RADIATOR AND COOLING SYSTEM

Only rain or soft water should be used in the radiator if available. Hard of alkaline water will form a scale which will impair radiation if allowed to build up in the cooling system. The use of washing soda will help to dissolve this scale; and where only hard or alkaline water is available the washing soda should be used at regular intervals and before the accumulation of scale becomes heavy enough to scale off and stop up the radiator passages.

In cold weather an anti-freeze solution can be used in the radiator. However, alcohol cannot be used when burning low grade fuel because of its low boiling point. If low grade fuel is being used, Prestone or some similar cooling solution should be used.

Do not run engine without water or some cooling solution in radiator.

Never pour cold water in a hot motor when the water is low.

There are two points to drain on the cooling system. One is the drain cock under the radiator and the other is the drain cock at the rear, right hand side of engine block. Drain BOTH places. Make sure that all water drains out before you leave the tractor. Do not take chances on opening drains and leaving before you are sure all water has drained out.

CLUTCH

The clutch is of the spring loaded single plate dry disc type. The release engagement is by movement of the clutch shifter (23) and the throwout bearing (22) contacting the 3 release levers (6). (Refer to group 280271).

Each release lever has an adjusting screw which is for the purpose of regulating the lever contact with the throwout bearing. As the clutch facings wear, the release levers move nearer to the throwout bearing and the only clutch adjustment necessary is to provide clearance at this point.

To adjust: Turn adjusting screws to allow a clearance of 1/4 inch between the ends of each of the three release levers and the throwout bearing.

FAN BELT ADJUSTMENT

Loosen the three nuts on fan belt pulley and turn the front section to the left.
Do not tighten fan belt more or oftener than necessary to prevent slippage.

FRONT WHEEL BEARING ADJUSTMENT

The front wheels are mounted on taper roller bearings. At frequent intervals remove the weight from the wheels and examine for side play. If side play exists it will be necessary to adjust the bearings.

To adjust the bearings, remove the hub cap and tighten the nut on end of the spindle until all play is removed but with no binding. The inside of the wheel hub is provided with a felt washer to protect the bearings from dirt and to retain the grease in the hub. This felt washer should be replaced each season.

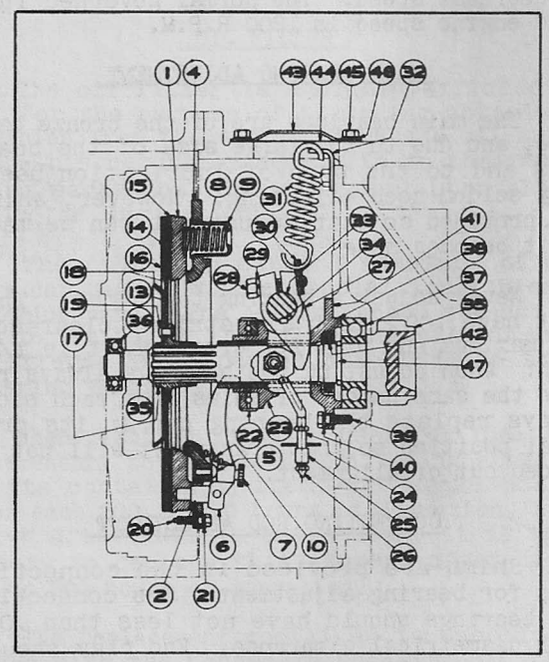
BELT PULLEY

The belt pulley assembly is attached to the right hand side of the transmission case. A 10 inch pulley is provided running 1095 R.P.M. at normal engine speed. The motor should always be run at normal speed where constant power is needed and heavy belt load is encountered.

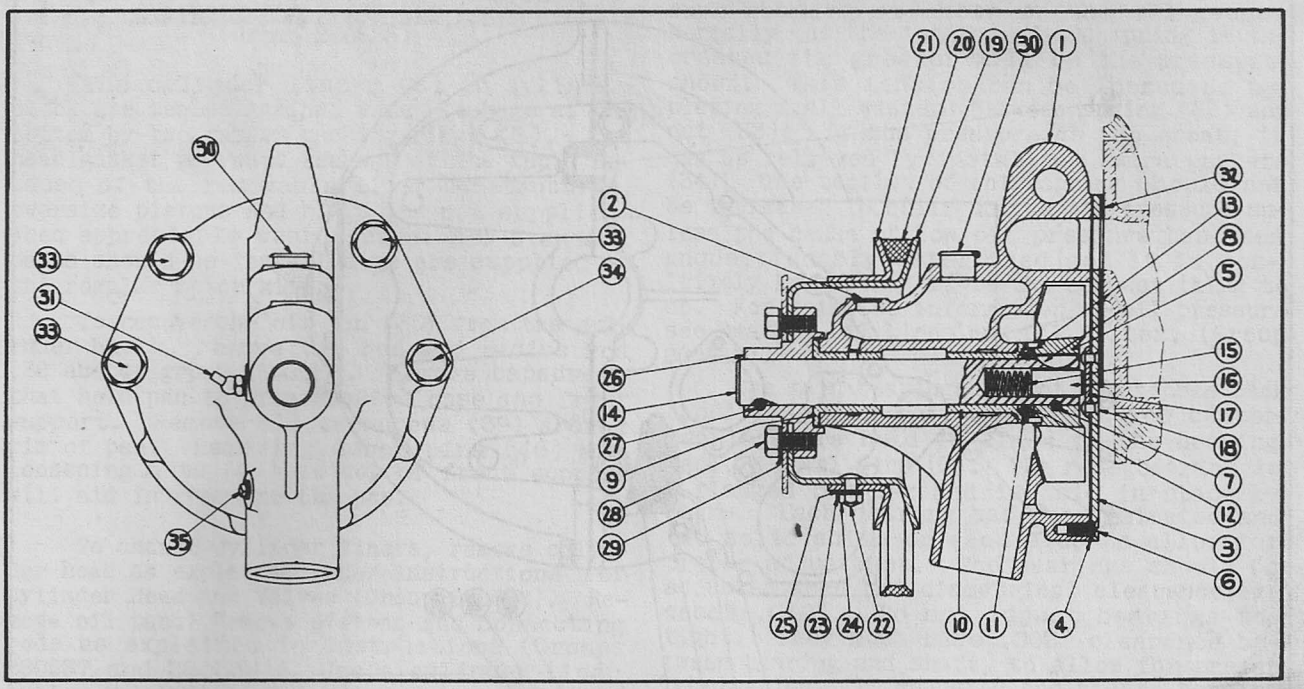
To figure the speed of driven units and determine the size of the necessary pulley, multiply the diameter of the driving or engine pulley by its revolutions per minute, and divide by the R.P.M. of the driven unit.

Example: 10 inch diameter x 1095 = 10950 ÷ 1000 R.P.M. of the driven unit = 10.9. In this case use an 11 inch pulley as it is the nearest regular size.

We cannot over-emphasize the importance of having the proper size pulley on the driven unit. Much power is lost and an unnecessary load put on the motor unless the proper pulleys are used. The pulley furnished with the tractor is the correct size.



CLUTCH AND CLUTCH SHAFT
(GROUP 280271)



WATER PUMP AND FAN
(GROUP 280531)

WATER PUMP AND FAN
(Group 280531)

To remove unit from motor.

Loosen fan belt by loosening 3 nuts (24) and turn fan pulley adjusting collar (21) to the right.

Remove the four capscrews (28) that holds fan blades to hub and remove fan blade assembly.

Remove the four capscrews (33 & 34) that hold pump body to cylinder head and remove the assembly from right hand side of motor.

To disassemble pump.

Drive out pin (27) and remove hub (26).

Femove four counter sunk head machine screws (6) and cover (3), also plunger (16) and spring (15). Exercise caution so that plunger and spring are not lost when cover is removed. Shaft and vane may now be removed from pump body. Vane is attached to shaft by pin (7) and woodruff key (8).

Water pump cover thrust button (17) is riveted to water cover by 2 CTSK head copper rivets (18).

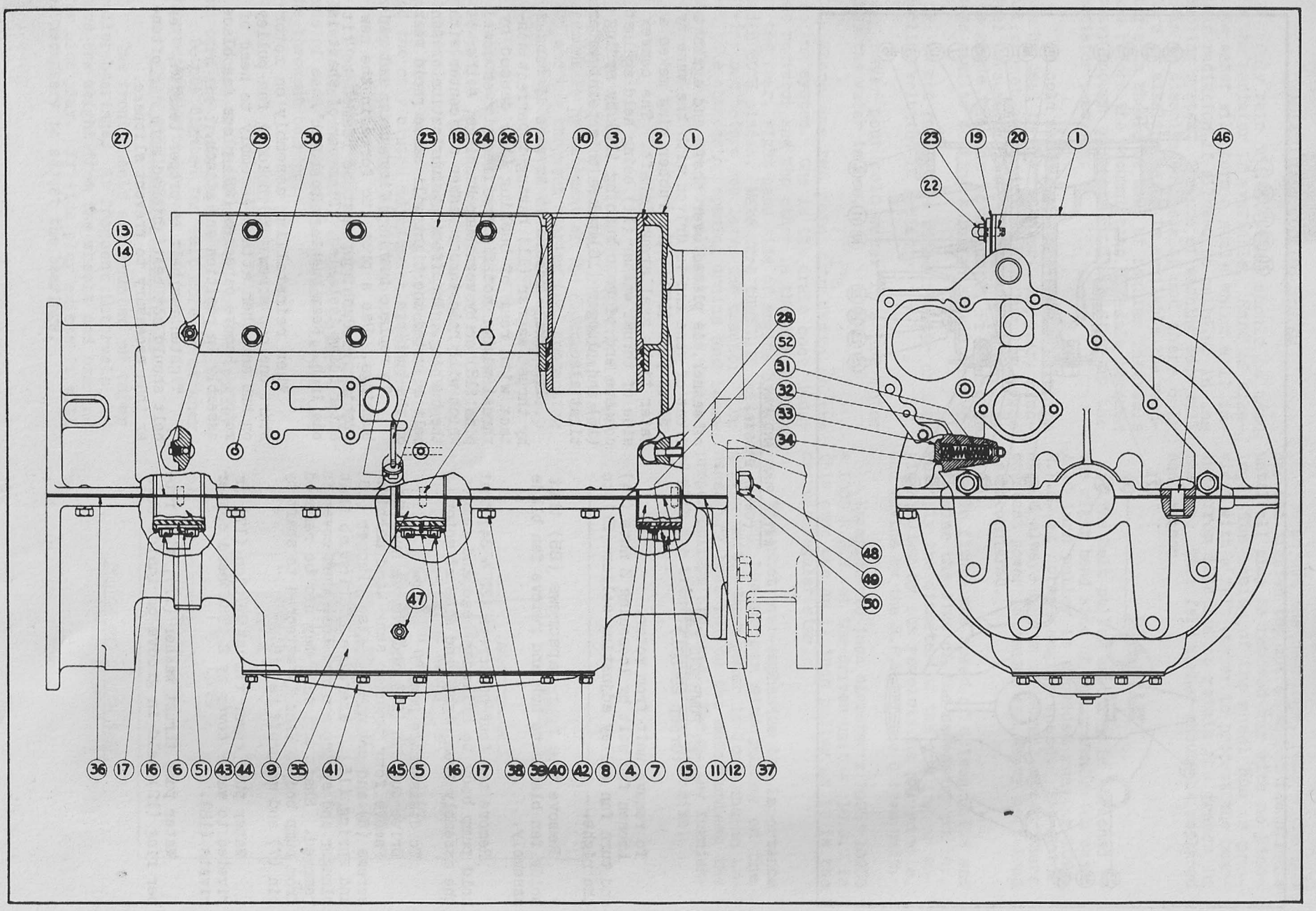
Water pump thrust washer (11), with rubber ring (12) held in groove on inside bore of washer, is placed over shaft and against front of vane and is driven with the vane by 2 dowel pins (13). The rubber ring makes a water tight seal around shaft. The convex side of thrust washer (11) being held against concave end of rear bushing (10) by spring (15) and plunger (16) makes this point water tight also.

If leakage occurs it is usually caused by thrust washer (11) having imperfect contact with rear of bushing (10) caused by thrust washer not fitting freely over dowel pins (13) or by worn pump bushings, either of which will hold thrust washer off center with the bushing. Insufficient lubrication or fan belt adjusted too tight will cause rapid wear on the bushings.

To replace bushings first drive out old bushings. Use a press to force in the new bushings. Bushings must be reamed to fit after being installed. Diameter of shaft is one inch. Ream bushings to 1.001".

When reinstalling assembly on motor start one cap screw (28) holding fan pulley on hub and then attach assembly to head of motor. Remove capscrew (28) place fan blade assembly in position and attach.

Tighten fan belt to proper tension. Fan belt should not be tightened more nor oftener than necessary to prevent slippage.



CYLINDER BLOCK
(GROUP 280523)

CYLINDER BLOCK AND OIL PAN
(Group 280523)

The cylinder liners (2) in cylinder block are sealed against water leakage at the bottom by two rubber packing rings (3). The head gasket prevents leakage at the top. Because of the removable liner construction, oversize pistons and rings are not supplied. When appreciable wear occurs, new standard parts should be installed as are supplied in the regular motor kits.

To remove the oil pan (35) from the cylinder block, remove tie rod and radius rod (38 and 4, group 280275). Remove capscrews that hold pan to transmission case and front support. Remove all capscrews (39) around rim of pan. Removing dowel pins (46) and loosening nuts (49) at top of front support will aid in removing the pan.

To change cylinder liners, remove cylinder head as explained under instructions for Cylinder Head and Valves (Group 280534). Remove oil pan. Remove pistons and connecting rods as explained in instructions (Groups 280537 and 280539). Use a cylinder liner puller to start liners. As soon as the packing rings (3) have been pulled from the bottom bore, the liners can be lifted out by hand. With the liners out, clean all sediment from the inside of the block. Wrap clean rags around the main bearings and connecting rod throws, while cleaning block, to prevent sediment from entering the bearings or oil passages in crankshaft.

Clean the new cylinder liners thoroughly and install new packing rings. A small amount of white lead or grease on the packing rings will be an aid when installing liners in block. Be sure the liner is entered straight in the bore of the block to prevent possible damage to the packing rings. The liners can be readily driven into place by using a clean block of wood and a hammer.

New packing rings should always be used when liners are removed and replaced for any reason. The danger of a water leak to the crankcase is too great to risk the use of packing rings the second time.

There is an oil distributing passage on the inside of the block on right-hand side. This registers with other passages going to the camshaft and main bearings. A plug (29) is inserted in the rear end of this passage. It is located in front of the flywheel. Should the passage ever become clogged, it can be cleaned out through this opening.

In the front end of the block, behind the timing gears, an oiler pipe (28) is inserted into an oil passage to furnish oil for the timing gears and governor.

At the front of the block on the right-hand side is the oil by-pass. This allows the excess oil pumped by the oil pump to be returned to the oil pan. It consists of oil relief valve plunger (31), spring (32). nut (33) and gasket (34). The tension of spring (32) to a great extent affects the oil pressure reading as shown on the oil gauge. Normally, as the tension of the spring is increased the greater will be the pressure shown. This tension can be increased by placing small washers between spring (32) and nut (33). If the pressure is too great, it can be relieved by installing extra gaskets (34). The tension of this spring should not be increased to build up the oil pressure unless the cause of low oil pressure has been unquestionably determined and it is positively known that it is the correct thing to do. For detailed information on oil pressure see heading Oil Lines and Oil Filter, (Group 280532).

The main bearings are of the bronze back babbit lined type. The front and center bearings are held in place in the bearing caps by dowel pins (7). The rear bearing is a flanged bearing and is held in place by shims. Each bearing has one laminated and two solid shims on each side to allow for proper adjustment. The bearings should be adjusted when the diametrical clearance exceeds .010". Do not adjust bearings too tight. They must have .002" clearance between bearing and shaft, to allow for proper lubrication. If adjusted too tight, bearing material will be worn away rapidly until the proper clearance is obtained, and very often the heat generated in doing this will burn out the entire bearing. A good way to determine this clearance when adjusting bearings is to place a piece of shim stock .002" thick, 3/4" long and 1/2" wide in the bottom of the bearing and remove enough bearing shims until a slight drag may be felt on the crankshaft when turning it with the bearing capscrews drawn tight; then when the shim stock is removed from bearing, the necessary clearance will be retained. Always be sure that the bearing cap is replaced in its original position, to prevent forcing crankshaft out of alignment.

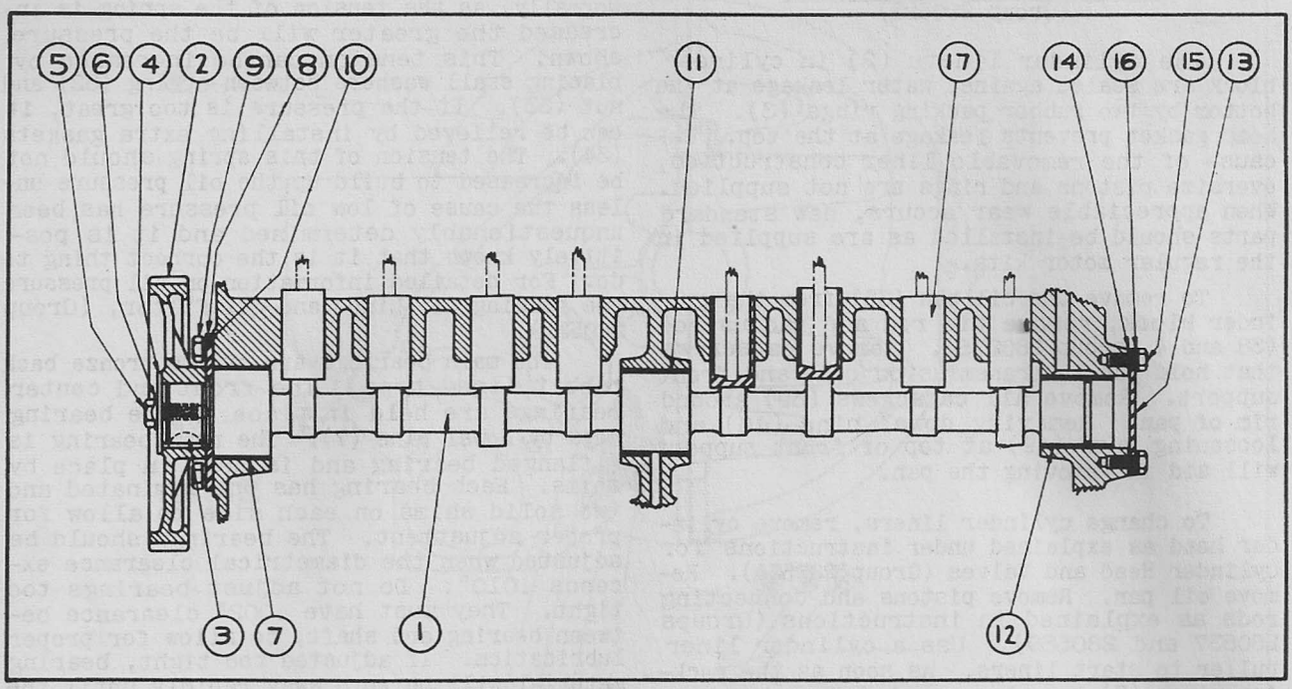
To install new main bearings, it is necessary to separate the motor from the transmission and front support. Remove cylinder head, oil pan, connecting rods and pistons and the crankshaft. It is never advisable to replace one main bearing only. If necessary to replace one, replace all three. Otherwise, the crankshaft will be held in a strained position and will result in worn out bearings and sometimes a broken shaft. New main bearings should be line reamed to insure a good fit and to prevent crankshaft being forced out of alignment.

The rear main bearing controls the end thrust of the crankshaft. This end thrust should not exceed 1/32".

The cylinder block side cover (18) covers the valve lifters and governor rod. This cover must be removed when adjusting the governor, as explained under Governor, (Group 280533).

Drain cock (27) is at the lowest point of water space in the block and must be drained to prevent damage to the block when using water in the cooling system in freezing temperatures.

There is an opening in the rear of the cylinder block on right-hand side over the flywheel. When timing the motor, remove the cover to this opening to locate timing marks on the flywheel.



CAMSHAFT
(GROUP 280525)

CAMSHAFT
(Group 280525)

The removable camshaft bushing (7-11 & 12) are of the steel back babbit lined type. The camshaft gear (2) on front end of shaft (1) is held in position by woodruff key (3) gear plate (4) and two capscrews (5). Between the gear and front camshaft bearing is thrust plate (8) held by capscrews (9). This plate controls the end thrust of camshaft. The normal end thrust is from .005" to .007".

The camshaft bearings are lubricated by oil forced by oil pump through passages in the block that registers with holes in camshaft bushings.

To remove camshaft, remove cylinder head cover and rocker arm assembly. Remove cylinder block side cover (18 Group 280523) and valve lifters (17 Group 280525). Disconnect radiator hose and remove radiator, front axle, front support, fan driving pulley, and timing gear cover. Remove capscrews (5) and pull cam gear. Remove capscrews (9) and thrust plate (8). Camshaft can now be readily removed from block.

To replace camshaft bushings it is necessary in addition to above to separate engine from transmission. Also remove oil pan, clutch, and flywheel. Remove capscrews (15) and plate (13). Drive out old bushings with a bushing remover.

To properly install the new bushings, it is necessary to have special equipment as the bearings must be line reamed after they have been driven to place. Consult your branch office concerning this operation if equipment is not available locally.

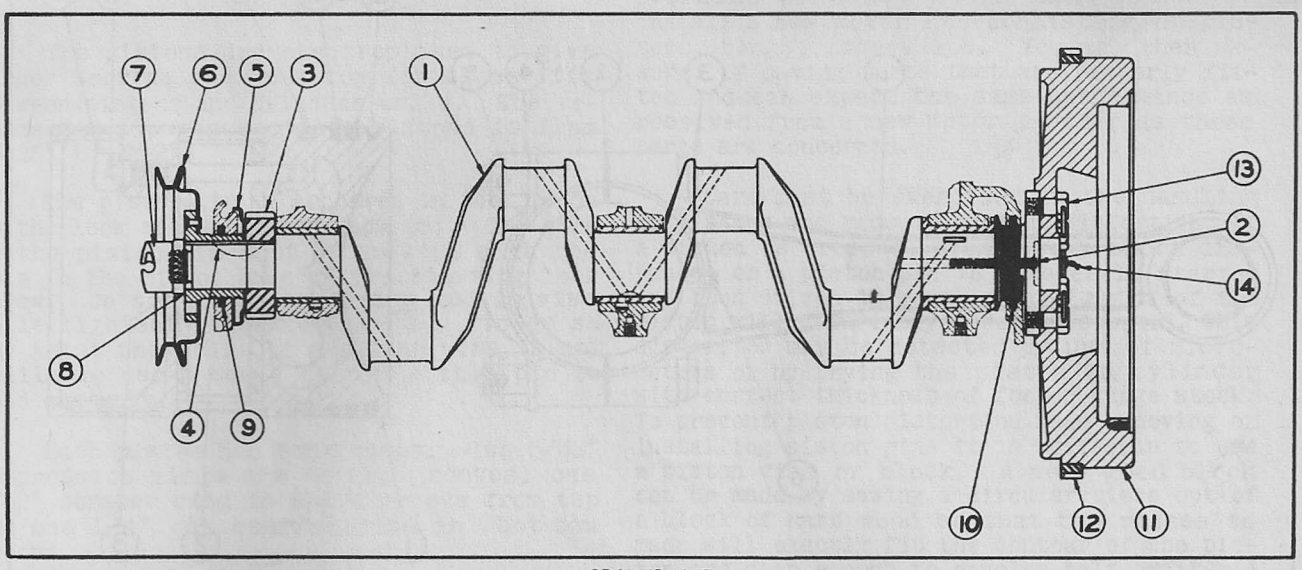
If bushings are installed locally, be sure that the oil holes in the bushings register with the oil passages in the block. The rear bushing has two oil holes, one to register with the oil intake and the other registers with oil passage leading to rocker arm assembly.

Due to the type bearing construction and the type lubrication used, it will very seldom be necessary to install new camshaft bushings.

Be sure that good gasket is used under plate (13) when reinstalling to prevent loss of oil at this point.

When replacing the camshaft gear, it must be correctly meshed with the gear on crankshaft to insure the correct valve timing. There are timing marks on both gears, and they must be placed together to have the correct timing.

The intake valve opens 10° after top center and closes 35° after lower center. Exhaust valve opens 40° before lower center and closes 10° after top center.



CRANKSHAFT
(Group 280529)

CRANKSHAFT AND FLYWHEEL
(Group 280529)

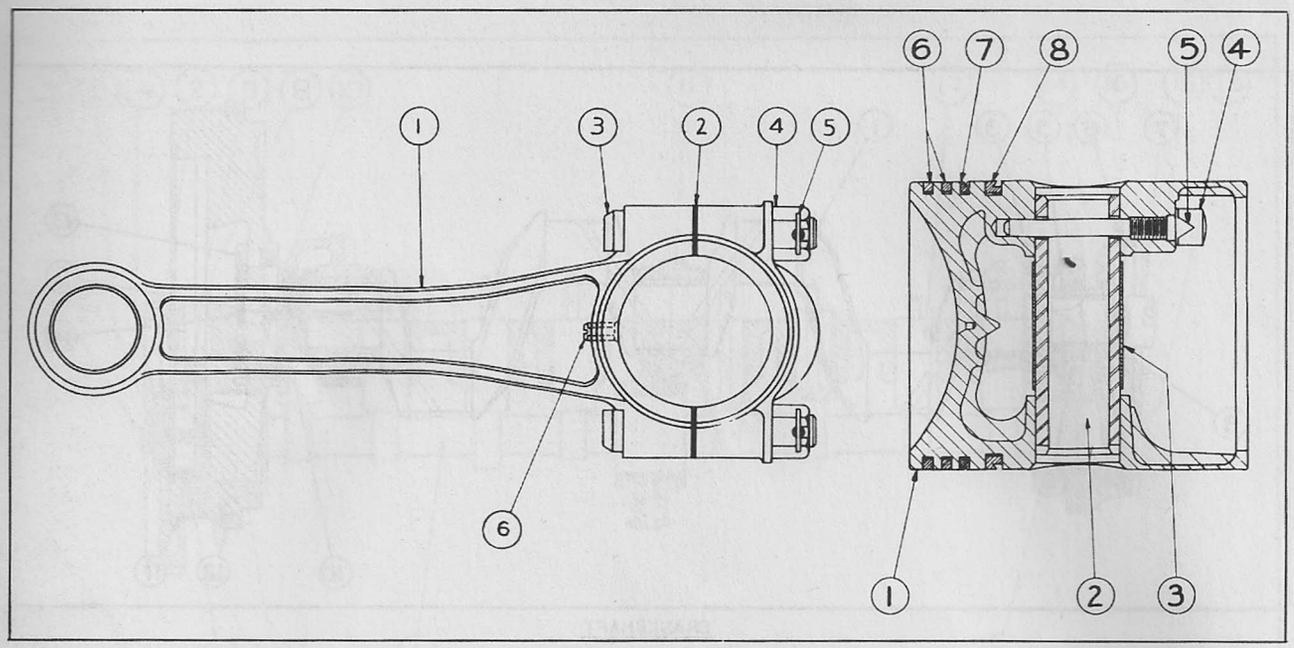
The main bearings are lubricated by oil from the oil pump forced through passages in the cylinder block. The crankshaft is drilled from each main bearing to the nearest connecting rod throw for connecting rod lubrication. There is also a hole drilled through the rear end of the shaft parallel to the rear main bearing and a wick (2) is inserted for the purpose of lubricating the clutch pilot bearing. This wick should extend slightly beyond the shaft at either end, and it can be readily inserted by the use of a small wire.

Ahead of the front main bearing is the crankshaft timing gear (3) driven with the shaft by rear end of woodruff key (4). The gear is a press fit on the shaft. In front of the gear is a dish shaped oil thrower (5) that fits over key (4) and turns with the crankshaft. This thrower must be installed with the dished side toward the front. The hub of fan drive pulley (6) extends back against the oil thrower and is also driven with the crankshaft by key (4). The starting jaw (7) screws onto the end of the crankshaft holding fan belt pulley in position. Shims (8) are placed between starting jaw and belt pulley to place the jaws at the proper angle for cranking motor.

The flywheel is attached to the flange of the crankshaft by 6 - 5/8 x 1-1/8" drilled head capscrews. The holes in the flywheel and flange are drilled off center so that flywheel can be installed in only one position. The rim of the flywheel is marked as follows - FIRE - DCI - INOI - EXOI. These markings may be seen by removing cover from small opening at rear of right hand side of cylinder block. When the marks indicated by the lettering are in the center of the opening they denote: - FIRE - magneto contact points begin to open. DCI - top dead center #1 piston, INOI - #1 intake valve beginning to open. EXOI - #1 exhaust valve beginning to open.

Cork rings (9 and 10) are installed at each end of oil pan and cylinder block to prevent oil from leaking out around crankshaft. Each ring is in two pieces. In front one piece is in a groove in the oil pan and the other in the timing gear cover. At the rear the top piece is placed in a groove in the cylinder block and the other in the oil pan. The crankshaft at the rear, has reverse oil grooves machined in it to assist in preventing oil working out under the cork oil seal.

When installing new cork rings (9 and 10 be sure the grooves are clean. Place a small amount of shellac on the outside of the cork and place it in the groove, and let dry before replacing parts. Do not cut off the ends of the cork that extends beyond the end of the groove as they will press into place and make a tighter seal. Before replacing the parts grease the face of cork rings so they will not be burned when engine is first started.



CONNECTING RODS
(Group 280539)

The connecting rod (1) has a die cast bearing on crankshaft end and a graphite bronze split bushing for piston pin bearing. The crankshaft is drilled from nearest main bearing to each crankshaft throw for lubrication of connecting rod bearings. Each connecting rod is rifle drilled for lubrication of piston pin bearing. An oil plug (6) with a 1/8" diameter hole is inserted into the lower end of this drilled passage to govern the amount of oil delivered to piston pin bearing. Do not enlarge this hole as it is the correct size for this lubricating system.

When installing new piston pin bushings, be sure the hole in the bushing registers with the oil passage in the rod. It is necessary to run a burnishing bar through bushing to have it set firmly to place, then ream to a light push fit, or to a diameter of 1.3127".

The crankshaft bearing has a 1/32" laminated shim made up of sheets .003" thick on either side. By peeling off the required number of sheets the correct bearing adjustment can be obtained. When adjusting bearings, remove the same number of shim sheets from each side. Always replace the bearing cap on the rod it was removed from, and in its original position. This is important. Do not adjust bearings too tight. They should have .001" clearance on the crankshaft to allow for lubrication.

A good method to use when adjusting bearings to provide for correct clearance is to place a piece of shim stock .002" thick, 3/4" long, and 1/2" wide in the bearing cap. Then remove enough bearing shims until a slight drag can be felt, when turning the crankshaft, with the nuts drawn tight. Then remove the piece of shim stock from bearing cap, and the correct clearance for lubrication will be retained.

Always draw the connecting rod bolt nuts tight. Never loosen the nuts to obtain the necessary clearance on the bearings. If the bearing is too tight, add the necessary number of shims for correct adjustment. Lock the nuts with the proper size cotter keys. If the keys are too small they will work loose in the holes and may break off, allowing the nuts to work loose and cause a great amount of damage.

The allowable end thrust for the connecting rod bearing is .010". An excessive amount of clearance at this point may cause a motor to use an unreasonable amount of oil, as too much will be thrown from the ends of the bearing onto the cylinder walls.

In replacing connecting rod bearings, especially if a bearing has been burned out, be sure the oil passages in the crankshaft are open, otherwise the bearing cannot receive lubrication.

The connecting rod bearing is off center with the rod. Each rod must be installed with short side of bearing towards the nearest main bearing. In other words, the short side of the bearing on each rod will be as follows:

No. 1 towards the front of motor
No. 2 towards the rear of motor
No. 3 towards the front of motor
No. 4 towards the rear of motor

It is also very important that the connecting rods be in correct alignment. In other words, when installed, the piston pin must be parallel with throw of the crankshaft. If they are not parallel, the piston will not be held straight in the cylinder, and excessive wear on both cylinder wall and piston will result. Very often a condition of this kind produces a decided knock in the motor.

To properly align rods, it is necessary to have a connecting rod aligning fixture, and use it according to the manufacturer's recommendation.

PISTONS AND RINGS
(Group 280537)

The pistons are electroplated to give longer service and to allow for closer fit between pistons and cylinder walls. The recommended clearance of new pistons is from .0025" to .004".

The piston pin is anchored in the piston by the lock screw (4) and lock (5). The hole in the piston pin must be in line with the hole in the piston boss before starting lock screw. Do not hold connecting rod in vise while tightening lock screw (4). To do so may twist the rod. If a piston vise is not available use a small bar in piston pin to hold assembly.

Each piston has four rings. Two 5/32" compression rings are in top grooves, one 5/32" scraper ring in third groove from top and one 1/4" oil control ring in bot tom groove.

When installing new rings on old pistons clean all carbon from the ring grooves. A good tool to use for this is a piece of old piston ring filed square on end. Always fit the rings in the cylinder liner. The end gap should be .015". Do not guess. Measure with thickness gauge. Also, try the rings in the ring grooves to see that there are no burrs on rings or grooves. The rings should have .0015" side clearance in grooves. If the rings are too tight in ring grooves they can not conform to the shape of cylinder wall and will result in stuck rings.

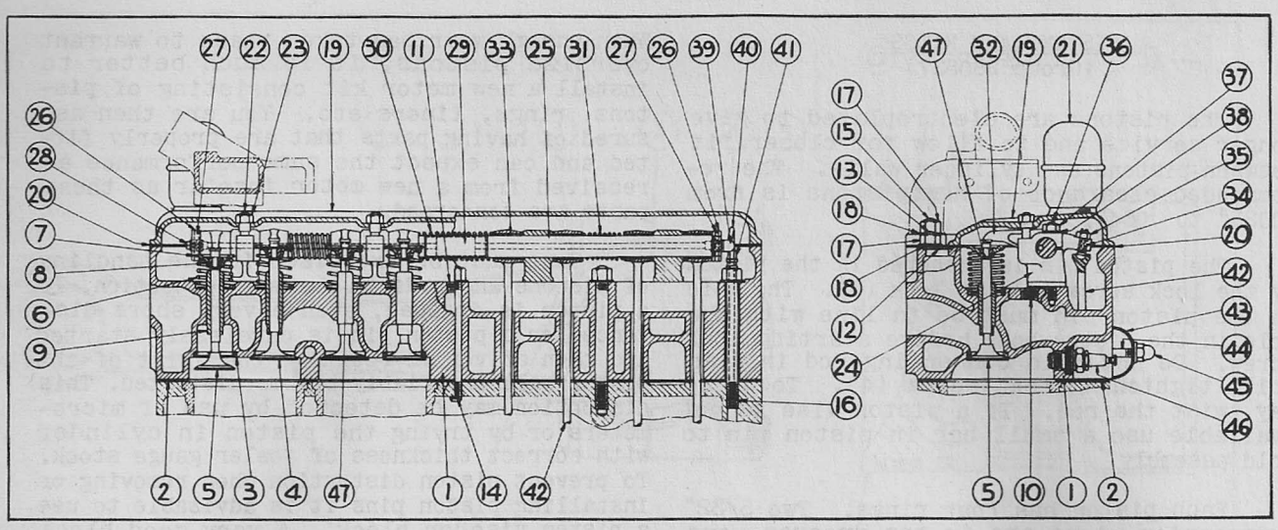
Use care in placing rings on pistons. Piston rings are easily distorted and a good ring can be absolutely ruined by distorting it beyond the elastic limit of the metal. Use a ring tool when installing rings.

Oversize pistons, rings and pins are not furnished, nor do we recommend their use. When enough wear has taken place to warrant oversize pistons, it is much better to install a new motor kit consisting of pistons, rings, liners etc. You are then assured of having parts that are properly fitted and can expect the same performance as received from a new motor insofar as these parts are concerned.

Care must be exercised in the handling of pistons and rods to prevent distortion. If a piston is dropped, even a very short distance, or a piston pin is carelessly started and then driven in roughly, the skirt of the piston will invariably become distorted. This distortion may be detected by use of micrometers or by trying the piston in cylinder with correct thickness of feeler gauge stock. To prevent piston distortion when removing or installing piston pins it is advisable to use a piston vise or block. A very good block can be made by sawing a circular piece out of a block of hard wood so that the recess so made will exactly fit the contour of the piston and deep enough to envelop half of it. A hole slightly larger than the piston pin should be bored in bottom of block so old pin can be driven out.

When installing pistons and rings in the cylinders have a ring gap on each side of each end of piston pin. Lubricate the pistons, rings, and pins and use a ring compressor to hold the rings compressed and in position while installing.

If it is desired to change the motor from a combination gasoline-low grade fuel burning engine to a straight 70 octane gasoline burning engine or vice versa, the different pistons may be installed to give the proper compression to burn the fuel desired. It is also necessary to change the gasket in manifold as explained in instructions for this group.



CYLINDER HEAD AND VALVES
(Group 280534)

The "UM" motor is of the valve in head type with removable valve guides and tool steel exhaust valve seat inserts.

The rocker arm shaft (25) is in two pieces, joined at the center by the coupling (29), the shafts are drilled for lubrication of the rocker arms, and also have grooves milled in them that fit over rocker shaft support studs (36) to hold them in place.

The rocker arms (32) are held in place by collars (26), supports (24) and springs (30 and 31). The rocker arms are drilled for the lubrication of push rod cups. The bushings in the rocker arms are of the split type and to install them it is necessary to use a broaching tool. The hole in the bushing must be installed so it registers with the hole in the rocker arm. As this type bushing gives more service than the conventional type, it is seldom necessary to install new bushings. Usually by the time they are worn enough to allow excessive clearance, the rocker arm, where it contacts the valve stem, is worn enough to throw it off center with the valve stem, causing excessive wear on the valve guides and also causing the valve head to strike the seat on one side, making frequent valve grinding necessary. Instead of installing a new rocker arm bushing, use a new rocker arm and bushing assembly.

The oil to lubricate the valve mechanism is forced by the oil pump from the rear camshaft bearing through a passage in the block and the drilled head stud (16), and oil tube (40) to the rocker arm shaft.

On top of the cylinder head is the rocker arm cover to protect the valve mechanism from dirt. The crankcase breather cap (21) is installed on this cover. It is very important that the breather cap be kept clean to prevent back pressure being created in crankcase which would cause oil leaks. Wash cap in gasoline, dip in lubricating oil and replace after throwing off excess oil.

To remove the head, first drain the cooling system, take off the large fuel tank and the hood. Remove the water pump by taking out the four capscrews (33 & 34 Group 280531). Loosen fuel lines and choke wire. Manifold, carburetor and air cleaner can now be removed as one unit. Remove spark plug cover and wires. Take off water manifold and fuel tank support. Remove head cover (19) by removing four nuts (23). Disconnect oil line (40) at fitting (41). Take off four nuts (37) and remove rocker arm assembly. Remove all cylinder head stud nuts. The head can usually be loosened by cranking the motor with spark plugs in place.

Clean carbon thoroughly from combustion chamber in the head and tops of pistons.

To remove valves, compress springs and remove tapers (8). Springs and valves can then be removed. Clean valve stems and valve guides. If there is more than .008" clearance between valve stems and guides, either new guides or both guides and valves should be installed. New valve stems have a diameter of .3715" and guides are reamed to .375" giving a clearance of .0035". The guides can be driven out by using a hammer and a valve guide drift. Drive new guides in to the exact depth of the old ones. Valves must work freely in the guides; if they do not, guides must be reamed to give the correct fit.

If exhaust valve seats are damaged, they can be removed with a small chisel which is sharpened on one side. Drive the chisel under the insert and pry out the old seat. To install the new seat, a driver having a pilot must be used, in order to drive the seat properly. When driving the seat in, drive it about half way in and then blow out the dirt which may have dropped underneath the seat. After this has been done, the seat can be driven all the way in. Peen the edge

of the head down on the insert to keep it from working loose while in operation.

Because of the hardened steel exhaust valve seat inserts, it is not practical to attempt to grind the valves by lapping with valve grinding compound. The valves should be refaced by a valve refacing machine and the seats ground with a high speed valve seat grinder. As a final operation, the valves may be polished by lapping them in with a small amount of fine valve grinding compound.

When attempting to grind the valves in by using valve grinding compound, a groove will be ground in the face of the valve before a good seat is obtained. However, in case of emergency, or if the valve seat inserts are not in a bad condition, a temporary repair can be made by lapping the valves in with compound.

Before reinstalling the valves, clean them off thoroughly, oil the valve faces and stems.

All parts of the valve mechanism have been designed to operate with a certain valve spring compression. To have a smooth running motor, developing its full power, this compression must be maintained. It is the duty of the valve spring to close the valve quickly as soon as the cam on camshaft passes by the lifter.

On the model "UM" motor, each valve opens and closes 10 times per second when motor is operating at full governed speed. When this is taken into consideration, it can easily be seen why it is so necessary that the valve springs have the correct compression.

While the valve springs are removed they should be tested. The free length of the spring is 2-3/8". When compressed to 1-3/4" the compression should be 36 lbs., and at 1-5/16" it should be 67 lbs.

Before reinstalling the head, clean the bottom of the head, head studs and top of block. If metal around any head stud has been pulled up to any noticeable extent, remove stud and file block smooth. The greatest allowable variation between block and head is .010". This can be measured on the face of the head or top of block by using a straight edge and a thickness gauge.

It is advisable to use a new head gasket when reinstalling the head. There is a best way to tighten down the cylinder head nuts that should always be followed to prevent trouble later. The nuts should be tightened in successive stages, and in such order as to insure even pressure over the entire surface of the cylinder head and gasket. Tighten the nuts in the center first, then work towards the ends. Tighten each nut a small amount at a time, going over all of them three of four times before they are tight. After the motor has been started and warmed up, the cylinder head nuts should be tightened again.

After the rocker arm assembly is in place, it is necessary to adjust the clearance between the valve stems and rocker arms. This clearance should be .010" for intake valves and .012" for exhaust valves when the motor is heated to operating temperature. When adjusting the valves for any cylinder, have that piston on top center on compression stroke. The adjustment is made by loosening the lock nut (35) on the adjusting screw (34) and moving the screw until the correct clearance is obtained. Do not use a heavy wrench on nut (35). To do so may strip the threads.

Always remember, the clearance between valve stems and rocker arms is changed each time the cylinder head is tightened down. For valve timing marks see (Group 280529).