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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FINDING TROUBLE

PROBLEM	PROBABLE CAUSE	PROBABLE REMEDY
SMOKY EXHAUST	D. Worn valve guides, pistons and sleeves. Sticky or worn oil control rings.	D. *
	E. Distributor not properly timed to engine.	E. Check and adjust timing. See pages 38 and 39.
ENGINE OVERHEATS	A. Insufficient water in the cooling system.	A. Check level of water in radiator and add water if necessary. CAUTION: Do not pour cold water in an overheated engine or possible cracking of the cylinder head may result.
	1. Radiator cap loose.	1. Tighten radiator cap.
	2. Loose hose connections.	2. Tighten hose connections.
	3. Water pump leaks.	3. *
	B. Fan belt slipping.	B. Check belt tension and adjust. See page 34.
	C. Cooling system clogged.	C. Flush out radiator and engine. See page 33.
	D. Dirt and trash on outside of radiator core.	D. Clean all dirt and trash from between the radiator tube fins with air or water pressure.
	E. Thermostat inoperative.	E. Remove and replace if necessary.
	F. Lack of lubricating oil.	F. Add sufficient oil to bring up to specified mark on crankcase oil level gauge.
	G. Engine overloaded.	G. Reduce load.
	H. Water pump defective.	H. Repair or replace. *
	I. Clogged oil filter.	I. Replace filter element.
EXCESSIVE LUBRICATING OIL COMSUMPTION	A. Oil leaks.	A. Check and service where necessary-at valve lever housing, valve cover, side plates, dust seal at rear of oil pan, crankcase front cover, oil seals at front and rear of crankshaft, oil pan, oil filter, and engine oil pressure indicator tube.
	B. Worn valve guides, worn piston rings, sleeves and pistons; and clogged oil control rings.	B. Excessive smoke coming from the breather pipe or a smoky exhaust indicates an excessive amount of oil is being used. *
	C. Improper lubricant.	C. Use only lubricant specified in the "LUBRICATION GUIDE" on pages 20 to 24.
	D. Overheated engine.	D. Refer to "ENGINE OVERHEATS" above.
	E. Excessive amount of oil in crankcase.	E. Check oil level and drain any excess oil.

* Consult your International Harvester Dealer.

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OPERATION

OPERATING THE POWER TAKE-OFF - Continued

Tractors equipped with the standard five speed transmission will only accommodate the standard transmission driven power take-off, whereas tractors equipped with either a torque amplifier or reverser attachment will accommodate either the standard transmission type or the constant running power take-off. As both the latter power take-off units are driven by the engine countershaft, neither the speed nor the direction of rotation are affected by the torque amplifier or reverser attachments.

Both the standard power take-off units are directly controlled by the engine clutch, that is when the engine clutch is disengaged, the power take-off is also disengaged. However, tractors equipped with the constant running power take-off can be started or stopped in any of the forward speeds or the reverse speed without affecting the speed of the power take-off shaft. Power is transmitted direct from the engine through the second stage of a large capacity two stage clutch to the power take-off shaft. Partial depression of the clutch pedal disengages the engine clutch but allows the power take-off to continue operation, whereas further depression (full travel) also disengages the second stage of the clutch and stops the power take-off shaft. This feature is especially important when baling or combining heavy bunched windrows or crops.

ENGAGING AND DISENGAGING THE STANDARD AND CONSTANT RUNNING POWER TAKE-OFF UNITS

Tractor Standing Still

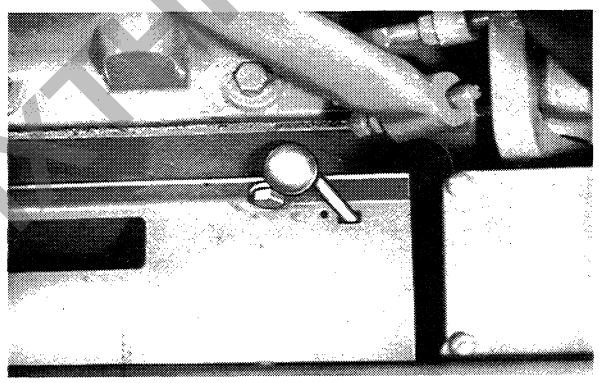
1. Make sure the gearshift lever is in the neutral position.

2. Move the engine control throttle to the low idle position.

3. Depress the clutch pedal to disengage the engine clutch.

4. Push the power take-off control lever to the down position. Be sure the clutch is disengaged before engaging the power take-off control lever.

5. Slowly release the clutch pedal.



Illust. 15A HA-4169

Tractor in Motion

Follow the first four steps outlined above, then while keeping the clutch pedal depressed (fully disengaged), advance the engine throttle and engage the gear shift in the particular gear to give the desired speed. Slowly release the clutch pedal and the tractor will start in motion with the power take-off in operation.

To disengage the power take-off, pull the control lever to the upper position. It is not necessary to depress the clutch pedal in order to disengage the power take-off.

HYDRAULIC SYSTEM

The crawler tractor can be equipped with a completely self-contained hydraulic system for operating either the three point hitch linkage or a remote control system for operating various trailing implements. This unit provides hydraulic power for raising, lowering and adjusting the working depth of either direct mounted or trail behind implements. Implements can be regulated or adjusted any time the engine is running as the hydraulic system is entirely independent of any clutch movement such as when changing gears or when operating the power take-off.

The pressure loaded, gear type hydraulic pump is mounted on the governor housing and is driven by the governor drive gear. The pump draws oil from the transmission case and delivers it under pressure to the control valve which in turn operates the hydraulic cylinder. Oil for the hydraulic system is stored in the transmission case and acts as a lubricant for the transmission as well as supplying oil to the hydraulic system.

A three way valve with a single control lever is used in conjunction with the three point hitch system, whereas a four way valve, also with a single control lever is used when the tractor is equipped with the remote control system. A combination valve with two control levers is available for operating both the three point hitch and the remote control systems from the same tractor.

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OPERATION

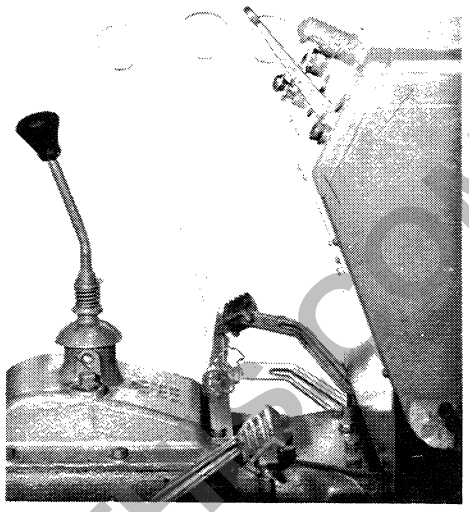
OPERATING THE REVERSER

The reverser unit is a manually operated unit working in conjunction with the transmission. It increases all transmission gear speeds by approximately 20%. When tractors are equipped with the reverser the transmission gearshift lever is used only as a gear speed selector as the reverser controls the forward, neutral or rearward motion of the tractor.

The reverser lever can only be shifted when the engine clutch pedal is depressed and the engine clutch is disengaged. After disengaging the engine clutch, select the desired transmission gear speed, shift the lever into the forward or rearward position and slowly release the clutch pedal, engaging the engine clutch.

The forward position of the lever operates the tractor under normal transmission operation, allowing five speeds forward and one reverse, whereas the rear position of the lever changes the selected transmission gear speed from a forward speed to a reverse speed, thus operating the tractor on five reverse speeds and one forward.

The neutral position of the reverser unit disengages power to the transmission, stopping any forward or rearward motion of the tractor, therefore allowing the operator to dismount while idling the tractor without first placing the transmission gear shift lever in neutral.



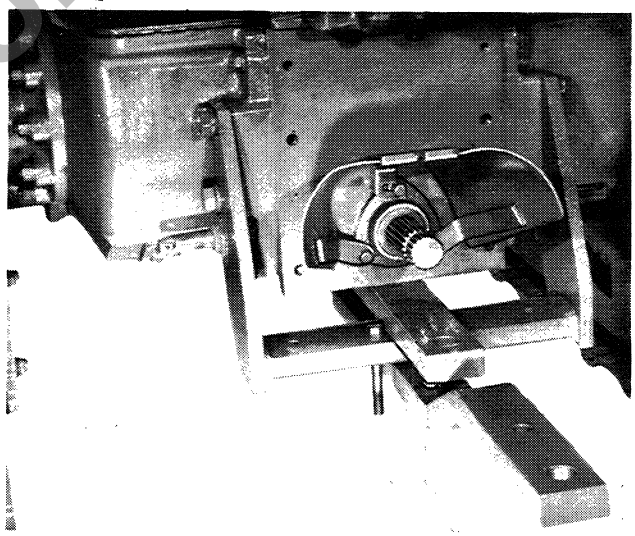
Illust. 14A HA-3984

OPERATING THE POWER TAKE-OFF

To operate power driven machines, a special drawbar extension must be attached to the lower side of the swinging drawbar as shown in Illust. 14B. Also, center the drawbar directly under the power take-off shaft and secure in position by inserting a pin or bolt in the drawbar support to either side of the drawbar.

IMPORTANT: The speed of the output shaft on both the standard and constant running power take-off units is 980 r. p. m. when the engine is running at the rated load of 2000 r. p. m.

CAUTION: Only operate power driven machines designed to run at 1000 r. p. m. with this tractor.



HA 4219

Illust. 14B

SAFETY FIRST: When operating the power take-off, be sure that the master shield is always in place covering the power take-off exposed shaft.

When the power take-off shaft is not in use, always keep it covered with the power take-off shaft guard.

Stop the power take-off before dismounting from the tractor.



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LUBRICATION

The following illustrations and charts show where and how often to lubricate your machine under normal operating conditions. However, when operating in extreme conditions such as excessive cold, heat and dust, the tractor requires more frequent servicing.

The symbols shown in the illustrations and charts indicate the intervals of lubrication. Reference numbers shown inside the symbols in the illustrations correspond to the reference numbers shown in the charts. Refer to both the illustrations and charts when lubricating your machine.

NOTE: Use pressure-gun grease (chassis lubricant) for all lubrication unless otherwise specified.

▲ 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 24.	23B & 23C
2.	Engine crankcase dip stick. Check level of oil in the crankcase and when necessary, add oil to the "FULL" mark on the dip stick. Refer to chart on page 24.	22A
3.	Air cleaner oil cup. Clean cup and refill with 3/4 Imperial pint or 7/8 U. S. pint of new oil of the correct viscosity. See chart on page 24.	22B
4.	Crankcase oil breather. Remove and clean in kerosene.	22A
5.	Air intake cap and screen. Remove and clean in kerosene.	22B

● 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 44.	23A

● 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.	22B
8.	Fuel strainer and water trap. Take apart and clean. Refer to page 35.	22A & 35B

⬟ AFTER EVERY 100 HOURS OF OPERATION

9.	Front idlers. Use the lubricator. Add lubricant until resistance is felt on the lever. 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 24 for lubricant.	23A
10.	Top track idlers (5 roller track only). Use the lubricator. Add lubricant until resistance is felt on the lever. 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 24 for lubricant.	23A

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☐ International T4 Crawler Tractor

☐ International T5 Crawler Tractor

OWNER'S COPY

DELIVERY REPORT

(This copy to be retained by owner.)

Tractor Serial No._____ (See Illust. 1B)

Engine Serial No._____ (See Illust. 1C)

Delivered to_____ Purchaser's Name

Address_____ Street and No. or R.F.D. and Box No.

_____ Town

_____ Province or State

_____ Date 19____

Tractor being replaced if any:

Make_____ Age_____ (Years) Model_____

Number tractors owned, including new purchase_____

Check the Major Use Only for this tractor and complete information under heading:

1. Type work_____
2. List below special duty equipment to be used:

Equipment_____ Make_____ Model_____

Equipment_____ Make_____ Model_____

PREDELIVERY SERVICE—Prior to delivery of the above tractor the following checks and tests were made and corrective action taken where necessary:

- ☐ Shortage or Damage in Shipment
- ☐ Extra Equipment and Accessories Checked Against Purchase Order
- ☐ Engine Oil Level
- ☐ Air Cleaner Oil Level
- ☐ Transmission Oil Level with or without Hyd.
- ☐ Final Drives, Oil Level
- ☐ Cooling System Level
- ☐ Water Level and Gravity of Battery Checked When Installed
- ☐ Engine Oil Pressure
- ☐ Cranking Motor
- ☐ Generator Charging
- ☐ Lights
- ☐ TA Clutch Linkage
- ☐ 3-Point Linkage
- ☐ PTO Operation
- ☐ Torque Cylinder Head, Engine Hot
- ☐ Adjust Valves, Engine Hot
- ☐ Engine Operation
- ☐ Check Radiator Coolant
- ☐ Gear Shifting, All Speeds
- ☐ Reverser for Proper Operation
- ☐ Steering Clutch Adjustment
- ☐ Steering Brake Adjustment
- ☐ Foot Brake Adjustment
- ☐ Clutch Pedal Adjustment
- ☐ Tracks for Correct Tension and Alignment
- ☐ Hydraulic Valves for Correct Operation
- ☐ Test Drive for General Operation
- ☐ Complete Lubrication of Tractor
- ☐ Clean and Polish

DELIVERY SERVICE—At time of delivery the importance of the Operator's and Maintenance Manuals was explained and, with them as a guide, instruction was given as indicated by check marks:

- ☐ Precautions with New Tractor
- ☐ Lubricating of Entire Tractor
- ☐ Fuel and Lubricant Specifications
- ☐ Checking Crankcase Oil Level
- ☐ Checking Transmission Oil Level with or without Hyd.
- ☐ Checking Final Drive Oil Levels
- ☐ Care of Air Cleaner and Breathers
- ☐ Servicing Oil Filter
- ☐ Servicing Water Trap & Fuel Strainer
- ☐ Starting, Stopping & General Operation
- ☐ Adjustment of Engine Clutch Pedal
- ☐ Adjustment to TA Linkage
- ☐ Adjustment of Steering Clutches
- ☐ Adjustment of Steering Brakes
- ☐ Adjustment of Foot Brake
- ☐ Care of Ignition System
- ☐ Care of Generator
- ☐ Care of Battery
- ☐ Track Care and Adjustment
- ☐ Hot Weather Operation
- ☐ Cold Weather Operation
- ☐ Drawbar Adjustments
- ☐ Three Point Hitch Features
- ☐ Safe Hitching Practices
- ☐ Care of Cooling System
- ☐ Care & Use of Hydraulic System
- ☐ Care of Fuel System
- ☐ Storing Tractor
- ☐ Starting Tractor After Storage
- ☐ Discuss Down-Hill Operation with TA
- ☐ Caution on Using Crawler Tractor When Used to Wheel Tractor
- ☐ Tightening Nuts and Bolts
- ☐ Keeping Tractor Clean

The customer's signature below certifies that the tractor was delivered to him in a satisfactory condition and that he received instruction as to its proper operation and maintenance.

Appointment for after-delivery inspection (10 to 30 days after) was made for_____ Date

Signed_____ Customer

Signed_____ Dealer

By_____

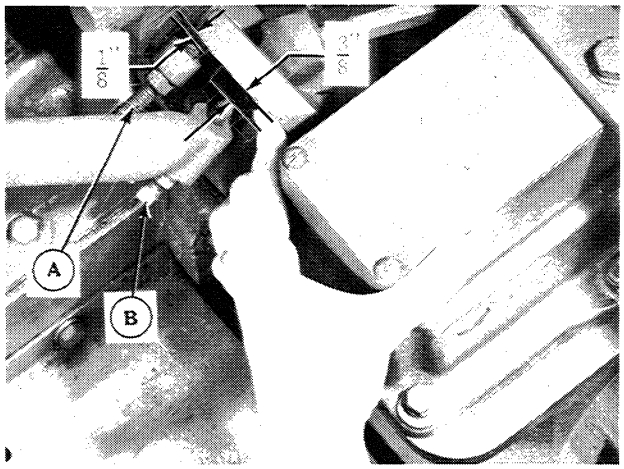
By_____

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MAINTENANCE

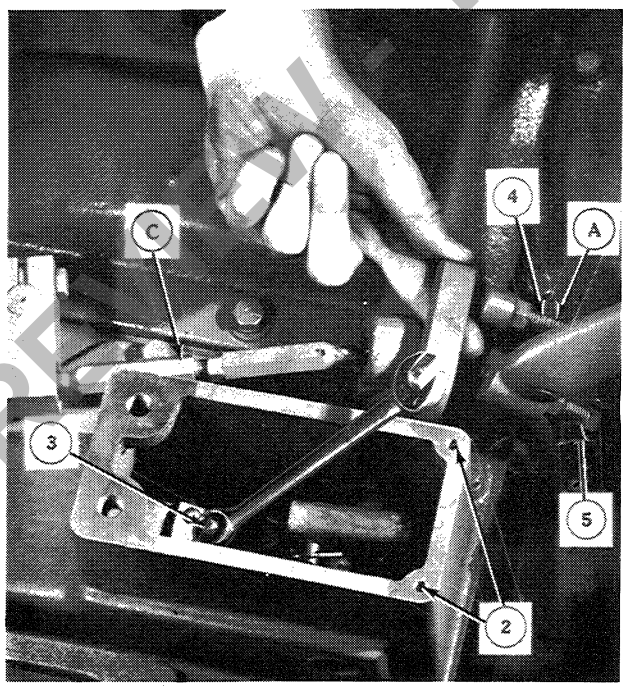
BRAKE AND STEERING CLUTCH ADJUSTMENT - Continued



Illust. 47A HA 4226

First check the clearance between the brake actuating lever (when pulled back to the end of its free play) and the end of the set screw "A" in the brake arm. A clearance of 1/8 to 3/16" should be maintained at this point. If adjustment is required first loosen the locking nut, then adjust the set screw "A" until the 1/8 to 3/16" clearance is obtained with the actuating lever held in the rear position.

After the brake bands have been adjusted, adjust set screw "B" in the steering lever until there is a minimum clearance of 3/8" between the brake actuating lever (when in the forward position) and the end of the set screw. This dimension must be maintained to ensure the steering clutches are disengaged before the brake bands are applied.

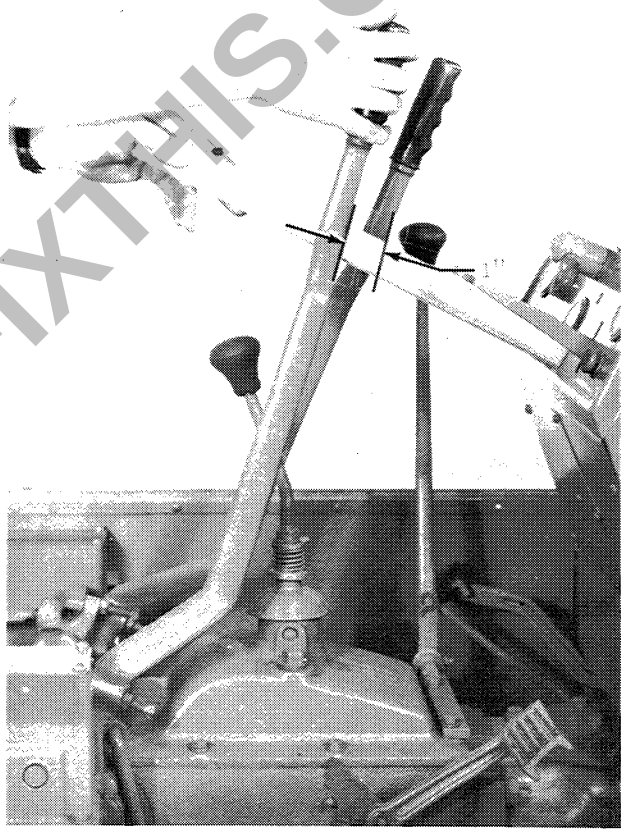


Illust. 47B HA 4002

Adjust the steering clutch push rods as indicated at "C" until there is a minimum of 1" of free play at the upper ends of the steering levers.

Whenever set screw "A" is adjusted, it will also be necessary to readjust set screw "B" accordingly in order to obtain the necessary 3/8" clearance.

NOTE: When the set screw "A" has been adjusted to the point where the brake actuating arm strikes the base of the steering lever on depressing the foot pedal, it will then be necessary to obtain further adjustment in the following manner:



Illust. 47C HA 4001

1. Loosen the locking nut, then slacken off set screw "A" until the end is flush with the brake arm.

2. Remove the inspection cover from the steering clutch housing.

3. Tighten the brake band adjusting nuts one-half turn at a time until the brake actuating lever (when held in the rear position) is approximately 1/4" from the brake arm.

4. Adjust the set screw "A" until positioned 1/8 to 3/16" from the brake actuating lever.

5. Readjust set screw "B" in the steering lever until the end is positioned 3/8" from the brake actuating lever when in the forward position.

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TO THE OWNER

The purpose of this manual is to assist you in realizing the benefits you anticipated when you purchased this International Harvester product. Literally thousands of people have contributed to the design and production of this product and its delivery to you. They have an interest in its successful performance and have provided this manual to give you the benefit of the experience they have gained through years of field testing and normal usage of this and similar products.

The way you operate and the care you give this product will have much to do with its successful performance. This manual has been carefully prepared and the information arranged and illustrated to make it as easy as possible for you to find the information you wish. It will pay you to read the entire manual carefully before operating and keep it handy for future reference. Your International Harvester Dealer will be glad to answer any further questions you may have on the operation of this product.

It is the policy of the International Harvester Company to improve its products whenever it is possible and practical to do so. We reserve the right to make changes or add improvements at any time without incurring any obligation to make such changes on products sold previously.

All illustrations and descriptive matter in this publication apply to International Harvester products sold under the McCormick, McCormick-International, McCormick-Deering, or McCormick-Deering International trade name.

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