



Mustang Cup Australia – Round 4, Hidden Valley Raceway

Post Event Technical Summary

Purpose: Provide supplemental technical clarifications/information regarding individual technical items raised at the most recent event.

Key areas of focus:

- 1. Tools to bring to the track – Pro-Cal & MSA Box**
- 2. Dash Alarms**
- 3. Data Download – Clearing MoTeC Logger & Data File Name**
- 4. DTC/Codes Clearing Procedure – MoTeC dash**
- 5. TSB 58 - Mustang Dark Horse R Mandatory Calibration Updates: MoTeC Dash, Display Creator & PCM**
- 6. Gearbox Gear Position Sensor Incorrect Orientation**
- 7. Brembo Brake System Technical Guidance/Bulletins**

Technical Documentation Location:

Reminder that all relevant Mustang Dark Horse R, Mustang Cup Australia technical documents and files can be found here:

<https://www.fordracing.com/motorsport/mustang-cup-australia/competitor-info>

Created: 1/08/2026.

Final update: 11/08/2026



1. Tools to bring to the track – Pro-Cal & Bosch MSA 2 Box

Teams are reminded to bring two key tools to the track with them:

- Pro-Cal



- Bosch MSA 2 Box





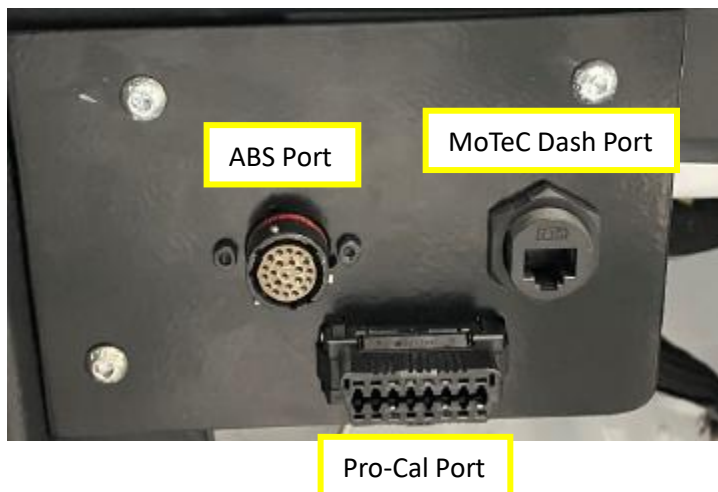
Both items should have been contained within the welcome pack for your car, if they were not. Please reach out.

These two items are critical to ensuring your team can interface with key electronics on your Dark Horse race car.

Pro-Cal tool connects to your PCM/ECU and the OEM electronic elements in your car.

The Bosch MSA 2 Box, via the use of “Race ABS” software, allows you to connect to the Bosch motorsport ABS module.

Both units are used for both updating and diagnosis of issues within their relevant systems and can be connected to the car via the Electronics Interface Panel (passengers’ side, dash mounted)



For further information on using both tools, please refer to your user manual:

<https://www.fordracing.com/content/dam/fordPerformance/motorsport/mustang-challenge/pdfs/2025%20Dark%20Horse%20R%20Manual%203-10-25.pdf>

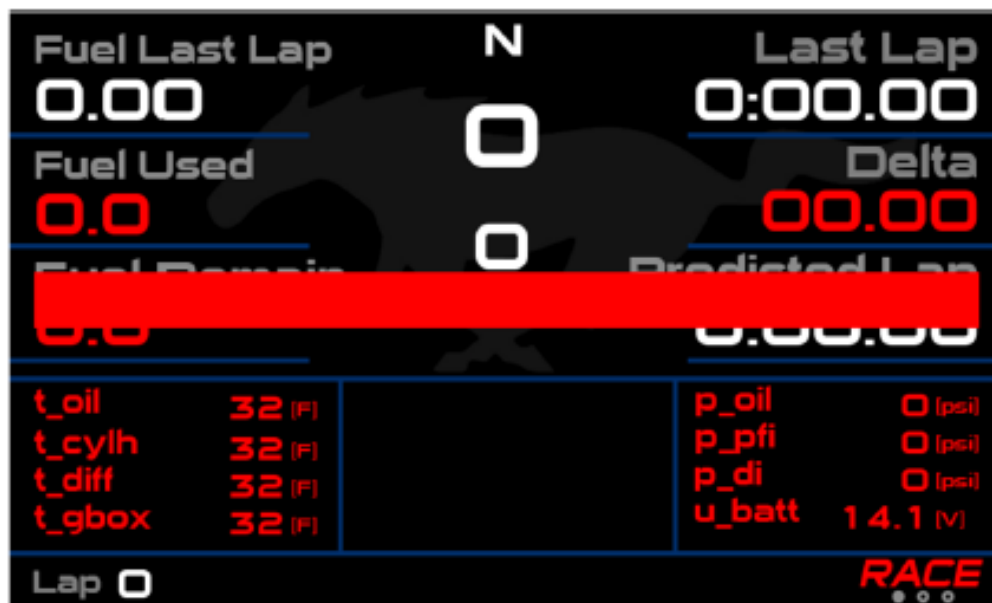


2. Dash Alarms

A red alarm bar/banner will appear in the center and display an alarm message if an alarm is triggered.

The three red lights on either side of the display will also illuminate and blink if an alarm is triggered

- To clear alarm, press the “Alarm” button on the steering wheel.



Alarm Messages

Teams please note, for alarms related to fluid temperature, by default the channel value displayed in the alarm message will be in Fahrenheit.

To update the alarm message to your preferred units, please follow these steps:

1. Open C187 dash manager and connect via ethernet to your vehicle and power the vehicle on
2. Download any data in your logger, if you wish to retain this ( F8)



3. Get the configuration from the car via  toolbar icon or via the online menu -> get configuration
4. Save a copy of the configuration i.e. add _v2 at the end of the file name (optional step)
5. Open the alarms configuration window via  toolbar icon, or via the function menu -> alarms
6. Select the temperature based alarm you wish to modify, and either double click on that line, or select edit.

Alarms Setup

Alarms

Number	Message	Condition
1	OIL PRES LOW	p_oil_PCM <= 100 kPa (for 0.50 s) and n_engine_rpm_PCM >= 2000
2	CYL HEAD HOT	t_cylh_PCM >= 250 F (for 5.00 s)
3	FUEL PRES LOW	p_fuel_pfi_PCM <= 34.9 psi (for 1.00 s) and n_engine_rpm_PCM >= 2000
4	ENG OIL HOT	t_oil_C187 >= 284.0 F (for 2.00 s) and n_engine_rpm_PCM >= 500
5	GBOX HOT	t_gearbox_C187 >= 275.0 F (for 2.00 s) and n_engine_rpm_PCM >= 500
6	DIFF HOT	t_diff_PCM >= 284 F (for 2.00 s) and n_engine_rpm_PCM >= 500
7	LOW FUEL	Fuel Remaining < 4.0 l (for 5.00 s) and n_engine_rpm_PCM >= 500
8	PCM ASLEEP	PCM_CAN_Alive > 300 and B_ign_switch_stat_C187 = 1 (for 2.00 s)
9	NO ABS COMMS	B_ign_switch_stat_C187 = 1 (for 4.00 s) and B_no_abs_comms > 0
10	NO GPS SIGNAL	Comms RS232 Diag > 0
11	BATT V HIGH	u_bat_volts_PCM >= 16.00 V (for 0.50 s)
12	BATT V LOW	u_bat_volts_PCM <= 11.00 V (for 1.00 s) and n_engine_rpm_PCM >= 2000
13	FUEL RESET	B_fuel_reset True (for 1.00 s)
14	PUMP OUT	B_pump_out_req_C187 = 1
15	REV MATCH	B_rev_match_req_C187 Changed By 1
16	CODES CLEARED	B_clear_codes Changed By 1
17	TURN IGN ON	D_dash_mode_C187 = 1 (for 2.00 s) and B_ign_switch_stat_C187 = 1

17 alarms configured. 31 available.

Input

☒ Acknowledge Button :

Output

☒ Warning Light :



7. Navigate to the “message” tab in the pop up window and select the desired units from the dropdown menu (circled red) and click ok.

A screenshot of a software window titled "Change Alarm" with a close button (X) in the top right corner. It has three tabs: "Conditions", "Message", and "Options", with "Message" currently selected. The "Message" section contains a "Text:" label and a text box with "ENG OIL HOT". Below this is a "Value" section. It includes a checked checkbox for "Include Value", a "Channel:" label with a text box containing "t_oil_C187" and a "Select..." button, a "Units:" label with a dropdown menu showing "celsius (C)" (which is circled in red), and a "Decimal Places:" label with a spinner box set to "0". At the bottom of the "Value" section are two radio buttons: "Show current value" (selected) and "Show value when alarm was triggered". At the very bottom of the dialog are three buttons: "OK", "Cancel", and "Help".

8. Repeat steps 5 and 6 for the other alarms you wish to modify
9. Save the configuration changes
10. Send the configuration to your car via the  toolbar icon, or via F5, or via online menu -> send configuration

Alarm trigger points are set such that the driver should modify their inputs/behavior to fall below the trigger threshold. Alarms should not be considered optional advisement. Any resultant issue due to failure to follow alarm guidance is solely the responsibility of the driver and team.



List of Configured MoTeC Alarms (17)

Alarm #	Message	Condition	Action	Notes
1	OIL PRES LOW	Oil Pres < 100 kPa when RPM > 2000 for 0.5 sec	CLUTCH IN – STOP VEHICLE DO NOT DRIVE Inspect Oil System – Review Data	
2	CYL HEAD HOT	Engine Coolant Temp > 112 C for 5 sec	STOP / PIT Inspect Cooling System	
3	FUEL PRES LOW	Fuel Rail Pressure < 275 kPa and RPM > 500 for 2 sec	STOP / PIT Inspect Fuel Pressure	
4	ENG OIL HOT	Oil Temp > 140 C and RPM > 500 for 2 sec	STOP / PIT Inspect Oil Level and Cooling System	
5	GBOX HOT	Gearbox Temp > 135 C and RPM > 2 sec	STOP / PIT Inspect Gearbox Cooling System	
6	DIFF HOT	Diff Temp > 140 C and RPM > 500 for 2 sec	STOP / PIT Inspect Diff Oil Level, Pump & Cooling System	
7	LOW FUEL	Fuel Remaining <u>Calculation</u> < 4 litres	Pit for Fuel Less than 4 Liters left in collector	MoTeC fuel capacity needs to equal “filled amount” and fuel used reset prior to session to ensure accuracy
8	PCM ASLEEP	PCM has stopped communicating with the dash	STOP / PIT Inspect wiring and PCM	Both PCM & ABS warning banners will show after continuous 7 minutes of IGN switch left ON with engine OFF
9	NO ABS COMMS	ABS INACTIVE Over-current or Fault Shutdown	SLOW / PIT Inspect ABS	
10	NO GPS SIGNAL	GPS Receiver RS232 Diag. > 0		
11	BATT V HIGH	Battery Voltage > 16 V for 0.5 sec	PIT – Inspect Alternator	
12	BATT V LOW	Battery Voltage < 11 V for 1 sec	Charge / Replace Battery PIT – Inspect Alternator	
13	FUEL RESET	Request to reset fuel level has been received		
14	PUMP OUT	Request to override fuel pump has been received		
15	REV MATCH	Rev match state has changed (ON to OFF or OFF to On)		
16	CODES CLEARED	Request to clear powertrain DTC/codes has been received		
17	TURN IGN ON	Engine start requested (starter button) without ignition switch on		



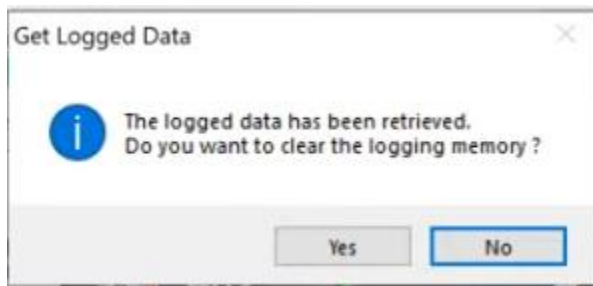
3. Data Download – Clearing MoTeC Logger & Data File Name

Clearing Logged Data Post Download:

To help reduce data processing times, we are requesting that teams follow the prompts to “clear” their MoTeC dash logger after the data download has been completed.

This helps reduce any confusion regarding files applicable to a given session and ensures Parc Ferme can be as short and efficient as possible.

C187 Dash Manager, clear logger memory prompt:



Select “Yes” to clear logger memory.

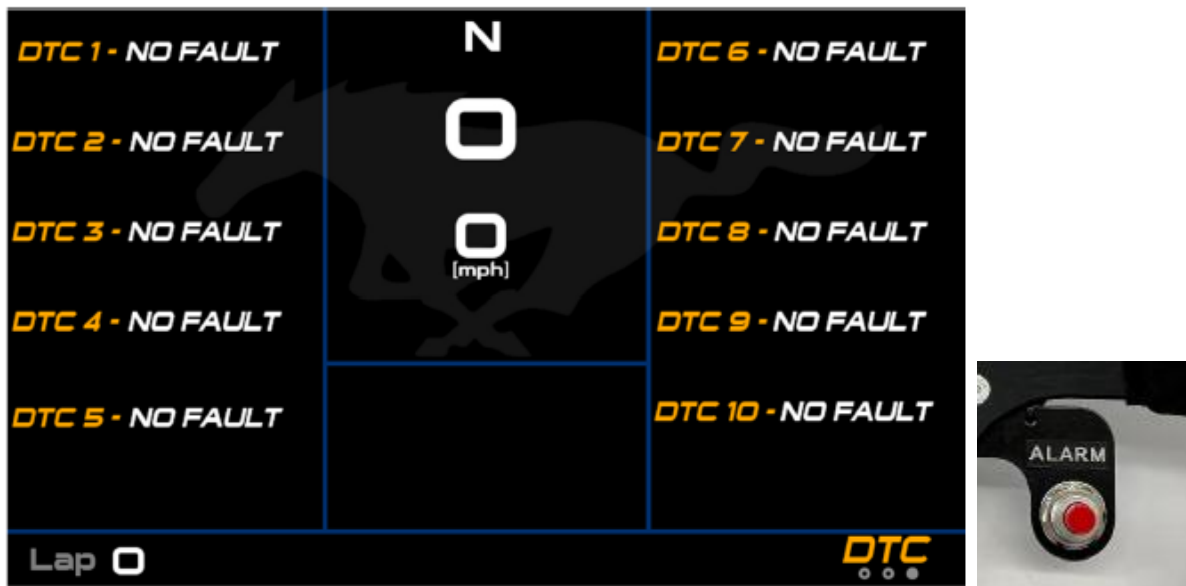
Logged Data File Names:

Please retain the standard MoTeC file name for any logged data shared with the Ford Racing engineering team.



4. DTC/Codes Clearing Procedure – MoTeC dash

In the event your vehicle registers any DTC codes on the DTC page of the MoTeC dash (per image below), once you have diagnosed the cause of the fault, please ensure you perform a “code clear” by pressing and holding the “alarm” button on the steering wheel until you see a message banner which says “CODES CLEARED”



Failure to perform a “code clear” increases the risk that the following sessions log data can be polluted with the inactive code, hindering further issue diagnosis or reason of recurrence.



5. TSB 58 - Mustang Dark Horse R Mandatory Calibration Updates: MoTeC Dash, Display Creator & PCM

Given the short notice for this update prior to the Darwin event, please refer to TSB 58 via the link below, which covers off updated functionality and features.

<https://www.fordracing.com/content/dam/fordPerformance/motorsport/mustang-challenge/pdfs/2026/7/MC%20TSB%2058%207-22-26-AU%20MoTeC%20Dash%20and%20PLS%20Updates.pdf>

Purpose: To explain the changes/refinements made to the MoTeC display/configuration and also the PCM calibration

Key areas of focus:

- 1. MoTeC Display – LED configuration updates**
- 2. ABS System Displays & Messaging**
- 3. Vehicle speed display**
- 4. Clutch system displays & messaging**
- 5. Rev-match function messaging**
- 6. Pit Speed Limit – PCM calibration update**

Technical Documentation Location:

Reminder that all relevant Mustang Dark Horse R, Mustang Cup Australia technical documents and files can be found here:

<https://www.fordracing.com/motorsport/mustang-cup-australia/competitor-info>

Dash Updates Feedback:

If your team/drivers have any feedback regarding the updates, please do not hesitate to share that with Ford Racing



6. Gearbox Gear Position Sensor Incorrect Orientation

Teams are reminded that this sensor can be installed both ways but only has one correct orientation.

If the sensor is fitted upside down, with connector locking tab facing upward, all gear shift related functions and vehicle drivability will be heavily impacted.

Symptoms of incorrect sensor orientation:

- Gear shift indicator (gear number) on the MoTeC display does not match physical shifter position/physical gear
- Downshift rev-matching will not function correctly.
- The ECU could attempt to deploy rev matching on upshift instead – which would result in an rpm flare between gears
- The check engine light may be illuminated and the DTC page should have multiple DTC's logged: P086E, P095B

Figures 1 through 4 explain the correct orientation of the sensor.

The gear position sensor has a Ford oval, QR code and other text printed on the part as seen in Figure 1 below.

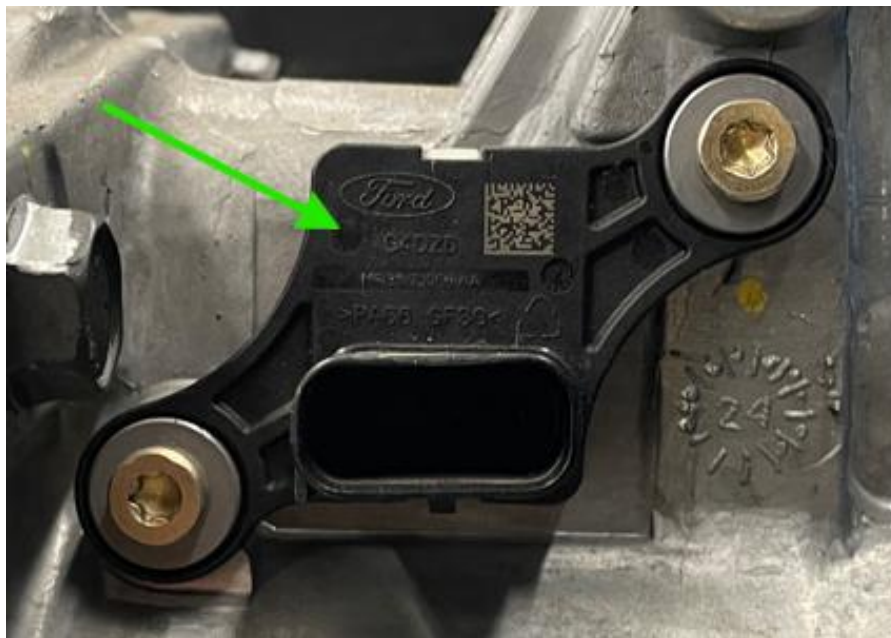




Figure 1 – Gear Position Sensor

The orientation of the text on the gear position sensor is to be consistent with the orientation of the text on the transmission case as seen in Figure 2.

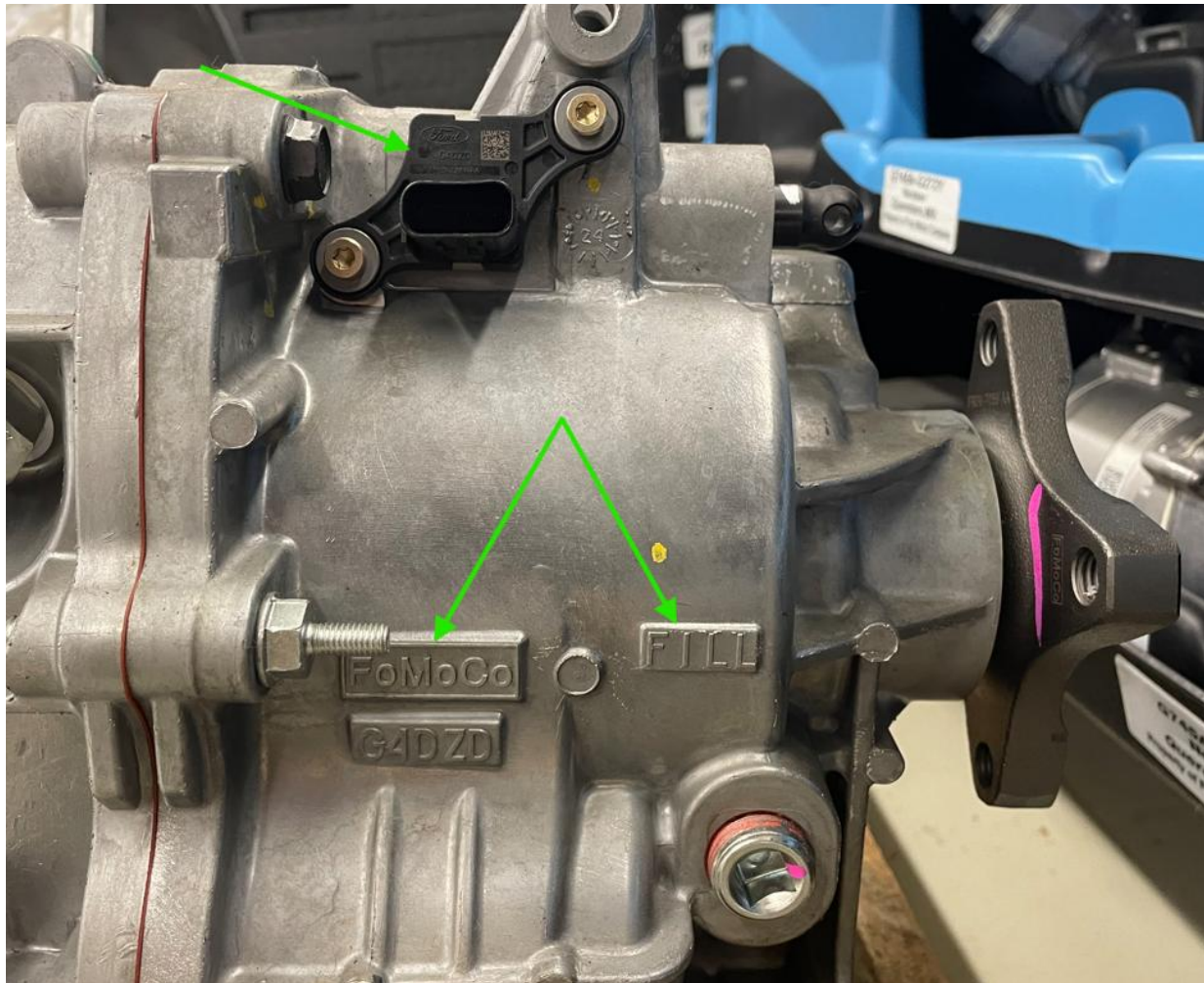


Figure 2 – Transmission Case Text

Ensure the red locking tab on the gear position sensor electrical connector is pointed down (toward the ground). The location of the gear position sensor is toward the rear (tail section) of the transmission case on drivers left of the vehicle. See Figures 3 and 4 below.

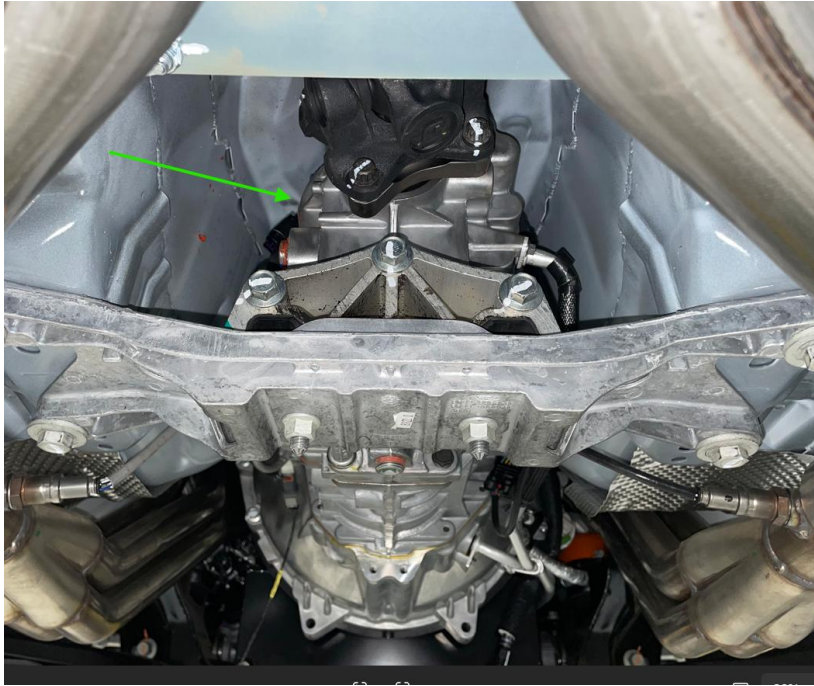


Figure 3 – Sensor Location noted by green arrow

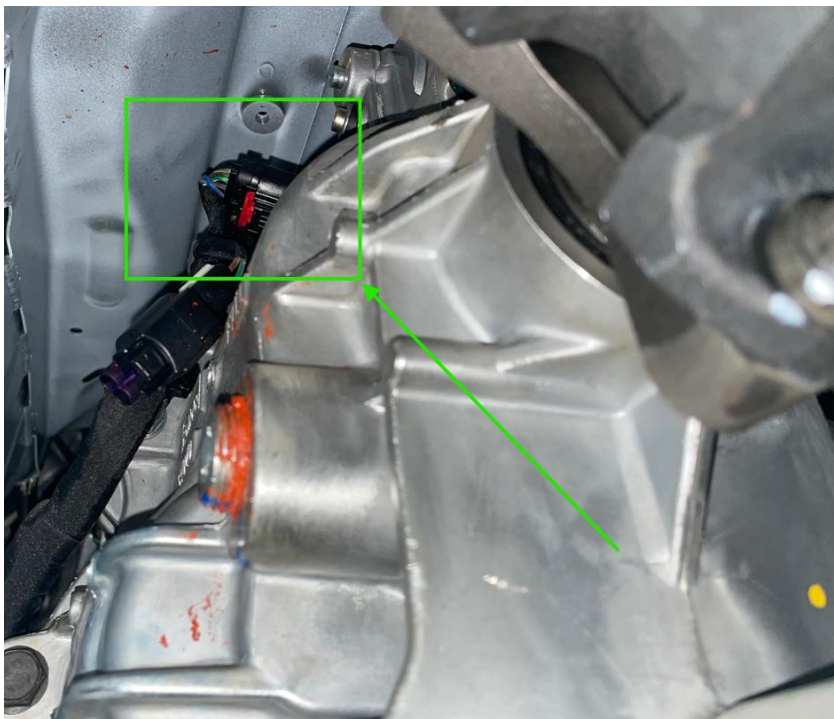


Figure 4 – Connector Red Retaining Clip Visible from below



7. Brembo Brake System Technical Guidance/Bulletins

Please ensure that your team and driver is familiar with the technical guidance from Brembo, found on the Mustang Cup Australia competitor information portal, or via the links below.

1. Subject: Brake Rotor -Thermal Shock

<https://www.fordracing.com/content/dam/fordPerformance/motorsport/mustang-challenge/pdfs/Brembo%20Technical%20Bulletin%20-%20Thermal%20Shock%20-%20DHR.pdf>

2. Front Caliper Information – General Operation

[https://www.fordracing.com/content/dam/fordPerformance/motorsport/mustang-challenge/pdfs/2026/1/Brembo%20Bulletin%20-%20Mustang%20Dark%20Horse%20R%20Brake%20System%20Info%20Update%202.0%20Stud+Bracket%20\(2025.05.06\).pdf](https://www.fordracing.com/content/dam/fordPerformance/motorsport/mustang-challenge/pdfs/2026/1/Brembo%20Bulletin%20-%20Mustang%20Dark%20Horse%20R%20Brake%20System%20Info%20Update%202.0%20Stud+Bracket%20(2025.05.06).pdf)

3. Subject: Mustang Dark Horse R Front Caliper Grub Screw

<https://www.fordracing.com/content/dam/fordPerformance/motorsport/mustang-challenge/pdfs/2026/3/Brembo%20Bulletin%20-%20Mustang%20Dark%20Horse%20R%20Grub%20Screw.pdf>