VW/AUDI 09G/09M TF60-SN
DRAG OR PARTIAL BIND ON TAKEOFF

COMPLAINT: VW and Audi vehicles equipped with the 09G/09M transaxle may exhibit a complaint of a dragging sensation or partial bind up on take-off in 1st gear.

CAUSE: The cause may be, that the internal harness connector, shown in Figure 1, is full of transmission fluid causing a connection issue. This connection issue causes, in most cases , low amperage to a Normally Applied solenoid which in turn can cause a partial application of a clutch or brake creating the partial bind. Figure 2 shows a partial schematic of the N90 Solenoid and its control of the K3 regulator valve. Notice that the N90 Solenoid is Normally Applied which means when the solenoid is Off the K3 Clutch is applied. Figure 2 also shows that in First gear the amperage to the solenoid is .980Amps. If there is a connection problem with the connector the amperage reading on the scan tool will be lower in turn causing the K3 Clutch to be partially applied causing the bind on take off.

Diagnosis point:

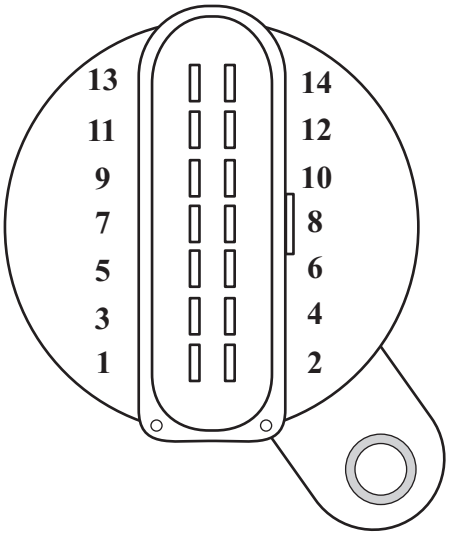
Refer to Figure 3 for a solenoid application and amperage chart for all ranges.
Figure 4 shows which data lines can be viewed on the scan tool to verify solenoid amperage.

CORRECTION: To correct this condition, replace internal harness if it has oil in it and verify connections are tight.

SERVICE INFORMATION:

At the time of this printing only aftermarket sources have this internal harness available.

14 TERMINAL CASE CONNECTOR AND INTERNAL HARNESS I.D.

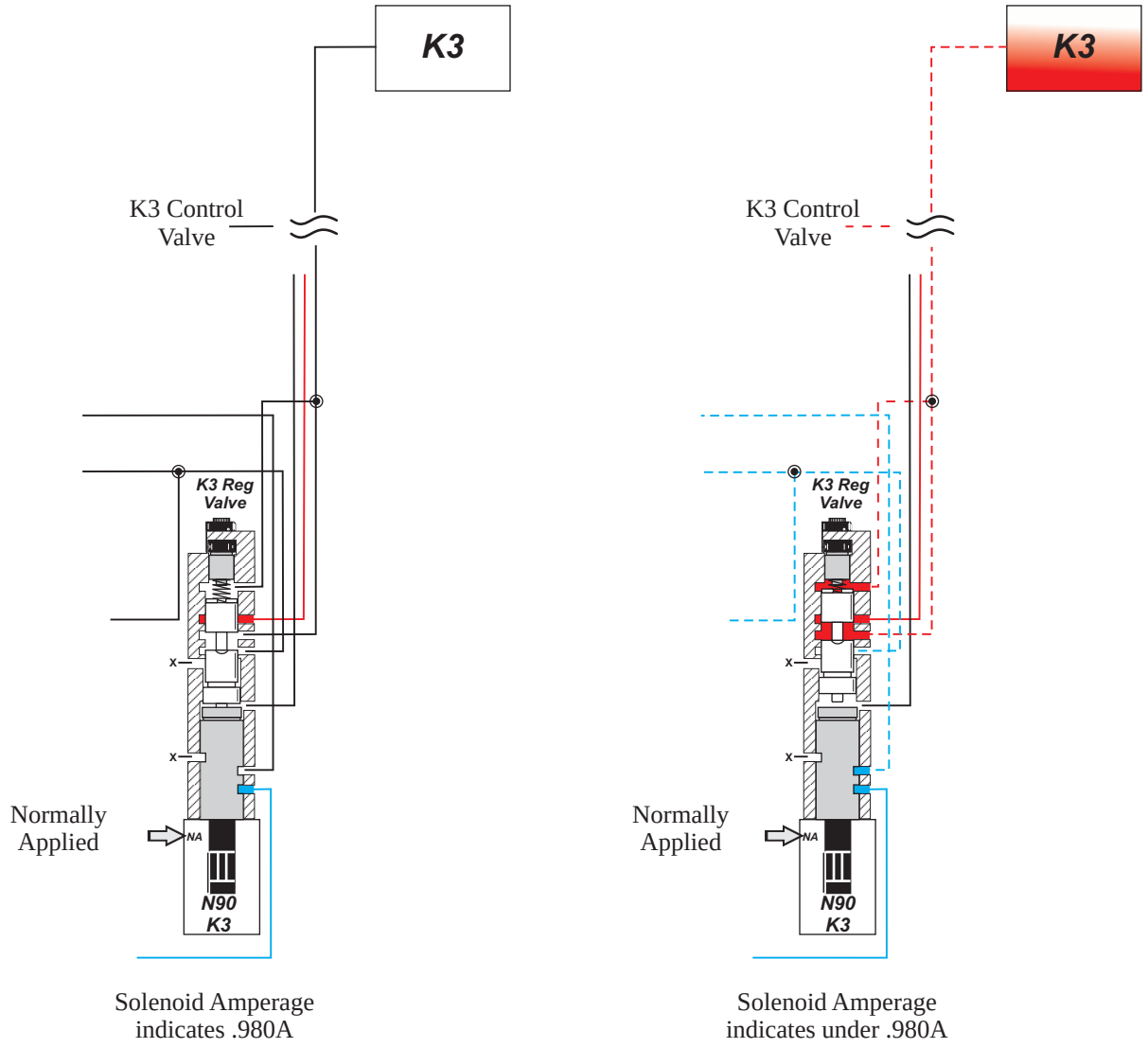


View looking into the 14 terminal transmission case connector

Solenoid Number (Name)	Positive Meter Lead Terminal # (Wire Color)	Negative Meter Lead Terminal # (Wire Color)	Resistance (WOhms)
Solenoid # 1 (N88)	1 (White)	Case Ground	10.0 - 16.0
Solenoid # 2 (N89)	2 (Black)	Case Ground	10.0 - 16.0
Solenoid # 3 (N90)	7 (Lt. Blue)	8 (Lt. Green)	4.0 - 8.0
Solenoid # 4 (N91)	11 (Lt. Green)	12 (Brown)	4.0 - 8.0
Solenoid # 5 (N92)	3 (Yellow)	4 (Purple)	4.0 - 8.0
Solenoid # 6 (N93)	13 (Green)	14 (Grey)	4.0 - 8.0
Solenoid # 9 (N282)	5 (Red)	6 (Blue)	4.0 - 8.0
Solenoid # 10 (N283)	9 (White)	10 (Black)	4.0 - 8.0

Figure 1

N90 SOLENOID DESCRIPTION



Summary: The N90 is a Normally Applied solenoid, which indicates that when the solenoid is fully applied at .980A the K3 Clutch is fully Off. When the solenoid is fully Off .100A, the K3 Clutch is fully applied. If amperage to the N90 is low because of a connection problem the K3 can be partially applied causing a bind.

Figure 2

SOLENOID APPLICATION CHART

SOLENOID	*RANGE*				*GEAR*					
	Park	Reverse	Neutral	Drive 1H	Manual 1H	2H	3H 3M	4H 4M	5H 5H	6H 6M
SV5-N92 (K1)	.100A	.980A	.980A	.100A	.100A	.100A	.100A	.100A	.980A	.980A
SV9-N282 (K2)	.100A	.980A	.980A	.980A	.980A	.980A	.980A	.100A	.100A	.100A
SV3-N90 (K3)	.980A	.100A	.980A	.980A	.980A	.980A	.100A	.980A	.100A	.980A
SV10-N283 (B1)	.980A	.980A	.980A	.980A	.980A	.100A	.980A	.980A	.980A	.100A
SV6-N93 (LP)	.980A	.980A	.980A	.980A	.740A	.860A	.980A	.980A	.740A	.740A
SV4-N91 (TC-PWM)	.200A	.200A	.200A	.200A	.200A	.200A	.200A .990A	.200A .990A	.200A .990A	.200A .990A
SV2-N89	0	0	0	0	1	0	3H=0 3M=1	4H=0 4M=1	5H=0 5M=1	6H=0 6M=1
SV1-N88	0	0	0	0	1	0	0*-1	0*-1	0*-1	0*-1

Description of terms:

.100A= Very Low amperage Solenoid OFF

.980A= Very High amperage Solenoid ON

SV1&2-N88&89
0 =OFF
1=ON
0*-1= OFF or ON
During shift transitions

3H = 3rd Gear TCC OFF
3M = 3rd Gear TCC ON
(This applies to gears 3-6)

Special Notes:

1. ***Solenoid Valves 3,5,9 and 10 are Normally Applied which applies the component they are in charge of when they are Off. They are Energized (On) to turn the component they are in charge of Off. These Solenoids are also Modulated to control the apply and release rates. Consult the Clutch Application Chart below and compare the amperage to Clutch/Brake app. Example: Solenoid Valve 10 (N283) is pulsed Off during the 1H-2H transition and the Amperage will drop from .980A in 1H to .690A to .300A to .100A when the shift is finally completed into 2H to control the apply rate and shift feel of the B1 Brake.***
2. ***Solenoid Valve 6 -N93 is modulated based on engine load. Low line pressure will indicate an amperage of 1.0 to .980A. Amperage will drop to increase line pressure.***
3. ***Solenoid Valve 4-N91 is modulated to control Torque Converter Apply rate, but is dependant on Solenoid Valve 2-N89 to apply the TCC. There will be situations where during Manual shifts in Tiptronic mode, SV4-N91 amperage will indicate .500 to .700 and the TCC will be Off as Solenoid Valve 2-N89 is "0" which indicates Off.***

CLUTCH APPLICATION CHART

	Component					
Gear	**K1**	**K2**	**K3**	**B1**	**B2**	**F1**
1st Gear	**X**				**X***	**X**
2nd Gear	**X**			**X**		
3rd Gear	**X**		**X**			
4th Gear	**X**	**X**				
5th Gear		**X**	**X**			
6th Gear		**X**		**X**		
Rev Gear			**X**		**X**	

* The B2 clutch is applied in Tiptronic Mode 1st gear only for engine braking.

Figure 3

DATA BLOCK DESCRIPTION FOR SOLENOID MONITORING

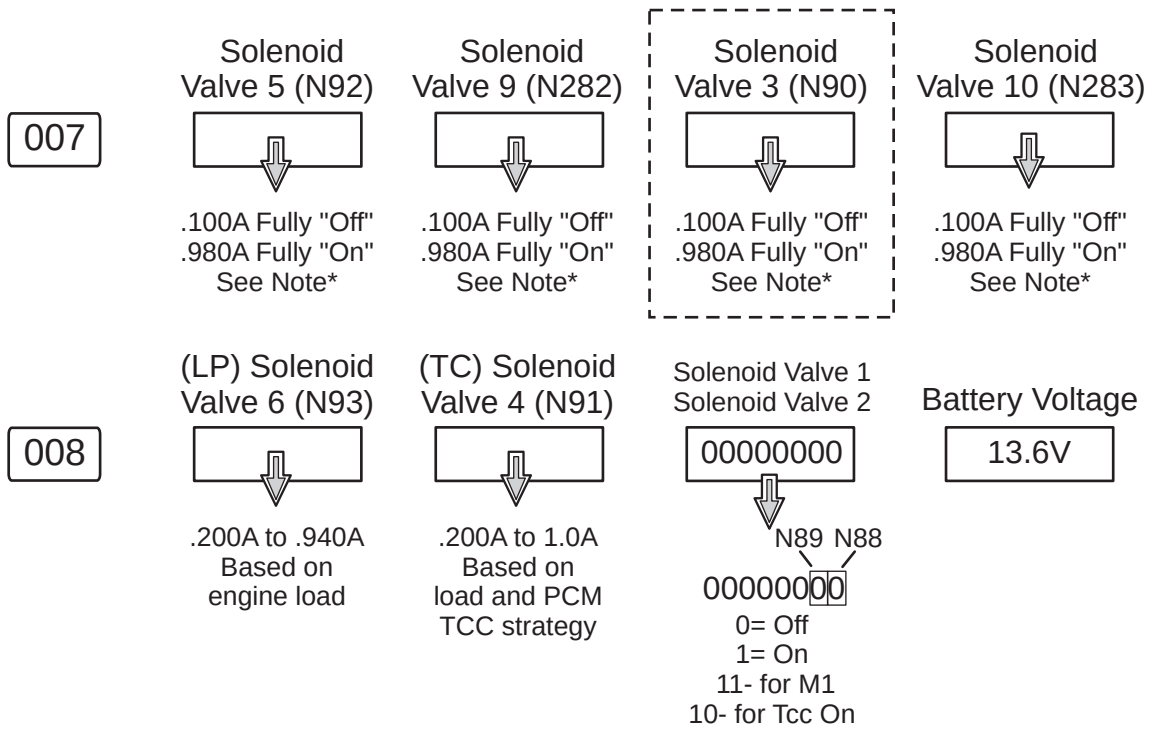


Figure 4