SIB 64 05 25 2025-08-27

HVAC FLAP LINKAGE NOT FULLY CONNECTED

This Service Information Bulletin (Revision 6) replaces SI B64 05 25 **dated August 2025.**

What's New:

- Procedure: The linkage may bottom out on the HVAC case before fully seating into the flap. Apply outward pressure on the flap while applying inward pressure on the linkage.
- Attachment updated, attachment added.

☐	THIS REPAIR IS MOBILE FRIENDLY
☐	THIS REPAIR IS REMOTE SOFTWARE UPGRADE (RSU) FRIENDLY

MODEL

E-Series	Model Description
G45	X3 Sports Activity Vehicle

SITUATION

1-Customer states that the output air from one of the vehicle vent assemblies doesn't match the desired temperature, will change temperature opposite of climate settings.

2-Customer states that the output air from one of the vehicle vent assemblies doesn't match the desired temperature, nor change from Hot/Cold.

CAUSE

1-Center vent temperature sensor wiring harness pinned incorrectly.

2-The air flap linkage may not be fully locked into the air mixing flap.

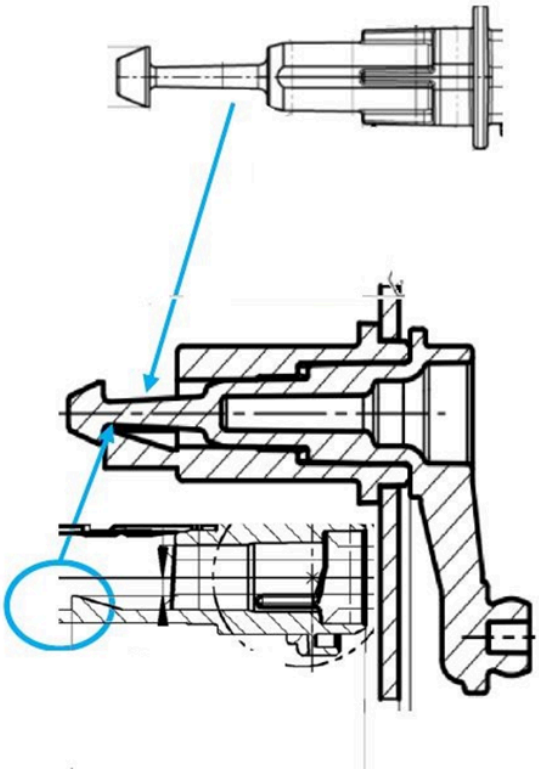
CORRECTION

1- Check wiring between BCP and the center driver and passenger vent temperature sensors.

2-Check that the linkage has not come loose from the flap in the heating, ventilation, and air conditioning (HVAC) system.

The linkage connection to the right front mixed air flap (5B) is the one we have found loose on most vehicles. For specific instructions on how to fix this flap see **Attachment B64 05 25 RF Mix Flap**

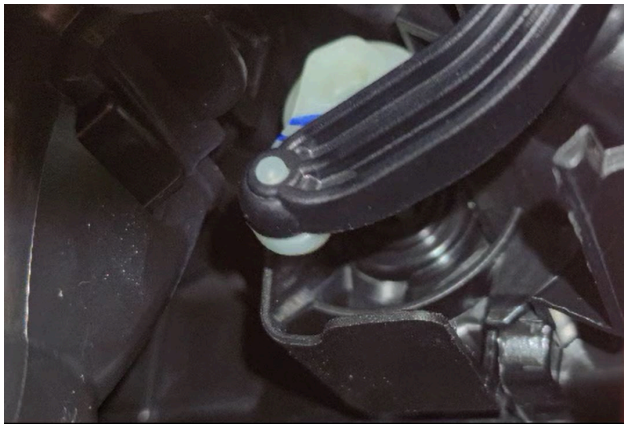
This can occur to ANY of the flaps in the HVAC system.
See attached video for one example
BV64 02 25 G45 Flap Linkage



There is a push-in end on the linkage that can be reinserted into the flap and fully seated.

Check that the linkage has not come loose from the HVAC flap for the zone that is malfunctioning.

There is a white plastic mechanism that connects the black linkage arm and the HVAC flap assembly.



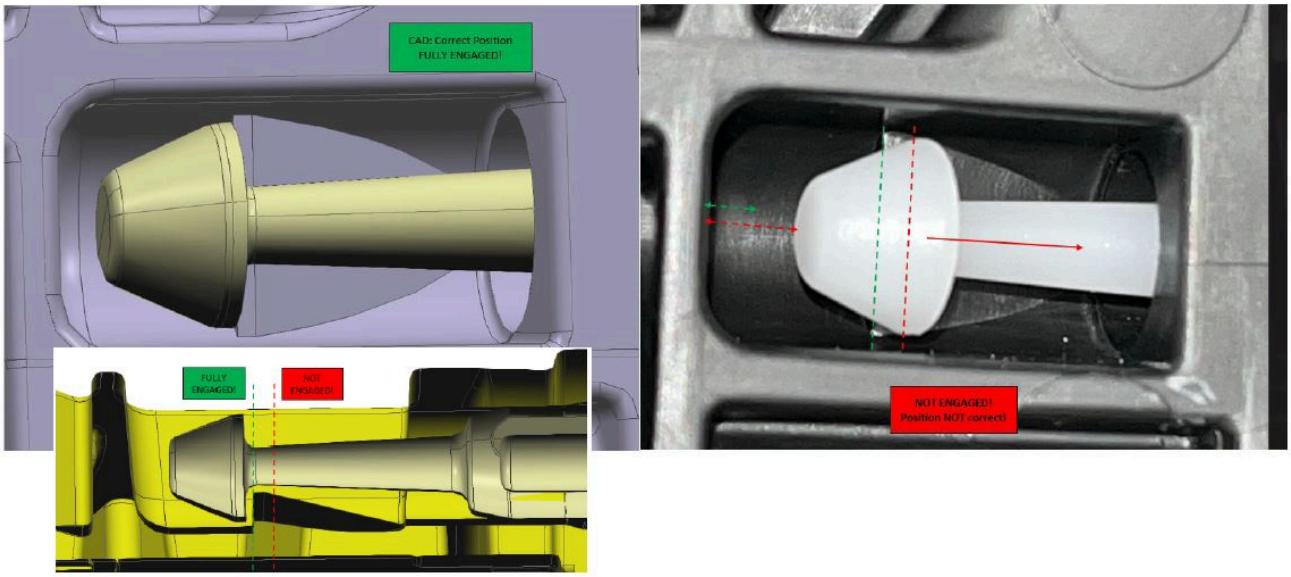
To test if the mechanism is fully seated into the HVAC flap assembly, perform a wiggle test of the white plastic (in/out). Here you can see the white plastic mechanism has backed out of the HVAC case and is not locked into the flap.

This can occur to ANY of the flaps in the HVAC system.

See video attached to the bulletin for one example.

If using a borescope to inspect if the flap is fully locked into the linkage, you can see the White

until it fully goes past the plastic flap ramp. The pictures below show fully locked in vs not fully locked.



PROCEDURE

1- Check wiring between BCP and the center driver and passenger vent temperature sensors.

- Module A528 BCP A528*7B pin 12 to B151 Vent Temp Sensor Left Front pin 3 B151*1B
- Module A528 BCP A528*7B pin 10 to B151 Vent Temp Sensor Left Front pin 1 B151*1B
- Module A528 BCP A528*7B pin 10 to B152 Vent Temp Sensor Right Front pin 1 B151*1B
- Module A528 BCP A528*7B pin 13 to B152 Vent Temp Sensor Right Front pin 3 B151*1B
- The wiring could be swapped at connector x1559*1B which is in line between BCP and the vent temperature sensors.
- See Wiring diagram SSP-SP0000074179

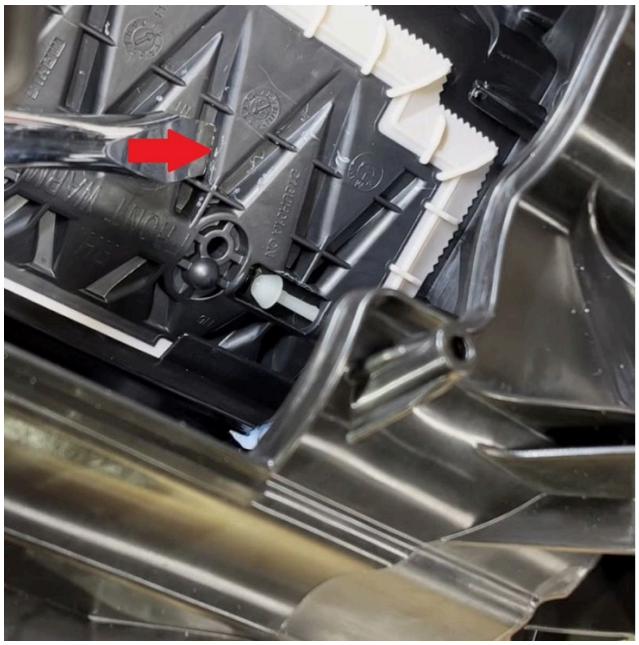
2-**See attachments for the Procedure.**

The linkage connection to the right front mixed air flap (5B) is the one we have found loose on most vehicles. For specific instructions on how to fix this flap see **Attachment B64 05 25 RF Mix Flap**

Check that the linkage has not come loose from the HVAC flap. This can occur to ANY of the flaps in the HVAC system.

There is a white plastic mechanism that connects the black linkage arms and the HVAC flap assembly. To test if the mechanism is fully seated into the HVAC flap assembly perform a wiggle test of the white plastic (in/out).

There is a push in end on the linkage that can be reinserted into the HVAC flap and fully seated. The white plastic mechanism push pin can be reinserted into the HVAC flap and fully seated.



Make sure to push in until you can feel the white plastic mechanism push pin mushroom shaped end engage into the flap ramp.

NOTE: The linkage may bottom against the HVAC case before it fully seats into the flap. This is because the flap may have some side-to-side free play. In this case apply OUTWARD pressure on the flap while pressing INWARD on the linkage until it fully engages. This may require more disassembly of the ducts to access the flap. The fresh air blend uses two linked flaps, and you may have to go around the top flap to put pressure on the lower flap.

The flap and linkage may be out of time and only snap in one way.
Move flap or use BCP_SP21 test plan to move linkage to align.
The test plans can be found in Procedure Heating and air conditioning functions:

- Move flap motors to installation position (**ABL-DIT-AS6450**_SP21_KLAP_MOTOR_MONTAGEPO) This is the middle of travel flap setting.
- Flap motors, calibration run (**ABL-DIT-AS6450**_SP21_KLAP_MOTOR_EICHLAUF)

CLAIM INFORMATION

This Service Information Bulletin provides technical, diagnostic and/or repair-related information.

Damage and/or issues caused by outside influences are not covered under the BMW Limited Warranties.

Eligible and Covered Work/Repairs

Repairs that address a verified defect in materials and/or workmanship are covered under the terms of the BMW New Vehicle Limited Warranty for Passenger Cars and Light Trucks.

To submit a claim, please following the established and applicable warranty policy and procedures (Labor/Part/Sublet – Bulk supply materials) that apply to the repair being performed.

Refer to AIR for the claim-related line item's Repair Code. For the corresponding repair that was performed, obtain the corresponding labor operation codes and their flat rate unit (FRU) allowance(s), including the diagnosis* that applies.

Only one Main labor operation code can be claimed per repair visit.

BMW Group's AIR Application Resource for Flat Rate Labor Operation Codes

To obtain the corresponding flat rate unit (FRU) allowance information from the BMW Group AIR application resource, start by entering the Chassis Number (last seven (7) characters of the VIN), and click on the "Search" icon. If the "Vehicle Selection" window displays two or more model possible vehicle choices, select the applicable Model, or enter the full VIN (17 characters) instead to proceed. Click on the "Flat Rate Units" button and enter a flat rate labor operation code number "without spaces" in the field to the right, click on the "Search" icon to display the corresponding listing of "Flat rate unit group details" that are available and their corresponding FRU allowances.

(*) Based on which one applies to your center, please refer to **SI B01 01 20 or B01 07 20** for the applicable

work time (WT), job/repair work time (WT), and the vehicle repairs your center performed, unless otherwise required by State law.

FEEDBACK REGARDING THIS BULLETIN

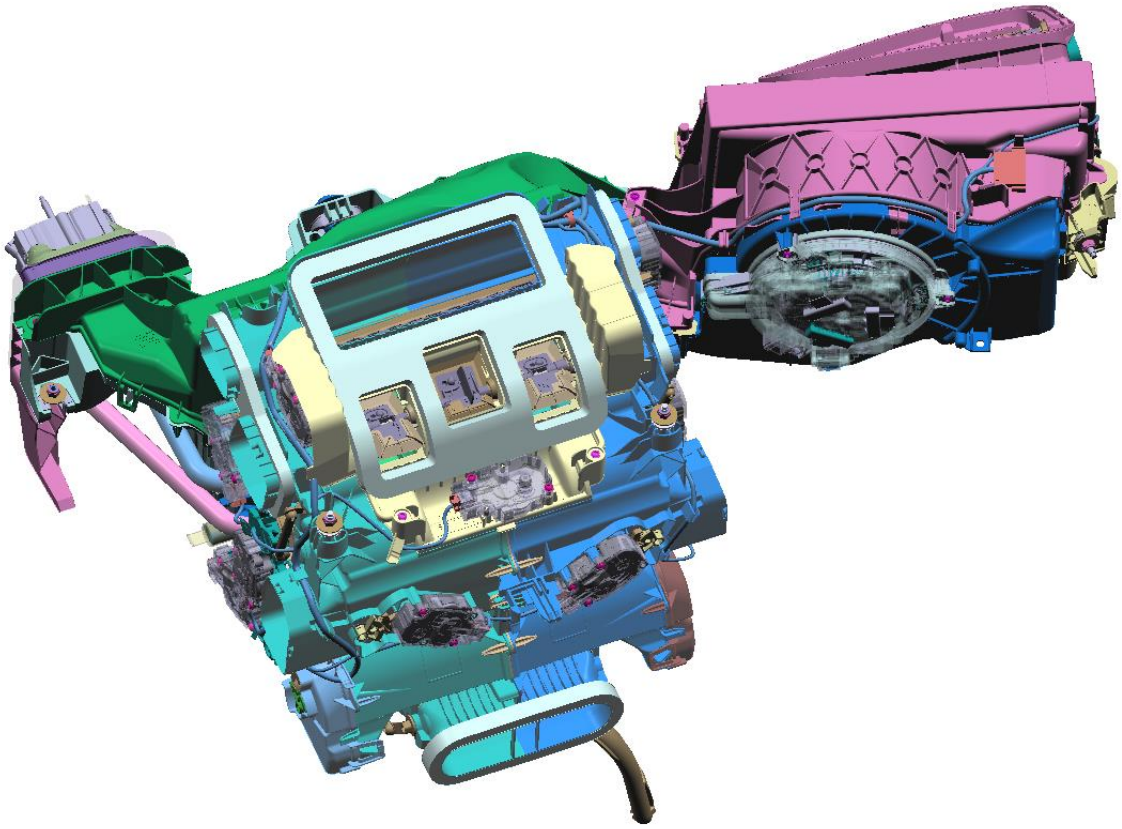
Technical Feedback	To submit feedback for the technical topic of this bulletin: Submit your feedback in the rating box at the top of this bulletin
Warranty Feedback	To submit feedback for the CLAIMS section of this bulletin: Submit an IDS ticket to the Warranty Department, or use the chat available in the Warranty Documentation Portal
Parts Feedback	To submit feedback for the PARTS section of this bulletin: Submit an IDS ticket to the Parts Department

Supporting Materials
picture_as_pdf Attachment B64 05 25 RF Mix Flap.pdf
picture_as_pdf Attachment B64 05 25 G45 HVAC Master INFO AUG 22 2025.pdf
Videos
64 03 25
64 04 25
64 05 25
64 06 25
64 07 25
64 08 25
64 09 25
64 10 25
64 11 25

G45 HVAC: Air Vent Flaps/Kinematic & Stepper Motor Master Info.

G45 HVAC: Complete Assembly Overview

- OVERVIEW CHART
- Air Vent Flaps/Kinematic (+ push pin) Detailed Information
- Stepper Motor Control Detailed Information



G45 HVAC: Air Vent Flaps/Kinematic & Stepper Motor Master Info.

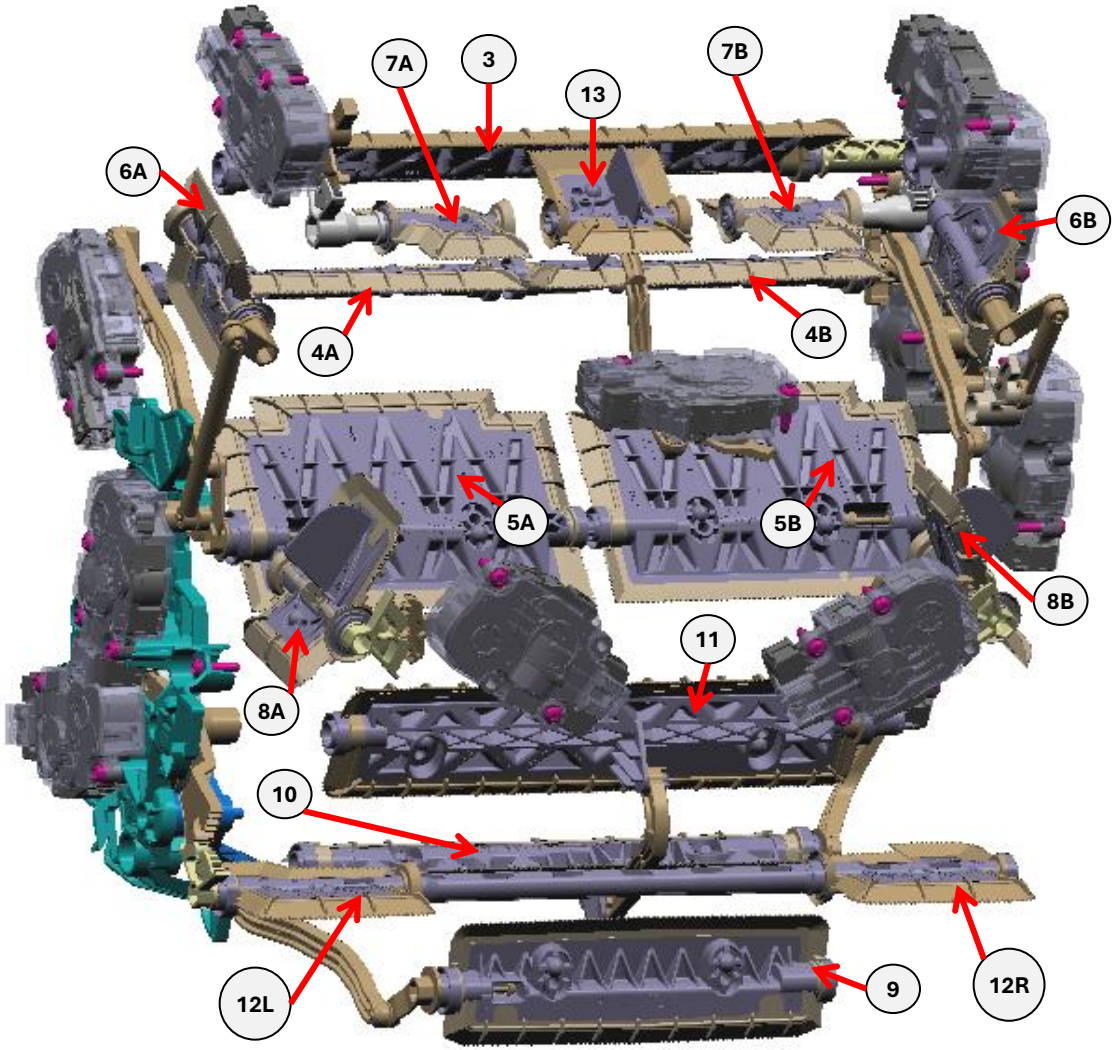
OVERVIEW: Air Vent Flaps/Kinematic & Stepper Motor Control Chart

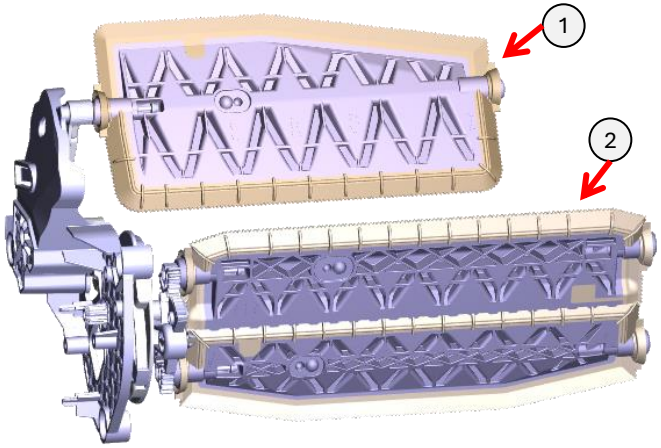
AIR VENT FLAPS			STEPPER MOTOR CONTROL INFORMATION		
Vent Flap #	**Vent Flap Description**	**Vent Flap Visibility (for push pin)**	**Motor Position #**	**Electrical ID**	**Motor Control Desc**
1	Fresh Air Flap	Easily Visible: Just inside of HVAC	**13**	**M 16 (Shared)**	Fresh Air / Recirculated Air Distribution
2	Recirculated Air Flaps x2 (connected)	Easily Visible: Just inside of HVAC	**13**	**M 16 (Shared)**	Fresh Air / Recirculated Air Distribution
3	Defrost Air Flap	Easily Visible: Just inside of HVAC	**10**	**M 61**	Defrost Air Distribution
4 A	Front Cold Temp. Mixing Flap LEFT	Difficult: Bororscope through open Flap #3	**2**	**M 23 (Shared)**	Front Temperature Mixing LEFT
4 B	Front Cold Temp. Mixing Flap RIGHT	Difficult: Bororscope through open Flap #3	**9**	**M 83 (Shared)**	Front Temperature Mixing RIGHT
5 A	Front Warm Temp. Mixing Flap LEFT	Difficult: Bororscope through open Flaps #7	**2**	**M 23 (Shared)**	Front Temperature Mixing LEFT
5 B	Front Warm Temp. Mixing Flap RIGHT	Difficult: Bororscope through open Flaps #7	**9**	**M 83 (Shared)**	Front Temperature Mixing RIGHT
6 A	Front Footwell Air Flap LEFT	Easily Visible: Just inside of HVAC	**5**	**M 21**	Front Footwell Air Distribution LEFT
6 B	Front Footwell Air Flap RIGHT	Easily Visible: Just inside of HVAC	**4**	**M 7**	Front Footwell Air Distribution RIGHT
7 A	Front Center Vent Air Flap LEFT	Easily Visible: Just inside of HVAC	**7**	**M 20**	Front Center Vent Air Distribution LEFT
7 B	Front Center Vent Air Flap RIGHT	Easily Visible: Just inside of HVAC	**12**	**M 22**	Front Center Vent Air Distribution RIGHT
8 A	Front Side Vent Air Flap LEFT	Easily Visible: Just inside of HVAC	**3**	**M 020**	Front Side Vent Air Distribution LEFT
8 B	Front Side Vent Air Flap RIGHT	Easily Visible: Just inside of HVAC	**11**	**M 022**	Front Side Vent Air Distribution RIGHT
9	Rear Upper Vent Flap (Center Console)	Easily Visible: Just inside of HVAC	**1**	**M 084 (Shared)**	REAR Air Distribution
10	Rear Cold Temp. Mixing Flap	Difficult: Bororscope through open Flap #9	**8**	**M 024 (Shared)**	REAR Temperature Mixing
11	Rear Warm Temp. Mixing Flap	Other: No direct push pin (tied to Flap #10)	**8**	**M 024 (Shared)**	REAR Temperature Mixing
12	Rear Footwell Air Flaps L/R x2 (connected)	Easily Visible: Just inside of HVAC (D.S)	**1**	**M 084 (Shared)**	REAR Air Distribution
13	Indirect Air Flap	N/A: Different connection type (no push pin)	**6**	**M 197**	Indirect Air Distribution

Please reference the FLAP diagram & STEPPER MOTOR control locations diagrams on the following pages.

G45 HVAC: Air Vent Flaps/Kinematic & Stepper Motor Master Info.

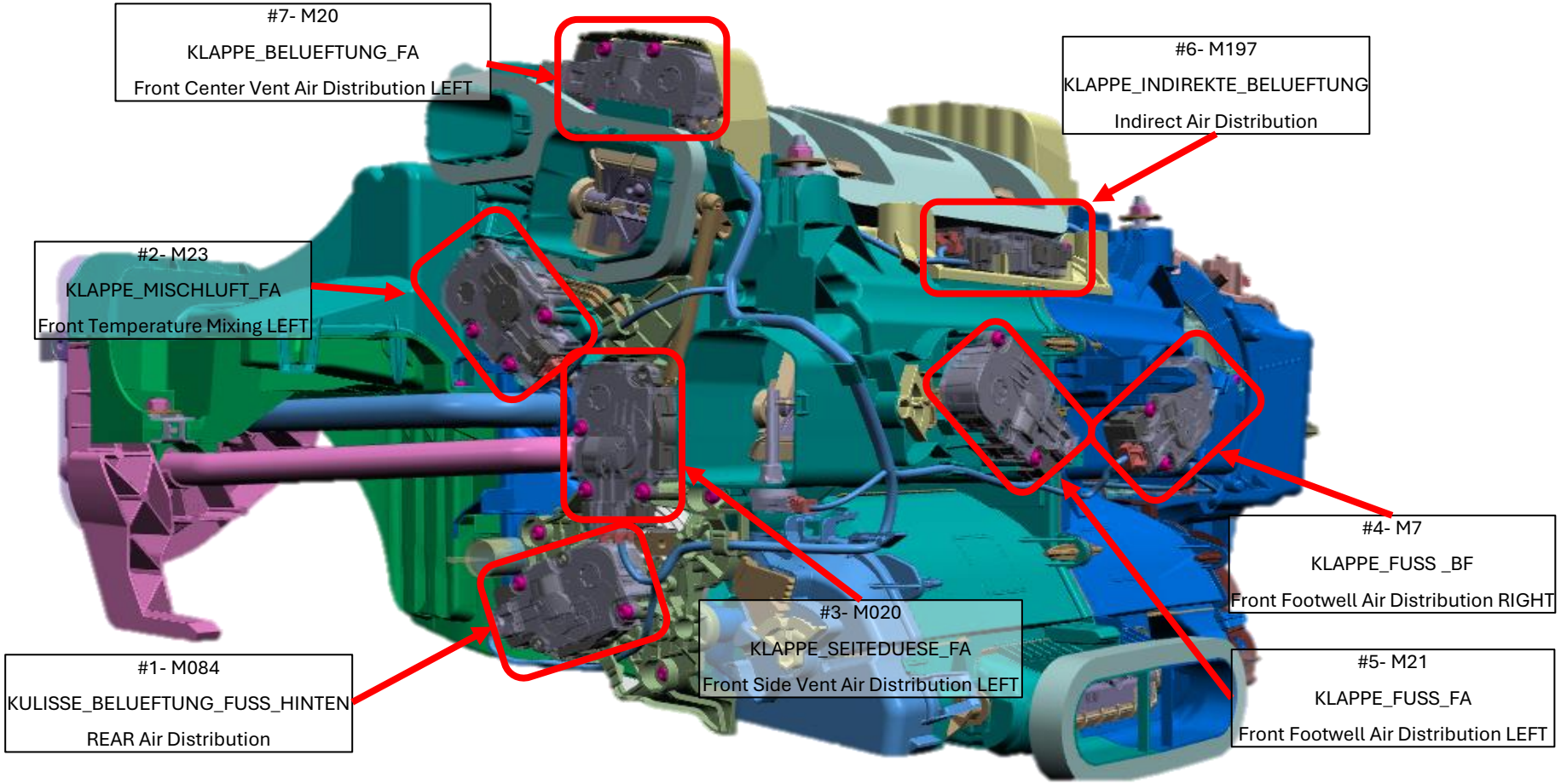
FLAPS / Kinematic Diagram Details (Overview)





G45 HVAC: Air Vent Flaps/Kinematic & Stepper Motor Master Info.

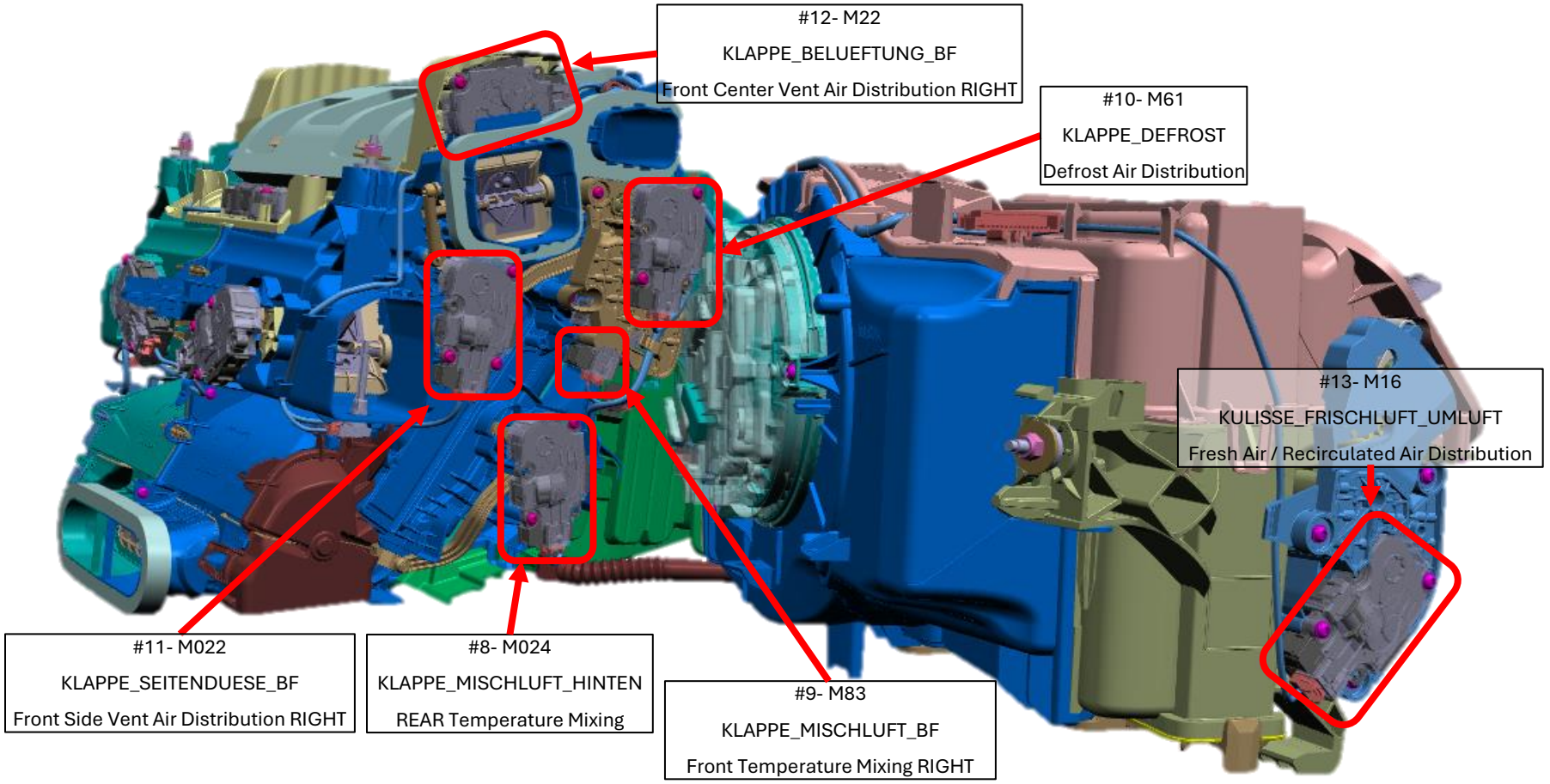
Stepper Motor Control Locations Diagram (OVERVIEW)



(LHD: Left Side VIEW)

G45 HVAC: Air Vent Flaps/Kinematic & Stepper Motor Master Info.

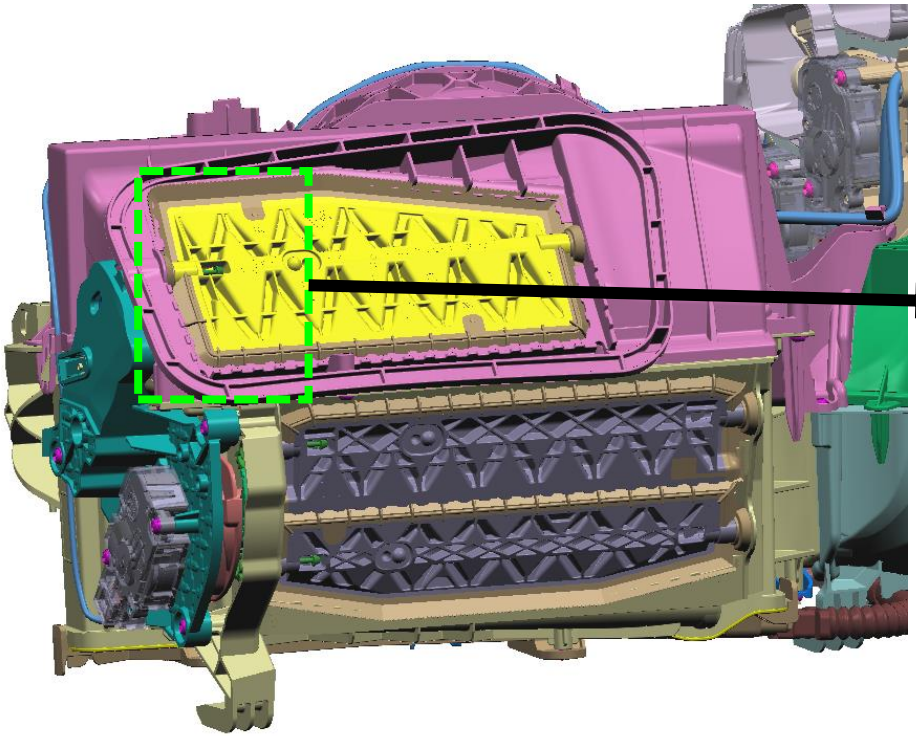
Stepper Motor Control Locations Diagram (OVERVIEW)



(LHD: Right Side VIEW)

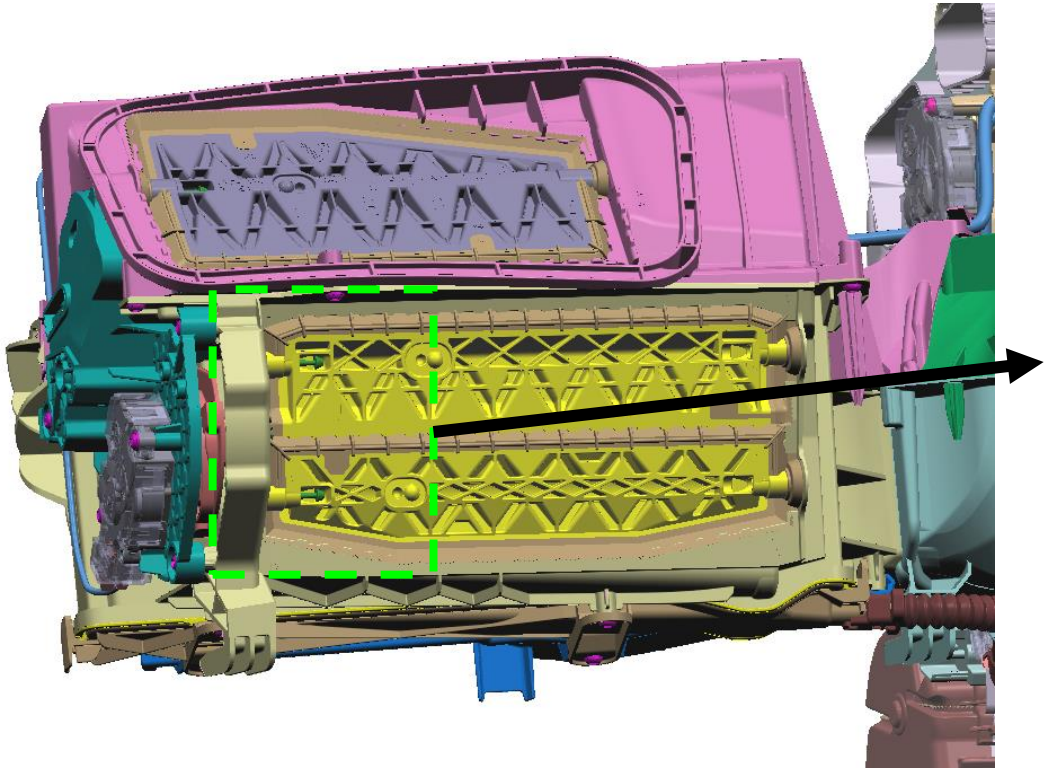
G45 HVAC: Air Vent Flaps/Kinematic & Stepper Motor Master Info.

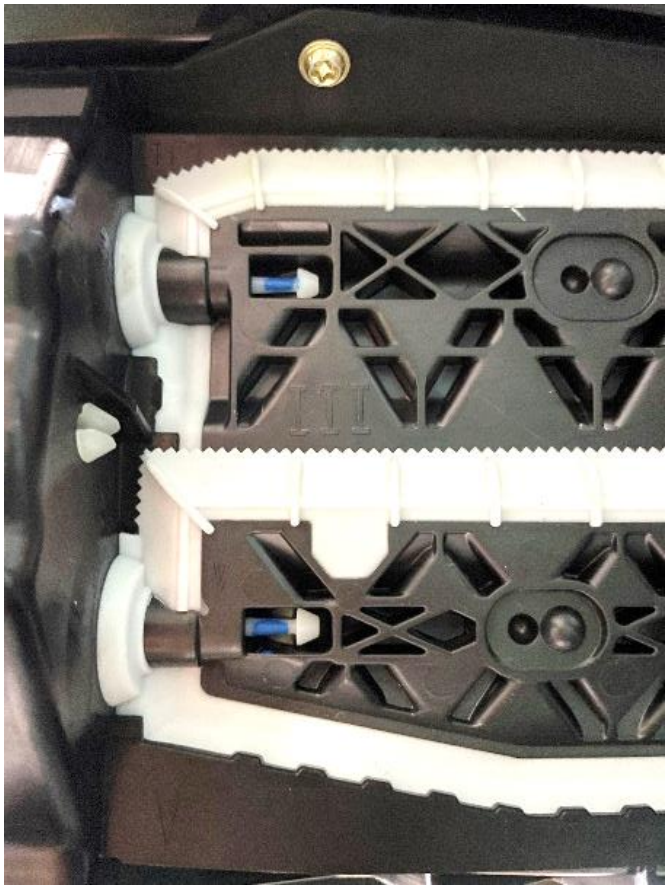
FLAP #1: Fresh Air Flap



G45 HVAC: Air Vent Flaps/Kinematic & Stepper Motor Master Info.

FLAP #2: Recirculated Air Flaps x2 (connected)

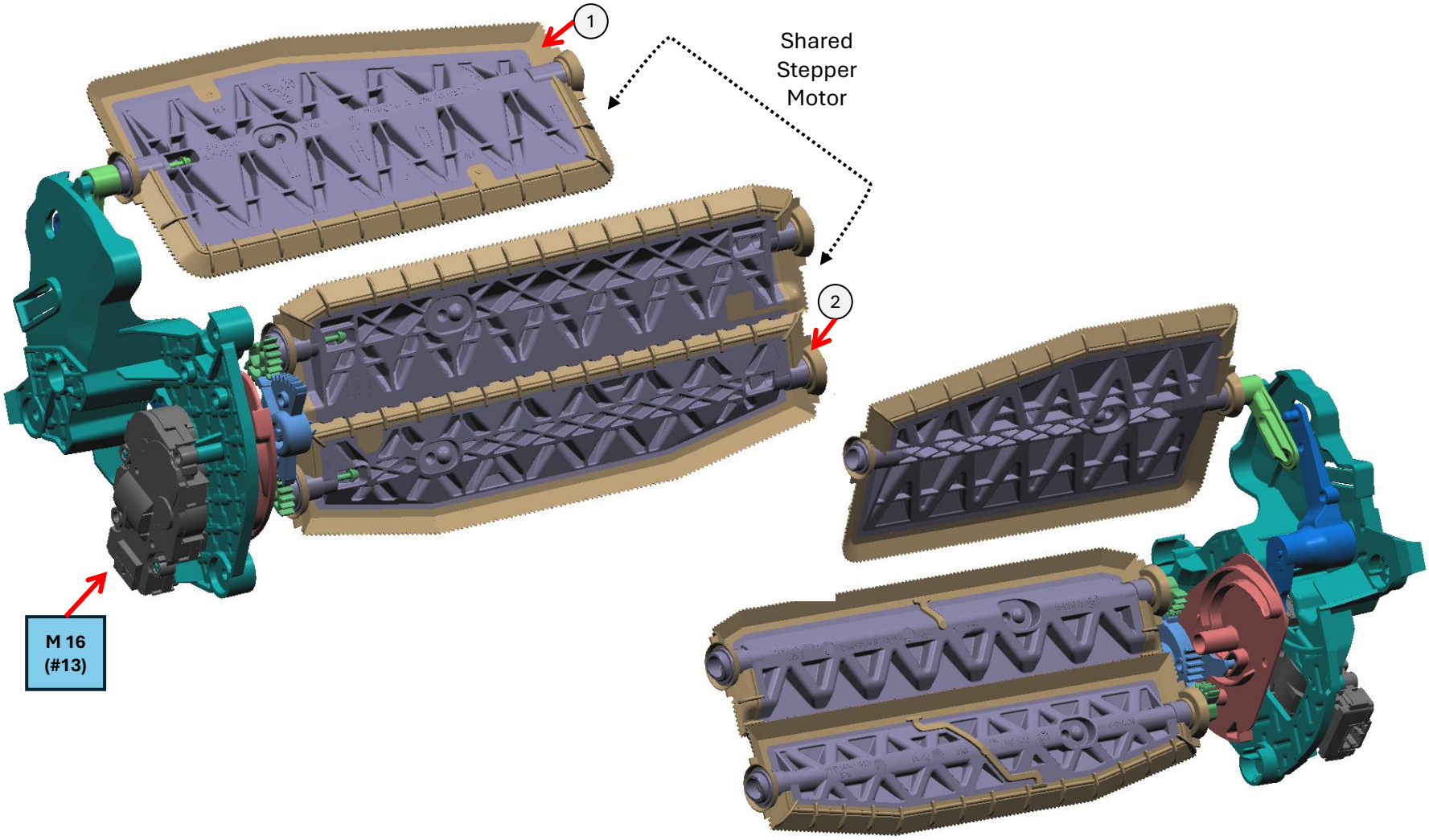




TWO Push Pins!

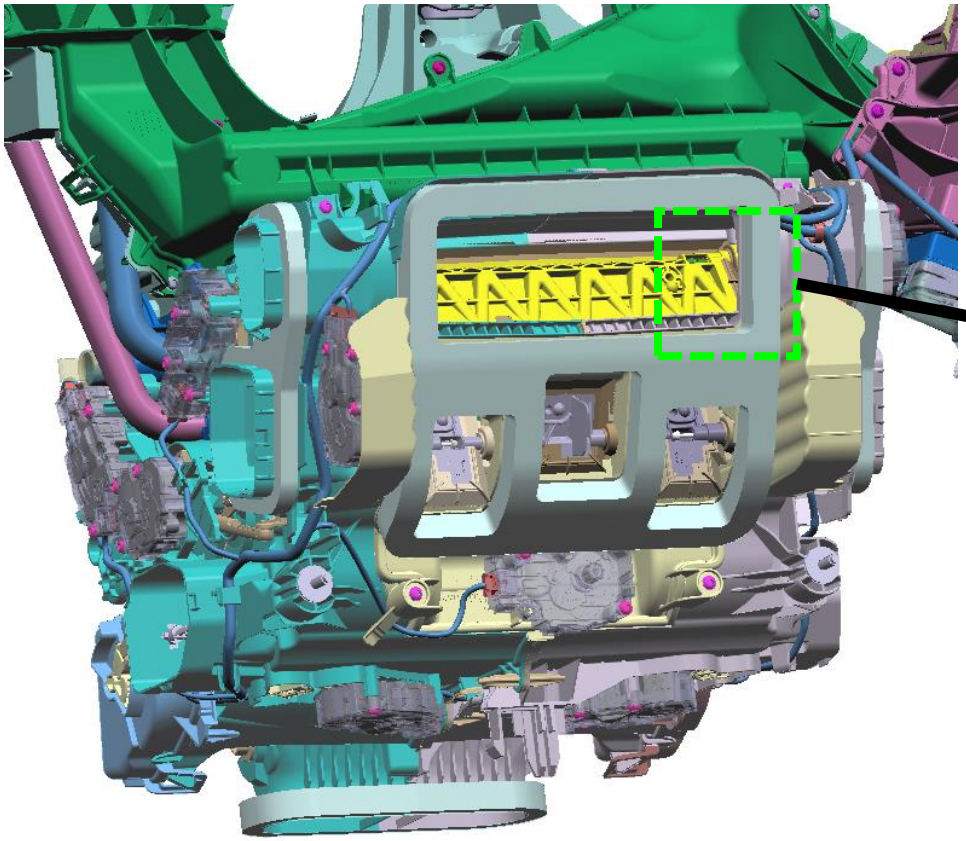
G45 HVAC: Air Vent Flaps/Kinematic & Stepper Motor Master Info.

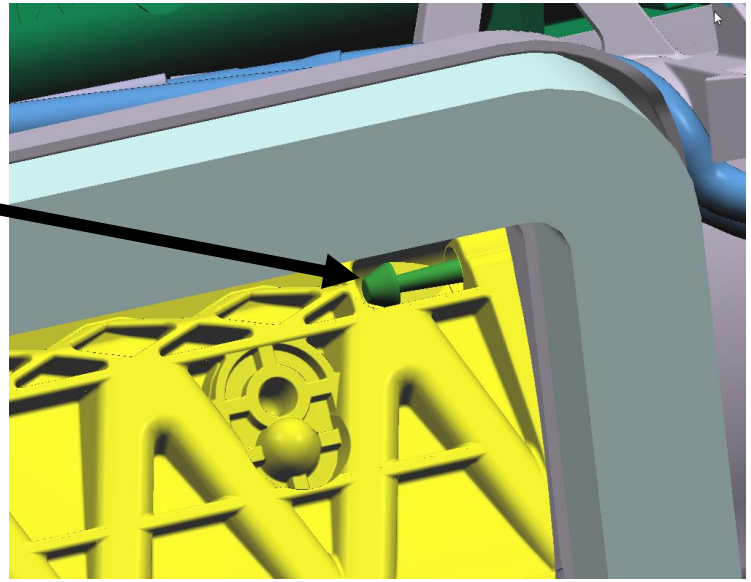
FLAP #1 & FLAP #2 Complete Kinematics Overview



G45 HVAC: Air Vent Flaps/Kinematic & Stepper Motor Master Info.

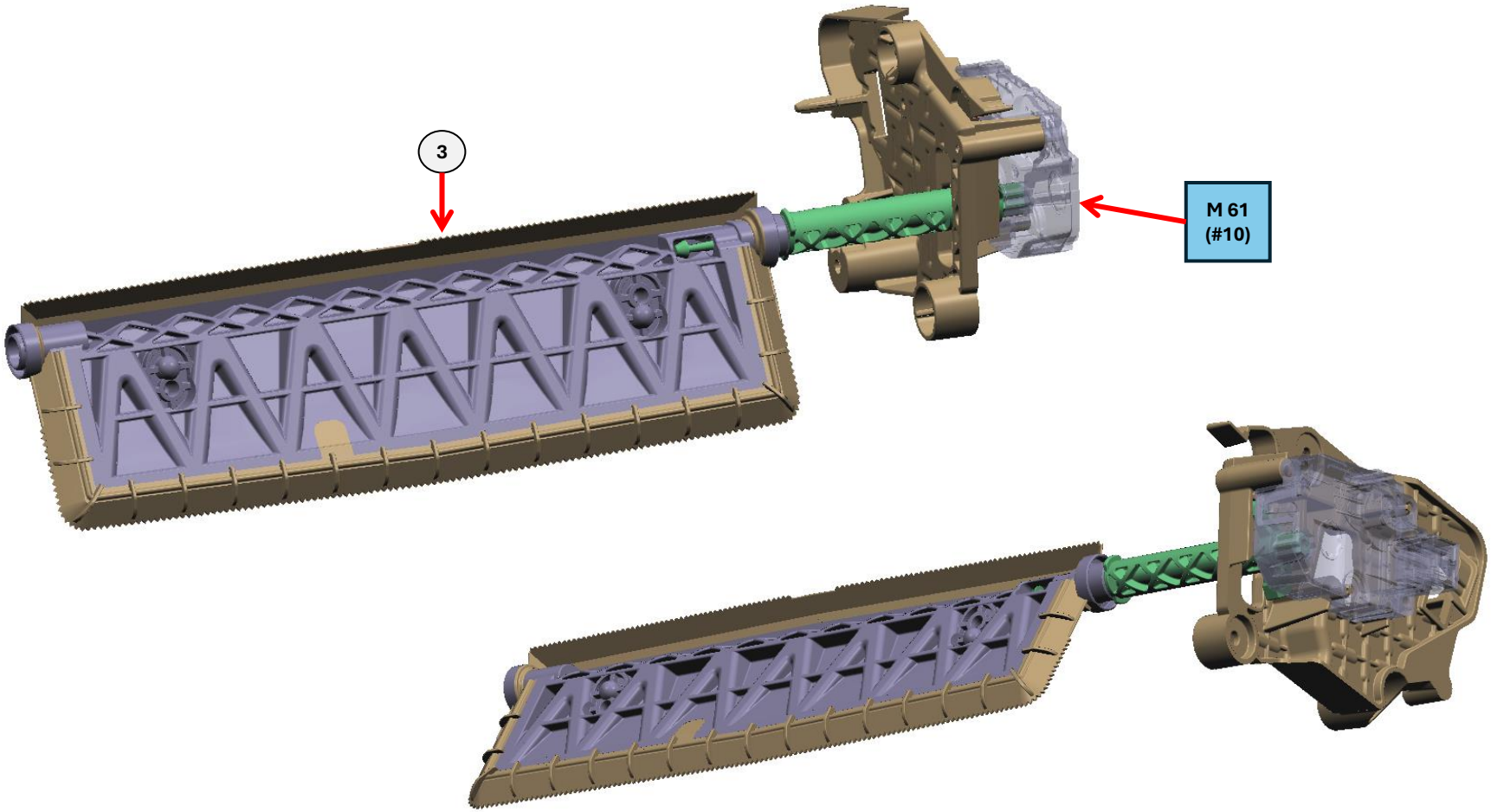
FLAP #3: Defrost Air Flap





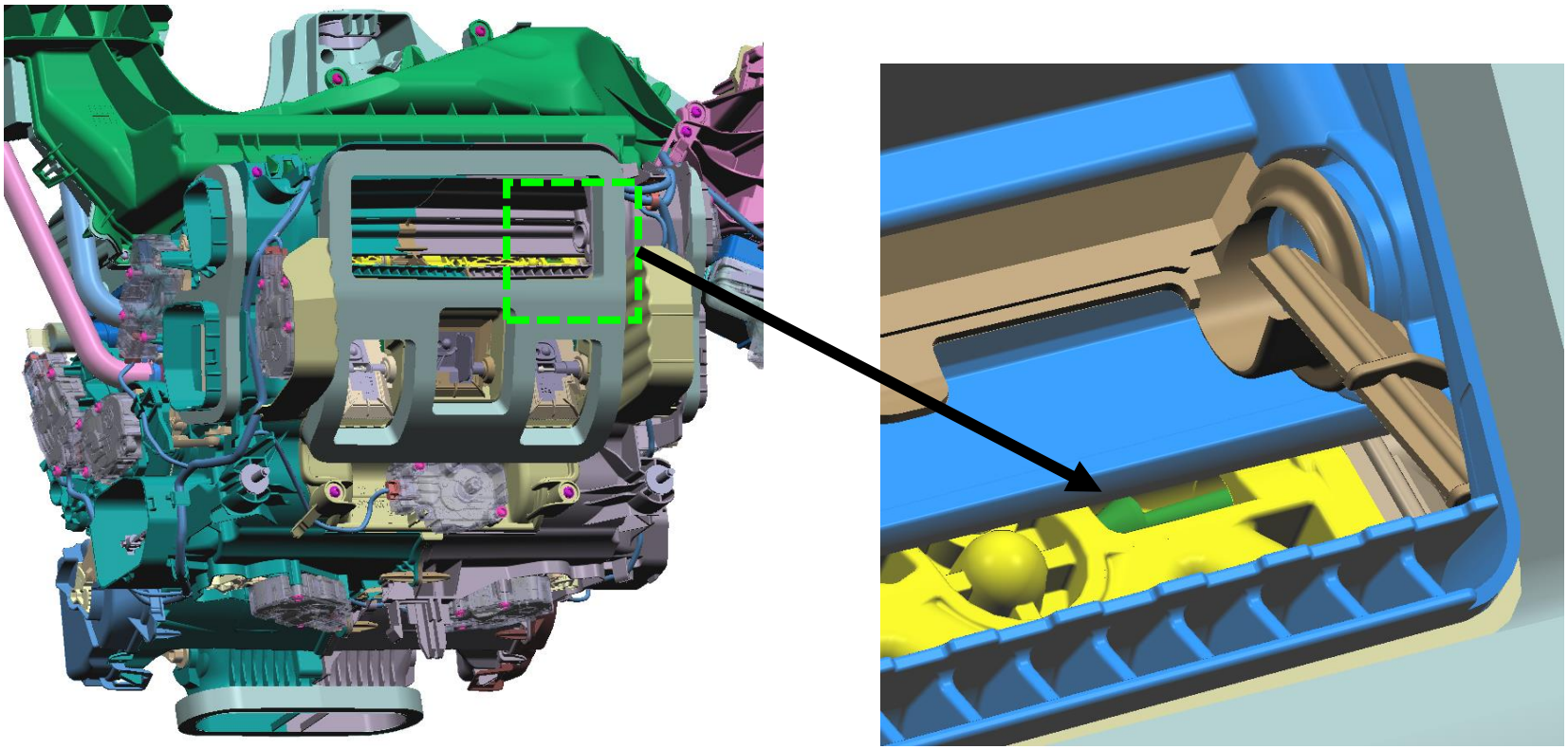
G45 HVAC: Air Vent Flaps/Kinematic & Stepper Motor Master Info.

FLAP #3 Kinematics Overview



G45 HVAC: Air Vent Flaps/Kinematic & Stepper Motor Master Info.

FLAP #4A/4B: Front Cold Temp. Mixing Flap Right (Mirrored Right to Left)

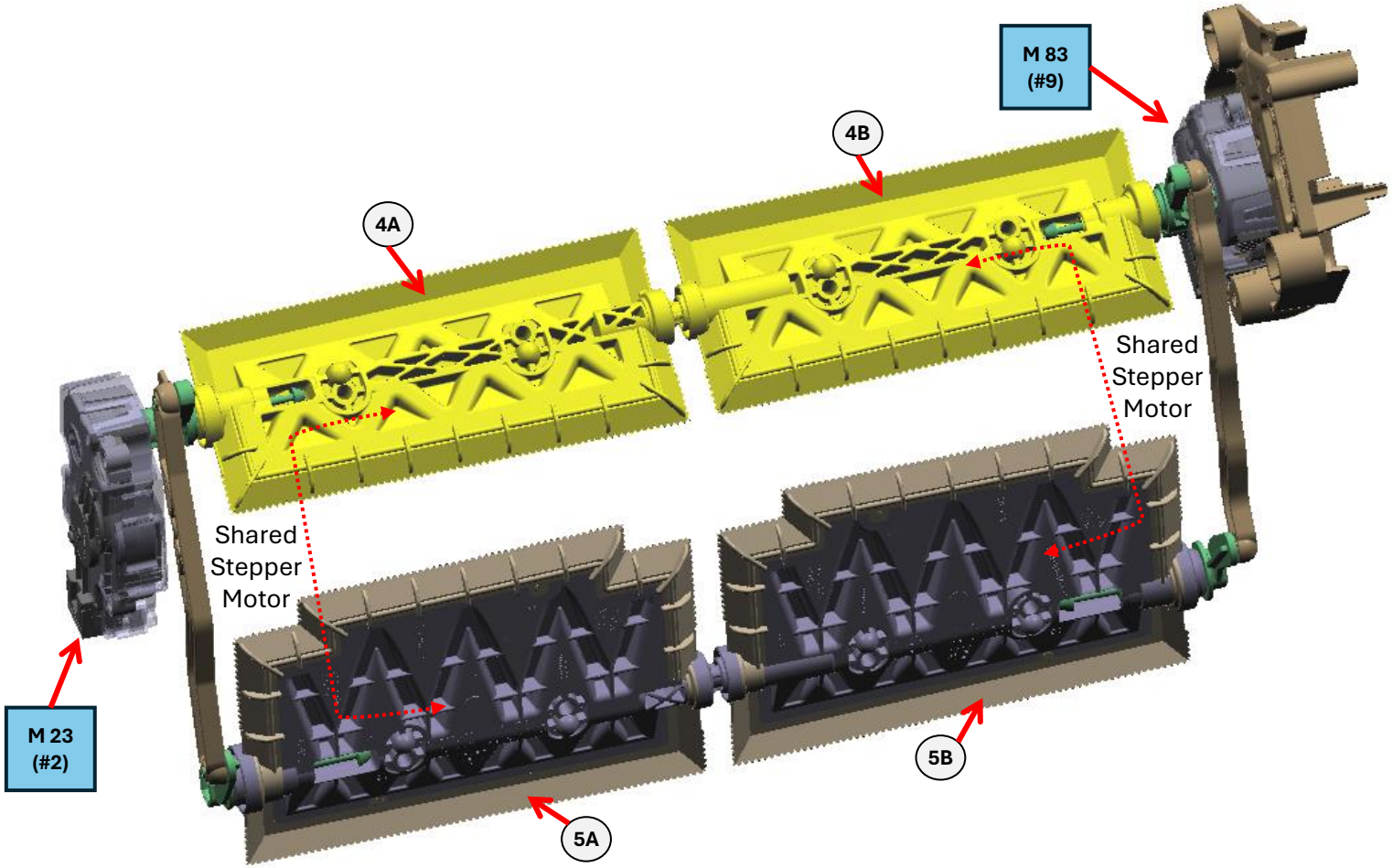


4B shown. #3 Defrost Air Flap removed from CAD image for easier visibility

TWO Push Pins (one on LEFT side flap & one on RIGHT side flap)!

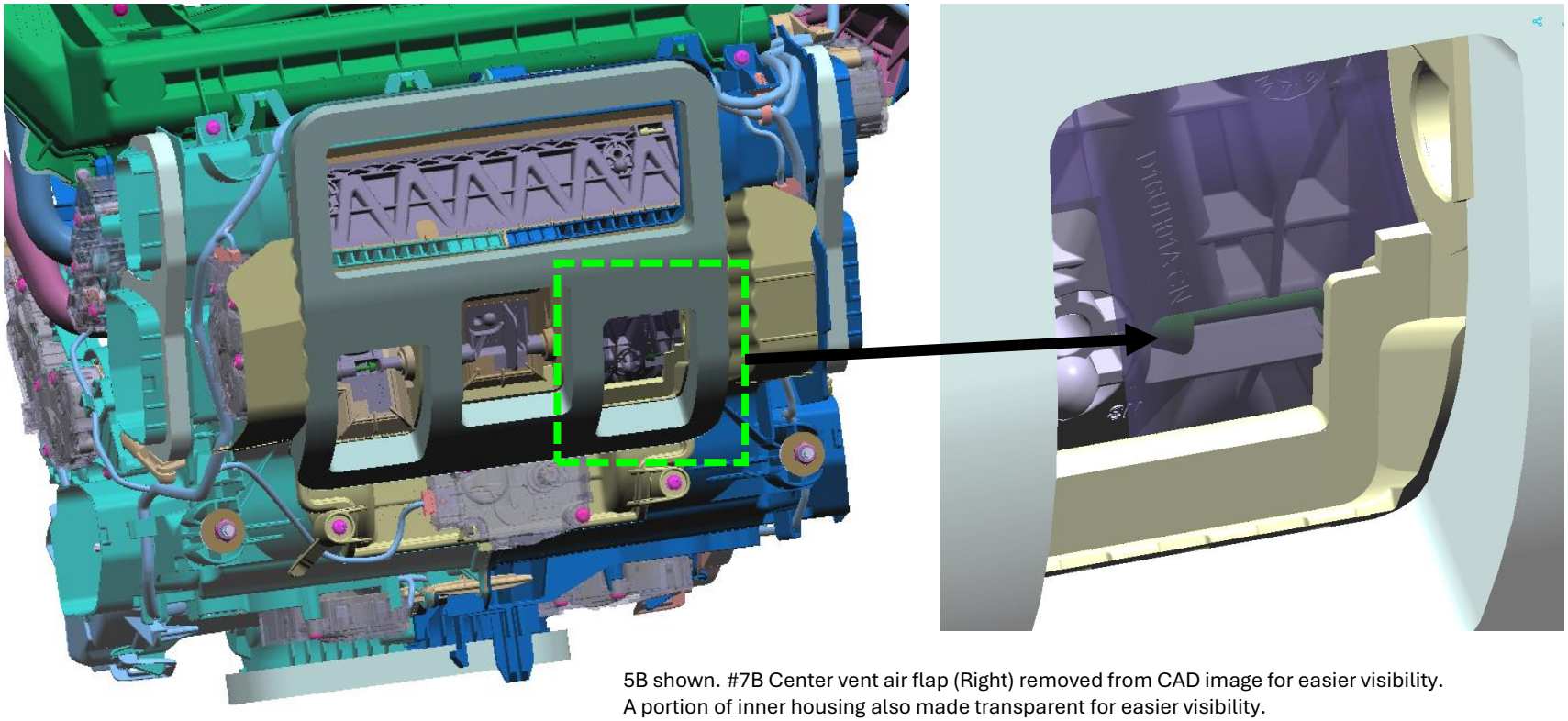
G45 HVAC: Air Vent Flaps/Kinematic & Stepper Motor Master Info.

FLAP #4A/4B FLAP Kinematics Overview (Highlighted Yellow)



G45 HVAC: Air Vent Flaps/Kinematic & Stepper Motor Master Info.

FLAP #5A/5B: Front Warm Temp. Mixing Flap Right (Mirrored Right to Left)

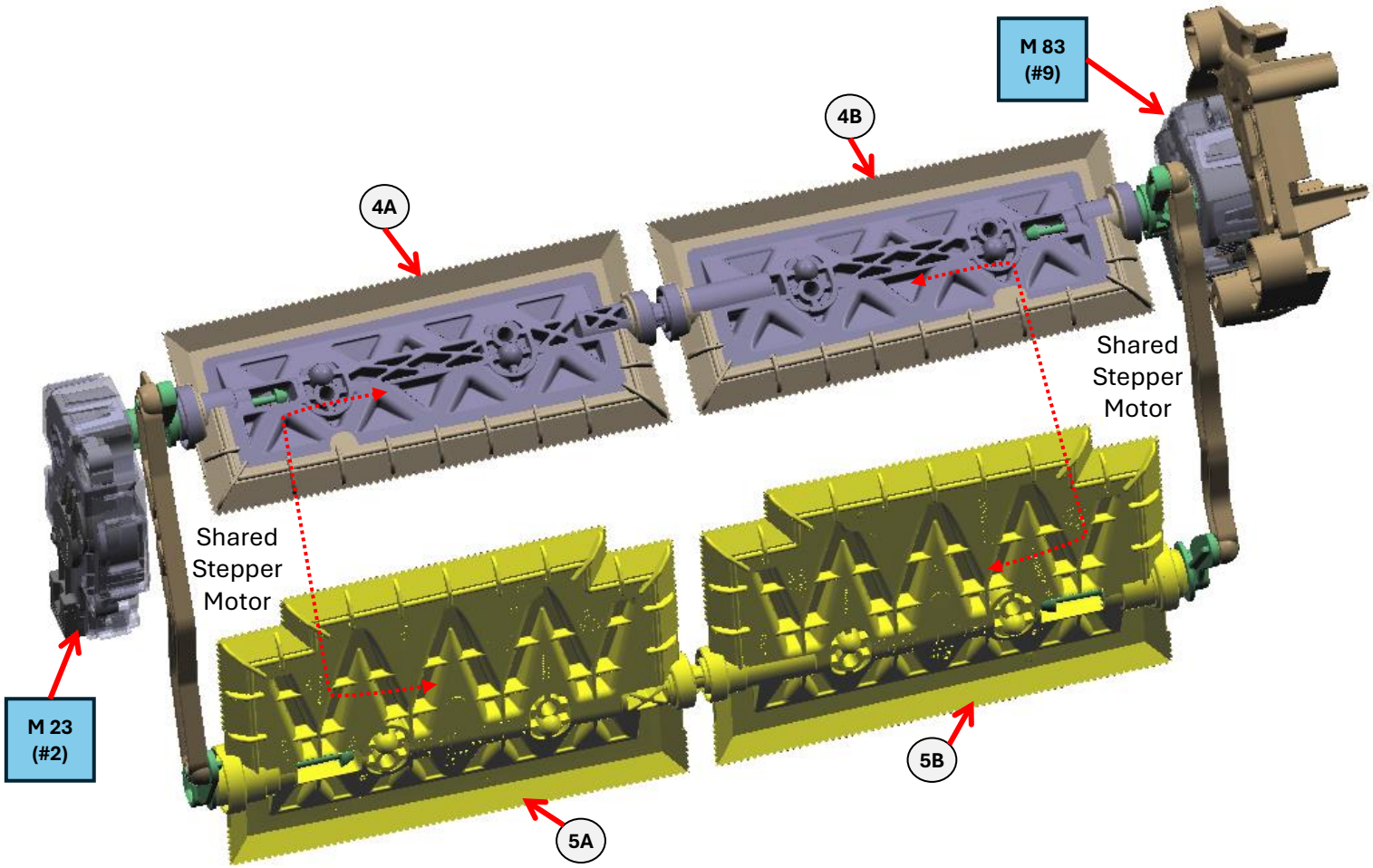


5B shown. #7B Center vent air flap (Right) removed from CAD image for easier visibility.
A portion of inner housing also made transparent for easier visibility.

TWO Push Pins (one on LEFT side flap & one on RIGHT side flap)!

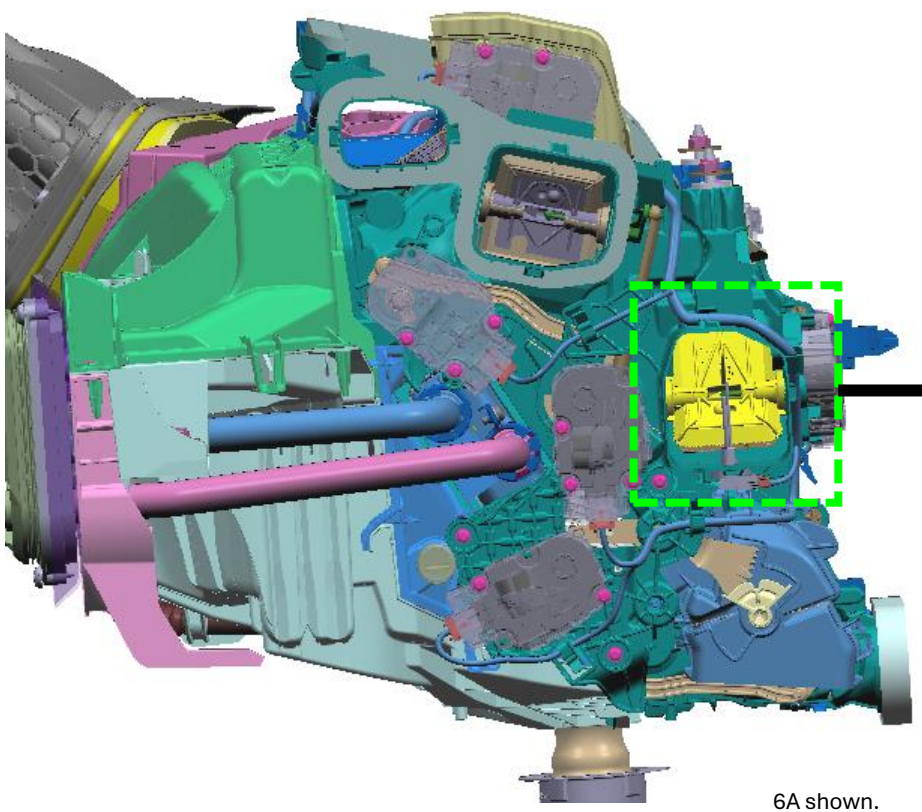
G45 HVAC: Air Vent Flaps/Kinematic & Stepper Motor Master Info.

FLAP #5A/5B FLAP Kinematics Overview (Highlighted Yellow)

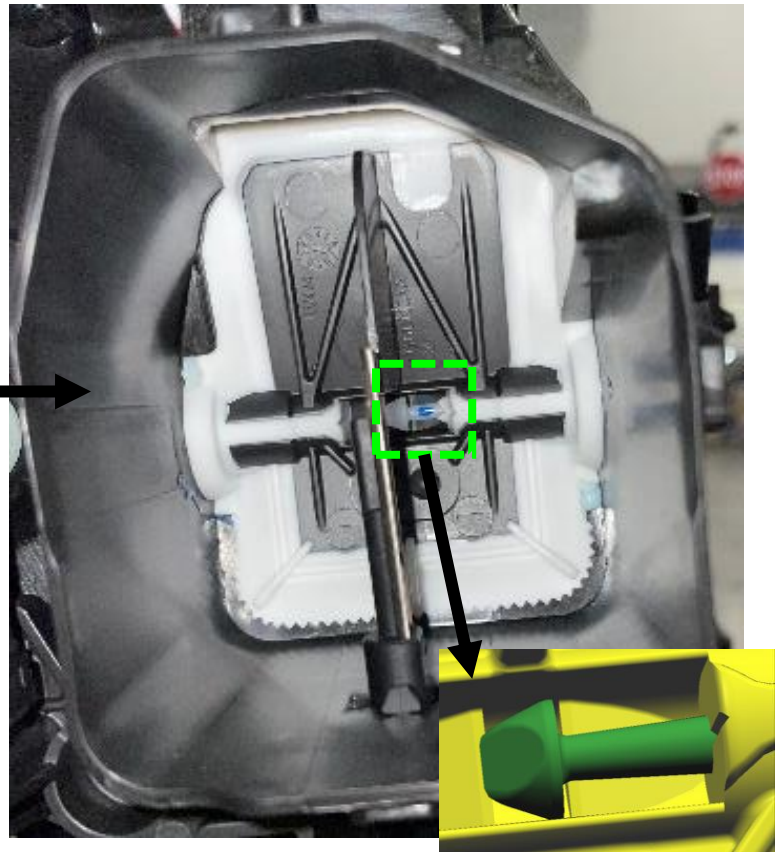


G45 HVAC: Air Vent Flaps/Kinematic & Stepper Motor Master Info.

FLAP #6A/6B: Front Footwell Air Flap LEFT (Mirrored Left to Right)



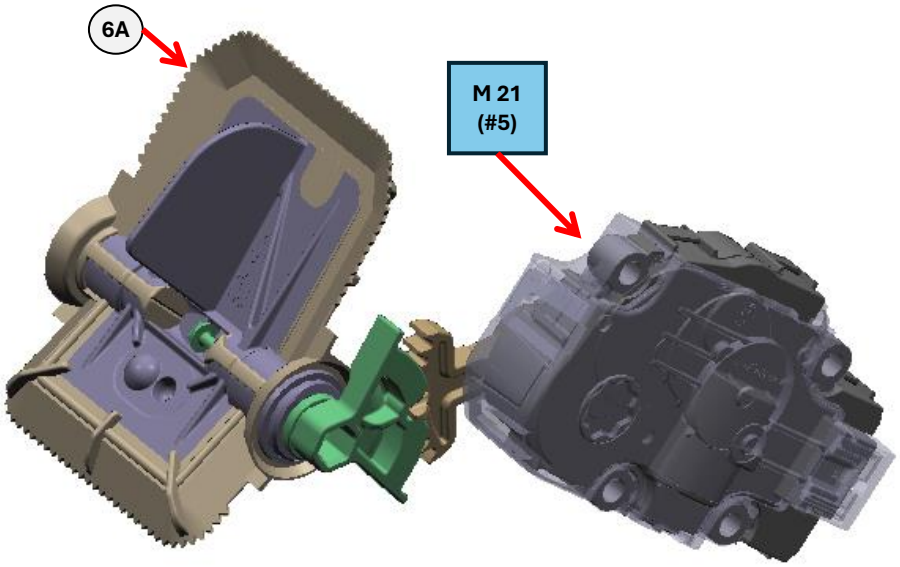
6A shown.

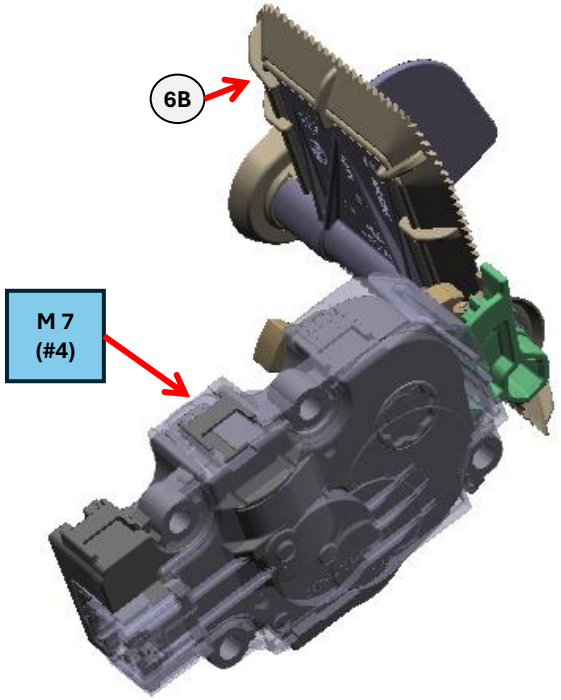


TWO Push Pins (one on LEFT side flap & one on RIGHT side flap)!

G45 HVAC: Air Vent Flaps/Kinematic & Stepper Motor Master Info.

FLAP #6A/6B FLAP Kinematics Overview

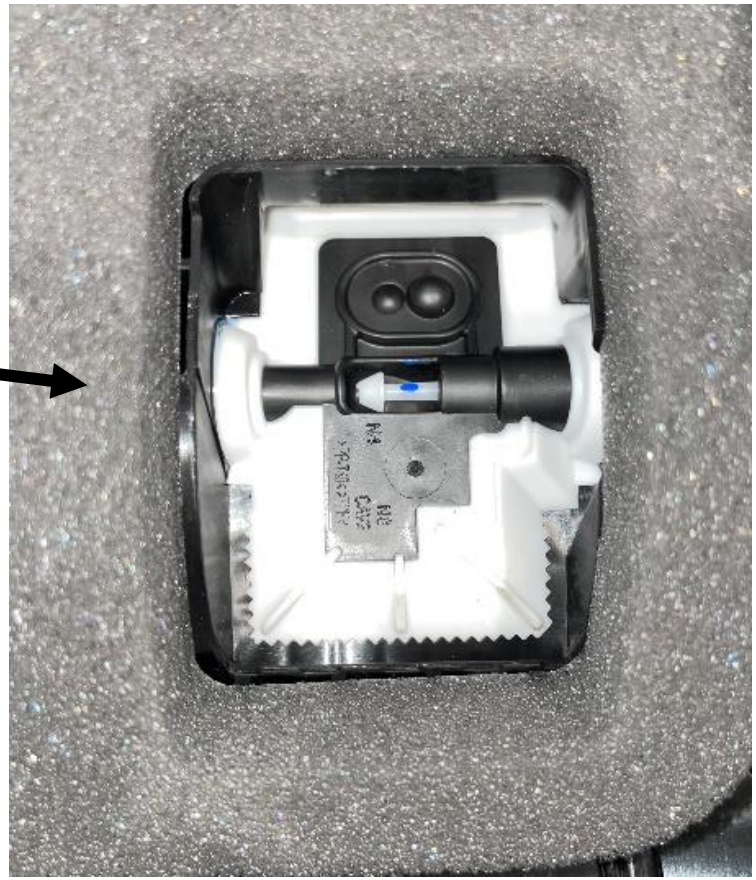




G45 HVAC: Air Vent Flaps/Kinematic & Stepper Motor Master Info.

FLAP #7A/7B: Front Center Vent Air Flap Right (Mirrored Right to Left)

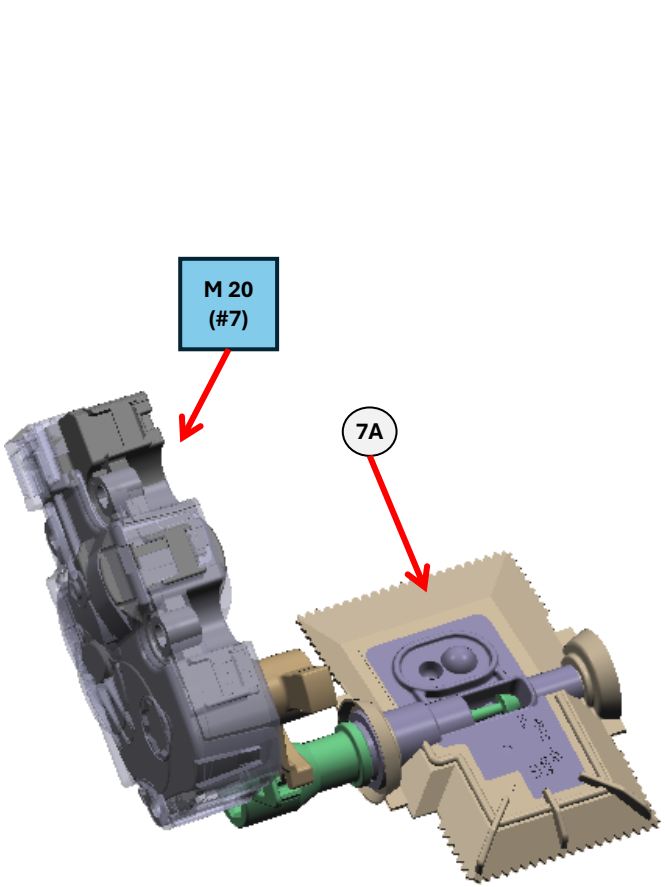
7B shown.

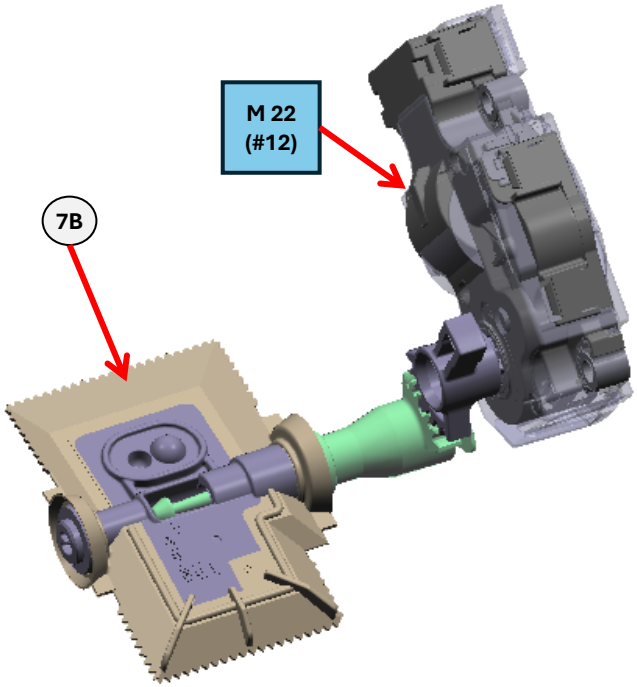


TWO Push Pins (one on LEFT side flap & one on RIGHT side flap)!

G45 HVAC: Air Vent Flaps/Kinematic & Stepper Motor Master Info.

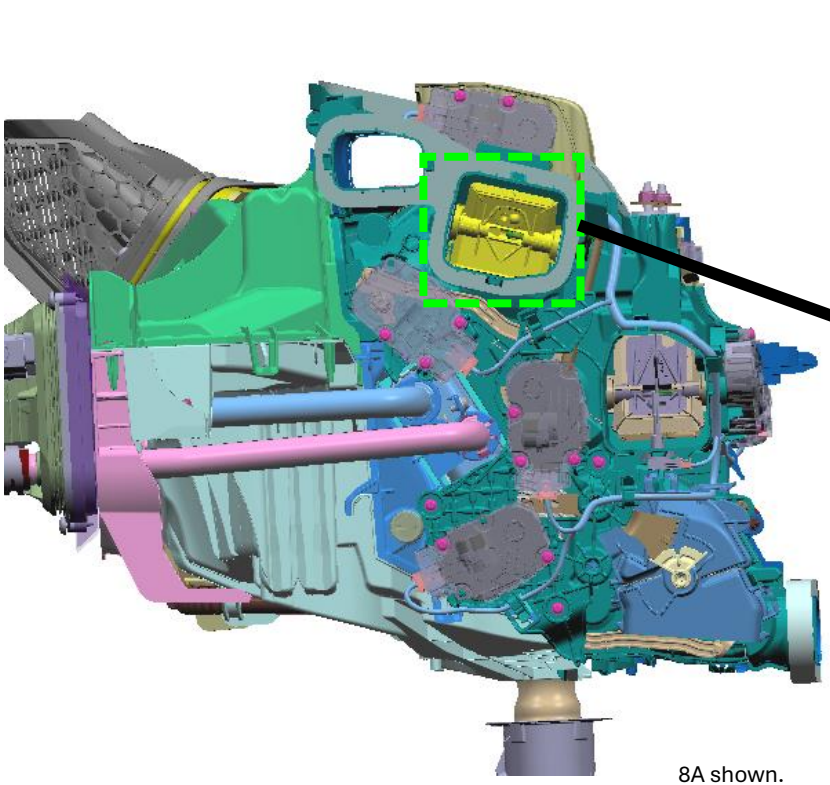
FLAP #7A/7B FLAP Kinematics Overview



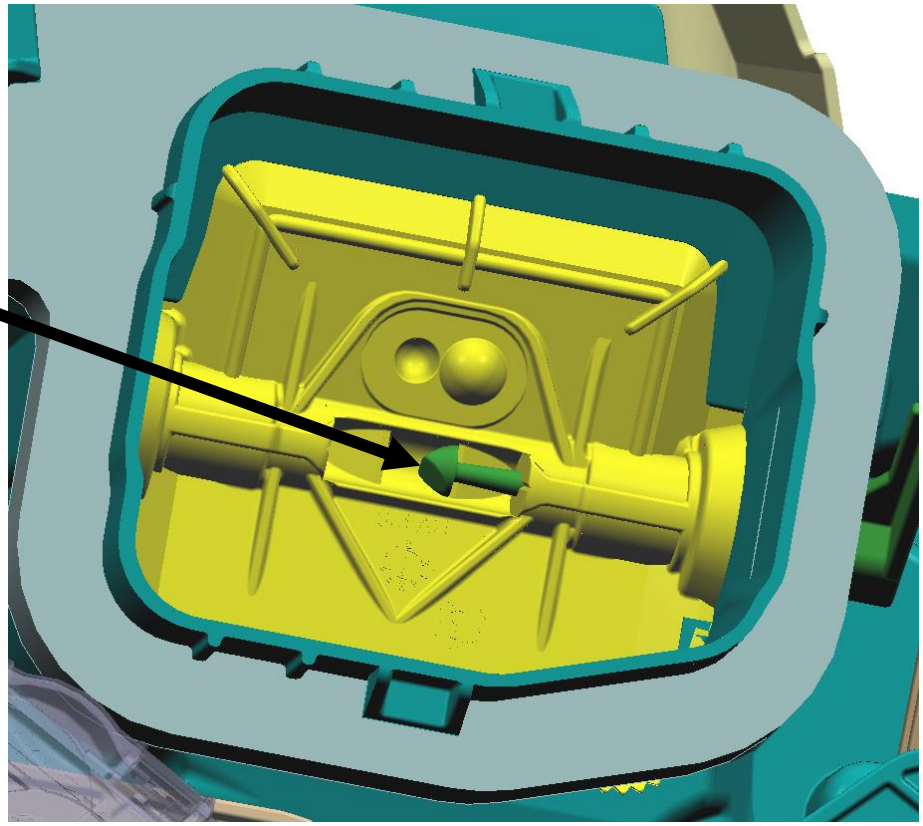


G45 HVAC: Air Vent Flaps/Kinematic & Stepper Motor Master Info.

FLAP #8A/8B: Front Side Vent Air Flap LEFT (Mirrored Left to Right)



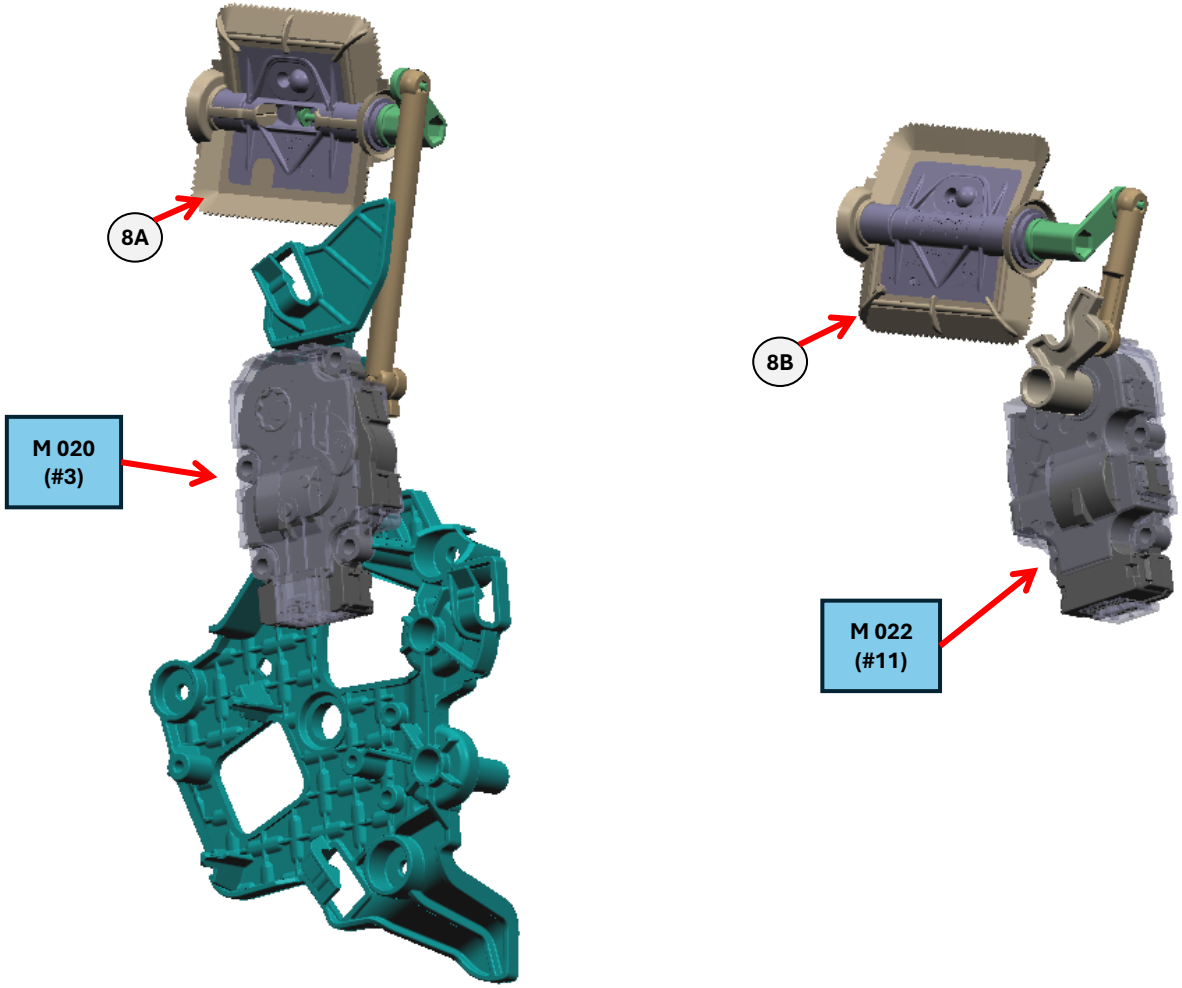
8A shown.



TWO Push Pins (one on LEFT side flap & one on RIGHT side flap)!

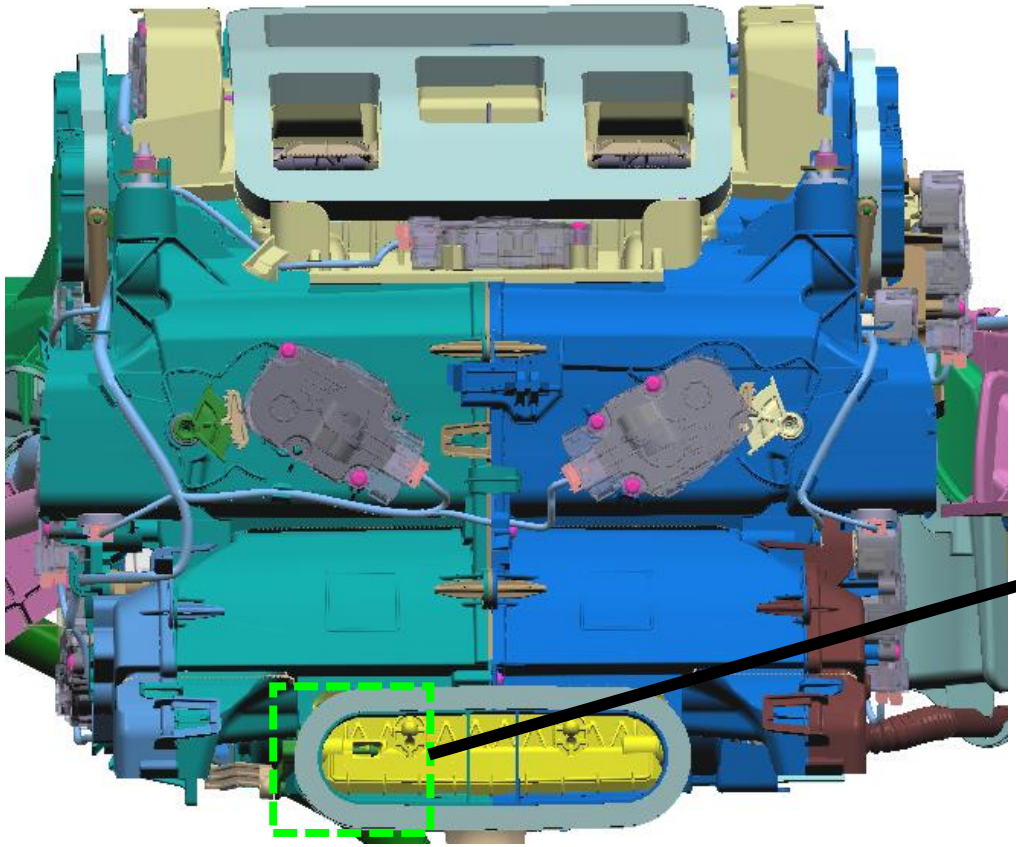
G45 HVAC: Air Vent Flaps/Kinematic & Stepper Motor Master Info.

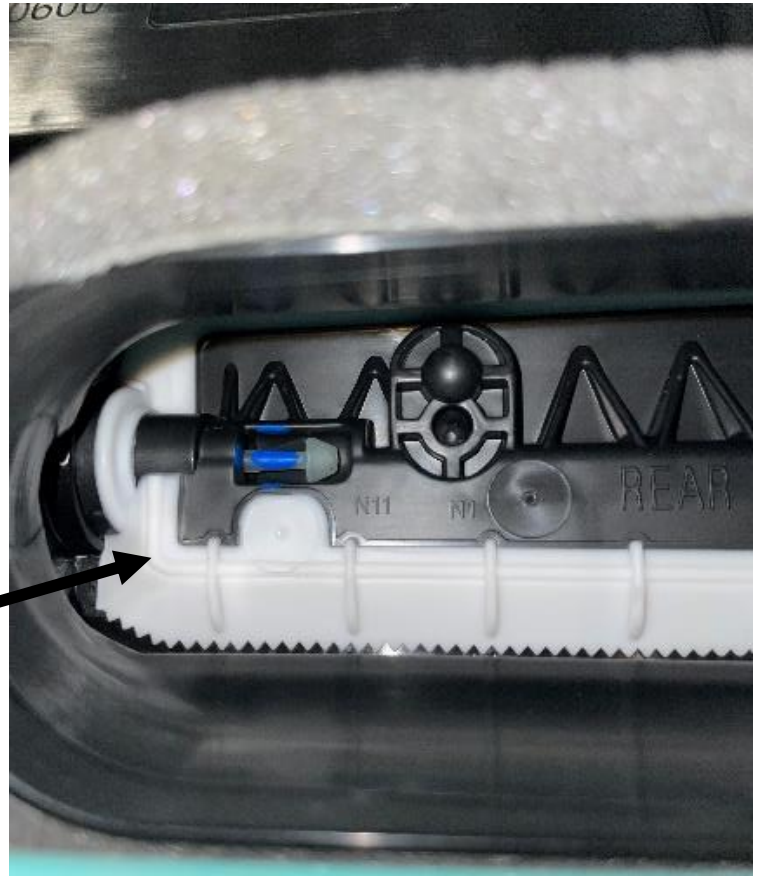
FLAP #8A/8B FLAP Kinematics Overview



G45 HVAC: Air Vent Flaps/Kinematic & Stepper Motor Master Info.

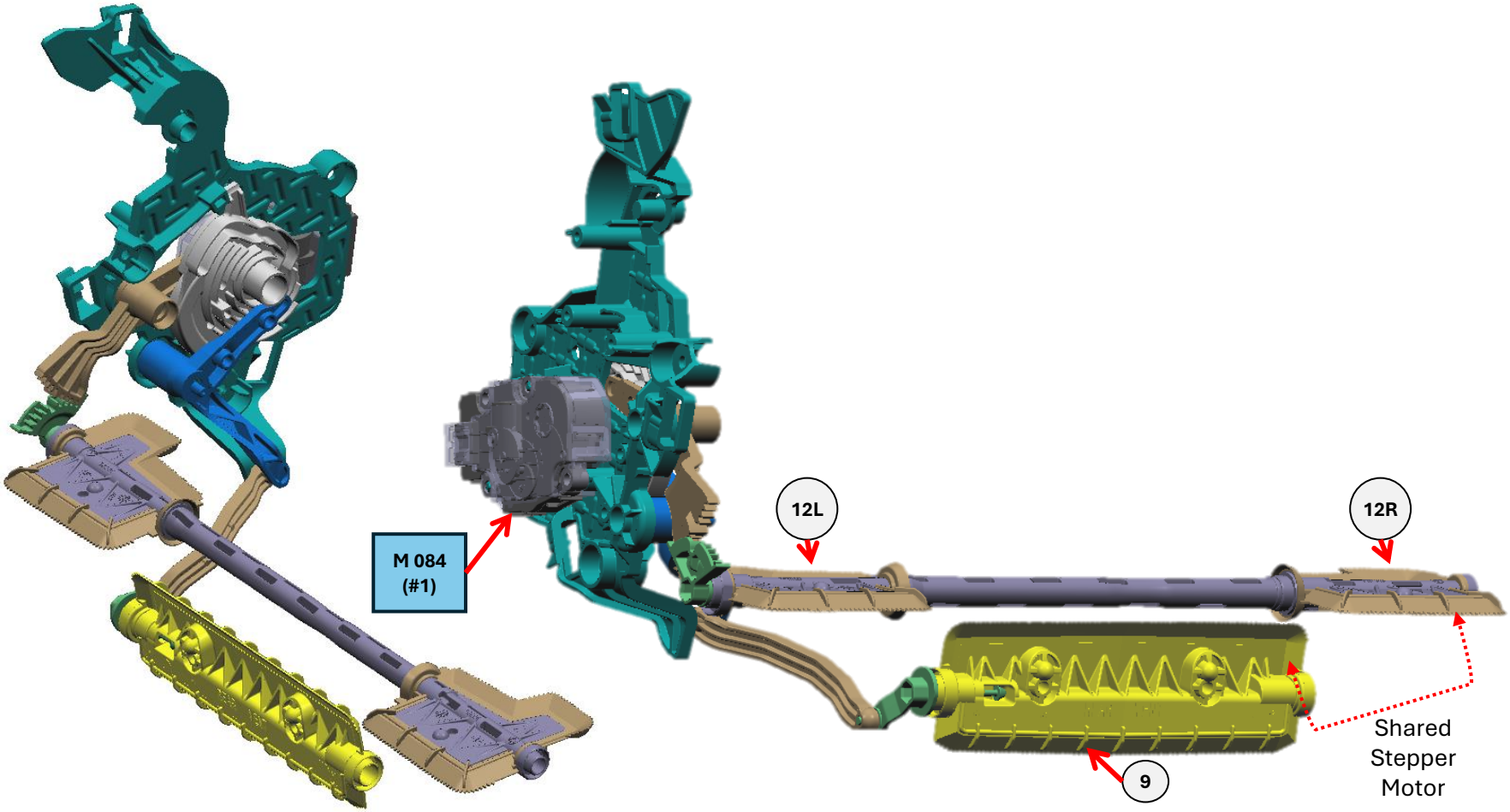
FLAP #9: Rear Upper Vent Flap (Center Console)





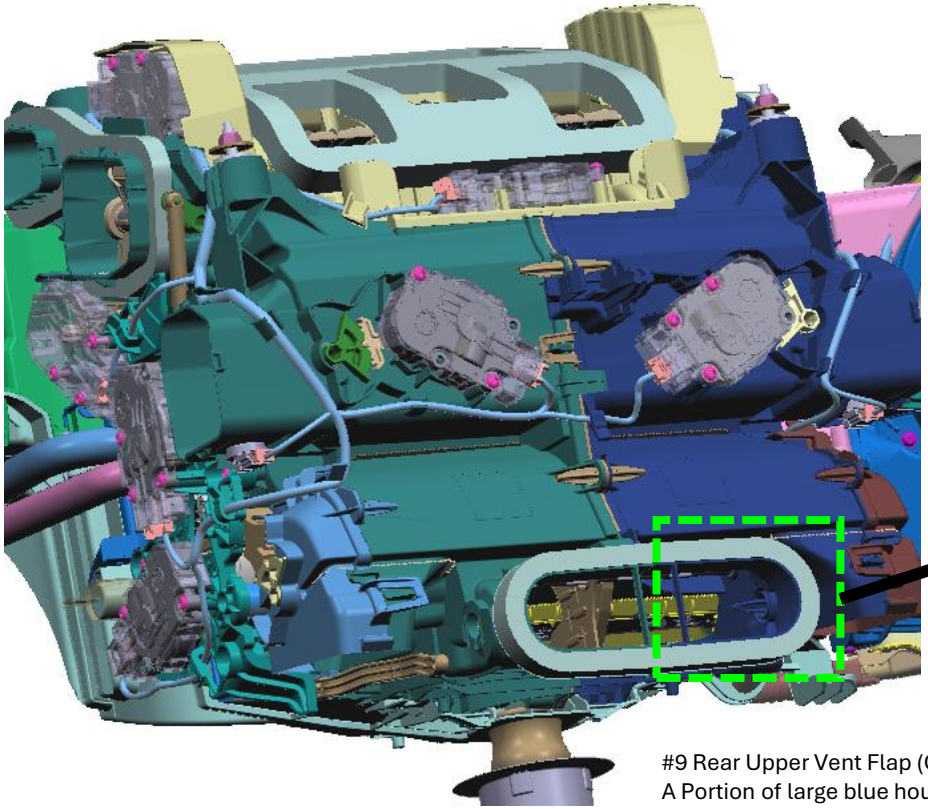
G45 HVAC: Air Vent Flaps/Kinematic & Stepper Motor Master Info.

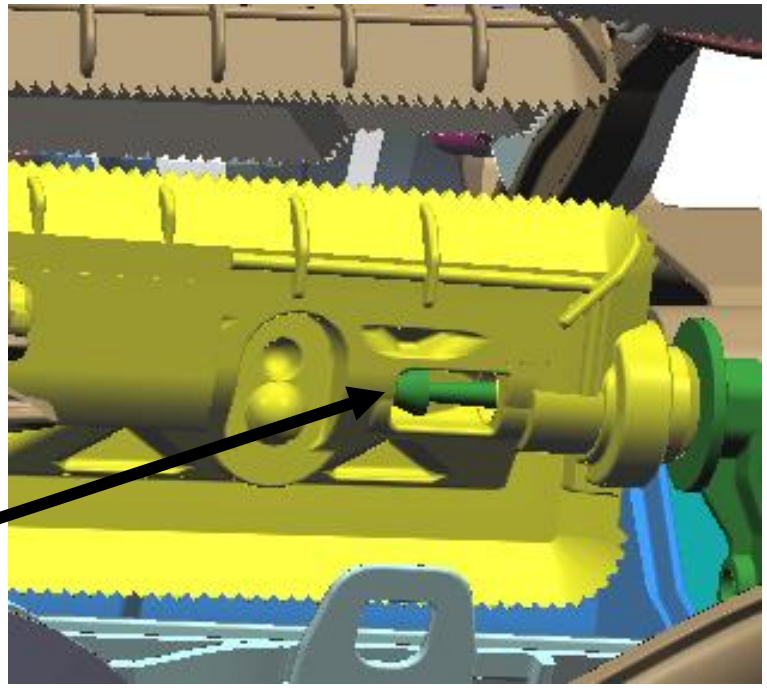
FLAP #9 Kinematics Overview (Highlighted Yellow)



G45 HVAC: Air Vent Flaps/Kinematic & Stepper Motor Master Info.

FLAP #10: Rear Cold Temp. Mixing Flap





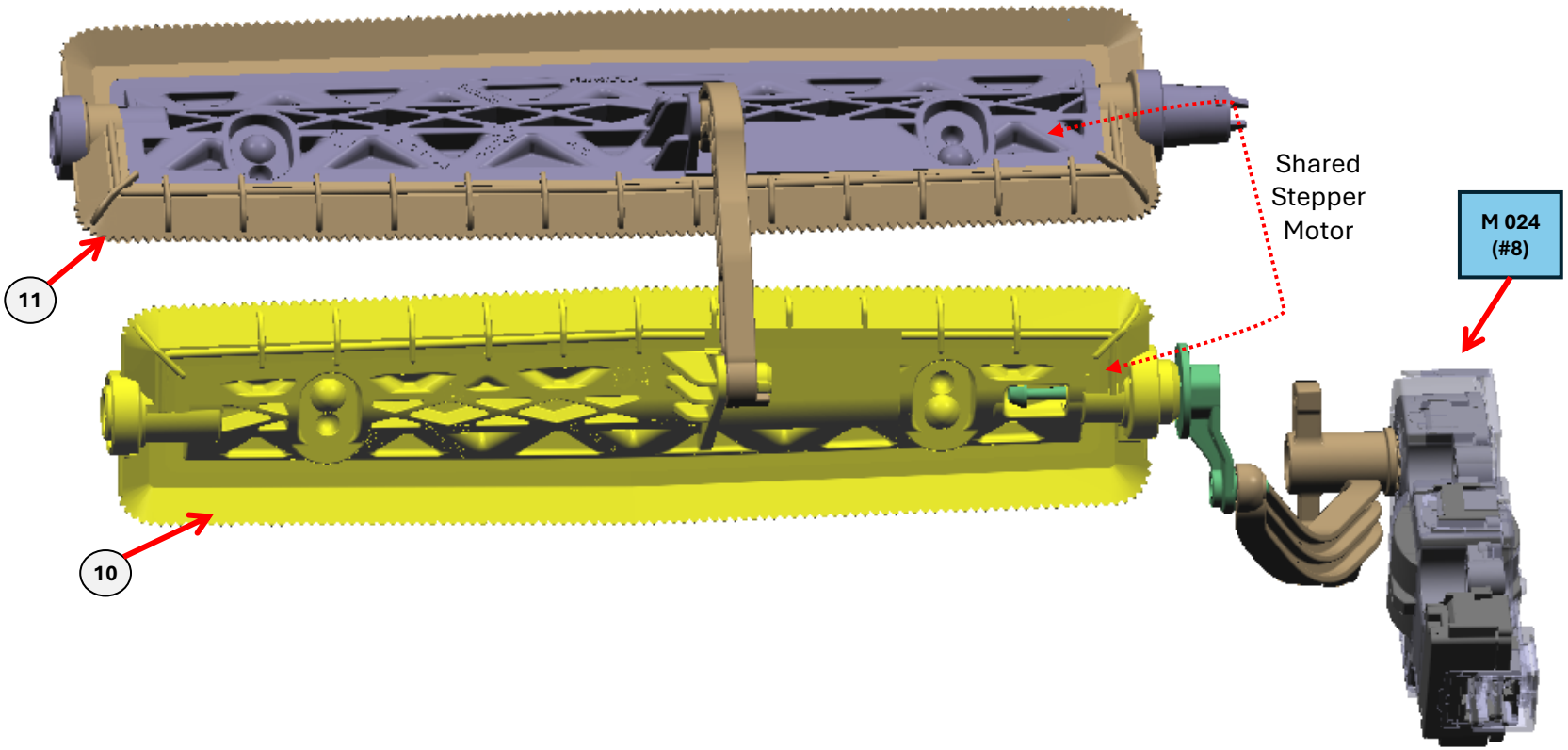
#9 Rear Upper Vent Flap (Center Console) removed from CAD image for easier visibility.
A Portion of large blue housing also removed for easier visibility.

A bad push-pin connection on Flap #10 can also affect Flap #11. Flap #11 is connected to Flap #10.

ONE Push Pin (RIGHT side only)!

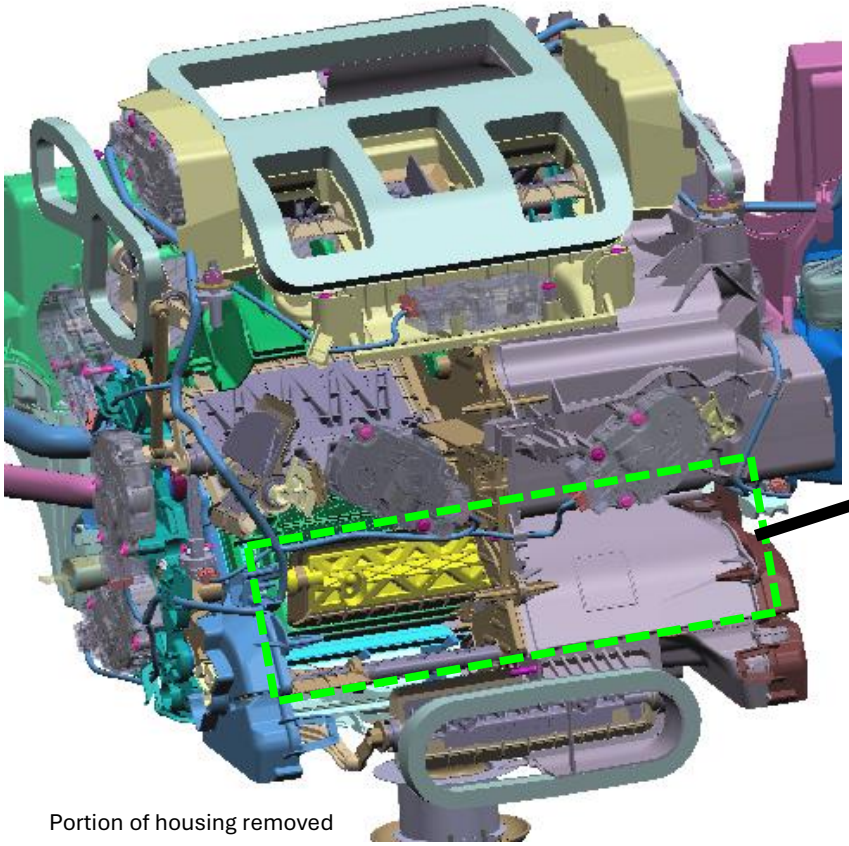
G45 HVAC: Air Vent Flaps/Kinematic & Stepper Motor Master Info.

FLAP #10 Kinematics Overview (Highlighted Yellow)

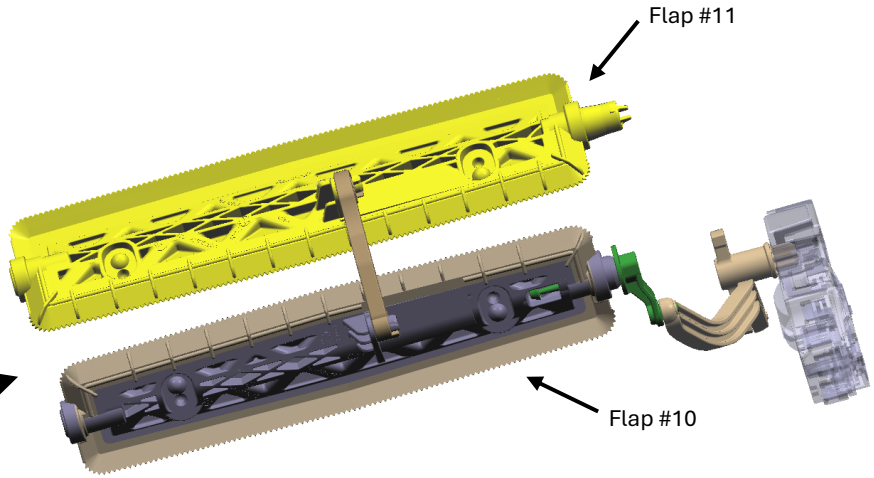


G45 HVAC: Air Vent Flaps/Kinematic & Stepper Motor Master Info.

FLAP #11: Rear Warm Temp. Mixing Flap



Portion of housing removed

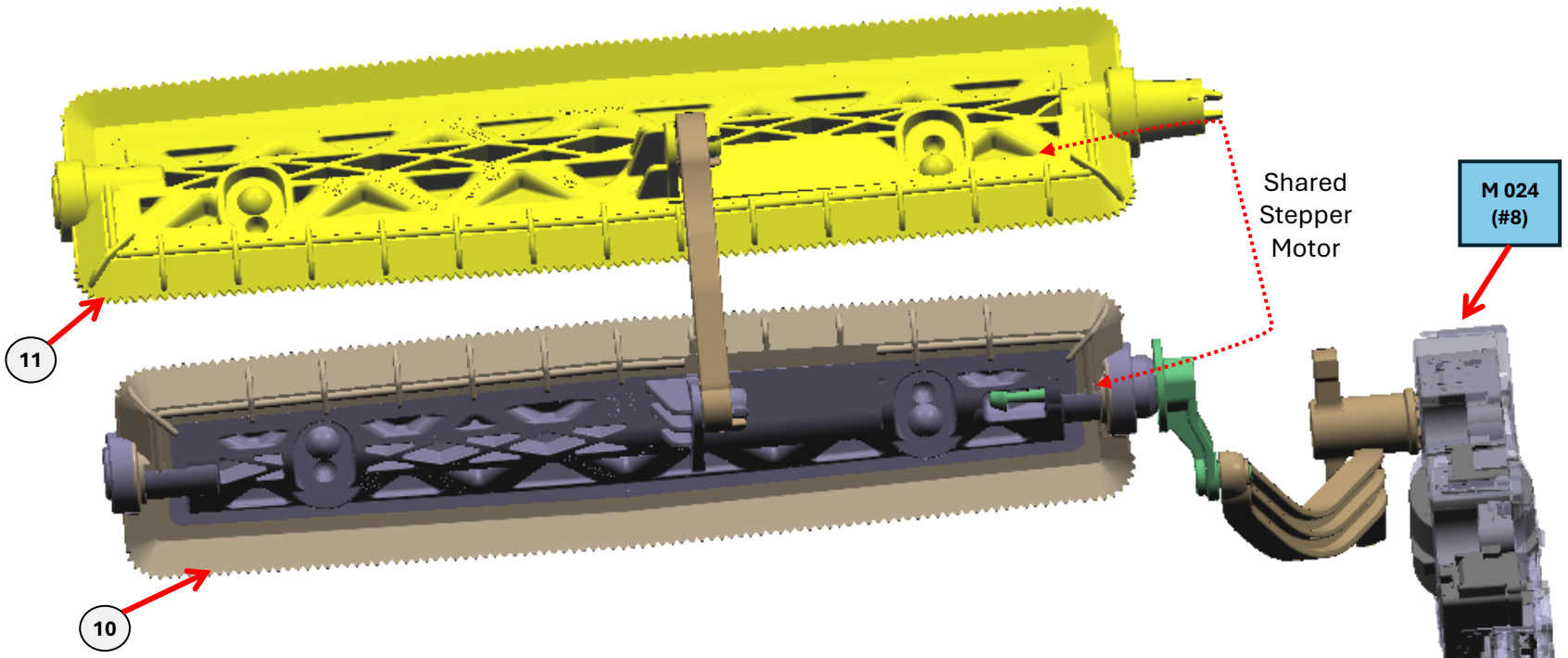


ONLY Flaps #10 & #11 (& kinematics & stepper motor) shown for visibility.
Flap #11 is connected to Flap #10.
Flap #11 does not have same push pin feature as other flaps.
A bad push-pin connection on Flap #10 can also affect flap #11.

NO Push Pin on Flap #11 (Please see Flap #10)!

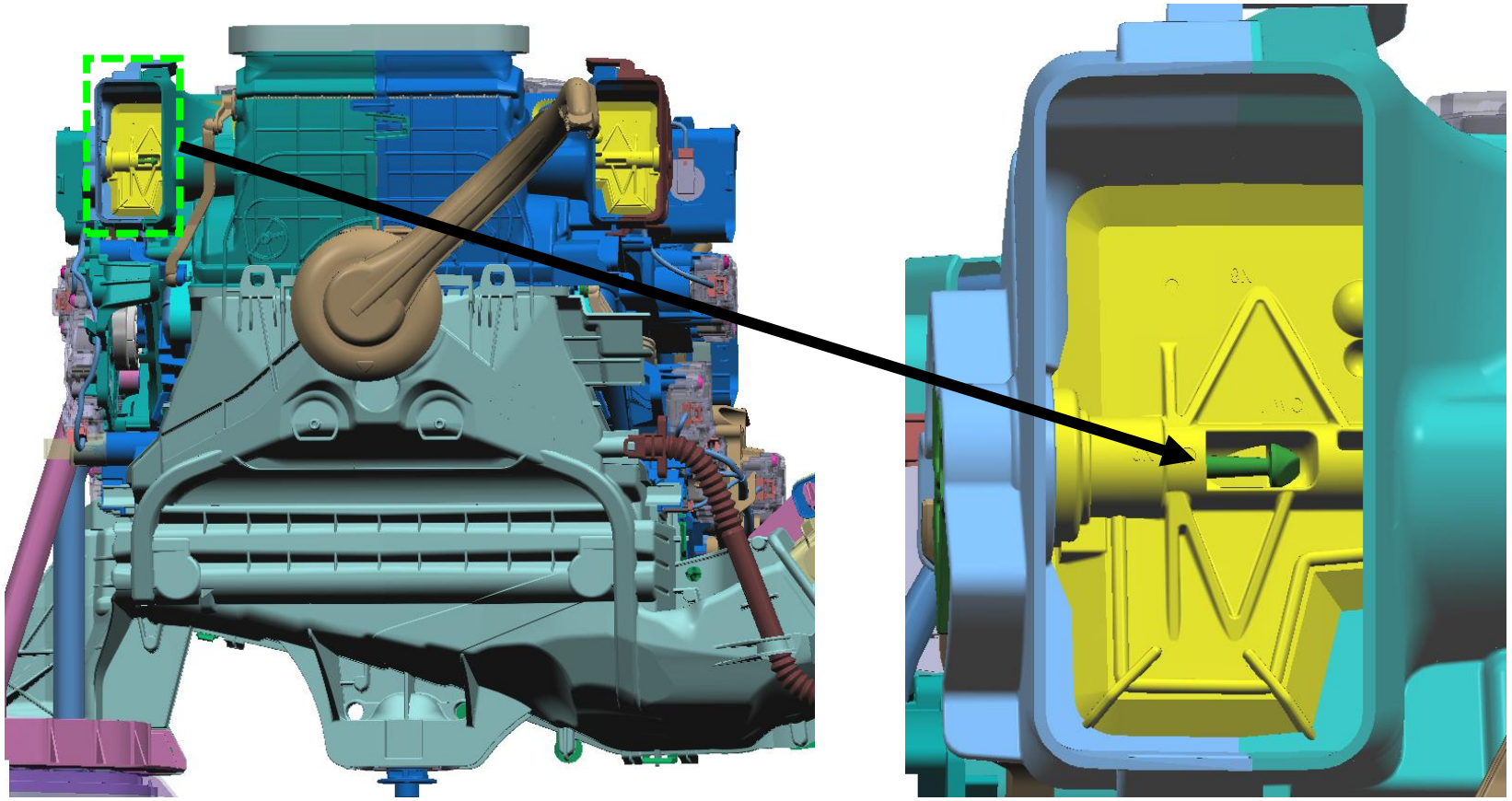
G45 HVAC: Air Vent Flaps/Kinematic & Stepper Motor Master Info.

FLAP #11 Kinematics Overview (Highlighted Yellow)



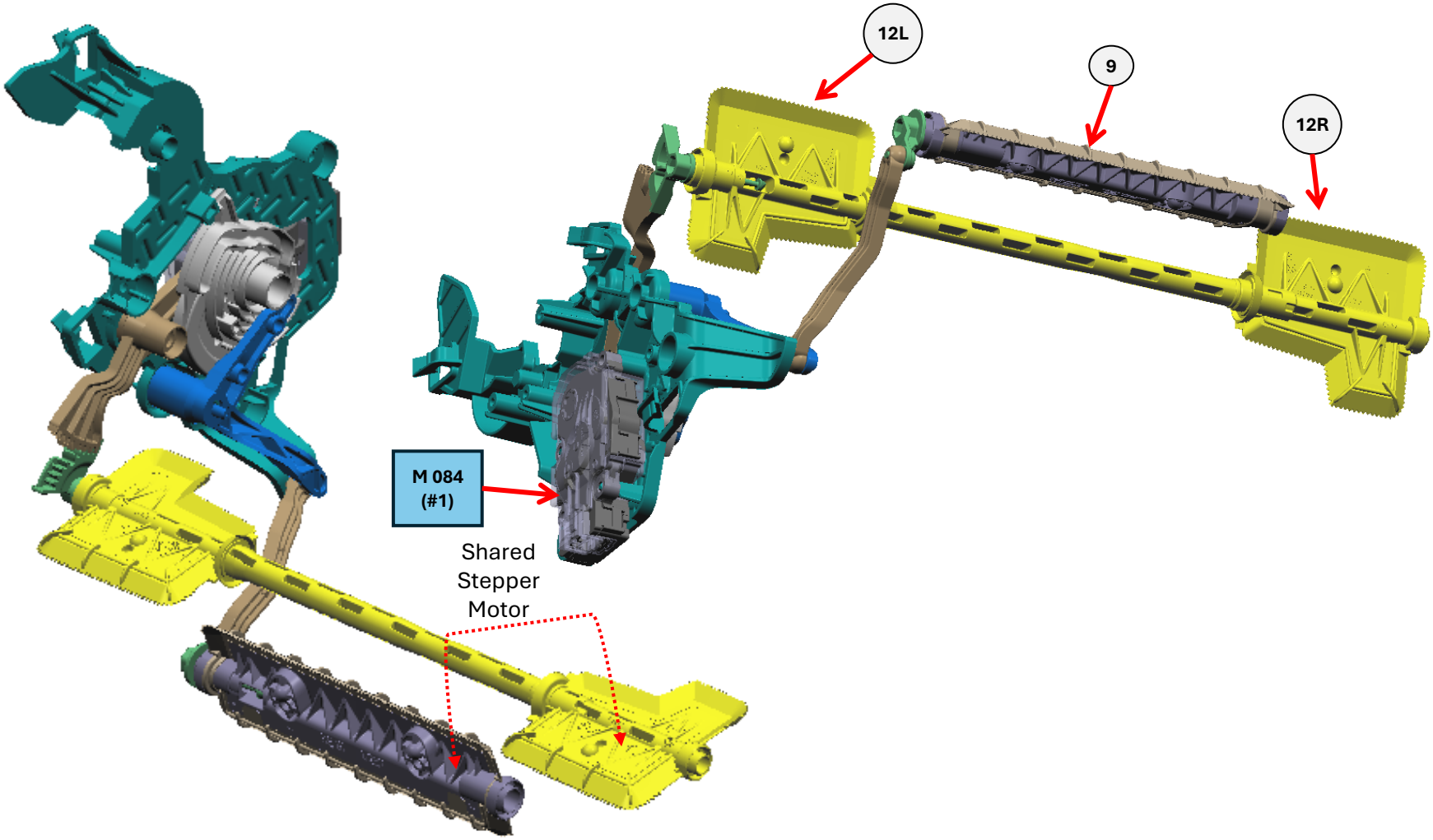
G45 HVAC: Air Vent Flaps/Kinematic & Stepper Motor Master Info.

FLAP #12: Rear Footwell Air Flaps L/R x2 (connected)



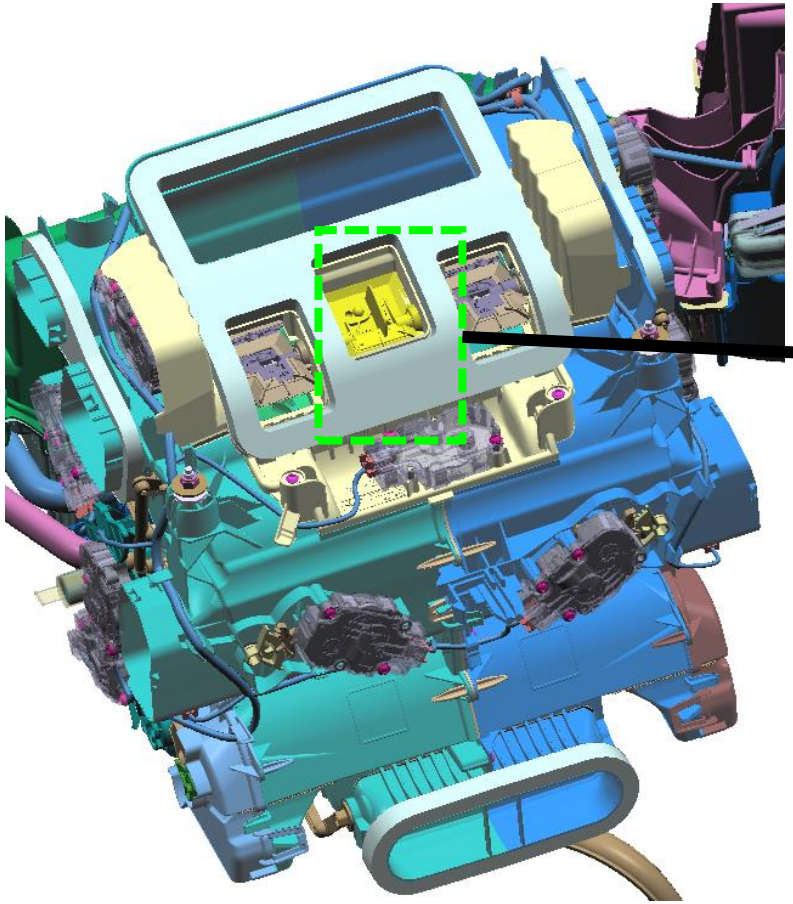
ONE Push Pin (RIGHT side only)!

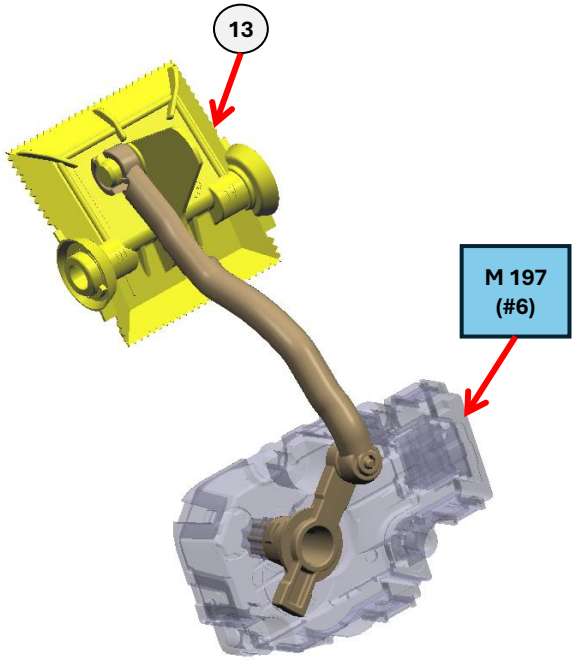
FLAP #12 Kinematics Overview (Highlighted Yellow)



G45 HVAC: Air Vent Flaps/Kinematic & Stepper Motor Master Info.

FLAP #13: Indirect Air Flap & Complete Kinematics Overview



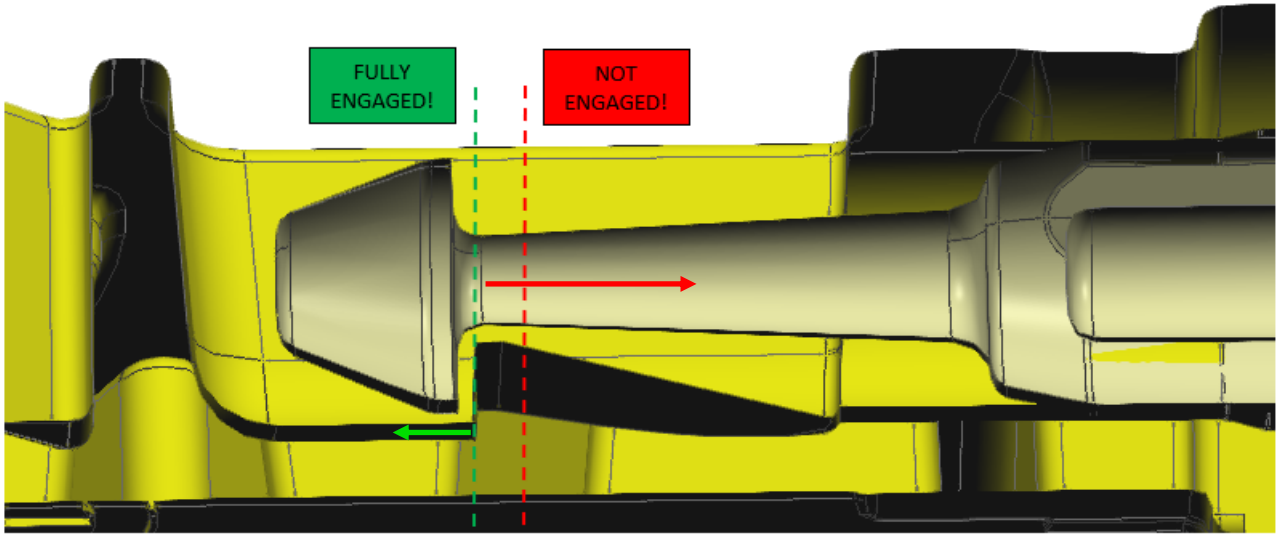


ONLY Flap #13 (& kinematics & stepper motor) shown for visibility.
Flap #13 does not have same push pin feature as other flaps.

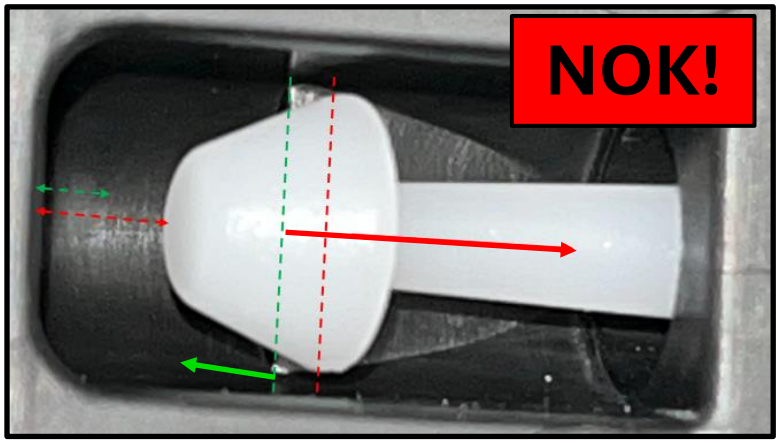
G45 HVAC: Air Vent Flaps/Kinematic & Stepper Motor Master Info.

Push Pin Issue

CAD Section Cut



Real Part



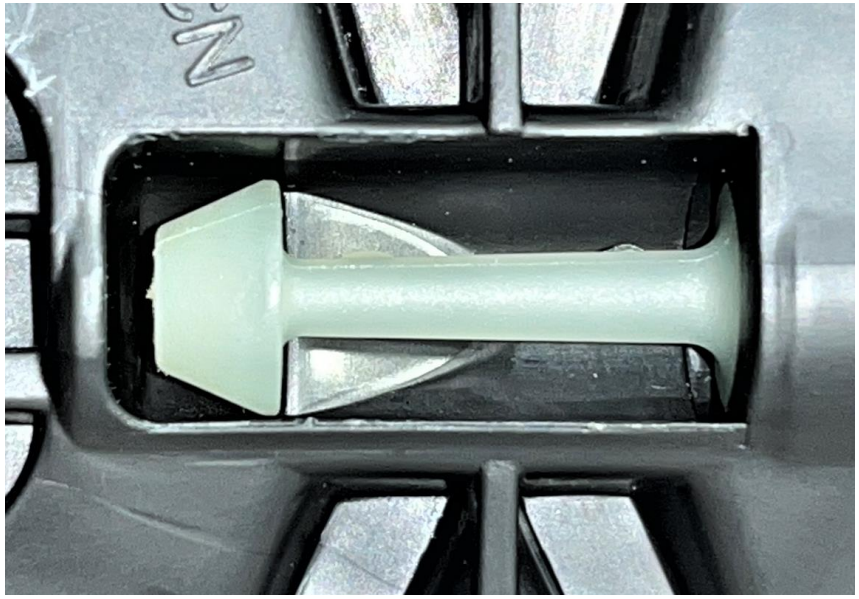
Main References:

--- FULLY Engaged ---

--- NOT FULLY Engaged ---

G45 HVAC: Air Vent Flaps/Kinematic & Stepper Motor Master Info.

Push Pin Issue



OK

FULLY ENGAGED

Pin/Linkage Mushroom Head Completely Over Ramp on Flap!

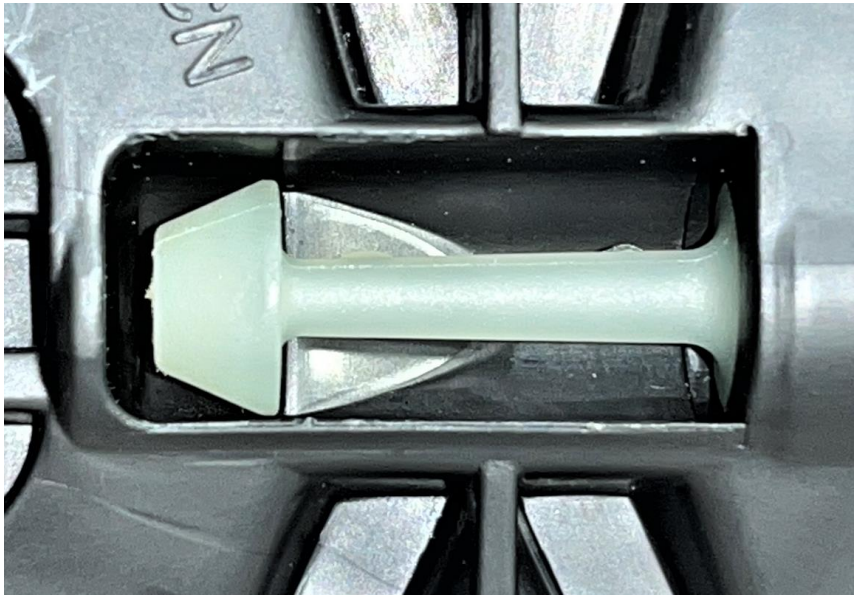
NOK!

Barely short of FULL engagement!

Pin/Linkage Mushroom Head NOT Completely Over Ramp on Flap!

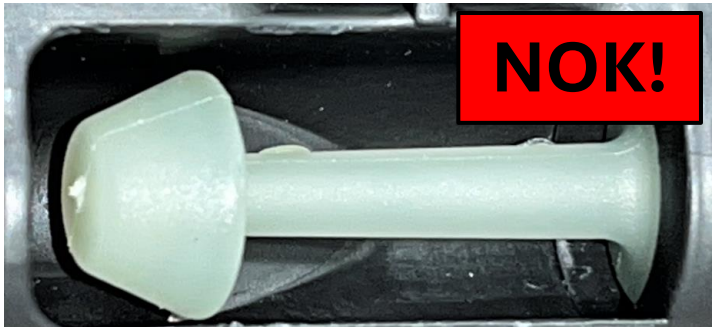
G45 HVAC: Air Vent Flaps/Kinematic & Stepper Motor Master Info.

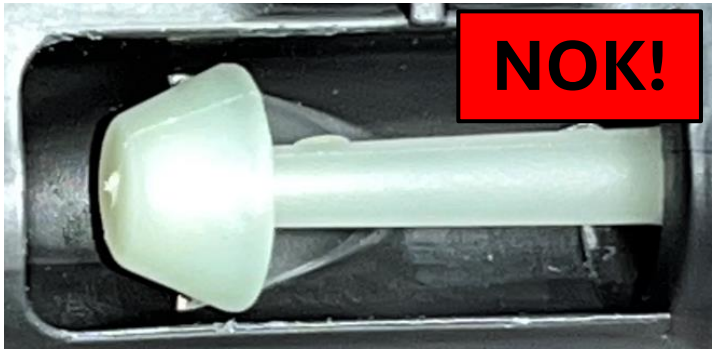
Push Pin Issue



FULLY ENGAGED

Pin/Linkage Mushroom Head Completely Over Ramp on Flap!



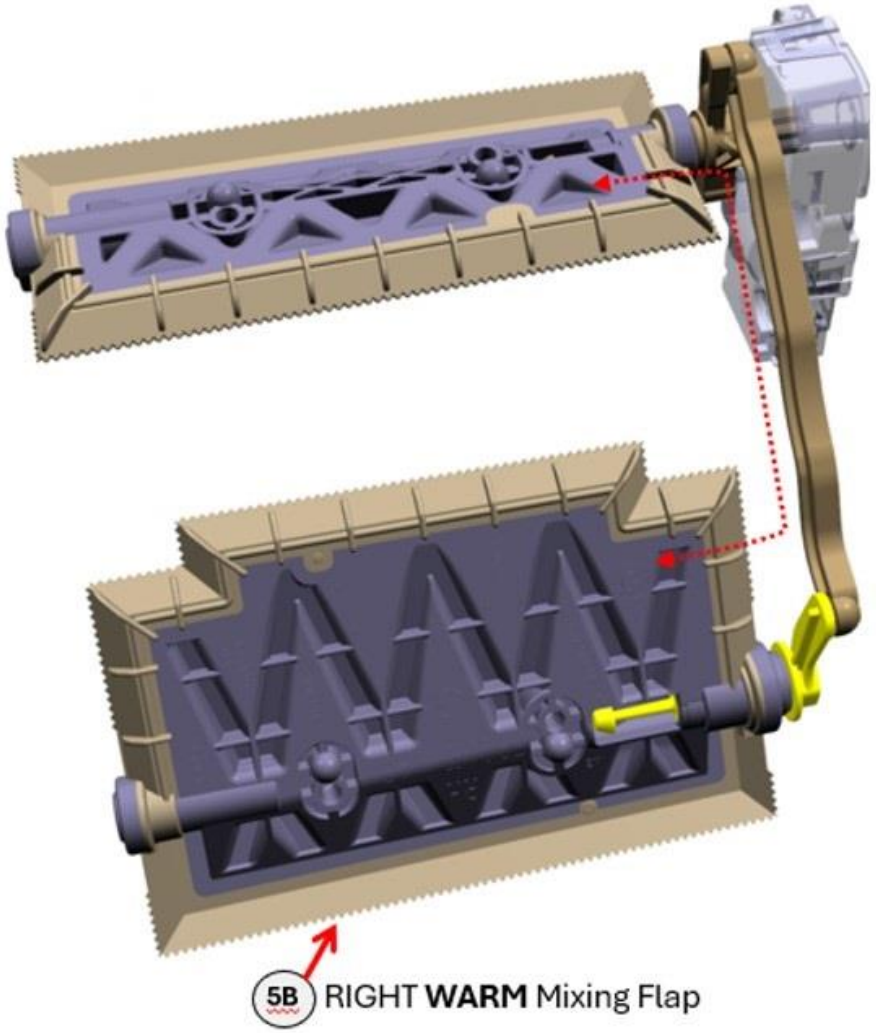


Short of FULL engagement!

Pin/Linkage Mushroom Head NOT Completely Over Ramp on Flap!

G45 X3

Right front warm air mixing flap 5B linkage repair.



G45 HVAC: UPDATED MIXING FLAP REPAIR INSTRUCTIONS

Reason for Update...

- The initial service bulletin repair generally indicated to “push pin/linkage into flap”.

- In some cases, that is NOT enough to ensure FULL engagement even if it sounds/feels like it could be. In some cases, it is actually **IMPOSSIBLE** to fully engage the pin/linkage simply by trying to push/clip it into the flap with your fingers (even when pushing as hard as possible- from the outside only).
  ***For a view of the linkage OUTSIDE the HVAC box see video:**
  BV640325 Linkage NOT fully engaged even with hard push yet appears ok.MOV
  *** For a view of the linkage INSIDE the HVAC box see video:**
  BV640425 Linkage NOT fully engaged even with hard push yet appears ok.MOV

- During install, the flap shifts too far inboard to allow pin/linkage to fully engage.

- Partial engagement already has some tension which may give the feeling of FULL engagement even if NOT FULLY engaged!

- **As such, additional actions are necessary to ensure FULL engagement.**

- The UPDATED direction is to **ADD / PROVIDE some stiff counterforce to the flap** at the same time the pin/linkage is engaged (the next pages have the details).

G45 HVAC: UPDATED MIXING FLAP 5B INSTRUCTIONS

OVERVIEW

STEP #1A/1B/1C: Confirm NOK Condition (loose linkage to flap)- Minor Disassembly!

STOP & Evaluate After Step #1. Proceed ONLY if Necessary!

STEP #2: Carefully remove all necessary additional parts!

STEP #3, #4, & #5A/5B: Create access for proper counterforce & repair!

STEP #6: Provide significant outboard counterforce to the warm mixing flap #5B!
STEP #7: FULLY ENGAGE pin/linkage to the warm mixing flap #5B!
***** STEPS #6 & #7 MUST be done simultaneously! Use a partner if necessary! *****

STEP #8A/8B: Confirm FULL Engagement (Visually & by Manually Pulling)!

STEP #9A/9B/9C/9D: Test Cycle Flap Function 30 times & Re-check Engagement!

STEP #10: Carefully reinstall all parts!

G45 HVAC: UPDATED MIXING FLAP 5B INSTRUCTIONS

PROCEDURE

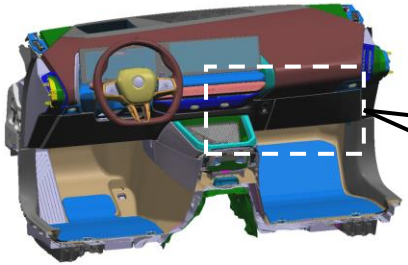
STEP #1:

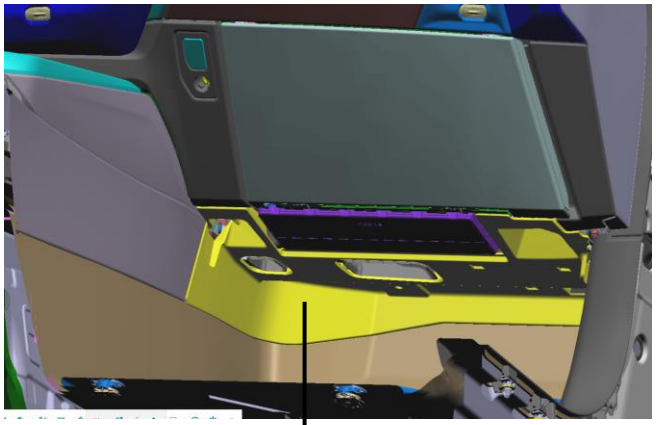
- **Confirm NOK Condition (loose linkage to flap)- Minor Disassembly!**

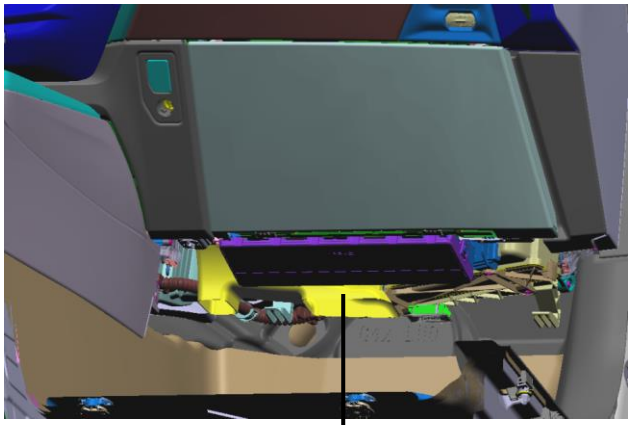
A) Remove the RIGHT, side under-dash panel and footwell duct.
***See Reference Picture**: *"**D-** Under-dash & Footwell Duct"*

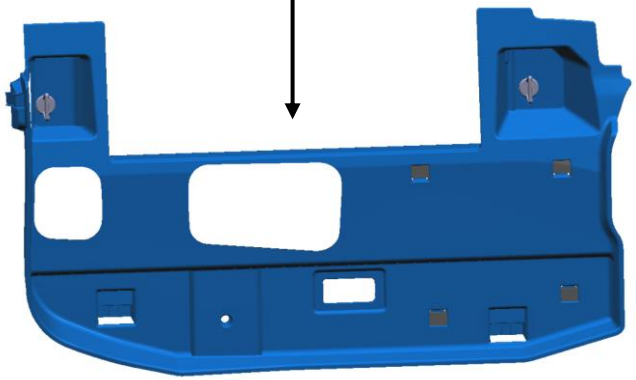
G45 HVAC: UPDATED MIXING FLAP 5B INSTRUCTIONS

Reference Picture: **D-** Under-dash & Footwell Duct









Under-Dash Panel

Footwell Duct

STEP #1 (*Continued*):

- **Confirm NOK Condition (loose linkage to flap)- Minor Disassembly!**

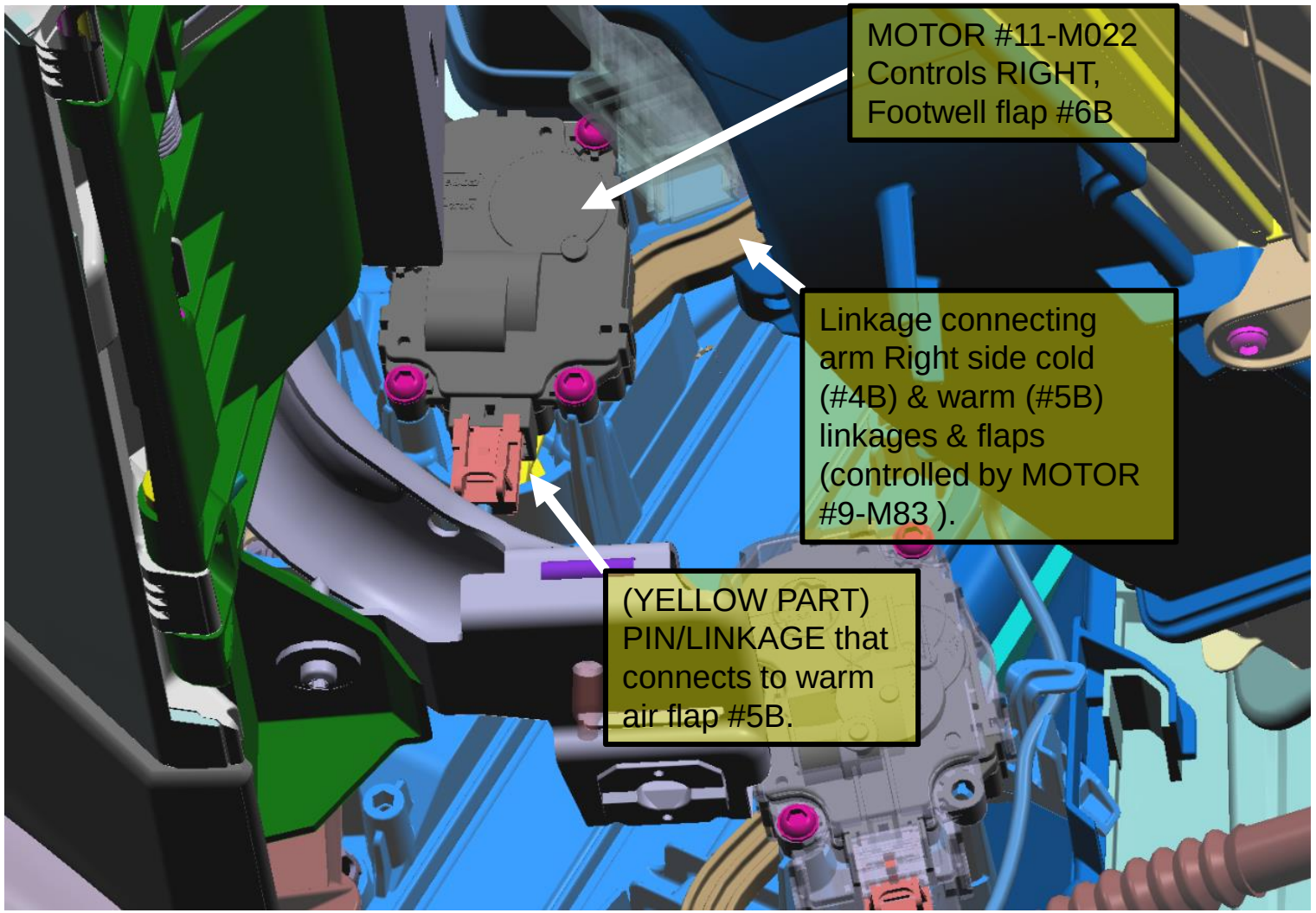
B) Locate and wiggle the linkage connecting arm between the cold and warm mixing flaps and look for excessive looseness at the lower end of the linkage connecting arm and directly at the warm mixing flap pin/linkage (connection to the warm mixing flap). A boroscope could also be helpful.

***See Reference Picture**: *"**E**- VIEW after under-dash and footwell duct removed"*

See video: *BV640525 Confirm warm mix linkage and flap is loose.MOV*

G45 HVAC: UPDATED MIXING FLAP 5B INSTRUCTIONS

Reference Picture: **E-** VIEW after under-dash and footwell duct removed



STEP #1 (*Continued*):

- **Confirm NOK Condition (loose linkage to flap)- Minor Disassembly!**

C) In some cases, you may find it easier to remove **motor #11/M022** for the ”loose” inspection/confirmation.

Note: This not the controlling motor for the mixing flaps. It is the controlling motor for the RIGHT, side vent air flap #8B. However, this motor is in the way & partially covering up the warm mixing linkage connection to flap. Removal of this motor is ok (if needed). If the warm mixing linkage to flap is loose, this motor will have to be removed later anyway to be able to fix the loose condition.

***See Reference Picture:** *“**F A/B**- Remove MOTOR #11-M022”*

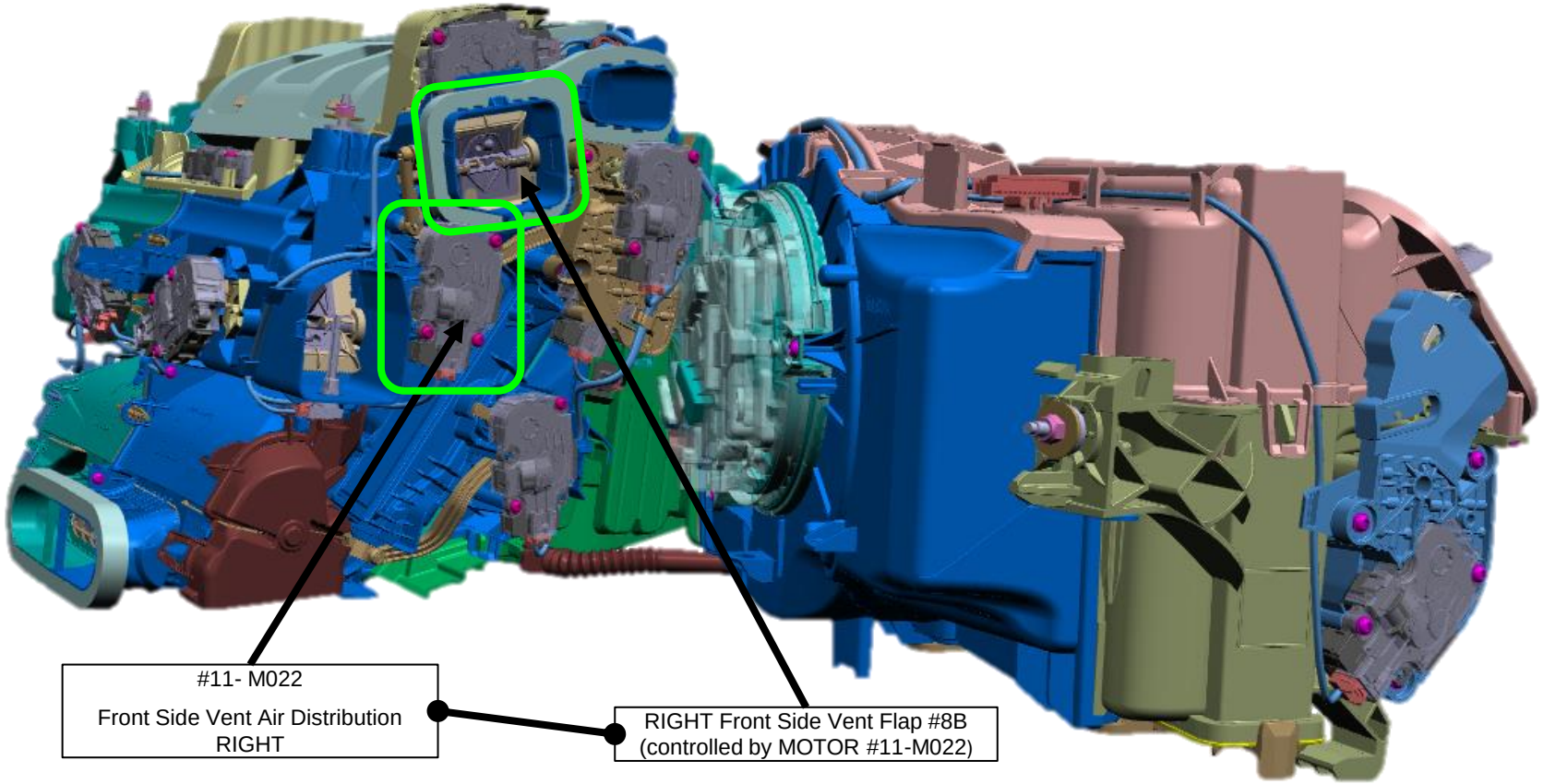
***See Reference Picture:** *“**G**-RH Temperature Mixing Complete Kinematics”*

***Reference Master Info:** *“G45 HVAC: Air Vent Flaps/Kinematic & Stepper Motor Master Info”*

See video *BV640625 Confirm warm mix linkage and flap is loose motor removed.MOV*

G45 HVAC: UPDATED MIXING FLAP 5B INSTRUCTIONS

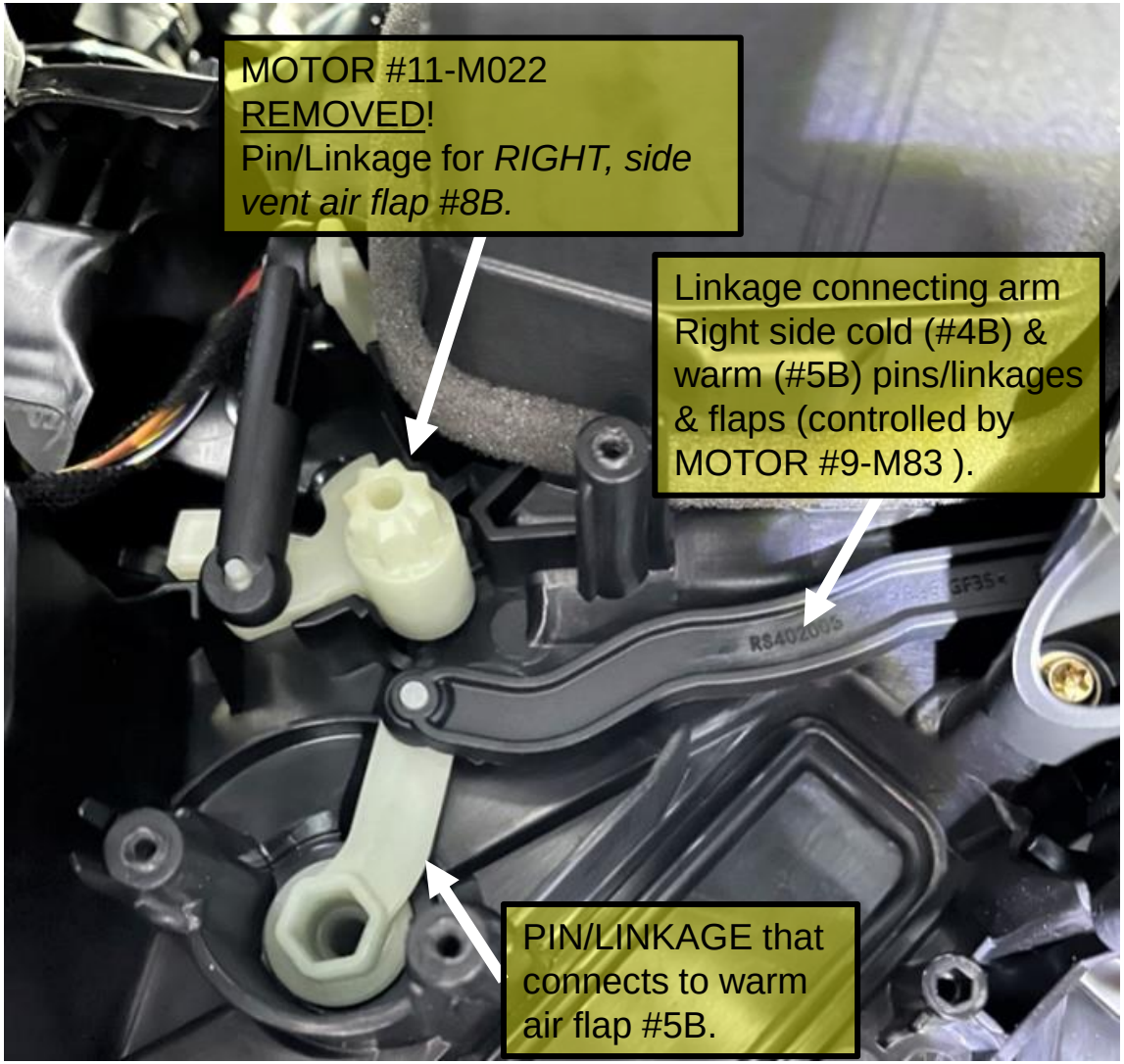
Reference Picture: **F A-** Remove MOTOR #11-M022



(LHD: Right Side VIEW)

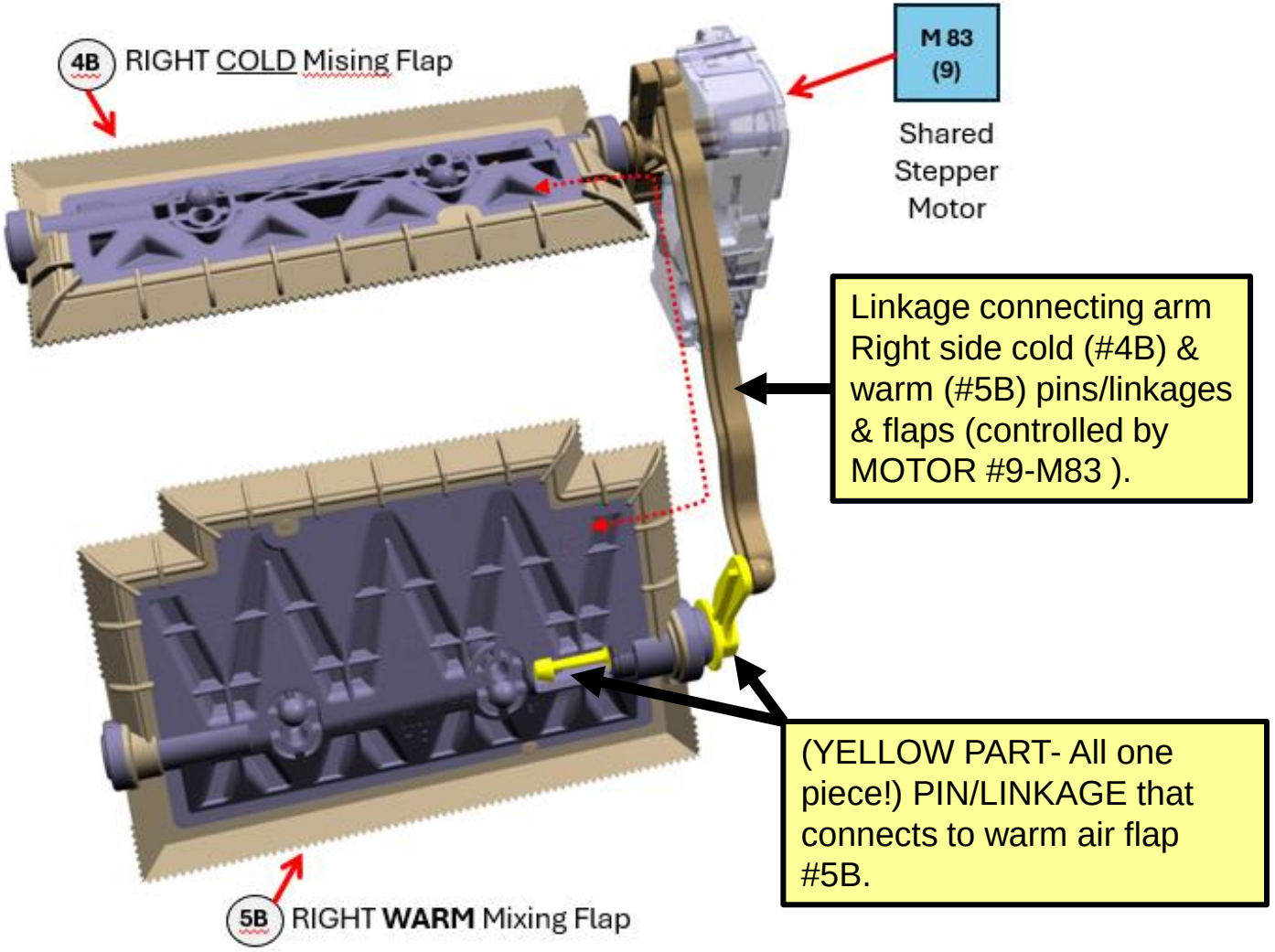
G45 HVAC: UPDATED MIXING FLAP 5B INSTRUCTIONS

Reference Picture: **F B-** Remove MOTOR #11-M022



G45 HVAC: UPDATED MIXING FLAP 5B INSTRUCTIONS

Reference Picture: **G-** RH Temperature Mixing Complete Kinematics



AFTER STEP #1.... STOP!

➢ STOP & Evaluate!

- If the linkage/flap is **NOT** loose (per the videos already mentioned) stop this checklist and review other potential causes (i.e. NOK stepper motor, wiring, other).

- If the linkage/flap **IS** confirmed to be loose (per the video already mentioned) proceed to the next steps (see steps #2 - #10 below)...

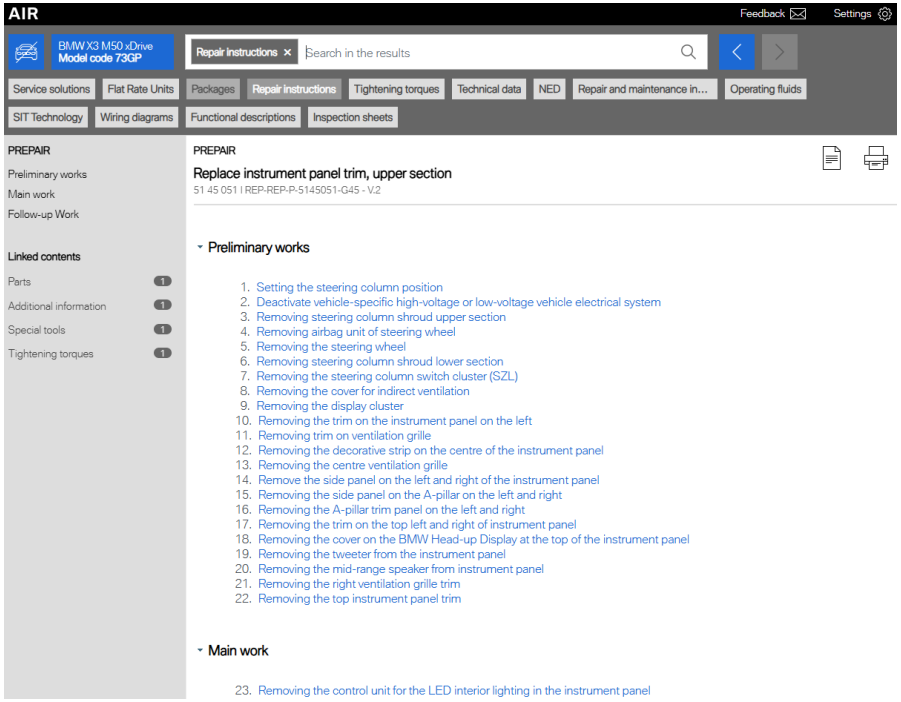
G45 HVAC: UPDATED MIXING FLAP 5B INSTRUCTIONS

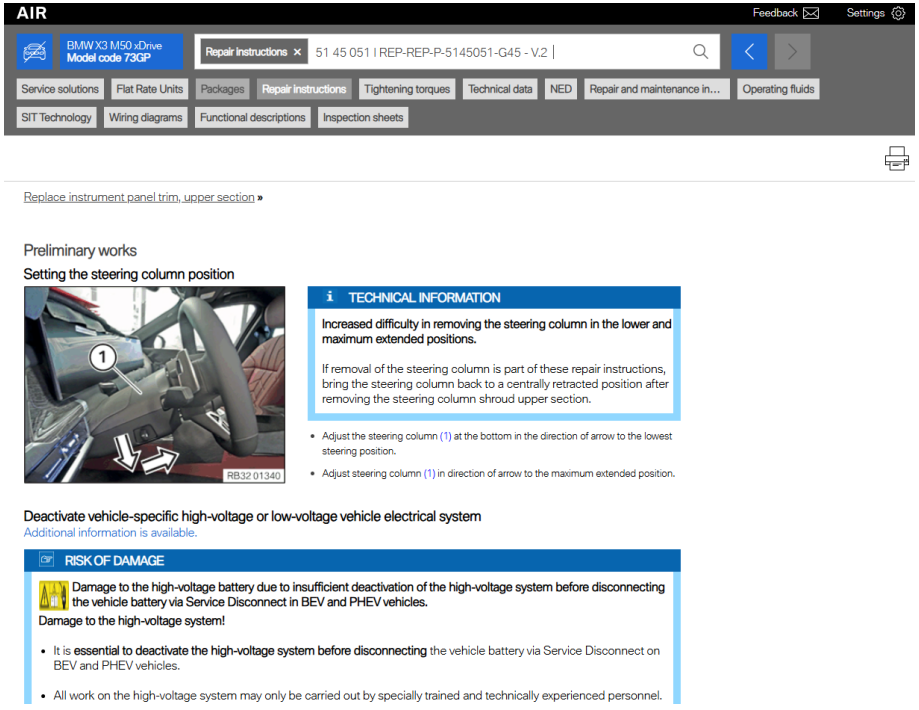
STEP #2 (ONLY if Loose Linkage Confirmed in STEP #1!):

- **Carefully remove all necessary additional parts!**

Remove Upper Instrument Panel (IP) skin (& any other components necessary to take the IP skin off).
Please refer to *AIR Premium Repair Instructions*
51 45 051 | REP-REP-P-5145051-G45 - V.2

Overview here:





G45 HVAC: UPDATED MIXING FLAP 5B INSTRUCTIONS

STEP #3, #4, & #5:

- **Create access for proper counterforce & repair!**

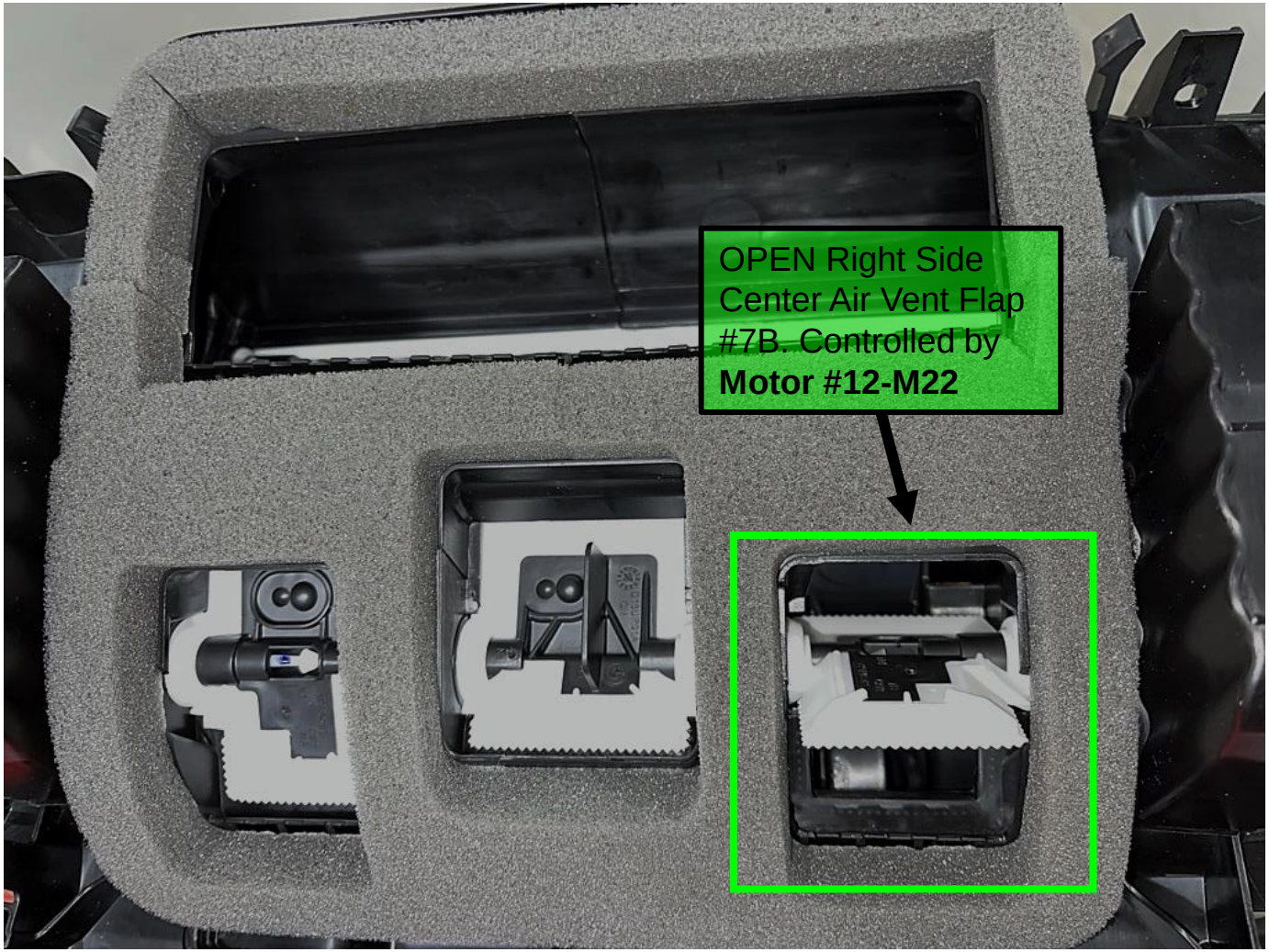
3) Via OBD/ISTA, Fully **OPEN the front RIGHT, center vent air flap #7B** (controlled by stepper **motor #12-M22**) to **100%**.

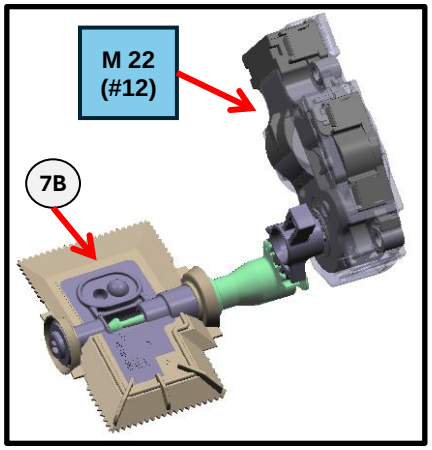
NOTE: Completely opening this flap allows access for a screwdriver (or similar) to access and apply counterforce to the RIGHT, warm mixing flap (#5B) during pin/linkage installation.

See Reference Picture: *"H- OPEN Right Side Center Air Vent Flap #7B"

G45 HVAC: UPDATED MIXING FLAP 5B INSTRUCTIONS

Reference Picture: **H-** OPEN Right Side Center Air Vent Flap #7B





STEP #3, #4, & #5 (*Continued*):

- **Create access for proper counterforce & repair!**

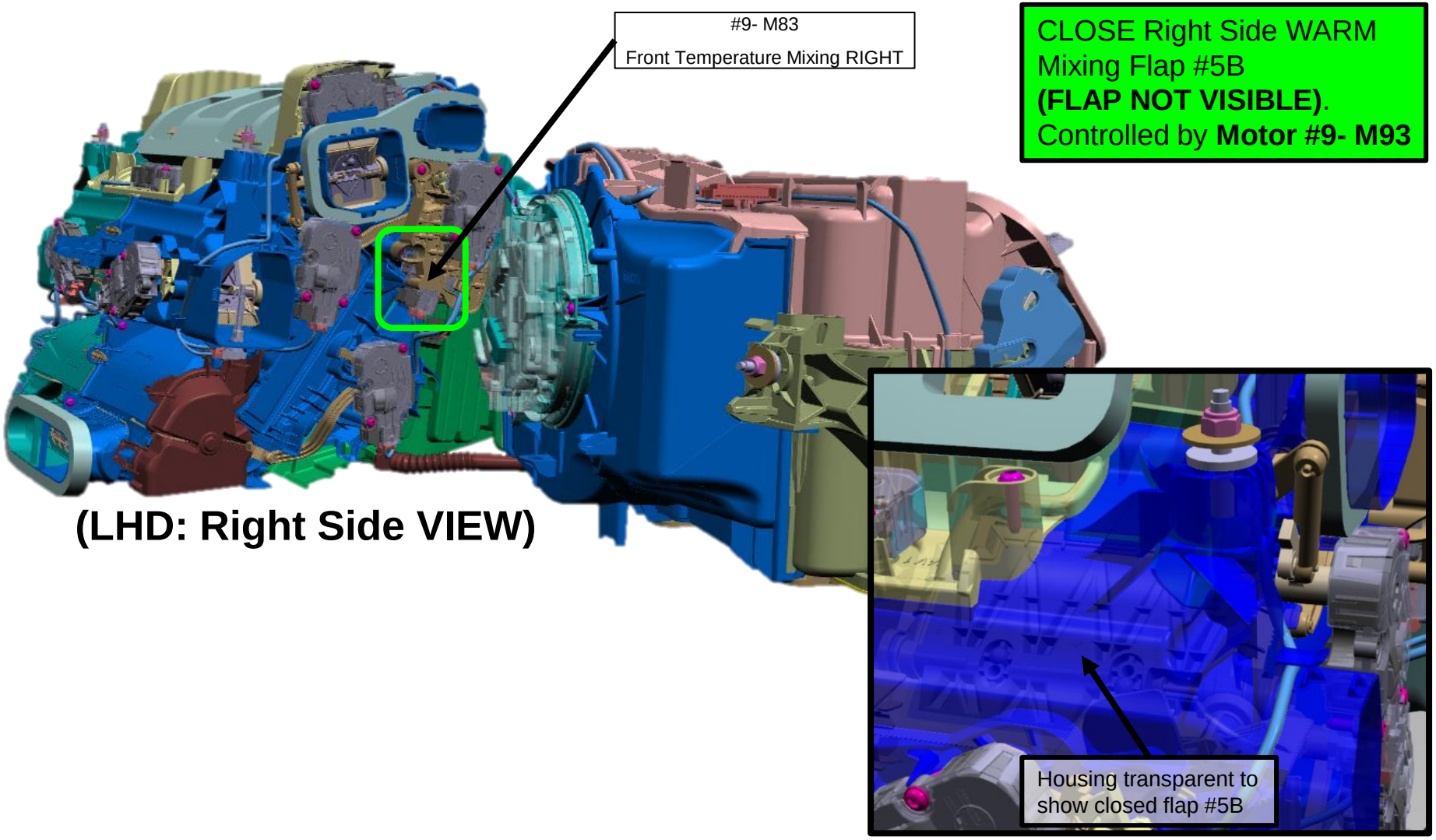
4) Via OBD/ISTA, Fully **CLOSE** the the front RIGHT, mixing flaps (connected) #5B: WARM & #4B: COLD (controlled by stepper **motor #9-M83**) to **0%**.

NOTE: Completely closing this flap makes it easier to apply counterforce to this flap (#5B) during pin/linkage installation.
NOTE: Flaps are NOT visible from outside of HVAC Box!

***See Reference Picture**: *"**I**- CLOSE Right Warm Mixing Flap #5B"*

G45 HVAC: UPDATED MIXING FLAP 5B INSTRUCTIONS

Reference Picture: **I-** CLOSE Right Warm Mixing Flap #5B



G45 HVAC: UPDATED MIXING FLAP 5B INSTRUCTIONS

STEP #3, #4, & #5 (*Continued*):

- **Create access for proper counterforce & repair!**

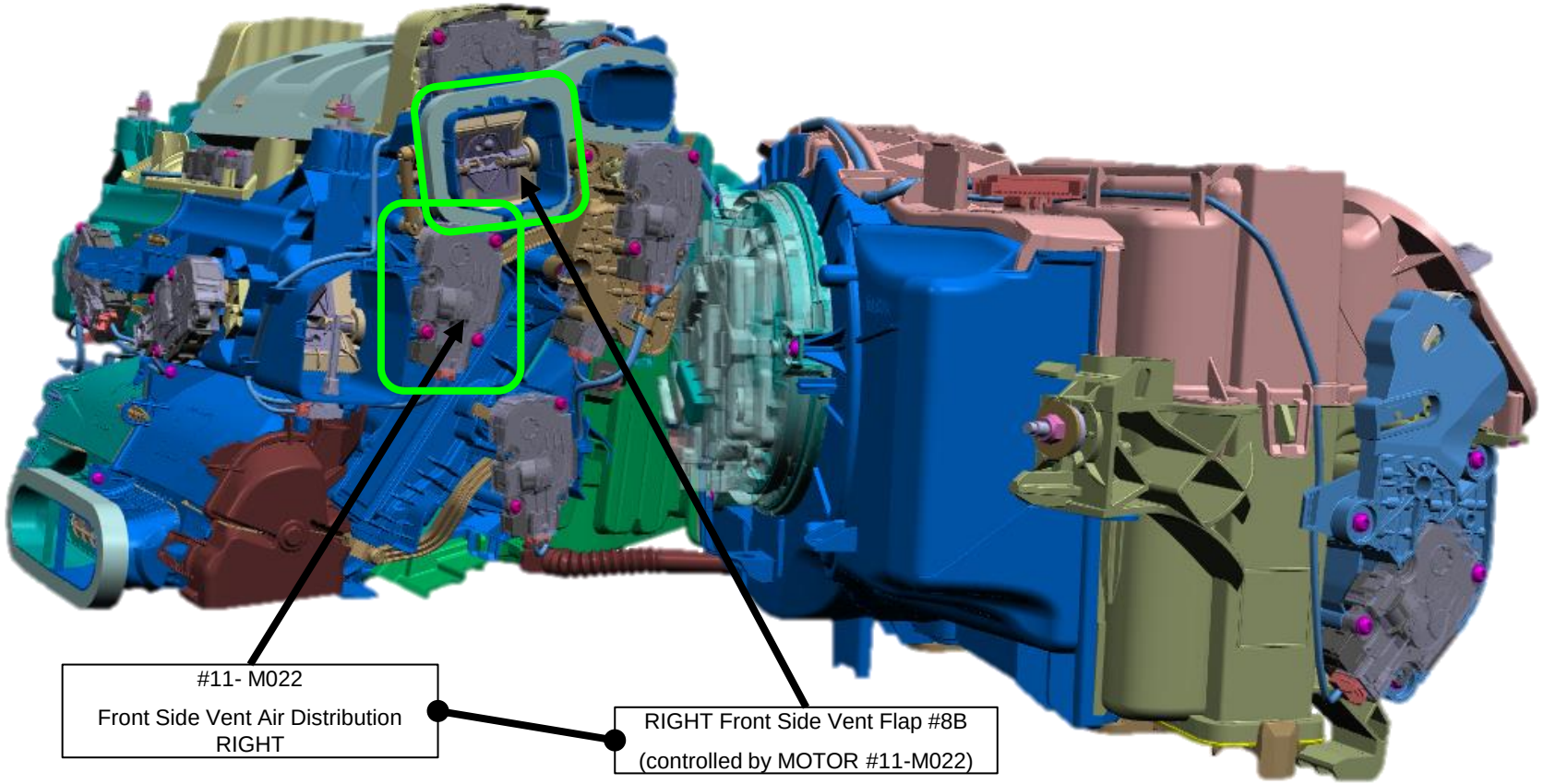
5A) If not already completed in step #1C (above), **remove stepper motor #11-M022** (screws and motor) in order to access loose RIGHT, warm mixing flap pin/linkage & for for better visual access.

NOTE: This is the controlling motor for the RIGHT, side vent air flap #8B. This must be completed to provide access to grab warm mixing linkage to press into the flap #5B (later).

See Reference Pictures: *"FA & FB- Remove MOTOR #11-M022"

G45 HVAC: UPDATED MIXING FLAP 5B INSTRUCTIONS

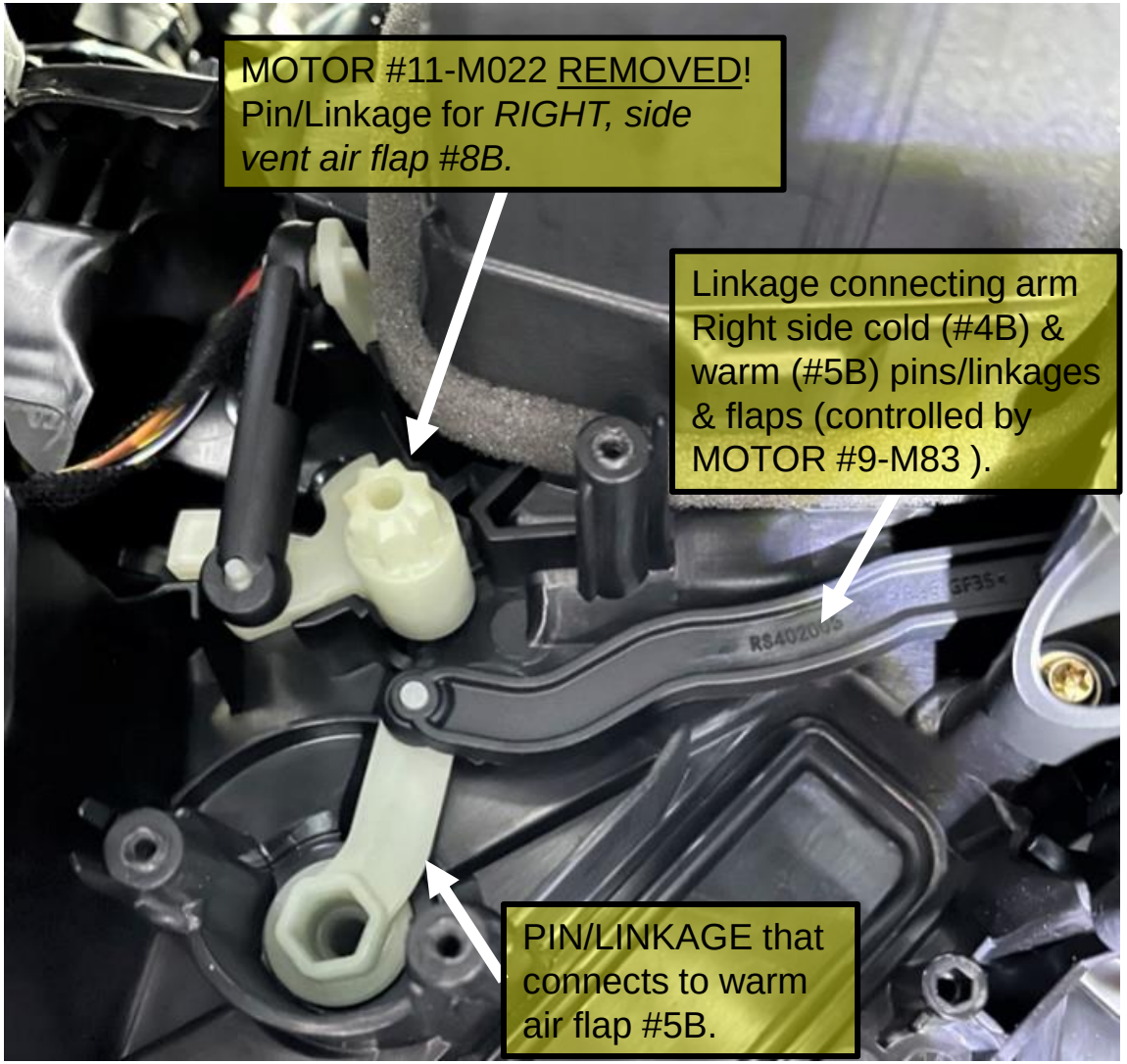
Reference Picture: **F A-** Remove MOTOR #11-M022



(LHD: Right Side VIEW)

G45 HVAC: UPDATED MIXING FLAP 5B INSTRUCTIONS

Reference Picture: **F B-** Remove MOTOR #11-M022



G45 HVAC: UPDATED MIXING FLAP 5B INSTRUCTIONS

STEP #3, #4, & #5 (*Continued*):

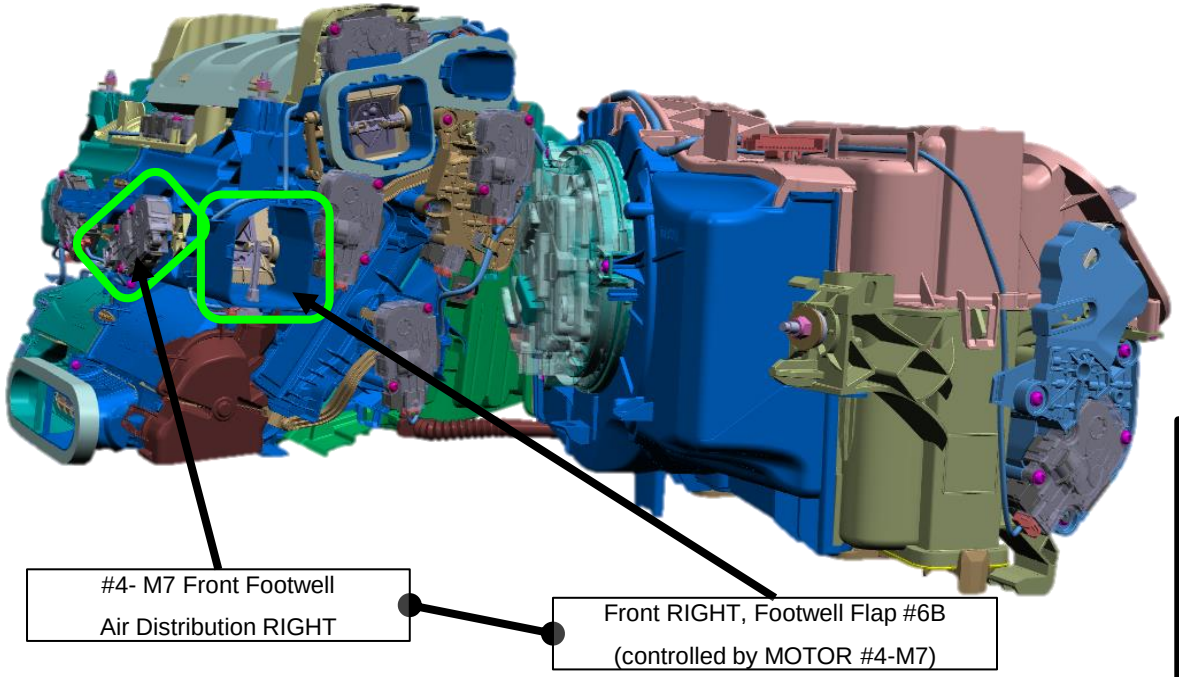
- **Create access for proper counterforce & repair!**

5B) Via OBD/ISTA, also OPEN the Front RIGHT, Footwell Flap #6B (controlled by **MOTOR #4-M7**).
NOTE: This will allow for visual checks (later) with boroscope or mirror.

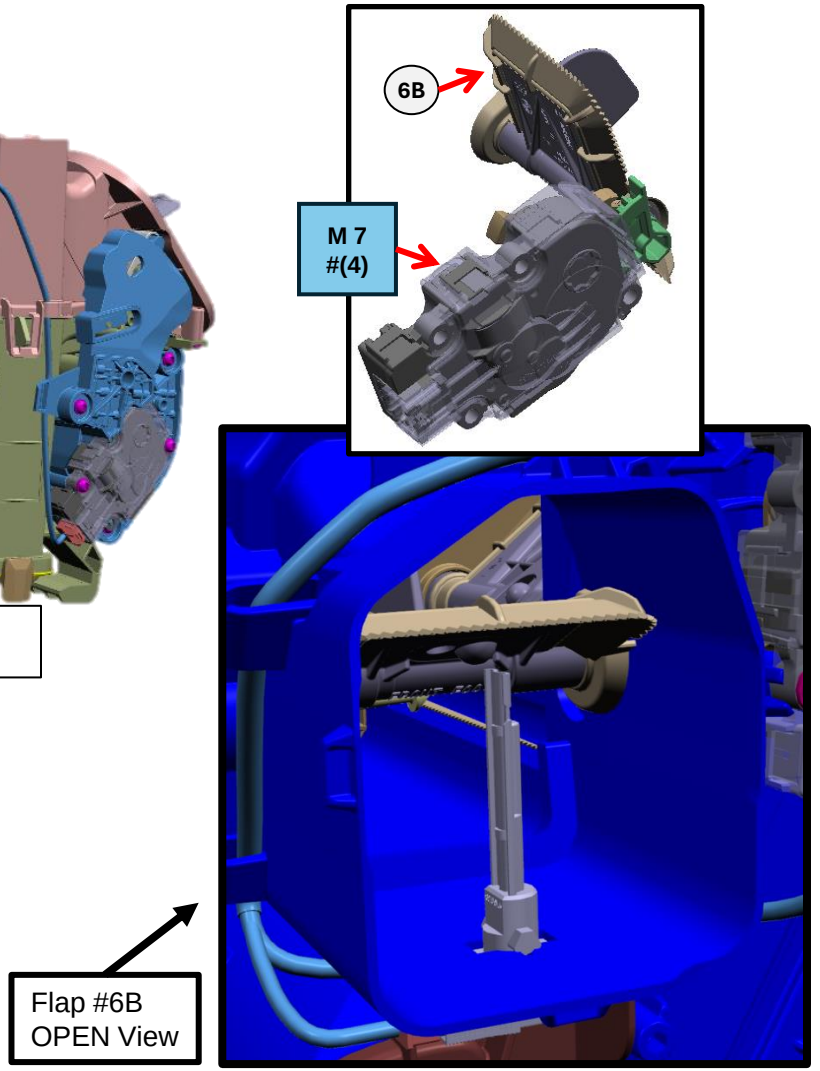
See Reference Pictures: *"J- OPEN Front RIGHT, Footwell Flap #6B"

G45 HVAC: UPDATED MIXING FLAP 5B INSTRUCTIONS

Reference Picture: **J-** OPEN Front RIGHT, Footwell Flap #6B



(LHD: Right Side VIEW)



G45 HVAC: UPDATED MIXING FLAP 5B INSTRUCTIONS

STEP #6:

- **Provide significant outboard counterforce to the warm mixing flap #5B!**

NOTE: A flathead screwdriver (or similar) is needed for this step. A flashlight could also be helpful.

STEP #6 (***Continued***):

- **Provide significant outboard counterforce to the warm mixing flap #5B!**

Pass the shaft of the screwdriver through the **OPEN** RIGHT, center vent air flap (**#7B**), through the small hole (in housing), and all the way down to the CLOSED **warm mixing flap #5B**. Align the flat edge of screwdriver to the solid plastic ribs on the CLOSED **warm mixing flap #5B**.
After screwdriver is inserted and properly aligned to the **warm mixing flap #5B** (in one of the designated locations) wedge/press the flathead to the flap and pry it hard outboard.

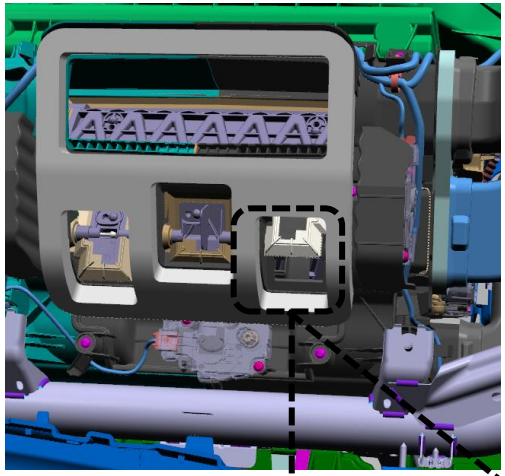
*NOTE: The goal is to provide some stiff counterforce to the **warm mixing flap #5B** (to remove side-to-side movement of this flap and force it outboard) at the same time you push hard and fully engage the pin/linkage to flap (please see next steps for more detail).*
NOTE: The warm mixing flap #5B could inadvertently move to the open position since the flap and linkage are loose at this point. If this happens, push the pin/linkage in as far as you can and then rotate flap to completely close it again. This will make providing the necessary screwdriver counterforce easier.

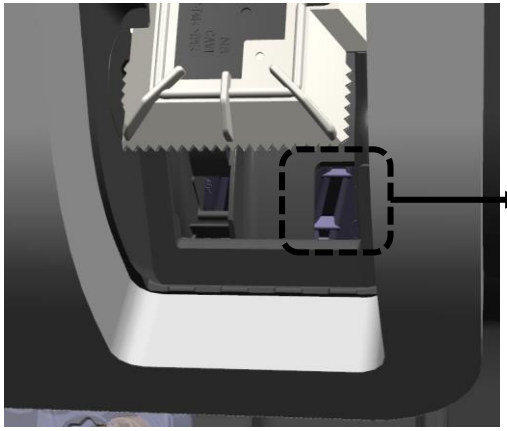
***See Reference Picture:** ***"L*- Position screwdriver through center vent, hole, and align to flap #5B"**

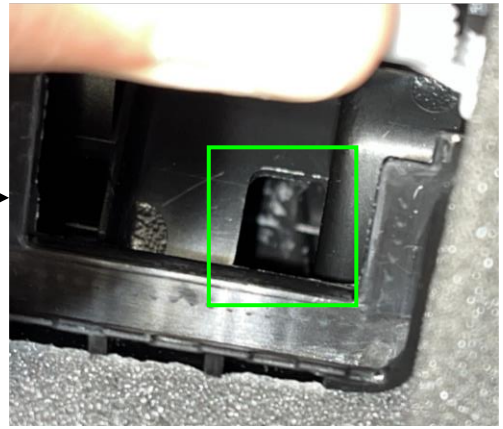
***See Reference Picture:** ***"M*- Wedge/Pry Locations on Warm Mixing Flap #5B"**

G45 HVAC: UPDATED MIXING FLAP 5B INSTRUCTIONS

Reference Picture: **L-** Position screwdriver through center vent, hole, and align to flap #5B

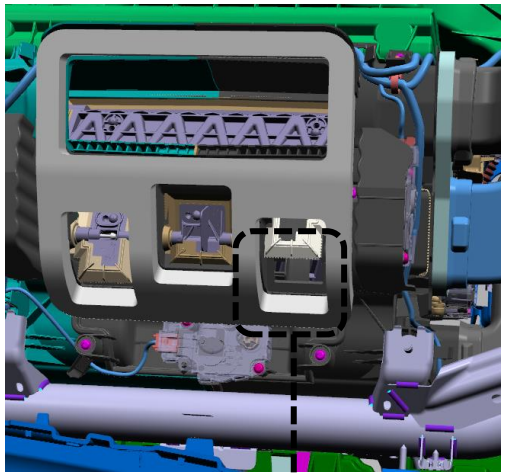


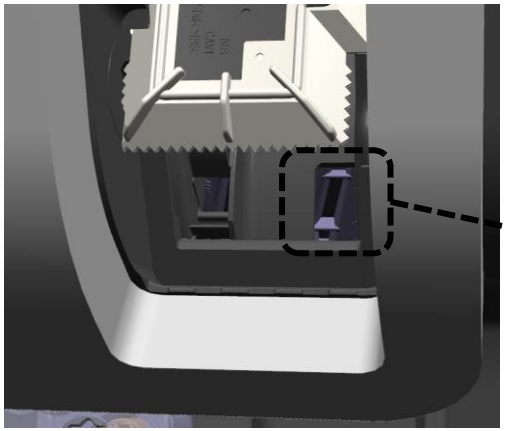


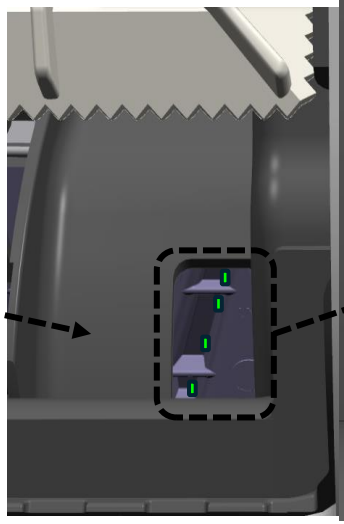


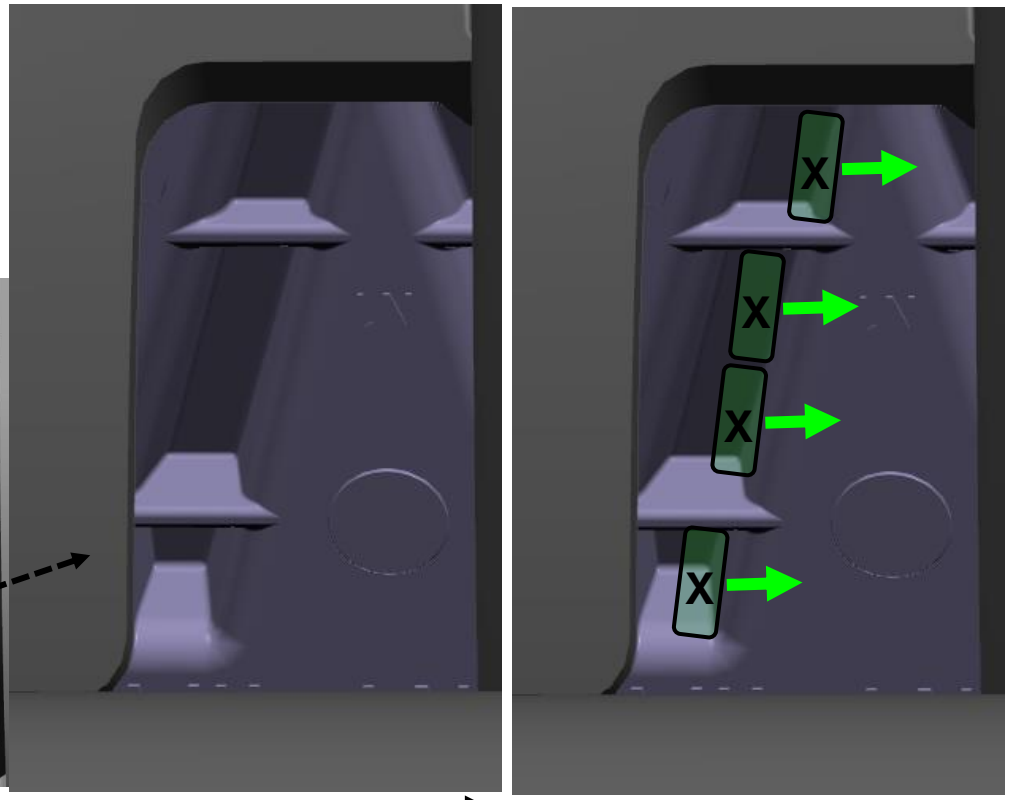
G45 HVAC: UPDATED MIXING FLAP 5B INSTRUCTIONS

Reference Picture: **M-** Wedge/Pry Locations on Warm Mixing Flap #5B









X → Main positions to locate and wedge/pry the flathead screwdriver for needed outboard counterforce on flap!

Increasing ZOOM to show details!

G45 HVAC: UPDATED MIXING FLAP 5B INSTRUCTIONS

STEP #7:

- **FULLY ENGAGE pin/linkage to the warm mixing flap #5B!**

AT THE SAME TIME AS YOU ARE CONTINUING STEP #6...
Grab the warm mixing linkage and PUSH HARD INBOARD to FULLY ENGAGE the loose pin/linkage into the **warm mixing flap #5B** .

Push BOTH the **warm mixing pin/linkage** (with your hand/fingers) **AND** the **warm mixing flap #5B** (with a screwdriver), towards/into each other **at the same** time to secure FULL Engagement.

PUSH HARD until the pin/linkage mushroom head is fully secured completely over the ramp!

Step 7 from OUTSIDE the HVAC box see video:
BV640725 Flap held secure during linkage install.MOV
Step 7 from INSIDE the HVAC box see video:
BV640825 Flap held secure during linkage install.MOV

If you FAIL to secure/provide significant counterforce to the flap, at the same time you engage the pin/linkage, then it is possible for it to NOT fully engage even if it may feel like it is!

For a view of loose linkage OUTSIDE the HVAC box see video:
BV640325 Linkage NOT fully engaged even with hard push yet appears ok.MOV
For a view of loose linkage INSIDE the HVAC box see video:
BV640425 Linkage NOT fully engaged even with hard push yet appears ok.MOV

G45 HVAC: UPDATED MIXING FLAP 5B INSTRUCTIONS

STEP #8:

- **Confirm FULL Engagement (Visually & by Manually Pulling)!**

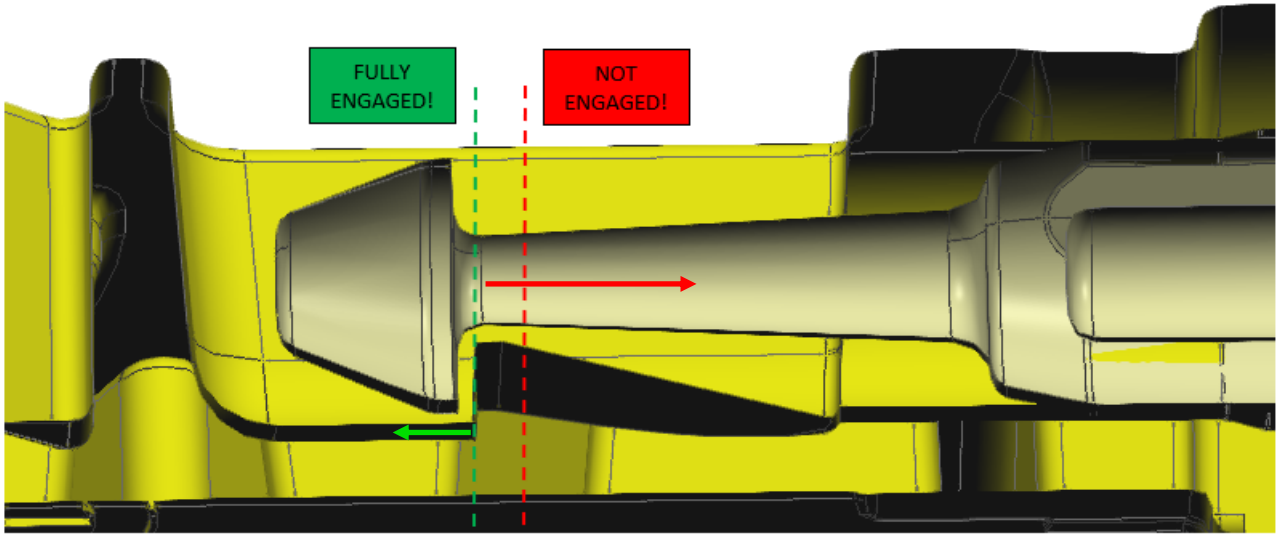
8A) Review that the pin/linkage mushroom head is **FULLY** over the ramp on the flap (visually via articulating boroscope &/or mirror through the RIGHT, side footwell flap #6B).

***See Reference Pictures**: *"A, B, & C- Fully Engaged vs NOT Fully Engaged"*

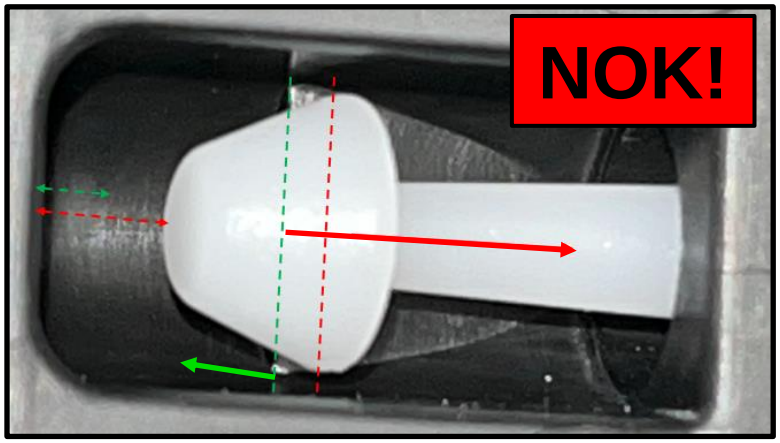
G45 HVAC: UPDATED MIXING FLAP 5B INSTRUCTIONS

Reference Picture: **A-** Fully Engaged vs NOT Fully Engaged

CAD Section Cut



Real Part



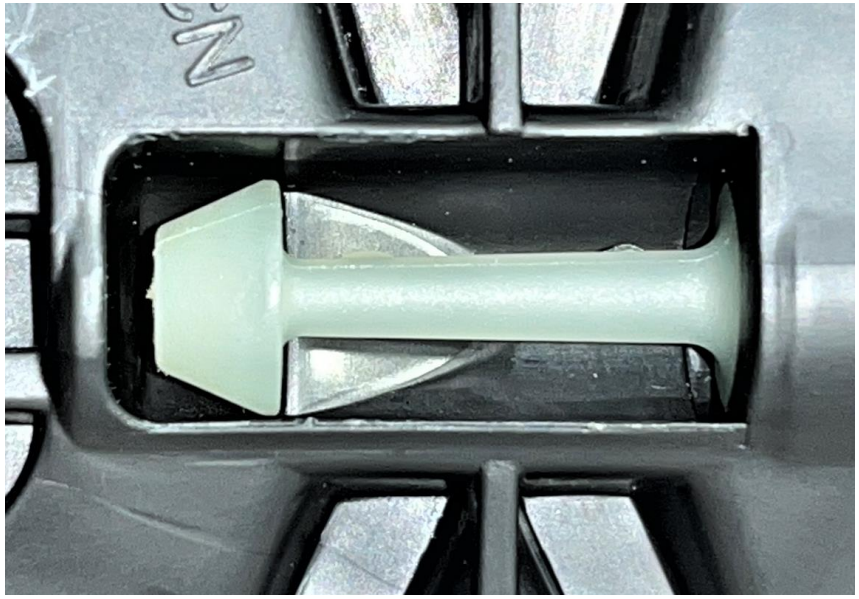
Main References:

--- FULLY Engaged ---

--- NOT FULLY Engaged ---

G45 HVAC: UPDATED MIXING FLAP 5B INSTRUCTIONS

Reference Picture: **B**- Fully Engaged vs NOT Fully Engaged



OK

FULLY ENGAGED

Pin/Linkage Mushroom Head Completely Over Ramp on Flap!

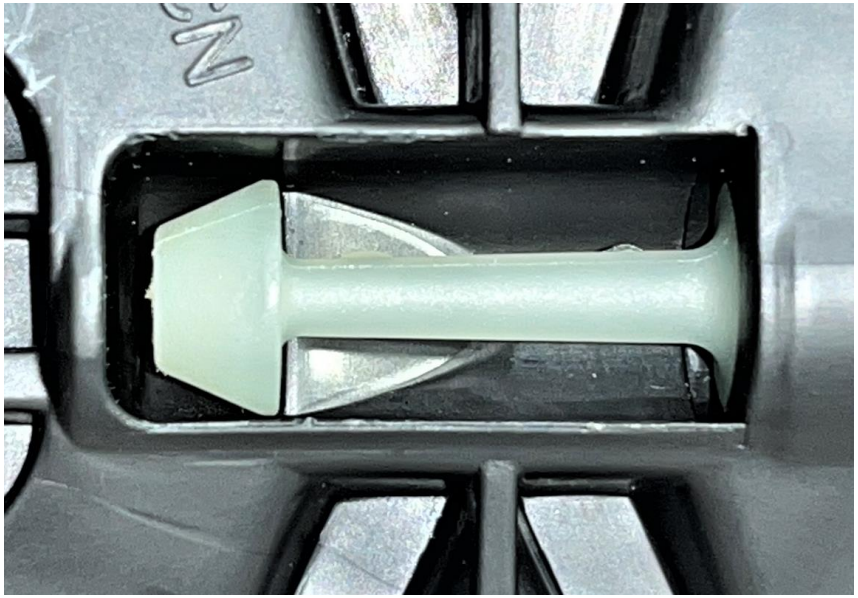
NOK!

Barely short of FULL engagement!

Pin/Linkage Mushroom Head NOT Completely Over Ramp on Flap!

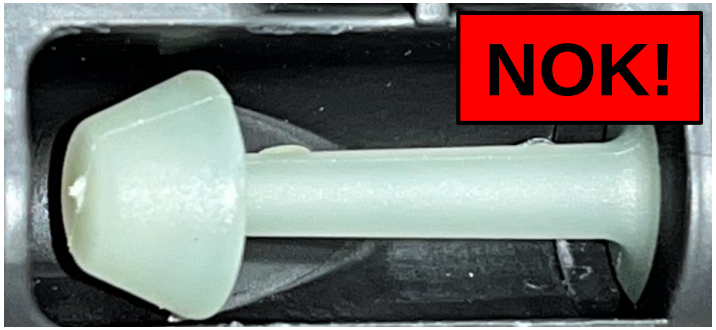
G45 HVAC: UPDATED MIXING FLAP 5B INSTRUCTIONS

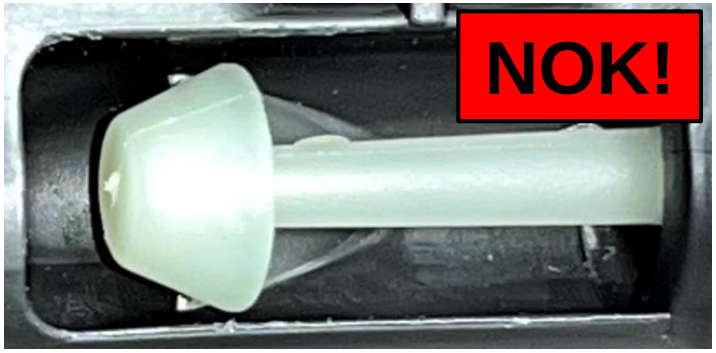
Reference Picture: **C-** Fully Engaged vs NOT Fully Engaged



FULLY ENGAGED

Pin/Linkage Mushroom Head Completely Over Ramp on Flap!





Short of FULL engagement!

Pin/Linkage Mushroom Head NOT Completely Over Ramp on Flap!

STEP #8 (*Continued*):

- **Confirm FULL Engagement (Visually & by Manually Pulling)!**

8B) Then, manually pull on the fully seated pin/linkage (detailed in step #1B/#1C above).

You should be able to pull fairly hard if the connection is completely engaged and secure.
If not fully engaged, you will be able pull it out again with only low to medium force (vs high force).
See low force video: *BV640925 Linkage NOT fully engaged appears ok Actually NOK.MOV*
See low force video: *BV641025 Linkage NOT fully engaged appears ok Actually NOK.MOV*
See High force video: *BV641125 Hard to pull out once fully engaged OK.MOV*

Note: Partial engagement already has some tension which may give the feeling of FULL engagement even if NOT FULLY engaged! When, not completely engaged, **the function could even be ok for several cycles/rotations before it will eventually fail again**. **This is why you must be certain!**

G45 HVAC: UPDATED MIXING FLAP 5B INSTRUCTIONS

STEP #9:

- **Test Cycle Flap Function 30 times & Re-check Engagement!**

A) Reinstall **motor #11-M022** (previously removed for access).

B) Run the normal stepper motor calibration.

C) Test cycle (via ISTA) **motor #9-M83 (full cycle: 0% to 100%).**
This should be repeated 30 times since it may take several cycles to fail again!
NOTE: The failure only occurs if pin/linkage is not properly/fully engaged to the flap!

D) Reconfirm once again that linkage is still fully engaged.
This should be done visually (with boroscope or mirror) and manually (wiggle and pull pin/linkage by hand).
Both methods are detailed in steps #8A/8B and #1B/1C above!

If not fully engaged, you will be able pull it out again with only low to medium force (vs high force).
See low force video: *BV640925 Linkage NOT fully engaged appears ok Actually NOK.MOV*
See low force video: *BV641025 Linkage NOT fully engaged appears ok Actually NOK.MOV*
See High force video: *BV641125 Hard to pull out once fully engaged OK.MOV*

G45 HVAC: UPDATED MIXING FLAP 5B INSTRUCTIONS

STEP #10:

- **Carefully reinstall all parts!**

If all checks are OK, reinstall IP cover and all other components.