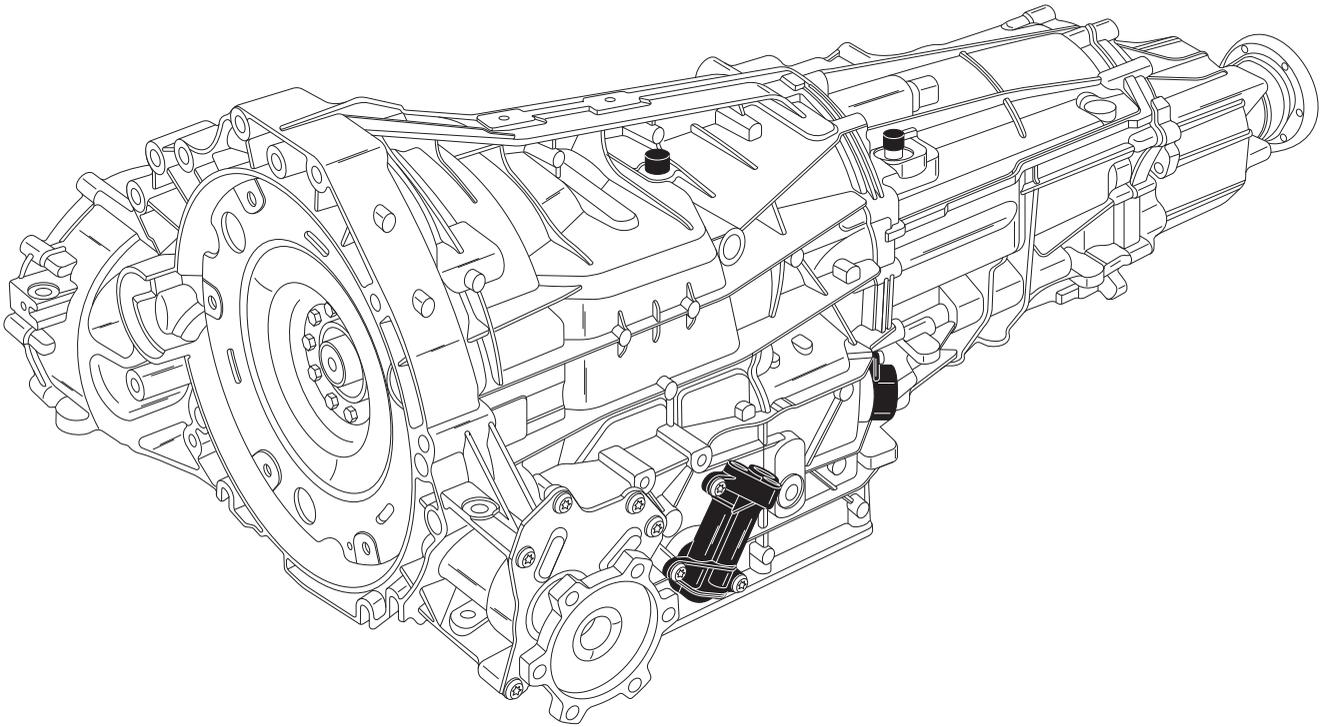




# Technical Service Information

## DL501-7Q/0B5/S TRONIC

### 7 SPEED DUAL CLUTCH ELECTRO-HYDRAULICALLY CONTROLLED GEARBOX



The 0B5 is the service designation for the manufacturer's DL501-7Q 7 speed dual clutch gearbox. This dual oil-cooled multi-plate clutch, fully synchronized transmission is electro-hydraulically controlled via a Mechatronic system. Added to the DSG designation for Direct Shift Gearbox is the S tronic to indicate the ability to manually shift the transmission without a clutch pedal. The double clutch assembly continues to operate automatically while in the manual gear select mode. As with its predecessor the odd number gears (1, 3, 5, 7) are driven by the K1 clutch through input shaft 1 and the even numbered gears (2, 4, 6, Reverse) via the K2 clutch and input shaft 2. The double clutch drum is mounted to and driven by a dual mass flywheel acting as a damper between the engine and the double clutch drum. This transmission is fitted with the traditional quattro drive (all wheel drive) torque sensing center differential splitting the torque sending 40% to the front axle and 60% to the rear.

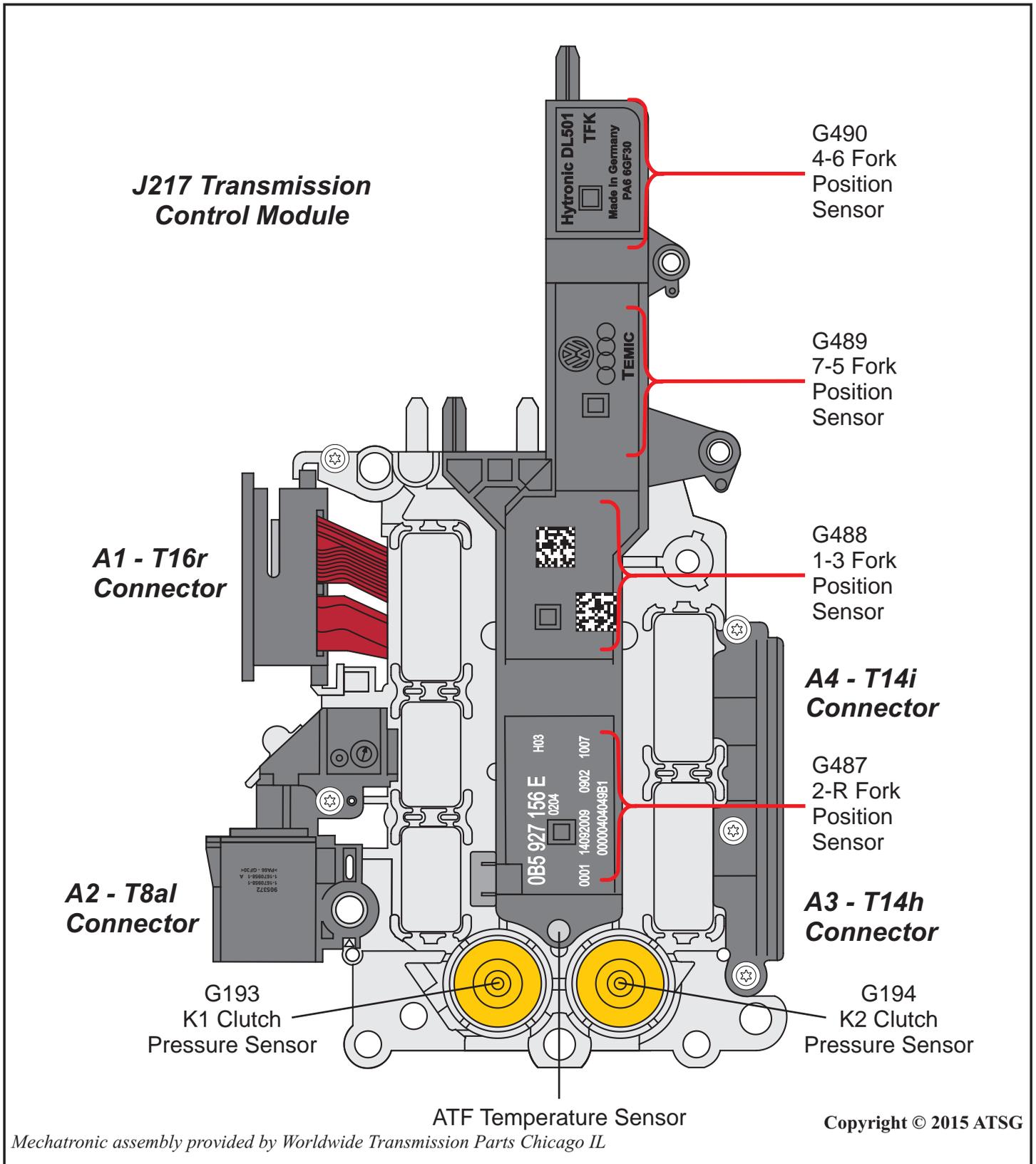
Vehicle application list as per ALTO:

AUDI	A4, Allroad	2009-14 7 SPF/AWD	2.0L 3.0L 4.0L 4.2L	DL501	WD CLUTCH
AUDI	A5, Cabriolet, Sportback	2008-14 7 SPF/AWD	2.0L 3.0L 3.2L 4.0L 4.2L	DL501	WD CLUTCH
AUDI	A6	2011-14 7 SPF/AWD	2.0L 2.8L 3.0L 3.2L 4.0L	DL501	WD CLUTCH
AUDI	A7	2010-14 7 SPF/AWD	2.0L 2.5L 2.8L 3.0L 4.0L	DL501	WD CLUTCH
AUDI	Q5	2008-14 7 SPF/AWD	2.0L 3.0L 3.2L	DL501	WD CLUTCH
AUDI	TTS	2009-On 7 SPAWD	2.0L TURBO	DL501	WD CLUTCH
PORSCHE	Macan	2013-14 7 SPR/AWD	2.0L 3.0L	DL501	WD CLUTCH

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## DL501-7Q/0B5/S TRONIC

### 7 SPEED DUAL CLUTCH ELECTRO-HYDRAULICALLY CONTROLLED GEARBOX



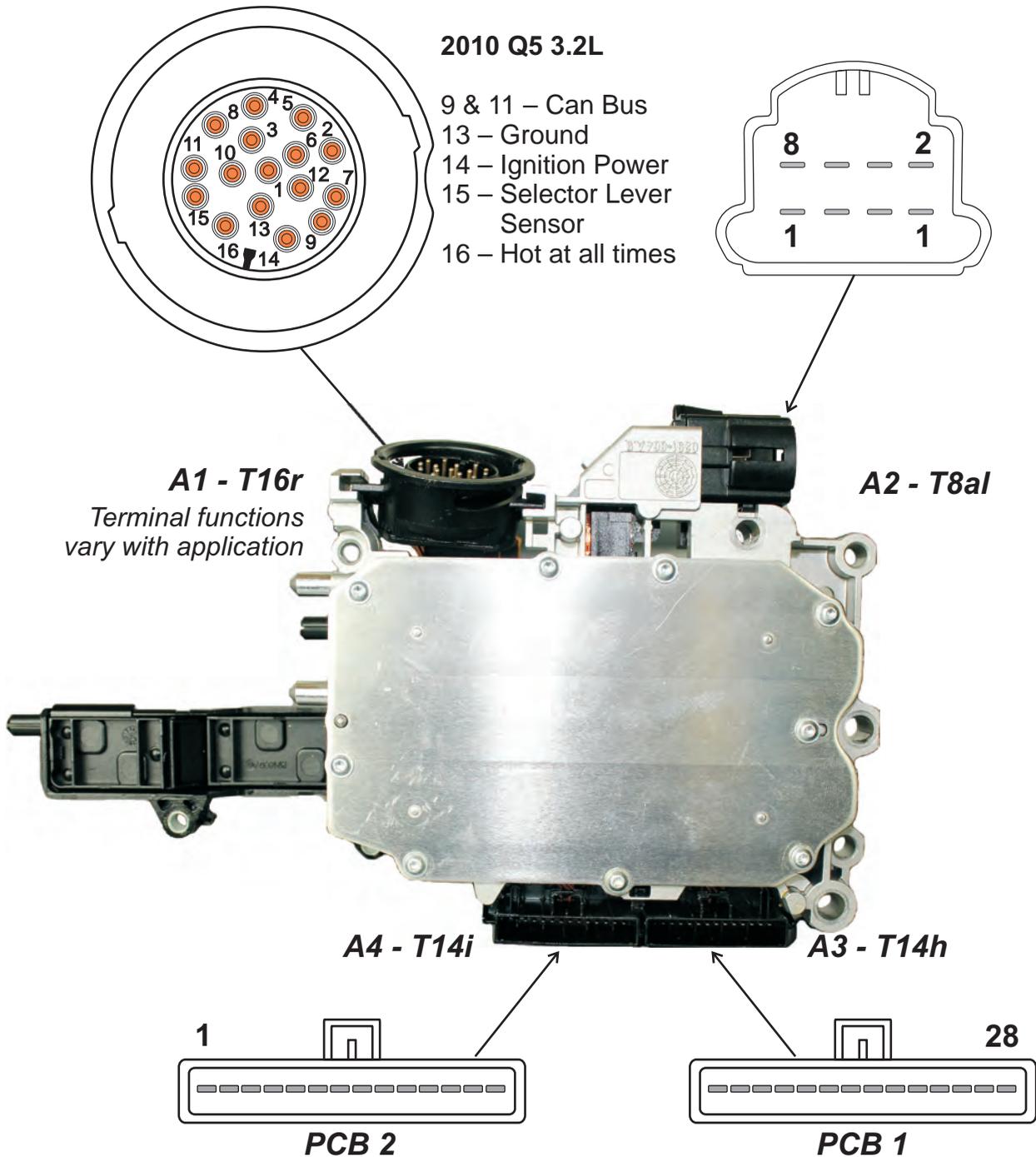


# Technical Service Information

## DL501-7Q/0B5/S TRONIC

### 7 SPEED DUAL CLUTCH ELECTRO-HYDRAULICALLY CONTROLLED GEARBOX

#### J217 Transmission Control Module Connector I.D.



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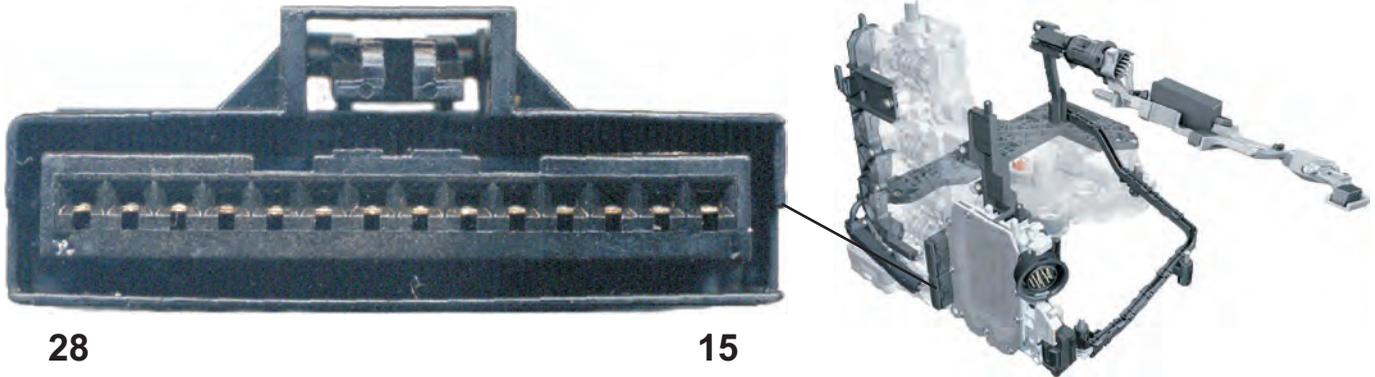


# Technical Service Information

## DL501-7Q/0B5/S TRONIC

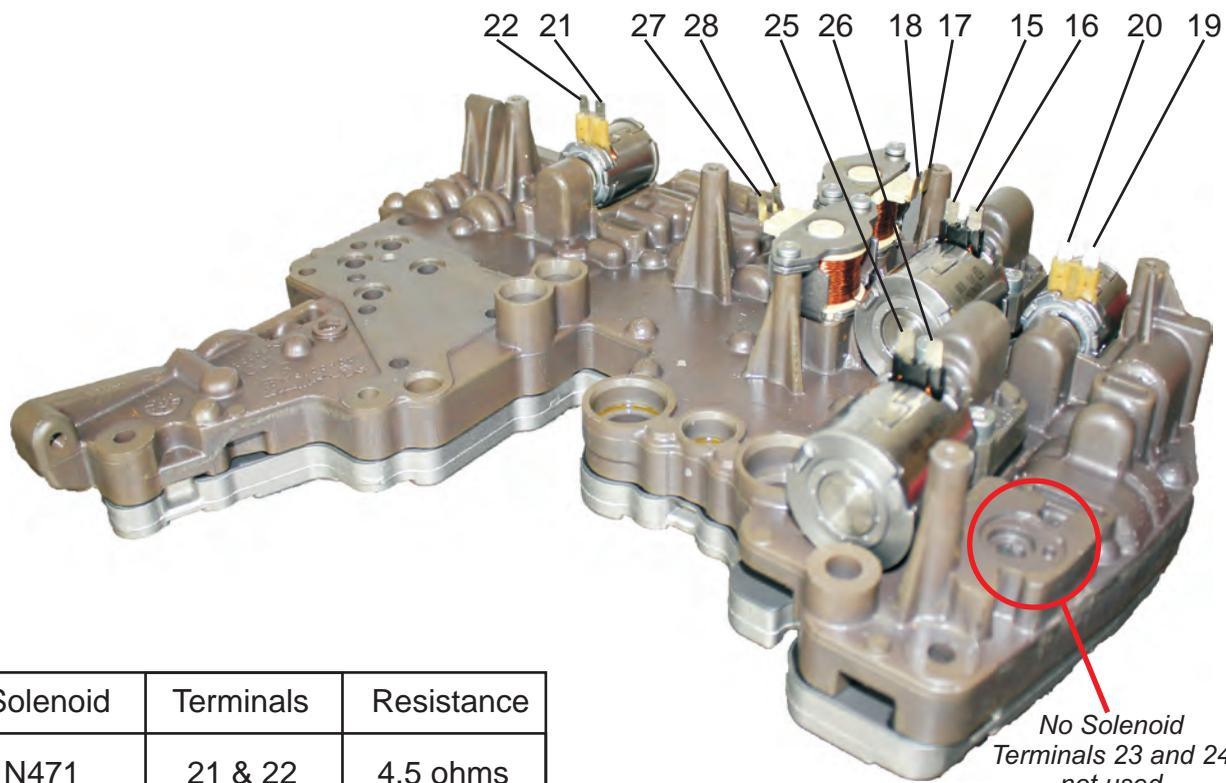
### 7 SPEED DUAL CLUTCH ELECTRO-HYDRAULICALLY CONTROLLED GEARBOX

A3 - T14h



28

15



No Solenoid  
Terminals 23 and 24  
not used

Solenoid	Terminals	Resistance
N471	21 & 22	4.5 ohms
N472	19 & 20	4.5 ohms
N436	25 & 26	5.0 ohms
N440	15 & 16	5.0 ohms
N435	27 & 28	12.5 ohms
N439	17 & 18	12.5 ohms

Resistance are approximate taken at room temperature

- N471 - Clutch Cooling Oil Solenoid
- N472 - Main Pressure Control Solenoid
- N436 - Odd Gear Pressure Reg.Solenoid
- N440 - Even Gear Pressure Reg.Solenoid
- N435 - K1 Clutch Control Solenoid
- N439 - K2 Clutch Control Solenoid

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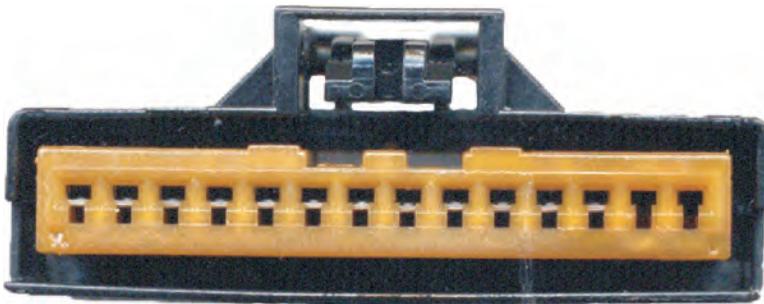


# Technical Service Information

## DL501-7Q/0B5/S TRONIC

### 7 SPEED DUAL CLUTCH ELECTRO-HYDRAULICALLY CONTROLLED GEARBOX

A3 - T141



14

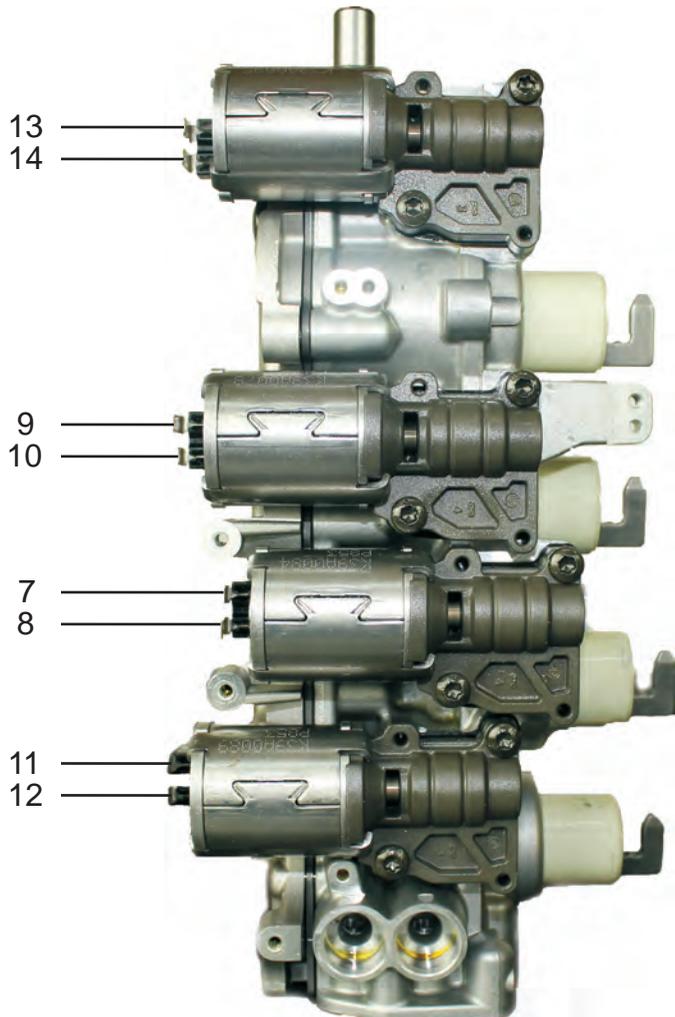
1



- N433 - 1-3 Shift Fork Solenoid
- N437 - 2-R Shift Fork Solenoid
- N438 - 4-6 Shift Fork Solenoid
- N434 - 7-5 Shift Fork Solenoid

Solenoid	Terminals	Resistance
N438	13 & 14	5.0 ohms
N434	9 & 10	5.0 ohms
N433	7 & 8	5.0 ohms
N437	11 & 12	5.0 ohms
Resistance are approximate taken at room temperature		

Sensor	Terminals
G509 - Clutch Oil Temperature sensor	3, 4 & 5
G641 - Input Speed Sensor 3 - Double Clutch Drum Speed	3, 4 & 6
Terminals 1 and 2 are not used	



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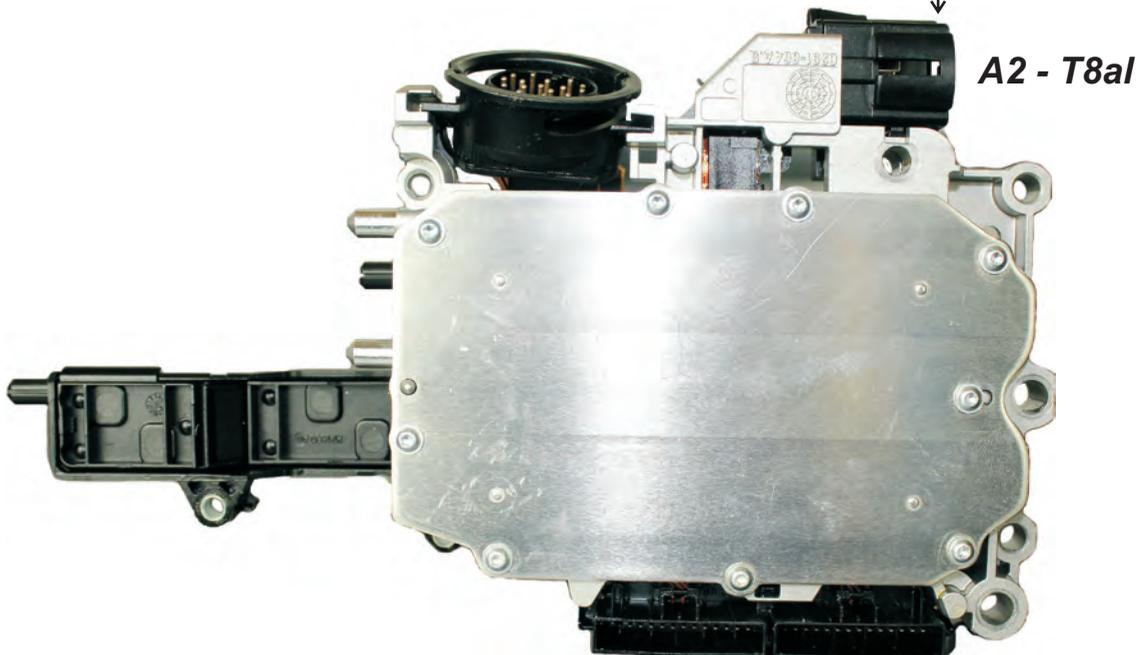
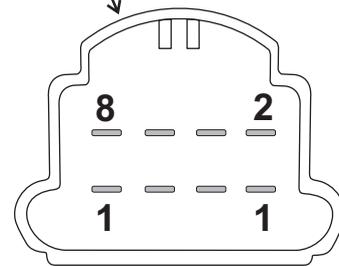
# Technical Service Information

## DL501-7Q/0B5/S TRONIC

### 7 SPEED DUAL CLUTCH ELECTRO-HYDRAULICALLY CONTROLLED GEARBOX

#### ***A2 - T8a1 Connector Terminal Identification***

Sensor	Terminals
G676 - Drive Position Sensor	1, 2, 3, 4
G632 - Input Speed Sensor 1 - Input Shaft 1 Speed Signal	5, 6 & <b>7</b>
G612 - Input Speed Sensor 2 - Input Shaft 2 Speed Signal	5, 6 & <b>8</b>



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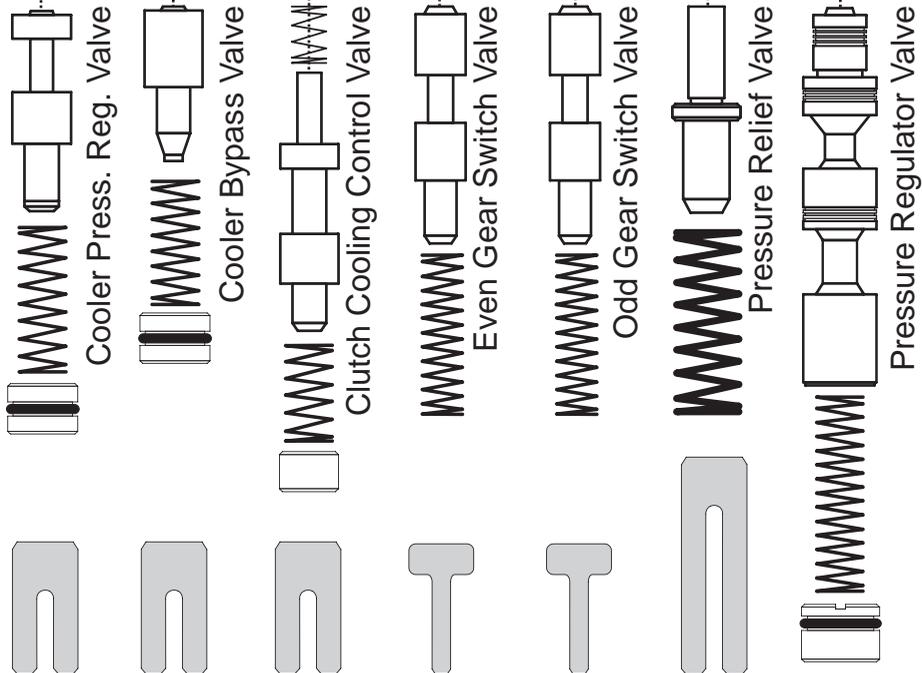
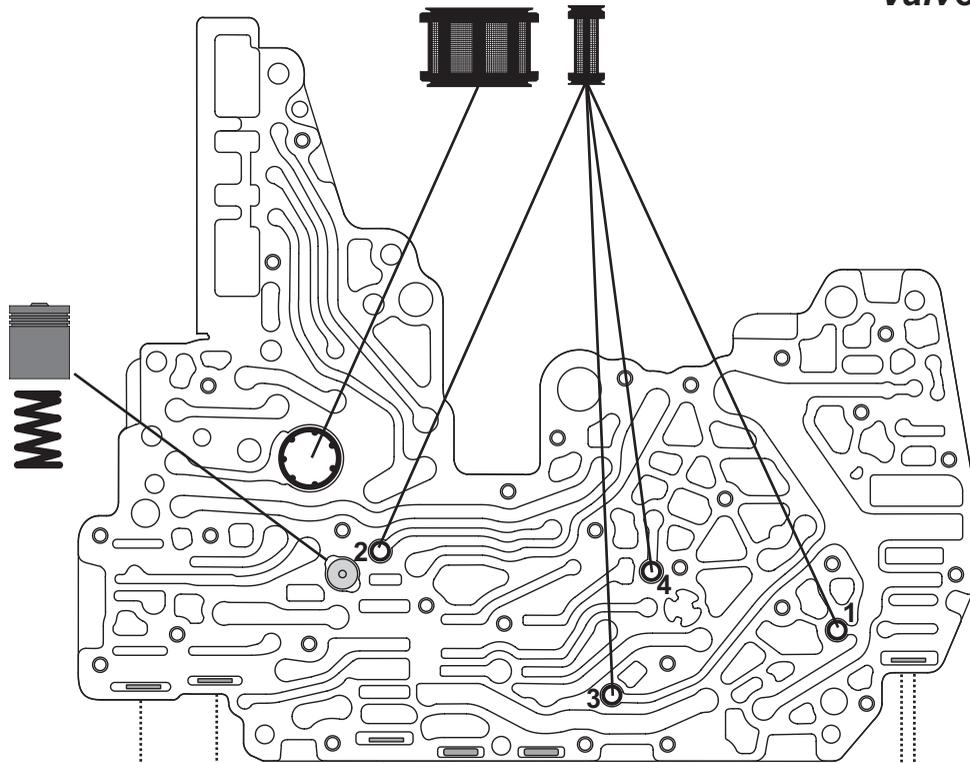


# Technical Service Information

## DL501-7Q/0B5/S TRONIC

### 7 SPEED DUAL CLUTCH ELECTRO-HYDRAULICALLY CONTROLLED GEARBOX

*Valve Body*



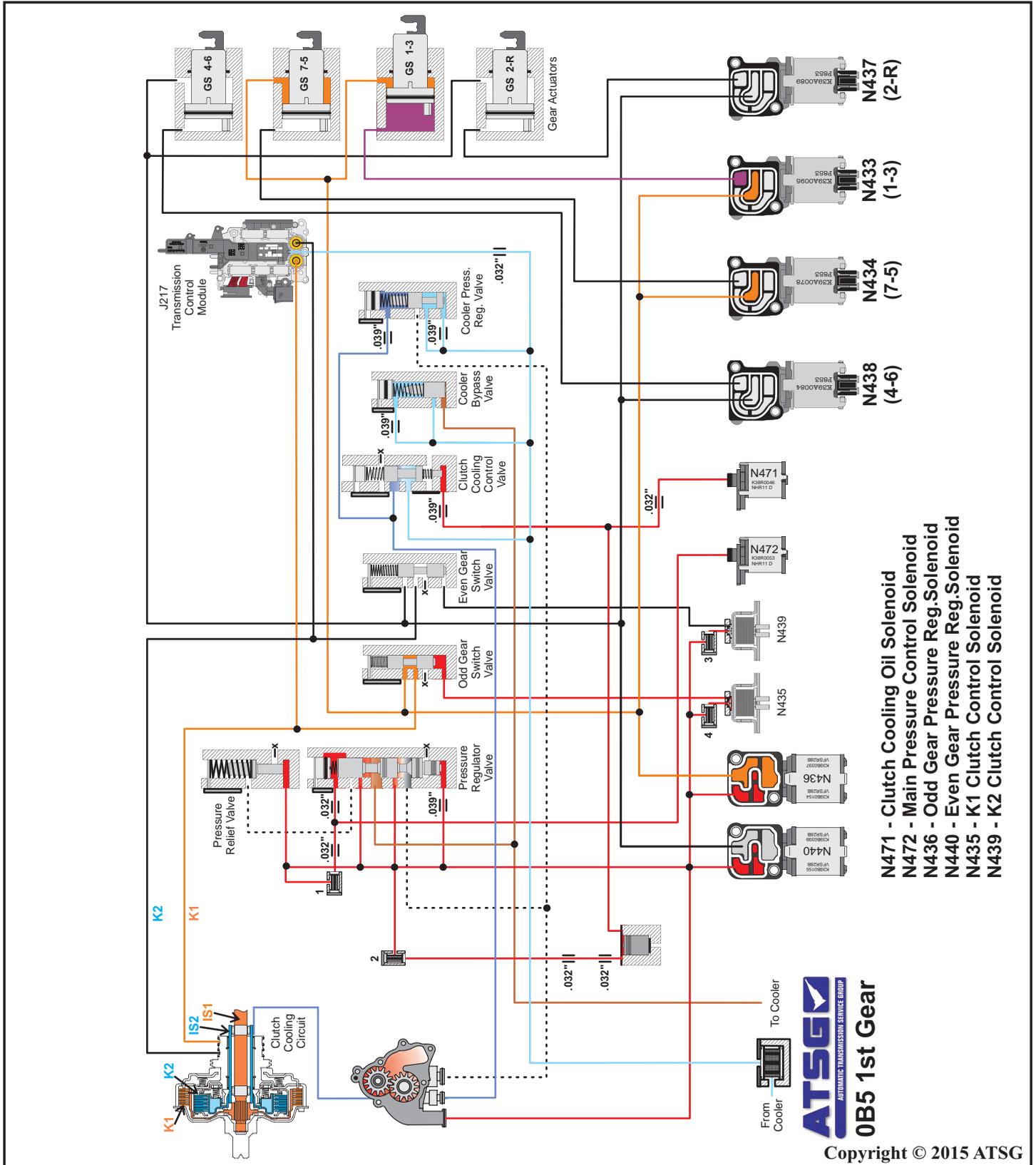
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# Technical Service Information

## DL501-7Q/0B5/S TRONIC

### 7 SPEED DUAL CLUTCH ELECTRO-HYDRAULICALLY CONTROLLED GEARBOX





**DL501-7Q/0B5/S TRONIC**

**7 SPEED DUAL CLUTCH ELECTRO-HYDRAULICALLY CONTROLLED GEARBOX**

***Double Clutch Drum  
Assembly TIP***

The alignment of critical ports and installation of the distributor sleeve for the O5B /DQ500 may be a challenge.

The Components:



1. Install a support plug into the open face side of the double clutch housing as shown above.

**DL501-7Q/0B5/S TRONIC**

**7 SPEED DUAL CLUTCH ELECTRO-HYDRAULICALLY CONTROLLED GEARBOX**

***Double Clutch Drum  
Assembly TIP***



2. Flip the clutch housing over onto the plug support.



3. Install the return spring.



4. Align the apply fingers of the K1 clutch piston to the access holes in the clutch housing and install the piston.



5. Install the piston seal cap with the notch aligned to the pressure feed slot in the clutch housing.

## DL501-7Q/0B5/S TRONIC

### 7 SPEED DUAL CLUTCH ELECTRO-HYDRAULICALLY CONTROLLED GEARBOX

#### *Double Clutch Drum Assembly TIP*



6. Install the o-ring into the distributor sleeve in the location shown above.



7. Align the notches in the distributor sleeve to the notch in the piston cap.



8. As the distributor sleeve is placed onto the clutch housing with the notches aligned, the notch in the distributor sleeve should also be aligned with the pressure feed slot in the clutch housing.



9. Secure the alignment position with a suitable alignment tool such as the one designed by ALTO. It aligns the K1 and K2 clutch feed holes in the sleeve to the clutch housing. The jaw tool fits into the K1 feed slots in the drum assisting in the alignment process.

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**DL501-7Q/0B5/S TRONIC**

**7 SPEED DUAL CLUTCH ELECTRO-HYDRAULICALLY CONTROLLED GEARBOX**

*Double Clutch Drum  
Assembly TIP*



10. Install the slotted press plug over the alignment tool.



11. With all pieces sitting square, carefully press the sleeve down about 6.35mm.



12. As the sleeve begins to be pressed onto the housing, open the jaws of the alignment tool.



13. Once the sleeve is down by approx. 6.35mm (.250"), remove the tool.

**DL501-7Q/0B5/S TRONIC**

**7 SPEED DUAL CLUTCH ELECTRO-HYDRAULICALLY CONTROLLED GEARBOX**

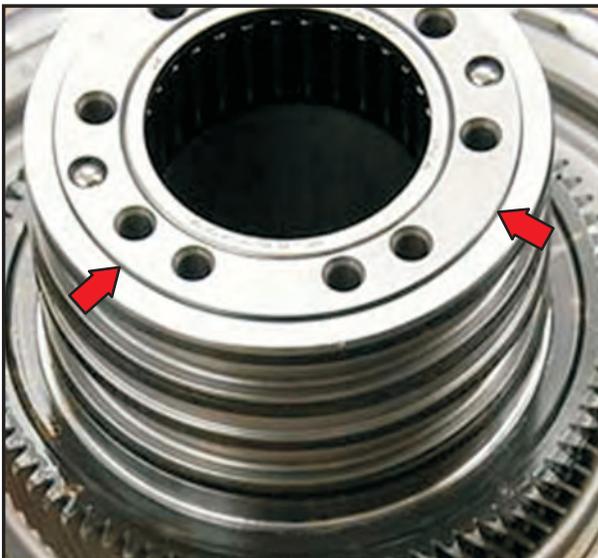
***Double Clutch Drum  
Assembly TIP***



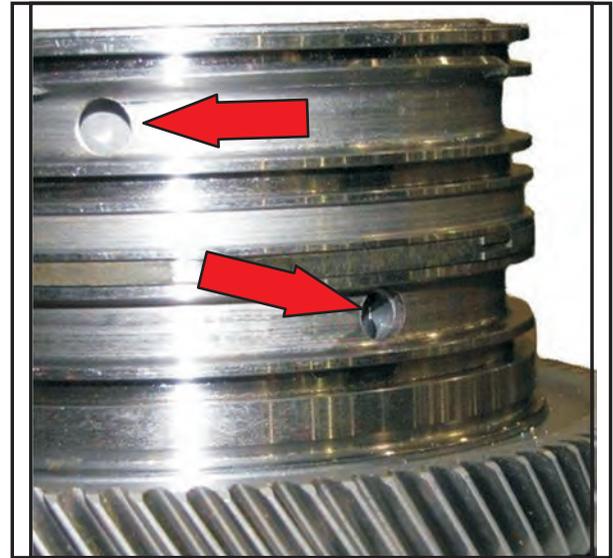
20. With the tool removed, carefully press the sleeve to the housing.



21. Once in place, remove the press plug.



22. When the sleeve is fully into position correctly, there should be a 1 mm (.040") step from the top of the housing down to the sleeve.



23. The distributor sleeve K1 and K2 clutch feed holes should also be aligned to the pressure feed slot (K1) and the hole (K2) in the clutch housing.

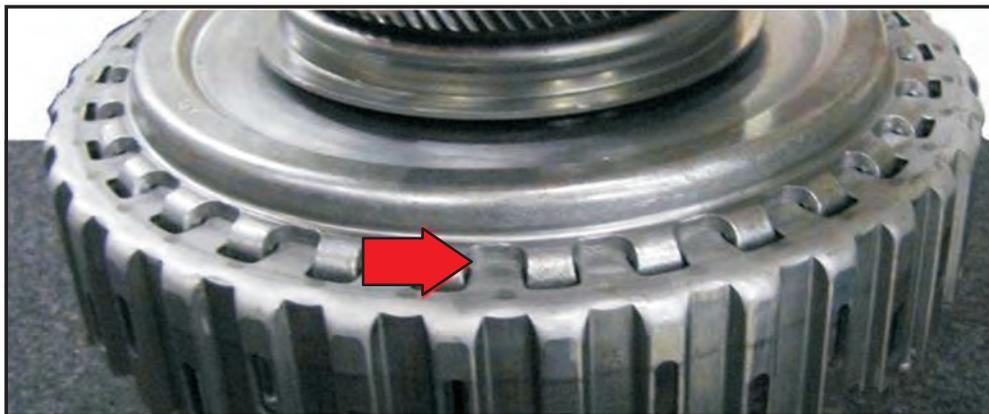
**DL501-7Q/0B5/S TRONIC**

**7 SPEED DUAL CLUTCH ELECTRO-HYDRAULICALLY CONTROLLED GEARBOX**

*Double Clutch Drum  
Assembly TIP*



24. With the distributor sleeve in place, use a small amount of air to check the K1 piston for proper movement.



25. The K1 piston in the applied position. The apply fingers should pass through the housing's access holes freely without any binding.

## DL501-7Q/0B5/S TRONIC

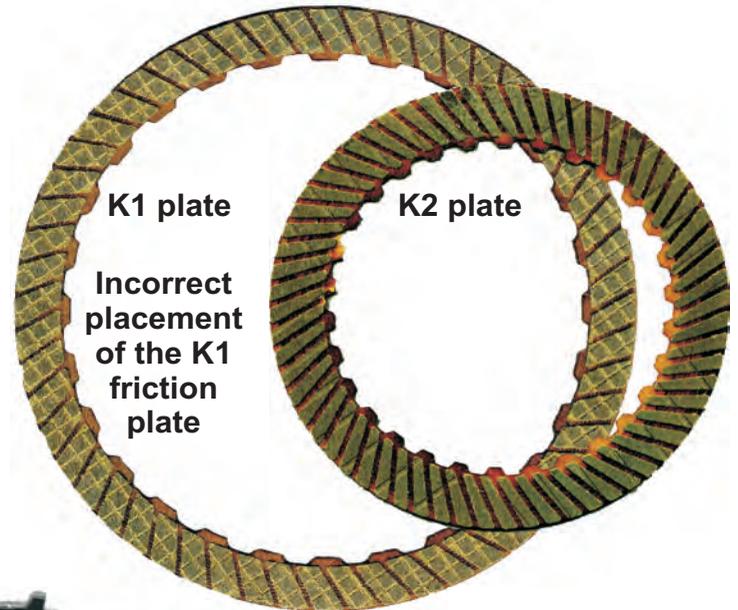
### 7 SPEED DUAL CLUTCH ELECTRO-HYDRAULICALLY CONTROLLED GEARBOX

#### THE K1 AND K2 CLUTCH PLATES

The K1 (outer) and the K2 (inner) friction disks as directional sensitive.

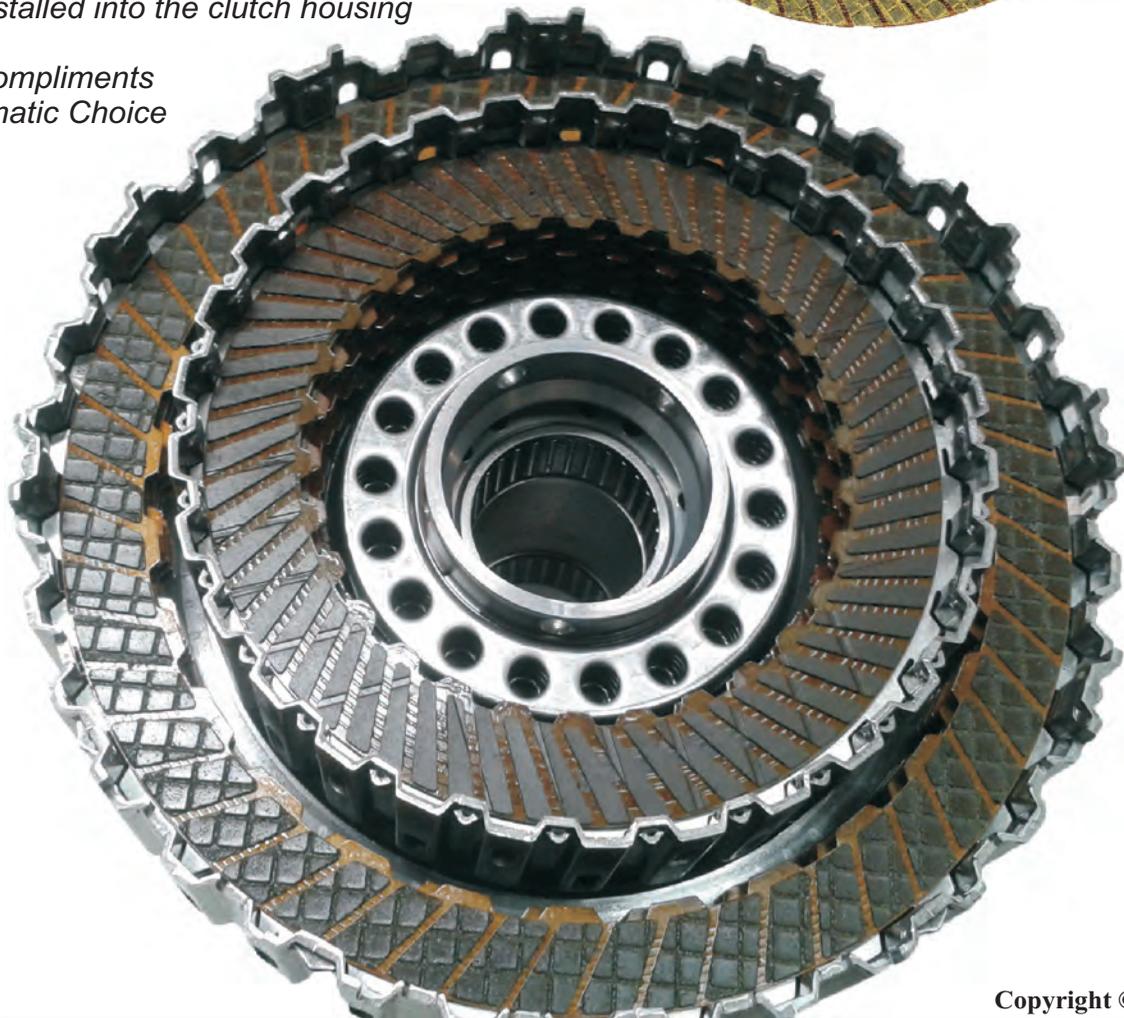
It is imperative for the frictions to be installed as shown in the clutch housing below.

Incorrect positioning of one or both of these clutches may affect the pumping and sucking of the fluid compromising clutch cooling capabilities.



*Correct direction of both plates as seen when installed into the clutch housing*

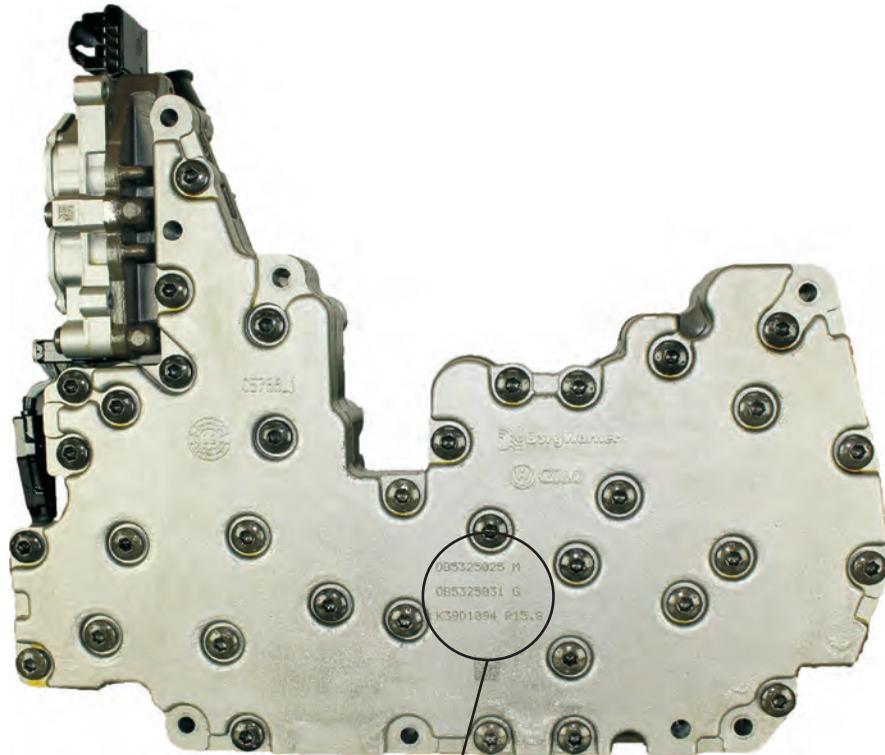
*Photo compliments of Automatic Choice*



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## DL501-7Q/0B5/S TRONIC

### 7 SPEED DUAL CLUTCH ELECTRO-HYDRAULICALLY CONTROLLED GEARBOX



**K39D1094**

Identification of the Mechatronic Unit				Explanation: in this example: K39D1094
<b>K</b>	<b>39</b>	<b>D1</b>	<b>094</b>	
K				Year of manufacture: L = 2010 K = 2009 J = 2008 ... etc.
	39			Calendar week year of manufacture
		D1		Manufacturer's code for day and shift no. Monday: shift 1 = A1, shift 2 = B1, shift 3 = C1 Tuesday: shift 1 = D1, shift 2 = E1, shift 3 = F1 Wednesday: shift 1 = G1, shift 2 = H1, shift 3 = I1 ... etc.
			094	Serial number of unit per shift and day, in this case the 094th mechatronic unit in shift D1



## Technical Service Information

### DL501-7Q/0B5/S TRONIC

#### 7 SPEED DUAL CLUTCH ELECTRO-HYDRAULICALLY CONTROLLED GEARBOX

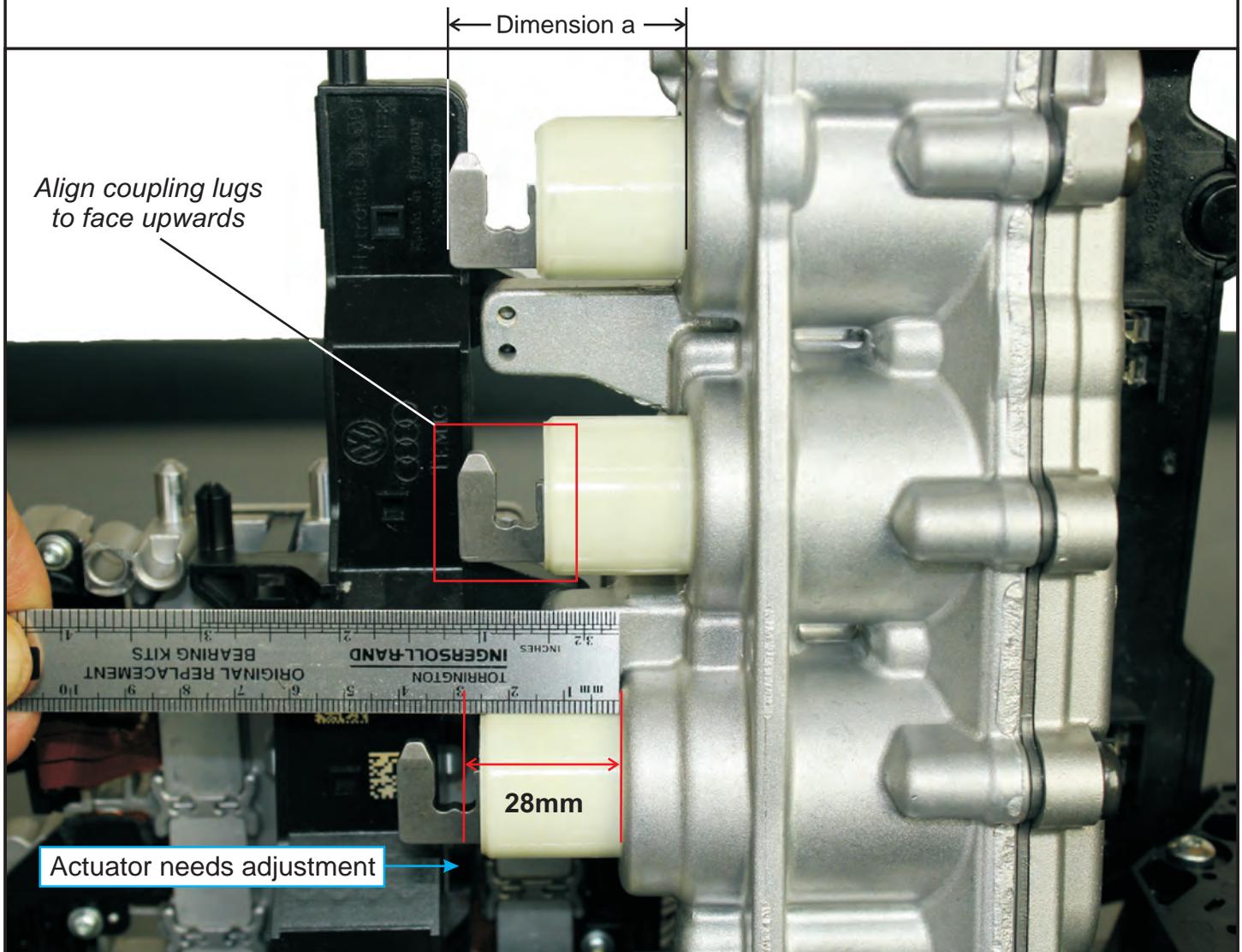
There are two different gear actuator adjustment values which is determined by the identification number on the mechatronic unit.

Mechatronic units with identification up to "L31B1137" :

Dimension -a- = 28mm

Mechatronic units with identification from "L31B1138" onwards :

Dimension -a- = 32mm



*Example: Actuator needs to be pushed in for proper alignment*

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## Technical Service Information

### DL501-7Q/0B5/S TRONIC

#### 7 SPEED DUAL CLUTCH ELECTRO-HYDRAULICALLY CONTROLLED GEARBOX

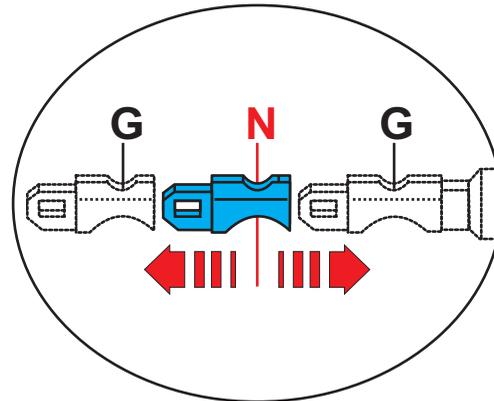
*Make sure all selector forks and gear actuators are in "center position" before installing the mechatronic unit.*

*Each selector fork has 3 positions:*

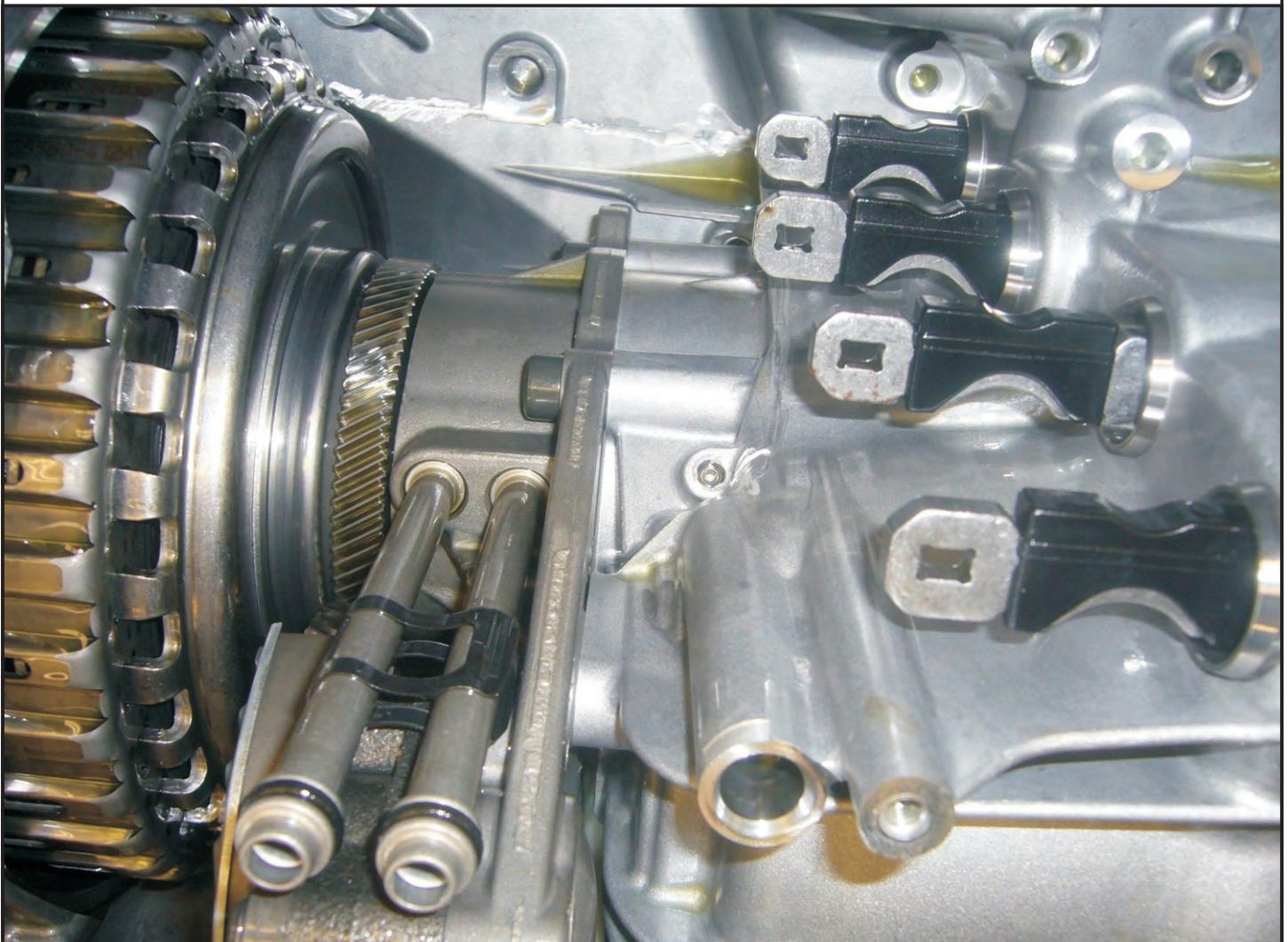
*Gear engaged -G-*

*Neutral -N- (center position)*

*Gear engaged -G-*



*Place all 4 selector forks into the neutral position by hand*



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