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Oliver

Service Manual

90 & 99

4 Cylinder

Service Manual

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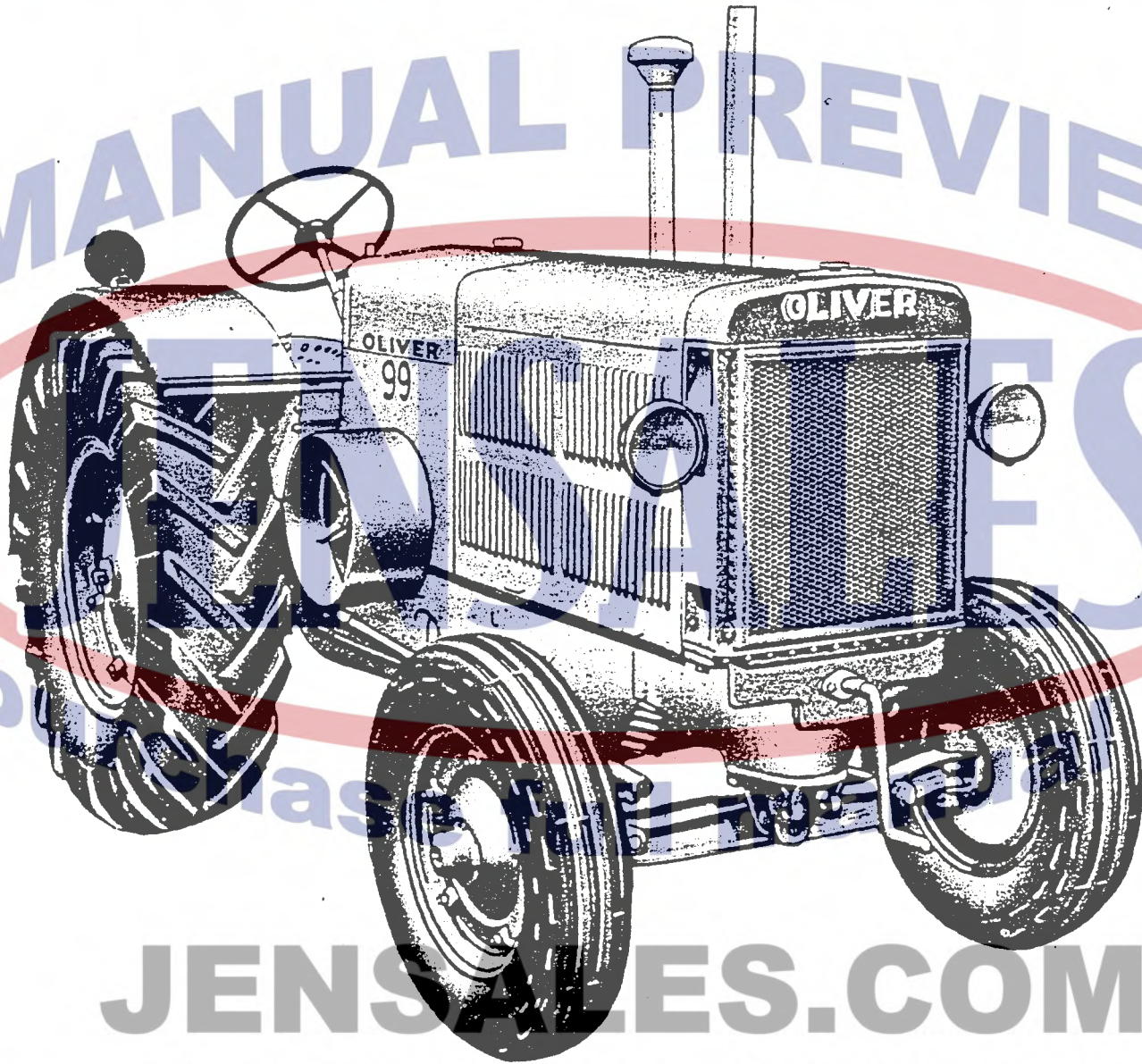
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OLIVER

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INTRODUCTION

This manual is written to furnish a ready reference and complete instructions covering the proper procedures for accomplishing the overhaul and making the adjustments of all component parts of the Oliver "90" Series tractors. It is intended primarily for use by the Shop Mechanic engaged in overhauling and servicing the tractors and furnishes information sufficient to return them to new condition. In addition it incorporates information necessary to keeping the tractors in good condition while being operated in the field.

In the discussion of each component part, it is assumed that a complete overhaul is being performed and consequently complete disassembly and reassembly of each unit is given. In cases where complete overhaul is not required, the Mechanic is relied upon to decide how far the disassembly must be carried and the proper procedure to follow in removing the parts which interfere with the work to be done.

Where reference data covering specific clearances and dimensions are required in the overhaul, such information is included in tabular form at the beginning of the discussion to provide a quick sight reference. The purpose of this is to enable an experienced Mechanic to find the data readily without reading through the entire discussion.

Shop equipment suitable for conducting an overhaul is an absolute necessity and most operations cannot be successfully performed in the field. For this reason, this manual is not intended for distribution to tractor owners.

Careful workmanship is extremely important to assure the successful operation of the tractor after completion of the overhaul and it is advisable to become thoroughly familiar with each operation and to be sure that each is performed correctly.

J. J. Dorwin
Service Manager

The OLIVER Corporation

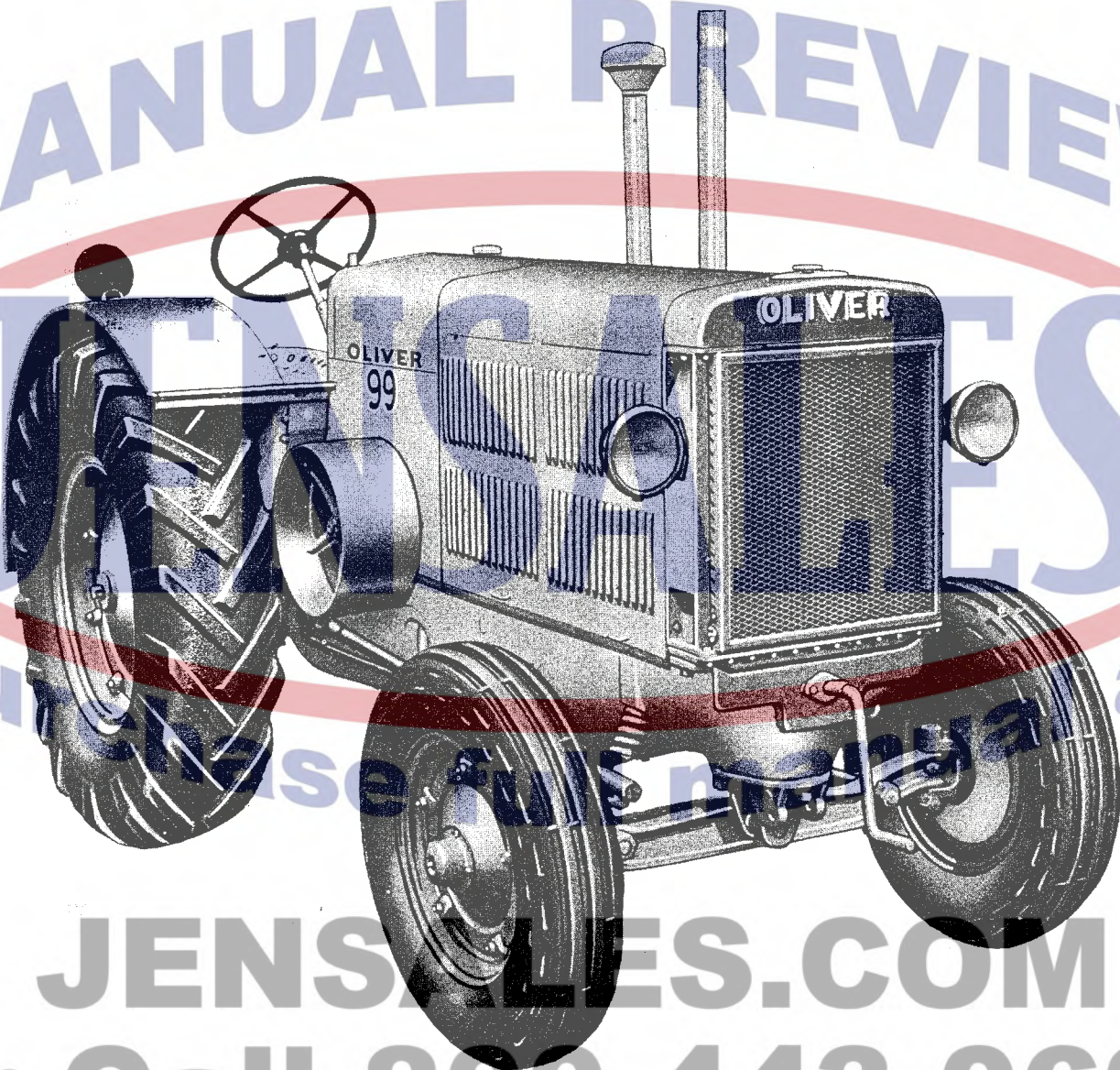
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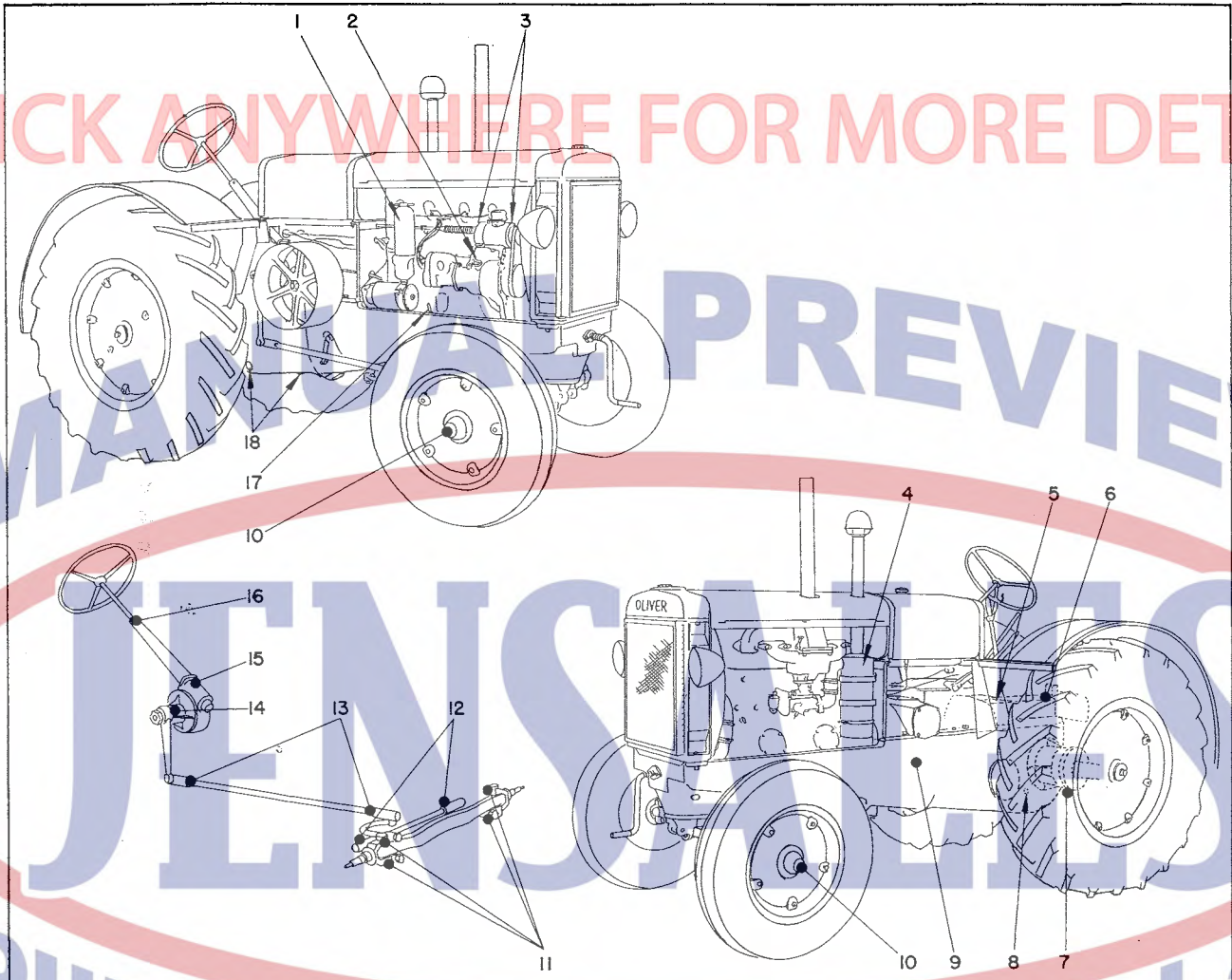
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"90" AND "99" LUBRICATION CHART

Item No.	Description	Lubricant	No. of Fittings	Item No.	Description	Lubricant	No. of Fittings
DAILY — OR 10 HOURS				WEEKLY — OR 60 HOURS			
4	Air Cleaner	Engine Oil	1	*2	Crankcase Filler Cap (Drain and Refill)	Above 32°F SAE 30 -10°F to 32°F SAE 20W -10°F & below SAE 10W	1
6	Power Take-off (If in use)	Press. Gun Grease	1	3	Generator Oil Cups	Same as engine	2
7	Rear Axle Carriers	Press. Gun Grease	2	<i>*Drain and refill crankcase on "90" engines every 40 hrs.</i>			
9	Clutch Release Bearing	Press. Gun Grease	1	MONTHLY — OR 250 HOURS			
10	Front Wheel Bearings	Wheel Bearing Grease	2	8	Transmission Oil Level Check Plug	Check Oil Level	1
11	Steering Knuckles	Press. Gun Grease	4	PERIODICAL			
12	Tie Rod End Sockets	Press. Gun Grease	2	1	Oil Filter	Replace Cotton Waste (300 hrs.—"99" engines) (150 hrs.—"90" engines)	1
13	Steering Gear Connecting Rod	Press. Gun Grease	2	5	Transmission Filler Cap	Transmission Oil Summer — SAE 140 Winter — SAE 90	1
14	Steering Gear Case Cover	Press. Gun Grease	1	18	Transmission Drain Plugs	Drain Twice Yearly	2
15	Steering Gear Case	Press. Gun Grease	1				
16	Steering Column	Press. Gun Grease	1				
17	Bayonet Gauge	Check Engine Oil Level	1				



Figure 2-3 — Engine Hoisting Sling



Figure 2-4 — Engine on Overhaul Stand



Figure 2-5 — Mounting Engine on Overhaul Stand

a Clayborne Model 415 Overhaul Stand can be used. (See Figure 2-4.) This stand is manufactured by the Clayborne Manufacturing Company, 209 S. LaSalle St., Chicago, Illinois. Once the engine is attached to the stand with the brackets provided, it can be rotated to any desired position by means of the worm and crank mechanism on the side of the stand. The stand is designed to hold the engine at a convenient height in any position and all parts can be removed from the crankcase without detaching it from the stand.

The "90" Series engines can be mounted on either the Clayborne Model 415 Stand shown in Figure 2-4 or the Clayborne Model 201 Stand. Special mounting brackets for mounting the "90" Series engines are furnished with either stand.

To attach the engine to the Model 415 stand, bolt the supporting brackets to the engine at the engine mounting bolt holes and use the "U" bolts provided to hold the brackets to the stand. (See Figure 2-5.)

PREPARATION OF ENGINE FOR DISASSEMBLY

After the engine is mounted on the overhaul stand, remove the spark plug lead wires, the fan belt, the carburetor, and the magneto. Clean the engine thoroughly with kerosene or cleaning solvent and blow it dry with compressed air. If steam cleaning equipment is available, the engine may be steam cleaned. Correct proportions of steam cleaning compound and water to be used in the steam cleaner are furnished in the directions with the compounds. Caustic alkali solutions are to be avoided due to their detrimental effect upon the steam cleaning equipment.

If the engine has been overheating in service, or if there are indications that excessive deposits of lime or other scaly foreign matter are present in the cooling system, the water jacket should be given an acid bath before the engine is disassembled, as it will be impossible to remove the sleeves from the cylinder block if they are coated with lime or rust scale.



Figure 2-41 — Oil Pump Installed

Reassemble the pump in the reverse order of disassembly. After the spiral gear is installed on the pump drive shaft, rotate the shaft and be sure it rotates freely. The shaft end play should be about .002" when the gear is pressed against the shoulder on the shaft. If the shaft tends to bind, remove the shaft and dress off the end of the bronze bushing on a piece of emery cloth which has been attached to a flat surface plate. Use a new gasket under the pump cover and be sure the correct gasket is used, as the thickness of this gasket will determine the efficiency of the pump. Reinstall the pump intake screen assembly.

Fill the pump with light oil and rotate it several times. Install the pump and lock the cap screws with safety wire. Attach the oil line leading from the pump to the oil gallery fitting. (See Figure 2-41.) Be sure that the oil line fittings are tight.

OIL FILTER

Three oil filter designs have been used on production 28-44, "90" and "99" tractors.

The AS-399 Filter was used on tractors prior to serial number 510957. It has a filtering element composed of felt washers which are held together by spring tension. (See Figure 2-42.) This filter should be serviced at each engine oil change period. Servicing is accomplished by removing the filter shell and scraping the exterior of the filtering element with a dull knife to remove accumulations of sludge or other foreign material. When the element becomes plugged and fails to filter the oil satisfactorily, it should be replaced as an assembly.

The AS-399-C Oil Filter was used on tractors, serial numbers 510958 to 513855, inclusive. This filter has an element which is packed with replaceable cotton waste. (See Figure 2-43.) The AS-399-C Filter should be

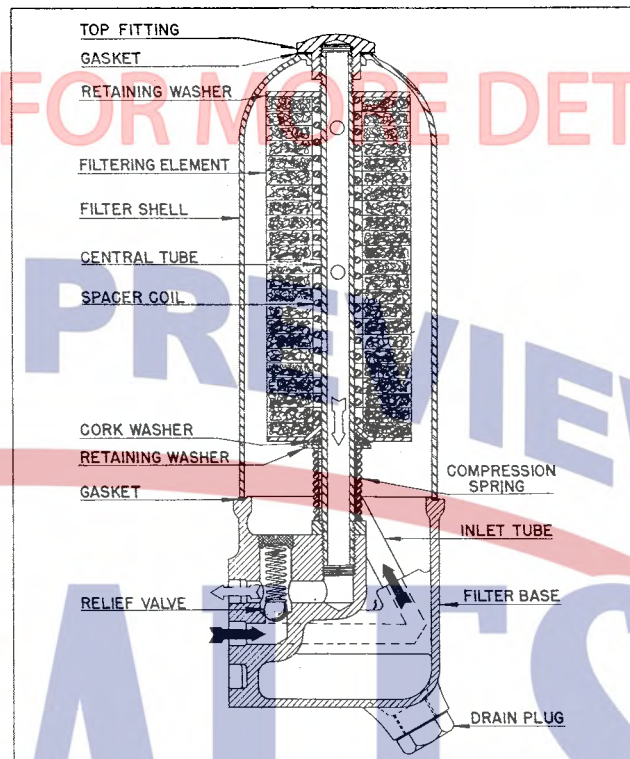


Figure 2-42 — AS-399 Oil Filter

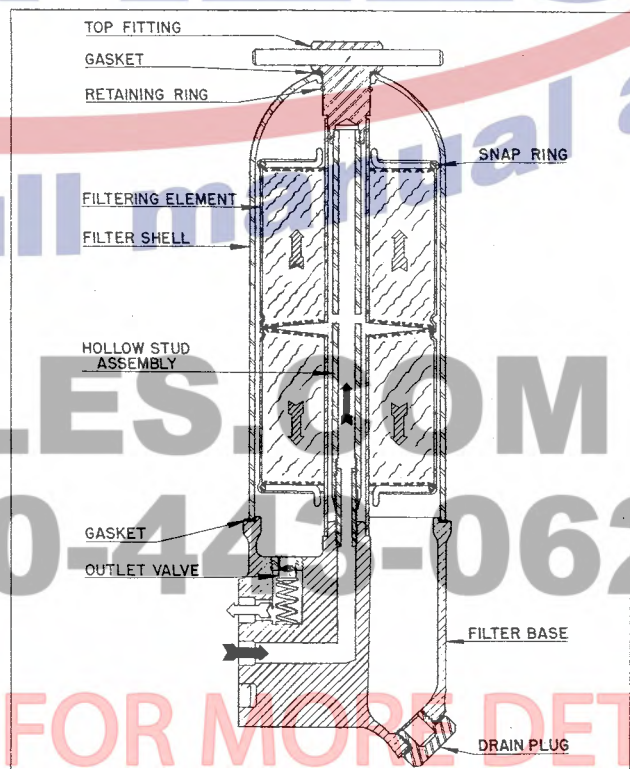


Figure 2-43 — AS-399-C Oil Filter