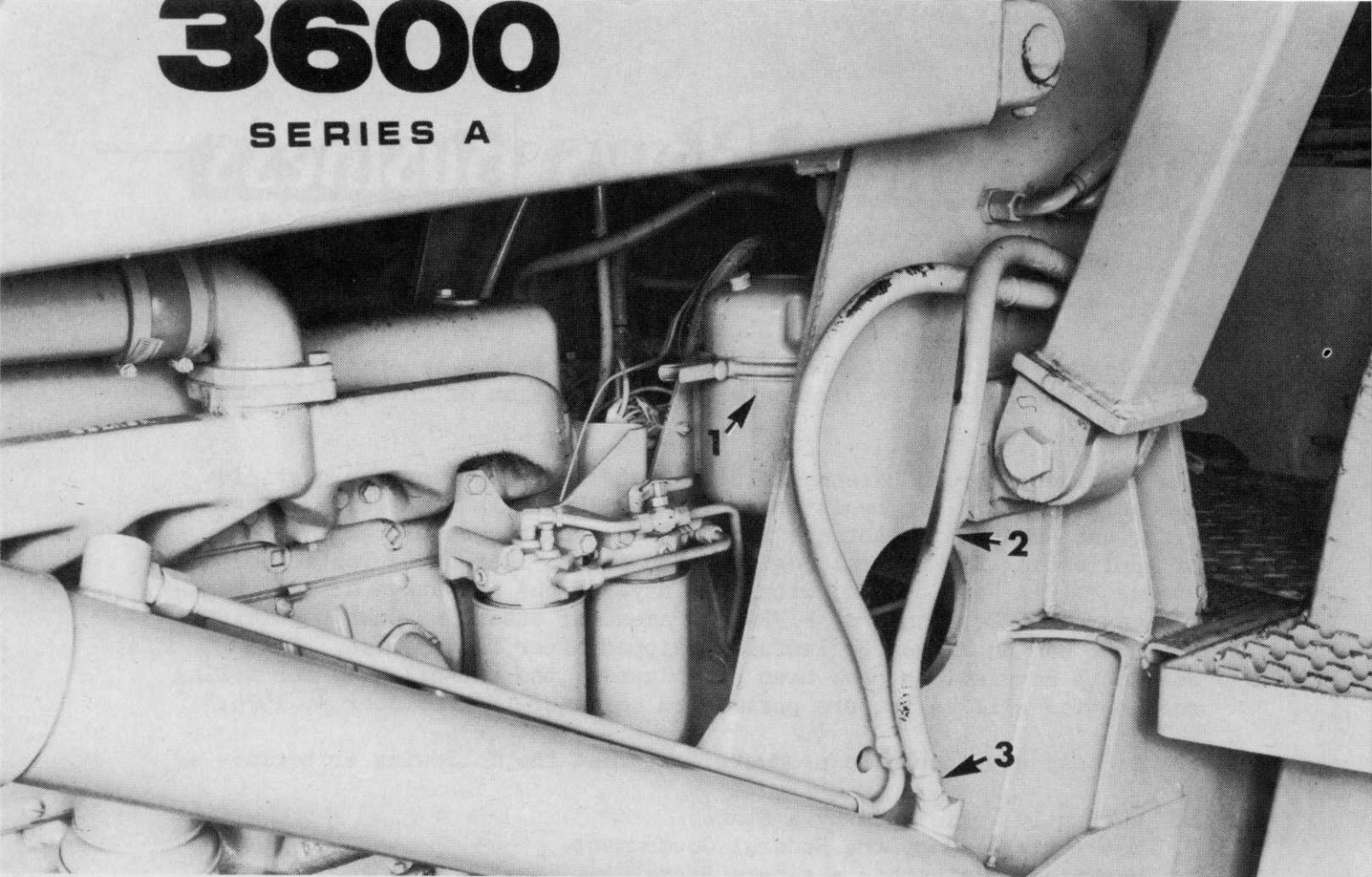


# 3600

## SERIES A



## Hydraulic Maintenance Is Back

By J. L. LOVE, Service Supervisor, International Harvester

ALMOST EVERY PIECE of industrial equipment today uses hydraulics. The hydraulic systems used have become so refined in the past few years that proper maintenance is no longer a "do as I have time" situation but an absolute necessity, if proper performance and longevity of the system is to be expected.

All hydraulic systems used today contain some type of filtration. This may be composed of:

1. Suction line filters,
2. Return line filters, or
3. Pressure line filters.

One or more of these filters are used in addition to a screen which may be incorporated in the reservoir filler. The manufacturer's recommended change period should be followed. Suction and return line filters quite often have an initial change at less than 50 hours operation to ensure initial system cleaning and then an additional change at 100 hours.

This ensures that any contaminant which may have been in the system as well as from wear-in of components is removed from the system prior to its causing damage to other components of the system such as relief valves, control valve spools, or cylinder piston seals. The filters then require changing at regular intervals as indicated in the manufacturer's operator's manual.

Return line filters are placed between the last valve or component and the reservoir. This removes any contamination generated in the hydraulic system preventing its returning to the reservoir and subsequently into the remainder of the system.

Pressure line filters when used as a primary filtering element may have the same change interval as suction or return line filters. Some systems incorporate a pressure line filter only as a safety filter. This element is placed after a specific com-

ponent so in case of a failure the entire system will not be contaminated. This element is only changed after a failure of a component upstream of the filter or at manufacturer's recommended interval.

Whenever a hydraulic system is plagued with repeated failures of relief valves and/or cylinder piston seals, the hydraulic filters should be checked. Quite often the filter incorporates a by-pass valve to prevent starvation of the hydraulic pump. When the filter element becomes plugged with contaminants to the

*(continued on page 18)*

### Above:

1. **Filter:** May be suction or pressure filter. Should be serviced regularly at manufacturer's recommended intervals.
2. **Hoses:** Must be routed properly to avoid sharp corners, prevent sharp bends or kinks and twisting of the hose.
3. **Fittings:** Must be kept tight to prevent leaks.

## HYDRAULICS (from page 16)

point at which it will not pass sufficient fluid to satisfy the system's demand, the by-pass valve will open. There is usually a screen over this valve to prevent passage of large particles of contaminants but small minute particles can pass through the screen and lead to early relief valve or cylinder piston seal failures.

Another part of the hydraulic system that is probably the most ignored component in the entire system is the hydraulic fluid. Certainly, fluid is added, usually when it gets low enough that it causes aeration (noise) in the hydraulic system. Hydraulic fluid has several additives in it to prevent foaming and corrosion, aid in water suspension, provide ease of flow under low ambient temperatures. These additives break down after prolonged use and these properties are lost. Most manufacturers recommend that hydraulic fluid be changed at least yearly or after a specific num-

ber of hours of operation. Other manufacturers, if the system is in constant use and maintained at a fairly constant temperature, extend this change period. In some cases of extreme moisture, condensation or use, the change suggested, a yearly change, in the fall of the year, would usually be beneficial.

Practically all hydraulic systems utilize hoses to some extent. The proper routing and the elements to which these hoses are exposed can greatly affect their life. All hoses should be routed to prevent sharp bends or kinks in the line as well as preventing any twist in the hose. The hose should be properly supported while the fittings are being tightened to prevent the hose itself from turning with the fitting resulting in a twist in the hose.

**CAUTION:** If a leak does occur in a hose, one should never place his hand over the leak. Most systems operate at high pressure and the pressure of the fluid escaping from the leak can be great enough to puncture the skin. Due to the addi-

tives in the fluid as well as some of the contaminants in the fluid, infection can result. If the skin is punctured, a physician should be consulted immediately.

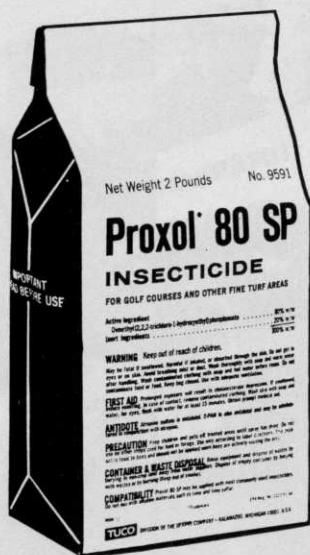
Normal maintenance of the system which would include tightening of loose fittings, correction of leaks and replacements of seals as required is also a necessity. A small leak not only results in an unsightly machine but also results in a necessity to add fluid frequently. This small leak can add up to many dollars in wasted fluid in a short period of time.

Proper maintenance of a hydraulic system is not only a necessity to attain proper performance from the machines involved, but also means good business as correction of minor problems as they occur can prevent major problems from happening later. A few dollars spent today can prevent many dollars spent or lost later to correct a once minor problem which has resulted in a major breakdown and costly downtime. □

# Take the guesswork out of turf insect control

## Diagnostic Aid from TUCO

Many turf insect larvae are night feeders, so the first evidence of their activity frequently is damaged turf. Diagnostic Aid, applied to turf as directed, causes insects to emerge to the surface within 10 minutes. They can be identified and counted to determine the level of infestation and whether an insecticide should be applied. It also can be used after insecticide application to measure the control obtained.



## Proxol\* 80 SP Insecticide from TUCO

Proxol is the one insecticide developed especially for use on fine turf and ornamentals. Sod webworms and cutworms are two major groups of turf insects controlled by Proxol. It is estimated that each sod webworm larva can chew up 20 square inches of turf in its average life span of 20 to 40 days; the cutworm larva can devour up to 36 square inches. With 300 to 500 larvae generated from each adult in a period of 10 to 21 days, it becomes apparent why early detection and control are desirable. Using Diagnostic Aid and Proxol together lets you program insect control.

\*Trademark

One bottle of Diagnostic Aid FREE in each case of Proxol 80 SP.



Division of The Upjohn Company, Kalamazoo, Michigan 49001