

1150E/1155E Crawler
Service Manual

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LOCTITE PRODUCT CHART

Product	Color	Similar Products	Gap (In Inches)	Strength (Steel/Steel)	Working Temperature Range-Fahrenheit	Fixture/Full Cure (Steel/Steel) Time	Primer	Description
#3	Dark Brown					24 hr	N/A	Form a Gasket (works with oil, fuel or grease) Pliable
80	Yellow					Fast	N/A	Weatherstrip Adhesive
123	Clear					N/A	N/A	Parts Cleaner Fluid
220	Blue	290	0.003	57/143 in lbs	-65 to +250	6 min/24 hrs	747	Wicking Threadlocker
221	Purple	222	0.005	75/44 in lbs	-65 to +300	2 min/24 hrs	747	Low Strength Threadlocker
222	Purple		0.005	53/30 in lbs	-65 to +300	20 min/24 hrs	764	Low Strength Threadlocker (Small Screws)
225	Brown	222	0.010	45/25 in lbs	-65 to +300	7 min/24 hrs	747	Low Strength Threadlocker
242	Blue		0.005	80/50 in lbs	-65 to +300	10 min/24 hrs	764	Medium Strength Threadlocker
262	Red	271	0.005	160/190 in lbs	-65 to +300	5 min/24 hrs	747	High Strength Threadlocker
270	Green	271	0.007	160/320 in lbs	-65 to +300	3 min/24 hrs	747	High Strength Threadlocker
271	Red	262	0.007	160/320 in lbs	-65 to +300	10 min/24 hrs	764	High Strength Threadlocker
272	Red	620	0.007	180/220 in lbs	-65 to +450	30 min/24 hrs	764	High Temperature, High Strength
275	Green	277	0.010	210/300 in lbs	-65 to +300	3 min/24 hrs	747	High Strength Threadlocker
277	Red		0.010	225/300 in lbs	-65 to +300	60 min/24 hrs	764	High Strength Threadlocker
290	Green		0.003	85/350 in lbs	-65 to +300	6 min/24 hrs	764	Wicking Threadlocker
*404	Clear	495	0.006	3200 psi	-65 to +180	30 sec/24 hrs	NA	Instant Adhesive
*406	Clear		0.004	3200 psi	-65 to +180	15 sec/24 hrs	N/A	Surface Insensitive Adhesive
*409	Clear	454	0.008	2500 psi	-65 to +180	50 sec/24 hrs	N/A	Gel Instant Adhesive
*414	Clear		0.006	2500 psi	-65 to +180	30 sec/24 hr	N/A	Instant Adhesive
*415	Clear	454	0.010	2500 psi	-65 to +180	50 sec/24 hrs	N/A	Gap Filling Instant Adhesive (Metals)
*416	Clear	454	0.010	2500 psi	-65 to +180	50 sec/24 hrs	N/A	Gap Filling Instant Adhesive (Plastics)
*420	Clear		0.002	2500 psi	-65 to +180	15 sec/24 hrs	N/A	Wicking Instant Adhesive
*422	Clear	454	0.020	2800 psi	-65 to +180	60 sec/24 hrs	N/A	Gap Filling Instant Adhesive
*430	Clear		0.005	2500 psi	-65 to +180	20 sec/24 hrs	N/A	Metal Bonding Adhesive
*445	White/Black		0.250	2000 psi	-65 to +180	5 min/24 hrs	N/A	Fast Setting 2 Part Epoxy
*454	Clear		0.010	3200 psi	-65 to +180	15 sec/24 hrs	N/A	Surface Insensitive Gen Instant Adhesive
*495	Clear		0.004	2500 psi	-65 to +180	20 sec/24 hrs	N/A	General Purpose Instant Adhesive
*496	Clear		0.005	2500 psi	-65 to +180	20 sec/24 hrs	N/A	Metal Bonding Adhesive
504	Brt Orange	515	0.030	750 psi	-65 to +300	90 min/24 hrs	None	Rigid Gasket Eliminator
509	Light Blue		0.020	750 psi	-65 to +320	6 hr/72 hrs	764	Flange Sealant
510	Red		0.020	1000 psi	-65 to +400	30 min/24 hrs	764	High Temperature, Gasket Eliminator
515	Purple		0.010	750 psi	-65 to +300	1 hr/24 hrs	764	Gasket Eliminator 515

Rac 8-98902

* Products 404-496 (except for #445) are all instant adhesives (super glues) they differ mostly in viscosity

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LOCTITE PRODUCT CHART

Product	Color	Similar Products	Gap (In Inches)	Strength (Steel/Steel)	Working Temperature Range-Fahrenheit	Fixture/Full Cure (Steel/Steel) Time	Primer	Description
518	Red	515	0.030	500psi	-65 to +300	1 hr/24 hrs	764	Gasket Eliminator 518 for Aluminum
542	Brown	569	N/A	132/92 in lbs	-65 to +300	2 hr/24 hrs	747	Hydraulic Sealant
545	Purple		N/A	25/20 in lbs	-65 to +300	4 hr/24 hrs	747	Low Strength Pneumatic/Hydraulic Sealant
549	Orange	504	0.020	2500 psi	-65 to +300	2 hr/24 hrs	747	Instant Seal Plastic Gasket
554	Red	277	0.015	240/240 in lbs	-65 to +300	2 to 4 hrs/24 hrs	764	Refrigerant Sealant
567	White	592	N/A	500 psi	-65 to +400	4 hrs/24 hrs	764	Pipe Sealant for Stainless Steel
568	Orange	277	0.015	2500 psi	-65 to +300	12 hrs/24 hrs	764	Plastic Gasket
569	Brown	545	0.010	40/25 in lbs	-65 to +300	1 hr/24 hrs	764	Hydraulic Sealant
570	Brown	592	N/A	25/40 in lbs	-65 to +300	6 hrs/72 hrs	764	Steam Sealant
571	Brown	592	0.015	40/20 in lbs	-65 to +300	2 to 4 hrs/24 hrs	764	Pipe Sealant
572	White	578.575	N/A	80/27 in lbs	-65 to +300	24 hrs/72 hrs	None	Gasketing
592	White		0.020	500 psi	-65 to +400	4 hrs/72 hrs	736	Pipe Sealant with Teflon
593	Black		0.250	400 psi	-95 to +400	30 min/24 hrs	N/A	RTV Silicone
601	Green	609	0.005	3000 psi	-65 to +300	10 min/24 hrs	764	Current PIN #609
609	Green		0.005	3000 psi	-65 to +300	10 min/24 hrs	764	General Purpose Retaining Compound
620	Green	640	0.015	3000 psi	-65 to +450	30 min/24 hrs	747	High Temperature Retaining Compound
635	Green	680	0.010	4000 psi	-65 to +300	1 hr/24 hrs	747	High Strength Retaining Compound
638	Green	680	0.015	4100 psi	-65 to +300	10 min/24 hrs	747	High Strength Retaining Compound
640	Green	620	0.007	3000 psi	-65 to +400	1 hr/24 hrs	747	High Temperature Retaining Compound
660	Silver		0.020	3000 psi	-65 to +300	20 min/24 hrs	764	Quick Metal
675	Green	609	0.005	3000 psi	-65 to +300	20 min/24 hrs	747	General Purpose Retaining Compound
680	Green	635	0.015	4000 psi	-65 to +300	10 min/24 hrs	747	High Strength Retaining Compound
706	Clear	755	N/A	N/A	N/A	N/A	N/A	Cleaning Solvent
707	Amber		N/A	N/A	N/A	N/A	N/A	Activator for Structural Adhesives
736	Amber		N/A	N/A	N/A	N/A	N/A	Primer NF
738	Amber		N/A	N/A	N/A	N/A	N/A	Depend Activator
747	Yellow	N/A	N/A	N/A	N/A	N/A	N/A	Primer T
751	Clear		N/A	N/A	N/A	N/A	N/A	Activator for Structural Adhesives
755	Clear		N/A	N/A	N/A	N/A	N/A	Cleaning Solvent
764	Green		N/A	N/A	N/A	N/A	N/A	Primer N
767	Silver		N/A	N/A	-65 to +1600	N/A	N/A	Anti-Seize Lubricant


1001

SAFETY RULES SERVICE MANUAL INTRODUCTION AND TORQUE SPECIFICATIONS

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SAFETY RULES


 This symbol means **ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED.** The message that follows the symbol contains important information about safety. Carefully read the message. Make sure you fully understand the causes of possible injury or death. 1-1-C


IMPORTANT: To prevent injury on the job, follow the Warning, Caution, and Danger notes in this section and other sections throughout this manual. Follow the instructions carefully.


The procedures recommended and shown in this manual are good, effective service methods. However, all possible procedures and service hazards may not be covered. Therefore, if you use a tool or procedure not recommended, you must make sure that the method you select is a safe method.


Put the warning tag shown below on the key for the key switch when you are servicing or repairing this machine. One warning tag is on every new machine. You can buy additional warning tags, part number 331-4614, from Service Parts Supply.

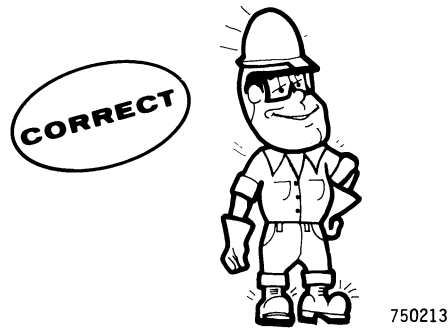



 **WARNING:** Read operator's manual to familiarize yourself with control lever functions. 46-27


 **WARNING:** Operate tractor and equipment controls from the seat position only. Any other method could result in serious injury. 48-55


 **WARNING:** This is a one man machine, no riders allowed. 35-8

 **WARNING:** If you wear clothing that is too loose or do not use the correct safety equipment for your job, you can be injured. Always wear clothing that will not catch on objects. Extra safety equipment that can be required includes hard hat, safety shoes, ear protection, eye or face protection, heavy gloves and reflector clothing. 45-3-A



 **DANGER:** Engine exhaust fumes can cause death. If it is necessary to start the engine in a closed place, remove the exhaust fumes from the area with an exhaust pipe extension. If you do not have an exhaust pipe extension, open the doors and get outside air into the area. 48-56

 **WARNING:** Operate controls from the operator's seat only. 35-7

 **WARNING:** When working in the area of the fan belt with the engine running, avoid loose clothing if possible, and use extreme caution. 35-4



WARNING: Whenever the bucket must be raised to aid in servicing, block the loader arms in place with lift cylinder support strut or a suitable safety stand.

23-7-B



WARNING: When doing checks and tests on the equipment hydraulics, follow the procedures as they are written. DO NOT change the procedure. 47-44



WARNING: When putting the hydraulic cylinders on this machine through the necessary cycles to check operation or to remove air from a circuit, make sure all people are out of the way. 47-45



WARNING: Use insulated gloves or mittens when working with hot parts. 47-41A



CAUTION: Pin sized and smaller streams of hydraulic oil under pressure can penetrate the skin and result in serious infection. If hydraulic oil under pressure does penetrate the skin, seek medical treatment immediately. Maintain all hoses and tubes in good condition. Make sure all connections are tight. Make a replacement of any tube or hose that is damaged or thought to be damaged. DO NOT use your hand to check for leaks; use a piece of cardboard or wood. 40-6-A



CAUTION: When removing hardened pins such as a pivot pin, or a hardened shaft, use a soft head (brass or bronze) hammer or use a driver made from brass or bronze and a steel head hammer. 46-17



CAUTION: When using a hammer to remove and install pivot pins or separate parts, using compressed air or using a grinder, wear eye protection that completely encloses the eyes (approved goggles or other approved eye protectors). 46-13



CAUTION: When servicing or repairing the machine, keep the shop floor and operator's compartment and steps free of oil, water, grease, tools, etc. Use an oil absorbing material and/or shop cloths as required. Use safe practices at all times. 40-8



CAUTION: Use suitable floor (service) jacks or chain hoists to raise wheels or track off the floor. Always block machine in place with suitable safety stands. 40-7-A



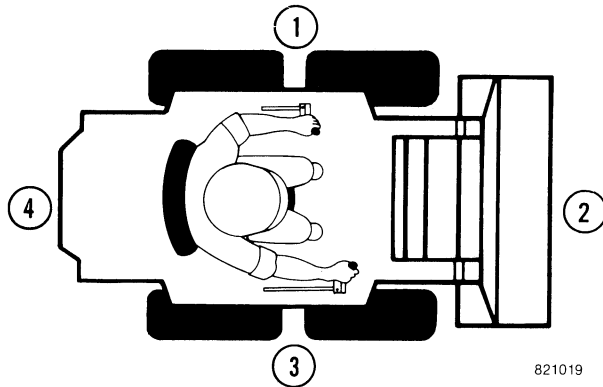
CAUTION: Some components of this machine are very heavy. Use suitable lifting equipment or additional help as instructed in this service manual. 40-10

SERVICE MANUAL INTRODUCTION

This service manual has been prepared with the latest service information available. Troubleshooting, removal, disassembly, inspection and installation procedures, and complete specifications and tightening references can be found in most sections. Some sections have drawings but no written procedure because the job is so easily done. This service manual is one of the most important tools available to the service technician.

Right, Left, Front, and Rear

The terms right-hand and left-hand and front and rear as used in this manual indicate the right and left sides, and front and rear of the machine as seen from the operator's seat for correct operation of the machine or attachment.



- | | |
|---------------------|----------------------|
| 1. <i>Left Side</i> | 3. <i>Right Side</i> |
| 2. <i>Front</i> | 4. <i>Rear</i> |

Text

If the service manual is for more than one machine or different models of components (planetary axles, gear boxes, control valves, etc.) the procedures have the steps necessary to service each model.

Table of Contents

A Table of Contents is in the front of this manual. The Table of Contents shows the main divisions and the sections that are in each division. The individual sections, where necessary, have a Table of Contents on the cover or second page of that section.

Page Numbers

All page numbers are made of two numbers separated by a dash, such as 4002-9. The number before the dash is the section number. The number following the dash is the page number in that section. Page numbers will be found at the upper right or left of each page.

Illustrations and Photos

Illustrations are put as near as possible to the text and are to be used as part of the text. Photos normally are put below the step to which they apply.

Clear and Simple English

This manual is written in C.A.S.E. (Clear and Simple English). C.A.S.E. is easier to read and understand than "regular" English because C.A.S.E. uses a small number of common words and has special rules for writing.

Special Tools

Special tools are needed to remove and install, disassemble and assemble, check, and adjust some component parts of this machine. Some special tools can be easily made locally and the necessary information to make the tool is in this service manual. Other special tools are more difficult to make locally and are available from Service Tools in the U.S. and from Jobborn Manufacturing in Canada. Use these tools according to the instructions in this service manual for your personal safety and to do the job correctly.


Order special tools from either of the following companies:


Service Tools
P.O. Box 314
Owatonna, Minnesota 55060

Jobborn Manufacturing Co.
97 Frid Street
Hamilton, Ontario L8P 4M3
Canada

TORQUE SPECIFICATIONS - U.S. HARDWARE

Use the torques in this chart when special torques are not given. These torques apply to fasteners with both UNC and UNF threads as received from suppliers, dry, or when lubricated with engine oil. Not applicable if special graphites, moly-disulfide greases, or other extreme pressure lubricants are used.


Grade 5 Bolts, Nuts, and Studs			
			
Size	Pound-Feet	Newton metres	Kilogram metres
1/4 in 6.4 mm	9-11	12-15	1.2-1.5
5/16 in 7.9 mm	17-21	23-28	2.4-2.9
3/8 in 9.5 mm	35-42	48-57	4.8-5.8
7/16 in 11.1 mm	54-64	73-87	7.5-8.8
1/2 in 12.7 mm	80-96	109-130	11.1-13.3
9/16 in 14.3 mm	110-132	149-179	15.2-18.2
5/8 in 15.9 mm	150-180	203-244	20.8-24.9
3/4 in 19.0 mm	270-324	366-439	37.3-44.8
7/8 in 22.2 mm	400-480	542-651	55.3-66.4
1.0 in 25.4 mm	580-696	787-944	80.2-96.2
1-1/8 in 28.6 mm	800-880	1085-1193	111-122
1-1/4 in 31.8 mm	1120-1240	1519-1681	155-171
1-3/8 in 34.9 mm	1460-1680	1980-2278	202-232
1-1/2 in 38.1 mm	1940-2200	2631-2983	268-304


Grade 8 Bolts, Nuts, and Studs			
			
Size	Pound-Feet	Newton metres	Kilogram metres
1/4 in 6.4 mm	12-15	16-20	1.7-2.1
5/16 in 7.9 mm	24-29	33-39	3.3-4.0
3/8 in 9.5 mm	45-54	61-73	6.2-7.5
7/16 in 11.1 mm	70-84	95-114	9.7-11.6
1/2 in 12.7 mm	110-132	149-179	15.2-18.2
9/16 in 14.3 mm	160-192	217-260	22.1-26.5
5/8 in 15.9 mm	220-264	298-358	30.4-36.5
3/4 in 19.0 mm	380-456	515-618	52.5-63.0
7/8 in 22.2 mm	600-720	814-976	83.0-99.5
1.0 in 25.4 mm	900-1080	1220-1465	124-149
1-1/8 in 28.6 mm	1280-1440	1736-1953	177-199
1-1/4 in 31.8 mm	1820-2000	2468-2712	252-277
1-3/8 in 34.9 mm	2380-2720	3227-3688	329-376
1-1/2 in 38.1 mm	3160-3560	4285-4827	437-492

TORQUE SPECIFICATIONS - METRIC HARDWARE

Use the following torques when special torques are not given.

These values apply to fasteners with coarse threads as received from supplier, plated or unplated, or when lubricated with engine oil. These values do not apply if graphite or moly-disulfide grease or oil is used.

Grade 8.8 Bolts, Nuts, and Studs			
			
Size	Pound-Feet	Newton metres	Kilogram metres
M4 0.15 in	2-3	3-4	0.3-0.4
M5 0.19 in	5-6	6.5-8	0.7-0.8
M6 0.23 in	8-9	10.5-12	1.1-1.2
M8 0.31 in	19-23	26-31	2.6-3.2
M10 0.39 in	38-45	52-61	5.3-6.2
M12 0.46 in	66-79	90-107	9.1-10.9
M14 0.55 in	106-127	144-172	14.7-17.6
M16 0.62 in	160-200	217-271	22.1-27.7
M20 0.78 in	320-380	434-515	44.2-52.5
M24 0.94 in	500-600	675-815	69.1-83.0
M30 1.17 in	920-1100	1250-1500	127-152
M36 1.40 in	1600-1950	2175-2600	221-270

Grade 10.9 Bolts, Nuts, and Studs			
			
Size	Pound-Feet	Newton metres	Kilogram metres
M4 0.15 in	3-4	4-5	0.4-0.5
M5 0.19 in	7-8	9.5-11	1.0-1.1
M6 0.23 in	11-13	15-17.5	1.5-1.8
M8 0.31 in	27-32	37-43	3.7-4.4
M10 0.39 in	54-64	73-87	7.5-8.8
M12 0.46 in	93-112	125-150	12.9-15.5
M14 0.55 in	149-179	200-245	20.6-24.7
M16 0.62 in	230-280	310-380	31.8-38.7
M20 0.78 in	450-540	610-730	62.2-74.7
M24 0.94 in	780-940	1050-1275	108-130
M30 1.17 in	1470-1770	2000-2400	203-245
M36 1.40 in	2580-3090	3500-4200	357-427

Grade 12.9 Bolts, Nuts, and Studs



Usually the torque values specified for grade 10.9 fasteners can be used satisfactorily on grade 12.9 fasteners.

TORQUE SPECIFICATIONS - STEEL HYDRAULIC FITTINGS

Tube OD Hose ID	Thread Size	Pound- Feet	Newton metres	Kilogram metres
37 Degree Flare Fittings				
1/4 in 6.4 mm	7/16-20	6-12	8-16	0.8-1.7
5/16 in 7.9 mm	1/2-20	8-16	11-21	1.1-2.2
3/8 in 9.5 mm	9/16-18	10-25	14-33	1.4-3.5
1/2 in 12.7 mm	3/4-16	15-42	20-56	2.1-5.8
5/8 in 15.9 mm	7/8-14	25-58	34-78	3.5-8.0
3/4 in 19.0 mm	1-1/16-12	40-80	54-108	5.5-11.1
7/8 in 22.2 mm	1-3/16-12	60-100	81-135	8.3-13.9
1.0 in 25.4 mm	1-5/16-12	75-117	102-158	10.4-16.2
1-1/4 in 31.8 mm	1-5/8-12	125-165	169-223	17.3-22.8
1-1/2 in 38.1 mm	1-7/8-12	210-250	285-338	29.0-34.6

Tube OD Hose ID	Thread Size	Pound- Feet	Newton metres	Kilogram metres
Straight Threads with O-ring				
1/4 in 6.4 mm	7/16-20	12-19	16-25	1.7-2.6
5/16 in 7.9 mm	1/2-20	16-25	22-33	2.2-3.5
3/8 in 9.5 mm	9/16-18	25-40	34-54	3.5-5.5
1/2 in 12.7 mm	3/4-16	42-67	57-90	5.8-9.3
5/8 in 15.9 mm	7/8-14	58-92	79-124	8.0-12.7
3/4 in 19.0 mm	1-1/16-12	80-128	108-174	11.1-17.8
7/8 in 22.2 mm	1-3/16-12	100-160	136-216	13.8-22.1
1.0 in 25.4 mm	1-5/16-12	117-187	159-253	16.2-25.9
1-1/4 in 31.8 mm	1-5/8-12	165-264	224-357	22.8-36.5
1-1/2 in 38.1 mm	1-7/8-12	250-400	339-542	34.6-55.3

Split Flange Mounting Bolts			
Size	Pound- Feet	Newton metres	Kilogram metres
5/16-18	15-20	20-27	2.1-2.8
3/8-16	20-25	26-33	2.8-3.5
7/16-14	35-45	47-61	4.7-6.2
1/2-13	55-65	74-88	7.6-9.0
5/8-11	140-150	190-203	19.4-20.7

Section 1010

GENERAL ENGINE SPECIFICATIONS

Written In *Clear
And
Simple
English*

IMPORTANT: *This engine was made using the metric measurement system. All measurements and checks must be made with metric tools to make sure of an accurate reading when inspecting parts.*

ENGINE SPECIFICATIONS

General

Type	6 Cylinder, 4 Stroke Cycle, Valve-In-Head
Firing Order	1,5,3,6,2,4
Bore	114 mm
Stroke	135 mm
Piston Displacement	8.27 Litres
Compression Ratio	(6-830) 16.4 to 1 (6T-830) 17.3 to 1
Cylinder Sleeves	Wet Type, Can be Removed
No Load Governed Speed	2240 to 2330 RPM
Rated Engine Speed	2200 to 2280 RPM
Engine Idle Speed	800 to 850 RPM
Valve Tappet Clearance (Exhaust)(Cold)	0.61 mm
(Intake)(Cold)	0.30 mm
Thermostat Operating Range	176° F to 203° F (80° C to 95° C)

Piston and Connecting Rods

Rings Per Piston	3
Number of Compression Rings	2
Number of Oil Rings (two piece)	1
Type of Pins	Full Float
Type Bearings	Steel Back Leaded Bronze

Main Bearings

Number of Bearings	7
Type of Bearings	Replaceable

Engine Lubricating System

Oil Pressure	40 to 55 PSI (275 to 380 kPa)(2.75 to 3.80 bar) with Engine Warm at Rated Engine Speed
Type of System	Pressure and Spray Lubrication
Oil Pump	Rotor Type
Oil Filter	Full Flow Turn-on Type
Oil Capacity 6-830 (with filter)	23.5 Quarts (22 litres)
Oil Capacity 6T-820 (with filter)	23.7 Quarts (22.4 litres)
(without filter)	20 Quarts (19 Litres)

Fuel System

Fuel Injection Pump	Bosch
Pump Timing	Top Center
Fuel Injectors	Bosch 17 mm Opening Pressure (New) 2968 to 3084 PSI (20 500 to 21 300 kPa)(205 to 213 Bar)
Governor	Variable Speed, a Part of the Injection Pump
First Stage Fuel Filter	Turn on Type
Second Stage Fuel Filter	Turn on Type
Lift Pump	20 to 25 PSI (140 to 172 kPa)(1.40 to 1.72 Bar)

NOTE: The J I Case Company reserves the right to make improvements in design or changes in specifications at any time without incurring any obligation to install them on units previously sold.

Section 1010

GENERAL ENGINE SPECIFICATIONS

Written In *Clear
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Simple
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IMPORTANT: *This engine was made using the metric measurement system. All measurements and checks must be made with metric tools to make sure of an accurate reading when inspecting parts.*

ENGINE SPECIFICATIONS

General

Type	6 Cylinder, 4 Stroke Cycle, Valve-In-Head
Firing Order	1,5,3,6,2,4
Bore	102 mm
Stroke	120 mm
Piston Displacement	5.88 Litres
Compression Ratio	17.0 to 1
No Load Governed Speed	2240 to 2330 RPM
Rated Engine Speed	2200 to 2280 RPM
Engine Idle Speed	750 to 800 RPM
Valve Tappet Clearance (Exhaust)(Cold)	0.508 mm
(Intake)(Cold)	0.254 mm
Thermostat Operating Range	181°F to 203°F (83°C to 95°C)

Piston and Connecting Rods

Rings Per Piston	3
Number of Compression Rings	2
Number of Oil Rings (two piece)	1
Type of Pins	Full Float
Type Bearings	Steel Back Leaded Bronze

Main Bearings

Number of Bearings	7
Type of Bearings	Replaceable

Engine Lubricating System

Oil Pressure	42 to 54 PSI (290 to 372 kPa)(2.90 to 3.72 bar) with Engine Warm at Rated Engine Speed
Type of System	Pressure and Spray Lubrication
Oil Pump	Rotor Type
Oil Filter	Full Flow Turn-on Type
Oil Capacity (with filter)	16 Quarts (15 litres)
(without filter)	15 Quarts (14.3 litres)

Fuel System

Fuel Injection Pump	Bosch
Pump Timing	Top Center
Fuel Injectors	Bosch 17 mm Opening Pressure (New) 3190 to 3310 PSI (21 994 to 22 822 kPa)(220 to 228 Bar)
Governor	Variable Speed, a Part of the Injection Pump
First Stage Fuel Filter	Turn on Type
Second Stage Fuel Filter	Turn on Type
Lift Pump	5 to 7 PSI (34 to 48 kPa)(0.34 to 0.48 Bar)

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MAINTENANCE AND LUBRICATION

TABLE OF CONTENTS

Fluid and Lubricants	1212-2	Run-In Maintenance Schedule	1212-3
Run-In Period	1212-3	Maintenance Schedule	1212-4 thru 1212-11

FLUIDS AND LUBRICANTS

FUEL TANK

Capacity 52 gallons (197 litres)
 Type of Fuel..... See the Operators Manual

ENGINE OIL

Capacity
 1150E Dozers 22 quarts (20.8 litres)
 1155E Loaders 16 quarts (15 litres)
 Type of oil See the Operators Manual

HYDRAULIC FLUID RESERVOIR

Refill capacity with filter change 15 gallons (57 litres)
 Type of fluid Case TCH Fluid
 Alternate Type C-3 Hydraulic Fluid (SAE 10W)

TRANSMISSION/CONVERTER

Refill capacity with filter change 14 gallons (53 litres)
 Refill capacity without filter change 13.25 gallons (50 litres)
 Type of fluid Case TCH Fluid
 Alternate Type C-3 Hydraulic Fluid (SAE 10W)

FINAL DRIVES

Refill capacity (each side) 8 quarts (7.6 litres)
 Type of lubricant Case FDL Fluid
 Alternate Multipurpose Gear Lubricant
 (API-GL-5) SAE 85W-140

ENGINE COOLING SYSTEM

Capacity with heater
 1150E Dozers 33 quarts (31.2 litres)
 1155E Loaders 29 quarts (27.4 litres)
 Capacity without heater
 1150E Dozers 30 quarts (28.4 litres)
 1155E Loaders 26 quarts (24.6 litres)
 Type of coolant Ethylene glycol type antifreeze and
 water that is mixed 50% ethylene
 glycol and 50% water.

WINCH

Refill capacity 14 gallons (53 litres)
 Type of fluid Case TCH Fluid
 Alternate Type C-3 Hydraulic Fluid (SAE 10W)

BATTERIES

Capacity As required
 Type of fluid Use drinking or distilled water only

GREASE FITTINGS

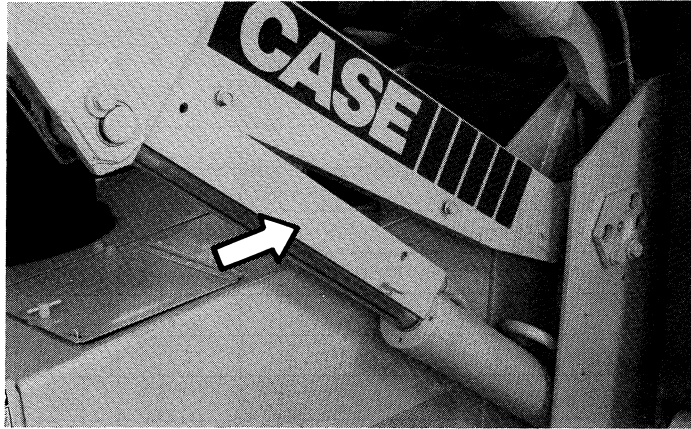
Quantity As required
 Type of lubricant Case Molydisulfide grease

WARNING: *Raised equipment or machine movement without an operator can cause injury or death. Before you service this machine, do the following:*



1. *Park the machine on a level surface.*
2. *Support or lower the equipment (backhoe, blade, boom, bucket, etc.) to the ground (if equipped).*
3. *Apply the parking brake (if equipped).*
4. *Stop the engine.*
5. *Block the machine (wheels, tracks, etc.) to prevent machine movement.*

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RUN-IN PERIOD

During the first 20 hours of operation for a new machine, or a machine with a rebuilt engine, make sure you do the following:

1. Operate the machine with normal loads for the first 8 hours.
2. Keep the engine at normal operating temperatures.
3. Do not run the engine at idle speeds for long periods of times.
4. See the Run-In Maintenance Schedule on this page for additional information.

RUN-IN MAINTENANCE SCHEDULE

The following items are to be done during the Run-In Period and are in addition to the items in the Maintenance Schedule on the following page.

————— AFTER FIRST 20 HOURS OF OPERATION —————

Have your Case dealer do the After Delivery Check

————— AFTER FIRST 100 HOURS OF OPERATION —————

Tighten all hose clamps

————— AFTER FIRST 250 HOURS OF OPERATION —————

If the machine is new or the transmission has been overhauled, replace the filter at 250 hours for the first and second filter change.

If the machine is new or if a part has been overhauled in the hydraulic system, replace the filter at 250 hours for the first and second filter change.

MAINTENANCE SCHEDULE

REF. NUMBER	SERVICE POINTS	CHECK	CLEAN	CHANGE	REPLACE	DRAIN WATER	SECTION	INTERVAL
1	Engine Oil Level	■						10 Hours ○
2	Transmission Oil Level	■				6002		
3	Hydraulic Reservoir Fluid Level	■				8002		
4	Air Cleaner Dust Valve and Cover	■				2001		50 Hours ◐
5	Coolant Reservoir Fluid Level	■						
6	First Stage Fuel Filter				■	3410		100 Hours ●
7	Parking Brake Adjustment	■				7001		
8	Manual Brake Adjustment	■				7001		250 Hours ▲
9	Spark Arrester Muffler (Dozer Only)		■			2001		
10	Engine Oil		■					500 Hours □
11	Engine Oil Filter			■				
12	Final Drive Oil Level (Each Side)	■				6002		
13	Air Conditioning Drive Belt*	■				8003		
14	Battery Fluid Level	■				4005		
15	Radiator Fluid Level	■						
16	Cooling System Filter (Dozer Only)			■				
17	Hydraulic Fluid Filter***			■		8002		
18	Transmission Fluid Filter****			■		6002		
19	Fuel Filters			■		3410		
20	Hydraulic Fluid Filter***			■		8002		
21	Transmission Fluid Filter****			■		6002		
22	ROPS Cab or ROPS Canopy	■				9061		

Continued on page 1212-0

*If Equipped

**Every 10 Hours of Operation of Each Day, Whichever Occurs First

***If the machine is new or if a part has been overhauled in the hydraulic system, replace the filter at 250 hours for the first and second filter change

****If the machine is new or the transmission has been overhauled, replace the filter at 250 hours for the first and second filter change