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MANUAL PREVIEW

Allis Chalmers

Operator's Manual

TS-160

Tractor Scraper

Operator's Manual

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AC-O-TS-160

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GENERAL DESCRIPTION

The Model TS160 Motor Scraper is a 28,500 pound rubber tired unit powered with a 6 cylinder, 4 cycle, "DIESEL" engine. The TS160 Motor Scraper consists of a two-wheeled, high speed, rubber tired tractor (T-160), flexibly joined to a two-wheeled rubber tired hydraulically operated scraper (S-160) to form a conventional four-wheeled self-propelled unit. A pedestal-type coupling combines a vertical and horizontal pivot arrangement which permits complete flexibility of the unit when working on uneven terrain.

Power from the engine is transmitted through a 13", 2 plate, spring loaded type engine clutch to the transmission. From the transmission, the power is transmitted through a universal joint assembly to the bevel pinion and then to the bevel gear and a heavy-duty automotive type differential. From the differential, power is transmitted through the pinion drive shafts to the final drive pinions, idler gears, and the final drive gears which drive the tractor axles.

The transmission provides five forward speeds ranging from 3.1 M.P.H. in first gear to 22.4 M.P.H. in fifth gear and a reverse speed of 3.1 M.P.H., at the rated engine speed of 2200 R.P.M. (governed full load).

Steering of the tractor and control of the scraper is accomplished hydraulically by a tandem pump, control valves, hydraulic lines, hydraulic jacks, two scraper control levers, steering wheel, and the necessary control linkage.

The Motor Scraper is equipped with air-actuated, four-wheel brakes. Air is supplied by a belt driven, governor controlled, two-cylinder, piston type compressor.

The scraper is of welded box-type construction, open-top design, and has a curved bowl bottom and positive-forced ejection. The scraper is equipped with a three-piece, heat-treated, reversible cutting edge, and a heavy pusher block.

The standard model Motor Scraper is equipped with electric starting and lighting equipment, muffler, full width crankcase guard, adjustable bucket-type operator's seat with foam rubber cushions, windshield, air horns, tachometer, hour meter, front pull hook, and tubeless tapered bead traction-tread tires.



FIG. 1

GENERAL SPECIFICATIONS

General Dimensions and Weight:

Overall Length	31 ft. 5¼ in.
Overall Width	10 ft. 0 in.
Overall Height (less exhaust stack)	8 ft. 4 in.
Wheel Base (carry position)	18 ft. 4¼ in.
Tread (with standard tires)	
Tractor	6 ft. 0 in.
Scraper	6 ft. 0 in.
Turning Radius	20 ft. 6 in.
Width required for Non-Stop 180° Turn	24 ft. 8½ in.
Ground Clearance — Tractor	17¼ in.
Scraper	17 in.
Shipping Weight (Approximate)	28,500 lbs.

Scraper Dimensions:

Front Apron Opening	7 ft. 1½ in.
Width of Cut	8 ft. 1½ in.
Depth of Cut	0 to 25 in.
Depth of Spread	0 to 17 in.
Cutting Edge	
Type	3-piece Reversible and Identical
Size	1 in. x 10 in. x 32 in.

Scraper Capacity:

Struck, Cubic Yards	7.0
Heaped, Cubic Yards	9.5

Weight Distribution: Empty Loaded

Front Axle	66%	50%
Rear Axle	34%	50%

Engine:

Make	"Allis-Chalmers" Diesel
Model	TDS-516
Type	4 Stroke Cycle (supercharged)
Number of Cylinders	6
Bore	4¼ in.
Stroke	5½ in.
Crankshaft Rotation (viewed from fan end) ...	Clockwise
Number of Main Bearings	7
Piston Displacement	516 cu. in.
Lubrication	Full Pressure
Fuel Used	Diesel Fuel
Fuel Supplied By	"American Bosch" Fuel Injection Pump
Low Idle Speed	525 R.P.M. + or - 25
High Idle Speed	2250 R.P.M. + or - 25
Governed at Full Load	2200 R.P.M.

Road Speeds

(At 2200 R.P.M. Engine Speed):

1st Gear	3.1 M.P.H.
2nd Gear	5.1 M.P.H.
3rd Gear	8.5 M.P.H.
4th Gear	13.3 M.P.H.
5th Gear	22.4 M.P.H.
Reverse Gear	3.1 M.P.H.

Scraper Operating Method:

Type of Ejection	Positive Forced
Apron, Bowl, and Ejector	Positive Hydraulic
Hydraulic Pump	HP-40

Steering:

Type	Two Speed Hydraulic
Hydraulic Pump	HP-40
Jacks (2 Double Acting)	5 in. Dia.

Air Compressor:

Capacity, Cubic Feet Per Minute	7¼
---------------------------------------	----

Brakes:

Type	Air on 4 Wheels
Tractor	
Size Each	18 x 7 in.
Total Contact Area	435 sq. in.
Scraper	
Size Each	18 x 7 in.
Total Contact Area	435 sq. in.

Electrical System:

Type	24 Volt
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Tires:

Standard Machine	
Type	Tubeless — Traction Tread
Size	18.00 x 25 (16 P.R.)
Special Equipment	
Type	Tubeless — Traction Tread
Size	23.50 x 25 (16 P.R.)

Capacities (Approximate)

(U. S. Standard Measure):

Fuel Tank	80 Gal.
Cooling System	11 Gal.
Crankcase and Filters	4¼ Gal.
Engine Air Cleaner	1 Gal.
Transmission	3 Gal.
Gear Case — Differential Compartment	26 Gal.
Final Drive Compartments (each)	5 Gal.
Hydraulic System	28 Gal.

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.

TRACTOR, ENGINE, AND SCRAPER SERIAL NUMBERS

On all parts orders and all correspondence relative to the TS160 Motor Scraper, it is necessary that the tractor, engine, and scraper serial numbers be given. This will properly identify the particular motor scraper and will assure obtaining the correct replacement parts for it.

The tractor serial number is stamped on a serial number plate, located on the left side of the tractor main frame.

The engine serial number is stamped on a serial number plate, located on the left rear side of the cylinder block.

The scraper serial number is stamped on a serial number plate, attached to the left side of the scraper main frame.

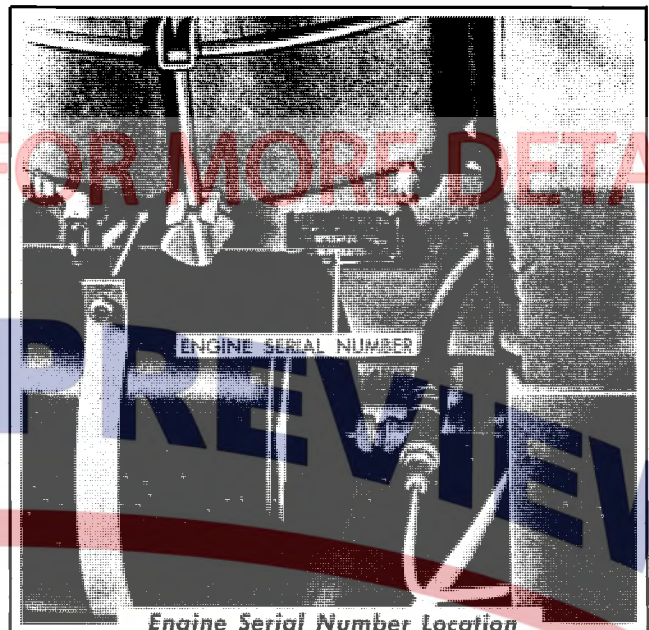


FIG. 3

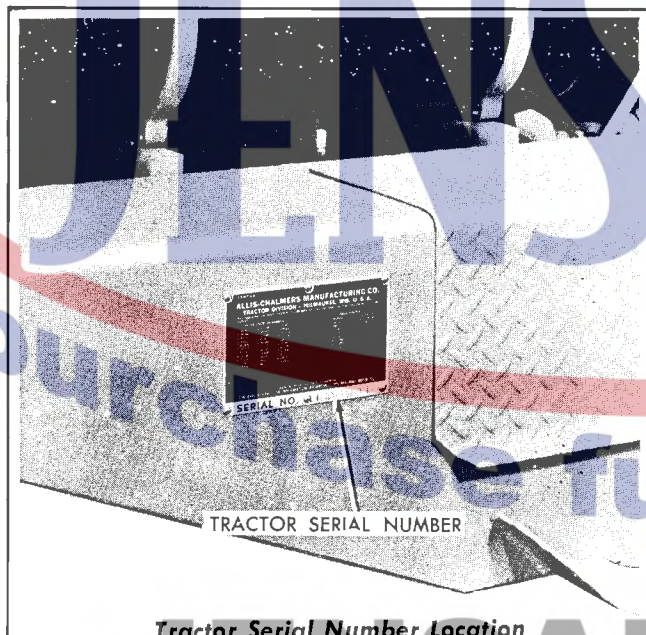


FIG. 2

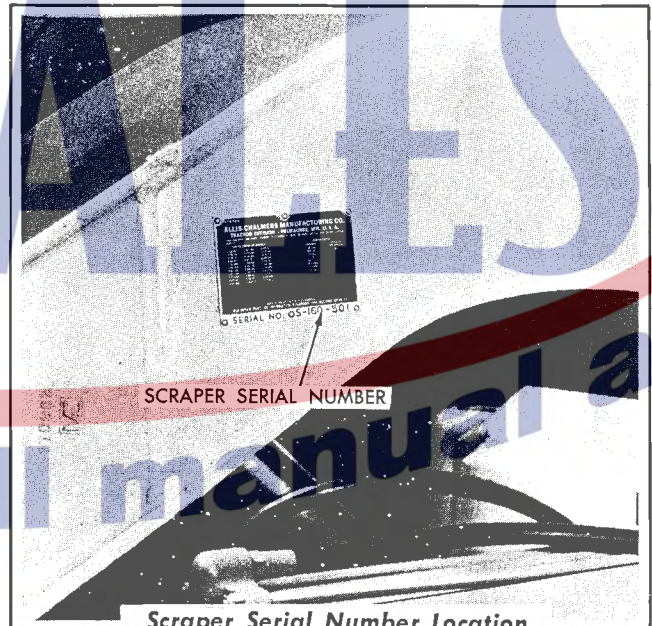


FIG. 4

SPECIFICATIONS OF LUBRICANTS

A. Engine Crankcase

USE NON-CORROSIVE "DIESEL" ENGINE LUBRICATING OIL CONTAINING ADDITIVES WHICH WILL PREVENT SLUDGE OR GUM DEPOSITS. UNDER NO CIRCUMSTANCES SHOULD A CORROSIVE ENGINE LUBRICATING OIL EVER BE USED.

Use oils of the following viscosities:

Atmospheric Temperature	Viscosity
90° F. and above	Use SAE 40
32° F. to 90° F.	Use SAE 30
0° F. to 32° F.	Use SAE 20W
0° F. and below	Use SAE 10W

Manufacturers of lubricants recognize the importance of the qualities required for use in our equipment and they are cooperating fully to assure the use of only those oils which fulfill these requirements. The oil distributor and oil manufacturer are to be held responsible for the results obtained from their products.

The outstanding lubricating requirements for efficient operation of the engine are: The maintaining of piston rings in a clean, free condition; absence of hard carbon and "varnish" deposits on or within engine parts; the prevention of bearing corrosion and the promotion of general cleanliness within the engine.

Proper operation and maintenance of the engine are necessary to obtain the desired results from the lubricating oil.

B. Fuel Injection Pump and Governor (Model TS-260 and TS-360 only)

Lubricate these assemblies with the same viscosity oil as used in the engine crankcase.

C. Air Cleaner

Use the same viscosity oil in the air cleaner as used in the engine crankcase. CAUTION: Do not use an oil that foams.

D. Transmission

Lubricate the transmission with SAE 90 STRAIGHT MINERAL OIL of the API type designation "Regular Type Gear Lubricant."

The physical requirements are as follows:

Viscosity S.U.S. @ 100° F. 800-1500
Viscosity S.U.S. @ 210° F. 80-105
Pour Point ° F. Max. Plus 5
Aniline Point, Min. 225
Corrosion
(VV-L-791B Method 530.31) Negative
Continental oxidation (Min. Hrs. to 10 mg.) . . 35
Viscosity increase
(Max. S.U.S. 48 hr. @ 210° F.) 40

NOTE: It is permissible to use SAE 140 in extreme high temperature operation.

E. Differential and Final Drives

Lubricate these assemblies with SAE 90 MULTI-PURPOSE type gear lubricant. The Military Specification for this lubricant is MIL-L-2105. The physical requirements are as follows:

Flash Point, ° F. Min. 325
Viscosity, S.U.S. @ 210° F. 80 to 90
Viscosity Index, Min. 85
Channel Point, ° F. Max. 0

NOTE: It is permissible to use SAE 140 in extreme high temperature operation.

F. Hydraulic System

A good quality of rust inhibited hydraulic oil or automotive crankcase oil having a viscosity of 210-225 S.S.U. at 100° F. (SAE 10W) is recommended for use in the hydraulic system. NOTE: Do not use an oil that foams.

No specific brand of oil is recommended. Use only products qualified under the above viscosity specification and recommended by reputable oil companies.

G. Pressure Gun Lubricant

Use a ball and roller bearing lubricant with a minimum melting point of 300° F. This lubricant should have a viscosity range so as to assure easy handling in the pressure gun at the prevailing atmospheric temperature. The lubricant must be water proof.

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Proper operation and maintenance of the engine are necessary to obtain the desired results from the lubricating oil.

For additional information regarding engine lubricating oil, contact your "Allis-Chalmers" Construction Machinery Dealer.

B. Air Cleaner

Use the same viscosity oil in the air cleaner as used in the engine crankcase. CAUTION: Do not use an oil that foams.

C. Transmission, Differential, and Final Drives

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Flash Point, ° F. Min.325
Viscosity, S.S.U. @ 210° F.80 to 90
Viscosity Index, Min.85
Channel Point, ° F. Max.0

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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 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 motor scraper 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 motor scraper. 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 motor scraper 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.



Fuel Storage Tank

FIG. 5