



International Harvester

Operator's Manual

TD14A

141 Series

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IH-O-TD14A 141

Operator's Manual

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TD-14A

(141 Series)

Crawler Tractor

1 011 403 R1.

MANUAL PREVIEW

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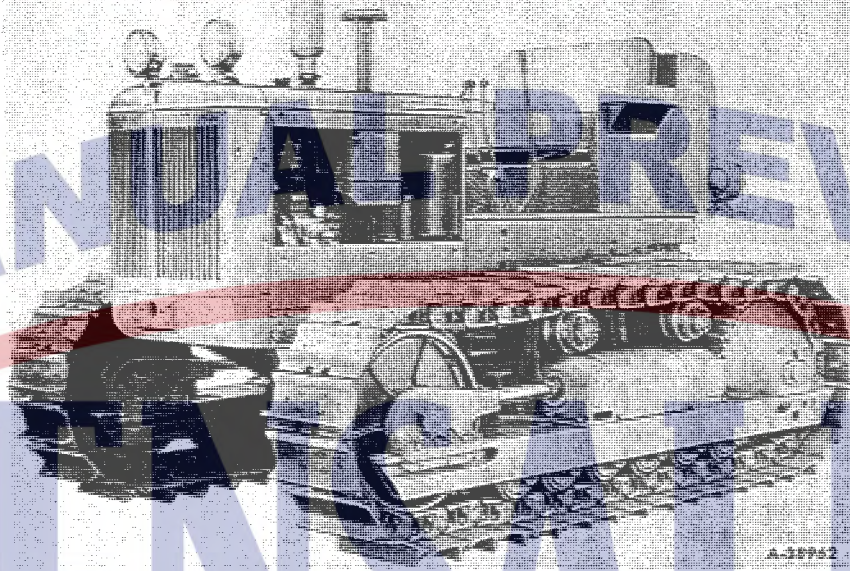
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Left side showing tractor equipped with muffler, and wide tread,
six roller extended track frame attachments.



Right side showing tractor equipped with muffler, and wide tread,
six roller extended track frame attachments.

DESCRIPTION

MAIN COMPONENTS

The TD-14A Crawler Tractor is a full track-laying type tractor. The principal components of the tractor are the engine, engine clutch, transmission, steering clutches, sprocket drives and track assemblies.

Diesel Engine

Engine power is supplied by a full diesel, 4-cylinder in-line engine. Features of the engine are: a 5-bearing, Tocco-hardened crankshaft, replaceable cylinder sleeves, precision-type bearings, full pressure lubrication system, and a thermostat-controlled, centrifugal water pump pressure cooling system.

Engine Clutch

The engine clutch is a heavy-duty, 15-inch, single-plate, hand-operated, over-center type. The release mechanism has an automatic clutch brake to facilitate fast shifting of gears.

Transmission

The transmission is the selective spur-gear type providing six forward speeds and two reverse speeds.

There are three forward and one reverse speeds in the low range, and three more forward and one reverse in the high range. Shifting from one range to the other is controlled by the Hi-Lo gearshift lever.

The gearshift lock provides positive holding of the sliding gears of the transmission and is ideal for operation under heavy load conditions and frequent gear shifting.

Steering Clutches and Brakes

Steering is accomplished through 2 multiple dry-disc, spring-loaded steering clutches, which are actuated by a hydraulic booster operated by hand steering levers.

Steering brakes, operating on the steering clutch drums, make very sharp turns possible. The steering clutches transmit engine power from the bevel gear out to the sprocket drives. These clutches, with brakes, can be adjusted or replaced without disturbing adjacent units.

Sprocket Drives

The sprocket drives consist of sprocket drive gears and pinions which provide a fixed gear reduction and transmit power out to the tracks. Gears and sprockets are ball-bearing mounted on the stationary pivot shaft.

Sprockets are reversible, making it possible to use both sides of the teeth.

Track Assemblies

Track assemblies consist of track chains and shoes driven by sprockets. The chains travel forward over two track idlers and around the front idlers. Five track rollers on the bottom of each track frame carry the weight of the vehicle. Sprockets and idlers are also mounted on the box type track frames.

SPECIFICATIONS AND CAPACITIES

Capacities (U.S. Measure)

Fuel tank	Approx. 61 gallons
Gasoline tank	1-1/3 gallons
Water cooling system	19 gallons
Transmission	6 gallons
Sprocket drive housings (each side)	6 pints
Crankcase pan (including oil filters).	16 quarts
Injection pump	1/2 pint
Air cleaner oil cup	4-1/2 pints
Hydraulic booster steering system	5 quarts

Engine (4-Cycle, Valve-in-Head Diesel)

Cylinders	4
Bore	4-3/4 inch
Stroke	6-1/2 inch
Fuel injection pump	IH
Carburetor	IH
Battery ignition distributor	IH model "H"
Spark plug gap	.023 inch
Valve clearance (engine hot)	.018 inch
Valve clearance (engine cold)	.020 inch

Engine Speed

Full load	1400±10 r.p.m.
High idle	1555±30 r.p.m.
Low idle	500±50 r.p.m.

Engine Clutch

Over-center type (with automatic clutch brake)	15-inch
--	---------

Steering Clutches

Multiple dry-disc, spring-loaded type with hydraulic booster	15-inch
--	---------

Brakes

External (full wrap-around action contracting on steering clutch drums)	15-inch
---	---------

DESCRIPTION

the engine on the gasoline cycle. See *Illusts. 6 and 8*.

When raised it controls the engine speed on the diesel cycle and, when set in a given position, maintains a uniform engine speed under variable loads. Moving the lever upward increases the engine speed, and moving it downward decreases the engine speed.

Engine Clutch Lever

This is the long lever extending up from the left side of the platform in the operator's compartment. See *Illust. 6*. It is used to engage or disengage the engine from the transmission. Pull the lever all the way back, or until a definite over-center action is felt, to engage the clutch, and push the lever all the way forward to disengage the clutch. The clutch must be disengaged to select the desired Hi-Lo position, and to shift gears.

Gearshift Lever

This lever (*Illust. 6*) is used to select the various gear ratios provided in the transmission. There are 3 forward speed positions and 1 reverse speed position. A total of 6 forward speeds and 2 reverse speeds is available by using the Hi-Lo gearshift lever.

The gearshift lock provides positive holding in engagement of the sliding gears of the transmission. It is ideal for operating under

heavy load conditions and frequent gear shifting.

Hi-Lo Gearshift Lever

This lever (*Illust. 6*) has 2 positions to control the high and low speed range of the transmission. When the lever is in the forward position, the transmission gearshift lever can be used to select low speeds in reverse, first, second and third gear. When the lever is moved backward, (toward the seat) the tractor can be shifted to high speeds in reverse, fourth, fifth and sixth gears.

Steering Clutch Levers

These are the 2 long hand levers located directly in front of the operator. See *Illust. 6*. Pulling back on the left lever disengages the left steering clutch which cuts off power going to the left track. All of the engine power is then applied on the right track, causing the tractor to turn to the left. Pulling back on the right lever causes the tractor to turn to the right. A minimum of effort is required to work these hand levers as the steering clutches are hydraulically controlled.

Steering Brake Pedals

These are located on either side of the steering clutch hand levers, coming up through the platform. See *Illust. 6*. Normally, when pulling a load the use of the steering clutch



Illust. 8
Instruments and controls on dash.

OPERATION

Cooling System

Be sure that the water drain valves on the left side of the crankcase, to the rear of the fuel filter base, and at the bottom of the radiator are closed. See *Illusts. 12B and 13*.

Remove the radiator cap by loosening the hold-down clamp, and fill the cooling system with coolant to a level about 1-1/4 inches below the bottom of the filler neck. Refer to "COOLING SYSTEM" on page 45. If the tractor is to be used in freezing temperatures, also refer to "OPERATING IN COLD WEATHER" on pages 16 and 17.

Check the upper and lower radiator hoses for loose connections and leaks.

Check the tension of the fan belt. The tension is correct when the belt can be depressed 1/2 to 3/4 inch by thumb pressure midway between the 2 pulleys. If the belt tension is incorrect, adjust the tension as outlined on page 45.

Electrical System

Check the spark plug cables to be sure that they are securely connected in the distributor cap and to each spark plug.

Check the level and specific gravity of the electrolyte in the batteries. Refer to pages 57 and 60. Service the batteries as instructed on the tag attached to the battery.

Connect the ground strap to the battery positive (+) terminal, *Illust. 10*. Connect the generator cable to the "F" terminal post on the generator, *Illust. 10A*.

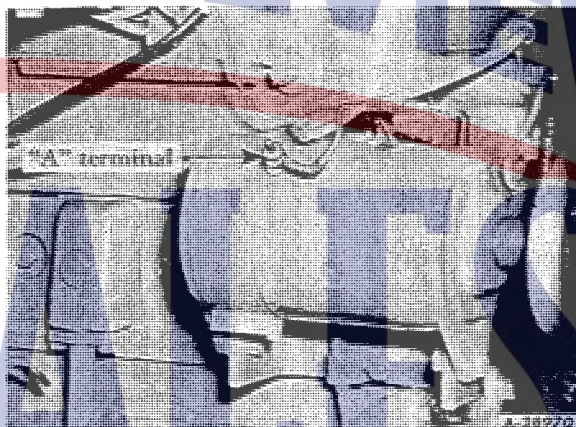
After all cables and wires have been checked and connected, do not start the engine



Illust. 10

Batteries, battery cables, and diesel fuel shut-off valve.

until the generator has been polarized. To correctly polarize the generator to the batteries, place a jumper lead momentarily between the "BAT" terminal of the regulator and the "A" terminal post of the generator. This allows a momentary surge of current to flow through the generator. Failure to do this may result in severe damage to the equipment, since reversed generator polarity can cause the regulator contact points to vibrate, arc and burn, run the battery down and possibly seriously damage the generator.



Illust. 10A

Generator with field cable connected.

Fuel System

Fill the main fuel tank (61 gallons capacity) with clean diesel fuel. Refer to "DIESEL FUEL SPECIFICATIONS" on page 5. Fill the gasoline tank (1-1/3 gallons capacity). Be sure that all pipes are properly connected. Check to see that both the diesel fuel and the gasoline shut-off valves are open. See *Illusts. 10 and 12A*.

Be sure that the water trap and the fuel filters mounted on the left side of the engine to the rear of the injection pump are filled with clean diesel fuel before starting the engine.

When the tractor is new, or in case the fuel lines have been disturbed, the air must be vented from the fuel system. Refer to "Venting the Fuel System" on page 64.

OPERATING PRECAUTIONS

Do not attempt to start the engine by towing or coasting the tractor. To do so may cause serious damage to the engine and transmission.

Do not run the cranking motor for more than approximately 30 seconds at any one time. If the engine fails to start, shut off the ignition