

Transmission: **Hyundai F4A w/VFS**

Transmission Code: **421**

422 Soft Shift

423 Med Shift

424 Firm Shift

Dedicated Harness Set:

12X205

SOLENOID TEST: (Engine off)				
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
VFS Solenoid	Gear 9	9	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

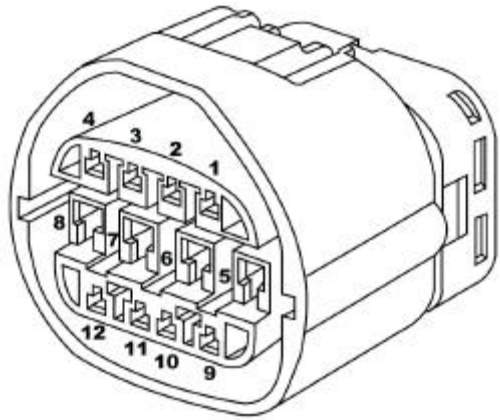
SHIFT/MONITOR TEST						
GEAR	UD Solenoid (pulsed)	OD Solenoid (pulsed)	L/R Solenoid (pulsed)	2nd Clutch Solenoid (pulsed)	VFS Solenoid (pulsed) EPC	DCC Solenoid (pulsed) Lockup
1st	OFF	ON	OFF	ON	Select Duty	OFF
2nd	OFF	ON	ON	OFF	Select Duty	ON/OFF*
3rd	OFF	OFF	ON	ON	Select Duty	ON/OFF*
4th	ON	OFF	ON	OFF	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 and 4th Gears.
- ◆ VFS current on CH 7 in monitor mode. VFS current on CH 9 in shift test.
- ◆ See other side for **connector diagram**.
- ◆ Polarity = Common **Positive**
- ◆ Code 422, 423 & 424 automatically changes VFS duty cycle during shifts to control shift harshness. On code 421 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 Ω	32° F
7.3K - 8.9K Ω	68° F
3.4K - 4.2K Ω	104° F
1.9K - 2.2K Ω	140° F
1.0K - 1.2K Ω	176° F
0.57K - 0.69K Ω	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	Not Used on F5A VFS	Channel 6	4
11	Pink	L/R Solenoid	Channel 3	5
12	Dark Green	OD Solenoid	Channel 2	8