



# Technical Service Information

## VOLKSWAGEN/AUDI ZF5HP19FL/FLA PARTS MISMATCH

**COMPLAINT:** After an overhaul a Volkswagen/Audi vehicle with the ZF5HP19/FLA transaxle exhibits a no shift condition. The vehicle may not up shift at all, or it may make a 1-2 shift then go into a failsafe condition.

**CAUSE:** One cause may be the wrong transmission installed into the vehicle, or a mismatch of internal parts. ZF has used two different types of Turbine Sensors in the ZF5HP19/FLA. One is a Pulse Generator type, the other a Hall Effect Sensor. It can be difficult to determine which vehicle uses the Pulse Generator and which uses the Hall Effect Sensor type.

**CORRECTION:** Use the information provided in the following figures to ensure correct transmission application and internal component installation. Refer to Figure 1 for a listing of vehicles that use the Pulse Generator type sensor. Figure 1 also provides an illustration of the transmission identification tag. Refer to Figure 2 for a listing of vehicles that use the Hall Effect Sensor. The Pulse Generator and Hall Effect Sensor are not located in the same area of the transmission. Refer to Figure 3 for internal harness layout and connector id for units using the Pulse Generator. Refer to Figure 4 for internal harness layout and connector id for units using the Hall Effect Sensor. Refer to Figure 5 for location and id of the Pulse Generator, refer to Figure 6 for location and id of the Hall Effect Sensor.

Since the sensors are located in different areas of the transmission, they would naturally have to receive their signal from different component parts in the transmission. The Pulse Generator will produce a signal using the Spider Clutch Bell whereas the Hall Effect Sensor will produce its signal using the Forward Clutch Drum. The Forward Clutch Drum, the Spider Clutch Bell, and the Sun Gear are different and not interchangeable between Pulse Generator and Hall Effect Sensor transmissions. The differences between the Forward Clutch Drum and Spider Clutch Bell are easy to distinguish. The Sun Gear however looks almost identical between both units. The difference is found with the use of a magnet. A magnet will adhere itself to the Sun Gear in a unit that utilizes a Pulse Generator, but a magnet *will not* adhere itself to the Sun Gear in a unit that uses the Hall Effect Sensor. That is because the Hall Effect Sensor needs to read though the Sun Gear where it picks up its reading from a magnetic band that is attached to the "A" Clutch Drum. The magnetic band on the "A" Clutch Drum contains 36 small magnets around the outside of the drum. Refer to Figure 7 for identification and description of Forward Clutch Drum, Spider Clutch Bell, and Sun Gear used in Pulse Generator units. Refer to Figure 8 for identification and description of Forward Clutch Drum, Spider Clutch Bell, and Sun Gear used in Hall Effect Sensor units.

*We would like to thank Nat and Drew  
from Eriksson Industries for their time  
and assistance in supplying this information*



**VOLKSWAGEN/AUDI  
ZF5HP19FL/FLA  
PARTS MISMATCH CONT'D**

**SERVICE INFORMATION:**

**ZF Part Number**

**PULSE GENERATOR TRANSMISSIONS:**

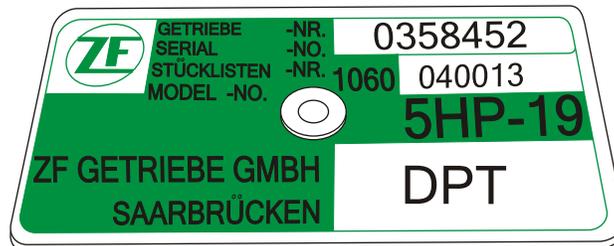
<i>ZF5HP19/FLA Pulse Generator Sensor.....</i>	<i>0501-311-086</i>
<i>ZF5HP19/FLA A Clutch Drum models 002/012/013/056.....</i>	<i>1056-370-047</i>
<i>ZF5HP19/FLA A Clutch Drum models 018.....</i>	<i>1056-370-048</i>
<i>ZF5HP19/FLA Spider Clutch Bell.....</i>	<i>1056-232-079</i>
<i>ZF5HP19/FLA Sun Gear.....</i>	<i>1060-232-097</i>
<i>ZF5HP19/FLA Internal Wire Harness .....</i>	<i>1056-227-046</i>

**HALL EFFECT SENSOR TRANSMISSIONS:**

<i>ZF5HP19/FLA Hall Effect Sensor.....</i>	<i>0501-210-474</i>
<i>ZF5HP19/FLA A Clutch Drum models 030/054/073/101 .....</i>	<i>1060-298-020</i>
<i>ZF5HP19/FLA A Clutch Drum models 035/044/053/063/065/075/087/093/100/103.....</i>	<i>1060-298-021</i>
<i>ZF5HP19/FLA Spider Clutch Bell.....</i>	<i>1050-317-060</i>
<i>ZF5HP19/FLA Sun Gear models 054/065/073/101.....</i>	<i>1060-232-041</i>
<i>ZF5HP19/FLA Sun Gear models 030/035/044/053/063/075/087/093/100/103.....</i>	<i>1060-232-042</i>
<i>ZF5HP19/FLA Internal Wire Harness .....</i>	<i>1060-227-022</i>

## ZF5HP19FL/FLA PULSE GENERATOR MODELS

MAKE	MODEL	ENG	YEAR	ZF PART #	CODE	TYPE
AUDI	A4 QUATTRO/AVANT	1.8	1996	1060-040-018	DTV	PULSE GENERATOR
AUDI	A4 QUATTRO/AVANT	2.8	1996	1060-040-002	CJP	PULSE GENERATOR
AUDI	A4 QUATTRO/AVANT	2.8	1996	1060-040-012	DRN	PULSE GENERATOR
AUDI	A4 QUATTRO/AVANT	1.8	1997	1060-040-018	DTV	PULSE GENERATOR
AUDI	A4 QUATTRO/AVANT	2.8	1997	1060-040-002	CJP	PULSE GENERATOR
AUDI	A4 QUATTRO/AVANT	2.8	1997	1060-040-012	DRN	PULSE GENERATOR
AUDI	A4 QUATTRO/AVANT	1.8	1998	1060-040-018	DTV	PULSE GENERATOR
AUDI	A4 QUATTRO/AVANT	2.8	1998	1060-040-012	DRN	PULSE GENERATOR
AUDI	A6 QUATTRO	2.8	1998	1060-040-013	DPT	PULSE GENERATOR
AUDI	A6 QUATTRO	2.8	1998	1060-040-036	EKX	PULSE GENERATOR
AUDI	A4 QUATTRO/AVANT	1.8	1999	1060-040-018	DTV	PULSE GENERATOR
AUDI	A4 QUATTRO/AVANT	2.8	1999	1060-040-012	DRN	PULSE GENERATOR
AUDI	A6 QUATTRO	2.8	1999	1060-040-013	DPT	PULSE GENERATOR
AUDI	A6 QUATTRO	2.8	1999	1060-040-036	EKX	PULSE GENERATOR
AUDI	A4 QUATTRO/AVANT	1.8	2000	1060-040-018	DTV	PULSE GENERATOR
AUDI	A4 QUATTRO/AVANT	2.8	2000	1060-040-012	DRN	PULSE GENERATOR
AUDI	A6 QUATTRO	2.8	2000	1060-040-013	DPT	PULSE GENERATOR
AUDI	A6 QUATTRO	2.8	2000	1060-040-036	EKX	PULSE GENERATOR
AUDI	A4 QUATTRO/AVANT	1.8	2001	1060-040-018	DTV	PULSE GENERATOR
AUDI	A4 QUATTRO/AVANT	2.8	2001	1060-040-012	DRN	PULSE GENERATOR
AUDI	A6 QUATTRO	2.8	2001	1060-040-013	DPT	PULSE GENERATOR
AUDI	A6 QUATTRO	2.8	2001	1060-040-036	EKX	PULSE GENERATOR
AUDI	A4 QUATTRO/AVANT	1.8	2002	1060-040-018	DTV	PULSE GENERATOR
AUDI	A4 QUATTRO/AVANT	2.8	2002	1060-040-012	DRN	PULSE GENERATOR
VW	PASSAT	2.8	1999	1060-040-012	DRN	PULSE GENERATOR
VW	PASSAT	2.8	2000	1060-040-012	DRN	PULSE GENERATOR
VW	PASSAT	2.8	2001	1060-040-012	DRN	PULSE GENERATOR



**TAG IS AN EXAMPLE OF AN  
AUDI A6 QUATTRO 2.8 1998 MODEL YEAR  
TRANS ID CODE: DPT  
PULSE GENERATOR MODEL**

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Figure 1



# Technical Service Information

## ZF5HP19FL/FLA HALL EFFECT SENSOR MODELS

<i>MAKE</i>	<i>MODEL</i>	<i>ENG</i>	<i>YEAR</i>	<i>ZF PART #</i>	<i>CODE</i>	<i>TYPE</i>
AUDI	A6 QUATTRO	2.7	1998	1060-040-044	EMP	HALL EFFECT
AUDI	A6 QUATTRO	2.7	1998	1060-040-063	FAQ	HALL EFFECT
AUDI	A6 QUATTRO	2.8	1998	1060-040-035	EKD	HALL EFFECT
AUDI	A4 QUATTRO/AVANT	1.8	1999	1060-040-030	EFQ	HALL EFFECT
AUDI	A4 QUATTRO/AVANT	1.8	1999	1060-040-054	FAL	HALL EFFECT
AUDI	A4 QUATTRO/AVANT	2.8	1999	1060-040-035	EKD	HALL EFFECT
AUDI	A6 QUATTRO	2.7	1999	1060-040-044	EMP	HALL EFFECT
AUDI	A6 QUATTRO	2.8	1999	1060-040-035	EKD	HALL EFFECT
AUDI	S4 QUATTRO/AVANT	2.7	1999	1060-040-044	EMP	HALL EFFECT
AUDI	A4 QUATTRO/AVANT	1.8	2000	1060-040-030	EFQ	HALL EFFECT
AUDI	A4 QUATTRO/AVANT	1.8	2000	1060-040-054	FAL	HALL EFFECT
AUDI	A4 QUATTRO/AVANT	2.8	2000	1060-040-035	EKD	HALL EFFECT
AUDI	A6 QUATTRO	2.7	2000	1060-040-044	EMP	HALL EFFECT
AUDI	A6 QUATTRO	2.8	2000	1060-040-035	EKD	HALL EFFECT
AUDI	S4 QUATTRO/AVANT	2.7	2000	1060-040-044	EMP	HALL EFFECT
AUDI	A4 QUATTRO/AVANT	1.8	2001	1060-040-030	EFQ	HALL EFFECT
AUDI	A4 QUATTRO/AVANT	1.8	2001	1060-040-054	FAL	HALL EFFECT
AUDI	A4 QUATTRO/AVANT	2.8	2001	1060-040-035	EKD	HALL EFFECT
AUDI	A6 QUATTRO	2.7	2001	1060-040-044	EMP	HALL EFFECT
AUDI	A6 QUATTRO	2.8	2001	1060-040-035	EKD	HALL EFFECT
AUDI	A6 ALLROAD QUATTRO	NA	2001	1060-040-093	FXL	HALL EFFECT
AUDI	A6 ALLROAD QUATTRO	2.7	2001	1060-040-053	EYK	HALL EFFECT
AUDI	S4 QUATTRO/AVANT	2.7	2001	1060-040-044	EMP	HALL EFFECT
AUDI	A4 QUATTRO/AVANT	1.8	2002	1060-040-030	EFQ	HALL EFFECT
AUDI	A4 QUATTRO/AVANT	1.8	2002	1060-040-054	FAL	HALL EFFECT
AUDI	A4 QUATTRO/AVANT	1.8	2002	1060-040-073	FEP	HALL EFFECT
AUDI	A4 QUATTRO/AVANT	1.8	2002	1060-040-101	GBF	HALL EFFECT
AUDI	A4 QUATTRO/AVANT	2.8	2002	1060-040-035	EKD	HALL EFFECT
AUDI	A4 QUATTRO/AVANT	3.0	2002	1060-040-087	FEQ	HALL EFFECT
AUDI	A4 QUATTRO/AVANT	3.0	2002	1060-040-103	GBJ	HALL EFFECT
AUDI	A6 QUATTRO	3.0	2002	1060-040-075	FEJ	HALL EFFECT
AUDI	S4 QUATTRO/AVANT	2.7	2002	1060-040-044	EMP	HALL EFFECT
VW	PASSAT	2.8	1999	1060-040-035	EKD	HALL EFFECT
VW	PASSAT	2.8	2000	1060-040-035	EKD	HALL EFFECT
VW	PASSAT	2.8	2001	1060-040-035	EKD	HALL EFFECT
VW	PASSAT	4.0	2001	1060-040-100	GAK	HALL EFFECT

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Figure 2

## ZF-5HP-19FL/FLA INTERNAL WIRE SCHEMATIC FOR PULSE GENERATOR UNITS

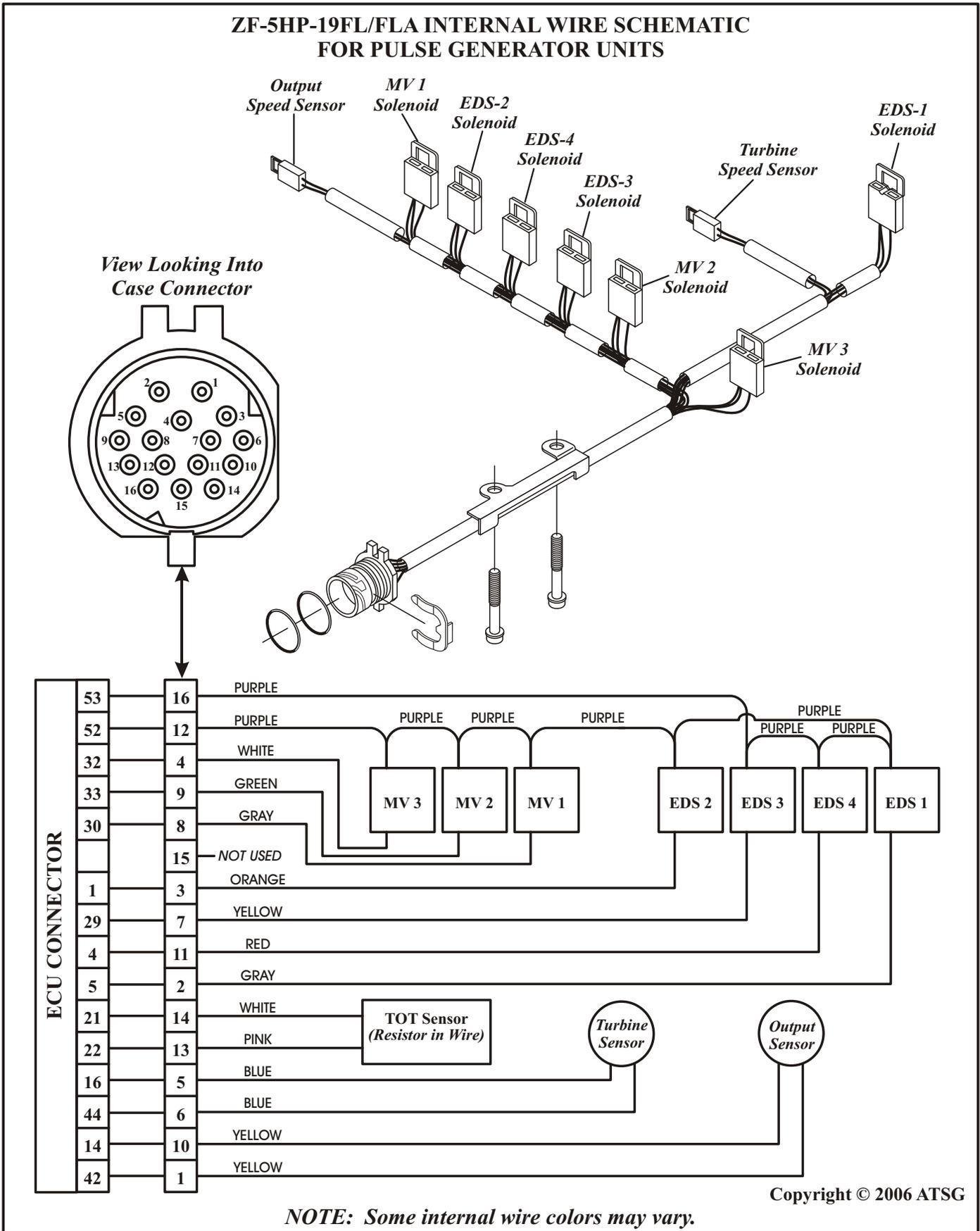


Figure 3

## ZF-5HP-19FL/FLA INTERNAL WIRE SCHEMATIC FOR HALL EFFECT SENSOR UNITS

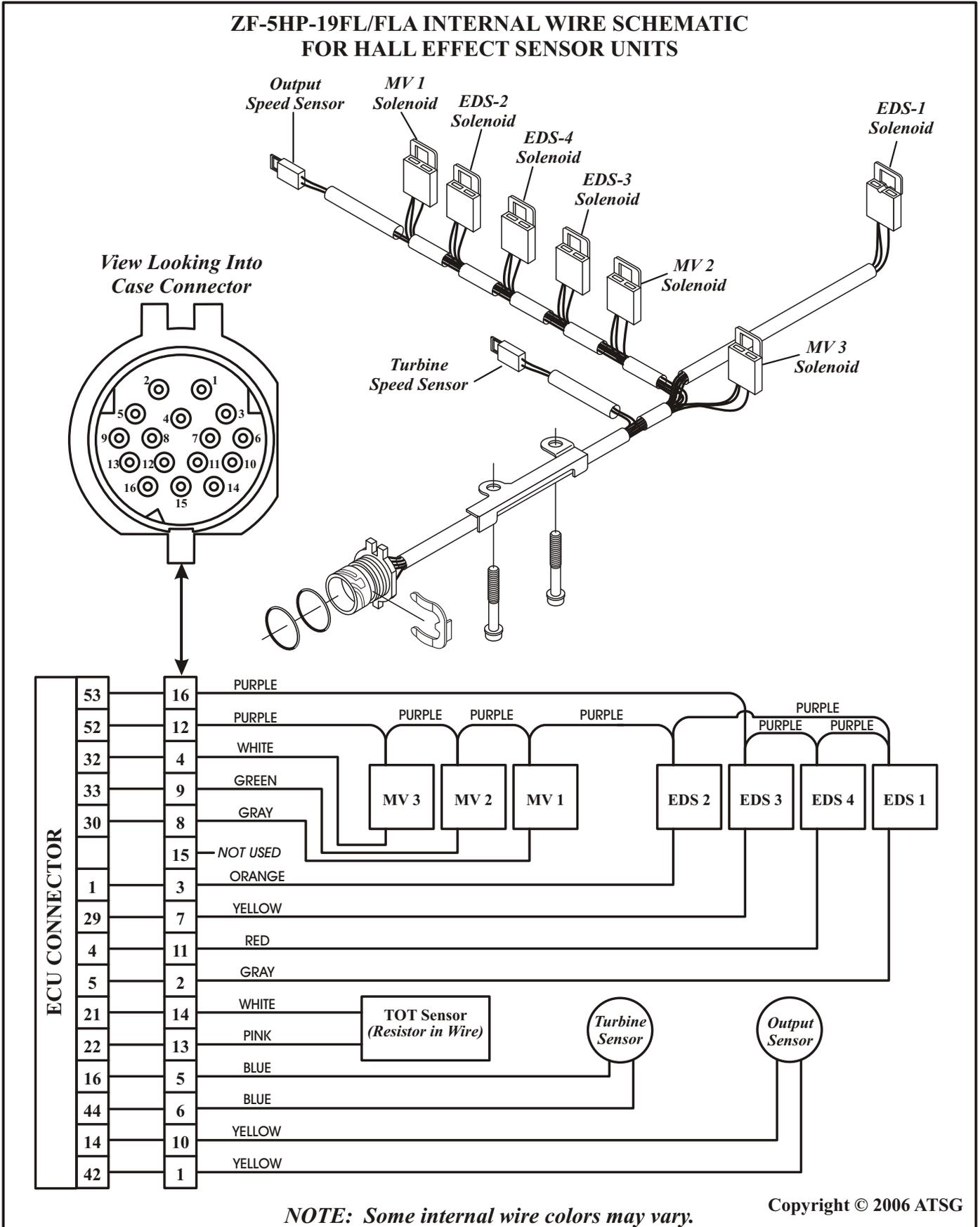
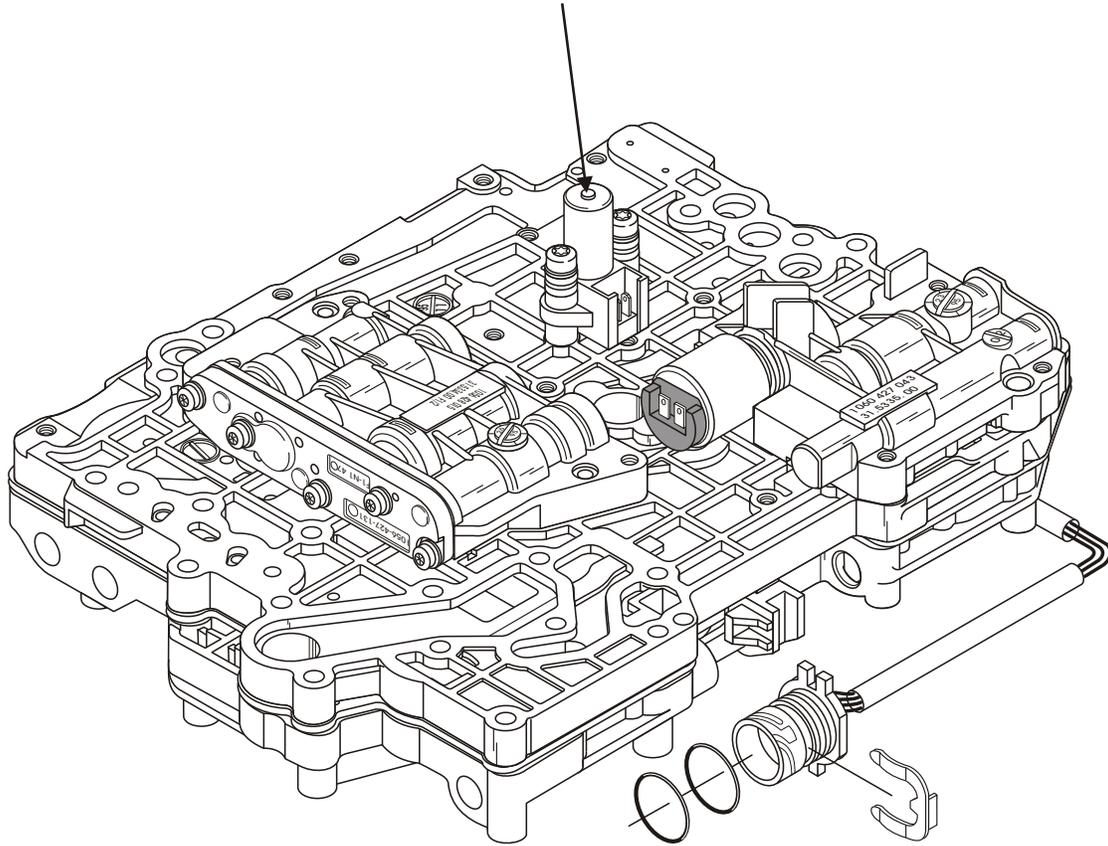


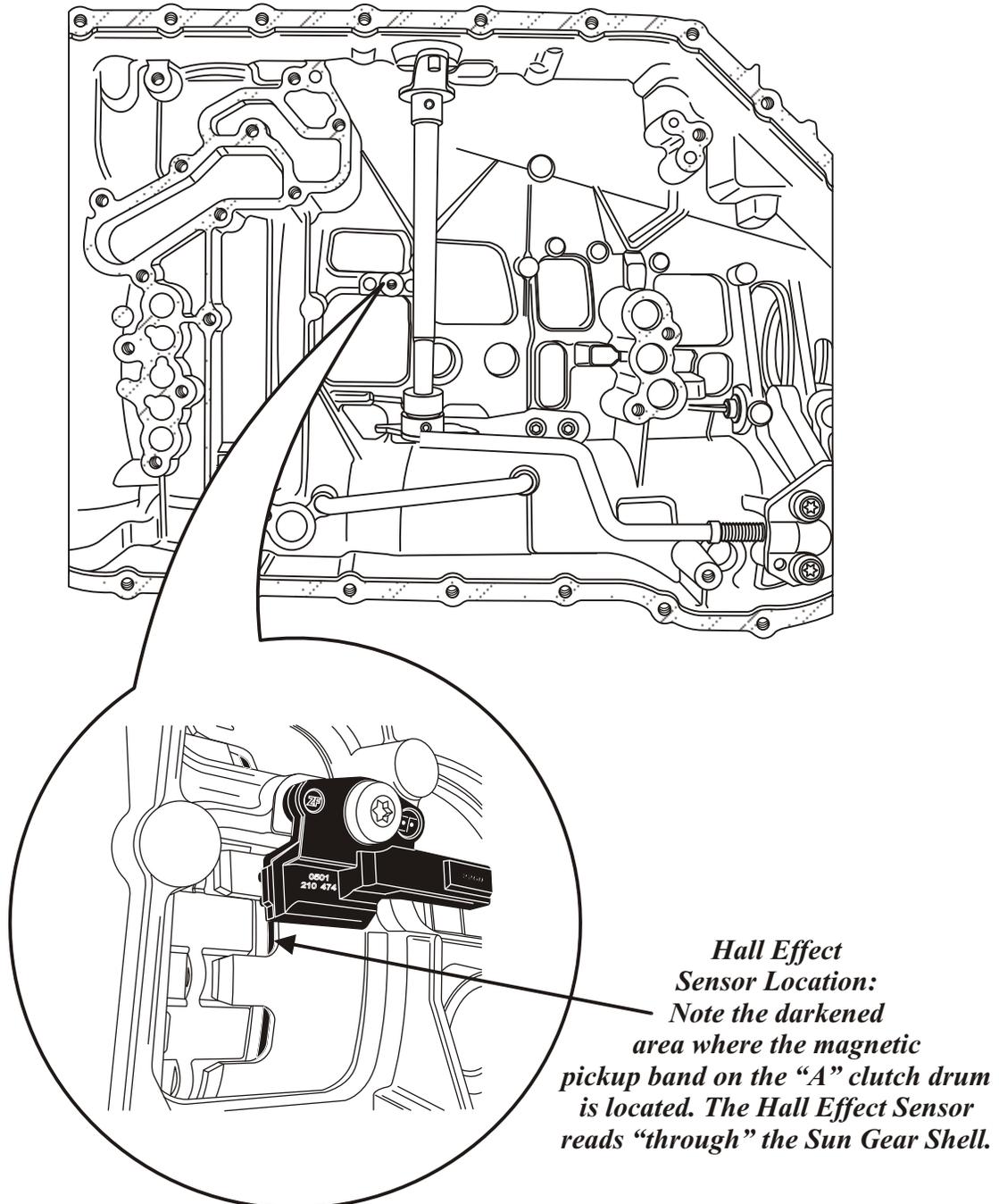
Figure 4

**ZF-5HP-19FL/FLA  
UPPER FRONT VALVE BODY  
PULSE GENERATOR  
TURBINE SENSOR LOCATION**



***THE TURBINE SENSOR ON PULSE GENERATOR MODELS IS LOCATED ON THE VALVE BODY, AND GETS IT'S READING FROM THE SPIDER CLUTCH BELL THIS SENSOR MEASURES PLANETARY SPEED. ON PULSE GENERATOR MODELS THERE IS NO TURBINE SPEED READING IN 1ST GEAR.***

**ZF-5HP-19FL/FLA  
HALL EFFECT SENSOR  
TURBINE SENSOR LOCATION**



**Hall Effect  
Sensor Location:**  
Note the darkened  
area where the magnetic  
pickup band on the "A" clutch drum  
is located. The Hall Effect Sensor  
reads "through" the Sun Gear Shell.

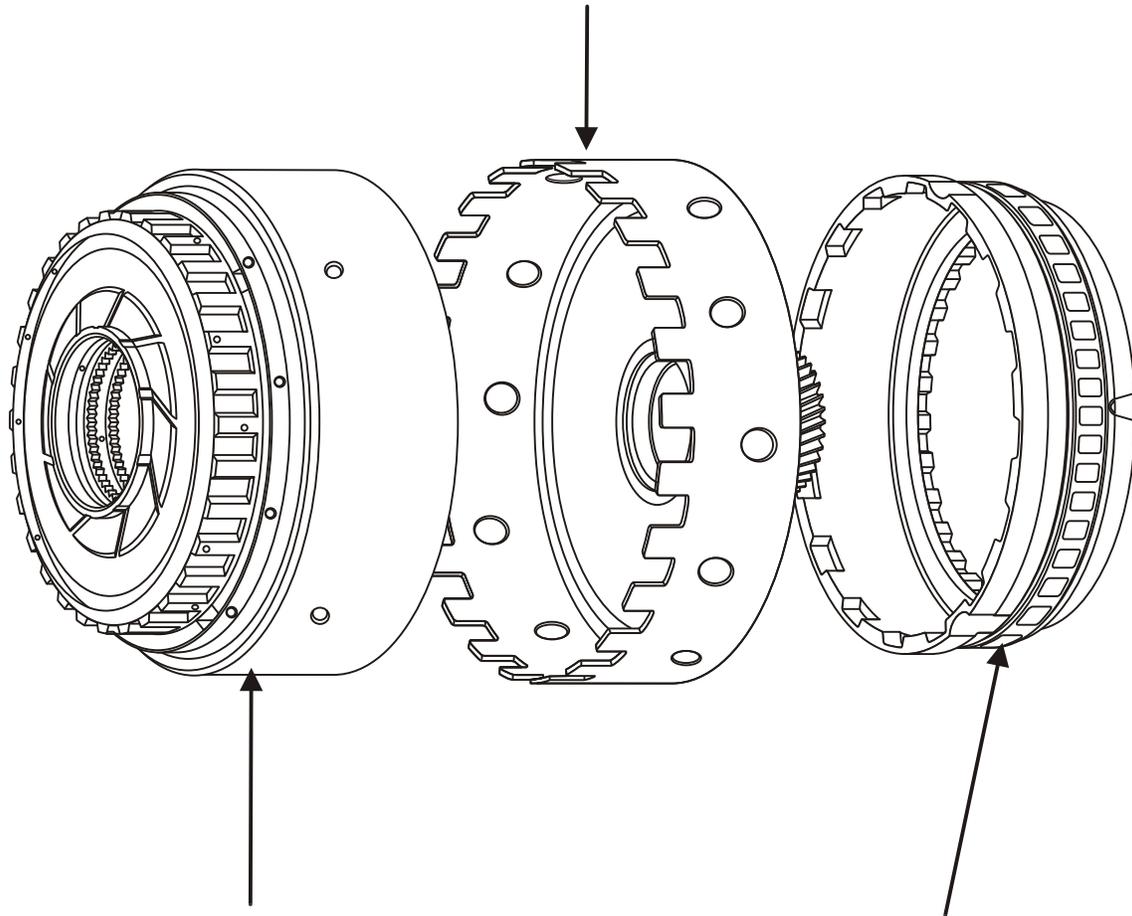
**THE TURBINE SENSOR ON HALL EFFECT SENSOR MODELS  
IS BOLTED TO THE TRANSMISSION CASE, AND GETS IT'S READING  
FROM THE BLACK MAGNETIC PICKUP BAND ON THE FORWARD CLUTCH  
DRUM WHICH MEASURES "A" CLUTCH DRUM SPEED. THIS SENSOR  
MEASURES ACTUAL INPUT SPEED.**

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Figure 6

**ZF5HP19FL/FLA  
PULSE GENERATOR UNITS  
“A” CLUTCH DRUM, SUN GEAR, SPIDER CLUTCH BELL**

*The Sun Gear for Pulse Generator models will attract a magnet. This Sun Gear is designed for use in Pulse Generator transmissions only.*



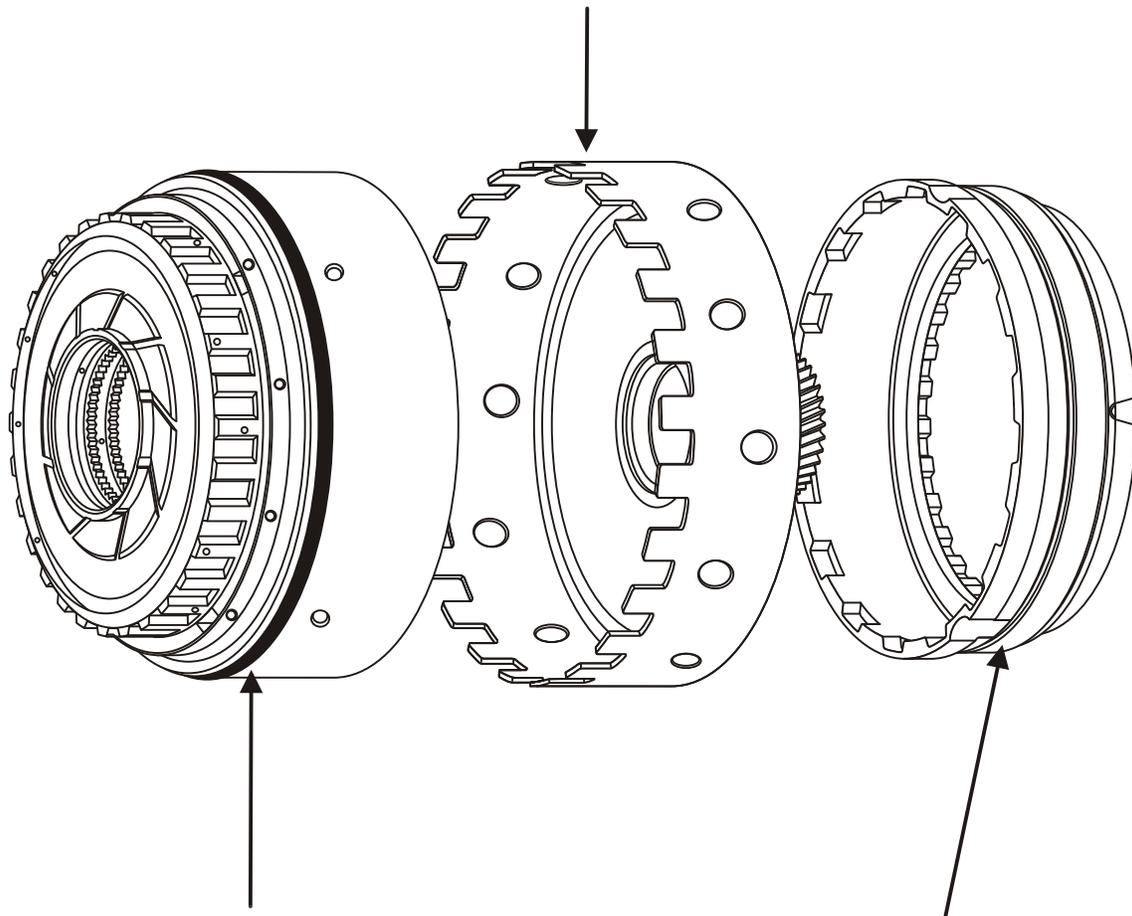
*“A” Clutch Drum for Pulse Generator models does not have magnetic band around outside of clutch drum. This drum is designed for use in Pulse Generator transmissions only.*

*The Spider Clutch Bell for Pulse Generator models has a metal sleeve installed around the outside of the hub where the Pulse Generator gets its reading. This hub is designed for use in Pulse Generator transmissions only.*

Figure 7

**ZF5HP19FL/FLA  
HALL EFFECT SENSOR UNITS  
“A” CLUTCH DRUM, SUN GEAR, SPIDER CLUTCH BELL**

*The Sun Gear for Hall Effect Sensor models will not attract a magnet. This Sun Gear is designed for use in Hall Effect Sensor transmissions only.*



*The “A” Clutch Drum for Hall Effect Sensor models has a magnetic band around outside of clutch drum. The Hall Effect Sensor reads through the Sun Gear and picks up a pulse from the magnetic pickup band around the drum. The black magnetic band contains 36 small magnets around the outside of the drum. This drum is designed for use in Hall Effect Sensor transmissions only.*

*The Spider Clutch Bell for Hall Effect Sensor models does not have the metal sleeve installed around the outside of the hub. This hub is designed for use in Hall Effect Sensor transmissions only.*

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Figure 8