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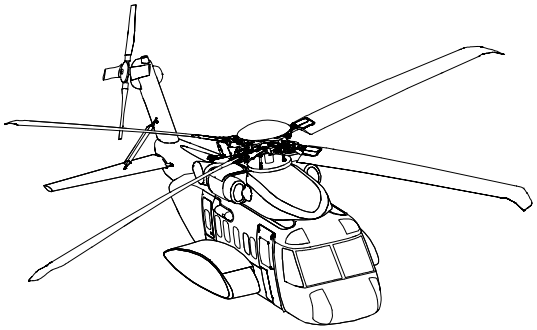


S-92® HELICOPTER

ALERT SERVICE BULLETIN

ASB 92-62-010

Basic Issue ▪ January 26/22

SUBJECT: ROTORS – Main Rotor (MR) Swashplate Assembly – One-Time Inspection of MR Stationary Swashplate Assembly to Initiate a 50-Hour Recurring Inspection

Section 1. PLANNING INFORMATION

A. Effectivity — All S-92A helicopters with Serial Numbers (S/Ns) 920006 through subsequent equipped with MR stationary swashplate assemblies (92104-15011-042/-043) including spares, delivered as of the issue date of this Alert Service Bulletin (ASB).

B. Purpose — To provide instructions for a one-time inspection of MR stationary swashplate assembly (92104-15011-042/-043) for cracks. Also, to initiate a 50-hour recurring inspection.

C. Background — An occurrence of an in-service crack was reported on MR stationary swashplate assembly inner ring during a recurring inspection. A detailed inspection has been developed to determine if cracks are present.

D. Description — Helicopter is prepared for inspection. Visual inspection of MR stationary swashplate assembly is performed. Dependent on accrued flight time or suspicion of cracks, a Fluorescent Penetrant Inspection (FPI) or Eddy Current (EC) inspection is performed. If cracks are confirmed, swashplate assembly is removed, replaced, and Sikorsky Customer Service Engineering is contacted. Helicopter is returned to service.

Section 1. PLANNING INFORMATION (Continued)

E. Compliance — Compliance is essential. The inspection outlined herein shall be accomplished within 100 flight hours or 30 days from the issue date of this ASB, whichever occurs first.

F. Approval — Inspection Item.

G. Manpower (Estimated)

Task	No. of Men	No. of Hours	Man-Hours*
Visual Inspection of MR Stationary Swashplate Assembly	1	1.0	1.0
Performance of Fluorescent Penetrant Inspection (FPI) or Eddy Current (EC)	1	8.0	8.0
Total Man-Hours			9.0
*Estimate does not include time required to prepare helicopter or return it to flight status.			

H. Tooling

Qty	Nomenclature	Part No.	Source
1	Nonmetallic Scraper	Commercially available or equivalent	(1)
A/R	Inspection Mirror	Commercially available or equivalent	(1)
A/R	Magnaflux EV6000	Commercially available or equivalent	(1)
A/R	Olympus NORTEC 600	Commercially available or equivalent	(1)
A/R	Probe, straight, shielded surface, 100 kHz-500 kHz	Commercially available or equivalent	(1)
A/R	Manual bolt hole inspection probe, shielded		(1)
A/R	Manual bolt hole inspection probe, shielded, 50 kHz-500 kHz	Commercially available or equivalent	(1)
A/R	Cable assembly	Commercially available or equivalent	(1)
A/R	Reference block, three-notched aluminum (0.008, 0.020, 0.040 EDM notches) or hole standard for use with bolt hole probes	Commercially available or equivalent	(1)

Section 1. PLANNING INFORMATION (Continued)

(1) Available through normal supply channels.

I. Weight and Balance

Not affected.

J. Electrical Load Data

Not affected.

K. Software Load Data

Not changed.

L. References

(1) Maintenance Manual SA S92A-AMM-000, Task 20-06-00-910-005.

(2) Maintenance Manual SA S92A-AMM-000, Task 20-06-00-910-007.

(3) Maintenance Manual SA S92A-AMM-000, Tasks 62-31-01-900-001/-002.

(4) Maintenance Manual SA S92A-AMM-000, Tasks 62-20-00-219-001.

(5) Structural Repair Manual, SA S92A-SRM-000, Task 20-10-00-390-007.

(6) Structural Repair Manual, SA S92A-SRM-000, Task 62-20-01-300-005

M. Publications Affected

(1) Temporary Revision 62-43 against Maintenance Manual, SA S92A-AMM-000, Task 62-31-00-215-001 will be released concurrently with this ASB.

(2) Temporary Revision 62-44 against Maintenance Manual, SA S92A-AMM-000, Task 62-31-01-210-001 will be released concurrently with this ASB.

(3) Temporary Revision 62-45 against Maintenance Manual, SA S92A-AMM-000, Task 62-20-00-219-001 will be released concurrently with this ASB.

(4) Temporary Revision 62-46 against Maintenance Manual, SA S92A-AMM-000, Task 62-31-01-900-001 will be released concurrently with this ASB.

(5) Temporary Revision 62-47 against Maintenance Manual, SA S92A-AMM-000, Task 62-31-02-900-001 will be released concurrently with this ASB.

(6) Temporary Revision 62-48 against Maintenance Manual, SA S92A-AMM-000, Task 62-31-03-900-001 will be released concurrently with this ASB.

(7) Temporary Revision 67-26 against Maintenance Manual, SA S92A-AMM-000, Task 67-31-01-900-001will be released concurrently with this ASB.

Section 1. PLANNING INFORMATION (Continued)

N. Attachment

None.

Section 2. MATERIAL INFORMATION

A. Procurement Requirements:

None.

B. Basis for Material Data

Per helicopter.

C. Bill of Material

None.

D. Consumable Material

WARNING

OBSERVE ALL CAUTIONS AND WARNINGS ON CONTAINERS WHEN USING CONSUMABLES. WHEN APPLICABLE, WEAR NECESSARY PROTECTIVE GEAR DURING HANDLING AND USE. IF A CONSUMABLE IS FLAMMABLE OR EXPLOSIVE, MAKE CERTAIN CONSUMABLE AND ITS VAPORS ARE KEPT AWAY FROM HEAT, SPARK AND FLAME. MAKE CERTAIN FIREFIGHTING EQUIPMENT IS READILY AVAILABLE PRIOR TO USE. FOR ADDITIONAL INFORMATION ON TOXICITY, FLASHPOINT AND FLAMMABILITY OF CHEMICALS, CONSULT YOUR MEDICAL DEPARTMENT OR THE MANUFACTURER OF THE CONSUMABLE.

Qty	Nomenclature	Part No.	Source
A/R	Low-lint Cloth	A-A-59323 or equivalent	(1)
A/R	Brulin Cleaner	SD 1291 or equivalent	(1)
A/R	Paint Stripper	MIL-R-81294 or equivalent	(1)
A/R	Teflon tape	Commercially available or equivalent	(1)
A/R	Aircraft marking pencil	Commercially available or equivalent	(1)
A/R	Level 3 Solvent Removable Fluorescent Penetrant	ZL-67A or equivalent	(1)
A/R	Non-Aqueous, Developer	ZP-9F or equivalent	(1)

(1) Available through normal supply channels.

Section 3. ACCOMPLISHMENT INSTRUCTIONS

A. Prepare helicopter for inspection:

WARNING TO PREVENT ELECTRICAL SHOCK OF PERSONNEL OR POSSIBLE DAMAGE TO HELICOPTER COMPONENTS, MAKE SURE TO TURN OFF ALL ELECTRICAL POWER.

(1) Turn off all helicopter electrical and hydraulic power.

(2) Engage rotor brake.

(3) Helicopters operating at a gross weight of 26,500 lbs. equipped with swashplate assembly with less than 8,600 flight hours, or helicopters operating at a gross weight of 27,700 lbs., equipped with swashplate assembly with less than 3,300 flight hours, shall perform the visual inspection per step B.

(4) Helicopters operating at a gross weight of 26,500 lbs. equipped with swashplate assembly with 8,600 flight hours or above, or helicopters operating at a gross weight of 27,700 lbs., equipped with swashplate assembly with 3,300 flight hours or above, shall perform the visual inspection per step B. as well as the eddy current inspection per step C. or Fluorescent Penetrant Inspection (FPI) per step D.

NOTE: Removal of components are not required for visual inspection of the swashplate assembly (92104-15011-042/-043).

B. Inspect swashplate assembly (92104-15011-042/-043) as follows:

(1) Using clean, low-lint cloth and Brulin cleaner (SB 1291), remove all traces of oil and dirt from the following locations:

- Stationary swashplate: Uniball lower bore lip. (Refer to Figure 1).
- Stationary swashplate: Uniball upper bore. (Refer to Figure 2).
- Stationary swashplate: Trunnion mount bolt holes. (Refer to Figure 3).

NOTE: The presence of sealing compound around holes should be minimal.

(2) If sealing compound at trunnion attachment bolts is obstructing view of the trunnion mount area, remove sealing compound from nuts using non-metallic scraper. Clean area with low-lint cloth moistened with Brulin cleaner (SD 1291).

NOTE: The area under caulking, wire harnesses, wire harness mounts, brackets, washers, and bolts shall be omitted from inspection zones.

(3) Using strong white light, and inspection mirror, visually inspect the following defined zones for cracks or other anomalies: No cracks allowed.

NOTE: Crack may start at the bearing race interface lip and propagate outward breaking through bottom surface.

Section 3. ACCOMPLISHMENT INSTRUCTIONS (Continued)

(a) Uniball lower bore lip – Search for cracks emanating from underside of inner ring. See Figure 1, Detail B.

NOTE: Crack may start at upper end of inner bore and propagate outward.

(b) Uniball upper bore – Breakthrough occurs on vertical wall near bearing retainer. See Figure 2, Details A and B.

NOTE: Cracks in the swashplate may start at the trunnion attachment under the hole bushing flange and propagate radially outward.

(c) Trunnion mount bolt holes – Inspection zone begins outside of the minimal caulking region. See Figure 3, Detail A.

(4) During visual inspection, discontinuities in the surface may be observed that require confirmation as either (1) a detectable crack (none allowed) that would have a detectable depth or length, or (2) only a surface break defect (suspected crack) in the paint/primer that could include observable metallic base material. The process steps to confirm a detectable crack is to perform either the FPI (step D) or eddy current inspection (step C).

(5) If a crack is suspected at underside of swashplate assembly trunnion mount bolt holes, remove trunnion to perform FPI/ eddy current inspection. (Refer to Maintenance Manual SA S92A-AMM-000, Task 62-31-03-900-001).

(6) If presence of crack is confirmed, contact Sikorsky Customer Service Engineering at 1-800-WINGED-S or Email; wcs_cust_service_eng.gr-sik@lmco.com. Remove main rotor swashplate assembly (92104-15011-042/-043) and trunnions and return to Sikorsky Aircraft. (Refer to Maintenance Manual SA S92A-AMM-000, Task 62-31-01-900-001).

(7) If no cracks are found, proceed to step E.

NOTE:
- FPI or Eddy Current inspection is to be performed only if crack in swashplate (92104-15011-042/-043) is suspected.
- The following eddy current inspection procedure may be used where no specific inspection procedure exists for surface or manual hole inspection of aluminum alloys.
- This procedure establishes the minimum requirements and procedure Eddy Current method of structures called out by Engineering Drawing and/or Specification for eddy current surface inspection for crack detection.
- This process specification provides the minimum controls and requirements for accomplishing eddy current inspection of components and also establishes the general requirements for personnel, equipment, and application procedures so that the inspection practices employed are conducted in a safe, nondestructive, and reliable manner.

Section 3. ACCOMPLISHMENT INSTRUCTIONS (Continued)

- A partial inspection for cause (visual indications, sites of mechanical damage, corrosion, etc.) may be performed on all exposed surfaces of the swashplate assembly using this procedure.

C. If performing Eddy Current Inspection, do the following:

(1) Visually confirm start and stop locations of suspected crack.

(2) Make the following initial settings on the Eddy Current Inspection Unit:

Table 1

MAIN MENU		FILTER MENU		DISPLAY MENIU	
FREQ	200 KHz	LP Filter	100	H Pos	80 Percent
ANG	56 degrees	HP Filter	Off	V Pos	20 Percent
H Gain	57 db				
V Gain	69 db				
Probe Drive	Mid				

NOTE:
- Probe adapters may be used to aid in ensuring reliable and repeatable inspections.
- Bolt hole probes shall match as closely as possible (without exceeding) bolt hole diameter. Split core probes may be expanded based on the limits of the manufacturer's recommendations. This size of the probe shall ensure light continuous contact with the holes interior surface.

(3) Place probe on block in area without a notch and null the instrument:

(a) Hold probe coil on block parallel to surface or reference block.

(b) Lift probe away from surface. Repeat as necessary. Note direction of lift off. (Refer to Figure 4).

(4) Adjust Angle controls to rotate lift-off signal until displayed horizontally to the left on screen.

NOTE:
- Separation can be optimized by adjusting the H Gain, V Gain, and Angle controls.
- Low Pass Filter (LPF) may be adjusted +100/-50 Hz to minimize noise while maintaining maximum signal amplitude. Noise shall not exceed 1/3 of the EDM notch response.

(5) Move probe over all three notches in the test block. Adjust gain to obtain a five-block vertical signal when probe is passed over the 0.040-inch notch in the test block (See the standard instrument display in figure 4). Separation shall be distinguishable between all notches.

(a) During each calibration check, verify that the instrument signal amplitude is within ±10 percent of the initial reference notch signal amplitude.

Section 3. ACCOMPLISHMENT INSTRUCTIONS (Continued)

(b) If these conditions are not met, recalibrate and reexamine all hardware inspected since the last successful system calibration verification.

(c) Depth of defect can be estimated based on the phase separation of the known reference standard notch sizes.

NOTE:
- When the direction of principal loading is specified, scanning shall be parallel to the direction of loading.
- When the direction of suspected cracking is known, scanning shall be perpendicular to the cracking direction.
- When neither the principal loading direction nor cracking direction is known, scanning shall be in three directions, zero degrees, 45 degrees, and 90 degrees. For hole inspections using manual bolt hole probes, use overlapping scans in the circumferential direction.

(d) Using the same system setting, operating parameters, and scanning speed established during calibration, inspect area(s) specified in work order/drawing to ensure complete coverage of areas designated for inspection and scans should overlap scanning passes. Record results on applicable documents/forms.

1. All relevant crack or cracklike indications with amplitudes equal to or greater than 50% of reference level signal (0.040-inch notch unless otherwise specified) shall be rejected and documented.

NOTE: Area under caulking, wire harnesses, wire harness mounts, brackets, washers, and bolts shall be omitted from inspection zones.

(6) Perform Eddy Current Inspection per Maintenance Manual, SA S92A-AMM-000, Task 20-06-00-910-007, with primary focus on the following locations: No cracks allowed.

NOTE: Cracks may start at the bearing race interface lip and propagate outward breaking through bottom surface.

(a) Uniball lower bore lip – Search for cracks emanating from underside of inner ring. See Figure 1, Detail B.

NOTE: Cracks may start at upper end of inner bore and propagate outward.

(b) Uniball upper bore – Breakthrough occurs on vertical wall near bearing retainer. See Figure 2, Details A and B.

NOTE:
- Cracks in the swashplate may start at the trunnion attachment under the hole bushing flange and propagate radially outward.
- For eddy current inspection, offset tool can be used if probe is non-shielded. For shielded probes, no offset tool is required.

Section 3. ACCOMPLISHMENT INSTRUCTIONS (Continued)

(c) Trunnion mount bolt holes – Inspection zone begins outside of the minimal caulking region. See Figure 3, Detail A.

1. If presence of crack is confirmed, contact Sikorsky Customer Service Engineering at 1-800-WINGED-S or Email; wcs_cust_service_eng.gr-sik@lmco.com. Remove and return main rotor swashplate assembly (92104-15011-042/-043), uniball assembly, trunnions, and all associated attachment hardware and shims to Sikorsky Aircraft. (Refer to Maintenance Manual SA S92A-AMM-000, Task 62-31-01-900-001).

2. If no cracks are found, restore primer and topcoat as necessary per Structural Repair Manual, SA S92A-SRM-000, Task 62-20-01-300-005, and proceed to step E.

(7) Record results on applicable documents/forms.

D. If performing FPI, do the following:

(1) Visually confirm start and stop locations of suspected crack.

(2) Remove paint and remaining sealant material from suspected swashplate (92104-15011-042/-043) inspection areas using paint stripper (MIL-R-81294) and non-metallic scraper. (Refer to Structural Repair Manual, SA S92A-SRM-000, Task 20-10-00-390-007).

NOTE: • Inspection areas include swashplate uniball lower bore lip, swashplate upper bore, and swashplate trunnion mount bolts holes.

- Area under caulking, wire harnesses, wire harness mounts, brackets, washers, and bolts shall be omitted from inspection zones.
- Allow penetrant dwell time 20 minutes to 2 hours.
- Penetrant (ZL-67A), from factory sealed pressurized can, shall be sprayed onto cotton tipped applicator to apply penetrant to part.
- Allow developer dwell time 10 minutes to 1 hour.
- Minimum intensity of blacklight (Magnaflux EV6000) shall be 1500 µw/cm^2 at part surface.

(3) Using level 3 solvent removable fluorescent penetrant (ZL-67A) at sensitivity level 3, Perform FPI on the following defined zones. (Refer to Maintenance Manual SA S92A-AMM-000, Task 20-06-00-910-005):

NOTE: Cracks may start at the bearing race interface lip and propagate outward breaking through bottom surface.

(a) Uniball lower bore lip – Search for cracks emanating from underside of inner ring. See Figure 1, Detail B.

Section 3. ACCOMPLISHMENT INSTRUCTIONS (Continued)

NOTE: Cracks may start at upper end of inner bore and propagate outward.

(b) Uniball upper bore – Breakthrough occurs on vertical wall near bearing retainer. See Figure 2, Details A and B.

NOTE: Cracks in the swashplate may start at the trunnion attachment under the hole bushing flange and propagate radially outward.

(c) Trunnion mount bolt holes – Inspection zone begins outside of the minimal caulking region. See Figure 3, Detail A.

1. If there is excessive background fluorescence, remove anodized coating per Maintenance Manual SA S92A-AMM-000, Task 20-06-00-910-005.

2. Minimum detectable flaw size shall be 0.125 inches.

NOTE:
- All linear crack indications shall be rejected.
- Thru-wall linear crack indications, regardless of size, shall be rejected. Back-to-back discontinuities may be through wall indications that shall require further investigation.

(4) If presence of crack is confirmed, contact Sikorsky Customer Service Engineering at 1-800-WINGED-S or Email; wcs_cust_service_eng.gr-sik@lmco.com. Remove main rotor swashplate assembly (92104-15011-042/-043) and trunnions (92104-15050-042) and return to Sikorsky Aircraft. (Refer to Maintenance Manual SA S92A-AMM-000, Task 62-31-01-900-001).

(5) If no cracks are found, restore primer and topcoat as necessary per Structural Repair Manual, SA S92A-SRM-000, Task 62-20-01-300-005, and proceed to next step.

CAUTION

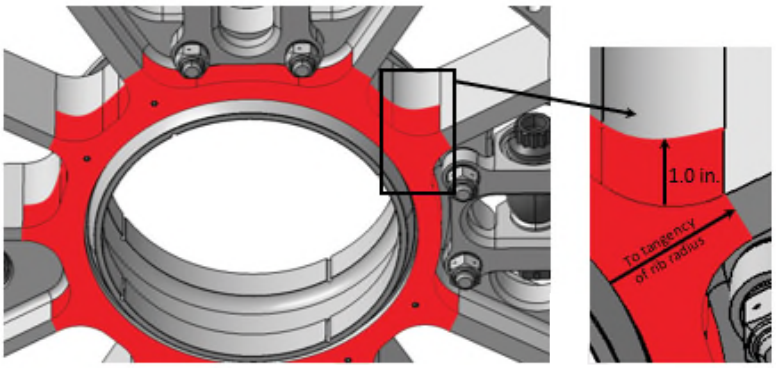
MAKE SURE ALL FOREIGN OBJECT DEBRIS (FOD) IS REMOVED BEFORE RETURNING HELICOPTER TO SERVICE.

E. Inspect for any remaining FOD. Clean as required to remove any remaining FOD.

F. Maintain 50-hour Inspection of the Stationary and Rotary Swashplate in accordance with Temporary Revision No. 62-43 against SA S92A-AMM-000, Task 62-31-00-215-001, listed in the Publications Affected section of this ASB.

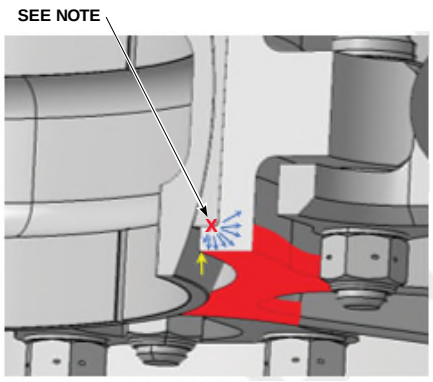
G. Return helicopter to service.

Section 3. ACCOMPLISHMENT INSTRUCTIONS (Continued)



DETAIL A

SECTION THROUGH RH TRUNNION ATTCH



NOTE

X DENOTES CRACK INITIATION. YELLOW ARROW DENOTES WHERE CRACK IS FIRST VISIBLE. BLUE ARROWS SHOW CRACK RADIATING FROM POINT OF INITIATION.

DETAIL B

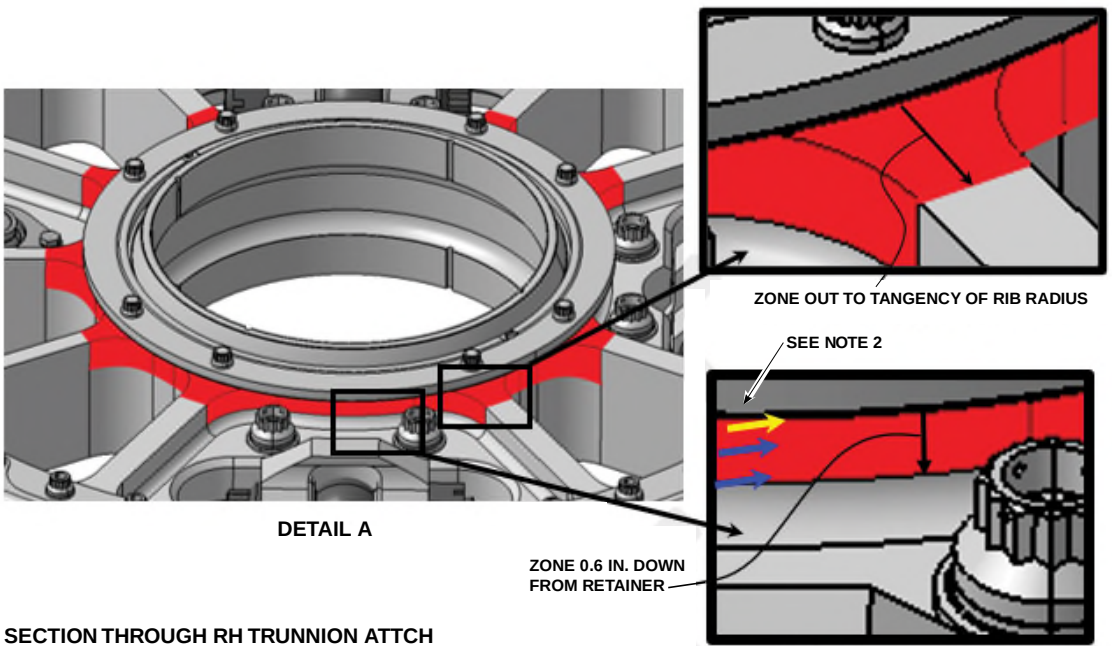
EXAMPLE OF UNIBALL LOWER BORE LIP CRACK

INSPECTION ZONE

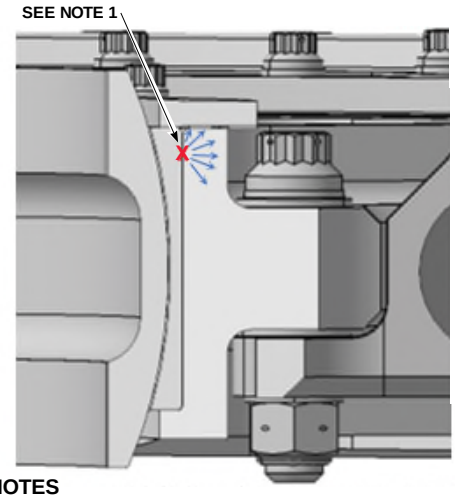
TD5088
SA

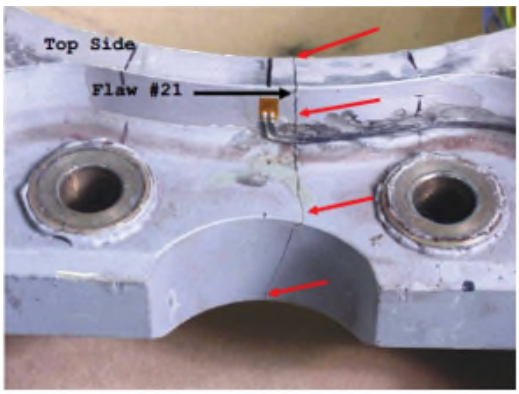
STATIONARY SWASHPLATE ASSEMBLY INSPECTION ZONES – UNIBALL LOWER BORE LIP
FIGURE 1

Section 3. ACCOMPLISHMENT INSTRUCTIONS (Continued)



SECTION THROUGH RH TRUNNION ATTCH





EXAMPLE OF UPPER BORE CRACK

NOTES

1. X DENOTES CRACK INITIATION. ARROWS SHOW CRACK RADIATION FROM POINT OF INITIATION.
2. YELLOW ARROW DENOTES WHERE CRACK FIRST VISIBLE UNDER RETAINER. BLUE ARROWS DENOTES TYPICAL CRACK PATH.

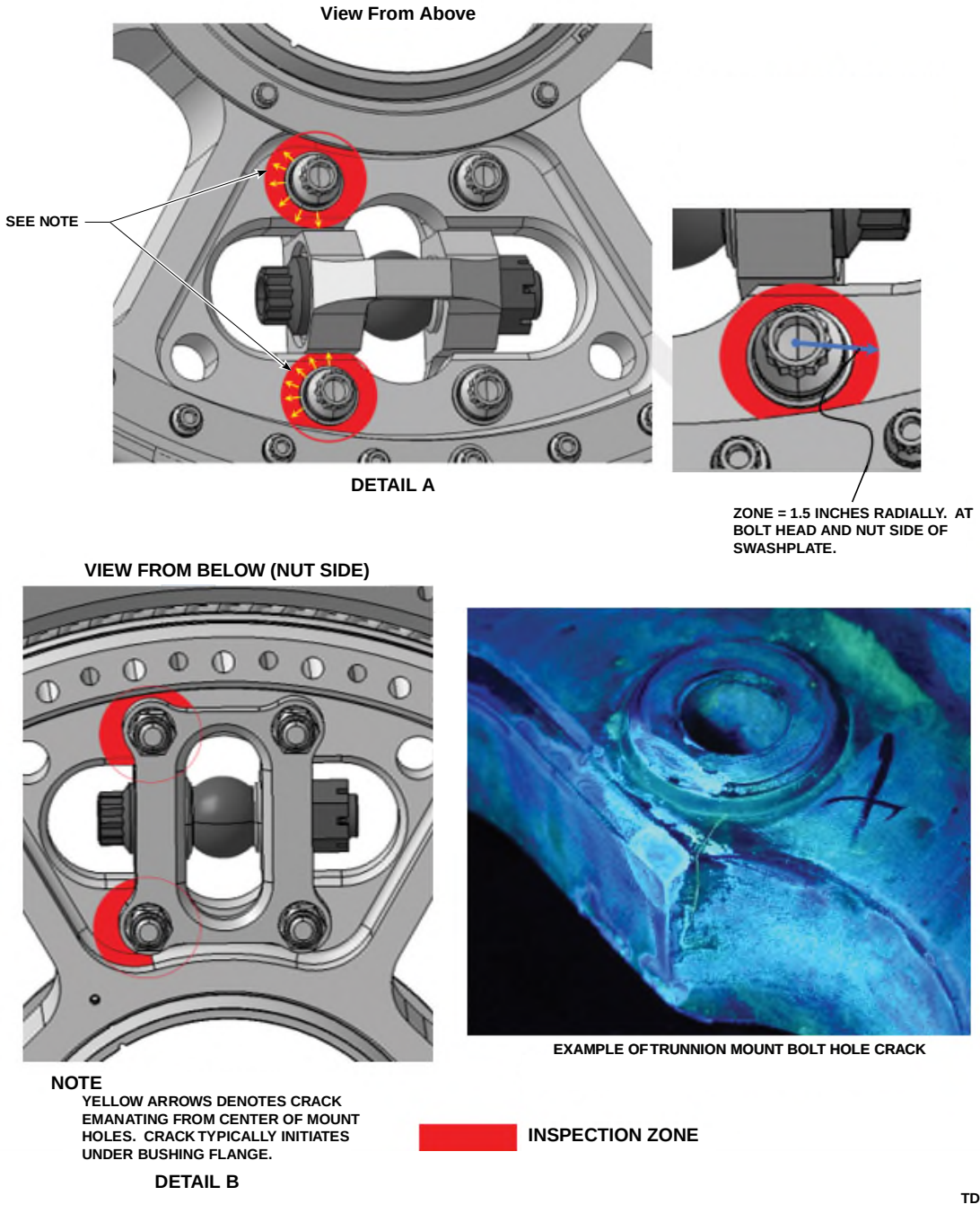
DETAIL B

INSPECTION ZONE

TD5089
SA

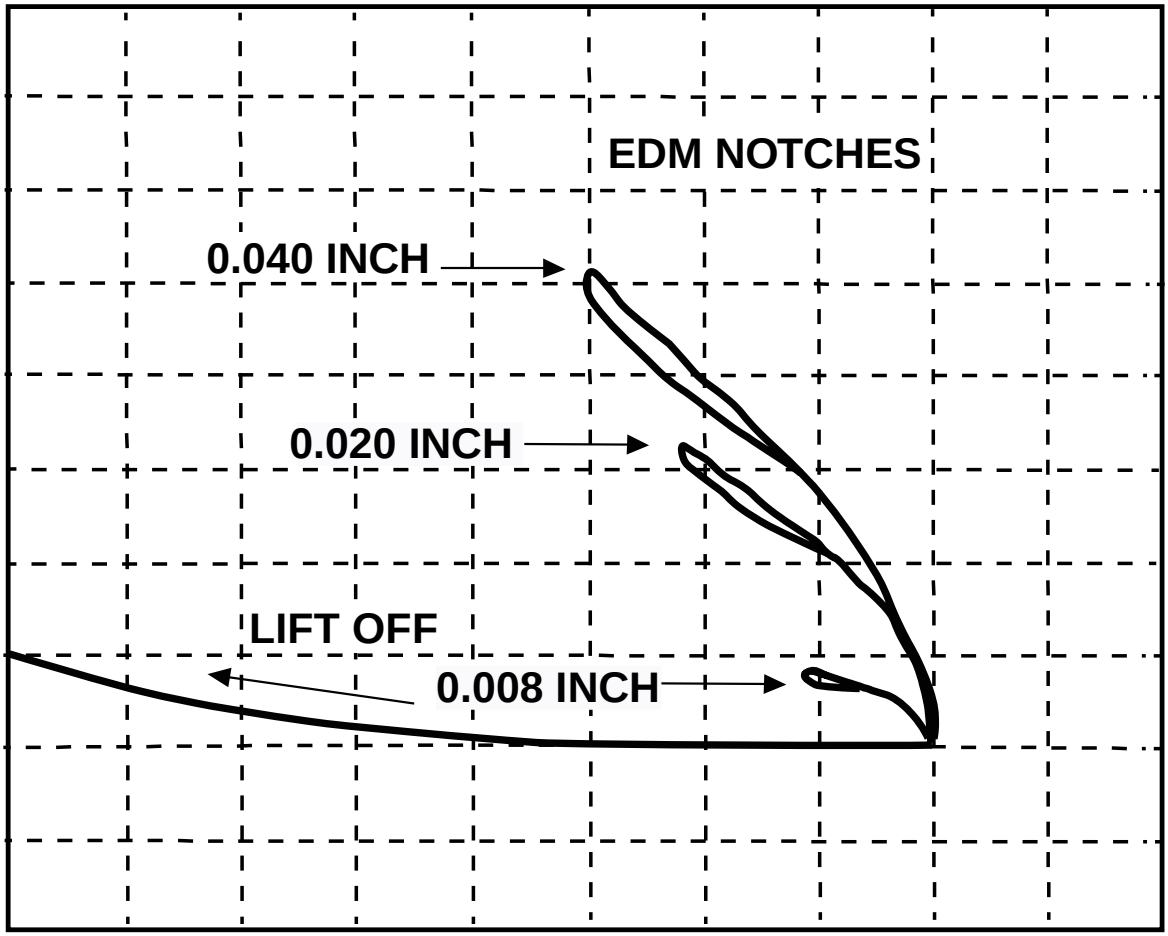
STATIONARY SWASHPLATE ASSEMBLY INSPECTION ZONES – UNIBALL UPPER BORE
FIGURE 2

Section 3. ACCOMPLISHMENT INSTRUCTIONS (Continued)



STATIONARY SWASHPLATE ASSEMBLY INSPECTION ZONE – TRUNNION MOUNT BOLT HOLES
FIGURE 3

Section 3. ACCOMPLISHMENT INSTRUCTIONS (Continued)



EDM NOTCHES
FIGURE 4

Section 3. ACCOMPLISHMENT INSTRUCTIONS (Continued)

H. Record of compliance:

(1) Make helicopter logbook entries to show compliance with this ASB as follows:

(a) Make helicopter level logbook entry on form SA7343-15 (Aircraft ASB Release Signoff).

(b) When ASB modifies a component that can be removed from this helicopter:

1. Make component log card entries on forms SA7343-22 (Aircraft Component Log Cards) and SA7343-21 (Component Log Cards), as applicable.

2. If a component modified by this ASB does not have a log card and the ASB does not create one, then annotate compliance on the next higher assembly that the component belongs to which does have a log card.

- If access to www.Sikorsky360.com is unavailable, complete attached ALERT SERVICE BULLETIN COMPLIANCE RECORD CARD and return it to Sikorsky Aircraft Corporation.

(2) Make an appropriate electronic compliance entry in the E-Notification section at www.Sikorsky360.com. Refer to User Guide located on the www.Sikorsky360.com/E-Notification Search page.

(Fold over and tape closed)

SIKORSKY AIRCRAFT CORPORATION

FACSIMILE NUMBER (817) 762-6715

EMAIL ADDRESS: product_safety.gr-sik@lmco.com

ATTENTION: Gr-SIK, Product_Safety
SIKORSKY AIRCRAFT CORPORATION

IMPORTANT NOTICE

Upon COMPLIANCE with the attached ASB, Sikorsky requests your cooperation in completing and returning this ENTIRE PAGE by MAIL, FAX, or scan & EMAIL.

Please fill in the requested information at the bottom of the page, so we may maintain proper records documenting the configuration of your aircraft. This information is useful when determining configuration and effectivity of issues affecting fielded aircraft.

This request is in keeping with our policy to assure that our customers receive the latest information applicable for the maintenance of your aircraft. Thank you.

ALERT SERVICE BULLETIN: ASB 92-62-010 **Compliance Record Card**

TITLE: ROTORS – Main Rotor (MR) Swashplate Assembly – One-Time Inspection of MR Stationary Swashplate Assembly to Initiate a 50-Hour Recurring Inspection

OWNER/OPERATOR: _____

SUBMITTED BY: _____ **DATE:** _____

☐ **FOLLOWING SERIAL NUMBERS ARE NOT AFFECTED BY THIS ASB**

☐ **ASB HAS BEEN COMPLIED WITH ON HELICOPTER SERIAL NUMBERS:**

_____ _____ _____ _____ _____ _____

_____ _____ _____ _____ _____ _____

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