

TUNE-UP

ENGINE IDENTIFICATION

Engine Identification Number is located on right bank, upper front corner. The first four digits indicate displacement.

Application	Digits
304"	V-304
345"	V-345
392"	V-392

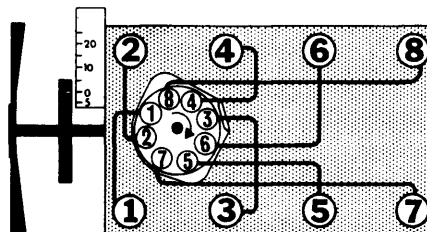
MODEL IDENTIFICATION

Number is located on rear face of left front door.

613105H587201

- First Four Digits** — Model Code.
- Fifth Digit** — Engine Type.
- Sixth Digit** — Cab or Body Type.
- Remaining Digits** — Chassis Serial Number.

O1HA01



FIRING ORDER & TIMING MARKS

IGNITION TIMING

Check or adjust timing with engine at normal operating temperature, distributor vacuum advance line disconnected and plugged, transmission in Neutral and idle speed set to specifications. Connect timing light to number "8" cylinder.

Application	Timing
Gas	TDC
LPG 304"	⊖8° BTDC
LPG 345"	⊖10° BTDC

⊖ — It may be necessary to alter this setting depending on the blend of LPG used.

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.

COMPRESSION PRESSURE

With engine warm, all spark plugs removed and throttle wide open, the variation between cylinders should not exceed 10 psi.

Application	PSI
304"	145
345"	140
392"	143

VALVE TAPPET CLEARANCE

Application	Clearance (Hot)
Hydraulic Lifters.....	Zero Lash

VALVE ARRANGEMENT

E-I-E-I-E-I-E-I (Front to rear, right bank.)
I-E-I-E-I-E-I-E (Front to rear, left bank.)

SPARK PLUGS

Gap	
Gas025-.030"
LPG016"
Torque.....	28-30 ft. lbs.

Application	Spark Plug Type	Champion No.
Gas		J-10Y
LPG		J-6

DISTRIBUTOR

Point Gap.....	New .019", Used .016"
Cam Angle.....	28-32°
Breaker Arm Spring Tension	17-21 ozs.
Condenser Capacity21-.25 mfd.

HOT (SLOW) IDLE RPM

Gas, Models 1000 & 1100 W/2-Bbl. Carb. — With engine at normal operating temperature, choke open, air cleaner installed, air conditioning "ON", and manual transmission in Neutral or automatic transmission in "D", connect tachometer and turn idle mixture screws out against tab stop. Adjust idle speed to 20 RPM higher than specifications for carburetor numbers 3991 and 4078 to 4084, and 40 RPM higher than specifications for carburetor numbers 4574 and 4593 to 4595. Then turn idle mixture screws in (lean) to reduce speed to specified RPM. If idle limiter caps prevent proper idle adjustment, remove them and connect a suitable vacuum gauge. Turn idle mixture screws to obtain "lean best idle" and install colored plastic limiter caps with tab fully counterclockwise against tab stop. Adjust idle speed screw to higher than specified RPM as stated in the beginning of this paragraph and repeat adjustment procedure.

Gas, Models 1200 & 1300 W/2- & 4-Bbl. Carbs. — With engine at normal operating temperature, choke open, air cleaner installed, air conditioning "ON", and manual transmission in Neutral or automatic transmission in "D", connect tachometer and vacuum gauge and adjust idle speed to specifications. Adjust idle mixture screws to obtain "lean best idle" and adjust idle speed screw to 25 RPM higher than specifications. Turn mixture screws in to reduce idle speed to specifications.

Gas, Models 1000 & 1100 W/4-Bbl. Carb. — With engine at normal operating temperature, choke open, air cleaner installed, air conditioning "ON", and transmission in Neutral, connect tachometer and turn idle mixture screws out against tab stop. Adjust idle speed to 20 RPM higher than specifications for carburetor numbers 4237, 4264, 4312, and 4313, and 40 RPM higher than specifications for carburetor numbers 4572, 4599, 4601, and 4602. Then turn idle mixture

TUNE-UP (Cont.)

screws in (lean) to reduce speed to specified RPM. If idle limiter caps prevent proper idle adjustment, remove them and connect a suitable vacuum gauge. Turn idle mixture screws to obtain "lean best idle" and install colored plastic limiter caps with tab fully counterclockwise against tab stop. Adjust idle speed screw to higher than specified RPM as stated in the beginning of this paragraph and repeat.

Idle Speed W/2-Bbl. Carburetor	
Application	RPM
All Trans. W/Carb. No. 2520, 2976, 2977, 3679, 3936, 3937, 4306, 4307, 4308, 4309	450-500
All W/Governor	450-500
Man. Trans. W/Carb. No. 4574, 4593	600
3991, 4078, 4081, 4082	700
Auto. Trans. W/Carb. No. 4079, 4080, 4083, 4084, 4594, 4595	550

Idle Speed W/4-Bbl. Carburetor	
Application	RPM
All (Exc. Carb. No. 4264 & 4313 or W/Governor).....	700
W/Carb. No. 4264 & 4313 (Auto. Trans. in "D")	550
All W/Governor	450-500

LPG Only — Set throttle for fast idle by turning idle speed screw in three or four turns. Start engine and adjust idle adjusting screw on drag link until engine runs smooth. Turn idle speed screw out until engine idles at 600 RPM. Readjust idle adjusting screw to obtain maximum idle speed. Readjust idle speed screw to specified idle speed.

Idle Speed	
Application	RPM
All	400

COLD (FAST) IDLE RPM

Gas Only, Without Governor — Set idle speed screw so that screw just touches fast idle cam at hot (slow) idle.

Gas Only, With Governor — Adjust fast idle stud for specified clearance between stud and fast idle cam with choke plate full open and hot (slow) idle set.

Application	Clearance
All018-.020"

LPG Only — There is no choke or fast idle adjustment on Century LPG carburetors.

GOVERNOR ADJUSTMENTS

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

CENTRIFUGAL-TYPE GOVERNOR

Connect tachometer and race engine to determine maximum, no-load RPM. If adjustment is necessary, stop engine, remove governor clamp and gasket assembly. Turn engine over until adjusting screw hole plug appears in the opening. Remove plug and insert suitable tool (SE-2072-2) engaging adjusting tang. Turn tool handle clockwise to decrease speed and counterclockwise to increase speed; ¼ turn will change engine speed approximately 100 RPM.

Governed Speed (No Load)	
Application	RPM
304"	3900
345" & 392"	3800

FUEL PUMP PRESSURE & VOLUME

Pressure (At 1000 RPM)	4.5-5.75 psi
Volume (At 4000 RPM).....	3.6 pts. in 1 min.

EMISSION CONTROL

See appropriate article in EMISSION CONTROL Section.

IGNITION

DISTRIBUTOR

IHC Model 1510	
Application	ⓐ IHC Part No.
304" & 345"	359206-C91
W/Governor	359217-C91
W/Governor & Tachometer	383150-C91
392"	379282-C91
W/Governor	359218-C91
W/Governor & Tachometer	383151-C91

ⓐ — Manufactured by Holley.

Electronic Ignition

Application	Delco Part No.
304"	1111197
304" & 345" W/Gov. & Tach.	1111316
392" W/Gov. & Tach.	1111320

Other Data & Specifications — See Tune-Up and Holley or Delco Distributors in ELECTRICAL Section.

IGNITION COIL

Application	IHC Part No.
All W/Breaker Point Ignition.....	191455-R91

Application	Delco Part No.
All W/Electronic Ignition	ⓐ1115207

Resistance	Ohms @ 80°F
Primary	1.28-1.42
Secondary	7,200-9,500
Ballast Resistor (Loom).....	1.75-1.85

ⓐ — Specifications not available.

CARBURETION

CARBURETORS

Holley Series 2300 2-Bbl.

Application	Holley Part No.
Man. Trans., Man. Choke	3991,4081,4574
Man. Trans., Auto. Choke	4078,4082
Man. Trans. W/Governor	4310
Auto. Trans., Man. Choke	4079,4083,4308,4594
Auto. Trans., Auto. Choke	4080,4084
Auto. Trans. W/Governor	4311

Holley Series 4150 4-Bbl.

Application	Holley Part No.
Man. Trans., Man. Choke	4237,4318,4572
Man. Trans., Auto. Choke	4319,4312,4599
Man. Trans. W/Governor	4323
Auto. Trans., Man. Choke	4264,4320,4601
Auto. Trans., Auto. Choke	4321,4313,4599
Auto. Trans. W/Governor	4324

LPG Carburetors

Application	Century Model No.
304"	3C-705DTL-2101
345"	3C-G705DTL-2090

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

ACCELERATOR AND DOWNSHIFT LINKAGE ADJUSTMENT

Accelerator Adjustment — With accelerator linkage clean and lubricated, adjust pedal stop screw so that pedal will just strike screw when carburetor throttle plate is wide open.

Downshift Adjustment — The downshift switch is located under pedal. Loosen lock nut and adjust screw so that there is ¼" between switch and pedal when pedal is lightly depressed to the floor.

CHOKE ADJUSTMENT

Man. Choke — Loosen choke cable adjusting screw on choke lever at carburetor. With choke knob in cab all the way in, pull choke cable at carburetor to remove excess slack. Release cable and tighten screw. Work knob in and out several times and check that choke is full open when knob is all the way in.

Auto. Choke — Loosen cover retaining screws and rotate assembly to specified setting. Tighten cover retaining screw.

Automatic Choke Setting

Application	Setting
2-Bbl. Carb. (Exc. No. 4593)	One Notch Lean Carb. No. 4593
	Index
4-Bbl. Carb. (Exc. Nos. 4599 & 4602)	Two Notches Lean Carb. Nos. 4599 & 4602
	Index

DASHPOT ADJUSTMENT

With idle speed set, hold throttle in closed position and turn dashpot adjusting screw out until head of screw pushes dashpot rod up to end of its travel. Hold dashpot rod in this position and back off adjusting screw four turns to obtain specified clearance between adjusting screw and dashpot rod when rod is fully compressed.

Application	Clearance
All100"

ELECTRICAL

BATTERY

12 Volt — Negative Ground.

STARTER

Application	Delco Part No.
All	1107709

Other Data & Specifications — See *Delco Starters in ELECTRICAL Section.*

ALTERNATOR

Application	Amps.	Delco Part No.
All	37	1100688

Other Data & Specifications — See *Delco Alternators in ELECTRICAL Section.*

ALTERNATOR REGULATOR

Application	Delco Part No.
All	1119507

Other Data & Specifications — See *Delco Alternator Regulators in ELECTRICAL Section.*

ENGINE

INTAKE MANIFOLD TIGHTENING

Manifold bolts are tightened to 40-45 ft. lbs.

BELT ADJUSTMENT

Adjust power steering belt tension to obtain ¾ inch deflection at belt midpoint; adjust all other belts for ½ inch deflection.

COOLING CAPACITIES

Application	Quantity W/Heater
304"	18 qts.
345"	19 qts.
392"	20 qts.
All W/Increased Cooling	①

① — Fill to one inch below top of radiator upper tank.

ENGINE (Cont.)

FILTERS & CLEANERS

Filter or Cleaner	Service Interval (Miles)
Oil Filter.....	①Replace 3,000-4,000
Air Filter	
Oil Bath.....	②Clean 5,000
Dry Type.....	③Clean 5,000
Fuel Filter.....	④
Distributor Shaft & Pivot Point.....	Oil 3,000-5,000
Distributor Cam.....	Lubricate 3,000-5,000
PCV Valve.....	Check 12,000

- ① - Or every oil change.
- ② - Oil with same viscosity oil in crankcase.
- ③ - Replace at 15,000-20,000 miles.
- ④ - Clean when bowl shows sediment.

CAPACITIES

(EXCEPT COOLING)

Application	Quantity
Crankcase (Includes Filter).....	6 qts.
Automatic Transmission.....	9.5 qts.
Man. Trans. & Rear Axle.....	①
Front Axle & Transfer Case.....	①
Four-Wheel Drive Knuckle Ends.....	①
Oil Bath Air Cleaner.....	1 qt.
Fuel Trank	
Scout.....	10 gals.
Pickup.....	16 gals.
Utility Body.....	15 gals.
Travelall.....	21 gals.
Metro	
700 to 1100.....	15 gals.
1200.....	17 gals.

- ① - Fill to bottom of filler plug hole.