



SIB 64 05 25

HVAC FLAP LINKAGE NOT FULLY CONNECTED

2025-11-14

This Service Information Bulletin (Revision 9) replaces SI B64 05 25 **dated October 2025**.

What's New:

- Claim Information updated- repair code changed

<input checked="" type="checkbox"/>	THIS REPAIR IS MOBILE FRIENDLY
<input type="checkbox"/>	THIS REPAIR IS REMOTE SOFTWARE UPGRADE (RSU) FRIENDLY

SITUATION

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

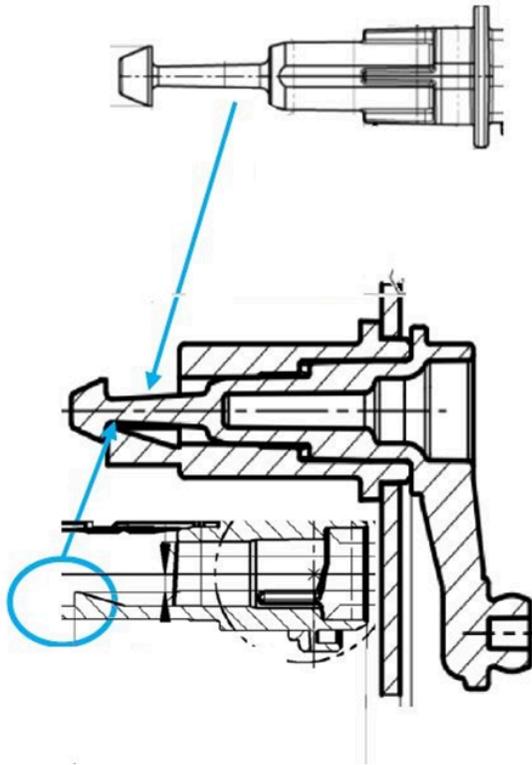
2- Check that the linkage has not come loose from the flap in the heating, ventilation, and air conditioning (HVAC) system.

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, refer to **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.

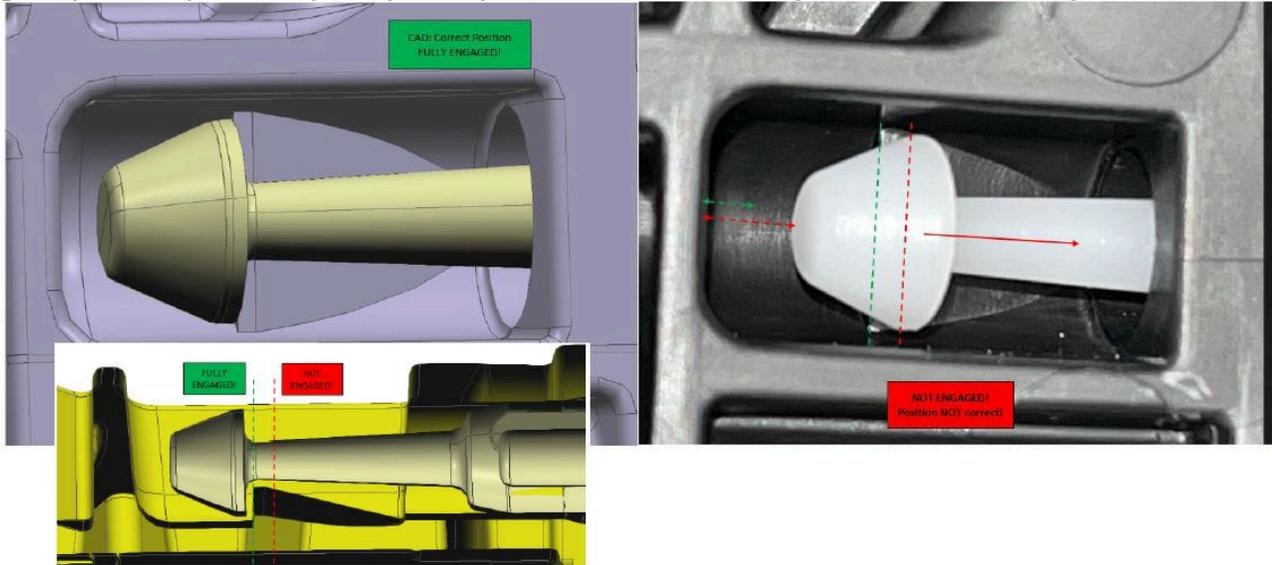
This can occur to ANY of the flaps in the HVAC system.

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 plastic

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



PROCEDURE

- 1- Check the wiring between the 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.

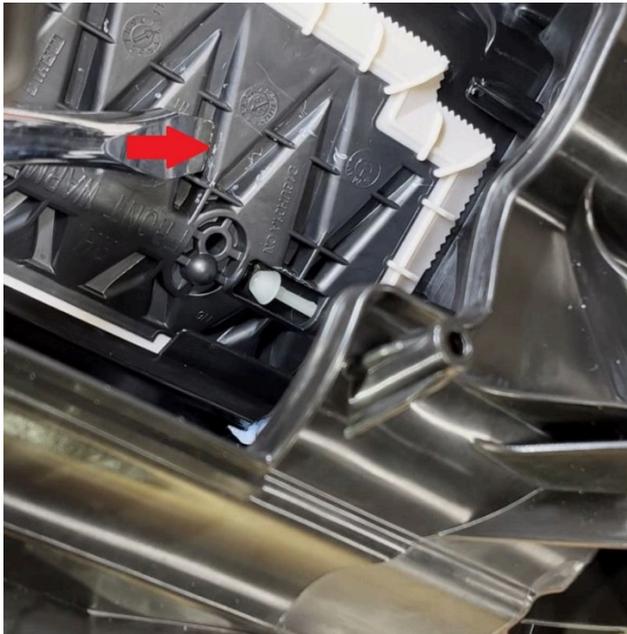
The linkage connection to the right front mixed air flap (5B) is the one we have found loose on most vehicles. For specific instructions on how to fix this flap see **Attachment B64 05 25 RF Mix Flap**

For an overview of the 5B flap repair, refer to video [BV641225 Flap 5B Repair overview.mp4](#)

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 location of where to position the screwdriver tip (arrow) is shown in the 5B flap repair, refer to video BV641225 Flap 5B Repair overview.mp4**

The flap and linkage may be out of alignment 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.

Claim-related line item's Repair Code.

Repair Code:	6411693700	Stratification/ventilation flap, heater/heat exchanger Loose
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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.

Labor Operation	Description	Labor Allowance
00 00 006	Carrying out vehicle test (Main work)	As applicable
Or:		
00 00 556	Carrying out vehicle test (Plusposition work)	As applicable
And:		
61 21 528	Supporting voltage of the vehicle electrical system /	As applicable

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And, as needed:		
61 00 006*	Carrying out vehicle diagnosis, ABL (Work time)	WT FRU
Or:		
00 58 500*	Diagnosis Worktime Flat Rate	2 FRU
And:		
51 45 551	Replace (For access only) dashboard trim, upper section Plusposition	As applicable
And:		
Refer to AIR	Additional related access and repair work	As applicable

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

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

(*) Based on which one applies to your center, please refer to **SI B01 01 20** or **B01 07 20** for the applicable procedure for documenting, claiming, and explaining, on the RO and in the claim comments, your diagnosis 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

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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](#)

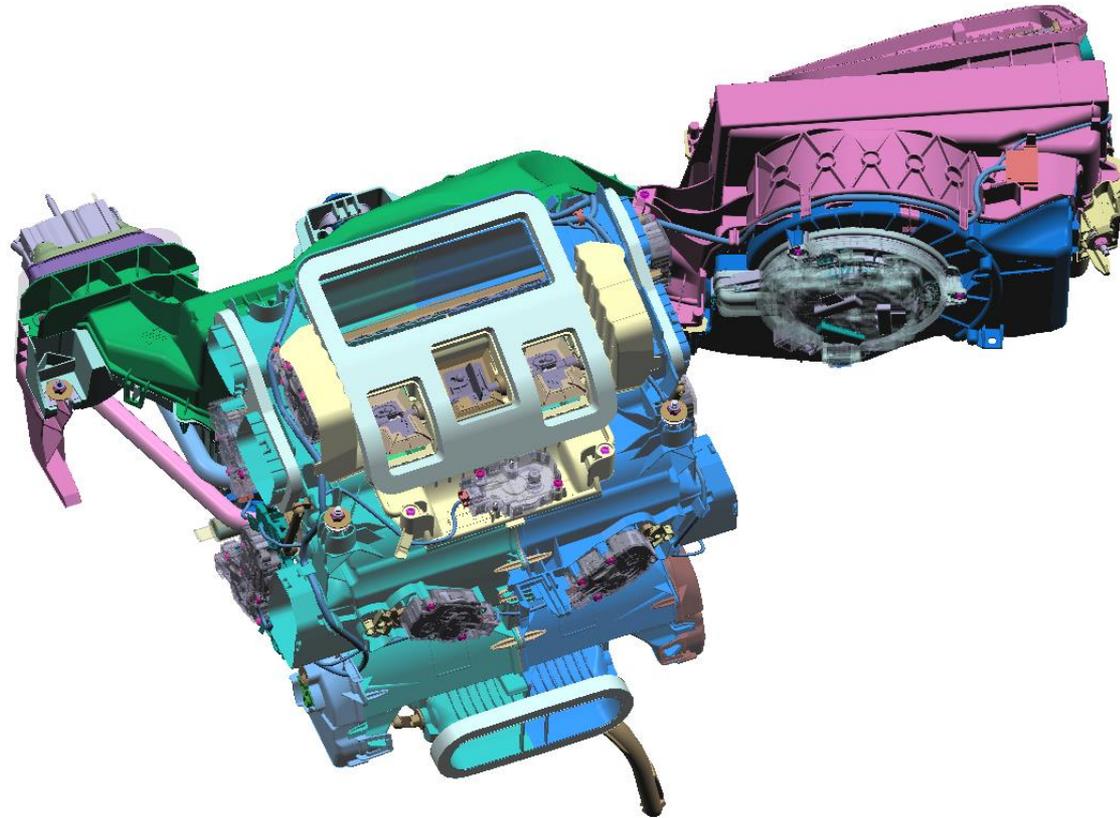
Videos

- [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](#)
- [64 12 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.

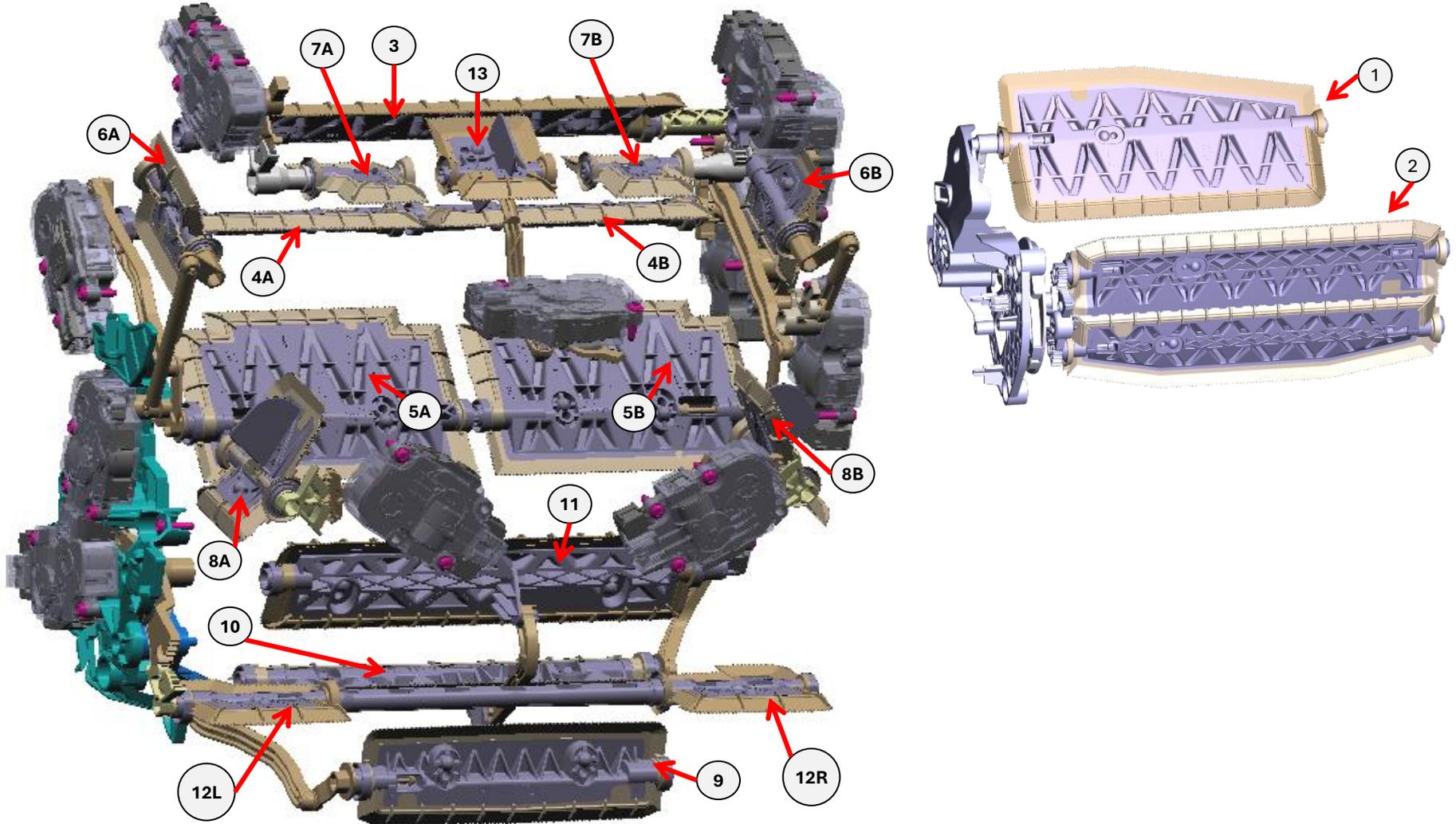
OVERVIEW: Air Vent Flaps/Kinematic & Stepper Motor Control Chart

AIR VENT <u>FLAPS</u>			STEPPER MOTOR CONTROL INFORMATION		
Vent Flap #	Vent <u>Flap</u> Description	Vent Flap Visibility (<u>for push pin</u>)	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: Boroscope through open Flap #3	2	▶ M 23 (Shared)	Front Temperature Mixing LEFT
4 B	Front Cold Temp. Mixing Flap RIGHT	Difficult: Boroscope through open Flap #3	9	M 83 (Shared) ←	Front Temperature Mixing RIGHT
5 A	Front <u>Warm</u> Temp. Mixing Flap LEFT	Difficult: Boroscope through open Flaps #7	2	▶ M 23 (Shared)	Front Temperature Mixing LEFT
5 B	Front <u>Warm</u> Temp. Mixing Flap RIGHT	Difficult: Boroscope 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: Boroscope 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.

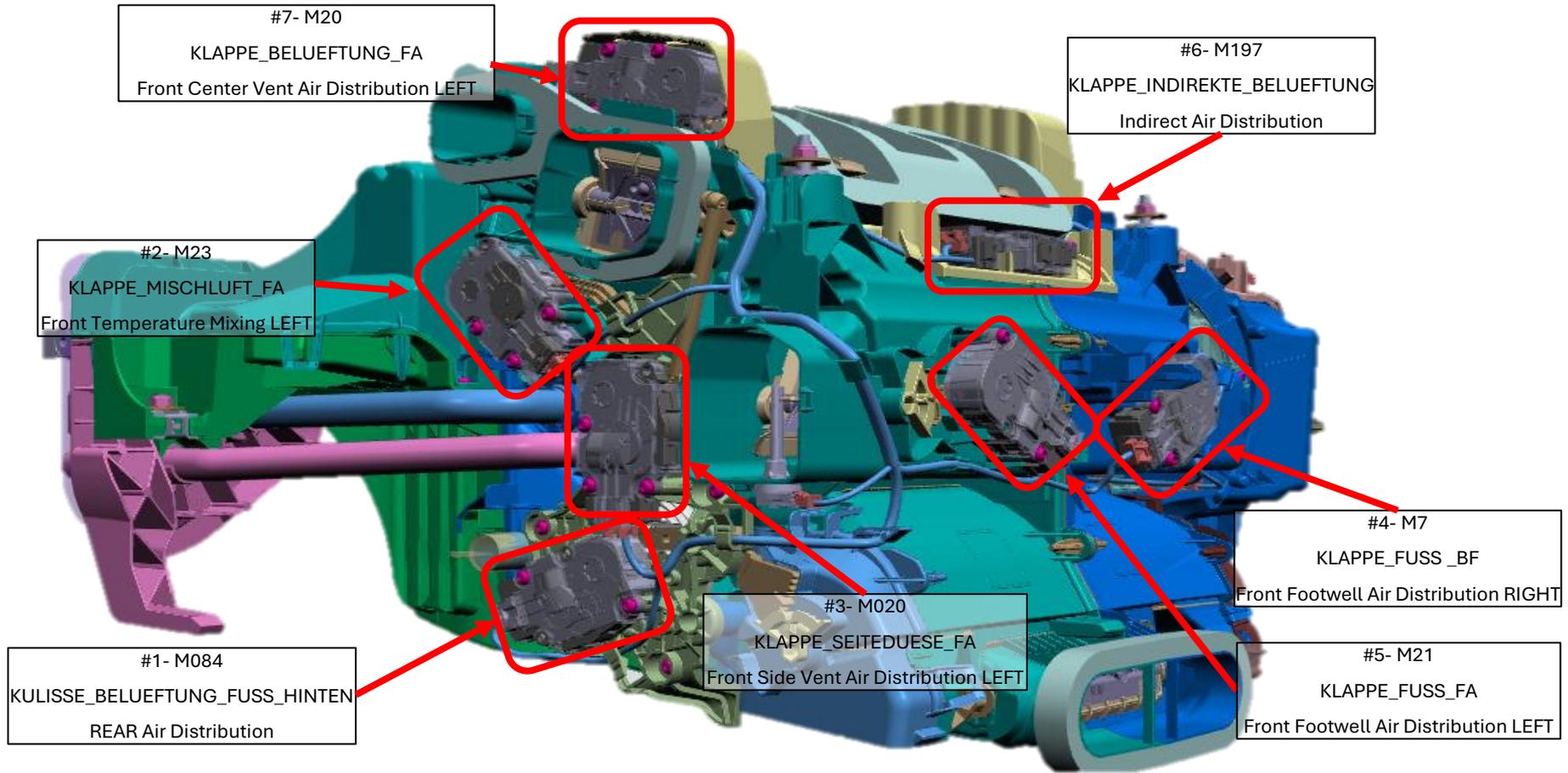
G45 HVAC: Air Vent Flaps/Kinematic & Stepper Motor Master Info.

FLAPS / Kinematic Diagram Details (Overview)



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

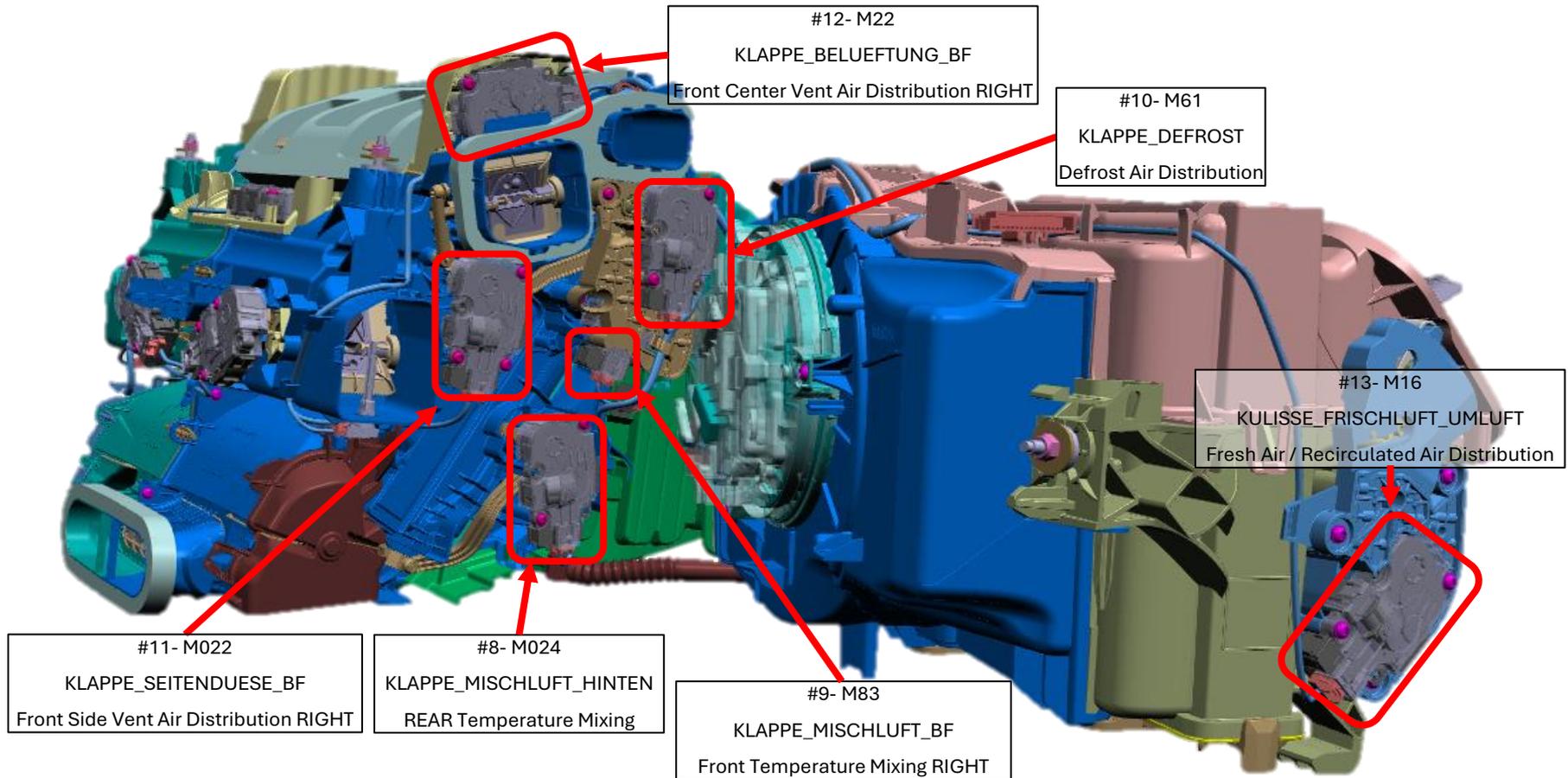
Stepper Motor Control Locations Diagram (OVERVIEW)



(LHD: Left Side VIEW)

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

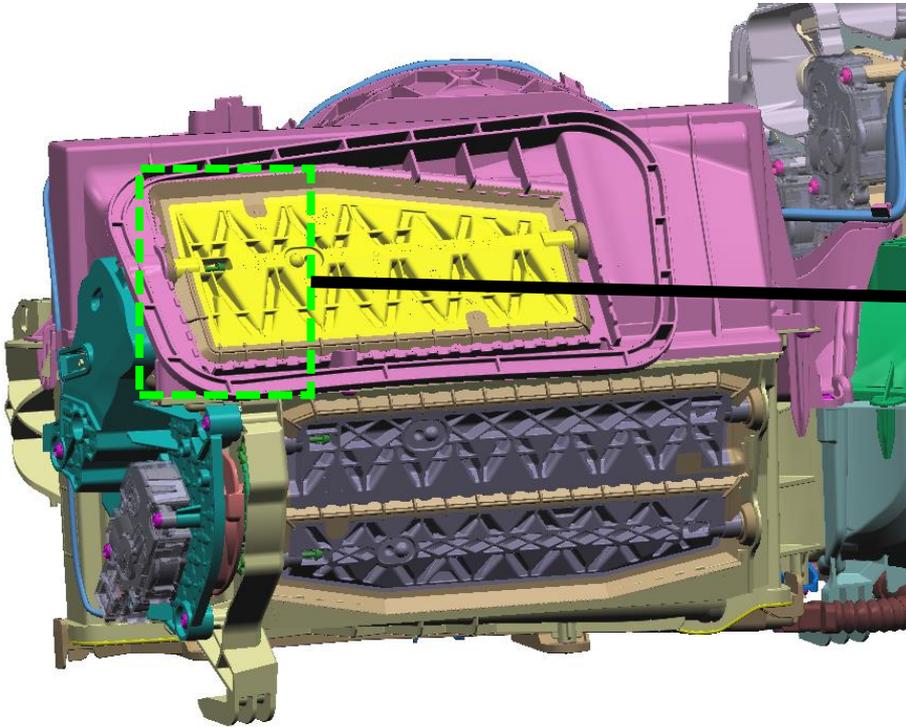
Stepper Motor Control Locations Diagram (OVERVIEW)



(LHD: Right Side VIEW)

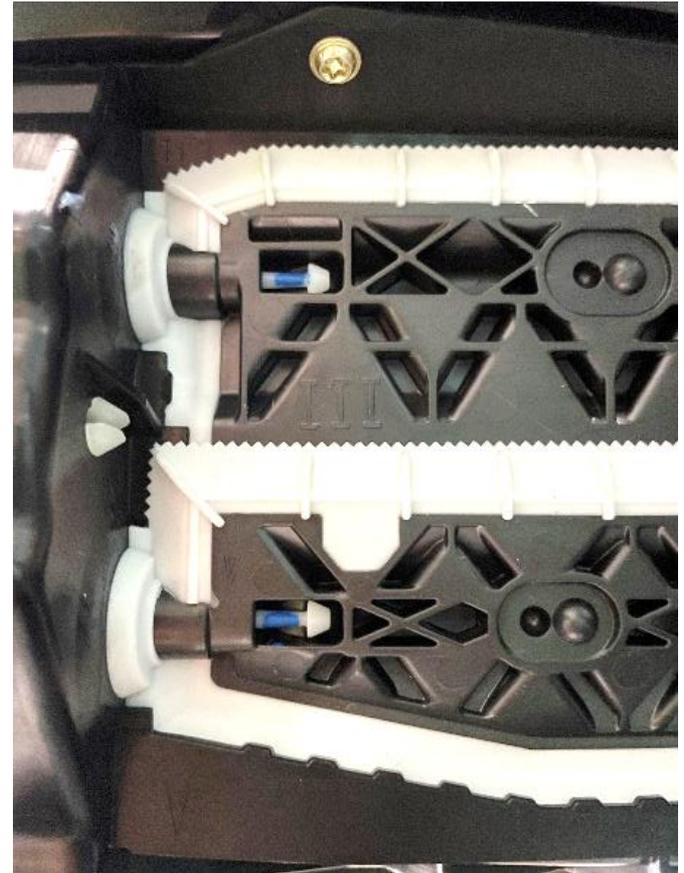
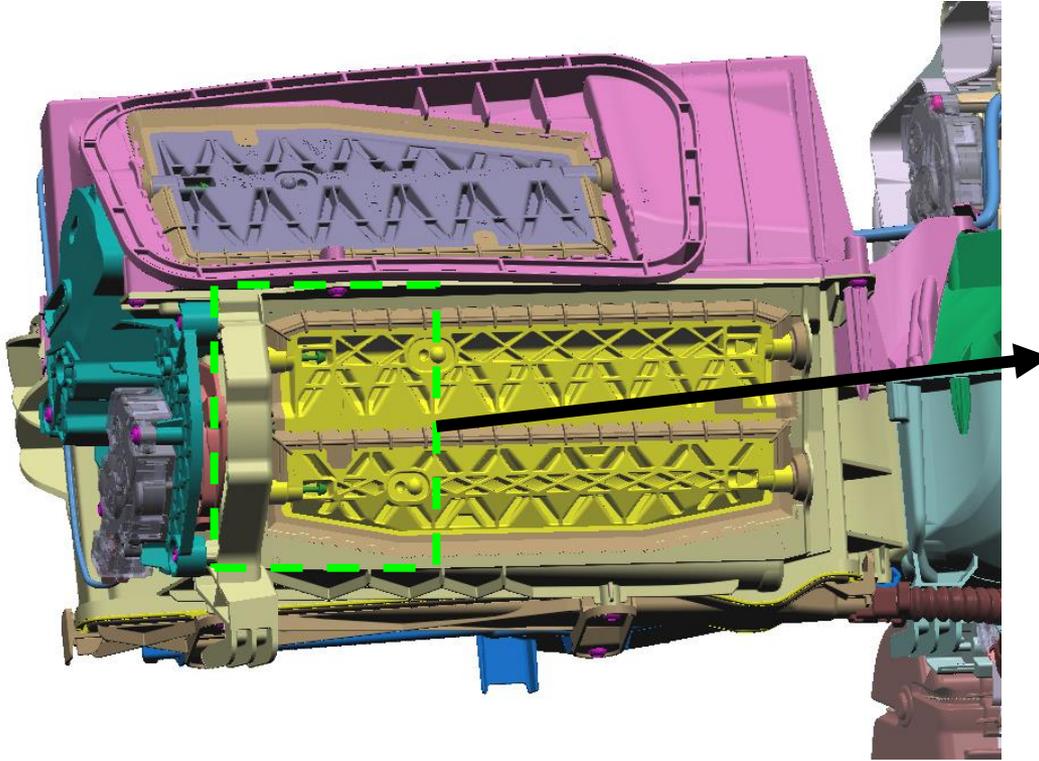
G45 HVAC: Air Vent Flaps/Kinematic & Stepper Motor Master Info.

FLAP #1: Fresh Air Flap



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

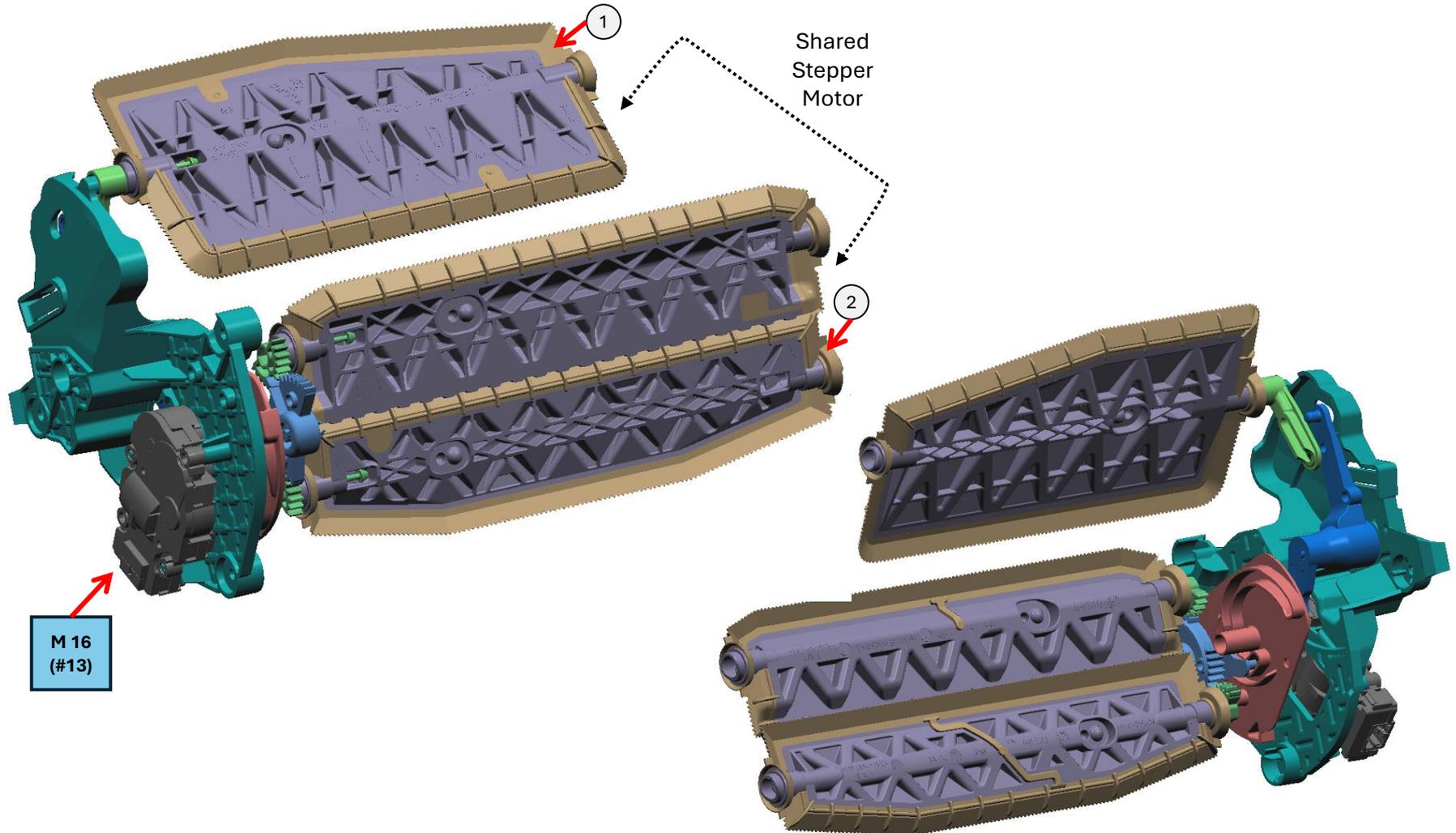
FLAP #2: Recirculated Air Flaps x2 (connected)



TWO Push Pins!

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

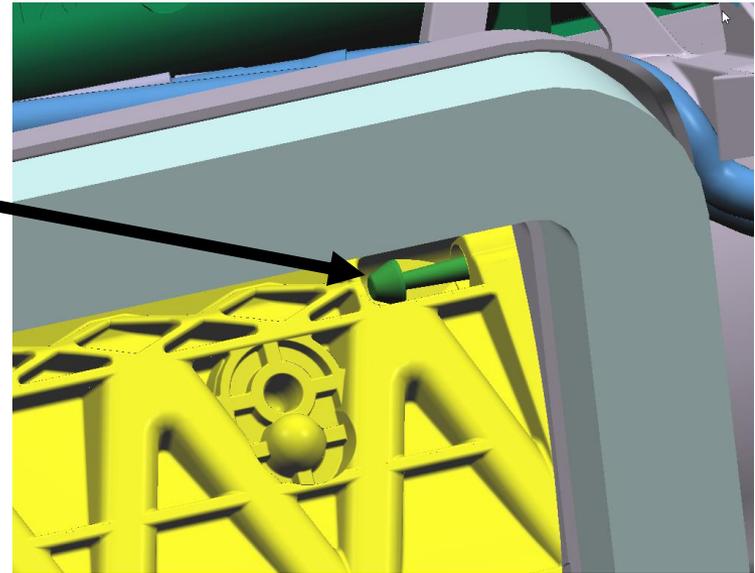
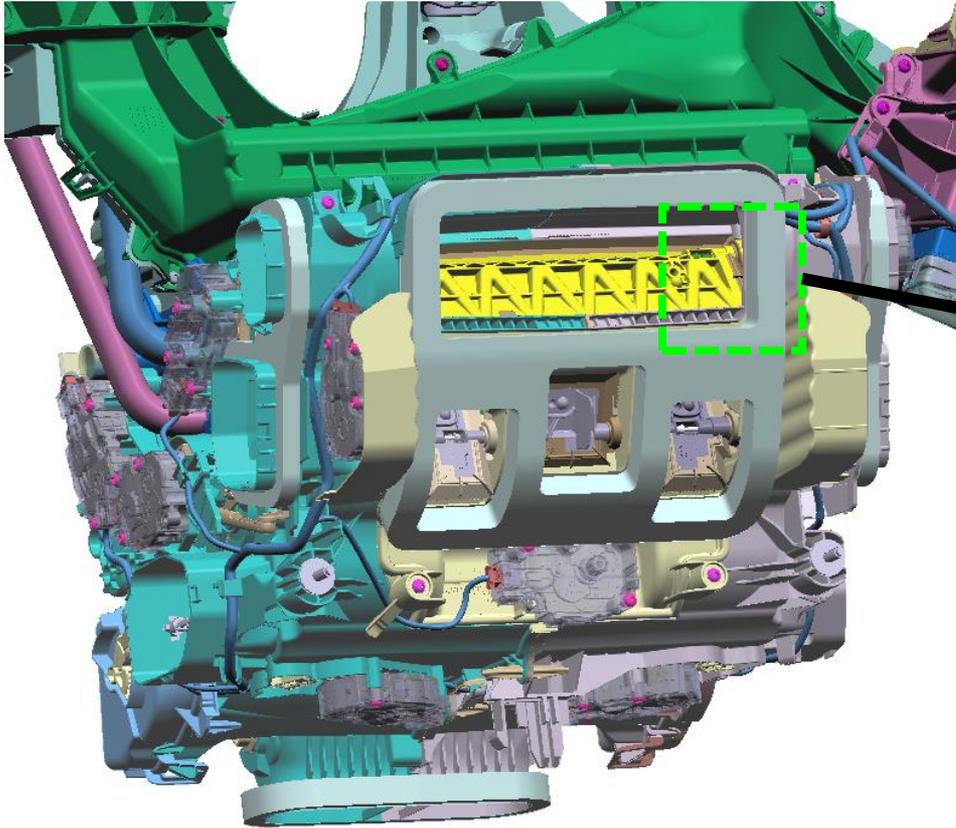
FLAP #1 & FLAP #2 Complete Kinematics Overview



M 16
(#13)

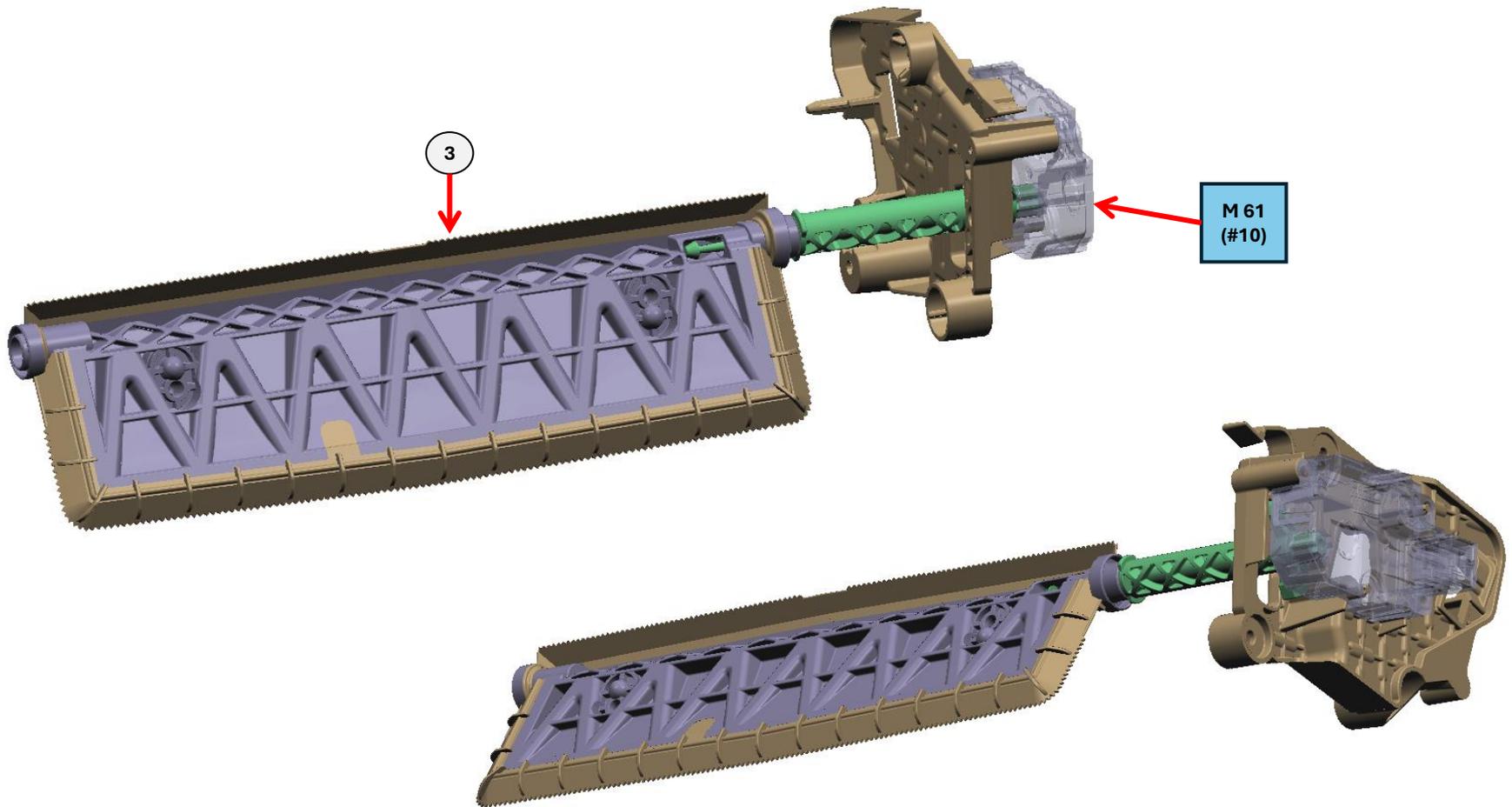
G45 HVAC: Air Vent Flaps/Kinematic & Stepper Motor Master Info.

FLAP #3: Defrost Air Flap



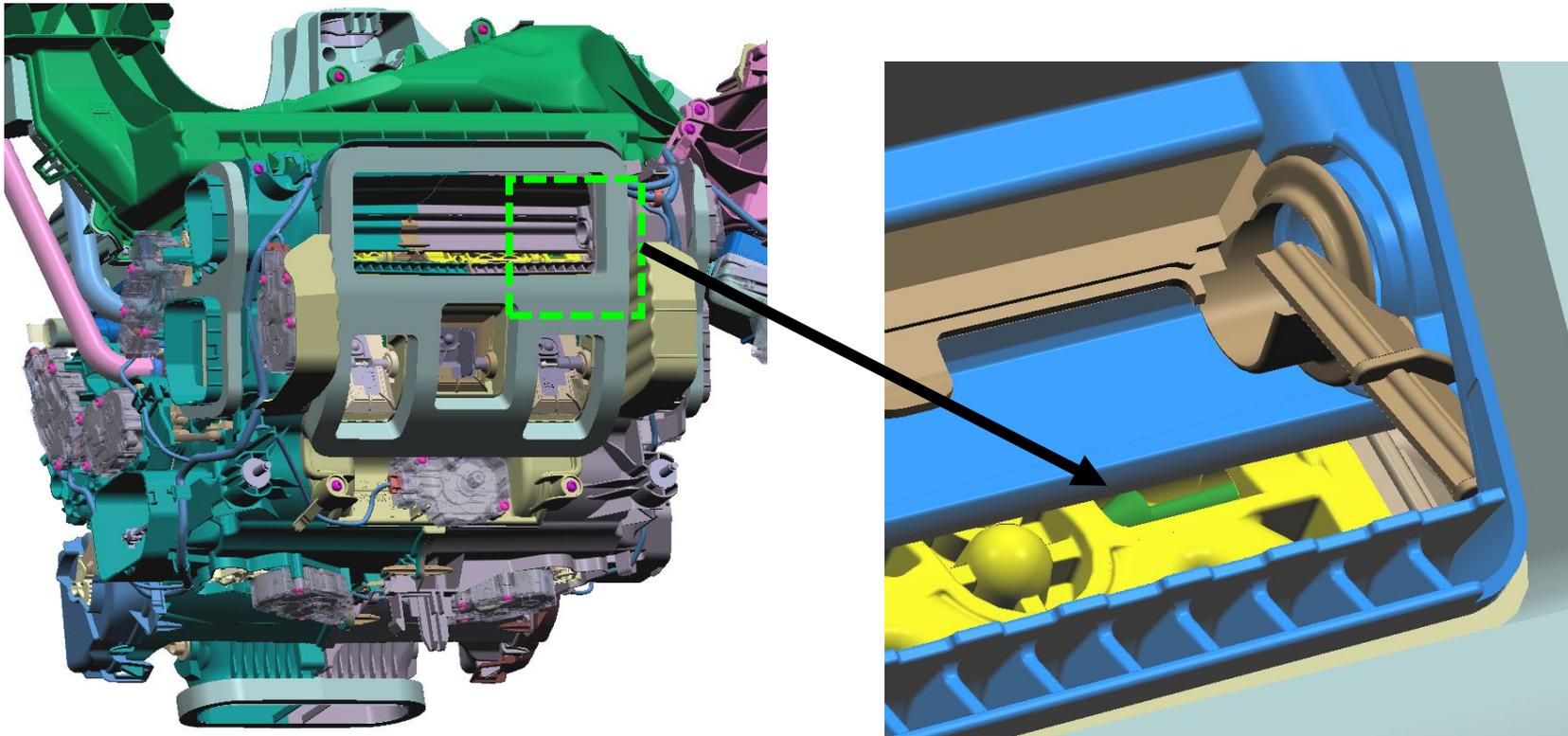
G45 HVAC: Air Vent Flaps/Kinematic & Stepper Motor Master Info.

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)

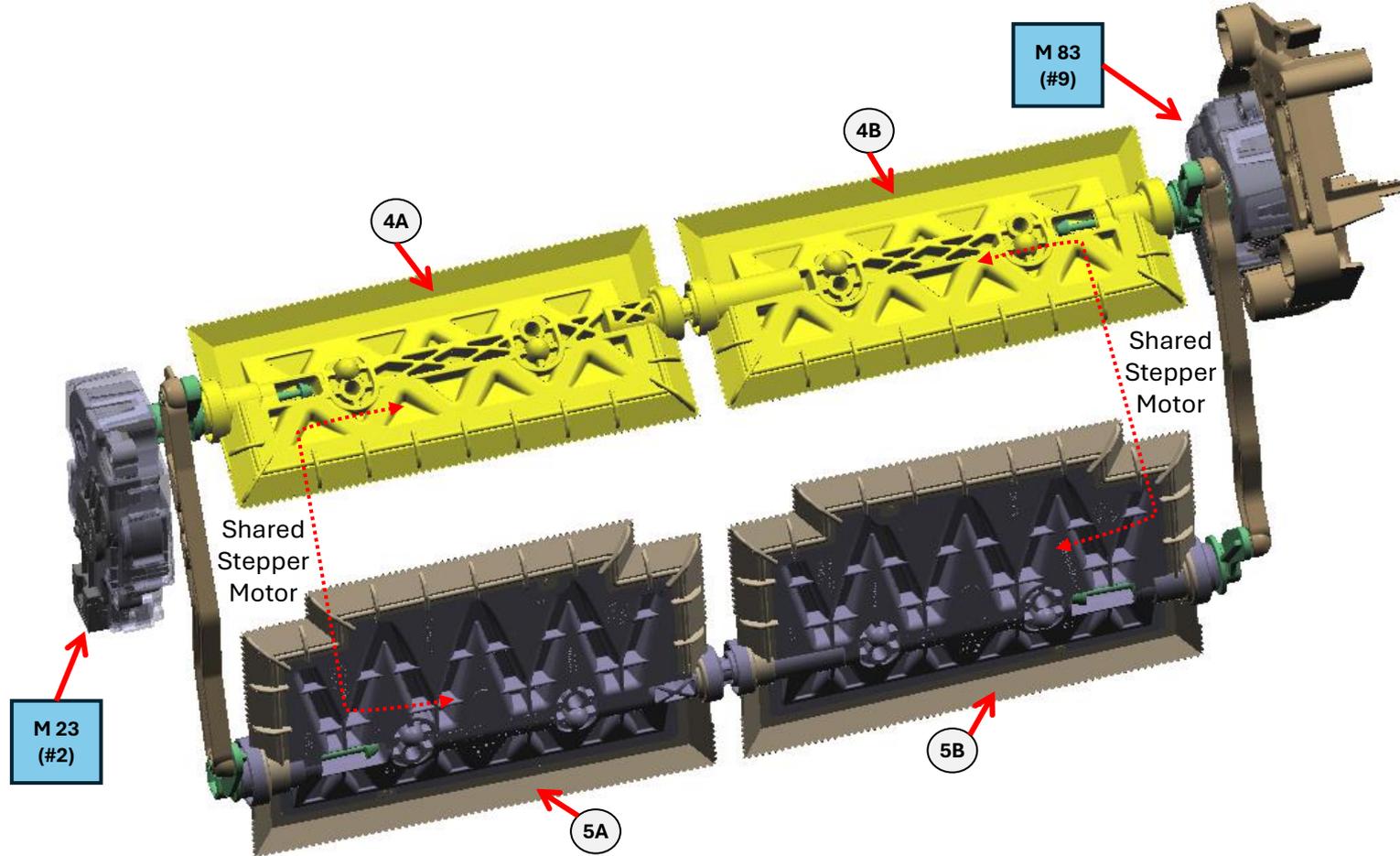


4B shown. #3 Defrost Air Flap removed from CAD image for easier visibility

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

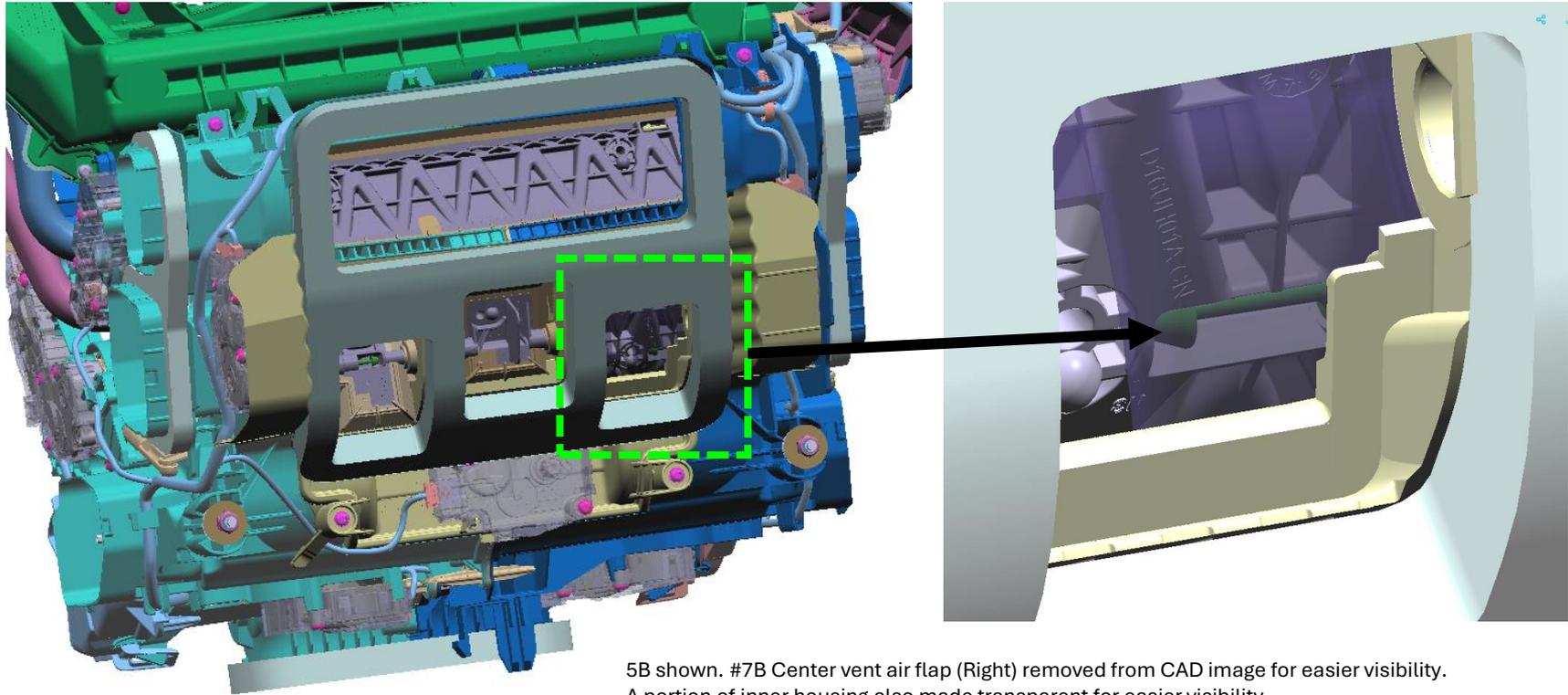
G45 HVAC: Air Vent Flaps/Kinematic & Stepper Motor Master Info.

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)

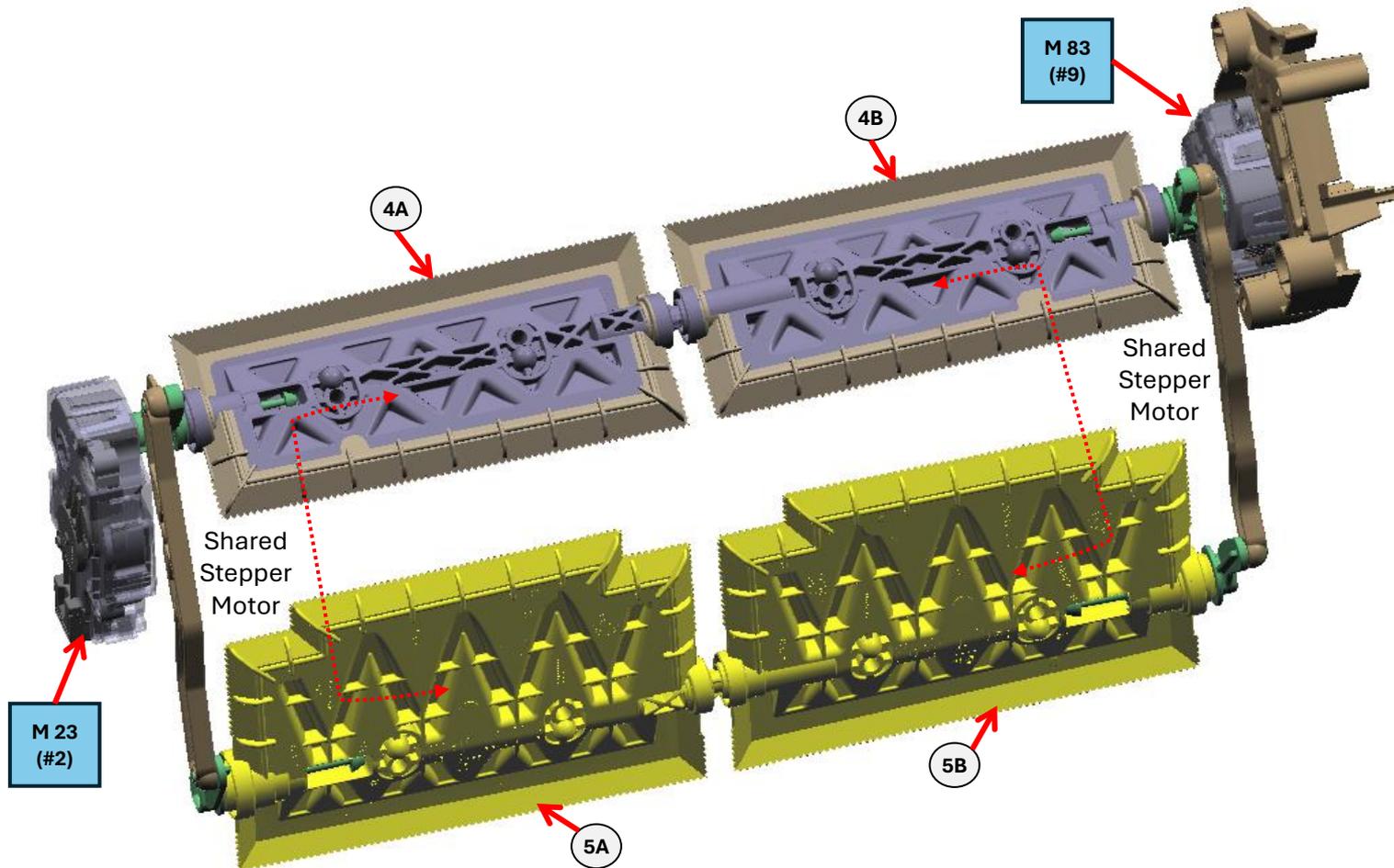


5B shown. #7B Center vent air flap (Right) removed from CAD image for easier visibility.
A portion of inner housing also made transparent for easier visibility.

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

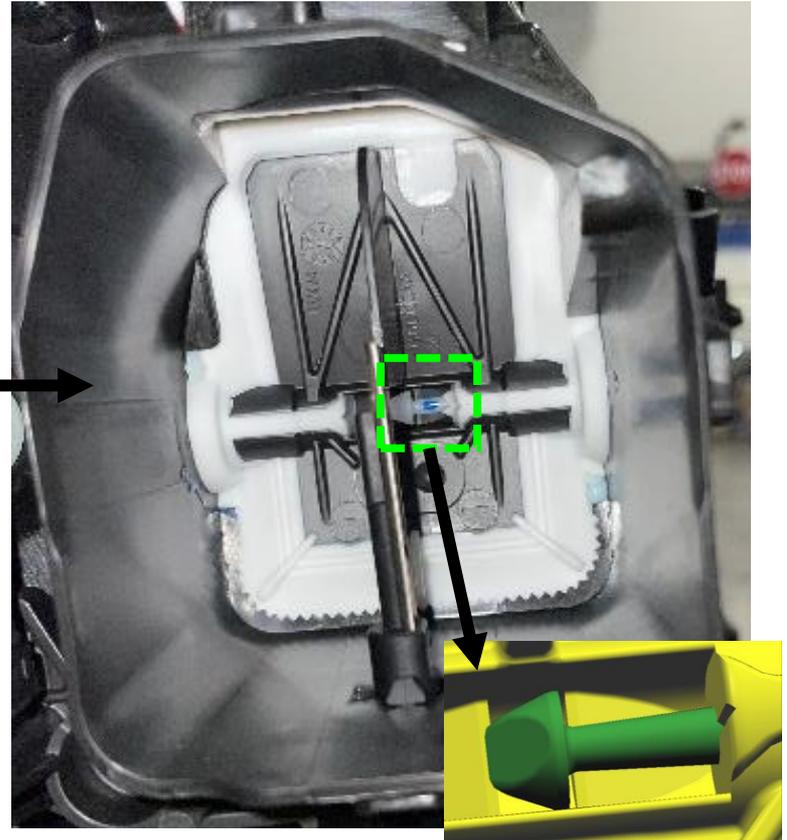
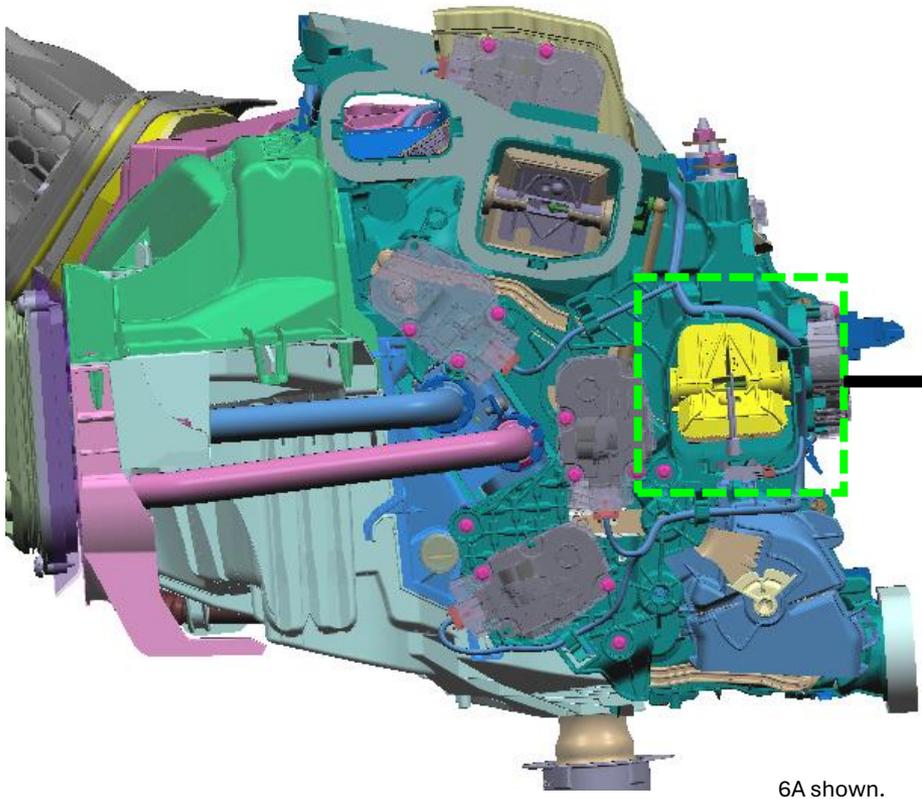
G45 HVAC: Air Vent Flaps/Kinematic & Stepper Motor Master Info.

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



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

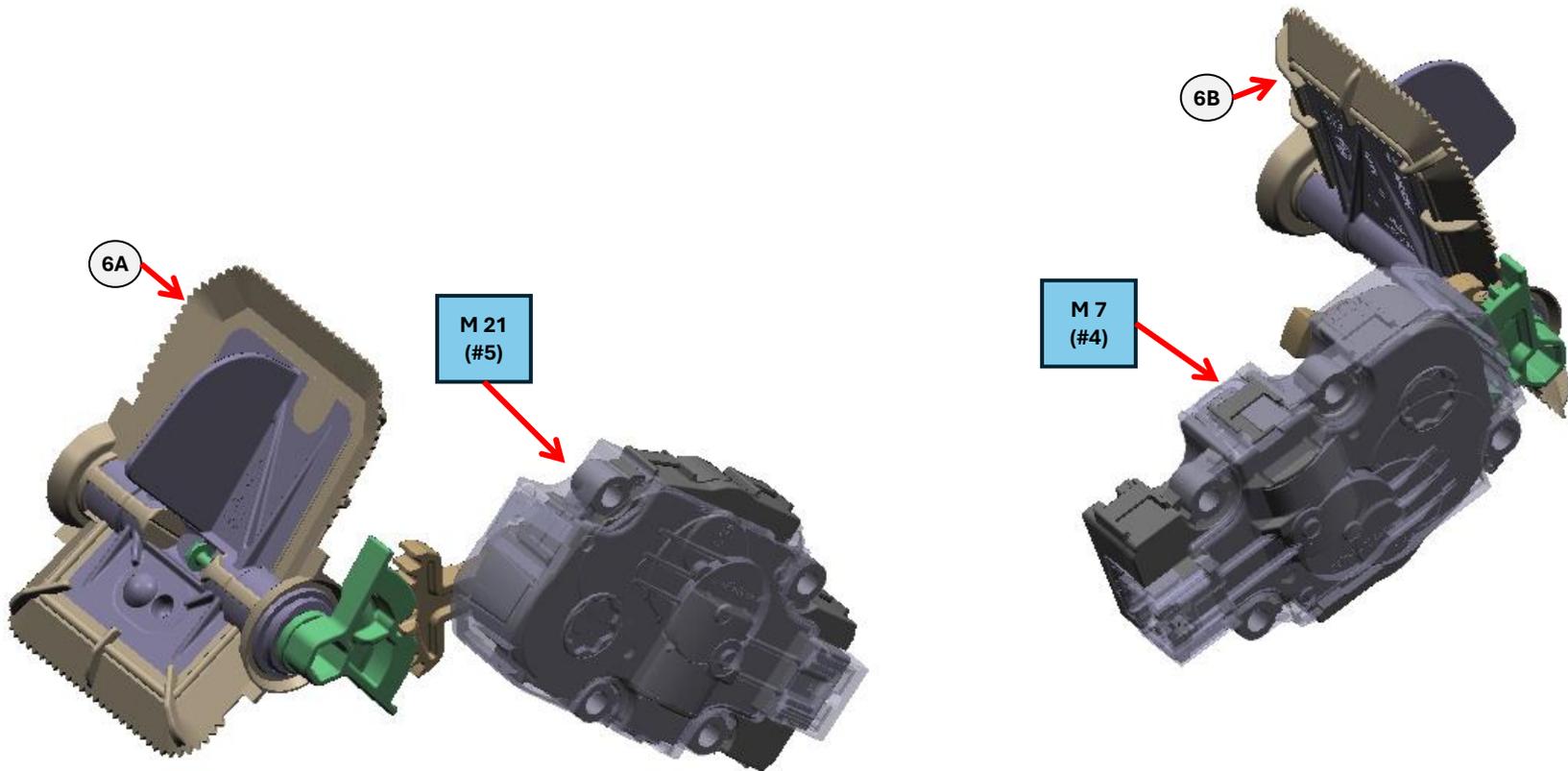
FLAP #6A/6B: Front Footwell Air Flap LEFT (Mirrored Left to Right)



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

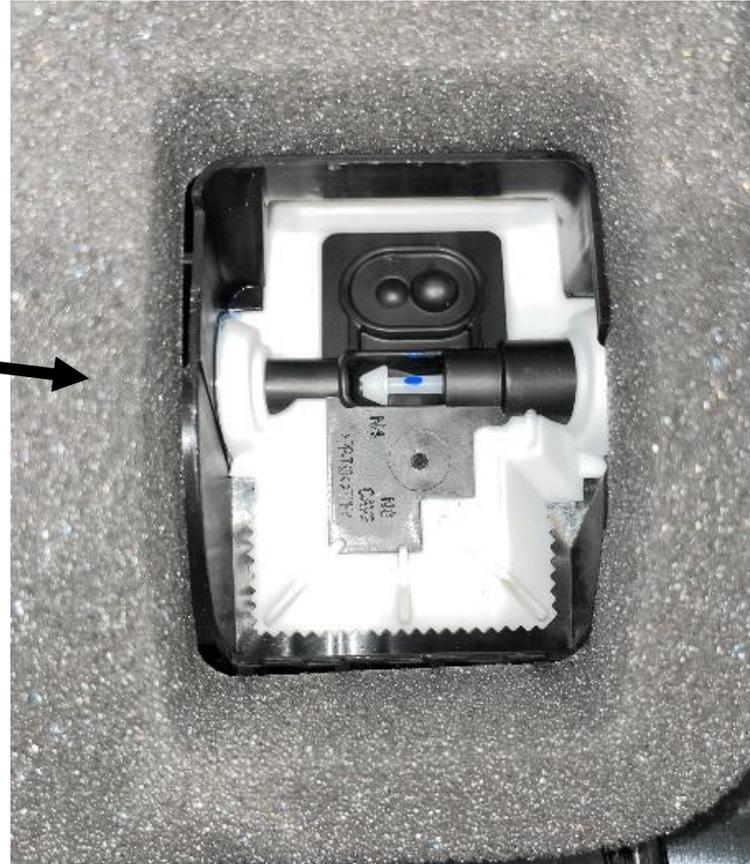


G45 HVAC: Air Vent Flaps/Kinematic & Stepper Motor Master Info.

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



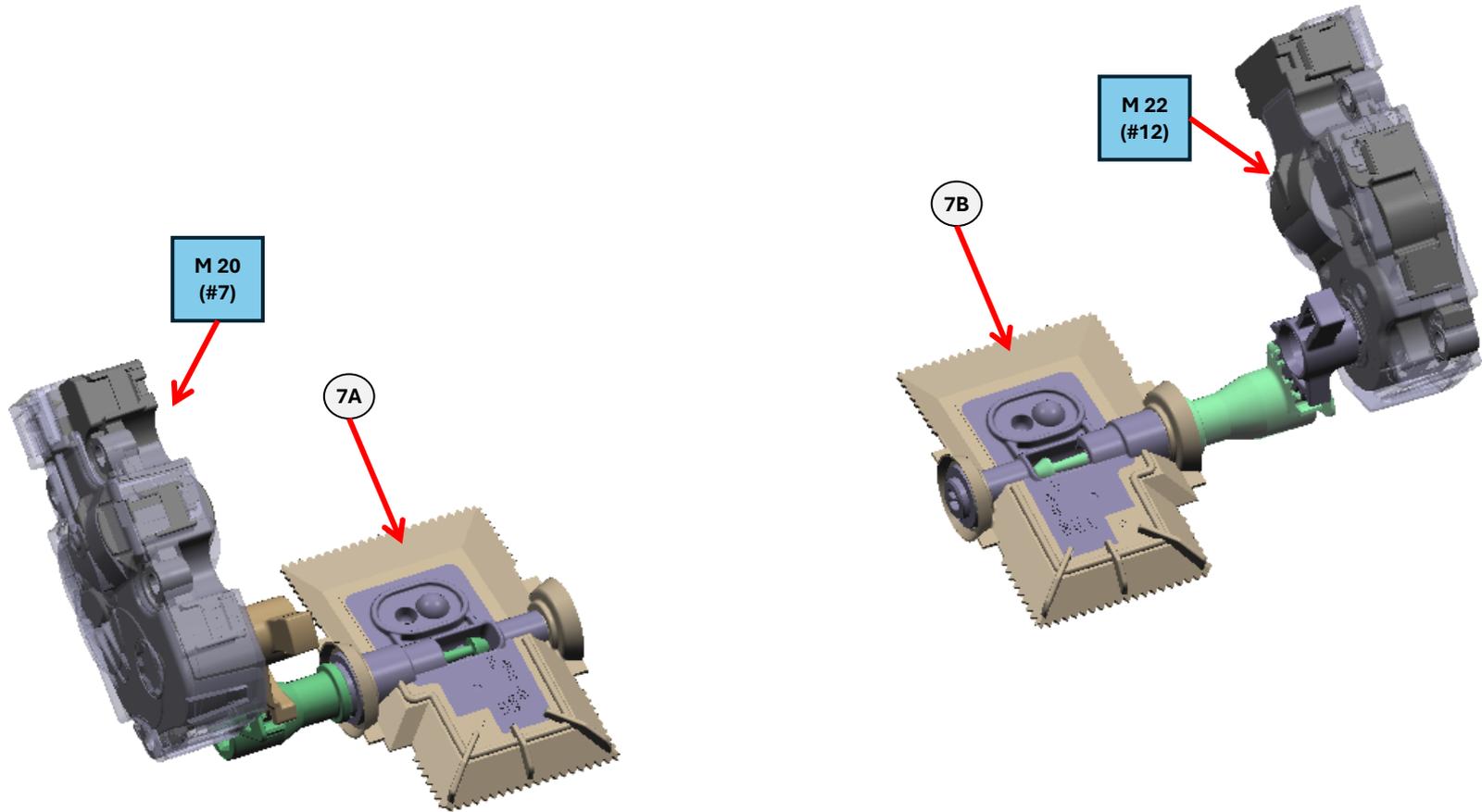
7B shown.



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

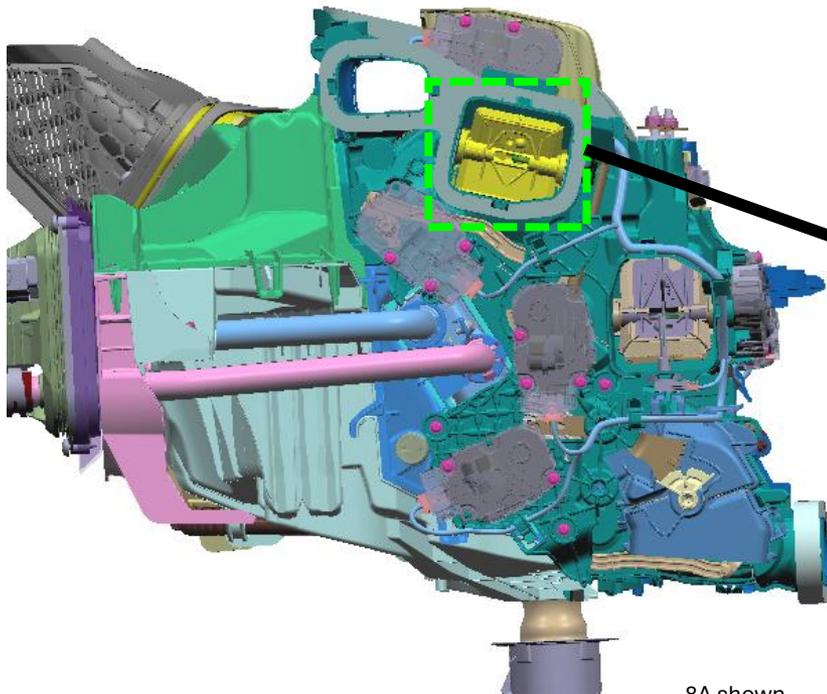
G45 HVAC: Air Vent Flaps/Kinematic & Stepper Motor Master Info.

FLAP #7A/7B FLAP Kinematics Overview

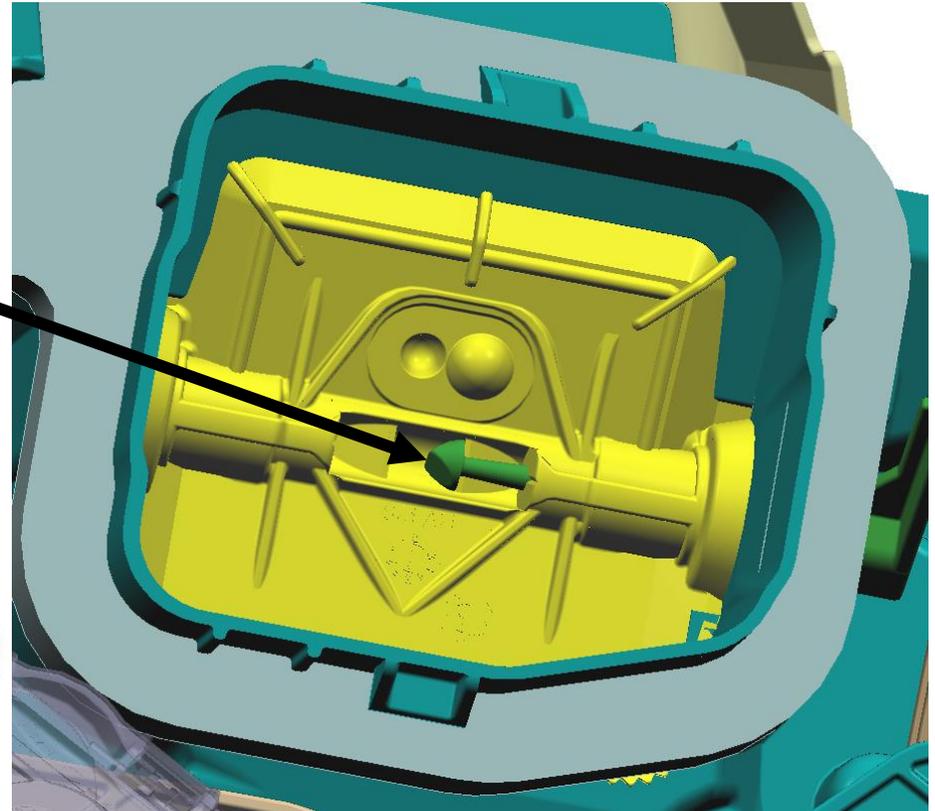


G45 HVAC: Air Vent Flaps/Kinematic & Stepper Motor Master Info.

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



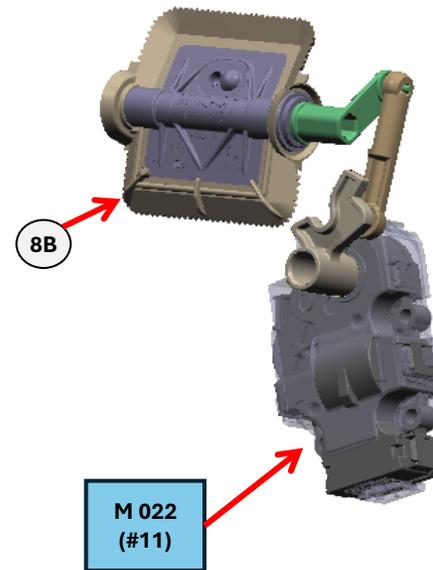
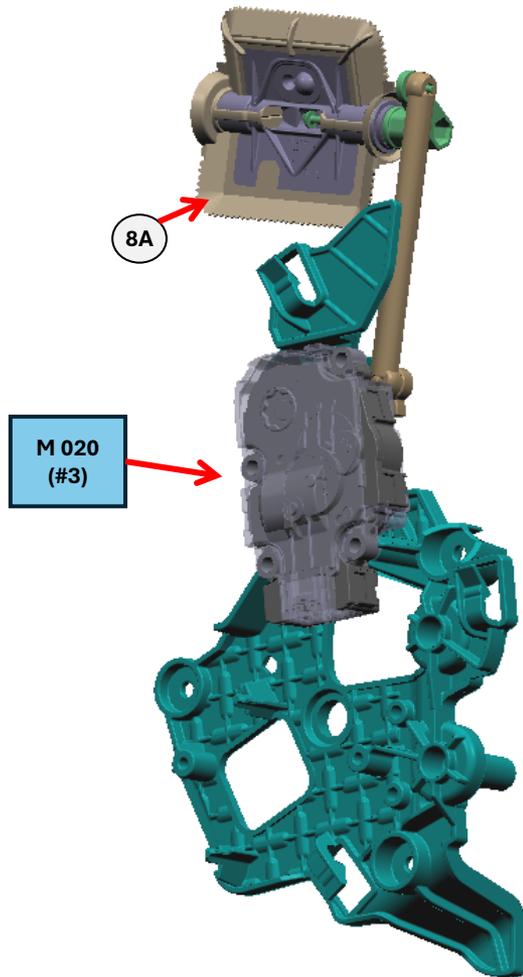
8A shown.



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

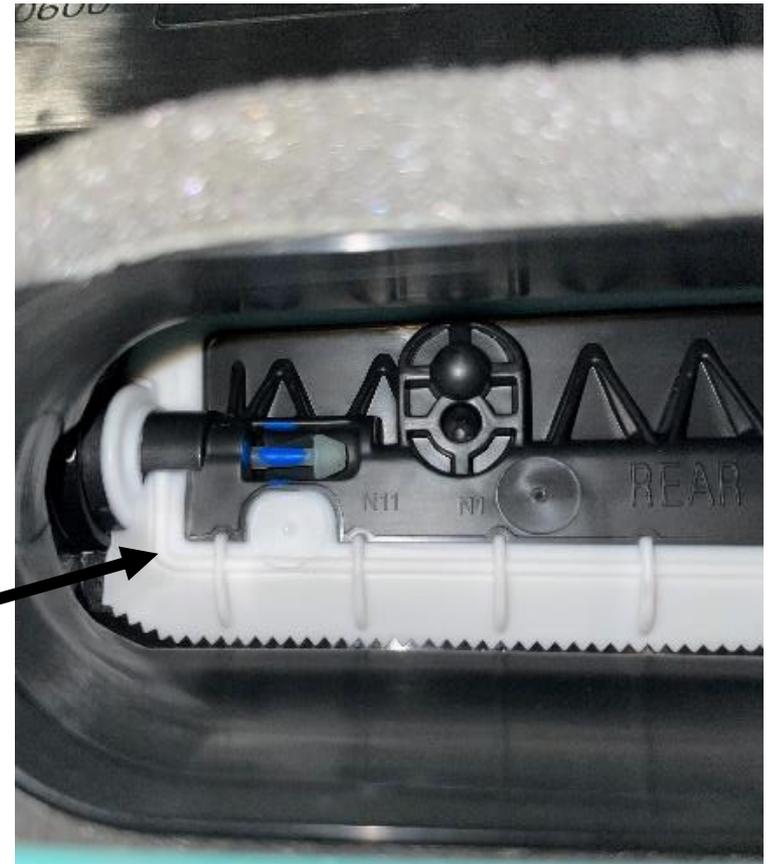
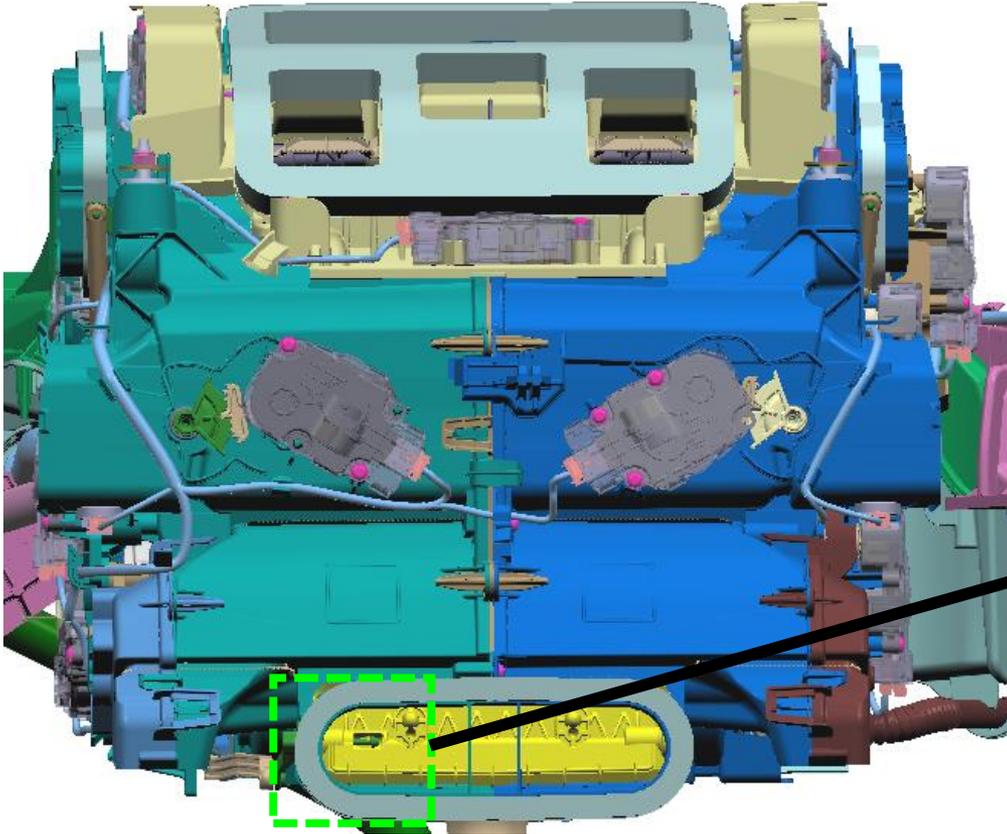
G45 HVAC: Air Vent Flaps/Kinematic & Stepper Motor Master Info.

FLAP #8A/8B FLAP Kinematics Overview



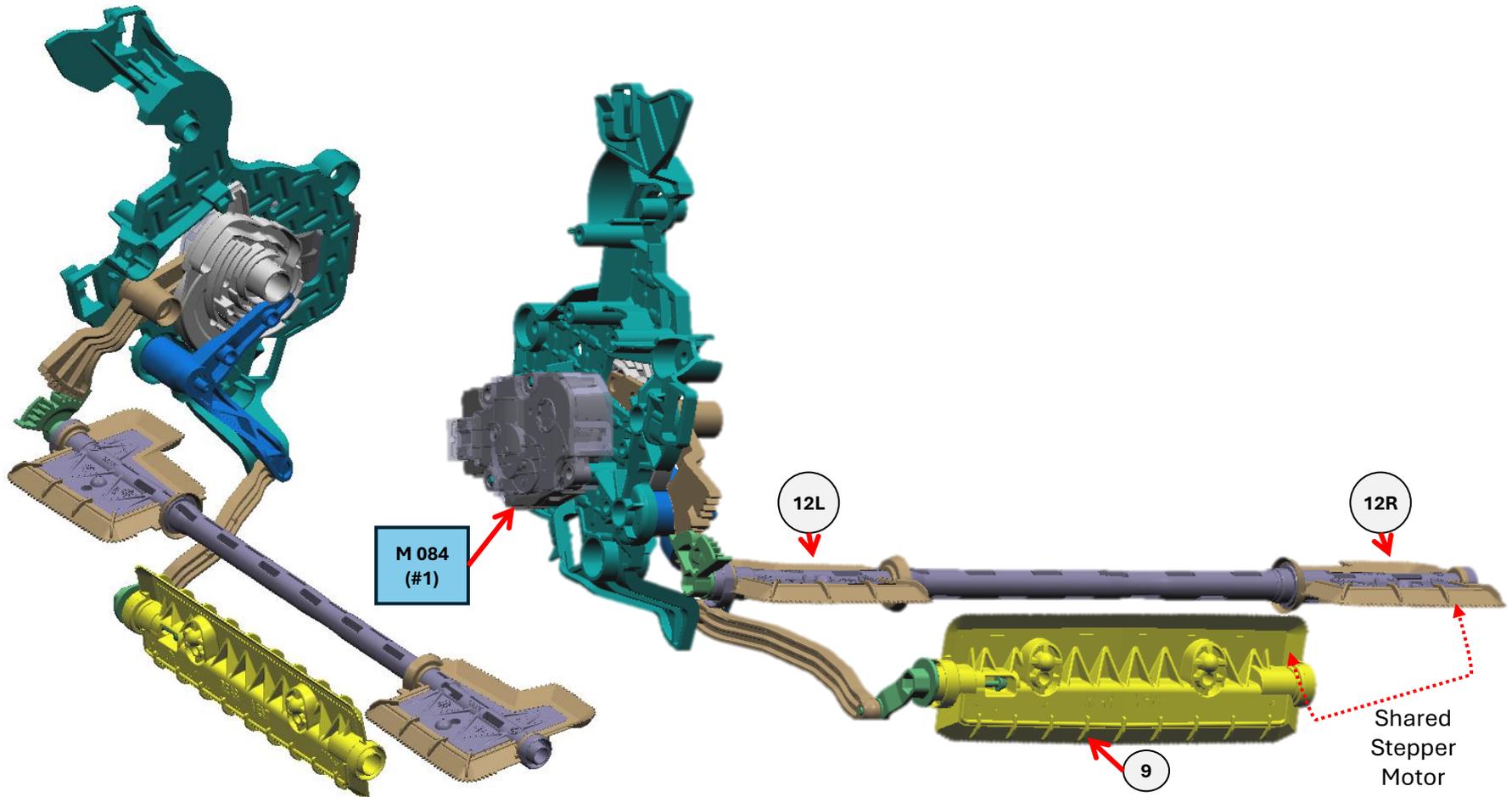
G45 HVAC: Air Vent Flaps/Kinematic & Stepper Motor Master Info.

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



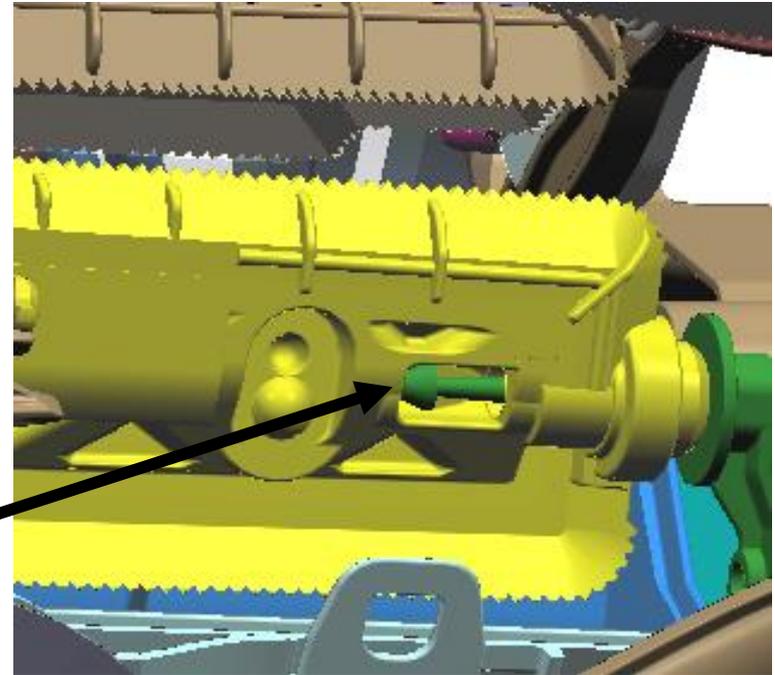
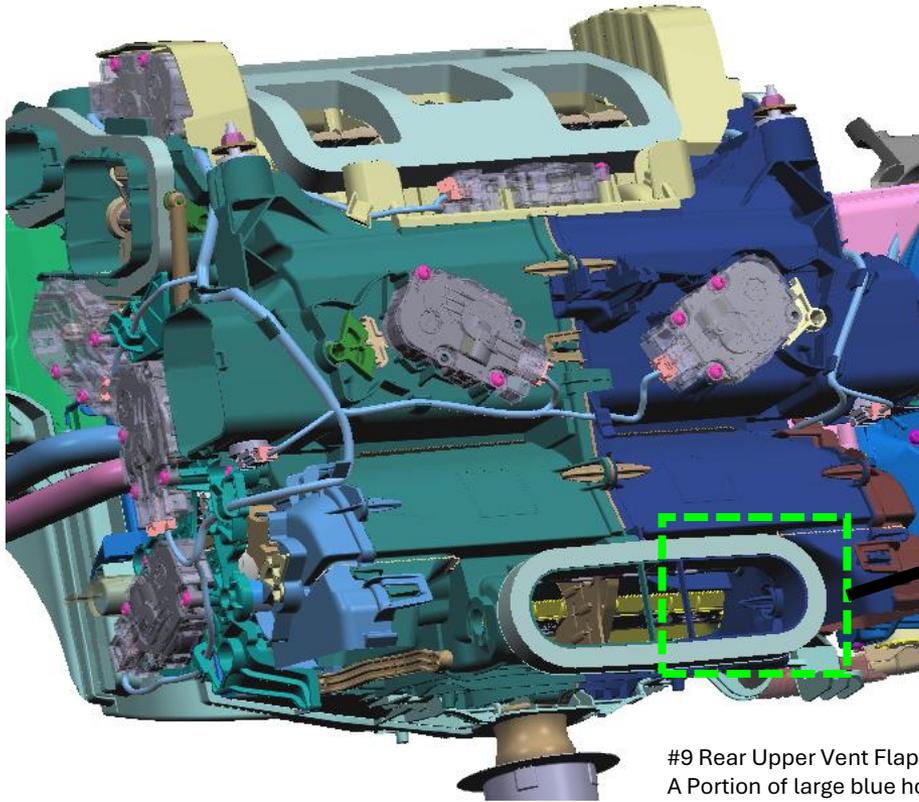
G45 HVAC: Air Vent Flaps/Kinematic & Stepper Motor Master Info.

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.

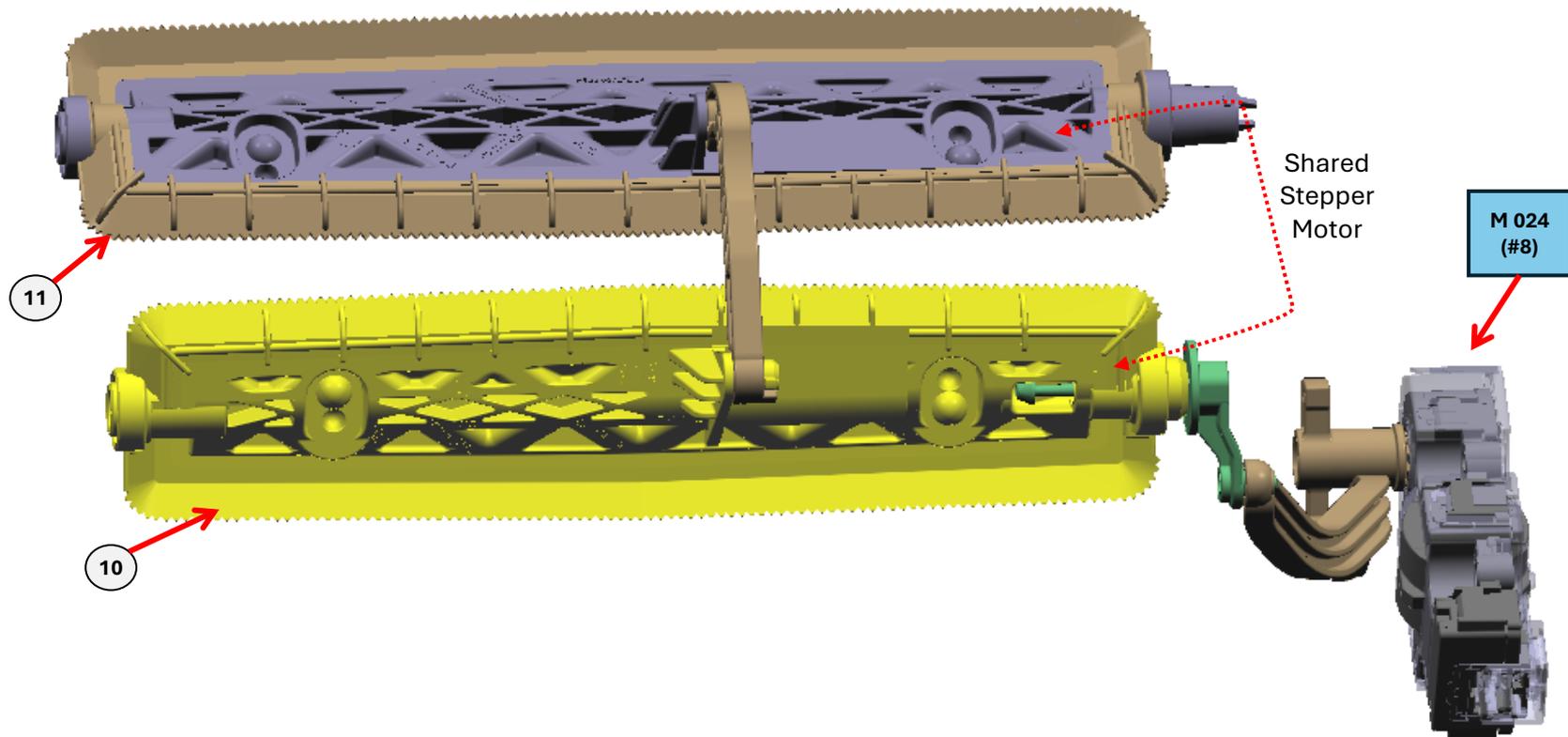
A Portion of large blue housing also removed for easier visibility.

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)!

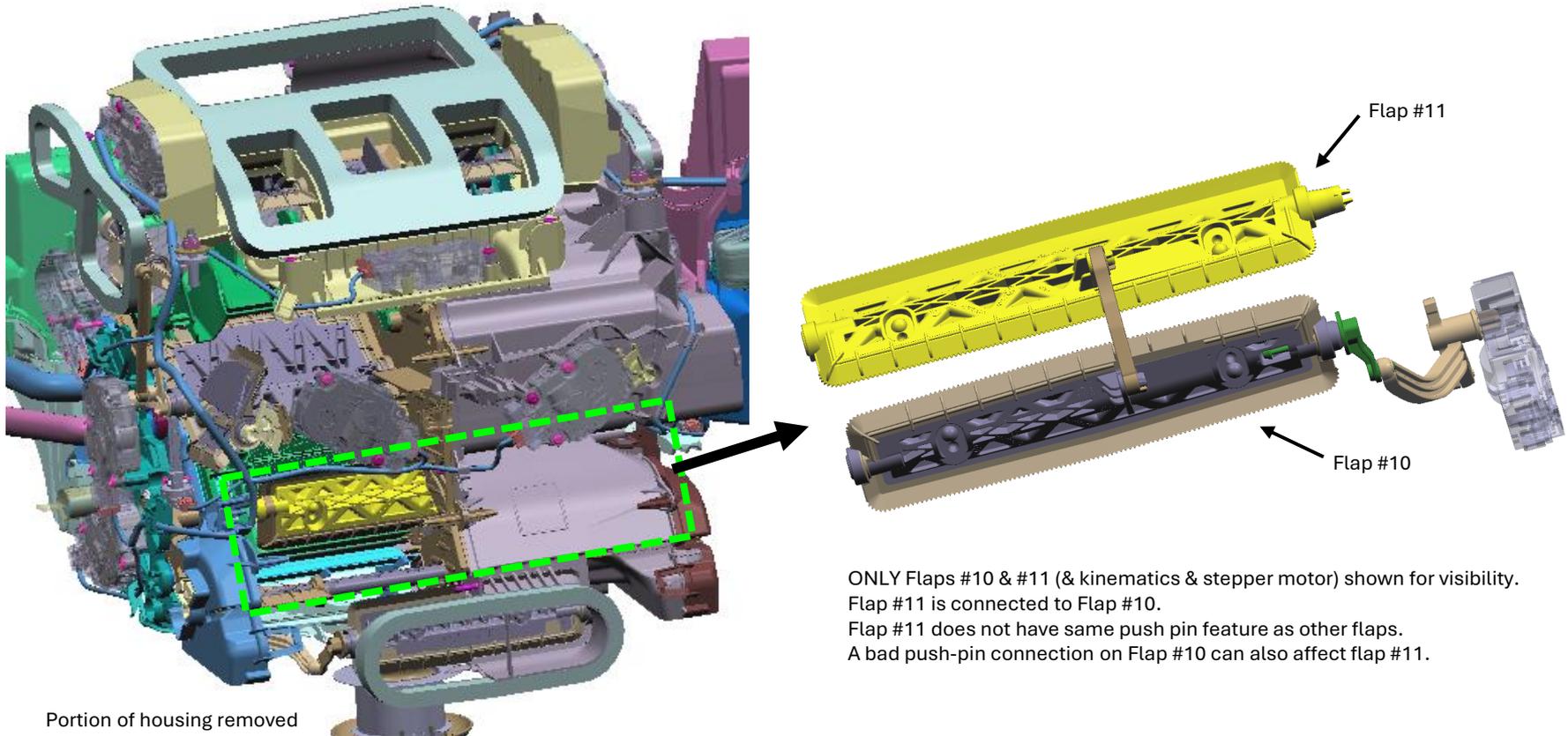
G45 HVAC: Air Vent Flaps/Kinematic & Stepper Motor Master Info.

FLAP #10 Kinematics Overview (Highlighted Yellow)



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

FLAP #11: Rear Warm Temp. Mixing Flap



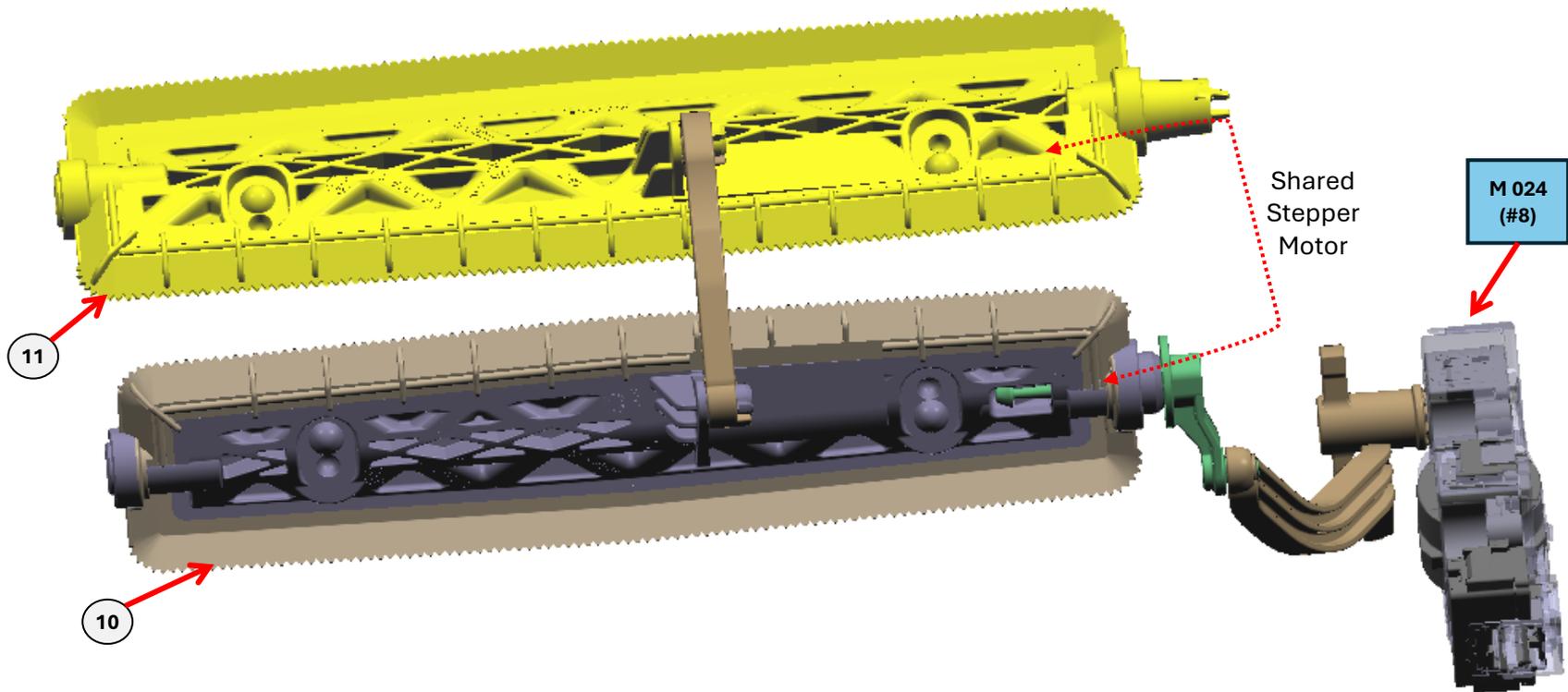
ONLY Flaps #10 & #11 (& kinematics & stepper motor) shown for visibility.
Flap #11 is connected to Flap #10.
Flap #11 does not have same push pin feature as other flaps.
A bad push-pin connection on Flap #10 can also affect flap #11.

Portion of housing removed

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

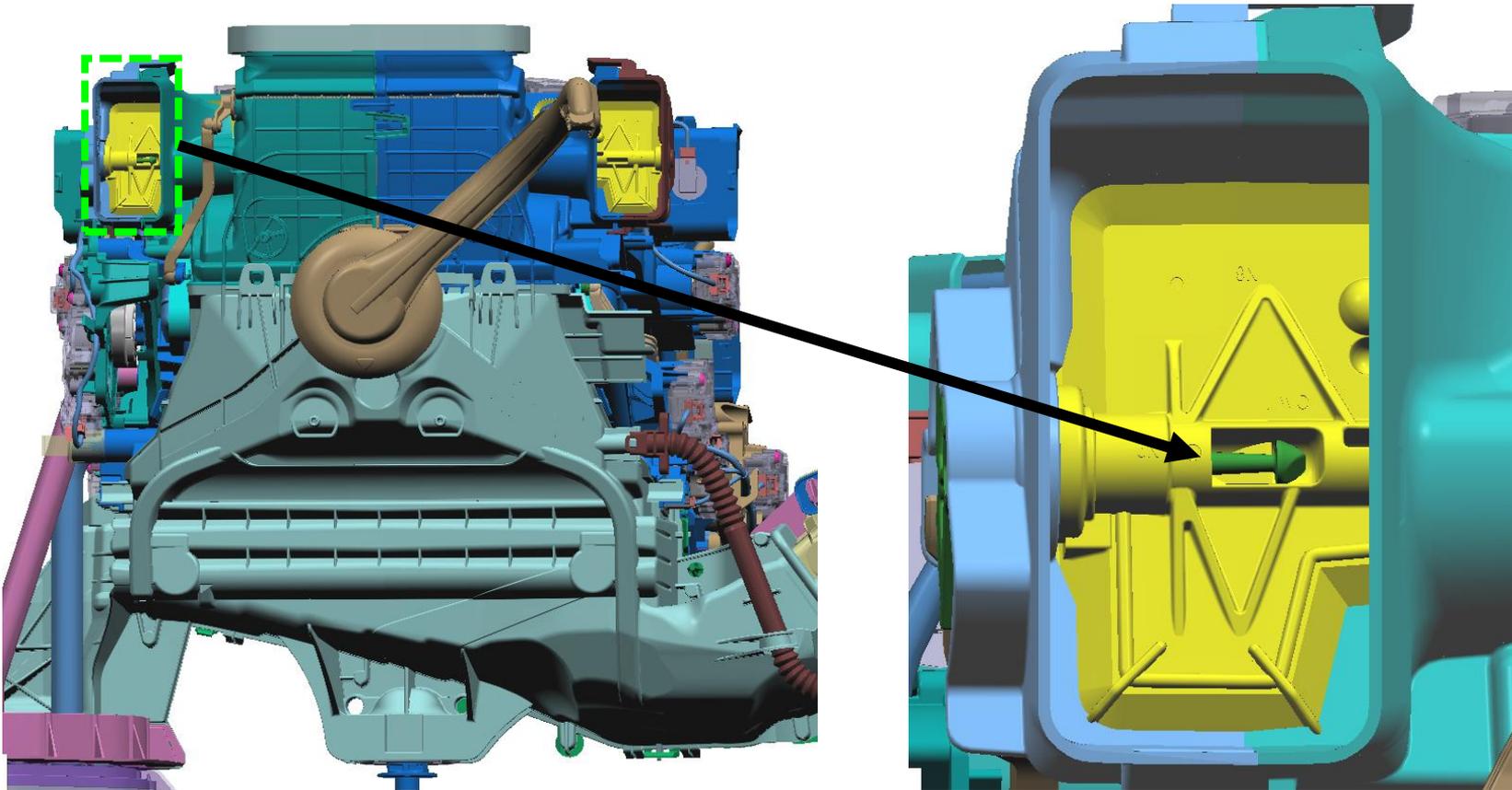
G45 HVAC: Air Vent Flaps/Kinematic & Stepper Motor Master Info.

FLAP #11 Kinematics Overview (Highlighted Yellow)



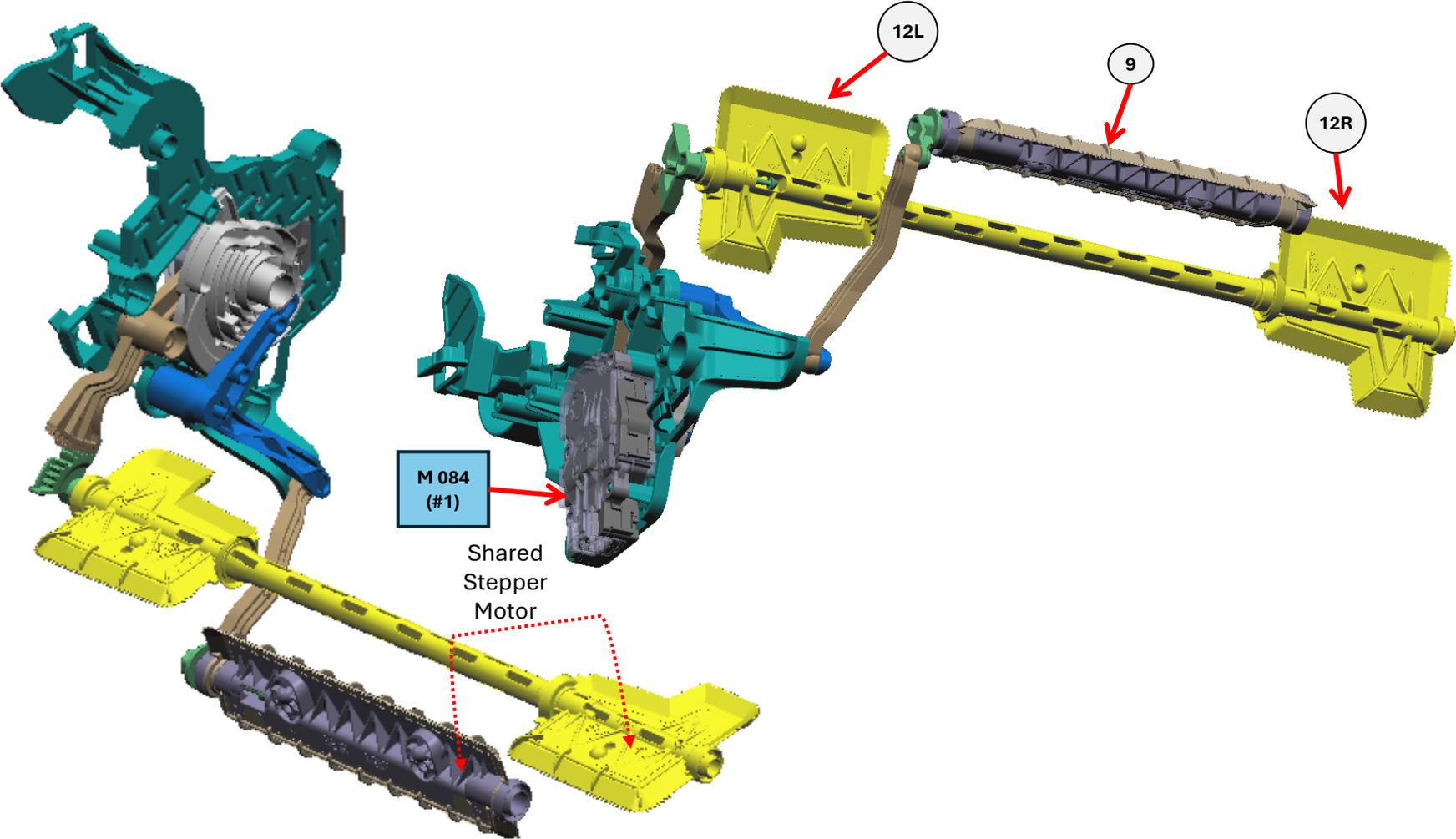
G45 HVAC: Air Vent Flaps/Kinematic & Stepper Motor Master Info.

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



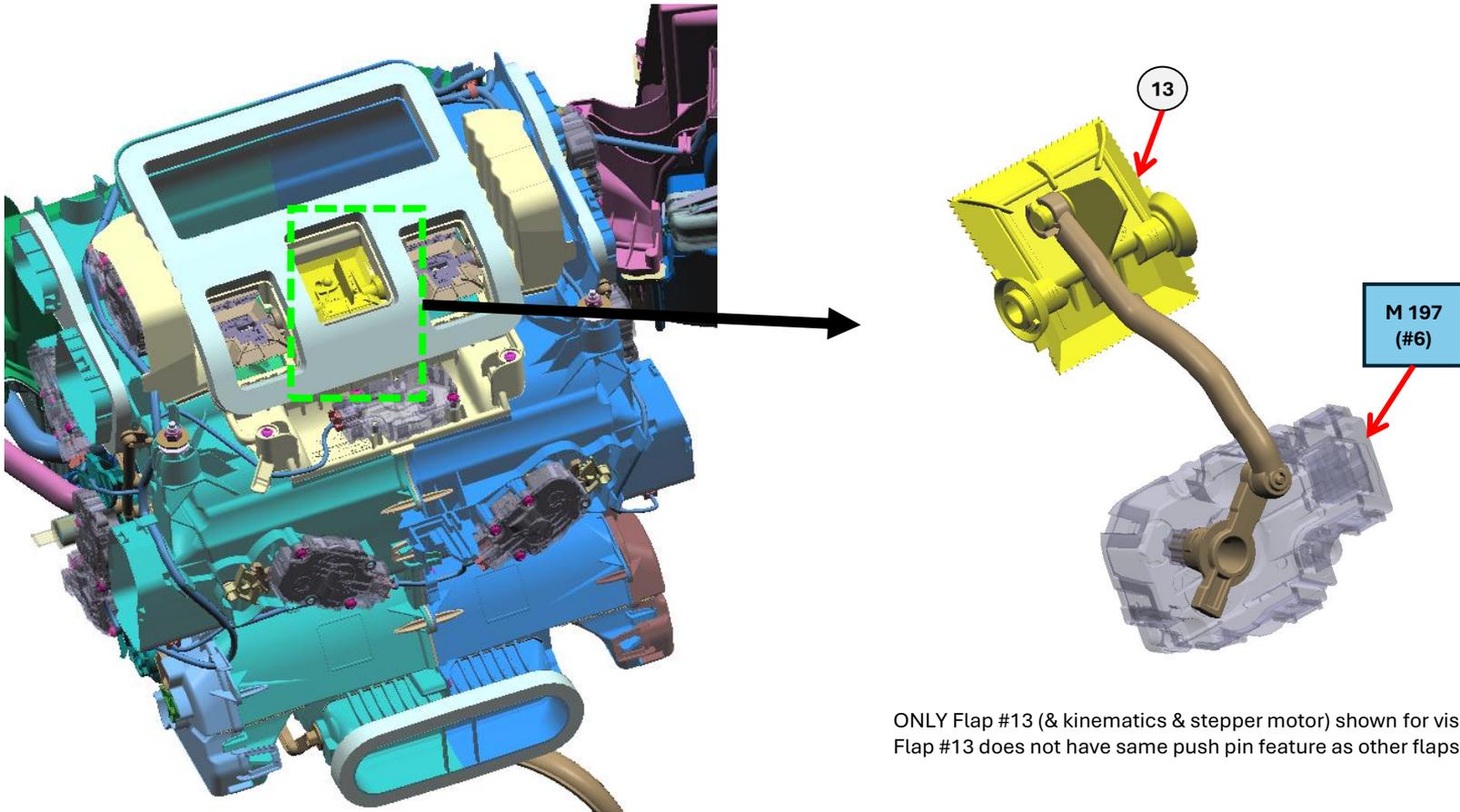
ONE Push Pin (RIGHT side only)!

FLAP #12 Kinematics Overview (Highlighted Yellow)



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

FLAP #13: Indirect Air Flap & Complete Kinematics Overview

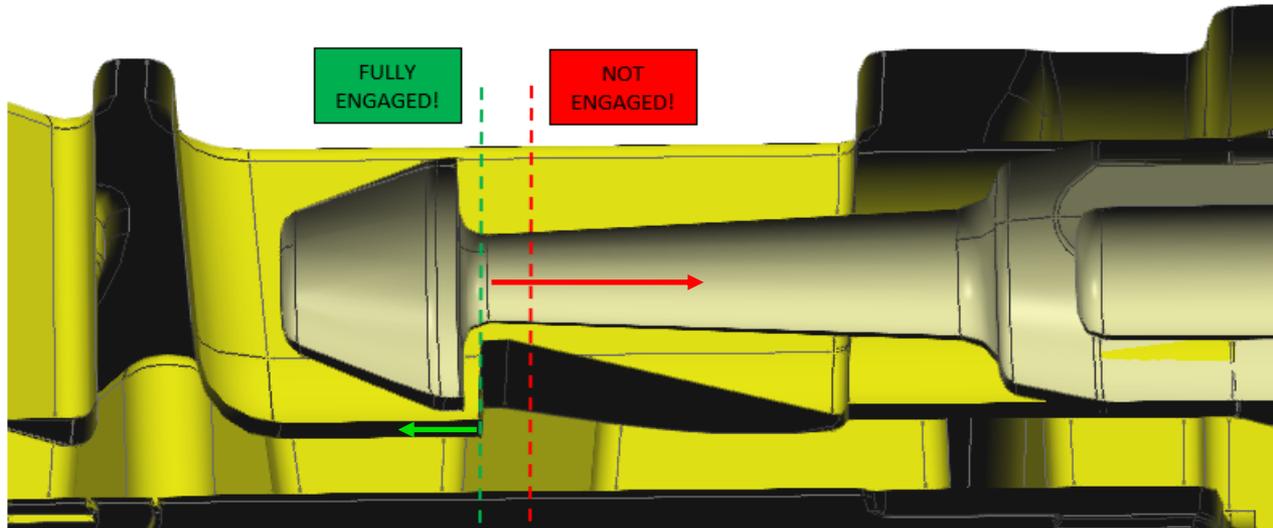


ONLY Flap #13 (& kinematics & stepper motor) shown for visibility.
Flap #13 does not have same push pin feature as other flaps.

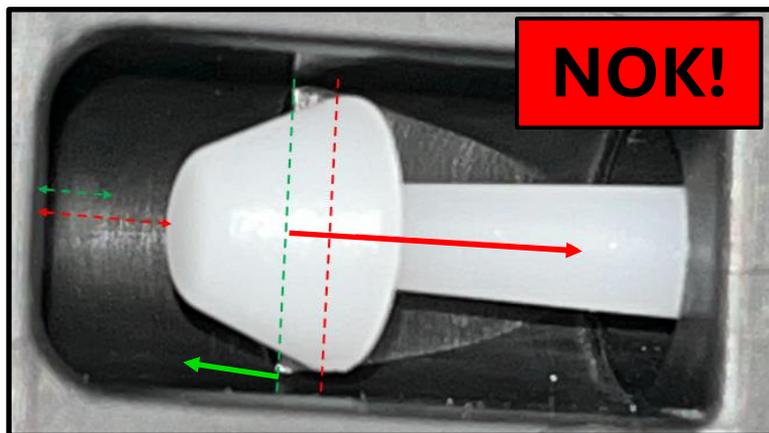
G45 HVAC: Air Vent Flaps/Kinematic & Stepper Motor Master Info.

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!**



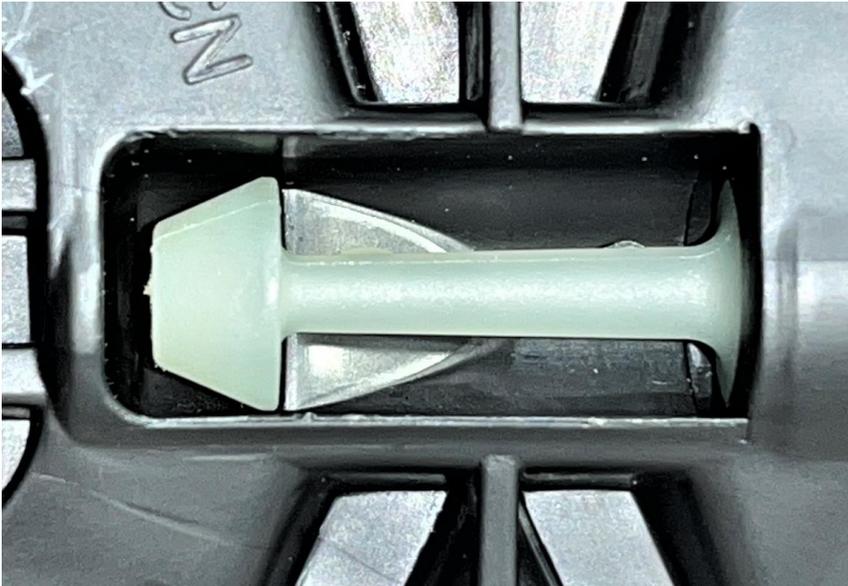
NOK!

Barely short of FULL engagement!

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

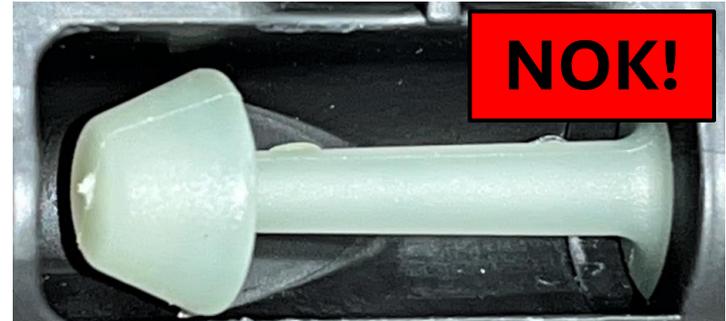
G45 HVAC: Air Vent Flaps/Kinematic & Stepper Motor Master Info.

Push Pin Issue

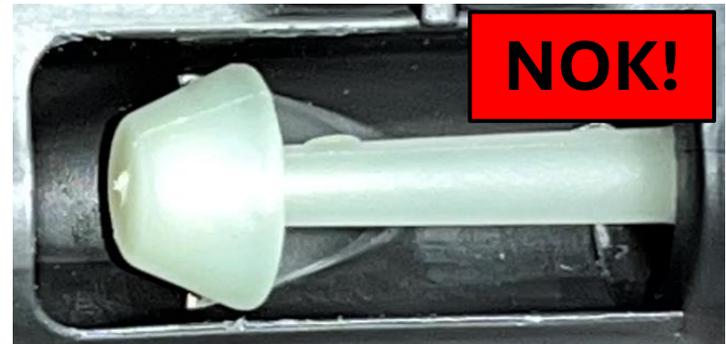


FULLY ENGAGED

**Pin/Linkage Mushroom Head
Completely Over Ramp on Flap!**



NOK!



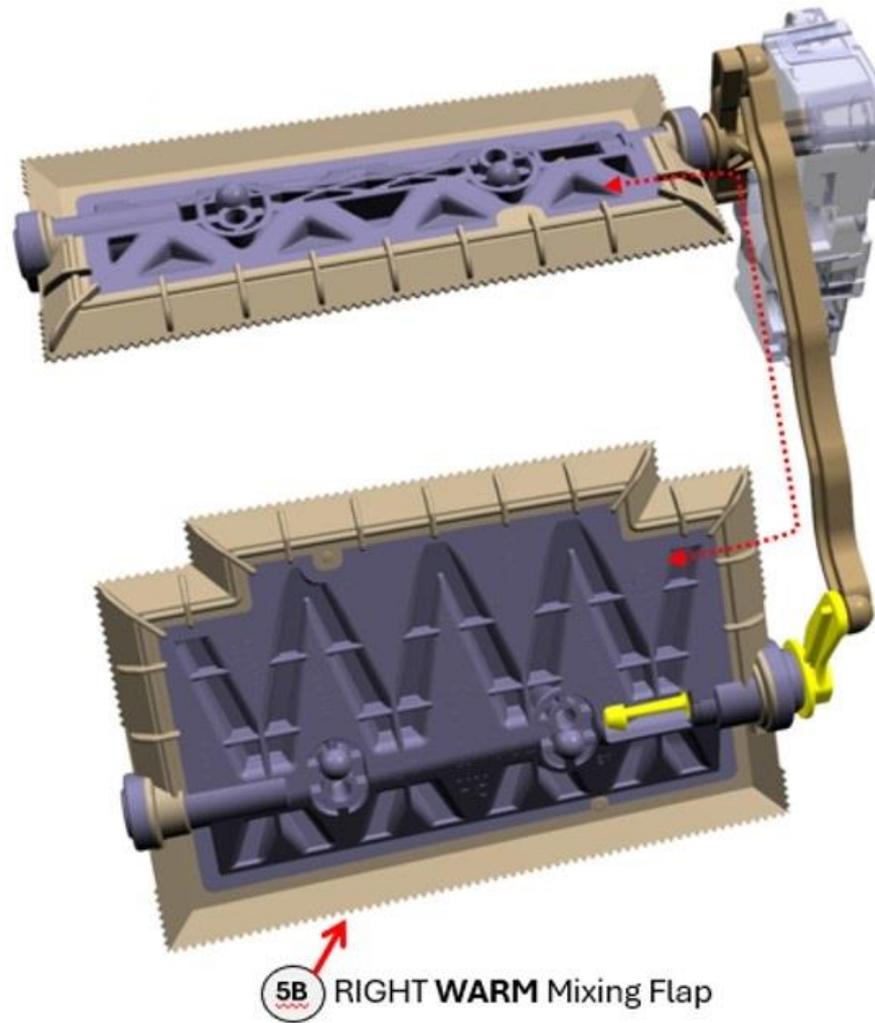
NOK!

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 5B INSTRUCTIONS

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:

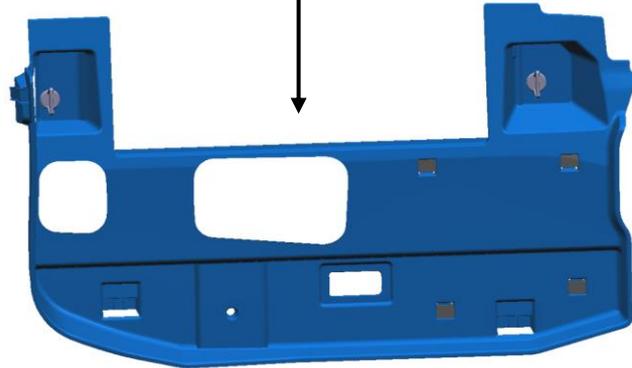
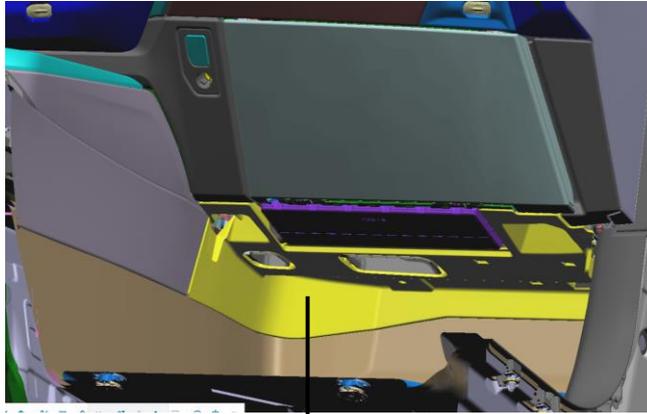
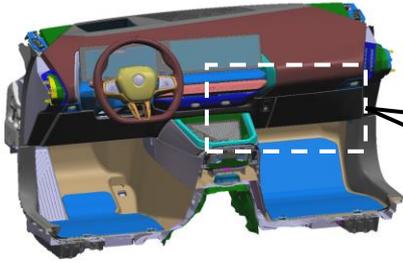
➤ **Confirm NOK Condition (loose linkage to flap)- Minor Disassembly!**

A) Remove the RIGHT, side under-dash panel and footwell duct.

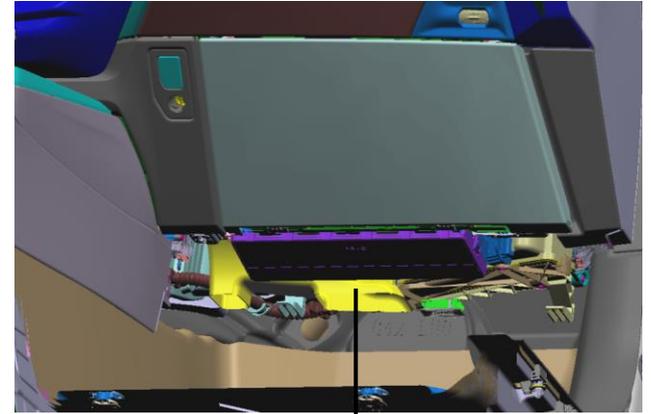
*See Reference Picture: ***"D- Under-dash & Footwell Duct"***

G45 HVAC: UPDATED MIXING FLAP 5B INSTRUCTIONS

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



Under-Dash Panel



Footwell Duct

G45 HVAC: UPDATED MIXING FLAP 5B INSTRUCTIONS

STEP #1 (Continued):

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

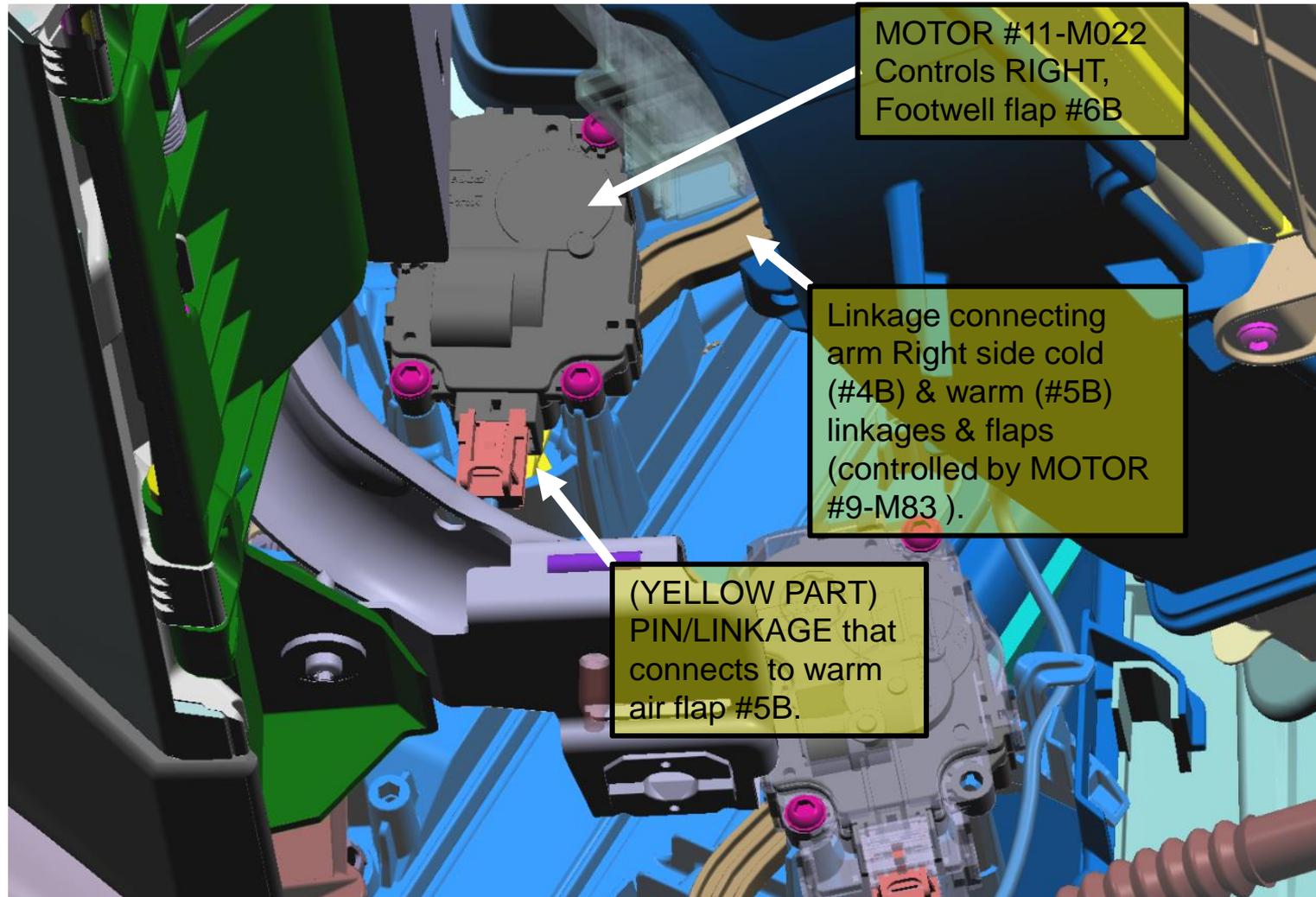
B) Locate and wiggle the linkage connecting arm between the cold and warm mixing flaps and look for excessive looseness at the lower end of the linkage connecting arm and directly at the warm mixing flap pin/linkage (connection to the warm mixing flap). A boroscope could also be helpful.

*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



G45 HVAC: UPDATED MIXING FLAP 5B INSTRUCTIONS

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"**

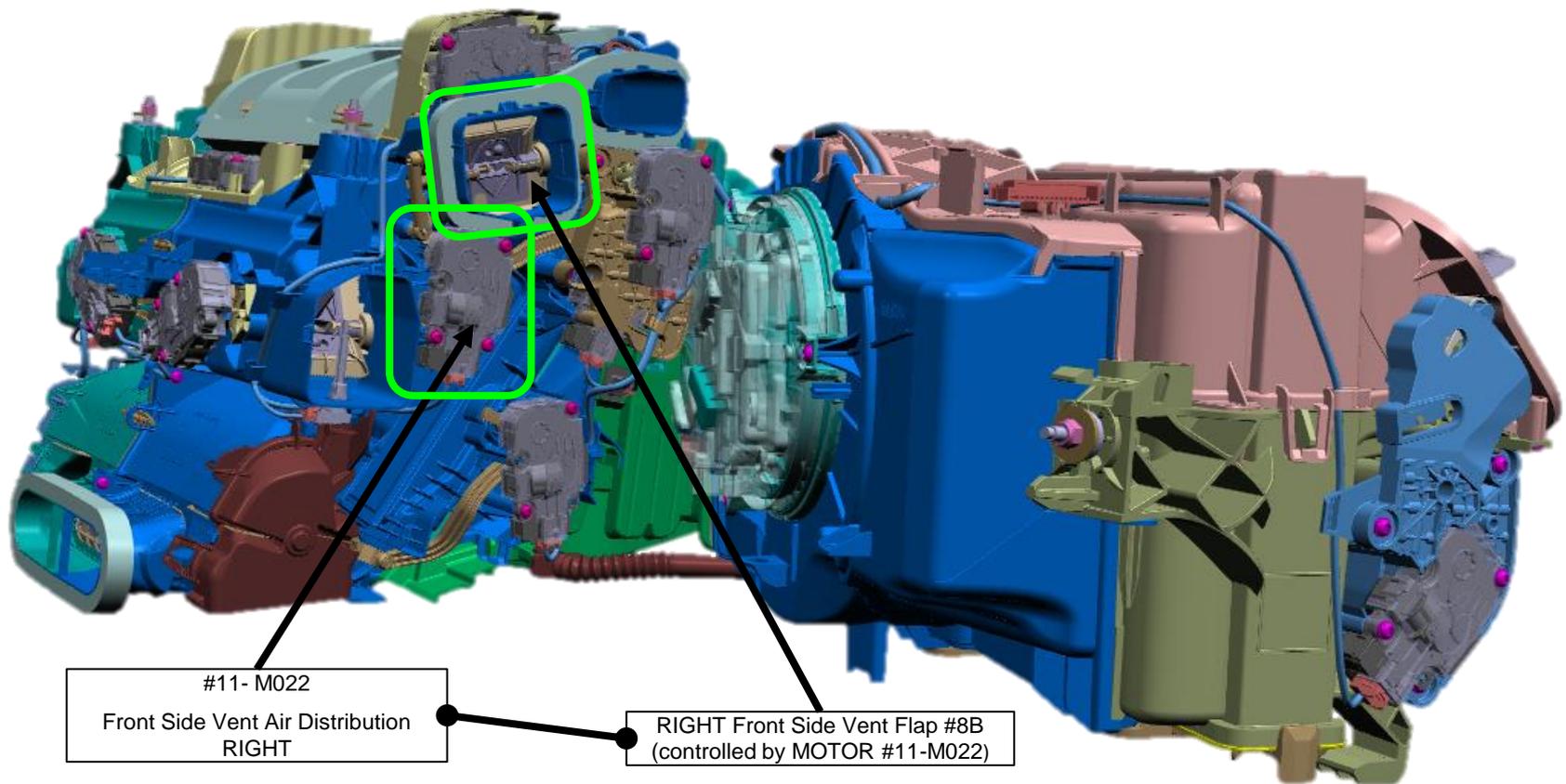
*See Reference Picture: **"G-RH Temperature Mixing Complete Kinematics"**

*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

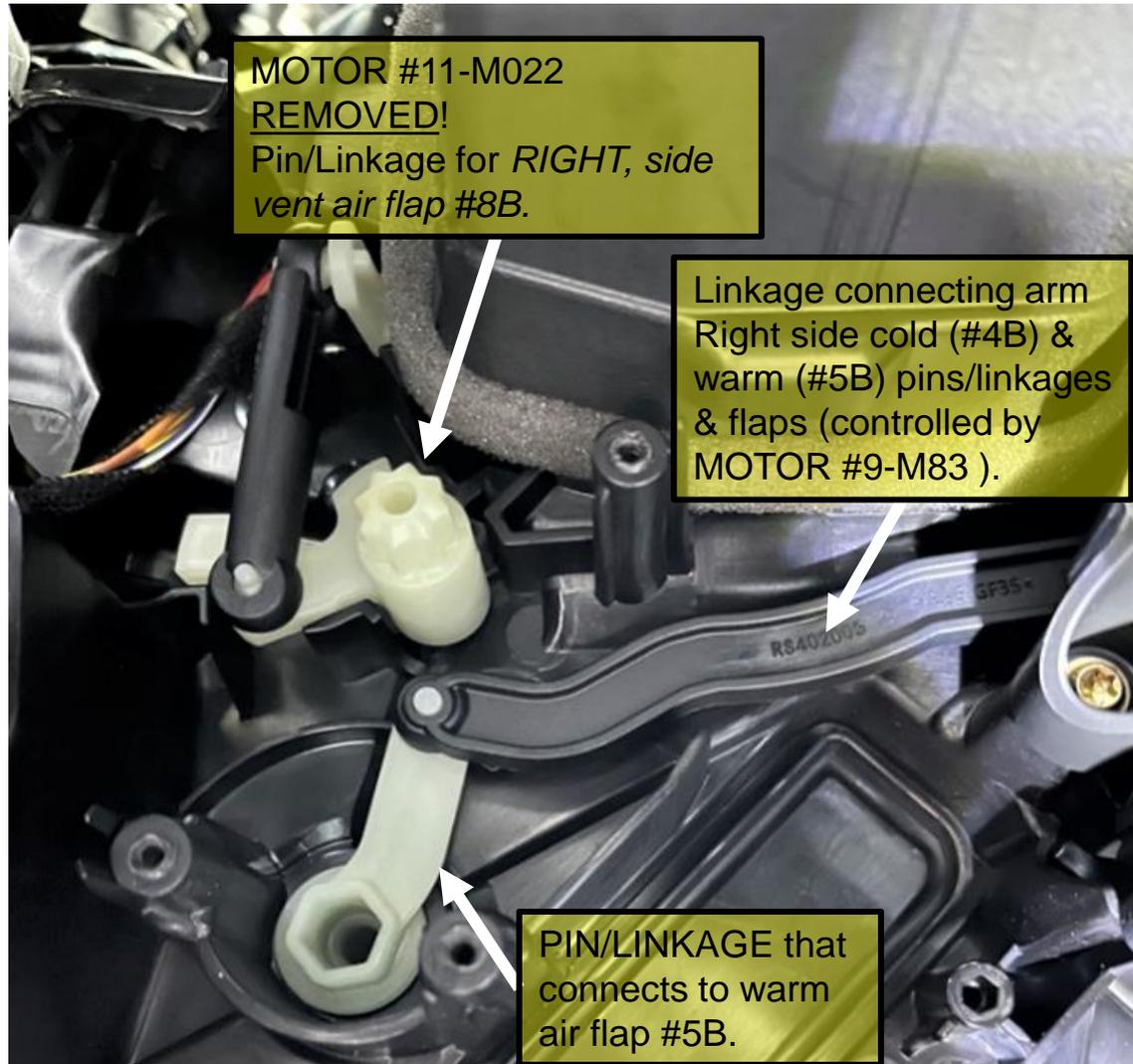
Reference Picture: **F A- Remove MOTOR #11-M022**



(LHD: Right Side VIEW)

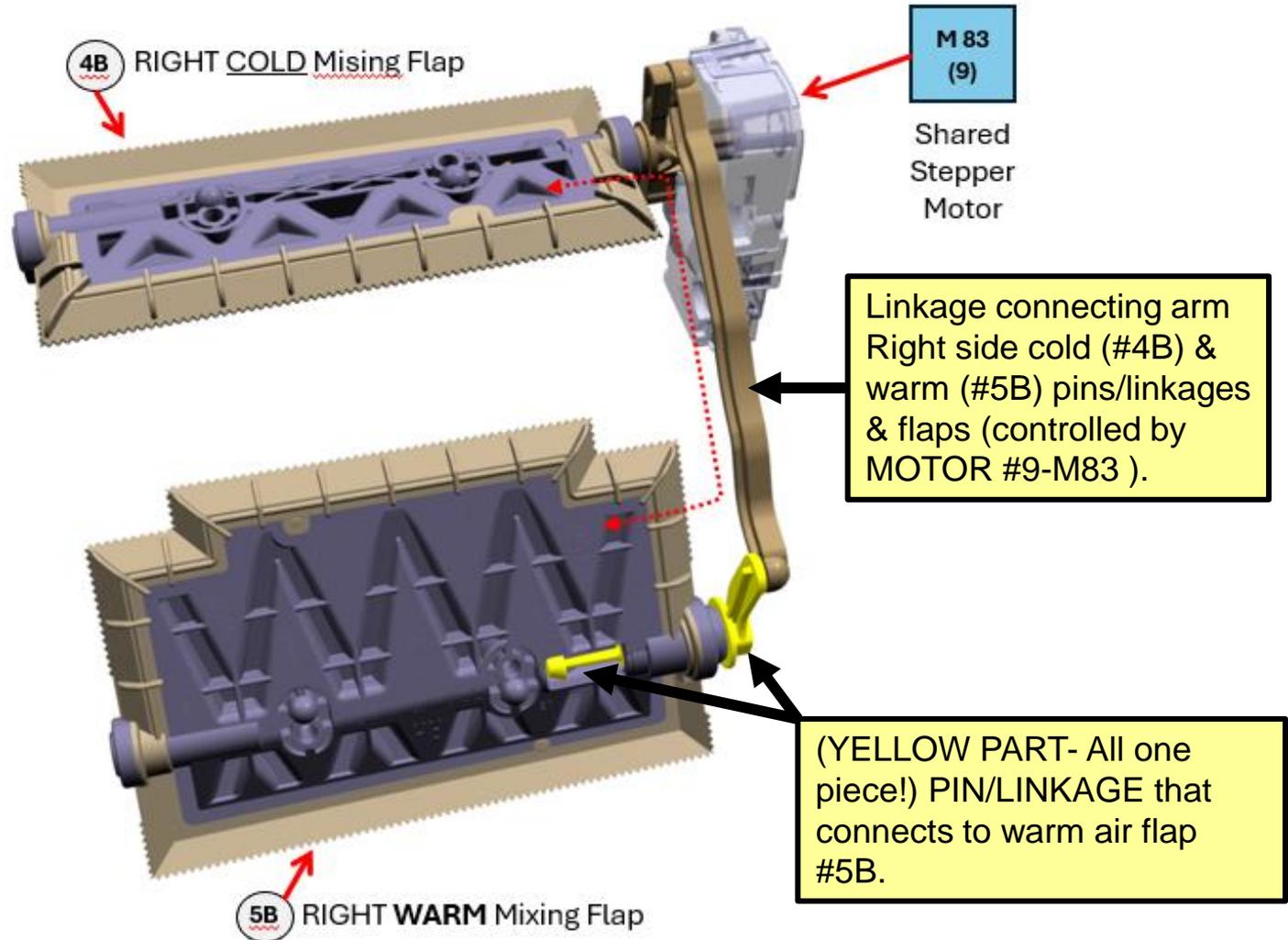
G45 HVAC: UPDATED MIXING FLAP 5B INSTRUCTIONS

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:

The screenshot shows the AIR repair manual interface for BMW X3 M50 xDrive (Model code 73GP). The search bar contains '51 45 051 | REP-REP-P-5145051-G45 - V.2'. The main content area is titled 'Replace instrument panel trim, upper section' and lists 23 tasks under 'Preliminary works' and 'Main work'. The 'Preliminary works' section includes tasks 1 through 22, such as 'Setting the steering column position', 'Deactivate vehicle-specific high-voltage or low-voltage vehicle electrical system', and 'Removing the steering column shroud upper section'. The 'Main work' section includes task 23: 'Removing the control unit for the LED interior lighting in the instrument panel'.

The screenshot shows the detailed instructions for 'Replace instrument panel trim, upper section'. It includes a section for 'Preliminary works' with the sub-section 'Setting the steering column position'. This section features a photograph of the steering column with a circled '1' and arrows indicating adjustment directions. A 'TECHNICAL INFORMATION' box notes that there is increased difficulty in removing the steering column in the lower and maximum extended positions, and advises bringing the steering column back to a centrally retracted position after removal. Below this, a 'RISK OF DAMAGE' box highlights the danger of damage to the high-voltage battery due to insufficient deactivation of the high-voltage system before disconnecting the vehicle battery via Service Disconnect in BEV and PHEV vehicles. It emphasizes that it is essential to deactivate the high-voltage system before disconnecting the vehicle battery and that all work on the high-voltage system must be carried out by specially trained and technically experienced personnel.

G45 HVAC: UPDATED MIXING FLAP 5B INSTRUCTIONS

STEP #3, #4, & #5:

➤ Create access for proper counterforce & repair!

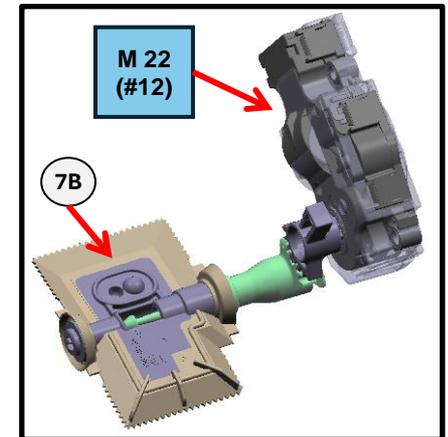
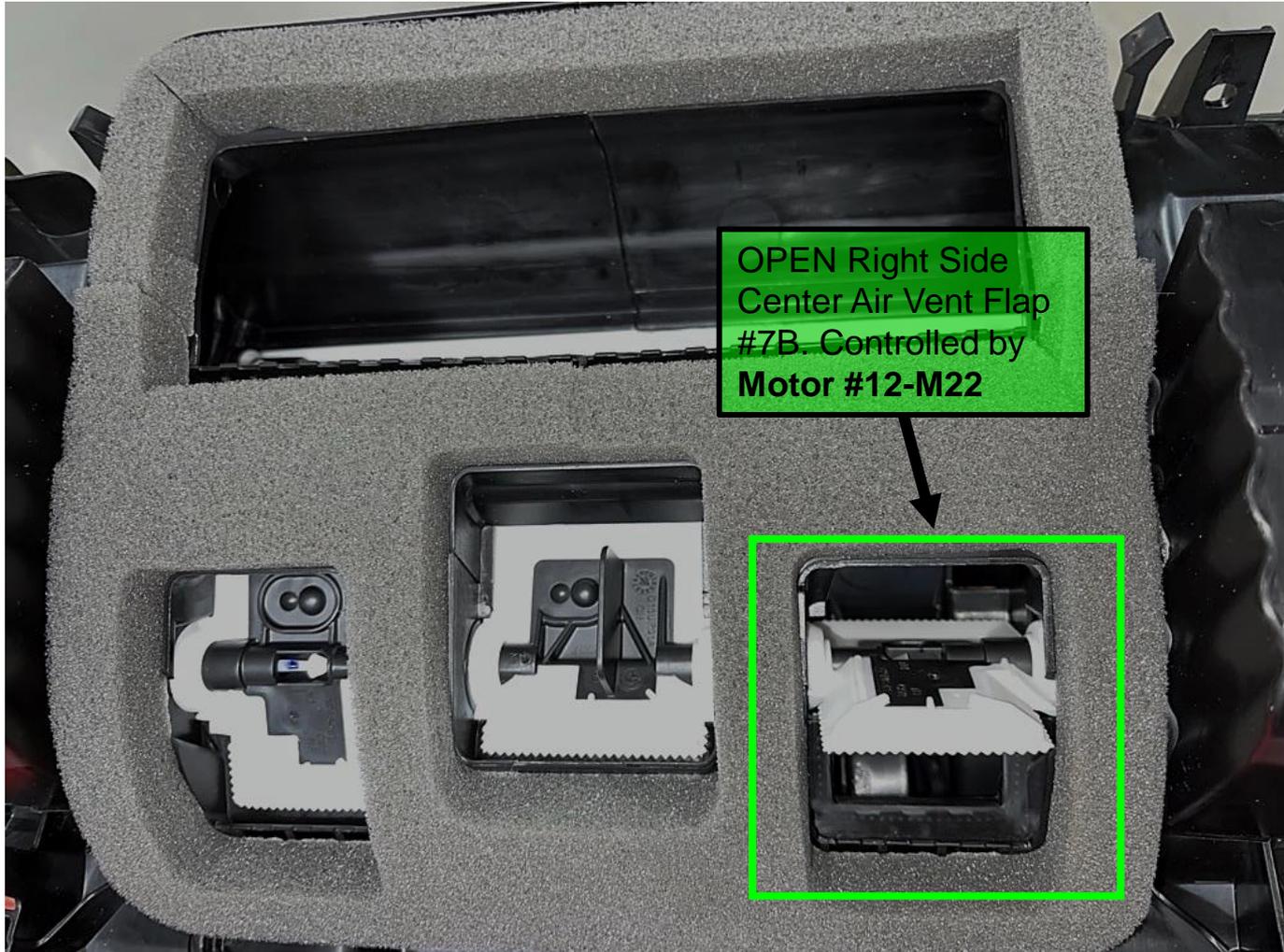
3) Via OBD/ISTA, Fully **OPEN** the front **RIGHT**, center vent air flap #7B (controlled by stepper motor #12-M22) to **100%**.

*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**



G45 HVAC: UPDATED MIXING FLAP 5B INSTRUCTIONS

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%.

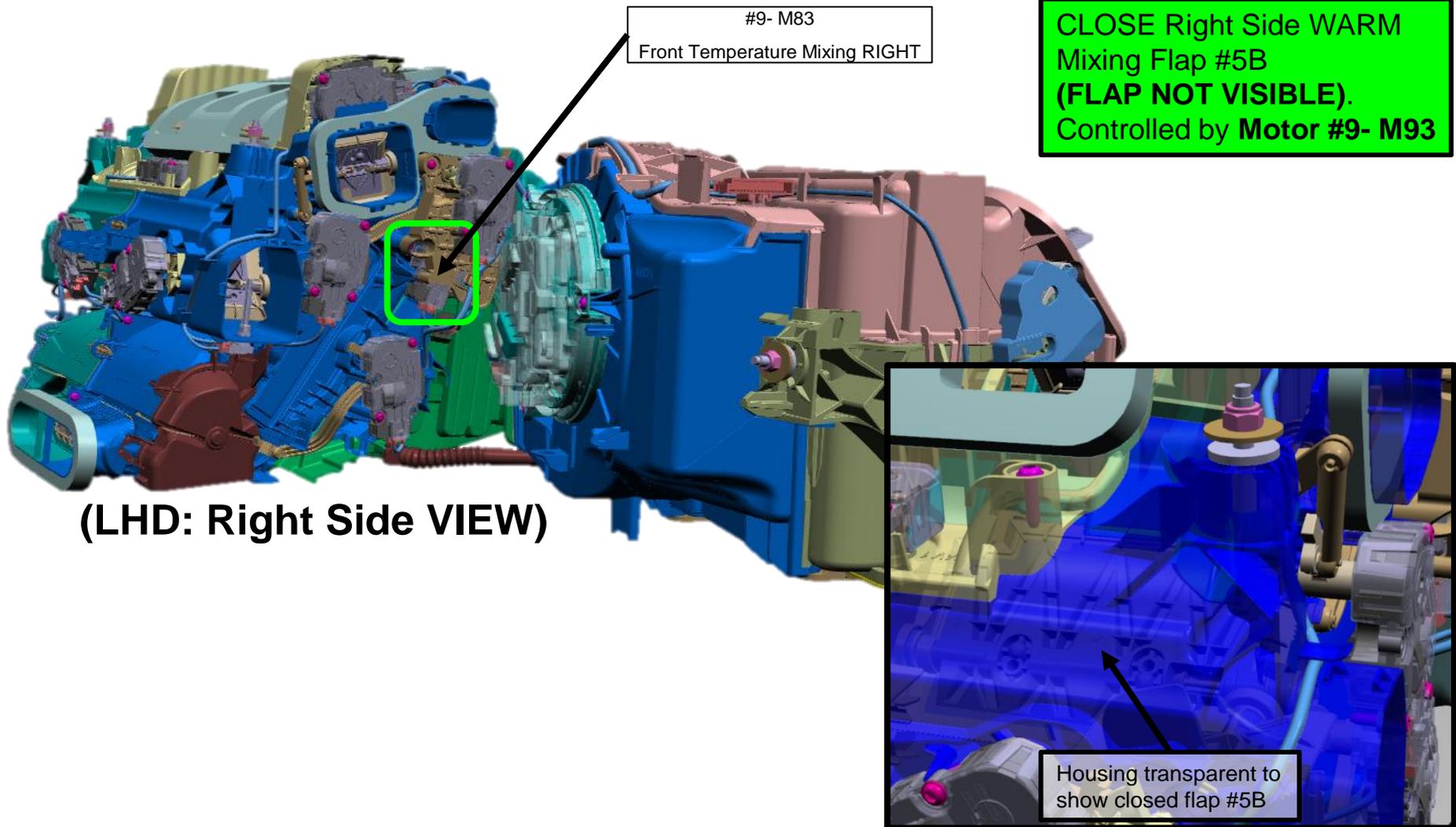
NOTE: Completely closing this flap makes it easier to apply counterforce to this flap (#5B) during pin/linkage installation.

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!

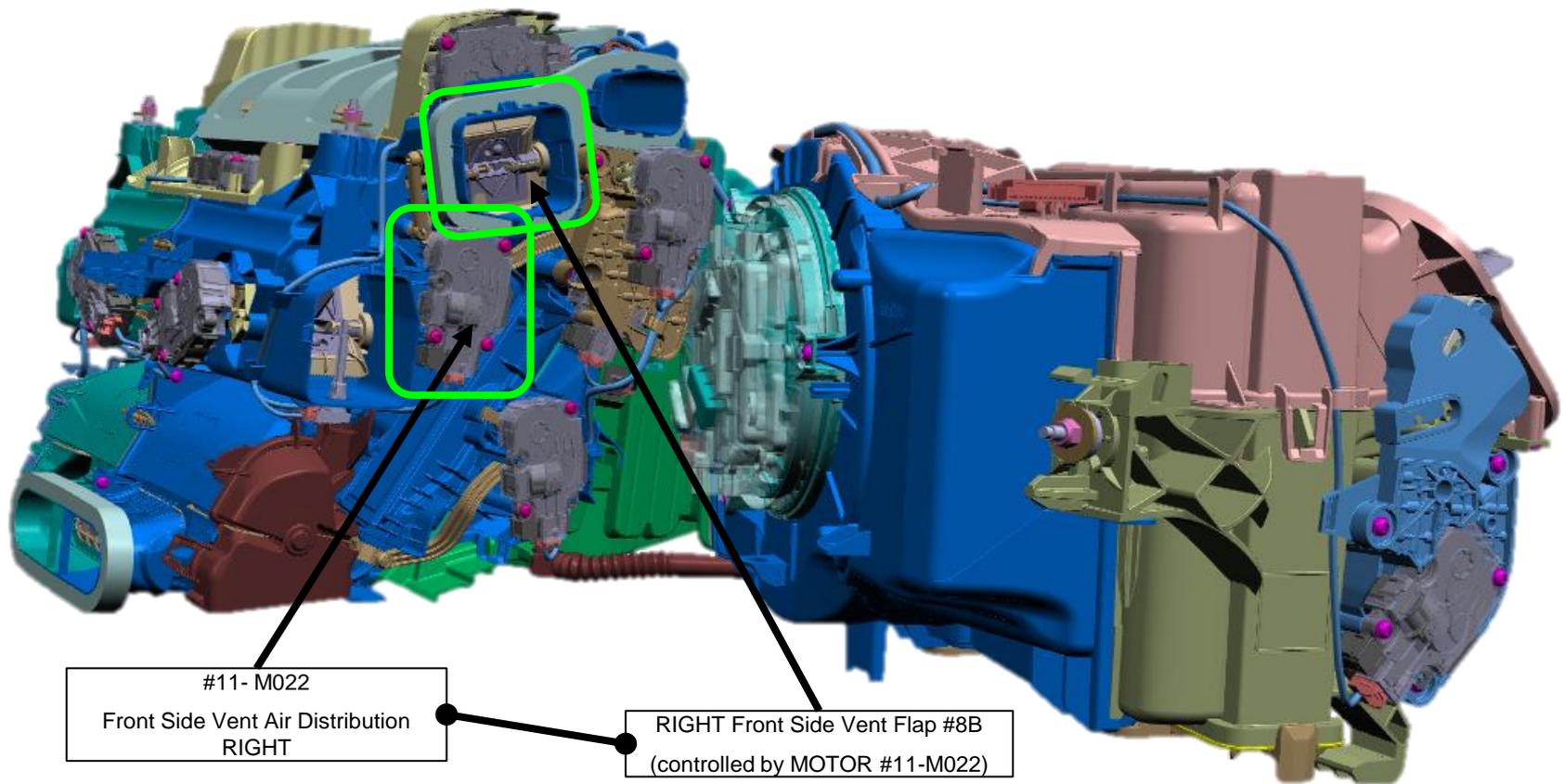
5A) If not already completed in step #1C (above), **remove stepper motor #11-M022** (screws and motor) in order to access loose RIGHT, warm mixing flap pin/linkage & for for better visual access.

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

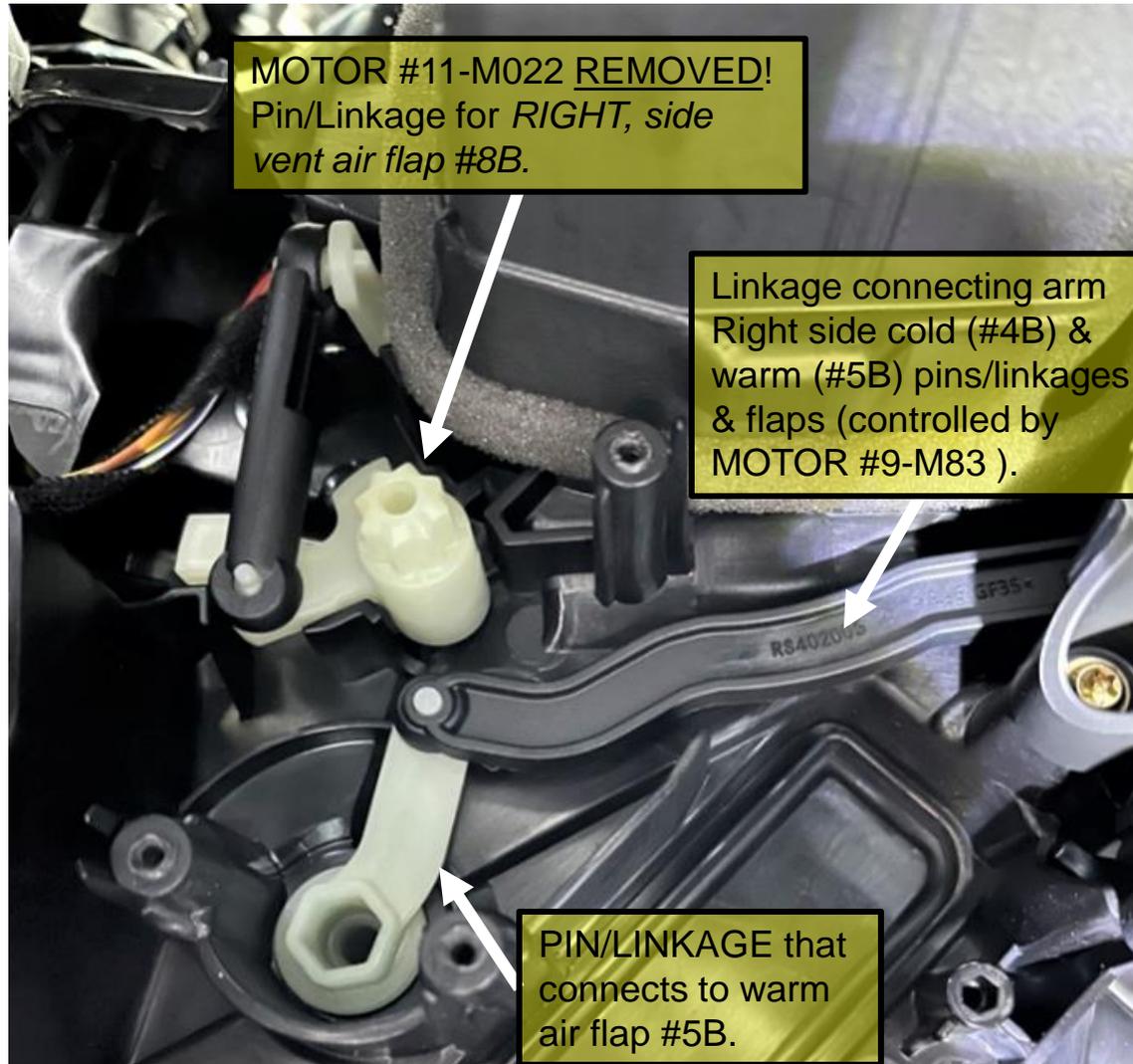
Reference Picture: **F A- Remove MOTOR #11-M022**



(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!**

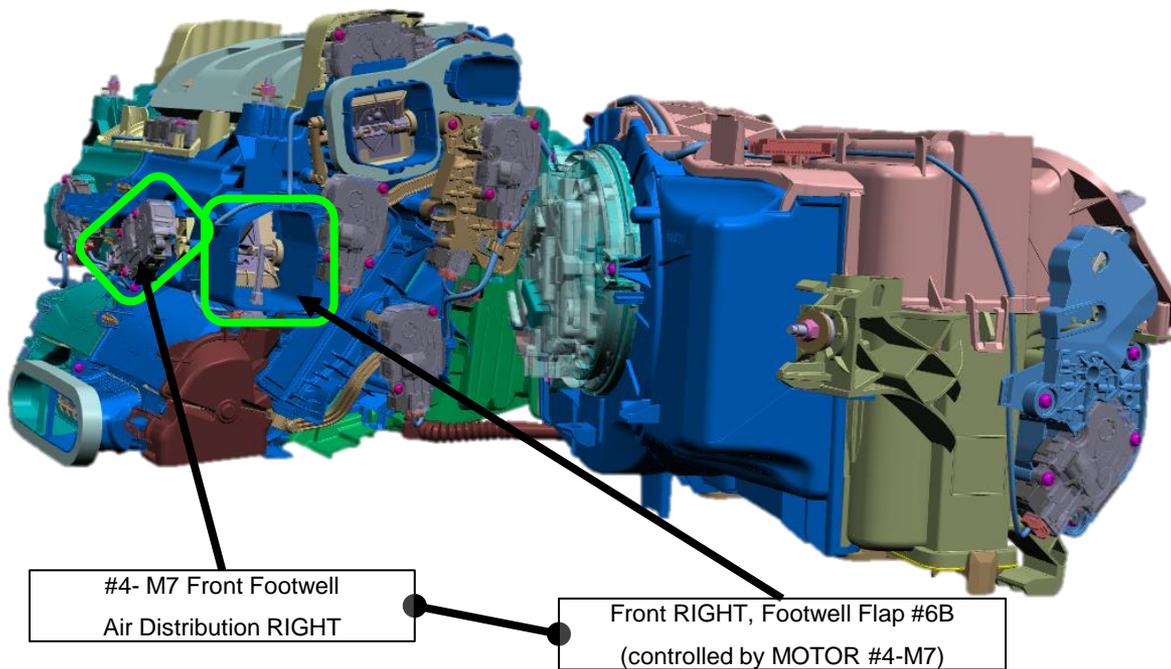
5B) Via OBD/ISTA, also OPEN the Front RIGHT, Footwell Flap #6B (controlled by **MOTOR #4-M7**).

NOTE: *This will allow for visual checks (later) with boroscope or mirror.*

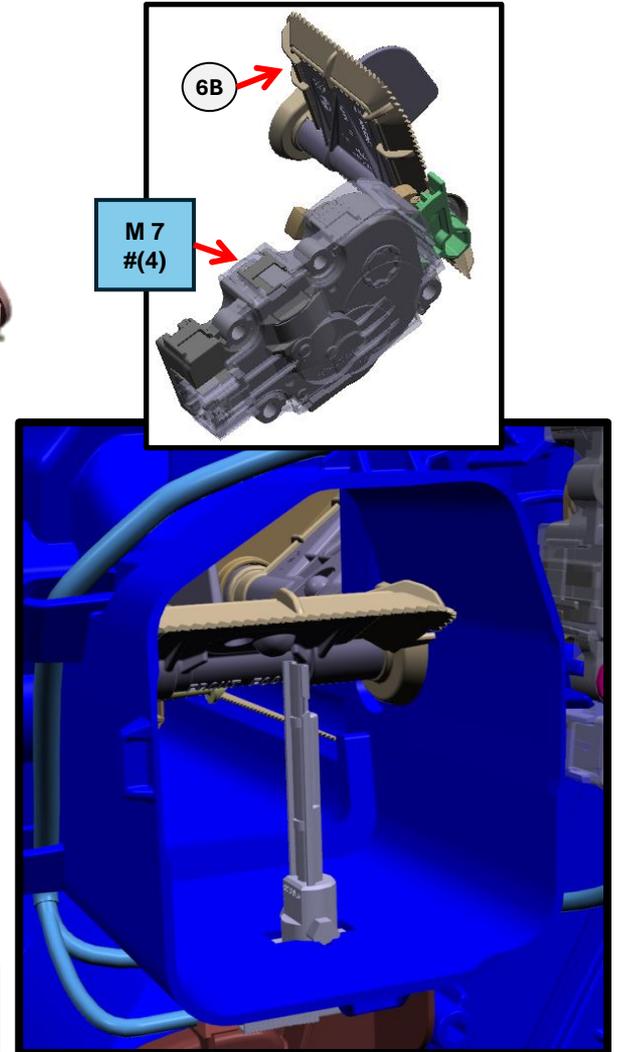
*See Reference Pictures: **"J- OPEN Front RIGHT, Footwell Flap #6B"**

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.



G45 HVAC: UPDATED MIXING FLAP 5B INSTRUCTIONS

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).*

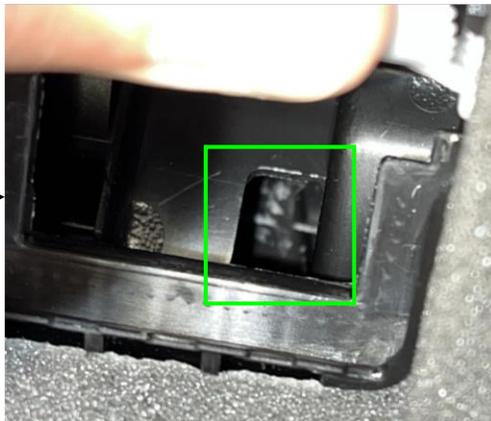
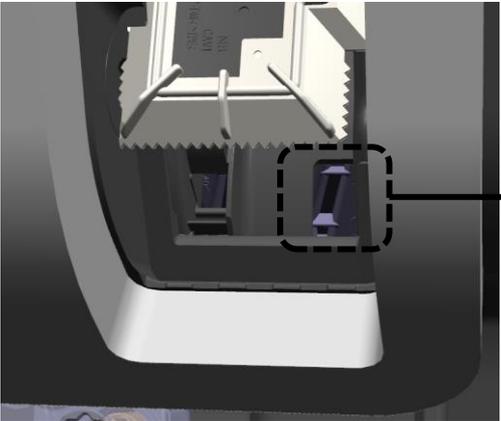
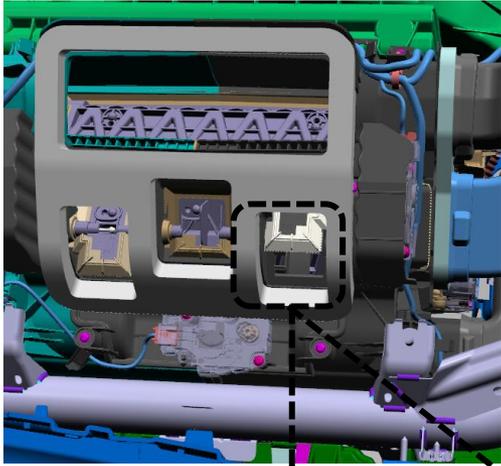
NOTE: The warm mixing flap #5B could inadvertently move to the open position since the flap and linkage are loose at this point. If this happens, push the pin/linkage in as far as you can and then rotate flap to completely close it again. This will make providing the necessary screwdriver counterforce 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"**

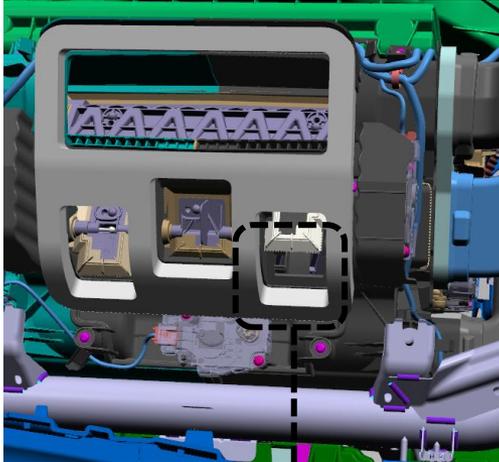
G45 HVAC: UPDATED MIXING FLAP 5B INSTRUCTIONS

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

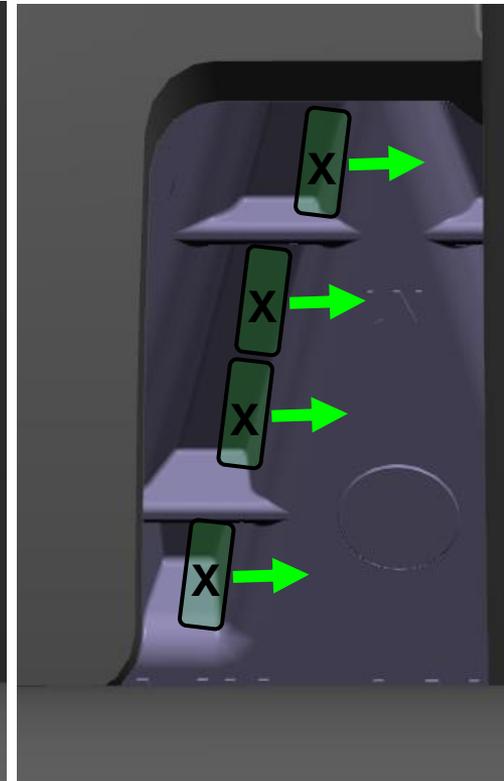
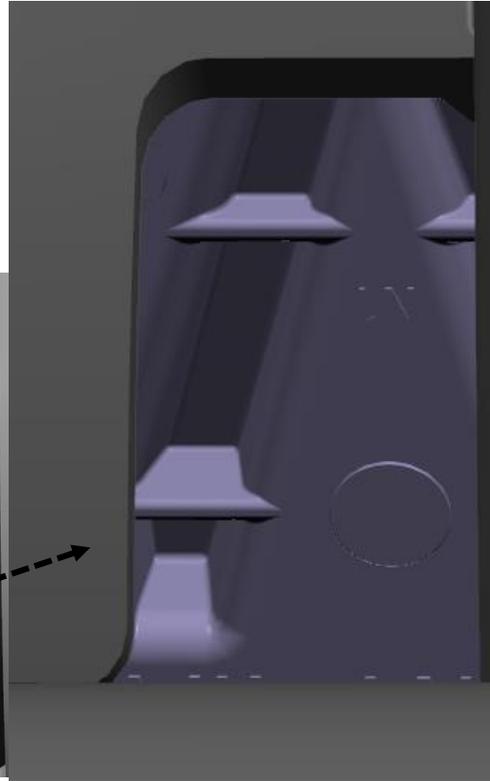
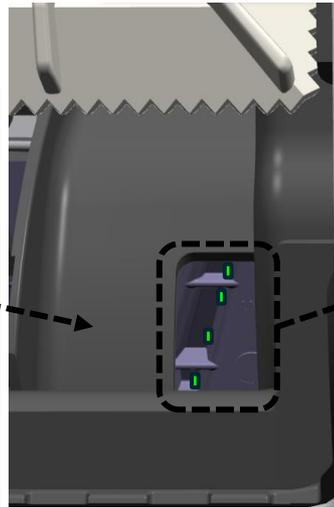
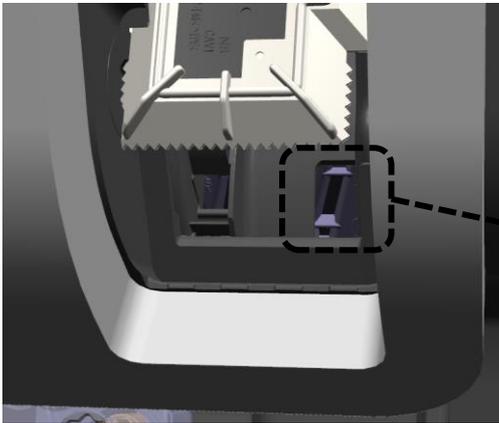


G45 HVAC: UPDATED MIXING FLAP 5B INSTRUCTIONS

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



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)!

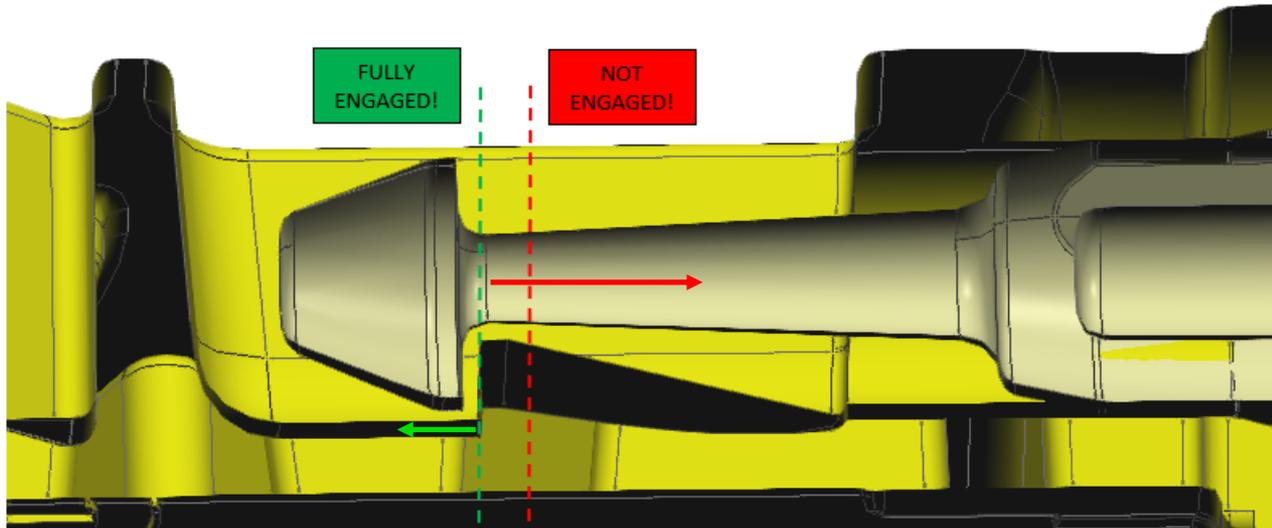
8A) Review that the pin/linkage mushroom head is FULLY over the ramp on the flap (visually via articulating boroscope &/or mirror through the RIGHT, side footwell flap #6B).

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

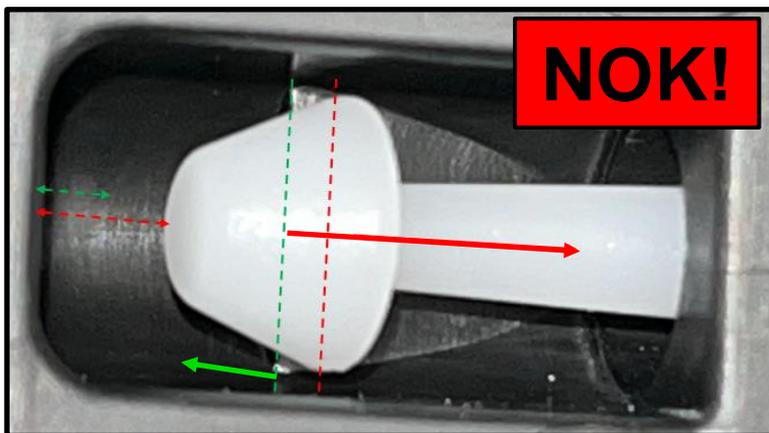
G45 HVAC: UPDATED MIXING FLAP 5B INSTRUCTIONS

Reference Picture: A- Fully Engaged vs NOT Fully Engaged

CAD
Section
Cut



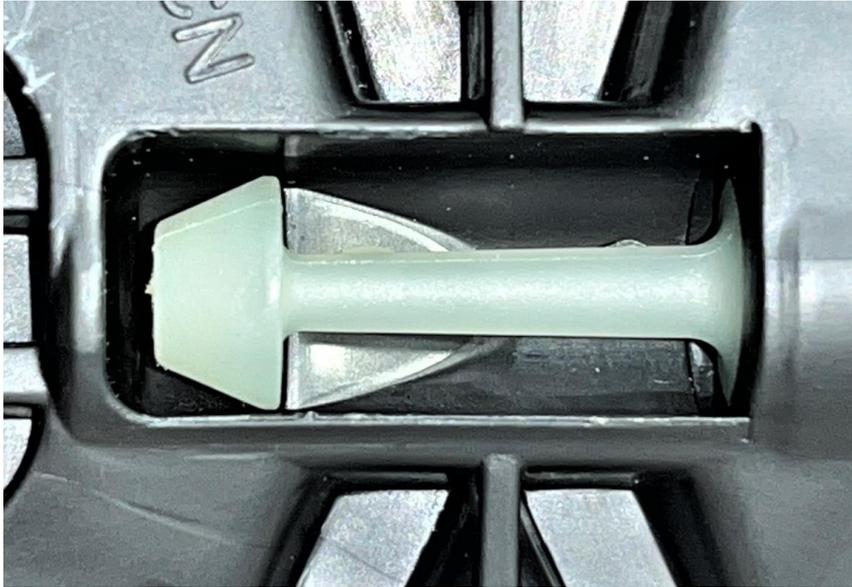
Real Part



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!

NOK!

Barely short of FULL engagement!

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

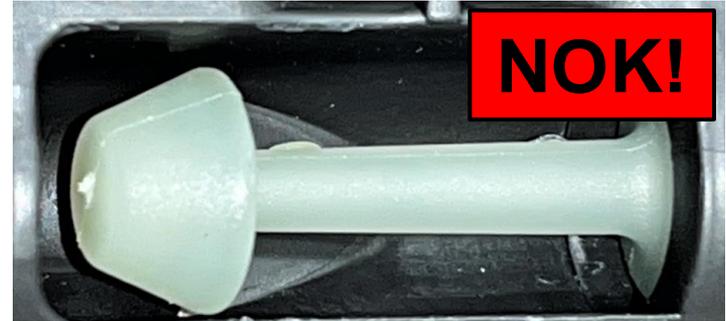
G45 HVAC: UPDATED MIXING FLAP 5B INSTRUCTIONS

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

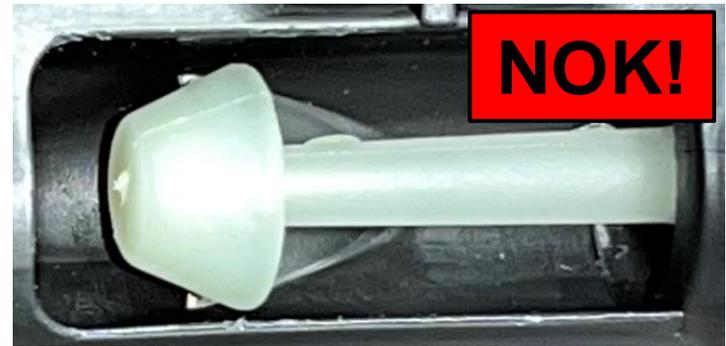


FULLY ENGAGED

**Pin/Linkage Mushroom Head
Completely Over Ramp on Flap!**



NOK!



NOK!

Short of FULL engagement!

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

G45 HVAC: UPDATED MIXING FLAP 5B INSTRUCTIONS

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.