A Textron Company

TECHNICAL BULLETIN **505-20-24**

PSL# 212

2 June 2020

MODEL AFFECTED: **505**

SUBJECT: **HYDRAULIC SERVO ACTUATOR DRIP TRAY, INTRODUCTION OF.**

HELICOPTERS AFFECTED: **Serial numbers 65011 through 65132, 65134 through 65144, 65146 through 65148, 65151 through 65185, 65187 through 65193, 65195 through 65205, 65207 through 65218, 65221 through 65224, 65227 through 65242, 65244 through 65258, 65261 through 65263, 65265 through 65270, 65272, 65276 through 65278, 65280, 65281, 65284 through 65287, 65289 through 65291, 65294, 65296 through 65298 and 65300.**

[Serial number 65133, 65145, 65149, 65150, 65186, 65194, 65206, 65219, 65220, 65225, 65226, 65243, 65259, 65260, 65264, 65271, 65273 through 65275, 65279, 65282, 65283, 65288, 65292, 65293, 65295, 65299, 65301 and subsequent will have the intent of this bulletin accomplished prior to delivery.]

COMPLIANCE: At customer's option.
Warranty entitlement applies, details on page 2.

DESCRIPTION:

Bell has received reports from operators for leaks from the hydraulic servo actuators (HSA). Most of these components that have been returned to the supplier for root cause investigation have been returned to Bell with no faults found, meaning that they meet the design specifications of the servos. Refer to the Information Letter 505-19-07 for some HSA design particularities.

This Technical Bulletin introduces an actuator drip tray below the hydraulic servo actuators that limits the potential for oil infiltration into the cabin roof structure. Applicability of this bulletin to any spare part shall be determined prior to its installation on an affected helicopter.

APPROVAL:

The engineering design aspects of this bulletin are Transport Canada Civil Aviation (TCCA) approved.

CONTACT INFO:

For any questions regarding this bulletin, please contact:

Bell Product Support Engineering
Tel: 1-450-437-2862 / 1-800-363-8023 / productsupport@bellflight.com

MANPOWER:

Approximately 4 man-hours are required to complete this bulletin. This estimate is based on hands-on time and may vary with personnel and facilities available.

WARRANTY:

Owners / Operators of Bell Helicopters who comply with the instructions in this bulletin will be eligible to receive non prorated replacement part as applicable, listed in the MATERIAL section bulletin. Bell has recently introduced enhancements to the "My Bell Portal" which allocates specific warranty entitlement for an aircraft by serial number. The Product Service Letter (PSL) number which will be listed below the bulletin number on the introduction page is going to be a required field when submitting a claim on the Bulletins Tab for replacement parts, labor, and/or freight. If you receive an ASB or TB that does not have a PSL number, then there is no warranty entitlement for that bulletin.

Labor entitlement: Yes $340.00 USD

To receive parts, labor, under warranty:

- Comply with the instructions contained in this bulletin.
- If there is a PSL number identified in the bulletin you will be required to enter this PSL number which will validate warranty entitlement for the selected aircraft. Please ensure that you use the Bulletin Tab on the warranty section on the portal to file your claim.

NOTE: Customers who fail to comply with the instructions in this Bulletin before the 04th June 2022 will not be eligible for the special warranty listed above.

MATERIAL:

Required Material:
The following material is required for the accomplishment of this bulletin and may be obtained through your Bell Supply Center. Order **SLS-704-003-001** (Note 1) hydraulic actuator drip tray retrofit kit, consisting of the following;

Part Number	Nomenclature	Qty (Note)
130-038-10-194	Tubing, flexible	1
SLS-030-510-001	Actuator drip tray assembly	1
MS27039-1-08	Screw	1
NAS1149E0332P	Washer	5
NAS9926-3L	Nut	5
160-027-466	Support	2 (2)
NAS6604-9	Bolt	6
AS21919WDG16Y	Clamp, Loop	2
MS27039-1-10	Screw	2
MS27039-1-09	Screw	1
MS3367-2-0	Strap	15
PLB3S-C0	Cable tie	27
NAS6603-4	Bolt	1
NAS1149D0363J	Washer	2
NAS1149D0332J	Washer	1
AS21919WDG40Y	Clamp, loop	1
80-029-27A	Insert	1
AS21919WDG11Y	Clamp, Loop	1
NAS1149D0432J	Washer	8

NOTES:
1. Retrofit kit SLS-704-003-001 contains all parts required to cover all possible aircraft configurations either equipped with rotor brake kit, traffic advisory kit, and/or air conditioning kit, but may not be required and will be left over.
2. Three supports 160-027-466 are supplied with the actuator drip tray retrofit kit; one support is pre-fitted to actuator drip tray assembly SLS-030-510-001 and the other two supplied loose.

Consumable Material:
The following material is required to accomplish this bulletin, but may not require ordering, depending on the operator's consumable material stock levels. This material may be obtained through your Bell Supply Center.

Part Number	Nomenclature	Qty (Note)	Reference *
2100-10442-00	Corrosion preventive compound (Grade 1)	2 OZ (1)	C-101

2100-00350-00	Corrosion preventive compound (Grade 2)	2.5 OZ (1)	C-104
2010-00070-00	Sealant	3.5 OZ (1)	C-251
2000-00732-00	Insulation tape	1 Roll (1)	C-548
2640-05901-01	Lacing Cord	1 Roll (1)	C-581

* C-XXX numbers refer to the consumables list in the BHT-ALL-SPM, Standard Practices Manual

NOTE 1: The quantity indicated is the format the product is delivered in. Actual quantity required to accomplish the instructions in this bulletin may be less.

SPECIAL TOOLS:

None required.

WEIGHT AND BALANCE:

	Longitudinal		Lateral*	
Weight	**Arm**	**Moment**	**Arm**	**Moment**
+1.6 pounds	148.3 inch	+242 inch-pounds	-2.5 inch	-4 inch-pounds
+0.7 kgs	3767 mm	+28 kg x mm/100	-64 mm	0 kg x mm/100

* In lateral calculations, - is left and + is right.

NOTES
1. This is the Delta Weight effect of this kit.
2. Includes the Weight & Effect of the items removed when this kit is installed.

ELECTRICAL LOAD DATA:

Not affected.

REFERENCES:

BHT-505-MM, Maintenance Manual
BHT-ALL-SPM, Standard Practice Manual
PR-505AC-900M, Paravion Installation Instructions
505-II-01, Rotor Brake Installation Instructions
Installation Instructions - AA-14123 - Bell 505, Traffic Advisory System Installation Kit

PUBLICATIONS AFFECTED:

BHT-505-IPC, Illustrated Parts Catalog, Chapter 67
BHT-505-MM, Maintenance Manual, Chapter 67
PR-505AC-900M, Paravion Installation Instructions
505-II-01, Rotor Brake Installation Instructions
Installation Instructions - AA-14123 - Bell 505, Traffic Advisory System Installation Kit

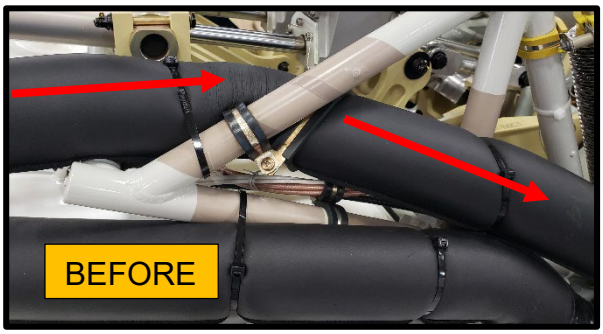
ACCOMPLISHMENT INSTRUCTIONS:

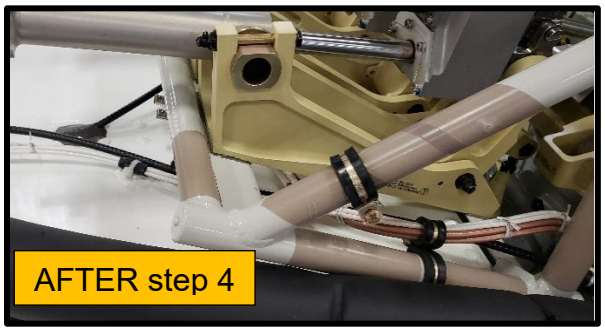
1. Prepare the helicopter for maintenance.

2. Gain access to the hydraulic servo actuators (DMC-505-A-53-40-01-00A-520A-A, DMC-505-A-53-40-02-00A-520A-A).

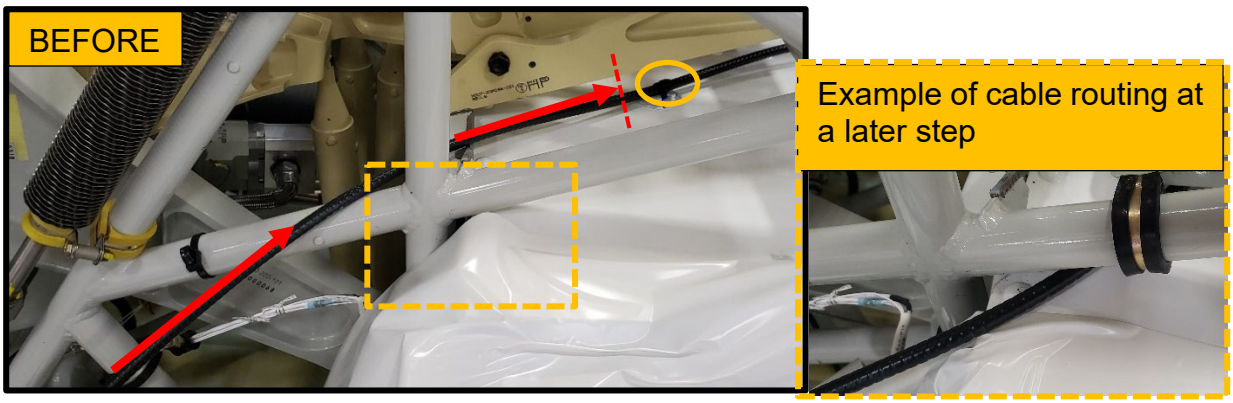
3. Gain access to the left and right side of helicopter fuselage (DMC-505-A-53-40-03-00A-520A-A, DMC-505-A-53-30-01-00A-520A-A), DMC-505-A-53-40-04-00A-520A-A, DMC-505-A-53-30-02-00A-520A-A.

4. If equipped with air conditioning kit, temporarily remove top evaporator ducting from truss area beside left hydraulic servo actuator. Detach at roof plenum and pull duct out of truss area shown (505AC-524 Outlet Plenum Installation Instructions). Pull ducting aside in the transmission area, as it will be re-installed at a later step.

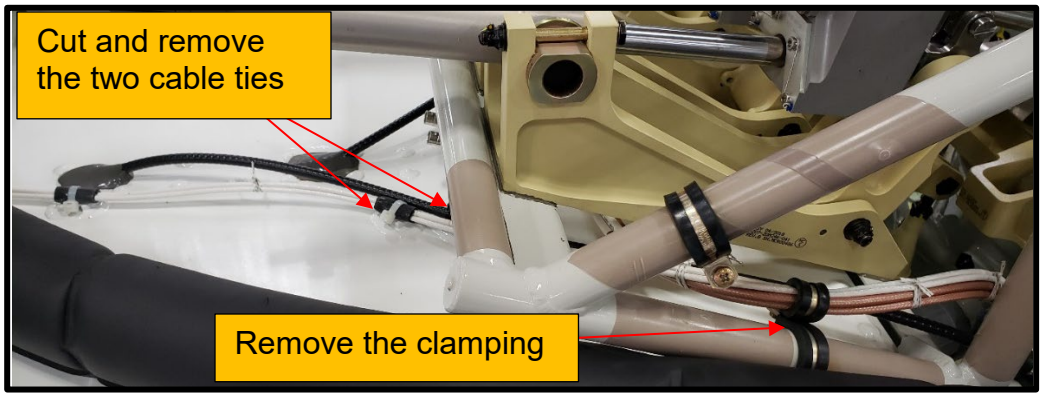




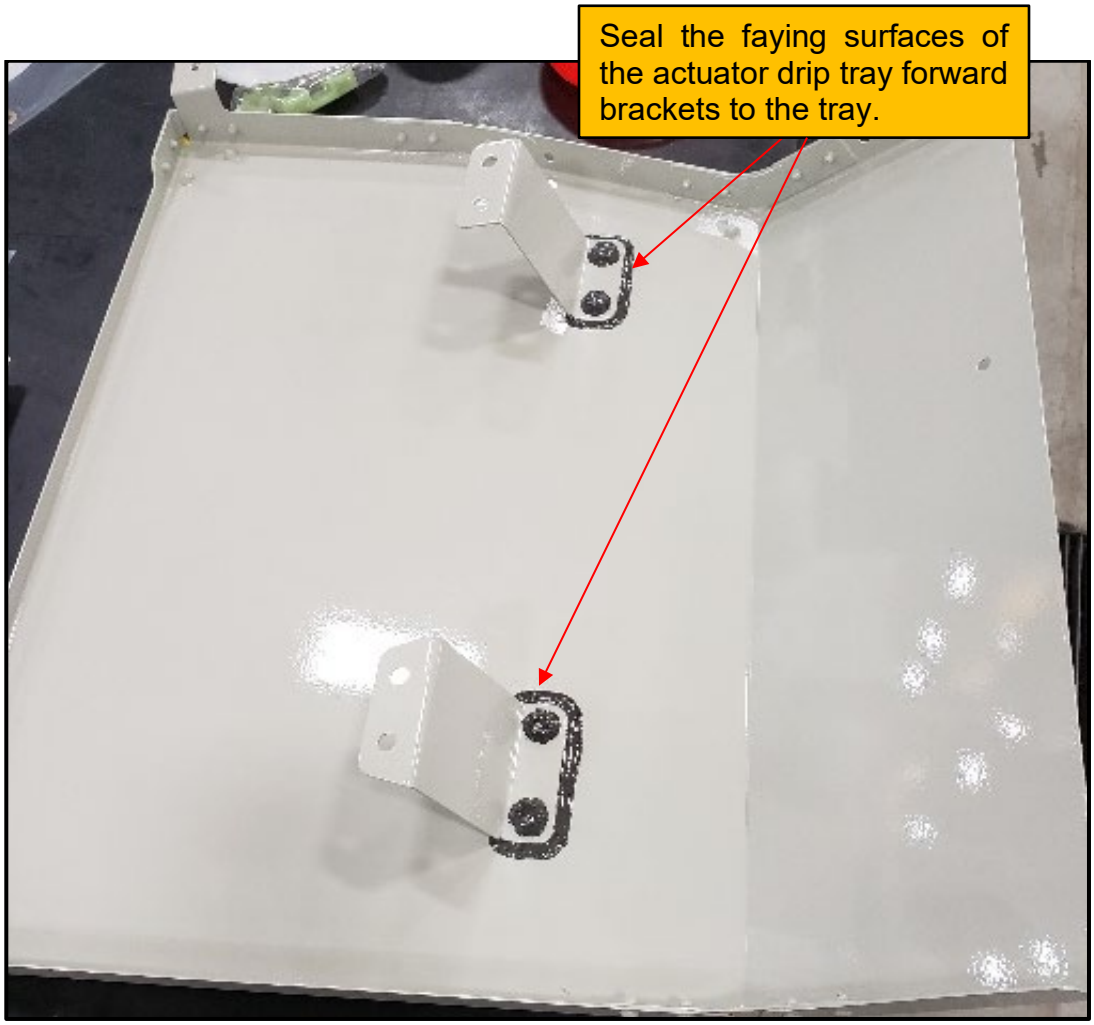
5. If equipped with rotor brake kit, disconnect the rotor brake control cable at master cylinder. Carefully pull cable forward cutting away at cable ties until removed from truss area up to cabin roof cable tie as shown (DMC-505-A-63-23-08-00A-520A-A). Put cable aside on top cabin area forward and to the right side of the truss, as it will be re-routed around the truss in new location at a later step.



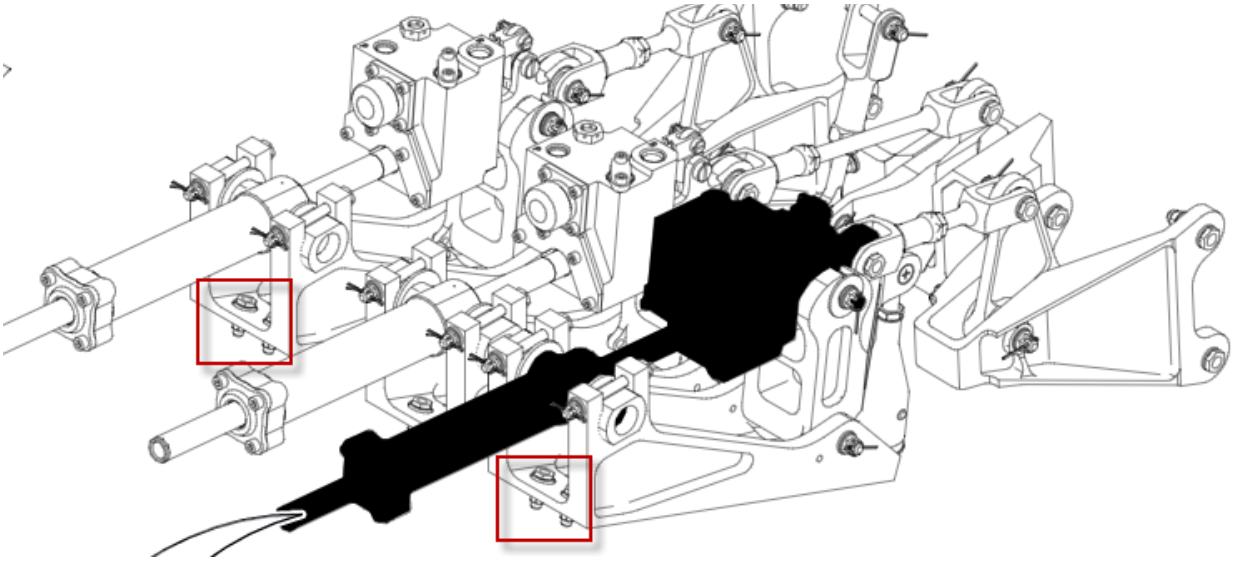
6. Cut two cable ties below the forward truss tube securing the fuel shut off cable and the COMM/GPS antenna coaxial cable to cabin roof. Remove the clamping securing the fuel shut off cable and the COMM/GPS antenna coaxial cable to the truss.



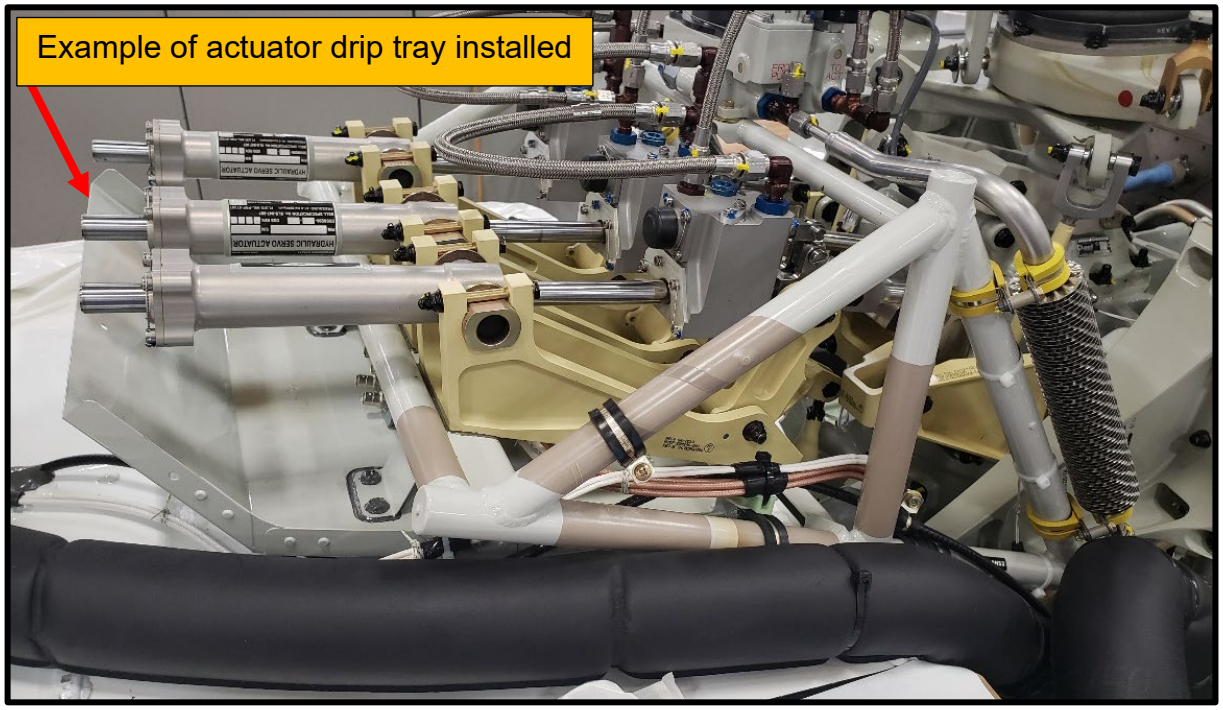
7. Apply sealant (C-251) to the faying surfaces between the actuator drip tray SLS-030-510-001 and the forward brackets. Torque NAS6603-3 bolts 15 to 30 inch-pounds (1.7 to 3.3 Nm). Overcoat the bolt heads with sealant (C-251) and to the contour of forward brackets. Let sealant cure or add protective tape arrangement around forward brackets to prevent smearing of the sealant during continued installation.



8. Remove the hardware securing the left and right actuator supports to the truss in the two forward locations. Discard bolt NAS6604-8 but keep the washers NAS1149D0463J and nuts NAS9926-3L for installation at later step. (DMC-505-A-67-30-02-00A-520A-A , DMC-505-A-67-30-06-00A-520A-A).



9. Position actuator drip tray SLS-030-510-001 in place below the truss and actuator supports.



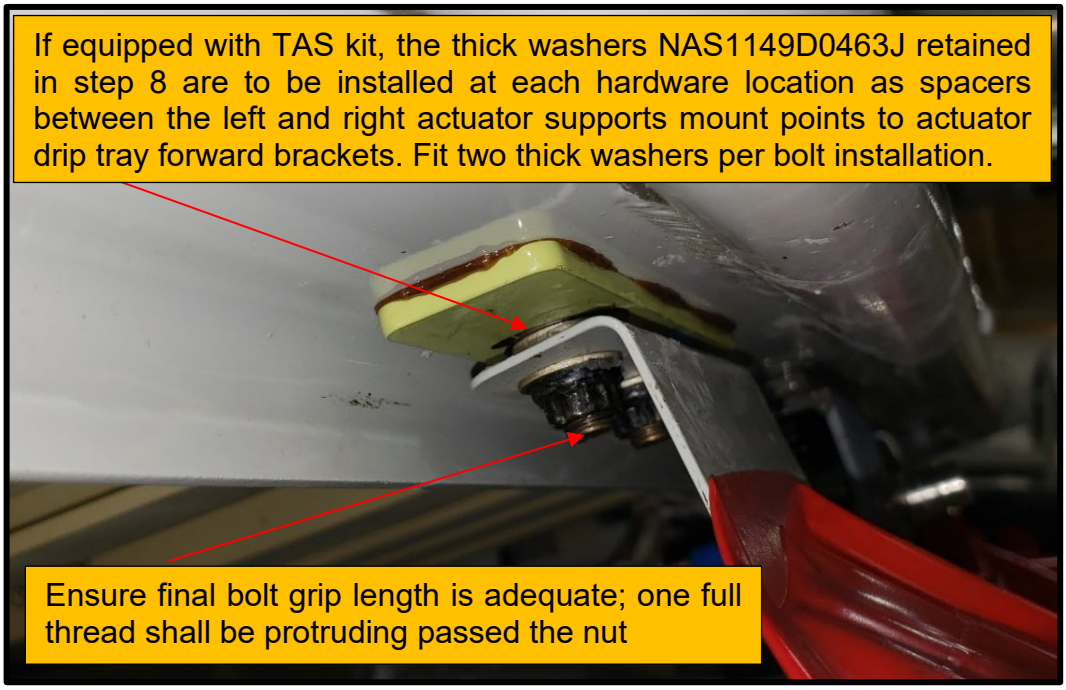
a. From the underside, align the actuator drip tray forward brackets to the left and right actuator support forward mount points. If equipped with Traffic Advisory System (TAS) kit (505-018-001), go to step 9.a.(2).

(1) Fit tray forward brackets in place with the four (4) replacement bolts NAS6604-9 with washers and nuts retained in step 8. Torque nut 75 to 95 inch-pounds (8.5 to 10.7 Nm), (DMC-505-A-67-30-02-00A-720A-A , DMC-505-A-67-30-06-00A-720A-A). Make sure nut is not bottomed out on shank of bolt (BHT-ALL-SPM, Section 2).

(a) For commonality of hardware installation on all three hydraulic servo actuator supports, replace bolts NAS6604-8 on the front side of collective actuator support with furnished bolts NAS6604-9, torque nut 75 to 95 inch-pounds (8.5 to 10.7 N-m), (DMC-505-A-67-30-04-00A-720A-A). Ensure nut is not bottomed out on shank of bolt (BHT-ALL-SPM, Section 2). Go to step 9.b.

(2) If equipped with Traffic Advisory System (TAS) kit (505-018-001), the thick washers NAS1149D0463J retained in step 8 are to be installed as spacers at each hardware location between the left and right actuator supports mount points to actuator drip tray forward brackets. Fit two thick washers per bolt installation.

(a) Position drip tray forward brackets in place with washers NAS1149D0463J retained in step 8, fit the replacement bolts NAS6604-9, with a washer NAS1149D0432J under the head of bolt and a washer NAS1149D0432J under the nut. Torque nut 75 to 95 inch-pounds (8.5 to 10.7 Nm). (DMC-505-A-67-30-02-00A-720A-A , DMC-505-A-67-30-06-00A-720A-A).

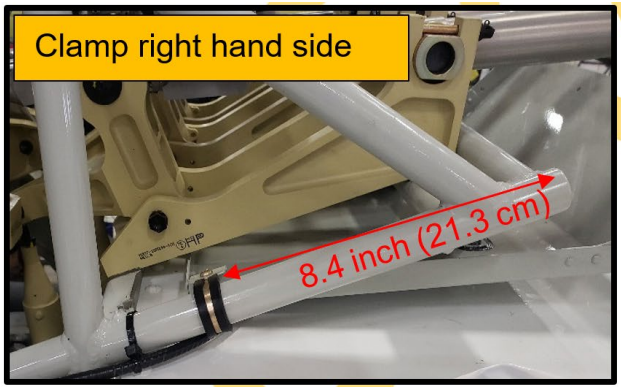


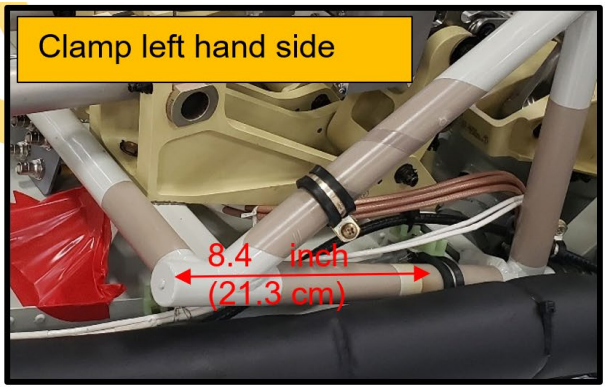
(b) Ensure final bolt grip length is adequate; one full thread shall be protruding passed the nut (BHT-ALL-SPM, Section 2).

b. Apply corrosion preventive compound (C-101) to the head of the bolts, washers and nuts.

c. Loosely fit clamps AS21919WDG16Y to back of truss area in two locations.

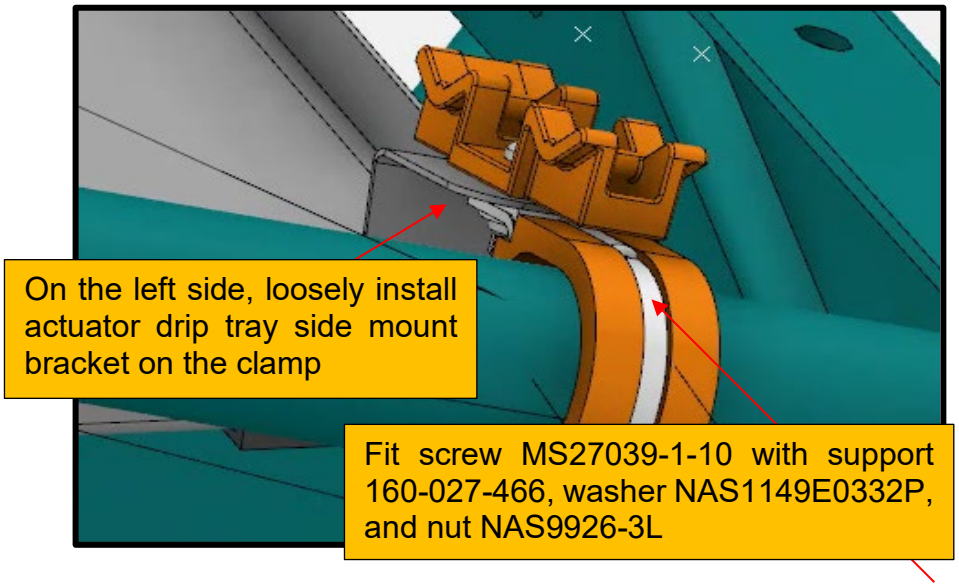
(1) Position clamp forward edge 8.4 inch (21.3 cm) from the end of truss tube.





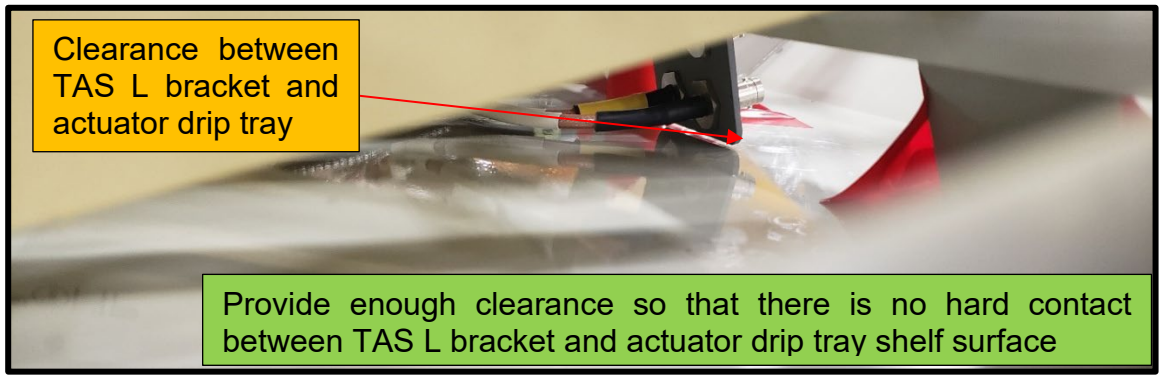
(2) On the right side loosely install actuator drip tray side mount bracket on the clamp, fit screw MS27039-1-09, washers NAS1149E0332P, and nut NAS9926-3L. Torque nut 12 to 15 inch-pounds (1.4 to 1.7 Nm) to secure installation in measured position.

(3) On the left side, loosely install actuator drip tray side mount bracket on the clamp, fit screw MS27039-1-10 with support 160-027-466, washer NAS1149E0332P, and nut NAS9926-3L. Torque nut 12 to 15 inch-pounds (1.4 to 1.7 Nm) to secure installation in measured position.



d. Verify TAS L bracket for clearance with actuator drip tray shelf surface. Upon final install, it is permissible to fill in the gap with bead of sealant (C-251).

(1) As necessary, the TAS L bracket can be trimmed to provide enough clearance (BHT-ALL-SPM) so that there is no hard contact between TAS L bracket and actuator drip tray shelf surface.



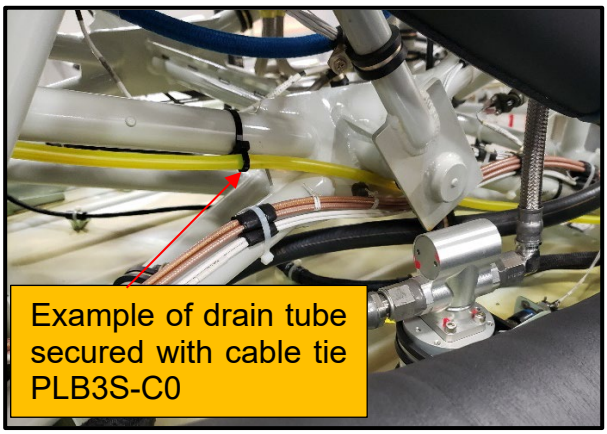
10. Position drain tube 130-038-10-170 on the actuator drip tray and down the truss.

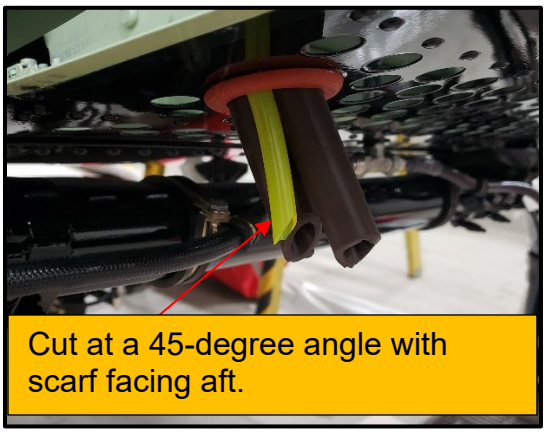
a. Fit one end of drain tube to actuator drip tray drain fitting and use cable tie to hold in position with strap MS3367-2-0.

b. Route drain tube along the truss as depicted. Continue to avionics bay center aft fuselage panel drain hole opening.

c. Secure drain tube with cable ties PLB3S-C0 onto truss starting from the top at actuator drip tray area through to avionics bay center aft fuselage panel, as depicted.

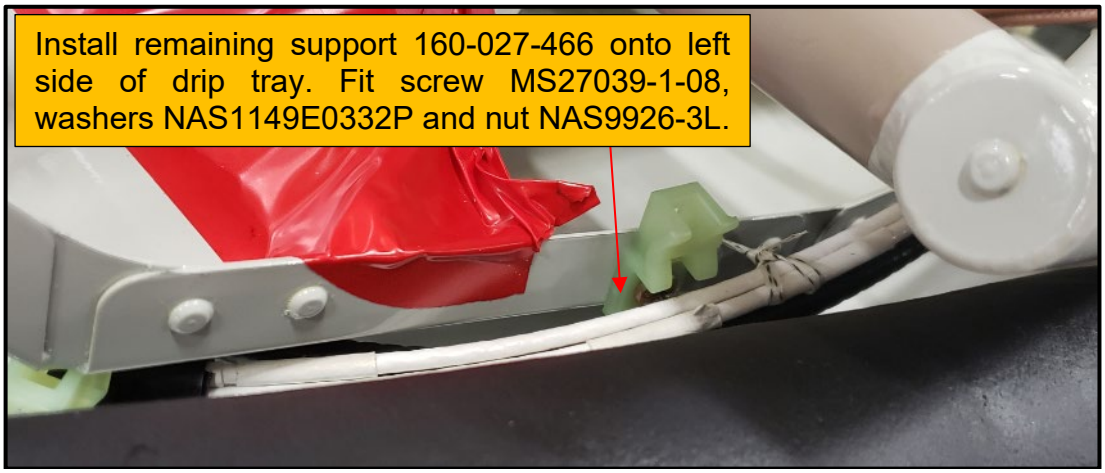
d. Cut drain tube flush with surrounding drain tubes. Cut at a 45-degree angle with scarf facing aft.



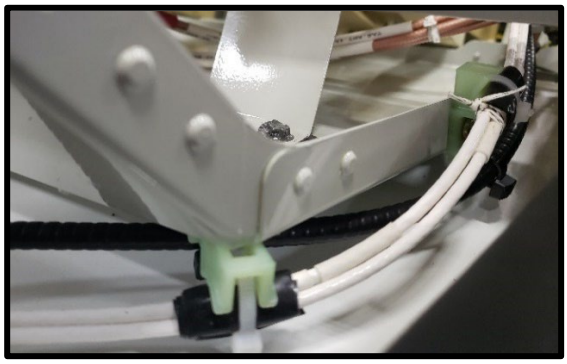


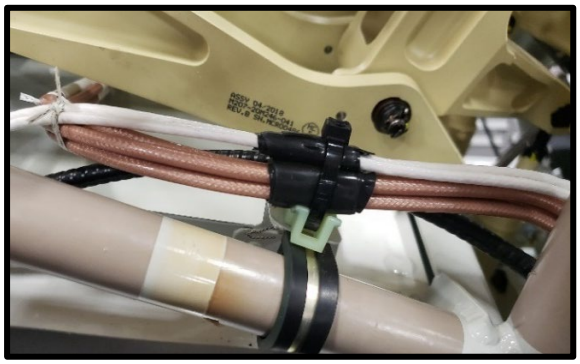
11. Secure the fuel shutoff valve control cable and COMM/GPS antenna coaxial cable to the three (3) new support locations on servo actuator drip tray.

a. Install support 160-027-466 on left side of drip tray. Fit screw MS27039-1-08, washers NAS1149E0332P, and nut NAS9926-3L. Torque nut 12 to 15 inch-pounds (1.4 to 1.7 Nm), secure support in vertical position.



b. Position COMM/GPS antenna coaxial cable on drip tray supports. If a TAS kit is installed, route onto same support space first then the COMM/GPS antenna coaxial cable routing. Wrap coaxial cable with the self-fusing insulation tape (C-548) in locations to be cable tie secured.

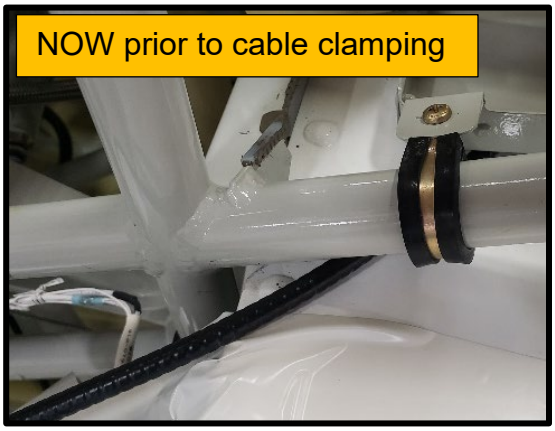


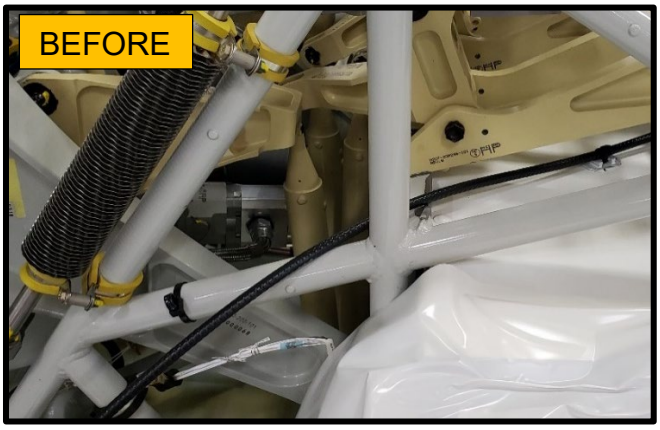


c. It may be required to loosen up the clamps holding cable up to the fuel shut off valve to slide cable forward to obtain the required looseness to fit in position on the actuator drip tray supports.

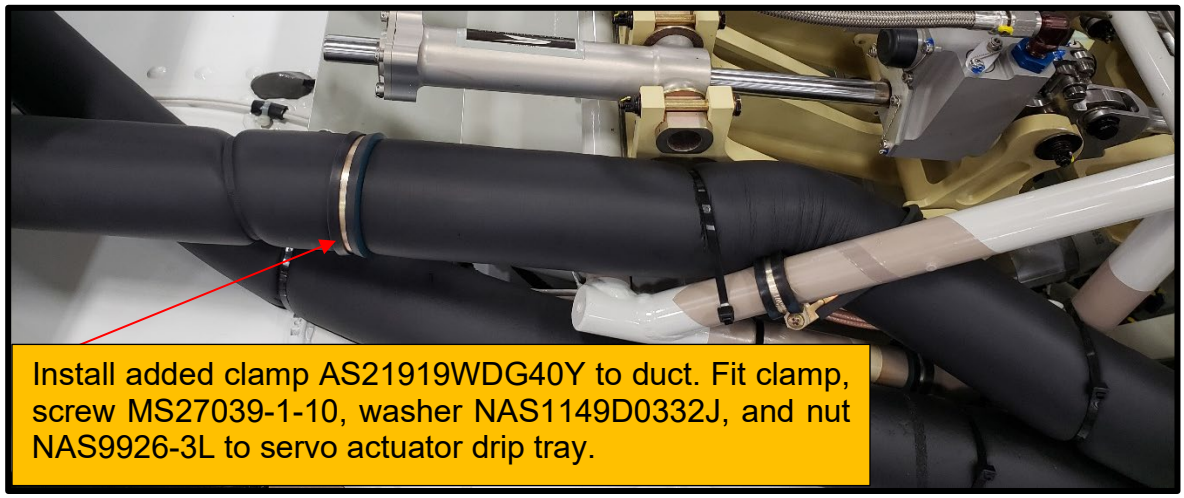
d. Cable tie in position the fuel shut off valve cable and coaxial cable on the three supports 160-027-466 with MS3367-2-0 straps. Position arrangement as necessary to avoid any form of chafing in surrounding area. Utilize lacing cord (C-581) as necessary.

12. If equipped with rotor brake kit, re-connect the rotor brake control cable at master cylinder (DMC-505-A-63-23-08-00A-720A-A). Position cable in new location forward and to the right of truss. Verify between actuator drip tray and cabin roof for proper rotor brake cable clamping and clearance. Secure cable with cable ties PLB3S-C0.





13. If equipped with air conditioning kit , re-install air conditioner evaporator ducting back in original position (505AC-524 Outlet Plenum Installation Instructions). Install added clamp AS21919WDG40Y to duct. Fit clamp, screw MS27039-1-10, washer NAS1149D0332J, and nut NAS9926-3L. Torque nut 12 to 15 inch-pounds (1.4 to 1.7 Nm).



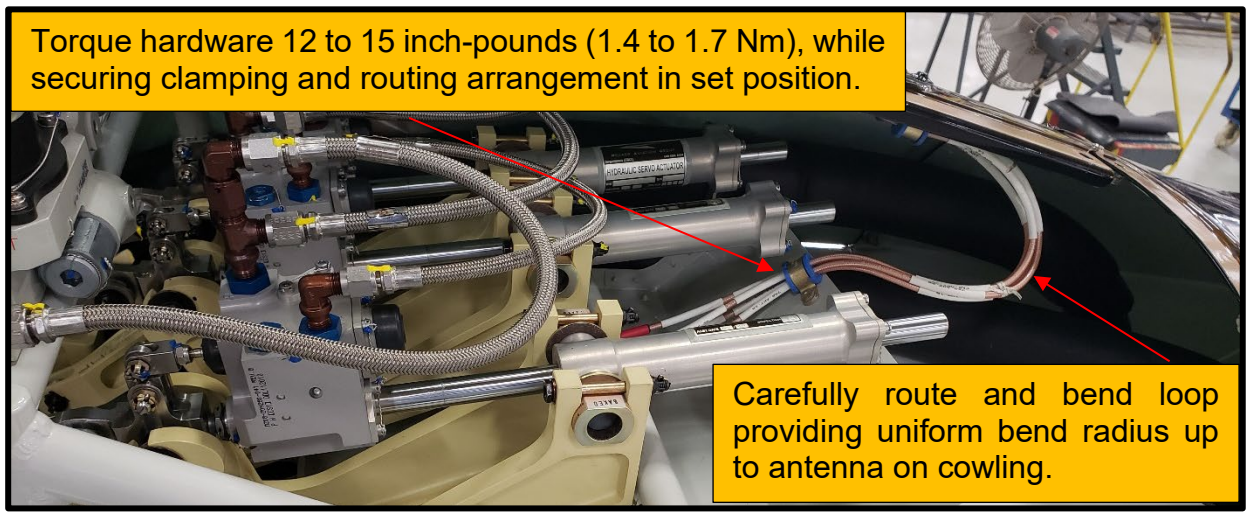
14. Install left transmission fairing (DMC-505-A-53-40-01-00A-720A-A).

15. If equipped with TAS kit, connect antenna coaxial cable to L bracket below truss structure.

    a. Position added clamp AS21919WDG11Y to the top center of the servo actuator drip tray. Fit insert 80-029-27A onto the 4 coax TAS cable routing, loosely install clamp, bolt NAS6603-4, washers NAS1149D0363J, and nut NAS9926-3L.

    b. Carefully route loop providing uniform bend radius up to antenna on transmission fairing.

    c. Torque nut 12 to 15 inch-pounds (1.4 to 1.7 Nm), securing clamping and routing arrangement in set position. Utilize lacing cord (C-581) as necessary along the coaxial cable leading up to the antenna.



16. Verify for freedom of movement and travel of the cyclic and collective control system (DMC-505-A-67-12-00-00A-360A-A, DMC-505-A-67-11-00-00A-360A-A). Look for

any interference between new installation and hydraulic servo actuators. Correct any interference as necessary.

17. Install right transmission fairing (DMC-505-A-53-40-02-00A-720A-A).

18. Reassemble helicopter as needed. (DMC-505-A-53-40-03-00A-720A-A, DMC-505-A-53-30-01-00A-720A-A, DMC-505-A-53-40-04-00A-720A-A, DMC-505-A-53-30-02-00A-720A-A.)

19. Amend helicopter weight and balance records.

20. Make an entry in the helicopter logbook and historical service records indicating compliance with this Technical Bulletin.