Precision Hoe 800

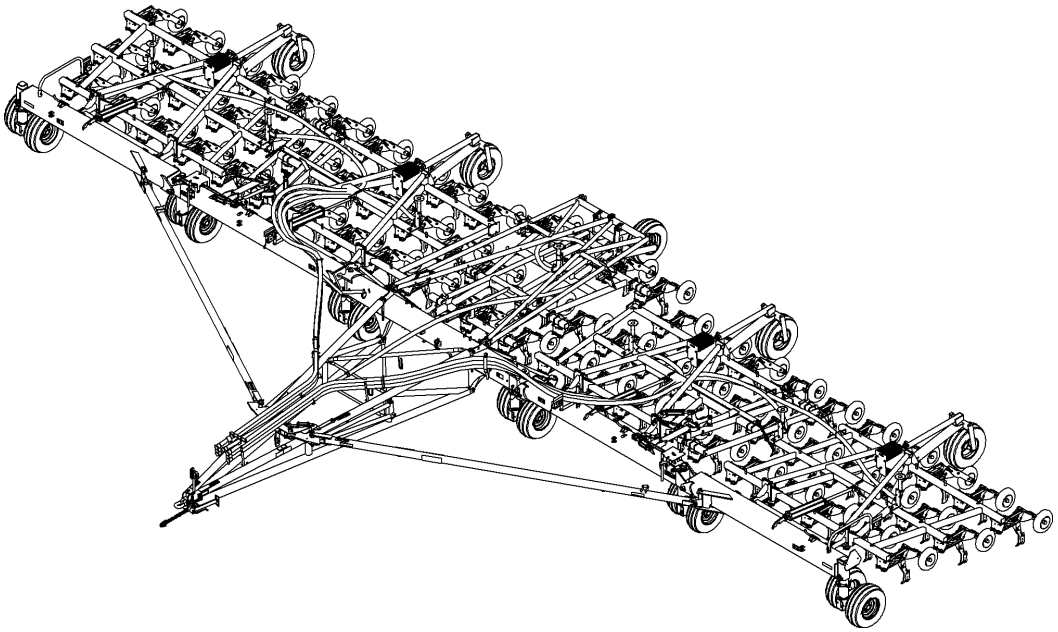
Service Manual

87492443
Issued March, 2010
1st Printing

CASE IH AGRICULTURE

CASE IH
AGRICULTURE

SERVICE MANUAL



Precision Hoe 800

Contents

INTRODUCTION

Contents

INTRODUCTION

Foreword

Technical Information and ICE

This information in this manual has been structured using the Integrated Coding Environment (ICE). ICE is the way in which technical information is created, stored and retrieved in the Technical Information Database.

ICE coding classifies all information in three ways.

The first category is the Location, the second category is the Information Type and the third category is the Product:

- LOCATION - is the component, or function on the machine, that the piece of technical information is going to describe e.g. Fuel tank.
- INFORMATION TYPE - is the piece of technical information that has been written for a particular component or function on the machine. e.g., Capacity would be a type of Technical Data that would describe the amount of fuel held by the Fuel tank.
- PRODUCT - is the model that the piece of technical information is written for. e.g., The CaseIH ATX700 Air Drill.

Every piece of technical information will have those 3 categories attached to it. You will be able to use any combination of those categories to find the right piece of technical information you need to resolve that customers concern on his machine.

That information could be:

- the description of how to remove the cylinder head
- a table of specifications for a hydraulic pump
- a fault code
- a troubleshooting table
- a special tool

How to Use this Manual

This manual is divided into Sections. Each Section is then divided into Chapters. Contents pages are included at the beginning of the manual, then inside every Section and inside every Chapter. An alphabetical Index is included at the end of a Chapter. Page number references are included for every piece of technical information listed in the Chapter Contents or Chapter Index.

Each Chapter is divided into four Information types:

- Technical Data (specifications) for all the mechanical, electrical, or hydraulic devices, components, and assemblies.
- Functional Data (how it works) for all the mechanical, electrical, or hydraulic devices, components, and assemblies.
- Diagnostic Data (fault codes, electrical and hydraulic troubleshooting) for all the mechanical, electrical, or hydraulic devices, components, and assemblies.
- Service data (remove, disassemble, assemble, install) for all the mechanical, electrical, or hydraulic devices, components, and assemblies.

Sections

Sections are grouped according to the main functions or systems on the machine. Each Section is identified by a letter A, B, C etc. The number of Sections included in the manual will depend on the type and function of the machine that the manual is written for. Each Section has a Contents page listed in alphabetic/numeric order. This table illustrates which Sections could be included in a manual for a particular product.

	SECTION										
	A - Distribution Systems										
		B - Power Production									
			C - Power Train								
				D - Travelling							
					E - Body and Structure						
						F - Frame Positioning					
							G - Tool Positioning				
								H - Working Arm			
									J - Tools and Couplers		
										K - Crop Processing	
											L - Field Processing
PRODUCT											
Tractors	X	X	X	X	X	X		X	X		
Vehicles with working arms: backhoes, excavators, skid steers, ...	X	X	X	X	X	X	X	X	X		
Combines, forage harvesters, balers, ...	X	X	X	X	X	X			X	X	
Seeding, planting, floating, spraying equipment, ...	X	X	X	X	X	X	X		X		X
Mounted equipment and tools, ...					X	X	X		X		

SECTION	LETTER	DESCRIPTION
DISTRIBUTION SYSTEMS	A	This Section covers the main systems that interact with most of the functions of the product. It includes the central parts of the hydraulic, electrical, electronic, pneumatic, lighting and grease lubrication systems. The components that are dedicated to a specific function are listed in the Chapter where all the technical information for that function is included.
POWER PRODUCTION	B	This Section covers all the functions related to the production of power to move the machine and to drive various devices. In the case of a pulled-type machine, this Section covers the power take-off function where power is provided from the towing machine.
POWER TRAIN	C	This Section covers all the functions related to the transmission of power from the engine to the axles and to internal or external devices. This Section also covers the power take-off function where power is provided to the pull-type machine and additional Process Drive functions.
TRAVELLING	D	This Section covers all the functions related to moving the machine, including tracks, wheels, steering and braking. It covers all the axles; both driven axles and non-driven axles, including any axle suspension.
BODY AND STRUCTURE	E	This Section covers all the main functions and systems related to the structure and the body of the machine, including the frame, the shields, the operators cab and the platform. The functions related to the positioning of the machine frame are included in Section F, Frame Positioning.
FRAME POSITIONING	F	This Section covers all the main functions and systems related to positioning of the machine frame or to positioning the attachment on the supporting machine frame.
TOOL POSITIONING	G	This Section covers all the functions related to the final and/or automatic positioning of the tool once the tool is positioned using the Working Arm or the machine frame.
WORKING ARM	H	This Section covers all the functions related to the articulated or single arms mounted on the front or rear of the machine. A working arm can have various tools and quick couplers mounted on to it. The tools and quick couplers are included in Section J, Tools and Couplers.

SECTION	LETTER	DESCRIPTION
TOOLS AND COUPLERS	J	This Section covers all the functions related to the specific tools that mount on the front, rear or beside the machine. The tools described here can be mounted with the positioning systems (lifting, side shift, swing) listed in Section G Tool Positioning. This Section covers all the quick coupling systems, located between the tool and the positioning system. The tools used for field preparation, soil preparation and treatment, planting and seeding are included.
CROP PROCESSING	K	This Section covers all the functions related to crop processing. Examples of crop processing include threshing, baling, windrowing, cutting and conditioning.
FIELD PROCESSING	L	This Section covers all the field processing functions of the machine. Examples of field process include seeding, fertilizer application, seedbed preparation and chemical application.

This manual contains these sections.

Contents

Your manual contains these Sections. The contents of each Section are explained over the following pages.

Section Contents

SECTION A, DISTRIBUTION SYSTEMS

SECTION D, TRAVELLING

SECTION E, BODY AND STRUCTURE

SECTION F, FRAME POSITIONING

SECTION L, FIELD PROCESSING

Chapters

Each Chapter is identified by a letter and number combination e.g. Seeding L.10.B. The first letter is identical to the Section letter i.e. Chapter L.10.B is inside Section L, Field Processing. The Chapter Contents lists all the "Technical Data" (specifications), "Functional Data" (how it works), "Service Data" (remove, install, adjust, etc.,) and "Diagnostic Data" (fault codes and troubleshooting) that have been written in that Chapter for that function or system on the machine.

The Chapter Index lists in alphabetical order all the types of information (called Information Units) that have been written in that Chapter for that function or system on the machine.

Information Units and Information Search

Each chapter is composed of information units. The ICE coding is not included in the Information Unit title.

Page Header and Footer

The page header will contain the following references:

- Section and Chapter description

The page footer will contain the following references.

Printed references found at the base of each page then equate to

- The publication number for that Manual, Section, or Chapter
- Revision number of the publication
- Publication date
- Chapter reference (n/a)
- Page number

FRAME - Decals

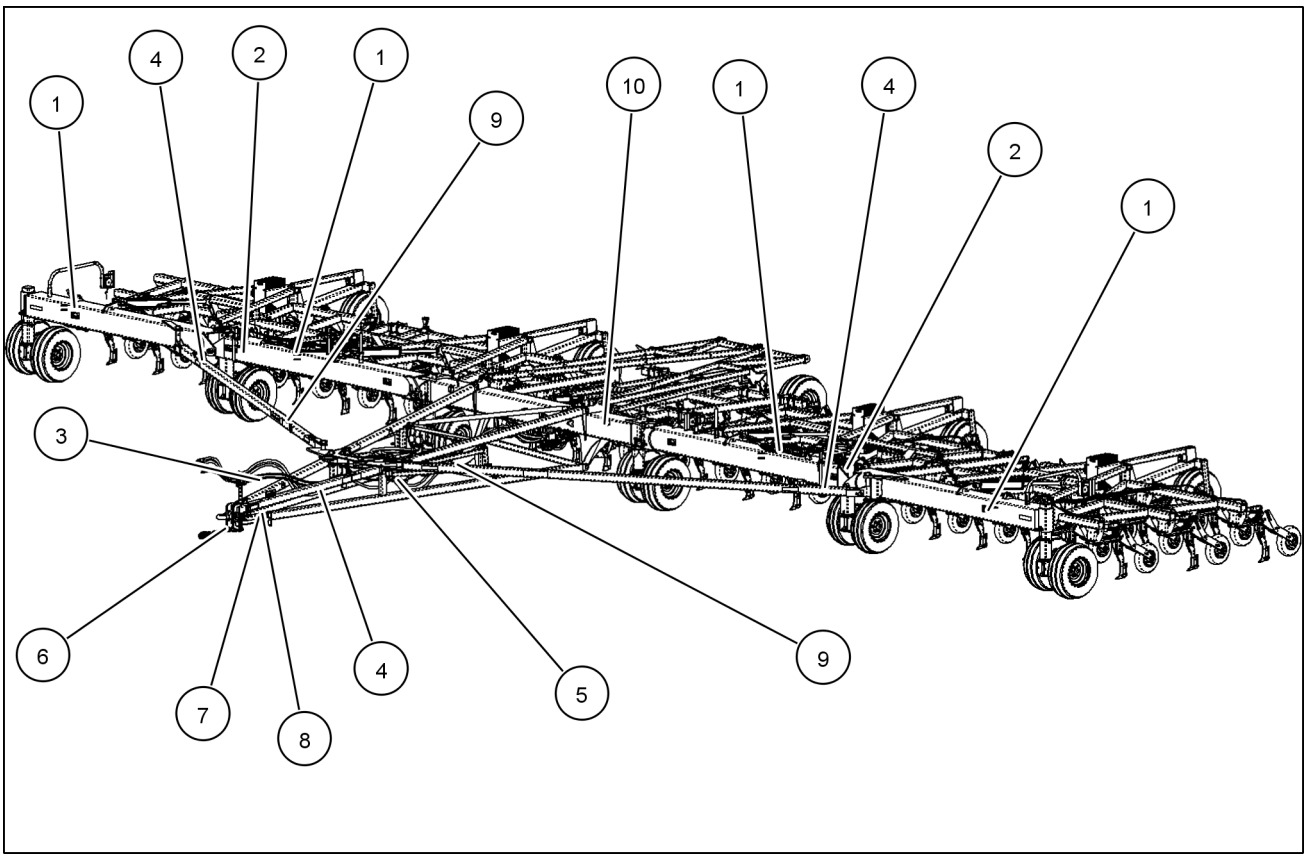
KEEP SAFETY DECALS CLEAN.

Wipe clean when necessary.

REPLACE missing or unreadable decals. New decals are available from your dealer.

To replace decals:

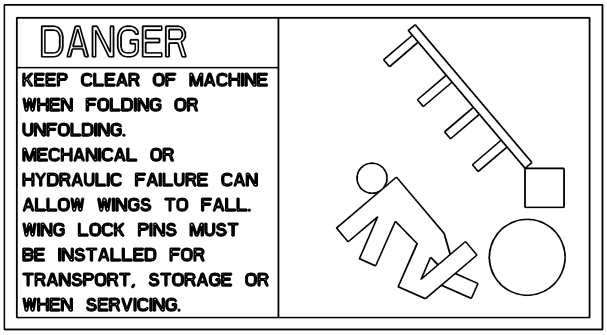
1. Remove old decal and clean area.
2. Remove the decal backing and carefully affix the decal to the implement.
3. Using a clean piece of paper or the backing itself, work the air bubbles out from under the decal.



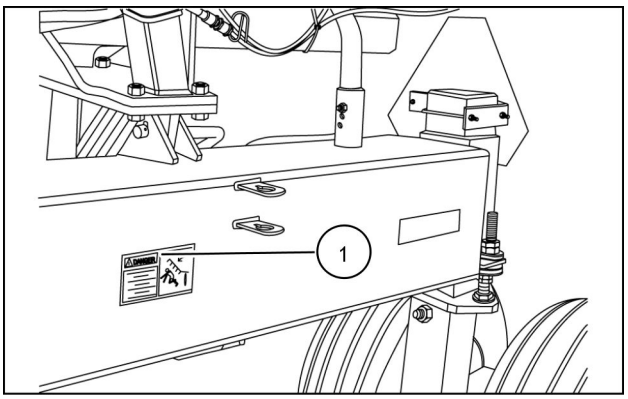
209154C 1

REF	DECAL DESCRIPTION	REF	DECAL DESCRIPTION
(1)	Danger - Stay Clear of Wings; Wing Lock Pins	**(6)**	Warning - Do Not Ride
(2)	Warning - Caster Locks not Engaged **(2)**	**(7)**	Caution - Escaping Hydraulic Fluid Hazard
(3)	Read Your Operator's Manual **(3)**	**(8)**	Danger - Negative Hitch Weight **(8)**
(4)	Danger - Stay Clear of Fold Zon	**(9)**	IMPORTANT Latches
(5)	Danger - Rollover Hazard	**(10)**	ATTENTION Casters

Danger - Stay Clear of Wings; Wing Lock Pins **(1)**.

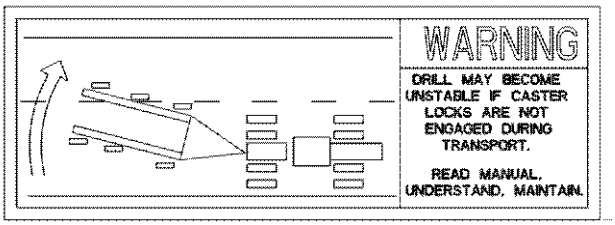


0687503980 2

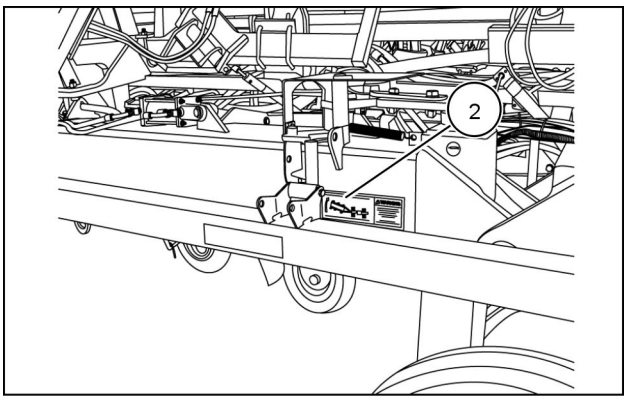


209241S 3

Warning - Caster Locks not Engaged **(2)**.

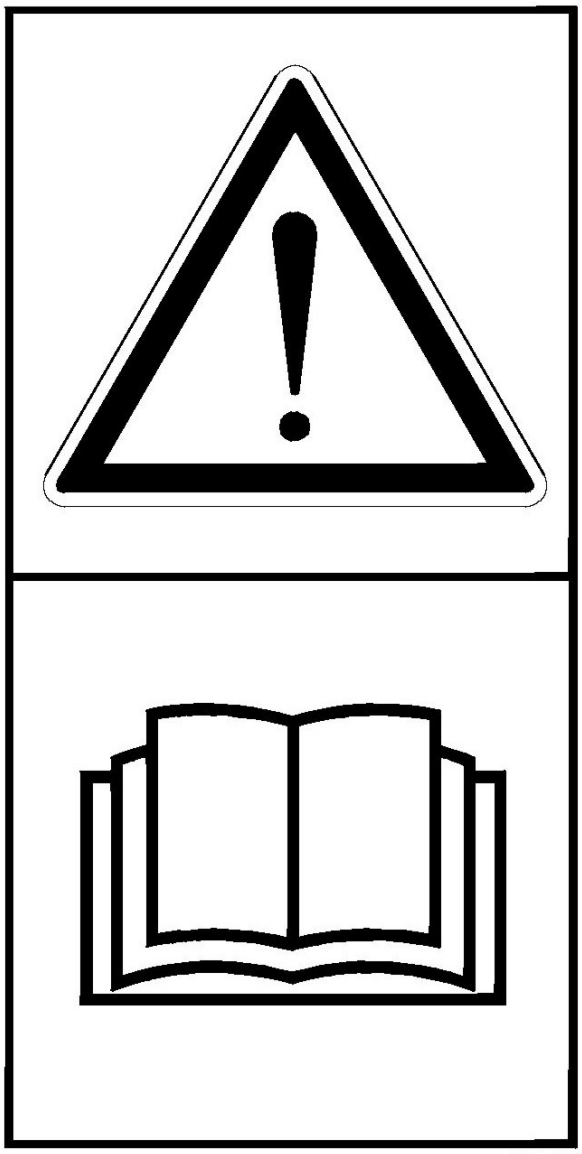


0687503996 4

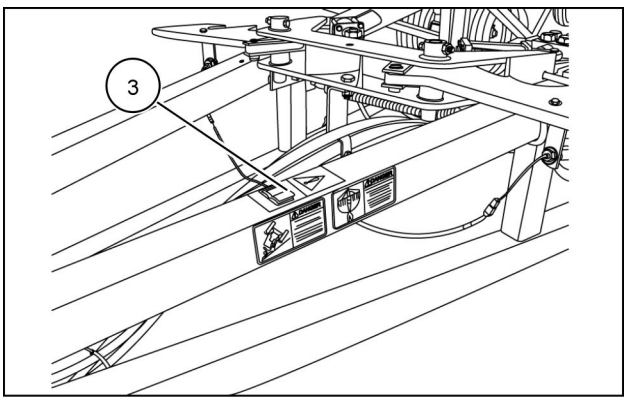


209240S 5

Read Your Operator’s Manual **(3)**.

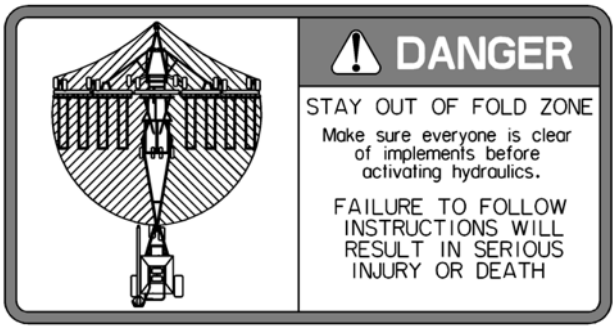


06256147A1 6

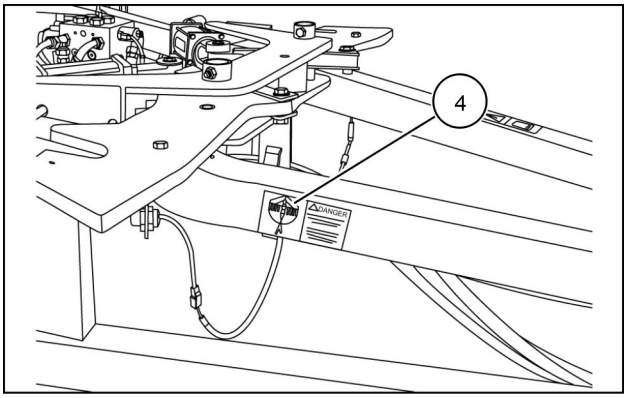


209235S 7

Danger - Stay Clear of Fold Zone **(4)**.

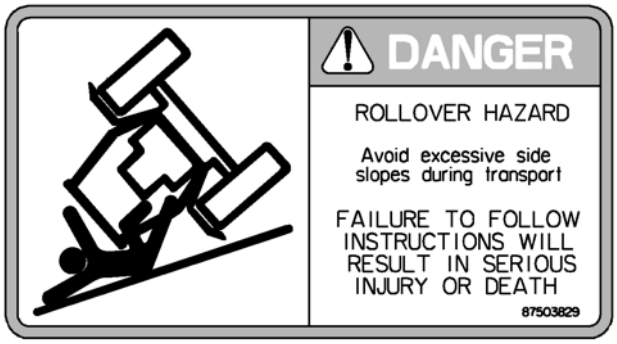


0687503802 8

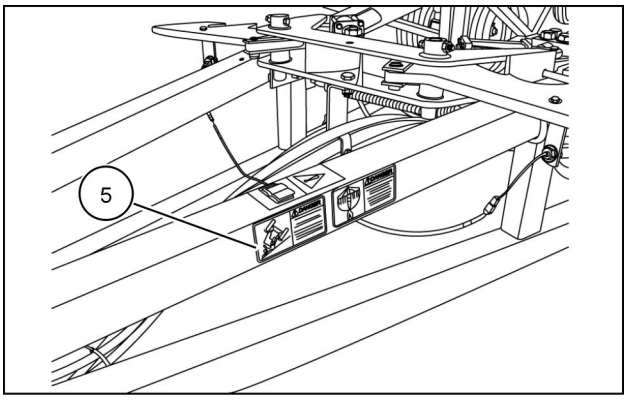


209243S 9

Danger - Rollover Hazard **(5)**.

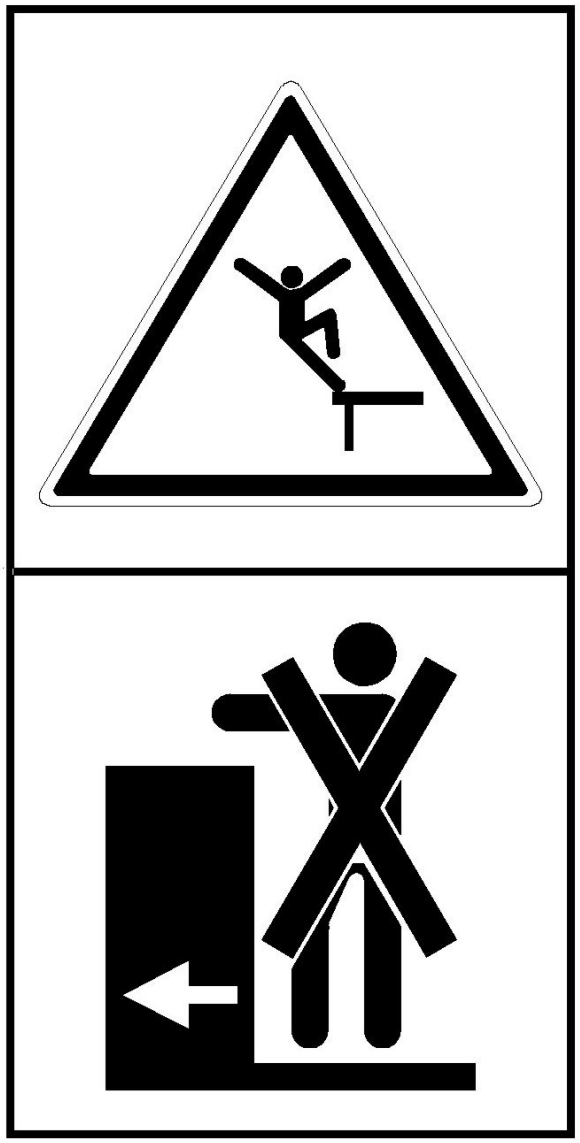


0687503829 10

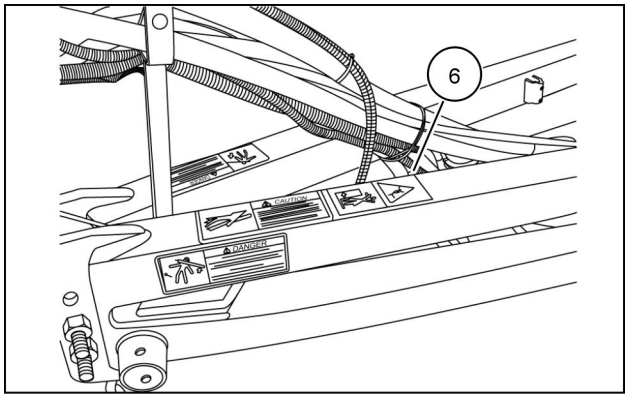


209235S 11

Warning - Do Not Ride **(6)**.



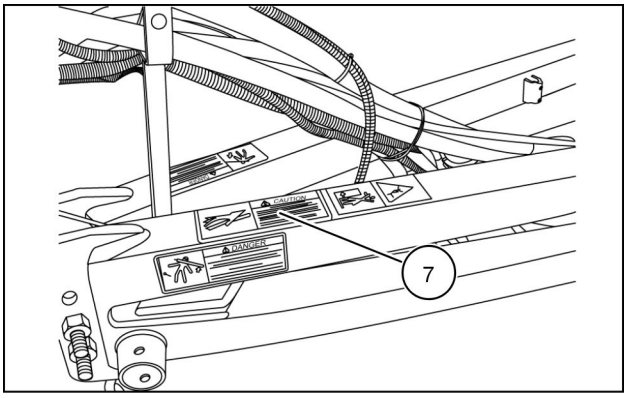
06182270A1 12



209236S 13

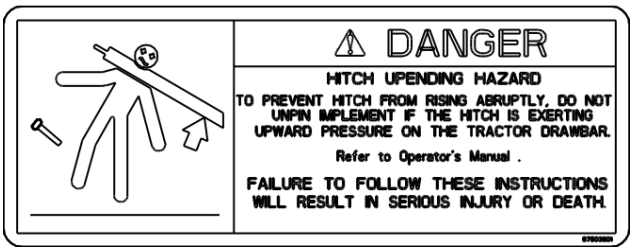
Caution - Escaping Hydraulic Fluid Hazard **(7)**.

GD50077 14

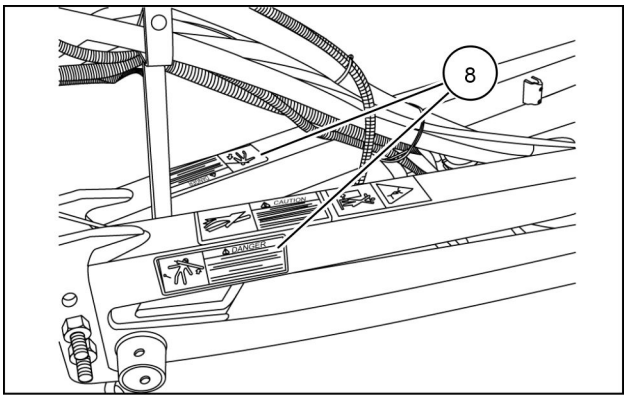


209236S 15

Danger - Negative Hitch Weight **(8)**.

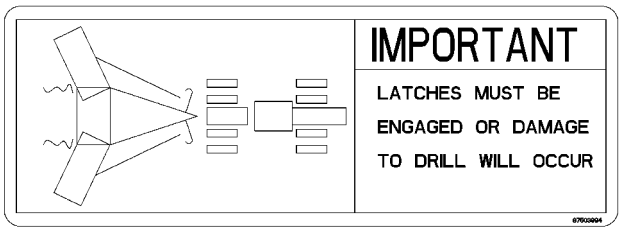


0687503801 16

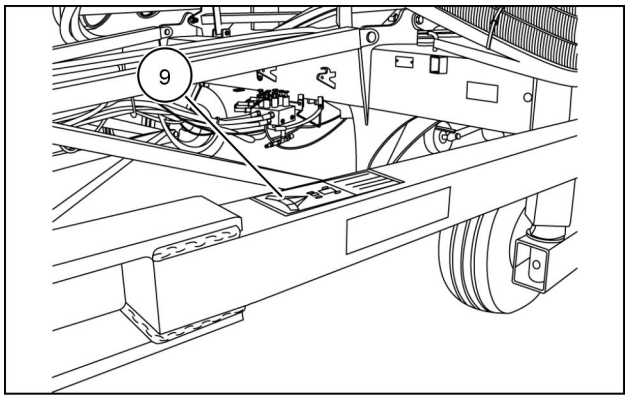


209236S 17

IMPORTANT Latches **(9)**.

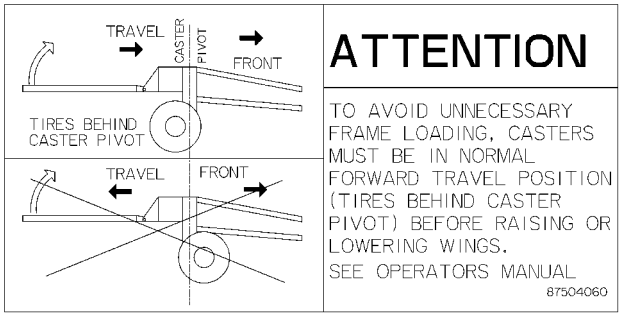


209178C 18

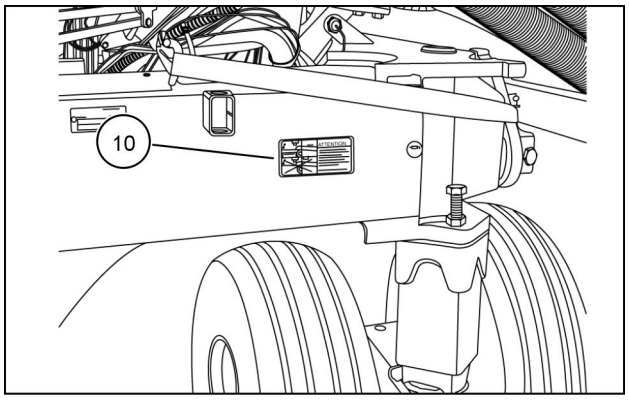


209239S 19

ATTENTION Casters **(10)**.



209181C 20



209238S 21

Basic instructions

HOW TO MEASURE VOLTAGES IN THE ELECTRONICS SYSTEM

When asked to measure a voltage, the voltage being measured is always at one point with respect to (relative to) the voltage at another point.

Example: To measure the voltage at point A with respect to point B, place one meter probe (typically red in color, and connected to the meter connector labeled “V“). Place the other meter probe (typically black in color, and connected to the meter connector labeled “COM“).

If the units of voltage are specified as “volts dc”, be sure your meter is set to “dc”. If the units of voltage are specified as “volts ac”, be sure your meter is set to “ac”.

North American automotive electrical systems often use the chassis (metal frame) of the automobile as the return path (often referred to as ground) for electrical current. The electronics system does not use the chassis for a return path, and no voltage measurements should be made with respect to the chassis. All components in the electronics system should be considered to be electrically isolated from the chassis, although at the tractor the electronics system return is connected to the battery negative terminal which is in turn connected to the tractor chassis.

NOTE: *On VR air carts with a battery and a hydraulic motor driven alternator, the air cart battery negative terminal is electrically isolated from the air cart chassis.*

ELECTRICAL ISOLATION

Two points are electrically isolated when the resistance between them is “infinite” (very large, greater than **10,000,000 ohms**). To verify two points are electrically isolated.

1. Set your meter to measure resistance (usually labeled with the ohm symbol).
2. Hold the two probes apart from each other in the air. The meter must indicate infinite resistance (usually indicated by the infinity symbol or on digital multimeters, “++++” or “0L” for overload).
3. Hold the two probes together. The meter must indicate a very low resistance, less than **1.0 ohms**. The resistance measured will vary depending on what scale the meter is set to.
4. Place one probe on one point and the other probe on the other point. It does not matter which probe is placed on which point when measuring resistance. The meter must indicate infinite resistance as it did in 2 above for the two points to be electrically isolated.

ELECTRICAL CONTINUITY

Two points have electrical continuity when the resistance between them is very small, less than **0.1 ohms** . To verify two points have electrical continuity

1. Set your meter to measure resistance (usually labeled with the ohm symbol).
2. Since we are expecting to measure a resistance of **0 ohms**, set the scale to the lowest available.
3. Hold the two probes apart from each other in the air. The meter must indicate infinite resistance (usually indicated by the infinity symbol or on digital multimeters, “++++” or “0L” for overload).
4. Hold the two probes together. The meter must indicate a very low resistance, less than **1.0 ohms**. Record or memorize this resistance. This is the probe resistance.
5. Place one probe on one point and the other probe on the other point. It does not matter which probe is placed on which point when measuring resistance. Subtract the probe resistance measured in 4 above from the meter reading. If the meter reading minus the probe resistance is less than **0.1 ohms**, the two points have electrical continuity.

RESISTANCE

To measure the resistance between two points.

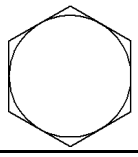
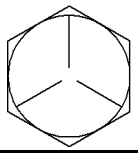
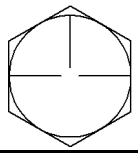
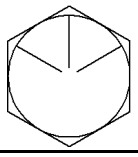
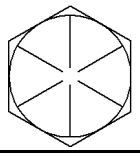
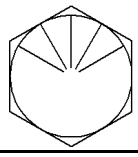
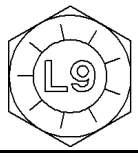
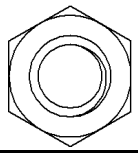
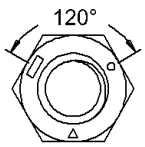
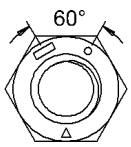
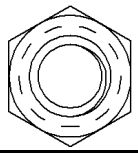
1. Set your meter to measure resistance (usually labeled with the ohm symbol).
2. Hold the two probes apart from each other in the air. The meter must indicate infinite resistance (usually indicated by the infinity symbol or on digital multimeters, “++++” or “0L” for overload).

3. Hold the two probes together. The meter must indicate a very low resistance, less than **1.0 ohms**. The resistance measured will vary depending on what scale the meter is set to
4. If the expected resistance is less than **20.0 ohms** ohms, go to 6.
5. Place one probe on one point and the other probe on the other point. It does not matter which probe is placed on which point when measuring resistance. Read the resistance indicated in the meter
6. Since we are expecting to measure a resistance less than **20.0 ohms**, set the meter to an appropriate scale, likely the lowest available.
7. Hold the two probes together. The meter must indicate a very low resistance, less than **1.0 ohms**. Record or memorize this resistance. This is the probe resistance.
8. Place one probe on one point and the other probe on the other point. It does not matter which probe is placed on which point when measuring resistance. Subtract the probe resistance measured in 7 above from the meter reading. The meter reading minus the probe resistance is the resistance between the two points.

Torque

BOLT TORQUE INFORMATION

1. Fasteners should be replaced with the same or higher grade fasteners. If higher grade fasteners are used, these should only be tightened to the strength of the original.
2. Make sure the fastener's threads are clean and that thread engagement is started. This will prevent them from failing when being tightened.
3. Tighten plastic insert or crimped steel-type lock nuts to approximately **50 %** of the dry torque, applied to the nut, not to the bolt head. Tighten toothed or serrated-type lock nuts to the full torque value.
4. The L9 (Alloy) fasteners torque values are for a bolt, nut, and two washers. When using L9 (Alloy) fasteners, do not use the values in this table for tapped holes.

	GRADE						
	1 or 2	5	5.1	5.2	8	8.2	L9 (Alloy)
SAE Markings for Bolts and Cap Screws							
	2	5			8		L9 (Alloy)
SAE Markings for Hex Nuts							

	GRADE 2*		GRADE 5, 5.1 or 5.2		GRADE 8 or 8.2		GRADE L9 (Alloy)	
SIZE	Dry **	Lubricated **	Dry**	Lubricated **	Dry**	Lubricated **	Head	Nut
1/4 UNF	7.5 Nm	5.7 Nm	10.8 Nm	8.5 Nm	16.3 Nm	12.2 Nm	13.6 Nm	14.9 Nm
	5.5 lb ft	4.2 lb ft	8 lb ft	6.3 lb ft	12 lb ft	9 lb ft	10 lb ft	11 lb ft
1/4 UNC	8.5 Nm	6.4 Nm	13.6 Nm	9.8 Nm	19 Nm	13.6 Nm	16.3 Nm	17.6 Nm
	6.3 lb ft	4.7 lb ft	10 lb ft	7.2 lb ft	14 lb ft	10 lb ft	12 lb ft	13 lb ft
5/16 UNF	15 Nm	11 Nm	23 Nm	18 Nm	33 Nm	24 Nm	26 Nm	28 28 Nm
	11 lb ft	8 lb ft	17 lb ft	13 lb ft	24 lb ft	18 lb ft	19 lb ft	21 lb ft
5/16 UNC	16 Nm	12 Nm	26 Nm	19 Nm	37 Nm	27 Nm	27 Nm	31 Nm
	12 lb ft	9 lb ft	19 lb ft	14 lb ft	27 lb ft	20 lb ft	20 lb ft	23 lb ft
3/8 UNF	27 Nm	20 Nm	41 Nm	31 Nm	61 Nm	47 Nm	41 Nm	45 Nm
	20 lb ft	15 lb ft	30 lb ft	23 lb ft	45 lb ft	35 lb ft	30 lb ft	33 lb ft
3/8 UNC	31 Nm	23 Nm	47 Nm	34 Nm	68 Nm	47 Nm	47 Nm	52 Nm
	23 lb ft	17 lb ft	35 lb ft	25 lb ft	50 lb ft	35 lb ft	35 lb ft	38 lb ft
7/16 UNF	43 Nm	33 Nm	68 Nm	47 Nm	95 Nm	68 Nm	75 Nm	81 Nm
	32 lb ft	24 lb ft	50 lb ft	35 lb ft	70 lb ft	50 lb ft	55 lb ft	60 lb ft
7/16 UNC	49 Nm	37 Nm	75 Nm	54 Nm	108 Nm	81 Nm	81 Nm	88 Nm
	36 lb ft	27 lb ft	55 lb ft	40 lb ft	80 lb ft	60 lb ft	60 lb ft	65 lb ft
1/2 UNF	68 Nm	47 Nm	102 Nm	75 Nm	149 Nm	108 Nm	115 Nm	129 Nm
	50 lb ft	35 lb ft	75 lb ft	55 lb ft	110 lb ft	80 lb ft	85 lb ft	95 lb ft
1/2 UNC	75 Nm	54 Nm	115 Nm	88 Nm	163 Nm	122 Nm	129 Nm	142 Nm
	55 lb ft	40 lb ft	85 lb ft	65 lb ft	120 lb ft	90 lb ft	95 lb ft	105 lb ft
9/16 UNF	95 Nm	75 Nm	149 Nm	108 Nm	203 Nm	149 Nm	163 Nm	190 Nm
	70 lb ft	55 lb ft	110 lb ft	80 lb ft	150 lb ft	110 lb ft	120 lb ft	140 lb ft
9/16 UNC	108 Nm	81 Nm	163 Nm	122 Nm	231 Nm	176 Nm	183 Nm	203 Nm
	80 lb ft	60 lb ft	120 lb ft	90 lb ft	170 lb ft	130 lb ft	135 lb ft	150 lb ft
5/8 UNF	136 Nm	102 Nm	203 Nm	149 Nm	285 Nm	217 Nm	231 Nm	251 Nm
	100 lb ft	75 lb ft	150 lb ft	110 lb ft	210 lb ft	160 lb ft	170 lb ft	185 lb ft
5/8 UNC	149 Nm	115 Nm	231 Nm	176 Nm	325 Nm	244 Nm	258 Nm	278 Nm
	110 lb ft	85 lb ft	170 lb ft	130 lb ft	240 lb ft	180 lb ft	190 lb ft	205 lb ft

	GRADE 2*		GRADE 5, 5.1 or 5.2		GRADE 8 or 8.2		GRADE L9 (Alloy)	
SIZE	Dry **	Lubricated **	Dry**	Lubricated **	Dry**	Lubricated **	Head	Nut
3/4 UNF	237 Nm	176 Nm	353 Nm	271 Nm	515 Nm	380 Nm	359 Nm	393 Nm
	175 lb ft	130 lb ft	260 lb ft	200 lb ft	380 lb ft	280 lb ft	265 lb ft	290 lb ft
3/4 UNC	271 Nm	190 Nm	470 Nm	298 Nm	570 Nm	420 Nm	447 Nm	481 Nm
	200 lb ft	140 lb ft	300 lb ft	220 lb ft	420 lb ft	310 lb ft	330 lb ft	355 lb ft
7/8 UNF	231 Nm	170 Nm	583 Nm	434 Nm	814 Nm	610 Nm	644 Nm	685 Nm
	170 lb ft	125 lb ft	430 lb ft	320 lb ft	600 lb ft	450 lb ft	475 lb ft	505 lb ft
7/8 UNC	244 Nm	190 Nm	637 Nm	475 Nm	909 Nm	678 Nm	705 Nm	793 Nm
	180 lb ft	140 lb ft	470 lb ft	350 lb ft	670 lb ft	500 lb ft	520 lb ft	585 lb ft
1 UNF	339 Nm	258 Nm	868 Nm	651 Nm	1234 Nm	922 Nm	746 Nm	1051 Nm
	250 lb ft	190 lb ft	640 lb ft	480 lb ft	910 lb ft	680 lb ft	550 lb ft	775 lb ft
1 UNC	380 Nm	285 Nm	976 Nm	732 Nm	1383 Nm	1031 Nm	949 Nm	1220 Nm
	280 lb ft	210 lb ft	720 lb ft	540 lb ft	1020 lb ft	760 lb ft	700 lb ft	900 lb ft
1-1/8 UNF	475 Nm	366 Nm	1071 Nm	800 Nm	1749 Nm	1315 Nm	1390 Nm	1559 Nm
	350 lb ft	270 lb ft	790 lb ft	590 lb ft	1290 lb ft	970 lb ft	1025 lb ft	1150 lb ft
1-1/8 UNC	542 Nm	407 Nm	1207 Nm	909 Nm	1953 Nm	1464 Nm	1559 Nm	1797 Nm
	400 lb ft	300 lb ft	890 lb ft	670 lb ft	1440 lb ft	1080 lb ft	1150 lb ft	1325 lb ft
1-1/4 UNF	678 Nm	515 Nm	1519 Nm	1139 Nm	2468 Nm	1844 Nm	1898 Nm	2170 Nm
	500 lb ft	380 lb ft	1120 lb ft	840 lb ft	1820 lb ft	1360 lb ft	1400 lb ft	1600 lb ft
1-1/4 UNC	746 Nm	570 Nm	1681 Nm	1261 Nm	2726 Nm	2048 Nm	2170 Nm	2373 Nm
	550 lb ft	420 lb ft	1240 lb ft	930 lb ft	2010 lb ft	1510 lb ft	1600 lb ft	1750 lb ft
1-1/2 UNF	1180 Nm	881 Nm	2644 Nm	1980 Nm	4285 Nm	3214 Nm	3932 Nm	4407 Nm
	870 lb ft	650 lb ft	1951 lb ft	1460 lb ft	3160 lb ft	2370 lb ft	2900 lb ft	3250 lb ft
1-1/2 UNC	1329 Nm	990 Nm	2983 Nm	2224 Nm	4827 Nm	3621 Nm	4475 Nm	4949 Nm
	980 lb ft	730 lb ft	2200 lb ft	1640 lb ft	3560 lb ft	2670 lb ft	3300 lb ft	3650 lb ft

NOTICE: *DO NOT use these values if a different torque value or tightening procedure is given for a specific application. Torque values listed are for general use only. Check tightness of fasteners periodically. Shear bolts are designed to fail under predetermined loads. Always replace shear bolts with identical grade bolts.*

NOTES

- *Grade 2 applies for hex caps (not hex bolts) up to **152 mm** (**6 in**) long. Grade 1 applies for hex cap screws over **152 mm** (**6 in**) long, and for all other types of bolts and screws of any length.
- **"Lubricated" means coated with a lubricant such as engine oil, or fasteners with phosphate and oil coatings. "Dry" means plain or zinc plated without any lubrication.

Torque – Hydraulic Tubes and Fittings

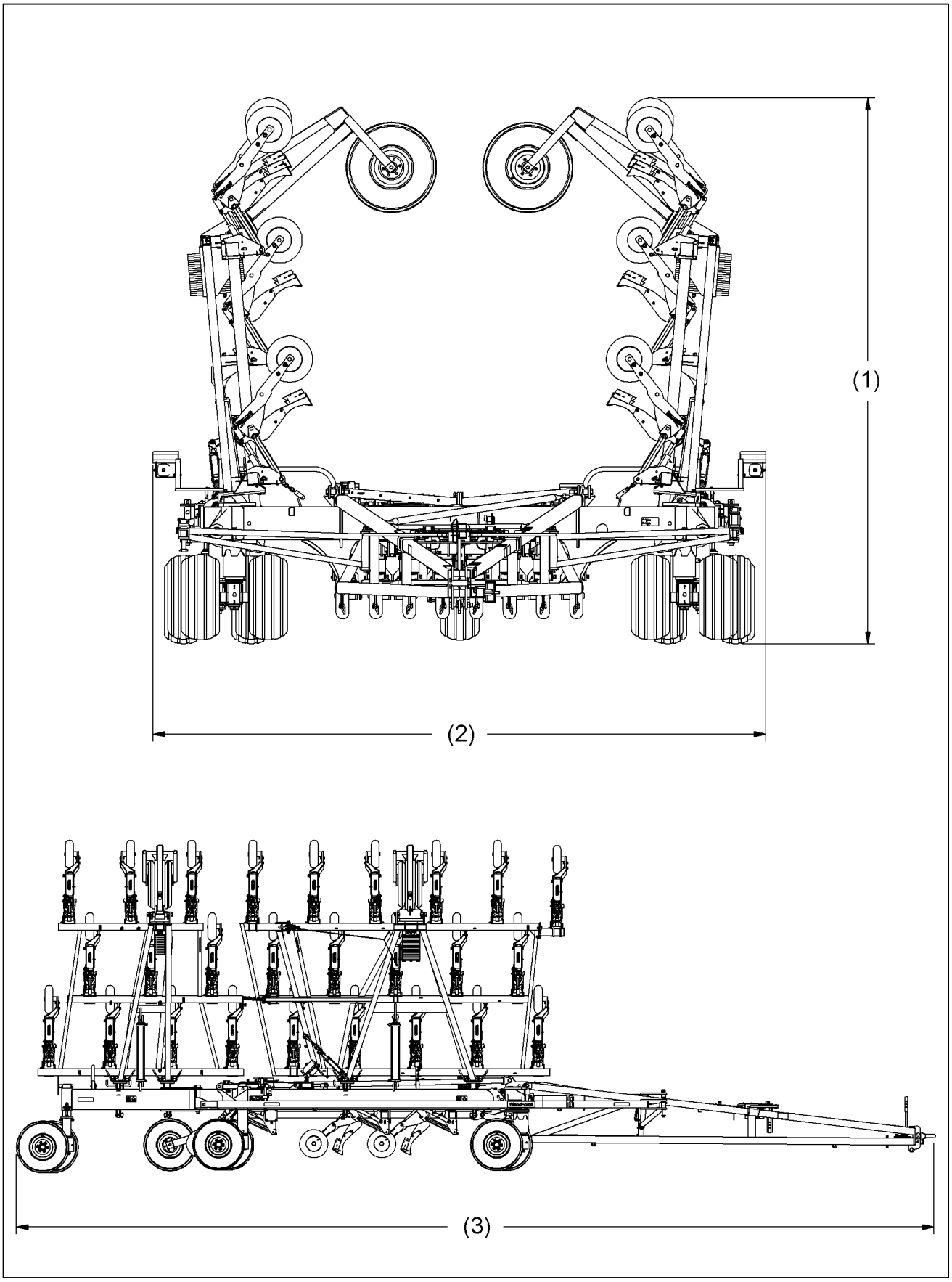
Standard Torque Data for Hydraulic Tubes and Fittings

Hoses / Tubes to Steel Fittings 37° Flared Fittings							
Size	Tubing OD		Thread Size	Nm		LB FT	
	Inches	mm		Min	Max	Min	Max
2	1/8	3.2	5/16-24	10	11	7	8
3	3/16	4.8	3/8-24	13	14	10	11
4	1/4	6.4	7/16-20	18	19	13	14
5	5/16	7.9	1/2-20	23	25	17	18
6	3/8	9.5	9/16-18	29	34	22	24
8	1/2	12.7	3/4-18	59	64	43	47
10	5/8	15.9	7/8-14	92	102	68	76
12	3/4	19.1	1-1/6-12	128	143	95	106
14	7/8	22.2	1-3/16-12	152	169	113	124
16	1	25.4	1-5/16-12	176	185	130	136
20	1-1/4	31.8	1-5/8-12	206	217	152	160
24	1-1/2	38.1	1-7/8-12	258	270	190	200
32	2	50.8	2-1/2-12	398	420	294	310

Fittings into steel / forged cylinder spuds, steel bodies, cast iron bodies O-ring Boss							
Size	Tubing OD		Thread Size	Nm		LB FT	
	Inches	mm		Min	Max	Min	Max
4	1/4	6.4	7/16-20	18	20	13	15
5	5/16	7.9	1/2-20	23	26	17	19
6	3/8	9.5	9/16-18	29	33	22	24
8	1/2	12.7	3/4-18	49	53	40	43
10	5/8	15.9	7/8-14	59	64	43	48
12	3/4	19.1	1-1/6-12	93	102	68	75
14	7/8	22.2	1-3/16-12	122	134	90	99
16	1	25.4	1-5/16-12	151	166	112	123
20	1-1/4	31.8	1-5/8-12	198	218	146	161
24	1-1/2	38.1	1-7/8-12	209	231	154	170

Fittings into aluminum bodies O-ring Boss							
Size	Tubing OD		Thread Size	Nm		LB FT	
	Inches	mm		Min	Max	Min	Max
4	1/4	6.4	7/16-20	9	15	7	11
6	3/8	9.5	9/16-18	23	34	17	25
8	1/2	12.7	3/4-18	34	54	25	40
10	5/8	15.9	7/8-14	41	75	30	55
12	3/4	19.1	1-1/6-12	75	108	55	80
14	7/8	22.2	1-3/16-12	108	129	80	95
16	1	25.4	1-5/16-12	115	163	85	120
20	1-1/4	31.8	1-5/8-12	163	224	120	165
24	1-1/2	38.1	1-7/8-12	183	258	135	190

Dimension



209629C 1

Air Hoe Drill Front and Side View - Transport Position

Thank you so much for reading.

Please click the “Buy Now!” button below to download the complete manual.

After you pay.

You can download the most perfect and complete manual in the world immediately.

Our support email:

ebooklibonline@outlook.com