S24DG

November 11, 2024

To: Affected US Dealers

Subject: S24DG: 7.3L Transmission Oil Cooler Interface Update & Cross Contamination Inspection

Models Affected:
- Model: Vision School Bus and Non-School Buses With 7.3L Engine
- Model Years: 2023-2025
- Build Dates: July 18, 2022 through November 8, 2023

Bulletin Duration: One (1) Year from Date of Issue

Overview:
The 7.3L radiator uses adapter nuts, if not properly sealed, exposes the opportunity for fluid migration through threads. Primary failure seen is deterioration of the EPDM gasket sealing the transmission oil cooler (TOC) to lower radiator tank, which allows a path for coolant to leak externally. Secondary failure seen is cross contamination between coolant and transmission oil.

To eliminate the possibility of experiencing this condition, Blue Bird is providing 1 year of coverage to update the transmission oil cooler interface along with a visual inspection of any cross contamination at time of completing the interface update. Please follow the flowchart within the instructions to determine if any additional repair activity is necessary and, if so, complete further repair procedures as stated.

Affected Units:
This service bulletin includes:
- Certain model year 2023-2025 Blue Bird Vision School Buses (BBCV)
  - **Manufactured from July 18, 2022 through November 8, 2023**
- Certain model year 2023-2025 Blue Bird Vision Non-School Buses (BBCV)
  - **Manufactured from September 12, 2022 through October 31, 2023**

A separate printout will be provided listing all buses in your territory that are affected by this service bulletin. Service Bulletin S24DG will be mailed to all owners on record. Be sure to review your list and advise of any incorrect owner names and/or addresses.

Repair Parts: You may request parts at **campaignparts@blue-bird.com** Parts are currently available.

Time Allowance:

- Radiator Interface Rework: 1.0 hour
- Contamination Inspection: 0.1 hour (6 minutes)
- Coolant Flush (if needed): 4.0 hours
- Transmission Health Check (if needed): 1.0 hour
- Transmission Fluid Replacement (if needed): 1.0 hour

Completion Notification:
To request reimbursement for completed repairs, Dealers may submit claims via Blue Bird ClaimsCenter. Upon submission and approval of the claim, the body number will be flagged 'Completed/Claim'. For completed repairs where no reimbursement is requested, Dealers shall send the body number, repair date, odometer, and name of the repair facility to **campaignparts@blue-bird.com** and the body number will be flagged 'Completed/Reply'.

If the modification directed by this notification was performed on your unit prior to the receipt of this notification, you may be eligible to receive reimbursement for the cost of obtaining a pre-notification remedy of the subject matter of the campaign. Please provide a copy of all receipts to **campaignparts@blue-bird.com.**

Repair Facility:
Owners are advised to contact their dealer for completion of this repair.

Questions:
Questions regarding this Service bulletin should be directed to your Product Support Manager (PSM).

Regards,

Lisa Hancock
Parts & Service Division – Recall Deptartment
Blue Bird Corporation
3920 Arkwright Road, Suite 200, Macon, Georgia 31210
Phone 478.822.2242
lisa.hancock@blue-bird.com

S24DG

November 11, 2024

To: Blue Bird Owner

Subject: S24DG: 7.3L Transmission Oil Cooler Interface Update & Cross Contamination Inspection

Models Affected:

- Model: Vision School Bus and Non-School Buses With 7.3L Engine
- Model Years: 2023-2025
- Build Dates: July 18, 2022 through November 8, 2023

Bulletin Duration: One (1) Year from Date of Issue

Overview:

The 7.3L radiator uses adapter nuts, if not properly sealed, exposes the opportunity for fluid migration through the threads. Primary failure seen is deterioration of the EPDM gasket sealing the transmission oil cooler to lower radiator tank, which allows a path for coolant to leak externally. Secondary failure seen is cross contamination between coolant and transmission oil.

To eliminate the possibility of experiencing this condition, Blue Bird is providing 1 year of coverage to update the transmission oil cooler interface along with a visual inspection of any cross contamination at time of completing the interface update. Please follow the flowchart within the instructions to determine if any additional repair activity is necessary and, if so, contact your local Blue Bird Dealer for support.

Affected Units:

This service bulletin includes:

- Certain model year 2023-2025 Blue Bird Vision School Buses (BBCV)
    - **Manufactured from July 18, 2022 through November 8, 2023**
- Certain model year 2023-2025 Blue Bird Vision Non-School Buses (BBCV)
    - **Manufactured from September 12, 2022 through October 31, 2023**

A separate printout will be provided listing all buses sold to you that are affected by Service Bulletin S24DG.

Repair Parts: You may request parts at **campaignparts@blue-bird.com** Parts are currently available.

BLUE BIRD BODY COMPANY
3920 Arkwright Road, Suite 200, Macon, GA 31210 – (478) 825-2021

Time Allowance:

- Radiator Interface Rework: 1.0 hour
- Contamination Inspection: 0.1 hour (6 minutes)
- Coolant Flush (if needed): 4.0 hours
- Transmission Health Check (if needed): 1.0 hour
- Transmission Fluid Replacement (if needed): 1.0 hour

Completion Notification:

If you perform this service bulletin yourself or have an outside repair facility perform this bulletin, please notify your Blue Bird Dealer, when the repair is completed. Send the body number, repair date, and odometer reading to your Blue Bird Dealer. **If you request reimbursement for labor, also send a copy of the work order/invoice to your Blue Bird Dealer.**

If the modification directed by this notification **was performed** on your unit prior to the receipt of this notification, you may be eligible to receive reimbursement for the cost of obtaining a pre-notification remedy of the subject matter of the campaign. Please provide a copy of all receipts to campaignparts@blue-bird.com

Repair Facility:

Blue Bird recommends you contact your local Blue Bird Dealer to arrange for this Service Bulletin to be performed. To locate an authorized dealer, search online at www.blue-bird.com/find-a-dealer The Dealer can perform the repairs, or arrange for repairs to be performed by a service repair facility authorized by the Dealer. However, you may elect to perform this Service Bulletin yourself or pay another independent repair facility to perform this Service Bulletin. A qualified technician must perform work required under this bulletin and corrected according to the enclosed S24DG Instructions.

Questions:

Questions regarding this bulletin should be directed to your local Blue Bird Dealer.

Regards,

Lisa Hancock
Parts & Service Division – Recall Deptartment
Blue Bird Corporation
3920 Arkwright Road, Suite 200, Macon, Georgia 31210
Phone 478.822.2242
lisa.hancock@blue-bird.com

SERVICE BULLETIN

S24DG: 7.3L Transmission Oil Cooler Interface Update & Cross Contamination Inspection

Models Affected: BBCV buses with Ford 7.3L / 6R140 with build dates between July 18th, 2022 through November 8th, 2023

Issue: Coolant and Transmission Fluid cross contamination and/or external coolant leaks.

Corrective Action:

- Update transmission oil cooler (TOC) interface per the instructions below (pages 1 – 4)
- Follow flowchart to determine next steps (page 5)
- Complete further repair procedures if required (pages 6 – 10)

Component Code: 30-100-146

SRTs:

- Radiator Interface Rework – 1.0 hour
- Contamination Inspection - 0.1 hour (6 minutes)
- Coolant Flush (if required) – 4.0 hours
- Transmission Health Check (if required) – 1.0 hour
- Transmission Fluid Replacement (if required) – 1.0 hour

Parts Needed

Part Number	Description	Quantity
10059342	KIT, SEAL, TRANS OIL-COOLER, RADIATOR	1
10081789	ADAPTER,90,3/4NPT X ¾-16UNF,37 DEG FLARE	1
10081790	ADAPTER,3/4NPT X ¾-16UNF,37 DEG FLARE	1
10081850	O RING,VALVE,RADIATOR,PETCOCK(00089936)	1
Source Local	Coolant- Motorcraft™ VC-7DIL-B, Shellzone AF/C 50/50 or equivalent	As Needed
Source Local	Trans oil- Mercon LV- XT-10, Pennzoil Platinum LVMH ATF or equivalent	As Needed

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[WARNING] Observe all safety precautions to secure the bus from rolling and for use of ladders or scaffolds. Thoroughly read and understand all instructions before performing these procedures. Park bus on level surface, apply parking brake, turn off ignition key, and chock wheels.

Instructions:

1) Inspect TOC interface to identify if interface has already been reworked / updated to current design. If has, no further action required. If has not, proceed to step #2

2) Close both heater valves (red and yellow) on the engine to isolate the heater system.

3) Place clean & suitable container below LH side of radiator to save and reuse the coolant. A clean 5-gallon bucket works well.

4) Open radiator petcock and then remove surge tank cap. Drain coolant.

5) Disconnect both transmission cooler lines from the radiator and tip up to keep them from draining out.
   NOTE: TIP- Having two ¾-16 UNF flare plugs to thread into cooler lines will keep them from dripping on you during repairs.

6) Once coolant is drained, use 10” adjustable wrench to loosen and remove the left side steel nut.
   NOTE: Steel nuts removed should be tagged, labeled with the body number, and retained for 60 days for potential request to return to Blue Bird for review.

7) Thread one of the ¾” pipe nipples into the LH side of the trans cooler.

Unique Tools/Materials Needed

Item Description	Quantity
Clean 5-Gallon Bucket	1
1 7/8” Chrome Socket	1
Torque Wrench	1
Long 90° Pick	1
10” Adjustable Wrench	1
Long Funnel	1
¾-16 UNF Flare Plug	2
¾ NPT x 4” pipe nipple	1
Loc-tite™ 271 High Strength	1
Loc-tite™ 567 Pipe Thread Sealant	1
Vacuum Coolant Filler Tool	1

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8) Once coolant is drained, use 10” adjustable wrench to loosen and remove the left side steel nut.

NOTE: Steel nuts removed should be tagged, labeled with the body number, and retained for 60 days for potential request to return to Blue Bird for review. If no Loc-Tite is observed, describe that in repair narrative and include supporting photos.

9) Thread one of the ¾” pipe nipples into the LH side of the trans cooler.

10) Remove the RH side steel nut and thread in the pipe nipple.

11) Using the pipe nipples for handles, remove & replace the EPDM gaskets that seals the trans cooler to the lower radiator tank. Use long pick to maneuver gasket in/out.

12) Using the same pick, remove hardened Loc-Tite™ from the trans cooler threads.

NOTE: Take your time here because any leftover Loc-Tite™ will inhibit the new nuts from threading on without galling the threads. The cooler is Stainless Steel and will gall easily.

13) Apply 271 and install both brass nuts that came in the 10059342 kit, using the pipe nipples to help position the cooler. Once hand tight, remove nipple at that location. Torque nuts to 28 Ft-LBS (38 N-M).

14) Remove pipe nipple, apply Loc-Tite™567 to NPT threads, and install 10081789 90° fitting into the left/driver’s side cooler port. Clock fitting as shown to the right.

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15) Remove pipe nipple, apply Loc-Tite™ 567 to the NPT threads, and Install 10081790 straight fitting into the right/passenger side cooler port.

16) Verify P clamp from passenger side cooler line is configured, per the below illustration. Make corrections if not.

17) Install both cooler lines onto the flare fittings. Torque to 35-39 Ft-LBS (47-52 NM).

NOTE: Ensure the use of the proper backup wrench on cooler fittings.

18) Replace O-ring on radiator drain with 10081850.

19) Vacuum fill the cooling system reusing the coolant drained if meeting re-use guidelines. Verify system holds vacuum to ensure no coolant leaks.

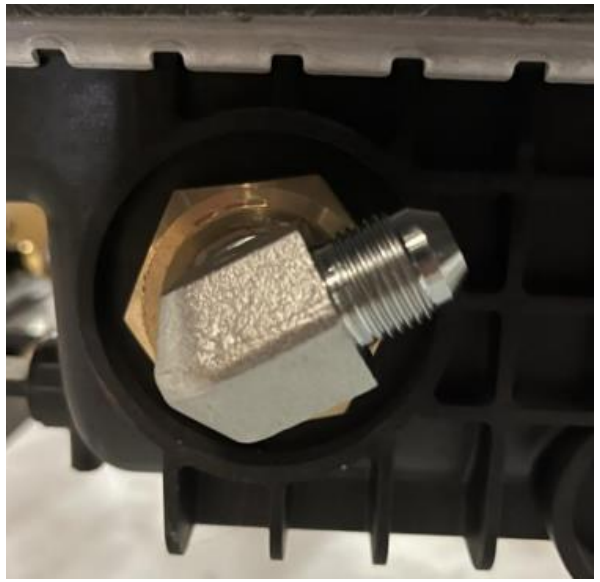
NOTE: The 7.3L is stubborn to remove the air from the cooling system post repairs. Although it's possible to get the air out of the system by running the engine, its substantially more efficient to vacuum fill it if at all possible.

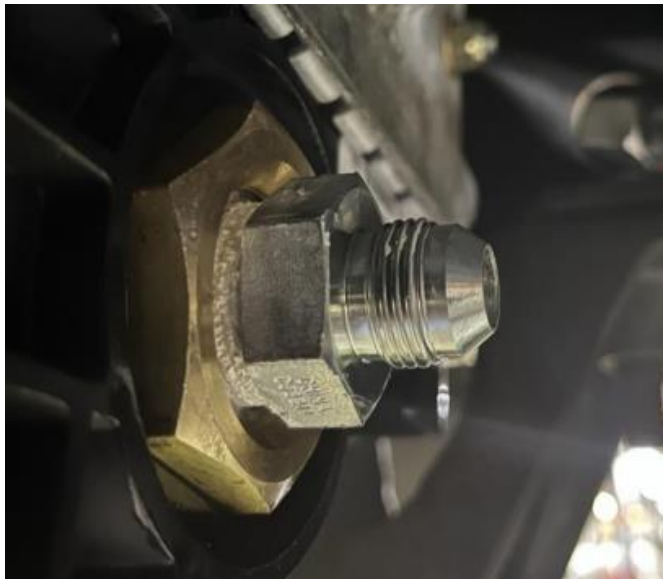
20) Start engine and bring to operating temp (196°-216° F). Adjust coolant level, as needed.

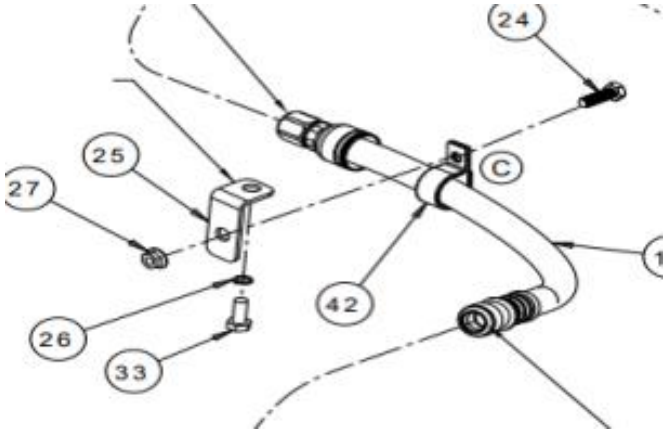
21) Road test unit and bring transmission up to operating temp (196°-216° F). Verify no leaks and adjust fluid level, as required.

NOTE: Transmission cooler loop is thermostatically controlled. Transmission oil will NOT circulate in the cooler loop if transmission fluid temp is <185°F.

22) Open heater valves and return to service.







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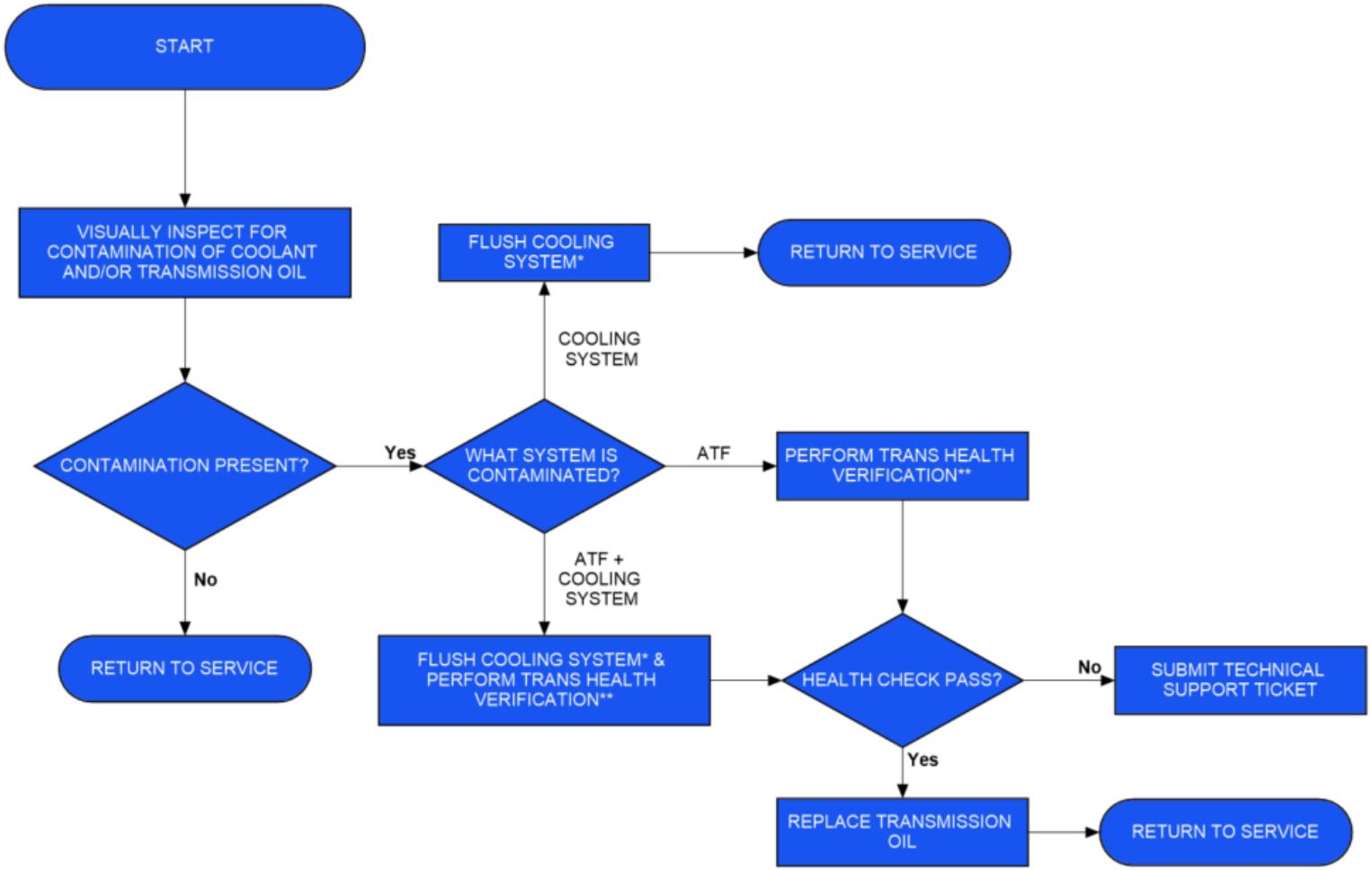
Post TOC update:

***NOTE:** Visual inspection of the transmission oil plus the IDS trans heath check has replaced the use of glycol test strips previously advised on earlier communications.

****NOTE:** Transmission Repair/Replacement made under warranty will **require** a failed IDS session attached to claim.

SRTs:

- Contamination Inspection – 0.1 hour (6 minutes)
- Coolant Flush (if required) – 4.0 hours
- Transmission Health Verification (if required) – 1.0 hour
- Transmission Fluid Replacement (if required) – 1.0 hour



Transmission Health Verification

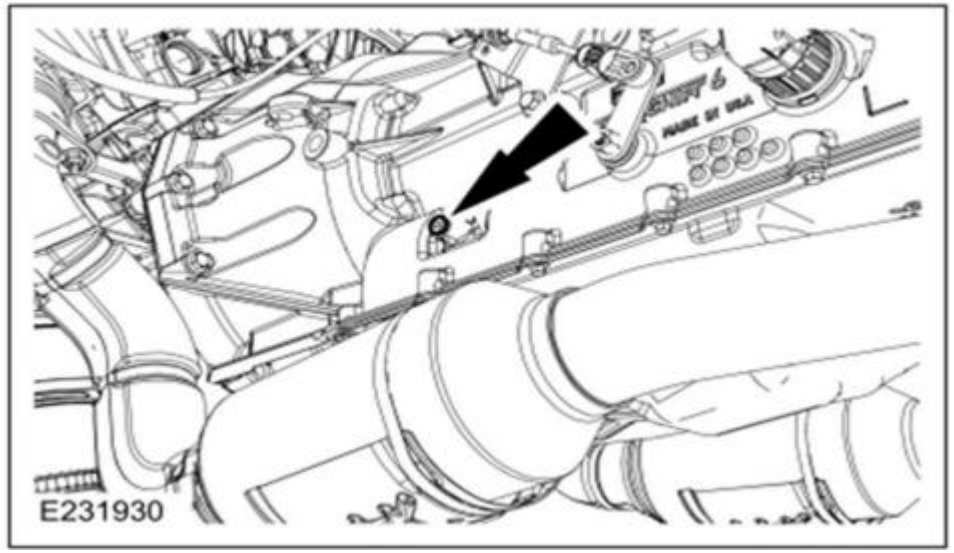
Scan the code to watch IDS setup

1. Line Pressure Test:

- Connect IDS. Record and clear DTC's.
- Connect 0-400 PSI pressure gauge with M10x1.00 to the line pressure port identified below.
  - **DO NOT use 1/8" NPT or case damage will result.**
- Launch datalogger & monitor PID LINEDSD#.
- Start engine and compare measured line pressure with value displayed on IDS.
- The two should be within 10 PSI of each other.
- Perform this check at variable RPM's in Neutral, Rev, and Drive.
- Continue to Step 2 if passed. If failed, enter technical support ticket noting results.

2. Stall Test:

- KOER, brake applied, place transmission in D(drive) and hold throttle pedal fully down. Record max RPM.
  - **DO NOT hold in this state for greater than 5 seconds.**
- RPM should stop at 2,450 RPM, +/- 100 RPM.
- Continue to step 3 if passed. If failed, enter technical support ticket noting results.



Transmission Health Verification

Scan the code to watch IDS setup

3. Diagnostic Road Test

- Reset transmission adaptive tables
  - Toolbox->Transmission-> Reset Transmission Adaptive Tables
- Launch & configure IDS datalogger:
  - Highlight/select PID's listed in the chart below
  - Set PID triggers per next page

PVT (VACU)	PWRTRN_DRVMODE (MODE)	PWRT_FUNCMON_A (NUM)	PWRT_FUNCMON_B (NUM)	REALTIME (TIME)	
SHFT_DROP (RPM)	SHFT_FLRE (RPM)	SHFT_ID (MODE)	SHFT_LAG (TIME)	SHFT_TIME (TIME)	
SSA_AMP # (CUR)	SSB_AMP # (CUR)	SSC_AMP # (CUR)	SSD_AMP # (CUR)	SSE_AMP # (CUR)	
SSPCC_F (FAULT)	SSPCD (PRESS)	SSPCD_F (FAULT)	SSPCE_F (FAULT)	STARTER_PROT (MODE)	ST
TCC AMP # (CUR)	TCC_F (FAULT)	TCC_OSC # (MODE)	TCC_RAT (RATIO)	TCS_DEPRES (MODE)	
TFT_F (FAULT)	THL_ANG_COR (PER)	TP1 (PER)	TP1_LRN_TRIM (ANGL)	TP_A_2NDRCNT_F (FAULT)	TP_
TQ_FRICTION (PER)	TR (MODE)	TRANS_CLT_STAT (MODE)	TRANS_VOLT_A (MODE)	TRAN_RAT (RATIO)	
TR_FREQ (FREQ)	TSS_F (FAULT)	TSS_SRC (RPM)	VCT1_F (FAULT)	VCT2_F (FAULT)	
VCTDC2 (PER)	VCTSYS (MODE)	VCT_DSD # (ANGL)	VEHMODE (MODE)	VEH_FEL_RATE (FLOW)	

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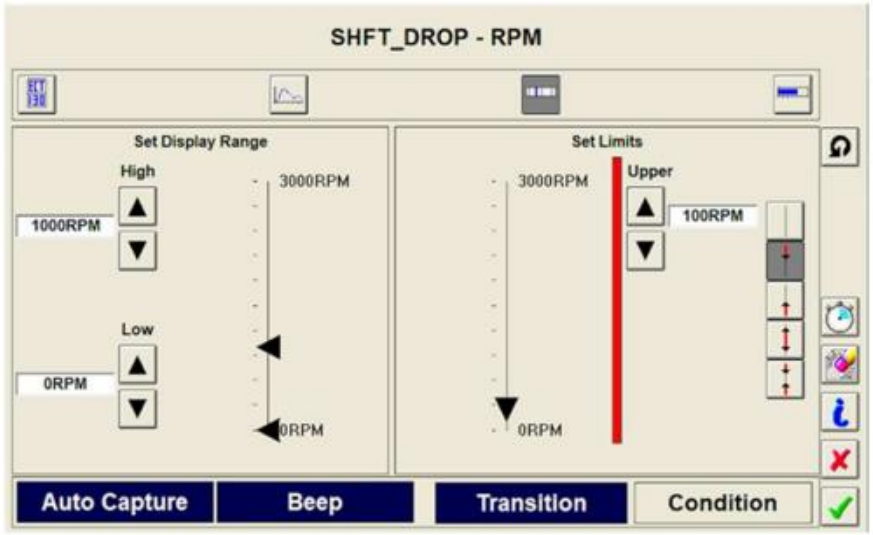
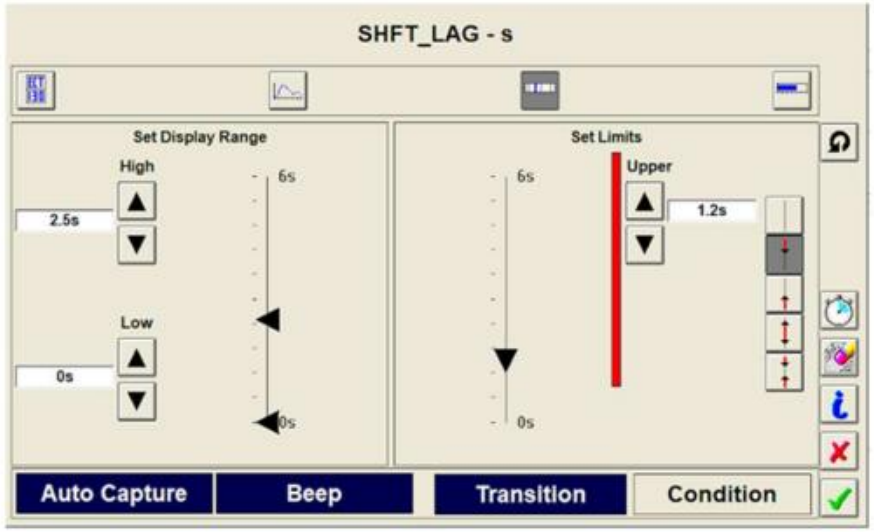
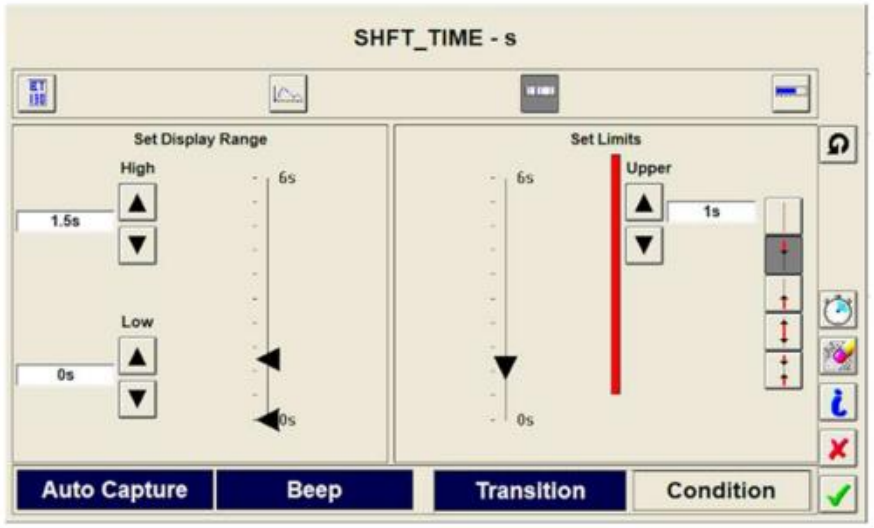
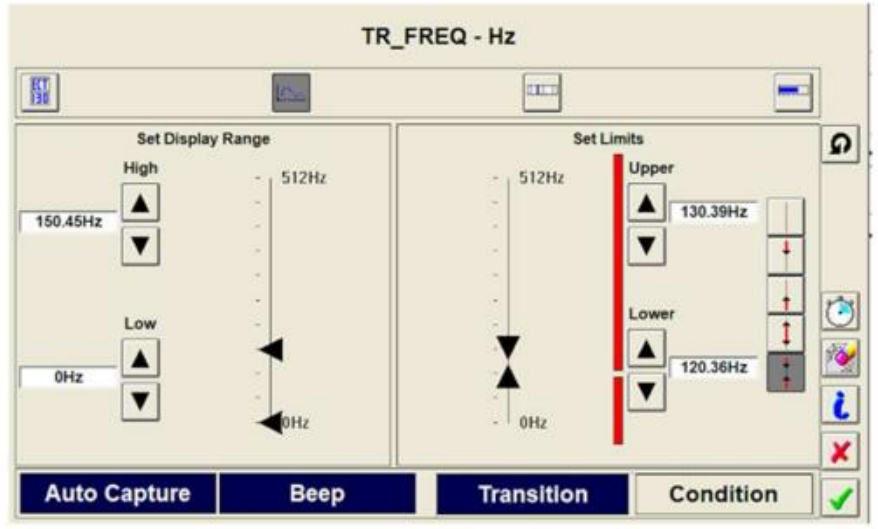




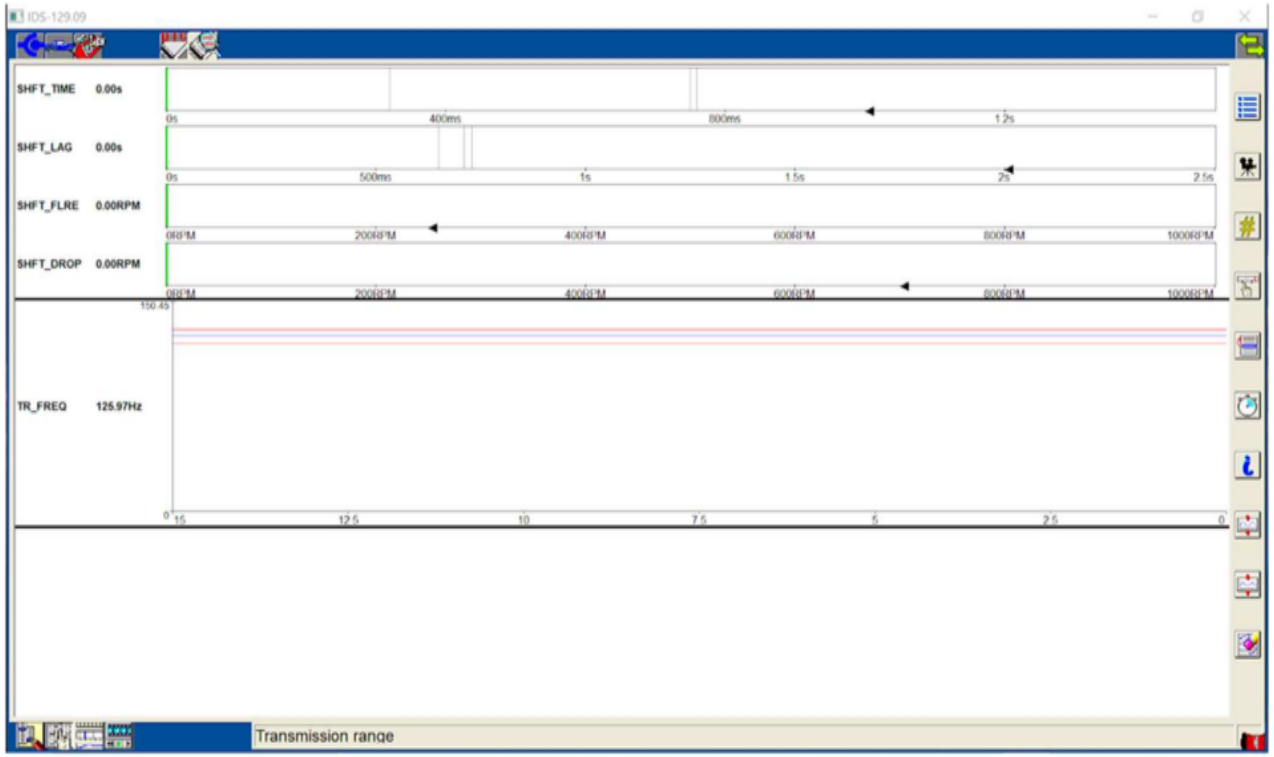




Scan the code to watch IDS setup

3. Diagnostic Road Test cont'd

- Bring the engine and the transmission up to operating temperature (185°F).
- Operate the vehicle with the selector lever in the D position.
- From a stop, accelerate the vehicle to 50 mph (80 km/h) with the shifts occurring at approximately 3000 rpm.
- Stay in 6th gear for >30 seconds.
- Repeat this sequence two additional times, for a total of 3.
- Once returned to the shop, refresh DTC's and verify no transmission related DTC's are present.
- Within the datalogger, verify if any recordings auto-captured during the road test.
- If no DTC's or recordings were logged, transmission is performing properly



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Transmission Fluid Replacement:

1. With the transmission still at operating temp, shut the engine down.
2. Place a 5-gallon bucket under the RH/passenger side cooler fitting.
3. Remove the cooler line from the radiator, and aim in downward towards the bucket.
4. Start engine and allow it to idle. ATF will flow from the cooler line into the bucket.
5. Monitor flow and once oil stops flowing, immediately shut engine down.
6. Drop transmission pan and R&R filter. Re-install pan and torque fasteners to 80 in-lbs.
7. Be sure to capture photos of any debris present in the pan, or rusting of components.
8. Pan gasket is reusable.
9. Replace fluid with Trans oil. Use Mercon LV- XT-10, Pennzoil Platinum LVMH ATF or equivalent only. Top off as required.

Cooling System Flush:

1. Allow the engine/cooling system to cold soak. Secure for service, open manual heater valves.
2. Drain & dispose coolant per local/state regulations. Cooling system contains between 12-15 gallons of coolant depending on feature content.
3. Vacuum fill cooling system with distilled water and cooling system flushing agent such as Motorcraft™ VC-1 or compatible agent meeting ESR-M14P7-A.
4. Start engine & bring coolant temp to >185°F(85°C). Operate for >20 minutes. Drain & dispose of refuse coolant/flush.
5. Fill with distilled water and bring bus back up to OT. Operate engine for >20 minutes. Drain and inspect water. If contaminated, repeat this step until water comes out free and clear.
   - This may require multiple chemical/water flush sessions to restore depending on the level of contamination.
   - If surge tank does not clear, proceed to replace with new tank.
6. Vacuum fill cooling system to 90% capacity (~2" below cold mark) with Coolant. Use Motorcraft™ VC-7DIL-B, Shellzone AF/C 50/50 or equivalent only. Run engine to OT for >20 min. Using a refractometer, measure the coolant concentration and verify coolant was not diluted with residual water. Adjust with coolant concentrate VC-13 as required.