International T-4, T-5, and TD-5 Regular and Low Profile Crawler Tractors

Operator's Manual

1003936R1

Reprinted

CASE IH

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THIS SAFETY ALERT SYMBOL INDICATES IMPORTANT SAFETY MESSAGES IN THIS MANUAL. WHEN YOU SEE THIS SYMBOL, CAREFULLY READ THE MESSAGE THAT FOLLOWS AND BE ALERT TO THE POSSIBILITY OF PERSONAL INJURY OR DEATH.

M171B

If Safety Decals on this machine use the words **Danger, Warning or Caution,** which are defined as follows:

- **DANGER:** Indicates an immediate hazardous situation which if not avoided, will result in death or serious injury. The color associated with Danger is RED.
- **WARNING:** Indicates an potentially hazardous situation which if not avoided, will result in serious injury. The color associated with Warning is ORANGE.
- **CAUTION:** Indicates an potentially hazardous situation which if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices. The color associated with Caution is YELLOW.

If Safety Decals on this machine are ISO two panel Pictorial, decals are defined as follows:

- The first panel indicates the nature of the hazard.
- The second panel indicates the appropriate avoidance of the hazard.
- Background color is YELLOW.
- Prohibition symbols such as  and  if used, are RED.

WARNING

IMPROPER OPERATION OF THIS MACHINE CAN CAUSE INJURY OR DEATH. BEFORE USING THIS MACHINE, MAKE CERTAIN THAT EVERY OPERATOR:

- Is instructed in safe and proper use of the machine.
- Reads and understands the Manual(s) pertaining to the machine.
- Reads and understands ALL Safety Decals on the machine.
- Clears the area of other persons.
- Learns and practices safe use of machine controls in a safe, clear area before operating this machine on a job site.

It is your responsibility to observe pertinent laws and regulations and follow Case Corporation instructions on machine operation and maintenance.

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OPERATION

Tractor Specifications

	T-4, T-4 Low Profile,	T-5, T-5 Low Profile,	TD-5, TD-5 Low Profile,
ENGINE			
Engine Model	C-123	C-135	BD-144/C
Horsepower - Drawbar	28.41	31.46	30.2
Horsepower - Flywheel	34.1	37.87	35.2
No. of Cylinders	4	4	4
Cylinder Type	Wet Sleeve	Wet Sleeve	Wet Sleeve
Cylinder Diameter	3-1/8"	3-1/4"	3-3/8"
Stroke	4"	4-1/16"	4"
Piston Displacement	123 cu. in.	135 cu. in.	144 cu. in.
Compression Ratio	6.8 to 1	7.4 to 1	21.1 to 1
Compression Pressure	160 lbs/ sq.in.	175 lbs/ sq.in.	------
Firing Order	1-3-4-2	1-3-4-2	1-3-4-2
Engine Speeds - Low Idle	425 rpm	425 rpm	500 rpm
- High Idle	2200 rpm	2200 rpm	2200 rpm
- Rated Load	2000 rpm	2000 rpm	2000 rpm
Battery	6 volt	6 volt	12 volt
Distributor Point Gap	.020"	.020"	------
Spark Plug Gap	.023"	.023"	------
Valve Clearance (Intake)	.014"	.014"	.020"
Valve Clearance (Exhaust)	.020"	.020"	.020"
Fuel Pump - (gasoline tractors equipped with timing gear driven hydraulic pump will be equipped with an electrical fuel pump)	Electrical or Mechanical	Electrical or Mechanical	------
Oil Pressure at 1800 r.p.m.	45-55 psi	45-55 psi	25-35 psi
TRANSMISSION			
Standard - selective sliding spur gears - five forward speeds and one reverse			
First	1.48 mph	1.48 mph	1.48 mph
Second	2.26 mph	2.26 mph	2.26 mph
Third	3.58 mph	3.58 mph	3.58 mph
Fourth	4.79 mph	4.79 mph	4.79 mph
Fifth	6.54 mph	6.54 mph	6.54 mph
Reverse	2.12 mph	2.12 mph	2.12 mph
Torque Amplifier Transmission - selective sliding spur gear and planetary transmissions. (NOTE: Following speeds are with the torque amplifier engaged)			
First	1.00 mph	1.00 mph	1.00 mph
Second	1.53 mph	1.53 mph	1.53 mph
Third	2.42 mph	2.42 mph	2.42 mph
Fourth	3.23 mph	3.23 mph	3.23 mph
Fifth	4.31 mph	4.31 mph	4.31 mph
Reverse	1.43 mph	1.43 mph	1.43 mph
Full Reverse Transmission - selective sliding spur gear with reverse ahead of transmission driving shaft (NOTE: Following reverse speeds are with reverser engaged)			
First	1.81 mph	1.81 mph	1.81 mph
Second	2.76 mph	2.76 mph	2.76 mph
Third	4.37 mph	4.37 mph	4.37 mph
Fourth	5.84 mph	5.84 mph	5.84 mph
Fifth	7.98 mph	7.98 mph	7.98 mph

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OPERATION

INSTRUMENTS AND CONTROLS

5. The Instrument Panel Light is controlled by the Light Switch.

6. The Oil Pressure Gauge for engine lubricating oil. The pointer should be past the first mark above zero whenever the engine is running above low idle. If not, STOP the engine and investigate.

7. Engine Speed Control Lever or Throttle: When ready to start, the lever should be from a third to a half of the way up; however, practical experience will clarify this for you. With the lever in a set position, a uniform engine speed, under variable load conditions, will be maintained. Allow the engine to idle and warm-up properly before fully advancing the speed. On the diesel model tractor this lever, in the lowest position, will stop the engine.

8. The Ammeter shows charge or discharge of the battery. Above low idle there should be a "charge" reading. If not, investigate. If a heavy discharge is shown with all switches off, disconnect the battery to prevent damage or fire.

9. The Starter Switch operates the cranking motor or starter. Release the switch when the engine starts. The diesel engine, when cold, will fire for several seconds before running unaided. DON'T operate the starter with the engine running, or crank for more than fifteen seconds in any two minutes.

10. When the Ignition Switch Key is on, power is supplied to the starter switch and gasoline ignition.

11. The Engine Choke: Pull out for cold starting, push in as soon as possible.

A fuse is fitted in the lighting circuit close to the voltage regulator - 10 amp. for diesel, 20 amp. for gas.

STEERING HANDLES

Pull either lever half back to disconnect the drive on that side. Pull hard back to apply the brake for a pivot turn.

CLUTCH PEDAL

Always de-clutch fully to change gears, and avoid riding the pedal. When a constant running Power Take-Off is fitted, partial depression will stop the tractor, and further movement stops the Power Take-Off.

BRAKE PEDAL

This pedal operates both brakes to hold the tractor on a grade or when operating the Power Take-Off or Belt Pulley for stationary equipment.

BRAKE LOCK

The brake lock may be engaged with a pin in the side of the housing to hold the brakes on. Do NOT lock in freezing weather.

GEAR SHIFT LEVER

The gear shift lever selects five forward and one reverse gears as shown on the top of the transmission cover.

POWER TAKE-OFF

The tractor has been designed to operate 1000 r.p.m. machinery directly from the transmission power take-off shaft. If 540 r.p.m. equipment is to be used, a speed reducer attachment must be added. Trailing type power driven machinery will require a special drawbar extension which will vary, depending on the r.p.m. design of the machinery to be used.

The power take-off is engaged by pushing the power take-off lever down, or disengaged by pulling the lever up. This lever is situated near the left foot plate.

There are three different types of power take-off available for the crawler tractor. The first type is a transmission driven power take-off, controlled by the engaging or disengaging of the engine clutch, and applicable to tractors equipped ONLY with a standard transmission.

The second is a transmission type power take-off, applicable to tractors equipped with a Torque Amplifier or Reverser Unit, and again controlled by the engaging or disengaging of the engine clutch. The speed and direction of the power take-off shafts are not affected by the engaging of the Torque Amplifier or Reverser Units.

The third is a constant running power take-off, again applicable to tractors equipped with a Torque Amplifier or Reverser Unit, but controlled by the engine clutch pedal. Partial depression of this pedal disengages the engine clutch, stopping the tractor but allowing the power take-off to continue operating. Full depression of the engine clutch pedal will stop both the tractor and the power take-off.

CAUTION: When operating the power take-off be certain the master safety shield covers the exposed shaft. Always STOP the power take-off before dismounting from the tractor.

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OPERATION

OPERATING TRACTOR—Continued

STARTING
(Diesel)

Place gear shift in neutral, turn on fuel shut-off, raise speed control lever a third to a half way, switch on, press the glow plug switch until indicator glows red, press starter. In cold conditions keep the glow plug switch pressed until the exhaust smoke clears.

(Gasoline)

Place gear shift in neutral, turn on fuel shut-off, raise speed control lever a third way, switch on, pull out choke, press starter.

STOPPING

Do not stop the engine right after a period of hard work. Allow it to idle below half speed for a few minutes, so that valves and pistons may cool off slowly and avoid risk of damage.

To stop the diesel engine push the speed control lever right down and turn key switch off. To stop the gas engine switch off.

STEERING UNDER DIFFICULT CONDITIONS

CAUTION: When travelling downgrade with a load pushing the tractor, steering can be reversed. To avoid this, keep the foot brake applied to reduce speed when making a turn. Quick, short pulls at the levers will show whether steeing is normal.

TOWING

Attach a cable to the front frame casting or, in an emergency, to the drawbar. Disengage the engine clutch, place the gear shift in neutral and use the steering levers to assist in steering.

IMPORTANT: Never exceed five miles per hour.

Towing in neutral allows bearings to run dry since gears are not turning in the transmission. Every ten minutes, tow for one minute in fifth gear with engine clutch disengaged. Engage reverser also if fitted. Operate torque amplifier if fitted.

ADVERSE WEATHER OPERATING CONDITIONS

When adverse weather operating conditions prevail, such as cold or wet weather, certain precautions must be observed.

If temperatures fall to +32°F, refer to the sections on antifreeze, fuel, lubrication chart and Cold Weather Operations in the maintenance section of this manual.

When wet conditions occur refer to Wet Weather Operations in the maintenance section of this manual.

ATTACHMENTS

FRONT END WEIGHTS - (not applicable with Front Pull Hooks)

REAR WEIGHTS AND REAR WEIGHT BASE GAUGE WIDTHS - 38", 48", 68".

TRACK FRAME POSITION ATTACHMENT - (not applicable with three point hitch and cannot be used on 38" gauge track).

TRACK SHOES - 10", 12", overlapping flat-low profile 3 grouser shoes for 38", 48" or 68" gauge track
10" snow shoes, 10" clipped corner shoes for 38" gauge tractors
12" square corner, 12" clipped corner, 12" snow shoes, 14" square corner, 14" clipped corner, 14" snow shoes for 48" or 68" gauge tractors.

HEAVY DUTY CRANKCASE GUARD

HEAVY DUTY TRANSMISSION CASE GUARD

HEAVY DUTY RADIATOR GUARD

HEAVY DUTY HEADLIGHT GUARD

LIGHTS - 2 front, dash light, combination rear and tail light.

DELUXE SEAT - (not applicable to tractors with three point hitch)

TRACK CHAIN GUIDES

FRONT PULL HOOK - not applicable with front end weights.

POWER TAKE-OFF - constant running for use in conjunction with torque amplifier or for use in conjunction with full forward and reverse transmission.

Transmission power shaft driven. Transmission type, available only for tractors equipped with torque amplifier or reverser.

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LUBRICATION—DIESEL

AFTER EVERY 10 HOURS OF OPERATION

Ref. No.	Name and Location of Lubrication Points	See Illust.
1.	Transmission dip stick. Check level of oil and when necessary, add I. H. Hy-Tran Fluid up to the proper level on the dip stick. Refer to chart on page 20.	14B & 14C
2.	Engine crankcase dip stick. Check level of oil in the crankcase and when necessary, add oil to the "MAX" mark on the dip stick. Refer to chart on page 20.	13B
3.	Air cleaner oil cup. Clean cup and refill with 1 Imperial pint or 1-1/4 U. S. pints of new oil of the correct viscosity. See chart on page 20.	13A
4.	Crankcase oil breather. Remove and clean in kerosene.	13A
5.	Air intake cap and screen. Remove and clean in kerosene.	13A

AFTER THE FIRST 50 HOURS OF OPERATION

6.	Hydraulic fluid filter. Clean filter with a stiff brush using kerosene or other solvent. Refer to "Hydraulic Fluid Filter" on page 20.	14A

AFTER EVERY 50 HOURS OF OPERATION

7.	Engine clutch. Apply 2 or 3 strokes of the lubricator. Never use a fluid lubricant as it may get on the clutch facings. Do not over lubricate.	13A
8.	Diesel fuel water trap. Take apart and clean. Refer to page 25.	

AFTER EVERY 100 HOURS OF OPERATION

9.	Front idlers. Use the lubricator. Add lubricant until resistance is felt on the lever. If the lubricant is added beyond this point, it will be forced past the seal, causing a waste of lubricant. Lubricate more frequently if the seals are worn or when the tractor is being operated in water or under excessively dusty conditions. Refer to chart on page 20 for lubricant.	14A
10.	Top track idlers (5 roller track only). Use the lubricator. Add lubricant until resistance is felt on the lever If the lubricant is added beyond this point, it will be forced past the seal, causing a waste of lubricant. Lubricate more frequently if the seals are worn or when the tractor is being operated in water or under excessively dusty conditions. Refer to chart on page 20 for lubricant.	14A

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FINDING TROUBLE—DIESEL

TROUBLE	POSSIBLE CAUSE	POSSIBLE REMEDY
ENGINE HARD TO START	A. Using wrong fuel.	A. Drain fuel tank, **sediment bowl** and fuel system, refill with diesel fuel.
	B. Fuel lines clogged.	B. Check fuel lines.
	C. Water in fuel.	C. Drain tank, **sediment bowl** and filter (use new fuel).
	D. Water in cylinders.	D. Check cylinder head gasket and bolts and look for clogged drain hole in exhaust manifold.
	E. Defective battery or starting motor.	E. Check and service. *
	F. Defective glow plug or indicator resistor.	F. Check and service. *
	G. Lack of compression.	G. Adjust valve clearance and check cylinder head gasket. *
	H. Flywheel ring gear teeth broken.	H. *
	I. Lubricating oil of wrong viscosity.	I. Drain and refill with proper lubricant - (refer to "Lubrication Guide").
	J. Gears engaged.	J. Put gearshifter lever in the neutral position.
	K. Internal seizure.	K. Turn engine over with nozzle bodies removed and engine clutch disengaged. If the engine does not turn easily, internal damage is indicated. *
	L. Air intake restricted or exhaust system clogged.	L. Service air cleaner. (See page 13). Clean the exhaust system.
ENGINE OPERATES IRREGULARLY OR KNOCKS	A. Poor grade fuel or water in fuel.	A. Drain and use a good grade of clean fuel. *
	B. Engine overheating.	B. Check the cooling system and fan belt.
	C. Engine valves at fault.	C. Check valve clearance.
	D. **Black smoke from exhaust.**	D. Engine overloaded. Reduce load. Check fuel delivery and lubricant used.
	E. Excessive carbon in engine.	E. *
	F. Loose piston pin or bearings.	F. *
	G. Broken rings or loose pistons.	G. *
	H. Worn connecting rod and main bearings.	H. *
	I. Injection pump governor out of adjustment.	I. *
	J. Injection pump governor linkage worn or sticking.	J. Check linkage. *

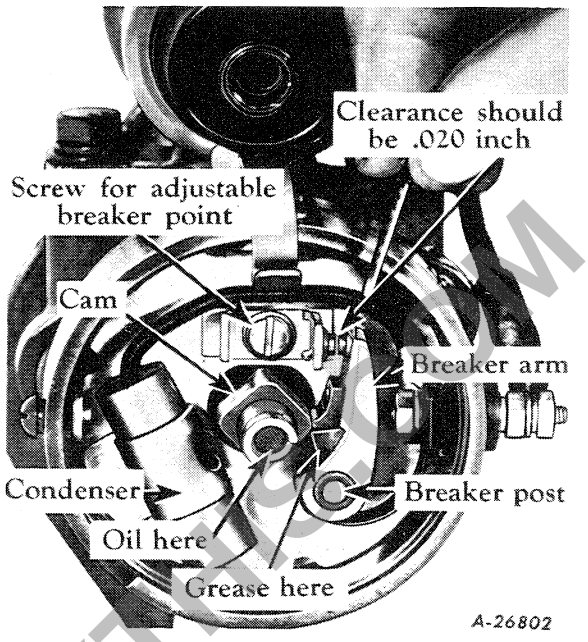
* Consult your International Harvester Dealer.

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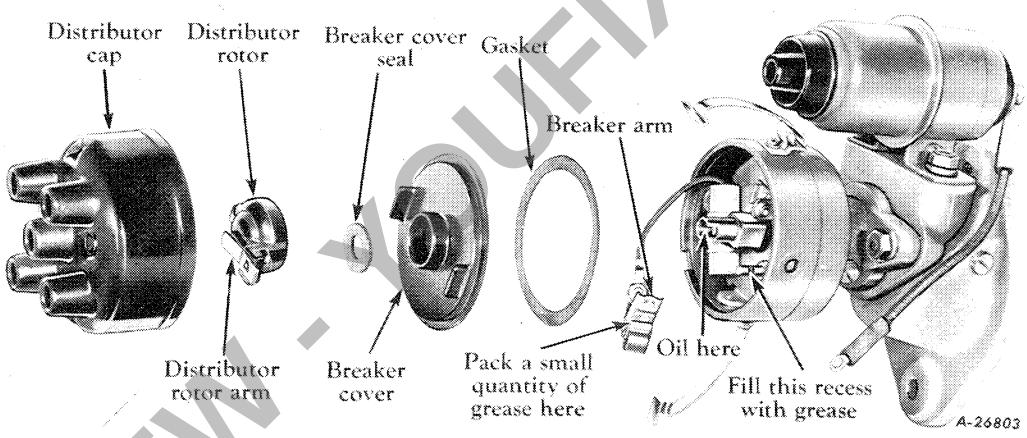
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DISTRIBUTOR POINT - GASOLINE MODEL - Continued

Check the condition of the breaker points for build-up or lip formation. If present, the points must be dressed before the point opening can be checked or set. Check the opening between the breaker points with a feeler gauge as shown in Illust. 24A The point opening should be .020 inch when the rubbing block is on the high part of the cam. If the gap is not correct, adjust it by loosening the screw holding the adjustable point. Then move the point forward or away from the point on the breaker arm until the gauge slips snugly into the opening. After the adjustment has been made, tighten the screw.



Illust. 24A



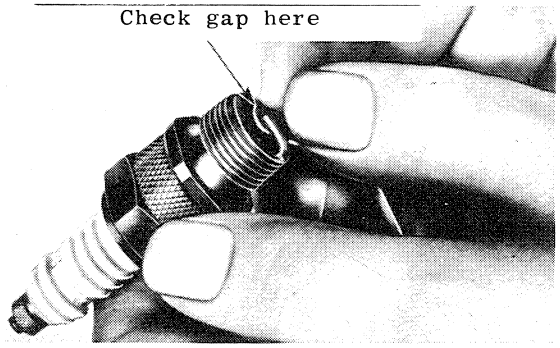
Illust. 24B
Distributor partially disassembled for cleaning

SPARK PLUGS

IMPORTANT: Remove all dirt from the base of the spark plug before removing the plugs from the engine.

Every 200 to 300 hours of operation remove plugs for cleaning and checking the gap between the electrodes. To prevent damage to the porcelain always use a spark plug wrench when removing or replacing plugs.

The gap between the electrodes should be .023 inch. Always bend the outer electrode when adjusting. Bending the centre electrode may damage the insulator. If the spark plugs are improperly gapped the engine will be difficult to start.



Illust. 24C

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