



# Technical Service Information

## VOLKSWAGEN

09A/JF506E

### NO REVERSE

**COMPLAINT:** Volkswagen vehicles equipped with the 09A/JF506E transaxle may exhibit a complaint of no Reverse, or an intermittent no Reverse condition before or after overhaul. *Note: This complaint may be also related to cold weather.*

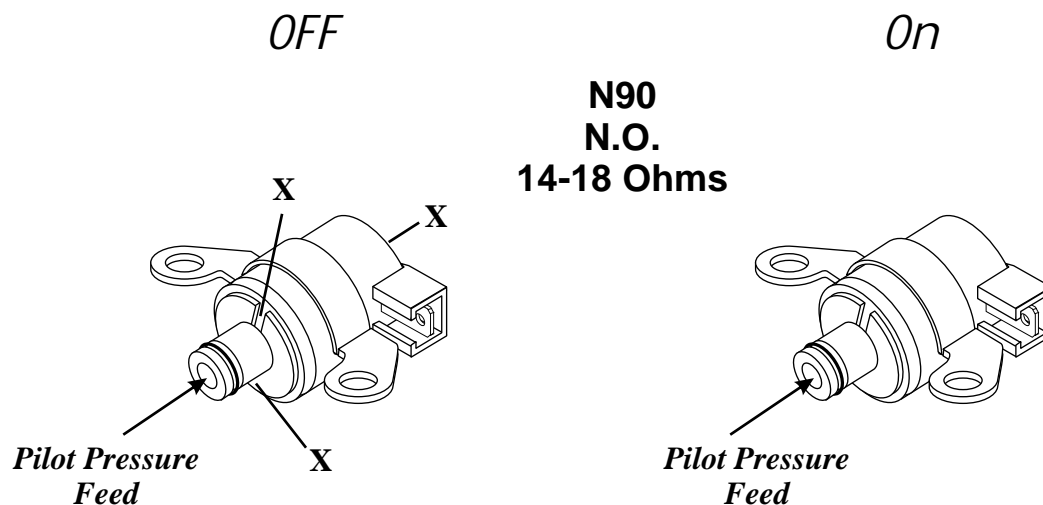
**CAUSE:** The cause may be, the Low Timing Solenoid (N90-SV3) is mechanically stuck closed or the Reverse Inhibit Valve is hung in the valve body, blocking the passage to the Low Reverse Brake. Refer to Figures 3 and 4 for a partial hydraulic diagram of the operation of the Low Timing Solenoid and how it functions when Reverse is engaged and when Reverse is inhibited. *Note: The N90 solenoid is energized if the vehicle is going Forward and Reverse is selected to inhibit Reverse.*

**CORRECTION:** See Figure 2 for the location of the Low Timing Solenoid and Figure 1 for the mechanical function of the solenoid and replace as necessary. *Note: If it is a cold condition, you may want to put the solenoid in the freezer for a while before testing.* If the solenoid tests good it will be necessary to dis-assemble the valve body and check the Reverse Inhibit Valve. Refer to Figures 5-8 for the exploded view of the valve body and location of the Reverse Inhibit Valve. Clean and ensure that the valve is free before re-assembling the valve body.

#### SERVICE INFORMATION:

The Low Timing Solenoid (N90-SV3) can be purchased from most aftermarket suppliers.

#### LOW TIMING SOLENOID N90-SV3

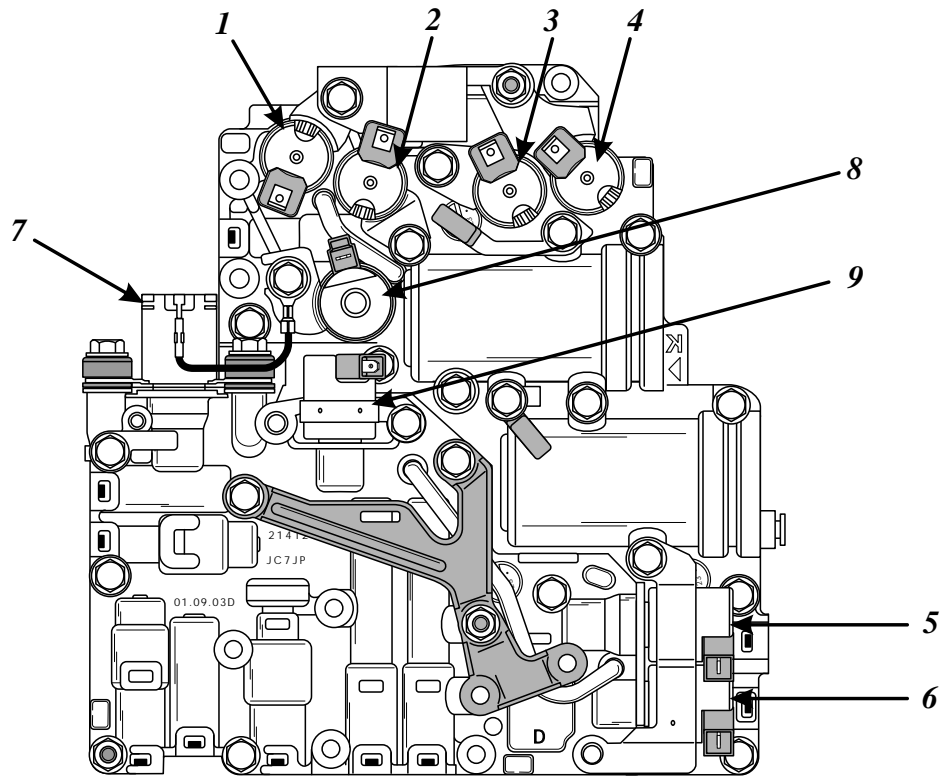


*Summary: The Low Timing N90 Solenoid is a Normally Open On-Off Solenoid. When the Solenoid is OFF Pilot Pressure is exhausted thru the areas shown above. When the Solenoid is ON, the exhaust ports are closed.*

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Figure 1

## VOLKSWAGEN SOLENOID IDENTIFICATION AND LOCATIONS



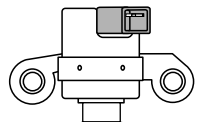
Manufacturer	Volkswagen Solenoid Identification And Location								
	1	2	3	4	5	6	7	8	9
VW Golf, GTI and Jetta	N88 - SV1	N281-SV8	N89-SV2	N92-SV5	N283-SV10	N282-SV9	N93-SV6	N91-SV4	N90-SV3
Description	Shift Solenoid "A"	Reduction Timing Solenoid	Shift Solenoid "B"	Shift Solenoid "C"	2-4 Brake Solenoid	2-4 Brake Timing Solenoid	Line Pressure Solenoid	TCC Solenoid	Low Clutch Timing Solenoid

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Figure 2

## Reverse

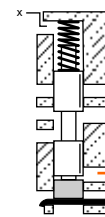
"N90" Low Clutch  
Timing Solenoid "OFF"



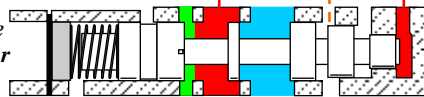
Pilot  
Valve

-.033"

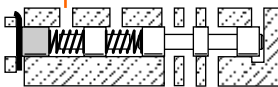
2-4 Accumulator  
Switch  
Valve



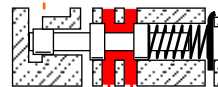
Pressure  
Regulator  
Valve



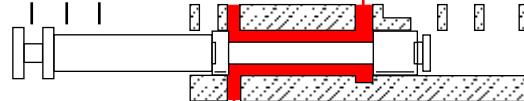
Neutral  
Shift  
Valve



Reverse  
Inhibit  
Valve



P R N D



Manual  
Valve

Low/Reverse  
Brake

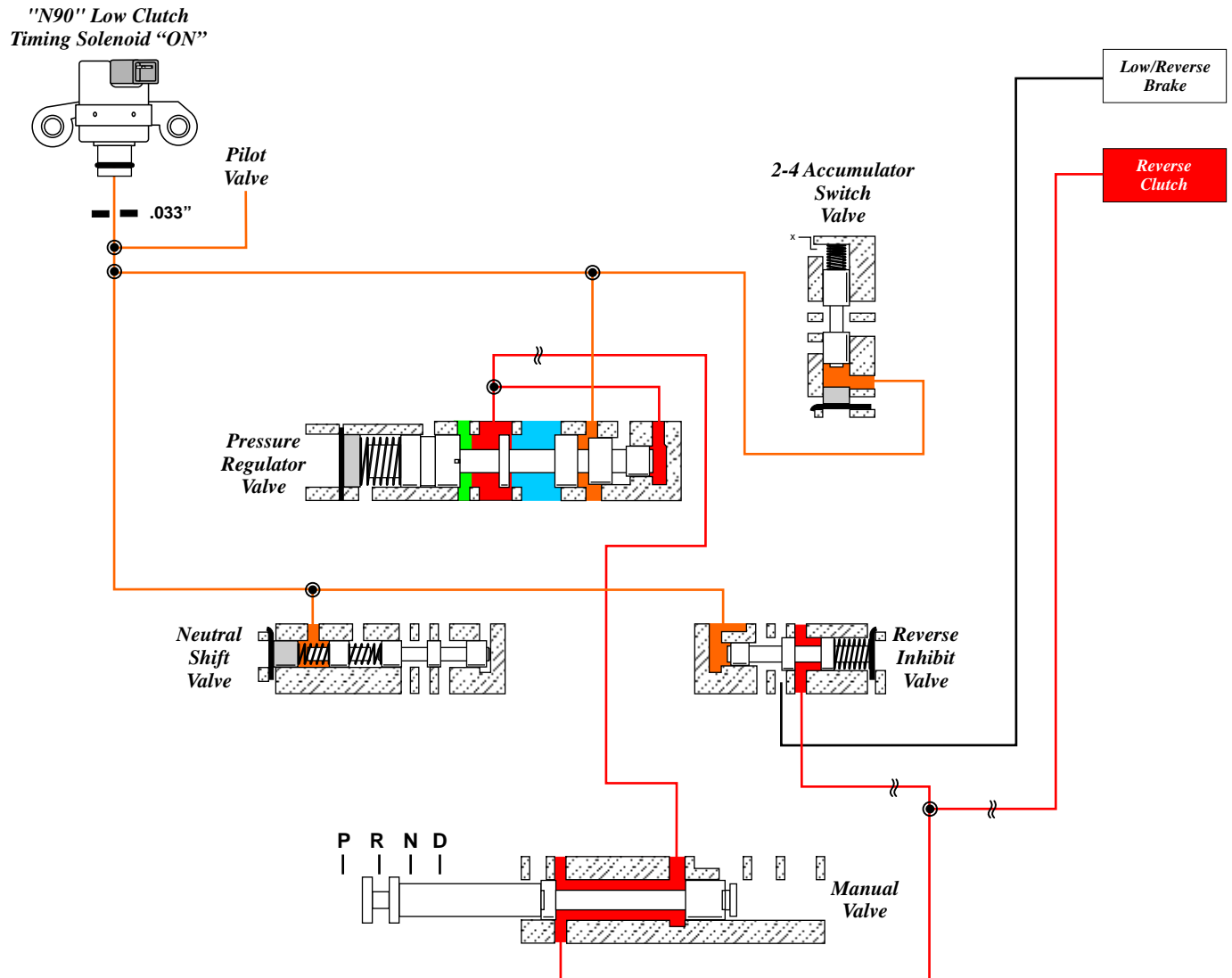
Reverse  
Clutch

**Summary:** The Low Timing N90 Solenoid is pulsed on for Low Clutch engagements, the 2-4 Clutch application and for Line Pressure Cut-back, and for a Reverse Inhibit feature. When the solenoid is OFF the solenoid provides an exhaust for the Pilot pressure it is fed and none of the valves that it controls are stroked.

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Figure 3

## Reverse Inhibit



**Summary:** The Low Timing N90 Solenoid is pulsed on for Low Clutch engagements, the 2-4 Clutch application and for Line Pressure Cut-back, and for a Reverse Inhibit feature. When the solenoid is ON the solenoid closes the exhaust ports and Pilot pressure strokes the Pressure Regulator Valve allowing a pressure cut-back, it also strokes the 2-4 Accumulator Switch Valve in preparation of a 2-4 clutch application, it provides pressure on the spring side of the Neutral Shift Valve in preparation of a Low Clutch application and strokes the Reverse Inhibit Valve which prevents the Low/Reverse Brake from applying.

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Figure 4

## VOLKSWAGEN JF506 VALVE BODY EXPLODED VIEW

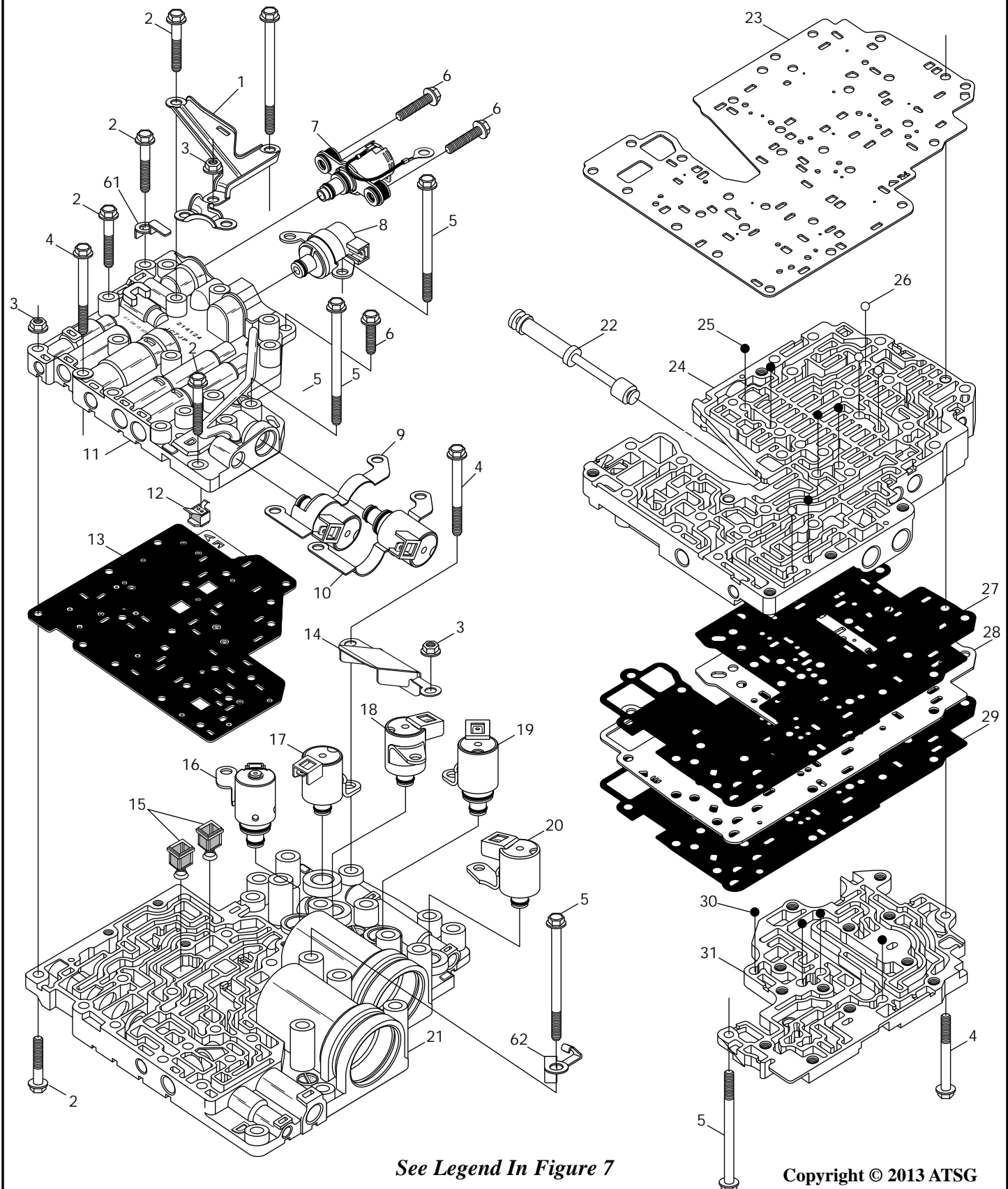


Figure 5



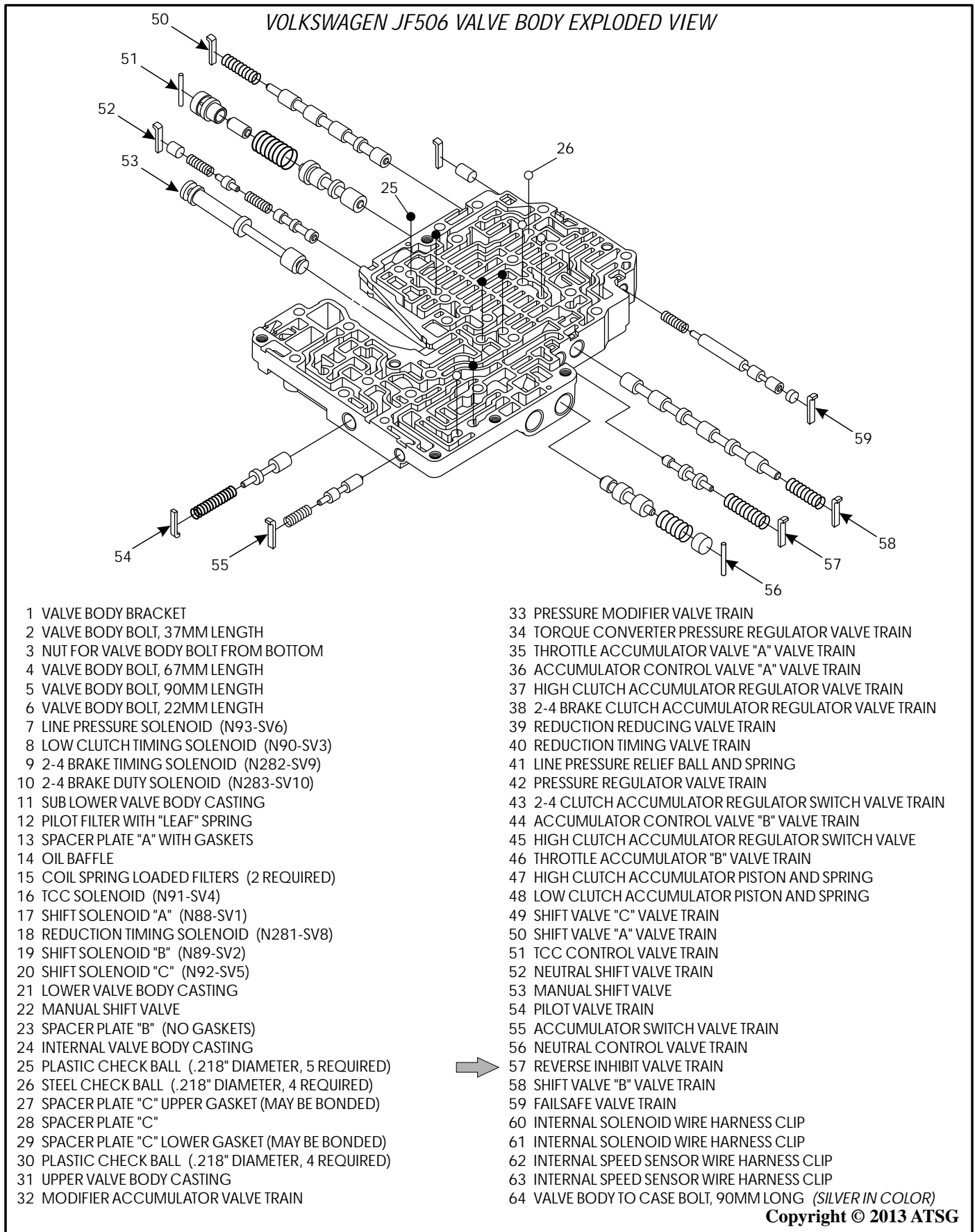
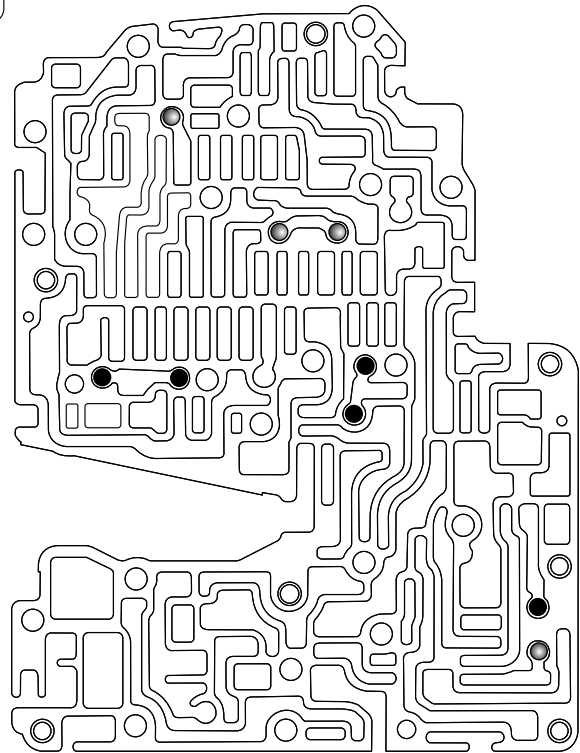
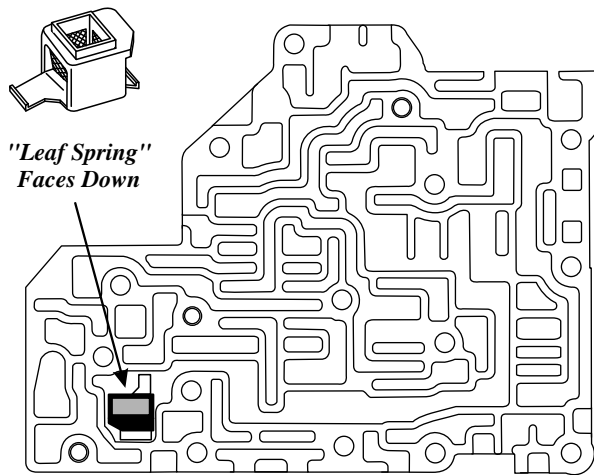
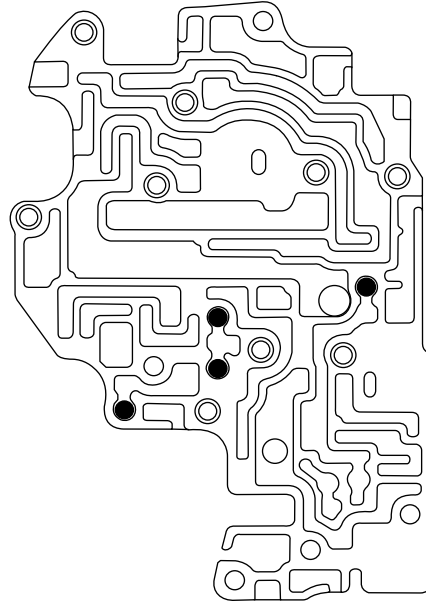
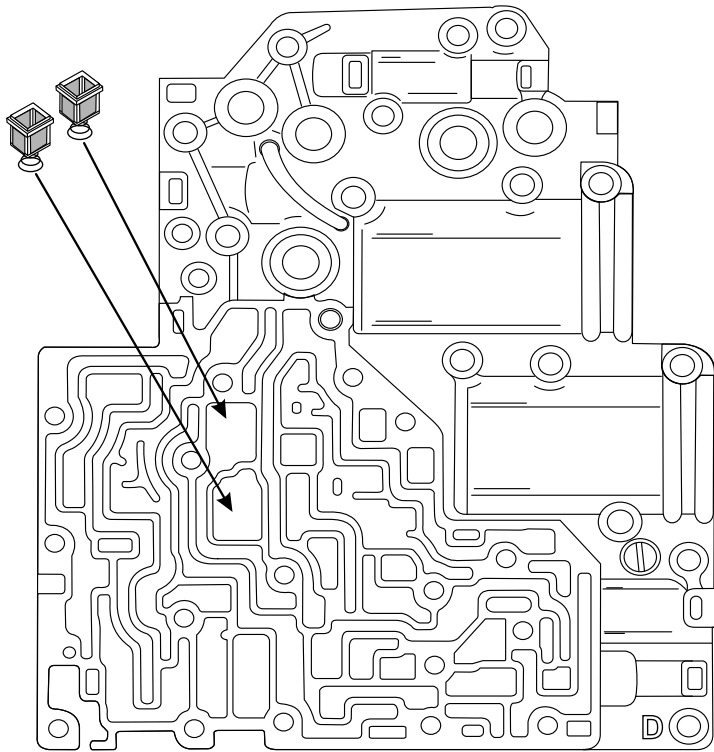


Figure 7

## VOLKSWAGEN SMALL PARTS AND CHECKBALL LOCATIONS

● = Plastic Ball .218" Diameter

⊙ = Steel Ball .218" Diameter



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Figure 8