



Technical Service Information

AW55-50/SN SERIES VALVE BODY and SOLENOID I.D. FOR SERVICE

COMPLAINT: Vehicles equipped with the AW55-50SN series transaxles may exhibit various erratic shifting problems, bind up conditions and/or complete transmission failure on initial road test after a valve body or solenoid repair or replacement.

CAUSE: The cause of any one or combination of the above complaints may be due to mis matching the valve body, using an incorrect solenoid, cross connecting internal harness connectors to the wrong solenoid or mis positioning the SLS/SLT solenoid retaining bracket.

CORRECTION: To properly identify your valve body assembly you must first check the casting next to the S4 solenoid for the presence of a capital letter **A**, **B** or **C**.

Valve bodies that have **no** letter or show the letter **A** are early design assemblies, first and second generation. These valve bodies will also have the SLT and SLS solenoid connectors facing up. (Figure 1)

Valve bodies with either letter **B** or **C** are late design assemblies, third and fourth generation and will have the redesigned 3rd version SLT and SLS solenoids with the connectors facing down. The S1 solenoid was also changed at this time with the connector relocated to the left and the mounting bracket to the right to allow clearance for the SLS solenoid connector now facing downward. These changes also made a new internal harness necessary so that the wires will reach the relocated solenoid connectors. (Figure 2)

The S1 through S5 solenoids are all ON/OFF type solenoids that typically measure 11-16 ohms resistance. The S1 and S4 solenoids are normally open while the S3 and S5 solenoids are normally closed for all versions. The **S2 solenoid** however, may be either normally open or normally closed dependant upon the vehicle manufacturer .

A GM, Saab or Saturn valve body will use a **normally open** S2 solenoid that can be identified by the **raised domed top**. (Figure 3)

The Nissan/Volvo valve bodies use a **normally closed** S2 solenoid that can be identified by the **flat top with 4 raised lines** radiating from the hole in the center of the solenoid. (Figure 4)

Nissan and Volvo vehicles have the S2 solenoid firing sequence opposite to the GM, Saab, Saturn vehicles. (Figure 5)

The SLU solenoid, also referred to as the lock up or TCC solenoid, is located at the top of the valve body with a black connector turned upwards. This is a PWM type solenoid that typically measures 5.0-5.6 ohms resistance and has remained the same through all versions.

The SLS (Shift Pressure Solenoid) and the SLT (Line Pressure Solenoid) have been redesigned twice for a total of 3 versions of each solenoid. Both of these solenoids are of the PWM type and will typically measure 5.0-5.6 ohms resistance.

The SLS and SLT solenoids are retained to the valve body by the same retaining bracket. There are three different versions of this bracket. The original version proved to be a bit weak so as a result the second version is basically the same as the first design in appearance but has more metal added for extra strength and now measures approximately 0.065" in thickness. Both the 1st and 2nd design brackets are used to retain the first version shorter design SLS and SLT solenoids to the body. (Figure 6)



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CORRECTION *continued*: The first version SLS and SLT solenoids have their electrical connectors turned up with the SLS connector being green and the SLT connector being blue. The first version SLS and SLT solenoids can be identified by the round hole in the valve portion of the solenoid that is next to the can portion that contains the winding.

The second design SLS and SLT solenoids are longer than the first design and still have the electrical connectors facing upwards.

The second design solenoids require the 3rd design retaining bracket which can be identified by a protrusion at the bottom left that looks a bit like a backwards “L”. (Figure 6)

The third design SLS and SLT solenoids are the same length as the second design solenoids and use the same 3rd design retaining bracket, but the electrical connectors are now facing downward. The third design SLS and SLT solenoids are used in the **B** and **C** (3rd and 4th generation) valve bodies only. (Figure 7)

Using an incorrect retaining bracket or rotating the 1st or 2nd design retaining bracket 180 degrees will position the solenoids so that the passages are misaligned or blocked, rendering the solenoids useless causing harsh engagements and shifting. (Figures 8 and 9) This is much more difficult to do with the 3rd design bracket, but is possible with some extra effort.

It is not uncommon for the internal wire connectors to be cross connected on to an incorrect solenoid. This seems to happen most often with the S1 and S3 solenoids. The internal harness connector colors do not necessarily match the solenoid connector colors. It is best to note wire colors and/or tag the internal harness connectors at their correct location upon initial disassembly for future reference. If this is not possible then we would recommend to use the wire color and refer to the chart provided. (Figure 10)

SERVICE INFORMATION:

INTERCHANGE: Late valve bodies, on vehicles other than Nissan, can be used in earlier units provided a new internal electrical harness is installed. Installation of an early valve body in place of a later design valve body is not recommended. ***Note: The 04 Nissan valve body is not calibrated the same as the 05. The difference is in the B5 Control Valve Line up. The 04 models do not use a spring behind that valve. The 05 and up models use a spring. Removing the spring from this valve will allow the technician to use a later valve body on a 04 model vehicle.***

This transaxle may also be referred to as:

AF23-5 or an ***AF33-5*** when found in GM and Saturn built vehicles dependant upon relative torque capacity.

RE5F22A when found in Nissan or Infiniti manufactured vehicles.

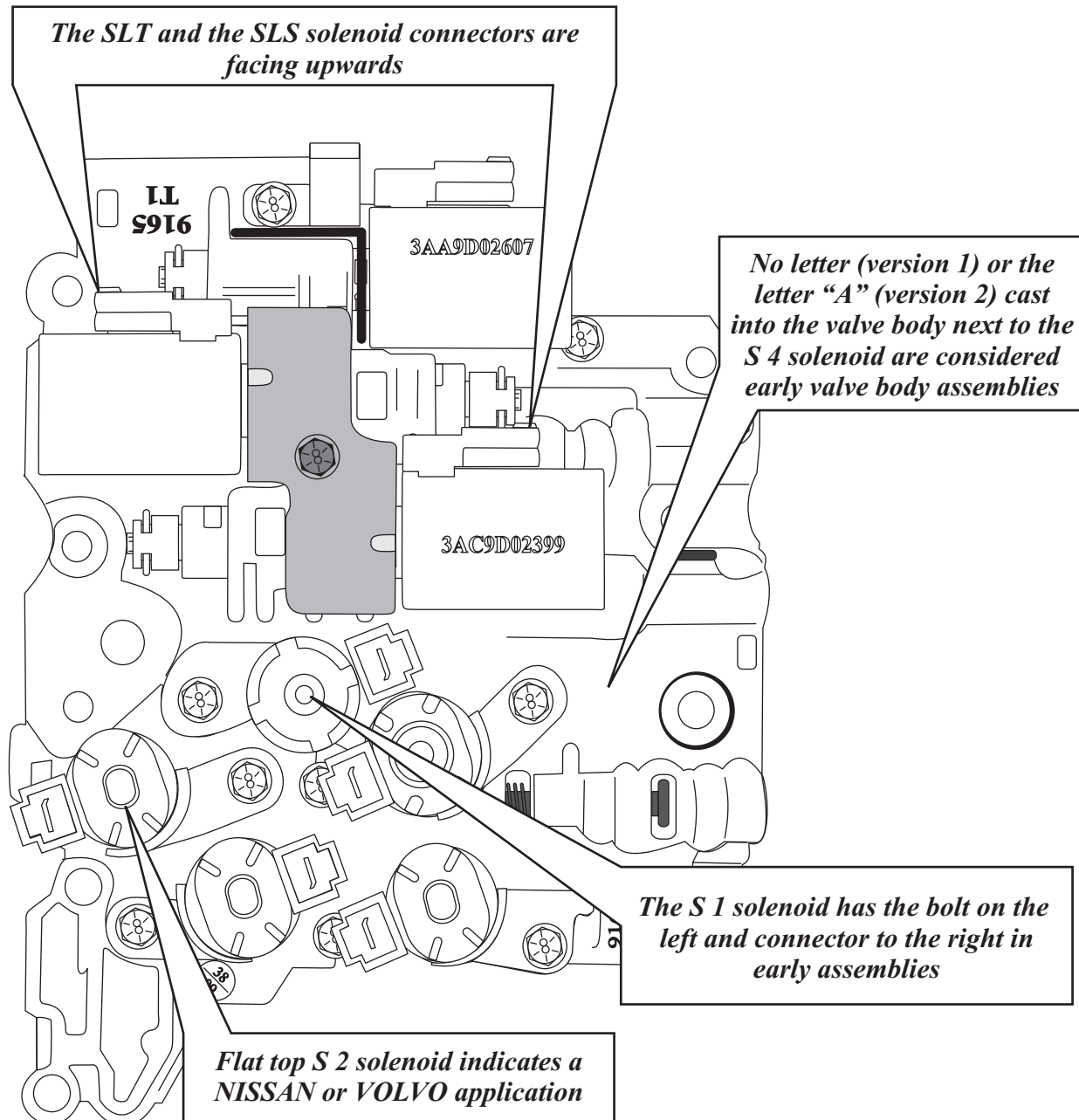
FA57 when found in Saab-Scania vehicles.

A very special “Thank You!” to Tim LaCerra and Jeff Parlee from VBX for sharing their knowledge and findings with us. The compilation of this information would not have been possible without their research efforts and continuing dedication to our industry.

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EARLY VALVE BODY I.D.

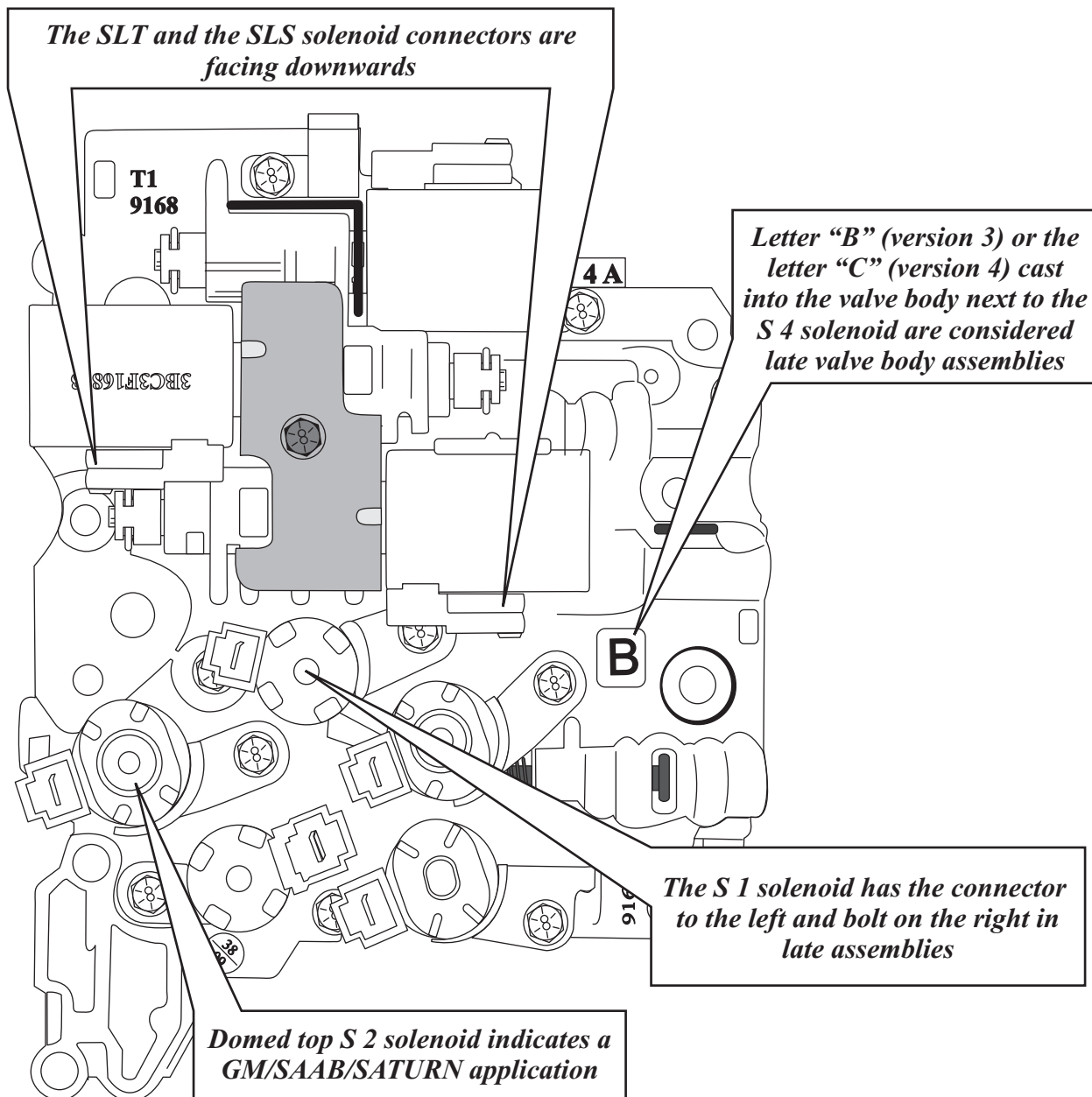


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Figure 1

AW55-50/SN SERIES VALVE BODY and SOLENOID I.D. FOR SERVICE

LATE VALVE BODY I.D.



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Figure 2

AW55-50/SN SERIES **VALVE BODY and SOLENOID I.D. FOR SERVICE**

GM/SAAB/SATURN S 2 SOLENOID
NORMALLY OPEN (N/O)

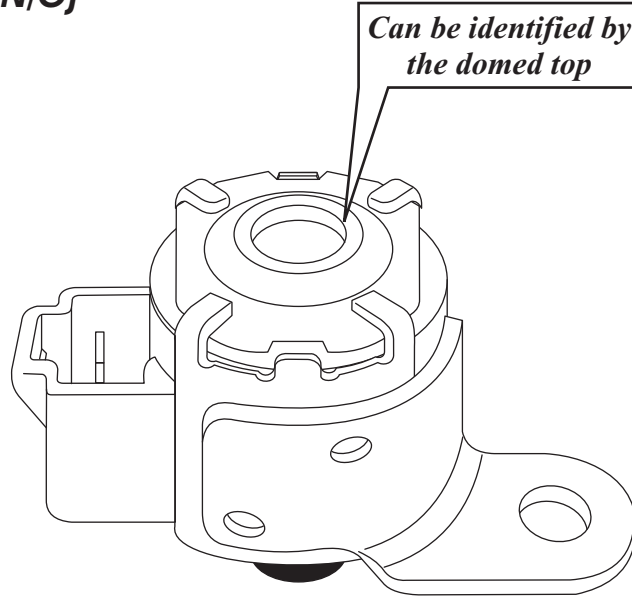
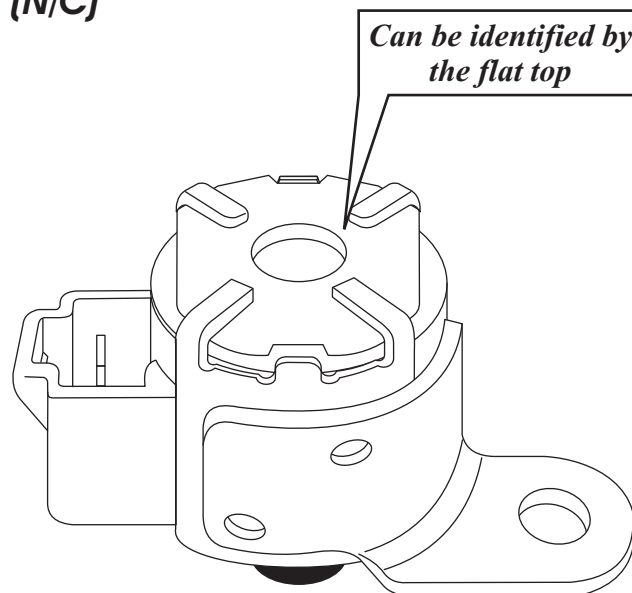


Figure 3

NISSAN/VOLVO S 2 SOLENOID
NORMALLY CLOSED (N/C)



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Figure 4



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AW55-50/SN SERIES VALVE BODY and SOLENOID I.D. FOR SERVICE

SHIFT SOLENOID SEQUENCE CHART

GM - SAAB - SATURN

<i>RANGE</i>	<i>GEAR</i>	<i>(S 1)</i>	<i>(S 2)</i>	<i>(S 3)</i>	<i>(S 4)</i>	<i>(S 5)</i>
<i>Park</i>	<i>P</i>	<i>Off</i>	<i>Off</i>	<i>Off</i>	<i>Off</i>	<i>Off</i>
<i>Reverse</i>	<i>R</i>	<i>Off</i>	<i>Off</i>	<i>On</i>	<i>Off</i>	<i>On</i>
<i>Neutral</i>	<i>N</i>	<i>Off</i>	<i>Off</i>	<i>Off</i>	<i>Off</i>	<i>Off</i>
<i>D</i>	<i>1</i>	<i>On</i>	<i>Off</i>	<i>On</i>	<i>Off</i>	<i>Off</i>
	<i>2</i>	<i>Off</i>	<i>On</i>	<i>On</i>	<i>Off</i>	<i>Off</i>
	<i>3</i>	<i>Off</i>	<i>On</i>	<i>On</i>	<i>On</i>	<i>Off</i>
	<i>4</i>	<i>Off</i>	<i>On</i>	<i>Off</i>	<i>On</i>	<i>Off</i>
	<i>5</i>	<i>Off</i>	<i>Off</i>	<i>Off</i>	<i>On</i>	<i>Off</i>

NISSAN - VOLVO

<i>RANGE</i>	<i>GEAR</i>	<i>(A) (S 1)</i>	<i>(B) (S 2)</i>	<i>(C) (S 3)</i>	<i>(D) (S 4)</i>	<i>(E) (S 5)</i>
<i>Park</i>	<i>P</i>	<i>Off</i>	<i>Off</i>	<i>Off</i>	<i>Off</i>	<i>Off</i>
<i>Reverse</i>	<i>R</i>	<i>Off</i>	<i>Off</i>	<i>On</i>	<i>Off</i>	<i>On</i>
<i>Neutral</i>	<i>N</i>	<i>Off</i>	<i>Off</i>	<i>Off</i>	<i>Off</i>	<i>Off</i>
<i>D</i>	<i>1</i>	<i>On</i>	<i>On</i>	<i>On</i>	<i>Off</i>	<i>Off</i>
	<i>2</i>	<i>Off</i>	<i>Off</i>	<i>On</i>	<i>Off</i>	<i>Off</i>
	<i>3</i>	<i>Off</i>	<i>Off</i>	<i>On</i>	<i>On</i>	<i>Off</i>
	<i>4</i>	<i>Off</i>	<i>Off</i>	<i>Off</i>	<i>On</i>	<i>Off</i>
	<i>5</i>	<i>Off</i>	<i>On</i>	<i>Off</i>	<i>On</i>	<i>Off</i>

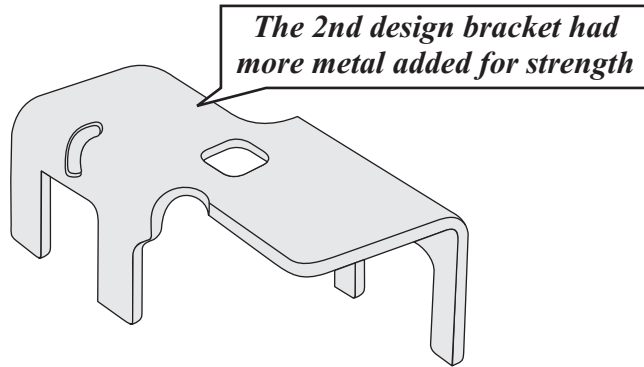
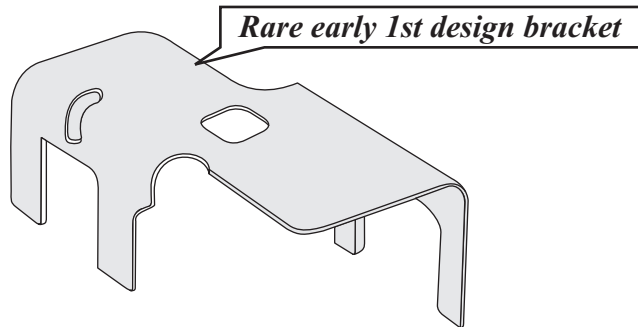
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Figure 5

AW55-50/SN SERIES

VALVE BODY and SOLENOID I.D. FOR SERVICE

SLS/SLT SOLENOID RETAINING BRACKET I.D.

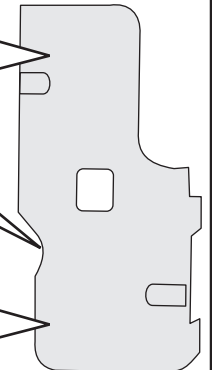


These 1st and 2nd design brackets are used with the early/short SLS/SLT solenoids only

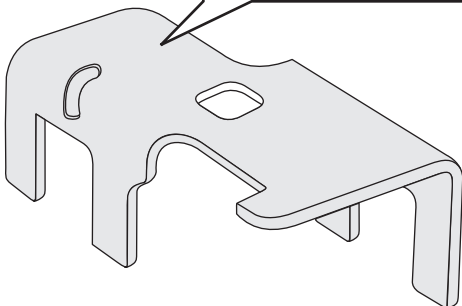
The narrow end goes up

Slightly scalloped edge

The wider end goes down

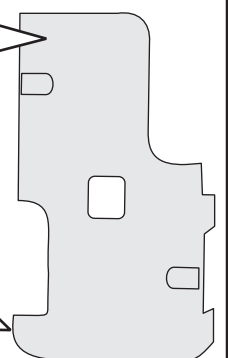


The 3rd design bracket is used for all long SLS/SLT solenoids. Connectors may face up or down



The narrow end goes up

The wider end with the backwards "L" goes down



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Figure 6



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SLS/SLT SOLENOID I.D.

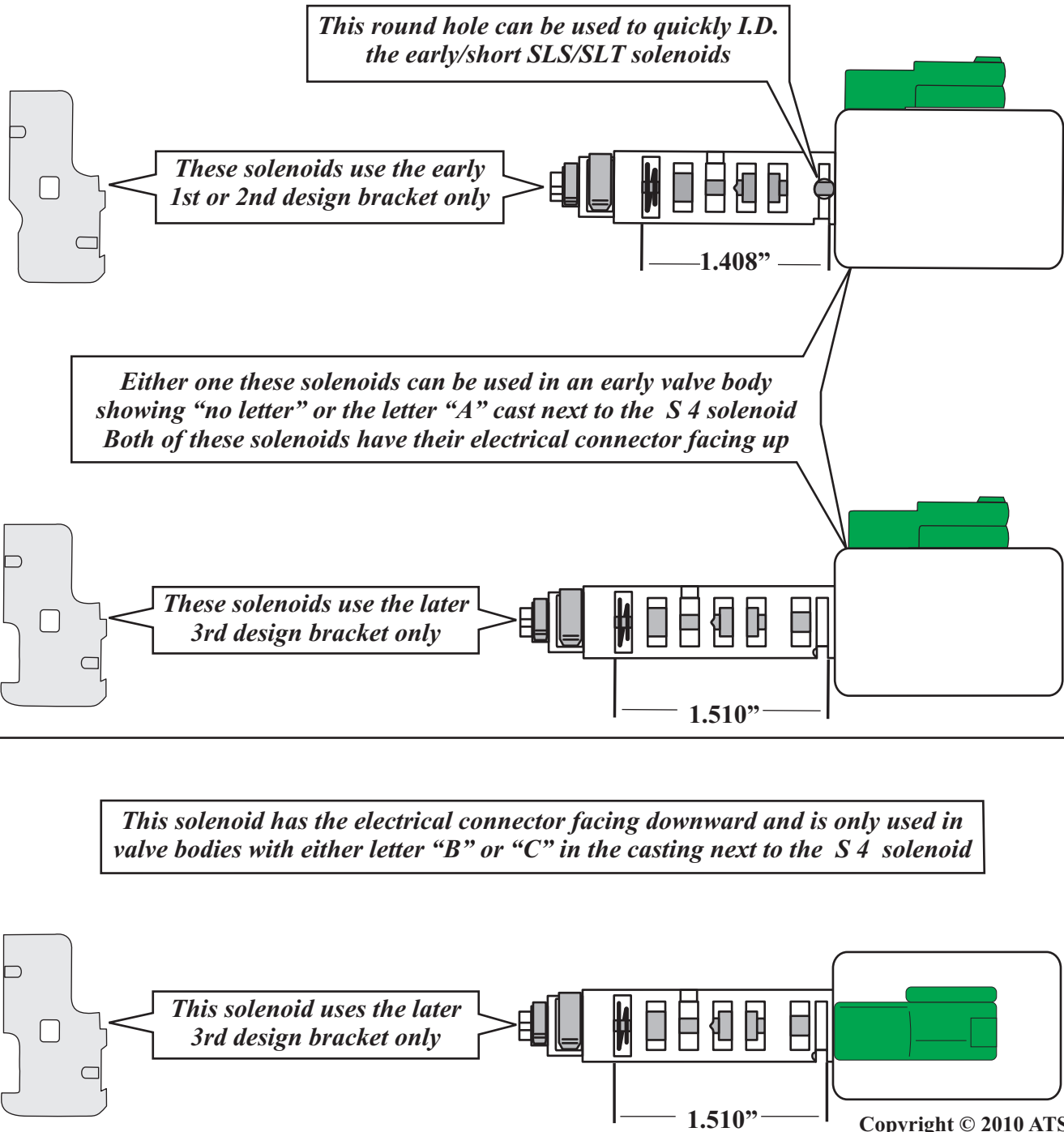
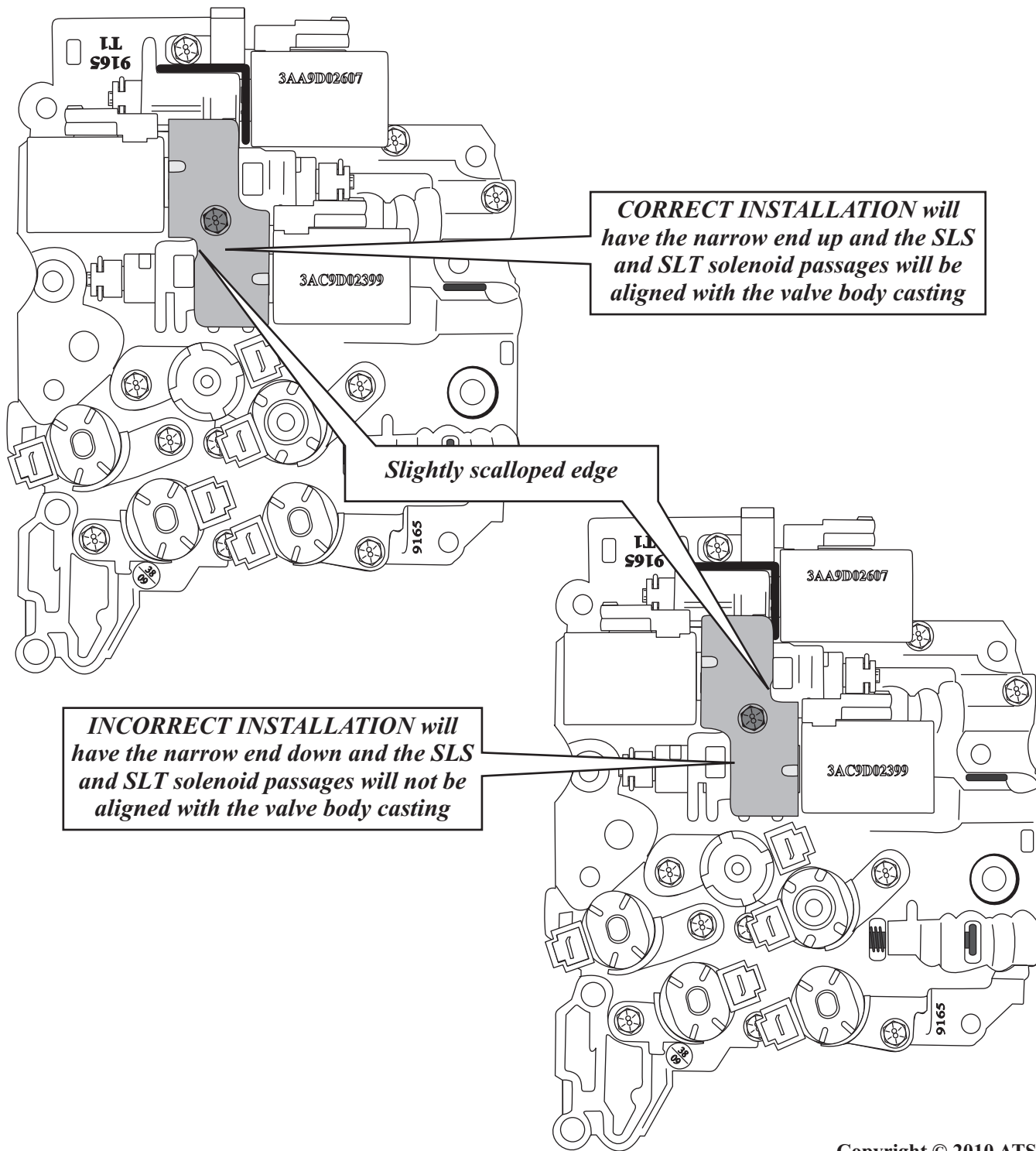


Figure 7

AW55-50/SN SERIES VALVE BODY and SOLENOID I.D. FOR SERVICE

EARLY SLS/SLT SOLENOID RETAINING BRACKET ORIENTATION



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Figure 8

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VALVE BODY and SOLENOID I.D. FOR SERVICE

EARLY SLS/SLT SOLENOID RETAINING BRACKET ORIENTATION

CORRECT INSTALLATION
will have the bracket wide end down

SLS and SLT solenoid passages will be aligned with the valve body casting

INCORRECT INSTALLATION
will have the bracket narrow end down

SLS and SLT solenoid passages will not be aligned with the valve body casting

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Figure 9

AW55-50/SN SERIES VALVE BODY and SOLENOID I.D. FOR SERVICE

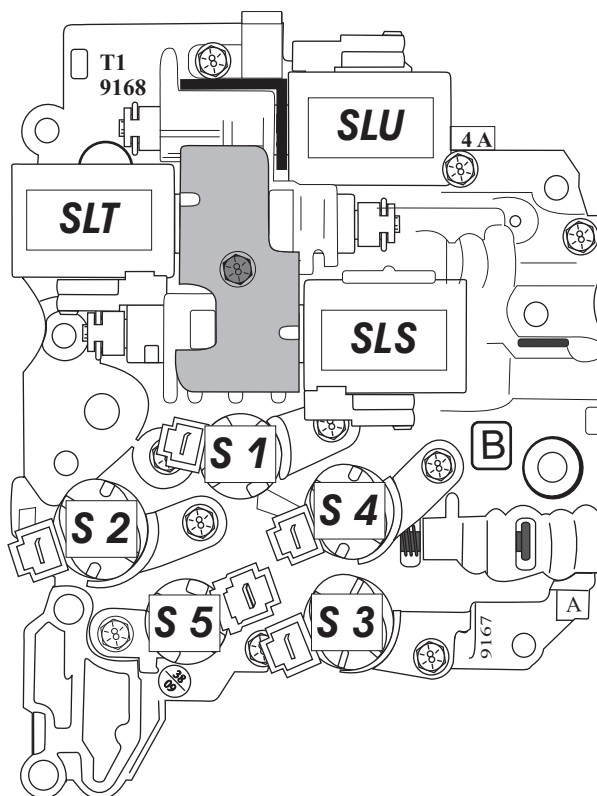
SOLENOID WIRE COLOR CHART

<i>SOLENOID I.D.</i>	<i>SOLENOID CONNECTOR COLOR</i>	<i>WIRE COLOR</i>
<i>SLU</i>	<i>BLACK</i>	<i>1 GREEN 1 BROWN</i>
<i>SLT</i>	<i>BLUE</i>	<i>1 GREEN 1 GRAY</i>
<i>SLS</i>	<i>GREEN</i>	<i>1 BLUE 1 RED</i>
<i>S 1</i>	<i>BLACK</i>	<i>WHITE</i>
<i>S 2</i>	<i>BLACK or GRAY</i>	<i>BLACK</i>
<i>S 3</i>	<i>GRAY</i>	<i>YELLOW</i>
<i>S 4</i>	<i>BLUE or GREEN</i>	<i>PURPLE or RED</i>
<i>S 5</i>	<i>GREEN or RED or GRAY</i>	<i>BLUE or BLACK</i>

SOLENOID LOCATION

For Nissan Units:

PCA = SLT
PCB = SLS
PCC = SLU
A = S 1
B = S 2
C = S 3
D = S 4
E = S 5



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Figure 10