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INTRODUCTION

MITSUBISHI F5A5A (F5A51) & HYUNDIA/KIA A5GF1, A5HF1 (F5A51)

This is a five speed, Front Wheel Drive transaxle, with fully electronic controls for the upshifts and downshifts, with 5th gear being overdrive. The individual gear ratios are achieved through three planetary gear sets. The components of the planetary gear sets are driven or held by means of four multi-plate drive clutch packs, two multi-plate brake clutch packs, one reduction brake band and two one way clutches.

To minimize fuel consumption, the torque converter clutch is applied by the PCM, depending on throttle position and vehicle speed. These units are currently found in several Mitsubishi models, some Hyundai models and some Kia models, as shown in Figure 1 and 2. The 2007 and later Hyundai models and the 2006 and later Kia models have an added line pressure control solenoid, along with a revised shift solenoid application.

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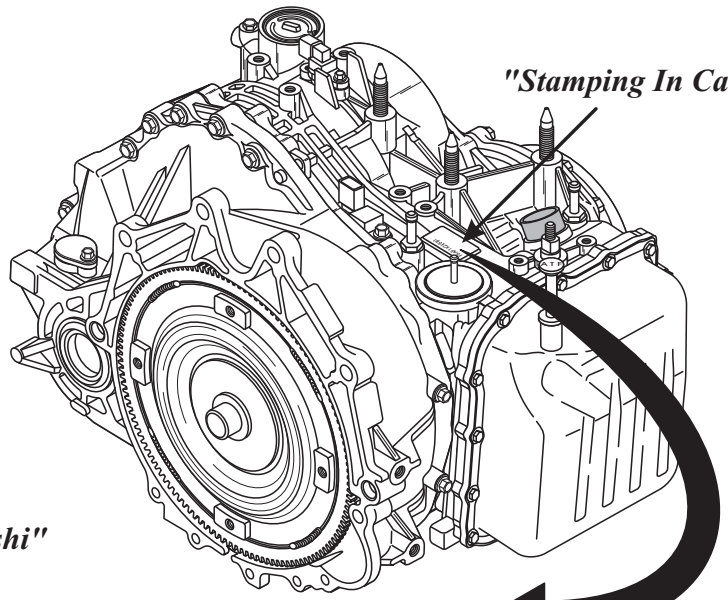
IDENTIFICATION CODE STAMPING LOCATION



"Mitsubishi"

F 5 A 51 K 2 E 5 B 1

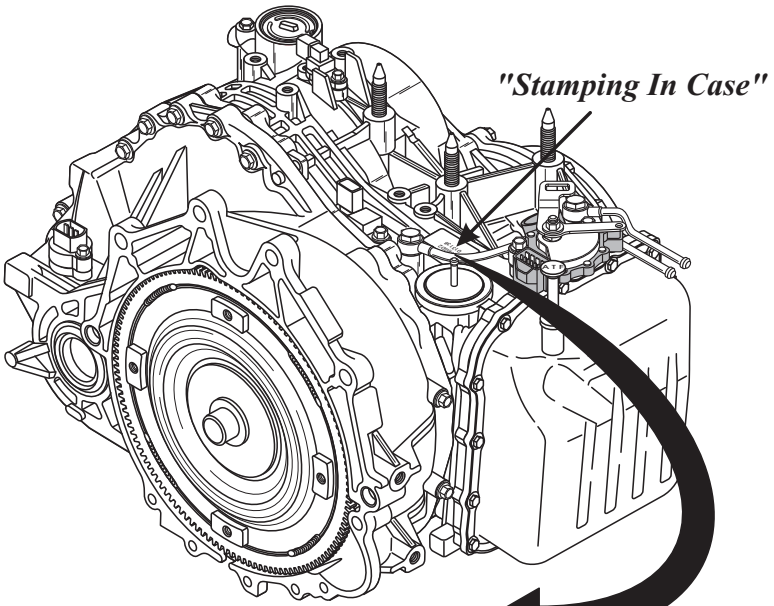
Drive Axle
- F = Front Wheel Drive
- R = Rear Wheel Drive

Forward Speeds
- 4 = Four Speeds
- 5 = Five Speeds

Transmission Type
- A = Automatic
- M = Manual

Trans Capacity
- 42 = Standard Duty
- 51 = Heavy Duty

Manufacturing Plant
- K = Kyoto Works (Not always stamped)



"Hyundai/Kia"

U 5 K BD □ 0 0 0 0 0 1

1 2 3 4 5 6

1 Model, U = A5HF1, Q = A5GF1
2 Production Year, 5 = 2005, 6 = 2006
3 FD Ratio, K = 3.333
4 Classification,
5 Spare,
6 Serial Number, 000001 - 999999

A5HF1 = 7 Solenoid Valve Body (Line Pressure Solenoid)
A5GF1 = 6 Solenoid Valve Body (No Line Pressure Solenoid)

Figure 1

GENERAL DESCRIPTION

This is a five speed, Front Wheel Drive transaxle, with fully electronic controls for the upshifts and downshifts, and is a re-designed F4A51 with an added planetary, reduction sprag, direct clutch pack, and reduction brake band.

The individual gear ratios are now achieved through three planetary gear sets, and there are three different planetary gear ratios. Refer to the individual component application charts (Figure 4 and 5) for the gear ratios. The components of the planetary gear sets are driven or held by means of four multi-plate drive clutch packs, two multi-plate brake clutch packs, one reduction brake band and two one way clutches (sprags). Refer to Figure 3 for the internal component locations.

To minimize fuel consumption, the torque converter clutch is applied by the Powertrain Control Module (PCM), depending on throttle position, transaxle temperature, and vehicle speed. These units are currently found in several Mitsubishi models, and referred to as the "F5A5A" in Mitsubishi.

It is also found in some Hyundai and Kia models, and they both refer to it as the "A5HF1", and this version operates much differently than the Mitsubishi models.

Refer to Figure 1 for identification tag information and Figure 2 for vehicle application chart.

GENERAL OPERATION

Mitsubishi, Pre-07 Hyundai, Pre-2006 Kia Operation

The Mitsubishi version uses the basic 4 speed valve body with an added solenoid to control the reduction band, so it now has six solenoids instead of five. The Low/Reverse solenoid is now a double duty solenoid and is used to also apply the added direct clutch pack, based on position of the switch valve in valve body.

The valve body has an added control valve for the reduction band and an added Fail-safe "C" valve.

The component and the solenoid application charts for Mitsubishi, Pre-07 Hyundai and Pre-06 Kia models are found in Figure 4.

2007-Up Hyundia, 2006-Up Kia Operation

The later Hyundai and Kia version uses the same six solenoid valve body as the earlier models ***except,*** it has an additional solenoid, (Total of 7), used strictly to control line pressure. The Low/Reverse solenoid is still a double duty solenoid and is used to apply the added direct clutch pack, based on the position of the switch valve in the valve body.

However, the 2007-Up Hyundai and 2006-Up Kia internal component and solenoid applications are different than the earlier version. The component and solenoid application charts for the 2007-Up Hyundai and 2006-Up Kia are found in Figure 5.

MITSUBISHI VEHICLE APPLICATION CHART			
YEAR	***MODEL***	***ENGINE***	***TRANSAXLE***
2000-2001	*Diamante*	*V6-2.5L*	*F5A5A (F5A51)*
2006-2008	*Eclipse*	*V6-3.8L*	*F5A5A (F5A51)*
2006-2009	*Galant*	*V6-3.8L*	*F5A5A (F5A51)*
HYUNDAI VEHICLE APPLICATION CHART			
2007-2010	*Sonata*	*V6-3.3L,*	*A5HF1 (F5A51)*
2007-2010	*Santa Fe*	*V6-3.3L, 3.5L*	*A5HF1 (F5A51)*
2007-2011	*Azera*	*V6-3.3L, 3.5L*	*A5HF1 (F5A51)*
2007-2011	*Entourage*	*V6-3.3L, 3.5L*	*A5HF1 (F5A51)*
KIA VEHICLE APPLICATION CHART			
2006-2009	*Amanti*	*V6-3.5L, 3.8L*	*A5HF1 (F5A51)*
2006-2011	*Sedona*	*V6-3.5L, 3.8L*	*A5HF1 (F5A51)*
2009-2011	*Sorento*	*L4-2.2L*	*A5HF1 (F5A51)*

Figure 2

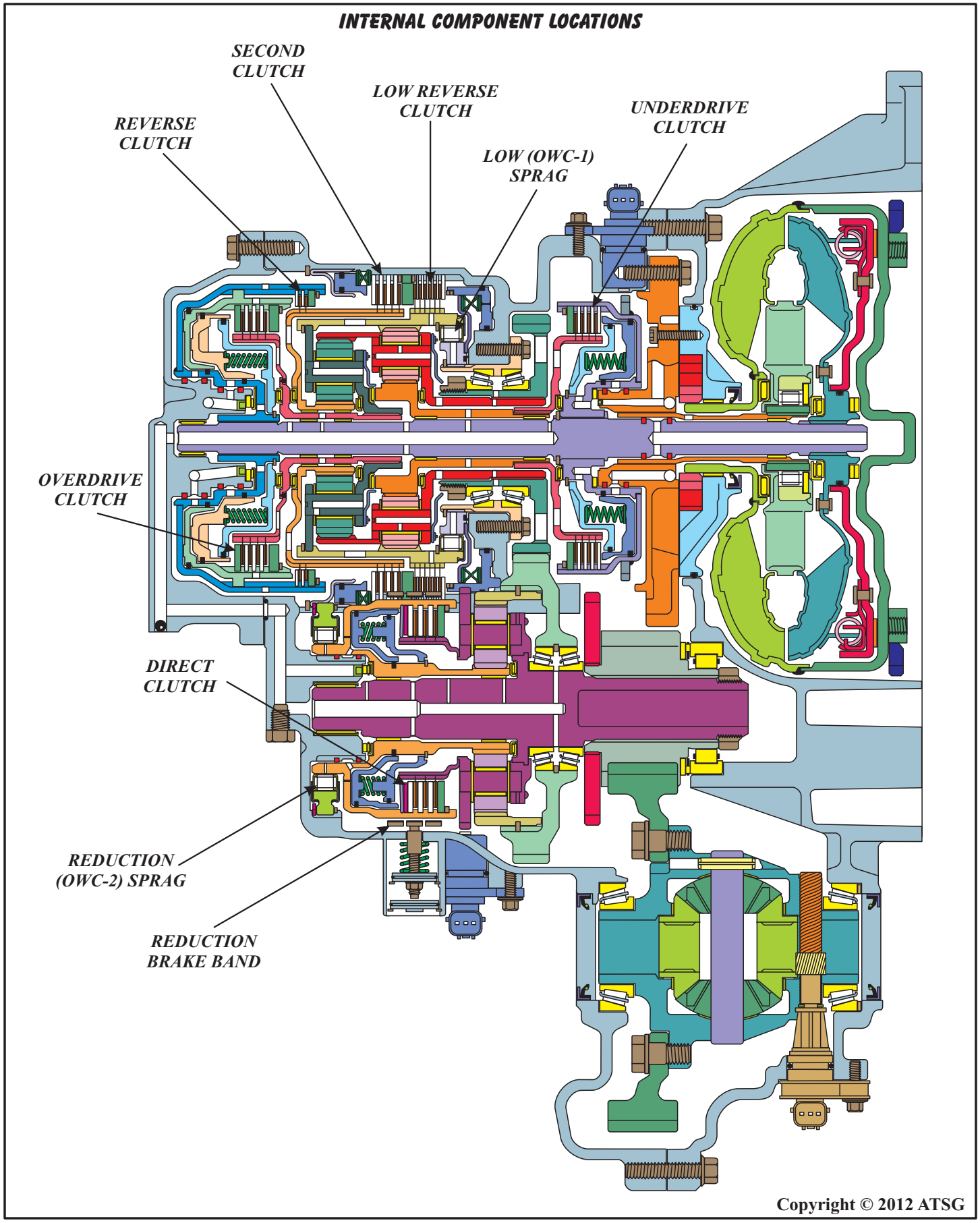


Figure 3

"MITSUBISHI, PRE-2007 HYUNDAI, PRE-2006 KIA ONLY"
INTERNAL COMPONENT APPLICATION CHART

Gear Range	Reverse Clutch	Underdrive Clutch	2nd Clutch	Overdrive Clutch	Low/Rev Clutch	Direct Clutch	Reduct Band	Low (OWC-1) Sprag	Reduct (OWC-2) Sprag	TCC	Gear Ratio Mitsubishi
Park					ON		ON				
Reverse	ON				ON		ON				3.117
Neutral					ON		ON				
Dr-1st		ON			ON*		ON	HOLD	HOLD		3.789
Dr-2nd		ON	ON				ON		HOLD		2.162
Dr-3rd		ON		ON			ON		HOLD		1.421
Dr-4th		ON		ON		ON				ON**	1.000
Dr-5th			ON	ON		ON				ON**	0.686

Final Drive Ratio 3.325

* Low/Reverse clutch is applied below 6 mph, released above 6 mph.

** TCC dependant on throttle position, temperature and vehicle speed.

Note: Reverse Clutch is applied with fluid pressure from the manual valve.

Note: (OWC = One Way Clutch)..

FLUID REQUIREMENTS
Mitsubishi Diamond SP III

"MITSUBISHI, PRE-2007 HYUNDAI, PRE-2006 KIA ONLY"
SOLENOID APPLICATION CHART

Gear Range	U.D. Sol	2nd Sol	O.D. Sol	TCC Sol	L/R-Dir. Sol***	RED. Sol
Park	ON	ON	ON	OFF	OFF	OFF
Reverse	ON	ON	ON	OFF	OFF	OFF
Neutral	ON	ON	ON	OFF	OFF	OFF
Dr-1st	OFF	ON	ON	OFF	OFF*	OFF
Dr-2nd	OFF	OFF	ON	OFF	ON	OFF
Dr-3rd	OFF	ON	OFF	OFF	ON	OFF
Dr-4th	OFF	ON	OFF	ON**	OFF	ON
Dr-5th	ON	OFF	OFF	ON**	OFF	ON

* Low/Reverse clutch is applied below 6 mph, and released above 6 mph.

** Torque Converter Clutch (TCC) dependant on throttle position, temperature and vehicle speed.

*** Low/Reverse Clutch or Direct Clutch depending on switch valve position.

Solenoid ON = Energized
Solenoid OFF = De-Energized

Failsafe: Two failsafe strategies are available, 2nd gear and 3rd gear.
Should all solenoids be turned Off (i.e. electrical failure), 3rd gear will be the result.
2nd gear failsafe "may" be commanded by the TCM, energizing the appropriate solenoids. Reverse always available.

Figure 4