

## MAINTENANCE

A battery three-fourths charged is in no danger of damage from freezing. Therefore keep the battery better than three-fourths charged, especially during winter weather.

If your tractor is not to be operated for some time during the winter months, it is advisable to remove the battery and store it in a cool dry place above freezing (+32° F.). Place the battery on a rack or bench.

Check the battery at least once a month for water level and specific gravity. If the battery shows need of charging it should be given immediate attention. Keeping the battery fully charged not only adds to its life but makes it available for instant use when needed.

When replacing a battery, make certain that the ground cable is connected to the positive (+) terminal on the battery.

Before working on any part of the electrical system, disconnect the battery ground cable. See *Illust. 37*. Do not reconnect this cable until all electrical work has been completed. This will prevent shorting and causing damage to any of the electrical units.

### Valve Clearance Adjustment

Check the valve clearance after every 400 hours of operation and adjust the clearance if necessary. A clearance of .013 inch, measured when the valves are closed and the engine is cold, is necessary between the end of the valve levers and the valve stems.

1. To safeguard against accidentally starting the engine when checking the valve clearance, remove cable "B" from the coil cover on the magneto (see *Illust. 32A*), or remove distributor to coil cable "A" from the socket on the coil of the battery ignition unit. See *Illust. 33B*.

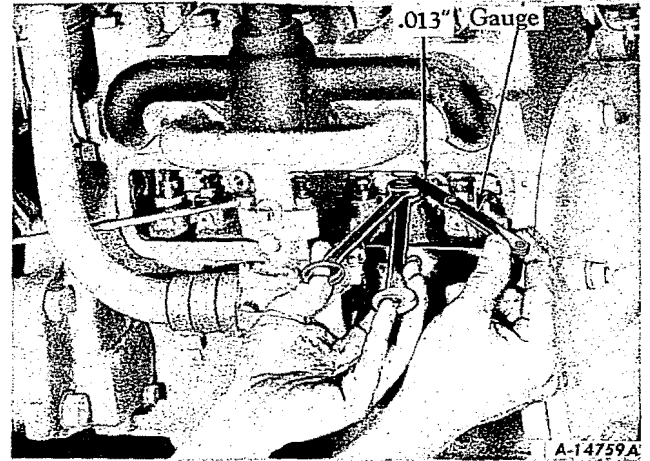
2. Remove the valve cover from the left side of the crankcase.

3. Remove the spark plug from the No. 1 cylinder (the cylinder next to the radiator).

4. Place your thumb over the spark plug opening and slowly crank the engine until an outward pressure is felt. (Pressure indicates that the No. 1 piston is moving toward the upper dead center of the compression stroke.) Continue cranking slowly until the notch on the fan drive pulley (on the crankshaft) is in line with the timing pointer in the front crankcase cover. See *Illust. 33*. Both valves are now closed on the compression stroke of the No. 1 cylinder.

5. Use two thin wrenches when adjusting the valve clearance. See *Illust. 46*. Use the lower wrench to hold the tappet and the upper wrench to raise or lower the tappet adjusting screw. A gauge of .013-in. thickness should slip snugly between the valve stem and the tappet adjusting screw.

6. Crank the engine one-half revolution at a time and check the clearance of each cylinder's



*Illust. 46*

Adjusting and checking valve clearance.

valves and adjust if necessary. Do this on each set of cylinder valves in succession according to the firing order of the engine, which is 1, 3, 4, 2.

7. Replace the valve cover. Check to see that the valve cover gasket makes an oiltight seal with the crankcase. Replace the gasket if necessary.

8. Replace magneto cable "B" (*Illust. 32A*) or distributor to coil cable "A" (*Illust. 33B*) into the socket from which it was removed.

**Important!** Be accurate—use a feeler gauge for checking the valve clearance.

### Minor Engine Service Operations

#### Cylinder Head Gasket

For most satisfactory results in tightening the cylinder head after installing a cylinder head gasket, tighten down all nuts fairly snug, starting with the row in the center, then going to the others. Retighten in the same order, giving each nut a small part of a turn at a time. Continue this until all nuts are tight. Do not screw one nut down perfectly tight and then go to the next, as you will not obtain an even pressure on the gasket in this manner.

After replacing the cylinder head, it is necessary to insure against leaks by retightening the stud nuts after engine has been operating and the water jacket has become thoroughly heated.

#### Crankshaft Bearings, Pistons and Rings

We cannot impress too strongly the necessity of having your International Harvester dealer do the work on replacement of connecting-rod bearings, crankshaft bearings, pistons and rings, and grinding valves.