

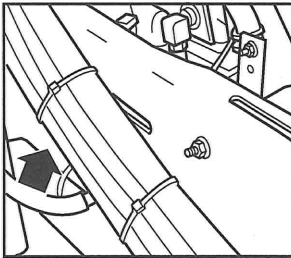
## COMPONENT IDENTIFICATION

Locate the following serial numbers and write them in the boxes provided next to each illustration.

### VIN Locations

The Vehicle Identification Number (VIN) is displayed in two locations (a frame rail stamping and a label). The 17-digit VIN must be identical in both locations.

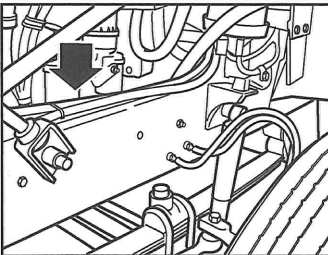
The **VIN frame stamping** is located on the bottom right frame rail flange and the top left rail flange. Note that the VIN location may vary if re-stamping of the frame becomes necessary.



Bottom right frame rail flange

VEHICLE  
IDENTIFICATION  
NUMBER

006707d



Top left rail flange

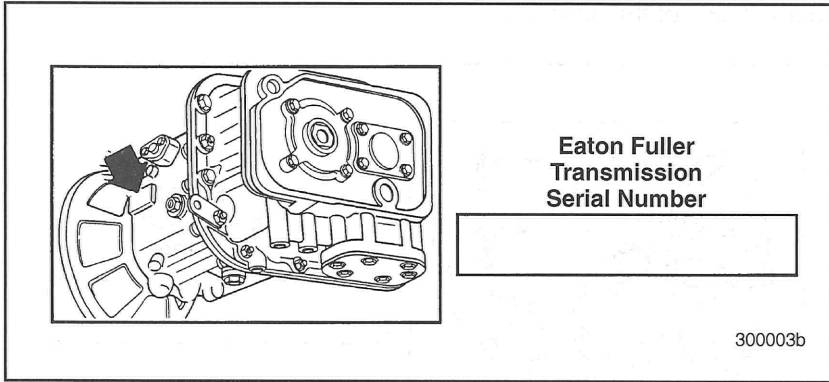
VEHICLE  
IDENTIFICATION  
NUMBER

006709b

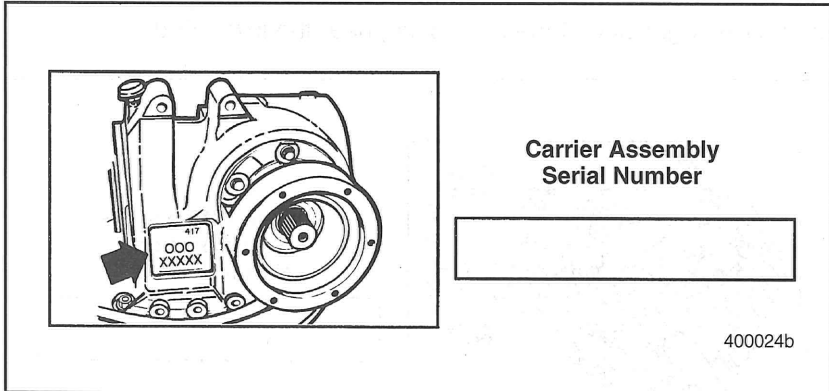
# INTRODUCTION

---

All **Eaton® Fuller® transmission** identification plates are located on the front left side of the main case.



The **MACK carrier assembly** serial number is located on the front right side of the housing.



# SAFETY INFORMATION

---

## Advisory Label Definitions (In Handbook)

Cautionary *signal words* (Danger-Warning-Caution) may appear in various locations throughout this manual. Information accented by one of these signal words must be observed to minimize the risk of personal injury to service personnel, or the possibility of improper service methods which may damage the vehicle or cause it to be unsafe. Additional Notes and Service Hints are used to emphasize areas of procedural importance and provide suggestions for ease of repair. The following definitions indicate the use of these advisory labels as they appear throughout the manual:

### **DANGER**

***Danger indicates an unsafe practice that could result in death or serious personal injury. Serious personal injury is considered to be permanent injury from which full recovery is NOT expected, resulting in a change in life style.***

---

### **WARNING**

**Warning indicates an unsafe practice that could result in personal injury. Personal injury means that the injury is of a temporary nature and that full recovery is expected.**

---

### **CAUTION**

***Caution indicates an unsafe practice that could result in damage to the product.***

---

### **NOTE**

Note indicates a procedure, practice, or condition that must be followed in order for the vehicle or component to function in the manner intended.

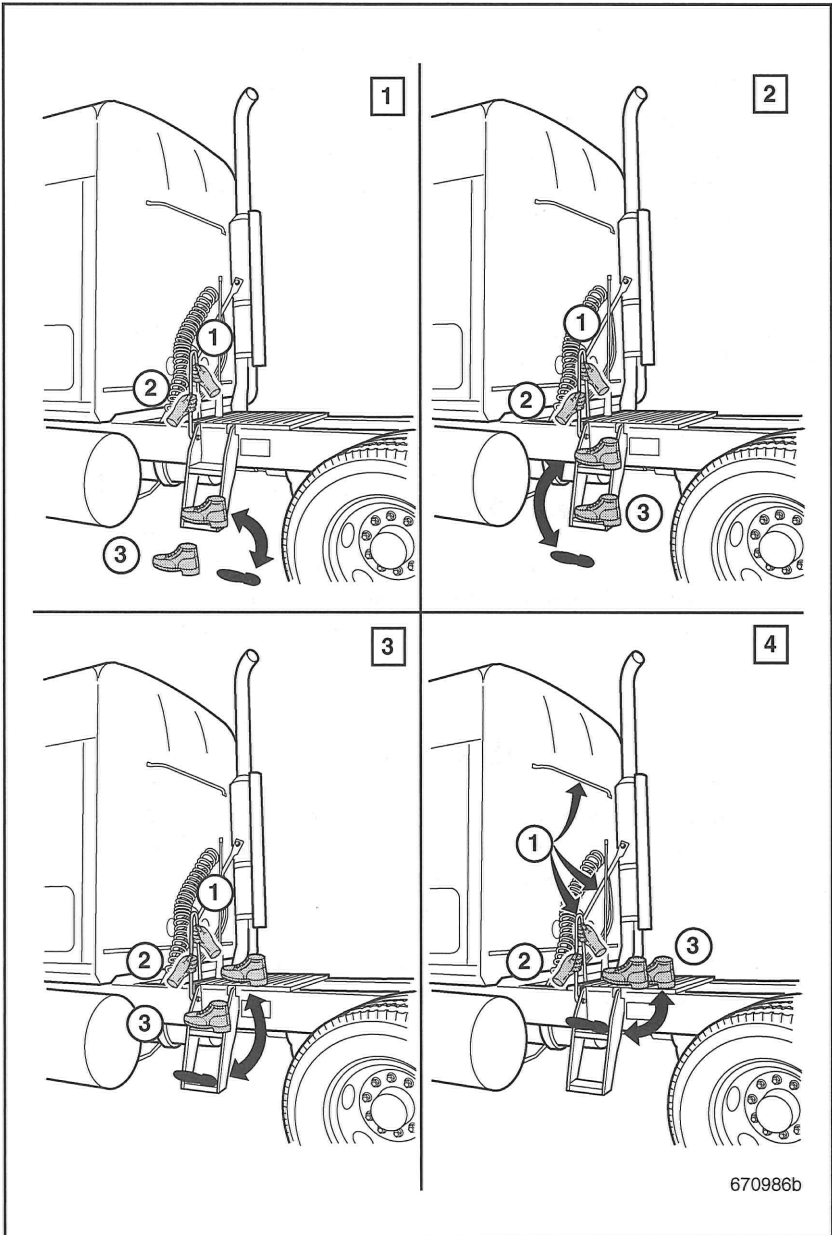
---

### **SERVICE HINT**

A helpful suggestion that will make it quicker and/or easier to perform a procedure, while possibly reducing service cost.

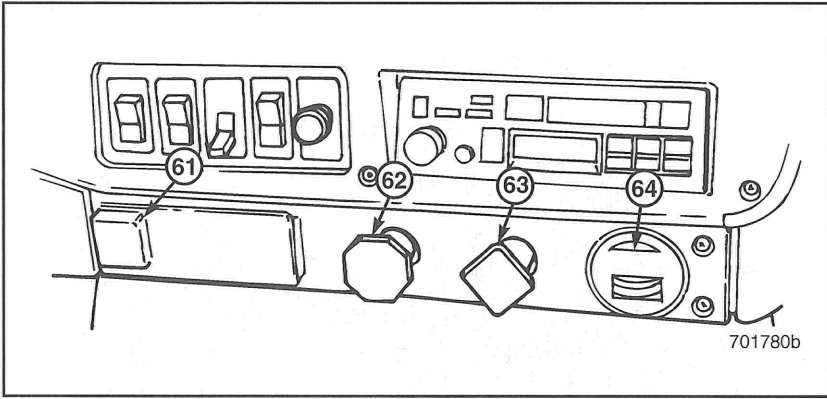
---

# SAFETY INFORMATION



# INSTRUMENTS AND CONTROLS

## Panel E



- 61. Ash Tray
- 62. Trailer Air Supply Valve
- 63. Parking Brake Valve

- 64. Air Filter Restriction Indicator  
(If Equipped)

# INSTRUMENTS AND CONTROLS

The screens in the figure below indicate that there is an inactive SID 22 fault from transmitter MID 128 with an FMI of 3.

## - ELECTRONIC FAULTS -

View Active Faults

View Inactive Faults

*Select View Inactive Faults Screen*

## - VIEW INACTIVE FAULTS -

Engine (128)

ABS (136)

Cluster (140)

VECU (144)

*Select Engine Inactive Faults Screen*

## - ENGINE (128) -

MID 128	SID 22	FMI 3
---------	--------	-------

Last Occurrence		▲
-----------------	--	---

06:03 PM 09/01/05		
-------------------	--	--

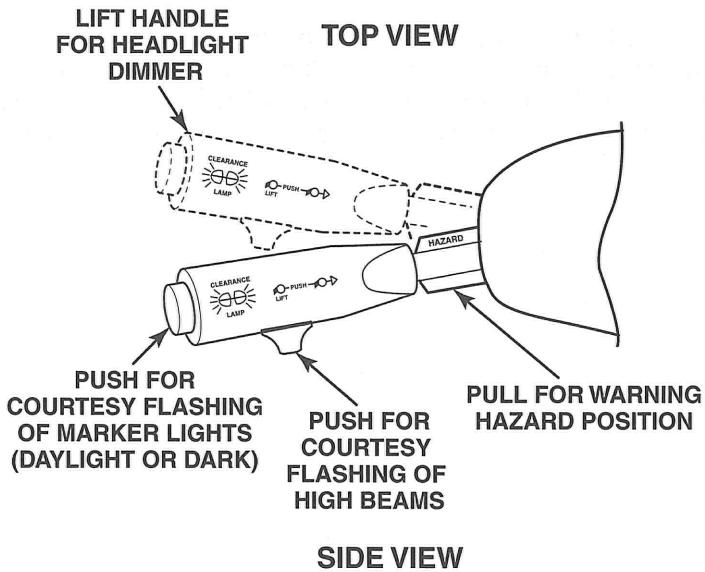
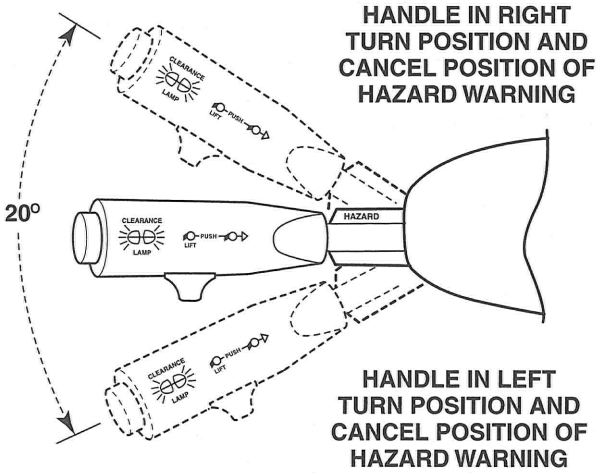
No of Occurrences		▼
-------------------	--	---

3		
---	--	--

*Inactive Faults for Engine Screen*

703771a

# INSTRUMENTS AND CONTROLS

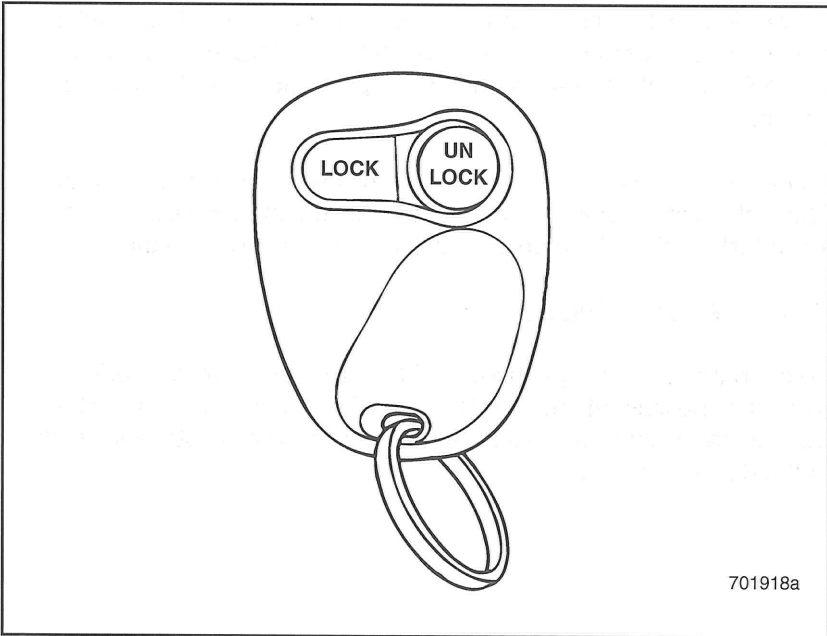


700366e

### REMOTE KEYLESS ENTRY — (OPTIONAL)

This vehicle is equipped with a Remote Keyless Entry system. This system operates by means of a hand-held remote control that locks and unlocks the cab doors.

The remote control door lock transmitters are supplied in pairs; each one is attached to a key ring.



Each transmitter is powered by a 3-volt battery and is water resistant. Information concerning battery replacement, troubleshooting, resynchronization and reprogramming the transmitters is provided in this section.

The receiver in the vehicle is capable of recognizing four transmitters. Replacement transmitters are available; however, they must be programmed to match the specific receiver (refer to the “Reprogramming the Transmitter” section).



## Anti-Lock Brake System (ABS)

<b>NOTE</b>
-------------

Anti-lock brake systems became mandatory in the U.S.A. on all tractors beginning March 1, 1997; all trucks beginning March 1, 1998, and all trailers beginning March 1, 2001. Federal regulations require that any tractor/truck with a trailer air connection built beginning March 1, 2001 must have a data communications link with the trailer ABS and an indicator lamp located in the cab to alert the driver if there is a trailer ABS malfunction.

---

### ***ABS Operation***

When operating an ABS-equipped vehicle, the following guidelines should be used.

- Apply the brakes as normal. If the anti-lock brake system begins to function, maintain brake pressure. Do NOT release the brakes.
- Avoid rapidly pumping the brakes. The anti-lock brake system automatically applies and releases the brakes up to five times per second.
- When towing a trailer, watch the trailer through the mirrors. Adjust brake application as necessary to keep the combination in a straight line. Make sure the trailer follows the tractor properly.
- An amber trailer ABS lamp on the instrument panel will illuminate for several seconds at start-up during an initial function check. When a trailer ABS fault occurs, the lamp will remain illuminated until the fault is cleared. If there is a loss of communication between the tractor and trailer, the lamp will blink three times.

Always use the same gear going downhill as uphill. This will reduce brake wear and prevent damage to the engine from overspeeding.

### Engine Temperature

Before entering high-speed traffic conditions, allow the engine to reach normal operating temperature. A normal operating range is between 170°F and 225°F (77°C and 107°C) for stationary vehicles.

### Clutch (If Equipped)

To avoid shock damage, release the clutch pedal smoothly, without shock-loading the driveline (especially on grades while carrying heavy loads). Do not ride the clutch pedal. Premature wear of the clutch facing and release bearing may result.

 **CAUTION**

*Always use the lowest drive gear combination to start the vehicle moving to avoid premature clutch failure.*

---

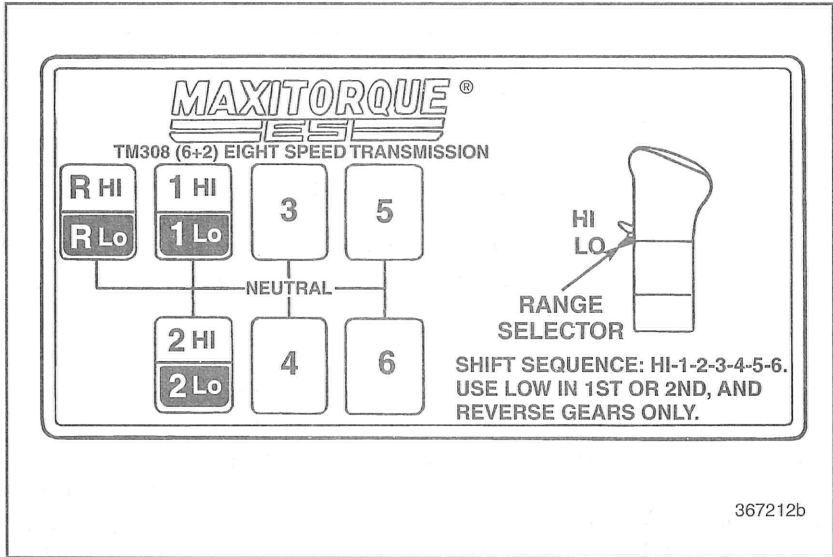
1. To move the vehicle, start the engine and wait until it reaches operating temperature.
2. Disengage the clutch by pushing the pedal to the floor.
3. Shift the transmission into first or LO gear (see “Transmission Shifting Instructions” for specific procedures).
4. Release the parking brake.

 **CAUTION**

*If the Parking Brake indicator is on, do NOT attempt to move the vehicle because driveline damage may result.*

---

# OPERATION



## TM308 TRANSMISSION RATIOS

Gear (Main Box)	Ratios	
	LO Range	HI Range
First Lo	17.77	
Second Lo	10.94	
First Hi		6.57
Second Hi		4.05
Third Hi		2.54
Fourth Hi		1.57
Fifth Hi		1.00
Sixth Hi		0.71
Reverse Lo	18.36	
Reverse Hi		6.79

### ***Preferred Methods for Engaging T309 “Eighth” Gear (or any Hi-Range Gear) for Output Shaft Driven Power Take-Off (PTO) Operation***

<b>NOTE</b>
-------------

OPTIONAL RANGE ENGAGEMENT INDICATOR LAMP — If the vehicle is so equipped, an indicator lamp, located in the cab, will illuminate to indicate that the range shift has occurred.

---

#### ***Method #1 — PTO Operation with Wheels OFF the Ground***

1. Position the vehicle for power take-off operation.
2. Stop the vehicle and apply the spring brakes.
3. Raise the vehicle wheels off the ground.
4. Shift the transmission to NEUTRAL.
5. Turn on PTO.
6. Place the range selector to HIGH.
7. Fully depress the clutch pedal and shift the transmission to REVERSE.
8. Slowly release the clutch pedal until the transmission range clutch engagement is heard; or, if so equipped, until the range engagement indicator lamp is lit.
9. Fully depress the clutch pedal.
10. Shift the transmission to EIGHTH gear.
11. Release the clutch pedal to begin PTO operation.

To upshift from LO-split to HI-split (in the same gear), accelerate the engine to governed speed, move the splitter switch to HI (preselect), depress the clutch and back off the accelerator pedal. Reapply the accelerator and engage the clutch when the audible shift is heard, or when the engine speed falls by approximately 200 rpm. Depressing the clutch may not be necessary to break the driveline torque, but this will vary with road and load conditions.

To upshift from a HI-split gear to the next higher gears LO-split (in HI range), accelerate the engine to governed speed, then move the splitter switch to LO as you move the shift lever through NEUTRAL to the next higher gear. Note that the splitter switch must not be actuated down to the LO position until the main box is in NEUTRAL.

**Downshift** — Shift from eighth HI-split to eighth LO-split, then seventh HI-split, seventh LO-split and so on (double-clutching between the gears), until you reach fifth LO-split.

While in fifth gear LO-split, flip the range selector down to LO range (preselect), then move the shift lever through NEUTRAL to fourth gear (double-clutch and use the throttle in the normal manner between gears). As the shift lever moves through NEUTRAL, the range shift to LO will be completed. You are now in fourth gear LO-split (LO range). Continue downshifting, using the shift lever in the normal manner until you reach LO speed gear (LO range, LO-split).

To downshift from HI-split to LO-split (in the same gear) as engine speed falls, move the splitter to LO (preselect), then release and reapply the accelerator pedal. An audible shift completion should be heard.

To downshift from a LO-split gear to the next lower gear's HI-split (in the same range) as engine speed falls, move the splitter switch to HI as you move the shift lever through NEUTRAL to the next lower gear. Note that the splitter switch must not be actuated up to the HI position until the main box is in NEUTRAL. Remember to double-clutch between gears using the accelerator pedal to synchronize the transmission components.

**T318 and T318L Reverse** — Reverse can be used in LO range only.

**T318LR Reverse** — Reverse can be used in LO and HI range.

To make a range shift in reverse, bring the truck to a complete stop. Flip the range selector to the range desired (preselect). Move the shift lever out of reverse through NEUTRAL, and then back into reverse again. As the lever moves through NEUTRAL, the range shift will be completed.

 **CAUTION**

*To avoid transmission damage, do NOT change range while moving in REVERSE.*

---

# OPERATION

## T31821, T318L21 AND T318LR21 TRANSMISSION RATIOS

Gear (Main Box)	Splitter	Range	Ratios		
			T31821	T318LR21	T318L21
LO	LO	LO	13.44	16.42	16.42
LO	HI	LO	11.40	13.93	13.93
1	LO	LO	8.78	8.78	8.78
1	HI	LO	7.45	7.45	7.45
2	LO	LO	6.28	6.28	6.28
2	HI	LO	5.33	5.33	5.33
3	LO	LO	4.52	4.52	4.52
3	HI	LO	3.83	3.83	3.83
4	LO	LO	3.22	3.22	3.22
4	HI	LO	2.73	2.73	2.73
<b>Range Shift Here</b>					
5	LO	HI	2.29	2.29	2.29
5	HI	HI	1.94	1.94	1.94
6	LO	HI	1.64	1.64	1.64
6	HI	HI	1.39	1.39	1.39
7	LO	HI	1.18	1.18	1.18
7	HI	HI	1.00	1.00	1.00
8	LO	HI	0.84	0.84	0.84
8	HI	HI	0.71	0.71	0.71
R	LO	LO	15.91	28.98	15.91
R	HI	LO	13.49	24.58	13.49
R	HI	HI	3.52	6.41	3.52