



SUBJECT: Mooney Aircraft with Flap Preselect assemblies [Chapter 27 - Flight Controls]

MODELS/ SN M20K 25-1168 and On

AFFECTED: M20M 27-0108 and On M20R 29-0001 and On
M20S 30-0001 and On M20TN 31-0001 and On
M20U 32-0001 thru 32-0012 M20V 33-0001 thru 33-0019

TIME OF COMPLIANCE: **AT OWNER'S DISCRETION**

INTRODUCTION: Mooney Engineering has developed a product improvement for the flap preselect system of the affected aircraft. This improvement, as illustrated in this service instruction simplifies flap takeoff position rigging and ensures the make/break point of the flap preselect occurs at the 10 degree approach/takeoff flap setting.

INSTRUCTIONS: **Read entire procedure before beginning work.**

STEP 1.0 - FLAP PRESELECT MODIFICATION

- 1.1. Raise aircraft on jacks and remove belly access panel(s) (Refer to the applicable Service and Maintenance Manual).
- 1.2. From inside aircraft, turn master power on.
 - a. Set flaps to the up position.
 - b. Turn master power off.
- 1.3. From under aircraft, locate flap preselect assembly. (Refer to Figure SIM20-142-01.)
- 1.4. Loosen the 3 mounting screws, washers and nuts mounting the assembly. (Refer to Figure SIM20-142-02.)
 - a. Slide flap preselect assembly to the right until the two micro-switches are positively actuated (click is heard).

NOTE:

Do not adjust to the full limits of the micro- switch plungers.

- 1.5. Using a red sharpie (included in kit), mark the rear spar using right edge of the preselect board as shown in Figure SIM20-142-02A.
- 1.6. From inside aircraft, turn master power on.(Refer to Figures SIM20-142-03.)
 - a. Select Flaps to "Takeoff Position". (Refer to Figures SIM20-142-04.)
 - b. Turn master power off.
- 1.7. From under aircraft, remove three screws, washers, nuts and flap preselect assembly from aircraft, keep for reassembly. (Refer to Figure SIM20-142-05.)
- 1.8. Disconnect the flap actuator rod. (Refer to Figure SIM20-142-06.)
 - a. Support Flaps before removing actuator rod hardware. This will help protect the flap fairings (if installed).
 - b. Remove actuator rod bolt, washer, and nut, keep for re-assembly. (Refer to applicable Mooney Service and Maintenance Manual Chapter 27-50-00)
- 1.9. The flaps may be moved (and supported) at the landing position for ease of access to the actuator arm. (Refer to Figure SIM20-142-07.)
- 1.10. Butt the aft edge of template p/n 750093-023 to the jackshaft. (Refer to Figure SIM20-142-08.)



SERVICE INSTRUCTION SIM20-142

Date: April 21, 2021

- 1.11. Slide the template p/n 750093-023 up against the actuator arm. (Refer to Figures SIM20-142-09.)
 - a. Ensure the aft edges of the template and the actuator arm are flush.
 - b. Clamp template in place. (Refer to Figure SIM20-142-10.)
- 1.12. Match drill pilot hole in the template 750093-023 to the actuator arm with a .125" drill bit. (Refer to Figure SIM20-142-11.)
 - a. After drilling pilot hole, an appropriate Cleco maybe used to hold template 750093-023 in place.
- 1.13. Following contour of the template, mark actuator arm with the sharpie (included in kit). (Refer to Figure SIM20-142-12.)
- 1.14. Remove the template 750093-023, exposing the new template mark. (Refer to Figure SIM20-142-13.)
- 1.15. Carefully cut the actuator arm along the mark with a suitable cutoff wheel or small grinder. (Refer to Figure SIM20-142-14.)

CAUTION:**DO NOT OVERCUT ACTUATOR ARM**

- a. Compare progress with template 750093-023, **Do Not Over Cut**.
 - b. Debur and clean edges with small file or suitable tool.
 - c. Apply epoxy primer to all exposed edges, to prevent corrosion.
- 1.16. Enlarge hole in the actuator arm to 0.250" drill bit. This will be used to identify that the SIM20-142 has been accomplished. (Refer to Figure SIM20-142-15.)
 - 1.17. Re-install flap preselect board with the screws, washers, nuts that were removed from aircraft, do not fully tighten. (Refer to Figure SIM20-142-16.)
 - 1.18. Match the right edge of flap preselect board with the mark on the spar from Step 1.5 and tighten hardware in place. (Refer to Figure SIM20-142-17.)
 - 1.19. Re-install the flap actuator rod. (Refer to Figure SIM20-142-18.)

CAUTION:**REMOVE ANY FLAP SUPPORTS BEFORE POWERING UP AND CYCLING FLAPS**

- a. Remove any flap supports.
 - b. Install and secure actuator rod with bolt, washer and nut that were removed from disassembly. (Refer to applicable Mooney Service and Maintenance Manual Chapter 27-50-00.)
- 1.20. The installed flap preselect board microswitch position should look like Figure SIM20-142-19.
 - 1.21. Loosen hardware attaching microswitch 1 and 2 to the flap preselect board. Refer to Figure SIM20-142-20.
 - a. Adjust the microswitch 1 fore and aft until actuated (a click will be heard).
 - b. Adjust the microswitch 2 fore and aft until actuated, then move back (deactuates).
 - 1.22. Power the aircraft, cycle the flaps. (Refer to Figure SIM20-142-21.)



CAUTION:

REMOVE ANY FLAP SUPPORTS BEFORE POWERING UP AND CYCLING FLAPS

- a. Adjust both microswitches as required until rigging is satisfied per applicable Service and Maintenance Manual Chapter 27-50-00.
- b. Using Sharpie (included in kit) write "750093-507 Rev P-2" on flap actuator jackshaft assembly, identifies that this service Instruction SIM20-142, has been complied with.

NOTE:

When flaps are cycled from the "Down" position to "Takeoff", the angular location will be slightly different when cycled from the "Up" position to "Takeoff".

- 1.23. Check flap indication per applicable Service and Maintenance Manual Chapter 27-50-00.
- 1.24. Replace belly access panel(s) and lower aircraft from jacks (Refer to the applicable Service and Maintenance Manual).
- 1.25. Return aircraft to service and mail/fax/email completed compliance card to Mooney.
- 1.26. Procedure complete.

WARRANTY: Mooney International Corporation, will warrant labor 4 hours when corrective action is done in accordance with procedures of this Service Instruction for aircraft currently covered under the Mooney International Corporation factory warranty program.

REFERENCE DATA: 1. Mooney Service and Maintenance Manual (applicable A/C)

PARTS LIST: Parts Kit P/N: **Service Instruction Kit - ORDER P/N'S AS REQUIRED**

| <u>Item</u> | <u>P/N</u> | <u>Description</u> | <u>Qty</u> |
|-------------|------------|-------------------------------|------------|
| 1. | 750093-023 | Actuator Arm (Template) | 1 |
| 2. | N/A | Red Sharpie (Fine Tip) | 1 |

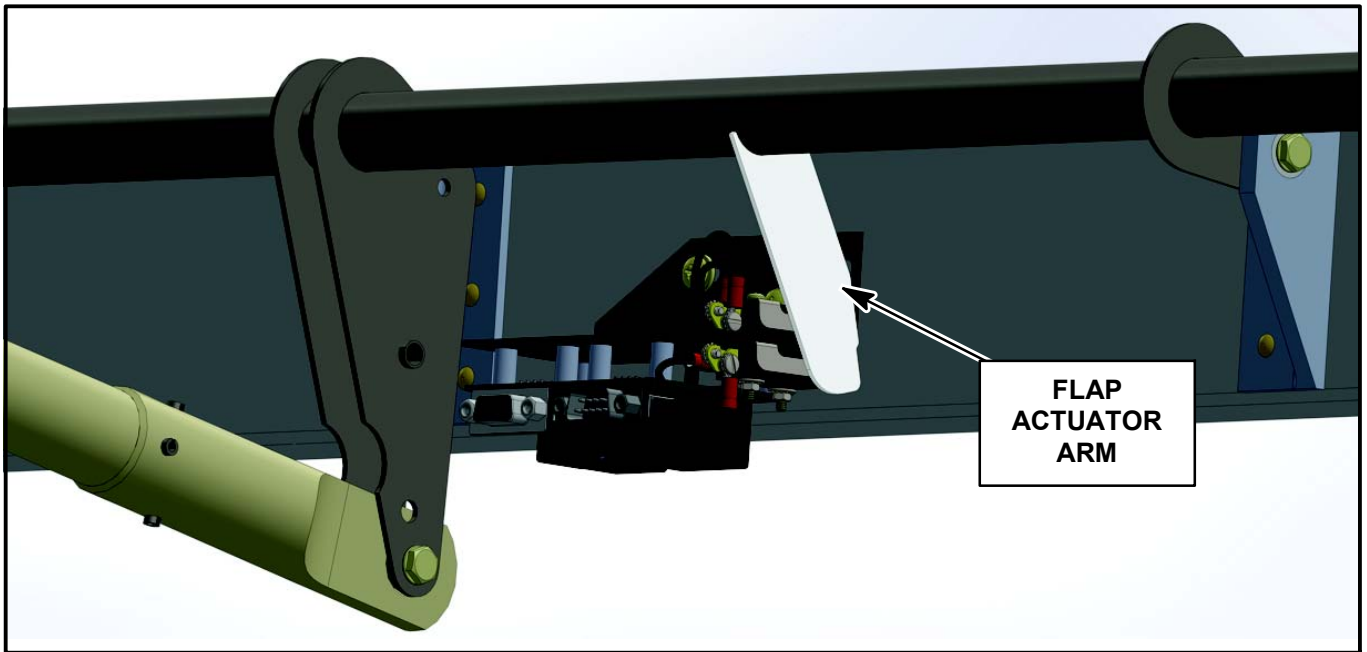


Figure SIM20-142-01 - FLAP ACTUATOR ARM

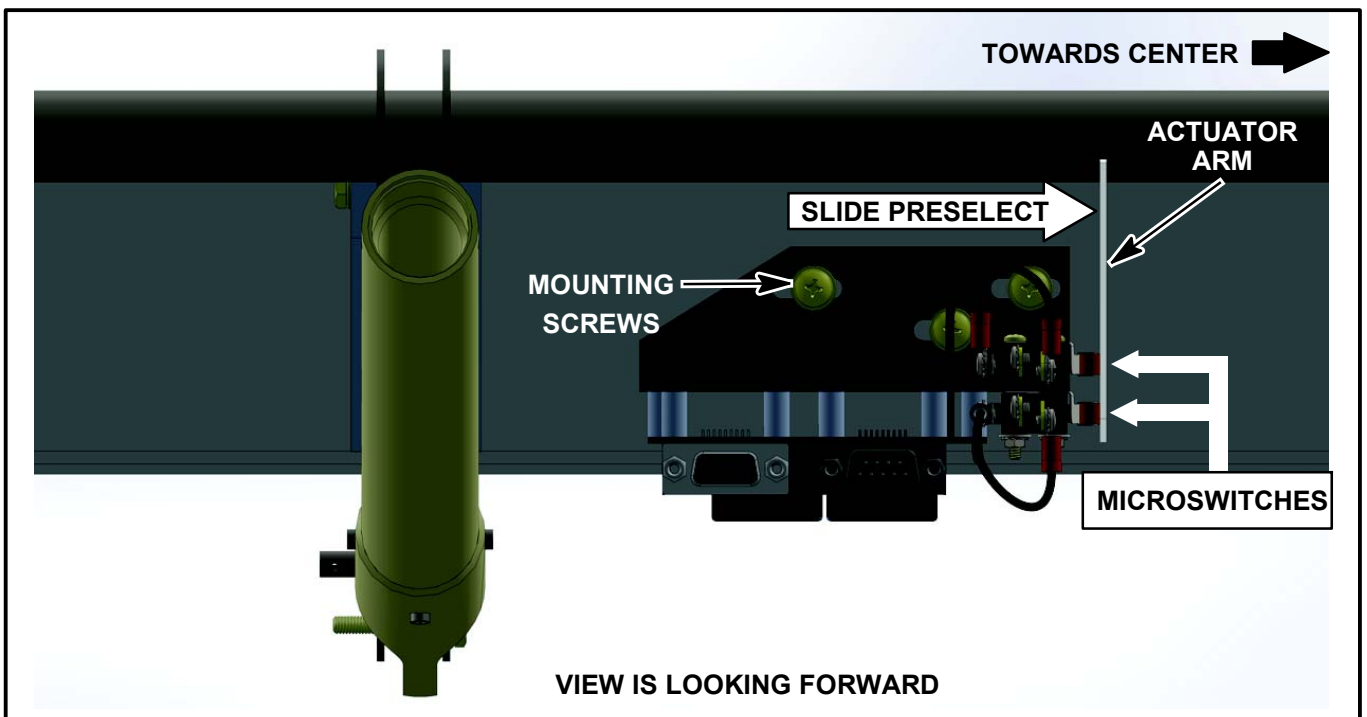


Figure SIM20-142-02 - FLAP PRESELECT

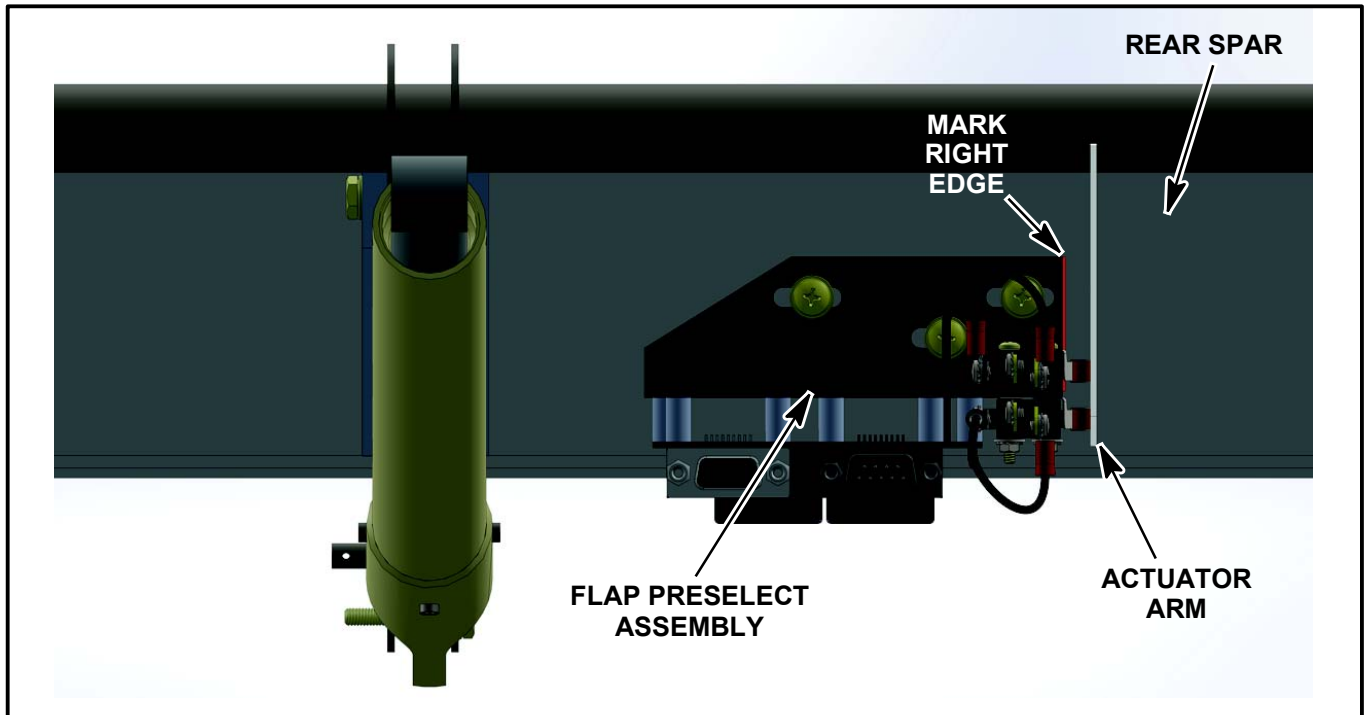


Figure SIM20-142-02A - MARK REAR SPAR WITH SHARPIE

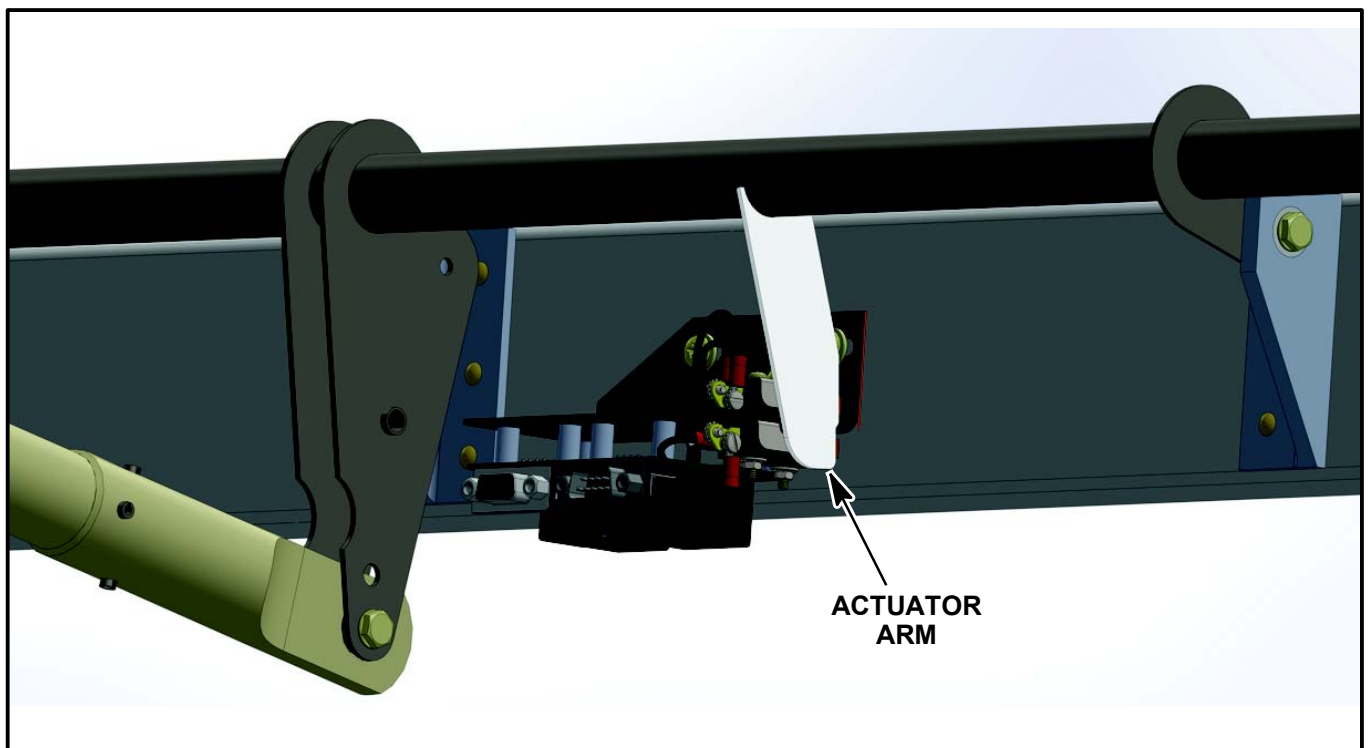


Figure SIM20-142-03 - VIEW OF FLAP ACTUATOR ARM

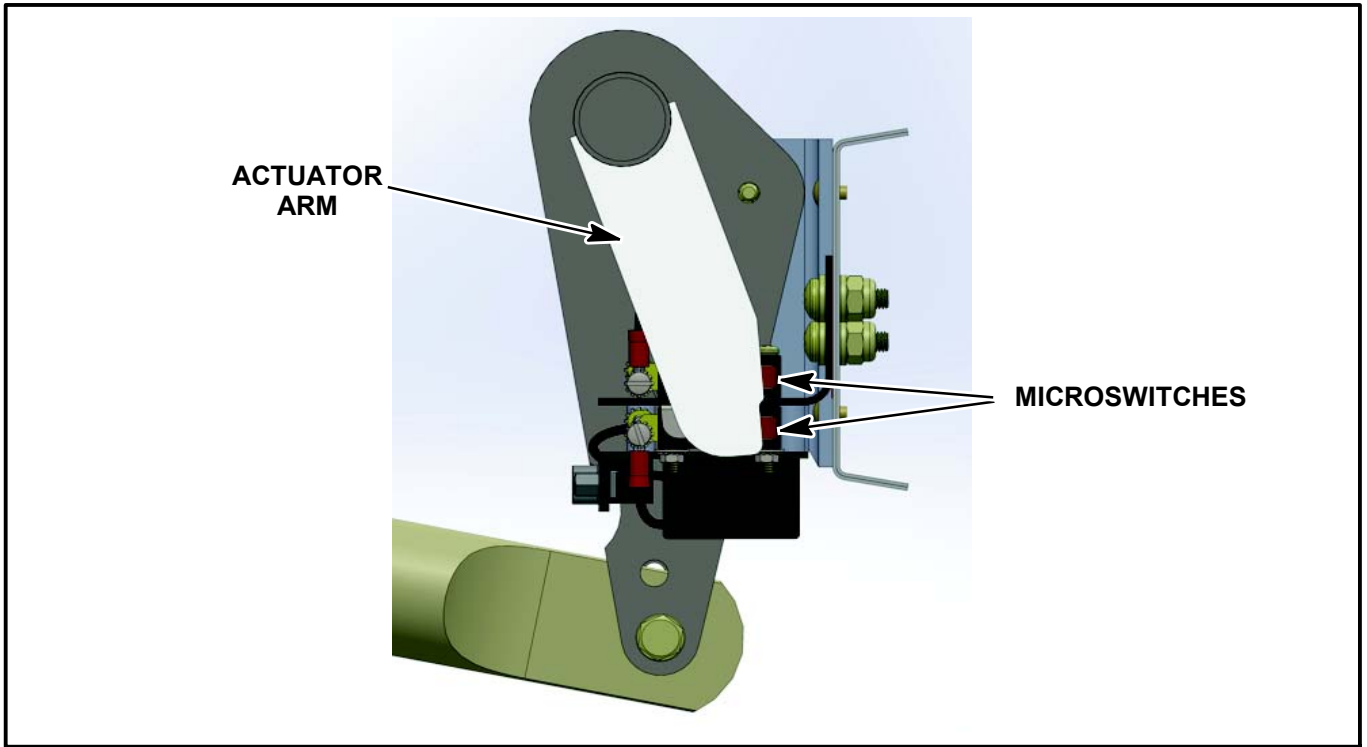


Figure SIM20-142-04 - VIEW OF FLAP ACTUATOR ARM

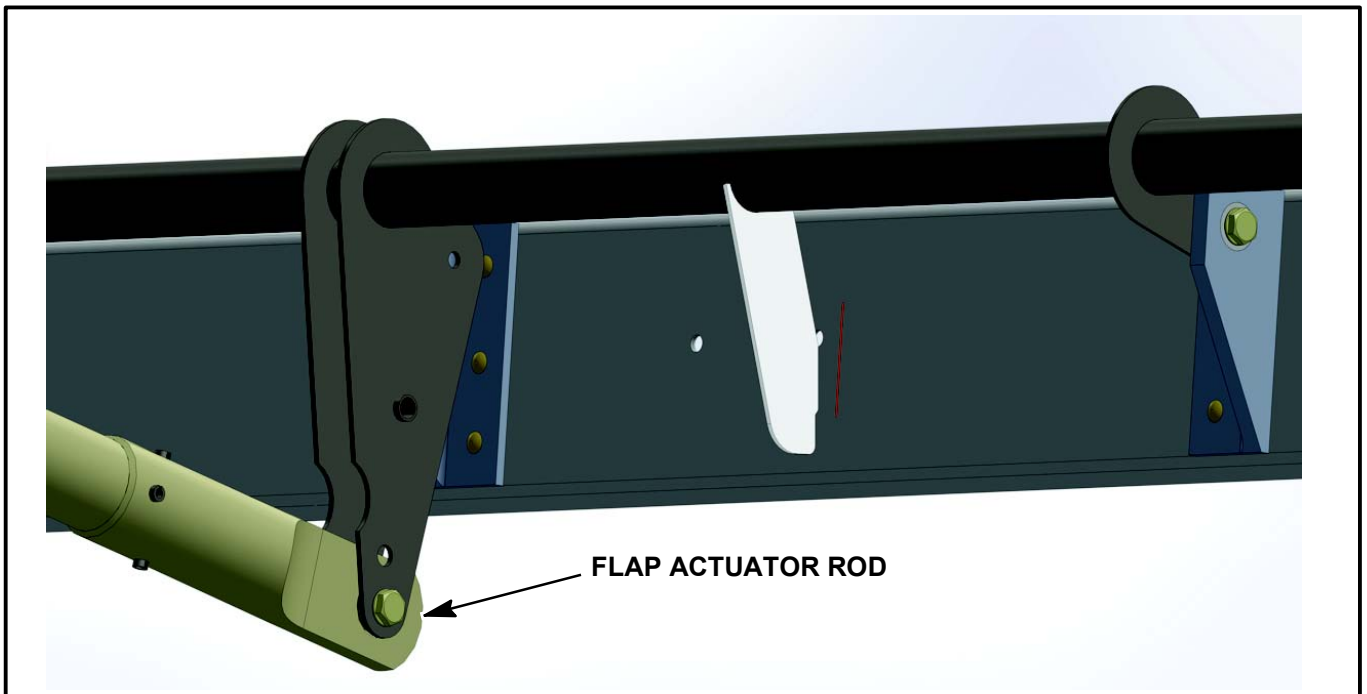


Figure SIM20-142-05 - REMOVE FLAP ACTUATOR HARDWARE AND ROD

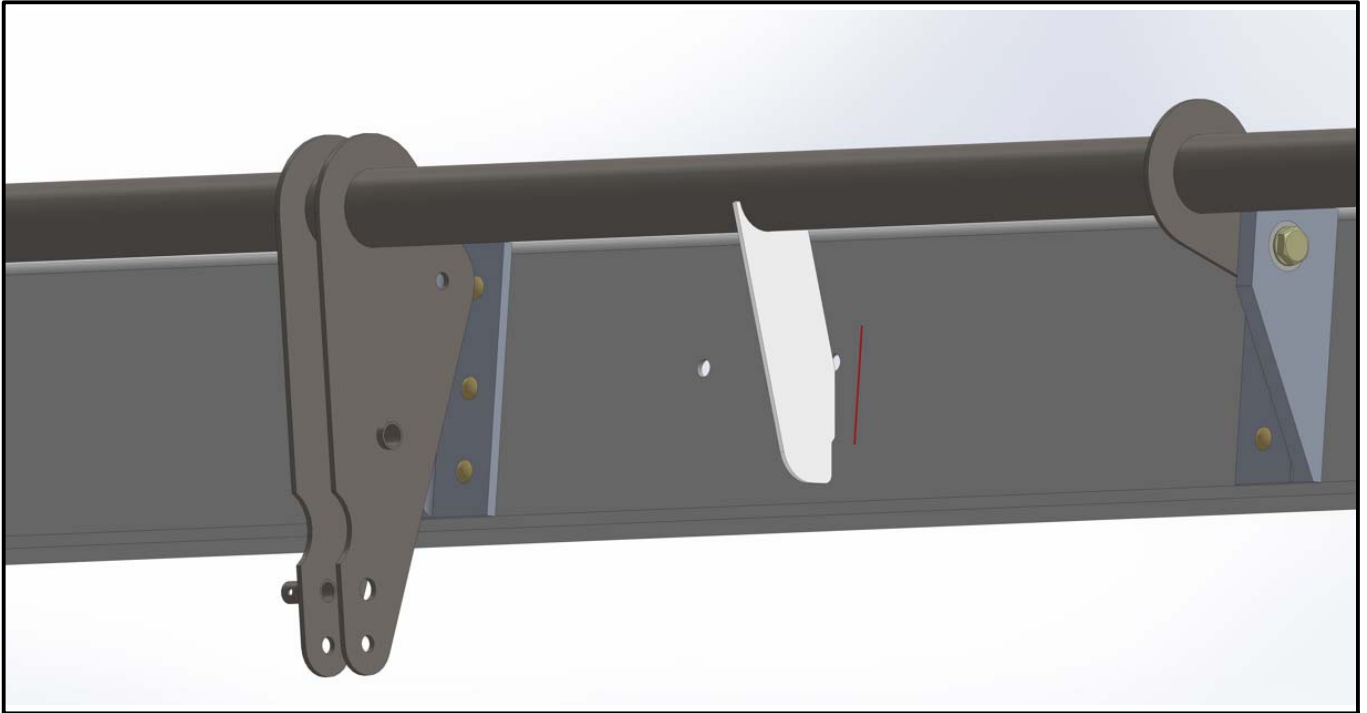


Figure SIM20-142-06 - FLAPS LANDING POSITION

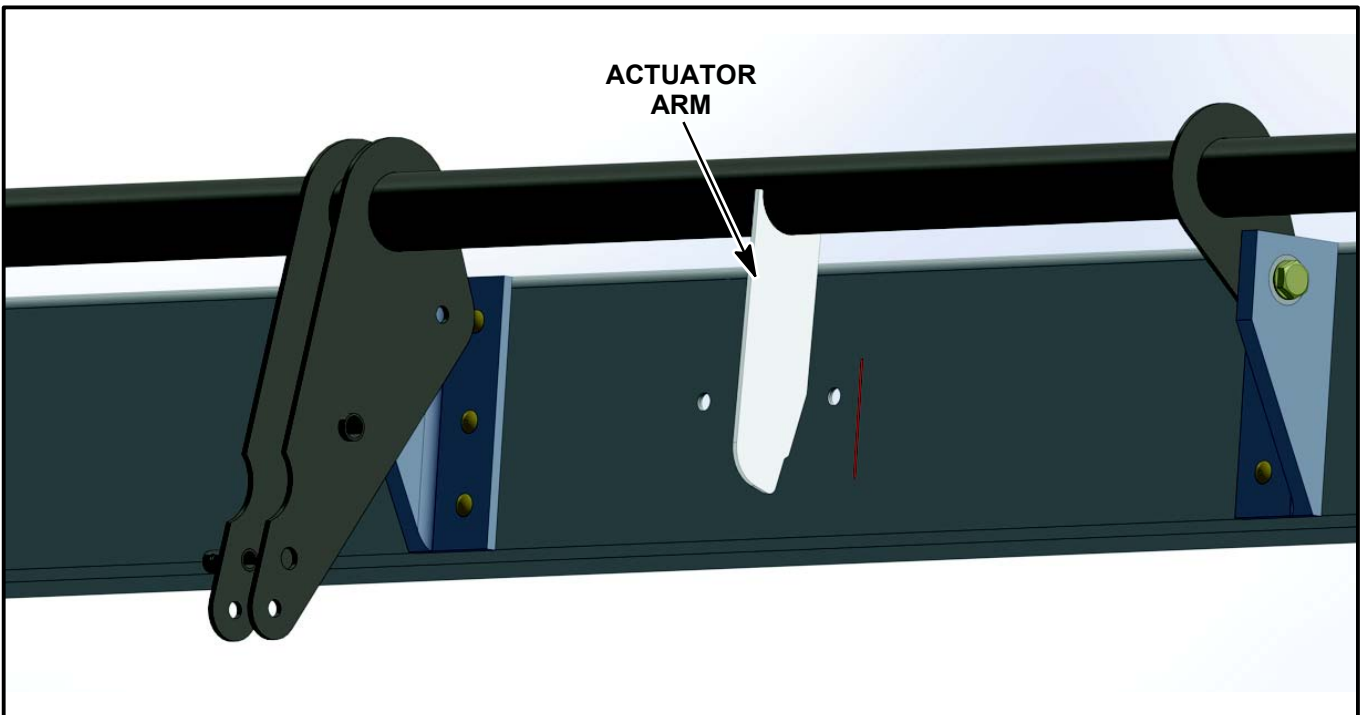


Figure SIM20-142-07 - FLAP ACTUATOR ARM

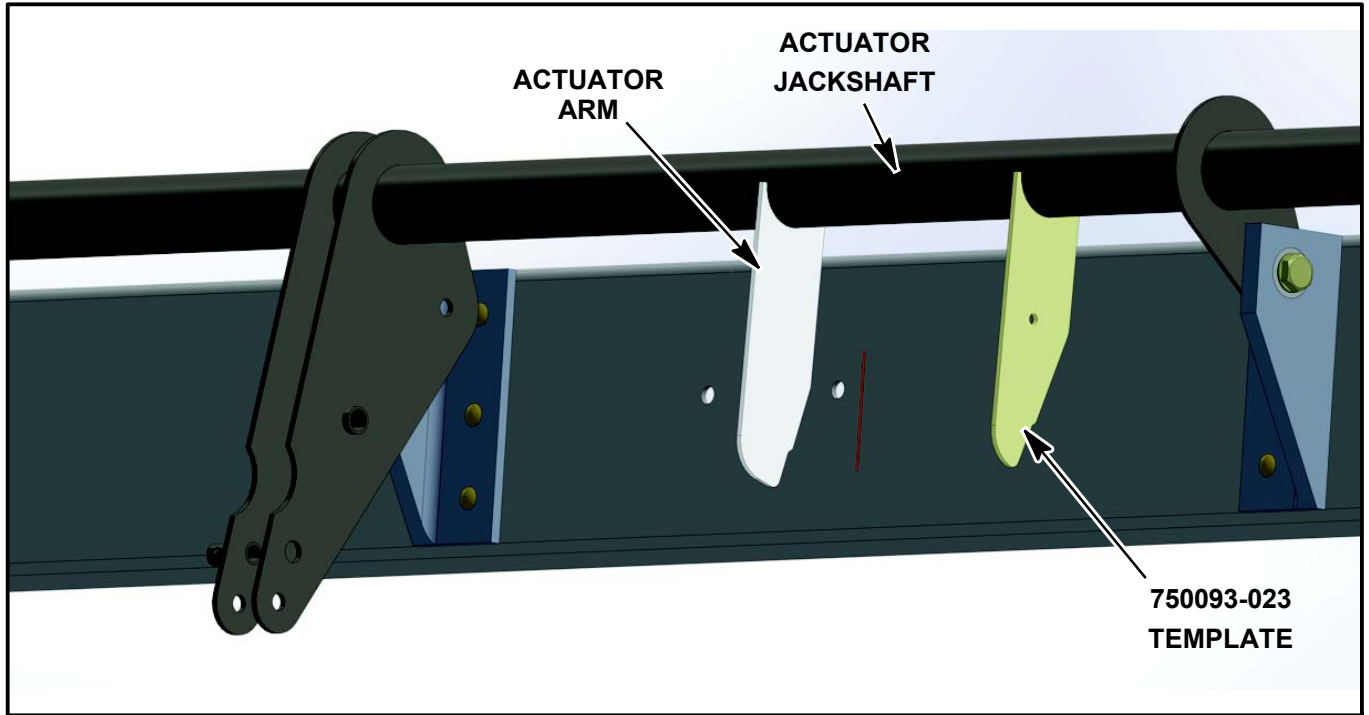


Figure SIM20-142-08 - POSITION 750093-023 TEMPLATE TO FLAP ACTUATOR JACKSHAFT

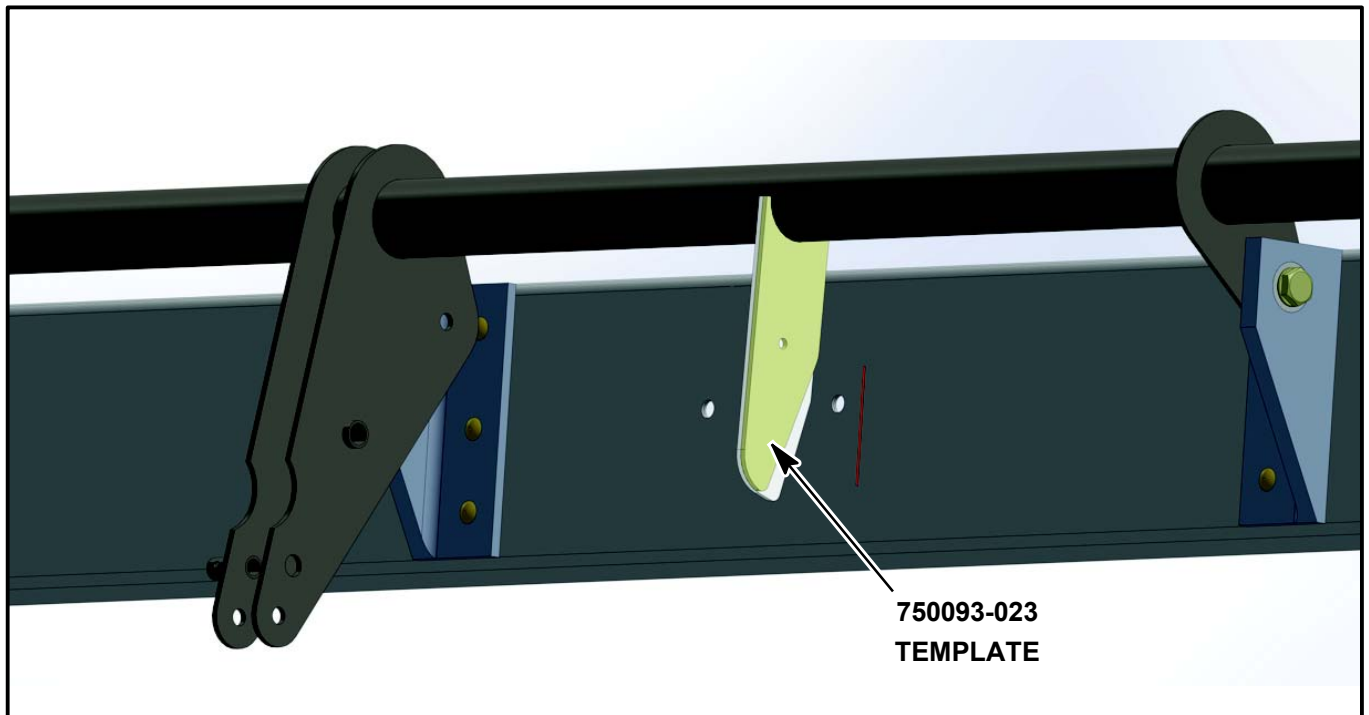


Figure SIM20-142-09 - POSITION 750093-023 TEMPLATE TO FLAP ACTUATOR ARM

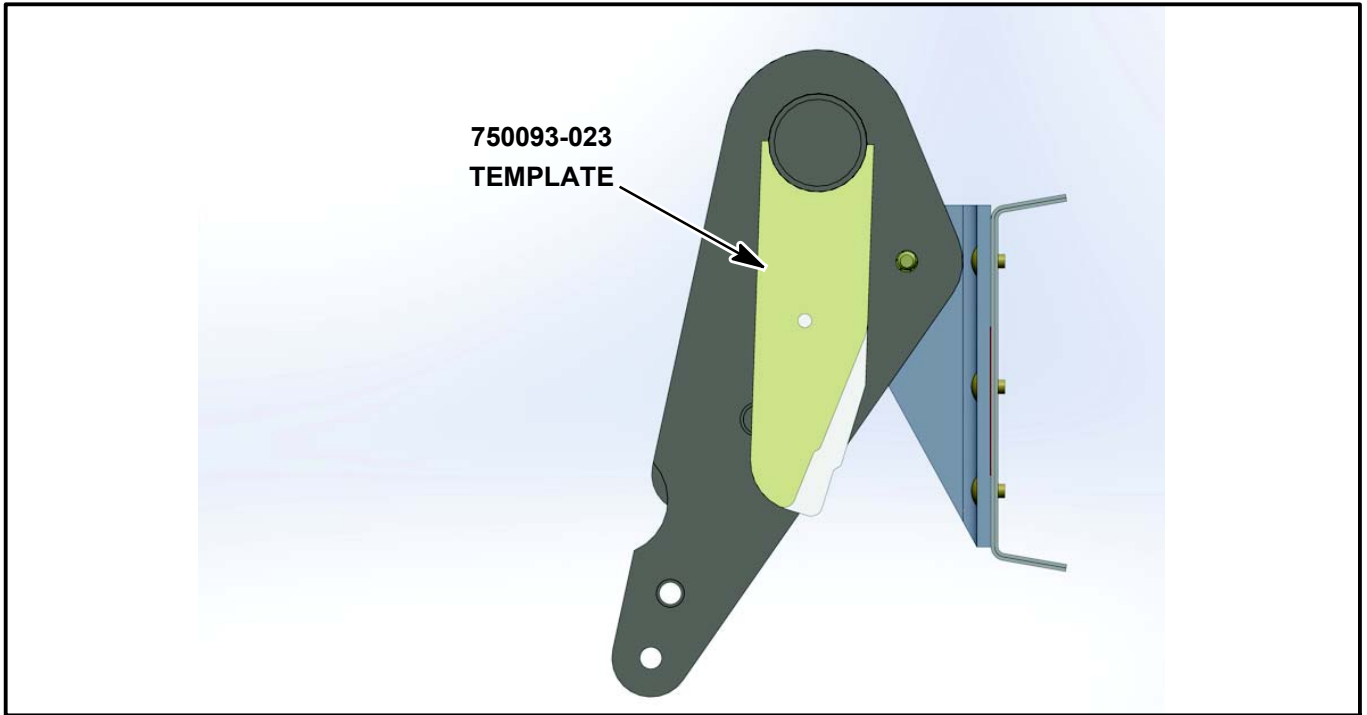


Figure SIM20-142-10 - CLAMP 750093-023 TO FLAP ACTUATOR ARM

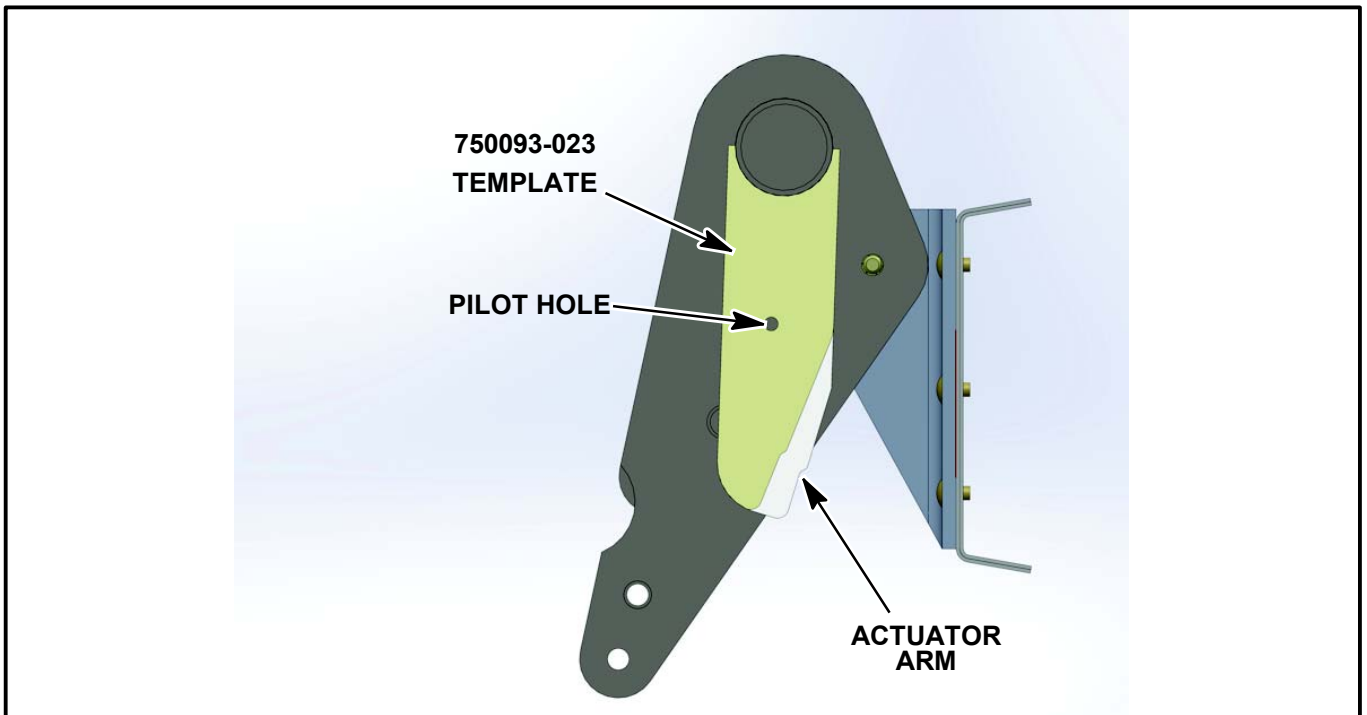


Figure SIM20-142-11 - MATCH DRILL ACTUATOR ARM

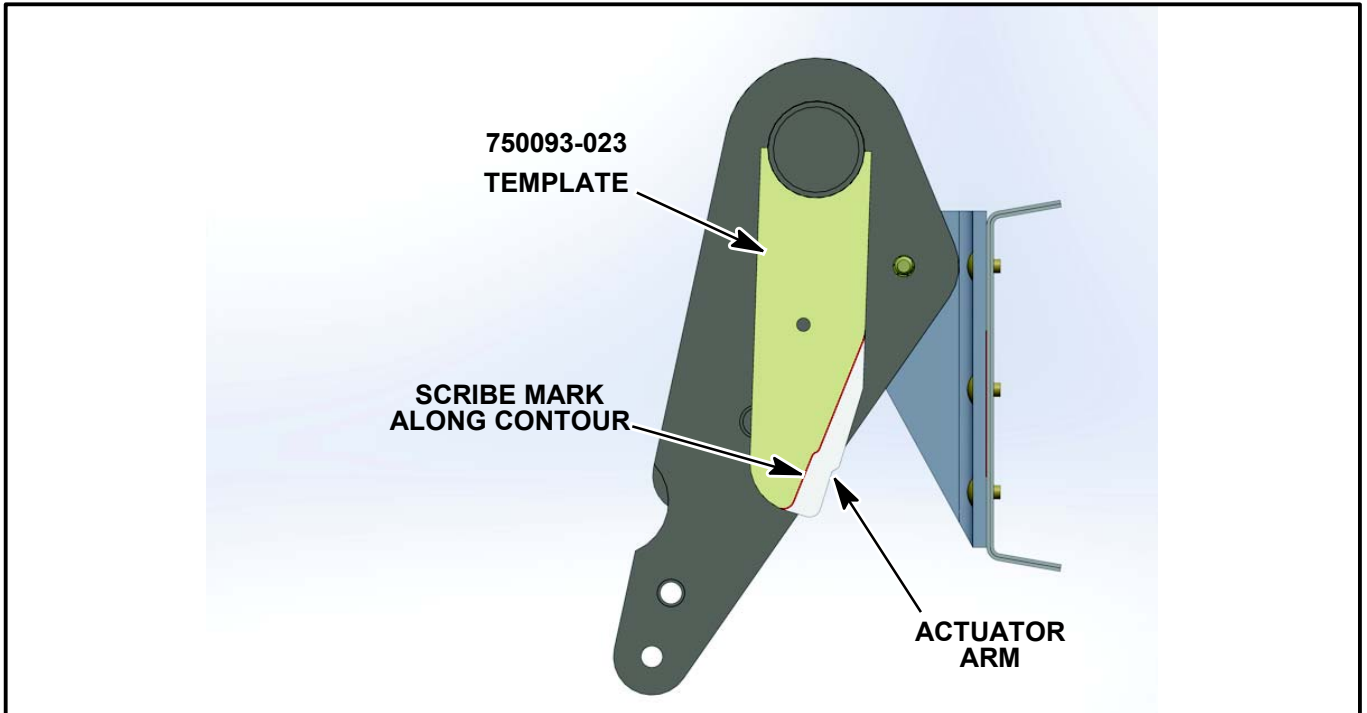


Figure SIM20-142-12 - CONTOUR SCRIBE 750093-023 TO ACTUATOR ARM

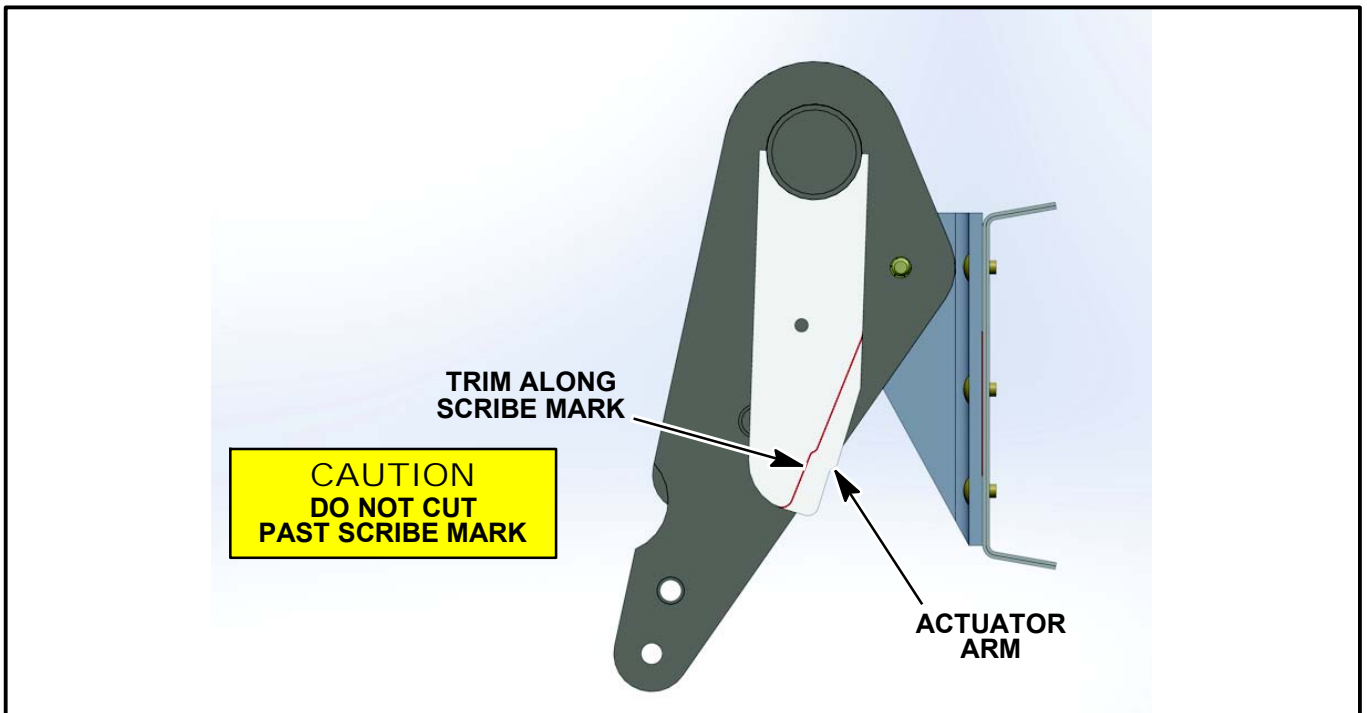


Figure SIM20-142-13 - TRIM MARK ON ACTUATOR ARM

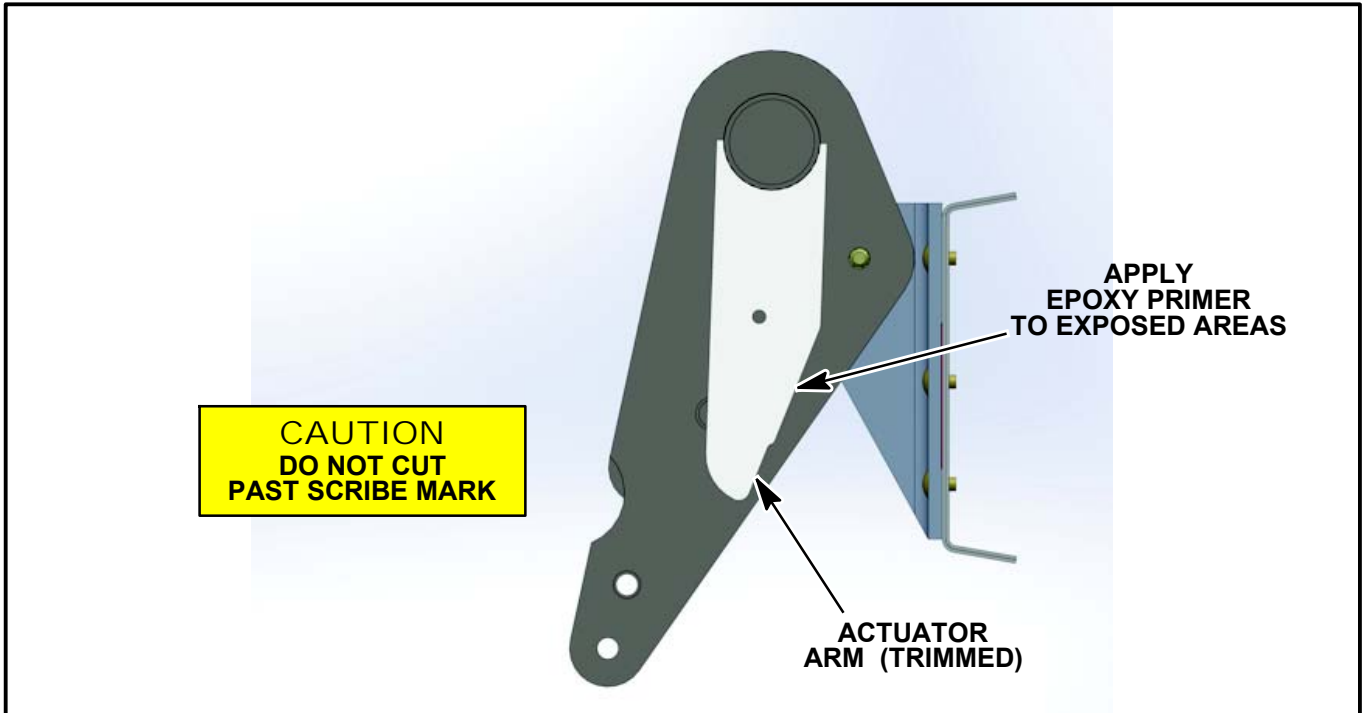


Figure SIM20-142-14 - TRIM ACTUATOR ARM TO SCRIBE MARK

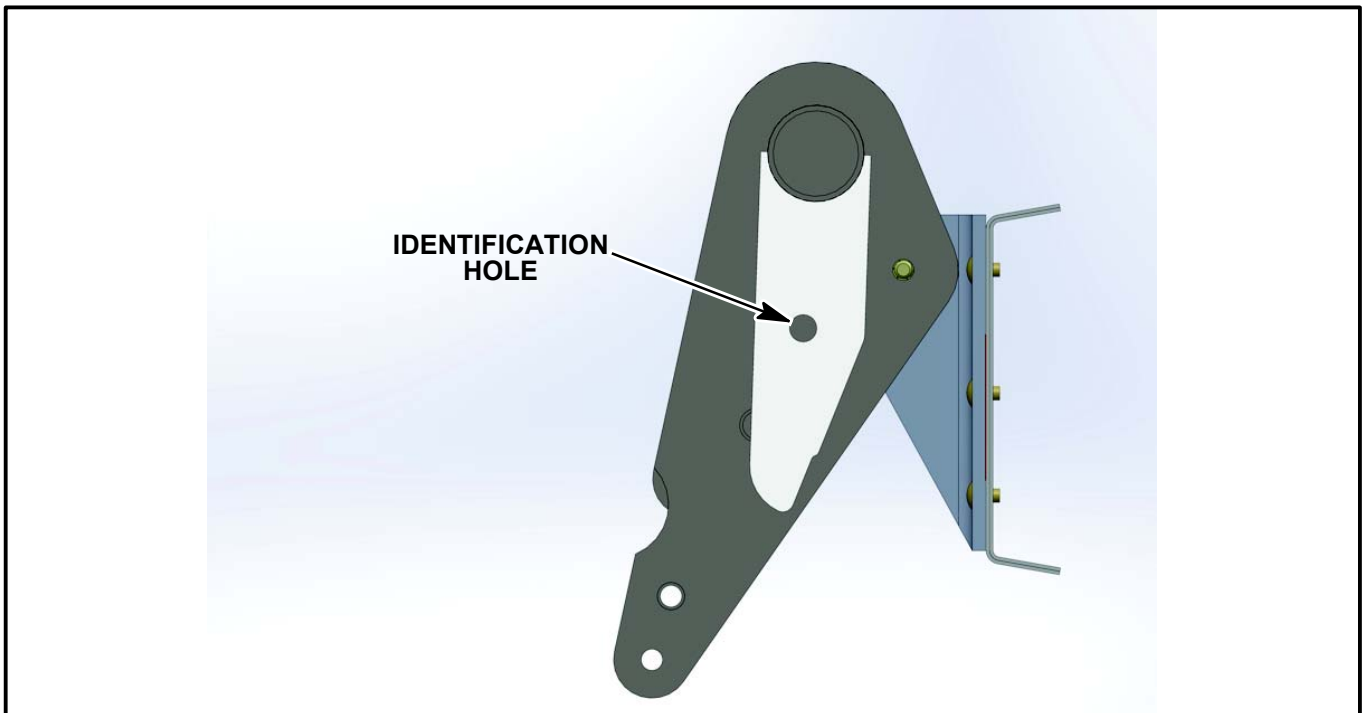


Figure SIM20-142-15 - ACTUATOR ARM IDENTIFICATION HOLE

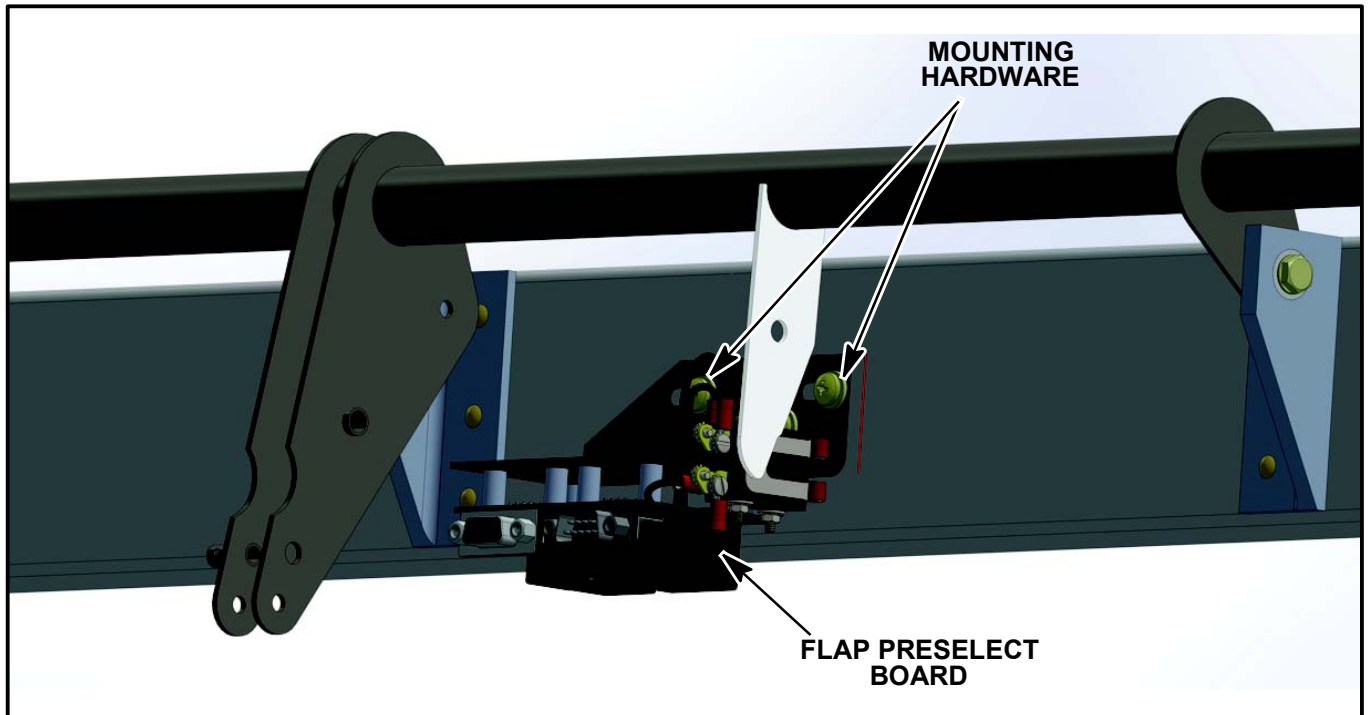


Figure SIM20-142-16 - INSTALL FLAP PRESELECT BOARD

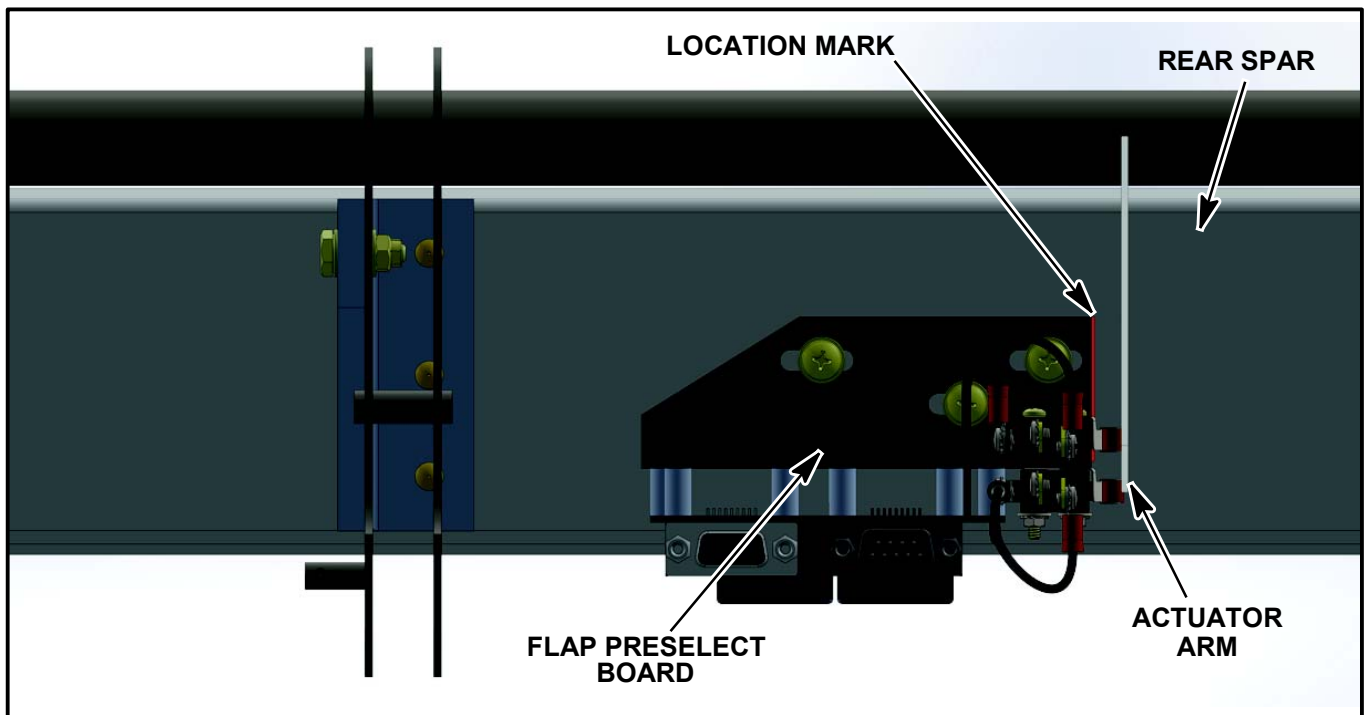


Figure SIM20-142-17- POSITION FLAP PRESELECT BOARD

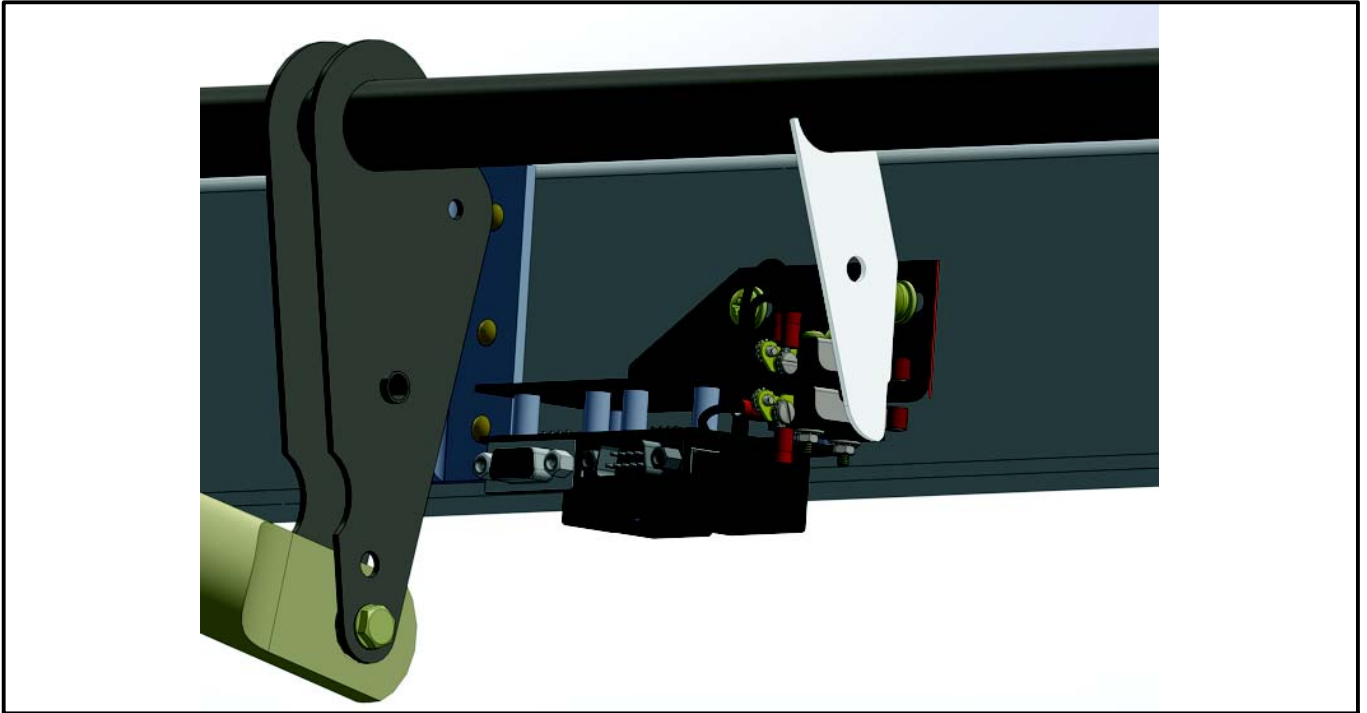


Figure SIM20-142-18 - FLAP PRESELECT POSITION

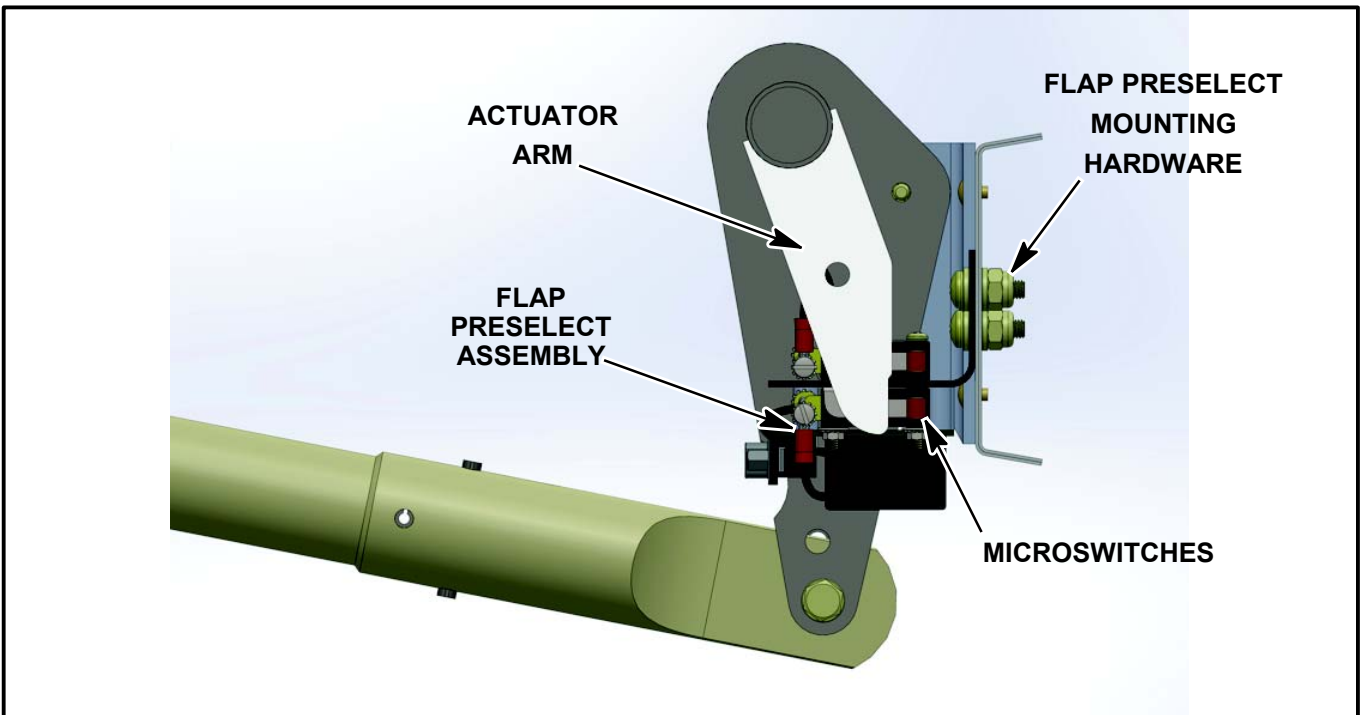


Figure SIM20-142-19 - MICROSWITCH POSITION

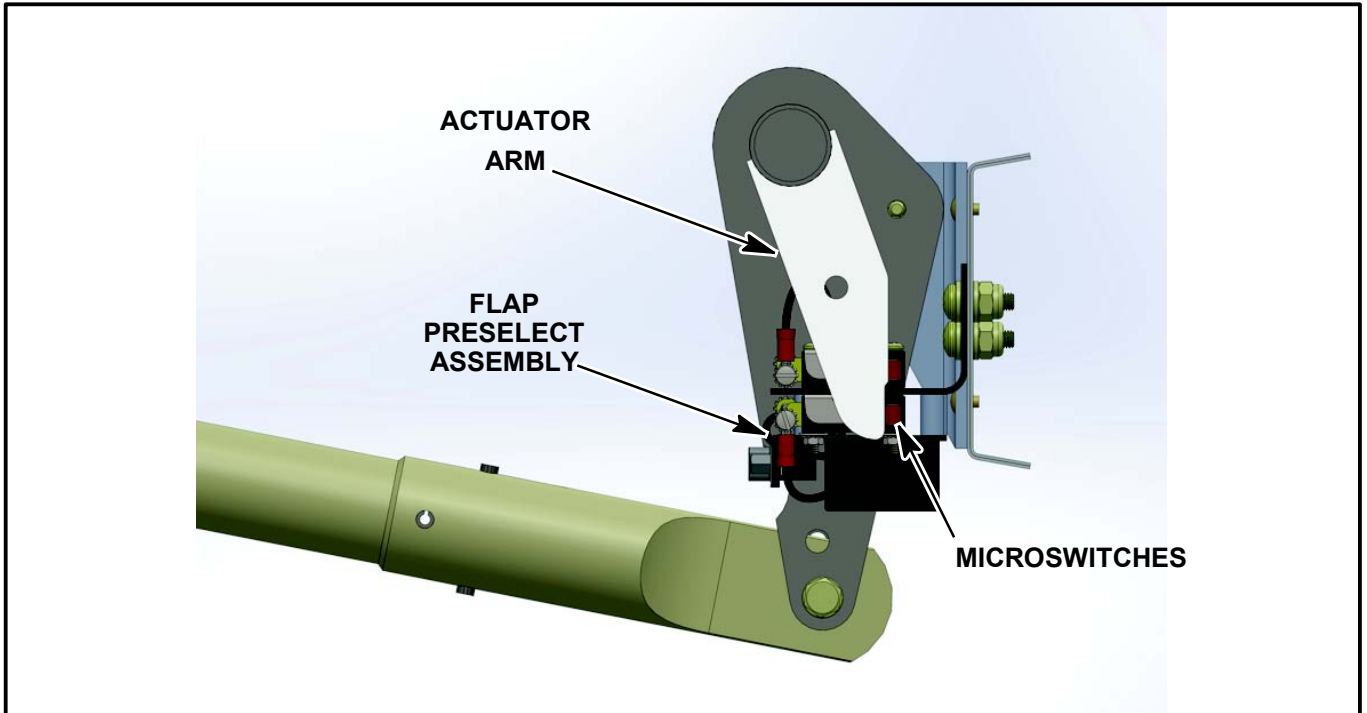


Figure SIM20-142-20 - MICROSWITCH ADJUSTMENT

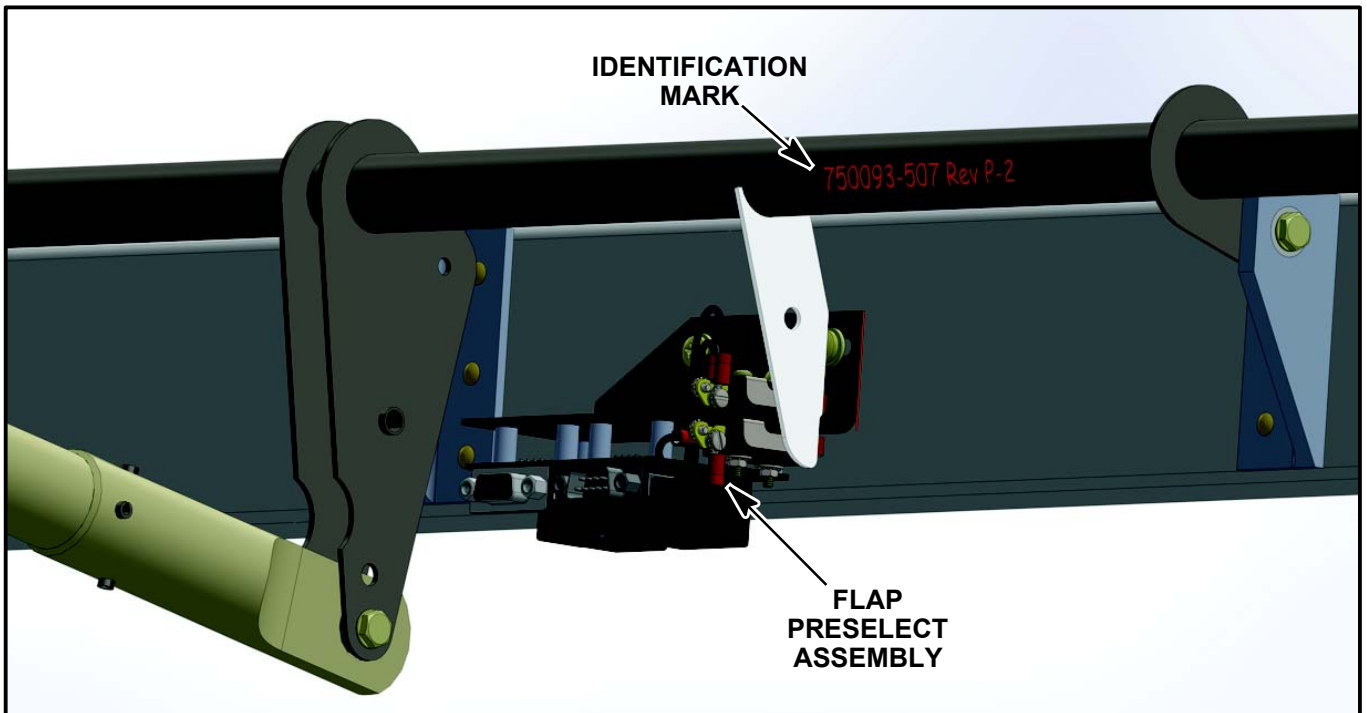


Figure SIM20-142-21 - SERVICE INSTRUCTION IDENTIFICATION MARK



165 Al Mooney Road North
Kerrville, Texas 78028

SERVICE INSTRUCTION SIM20-142

Date: April 21, 2021

MOONEY INTERNATIONAL CORP
KERRVILLE, TEXAS 78028 - FAX 830-257-4635

SERVICE (BULLETIN) (INSTRUCTION) NO. _____ HAS BEEN COMPLIED
WITH ON AIRCRAFT MODEL _____ SERIAL NUMBER _____

Tach. Time: _____ N-Number _____ (Reg. No.)
Owner: _____ Date of Compliance: _____
_____ Complied
By: _____

Inspection Report: _____

Form 07-0001

PLACE
STAMP
HERE

MOONEY INTERNATIONAL CORP
ATT'N: TECHNICAL PUBLICATIONS DEPT
165 Al Mooney Road, North
Kerrville, Texas 78028

SEND ALL COMPLIANCE CARDS TO:
Mooney International Corp ATTN: Tech Pubs Dept.
165 Al Mooney Road North
Kerrville, TX 78028
FAX: (830) 257-4635 or EMAIL TO: techpubs@mooney.com

To submit Technical Publication changes, visit our website:
<https://www.mooney.com/service>
or email a request to: techpubs@mooney.com