Chrysler All
CVI (Clutch Volume Indexes)

An important function of the TCM is to monitor Clutch Volume Indexes (CVI). CVI's represent the volume of fluid needed to compress a clutch pack. The TCM monitors gear ratio changes by monitoring the Input and Output Speed Sensors. The Input or Turbine Speed Sensor sends an electrical signal to the TCM that represents input shaft rpm. The Output Speed Sensor provides the TCM with output shaft speed information. By comparing the two inputs, the TCM can determine transmission gear position.

This is important to the CVI calculation because the TCM determines CVIs by monitoring how long it takes for a gear change to occur. Gear ratios can be determined by using the Scan Tool and reading the Input/Output Speed Sensor values in the "Monitors" display. Gear ratio can be obtained by dividing the Input Speed Sensor value by the Output Speed Sensor value. For example, if the input shaft is rotating at 1000 rpm and the output shaft is rotating at 500 rpm, then the TCM can determine that the gear ratio is 2:1. In direct drive (3rd gear), the gear ratio changes to 1:1.

The gear ratio changes as clutches are applied and released. By monitoring the length of time it takes for the gear ratio to change following a shift request, the TCM can determine the volume of fluid used to apply or release a friction element.

TE/RLE

Clutch Volumes

Clutch	When Updated			Proper Clutch Volume
	Shift Sequence	Oil Temperature	Throttle Angle	
L/R	2-1 or 3-1 Coast Downshift	> 21° C (70° F)	< 5°	35 to 83
2/4	1-2 Shift	> 43° C (110° F)	5 - 54°	20 to 77
OD	2-3 Shift	> 43° C (110° F)	5 - 54°	48 to 150
UD	4-3 or 4-2 Shift	> 43° C (110° F)	> 5°	24 to 70

62TE Clutch Volumes	(Preliminary)
UD	26-74
2/4	16-54
OD	42-143
L/R	16-63
LC	16-25
DC	26-34

Chrysler All
CVI (Clutch Volume Indexes) (continued)

45RFE

Clutch	When Updated	Oil Temperature	Proper Clutch Volume
L/R	2-1 or 3-1 Manual Down Shift	> 110° F	82 to 134
2C	3-2 Kick Down Shift	> 110° F	25 to 64
OD	2-3 Upshift	> 110° F	30 to 64
4C	3-4 Upshift	> 110° F	30 to 64
UD	4-3 Port Throttle Kick Down	> 110° F	25 to 92
Alt 2C	4-5 Upshift	> 110° F	Greater than 2C
1st N-1 ND	10 Minutes After Engine Off	> 80° F	Greater than UD
Normal ND - UD	Repeated N-D Shift at a Stop	> 80° F	Approx. equal to UD
1st 2-3 OD	After First 2-3 Shift	> 65° F	Higher than OD

545RFE

Clutch Volumes		
Clutch	When Updated	Proper Clutch Volume
L/R	2-1 or 3-1 Downshift	45 to 134
2C	3-2 Kickdown Shift	25 to 85
2C Alternate	4-4 Prime Upshift	25 to 85
OD	2-3 Upshift	30 to 100
4C	3-4 Upshift	30 to 85
4C Alternate	2-2 Prime Upshift	30 to 85
UD	4-3 Kickdown Shift	30 to 100

Chrysler All
CVI (Clutch Volume Indexes) (continued)

545RFE

Clutch Volumes		
Clutch	When Updated	Proper Clutch Volume
L/R	2-1, 3-1 or 4-1 Downshift	45 to 134
2C	4-3 or 3-2 Downshift	25 to 85
2C Alternate	5-6 Upshift	25 to 85
OD	3-4 Upshift	30 to 100
4C	4-5 Upshift	30 to 85
4C Alternate	2-3 Upshift	30 to 85
UD	5-4 or 6-4 Kickdown Shift	30 to 100