HYDRAULICS

Allison Transmission Instructor Led Training

Hydraulics

Introduction

- The Electronic Control and hydraulic systems work together to control clutch application and provide internal cooling and lubrication.
- The Allison Hybrid H 40/50 EP System hydraulics also provide cooling for the Dual Power Inverter Module (DPIM).

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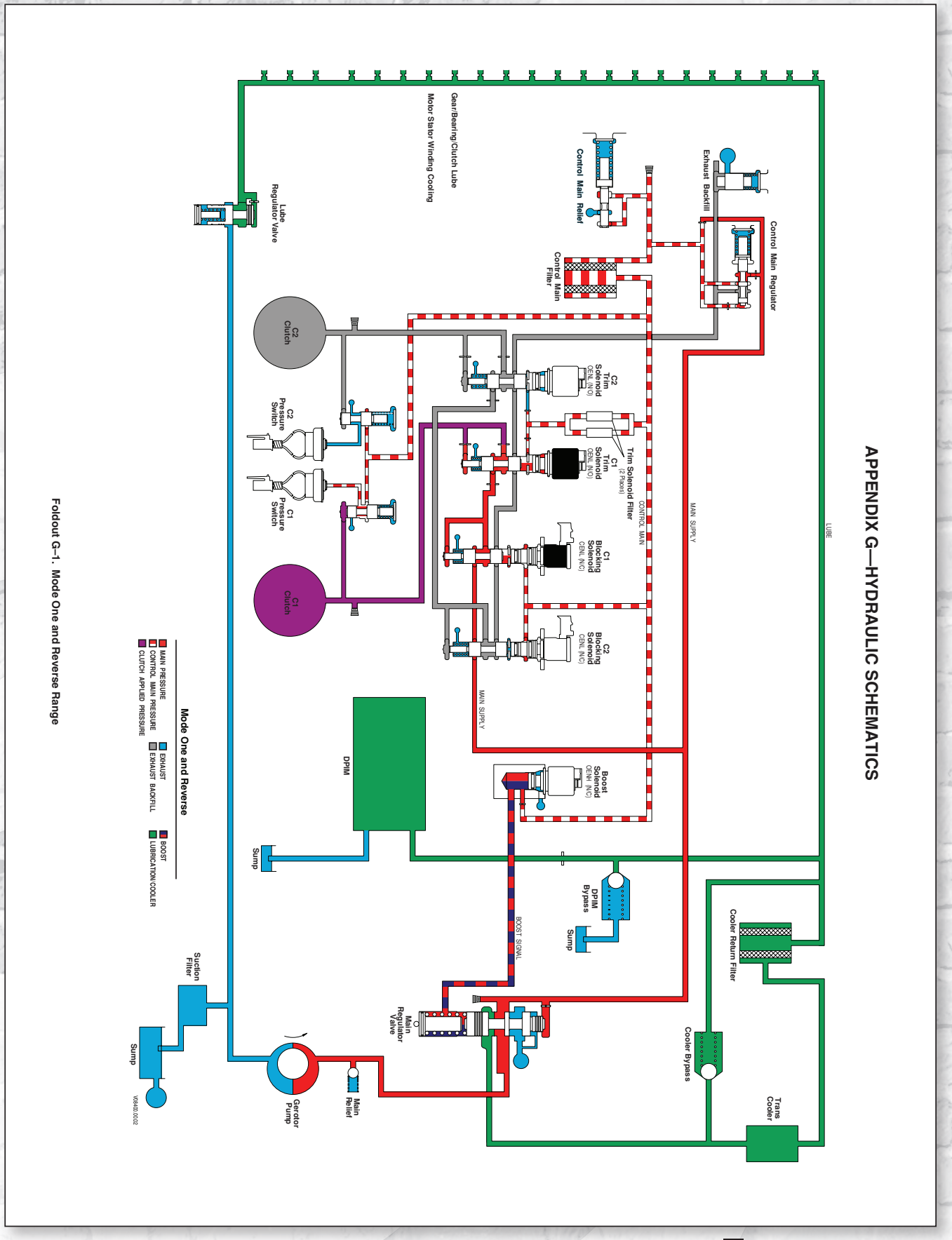
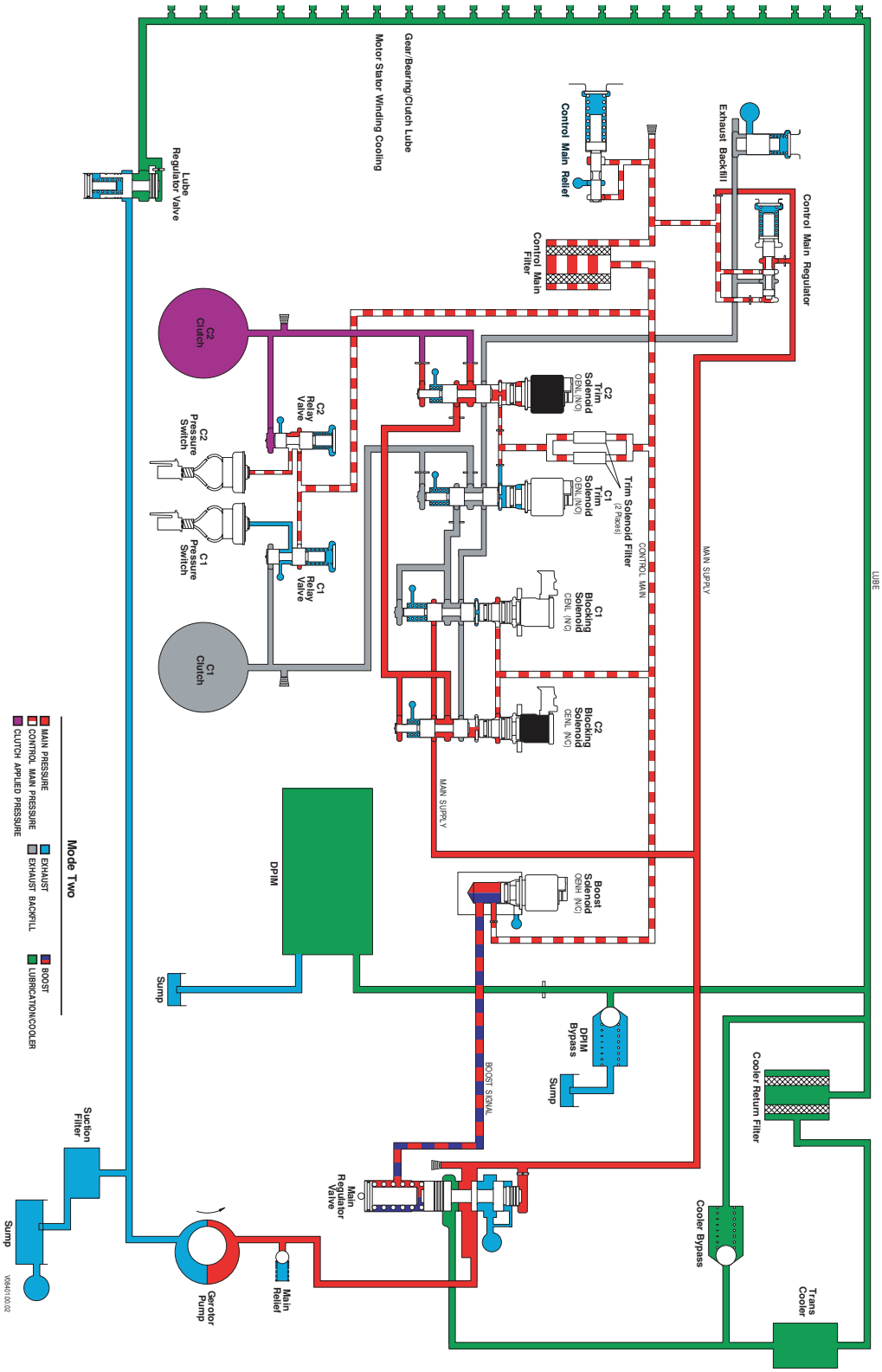
RESOURCES: Hydraulic Schematics



Foldout G–1. Mode One and Reverse Range

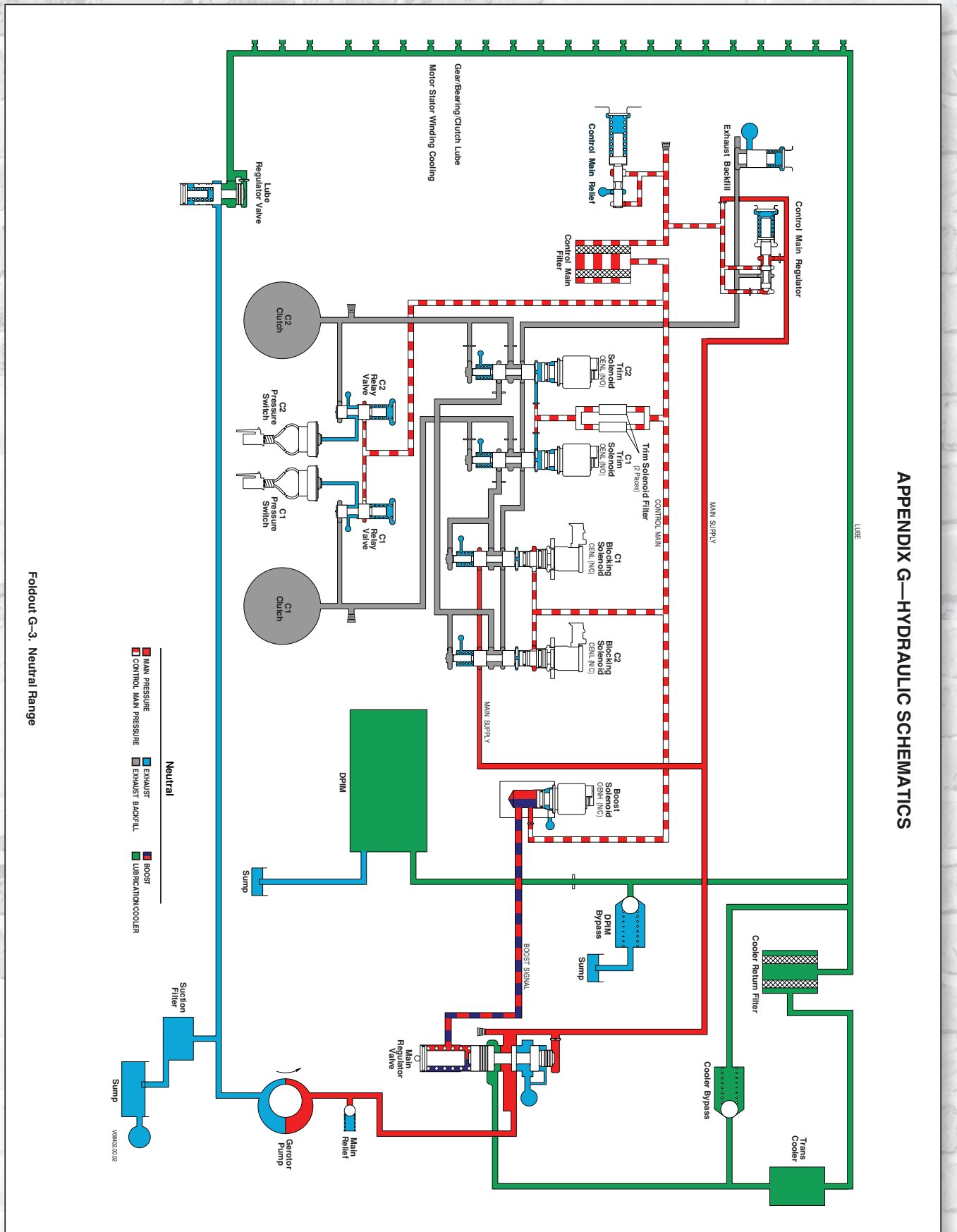
RESOURCES: Hydraulic Schematics

APPENDIX G—HYDRAULIC SCHEMATICS



Foldout G–2. Mode Two Range

RESOURCES: Hydraulic Schematics



Foldout G–3. Neutral Range

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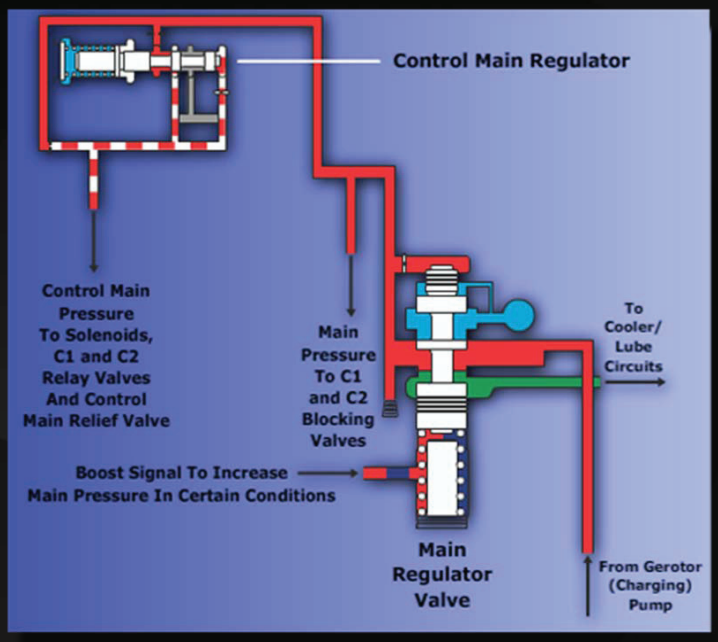
Hydraulics

Main Pressure And Control Main Pressure

- The charging pump and main regulator valve create main pressure.
  - *Main pressure is directed to components throughout the drive unit, including the control main regulator.*
- The control main regulator creates and maintains consistent control main pressure.



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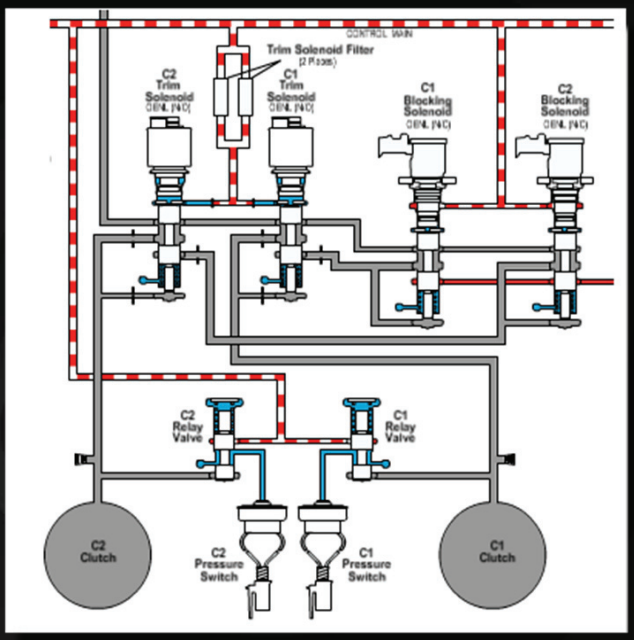
Allison Transmission Instructor Led Training ALLISON HYBRID H 40/50 EP Hydraulics

Neutral Range Hydraulic Flow

- **No solenoids are energized and no clutches are applied.**
  - *C1 and C2 blocking valves remain up and main pressure is not directed to the C1 and C2 trim valves.*
  - *Control main pressure flows to the C1 and C2 relay valves.*
  - *No clutches are applied and no control main pressure flows to either pressure switch.*



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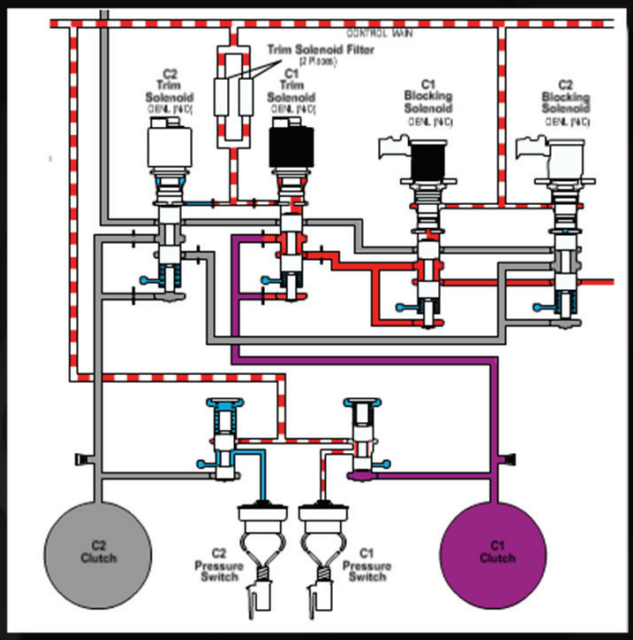
Hydraulics

Mode 1 and Reverse Range Hydraulic Flow

- **C1 trim and C1 blocking solenoids are energized, C1 clutch is applied and Mode 1 Forward or reverse is attained depending on Motor B rotational direction.**
  - *C1 blocking valve is down allowing main pressure to the C1 trim valve.*
  - *C1 trim valve is down allowing main pressure to the C1 clutch circuit.*
  - *C1 relay valve is up allowing control main pressure to the C1 pressure switch, signaling the TCM that C1 clutch is applied.*



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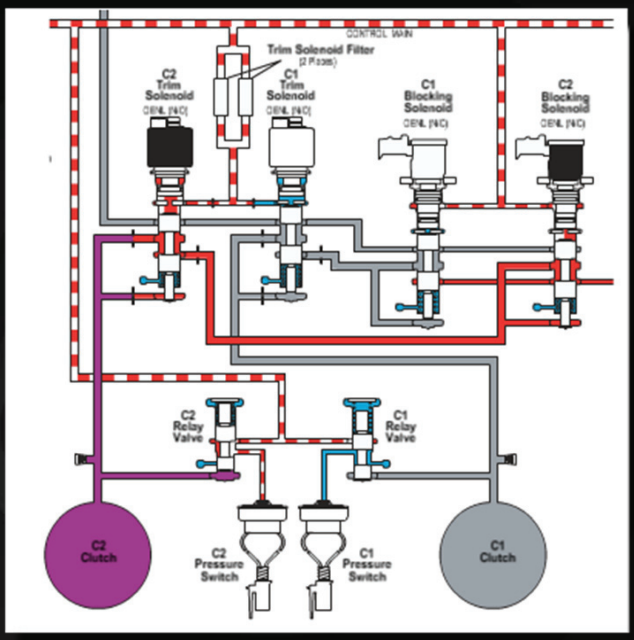
Mode 2 Hydraulic Flow

- **C2 trim and C2 blocking solenoids are energized and C2 clutch is applied.**
  - *C2 blocking valve is down allowing main pressure to the C2 trim valve.*
  - *C2 trim valve is down allowing main pressure to the C2 clutch circuit.*
  - *C2 relay valve is up allowing control main pressure to the C2 pressure switch, signaling the TCM that C2 clutch is applied.*



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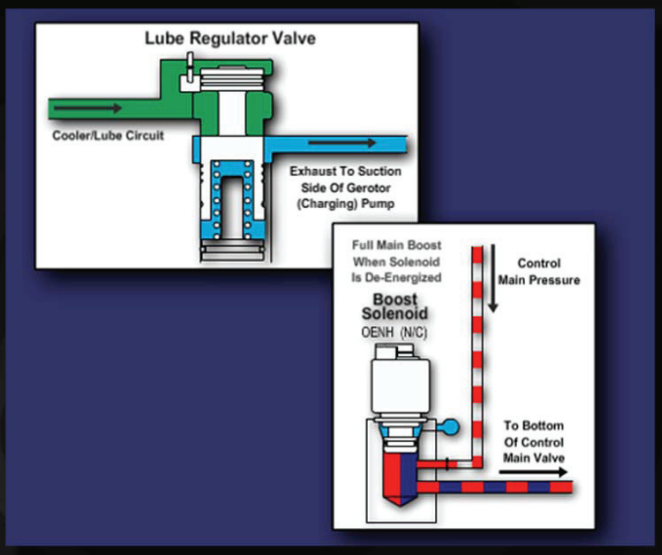
Hydraulics

Lube Regulator Valve And Boost Solenoid

- **The lube regulator valve controls pressure in the cooling and lube circuits.**
  - *Main pressure overage flows through the lube circuit to cool the DPIM, lubricate drive unit components and cool the drive unit motor stator windings.*
  - *The lube regulator valve exhausts to the suction side of the gerotor (charging) pump.*
- **The boost solenoid helps control main pressure.**
  - *The TCM energizes and de-energizes the boost solenoid to modulate main pressure during various operating conditions.*
  - *Full boost assist occurs when the boost solenoid is de-energized.*



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