# Magnum™ 250
# Magnum™ 280
# Magnum™ 310
# Magnum™ 340
# Magnum™ 310 Rowtrac™
# Magnum™ 340 Rowtrac™
# Powershift Transmission (PST)
# Tractor

*PIN ZFRF05001 and above*

# SERVICE MANUAL

**Part number 47917644**
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September 2015

CASE IH AGRICULTURE

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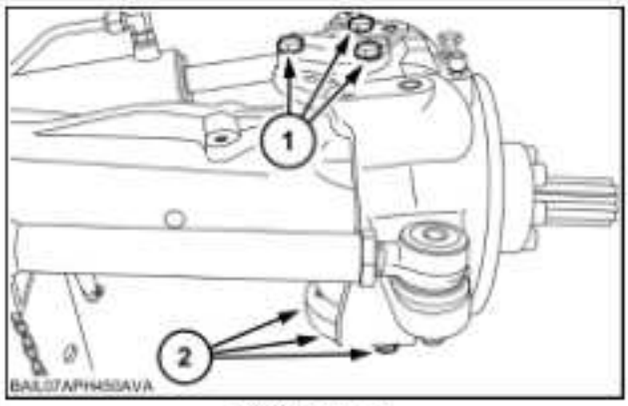
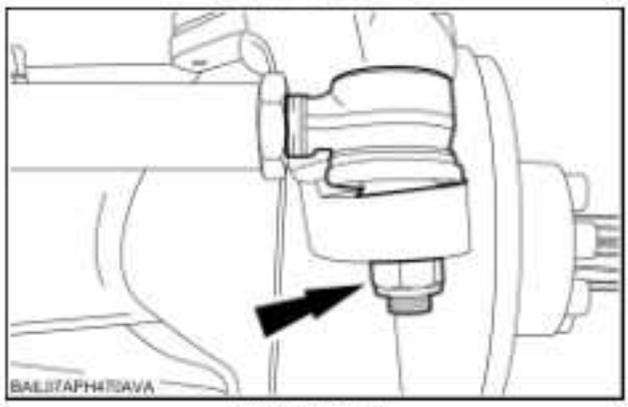
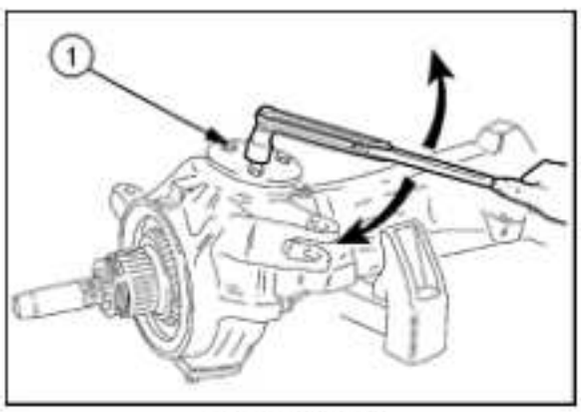
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# Steering knuckle and king pin - Torque - Class 4.5 front axle

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| Component | N·m | Identification | lb-ft/lb-in |
|---|---|---|---|
| King pin bearing cap bolt, Upper **(1)** and lower **(2)** | **188 N·m** |  BAIL07APH46AVA 1 | **139 lb ft** |
| Tie rod end nut | **113 N·m** |  BAIL07APH47AVA 2 | **83 lb ft** |
| Rolling torque of king pin bearings | **118 - 147 Nm** |  RCPH10CCH04AAB 3 | **87 - 108 lb in** |

# Steering knuckle and king pin - Special tools - Class 4.5 front axle

Magnum™ 250 PST TIER 4B [ZFR6F05001 - ]



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## Wiring harnesses - Electrical schematic sheet 21 - Heating, Ventilation, Air Conditioning (HVAC) control

| Type | Component | Connector / Link | Description |
|---|---|---|---|
| ECU | **A-005** | **X-381** | HVAC CONTROLLER |
| ECU | **A-006** | **X-124** | BLOWER SPEED INPUT |
| ECU | **A-037** | **X-125** | HVAC TEMPERATURE CONTROL |
| ECU | **A-044** | **X-442 X-058 X-355 X-350 X-490 X-351 X-053 X-353** | TCU CH24 LF |
| ECU | **A-047** | **X-139A** | ATC MODULE |
| Relay | **K-031** | | BLOWER MOTOR RELAY #10 |
| Motor | **M-003** | **X-090** | PRESSURE BLOWER |
| Motor | **M-174** | **X-073 X-310** | A/C COMPRESSOR CLUTCH |
| Switch | **S-003** | **X-071** | HIGH PRESSURE SWITCH |
| Switch | **S-055** | **X-398** | DEFOG SWITCH |
| Switch | **S-061** | **X-123** | AUTO A/C SWITCH |
| Connector | X-008 | **X-008** | TO OUTSIDE CAB HARNESS |
| Connector | X-010 | **X-010** | TO CAB HARNESS |
| Connector | X-053 | **X-053** | CN4B |
| Connector | X-060 | **X-060** | TO ENGINE HARNESS |
| Connector | X-071 | **X-071** | AC HIGH PRESSURE SW |
| Connector | X-073 | **X-073** | A/C COMPRESSOR CLUTCH |
| Connector | X-090 | **X-090** | PRESSURE BLOWER |
| Connector | X-123 | **X-123** | AUTO A/C SWITCH |
| Connector | X-124 | **X-124** | BLOWER SPEED INPUT |
| Connector | X-125 | **X-125** | HVAC TEMPERATURE CONTROL |
| Connector | X-139A | **X-139A** | HVAC CONTROL |
| Connector | X-260 | **X-260** | FUSE BLOCK X-260 |
| Connector | X-264 | **X-264** | RELAY BLOCK |
| Connector | X-310 | **X-310** | A/C COMPRESSOR CLUTCH GND |
| Connector | X-381 | **X-381** | HVAC CONTROLLER |
| Connector | X-398 | **X-398** | DEFOG SWITCH |



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# 4166-Rear remote no. 5 - driver faulty

***NOTE:*** *Each remote valve consists of a valve body and a pilot head. The pilot contains the extend and retract solenoids, a sensor to determine spool position, as well as a microprocessor. The pilot head can only be serviced as a compete assembly. The microprocessor controls the extend and retract solenoids and reports the position of the main spool over the CAN bus to the Armrest Control Unit (ARU) and the lower display on the Instrument Control Unit (ICU).*

**Cause:**
Manual operation detected at the pilot head for remote valve 5.

**Possible failure modes:**

1. Remote valve manually operated
2. Faulty pilot head on the remote valve

**Solution:**

1. Check if the error code is still active.

   Clear the error code and test the system for normal operation.

   A. Error code does not redisplay. Return unit to field operation and monitor for recurring problem.

   B. Error code redisplays. Continue to step **2**.
2. Download the most current software into all remote valves. (All pilot heads must be at the same software level.)

   Renumber the remote valves.

   Calibrate the armrest control levers using the procedure in this manual. When calibration is complete, set all timers to continuous and set the flow controls to continuous.

   Calibrate the remote valves using the procedure in this manual.

   Test remote system operation.

   A. Error code does not redisplay. Return unit to field operation.

   B. Error code redisplays. Continue to step **3**.
3. Swap the pilot head causing the error with another pilot head.

   Retest system operation.

   A. Error code follows the pilot head move. Replace the pilot head. Return unit to field operation.

   B. Error code does not follow the pilot head move. Return the pilot heads to their original location and submit a concern to ASIST.

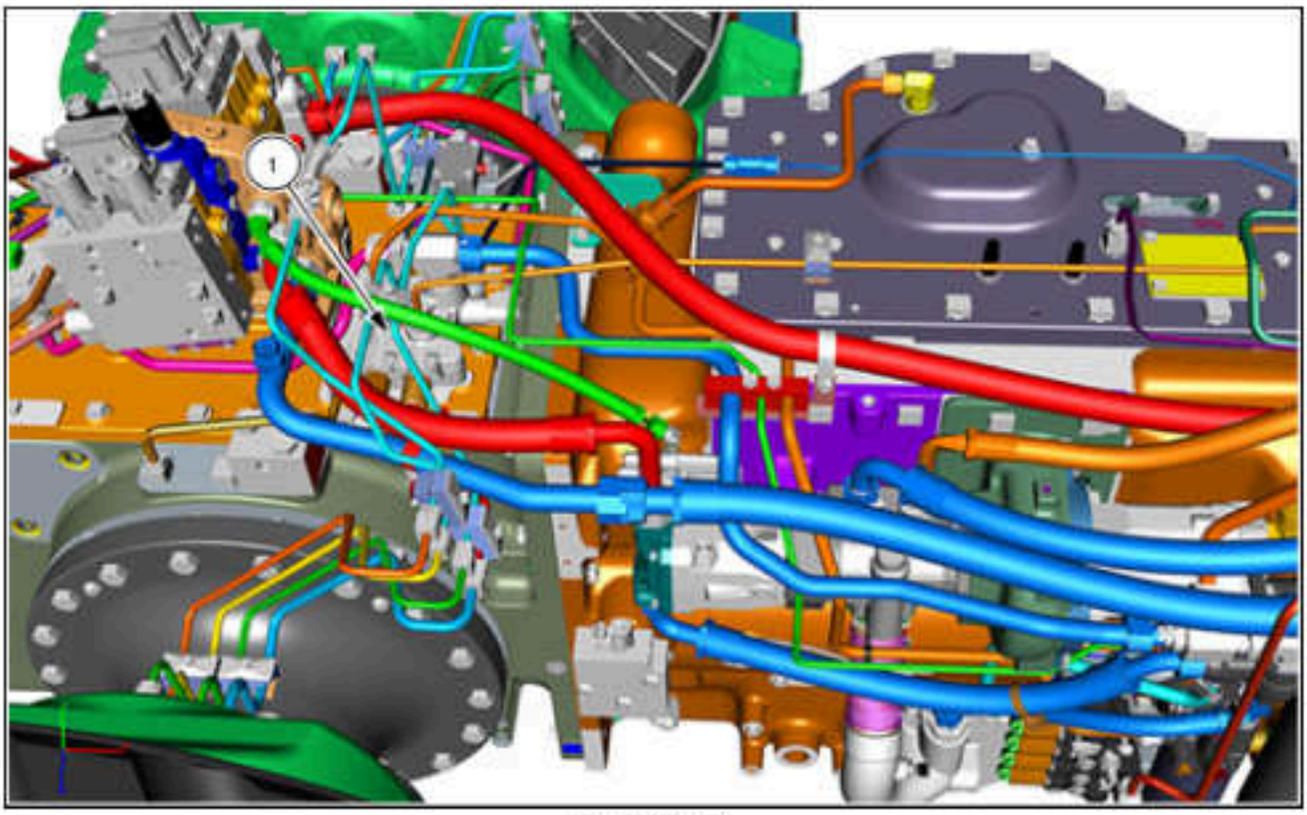


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# Power Take-Off (PTO) control valve - Dynamic description

| | |
|---|---|
| Magnum™ 310 Rowtrac™ PST TIER 4B [ZFRF05001 - ] | |
| Magnum™ 340 Rowtrac™ PST TIER 4B [ZFRF05001 - ] | |

The Power Take-Off (PTO)/differential lock/lube valve is located on top of the rear frame housing. The PTO/differential lock/lube valve controls the PTO and differential lock operation and distributes lube flow.




RAIL141P0481220A 1

| | |
|---|---|
| 1. PTO/differential lock/lube valve | |

The regulated pressure circuit supplies the PTO and differential lock functions. The regulated supply to both the PTO and differential lock is limited to **22.4 - 24.5 bar** (**325 - 355 psi**). The supply to the PTO clutch and differential lock are internally ported through the rear frame assembly.

The charge/lube circuit supplies the lubrication functions of the valve for these lubrication points: differential lock, pinion, front and rear hydro bearings, rear axle final drives, and service brakes. The amount of lube to the left and right brakes is controlled with the lube solenoid valve. The lube solenoid is used by the Tractor Control Unit (TCU) to minimize lube to the brakes and direct oil to the lube points when the brakes are not applied. When the brakes are applied, a signal from brake pedal switch energizes the lube solenoid to increase flow to the brakes.

The Tractor Control Unit (TCU) controller lubricates the rear axle final drive when these conditions are met:

- engine speed is above **1400 RPM**
- or ground speed is above **35 km/h** (**22 mph**)
- and oil temperature is above **65 °C** (**149 °F**).

When the TCU detects no ground speed or when transmission temperature is below **65 °C** (**149 °F**), the lubrication solenoid is deenergized, which blocks lube oil flow to the rear axle final drives.

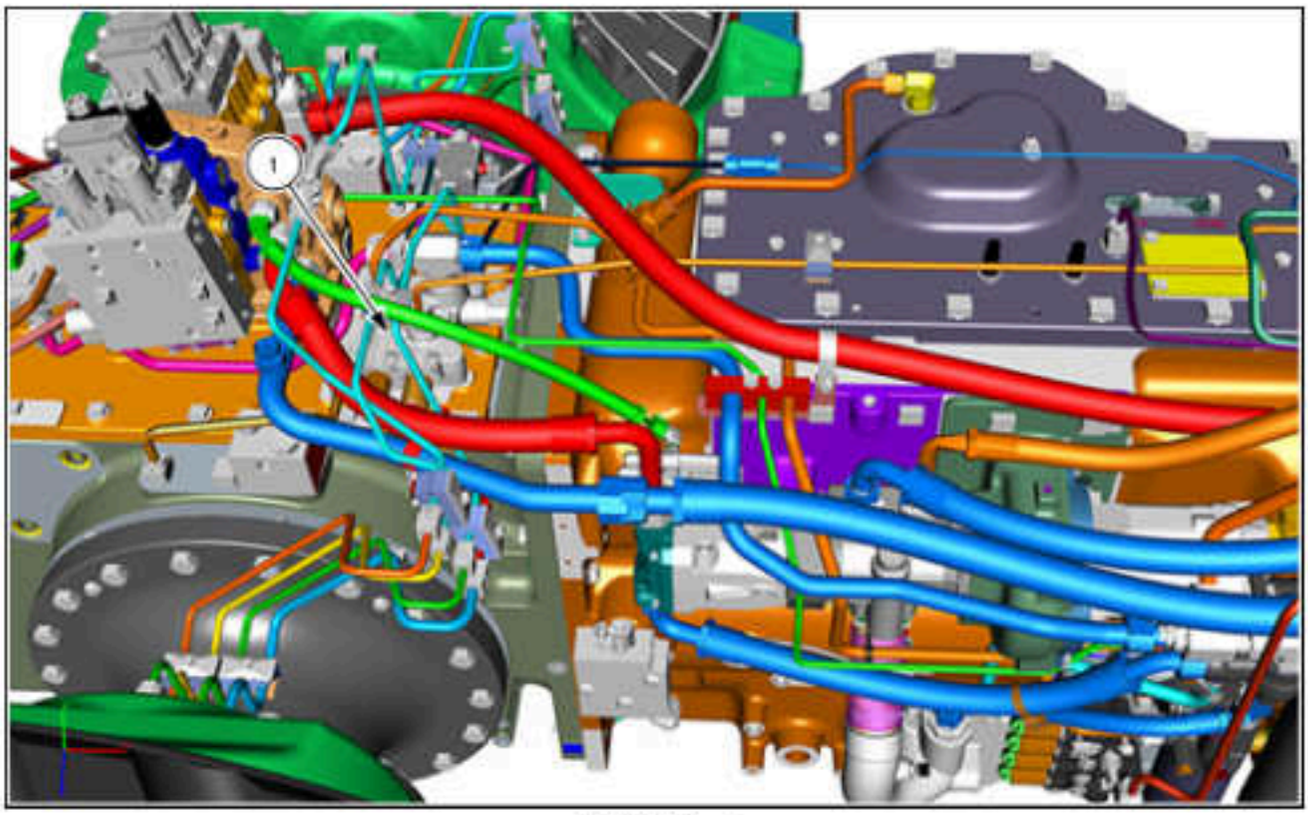


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# Differential lock control valve - Dynamic description

| | |
|---|---|
| Magnum™ 310 Rowtrac™ PST TIER 4B [ZFRF05001 - ] | |
| Magnum™ 340 Rowtrac™ PST TIER 4B [ZFRF05001 - ] | |

The Power Take-Off (PTO)/differential lock/lube valve is located on top of the rear frame housing. The PTO/differential lock/lube valve controls the PTO and differential lock operation and distributes lube flow.




RAIL14TRD48120A 1

| | |
|---|---|
| 1. PTO/differential lock/lube valve | |

The regulated pressure circuit supplies the PTO and differential lock functions. The regulated supply to both the PTO and differential lock is limited to **22.4 - 24.5 bar** (**325 - 355 psi**). The supply to the PTO clutch and differential lock are internally ported through the rear frame assembly.

The charge/lube circuit supplies the lubrication functions of the valve for these lubrication points: differential lock, pinion, front and rear hydro bearings, rear axle final drives, and service brakes. The amount of lube to the left and right brakes is controlled with the lube solenoid valve. The lube solenoid is used by the Tractor Control Unit (TCU) to minimize lube to the brakes and direct oil to the lube points when the brakes are not applied. When the brakes are applied, a signal from brake pedal switch energizes the lube solenoid to increase flow to the brakes.

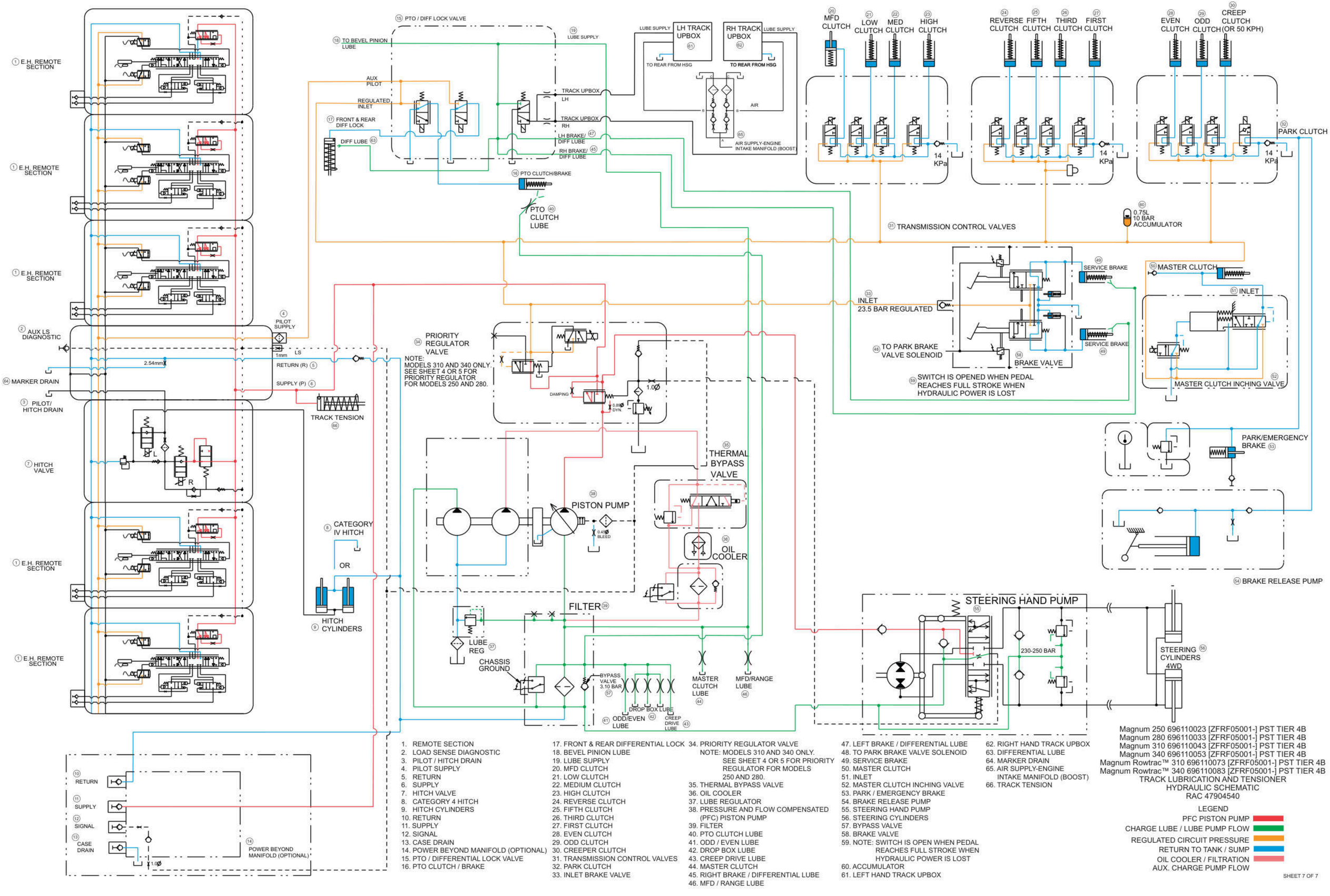
The Tractor Control Unit (TCU) controller lubricates the rear axle final drive when these conditions are met:

- engine speed is above **1400 RPM**
- or ground speed is above **35 km/h** (**22 mph**)
- and oil temperature is above **65 °C** (**149 °F**).

When the TCU detects no ground speed or when transmission temperature is below **65 °C** (**149 °F**), the lubrication solenoid is deenergized, which blocks lube oil flow to the rear axle final drives.



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1. REMOTE SECTION
2. LOAD SENSE DIAGNOSTIC
3. PILOT / HITCH DRAIN
4. PILOT SUPPLY
5. RETURN
6. SUPPLY
7. HITCH VALVE
8. CATEGORY 4 HITCH
9. HITCH CYLINDERS
10. RETURN
11. SUPPLY
12. SIGNAL
13. CASE DRAIN
14. POWER BEYOND MANIFOLD (OPTIONAL)
15. PTO / DIFFERENTIAL LOCK VALVE
16. PTO CLUTCH / BRAKE
17. FRONT & REAR DIFFERENTIAL LOCK
18. BEVEL PINION LUBE
19. LUBE SUPPLY
20. MFD CLUTCH
21. LOW CLUTCH
22. MEDIUM CLUTCH
23. HIGH CLUTCH
24. REVERSE CLUTCH
25. FIFTH CLUTCH
26. THIRD CLUTCH
27. FIRST CLUTCH
28. EVEN CLUTCH
29. ODD CLUTCH
30. CREEPER CLUTCH
31. TRANSMISSION CONTROL VALVES
32. PARK CLUTCH
33. INLET BRAKE VALVE
34. PRIORITY REGULATOR VALVE
    NOTE: MODELS 310 AND 340 ONLY. SEE SHEET 4 OR 5 FOR PRIORITY REGULATOR FOR MODELS 250 AND 280.
35. THERMAL BYPASS VALVE
36. OIL COOLER
37. LUBE REGULATOR
38. PRESSURE AND FLOW COMPENSATED (PFC) PISTON PUMP
39. FILTER
40. PTO CLUTCH LUBE
41. ODD / EVEN LUBE
42. DROP BOX LUBE
43. CREEP DRIVE LUBE
44. MASTER CLUTCH
45. RIGHT BRAKE / DIFFERENTIAL LUBE
46. MFD / RANGE LUBE
47. LEFT BRAKE / DIFFERENTIAL LUBE
48. TO PARK BRAKE VALVE SOLENOID
49. SERVICE BRAKE
50. MASTER CLUTCH
51. INLET
52. MASTER CLUTCH INCHING VALVE
53. PARK / EMERGENCY BRAKE
54. BRAKE RELEASE PUMP
55. STEERING HAND PUMP
56. STEERING CYLINDERS
57. BYPASS VALVE
58. BRAKE VALVE
59. NOTE: SWITCH IS OPEN WHEN PEDAL REACHES FULL STROKE WHEN HYDRAULIC POWER IS LOST
60. ACCUMULATOR
61. LEFT HAND TRACK UPBOX
62. RIGHT HAND TRACK UPBOX
63. DIFFERENTIAL LUBE
64. MARKER DRAIN
65. AIR SUPPLY-ENGINE INTAKE MANIFOLD (BOOST)
66. TRACK TENSION

Magnum 250 696110023 [ZFRF05001-] PST TIER 4B
Magnum 280 696110033 [ZFRF05001-] PST TIER 4B
Magnum 310 696110043 [ZFRF05001-] PST TIER 4B
Magnum 340 696110053 [ZFRF05001-] PST TIER 4B
Magnum Rowtrac™ 310 696110073 [ZFRF05001-] PST TIER 4B
Magnum Rowtrac™ 340 696110083 [ZFRF05001-] PST TIER 4B

TRACK LUBRICATION AND TENSIONER HYDRAULIC SCHEMATIC
RAC 47904540

LEGEND
- PFC PISTON PUMP
- CHARGE LUBE / LUBE PUMP FLOW
- REGULATED CIRCUIT PRESSURE
- RETURN TO TANK / SUMP
- OIL COOLER / FILTRATION
- AUX. CHARGE PUMP FLOW



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