



# Technical Service Information

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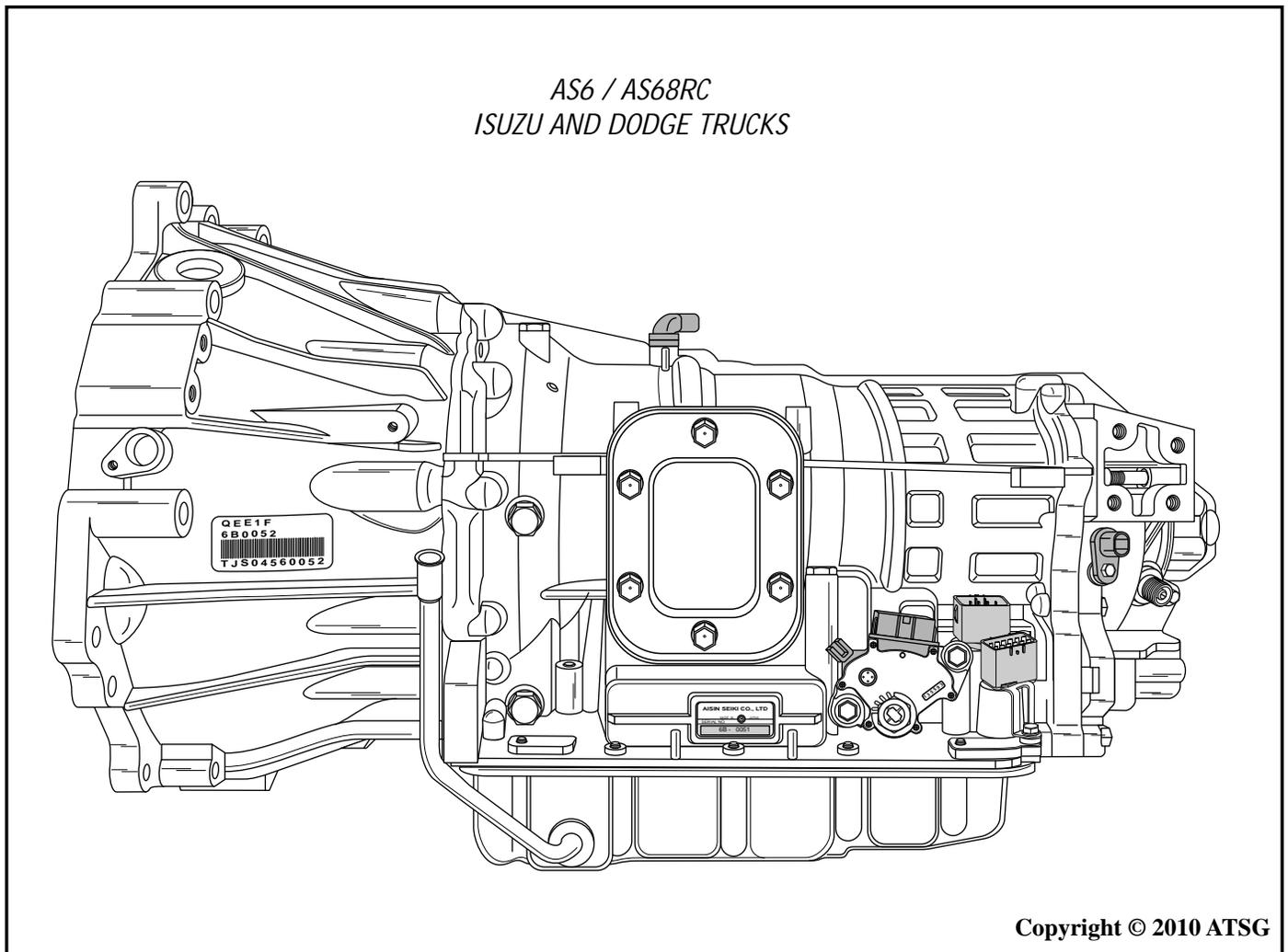
### OIL CIRCUIT DIAGRAMS

<i>Park/Neutral</i>	<i>Drive 1st</i>	<i>Drive 5th</i>
<i>Reverse High Torque</i>	<i>Drive 2nd</i>	<i>Drive 6th</i>
<i>Reverse</i>	<i>Drive 3rd</i>	<i>Drive 6th TCC On</i>
<i>Drive 1st (Stopped)</i>	<i>Drive 4th</i>	<i>Manual Low 1st Gear</i>



## AS6 / AS68RC PRELIMINARY INFORMATION

The following information is for the AS6/AS68RC six speed Medium Duty Truck transmission. It is found in the Isuzu cab over, Mitsubishi Fuso, and 07 and up Dodge incomplete chassis. There is information on both versions in the following pages. The operational characteristics displayed are for the Dodge, which are similar to the Isuzu. The Valve Body information and specifications are from an Isuzu application, and are very similar to the Dodge.



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## GENERAL DESCRIPTION

Beginning in model year 2007 Daimler-Chrysler introduced a new rear drive transmission that is manufactured by Aisin Seiki in Japan and referred to as the AS68RC by Chrysler. It is a six speed, rear wheel drive (RWD) automatic transmission and found in Dodge 3500, 4500, and 5500 chassis, with the Cummins 6.7L diesel engine. Refer to Figure 1 for the definitions of AS68RC.

Primary reason was to assist Dodge's re-entry into the commercial truck market with its 26,000 lb GCW rating. This is accomplished through the use of a multi-plate torque converter clutch and heavy duty gear train housed in a conventional transmission case assembly, as shown in Figure 3.

The primary mechanical components of the AS68RC are as follows:

- **Three Driving Clutch Packs.**
- **Two Brake Clutch Packs.**
- **One One-Way Sprag Clutch.**
- **Three Planetary Gear Sets.**
- **Torque Converter Multi-Disc Lock-up Clutch**

Fuel efficiency is provided by clutch to clutch shifting, an on-demand torque converter clutch, and the use of two overdrive ratios. Refer to Figure 3 for component locations and identification of each component. The AS68RC provides six forward and one reverse range. With the selective lever in D (Drive), all forward ranges are available when the O/D and Tow/Haul features are Off.

Fully electronic shift and torque converter clutch controls optimize transmission operation, fuel economy, and towing capability. The Transmission Control Module (TCM) has the capability to alter shift schedules, line pressure, and the apply and release of the torque converter clutch. The TCM receives information from several electronic sensors and based on that information will output to the following solenoids located on the valve body.

- **Four Linear (PWM) Solenoids.**
- **Four On/Off Shift Solenoids.**

The TCM also communicates with the Engine Control Module (ECM) and the Totally Integrated Power Module (TIPM) via the CAN-C bus. The TCM is a stand alone module located under the driver side dash next to the steering shaft.

The AS68RC can also accommodate a variety of Power Take Off (PTO) accessories and is available in 2WD and 4WD versions.

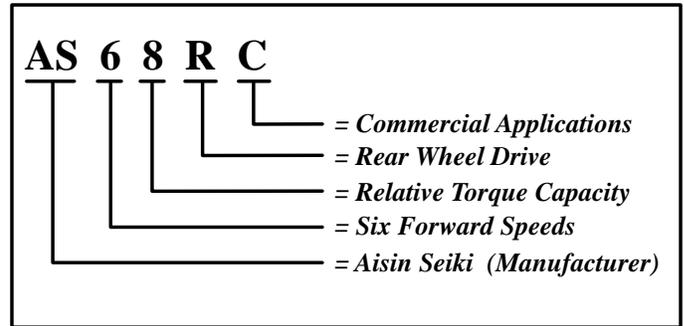


Figure 1

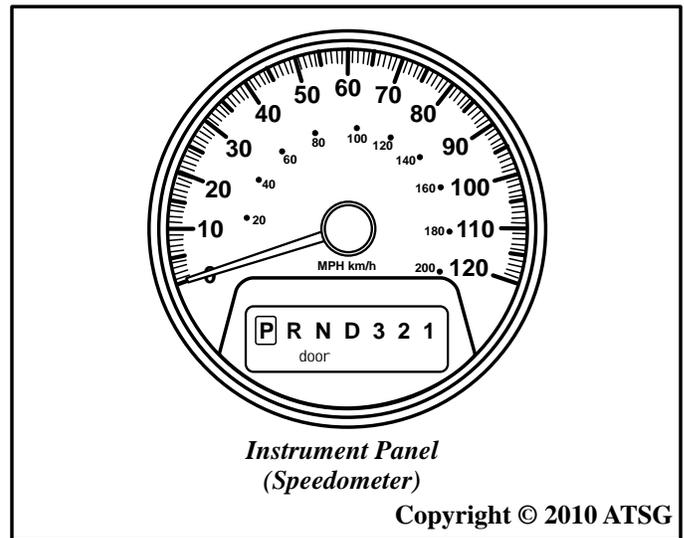


Figure 2

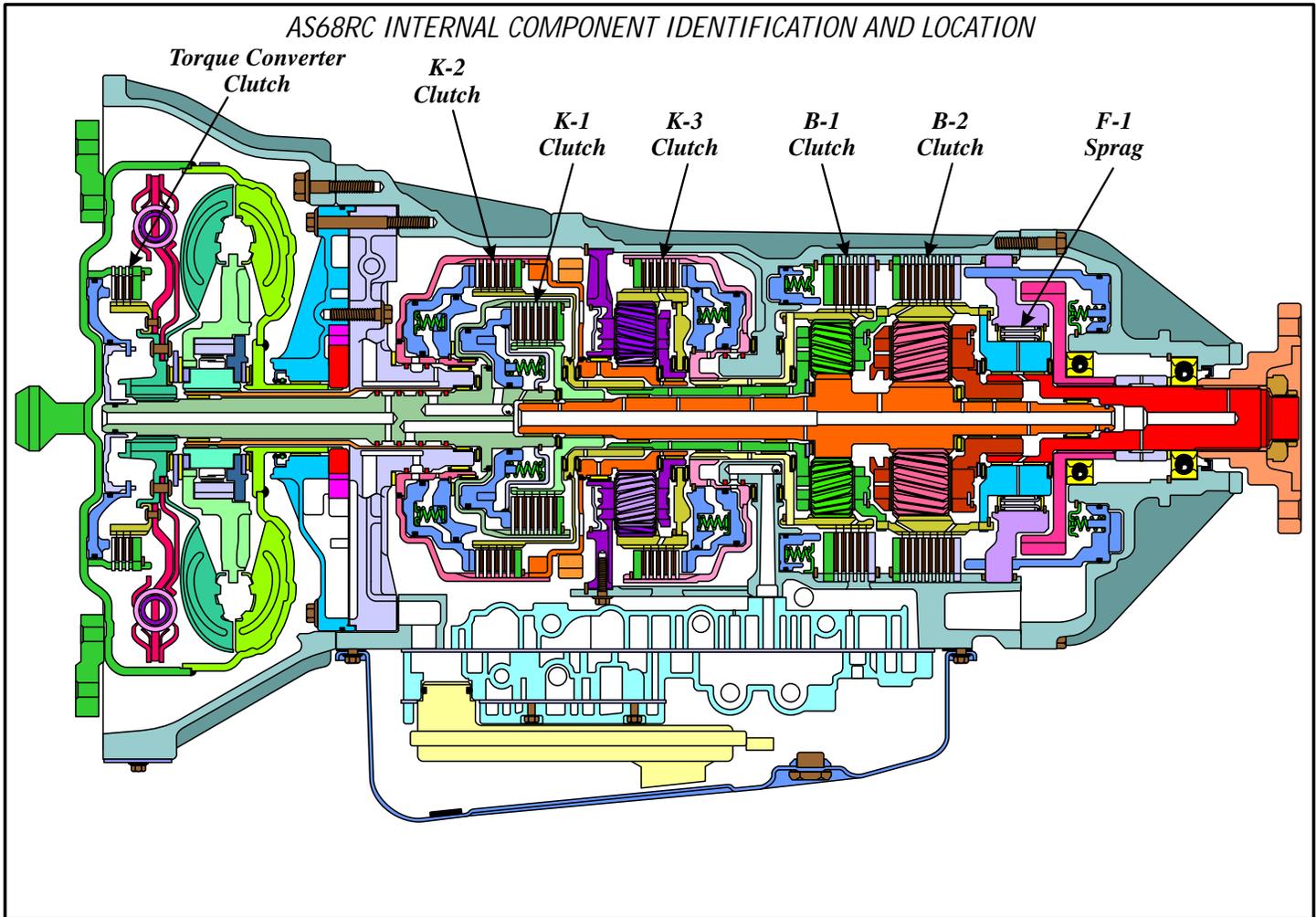
### AS68RC Shift Quadrant

The AS68RC shift quadrant indicator is located in the speedometer housing, as shown in Figure 2 and is equipped with a column shift lever. Shift lever positions are as follows:

**P** When the Park position is selected, there is no powerflow through the transaxle. The parking pawl is engaged which locks the output shaft to the case. The engine can be started and the ignition key can be removed.

**R** When the Reverse position is selected, the vehicle can be operated in a rearward direction at a reduced gear ratio.

**N** When the Neutral position is selected, there is no powerflow through the transaxle. The output shaft is free to rotate and the engine can be started. This position can also be selected while the vehicle is moving to restart the engine, if necessary.



COMPONENT APPLICATION CHART

RANGE	K-1 Clutch	K-2 Clutch	K-3 Clutch	B-1 Clutch	B-2 Clutch		F-1 Sprag		Torq Conv Clutch	Gear Ratio
Park					On					
Reverse			On		On					3.54
Neutral					On					
"D"-1st	On				On		Hold			3.74
"D"-2nd	On			On					Applied*	2.00
"D"-3rd	On		On						Applied*	1.34
"D"-4th	On	On							Applied*	1.00
"D"-5th		On	On						Applied*	0.77
"D"-6th		On		On					Applied*	0.63

\* TCC is available in 2nd thru 6th gear, based on throttle position, fluid temp and vehicle speed.

Figure 3

### AS68RC Shift Quadrant (Cont'd)

**D** The Drive position is the normal position for most forward gear operations. The Drive position provides automatic upshifts and downshifts, apply and release of the converter clutch, and maximum fuel economy during normal operation. Drive range allows the transmission to operate in each of the six forward gear ratios, with the O/D and Tow/Haul in Off position. Downshifts are available for safe passing, by depressing the accelerator.

**3** Manual "3" position prevents transmission from shifting above 3rd gear, and adds more performance and engine braking for hilly terrain. Manual 3 can be selected at any vehicle speed, but will not downshift until vehicle speed calibrated into the TCM has been reached, to prevent engine over-speed.

**2** Manual "2" position prevents transmission from shifting above 2nd gear, and provides engine braking for hilly terrain. Manual 2 can be selected at any vehicle speed, but will not downshift until vehicle speed calibrated into the TCM has been reached, to prevent engine over-speed.

**1** Manual "1" position prevents transmission from shifting above 1st gear, and provides maximum engine braking. Manual 1 can be selected at any vehicle speed, but will not downshift until vehicle speed calibrated into the TCM has been reached, to prevent engine over-speed.

### AS68RC Tow/Haul and O/D Off

The "Tow/Haul" and "O/D Off" button is located on the end of the manual selector lever, as shown in Figure 4. Pressing the button once enables the Tow/Haul mode and the "Tow/Haul" lamp will be illuminated. In Tow/Haul mode 6th gear is disabled and all upshifts will be delayed. Closed throttle downshifts, for improved engine braking, may occur during steady braking conditions.

Pressing the button a second time enables the O/D-Off mode, where all 5th and 6th gear operation is inhibited (No overdrive ratios), and the O/D Off lamp will be illuminated. Tow/Haul and O/D Off lamps are located just to the right of the temperature gauge, as shown in Figure 4.

Pressing the button a third time will restore normal operation. Normal operation is the default on start-up, the switch must be pressed after each key start if Tow/Haul mode is desired.

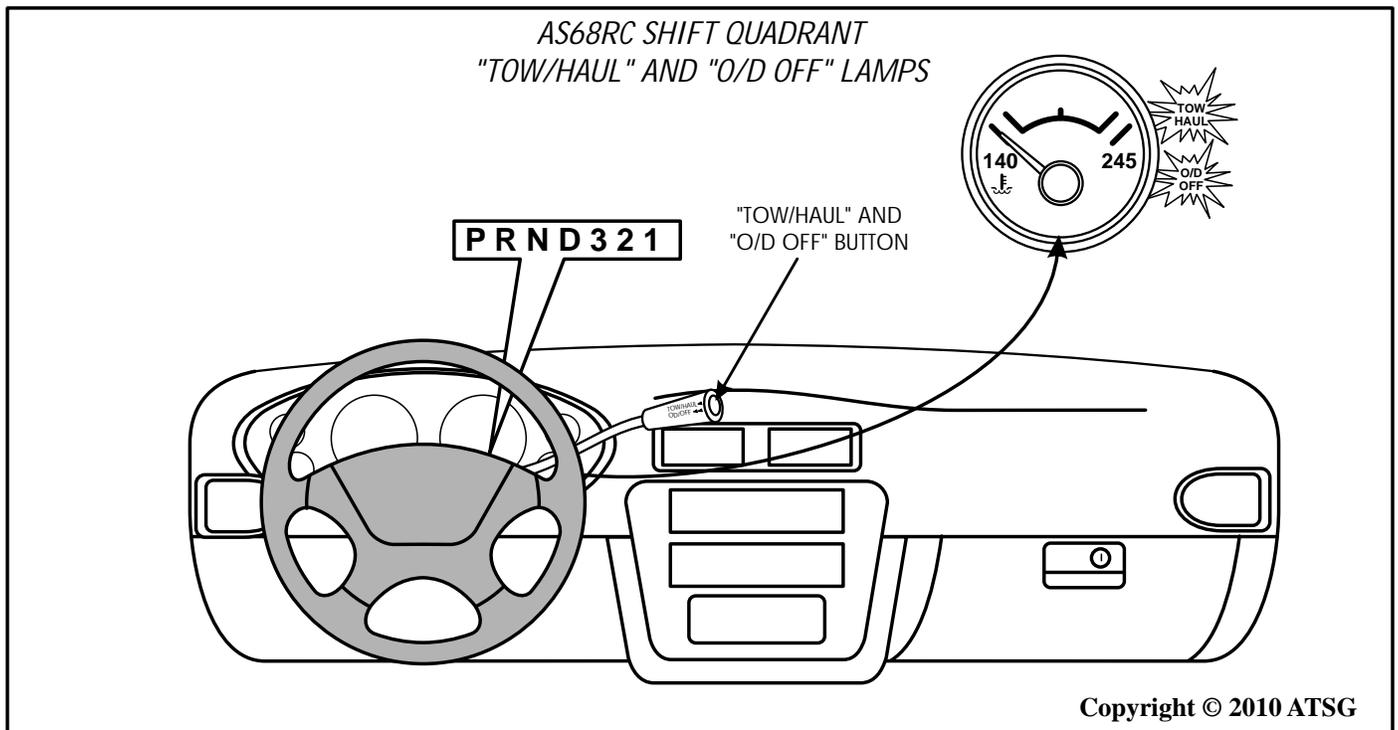


Figure 4

## IDENTIFICATION TAG LOCATION

Transmission identification numbers are included in the bar code label located on the torque converter housing. There is also a stamped steel identification tag riveted to the left side of the transmission case, as shown in Figure 5. This tag also includes build date information. This information is necessary when any replacement parts are needed.

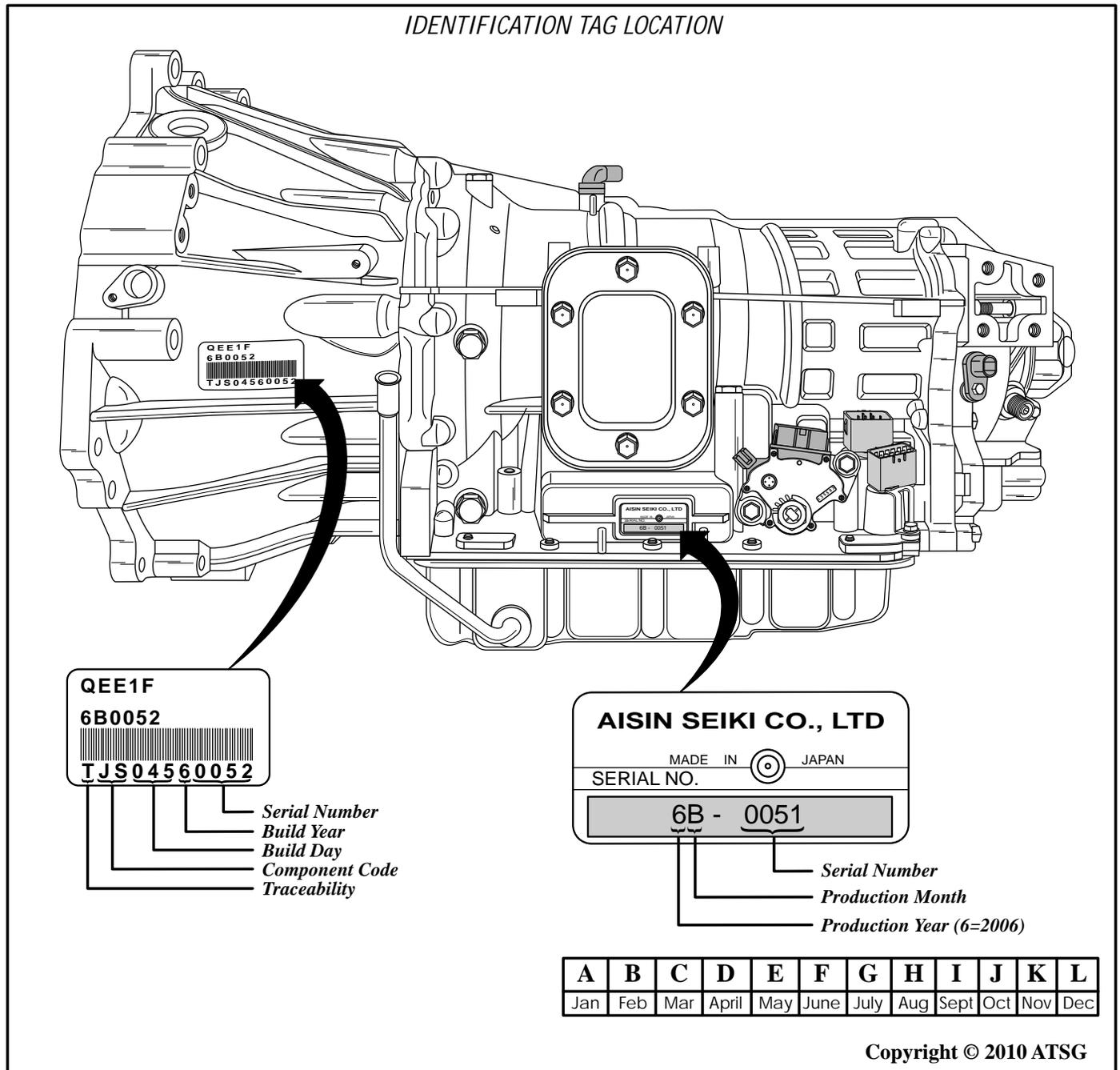


Figure 5