

1-80 Assembly Instructions for R66 Helicopter Crated for Export (continued)

28. Depreserve the engine after storage per RR300 Series Operation and Maintenance Manual (OMM). Install starter-generator cooling hose. Install engine cowling per § 53-21.
29. Install tail rotor dynamic balance equipment per § 18-21.
30. Perform run-up per § 5-42 steps 2 thru 16.
31. Perform tail rotor dynamic balance per § 18-20.
32. Remove tail rotor dynamic balance equipment. Install main rotor balance equipment per § 18-11.

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| <p style="text-align: center;">CAUTION</p> |
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| <p style="text-align: center;">Mast fairing, cowlings, and panels must be installed for flight.</p> |
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33. Perform hover checks per § 5-43 step 1. DO NOT proceed into forward flight.
34. Track and balance main rotor per § 18-12.
35. While climbing at maximum continuous torque, 60 KIAS:
 - a. Evaluate vibration level and controllability.
 - b. Perform momentary 30° left yaw to check for adequate directional control.
36. Level flight at 2000 feet density altitude (deviate as required for weather and terrain), maximum continuous torque:
 - a. Evaluate longitudinal and lateral cyclic control forces.
 - b. Evaluate collective control forces.
37. Evaluate vibration level at maximum continuous torque and straight-and-level flight.
38. During autorotation at 50 KIAS and 90% rotor RPM, perform momentary 30° right yaw to check for adequate directional control.
39. Check all instruments, gages, and avionics for proper operation.

| TABLE 1 SCHEDULED INSPECTIONS Consult latest revision of listed publications for specific applicability. | First 100 Hours* | 100 Hours** | 200 Hours** | 300 Hours** | 400 Hours** | 600 Hours** | 1000 Hours** | 2000 Hours** | Annually*** | 12 Months** | 24 Months** | 3 Years** | 5 Years** | 6 Years** | 12 Years** | 15 Years** | 3000 Cycles** |
|--|------------------|-------------|-------------|-------------|-------------|-------------|--------------|--------------|-------------|-------------|-------------|-----------|-----------|-----------|------------|------------|---------------|
| | | | | | | | | | | | | | | | | | |
| Replace main gearbox oil filter per § 12-12. | • | | | | | • | | | | | | | | | | | |
| Perform 100-hour / annual inspection per § 5-45. | | • | | | | | | | • | | | | | | | | |
| Perform main rotor blade tip maintenance per § 62-60. | | • | | | | | | | | | | | | | | | |
| As required by RR300 Series Operation and Maintenance Manual (OMM), perform maintenance and inspection. | | | • | | • | | | • | | • | | | | | | | • |
| Service inlet barrier filter per § 71-21. | | | | • | | | | | | • | | | | | | | |
| Replace main gearbox oil per § 12-11. | | | | | | • | | | | | | | | | | | |
| Drain and flush tail rotor gearbox per § 12-23. | | | | | | • | | | | | | | | | | | |
| Replace hydraulic filter per § 12-32. | | | | | | • | | | | | | | | | | | |
| Clean gearbox chip detectors per § 12-13 & 12-22. | | | | | | • | | | • | | | | | | | | |
| Lubricate swashplate bearings per § 12-90. | | | | | | | • | | | | | | | • | | | |
| Perform 2000-hour/12-year inspection per § 5-50. | | | | | | | | • | | | | | | | • | | |
| Perform main gearbox internal visual inspection per § 5-74. | | | | | | | | | • | | | | | | | | |
| Inspect emergency locator transmitter (ELT) per 14 CFR § 91.207. | | | | | | | | | | • | | | | | | | |
| Perform pop-out float leak check per § 32-64 Part A. | | | | | | | | | | • | | | | | | | |
| Test and inspect transponder per 14 CFR § 91.413. | | | | | | | | | | | • | | | | | | |
| Perform pop-out float inflation check per § 32-64 Part B. | | | | | | | | | | | | • | | | | | |
| Perform pop-out float pressure cylinder hydrostatic test. | | | | | | | | | | | | | • | | | | |
| Pop-out float pressure cylinder maximum life. | | | | | | | | | | | | | | | | • | |

* One-time maintenance after new or overhauled main rotor gearbox is installed.

** Recurring inspection not to exceed given interval.

*** See § 1-60 Definitions and Abbreviations.

4-30 Airworthiness Limitations

The Airworthiness Limitations Section is FAA approved and specifies inspections and other maintenance required under 14 CFR §§ 43.16 and 91.403, unless an alternative program has been FAA approved.

R66 Fatigue Life-Limited Parts

| <u>Part Number</u> | <u>Description</u> | <u>Maximum Service Life</u> |
|----------------------------------|--|-------------------------------------|
| C023-21, -24, -34, & -35 | Tailcone Assembly | 2000 Hours |
| C044-1 & -2 | Horizontal Stabilizer | 2000 Hours |
| C154-1 | Main Rotor Hub | 2000 Hours |
| C158-1 | Main Rotor Spindle | 2000 Hours |
| C251-3 | Main Rotor Shaft | 2000 Hours |
| C545-1 | Gear Set, Tail Gearbox | 2000 Hours |
| C545-2 | Pinion, Tail Gearbox | 2000 Hours |
| C647-12 | Bearing Set, Swashplate | 2000 Hours |
| D079-1 | Tail Rotor Guard | 2000 Hours |
| D196-1 | Tail Rotor Drive Shaft | 2000 Hours |
| F016-2 | Main Rotor Blade | 2000 Hours or 12 years ¹ |
| F020-1 | Upper Frame | 2000 Hours |
| F029-1 & -2 | Tail Rotor Blade | 2000 Hours or 12 years ¹ |
| F143-1 | Pinion, Main Gearbox | 2000 Hours |
| F146-1 | Pinion, Main Gearbox | 2000 Hours |
| F195-1 | Yoke, Tail Rotor Drive Shaft | 2000 Hours |
| F235-13 | Strut, Upper Frame | 2000 Hours |
| F252-1 | Strut, Upper Frame | 2000 Hours |
| F263-1 | Housing, Main Gearbox | 2000 Hours |
| F270-1 | Cartridge, Main Gearbox | 2000 Hours |
| G062-2 | Tail Rotor Hub | 2000 Hours |
| G201-1 | Frame, Servo Support | 2000 Hours |
| G950-2 | Stabilizer, Pop-out Floats | 2000 Hours |

¹ Whichever limit occurs first. Calendar time starts on date of original RHC-issued Airworthiness Approval.

Approved By: **MAUREEN A MORELAND**
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 Date: 2021.05.17 07:12:08 -07'00'

Date: 17 May 2021

FAA Approved: This page constitutes the Airworthiness Limitations Section in its entirety, is considered segregated from the rest of the document, and sets forth the FAA-approved mandatory replacement times for fatigue life-limited parts.

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5-32 Push-Pull Tubes

1. Nicks, cuts, or scratches in tube not more than 0.010 inch deep and not more than 1/4 of tube circumference may be polished out in lengthwise direction using 320-grit or finer wet-or-dry abrasive paper to 1-inch minimum blend radius. Replace push-pull tube if depth exceeds these limits.
2. Replace push-pull tube if tube is dented or flattened more than 5% of its diameter in unswaged area; dents or flattening is not permitted in swaged (tapered and threaded) ends of tubes.

5-33 Rod Ends and Spherical Bearings

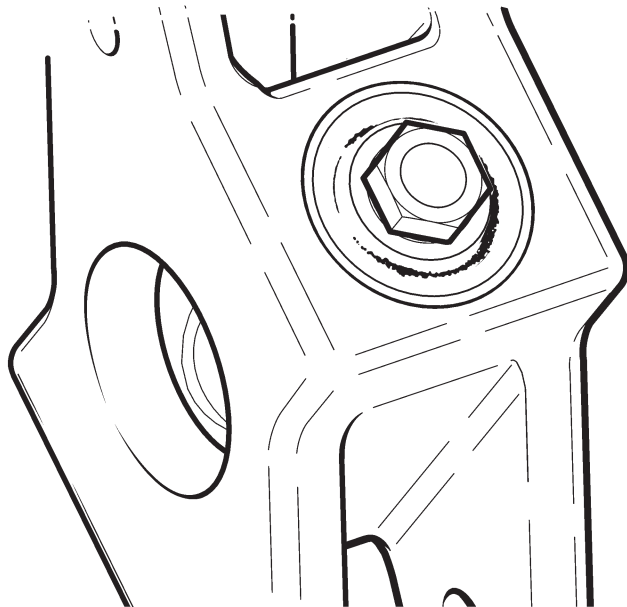
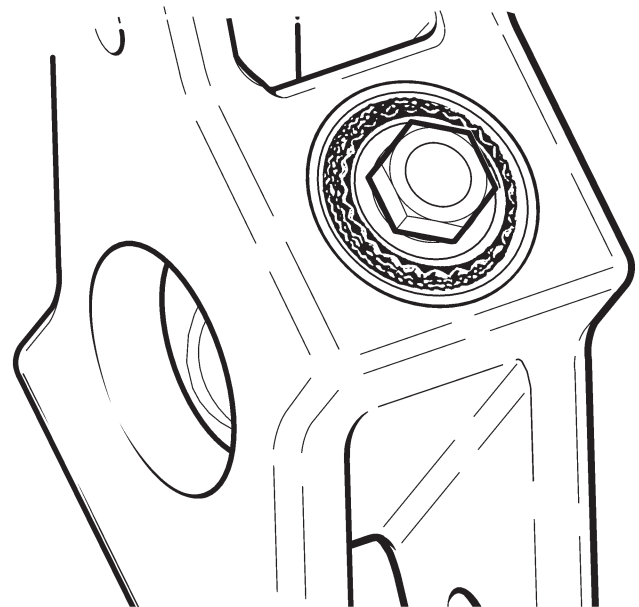
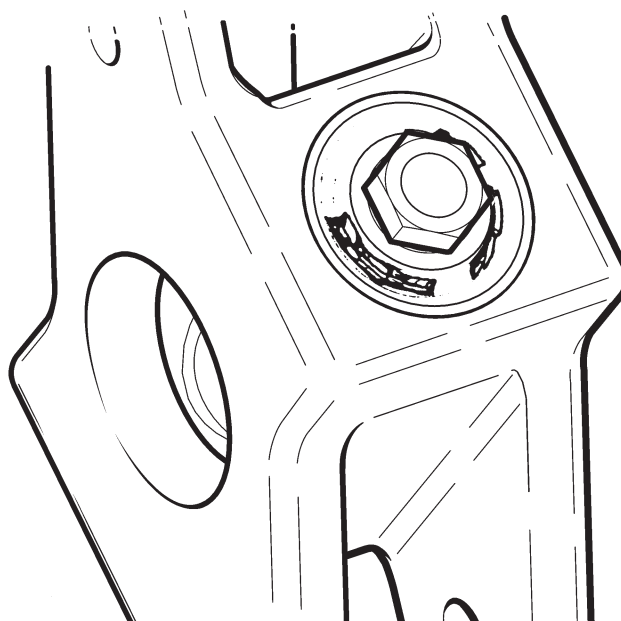
1. Maximum axial play: 0.020 inch (for A104-4 bearing only: 0.035 inch axial play) |
Maximum radial play: 0.010 inch
2. Looseness between bearing outer race and rod end housing is not permitted.
3. Rod ends not riveted in place must block passage of 0.020-inch diameter wire through witness hole. Refer to Figure 5-1 for maximum rod end extension when no witness hole is provided.
4. Rod end jam nuts and palnuts must be torqued per § 20-32 and torque striped per Figure 5-1 at the most visible position for pre-flight inspection. Torque stripe must extend across nuts to both rod end shank and push-pull tube (or pitch link barrel, yoke, support, strut, etc.). Torque stripes are subject to deterioration and must be periodically renewed.
5. Refer to Figure 5-2. Rod ends must be positioned (centered) to allow as much push- |
pull tube or link rotational movement as possible without binding.

CAUTION

Teflon-lined bearings must not be lubricated or solvent cleaned.

WARNING

Assembly of flight controls is critical and requires inspection by a qualified person. If a second person is not available, RHC recommends the installer take a 5-minute break prior to inspecting flight control connections he has assembled.

Elastomer FatigueElastomer Oil ContaminationElastomer OverloadFIGURE 5-3 ELASTOMERIC BEARING DAMAGE

5-34 Elastomeric Bearings

Refer to Figure 5-3. Elastomeric bearings are used in the G062-1 tail rotor hub assembly. Fatigue, oil contamination, or overload can degrade the elastomer.

Small surface cracks (fatigue cracks) and elastomer dust or “eraser crumbs” are normal and are not cause for replacement. As cracks grow, enough elastomer will be lost to cause reduced stiffness and increased vibration. Replace bearing if crack is deeper than 0.10 inch or cracks are present over more than 25% of elastomer face.

Avoid elastomer exposure to oil, grease, hydraulic fluid, cleaning solvent, and rust-preventative fluids. Immediately wash off contaminants with detergent and water. Replace a contaminated bearing that exhibits swelling, wavy edges, or debonding.

Overload occurs when elastomer’s tensile strength or rubber-to-metal bond strength is exceeded. This can occur when normal loads are applied to a bearing weakened by fatigue or oil contamination. Overload is indicated by large clean cracks or extrusions from elastomer.

Elastomer may also separate (debond) from metal bushings. Replace bearing if separation exceeds 25% of bonded area.

5-45 100-Hour / Annual Maintenance and Inspection

RHC recommends retaining a copy of the most recently performed 100-hour / annual checklist with the aircraft's maintenance records to meet the requirement of 14 CFR § 91.417 (b)(1).

R66 Serial No.: _____ Technician Name: _____

Registration No.: _____

Collective-Activated
(Time In Service)

Technician

Hourmeter Indication: _____ Certificate Number: _____

Helicopter Total
Time In Service: _____

A. Preparation

_____ **Operation Checks:**

Perform ground and flight checks per § 5-40.

_____ **Cleaning (required by 14 CFR Part 43, Appendix D, paragraph (a)):**

Note any fluid leakage before cleaning. Clean main and tail rotor blades, hubs, and airframe exterior with a mild soap (pH between 7 & 9) and water solution per Chapter 20.

CAUTION

Do not spray main rotor hub, tail rotor gearbox vent, hydraulic reservoir vent, swashplate area, or bearing seals with high-pressure water or solvent as water or solvent may cause corrosion or breakdown of lubricants. See RR300 Series Operation and Maintenance Manual (OMM) for engine cleaning instructions and precautions.

_____ **Access and Inspection Panels:**

Refer to R66 Illustrated Parts Catalog Chapter 6 for access and inspection panel locations. Remove or open necessary panels, doors, covers, fairings, and cowlings in accordance with 14 CFR Part 43, Appendix D, paragraph (a).

NOTE

If radio antennas are installed on removed panels, disconnect antenna lead and corresponding ground wire. Pull respective radio circuit breaker and tag circuit breaker with "Antenna Removed."

CAUTION

Instrument console removal (§ 95-50) is not required for scheduled inspections. Sufficient access for inspection is gained by removing the chin inspection panel, as well as removal of installed avionics, as required (refer to Chapter 97).

5-45 100-Hour / Annual Inspection (continued)**B. Inspection**

CABIN FORWARD FOOTWELLS

Tail Rotor Pedal Bearing Blocks:

Remove pedal bearing block covers as required. Examine accessible portion with inspection light and mirror. Inspect condition. Check for looseness or play in pedal bearings. Maximum allowable play is 0.080 inch axially and 0.030 inch radially. Verify bearing block security.

Adjustable Tail Rotor Pedals:

Inspect condition. Verify no cracks in welds. Verify locking pins engage holes to secure adjustable pedals. Verify proper operating clearance. Verify no evidence of contact between outboard portion of lateral (torque) tube of RH pedal and under-floor longitudinal stiffener. Verify smooth actuation.

Co-Pilot Removable Tail Rotor Pedals:

Inspect condition. Verify no cracks in welds. Verify locking pins engage holes to secure removable pedals. Verify proper operating clearance and smooth actuation.

Cabin Heater Diffusers:

Inspect condition. Verify marking legibility. Verify no significant nicks, scratches or dents, or cracks in welds. Verify security.

Fire Extinguisher and Mount:

Inspect condition. Inspect fire extinguisher per manufacturer's instructions. Verify no loss of charge or obstructions in extinguisher nozzle. Verify security.

Map Holders:

Inspect condition. Verify no defects, tears, or material deterioration. Remove foreign objects and verify security.

License Holder:

Inspect condition. Verify no defects, cracks in plastic, or material deterioration. Verify security.

Cabin Chin and Floor:

Inspect condition. Verify equipment security. Retrieve and discard trapped debris.

CONSOLE

Console Assembly:

Inspect condition. Verify no significant nicks, scratches or dents; verify no cracks, corrosion, or loose rivets in lower console assembly. Verify hinge security.

HID Landing Lights:

Inspect condition. Verify proper installation and security of wiring and equipment.

5-45 100-Hour / Annual Inspection (continued)**CONSOLE (continued)**

Flight & Engine Instruments:

Inspect condition. Verify proper instrument markings per R66 POH Section 2. Verify proper installation and security of wiring and equipment.

Post Lights:

Inspect condition. Verify proper function and equipment security.

Fuel Cutoff Control and Guard:

Inspect condition. Verify cable and mounting bezel security. Verify proper adjustment and smooth operation of knob. Verify guard is attached to console.

Radios and Radio Trays:

Inspect condition. Verify no cracks or corrosion. Verify proper installation and security of wiring and equipment.

Pitot & Static Lines:

Inspect pitot and static lines for obstructions, cracking, chafing, pinching or kinking. Verify integrity of pitot and static line connections. Verify line security.

Tail Rotor Pedal Bearing Block Supports:

Examine accessible portion with inspection light and mirror. Inspect both vertical sheet metal supports inside lower console and verify no cracks. Pay particular attention to area near NAS6603-13 bolts. Replace any cracked support prior to flight.

Tail Rotor Controls:

Examine accessible portion with inspection light and mirror. Inspect tail rotor control components for obvious defects. Verify operating clearance.

Cabin Heater Hose:

Inspect condition. Verify no collapsed areas or chafing. Verify hose clamp and hose security.

Copper Bus Bars:

Inspect condition. Verify no corrosion or bends in bus bar. Verify bus bar security and isolation from surrounding structure.

Wiring:

Inspect condition. Verify no loose, chafed, or broken wires or terminals. Verify neatness, proper routing and installation, and security.

Fasteners & Torque Stripes:

Inspect condition. Verify proper installation and security of fasteners. Renew deteriorated torque stripes per Figure 5-1.

Close & Secure:

Verify foreign objects are removed. Verify equipment security and cleanliness of interior. Close console and verify security.

5-45 100-Hour / Annual Inspection (continued)

PILOT-SIDE CONSOLE (Optional equipment)

Pilot Avionics Support Weldment:

Inspect condition. Verify no significant nicks, scratches, or dents on console shell. Verify no cracks in welds. Verify weldment mounting security.

CIRCUIT BREAKER PANEL

CAUTION

Ensure BATTERY switch is turned off while circuit breaker panel is open.

Panel Cover:

Inspect condition. Verify no damage to nutplates and rails in panel interior. Verify marking legibility.

Fuses and Fuse Holders:

Inspect condition. Verify security and no corrosion. Verify correct fuse installation.

Circuit Breakers:

Inspect condition. Check airworthiness directive applicability. Verify proper installation and security.

Copper Bus Bars:

Inspect condition. Verify no corrosion or bends in bus bars. Verify bus bar security and isolation from surrounding structure.

Wiring:

Inspect condition. Verify no loose, chafed, or broken wires or terminals. Verify neatness, proper routing and installation, and security.

Fasteners & Torque Stripes:

Inspect condition. Verify proper installation and security of fasteners. Renew deteriorated torque stripes per Figure 5-1.

Close & Secure:

Verify foreign objects are removed. Verify equipment security. Verify cleanliness of interior and of access cover. Close cover and verify security.

UNDER LEFT FRONT SEAT

Lithium-Ion Battery Circuit Back-Up Batteries (required with optional Lithium-ion main battery):

Inspect condition. Verify presence and proper orientation of (2) 9V back-up batteries. Verify security of battery trays and G468-1 mount assembly. Verify legibility of silkscreen lettering on mount. Inspect wiring for obvious damage.

5-45 100-Hour / Annual Inspection (continued)

MAIN ROTOR GEARBOX COMPARTMENT (continued)

Fuel Tank Rollover Vents:

Inspect condition. Inspect Tygon® tube for defects, tears, or material deterioration. Verify proper safety wire installation and security. Verify 0.25 inch minimum clearance between cable assembly and vent assembly Tygon® tube; adjust cable as required. Verify no obstructions in vents.

Fuel Tank Sump Drain:

Inspect condition. Verify drain valve opens easily, drains fuel freely, springs closed, and seals completely. Inspect drain tube and clamp for defects, tears, or material deterioration. Clear fuel from drain tube and install clamp.

Fuel Valve:

Inspect condition. Verify cable and component security. Verify proper installation and (smooth) operation of valve.

Cabin Bulkhead:

Inspect condition. Verify no deformation, buckling, wrinkling, nicks, scratches, dents, cracks, corrosion, fretting, or loose rivets. Verify no leakage from fuel tanks. Verify security.

Main Rotor Gearbox:

Inspect condition. Verify no damage, material deterioration, or deformation of gearbox mounts. Verify no leakage at mast tube-to-gearbox attachment. Inspect mast tube for cracks. With ship on level ground, verify correct oil level and cleanliness through sight gage and adjust or flush as required. Verify security of Hall Effect senders and yoke magnets. Inspect oil lines for leakage, chafing, or obvious damage. Inspect oil pump mounting and fittings for leaking or obvious damage. Inspect gearbox oil filter for leakage or for tripped bypass indicator. Verify oil system proper installation and security.

NOTE

At 600 hours time in service or annually, whichever occurs first, remove chip detector and clean any varnish accumulation from detector's magnetic probe and adjacent metal body using a toothbrush and approved solvent per § 12-13 Part B. Service gearbox, change oil and filter, and clean chip detector at intervals recommended in § 1-90.

Rotor Brake:

Inspect condition. Verify integrity of brake pads and 0.030 inch minimum pad thickness. Verify brake pads are clear of engine shaft with brake released. Inspect micro switches for cracks. Verify no loose, chafed, or broken wires or terminals. Verify security. Inspect both pulleys (one at end of lever, one next to fuel tank) for cracks. Verify no frayed strands or binding of rotor brake activating cable. Verify proper routing and installation, security, and operation of brake and brake micro switch.

5-45 100-Hour / Annual Inspection (continued)

MAIN ROTOR GEARBOX COMPARTMENT (continued)

Hydraulic Servo Support Frame:

Inspect condition. Inspect rod ends per § 5-33. Use an inspection light and mirror to inspect all parts of each weld. Verify no cracks or corrosion in servo support. Verify proper installation and security.

Jackshaft:

Inspect condition. Verify no cracks or corrosion in welded assembly. Inspect jackshaft to vertical push-pull tube attachment. Inspect jackshaft aft support frame attachment and forward attachment rod end per § 5-33. Inspect C343-8 tube and rod ends linking jackshaft to aft servo. Verify security and proper operating clearance.

Main Rotor Push-Pull Tubes:

Examine accessible portion with inspection light and mirror. Inspect condition per § 5-32. Verify no nicks, scratches, chafing, dents, cracks or corrosion. Inspect rod end bearings per Section 5-33; verify rod ends are centered and palnut and jam nut are tight. Check witness holes for proper thread engagement. Verify proper installation, security, and operating clearance.

Tail Rotor Push-Pull Tube & Forward Bellcrank:

Examine accessible portion with inspection light and mirror. Inspect condition per § 5-32. Verify no nicks, scratches, chafing, dents, cracks, or corrosion. Inspect rod end bearings per § 5-33; verify rod ends are centered and palnut and jam nut are tight. Check witness holes for proper thread engagement. Inspect bellcrank and bellcrank sheet metal mounting for nicks, scratches, dents, cracks, or corrosion. Inspect spherical bearings per § 5-33. Verify proper installation, security, and operating clearance.

Hydraulic Reservoir:

Inspect condition. Verify no significant leakage. Replace filter and packing at intervals specified in § 1-90. Drain and flush hydraulic system per § 12-33 if oil has turned dark or emits bad odor. Add fluid as required. Verify security.

CAUTION

Cleanliness of hydraulic fluid is vital to proper system operation. Service hydraulic system with clean fluid from sealed containers. Verify funnels, tubing, and other service tooling is free of contaminants.

5-45 100-Hour / Annual Inspection (continued)**MAIN ROTOR GEARBOX COMPARTMENT (continued)**

C947-3 (Tail Rotor Drive) Plate Assemblies, Forward and Intermediate:

Refer to Figure 5-4A. Inspect condition. Verify no distortion, nicks, scratches, cracks, corrosion, or fretting. If fretting is detected, contact RHC Technical Support. Verify bonded washers are installed on both sides of each flex plate ear. Verify proper installation, security, and operating clearance.

Fanwheel Assembly and Scroll Assembly:

Clean fanwheel blades and inspect condition. Verify no cracks, corrosion, or obvious damage on blade leading edges or fan assembly. Verify 0.10 inch minimum gap between G174-1 fanwheel assembly and forward and aft F305-5 inlets. Check gap all the way around; rotate fanwheel and check gap again (several positions). If gap does not meet minimum limit, trim inlets per § 79-11. Verify proper installation, security, and operating clearance. Verify no cracks or damage to scroll assembly.

Emergency Locator Transmitter (ELT; if installed):

In accordance with local regulation, test per ELT manufacturer instructions. If 406 Mhz ELT, confirm programming tag matches helicopter registration. If RHC installation, inspect condition of both primary hook & loop strap and secondary buckle strap; replace strap(s) if damaged or deteriorated. Verify ELT security and clearance to drive train.

Pitot Line & Static Vent:

Inspect pitot and static lines for obstructions, cracking, chafing, pinching or kinking. Verify integrity of pitot and static line connections. Verify line security.

Horizontal Firewall:

Inspect condition. Verify no deformation, buckling, wrinkling, nicks, scratches, dents, cracks, corrosion, fretting, or loose rivets. Verify no leakage from fuel tanks.

Wiring:

Inspect condition. Verify no loose, chafed, or broken wires or terminals. Verify neatness, proper routing and installation, and security.

Fasteners & Torque Stripes:

Inspect condition. Verify proper installation and security of fasteners. Renew deteriorated torque stripes per Figure 5-1.

Antennas:

Inspect condition. Verify no cracks where antennas mount to cowling. Verify security.

Cowling Doors:

Inspect condition. Verify proper operation of fasteners.

F910-1 (Main Rotor Drive) Yoke:

Inspect condition. Verify no cracks, corrosion, or fretting. Verify proper installation, security, and operating clearance.

5-45 100-Hour / Annual Inspection (continued)

MAIN ROTOR GEARBOX COMPARTMENT (continued)

A947-2 (Main Rotor Drive) Plate Assemblies:

Refer to Figure 5-4A. Inspect condition. Verify no distortion, nicks, scratches, cracks, corrosion, or fretting. If fretting is detected, contact RHC Technical Support. Verify bonded washers are installed on both sides of each flex plate ear. Verify proper installation, security, and operating clearance.

F642 (Engine) Shaft Weldment:

Inspect condition. Verify 0.2 inch minimum clearance between shaft weldment and firewall grommet; verify equal gap concentrically between shaft and box assembly hole edges. Adjust F174-1 support weldment rod ends per § 53-31 as required. Rotate shaft and verify no cracks, corrosion, or fretting. Verify proper installation, security, and operating clearance.

Engine Firewall:

Inspect condition. Verify no deformation, buckling, wrinkling, nicks, scratches, dents, cracks, corrosion, fretting, or loose rivets. Verify no leakage from fuel tanks.

Engine Oil Tank:

Inspect condition. Verify no leakage or obvious damage to oil tank exterior. Check tank interior for foreign objects. Add oil as required per R66 POH Section 8. Verify tank security.

Tailcone Attachment:

Inspect condition. Verify no cracks near fasteners attaching tailcone to upper frame. Verify proper installation and security.

Upper Steel Tube Frame:

Inspect condition. Verify no nicks, scratches, dents, cracks, or corrosion. Verify no chafing where wires, hoses, or clamps attach to frame. Examine each weld for cracks with an inspection light and mirror.

CAUTION

Upper steel tube frame is fatigue loaded and therefore susceptible to fatigue cracks. Inspect all joints thoroughly.

Antenna Wiring & Connectors:

Inspect condition. Verify no loose, chafed, frayed, or broken wires. Verify no damaged connectors. Verify neatness, proper routing and installation, and security. Check grommets for proper installation.

Fasteners & Torque Stripes:

Inspect condition. Verify proper installation and security of fasteners. Renew deteriorated torque stripes per Figure 5-1.

5-45 100-Hour / Annual Inspection (continued)

ENGINE

Refer to RR300 Series OMM, and applicable engine component manufacturer's maintenance publications for service and inspection procedures.

Additional service and inspection intervals are specified in § 1-90.

NOTE

For engine-related matters, if there is a conflict between this manual and Rolls-Royce instructions, Rolls-Royce instructions take precedence. Notify RHC of discrepancy.

Inlet Plenum and Filter Bypass Indication:

Inspect plenum condition. Verify no foreign object debris or loose items. Turn battery switch on. Verify annunciator panel warning segment illuminates when bypass doors are opened individually, then simultaneously. Turn battery switch off.

Standard (Foam) Air Filter Assembly:

Inspect condition. Verify no tears, punctures, or damage to filter media or cage assembly; verify no corrosion, cracks, or distortion to filter assembly components. Service filter as required per § 71-21, Part D. Verify proper installation and security.

Inlet Barrier Filter (if installed):

Inspect condition. Verify no tears, punctures, or damage to filter media or cage assembly; verify no corrosion, cracks, or distortion to filter assembly components. Service or replace filter assemblies as required per § 71-21, Part E. Note indication on filter maintenance aid. Verify proper installation and security.

Engine Hoses:

Inspect condition. Verify no rips, holes, or collapsed areas. Verify proper installation and security.

Exhaust Pipe:

Inspect condition. Verify no cracks (illuminating exterior with bright light while viewing interior facilitates crack detection). Inspect condition and security of F173-1 struts. Inspect condition and security of gearbox vent and clamps.

Starter-Generator & Wiring:

Inspect condition. Verify no loose, chafed, frayed, or broken wires. Verify no damaged connectors. Verify neatness, proper routing and installation, and security.

Engine Oil and Oil Filter:

Add oil as required per R66 POH Section 8. Change oil and oil filter as required per RR300 OMM. Verify filter security.

5-45 100-Hour / Annual Inspection (continued)

ENGINE (continued)

Oil Lines:

Inspect condition. Verify no leakage where lines connect to tank. Verify no leakage, chafing, or obvious damage to oil lines. Verify line clearance to installed equipment and surrounding structure. Verify security.

Cooling Duct and Oil Coolers:

Verify installation security with no cracks in duct or mounting. Verify cooler line connections are tight and coolers have no nicks, dents, cracks, or corrosion. Verify duct and cooler cores are free of debris to allow full airflow.

Power Turbine Governor (PTG) Control:

Refer to Figure 76-2. Verify D333-13 fitting in PTG input lever moves in and out slightly with light finger pressure. If D333-13 fitting does not move in response to light finger pressure then follow compliance procedure in R66 Service Bulletin SB-01.

Fuel Control Unit (FCU) and Control Rigging:

Verify proper routing and security of throttle and fuel cutoff controls; verify smooth actuation of both controls without binding. Verify FCU throttle arm contacts idle stop with twist grip closed and contacts maximum throttle stop with twist grip open. Verify FCU cutoff lever rests in detent when control is OFF and has 0.030–0.090 inch clearance from maximum fuel stop when control is ON.

Fuel Filter:

Inspect condition; service fuel filter per RR300 OMM, as required. Verify proper installation and security of wiring and housing.

Fuel Hose:

Inspect condition. Verify no leakage, chafing, or obvious damage to fuel lines. Verify line clearance to installed equipment and surrounding structure. Verify security.

Fuel Flow Meter Transducer (if installed):

Refer to § 28-23. Visually inspect fuel control unit-to-transducer fuel tube connections, transducer, and reducer connections to transducer and check valve for evidence of leakage. Visually inspect components for any obvious damage; verify proper installation and security. Verify no damaged connectors. Verify wiring neatness, proper routing and installation, and security.

Firewalls:

Inspect condition. Verify no deformation, buckling, wrinkling, nicks, scratches, dents, cracks, corrosion, fretting, or loose rivets. Pay particular attention to structural attachment points. Inspect condition of engine-to-firewall seal. Verify no open holes.

WARNING

Open holes in engine-to-firewall seals are potential fire leak paths.

5-45 100-Hour / Annual Inspection (continued)

TAIL ROTOR & TAIL ROTOR GEARBOX (continued)

Pitch Control Bearing Assembly & Aft Bellcrank:

Inspect condition. Verify pitch control assembly has less than 0.25 inch rotational play measured at pitch link attach bolt. Verify no leakage at bearing seals. Verify no nicks, scratches, dents, cracks, or corrosion on pitch control housing or bellcrank. Inspect bellcrank spherical bearings per § 5-33. Inspect spherical bearing atop stud protruding from underside of pitch control for cracks. Verify proper installation, security, and smooth actuation without binding.

NOTE

B345-4 tail rotor pitch links can have different shaft diameters (0.250 inch or 0.300 inch). Balance tail rotor per § 18-20 if a different shaft diameter pitch link is installed.

Pitch Links:

Inspect condition. Inspect rod ends per § 5-33. Remove and reinstall pitch links with outboard end inboard and inboard end outboard as required to obtain maximum service life; additionally, an optional A215-012 o-ring may be installed on A115-1 spacer under bolt head at pitch control. Reinstall chordwise weights at respective attachment points for balance purposes. Verify proper installation of hat washers. Verify proper installation, security and operating clearance.

Tail Rotor Blades:

Inspect condition. Inspect blade surfaces for excessive erosion, nicks, scratches, buckling, voids or debonding, dents, cracks, or corrosion. Refer to § 64-30 for tap testing instructions and damage limitations. Verify no fretting of tail rotor blade root fitting bearings. Inspect bearings per § 5-33. Verify no obstructions in blade tip drain holes. Verify proper installation, security, and pitch change operation.

WARNING

Structural damage may occur if compressed air is applied to blade tip drain holes.

Tail Rotor Hub:

Inspect condition. Verify no nicks, scratches, gouges, dents, cracks, or corrosion. Inspect elastomeric teeter bearings per § 5-34. Teeter rotor hub and verify teeter bearing bolt, spacers, and nuts do not rotate. Verify hub teeters smoothly. Verify proper installation and security of blade bolts.

Wiring:

Inspect condition. Verify no loose, chafed, or broken wires or terminals. Verify neatness, proper routing and installation, and security.

Fasteners & Torque Stripes:

Inspect condition. Verify proper installation and security of fasteners. Renew deteriorated torque stripes per Figure 5-1.

5-45 100-Hour / Annual Inspection (continued)

MAST FAIRING

Mast Fairing:

Inspect condition. Verify no nicks, scratches, dents, cracks, corrosion, fretting, or loose rivets. Verify no yielding or cracking of pitot line and fuel vent restraint assembly.

| |
|------|
| NOTE |
|------|

| |
|--|
| Yielding can be caused by over tightening screws in restraint nutplates. |
|--|

Upper & Lower Ribs:

Inspect condition. Inspect for cracks especially around mast tube attachments. Verify proper installation and security of ribs and lower rib clamp.

Vertical Push-Pull Tubes:

Examine accessible portion with inspection light and mirror. Inspect condition per § 5-32. Verify no nicks, scratches, chafing, dents, cracks or corrosion. Inspect rod end bearings per § 5-33; verify rod ends are centered and palnut and jam nut are tight. Check witness holes for proper thread engagement. Verify proper installation, security, and operating clearance.

Pitot Tube & Line:

Inspect pitot lines for obstructions, cracking, chafing, pinching or kinking. Verify integrity of pitot and static line connections. Verify proper routing and security of pitot tube and line. Verify no cracks where pitot tube mounts to mast fairing. Verify no obstructions in pitot tube.

Fuel Vent Weldment and Tygon® Tubes:

Inspect condition. Verify no obstructions, cracking, chafing, pinching or kinking in plastic tubes. Inspect vents for cracks or obvious damage. Verify proper installation and security of safety wire.

Swashplate Upper Scissors:

Inspect condition. Verify bearing play within limits referenced in § 67-40, steps 9 and 10. Closely examine scissor linkage while a second person raises and lowers collective stick. Verify bolts and washers rotate together through full control travel without binding. Inspect fork assembly rod end bearing per § 5-33; verify rod end is centered and palnut and jam nut are tight. Verify proper installation of all parts, part security, and operating clearance.

5-45 100-Hour / Annual Inspection (continued)**MAST FAIRING (continued)****Swashplate Lower Scissors:**

Inspect condition. Verify bearing play within limits referenced in § 67-40, steps 9 and 10. Closely examine scissor linkage while a second person raises and lowers collective stick. Verify bolts and washers rotate together through full control travel without binding. Inspect fork assembly rod end bearing per § 5-33; verify rod end is centered and palnut and jam nut are tight. Verify proper installation of all parts, part security, and operating clearance.

Swashplate Slider Tube:

Inspect condition. Verify no cracks, corrosion, or loose rivets near tube base flange. Verify no damage or wearing through of anodized coating on tube surface. When viewed under 10X magnification, minute "checkerboarding" of anodized surface is normal.

Swashplate Interior:

Remove swashplate boot lower ty-rap. Lift boot from swashplate, and verify no boot defects, tears, or material deterioration. Examine swashplate interior with inspection light and mirror. Verify no corrosion or debris between main rotor drive shaft and inside of slider tube. Install swashplate boot lower ty-rap. Verify proper boot position, security, and operating clearance.

Swashplate:

Inspect condition. Verify no nicks, scratches, gouges, dents, cracks, or corrosion. Verify 0.020 inch maximum radial play between swashplate ball and slider tube. Rotate rotor by hand and verify no rough or dry bearings. Verify proper operation.

Swashplate Shimming:

Closely examine area between lower swashplate and swashplate ball while a second person slowly raises and lowers collective stick. Verify synchronized movement of swashplate ball with swashplate when swashplate reverses direction.

NOTE

Swashplate shimming is required when swashplate ball lags collective inputs, indicating axial play. Shim swashplate per Chapter 67.

Fasteners & Torque Stripes:

Inspect condition. Verify proper installation and security of fasteners. Renew deteriorated torque stripes per Figure 5-1.

Close & Secure:

Verify foreign objects are removed. Verify equipment security. Verify cleanliness of interior and of access fairing. Close mast fairing and verify security.

5-45 100-Hour / Annual Inspection (continued)

ROTOR HUB & MAIN ROTOR BLADES

Teeter Stops & Teeter Stop Brackets:

Inspect both urethane teeter stops and associated stainless steel brackets. Replace stops if cracked due to weathering. If stops evidence pinching and/or brackets are deformed, excessive MR teetering has occurred; contact RHC Technical Support for further instructions.

Droop Stops:

Cone and support both MR blades. Inspect curved bottoms of both aluminum droop stops where spindle tusks contact; replace any droop stop if wear exceeds 0.030 inch.

Hub:

Inspect condition. Verify no nicks, scratches, gouges, dents, cracks, or corrosion. Verify no brown or black residue indicating bearing wear. Verify proper installation and security.

Hinge Bolts:

Inspect condition. Check blade hinge friction by lifting blades until spindle tusks clear droop stops. Hold one blade level and cone opposite blade; rotor hub should not teeter as blade is coned. Repeat check on opposite blade. Verify cotter pins are properly installed and secure. Verify bolt heads and nuts are torque striped to thrust washers.

Pitch Links & Rod Ends:

Inspect condition. Inspect rod end bearings per § 5-33; verify rod ends are centered and palnut and jam nut are tight. Check witness holes for proper thread engagement. Verify security of rivet in pitch link barrel. Verify no corrosion of pitch link assembly. Verify proper installation of safety wire and hat washers. Inspect condition of mandatory spacers contacting lower rod end bearings. Verify proper installation, security, and operating clearance.

Blade Spindles & Root Fittings:

Inspect condition. Verify no cracks, corrosion, or obvious damage to blade spindles and horns. Verify no cracks, corrosion or missing paint in blade root fittings, especially in area adjacent to inboard edges of skin and doublers.

Blade Boots:

Inspect condition. Verify no boot defects, tears, material deterioration, or pinholes resulting in oil leakage. Verify proper boot position and security. Verify sufficient clearance from hub assembly through full control travel.

Fasteners & Torque Stripes:

Inspect condition. Verify proper installation and security of fasteners. Renew deteriorated torque stripes per Figure 5-1.

Main Rotor Blade Tip Maintenance:

Perform main rotor blade tip maintenance per § 62-60.

5-45 100-Hour / Annual Inspection (continued)**ROTOR HUB & MAIN ROTOR BLADES (continued)****_____ Blade Inspection and Care:**

Refer to § 62-40. Inspect skins and doublers for scratches and corrosion. Inspect blades for dents, local deformations, and voids. As required, wax blades with soft cleaning cloths using carnauba-type wax (such as SC Johnson® Paste Wax). Ensure tip cover and blade tip drain holes are unobstructed. Verify placard legibility and remove old tracking tape and/or residue.

WARNING

Structural damage may occur if compressed air is applied to blade tip drain holes.

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5-45 100-Hour / Annual Inspection (continued)**CABIN (continued)**

- _____ **Yaw String:**
Inspect condition. Verify minimum string length is 3 inches on each side of clip. Verify security.
- _____ **Landing & Taxi Lights:**
Inspect condition. Verify lens cleanliness, clarity, and security. Verify proper operation.
- _____ **Landing Light Retainer & Support:**
Inspect condition. Verify no cracks where retainer mounts to support. Verify security.
- _____ **Left & Right Navigation Lights:**
Inspect condition. Verify no cracks where right and left navigation lights mount to fuselage. Verify red left, green right, lens cleanliness, clarity, and security. Verify proper operation.
- _____ **Exterior:**
Inspect condition. Inspect cabin exterior for nicks, scratches, dents, cracks, corrosion, fretting, or loose rivets. Loose rivets may be indicated by cracked paint and/or black residue around heads. Verify general cleanliness.
- _____ **Doors:**
Inspect condition. Verify no cracks and proper fit of door-to-door frame. Verify no structural cracks near door hinges or latches. Verify proper operation of door latching and locking mechanisms. Ensure door hinge pins are secured with cotter rings. Verify security of hinge mounting screws. Verify proper installation and operation of gas struts and door vent assembly.

SPECIAL EQUIPMENT

- _____ **Transmit and Intercom Switches:**
Verify proper operation of special transmit and intercom switches.
- _____ **PA/Siren Speaker:**
Inspect condition. Verify no cracks in speaker. Verify security of mounting.
- _____ **Wiring:**
Inspect condition. Verify no loose, chafed, or broken wires or terminals. Verify neatness, proper routing and installation, and security.

LIFE-LIMITED PARTS, PARTS WITH A RECOMMENDED TBO OR REPLACEMENT TIME, ADs, & SBs

- _____ **Life-Limited Parts:**
Refer to § 4-10. Verify life-limited parts correspond with aircraft maintenance records. Verify life-limited parts have sufficient time remaining for projected operations.
- _____ **Parts with a Recommended Time Between Overhauls (TBO) or Replacement Time:**
Refer to § 1-92. Verify parts with a recommended TBO or replacement time | correspond with aircraft maintenance records. Verify parts with a recommended TBO or replacement time have sufficient time remaining for projected operations.

5-45 100-Hour / Annual Inspection (continued)

LIFE-LIMITED PARTS, PARTS WITH A RECOMMENDED TBO OR REPLACEMENT TIME, ADs, & SBs

Airframe and Engine Accessories:

Refer to § 1-92 and accessory manufacturer's maintenance publications. Verify accessories correspond with aircraft maintenance records. Verify accessories scheduled for maintenance have sufficient time remaining for projected operations.

Airworthiness Directives:

Verify applicable airframe, engine, and accessory Airworthiness Directives (ADs) have been performed according to AD compliance procedures. Some helicopters may be affected by ADs that require recurring inspections at less than 100-hour or annual intervals. Recent U.S. Airworthiness Directives are online at www.faa.gov.

Service Bulletins and Letters:

Verify applicable airframe, engine, and accessory Service Bulletins (SBs) and Service Letters (SLs) have been complied with according to manufacturers' instructions. Some helicopters may be affected by SBs or SLs that require recurring inspections at less than 100-hour or annual intervals. RHC Service Bulletins and Service Letters are online at www.robinsonheli.com under the Publications tab.

REQUIRED DOCUMENTS AND PLACARDS**Documents:**

Check that required documents (Airworthiness Certificate, Registration, applicable Radio Station License, Pilot's Operating Handbook, Equipment List/Weight & Balance Data) are onboard, legible, and current.

Placards:

Verify required placards are properly installed, legible, and current. Refer to Pilot's Operating Handbook Section 2 for placard requirements.

INSPECTION AND ACCESS COVERS**Foreign Objects Removed:**

Verify all tools, loose hardware, rags, and other foreign objects are removed from helicopter.

Covers Closed and Secure:

Refer to § 6-70. Install/close inspection and access covers and cowlings removed in preceding steps. Verify proper installation and security.

5-45 100-Hour / Annual Inspection (continued)

MAINTENANCE RECORDS

 Maintenance Records:

Verify maintenance records are accurate, legible, and complete. Enter maintenance performed (such as part replacement, equipment adjustments, servicing, and lubrication) and inspection data. Data must include a description of (or reference to data acceptable to the Administrator) the work performed, date, helicopter total time in service, signature, certificate type and certificate number of person approving helicopter for return to service.

Inspection Procedures and Checklist completed:

Mechanic's signature: _____ Date: _____

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5-69 Main Rotor Gearbox (MR) Chip Light Illumination

If the MR CHIP annunciator segment illuminates:

1. Remove main rotor gearbox chip detector per § 12-13. Inspect any particles found on the chip detector. Examine the particles and perform following appropriate corrective action:
 - a. For fuzz particles: Clean chip detector with compressed air or toothbrush (do not use magnet) and reinstall per § 12-13. Normal wear, especially new gearboxes, will produce fine fuzz.
 - b. For flake particles or slivers longer than 0.12 inch or wider than 0.02 inch: Clean chip detector. Replace gearbox filter per § 12-12. Visually examine old filter with 10X magnification; return gearbox to RHC if metallic debris is detected.
 - c. For large ferrous chips or chunky particles: Remove gearbox per § 63-20 and return to RHC. Return chips and/or particles if possible.

5-70 Tail Rotor Gearbox (TR) Chip Light Illumination

If the TR CHIP annunciator segment illuminates:

1. Drain the gearbox per § 12-21, straining the oil through a 190-micron (or finer) paint filter into a clean container.
2. Inspect any particles found in the paint filter or on the chip detector. Examine the particles for size; any particles larger (0.09 inch long or 0.02 inch wide) than fine fuzz (normal wear) should be identified as ferrous or non-ferrous by using a magnet. If particles are ferrous, remove tail rotor gearbox per § 65-40 and return it to RHC.

5-71 Main Rotor Gearbox Filter Bypass Indicator

NOTE

Extremely cold temperatures may cause the bypass to activate.

If the main rotor gearbox filter bypass indicator button continues to activate after two consecutive resets (at operating temperature), perform the following:

1. Service filter per § 12-12. Examine filter for particles.
 - a. If filter is clean, replace (Purolator-Facet P/N) 1740839 bowl assembly or F651-1 filter assembly.
 - b. If filter is contaminated, return main rotor gearbox to RHC for overhaul, replace main rotor gearbox oil cooler and flush oil lines.

5-72 Lightning Strike

Lightning strikes are extremely rare for helicopters operating in VFR conditions.

If a lightning strike does occur, RHC recommends performing a 100-hour inspection per § 5-45 and performing the inspection for lightning strike damage per Rolls-Royce RR300 Operation and Maintenance Manual (OMM).

High voltage that is well conducted through the aircraft structure will dissipate and cause minimal damage. High voltage that is not well conducted through the aircraft structure can result in excessive heat, which can bake, burn, char, or even melt certain materials. Heat damage may or may not be detectable by visual inspection. A component may not exhibit obvious damage, but temperatures above 300° F can alter the strength of some materials and thus affect a component's service life and airworthiness.

Visually inspect main rotor blades, landing gear, drive train, airframe, and flight controls thoroughly for obvious damage such as electrical arcing or burns, pitting, or cracking. Particular attention should be given to rod ends, journals, etc., where the conductive path is most susceptible. If obvious damage is detected in any of the above-mentioned systems, additional components may require replacement. Contact RHC Technical Support with detailed documentation for further guidance prior to approving aircraft for return to service.

5-73 Pop-Out Float-Equipped Helicopter Water Landing with Tail Rotor Contact

1. Clean tail rotor blades, hub, and airframe exterior with a mild soap (pH between 7 & 9) and water solution per Chapter 20.

CAUTION

Do not spray main rotor hub, tail rotor gearbox vent, hydraulic reservoir vent, swashplate area, or bearing seals with high-pressure water or solvent as water or solvent may cause corrosion or breakdown of lubricants. See RR300 Series Operation and Maintenance Manual (OMM) for engine cleaning instructions and precautions.

2. Inspect tail rotor blades per § 64-30; inspect trailing edges for buckling, and leading edges for bending. If either blade is damaged, remove tail rotor assembly per § 64-10 and tail rotor gearbox per § 65-40 and return components to RHC.
3. Perform tail rotor drive shaft runout per § 65-21. If runout exceeds 0.025 inch at any location:
 - a. Remove tail rotor drive shaft assembly per § 65-20 and return drive shaft to RHC.
 - b. Visually inspect F193-2 hanger and F172-3 (bearing) housing for cracks or deformation.
 - c. Replace C947-3 plate assemblies (forward, intermediate, and aft).

CHAPTER 11**PLACARDS AND MARKINGS****11-10 Placards and Markings**

Refer to R66 Illustrated Parts Catalog Chapter 11 for placard and marking locations.

A. Removal

To remove previously installed decals, start at corners and slowly peel off decal by hand or using a plastic wedge. Avoid damaging or removing paint or primer from surfaces. Remove decal entirely.

B. Installation

Verify surfaces are clean and dry before attaching decals. Use a clean cloth wet with acetone or mild soapy water (pH between 7 & 9) to clean surfaces, but use caution | when using acetone near silk-screened lettering. Acetone can smudge or remove silk-screened letters. Attach decal and rub decal surface with finger, applying slight pressure.

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12-30 Hydraulic System

CAUTION

Do not contaminate hydraulic fluid. Service hydraulic system with clean fluid from sealed containers, using clean tools.

WARNING

Review appropriate Safety Data Sheet (SDS) when working in proximity to hazardous materials. Specific recommendations for use of personal protective equipment are located in the SDS.

12-31 Servicing

A. Draining Fluid

1. Perform drain and flush per § 12-33.

B. Adding Fluid

NOTE

Inspect hydraulic system for leaks when "top off" is required.

1. Refer to Figure 12-4. Remove filler-vent plug. With system filled and bled, fill hydraulic reservoir to center of sight glass with new A257-15 fluid.
2. Install filler-vent plug and special torque per § 20-33.

12-32 Filter Replacement

1. Refer to Figure 12-4. Remove D516-1 cap and filter and visually inspect element for contaminants. If element is clear, proceed to step 2. If metal contamination is found, use a magnet to determine if metal is ferrous. If metal is ferrous, perform the following:
 - a. Install new filter per steps 2 thru 4.
 - b. After one flight-hour, remove filter and inspect for ferrous metal. If ferrous metal is found upon second inspection, replace hydraulic pump per § 67-50, then drain and flush hydraulic system per § 12-33.
2. Discard cap packing. Clean cap with approved solvent per § 20-70, and dry cap with compressed air or a lint-free cloth. Lubricate new packing with A257-15 fluid and install on cap.
3. Lubricate packing inside new filter with A257-15 fluid and install filter in reservoir. Install cap and special torque per § 20-33.
4. Service hydraulic reservoir per § 12-31.

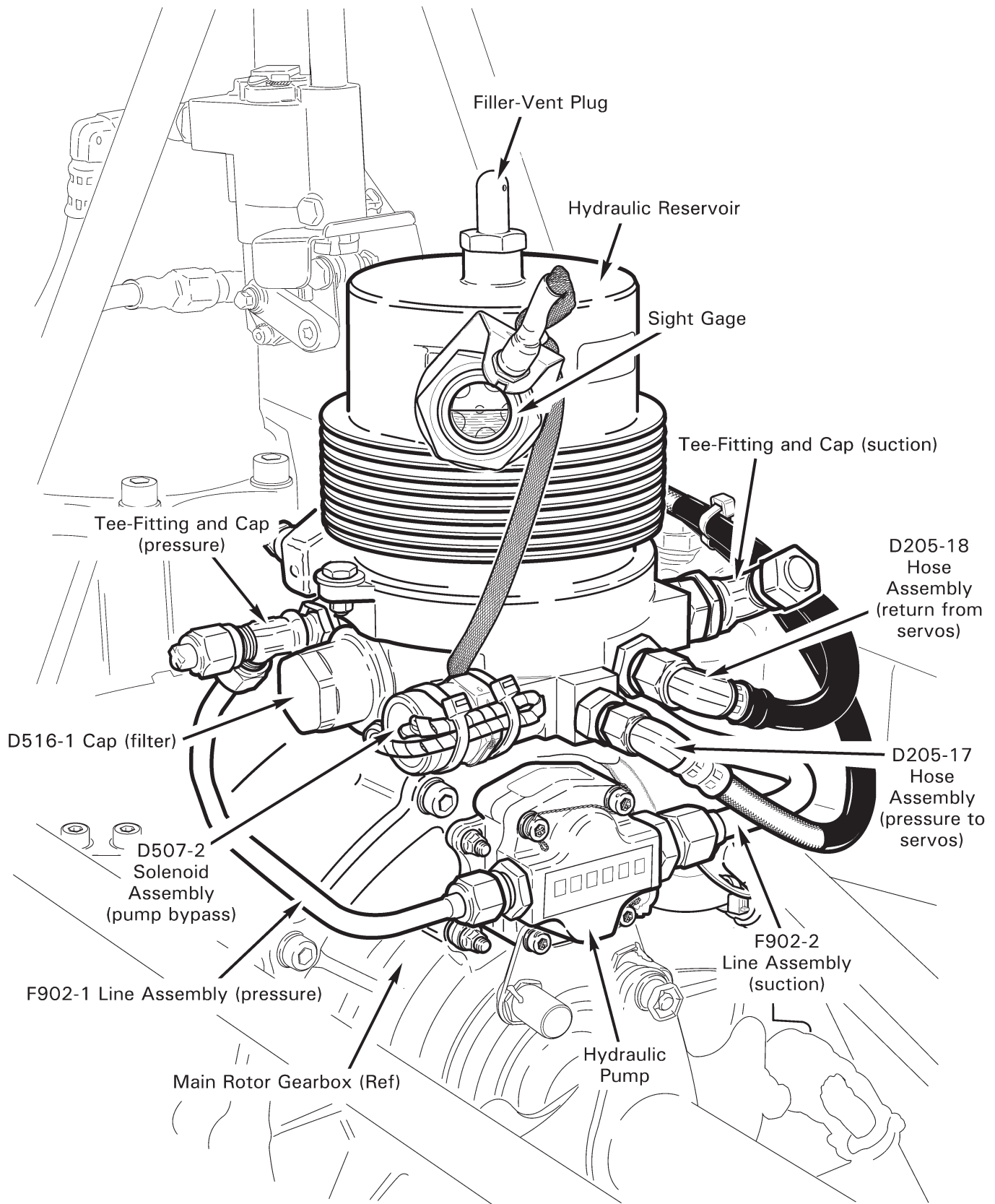


FIGURE 12-4 HYDRAULIC SYSTEM

12-90 Lubrication of Swashplate Bearings

1. Determine revision ("REV") letters on C017-6 swashplate data plate. If revision letters are "AD" or subsequent, proceed to step 2. If revision letters are "AA", "AB", or "AC", perform R66 Service Bulletin SB-30.
2. Remove ty-rap securing C480 boot to upper (rotating) swashplate.
3. Remove hardware securing lower rod ends of both C258 pitch links to upper swashplate. Temporarily secure boot, upper A205 fork, and both pitch links up & away from swashplate.
4. Rotate upper swashplate by hand; if bearing roughness is detected, replace swashplate or submit swashplate to RHC for repair.
5. Refer to Figure 12-7. Remove (10) NAS1352 screws (with washers) securing C206-2 & C200-3 retainers to upper swashplate. Raise both retainers and C219-3 spacer and either temporarily secure to chord arm (if on helicopter) or set aside (if on workbench).
6. Using a 0.006 inch feeler gage, gently pry up outer edge of upper C217-1 seal and expose top ball bearing.
7. Using a syringe or grease gun, add A257-3 grease into cavity above bearing set until grease is just below top of C205-1 sleeve (approx. 20 ml grease). Do not allow grease into screw holes.
8. Position C217-1 seal atop grease followed by C219-3 spacer, C200-3 retainer, and NAS1352N08-8 screws with NAS620-8L washers. Finger-tighten all screws, then snug any (4) screws that are 90° apart, depressing seal and forcing grease into underlying bearing set. Rotate upper swashplate several revolutions. Wipe off excess grease.
9. Repeat steps 5 thru 8 once, then proceed to step 10.
10. Remove screws & washers and solvent-clean. Raise and clean C200-3 retainer and C219-3 spacer, then reinstall both.
11. Install C206-2 retainer, NAS620-8L washers, and NAS1352N08-8 screws with A257-9 anti-seize. Special torque screws per § 20-33.
12. Refer to IPC Figure 67-41. Connect upper A205 fork rod end and lower rod end of associated C258 pitch link, to interrupter-side swashplate ear; standard torque bolt per § 20-32. Install palnut, standard torque per § 20-32, and torque stripe per Figure 5-1.
13. Attach two A255-3 counterweights, and lower rod end of C258 pitch link, to swashplate ear opposite interrupter; standard torque bolt per § 20-32. Install palnut, standard torque per § 20-32, and torque stripe per Figure 5-1.
14. Verify safety washers (or counterweight) and C115 spacers installed at all rod ends per Figure 5-1.

12-90 Lubrication of Swashplate Bearings (continued)**WARNING**

Assembly of flight controls is critical and requires inspection by a qualified person. If a second person is not available, the installer must take a 5-minute break prior to inspecting flight control connections he has assembled.

15. While observing swashplate, have someone fully manipulate cyclic and collective controls. Verify swashplate movement corresponds with cyclic and collective movement, and without interference.
16. Position swashplate boot on upper swashplate and secure with MS3367-6-0 ty-rap.
17. With appropriately rated person at controls, start helicopter, run up to 100% N_R , then shutdown.
18. Remove ty-rap, and raise swashplate boot. Wipe off excess grease from swashplate. Position swashplate boot on upper swashplate and secure with MS3367-6-0 ty-rap.

18-30 Main Rotor Flight Control Rigging

NOTE

Refer to § 5-33, and Figures 5-1 & 5-2 for standard rod end adjustment procedures. Refer to § 18-13 for main rotor pitch link adjustment procedure.

For collective adjustments, both pitch links must be adjusted exactly the same.

Track and balance helicopter per §§ 18-10 & 18-20 as required after adjusting flight controls.

NOTE

Cyclic stick travel is non-adjustable. Travel is limited by A211-4 stop attached to the cyclic box assembly.

Collective stick travel is non-adjustable. Travel is limited by A333-1 stop integral to the collective stick friction assembly. Perform the following check to verify collective travel and swashplate travel do not interfere.

1. Install MT759-1 rigging blocks inside A211-4 cyclic stick stop. Position collective stick full down. Apply cyclic and collective stick frictions.
2. Rig the following push-pull tube assemblies and fork assembly, located between keel panels, to the noted rod end center-to-center dimensions:

| PART NUMBER | | DIMENSION |
|-------------|---|---------------------|
| C121-1 | = | 51.15 ± 0.03 inches |
| F121-1 | = | 32.36 ± 0.03 inches |
| G205-1 | = | 5.40 ± 0.03 inches |

3. Adjust length of F121-1 tube so that with collective full up, there is a 0.50 inch gap between G205-1 yoke and F315-1 support.
4. Refer to Figure 18-8. Position MT146-4 swashplate rigging blocks between lower, non-rotating swashplate and C281-1 fitting. Refer to § 5-33, and adjust push-pull tube rod ends until aligned with swashplate attachment holes.
5. Cut and discard ty-rap(s) as required to lift swashplate boot.
6. Position collective stick full up. Verify top of C201-1 ball assembly is flush with top edge of C208-1 tube within 0.030 inch. Refer to § 5-33, and adjust push-pull tube rod ends in or out equally to raise or lower swashplate as required.
7. Refer to Figure 18-9. Adjust swashplate A205-5 lower fork assembly (non-rotating) to 3.70 ± 0.03 inch, and upper fork assembly (rotating) to 3.85 ± 0.03 inch.

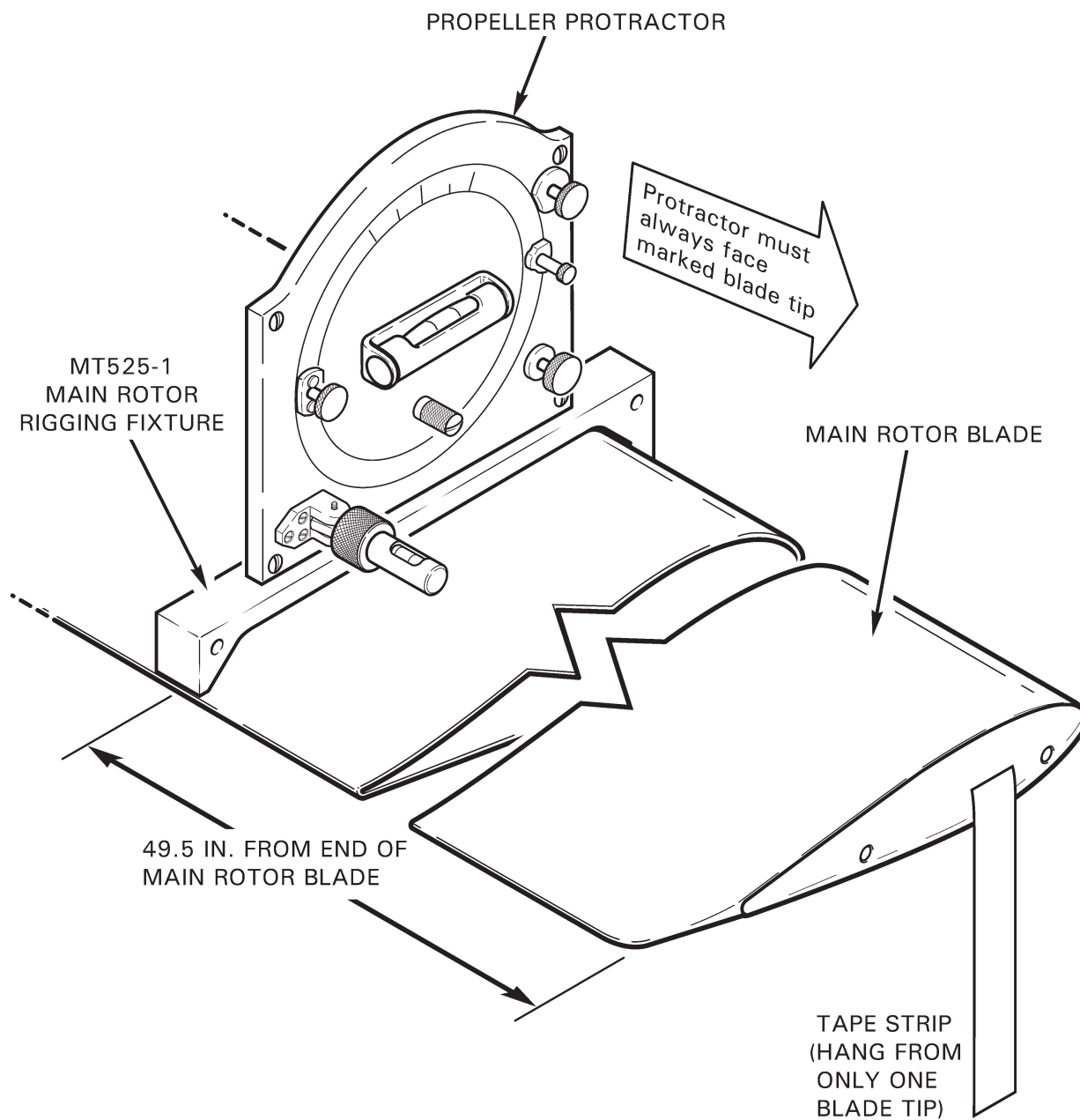


FIGURE 18-10 MAIN ROTOR BLADE RIGGING

CHAPTER 20

STANDARD PRACTICES

20-10 Cleaning**WARNING**

Review appropriate Safety Data Sheet (SDS) when working in proximity to hazardous materials. Specific recommendations for use of personal protective equipment are located in the SDS.

A. Cleaning Exterior Surfaces**NOTE**

Remove turbine exhaust stains from engine cowlings, tailcone, empennage, and tail rotor blades after every flight to prevent permanent discoloration.

CAUTION

Refer to § 20-10 Part B for cleaning windshield and windows.

CAUTION

Never use high-pressure spray to clean helicopter. Never blow compressed air into main or tail rotor blade tip drain holes, pitot tube, or static ports.

CAUTION

Wash helicopter exterior surfaces with mild soap (pH between 7 & 9) and water. Harsh abrasives, alkaline soaps, or detergents can scratch painted or plastic surfaces, or cause corrosion of metal. Protect areas where cleaning solution could cause damage.

1. Rinse away loose dirt and debris from exterior surface with clean water.
2. Apply mild soap (pH between 7 & 9) and clean warm water solution to exterior surface using a clean, soft cloth, sponge, or soft bristle brush. Use caution near antennas and sensitive equipment.
3. Remove oil and grease using a cloth wetted with aliphatic naphtha.
4. Rinse all surfaces thoroughly.
5. If desired, polish painted surfaces with a good quality automotive wax using soft cleaning cloths, or a chamois cloth, free of abrasive debris.

20-10 Cleaning (continued)**B. Cleaning Windshield and Windows**

1. Remove dirt, mud, and other loose particles from exterior surfaces with clean water.
2. Wash with mild soap (pH between 7 & 9) and warm water or with aircraft plastic cleaner. Use a soft cloth or sponge in a straight back and forth motion. Do not rub harshly.
3. Remove oil and grease with a cloth moistened with isopropyl alcohol (rubbing alcohol) or aliphatic naphtha.

CAUTION

Do not use gasoline, other alcohols, benzene, carbon tetrachloride, thinner, acetone, or window (glass) cleaning sprays.

4. After cleaning plastic surfaces, apply a thin coat of hard polishing wax. Rub lightly with a soft cloth. Do not use a circular motion.
5. Scratches can be removed from acrylic windshields by rubbing with jeweler's rouge followed by hand polishing with commercial plastic polish. Use a figure eight motion with polishing. Polishing optional, polycarbonate (impact-resistant) windshields is not recommended as it may thin the protective hardcoat finish.

C. Cleaning Seat Assemblies and Back Rests

1. Vacuum and brush, then wipe with damp cloth. Dry immediately.
2. Soiled upholstery, except leather, may be cleaned with a good upholstery cleaner suitable for the material. Follow manufacturer's instructions. Avoid soaking or harsh rubbing.
3. Leather should be cleaned with saddle soap or a mild hard soap and water.

D. Cleaning Carpet

Remove loose dirt with a whisk broom or vacuum. For soiled spots and stains, use nonflammable dry cleaning liquid.

E. Cleaning or Rinsing RR300 Engine

Follow published Rolls-Royce guidance (subject to revision) to maximize RR300 engine corrosion prevention:

- RR300 Operation and Maintenance Manual (OMM) Task 05-50-00-100-801, Clean the Engine after Operation in a Corrosive Environment, and
- NTO (Notice To Operators) No. RR300-020, RR300 Engine Wash Procedures.

Refer to § 12-71 for drainage spotface inspection during cleaning or rinsing of RR300 engine.

20-20 Lubrication**WARNING**

Review appropriate Safety Data Sheet (SDS) when working in proximity to hazardous materials. Specific recommendations for use of personal protective equipment are located in the SDS.

All R66 bearings are sealed or self-lubricating and do not require periodic lubrication.

The engine oil tank, the main and tail rotor gearboxes, and the hydraulic reservoir require servicing when indicated by sight gage level. Additionally, change engine, gearbox, or hydraulic oil and clean respective sight gage when oil becomes so dirty its level cannot be determined. Change hydraulic oil if notably odorous.

When installing a new or overhauled main rotor gearbox, replace filter at first 100-hour inspection after installation. Thereafter, replace filter at scheduled intervals per § 1-90. When installing a new or overhauled tail rotor gearbox, drain and flush after first 4 hours of flight or first chip light, whichever occurs first. Thereafter, drain and flush gearbox at scheduled intervals per § 1-90.

Servicing procedures are located in Chapter 12.

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20-79 Adhesives and Sealants (continued)

| RHC PART NO. | DESCRIPTION | COLOR | MFR. PART NO. | MANUFACTURER |
|--------------|---|----------------------|----------------------------|---|
| B270-21 | Protectant – corrosion, non-drying (1-part) | Amber | Max Wax | Corrosion Technologies Corp. Garland, TX |
| | | Lt. Amber | LPS 3 | LPS Laboratories, Inc. Tucker, GA |
| B270-22 | Substitute B270-21 | | | |
| | Protectant – corrosion, drying (1-part) | Amber | LPS Hardcoat | LPS Laboratories, Inc. Tucker, GA |
| B270-23 | Sealant – gasket (1-part) | Purple | 515 | Henkel Loctite Corp. Rocky Hill, CT |
| B270-24 | Activator/Primer – Anaerobic adhesive (1-part) | Translucent Green | 7649 | Henkel Loctite Corp. Rocky Hill, CT |
| B270-25 | Clear Coat – automotive touch up, brush in bottle (1-part) | Clear | Clear Coat Touch up Bottle | Automotivetouchup Harahan, LA |
| B270-26 | Sealant – Polysulfide, window glazing (2-Part) | Black | AC-251B-1 | 3M Co. St. Paul, MN |
| B270-27 | Adhesive – Epoxy, High Strength Structural, Flexible (2-part) | Translucent Red Blue | EA 9309NA EA 9309.2NA | Henkel Loctite Corp. Rocky Hill, CT |
| B270-28 | Substitute B270-27 | | | |

* Dash number for minimum hours application life may be –½, –2, –6, or –12.

20-80 Storage Limits

1. B283 hoses have a shelf storage life of 5 years. Hose service life is "on condition", with a maximum of 12 years.
2. Elastic cords have a shelf storage life of 5 years. Elastic cord service life is "on condition", with a maximum of 12 years. Use invoice or FAA Form 8130 date as start date.
3. Store V-belts at less than 85° F (30° C), with relative humidity below 70%. Avoid solvent and oil vapors, atmospheric contaminants, sunlight, and ozone sources (electric motors, arc welding, ionizing air purifiers, etc.). Belt shelf life is 4 years if preceding recommendations are followed. Use invoice date or FAA Form 8130-3 date as start date.
4. Oils and greases have a 5 year shelf life when stored and kept sealed in their original container. Use invoice date or FAA Form 8130 date as start date unless the manufacturer has marked container with manufacture date (in which case use manufacture date as start date).
5. Rubber o-rings, seals, and gaskets have a (20) quarter, five (5) year shelf life from the indicated cure date. Flourocarbon (Viton) and silicon rubber products shall adhere to manufacturer's expiration date(s). Service life is "on condition" with a maximum of 12 years.
6. Store uninstalled fuel bladder in original container (if available) at 70°F to 80°F and below 70% humidity. Coat bladder with clean, non-detergent engine mineral oil to prevent rubber from drying out and cracking. Store bladder in relaxed condition free from tension, compression, or other deformation such as creases or folds.

22-10 (Pitch) Servo Assembly**A. Removal**

1. Turn battery & avionics switches off and pull out AUTOPILOT (5 amp) circuit breaker at panel.
2. Remove F680-3 and F445-1 collective covers and F444-1 cyclic cover. Hinge front right seat forward. Remove G702-7 cover assembly under pilot's seat.
3. Remove avionics and avionics trays as required from lower console.

CAUTION

For pitch servo, adjust length of A336-8 push-pull tube assembly to 4.20 ± 0.03 inches between rod end centers.

4. Position cyclic stick full aft and apply cyclic friction. Remove hardware (and C130-50 spacer) securing D354-3 (pitch) servo assembly arm to A336-8 push-pull tube's rod end.
5. Disconnect servo harness from flight control computer's J1 PITCH receptacle. Cut and discard ty-rop securing harness to M23190/1-2 clamp and pull harness through access holes into control tunnel.
6. Support servo and remove hardware securing servo's D353-4 brace to cyclic box and keel panels. Carefully remove servo from control tunnel.

B. Installation

1. Turn battery & avionics switches off and pull out AUTOPILOT (5 amp) circuit breaker at panel. Position cyclic stick full aft and apply cyclic friction.
2. Position D354-3 (pitch) servo assembly in control tunnel and install hardware securing servo's D353-4 brace to cyclic box. Standard torque bolts per § 20-32 and torque stripe per Figure 5-1. Install screws securing brace to keel panels. Verify security.
3. Route servo harness through access holes and connect harness to flight control computer's J1 PITCH receptacle. Install ty-rop securing harness to M23190/1-2 clamp. Cinch ty-rop until snug without over-tightening, and trim tip flush with head. Verify harness security.
4. Install hardware (and C130-50 spacer) securing servo arm to A336-8 push-pull tube's rod end. Standard torque bolt per § 20-32 and torque stripe per Figure 5-1. Verify security.
5. Verify length of A336-8 push-pull tube assembly connected to pitch servo is 4.20 ± 0.03 inches between rod end centers.
6. Verify freedom of flight controls through full travel with and without friction applied.
7. Install avionics trays and avionics if removed. Verify security.
8. Push in AUTOPILOT circuit breaker (5 amp) at panel. Perform ground checks as appropriate per § 22-61.
9. Install G702-7 cover assembly under pilot's seat. Install F444-1 cyclic cover, and F445-1 and F680-3 collective covers. Verify security.

22-20 (Roll) Servo Assembly**A. Removal**

1. Turn battery & avionics switches off and pull out AUTOPILOT (5 amp) circuit breaker at panel.
2. Remove F680-3 and F445-1 collective covers. Remove G702-7 cover assembly under pilot's seat.

CAUTION

For roll servo, adjust length of A336-8 push-pull tube assembly to 4.30 ± 0.03 inches between rod end centers.

3. Position cyclic stick full left and apply cyclic friction. Remove hardware securing D354-4 (roll) servo assembly arm to A336-8 push-pull tube's rod end.
4. Disconnect servo harness from flight control computer's J3 ROLL receptacle. Cut and discard ty-raps securing servo harness to autopilot harnesses.
5. Support servo and remove hardware securing servo's D352-14 block assembly to keel panel and D353-5 brace assembly. Carefully remove servo from under pilot's seat.

B. Installation

1. Turn battery & avionics switches off and pull out AUTOPILOT (5 amp) circuit breaker at panel. Position cyclic stick full left and apply cyclic friction.
2. Position D354-4 (roll) servo assembly under pilot's seat and install hardware securing servo's D352-14 block assembly to keel panel and D353-5 brace assembly. Tighten screws. Verify security.
3. Connect servo harness to flight control computer's J3 ROLL receptacle. Install ty-raps securing servo harness to autopilot harnesses as required. Cinch ty-raps until snug without over-tightening, and trim tips flush with heads. Verify harness security.
4. Install hardware securing servo arm to A336-8 push-pull tube's rod end. Standard torque bolt per § 20-32 and torque stripe per Figure 5-1. Verify security.
5. Verify length of A336-8 push-pull tube assembly connected to roll servo is 4.30 ± 0.03 inches between rod end centers.
6. Verify freedom of flight controls through full travel with and without friction applied.
7. Push in AUTOPILOT circuit breaker (5 amp) at panel. Perform ground checks as appropriate per § 22-61.
8. Install G702-7 cover assembly under pilot's seat. Install F445-1 and F680-3 collective covers. Verify security.

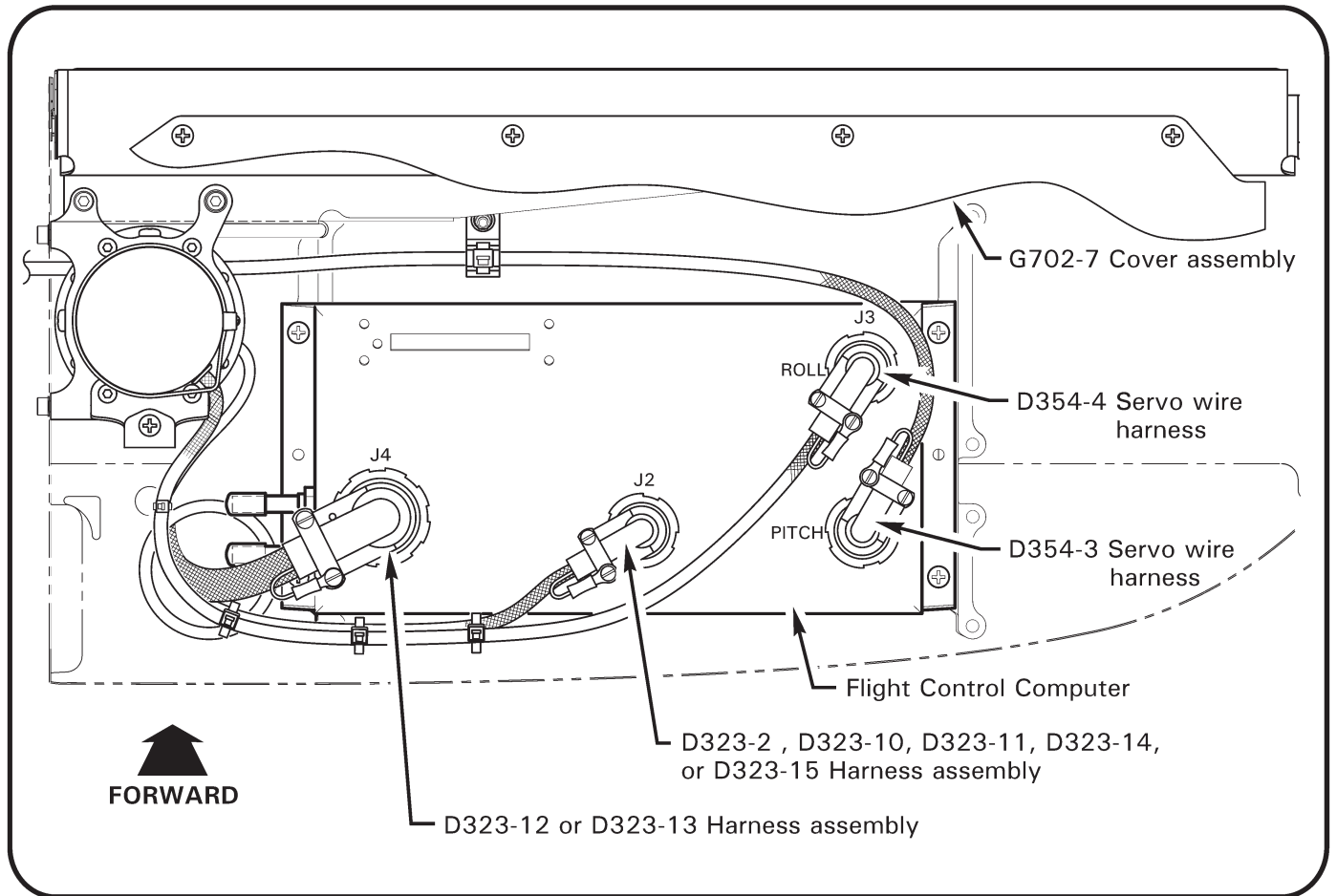


FIGURE 22-2 FLIGHT CONTROL COMPUTER

22-30 Flight Control Computer

A. Removal

1. Turn battery & avionics switches off and pull out AUTOPILOT (5 amp) circuit breaker at panel.
2. Remove G702-7 cover assembly under pilot's seat.
3. Disconnect D323 harness assemblies and D354 servo assembly harnesses from flight control computer's J1 PITCH, J2, J3 ROLL, and J4 receptacles.
4. If installed, disconnect pitot and static tubes from computer. Plug elbows and tubes.
5. Support computer and remove screws securing computer to D358-1 support assemblies. Carefully remove computer from under pilot's seat.

22-30 Flight Control Computer (continued)**B. Installation**

1. Turn battery & avionics switches off and pull out AUTOPILOT (5 amp) circuit breaker at panel.
2. Position flight control computer under pilot's seat and install screws securing computer to D358-1 support assemblies. Tighten screws. Verify security.
3. If installed, remove plugs and connect pitot and static tubes to computer. Perform pitot and static system leak checks per § 95-10.
4. Connect D323 harness assemblies and D354 servo assembly harnesses to computer's J1 PITCH, J2, J3 ROLL, and J4 receptacles. Install ty-raps securing harnesses as required. Cinch ty-raps until snug without over-tightening, and trim tips flush with heads. Verify harness security.
5. Verify freedom of flight controls through full travel with and without friction applied.
6. Push in AUTOPILOT circuit breaker (5 amp) at panel. Perform ground checks as appropriate per § 22-61.
7. Install G702-7 cover assembly under pilot's seat.

22-40 Control Panel**A. Removal**

1. Turn battery & avionics switches off and pull out AUTOPILOT (5 amp) circuit breaker at panel.
2. Loosen quarter-turn fasteners securing control panel to console assembly.
3. Carefully unplug harness from control panel and remove panel.

B. Installation

1. Turn battery & avionics switches off and pull out AUTOPILOT (5 amp) circuit breaker at panel.
2. Carefully plug-in harness to control panel.
3. Tighten quarter-turn fasteners securing control panel to console assembly. Verify security.
4. Push in AUTOPILOT circuit breaker (5 amp) at panel. Perform ground checks as appropriate per § 22-61.

25-52 License Holder Replacement

A. Removal

1. Remove aircraft documents from license holder.
2. Drill out rivets securing license holder to cabin under left side windshield frame and remove license holder. Deburr holes and clean up debris.

B. Installation

1. Cleco license holder to cabin holes under left side windshield frame. Remove clecos and install rivets. Verify security.
2. Insert aircraft documents into holder and tuck upper flap into frame.

25-53 Map Pocket Replacement

A. Removal

1. Drill out rivets securing map pocket to front wall of forward seat box. Remove pocket, washers, and retaining strips. Deburr holes and clean up debris.

B. Installation

1. Fold (long) outboard pocket edge around (long) A913-1 strip, align holes, and align holes with front of forward seat box. Cleco in place.
2. Pull material taut, fold (short) inboard pocket edge around (short) A913-2 strip, align holes, and align holes with front of forward seat box. Cleco in place. Trim excess material.
3. Remove clecos and install washers and rivets.

25-60 Emergency Equipment

25-61 Emergency Locator Transmitter (ELT)

A. Description

The ELT activates when subjected to a significant change in velocity (as in a crash), by remote control switch located on the cyclic control panel, or by a switch on the ELT transmitter. Refer to § 96-90 for system description.

Refer to Kannad Aviation AF Integra / AF-H Integra or 406 AF-Compact/406 AF-Compact (ER) ELT Installation and Operation Manual for maintenance requirements and procedures. Refer to § 1-90 for scheduled maintenance.

Register an ELT when first purchased, when contact information changes, or when aircraft ownership, or tail number changes. Registration information is available online at: www.cospas-sarsat.org.

Dongles contain a memory chip that must be programmed with aircraft-specific information prior to installation for the ELT to function. The dongle may be removed and shipped to RHC or a Kannad Service Center for reprogramming. Kannad Aviation's Programming Data Sheet is available online at: www.robinsonheli.com.

B. Transmitter

Removal

1. Release D693-4 strap assembly or B359-2 (reusable) ty-rap.
2. Release Velcro strap; disconnect dongle and antenna wiring from transmitter at connectors and remove transmitter.

Installation

1. Connect dongle and antenna wiring to transmitter at connectors. Verify security.
2. Position transmitter on mounting bracket and secure with Velcro strap. Secure D693-4 strap assembly or install B359-2 (reusable) ty-rap around transmitter and bracket. Verify security.

C. Dongle

Removal

Cut and discard ty-raps as required, disconnect dongle from transmitter and airframe harness at connectors, and remove dongle.

Installation

1. Connect programmed dongle to transmitter and airframe harness at connectors.
2. Install ty-raps as required. Cinch ty-raps until snug without over-tightening, and trim tips flush with heads. Verify security.

32-61 Cylinder Assembly (continued)**A. Removal**

1. Refer to Figure 32-5. Hinge right aft seat assembly forward. Install MT545-1 pin assembly in D757-1 valve assembly.
2. Disconnect D674-9 hose assembly from valve fitting. Install MT546-1 diffuser on valve fitting and special torque diffuser to 120 in.-lb. Cap hose to prevent foreign object contamination.
3. Remove hardware securing D761-2 cover to valve and D761-1 support. Remove cover.
4. Remove hardware securing D761-1 support to valve. Do not kink cable.
5. Cut and discard MS3367-4-9 ty-rap secured to D760-1 trigger. Disengage D676-2 cable assembly ball from trigger, but do not kink cable.
6. Remove screws securing D669-3 strap to D669-6 cradle assembly and remove strap. Carefully remove cylinder.

B. Depressurization**CAUTION**

Use appropriate eye and hearing protection. Do not service cylinder assembly while cylinder is installed in helicopter.

1. Remove cylinder per § 32-61 Part A. Verify MT545-1 pin assembly and MT546-1 diffuser are properly installed.
2. Refer to Figure 32-5. Remove D760-7 cap (etched with "FILL PORT") from valve assembly. A loud pop may be heard when cap's seal is broken.
3. In a well-ventilated area, slowly screw MT546-4 bleed fitting assembly into fill-port until the noise of escaping gas is heard. Screw fitting in or out to adjust flow rate. Finish bleeding cylinder with bleed fitting fully in. When noise ceases, verify cylinder pressure gage indicates zero. Remove bleed fitting.
4. Install cap in valve assembly and special torque cap to 40 in.-lb.
5. Evaluate cylinder life and hydrostatic test status.

32-61 Cylinder Assembly (continued)**C. Filling****CAUTION**

Use appropriate eye and hearing protection. Do not service cylinder assembly while cylinder is installed in helicopter.

WARNING

ONLY cylinders labeled “DOT-E 10915-4945” or “DOT-SP 10915-4945” may be refilled. Cylinders labeled “DOT-E 10915-4500” must be returned to RHC for exchange/upgrade.

WARNING

Verify D757-1 (gray) valve assembly is engraved with “D758-4” or has a data plate indicating B900-8 modification.

Filling equipment (pumps, hoses, fittings, etc.) must be rated for 6000 psi minimum working pressure and be in good condition.

Cylinder temperature and pressure must be kept within safe limits. Monitor pressure gage and use thermocouple or other appropriate temperature probe to monitor temperature on face of thermal relief fitting during fill. Do not allow temperature to exceed 50°C (122°F) or pressure to exceed 5500 psig. If limits are approached, stop fill and allow cylinder to cool and pressure to drop before continuing. Placing cylinder in a water bath and using slow to moderate fill rates is recommended. If using water bath, keep water level below valve assembly to avoid water contamination of valve.

1. Evaluate cylinder life and hydrostatic test status.
2. Refer to Figure 32-5. Install MT545-1 pin assembly in D757-1 valve assembly. Install MT546-1 diffuser on valve fitting and special torque diffuser to 120 in.-lb.
3. Remove D760-7 cap (etched with “FILL PORT”) from valve assembly. A loud pop may be heard when cap’s seal is broken.
4. Install MT546-2 adapter assembly into fill port and special torque adapter to 40 in.-lb. Attach fill hose to adapter.
5. Fill with 99.98% minimum purity (industrial grade) helium per chart below:

| Ambient Temperature (°C) | Pressure (psig) |
|--------------------------|-----------------|
| -20 | 4268 |
| -10 | 4437 |
| 0 | 4606 |
| 10 | 4776 |
| 20 | 4945 |
| 30 | 5114 |
| 40 | 5283 |

53-50 Empennage Assembly**A. Removal**

1. Remove tail rotor guard assembly per § 53-53.
2. Remove hardware securing forward MS21919WDG3 clamp to upper horizontal stabilizer. Cut and discard ty-raps securing position light and gearbox chip detector wires and connectors together. Disconnect position light at connectors.
3. Refer to Figure 53-6. Support C004-2 empennage assembly, remove two bolts and associate hardware securing assembly to tailcone casting, and remove assembly.

B. Installation

1. Refer to Figure 53-6. Position C004-2 empennage assembly on tailcone casting. Install two bolts and associate hardware securing assembly to casting; select bolt length to meet torque requirements per § 20-30. Standard torque bolts per §20-32, and torque stripe per Figure 5-1.
2. Connect position light wire connectors. Secure wires and install hardware securing forward MS21919WDG3 clamp to upper horizontal stabilizer. Install MS3367-4-9 or -5-9 ty-raps as required to secure wires and connectors together. Cinch ty-raps until snug without over-tightening, and trim tips flush with heads.
3. Test and verify correct function of position and TR chip light circuits.
4. Install tail rotor guard assembly per § 53-53.

C. Repair

A single dent on the C044-1 stabilizer leading edge outboard of the vertical stabilizers is permitted provided:

1. Dent is no more than 0.050 inch deep.
2. Dent must have a smooth bottom, with minimum 0.125-inch radius, and no sharp nicks or cracks.
3. Dent must be less than 1.25 inches spanwise.
4. It is permissible to remove above dent via metalworking.

Depending on the damage, U.S. FAA AC (Advisory Circular) 43.13-1B may be used to repair some horizontal stabilizer minor skin damage; refer to the AC's Title Page for limitations. Use only 0.020-inch thick 2024T3 aluminum sheet for repairs; do not use thicker sheet. Skin replacement, damage to spars, and either forward or middle attachment for vertical stabilizers, is not field repairable.

To inspect spars, remove NAS1919B04S01 rivets securing D292-3 outboard rib. Only the inboard D292-2 nose rib or D292-3 outboard tip rib may be field replaced; all other parts require use of the factory jig.

53-51 Vertical Stabilizer**A. Upper Vertical Stabilizer Removal**

1. Refer to Figure 53-6. Remove fastener securing vertical stabilizer C554 clips to upper horizontal stabilizer trailing edge.
2. Support C042-1 upper vertical stabilizer. Remove four bolts (threaded) and spacers securing C042-1 stabilizer to upper horizontal stabilizer, and remove C042-1 stabilizer.
3. If replacing stabilizer, C554-1 clip may be reused. Drill out two rivets securing clip to stabilizer.

B. Upper Vertical Stabilizer Installation

1. Refer to Figure 53-6. Position C042-1 stabilizer on empennage. Verify 0.030-0.120 inch gap between C042-1 stabilizer skin edges and upper horizontal stabilizer skins. File vertical stabilizer skin edge(s) as required.
2. Install four bolts (threaded) and spacers securing C042-1 stabilizer to upper horizontal stabilizer. Special torque bolts per § 20-33 and torque stripe per Figure 5-1.
3. Install fastener securing C554 clips to upper horizontal stabilizer trailing edge. (If reusing C554-1 clip, install clip and fastener, and match drill clip to vertical stabilizer with #30 drill. Deburr holes and install rivets.) Torque stripe fastener per Figure 5-1.

C. Lower Vertical Stabilizer Removal

1. Remove tail rotor guard assembly per § 53-53.
2. Remove aux stabilizer assembly per § 53-52, and tail skid per § 53-54, as required.
3. Refer to Figure 53-6. Remove fastener securing C554 clips to upper horizontal stabilizer trailing edge.
4. Support C043-1 lower vertical stabilizer. Remove four bolts (threaded) and spacers securing C043-1 stabilizer to upper horizontal stabilizer, and remove C043-1 stabilizer.
5. If replacing stabilizer, C554-2 clip may be reused. Drill out two rivets securing clip to stabilizer.

D. Lower Vertical Stabilizer Installation

1. Refer to Figure 53-6. Position C043-1 stabilizer on empennage. Verify 0.030-0.120 inch gap between C043-1 stabilizer skin edges and upper horizontal stabilizer skins. File vertical stabilizer skin edge(s) as required.
2. Install four bolts (threaded) and spacers securing C043-1 stabilizer to upper horizontal stabilizer. Special torque bolts per § 20-33 and torque stripe per Figure 5-1.
3. Install fastener securing C554 clips to upper horizontal stabilizer trailing edge. (If reusing C554-2 clip, install clip and fastener, and match drill clip to vertical stabilizer with #30 drill. Deburr holes and install rivets.) Torque stripe fastener per Figure 5-1.
4. Install aux stabilizer assembly per § 53-52, and tail skid per § 53-54, as required.
5. Install tail rotor guard assembly per § 53-53.

62-46 Voids and Debonds**WARNING**

Voids or debonds in rotor blades are not field repairable. Notify RHC Technical Support when voids exceeding the limits specified in the instructions below are found, providing blade serial number, helicopter serial number, time in service for the rotor blade, and location and size of the voids that exceed the limits.

CAUTION

Tap-test voids and debonds in blades using an AN970-4 washer or 1965-or-later U.S. quarter dollar coin in good condition.

A. Tip Caps, Spars, and Trailing Edges

1. Refer to Figure 62-18. Verify no continuous void larger than 0.10 square inch. 90% of the area must be securely bonded. Voids separated by 0.25 inch or less spanwise are considered continuous.

B. Doublers

1. Refer to Figure 62-19. Voids or debonds in doublers are not field-repairable.
 - a. Critical Areas: Area less than 0.50 inch spanwise and less than 0.30 inch chordwise from edge of doubler. Verify no individual void larger than 0.10 square inch except at the doubler finger tips. The finger tips may be debonded from the outboard tip to 1.0 inch inboard. Voids that are separated by less than 0.25 inch shall be considered continuous.
 - b. Non-Critical Areas: Area more than .50 inch spanwise or more than .30 inch chordwise from doubler edges. Verify void does not exceed 2.0 inches chordwise by 7.0 inches spanwise maximum continuous void. Voids that are separated by less than 0.25 inch shall be considered continuous. Total area of any void may not exceed 6.0 square inches.
2. If voids or debonds are beyond limit, contact RHC Technical Support.

C. Honeycomb

1. Refer to Figure 62-20. Verify damage does not exceed the following limits:
 - a. 1.50 inch chordwise or 20.00 inch spanwise maximum continuous void between RS 121.00 & inboard. Total area of any void may not exceed 15.0 square inches.
 - b. 2.50 inch chordwise or 20.00 inch spanwise maximum continuous void between RS 121.00 & RS 196.50. Total area of any void may not exceed 15.0 square inches.

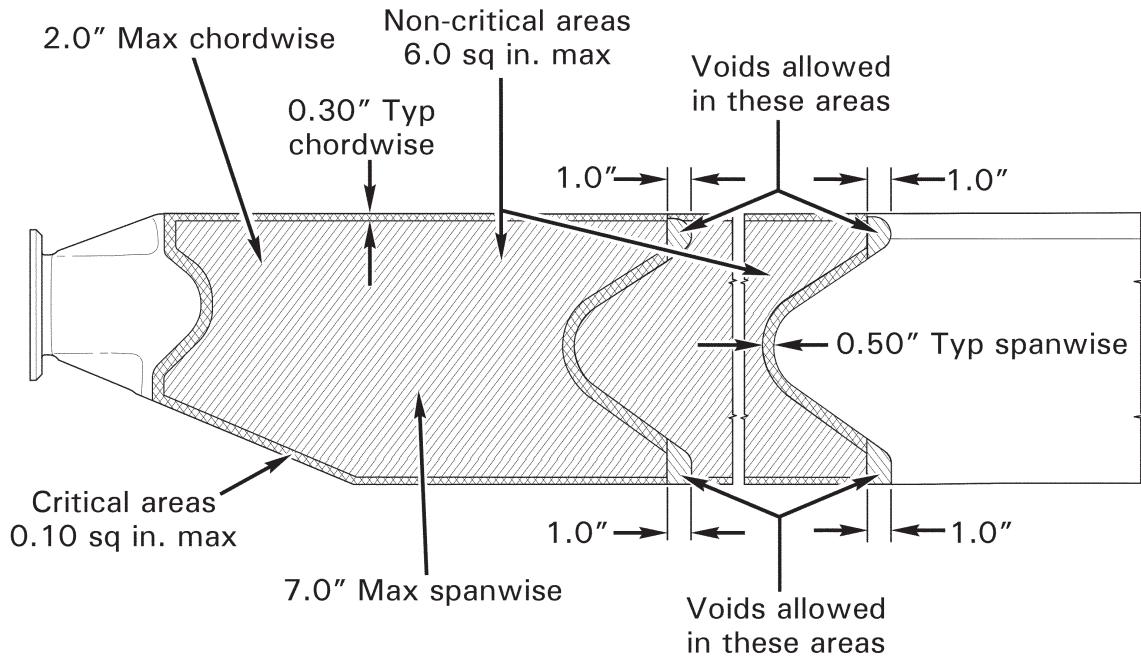


FIGURE 62-19 DOUBLERS - VOID AND DEBOND LIMITS

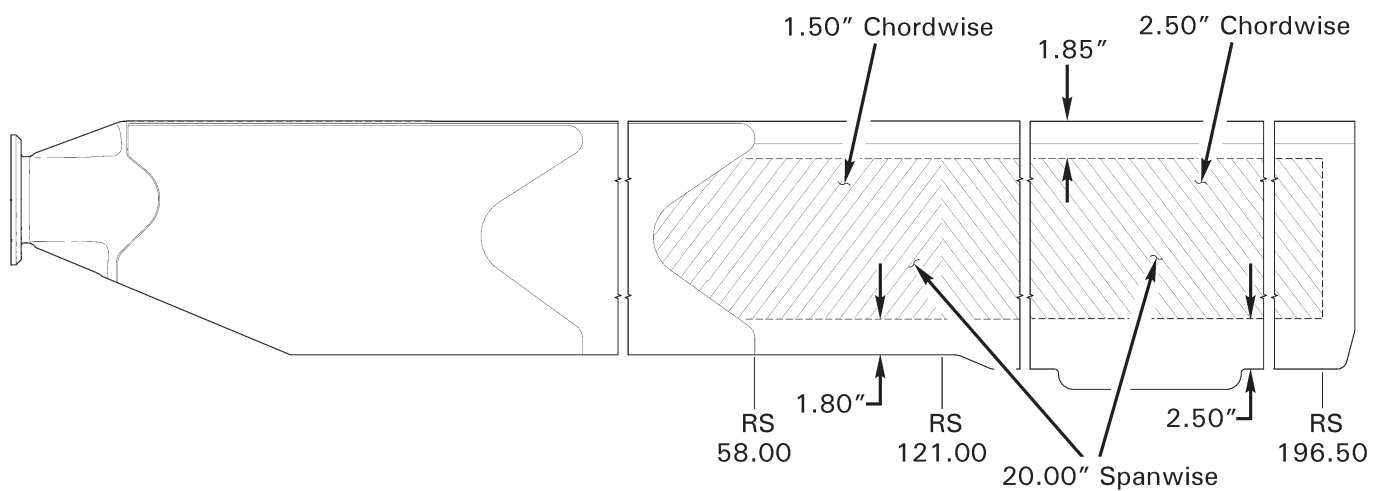


FIGURE 62-20 HONEYCOMB - VOID AND DEBOND LIMITS

62-50 Repair of Main Rotor Blades**WARNING**

Unauthorized repairs to rotor blades have caused fatal crashes.

CAUTION

Do NOT use power tools, chemical paint strippers, or chemical corrosion removers to repair main rotor blades.

NOTE

Refer to § 20-70 for approved materials.

1. Measure damage per § 62-40.
2. Polish out blade damage using 220 grit or finer wet-or-dry aluminum-oxide abrasive paper, and finish with 320 grit or finer wet-or-dry abrasive paper. Hand-sand in spanwise direction.
3. A fine-toothed file may be used along the spar and trailing edge, provided the area is finished with 320 grit or finer wet-or-dry abrasive paper. Hand-sand or file in spanwise direction.
4. Remove only the material necessary to reach the bottom of the damage, and to blend the reworked area to the radius or dimension required. Visually inspect and verify all damage is removed.
5. Measure reworked area and verify material removed and/or new chord dimension is permissible per § 62-40.
6. Seal and fill per § 62-51, as required. Paint per § 62-52, as required.
7. Track and balance main rotor per Chapter 18, as required.

62-51 Sealing, Filling, and Fairing

1. Clean area needing sealing, filling, and fairing with QSOL 220.
2.
 - a. Apply B270-27 adhesive to seal all exposed bond joints except at tip of blade and 4–6 inches of outboard end of skin/spar joint; remove excess adhesive.
 - b. Apply B270-1 sealant to seal tip of blade and 4–6 inches of outboard end of skin/spar joint; remove excess sealant. Cure for 2–3 hours at $125^{\circ} \pm 25^{\circ}$ or air dry for 72 hours minimum.
3. Using 240 grit or finer wet-or-dry aluminum-oxide abrasive paper, hand-sand cured adhesive in spanwise direction to a smooth, aerodynamic finish, congruent with the blade airfoil. Do not remove metal.
4. Hand-sand surrounding painted surface until 25% primer remains. Keep bare metal to a minimum.

62-52 Painting

CAUTION

If force-drying paint, do not exceed 175°F surface temperature on blade; monitor blade temperature by temporarily installing P/N 110-2 Telatemp on blade skin.

1. Mask area to prevent overspray contamination.
2. Clean bare metal to be painted with a lint-free cloth dampened with enamel cleaner (see Approved Materials, § 20-70).
3. Prime bare metal with at least two coats of epoxy primer. Scuff first coat of primer with 320 grit abrasive paper (or very fine Scotch-Brite), and wipe down with a lint-free cloth dampened with enamel cleaner prior to applying new coat.

NOTE

Best results are achieved if primer is allowed to air-dry for 12 hours prior to top coat application.

4. Refer to Figure 62-21. Apply dark gray, flat black, white, and/or yellow Dupont Imron polyurethane enamel (or equivalent; see Approved Materials, § 20-70), as required, to primed area in accordance with paint manufacturer's recommendations.

NOTE

Allow Imron paint to cure at least 72 hours before flying in erosive conditions (such as drizzle, rain, or dust).

5. Remove masking materials.

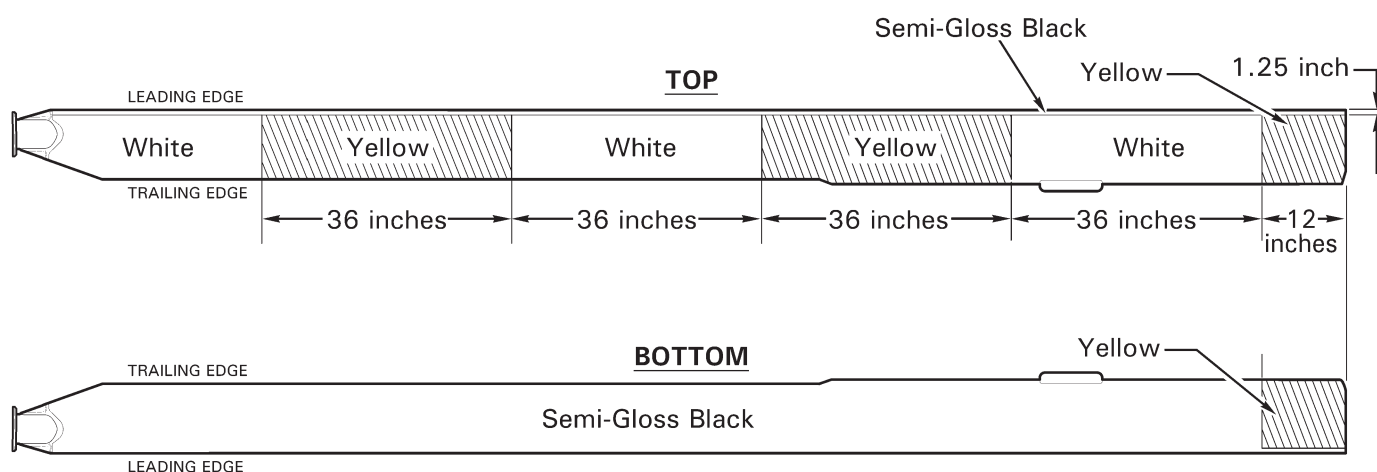


FIGURE 62-21 MAIN ROTOR BLADE PAINT SCHEME

63-12 Clutch Assembly**A. Removal**

1. Remove engine shaft weldment per § 63-10.
2. Refer to Figure 63-1. Mark F906 yoke assembly and A947-2 plate assembly, to facilitate installation. Remove plate assembly, noting hardware removed.
3. Remove bolt securing G732 cap and spacer (if installed). Remove clutch assembly. |

B. Installation

1. Refer to Figure 63-1. Lubricate F018-1 clutch assembly splines using A257-1, -9, or -12.
2. Insert clutch assembly in engine. Install spacer (earlier R66s), G732 cap, and bolt at rear PTO pad. Use bolt to rotate combined clutch-PTO gear and measure runout of clutch housing at largest diameter; runout must not exceed 0.004 inch. Standard torque bolt per § 20-32 and torque stripe per Figure 5-1. |
3. Install A947-2 plate assembly, as noted during removal. Standard torque fasteners | per § 20-32, and torque stripe per Figure 5-1.
4. Install engine shaft weldment per § 63-10.

63-20 Main Rotor Gearbox Assembly**A. Removal**

1. Remove main rotor blades per § 62-10.
2. Remove tailcone cowling assembly per § 53-23.
3. Disconnect (pitot system) 15-4-N-O union near G201-1 (servo support) frame assembly. Cap fitting and plug line.
4. Refer to Figure 63-1. Remove hardware securing F908-1 and F910-1 yoke assemblies to plate assemblies, leaving plates attached to shaft weldments. Note hardware removed.
5. Remove hardware securing F121-7 push-pull tube assembly to F339-1 jackshaft weldment, and F121-5 push-pull tube assemblies to D212-5 servo assemblies.
6. Detach cable assembly from (rotor brake assembly) B112-3 spring.
7. Using back-up wrench, disconnect D205-19 and D205-20 hose assemblies from F006-1 main rotor gearbox and D500-3 oil pump. Cap and plug fittings and hoses.
8. Disconnect F059-01 cabin harness assembly plug from F049-01 gearbox harness assembly receptacle. Remove hardware securing A936-3 (ground) wire assembly to F560-1 bulkhead assembly.
9. Remove D277-8 clamp or cut and discard safety wire securing Tygon® tube to G254-1 (fuel) vent assembly, and clear tubing from workspace.
10. Install hoisting equipment per § 7-20, Part A, steps 1 thru 4; remove hoist slack.
11. Remove hardware securing F252-1 strut to F020-1 upper frame assembly. Remove (mounting bolt) nuts and washers securing gearbox to upper frame. Remove aft mounting bolts securing F235-13 strut assemblies to servo support frame, hardware securing struts to upper frame, and struts.
12. Hoist gearbox (with hydraulic installation, servo support frame, and mast fairing assembled) up and away from helicopter.

71-11 Preparing Engine for Rolls-Royce Maintenance Facility**NOTE**

Cap and plug Rolls-Royce engine model 250-C300/A1 engine fluid ports, electrical connectors, etc., and in removed components, progressively during procedure to prevent foreign object contamination.

1. Refer to Figures 71-1 and 71-2. Remove hardware securing MS21919WCH clamp(s) to engine vertical firewall and F577-5 bracket (earlier R66s). Loosen B277 clamp(s) and remove A729-68 tubes (if installed), breather hose/tube, and F170 fitting. Install plug.
2. Refer to Figure 76-1. Remove D930-2 spring from fuel control unit.
3. Refer to Figure 71-4. Remove hardware securing F169-2 base (and F577-5 bracket, if installed) to exhaust collector. Remove base (and bracket) and install exhaust collector cover.
4. To remove (engine) electrical harness:
 - a. Disconnect engine harness's plug from engine magnetic plug on bottom of engine accessory gearbox.
 - b. Remove hardware securing harness wire terminal to ignition exciter box stud.
 - c. Cut and discard ty-raps as required, and disconnect G426-1 (fuel differential pressure) switch assembly wire from harness at connectors. Cut and discard stand-off ty-raps at switch wire and F741-1 line assembly.
 - d. Remove hardware securing (2) MS21919WCH4 clamps to (bottom of) engine gearbox.
 - e. Disconnect harness plugs from anti-ice valve assembly solenoid, anti-ice pressure switch assembly, and N₁ speed pick-up assembly.
 - f. Remove hardware securing (2) MS21919WCH4 clamps to (2) engine-supplied MS9592-050 brackets.
 - g. Remove hardware securing harness wire terminals to measured gas temperature (MGT) thermocouple studs.
 - h. Disconnect harness plug from engine magnetic plug near oil line unions.
 - i. Cut and discard ty-raps as required, and disconnect D745-3 pressure switch assembly from harness at connectors.
 - j. Remove hardware securing F577-1 and F577-3 bracket assemblies to (right side of) engine gearbox. Remove harness.
5. Remove engine inlet bellmouth per § 71-23 Part A steps 2 and 3.

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6. Disconnect F741-1 line assembly from G426-1 switch assembly and fuel pump's A919-OD reducer and remove line.
7. Disconnect F727-1 line assembly from fuel pump's AN919-2D reducer. Disconnect F727-2 line assembly from engine fireshield's drain fitting. Remove hardware securing MS21919WCH4 clamp the combustion section's plug flange and remove lines.
8. Remove AN919-OD and AN919-2D reducers, and G426-1 switch assembly, from fuel pump.
9. Remove hardware securing F593-3 plate to bottom of engine gearbox and remove plate.
10. Remove bolt, spacer (if installed), and G732 cap securing F018-1 clutch assembly in engine gearbox and remove clutch assembly.
11. Remove AN815-8D union from engine gearbox TANK VENT port, AN815-8D union or CV26-77 check valve (early R66s) from OIL OUTLET port, and AN815-10D union from OIL INLET port. Remove D745-3 pressure switch assembly from engine gearbox.
12. Cut and discard safety wire (if present) and remove hardware securing G200-1 engine lifting lug and G200-2 cover to engine gearbox, if installed. Remove lug, cover, and any residual B270-1 sealant.

NOTE

Removal of RHC-installed fuel-flow transducer (optional equipment) is not required, but may be desired for use in spare engine. Refer to § 28-23.

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| 92.52 | JUL 2020 | 95.19 | APR 2017 | 97.i | APR 2019 |
| 92.53 | JUL 2020 | 95.20 | APR 2017 | 97.ii | APR 2019 |
| 92.54 | JUL 2020 | 95.21 | JUL 2020 | 97.1 | APR 2019 |
| 92.55 | JUL 2020 | 95.22 | JUL 2020 | 97.2 | APR 2019 |
| 92.56 | JUL 2020 | 95.23 | APR 2019 | 97.3 | APR 2019 |
| 92.57 | JUL 2020 | 95.24 | APR 2019 | 97.4 | APR 2019 |
| 92.58 | JUL 2020 | 95.25 | APR 2019 | 97.5 | APR 2019 |
| 92.59 | JUL 2020 | 95.26 | APR 2019 | 97.6 | APR 2019 |
| 92.60 | JUL 2020 | 95.27 | APR 2019 | 97.7 | APR 2019 |
| 92.61 | JUL 2020 | 95.28 | APR 2019 | 97.8 | APR 2019 |
| 92.62 | JUL 2020 | 95.29 | APR 2019 | 97.9 | APR 2019 |
| 92.63 | JUL 2020 | 95.30 | APR 2019 | 97.10 | APR 2019 |
| 92.64 | JUL 2020 | 95.31 | APR 2019 | 97.11 | APR 2019 |
| 92.65 | JUL 2020 | 95.32 | APR 2019 | 97.12 | APR 2019 |
| 92.66 | JUL 2020 | | | 97.13 | APR 2019 |
| 92.67 | JUL 2020 | 96.i | JUL 2020 | 97.14 | APR 2019 |
| 92.68 | JUL 2020 | 96.ii | JUL 2020 | 97.15 | APR 2019 |
| | | 96.1 | APR 2019 | 97.16 | APR 2019 |
| 95.i | JUL 2020 | 96.2 | APR 2019 | 97.17 | JUL 2020 |
| 95.ii | JUL 2020 | 96.3 | APR 2019 | 97.18 | JUL 2020 |
| 95.1 | APR 2017 | 96.4 | APR 2019 | 97.19 | APR 2019 |
| 95.2 | APR 2017 | 96.4A | APR 2019 | 97.20 | APR 2019 |
| 95.3 | APR 2017 | 96.4B | APR 2019 | 97.21 | APR 2019 |
| 95.4 | APR 2017 | 96.5 | JUL 2020 | 97.22 | APR 2019 |
| 95.5 | APR 2017 | 96.6 | JUL 2020 | 97.23 | APR 2019 |
| 95.6 | APR 2017 | 96.7 | JUL 2020 | 97.24 | APR 2019 |
| 95.7 | APR 2019 | 96.8 | JUL 2020 | 97.25 | APR 2019 |
| 95.8 | APR 2019 | 96.9 | APR 2017 | 97.26 | APR 2019 |
| 95.9 | APR 2019 | 96.10 | APR 2017 | 97.27 | APR 2019 |
| 95.10 | APR 2019 | 96.11 | APR 2017 | 97.28 | APR 2019 |
| 95.11 | APR 2017 | 96.12 | APR 2017 | 97.29 | APR 2019 |
| 95.12 | APR 2017 | 96.13 | APR 2017 | 97.30 | APR 2019 |
| 95.13 | APR 2017 | 96.14 | APR 2017 | | |
| 95.14 | APR 2017 | 96.15 | APR 2017 | 98.i | JUL 2020 |

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|------------------|-------------|------------------|-------------|------------------|-------------|
| 98.ii | JUL 2020 | 98.32 | APR 2017 | 99.3 | APR 2017 |
| 98.1 | JUL 2020 | 98.33 | APR 2017 | 99.4 | APR 2017 |
| 98.2 | JUL 2020 | 98.34 | APR 2017 | 99.5 | APR 2017 |
| 98.2A | JUL 2020 | 98.35 | APR 2017 | 99.6 | APR 2017 |
| 98.2B | JUL 2020 | 98.36 | APR 2017 | 99.7 | APR 2017 |
| 98.3 | APR 2017 | 98.37 | APR 2017 | 99.8 | APR 2017 |
| 98.4 | APR 2017 | 98.38 | APR 2017 | | |
| 98.5 | APR 2017 | 98.39 | APR 2017 | 100.i | MAY 2021 |
| 98.6 | APR 2017 | 98.40 | APR 2017 | 100.ii | MAY 2021 |
| 98.7 | APR 2017 | 98.41 | APR 2017 | 100.1 | MAY 2021 |
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| 98.9 | APR 2017 | 98.43 | APR 2017 | 100.3 | MAY 2021 |
| 98.10 | APR 2017 | 98.44 | APR 2017 | 100.4 | MAY 2021 |
| 98.11 | APR 2017 | 98.45 | JUL 2020 | 100.5 | MAY 2021 |
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| 98.13 | JUL 2020 | 98.45B | JUL 2020 | 100.7 | MAY 2021 |
| 98.14 | JUL 2020 | 98.46 | JUL 2020 | 100.8 | MAY 2021 |
| 98.15 | APR 2019 | 98.47 | APR 2017 | 100.9 | MAY 2021 |
| 98.16 | APR 2019 | 98.48 | APR 2017 | 100.10 | MAY 2021 |
| 98.17 | APR 2017 | 98.49 | APR 2019 | | |
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| 98.20 | APR 2017 | 98.52 | APR 2019 | | |
| 98.21 | APR 2017 | 98.53 | APR 2019 | | |
| 98.22 | APR 2017 | 98.54 | APR 2019 | | |
| 98.23 | APR 2017 | 98.55 | APR 2019 | | |
| 98.24 | APR 2017 | 98.56 | APR 2019 | | |
| 98.24A | JUL 2020 | 98.57 | APR 2019 | | |
| 98.24B | JUL 2020 | 98.58 | APR 2019 | | |
| 98.24C | JUL 2020 | 98.59 | APR 2019 | | |
| 98.24D | JUL 2020 | 98.60 | APR 2019 | | |
| 98.25 | APR 2017 | 98.61 | JUL 2020 | | |
| 98.26 | APR 2017 | 98.62 | JUL 2020 | | |
| 98.27 | APR 2017 | | | | |
| 98.28 | APR 2017 | 99.i | APR 2017 | | |
| 98.29 | APR 2017 | 99.ii | APR 2017 | | |
| 98.30 | APR 2017 | 99.1 | APR 2017 | | |
| 98.31 | APR 2017 | 99.2 | APR 2017 | | |

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