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Major System: CLUTCH
Current Language: English
Other Languages: NONE
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Author: David Horner

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Coding Information

| | | | | | | | |
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Title: LT, RH- Hydraulic Clutch Routing and Clipping

Applies To: LT, RH, Equipped with a Manual Transmission and Eaton Advantage Solo Self-Adjusting Clutch

CHANGE LOG

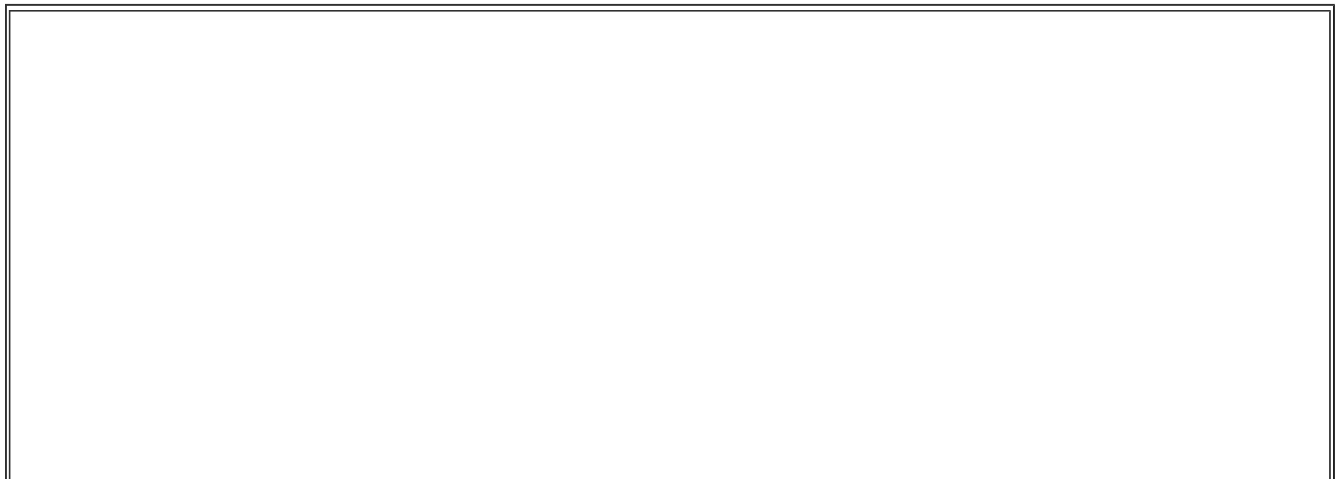
Please refer to the change log text box below for recent changes to this article:

10/02/2019 - Corrected location to bleeding procedure and corrected tool PN
 06/10/2019 - Added link to LT manual for clutch bleeding procedure
 03/14/2019 - Updated description, steps, formatting
 01/09/2018 - New Article Owner

DESCRIPTION

This iKNOW article is designed to identify and correct a hydraulic hose route & clip condition that may cause driver symptoms listed below.

The route and clip condition exists when the hose between the reservoir and master cylinder does not have a natural horizontal slope angle; thus, creating a sharp vertical slope angle (often referred to as a P Trap) on the hose which prevents upward air bubble migration to the highest exit point (fluid reservoir) in the system (Figure 1)



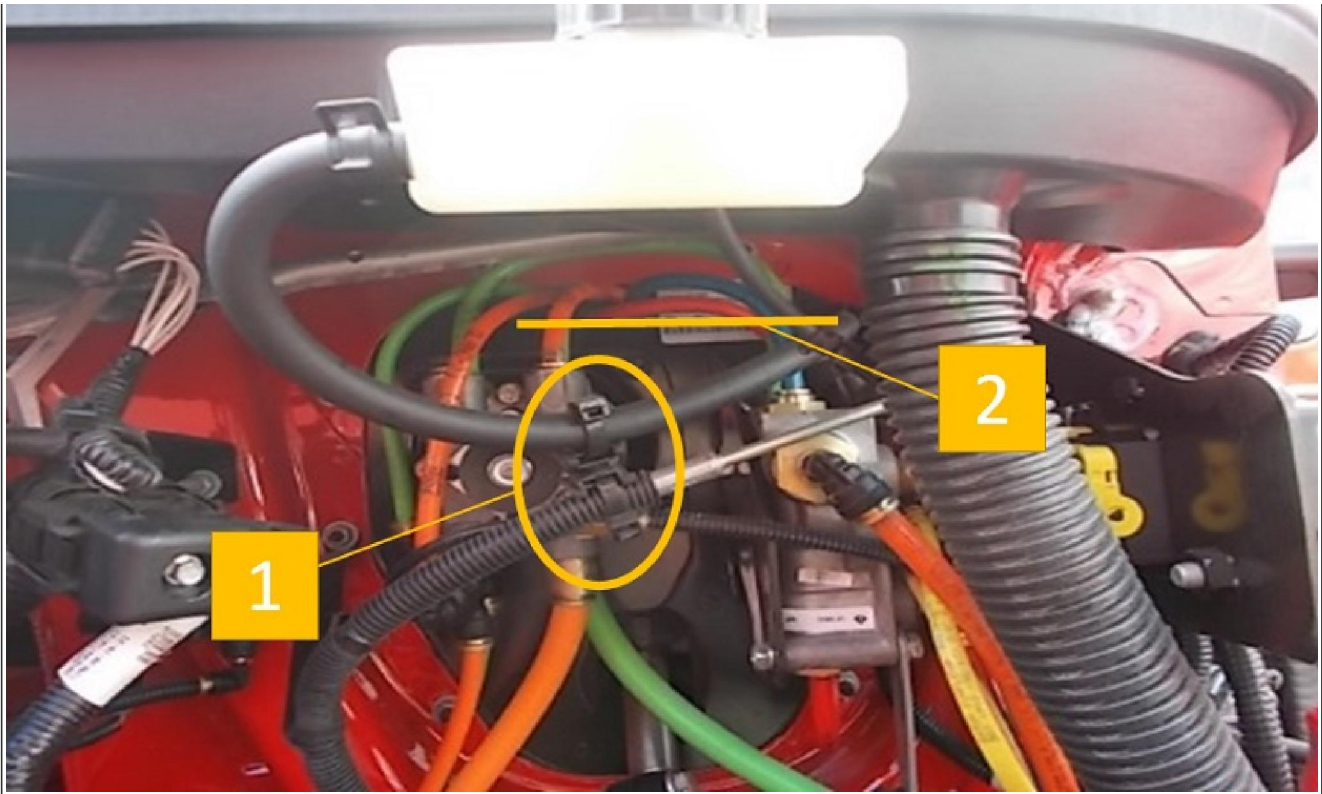


Figure 1. Incorrect Master Cylinder Supply Hose Routing

Item 1: P-trap
 Item 2: Master Cylinder Inlet level

SYMPTOM(s)

Customer Observations or Concerns:

- Spongy Pedal
- Won't go into gear
- No clutch brake

Diagnostic Trouble Code(s) & Dashboard Indicator Light(s):

| DTC/Light | Description |
|-----------|-------------|
| N/A | N/A |

SPECIAL TOOL(s) / SOFTWARE

| Tool Description | Tool Number | Comments | Instructions |
|-------------------------------|-------------|----------|-------------------|
| Hydraulic Clutch Bleeder Tool | ZTSE6087NAV | | Tool Instructions |
| Solo Clutch Resetting Tool | RR1005CL | | |
| Clutch Measurement Tool | RR1007CL | | |

SERVICE PARTS INFORMATION

| Kit Description | Part Number | Quantity Required | Notes |
|---|--------------------|--------------------------|--------------|
| CYLINDER, CLUTCH OPERAT, | 3868300C94 | 1 | |
| HOSE FLEX HYDRAULIC CLUTCH | 3953848C1 | 1 | |
| CLAMP, PIPE SGL-CUSHIONED 7/16 ID X .281 MOUNTING | 98959R1 | 2 | |
| BOLT M6 X 25 PHC CLS 10.9 | 30194R1 | 2 | M6 X 25 |
| NUT, HEXAGON HEAD FLANGE CLASS 10 M6 | 40233R1 | 2 | M6 X 25 |
| WASHERS, FLAT METRIC | 1696027C1 | 4 | M6 |

DIAGNOSTIC STEP(s)



To prevent property damage, personal injury, and / or death, keep flames or sparks away from vehicle and do not smoke while servicing the vehicle's batteries. Batteries expel explosive gases.



To prevent property damage, personal injury, and / or death, remove the ground cable from the negative terminal of the battery box before disconnecting any electrical components. Always connect the ground cable last.



To prevent property damage, personal injury, and / or death, if the vehicle must be raised, do not work under the vehicle supported only by jacks. Jacks can slip or fall over.



To prevent personal injury and / or death, always wear safe eye protection when performing vehicle maintenance.



To prevent property damage, personal injury, and / or death, park vehicle on a hard, flat surface, turn the engine off, set the parking brake, and install wheel chocks to prevent the vehicle from moving in either direction.

| Step | Action | Decision |
|------|---|---------------------|
| #1 | <p>If symptoms above are present:</p> <ol style="list-style-type: none"> 1. Perform re-routing procedure (Repair Steps Below) 2. Perform clutch bleeding procedure outlined (Bleed Procedure Below) | Continue to Step 2. |

| Step | Action | Decision |
|------|--|--|
| #2 | <p>DIAGNOSTIC:</p> <p>Depress the pedal by hand until the master cylinder begins to stroke.</p> <p>Is clutch pedal free-play between 0.4" and 0.6"?</p> | <p>Yes. Continue to Step 3.</p> <p>No. Adjust Clutch Linkage to obtain 0.4" - 0.6" free play, continue to step 3</p> |

| Step | Action | Decision |
|------|--|---|
| #3 | <p>DIAGNOSTIC:</p> <p>Measure release bearing gap using clutch measurement tool (RR1007CL), long handle bore micrometer, or inside digital spring caliper.</p> <ul style="list-style-type: none"> • See page 8, step 3 of Eaton Manual for reference, if needed. <p>Is release bearing gap .490" to .560"?</p> | <p>Yes. Continue to Step 4.</p> <p>No. Perform In Vehicle Resetting Procedure in the Eaton Manual on page 14.</p> |

| Step | Action | Decision |
|------|--|---|
| #4 | <p>DIAGNOSTIC:</p> <p>Measure clutch brake squeeze:</p> <ol style="list-style-type: none"> 1. Insert 0.010" feeler gauge between release bearing and clutch brake 2. Measure how far the clutch pedal is from the floor at time of release of 0.010" feeler gauge. <p>See page 9 of Eaton Manual for reference, if needed.</p> <p>Is clutch brake squeeze ~1" from the floor?</p> | <p>Yes. Finish repairs and release truck.</p> <p>No. Replace master cylinder & slave cylinder then repeat steps 1-4</p> |

REPAIR STEP(s)

1. Cut 2 zip ties holding the master cylinder supply hose down to the air assist servo cylinder supply hose.

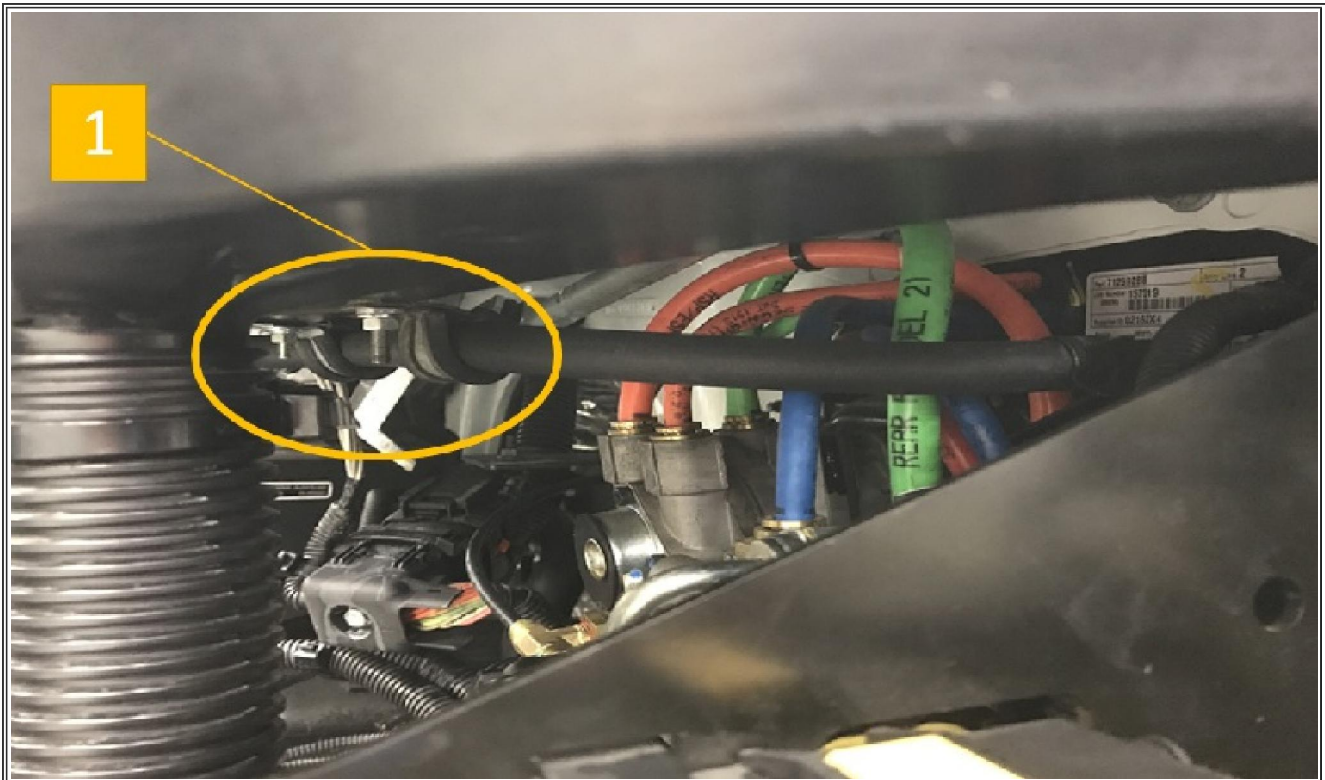


Figure 2. Correct Master Cylinder Supply Hose Routing

Item 1: New Supply Hose Clipping Points

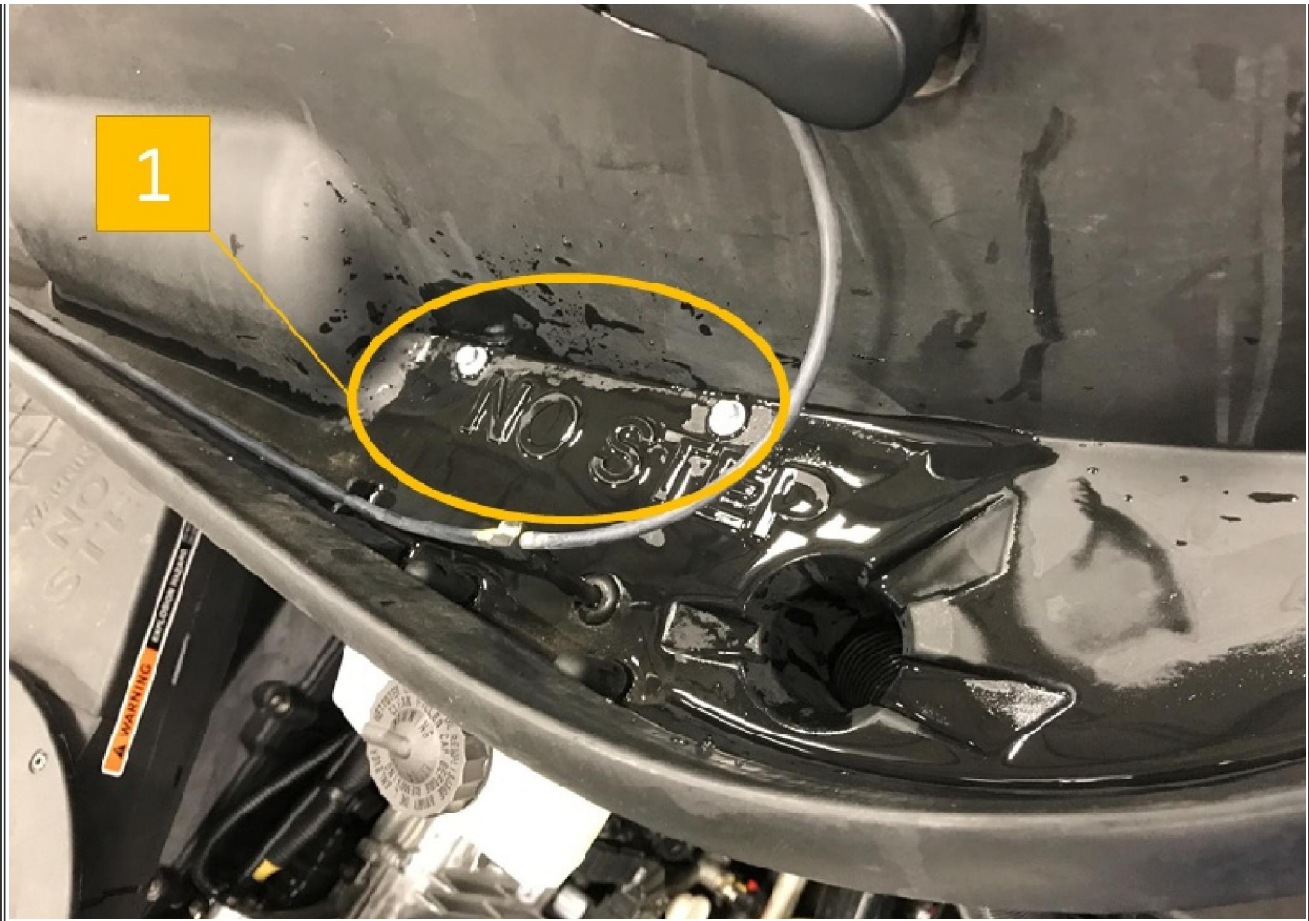


Figure 3. Top View of Cowl Tray

Item 1: Drilling locations

2. Drill 2 holes in the approximate location (Figure 3, Item 1) in the cowl tray using a 1/4" drill bit.
3. Seal holes with RTV
4. Using 2 bolts, 2 nuts, 4 washers and 2 p-clamps secure the master supply hose to the cowl tray.

Air Assist Servo Supply Hose Routing

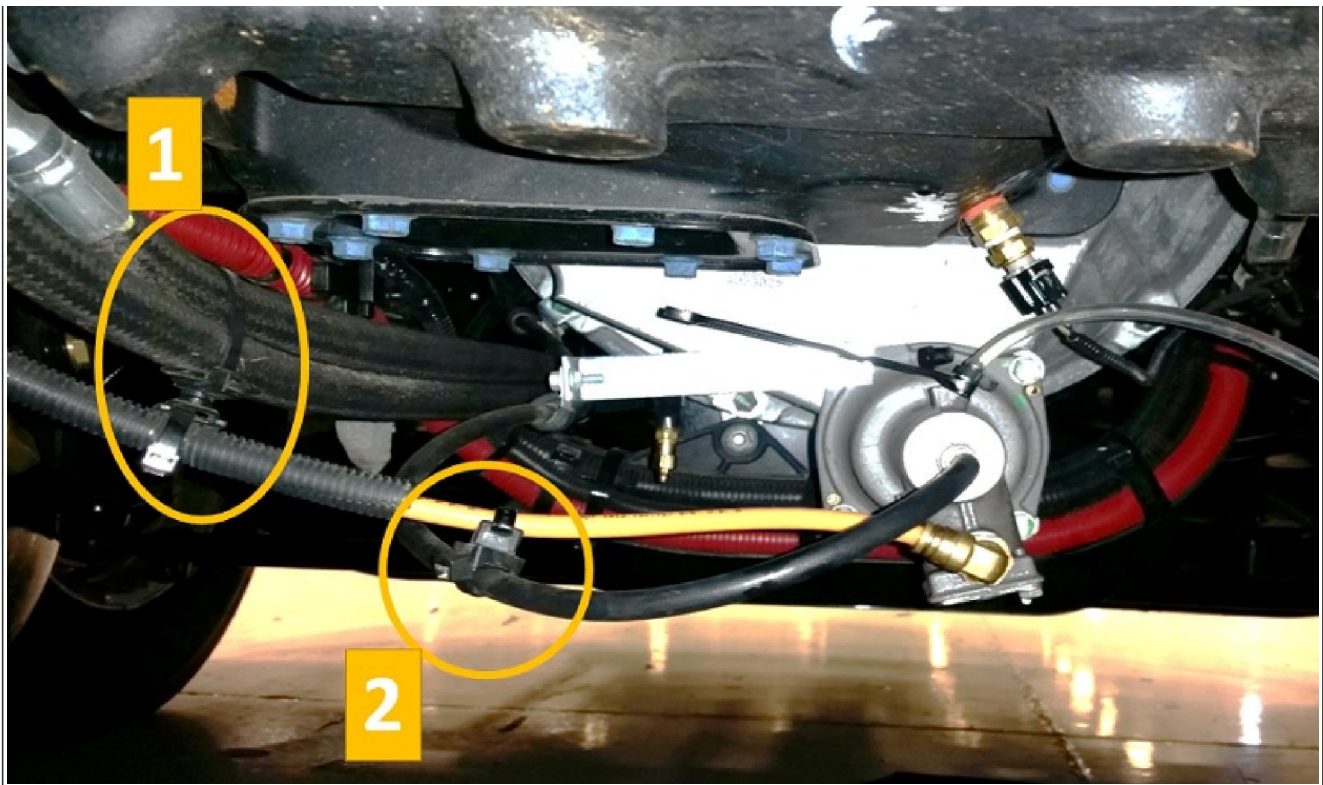


Figure 4. Incorrect Air Assist Servo Cylinder Supply Hose Routing

Item 1: Saddle clamp on the wrong side of transmission cooler lines
Item 2: Saddle clamp

1. Disconnect the air hose from the air assist servo cylinder.
2. Cut the zip tie at the saddle clamp (Figure 4, Item 2).

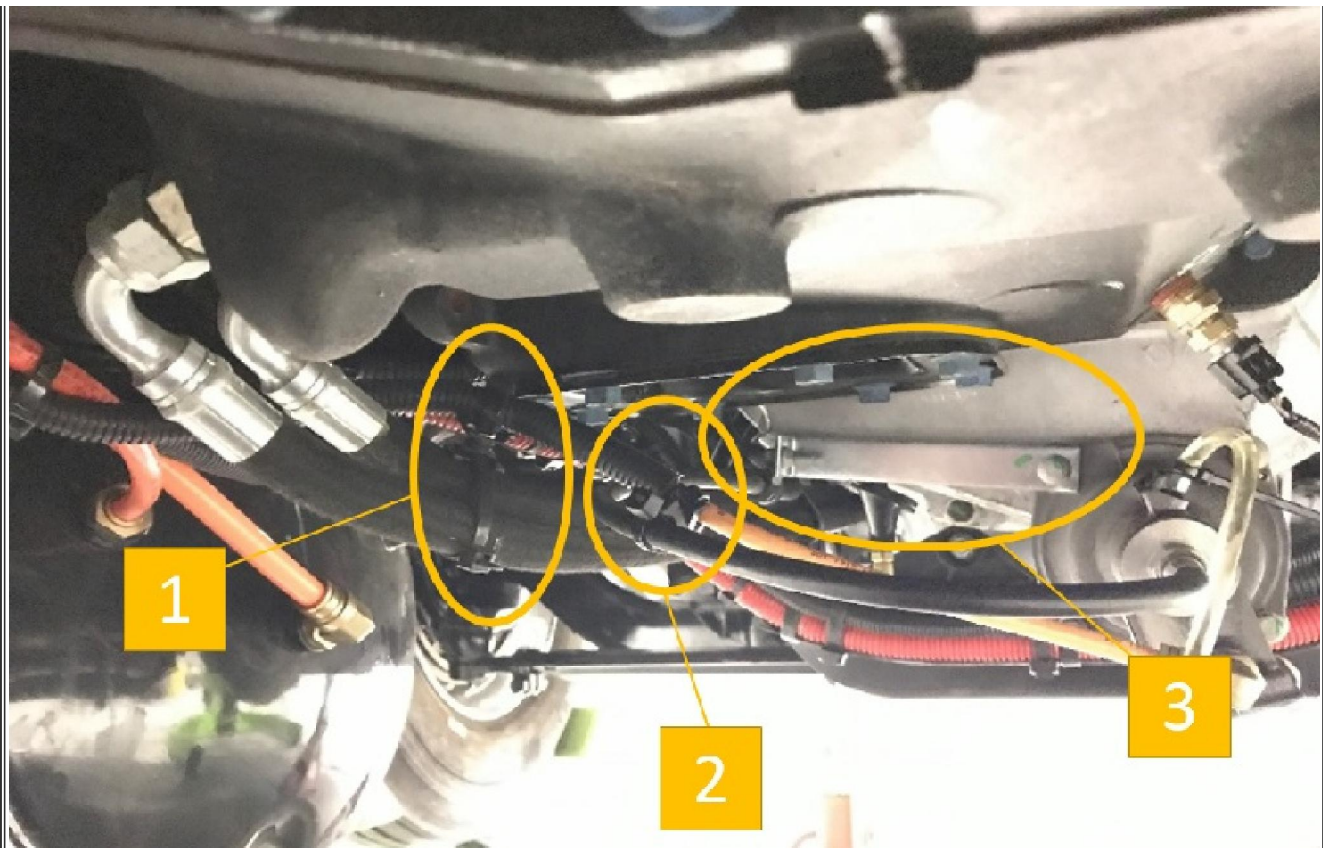


Figure 5. Correct air assist servo Cylinder Supply Hose Routing

Item 1: Air line routed over transmission cooler lines

Item 2: Saddle clamp

Item 3: Extension Brake Repositioned

3. Re-position the extension bracket (Figure 5, Item 3) bolted to the air assist servo cylinder as high as possible without causing a hose rub condition.

4. Re-route the air line over the transmission cooler lines (Figure 5, Item 1).

5. Secure the air line to the air assist servo cylinder supply hose with a new zip tie to the saddle clamp (Figure 5, Item 2).

6. Re-insert the air line into the air assist servo cylinder air supply connection.

Bleeding Procedure

0000885380 - 2017- 2020 International LT / RH and LoneStar Technician Manual (Service and Diagnostic)

- Procedure found under Clutch ⇒ Clutch Actuation System ⇒ Hydraulic Clutch Actuation ⇒ Bleed Procedure

WARRANTY INFORMATION

| | |
|---------------|-------------------|
| Group: | 11000 - Clutch |
| Noun: | 352 - Hose / Pipe |

Warranty Claim Coding:

Refer to the [Warranty Coding Manual](#) for Group and Noun Codes.

Standard Repair Time(s)

| Description | Chassis | SRT | Hours |
|--------------|---------|--------|---------|
| Reroute hose | LT | T-Time | 0.5 HRS |

Standard Repair Time(s):

Refer to the [SRT Manual](#) for Repair Times

OTHER RESOURCES

[Master Service Information Site](#)

| Staff ID | Client ID | Comments | Created Date |
|----------|-----------|---|-----------------------|
| | DY02928 | You received the following feedback From: DY02928 - BRAD WEBER Email Address: bradw@whitetractor.com Job Classification: SE005, Service Writer Dealer: WHITE'S INTL TRUCKS Feedback: In the parts list for this article, it says we will need the line from the master cyl to the slave cyl. No where in this article does it say to use this line. Also the P-clamps listed does not fit the line from the reservoir to the master cylinder. | 10/23/2019 7:27:52 AM |

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