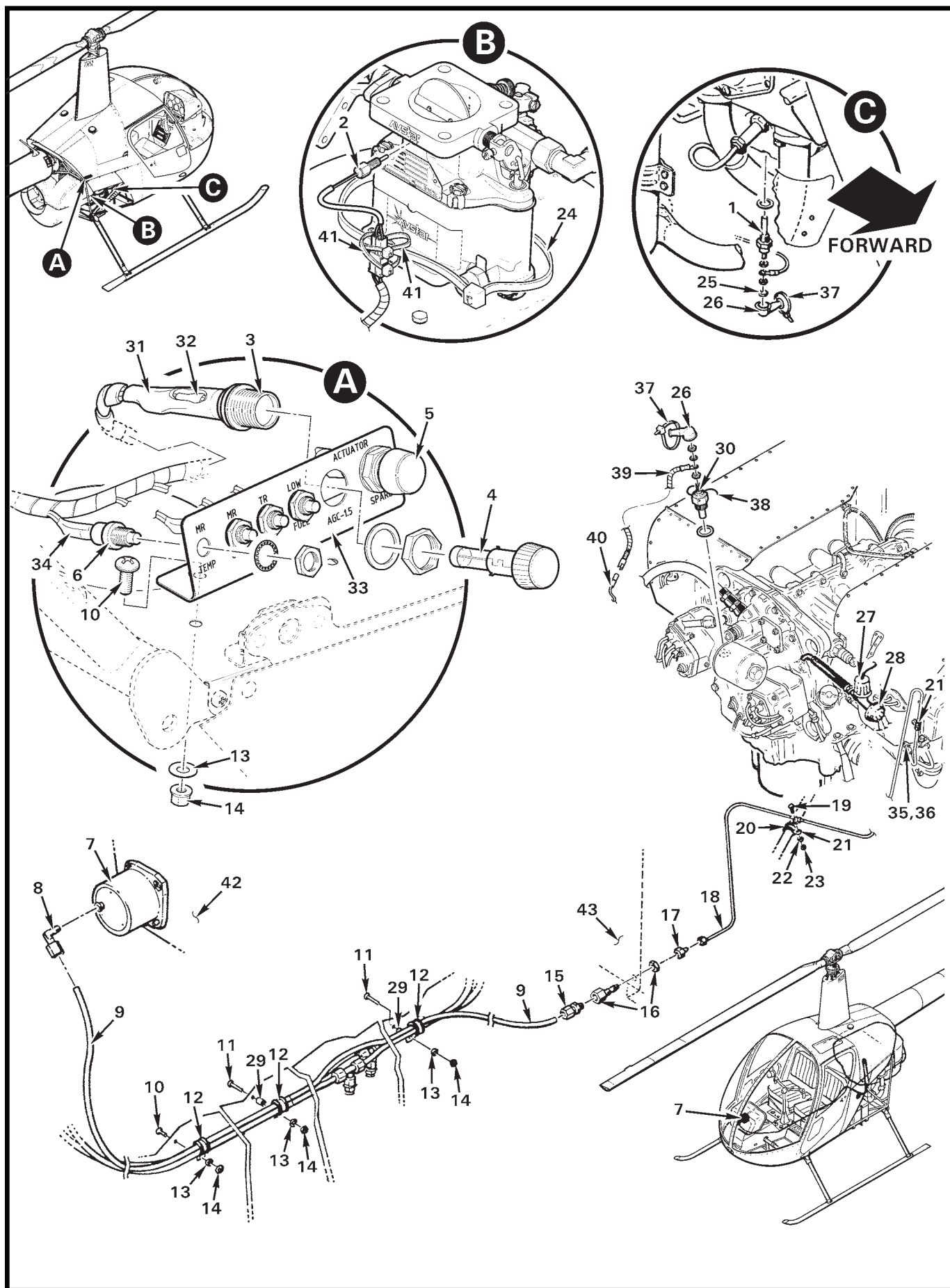


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
		ENGINE INSTRUMENT SENDERS AND TEST SWITCHES		
95-57-1	3080-38	Cylinder Head Temperature Probe (includes gasket; torque to 70-80 in-lb)	X	1
2	A058-5	Carburetor Air Temperature Probe Assembly (includes B5-SE probe, wires, heat shrink, and connector; see also Figure 71-5)	X	1
3	D262-11	Fuse Holder (actuator)	X	1
4	AGC-1-1/2-R	Fuse (actuator)	X	1
5	D262-11	Fuse Holder (spare)	X	1
	AGC-1-1/2-R	Fuse (spare, not shown)	X	1
6	B227-1	Switch Assembly (test; includes lockwasher and nut)	X	4
7	A600-1	Manifold Pressure Gage (ship S/N 0002 thru 0199 except 0175)	X	1
	A600-2	Manifold Pressure Gage (ship S/N 0175 & 0200 thru 0500) . .	X	1
	A600-3	Manifold Pressure Gage (ship S/N 0501 thru 2570)	X	1
	A600-5	Manifold Pressure Gage (ship S/N 2571 and subsequent)	X	1
8	40-4-2-N-0	Elbow	X	1
9	A729-6	Tube	X	1
10	MS27039C0806	Screw	X	1
11	MS27039C0812	Screw	X	2
12	MS21919WDG8	Clamp	X	3
13	NAS1149FN816P	Washer	X	3
14	MS21042L08	Nut	X	3
15	10-4-2-N-0	Connector	X	1
16	0253-2-4	Bulkhead Adapter	X	1
17	AN894D4-3	Bushing	X	1
18	A740-1	Manifold Pressure Line (engine-to-firewall)	X	1
19	AN3-3A	Bolt	X	1
20	MS21919WDG10	Clamp	X	1
21	MS21919WDG3	Clamp	X	1
22	NAS1149F0332P	Washer	X	1
23	D210-3	Nut	X	1
24	MS3367-6-0	Ty-Rap	X	1
25	B330-2	Palnut	X	1
26	MS25171-1S	Nipple (earlier R22s)	X	2
27	B308-1	Oil Pressure Sender (see also Figure 79-1)	X	1
28	B426-1	Oil Pressure Switch (see also Figure 79-1)	X	1

NOTES

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
ENGINE INSTRUMENT SENDERS AND TEST SWITCHES (Cont'd)				
95-57-29	A130-25	Spacer	X	2
30	A760-1	Oil Temperature Sender (includes gasket)	X	1
31	B158-6	Heat Shrink (around fuse holder)	X	A/R
32	B158-3	Heat Shrink (around wires)	X	A/R
33	A938-2	Mount	X	1
34	B158-2	Heat Shrink	X	A/R
35	AN816-3D	Nipple (install using item 36)	X	1
36	B270-6	Sealant (4-oz tube)	X	A/R
37	MS3367-4-9	Ty-Rap (earlier R22s)	X	2
38	MS20995C32	0.032-inch dia Safety Wire	X	A/R
39	C049-8	Harness Assembly	X	1
40	A859	Harness Assembly (Ref)		
41	MS3367-4-9	Ty-Rap	X	2
42	B197	Instrument Face (Ref)		
	G055	Instrument Face (Ref)		
43	A233	Firewall (Ref)		

NOTES

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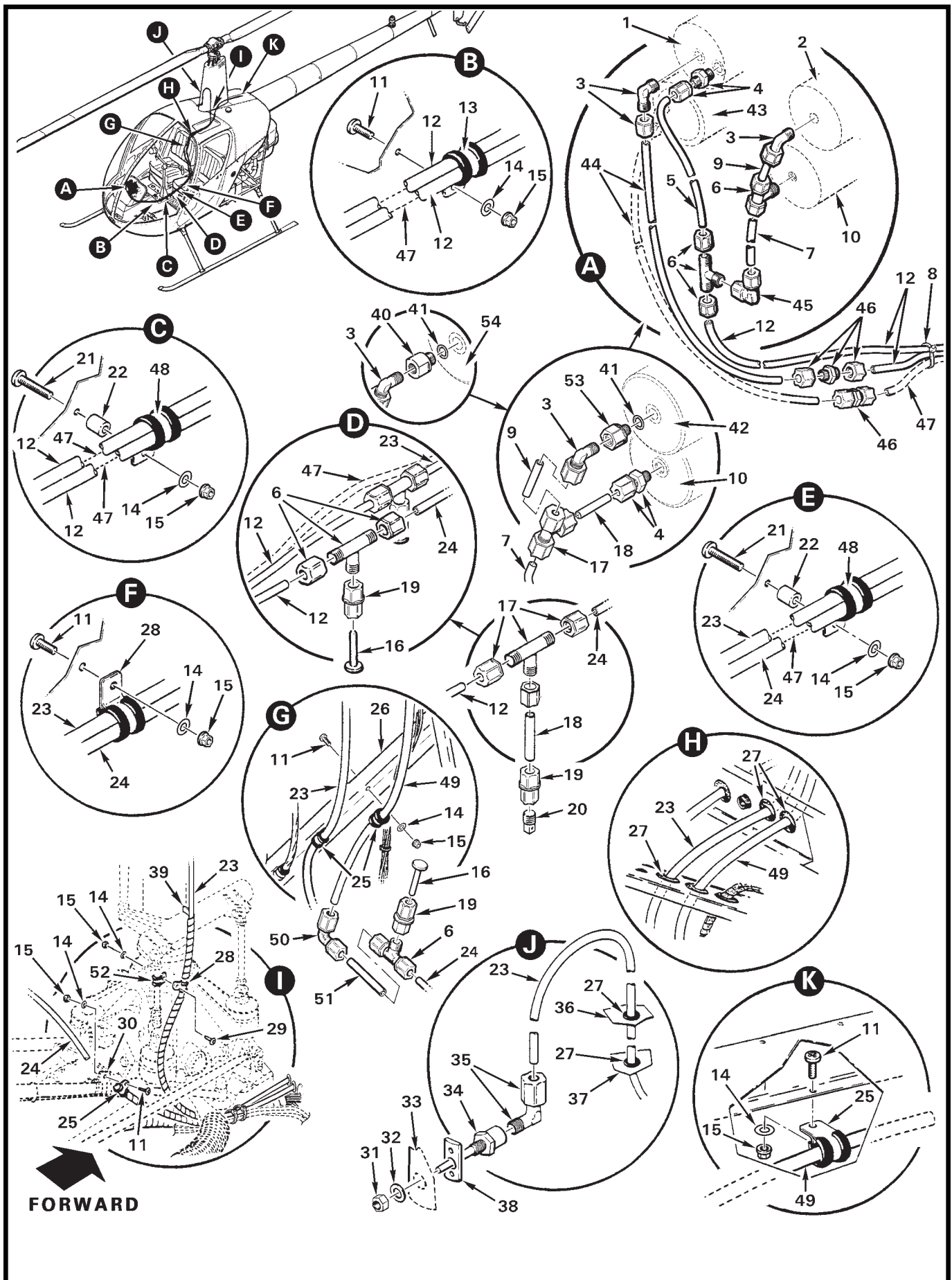


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
PITOT/STATIC LINES INSTALLATION				
95-61-1	A599-1 *	Airspeed Indicator (Ref)		
2	A602-1 *	Rate-of-Climb Indicator (Ref)		
3	40-4-2-N-0	Elbow	X	2
4	10-4-2-N-0	Fitting	X	1
5	A729-23	Tube	X	1
6	60-4-2-N-0	Tee Fitting	X	3
7	A729-25	Tube	X	1
8	MS3367-5-9	Ty-Rap	X	A/R
9	A729-26	Tube	X	1
10	A613-1 *	Altimeter – In. Hg (Ref)		
	A613-2 *	Altimeter – Millibar (Ref, optional)		
11	MS27039C0806	Screw	X	6
12	A729-24	Tube	X	2
13	TA04111SC0304CR	Clamp	X	1
14	NAS1149FN816P	Washer	X	A/R
15	MS21042L08	Nut	X	8
16	PI0808S	Drain Plug	X	3
17	70-4-N-0	Tee Fitting	X	2
18	A729-27	Tube	X	A/R
19	25-4-2-N-0	Fitting	X	3
20	MS20913-1D**	Drain Plug (pitot and static; Ref)		
21	MS27039C0811	Screw	X	2
22	A130-25	Spacer	X	2
23	A729-28	Tube (pitot)	X	1
24	A729-22	Tube (static)	X	1
25	MS21919WDG4	Clamp	X	4
26	A384-3	Stiffener (Ref)		
27	MS35489-6	Grommet	X	6
28	MS21919WDG7	Clamp	X	2
29	MS27039C0807	Screw	X	1
30	MS21919WDG14	Clamp (if equipped)	X	1
31	MS21083-N5	Nut	X	1
32	NAS1149D0516J	Washer	X	1
33	A261-2	Skin (Ref)		
34	A262-1	Fitting – Pitot	X	1

NOTES * See also Figure 95-25.
 ** Installed on earlier R22s at this location. No longer available. To replace order items 6, 16 and 19.

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
PITOT/STATIC LINES INSTALLATION (Cont'd)				
95-61-35	A596-1	Elbow Assembly (includes nut)	X	1
36	A665-1	Restraint (Ref)		
37	A261-4	Rib (Ref)		
38	A246-3	Spacer	X	1
39	B161-4	Spirap	X	A/R
40	A763-1	Adapter (used with item 54 only)	X	1
41	MS28778-6	Packing (o-ring; used with items 42 and 54 only)	X	1
42	A602-2*	Rate-of-Climb Indicator (Ref; IVSI, revision "E" and subsequent)	X	1
43	A600	Manifold Pressure Gage (Ref, see Figure 95-57)		
44	A729-21	Tube	X	2
45	45-4-2-N-0	Elbow	X	1
46	15-4-N-0	Union	X	2
47	A729-6	Tube (manifold pressure line; Ref, see Figure 95-57)		
48	MS21919WDG8	Clamp	X	2
49	A729-6	Tube (static)	X	1
50	50-4-N-0	Elbow	X	1
51	A729-30	Tube	X	1
52	MS21919WDG10	Clamp (around strut)	X	1
53	25-4-2-N-0	Fitting (compression nut not used at this location)	X	1
54	A602-2*	Rate-of-Climb Indicator (Ref; IVSI, revision "D" and prior. Install using item 40.)		

NOTES * Optional.

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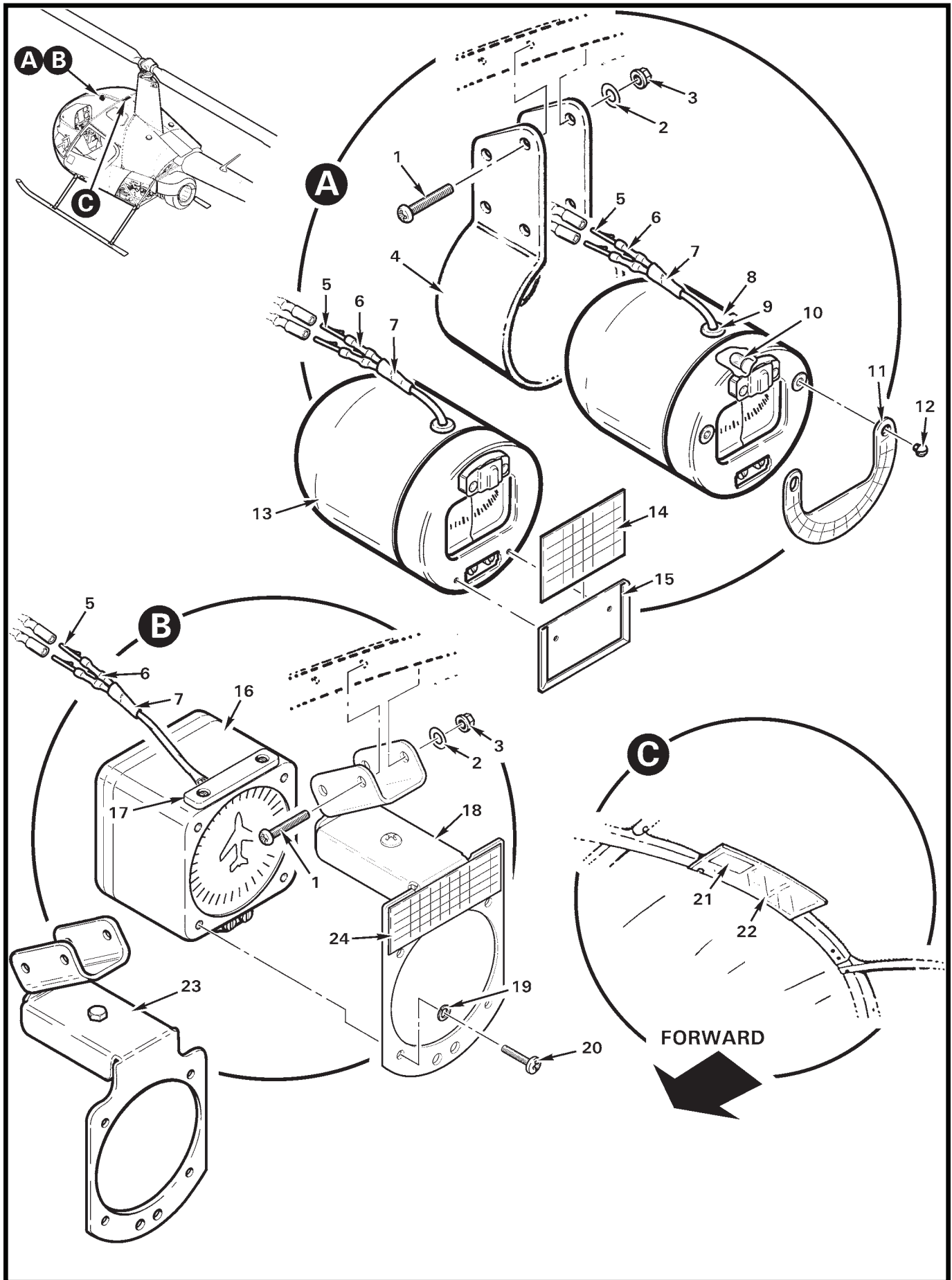


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
COMPASS INSTALLATION				
95-65-1	MS35214-47	Screw	X	4
2	NAS1149DN816P	Washer	X	4
3	NAS1291C08M	Nut	X	4
4	A685-1	Mount – Compass	X	1
5	B263-1	Pin	X	2
6	B158-2	Heat Shrink (0.125 in. dia., black)	X	A/R
7	B158-3	Heat Shrink (0.187 in. dia., black)	X	A/R
8	A022-3	Compass Assembly (Incl items 5 thru 7, and 9 thru 12)	X	1
9	MS35489-4	Grommet	X	1
10	B196-1	Lamp	X	1
11	C24-809*	Deviation Plate (Ref)		
12	—	Screw	O	2
13	A022	Compass Assembly (Ref, no longer available. Superseded by item 8. For earlier R22s with items 14 and 15 installed.)		
14	C23-807	Deviation Card	X	1
15	C23-805M	Mount – Deviation Card	X	1
16	B148-2**	Compass Assembly – Vertical Card (Incl items 5 thru 7, 17 and 20)	X	1
17	—	Light Bar (Ref)	O	1
18	B339-1	Mount – Vertical Card Compass (revision B and subsequent) . .	X	1
19	MS35338-136B	Lockwasher	X	4
20	—	Screw	O	4
21	PAI-DE-CARD	Deviation Placard (vertical card compass)	X	1
22	A725-3	Mount (Ref, see Figure 11-1)		
23	B339-1	Mount – Vertical Card Compass (revision A)	O	1
24	D682-43	Decal – Deviation Card	X	1

NOTES * Airpath Instrument Co. part no.
 ** Optional.

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CHAPTER 96
ELECTRICAL SYSTEM

<i>Figure</i>	<i>Title</i>	<i>Page</i>
96-1	Aft Battery Installation	96.0
96-5	Nose Battery Installation	96.4
96-9	Nose Battery Relay Installation	96.8
96-11	Circuit Breaker Panel	96.10
96-15	Electrical Components	96.14
96-19	Electrical Wire Harness	96.18
96-21	RPM Governor Installation	96.20
96-25	Hourmeter and Collective-activated Switches	96.24
96-27	Carbon Monoxide Detector Installation	96.26
96-29	Strobe Power Supply Installation	96.28
96-31	Floor Transmit Switch Installation	96.30
96-33	Accessory Bars Installation	96.32

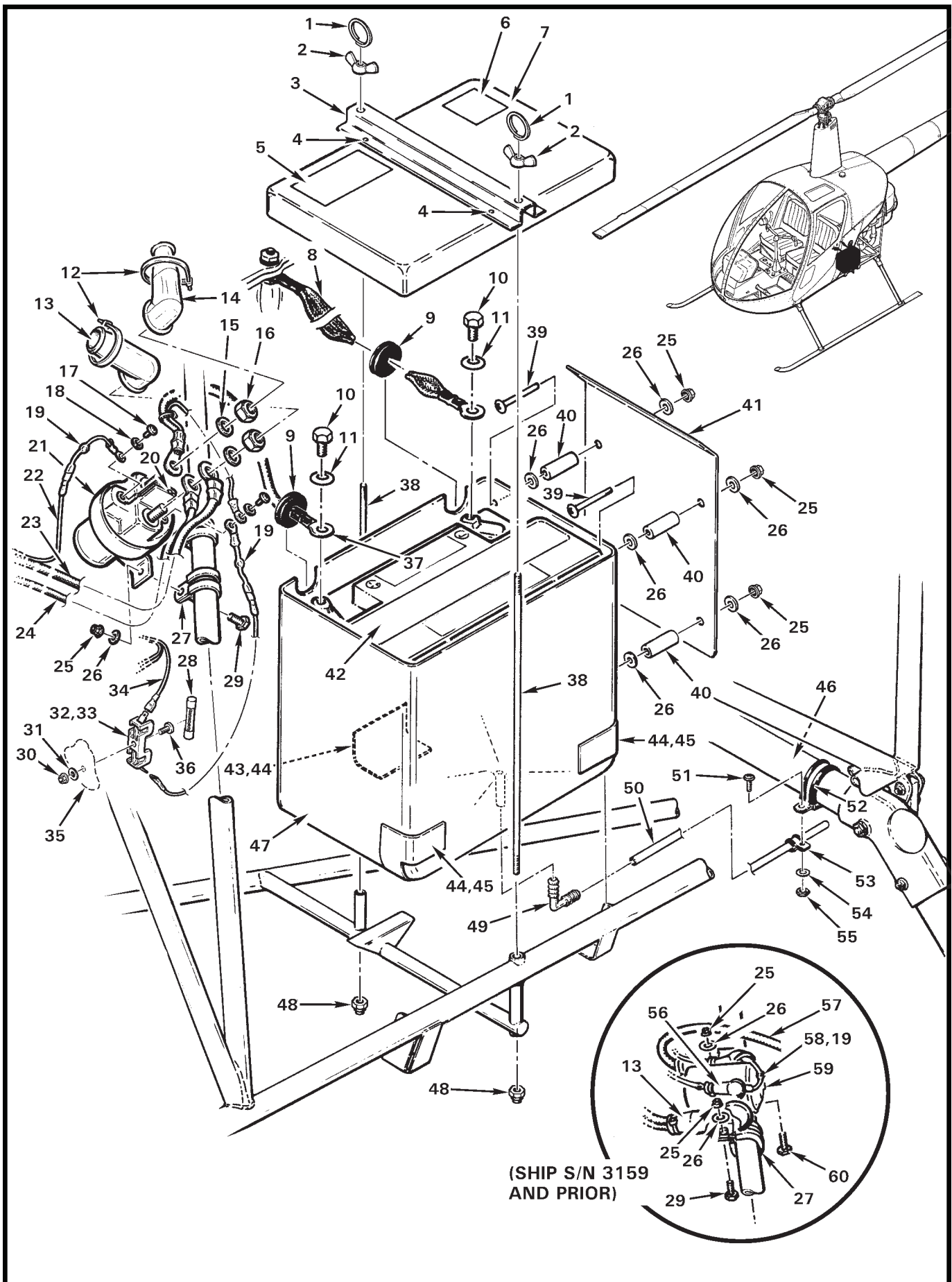


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
AFT BATTERY INSTALLATION*				
96-1-1	95390A317	Circle Cotter	X	2
2	94924A009	Wingnut	X	2
3	A922-2	Channel (attach using item 4)	X	1
4	MS20470AD3	Rivet	X	4
5	C654-44	Decal – "12V"	X	1
6	C654-45	Decal – "—"	X	1
7	A955-7	Cover Assembly (Incl items 3 thru 6)	X	1
8	A780-2	Cable – Ground	X	1
9	MS35489-40	Grommet (or AN931A6-10)	X	2
10	—	Screw (M8 hex head)	O	2
11	—	Washer (conical)	O	2
12	MS3367-4-9	Ty-Rap	X	A/R
13	MS25171-4S	Nipple	X	1
14	MS25171-2S	Nipple	X	1
15	O1000424	Washer	O	2
16	MS21044B5	Nut (supplied with item 21)	O	2
17	O1003621	Screw	O	2
18	O1004635	Washer	O	2
19	A15A	Diode	X	1
20	O1009214	Diode	X	1
21	B415-1	Relay (Includes items 15 thru 18, and 20. Ship S/N 3160 and subsequent.)	X	1
22	A059-65	Wire (Ref, part of A059 wire harness)		
23	A067-581	Cable (to starter)	X	1
24	A780-34	Cable (to shunt)	X	1
25	D210-3	Nut	X	6
26	NAS1149F0363P	Washer	X	2
27	MS21919WDG10	Clamp	X	2
28	AGC-3	Fuse	X	1
29	AN3-4A	Bolt	X	2
30	MS21042L06	Nut	X	1
31	NAS1149FN616P	Washer	X	1
32	B304-8	Diode Assembly (includes items 19, 28, 30, 31, 33, 34, 36, heat shrink, terminal, and splice)	X	1
33	D262-1	Fuse Block	X	1

NOTES * Alpha and Beta models only.

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
AFT BATTERY INSTALLATION* (Cont'd)				
96-1-34	-66	Wire (Ref)		
35	—	Vertical Firewall (Ref)		
36	MS35206-228	Screw	X	1
37	A780-33	Cable – Battery Positive (Incl wire no. 64)	X	1
38	A923-2	Rod	X	2
39	MS27039C1-24	Screw	X	4
40	A130-15	Spacer	X	4
41	A954-1	Shield	X	1
42	B237-6	Battery – Heavy Duty (Concorde part no. RG25XC; includes items 10 and 11)	X	1
43	A955-3	Pad (install using item 44)	X	1
44	B270-14	Adhesive	X	A/R
45	A955-4	Pad (install using item 44)	X	2
46	A241-2	Cross Tube (Ref)		
47	A955-5	Battery Box Assembly (Incl items 7, 25, 26, 39 thru 41, and 43 thru 45)	X	1
48	B340-4	Nut	X	2
49	0710-015	Elbow	X	1
50	B233-1	Tube Assembly (Incl item 49)	X	1
51	MS27039C0806	Screw	X	1
52	MS21919WDG24	Clamp	X	1
53	MS21919WDG6	Clamp	X	1
54	NAS1149FN816P	Washer	X	1
55	MS21042L08	Nut	X	1
56	MS25171-1S	Nipple	X	2
57	A780-7	Cable – Battery Positive (use with item 59 only)	X	1
58	B304-2	Diode Assembly (Includes item 19. Use with item 59 only.)	X	1
59	70-906	Relay (Ref; ship S/N 0001 thru 3159, no longer available. To replace, order item 61.)		
60	AN3-5A	Bolt	X	2
* * *				
61	KI-154	Aft Battery Relay Upgrade Kit (Incl items 12 [5], 14, 21, 29, 37, 62, and 63; not shown)	X	1
62	B158-103-1	Heat Shrink (1-inch length)	X	1
	B158-103	Heat Shrink (12-inch length)	X	A/R
63	B260-2	Terminal	X	2

NOTES * Alpha and Beta models only.

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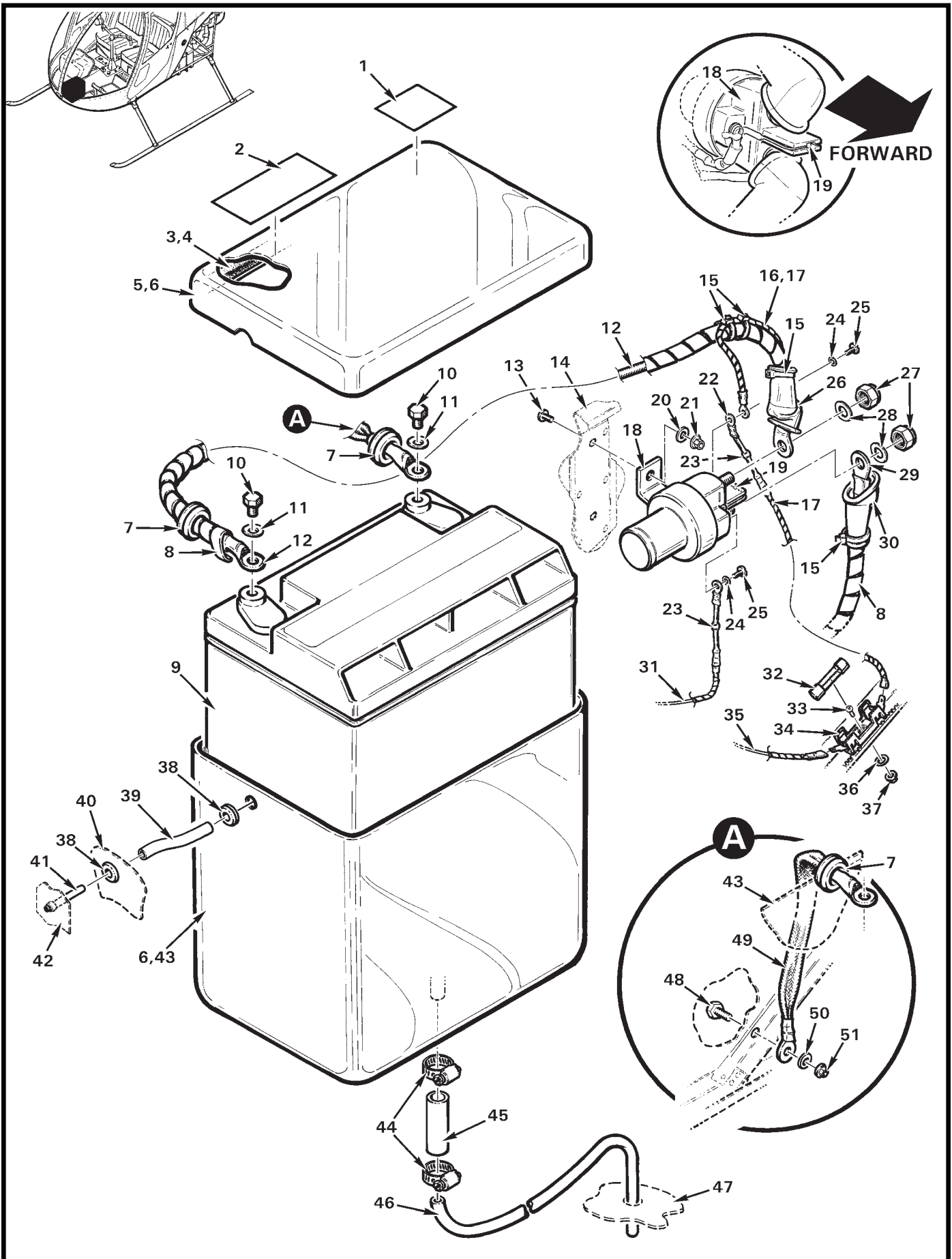


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
NOSE BATTERY INSTALLATION				
96-5-1	C654-45	Decal – “—”	X	1
2	C654-44	Decal – “12V +”	X	1
3	R5556	Seal (attach using item 4)	X	A/R
4	B270-14	Adhesive	X	A/R
5	A540-10	Cover Assembly (Incl items 1 thru 4)	O	1
6	A540-12	Battery Box Assembly (Incl items 5 and 43)	X	1
7	MS35489-40	Grommet (or AN931A6-10)	X	2
8	B161-8	Spirap	X	A/R
9	B237-6	Battery (Concorde part no. RG25XC; includes items 10 and 11)	X	1
10	—	Screw (M8 hex head)	O	2
11	—	Washer (conical)	O	2
12	A780-32	Cable – Battery Positive (Incl item 16)	X	1
13	MS27039C1-06	Screw	X	2
14	A033	Console (Ref)		
15	MS3367-4-9	Ty-Rap	X	A/R
16	A780-64	Wire (Ref)		
17	B161-2	Spirap	X	A/R
18	B415-1	Relay (Includes items 19, 24, 25, 27, and 28; ship S/N 3160 and subsequent. For ship S/N 3159 and prior, see Figure 96-9.)	X	1
19	01009214	Diode	X	1
20	NAS1149F0332P	Washer	X	2
21	D210-3	Nut	X	2
22	B304-8	Diode Assembly (Includes items 23, 32 thru 34, 36, 37, wire, terminal, and heat shrink.)	X	1
23	A15A	Diode	X	1
24	01004635	Washer (Ref)	O	2
25	01003621	Screw (Ref)	O	2
26	MS25171-4S	Nipple	X	1
27	MS21044B5	Nut (supplied with item 18)	O	2
28	01000424	Washer	O	2
29	A067-587	Cable Assembly (wire no. 581, to starter)	X	1
30	MS25171-2S	Nipple	X	1
31	A059-141	Wire (Ref)		
32	AGC-3	Fuse (3-amp)	X	1
33	MS35206-228	Screw	X	1

NOTES

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
NOSE BATTERY INSTALLATION (Cont'd)				
96-5-34	D262-1	Fuse Block	X	1
35	A059-142	Wire (Ref)		
36	NAS1149FN616P	Washer	X	1
37	MS21042L06	Nut	X	1
38	MS35489-6	Grommet (or AN931-4-7)	X	2
39	A691-1	Tube – Vent	X	1
40	—	Console (Ref)		
41	A690-1	Vent – Battery Box	X	1
42	B410-1	Retainer – Windshield (Ref)		
43	A540-2	Box Bottom	O	1
44	B277-4	Clamp	X	2
45	A910-1	Tube	X	1
46	A910-2	Tube	X	2
47	A272-1	Chin (Ref)		
48	AN4-4A	Bolt	X	1
49	A780-2	Cable – Battery Ground	X	1
50	NAS1149FN432P	Washer	X	1
51	D210-4	Nut	X	1

NOTES

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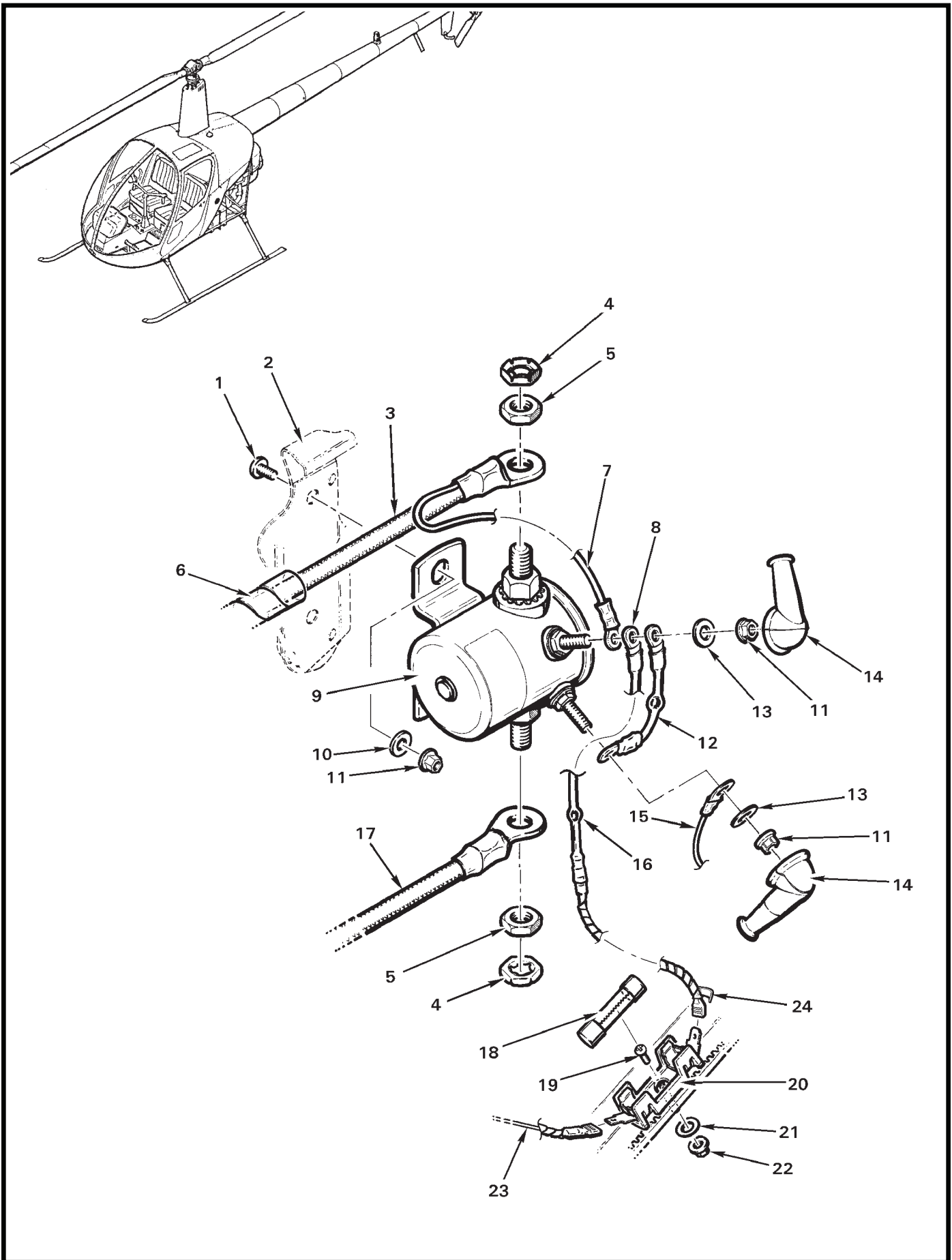


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
		NOSE BATTERY RELAY INSTALLATION*		
96-9-1	AN525-10R6	Screw	X	2
2	A033	Console (Ref)		
3	A780-1	Cable – Battery Positive (Incl item 7)	X	1
4	B330-16	Palnut	X	2
5	AN316-5R	Nut	X	2
6	B161-8	Spirap	X	A/R
7	A059-64	Wire (Ref, no longer available)		
8	B304-3	Diode Assembly (Includes items 18 thru 22, wire, terminal, and heat shrink.)	X	1
9	70-906	Relay (Ref, no longer available. Order item 25 for replacement.)		
10	NAS1149F0332P	Washer	X	2
11	D210-3	Nut	X	4
12	B304-2	Diode Assembly (Incl item 16)	X	1
13	NAS1149F0363P	Washer	X	2
14	MS25171-1S	Nipple	X	2
15	A059-141	Wire (Ref)		
16	D275-102	Diode	X	1
17	A067-587	Cable (to starter)	X	1
18	AGC-3	Fuse (3-amp)	X	1
19	MS35206-228	Screw	X	1
20	D262-1	Fuse Block	X	1
21	NAS1149FN616P	Washer	X	1
22	MS21042L06	Nut	X	1
23	A059-142	Wire (Ref)		
24	B161-2	Spirap	X	A/R
		* * *		
25	KI-158	Nose Battery Relay Upgrade Kit (Includes items 26 thru 28, and items 7, 8, 12, 13, 15, 17, 18, 20, 21, 26, and 30 from Figure 96-5.)	X	1
26	B158-103	Heat Shrink (one-inch length)	X	2
27	MS3367-5-9	Ty-Rap	X	5
28	MS3367-7-9	Ty-Rap	X	5

NOTES * Ship S/N 0001 thru 3159.

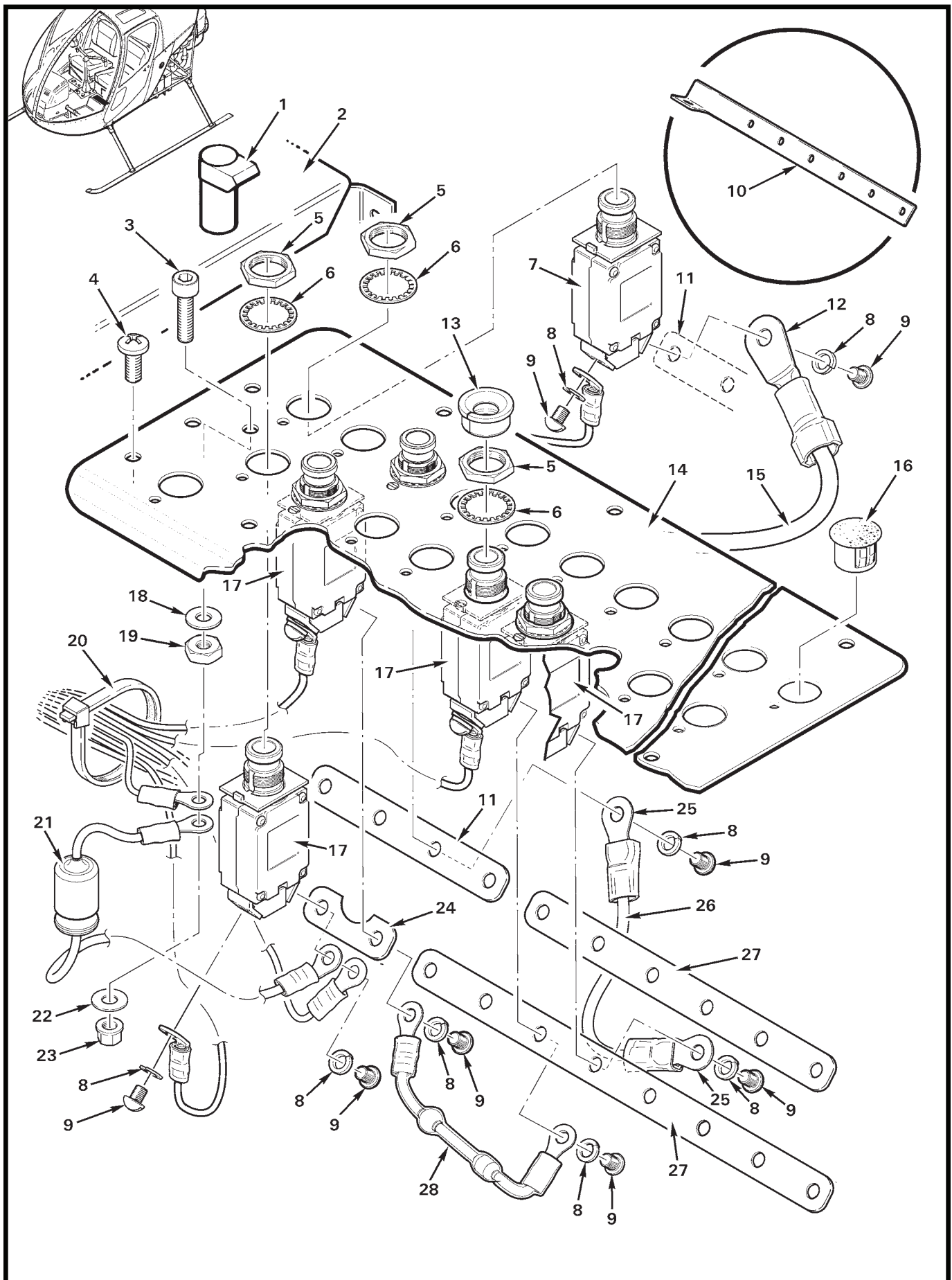


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
CIRCUIT BREAKER PANEL				
96-11-1	B195-6	Light – Panel (white lighting)	X	1
	B196-1	Lamp	X	1
2	A444-1	Cover – Cyclic Control (Ref)		
3	NAS1352-08-10P	Screw	X	1
4	MS27039C0806	Screw	X	12
5	—	Nut (included with circuit breaker)	O	1
6	—	Washer (included with circuit breaker)	O	1
7	B297-20*	Circuit Breaker (20 amp, landing lights)	X	1
8	—	Lockwasher (included with circuit breaker)	O	1
9	—	Screw (included with circuit breaker)	O	2
	MS35206-226	Screw (use when two or more items are installed on one post)	X	A/R
10	A448-5	Bus Bar (offset, for earlier R22s)	X	1
11	A448-10	Bus Bar (4 breakers)	X	1
12	B260-13	Terminal	X	1
13	10164-5	Button (red; for "Clutch/Start" breaker)	X	1
14	B490-5	Panel (24 holes, ship S/N's 4591, 4650, 4651, 4656 and subsequent)	X	1
	B490-2	Panel (24 holes, ship S/N's 2580 thru 4590, 4592 thru 4649, and 4652 thru 4655)	X	1
	A490-2**	Panel (18 holes)	X	1
	A490-3**	Panel (18 holes, Instrument Trainer)	X	1
	A490-4**	Panel (18 holes, Mariner and Police version)	X	1
15	A859-14	Wire (Ref; to aft shunt)		
16	2633	Hole Plug	X	A/R
17	B297-2*	Circuit Breaker (2 amp)	X	7
	B297-5*	Circuit Breaker (5 amp)	X	3
	B297-7*	Circuit Breaker (7 1/2 amp, for earlier R22s)	X	A/R
	B297-10*	Circuit Breaker (10 amp)	X	2
18	NAS1149DN832H	Washer	X	1
19	B340-8	Nut	X	1
20	MS3367-4-9	Ty-Rap	X	A/R
21	B304-1	Capacitor Assembly	X	1
22	NAS1149FN816P	Washer	X	1
23	MS21042L08	Nut	X	1
24	A448-3	Bus Bar (2 breakers)	X	1

NOTES * Includes items 5, 6, 8, and 9.
 ** Ship S/N 0333 thru 2579.

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
CIRCUIT BREAKER PANEL (Cont'd)				
96-11-25	B260-11	Terminal	X	2
26	A045-102	Wire	X	1
27	A448-1	Bus Bar (6 breakers)	X	A/R
	A448-3	Bus Bar (2 breakers)	X	A/R
	A448-4	Bus Bar (3 breakers)	X	A/R
	A448-9	Bus Bar (9 breakers)	X	A/R
	A448-10	Bus Bar (4 breakers)	X	A/R
	A448-14	Bus Bar (8 breakers)	X	A/R
28	A045-2	Diode Assembly	X	1

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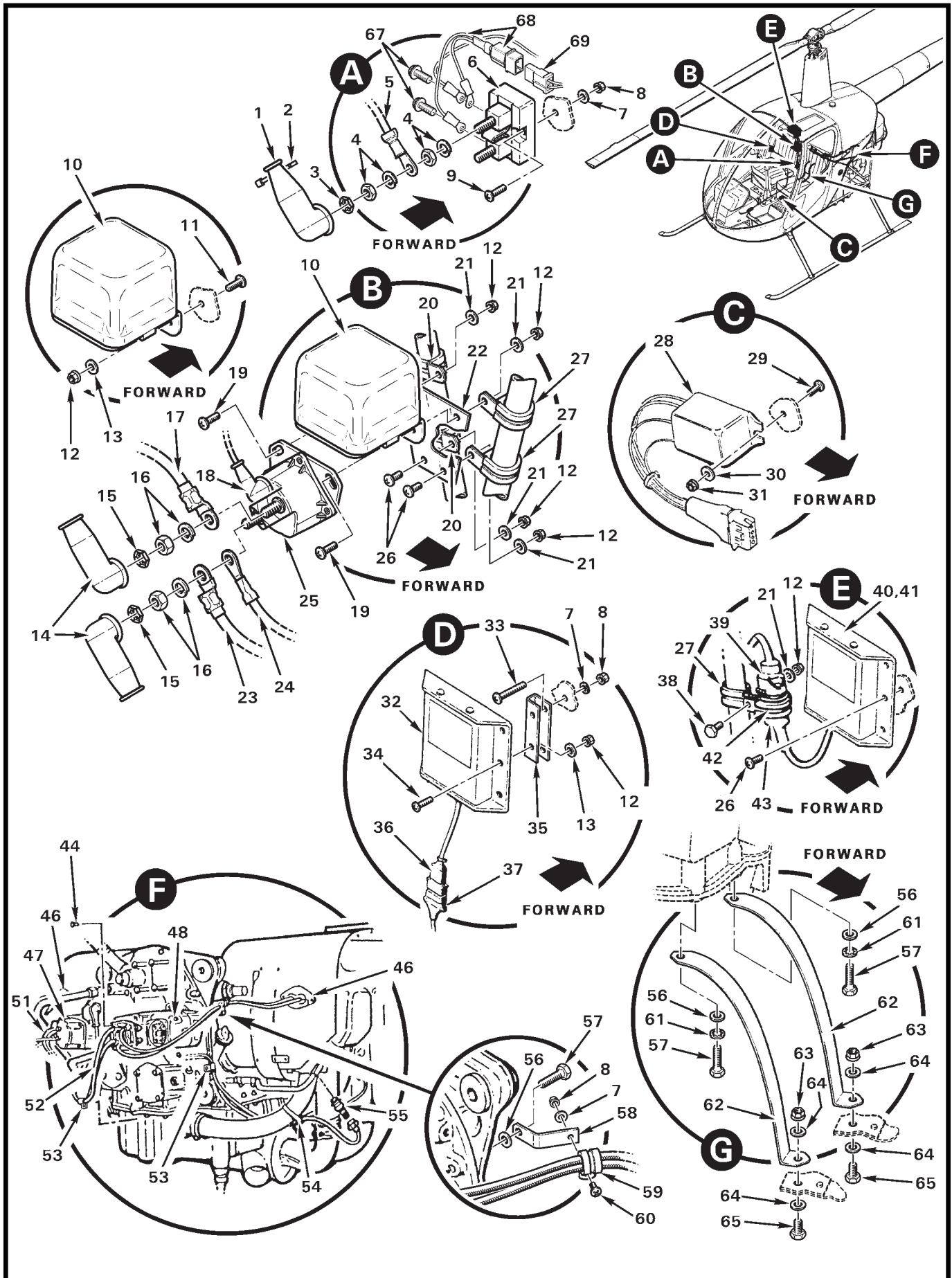


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
ELECTRICAL COMPONENTS				
96-15-1	MS25171-2S	Nipple	X	A/R
2	MS3367-4-9	Ty-Rap	X	A/R
3	B330-13	Palnut	X	2
4	—	Nut and Lockwasher (Ref; supplied with shunt)		
5	A059-22	Cable (alternator-to-shunt)	X	1
6	1465-70-104	Shunt – Ammeter (Incl item 67)	X	1
7	NAS1149FN816P	Washer	X	2
8	MS21042L08	Nut	X	4
9	MS27039C0809	Screw	X	2
10	10-176487-121*	Starting Vibrator (ship S/N 0078 and subsequent)	X	1
11	MS27039C1-08	Screw	X	2
12	D210-3	Nut	X	A/R
13	NAS1149F0363P	Washer	X	2
14	MS25171-4S	Nipple	X	2
15	B330-15	Palnut	X	2
16	—	Nut and Lockwasher (Ref; supplied with starter relay)		
17	A059-21	Cable (starter relay-to-starter; Kelly Aerospace starters only)	X	1
18	MS25171-1S	Nipple	X	1
19	MS27039C1-09	Screw	X	4
20	MS21919WDG10	Clamp	X	2
21	NAS1149F0332P	Washer	X	A/R
22	A311-1	Bracket – Starter Relay (earlier R22s)	X	1
23	A067-587**	Wire (battery relay-to-starter relay)	X	1
24	A059-26	Wire (starter relay-to-shunt; Kelly Aerospace starters only)	X	1
25	SAZ-4201E**	Starter Relay	X	1
26	MS27039C1-07	Screw	X	2
27	MS21919WDG12	Clamp	X	2
28	A999-1	Master Radio Relay (ship S/N 0350 thru 0449)	X	1
	A999-3	Master Radio Relay (ship S/N 0450 and subsequent)	X	1
29	MS35206-228	Screw	X	2
30	NAS1149FN632P	Washer	X	2
31	MS21042L06	Nut	X	2
32	A942-1	Alternator Control Unit (3-pin connector)	X	1
33	NAS603-18	Screw	X	4
34	NAS602-10P	Screw	X	4

NOTES * Teledyne Continental Motors part no.
 ** For use with Kelly Aerospace part no. MZ4224.

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY								
ELECTRICAL COMPONENTS (Cont'd)												
96-15-35	B811-1	Mounting Bracket	X	2								
36	B263-14	Housing	X	1								
	B263-3	Pin	X	3								
37	B811-2	Wire Harness Assembly	X	1								
38	AN3-3A	Bolt	X	1								
39	B264-23	Housing	X	1								
	B264-2	Socket ([5] with A942-2, [6] with A942-3)	X	A/R								
40	A942-2	Alternator Control Unit (7-pin connector)	X	1								
41	A942-3	Alternator Control Unit (7-pin connector)	X	1								
A942 ALTERNATOR CONTROL UNIT REPLACEMENT CHART												
<table border="1"> <thead> <tr> <th>A.C.U.</th> <th>SHIP S/N</th> </tr> </thead> <tbody> <tr> <td>A942-1</td> <td>0325-0411</td> </tr> <tr> <td>A942-2</td> <td>0412-0494</td> </tr> <tr> <td>A942-3</td> <td>0495 & subsequent</td> </tr> </tbody> </table>					A.C.U.	SHIP S/N	A942-1	0325-0411	A942-2	0412-0494	A942-3	0495 & subsequent
A.C.U.	SHIP S/N											
A942-1	0325-0411											
A942-2	0412-0494											
A942-3	0495 & subsequent											
42	MS21919WDG14	Clamp (around connector)	X	1								
43	207573-1	Receptacle	O	1								
	66102-6	Pin ([5] with A942-2, [6] with A942-3)	O	A/R								
	B158-12	Heat Shrink (0.75 in. dia, black)	X	A/R								
44	10-35937-10	Screw	X	8								
45	62224*	Gasket (not shown; install between magneto and accessory housing)	X	2								
46	LW-M-2375*	Harness Plate	X	2								
47	10-600614-1**	Magneto – Retard	X	1								
48	R8266	Magneto – Tachometer (or 10-600644-201** with pins and housing)	X	1								
49	68C19622*	Gear – Retard Magneto (O-360 engine, not shown)	X	1								
	73683*	Gear – Retard Magneto (O-320 engine, not shown)	O	1								
50	68C19622*	Gear – Tachometer Magneto (O-360, not shown)	X	1								
	61163*	Gear – Tachometer Magneto (O-320, not shown)	O	1								
51	M2403***	Ignition Wire Harness – Retard Magneto	X	1								
52	M2404***	Ignition Wire Harness – Tachometer Magneto	X	1								
53	LW-14060*	Clamp (O-320 engine, supplied with engine)	X	3								
	MS21333-102	Clamp	X	3								
54	LW-18959-150-25*	Clamp (O-320 engine)	X	4								
	LW-18959-175-25*	Clamp (O-360 engine)	X	4								

NOTES * Lycoming part no.
 ** Teledyne Continental Motors part no.
 *** Champion or Unison part no.

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
ELECTRICAL COMPONENTS (Cont'd)				
96-15-55	UREM40E*	Spark Plug (or UREM38E*)	X	8
56	STD-8**	Washer (supplied with engine)	X	A/R
57	LW-25-0.94**	Bolt (supplied with engine)	X	A/R
58	B315-1	Clip	X	1
59	MS21919WDG8	Clamp (use with TCM magnetos)	X	1
60	MS27039C0806	Screw	X	1
61	STD-160**	Washer (supplied with engine)	X	A/R
62	A212-1	Engine Ground Strap	X	2
63	D210-4	Nut	X	2
64	NAS1149F0432P	Washer	X	4
65	AN4-3A	Bolt	X	2
66	M2402***	Ignition Wire Harness Set (for retard and tachometer magneto [set]; includes items 51 and 52)	X	1
67	—	Screw	O	2
68	B304-18	Fuse Assembly (includes fuses, connector, wires, terminals, and heat shrink; assembled as shown)	X	1
69	B263-33	Housing (Ref; A859 harness assembly)		

NOTES * Tempest part no.
 ** Lycoming part no. for O-360 engine.
 *** Champion or Unison part no.

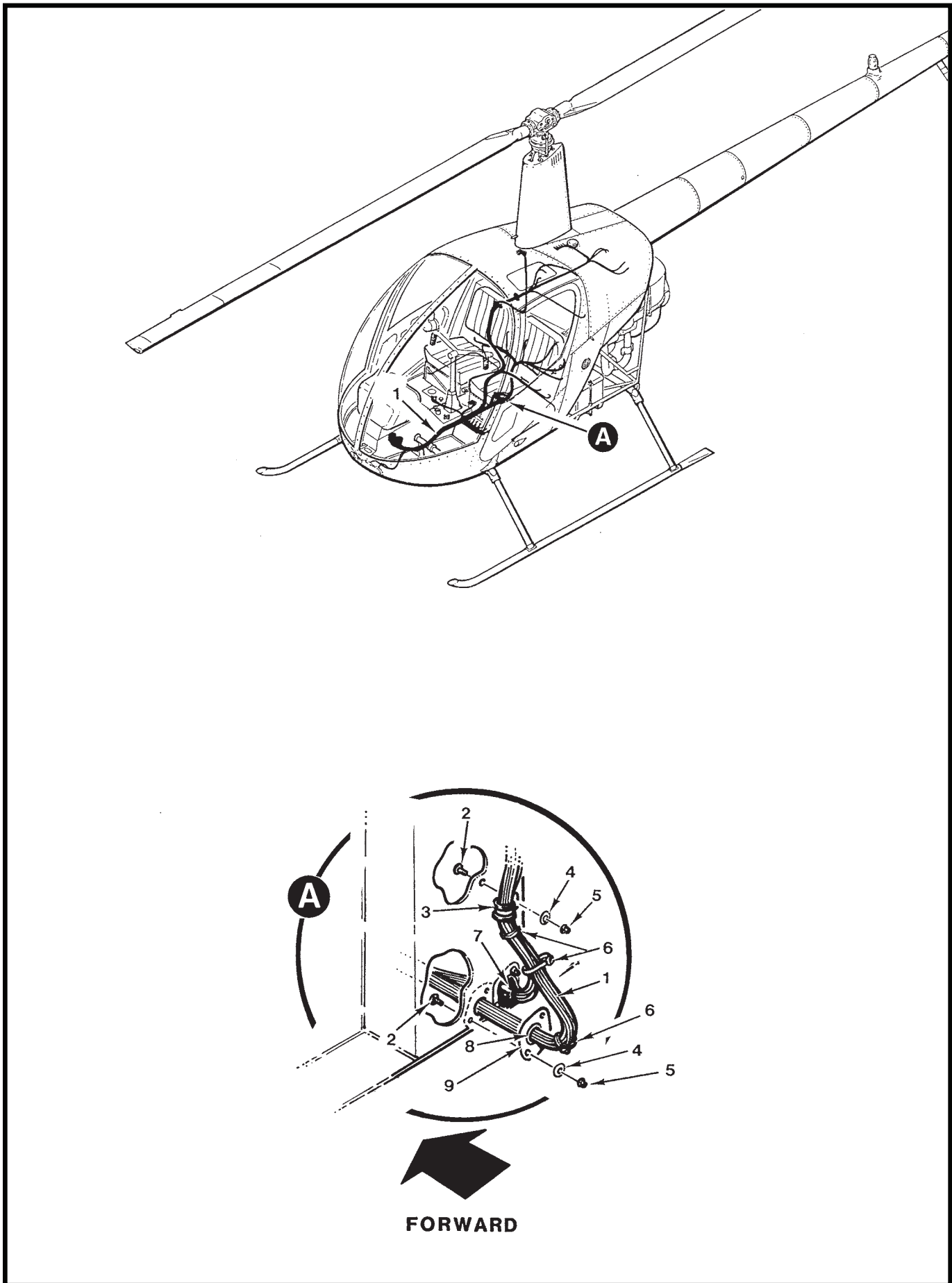


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
ELECTRICAL WIRE HARNESS				
96-19-1	A059-02*	Harness Assembly (cabin)	X	1
	2 MS27039C0806	Screw	X	6
	3 MS21919WDG9	Clamp	X	1
	4 NAS1149FN816P	Washer	X	6
	5 MS21042L08	Nut	X	6
	6 MS3367-4-9	Ty-Rap	X	A/R
	7 B270-5	Sealant (white)	X	A/R
	8 NAS557-8A	Grommet	X	2
	9 A453-1	Plate ([1] on each side of firewall)	X	4

NOTES * Ship S/N 4340 and higher. For ship S/N 4339 and earlier, contact RHC Tech Support.

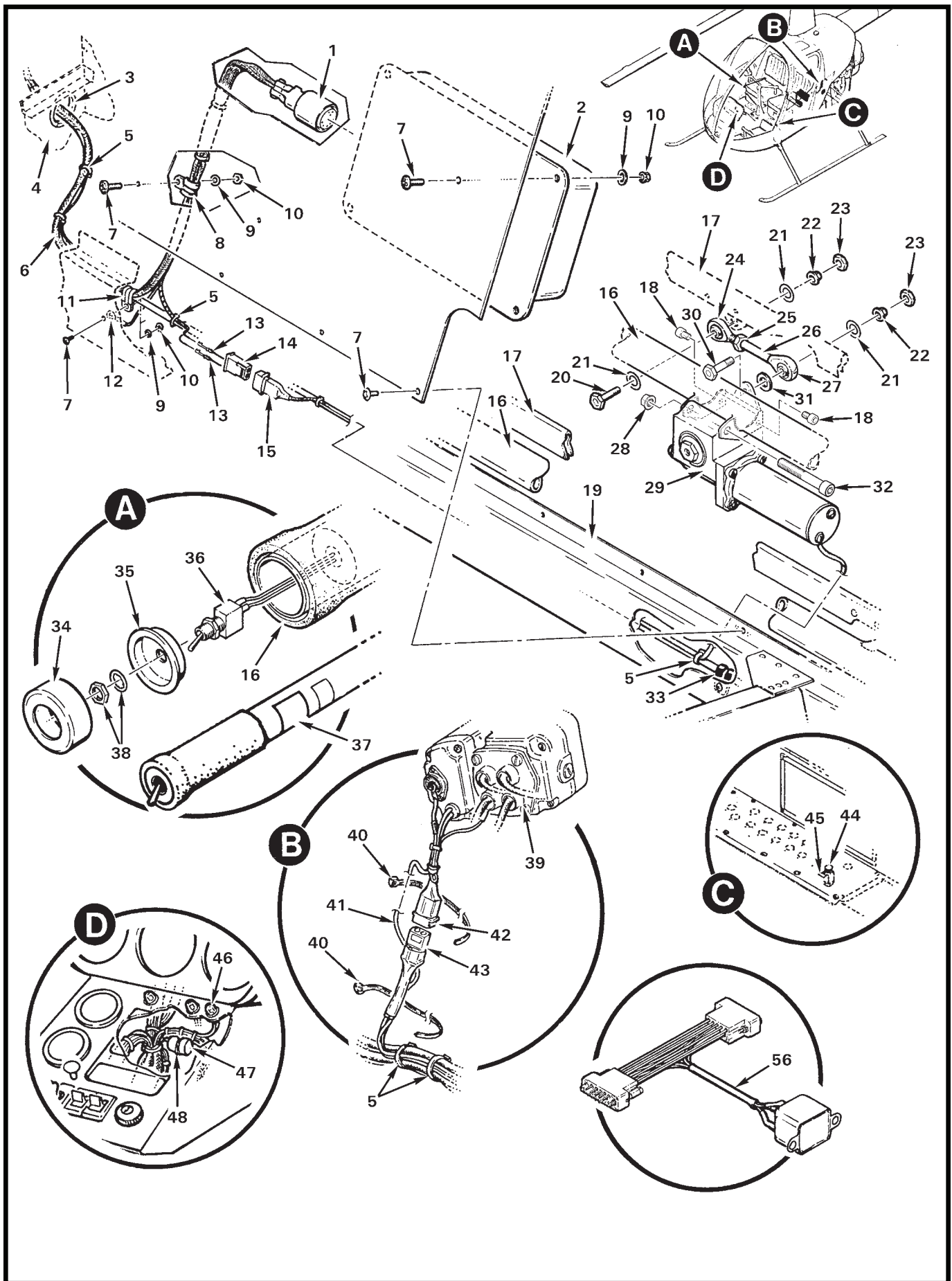


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
RPM GOVERNOR INSTALLATION				
96-21-1	MS3116F12-10SX	Plug	X	1
2	B286-2	Controller	X	1
3	NAS557-18B	Grommet	X	1
4	A292	Keel Panel (Ref)		
5	MS3367-5-9	Ty-Rap (or MS3367-4-9)	X	A/R
6	B266-8	Sleeving	X	A/R
7	MS27039C0806	Screw	X	21
8	MS21919WDG3	Clamp	X	1
9	NAS1149FN816P	Washer	X	6
10	MS21042L08	Nut	X	6
11	MS21919WDG4	Clamp (or MS21919WDG5)	X	1
12	B260-3	Terminal	X	1
13	B263-2	Socket	X	2
14	B263-33	Housing	X	1
15	B263-32	Housing	X	1
	B263-1	Pin	X	2
	B158-3	Heat Shrink (around wires)	X	A/R
	B158-8	Heat Shrink (around connector)	X	A/R
16	A758-6	Stick Assembly (RH pilot side. Includes items 17 thru 32, 34 thru 36, 37, and 38. See also Figure 67-21.)	X	1
17	B328-1	Connecting Rod (Ref)	X	1
18	NAS1352N08-4	Screw	X	2
19	A288-1	Cross Beam (LH, Ref)		
20	NAS6603-6	Bolt	X	1
21	NAS1149F0332P	Washer	X	3
22	D210-3	Nut	X	2
23	B330-7	Palnut	X	2
24	A127-3	Rod End	X	1
25	AN315-3R	Nut	X	1
26	A430-2	Tube	X	1
27	A498-1	Rod End	X	1
28	D210-4	Nut	X	1
29	B247-5	Governor Assembly	X	1
30	NAS6603-7	Bolt	X	1
31	NAS620-10	Washer	X	1

NOTES

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
RPM GOVERNOR INSTALLATION (Cont'd)				
96-21-32	NAS1351-4-28P	Screw	X	1
33	MS21919WDG2	Clamp	X	2
34	A959-2	End Cap (install using B270-15 adhesive)	X	1
35	B252-4	Mount (install using B270-15 adhesive)	X	1
36	B280-1	Switch Assembly (includes B300-1 switch, wires and heat shrink)	X	1
	B300-1	Switch (switch only)	X	1
37	A654-79	Decal – "On-Off" (governor switch)	X	1
38	—	Washer	O	1
	—	Nut	O	1
39	R8266 *	Magneto (tach, engine right side; Ref, 10-600644-201 *)		
40	MS3367-5-9	Ty-Rap	X	2
41	A059-16	Wire (Ref)		
42	B263-12	Housing	X	1
	B263-1	Pin	X	2
	B158-8	Heat Shrink	X	A/R
43	B263-13	Housing	X	1
	B263-2	Socket	X	2
	B158-8	Heat Shrink (around connector)	X	A/R
	B158-3	Heat Shrink (around wires)	X	A/R
44	B297-2	Circuit Breaker (2-amp)	X	1
* * *				
45	A654-70	Decal – "Gov" (for earlier R22s)	X	1
46	B198-1	Warning Light – "Gov Off" (yellow; order also B196-1 lamp)	X	1
47	B280-4	Relay Assembly ("Gov Off" warning light)	X	1
48	MS3367-4-9	Ty-Rap	X	A/R
* * *				
49	KI-67-2**	RPM Governor Installation Kit (For R22s without previously installed governor. Includes items 2, 5, 7 thru 11, 46, and 50 thru 58. No longer available.)	O	1
50	A654-89	Decal – "Gov Off"	X	1
51	A758-5	Stick Assembly – Collective (LH [co-pilot] removable. See Figure 67-21.)	X	1
52	A758-6A	Stick Assembly – Collective (RH [co-pilot] without A038 collective spring assembly. Includes items 17 thru 32, and 34 thru 38. See Figure 67-21.)	X	1

NOTES * Lycoming part no. See also Figure 96-15.
 ** R22s equipped with "Slick" magnetos must also order KI-78 to install KI-67-2 or -3.

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
RPM GOVERNOR INSTALLATION (Cont'd)				
96-21-53	B260-2	Terminal	X	2
54	B804-2	Harness Assembly (Incl items 1, 5, 6, 13, and 14)	X	1
55	B804-3	Harness Assembly – Console (Incl item 47)	X	1
56	B817-1	Filter Assembly (required for Rev “F” and earlier A792 tachometers)	X	1
57	B263-12	Housing	X	1
58	MS35489-6	Grommet	X	1
* * *				
59	KI-67-3*	RPM Governor Upgrade Installation Kit (For R22s with previously installed governor. Includes items 2, 5, 7, 9, 10, 46, 54 thru 57, and 60 thru 62.)	X	1
60	MS16562-18	Roll Pin	X	1
61	C342-1	Arm	X	1
62	R9096	Governor Assembly Upgrade (B247-5)	X	1

NOTES * Not shown.

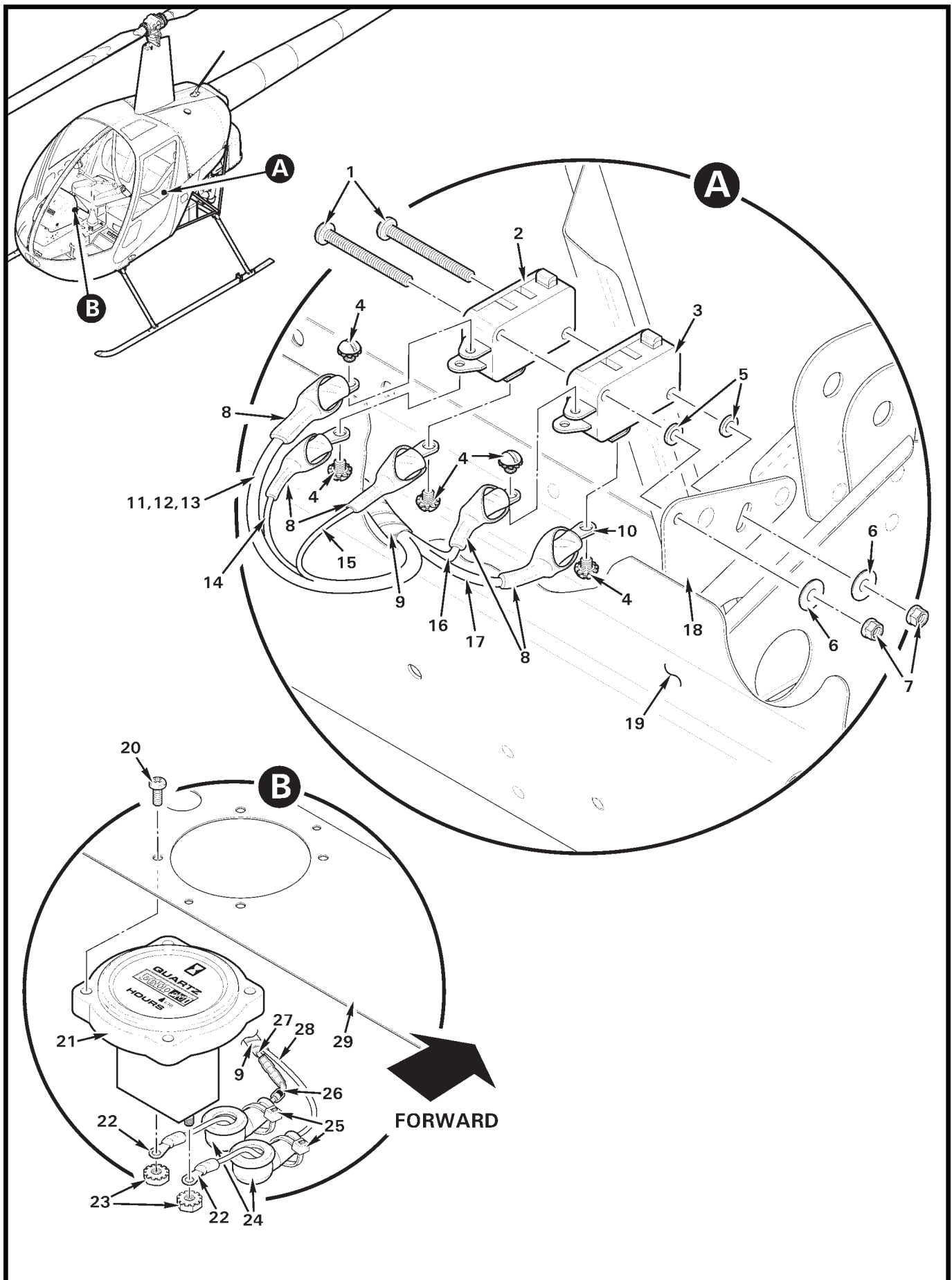


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
		HOURMETER AND COLLECTIVE-ACTIVATED SWITCHES		
96-25-1	MS35206-222	Screw	X	2
2	V3-1	Switch – Micro (hourmeter; includes item 4)	X	1
3	V3-1	Switch – Micro (low RPM warning; includes item 4)	X	1
4	—	Screw	O	3
	—	Lockwasher	O	3
5	NAS620-4	Washer	X	2
6	NAS1149FN416P	Washer	X	2
7	MS21042L04	Nut	X	2
8	B158-3	Heat Shrink	X	A/R
9	B161-2	Spirap	X	A/R
10	B260-1	Terminal	X	5
11	-750	Wire (Ref)		
12	-1556	Wire (Ref)		
13	-2600	Wire (Ref)		
14	-2599	Wire (Ref)		
15	-751	Wire (Ref)		
16	-76	Wire (Ref)		
17	-75	Wire (Ref)		
18	A485-2	Plate (limit switch mount)	X	1
19	A288-1	Cross Beam – LH	X	1
20	—	Screw	O	4
21	D830-1	Hourmeter – Collective Activated (Incl item 20)	X	1
22	B260-3	Terminal	X	2
23	—	Lock Nut	O	2
24	MS25171-1S	Nipple	X	2
25	MS3367-4-9	Ty-rap	X	2
26	1N4005	Diode	X	1
27	-750	Wire (Ref)		
28	-42	Wire (Ref)		
29	A304-2	Cap (Ref)		

NOTES

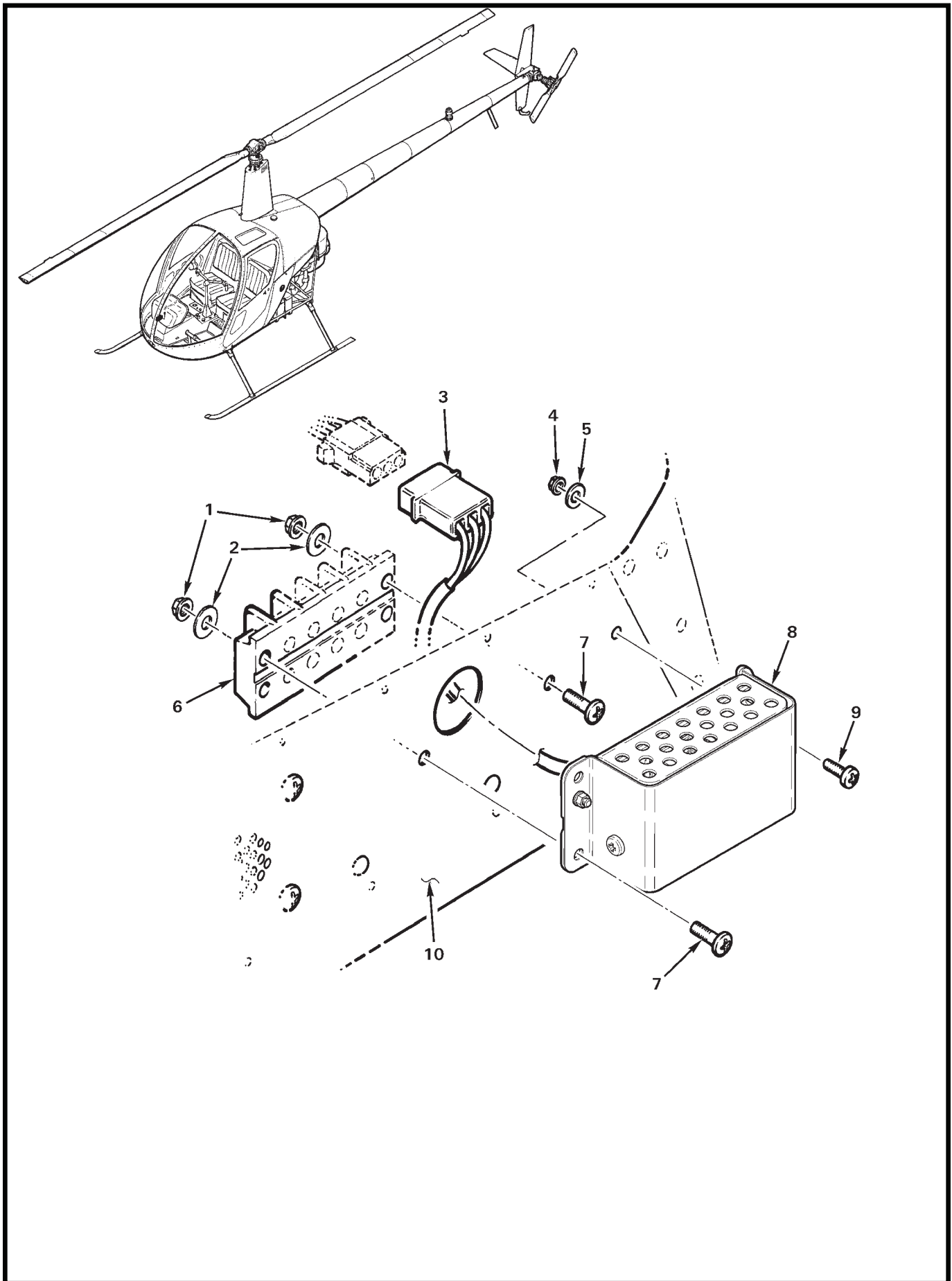


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
CARBON MONOXIDE DETECTOR INSTALLATION*				
96-27-1	MS21042L06	Nut	X	2
2	NAS1149FN616P	Washer	X	2
3	B263-14	Housing	X	1
	B263-1	Pin	X	3
4	MS21042L04	Nut	X	1
5	NAS1149FN416P	Washer	X	1
6	601716-4	Terminal Block (Ref)		
7	MS35206-232	Screw	X	2
8	C696-1	Carbon Monoxide Detector (Incl item 3)	X	1
9	MS35206-215	Screw	X	1
10	—	Panel – Console (RH, Ref)		

NOTES * Included on ship S/N 4038 and subsequent with cabin heaters installed.

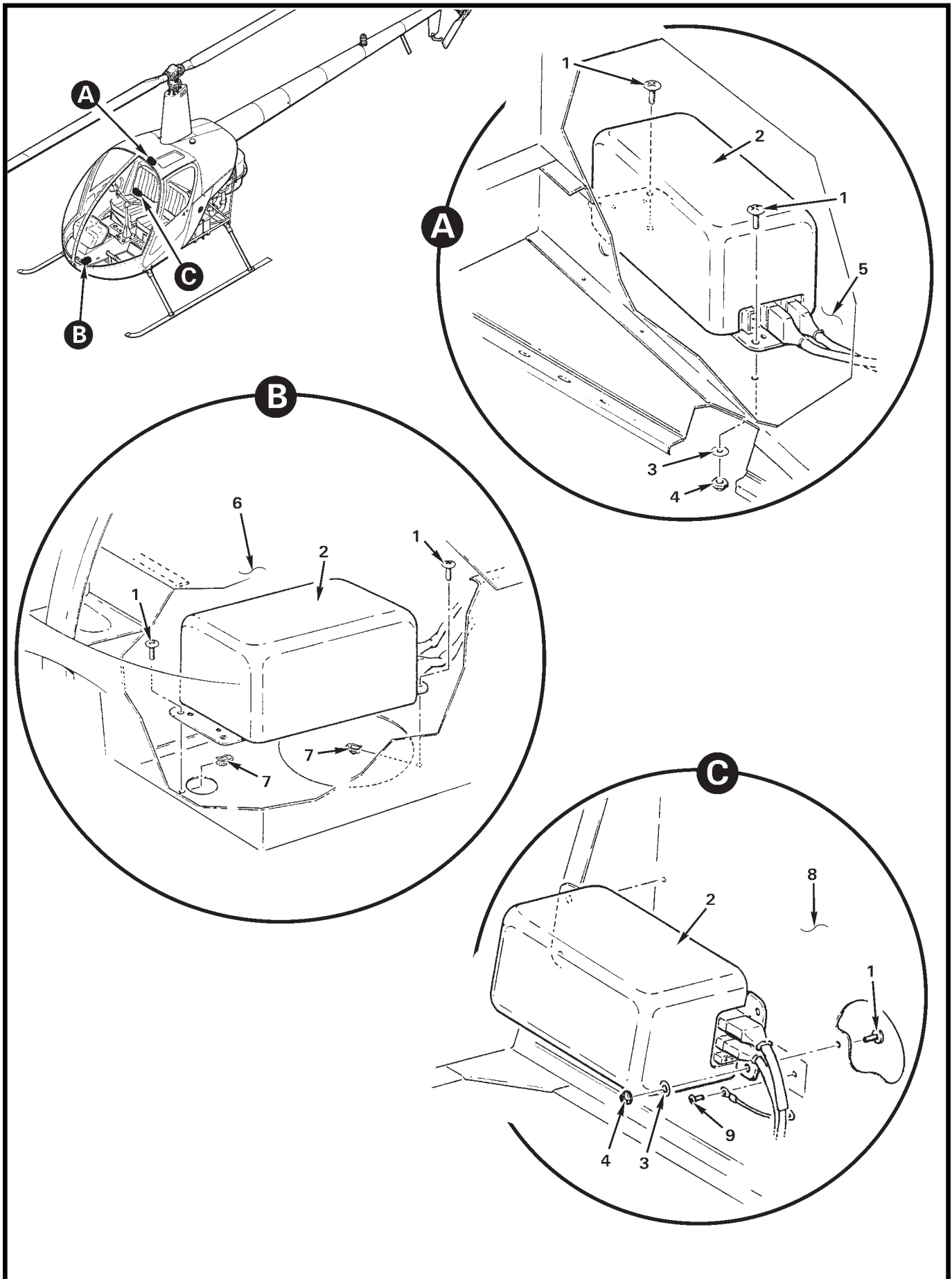


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
STROBE POWER SUPPLY INSTALLATION				
96-29-1	MS27039C0806	Screw (3 required for nose installation)	X	2
2	A708-1	Strobe Power Supply Unit	X	1
3	NAS1149FN816P	Washer	X	2
4	MS21042L08	Nut	X	2
5	A259-2	Horizontal Firewall (Ref)		
6	A033	Console (Ref)		
7	B162-3	Clipnut (3 required for nose installation)	X	2
8	A233-2	Vertical Firewall (Ref)		
9	—	Screw – Ground	O	1

NOTES

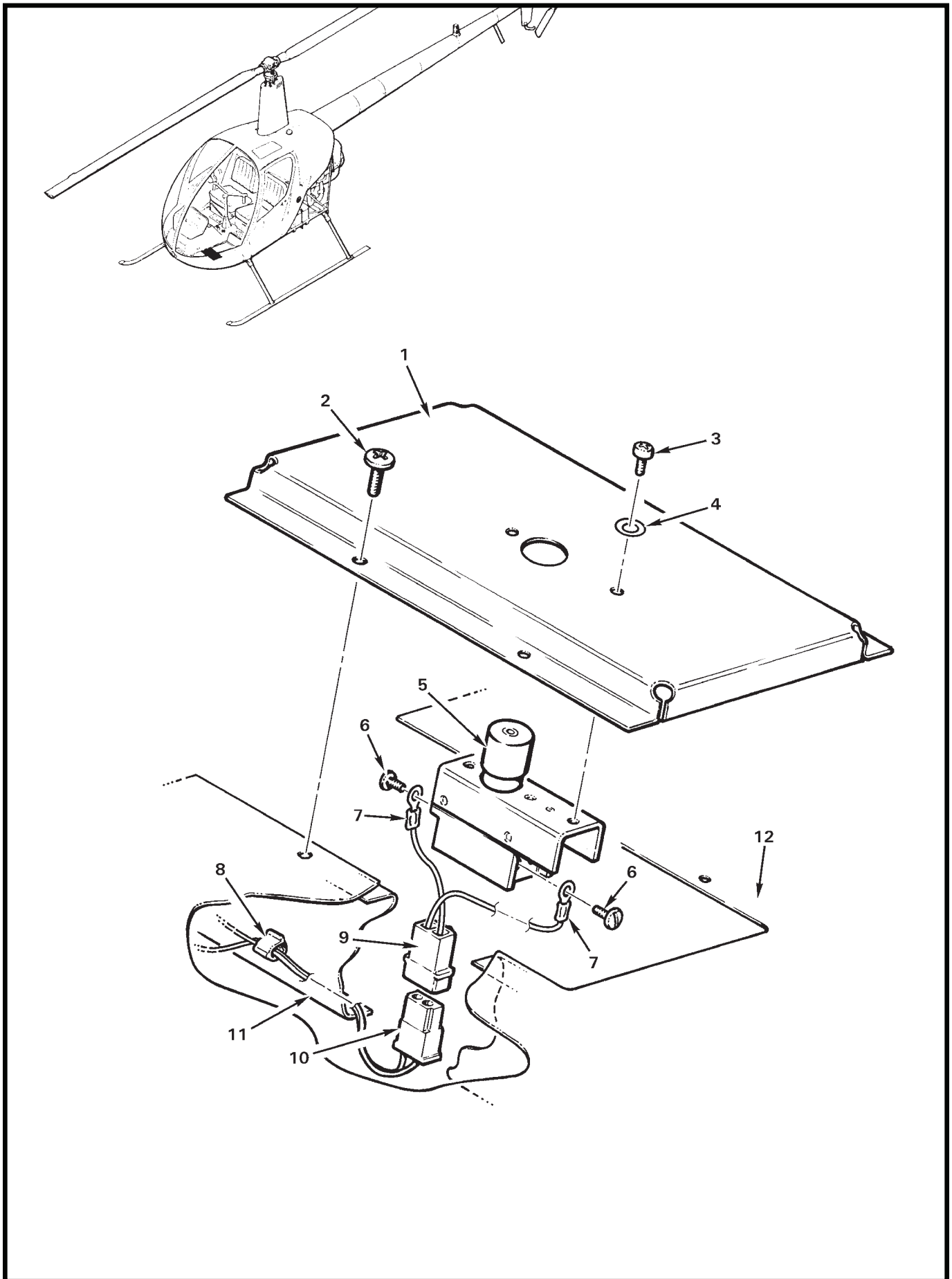


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
FLOOR TRANSMIT SWITCH INSTALLATION				
96-31-1	B236-2	Cover	X	1
2	MS27039C0807	Screw	X	4
3	AN502-6-6	Screw	X	2
4	NAS1149FN616P	Washer	X	2
5	B565-1	Switch (Incl item 6)	X	1
6	—	Screw	O	2
7	B260-2	Terminal	X	2
8	220-242400-09	Clip	X	1
9	B263-32	Housing	X	1
	B263-1	Pin	X	2
10	B263-33	Housing	X	1
	B263-2	Socket	X	2
11	A406-1	Beam (Ref)		
12	A232-1	Panel-Floor (LH, Ref)		

NOTES

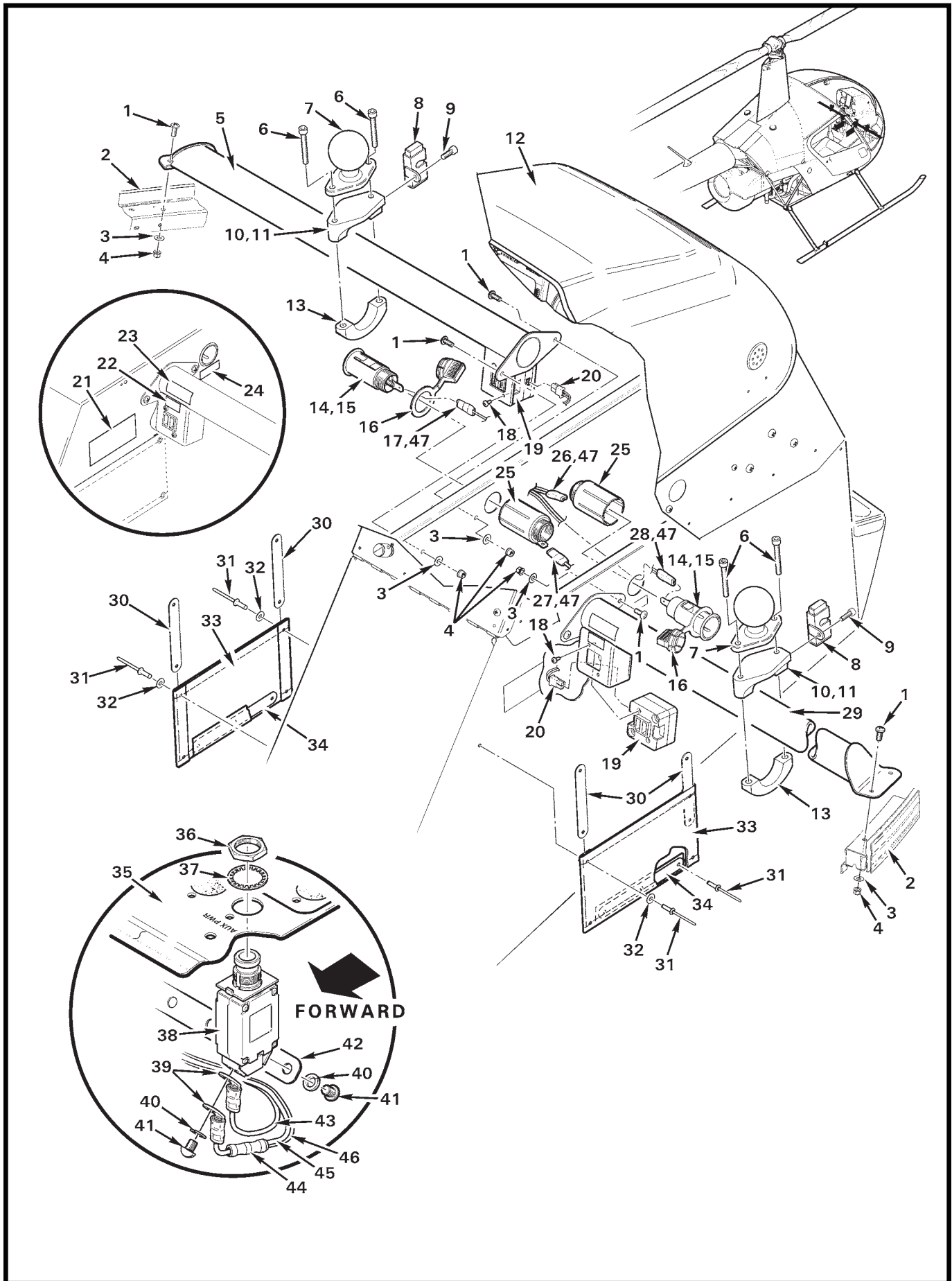


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
ACCESSORY BARS INSTALLATION				
96-33-1	MS27039C0806	Screw	X	8
2	A015	Cabin Assembly (Ref)		
3	NAS1149FN816P	Washer	X	8
4	MS21042L08	Nut	X	8
5	B703-9	Support Weldment (LH)	O	1
6	NAS1351-3-24	Screw	X	4
7	RAM-238	Mount (1.5-inch diameter ball)	X	A/R
8	B631-1	Clamp Assembly	X	1
9	NAS1352-08-8	Screw	X	1
10	B630-1	Clamp Assembly (Incl items 11 and 13)	X	A/R
11	B630-3	Clamp	X	1
12	G050	Console Assembly (Ref)		
13	B630-2	Clamp Assembly	X	1
14	D692-4	Socket (Incl items 15 and 25)	X	2
15	205471	Switch Base (Ref)		
16	D692-3	Cover	X	1
17	B262-4	Receptacle	X	1
	A859-2692	Wire (power, Ref)		
18	MS35206-213	Screw	X	2
19	TA102	USB Port	X	2
20	43645-0200	Housing	O	2
	43030-0007	Socket	O	2
	-2578	Wire (power, pin "A"; Ref)		
	-2579	Wire (ground, pin "B"; Ref)		
21	G682-15	Decal (accessory instructions)	X	1
22	F654-49	Decal	X	1
23	G682-14	Decal	X	1
24	G682-19	Decal	X	1
25	210664	Clamp Shell (Ref)		
26	B262-5	Receptacle	X	1
	A859-2691	Wire (ground; Ref)		
	A859-2693	Wire (ground; Ref)		

NOTES

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
ACCESSORY BARS INSTALLATION (Cont'd)				
96-31-27	B262-4	Receptacle	X	1
	A859-2693	Wire (ground, Ref)		
28	B262-5	Receptacle	X	1
	A859-2690	Wire (power, Ref)		
	A859-2692	Wire (power, Ref)		
29	B703-2	Support Weldment (RH)	O	1
30	A913-6	Strip	X	2
31	B204-2	Rivet	X	14
32	NAS1149FN632P	Washer	X	8
33	A912-7	Pocket Assembly	X	1
34	A913-1	Strip	X	2
35	A490	Panel – Circuit Breaker (Ref)		
36	–	Nut	O	1
37	–	Lockwasher	O	1
38	B297-7	Circuit Breaker (7 amp, "AUX PWR"; includes items 36, 37, 40 and 41)	X	1
39	B260-2	Terminal	X	2
40	–	Washer	O	2
41	–	Screw	O	2
42	A448	Bus Bar (Ref)		
43	-2690	Wire (Ref)		
44	B267-2	Terminator	X	1
45	-2627	Wire (Ref)		
46	-2626	Wire (Ref)		
47	B158-4	Heat Shrink	X	A/R

NOTES

CHAPTER 97

AVIONICS

<i>Figure</i>	<i>Title</i>	<i>Page</i>
97-1	Avionics Options For R22	97.0
97-5	C831 GPS Installation – Garmin GTN 600 Series	97.4
97-9	Lower Console and Radio Installation	97.8
97-13	Transponder and Blind Encoder Installation	97.12
97-17	Solid-State Blind Encoder Installation	97.16
97-19	Flux Gate Installations	97.18

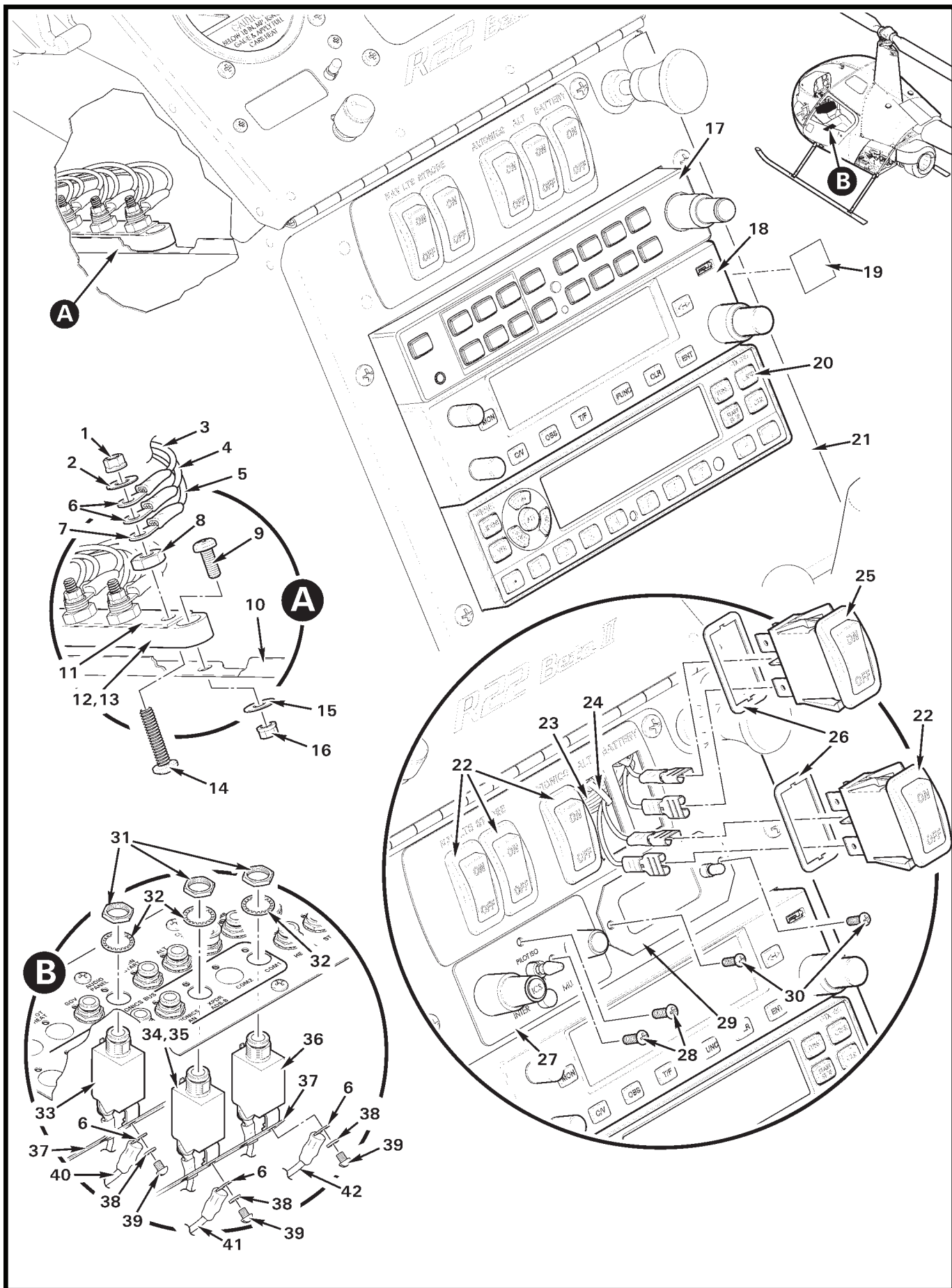


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
AVIONICS OPTIONS FOR R22*				
97-1-1	MS21042L08	Nut	X	4
2	NAS1149FN816P	Washer	X	1
3	A859-643	Wire – Ground (Ref, audio control)		
4	-201	Wire – Ground (Ref, transceiver)		
5	-260	Wire – Ground (Ref, transponder)		
6	B260-2	Terminal	X	5
7	B260-3	Terminal	X	1
8	B301-8	Nut	X	4
9	MS35206-228	Screw	X	2
10	A365-1	Angle – Console (Ref)		
11	A448-10	Bus Bar	X	1
12	C448-2	Terminal Block Assembly (Incl items 8, 11, 13, and 14)	X	1
13	C448-5	Block	X	1
14	B567-43	Screw	X	1
15	NAS1149FN616P	Washer	X	2
16	MS21042L06	Nut	X	1
17	GMA350HC**	Audio Control	X	1
18	GTR 225B**	Transceiver	X	1
	KY 197A***	Transceiver (older R22s, not shown)	X	1
19	F654-38	Decal – “No. 1 COM, No. 2 COM, No. 3 COM”	X	A/R
20	GTX 330ES*	Transponder	X	1
	GTX 328**	Transponder (older R22s, mode “S”)	X	1
	GTX 327**	Transponder (older R22s, mode “C”)	X	1
21	A641	Face Assembly (Ref)		
22	G184-1	Switch Assembly (white-colored)	X	4
23	D049-6	Harness Assembly (Incl item 24)	X	1
24	MS3367-4-9	Ty-Rap	X	A/R
25	G184-2	Switch Assembly (red-colored)	X	1
26	G184-5	Gasket	X	5
27	B338-2	Intercom System Unit (Incl item 28)	X	1
28	—	Screw	O	3
29	B341-1	Outside Air Temperature Gage (Incl item 30)	X	1
30	—	Screw (UNC 4-40)	O	2
31	—	Nut	O	1
32	—	Lockwasher	O	1

NOTES * Exact panel configuration may vary with optional equipment.
 ** Garmin part no.
 *** Bendix-King part no.

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
AVIONICS OPTIONS FOR R22 (Cont'd)				
97-1-33	B297-5	Circuit Breaker (5 amp, for use with item 17; includes items 31, 32, 38, and 39)	X	1
34	B297-3	Circuit Breaker (3 amp, for use with item 20 [GTX 327*]; includes items 31, 32, 38, and 39)	X	A/R
35	B297-5	Circuit Breaker (5 amp, for use with item 20 [GTX 328* and GTX 330ES*]; includes items 31, 32, 38, and 39)	X	A/R
36	B297-10	Circuit Breaker (10 amp, for use with item 18; includes items 31, 32, 38, and 39)	X	A/R
37	A448	Bus Bar (Ref)		
38	—	Lockwasher	O	2
39	—	Nut	O	2
40	A859-644	Wire – Power (Ref, audio panel)		
41	A859-263	Wire – Power (Ref, transponder)		
42	A859-200	Wire – Power (Ref, COM)		

NOTES * Garmin part no.

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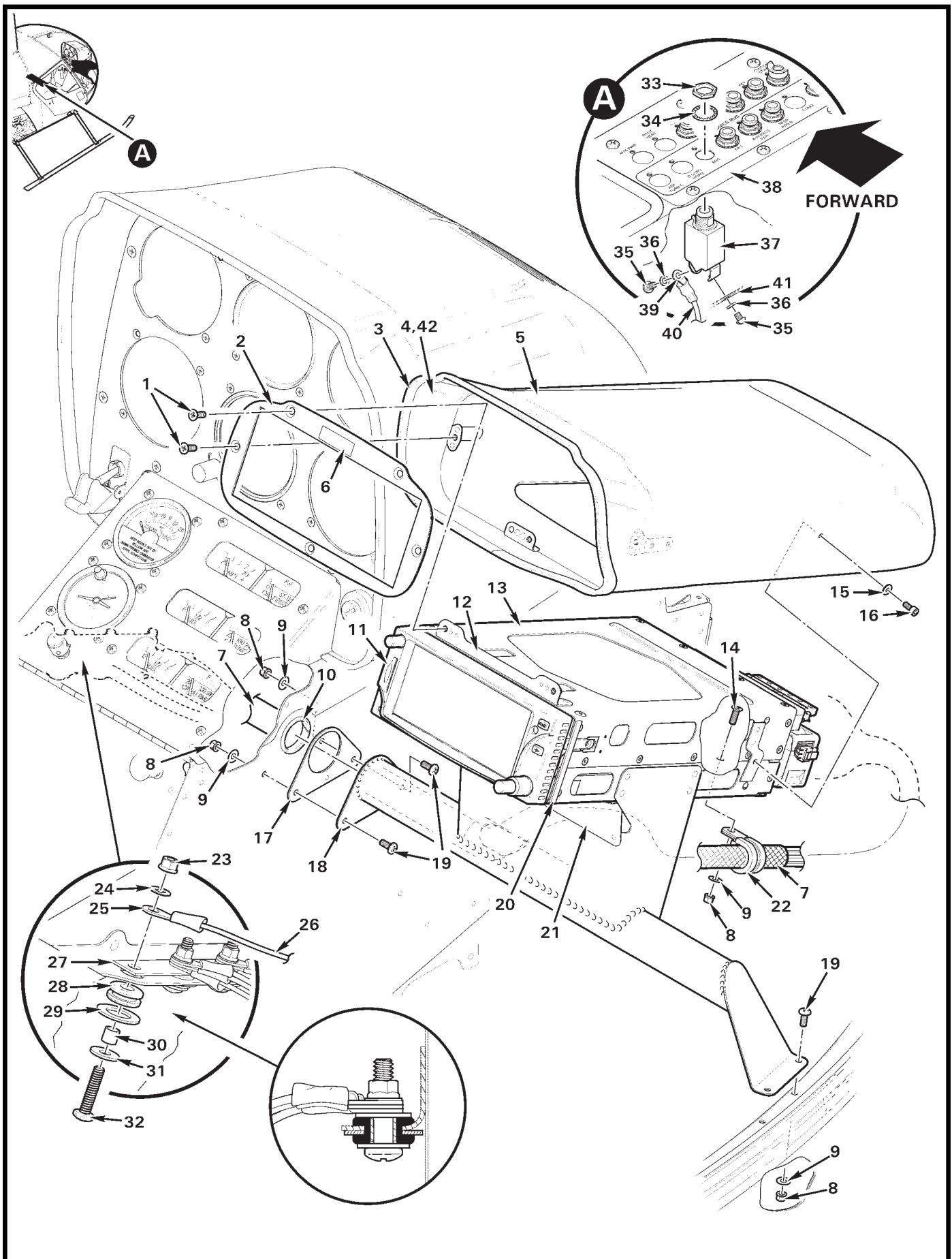


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
C831 GPS INSTALLATION – GARMIN GTN 600 SERIES				
97-5-1	MS24693-S26	Screw	X	5
2	G704-5	Faceplate	X	1
3	A226-11	Trim	X	A/R
4	B298-10	Visor Liner (install using item 42)	X	A/R
5	G704-1	Shell Assembly (Incl items 3 and 4)	X	1
6	F654-40	Decal (trim as required)	X	1
7	B266-8	Sleeving	X	A/R
8	MS21042L08	Nut	X	5
9	NAS1149FN816P	Washer	X	4
10	NAS557-14B	Grommet	X	1
11	GTN 650*	Transceiver (GPS/NAV/COM)	X	1
	GTN 635*	Transceiver (GPS/COM, not shown)	X	1
	GTN 625*	Transceiver (GPS, not shown)	X	1
12	G704	Angle Assembly (Ref)		
13	—	Radio Rack Assembly (Ref, supplied with receiver or transceiver)	O	1
14	MS24694-S4	Screw	X	1
15	NAS1149FN616P	Washer	X	3
16	92196A145	Screw	X	2
17	B703-8	Shim (3 maximum)	X	A/R
18	B703-1	Support Weldment	X	1
19	MS27039C0806	Screw	X	4
20	A226-7	Seal	X	A/R
21	G704-9	Support	X	1
22	MS21919WDG16	Clamp	X	1
23	MS21042L06	Nut	X	1
24	NAS620-6L	Washer	X	1
25	B260-3	Terminal (Ref)		
26	-465	Wire (Ref)		
27	A448-15	Bus Bar (Ref)		
28	MS35489-4	Grommet	X	1
29	NAS1149F0532P	Washer (install in grommet groove**)	X	1
30	C130-59	Spacer (install in grommet bore**)	X	1
31	NAS1149FN632P	Washer	X	1
32	B567-28	Screw	X	1
33	—	Nut	X	1

NOTES * Garmin part no.
 ** See detail showing parts assembled.

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
C831 GPS INSTALLATION – GARMIN GTN 600 SERIES* (Cont'd)				
97-5-34	—	Lockwasher	X	1
35	—	Screw	O	2
36	—	Washer	O	2
37	B297-7	Circuit Breaker (7 amp, 14-volt ships; includes items 33 thru 36. GPS only.)	X	1
	B297-10	Circuit Breaker (10 amp, 14-volt ships; includes items 33 thru 36. For GPS with COM or COM/NAV, also install [1] B297-7.)	X	1
38	B490-5	Panel – Circuit Breaker (Ref)		
39	B260-2	Terminal (Ref)		
40	-1426	Wire (Ref)		
41	A448-15	Bus Bar (Ref)		
42	B270-8qt	Adhesive	X	A/R

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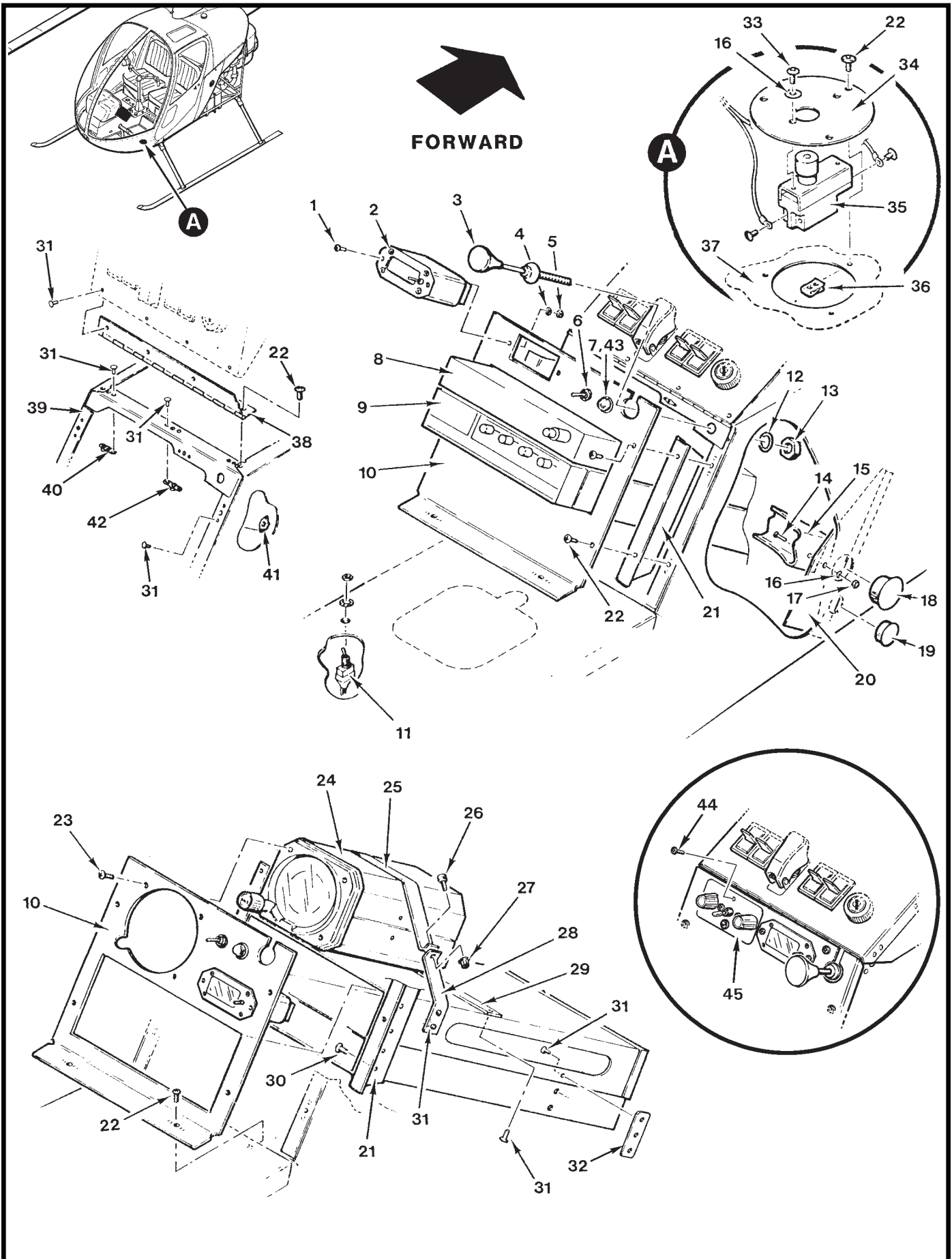


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
LOWER CONSOLE AND RADIO INSTALLATION				
97-9-1	—	Screw (included with item 2)	O	2
2	B341-1	Outside Air Temp Gauge (ship S/N 0425 and subsequent, requires B341-2 probe)	X	1
	R9100	Outside Air Temp Gauge (overhaul exchange)	X	1
3	A522-1	Control Assembly – Cabin Air (Incl items 12 and 13)	X	1
4	NAS1149FN416P	Washer	X	2
5	MS21042L04	Nut	X	2
6	B049-9*	Switch Assembly – Landing Light (includes B300-1 switch, wires, and connector)	X	1
	B300-1	Switch (switch only)	X	1
7	B198-1*	Warning Light – Rotor Brake (yellow; order item 43 when replacing)	X	1
8	KY 197A	VHF COM Receiver (Bendix/King, TSO'd)	O	1
9	KT 76A	Transponder (Bendix/King, TSO'd)	O	1
	KT 76C	Transponder (Bendix/King, TSO'd; not shown)	O	1
	GTX327	Transponder (Garmin, TSO'd; not shown)	O	1
	GTX330	Transponder (Garmin, TSO'd; not shown)	O	1
10	A641	Avionics Face (specify dash no. when ordering)	X	1
11	B300-2	Switch – Mic Selector	X	1
12	—	Washer	O	1
13	—	Nut	O	1
14	—	Screw (supplied with radio)	O	2
15	—	Tray (supplied with radio)	O	1
16	NAS1149FN616P	Washer	X	2
17	MS21042L06	Nut	X	2
18	2713	Hole Plug	X	2
19	DP-625	Hole Plug	X	2
20	A371-1	Stiffener (LH)	X	1
	A371-2	Stiffener (RH)	X	1
21	A905-3	Angle (RH and LH)	X	1
22	MS27039C0806	Screw	X	7
23	MS35206-231	Screw	X	3
24	066-03034-0000**	VOR Indicator (KI 203, VOR/LOC)	O	1
	066-03034-0002**	VOR Indicator (KI 204, VOR/LOC/GS)	O	1
	GI 106B	VOR Indicator (Garmin part no., VOR/LOC/GS/GPS)	O	1
	066-03056-0000**	VOR Indicator (KI 208, earlier aircraft)	O	1

NOTES * This location ship S/N 2966 and prior.
 ** Bendix/King part no.

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
LOWER CONSOLE AND RADIO INSTALLATION (Cont'd)				
97-9-25	A686-1	Strap (Ref, no longer available)		
26	NAS1352-08-8P	Screw	X	1
27	MS21042L08	Nut (Ref)	X	1
28	A686-2	Strap (Ref, no longer available)		
29	A736-1	Support	X	1
30	MS20426AD5	Rivet	X	A/R
31	MS20426AD3	Rivet	X	A/R
32	A684-1	Strap	X	A/R
33	AN502-6-6	Screw	X	2
34	A797-1	Cover	X	1
35	B565-1	Switch – Intercom, Floor (includes screws)	X	1
36	B162-3	Clipnut	X	3
37	A232-1	Floor Panel (LH, Ref)		
38	A356-2	Hinge	X	1
39	A033-1	Lower Console (Ref)		
40	MS21086L08	Nutplate	X	2
41	MS21075L08E	Nutplate	X	5
42	MS21069L08	Nutplate	X	1
43	B196-1	Lamp	X	1
44	—	Screw	O	3
45	B338-1	Intercom System Control Unit (Incl item 44)	X	1

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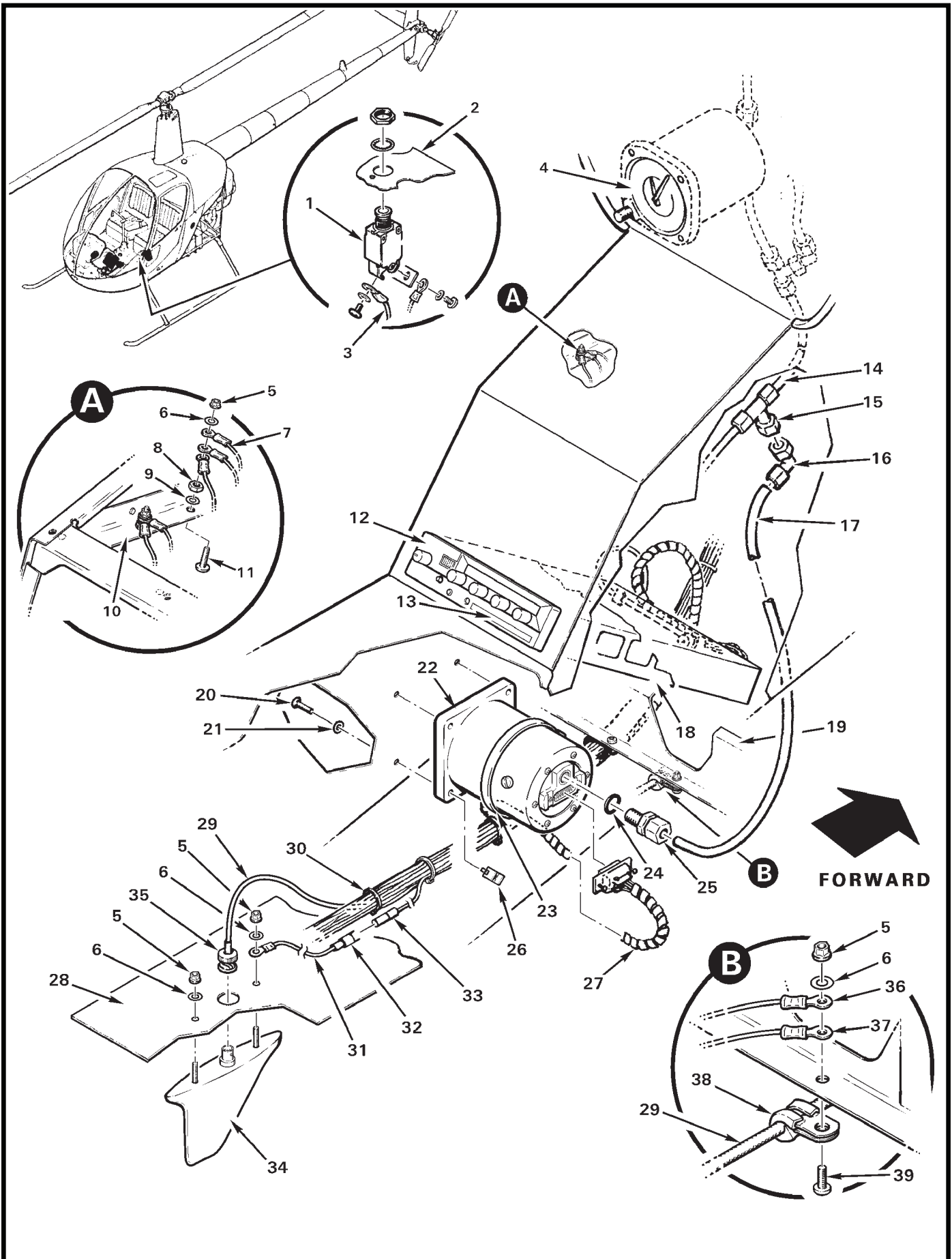


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
		TRANSPONDER AND BLIND ENCODER INSTALLATION		
97-13-1	B297-2	Circuit Breaker (2-amp, KT76A* installed)	X	1
	B297-3	Circuit Breaker (3-amp, GTX327** installed)	X	1
	B297-5	Circuit Breaker (5-amp, KT76C* or GTX330** installed)	X	1
2	—	Panel – Circuit Breaker		
3	-263	Wire (Ref)		
4	A613	Altimeter (Ref)		
5	MS21042L08	Nut	X	4
6	NAS1149FN816P	Washer	X	4
7	-260	Wire – Ground (Ref, transponder)		
8	B301-8	Nut	X	1
9	NAS1149DN832H	Washer	X	1
10	A365-1	Angle (LH, Ref)		
11	B567-43	Screw (brass)	X	1
12	KT 76A*	Transponder (Incl item 18)	O	1
	KT 76C*	Transponder (Incl item 18; not shown)	O	1
	GTX327**	Transponder (Incl item 18; not shown)	O	1
	GTX330**	Transponder (Incl item 18; not shown)	O	1
13	A654-69	Decal – “Altitude Encoder Installed”	X	1
14	A729-24	Tube (Ref)		
15	60-4-2-N-0	Tee	X	1
16	45-4-2-N-0	Elbow	X	1
17	A729-16	Tube (Ref, no longer available)		
18	—	Tray	O	1
19	A407-1	Beam – Floor (Ref)		
20	MS35206-232	Screw	X	4
21	NAS1149FN616P	Washer	X	4
22	B240-1	Blind Encoder (Ref, no longer available. Order KI-57-1 installation kit to replace; see Figure 97-17.)		
23	MS3367-7-9	Ty-Rap	X	1
24	A215-204	O-Ring	X	1
25	10-4-2-N-0	Fitting	X	1
26	MS33737-16C	Instrument Nut	X	4
27	B241-1	Wire Harness	X	1
28	A794-2	Panel (Ref)		
29	A859-264	Cable (Ref)		

NOTES * Bendix/King part no.
 ** Garmin part no.

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
TRANSPONDER AND BLIND ENCODER INSTALLATION (Cont'd)				
97-13-30	MS3367-4-9	Ty-Rap (or MS3367-5-9)	X	A/R
31	-266	Wire (Ref)		
32	B263-10	Housing	X	1
	B263-1	Pin	X	1
33	B263-11	Housing	X	1
	B263-2	Socket	X	1
34	CI-105-16	Antenna – Transponder	X	1
35	225395-6	Plug	X	1
36	-561	Wire (Ref)		
37	-266	Wire – Ground (Ref; antenna)		
38	MS21919WDG3	Clamp	X	1
39	MS27039C0806	Screw	X	1

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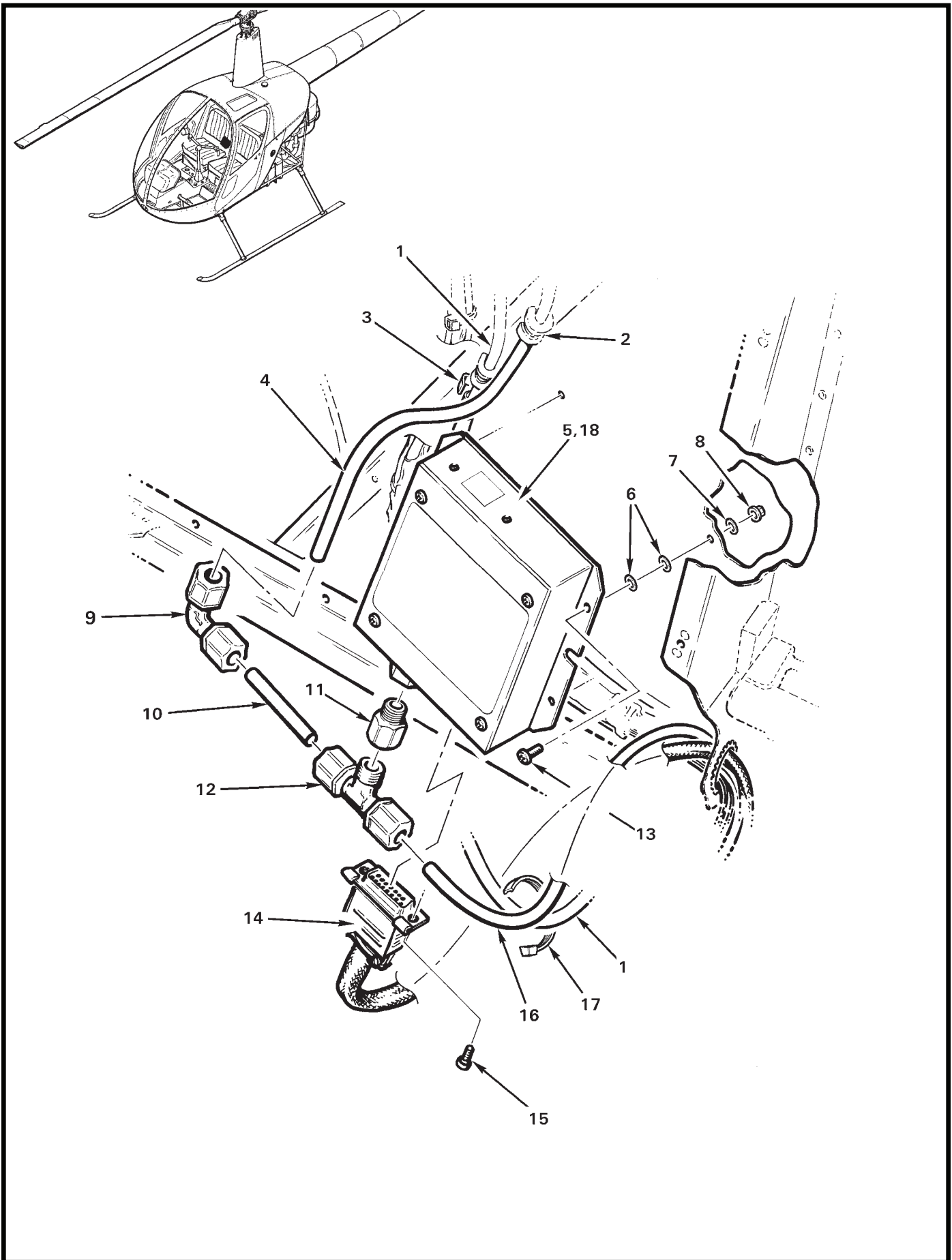


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
SOLID-STATE BLIND ENCODER INSTALLATION				
97-17-1	A729-28	Tube – Pitot (Ref)		
2	MS21919WDG4	Clamp (Ref)		
3	B161-4	Spirap (wrap around item 1 as required)	X	A/R
4	A729-6	Tube	X	1
5	B240-3	Blind Encoder (solid state)	X	1
	B240-2	Blind Encoder (solid state)	X	1
6	NAS1149CN432R	Washer	X	8
7	NAS1149FN416P	Washer	X	4
8	MS21042L04	Nut	X	4
9	50-4-N-0	Elbow	X	1
10	A729-30	Tube	X	1
11	50785K25	Fitting (brass)	X	1
12	60-4-2-N-0	Tee	X	1
13	MS35206-214	Screw	X	4
14	B241-1	Harness Assembly (Incl item 15)	X	1
15	—	Screw	O	2
16	A729-22	Tube – Static (Ref)		
17	MS3367-5-9	Ty-Rap	X	A/R
* * *				
18	KI-57-1	Solid-State Blind Encoder Installation Kit (Includes items 3, 5 [B240-3], 6 thru 9, 12 thru 14, 17 [30], 19, 20 and item 13 from Figure 97-13.)	X	1
19	B261-2	Splice	X	1
20	A729-26	Tube	X	1

NOTES

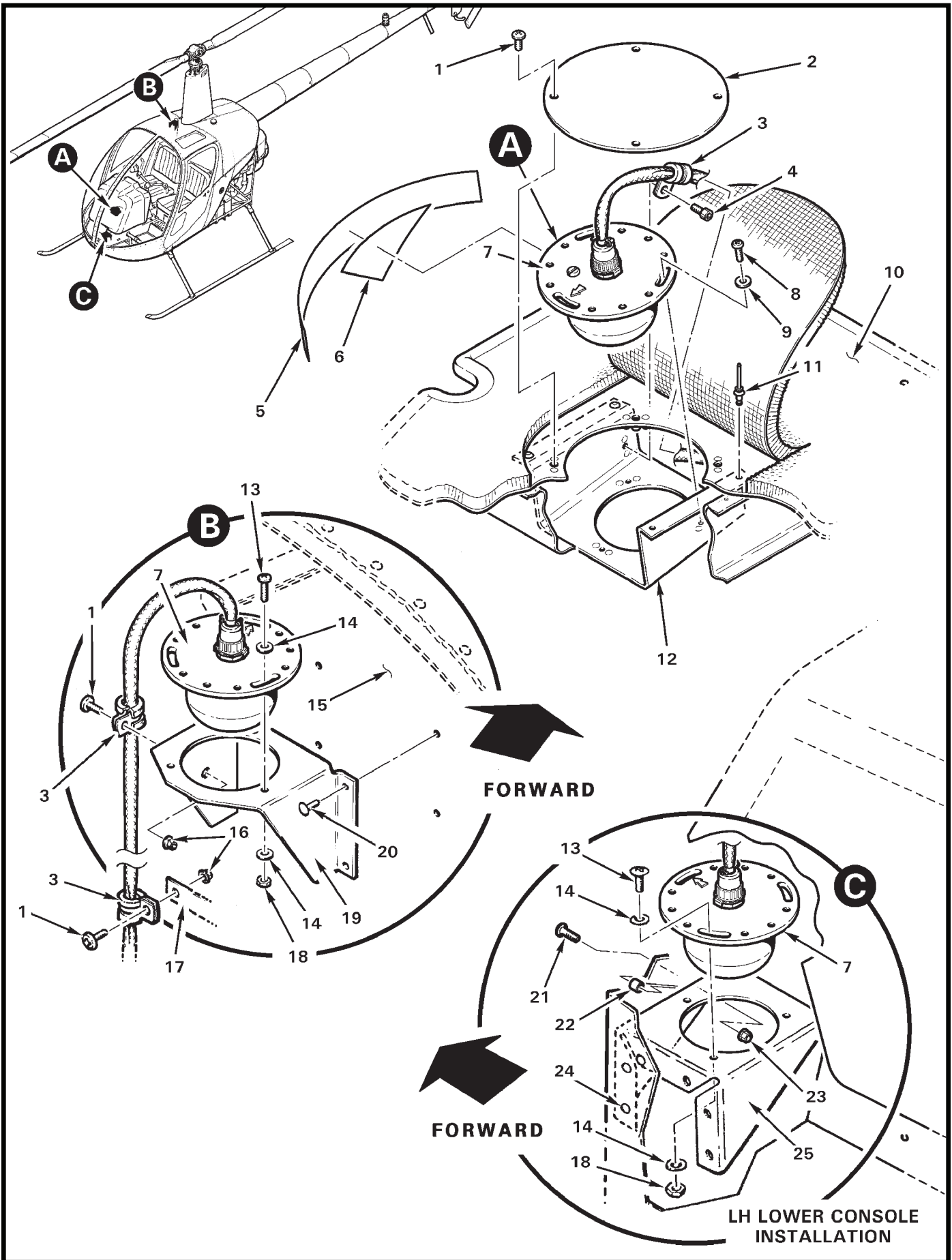


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
FLUX GATE INSTALLATION				
97-19-1	MS27039C0806	Screw	X	6
2	A990-3	Cover	X	1
3	MS21919WDG4	Clamp	X	A/R
4	NAS1352C08-6	Screw	X	1
5	C988-9	Decal	X	1
6	C988-10	Mu-Metal (if installed)	X	1
7	KMT 112	Magnetic Azimuth Transmitter (Flux Gate; Bendix/King. Includes items 20 thru 22. Subsequent installations are mounted under RH floor [view A]. Earlier R22s have aft RH bulkhead mount [view B], or console mount, [view C].)	O	1
8	MS35214-27	Screw	X	3
9	NAS1149BN616H	Washer	X	3
10	A469-23	Carpet Assembly (Ref; scuff plate not shown for clarity)		
11	NAS1919B04S01	Rivet	X	4
12	A990-1	Bracket Assembly	X	1
13	089-7009-0010*	Screw (non-magnetic)	O	3
14	089-8036-0019*	Washer (non-magnetic)	O	6
15	A259-1	Bulkhead Assembly (Ref)		
16	NAS1291C08M	Nut	X	2
17	B129-1	Channel (Ref)		
18	089-2157-0015*	Nut (non-magnetic)	O	3
19	A987-3	Bracket (earlier R22s)	X	1
20	MS20470AD4	Rivet	X	6
21	MS27039C0808	Screw	X	1
22	A130-36	Spacer	X	1
23	MS21043-08	Nut	X	1
24	MS20470AD3-3.5	Rivet	X	6
25	A987-2	Bracket (earlier R22s)	X	1

NOTES * Bendix-King part no.

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CHAPTER 99
SPECIAL TOOLS

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FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
MINIMUM SPARE PARTS KIT				
99-1-1	KI-24	Minimum Spare Parts Kit (Incl items 2 thru 120)	X	1
2	012C	O-Ring	X	4
3	06E19769-1.00	Gasket – Crush (1.00-inch diameter)	X	21
4	110-2	Telatemp (temperature recorder, 140° – 190°F)	X	5
5	110-4	Telatemp (temperature recorder, 220° – 270°F)	X	5
6	16-A36	Gasket	X	5
7	3080-38	Cylinder Head Temp Probe	X	1
8	34-0412070-63	Halogen Lamp (nav light, tail)	X	2
9	62224	Gasket (magneto base)	X	20
10	77611	Gasket (exhaust)	X	6
11	A101-4	Rod End – Male	X	2
12	A105-17	Bearing – Journal	X	2
13	A106-1	Bearing – Journal, Main Rotor Hub	X	1
14	A106-2	Bearing – Journal, Main Rotor Hub	X	1
15	A106-3	Bearing – Journal, Main Rotor Hub	X	1
16	A106-4	Bearing – Journal, Main Rotor Hub	X	1
17	A106-5	Bearing – Journal, Main Rotor Hub	X	1
18	A106-6	Bearing – Journal, Main Rotor Hub	X	1
19	A115-1	Spacer	X	4
20	A117-5	Washer – Shim	X	2
21	A117-6	Washer – Shim	X	2
22	A117-7	Washer – Shim	X	2
23	A117-8	Washer – Shim	X	2
24	A117-45	Washer – Shim	X	2
25	A117-46	Washer – Shim	X	2
26	A117-47	Washer – Shim	X	2
27	A118-4	Shim	X	1
28	A118-5	Shim	X	1
29	A118-6	Shim	X	1
30	A127-4	Rod End – Male	X	2
31	A130-1	Spacer	X	2
32	A139-1	Bearing – Journal	X	1
33	A141-24	Washer	X	4
34	A150-1	Droop Stop – Main Rotor	X	2
35	A152-1	Thrust Washer – Main Rotor Hinge	X	2

NOTES

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
MINIMUM SPARE PARTS KIT (Cont'd)				
99-1-36	A156-1	Boot – Pitch Bearing	X	2
37	A189-10	Nut – Double Lock	X	3
38	A190-2	V-Belt Set (set of 2 belts)	X	1
39	A214-3	Washer	X	1
40	A215-017	O-Ring	X	4
41	A215-020	O-Ring	X	2
42	A215-901	O-Ring (5-108)	X	1
43	A247-1	Rain Cap	X	2
44	A247-3	Rain Cap	X	2
45	A255-1	Counter Weight – Swashplate	X	1
46	A255-2	Counter Weight – Swashplate	X	2
47	A257-2	Gear Oil (gallon)	X	2
48	A257-4	Oil – A.T.F. (Dexron III)	X	5
49	A258-1	Pitch Link Assy	X	2
50	A480-1	Boot – Swashplate	X	1
51	A522-12	Control Cable – Mixture	X	1
52	A558-1	Cover – Tailcone (transparent)	X	2
53	A648-1	Bearing – Journal (coning)	X	2
54	A648-3	Bearing – Journal (teeter)	X	4
55	A667-5	Skid Shoe – Straight	X	2
56	A729-1	Tube	X	1
57	A729-31	Tube	X	1
58	A785-1	Hose – Air Duct	X	1
59	A950-1	Guard Assembly – Mixture Control	X	2
60	A966-1	Seal	X	2
61	AN3-41A	Bolt	X	2
62	B115-1	Bearing (A103-4)	X	6
63	B123-2	Filter – Engine Oil (CH48108-1)	X	6
64	B155-2	Shim	X	6
65	B163-1	Rod End	X	6
66	B173-1	V-Belt – Alternator	X	1
67	B196-1	Lamp – Clear (GE #330, post lamp)	X	2
68	B196-26	Lamp – Clear (14V, landing lamp)	X	4
69	B227-2	Switch – Cyclic (COM)	X	2
70	B308-1	Sender – Oil Pressure	X	1

NOTES

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
MINIMUM SPARE PARTS KIT (Cont'd)				
99-1-71	B330-13	Palnut	X	10
72	B345-3	Link – Tail Rotor Pitch	X	2
73	B350-2	Pin – Spring	X	20
74	B771-1	Air Filter (O-320/O-360 engine)	X	6
75	C522-8	Control Cable – Carb Heat	X	1
76	F900White	Torque Seal	X	4
77	LW-12272	Lockplate	X	3
78	M-674	Gasket – Spark Plug (STD-295)	X	32
79	MS20995C20	0.020-inch dia Safety Wire	X	1
80	MS20995C32	0.032-inch dia Safety Wire	X	1
81	MS20995C41	0.041-inch dia Safety Wire	X	1
82	MS24665-151	Cotter Pin	X	20
83	MS24665-355	Cotter Pin	X	10
84	MS27039C0806	Screw	X	10
85	MS3367-3-9	Ty-Rap	X	10
86	MS3367-6-0	Ty-Rap	X	10
87	MS35769-8	Gasket (AN900-7)	X	2
88	MS35769-9	Gasket (AN900-8)	X	2
89	MS35769-11	Gasket	X	4
90	MT936-8	2.80/2.50-4 Tube (TR87 Stem)	X	1
91	NAS1149D0432K	Washer	X	20
92	NAS1149D0463K	Washer	X	20
93	NAS1149F0332P	Washer (AN960-10L)	X	20
94	NAS1149F0363P	Washer (AN960-10)	X	20
95	NAS1149F0432P	Washer (AN960-416L)	X	20
96	NAS1149F0463P	Washer (AN960-416)	X	20
97	NAS1149FN816P	Washer (AN960-8L)	X	40
98	NAS1304-17	Bolt	X	2
99	NAS630-80	Bolt (main rotor attach)	X	3
100	NAS6604-3	Bolt	X	3
101	NAS6604-4	Bolt (NAS1304-4)	X	3
102	NAS6604-7	Bolt	X	3
103	NAS6604-16	Bolt	X	3
104	NAS6604-19	Bolt	X	3
105	NAS6604-21	Bolt	X	3

NOTES

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
MINIMUM SPARE PARTS KIT (Cont'd)				
99-1-106	NAS6604-22	Bolt	X	3
107	NAS6604-24	Bolt	X	3
108	NAS6604-30	Bolt (NAS1304-30)	X	3
109	NAS6604-38	Bolt (NAS1304-38)	X	2
110	NAS6605-5	Bolt	X	3
111	NAS6606-42	Bolt	X	3
112	R7043	Illustrated Parts Catalog	X	1
113	R7044	Maintenance Manual	X	1
114	R7048	Class "C" Subscription Service	X	1
115	R7295	Fuel Cap Assembly (A689-6, painted)	X	1
116	R8646	Robinson Baseball Cap (navy)	X	1
117	R8567	R22 T-Shirt (large, white)	X	1
118	REM38E	Spark Plug (UREM38E)	X	16
119	STD-475	Washer (5/16, locking)	X	20
120	V3-1001	Switch – Actuator	X	2

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FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
		2200-HOUR FIELD OVERHAUL KIT*		
99-7-1	R7951**	2200-Hour Field Overhaul Kit (Ship S/N 2571M and subsequent; includes items 2 thru 48.)	X	1
2	A007-5	Fanshaft and Bearing Assembly	X	1
3	A008-4	Tail Rotor Assembly (round-tip blades)	X	1
4	A031-1	Tail Rotor Pitch Control	X	1
5	A120-1	Bellcrank Assembly	X	1
6	A121-17	Push-Pull Tube Assembly	X	1
7	A169-24	Muffler with Risers (O-360 engine)	X	1
8	A189-10	Nut – Double Lock	X	3
9	A190-2	V-Belt Set (set of 2 belts)	X	1
10	A241-2	Cross Tube (includes rain caps)	X	1
11	A426-6	Cap	X	1
12	A615-1	Gasket – Carburetor Air Box	X	1
13	A628-6	Connector Assembly, Harness	X	2
14	A780-33	Cable Assembly (battery power, aft battery)	X	1
15	A785-1	Hose (air duct)	X	1
16	A785-6	Hose (air duct)	X	1
17	A785-26	Hose (air duct)	X	1
18	A947-1	Flex Plate Assembly – Forward	X	1
19	A947-2	Flex Plate Assembly – Intermediate	X	1
20	A947-3	Flex Plate Assembly – Aft	X	1
21	AN320-18	Nut – Fanshaft	X	1
22	B283-1	Hose Assembly (fuel system)	X	1
23	B283-6	Hose Assembly (fuel system)	X	1
24	B350-2	Pin – Spring	X	1
25	C636-2	Support (R22, O-360 engine with C649-1 large oil cooler)	X	1
26	D756-2	Bellcrank Assembly (R22)	X	1
27	F628-8	Buckle Assembly	X	2
28	KI-217-1	R22 Bladder Fuel Tank Kit	X	1
29	MS16562-15	Pin – Spring	X	1
30	MS20002-18	Washer	X	1
31	MS24665-355	Cotter Pin	X	3
32	NAS1149F1832P	Washer (AN960-1816L)	X	3
33	NAS630-80	Bolt	X	3
34	NAS6604-38	Bolt (NAS1304-38)	X	1

NOTES * Supplemental overhaul kits listed on page 99.15.

** If not previously accomplished, ship S/N 2571M-2664 require A057-2 airbox upgrade at next 2200-hour interval; see R8287 kit, page 99.15.

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
2200-HOUR FIELD OVERHAUL KIT (Cont'd)				
99-7-35	R7952	Core Deposits (R7951 O/H Kit)	X	1
<u>OVERHAUL EXCHANGE COMPONENTS</u>				
36	A005-7R*	A005-7 Main Rotor Blades** (set of 2, overhaul exchange)	X	1
37	A006-6R*	A006-1/-6 Main Rotor Gearbox** (overhaul exchange)	X	1
38	A017-2R*	A017-2 Swashplate Assembly (overhaul exchange)	X	1
39	A018-1R*	A018-1 Clutch Assembly*** (overhaul exchange; anodized)	X	1
	A018-2R*	A018-2 Clutch Assembly*** (overhaul exchange; metalized)	X	1
40	A051-1R*	A051-1 Clutch Actuator Assembly (overhaul exchange)	X	1
41	A792-4R*	A792-4 Tachometer (overhaul exchange)	X	1
42	B021-1R*	B021-1 Tail Rotor Gearbox (overhaul exchange)	X	1
43	B174-1R*	B174-1 Fanwheel (Rev "J" or subsequent, overhaul exchange)	X	1
44	B224-3R*	B224-3 Tail Rotor Drive Shaft (overhaul exchange)	X	1
45	B286-2R*	B286-2 Governor Controller (overhaul exchange)	X	1
46	R7374*	A017-1 Swashplate Installation Field Overhaul Kit	X	1
<u>CRATES</u>				
47	R5167	A006 M.R. Gearbox Crate	X	1
48	R5171	A016 M.R. Blade Crate	X	1

NOTES * Core deposit required for overhaul exchange components.
 ** Crate required; see Figures 99-41 and 99-43.
 *** Please specify clutch required.

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FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
		2200-HOUR FIELD OVERHAUL KIT*		
99-11-1	R7351	2200-Hour Field Overhaul Kit (Ship S/N 2570 and prior; includes items 2 thru 49.)	X	1
2	A007-5	Fanshaft Bearing	X	1
3	A008-4	Tail Rotor Assembly (round-tip blades)	X	1
4	A031-1	A031-1 Tail Rotor Pitch Control	X	1
5	A120-1	Bellcrank Assembly	X	1
6	A121-17	Push-Pull Tube Assembly	X	1
7	A169-6	Muffler with Risers (O-320 engine)	X	1
8	A189-10	Nut – Double Lock	X	3
9	A190-2	V-Belt Set (set of 2 belts)	X	1
10	A241-2	Cross Tube (includes rain caps)	X	1
11	A426-6	Cap – Collective Spring	X	1
12	A615-1	Gasket – Carburetor Air Box	X	1
13	A628-6	Connector Assembly, Harness	X	2
14	A636-2	Support (O-320 with C649-1 large oil cooler)	X	1
15	A780-33	Cable Assembly – Battery (power, aft battery)	X	1
16	A785-1	Hose (air duct)	X	1
17	A785-2	Hose (air duct)	X	1
18	A785-6	Hose (air duct)	X	1
19	A785-7	Hose (air duct)	X	1
20	A947-1	Flex Plate Assembly – Forward	X	1
21	A947-2	Flex Plate Assembly – Intermediate	X	1
22	A947-3	Flex Plate Assembly – Aft	X	1
23	AN320-18	Nut – Fanshaft	X	1
24	B283-1	Hose Assembly (fuel system)	X	1
25	B283-2	Hose Assembly (fuel system)	X	1
26	B350-2	Pin – Spring	X	1
27	D756-2	Bellcrank Assembly (throttle)	X	1
28	F628-8	Buckle Assembly	X	2
29	KI-217-1	R22 Bladder Fuel Tank Kit	X	1
30	MS16562-15	Pin – Spring	X	1
31	MS20002-18	Washer	X	1
32	MS24665-355	Cotter Pin	X	3
33	NAS1149F1832P	Washer (AN960-1816L)	X	3
34	NAS630-80	Bolt – Main Rotor	X	3

NOTES * Supplemental overhaul kits listed on page 99.15.

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
2200-HOUR FIELD OVERHAUL KIT (Cont'd)				
99-11-35	NAS6604-38	Bolt (NAS1304-38)	X	1
36	R7352	Core Deposits (R7351 O/H Kit)	X	1
<u>OVERHAUL EXCHANGE COMPONENTS</u>				
37	A005-7R*	A005-6 Main Rotor Blades** (set of 2, overhaul exchange)	X	1
38	A006-6R*	A006-1/-6 Main Rotor Gearbox** (overhaul exchange)	X	1
39	A017-2R*	A017-2 Swashplate Assembly (overhaul exchange)	X	1
40	A018-1R*	A018-1*** Clutch Assembly (overhaul exchange)	X	1
	A018-2R*	A018-2*** Clutch Assembly (overhaul exchange)	X	1
41	A051-1R*	A051-1 Clutch Actuator Assembly (overhaul exchange)	X	1
42	A792-4R*	A792-4 Tachometer (overhaul exchange)	X	1
43	B021-1R*	A021-1 Tail Rotor Gearbox (overhaul exchange)	X	1
44	B174-1R*	B174-1 Fanwheel (Rev "J" or subsequent, overhaul exchange)	X	1
45	B224-1R*	B224-1 Tail Rotor Drive Shaft (overhaul exchange)	X	1
46	B286-2R*	B286-2 Governor Controller (overhaul exchange)	X	1
47	R7374*	A017-1 Swashplate Installation Field Overhaul Kit	X	1
<u>CRATES</u>				
48	R5167	A006 M.R. Gearbox Crate	X	1
49	R5171	A016 M.R. Blade Crate	X	1

NOTES * Core deposit required for overhaul exchange components.
 ** Crate required; see Figures 99-41 and 99-43.
 *** Please specify clutch required.

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FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
SUPPLEMENTAL OVERHAUL KITS				
99-15-1	R8005*	A003 Interior Furnishings Field Overhaul Kit – Velour (Incl items 6 thru 40)	X	1
2	R8013*	A003 Interior Furnishings Field Overhaul Kit – Leather (Incl items 6 thru 40)	X	1
3	R8287	A057-2 Airbox Upgrade Kit (Ship S/N 2571M thru 2664; includes items 41 thru 54)	X	1
4	R8299	O-320 Engine Build-Up Kit (Incl items 55 thru 73)	X	1
5	R8300	O-360 Engine Build-Up Kit (Incl items 55 thru 61, 63 thru 65, 67 thru 69, and 72 thru 85)	X	1
* * *				
6	13-07900	License Holder	X	1
7	A003-10	Insulation (blue, gray, or tan)	X	1
8	A003-13	Seat Back Assembly (LH)	X	1
9	A003-14	Seat Back Assembly (RH)	X	1
10	A003-15	Insulation (blue, gray, or tan)	X	1
11	A003-2	Insulation (blue, gray, or tan)	X	1
12	A003-3	Insulation (blue, gray, or tan)	X	1
13	A003-5	Insulation	X	1
14	A141-14	Washer	X	6
15	A3236-012-24A	Washer (A3236-012-193)	X	4
16	A469-11	Carpet (LH, forward)	X	1
17	A469-12	Carpet (RH, forward)	X	1
18	A469-13	Carpet (LH, aft)	X	1
19	A469-14	Carpet (RH, aft)	X	1
20	A469-18	Carpet Assembly (LH, aft; small, S/N 333 and subsequent) . .	X	1
21	A677-4	Boot – Cyclic Stick	X	1
22	A678-1	Boot Assembly – Collective	X	2
23	A912-1	Pocket (RH SEAT)	X	1
24	A912-4	Pocket (LH SEAT)	X	1
25	A912-5	Pocket (LH CONSOLE)	X	1
26	A913-1	Strip (long, seat)	X	2
27	A913-2	Strip (short, seat)	X	2
28	A913-3	Strip (long, console)	X	2
29	A914-1	Insulation (blue, gray, or tan)	X	1
30	A928-7	Seat Assembly – Bottom	X	2
31	A950-1	Guard Assembly – Mixture Control	X	1

NOTES * See Figure 25-1.

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
SUPPLEMENTAL OVERHAUL KITS (Cont'd)				
99-15-32	B204-2	Rivet – Blind (AD45BS)	X	16
33	B392-1	Cover	X	1
34	B632-1	Channel – License Holder	X	1
35	MS21042L06	Nut	X	4
36	MS21042L08	Nut	X	4
37	MS27039C0808	Screw (AN525-832R8)	X	4
38	NAS1149FN632P	Washer (AN960-6)	X	16
39	NAS1149FN816P	Washer (AN960-8L)	X	4
40	NAS9301B-4-05	Rivet (NAS1919B04S05)	X	6
* * *				
41	A057-2	Air Box Assembly	X	1
42	A785-26	Hose (air duct)	X	1
43	AN3-35A	Bolt	X	4
44	AN970-3	Washer (large area)	X	4
45	B277-24	Clamp	X	2
46	B277-36	Clamp	X	2
47	B277-48	Clamp	X	2
48	B394-1	Scoop Assembly – Carburetor Heat	X	1
49	B771-1	Air Filter (O-360 engine, reusable)	X	1
50	C579-2	Inlet	X	1
51	MS20074-04-04	Bolt	X	4
52	D210-3	Nut	X	4
53	MS21919WDG48	Clamp	X	2
54	NAS1149F0332P	Washer (AN960-10L)	X	4
* * *				
55	A305-5	Panel Assembly (LH)	X	1
56	A305-6	Panel Assembly (RH)	X	1
57	A305-7	Panel Assembly – Small	X	2
58	A305-8	Panel Assembly – Large	X	2
59	A306-1	Panel – Upper (RH)	X	1
60	A306-2	Panel – Lower (RH)	X	1
61	A308-1	Cover Assembly (O-320 engine)	X	1
	A308-6	Cover Assembly (O-360 engine)	X	1
62	A309-15	Panel Assembly (RH)	X	1

NOTES

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
SUPPLEMENTAL OVERHAUL KITS (Cont'd)				
99-15-63	A310-1	Panel	X	1
64	A310-2	Panel	X	1
65	A312-1	Cover Assembly (O-320 engine)	X	1
	A312-6	Cover Assembly (O-360 engine)	X	1
66	A313-1	Panel Assembly (O-320 engine)	X	1
67	A449-1	Cover Assembly – Outboard	X	2
68	A487-1	Retainer (straight)	X	2
69	A487-2	Retainer (bent)	X	2
70	A723-5	Oil Line Assembly (out, large oil cooler)	X	1
71	A723-6	Oil Line Assembly (return, large oil cooler)	X	1
72	A780-2	Cable Assembly – Battery Ground (forward or aft battery installation)	X	1
73	B173-1	V-belt – Alternator	X	1
* * *				
74	B401-1	Grommet (parallel valve engine)	X	8
75	C309-4	Panel Assembly (O-360 engine)	X	1
76	D774-13	Spring	X	4
77	R8300A*	O-360 Engine Supplemental Kit (S/N 3688 and prior; includes items 79 thru 81)	X	1
78	R8300B*	O-360 Engine Supplemental Kit (S/N 3689 and subsequent; includes items 82 thru 85)	X	1
79	A313-7	Panel Assembly (O-360 engine, <u>with</u> hose)	X	1
80	A785-7	Hose (air duct)	X	1
81	B277-12	Clamp	X	A/R
82	A313-9	Panel Assembly (O-360 engine, <u>without</u> hose)	X	1
83	A785-32	Hose (air duct)	X	1
84	B277-24	Clamp	X	2
85	D754-4	Baffle Assembly	X	1

NOTES * Please specify kit required.

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FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
		OVERHAUL EXCHANGE COMPONENTS*		
99-19-1	R9082	AA12-004 Audio Control	X	1
2	R9084	AA80-020 Intervox	X	1
3	D748-2R	ALX-8521LS/RS** 70-Amp Alternator	X	1
4	D748-3R	ALY-8520LS/RS** 60-Amp Alternator	X	1
5	A005-6R	A005-6 MR Assembly (Ref, see item 6)		
6	A005-7R	A005-7 MR Assembly (Incl 2 new blades, spindles, and bearings)	X	1
7	A006-1/-6R	A006-1/-6 MR gearbox and mast assembly (2200 hour overhaul includes gears, bearings, seals, etc.)	X	1
8	A007-5R	A007-5 Fanshaft (Ref; no longer available. Order A007-5)		
9	A017-2R	A017-2 MR Swashplate Assembly (does not include replacement of B149-4 aluminum ball assembly)	X	1
10	A018-1R	A018-1 Clutch Assembly (Incl new A166-1 shaft and A170-1 sheave)	X	1
11	A018-2R	A018-2 Clutch Assembly (Metalized. Includes new A166-1 shaft and A170-2 sheave)	X	1
12	A021-1	A021-1 TR Gearbox (See B021-1R)		
13	A031-1R	A031-1 Pitch Control (Ref; no longer available. Order A031-1)		
14	A051-1R	A051-1 Actuator Assembly	X	1
15	A184-3R	A184-3 Bearing Assembly	X	1
16	A569-5R	A569-5 Low RPM Unit	X	1
17	A599-1R	A599-1 Airspeed Indicator	X	1
	A599-2R	A599-2 Airspeed Indicator	X	1
18	A600-1R	A600-1 Manifold Gage	X	1
19	A600-2R	A600-2 Manifold Gage	X	1
20	A600-3R	A600-3 Manifold Gage	X	1
21	A600-5R	A600-5 Manifold Gage	X	1
22	A602-1R	A602-1 Rate-of-Climb Indicator	X	1
23	A602-2R	A602-2 Rate-of-Climb Indicator	X	1
24	A604-2R	A604-2 Carb Air Temp Gage	X	1
25	A613-1R	A613-1 Altimeter	X	1
26	A613-2R	A613-2 Altimeter	X	1
27	R9078	A617-5 Instrument Cluster	X	1
28	R9020	A628-4-5 Harness Assembly (Ref; no longer available. Order A628-4 and A628-5)		
29	A708-1R	A708-1 Power Supply	X	1

NOTES * Core deposit required for overhaul exchange components.
 ** Does not include pulley. See Figure 71-23.

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
OVERHAUL EXCHANGE COMPONENTS* (Cont'd)				
99-19-30	R9022	A792-2 Tachometer (Ref; no longer available. Order A792-4R.)		
31	A792-4R	A792-4 Dual Tachometer	X	1
32	B021-1R	B021-1 TR Gearbox Assembly	X	1
33	B174-1R	B174-1 Fanwheel Assembly	X	1
34	B191-3R	B191-3 Attitude Horizon	X	1
35	B224-1R	B224-1 TR Drive Shaft	X	1
36	B224-3R	B224-3 TR Drive Shaft	X	1
37	B240-1R	B240-1 Blind Encoder	X	1
38	B240-2R	B240-2 Blind Encoder	X	1
39	B247-5R	B247-5 Governor Assembly	X	1
40	B286-2R	B286-2 Governor Control	X	1
41	B329-1R	B329-1 Turn Coordinator	X	1
42	B341-1R	B341-1 Outside Air Temperature Gage	X	1
43	B823-1R	B823-1 Attitude Indicator	X	1
44	B823-2R	B823-2 Directional Gyro	X	1
45	B823-3R	B823-3 Attitude Indicator w/Inclinometer	X	1
46	BC315-100-2R	BC315-100-2 Starter	X	1
47	R9108	GPS150 Garmin GPS	X	1
48	KG102AR	KG 102A Remote Gyro	X	1
49	KI525AR	KI 525A HSI Indicator	X	1
50	KX0155-38R	KX0155-XX NAV/COM	X	1
51	KY0197A-60R	KY 197A Transceiver	X	1
52	R9050	5035-P2-P42 Encoding Altimeter (Ref; no longer available. Order A613-2 Standard Altimeter and B240-2 blind encoder.)		

NOTES * Core deposit required for overhaul exchange components.

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FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
FIELD INSTALLATION KITS				
99-23-1	KI-5	R22 Communication Antenna Installation Kit	X	1
2	KI-18	R22 Vertical Firewall Repair Doubler Kit	X	1
3	KI-24	R22 Minimum Spares Kit	X	1
4	KI-40-1	R22 A792-2 Dual Tachometer Ground Wire Kit	X	1
5	KI-57-1	R22 Blind Encoder Installation Kit (B240-3 Encoder)	X	1
6	KI-60A	R22 A908-4 Yoke Conversion Kit SHIPS WITH ROTOR BRAKE	X	1
7	KI-60B	R22 A908-4 Yoke Conversion Kit SHIPS WITHOUT ROTOR BRAKE	X	1
8	KI-61	R22 Landing Light Relay Conversion Kit ALLOWS USE OF VF7-41F11 RELAY IN PLACE OF PREVIOUS A039-2 RELAY	X	1
9	KI-63	R22 Installation of A236-1/-3 Scroll Set with A649-1 Small Oil Cooler	X	1
10	KI-64A	R22 Tail Rotor Guard Field Installation Kit	X	1
11	KI-65, KI-66	Gyro Field Installation Kit ATTITUDE INDICATOR AND/OR DIRECTIONAL GYRO INSTALLATION R22, R44, AND R44 II WITH 7- OR 9-HOLE CONSOLE	X	1
12	KI-67-3	R22 Governor Field Installation Kit SHIPS WITH B247-1 GOVERNOR PREVIOUSLY INSTALLED TCM/BENDIX MAGNETOS REQUIRED	X	1
13	KI-68*	Vibrex 2000 Honeywell Balancing System (Ref)		
14	KI-68A*	Vibrex 2000 Plus Honeywell Balancing System (Ref) INCLUDES SPECTRUM VIEWER		
15	KI-69-7	A569-5 Low RPM Warning Unit Field Installation Kit	X	1
16	KI-73	R22 Tailcone Doubler Installation Kit	X	1
17	KI-79-1	R22 ELT Field Installation Kit 3000-10 DOMESTIC AND OVERSEAS	X	1
18	KI-81	R22 A795-4 One-Piece Locking Pin Installation Kit FOR REMOVABLE PEDALS	X	1
19	KI-83-1	R22 Float Repair Kit MT353-1	X	1
20	KI-89	ELT Remote Switch Installation Kit R22 AND R44	X	1
21	KI-89B	R22 Wire Harness Kit	X	1
22	KI-94	R22 B224 Damper Conversion Kit SHIP S/N 2570 AND PRIOR	X	1
23	KI-118-1	R22 Fuel Tank Vent Upgrade Kit FOR SHIPS WITHOUT AUXILIARY TANK	X	1
24	KI-118-2	R22 Fuel Tank Vent Upgrade Kit FOR SHIPS WITH AUXILIARY TANK	X	1
25	KI-130	R22 B439-1 Push-Pull Tube Guide Assembly Upgrade Kit . . .	X	1

NOTES * Kit no longer available; see Figure 18-1 for track and balance equipment.

Continues

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
FIELD INSTALLATION KITS (Cont'd)				
99-23-26	KI-154	R22 14V Aft Battery Relay Upgrade Kit	X	1
27	KI-158	R22 14V Forward Battery Relay Upgrade Kit	X	1
28	KI-160	R22 Full-Flow Oil Filter Kit, Rev A (D749-1)	X	1
29	KI-164	R22 and R44 Carbon Monoxide Detector Field Installation Kit	X	1
30	KI-179-5	R22 Kannad AF Integra ELT Field Installation Kit FOR R22 HELICOPTERS WITHOUT ELTS OR IF REPLACING PREVIOUSLY INSTALLED POINTER 3000-10 OR 4000-10 ELT (RHC INST'L)	X	1
31	KI-180	R22 A785 Removable Collective Stick Pin Modification Field Installation Kit	X	1
32	KI-181	R22 Firewall Access Hole Field Installation Kit	X	1
33	KI-188	Main Rotor Blade Touch-up Paint Kit A016-4 MAIN ROTOR BLADE BOND MAINTENANCE; REFER TO R22 SL-56B	X	1
34	KI-193-4	R22 Gascolator Assembly Upgrade Kit FOR COMPLIANCE WITH R22 SERVICE BULLETIN SB-99	X	1
35	KI-197	R22 Battery Relay Bypass Circuit Kit FOR COMPLIANCE WITH R22 SERVICE BULLETIN SB-102	X	1
36	KI-204-1	R22 and R44 Airframe Provisions For Single LED-Strobe Tailcone Kit CURRENT PRODUCTION TAILCONES ARE EQUIPPED FOR LED-STROBE ONLY. ORDER AND INSTALL KI-204-1 KIT IF REPLACING TAILCONE, AND KI-204-1 IS NOT PREVIOUSLY INSTALLED.	X	1
37	KI-205	Ground Handling Cart Booster Cable Kit	X	1
38	KI-217-1	R22 Beta and Mariner Bladder Fuel Tank Installation Kit FOR HELICOPTERS WITH OPTIONAL AUXILIARY FUEL TANK PREVIOUSLY INSTALLED	X	1
39	KI-218-1	R22 Full Throttle Caution Light Kit Instructions FOR COMPLIANCE WITH R22 SERVICE LETTER SL-66	X	1
40	KI-230	Fuel Sample Tube Installation FOR ALL HELICOPTER MODELS EXCEPT R22-SERIES HELICOPTERS WITH NO OPTIONAL AUXILIARY FUEL TANK INSTALLED	X	1
41	KI-238	R22 Collective-Activated Hourmeter Installation Kit Instructions	X	1

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FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
TECHNICAL PUBLICATION PART NUMBERS				
99-27-1	R7045	R22 POH (Incl items 2 thru 4)	X	1
2	R7225	R22 POH – Binder	X	1
3	R7226	R22 POH – Tabs	X	1
4	R7224	R22 POH – Insert	X	1
5	R7728	R22 POH – Brazilian Supplement	X	A/R
6	R7729	R22 POH – CIS Supplement	X	A/R
7	R7730	R22 POH – Ukrainian Supplement	X	A/R
* * *				
8	R7043	R22 Illustrated Parts Catalog (Incl items 9 thru 11)	X	1
9	R7208	R22 Illustrated Parts Catalog – Binder	X	1
10	R7206	R22 Illustrated Parts Catalog – Tabs	X	1
11	R7209	R22 Illustrated Parts Catalog – Insert	X	1
* * *				
12	R7044	R22 Maintenance Manual (Incl items 13 thru 15)	X	1
13	R7210	R22 Maintenance Manual – Binder	X	1
14	R7211	R22 Maintenance Manual – Tabs	X	1
15	R7212	R22 Maintenance Manual – Insert	X	1
* * *				
16	R7042	R22/R44 Flight Training Guide (Incl items 17 thru 19)	X	1
17	R7231	R22/R44 Flight Training Guide – Binder	X	1
18	R7232	R22/R44 Flight Training Guide – Tabs	X	1
19	R7227	R22/R44 Flight Training Guide – Insert	X	1
* * *				
20	R8656	Maintenance Record – Binder	X	1
21	R8650	Maintenance Record – Tabs	X	1
22	R8478	Maintenance Record – Insert	X	1
23	R8479	Maintenance Record – Component Cards	X	1
NOTES				

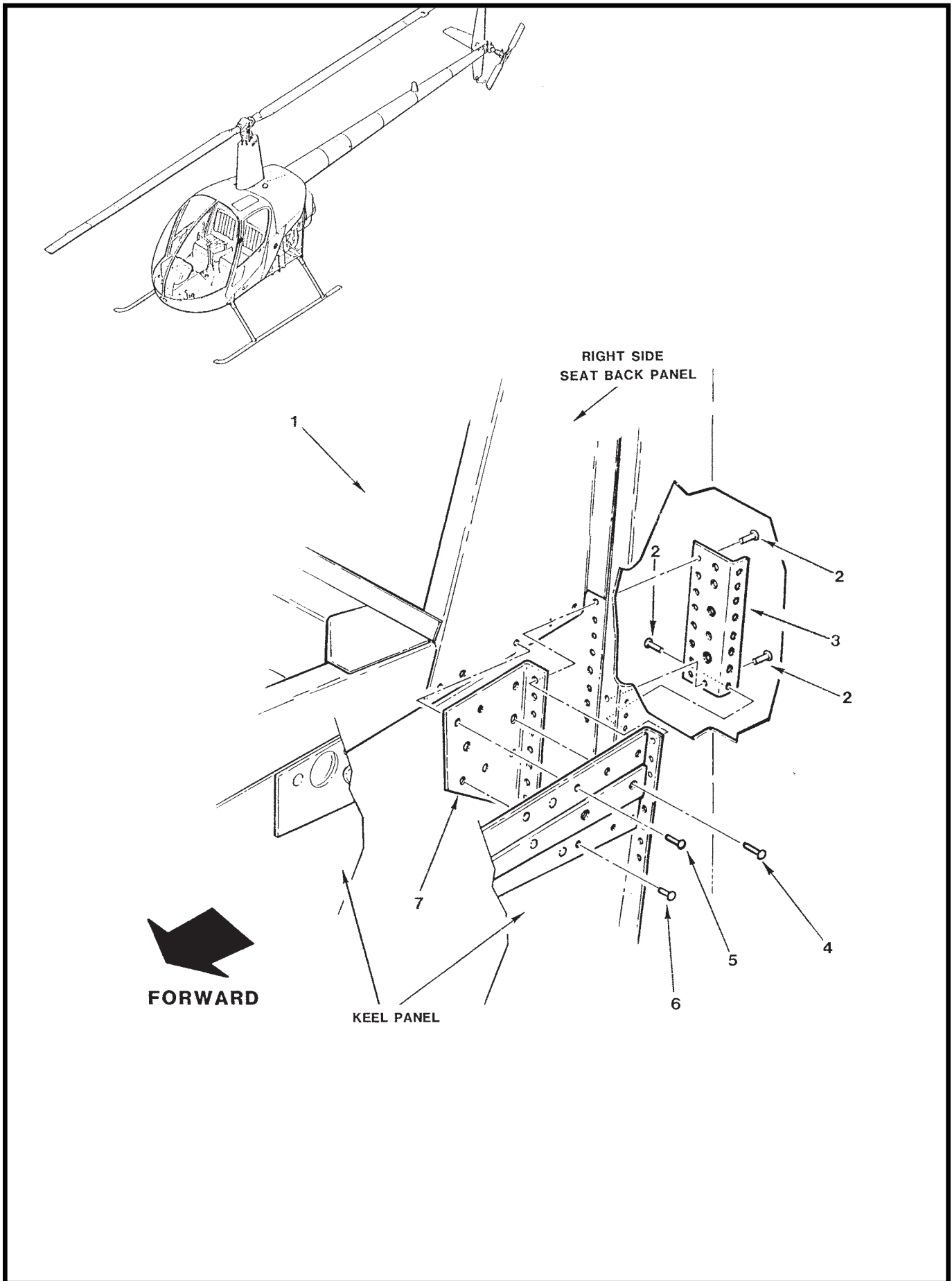


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
KI-18 VERTICAL FIREWALL DOUBLER INSTALLATION				
99-29-1	KI-18	Vertical Firewall Doubler Installation Kit (Incl items 2 thru 9) . .	X	1
2	MS20615-3M3	Rivet	X	22
3	B809-2	Doubler	X	1
4	MS20470AD4-7	Rivet	X	4
5	MS20470AD4-6	Rivet	X	5
6	MS20470AD4-4	Rivet	X	9
7	B809-1	Doubler	X	1
8	—	Drill Bit (#30, not shown)	X	1
9	—	Drill Bit (#40, not shown)	X	1

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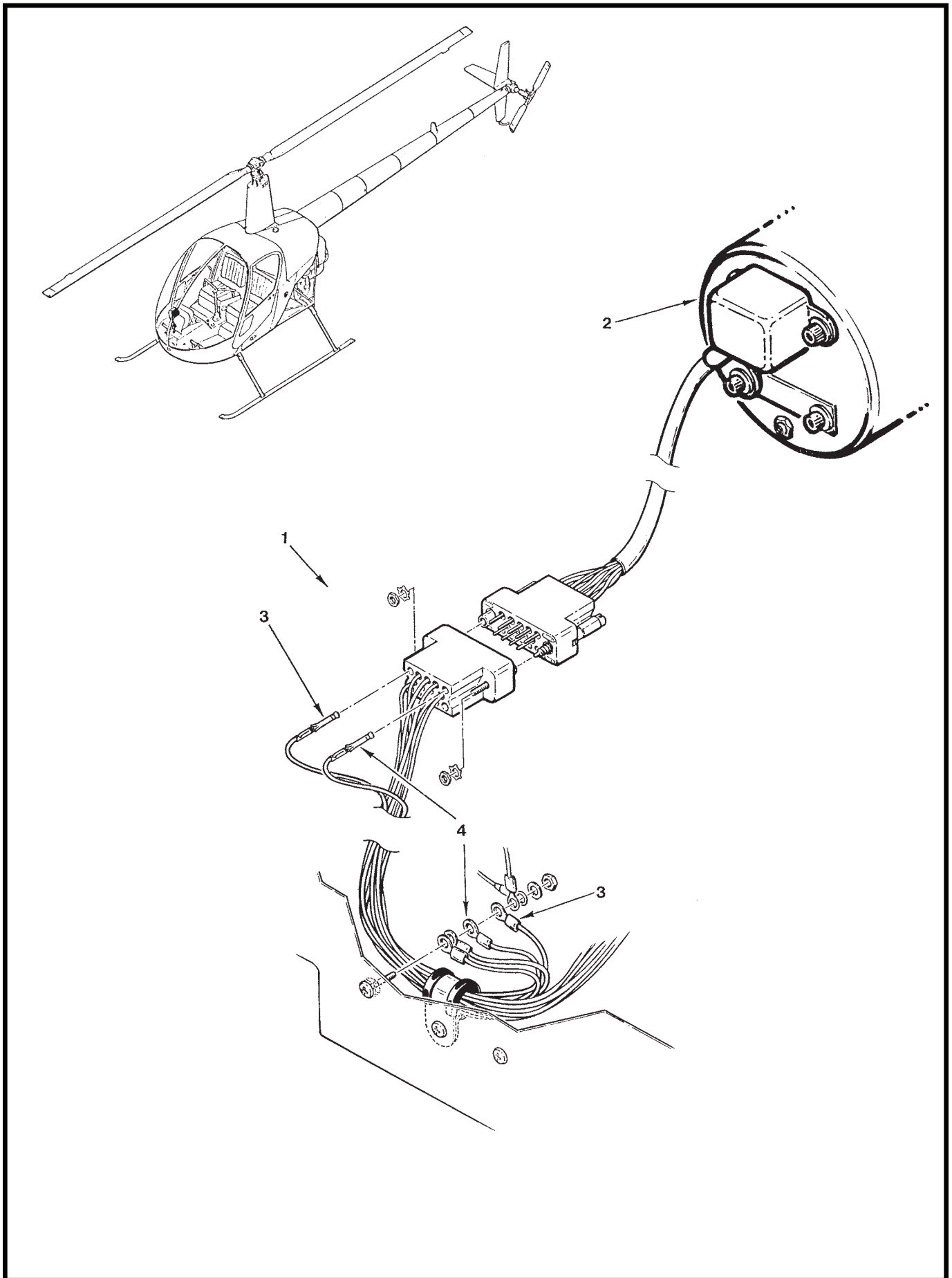


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
KI-40 DUAL TACHOMETER INSTALLATION KIT				
99-31-1	KI-40-1	Dual Tach Installation Kit (ship S/N 0002 thru 0470; includes items 3 and 4)	X	1
2	A792-2	Dual Tachometer (Ref, no longer available)		
	A792-4	Dual Tachometer (Ref)		
3	KI-40-2	Wire Assembly	X	1
4	KI-40-3	Wire Assembly	X	1
* * *				
5	B817-1	Tachometer Filter Assembly (Not shown; required for Rev "F" and earlier A792 tachometers. See Figure 96-21.)	X	1

NOTES

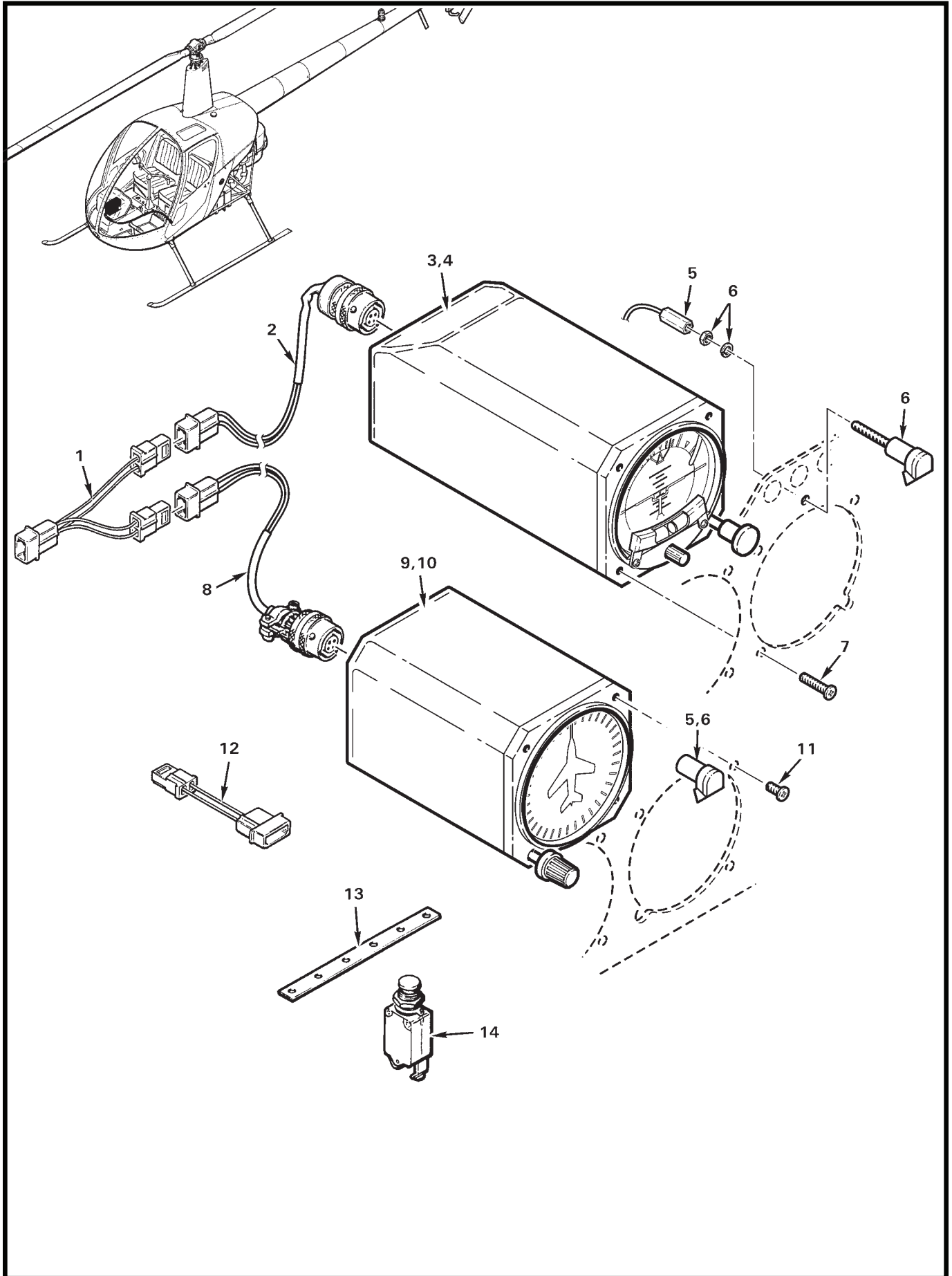


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
KI-65 ALTITUDE INDICATOR AND KI-66 DIRECTIONAL GYRO INSTALLATION KITS				
99-33-1	B802-3	Harness Assembly (splitter)	X	1
2	B802-1	Harness Assembly	X	1
3	KI-65	Attitude Indicator with Inclonometer Installation Kit (Incl items 1, 2, 4 thru 7, 12 thru 15, and 17)	X	1
4	B823-12	Attitude Indicator with Inclonometer	X	1
5	B195-9	Connector Nut	X	1
6	B195-10	Post Light (includes B196-1 lamp)	X	1
	B196-1	Lamp	X	1
7	MS24693-S30	Screw	X	3
8	B802-2	Harness Assembly	X	1
9	KI-66	Directional Gyro Installation Kit (Incl items 1, 5, 6, 8, 10 thru 15, and 17)	X	1
10	B823-11	Directional Gyro	X	1
11	MS24693-S26	Screw	X	3
12	B802-4	Harness Assembly (adapter)	X	1
13	A448-1	Bus Bar	X	1
14	B297-5	Circuit Breaker (5-amp)	X	1
15	B260-2	Terminal (not shown)	X	1
16	B263-14	Housing (not shown)	X	1
17	MS3367-4-9	Ty-Rap (not shown)	X	10

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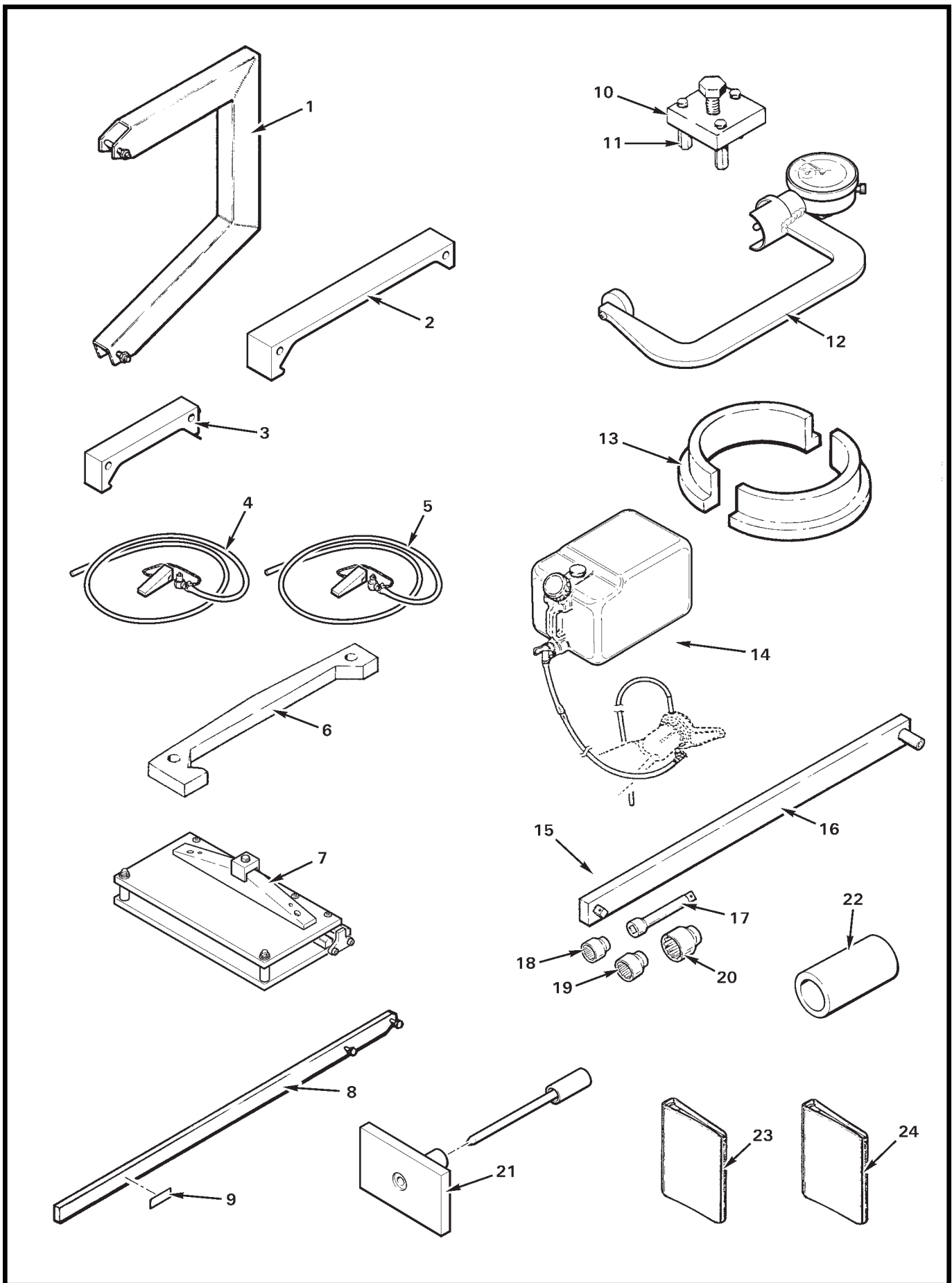


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
MAINTENANCE TOOLS				
99-35-1	MT016-1	Engine Hoist	X	1
2	MT050-1	Main Rotor Rigging Fixture	X	1
3	MT050-2	Tail Rotor Rigging Fixture	X	1
4	MT053-1	Main Rotor Gearbox Drain Valve Tool (use only with old-style A7260* chip detector)	X	1
5	MT054-1	Main Rotor Gearbox Drain Valve Tool (use only with B7260 "quick release" chip detector)	X	1
6	MT068-1	Horizontal Stabilizer Rigging Tool	X	1
7	MT526-1	Main Rotor Blade Trim Tab Bender (stainless steel skin)	X	1
	MT526-8	Main Rotor Blade Trim Tab Bender (aluminum skin)	X	1
8	MT091-1	Holder – Engine Ring Gear (Incl item 9)	X	1
9	MT091-3	Decal (torquing instructions)	X	1
10	MT092-1	Fan Puller (Incl item 11)	X	1
11	MT092-3	Spacer – Fan Puller	X	3
12	MT122-1	Main Rotor Bolt Elongation Tool (teeter hinge and A154-1 hub coning hinge bolts; includes MT200-1 dial indicator)	X	1
	MT122-15	Main Rotor Bolt Elongation Tool (B370-1 hub coning hinge bolts; includes MT200-1 dial indicator. Not shown)	X	1
	MT200-1	Dial Indicator (dial indicator only)	X	1
13	MT146-1	Spacer Blocks – Swashplate Rigging	X	1
14	MT147-1	Fitting Assembly – Main Rotor Blade Air Bleed	X	1
15	MT173-5	Torque Wrench Extension – Tool Set (Ref; no longer available)	O	1
16	MT173-6	Tube Weldment (Ref; no longer available).	O	1
17	9HT4441	Extension Bar (3/4 square drive x 8 inch)	X	1
18	MT173-7	Socket – 1-1/2-inch (3/4-inch drive, 12-point)	X	1
19	MT173-4	Socket – 1-11/16-inch (3/4-inch drive, 12-point)	X	1
20	MT173-8	Socket – 2-inch (3/4-inch drive, 12-point)	X	1
21	MT201-1	Pressing Fixture – Tail Rotor Hub Bearing	X	1
22	MT227-1	Pressing Tool – A184 Bearing	X	1
23	60297-16**	Engine Operator’s Manual (O-320 engine)	X	1
24	60297-12**	Engine Operator’s Manual (O-360 engine)	X	1

NOTES * No longer available.
 ** Lycoming part no.

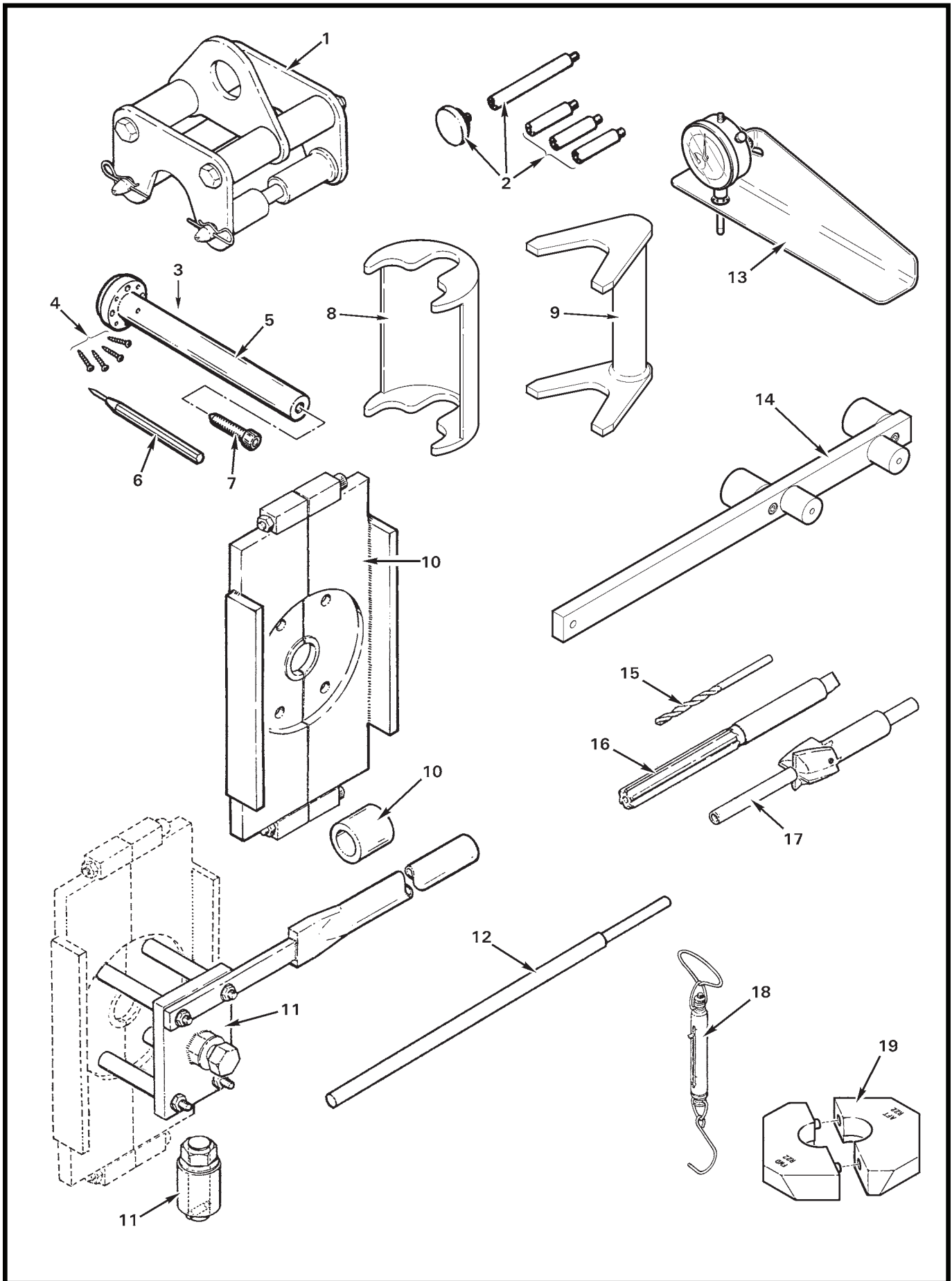


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
MAINTENANCE TOOLS				
99-37-1	MT234-1	Helicopter Lifting Fixture	X	1
2	MT260-6	Tail Rotor Drive Shaft Runout Tool	X	1
3	MT295-1	Tail Rotor Gearbox Output Shaft Seal Removal/Installation Tool (Incl items 4 thru 7)	X	1
4	92470A113	Screw (#4 X 0.75 inch)	X	4
5	MT295-10	Mandrel	X	1
6	MT295-3	Punch	X	1
7	MT295-6	Screw	X	1
8	MT294-1	Collective Spring Retainer (rev. F and subsequent)	X	1
9	MT294-1	Collective Spring Retainer (rev. E and prior)	O	1
10	MT303-1	Upper Bearing (A184) Removal and Installation Tools	X	1
11	MT303-3	Upper Bearing (A184) Removal and Installation Tools (use with MT303-1 tools when hydraulic press is unavailable)	X	1
12	MT331-4	Sheave Alignment Bar	X	1
13	MT352-1	Main Rotor Trim Tab Bending Measuring Tool (includes MT200-1 dial indicator as shown)	X	1
	MT200-1	Dial Indicator (dial indicator only)	X	1
14	MT354-7	Teeter Moment Tool (R22, R44, R66)	X	1
	MT354-1	Teeter Moment Tool (R22; not shown)	O	1
15	MT357-1	0.125-inch dia Cobalt Drill Bit	X	1
16	MT357-2	0.375-inch dia Reamer	X	1
17	MT358-1	0.750-inch dia Spot-Facing Tool	X	1
18	MT359-1	Spring Scale	X	1
19	MT376-1	Blocks – Main Rotor Rigging (set; holds cyclic in neutral position)	X	1

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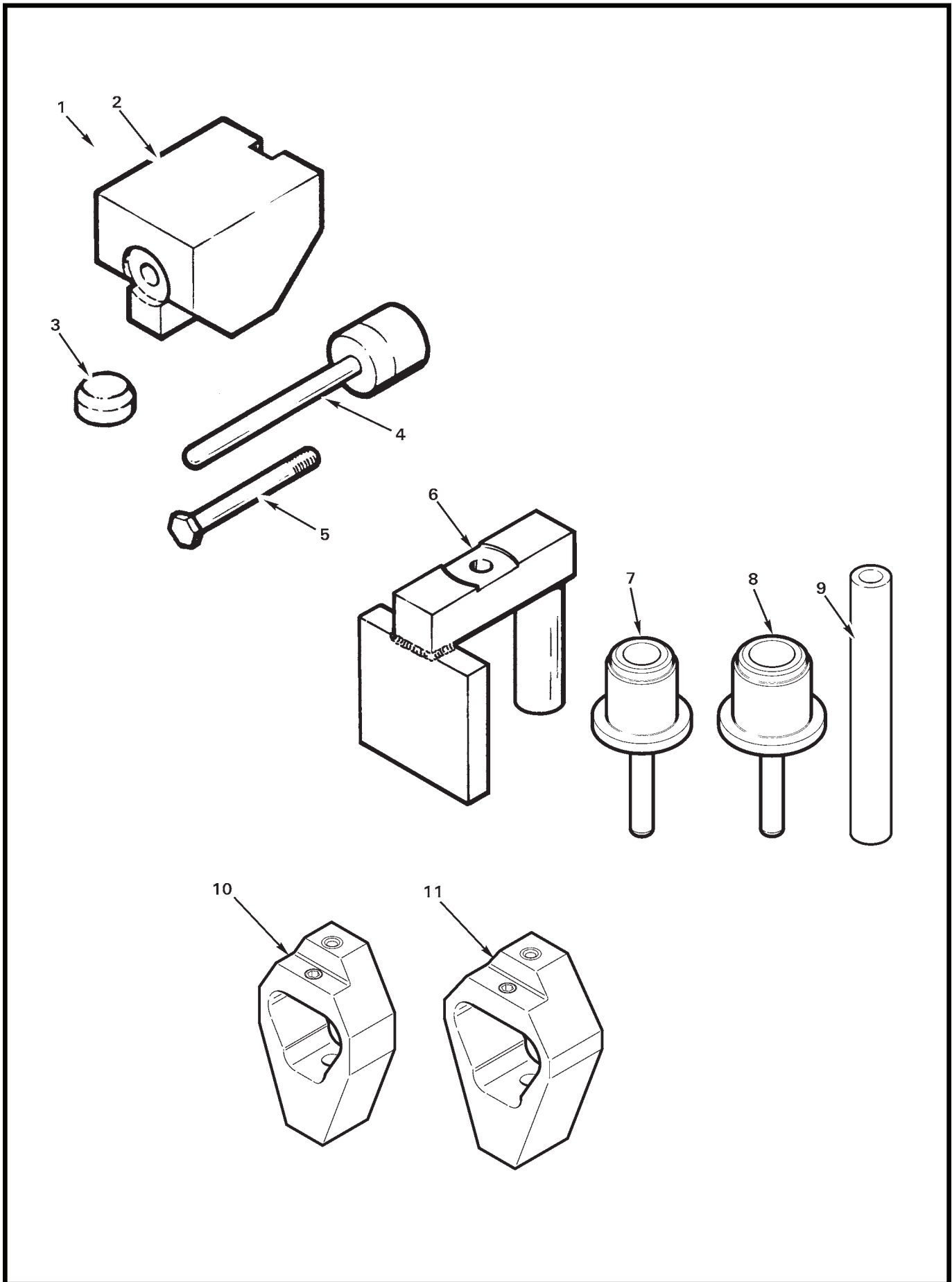


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
MAINTENANCE TOOLS				
99-39-1	MT556-1	Tail Rotor Elastomeric Bearing Removal and Installation Tools (Incl items 2 thru 5)	X	1
2	MT556-5	Support	X	1
3	MT556-6	Cap	X	1
4	MT556-2	Mandrel Assembly	X	1
5	AN4-25A	Bolt	X	1
6	MT329-13	Support Weldment	X	1
	MT329-2	Support (A154-1 Hub)	O	1
7	MT329-1	Plug Assembly (1.000-in. dia. A648-1 or A648-3 bearings) . .	X	1
8	MT329-11	Plug Assembly (1.125-in. dia. A648-2 bearings)	X	1
9	MT329-10	Extension Tube (for use with items 7 and 8)	X	1
10	MT569-1	Drill Guide Assembly	X	1
11	MT569-6	Drill Guide Assembly (B370-1 Hub coning hinge bolts)	X	1
NOTES				

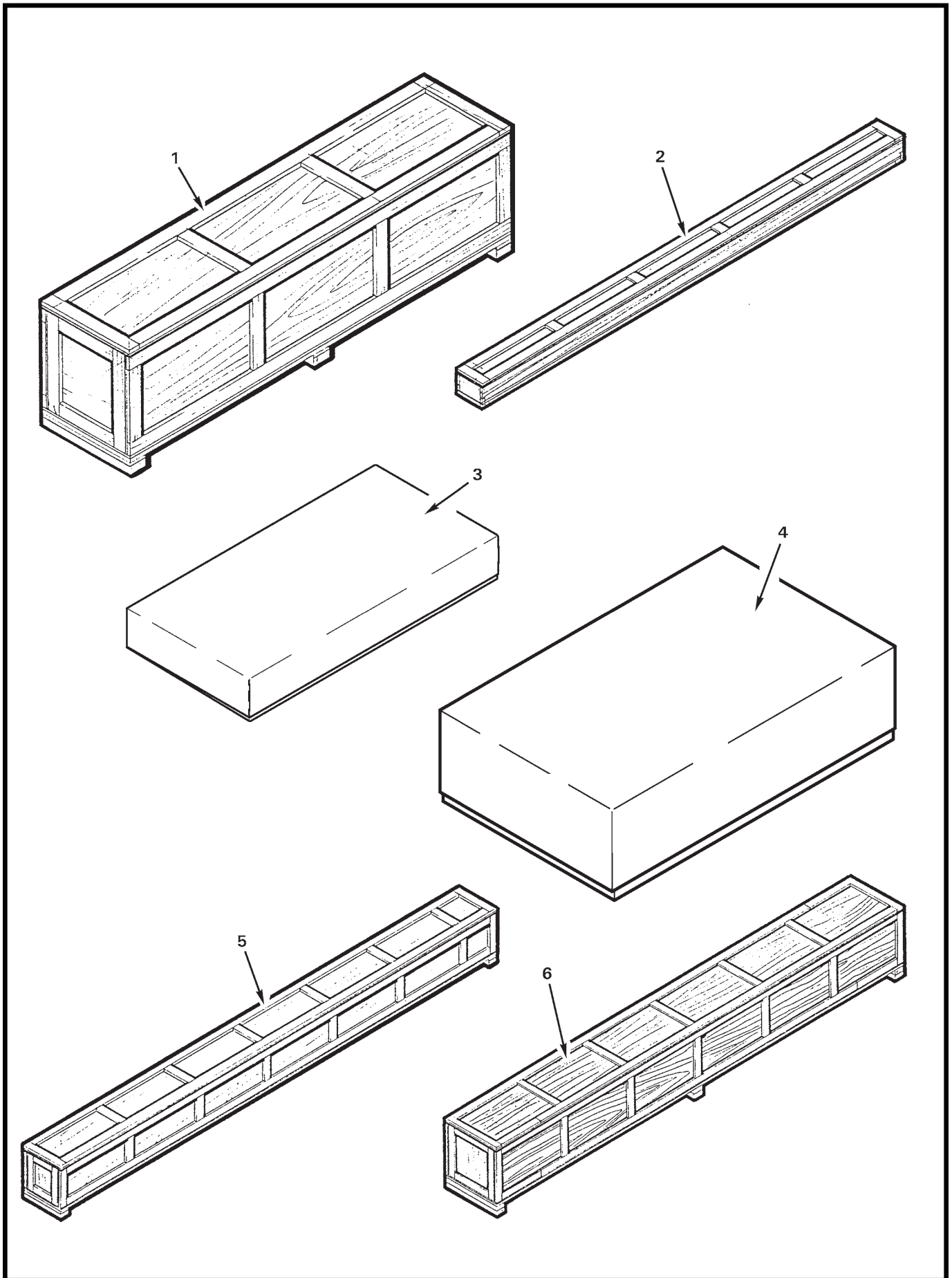


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
SHIPPING CRATES*				
99-41-1	R5167	Main Rotor Gearbox Crate (69 x 19 x 22, ~ 160 lbs.)	X	1
2	R5168	Push-Pull Tube/Tail Rotor Drive Shaft Crate (161 x 12 x 12, ~ 103 lbs.)	X	1
3	R5169**	Cabin Door Crate (60 x 29 x 10, ~ 25 lbs.; holds 2 doors) . . .	X	1
4	R5170**	Windshield Crate (63 x 40 x 17, ~ 45 lbs.; holds 4 windshields)	X	1
5	R5171	Main Rotor Blade Crate (165 x 15 x 18, ~ 230 lbs; holds 2 blades)	X	1
6	R5172	Tailcone Crate (153 x 19 x 22, ~ 190 lbs.)	X	1

NOTES * All weights and dimensions are approximations and subject to variation. Dimensions given are in inches, and describe length, width, and height, respectively.
 ** Cardboard box.

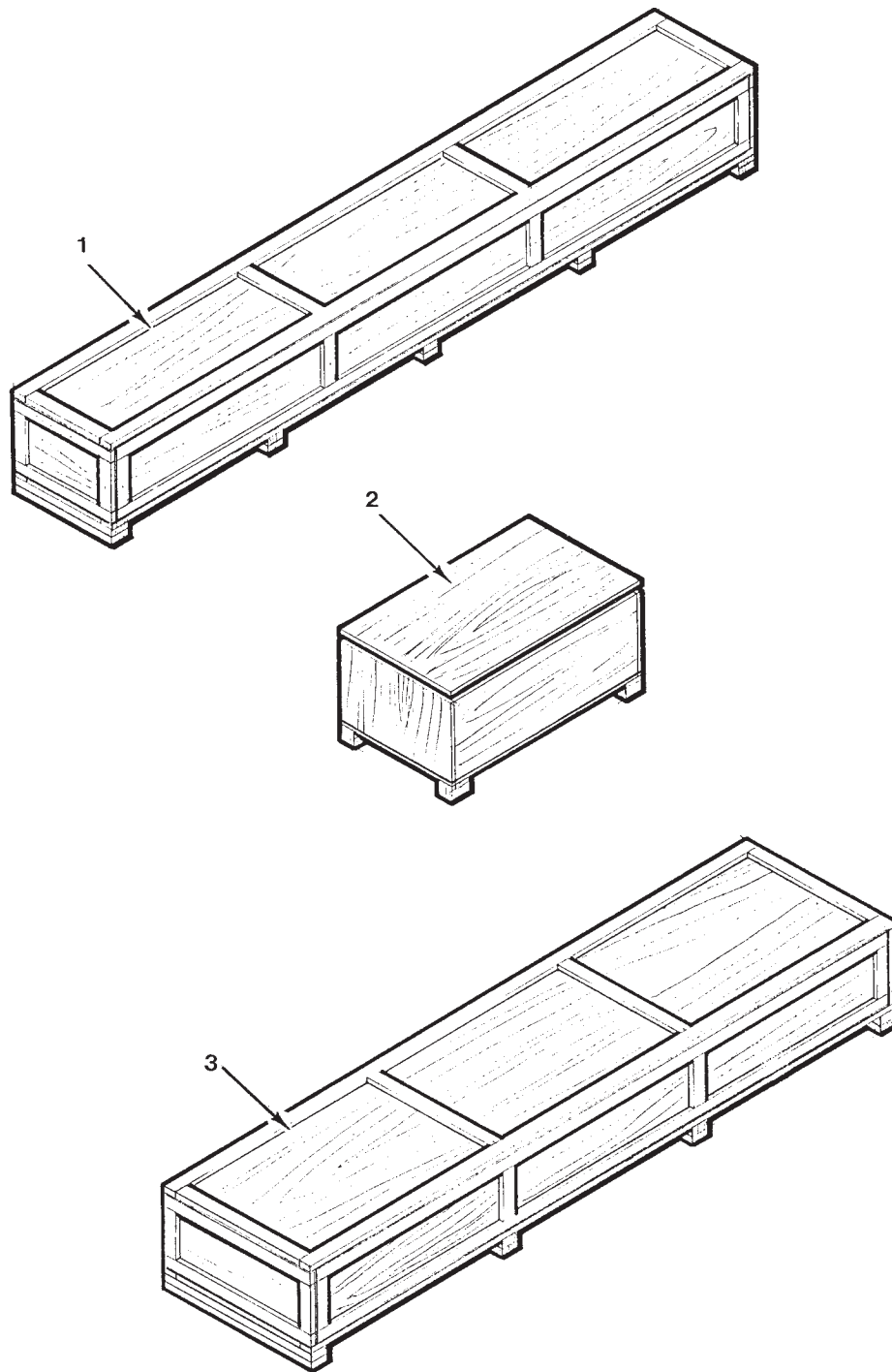


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
SHIPPING CRATES*				
99-43-1	R5519	Main Rotor Blade/Tailcone Crate (159 x 25 x 22)	X	1
2	MT899-1	Tow Cart Crate (67 x 38 x 31, ~572 lbs.)	X	1
3	R7422	Float Crate (144 x 36 x 21)	X	1

NOTES * All weights and dimensions are approximations and subject to variation. Dimensions given are in inches, and describe length, width, and height, respectively.

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CHAPTER 100

REVISION LOG

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REVISION LOG

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The R22 Illustrated Parts Catalog (IPC) list of effective pages and effective dates are given below. If a previously issued page is not listed below, it is no longer an effective page and must be discarded. The issue or revision date is in bold at the top of each revision log page.

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xii	FEB 2017	6.24	SEP 2014	11.i	FEB 2017
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xiv	FEB 2017	6.26	SEP 2014	11.1	FEB 2017
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		8.0	SEP 2014	11.4	FEB 2017
6.i	SEP 2014	8.1	SEP 2014	11.5	FEB 2017
6.0	SEP 2014	8.2	SEP 2014	11.6	FEB 2017
6.1	SEP 2014			11.7	FEB 2017
6.2	SEP 2014	9.i	SEP 2014	11.8	FEB 2017
6.3	SEP 2014	9.0	SEP 2014		
6.4	SEP 2014	9.1	SEP 2014	12.i	FEB 2017
6.5	SEP 2014	9.2	SEP 2014	12.0	FEB 2017
6.6	SEP 2014	9.3	SEP 2014	12.1	FEB 2017
6.7	SEP 2014	9.4	SEP 2014	12.2	FEB 2017
6.8	SEP 2014	9.5	SEP 2014		
6.9	SEP 2014	9.6	SEP 2014	18.i	SEP 2014
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A655-1	95.1	24	A688-1	63.2	26	A708-1	96.29	2
A655-1	95.25	22	A689-7	28.5	7	A708-1R	99.19	29
A655-1	95.40	38	A689-7	28.9	12	A708-2	33.1	16
A655-1	95.43	24	A689-7	28.15	21	A708-7	33.1	17
A656-1	28.16	42	A689-7	28.19	4	A708-10	33.1	17

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A711-3	71.20	36	A729-6	97.17	4	A731-4	28.13	5
A711-4	71.20	37	A729-7	28.16	38	A736-1	97.10	29
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A712-4	33.13	7	A729-16	97.13	17	A738-4	6.1	9
A713-1	28.1	19	A729-17	28.1	31	A738-5	53.13	30
A713-1	28.15	16	A729-17	28.19	24	A738-6	53.13	14
A717-9	9.1	10	A729-21	95.62	44	A738-7	25.9	10
A717-10	9.1	10	A729-22	95.61	24	A738-8	6.1	11
A718-2	9.1	3	A729-22	97.17	16	A738-27	53.17	25
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A722-1	62.3	9	A729-24	95.61	12	A740-1	95.57	18
A722-2	62.1	17	A729-24	97.13	14	A743-1	11.1	1
A722-2	62.3	9	A729-25	95.23	18	A743-1	95.2	37
A722-3	62.3	10	A729-25	95.61	7	A743-1	95.26	39
A722-4	62.1	6	A729-26	95.61	9	A743-1	95.36	47
A722-4	62.3	8	A729-26	97.17	20	A743-1	95.44	28
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A723-5	79.2	34	A729-28	95.23	21	A747-1	71.19	2
A723-5	79.5	18	A729-28	95.61	23	A748-1	21.9	11
A723-5	99.17	70	A729-28	97.17	1	A748-1	25.13	1
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A729-1	28.17	73	A729-60	28.10	45	A755-2	67.41	4
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A729-2	28.2	49	A729-61	28.13	9	A755-4	67.41	6
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A760-1	79.7	6	A785-5	21.9	23	A794-2	6.7	21
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A777-1	95.44	29	A785-26	99.16	42	A837-2	6.13	12
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B158-6	67.7	15	B162-1	71.13	11	B181-2	95.25	17
B158-6	67.11	11	B162-1	95.6	30	B181-2	95.33	5
B158-6	71.1	27	B162-1	95.14	30	B181-3	95.33	8
B158-6	95.37	72	B162-1	95.30	37	B182-1	95.26	27
B158-6	95.58	31	B162-1	95.47	3	B182-2	95.33	25
B158-8	28.20	39	B162-2	71.21	66	B184-1	95.29	27
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B158-8	63.19	7	B162-2	90.8	39	B184-2	95.29	26
B158-8	71.24	41	B162-2	95.35	6	B184-2	95.35	24
B158-8	71.29	23	B162-3	28.1	13	B184-3	95.29	30
B158-8	96.21	15	B162-3	28.9	19	B184-3	95.36	28
B158-8	96.22	42	B162-3	28.19	10	B189-1	21.4	63
B158-8	96.22	43	B162-3	53.5	3	B189-1	21.7	6
B158-12	33.13	12	B162-3	53.7	3	B189-2	21.4	58
B158-12	90.5	14	B162-3	67.23	76	B189-2	21.7	3
B158-12	90.8	48	B162-3	90.8	38	B189-4	21.7	10
B158-12	96.16	43	B162-3	96.29	7	B190-2	95.40	31
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B158-212	79.2	35	B163-1	67.29	17	B190-6	95.40	45
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B193-18	95.30	32	B198-1	63.7	13	B219-4GR	25.17	4
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B270-8qt	21.7	9	B277-8	71.19	3	B288-8	65.2	36
B270-8qt	25.1	5	B277-12	71.1	11	B289-1	28.7	18
B270-8qt	28.5	9	B277-12	71.21	80	B289-1	28.10	42
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B297-7	95.21	30	B308-1	95.57	27	B330-7	67.4	101
B297-7	96.11	17	B308-1	99.2	70	B330-7	67.22	51
B297-7	96.34	38	B309-1	90.5	18	B330-7	76.1	19
B297-7	97.6	37	B309-1	90.8	47	B330-7	76.5	17
B297-10	21.3	4	B310-1	28.23	30	B330-7	76.9	35
B297-10	21.9	30	B310-2	28.23	30	B330-7	76.13	30
B297-10	90.11	29	B312-1	53.17	29	B330-7	76.17	19
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B297-10	97.6	37	B320-1	95.1	2	B330-13	53.10	30
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B297-20	90.8	53	B320-1	95.37	58	B330-13	63.11	21
B297-20	96.11	7	B320-1	95.43	2	B330-13	64.1	3
B298-10	97.5	4	B320-1	95.51	16	B330-13	64.1	24
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B300-1	6.7	6	B320-2	63.8	59	B330-13	65.7	11
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B300-4	21.9	31	B328-1	67.22	58	B330-13	99.3	71
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D210-4	67.29	11	D333-3	76.10	40	D748-3	71.23	6

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D748-3R	71.23	6	G704-1	97.5	5	KI-83-1	32.10	34
D748-3R	99.19	4	G704-5	97.5	2	KI-83-1	99.23	19
D754-4	71.21	74	G704-9	97.5	21	KI-89	25.26	28
D754-4	71.23	1	G926-7	28.10	49	KI-89	99.23	20
D754-4	99.17	85				KI-89B	25.25	25
D756-2	76.2	59	KI-5	6.25	9	KI-89B	99.23	21
D756-2	76.5	34	KI-5	99.23	1	KI-94	53.22	41
D756-2	99.7	26	KI-18	99.23	2	KI-94	65.2	37
D756-2	99.11	27	KI-18	99.29	1	KI-94	99.23	22
D768-6	95.2	41	KI-24	99.1	1	KI-118-1	28.17	90
D774-3	76.9	2	KI-24	99.23	3	KI-118-1	99.23	23
D774-3	76.13	4	KI-40-1	99.23	4	KI-118-2	28.21	68
D774-5	63.8	51	KI-40-1	99.31	1	KI-118-2	99.23	24
D774-7	71.6	49	KI-40-2	99.31	3	KI-130	67.27	18
D774-13	71.20	49	KI-40-3	99.31	4	KI-130	99.23	25
D774-13	99.17	76	KI-57-1	97.17	18	KI-154	96.2	61
D805-3	52.5	7	KI-57-1	99.23	5	KI-154	99.24	26
D828-2487	76.2	69	KI-60A	63.9	73	KI-158	96.9	25
D828-2488	76.2	68	KI-60A	99.23	6	KI-158	99.24	27
D830-1	96.25	21	KI-60B	63.3	59	KI-160	79.7	20
			KI-60B	99.23	7	KI-160	99.24	28
F628-8	25.1	22	KI-61	33.11	20	KI-164	99.24	29
F628-8	99.7	27	KI-61	99.23	8	KI-179-5	99.24	30
F628-8	99.11	28	KI-63	99.23	9	KI-180	67.24	110
F654-25	25.19	28	KI-64A	53.22	36	KI-180	99.24	31
F654-38	97.1	19	KI-64A	99.23	10	KI-181	53.14	48
F654-40	97.5	6	KI-65	99.23	11	KI-181	99.24	32
F654-49	96.33	22	KI-65	99.33	3	KI-188	99.24	33
F837-3	25.19	10	KI-66	99.23	11	KI-193-4	99.24	34
			KI-66	99.33	9	KI-197	99.24	35
G050-9	95.21	8	KI-67-2	96.22	49	KI-204-1	99.24	36
G050-11	95.23	1	KI-67-3	96.23	59	KI-205	99.24	37
G051-11	95.1	17	KI-67-3	99.23	12	KI-217-1	99.7	28
G051-13	95.1	21	KI-68	18.5	1	KI-217-1	99.11	29
G053-7	95.17	3	KI-68	99.23	13	KI-217-1	99.24	38
G053-9	95.9	1	KI-68A	18.5	1	KI-218-1	99.24	39
G054-5	95.2	42	KI-68A	99.23	14	KI-230	28.10	52
G055-10	95.2	34	KI-69-5	95.51	31	KI-230	99.24	40
G055-11	95.2	51	KI-69-6	95.51	33	KI-238	99.24	41
G184-1	97.1	22	KI-69-7	95.51	29			
G184-2	97.1	25	KI-69-7	99.23	15	MT016-1	99.35	1
G184-5	97.1	26	KI-73	53.22	40	MT050-1	99.35	2
G220-1	25.15	3	KI-73	99.23	16	MT050-2	99.35	3
G682-14	96.33	23	KI-79-1	25.25	27	MT053-1	99.35	4
G682-15	96.33	21	KI-79-1	99.23	17	MT054-1	99.35	5
G682-19	96.33	24	KI-79-2	25.25	27	MT068-1	99.35	6
G682-21	28.10	50	KI-81	67.42	60	MT091-1	99.35	8
G682-26	62.5	15	KI-81	99.23	18	MT091-3	99.35	9

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MT092-3	99.35	11	MT357-2	99.37	16	R7045	99.27	1
MT106-3	28.10	47	MT358-1	99.37	17	R7048	99.4	114
MT121-1	18.5	18	MT359-1	99.37	18	R7156	71.19	6
MT122-1	99.35	12	MT376-1	99.37	19	R7175	25.6	34
MT122-15	99.35	12	MT526-1	99.35	7	R7177	25.5	31
MT141-3	9.1	14	MT526-8	99.35	7	R7206	99.27	10
MT146-1	99.35	13	MT556-1	99.39	1	R7208	99.27	9
MT147-1	99.35	14	MT556-2	99.39	4	R7209	99.27	11
MT173-4	99.35	19	MT556-5	99.39	2	R7210	99.27	13
MT173-5	99.35	15	MT556-6	99.39	3	R7211	99.27	14
MT173-6	99.35	16	MT569-1	99.39	10	R7212	99.27	15
MT173-7	99.35	18	MT569-6	99.39	11	R7224	99.27	4
MT173-8	99.35	20	MT899-1	99.43	2	R7225	99.27	2
MT200-1	99.35	12	MT920-15	9.1	23	R7226	99.27	3
MT200-1	99.37	13	MT935-11	9.3	2	R7227	99.27	19
MT201-1	99.35	21	MT936-7	9.1	19	R7231	99.27	17
MT227-1	99.35	22	MT936-8	9.1	20	R7232	99.27	18
MT234-1	99.37	1	MT936-8	99.3	90	R7295	28.5	6
MT260-6	99.37	2	MT947-1	9.1	21	R7295	28.9	10
MT290-1	10.1	1	MT947-2	9.1	13	R7295	28.15	19
MT294-1	99.37	8				R7295	28.19	2
MT294-1	99.37	9	R5049	11.3	26	R7295	99.4	115
MT295-1	99.37	3	R5051	11.3	27	R7351	99.11	1
MT295-3	99.37	6	R5052	11.3	27	R7352	99.12	36
MT295-6	99.37	7	R5053	11.3	27	R7374	99.8	46
MT295-10	99.37	5	R5111	21.4	54	R7374	99.12	47
MT303-1	99.37	10	R5111	21.9	8	R7422	99.43	3
MT303-3	99.37	11	R5167	99.8	47	R7728	99.27	5
MT329-1	99.39	7	R5167	99.12	48	R7729	99.27	6
MT329-2	99.39	6	R5167	99.41	1	R7730	99.27	7
MT329-10	99.39	9	R5168	99.41	2	R7774	52.2	47
MT329-11	99.39	8	R5169	99.41	3	R7951	99.7	1
MT329-13	99.39	6	R5170	99.41	4	R7952	99.8	35
MT331-4	99.37	12	R5171	99.8	48	R7998	28.5	5
MT340-1	32.10	33	R5171	99.12	49	R7998	28.9	10
MT346-1	10.9	2	R5171	99.41	5	R7998	28.15	19
MT346-2	10.9	3	R5172	99.41	6	R7998	28.19	2
MT347-4	10.9	10	R5190	76.3	80	R8005	99.15	1
MT347-5	10.9	9	R5190	76.7	73	R8013	99.15	2
MT348-1	10.9	4	R5277	95.37	71	R8016	63.1	1
MT349-1	10.9	1	R5378	11.3	26	R8016	67.29	21
MT349-2	10.9	1	R5519	99.43	1	R8017	63.1	1
MT349-3	10.9	1	R5556	96.5	3	R8017	67.29	22
MT350-1	10.7	27	R7042	99.27	16	R8096	52.3	67
MT352-1	99.37	13	R7043	99.4	112	R8096	95.2	40
MT354-1	99.37	14	R7043	99.27	8	R8096	95.31	65
MT354-7	99.37	14	R7044	99.4	113	R8096	95.37	81

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R8245	63.1	1	01-0771554-11	33.7	13	10-320-0052	18.1	13
R8245	67.30	30	011-00013-00	6.17	15	10-320-0126	18.1	9
R8266	96.16	48	012C	63.2	35	10-320-0157	18.1	5
R8266	96.22	39	012C	99.1	2	10-320-0162	18.1	11
R8287	99.15	3	02-0230007-00	33.1	11	10-320-0163	18.1	12
R8299	99.15	4	02-0350283-06	95.25	1	10-35937-10	96.16	44
R8300	99.15	5	0253-2-4	95.57	16	10-400-0176	18.3	2
R8300A	99.17	77	030-0005-00	6.7	15	10423-1	18.5	17
R8300B	99.17	78	0363-6-6	28.16	56	10-4-2-N-0	95.23	8
R8478	99.27	22	047-03937-0001	95.39	11	10-4-2-N-0	95.57	15
R8479	99.27	23	047-03937-0001	95.53	1	10-4-2-N-0	95.61	4
R8567	99.4	117	047-04956-0003	6.11	10	10-4-2-N-0	97.13	25
R8646	99.4	116	04DU04	65.1	28	10536-1	28.17	81
R8650	99.27	21	04DU04	65.5	13	10541	28.17	82
R8656	99.27	20	04DU04	76.1	10	10543-2	28.17	80
R9020	99.19	28	04DU04	76.5	9	10-600614-1	96.16	47
R9022	95.43	16	066-01070-0001	6.7	14	10-700-0102	18.1	6
R9022	99.20	30	066-02069-0000	6.7	5	10808-25	18.5	11
R9024	95.43	16	066-03034-0000	95.39	13	110-2	63.11	18
R9050	99.20	52	066-03034-0000	97.9	24	110-2	63.17	15
R9078	99.19	27	066-03034-0002	95.39	13	110-2	65.7	22
R9082	99.19	1	066-03034-0002	97.9	24	110-2	65.11	8
R9084	99.19	2	066-03056-0000	95.39	13	110-2	99.1	4
R9096	96.23	62	066-03056-0000	97.9	24	110-4	11.4	44
R9100	97.9	2	06DU06	67.3	85	110-4	63.1	11
R9108	99.20	47	06E19769-0.63	79.7	7	110-4	99.1	5
R9128	71.10	48	06E19769-1.00	99.1	3	11210-50	18.5	8
			0710-015	96.2	49	11247-50	18.5	7
0003-00434	95.6	32	07A19474	71.27	9	11-33-2	6.13	5
0003-00434	95.14	32	08415	90.5	15	116-00022-002	95.21	14
0003-00434	95.30	33	08415	90.8	44	116-00022-002	95.23	9
0003-00434	95.47	28	089-05115-0012	95.39	19	116-00026-006	95.21	13
0015-00723	95.6	31	089-05115-0012	95.53	3	116-00026-006	95.23	10
0015-00723	95.14	31	089-05534-0020	6.11	1	126-223	25.25	26
0015-00723	95.31	60	089-2157-0015	97.19	18	12686	71.10	54
0015-00723	95.48	52	089-6163-08	95.53	6	12686	71.14	56
0044-00408	28.7	13	089-7009-0010	97.19	13	12900	18.5	20
010-00174-03	6.17	14	089-8036-0019	97.19	14	13-07900	25.2	54
01000424	96.1	15	08DU06	67.3	80	13-07900	99.15	6
01000424	96.5	28	100057017	95.5	21	1327-82	6.15	1
01003621	96.1	17	100057017	95.13	21	13590	18.5	2
01003621	96.5	25	100057017	95.31	57	13797	18.5	6
01004635	96.1	18	100057017	95.49	62	13841-6	18.5	22
01004635	96.5	24	10-100-1773	18.1	8	13842	18.5	19
01009214	96.1	20	10-126676	95.47	29	13871	18.5	16
01009214	96.5	19	10164-5	96.11	13	13A	18.5	24
01-0271552-11	33.7	16	10-176487-121	96.15	10	140050505-14	33.1	2

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14-00505-08-27	33.5	15	248-00002-001	95.21	3	4000-10	25.25	17
1465-70-104	96.15	6	24-84-5	6.13	3	403-0003-001	95.21	6
149-12HT/H	71.29	10	25-4-2-N-0	95.61	19	40-4-2-N-0	95.23	13
14990	18.5	3	25-4-2-N-0	95.62	53	40-4-2-N-0	95.57	8
15-423	28.7	10	2590	95.26	35	40-4-2-N-0	95.61	3
15-423	28.10	38	2590	95.33	13	43030-0007	96.33	20
15-423	28.15	9	2590	95.40	46	43645-0200	96.33	20
15-423	28.20	51	2603	67.3	89	44-121	28.7	15
15-4-N-0	95.62	46	2613	67.3	88	45-4-2-N-0	95.23	19
16-0050506135	33.1	3	2633	95.2	50	45-4-2-N-0	95.62	45
1693-0414	25.9	9	2633	95.10	32	45-4-2-N-0	97.13	16
1693-0414	25.17	8	2633	95.18	39	4901B	67.17	2
16-A36	99.1	6	2633	95.26	36	4RA1190-2	32.9	3
17P47	95.5	22	2633	95.31	53	50-1WD-1G	95.29	31
17P47	95.13	22	2633	95.37	68	50-1WD-1G	95.36	30
17P47	95.31	56	2633	95.51	21	502260	25.5	20
17P47	95.48	61	2633	96.11	16	5035-P2-P42	95.39	2
19-150002-010	33.5	14	2653	33.13	22	504779-3	25.5	13
19-171047-100	33.1	1	2703	67.1	28	50-4-N-0	95.62	50
1N4005	96.25	26	2703	67.7	7	50-4-N-0	97.17	9
200-02586-0000	6.11	3	271-00001-001	95.23	7	505663-3	25.1	18
2006-10	25.25	21	2713	97.9	18	505798-1	25.1	12
2010	76.9	10	275-00001-001	95.23	5	50785K25	97.17	11
2010	76.13	10	275-00001-002	95.23	6	5-108	28.17	76
201298-1	95.51	9	2820	90.1	13	5225395-6	6.5	3
201355-1	95.51	11	298D01A56	67.2	45	5225395-6	6.7	20
2017	25.25	23	2ADP4-2	90.1	31	5225395-6	6.9	14
2020HR	18.1	1	3000-10	25.25	17	5225395-6	6.11	17
205471	96.33	15	3001	25.25	6	5225395-6	6.13	14
205838-1	90.2	38	3002	25.25	16	5225395-6	6.15	13
206060-1	90.2	36	3080-38	95.57	1	5225395-6	6.17	11
206062-1	63.19	19	3080-38	99.1	7	5225395-6	6.21	4
206153-1	63.19	18	32B19549	71.24	46	5225395-6	6.23	7
207573-1	96.16	43	3382-1	18.5	13	5225395-6	6.25	11
210664	96.33	25	34-0412070-63	33.7	19	5225395-6	25.20	31
21FKF-518	71.17	4	34-0412070-63	99.1	8	5225396-1	6.5	4
21FKF-616	10.5	1	363X	10.9	5	5225398-6	6.23	8
21FKF-616	67.34	36	36B19484	71.23	23	5225398-6	6.25	5
220-242400-09	96.31	8	3704-SE	76.9	11	5225555-6	6.17	8
2210	6.19	17	3704-SE	76.13	7	5225555-6	6.21	9
22-420-0035	18.1	15	3779T43	10.7	24	5225555-6	6.23	10
22-430-0036	18.1	16	38-0230021-00	33.5	12	5225557-6	6.23	11
22-430-0037	18.3	7	38-0231060-00	33.7	14	5225973-4	6.3	4
22-430-0066	18.3	6	38-0250429-00	33.1	18	5225973-4	6.9	3
22-430-0082	18.3	8	38-0250885-00	33.1	5	53E22144	79.7	14
22-430-0096	18.3	1	38TB04F	95.9	21	5635	18.5	18
225395-6	25.23	26	38TB04F	95.18	31	5876	18.5	12
225395-6	97.14	35	3MA1009-4	32.9	2	601716-4	95.29	8

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601716-4	95.37	75	68C19622	96.16	50	907-3300	18.5	14
601716-4	95.48	45	69-100-0075	18.1	10	907-4270-1	18.5	15
601716-4	95.48	59	6P47	95.5	22	9076	18.5	21
601716-4	96.27	6	6P47	95.13	22	91251A017	76.2	65
601985-2	95.9	22	6P47	95.31	55	920-00004-117	95.21	12
601985-2	95.18	32	6P47	95.36	52	92196A145	97.5	16
601985-2	95.29	9	6P47	95.48	60	92384A034	10.9	16
601985-2	95.37	74	7041101-2-1	21.5	68	92470A113	99.37	4
601985-2	95.48	46	7041101-2-1	21.9	3	94773A770	67.7	13
60297-12	99.35	24	70-4-N-0	95.23	15	94924A009	96.1	2
60297-16	99.35	23	70-4-N-0	95.61	17	95390A317	96.1	1
60-4-2-N-0	95.23	20	7062	90.1	8	9688K643	95.1	4
60-4-2-N-0	95.61	6	70-906	96.2	59	97-51-215-12	10.9	12
60-4-2-N-0	97.13	15	70-906	96.9	9	9HT4441	99.35	17
60-4-2-N-0	97.17	12	71032	71.1	12			
610-453	18.5	23	7105-S-Y-Z-Q-E	90.1	10	A1425A-2	33.15	24
61163	96.16	50	72495	96.16	49	A15A	90.12	36
61173	79.7	8	73383	71.24	34	A15A	96.1	19
62224	96.16	45	73383	71.27	14	A15A	96.5	23
62224	99.1	9	73383	71.29	15	A-16	6.19	2
6246-00088	95.5	28	74323	71.27	6	A200CNRDBKSH14	95.35	26
6246-00088	95.13	28	75-900-0187	18.1	14	A200CNRDBKSH14	95.48	35
6246-00088	95.47	8	75-900-0193D	18.1	3	A-23A	6.19	19
6246-00089	95.47	5	75-900-0507	18.3	3	A3135-017-24A	95.26	52
6246-00090	95.5	25	75-900-0542	18.3	4	A3236-012-193	25.6	37
6246-00090	95.13	25	75-900-2020	18.1	4	A3236-012-24A	25.2	47
6246-00090	95.47	7	75-900-2022	18.3	9	A3236-012-24A	95.43	13
6246-00468	95.5	23	75-900-2026	18.1	7	A3236-012-24A	99.15	15
6246-00468	95.13	23	76510	79.7	13	A457A	33.7	21
6246-00468	95.47	6	76534	71.24	50	A469B	33.1	19
6246-00473	95.5	26	76534	71.27	2	A-641R	76.7	72
6246-00473	95.5	27	77611	71.17	1	A-641R	76.10	57
6246-00473	95.13	26	77611	99.1	10	A-641R1	76.3	79
6246-00473	95.13	27	7861K46	95.21	16	A-641R1	76.7	72
6246-00473	95.47	9	7ADPC4	90.1	32	A-641R1	76.10	57
6246-00473	95.47	10	85-12-140-16	53.5	26	A642A	76.3	81
6246-00647	95.5	24	85-12-140-16	53.7	28	A642A	76.7	74
6246-00647	95.13	24	85-34-201-20	53.5	28	A702A	76.3	79
6246-00647	95.47	5	85-34-201-20	53.7	30	A702A	76.7	72
62732	71.1	6	85-35-295-15	53.5	29	A7260	63.2	44
66102-6	96.16	43	85-35-295-15	53.13	17	AA-300-101-2-1	21.3	16
66224	71.5	9	85-46-101-39	53.5	27	AA-300-101-2-1	21.10	56
66224	71.10	40	85-46-101-39	53.7	29	AD46BS	25.17	2
66224	71.13	22	8620	18.5	4	AGC-1.5	63.20	40
68-3950902A30	33.5	13	901-7310	18.5	5	AGC-1-1/2-R	95.57	4
68-3970991-30	33.7	15	90183A213	25.6	38	AGC-1-1/2-R	95.57	5
68-4971082A30	33.1	4	902-3140-5	18.5	9	AGC-3	96.1	28

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AGC-3	96.9	18	CI-4510-7C	6.21	11	KMT 112	95.53	11
ALU-1062A	71.21	83	CI-4510-7C	6.23	18	KMT 112	97.19	7
ALU-1062A	71.24	45	CI-505	6.9	4	KPN 0030-2421-00	95.53	10
ALX-8521LS	71.24	46	CI-507	6.9	5	KPN 0030-2423-00	95.53	17
ALY-8520LS	71.23	6	DP-250	95.47	31	KR0022-00	95.39	1
AN100	6.19	11	DP-625	97.9	19	KT 76A	97.9	9
AS111	63.2	45	E0240-037-3500S	63.8	60	KT 76A	97.13	12
AS3578-012	28.24	40	EFD1000H	95.21	10	KT 76C	97.9	9
AV-300	6.13	1	EFD1000H	95.23	2	KT 76C	97.13	12
AV-534L	6.25	8	F900White	99.3	76	KX 165	95.53	4
B0207C1K430F5T	33.13	11	FCGD1010	25.5	12	KX0155-38R	99.20	50
B0207C422R0F5T	33.13	10	FP-161	67.12	35	KY 197A	97.1	18
B0500-022-S	67.22	43	FW-1111-D00	90.12	35	KY 197A	97.9	8
B0500-022-S	90.1	14	GI 106B	95.39	13	KY0197A-60R	99.20	51
B1000-035-S	76.17	10	GI 106B	97.9	24	LC042E7	76.3	82
BC315-100-2	71.24	36	GMA350HC	97.1	17	LC042E7	76.7	75
BC315-100-2R	99.20	46	GTN625	97.5	11	LJS-0816	32.1	16
BCC-R22-000	10.3	1	GTN635	97.5	11	LJS-0816	32.6	43
BCC-R22-700	10.3	1	GTN650	97.5	11	LM WBQ K	6.5	5
BETA112R	90.12	43	GTR225B	97.1	18	LW-12272	99.3	77
BP4100	63.7	26	GTX327	97.1	20	LW-14060	96.16	53
C0180-024-1120S	67.38	15	GTX327	97.9	9	LW-14371	71.23	6
C23-805M	95.44	47	GTX327	97.13	12	LW-15986	71.5	11
C23-805M	95.65	15	GTX328	97.1	20	LW-15986	71.10	48
C23-807	95.44	42	GTX330	97.9	9	LW-15986	71.13	25
C23-807	95.44	46	GTX330	97.13	12	LW-16783-13	79.1	32
C23-807	95.65	14	GTX330ES	97.1	20	LW-16783-22P	79.1	32
C24-809	95.65	11	H2100	90.7	29	LW-18959-150-25	28.23	26
C6352-10Z1	21.3	26	IC M55	10.9	20	LW-18959-150-25	96.16	54
C6352-10Z1	21.9	26	IC-3230A	10.9	6	LW-18959-175-25	28.23	26
CAV-110H-4	28.17	83	JV-5	76.3	75	LW-18959-175-25	96.16	54
CI-102	6.11	20	JV-72	63.19	22	LW-25-0.94	96.17	57
CI-105-16	6.5	17	K2404-1/8-4	28.23	2	LW-31-0.94	71.24	35
CI-105-16	6.7	22	KA 51A	95.53	13	LW-31-0.94	71.27	13
CI-105-16	97.14	34	KA 51B	95.53	7	LW-31-0.94	71.29	14
CI-121	6.21	2	KA0083	6.19	12	LW-31H0.75	71.23	21
CI-121	6.23	2	KA44B	6.11	2	LW-31H0.75	71.27	11
CI-122	6.3	34	KDI 574	95.39	12	LW-31H0.75	71.29	12
CI-177-20	6.3	9	KEA 129	95.39	2	LW-M-2375	71.19	31
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CI-248-5	6.23	14	KI 227-01	95.39	9	M2404	96.16	52
CI-259E	6.9	20	KI 525A	95.39	10	M39-0630-10	10.7	28
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MS21042L06	25.2	50	MS21042L08	25.5	11	MS21042L08	95.26	31
MS21042L06	28.24	34	MS21042L08	25.9	26	MS21042L08	95.29	17
MS21042L06	33.1	21	MS21042L08	25.15	2	MS21042L08	95.33	17
MS21042L06	33.5	3	MS21042L08	25.25	11	MS21042L08	95.35	14
MS21042L06	33.13	13	MS21042L08	28.5	14	MS21042L08	95.43	4
MS21042L06	33.15	9	MS21042L08	28.9	15	MS21042L08	95.51	20
MS21042L06	53.25	19	MS21042L08	28.13	2	MS21042L08	95.53	23
MS21042L06	63.7	1	MS21042L08	28.16	31	MS21042L08	95.57	14
MS21042L06	67.23	62	MS21042L08	28.19	21	MS21042L08	95.61	15
MS21042L06	71.6	39	MS21042L08	28.23	18	MS21042L08	96.2	55
MS21042L06	71.14	50	MS21042L08	33.7	7	MS21042L08	96.11	23
MS21042L06	95.1	31	MS21042L08	33.9	4	MS21042L08	96.15	8
MS21042L06	95.9	12	MS21042L08	33.9	15	MS21042L08	96.19	5
MS21042L06	95.17	4	MS21042L08	33.11	11	MS21042L08	96.21	10
MS21042L06	95.21	1	MS21042L08	52.1	9	MS21042L08	96.29	4
MS21042L06	95.26	28	MS21042L08	52.5	1	MS21042L08	96.33	4
MS21042L06	95.29	4	MS21042L08	53.1	2	MS21042L08	97.1	1
MS21042L06	95.33	14	MS21042L08	53.3	7	MS21042L08	97.5	8
MS21042L06	95.35	4	MS21042L08	53.5	15	MS21042L08	97.10	27
MS21042L06	95.39	22	MS21042L08	53.7	12	MS21042L08	97.13	5
MS21042L06	95.43	15	MS21042L08	53.13	23	MS21042L08	99.16	36
MS21042L06	95.48	42	MS21042L08	53.17	21	MS21042L3	6.3	12
MS21042L06	95.53	29	MS21042L08	53.21	21	MS21042L3	6.9	15
MS21042L06	96.1	30	MS21042L08	53.25	16	MS21042L3	6.13	17
MS21042L06	96.6	37	MS21042L08	62.1	22	MS21042L3	6.15	16
MS21042L06	96.9	22	MS21042L08	62.3	23	MS21042L3	6.25	1
MS21042L06	96.15	31	MS21042L08	63.5	29	MS21042L3	8.1	5
MS21042L06	96.27	1	MS21042L08	63.7	17	MS21042L3	9.1	5
MS21042L06	97.1	16	MS21042L08	63.19	12	MS21042L3	25.5	33
MS21042L06	97.5	23	MS21042L08	67.1	3	MS21042L3	25.19	22
MS21042L06	97.9	17	MS21042L08	67.8	37	MS21042L3	25.23	19
MS21042L06	99.16	35	MS21042L08	67.17	29	MS21042L3	28.15	13
MS21042L08	6.3	5	MS21042L08	67.21	10	MS21042L3	71.9	14
MS21042L08	6.3	28	MS21042L08	71.1	25	MS21042L3	71.13	9
MS21042L08	6.5	15	MS21042L08	71.9	25	MS21042L3	90.8	32
MS21042L08	6.7	11	MS21042L08	71.19	11	MS21042L3	90.11	16
MS21042L08	6.9	6	MS21042L08	76.1	2	MS21042L3	95.26	33
MS21042L08	6.11	4	MS21042L08	76.5	2	MS21042L3	95.33	23
MS21042L08	6.13	10	MS21042L08	76.9	27	MS21042L4	9.1	11
MS21042L08	6.15	9	MS21042L08	76.14	51	MS21042L4	25.5	21
MS21042L08	6.17	7	MS21042L08	79.1	5	MS21042L4	28.16	60
MS21042L08	6.19	7	MS21042L08	79.5	5	MS21042L4	71.9	21
MS21042L08	9.3	6	MS21042L08	90.1	16	MS21042L4	90.11	14
MS21042L08	10.7	22	MS21042L08	90.5	6	MS21042L5	9.5	14
MS21042L08	10.9	14	MS21042L08	90.8	45	MS21042L5	10.9	19
MS21042L08	21.3	31	MS21042L08	90.11	25	MS21042L6	90.11	2
MS21042L08	21.9	15	MS21042L08	95.9	19	MS21043-08	97.19	23

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MS21044B5	96.5	27	MS21266-1N	71.19	5	MS21919WDG6	76.10	61
MS21044N06	71.23	13	MS21333-96	28.23	28	MS21919WDG6	79.5	28
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MS21069L04	95.53	14	MS21919WCH8	79.2	36	MS21919WDG7	95.9	25
MS21069L06	71.21	73	MS21919WCH8	79.5	22	MS21919WDG7	95.17	27
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MS21069L08	21.4	64	MS21919WDG2	33.7	6	MS21919WDG8	28.23	16
MS21069L08	21.9	28	MS21919WDG2	53.17	24	MS21919WDG8	79.2	41
MS21069L08	28.19	9	MS21919WDG2	53.22	27	MS21919WDG8	79.5	28
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MS21069L08	53.3	26	MS21919WDG2	95.29	19	MS21919WDG8	95.62	48
MS21069L08	53.5	7	MS21919WDG2	95.37	56	MS21919WDG8	96.17	59
MS21069L08	53.7	7	MS21919WDG2	95.43	9	MS21919WDG9	76.14	55
MS21069L08	53.14	43	MS21919WDG2	96.22	33	MS21919WDG9	79.1	21
MS21069L08	71.19	32	MS21919WDG3	6.13	8	MS21919WDG9	96.19	3
MS21069L08	95.25	13	MS21919WDG3	6.15	7	MS21919WDG10	21.3	29
MS21069L08	95.33	9	MS21919WDG3	6.23	5	MS21919WDG10	21.10	62
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MS21069L08	97.10	42	MS21919WDG3	25.25	9	MS21919WDG10	71.1	30
MS21069L08K	25.9	31	MS21919WDG3	28.17	64	MS21919WDG10	71.5	27
MS21069L3	28.15	27	MS21919WDG3	28.23	19	MS21919WDG10	71.9	11
MS21069L3	53.10	42	MS21919WDG3	63.19	10	MS21919WDG10	71.14	41
MS21069L4	53.10	48	MS21919WDG3	71.1	20	MS21919WDG10	95.57	20
MS21070L08	95.36	39	MS21919WDG3	95.51	17	MS21919WDG10	95.62	52
MS21071L08	53.3	28	MS21919WDG3	95.57	21	MS21919WDG10	96.1	27
MS21071L08	53.14	36	MS21919WDG3	96.21	8	MS21919WDG10	96.15	20
MS21071L08	95.25	16	MS21919WDG3	97.14	38	MS21919WDG11	76.14	52
MS21071L08	95.33	4	MS21919WDG4	6.3	26	MS21919WDG12	25.19	30
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MS21075L08E	95.36	37	MS21919WDG4	6.19	15	MS21919WDG12	25.25	24
MS21075L08E	97.10	41	MS21919WDG4	28.1	24	MS21919WDG12	71.2	31
MS21075L3E	71.19	17	MS21919WDG4	28.9	18	MS21919WDG12	71.5	22
MS21075L5E	32.2	50	MS21919WDG4	28.13	6	MS21919WDG12	71.14	42
MS21083-N5	53.3	22	MS21919WDG4	28.16	34	MS21919WDG12	79.1	24
MS21083-N5	95.61	31	MS21919WDG4	28.19	14	MS21919WDG12	96.15	27
MS21086L08	6.1	24	MS21919WDG4	33.9	19	MS21919WDG14	21.3	23
MS21086L08	28.19	15	MS21919WDG4	53.22	28	MS21919WDG14	21.9	27
MS21086L08	53.13	7	MS21919WDG4	76.5	11	MS21919WDG14	25.19	19
MS21086L08	95.36	36	MS21919WDG4	95.61	25	MS21919WDG14	25.23	21
MS21086L08	97.10	40	MS21919WDG4	96.21	11	MS21919WDG14	25.25	19
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MS21919WDG48	71.2	32	MS24693-S30	95.39	18	MS25171-2S	71.29	25
MS21919WDG48	71.5	26	MS24693-S30	99.33	7	MS25171-2S	96.1	14
MS21919WDG48	71.14	33	MS24693-S32	95.1	29	MS25171-2S	96.5	30
MS21919WDG48	99.16	53	MS24693-S32	95.25	24	MS25171-2S	96.15	1
MS21919WDG56	71.9	12	MS24693-S32	95.39	16	MS25171-4S	71.24	40
MS24402-2D	28.23	25	MS24693-S32	95.40	42	MS25171-4S	71.29	25
MS24566-1B	63.7	9	MS24693-S32	95.43	27	MS25171-4S	96.1	13
MS24665-69	21.1	13	MS24693-S51	6.19	1	MS25171-4S	96.5	26
MS24665-69	67.2	33	MS24693-S51	67.11	16	MS25171-4S	96.15	14
MS24665-69	67.7	26	MS24693-S51	90.7	5	MS25224-1	95.2	48
MS24665-69	67.11	19	MS24694-C5	6.17	16	MS25224-1	95.29	29
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MS24665-132	67.17	5	MS24694-C7	6.3	11	MS25224-1	95.47	21
MS24665-132	67.41	8	MS24694-C7	6.21	1	MS27039C0805	28.5	1
MS24665-132	71.1	22	MS24694-C7	6.23	1	MS27039C0805	28.9	8
MS24665-132	76.1	33	MS24694-C51	6.3	21	MS27039C0805	53.14	46
MS24665-132	76.7	77	MS24694-C51	6.15	3	MS27039C0805	76.1	23
MS24665-134	63.7	10	MS24694-C51	62.3	6	MS27039C0806	6.1	14
MS24665-151	52.1	8	MS24694-C54	62.3	5	MS27039C0806	6.3	24
MS24665-151	99.3	82	MS24694-S3	67.8	36	MS27039C0806	6.3	33
MS24665-210	63.3	64	MS24694-S3	95.33	12	MS27039C0806	6.7	13
MS24665-210	63.9	67	MS24694-S3	95.35	9	MS27039C0806	6.9	8
MS24665-210	76.10	42	MS24694-S3	95.35	16	MS27039C0806	6.11	8
MS24665-210	76.13	27	MS24694-S3	95.44	30	MS27039C0806	6.13	6
MS24665-210	76.17	30	MS24694-S4	67.1	2	MS27039C0806	6.15	5
MS24665-285	9.1	26	MS24694-S4	95.2	39	MS27039C0806	6.19	14
MS24665-355	9.3	12	MS24694-S4	95.25	25	MS27039C0806	6.25	2
MS24665-355	62.5	6	MS24694-S4	97.5	14	MS27039C0806	10.7	1
MS24665-355	62.7	6	MS24694-S9	52.2	46	MS27039C0806	10.9	11
MS24665-355	99.3	83	MS24694-S17	90.1	6	MS27039C0806	21.3	33
MS24665-355	99.7	31	MS25068-23	95.2	45	MS27039C0806	21.7	4
MS24665-355	99.11	32	MS25068-23	95.29	28	MS27039C0806	21.10	43
MS24693-S1	67.7	11	MS25068-23	95.36	27	MS27039C0806	25.1	7
MS24693-S2	67.1	5	MS25068-23	95.47	20	MS27039C0806	25.5	6
MS24693-S24	95.21	9	MS25171-1S	10.9	28	MS27039C0806	25.9	5
MS24693-S26	95.21	5	MS25171-1S	71.23	12	MS27039C0806	25.13	4
MS24693-S26	95.26	47	MS25171-1S	79.7	2	MS27039C0806	25.25	7
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MS24693-S26	97.5	1	MS25171-1S	95.57	26	MS27039C0806	28.5	2
MS24693-S26	99.33	11	MS25171-1S	96.2	56	MS27039C0806	28.9	16
MS24693-S27	25.2	46	MS25171-1S	96.9	14	MS27039C0806	28.13	12
MS24693-S27	95.2	35	MS25171-1S	96.15	18	MS27039C0806	28.16	54
MS24693-S27	95.26	37	MS25171-1S	96.25	24	MS27039C0806	28.17	88
MS24693-S27	95.33	16	MS25171-2S	10.9	8	MS27039C0806	28.19	6
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MS27039C0806	53.5	2	MS27039C0807	6.5	10	MS27039C0812	67.21	30
MS27039C0806	53.7	2	MS27039C0807	6.11	18	MS27039C0812	76.6	48
MS27039C0806	53.13	11	MS27039C0807	25.9	24	MS27039C0812	95.57	11
MS27039C0806	53.17	11	MS27039C0807	25.25	18	MS27039C0813	6.17	2
MS27039C0806	53.21	10	MS27039C0807	28.13	7	MS27039C0813	6.21	12
MS27039C0806	53.25	14	MS27039C0807	28.16	39	MS27039C0813	6.23	17
MS27039C0806	63.7	21	MS27039C0807	28.19	19	MS27039C0815	6.21	7
MS27039C0806	65.11	20	MS27039C0807	28.23	15	MS27039C0815	6.23	12
MS27039C0806	67.2	48	MS27039C0807	52.7	13	MS27039C0816	21.4	37
MS27039C0806	67.12	34	MS27039C0807	53.5	33	MS27039C0816	21.10	34
MS27039C0806	67.21	7	MS27039C0807	53.13	34	MS27039C0816	33.9	7
MS27039C0806	67.42	53	MS27039C0807	53.17	2	MS27039C0816	76.5	15
MS27039C0806	71.1	23	MS27039C0807	53.17	4	MS27039C0818	76.2	67
MS27039C0806	71.9	23	MS27039C0807	53.21	2	MS27039C0818	76.6	38
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MS27039C0806	76.2	43	MS27039C0807	76.1	34	MS27039C1-05	6.3	17
MS27039C0806	76.6	37	MS27039C0807	76.7	84	MS27039C1-05	76.2	72
MS27039C0806	76.9	30	MS27039C0807	76.14	54	MS27039C1-05	76.7	92
MS27039C0806	76.13	21	MS27039C0807	90.5	3	MS27039C1-05	76.10	62
MS27039C0806	79.1	6	MS27039C0807	90.8	35	MS27039C1-06	21.1	11
MS27039C0806	79.5	3	MS27039C0807	95.17	29	MS27039C1-06	28.7	3
MS27039C0806	90.5	17	MS27039C0807	95.61	29	MS27039C1-06	28.9	17
MS27039C0806	90.8	42	MS27039C0807	96.31	2	MS27039C1-06	28.15	1
MS27039C0806	90.11	24	MS27039C0808	10.9	23	MS27039C1-06	53.17	28
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MS27039C0806	95.33	20	MS27039C0808	52.1	6	MS27039C1-06	76.6	50
MS27039C0806	95.35	19	MS27039C0808	53.5	32	MS27039C1-06	76.9	17
MS27039C0806	95.43	7	MS27039C0808	53.13	1	MS27039C1-06	76.14	38
MS27039C0806	95.51	18	MS27039C0808	67.2	38	MS27039C1-06	90.11	28
MS27039C0806	95.53	22	MS27039C0808	67.12	33	MS27039C1-06	95.26	40
MS27039C0806	95.57	10	MS27039C0808	90.8	34	MS27039C1-06	95.33	22
MS27039C0806	95.61	11	MS27039C0808	95.35	16	MS27039C1-06	96.5	13
MS27039C0806	96.2	51	MS27039C0808	97.19	21	MS27039C1-07	6.9	17
MS27039C0806	96.11	4	MS27039C0808	99.16	37	MS27039C1-07	6.11	13
MS27039C0806	96.17	60	MS27039C0809	76.14	57	MS27039C1-07	25.19	20
MS27039C0806	96.19	2	MS27039C0809	96.15	9	MS27039C1-07	25.23	22
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MS27039C0806	96.29	1	MS27039C0810	28.10	34	MS27039C1-07	53.22	35
MS27039C0806	96.33	1	MS27039C0810	76.1	5	MS27039C1-07	63.12	47
MS27039C0806	97.5	19	MS27039C0810	76.5	5	MS27039C1-07	63.20	36
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MS27039C1-08	67.4	99	MS29512-5	28.17	71	MS3367-5-9	33.5	8
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MS27039C1-09	28.7	11	MS3106A10SL-3S	95.26	49	MS3367-5-9	95.1	23
MS27039C1-09	28.10	31	MS3116F8-4S	95.26	42	MS3367-5-9	95.51	32
MS27039C1-09	76.3	100	MS3116F12-10SX	96.21	1	MS3367-5-9	95.61	8
MS27039C1-09	76.5	26	MS3367-3-9	71.1	5	MS3367-5-9	96.9	27
MS27039C1-09	76.10	53	MS3367-3-9	71.20	57	MS3367-5-9	96.21	5
MS27039C1-09	76.14	41	MS3367-3-9	99.3	85	MS3367-5-9	96.22	40
MS27039C1-09	96.15	19	MS3367-4-9	6.17	4	MS3367-5-9	97.17	17
MS27039C1-10	21.1	9	MS3367-4-9	6.19	4	MS3367-6-0	21.3	20
MS27039C1-11	76.9	1	MS3367-4-9	6.25	10	MS3367-6-0	21.10	60
MS27039C1-11	76.13	1	MS3367-4-9	28.16	49	MS3367-6-0	67.33	20
MS27039C1-12	6.9	21	MS3367-4-9	33.9	9	MS3367-6-0	71.5	8
MS27039C1-12	25.5	30	MS3367-4-9	63.19	6	MS3367-6-0	71.9	18
MS27039C1-12	63.7	11	MS3367-4-9	71.1	4	MS3367-6-0	71.13	24
MS27039C1-14	76.3	92	MS3367-4-9	71.21	81	MS3367-6-0	90.2	39
MS27039C1-14	76.10	45	MS3367-4-9	71.23	9	MS3367-6-0	95.57	24
MS27039C1-14	76.14	46	MS3367-4-9	71.29	24	MS3367-6-0	99.3	86
MS27039C1-18	76.6	52	MS3367-4-9	79.7	1	MS3367-7-9	21.3	21
MS27039C1-18	76.14	44	MS3367-4-9	90.7	19	MS3367-7-9	21.10	61
MS27039C1-20	76.3	96	MS3367-4-9	90.11	5	MS3367-7-9	28.13	19
MS27039C1-20	76.10	47	MS3367-4-9	95.9	24	MS3367-7-9	28.16	63
MS27039C1-24	96.2	39	MS3367-4-9	95.17	14	MS3367-7-9	67.33	19
MS27039DD1-26	71.6	54	MS3367-4-9	95.21	11	MS3367-7-9	71.9	17
MS27039DD1-26	71.10	58	MS3367-4-9	95.25	23	MS3367-7-9	96.9	28
MS27039DD1-26	71.14	61	MS3367-4-9	95.40	39	MS3367-7-9	97.13	23
MS27647-4	76.7	68	MS3367-4-9	95.43	23	MS33737-12C	95.5	12
MS27981-1B	25.2	60	MS3367-4-9	95.58	37	MS33737-12C	95.13	12
MS27981-1B	25.6	40	MS3367-4-9	95.58	41	MS33737-12C	95.26	51
MS27981-3B	25.2	61	MS3367-4-9	96.1	12	MS33737-12C	95.31	63
MS27981-3B	25.6	41	MS3367-4-9	96.5	15	MS33737-12C	95.40	40
MS27981-4B	25.2	62	MS3367-4-9	96.11	20	MS33737-12C	95.49	70
MS27981-4B	25.6	42	MS3367-4-9	96.15	2	MS33737-13C	95.1	19
MS27981-5B	25.3	67	MS3367-4-9	96.19	6	MS33737-13C	95.25	18
MS27981-5B	25.6	44	MS3367-4-9	96.22	48	MS33737-13C	95.30	44
MS28775-014	65.7	8	MS3367-4-9	96.25	25	MS33737-13C	95.36	45
MS28775-018	65.8	35	MS3367-4-9	97.1	24	MS33737-13C	95.39	15
MS28775-131	65.7	32	MS3367-4-9	97.14	30	MS33737-13C	95.43	22
MS28778-4	65.7	19	MS3367-4-9	99.33	17	MS33737-13C	95.49	67
MS28778-5	65.7	5	MS3367-5-0	67.23	85	MS33737-15C	95.1	27
MS28778-6	95.62	41	MS3367-5-9	25.19	17	MS33737-15C	95.25	10
MS29512-04	28.5	22	MS3367-5-9	25.23	16	MS33737-15C	95.39	25
MS29512-05	28.7	5	MS3367-5-9	25.25	15	MS33737-15C	95.43	21
MS29512-06	28.5	17	MS3367-5-9	25.26	31	MS33737-16C	97.13	26

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MS35206-213	52.2	50	MS35206-230	95.5	5	MS35489-4	67.1	9
MS35206-213	96.33	18	MS35206-230	95.13	5	MS35489-4	67.7	16
MS35206-214	95.9	6	MS35206-230	95.17	1	MS35489-4	67.11	23
MS35206-214	95.17	20	MS35206-230	95.30	36	MS35489-4	76.3	106
MS35206-214	97.17	13	MS35206-230	95.40	48	MS35489-4	90.7	22
MS35206-215	10.9	15	MS35206-230	95.48	51	MS35489-4	95.17	5
MS35206-215	33.13	18	MS35206-231	95.9	20	MS35489-4	95.21	21
MS35206-215	33.15	11	MS35206-231	95.18	30	MS35489-4	95.44	44
MS35206-215	33.15	19	MS35206-231	95.29	7	MS35489-4	95.65	9
MS35206-215	90.12	33	MS35206-231	95.37	76	MS35489-4	97.5	28
MS35206-215	95.29	6	MS35206-231	95.40	29	MS35489-6	28.13	11
MS35206-215	95.37	64	MS35206-231	95.48	53	MS35489-6	53.3	15
MS35206-215	95.40	30	MS35206-231	97.9	23	MS35489-6	53.21	24
MS35206-215	95.48	54	MS35206-232	95.5	3	MS35489-6	95.61	27
MS35206-215	96.27	9	MS35206-232	95.13	3	MS35489-6	96.6	38
MS35206-218	63.19	23	MS35206-232	95.30	41	MS35489-6	96.23	58
MS35206-219	63.7	31	MS35206-232	95.36	46	MS35489-9	28.20	45
MS35206-219	63.19	16	MS35206-232	95.47	32	MS35489-15	33.1	14
MS35206-220	76.3	76	MS35206-232	96.27	7	MS35489-15	53.17	10
MS35206-222	95.51	1	MS35206-232	97.13	20	MS35489-16	95.36	29
MS35206-222	96.25	1	MS35206-233	95.40	49	MS35489-18	33.2	27
MS35206-226	96.11	9	MS35206-234	33.1	6	MS35489-18	53.21	9
MS35206-227	33.1	8	MS35206-234	95.5	4	MS35489-40	6.3	1
MS35206-227	71.6	37	MS35206-234	95.13	4	MS35489-40	96.1	9
MS35206-227	71.14	48	MS35206-234	95.31	62	MS35489-40	96.5	7
MS35206-227	71.19	18	MS35206-234	95.49	69	MS35650-302	79.2	37
MS35206-228	6.7	9	MS35206-241	67.1	12	MS35650-302	79.5	24
MS35206-228	33.15	23	MS35206-241	67.7	28	MS35769-8	65.11	13
MS35206-228	53.25	17	MS35206-241	67.11	6	MS35769-8	99.3	87
MS35206-228	63.7	8	MS35206-241	95.1	6	MS35769-9	65.11	6
MS35206-228	71.13	5	MS35206-241	95.9	4	MS35769-9	99.3	88
MS35206-228	90.11	31	MS35206-241	95.17	13	MS35769-11	65.11	4
MS35206-228	95.9	14	MS35206-241	95.29	10	MS35769-11	99.3	89
MS35206-228	95.17	18	MS35206-241	95.31	52	MS51861-35	21.3	25
MS35206-228	95.35	12	MS35206-241	95.37	61	MS51861-35	21.9	25
MS35206-228	95.39	21	MS35206-241	95.51	22	MS51861-37C	52.1	4
MS35206-228	95.48	34	MS35206-247	95.30	47	MS91528-OC1B	95.5	6
MS35206-228	95.53	26	MS35206-247	95.36	32	MS91528-OC1B	95.13	6
MS35206-228	95.55	2	MS35206-248	90.1	23	MS91528-OC1B	95.48	36
MS35206-228	96.2	36	MS35214-27	97.19	8	NAS1097AD3	53.5	8
MS35206-228	96.5	33	MS35214-47	95.65	1	NAS1097AD3	53.7	8
MS35206-228	96.9	19	MS35333-36	67.2	40	NAS1097AD3	53.10	51
MS35206-228	96.15	29	MS35338-136B	95.44	51	NAS1097AD3	95.26	53
MS35206-228	97.1	9	MS35338-136B	95.65	19	NAS1097AD4	32.2	48
MS35206-229	33.5	19	MS35489-1	21.1	15	NAS1149BN616H	97.19	9
MS35206-229	95.35	11	MS35489-4	33.7	8	NAS1149CN432R	97.17	6
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NAS1149D0316J	67.17	30	NAS1149F0332P	62.3	7	NAS1149F0363P	76.17	13
NAS1149D0316J	67.41	9	NAS1149F0332P	63.5	2	NAS1149F0363P	79.1	11
NAS1149D0316J	76.13	20	NAS1149F0332P	63.7	5	NAS1149F0363P	79.5	8
NAS1149D0316J	76.17	16	NAS1149F0332P	63.20	30	NAS1149F0363P	90.11	15
NAS1149D0416J	65.12	32	NAS1149F0332P	65.2	30	NAS1149F0363P	96.1	26
NAS1149D0432J	64.1	17	NAS1149F0332P	65.5	15	NAS1149F0363P	96.9	13
NAS1149D0432K	99.3	91	NAS1149F0332P	67.2	36	NAS1149F0363P	96.15	13
NAS1149D0463J	64.1	15	NAS1149F0332P	67.12	55	NAS1149F0363P	99.3	94
NAS1149D0463J	64.1	18	NAS1149F0332P	67.15	12	NAS1149F0432P	9.1	12
NAS1149D0463K	99.3	92	NAS1149F0332P	67.22	46	NAS1149F0432P	21.3	12
NAS1149D0516J	53.3	21	NAS1149F0332P	67.27	2	NAS1149F0432P	21.10	37
NAS1149D0516J	95.61	32	NAS1149F0332P	71.1	29	NAS1149F0432P	25.1	26
NAS1149D0616J	67.15	10	NAS1149F0332P	71.5	24	NAS1149F0432P	25.5	22
NAS1149DN816J	95.44	35	NAS1149F0332P	71.9	13	NAS1149F0432P	32.1	25
NAS1149DN816P	95.65	2	NAS1149F0332P	71.13	15	NAS1149F0432P	32.5	18
NAS1149DN832H	33.9	11	NAS1149F0332P	71.17	6	NAS1149F0432P	32.9	11
NAS1149DN832H	63.5	26	NAS1149F0332P	76.1	17	NAS1149F0432P	53.9	6
NAS1149DN832H	95.30	48	NAS1149F0332P	76.5	19	NAS1149F0432P	53.25	10
NAS1149DN832H	95.36	41	NAS1149F0332P	76.9	8	NAS1149F0432P	63.8	56
NAS1149DN832H	96.11	18	NAS1149F0332P	76.13	11	NAS1149F0432P	63.11	15
NAS1149DN832H	97.13	9	NAS1149F0332P	76.17	5	NAS1149F0432P	63.12	52
NAS1149E0363R	76.1	32	NAS1149F0332P	79.1	25	NAS1149F0432P	63.15	11
NAS1149F0316P	6.13	16	NAS1149F0332P	79.5	14	NAS1149F0432P	63.17	3
NAS1149F0316P	6.15	15	NAS1149F0332P	90.1	29	NAS1149F0432P	64.1	5
NAS1149F0316P	25.19	21	NAS1149F0332P	95.26	34	NAS1149F0432P	64.1	13
NAS1149F0316P	25.23	18	NAS1149F0332P	95.33	21	NAS1149F0432P	64.1	17
NAS1149F0316P	76.1	28	NAS1149F0332P	95.57	22	NAS1149F0432P	64.3	4
NAS1149F0316P	76.9	21	NAS1149F0332P	96.5	20	NAS1149F0432P	64.3	23
NAS1149F0316P	79.1	29	NAS1149F0332P	96.9	10	NAS1149F0432P	65.1	3
NAS1149F0332P	6.3	13	NAS1149F0332P	96.15	21	NAS1149F0432P	65.1	5
NAS1149F0332P	6.9	16	NAS1149F0332P	96.21	21	NAS1149F0432P	65.7	13
NAS1149F0332P	8.1	2	NAS1149F0332P	99.3	93	NAS1149F0432P	65.11	11
NAS1149F0332P	10.7	3	NAS1149F0332P	99.16	54	NAS1149F0432P	67.3	60
NAS1149F0332P	21.1	10	NAS1149F0363P	9.1	6	NAS1149F0432P	67.12	43
NAS1149F0332P	21.4	50	NAS1149F0363P	28.1	18	NAS1149F0432P	67.15	27
NAS1149F0332P	21.9	20	NAS1149F0363P	28.15	15	NAS1149F0432P	67.17	23
NAS1149F0332P	25.5	32	NAS1149F0363P	52.3	62	NAS1149F0432P	67.21	14
NAS1149F0332P	28.1	16	NAS1149F0363P	53.10	25	NAS1149F0432P	67.22	47
NAS1149F0332P	28.15	14	NAS1149F0363P	63.12	48	NAS1149F0432P	67.29	24
NAS1149F0332P	33.9	17	NAS1149F0363P	65.1	23	NAS1149F0432P	67.33	15
NAS1149F0332P	52.2	44	NAS1149F0363P	65.5	2	NAS1149F0432P	67.34	40
NAS1149F0332P	53.3	8	NAS1149F0363P	65.5	8	NAS1149F0432P	67.34	46
NAS1149F0332P	53.9	17	NAS1149F0363P	67.15	20	NAS1149F0432P	67.34	49
NAS1149F0332P	53.17	30	NAS1149F0363P	67.27	12	NAS1149F0432P	67.34	53
NAS1149F0332P	53.22	34	NAS1149F0363P	76.2	52	NAS1149F0432P	67.34	57
NAS1149F0332P	53.25	7	NAS1149F0363P	76.6	36	NAS1149F0432P	67.41	25
NAS1149F0332P	53.27	3	NAS1149F0363P	76.9	24	NAS1149F0432P	71.6	50

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NAS1149F0432P	71.14	57	NAS1149F0532P	95.17	6	NAS1149FN416P	96.25	6
NAS1149F0432P	71.19	8	NAS1149F0532P	95.21	22	NAS1149FN416P	96.27	5
NAS1149F0432P	71.23	10	NAS1149F0532P	97.5	29	NAS1149FN416P	97.9	4
NAS1149F0432P	76.2	62	NAS1149F0563P	32.1	33	NAS1149FN416P	97.17	7
NAS1149F0432P	76.5	28	NAS1149F0563P	32.5	26	NAS1149FN432P	63.2	29
NAS1149F0432P	76.10	41	NAS1149F0563P	32.9	5	NAS1149FN432P	67.17	4
NAS1149F0432P	76.13	26	NAS1149F0563P	62.1	10	NAS1149FN432P	76.2	64
NAS1149F0432P	76.17	29	NAS1149F0563P	63.11	12	NAS1149FN432P	96.6	50
NAS1149F0432P	90.11	13	NAS1149F0563P	63.12	53	NAS1149FN616P	6.7	7
NAS1149F0432P	96.17	64	NAS1149F0632P	10.5	10	NAS1149FN616P	25.17	6
NAS1149F0432P	99.3	95	NAS1149F0632P	32.1	6	NAS1149FN616P	28.24	35
NAS1149F0463P	25.1	28	NAS1149F0632P	32.6	40	NAS1149FN616P	33.5	4
NAS1149F0463P	28.16	61	NAS1149F0632P	63.12	41	NAS1149FN616P	33.15	10
NAS1149F0463P	32.2	34	NAS1149F0632P	67.15	9	NAS1149FN616P	53.25	18
NAS1149F0463P	32.5	19	NAS1149F0632P	71.23	26	NAS1149FN616P	71.6	38
NAS1149F0463P	53.9	12	NAS1149F0632P	71.29	2	NAS1149FN616P	71.14	49
NAS1149F0463P	53.25	26	NAS1149F0632P	76.17	22	NAS1149FN616P	71.23	14
NAS1149F0463P	63.2	40	NAS1149F0632P	90.11	3	NAS1149FN616P	95.2	32
NAS1149F0463P	63.11	30	NAS1149F0663P	10.5	2	NAS1149FN616P	95.9	13
NAS1149F0463P	63.15	7	NAS1149F0663P	32.2	47	NAS1149FN616P	95.17	8
NAS1149F0463P	63.17	9	NAS1149F0663P	53.9	14	NAS1149FN616P	95.21	2
NAS1149F0463P	64.1	18	NAS1149F0663P	63.12	40	NAS1149FN616P	95.26	29
NAS1149F0463P	64.3	12	NAS1149F0663P	71.1	10	NAS1149FN616P	95.29	3
NAS1149F0463P	65.1	4	NAS1149F0663P	71.23	29	NAS1149FN616P	95.33	15
NAS1149F0463P	65.7	3	NAS1149F0663P	71.29	5	NAS1149FN616P	95.35	3
NAS1149F0463P	65.11	23	NAS1149F0663P	76.17	9	NAS1149FN616P	95.39	23
NAS1149F0463P	67.4	98	NAS1149F0732P	28.2	38	NAS1149FN616P	95.48	41
NAS1149F0463P	67.15	6	NAS1149F0763P	52.3	66	NAS1149FN616P	95.53	28
NAS1149F0463P	67.17	32	NAS1149F0832P	9.1	24	NAS1149FN616P	96.1	31
NAS1149F0463P	67.21	25	NAS1149F0832P	65.7	28	NAS1149FN616P	96.6	36
NAS1149F0463P	67.42	35	NAS1149F0932P	28.16	57	NAS1149FN616P	96.9	21
NAS1149F0463P	67.42	54	NAS1149F1032P	9.3	10	NAS1149FN616P	96.27	2
NAS1149F0463P	71.6	45	NAS1149F1063P	63.5	7	NAS1149FN616P	96.31	4
NAS1149F0463P	71.13	29	NAS1149F1832P	71.21	69	NAS1149FN616P	97.1	15
NAS1149F0463P	99.3	96	NAS1149F1832P	99.7	32	NAS1149FN616P	97.5	15
NAS1149F0516P	62.5	26	NAS1149F1832P	99.11	33	NAS1149FN616P	97.9	16
NAS1149F0516P	62.7	20	NAS1149FN232P	52.1	22	NAS1149FN616P	97.13	21
NAS1149F0532P	9.5	15	NAS1149FN416P	33.13	17	NAS1149FN632P	25.2	36
NAS1149F0532P	10.5	7	NAS1149FN416P	33.15	17	NAS1149FN632P	67.23	63
NAS1149F0532P	10.9	18	NAS1149FN416P	63.19	28	NAS1149FN632P	95.17	2
NAS1149F0532P	63.11	3	NAS1149FN416P	90.12	38	NAS1149FN632P	95.35	13
NAS1149F0532P	67.21	16	NAS1149FN416P	95.9	9	NAS1149FN632P	95.43	14
NAS1149F0532P	67.29	3	NAS1149FN416P	95.17	25	NAS1149FN632P	96.15	30
NAS1149F0532P	67.33	7	NAS1149FN416P	95.29	1	NAS1149FN632P	96.34	32
NAS1149F0532P	67.33	10	NAS1149FN416P	95.37	65	NAS1149FN632P	97.5	31
NAS1149F0532P	71.17	3	NAS1149FN416P	95.40	36	NAS1149FN632P	99.16	38
NAS1149F0532P	71.24	33	NAS1149FN416P	95.48	56	NAS1149FN816P	6.3	32

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NAS1149FN816P	6.7	12	NAS1149FN816P	79.1	2	NAS1291C08M	97.19	16
NAS1149FN816P	6.9	7	NAS1149FN816P	90.2	42	NAS1304-17	67.3	71
NAS1149FN816P	6.11	5	NAS1149FN816P	90.5	7	NAS1304-17	99.3	98
NAS1149FN816P	6.13	9	NAS1149FN816P	90.7	16	NAS1304-28	53.25	9
NAS1149FN816P	6.15	8	NAS1149FN816P	95.9	18	NAS1304-28	67.33	14
NAS1149FN816P	6.17	6	NAS1149FN816P	95.17	26	NAS1304-35	67.3	87
NAS1149FN816P	6.19	6	NAS1149FN816P	95.26	32	NAS1304-35	67.12	52
NAS1149FN816P	9.3	5	NAS1149FN816P	95.29	18	NAS1304-38	64.3	20
NAS1149FN816P	10.7	21	NAS1149FN816P	95.33	19	NAS1304-38	67.41	23
NAS1149FN816P	10.9	13	NAS1149FN816P	95.36	34	NAS1305-35	67.3	68
NAS1149FN816P	21.3	32	NAS1149FN816P	95.43	5	NAS1305-35	67.12	37
NAS1149FN816P	21.10	42	NAS1149FN816P	95.51	19	NAS1329H08K75L	67.11	10
NAS1149FN816P	25.1	8	NAS1149FN816P	95.53	24	NAS1329H08K75L	90.7	3
NAS1149FN816P	25.5	10	NAS1149FN816P	95.57	13	NAS1330H3K116L	32.2	42
NAS1149FN816P	25.25	10	NAS1149FN816P	95.61	14	NAS1330H3K116L	32.5	13
NAS1149FN816P	28.5	13	NAS1149FN816P	96.2	54	NAS1330H3K116L	32.9	12
NAS1149FN816P	28.9	14	NAS1149FN816P	96.11	22	NAS1351-3-8P	28.1	27
NAS1149FN816P	28.13	3	NAS1149FN816P	96.15	7	NAS1351-3-8P	28.15	25
NAS1149FN816P	28.16	32	NAS1149FN816P	96.19	4	NAS1351-3-8P	53.10	24
NAS1149FN816P	28.19	20	NAS1149FN816P	96.21	9	NAS1351-3-24	96.33	6
NAS1149FN816P	28.23	17	NAS1149FN816P	96.29	3	NAS1351-4-20	62.3	9
NAS1149FN816P	33.9	14	NAS1149FN816P	96.33	3	NAS1351-4-28P	96.22	32
NAS1149FN816P	33.11	12	NAS1149FN816P	97.1	2	NAS1351-5H-20P	10.7	25
NAS1149FN816P	33.13	5	NAS1149FN816P	97.5	9	NAS1351-8H-40P	53.9	7
NAS1149FN816P	33.15	5	NAS1149FN816P	97.13	6	NAS1351N3-10P	62.1	5
NAS1149FN816P	52.2	24	NAS1149FN816P	99.3	97	NAS1352-06-8	33.13	23
NAS1149FN816P	52.2	28	NAS1149FN816P	99.16	39	NAS1352-08-8	67.7	5
NAS1149FN816P	52.3	54	NAS1149FN832P	6.3	6	NAS1352-08-8	96.33	9
NAS1149FN816P	53.1	3	NAS1149FN832P	6.3	27	NAS1352-08-8P	67.2	54
NAS1149FN816P	53.3	6	NAS1149FN832P	21.10	65	NAS1352-08-8P	71.20	56
NAS1149FN816P	53.5	14	NAS1149FN832P	25.9	25	NAS1352-08-8P	79.1	1
NAS1149FN816P	53.7	11	NAS1149FN832P	25.13	3	NAS1352-08-8P	97.10	26
NAS1149FN816P	53.13	22	NAS1149FN832P	28.2	54	NAS1352-08-10P	96.11	3
NAS1149FN816P	53.17	12	NAS1149FN832P	28.16	55	NAS1352-08-12P	62.1	23
NAS1149FN816P	53.21	11	NAS1149FN832P	33.9	3	NAS1352-08-12P	62.3	24
NAS1149FN816P	63.5	28	NAS1149FN832P	52.5	2	NAS1352-08-12P	67.22	35
NAS1149FN816P	63.7	18	NAS1149FN832P	64.3	31	NAS1352-08H10P	90.2	40
NAS1149FN816P	63.19	9	NAS1149FN832P	67.37	3	NAS1352-08LE6P	63.15	4
NAS1149FN816P	65.11	19	NAS1149FN832P	71.1	24	NAS1352-08LE6P	67.17	14
NAS1149FN816P	67.2	55	NAS1149FN832P	71.5	13	NAS1352-3-14	67.2	37
NAS1149FN816P	67.21	9	NAS1149FN832P	71.19	10	NAS1352-3H14	67.12	56
NAS1149FN816P	71.9	2	NAS1149FN832P	76.14	53	NAS1352-3H6P	71.21	62
NAS1149FN816P	71.13	28	NAS1149FN832P	90.11	26	NAS1352-4-24P	67.22	44
NAS1149FN816P	71.19	29	NAS1149FN832P	95.35	15	NAS1352-4H10P	71.20	60
NAS1149FN816P	76.1	3	NAS1149FO332P	90.8	31	NAS1352-4H14P	71.21	64
NAS1149FN816P	76.5	3	NAS1149FO463P	28.17	66	NAS1352-4H20P	71.10	51
NAS1149FN816P	76.9	26	NAS1291C08M	95.44	36	NAS1352C08-6	95.36	42

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NAS1352N08-4	96.21	18	NAS620-10	96.21	31	NAS6603-9	76.2	55
NAS1352N08-6	63.19	4	NAS620-10L	9.1	8	NAS6603-9	76.6	54
NAS1407N9L14	67.1	17	NAS620-10L	32.1	4	NAS6603-10	63.8	37
NAS1407N9L14	67.7	18	NAS620-10L	53.10	22	NAS6603-10	67.3	63
NAS149FN632P	95.21	24	NAS620-10L	63.12	50	NAS6603-10	76.2	54
NAS1919B04S	25.10	45	NAS620-10L	67.3	64	NAS6603-10	76.6	40
NAS1919B04S	52.8	33	NAS620-10L	90.1	18	NAS6603-11	63.8	36
NAS1919B04S01	21.4	57	NAS620-416L	76.2	60	NAS6603-12	63.8	49
NAS1919B04S01	21.7	2	NAS630-80	62.5	24	NAS6603-13	67.42	43
NAS1919B04S01	52.8	40	NAS630-80	62.7	4	NAS6603-15	67.15	11
NAS1919B04S01	97.19	11	NAS630-80	99.3	99	NAS6603-18	32.1	8
NAS1919B04S02	52.8	41	NAS630-80	99.7	33	NAS6603-18	67.4	120
NAS1919B04S02	90.5	4	NAS630-80	99.11	34	NAS6603-19	53.9	21
NAS1919B04S02	90.8	37	NAS632-82	62.5	1	NAS6603-20	33.9	16
NAS21042L4	63.15	6	NAS6603-2	28.1	21	NAS6603-20	67.42	44
NAS428-3A6	79.2	40	NAS6603-2	28.15	18	NAS6603-29	10.7	9
NAS428-3A6	79.5	26	NAS6603-2	53.10	35	NAS6603-31	90.1	28
NAS428-3A-12	63.8	53	NAS6603-2	53.10	44	NAS6603-36	90.11	11
NAS557-3A	33.13	15	NAS6603-2	53.25	12	NAS6604-2	63.12	43
NAS557-6A	67.2	57	NAS6603-3	28.1	20	NAS6604-2	67.42	37
NAS557-6A	67.15	26	NAS6603-3	28.15	17	NAS6604-3	53.9	13
NAS557-8A	96.19	8	NAS6603-3	53.9	19	NAS6604-3	53.10	47
NAS557-14B	97.5	10	NAS6603-3	65.2	35	NAS6604-3	63.11	32
NAS557-16A	28.10	48	NAS6603-3	65.5	1	NAS6604-3	65.1	6
NAS557-18B	96.21	3	NAS6603-4	28.1	29	NAS6604-3	99.3	100
NAS557-22A	90.5	11	NAS6603-4	28.15	30	NAS6604-4	25.1	25
NAS557-22A	90.8	49	NAS6603-4	53.9	20	NAS6604-4	25.3	82
NAS602-10P	64.3	21	NAS6603-5	53.25	15	NAS6604-4	53.9	11
NAS602-10P	96.15	34	NAS6603-5	67.22	45	NAS6604-4	65.1	17
NAS603-18	96.15	33	NAS6603-5	90.8	30	NAS6604-4	65.7	14
NAS620-4	63.7	32	NAS6603-6	67.22	52	NAS6604-4	71.9	30
NAS620-4	63.19	14	NAS6603-6	76.9	13	NAS6604-4	99.3	101
NAS620-4	95.51	4	NAS6603-6	76.13	33	NAS6604-5	25.5	27
NAS620-4	96.25	5	NAS6603-6	96.21	20	NAS6604-6	9.1	22
NAS620-5	25.2	59	NAS6603-7	67.27	1	NAS6604-6	71.20	55
NAS620-5	52.5	4	NAS6603-7	67.42	47	NAS6604-7	65.1	8
NAS620-6	33.1	22	NAS6603-7	76.9	32	NAS6604-7	65.7	18
NAS620-6	63.7	2	NAS6603-7	76.13	19	NAS6604-7	67.21	27
NAS620-6	95.9	16	NAS6603-7	76.17	15	NAS6604-7	67.42	36
NAS620-6L	33.1	9	NAS6603-7	96.21	30	NAS6604-7	99.3	102
NAS620-6L	33.13	14	NAS6603-8	63.8	47	NAS6604-8	65.11	24
NAS620-6L	95.17	12	NAS6603-8	65.2	31	NAS6604-8	67.3	59
NAS620-6L	95.21	17	NAS6603-8	65.5	16	NAS6604-8	67.21	15
NAS620-6L	97.5	24	NAS6603-8	76.2	58	NAS6604-9	67.41	28
NAS620-8	63.15	5	NAS6603-8	76.5	25	NAS6604-9	67.42	59
NAS620-8	79.5	4	NAS6603-9	9.1	9	NAS6604-10	63.11	22
NAS620-8	95.17	28	NAS6603-9	10.7	10	NAS6604-10	65.11	26

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NAS6604-11	32.1	29	NAS6604-30	63.15	12			
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NAS6604-11	67.22	38	NAS6604-30	67.22	41			
NAS6604-12	32.6	48	NAS6604-30	67.34	39			
NAS6604-12	63.12	38	NAS6604-30	76.5	27			
NAS6604-15	32.1	24	NAS6604-30	99.4	108			
NAS6604-15	32.6	39	NAS6604-31	67.29	7			
NAS6604-15	67.4	94	NAS6604-32	32.6	42			
NAS6604-15	67.33	29	NAS6604-32	32.9	17			
NAS6604-16	53.10	29	NAS6604-34	32.9	16			
NAS6604-16	64.1	8	NAS6604-34	90.11	12			
NAS6604-16	64.1	10	NAS6604-38	64.1	12			
NAS6604-16	64.3	27	NAS6604-38	99.4	109			
NAS6604-16	64.3	28	NAS6604-38	99.7	34			
NAS6604-16	99.3	103	NAS6604-38	99.12	35			
NAS6604-17	67.17	31	NAS6604-44	67.3	93			
NAS6604-17	67.21	21	NAS6604H9	53.10	27			
NAS6604-17	67.33	27	NAS6605-5	32.1	32			
NAS6604-18	53.9	5	NAS6605-5	32.5	25			
NAS6604-18	67.22	32	NAS6605-5	32.9	6			
NAS6604-19	67.42	39	NAS6605-5	99.4	110			
NAS6604-19	99.3	104	NAS6605-6	63.11	6			
NAS6604-21	63.11	29	NAS6605-8	67.33	6			
NAS6604-21	65.1	18	NAS6605-26	63.11	19			
NAS6604-21	67.4	117	NAS6605-28	67.29	4			
NAS6604-21	67.12	44	NAS6605-28	67.33	11			
NAS6604-21	67.21	17	NAS6605-46	62.5	25			
NAS6604-21	99.3	105	NAS6605-46	62.7	21			
NAS6604-22	67.33	23	NAS6605-56	67.2	52			
NAS6604-22	99.4	106	NAS6606-16	76.17	2			
NAS6604-23	53.10	31	NAS6606-17	10.7	17			
NAS6604-23	67.21	28	NAS6606-34	53.9	9			
NAS6604-24	10.7	14	NAS6606-42	32.1	21			
NAS6604-24	53.10	26	NAS6606-42	32.6	36			
NAS6604-24	64.1	27	NAS6606-42	90.11	10			
NAS6604-24	64.3	11	NAS6606-42	99.4	111			
NAS6604-24	67.29	23	NAS6606-49	32.1	7			
NAS6604-24	67.34	52	NAS6606-50	32.6	37			
NAS6604-24	99.4	107	NAS6606-54	71.1	8			
NAS6604-25	65.7	10	NAS6606H24	63.12	39			
NAS6604-25	65.11	25	NAS9301B-4-02	53.17	27			
NAS6604-27	63.11	27	NAS9301B-4-02	53.21	8			
NAS6604-27	64.1	26	NAS9301B-4-02	53.22	38			
NAS6604-27	67.33	25	NAS9301B-4-05	25.2	51			
NAS6604-28	32.9	18	NAS9301B-4-05	25.3	78			
NAS6604-28	63.17	5	NAS9301B-4-05	99.16	40			