TUNE-UP

ENGINE IDENTIFICATION

The Engine Identification Number is located as follows:

318" & 360" – Left front of block below cylinder head.
383" – Right side of block adjacent to distributor.
413" – Left side of block adjacent to front tappet rail.

The first three numerals designate engine cubic inch displacement. The premium 318"-3 engine is designated by a "3" stamped below engine number.

Application	Numerals
318"	318
360"	360
383"	383
413"	413

MODEL IDENTIFICATION

VEHICLE IDENTIFICATION NUMBER

Number is on Vehicle Identification Plate which is located on rear face of driver door. Its location on Motor Home chassis must be supplied by body builder.

E13AAOU100001

First & Second Digits – Model Code.
Third Digit – Body Type.
Fourth Digit – Gross Vehicle Weight.
Fifth Digit – Engine Type.
Sixth Digit – Model Year.
Seventh Digit – Plant.
Remaining Digits – Sequence Built Number.

TUNE-UP NOTES

► *IDLE SPEED ADJUSTMENT CAUTION* – Procedures and specifications for idle speed adjustment must be followed exactly as outlined. *See "Hot (Slow) Idle RPM" under Tune-Up.*

NOTE – For other items affecting Tune-Up, see CARBURETION Section or EMISSION CONTROL Section.

NOTE – Due to changes and corrections, always refer to Engine Tune-Up Decal in engine compartment before attempting tune-up. In the event of a conflict between specifications given in this manual and decal specifications, decal specifications prevail.

COMPRESSION PRESSURE

With engine warm, all spark plugs removed and throttle wide open, the maximum variation between cylinders of any one engine should not exceed 20 psi (40 psi in "B" models and Motor Homes).

Application	PSI
318" Man. Trans. (Exc. "B" Models)	120-160
318" Auto. Trans. (Exc. "B" Models)	110-140
318" "B" Models	100 Min.
318"-3 (Exc. Motor Homes)	90-130
383"	125-155
318"-3 & 413" Motor Homes	100 Min.

VALVE TAPPET CLEARANCE

All (Hydraulic) ..... Zero Lash

VALVE ARRANGEMENT

E-I-I-E-E-I-I-E (Front to rear, both banks.)

SPARK PLUGS

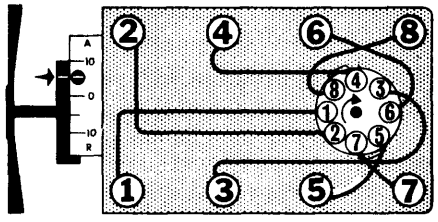
Gap	
14 mm	.035"
18 mm	.030"
Torque	
14 mm	30 Ft. Lbs.
18 mm	20 Ft. Lbs.

Application	Spark Plug Type Champion No.	Mopar No.
318"	N11Y	
318"-3 (18 mm)	F10	P-7-3S
360 & 383"	N13Y	P-3-5P
413"	N6	P-6-4S

DISTRIBUTOR

Point Gap ①	
All (Exc. 413")	.014-.019"
413"	.013-.018"
Cam Angle	
318" & 383"	30-35°
360"	30-34°
413"	28-32°
Breaker Arm Spring Tension	17-20 ozs.
Condenser Capacity	.25-.285 mfd.

① – With solenoid wire (if equipped) disconnected.



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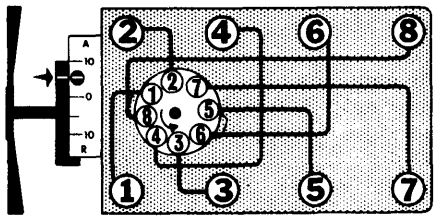
FIRING ORDER & TIMING MARKS 318" – 360"



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FIRING ORDER & TIMING MARKS 383" – 413"

TUNE-UP (Cont.)

IGNITION TIMING

Check or adjust timing with engine at normal operating temperature, distributor vacuum advance line disconnected and plugged, and transmission in Neutral.

Application	Timing
318" (Exc. "B" Models)	
W/Cleaner Air System	2.5° ATDC
W/O Cleaner Air System	5° BTDC
318" "B" Models	
B100 & B200	① 2.5° BTDC
B300 Federal	5° BTDC
B300 Calif.	TDC
318"-3 (Exc. Motor Home)	5° BTDC
318"-3 Motor Home	① 5° BTDC
360" (Exc. B300)	① TDC
360" B300	TDC
383"	
Man. Trans.	TDC
Auto. Trans.	2.5° BTDC
413"	① 5° BTDC

① — Tolerance ±2.5°.

HOT (SLOW) IDLE RPM

Without Cleaner Air System — On engines with automatic transmissions, disconnect transmission throttle rod before making idle adjustment. With air cleaner installed, and choke valve wide open, adjust idle speed screw to obtain specified RPM. Adjust idle mixture screws to obtain highest RPM and readjust idle speed screw to specified RPM. Turn mixture screws in (lean) until speed drops, then out (rich) just far enough to recover highest RPM. Readjust idle speed screw if necessary and check mixture. Adjust idle mixture if necessary. Adjust transmission control rod so that it does not interfere with idle setting and install (automatic transmission only).

With Cleaner Air System — With engine running at normal operating temperature, timing checked, air cleaner installed, and transmission in Neutral, connect tachometer and insert probe of exhaust gas analyzer a minimum of two feet into tail pipe. Warm up and calibrate according to manufacturer's instructions and clamp hose between distributor vacuum control valve and intake manifold. Adjust idle mixture screw 1/16 turn richer (out) and wait 10 seconds before reading meter and, if necessary, adjust again until meter shows a definite increase in richness. Adjust carburetor to give a 14.2 air/fuel ratio by moving screw 1/16 turn at a time. Adjust idle speed screw if necessary to maintain specified RPM. If idle is rough, the mixture screws may be adjusted independently to smooth it out so long as the 14.2 air/fuel ratio is maintained. Remove clamp from distributor vacuum valve hose. If engine speed changes materially, check and set vacuum valve. *See Distributor Vacuum Control Valve Adjustment.*

Idle Speed (RPM)

Application	RPM
318" W/Carb. No. BBD-4827S	650
318"-3	700
383" W/Carb. No. BBD-4834S	650
413"	600
All Others	
Man. Trans.	750
Auto. Trans	700

COLD (FAST) IDLE RPM

With engine at normal operating temperature, transmission in Neutral, choke open, hot (slow) idle set, and air cleaner installed (Cleaner Air System engines only), place fast idle speed adjusting screw on lowest step of fast idle cam on standard carburetors and on second highest step of cam on Cleaner Air System carburetors. Adjust screw to obtain specified RPM. Reposition cam and screw after every screw adjustment to apply normal throttle closing torque.

Fast Idle Speed (RPM)

Application	RPM
318"	
Man. Trans.	1600
Auto. Trans. (Exc. W/Carb. No. BBD-4958S)	1800
Auto. Trans. (W/Carb. No. BBD-4958S)	1900
318"-3	1600
360"	1800
383" (Exc. W/Carb. No. BBD-4961S)	1700
383" W/Carb. No. BBD-4961S	1900
413"	1900

GOVERNOR ADJUSTMENTS

NOTE — All governor adjustments are made with engine tuned and at normal operating temperature.

Speed Adjustment — Remove seal from speed screw adjusting cap and turn cap ½ turn at a time, out to increase speed and in to decrease speed. More than two turns out from factory setting is not recommended.

Governor Speed (RPM, No Load)

Application	Factory Setting
900-770	3700

Surge and Stability Adjustment — Block throttle linkage to provide surge at governed speed. With suitable hex wrench (A25264) holding speed screw, turn suitable hollow wrench (A24283) on calibrating nut clockwise ¼ turn at a time until surge is minimized. Turn calibrating nut counterclockwise to improve stability. Reset speed screw if necessary.

AUTOMATIC CHOKE SETTING

Nonadjustable. Check for free movement on pivot by moving choke rod up and down. If unit binds, install new one.

DISTRIBUTOR VACUUM CONTROL VALVE ADJUSTMENT

Adjust dashpot so that it does not contact throttle, connect tachometer, vacuum gauge (0-30 in. Hg), and remove distributor vacuum tube at distributor and clamp tube closed. Set timing and hot (slow) idle to specifications. Reconnect vacuum tube and run engine at 2000 RPM for five seconds in Neutral. When throttle is released, distributor vacuum should increase to over 16 in. Hg for a minimum of one second and fall below six inches within three seconds. Remove vacuum control cover and turn adjusting screw for adjustment. Readjust dashpot. *See Dashpot Adjustment.* Recheck valve performance. If distributor vacuum does not fall below six in. Hg within four seconds after throttle is released, readjust or replace dashpot.

TUNE-UP (Cont.)

DASHPOT ADJUSTMENT

With hot (slow) idle speed set to specifications, position throttle lever so that tab on lever is just touching dashpot stem but not depressing it. The engine speed on "B" models should be 2500 RPM and on all others 1000 RPM. To adjust, screw dashpot in or out as required.

FUEL PUMP PRESSURE & VOLUME

Pressure (At Idle)	
318"	5-7 psi
360", 383", 413"	3.5-5 psi
Optional (Electric)	4-4.75 psi
Volume	1 qt. in 1 min.

MANIFOLD HEAT CONTROL VALVE

Check valve for freedom of movement and lubricate with suitable solvent (Part No. 3419129) every 4,000 miles.

EMISSION CONTROL

See appropriate article in EMISSION CONTROL Section.

IGNITION

DISTRIBUTOR

Application	Chrysler Part No.
318" (Exc. "B" Models)	
W/O NOx Man. Trans.	3438255
W/O NOx Auto. Trans.	3438225
W/NOx	3438453
318" "B" Models	
Standard	3656287
B300 Heavy Duty	3656672
318"-3	2875804
360"	
B100 & B200 (Exc. Calif.), B300 Standard	3438422
B100 & B200 Calif.	3438453
B300 Heavy Duty	3755160
383"	3438534, 3438544, 3438231
413"	2875966

Other Data & Specifications – *See Tune-Up and Chrysler Distributors in ELECTRICAL Section.*

IGNITION COIL

Application	Chrysler Part No.
All	2444242

Resistance	Ohms @ 70-80°F
Primary	1.65-1.79
Secondary	9,400-11,700
Ballast Resistor	.5-.6

CARBURETION

CARBURETORS

Carter BBD Series 2-Bbl.

Application	Carter Part No. Man. Trans.	Auto. Trans.
318"	① 4827S	4824S
318" ②	4957S	4958S
318"	6031S	-
383" ②	4961S	4962S
383"	4835S	4834S

① – Replaced by BBD-6169S in middle of model year.
② – With Evaporative Control System.

Holley No. 4150C 4-Bbl.

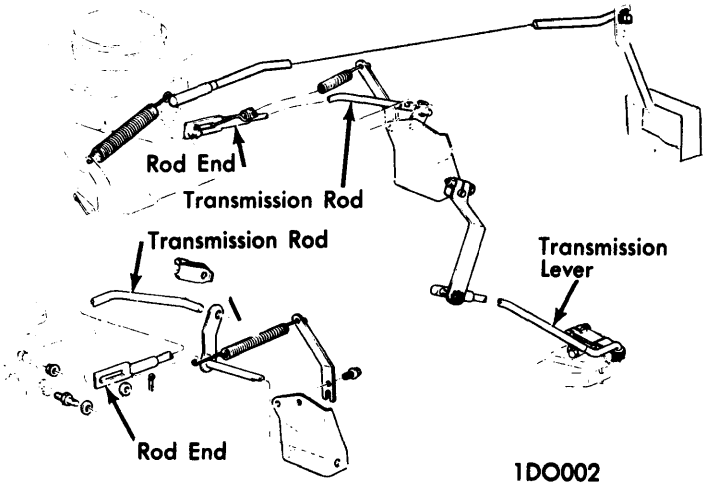
Application	Holley Part No. Man. Trans.	Auto. Trans.
360" (Exc. B300 Van)	R-4665A	R-4666A
360" B300 Van	R-6273A	R-6274A
413"	R-4399A	R-4399A

Other Data & Specifications – *See Tune-Up and Carter or Holley Carburetors in CARBURETION Section.*

ACCELERATOR AND DOWNSHIFT LINKAGE ADJUSTMENT

Auto. Trans. 318" "D", "W" Models – Adjust hot (slow) idle speed to specifications. Remove cotter pin, flat washer and transmission throttle rod from the carburetor pin. Unhook spring from adjustable rod end. Hold transmission throttle lever forward against its stop and adjust rod end so front of slot contacts carburetor pin. Replace spring, washer and cotter pin. Road test vehicle. If transmission does not downshift, lengthen transmission throttle rod one turn and repeat road test.

CARBURETION (Cont.)



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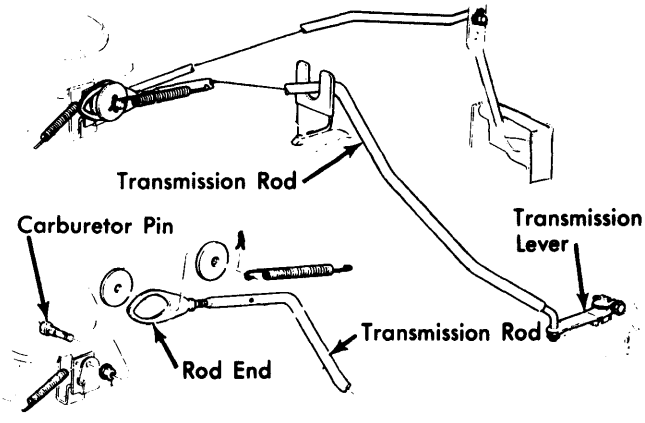
ACCELERATOR AND DOWNSHIFT LINKAGE ADJUSTMENT 318" "D", "W" MODELS

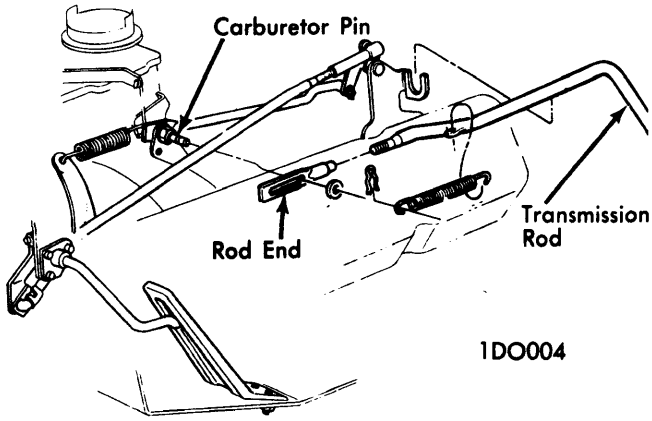
Auto. Trans. 383" "D", "W" Models – Adjust hot (slow) idle speed to specifications. Remove clip, spring, flat washer, and transmission throttle rod from carburetor pin. Hold throttle rod forward so that transmission lever is against its stop and adjust rod end so that rear of slot is against carburetor pin. Replace washer, spring and clip and road test vehicle. If transmission does not downshift, lengthen transmission throttle rod one turn and repeat road test.



1DO003

ACCELERATOR AND DOWNSHIFT LINKAGE ADJUSTMENT 383" "D", "W" MODELS

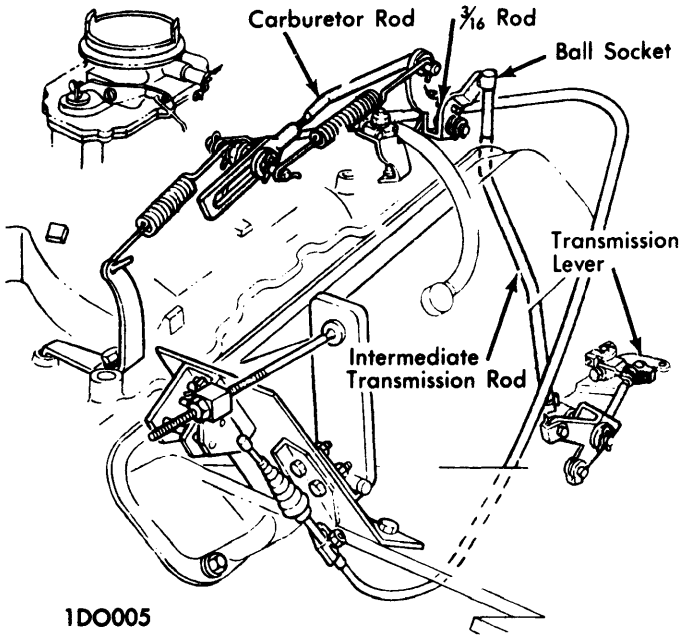
Auto. Trans. "B" Models – Adjust hot (slow) idle speed to specifications and block choke wide open. With linkage properly lubricated, remove return spring from carburetor pin and tab on transmission throttle rod. Remove clip, washer and slotted throttle rod end from carburetor pin. Have someone hold throttle rod forward firmly against its internal stop and adjust threaded rod end so that rear edge of slot contacts carburetor pin with throttle rod in the full forward position. Install flat washer and clip to retain throttle rod on carburetor pin. Install spring and unblock choke.



1DO004

ACCELERATOR AND DOWNSHIFT LINKAGE ADJUSTMENT "B" MODELS

Auto. Trans. 318" Motor Home W/Three Section Throttle Rod – With linkage properly lubricated and hot (slow) idle speed set to specifications, block choke wide open. Have someone hold transmission throttle rod forward during the following steps. Insert a 3/16" diameter rod in holes in upper bellcrank and lever. Adjust length of intermediate transmission rod by turning threaded ball socket at upper end so that ball socket lines up with ball end with a slight downward pressure on rod. Reassemble and remove 3/16" rod. Disconnect return spring, clip and washer and adjust length of carburetor rod so that rear of slot contacts carburetor pin with no forward force on pin. Reassemble and check freedom of operation by moving slotted link at carburetor to full rearward position, then allowing it to return slowly. It must return to full forward position. Unblock choke and check to see that transmission throttle rod begins to move simultaneously with carburetor.



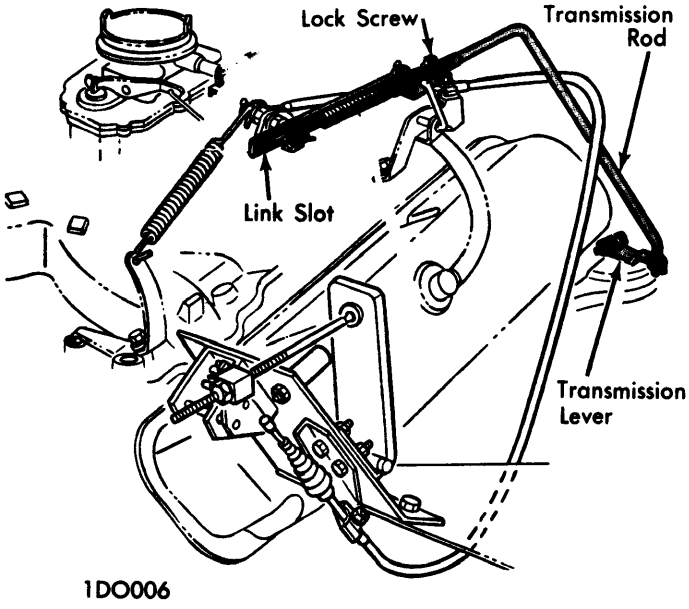
1DO005

ACCELERATOR AND DOWNSHIFT LINKAGE 318" MOTOR HOME W/3 PIECE ROD

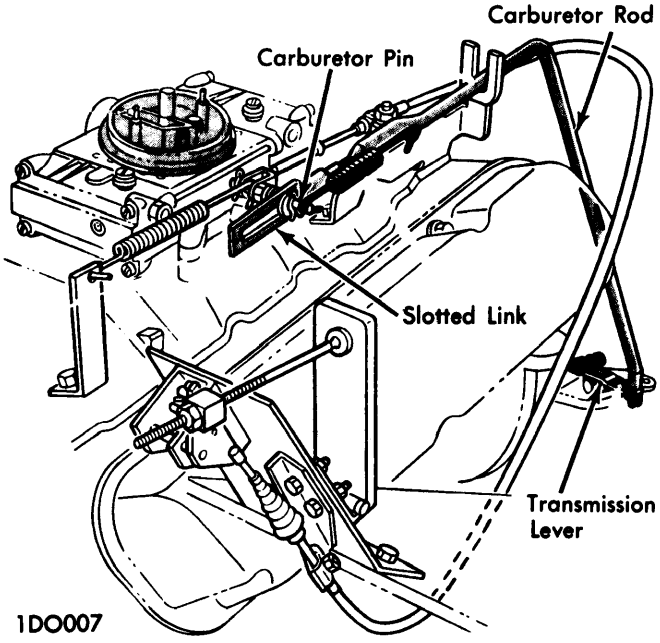
CARBURETION (Cont.)

Auto. Trans. 318" Motor Home W/Single Section Throttle Rod – With linkage properly lubricated and hot (slow) idle speed set to specifications, block choke wide open. Loosen transmission throttle rod adjustment lock screw. Have someone hold transmission throttle lever forward against its stop and adjust the transmission rod at the carburetor by pushing forward on the retainer and rearward on the rod with a slight force to remove all backlash. Tighten transmission rod adjustment locking screw to 100 INCH lbs. The rear edge of link slot must be against the carburetor lever pin during this adjustment. Check linkage freedom of operation by moving slotted link at carburetor to full rearward position and allowing it to return slowly. It must return to the full forward position. Unblock choke and visually check adjustment to see that transmission throttle rod begins to move simultaneously with carburetor.

Auto. Trans. 413" Motor Home – With linkage properly lubricated and hot (slow) idle speed set to specifications, block choke wide open. Have someone hold transmission throttle lever forward against its stop during following procedures. Disconnect return spring, clip and washer, then adjust length of carburetor rod by pushing rearward on rod with a slight effort to remove all backlash by turning the threaded adjustment. Rear end of slot should contact carburetor lever pin without exerting any forward force on pin when slotted adjuster link is in its normal operating position. Assemble slotted adjustment to carburetor lever pin and install washer and retainer clip. Replace return spring. Release transmission throttle lever. Check freedom of operation by moving the slotted link at carburetor to full rearward position and allowing it to return slowly. It must return to the full forward position. Unblock choke and visually check adjustment to see that transmission throttle rod begins to move simultaneously with carburetor.



ACCELERATOR AND DOWNSHIFT LINKAGE 318" MOTOR HOME W/1 PIECE ROD



ACCELERATOR AND DOWNSHIFT LINKAGE ADJUSTMENT 413" MOTOR HOME

ELECTRICAL

BATTERY

12 Volt – Negative Ground.

Application	Capacity (Amps)
All (Exc. Motor Home)	
Standard	48
Optional	59, 70
Motor Home	
Standard	70
Optional	90

STARTER

Application	Chrysler Part No.
All (Exc. Motor Homes)	2875560
Motor Homes	3656650

Other Data & Specifications – *See Chrysler Starters in ELECTRICAL Section.*

ELECTRICAL (Cont.)

ALTERNATOR

Application	Amps.	Chrysler Part No.
All (Exc. Motor Home)	45, 50	3438173
All (Exc. Motor Home)	46, 50	3438178
All (Exc. Motor Home)	60	3438174
All (Exc. Motor Home)	60	3438180
Motor Home	46, 50	3438165
Motor Home	60	3438168

Other Data & Specifications – *See Chrysler Alternators in ELECTRICAL Section.*

ALTERNATOR REGULATOR

Application	Chrysler Part No.
All	3438150

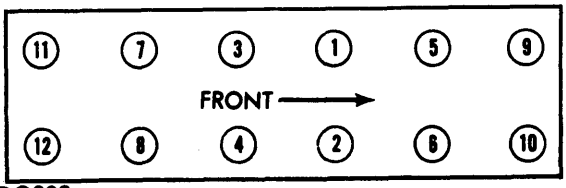
Other Data & Specifications – *See Chrysler Alternator Regulators in ELECTRICAL Section.*

ENGINE

INTAKE MANIFOLD TIGHTENING

Tighten bolts in sequence shown in diagram.

Application	Ft. Lbs.
318" & 360"	35
383"	50
413"	45



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INTAKE MANIFOLD TIGHTENING

BELT ADJUSTMENT

Tension (Lbs.) Using Strand Tension Gauge

Application	New Belt	① Used Belt
All	120 Lbs.	70 Lbs.

① – Any belt operated for 15 minutes or more.

COOLING CAPACITIES

Application	Quantity
318"	
"B" Models	
Standard	① 17
W/Increased Cooling and/or A/C	① 18
Motor Home	22
"D" & "W" Models (Exc. W300)	① 18
W300	② 18
360"	
Standard	① 16
W/Air Conditioning	① 17
383"	17
413"	27

① – Add 1 quart if equipped with heater.
② – Add 2 quarts if equipped with heater.

FILTERS & CLEANERS

Filter or Cleaner	Service Interval (Miles)
Oil Filter	Replace 8,000
Air Cleaner	
Oil Bath	① Clean 12,000
Paper Element	② Clean 8,000
Crankcase Inlet Air Cleaner	① Clean 12,000
Fuel Vapor Storage Canister Filter	Replace 12,000
Fuel Filter	
Paper Element	
"D", "W" Models	Replace 10,000
Motor Homes	Replace 8,000
Disposable Canister	
"D", "W" Models	Replace 20,000
"B" Models, Motor Homes	Replace 24,000
Brake Booster Air Cleaner	Replace 8,000
Distributor Wick	
"D", "W" Models	① Oil 12,000
"B" Models, Motor Homes	① Oil 18,000

① – Use SAE 30.
② – Replace at 24,000 miles.

CAPACITIES (EXCEPT COOLING)

Application	Quantity
Crankcase	
318", 360"	① 5 qts.
318"-3, 383", 413"	① 6 qts.
Automatic Transmission	
"D", "W" Models	18.5 pts.
"B" Models, Motor Home	19 pts.
Manual Transmission	②
Front Axle, Rear Axle, Transfer Case	②
Four-Wheel Drive Knuckle Ends	②
Fuel Tank	
"B", "D", "W" Models	25 gals.
M300 (Exc. 104" Wheelbase)	40 gals.
M300 W/104" Wheelbase	25 gals.
M375	50 gals.

① – Add 1 quart with filter change.
② – Fill to bottom of filler plug hole.