

# FORD, LINCOLN, MERCURY SHIFT SOLENOID FAILURE CHARTS

#### **COMPLAINT:**

When a shift solenoid fails to operate it will affect one or more gears depending on how many shift solenoids are used. It is common knowledge that transmissions that use two shift solenoids will lose two gears when one solenoid fails. But which gears will the transmission lose? That depends on which solenoid has failed and whether the solenoid has failed open or closed. Then there are transmissions that use more than two shift solenoids, which makes it more difficult to determine if a failed shift solenoid is causing the transmission shift problems.

Codes for mechanical shift solenoid failure along with gear ratio error codes may be stored, but in most cases the technician already knows the transmission is not shifting properly.

**CAUSE:** 

A lack of comprehensive shift solenoid failure charts easily accessible to the technician.

**CORRECTION:** The charts listed under Service Information, will indicate which gears are affected by a mechanical solenoid failure as well as engine braking availability.

#### **SERVICE INFORMATION:**

Figure 1 - Normal shift solenoid operation for AXODE/AX4S.

Figure 2 & 3 - Shift solenoid failure charts for AXODE/AX4S.

Figure 4 - Normal shift solenoid operation for AX4N/4F50N.

Figure 5 - Shift solenoid failure charts for AX4N/4F50N.

Figure 6 - Normal shift solenoid operation for CD4E.

Figure 7 - Shift solenoid failure chart for CD4E.

Figure 8 - Normal shift solenoid operation for 4R44/55E.

Figure 9 & 10 - Shift solenoid failure chart for 4R44/55E.

Figure 11 - Normal shift solenoid operation for 5R55E.

Figure 12 - Shift solenoid failure chart for 5R55E.

Figure 13 - Normal shift & pressure control solenoid operation for 5R55N/W/S.

Figure 14, 15 & 16 - Shift & pressure control solenoid failure chart for 5R55N.

Figure 17 & 18 - Shift & pressure control solenoid failure chart for 5R55W/S.

Figure 19 - Normal shift solenoid operation for AODE/4R70W.

Figure 20 - Shift solenoid failure chart for AODE/4R70W.

Figure 21 - Normal shift solenoid operation for E4OD/4R100.

Figure 22 - Shift solenoid failure chart for E4OD/4R100.

06-45 Page 1 of 15



A	XODE/AX4S S	OLENOID	APPLICAT	ION CHAR	Т
GEAR SELECTOR POSITION	PCM COMMANDED GEAR	ENGINE BRAKING	SHIFT SOLENOID 1	SHIFT SOLENOID 2	SHIFT SOLENOID 3
P/R/N	P/R/N	NO	OFF¹	ON¹	OFF
<b>(</b>	1	NO	OFF	ON	OFF
<b>(D)</b>	2	YES	ON	ON	OFF
<b>(D)</b>	3	NO	OFF	OFF	ON
<b>①</b>	4	YES	ON	OFF	ON
D or 3 <sup>2</sup>	1	NO	OFF	ON	OFF
D or 3 <sup>2</sup>	2	YES	ON	ON	OFF
D or 3 <sup>2</sup>	3	YES	OFF	OFF	OFF
23	2	YES	ON	ON	OFF
1	1	YES	OFF	ON	OFF

<sup>&</sup>lt;sup>1</sup>Not contributing to powerflow.

Figure 1

	AXO	DE/AX	4S SO	LEN	OID FAILURE (	CHAF	RTS			
SS1	Gear	rshift Le	ver Pos	ition	SS1	Gear	rshift Le	ver Pos	ition	
ALWAYS OFF	<b>①</b>	D or 3	2	1	ALWAYS ON	<b>①</b>	D or 3	2	1	
PCM GEAR COMMANDED	ACTUAL GEAR OBTAINED				PCM GEAR COMMANDED	A	ACTUAL GEAR OBTAINED			
1	1	1	1	1	1	2	2	2	2	
2	1	1	1		2	2	2	2		
3	3	3			3	4	2			
4	3				4	4				
SS2	Gear	rshift Le	ver Pos	ition	SS2	Gear	rshift Le	ver Pos	ition	
ALWAYS OFF	<b>(D)</b>	D or 3	2	1	ALWAYS ON	0	D or 3	2	1	
PCM GEAR COMMANDED	A	CTUAL OBTA		₹	PCM GEAR COMMANDED	A	CTUAL OBTA		₹	
1	3	3	3	2	1	1	1	1	1	
2	2	2	2		2	2	2	2		
3	3	3			3	1	1			
4	4				4	2				
							Copyrigh	t © 2006	ATSG	

<sup>&</sup>lt;sup>2</sup>Some vehicles are equipped with an overdrive cancel switch, while others must be pulled out of overdrive by moving the shift lever.

<sup>&</sup>lt;sup>3</sup>Vehicles with a Transmission Control Switch (TCS) will have a Manual 2 position. Vehicles without a Transmission Control Switch will have a Manual 3 position.



AXODE/AX4S SOLENOID FAILURE CHARTScontinued											
SS3	Gear	rshift Le	ver Pos	ition	SS3	Gearshift Lever Position					
ALWAYS OFF	<b>(</b>	D or 3	2	1	ALWAYS ON	<b>(</b>	D or 3	2	1		
PCM GEAR COMMANDED	A	CTUAL OBTA		₹	PCM GEAR COMMANDED	A	CTUAL OBTA		R		
1	1	1	1	1	1	1	1	1	1		
2	2	2	2		2	2	2	2			
3	3	3			3	3	3				
4	2				4	4					

Figure 3

	AX4N/4F50N SO	OLENOID A	APPLICATI	ON CHART	7
GEAR SELECTOR POSITION	PCM COMMANDED GEAR	ENGINE BRAKING	SHIFT SOLENOID 1	SHIFT SOLENOID 2	SHIFT SOLENOID 3
P/N	P/N	NO	OFF¹	ON¹	OFF <sup>4</sup>
R	R	YES	OFF	OFF	OFF
0	1	NO	OFF	ON	OFF
<b>①</b>	2	NO	OFF	OFF	OFF
0	3	NO	ON	OFF	ON
0	4	YES	ON	ON	ON
D or 3 <sup>2</sup>	1	NO	OFF	ON	OFF
D or 3 <sup>2</sup>	2	NO	OFF	OFF	OFF
D or 3 <sup>2</sup>	3	YES	ON	OFF	OFF
23	2	YES	OFF	OFF	OFF
1	1	YES	OFF	ON	OFF

<sup>&</sup>lt;sup>1</sup>Not contributing to powerflow.

Figure 4

<sup>&</sup>lt;sup>2</sup>Some vehicles are equipped with an overdrive cancel switch, while others must be pulled out of overdrive by moving the shift lever.

<sup>&</sup>lt;sup>3</sup>Vehicles with a Transmission Control Switch (TCS) will have a Manual 2 position. Vehicles without a Transmission Control Switch will have a Manual 3 position.

<sup>&</sup>lt;sup>4</sup>Shift Solenoid 3 will be turned "ON" when transmission fluid temperature is below 100° F when the vehicle is equipped with a Transmission Control Switch (TCS) to prevent a cold creep condition.

<sup>&</sup>lt;sup>4</sup>Shift Solenoid 3 will be turned "ON" when transmission fluid temperature is below 50° F when the vehicle is NOT equipped with a Transmission Control Switch (TCS) to prevent a cold creep condition.

Copyright © 2006 ATSG



### **AX4N/4F50N SOLENOID FAILURE CHARTS**

SS1	Gearshift Lever Position				SS1	Gearshift Lever Position			
ALWAYS OFF	<b>(</b>	D or 3	2	1	ALWAYS ON	<b>(</b>	D or 3	2	1
PCM GEAR COMMANDED	ACTUAL GEAR OBTAINED			PCM GEAR COMMANDED	A	CTUAI OBTA		₹	
1	1	1	2	1	1	3	3	3	3
2	2	2	2		2	3	3	3	
3	2	2			3	3	3		
4	1				4	4			

SS2	Gear	shift Le	ver Pos	ition	SS2	Gear	shift Le	ver Pos	sition
ALWAYS OFF	<b>①</b>	D or 3	2	1	ALWAYS ON	<b>①</b>	D or 3	2	1
PCM GEAR COMMANDED	A	CTUAI OBTAI		₹	PCM GEAR COMMANDED	A	CTUAI OBTA		₹
1	2	2	2	2	1	1	1	1	1
2	2	2	2		2	1	1	1	
3	3	3			3	4	3		
4	3				4	4			

SS3	Gear	shift Le	ver Pos	ition	SS3	Gear	shift Le	ver Pos	sition
ALWAYS OFF	<b>(D)</b>	D or 3	2	1	ALWAYS ON	<b>①</b>	D or 3	2	1
PCM GEAR COMMANDED	A	CTUAL OBTAI		₹	PCM GEAR COMMANDED	A	CTUAL OBTAI		₹
1	1	1	1	1	1	1	1	1	1
2	2	2	2		2	2	2	2	
3	3	3			3	3	3		
4	3				4	4			
	•		•			(	Copyright	© 2006	ATSG

Figure 5



	CD4E SOLEN	OID APPLICA	TION CHART	
GEAR SELECTOR POSITION	PCM COMMANDED GEAR	ENGINE BRAKING	SHIFT SOLENOID 1	SHIFT SOLENOID 2
P/N	P/N	NO	OFF	ON
R	R	YES	OFF	OFF
OD	1	NO	ON	ON
OD	2	NO	OFF	ON
OD	3	NO	OFF	OFF
OD	4	YES	ON	OFF
<b>D</b> <sup>1</sup>	1	NO	ON	ON
<b>D</b> <sup>1</sup>	2	YES	OFF	ON
<b>D</b> <sup>1</sup>	3	YES	OFF	OFF
2	2	YES	OFF	ON
1	1	YES	ON	OFF*

<sup>&</sup>lt;sup>1</sup>Overdrive Canceled.

Figure 6

### **CD4E SOLENOID FAILURE CHARTS**

SS1	Gear	shift Le	ver Pos	sition	SS1	Gearshift Lever Position			
ALWAYS OFF	OD	D	2	1	ALWAYS ON	OD	D	2	1
PCM GEAR COMMANDED	A	CTUAI OBTA		₹	PCM GEAR COMMANDED	A	CTUAI OBTA		₹
1	2	2		2	1	1	1		1
2	2	2	2		2	1	1	1	
3	3	3			3	4	4		
4	3				4	4			

SS2	Gear	shift Le	ver Pos	ition	SS2	Gearshift Lever Position				
ALWAYS OFF	OD	D	2	1	ALWAYS ON	OD	D	2	1	
PCM GEAR COMMANDED		CTUAL OBTA		₹	PCM GEAR COMMANDED	A	CTUAI OBTA		₹	
1	4	4		1	1	1	1		4	
2	3	3	3		2	2	2	2		
3	3	3			3	2	2			
4	4				4	1				

<sup>\*</sup> Up to 1996. 1997 and later this solenoid is "ON"



4	IR44E/4R55E S	OLENOID A	APPLICATI	ON CHAR	Γ
GEAR SELECTOR POSITION	PCM COMMANDED GEAR	ENGINE BRAKING	SHIFT SOLENOID 1	SHIFT SOLENOID 2	SHIFT SOLENOID 3
P/R/N	P/R/N	NO	ON	OFF	OFF
OD	1	NO	ON	OFF	OFF
OD	2	NO	ON	ON	OFF
OD	3	NO	OFF	OFF	OFF
OD	4	NO	OFF	OFF	ON
OD OFF <sup>1</sup>	1	YES	ON	OFF	OFF
OD OFF <sup>1</sup>	2	YES	ON	ON	OFF
OD OFF <sup>1</sup>	3	YES	OFF	OFF	OFF
2	2	YES	ON	ON	OFF
1	1	YES	ON	OFF	OFF

<sup>&</sup>lt;sup>1</sup>Transmission Control Switch "ON", overdrive canceled.

Figure 8

	4R44	E/4R5	5E SO	LENC	OID FAILURE (	CHAR	TS			
SS1	Gear	shift Le	ver Pos	sition	SS1	Gear	<b>Gearshift Lever Position</b>			
ALWAYS OFF	OD	OD OFF	2	1	ALWAYS ON	D	OD OFF	2	1	
PCM GEAR COMMANDED	A	CTUAI OBTA		₹	PCM GEAR COMMANDED	A	CTUAI OBTA		₹	
1	3	3		2	1	1	1		1	
2	2	2	2		2	2	2	2		
3	3	3			3	1	1			
4	4				4	1.861				
SS2	Gearshift Lever Position			SS2	Gear	shift Le	ver Pos	ition		
ALWAYS OFF	OD	OD OFF	2	1	ALWAYS ON	D	OD OFF	2	1	
PCM GEAR COMMANDED	A	CTUAI OBTA		χ.	PCM GEAR COMMANDED	A	CTUAI OBTA		₹	
1	1	1		1	1	2	2		2	
2	1	1	2		2	2	2	2		
3	3	3			3	2	2			
4	4				4	2				
					When Chift Colon		** ((0.3)			

When Shift Solenoid 1 fails "ON", a gear ratio between 1st and 2nd gear (1.86) will be created Copyright © 2006 ATSG



4R44	4R44E/4R55E SOLENOID FAILURE CHARTScontinued										
SS3 Gearshift Lever Position			SS3	Gearshift Lever Position							
ALWAYS OFF	OD	OD OFF	2	1	ALWAYS ON	D	OD OFF	2	1		
PCM GEAR COMMANDED	ACTUAL GEAR OBTAINED			PCM GEAR COMMANDED	ACTUAL GEAR OBTAINED			₹			
1	1	1		1	1	1.861	1.861		1.861		
2	2	2	2		2	1.112	1.112	1.112			
3	3	3			3	4	4				
4	3				4	4					

<sup>&</sup>lt;sup>1</sup>When Shift Solenoid 1 fails "ON", a gear ratio between 1st and 2nd gear (1.86) will be created

Figure 10

<b>5R55E SOLENOID APPLICATION CHART</b>									
GEAR SELECTOR POSITION	PCM COMMANDED GEAR	ENGINE BRAKING	SHIFT SOLENOID 1	SHIFT SOLENOID 2	SHIFT SOLENOID 3				
P/R/N	P/R/N	NO	ON	OFF	OFF				
OD	1	NO	ON	OFF	OFF				
OD	2	NO	ON	OFF	ON				
OD	3	NO	ON	ON	OFF				
OD	4	NO	OFF	OFF	OFF				
OD	5	NO	OFF	OFF	ON				
OD OFF <sup>1</sup>	1	NO	ON	OFF	OFF				
OD OFF <sup>1</sup>	2	NO	ON	OFF	ON				
OD OFF <sup>1</sup>	3	YES	ON	ON	OFF				
OD OFF <sup>1</sup>	4	YES	OFF	OFF	OFF				
2	2	YES	ON	ON	OFF				
1	1	YES	ON	OFF	OFF				

<sup>1</sup>Transmission Control Switch "ON", overdrive canceled.

Figure 11

<sup>&</sup>lt;sup>2</sup>When Shift Solenoid 3 fails "ON", a gear ratio between 2nd and 3rd gear (1.11) will be created



#### **5R55E SOLENOID FAILURE CHARTS**

SS1	<b>Gearshift Lever Position</b>				SS1	Gear	Gearshift Lever Positi		
ALWAYS OFF	OD	OD OFF	2	1	ALWAYS ON	D	OD OFF	2	1
PCM GEAR COMMANDED	A	ACTUAL GEAR OBTAINED			PCM GEAR COMMANDED	A	ACTUAL GEAR OBTAINED		
1	4	4	3	3	1	1	1	3	1
2	5	5			2	2	2	1.111	
3	3	3			3	3	3		
4	4	4			4	1	1		
5	5				5	2			

When Shift Solenoid 3 fails "ON", a gear ratio between 3rd and 4th gear (1.11) will be created

SS2	Gear	Gearshift Lever Position			SS2	Gear	shift Le	shift Lever Position		
ALWAYS OFF	OD	OD OFF	2	1	ALWAYS ON	D	OD OFF	2	1	
PCM GEAR COMMANDED	A	CTUAI OBTA		₹	PCM GEAR COMMANDED	A	ACTUAL GEAR OBTAINED			
1	1	1	3	1	1	3	3	3	3	
2	2	2	1.11 <sup>1</sup>		2	1.111	1.11 <sup>1</sup>	1.11 <sup>1</sup>		
3	2	2			3	3	3			
4	4	4			4	3	3			
5	5				5	1.111				

When Shift Solenoid 3 fails "ON", a gear ratio When Shift Solenoid 3 fails "ON", a gear ratio between 3rd and 4th gear (1.11) will be created between 3rd and 4th gear (1.11) will be created

SS3 Gearshift Lever Position			SS3	Gear	<b>Gearshift Lever Position</b>					
ALWAYS OFF	OD	OD OFF	2	1	ALWAYS ON	D	OD OFF	2	1	
PCM GEAR COMMANDED	ACTUAL GEAR OBTAINED				PCM GEAR COMMANDED	A	ACTUAL GEAR OBTAINED			
1	1	1	3	1	1	2	2	3	1	
2	1	1	3		2	2	2	1.111		
3	3	3			3	1.111	1.11 <sup>1</sup>			
4	4	4			4	5	5			
5	4				5	5				

<sup>1</sup>When Shift Solenoid 3 fails "ON", a gear ratio between 3rd and 4th gear (1.11) will be created

Figure 12



	5R55N	N/W/S	SOLE	NOID A	APPLI	CATION C	CHART	
GEAR SHIFTER POSITION	PCM GEAR COMMAND	SOL	SHIFT SOL 2	SHIFT SOL 3	SHIFT SOL 4	CONTROL	PRESSURE CONTROL SOLENOID B	CONTROL
P/N	P/N	ON	OFF	OFF	ON	L*	L/H#	L*
R	R	ON	OFF	OFF	ON	L*	Н^	H^
D5	1	ON	OFF	OFF	ON	L/H#	L*	L*
D5	2	ON	OFF	ON	ON	L*	L/H#	L*
D5	3	ON	ON	OFF	ON	L/H#	L*	L*
D5	4	OFF	OFF	OFF	ON	L/H#	L*	H^
D5	5	OFF	OFF	ON	ON	L/H#	L/H#	H^
D5 +/-	1	ON	OFF	OFF	ON	Н^	Н^	L*
D5 +/-	2	ON	OFF	ON	ON	Н^	Н^	L*
D5 +/-	3	ON	ON	OFF	ON	Н^	Н^	L*
D5 +/-	4	OFF	OFF	OFF	ON	Н^	Н^	H^
D5 +/-	5	OFF	OFF	ON	ON	Н^	Н^	H^
D4	1	ON	OFF	OFF	ON	L/H#	L*	L*
D4	2	ON	OFF	ON	ON	L*	L/H#	L*
D4	3	ON	ON	OFF	ON	L/H#	L*	L*
D4	4	OFF	OFF	OFF	OFF	L/H#	L/H#	H^
3	3	ON	ON	OFF	OFF	L/H#	L/H#	L*
2	2	ON	OFF	ON	OFF	L/H#	L/H#	L*
1	1	ON	OFF	OFF	OFF	L/H#	L/H#	L*

<sup>\*</sup>Low Line Pressure

Figure 13

5R55N SOLENOID FAILURE CHARTS									
SS1	Gearshift Le	ever Position	SS1	<b>Gearshift Lever Position</b>					
ALWAYS OFF	D5	D4	ALWAYS ON	D5	D4				
PCM GEAR COMMANDED	ACTUAL GEAR OBTAINED		PCM GEAR COMMANDED	ACTUAL GEAR OBTAINED					
1	3	3	1	1	1				
2	2	2	2	2	2				
3	3	3	3	3	3				
4	4 M-4		4	1	M-1				
5	5		5	2					
				Copyrigh	t © 2006 ATSG				

Figure 14

06-45 Page 9 of 15

<sup>&</sup>lt;sup>^</sup> High Line Pressure

<sup>\*</sup> Variable Line Pressure, PCM Controlled



### **5R55N SOLENOID FAILURE CHARTS...continued**

SS2			SS2	<b>Gearshift Lever Position</b>		
ALWAYS OFF	<b>D</b> 5	D4	ALWAYS ON	D5	D4	
PCM GEAR COMMANDED	ACTUAI OBTA		PCM GEAR COMMANDED	ACTUAL GEAR OBTAINED		
1	1	1	1	3	3	
2	2	2	2	2	2	
3	1	1	3	3	3	
4	4	M-4	4	4	M-4	
5	5		5	5		

SS3	Gearshift Lo	ever Position	SS3	Gearshift Lo	ever Position	
ALWAYS OFF	D5 D4		ALWAYS ON	D5	D4	
PCM GEAR COMMANDED	ACTUA OBTA		PCM GEAR COMMANDED	ACTUAL GEAR OBTAINED		
1	1	1	1	1 or 2	1 or 2	
2	1	1	2	2	2	
3	1	3	3	3 or 1.6:1*	3 or1.6:1*	
4	4	M-4	4	4 or 5	4 or 5	
5	4		5	5		

\*When Shift Solenoid 3 fails "ON", a gear ratio between 2nd & 3rd gears will be obtained.

SS4	Gearshift Lo	ever Position	SS4	Gearshift Le	ever Position	
ALWAYS OFF	D5	D4	ALWAYS ON	D5	D4	
PCM GEAR COMMANDED	ACTUA OBTA		PCM GEAR COMMANDED	ACTUAL GEAR OBTAINED		
1	1 or M-1	1 or M-1	1	1	1	
2	M-2	M-2	2	2	2	
3	3 or M-3	M-3	3	3	3	
4	4 or M-4		4	4	4	
5	5		5	5		

REVERSE	<b>Gearshift Lever Position</b>	REVERSE	<b>Gearshift Lever Position</b>
ALWAYS OFF	R	ALWAYS ON	R
SOLENOID FAULT	ACTUAL GEAR OBTAINED	SOLENOID FAULT	ACTUAL GEAR OBTAINED
SS1 Stuck OFF	REVERSE	SS1 Stuck ON	REVERSE
SS2 Stuck OFF	REVERSE	SS2 Stuck ON	NEUTRAL
SS3 Stuck OFF	REVERSE	SS3 Stuck ON	REVERSE
SS4 Stuck OFF	REVERSE	SS4 Stuck ON	REVERSE
i			Converight @ 2006 ATSC



5	5R55N SOLENOID FAILURE CHARTScontinued									
PRESSURE	Gearshift Lo	ever Position	PRESSURE	<b>Gearshift Lever Position</b>						
SOLENOID "A" ALWAYS LOW	D5	D4	SOLENOID "A" ALWAYS HIGH	D.E	D4					
PCM GEAR COMMANDED	ACTUAL GEAR OBTAINED		PCM GEAR COMMANDED	ACTUA OBTA						
1	1/Slips	1	1	1	1					
2	2	2	2	2	2					
3	1/Slips	1	3	3	3					
4	4/Slips	M-4	4	4	M-4					
II 5	5		ll 5	5						

PRESSURE	Gearshift Lever Position		PRESSURE	Gearshift Le	ever Position
SOLENOID "B" ALWAYS LOW	D5	D4	SOLENOID "B" ALWAYS HIGH	<b>D</b> 5	D4
PCM GEAR COMMANDED	ACTUAL GEAR OBTAINED		PCM GEAR COMMANDED	ACTUAL GEAR OBTAINED	
1	1	1	1	1	1
2	1	1	2	2	2
3	3	3	3	3	3
4	4	4	4	4	M-4
5	4		5	5	

PRESSURE	Gearshift Lever Position		PRESSURE	Gearshift Lever Position	
SOLENOID "C" ALWAYS LOW	D5	D4	SOLENOID "C" ALWAYS HIGH	D.F	D4
PCM GEAR COMMANDED	ACTUAL GEAR OBTAINED		PCM GEAR COMMANDED	ACTUAL GEAR OBTAINED	
1	1	1	1	1	1
2	2	2	2	2	2
3	3	3	3	3	3
4	3	3	4	4	M-4
5	1.16:1*		5	5	

<sup>\*</sup>When Pressure Control Solenoid "C" fails "LOW", a gear ratio between 3rd & 4th gears will be obtained.

Figure 16



EDEEW/C	COL	ENOID	EAH HDE	CHARTS
3K33W/3	<b>&gt;( )</b> (		H A I I . I   R H.	CHARIS

SS1 Gearshift Le		ever Position SS1		<b>Gearshift Lever Position</b>	
ALWAYS OFF	<b>D</b> 5	D4	ALWAYS ON	D5	D4
PCM GEAR COMMANDED	ACTUAL GEAR OBTAINED		PCM GEAR COMMANDED	ACTUA OBTA	
1	1	1	1	1	M-1
2	2	M-2	2	2	M-2
3	3	M-3	3	3	M-3
4	4	M-4	4	1	M-1
5	5		5	2	

SS2	Gearshift Le	ever Position	SS2	<b>Gearshift Lever Position</b>	
ALWAYS OFF	D5	D4	ALWAYS ON	D5	D4
PCM GEAR COMMANDED	ACTUAL GEAR OBTAINED		PCM GEAR COMMANDED	ACTUAL GEAR OBTAINED	
1	1	M-1	1	3	M-3
2	2	M-2	2	2	1.1:1*
3	1	M-1	3	3	M-3
4	4	M-4	4	4	M-4
5	5		5	5	

SS3 Gearshift Lever Positi		ever Position	SS3	<b>Gearshift Lever Position</b>	
ALWAYS OFF	D5	D4	ALWAYS ON	D5	D4
PCM GEAR COMMANDED	ACTUAL GEAR OBTAINED		PCM GEAR COMMANDED	ACTUAL GEAR OBTAINED	
1	1	M-1	1	2	M-2
2	1	M-1	2	2	M-3
3	3	M-3	3	3	1.1:1*
4	4	M-4	4	4 or 5	5
5	5		5	5	

SS4	Gearshift Le	ever Position	SS4	Gearshift Lo	ever Position		
ALWAYS OFF	<b>D</b> 5	D4	ALWAYS ON	D5	D4		
PCM GEAR COMMANDED	ACTUAL GEAR OBTAINED		PCM GEAR COMMANDED	ACTUA OBTA	_		
1	1 or M-1	M-1	1	1	1		
2	M-2	M-2	2	2	2		
3	3 or M-3	M-3	3	3	3		
4	4 or M-4	M-4	4	4	4		
5	5		5	5			
		Copyright © 2006 ATSG					

Figure 17



5R55W/S SOLENOID FAILURE CHARTScontinued						
REVERSE	Gearshift Lever Position	REVERSE	Gearshift Lever Position			
ALWAYS OFF	R	ALWAYS ON	R			
SOLENOID	ACTUAL GEAR	SOLENOID	ACTUAL GEAR			

		ON	
SOLENOID FAULT	ACTUAL GEAR OBTAINED	SOLENOID FAULT	ACTUAL GEAR OBTAINED
SS1 Stuck OFF	NEUTRAL	SS1 Stuck ON	REVERSE
SS2 Stuck OFF	REVERSE	SS2 Stuck ON	NEUTRAL
SS3 Stuck OFF	REVERSE	SS3 Stuck ON	REVERSE
SS4 Stuck OFF	REVERSE	SS4 Stuck ON	REVERSE

PRESSURE			PRESSURE	Gearshift Le	ever Position
SOLENOID "A" ALWAYS LOW	D5	D4	SOLENOID "A" ALWAYS HIGH	<b>D</b> 5	D4
PCM GEAR COMMANDED	ACTUAL GEAR OBTAINED		PCM GEAR COMMANDED	ACTUAL GEAR OBTAINED	
1	1/Slips	1	1	1	M-1
2	2	2	2	2	M-2
3	1/Slips	1	3	3	M-3
4	4	M-4	4	4	M-4
5	5		5	5	

PRESSURE	Gearshift Lever Position		PRESSURE	Gearshift Lever Position	
SOLENOID "B" ALWAYS LOW	D5	D4	SOLENOID "B" ALWAYS HIGH	D.	D4
PCM GEAR COMMANDED	ACTUAL GEAR OBTAINED		PCM GEAR COMMANDED	ACTUAL GEAR OBTAINED	
1	1	1	1	1	M-1
2	1	1	2	2	M-2
3	3	3	3	3	M-3
4	4	4	4	4	M-4
5	4		5	5	

PRESSURE	<b>Gearshift Lever Position</b>		PRESSURE	<b>Gearshift Lever Position</b>	
SOLENOID "C" ALWAYS LOW	<b>D</b> 5	D4	SOLENOID "C" ALWAYS HIGH	D5	D4
PCM GEAR COMMANDED	ACTUAL GEAR OBTAINED		PCM GEAR COMMANDED	ACTUA OBTA	_
1	1	M-1	1	1	M-1
2	2	M-2	2	2	M-2
3	3	M-3	3	3	M-3
4	1	1	4	4	M-4
5	2		5	5	



AODE/4R70W SOLENOID APPLICATION CHART									
GEAR SELECTOR POSITION	PCM COMMANDED GEAR	ENGINE BRAKING	SHIFT SOLENOID 1	SHIFT SOLENOID 2					
P/N	1	NO	ON	OFF					
R	1	YES	ON	OFF					
(D) or D	1	NO	ON	OFF					
(D) or D	2	NO	OFF	OFF					
(D) or D	3	YES	OFF	ON					
(D) or D	4	YES	ON	ON					
D*	1	NO	ON	OFF					
D*	2	NO	OFF	OFF					
D*	3	YES	OFF	ON					
2	2	YES	OFF	OFF					
1	1	YES	ON	OFF					

<sup>\*</sup>Overdrive Canceled.

Figure 19

#### **AODE/4R70W SOLENOID FAILURE CHARTS**

SS1	S1 Gearshift Lever Position			SS1	Gearshift Lever Position				
ALWAYS OFF	(D) or D	D*	2	1	ALWAYS ON	(D) or D	D*	2	1
PCM GEAR COMMANDED	ACTUAL GEAR OBTAINED			PCM GEAR COMMANDED	ACTUAL GEAR OBTAINED			₹	
1	2	2		2	1	1	1		1
2	2	2	2		2	1	1	1	
3	3	3			3	4	3		
4	3				4	4			

<sup>\*</sup>Overdrive Canceled.

SS2	Gearshift Lever Position			SS2	<b>Gearshift Lever Position</b>				
ALWAYS OFF	(D) or D	D*	2	1	ALWAYS ON	(D) or D	D*	2	1
PCM GEAR COMMANDED	ACTUAL GEAR OBTAINED			PCM GEAR COMMANDED		ACTUAL GEAR OBTAINED			
1	1	1		1	1	4	3		1
2	2	2	2		2	3	3	2	
3	2	2			3	3	3		
4	1				4	4			
Conveight @ 2006 ATSC									

Figure 20



E40D/4R100 SOLENOID APPLICATION CHART									
GEAR SELECTOR POSITION	PCM COMMANDED GEAR	ENGINE BRAKING	SHIFT SOLENOID 1	SHIFT SOLENOID 2					
P/N	1	NO	ON	OFF					
R	1	NO	ON	OFF					
(D) or D	1	NO	ON	OFF					
(D) or D	2	NO	ON	ON					
(D) or D	3	NO	OFF	ON					
(D) or D	4	YES	OFF	OFF					
D*	1	NO	ON	OFF					
D*	2	NO	ON	ON					
D*	3	YES	OFF	ON					
2	2	YES	ON	ON					
1	1	YES	ON	OFF					

<sup>\*</sup>Overdrive Canceled.

NOTE: 4R100 transmissions that are PTO equipped, will have engine braking in the <sup>®</sup> position in 1st, 2nd and 3rd gears with 4th gear disabled.

Figure 21

Figure 21									
E4OD/4R100 SOLENOID FAILURE CHARTS									
SS1 Gearshift Lever Position				SS1	<b>Gearshift Lever Position</b>				
ALWAYS OFF	(D) or D	D*	2	1	ALWAYS ON	(D) or D	D*	2	1
PCM GEAR COMMANDED	ACTUAL GEAR OBTAINED			PCM GEAR COMMANDED	ACTUAL GEAR OBTAINED				
1	4	4		2 or 1	1	1	1		1
2	3	3	2		2	2	2	2	
3	3	3			3	2	2		
4	4				4	1			
SS2	Gear	shift Le	ver Pos	sition	SS2	<b>Gearshift Lever Position</b>			
ALWAYS OFF	(D) or D	D*	2	1	ALWAYS ON	(D) or D	D*	2	1
PCM GEAR COMMANDED	ACTUAL GEAR OBTAINED			PCM GEAR COMMANDED	A	CTUAI OBTA		₹	
1	1	1		1	1	2	2		1 or 2
2	1	1	2		2	2	2	2	
3	4	4			3	3	3		
4	4				4	3			
Copyright © 2006 ATSG									

<sup>\*</sup>Overdrive Canceled.

Figure 22