



Allis Chalmers

Operator's Manual

TL20D

Tractor Loader

S/n 997 & up

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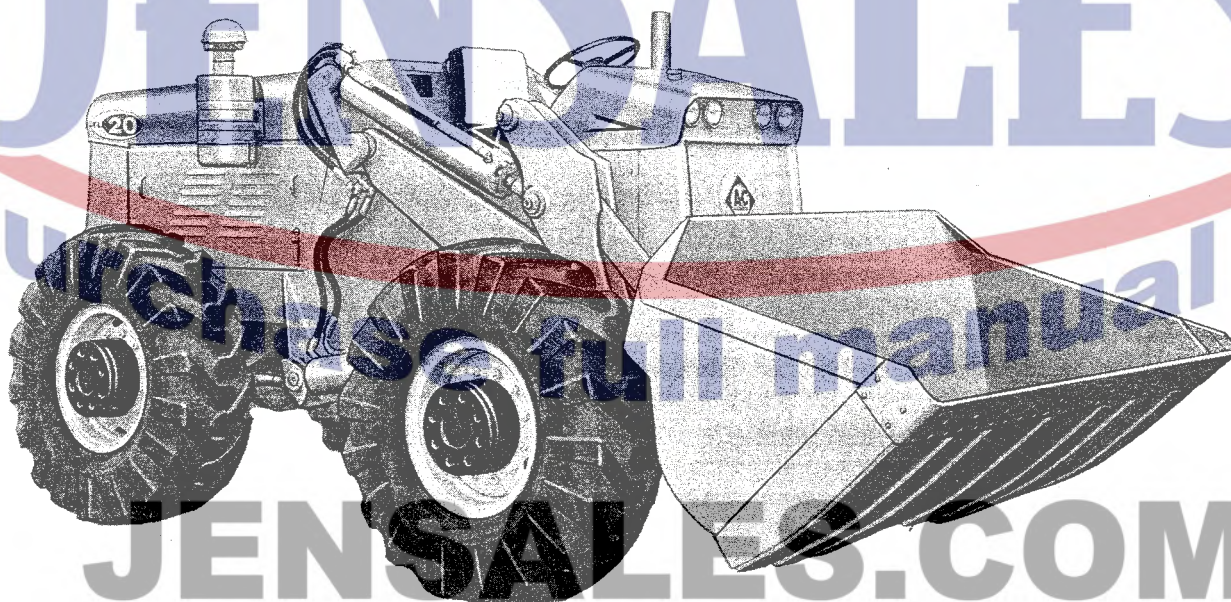
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AC-O-TL20D

Operator's Manual

**OPERATING INSTRUCTIONS
AND
FIELD MAINTENANCE
MODEL TL-20D (DIESEL)
TRACTOR LOADER
(Serial No. 997 and Up)**



ALLIS-CHALMERS MFG. CO.

MILWAUKEE, WISCONSIN, U. S. A.

LITHO. IN U. S. A.

33743

THIS MANUAL SHOULD BE KEPT[®] WITH THE TRACTOR LOADER

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GENERAL DESCRIPTION

The Model TL-20D Tractor Loader (effective with Serial No. 997) is a 24,300 pound (with standard bucket), four wheel drive, loader unit powered with a 6 cylinder, 4 stroke cycle, naturally aspirated, open combustion chamber, direct injection, "Allis-Chalmers" Model 10000 Diesel engine.

Power from the engine is transmitted directly to the single-stage type torque converter. Torque, which is increased a maximum of 3.5 to 1 in the converter, is then transmitted to the full-power-shift transmission. The engine supplies power to the hydraulic system pump whenever the engine is running. Forward and reverse direction in any speed range is transmitted from the transmission through the universal drive shafts, to both the front and the rear differentials and axles.

The transmission provides 3 forward speeds and 3 reverse speeds, ranging from 4.3 M.P.H. in low to 30.0 M.P.H. in high, at the rated engine speed of 2200 R.P.M. (governed full load).

Operation of the loader is accomplished hydraulically by the transmission mounted hydraulic pump, a control valve with two control levers, two lift cylinders, two dump cylinders, and the necessary hydraulic lines.

There are no exposed hoses or fittings located in or around the operator's compartment. The hydraulic tank, located behind the operator's seat, provides a mount for the control valve and incorporates the necessary tubing and safety valves. Short external pressure hoses on each side of the operator's compartment carry oil to the lift and dump cylinders.

The loader design provides top visibility, strength, and servicing accessibility. The loader main frames are mounted to the axles with heat-treated pins. The rear stabilizer shroud and the heavy steel seat frame are bolted together with the side braces to provide a rigid box construction. This provides a mount for the boom, the hydraulic cylinders, and other loader linkage. The boom assembly, of heavy steel plates, gives added assurance of long life at heavy-duty work.

Levers, pedals, gauges, etc., are well situated in the operator's compartment so that full control of the tractor loader can be maintained at all times.

Standard equipment includes: bucket level indicator; hi-traction differential; lift and dump cylinders with chrome plated piston rods; formed steel cowl and steel plates around the operator; six-way adjustable seat; heavy-duty bumper; drawbar; torque converter and full power-shift transmission; rear axle disconnect; air-hydraulic brakes and mechanical parking brake; power-booster steering; electric starter; generator and generator regulator; air compressor; lights and horn; oil bath air cleaner; oil filter; muffler; hour meter; and auxiliary air valve for tire inflation.

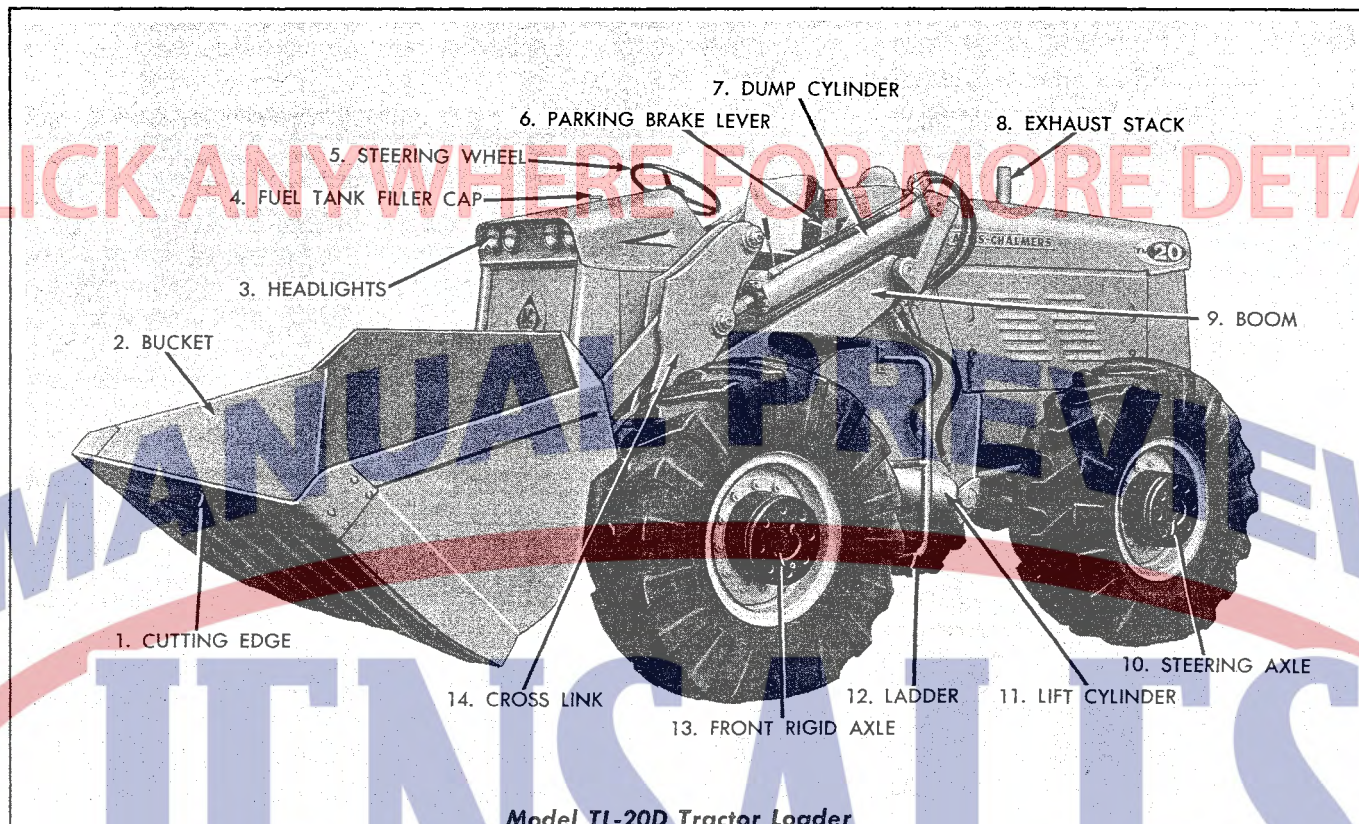
Optional equipment includes: a heater and defroster, operator's cab, special tire equipment; and hydraulic system accumulator.

Special equipment includes: Special Buckets; Lift Fork; Cranehook; Lift Tongs; Backfiller Blade; Winch; Bucket Teeth, and Ripper.

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Model TL-20D Tractor Loader
(Effective with Serial No. 997)

FIG. 1

TRANSMISSION, ENGINE, AND LOADER SERIAL NUMBERS

On all parts orders and in all correspondence relative to the loader, it is necessary that the loader model and serial number be given. All major components of the loader, (such as, engine, transmission, hydraulic pump, hydraulic control valve, power steering pump, and front and rear axles) have serial numbers which should also be given to properly identify the unit and component. These will assure obtaining the correct replacement parts.

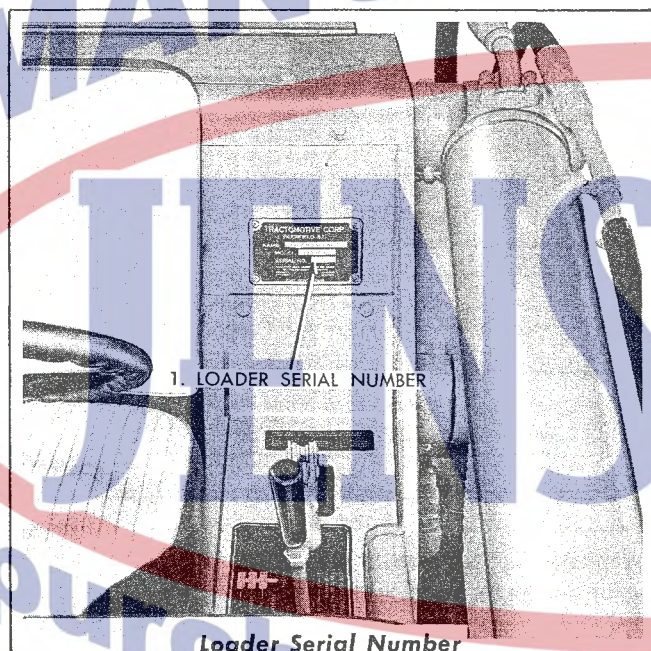


FIG. 2

The loader serial number is located on the nameplate attached to the left rear face of the seat frame in the operator's compartment as shown in Fig. 2.

The engine serial number is located on the nameplate on the right side of the engine block as shown in Fig. 3.

The transmission serial number is located on a nameplate on the left side of the housing as shown in Fig. 4.

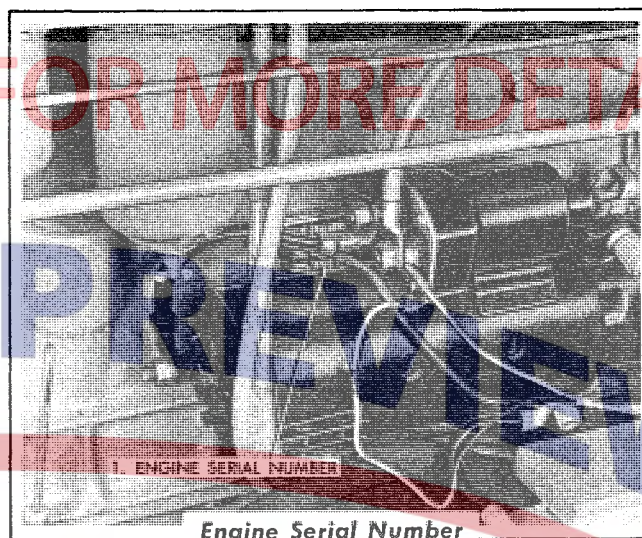


FIG. 3

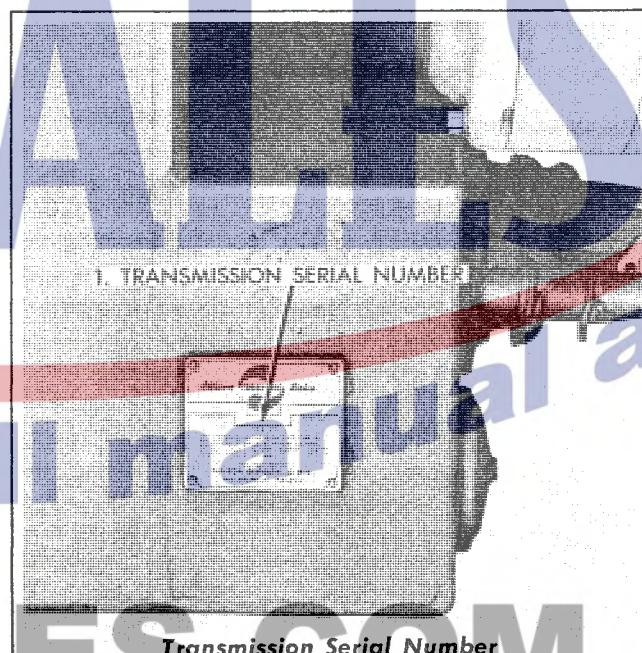


FIG. 4

GENERAL SPECIFICATIONS

General Dimensions and Weight

(with 2 $\frac{3}{4}$ yd. Bucket)

Weight, Shipping (approximate)	24,300 lbs.
Front Wheels	11,720 lbs.
Rear Wheels	12,580 lbs.
Overall Width (Wheel Hubs)	92"
Overall Height with Bucket Down (or to Top of Frame)	7' 8 $\frac{1}{2}$ "
Overall Length with Cutting Edge Level on Ground	18' 7 $\frac{1}{2}$ "
Ground Clearance	17"
Drawbar Height	26"

General Purpose Bucket (Standard)

*Published

Capacity (cu. yds.)	2 $\frac{3}{4}$ yds.
*Published Capacity: "SAE Rating (Nominal Heaped)" average volume of common earth handled per bucket load.	
Maximum Dumping Angle (Controllable in all Bucket Positions)	
At Maximum Raise	48°
At Ground Level	120°
Carry Capacity	9600 lbs.
Maximum Lifting Capacity	Up to 23,600 lbs.
Breakout Force	Up to 24,400 lbs.
Lifting Time	8.5 sec.
Lowering Time	5.8 sec.

Hydraulic System

Transmission Mounted Pump G.P.M. at 2200 R.P.M.	63
Capacity, Hydraulic System — Gallons (approximate)	33 $\frac{3}{4}$
Lift Cylinders . . . (2) "Double Acting"	6" Dia. (For Down Pressure)
Dump Cylinders . . . (2) "Double Acting"	5 $\frac{1}{2}$ " Dia. (For Controlled Dump and Quick Return)
Oil Reservoir	Tank behind Operator's Seat
Type of Filters	Micronic and Full Flow
Control Valve	Four Positions — Raise, Hold, Lower, and Float

Tire and Tread

Tread, Front and Rear Wheels	6' 2"
Tires, (Tubeless) Front and Rear	16:00 x 24—12 Ply
Tire Pressure	40 P.S.I.

Engine

Make	"Allis-Chalmers"
Model	10000
Type	Four-Stroke Cycle (Naturally Aspirated)
Number of Cylinders	6
Bore	4 $\frac{7}{16}$ "
Stroke	5 $\frac{5}{16}$ "
Crankshaft Rotation (when viewed from fan end)	Clockwise
Number of Main Bearings	7
Piston Displacement	516.17
Firing Order	1 - 5 - 3 - 6 - 2 - 4
Lubrication	Full Pressure
Fuel Used	Diesel Fuel
Fuel Supplied By	Fuel Injection Pump
Low Idle Speed	600 R.P.M.
High Idle Speed	2380-2460 R.P.M.
Rated R.P.M. (Governed at Full Load)	2200 R.P.M.
Air Cleaner	Oil Bath
Oil Filter	Full Flow
Electrical System	24-Volt

Turning Radius

Tip of Bucket (at 14" Carry Position)	25' 5 $\frac{1}{2}$ "
Outer Steering Wheel (Measured at Hub)	24' 2 $\frac{1}{2}$ "

Capacities (Approximate) (U. S. Standard Measure):

Cooling System	9 Gals.
Crankcase	21 Qts.
Air Cleaner	2 Qts.
Transmission and Converter	9 $\frac{1}{4}$ Gals.
Differential (each)	5 Gals.
Planetary Hubs (each)	5 Pts.
Steering Gear	1 $\frac{1}{2}$ Lbs.
Fuel Tank	39 Gals.
Hydraulic Brake System	2 Pts.

Speeds (M.P.H. at Rated Engine Speed)

1st	0-4.3
2nd	0-11.5
3rd	0-30
1st Reverse	0-4.3
2nd Reverse	0-11.5
3rd Reverse	0-30

U. S. - Metric Measure Conversion Factors:

Pints	× .4732 = Liters
Quarts	× .9463 = Liters
Gallons	× 3.7853 = Liters
Pounds	× .4536 = Kilograms

The Allis-Chalmers Manufacturing Company reserves the right to make changes in the above specifications or to add improvements at any time without notice or obligation.

FUEL STORAGE

The importance of proper storage of fuel cannot be too strongly stressed. Storage tanks, drums or service tanks must be free from rust, scale, sediment or any other foreign matter which will contaminate the fuel. Contaminated fuel will clog the engine fuel filters and eventually damage the fuel injection pump and fuel injection nozzles.

A portable storage tank provides the best method for storing fuel on the job. In such a tank, the sediment and water can easily be drained and the fuel can be pumped into the loader fuel tank with a minimum of handling. Consult your nearest "Allis-Chalmers" Dealer for details about this type of storage tank. Since condensation will occur in the storage tank, it is very important that a sediment sump be provided in the bottom of the tank so that water and sediment can be drained daily. Fuel should be allowed to settle at least 48 hours in a storage container before it is added to the fuel tank of the loader. It is advisable to use a

pump and draw the fuel from the storage tank, or barrel, rather than to drain it from the bottom of the fuel container. Where conditions are such that drums must be used to supply fuel, it is advisable to have enough drums to allow sufficient time for the fuel to settle. The fuel thus left in a number of drums can be collected into one drum and used after the usual time allowed for settling. In this manner, the sediment and foreign matter will be disposed of and no fuel will be wasted. Whenever drums are used for fuel storage, they should be covered or placed under shelter so that the fuel will not become contaminated by water, which will enter through the filler plugs when it rains, even though the plugs are tight.

The fuel tank of the loader should be filled at the end of the day's run rather than at the start; this will reduce the water content, as a full tank is less subject to condensation.

PERIODIC LUBRICATION AND PREVENTIVE MAINTENANCE

Lubrication is an essential part of preventive maintenance, controlling to a great extent the useful life of the unit. Different lubricants are needed and some components in the unit require more frequent lubrication than others. Therefore, it is important that the instructions regarding types of lubricants and the frequency of their applications, as given in this Manual and on the "LUBRICATION GUIDE," be explicitly followed. Periodic lubrication of the moving parts reduces to a minimum the possibility of mechanical failures.

To prevent minor irregularities from developing into serious conditions that might involve shut-down and major repair, several other services or inspections are recommended for the same intervals as the periodic lubrication. The purpose of these services or inspections, which require only a few minutes, is to assure the uninterrupted operation of the unit by revealing the need for adjustment caused by normal wear. The need for some minor adjustment, if neglected, could result in failure and shut-down. Refer to the following "LUBRICATION GUIDE" for relative location of the service points of the unit to be serviced.

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