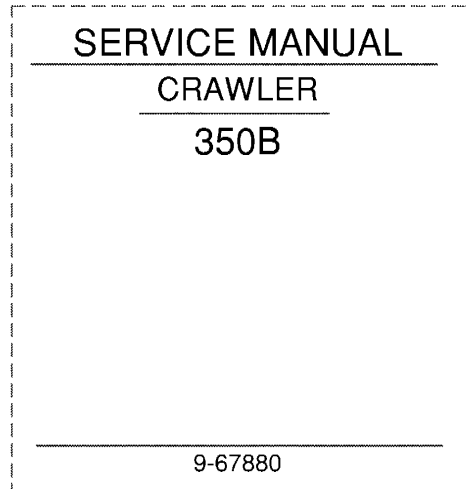


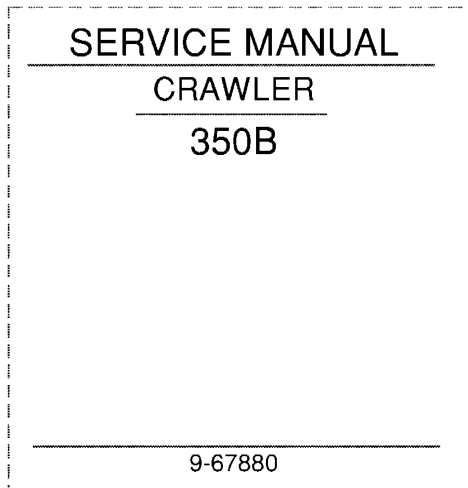
1. Trim along dashed line.
2. Slide into pocket on Binder Spine.

TYPE 1-4



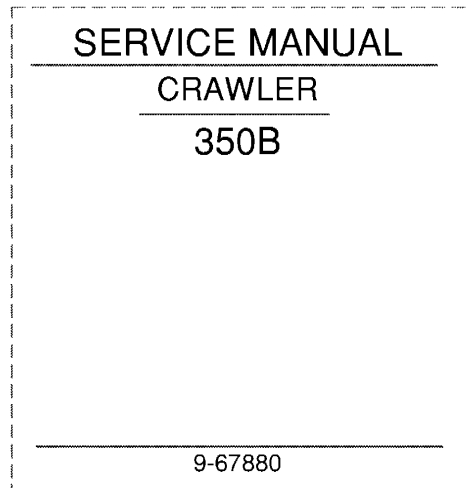
1. Trim along dashed line.
2. Slide into pocket on Binder Spine.

TYPE 1-4



1. Trim along dashed line.
2. Slide into pocket on Binder Spine.

TYPE 1-4



1. Trim along dashed line.
2. Slide into pocket on Binder Spine.

TYPE 1-4

## 350B CRAWLER

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Reprinted

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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 our recommendation that the warning tag illustrated in Figure 1 be put on the key for the key switch whenever someone is working on the machine. Make the tag from a light, durable material. The message on the tag in Figure 1 can be copied on any office copying machine and attached to your tag.



770523

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

**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)**



**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:** 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:** 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 exploded views 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 viewed from the operator's seat for proper operation of the machine or attachment.

The information contained in this manual is current at the time of printing.

## Text

If this manual covers more than one machine, or different models of component parts (planetary axles, gear boxes, control valves, etc.) the procedures will apply to all unless otherwise noted.

## Table of Contents

The first two pages of this section are a Table of Contents which lists the series number and title, and the sections that are in each series. The individual sections, 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 identify the section. The numbers following the dash are the consecutive page numbers in that section. Page numbers will be found at the upper right or left of each page.

## Illustrations

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

## Torque References

Most of the time two grades of fasteners (bolts, nuts and screws) are used on Case machines. They 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 called for in a section.

## Serial and Model Numbers

When ordering repair or replacement parts it can be necessary to furnish the parts department with one or both numbers. Serial and model numbers will be found in the following locations.

Machine - Product Identification Number (P.I.N.) plate fastened in front of the left-hand armrest.

Engine - serial number plate attached to right-hand side of engine below the starter.

Component parts - plate attached to part or number stamped on part.

## 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, a single viscosity oil. Engine oils are also identified by dual numbers, SAE 10W30, a variable viscosity oil.

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

### Gear Lubricant and Grease

Gear lubricant and grease must be that 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. Others are more difficult to make locally and must be purchased. Use these tools as recommended in this service manual for your personal safety and to do the job correctly.

Special tools that were ordered from Case Service Parts Supply are now available from Service Tools in the U.S. and from Jobborn Manufacturing Co. in Canada.

Address your orders for special tools to:

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

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





# Section 1010

## GENERAL ENGINE SPECIFICATIONS 350B CRAWLER

Written In *Clear  
And  
Simple  
English*

# 188 DIESEL ENGINES

## General

Type .....	Case Open Chamber, 4 Cylinder, 4 Stroke Cycle, Valve-in-Head
Firing Order .....	1-3-4-2
Bore .....	3-13/16 Inches (101.6 mm)
Stroke .....	4-1/8 Inches (104.8 mm)
Piston Displacement .....	188 Cubic Inches (3 081 cm <sup>3</sup> )
Compression Ratio .....	17.5 to 1
No Load Governed Speed .....	2150 RPM
Rated Engine Speed .....	2000 RPM
Engine Idling Speed .....	725 to 775 RPM
Valve Tappet Clearance (Exhaust) .....	(Cold) 0.014 Inch (0.356 mm)
(Intake) .....	(Cold) 0.012 Inch (0.305 mm)

## 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 Alloy Liners

## Main Bearings

Number of Bearings .....	5
Type Bearings .....	Replaceable, Precision Steel Back, Copper-Lead Alloy Liners

## Engine Lubricating System

Crankcase (Without Filter Change) .....	6 Quarts (5.7 liters)
(With Filter Change) .....	7 Quarts (6.7 liters)
Oil Pressure .....	50 to 70 PSI (345 to 483 kPa)(3.45 to 4.83 bar) 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 .....	Roosa-Master
Pump Timing .....	7 Degrees Before Top Center
Fuel Injectors .....	Pencil Type
Fuel Transfer Pump .....	Vane Type, Integral Part of Injection Pump
Governor .....	Variable Speed, Fly-Weight Centrifugal Type, Integral Part of Injection Pump
Fuel Filters .....	Full Flow Spin on Type

# Section 1012

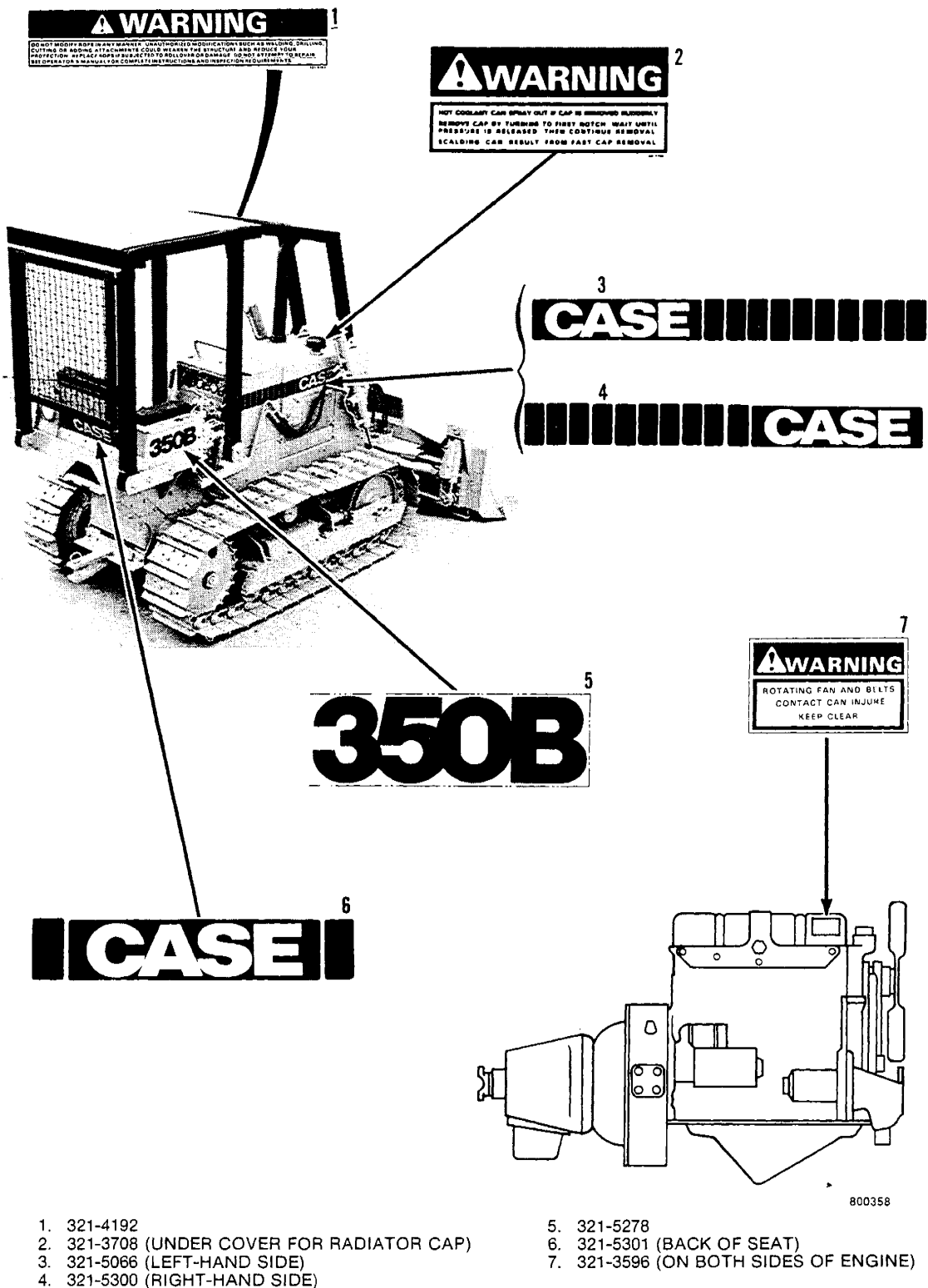
## DECALS AND PAINTING

Written In *Clear  
And  
Simple  
English*

## GENERAL INFORMATION

The following pages show decals that are installed on the machine and machine attachments. Part numbers for the decals are also shown. When decals are needed, check the parts catalog to be sure the part number is correct. Decals are available separately or in a kit for this machine.

1. The condition of all decals about the operation of the machine and/or attachments must be easy to read.
2. The condition of all decals that start with the words WARNING, CAUTION, or DANGER must be easy to read.
3. Replace any decal that is damaged or is not easy to read.
4. Remove the old decal before installing a new decal. Use enamel thinner to help remove the old decal.
5. Remove all dirt, grease, and oil before installing a new decal.
6. Use standard procedure to prepare the machine or attachment for painting.
  - a. Remove all dirt, grease, and oil from the surface to be painted.
  - b. Wash the area to be painted.
  - c. Use sandpaper to prepare the surface that is to be painted.
  - d. Cover all surfaces that are not to be painted.
  - e. Paint the machine or attachment.



- |  |                                       |
|--|---------------------------------------|
| 1. 321-4192                                | 5. 321-5278                           |
| 2. 321-3708 (UNDER COVER FOR RADIATOR CAP) | 6. 321-5301 (BACK OF SEAT)            |
| 3. 321-5066 (LEFT-HAND SIDE)               | 7. 321-3596 (ON BOTH SIDES OF ENGINE) |
| 4. 321-5300 (RIGHT-HAND SIDE)              |                                       |

Figure 1 - Common Decals



**WARNING**

**BATTERY EXPLOSION AND / OR DAMAGE TO ELECTRICAL COMPONENTS CAN RESULT FROM IMPROPER CONNECTION OF BOOSTER BATTERIES OR CHARGER.**

**CONNECT POSITIVE JUMPER CABLE TO CORRECT POSITIVE TERMINAL AND THEN NEGATIVE JUMPER CABLE TO FRAME. USE NORMAL STARTING PROCEDURE WITH START SWITCH.**

**BATTERY ACID CAN EXTERNALLY CAUSE BURNS AND BLINDNESS, AND TAKEN INTERNALLY IS POISON.**

321-4190 1

**POISON/DANGER**

**BATTERY ACID CAUSES SEVERE BURNS**  
 External contact sufficient to cause severe burns with skin. Avoid by sticking. Avoiding. External contact with water. Internal: Drink large quantities of water or milk. Rinse with milk if magnesium, beaten egg or veg. oil. Call physician immediately. Treat: Flush with water for 15 minutes and get prompt medical attention.

**BATTERIES PRODUCE EXPLOSIVE GASES**  
 Keep sparks, flame and cigarettes away. Ventilate when charging or using in an open space. Always check caps when servicing most batteries.  
**KEEP OUT OF REACH OF CHILDREN**

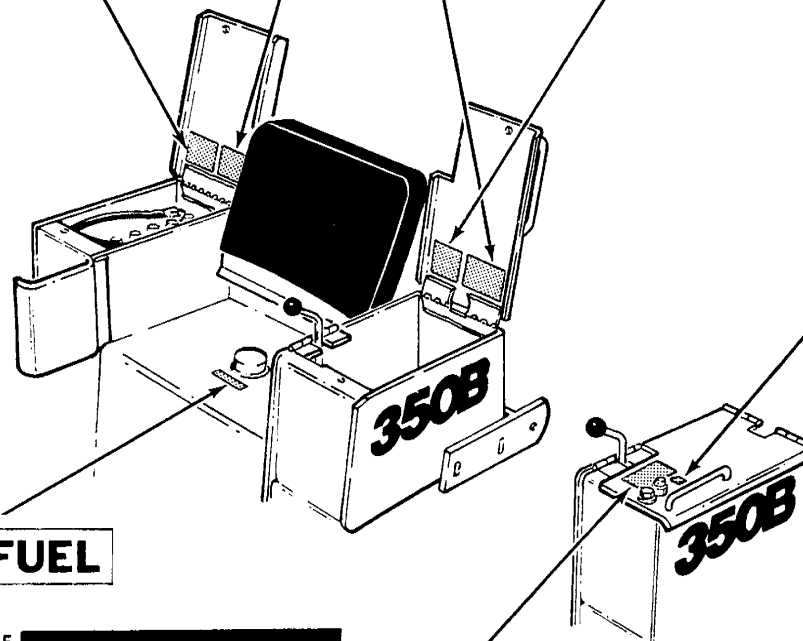
2

**IMPORTANT**

**ALWAYS KEEP THIS LID CLOSED WHEN STARTING OR RUNNING THE ENGINE**

**MAKE BOOSTER BATTERY CONNECTIONS AT RIGHT HAND BATTERY ONLY.**

3

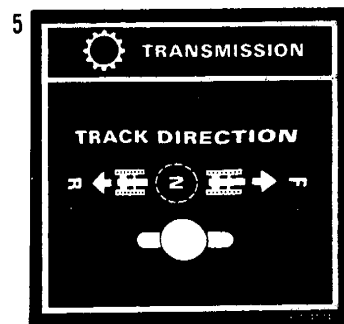


4

**DIESEL FUEL**

6

**HORN**

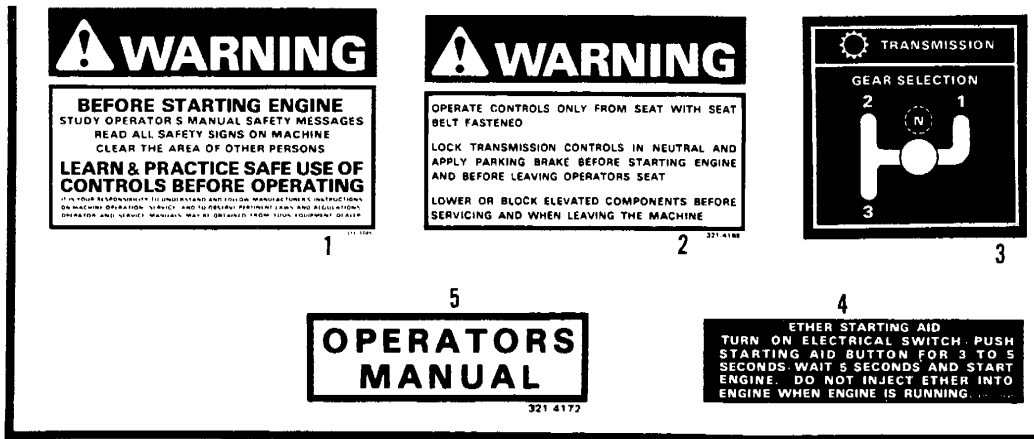


800360

- 1 321-4190
- 2 321-2996
- 3 321-4667 (IF EQUIPPED WITH HEAVY DUTY BATTERY)

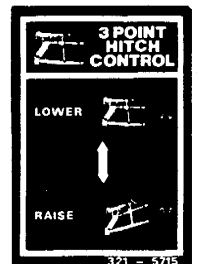
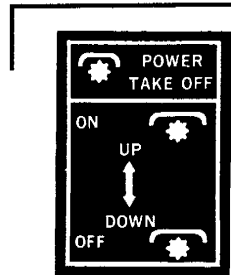
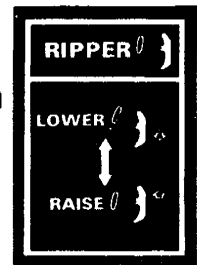
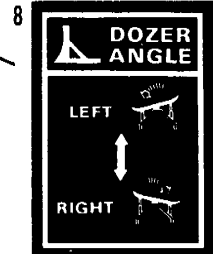
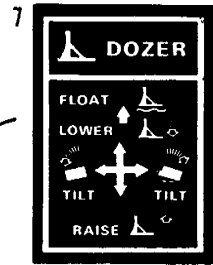
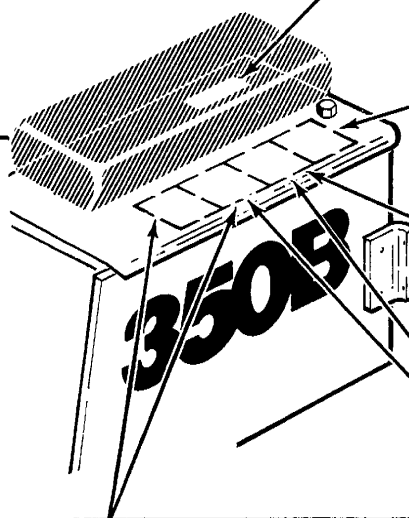
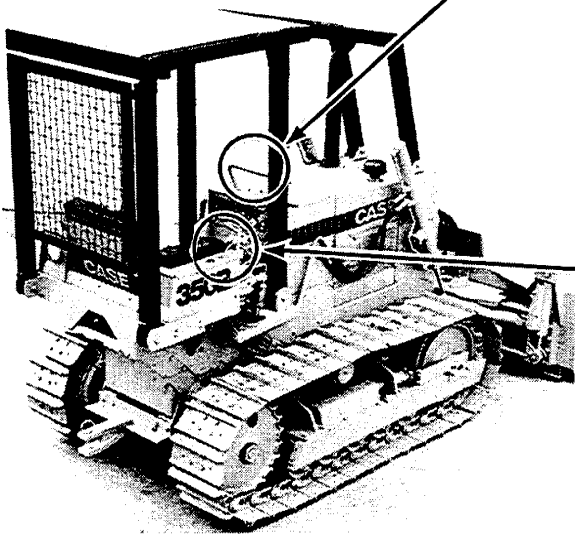
- 4 321-230
- 5 321-4175
- 6 321-3294 (IF EQUIPPED WITH HORN)

Figure 3 - Common Decals



# 6 IMPORTANT

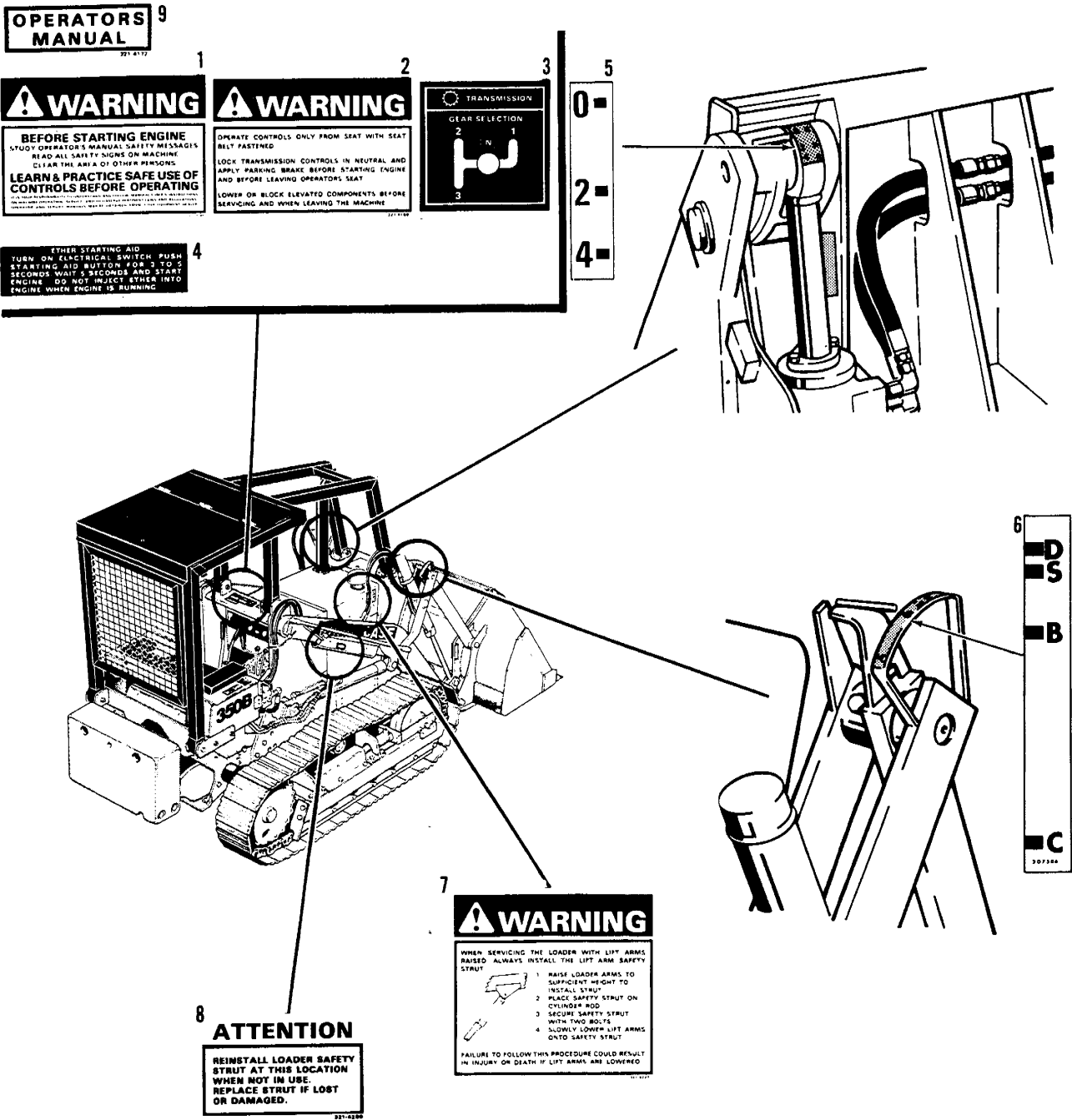
CONTINUOUS CYCLING MAY OVERHEAT WINCH AND CAUSE INTERNAL DAMAGE



- 1. 321-3705
- 2. 321-4188
- 3. 321-4174
- 4. 321-1841
- 5. 321-4172
- 6. 321-3039
- 7. 321-4181
- 8. 321-4182
- 9. 321-4185 (IF EQUIPPED WITH RIPPER)
- 10. 321-5714 (IF EQUIPPED WITH WINCH)
- 11. 321-5715 (IF EQUIPPED WITH 3 POINT HITCH)
- 12. 321-5811 (IF EQUIPPED WITH POWER TAKEOFF)

Figure 4 - Dozer Decals





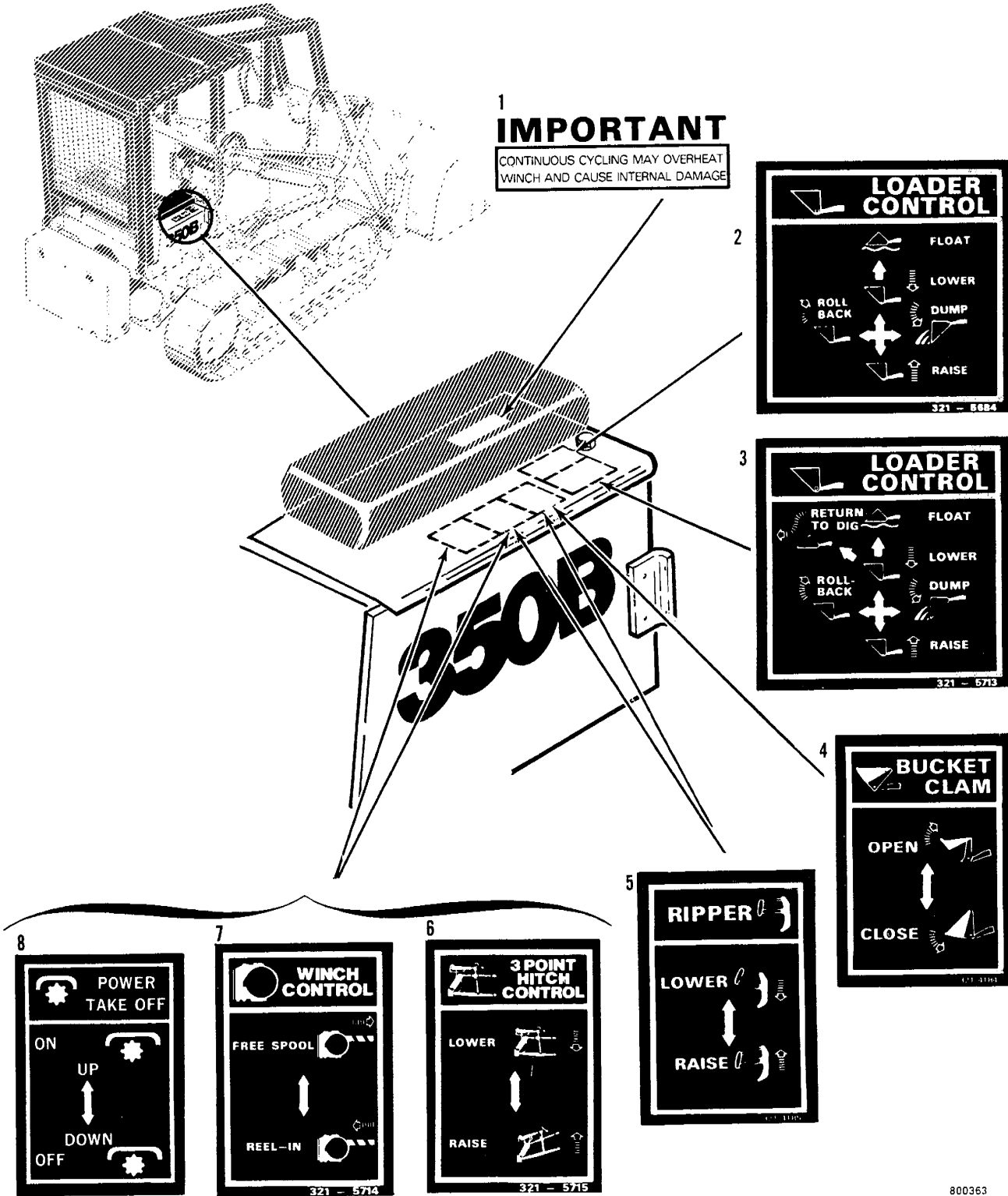
- 1. 321-3705
- 2. 321-4188
- 3. 321-4174
- 4. 321-1841

- 5. 321-1708 (IF EQUIPPED WITH CLAM BUCKET)
- 6. 321-1707 (IF EQUIPPED WITH CLAM BUCKET)
- 7. 321-4227
- 8. 321-4289

9. 321-4172

800362

Figure 5 - Loader Decals



1. 321-3039 (IF EQUIPPED WITH WINCH)

2. 321-5684

3. 321-5713 (IF EQUIPPED WITH RETURN-TO-DIG)

4. 321-4184

5. 321-4185 (IF EQUIPPED WITH RIPPER)

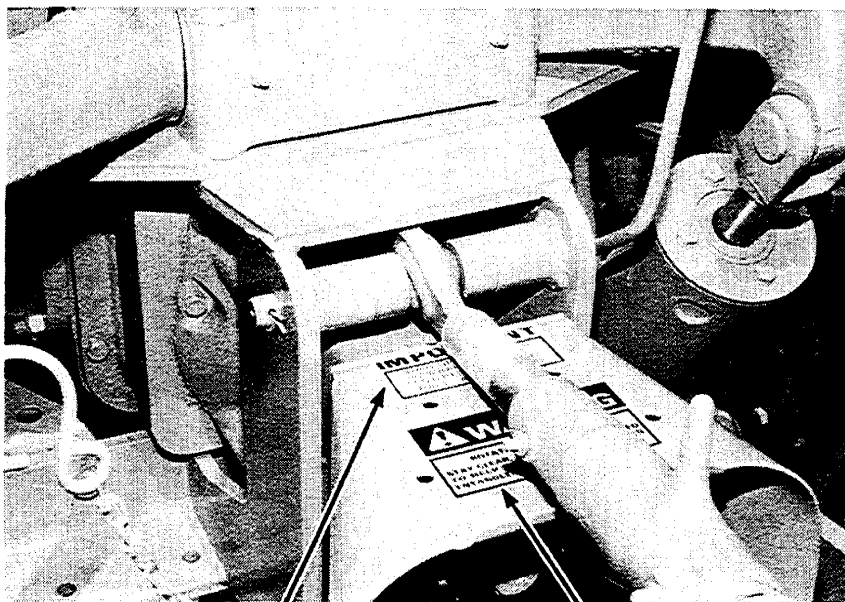
6. 321-5715 (IF EQUIPPED WITH 3 POINT HITCH)

7. 321-5714 (IF EQUIPPED WITH WINCH)

8. 321-5811 (IF EQUIPPED WITH POWER TAKEOFF)

800363

Figure 6 - Loader Decals



**IMPORTANT**

WHEN OPERATING P.T.O  
DRAWBAR MUST BE  
CENTERED WITH P.T.O.  
SHAFT AND SECURED.

1

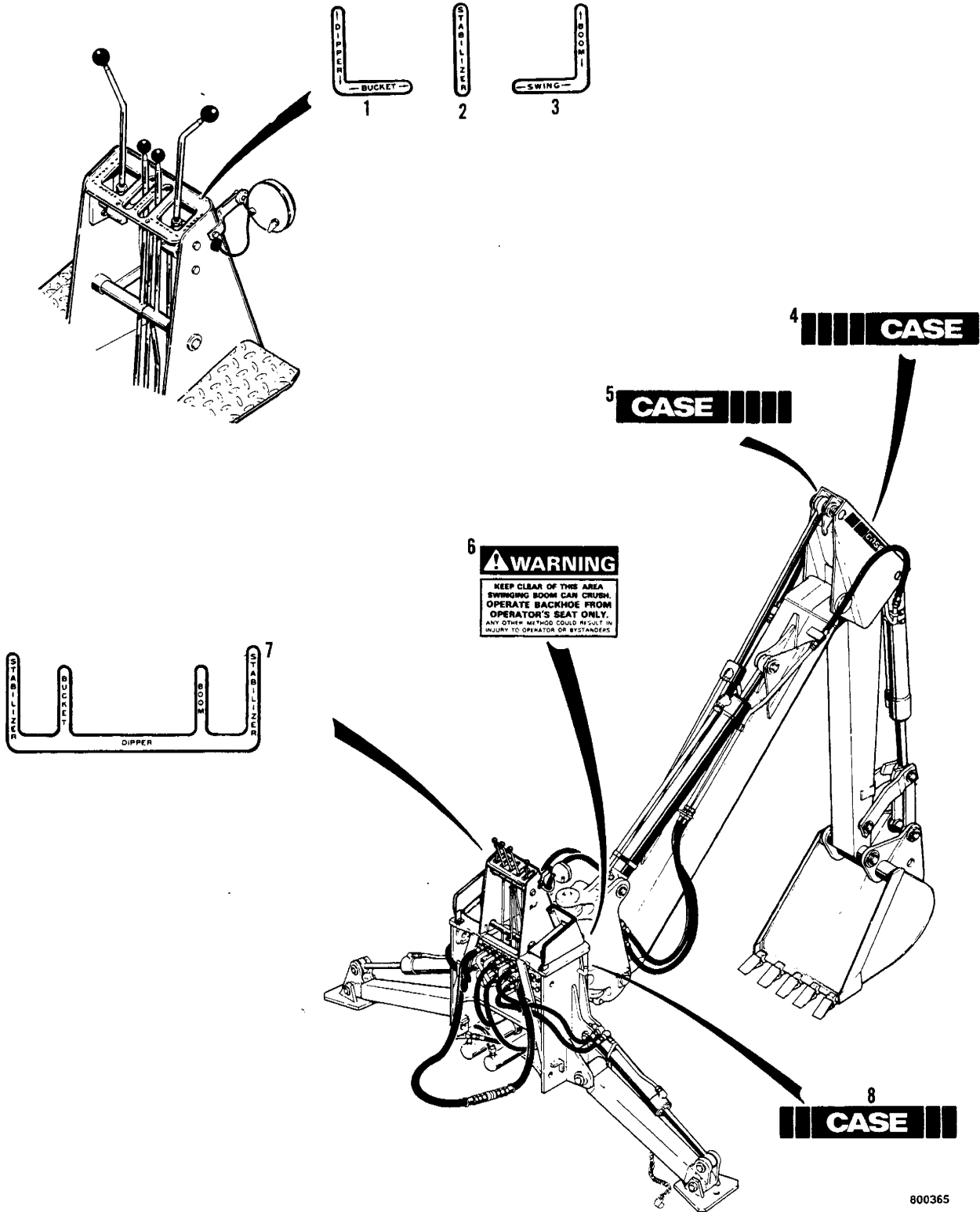
**WARNING**  
ROTATING MACHINE PARTS  
STAY CLEAR KEEP SHIELDS INSTALLED  
TO HELP PROTECT FROM CLOTHING  
ENTANGLEMENT AND INJURY.

2

800364

1. 321-2547      2. 321-3710

Figure 7 - PTO Decals



- 1. 321-917 (IF EQUIPPED WITH HAND SWING)
- 2. 321-919 (IF EQUIPPED WITH HAND SWING)
- 3. 321-918 (IF EQUIPPED WITH HAND SWING)
- 4. 321-5129

- 5. 321-5130
- 6. 321-4481
- 7. 321-921 (IF EQUIPPED WITH FOOT SWING)
- 8. 321-5129

800365

Figure 8 - Backhoe Decals

# Section 1027

## DETAILED SPECIFICATIONS

### 188 Diesel Engines

#### 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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