

FORD 10R80

INTERMITTENT SHIFT QUADRANT

COMPLAINT: When the vehicle was driven, the tech notices that the lights indicating shift quadrant selection was intermittent. And it happened to be occurring when the shifts became erratic setting code P07F7 for gear 10 incorrect ratio.

It is known that when the sleeve has turned in the C, D, and F drum, shift error can be intermittent which can cause P07F7 to set (figure 1). However, there has never been any reports in the past that the shift quadrant lights being erratic simultaneously with shift errors being caused by a drum issue.

CAUSE: The shift quadrant lights are the result of inputs to the PCM from the Transmission Range Sensor (TRS). When the PID for this was viewed in a scan tool, it revealed the same intermittent readings (see figure 2). Strangely enough no codes were set for this erratic TRS signal. When the shop installed a new TRS, the problem which also eliminated code P07F7 from setting again (See figures 3 and 4). This is an example of how important it is to not be a pattern failure repair tech. The CDF drum is a common reason for erratic shifts and gear ratio error codes. In this case, it was caused by the TRS and not the drum.

CORRECTION: Remove valve body and replace TRS.

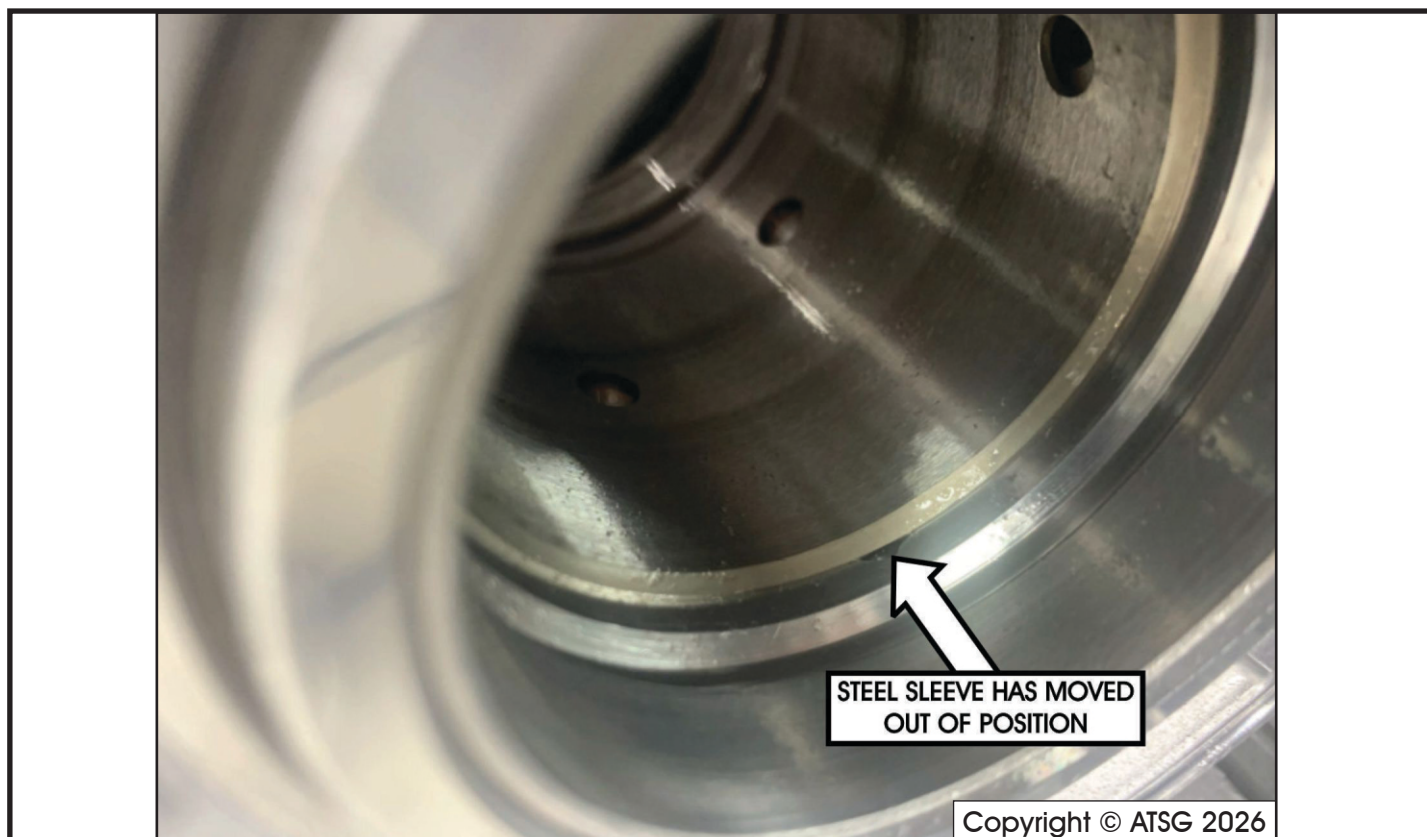
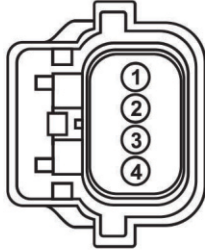


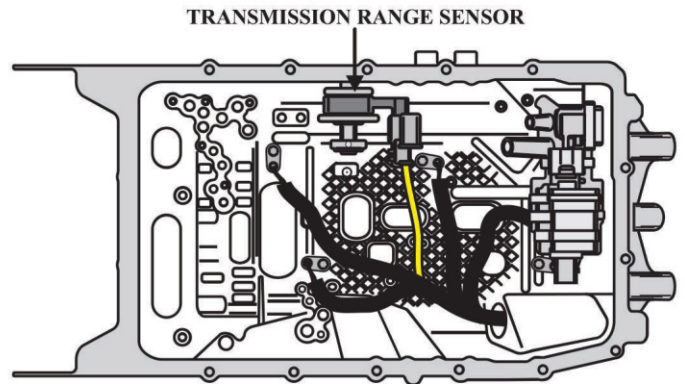
Figure 1

FORD 10R80 INTERMITTENT SHIFT QUADRANT

TRANSMISSION RANGE SENSOR



- 1 - Transmission Range Sensor Ground
- 2 - Transmission Range Sensor PWM Output 1 (TR-P1)
- 3 - Transmission Range Sensor PWM Output 2 (TR-P2)
- 4 - Transmission Range Sensor 9 Volt Supply



TRANSMISSION RANGE SENSOR PWM OUTPUT CHART

Gear	Transmission Range Sensor-A		Transmission Range Sensor-B	
	Min (%)	Max (%)	Min (%)	Max (%)
Park	8.0	18.96	81.04	92.00
Reverse	35.50	47.90	52.10	64.50
Neutral	51.75	61.75	38.25	48.25
Drive	67.45	77.45	22.55	32.55
Sport	81.12	92.00	8.0	18.88

The 10R80 TRS is a dual sensor which ranges in a duty cycle as the shifter is moved from park to sport positions. When the shifter is moved from park to sport the duty cycle increases. When the shifter is moved from sport to park the duty cycle decreases. There is no manual valve to index.

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Figure 2



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Figure 3



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Figure 4