HOOD LOCK: Hood is Alligator type hinged at cowl. To raise hood (Pass. Cars), pull out release knob under instrument panel, release safety catch under front edge of hood.

OIL PAN REMOVAL: *See Ford Shop Notes.*

MODEL IDENTIFICATION

SERIAL & ENGINE NUMBER: Stamped on top of clutch housing (visible through hole in floor) and on left frame side member near front eng. support.

TUNE-UP

COMPRESSION: Pressure—105-125 lbs. at cranking speed of 100 RPM. (Std. 6.75-1 Cast Iron Head).

VACUUM READING: Steady 18-20" idling at 5-7 MPH.

FIRING ORDER: 1-5-4-8-6-3-7-2 (Cyl. Nos. 1-2-3-4 Right Bank, 5-6-7-8 Left Bank, front-to-rear).

SPARK PLUGS: Champion Type H-10. 14 mm. Metric. Gaps—.025".

IGNITION: See Coil, Condenser, and Distributor.

Breaker Gap—.014-.016" (both sets).

Cam Angle—36° (both sets operating together).

Breaker Arm Spring Tension—20-24 ozs.

Automatic Advance—Starts at 200 RPM. Maximum 11° at 600 RPM (Distr. degrees & RPM).

IGNITION TIMING: See Ignition Timing.
Std. Setting—4° BTDC.

Timing Marks—None. See Ignition Timing for directions on setting of distributor for correct timing when installed on engine.

Vacuum Brake Setting—Set to just eliminate pinging when engine operated under load (back off screw until engine pings, then turn screw in until ping is eliminated).

CARBURETION: See Carburetor & Carb. Equipment.
Idle Setting—Both idle screws ⅝-¾ turn open and set for smooth idle and highest steady reading of vacuum gauge (when used). Idle speed 500 RPM or 5-7 MPH.

Float Level—1.322-1.353" bottom of float to underside of bowl cover with needle valve seated (Gauge 9550-A). Fuel level 11/16" plus or minus 1/32" below top edge of bowl.

Accelerating Pump—Center (#2) hole Normal. Inner (#1) hole—Summer, Outer (#3) hole—Winter for temperature extremes.

Fuel Pump Pressure: 3½ lbs. maximum.

MANIFOLD HEAT CONTROL: Automatic thermostatic control type (located in exhaust manifold outlet of left cylinder bank). See that valve operates freely.

VALVES: See Valve Timing.

Tappet Clearance—.010-.012" Intake, .014-.016" Exhaust. No adjustment provided.

STARTING: See Battery, Starter, Generator and Regulator.

IGNITION

IGNITION SWITCH: Oakes Steering Column & Ignition Lock Assembly No. 302848, Ford No. 51A-3676-A (Deluxe Models), Oakes No. 302850, Ford No. 51A-3676-B (Super Deluxe Models). Ignition Switch Assembly Oakes No. 302494, Ford No. 11A-3680 (All Models).
Lock Cylinder—Hurd or Briggs & Stratton #80935 Ford No. 91A-3686-A (with Keys).
Key Series—FK000 to FK999. **Groove**—No. 17.

COIL: Ford No. 1GA-12024. Mounted separately on left front corner of cylinder block.
Ignition Current—4½-6 amperes with engine stopped (primary resistance 1-1⅓ ohm).
Resistor Unit—Connected in coil primary circuit (part of Circuit Breaker Assembly 11A-12250A).

CONDENSER: Ford Part No. 1GA-12300-B.
Capacity—.29-.32 microfarad.

DISTRIBUTOR: Ford No. 59A-12127 (less Terminal Housing, Cap & Rotor). New "Single Cap" sealed-dry "V" outlet type. Double breaker, 8 lobe cam, full automatic advance type with Vacuum Brake adjustment. Breaker "loading" and "timing" contacts operate in same manner as on previous V8 models.
Breaker Gap—.014-.016" (both sets). Use special two step feeler—.014" step 'go', .016" 'no go'.
Cam Angle or Dwell—Approx. 36° closed, 9° open.
Set dwell at 80% (78-80% at 2000 RPM) on Ford Test Set for both sets operating together with correct coil loading lead.
NOTE—Cam Angle for each set operating singly approximately 22½° closed, 22½° open (50%).
Breaker Arm Spring Tension—20-24 ounces.
Rotation—Clockwise viewed from drive end (counter-clockwise viewed from front of car).

Automatic Advance
(Vacuum Brake Disconnected)

Distributor		Engine	
Degrees	R.P.M.	Degrees	R.P.M.
Start	200	0	400
11	600	22	1200

NOTE—Limits are 10½-11½° (distributor degrees).

Vacuum Brake: Consists of a spring-loaded vacuum controlled brake piston which bears on edge of retard disc of breaker advance mechanism and acts as a "drag" to retard normal advance when engine is accelerated or operated under load. Piston is normally held out of engagement by manifold vacuum.

Removal:—Distributor mounted on front of engine. To remove, disconnect primary lead, remove distributor cap, take out mounting screws in distributor flange, lift unit out.

IGNITION TIMING

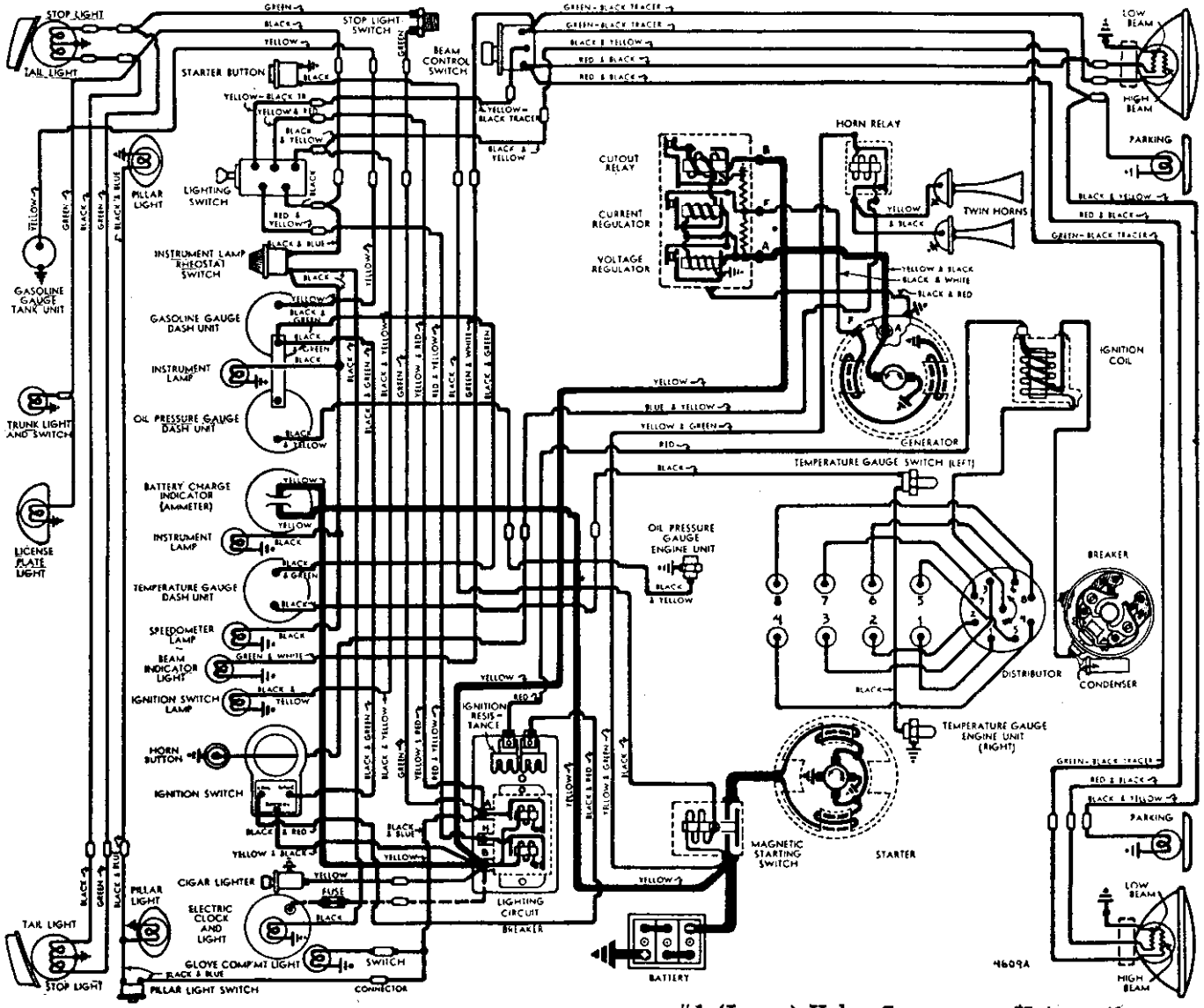
Std. Setting—See Vacuum Brake Setting for service correction for operating conditions.

	Flywheel Degrees	Piston Position
All V8 Engines	4° BTDC	.0058" BTDC.

Ignition Timing (Basic Setting)—Distributor can be timed for correct ignition timing when off engine as follows: Place a small straight edge or scale against tang on drive end of distributor shaft (scale must be on wide side of shaft), rotate distributor in direction of rotation (clockwise) until trailing edge of scale is exactly ⅜" past the nearest edge of the small mounting hole (left hand hole—nearest vacuum brake) on the mounting flange. If left hand (timing) contacts do not begin to open at this point, loosen adjusting screw on side of distributor housing, move screw down (to advance spark), up (to retard spark), in slot until contacts begin to open, tighten adjusting screw. This setting will provide correct 4° BTDC. ignition timing when distributor installed on engine.

NOTE—Timing is controlled by opening of **left hand breaker contacts** only (right hand contacts "load" coil and open and close earlier than the left hand contacts).

Timing (On the Car)—No flywheel marks provided. With distributor adjusted as described above, this will give correct 4° BTDC. timing when installed on the engine and all necessary adjustments for operating conditions and octane rating of fuel being



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used can be made by means of the Vacuum Brake adjustment as follows:

Vacuum Brake Setting—Should be adjusted to eliminate pinging when engine operated with load. To adjust, loosen locknut, back off adjusting screw until engine pings with load, then turn screw in just enough to eliminate ping, tighten locknut.

CARBURETOR

Holley (Chandler-Groves) Ford No. 59A-9510-A. Dual (double barrel), downdraft type with manual choke control.

See Carburetor Section for complete data.

Idle Adjustment—With engine warm, choke valve wide open, and Fast Idle inoperative, set throttle lever stopscrew for 500 RPM. Idling speed, turn each idle adjusting screw (one for each barrel, adjust in succession) in until engine begins to miss, then out until engine begins to roll, finally turn screw in until engine fires smoothly. Final setting should be approximately ⅝-¾ turn of screw from inner seated position. Readjust stopscrew for correct idling speed. NOTE—Idling speed can be estimated by marking spot on fan belt and setting speed for 25 revolutions of the belt in 10 seconds.

Accelerating Pump Setting—Three holes provided in the throttle lever for pump rod link connection. Adjust for seasonal requirements as follows:

#1 (Inner) Hole—Summer or Hot weather.
#2 (Center) Hole—Average fuel and weather.
#3 (Outer) Hole—Extremely Cold weather.

Float Level—Use 9550-A gauge to set the float level (1.353" end 'Go', 1.332" end 'No Go') measuring from underside of bowl cover to bottom of float (with cover and float assembly inverted). Fuel level in bowl should be 11/16" plus or minus 1/32".

Metering Jets—***See Chandler-Groves (Ford) Jet Table in Carburetor Section for complete data.***

Fast Idle:—Integral with carburetor. Operated by choke valve lever. No adjustment required.

CARB. EQUIPMENT

Air Cleaner: Ford No. 91A-9600-A. Oil-bath type. **Servicing**—Clean and refill (to level mark on case) with same grade engine oil used in crankcase at 3500 mile intervals (when crankcase drained) or more often if required. Clean filter element by washing in cleaning fluid.
NOTE—Clean and re-oil filter element in oil filler cap (crankcase breather) every 1000 miles.

Fuel Pump: AC. Type R. Ford No. 11A-9350. Diaphragm type. Exchange Pump AC No. 541 ('46), 571 ('47).
See Carburetion Equipment Section for data.
Pressure—3½ lbs. max. (2-3¼ lbs.).

Gasoline Gauge: King-Seeley Electric. Ford Nos.
Dash Unit—No. 51A-9280-A (1946 Deluxe & Sedan Del.), 51A-9280-B ('46 Sup. Del.), 6A-9280 (1947).
Tank Unit—No. 99A-9275B (Deluxe & Super Deluxe Models), 21A-9275A (Sedan Delivery).
See Carburetion Equipment Section for data.

BATTERY

Ford Type No. 01A-10655-A. 6 volt, 17 plate, 120 Ampere Hour Capacity (20 hour rate).
Starting Capacity—150 amperes for 20 minutes.
Zero Capacity—300 amperes for 4.0 minutes.
Grounded Terminal—Positive (+) grounded to dash.
Engine Ground—Strap connector between right rear cylinder head and dash.
Dimensions—Length 10.56". Width 7.28". Hgt. 8.25".
Location—On right side in engine compartment.

STARTER

Ford Model No. 18-11002. Armature No. 18-11005.
Drive—Inboard Bendix Drive No. A1472, Ford No. B-11350.
Rotation—Counter-clockwise at commutator end.
Brush Spring Tension—2 lbs. each.
Cranking Engine—100 RPM., 190-215 amperes.

Performance Data

Torque	R.P.M.	Volts	Amperes
4 ft. lbs.	1070	4.6	200
8 "	660	4.3	340
12 "	300	3.65	465
14 "	Lock	3.5	500

Starting Switch: Ford No. 21A-11450 Magnetic Switch mounted on dash and controlled by pushbutton switch on instrument panel, Ford No. 19A-11500 (Pass. Cars).

Removal:—Starter mounted on right front face of flywheel housing. To remove, take off pan at right of engine, free starter-to-oil pan support bracket, take out through-bolts on commutator end plate.

GENERATOR

Ford Model No. 21A-10000. Armature No. 01A-10005A. Two brush (shunt) type with vibrating voltage and current regulation. Ventilated by fan on drive pulley.
Charging Rate Adjustment—None. See Regulator.
Maximum Charging Rate—Controlled by regulator and dependent on battery condition and load. To check generator output, disconnect generator field lead at generator, connect both generator terminals together (use short insulated wire). Use 'BRS' set or rheostat connected across battery terminals and apply load until voltage is exactly 6 volts. Connect ammeter in charging line, run engine, check output at 2 speeds given in performance table below. Restore original connections after completing test. **Do not operate generator in service with both terminals connected together. This eliminates all regulator action and will damage generator.**

Performance Data

Amperes	Engine RPM.
Start	520
30	1060
30	2500

Rotation—Counter-clockwise at commutator end.
Field Current—2.1 amperes at 6.0 volts (field resistance 2.88 ohms at 70°F).
Brush Spring Tension—Approximately 28 ozs.

Removal:—Generator mounted on bracket between cylinder banks at front of engine, driven in tandem with water pumps by Vee belt. To remove, loosen nut on bracket stud.

Belt Adjustment: ½" deflection midway between generator and water pump pulleys. NOTE—Generator mounting bracket also includes the fan mounting (fan driven by a separate belt). Both belts adjusted in same manner by loosening mounting bolt and raising mounting brackets.

REGULATOR

Ford Model No. 01A-10505-C. Three Unit Type. Consists of Cutout Relay, vibrating Voltage Regulator and vibrating Current Regulator (separate units) in single case on engine side of dash.
See Electrical Equipment Section for complete data.
NOTE—Regulator case is grounded through separate ground wire extending from regulator to generator frame. This ground connection must be in place when regulator being operated or tested.

Cutout Relay

Cuts In—5.8-6.3 volts at operating temperature.
Cuts Out—8 ampere discharge current maximum.

Voltage Regulator

Setting—6.9-7.2 volts at 70-80° F.
Checking & Adjusting—*Refer to Electrical Equipment Index for article on 'Ford Regulator—3-unit Type' for complete instructions.*

Current Regulator

Setting—30-33 amperes (after 5 minutes run).
Checking & Adjusting See Voltage Regulator above.

LIGHTING

Headlamps: Ford "Sealed Beam" type.
See Electrical Equipment Section for complete data.
Adjustment—Aim upper beam straight ahead (hot spot center 3" below lamp center height at 25 ft.).
Beam Indicator—On lower edge of speedometer dial Lighted whenever upper beams in use.

Switches

Lighting—Ford No. 11A-11652 (Switch & Wiring—All Models), 51A-11661A (Knob & Insert—Deluxe Models), 51A-11661B (Knob & Insert—Super Deluxe Models with Blue-Grey Trim), 51A-11661C (Knob & Insert—Super Deluxe Models with Brown Trim).
Beam Selector—Ford No. 11A-13532 (Switch only), 21A-11653 (Switch & Wiring).
Instrument—Ford No. 19A-13740.
Stop Light—Ford No. 11A-13480.

Bulb Specifications

Position	Candlepower	Mazda No.
Headlamps	Sealed Beam	
Parking	3	63
Beam Indicator, Ign. Lock	1	51
Instrument, Clock	1½	55
Stop & Tail	21-3	1154
Dome (Pillar), Luggage Compt.	3	63
Rear License	3	63

MISC. ELECTRICAL

LIGHTING CIRCUIT BREAKER: Ford 11A-12250A Combined with Ignition Resistor on block on dash under cowl. Consists of two separate circuit breaker units (one unit protects headlight circuits, second unit protects other lighting circuits) of the thermostatic and wound-coil type. Contacts open with current of 50 amperes and vibrate rapidly to control current.

HORNS: Ford No. 91A-13832 (High Note), 91A-13833 (Low Note). Air electric type dual horns operated by horn relay.

Horn Current—24-28 amperes total.

Horn Relay: Ford No. 11A-13842D.
Contact Closing Voltage—3.5-4.5 volts.
Current Draw—Approximately ¾ ampere.

ENGINE

ENGINE SPECIFICATIONS: Own "100". Eight Cylinder, 90° Vee, "L" Head type. Cylinder banks and crankcase cast Enbloc.

Bore—3.187". **Stroke**—3.75".
Displacement—239 cu. ins. **Rated H.P.**—32.5.
Developed Horsepower—100 at 3800 RPM.
Compression Ratio—6.75-1 Cast Iron Heads.
Compression & Vacuum Readings—*See Tune-up data*

►**1946-47 ENGINE SERVICE NOTES: Cylinder Head.** 1946 Head, Part No. 59A-6050-B, is interchangeable right-and-left. May be identified by figures "59A" or "59A-B" on top. Heads have greater valve clearance for new cylinder block (below) and larger water holes for improved cooling (¾" hole at top center and ⅝" hole at center between #2 and #3 cylinders).

►**Cylinder Head Gasket**—New type, Part No. 59A-6051, may be identified by 5/16" round hole instead of blunt coneshaped opening at lower edge between #2 and #3 cylinder bores. ***This gasket must be used with new 1946 type Cylinder Head (above).***

►**Cylinder Block**—New type, Part No. 59A-6010-C with valve ports located .09" farther from center line of block. May be identified by number or by oblong water passages just above valves (round on previous types).

►***CAUTION—If the earlier type Cylinder Heads (81A-81T-, 99T-, 29A-) used with this block, heads must be machined out for valve clearance, and water passages in head should be enlarged for improved cooling.***

OIL PAN REMOVAL: *See Ford Shop Notes.*

ENGINE REMOVAL: *See Ford Shop Notes.*

TIGHTENING TORQUES: *See Ford Shop Notes.*

CYLINDER HEAD: Tightening—*See Ford Shop Notes.*

CYLINDER SLEEVE: Cast iron, dry type cylinder sleeves may be used (engine may have mark "HS" on block beside inner front corner of left cyl. head). **Servicing**—*See Ford Shop Notes.*

PISTONS: Steel Alloy, light weight, cam ground type or Aluminum Alloy, T slot type. Recondition engine to take finished replacement pistons (if sleeves used, replace sleeves, use new Std. size pistons). **Removal**—Pistons and rods removed from above. **Clearance**—See Fitting New Pistons.

Replacement Pistons: *See Ford Shop Notes.*

Fitting New Pistons: Use .50" wide feeler stock of correct thickness (see table below) inserted between piston and cylinder wall at right angles to pin to check clearance. Pull required to withdraw feeler should be 6-10 lbs. (all types).

Engines with Steel Sleeves	Steel Piston	Aluminum Piston
New Piston & Sleeve	.003"	.003"
New Piston—Worn Sleeve	.004"	.004"
Worn Piston & Sleeve	.005"	.005"
Engines without Sleeves		
New Piston & Bore	.0025"	.002"
New Piston—Worn Bore	.004"	.004"
Worn Piston & Bore	.005"	.005"

PISTON RINGS: Two compression, two slotted oil rings per piston (lower oil ring below pin). Oil ring grooves have oil drain holes.

Ring	Width	End Gap	Side Clearance
Compr. #1	.0915-.0920"	.012-.017"	.0015-.003"
Compr. #2	.0915-.0920"	.012-.017"	.001-.0025"
Oil Contr.	.1545-.1550"	.012-.017"	.001-.0025"

Replacement Rings: *See Ford Shop Notes.*

PISTON PIN: Diameter .7501-.7504". **Length** 2.975" (with steel pistons), 2.850" (with aluminum pistons). Floating type with locking ring in piston at each end. Pin hole in connecting rod bronze bushed.

Pin Fit in Piston—.0001-.0002" (aluminum pistons), .0003-.0009" (steel pistons) or light hand push fit with piston at 70°F.

Pin Fit in Rod Bushing—.0002-.0005" (pin should pass through bushing slowly of own weight).

Replacement Pins: Furnished Standard size and .001", .002" Oversize.

CONNECTING ROD: Length 7.000". **Weight** 492 grams. **Crankpin Journal Diameter**—2.1390" Connecting rod diameter on crankpin 2.360" (2.3597-2.3603").

Bearing Type—Steel-backed, special alloy lined with bearing surface on both inner and outer face. Bearing floats in both rods (side-by-side mounting) **Bearing Dimensions**—Length 1.747". Thick .1095". **Clearance**—.0015-.0035" (see **Bearing Adjustment**).

Sideplay—.003-.007" (bearing endplay), .006-.014" (side clearance for both rods).

Bearing Adjustment: None (no shims). Do not file bearing caps. Replace bearings if less than .1085" in thickness, replace or hone rod for oversize bearing if worn more than .0015" over original size (2.3597-2.3603"). CAUTION—Both rods must be same size.

Replacement Bearings: *See Ford Shop Notes.*

Installing Rods: Marks on rods and bearing caps (R1, L1 etc.) must be together and installed in same numbered cylinder with marks pointing down toward pan.

CRANKSHAFT: Three bearing type with integral counterweights. NOTE—New type crankshaft used with new wide land (four ring) pistons.
Journal Diameters—2.4990" (all bearings).
Bearing Type—Steel-backed, special alloy-lined.
Clearance—.001-.003".

Bearing Adjustment: None (no shims). Do not file bearing caps.

Replacement Bearings: *See Ford Shop Notes.*

End Thrust: Taken by rear main bearing. Adjust by replacing bearing. **Endplay**—.002-.006".

CAMSHAFT: Three bearing type. Helical gear drive. **Bearing Diameters**—1.797" all bearings. Replace camshaft if worn to less than 1.7955" diameter.
Bearing Type—Steel-backed, babbitt-lined bushings.
Clearance—.001-.002".

End Thrust: Taken by gear hub and thrust surface on inner face of cover plate. Adjusted by replacing coverplate. **Endplay**—.005-.015".

Timing Gears: Cast alloy iron (crankshaft), Aluminum or malleable iron bolted-on type (camshaft). **Backlash**—.004" maximum.
Replacement Gears—*See Ford Shop Notes for Gear Oversizes and installation instructions.*

Camshaft Setting: Mesh marked tooth of crankshaft gear in similarly marked space between teeth on camshaft gear.

VALVES:	Head Diameter	Stem Diameter	Length
All Valves	1.510"	.3105"	4.577"
	Seat Angle	**Lift**	**Stem Clearance**
Intake	45°	.292"	.0015-.0035"
Exhaust	45°	.292"	.0025-.0045"

NOTE—Service limit for valve stem diameter is .309" Intake, .3065" Exhaust. Valves interchangeable.

►*INSTALLATION OF LATER TYPE VALVE ASSEMBLIES See "Valve Assembly Interchangeability" under VALVE SYSTEM in Ford Special Data.*

Valve Seat Inserts—*See "Valve System" in Ford Special Data.*

Valve Assembly Removal & Installation—*See "Valve System" in Ford Special Data.*

Valve Guides: Split type retained by "C" washer and valve spring. NOTE—Replace both halves of all guides measuring less than .6665" (thickness of guide half and valve stem at top of guide with valve of .311" stem diameter in place in guide).

Valve Lifters: Barrel type in reamed holes in block.

Diameter—.9995". Replace if worn to less than .998", in diameter or length less than 1.710" after any necessary resurfacing of ends (cast type can be resurfaced on both ends, pressed steel type on bottom end only).

Clearance—.0005-.0015". Lifter should slip into hole in block of own weight.

Valve Springs: Replace if pressure less than 30 lbs. when compressed to 2.125".

	Spring Pressure	Length
Valve Closed	37-40 lbs.	2.13"
Valve Open	76-80 lbs.	1.84"

VALVE TIMING

Tappet Clearance: .010-.012" Intake, .014-.016" Exhaust, Cold. No adjustment.

Valve Timing: See Camshaft Setting above.

Intake Valves—Open at TDC. Close 44° ALDC.

Exhaust Valves—Open 48° BLDC. Close 6° ATDC.

Valve Timing Check—No flywheel marks or other means provided to check timing. No. 1 intake valve should open with No. 1 piston on top dead center entering intake stroke.

LUBRICATION

Engine Oiling System: Pressure to main bearings, connecting rod lower bearings, camshaft bearings, and timing gears. Oil pump mounted in crankcase at rear of engine.

Oil Pan Removal: *See Ford Shop Notes.*

Crankcase Capacity—5 quarts.

Normal Oil Pressure—50 lbs. at 2000 RPM.

Oil Pressure Regulator—Located under plug above front camshaft bearing (under manifold) and on oil pump housing (some models). Not adjustable.

NOTE—Check relief valve tension spring whenever engine overhauled. Replace the cylinder block relief valve spring if tension not within limits of 43-50 ozs. at 1.380" (engines without oil pump relief valve), or 78-80 ozs. at 1.380" (engines with oil pump relief valve). Replace oil pump relief valve spring if tension not within limits of 78-87 ozs. at 1.380".

Oil Pump: Gear type. In crankcase at rear of engine. NOTE—This new type pump, No. 41A-6600-A (for engines without oil pan baffles), has oil pressure regulator (relief valve) in pump body.

Oil Pump Servicing—*See Ford Shop Notes.*

Oil Pressure Gauge: King-Seeley Electric. Ford Nos. **Dash Unit**—No. 51A-9273-A (1946 Deluxe), No. 51A-9273-B (1946 Super Deluxe), No. 6A-9273 (All 1947).

Engine Unit—No. 41A-9278 (80 lb.) All Models.

COOLING

Cooling System: Positive circulation with two water pumps at front of engine (pump for each bank). Capacity—22 quarts.

Pressure Valve—In radiator filler cap. Opens at 3½-4½ lbs.

Water Pump: Packless, centrifugal type (2 used). Mounted on front of engine (pump housing integral with front engine mounting).

See Water Pump Section for complete data.

Removal—Drain cooling system, place support jack under engine (use wood block on jack to avoid damaging pan), remove bolt from front engine support, raise engine until no weight rests on front support. Loosen generator mounting bolt, remove drive belt. Disconnect and remove hose at pump. Remove four capscrews mounting pump on engine, lift pump out. CAUTION—One mounting screw located within water pump inlet connection (accessible with hose removed).

Belt Adjustment—*See Generator Belt Adjustment.*

Thermostat: In each cylinder head water outlet (two used). Start to open at 150-155°F. Fully open at 175-180°F.

Temperature Gauge: King-Seeley Electric. Ford Nos. **Dash Unit**—No. 51A-10883-A (1946 Deluxe), No. 51A-10883-B (1946 Super Deluxe), No. 6A-10883 (All '47). **Engine Unit**—No. 01A-10990 (Temperature Gauge Switch—in left hand cylinder head), No. 99A-10884 (regular Engine Unit—in right cylinder head).

CLUTCH

Long Model 10CF-TI, Ford No. 19A-7563. Single plate, semi-centrifugal, dry disc type.

See Clutch Section for complete data.

Facings—Woven asbestos composition. I.D. 6¾". O.D. 10". Thickness ⅛".

Pedal Adjustment: Pedal free travel 1-1¼". To adjust, disconnect clevis at equalizer (throw-out) shaft end of pedal connector rod, turn clevis on rod.

Removal: Remove Transmission (see Transmission Removal below), install wooden wedges between each release lever and cover to hold the clutch in released position, take out six capscrews mounting cover assembly on flywheel, lift out cover assembly and driven member.

TRANSMISSION

Own Make. Three-speed, all-helical gear type. Constant-mesh, synchro-mesh (Second & High), sliding gear (Low & Reverse).

See Transmission Section for complete data.

Transmission Control: Remote control type with gearshift lever on steering column.

See Transmission Section for complete data.

Removal: Remove Rear Axle (see Rear Axle Removal below), remove capscrews mounting front seat track on floor, move front seat back for necessary room. Take out mounting screws in front floor pan spacer, remove spacer. Disconnect gearshift connecting rods at transmission case, disconnect and remove equalizer (clutch release) shaft. Remove capscrew and washer on end of transmission shaft (in universal joint), remove universal joint. Remove nuts and washers on engine rear support bolts. Support engine by placing jack (use wood block on jack) under rear end and raise engine sufficiently so that rear support clears mounting bolts (NOTE—remove nuts holding lower half of engine rear support assembly and remove the assembly). Take out eight capscrews mounting transmission case on flywheel housing, pull transmission straight back and lift out.

UNIVERSALS

Spicer Model 202-6X, Ford No. B-7090. Steel bushing type. Single joint in torque ball at transmission.

REAR AXLE

Own Make. ¾ Floating, Spiral Bevel Gear type with Torque Tube Drive.

See Rear Axle Section for complete data.

Ratio—3.54-1 Std., 3.78-1 & 4.11-1 Optl.

Backlash—.012" maximum.

Removal: Raise rear end of car. Disconnect track bar. Disconnect rear spring (use spring spreader if available) by placing block under each rear spring eye and lowering car so that weight keeps spring extended and then removing spring shackle bolts and bars. Take out pin in hand brake equalizer and disconnect hand brake cable. Disconnect hydraulic brake line at torque tube and rear shock absorber links at each wheel. Disconnect accelerator pedal, remove pedal pads, floor mat, beam control switch (take out two mounting screws), and floor pan. Disconnect speedometer cable at torque tube. Remove nuts on four universal joint ball housing bolts and two bolts holding ball cap halves together, remove ball cap. Pull rear axle back to disconnect torque tube from transmission.

SHOCK ABSORBERS

Houde (Houdaille). Double Acting, adjustable, hydraulic types (Front & Rear).

	Houde Model	Right — Ford No.	— Left
Front	BBCN-3	51A-18045	51A-18046
Rear①	BBCZ-3	51A-18080A	51A-18081A
Rear②	BBCZ-3	51A-18080B	51A-18081B

①—Except Sedan Delivery and Station Wagon.
②—Sedan Delivery & Station Wagon only.

Adjustment: Standard setting marked by line on face of lever hub (pointer should be aligned with this mark). Adjustment can be varied by turning pointer clockwise (for more control) or counter-clockwise (for less control) not more than 1 or 2 serrations at a time. NOTE—Stops are provided to limit adjustment in either direction.

Refilling: Check every 5000 miles, fill to level of filler plug hole. Use Ford No. M-4633-B fluid only (Houde L-1404) required for these new shock absorbers (identified by round top filler plug).

FRONT SUSPENSION

Front Axle: Conventional "I" beam section type with Reverse-Elliott ends and transverse spring. Axle positioned by radius rods.

Kingpin Inclination—8° crosswise.

Caster—3°. Axle may be bent cold for minor corrections providing correct tools used to prevent crushing of axle flange.

Camber—¾°. Adjust as for Caster (above).

Toe In—1/16". Adjust in usual manner by changing length of tie rod.

STEERING GEAR

Gemmer design (Model 305), Ford Make. Worm-&-Roller type with push-pull adjustments.

See Steering Gear Section for complete data.

BRAKES

Service: Lockheed Hydraulic, self-centering, double anchor type. Hand lever applies rear wheel service brakes. NOTE—These brakes do not have anchor pin adjustment.

See Brake Section for complete data.

Drums—Composite iron and steel. Diameter 12".

Clearance—Least possible amount without drag.

Lining—Width 1.75". Thickness .187". Length per shoe 13.12" (forward shoes), 10.08" (rear shoes).

Hand Brakes: See Service Brakes (above).

MISC. MECHANICAL

Power Operated Convertible Top: Two types as follows:
1—Convertible—Auto-lite electric type.
2—Sportsman Convertible—Hydro-Lectric type.
See Miscellaneous Section for complete data.

Power Window Regulators (Sportsman Convertible): Hydro-Lectric type.