STANDARD TORQUE DATA FOR INCH NUTS AND BOLTS— FOOT POUNDS

Recommended torque for all Standard Unplated Nuts and Bolts, provided:

A. Surface finish is oxide coated, oil quenched or bright.

B. All thread surfaces are clean and lubricated with SAE-30 engine oil or equivalent (See NOTE.)

C. Joints are rigid, that is, no gaskets or compressible materials are used.

D. When reusing nuts or bolts use minimum torque values.

NOTE: Multiply the standard torque by:
.65 when finished jam nuts are used.
.70 when Molykote, white lead or similar mixtures are used as lubricants.
.75 when phosphate coated and oiled bolts or nuts are used.
.85 when cadmium or zinc dichromate bolts or nuts are used.
.90 when hardened surfaces are used under the nut or bolt head (this applies to standard unplated hardware only).

1 FOOT POUND = 1.355 NEWTON METERS

Bolt or Stud Diameter	Type 1 Studs Only		Type 1 Bolts 6" length or less		Type 1 Bolts longer than 6"		Type 5 (all lengths)		Type 8 (all lengths)			
									Only when used† in cast (gray) iron		All other applications	
Inches	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
1/4	5	6	5	6	3	3	9	10	11	13	12	14
5/16	12	13	12	13	6	7	19	21	24	27	27	30
3/8	21	24	21	24	11	13	33	37	43	47	45	50
7/16	35	38	35	38	19	21	53	60	69	76	75	85
1/2	52	58	52	58	29	32	80	90	104	117	115	130
9/16	70	80	70	80	41	46	115	130	150	170	165	185
5/8	98	110	98	110	57	63	160	180	210	230	220	250
3/4	174	195	174	195	100	112	290	320	350	390	400	450
7/8	300	330	162	181	162	181	420	470	570	630	650	730
1	420	470	250	270	250	270	630	710	850	950	970	1090
1-1/8	600	660	350	380	350	380	850	950	1200	1350	1380	1550
1-1/4	840	940	490	540	490	540	1200	1350	1700	1900	1940	2180
1-3/8	1100	1230	640	710	640	710	1570	1760	2300	2500	2600	2800
1-1/2	1470	1640	850	940	850	940	2000	2300	3000	3300	3300	3700
1-3/4	2350	2450	1330	1490	1330	1490	3300	3700	4700	5200	5300	6000
2	3500	3900	2000	2200	2000	2200	5000	5500	7000	7800	8000	9000

†When bolt penetration is 1-1/2 times the diameter of the bolt.

BOLT TYPE IDENTIFICATION CHART

IH TYPE	S.A.E. GRADE	DESCRIPTION	BOLT HEAD MARKING *
1	Equivalent 1 or 2	WILL HAVE A IH STANDARD MONOGRAM IN THE CENTER OF THE HEAD Low or Medium Carbon Steel Not Heat Treated	
5	5	WILL HAVE A IH AND 3 RADIAL LINES Quenched and Tempered Medium Carbon Steel	
8	8	WILL HAVE A IH AND 6 RADIAL LINES Quenched and Tempered Special Carbon or Alloy Steel	

*The center marking identifies the bolt manufacturer. The IH monogram is currently used. Some bolts may still have an IH or a raised dot which previously identified IH bolts.

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The fuel tank water drain valve is located on the left front bottom of the fuel tank and the bottom of the auxiliary fuel tank.

Allow time for water and sediment to settle to the bottom of the tank. Open the valve and drain the tank until uncontaminated fuel appears. Close the valve.

Venting the Fuel System

All air must be eliminated from the fuel lines before the engine will start and operate properly. All plugs and fuel line connections must be tight to prevent leakage and to prevent air from entering the fuel system.

The system must be vented under the following circumstances:

Before starting an engine which has not been operated for an extended period of time.

When the fuel filters have been replaced.

When an engine, in operation, runs out of fuel.

When any connections between the injection pump and fuel tank have been loosened or broken for any reason.

To vent the fuel system proceed as follows:

Open the fuel tank shut-off valve. Unlock the plunger of the hand priming pump, which is attached to the rear of the injection pump, by loosening the wing nut until the locking strap can be rotated away from the pump handle.

There are two methods for bleeding air from the system:

A. Pump the hand priming pump until increased resistance is felt, then pump for an additional 100 strokes. Lock the hand priming plunger in place.

B. Loosen the nut on the flexible supply hose at the fuel filter header. Pump the hand priming pump until escaping fluid is free from air bubbles. Tighten the nut on the flexible supply hose. Lock the hand priming pump plunger in place.

Fuel Filters

The primary and final filters are spin-on type fuel filters. These filters cannot be cleaned and should not be disturbed except when it becomes necessary to replace them.

Only filters recommended by your International Harvester dealer should be used, to be sure that they are both effective and capable of withstanding the required suction or pressure without damage to the filter element.

The life of the filters depend upon the amount of dirt, water, sediment and insoluable fuel residue that they must remove. It is important that precautions be taken to keep the fuel clean and free from water during storage and in handling. This will lengthen the life of the filters.

Fine particles of dirt in the fuel are extremely destructive to the fuel injection pump. To insure clean fuel entering the fuel injection pump, the diesel fuel goes through two stages of filtration.

The fuel, after leaving the fuel tank, passes through the shut-off valve and into the primary filter to the fuel supply pump, and back to the final filter. The fuel is then delivered to the injection pump to be metered.

When to Replace Filters

Change the primary fuel filter when the engine is misfiring or a loss of power is evident. If these symptoms persist, replace the final filter. It is necessary to vent the system after each operation. Refer to "Venting the Fuel System".

Precautions When Replacing Fuel Filters

Cleanliness cannot be overemphasized. Be careful not to allow dirt, water, and other foreign materials to get into the filter. Keep new filters in the original package until ready for installation.

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SPECIFICATIONS

GROUND SPEEDS FOR TRACTORS WITH 3 OR 4 SPEED TRANSMISSIONS MPH (KM/H)

No allowance for tire slippage.

TRACTOR MODEL		6388		6588		6788	
TIRE SIZE		16.9-38 R1		18.4-38 R1		18.4-38 R1	
ENGINE SPEED RPM		2400	2100	2400	2100	2500	2100
RANGE	GEAR						
LOW	1st	2.1 (3.3)	1.8 (2.9)	2.1 (3.4)	1.9 (3.0)	2.6 (4.2)	2.2 (3.6)
	2nd	3.2 (5.2)	2.8 (4.5)	3.3 (5.4)	2.9 (4.7)	4.2 (6.8)	3.5 (5.7)
	3rd	4.7 (7.6)	4.2 (6.7)	4.9 (7.9)	4.3 (6.9)	5.7 (9.2)	4.8 (7.7)
	4th	5.6 (9.1)	4.9 (7.9)	5.8 (9.4)	5.1 (8.2)	—	—
HIGH	1st	7.2 (11.6)	6.3 (10.1)	7.5 (12.0)	6.5 (10.5)	8.1 (13.0)	6.8 (11.0)
	2nd	11.3 (18.2)	9.9 (15.9)	11.7 (18.8)	10.2 (16.5)	13.0 (20.9)	10.9 (17.6)
	3rd	16.6 (26.7)	14.5 (23.4)	17.2 (27.7)	15.1 (24.2)	17.7 (28.4)	14.8 (23.9)
	4th	19.7 (31.7)	17.2 (27.7)	20.4 (32.9)	17.9 (28.7)	—	—
REVERSE	1st	3.5 (5.7)	3.1 (5.0)	3.7 (5.9)	3.2 (5.2)	4.5 (7.3)	3.8 (6.1)
	2nd	5.5 (8.9)	4.9 (7.8)	5.7 (9.3)	5.0 (8.1)	7.2 (11.6)	6.1 (9.8)
	3rd	8.2 (13.1)	7.1 (11.5)	8.5 (13.6)	7.4 (11.9)	9.8 (15.8)	8.3 (13.3)
	4th	9.7 (15.6)	8.5 (13.6)	10.0 (16.1)	8.8 (14.1)	—	—

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BEFORE OPERATING YOUR TRACTOR

Before you operate the tractor study this manual carefully. It has been prepared to help you operate and maintain your tractor with utmost efficiency. Familiarize yourself with the operation of all the instruments and controls.

Fill the fuel tank.

Prime the turbocharger if the tractor has been idle for a month or longer.

Check the engine, transmission, transfer case, and front axle oil level.

Lubricate the chassis points as recommended.

NOTE: The access panel between the clutch and brake pedal has a convenient lubrication chart. Remove the panel by pulling on the handle.

Always replace the panel after use.

Check the engine coolant system for the proper level. Check the level at the coolant recovery reservoir.

Be sure that the water pump, alternator-generator, and fan belt tension is correct.

Check the tire inflation pressures.

Adjust the seat, steering wheel, and mirrors for operator's maximum comfort, visibility, and complete control of the tractor.

Buckle the seat belts.

Check all tellites for operation.

Refer to various sections of the operator's manual for additional information.

OPERATING THE TRACTOR



CAUTION! No riders.

MA-16868B

NEUTRAL STARTING SWITCH

The tractor engine may be started when the transmission is in park or when the clutch pedal is pushed down.

STARTING THE ENGINE

When Temperatures Are Above Freezing

Proceed as follows:

Open the fuel shut-off valve.

The valve is located at the front of the fuel tank on the bottom left side.

To insure against leakage, be sure to screw the needle stem all the way out until it is tight against the stop.

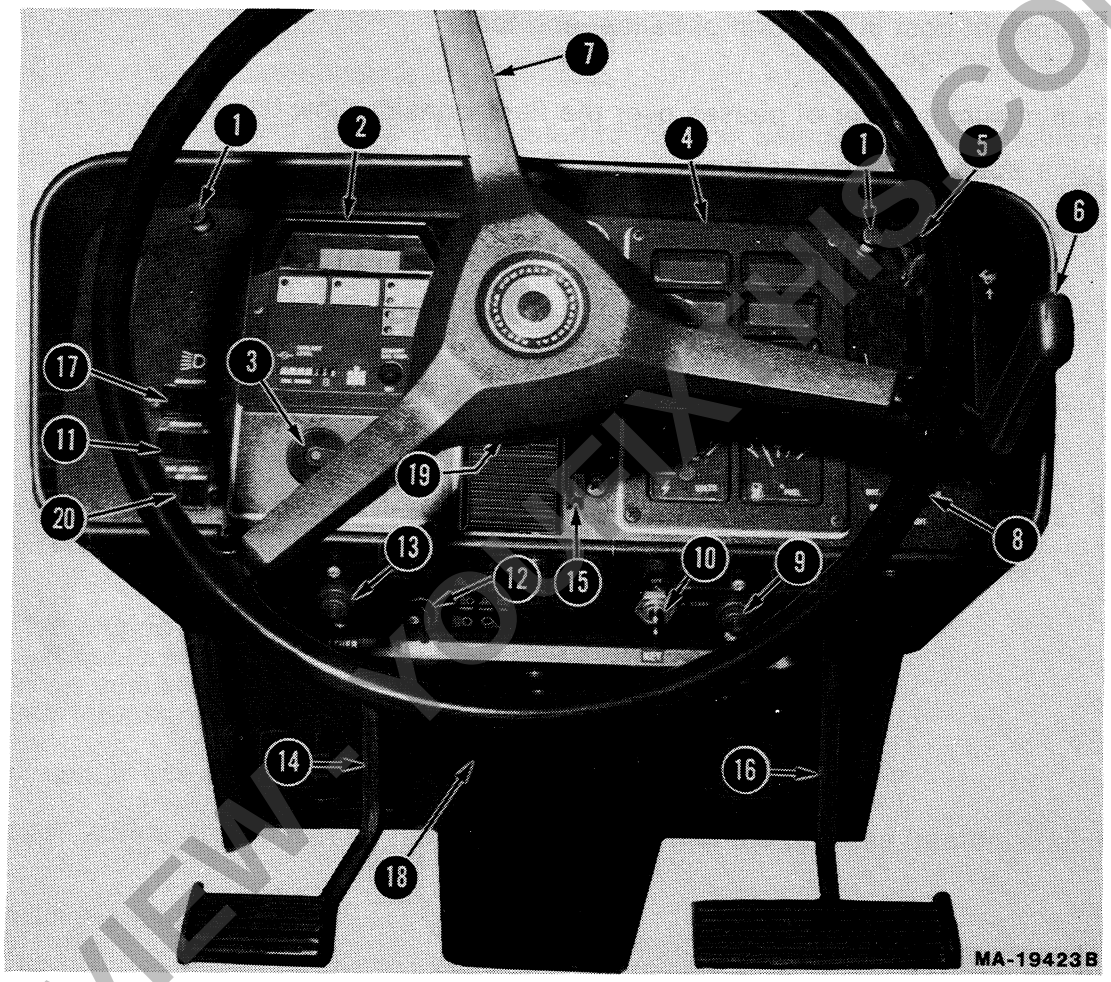
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INSTRUMENTS AND CONTROLS

Before attempting to start or operate the tractor, be sure to review all the instructions for your new tractor and thoroughly familiarize yourself with the tractor instruments and controls.

INSTRUMENT PANEL AND CONTROLS



1 - Instrument lights
2 - Data Center
3 - Turn signal switch
4 - Instrument cluster
5 - Throttle adjustable stop
6 - Throttle control
7 - Steering wheel
8 - Instrument lights dimmer switch
9 - Horn button switch
10 - Key start switch
11 - Rear light switch
12 - Lighting switch and flasher
13 - Ether start push button
14 - Clutch pedal
15 - Tilt wheel lever
16 - Brake pedal
17 - Headlight high and low beam switch
18 - Access cover to fuse block
19 - Steering wheel locking collar
20 - Auxiliary lighting switch

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AFTER EVERY 100 TACHOMETER HOURS OF OPERATION — CONTINUED

6 - Crankcase oil drain plug

Remove the crankcase drain plug and drain all the oil from the crankcase while the engine is warm; then reinstall the plug and refill with new oil to the "Full" mark on the oil level gauge. Refer to the "Lubrication Table".

NOTE: The engine crankcase drain period may be extended to every 200 hours if I.H. NO.1 SAE-10W or SAE 30 engine oil is used.

CAUTION! PROLONGED OR REPEATED SKIN CONTACT WITH USED MOTOR OIL MAY BE HARMFUL. WASH SKIN WITH SOAP AND WATER.

7 - Hydraulic fluid filters

NOTE: After the first 100 hours only: Remove and clean the by-pass valve screens and replace filters. Change the filters at 200 hours and every 200 hours of operation thereafter. Refer to "Hydraulic Fluid Filters".

8 - Hood latch linkage
9 - Hood latch bolt
10 - Front and rear hood stops (4)

Lubricate the hood stops (mating surfaces), hood latch bolt, and hood latch linkage pivots. Apply a light film of IH 251 H EP grease or equivalent No. 2 multi-purpose lithium grease.

Miscellaneous

Lubricate pivot points that do not have a lube fitting(s) with engine oil. Check hydraulic coupler operation and lubricate, if necessary, with IH 251 H EP grease or No. 2 multi-purpose grease. This will prevent sticking and assure ease of hook-up with the hydraulic hoses.

AFTER EVERY 200 TACHOMETER HOURS OF OPERATION

1 - Clutch release shaft(2)

Use IH 251 H EP grease or equivalent No. 2 mutli-purpose lithium grease and apply one or two strokes of the lubricator.

2 - Engine oil filters (2)

Replace the oil filters after every second oil change (200 hours of operation).

3 - Hydraulic fluid filters

Remove and clean the by-pass valve screens and replace the filters. Refer to "Hydraulic Fluid Filters".

Miscellaneous parts

Lubricate the clutch and brake pedal connections with a few drops of engine oil.

Lubricate the threads of the three-point hitch upper link. Use IH 251 H EP grease or equivalent No. 2 multi-purpose lithium grease.

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STANDARD TORQUE DATA FOR INCH NUTS AND BOLTS— NEWTON METERS

Recommended torque for all Standard Unplated Nuts and Bolts, provided:

A. Surface finish is oxide coated, oil quenched or bright.

B. All thread surfaces are clean and lubricated with SAE-30 engine oil or equivalent (See NOTE.)

C. Joints are rigid, that is, no gaskets or compressible materials are used.

D. When reusing nuts or bolts use minimum torque values.

NOTE: Multiply the standard torque by:
.65 when finished jam nuts are used.
.70 when Molykote, white lead or similar mixtures are used as lubricants.
.75 when phosphate coated and oiled bolts or nuts are used.
.85 when cadmium or zinc dichromate bolts or nuts are used.
.90 when hardened surfaces are used under the nut or bolt head (this applies to standard unplated hardware only).

1 NEWTON METER = 0.738 FOOT POUND

Bolt or Stud Diameter	Type 1 Studs Only		Type 1 Bolts 6" length or less		Type 1 Bolts longer than 6"		Type 5 (all lengths)		Type 8 (all lengths)			
									Only when used† in cast (gray) iron		All other applications	
Inches	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
1/4	7	8	7	8	4	4	12	14	15	18	16	19
5/16	17	18	17	18	8	10	26	29	33	37	37	41
3/8	29	33	29	33	15	18	45	50	58	64	61	68
7/16	48	52	48	52	26	29	72	81	94	103	102	115
1/2	71	79	71	79	39	43	108	122	141	159	156	176
9/16	95	108	95	108	56	62	156	176	205	230	225	250
5/8	133	149	133	133	77	85	220	245	285	310	300	340
3/4	240	265	240	265	136	152	390	430	470	530	540	610
7/8	400	450	220	245	220	245	570	640	770	850	880	990
1	570	640	340	365	340	365	850	960	1150	1290	1300	1480
1-1/8	810	900	470	510	470	510	1150	1290	1630	1830	1870	2100
1-1/4	1140	1270	660	730	660	730	1600	1830	2300	2600	2600	3000
1-3/8	1490	1670	870	960	870	960	2100	2400	3100	3400	3500	3800
1-1/2	2000	2200	1150	1270	1150	1270	2700	3100	4100	4500	4500	5000
1-3/4	3200	3300	1800	2000	1800	2000	4500	5000	6400	7000	7100	8100
2	4750	5300	2700	3000	2700	3000	6800	7500	9500	10500	10800	12200

†When bolt penetration is 1-1/2 times the diameter of the bolt.

BOLT TYPE IDENTIFICATION CHART

IH TYPE	S.A.E. GRADE	DESCRIPTION	BOLT HEAD MARKING *
1	Equivalent 1 or 2	WILL HAVE A IH STANDARD MONOGRAM IN THE CENTER OF THE HEAD Low or Medium Carbon Steel Not Heat Treated	
5	5	WILL HAVE A IH AND 3 RADIAL LINES Quenched and Tempered Medium Carbon Steel	
8	8	WILL HAVE A IH AND 6 RADIAL LINES Quenched and Tempered Special Carbon or Alloy Steel	

*The center marking identifies the bolt manufacturer. The IH monogram is currently used. Some bolts may still have an IH or a raised dot which previously identified IH bolts.

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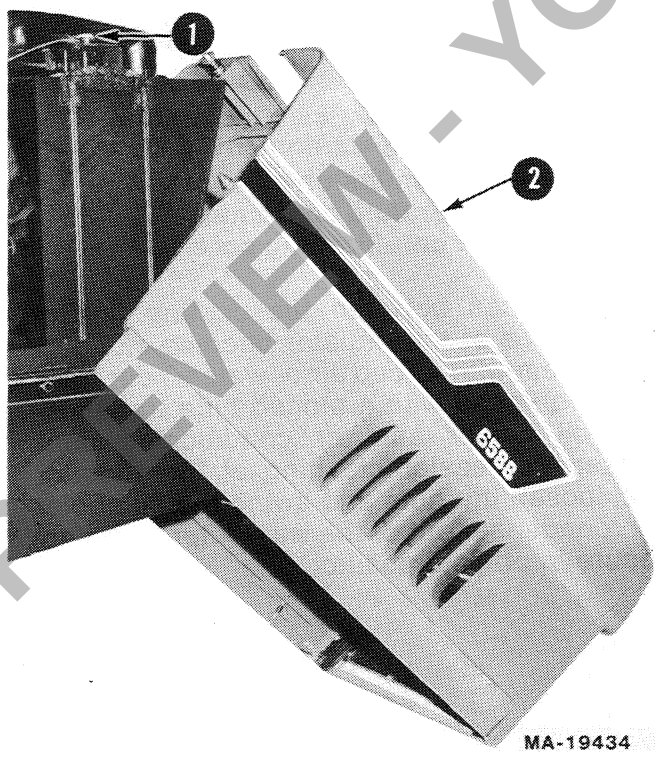
Turn the radiator cap slowly counterclockwise to the pressure release point to allow the pressure or any steam to escape; then press down on the cap and continue to turn until the cap is free to be removed.

NOTE: Never pour coolant into the radiator if the engine is very hot. You may cause damage to the engine or steam may eject from the radiator.

If the radiator cap is faulty, replace it with a new one of the same type and rating. Do not attempt to repair the cap.

Periodically, with the engine cold, the radiator should be checked to ensure that the coolant level is up to the overflow. This is especially important when the tractor is new or after the coolant has been replaced. Some additional coolant may be required at these times because air caught in the cooling system has been expelled by the cycling process.

DRAINING AND FILLING THE COOLING SYSTEM



1 - Radiator cap
2 - Hood
Hood in position to fill radiator.

Drain the cooling system by removing the crankcase drain plug on the left side of the engine, and removing the drain plugs at the rear of the engine oil cooler and radiator outlet tube.

To fill, be sure that all drains are closed.

Open the hood and roll it forward until it contacts the track detents. Slightly lift the hood and roll it past both detents until the hood hits the front stops and can be tilted downward so the front rests on the ground. The grille is not removable, use the hand grips in the grille for opening and closing the hood only.

Fill the radiator slowly (which allows air to escape) to the top of the filler neck below the overflow.

Fill the coolant recovery reservoir to the hot "FULL" mark. Filling to this level, allows air trapped in the engine to escape. After the system has been brought up to temperature and stabilized, add make-up coolant to bring the level to the "ADD" mark when cold.

Lift the hood and roll it rearward until it locks into the closed position.

COOLING SYSTEM FILTER CONDITIONER

The cooling system filter contains an element which filters the coolant and provides chemicals to condition the coolant.

To maintain protection of the cooling system from corrosion, deposit formations, chemical attack and cavitation erosion of cylinder sleeves the coolant filter conditioner must be changed the first 100 hours, the first 400 hours and every 400 hours of operation thereafter.

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TRACTOR MODEL			
CAPACITIES, Approximate	**6388**	**6588**	**6788**
Cooling system	34 qts. (32.2 L)		
Crankcase oil pan with filter	20 qts. (18.9 L)		
Fuel tank	89 Gals. (337 L)		
Auxiliary fuel tank	46 Gals. (174 L)		
Front axle differential	18 qts. (17.0 L)		
Rear frame (Transmission and hydraulic system)	23.5 Gals. (89 L)		
Transfer case	4.5 qts. (4.25 L)		
Engine Make and Model	IH DT-436B	IH DT-466B	
Cylinders	6		
Bore	4.300 (109.22 mm)		
Stroke	5.000 in. (127.00 mm)	5.350 in. (135.89 mm)	
Displacement	436 cu.in. (7.1 L)	466 cu.in. (7.6 L)	
Engine speeds, R.P.M. Rated full load	2400		2500
High idle	2645 ± 35	2665 ± 35	2750 ± 35
Low idle	780 ± 35		
Standard PTO	2100		

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Put range shift lever in "N" neutral and engage the park lock.

Be sure that there is no excess load on the engine, for example: auxiliary valves on demand, steering on demand, position and draft control controls in actuated position, IPTO engaged.

Place the engine speed control lever at the middle position for starting. During cold weather, or when required, improved starting can be obtained by placing the engine speed control lever in high idle position.

 This symbol shows low idle position.

 This symbol shows high idle position.

NOTE: If high idle position is used for starting, as soon as the engine starts, reset the engine speed control lever to obtain about 1500 RPM.

NOTE: Do not start the engine with the engine speed control at low idle position.

To prevent damage to the engine coupling and drive line, maintain an approximate engine speed of 1200 rpm during the warm up period. The engine coupling may become damaged should the engine be operated below the engine idle speed. Never allow the engine to operate below the engine low idle speed of 780 + - 35 rpm.

If the engine has not or will not accelerate to a speed above the specified low idle of 780 + - 35 rpm, regardless of throttle position, stop the engine. Severe damage of the drive line componets will occur if the engine is allowed to operate at speeds of 260 - 325 rpm. After shut down, wait two minutes before attempting a restart.

NOTE: If the high idle position is used for starting, as soon as the engine starts, reset the engine speed control lever to obtain about 1200 r.p.m.'s.

Push in the clutch pedal to close the neutral starting switch.

NOTE: Placing the transmission lever in "P" (park) position closes the neutral starting switch. This enables the tractor to be started without having to depress the clutch pedal. However, for cold weather starts, it is recommended that the clutch pedal be depressed to disengage power train sitting in heavy oil.

Turn the key switch to the start position to crank the engine.

NOTE: Do not operate the cranking motor for more than 30 seconds at any one time. If the engine does not start within this time, wait one minute and then crank again.

When the engine starts, check the oil pressure gauge. If there is low or no oil pressure, stop the engine and find out what is wrong.

If the engine fails to start after following the above procedure, see your International Harvester dealer.

When Temperatures Are Below Freezing

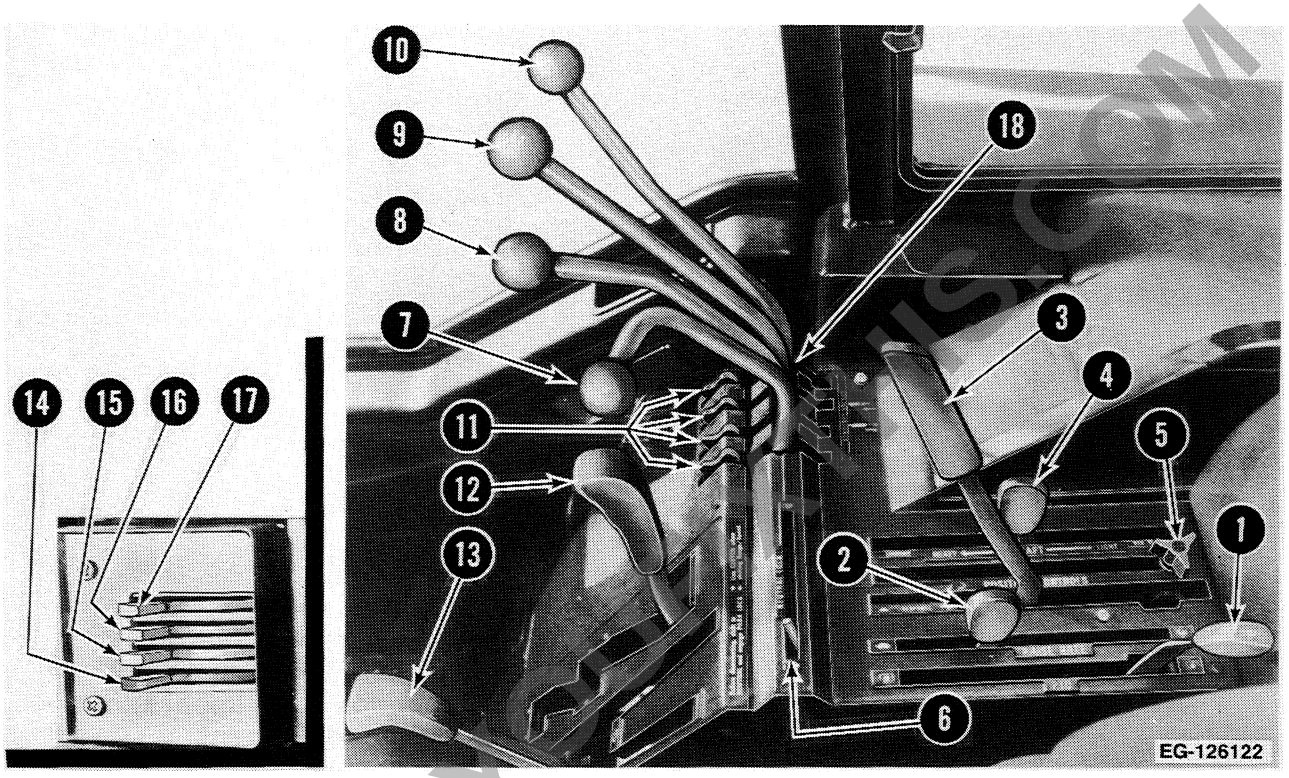
It is recommended that the clutch pedal be pushed down to disengage the power train.

At temperature below freezing, it may be necessary to use ether as a starting aid. Loosen the large knurled screw base on the ether solenoid. Remove the bail from its storage position and assemble it in its lower operating position. Install an approved aerosol can of ether in place and tighten the knurled screw base to hold the aerosol can in place.

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RIGHT CONSOLE CONTROLS



1 - Power take-off control lever
2 - Hitch raise rate control lever
3 - Hitch position control lever
4 - Hitch draft control lever
5 - Adjustable stop
6 - Auxiliary valve neutral lock lever
7 - Tan-Hydraulic valve control lever
8 - Blue-Hydraulic valve control lever
9 - Yellow or Green-Hydraulic valve control lever
10 - Black-Hydraulic valve control lever
11 - Hydraulic valve control lever float lock-out levers
12 - Speed transmission control lever
13 - Range transmission control lever
14 - Black-hydraulic valve flow lever
15 - Yellow or Green-Hydraulic valve flow lever
16 - Blue-Hydraulic valve flow lever
17 - Tan-Hydraulic valve flow lever
18 - Motor valve neutral lockout lever

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AFTER EVERY 1000 TACHOMETER HOURS OF OPERATION

1 - Transfer case filler plug
2 - Transfer case drain plug

Change the oil once a year, however do not operate the tractor more than 1,000 hours without changing the oil. Remove the drain plug and allow the oil to drain; reinstall the drain plug and remove the filler plug. Fill the transfer case with approved lubricant to the centerline of the sight gauge on the left side of the case.

NOTE: Do not remove the sight gauge to add oil.

3 - Frame filler and level gauge
4 - Rear frame drain plug
5 - P.T.O. drain plug
6 - Pump and clutch housing drain plug
7 - Final drive drain plug (2)
8 - 4 Wheel drive housing drain plug

Check the level of the hydraulic fluid periodically. Use approved fluid as shown in the "Lubrication Table". Keep the hydraulic fluid up to the "Full" mark on the level gauge.

NOTE: Change the lubricant in the transmission case at least once a year preferable before freezing weather sets in. However, do not drive the tractor more than 1,000 hours without changing the lubricant. Be sure to change the hydraulic fluid filters at this time.

Remove the drain plugs listed at the left and allow all of the hydraulic fluid to drain out.

If so equipped, set the "Position Control Lever" and "Auxiliary Valve Levers" all the way forward.

NOTE: Disconnect the equipment from hydraulic couplers before actuating the auxiliary valve levers.

Re-install all of the plugs. Remove the fluid level gauge. Refill with IH Hy-Tran fluid up to the full mark on the gauge. Start the tractor engine and operate it at a moderate idle speed. Move the steering wheel first to the left then to the right, then back to center. Stop the engine and refill with IH Hy-Tran fluid up to the "Full" mark on the level gauge.

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