



# TECHNICAL BULLETIN

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\* Supersedes TB900-020R1, dated 15 March 2002. Revised to incorporate new part numbers, revise the installation procedure and add electrical bond requirements.

## REMOVABLE COPILOT CONTROLS MODIFICATION

### 1. PLANNING INFORMATION

#### A. Aircraft Affected:

MD900 helicopters, serial number 900-00008 and Subsequent.

#### B. Assembly/Components Affected By This Notice:

Collective Stick Assembly (P/N 900C3010007-111, -113), Cyclic Stick Assembly (P/N 900C1010002-107, -109, -111).

#### C. Reason:

MDHI is offering the Removable Copilot Controls Modification, which when completed, will allow a pilot or a mechanic to remove and install the copilot cyclic and collective sticks in a minimal amount of time.

#### D. Description:

Procedures in this Bulletin provide owners and operators with information pertaining to initial installation of a unique removable copilot cyclic stick on helicopter serial number 900-00008 and subsequent and a unique removable copilot collective stick on helicopter serial number 900-00052 and subsequent. Owners and operators may elect to install the removable copilot cyclic or collective stick or both sticks, depending on helicopter serial number.

Pilots must be familiar with the removal and installation procedures published in the Rotorcraft Flight Manual (RFM). After modification, the copilot collective stick will no longer have throttle controls. The restriction for solo flight from the copilot's seat remains in effect and the unique control sticks have placards for emphasis.

#### E. FAA Approval:

The technical design aspects of this Bulletin are FAA Approved.

#### F. Manpower:

5.0 man-hours.

#### G. Time of Compliance

Customer option, at owner/operator discretion.

#### H. Interchangeability:

None

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## I. Material/Part Availability:

The parts listed below are included in a Kit (P/N TBK-001). Contact MDHI Parts Sales Dept.

REPLACEMENT PARTS/SUPPLIES			
Nomenclature	Part No.	Qty.	Source
Stick Assembly, Copilot Cyclic	900C2012010-101	1	MDHI
Spent Travel Tube	900C2012018-101	2	MDHI
Base Bracket Assembly, Copilot	900C2012007-103	1	MDHI
Plate, Doubler	900F2302014-101	1	MDHI
Stick Assembly, Copilot Collective	900C2012016-103	1	MDHI
Wire Harness – 151, Copilot Collective Controls	900E2760151-101	1	MDHI
Wire Harness – 153, Copilot Collective Interface	900E2760153-101	1	MDHI
Dummy Receptacle	D38999/22FW	1	MDHI
Dust Cap	D38999/33W19R	1	MDHI
Decal, Flight Control	900C4012011-101	2	MDHI
Screw, Pan Head	NAS600-8P	9	MDHI
Washer, Flat	NAS1149DN416K	1	MDHI
Washer, Flat	NAS620-4	8	MDHI
Pin, Cotter	MS24665-134	5	MDHI
Nut	MS21042L04	8	MDHI
Fastener Tape, Loop	DELETED	N/A	N/A
Fastener Tape, Hook	DELETED	N/A	N/A
*Adhesive	DELETED	N/A	N/A
Packing, Preformed, Petroleum Hydraulic Fluid Resistant	M8346/1-125	1	MDHI
Rivet, Solid, Flush Head	NAS1097AD4-3	4	MDHI



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REPLACEMENT PARTS/SUPPLIES (Cont.)			
Nomenclature	Part No.	Qty.	Source
*Adhesive, Epoxy (MDM16-1068, Class 12)	EA9321 (MRM010246)	AR	Dexter Adhesive & Coating Systems 2850 Willow Pass Rd. P.O. Box 312 Bay Point, CA 94565-0031 (925) 458-8000 (800) 424-9300
*Chemical Film (MIL-C-5541, Class 1A)	Iridite 14-2 Al-coat	AR	Richardson Co. Allied-Kelite Products Division 2400 E. Devon Avenue Des Plaines, IL
Washer	NAS1149D0432K	6	MDHI
Washer	NAS1149D0416K	2	MDHI
Bolt	NAS6204-17D	1	MDHI
Pin, Cotter	MS24665-134	3	MDHI

\* Item is not part of the kit and may be purchased locally from commercial sources.

**J. Warranty Policy:**

Standard spare parts warranty applies.

**K. Tooling:**

N/A

**L. Weight and Balance:**

N/A

**M. Electrical Load Data:**

N/A

**N. Other Publications Affected:**

Rotorcraft Maintenance Manual (CSP-900RMM-2, Reissue 1, Revision 11) or later.

Illustrated Parts List (CSP-900IPL-4, Reissue 2, Revision 5) or later.

Rotorcraft Flight Manual (CSP-900RFM-1, Reissue 1, Revision 4) or later.

Rotorcraft Flight Manual (CSP-900ERFM-1, Revision 1) or later.

Rotorcraft Flight Manual (CSP-902RFM-1, Reissue 1, Revision 5) or later.

Rotorcraft Flight Manual (CSP-902RFM207E-1, Revision 2) or later.

**O. Points of Contact**

For further assistance, contact your local MDHI Field Service Representative (refer to the latest revision of the "At Your Service" handbook for address and telephone numbers) or contact the Field Service Department at MDHI, Mesa, Arizona. Telephone 1-800-388-3378 or (480) 346-6387. DATAFAX: (480) 346-6813.

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## 2. ACCOMPLISHMENT INSTRUCTIONS

### A. Copilot Cyclic Stick Assembly Replacement (Helicopter Serial No. 900-00008 and Subsequent)

(Ref. Figure 1)

- (1). Remove and retain copilot cyclic grip (Ref. CSP-900RMM-2, Section 67-20-00, Cyclic Grip Removal).
- (2). Remove copilot cyclic stick assembly (Ref. CSP-900RMM-2, Section 67-10-00, Pilot Cyclic Stick Assembly Removal).
- (3). Install new copilot cyclic stick assembly (Ref. CSP-900RMM-2, Section 67-10-00, Pilot Cyclic Stick Assembly Installation), except as follows.
  - (a). Attach removable copilot cyclic stick assembly to copilot cyclic base assembly with two expandable diameter bolts (part of new cyclic stick assembly).
  - (b). Attach bonding jumper (part of new cyclic stick assembly) to airframe with one NAS600-8P screw and one NAS1149DN416K washer.
- (4). Install copilot cyclic grip, retained above, on new cyclic stick assembly (Ref. CSP-900RMM-2, Section 67-20-00, Cyclic Grip Installation).

### B. Copilot Collective Stick Assembly Replacement (Helicopter Serial No. 900-00052 and Subsequent)

(Ref. Figure 2)

- (1). Remove and retain screw, and clamps securing wire harness to copilot collective stick assembly.
- (2). Remove copilot collective stick assembly (Ref. CSP-900RMM-2, Section 67-10-00, Copilot Collective Control Stick Removal).
- (3). Remove copilot collective control module.
  - (a). Align holes in throttle twist grip as required and remove attachment screw, located at forward end of twist grip. Do not remove screws attaching twist grip.
  - (b). Remove and retain control module.
- (4). Detach electrical connector **P2** from receptacle **J141** and remove wire harness W100.
- (5). Remove interconnect cable assembly from pilot collective stick (Ref. CSP-900RMM-2, Section 67-10-00, Interconnect Cable Assembly Removal).
- (6). Install 2 spent travel tubes on pilot collective stick where interconnect cable assembly was installed. Torque spent travel tubes **30 - 40 in. lbs (3.38 - 4.52 N·m)** beyond run-on (drag) torque, not to exceed **60 in. lb (6.78 N·m)**.
- (7). Install new copilot base bracket assembly.
  - (a). Prepare inner surface of outboard collective bracket assembly to copilot base bracket assembly attach point for class "R" electrical bond (Ref. CSP-SPM).
  - (b). Position copilot base bracket assembly in collective bracket assembly, install bolts, washers, bonding jumper (inboard), and nuts. Torque nuts **30 - 40 in. lbs (3.38 - 4.52 N·m)** beyond run-on (drag) torque, not to exceed **60 in. lb (6.78 N·m)** and install new cotter pins.

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- (c). Environmentally seal bonding jumper using sealant (C216) (Ref. CSP-SPM).
  - (d). Install bolt, washers, and nut attaching copilot base bracket assembly to collective link assembly. Torque nut **30 - 40 in. lbs (3.38 - 4.52 N·m)** beyond run-on (drag) torque, not to exceed **60 in. lb (6.78 N·m)** and install new cotter pins.
- (8). Install LH lower interior panel (Ref. CSP-900RMM-2, Section 25-10-00, Lower Panel, Left Hand Installation).
- (Ref. Figure 3)
- (9). Modify copilot outboard panel AL129.
    - (a). Position doubler plate on top of panel as shown.
    - (b). Match drill 13 holes from doubler plate into panel and touch up finish with chemical film per manufacturer's instructions.
    - (c). Bond doubler plate to top of panel with epoxy adhesive per manufacturer's instructions. Ensure that holes in doubler plate and panel are aligned. Remove excess adhesive from holes.
    - (d). Install four rivets through panel and doubler plate with flush head on far side.
    - (e). Reidentify modified copilot outboard panel assembly by marking out existing part number and adding new part number 900F2302013-101.
- (Ref. Figure 2)
- (f). Attach connector **J532** of wire harness W153 to copilot outboard panel assembly using 4 each NAS600-8P screws, NAS620-4 washers and MS21042L04 nuts.
  - (g). Attach dummy receptacle to copilot outboard panel assembly using 4 each NAS600-8P screws, NAS620-4 washers and MS21042L04 nuts.
  - (h). Install dust cover on dummy receptacle.
- (10). Route wire harness W153 through floor and attach connector **P544** to receptacle **J141**.
- (11). Install cockpit left floor access panels AL129 and AL138 (Ref. CSP-900RMM-2, Section 53-20-00, Cockpit Outboard Left Floor Panel Installation and Cockpit Floor Access Panels Installation)
- (12). Install new copilot collective stick assembly.
- (a). Install packing over end of new copilot collective stick assembly. Position packing adjacent to lower surface of flange on stick.
  - (b). Install new copilot collective stick assembly into copilot base bracket assembly.
  - (c). Secure stick assembly to base bracket assembly with quick release pin (part of stick assembly).
  - (d). Install collective control module onto end of copilot collective stick assembly. Align module and install attachment screw. Torque screw.
  - (e). Attach connector **P2** of wire harness W151 to receptacle **J532** of wire harness W153.
  - (f). Route wire harness W151 along collective stick assembly and attach connector **P1** to receptacle **J1** on bottom of collective control module.

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- (g). Secure wire harness W151 to collective stick.
  - 1). Position retained collective clamps on collective stick and wire harness 12.8 inch (325.12 mm) from module end of stick and align as shown.
  - 2). Secure clamps with retained screw.
  - 3). Torque screw **20 - 25 in lbs (2.25 - 2.82 N·m)**.
- (h). DELETED
- (i). DELETED
- (j). Install one flight control decal on side of new copilot collective stick assembly approximately as shown and install second decal on opposite side of stick. Decals must not overhang edges of stick.
- (k). Test collective stick assembly for class "R" electrical bond (Ref CSP-SPM).

### 3. IDENTIFICATION

N/A

### 4. DISPOSITION OF PARTS REMOVED

N/A

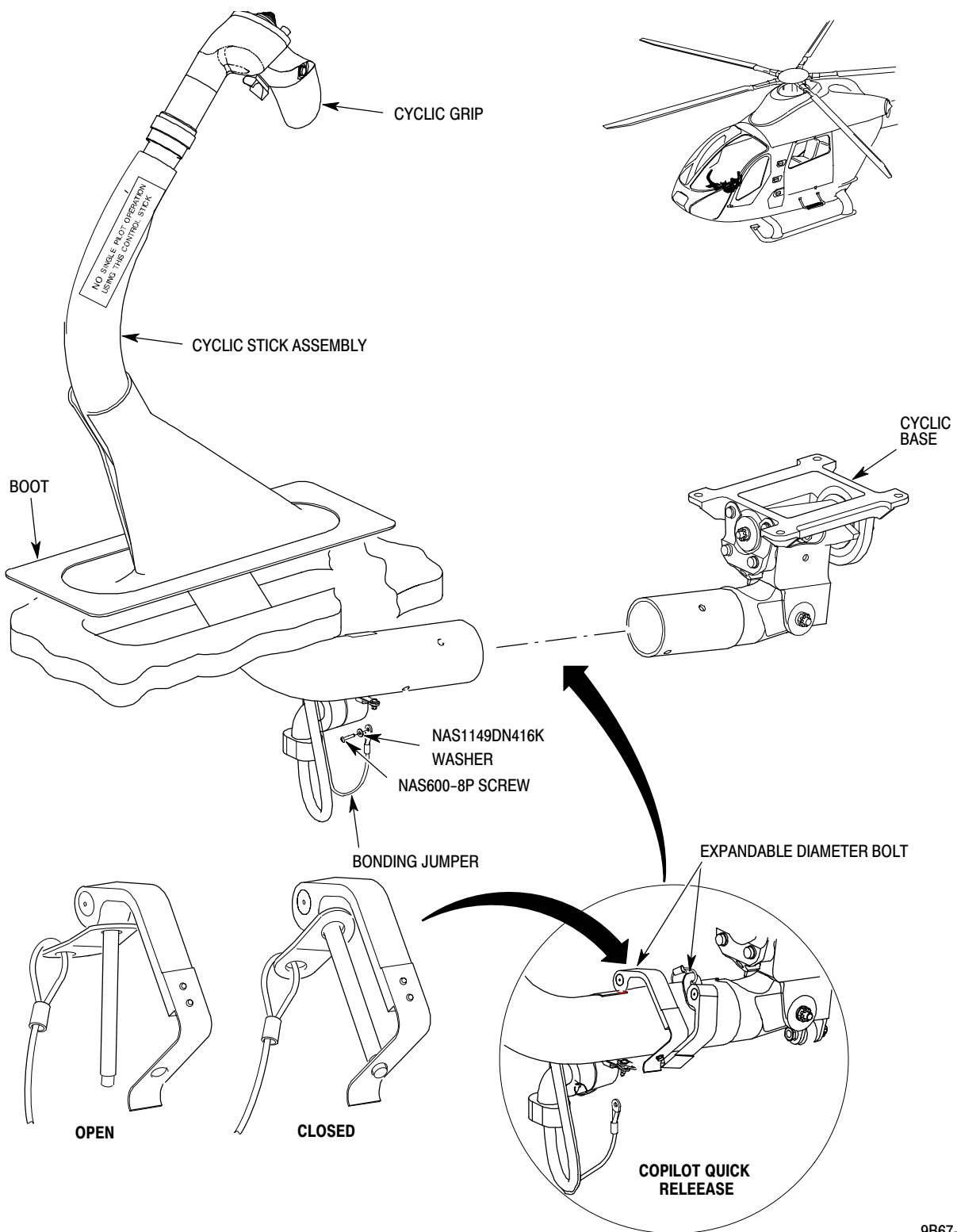
### 5. COMPLIANCE RECORD

Record compliance to this Technical Bulletin in the Compliance Record section of the helicopter Log Book.

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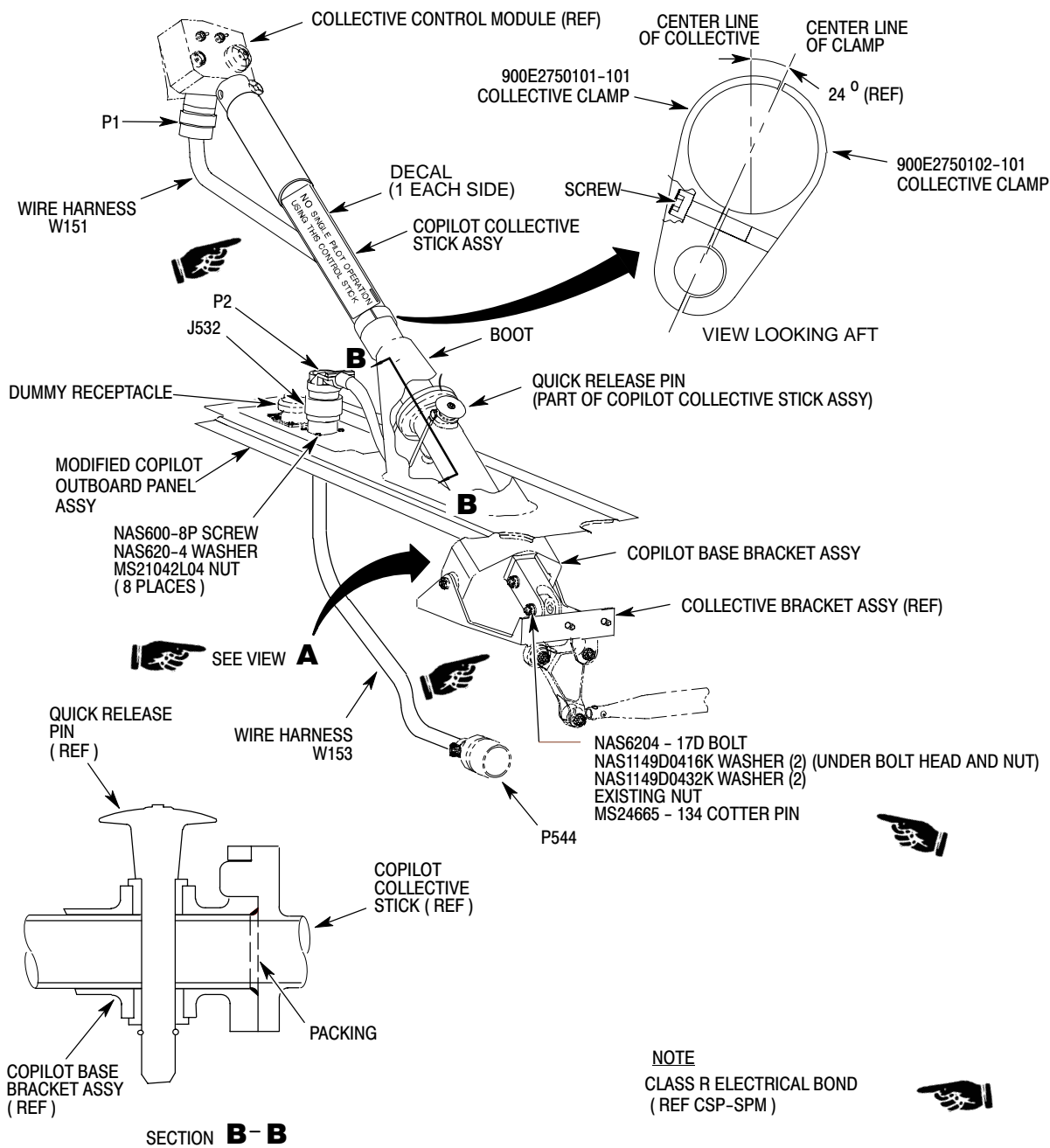
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**Figure 1. Removable Copilot Cyclic Stick Installation**

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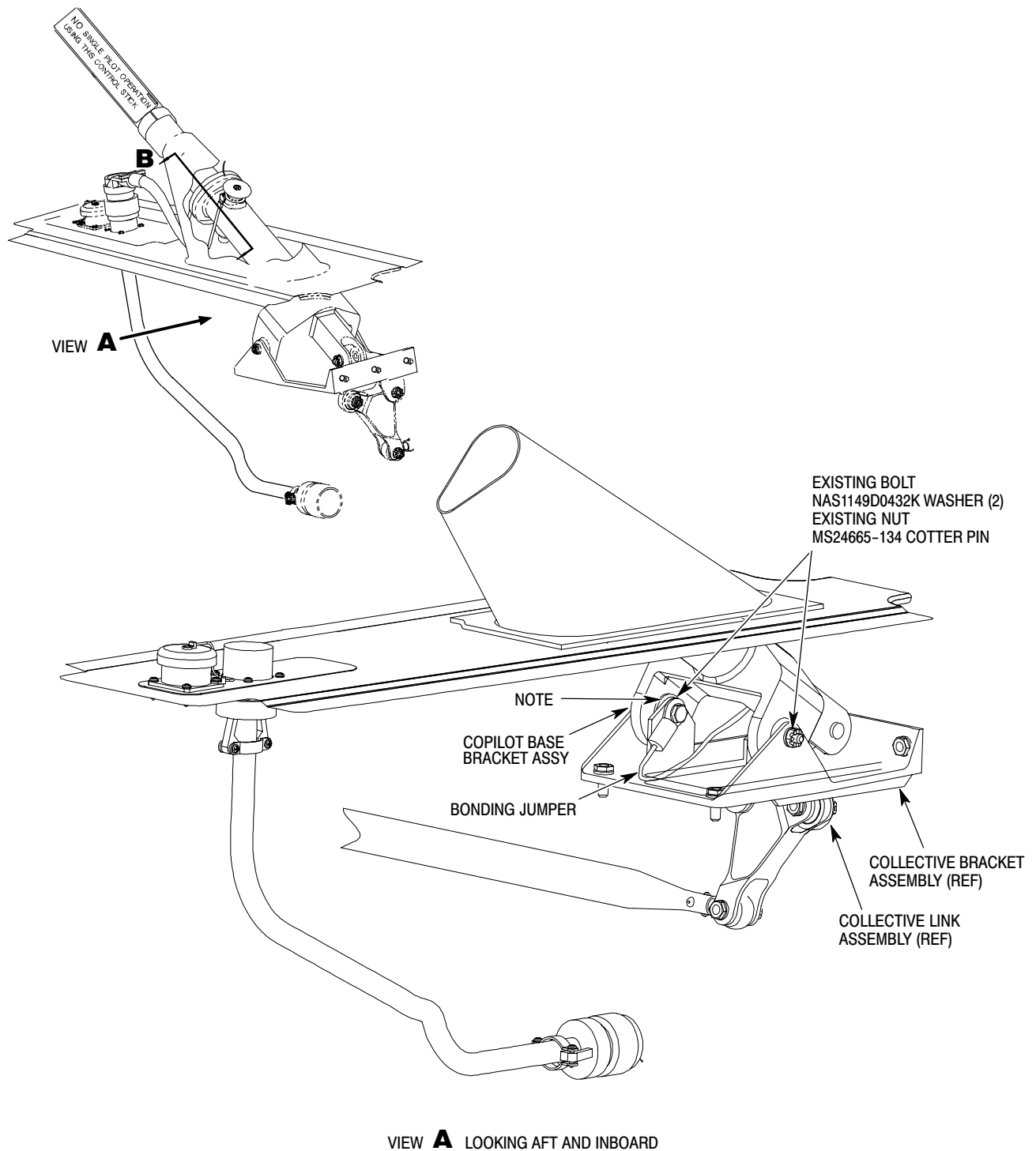


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**Figure 2. Removable Copilot Collective Stick Installation (Sheet 1 of 2)**

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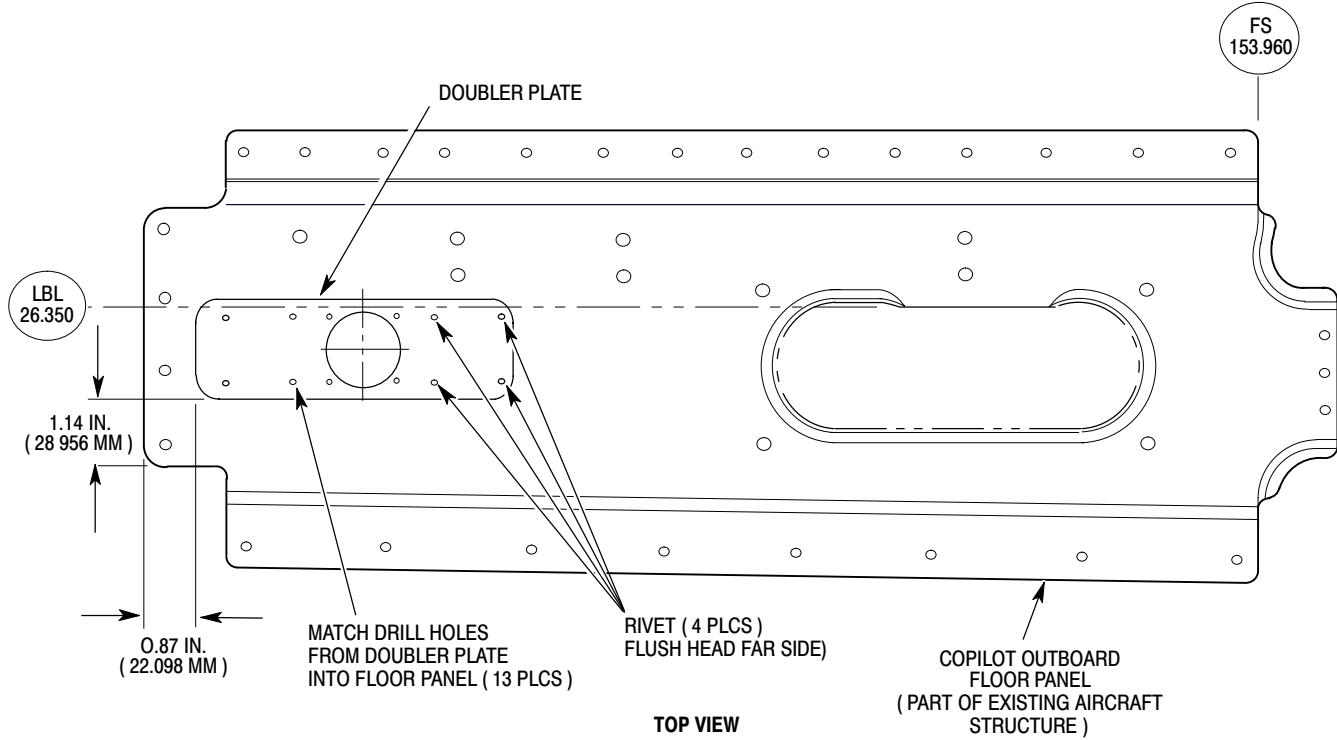
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**Figure 2. Removable Copilot Collective Stick Installation (Sheet 2 of 2)**

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**Figure 3. Copilot Outboard Floor Panel Modification**