

Transmission: **Hyundai F5A w/VFS**

Transmission Code: **431**

Dedicated Harness Set:

**12X205**

**432 Soft Shift**  
**433 Med Shift**  
**434 Firm Shift**

<b>SOLENOID TEST: (Engine off)</b>				
Solenoid	TranX Setting	Output Channel	AMPS Cold-Hot	Resistance Cold-Hot
UnderDrive Solenoid	Gear 1	1	1.5 - 0.9	3.2 - 4.1 Ω
OverDrive Solenoid	Gear 2	2	1.5 - 0.9	3.2 - 4.1 Ω
Low/Reverse Solenoid	Gear 3	3	1.5 - 0.9	3.2 - 4.1 Ω
2nd Clutch Solenoid	Gear 4	4	1.5 - 0.9	3.2 - 4.1 Ω
Reduction Solenoid	Gear 6	6	1.5 - 0.9	3.2 - 4.1 Ω
VFS Solenoid	Gear 7	7	0 - (1.3 - 1.7) Duty MIN - MAX	4.4 - 5.3 Ω
Lockup (DCC) Solenoid	Gear 8	8	0 - (1.6 - 1.1) Duty MIN - MAX	3.2 - 4.1 Ω

**NOTE:**

Shift Solenoids Pulsed at 50% Duty cycle. Resistance measured in Solenoid Test will read 2x actual resistance.

**CAUTION:**  
 Always come to a COMPLETE STOP & TURN ENGINE OFF before changing test modes

<b>SHIFT/MONITOR TEST</b>							
GEAR	UD Solenoid (pulsed)	OD Solenoid (pulsed)	L/R Solenoid (pulsed)	2nd Clutch Solenoid (pulsed)	RED Solenoid (pulsed)	VFS Solenoid (pulsed) EPC	DCC Solenoid (pulsed) Lockup
1st	OFF	ON	OFF	ON	OFF	Select Duty	OFF
2nd	OFF	ON	ON	OFF	OFF	Select Duty	ON/OFF*
3rd	OFF	OFF	ON	ON	OFF	Select Duty	ON/OFF*
4th	ON	OFF	ON	OFF	OFF	Select Duty	ON/OFF*
5th	ON	OFF	OFF	OFF	ON	Select Duty	ON/OFF*

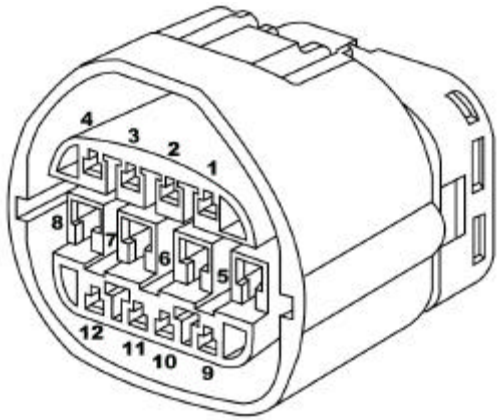
**Notes:**

- ◆ **Pressure Duty Cycle** controls current of VFS solenoid. Set duty to 60% or higher for smooth shifts.
- ◆ **Lock Up** is normally activated in 2nd, 3rd, 4th and 5th Gears.
- ◆ VFS current on CH 9 in monitor mode. VFS current on CH 7 in shift test.
- ◆ See other side for **connector diagram**.
- ◆ Polarity = Common **Positive**
- ◆ Code 432, 433 & 434 automatically changes VFS duty cycle during shifts to control shift harshness. On code 431 operator sets VFS.

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**CONNECTOR:**

(Looking into harness connector)



**TOT Sensor Testing**

Connect Multimeter to Sensor Module  
Test Points 5 & 6

Resistance	Temperature
16.7K - 20.5K $\Omega$	32° F
7.3K - 8.9K $\Omega$	68° F
3.4K - 4.2K $\Omega$	104° F
1.9K - 2.2K $\Omega$	140° F
1.0K - 1.2K $\Omega$	176° F
0.57K - 0.69K $\Omega$	212° F

**Wiring Chart**

Case Connector Pin Number	TranX 2000 Harness Wire	Vehicle Function	TranX 2000 Output Location	TranX 2000 25 Way Pin
1	Red/Blue	TOT Sensor	Sensor 5 Test Point	19
2	White/Red	TOT Sensor Return	Sensor 6 Test Point	20
3	Blue	UD Solenoid	Channel 1	7
4	Red/Green	2nd Clutch Solenoid	Channel 4	6
5	Red	Power to 2nd, OD, UD		12
6	Red/Brown	Power to LR, DCC, RED		13
7	Yellow	VFS Solenoid Power	Channel 7	1
8	Purple	VFS Solenoid	Channel 9	9
9	Gray	Lockup (DCC) Solenoid	Channel 8	2
10	Brown	Reduction Solenoid	Channel 6	4
11	Pink	L/R Solenoid	Channel 3	5
12	Dark Green	OD Solenoid	Channel 2	8