International Cub 154, 184 and 185 Lo-Boy Tractors and Mower

Service Manual

GSS-1408

Reprinted

CASE

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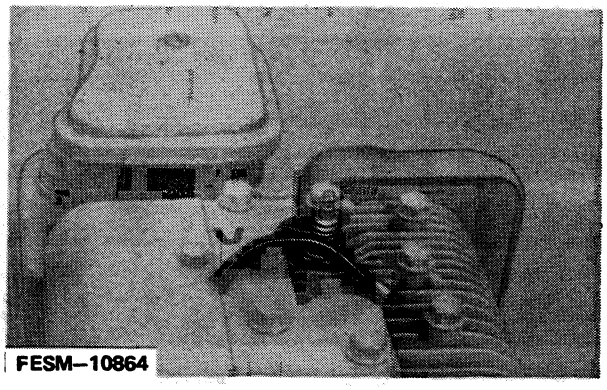
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WORK SAFELY – FOLLOW THESE RULES

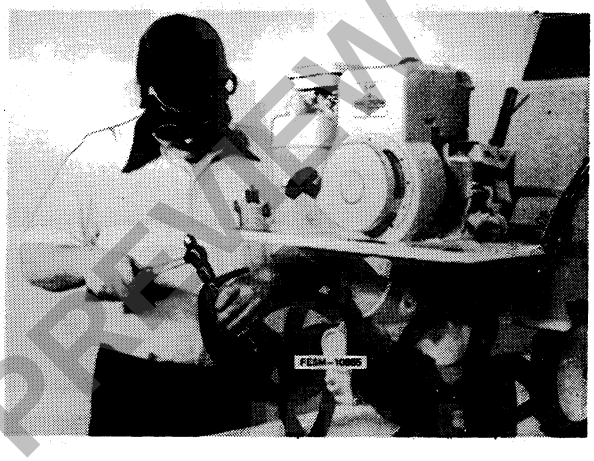
This symbol is used to call your attention to instructions concerning your personal safety. Be sure to observe and follow these instructions.


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1. To prevent accidental starting, always pull the high tension wire(s) off of the spark plug(s) before servicing and/or adjusting the machine.

2. To prevent injury, do not allow children or by-standers around the machine while it is being adjusted and/or serviced.

3. Do not wear rings, wrist watches or loose fitting clothing when working on machinery, they could catch on moving parts causing serious injury. Wear sturdy, rough-soled work shoes. Never adjust and/or service a machine in bare feet, sandals or sneakers.



4. Always wear safety glasses when using a hammer, chisel or other tools that may cause chips to fly.

5. Be sure to reinstall safety devices, guards or shields after adjusting and/or servicing the machine.

6. When operating a power washer to clean a machine before servicing, be careful at all times to avoid injury. Maintain proper footing and balance at all times. Never direct the spray at people or animals, as high pressure spray can cause serious injury.

7. If a portable heater is used to heat the service area the following precautions must be observed:

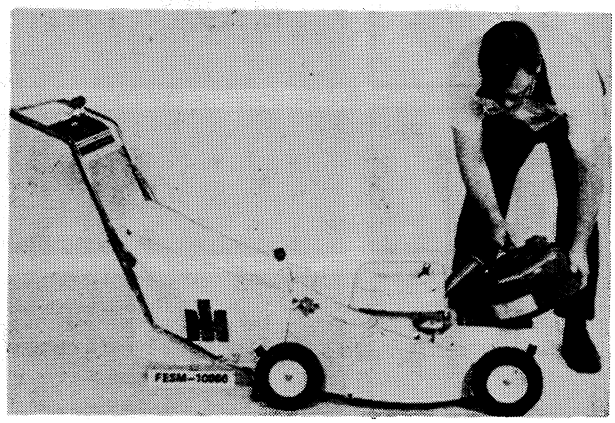
(a) Do not use portable heaters in presence of volatile materials such as gasoline or paint, as fire or explosion may result.

(b) To avoid being burned, do not touch the heater during operation.

(c) Portable heaters consume oxygen and combustion fumes can be hazardous. Heater should be used only in a well ventilated area. Keep a window or door partially open to provide ventilation.

(d) Keep the heater at least four (4) feet from combustible materials.

(e) Never use gasoline as fuel.



8. Handle gasoline with care - it is highly flammable:

(a) Use approved gasoline container.

(b) Never remove the fuel tank cap or fill the fuel tank when the engine is running, is hot, or indoors. Also, do not smoke when working around flammable fuel.

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STANDARD TORQUE DATA FOR NUTS AND BOLTS— NEWTON METERS

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

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

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

C. 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 parkerized bolts or nuts are used.
.85 when cadmium plated bolts or nuts and zinc bolts w/waxed zinc nuts are used.
.90 when hardened surfaces are used under the nut or bolt head.

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	MM	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
1/4	6.4	7	8	7	8	4	4	12	14	15	18	16	19
5/16	8.0	17	18	17	18	8	10	26	29	33	37	37	41
3/8	9.5	29	33	29	33	15	18	45	50	58	64	61	68
7/16	11.1	48	52	48	52	26	29	72	81	94	103	102	115
1/2	12.7	71	79	71	79	39	43	108	122	141	159	156	176
9/16	14.3	95	108	95	108	56	62	156	176	205	230	225	250
5/8	15.9	133	149	133	133	77	85	220	245	285	310	300	340
3/4	19.0	240	265	240	265	136	152	390	430	470	530	540	610
7/8	22.0	400	450	220	245	220	245	570	640	770	850	880	990
1	25.4	570	640	340	365	340	365	850	960	1150	1290	1300	1480
1-1/8	28.6	810	900	470	510	470	510	1150	1290	1630	1830	1870	2100
1-1/4	31.8	1140	1270	660	730	660	730	1600	1830	2300	2600	2600	3000
1-3/8	34.9	1490	1670	870	960	870	960	2100	2400	3100	3400	3500	3800
1-1/2	38.1	2000	2200	1150	1270	1150	1270	2700	3100	4100	4500	4500	5000
1-3/4	44.5	3200	3300	1800	2000	1800	2000	4500	5000	6400	7000	7100	8100
2	50.8	4750	5300	2700	3000	2700	3000	6800	7500	9500	10500	10900	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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.70 when Molykote, white lead or similar mixtures are used as lubricants.
.75 when parkerized bolts or nuts are used.
.85 when cadmium plated bolts or nuts and zinc bolts w/waxed zinc nuts are used.
.90 when hardened surfaces are used under the nut or bolt head.

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	MM	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
1/4	6.4	7	8	7	8	4	4	12	14	15	18	16	19
3/8	9.5	29	33	29	33	15	18	45	50	58	64	61	68
1/2	12.7	71	79	71	79	39	43	108	122	141	159	156	176
5/8	15.9	133	149	133	133	77	85	220	245	285	310	300	340
7/8	22.0	400	450	220	245	220	245	570	640	770	850	880	990
1-1/8	28.6	810	900	470	510	470	510	1150	1290	1630	1830	1870	2100
1-3/8	34.9	1490	1670	870	960	870	960	2100	2400	3100	3400	3500	3800
1-3/4	44.5	3200	3300	1800	2000	1800	2000	4500	5000	6400	7000	7100	8100

†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 W STANDARD MONOGRAM IN THE CENTER OF THE HEAD Low or Medium Carbon Steel Not Heat Treated	
5	5	WILL HAVE A W AND 3 RADIAL LINES Quenched and Tempered Medium Carbon Steel	
8	8	WILL HAVE A W AND 6 RADIAL LINES Quenched and Tempered Special Carbon or Alloy Steel	

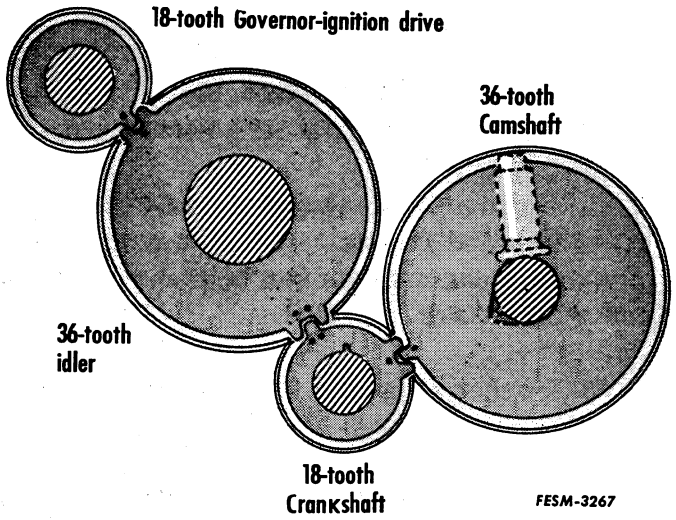
*The center marking identifies the bolt manufacturer. The W monogram is currently used. Some bolts may still have an IH or a raised dot which previously identified IH bolts.

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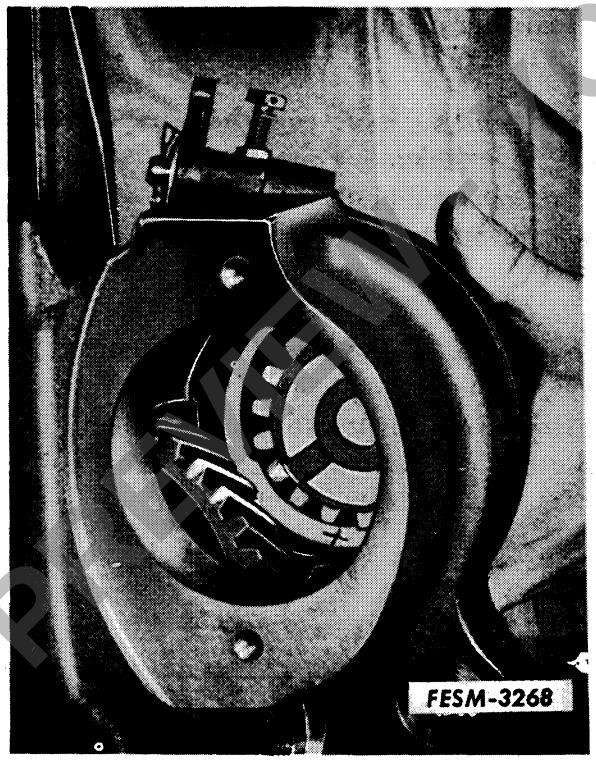


3. Install the key in the crankshaft if it was removed. Heat the crankshaft gear and install the gear, being sure the single timing mark of the camshaft gear and the single mark on the crankshaft gear are aligned.

4. Install the idler gear and shaft. Tighten the bolt to 90 ft. lbs. torque. The idler gear is correctly timed by lining up the double punch mark on the idler gear with the double punch mark on the crankshaft gear.

NOTE: Before installing the crankcase front cover, mark the top surfaces of the two teeth on each side of the single punch mark on the idler gear with chalk.

5. Install the crankcase front cover with a new oil seal and gasket. Do not tighten the cap screws at this time.



6. Install the fan drive pulley on the crankshaft. Install the cap screw and tighten to 80 ft. lbs. torque.

7. Tighten the crankcase front cover cap screws to 20 ft. lbs. torque.

NOTE: Before installing the governor assembly, mark the front surface of the ignition drive gear having a single punch mark with chalk.

8. Install the governor assembly with a new housing gasket. Time the ignition drive gear as follows:

With the engine on top dead center of number 1 firing stroke, mesh the marked tooth of the ignition drive gear with the two chalk marked teeth on the idler gear.

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Inspection and Repair

1. Wash all parts in a cleaning solvent.

CAUTION: Do not use a caustic solution or a wire brush for aluminum pistons. Clean the carbon from the piston ring grooves with a broken ring or ring groove cleaner.

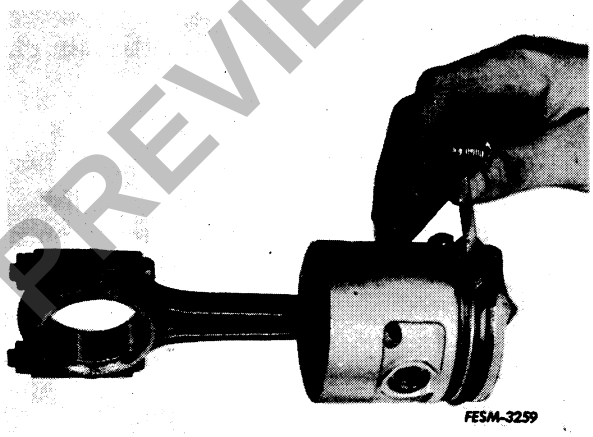
2. Inspect the connecting rods, caps, bearing shells and pin bushings as follows:

(a) All connecting rod bearings and piston pin bushings should be replaced in a major overhaul.

(b) Test rods for alignment. Rods only slightly misaligned can be straightened using the proper equipment. Badly twisted or bent rods must be replaced.

3. Inspect the pistons for cracks, breaks or scores.

4. Measure the piston skirt at right angles to the pin to determine it is worn excessively; replace if necessary. The specified piston diameter is 2.6230 to 2.6234 inches.


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NOTE: On a used piston, it will probably be found that the piston ring side clearances tend to increase toward the top of the piston due to the higher operating temperature prevalent at this point. When this side clearance becomes excessive, the piston will have to be replaced.

5. Measure the crankcase cylinder bores for excessive wear. The specified bore ID is 2.625 to 2.627 inches. Replacement pistons are available in .020 and .040 inch oversizes.

6. Inspect the piston pins for wear; if wear is perceptible, replace pins. Replace piston pins showing signs of corrosion or etching. Specified piston pin diameter is .6875 to .6876 inch.

7. Inspect the connecting rod bushings for scratches and burrs. Replace if necessary.

8. Connecting rod bolts must be cleaned of all foreign matter including the anti-rust materials that may be caked in the threads. This is also true of the connecting rod bolt nuts.

A good method of checking to determine thread condition is to turn the connecting rod bolt (threads lubricated with a light engine oil) all the way into a standard nut with the fingers. If the bolt runs in relatively free without sticking or without the need for applying more than a very light (2-4 foot-pounds) wrench effort, the bolt is satisfactory for use.

9. Rings should be checked also for the specified side clearance by placing each ring in its groove on the piston and inserting a feeler gauge around its edge.

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Specifications

Carburetor	154	185
Type	Up draft	Up draft
Model and size - inch	IH - 3/4	Zenith 68YY7
Liquid level - inch	9/16 - 5/8	1/2
Float height - inches	1-13/32	1-5/32
Float drop - inch	3/16	—
Bleed	56	—
Main metering jet size	.040 inch	21
Idle jet	75	12
Discharge nozzle	39	50 (drill size)
Venturi	19	17MM
Needle valve seat	52	35
Governor		
Engine rpm		
Low idle ± 25	475	600
High idle ± 25	2420	2510
Rated load ± 10	2200	2300
Governor spring		
Free length - inches	1-9/16	1-9/16
Test length - inches	2-5/32	2-5/32
Test load - pounds	39	39
Bumper spring		
Free length - inch	7/8	7/8
Test length - inch	5/8	5/8
Test load - pounds	10.5	10.5
Governor weight to pin clearance - inch	.001 - .004	.001 - .004

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Inspection and Repair

Inspect the shaft for excessive wear. Pressure plate, bearings, pulley and clutch coupling must fit properly. Excessive clearances will result in failure. Replace the shaft and/or parts if necessary.

Check the bushing in the pressure plate for wear or damage. Replace if necessary.

Check the clutch disc facings and pressure plates for excessive wear. Replace if necessary.

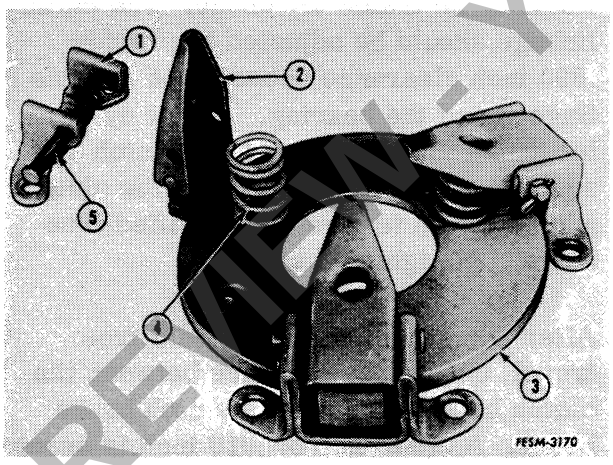
Check the clutch pressure springs for breakage. Pressure spring specified free length is 1.210 inch. Test springs for compression. They must exert 85 to 95 lbs. at .810 inch after one compression to .690 inch. Replace any springs that do not meet specifications.

Reassembly and Installation

1. Place the shaft in its approximate position inside the frame. Slide the front clutch shaft coupling onto the shaft.

2. Slide the shaft ahead and install the clutch release bearing and bracket assembly onto the shaft.

3. If the engine clutch was disassembled, assemble the release levers (2), pressure springs (4) and lever brackets (1) on the pressure plate (3) and install the lever pivot pin (5).



1. Lever bracket	4. Pressure spring
2. Release lever	5. Lever pivot pin
3. Pressure plate	

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INSTALLATION – Brakes

1. Align the keyway in the brake drum with the key on the differential shaft and install the drum on the shaft. Tighten the set screw and lock nut securely.

2. Install the brake band on the drum.

3. Install the final drive assembly on the transmission case. Refer to page 7-8.

4. Recouple the tractor. Refer to Section 5.

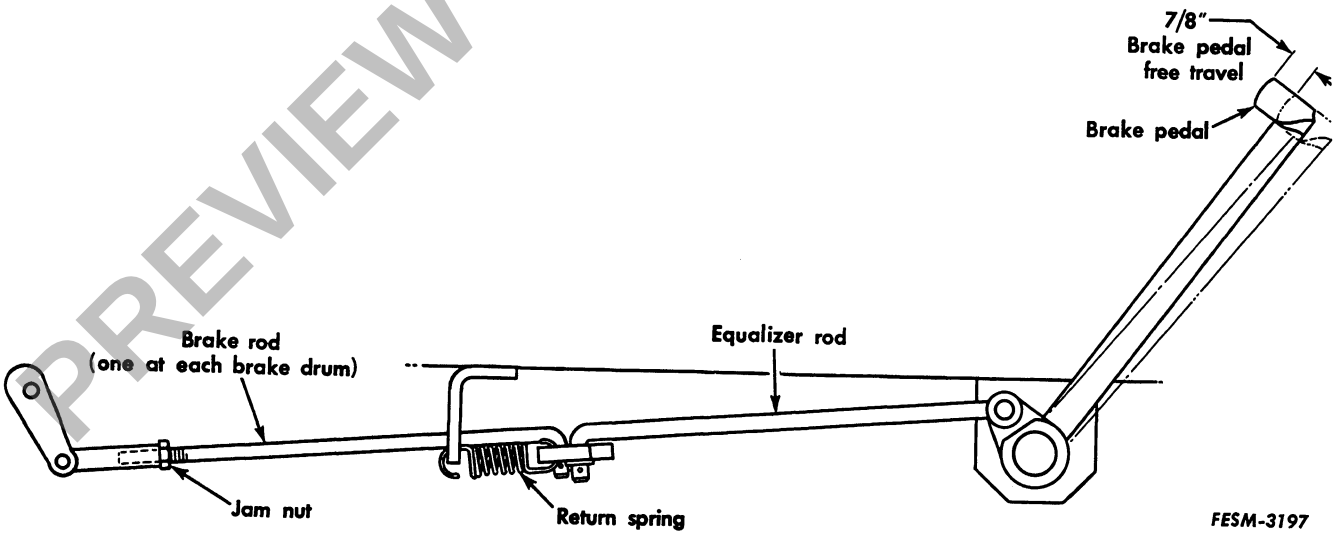
BRAKE ADJUSTMENT – Single Pedal Brakes

To adjust the brakes, jack up the rear end of the tractor. Loosen the jam nuts at the end of the brake rods and remove the cotter pins at the brake equalizer rod. Unhook the brake rods and turn them in or out of the clevises. The brakes should not drag before they take hold. Adjust the brake linkage so there is brake pedal free travel, by hand, of approximately 7/8 inch.

It is very important to have the brakes equalized. To check the equalization of the brakes, jack up both rear wheels so they will turn freely, block the tractor securely and then start the engine. Shift the gears to third speed and engage the clutch; while the wheels are turning, apply the brakes. Application of the brakes should slow down both wheels at the same time and also reduce the speed of the engine.

CAUTION: AVOID HIGH SPEED THROTTLE SETTINGS THAT MIGHT CAUSE THE TRACTOR TO SLIP OFF OF THE BLOCKING.

If one wheel stops and the other wheel continues to revolve when the brakes are applied, adjust the brake rod on the wheel that stops so both wheels stop simultaneously when the brakes are applied.



Single pedal brakes.

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