

1948-1949 Hudson

**Mechanical Specifications**

## - 1948 Hudson -

### General Chassis Data

| Series          | Start Serial Number | CYL. | Bore x Stroke                       | Disp. | NACC HP | W/B |
|-----------------|---------------------|------|-------------------------------------|-------|---------|-----|
| 481 Super 6     | 481-101             | 6    | $3\frac{9}{16} \times 4\frac{3}{8}$ | 262   | 30.4    | 124 |
| 482 Commodore 6 | 482-101             | 6    | $3\frac{9}{16} \times 4\frac{3}{8}$ | 262   | 30.4    | 124 |
| 483 Super 8     | 483-101             | 8    | $3 \times 4\frac{1}{2}$             | 254   | 28.8    | 124 |
| 484 Commodore 8 | 484-101             | 8    | $3 \times 4\frac{1}{2}$             | 254   | 28.8    | 124 |

### General Body Data

| Body Style                | 481    | 482    | 483    | 484    |
|---------------------------|--------|--------|--------|--------|
| 3-Pass. Business Coupe    | \$2069 | ---    | ---    | ---    |
| 6-Pass. Brougham          | 2172   | ---    | ---    | ---    |
| 6-Pass. Club Coupe        | 2219   | \$2374 | \$2340 | \$2490 |
| 6-Pass. Sedan             | 2222   | 2399   | 2343   | 2514   |
| 6-Pass. Convert. Brougham | 2836   | 3057   | ---    | 3138   |

### Electrical Equipment: AUTO-LITE

|               |               |   |
|---------------|---------------|---|
| Starter       | : MCL-6006    | - 1948-1950 all exc. Pacemaker              |
| Generator     | : GEC-4801A   | - 1940-1949 all exc. 40, 48, 10, 18, 20, 28 |
| Regulator     | : VRR-4001A   | - 1940-1949 all w/GEC generator             |
| Distributor   | : IGW-4213A   | - 1948-1950 all exc. Pacemaker              |
|               | : IGP-4208B-1 | - 1948-1952 eight cylinder                  |
| Ignition Coil | : CR-6006     | - 1948-49 all                               |

### Fuel System

|                     |  |
|---------------------|--|
| Carburetor (Carter) | : WDO-607S - 1948-1950 all 6 cylinder exc. Pacemaker |
|                     | : WDO-648S - 1948-1950 all 8 cylinder                |

### Shipments

142,454

- 1949 Hudson -

**Chassis Data**

| Series          | Serial Number | Cyl. | Bore x Stroke  | Disp. | NACC HP | WB  |
|-----------------|---------------|------|----------------|-------|---------|-----|
| 491 Super 6     | 491-101       | 6    | 3-9/16 x 4-3/8 | 262   | 30.4    | 124 |
| 492 Commodore 6 | 492-101       | 6    | 3-9/16 x 4-3/8 | 262   | 30.4    | 124 |
| 493 Super 8     | 493-101       | 8    | 3 x 4-1/2      | 254   | 28.8    | 124 |
| 494 Commodore 8 | 494-101       | 8    | 3 x 4-1/2      | 254   | 28.8    | 124 |

**General Body Data**

| Body Style                | 491    | 492    | 493    | 494    |
|---------------------------|--------|--------|--------|--------|
| 3-Pass. Business Coupe    | \$2069 |        |        |        |
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|               |             |   |
|---------------|-------------|---|
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| Generator     | GEC-4801A   | - 1940-1949 all exc. 40, 48, 10, 18, 20, 28 |
| Regulator     | VRR-4001A   | - 1940-1949 all w/GEC generator             |
| Distributor   | IGS-4213A-1 | - 1948-1950 all exc. Pacemaker              |
|               | IGT-4208B-1 | - 1948-1952 eight cylinder                  |
| Ignition Coil | CR-6006     | - 1948-1949 all                             |

**Fuel System**

|                              |          |                                       |
|------------------------------|----------|---------------------------------------|
| Carburetor - Carter (Single) | WDO-647S | 1948-1950 all Hudson 6 exc. Pacemaker |
|                              | WDO-648S | 1948-1950 all 8 cylinder              |
| Fuel Pump                    |          |                                       |
| Carter                       | M729SA   | 1948-1954                             |
| AC (Fuel and Vacuum)         | 583      | 1948-1952; 1953 early                 |
| AC (Fuel and Vacuum)         | 4057     | 1953 Later; 1954                      |

**Shipments**

144,685

## HUDSON

### 1948-1949 Models 480-490 Mechanical Specifications and Adjustments

#### GENERAL SPECIFICATIONS ALL MODELS

|                                  |           |
|----------------------------------|-----------|
| Wheel Base                       | 124"      |
| Overall Length Including Bumpers | 207-1/2". |
| Height - Road to Roof            | 60"       |
| Width - Fender to Fender         | 77"       |
| Road Clearance - Front and Rear  | 8"        |
| Tread                            |           |
| Front                            | 58-1/2"   |
| Rear                             | 55-1/2"   |

#### CAR LICENSE INFORMATION 1948 Models

| Series          | Models | Start Serial No | Cyl. | Bore & Stroke    | Piston Displacement | NACC HP | W/B |
|-----------------|--------|-----------------|------|------------------|---------------------|---------|-----|
| Super Six       | 481    | 491-101         | 6    | 3-9/16" x 4-3/8" | 262                 | 30.4    | 121 |
| Commodore Six   | 482    | 492-101         | 6    | 3-9/16" x 4-3/8" | 262                 | 30.4    | 121 |
| Super Eight     | 483    | 493-101         | 8    | 3" x 4-1/2"      | 254                 | 28.8    | 128 |
| Commodore Eight | 484    | 494-101         | 8    | 3" x 4-1/2"      | 254                 | 28.8    | 128 |

#### CAR LICENSE INFORMATION 1949 Models

| Series          | Models | Start Serial No | Cyl. | Bore & Stroke    | Piston Displacement | NACC HP | W/B |
|-----------------|--------|-----------------|------|------------------|---------------------|---------|-----|
| Super Six       | 491    | 491-101         | 6    | 3-9/16" x 4-3/8" | 262                 | 30.4    | 121 |
| Commodore Six   | 492    | 492-101         | 6    | 3-9/16" x 4-3/8" | 262                 | 30.4    | 121 |
| Super Eight     | 493    | 493-101         | 8    | 3" x 4-1/2"      | 254                 | 28.8    | 128 |
| Commodore Eight | 494    | 494-101         | 8    | 3" x 4-1/2"      | 254                 | 28.8    | 128 |

#### SERIAL NUMBERS

The car serial number, which is also the engine number, is stamped on a metal plate attached to the right front door pillar post. In the car numbering system the first three digits of the serial number indicate the series and model, while the remaining digits represent the actual car number. As the cars leave the production line, they are numbered in consecutive order, regardless of model.

The engine number is stamped on the top of the cylinder block between No. 1 and No. 2 exhaust manifold flanges on eight- cylinder en-

gines and on the right side of the cylinder block at the front end on six cylinder engines.

**NOTE: DO NOT confuse engine number with casting numbers appearing at different locations on the engine. Be sure this number corresponds with the one shown on your Owner Policy and Identification Card.**

A code letter indicating paint color option is stamped on the upper hinge of the right front door.

### ENGINE SPECIFICATIONS

|                              | All Models<br>6 Cylinder                   | All Models<br>8 Cylinder |
|------------------------------|--|--------------------------|
| Arrangement                  | L-Head                                     | L-Head                   |
| Bore and Stroke              | 3-9/16 x 4-3/8                             | 3 x 4-1/2                |
| Piston Displacement          | 262 Cu. In.                                | 254 Cu. In.              |
| Actual Horse Power 1         | 21 @ 4000 RPM                              | 128 @ 4200 RPM           |
| Compression Ratio - STD      | 6:50:1 Cast Iron Head                      | 6:50:1 Cast Iron Head    |
| Compression Ratio - Optional | 7:00:1 Alum. Head                          | 7:00:1 Alum. Head.       |
| Engine Mounting              | 3 Points - (Rubber)                        | 3 Points - (Rubber)      |
| Camshaft Drive               | Chain                                      | Gears                    |
| Engine Timing                |  |                          |
| Inlet opens                  | 7° - 18'                                   | BUDC 10° - 40' BUDC      |
| Inlet closes                 | 53° - 42'                                  | ALDC 60° - ALDC          |
| Exhaust opens 53° - 18' BLDC | 50° - BLDC                                 |                          |
| Exhaust closes               | 7° - 42' AUDC                              | 18° - 44' AUDC           |
| Timing marks                 | On Sprockets & Chain<br>60 links 3/8 pitch | On Gears                 |

### CAMSHAFT BEARINGS

|               |                      |                      |
|---------------|----------------------|----------------------|
| Number - Type | 4 steel back babbitt | 5 steel back babbitt |
| Bearing Sizes |                      |                      |
| #1            | 2-3/8 x 1-3/16       | 2-1/32 x 1-3/8       |
| #2            | 2 x 15/16            | 2 x 1-1/16           |
| #3            | 1-31/32 x 15/16      | 1-31/32 x 1-1/4      |
| #4            | 1-1/2 x 1-5/16       | 1-5/16 x 1-1/16      |
| #5            | None                 | 1-1/2 x 1-5/16       |

### CRANKSHAFT

|                            |                            |                            |
|----------------------------|----------------------------|----------------------------|
| Type                       | Compensated                | Compensated                |
| Number and Type of Bearing | 4 steel back babbitt lined | 5 steel back babbitt lined |
| Diameter and Length        |                            |                            |
| #1                         | 2-1/2 x 1-7/16             | 2-9/32 x 1-5/8             |
| #2                         | 2-1/2 x 1-3/8              | 2-5/16 x 1-3/8             |
| #3                         | 2-1/2 x 1-5/8              | 2-11/32 x 1-7/8            |
| #4                         | 2-1/2 x 1-3/4              | 2-3/8 x 1-3/8              |
| #5                         | None                       | 2-13/32 x 2                |
| Thrust                     | On #3 Main                 | On #3 Main                 |
| End Play                   | .003 to .009               | .006 to .012               |
| Radial Clearance           | .0005 to .0015             | .001                       |
| Adjusting Shims            | None                       | None                       |

CONNECTING RODS

|                           |                            |                          |
|---------------------------|----------------------------|--------------------------|
| Material                  | Drop-Forged Steel          | Drop-Forged Steel        |
| Weight                    | 34.23 oz.                  | 31.36 oz.                |
| Length - Center to Center | 8-1/8                      | 8-3/16                   |
| Connecting Rod Bearing    | Replaceable                | Integral                 |
| Type and Material         | Babbitt steel back         | Spun - Babbitt           |
| Diameter and Length       | 2-1/8 x 1-5/8              | 1-15/16 x 1-3/8          |
| End Play                  | .007 to .013               | .007 to .013             |
| Radial Clearance          | .0005 to .0015             | .0003 to .0006           |
| Connecting Rod Bushing    |                            |                          |
| Material                  | One pc. steel back babbitt | Bronze                   |
| Diameter and Length       | 31/32 x 1-1/8              | 3/4 x 29/32              |
| Radial Clearance          | .0000 to .0003 at 70° F.   | .0000 to .0003 at 70° F. |

PISTON

|                   |                          |                          |
|-------------------|--------------------------|--------------------------|
| Type              | Cam Ground               | Cam Ground               |
| Material          | Aluminum Alloy           | Aluminum Alloy           |
| Weight and Length | 18 ± 1/8 oz. x 3-3/4     | 101-2 ± 1/4 oz. x 3-3/16 |
| Pin Center to top | 2-1/16                   | 1-11/16                  |
| Piston Clearance  | .0015 to .002            | .0015 to .002            |
| Ring groove depth | .195                     | .148                     |
| Piston Pin        |                          |                          |
| Type and Length   | Floating - 2-15/16       | Floating - 2-7/16        |
| Diameter          | 31/32                    | 3/4                      |
| Fit in Piston     | .0000 to .0003 at 70° F. | .0000 to .0003 at 70° F. |
| Fit in Rod        | Hand push fit at 70° F.  | Hand push fit at 70° F.  |

PISTON RINGS

|                   |                      |                      |
|-------------------|----------------------|----------------------|
| Material          | Cast Iron            | Cast Iron            |
| Compression Rings | Two (Pinned)         | Two (Pinned)         |
| Width             | 5/64                 | 3/32                 |
| Oil. Rings        | Two (Pinned)         | Two (Pinned)         |
|                   | (1-Below piston pin) | (1-Below piston pin) |
| Width Upper       | 3/16                 | 3/16                 |
| Width Lower       | 5/32                 | 5/32                 |
| Gap Clearance     | .007 to .012         | .004 to .009         |

VALVES

|                           |                 |                |
|---------------------------|-----------------|----------------|
| Intake                    |                 |                |
| Head outside diameter     | 1-53/64         | 1-1/2          |
| Port Diameter             | 1-11/16         | 1-3/8          |
| Lift                      | 11/32           | 11/32          |
| Length & Stem Diameter    | 5-47/64 x 11/32 | 5-3/32 x 11/32 |
| Stem to guide clearance   | .0015 to .003   | .0015 to .003  |
| Operating clearance - Hot | .010            | .006           |

VALVES (Continued)

Exhaust

|                           |                     |                     |
|---------------------------|---------------------|---------------------|
| Head outside diameter     | 1-9/16              | 1-3/8               |
| Port Diameter             | 1-3/8               | 1-7/32              |
| Lift                      | 11/32               | 11/32               |
| Length & Stem Diameter    | 5-47/64 x 11/32     | 5-3/32 x 11/32      |
| Stem to guide clearance   | .002 to .004        | .003 to .005        |
| Operating clearance - Hot |                     | .012 .008           |
| Valve angle               | 7 degrees           | Vertical            |
| Valve guide - Length      | Removable - 3-5/32  | Removable - 2-9/16  |
| Valve spring pressure     | 77 lbs. at 2-3/16   | 46 lbs. at 2 inches |
| Valve Tappets             |                     |                     |
| Type                      | Mushroom            | Roller Cam          |
| Guides                    | Integral with block | Removable           |

FUEL SYSTEM  
GENERAL SPECIFICATION

|   |                |
|---|----------------|
| Carburetor (All Models)                                       | Carter         |
| Manifold Heat Control and Climatic Control                    | Automatic      |
| Fuel Pump Mechanical (All Models)                             | Camshaft Drive |
| Fuel Pump Type – A. H. Standard; A. J. Combination – Optional |                |
| Air Cleaners (Dry)  | Standard       |
| Air Cleaners (Oil Bath)                                       | Optional       |
| Gasoline Tank Capacity (All Models)                           | 20 Gallons     |

CARBURETOR

|   | 6 Cylinder  | 8 Cylinder            |
|---|---|-----------------------|
| Carter Model Numbers                                      | 647-S   | 648-S                 |
| Dual Downdraft  | 1-1/4" - 4 bolt   | 1-1/4" - 4 bolt       |
| Main Venturi  | 1-3/16" - I.D.  | 1-3/16" - I.D.        |
| Primary Venturi   | 11/32" - I.D.   | 11/32" - I.D.         |
| Secondary Venturi   | 19/32" - I.D.   | 19/32" - I.D.         |
| Float Level   | 3/16"   | 1-3/64"               |
| Idle Adjustment   | 1-1/4 to 1-3/4 Turns open   | 1 to 1-1/2 Turns open |
| Pump Plunger Travel from Closed to Wide Open Throttle . . | 9/32"   | 7/32"                 |
| Low Speed Jet Tube  | Jet size #67 drill  | Jet size #68 drill    |
| By-pass (plug) size                                       | #51 drill   | size #54 drill        |
| Economized in body size                                   | #56 drill   | size #56 drill        |
| Idle bleed size   |   | #54 drill             |
| Vents   | Outside Only. No. 10 drill size. Four holes.                      |                       |
| Gasoline Intake   | Square vertical needle. No. 38 drill hole in needle seat.         |                       |
| Gasoline Connection - (Both)                              | 5/16" Weatherhead nipple.   |                       |
| Idle Ports - (Both)                                       | Length .200", Width .030".  |                       |
| Idle Port Opening - (Both)                                | .157" to .167" above upper edge of valve with valve closed tight. |                       |
| Lower Port - (Both) (For Idle Adjustment Screw)           | Size .0615" to .0655" diameter.                                   |                       |

CARBURETOR (Cont'd)

Main Nozzle - (6 Cylinder)

In primary venturi, angle 45, closed tip. Inside diameter No. 30 drill. Upper hole: .028" diameter drill on 45° angle. Lower hole: .0635" diameter drill on 60° angle.

Main Nozzle - (8 Cylinder)

Flush type (angle tip) seats in primary venturi. Discharge, size .061 " diameter. .086" diameter.

Metering Rod Jet - (Both)

Metering Rod (Vacumeter Type):  
(6 Cylinder)

Economy step, .063" diameter. Middle step tapers to .0565" diameter. Power step, .048" diameter. Length 2-59/64".

(8 Cylinder)

Economy step, .069" diameter. Middle step tapers to .063" diameter. Power step, .057" diameter. Length - 2-59/64".

| Metering Rod Specifications |            | Type                   | Economy Step – Middle Step |                 |                 | Power Step |                 |                |
|-----------------------------|------------|------------------------|----------------------------|-----------------|-----------------|------------|-----------------|----------------|
| Hudson No.                  | Carter No. |                        | Diam.                      | Tapers From     | Length of Taper | Diam.      | Length of Taper | Length of Step |
| 6 - Cylinder                |            |                        |                            |                 |                 |            |                 |                |
| 301943                      | 75-610     | Standard               | .063"                      | .063" to .565"  | .172"           | .048"      | 1/64"           | .147"          |
| 301944                      | 74-623     | 1 <sup>st</sup> Leaner | .064"                      | .069" to .0645" | .172"           | .050"      | 1/64"           | .147"          |
| 301945                      | 75-624     | 2 <sup>nd</sup> Leaner | .065"                      | .070" to .0655" | .172"           | .052"      | 1/64"           | .147"          |
| 301946                      | 75-625     | 3 <sup>rd</sup> Leaner | .065"                      | .0705" to .067" | .172"           | .054"      | 1/64"           | .147"          |
| 8 – Cylinder                |            |                        |                            |                 |                 |            |                 |                |
| 301948                      | 75-607     | Standard               | .068"                      | .068" to .063"  | .125"           | .055"      | 1/64"           | .189"          |
| 301949                      | 75-627     | 1 <sup>st</sup> Leaner | .069"                      | .069" to .0645" | .125"           | .057"      | 1/64"           | .189"          |
| 301950                      | 75-628     | 2 <sup>nd</sup> Leaner | .070"                      | .070" to .0655" | .125"           | .059"      | 1/64"           | .189"          |
| 3901951                     | 75-629     | 3 <sup>rd</sup> Leaner | .0705"                     | .0705" to .067" | .125"           | .061"      | 1/64"           | .189"          |

Metering Rod Setting (Both)

Use Gauge, part No. .J-1305 (2.280) inches.

Accelerating Pump (Both)

High pressure type (spring operated lever), with adjustable pump stroke. Discharge jets (twin) size #74 drill. Intake ball check, Size #40 drill. Discharge (needle seat), size #50 drill. Relief passage (to outside), through slots in air horn. 9/32" plunger travel (full throttle position) long stroke. Use gauge No. T-109-117S.

Pump Adjustment (Both)

Choke (6 Cylinder)  
(8 Cylinder)

Set 1 point lean.

Set on index

Butterfly type, off set valve. Choke heat suction hole (in body), size 34 (.111") drill.

CARBURETOR (Cont'd)

Vacuum Spark Part (Both)  
.040" above valve.

.039" to .041" diameter. Top of port .030" to

COOLING SYSTEM

|                           |                          |
|---------------------------|--------------------------|
| Water Circulation         | 6-Vane Impeller Pump id  |
| Water Pump Drive          | Fan V Belt               |
| Water Pump Output         | 30 G.P.M. at 50 M.P.H.   |
| Water Pump Bearings       | Two Sealed Ball Bearings |
| Lubrication               | Pre-Lubricated           |
| Fan Belt Adjustment       | Generator Mounting       |
| Fan Drive                 | Pump Shaft               |
| Fan                       | 4 Blade - 17"            |
| Fan to Radiator Clearance | 13/16"                   |
| Cooling System Capacity:  |                          |
| 6 - Cylinder              | 17 Quarts                |
| 8 - Cylinder              | 18 Quarts                |

ANTI-FREEZE CHART

| Temperature | Ethylene Glycol<br>(Prestone) |                |                  | Methanol or<br>Alcohol |                |                  |
|-------------|-------------------------------|----------------|------------------|------------------------|----------------|------------------|
|             | U.S.<br>Quarts                | Imp.<br>Quarts | Metric<br>Liters | U.S.<br>Quarts         | Imp.<br>Quarts | Metric<br>Liters |
| +20°        | 3                             | 2-1/2          | 2-3/4            | 3                      | 2-1/2          | 2-3/4            |
| +10°        | 4-1/2                         | 3-3/4          | 4-1/4            | 4-3/4                  | 4              | 4-1/2            |
| 0°          | 6                             | 5              | 5-1/2            | 6                      | 5              | 5-1/2            |
| -10°        | 7                             | 6              | 6-1/2            | 7-1/3                  | 6              | 7                |
| -20°        | 7-3/4                         | 6-1/3          | 7-1/4            | 8-1/2                  | 7              | 8                |
| -30°        | 8                             | 6-1/2          | 7-1/2            | 9-1/2                  | 8              | 9                |

**ELECTRICAL SYSTEM**  
**GENERAL SPECIFICATIONS**

**BATTERY**

Make All Models  
Voltage National  
Plates 6 Volt  
Capacity in ampere hours 51  
Size 120 Amp.  
W-7-1/8  
L-10-9/16  
H-9-1/16  
Terminal Grounded Positive

Field Draw Total, @ 6 Volts 1.60-1.78  
Motorizing Draw, @ 6 Volts 4.85-5.40  
(Field Terminal Grounded to Frame)

**VOLTAGE REGULATOR**

Ground Polarity Positive  
Model VRR-4001-A  
Make Auto-lite  
Voltage Regulator Setting @ 10  
Amperes Rate 120°F. 7.18 to 7.63 Volt  
Allowable Variation ± .15 Volts  
Carbon Resistors on Base  
Total Resistance 30 Ohms  
Armature Air Gap .048 to .052  
Contact Point Gap .012 Minimum

**STARTER MOTOR**

Make Auto-lite  
Model MCL-6006  
Voltage 6 Volt  
Poles Four  
Brushes Four  
Brush Spring Load 42-53 ozs.  
Maximum End Play .005 Minimum  
Drive Bendix

**COIL**

Make Auto-lite  
Model CE-6006-A  
Capacity 6 Volt  
Amperage Draw Engine Stopped 4.5  
Engine Idling 2.5  
0.40 volts

**STARTER SWITCH SOLENOID**

Contacts Close 3-4 volts  
Contacts Open 0.5-1.25 volts  
Voltage Drop Per 100 Amperes

**GENERATOR**

Make Auto-lite  
Model GEC-4801A  
Type Third brush set  
Drive Fan belt  
Chg. Rate - Cold 43 amps @ 8 volts  
Chg. Rate - Hot 37 amps @ 8 volts  
Number of Brushes Two  
Number of Poles Two  
Ground Polarity Positive  
Rotation, Viewed Drive End Clockwise  
Current Control 3rd Brush  
Voltage Control Vibrating Regulator  
Fuse None  
Bearing - Drive End Ball  
Commutator End Absorbent Bronze  
Clearance .001-.0025

**SPARK PLUGS**

Make - 6 Cylinder Champion 14 MM  
- 8 Cylinder Champion 14 MM  
Type - 6 Cylinder J-7 Cast Iron Head  
- 8 Cylinder J-7 Cast Iron Head  
Type - 6 Cylinder H-10 Aluminum Head  
- 8 Cylinder H-10 Aluminum Head  
Gap - 6 Cylinder .032  
- 8 Cylinder .032

**HORNS**

High Pitch Short Horn  
Low Pitch Long Horn  
High Pitch Diaphragm .0195

**ELECTRICAL**

General Specifications (Cont'd)

|                           |           |                      |              |
|---------------------------|-----------|----------------------|--------------|
| (Generator)               | (Horns)   |                      |              |
| Bushing Bore - Installed  | .626-.627 | Low Pitch Diaphragm  | .015         |
| Armature End Play         | .003-.010 | High Pitch - Air Gap | .027 to .029 |
| Brush Spring Load, Ounces | 35 - 53   | Low Pitch - Air Gap  | .032 to .034 |

**DISTRIBUTOR**

|                 |                |                |
|-----------------|----------------|----------------|
| Make            | 6 Cylinder     | 8 Cylinder     |
| Model           | Autolite       | Autolite       |
| Rotation        | IGS-4213-1     | IGT-4204-A-1   |
| Drive           | Clockwise      | Clockwise      |
| Advance Control | Oil Pump       | Camshaft       |
|                 | Full Automatic | Full Automatic |

**Automatic Advance Curve**

(Stated in Distributor Degrees and R.P.M.)

|              |                 |                   |
|--------------|-----------------|-------------------|
| Start        | 0° at 400 RPM   | 0° at 300 RPM     |
| Intermediate | 1° at 540 RPM   | 1° at 330 RPM     |
| Intermediate | 6° at 1200 RPM  | 3° at 400 RPM     |
| Intermediate | 11° at 1870 RPM | 16° at 1570 RPM   |
| Full Advance | 12° at 2000 RPM | 17.5° at 1700 RPM |

**Vacuum Advance**

(Distributor Degrees and Inches of Mercury)

|              |               |               |
|--------------|---------------|---------------|
| Start        | 0° at 9-1/2"  | 0° at 9-1/2"  |
| Intermediate | 1° at 10"     | 1° at 10"     |
| Intermediate | 4° at 11-1/2" | 4° at 11-1/2" |
| Intermediate | 7° at 13-1/4" | 7° at 13-1/4" |
| Full Advance | 8.5° at 14"   | 8° at 14"     |

|  |                      |                      |
|--|----------------------|----------------------|
| Rotor Shaft Side Play                          | .005"                | .005"                |
| Rotor Shaft End Play                           | .003"-.010"          | .003"-.010"          |
| (Measured after distributor gear is assembled) |                      |                      |
| Condenser Capacity                             | .20 to .25 microfads | .20 to .28 microfads |
| Bearings 2                                     | Absorbent bronze     | 2 Absorbent bronze   |
| Point Gap - Contacts aligned                   | .020                 | .017                 |
| Points Open                                    | T.D.C.               | T.D.C.               |
| Breaker Arm Spring Tension                     | 17-20 ounces         | 17 ounces            |
| Cam Dwell Angle                                | 3801100000000018°    | 27°                  |
| Timing Mark Location                           | At Flywheel          | At Flywheel          |
| Flywheel Teeth                                 | 134                  | 134                  |
| Firing Order                                   | 153624               | 16258374             |

### LIGHT BULBS - 6 VOLT

|  | No.  | C.P.   | Base   |
|--|------|--------|--------|
| Headlight (Sealed Beam Type)           | 4030 | Sealed | Sealed |
| Bonnet Light                           | 55   | 2      | Single |
| Parking Light with Direction Indicator | 1154 | 21-3   | Double |
| Tail and Stop Light                    | 1154 | 21-3   | Double |
| License Light                          | 63   | 3      | Single |
| Dome Light - Front                     | 87   | 15     | Single |

### ELECTRICAL

#### General Specifications (Continued)

#### Light Bulbs

|                             |       |        |          |
|-----------------------------|-------|--------|----------|
| Rear Quarter Lights (2)     |       | 81     | 6 Single |
| Clock                       | 55    | 2      | Single   |
| Speedometer                 | 55    | 2      | Single   |
| Instrument Cluster          | 55    | 2      | Single   |
| Direction Indicator         | 55    | 2      | Single   |
| Radio                       | 55    | 2      | Single   |
| Headlight Beam Indicator    | 55    | 2      | Single   |
| Ignition Lock               | 55    | 2      | Single   |
| Courtesy Light              | 87    | 15     | Single   |
| Fog Light - Sealed Beam     | 4016A | Sealed | Sealed   |
| Spot Light - Sealed Beam    | 4535  | Sealed | Sealed   |
| Parking Light               | 63    | 3      | Single   |
| Generator and Oil Indicator | 55    | 2      | Single   |

### CLUTCH

|                            |                     |                                   |         |
|----------------------------|---------------------|-----------------------------------|---------|
| Plate diameter             | 10"                 | Pedal to Floorboard Clearance     | 1-1/2"  |
| Type                       | Single Plate in oil |                                   |         |
| Fluid Used                 | Hudsonite Compound  | Engaging Spring Tension lbs.      |         |
| Plate Facing               | Cork Inserts        |                                   |         |
| Number of Corks            | 108                 | Inner (3) @ 1-5/8                 | 135-145 |
| Pilot Bearing              | Ball                | Outer (12) @ 1-5/8                | 180-190 |
| Throwout Bearing           | Ball                |                                   |         |
| Number of Engaging Fingers | 3                   | Clutch Tightening Torque Ft. Lbs. |         |
| Location Lubricating Plug  | Front of            |                                   |         |
|                            | Flywheel            | Throwout Finger Retainer Nuts     | 40-45   |
| Throwout Bearing Lubricant | Viscous             | Cover Cap Screws                  | 20-25   |
|                            | Chassis lube        | Cover Driving Lug Nuts            | 40-45   |
| Fitting Location           | Right Side Clutch   | Clutch Housing Cap Screws         | 40-45   |
|                            | Housing             | Flywheel Bolt Nuts                | 20-25   |

## TRANSMISSION

### GEAR RATIO

| All Series Without Drive-Master |         | All Series With Drive-Master |  |
|---------------------------------|---------|------------------------------|--|
| 2.61 to 1                       | Low     | 2.88 to 1                    |  |
| 1.65 to 1                       | Second  | 1.82 to 1                    |  |
| 1 to 1                          | High    | 1 to 1                       |  |
| 3.17 to 1                       | Reverse | 3.5 to 1                     |  |

### BEARINGS AND BUSHINGS

|                    |                     |
|--------------------|---------------------|
| Main Drive Gear    | Ball                |
| Mainshaft Pilot    | Needle Roller       |
| Mainshaft Rear     | Ball                |
| Reverse Idler Gear | Steel Back Tin Base |
| Countershaft Gear  | Steel Back Tin Base |

### TEETH

#### Countershaft Gear Cluster

|                  |          |
|------------------|----------|
| 2.61 to 1 Ratio  |          |
| C/S Drive        | 25 teeth |
| C/S Intermediate | 21 teeth |
| C/S Low          | 17 teeth |
| C/S Reverse      | 14 teeth |

#### Countershaft Gear Cluster

|                  | Ratio    |
|------------------|----------|
| 2.88 to 1 Ratio  |          |
| C/S Drive        | 26 teeth |
| CIS Intermediate | 21 teeth |
| C/S Low          | 17 teeth |
| CIS Reverse      | 14 teeth |

#### Main Drive Gear

|                 |          |
|-----------------|----------|
| 2.61 to 1 Ratio | 18 teeth |
| 2.88 to 1 Ratio | 17 teeth |

#### Mainshaft -Intermediate

|         |          |
|---------|----------|
| Helical | 25 teeth |
| Clutch  | 30 teeth |

#### Mainshaft - Low and Reverse

|                 |          |
|-----------------|----------|
| External        | 32 teeth |
| Spline Internal | 24 teeth |

### END PLAY

|  |                |
|--|----------------|
| Countershaft                               | .006" to .016" |
| Mainshaft Intermediate Gear & Synchronizer | .003" to .016" |

### SPEEDOMETER DRIVE GEAR

|                | Axle Ratio | Tire Sizes | Teeth |
|----------------|------------|------------|-------|
| Less Overdrive | 4-1/10     | 7.10-15    | 10    |
|                | 4-1/10     | 7.60-15    | 11    |
|                | 4-5/9      | All        | 11    |
| With Overdrive | All        | All        | 11    |

### SPEEDOMETER PINIONS

| Axle Sizes | Tire Teeth |    |
|------------|------------|----|
| 4-1/10     | 7.10-15    | 15 |
| 4-1/10     | 7.60-15    | 16 |
| 4-5/9      | 7.10-15    | 18 |
| 4-5/9      | 7.60-15    | 18 |

### SPEEDOMETER CABLE

|                   |     |
|-------------------|-----|
| Without Overdrive | 58" |
| With Overdrive    | 64" |

### LUBRICATION

Capacity of transmission is 2-1/4 pints or pounds if disassembled and parts washed.  
Capacity of transmission is 2 pints or pounds if drained and refilled. S.A.E. 90 E.P. Summer.  
S.A.E. 80 E.P. Winter.

**REAR AXLE**

|                                 |                                       |  |                          |
|---------------------------------|---------------------------------------|--|--------------------------|
| <b>TYPE</b>                     | Semi-Floating                         | <b>WHEEL BEARINGS:</b>   |                          |
| <b>GEAR TYPE</b>                | Hypoid Helical Bevel                  | Type   | Taper Roller             |
| <b>RATIO</b>                    |                                       | Adjustment   | Shim                     |
| 4-1/10                          | Standard                              | End Play   | .001" to .004"           |
| 4-5/9                           | Optional                              |  |                          |
| <b>PINION BEARINGS: 2</b>       |                                       | <b>AXLE DRIVE SHAFT LENGTH</b>   |                          |
| Type                            | Taper Roller                          | (including thrust button)  | 28.146"                  |
| Adjustment Shim                 |                                       | <b>RING GEAR AND PINION - (Matched Sets)</b>   |                          |
| End Play                        | Resistance Torque 17 to 32 inch. lbs. | (Ratio stamped on outside of differential carrier and cap assembly at right hand side at bolt circle.) |                          |
| <b>DIFFERENTIAL BEARINGS: 2</b> | Gear Lash .004" to .006"              | Adjustment   | Shims and Adjusting Nuts |
| Type                            | Taper Roller                          | <b>LUBRICATION:</b>  | Hypoid - Extreme         |
| Adjustment                      | Adjusting Nut .008" to .01200         | pressure (E.P.) S.A.E. #90   |                          |
|                                 | Tension between Bearings              | Summer and Winter Capacity   | 3-1/2 pints              |

**FRONT SUSPENSION**

|  |                |  |                |
|--|----------------|--|----------------|
| Curb height (Front)  | 4-1/4"         | Wheel Bearing Type                                   | Taper Roller   |
| (Rear)   | 5-1/4"         | Wheel Bearing End Play                               | .001" to .003" |
| Caster   | 1/2° to 1 1/2° | Tie Rod End Type                                     | Plain Bearing  |
| Camber   | 1/2° to 1 1/2° | Tie Rod Adjustment                                   |                |
| Maximum variation between right<br>And left wheel caster or camber | 1/2°           | To Increase-Turn counter clockwise                   |                |
| Toe-In measured at wheel rim                                       | 0-1/16"        | To Decrease-Turn clockwise                           |                |
| Pivot Pin Inclination  | 3°36"          | Steering center arm bolt nut – Tighten to 70# torque |                |
| Toe-out variation between wheels                                   | 30"            | Steering arm nut – tighten to #110 to 120# torque    |                |
| Spindle Pivot Pin Thrust Bearing                                   | Ball           |  |                |

**BRAKES**

|                       |                           |
|-----------------------|---------------------------|
| Type                  | 4 Wheel Bendix Hydraulic  |
| Drum Diameter         | 11"                       |
| Material              | Centrifuse                |
| Lining Type           | Moulded                   |
| Width                 | Front – 2-1/4"            |
| Width                 | Rear – 1-3/4"             |
| Length per wheel      | 20.87"                    |
| Length primary shoe   | Front 11"                 |
| Length primary shoe   | Rear 11"                  |
| Length Secondary Shoe | Front 11 "                |
| Length Secondary Shoe | Rear 11-1/16"             |
| Braking Area.         | Total 158.7 square inches |

**BRAKES**  
**(Continued)**

|   |          |
|---|----------|
| Adjustments                                   |          |
| Anchor pin                                    | Radially |
| Front & Rear Shoe                             | Screw    |
| Clearance                                     |          |
| Both ends of shoe                             | .010"    |
| Mechanical follow-up                          | 1-1/4"   |
| Pedal to floor board<br>clearance (free play) | 1/4"     |

**MISCELLEANOUS**

**Piston, Cylinder, Ring Sizes**  
**Piston Size Code Key**

NOTE: Ring Oversizes Apply Only To Production Type Rings

| <b>6 Cylinder</b> |      |                |                |                     | <b>8 Cylinder</b> |      |                |                |                     |
|-------------------|------|----------------|----------------|---------------------|-------------------|------|----------------|----------------|---------------------|
| Cylinder<br>Size  | Code | Piston<br>Code | Piston<br>Size | Piston Ring<br>Size | Cylinder<br>Size  | Code | Piston<br>Code | Piston<br>Size | Piston Ring<br>Size |
| 3.5625            | B    | B              | 3.560          | 3.5625              | 3.000             | A    | A              | 2.998          | 3.000               |
| 3.563             | C    | C              | 3.5605         | 3.5625              | 3.0005            | B    | B              | 2.9985         | 3.000               |
| 3.5635            | D    | D              | 3.561          | 3.5625              | 3.001             | C    | C              | 2.999          | 3.000               |
| 3.564             | E    | E              | 3.5615         |                     | 3.0015            | D    | D              | 2.9995         | 3.000               |
| 3.5645            | F    | F              | 3.562          | 3.565               | 3.002             | E    | E              | 3.000          | 3.000               |
|                   |      | J              | 3.564          | 3.5675              | 3.0025            |      | F              | 3.0005         | 3.000               |
|                   |      | L              | 3.565          | 3.5675              | 3.0045            |      | J              | 3.0025         | 3.003               |
|                   |      | P              | 3.567          | 3.572               | 3.0055            |      | L              | 3.0035         | 3.005               |
| 3.572             | AO   | AO             | 3.5695         | 3.572               | 3.0075            |      | P              | 3.0055         | 3.005               |
| 3.5725            | BO   | BO             | 3.570          | 3.572               | 3.010             | AO   | AO             | 3.008          | 3.010               |
| 3.573             | CO   | CO             | 3.5705         |                     | 3.0105            | BO   | BO             | 3.0085         | 3.010               |
| 3.5735            | DO   | DO             | 3.571          | 3.572               | 3.011             | CO   | CO             | 3.009          | 3.010               |
| 3.574             | EO   | EO             | 3.5715         | 3.577               | 3.0115            | DO   | DO             | 3.0095         | 3.010               |
| 3.5745            | FO   | FO             | 3.572          | 3.577               | 3.012             | EO   | EO             | 3.010          | 3.010               |
|                   |      | LO             | 3.575          | 3.577               | 3.0125            | FO   |                | 3.0105         | 3.010               |
| 3.5825            | BB   | BB             | 3.580          | 3.5825              | 3.0145            |      | JO             | 3.0125         | 3.015               |
| 3.5835            | DD   | DD             | 3.581          | 3.5825              | 3.0175            |      | PO             | 3.0155         | 3.015               |
| 3.5845            | FF   | FF             | 3.582          | 3.5825              | 3.0155            |      | LO             | 3.0135         | 3.015               |
|                   |      |                |                |                     | 3.0205            |      | BB             | 3.0185         | 3.020               |
|                   |      |                |                |                     | 3.0215            |      | DD             | 3.0195         | 3.020               |
|                   |      |                |                |                     | 3.0225            |      | FF             | 3.0205         | 3.020               |
|                   |      |                |                |                     | 3.0305            |      | BOOO           | 3.0285         | 3.030               |
|                   |      |                |                |                     | 3.032             |      | E000           | 3.030          | 3.030               |

### Capacities

|                          | <u>6 Cyl.</u> | <u>8 Cyl.</u> |
|--------------------------|---------------|---------------|
| Engine Oil - Dry         |               |               |
| U.S. Quarts              | 7-1/2         | 9             |
| Imperial Quarts          | 6-1/2         | 7-1/2         |
| Engine Oil-Refill        |               |               |
| U. S. Quarts             | 7             | 7             |
| Imperial Quarts          | 6             | 6             |
| Clutch                   |               |               |
| U. S. Pint               | 1/3           | 1/3           |
| Imperial Pint            | 1/4           | 1/4           |
| Transmission             |               |               |
| U.S. Lbs.                | 2             | 2             |
| Imperial Lbs.            | 2             | 2             |
| Transmission & Overdrive |               |               |
| U.S. Lbs.                | 3-1/4         | 3-1/4         |
| Imperial Lbs.            | 3-1/4         | 3-1/4         |
| Rear Axle                |               |               |
| U.S. Lbs.                | 3-1/2         | 3-1/2         |
| Imperial Lbs.            | 3             | 3             |

### WHEELS AND TIRES

|                      |           |
|----------------------|-----------|
| Tire Size            |           |
| 7:10 x 15:00 - 4 Ply | Standard  |
| 7:60 x 15:00 - 4 Ply | Optional  |
| Wheel Size           |           |
| 5:00 x 15:00         | Standard  |
| 5:50 x 15:00         | Optional  |
| Inflation Pressure   |           |
| Front and Rear       | 24 Pounds |

### Intake & Exhaust Valve Clearances

|               |       |       |
|---------------|-------|-------|
| Intake (Hot)  | .008" | .006" |
| Exhaust (Hot) | .010" | .010" |

### Distributor Points

|                |       |       |
|----------------|-------|-------|
| Points Setting | .020" | .017" |
| Dwell Angle    | 38°   | 27°   |

**SPRINGS**

| Front                    |                     | Rear                                 |                            |               |
|--------------------------|---------------------|--------------------------------------|----------------------------|---------------|
| Type                     | Coil                | Type                                 | Light Scale                | Semi-Elliptic |
| Light Scale              | All Models          |                                      | Load Weight                | All Models    |
| Load at Passenger Height | 2080                |                                      | Rate                       | 875           |
| Rate                     | 386                 |                                      | Length and Width           | 120           |
| Height at Passenger Load | 9-9/16"             |                                      | Number of Leaves Including | 54" – 1-3/4"  |
| Free Height              | 15-1/16"            |                                      | Rebound Leaf               | 8             |
|                          |                     | Heavy Scale                          | Optional                   |               |
| Heavy Scale              | Optional All Models | Load Weight                          | 975                        |               |
| Load at Passenger Height | 2080                | Rate                                 | 140                        |               |
| Rate                     | 450                 | Length and Width                     | 54" – 1-3/4"               |               |
| Height at Passenger Load | 9-9/16"             | Number of Leaves Including           |                            |               |
| Free Height              | 14-5/16"            | Rebound Leaf                         | 8                          |               |
|                          |                     | Covers                               | Metal                      |               |
|                          |                     | Shackles                             | Silent "U"                 |               |
|                          |                     |                                      | Threaded                   |               |
|                          |                     | Spring Eye Dimension                 | 870                        |               |
|                          |                     | Spring Load Markings and Part Number |                            |               |
|                          |                     | Head of Center Bolt                  |                            |               |

Identification of the coil springs may be determined by part numbers stamped on top coil.

**SHOCK ABSORBERS**

| Part Number               | Mfr    | Code                        | Compressed Length | Extended Length |
|---------------------------|--------|-----------------------------|-------------------|-----------------|
| Front – Light Scale       |        |                             |                   |                 |
| 300350                    | Monroe | 1-8-10-(4)-10-10-HI         | 7-3/4"            | 12"             |
| 301240                    | Delco  | 22-1-10-(4)-10-10           | 7-3/4"            | 12"             |
| Front – Heavy Scale       |        |                             |                   |                 |
| 301767                    | Monroe | 0-10-10-10-(4)-10-10-10-1-5 |                   |                 |
| 301769                    | Delco  | 0-10-10-(4)-10-10-HI        |                   |                 |
| Front – Extra Heavy Scale |        |                             |                   |                 |
| 301637                    | Delco  | 934-E-IC6/D-2               | 7-13/16"          | 11-15/16"       |
| Rear - Light Scale        |        |                             |                   |                 |
| 300351                    | Monroe | 4-10-10-(4)-10-10-C2        | 13-13/16"         | 21-15/16"       |
| 301241                    | Delco  |                             | 13-13/16"         | 21-15/16"       |
| Rear - Heavy Scale        |        |                             |                   |                 |
| 301768                    | Monroe | 2-10-10-10-(4)-10-10-10-C2  |                   |                 |
| 301770                    | Delco  | 2-10-10-10-(4)-10-10-10-C2  |                   |                 |
| Rear - Extra Heavy Scale  |        |                             |                   |                 |
| 301638                    | Delco  | 941Y-2B6-J1                 | 13-11/32"         | 21-13/16"       |

Shock Absorbers (Cont'd)

**Usage – (Front)**

Light Scale – Part numbers 300350 Monroe and 301240 Delco use on models 481P-482-483-484. Less Heavy scale springs – Front and Rear 481CM. Less heavy scale front springs.

Heavy Scale – Part numbers 301767 Monroe and 301760 Delco used on models 481CM, Except Station Wagon with Heavy Scale Front Springs. 481P-48 2-483-484 with Heavy Scale Springs Front and Rear.

Extra Heavy Scale – Part numbers 301637 Delco Optional Model 481CM, Except Station Wagon Optional. 481CM Station Wagon.

**Usage (Rear)**

Light Scale --Part numbers 300351 Monroe and 301241 Delco used on Models 481-P-482-483-484 Less Heavy Scale Springs -- Front and Rear, and Rear Only.

Heavy Scale--Part numbers 301768 Monroe and 301770 Delco 481 CM Station Wagon, 481-P-482483-484 With Heavy Scale Springs - Front and Rear and Rear Only.

Extra Heavy Scale --Part numbers 301638 Delco optional Model 481 CM Station Wagon. Optional 481P-482-483-484