

## GROUP 2

### ENGINE

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### SECTION 2-A

#### ENGINE SPECIFICATIONS

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#### SERVICE BULLETIN REFERENCE

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### 2-1 ENGINE TIGHTENING SPECIFICATIONS

Use a reliable torque wrench to tighten the parts listed, to insure proper tightness without straining or distorting parts. These specifications are for *clean and lightly lubricated threads only*; dry or dirty threads produce increased friction which prevents accurate measurement of tightness.

| Part  | Location                                      | Thread Size        | Torque Ft.Lbs. |
|-------|-----------------------------------------------|--------------------|----------------|
| Plug  | Spark . . . . .                               | 14 MM              | 22-28          |
| Plug  | Crankcase Drain . . . . .                     | 28 MM              | 30-35          |
| Bolt  | Lower Crankcase . . . . .                     | $\frac{5}{16}$ -18 | 6-15           |
| Bolt  | Flywheel Housing to Upper Crankcase . . . . . | $\frac{7}{16}$ -14 | 55-60          |
| Bolt  | Timing Gear Cover . . . . .                   | $\frac{3}{8}$ -16  | 15-20          |
| Bolt  | Valve Push Rod Cover . . . . .                | $\frac{5}{16}$ -18 | 4-5            |
| Nut   | Valve Rocker Arm Cover . . . . .              | $\frac{5}{16}$ -24 | 4-5            |
| Bolt  | Water Pump Mounting . . . . .                 | $\frac{3}{8}$ -16  | 25-30          |
| Nuts  | Manifold Stud . . . . .                       | $\frac{3}{8}$ -24  | 25-30          |
| Bolts | Cylinder Head . . . . .                       | $\frac{7}{16}$ -14 | 65-70          |

| Part | Location                                                   | Thread Size        | Torque Ft.Lbs. |
|------|------------------------------------------------------------|--------------------|----------------|
| Nuts | Con. Rod Bolt—Ser. 40-50 . . .                             | $\frac{3}{8}$ -24  | 40-45          |
| Nut  | Con. Rod Bolt—Series 70 . . .                              | $\frac{7}{16}$ -24 | 60-65          |
| Bolt | Piston Pin Clamp . . . . .                                 | $\frac{1}{16}$ -24 | 25-30          |
| Bolt | Crankshaft Bearing Cap . . . .                             | $\frac{1}{2}$ -13  | 90-100         |
| Bolt | Balancer Retaining . . . . .                               | $\frac{3}{4}$ -16  | 100-110        |
| Nut  | Flywheel to Crankshaft—Synchronesh . . . . .               | $\frac{3}{8}$ -24  | 35-40          |
| Bolt | Flywheel to Crankshaft—Dynaflow . . . . .                  | $\frac{7}{16}$ -24 | 50-55          |
| Bolt | Rocker Arm Shaft Bracket . . .                             | $\frac{3}{8}$ -16  | 30-35          |
| Nut  | Rocker Arm Shaft Bracket Stud . . . . .                    | $\frac{3}{8}$ -24  | 30-35          |
| Nut  | Generator to Bracket Bolt . . .                            | $\frac{3}{8}$ -24  | 25-30          |
| Bolt | Generator Mounting Bracket to Crankcase . . . . .          | $\frac{3}{8}$ -16  | 30-35          |
| Nut  | Front Engine Mounting Bracket to Frame Bolt . . . .        | $\frac{3}{8}$ -24  | 30-35          |
| Nut  | Front Engine Mounting Stud . .                             | $\frac{3}{8}$ -24  | 30-35          |
| Bolt | Transmission Mounting Pad to Rear Bearing Retainer . .     | $\frac{3}{8}$ -16  | 30-35          |
| Nut  | Transmission Mounting Pad to Transmission Support Bolt . . | $\frac{3}{8}$ -24  | 30-35          |
| Nut  | Transmission Support to Frame Cross Member Bolt . .        | $\frac{3}{8}$ -24  | 20-25          |
| Nut  | Thrust Pad to Transmission Support and Thrust Plate . .    | $\frac{3}{8}$ -24  | 30-35          |

**2-2 ENGINE GENERAL SPECIFICATIONS****a. General Information (See Par. 2-3 for dimensions)**

| Items                                             | Series 40-50                          | Series 70                              |
|---------------------------------------------------|---------------------------------------|----------------------------------------|
| Type.....                                         | Valve in Head                         |                                        |
| Cylinders and Arrangement.....                    | 8 in Line                             |                                        |
| Bore and Stroke.....                              | $3\frac{3}{16}" \times 4\frac{1}{8}"$ | $3\frac{7}{16}" \times 4\frac{5}{16}"$ |
| Piston Displacement (cu. in.).....                | 263.3                                 | 320.2                                  |
| Compression Ratio—                                |                                       |                                        |
| Synchronesh—Series 40 only.....                   | 6.6 to 1                              | —                                      |
| Synchronesh—Series 50 only.....                   | 6.9 to 1                              | —                                      |
| Dynaflow—All Series.....                          | 7.2 to 1                              | 7.5 to 1                               |
| Compression Pressure @ Cranking Speed (p.s.i.)—   |                                       |                                        |
| Synchronesh—Series 40 only.....                   | 114                                   | —                                      |
| Synchronesh—Series 50 only.....                   | 118                                   | —                                      |
| Dynaflow—All Series.....                          | 120                                   | —                                      |
| Firing Order.....                                 | 1-6-2-5-8-3-7-4                       |                                        |
| Taxable Horsepower.....                           | 32.51                                 | 37.81                                  |
| Max. Brake H.P. @ 3600 RPM, Bare Engine—          |                                       |                                        |
| Synchronesh—Series 40 only, @ RPM.....            | 120 (3600)                            | —                                      |
| Synchronesh—Series 50 only, @ RPM.....            | 124 (3600)                            | —                                      |
| Dynaflow—All Series, @ RPM.....                   | 128 (3600)                            | 168 (3800)                             |
| Engine Weight Less Clutch & Mountings (lbs.)..... | 746-749                               | 833                                    |
| Number of Mountings and Material.....             | 3 Synthetic Rubber                    |                                        |

**b. Cylinder Crankcase and Cylinder Head**

|                                      |                                    |
|--------------------------------------|------------------------------------|
| Cylinder Crankcase Type.....         | Block Cast Integral with Crankcase |
| Cylinder Head Type and Material..... | One Piece, Cast Iron               |
| Combustion Chamber.....              | Cast in Head                       |
| Head Bolts, Number and Diameter..... | 22, $\frac{1}{16}"$                |

**c. Crankshaft Bearings, Flywheel Balancer**

|                                            |                                                |                     |
|--------------------------------------------|------------------------------------------------|---------------------|
| Crankshaft Weight (lbs.).....              | 90                                             | 116                 |
| Number of Crankshaft Bearings.....         | 5                                              | 5                   |
| Bearing which takes Thrust.....            | Center                                         |                     |
| Crankshaft Bearing Type.....               | Replaceable Liners                             |                     |
| Crankshaft Bearing Material.....           | Steel Backed Durex 100-A                       |                     |
| Provision for Bearing Adjustment.....      | None                                           | None                |
| Bearing Cap Bolts, No. and Diam.—          |                                                |                     |
| Rear Bearing.....                          | Two $\frac{1}{2}"$                             | Four $\frac{1}{2}"$ |
| Other Bearings.....                        | Two $\frac{1}{2}"$                             | Two $\frac{1}{2}"$  |
| Flywheel—                                  |                                                |                     |
| Material & Weight (lbs.), Syncro-mesh..... | C.I.—36.56                                     | —                   |
| Material & Weight (lbs.), Dynaflow.....    | Steel—9.23                                     | Steel—12.21         |
| Number of Teeth on Ring.....               | 146                                            | 156                 |
| Crankshaft Balancer Type.....              | Laminated Steel Flywheel on Steel Leaf Springs |                     |
| Balancer Location.....                     | Front End of Crankshaft                        |                     |

**d. Connecting Rods, Pistons and Rings**

|                                            |                           |                     |
|--------------------------------------------|---------------------------|---------------------|
| Connecting Rod Bearing Type.....           | Replaceable Liners        |                     |
| Connecting Rod Bearing Material.....       | Steel Backed Durex 100-A  |                     |
| Provision for Bearing Adjustment.....      | None                      | None                |
| Number & Diam. of Cap Bolts.....           | Two $\frac{3}{8}"$        | Two $\frac{1}{16}"$ |
| How are Rods & Pistons Removed.....        | From Top of Cylinder      |                     |
| Piston Type.....                           | Full Skirt                |                     |
| Piston Material and Surface Treatment..... | Aluminum Alloy—Anodized   |                     |
| Compression Rings per Piston.....          | 2                         | 2                   |
| Type.....                                  | Inside Bevel              |                     |
| Oil Rings per Piston.....                  | 2                         | 2                   |
| Type, Upper.....                           | Channeled—Oil Return Slot |                     |
| Type, Lower.....                           | Flex-Fit                  |                     |
| Location of All Piston Rings.....          | Above Piston Pin          |                     |

**e. Camshaft and Valve Mechanism****Items**

|                                      |  |
|--------------------------------------|--|
| Camshaft Drive                       |  |
| Number of Camshaft Bearings          |  |
| Camshaft Bearing Material            |  |
| Camshaft Thrust Control              |  |
| Camshaft Sprocket—                   |  |
| Material and Width                   |  |
| No. of Teeth                         |  |
| Crankshaft Sprocket—                 |  |
| Material and Width                   |  |
| No. of Teeth                         |  |
| Timing Chain Width                   |  |
| Valve Lifter Type—                   |  |
| Series 40 Syncro-mesh only           |  |
| Series 50 Syncro-mesh & all Dynaflow |  |
| Valve Type—Inlet                     |  |
| Exhaust                              |  |
| Valve Seat Angle—Inlet and Exhaust   |  |
| Valve Spring Type                    |  |
| Valve Guide Type and Material        |  |

**Series 40-50****Series 70**

|   |                              |                   |
|---|------------------------------|-------------------|
| ← | Link Belt Chain              | →                 |
| ← | 5                            | 5                 |
| ← | Steel Backed Babbitt         | →                 |
| ← | Plate at Front End           | →                 |
| ← | Cast Iron, $1\frac{3}{16}$ " | →                 |
| ← | 38                           | 38                |
| ← | Steel, $1\frac{3}{16}$ "     | →                 |
| ← | 19                           | 19                |
| ← | $1\frac{3}{16}$ "            | $1\frac{3}{16}$ " |
| ← | Plain Sleeve                 | →                 |
| ← | Hydraulic                    | →                 |
| ← | Streamlined                  | →                 |
| ← | Mushroom                     | →                 |
| ← | 45 Degrees                   | →                 |
| ← | Dual Helical                 | →                 |
| ← | Removable, Cast Iron         | →                 |

**f. Engine Oiling System**

|                                   |  |
|-----------------------------------|--|
| Oiling System Type                |  |
| Oil Supplied to Bearing Surfaces— |  |
| Crankshaft Bearings               |  |
| Connecting Rod Bearings           |  |
| Pistons and Pins                  |  |
| Camshaft Bearings                 |  |
| Timing Chain and Sprockets        |  |
| Rocker Arms and Valves            |  |
| Valve Lifters                     |  |
| Location of Oil Filler            |  |
| Location of Oil Drain             |  |
| Oil Reservoir Capacity—Quarts     |  |
| Dry Engine                        |  |
| Refill                            |  |
| Oil Level Gauge—Type and Location |  |
| Oil Pressure Gauge—Make           |  |
| Normal Oil Pressure               |  |
| Oil Pump Type                     |  |
| Oil Pump Location                 |  |
| Oil Screen Location               |  |
| Oil Pressure Regulator Type       |  |

|   |                                 |           |
|---|---------------------------------|-----------|
| ← | Forced Feed                     | →         |
| ← | Pressure                        | →         |
| ← | Pressure                        | →         |
| ← | Spray                           | →         |
| ← | Pressure                        | →         |
| ← | Metered Jet and Spray           | →         |
| ← | Low Pressure                    | →         |
| ← | Gravity Flow from Rocker Arms   | →         |
| ← | In Valve Rocker Arm Cover       | →         |
| ← | Plug in Lower Crankcase         | →         |
|   | $6\frac{1}{2}$ (*8)             | $8$ (*9½) |
|   | $5\frac{1}{2}$ (*7)             | $7$ (*8½) |
|   | (*With Dry Oil Filter)          |           |
| ← | Rod in R. Side of Crankcase     | →         |
|   | AC                              | AC        |
| ← | 35 lbs. @ 35 MPH                | →         |
| ← | Helical Gear                    | →         |
| ← | Suspended in Lower Crankcase    | →         |
| ← | On Float Attached to Pump       | →         |
| ← | Non-Adjustable Spring and Valve | →         |

**g. Engine Cooling System**

|                                         |  |
|-----------------------------------------|--|
| Cooling System Type                     |  |
| Water Temperature Control               |  |
| Cooling System Capacity—Qts.            |  |
| Less Heater                             |  |
| With Heater                             |  |
| Location of Drains                      |  |
| Water Pump Type                         |  |
| Water Pump Location                     |  |
| Water Pump and Fan Drive—With Generator |  |
| Water Pump to Crankshaft Speed Ratio    |  |
| Water Pump Bearing Type                 |  |
| Water Pump Seal Type                    |  |
| Fan Diameter                            |  |
| Number of Blades                        |  |
| Radiator Make                           |  |
| Core Type                               |  |
| Core Material                           |  |
| Core Frontal Area (sq. in.), Syncromesh |  |
| Dynaflow Drive                          |  |
| Core Thickness                          |  |
| Radiator Pressure Control               |  |
| Radiator Pressure (lbs.)                |  |
| Radiator Thermostat—Make                |  |
| Thermostat Location                     |  |
| Thermostat Calibration                  |  |

|   |                                                  |                 |
|---|--------------------------------------------------|-----------------|
| ← | Pressure                                         | →               |
| ← | Thermostat and Fixed By-Pass                     | →               |
|   | $12$ (**13½)                                     | $18$            |
|   | $13\frac{1}{2}$ (**15)                           | $19\frac{1}{2}$ |
|   | (**With Dynaflow Drive)                          |                 |
| ← | Cocks in Radiator and in R. H. Side of Crankcase | →               |
| ← | Centrifugal                                      | →               |
| ← | Front End of Crankcase                           | →               |
| ← | Single Vee Belt                                  | →               |
|   | .9 to 1                                          | .9 to 1         |
| ← | Sealed Double-Row Ball                           | →               |
| ← | Spring Loaded, Packless                          | →               |
|   | 18"                                              | 18"             |
|   | 4                                                | 5               |
| ← | Harrison                                         | →               |
| ← | Vee Cellular                                     | →               |
| ← | Copper                                           | →               |
|   | 415                                              | 484             |
|   | 484                                              | 3"              |
|   | 2"                                               |                 |
| ← | Valve in Filler Cap                              | →               |
|   | 7                                                | 7               |
| ← | Harrison                                         | →               |
| ← | In Housing Above Water Pump                      | →               |
| ← | See Par. 2-3, f                                  | →               |

## 2-3 ENGINE DIMENSIONS, FITS AND ADJUSTMENTS

NOTE: Dimensions and limits for fit of parts apply to new parts only. Where limits are given, "T" means tight and "L" means loose.

## a. Crankshaft and Connecting Rod Bearings

| Items                                                   | Series 40-50                            | Series 70                                |
|---------------------------------------------------------|-----------------------------------------|------------------------------------------|
| Crankshaft Bearing—Nominal Diam. x Length—              |                                         |                                          |
| Front.....                                              | $2\frac{9}{16}" \times 1\frac{17}{64}"$ | $2\frac{9}{16}" \times 1\frac{9}{32}"$   |
| Front Center.....                                       | $2\frac{9}{16}" \times 1\frac{1}{32}"$  | $2\frac{5}{8}" \times 1\frac{31}{32}"$   |
| Center.....                                             | $2\frac{9}{16}" \times 1\frac{35}{64}"$ | $2\frac{11}{16}" \times 1\frac{15}{32}"$ |
| Rear Center.....                                        | $2\frac{9}{16}" \times 1\frac{1}{32}"$  | $2\frac{13}{16}" \times 2\frac{15}{32}"$ |
| Rear.....                                               | $2\frac{9}{16}" \times 1\frac{25}{32}"$ | $2\frac{13}{16}" \times 2\frac{15}{32}"$ |
| Crankshaft Journal Diameters—                           |                                         |                                          |
| Front.....                                              | 2.5625"-2.5635"                         | 2.5605"-2.5615"                          |
| Front Center.....                                       | 2.5625"-2.5635"                         | 2.6235"-2.6245"                          |
| Center.....                                             | 2.5625"-2.5635"                         | 2.6855"-2.6865"                          |
| Rear Center.....                                        | 2.5625"-2.5635"                         | 2.7485"-2.7495"                          |
| Rear.....                                               | 2.5625"-2.5635"                         | 2.8105"-2.8115"                          |
| Crankshaft Journal to Bearing Clearance.....            | .0006"-.0018"                           | .0006"-.0020"                            |
| Crankshaft End Play at Center Bearing.....              | .004" to .008"                          |                                          |
| Fit of Main Drive Gear Pilot Bearing in Crankshaft..... | .004"T to .0012"L                       |                                          |
| Connecting Rod Bearing Nominal Diam. x Length.....      | $2\frac{1}{8}" \times 1.030"$           | $2\frac{1}{4}" \times 1.306"$            |
| Crankpin Journal Diameter.....                          | 2.125"-2.126"                           | 2.248"-2.249"                            |
| Crankpin Journal to Bearing Clearance.....              | .0005"-.0016"                           |                                          |
| End Clearance of Connecting Rod on Crankpin.....        | .005"-.010"                             |                                          |
| Connecting Rod Length, Center to Center.....            | 7 $\frac{3}{8}"$                        | 8 $\frac{1}{4}"$                         |

## b. Cylinders, Pistons, Pins and Rings

|                                                                                          |                                 |                   |
|------------------------------------------------------------------------------------------|---------------------------------|-------------------|
| Cylinder Bores, Standard Size.....                                                       | 3.186"-3.189"                   | 3.436"-3.439"     |
| Piston Length, Overall.....                                                              | 3 $\frac{9}{16}"$               | 4 $\frac{9}{16}"$ |
| Piston Diameter, Top of Skirt, at 90° to Piston Pin—                                     |                                 |                   |
| Standard.....                                                                            | 3.1860"-3.1872"                 | 3.4358"-3.4370"   |
| .005" Oversize.....                                                                      | 3.1916"-3.1922"                 | 3.4414"-3.4420"   |
| .010" Oversize.....                                                                      | 3.1966"-3.1972"                 | 3.4464"-3.4470"   |
| .020" Oversize.....                                                                      | 3.2066"-3.2072"                 | 3.4564"-3.4570"   |
| .030" Oversize.....                                                                      | 3.2166"-3.2172"                 | 3.4664"-3.4670"   |
| Piston Clearance in Cylinder Bore at Top of Skirt.....                                   | .0012"-.0018"                   | .0014"-.0020"     |
| Piston Fit @ 70° F., using Feeler Gauges, Allowing Piston to Drop on its Own Weight..... | .0015" GO—.002" NO GO           |                   |
| Piston Pin Length.....                                                                   | 2 $\frac{11}{16}"$              | 3 $\frac{1}{16}"$ |
| Piston Pin Diameter.....                                                                 | .8124"-.8129"                   | .8744"-.8749"     |
| Piston Pin Fit in Piston at 70° F.....                                                   | Finger Push Fit (.0003"-.0005") |                   |
| Width of Compression Rings.....                                                          | $\frac{3}{32}"$                 | $\frac{13}{32}"$  |
| Width of Channeled Oil Rings.....                                                        | $\frac{3}{16}"$                 | $\frac{3}{16}"$   |
| Width of Flex-Fit Oil Rings.....                                                         | .186"-.187"                     |                   |
| Width of Gap, Ring in Bore—                                                              |                                 |                   |
| Compression & Upper Oil Ring.....                                                        | .010"-.020"                     |                   |
| Flex-Fit Oil Ring.....                                                                   | No Checking or Fitting Required |                   |
| Side Clearance of Rings in Piston Groove—                                                |                                 |                   |
| Compression Ring.....                                                                    | .0015"-.0035"                   |                   |
| Upper Oil Ring.....                                                                      | .0015"-.003"                    |                   |
| Flex-Fit Ring.....                                                                       | .001"-.003"                     |                   |

## c. Camshaft and Valve Mechanism

|                                          |                                        |                                         |
|------------------------------------------|----------------------------------------|-----------------------------------------|
| Camshaft End Play.....                   | .004"-.009"                            |                                         |
| Camshaft Bearings—Diam. x Length—        |                                        |                                         |
| No. 1.....                               | $2\frac{5}{32}" \times 1\frac{1}{8}"$  |                                         |
| No. 2.....                               | $2\frac{1}{8}" \times \frac{3}{4}"$    | $2\frac{1}{8}" \times 1\frac{1}{8}"$    |
| No. 3.....                               | $2\frac{5}{32}" \times 1\frac{1}{8}"$  |                                         |
| No. 4.....                               | $2\frac{1}{16}" \times \frac{3}{4}"$   | $2\frac{1}{16}" \times 1\frac{15}{16}"$ |
| No. 5.....                               | $1\frac{3}{4}" \times 1\frac{31}{32}"$ |                                         |
| Camshaft Clearance in Bearings.....      | .0015"-.004"                           |                                         |
| Valve Lifter Diameter.....               | .9975"-.9985"                          |                                         |
| Valve Lifter Clearance in Crankcase..... | .0005"-.0025"                          |                                         |
| Rocker Arm Shaft O.D.....                | $\frac{13}{16}"$                       | $\frac{13}{16}"$                        |
| Rocker Arm Clearance on Shaft.....       | .002"-.004"                            |                                         |
| Valve Head Diameter—Inlet.....           | $1\frac{17}{32}"$                      | $1\frac{25}{32}"$                       |
| Exhaust.....                             | $1\frac{11}{32}"$                      | $1\frac{7}{16}"$                        |
| Valve Seat Angle—Inlet and Exhaust.....  | 45 degrees                             |                                         |
| Valve Lift—Inlet.....                    | .348"                                  | .347"                                   |
| Exhaust.....                             | .342"                                  | .348"                                   |
| Valve Stem Diameter—Inlet.....           | .3715"-.3725"                          |                                         |
| Exhaust.....                             | .3711"-.3719"                          |                                         |



## Items

## Series 40-44-50

## Series 70

## Valve Stem Clearance in Guide—

|              |                     |
|--------------|---------------------|
| Inlet.....   | ← .0015" — .0035" → |
| Exhaust..... | ← .0021" — .0039" → |

## Valve Guide Extension from Top of Cyl. Head.....

1 $\frac{5}{32}$ " 1 $\frac{5}{32}$ "

Inner Valve Spring, used with *Adjustable Valve Lash*—

|                                   |                                 |   |
|-----------------------------------|---------------------------------|---|
| Valve Open (lbs. @ length).....   | 48-54 @ 1 $\frac{5}{16}$ "      | — |
| Valve Closed (lbs. @ length)..... | 17.5-22.5 @ 1 $\frac{21}{32}$ " | — |

Outer Valve Spring, used with *Adjustable Valve Lash*—

|                                   |                                 |   |
|-----------------------------------|---------------------------------|---|
| Valve Open (lbs. @ length).....   | 74-80 @ 1 $\frac{19}{32}$ "     | — |
| Valve Closed (lbs. @ length)..... | 29.5-34.5 @ 1 $\frac{15}{16}$ " | — |

Inner Valve Spring, used with *Hydraulic Lifters*—

|                                   |                                 |
|-----------------------------------|---------------------------------|
| Valve Open (lbs. @ length).....   | ← 49-55 @ 1 $\frac{5}{16}$ " →  |
| Valve Closed (lbs. @ length)..... | ← 22-26 @ 1 $\frac{21}{32}$ " → |

Outer Valve Spring, used with *Hydraulic Lifters*—

|                                   |                                  |
|-----------------------------------|----------------------------------|
| Valve Open (lbs. @ length).....   | ← 96-104 @ 1 $\frac{19}{32}$ " → |
| Valve Closed (lbs. @ length)..... | ← 49-55 @ 1 $\frac{15}{16}$ " →  |

**d. Valve Lash—Series 40 Synchronesh**

NOTE: Does not apply to engines equipped with hydraulic valve lifters.

## Valve Lash at Road Operating Temp.—

|                        |       |   |
|------------------------|-------|---|
| Inlet and Exhaust..... | .015" | — |
|------------------------|-------|---|

## Valve Lash Using Shop Procedure.....

.017" Go—.018" No Go

**e. Engine Oil System**

|                                               |                     |
|-----------------------------------------------|---------------------|
| Pump Shaft to Bearing Clearance.....          | ← .0005" — .0020" → |
| Pump Idler Gear Bearing Clearance.....        | ← .001" — .0025" →  |
| Pump Driving Gear Backlash.....               | ← .003" — .005" →   |
| Pump Drive and Idler Gears Backlash.....      | ← .003" — .006" →   |
| Pump Drive and Idler Gears End Clearance..... | ← .0005" — .004" →  |
| Oil Pressure Valve Clearance in Body.....     | ← .003" — .006" →   |

**f. Engine Cooling System**

|                                                                   |                                     |
|-------------------------------------------------------------------|-------------------------------------|
| Fan Belt Adjustment.....                                          | ← $\frac{5}{16}$ " See fig. 2-35 →  |
| Fit of Bearing in Water Pump Body.....                            | ← .0006" L to .0009" T →            |
| Pump Bearing Shaft Diameter.....                                  | ← $\frac{5}{8}$ " $\frac{5}{8}$ " → |
| Fan Hub Fit on Bearing Shaft.....                                 | ← .001" T to .0025" T →             |
| Fan Hub Position on Shaft.....                                    | ← $\frac{13}{64}$ " from end →      |
| Radiator Hose Inside Diam. and Type.....                          | ← 1 $\frac{9}{16}$ " Elbow →        |
| By-Pass Hose Inside Diam.....                                     | ← $\frac{3}{4}$ " →                 |
| Standard (151°) Radiator Thermostat Calibration, @ Atm. Press.—   |                                     |
| Start to Leave Seat.....                                          | ← 148°F to 155°F →                  |
| Fully Open.....                                                   | ← Not over 176° →                   |
| High Temp. (182°) Radiator Thermostat Calibration, @ Atm. Press.— |                                     |
| Start to Leave Seat.....                                          | ← 178°F to 185°F →                  |
| Fully Open.....                                                   | ← Not over 211°F →                  |

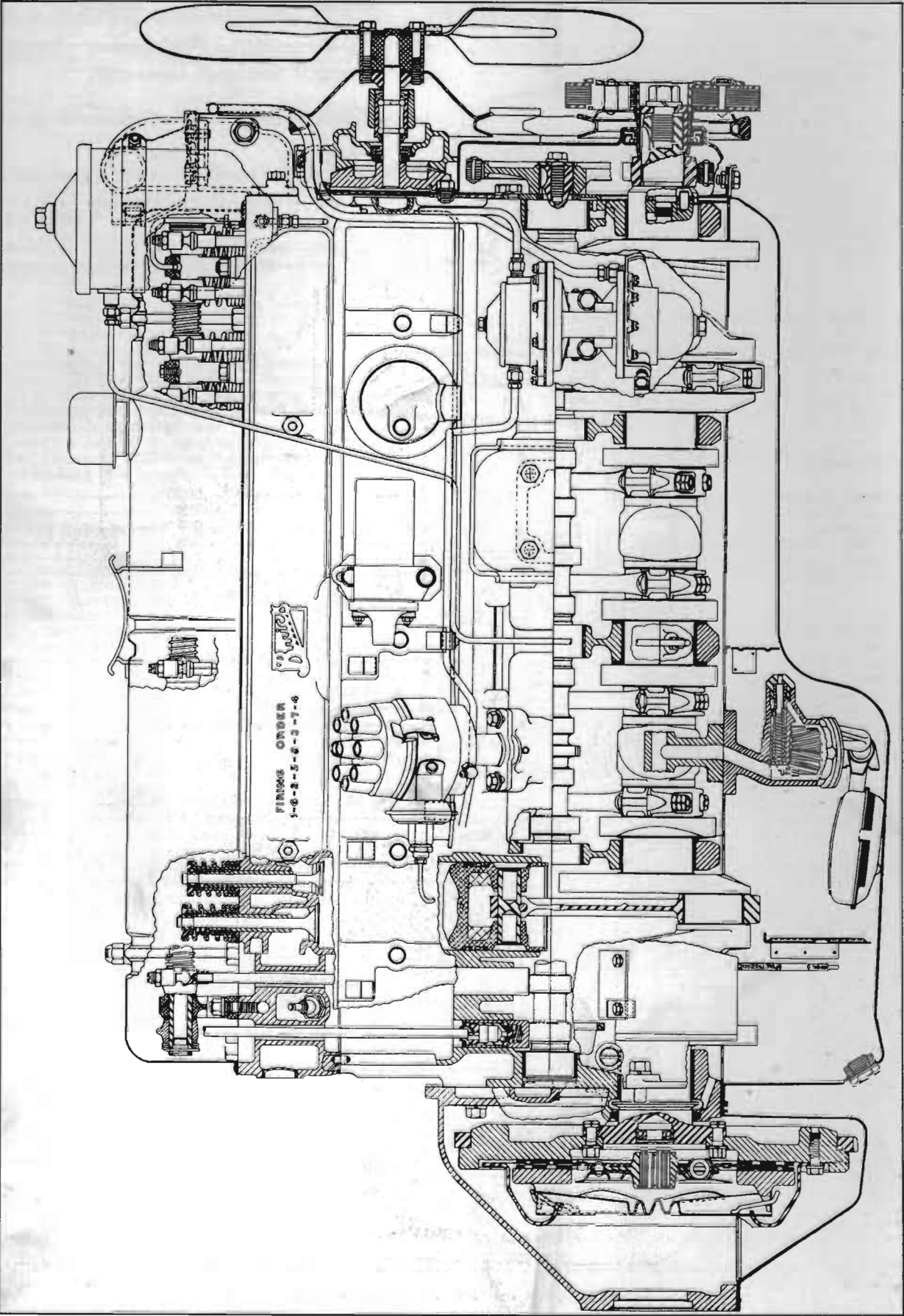


Figure 2-1—Engine Side Sectional View—Series 40-50

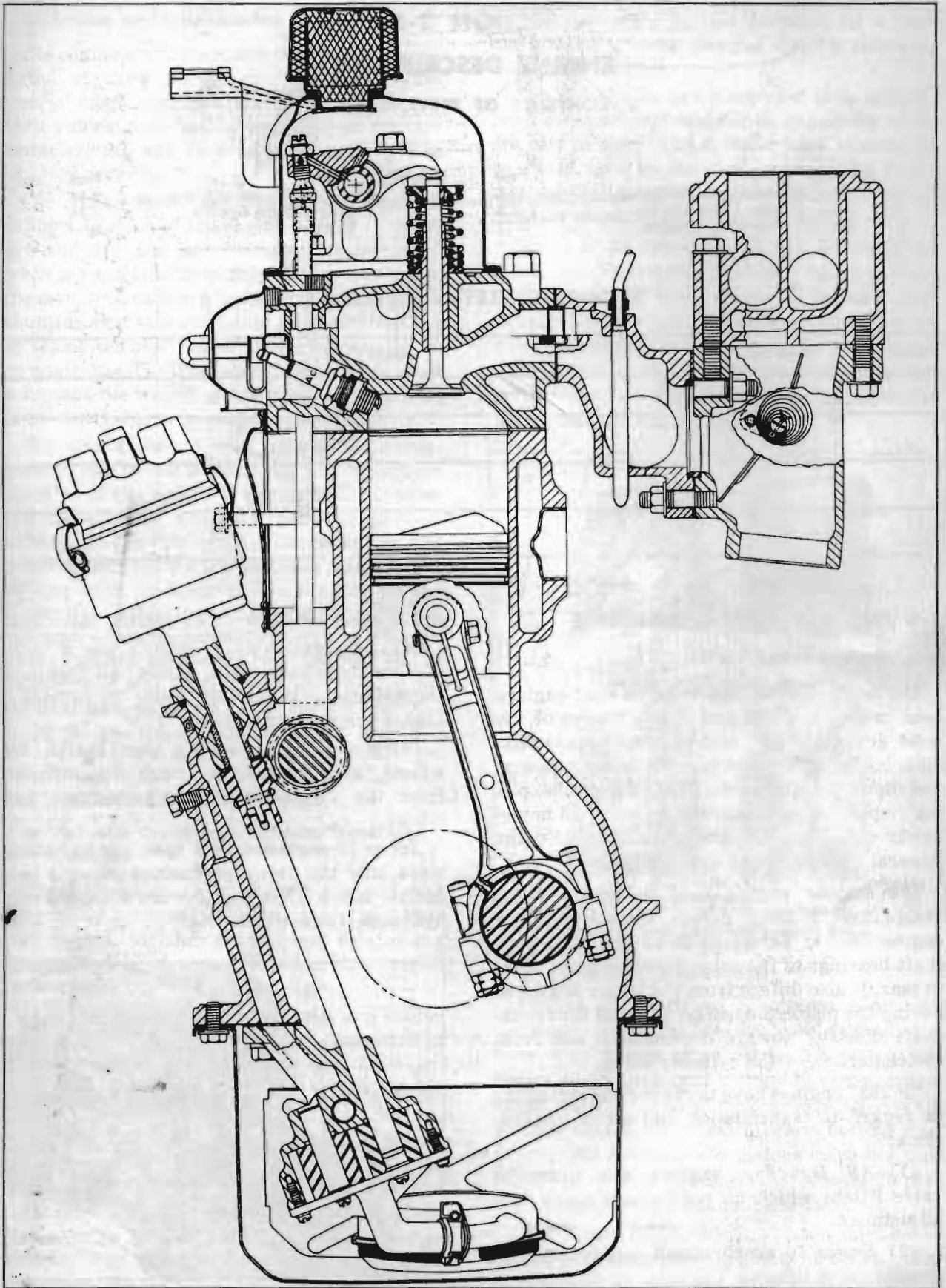


Figure 2-2—Engine End Sectional View—Series 40-50