

# 1150C CRAWLER TABLE OF CONTENTS AND SERVICE MANUAL INTRODUCTION

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## Service Manual Introduction



This Symbol Shows Important Information About Safety In This Manual. When You See This Symbol, Carefully Read The Information That Follows and Understand The Possible Causes of Injury Or Death. 1-1-A

### Safety Rules

It is recommended that the warning tag shown in Figure 1 be put on the key for the key switch when a person is working on the machine. A warning tag comes with the machine. Additional warning tags, part number 331-4614, are available from Service Parts Supply.



Figure 1



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

46-27



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

23-7-A



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

35-8



**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



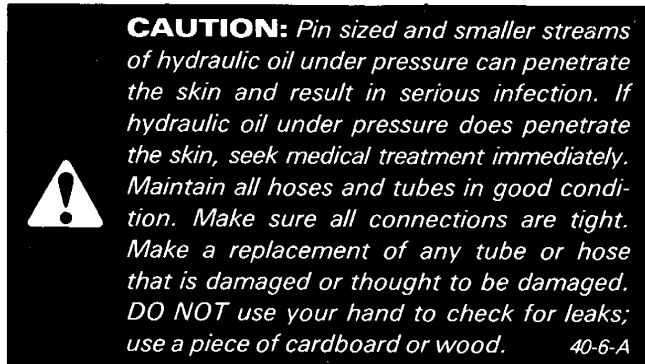
**CAUTION:** Use suitable floor (service) jacks or chain hoists to raise wheels off the floor. Always block machine in place with suitable safety stands.

40-7



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

40-10



## General Information

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 will have drawings without a written procedure because the job is easily done. This service manual is one of the most important tools available to the service technician.

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.

## 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 will have steps that are for a specific component.

## Table of Contents

The first two pages of this section are a Table of Contents which show the series number and title, and the sections that are in each series. The individual section, where necessary, will have a Table of Contents on the second page of that section.

## Page Numbers

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

## Illustrations

Illustrations are put as near as possible to the text and are to be used as a part of the text.

## Torque References

Most of the time two grades of fasteners (bolts, nuts, and screws) are used on Case machines. The grades of the fasteners are grade 5 and grade 8. See Section 1051 for torque specifications and identification marks.

The specifications in Section 1051 are standard torque values and are to be used on all fasteners during assembly and installation unless special torque values are shown in a section.

## Product Identification Number, Serial Number, and Model Number

When replacement parts are needed, it can be necessary to give the parts department one or all of the numbers. The model number is normally found on the Product Identification Number plate or the Serial Number plate.

The Product Identification Number and Serial Numbers will be found in the following locations.

Machine - Product Identification Number plate fastened to the instrument panel.

Engine - Serial Number plate on the right-hand side of the engine above the starter.

Other component parts - Serial Number plate on the part of the serial number is stamped in the part.

**NOTE:** A Part Number plate will be found on some parts.

## Classification of Lubricants

The Society of Automotive Engineers (SAE), the American Petroleum Institute (API), and the national Lubricating Grease Institute (NLGI) put oil and grease in classifications and grades according to temperature and use.

## Engine Oil

The SAE number is the viscosity of engine oils, for example, SAE 30 is a single viscosity oil. SAE 10W30 is a variable viscosity oil.

The API classification (SD, CD, etc.) is the oil performance according to the application of the engine. Only oil specified in Section 1050 can be used. These oils have the needed additives to give maximum engine protection. Both the SAE grade and API classification must be found on the container.

**Thanks very much for your reading,  
Want to get more information,  
Please click here, Then get the complete  
manual**

**JustClickHere** 

**NOTE:**

**If there is no response to click on the link above,  
please download the PDF document first, and then  
click on it.**

**Have any questions please write to me:  
[admin@servicemanualperfect.com](mailto:admin@servicemanualperfect.com)**

## Gear Lubricant and Grease

Gear lubricant and grease for each application is specified in Section 1050.

## Special Tools

There are some special tools that are needed to remove and install, disassemble and assemble, check and adjust the component parts of this machine. Some special tools are 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.

Special tools are no longer available from Case Service parts Supply. Special tools are available from:

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

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



# Section 1010

## GENERAL ENGINE SPECIFICATIONS 1150C CRAWLER LOADER AND DOZER

### DIESEL ENGINES

#### General

Type .....	6 Cylinder, 4 Stroke Cycle, Valve-in-Head
Firing Order .....	1-5-3-6-2-4
Bore .....	4-3/8 Inches
Stroke .....	5 Inches
Piston Displacement .....	16.5 to 1
No Load Governed Speed .....	2285 - 2315 RPM
Rated Engine Speed .....	2100 RPM
Engine Idling Speed .....	725 to 775 RPM
Exhaust Valve Rotators .....	Positive Type
Valve Tappet Clearance (Exhaust) .....	0.025 Inch
(Intake) .....	0.015 Inch

#### Piston and Connecting Rods

Rings per Piston .....	3
Number of Compression Rings .....	2
Number of Oil Rings .....	1
Type Pins .....	Full Floating Type
Type Bearing .....	Replaceable Precision Steel Back, Copper-Lead or Aluminum Alloy Liners.

#### Main Bearings

Number of Bearings .....	7
Type Bearings .....	Replaceable Precision Steel Back, Copper-Lead or Aluminum Alloy Liners.

#### Engine Lubricating System

Crankcase Capacity .....	14 Quarts
With Filter Change .....	15 Quarts
Oil Pressure .....	45 to 55 PSI with Engine Warm and Operating at Rated Engine Speed
Type System .....	Pressure and Spray Circulation
Oil Pump .....	Gear Type
Oil Filter .....	Full Flow Spin on Type

#### Fuel System

Fuel Injection Pump .....	Robert Bosch, Type PES Multiple Plunger
Pump Timing .....	30 Degrees Before Top Center (Port Closing)
Fuel Injectors .....	Pencil Type (Opening Pressure 3200 PSI)
Fuel Transfer Pump .....	Plunger Type, Integral Part of Injection Pump
Governor .....	Variable Speed, Fly-Weight Centrifugal Type, Integral Part of Injection Pump
1st Stage Fuel Filter .....	Full Flow Spin on Type
2nd Stage Fuel Filter .....	Full Flow Spin on Type





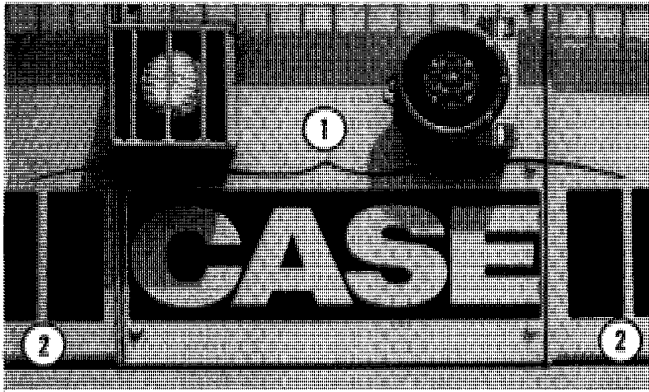
# Section 1012

## DECALS AND PAINTING

Written In *Clear  
And  
Simple  
English*

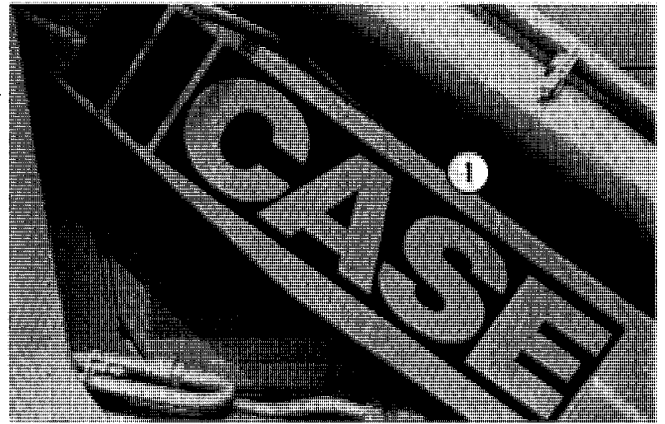
## GENERAL INFORMATION

1. All decals about operation of the machine and/or attachments must be in a condition so that you can read the decals easily. Replace any decal that has damage or cannot be read.
2. All decals that start with the words WARNING, CAUTION, or DANGER must be in a condition so that you can read the decals easily. Replace any decal that has damage or cannot be read.
3. When you paint the machine or attachment, put covers over the good decals and remove the decals which have damage or cannot be read easily. Use enamel thinner to make the decal easier to remove.
4. Remove the old decal before you install a new decal. Use enamel thinner to make the old decal easier to remove.
5. When you paint the machine or attachment, use standard procedure. Remove the grease, wash the area, use sandpaper to prepare the surface for paint, and put covers over all good decals and parts which you do not want to paint.
6. The following pages show decals installed on the machine or attachments. Part numbers of the decals are shown also. Check the parts catalog to make sure that the part number is correct before you make an order for the decals. Decals are available separately or in a kit for the machine.



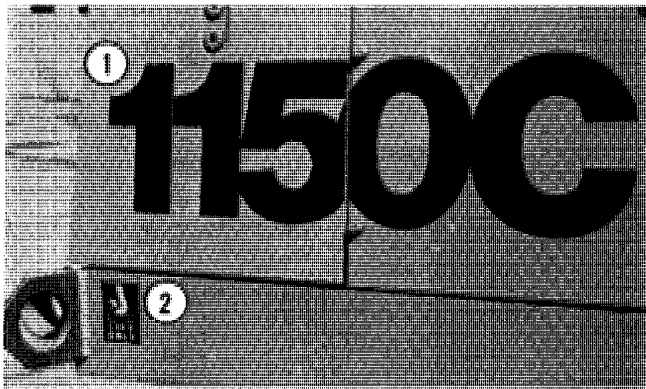
- 1. 321-5273 - Case and Treadmarks
- 2. 321-3122 - Treadmarks

Figure 1



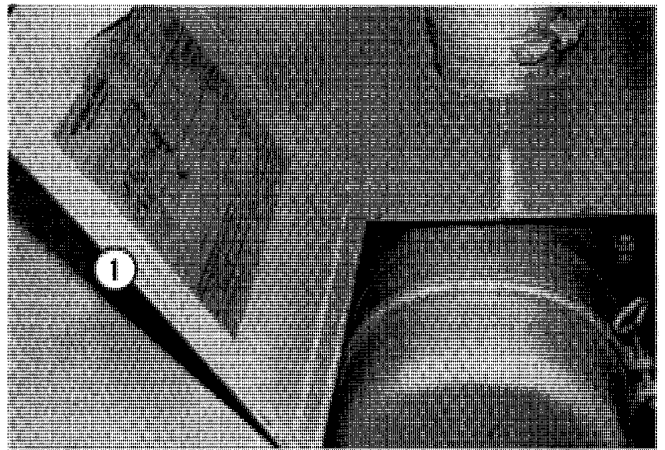
- 1. 321-5274

Figure 5



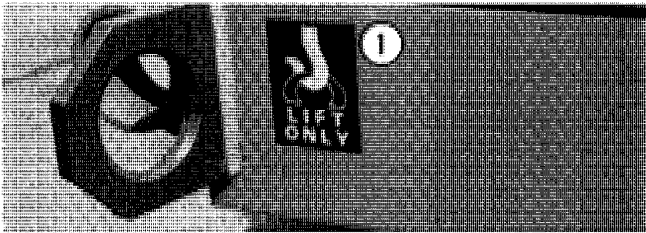
- 1. 321-4627
- 2. 321-3587

Figure 2



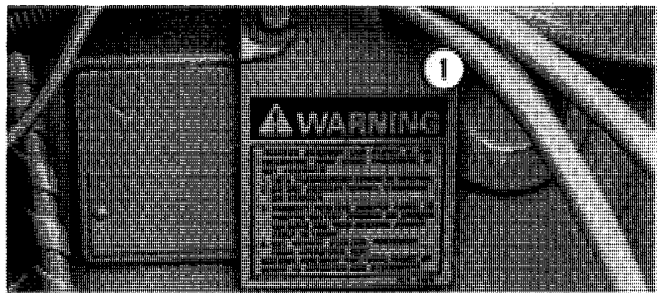
- 1. 321-4689 Location Shown is for Engines Without Turbocharger. Maintenance Decal for Engines With Turbocharger is on Door Right Side of Hood

Figure 6



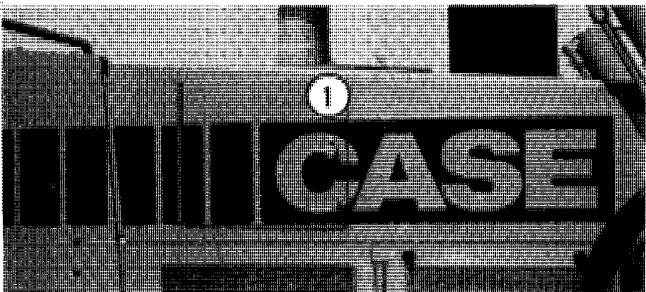
- 1. 321-3587

Figure 3



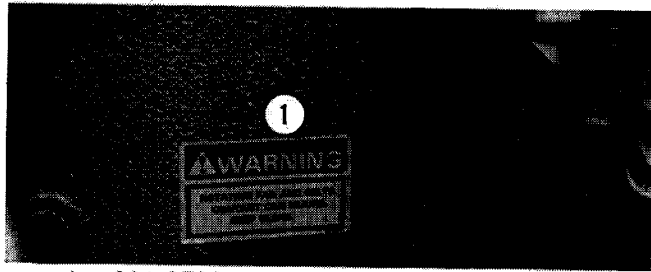
- 1. 321-4189

Figure 7



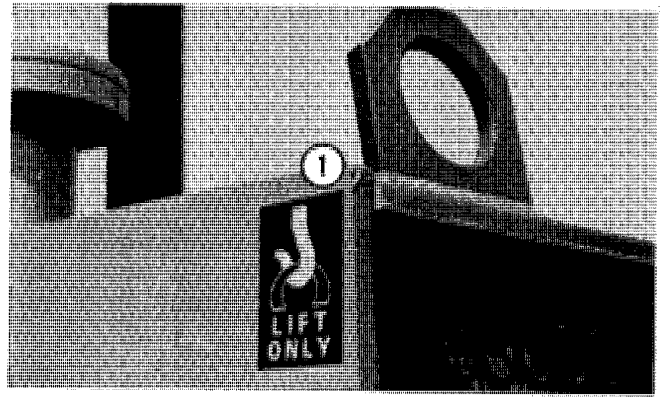
- 1. 321-5276

Figure 4



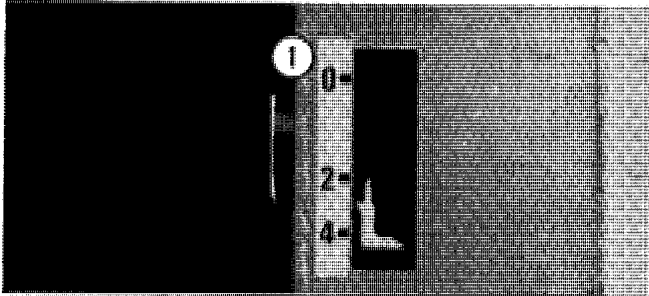
1. 321-3596

Figure 8



1. 321-3587

Figure 12



1. 321-1706

Figure 9



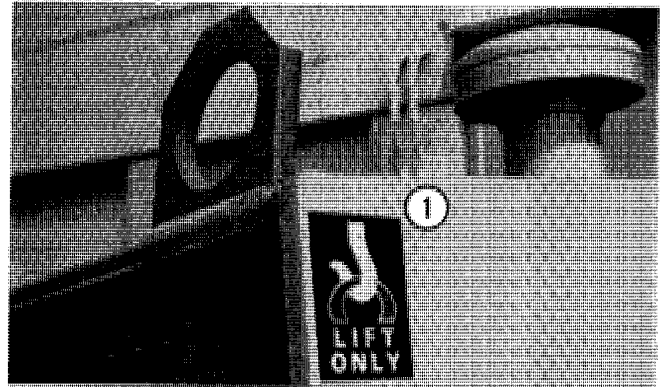
1. 321-3708

Figure 13



1. 321-4227

Figure 10



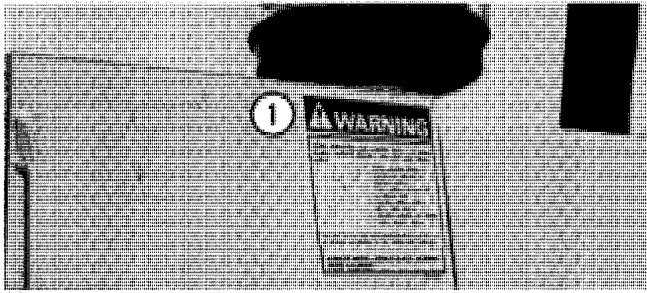
1. 321-3587

Figure 14



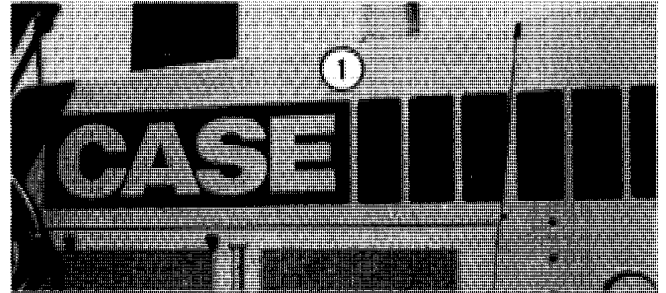
1. 321-4227 See Figure 10 for Location

Figure 11



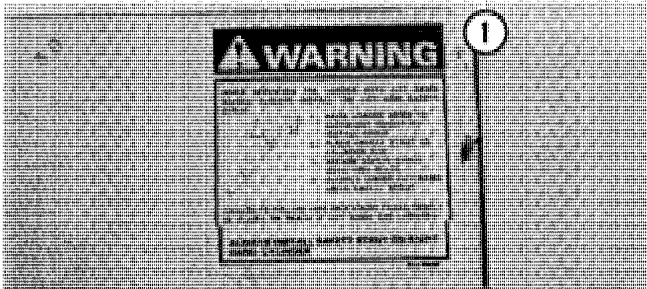
1. 321-4227

Figure 15



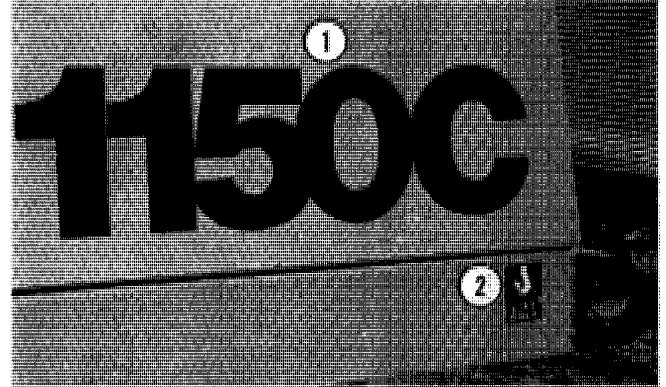
1. 321-5276

Figure 19



1. 321-4227 See Figure 15 for Location

Figure 16



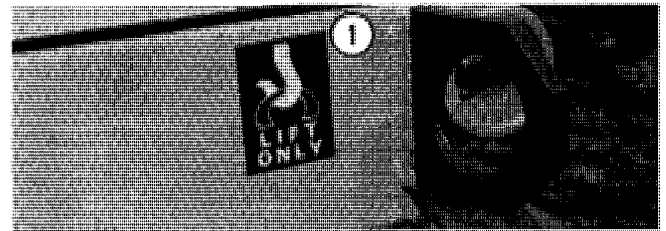
1. 321-4627  
2. 321-3587

Figure 20



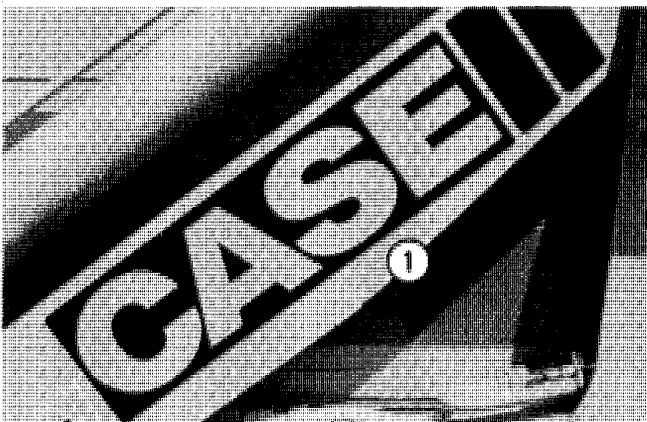
1. 321-3596

Figure 17



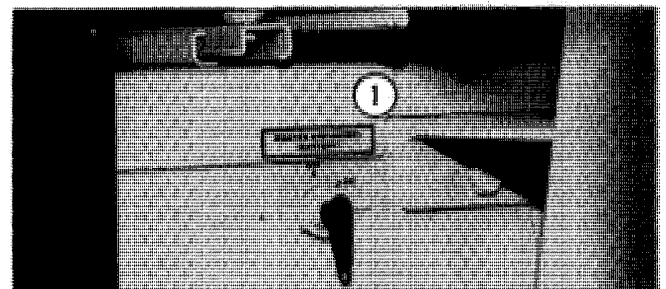
1. 321-3587 See Figure 20 for Location

Figure 21



1. 321-5274

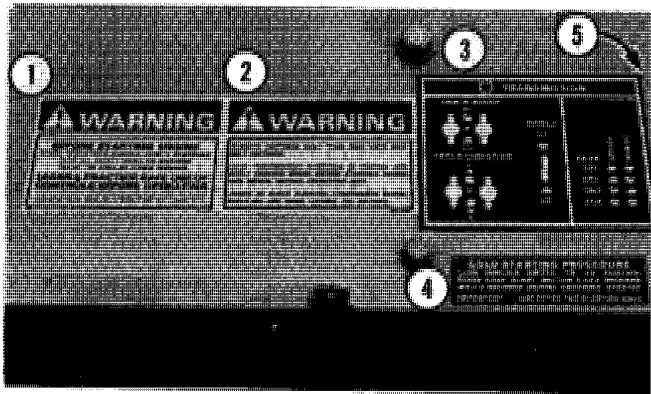
Figure 18



1. 321-2392

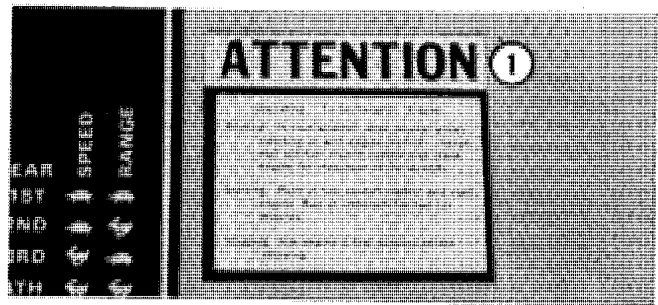
Figure 22





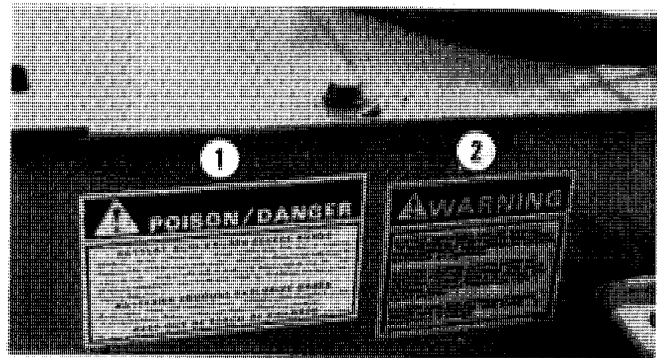
- 1. 321-3705 See Figure 24
- 2. 321-4188 See Figure 24
- 3. 321-4178 See Figure 25
- 4. 321-1841 See Figure 25
- 5. 321-2605 See Figure 26

Figure 23



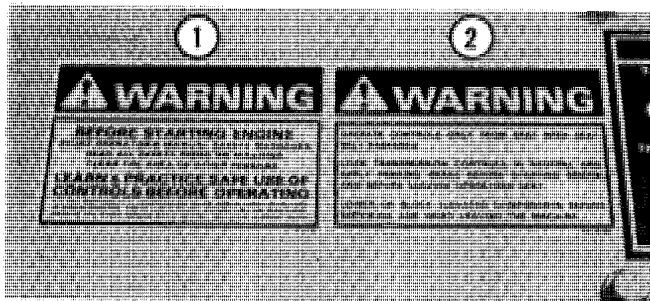
- 1. 321-2605 See Figure 23 for Location

Figure 26



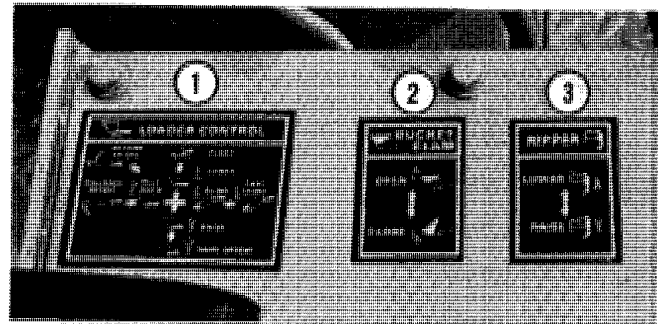
- 1. 321-2996
- 2. 321-4190

Figure 27



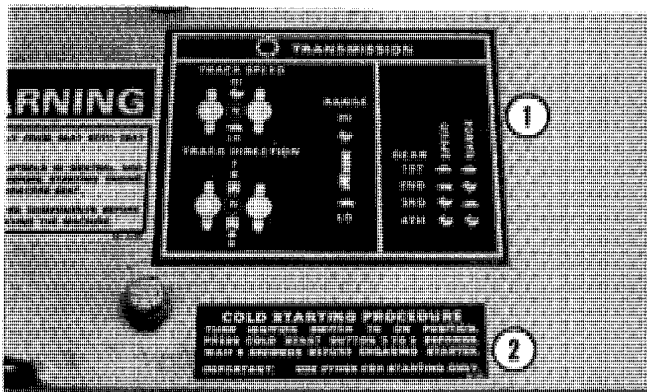
- 1. 321-3705 See Figure 23 for Location
- 2. 321-4188 See Figure 23 for Location

Figure 24



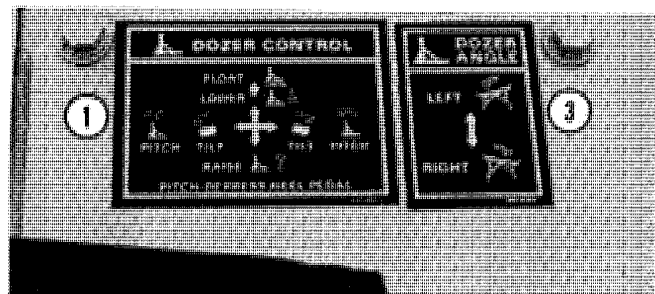
- 1. 321-4435
- 2. 321-4184
- 3. 321-4185

Figure 28



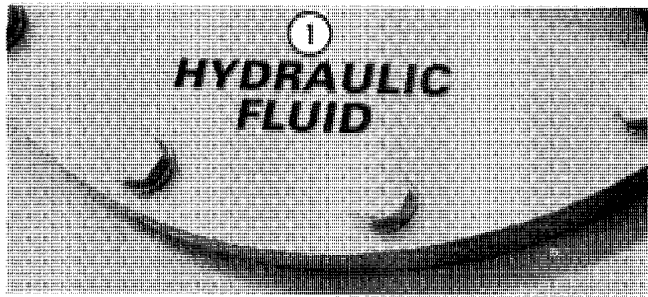
- 1. 321-4178 See Figure 23 for Location
- 2. 321-1841 See Figure 23 for Location

Figure 25



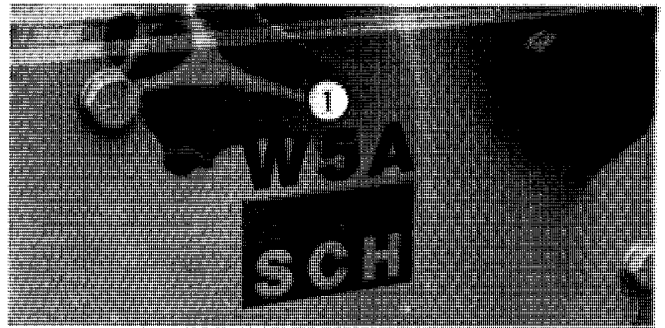
- 1. 321-4173
- 2. 321-4181 (Not Shown)
- 3. 321-4182

Figure 29



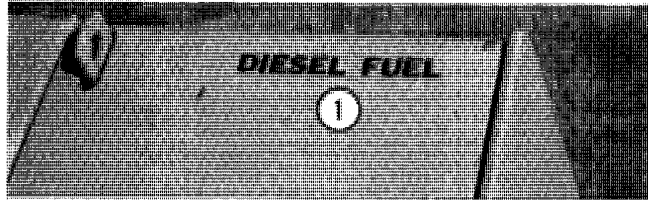
1. 321-229

Figure 30



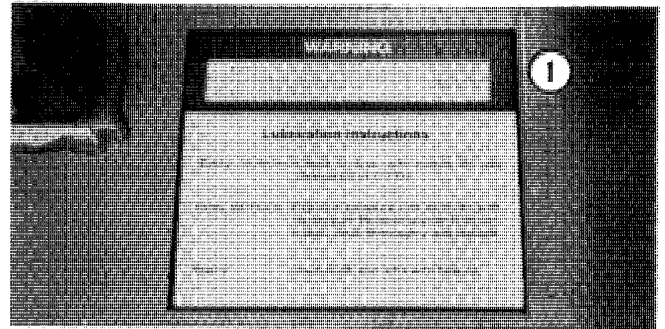
1. D77606 Part of Decal Set for Right and Left Side of Winch. See Figure 37

Figure 35



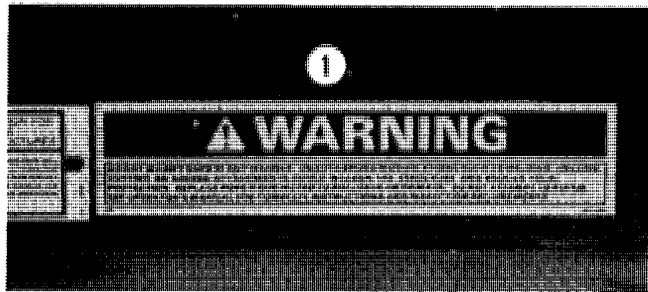
1. 321-230

Figure 31



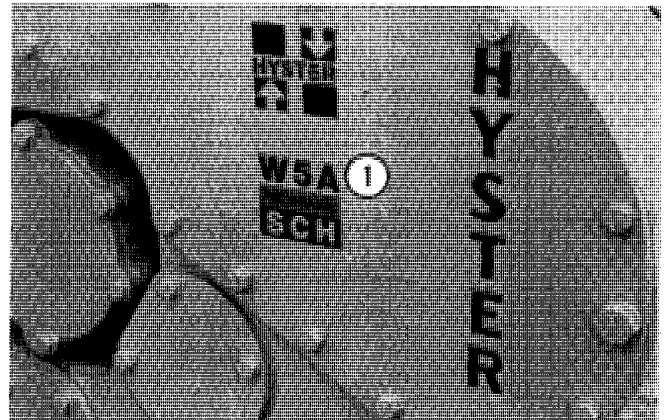
1. D77608

Figure 36



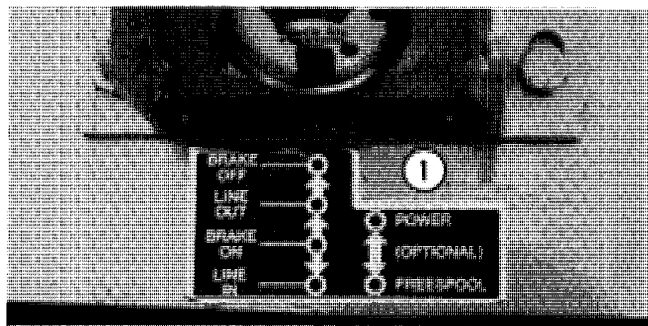
1. 321-4192

Figure 32



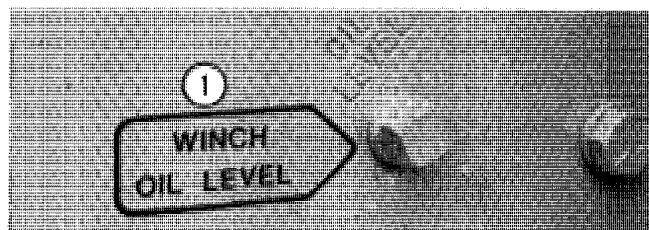
1. D77606 Part of Decal Set for Right and Left Side of Winch. See Figure 34  
2. R30977 Use One on Each Side of Winch. Right Side not Shown.

Figure 37



1. D77607

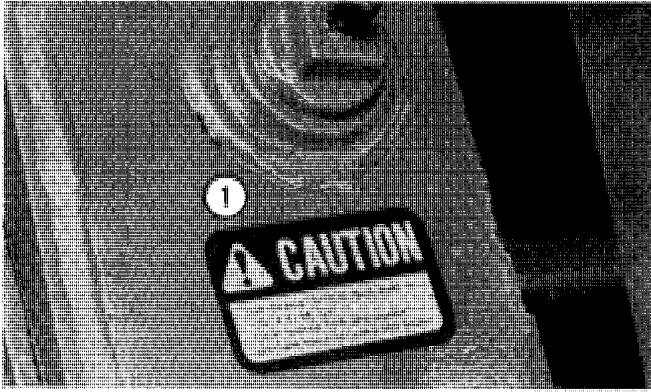
Figure 33



1. 321-3711

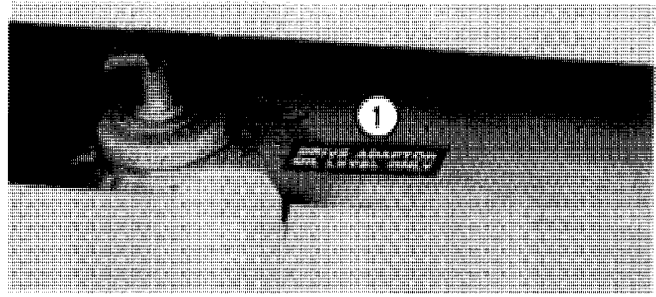
Figure 34





1. N6473

Figure 38



1. D77585

Figure 39

# Section

# 1021

## DETAILED SPECIFICATIONS

## 451BD ENGINE

### FRACTION to DECIMAL to MILLIMETER CONVERSION TABLE

Fraction	Decimal	MM	Fraction	Decimal	MM	Fraction	Decimal	MM
1/64	.0156	0.397	23/64	.3593	9.128	45/64	.7031	17.859
1/32	.0312	0.794	3/8	.3750	9.525	23/32	.7187	18.256
3/64	.0468	1.191	25/64	.3906	9.922	47/64	.7343	18.653
1/16	.0625	1.587	13/32	.4062	10.319	3/4	.7500	19.050
5/64	.0781	1.984	27/64	.4218	10.716	49/64	.7656	19.447
3/32	.0937	2.381	7/16	.4375	11.113	25/32	.7812	19.844
7/64	.1093	2.778	29/64	.4531	11.509	51/64	.7968	20.240
1/8	.1250	3.175	15/32	.4687	11.906	13/16	.8125	20.637
9/64	.1406	3.572	31/64	.4843	12.303	53/64	.8281	21.034
5/32	.1562	3.969	1/2	.5000	12.700	27/32	.8437	21.431
11/64	.1718	4.366	33/64	.5156	13.097	55/64	.8593	21.828
3/16	.1875	4.762	17/32	.5312	13.494	7/8	.8750	22.225
13/64	.2031	5.159	35/64	.5468	13.890	57/64	.8906	22.622
7/32	.2187	5.556	9/16	.5625	14.287	29/32	.9062	23.019
15/64	.2343	5.953	37/64	.5781	14.684	59/64	.9218	23.415
1/4	.2500	6.350	19/32	.5937	15.081	15/16	.9375	23.812
17/64	.2656	6.747	39/64	.6093	15.478	61/64	.9531	24.209
9/32	.2812	7.144	5/8	.6250	15.875	31/32	.9687	24.606
19/64	.2968	7.541	41/64	.6406	16.272	63/64	.9843	25.003
5/16	.3125	7.937	21/32	.6562	16.669	1	1.0000	25.400
21/64	.3281	8.334	43/64	.6718	17.065			
11/32	.3437	8.731	11/16	.6875	17.462			

### INCH to MILLIMETER CONVERSION TABLE

Inch	MM	Inch	MM	Inch	MM	Inch	MM
1	25.400	6	152.000	10	254.000	60	1,524.000
2	50.800	7	177.800	20	508.000	70	1,778.000
3	76.200	8	203.200	30	762.000	80	2,032.000
4	101.600	9	228.600	40	1,016.000	90	2,286.000
5	127.000	10	254.000	50	1,270.000	100	2,540.000

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## RUN-IN-INSTRUCTIONS

### Engine Lubrication

When the engine rebuild is complete, fill the engine crankcase with Case HDM oil and install new engine oil filters. **NOTE:** If Case HDM oil is not used, use only a Series 3 DS or CD Service Classification oil that has the proper viscosity rating for prevailing air temperature. Refer to vehicle Operators Manual.

After the first 20 hours of operation, change the engine oil while the engine is hot and replace the the engine oil filter/s. **DO NOT DRAIN OIL UNTIL THE ENGINE HAS BEEN OPERATED 20 HOURS.**

Change the engine oil and filter/s at the recommended intervals thereafter as outlined in the Operator's Manual.

### Break-In Procedure for Rebuilt Engines (With a Dynamometer)

The following procedure must be implemented when using a PTO dynamometer to break-in the engine. The dynamometer will insure control of the engine load at each speed and will eliminate over stressing new parts during break-in.

During the break-in, continually check the oil pressure, coolant level, and coolant temperature.

STEP	TIME	ENGINE SPEED	DYNAMOMETER SCALE LOAD*
1	**10 Minutes	1000 RPM	None
2	**10 Minutes	1800 RPM	None
3	20 Minutes	1800 RPM	1/3
4	20 Minutes	1800 RPM	1/2
5	***30 Minutes	100 RPM below rated speed	3/4
6	Retorque the cylinder head bolts using the procedure described in Section 2015 of this service manual.		

\*Based upon normal dynamometer scale load at rated speed for the particular vehicle model. Reduce this scale load as indicated.

\*\*The most ideal break-in procedure would be to constantly vary the throttle between 750 to 1000 RPM for the first 10 minutes and from 1000 RPM to 1800 RPM for the next 10 minutes. The purpose of this changing RPM is to vary the lubrication and coolant flow.

\*\*\*30 minutes at 3/4 load is a minimum amount of time the engine should be run. It is recommended that whenever possible the engine (especially turbocharged diesels) should be run for four (4) hours or more at the above speed and load before checking the full engine horsepower or before using the engine for heavy field work.

### Break-In Procedure for Rebuilt Engines (Without a Dynamometer)

STEP	TIME	ENGINE SPEED	LOAD
1	*10 Minutes	1000 RPM	None
2	*10 Minutes	1800 RPM	None
3	30 Minutes	2/3 Rated RPM	Light Load
4	1 Hour	Full RPM (not over 2000 RPM)	80 to 90%
5	Retorque the cylinder head bolts using the procedure described in Section 2015 of this service manual.		

\*If engine must then run at or near full load to operate the machine - for first hour remove load and run at high idle for a few minutes at 15 minute intervals.

### **Run-In Procedure (Agricultural Tractors)**

For the first 8 hours of field operation stay one gear lower than normal. For the next 12 hours DO NOT “lug” the engine. Prevent “lugging” by shifting to a lower gear. The engine must not be “lugged” below its Rated Engine RPM during the early hours of life.

### **Run-In Procedure (Construction Equipment)**

For the first 8 hours, operate the engine at full throttle maintaining a normal load. DO NOT baby the engine, but avoid prolonged converter or hydraulic stall. Engine must not be “lugged” below its Rated Engine RPM (Do not exceed 10 seconds of stall).

### **Run-In Procedure (Power Units)**

For the first 1/2 hour, operate engine at 2/3 rated RPM with a light load or no load. For the next (1) hour, run engine at 80 to 90% load at rated RPM (but not over 2000 RPM). Then full load and rated RPM as required in application.

## DETAILED ENGINE SPECIFICATIONS

### Cylinder Sleeves

	Decimal System	Metric System
I.D. of sleeve including wear .....	4.3750 to 4.3833"	111.1250 to 111.3358mm
Sleeve out of round including wear (installed in block) ....	.001" max.	.025mm
Maximum Limit including wear .....	.002"	.0508mm
Taper (installed in block) .....	.001"	.0254mm
Maximum limit including wear .....	.007"	.1778mm
Clearance at bottom of piston skirt, 90° to piston pin including wear .....	.0052 to .0100"	.1321 to .254mm

### Piston

Type .....	Cam ground	
Material .....	Aluminum Alloy	
O.D. at bottom of skirt, 90° to piston pin including wear .....	4.3678 to 4.3698"	110.9421 to 110.9929mm
I.D. of piston pin bore including wear .....	1.4999 to 1.5012"	38.0975 to 38.1305mm
Width of 3rd ring groove including wear .....	.2505 to .2535"	6.3627 to 6.4389mm

### Piston Rings

No. 1 Compression .....	Chrome	
End gap in 4.375 I.D. (111.125mm I.D.) sleeve including wear .....	.015 to .035"	.381 to .889mm
No. 2 Compression		
End gap in 4.375 I.D. (111.125mm I.D.) sleeve including wear .....	.013 to .035"	.330 to .889mm

### Oil Ring

Width .....	.247" Max.	6.274mm
Rail end gap in 4.375 I.D. (111.125mm I.D.) sleeve including wear .....	.010 to .030"	.254 to .762mm
Side clearance including wear .....	.001 to .005"	.025 to .127mm

### Piston Pin

Type .....	Full Floating	
O.D. of pin .....	1.4993 to 1.4994"	38.0822 to 38.0848mm
Fit in piston .....	.0005 to .0019"	.0127 to .0483mm
Fit in rod bushing .....	.0010 to .0015"	.0254 to .0381mm