Acura-Honda Automotive Transmission Troubleshooter and Reference

A reference and pictorial guide for automotive transmissions

(Including all major Acura and Honda Model Transmissions)

By MANDY CONCEPCION

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By Mandy Concepcion

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This book is based on the "Automotive Transmission Troubleshooter" software by the same author. All similarities to this software package are intended. Both of these products are copyrighted by the author, Mandy Concepcion.

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Preface

This book is based on the "Automotive Transmission Troubleshooter" software by the same author. All similarities to this software package are intended. Both of these products are copyrighted by the author, Mandy Concepcion.

The beginnings of this book came about after the development of the "Transmission Troubleshooter" software package, which eventually became part of the "TransDoctor" PC based diagnostic equipment. Both of these related products, although meant for the professional side of the industry, left behind a huge arsenal of data that matched perfectly with the needs of the average consumer, DIY and mechanic aficionado. We assumed that his information, so far as the general public was concerned, did not necessitated to be part of a broad software package and therefore could be offered at a lower cost to the people. This book covers automotive Transmission diagnostics and electronic repair for Honda vehicles. The information was amassed during years of field work and research in the automotive industry. For this reason, the information is presented in a direct, hands on approach and skips the basic operation of automotive transmissions. If you're trying to discern the basics of automotive automatic transmissions, then there are other works that could help you do that. This book is meant to be used during real-life repair situations and it exposes you to exactly what you need to know to solve or get an in-depth knowledge of a specific problem. Various concepts are covered such as Transmission DTCs or trouble codes, Transmission ID, shift solenoid locations, component locations, electrical and wiring diagrams and finally measurement values for voltage and resistance. We hope you enjoy reading this work to gain knowledge and solve specific problem. So, without further ado, enjoy…

About the author:

Mandy Concepcion has worked in the automotive field for over 21 years. He holds an Associates Degree in Applied Electronics Engineering as well as an ASE L1 certification. For the past 12 years he has been exclusively involved in the diagnosis of all the different electronic systems found in today’s vehicles. It is here where he draws extensive practical knowledge from his experience and hopes to convey it in this book.

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Transmissions Component Operation for transmissions: 4L30E, B7TA/B7YA, BAXA, BGRA, BMXA/SLXA, BYBA/BVGA, BZKA/MZKA, M5HA/M5DA, M6HA, M7WA/MGFA, MCVA/MRVA, MDKA/BDKA, MGHA, MKYA, MP1A)

Transmission Oil Pan (ID) Identification for transmissions: 4L30E, B7TA/B7YA, BAXA, BGRA, BMXA/SLXA, BYBA/BVGA, BZKA/MZKA, M5HA/M5DA, M6HA, M7WA/MGFA, MCVA/MRVA, MDKA/BDKA, MGHA, MKYA, MP1A)

Shift Solenoids and Electrical Component Testing - Shift Solenoids, TCC Solenoid, Pressure Control Solenoid (EPC), TPS, TCM Test, Pressure Switches for transmissions: 4L30E, B7TA/B7YA, BAXA, BGRA, BMXA/SLXA, BYBA/BVGA, BZKA/MZKA, M5HA/M5DA, M6HA, M7WA/MGFA, MCVA/MRVA, MDKA/BDKA, MGHA, MKYA, MP1A)

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Section: Generic OBD-2 Transmission DTC (code) Listing

The Generic OBD-2 system has a wealth of information when it comes to diagnosing modern transmission. OBD-2 was implemented on 1996 and newer vehicles. In most cases, the OBD-2 DTC will shed specific information about the problem that you won't find even if you posses a factory scan tool. Certain code descriptions, such as - circuit malfunction, circuit high or circuit low is a direct response to the issue from the ECM. This means that the ECM came up with these codes after extensive testing and in no way point to a mechanical problem. When presented with these DTCs, your issue is not mechanical and efforts should be deferred elsewhere.

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P2770 Torque converter clutch (TCC), circuit high

P2771 Four wheel drive, low gear ratio switch, circuit malfunction

P2772 Four wheel drive, low gear ratio switch, range/performance

P2773 Four wheel drive, low gear ratio switch, circuit low

P2114 Four wheel drive, tow gear ratio switch, circuit high

P2175 Transmission gear selection switch, up shift, range/performance

P2776 Transmission gear selection switch, up shift, circuit low

P2777 Transmission gear selection switch, up shift, circuit high

P2778 Transmission gear selection switch, up shift, circuit intermittent/erratic

P2779 Transmission gear selection switch, downshift, range/performance

P2780 Transmission gear selection switch, downshift, circuit low

P2781 Transmission gear selection switch, downshift, circuit high

P2782 Transmission gear selection switch, downshift, circuit intermittent/erratic

P2783 Torque converter, temperature too high

P2784 Transmission input shaft speed sensor/turbine shaft speed (TSS) sensor A/B, correlation

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P2785 Clutch actuator, temperature too high

P2786 Gear shift actuator, temperature too high

P2787 Clutch, temperature too high or Clutch slipping

P2788 Auto shift manual (ASM) transmission, adaptive learning at limit

P2789 Clutch, adaptive learning at limit

P2790 Gate select direction, circuit malfunction

P2791 Gate select direction, circuit low or Wiring short to ground

P2792 Gate select direction, circuit high or Wiring short to positive

P2793 Gear shift direction, circuit malfunction

P2794 Gear shift direction, circuit low or Wiring short to ground

P2795 Gear shift direction, circuit high or Wiring short to positive

OBD-2 is an evolving system and as newer technologies come on line more Transmission specific DTCs will be implemented.

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Section: Acura/Honda Transmission Specific DTC (code) Listing

In the following listing some models are given two codes, a blink code and the scan tool retrieved code. The blink code is acquired through a specific procedure or by simply watching the over-drive light blink a number (usually a two digit code).

ACURA INTEGRA 1.8L (96-01)

70 P1660 AT to ECM — signal failure

70 P1705 AT — gear shift malfunction

70 P1705 AT — lock-up clutch not engaging

70 P1706 AT — gear shift malfunction

70 P1706 AT — lock-up clutch malfunction

70 P1753 AT — lock-up clutch not engaging and disengaging

70 P1158 AT — lock-up clutch not engaging

70 P1786 AT — poor gear shift

70 P1790 AT — lock-up clutch not engaging

70 P1791 AT — lock-up clutch not engaging

70 P1792 AT — lock-up clutch not engaging

70 P1794 Automatic transmission — BARO signal

3.2CL, MDX 3.5L, RSX 2.OL

70 P1660 AT to ECM — signal failure

70 P1105 AT — gear shift malfunction

70 P1705 AT — lock-up clutch not engaging

70 P1706 AT — gear shift malfunction

70 P1706 AT — lock-up clutch malfunction

70 P1709 AT — gear selection malfunction

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70 P1710 AT — 1st gear hold switch

70 P1717 AT — gear selection malfunction

70 P1739 AT — 3rd clutch pressure switch

70 P1740 AT — 4th clutch pressure switch

70 P1750 AT — hydraulic system mechanical malfunction

70 P1751 AT — hydraulic system mechanical malfunction

70 P1753 AT — lock-up clutch not engaging/disengaging

70 P1758 AT — lock-up clutch not engaging

70 P1768 Shift solenoid (SS) A

70 P1773 Shift solenoid (SS) B

70 P1778 Shift solenoid (SS) C

70 P1786 AT — poor gear shift

70 P1790 AT — lock-up clutch not engaging

70 P1791 AT — lock-up clutch not engaging

70 P1792 AT — lock-up clutch not engaging

70 P1794 Automatic transmission — BARO signal

NSX-T 3.OL and 3.2L Engine

70 P1705 AT — gear shift malfunction

70 P1706 AT — gear shift malfunction

70 P1706 AT — lock-up clutch malfunction

70 P1709 AT — gear selection malfunction

70 P1753 AT — lock-up clutch not engaging/disengaging

70 P1758 AT — lock-up clutch not engaging

70 P1768 AT — poor gear shift

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70 P1768 AT — lock-up clutch not engaging

70 P1788 AT — poor gear shift

70 P1790 AT — lock-up clutch not engaging

70 P1791 AT — lock-up clutch not engaging

70 P1792 AT — lock-up clutch not engaging

70 P1793 Automatic transmission

70 P1795 Automatic transmission

SLX 3.2L and SLX 3.5L

P1790 AT — engine control module (ECM) or ECM/Programming

P1792 AT — engine control module (ECM) or ECM/Programming

P1835 AT — kick-down switch always ON

P1850 AT — brake band solenoid

P1860 AT — torque converter clutch (TCC) solenoid

P1870 Transmission slipping

P1730 AT — gear shift malfunction

P1731 AT — gear shift malfunction

P1732 AT — gear shift malfunction

P1733 AT — gear shift malfunction

P1734 AT — gear shift malfunction

2.2CL and 2.3CL

70 P1705 AT — gear shift malfunction

70 P1705 AT — lock-up clutch not engaging

70 P1706 AT — gear shift malfunction

70 P1706 AT — lock-up clutch malfunction

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70 P1738 Automatic transmission

70 P1739 Automatic transmission

70 P1753 AT — lock-up clutch not engaging/disengaging

70 P1753 AT — no gear shift

70 P1758 AT — no gear shift

70 P1768 AT — no gear shift

70 P1773 AT — poor gear shift

70 P1773 AT — lock-up clutch not engaging

70 P1791 AT — lock-up clutch not engaging

2.5TL

70 P1660 AT to 1CM — data line failure

70 P1705 AT — gear shift malfunction

70 P1705 AT — lock-up clutch not engaging

70 P1706 AT — gear shift malfunction

10 P1706 AT — lock-up clutch malfunction

70 P1753 AT — lock-up clutch not engaging/disengaging

70 P1758 AT — no gear shift

70 P1768 AT — no gear shift

70 P1768 AT — lock-up clutch not engaging

70 P1786 AT — poor gear shift

70 P1787 AT — lock-up clutch malfunction

70 P1790 AT — lock-up clutch not engaging

70 P1791 AT — lock-up clutch not engaging

70 P1192 AT — lock-up clutch not engaging

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70 P1794 Automatic transmission — BARO signal

3.OCL

70 P1705 AT — gear shift malfunction

70 P1705 AT — lock-up dutch not engaging

70 P1706 AT — gear shift malfunction

70 P1706 AT — lock-up clutch malfunction

70 P1738 Automatic transmission

70 P1739 Automatic transmission

70 P1753 AT — lock-up clutch not engaging/disengaging

70 P1768 AT — no gear shift

70 P1773 AT — poor gear shift

70 P1790 AT — lock-up clutch not engaging

70 P1791 AT — lock-up clutch not engaging

3.2TL and 3.5RL

70 P1705 AT — gear shift malfunction

70 p1705 AT — lock-up clutch not engaging

70 P1706 AT — gear shift malfunction

70 P1706 AT — lock-up clutch malfunction

70 P1709 AT — range position switch

70 P1710 AT — 1st gear hold switch

70 P1739 AT — 3rd clutch pressure switch

70 P1740 AT — 4th clutch pressure switch

70 P1750 AT — hydraulic system mechanical malfunction

70 P1751 AT — hydraulic system mechanical malfunction

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70 P1753 AT — lock-up clutch not engaging/disengaging

70 P1758 AT — no gear shift

70 P1768 AT — no gear shift

70 P1773 Shift solenoid (SS) B

70 P1778 Shift solenoid (SS) C

70 P1791 AT — lock-up clutch not engaging

Accord 2.2L, Civic del Sol 1.5L SOHC, Civic del Sol 1.6L, Civic del Sol 1.6L DOHC, Odyssey 2.2L

Accord 2.2L. Accord 2.7L, Odyssey 2.2L, Odyssey 2.3L

70 P1705 AT — gear shift malfunction

70 P1705 AT — lock-up clutch not engaging

70 P1706 AT — gear shift malfunction

70 P1706 AT — lock-up clutch malfunction

70 P1738 Automatic transmission — except V6

70 P1739 Automatic transmission — except V6

70 P1753 AT — lock-up dutch not engagingldisengaging

70 P1758 AT — lock-up clutch not engaging

70 P1768 AT — no gear shift — except

70 P1768 AT — poor gear shift — V6

70 P1768 AT — lock-up dutch not engaging — V6

70 P1773 AT — no gear shift — except V6

70 P1773 AT — lock-up clutch not engaging —except V6

70 P1786 AT — poor gear shift — V6

70 P1790 AT — lock-up clutch not engaging — V6

70 P1791 AT — lock-up clutch not engaging — V6

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70 P1792 AT — lock-up clutch not engaging — V6

70 P1794 Automatic transmission — BARO signal

Accord 2.3L, Accord 2.4L, Accord 3.OL, civic l.7L, Civic 2.OL, CR-v 2.4L, Odyssey 3.5L, S2000 2.OL

70 P1705 AT — gear shift malfunction

70 P1705 CVT — gear shift malfunction

70 P1706 Automatic transmission

70 P1706 CVT — gear shift malfunction

70 P1717 AT — gear selection malfunction

70 P1730 AT — gear shift malfunction

70 P1731 AT — gear shift malfunction

70 AT — gear shift malfunction

Accord 2.3L Accord 2.4L, Accord 3.OL, Civic IlL, Civic 2.OL, CR-V 2.41, Odyssey 3.51, S2000 2.01, S2000 2.2L

70 P1733 AT — gear shift malfunction

70 P1734 AT — gear shift malfunction

70 P1738 Automatic transmission

70 P1739 Automatic transmission

70 P1740 AT — 4th clutch pressure switch

70 P1750 AT — hydraulic system mechanical malfunction

70 P1751 AT — hydraulic system mechanical malfunction

70 P1753 AT — lock-up clutch not engaging/disengaging

70 P1753 AT — no gear shift

70 P1768 AT — no gear shift

70 P1768 AT — lock-up clutch not engaging

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70 P1773 AT — no gear shift

70 P1773 AT — lock-up clutch not engaging

70 P1790 AT — lock-up clutch not engaging

70 P1792 AT — lock-up clutch not engaging

70 P1793 Automatic transmission Fault

70 P1870 CVT — poor acceleration

70 P1873 CVT — poor acceleration

70 P1876 CVT — poor acceleration

70 P1877 CVT — poor acceleration

70 P1878 CVT — poor acceleration

70 P1879 CVT — poor acceleration

70 P1880 CVT — poor acceleration

70 P1881 CVT — poor acceleration

70 P1882 Constantly variable transmission (CVT)

70 P1885 CVT — poor acceleration

70 P1886 CVT — poor acceleration

70 P1888 CVT — poor acceleration

70 P1889 CVT — poor acceleration

70 P1890 CVT — poor acceleration Shift control system

70 P1891 CVT — poor acceleration Start clutch control system

70 P1892 CVT — poor acceleration or drive pulley pressurecontrol valve

70 P1893 CVT — poor acceleration or drive pulley pressurecontrol valve

70 P1894 CVT — poor acceleration or drive pulley pressurecontrol valve

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70 P1895 CVT — poor acceleration or drive pulley pressurecontrol valve

70 P1896 CVT — poor acceleration or drive pulley pressurecontrol valve

70 P1897 CVT — poor acceleration or drive pulley pressurecontrol valve

70 P1898 CVT — poor acceleration or drive pulley pressurecontrol valve

70 P1899 CVT — poor acceleration or drive pulley pressurecontrol valve

Civic/del Sol 1.6L

70 P1705 AT — lock-up clutch not engaging/no gearshift

70 P1705 CVT — poor acceleration

70 P1705 AT — gear shift malfunction

70 P1705 AT — lock-up clutch not engaging

70 P1705 CVT — gear shift malfunction

70 P1706 AT — gear shift malfunction

70 P1706 AT — lock-up clutch malfunction

70 P1106 CVT — gear shift malfunction

70 P1753 AT — lock-up clutch not engaging/disengaging

70 P1758 AT — lock-up clutch not engaging

70 P1768 AT — poor/no gear shift

70 P1768 AT — lock-up clutch not engaging

70 P1790 CVT — kick-down malfunction

70 P1790 CVT — gear shift malfunction

70 P1791 Constantly variable transmission (CVT)

70 P1793 Constantly variable transmission (CVT)

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70 P1870 CVT — poor acceleration

70 P1873 CVT — poor acceleration

70 P1879 CVT — poor acceleration

70 P1882 Constantly variable transmission (CVT)

70 P1885 CVT — poor acceleration

70 P1886 CVT — poor acceleration

70 P1888 CVT — poor acceleration

70 P1890/P1891 CVT — poor acceleration

CR-V

70 P1705 AT — gear shift malfunction

70 P1705 AT — lock-up clutch not engaging

70 P1706 AT — gear shift malfunction

70 P1706 AT — lock-up clutch malfunction

70 P1753 AT — lock-up clutch not engaging/disengaging

70 P1758 AT — lock-up clutch not engaging

70 P1768 AT — poor gear shift

70 P1768 AT — lock-up clutch not engaging

Element 2.4L

P1731 AT — gear shift malfunction

P1732 AT — gear shift malfunction

P1735 AT — gear shift malfunction

P1736 AT — gear shift malfunction

Passport 2.6L, 3.2L (Isuzu)

P1790 Engine control module (ECM) — AT ROM checksum error

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P1792 AT — AT EEPROM checksum error or ECM/Programming

P1835 AT — kick-down switch

P1850 AT — brake band solenoid malfunction

P1860 AT — torque converter clutch (TCC) solenoidcircuit

P1870 AT — component slipping

Pilot 3.5L

70 P1705 AT — gear shift malfunction

70 P1706 AT — gear shift malfunction

70 P1739 AT — 3rd clutch pressure switch

70 P1740 AT — 4th clutch pressure switch

70 P1750 AT — hydraulic system mechanical malfunction

70 P1751 AT — hydraulic system mechanical malfunction

Prelude 2.2L and Prelude 2.3L

30 P1655 AT — signal failure

70 — AT — lock-up clutch not engaging/no gearshift

70 P1705 AT — gear shift malfunction

70 P1705 AT — lock-up clutch not engaging

70 P1706 AT — gear shift malfunction

70 P1706 AT — lock-up clutch malfunction

70 P1709 AT — Sport shift mode malfunction

70 P1738 General Automatic transmission fault

70 P1753 AT — lock-up clutch not engaging

70 P1753 AT — no gear shift

70 P1768 AT — no gear shift

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70 P1773 AT — no gear shift

70 P1790 AT — lock-up clutch not engaging

70 P1791 AT — lock-up clutch not engaging

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Section: Acura/Honda Transmission Application

M5HA/M5DA - (1995-2005) 3.2TL, 3.5RL

M7WA/MGFA/ - (2000-06) 3.2TL, CL

MGHA - (2000-02) MDX-SUV

MDKA/BDKA - (2003-up) MDX-SUV

BAXA - (97-2002) Accord, Odyssey

MP1A - (1991-02) Prelude, Civic

M6HA - (1997-2004) Prelude, Civic

BMXA/SLXA - (2000-05) Civic

B7TA/B7YA - (1999-2000) Odyssey, Accord V-6

BYBA/BVGA - (2000-04) Odyssey, Pilot, Ridgeline

BGRA - (2005-up) Odyssey, Pilot, Ridgeline

BZKA/MZKA - (2003-up) Element

MCVA/MRVA - (2001-2004) CRV

MKYA/GPLA/MKZA/GPPA - (2004-up) CRV

4L30-E - (1996-2002) Honda-Passport, SLX

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Section: Acura/Honda Transmissions Component Operation

IMPORTANT FACTS ABOUT ACURA AND HONDA TRANSMISSIONS

All HONDA/ACURA transmissions have a natural gear position. This is the normal hydraulic fluid path when the transmission solenoids are all OFF or without power. This is also the Limp-in Mode gear or the shift gear that the vehicle stays in whenever there's a major fault present. This fact automatically tells you that in the event that the trans is stuck in limp-in mode, usually 2nd or 3rd gear, then most likely culprit is a blown main feed fuse. Then you have to find out what caused the fuse to burn originally. A clue to this type of fault in when the TCM or PCM has issued a faulty code for all solenoids. This usually points to the main fuse and a possible short circuit that caused the fuse to go out.

So always remember that all transmissions have a natural gear when all power is off or the main connector is disconnected. There are other reasons why the transmission TCM is stuck in limp-in mode. This could also be due to a faulty TPS, open solenoid, faulty TCM, or any other electrical fault. On newer systems, the TCM is also using the WSS or wheel speed sensor to decide when to shift the transmission.

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GENERAL OPERATION and DESCRIPTION

Honda's automatic transmissions are unusual in that they do not use planetary gears like nearly all other makers. Instead, the Hondamatic and its successors use traditional sliding gears in parallel like a manual transmission. Honda was forced to invent their new system due to the vast array of patents on automatic transmission technology held by Borg-Warner and others.

Honda initially chose to integrate the transmission and engine block for its first application (in the N360) as in the Mini. The Hondamatic incorporated a lockup function, which Honda called a third ratio, and had manual gear selection. The company's early transmissions also used a patented torque converter which used stator force rather than hydraulic controls for shifting.

The company's naming scheme is also confusing, as it is specific to a single model of vehicle and some identifiers are reused.

DESCRIPTION

The automatic transmission is a 3-element torque converter and a dual-shaft electronically controlled unit which provides 4 or 5 speeds forward and 1 reverse. The torque converter consists of a pump, turbine and stator, assembled in a single unit. They are connected to the engine crankshaft so they turn together as a unit as the engine turns. Around the outside of the torque converter is a ring gear which meshes with the starter pinion when the engine is being started. The entire torque converter assembly serves as a flywheel while transmitting power to the transmission main shaft. The transmission has two parallel shafts: the main shaft and the countershaft. The main shaft is in line with the engine crankshaft. The main shaft is also the same as the input shaft and linked to the ISS. The main shaft includes the 1st, 2nd and 4th clutches, gears for 2nd, 4th, reverse and 1st (3rd gear is integral with the main shaft, while the reverse gear is integral with the 4th gear). The countershaft includes the 3rd clutch, and gears for 3rd, 2nd, 4th, reverse, 1st and park. The gears on the main shaft are in constant mesh with those on the counter shaft. When certain combinations of gears in transmission are engaged by clutches, power is transmitted from the main shaft to the countershaft to provide [2], [D3],[D4] and [R] positions.

Electronic Control

The electronic control system consists of the Powertrain Control Module (PCM), sensors, a linear solenoid and four solenoid valves. Shifting and lock-up are electronically controlled for comfortable driving under all conditions. The PCM is located below the dashboard, under the front lower panel on the passenger's side or under the carpet. Often times, the TCM gets damaged by fluid or water from the AC evaporator core or soft drinks. All shift solenoids are usually placed on the outside, when it comes to Honda/Acura transmissions.

Hydraulic Control

The valve bodies include the main valve body, the secondary valve body, the regulator valve body, the servo body and the lock-up valve body through the respective separator plates.

On some units the solenoids are placed on the actual valve body. as in other normal transmissions. Use the same repair procedures. The main valve body contains the manual valve, the 1-2 shift valve, the 2nd orifice control valve, the CPB (Clutch Pressure Back-up) valve, the modulator valve, the servo control valve, the relief valve, and ATF pump gears. The secondary valve body contains the 2-3 shift valve, the 3-4 shift valve, the 3-4 orifice control valve, the 4th exhaust valve

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and the Clutch Pressure Control (CPC) valve. The regulator valve body contains the pressure regulator valve, the torque converter check valve, the cooler relief valve, and the lock-up control valve. The servo body contains the servo valve which is integrated with the reverse shift fork, and the accumulators. The lock-up valve body contains the lock-up shift valve and the lock-up timing valve. The linear solenoid and the shift control solenoid valve A/B are bolted on the outside of the transmission housing, and the lock-up control solenoid valve A/B is bolted on the outside of the torque converter housing. Fluid from regulator passes through the manual valve to the various control valves. The clutches receive fluid from their respective feed pipes or internal hydraulic circuit.

Shift Control Mechanism

Input from various sensors located throughout the car determines which shift control solenoid valve the Powertrain Control Module (PCM) will activate. Activating a shift control solenoid valve changes modulator pressure, causing a shift valve to move. This pressurizes a line to one of the clutches, engaging that clutch and its corresponding gear. The shift control solenoid valves A and B are controlled by the PCM.

Lock-up Mechanism

In [D4] position, in 3rd and 4th, and in [D3] position in 3rd, pressurized fluid is drained from the back of the torque converter through a fluid passage, causing the lock-up piston to be held against the torque converter cover. As this takes place, the mainshaft rotates at the same as the engine crankshaft. Together with hydraulic control, the PCM optimizes the timing of the lock-up mechanism. The lock-up valves control the range of lock-up according to lock-up control solenoid valves A and B, and linear solenoid. When lock-up control solenoid valves A and B activate, the modulator pressure changes. The lockup control solenoid valves A and B and the linear solenoid are controlled by the Powertrain Control Module (PCM) .

DESCRIPTION AND OPERATION

The electronic control system consists of a Powertrain Control Module (PCM), sensors, a linear solenoid and four solenoid valves. Shifting and lock-up are electronically controlled for comfortable driving under all conditions. The PCM is located below the dashboard, under the front lower panel on the passenger's side.

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Shift Control

The PCM instantaneously determines which gear should be selected by various signals sent from sensors, and actuates the shift control solenoid valves A and B to control shifting. Also, a Grade Logic Control System has been adopted to control shifting in D4 position while the vehicle is ascending or descending a slope, or reducing speed.

Lock-up Control

From sensor input signals, the PCM determines whether to turn the lock-up ON or OFF, and activates lock-up control solenoid valve A and/or B accordingly. The combination of driving signals to lock-up control solenoid valves A and B and the linear solenoid pressure is shown in the table below.

GRADE LOGIC CONTROL SYSTEM

The PCM compares actual driving conditions with driving conditions memorized in the PCM, based on the input from the vehicle speed sensor, the throttle position sensor, the barometric pressure sensor, the engine coolant temperature sensor, the brake switch signal and the shift lever position signal, to control shifting while a vehicle is ascending or descending a slope, or reducing speed. Ascending Control:

When the PCM determines that the vehicle is climbing a hill in position, the system extends the engagement area of 2nd gear and 3rd gear to prevent the transmission from frequently shifting between 2nd and 3rd gears, and between 3rd and 4th gears, so the vehicle can run smooth and have more power when needed. There are two ascending modes with different 3rd gear driving areas according to the magnitude of a gradient stored in the PCM.

The PCM memory contains shift schedules between 2nd and 3rd gears, and between 3rd and 4th gears that enable the PCM's fuzzy logic to automatically select the most suitable gear according to the magnitude of a gradient.

Fuzzy logic is a form of artificial intelligence that lets computers respond to changing conditions much like a human mind would.

When the PCM determines that the vehicle is going down a hill in position, the shift-up speed from 3rd to 4th gear when the throttle is closed becomes faster than the set speed for flat road driving to widen

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the 3rd gear driving area. This, in combination with engine braking from the deceleration lock-up, achieves smooth driving when the vehicle is descending. There are two descending modes with different downshift (4 - 3) schedules according to the magnitude of a gradient stored in the PCM. When the vehicle is in 4th gear, and you are decelerating on a gradual hill, or when you are applying the brakes on a steep hill, the transmission will downshift to 3rd gear. When you accelerate, the transmission will then return to 4th gear.

When the vehicle goes around a corner, and needs to first decelerate and then accelerate, the PCM sets the data for deceleration control to reduce the number of times the transmission shifts. When the vehicle is decelerating from speeds above 26 mph (41 km/h), the PCM shifts the transmission from 4th to 2nd earlier than normal to cope with upcoming acceleration.

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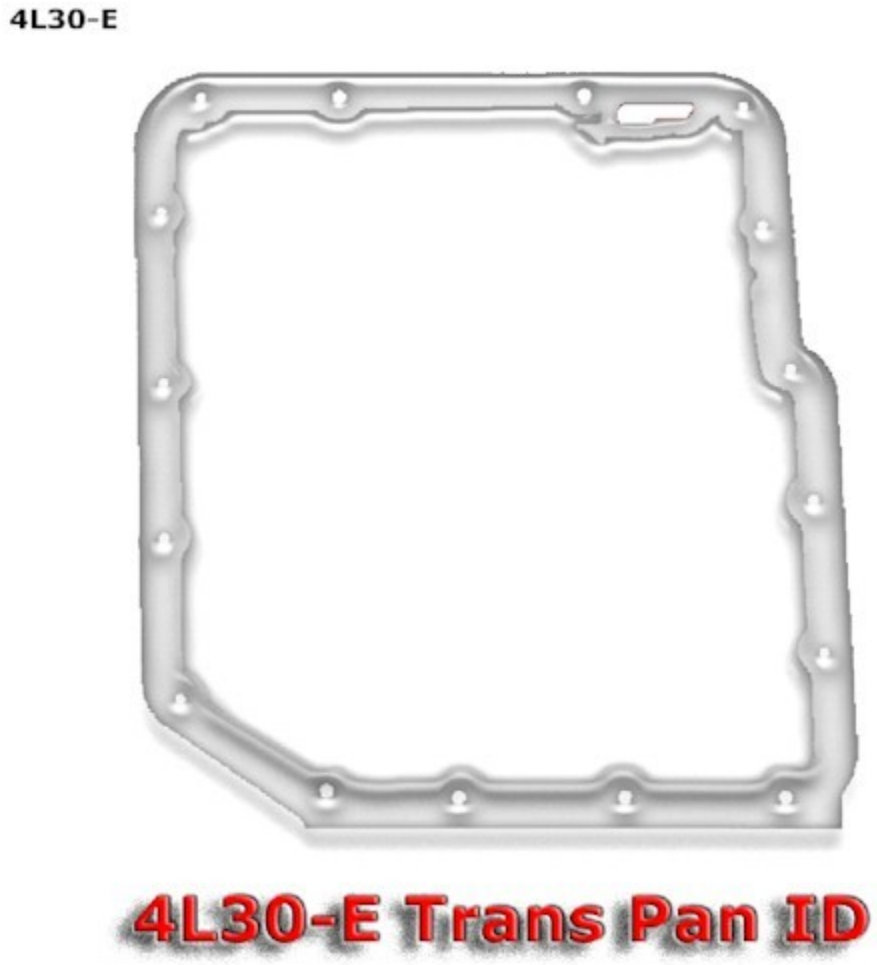
Section: Acura/Honda Transmission Oil Pan (ID) Identification

Honda/Acura transmissions don't have a transmission oil pan. They mostly carry the shift solenoids on the outside of the transmission. For this reason an oil pan is not needed. To get to the valve body the transmission has to be opened or halved completely. To help you identify the transmission here you can reference the different diagrams that have been extracted from actual photographs from the author's photo library.

4L30E



B7TA/B7YA

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BAXA

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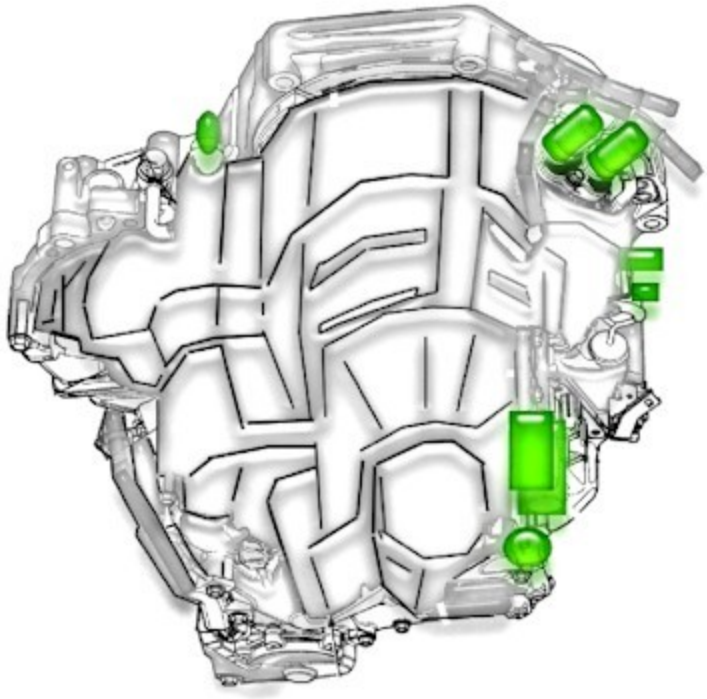
BAXA (97-02 Accord, Odyssey, etc)



BAXA (97-02 Accord, Odyssey) Trans ID

BGRA

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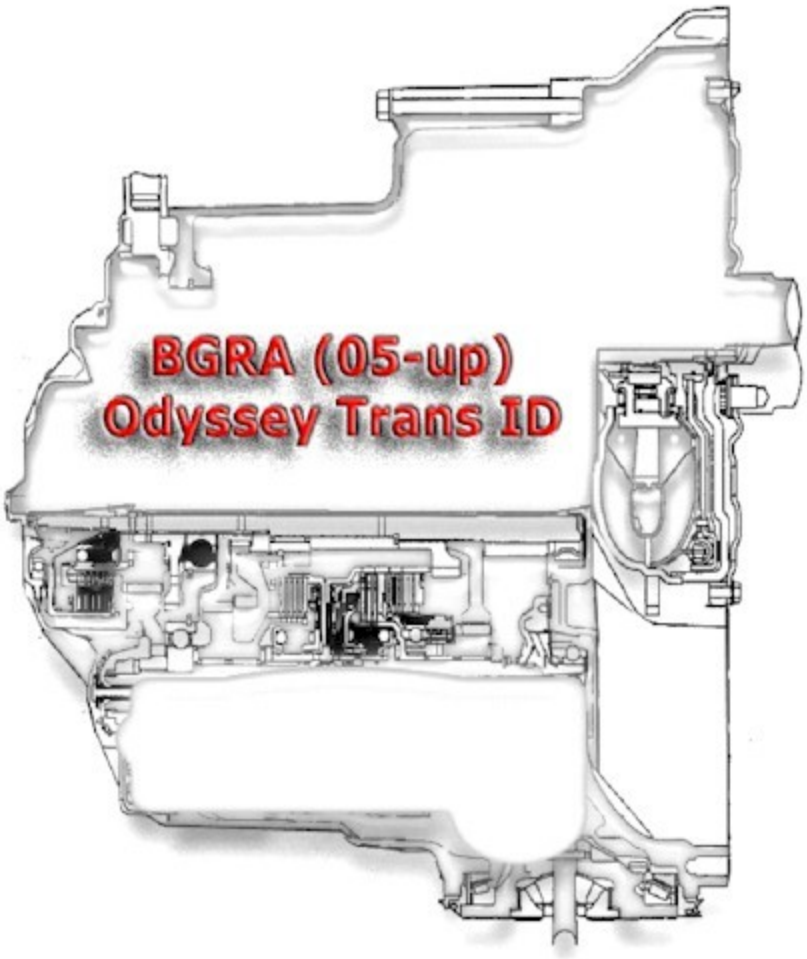

BMXA/SLXA

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BYBA/BVGA

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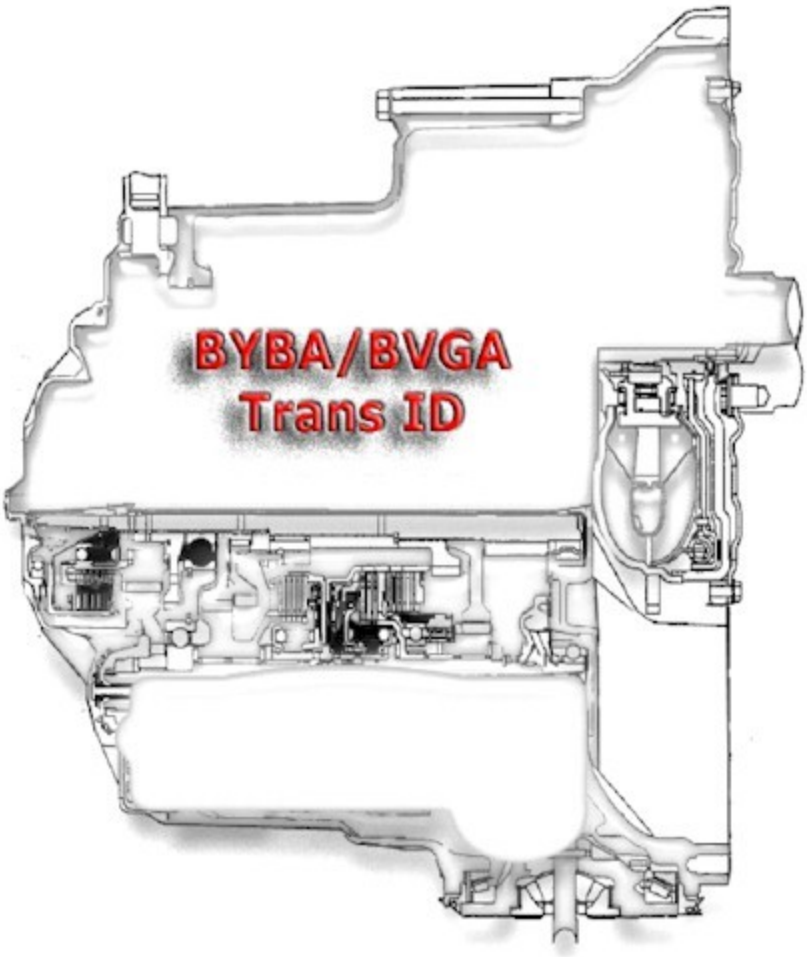

BZKA/MZKA

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M5HA/M5DA

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M6HA

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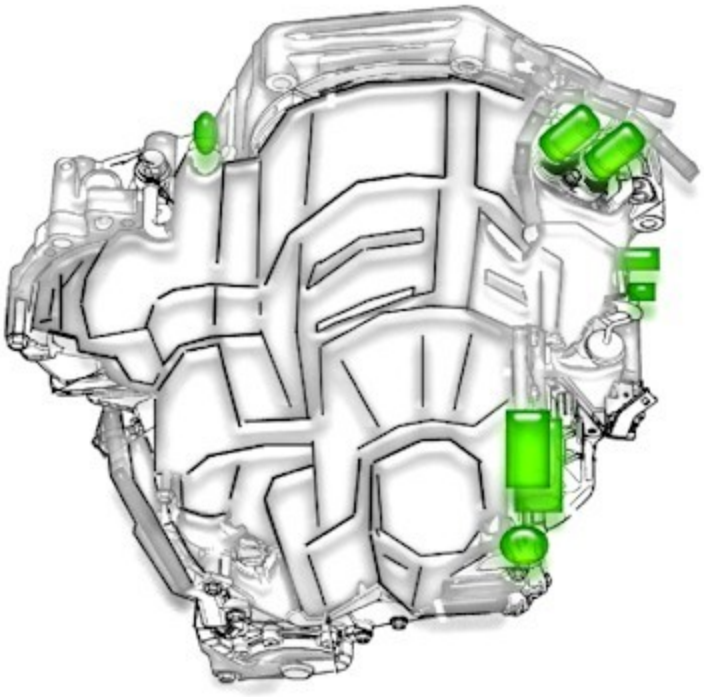

M6HA (97-02 Prelude, Civic) Trans ID

M7WA/MGFA

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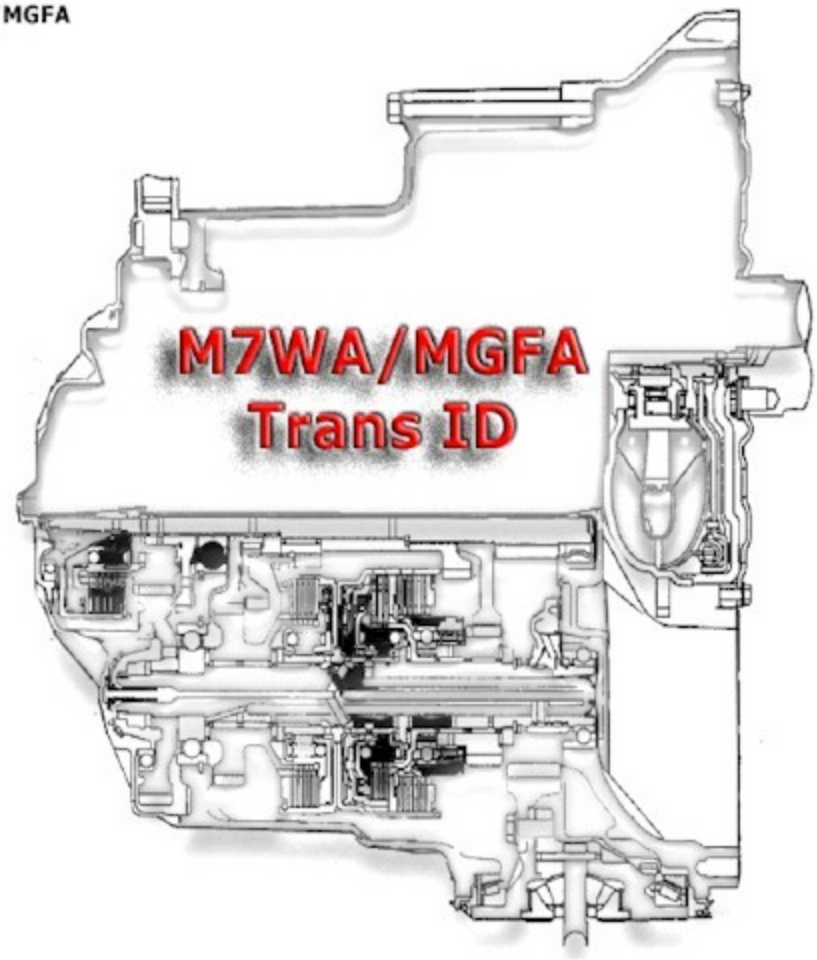
M7WA/MGFA



MCVA/MRVA

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MDKA/BDKA

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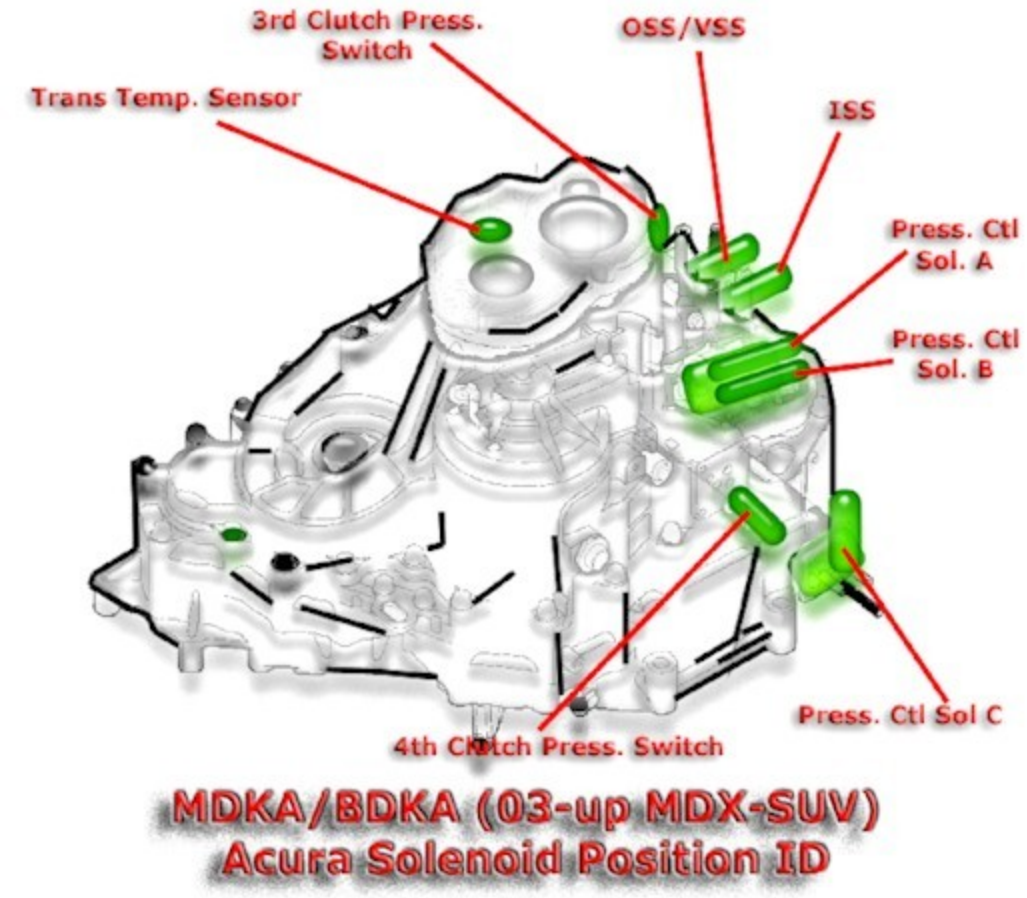
MDKA/BDKA (03-up MDX-SUV)



MGHA

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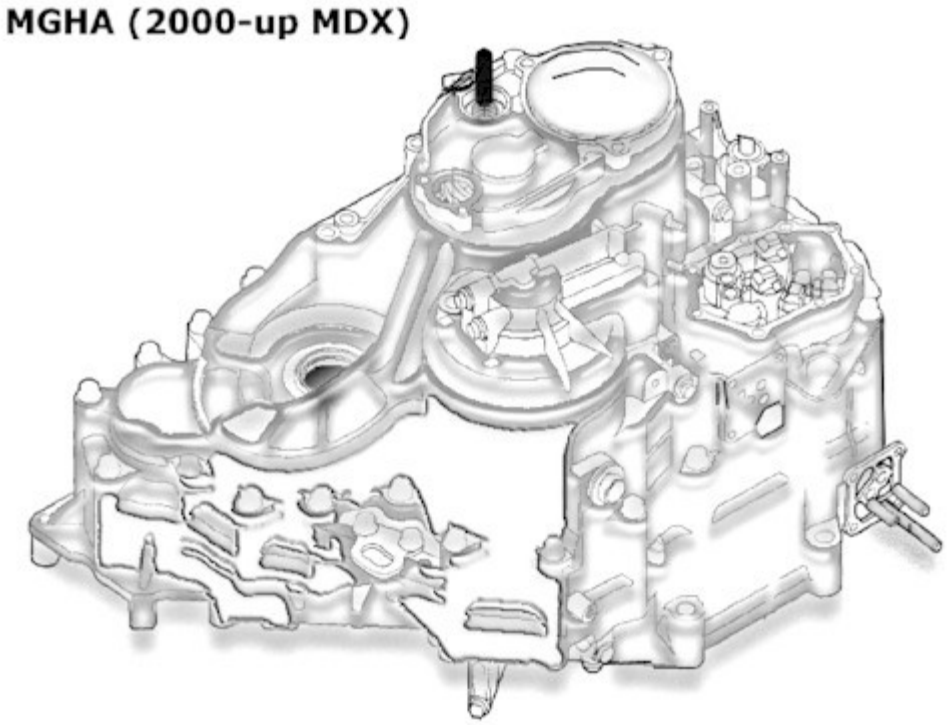

MGHA (2000-up MDX-SUV) Trans ID

MKYA

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MKYA/GPLA/MKZA/GPPA (03-up CR-V)

MKYA/GPLA/MKZA/GPPA
Honda CR-V (03-up) Trans ID

MP1A

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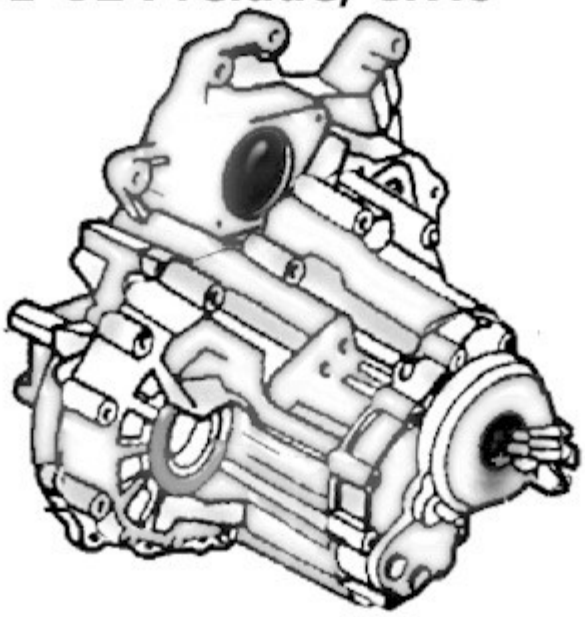
MP1A (91-02 Prelude, Civic



MP1A (91-02)
Honda Trans ID

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This book is based on the "Automotive Transmission Troubleshooter" software by the same author. All similarities to this software package are intended. Both of these products are copyrighted by the author, Mandy Concepcion. For further insight on automotive transmissions please see our complementary DVD-Video.

Section: Acura/Honda Shift Solenoids and Electrical Component Testing (Shift Solenoids, TCC Solenoid, Pressure Control Solenoid (EPC), TPS, TCM Test, Pressure Switches)

4L30E

Shift Solenoids

The Honda 4L30-E 1-2/3-4 shift solenoids are normally closed. The 2-3 solenoid is normally open. 2-3 Solenoid is ground controlled through pin A at trans connector. 1-2/3-4 solenoids are GROUND controlled through pin C at the trans connector. The solenoids are fed POWER at pin D. Solenoid resistance should be between 16 and 22 Ohms. Meassure voltage between pins A or B and Ground. You should see 12 volts when solenoid is not actuated and almost 0.00 volts when the TCM actuates the solenoid. If no voltage is seen at pulsed side, then solenoid coil is open or wire is broken.

SHIFT-SOLENOID Resistance = 16 - 22 Ohms

MAXIMUM CURRENT at room temperature = 0.75 Amps or 750mA

POWER FEED Test between Batt + and Solenoid Power-Feed = 100 to 300 mVolts w/KOER

TCC On/Off solenoid

The Honda 4L30-E TCC On/Off solenoid is used to control the application of the torque converter wet clutches. This is just an Allow or Not-allow device. Once the TCC On/Off solenoids allows fluid passage, the TCC PWM solenoid then controls the engagement and makes actuation harsher or softer. The TCC On/Off solenoid is very similar electrically and often the same as the normal shift solenoids. Ignition power feed is supplied to the solenoid by the TCM at pin D. The TCM/PCM uses ground to actuate the TCC sol through pins A.

TCC On/Off Resistance = 16 - 22 Ohms

MAXIMUM CURRENT at room temperature = 0.75 Amps or 750 mA

POWER FEED Test between Batt + and Solenoid Power-Feed = 100 to 300 mVolts w/KOER

TCC On/Off Solenoid

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The Honda 4L30-E uses a TCC On/Off sol. only.

Pressure Control Solenoid (PCS)

The Pressure Control Solenoid (PCS) for the Honda 4L30-E transmission is a PWM or Pulse Width Modulated unit. PWM is a ratio of On to OFF. A 90% Duty-Cycle means that the unit is ON 90% of the time, therefore, there will be high trans-fluid pressure. This unit is GROUND controlled by the TCM or PCM. The TCM or PCM applies a pulsed ground to pin C. Power is taken at pin B. Do not apply steady power to this solenoid or damage will result. This is a low resistance unit. Use a turn-signal flasher in series with the unit when testing. This will pulse and restrict power, preventing damage.

PCS RESISTANCE: 3 to 9 Ohms

MAX CURRENT: Do not apply steady power. Current depends on duty-cycle.

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B7TA/B7YA

Shift Solenoids

The B7TA/B7YA 3 shift solenoids are normally closed. These solenoids are POWER controlled through independent sol. connectors pin 2 each. The solenoid wires are GROUNDED at the transmission body itself. Solenoid resistance should be between 11 and 26 Ohms. TO meassure voltage, inject power at sol. pins. You should see 12 volts at sol. body when solenoid is removed from trans-body and hear a click. If no voltage is seen at solenoid body side, then solenoid coil is open or broken.

SHIFT-SOLENOID Resistance = 11 - 26 Ohms

MAXIMUM CURRENT at room temperature = 1.10 Amps or 1100 mA

POWER FEED Test between Batt + and Solenoid Power-Feed = 100 to 300 mVolts w/KOER

TCC On/Off solenoid

The B7TA/B7YA TCC On/Off solenoid (Sol-A) is used to control the application of the torque converter wet clutches. This is just an Allow or Not-allow device. Once the TCC On/Off solenoids allows fluid passage, the TCC PWM solenoid then controls the engagement and makes actuation harsher or softer. The TCC On/Off solenoid is very similar electrically and often the same as the normal shift solenoids. This solenoid is POWER controlled by the TCM at pin 1 (yel). The TCC solenoid is grounded at the body or dedicated ground wire. A TCC PWM may also be employed (Sol B). If power is applied, you'll hear a click. Also remove the solenoid and see if when injecting power the solenoid body also goes to 12 volt potential, indicating good solenoid-coil integrity.

TCC On/Off Resistance = 12 - 24 Ohms

MAXIMUM CURRENT at room temperature = 1.00 Amps or 1000 mA

POWER FEED Test between Batt + and Solenoid Power-Feed = 100 to 300 mVolts w/KOER

TCC PWM Solenoid

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The Honda/Acura TCC Solenoid for the B7TA/B7YA can be either an ON/OFF or Pulse-Width Modulated unit. The unit is pulsed steadily (Fixed Frequency) at 65 to 200 Hz. Then the positive or negative side of the wave is widened or narrowed to control the TCC pressure. The Pulse-Width has a duty-cycle in percentage. 90% DC = full operation 10% = almost OFF. Use a duty-cycle meter to test signal. DO NOT apply steady power to this unit. This is a low resistance unit and will get damaged by steady power application. Use a turn-signal flasher in series with the solenoid to test. This will reduce current allowing you to test the unit. This unit is POWER controlled by the TCM or PCM at pin 2. The GROUND is taken from the solenoid body itself.

TCC PWM Resistance = 15 to 28 Ohms

MAX CURRENT = Do not apply steady power. Low resistance unit.

Electronic Pressure Control Solenoid

The Electronic Pressure Control Solenoid (Solenoid A) for the B7TA/B7YA transmission is a PWM or Pulse Width Modulated unit. PWM is a ratio of On to OFF. A 90% Duty-Cycle means that the unit is ON 90% of the time, therefore, there will be high trans-fluid pressure. The TCM provides both POWER and GROUND to control the unit. The TCM varies the duty-cycle to the solenoid at a steady frequency. Do not apply steady power to this solenoid or damage will result. This is a low resistance unit. Use a turn-signal flasher in series with the unit when testing. This will pulse and restrict power, preventing damage.

EPC RESISTANCE: 4 to 6 Ohms

MAX CURRENT: Do not apply steady power. Current depends on duty-cycle.

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BAXA

Shift Solenoids

The BAXA 3 shift solenoids are normally closed. These solenoids are POWER controlled through independent sol. connectors pin 2 each. The solenoid wires are GROUNDED at the transmission body itself. Solenoid resistance should be between 11 and 26 Ohms. TO meassure voltage, inject power at sol. pins. You should see 12 volts at sol. body when solenoid is removed from trans-body and hear a click. If no voltage is seen at solenoid body side, then solenoid coil is open or broken.

SHIFT-SOLENOID Resistance = 11 - 26 Ohms

MAXIMUM CURRENT at room temperature = 1.10 Amps or 1100 mA

POWER FEED Test between Batt + and Solenoid Power-Feed = 100 to 300 mVolts w/KOER

TCC On/Off solenoid

The BAXA TCC On/Off solenoid is used to control the application of the torque converter wet clutches. This is just an Allow or Not-allow device. Once the TCC On/Off solenoids allows fluid passage, the TCC PWM solenoid then controls the engagement and makes actuation harsher or softer. The TCC On/Off solenoid is very similar electrically and often the same as the normal shift solenoids. This solenoid is POWER controlled by the TCM at pin 1 (yel). The TCC solenoid is grounded at the body or dedicated ground wire. A TCC PWM may also be employed called Sol-B. If power is applied, you'll hear a click. Also remove the solenoid and see if when injecting power the solenoid body also goes to 12 volt potential, indicating good solenoid-coil integrity.

TCC On/Off Resistance = 12 - 24 Ohms

MAXIMUM CURRENT at room temperature = 1.00 Amps or 1000 mA

POWER FEED Test between Batt + and Solenoid Power-Feed = 100 to 300 mVolts w/KOER

TCC PWM Solenoid

The Honda/Acura TCC Solenoid for the BAXA can be either an ON/OFF or Pulse-Width Modulated unit. The unit is pulsed steadily (Fixed Frequency) at 65 to 200 Hz. Then the positive or negative side of the

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wave is widened or narrowed to control the TCC pressure. The Pulse-Width has a duty-cycle in percentage. 90% DC = full operation 10% = almost OFF. Use a duty-cycle meter to test signal. DO NOT apply steady power to this unit. This is a low resistance unit and will get damaged by steady power application. Use a turn-signal flasher in series with the solenoid to test. This will reduce current allowing you to test the unit. This unit is POWER controlled by the TCM or PCM at pin 2. The GROUND is taken from the solenoid body itself.

TCC PWM Resistance = 15 to 28 Ohms

MAX CURRENT = Do not apply steady power. Low resistance unit.

Electronic Pressure Control Solenoid (Solenoid A)

The Electronic Pressure Control Solenoid (Solenoid A) for the BAXA transmission is a PWM or Pulse Width Modulated unit. PWM is a ratio of On to OFF. A 90% Duty-Cycle means that the unit is ON 90% of the time, therefore, there will be high trans-fluid pressure. The TCM provides both POWER and GROUND to control the unit. The TCM varies the duty-cycle to the solenoid at a steady frequency. Do not apply steady power to this solenoid or damage will result. This is a low resistance unit. Use a turn-signal flasher in series with the unit when testing. This will pulse and restrict power, preventing damage.

EPC RESISTANCE: 4 to 6 Ohms

MAX CURRENT: Do not apply steady power. Current depends on duty-cycle.

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BGRA

Shift Solenoids

The BGRA 4 shift solenoids are normally closed. These solenoids are POWER controlled at trans conn. pins 5(SS-A [Blu/Blk]), 2(SS-B [Grn/Wht]), 1(SS-C [Grn]) and 3(SS-D [Yel]). The solenoid wires are GROUNDED at the transmission body itself. Solenoid resistance should be between 11 and 26 Ohms. TO meassure voltage, inject power at sol. pins. You should see 12 volts at sol. body when solenoid is removed from trans-body and hear a click. If no voltage is seen at solenoid body side, then solenoid coil is open or broken.

SHIFT-SOLENOID Resistance = 11 - 26 Ohms

MAXIMUM CURRENT at room temperature = 1.10 Amps or 1100 mA

POWER FEED Test between Batt + and Solenoid Power-Feed = 100 to 300 mVolts w/KOER

TCC On/Off solenoid

The BGRA TCC On/Off solenoid (Sol-A) is used to control the application of the torque converter wet clutches. This is just an Allow or Not-allow device. Once the TCC On/Off solenoids allows fluid passage, the TCC PWM solenoid then controls the engagement and makes actuation harsher or softer. The TCC On/Off solenoid is very similar electrically and often the same as the normal shift solenoids. This solenoid is POWER controlled by the TCM at pin 1 (yel). The TCC solenoid is grounded at the body or dedicated ground wire. A TCC PWM may also be employed (Sol B). If power is applied, you'll hear a click. Also remove the solenoid and see if when injecting power the solenoid body also goes to 12 volt potential, indicating good solenoid-coil integrity.

TCC On/Off Resistance = 12 - 24 Ohms

MAXIMUM CURRENT at room temperature = 1.00 Amps or 1000 mA

POWER FEED Test between Batt + and Solenoid Power-Feed = 100 to 300 mVolts w/KOER

TCC PWM Solenoid

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The Honda/Acura TCC Solenoid for the BGRA can be either an ON/OFF or Pulse-Width Modulated unit. The unit is pulsed steadily (Fixed Frequency) at 65 to 200 Hz. Then the positive or negative side of the wave is widened or narrowed to control the TCC pressure. The Pulse-Width has a duty-cycle in percentage. 90% DC = full operation 10% = almost OFF. Use a duty-cycle meter to test signal. DO NOT apply steady power to this unit. This is a low resistance unit and will get damaged by steady power application. Use a turn-signal flasher in series with the solenoid to test. This will reduce current allowing you to test the unit. This unit is POWER controlled by the TCM or PCM at pin 2. The GROUND is taken from the solenoid body itself.

TCC PWM Resistance = 15 to 28 Ohms

MAX CURRENT = Do not apply steady power. Low resistance unit.

Electronic Pressure Control Solenoid

The Electronic Pressure Control Solenoid (Solenoid A) for the BGRA transmission is a PWM or Pulse Width Modulated unit. PWM is a ratio of On to OFF. A 90% Duty-Cycle means that the unit is ON 90% of the time, therefore, there will be high trans-fluid pressure. The TCM provides both POWER and GROUND to control the unit. The TCM varies the duty-cycle to the solenoid at a steady frequency. Do not apply steady power to this solenoid or damage will result. This is a low resistance unit. Use a turn-signal flasher in series with the unit when testing. This will pulse and restrict power, preventing damage.

EPC RESISTANCE: 5 to 6 Ohms

MAX CURRENT: Do not apply steady power. Current depends on duty-cycle.

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BMXA/SLXA

Shift Solenoid

The BMXA/SLXA 2 shift solenoids are normally closed. These solenoids are POWER controlled through independent sol. connectors pin 2 each. The solenoid wires are GROUNDED at the transmission body itself. Solenoid resistance should be between 11 and 26 Ohms. TO meassure voltage, inject power at sol. pins. You should see 12 volts at sol. body when solenoid is removed from trans-body and hear a click. If no voltage is seen at solenoid body side, then solenoid coil is open or broken.

SHIFT-SOLENOID Resistance = 11 - 26 Ohms

MAXIMUM CURRENT at room temperature = 1.10 Amps or 1100 mA

POWER FEED Test between Batt + and Solenoid Power-Feed = 100 to 300 mVolts w/KOER

TCC On/Off solenoid

The BMXA/SLXA TCC On/Off solenoid (Sol-A) is used to control the application of the torque converter wet clutches. This is just an Allow or Not-allow device. Once the TCC On/Off solenoids allows fluid passage, the TCC PWM solenoid then controls the engagement and makes actuation harsher or softer. The TCC On/Off solenoid is very similar electrically and often the same as the normal shift solenoids. This solenoid is POWER controlled by the TCM at pin 1 (yel/Blu). The TCC solenoid is grounded at the body or dedicated ground wire. If power is applied, you'll hear a click. Also remove the solenoid and see if when injecting power the solenoid body also goes to 12 volt potential, indicating good solenoid-coil integrity.

TCC On/Off Resistance = 12 - 24 Ohms

MAXIMUM CURRENT at room temperature = 1.00 Amps or 1000 mA

POWER FEED Test between Batt + and Solenoid Power-Feed = 100 to 300 mVolts w/KOER

TCC PWM Solenoid

The Honda/Acura TCC Solenoid for the BMXA/SLXA can be either an ON/OFF or Pulse-Width Modulated unit. The unit is pulsed steadily

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(Fixed Frequency) at 65 to 200 Hz. Then the positive or negative side of the wave is widened or narrowed to control the TCC pressure. The Pulse-Width has a duty-cycle in percentage. 90% DC = full operation 10% = almost OFF. Use a duty-cycle meter to test signal. DO NOT apply steady power to this unit. This is a low resistance unit and will get damaged by steady power application. Use a turn-signal flasher in series with the solenoid to test. This will reduce current allowing you to test the unit. This unit is POWER controlled by the TCM or PCM at pin 2. The GROUND is taken from the solenoid body itself.

TCC PWM Resistance = 15 to 28 Ohms

MAX CURRENT = Do not apply steady power. Low resistance unit.

Electronic Pressure Control Solenoid

The Electronic Pressure Control Solenoid (Solenoid A) for the BMXA/SLXA transmission is a PWM or Pulse Width Modulated unit. PWM is a ratio of On to OFF. A 90% Duty-Cycle means that the unit is ON 90% of the time, therefore, there will be high trans-fluid pressure. The TCM provides both POWER and GROUND to control the unit. The TCM varies the duty-cycle to the solenoid at a steady frequency. Do not apply steady power to this solenoid or damage will result. This is a low resistance unit. Use a turn-signal flasher in series with the unit when testing. This will pulse and restrict power, preventing damage.

EPC RESISTANCE: 4 to 6 Ohms

MAX CURRENT: Do not apply steady power. Current depends on duty-cycle.

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BYBA/BVGA

Shift Solenoid

The BYBA/BVGA 4 shift solenoids are normally closed. These solenoids are POWER controlled at trans conn. pins 5(SS-A [Blu/Blk]), 2(SS-B [Grn/Wht]), 1(SS-C [Grn]) and 3(SS-D [Yel]). The solenoid wires are GROUNDED at the transmission body itself. Solenoid resistance should be between 11 and 26 Ohms. TO meassure voltage, inject power at sol. pins. You should see 12 volts at sol. body when solenoid is removed from trans-body and hear a click. If no voltage is seen at solenoid body side, then solenoid coil is open or broken.

SHIFT-SOLENOID Resistance = 11 - 26 Ohms

MAXIMUM CURRENT at room temperature = 1.10 Amps or 1100 mA

POWER FEED Test between Batt + and Solenoid Power-Feed = 100 to 300 mVolts w/KOER

TCC On/Off solenoid

The BYBA/BVGA TCC On/Off solenoid (Sol-A) is used to control the application of the torque converter wet clutches. This is just an Allow or Not-allow device. Once the TCC On/Off solenoids allows fluid passage, the TCC PWM solenoid then controls the engagement and makes actuation harsher or softer. The TCC On/Off solenoid is very similar electrically and often the same as the normal shift solenoids. This solenoid is POWER controlled by the TCM at pin 1 (yel). The TCC solenoid is grounded at the body or dedicated ground wire. A TCC PWM may also be employed (Sol B). If power is applied, you'll hear a click. Also remove the solenoid and see if when injecting power the solenoid body also goes to 12 volt potential, indicating good solenoid-coil integrity.

TCC On/Off Resistance = 12 - 24 Ohms

MAXIMUM CURRENT at room temperature = 1.00 Amps or 1000 mA

POWER FEED Test between Batt + and Solenoid Power-Feed = 100 to 300 mVolts w/KOER

TCC PWM Solenoid

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The Honda/Acura TCC Solenoid for the BYBA/BVGA can be either an ON/OFF or Pulse-Width Modulated unit. The unit is pulsed steadily (Fixed Frequency) at 65 to 200 Hz. Then the positive or negative side of the wave is widened or narrowed to control the TCC pressure. The Pulse-Width has a duty-cycle in percentage. 90% DC = full operation 10% = almost OFF. Use a duty-cycle meter to test signal. DO NOT apply steady power to this unit. This is a low resistance unit and will get damaged by steady power application. Use a turn-signal flasher in series with the solenoid to test. This will reduce current allowing you to test the unit. This unit is POWER controlled by the TCM or PCM at pin 2. The GROUND is taken from the solenoid body itself.

TCC PWM Resistance = 15 to 28 Ohms

MAX CURRENT = Do not apply steady power. Low resistance unit.

Electronic Pressure Control Solenoid

The Electronic Pressure Control Solenoid (Solenoid A) for the BYBA/BVGA transmission is a PWM or Pulse Width Modulated unit. PWM is a ratio of On to OFF. A 90% Duty-Cycle means that the unit is ON 90% of the time, therefore, there will be high trans-fluid pressure. The TCM provides both POWER and GROUND to control the unit. The TCM varies the duty-cycle to the solenoid at a steady frequency. Do not apply steady power to this solenoid or damage will result. This is a low resistance unit. Use a turn-signal flasher in series with the unit when testing. This will pulse and restrict power, preventing damage.

EPC RESISTANCE: 4 to 6 Ohms

MAX CURRENT: Do not apply steady power. Current depends on duty-cycle.

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BZKA/MZKA

Shift Solenoids

The BZKA/MZKA 4 shift solenoids are normally closed. These solenoids are POWER controlled at trans conn. pins 5(SS-A [Blu/Blk]), 2(SS-B [Grn/Wht]), 1(SS-C [Grn]) and 3(SS-D [Yel]). The solenoid wires are GROUNDED at the transmission body itself. Solenoid resistance should be between 11 and 26 Ohms. TO meassure voltage, inject power at sol. pins. You should see 12 volts at sol. body when solenoid is removed from trans-body and hear a click. If no voltage is seen at solenoid body side, then solenoid coil is open or broken.

SHIFT-SOLENOID Resistance = 11 - 26 Ohms

MAXIMUM CURRENT at room temperature = 1.10 Amps or 1100 mA

POWER FEED Test between Batt + and Solenoid Power-Feed = 100 to 300 mVolts w/KOER

TCC Solenoids

The BZKA/MZKA uses 3 clutch control solenoids. These are PWM controlled. Go to the TCC PWM section for further information.

TCC PWM Solenoid

The Honda/Acura TCC Solenoid for the BZKA/MZKA can be either an ON/OFF or Pulse-Width Modulated unit. The unit is pulsed steadily (Fixed Frequency) at 65 to 200 Hz. Then the positive or negative side of the wave is widened or narrowed to control the TCC pressure. The Pulse-Width has a duty-cycle in percentage. 90% DC = full operation 10% = almost OFF. Use a duty-cycle meter to test signal. DO NOT apply steady power to this unit. This is a low resistance unit and will get damaged by steady power application. Use a turn-signal flasher in series with the solenoid to test. This will reduce current allowing you to test the unit. This unit is POWER controlled by the TCM or PCM at pin 2. The GROUND is taken from the solenoid body itself.

TCC PWM Resistance = 16 to 30 Ohms

MAX CURRENT = Do not apply steady power. Low resistance unit.

Pressure Control Solenoids

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The BZKA/MZKA uses 3 separate pressure control solenoids. Pressure is controlled according to the 3 PCS combination engagement.

RESISTANCE AT EACH SOLENOID: 6 Ohms

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M5HA/M5DA

Shift Solenoids

The M5HA/M5DA 2 shift solenoids are normally closed. These solenoids are POWER controlled through independent sol. connectors pin 2 each. The solenoid wires are GROUNDED at the transmission body itself. Solenoid resistance should be between 15 and 26 Ohms. TO meassure voltage, inject power at sol. pins. You should see 12 volts at sol. body when solenoid is removed from trans-body and hear a click. If no voltage is seen at solenoid body side, then solenoid coil is open or broken.

SHIFT-SOLENOID Resistance = 15 - 26 Ohms

MAXIMUM CURRENT at room temperature = 80 Amps or 800 mA

POWER FEED Test between Batt + and Solenoid Power-Feed = 100 to 300 mVolts w/KOER

TCC On/Off solenoid

The M5HA/M5DA TCC On/Off solenoid is used to control the application of the torque converter wet clutches. This is just an Allow or Not-allow device. Once the TCC On/Off solenoids allows fluid passage, the TCC PWM solenoid then controls the engagement and makes actuation harsher or softer. The TCC On/Off solenoid is very similar electrically and often the same as the normal shift solenoids. This solenoid is POWER controlled by the TCM at pin 1. The TCC solenoid is grounded at the body or dedicated ground wire. A TCC PWM may also be employed. If power is applied, you'll hear a click. Also remove the solenoid and see if when injecting power the solenoid body also goes to 12 volt potential, indicating good sol-coil integrity.

TCC On/Off Resistance = 12 - 24 Ohms

MAXIMUM CURRENT at room temperature = 1.00 Amps or 1000 mA

POWER FEED Test between Batt + and Solenoid Power-Feed = 100 to 300 mVolts w/KOER

TCC PWM Solenoid

The Honda/Acura TCC Solenoid for the M5HA/M5DA can be either an ON/OFF or Pulse-Width Modulated unit. The unit is pulsed steadily

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(Fixed Frequency) (Fixed Frequency) at 65 to 200 Hz. Then the positive or negative side of the wave is widened or narrowed to control the TCC pressure. The Pulse-Width has a duty-cycle in percentage. 90% DC = full operation 10% = almost OFF. Use a duty-cycle meter to test signal. DO NOT apply steady power to this unit. This is a low resistance unit and will get damaged by steady power application. Use a turn-signal flasher in series with the solenoid to test. This will reduce current allowing you to test the unit. This unit is POWER controlled by the TCM or PCM at pin 2. The GROUND is taken from the solenoid body itself.

TCC PWM Resistance = 15 to 28 Ohms

MAX CURRENT = Do not apply steady power. Low resistance unit.

Electronic Pressure Control Solenoid (LPS) or Linear Throttle Pressure Control Solenoid

The Electronic Pressure Control Solenoid (LPS) also called the Linear Throttle Pressure Control Solenoid (Honda and Acura) for the M5HA/M5DA transmission is a PWM or Pulse Width Modulated unit. PWM is a ratio of On to OFF. A 90% Duty-Cycle means that the unit is ON 90% of the time, therefore, there will be high trans-fluid pressure. The TCM provides both POWER and GROUND to control the unit. The TCM varies the duty-cycle to the solenoid at a steady frequency. Do not apply steady power to this solenoid or damage will result. This is a low resistance unit. Use a turn-signal flasher in series with the unit when testing. This will pulse and restrict power, preventing damage.

EPC RESISTANCE: 3 to 6 Ohms

MAX CURRENT: Do not apply steady power. Current depends on duty-cycle.

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M6HA

Shift Solenoids

The M6HA 3 shift solenoids are normally closed. These solenoids are POWER controlled through independent sol. connectors pin 2 each. The solenoid wires are GROUNDED at the transmission body itself. Solenoid resistance should be between 11 and 26 Ohms. TO meassure voltage, inject power at sol. pins. You should see 12 volts at sol. body when solenoid is removed from trans-body and hear a click. If no voltage is seen at solenoid body side, then solenoid coil is open or broken.

SHIFT-SOLENOID Resistance = 11 - 26 Ohms

MAXIMUM CURRENT at room temperature = 1.10 Amps or 1100 mA

POWER FEED Test between Batt + and Solenoid Power-Feed = 100 to 300 mVolts w/KOER

TCC On/Off solenoid

The M6HA TCC On/Off solenoid (Sol-A) is used to control the application of the torque converter wet clutches. This is just an Allow or Not-allow device. Once the TCC On/Off solenoids allows fluid passage, the TCC PWM solenoid then controls the engagement and makes actuation harsher or softer. The TCC On/Off solenoid is very similar electrically and often the same as the normal shift solenoids. This solenoid is POWER controlled by the TCM at pin 1 (yel). The TCC solenoid is grounded at the body or dedicated ground wire. A TCC PWM may also be employed (Sol B). If power is applied, you'll hear a click. Also remove the solenoid and see if when injecting power the solenoid body also goes to 12 volt potential, indicating good solenoid-coil integrity.

TCC On/Off Resistance = 12 - 24 Ohms

MAXIMUM CURRENT at room temperature = 1.00 Amps or 1000 mA

POWER FEED Test between Batt + and Solenoid Power-Feed = 100 to 300 mVolts w/KOER

TCC PWM Solenoid

The Honda/Acura TCC Solenoid for the M6HA can be either an ON/OFF or Pulse-Width Modulated unit. The unit is pulsed steadily (Fixed

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Frequency) at 65 to 200 Hz. Then the positive or negative side of the wave is widened or narrowed to control the TCC pressure. The Pulse-Width has a duty-cycle in percentage. 90% DC = full operation 10% = almost OFF. Use a duty-cycle meter to test signal. DO NOT apply steady power to this unit. This is a low resistance unit and will get damaged by steady power application. Use a turn-signal flasher in series with the solenoid to test. This will reduce current allowing you to test the unit. This unit is POWER controlled by the TCM or PCM at pin 2. The GROUND is taken from the solenoid body itself.

TCC PWM Resistance = 15 to 28 Ohms

MAX CURRENT = Do not apply steady power. Low resistance unit.

Electronic Pressure Control Solenoid (Solenoid A)

The Electronic Pressure Control Solenoid (Solenoid A) for the M6HA transmission is a PWM or Pulse Width Modulated unit. PWM is a ratio of On to OFF. A 90% Duty-Cycle means that the unit is ON 90% of the time, therefore, there will be high trans-fluid pressure. The TCM provides both POWER and GROUND to control the unit. The TCM varies the duty-cycle to the solenoid at a steady frequency. Do not apply steady power to this solenoid or damage will result. This is a low resistance unit. Use a turn-signal flasher in series with the unit when testing. This will pulse and restrict power, preventing damage.

EPC RESISTANCE: 5 to 6 Ohms

MAX CURRENT: Do not apply steady power. Current depends on duty-cycle.

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M7WA/MGFA

Shift Solenoids Testing

The M7WA/MGFA 3 shift solenoids are normally closed. These solenoids are POWER controlled through independent sol. connectors pin 2 each. The solenoid wires are GROUNDED at the transmission body itself. Solenoid resistance should be between 11 and 26 Ohms. TO meassure voltage, inject power at sol. pins. You should see 12 volts at sol. body when solenoid is removed from trans-body and hear a click. If no voltage is seen at solenoid body side, then solenoid coil is open or broken.

SHIFT-SOLENOID Resistance = 11 - 26 Ohms

MAXIMUM CURRENT at room temperature = 1.10 Amps or 1100 mA

POWER FEED Test between Batt + and Solenoid Power-Feed = 100 to 300 mVolts w/KOER

TCC On/Off solenoid

The M7WA/MGFA TCC On/Off solenoid is used to control the application of the torque converter wet clutches. This is just an Allow or Not-allow device. Once the TCC On/Off solenoids allows fluid passage, the TCC PWM solenoid then controls the engagement and makes actuation harsher or softer. The TCC On/Off solenoid is very similar electrically and often the same as the normal shift solenoids. This solenoid is POWER controlled by the TCM at pin 1 (yel). The TCC solenoid is grounded at the body or dedicated ground wire. A TCC PWM may also be employed. If power is applied, you'll hear a click. Also remove the solenoid and see if when injecting power the solenoid body also goes to 12 volt potential, indicating good solenoid-coil integrity.

TCC On/Off Resistance = 12 - 24 Ohms

MAXIMUM CURRENT at room temperature = 1.00 Amps or 1000 mA

POWER FEED Test between Batt + and Solenoid Power-Feed = 100 to 300 mVolts w/KOER

TCC PWM Solenoid

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The Honda/Acura TCC Solenoid for the M7WA/MGFA can be either an ON/OFF or Pulse-Width Modulated unit. The unit is pulsed steadily (Fixed Frequency) (Fixed Frequency) at 65 to 200 Hz. Then the positive or negative side of the wave is widened or narrowed to control the TCC pressure. The Pulse-Width has a duty-cycle in percentage. 90% DC = full operation 10% = almost OFF. Use a duty-cycle meter to test signal. DO NOT apply steady power to this unit. This is a low resistance unit and will get damaged by steady power application. Use a turn-signal flasher in series with the solenoid to test. This will reduce current allowing you to test the unit. This unit is POWER controlled by the TCM or PCM at pin 2. The GROUND is taken from the solenoid body itself.

TCC PWM Resistance = 15 to 28 Ohms

MAX CURRENT = Do not apply steady power. Low resistance unit.

Electronic Pressure Control Solenoid (LPS)

The Electronic Pressure Control Solenoid (LPS) also called the Linear Throttle Pressure Control Solenoid (Honda and Acura) for the M7WA/MGFA transmission is a PWM or Pulse Width Modulated unit. PWM is a ratio of On to OFF. A 90% Duty-Cycle means that the unit is ON 90% of the time, therefore, there will be high trans-fluid pressure. The TCM provides both POWER and GROUND to control the unit. The TCM varies the duty-cycle to the solenoid at a steady frequency. Do not apply steady power to this solenoid or damage will result. This is a low resistance unit. Use a turn-signal flasher in series with the unit when testing. This will pulse and restrict power, preventing damage.

EPC RESISTANCE: 3 to 6 Ohms

MAX CURRENT: Do not apply steady power. Current depends on duty-cycle.

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MCVA/MRVA

Shift Solenoids

The MCVA/MRVA 4 shift solenoids are normally closed. These solenoids are POWER controlled at trans conn. pins 5(SS-A [Blu/Blk]), 2(SS-B [Grn/Wht]), 1(SS-C [Grn]) and 3(SS-D [Yel]). The solenoid wires are GROUNDED at the transmission body itself. Solenoid resistance should be between 11 and 26 Ohms. TO meassure voltage, inject power at sol. pins. You should see 12 volts at sol. body when solenoid is removed from trans-body and hear a click. If no voltage is seen at solenoid body side, then solenoid coil is open or broken.

SHIFT-SOLENOID Resistance = 11 - 26 Ohms

MAXIMUM CURRENT at room temperature = 1.10 Amps or 1100 mA

POWER FEED Test between Batt + and Solenoid Power-Feed = 100 to 300 mVolts w/KOER

TCC ON/OFF Solenoid

The MCVA/MRVA uses 3 clutch control solenoids. These are PWM controlled. Go to the TCC PWM section for further information.

TCC PWM Solenoid

The Honda/Acura TCC Solenoid for the MCVA/MRVA can be either an ON/OFF or Pulse-Width Modulated unit. The unit is pulsed steadily (Fixed Frequency) at 65 to 200 Hz. Then the positive or negative side of the wave is widened or narrowed to control the TCC pressure. The Pulse-Width has a duty-cycle in percentage. 90% DC = full operation 10% = almost OFF. Use a duty-cycle meter to test signal. DO NOT apply steady power to this unit. This is a low resistance unit and will get damaged by steady power application. Use a turn-signal flasher in series with the solenoid to test. This will reduce current allowing you to test the unit. This unit is POWER controlled by the TCM or PCM at pin 2. The GROUND is taken from the solenoid body itself.

TCC PWM Resistance = 16 to 30 Ohms

MAX CURRENT = Do not apply steady power. Low resistance unit.

Pressure control solenoids

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The MCVA/MRVA uses 3 separate pressure control solenoids. Pressure is controlled according to the 3 PCS combination engagement.

RESISTANCE AT EACH SOLENOID: 6 Ohms

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MDKA/BDKA

Shift Solenoids

The MDKA/BDKA 3 shift solenoids are normally closed. These solenoids are POWER controlled through independent sol. connectors pin 2 each. The solenoid wires are GROUNDED at the transmission body itself. Solenoid resistance should be between 11 and 26 Ohms. TO meassure voltage, inject power at sol. pins. You should see 12 volts at sol. body when solenoid is removed from trans-body and hear a click. If no voltage is seen at solenoid body side, then solenoid coil is open or broken.

SHIFT-SOLENOID Resistance = 11 - 26 Ohms

MAXIMUM CURRENT at room temperature = 1.10 Amps or 1100 mA

POWER FEED Test between Batt + and Solenoid Power-Feed = 100 to 300 mVolts w/KOER

TCC On/Off solenoid

The MDKA/BDKA TCC On/Off solenoid is used to control the application of the torque converter wet clutches. This is just an Allow or Not-allow device. Once the TCC On/Off solenoids allows fluid passage, the TCC PWM solenoid then controls the engagement and makes actuation harsher or softer. The TCC On/Off solenoid is very similar electrically and often the same as the normal shift solenoids. This solenoid is POWER controlled by the TCM at pin 1 (yel). The TCC solenoid is grounded at the body or dedicated ground wire. A TCC PWM may also be employed called Sol-B. If power is applied, you'll hear a click. Also remove the solenoid and see if when injecting power the solenoid body also goes to 12 volt potential, indicating good solenoid-coil integrity.

TCC On/Off Resistance = 12 - 24 Ohms

MAXIMUM CURRENT at room temperature = 1.00 Amps or 1000 mA

POWER FEED Test between Batt + and Solenoid Power-Feed = 100 to 300 mVolts w/KOER

TCC PWM Solenoid

The Honda/Acura TCC Solenoid for the MDKA/BDKA can be either an ON/OFF or Pulse-Width Modulated unit. The unit is pulsed steadily

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(Fixed Frequency) at 65 to 200 Hz. Then the positive or negative side of the wave is widened or narrowed to control the TCC pressure. The Pulse-Width has a duty-cycle in percentage. 90% DC = full operation 10% = almost OFF. Use a duty-cycle meter to test signal. DO NOT apply steady power to this unit. This is a low resistance unit and will get damaged by steady power application. Use a turn-signal flasher in series with the solenoid to test. This will reduce current allowing you to test the unit. This unit is POWER controlled by the TCM or PCM at pin 2. The GROUND is taken from the solenoid body itself.

TCC PWM Resistance = 15 to 28 Ohms

MAX CURRENT = Do not apply steady power. Low resistance unit.

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MGHA

Shift Solenoids

The MGHA 3 shift solenoids are normally closed. These solenoids are POWER controlled through independent sol. connectors pin 2 each. The solenoid wires are GROUNDED at the transmission body itself. Solenoid resistance should be between 11 and 26 Ohms. TO meassure voltage, inject power at sol. pins. You should see 12 volts at sol. body when solenoid is removed from trans-body and hear a click. If no voltage is seen at solenoid body side, then solenoid coil is open or broken.

SHIFT-SOLENOID Resistance = 11 - 26 Ohms

MAXIMUM CURRENT at room temperature = 1.10 Amps or 1100 mA

POWER FEED Test between Batt + and Solenoid Power-Feed = 100 to 300 mVolts w/KOER

TCC On/Off solenoid

The MGHA TCC On/Off solenoid is used to control the application of the torque converter wet clutches. This is just an Allow or Not-allow device. Once the TCC On/Off solenoids allows fluid passage, the TCC PWM solenoid then controls the engagement and makes actuation harsher or softer. The TCC On/Off solenoid is very similar electrically and often the same as the normal shift solenoids. This solenoid is POWER controlled by the TCM at pin 1 (yel). The TCC solenoid is grounded at the body or dedicated ground wire. A TCC PWM may also be employed. If power is applied, you'll hear a click. Also remove the solenoid and see if when injecting power the solenoid body also goes to 12 volt potential, indicating good solenoid-coil integrity.

TCC On/Off Resistance = 12 - 24 Ohms

MAXIMUM CURRENT at room temperature = 1.00 Amps or 1000 mA

POWER FEED Test between Batt + and Solenoid Power-Feed = 100 to 300 mVolts w/KOER

TCC PWM Solenoids

The Honda/Acura TCC Solenoid for the MGHA can be either an ON/OFF or Pulse-Width Modulated unit. The unit is pulsed steadily (Fixed Frequency) (Fixed Frequency) at 65 to 200 Hz. Then the positive or

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negative side of the wave is widened or narrowed to control the TCC pressure. The Pulse-Width has a duty-cycle in percentage. 90% DC = full operation 10% = almost OFF. Use a duty-cycle meter to test signal. DO NOT apply steady power to this unit. This is a low resistance unit and will get damaged by steady power application. Use a turn-signal flasher in series with the solenoid to test. This will reduce current allowing you to test the unit. This unit is POWER controlled by the TCM or PCM at pin 2. The GROUND is taken from the solenoid body itself.

TCC PWM Resistance = 15 to 28 Ohms

MAX CURRENT = Do not apply steady power. Low resistance unit.

Pressure Control Solenoid

The MGHA uses 3 separate pressure control solenoids. Pressure is controlled according to the 3 PCS combination engagement.

RESISTANCE AT EACH SOLENOID: 6 Ohms

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MKYA/GPLA/MKZA/GPPA

Shift Solenoids

The MKYA/GPLA/MKZA/GPPA 4 shift solenoids are normally closed. These solenoids are POWER controlled at trans conn. pins 5(SS-A [Blu/Blk]), 2(SS-B [Grn/Wht]), 1(SS-C [Grn]) and 3(SS-D [Yel]). The solenoid wires are GROUNDED at the transmission body itself. Solenoid resistance should be between 11 and 26 Ohms. TO meassure voltage, inject power at sol. pins. You should see 12 volts at sol. body when solenoid is removed from trans-body and hear a click. If no voltage is seen at solenoid body side, then solenoid coil is open or broken.

SHIFT-SOLENOID Resistance = 11 - 26 Ohms

MAXIMUM CURRENT at room temperature = 1.10 Amps or 1100 mA

POWER FEED Test between Batt + and Solenoid Power-Feed = 100 to 300 mVolts w/KOER

TCC On/Off Solenoid

The MKYA/GPLA/MKZA/GPPA uses 3 clutch control solenoids. These are PWM controlled. Go to the TCC PWM section for further information.

TCC PWM solenoid

The Honda/Acura TCC Solenoid for the MKYA/GPLA/MKZA/GPPA can be either an ON/OFF or Pulse-Width Modulated unit. The unit is pulsed steadily (Fixed Frequency) at 65 to 200 Hz. Then the positive or negative side of the wave is widened or narrowed to control the TCC pressure. The Pulse-Width has a duty-cycle in percentage. 90% DC = full operation 10% = almost OFF. Use a duty-cycle meter to test signal. DO NOT apply steady power to this unit. This is a low resistance unit and will get damaged by steady power application. Use a turn-signal flasher in series with the solenoid to test. This will reduce current allowing you to test the unit. This unit is POWER controlled by the TCM or PCM at pin 2. The GROUND is taken from the solenoid body itself.

TCC PWM Resistance = 16 to 30 Ohms

MAX CURRENT = Do not apply steady power. Low resistance unit.

Pressure Control Solenoids

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The MKYA/GPLA/MKZA/GPPA uses 3 separate pressure control solenoids. Pressure is controlled according to the 3 PCS combination engagement.

RESISTANCE AT EACH SOLENOID: 6 Ohms

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MP1A

Shift Solenoid

The MP1A 2 shift solenoids are normally closed. These solenoids are POWER controlled through independent sol. connectors pin 2 each. The solenoid wires are GROUNDED at the transmission body itself. Solenoid resistance should be between 11 and 26 Ohms. TO meassure voltage, inject power at sol. pins. You should see 12 volts at sol. body when solenoid is removed from trans-body and hear a click. If no voltage is seen at solenoid body side, then solenoid coil is open or broken.

SHIFT-SOLENOID Resistance = 11 - 26 Ohms

MAXIMUM CURRENT at room temperature = 1.10 Amps or 1100 mA

POWER FEED Test between Batt + and Solenoid Power-Feed = 100 to 300 mVolts w/KOER

On/Off solenoid

The MP1A TCC On/Off solenoid (Sol-A) is used to control the application of the torque converter wet clutches. This is just an Allow or Not-allow device. Once the TCC On/Off solenoids allows fluid passage, the TCC PWM solenoid then controls the engagement and makes actuation harsher or softer. The TCC On/Off solenoid is very similar electrically and often the same as the normal shift solenoids. This solenoid is POWER controlled by the TCM at pin 1 (yel). The TCC solenoid is grounded at the body or dedicated ground wire. A TCC PWM may also be employed (Sol B). If power is applied, you'll hear a click. Also remove the solenoid and see if when injecting power the solenoid body also goes to 12 volt potential, indicating good solenoid-coil integrity.

TCC On/Off Resistance = 12 - 24 Ohms

MAXIMUM CURRENT at room temperature = 1.00 Amps or 1000 mA

POWER FEED Test between Batt + and Solenoid Power-Feed = 100 to 300 mVolts w/KOER

TCC PWM Solenoid

The Honda/Acura TCC Solenoid for the MP1A can be either an ON/OFF or Pulse-Width Modulated unit. The unit is pulsed steadily (Fixed

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Frequency) at 65 to 200 Hz. Then the positive or negative side of the wave is widened or narrowed to control the TCC pressure. The Pulse-Width has a duty-cycle in percentage. 90% DC = full operation 10% = almost OFF. Use a duty-cycle meter to test signal. DO NOT apply steady power to this unit. This is a low resistance unit and will get damaged by steady power application. Use a turn-signal flasher in series with the solenoid to test. This will reduce current allowing you to test the unit. This unit is POWER controlled by the TCM or PCM at pin 2. The GROUND is taken from the solenoid body itself.

TCC PWM Resistance = 15 to 30 Ohms

MAX CURRENT = Do not apply steady power. Low resistance unit.

Pressure Control Solenoid (LPS)

The Electronic Pressure Control Solenoid (LPS) also called the Linear Throttle Pressure Control Solenoid (Honda and Acura) for the MP1A transmission is a PWM or Pulse Width Modulated unit. PWM is a ratio of On to OFF. A 90% Duty-Cycle means that the unit is ON 90% of the time, therefore, there will be high trans-fluid pressure. The TCM provides both POWER and GROUND to control the unit. The TCM varies the duty-cycle to the solenoid at a steady frequency. Do not apply steady power to this solenoid or damage will result. This is a low resistance unit. Use a turn-signal flasher in series with the unit when testing. This will pulse and restrict power, preventing damage.

EPC RESISTANCE: 3 to 6 Ohms

MAX CURRENT: Do not apply steady power. Current depends on duty-cycle.

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Section: Miscellaneous Components

Pressure Sensor Test

The Pressure Sensor Test for most modern transmission is a simple ON and OFF procedure. These pressure switches or sensors are inside the transmission and detect the actual pressure at the different points in the trans valve body. This is a transmission gear feedback to the TCM module. The TCM compares the transmission range switch (neutral switch) and pressure sensor combination to determine if there's a discrepancy. If so, then a faulty code is issued for either the range or pressure switches. The ISS and OSS are also sampled during the test for a discrepancy check.

TPS or Throttle Position Sensor

The TPS is a main input to the TCM and is used to determine the transmission shift points. The TCM needs a throttle aperture and rate of change signal at all times. Then uses the ISS and OSS to fine tune transmission shifting. All TPS are 5.00 volt referenced. using a 3 wire arrangement, one wire is GROUND and provided by the TCM/PCM, Voltage Reference at 5.00 volts provided by the TCM/PCM and the actual SIGNAL wire.

With the TPS check for proper 5 volt and module GROUND. Then jump the 5 volt Ref. or GROUND to the Signal wire and observe the scan tool. Otherwise check that the voltage injected is reaching the TCM/PCM connector. Sometimes its OK to disconnect the TPS and let the vehicle go into Limp-In mode so that the TCM then starts shifting the transmission in a delayed mode. All you're looking for is that the unit goes though all the shift points, proving the hydraulics are fine.

TCM or ECM Testing

The best way to test the TCM is by disconnecting the TPS or the ISS. This will cause the TCM to go into Limp-in mode and either shift the transmission is a delayed mode, but goes through all the shifts or just stays stuck in one gear. If the transmission is stuck in 2nd or 3rd gear (Limp-in Mode) then the TCM may be seeing a fault and does not know when to effect the shifting. The other reason is that the transmission solenoids have lost POWER FEED completely. This is why it'll do you some good to learn how the solenoids are commended (by POWER or GROUND). In most Asian units, the solenoids are grounded at the body and the TCM provides power. These units never loose the common

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feed, be it power or ground. If a main relay is used and the trans is stuck in 2nd or 3rd gear, then this circuit is the first place to look.

(Input Speed Sensor) or OSS (Output Speed Sensor)

The ISS (Input Speed Sensor), OSS (Output Speed Sensor) and the VSS (Vehicle Speed Sensor) for the M5HA/M5DA can be either a 2 or a 3 wire unit. The 2 wire unit are magneting sensors. These can be tested with an Ohm meter. Normal resistances for this sensor range between 200 to 600 Ohms. The resistance value is not as important as the signal amplitude produced. The amplitude can be affected by corrossion around the sensor mounting, creating excessive air gap between sensor and relluctor wheel. If a 3 wire unit is used, then a square wave is always produced. These units signal the TCM with an ON and OFF signal (square wave). The 3 wire ISS/OSS/WSS also called a Hall-Effect or Magneto-Resistive sensor is not affected by speed probems. These units should always have POWER (6 to 12 volts), GROUND and SIGNAL (5 to 12 volts). The sensor simply toggles the signal voltage to ground as the relluctor wheel speeds up. The TCM compares input shaft speed to final output speed. It then compares the speed differential to a series of look-up table to determine if the trans is slipping (code issued).

Transmission Temperature Sensor

The Transmission Temperature Sensor for the M5HA/M5DA is a negative temp. coefficient. This means that as transmission fluid temperature goes up, then the voltage output goes down. The TCM provides a 5.00 volt reference on one wire and a ground on the other (always 2 wires). Double check and make sure that there's ground and 5 volts with KOEO and the trans-temp sensor DISCONNECTED. A test light can be used to look for ground. A multimeter has to be used to look for the 5 volt reference.

This book is based on the "Automotive Transmission Troubleshooter" software by the same author. All similarities to this software package are intended. Both of these products are copyrighted by the author, Mandy Concepcion. For further insight on automotive transmissions please see our complementary DVD-Video.

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Section: Acura/Honda Component Location, Valve Body and Check-Ball Positioning - (component location/diagram, valve body photo, check-ball diagram)

This section is made to help you find the exact component location so far as the transmission is concerned. Remember, with few exceptions Honda transmissions have the shift solenoids and other components on the outside of the transmission. Whenever possible valve body ball valve position is also shown.

4L30E

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4L30-E Trans Component Identification & Location

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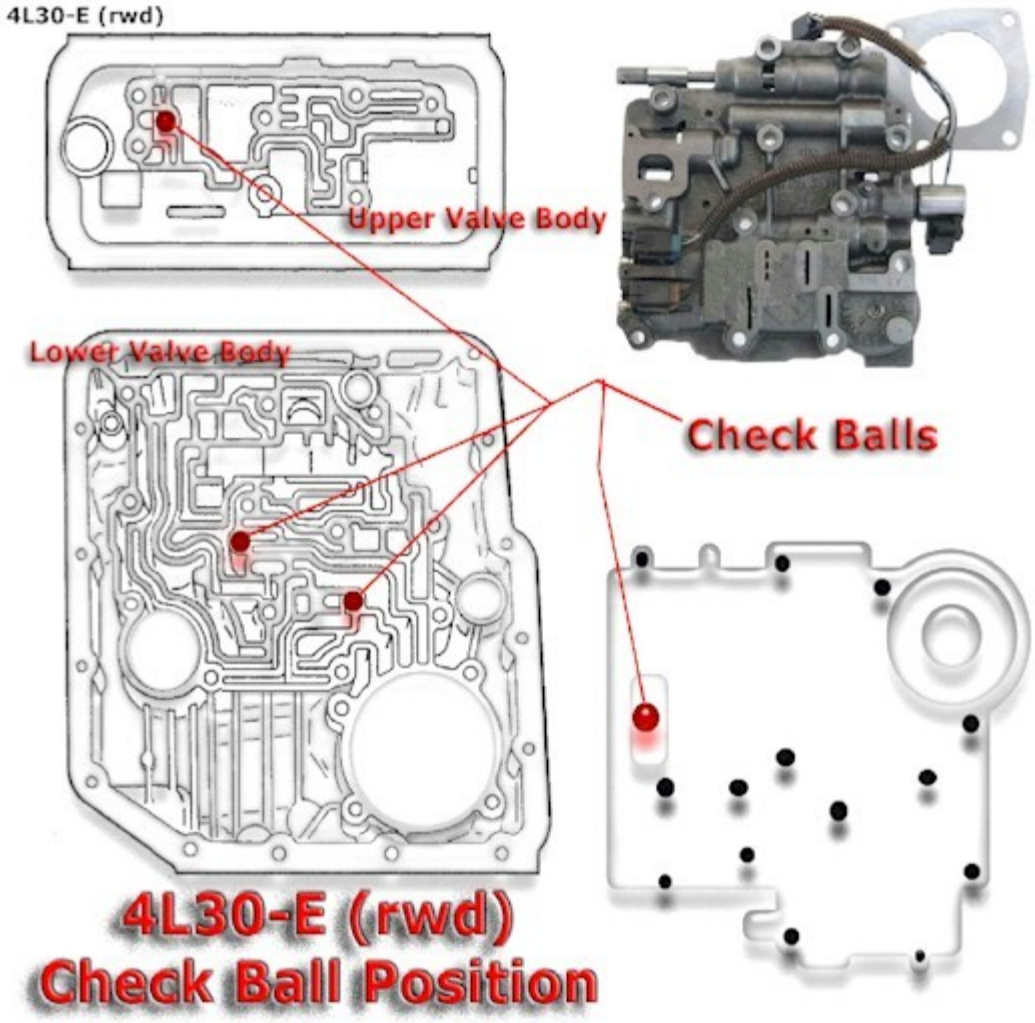

B7TA/B7YA

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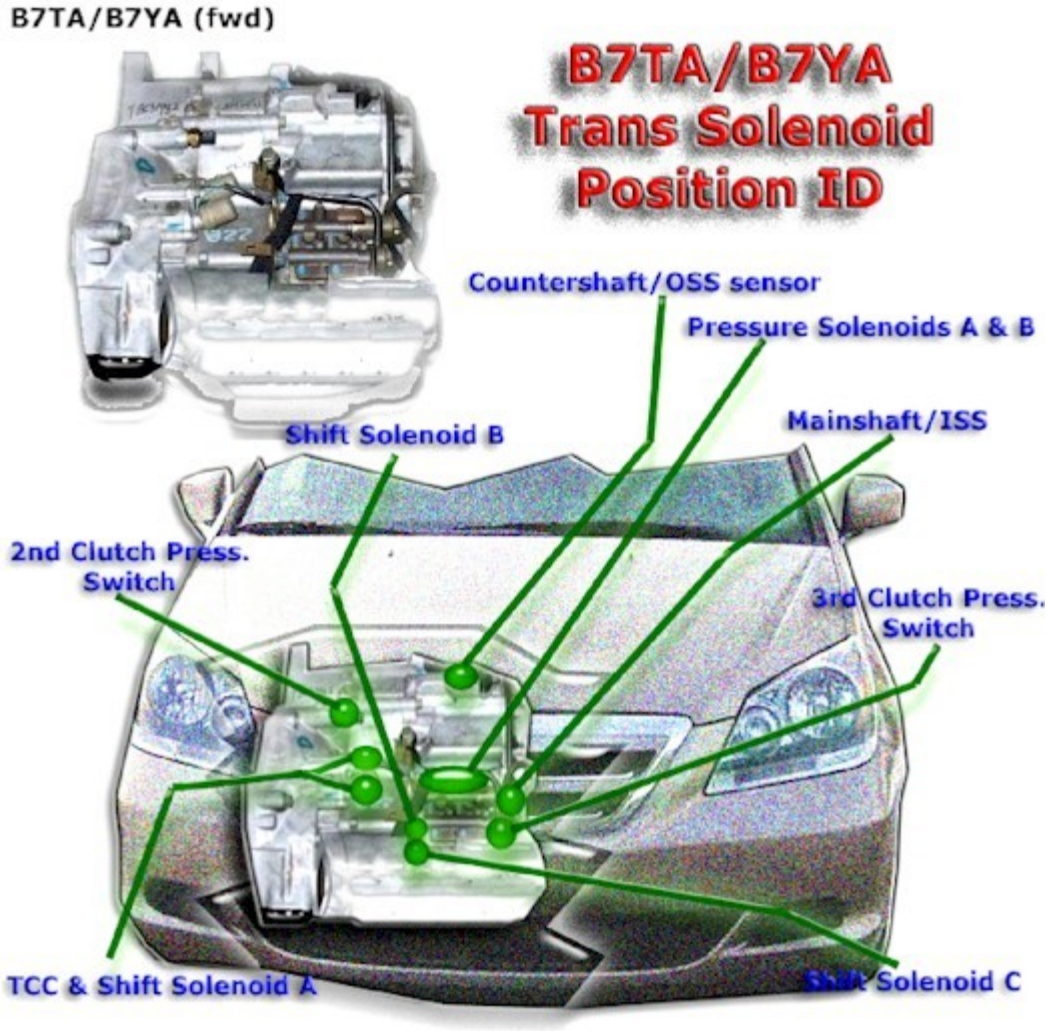
B7TA/B7YA (fwd)



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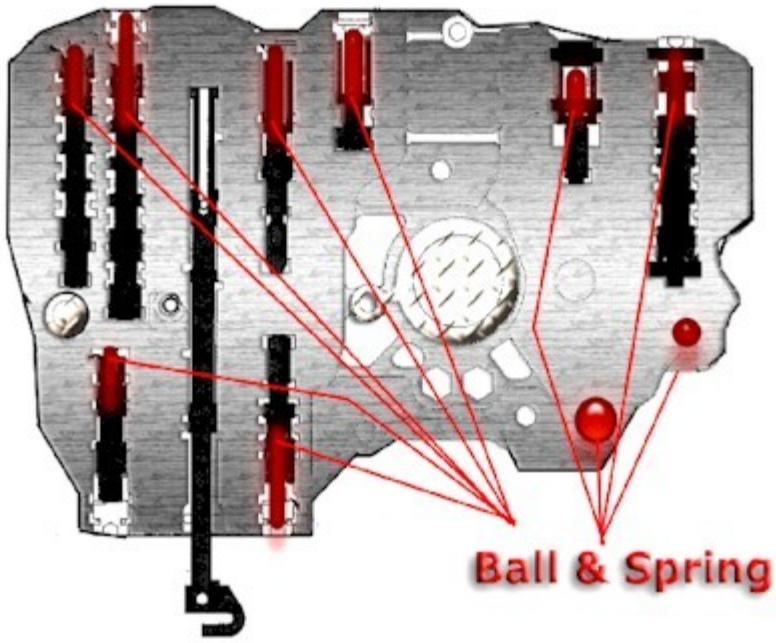
B7TA/B7YA
Check Ball & Spring Position



BAXA BGRA

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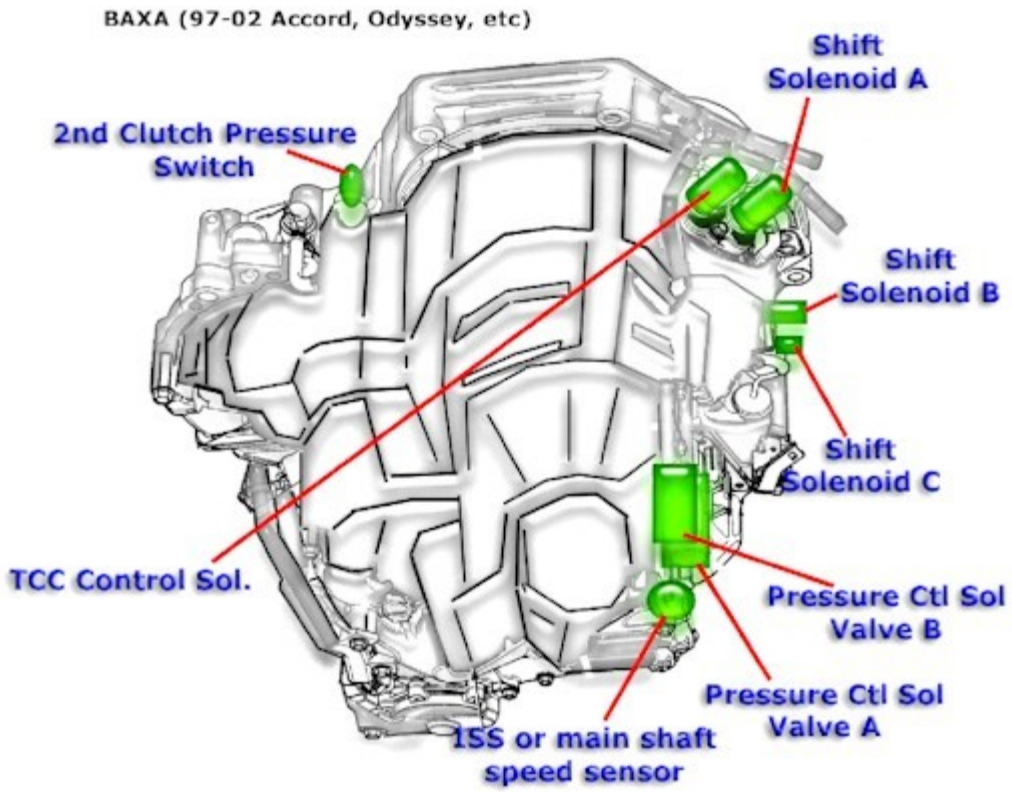

BAXA (97-02 Accord, Odyssey) Solenoid Position and ID

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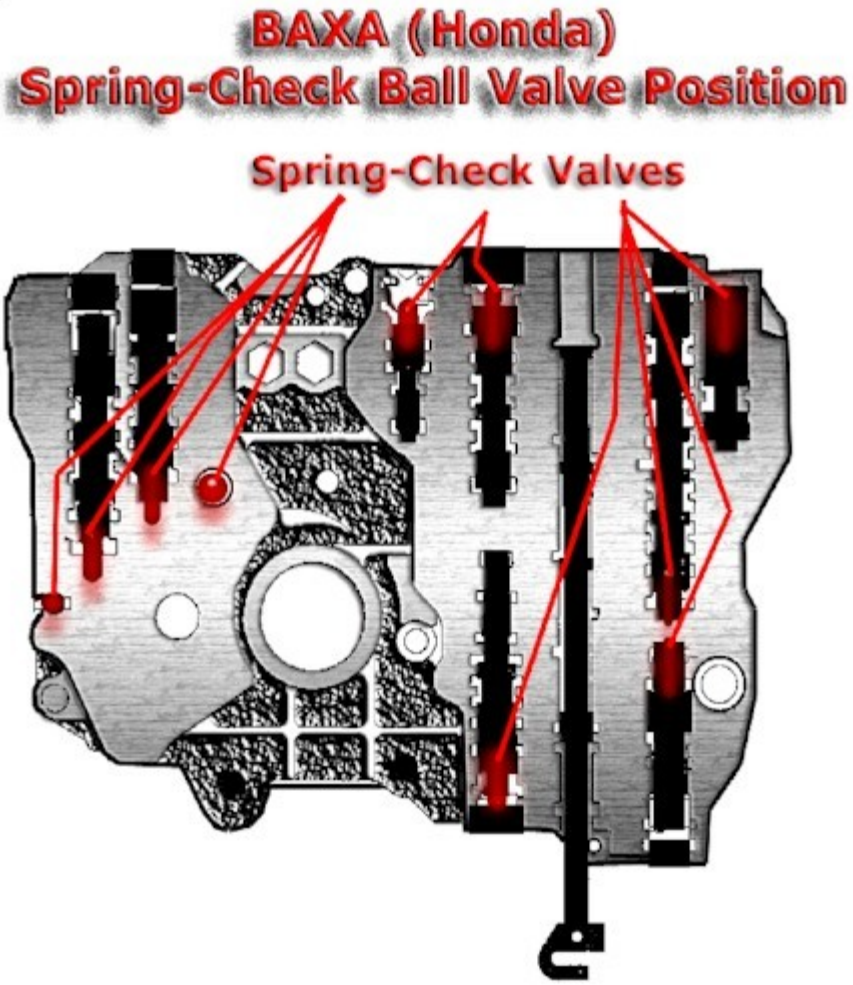
BAXA



BMXA/SLXA

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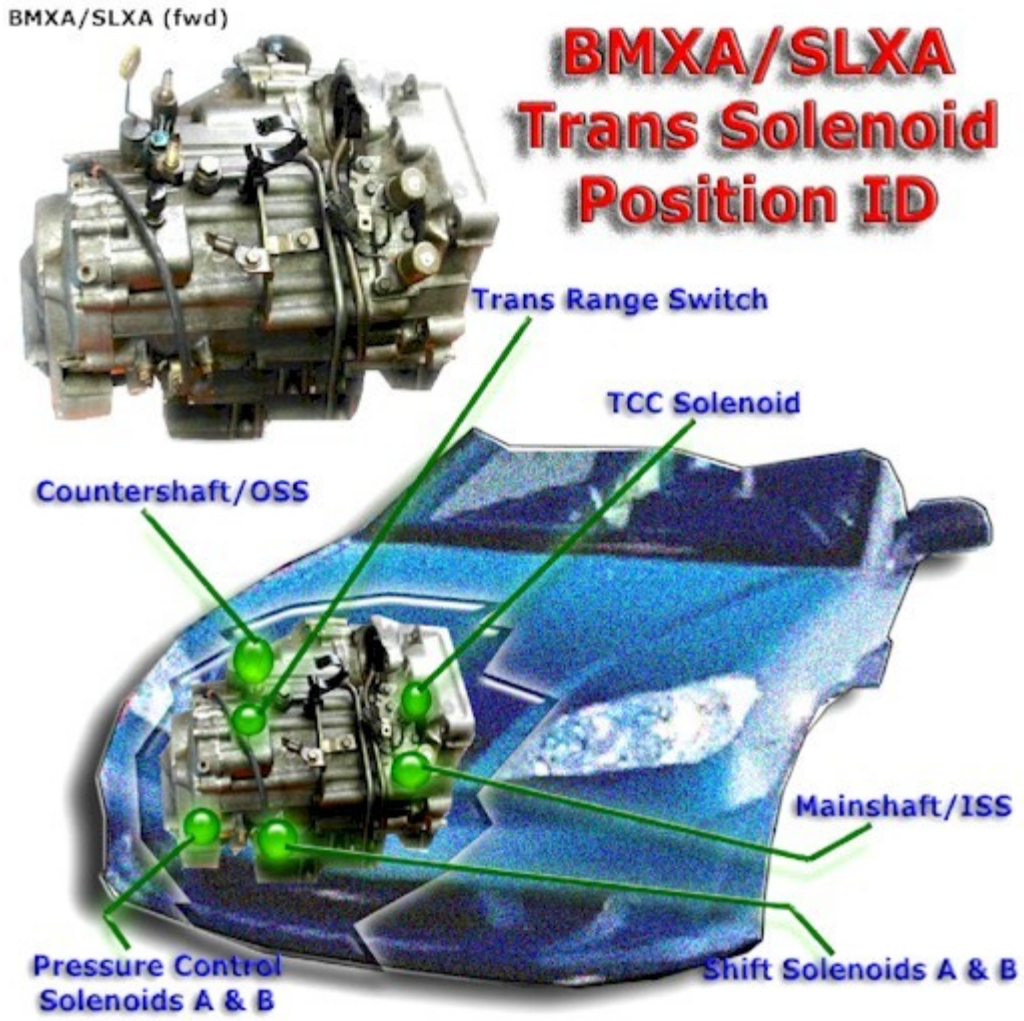

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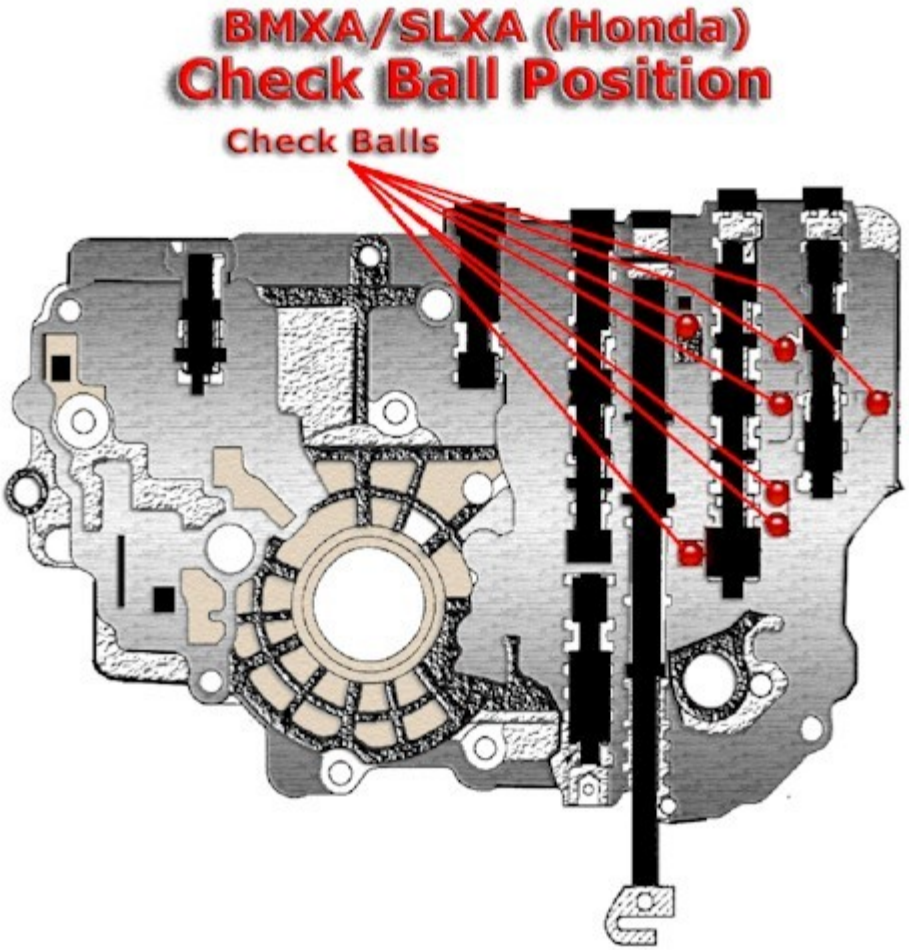

BYBA/BVGA

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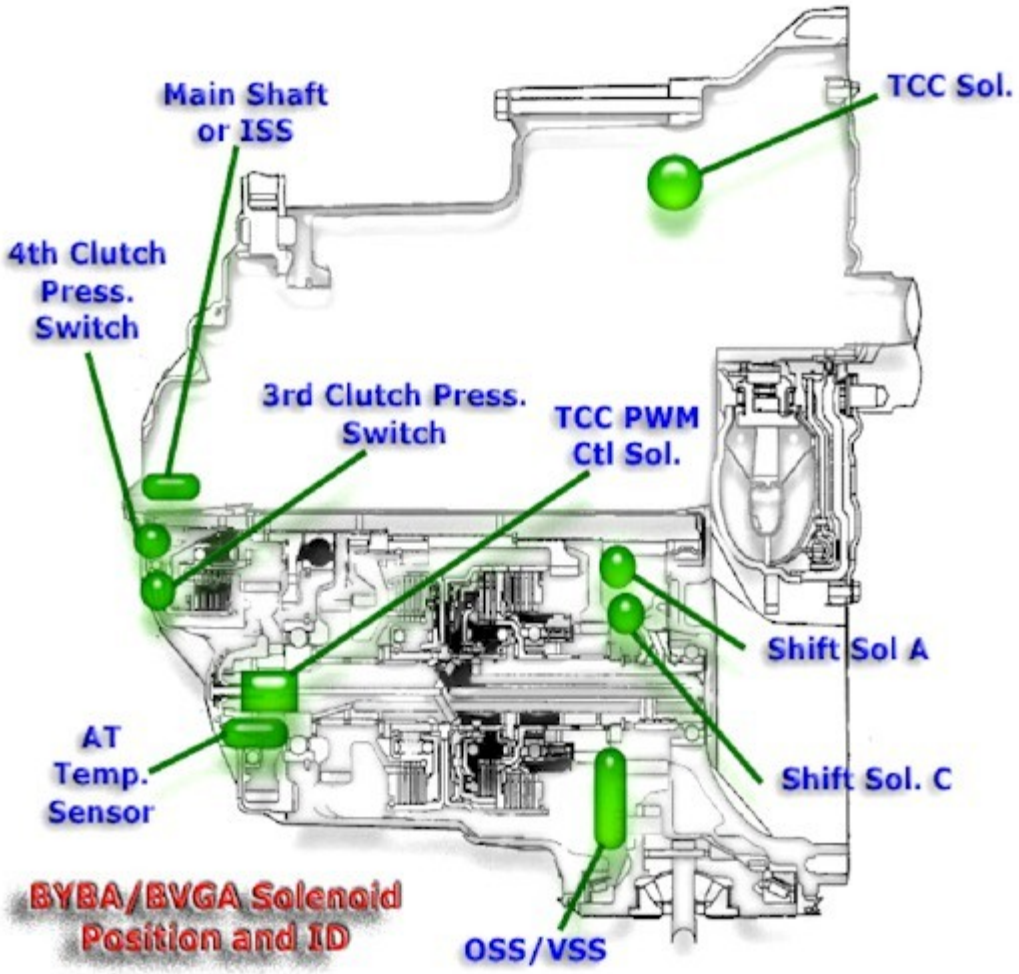

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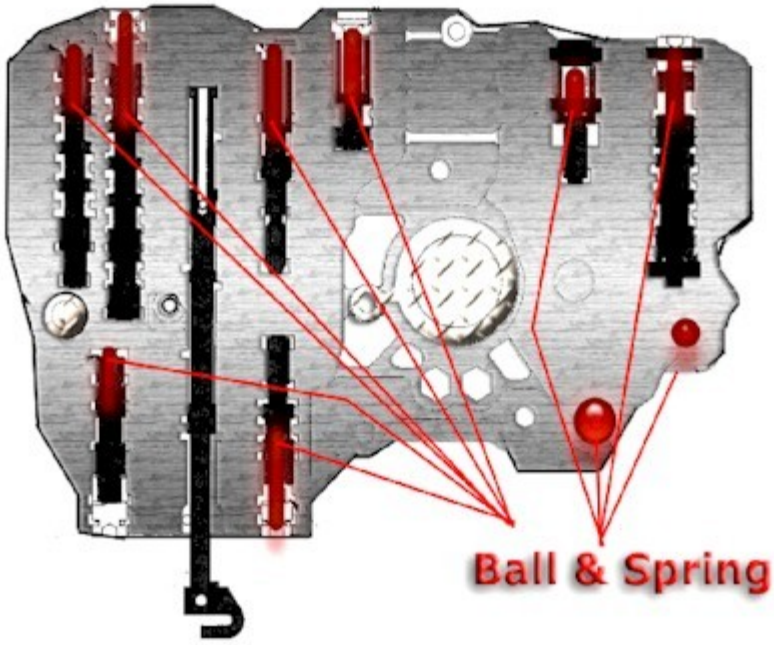
BYBA/BVGA
Check Ball & Spring Position



BZKA/MZKA

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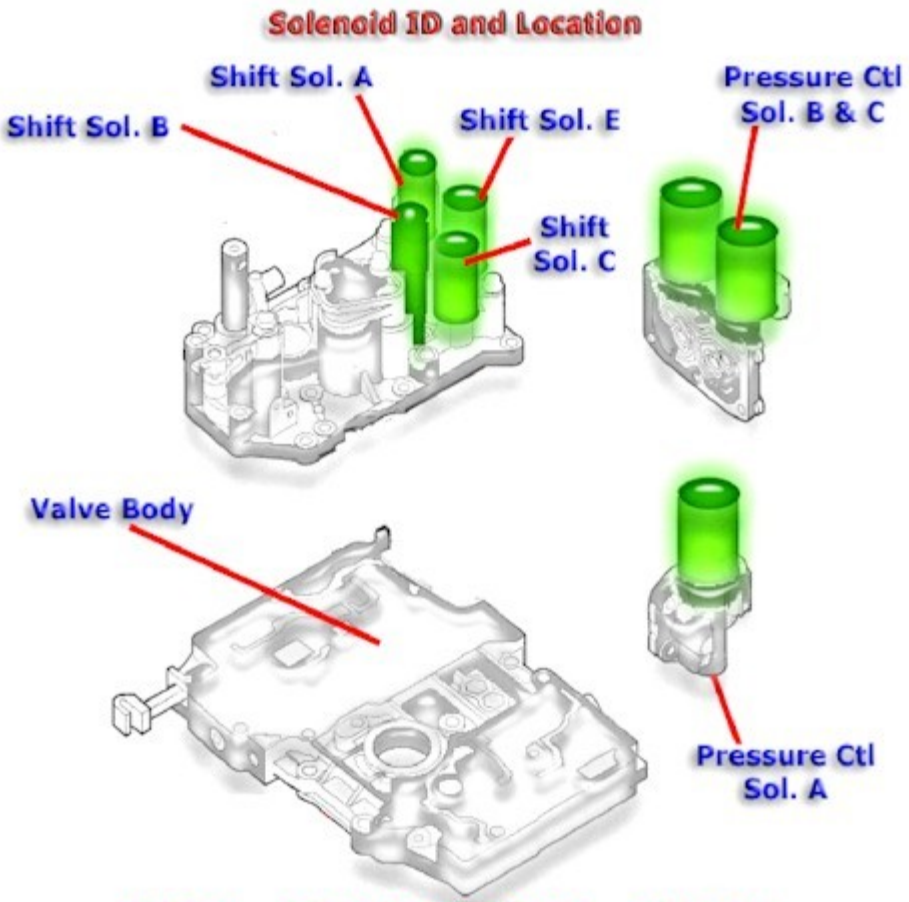

BZKA, MZKA, MCVA, MRVA
Honda Element & CR-V (01-07)

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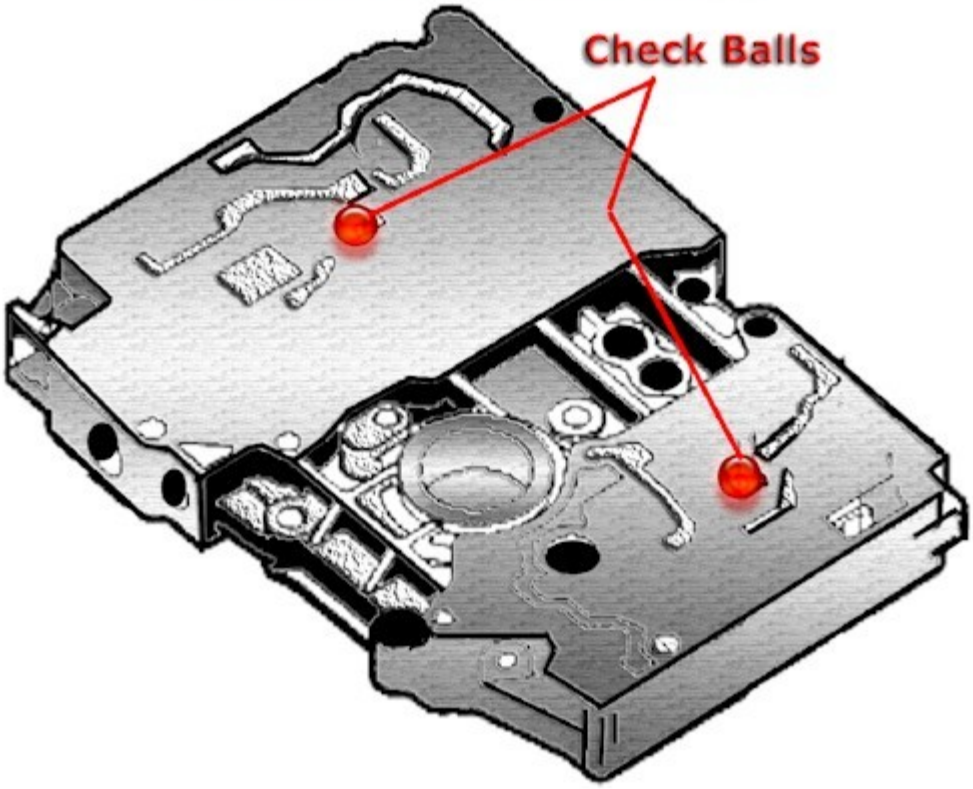
BZKZ/MZKA (Honda) Check Ball Position ID



M5HA/M5DA

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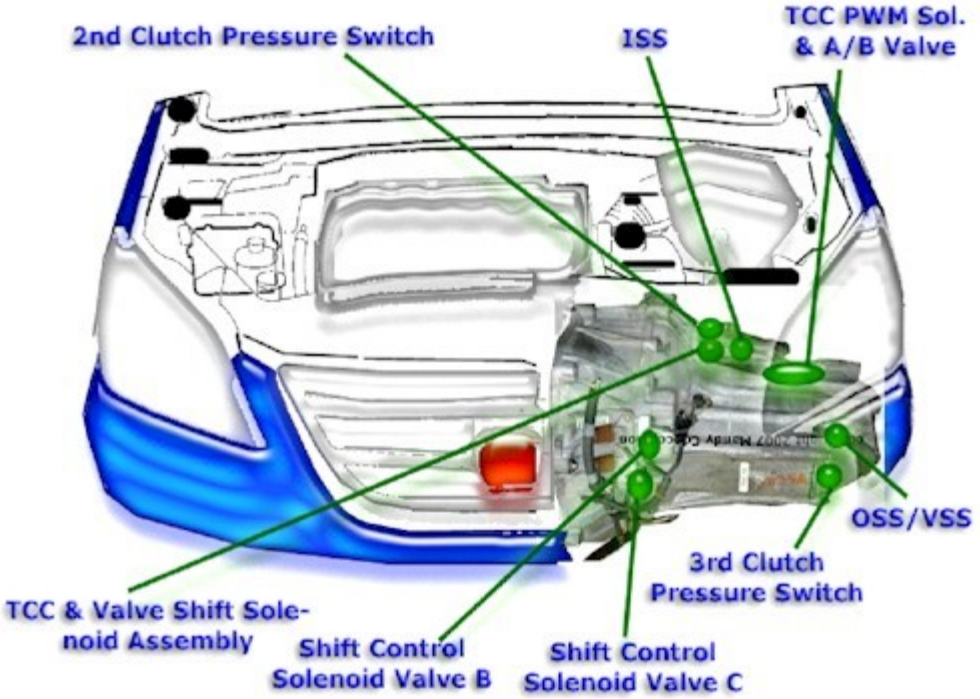

M5HA/M5DA (95-05)
3.2TL, 3.5RL Solenoid Position & ID

IMPORTANT: On HONDA and ACURA vehicles all solenoids are usually on the outside.

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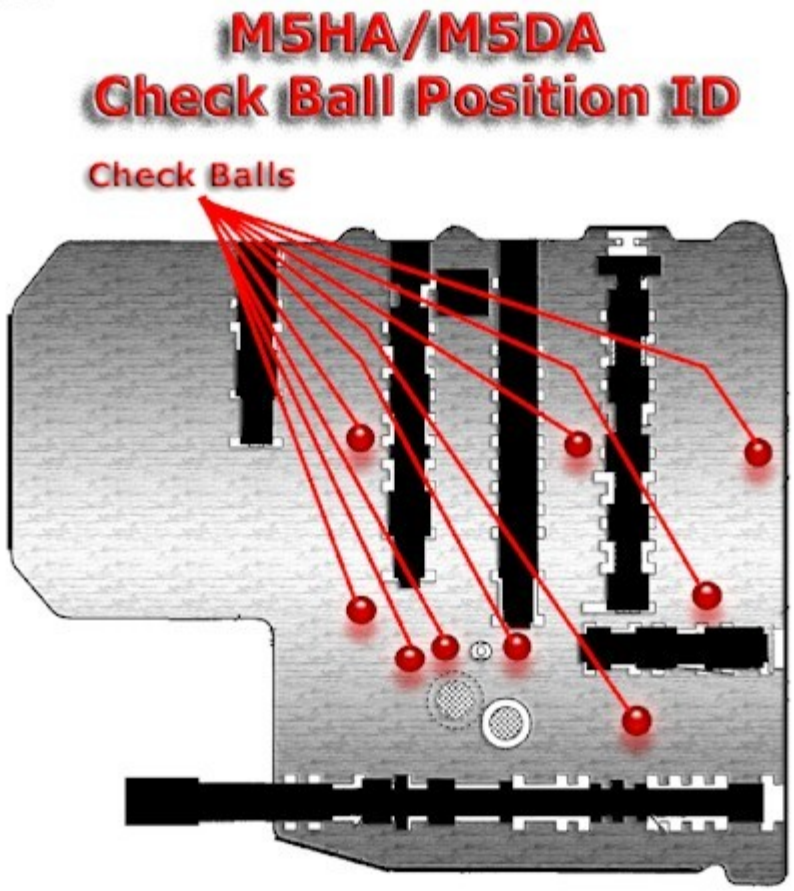
M5HA/M5DA



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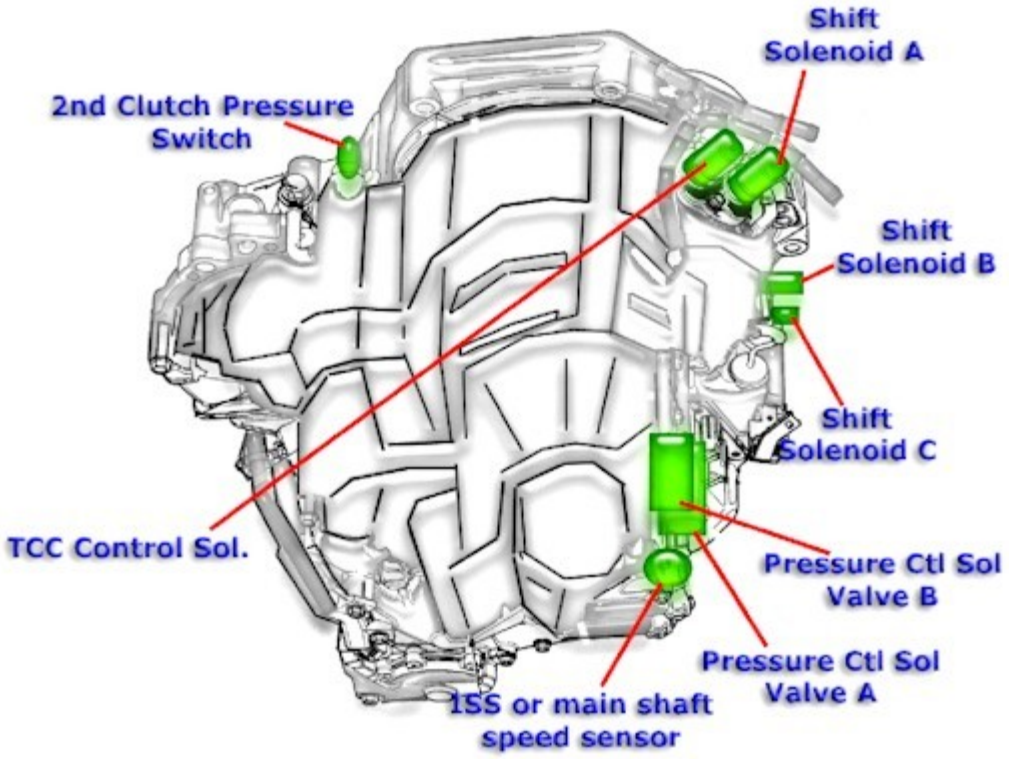
M6HA



M6HA (97-04 Prelude, Civic, etc)
Solenoid Position and ID

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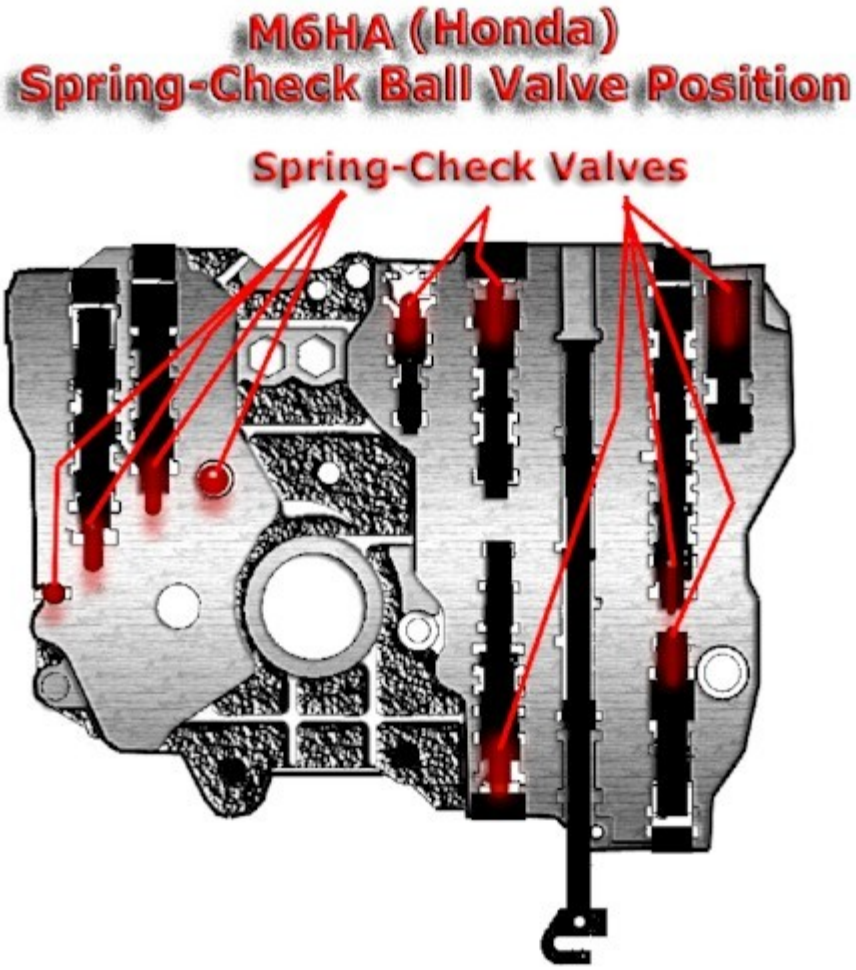
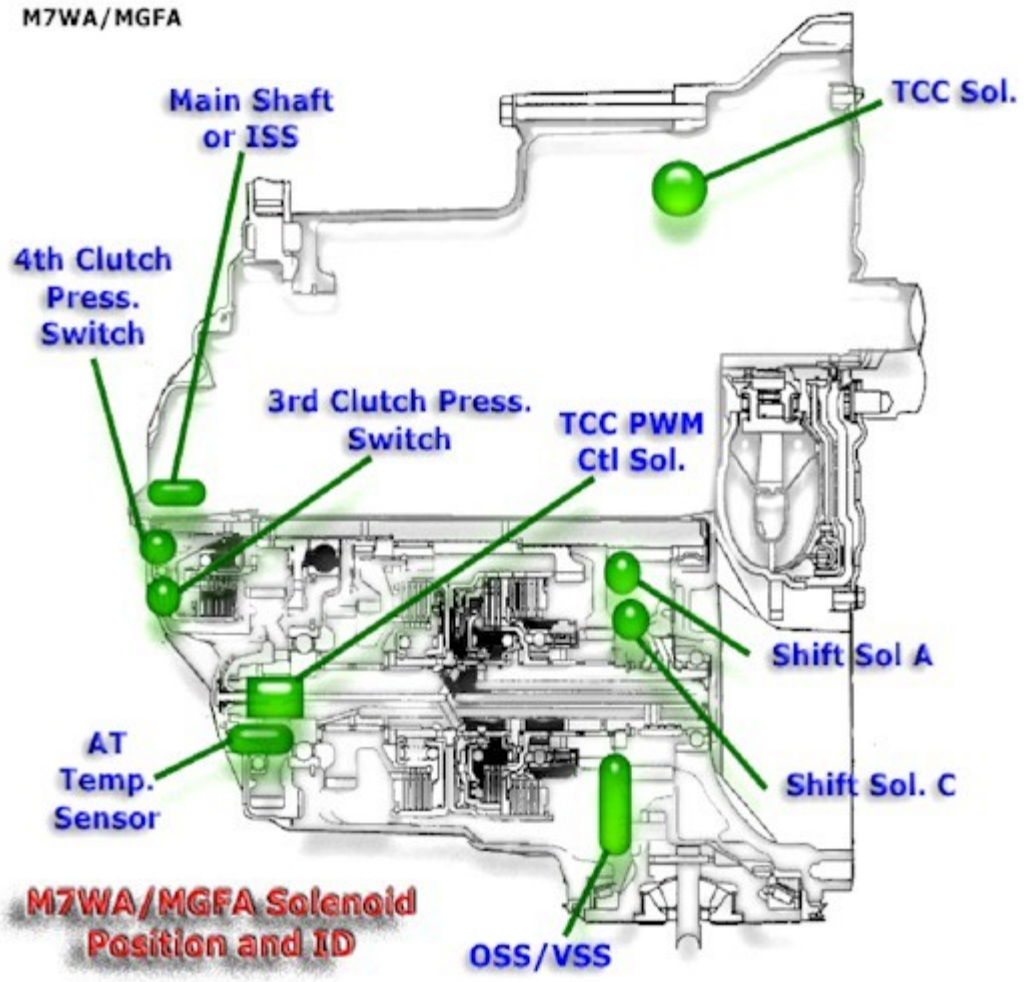


M7WA/MGFA

ProCarManuals.com



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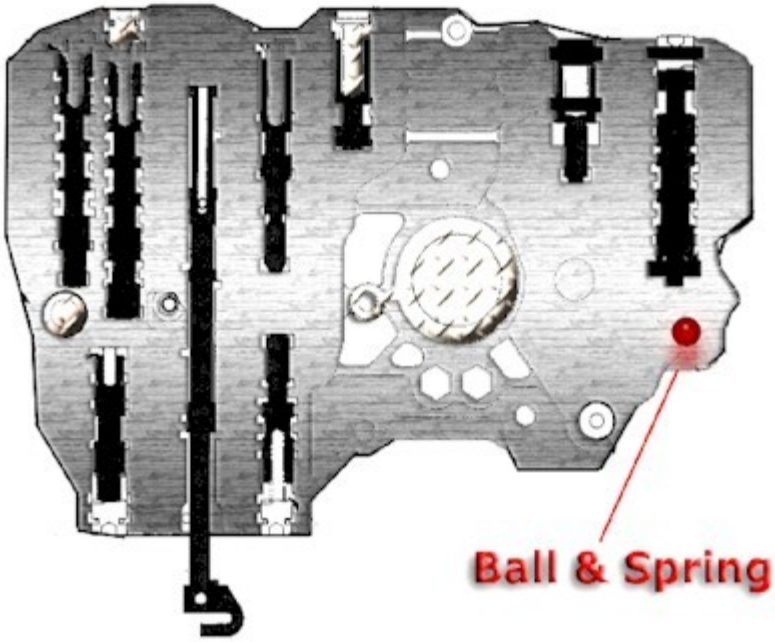
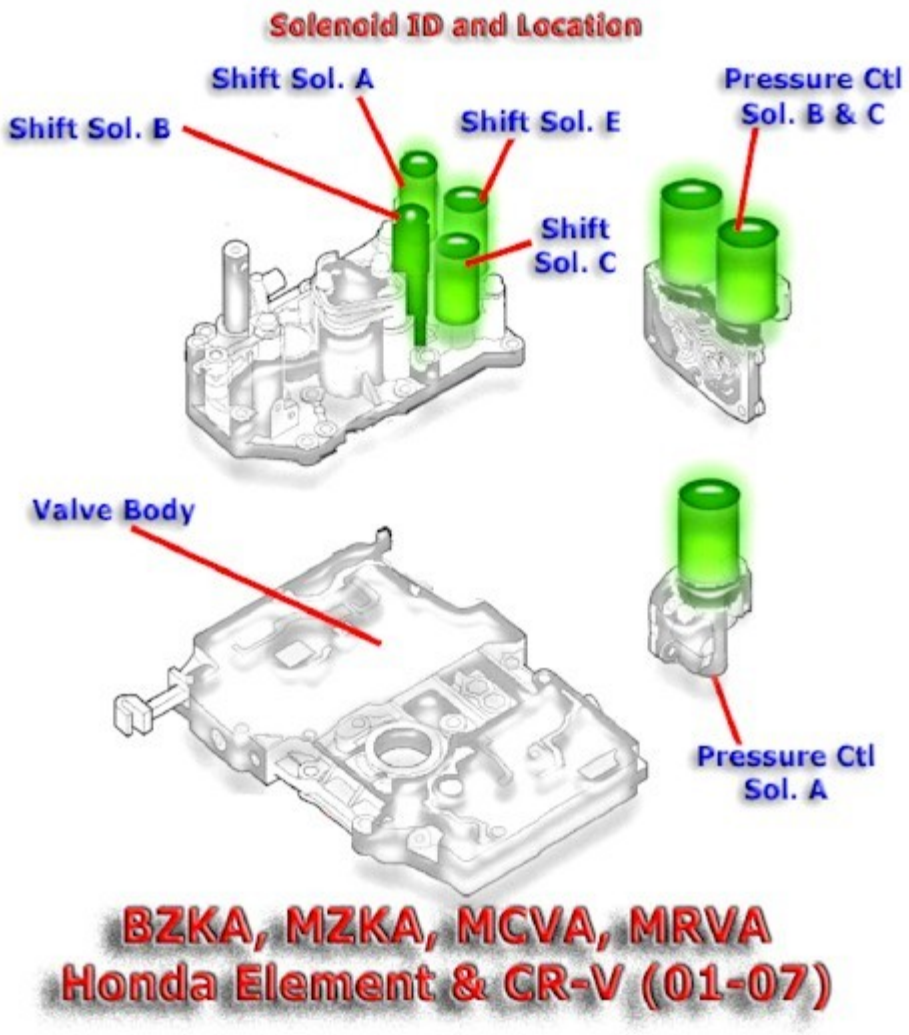
M7WA/MGFA
Check Ball & Spring Position



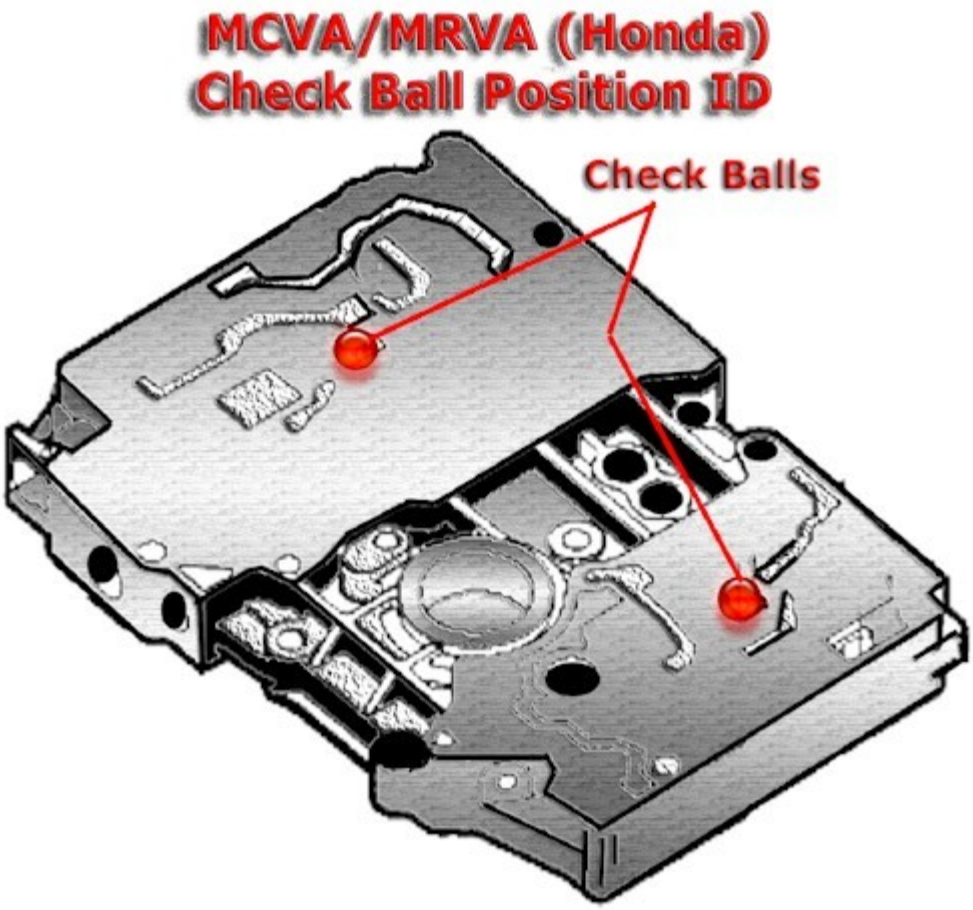
MCVA/MRVA

ProCarManuals.com



BZKA, MZKA, MCVA, MRVA
Honda Element & CR-V (01-07)

ProCarManuals.com



MDKA/BDKA

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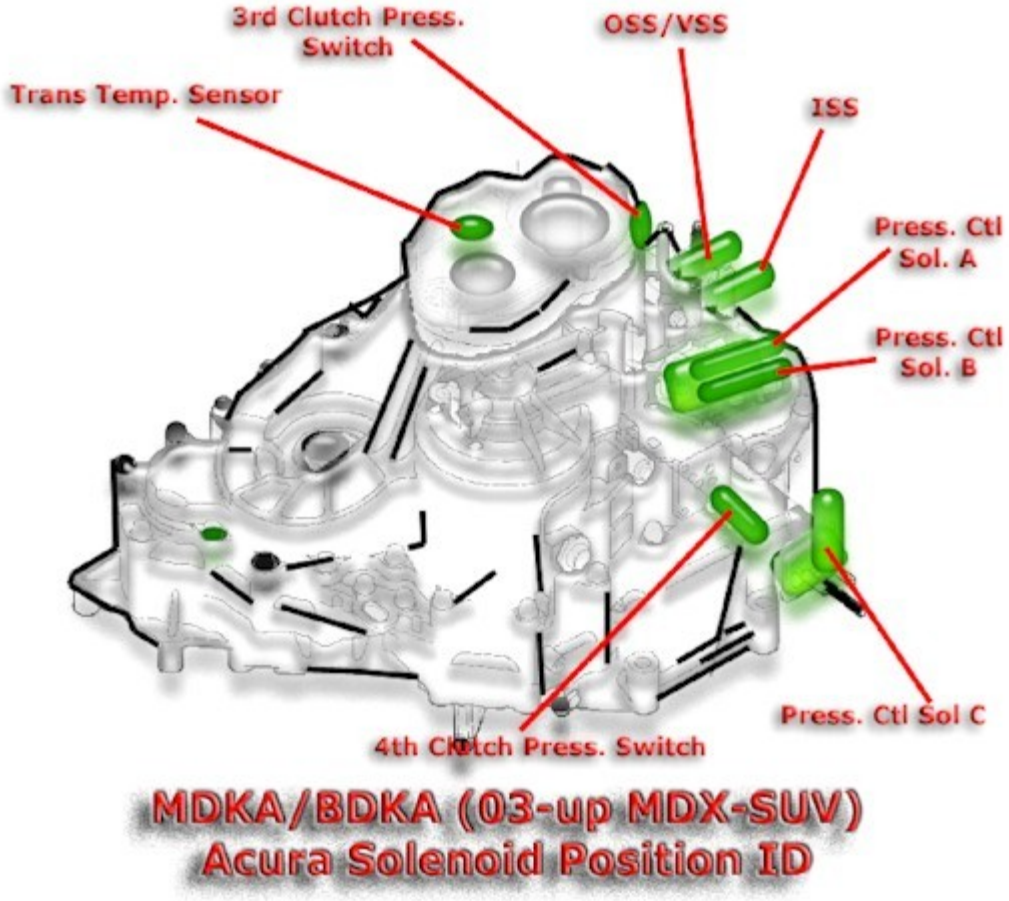
MDKA/BDKA (03-up MDX-SUV)



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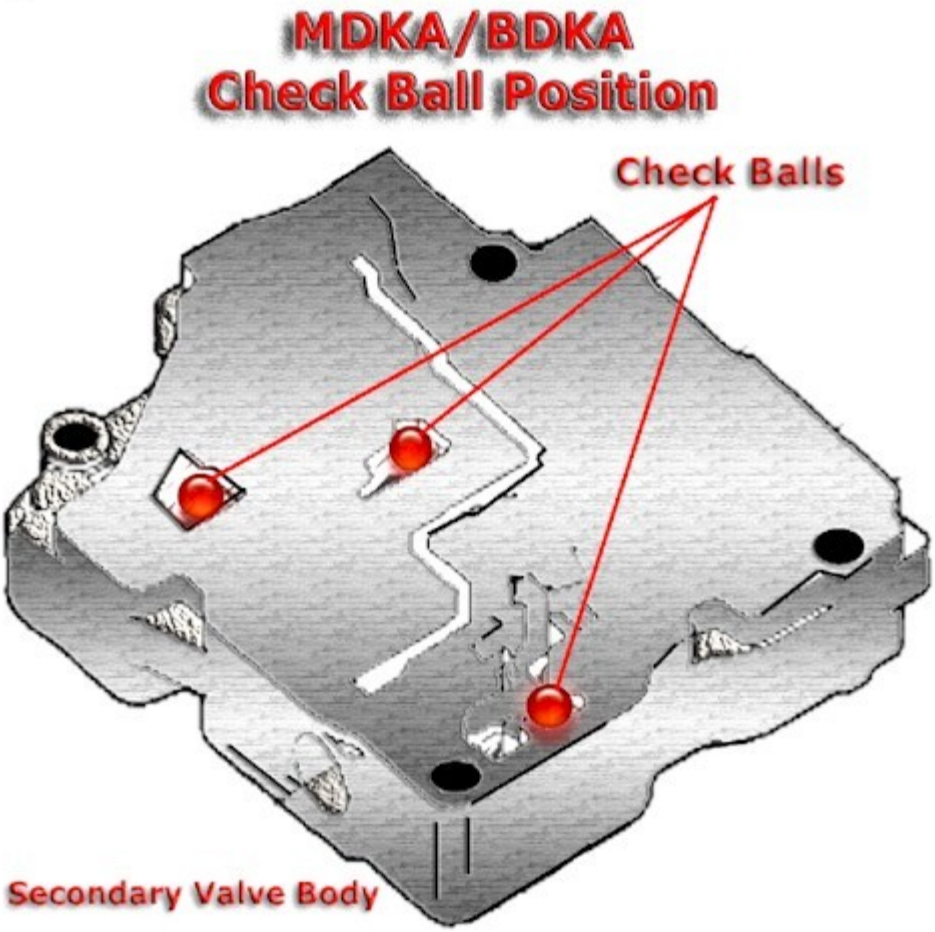
MDKA/BDKA

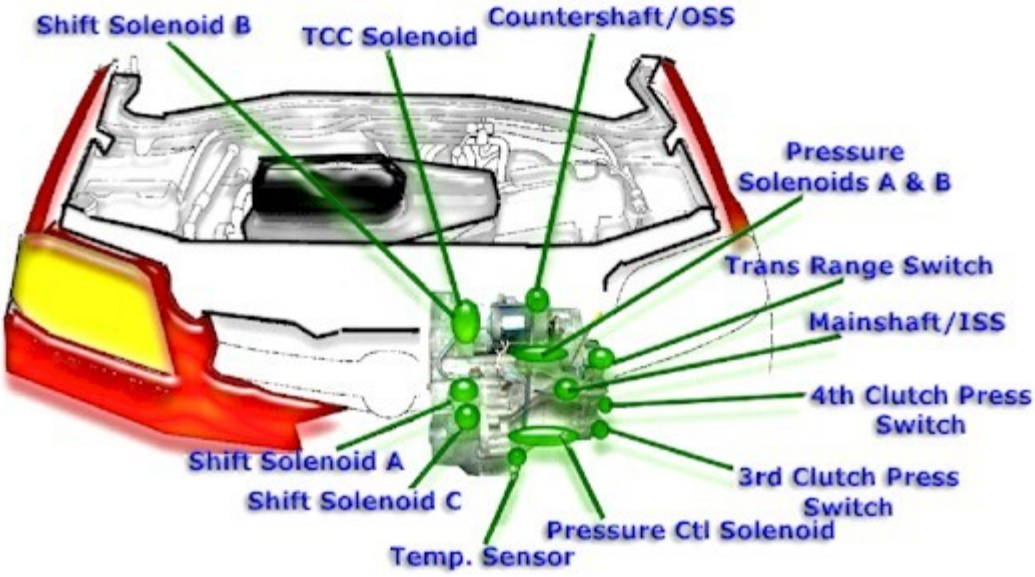


MGHA

ProCarManuals.com

MGHA (MDX-SUV)

MGHA (MDX) SUV trans Solenoid Position ID



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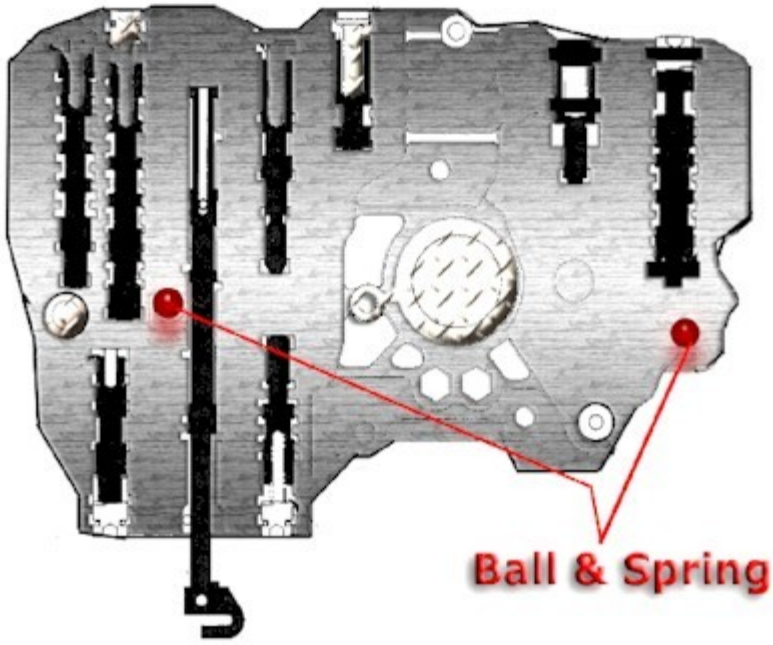
MGHA (SUV)
Check Ball & Spring Position



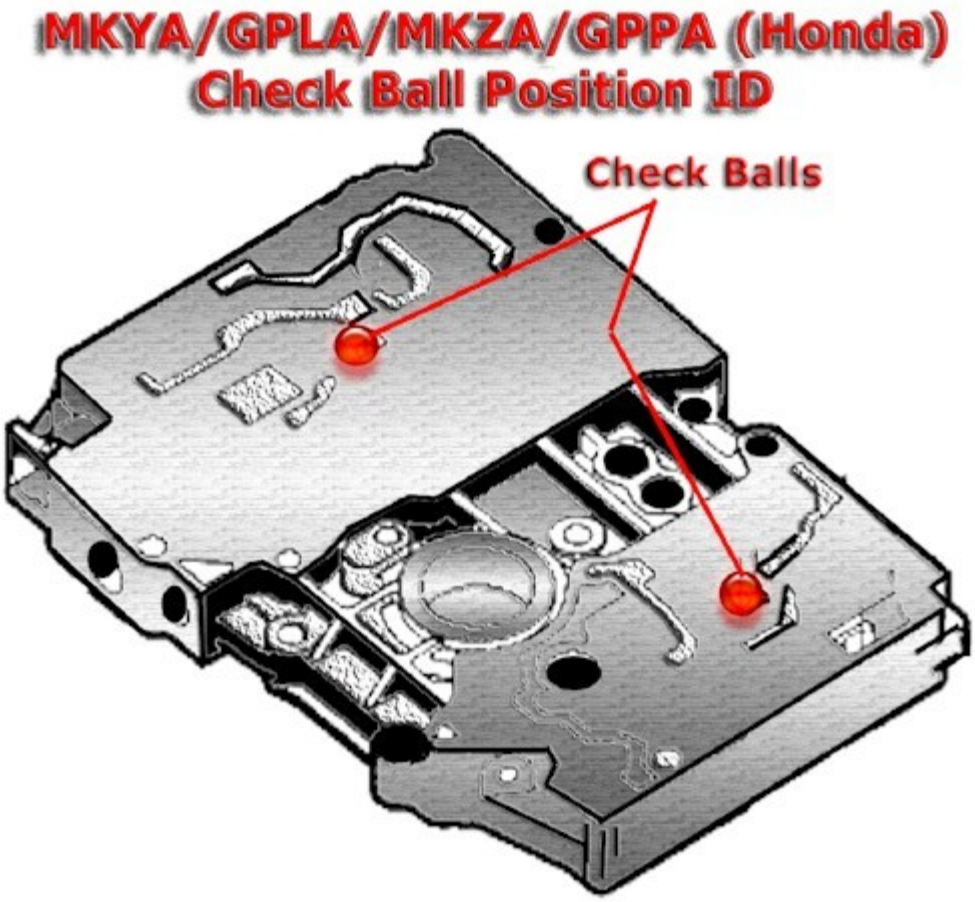
MKYA

ProCarManuals.com

MKYA/GPLA/MKZA/GPPA

MKYA/GPLA/MKZA/GPPA Trans Solenoid Position ID

ProCarManuals.com

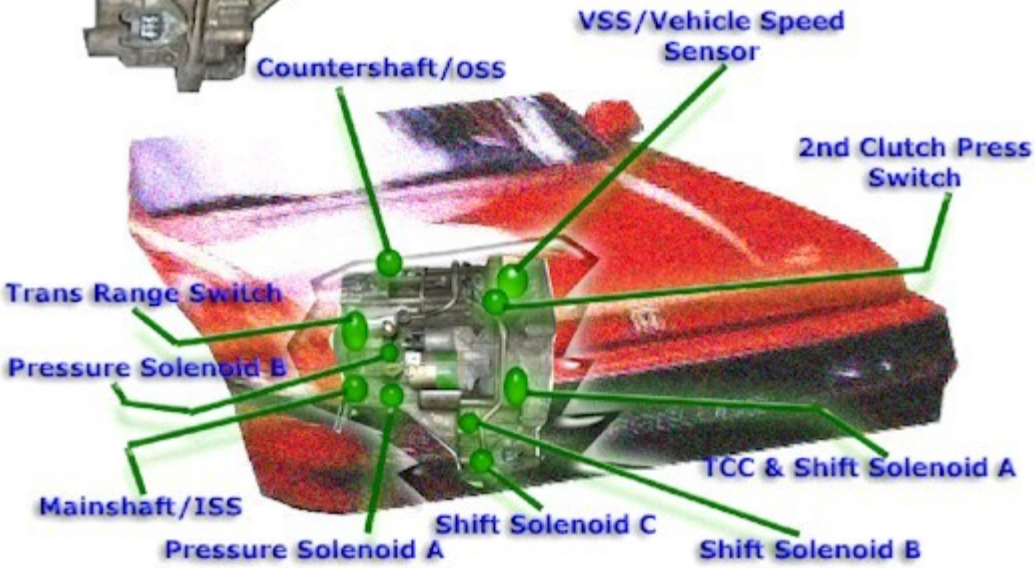


MP1A

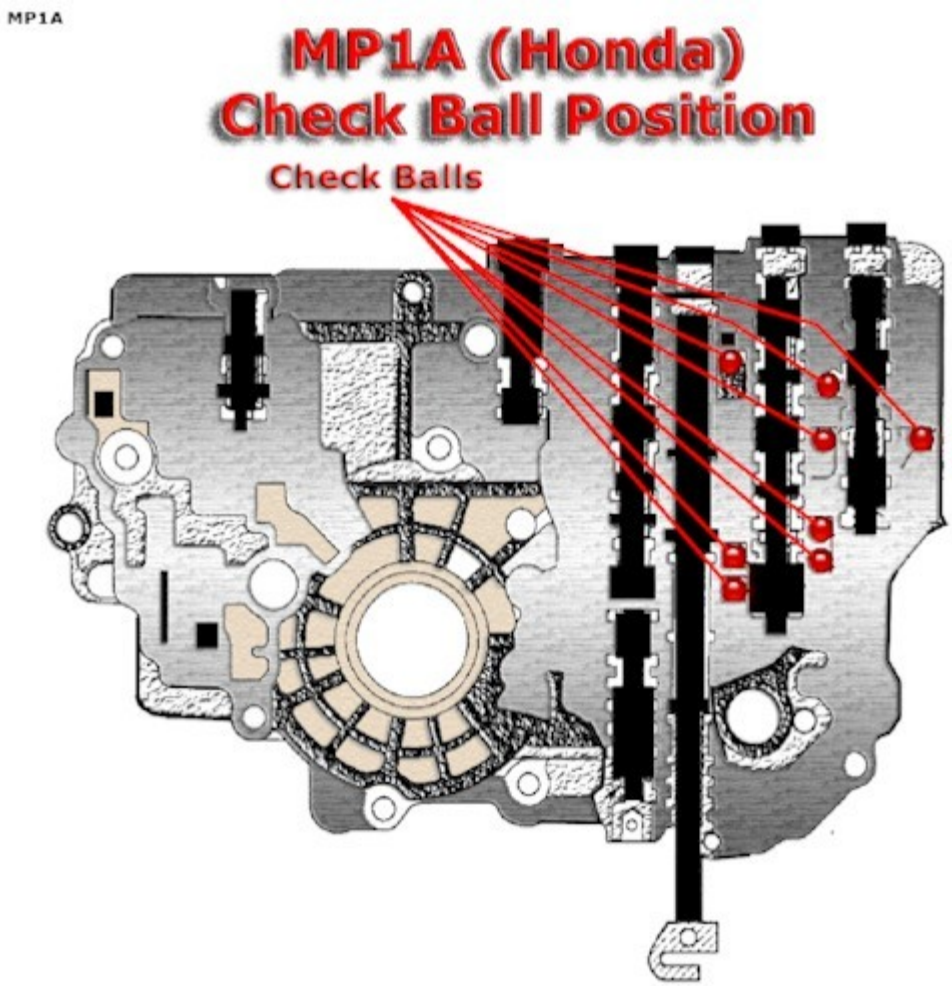
ProCarManuals.com

MP1A (fwd)

MP1A Trans Solenoid Position ID



ProCarManuals.com



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Section: Acura/Honda Shifting Truth-Tables (shifting truth tables or shifting combination)

IMPORTANT: The transmission truth table allows you to be able to manually shift the unit. This is done to determine if your non-shifting trans is due to a mechanical /hydraulic problem or damage circuit, such as an electronic/sensor open-short ckt. If you're able to manually shift the transmission, then you know that a rebuild is not going to repair the vehicle. If this is so, then concentrate on diagnosing the electrical/electronic fault.

To manually shift the transmission, apply ground to the shift solenoids in the combination seen in the truth-table. If the transmission is stuck in one gear (limp-in mode 2nd or 3rd) then there's hydraulic pressure and the transmission should manually shift. If it doesn't shift then the fault in internal to the trans. Double check and make sure the shift sol. have power at the ECM/TCM wire. This means that the Ckt is not open (broken). As a final step, intermittently apply ground to the shift sol. and listen for a clicking noise. This will tell you that the solenoid is working, however, it may still be clogged. Technicians have used an injector pulser to apply a series of fast pulses to break the sludge or particles free of the solenoid.

IMPORTANT: Some units may show 3 or 4 shift solenoids. However, not all solenoids are covered on the Truth-Table. The Truth-Table only covers those solenoids that are needed to manually shift the transmission.

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4L30E

4L30-E Shift Solenoid Truth Table

	Shift 1-2/3-4	Shift Sol 2-3
1st Gear -	OFF	ON
2nd Gear -	ON	ON
3rd Gear -	ON	OFF
4th gear -	OFF	OFF

B7TA/B7YA

B7TA/B7YA Shift Solenoid Truth Table

	Shift Sol A	Shift Sol B	Shift Sol C
1st Gear -	OFF	ON	ON
2nd Gear -	ON	ON	OFF
3rd Gear -	ON	OFF	ON
4th Gear -	OFF	OFF	OFF

BAXA

BAXA Shift Solenoid Truth Table

	Shift Sol A	Shift Sol B	Shift Sol C
1st Gear -	OFF	ON	ON
2nd Gear -	ON	ON	OFF
3rd Gear -	ON	OFF	ON
4th Gear -	OFF	OFF	OFF

BGRA

BGRA Shift Solenoid Truth Table

	Shift Sol A	Shift Sol B	Shift Sol C
1st Gear -	ON	ON	ON
2nd Gear -	ON	ON	OFF
3rd Gear -	OFF	ON	ON
4th Gear -	OFF	OFF	OFF
5th Gear -	ON	OFF	ON

BMXA/SLXA

BMXA/SLXA Shift Solenoid Truth Table

	Shift Sol A	Shift Sol B
1st Gear -	OFF	ON

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2nd Gear -	ON	ON
3rd Gear -	ON	OFF
4th Gear -	OFF	OFF

BYBA/BVGA

BYBA/BVGA Shift Solenoid Truth Table

	Shift Sol A	Shift Sol B	Shift Sol C
1st Gear -	ON	ON	ON
2nd Gear -	ON	ON	OFF
3rd Gear -	OFF	ON	ON
4th Gear -	OFF	OFF	OFF
5th Gear -	ON	OFF	ON

BZKA/MZKA

BZKA/MZKA Shift Solenoid Truth Table

	Shift Sol A	Shift Sol B	Shift Sol C	Shift Sol E
1st Gear -	ON	ON	ON	OFF
2nd Gear -	OFF	ON	OFF	OFF
3rd Gear -	OFF	OFF	ON	OFF
4th Gear -	ON	OFF	OFF	OFF

M5HA/M5DA

M5HA/M5DA Shift Solenoid Truth Table

	Shift Sol A	Shift Sol B
1st Gear -	OFF	ON
2nd Gear -	ON	ON
3rd Gear -	ON	OFF

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4th gear -	OFF	OFF

M6HA

M6HA Shift Solenoid Truth Table

	Shift Sol A	Shift Sol B
1st Gear -	OFF	ON
2nd Gear -	ON	ON
3rd Gear -	ON	OFF
4th Gear -	OFF	OFF

M7WA/MGFA

M7WA/MGFA Shift Solenoid Truth Table

	Shift Sol A	Shift Sol B	Shift Sol C
1st Gear -	ON	ON	ON
2nd Gear -	ON	ON	OFF
3rd Gear -	OFF	ON	ON
4th Gear -	OFF	OFF	OFF
5th Gear -	ON	OFF	ON

MCVA/MRVA

MCVA/MRVA Shift Solenoid Truth Table

	Shift Sol A	Shift Sol B	Shift Sol C	Shift Sol E
1st Gear -	ON	ON	ON	OFF
2nd Gear -	OFF	ON	OFF	OFF
3rd Gear -	OFF	OFF	ON	OFF
4th Gear -	ON	OFF	OFF	OFF

MDKA/BDKA

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MDKA/BDKA Shift Solenoid Truth Table

	Shift Sol A	Shift Sol B	Shift Sol C
1st Gear -	ON	ON	ON
2nd Gear -	ON	ON	OFF
3rd Gear -	OFF	ON	ON
4th Gear -	OFF	OFF	OFF
5th Gear -	ON	OFF	ON

MGHA

MGHA Shift Solenoid Truth Table

	Shift Sol A	Shift Sol B	Shift Sol C
1st Gear -	ON	ON	ON
2nd Gear -	ON	ON	OFF
3rd Gear -	OFF	ON	ON
4th Gear -	OFF	OFF	OFF
5th Gear -	ON	OFF	ON

MKYA

MKYA/GPLA/MKZA/GPPA Shift Solenoid Truth Table

	Shift Sol A	Shift Sol B	Shift Sol C	Shift Sol E
1st Gear -	ON	ON	ON	OFF
2nd Gear -	OFF	ON	OFF	OFF
3rd Gear -	OFF	OFF	ON	OFF
4th Gear -	ON	OFF	OFF	OFF

MP1A

MP1A Shift Solenoid Truth Table

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	Shift Sol A	Shift Sol B
1st Gear -	OFF	ON
2nd Gear -	ON	ON
3rd Gear -	ON	OFF
4th Gear -	OFF	OFF

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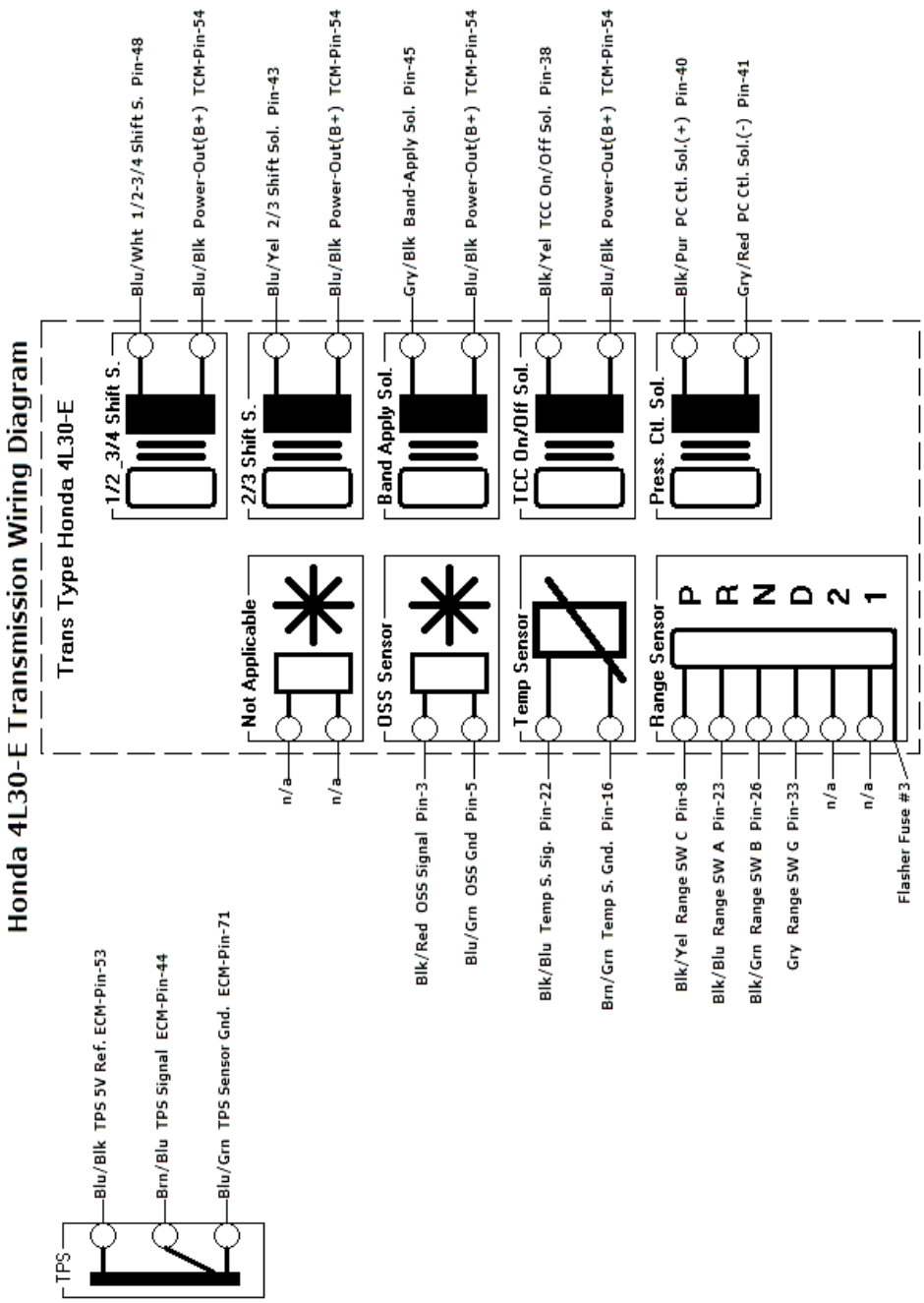
Section: Acura/Honda Wiring Diagrams

This wiring diagram section was arranged with the most common wiring diagrams available for these transmissions. Some variations in color may exist between the different Honda/Acura transmission models. If so then try to extrapolate from the adjoining components.

4L30E



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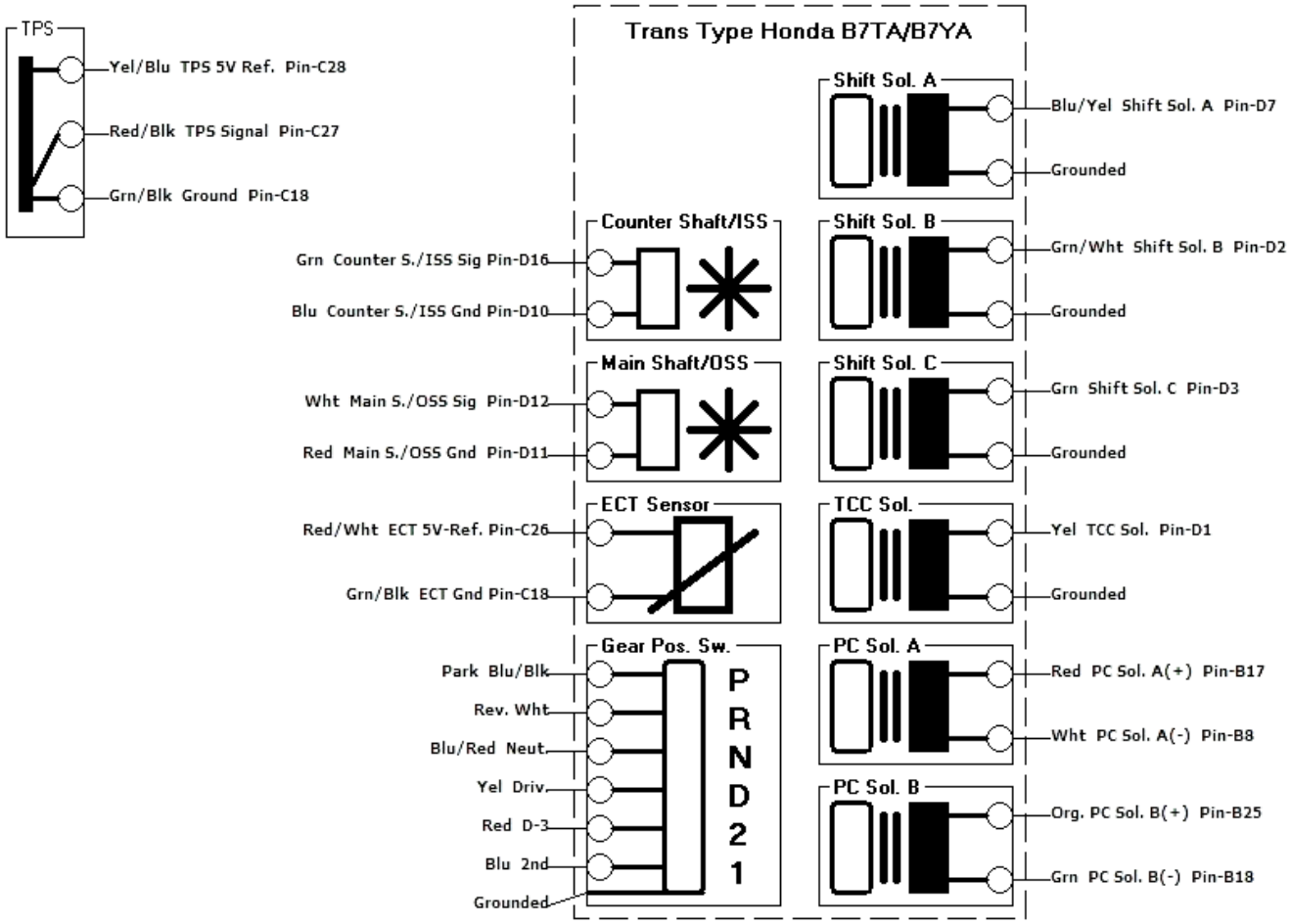
Honda B7TA/B7YA Transmission Wiring Diagram



BAXA

B7TA/B7YA

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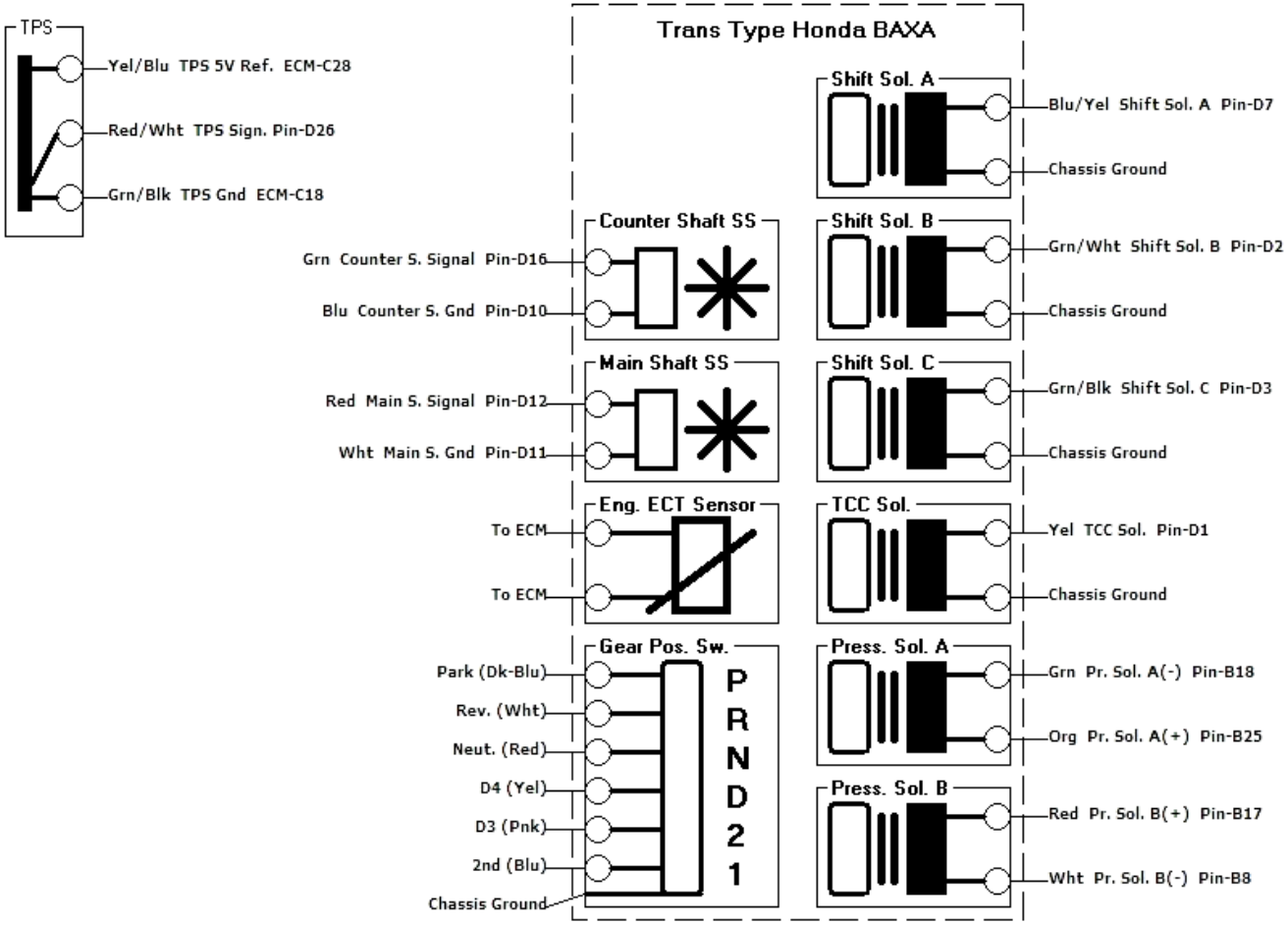
BGRA

Honda BAXA Transmission Wiring Diagram



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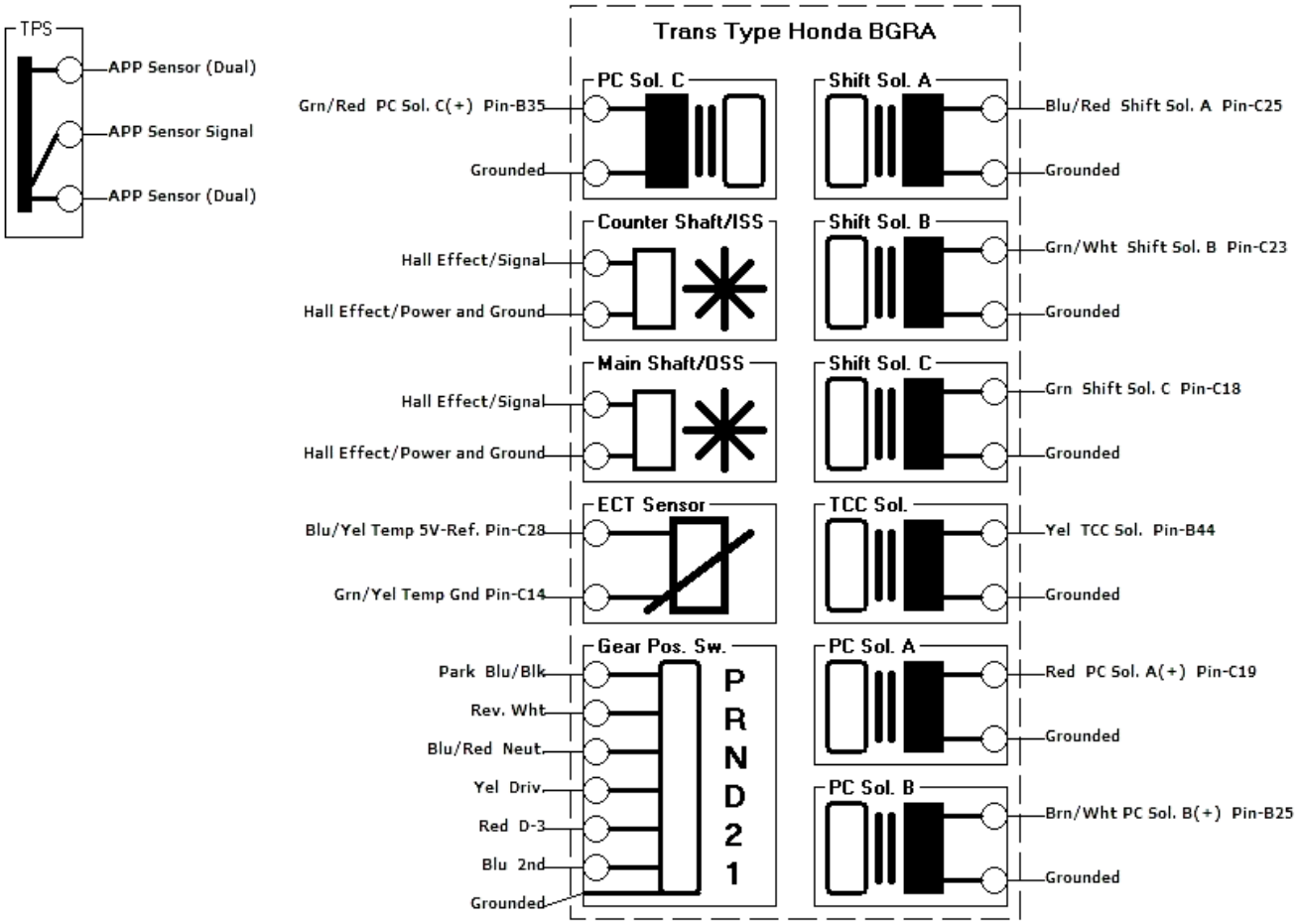
BMXA/SLXA

Honda BGRA Transmission Wiring Diagram



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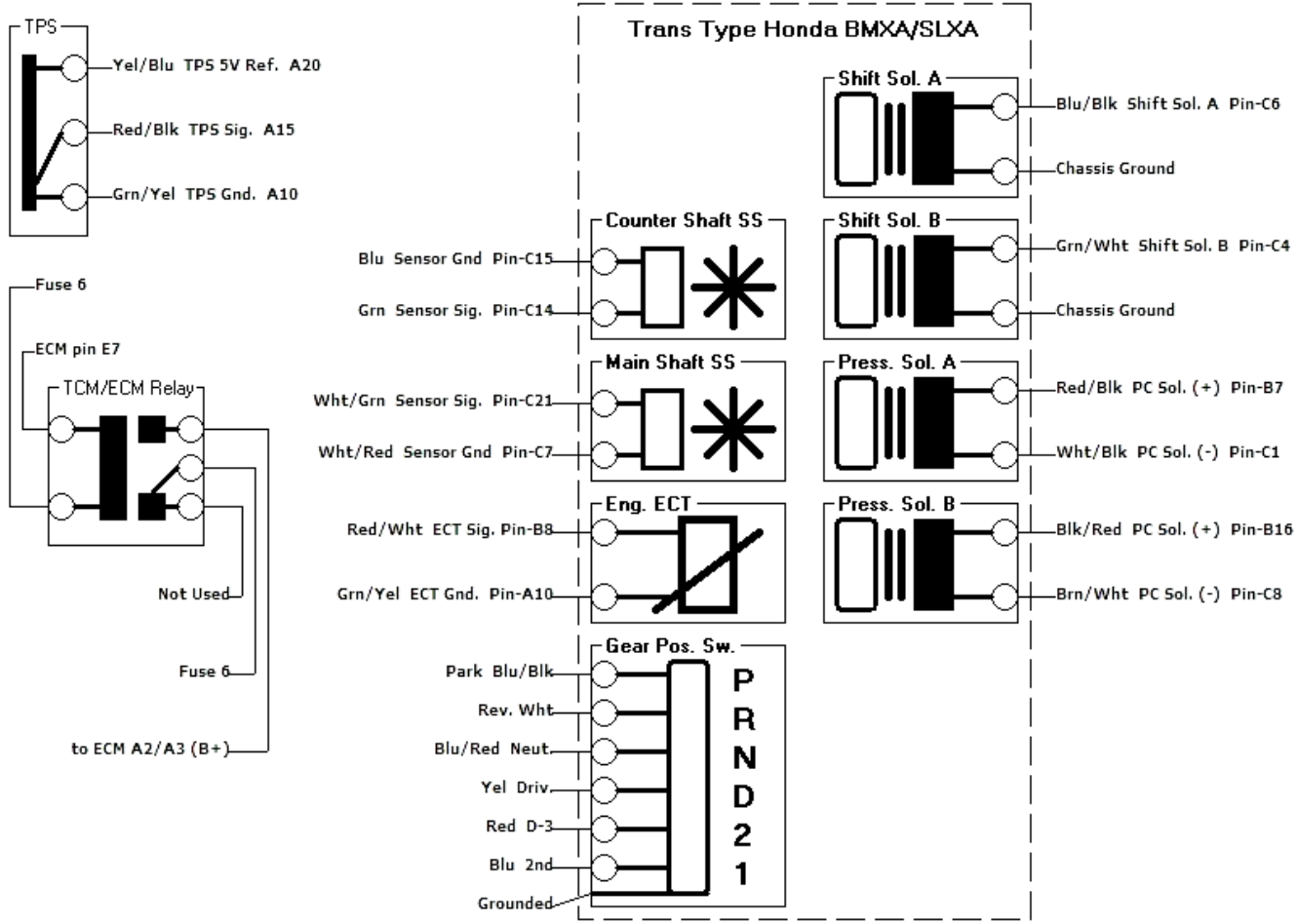
BYBA/BVGA

Honda BMXA/SLXA Transmission Wiring Diagram



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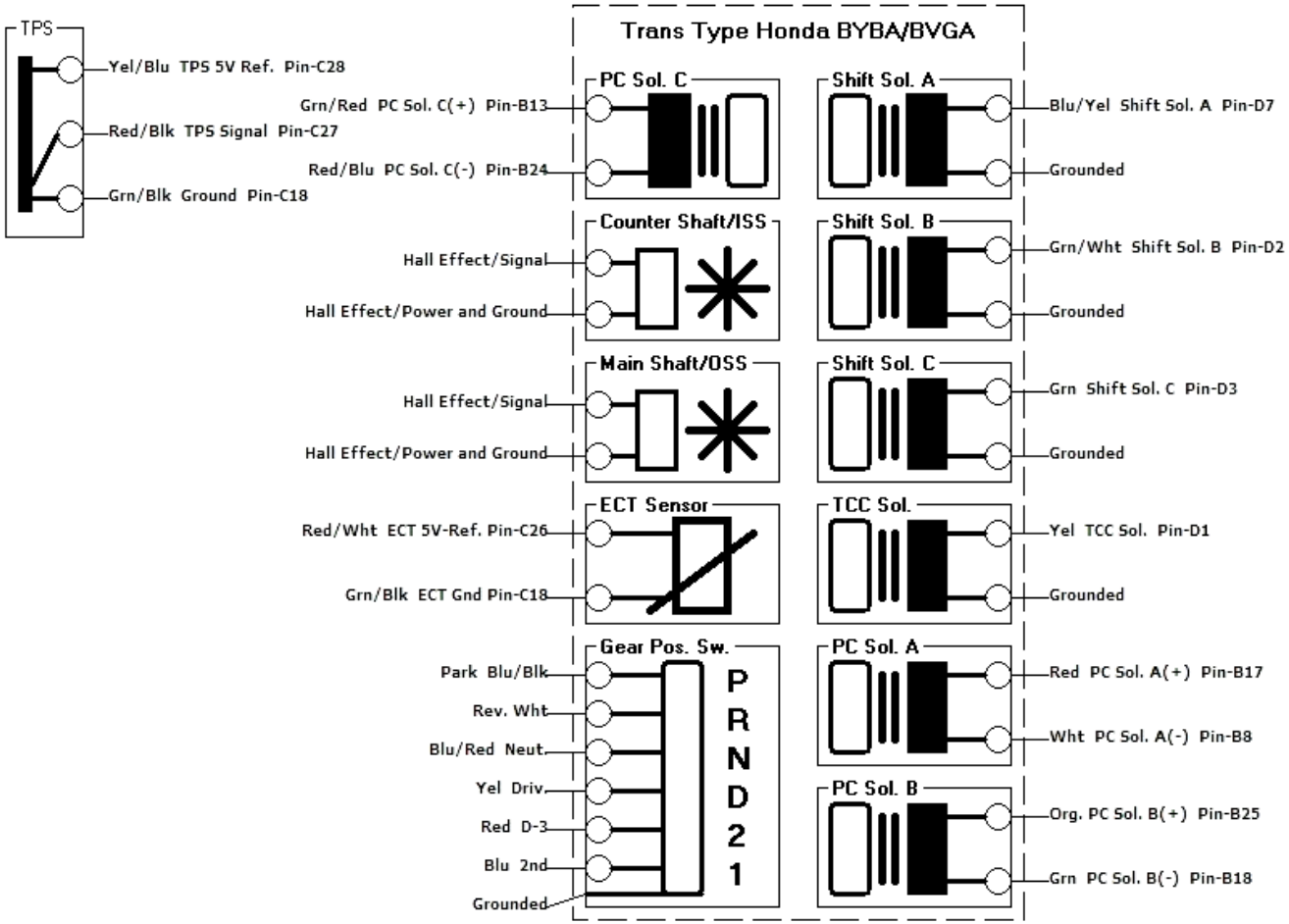
Honda BYBA/BVGA Transmission Wiring Diagram



BZKA/MZKA

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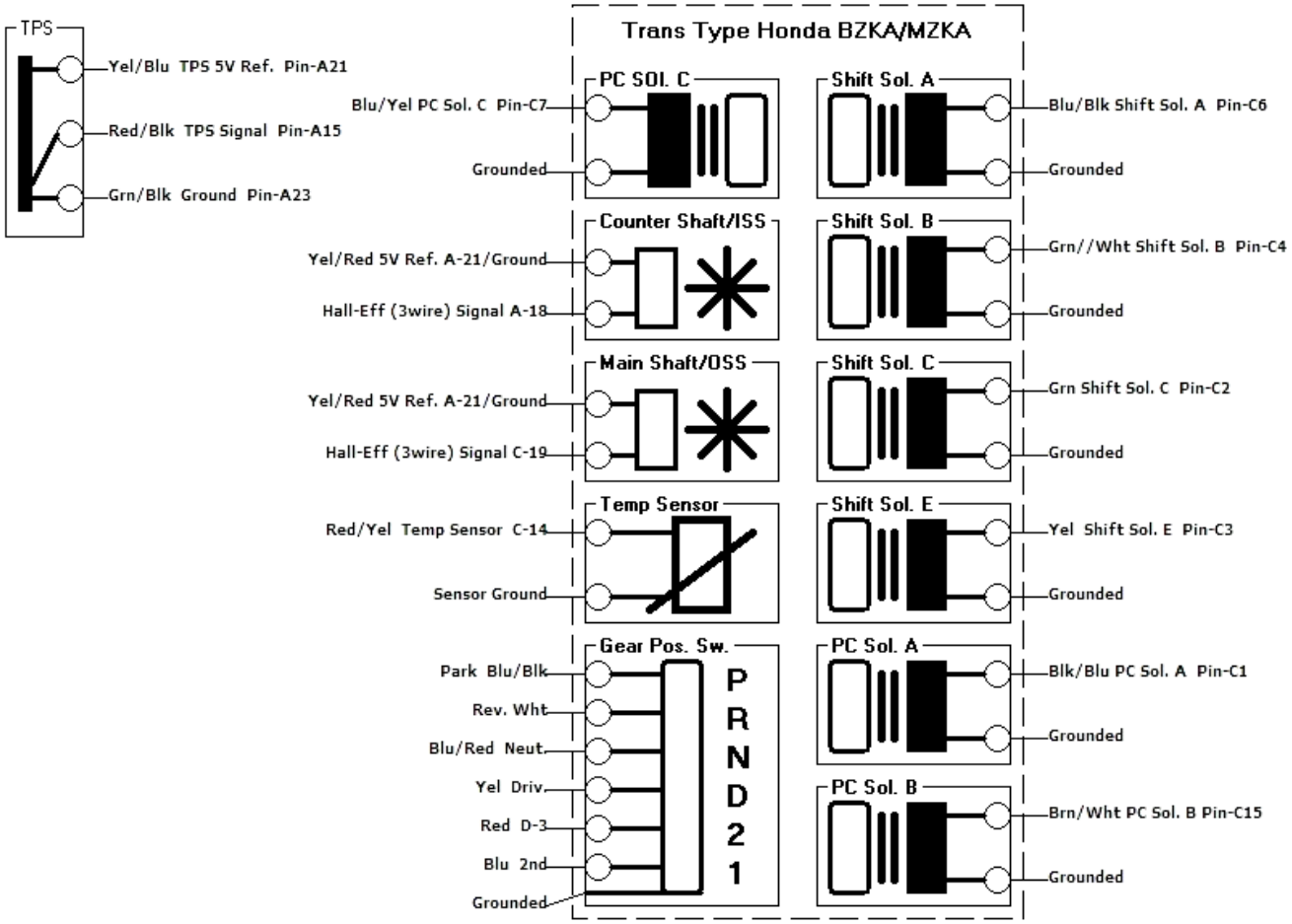
Honda BZKA/MZKA Transmission Wiring Diagram

M5HA/M5DA



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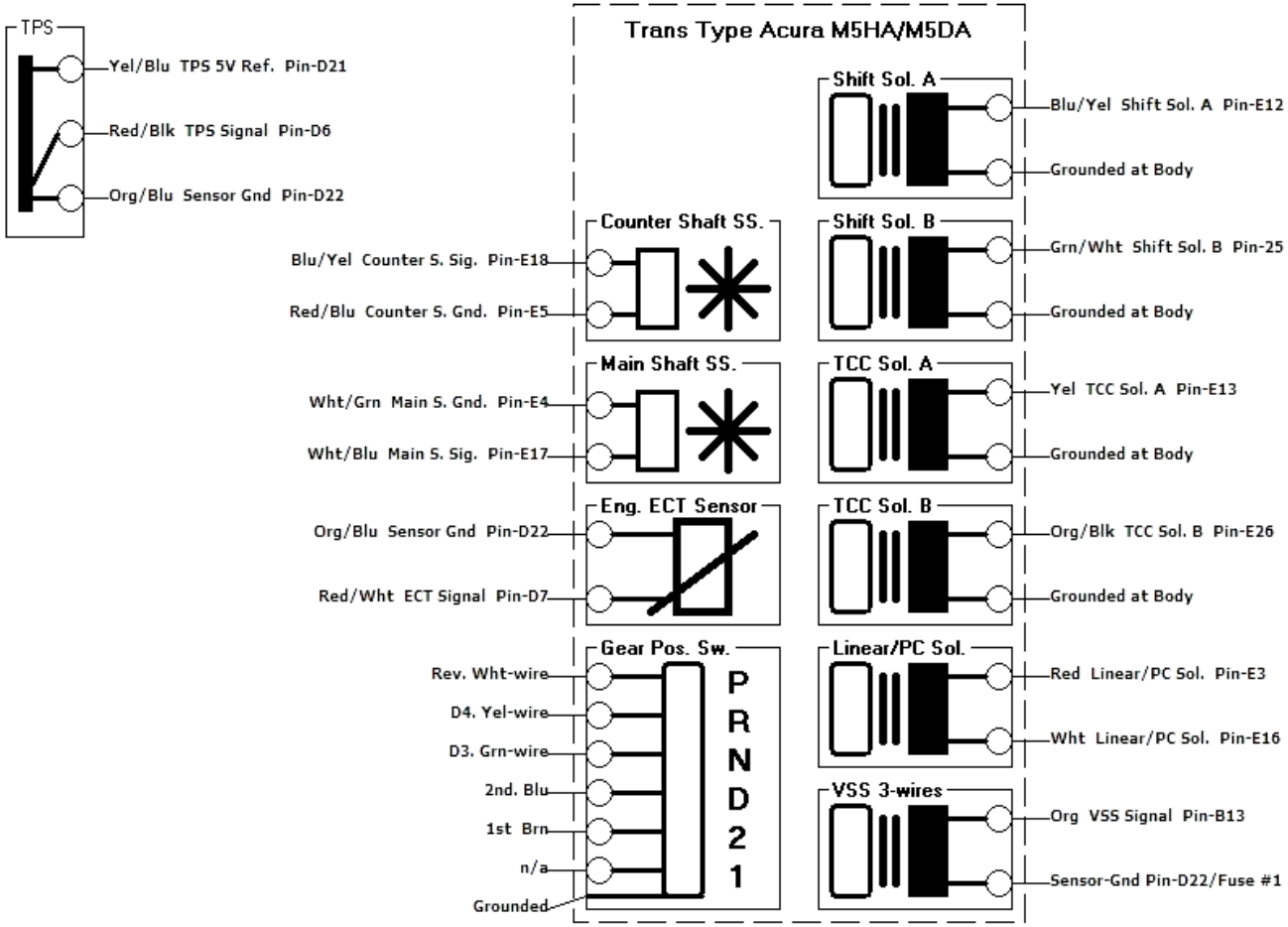
Acura M5HA/M5DA Transmission Wiring Diagram



M6HA

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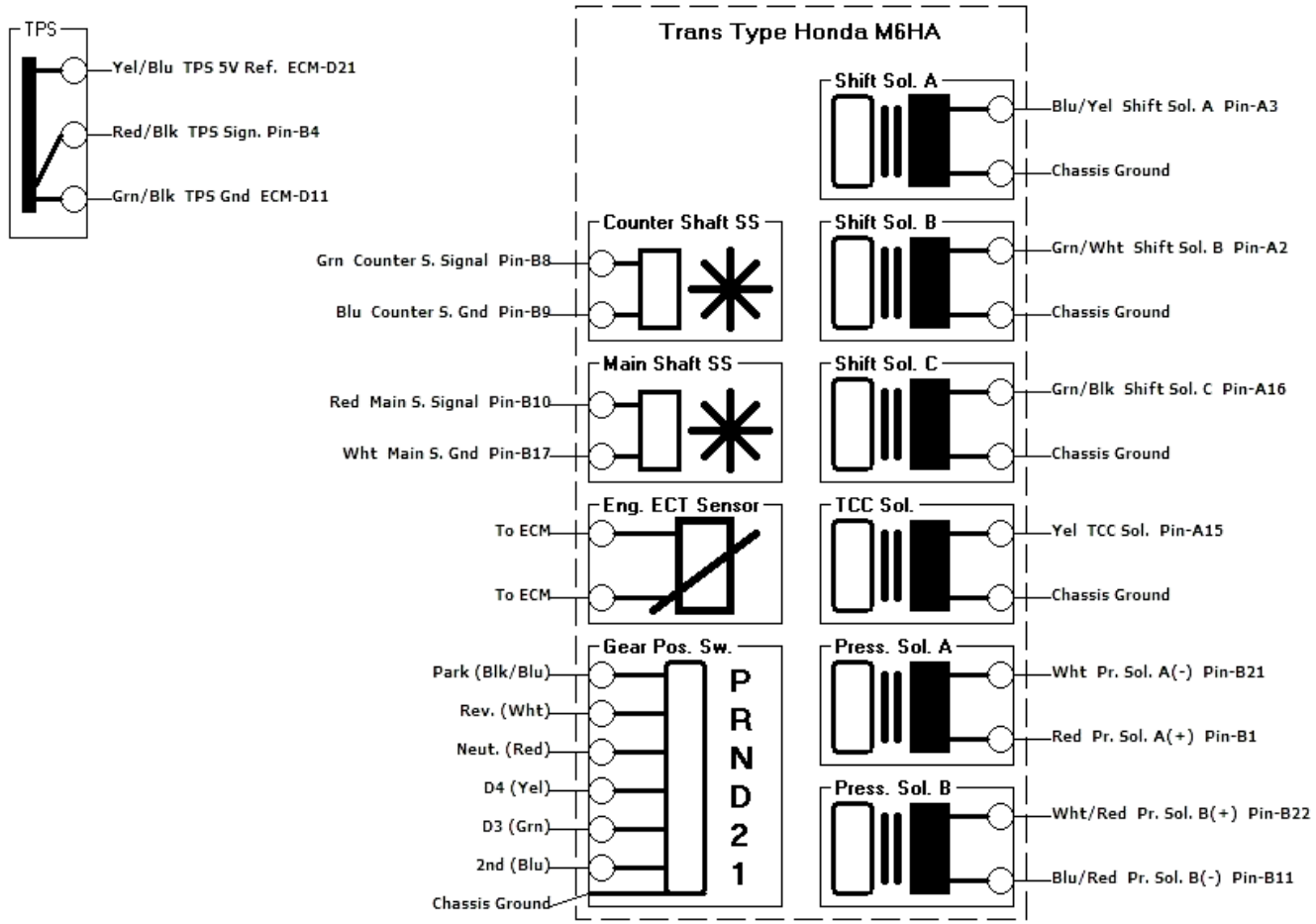
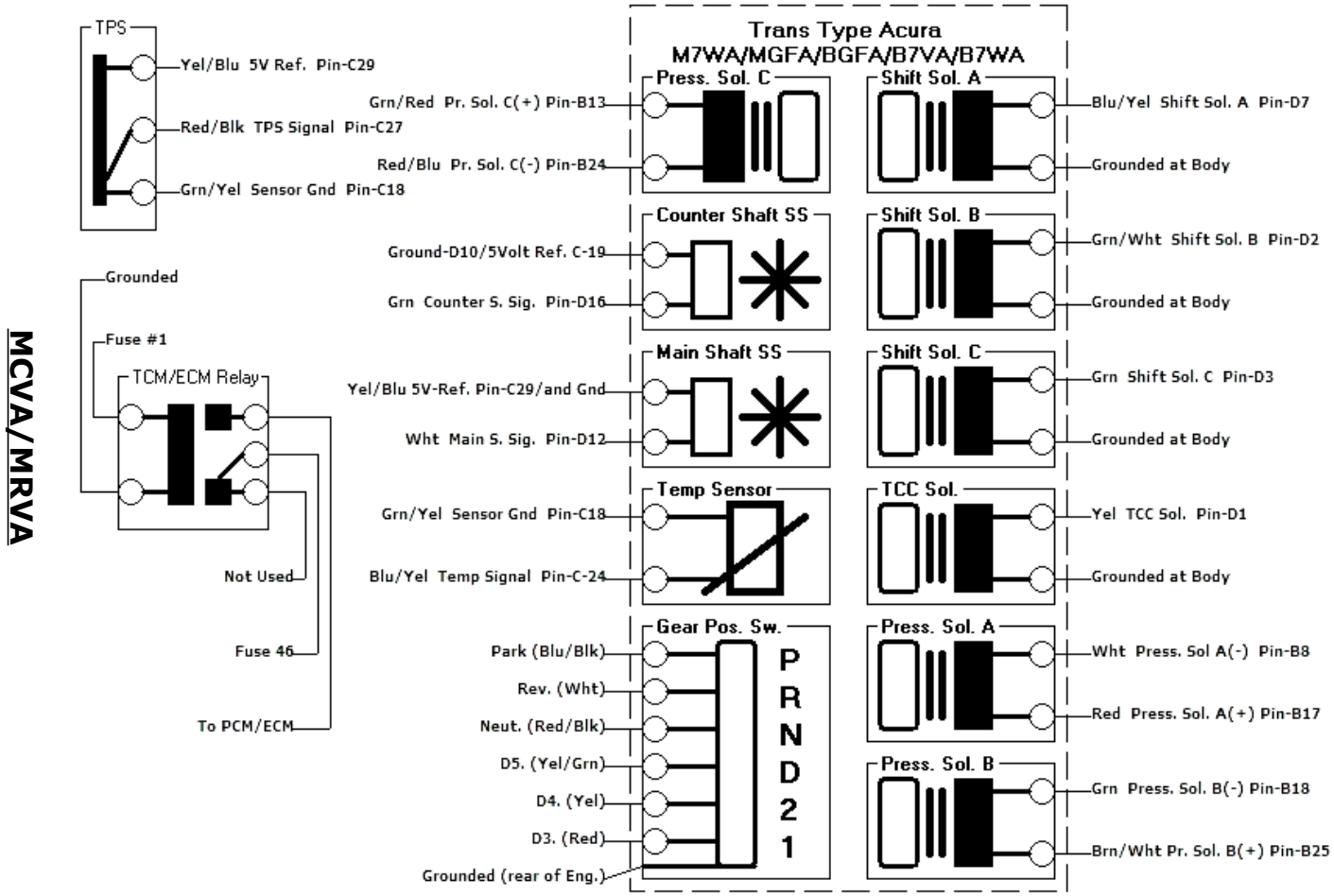
M7WA/MGFA

Honda M6HA Transmission Wiring Diagram



Acura M7WA/MGFA/BGFA/B7VA/B7WA Transmission Wiring Diagram



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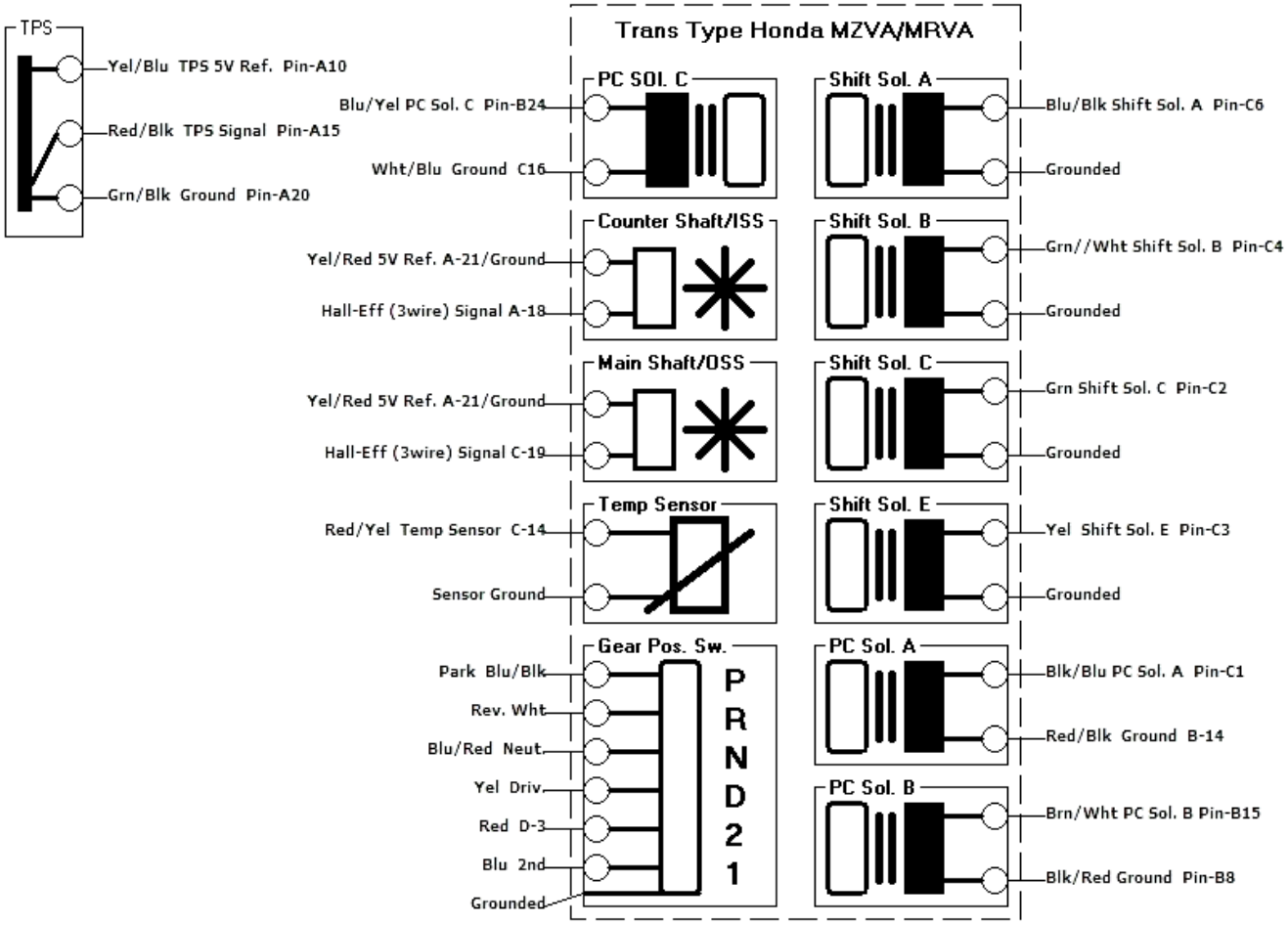
MDKA/BDKA

Honda MZVA/MRVA Transmission Wiring Diagram



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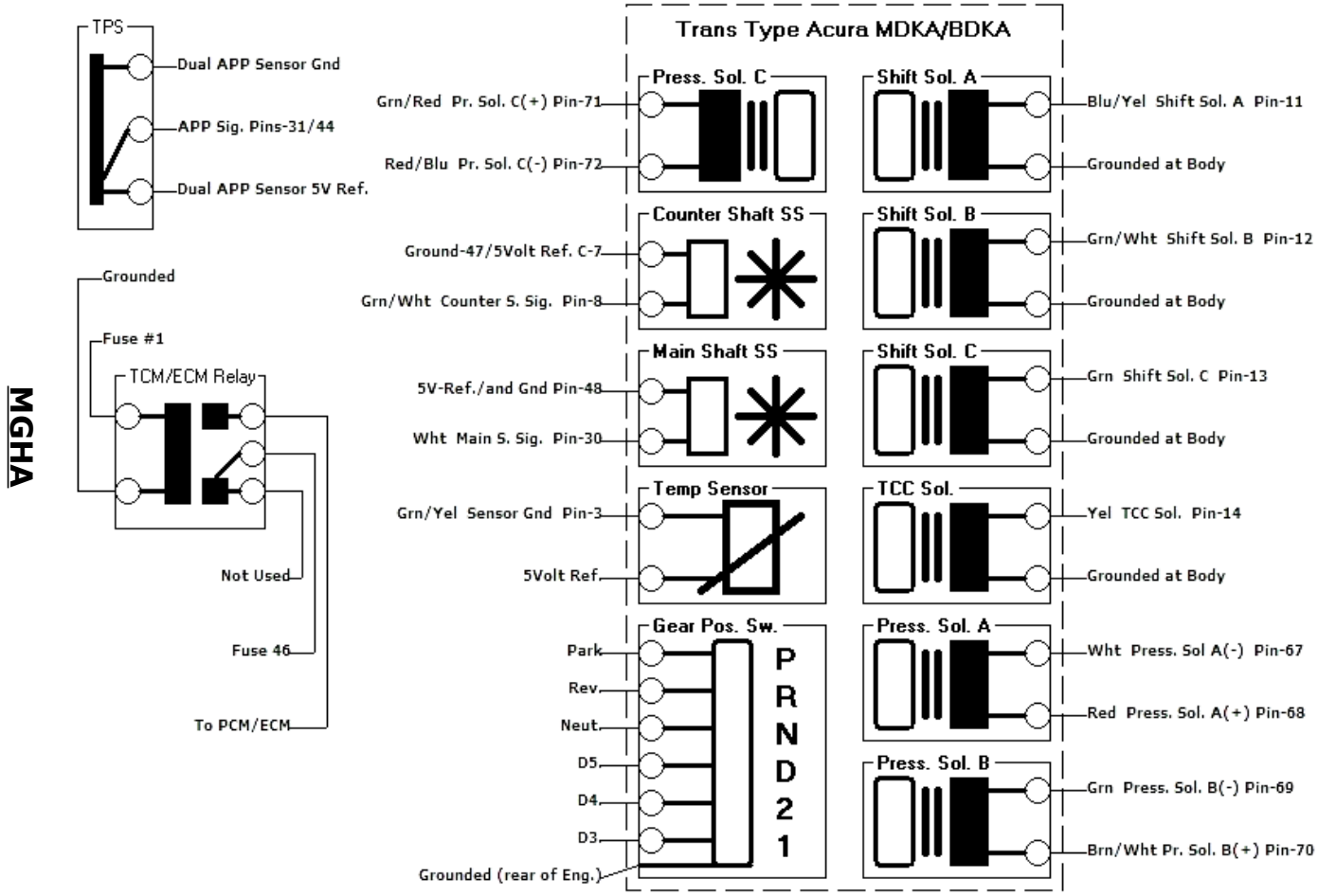
Acura MDKA/BDKA Transmission Wiring Diagram



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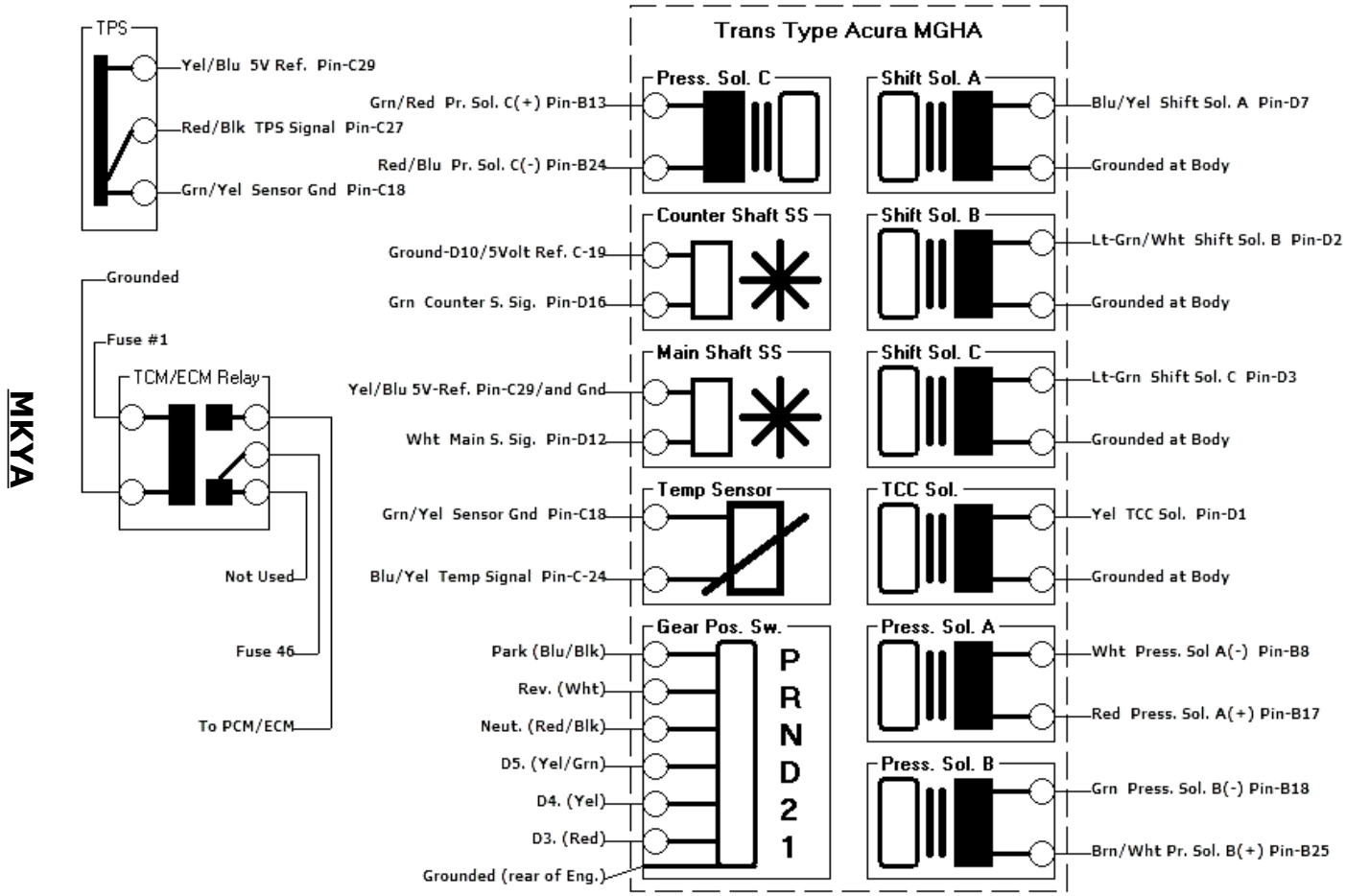
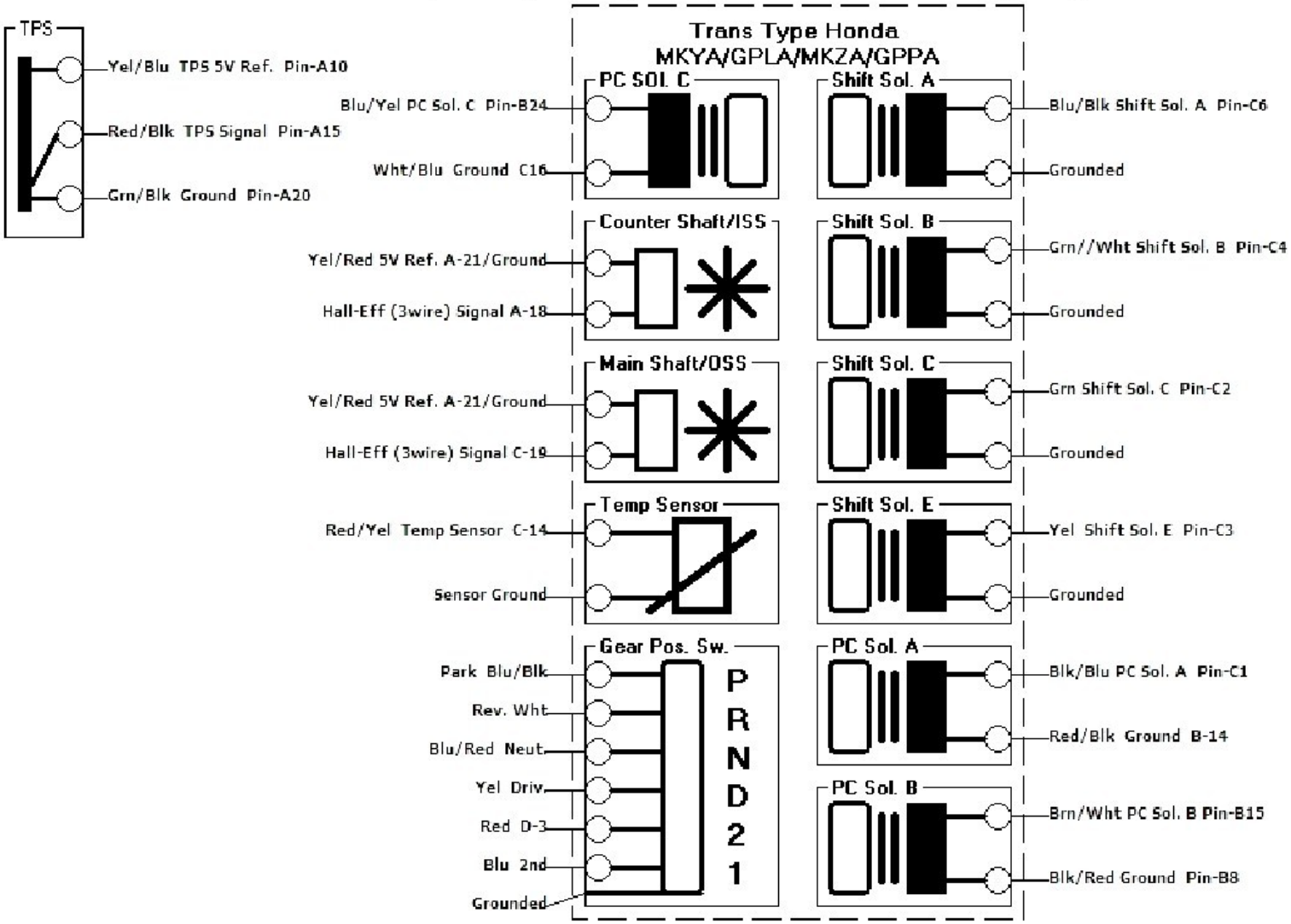
Acura MGHA Transmission Wiring Diagram



Honda MKYA/GPLA/MKZA/GPPA Transmission Wiring Diagram



MP1A

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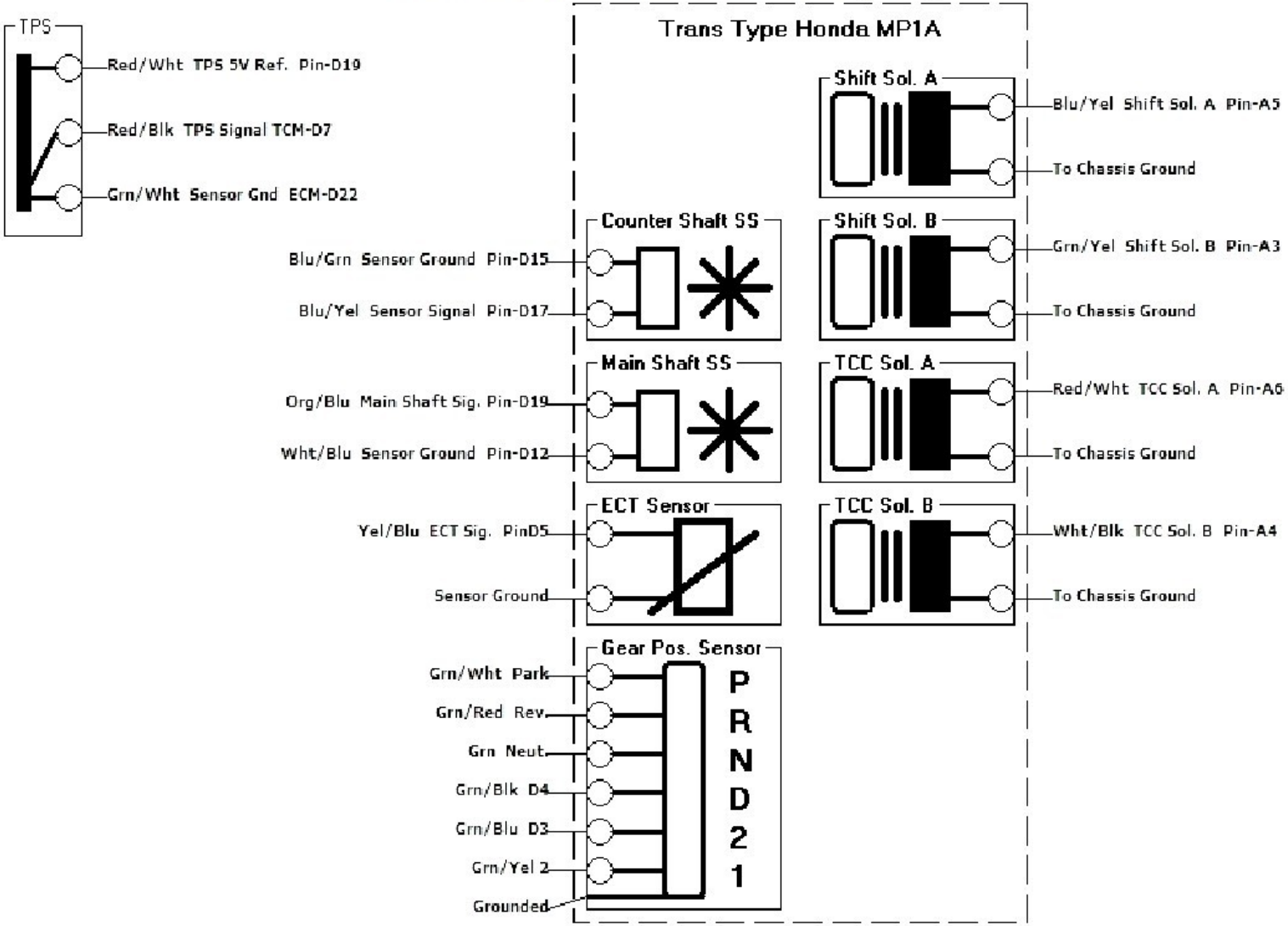
Honda MP1A Transmission Wiring Diagram



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Section: About the Author:

Mandy Concepcion has worked in the automotive field for over 21 years. He holds an Associates Degree in Applied Electronics Engineering as well as an ASE L1 certification. For the past 12 years he has been exclusively involved in the diagnosis of all the different electronic systems found in today's vehicles. It is here where he draws extensive practical knowledge from his experience and hopes to convey it in this book.

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