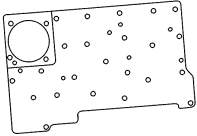
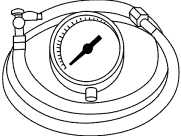


DIAGNOSIS AND TESTING

Special Testing Procedures

Special Tool(s)

 <p>ST2408-A</p>	<p>Air Test Plate, Transmission 307-405</p>
 <p>ST1565-A</p>	<p>Transmission Fluid Pressure Gauge 307-004 (T57L-77820-A)</p>

The special tests are designed to aid the technician in diagnosing the hydraulic and mechanical portion of the transmission.

Engine Idle Speed Check

Refer to the [Powertrain Control/Emissions Diagnosis \(PC/ED\) manual](#) for diagnosis and testing of the engine idle speed.

Line Pressure Test

⚠ CAUTION: Carry out Line Pressure Test prior to carrying out Stall Speed Test. If line pressure is low at stall, do not carry out the Stall Speed Test or further transmission damage will occur. Do not maintain wide open throttle (WOT) in any gear range for more than 5 seconds.

NOTE: Certain sensor failures may cause high PC, FMEM (failure mode effect management) actions. Be sure that self test and electrical repairs have been carried out, or test results may be incorrect.

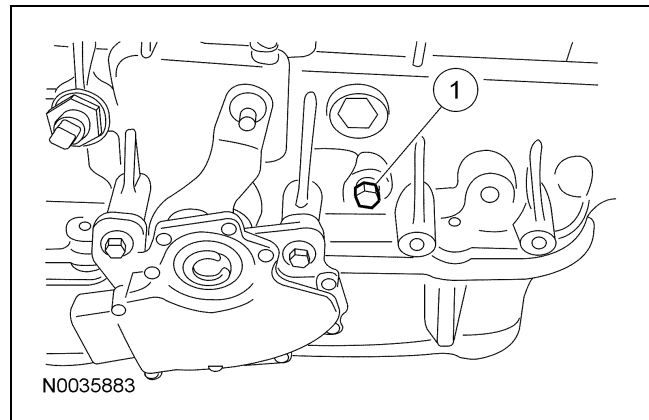
Line Pressure Chart — 4.0L Engine

Range	Idle Pressure		WOT Stall Pressure	
	PC C	Line	PC C	Line
N	28 kPa (4 psi)	793 kPa (115 psi)	28 kPa (4 psi)	793 kPa (115 psi)
R	793 kPa (115 psi)	793 kPa (115 psi)	793 kPa (115 psi)	2,137 kPa (310 psi)
(D), 2, 1	28 kPa (4 psi)	793 kPa (115 psi)	28 kPa (4 psi)	793 kPa (115 psi)

NOTE: The line pressure tap is used to verify output pressure from PC A or PC B by turning either one off while verifying the output from the other solenoid. The second pressure tap is used to verify the output from the PC C solenoid.

This test verifies that the line pressure is within specification.

1. Connect pressure gauge to the line pressure tap.
2. Start engine and check line pressures. Refer to the following Line Pressure Chart to determine if line pressure is within specifications.

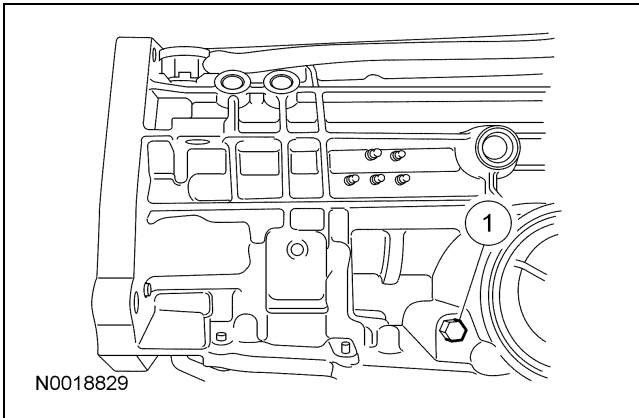


Item	Part Number	Description
1	—	Line pressure tap

DIAGNOSIS AND TESTING (Continued)**Line Pressure Chart — 4.6L Engine**

Range	Idle Pressure		WOT Stall Pressure	
	PC C	Line	PC C	Line
N	28 kPa (4 psi)	793 kPa (115 psi)	28 kPa (4 psi)	793 kPa (115 psi)
R	793 kPa (115 psi)	793 kPa (115 psi)	793 kPa (115 psi)	2,137 kPa (310 psi)
(D), 2, 1	28 kPa (4 psi)	793 kPa (115 psi)	28 kPa (4 psi)	793 kPa (115 psi)

- If line pressure is not within specification, check PC C pressure.
- Connect pressure gauge to PC C pressure tap.



- Start engine and check PC C pressure. Refer to Line Pressure Diagnosis Chart in this section for specification.
- If PC C pressure is not within specification, [GO to Pinpoint Test D](#) to diagnose PC C operation. If PC C operation is OK, refer to Line Pressure Diagnosis Chart in this section for line pressure concern causes.

Item	Part Number	Description
1	—	Pressure control (PC C) tap

Line Pressure Diagnosis Chart

Test Results	Possible Source
High at Idle — All Ranges	<ul style="list-style-type: none"> Wiring harnesses PC C boost valve PC C solenoid Main regulator valve
Low at Idle — All Ranges	<ul style="list-style-type: none"> Low fluid level Fluid inlet filter/seal Main control body Cross leaks Gaskets Pump Separator plate
Low — All Forward Ranges	<ul style="list-style-type: none"> Forward clutch Main control Overdrive servo Intermediate servo
Low in Park Only	<ul style="list-style-type: none"> Valve body

DIAGNOSIS AND TESTING (Continued)**Line Pressure Diagnosis Chart (Continued)**

Test Results	Possible Source
Low in Reverse Only	<ul style="list-style-type: none"> • Separator plate • Rear servo piston, cover seal • Reverse clutch • Overdrive servo • Intermediate servo • Valve body • Forward clutch
Low in Neutral Only	<ul style="list-style-type: none"> • Valve body • Overdrive servo • Intermediate servo
Low in D Only	<ul style="list-style-type: none"> • Forward clutch • Overdrive servo • Intermediate servo • Valve body
Low in D Only (O/D Cancelled)	<ul style="list-style-type: none"> • Forward clutch • Overdrive servo • Intermediate servo • Valve body
Low in 1st Position	<ul style="list-style-type: none"> • Forward clutch • Valve body
Low in 2nd Position	<ul style="list-style-type: none"> • Intermediate servo • Overdrive servo • Intermediate servo • Forward clutch
Low in 3rd Position	<ul style="list-style-type: none"> • Intermediate servo • Overdrive servo • Forward clutch

Stall Speed Test

This test checks operation of the following items:

- Torque converter clutch
- Forward clutch
- Low-one way clutch (OWC) assembly
- Engine operation
- Overdrive one-way clutch assembly

⚠ WARNING: Apply the parking brake firmly while carrying out each stall test.

⚠ CAUTION: Always carry out the Line Pressure Test procedures prior to carrying out the Stall Speed Test. If line pressure is low at stall, do not carry out the Stall Speed Test or further transmission damage will occur.

NOTE: The Stall Speed Test should be carried out with the engine and transmission at normal operating temperatures.

1. Connect tachometer to the engine.

2. **⚠ CAUTION:** After testing each of the following ranges D, 3, 2, 1 and R, move the transmission range selector lever to N (NEUTRAL) and run the engine at 1,000 rpm for about 15 seconds to allow the torque converter to cool before testing the next range.

⚠ CAUTION: Do not maintain wide open throttle (WOT) in any range for more than 5 seconds.

⚠ CAUTION: If the engine rpm recorded by the tachometer exceeds maximum specified rpm, release the accelerator pedal immediately. Clutch or band slippage is indicated.

NOTE: Prolonged use of this procedure may set Diagnostic Trouble Code P0712, P1783. After carrying out Stall Speed Test, run OBD Test and clear DTCs from memory.

Press accelerator pedal to floor (WOT) in each range. Record rpm reached in each range. Stall speeds should be as follows:

DIAGNOSIS AND TESTING (Continued)

Stall Speed Chart

Vehicle	Engine	RPM
Mustang	4.0L	2,290-2,705

Stall Speed Chart (Continued)

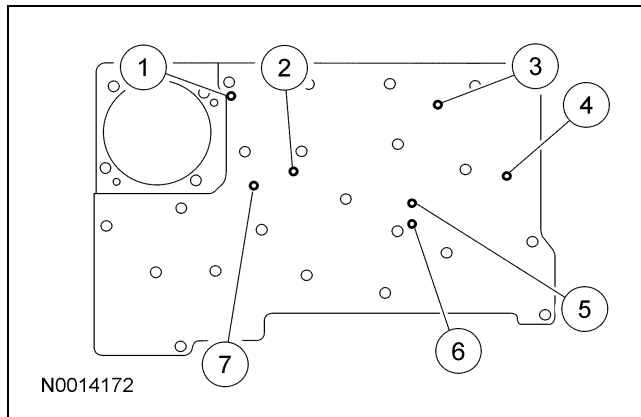
Vehicle	Engine	RPM
Mustang	4.6L	2,556-3,014

If stall speeds were too high, refer to the following Stall Speed Diagnosis Chart. If stall speeds were too low, first check the engine idle speed. If engine idle is OK, remove torque converter and check the torque converter one-way clutch for slippage.

Stall Speed Diagnosis Chart

Transmission Range Selector Lever Position	Stall Speeds High	Stall Speeds Low
D, D ((D) cancelled) and 1	Overdrive one-way clutch, rear one-way clutch	—
D ((D) cancelled), 2 and 1	Forward clutch, overdrive one-way clutch	—
D	Forward clutch, overdrive one-way clutch	—
D, D ((D) cancelled), 3, 2, 1 and R	General pressure concerns, forward clutch, overdrive one-way clutch	Converter one-way clutch or engine driveability concerns
R Only	High/reverse, high clutch, low and reverse band/servo	—
2 Only	Intermediate band/servo	—
1 Only	Low/reverse band/servo	—

Air Pressure Tests



Item	Part Number	Description
1	—	Reverse servo
2	—	Intermediate servo
3	—	Overdrive servo
4	—	Coast clutch
5	—	Forward clutch
6	—	Direct clutch
7	—	Reverse servo modulator

A no-drive or erratic shift condition may be due to inoperative bands and clutches. To diagnose these conditions a series of checks can be made by substituting air pressure for fluid to determine the location of the damaged or obstructed component.

Follow the procedure to determine the location of the inoperative clutch or band by substituting air pressure into the various test plate passages.

NOTE: Use only dry, regulated 276 kPa (40 psi) maximum air pressure.

1. Remove the main control valve body. Refer to Main Control Valve Body in this section.
2. Install the transmission test plate and gasket. Tighten to 10 Nm (89 lb-in).
3. **NOTE:** Do not apply air to the test plate vent hole.

Apply air to the appropriate clutch or servo port (refer to plate layout diagram). Refer to the Air Pressure Test Diagnostic Chart for conditions, possible causes and actions.

4. After the testing is completed, remove the air test plate and gasket and proceed with any repairs that are needed.

DIAGNOSIS AND TESTING (Continued)

5. After the repairs are completed, install the main control valve body. Refer to Main Control Valve Body in this section.

Air Pressure Test Diagnostic Chart

Condition	Possible Causes	Actions
Dull thud heard or movement felt when air is applied and released	Clutches, bands and fluid passages are OK.	Concerns may not be in the transmission. Check the Powertrain Control module (PCM), wiring harness and non-transmission related components.
No drive	Clutches and bands inoperative.	Disassemble the transmission, clean and inspect to locate area of concern.
Erratic shifts	Clutches and bands inoperative due to incorrect pressures.	Disassemble the transmission, clean and inspect to locate area of concern.
No dull thud heard	Clutches, bands and fluid passages may be damaged or obstructed.	Disassemble the transmission, clean and inspect to locate area of concern.
No movement felt	Clutches, bands and fluid passages may be damaged or obstructed.	Disassemble the transmission, clean and inspect to locate area of concern.
Hissing sound heard	Clutch seals or check ball may be damaged or leaking.	Disassemble the transmission, clean and inspect to locate area of concern.
Servos do not operate	Seals and pistons may be damaged. Supply and release ports may be obstructed. Spring may be broken.	Disassemble the transmission, clean and inspect to locate area of concern.
Multiple clutches are applied	Fluid passages in the center support or the clutch cylinders may be obstructed.	Disassemble the transmission, clean and inspect to locate area of concern. Check fluid passages in the center support for obstructions.