

M-Series Self-Propelled Windrower

Unloading and Assembly Instructions (Container Shipments)

169886 Revision A

Original Instruction

Featuring the Dual Direction® and Ultra Glide® suspension on the M155 and M205.



1000141

Published in June, 2014

EC Declaration of Conformity—Windrower Lift Sling



EC Declaration of Conformity

MacDon Industries Ltd
680 Moray Street
Winnipeg, Manitoba, Canada R3J 3S3

The person named below declares that:

Machine type: Windrower Lift Sling
Model: Part 163871
Serial Number(s): Not Applicable

fulfills all relevant provisions and essential requirements of the following directives:

Directive	Number	Certification Method
Machinery Directive	2006/42/EC	Self-Certification

Name and address of the person in the European Community authorized to compile the technical construction file:

Johannes Molitor
Schwarzwald Strasse 67
66482 Zweibrucken / Germany
HRB 31002, Amtsgericht Zweibrucken

Place of Declaration: Winnipeg, Manitoba, Canada **Name:** Ibrahim Saleh
Date of Declaration: 21 May 2013 **Title:** Director, Product Integrity

EC Declaration of Conformity—Windrower Assembly Supports



EC Declaration of Conformity

MacDon Industries Ltd
680 Moray Street
Winnipeg, Manitoba, Canada R3J 3S3

The person named below declares that:

Machine type: Windrower Assembly Supports
Model: Part 163655
Serial Number(s): Not Applicable

fulfills all relevant provisions and essential requirements of the following directives:

Directive	Number	Certification Method
Machinery Directive	2006/42/EC	Self-Certification

Name and address of the person in the European Community authorized to compile the technical construction file:

Johannes Molitor
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Place of Declaration: Winnipeg, Manitoba, Canada **Name:** Ibrahim Saleh
Date of Declaration: 21 May 2013 **Title:** Director, Product Integrity

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Introduction

This instructional manual describes the unloading, setup, and pre-delivery requirements for MacDon M-Series Self-Propelled Windrowers shipped in containers.

Use the Table of Contents to guide you to specific areas. Retain this instruction for future reference.

CAREFULLY READ ALL THE MATERIAL PROVIDED BEFORE ATTEMPTING TO UNLOAD, ASSEMBLE, OR USE THE MACHINE.

NOTE: Keep your MacDon publications up-to-date. The most current version can be downloaded from our website (www.macdon.com) or from our Dealer-only site (<https://portal.macdon.com>) (login required).

List of Revisions

The following list provides an account of major changes from the previous version of this document.

Summary of Change	Location
Added Signal Words in Safety Section.	1 Safety, page 1
More terms added to Definitions Section.	4 Definitions, page 19
Updated drive wheel images and added references to a 10-bolt wheel assembly.	<ul style="list-style-type: none"> • 6.4 Installing Drive Wheels, page 48 • 7.13 Final Steps, page 223
Removed reference to walking beam grease zerk. No longer required with new design.	6.23.2 Lubrication Points, page 166
Removed procedure on attaching an A-Series header on an M105 with hydraulic center-link and optional self-alignment kit.	
Restructured the header attach procedures to improve readability.	6.22 Attaching Headers, page 111
Added procedures on attaching the A-, D-, and R-Series on windrowers with hydraulic center-link but no self-alignment kit for M205.	<ul style="list-style-type: none"> • Attaching an A-Series Header: Hydraulic Center-Link without Self-Alignment, page 136 • Attaching a D-Series Header: Hydraulic Center-Link without Self-Alignment, page 118 • Attaching an R-Series Header: Hydraulic Center-Link without Self-Alignment, page 153
M105 CDM and operator console images added.	Various sections
Manual and catalog part numbers changed.	7.12 Manuals, page 221
Updated Trimble Mount kit and Label (GPS completion kit) location.	7.13 Final Steps, page 223
Updated lift linkage image to include new decal.	Various sections

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1 Safety

1.1 Signal Words

Three signal words, DANGER, WARNING, and CAUTION, are used to alert you to hazardous situations. The appropriate signal word for each situation has been selected using the following guidelines:

DANGER

Indicates an imminently hazardous situation that, if not avoided, will result in death, or serious injury.

WARNING

Indicates a potentially hazardous situation that, if not avoided, could result in death, or serious injury. It may also be used to alert against unsafe practices.

CAUTION

Indicates a potentially hazardous situation that, if not avoided, may result in minor, or moderate injury. It may be used to alert against unsafe practices.

1.2 General Safety

CAUTION

The following are general farm safety precautions that should be part of your operating procedure for all types of machinery.

Protect yourself

- When assembling, operating, and servicing machinery, wear all the protective clothing and personal safety devices that **COULD** be necessary for the job at hand. Don't take chances.

- You may need:
 - A hard hat
 - Protective footwear with slip resistant soles
 - Protective glasses or goggles
 - Heavy gloves
 - Wet weather gear
 - A respirator or filter mask
 - Hearing protection

Be aware that exposure to loud noise can cause impairment or loss of hearing. Wearing suitable hearing protection devices such as ear muffs or ear plugs. These will help protect against objectionable or loud noises.

- Provide a first aid kit for use in case of emergencies.
- Keep a fire extinguisher on the machine. Be sure the fire extinguisher is properly maintained. Be familiar with its proper use.
- Keep young children away from the machinery at all times.
- Be aware that accidents often happen when the Operator is tired or in a hurry to get finished. Take the time to consider the safest way. Never ignore warning signs of fatigue.

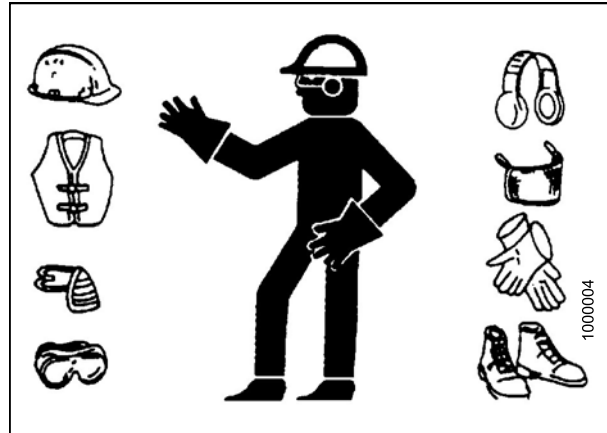


Figure 1.1: Safety Equipment



Figure 1.2: Safety Equipment

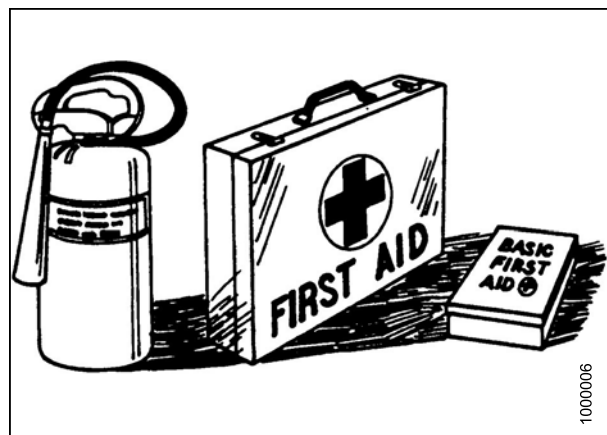


Figure 1.3: Safety Equipment

SAFETY

- Wear close fitting clothing and cover long hair. Never wear dangling items such as scarves or bracelets.
- Keep all shields in place. Never alter or remove safety equipment. Make sure driveline guards can rotate independently of the shaft and can telescope freely.
- Use only service and repair parts, made, or approved by the equipment manufacturer. Substituted parts may not meet strength, design, or safety requirements.



Figure 1.4: Safety around Equipment

- Keep hands, feet, clothing, and hair away from moving parts. Never attempt to clear obstructions or objects, from a machine while the engine is running.
- Do **NOT** modify the machine. Non-authorized modifications may impair machine function and/or safety. It may also shorten the machine's life.
- Stop the engine and remove the key from ignition before leaving operator's seat for any reason. A child or even a pet could engage an idling machine.

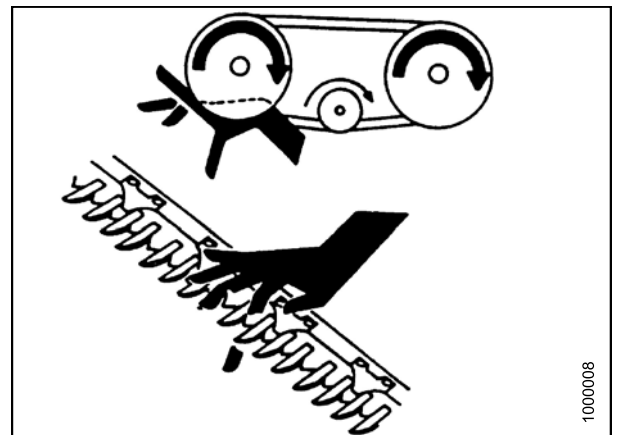


Figure 1.5: Safety around Equipment

- Keep the area used for servicing machinery clean and dry. Wet or oily floors are slippery. Wet spots can be dangerous when working with electrical equipment. Be sure all electrical outlets and tools are properly grounded.
- Keep work area well lit.
- Keep machinery clean. Straw and chaff, on a hot engine, are a fire hazard. Do **NOT** allow oil or grease to accumulate on service platforms, ladders, or controls. Clean machines before storage.
- Never use gasoline, naphtha, or any volatile material for cleaning purposes. These materials may be toxic and/or flammable.
- When storing machinery, cover sharp or extending components to prevent injury from accidental contact.



Figure 1.6: Safety around Equipment

1.3 Safety Signs

- Keep safety signs clean and legible at all times.
- Replace safety signs that are missing or become illegible.
- If original parts on which a safety sign was installed are replaced, be sure the repair part also bears the current safety sign.
- Safety signs are available from your Dealer Parts Department.

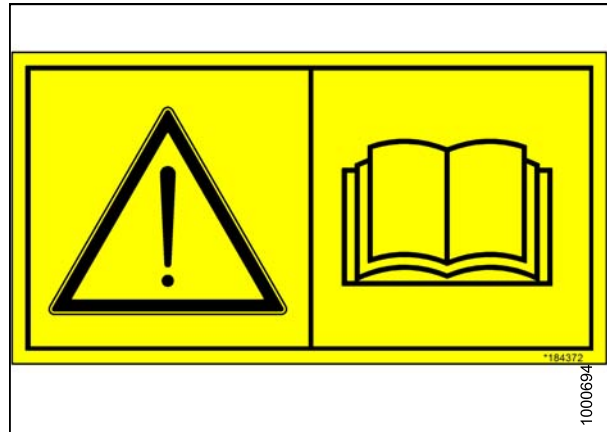


Figure 1.7: Operator's Manual Decal

2 Recommended Torques

2.1 Torque Specifications

The following tables give correct torque values for various bolts, cap screws, and hydraulic fittings.

- Tighten all bolts to the torques specified in chart (unless otherwise noted throughout this manual).
- Replace hardware with the same strength and grade bolt.
- Check tightness of bolts periodically, using the tables below as a guide.
- Torque categories for bolts and cap screws are identified by their head markings.

2.1.1 SAE Bolt Torque Specifications

Torque values shown in this table are valid for non-greased, or non-oiled threads and heads. Therefore, do **NOT** grease or oil bolts or cap screws unless otherwise specified in this manual.

Table 2.1 SAE Grade 5 Bolt and Grade 5 Free Spinning Nut

Nominal Size (A)	Torque (ft·lbf) (*in·lbf)		Torque (N·m)	
	Min.	Max.	Min.	Max.
1/4-20	*106	*117	11.9	13.2
5/16-18	*218	*241	24.6	27.1
3/8-16	32	36	44	48
7/16-14	52	57	70	77
1/2-13	79	87	106	118
9/16-12	114	126	153	170
5/8-11	157	173	212	234
3/4-10	281	311	380	420
7/8-9	449	496	606	669
1-8	611	676	825	912

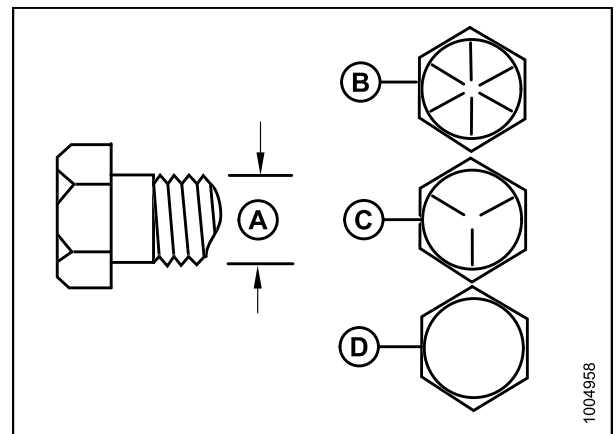


Figure 2.1: Bolt Grades

A - Nominal Size
C - SAE-5

B - SAE-8
D - SAE-2

RECOMMENDED TORQUES

Table 2.2 SAE Grade 5 Bolt and Grade 5 Distorted Thread Nut

Nominal Size (A)	Torque (ft-lbf) (*in-lbf)		Torque (N·m)	
	Min.	Max.	Min.	Max.
1/4-20	*72	*80	8.1	9
5/16-18	*149	*164	16.7	18.5
3/8-16	22	24	30	33
7/16-14	35	39	48	53
1/2-13	54	59	73	80
9/16-12	77	86	105	116
5/8-11	107	118	144	160
3/4-10	192	212	259	286
7/8-9	306	338	413	456
1-8	459	507	619	684

Table 2.3 SAE Grade 8 Bolt and Grade 8 Distorted Thread Nut

Nominal Size (A)	Torque (ft-lbf) (*in-lbf)		Torque (N·m)	
	Min.	Max.	Min.	Max.
1/4-20	*150	*165	16.8	18.6
5/16-18	18	19	24	26
3/8-16	31	34	42	46
7/16-14	50	55	67	74
1/2-13	76	84	102	113
9/16-12	109	121	148	163
5/8-11	151	167	204	225
3/4-10	268	296	362	400
7/8-9	432	477	583	644
1-8	647	716	874	966

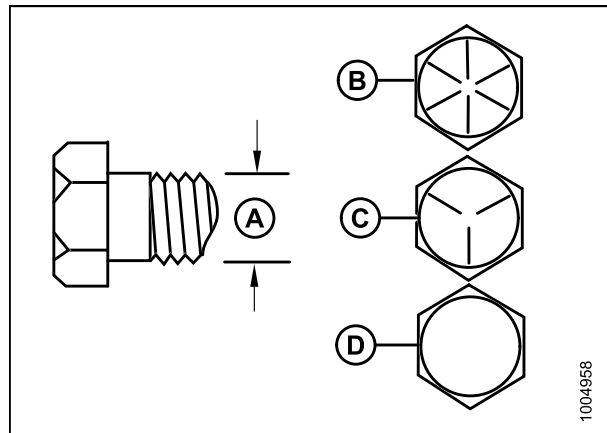


Figure 2.2: Bolt Grades

A - Nominal Size
C - SAE-5

B - SAE-8
D - SAE-2

RECOMMENDED TORQUES

Table 2.4 SAE Grade 8 Bolt and Grade 8 Free Spinning Nut

Nominal Size (A)	Torque (ft·lbf) (*in·lbf)		Torque (N·m)	
	Min.	Max.	Min.	Max.
1/4-20	*150	*165	16.8	18.6
5/16-18	26	28	35	38
3/8-16	46	50	61	68
7/16-14	73	81	98	109
1/2-13	111	123	150	166
9/16-12	160	177	217	239
5/8-11	221	345	299	330
3/4-10	393	435	531	587
7/8-9	633	700	855	945
1-8	863	954	1165	1288

2.1.2 Metric Bolt Specifications

Table 2.5 Metric Class 8.8 Bolts and Class 9 Free Spinning Nut

Nominal Size	Torque (ft·lbf) (*in·lbf)		Torque (N·m)	
	Min.	Max.	Min.	Max.
3-0.5	*13	*14	1.4	1.6
3.5-0.6	*20	*22	2.2	2.5
4-0.7	*29	*32	3.3	3.7
5-0.8	*59	*66	6.7	7.4
6-1.0	*101	*112	11.4	12.6
8-1.25	20	23	28	30
10-1.5	40	45	55	60
12-1.75	70	78	95	105
14-2.0	113	124	152	168
16-2.0	175	193	236	261
20-2.5	341	377	460	509
24-3.0	589	651	796	879

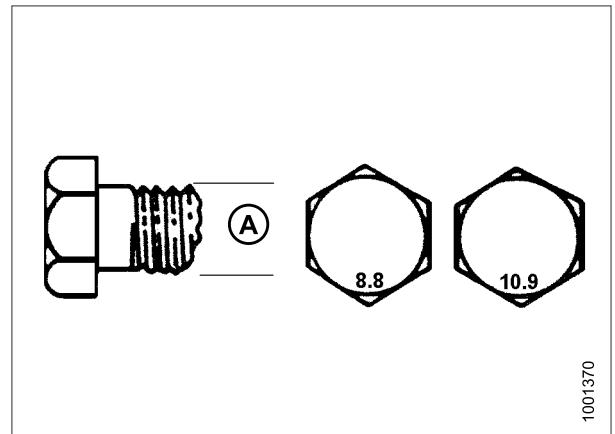


Figure 2.3: Bolt Grades

A - Nominal Size

RECOMMENDED TORQUES

Table 2.6 Metric Class 8.8 Bolts and Class 9 Distorted Thread Nut

Nominal Size	Torque (ft·lbf) (*in·lbf)		Torque (N·m)	
	Min.	Max.	Min.	Max.
3-0.5	*9	*10	1	1.1
3.5-0.6	*14	*15	1.5	1.7
4-0.7	*20	*22	2.3	2.5
5-0.8	*40	*45	4.5	5
6-1.0	*69	*76	7.7	8.6
8-1.25	*167	*185	18.8	20.8
10-1.5	28	30	37	41
12-1.75	48	53	65	72
14-2.0	77	85	104	115
16-2.0	119	132	161	178
20-2.5	233	257	314	347
24-3.0	402	444	543	600

Table 2.7 Metric Class 10.9 Bolts and Class 10 Free Spinning Nut

Nominal Size	Torque (ft·lbf) (*in·lbf)		Torque (N·m)	
	Min.	Max.	Min.	Max.
3-0.5	*18	*19	1.8	2
3.5-0.6	*27	*30	2.8	3.1
4-0.7	*41	*45	4.2	4.6
5-0.8	*82	*91	8.4	9.3
6-1.0	*140	*154	14.3	15.8
8-1.25	28	31	38	42
10-1.5	56	62	75	83
12-1.75	97	108	132	145
14-2.0	156	172	210	232
16-2.0	242	267	326	360
20-2.5	472	521	637	704
24-3.0	815	901	1101	1217

RECOMMENDED TORQUES

Table 2.8 Metric Class 10.9 Bolts and Class 10 Distorted Thread Nut

Nominal Size	Torque (ft·lbf) (*in·lbf)		Torque (N·m)	
	Min.	Max.	Min.	Max.
3-0.5	*12	*13	1.3	1.5
3.5-0.6	*19	*21	2.1	2.3
4-0.7	*28	*31	3.1	3.4
5-0.8	*56	*62	6.3	7
6-1.0	*95	*105	10.7	11.8
8-1.25	19	21	26	29
10-1.5	38	42	51	57
12-1.75	66	73	90	99
14-2.0	106	117	143	158
16-2.0	165	182	222	246
20-2.5	322	356	434	480
24-3.0	556	614	750	829

RECOMMENDED TORQUES

2.1.3 Metric Bolt Specifications Bolting into Cast Aluminum

Table 2.9 Metric Bolt Bolting into Cast Aluminum

Nominal Size	Bolt Torque			
	8.8 (Cast Aluminum)		10.9 (Cast Aluminum)	
	ft·lbf	N·m	ft·lbf	N·m
M3			1	
M4			2.6	4
M5			5.5	8
M6	6	9	9	12
M8	14	20	20	28
M10	28	40	40	55
M12	52	70	73	100
M14				
M16				

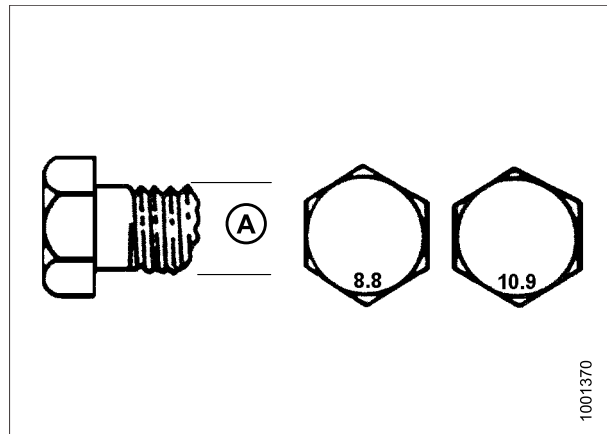


Figure 2.4: Bolt Grades

A - Nominal Size

2.1.4 Flare-Type Hydraulic Fittings

1. Check flare (A) and flare seat (B) for defects that might cause leakage.
2. Align tube (C) with fitting (D) and thread nut (E) onto fitting without lubrication until contact has been made between the flared surfaces.
3. Torque the fitting nut (E) to the specified number of FFFT or to a given torque value shown in the following table.
4. To prevent the fitting (D) from rotating, use two wrenches. Place one wrench on the fitting body (D) and tighten the nut (E) with the other wrench to the torque shown.
5. Assess the final condition of the connection.

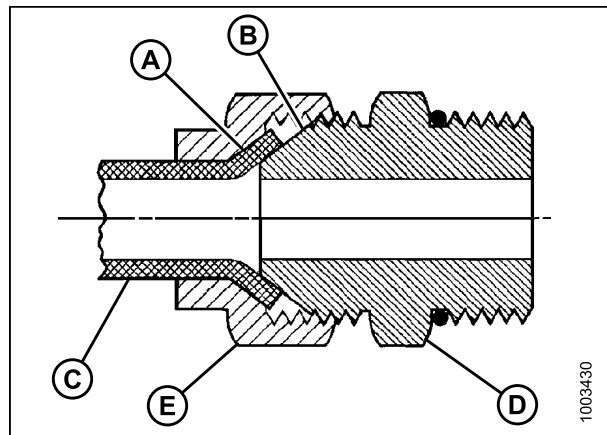


Figure 2.5: Hydraulic Fitting

A - Flare
 B - Flare Seat
 C - Tube
 D - Body
 E - Nut

RECOMMENDED TORQUES

Table 2.10 Flare-Type Hydraulic Tube Fittings

SAE No.	Tube Size O.D. (in.)	Thread Size (in.)	Nut Size across Flats (in.)	Torque Value ¹		Flats from Finger Tight (FFFT)	
				ft·lbf	N·m	Flats	Turns
3	3/16	3/8	7/16	6	8	1	1/6
4	1/4	7/16	9/16	9	12	1	1/6
5	5/16	1/2	5/8	12	16	1	1/6
6	3/8	9/16	11/16	18	24	1	1/6
8	1/2	3/4	7/8	34	46	1	1/6
10	5/8	7/8	1	46	62	1	1/6
12	3/4	1-1/16	1-1/4	75	102	3/4	1/8
14	7/8	1-3/8	1-3/8	90	122	3/4	1/8
16	1	1-5/16	1-1/2	105	142	3/4	1/8

1. Torque values shown are based on lubricated connections as in reassembly.

RECOMMENDED TORQUES

2.1.5 O-Ring Boss (ORB) Hydraulic Fittings (Adjustable)

1. Inspect O-ring (A) and seat (B) for dirt or obvious defects.
2. Back off the lock nut (C) as far as possible. Ensure that washer (D) is not loose and is pushed toward the lock nut (C) as far as possible.
3. Check that O-ring (A) is **NOT** on the threads, adjust if necessary.
4. Apply hydraulic system oil to the O-ring (A).

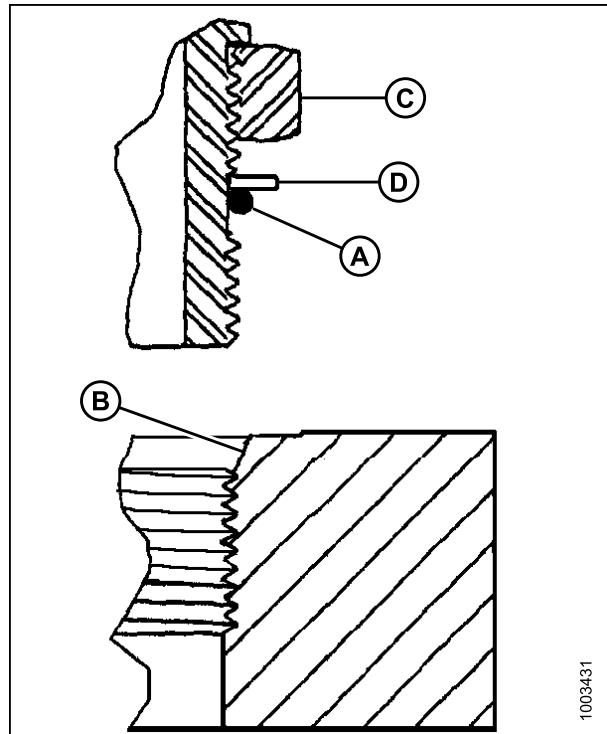


Figure 2.6: Hydraulic Fitting

A - O-Ring B - Seat C - Nut
D - Washer

5. Install fitting (B) into port until back up washer (D) and O-ring (A) contacts on part face (E).
6. Position angle fittings by unscrewing no more than one turn.
7. Turn lock nut (C) down to washer (D) and tighten to torque shown. Use two wrenches, one on the fitting (B) and the other on the lock nut (C).
8. Check the final condition of the fitting.

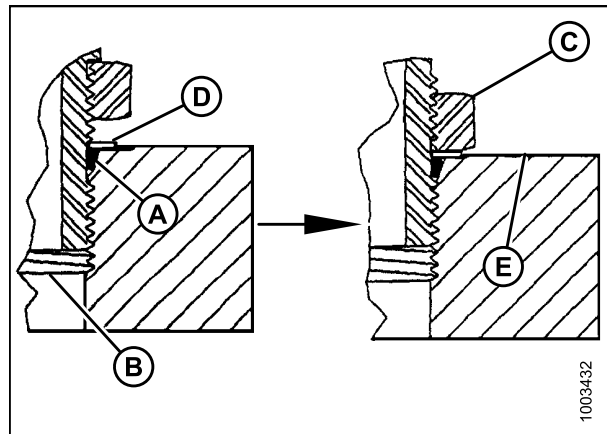


Figure 2.7: Hydraulic Fitting

A - O-Ring B - Fitting C - Nut
D - Washer E - Part Face

RECOMMENDED TORQUES

Table 2.11 O-Ring Boss (ORB) Hydraulic Fittings (Adjustable)

SAE Dash Size	Thread Size (in.)	Torque Value ²	
		ft·lbf (*in·lbf)	N·m
-3	3/8-24	*106–115	12–13
-4	7/16–20	14–15	19–21
-5	1/2–20	15–24	21–33
-6	9/16–18	19–21	26–29
-8	3/4–16	34–37	46–50
-10	7/8–14	55–60	75–82
-12	1-1/16-12	88–97	120–132
-14	1-3/8-12	113–124	153–168
-16	1-5/16-12	130–142	176–193
-20	1-5/8-12	163–179	221–243
-24	1-7/8-12	199–220	270–298

2. Torque values shown are based on lubricated connections as in reassembly.

RECOMMENDED TORQUES

2.1.6 O-Ring Boss (ORB) Hydraulic Fittings (Non-Adjustable)

1. Inspect O-ring (A) and seat (B) for dirt or obvious defects.
2. Check that O-ring (A) is **NOT** on the threads, adjust if necessary.
3. Apply hydraulic system oil to the O-ring.
4. Install fitting (C) into port until fitting is hand tight.
5. Torque fitting (C) per value in chart. Refer to [Table 2.12 O-Ring Boss \(ORB\) Hydraulic Fittings \(Non-Adjustable\)](#), page 14.
6. Check the final condition of the fitting.

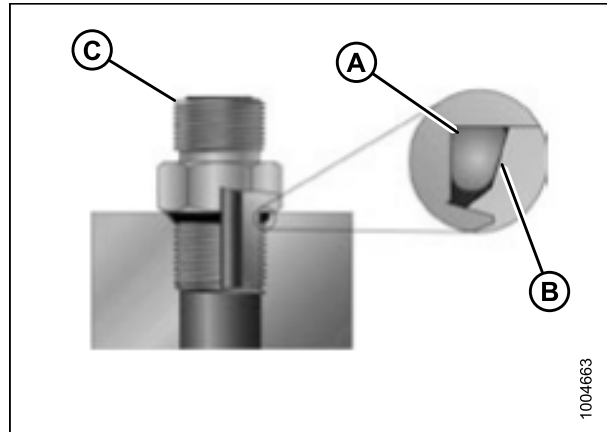


Figure 2.8: Hydraulic Fitting

Table 2.12 O-Ring Boss (ORB) Hydraulic Fittings (Non-Adjustable)

SAE Dash Size	Thread Size (in.)	Torque Value ³	
		ft·lbf (*in·lbf)	N·m
-3	3/8-24	*106–115	12–13
-4	7/16–20	14–15	19–21
-5	1/2–20	15–24	21–33
-6	9/16–18	19–21	26–29
-8	3/4–16	34–37	46–50
-10	7/8–14	55–60	75–82
-12	1-1/16-12	88–97	120–132
-14	1-3/8-12	113–124	153–168
-16	1-5/16-12	130–142	176–193
-20	1-5/8-12	163–179	221–243
-24	1-7/8-12	199–220	270–298

3. Torque values shown are based on lubricated connections as in reassembly.

RECOMMENDED TORQUES

2.1.7 O-Ring Face Seal (ORFS) Hydraulic Fittings

To tighten O-ring face seal (ORFS) hydraulic fittings, follow these steps:

1. Check components to ensure that the sealing surfaces and fitting threads are free of burrs, nicks, and scratches or any foreign material.



Figure 2.9: Hydraulic Fitting

2. Apply hydraulic system oil to the O-ring (B).
3. Align the tube or hose assembly so that the flat face of the sleeve (A) or (C) comes in full contact with O-ring (B).
4. Thread tube or hose nut (D) until hand-tight. The nut should turn freely until it is bottomed out.
5. Torque fitting further to the torque value in the table shown in the opposite column.

NOTE: If applicable, hold the hex on the fitting body (E) to prevent rotation of fitting body and hose when tightening the fitting nut (D).

6. When assembling unions or two hoses together, three wrenches will be required.
7. Check the final condition of the fitting.

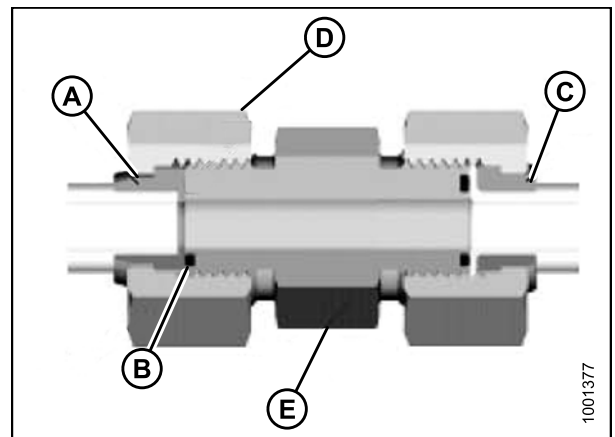


Figure 2.10: Hydraulic Fitting

A - Brazed Sleeve
B - O-Ring
C - Two Piece Sleeve
D - Nut
E - Fitting Body

RECOMMENDED TORQUES

Table 2.13 O-Ring Face Seal (ORFS) Hydraulic Fittings

SAE Dash Size	Thread Size (in.)	Torque Value ⁴	
		ft·lbf (*in·lbf)	N·m
-3	Note ⁵	–	–
-4	9/16–18	18–21	25–28
-5	Note ⁵	–	–
-6	11/16-16	29–32	40–44
-8	13/16-16	41–45	55–61
-10	1–14	59–65	80–88
-12	1-3/16-12	85–94	115–127
-14	Note ⁵	–	–
-16	1-7/16-12	111–122	150–165
-20	1-11/16-12	151–167	205–226
-24	2–12	232–256	315–347
-32	2-1/2-12	376–414	510–561

4. Torque values and angles shown are based on lubricated connection, as in reassembly.

5. O-ring face seal type end not defined for this tube size.

3 Conversion Chart

Quantity	Inch-Pound Units		Factor	SI Units (Metric)	
	Unit Name	Abbreviation		Unit Name	Abbreviation
Area	acres	acres	$\times 0.4047 =$	hectares	ha
Flow	US gallons per minute	gpm	$\times 3.7854 =$	liters per minute	L/min
Force	pounds force	lbf	$\times 4.4482 =$	Newtons	N
Length	inch	in.	$\times 25.4 =$	millimeters	mm
	foot	ft.	$\times 0.305 =$	meters	m
Power	horsepower	hp	$\times 0.7457 =$	kilowatts	kW
Pressure	pounds per square inch	psi	$\times 6.8948 =$	kilopascals	kPa
			$\times .00689 =$	megapascals	MPa
			$\div 14.5038 =$	bar (non-SI)	bar
Torque	pound feet or foot pounds	ft·lbf	$\times 1.3558 =$	newton meters	N·m
	pound inches or inch pounds	in·lbf	$\times 0.1129 =$	newton meters	N·m
Temperature	degrees fahrenheit	°F	$(^{\circ}\text{F}-32) \times 0.56 =$	Celsius	°C
Velocity	feet per minute	ft/min	$\times 0.3048 =$	meters per minute	m/min
	feet per second	ft/s	$\times 0.3048 =$	meters per second	m/s
	miles per hour	mph	$\times 1.6063 =$	kilometres per hour	km/h
Volume	US gallons	US gal	$\times 3.7854 =$	liters	L
	ounces	oz.	$\times 29.5735 =$	milliliters	ml
	cubic inches	in. ³	$\times 16.3871 =$	cubic centimetres	cm ³ or cc
Weight	pounds	lbs	$\times 0.4536 =$	kilograms	kg

4 Definitions

The following terms and acronyms may be used in this manual.

Term	Definition
A-Series header	MacDon auger header.
API	American Petroleum Institute.
APT	Articulated power turn.
ASTM	American Society of Testing and Materials.
Bolt	A headed and externally threaded fastener that is designed to be paired with a nut.
Cab-forward	Windrower operation with the Operator and cab facing in the direction of travel.
CDM	Cab display module on a self-propelled windrower.
Center-link	A hydraulic cylinder or manually adjustable turnbuckle type link between the header and the machine to which it is attached. It is used to change header angle.
CGVW	Combined vehicle gross weight.
D-Series header	MacDon rigid draper header.
DWA	Double Windrow Attachment.
ECM	Engine control module.
Engine-forward	Windrower operation with the Operator and engine facing in the direction of travel.
Finger tight	Finger tight is a reference position where sealing surfaces or components are making contact with each other and the fitting has been tightened to a point where the fitting is no longer loose.
F.F.F.T	Flats from finger tight.
GSL	Ground speed lever.
GVW	Gross vehicle weight.
Hard joint	A joint made with the use of a fastener where the joining materials are highly incompressible.
Header	
Hex key	A hex key or Allen key (also known by various other synonyms) is a tool of hexagonal cross-section used to drive bolts and screws that have a hexagonal socket in the head (internal-wrenching hexagon drive).
hp	Horsepower.
ISC	Intermediate Speed Control.
JIC	Joint Industrial Council: a standards body that developed the standard sizing and shape for original 37° flared fitting.
Knife	A cutting device which uses a reciprocating cutter. Also called a sickle.
n/a	Not applicable.
Nut	An internally threaded fastener that is designed to be paired with a bolt.
N-DETENT	The slot opposite the NEUTRAL position on operator's console.

DEFINITIONS

Term	Definition
NPT	National Pipe Thread: a style of fitting used for low pressure port openings. Threads on NPT fittings are uniquely tapered for an interference fit.
ORB	O-ring boss: a style of fitting commonly used in port opening on manifolds, pumps and motors.
ORFS	O-ring face seal: a style of fitting commonly used for connecting hoses and tubes. This style of fitting is also commonly called ORS, which stands for O-ring seal.
PTO	Power Take-Off.
rpm	Revolutions per minute.
R-Series header	MacDon rotary disc header.
RoHS (Reduction of Hazardous Substances)	A directive by the European Union to restrict the use of certain hazardous substances (such as hexavalent chromium used in some yellow zinc platings).
SAE	Society Of Automotive Engineers.
Screw	A headed and externally threaded fastener that threads into preformed threads or forms its own thread in one of the mating parts.
Self-Propelled (SP) Windrower	Self-propelled machine consisting of a power unit with a header and/or conditioner.
Soft joint	A joint made with the use of a fastener where the joining materials are compressible or experience relaxation over a period of time.
spm	Strokes per minute.
Tractor	Agricultural type tractor.
Truck	A four-wheel highway/road vehicle weighing no less than 7500 lbs (3400 kg).
Tension	Axial load placed on a bolt or screw, usually measured in pounds (lb) or Newtons (N).
T.F.F.T.	Turns from finger tight.
Torque	The product of a force X lever arm length, usually measured in foot-pounds (ft-lbf) or Newton-meters (N·m).
Torque angle	A tightening procedure where the fitting is assembled to a precondition (finger tight) and then the nut is turned further a number of degrees or a number of flats to achieve its final position.
Torque-tension	The relationship between the assembly torque applied to a piece of hardware and the axial load it induces in the bolt or screw.
UCA	Upper cross auger.
Washer	A thin cylinder with a hole or slot located in the center and is to be used as a spacer, load distribution element, or a locking mechanism.
Windrower	Power unit of a self-propelled header.
WCM	Windrower control module.

5 Unloading the Windrower

Follow each procedure in this chapter in order.

5.1 Unloading Container

CAUTION

To avoid injury to bystanders from being struck by machinery, do NOT allow people to stand in unloading area.

1. Move trailer into position and block trailer wheels.
2. Unlock doors.
3. Lower trailer storage stands.
4. Open container doors and remove all blocking.
5. Check container floor for nails or other obstructions, and remove if necessary.
6. Position platform or ramp at container opening.
7. Attach chain/pull strap to slots in support channels (A).
8. Slowly pull windrower from container onto platform.



Figure 5.1: Windrower Shipping Assembly

5.2 Moving to Assembly Area

The windrower can be moved to the assembly area using either a crane or a forklift. Both procedures are described below.

5.2.1 Moving to Assembly Area—Crane Method

CAUTION

To avoid injury to bystanders from being struck by machinery, do NOT allow people to stand in unloading area.

CAUTION

Equipment used for unloading must meet or exceed the requirements specified in this section. Using inadequate equipment may result in chain breakage, vehicle tipping or machine damage.

Lift Sling	
Type	MacDon Part #163871
Maximum Working Load	28,404 lb (12,884 kg)
Chain	
Type	Overhead 1/2 in. lifting quality
Minimum Working Load	7100 lb (3221 kg)
Lifting Vehicle	
Minimum Lifting Capacity	20,000 lb (9072 kg)

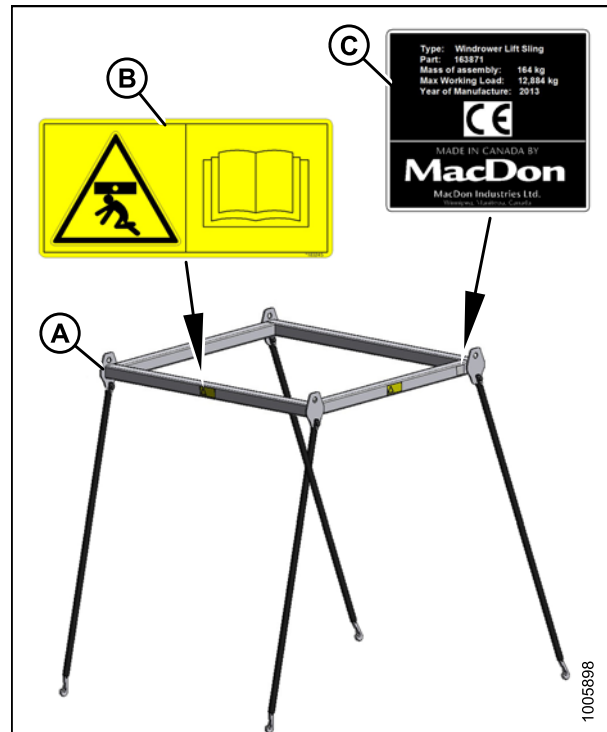


Figure 5.2: Lift Sling

- A - Lift Sling (MD #163871)
- B - Decal (MD #183245), Applied in Four Places
- C - Decal (MD #183248), Applied in One Place

UNLOADING THE WINDROWER

To move the windrower to the assembly area using a crane, follow these steps:

1. Attach chains or cable to the four lift points on the lift sling (MD #163871) and connect loop ends to crane hook. Use cable or chain with a minimum lifting capacity of 7100 lb (3221 kg).

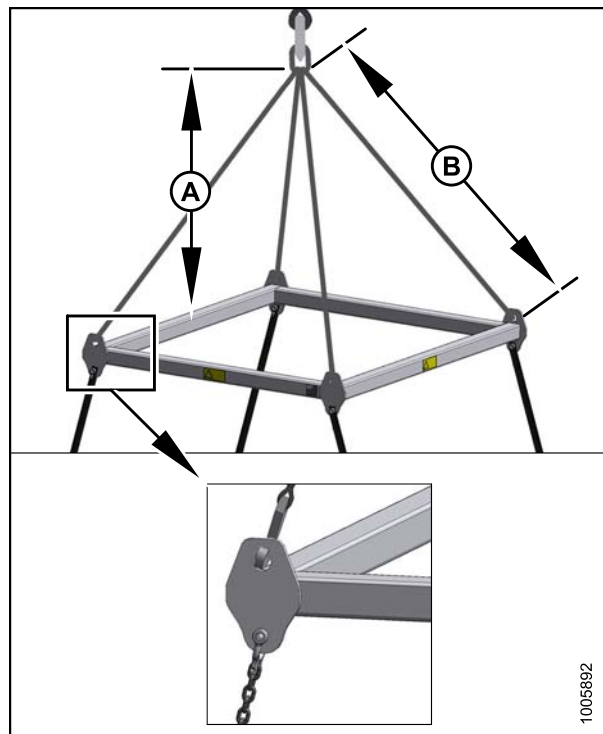


Figure 5.3: Lift Sling

A - 59 in. (1500 mm) Minimum B - 83.5 in. (2120 mm) Typical

2. Attach lift sling (MD #163871) to the four designated lift points on windrower shipping frame.



DANGER

To avoid injury or death from fall or swinging of raised load, keep all bystanders clear when lifting.

3. Lift windrower off platform and move to setup area.



Figure 5.4: Shipping Frame Lift Points

UNLOADING THE WINDROWER

4. Lower assembly onto 5–6 in. (127–152 mm) blocks as shown.
5. Remove chains from shipping frame.
6. Check for shipping damage and missing parts.

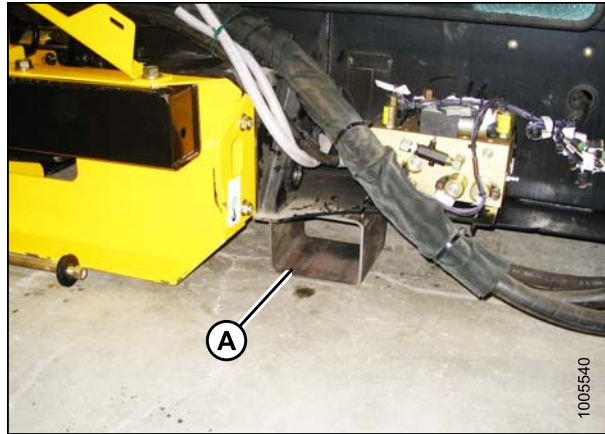


Figure 5.5: Windrower Shipping Assembly on Blocks

5.2.2 Moving to Assembly Area—Forklift Method

⚠ CAUTION

To avoid injury to bystanders from being struck by machinery, do NOT allow people to stand in unloading area.

⚠ CAUTION

Equipment used for unloading must meet or exceed the requirements specified below. Using inadequate equipment may result in chain breakage, vehicle tipping, or machine damage.

Lifting Vehicle	
Minimum Lifting Capacity ⁶	20,000 lb (9072 kg)

IMPORTANT:

Forklifts are normally rated for a load located 24 in. (610 mm) ahead of back end of the forks. To obtain the forklift capacity at 48 in. (1220 mm), check with your forklift distributor.

6. At 48 in. (1220 mm) from back end of forks.

UNLOADING THE WINDROWER

WARNING

Be sure forks are secure before moving away from load. Stand clear when lifting.

1. Approach windrower from the hood end and slide forks underneath lifting framework.
2. Raise windrower off platform and move to assembly area.
3. Lower assembly onto 5–6 in. (127–152 mm) blocks.
4. Check for shipping damage and missing parts.



Figure 5.6: Moving Windrower Shipping Assembly with Forklift

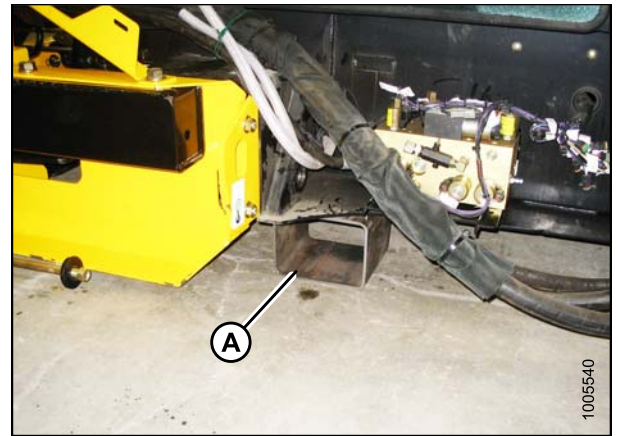


Figure 5.7: Windrower Shipping Assembly on Blocks

5.3 Removing Wheel and Step Assembly

1. Remove shipping wire (A) and bolt securing hose support to shipping frame, and remove hose support.
2. Lay hose support off to the side.



Figure 5.8: Shipping Frame

3. Remove the two 3/4 in. x 16.5 long bolts (A) (one per side) at front frame beam. Retain for reinstallation.



Figure 5.9: Front Frame Beam

UNLOADING THE WINDROWER

4. Remove the 1 in. (25.4 mm) pin (A) at the center-link.



Figure 5.10: Center-Link

5. Remove the four (two per side) carriage bolts at the rear of the wheel/step assembly.



Figure 5.11: Rear of Wheel/Step Assembly

UNLOADING THE WINDROWER

6. Remove plastic cable tie (A) and shipping wire (B) securing hose bundles to frame.

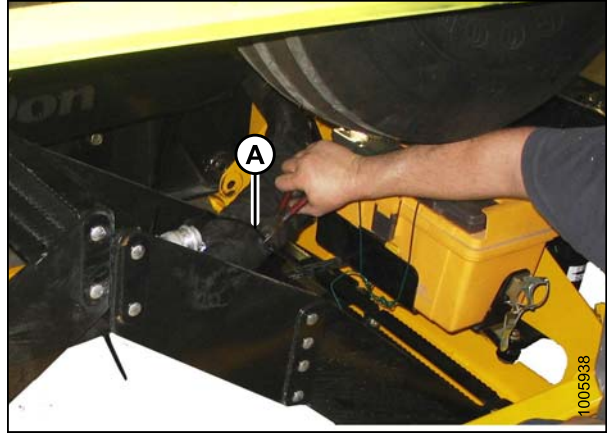


Figure 5.12: Hose Bundles on Frame

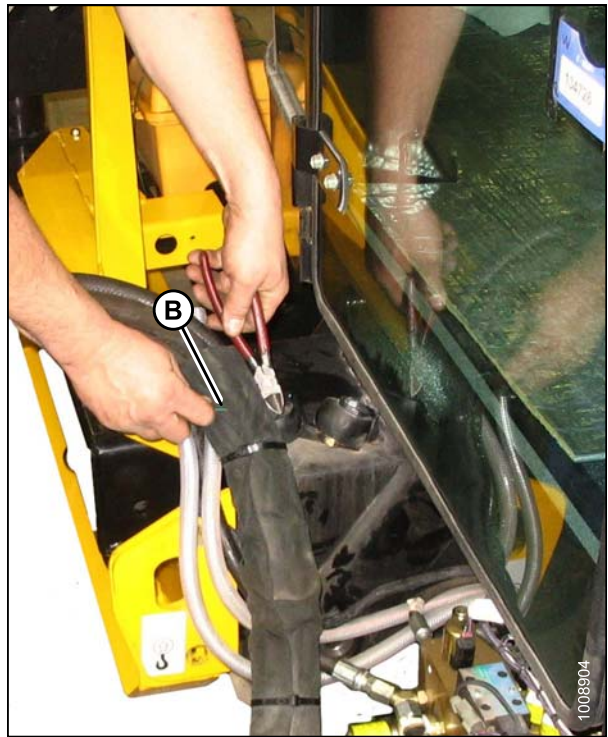


Figure 5.13: Hose Bundles on Frame

UNLOADING THE WINDROWER

7. Attach a chain to wheel/step assembly (A) and pull away from shipping assembly with lifting device.

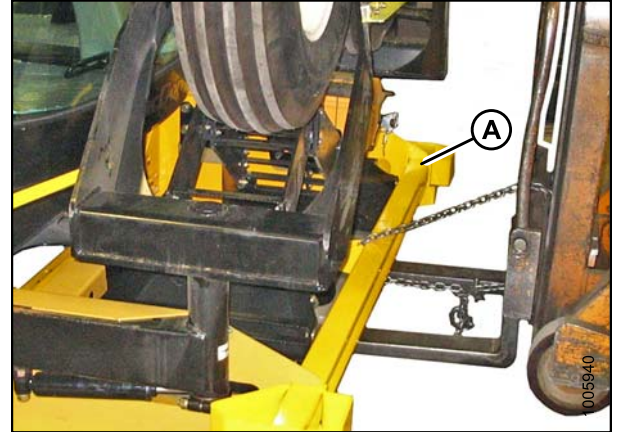


Figure 5.14: Wheel/Step Shipping Assembly

8. Lift center-link (A) so that it clears wheel/step assembly frame (B).

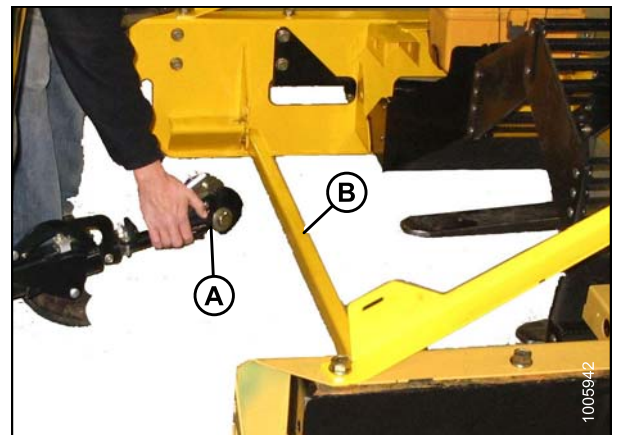


Figure 5.15: Wheel/Step Assembly Frame

9. Reinstall leg bolts, washers, and nuts to secure the lifting plate onto the mainframe.

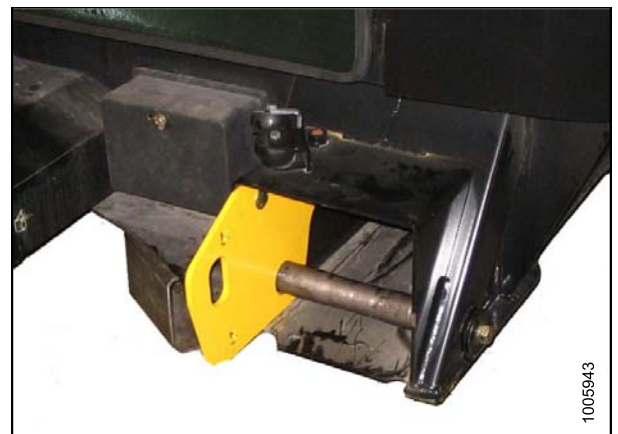


Figure 5.16: Lifting Plate

5.4 Removing Drive Wheels

IMPORTANT:

Remove the drive wheels as a pair from above the hood.

1. Remove the two bolts (A) at front cross member over the hood.

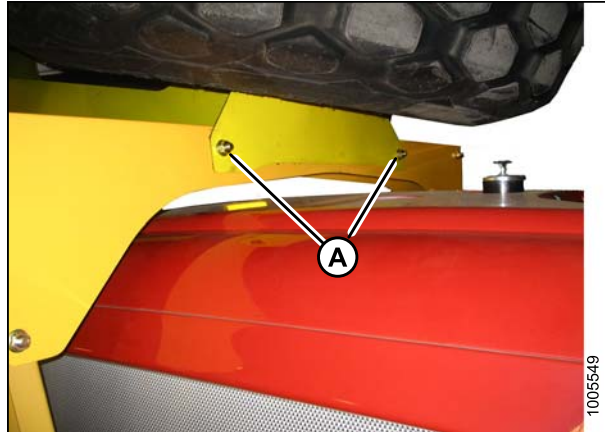


Figure 5.17: Front Cross Member on Hood

2. Remove one bolt (A) at rear of hood directly under center of drive wheel.



Figure 5.18: Rear of Hood

3. Attach a lifting device to lift hooks (A) located in the center of each drive wheel.

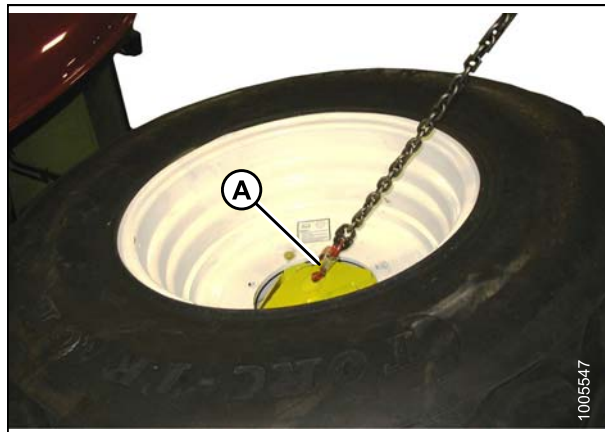


Figure 5.19: Drive Wheel

UNLOADING THE WINDROWER

- Carefully lift wheels off frame.

IMPORTANT:

Ensure that tire is guided away from cab roof when lifting wheels to prevent damage to the cab. Chain on forward wheel should be snug and loose on the aft wheel.

- Set wheels aside for installation later.



Figure 5.20: Wheels on Frame

5.5 Removing Platforms

1. Remove the two support tubes on either side of hood.
2. To prevent paint damage, attach two slings and a chain to platform at locations shown, and to a lifting device with a minimum lifting capacity of 5000 lb (2268 kg), and a lift height of 13 ft. (4 m).

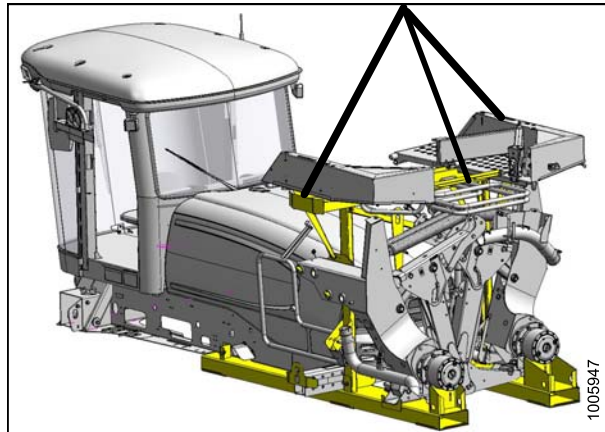


Figure 5.21: Platforms on Hood

3. Remove two 5/8 in. x 5.0 bolts (B) at top of vertical supports, and two 5/8 in. x 1.25 bolts (A) attaching angle braces to platforms.

NOTE: The M105 Self-propelled Windrower is equipped with only one platform.

4. Carefully lift platform off frame.

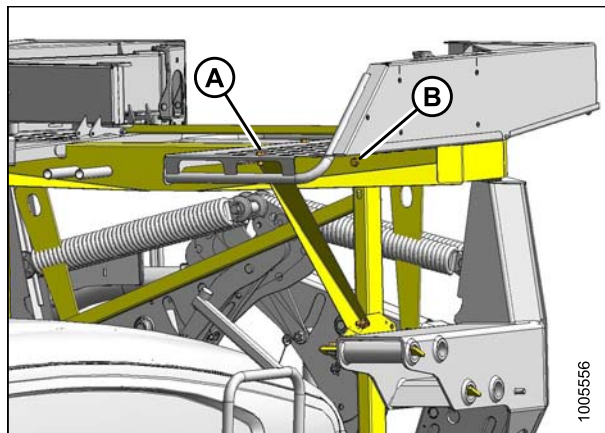


Figure 5.22: Platforms on Hood

5. Back away from windrower and set assembly on a level surface.
6. Unhook one sling and chain.
7. Lift end of assembly so that it can be inverted and laid down again, base on the floor. Use a piece of cardboard under platform to protect the paint.

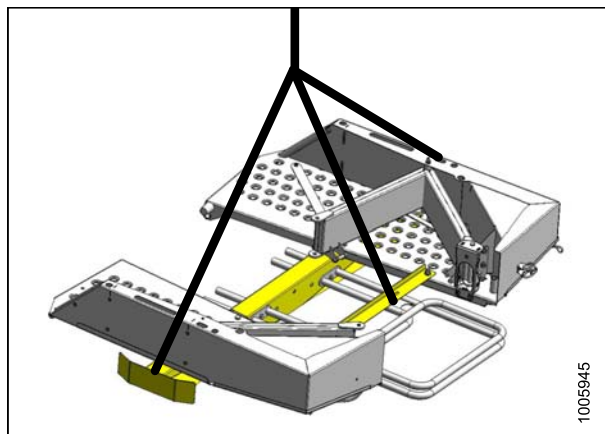


Figure 5.23: Platforms

UNLOADING THE WINDROWER

- Unhook remaining sling.

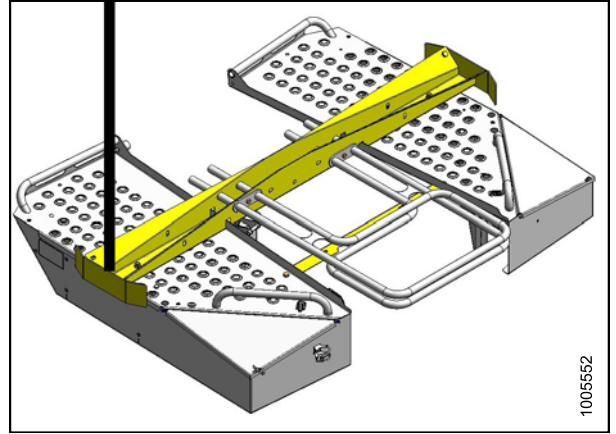


Figure 5.24: Platforms

5.6 Removing Hand Rails and Exhaust Stack

1. Cut plastic cable ties and move hose bundle clear of platform.



Figure 5.25: Hand Rails and Exhaust Stack Shipping Assembly

2. Remove shipping wire and foam from exhaust stack (A).
3. Remove nuts (B) from clamp (C) and remove exhaust stack and clamp from shipping frame.
4. Reinstall nuts onto clamp and set stack aside for later installation.
5. Remove the two bolts (D) securing hand rail (E) to shipping frame and remove hand rail.
6. Repeat for other hand rail on opposite side. Retain hardware.
7. Set parts aside for later installation.

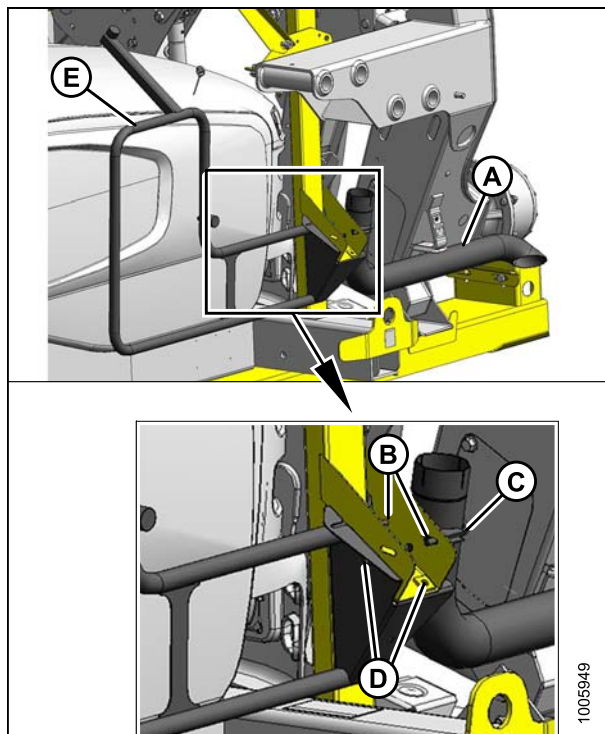


Figure 5.26: Hand Rails and Exhaust Stack Shipping Position

5.7 Removing Leg Assemblies

1. Ensure that lift bar is attached to leg assembly as shown and that clevis pin is installed with head on near side.
2. Attach chain (A) to lifting bar (B) on leg assembly and hook up to lifting device with a minimum lifting capacity of 5000 lb (2268 kg).

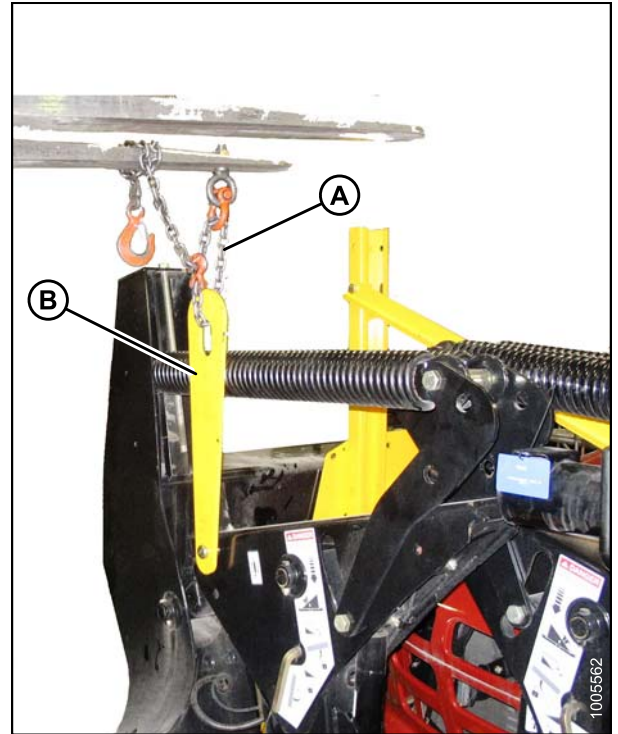


Figure 5.27: Leg Shipping Assembly

3. Remove two bolts (A) at lower support channel.

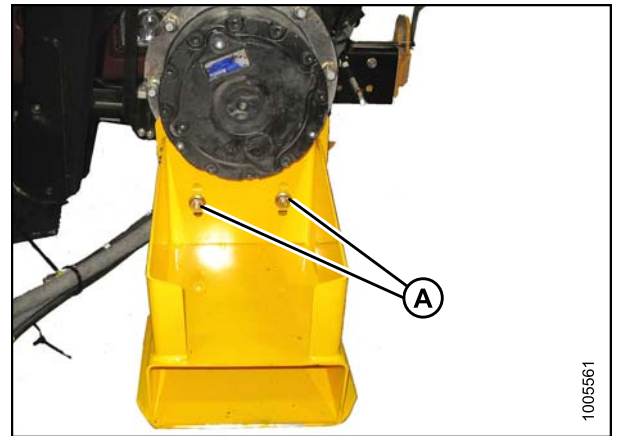


Figure 5.28: Support Channel

UNLOADING THE WINDROWER

4. Remove two bolts (A) near top of leg.

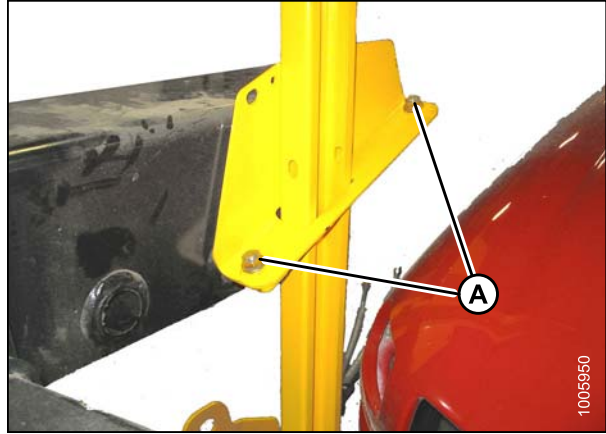


Figure 5.29: Shipping Channel on Leg

5. Remove bars (A) from leg.

NOTE: Insert cardboard or foam between leg assembly and hood to prevent damage to hood.

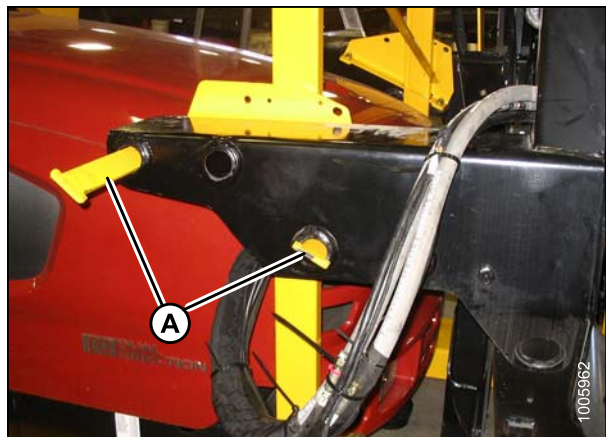


Figure 5.30: Leg Shipping Assembly

UNLOADING THE WINDROWER

6. Lift off leg assembly and set securely on level ground.
7. Repeat above steps for second leg assembly.

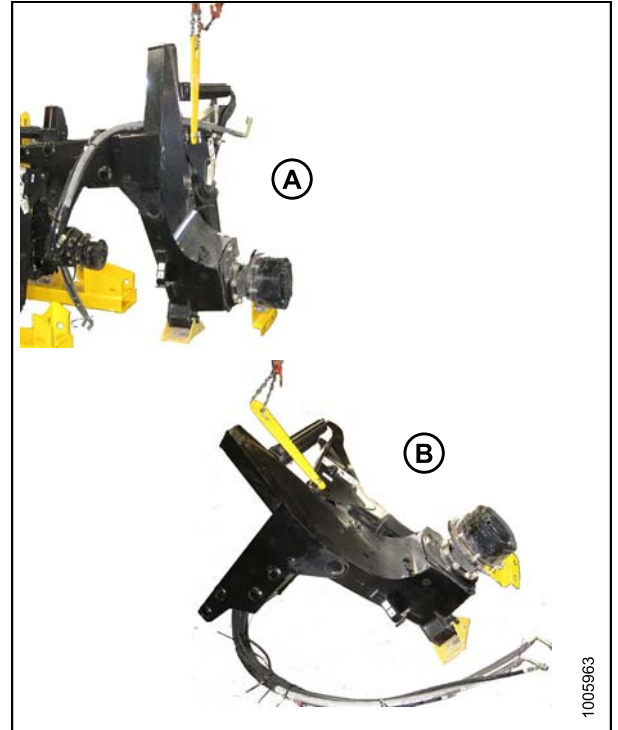


Figure 5.31: Leg Assembly Positioning

A - Lifting Leg Assembly

B - Setting Leg Assembly on Level Ground

5.8 Removing Wheel and Platform Support

1. Remove cross brace (A) and the two upright supports (B and C) from frame.



Figure 5.32: Wheel and Platform Support

2. Remove the cross member over the hood (A).

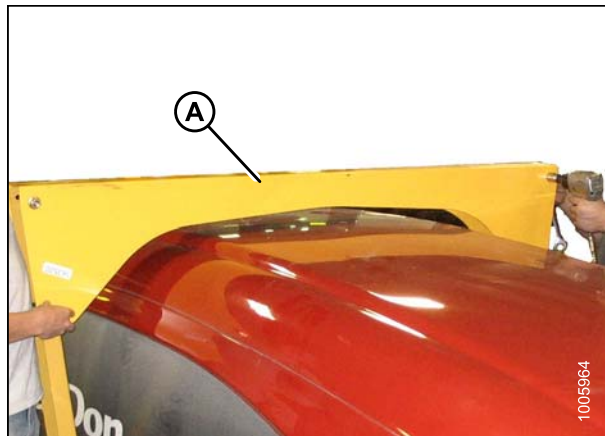


Figure 5.33: Wheel and Platform Support

UNLOADING THE WINDROWER

3. Remove the two uprights (A) on either side of the hood.

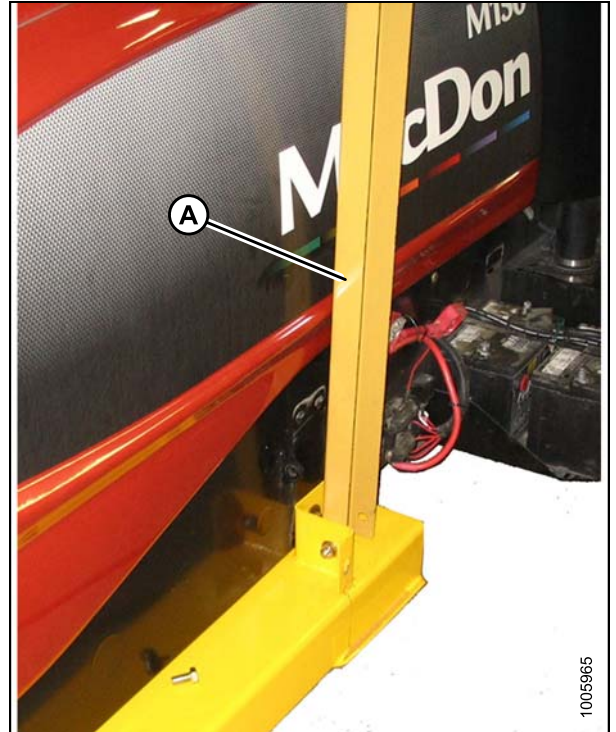


Figure 5.34: Wheel and Platform Support

6 Assembling the Windrower

Once all unloading procedures have been completed, it is time to set up the windrower. Follow each of the procedures in this chapter in order.

6.1 Assembling Support Stand

Special stands for assembling the windrower are available from the factory. If this stand is not available, an equivalent support system can be used.

The stand must be capable of holding a 15,000 lb (6800 kg) load.

Assemble factory stand as follows:

1. Remove all shipping materials from stand.
2. Arrange forward (A) and rear (B) stands on level ground, so that attachment lugs on each stand face each other.
3. Attach four support tubes (C) to stands as shown with hardware provided and tighten.

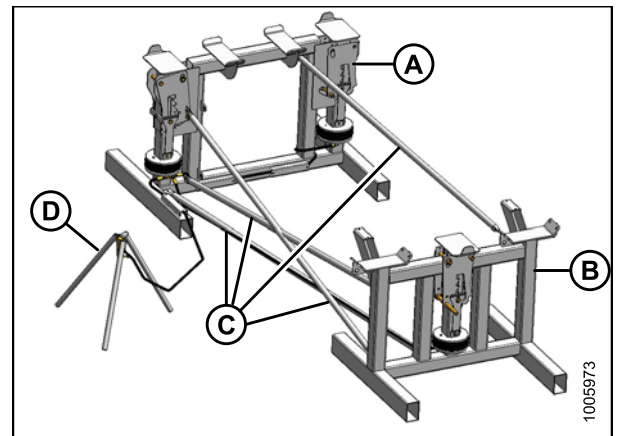


Figure 6.1: Support Stand

A - Forward Stand
C - Support Tubes

B - Rear Stand
D - Air Control Valve Tripod

4. Set up air control valve tripod, remove plug on valve, and install a 100 psi (690 kPa) air line.
The stand is now operational. Instructions for use are given in the appropriate sections of this manual.

WARNING

**Use stand only as instructed in this manual. Do NOT use stand for any other purpose.
Do NOT pressurize air bags beyond 100 psi (690 kPa).**

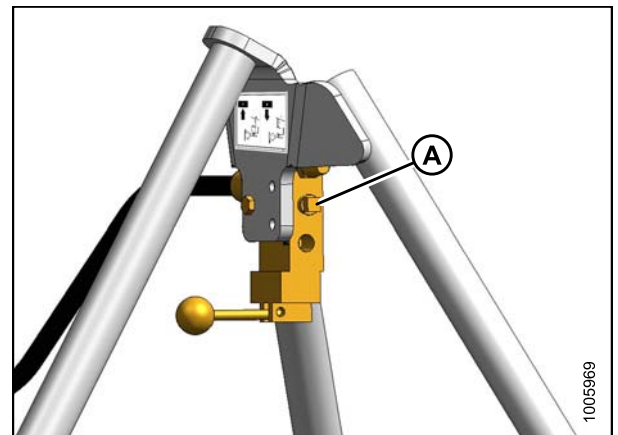


Figure 6.2: Air Control Valve Tripod

6.2 Lifting Windrower onto Stand

The windrower can be lifted onto the support stand using either a crane or a forklift. Both procedures are described below.

6.2.1 Lifting Windrower onto Stand—Crane Method

⚠ DANGER

To avoid injury or death from fall or swinging of raised load, keep all bystanders clear when lifting.

⚠ CAUTION

Equipment used for unloading must meet or exceed the requirements specified in this section. Using inadequate equipment may result in chain breakage, vehicle tipping or machine damage.

Lift Sling	
Type	MacDon Part #163871
Maximum Working Load	28,404 lb (12,884 kg)
Chain	
Type	Overhead 1/2 in. lifting quality
Minimum Working Load	7100 lb (3221 kg)
Crane Lifting Vehicle	
Minimum Lifting Capacity	20,000 lb (9072 kg)

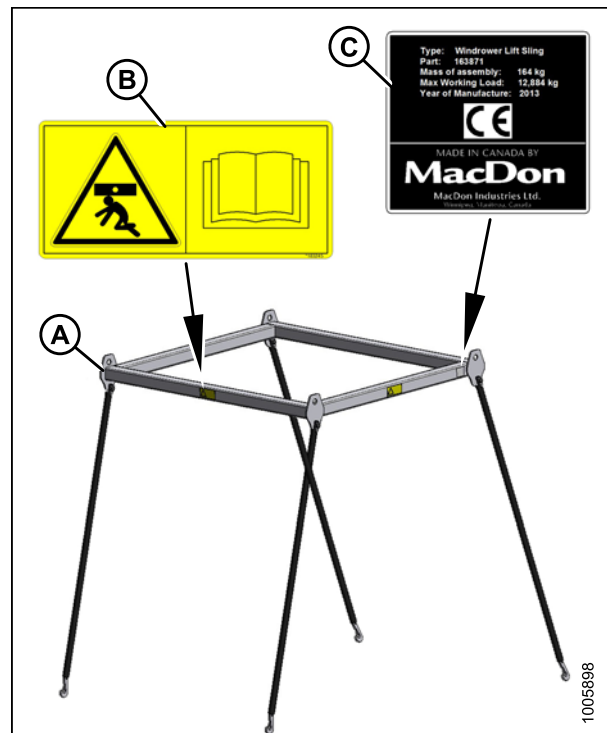


Figure 6.3: Lift Sling

ASSEMBLING THE WINDROWER

1. Attach four chains or cables to the four lift points (A) on the lift sling (MD #163871), and connect loop ends to crane hook. Use cable or chain with a minimum lifting capacity of 7100 lb (3221 kg).
2. Attach the lift sling to the four designated lift points on windrower shipping frame as shown.

WARNING

Stand clear when lifting as machine may swing.

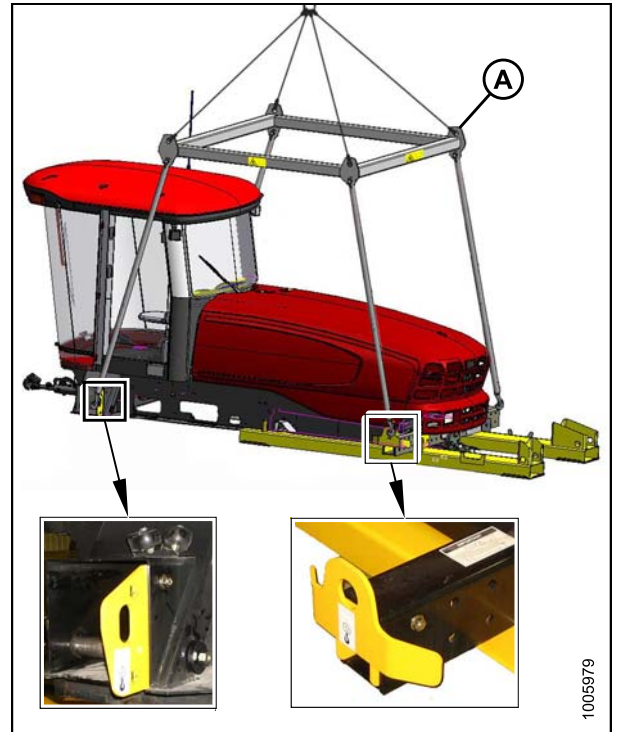


Figure 6.4: Lift Points on Shipping Frame

3. Lift windrower onto support stand (A).
4. Remove chains from shipping frame and set lift sling (B) clear of work area.

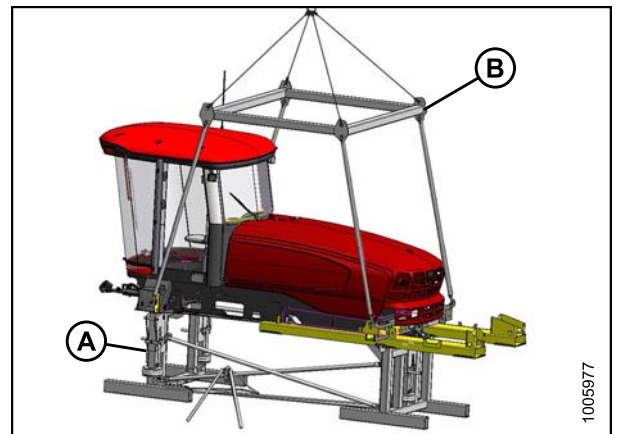


Figure 6.5: Windrower on Support Stand

6.2.2 Lifting Windrower onto Stand—Forklift Method

DANGER

To avoid injury or death from fall or swinging of raised load, keep all bystanders clear when lifting.

CAUTION

Equipment used for unloading must meet or exceed the requirements specified in this section. Using inadequate equipment may result in chain breakage, vehicle tipping or machine damage.

ASSEMBLING THE WINDROWER

Lifting Vehicle	
Minimum Lifting Capacity⁷	20,000 lb (9072 kg)

1. Approach windrower from aft end and slide forks fully into shipping support channels (A).



Figure 6.6: Lifting Windrower with Forklift

2. Raise windrower and place onto stand.
3. Back away forklift.

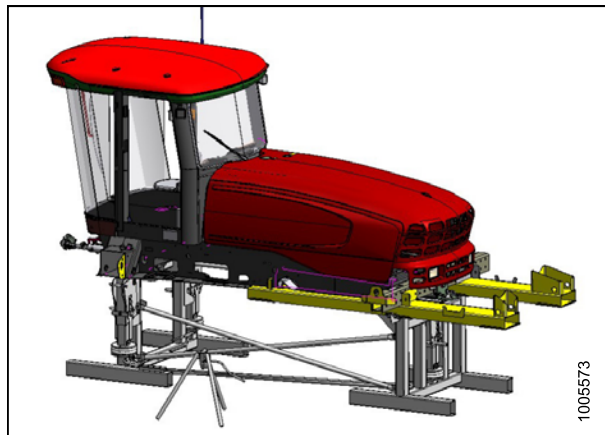


Figure 6.7: Windrower on Support Stand

-
7. At 48 in. (1220 mm) from back end of forks.

6.3 Installing Legs

1. Remove front leg bolts (A) and pins (B), and set aside for reinstallation. Remove carriage bolt (C) and remove lifting plate (D).

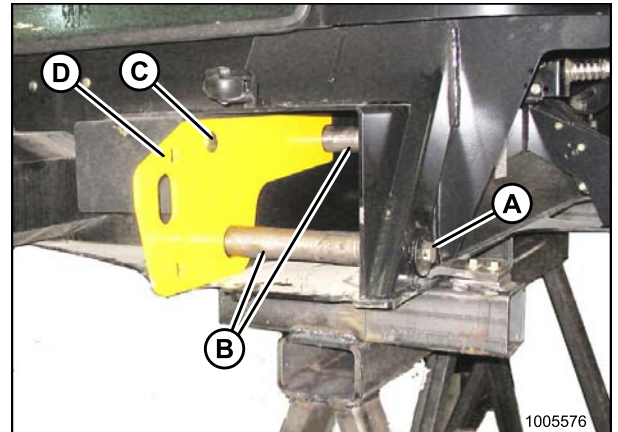


Figure 6.8: Lifting Plate

2. Attach front leg to lifting device with lifting bar (A).
3. Position leg at frame.

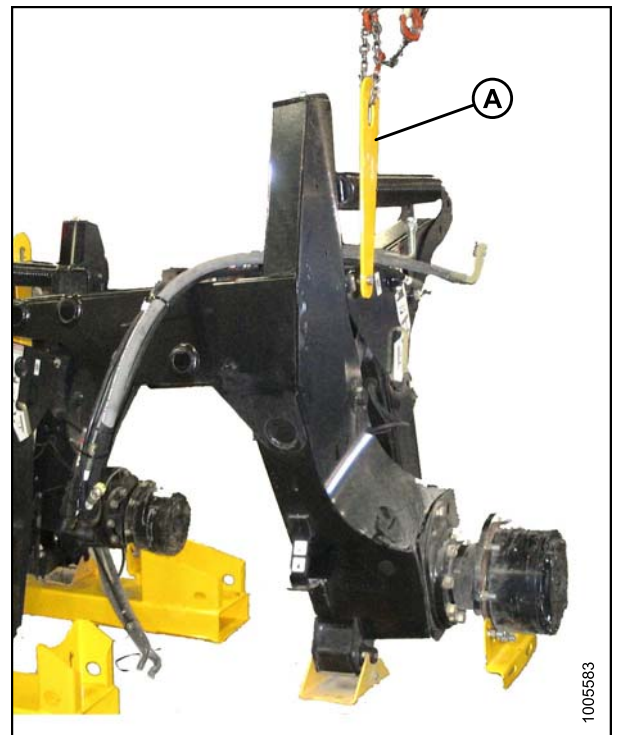


Figure 6.9: Positioning of Leg

ASSEMBLING THE WINDROWER

4. Feed hydraulic hose bundle (A) into frame and through hole (B) at center of frame.

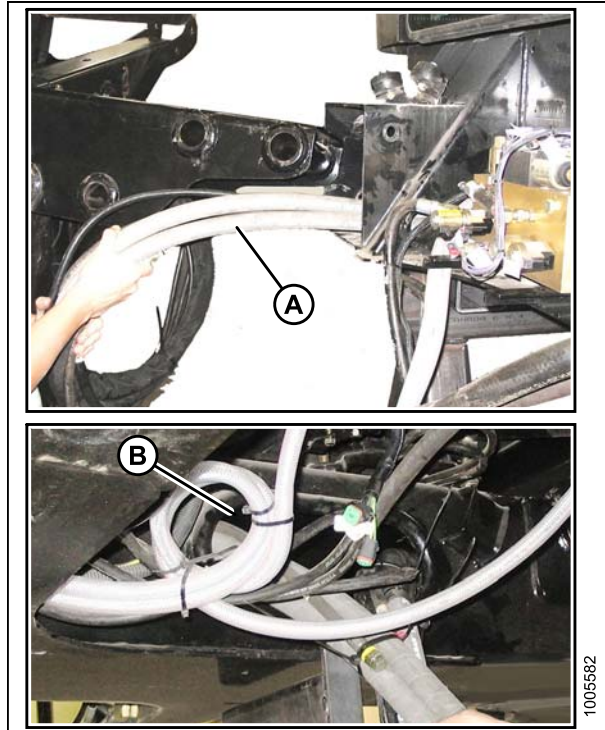


Figure 6.10: Hydraulic Hoses

5. Insert leg into frame and line-up holes in frame and leg at the first position (widest tread with one exposed hole [A]).
6. Insert pins and secure with 3/4 in. x 16.5 long bolts, washers, and nuts (B). Torque to 100 ft·lbf (136 N·m).
7. Repeat above steps for other leg.

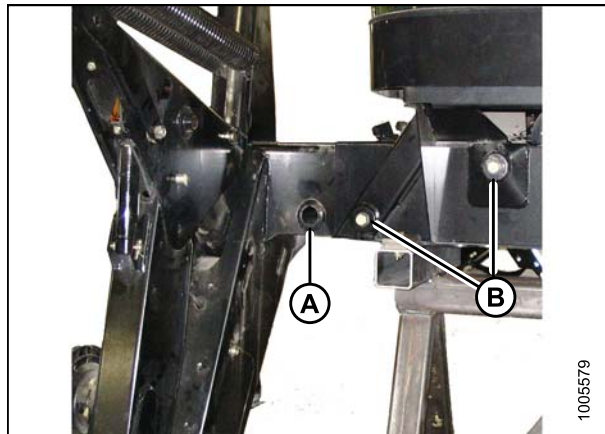


Figure 6.11: Installing Leg

ASSEMBLING THE WINDROWER

8. Slightly lift the header lift arms with lifting device and remove lifting bars (A) from legs. Relocate spring locking pins (B) to front of lift arms.

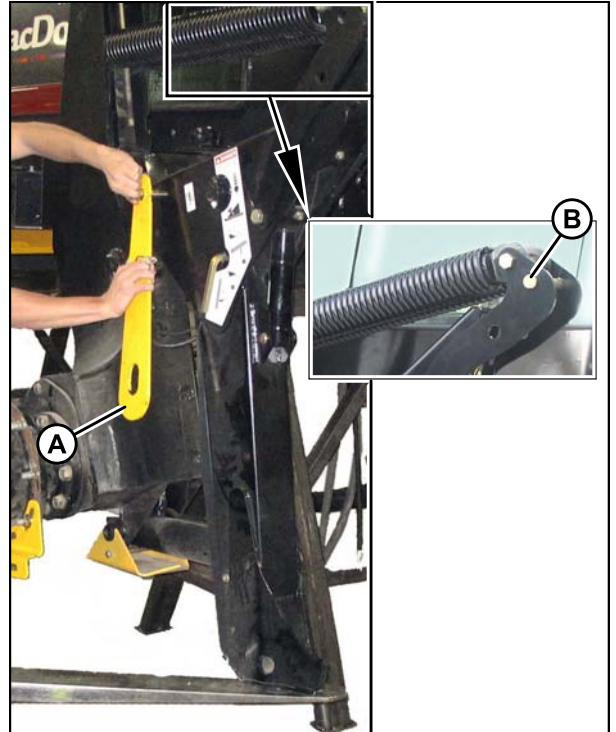


Figure 6.12: Header Lift

6.4 Installing Drive Wheels

1. If factory stand is being used, proceed as follows. Otherwise, skip to Step 6, page 48.
2. Ensure that the three (one at rear, two at front) lift locks are activated on lift mechanism.

NOTE: Lock is activated when keeper (A) is vertical and latch (B) is free to move back and forth.

3. Pressurize air bag system (100 psi [689 kPa] air pressure required) and raise windrower to maximum height (approximately 7 in. [178 mm]) above the stand.

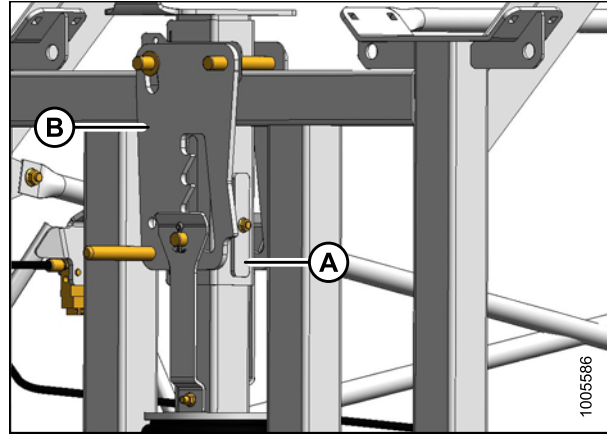


Figure 6.13: Lift Locks

4. Verify that all three locks are engaged, before proceeding to the next step.

NOTE: Lock is engaged when witness hole (A) above pin is exposed.

5. Release pressure so that locks support weight of windrower.

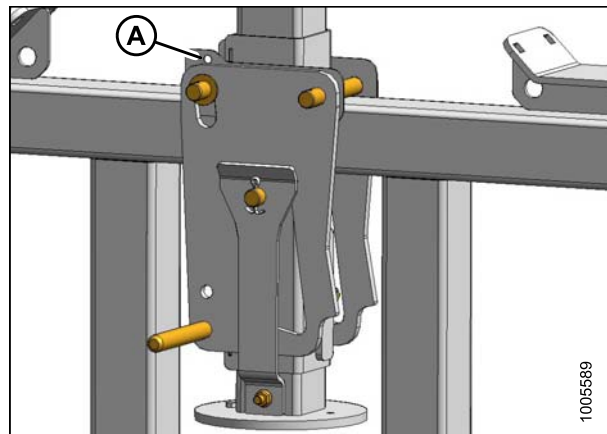


Figure 6.14: Lift Locks

6. Remove shipping support (A) on drive wheel hub and remove wheel lug nuts (B).

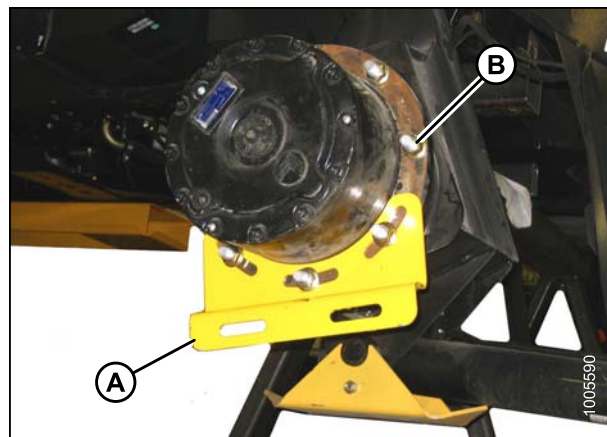


Figure 6.15: Drive Wheel Shipping Support

ASSEMBLING THE WINDROWER

7. Position wheel against hub so that air valves (A) are on the outside and tire tread points forward.
For Turf tires (diamond tread), be sure arrow on sidewall points in forward rotation.
8. Lift wheel on hub with lifting device. Lower lifting device.



Figure 6.16: Wheel Positioning

9. Line up the holes in the rim with the studs on the wheel drive hub and install wheel nuts (A).

NOTE: To avoid damage to wheel rims and studs, tighten nuts by hand, do **NOT** use an impact gun, do **NOT** use lubricant or Never-Seez® compound, and do **NOT** overtighten wheel nuts.

10. Torque drive wheel nuts to 375 ft·lbf (510 N·m) using the tightening sequence shown at right.
11. After one hour of operation, retorque the wheel nuts. Then check every hour until two consecutive checks produce no movement of the nuts.

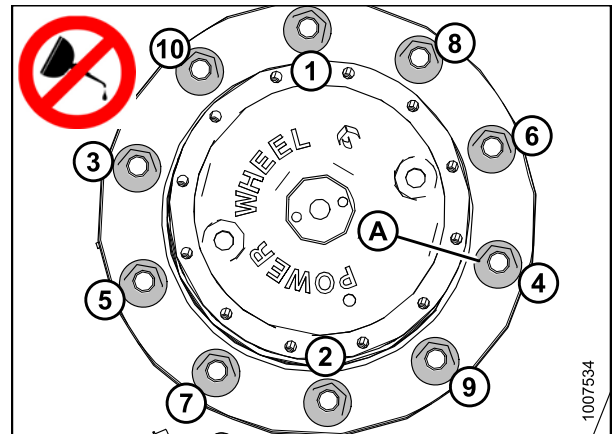


Figure 6.17: Wheel Nuts

6.5 Installing Caster Wheels

1. Remove the two guide plates (A) from ends of walking beam.

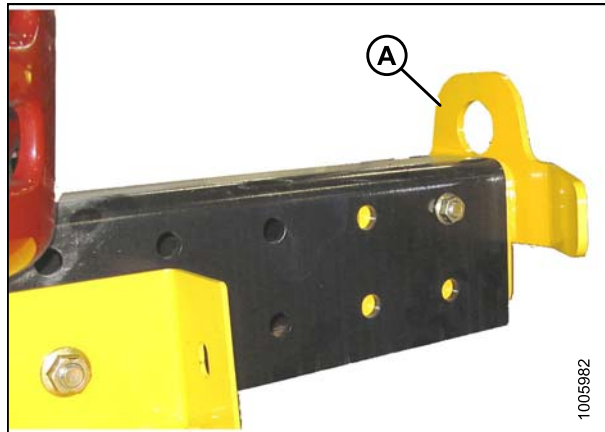


Figure 6.18: Guide Plate on Walking Beam

2. Support shipping frame channel and remove bolts attaching shipping frame to walking beam and mainframe side rail. Remove shipping frame.

NOTE: Shipping frame does not need to be removed if air bag lifting stand is used. Ensure bolts are removed prior to moving windrower off stand.

3. Repeat above for opposite shipping frame channel.

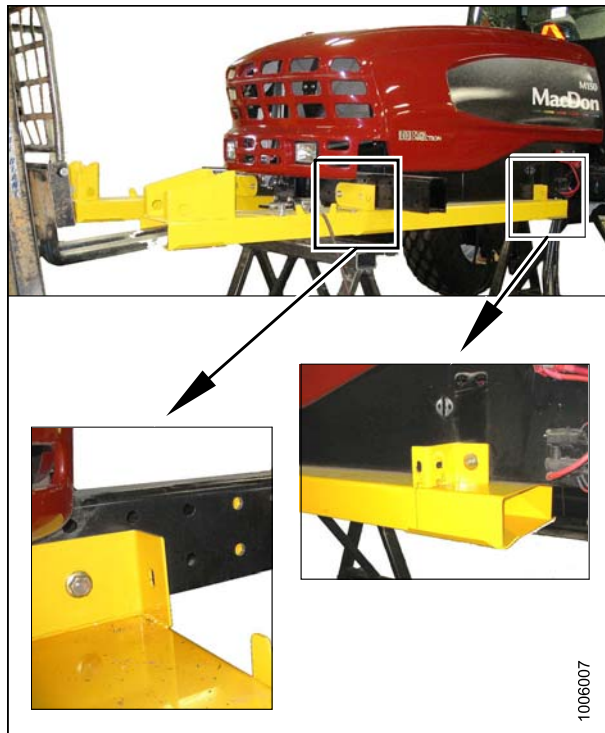


Figure 6.19: Shipping Frame

ASSEMBLING THE WINDROWER

4. Remove tie bar (A) between the two caster wheels.



Figure 6.20: Caster Wheel Shipping Assembly

5. Remove the two braces (A) from caster wheels and frame. Retain bolts for attaching caster to walking beam.

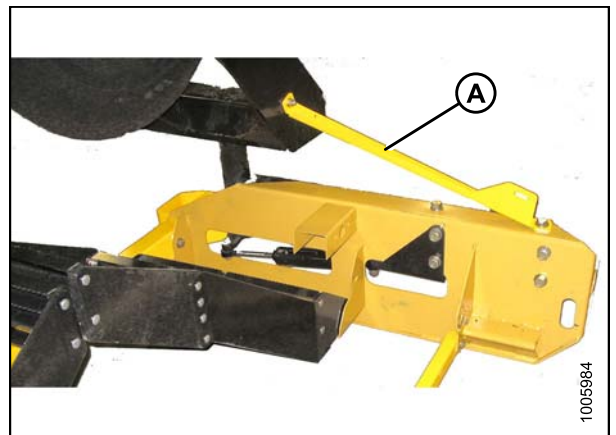


Figure 6.21: Brace on Caster Wheel

ASSEMBLING THE WINDROWER

6. Attach a chain to right-hand caster and support caster with lifting device.

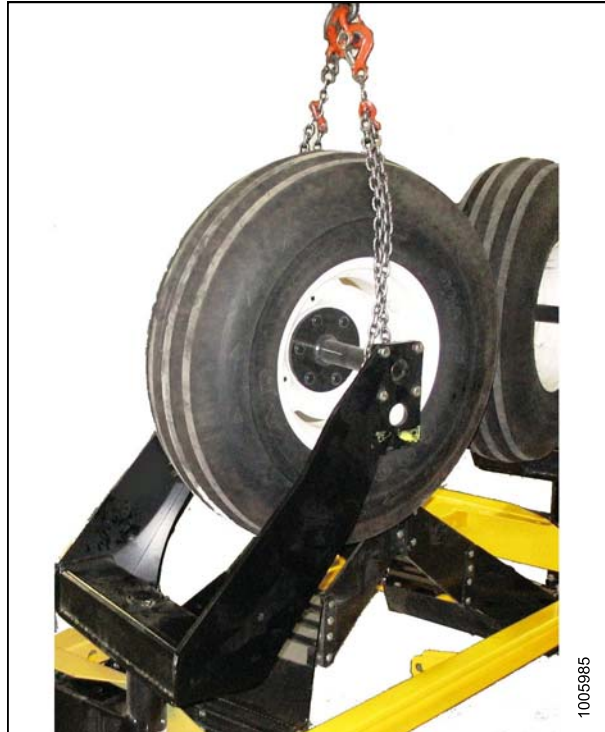


Figure 6.22: Lifting Device on Caster

7. Remove five remaining bolts (A) securing caster to shipping frame. Retain bolts for attaching caster to walking beam.

⚠ CAUTION

Stand clear when lifting, as caster may swing.

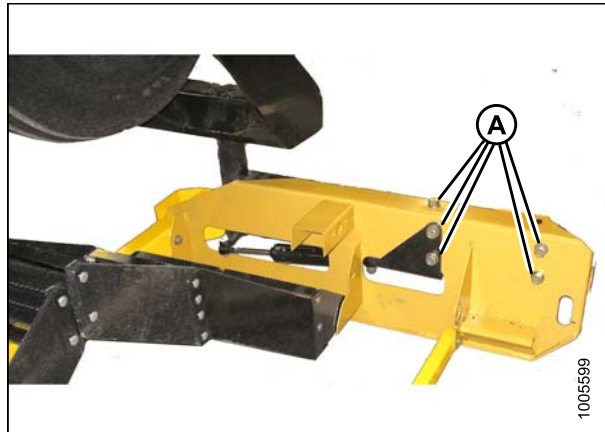


Figure 6.23: Shipping Frame on Caster

ASSEMBLING THE WINDROWER

8. Lift caster assembly off shipping frame and position at end of walking beam (A).
9. Insert right-hand caster extension into walking beam and position for desired tread.



Figure 6.24: Walking Beam

10. Install six 3/4 in. bolts (A) and hardened washers into walking beam and caster beam. Use longer bolts through anti-shimmy bracket (B).
11. Tighten bolts as follows:
 - a. Snug up the two bolts underneath beam.
 - b. Tighten the four back bolts to 330 ft-lbf (447 N·m).
 - c. Tighten bolts underneath beam to 330 ft-lbf (447 N·m).
12. Repeat Steps 7, page 52 through 11, page 53 for left-hand caster.
13. Retighten bolts at five and ten hours of operation.

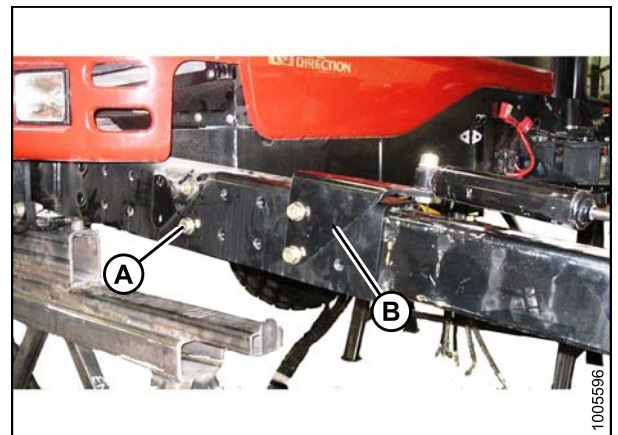


Figure 6.25: Walking Beam

6.6 Installing Hydraulics

The procedure for installing hydraulics is different for each windrower model. Refer to the procedure for your model:

- [6.6.1 Installing Hydraulics on an M205, page 54](#)
- [6.6.2 Installing Hydraulics on an M155, page 57](#)
- [6.6.3 Installing Hydraulics on an M105, page 67](#)

6.6.1 Installing Hydraulics on an M205

1. Retrieve all capped off hoses from inside frame.
2. Locate the three hoses with capped off tees from valve block.
3. Remove caps on fittings with similar colored cable ties and connect hoses to tees. Do **NOT** connect the large case drain hoses from the wheel motors at this time.

NOTE: Remove caps on tee last to minimize oil loss.

4. Position hoses into frame.
5. Locate two hoses with capped off ends and matching coloured ties. A union is connected to one of the hoses.
6. Remove caps and connect these two hoses together. Position hoses in frame.
7. Retrieve the four remaining capped off hoses coming out of frame.

8. Loosen bolts (A) and move valve block to improve access through hole in frame for wrenches when tightening fittings.
9. Remove caps on hoses and matching valve block fittings (B).
10. Make connections, using colored plastic cable ties as a guide. Tighten fittings.
11. Reposition valve block and retighten bolts.

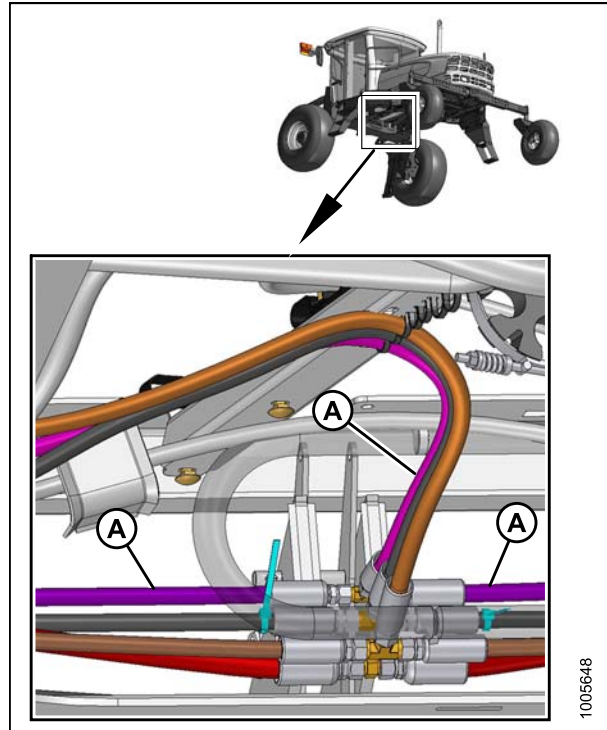


Figure 6.26: Hydraulic Hoses

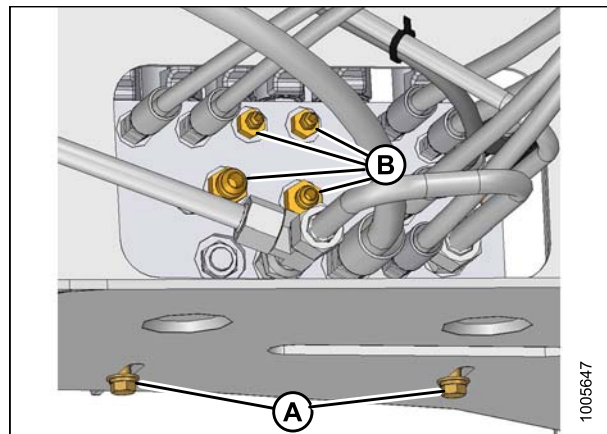


Figure 6.27: Hydraulic Valve and Hoses

ASSEMBLING THE WINDROWER

12. Position the two smaller hoses (MD #111323) (A) and the two larger hoses (MD #111328, MD #111557) (B) against support as shown, and secure with plastic ties.

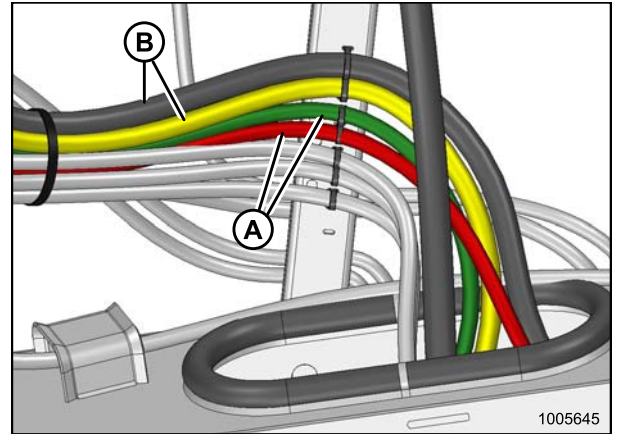


Figure 6.28: Hydraulic Hoses Routing

13. Remove clamp (A) from round plastic hose block. Case drain hose is preinstalled in block.

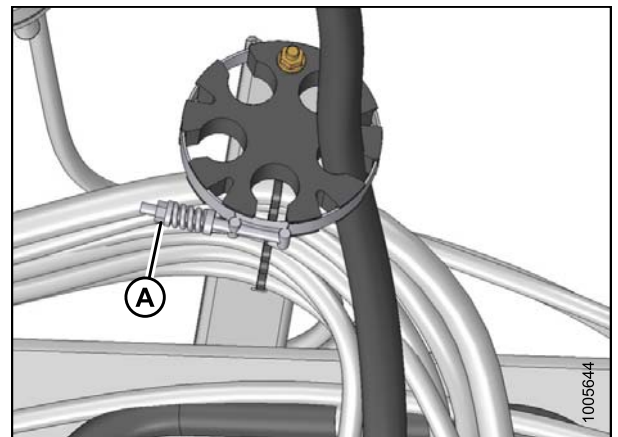


Figure 6.29: Round Plastic Hose Block

14. Insert four traction drive hoses into slots (A and C) in block as shown.

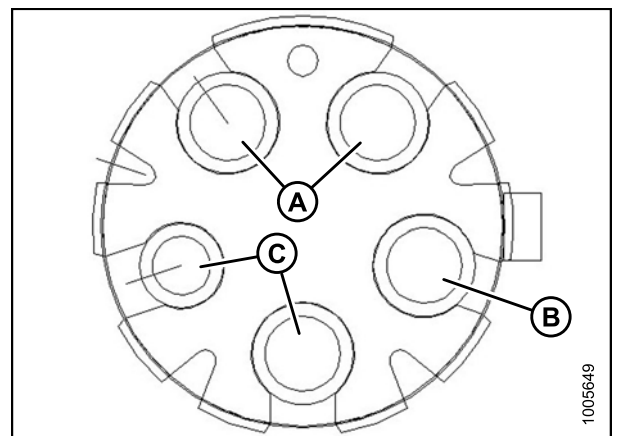


Figure 6.30: Round Plastic Hose Block—View Looking Forward

- A - Slots for LH Traction Drive Hoses
- B - Slot for Case Drain Hose
- C - Slots for RH Traction Drive Hoses

ASSEMBLING THE WINDROWER

15. Reinstall clamp (A).

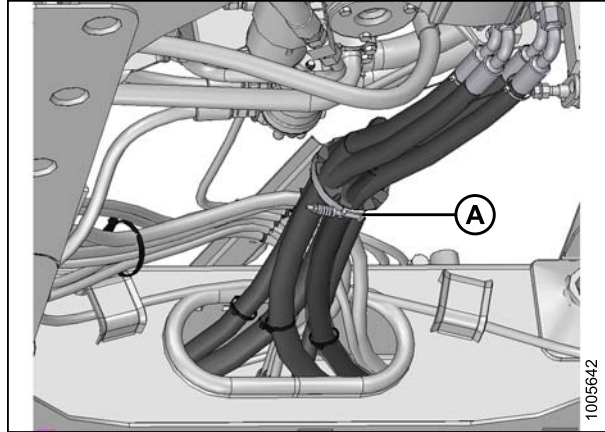


Figure 6.31: Hose Routing

16. Connect drive hoses to pump as follows:

- a. Remove caps and attach hoses with short elbows to respective side of pump (either yellow or no tie). Tighten fittings.
- b. Remove caps and attach hoses with long elbows to respective side of pump (either red or no tie). Tighten fittings.

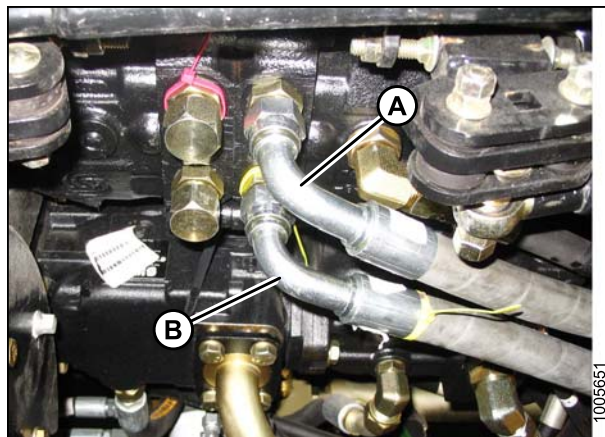


Figure 6.32: Pump

A - Short Elbow, No Tie

B - Short Elbow, Yellow Cable Tie

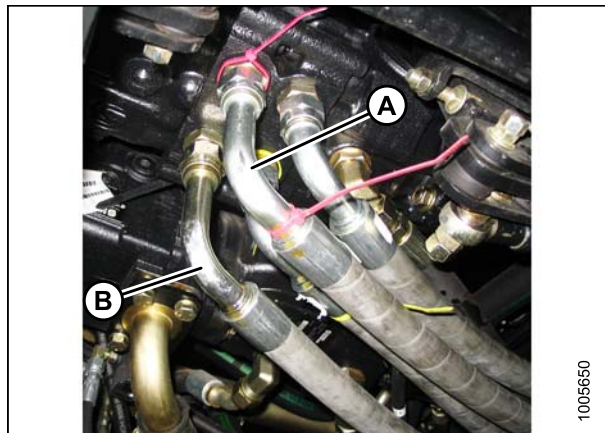


Figure 6.33: Pump

A - Long Elbow, Red Cable Tie

B - Long Elbow, No Tie

ASSEMBLING THE WINDROWER

17. Retrieve the two motor case drain hoses (MD #111312) (A) at front frame, and the 7/8 in.(22 mm) tee fitting (B) on the hose (C) from the pump.
18. Remove caps from the hoses (B) only.
19. Remove one cap on tee fitting (A) and quickly attach hose (B) to minimize oil spillage.
20. Remove second cap from tee (A) and quickly connect other hose (B).
21. Tighten fittings.
22. Push hoses into frame.
23. Secure hoses with cable ties (A) as required.

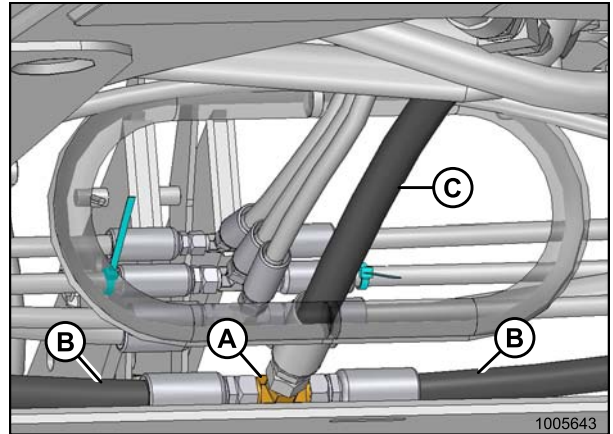


Figure 6.34: Hose Routing

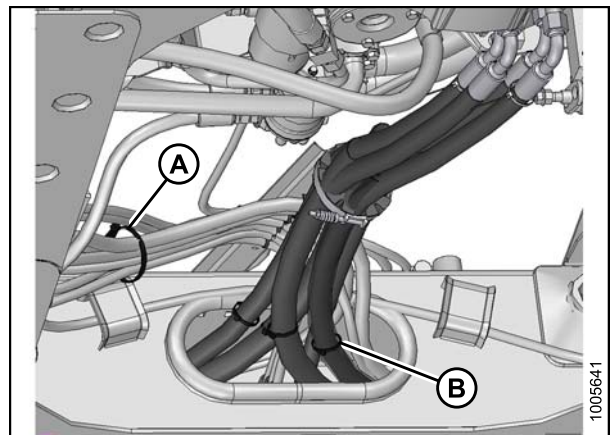


Figure 6.35: Hose Routing

6.6.2 Installing Hydraulics on an M155

1. The hydraulic hoses under the cab may require proper placement under the existing clip. If necessary, proceed as follows:
 - a. Locate hose clip (A) under the cab and remove clip.
 - b. Position hose (MD #111323 [orange tie]) and hose (MD #111324 [white tie]) with tee, as shown under the center of the clip, and loosely install two bolts and nuts. Part numbers are located on hoses. (If M200, place another hose (MD #1132A) with tee under clip).
 - c. Position remaining hoses under clip as shown and tighten bolts.

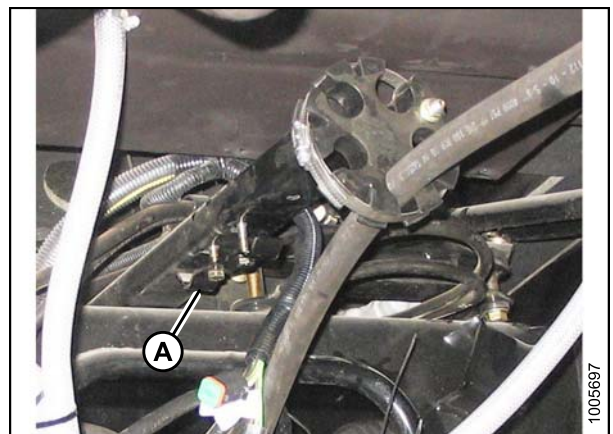


Figure 6.36: Hose Routing

ASSEMBLING THE WINDROWER

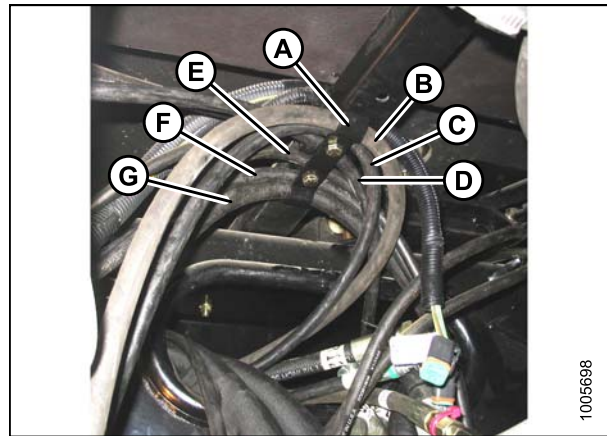


Figure 6.37: View Looking Forward

A - Hose Clip
B - Yellow Tie (MD #111557)
C - Blue Tie (MD #111323)
D - Orange Tie (MD #111323)
E - White Tie (MD #111324)
F - Green Tie (MD #111327)
G - White Tie (MD #111328)

2. Locate two hoses (MD #111327 [green ties]) (A) in frame opening and existing tee fitting (green tie).

3. Remove caps on green lines and tee and make connections. Tighten fittings.

NOTE: Remove caps on tee last to minimize oil loss.

4. Position hoses into frame.

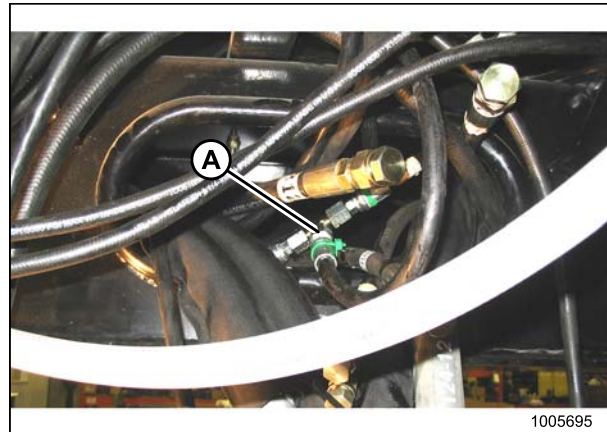


Figure 6.38: Hose Routing

5. Locate two hoses (white ties) inside frame and hose (MD #111324) with tee (white tie) (A).

6. Remove caps, make connections, and tighten fittings.

7. Push hoses into frame.

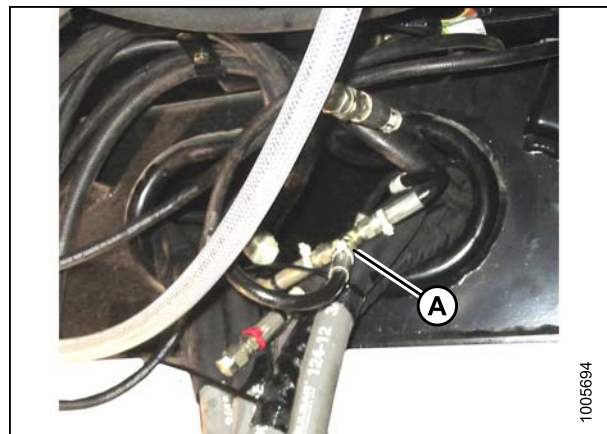


Figure 6.39: Hose Routing

ASSEMBLING THE WINDROWER

8. Locate two hoses (red ties) (A) inside frame.
9. Route right-hand hose behind bundle.
10. Remove caps, make connection, and tighten fitting.
11. Push hose into frame.

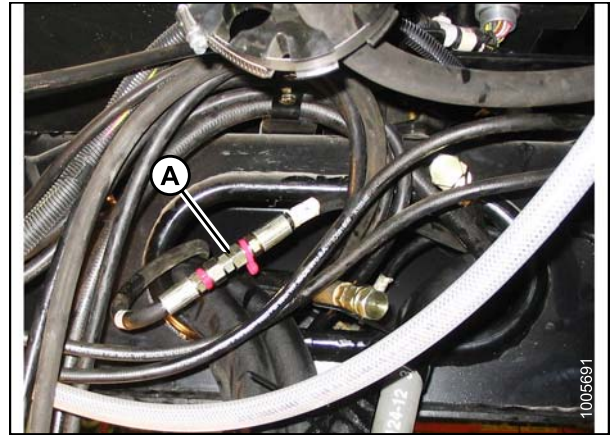


Figure 6.40: Hose Routing

12. Retrieve long hose (MD #119328 [white tie]) (A) and route through hole in left-hand frame.

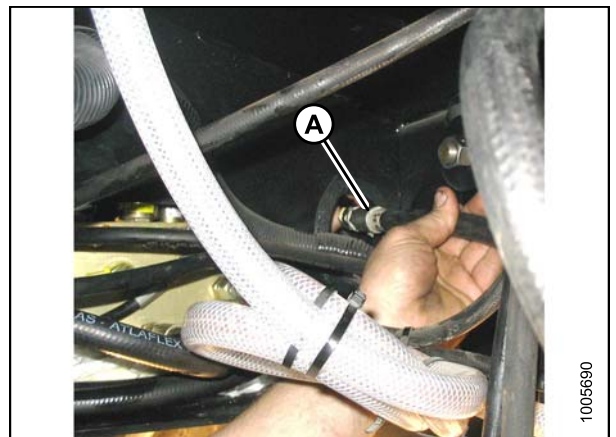


Figure 6.41: Hose Routing

13. Remove caps on hose (A) and valve block fitting (white tie) (B) and make connection. Tighten fitting.

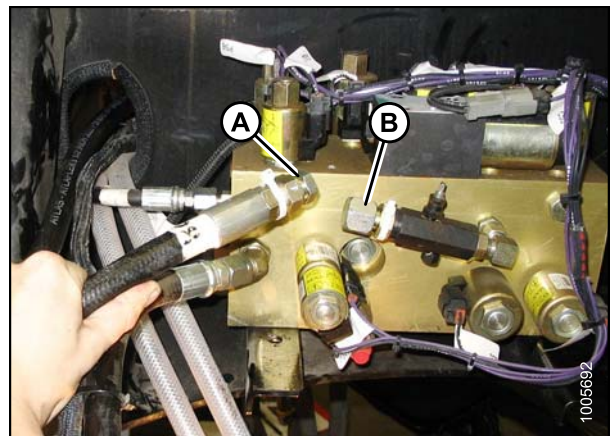


Figure 6.42: Valve Block

ASSEMBLING THE WINDROWER

14. Remove the caps from three fittings (blue [A], orange [B], and yellow [C] ties) on the valve block from inboard side of frame.

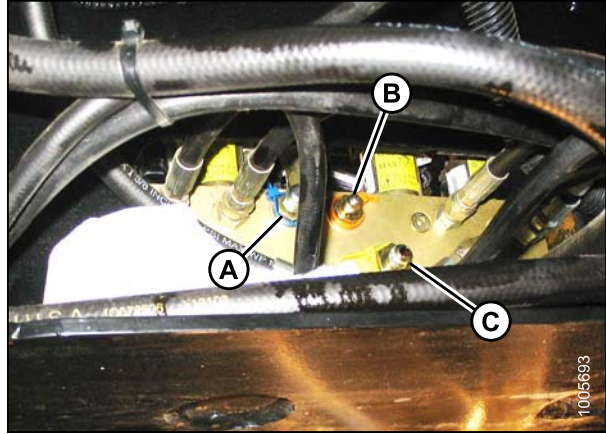


Figure 6.43: Valve Block

15. Loosen bolts (A) and move valve block (B) to improve access through hole in frame for wrenches when tightening fittings.

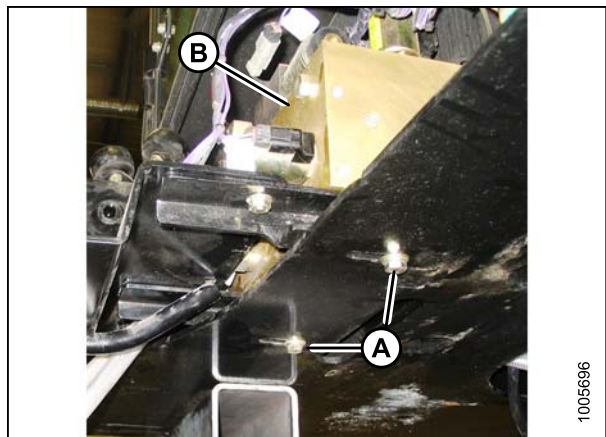


Figure 6.44: Valve Block

16. Retrieve matching hoses and make connections on valve block. Tighten fittings.
17. Reposition valve block and retighten bolts.

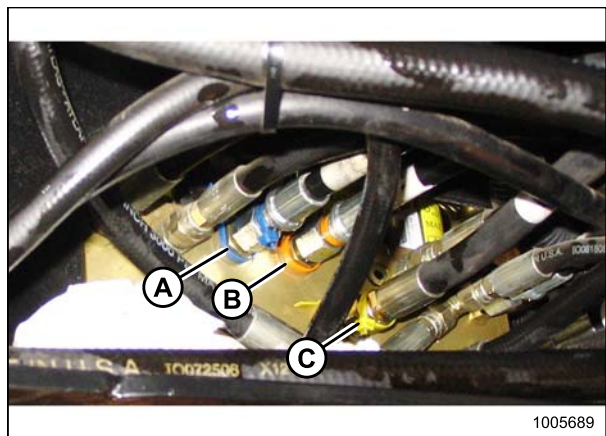


Figure 6.45: Valve Block

A - Blue

B - Orange

C - Yellow

ASSEMBLING THE WINDROWER

18. Remove clamp (A) from round plastic hose block.

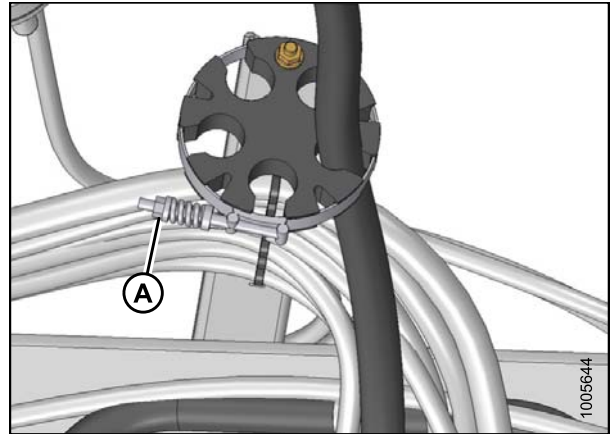


Figure 6.46: Round Plastic Hose Block

19. Insert four traction drive hoses and one case drain hose into slots in block as shown, and reinstall clamp.

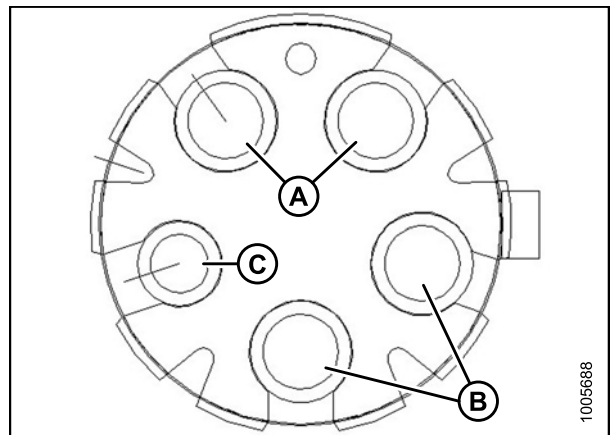


Figure 6.47: Round Plastic Hose Block—View Looking Forward

A - Slots for LH Traction Drive Hoses
B - Slots for RH Traction Drive Hoses
C - Slot for Case Drain Hose

20. Connect drive hoses to pump as follows:

- a. Remove caps and attach hoses with short elbows to respective side of pump (either yellow or no tie). Tighten fittings.
- b. Remove caps and attach hoses with long elbows to respective side of pump (either red or no tie). Tighten fittings.

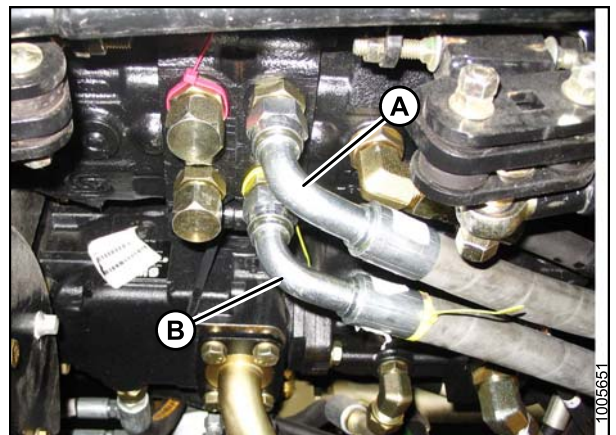


Figure 6.48: Pump

A - Short Elbow, No Tie

B - Short Elbow, Yellow Tie

ASSEMBLING THE WINDROWER

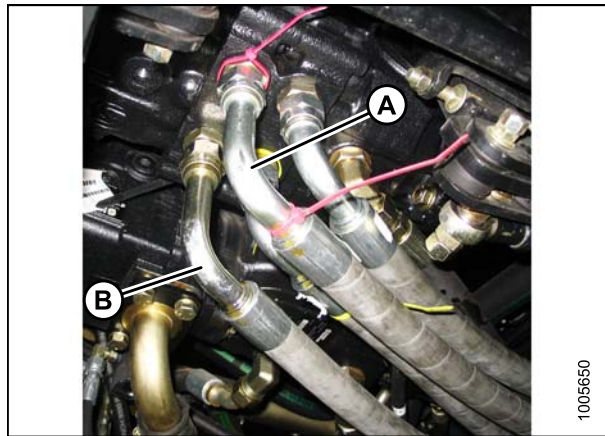


Figure 6.49: Pump

A - Long Elbow, Red Tie

B - Long Elbow, No Tie

21. Retrieve the two motor case drain hoses (MD #111312) at front frame and the 7/8 in. tee fitting (B) on the hose, from the pump.
22. Remove caps (A) from the hoses only.

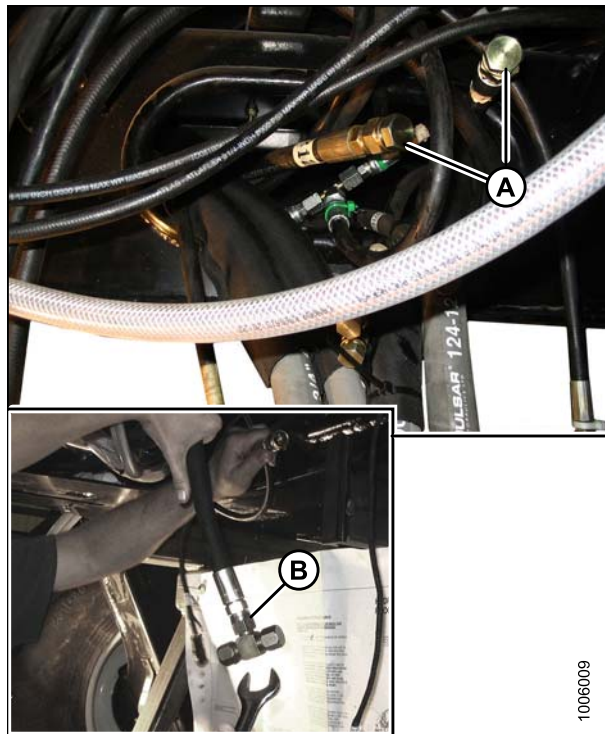


Figure 6.50: Motor Case Drain Hoses

ASSEMBLING THE WINDROWER

23. Remove one cap on tee fitting (A) and quickly attach hose to minimize oil spillage.
24. Remove second cap from tee (A) and quickly connect other hose.
25. Tighten fittings.

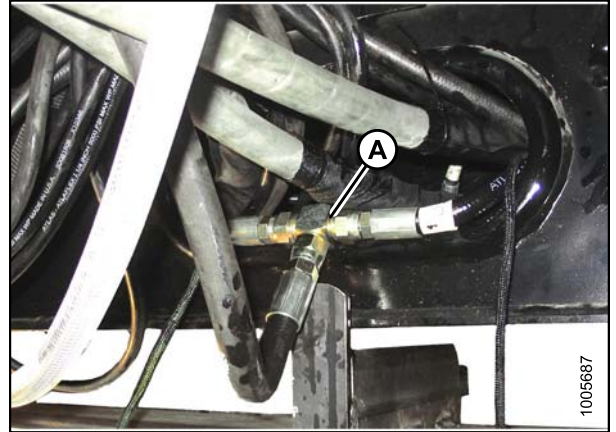


Figure 6.51: Tee Fitting

26. Position hose bundle (A) from valve blocks on left-hand side of frame onto tire.
27. Note routing of electrical harness.

IMPORTANT:

The electrical harness must be routed on the topside of the hose bundle and on the outside of the hose support to prevent chafing to the electrical wires when the windrower is operating with a header.

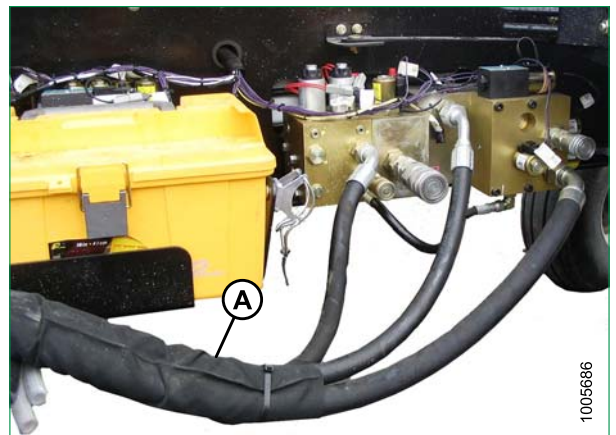


Figure 6.52: Hose Routing

ASSEMBLING THE WINDROWER

28. Undo strap (A), cut plastic cable ties (B), and move harness (C) away from hose bundle.

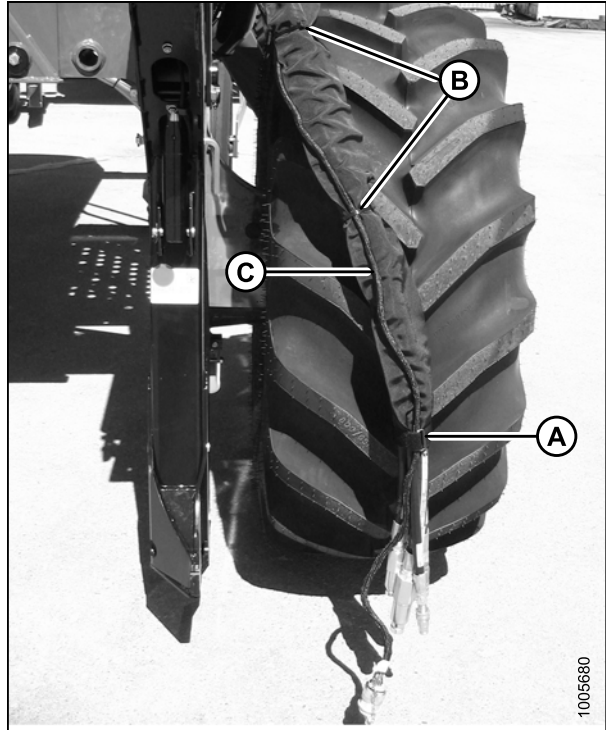


Figure 6.53: Electric Harness and Hose Bundle

29. Route hose bundle (A) through hose support and lay on tire.
30. Route harness along outside of hose support and along hose bundle to hose ends.



Figure 6.54: Hose Routing

ASSEMBLING THE WINDROWER

31. Attach harness (A) to hose support with hose clip (B).

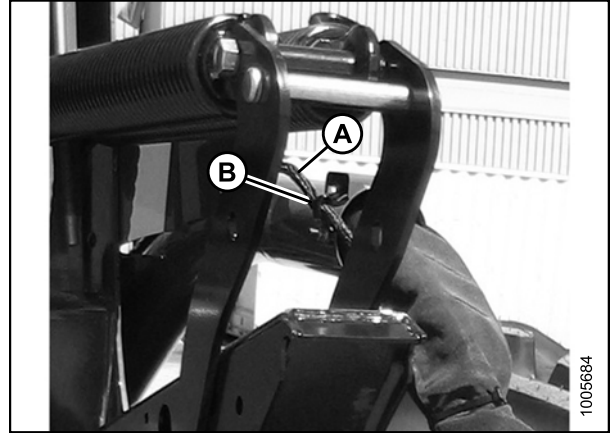


Figure 6.55: Hose Support

32. Secure harness (C) to hose bundle with strap (A) and new plastic cable ties (B). Ensure harness is clear of pinch and friction points.

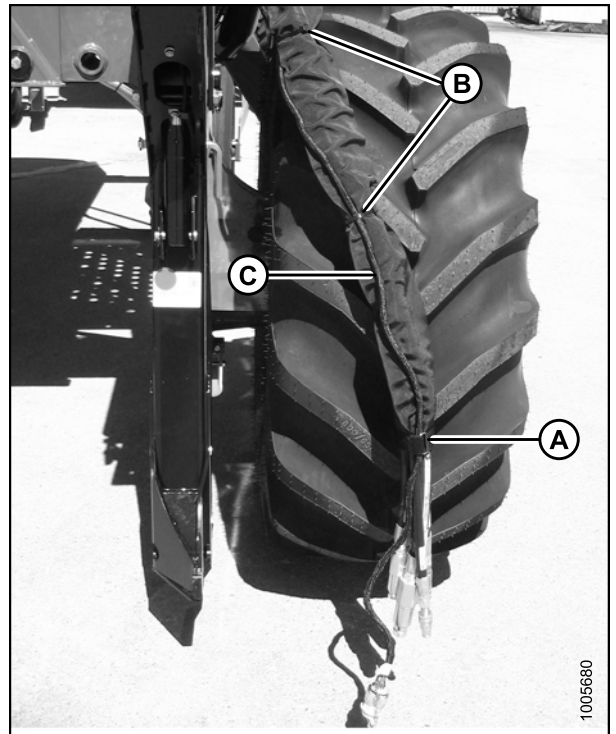


Figure 6.56: Electric Harness and Hose Bundle

ASSEMBLING THE WINDROWER

33. Disengage hook (A) and rotate to up position. Position hose bundle (B) over hose support and locate under hook.

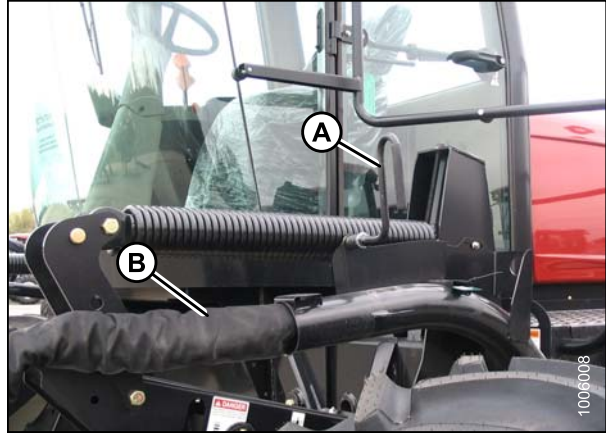


Figure 6.57: Hook Positioning

34. Rotate hook and re-engage in bracket.



Figure 6.58: Hook Positioning

35. Attach reel hose support tube to the right-hand reel leg with two 3/8 in. x 1.0 carriage bolts (A) and nuts.

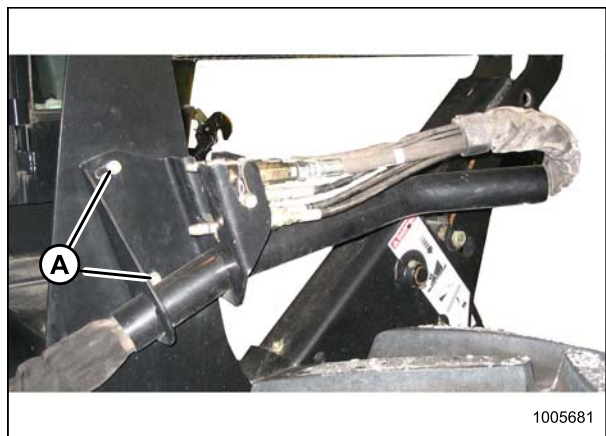


Figure 6.59: Reel Hose Support

6.6.3 Installing Hydraulics on an M105

1. Connect hoses as follows, using colored plastic cable ties as a guide.
2. Locate two hoses (MD #111324 [green ties]) (A) in frame opening and existing tee fitting (green tie) on the hose from the valve block.
3. Remove caps on green lines and tee and make connections. Tighten fittings.

NOTE: Remove caps on tee last to minimize oil loss.

4. Position hoses into frame.

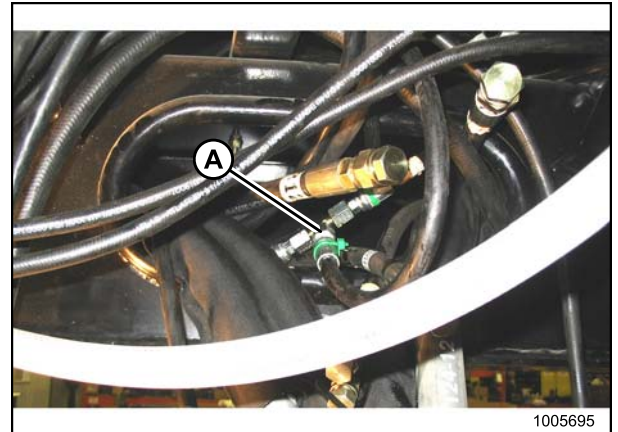


Figure 6.60: Hose Routing

5. Locate two hoses (white ties) inside frame and hose (MD #111324) with tee (white tie) (A).
6. Remove caps, make connections, and tighten fittings.
7. Push hoses into frame.

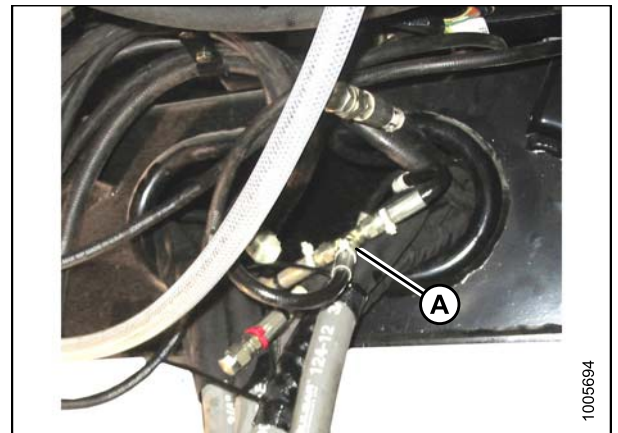


Figure 6.61: Hose Routing

8. Locate two hoses (red ties) (A) inside frame.
9. Route right-hand hose behind bundle.
10. Remove caps, make connection, and tighten fitting.
11. Push hose into frame.

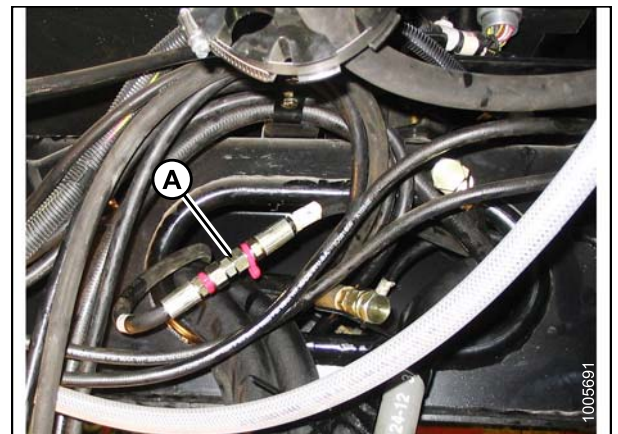


Figure 6.62: Hose Routing

ASSEMBLING THE WINDROWER

12. Retrieve long hose (MD #119328 [white tie]) (A) and route through hole in left-hand frame.

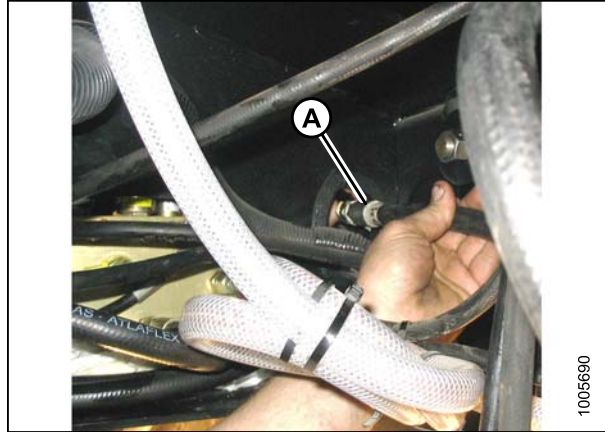


Figure 6.63: Hose Routing

13. Remove caps on hose (A) and valve block fitting (white tie) (B), and make connection. Tighten fitting.

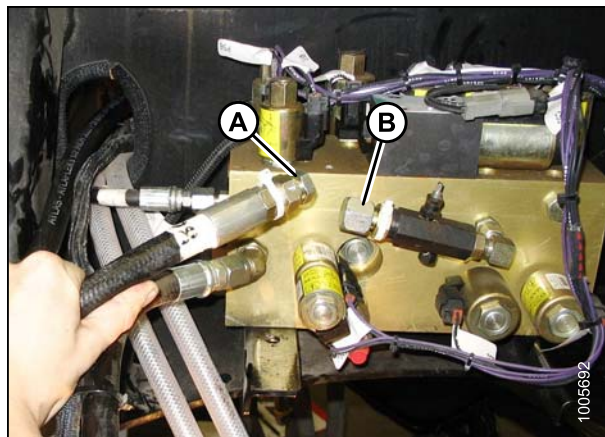


Figure 6.64: Valve Block

14. Remove the cap from fitting with yellow tie (A) on the valve block from inboard side of frame.

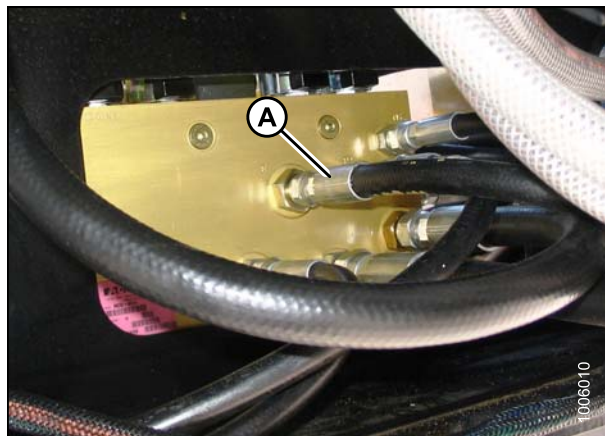


Figure 6.65: Valve Block

ASSEMBLING THE WINDROWER

15. Loosen bolts (A) and move valve block (B) to improve access through hole in frame for wrenches when tightening fittings.
16. Retrieve matching hose and make connection on valve block. Tighten fitting.
17. Reposition valve block and retighten bolts.

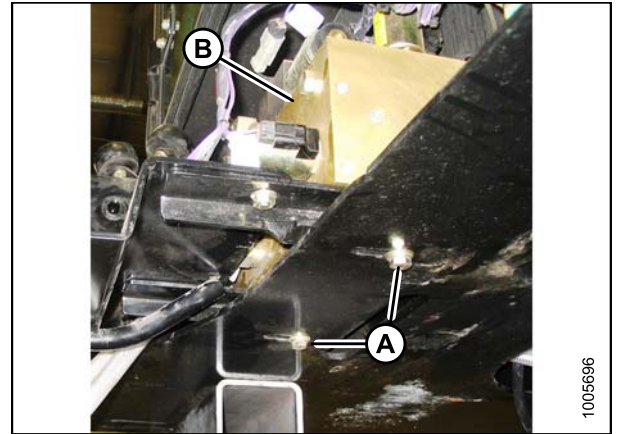


Figure 6.66: Valve Block

18. Connect drive hoses to pump as follows:
 - a. Remove caps and attach hoses (green and yellow ties) to matching fittings on top of pump. Tighten fittings.
 - b. Remove caps and attach hoses (red and white ties) to matching fittings on bottom of pump. Tighten fittings.

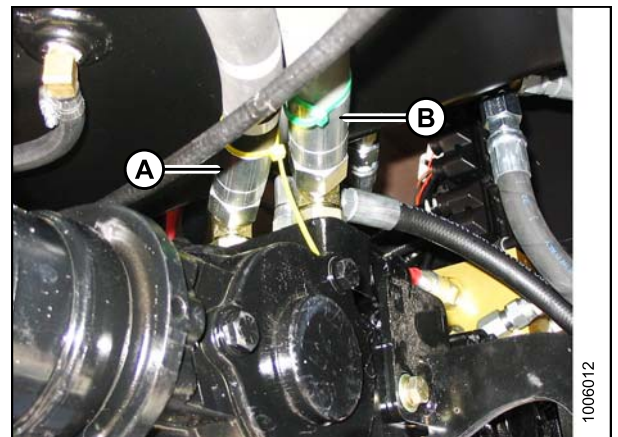


Figure 6.67: Pump

A - Hose with Yellow Tie

B - Hose with Green Tie

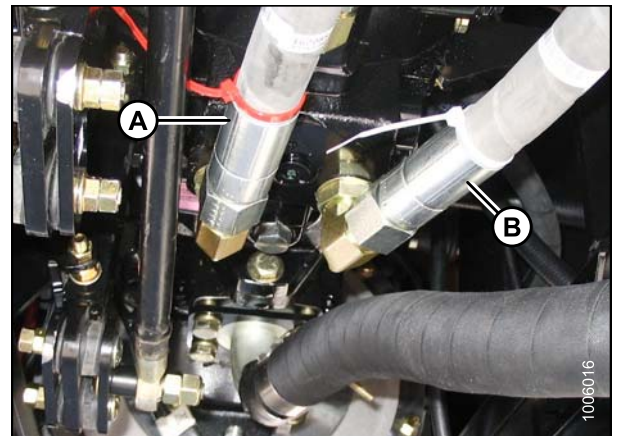


Figure 6.68: Pump

A - Hose with Red Tie

B - Hose with White Tie

ASSEMBLING THE WINDROWER

19. Retrieve the two motor case drain hoses (MD #111312) (A) at front frame and the 7/8 in. (22 mm) tee fitting (B) on the hose from the pump.

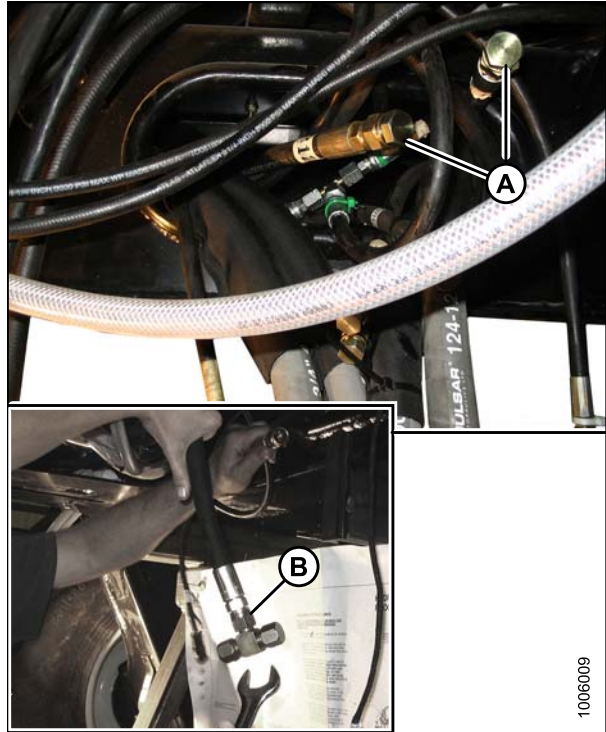


Figure 6.69: Motor Case Drain Hoses

20. Remove caps from the hoses only.
21. Remove one cap on tee fitting (A) and quickly attach hose to minimize oil spillage.
22. Remove second cap from tee fitting (A) and quickly connect other hose.
23. Tighten fittings.

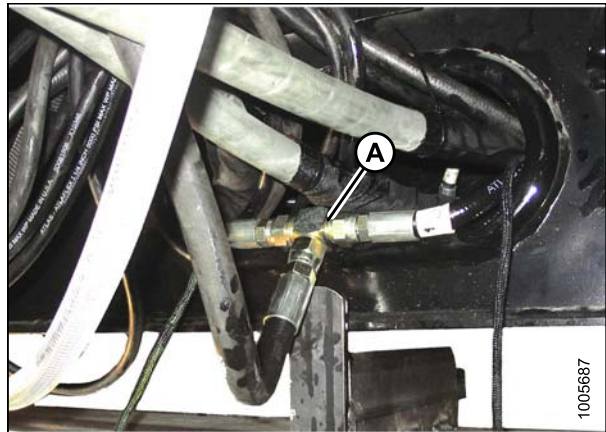


Figure 6.70: Tee Fitting

ASSEMBLING THE WINDROWER

24. Bundle traction drive hoses and secure with two plastic cable ties (A) at 7-3/4 in. (200 mm) intervals from frame opening.
25. Bundle smaller hoses and secure with two plastic cable ties (B) at 6 in. (150 mm) intervals from frame opening.

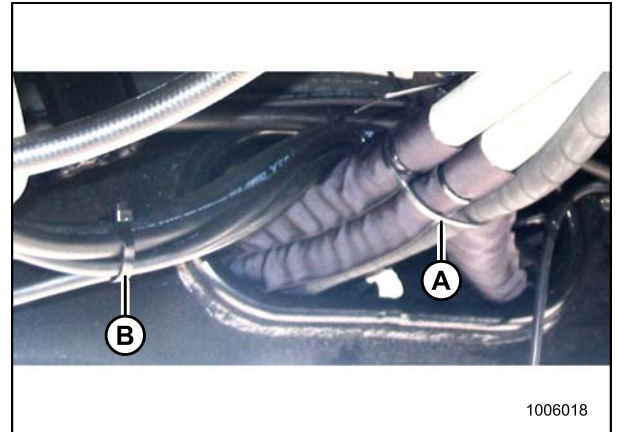


Figure 6.71: Hose Routing

26. Position hose bundle from valve blocks on left-hand side of frame onto tire.
27. Note routing of electrical harness.

IMPORTANT:

The electrical harness must be routed on the topside of the hose bundle and on the outside of the hose support to prevent chafing to the electrical wires when the windrower is operating with a header.

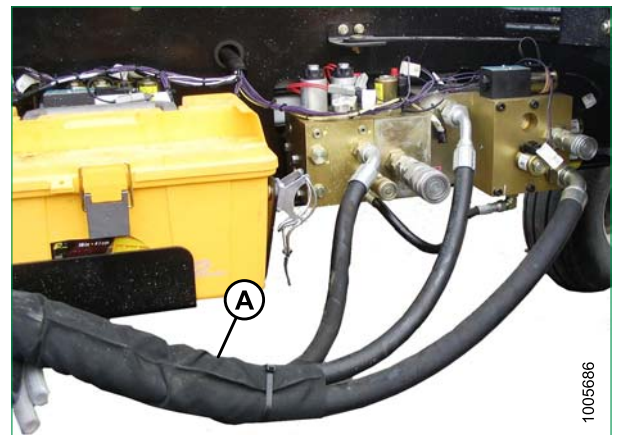


Figure 6.72: Hose Routing

ASSEMBLING THE WINDROWER

28. Undo strap (A), cut plastic cable ties (B), and move harness (C) away from hose bundle.

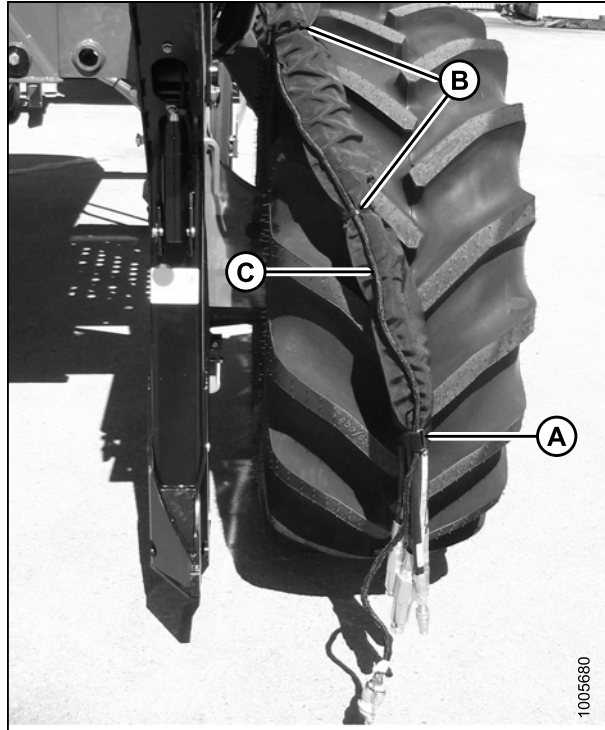


Figure 6.73: Electric Harness and Hose Bundle

29. Route hose bundle (A) through hose support and lay on tire.
30. Route harness along outside of hose support and along hose bundle to hose ends.



Figure 6.74: Hose Routing

ASSEMBLING THE WINDROWER

31. Attach harness (A) to hose support with hose clip (B).

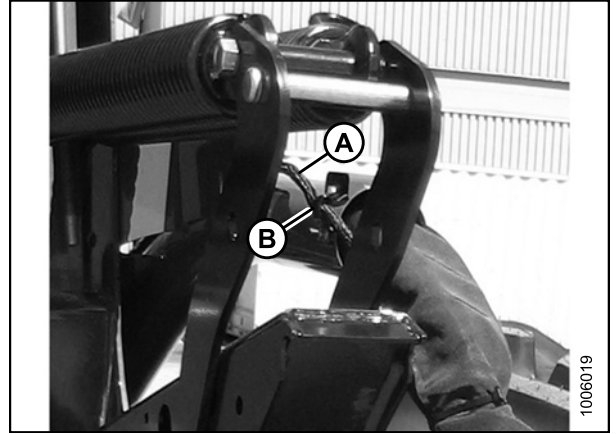


Figure 6.75: Hose Support

32. Secure harness (C) to hose bundle with strap (A) and new plastic cable ties (B). Ensure harness is clear of pinch and friction points.

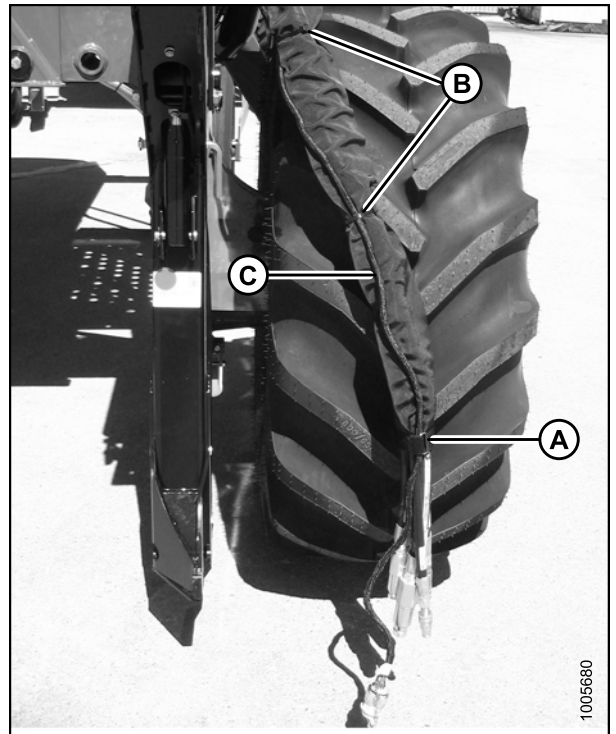


Figure 6.76: Electric Harness and Hose Bundle

ASSEMBLING THE WINDROWER

33. Disengage hook (A), and rotate to up position. Position hose bundle (B) over hose support, and locate under hook.

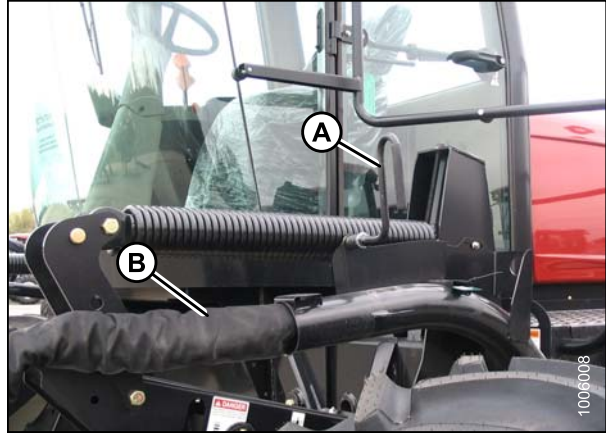


Figure 6.77: Hook Positioning

34. Rotate hook (A) and reengage in bracket.



Figure 6.78: Hook Positioning

35. Attach reel hose support tube to the right-hand reel leg with two 3/8 in. x 1.0 carriage bolts (A) and nuts.

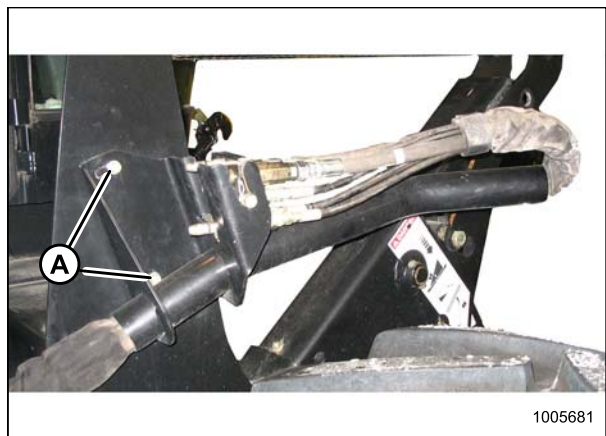


Figure 6.79: Reel Hose Support

6.7 Removing Battery Shipping Shield

NOTE: This procedure does not apply to the M105.

1. Loosen the nut (A) on battery clamp.
2. Slide shield (B) out from under battery and discard. Tighten nut (A) in battery clamp.

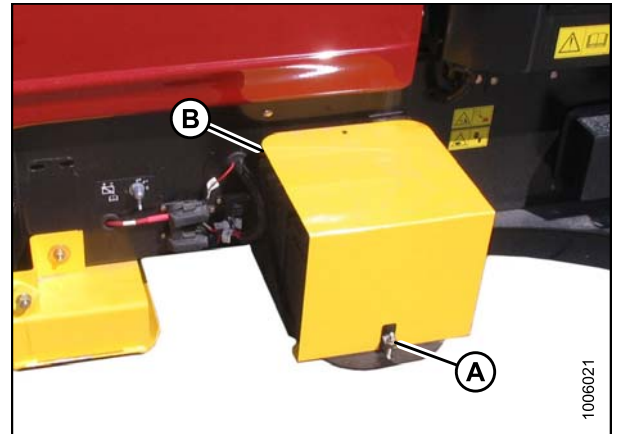


Figure 6.80: Battery Shipping Shield

3. Remove one of the two bolts (A) and nuts, and loosen the other.

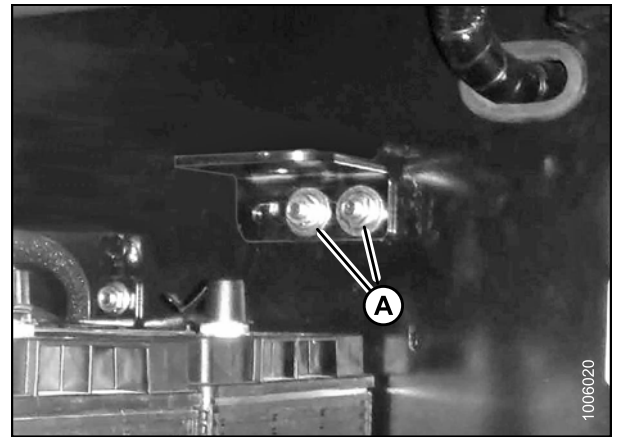


Figure 6.81: Bracket Shipping Position

4. Rotate angle (A) 180°, align holes, and reinstall the bolt (B) and nut. Leave bolts loose.

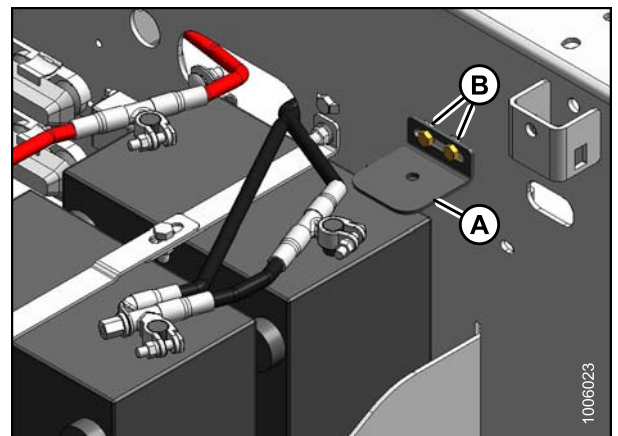


Figure 6.82: Bracket Repositioned

6.8 Unpacking Ignition Keys

1. Remove wing nut (A) from fuse box cover (B) and remove cover.

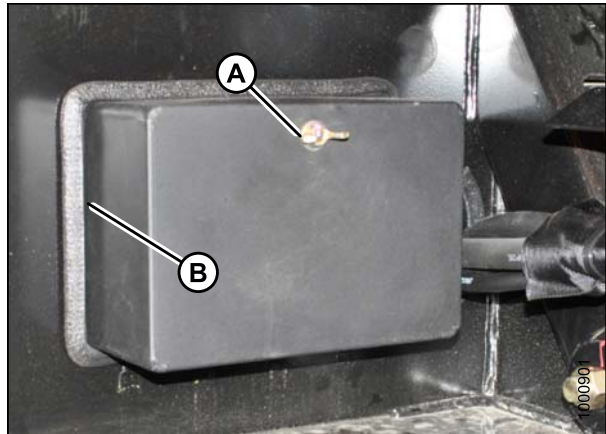


Figure 6.83: Fuse Box

2. Remove tape and keys (A) from inside cover. Discard tape.
3. Unlock cab doors and place key on console.
4. Close cab doors.
5. Reinstall cover (B) with wing nut.

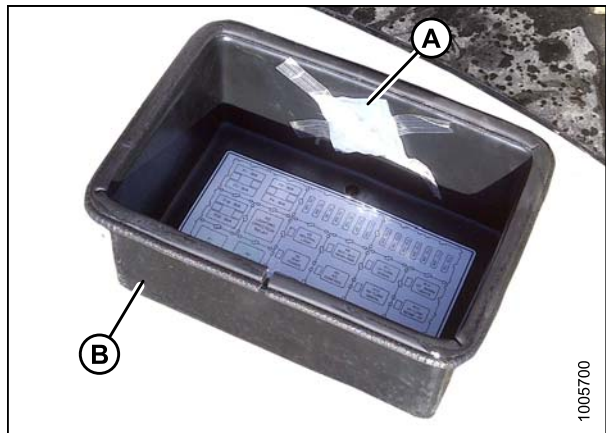


Figure 6.84: Fuse Cover

6.9 Installing Platforms

NOTE: The M105 has a left-hand platform only whereas the M155 and M205 have left- and right-hand platforms. Procedure for left-hand installation is shown, right-hand installation is similar.

1. Remove the two 1/2 in. x 0.75 bolts (A) securing rails to shipping beam and remove rails. Retain hardware.
2. Remove shipping brackets from platform assembly. Retain hardware.

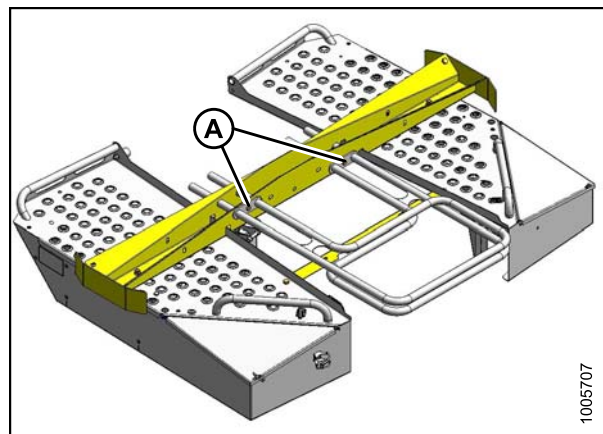


Figure 6.85: M155 and M205 Platform—Shipping Assembly

3. Attach a sling to platform and other end to lifting device.

⚠ CAUTION

Stand clear when lifting, as platform may swing.

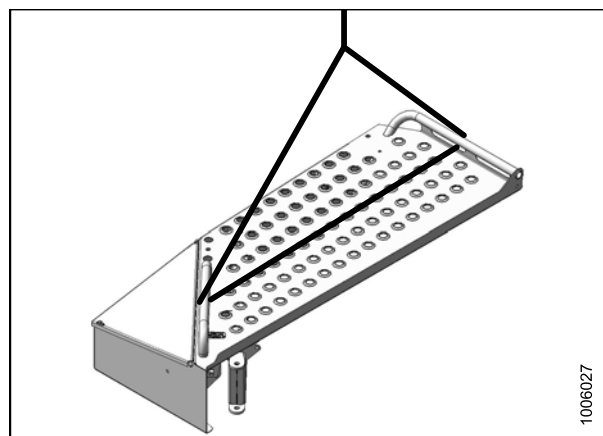


Figure 6.86: LH Platform

4. Position platform against windrower frame.

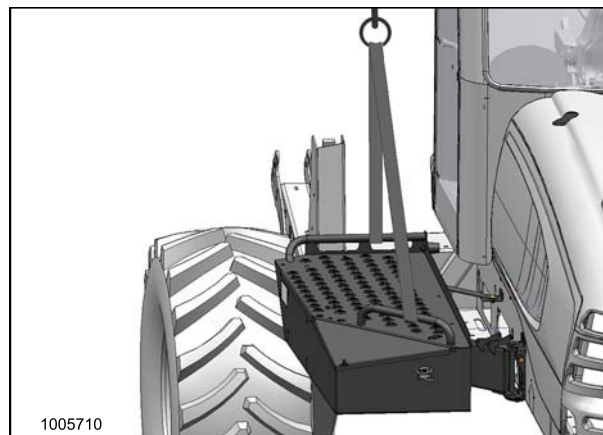


Figure 6.87: LH Platform

ASSEMBLING THE WINDROWER

5. Attach main beam of platform to side frame with three 1/2 in. x 1.25 long carriage bolts (A). Bolt heads face inboard. Tighten just enough for adjustment.

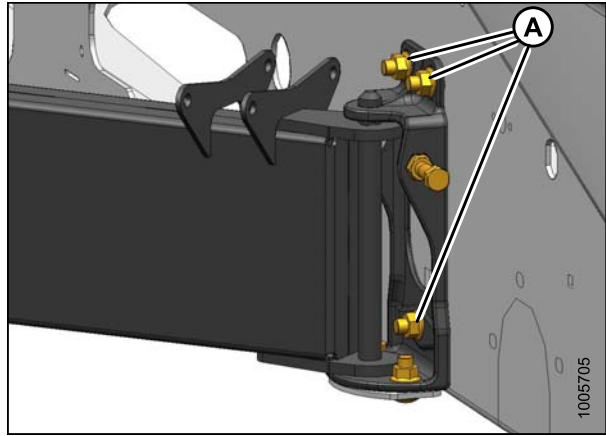


Figure 6.88: LH Platform—Main Beam

6. Attach steering arm to frame with two 3/8 in. x 0.75 long carriage bolts and nuts (A). Bolt heads face inboard. Tighten bolts.
7. Remove sling.

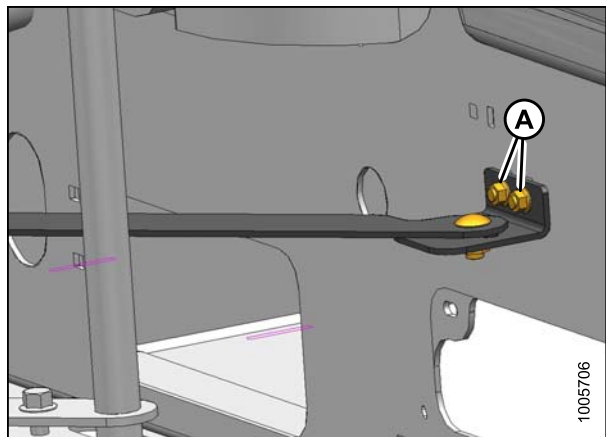


Figure 6.89: LH Platform—Steering Arm

8. Attach railings to platform with 1/2 in. x 0.75 locking bolts (A) provided. Tighten bolts to 75 ft-lbf (102 N·m).

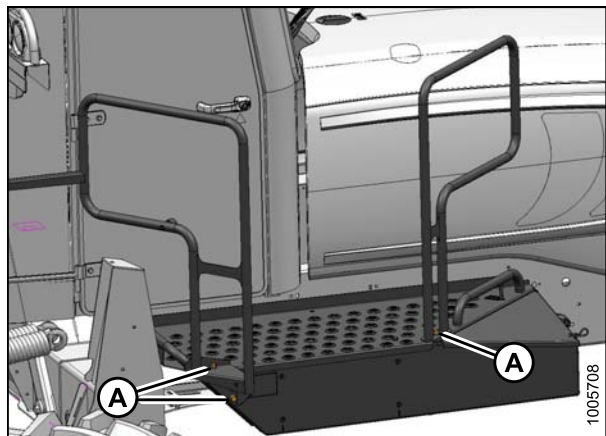


Figure 6.90: LH Platform—Railings

ASSEMBLING THE WINDROWER

9. Slowly close platform and check that vertical rail tubes are parallel with cab posts when viewing from the rear.

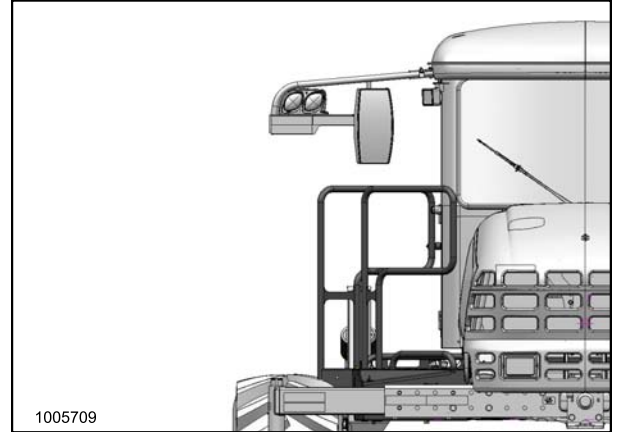


Figure 6.91: LH Platform

10. Laterally adjust king pin mounting (A) as required.

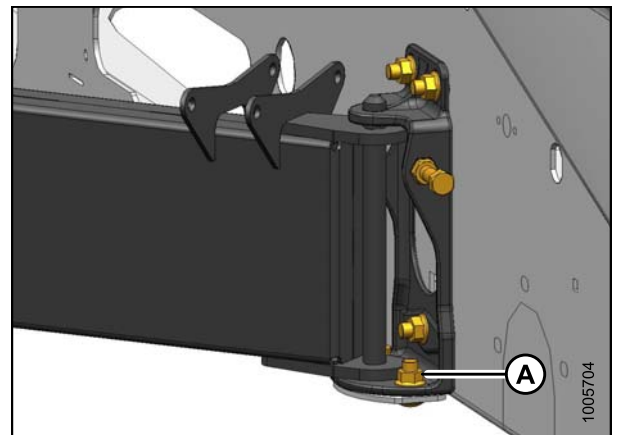


Figure 6.92: LH Platform—Main Beam

11. Check that rubber bumper (A) is contacting the frame.

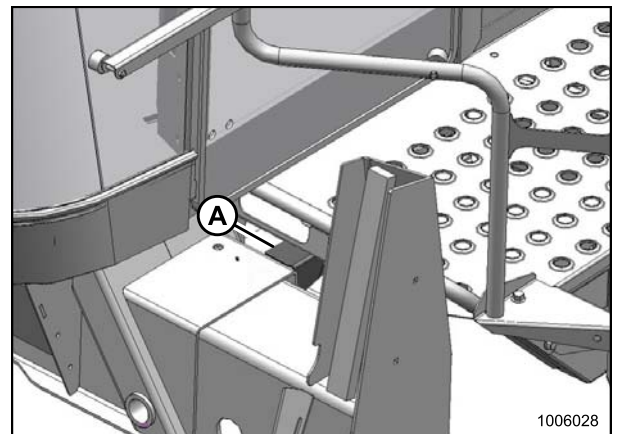


Figure 6.93: LH Platform—Rubber Bumper

ASSEMBLING THE WINDROWER

12. Check that front of platform is contacting the guide (A).

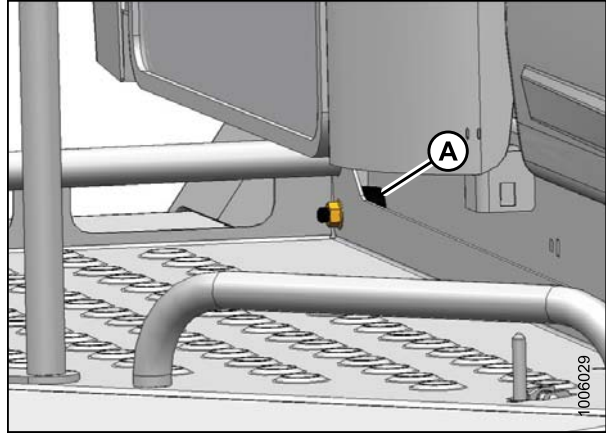


Figure 6.94: LH Platform—Guide

13. Adjust platform horizontally with the 1/2 in. x 2.25 bolt (A) as required.

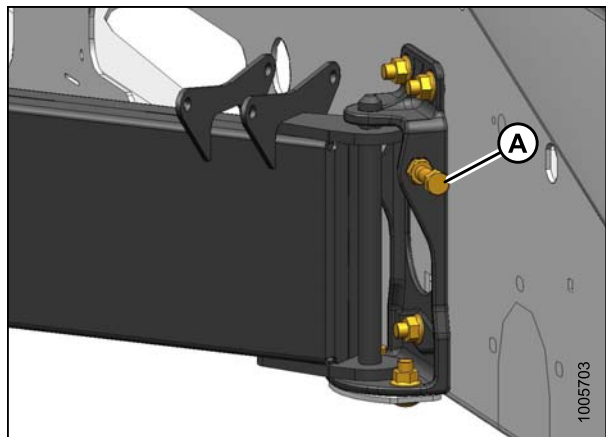


Figure 6.95: LH Platform—Main Beam

14. If major adjustment is required, relocate steering arm (A) into either of the other holes on the bracket (B).
15. Tighten the three main beam attachment bolts to 80 ft-lbf (108 N·m).
16. **M155 and M205 only:** Repeat these steps to install the right-hand platform.

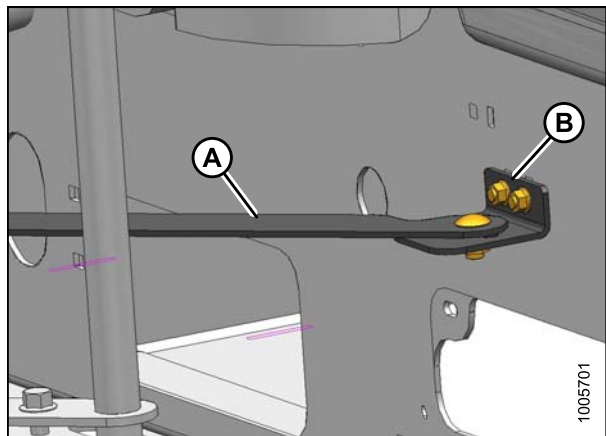


Figure 6.96: LH Platform—Steering Arm

6.10 Installing Steps

NOTE: The M105 has a left-hand platform only whereas the M155 and M205 have left- and right-hand platforms. Procedure for left-hand installation is shown, right-hand installation is similar.

1. Remove the two existing upper bolts (A).
2. Check that two lower bolts (B) are not threaded in fully.

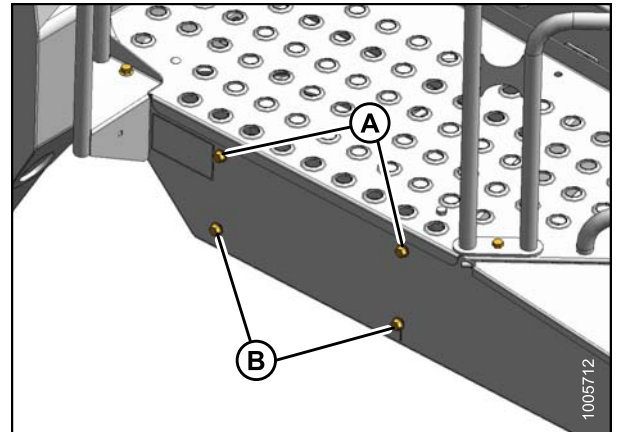


Figure 6.97: LH Platform

3. Hang step assembly on lower bolts (B). If required, back off bolts.
4. Install two bolts (A) in upper holes in step and tighten.
5. Tighten lower bolts (B).
6. **M155 and M205 only:** Repeat for other step assembly.

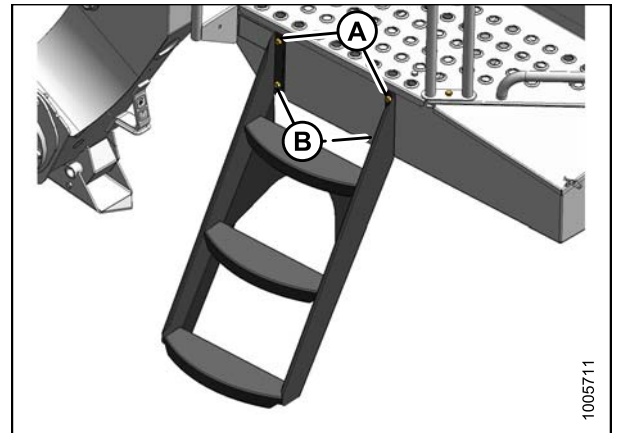


Figure 6.98: LH Steps Installed

6.11 Installing Exhaust Stack

1. Open engine compartment hood.
2. Retrieve exhaust stack (A) and clamp (B) (unpacked in [5.6 Removing Hand Rails and Exhaust Stack, page 34](#)).
3. Loosen clamp (B) on exhaust stack (A).

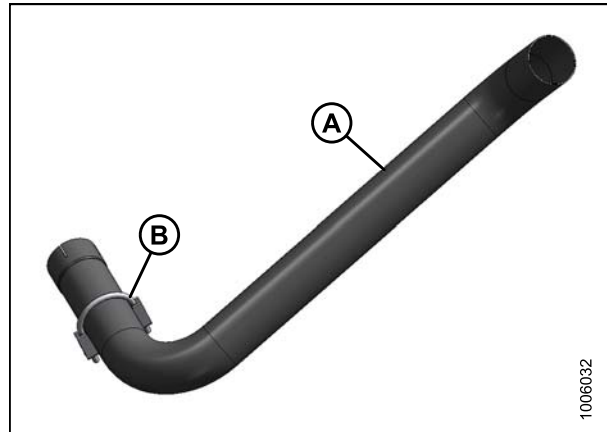


Figure 6.99: Exhaust Stack

4. Remove covering from muffler (A) and loosen clamp (B) on muffler.

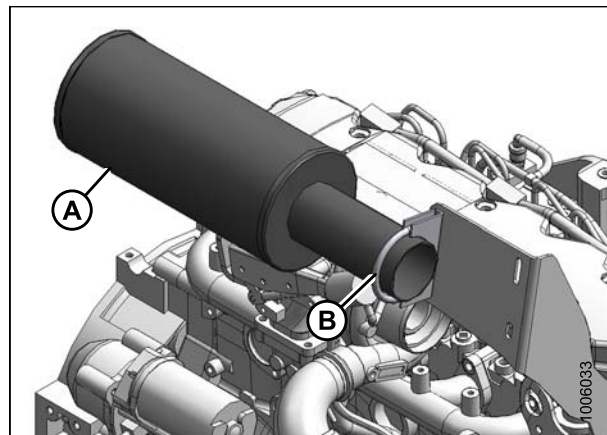


Figure 6.100: Muffler

5. Position stack (A) in slot in exhaust shroud (B) and connect stack to muffler.

NOTE: If shroud (B) interferes with the stack, loosen the wing nut (C) on the shroud and move the shroud so that stack can be installed.

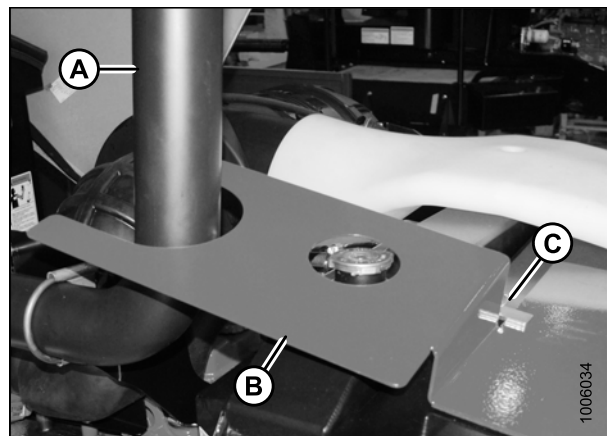


Figure 6.101: Exhaust Shroud

ASSEMBLING THE WINDROWER

6. Tighten both clamps (A) just enough so stack (B) can be moved.

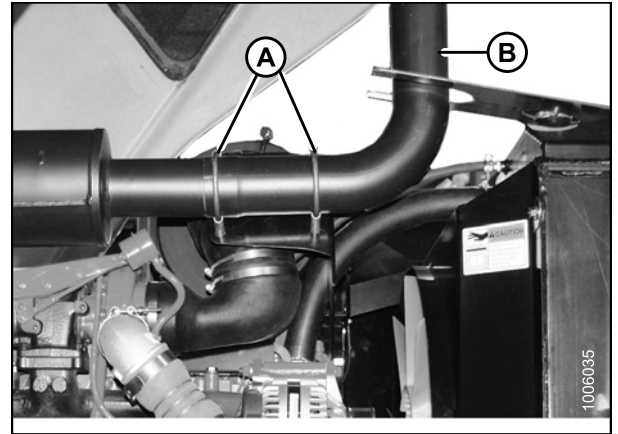


Figure 6.102: Exhaust Stack under Hood

7. Slowly close hood so that stack (A) enters hole (B) in hood. Adjust the position of the stack as required to clear the hole in the hood.

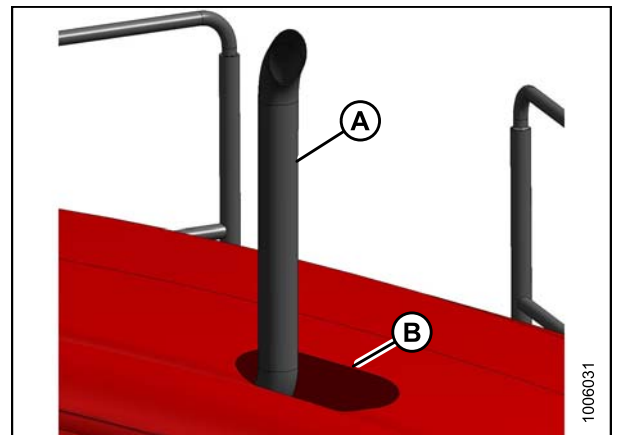


Figure 6.103: Exhaust Stack Installed

8. Raise the hood.
9. Tighten clamps (A).
10. Reposition shroud (B) and tighten wing nut.

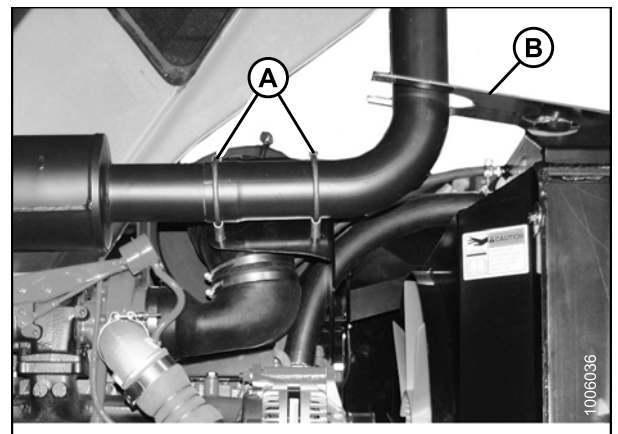


Figure 6.104: Exhaust Stack under Hood

6.12 Positioning Light and Mirror Assemblies

1. Remove nut and bolt (A) from shipping position.
2. Swing mirror/light assembly (B) forward up.

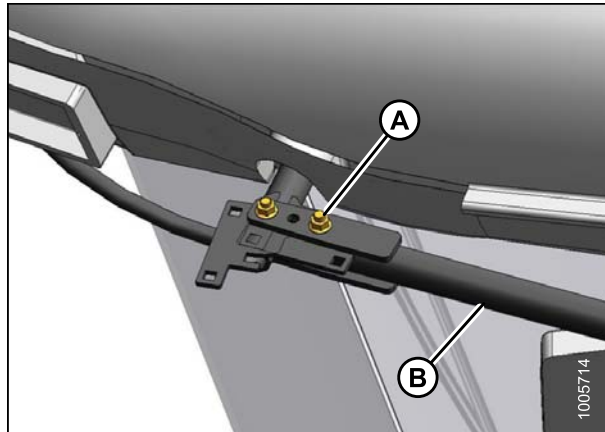


Figure 6.105: Mirror/Light Shipping Assembly

3. Reinstall bolt (A) and nut in other hole.
4. Repeat for opposite mirror assembly (B).

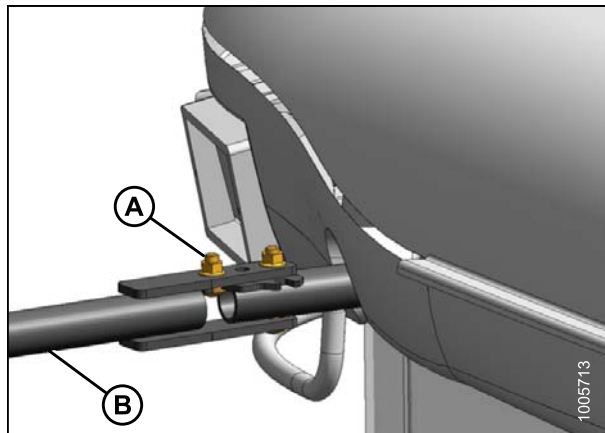


Figure 6.106: Mirror/Light Assembly Repositioned

6.13 Connecting Batteries

The procedure for connecting batteries differs depending on the windrower model. Refer to [6.13.1 Connecting Batteries on an M205 or M155, page 85](#) or [6.13.2 Connecting Batteries on an M105, page 86](#).

6.13.1 Connecting Batteries on an M205 or M155

1. Open right-hand (cab-forward) maintenance platform.
2. The battery main disconnect switch (A) is located on the right-hand frame rail beside the batteries. Ensure battery switch (A) is switched to POWER OFF position.
3. Remove cable ties securing battery cables to battery clamp.

IMPORTANT:

BATTERY IS NEGATIVE GROUNDED. Always connect red starter cable to the positive (+) terminal of battery and black ground cable to negative (-) terminal of battery. Reversed polarity in battery or alternator may result in permanent damage to electrical system.

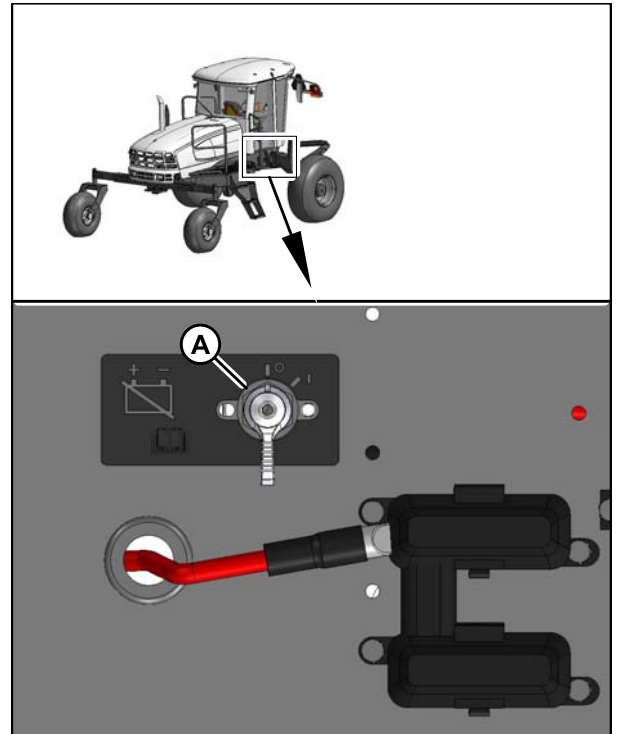


Figure 6.107: Battery Switch

4. Remove plastic caps from battery posts.
5. Attach positive (red) cable terminals to positive post (A) on batteries and tighten. Reposition plastic covers onto clamps.
6. Attach negative (black) cable terminals to negative post (B) on batteries and tighten clamps.
7. Turn battery switch to POWER ON position.
8. Move platform back to closed position.

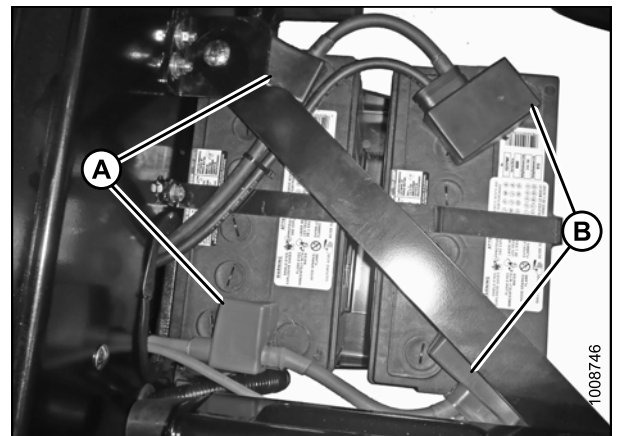


Figure 6.108: Batteries

6.13.2 Connecting Batteries on an M105

1. Open engine compartment hood to highest position. For instructions, refer to the windrower operator's manual or technical manual.
2. A battery main disconnect switch (A) is located on the battery tray. Ensure battery switch is switched to POWER OFF position.
3. Remove cable ties securing battery clamps and cables to frame.

IMPORTANT:

BATTERY IS NEGATIVE GROUNDED. Always connect red starter cable to the positive (+) terminal of battery, and black ground cable to negative (-) terminal of battery. Reversed polarity in battery or alternator may result in permanent damage to electrical system.

NOTE: Ensure that batteries are positioned so that the positive posts (C) face forward.

4. Remove plastic caps from battery posts.
5. Attach negative (black) cable clamps (B) to negative post on batteries and tighten clamps.
6. Attach positive (red) cable clamps (C) to positive post on batteries and tighten.
7. Reposition plastic covers onto clamps.
8. Switch battery switch (A) to POWER ON position.
9. Close engine compartment hood.

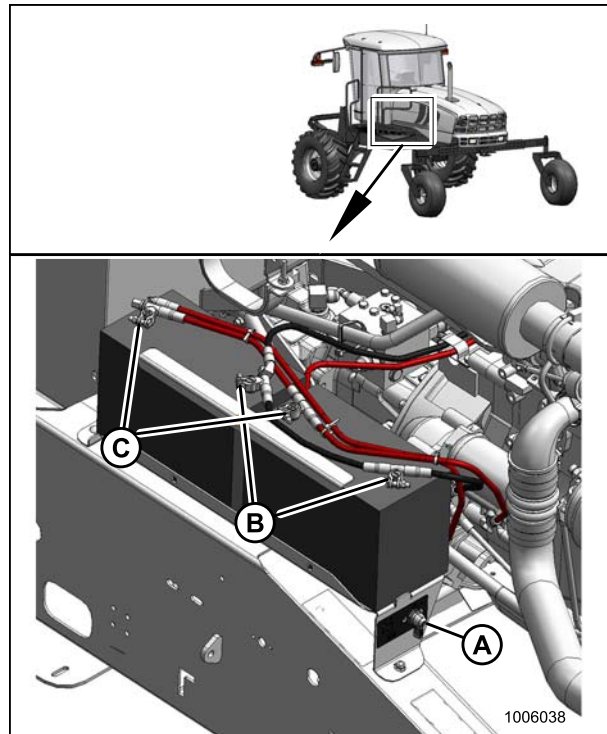


Figure 6.109: Batteries

6.14 Priming Hydraulic System

The procedure for priming the hydraulic system is different for each windrower model. Refer to the procedure for your model:

- [6.14.1 Priming Hydraulic System on an M205, page 87](#)
- [6.14.2 Priming Hydraulic System on an M155, page 88](#)
- [6.14.3 Priming Hydraulic System on an M105, page 92](#)

6.14.1 Priming Hydraulic System on an M205

1. Open maintenance platform on left-hand side.
2. Disconnect brake engage solenoid (plug P44) at valve block on left-hand side of windrower.

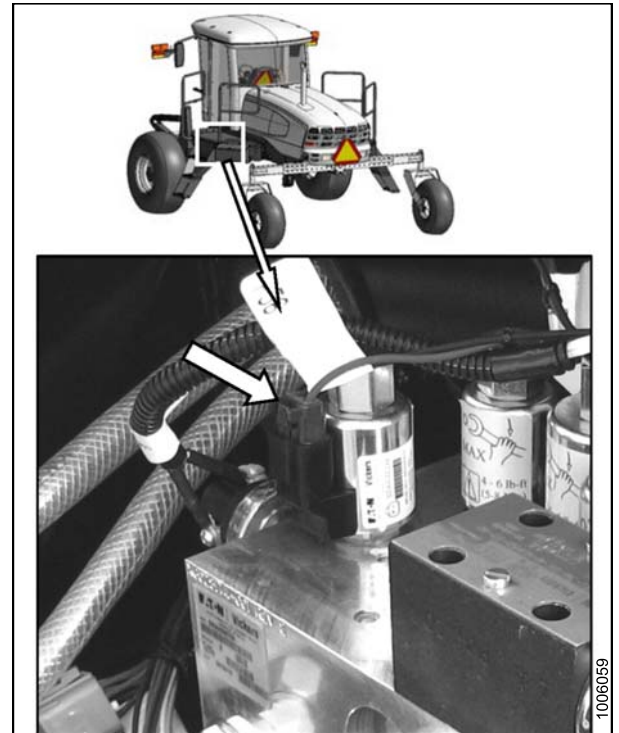


Figure 6.110: Brake Engage Solenoid

3. Remove socket head screw (A) with a 4 mm Allen wrench and remove engine control module (ECM) connector (B) from engine. This prevents engine from starting during cranking.

CAUTION

Check to be sure all bystanders have cleared the area.

4. Crank engine with starter for 15 seconds to prime the system.
5. Reinstall ECM connector (B) with screw (A).
6. Reconnect brake engage solenoid plug.
7. Check hydraulic oil level in reservoir. Add SAE15W-40 oil if necessary.

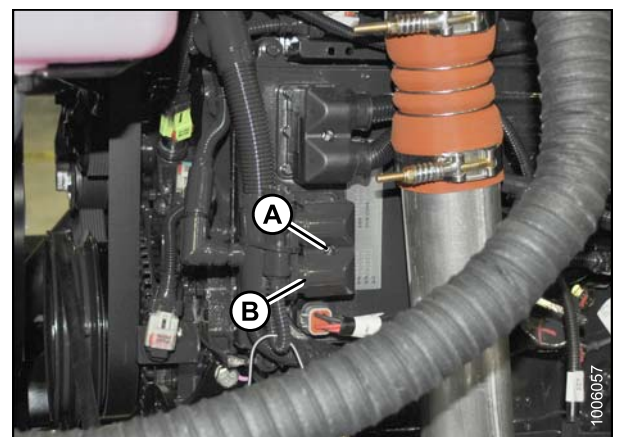


Figure 6.111: ECM Connector

ASSEMBLING THE WINDROWER

6.14.2 Priming Hydraulic System on an M155

1. Remove hydraulic oil reservoir filler cap/dipstick (A).
2. Open engine compartment hood fully.

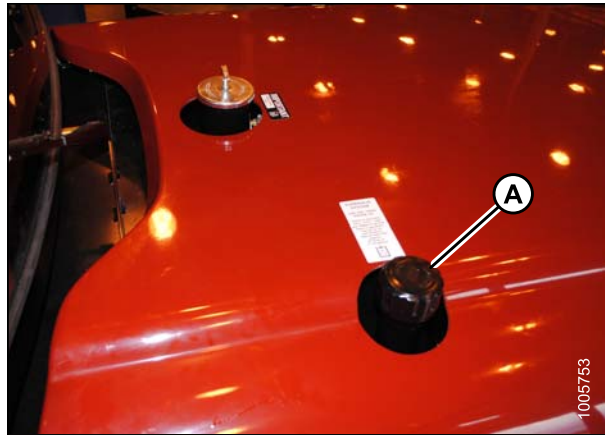


Figure 6.112: Filler Cap/Dipstick on Engine Hood

3. From underneath machine, locate plug (A) on SIDE of HEADER drive pump housing. Loosen plug to bleed pump housing. Retighten plug once oil starts to run out.

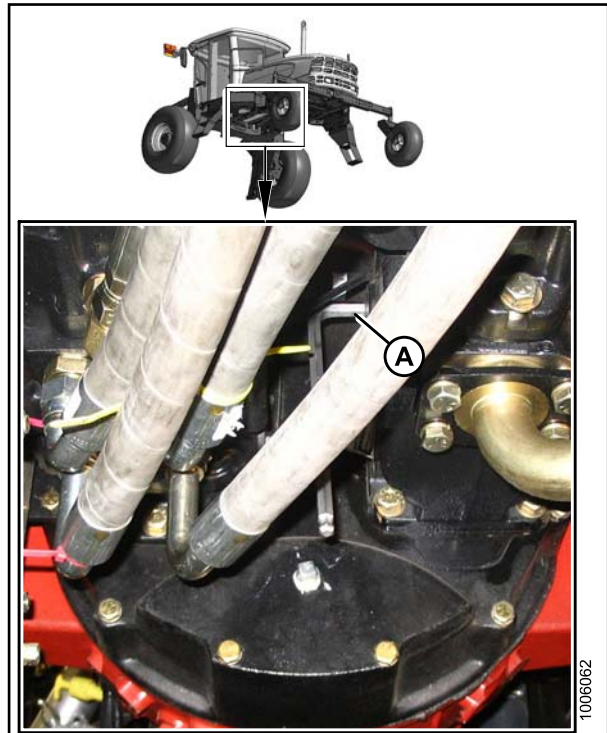


Figure 6.113: Header Drive Pump Housing

ASSEMBLING THE WINDROWER

4. From above, locate plug (A) on TOP of HEADER drive pump housing and loosen plug to bleed pump housing. Retighten plug once oil starts to run out.

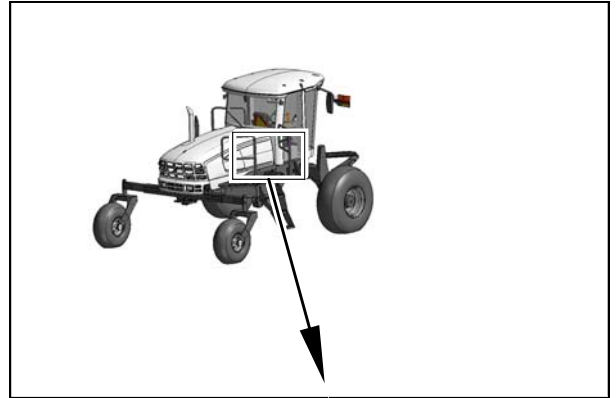


Figure 6.114: Header Drive Pump Housing

5. From above, locate plug (A) on TOP of TRACTION drive pump housing and loosen plug to bleed pump housing. Retighten plug once oil starts to run out.
6. Replace hydraulic oil reservoir filler cap.

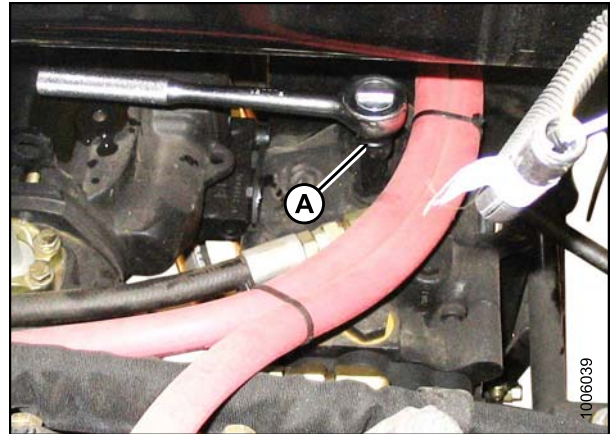


Figure 6.115: Traction Drive Pump Housing

ASSEMBLING THE WINDROWER

7. Open maintenance platform on left-hand side.
8. Disconnect brake engage solenoid connector (P-V3) (A) at valve block on left-hand side of windrower.

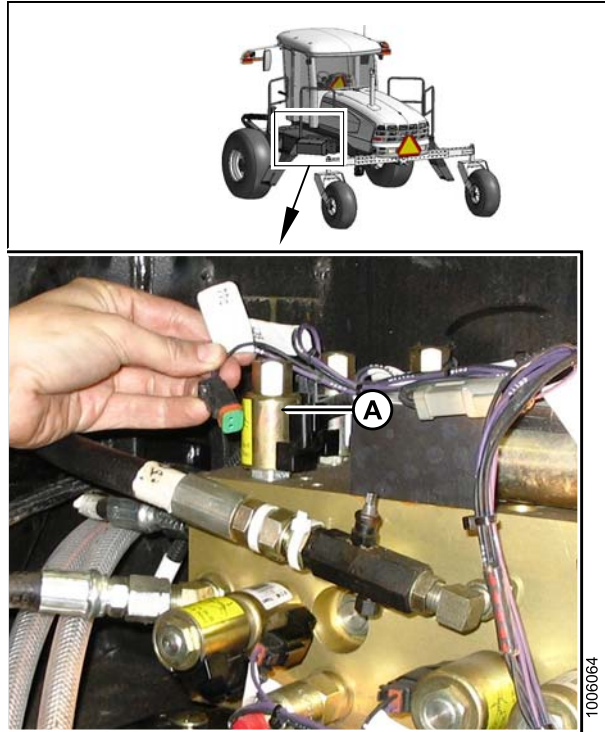


Figure 6.116: Valve Block

9. Disconnect electrical connection (A) at fuel pump on right side of engine.

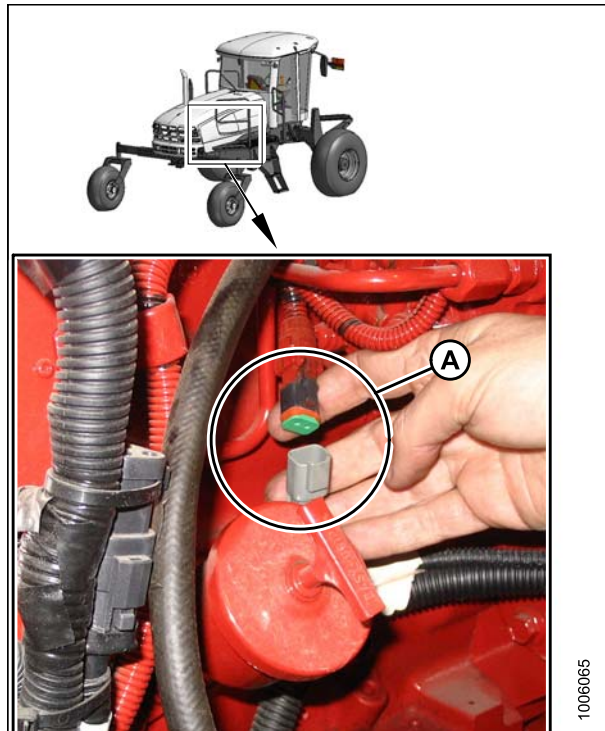


Figure 6.117: Fuel Pump Location

ASSEMBLING THE WINDROWER

10. Open maintenance platform on right-hand side.
11. Open circuit breaker/fuse box (A) and remove engine control module (ECM) ignition fuse (5A) (B).

CAUTION

Check to be sure all bystanders have cleared the area.

12. To prime the system, crank engine with starter for 15 seconds.
13. Reconnect electrical connection at fuel pump and at brake engage solenoid.
14. Reinstall ECM ignition fuse and close fuse box.
15. Close engine compartment hood.

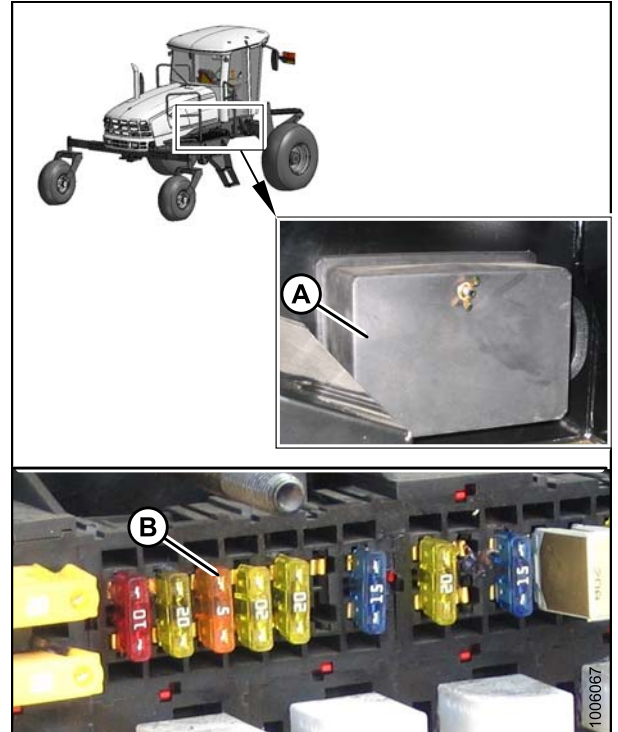


Figure 6.118: Fuse

16. Check hydraulic oil level in reservoir. Add SAE15W-40 oil if necessary.

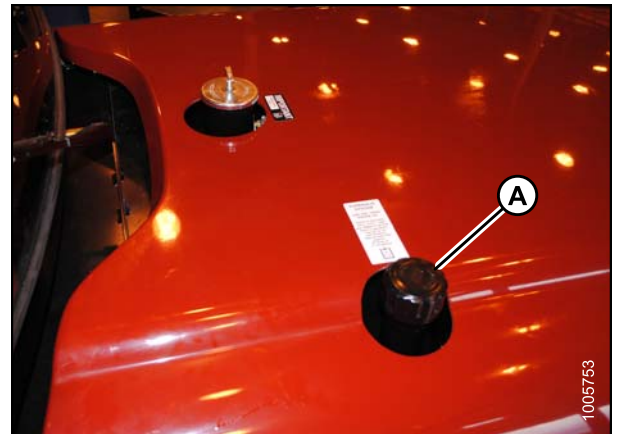


Figure 6.119: Filler Cap/Dipstick

ASSEMBLING THE WINDROWER



Figure 6.120: Dipstick

6.14.3 Priming Hydraulic System on an M105

1. Remove hydraulic oil reservoir filler cap/dipstick (A).
2. Open engine compartment hood fully.



Figure 6.121: Filler Cap/Dipstick on Engine Hood

ASSEMBLING THE WINDROWER

3. Locate plug on TOP of HEADER drive pump housing from above, and loosen plug to bleed pump housing. Retighten plug once oil starts to run out.

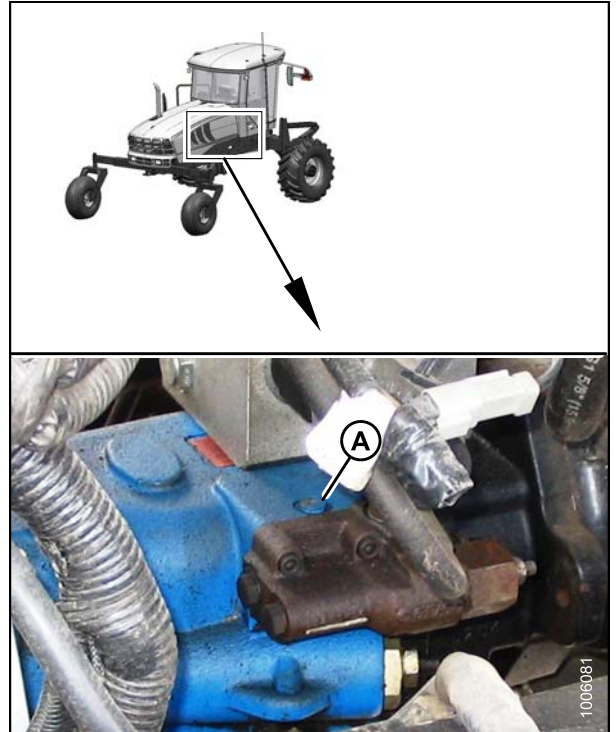


Figure 6.122: Header Drive Pump Housing

4. Locate plug (A) on TOP of TRACTION drive pump housing from above, and loosen plug to bleed pump housing. Retighten plug once oil starts to run out.
5. Replace hydraulic oil reservoir filler cap.
6. Open maintenance platform on left-hand side.

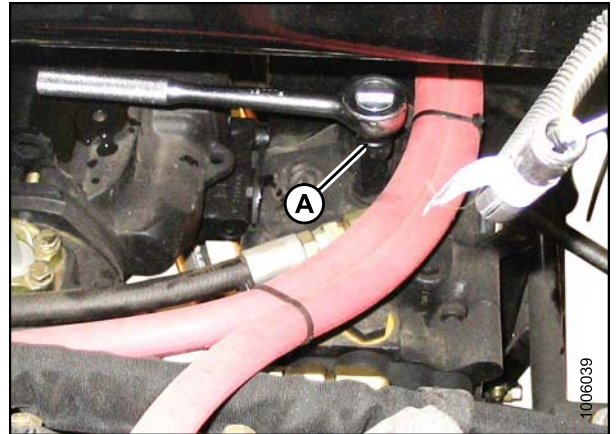


Figure 6.123: Traction Drive Pump

ASSEMBLING THE WINDROWER

7. Disconnect brake engage solenoid connector (P-V3) (A) at valve block on left-hand side of windrower.

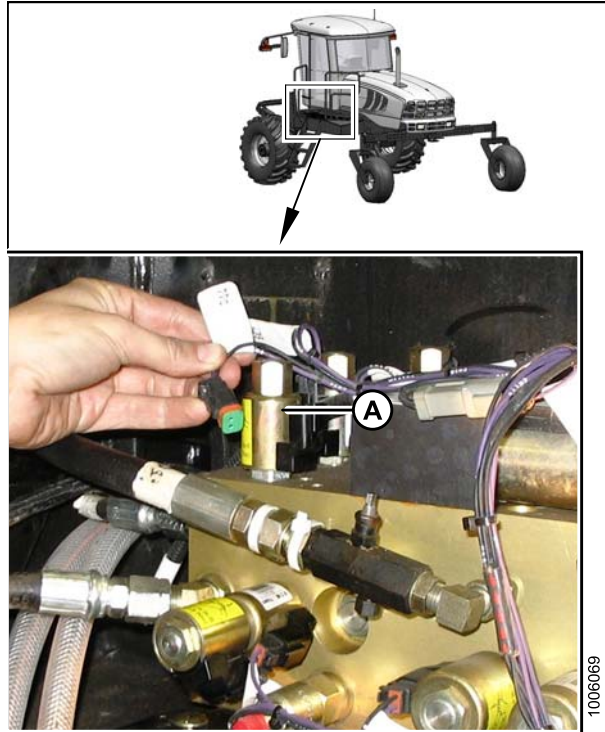


Figure 6.124: Valve Block

8. Disconnect electrical connection (A) at fuel pump on right-hand side of engine.

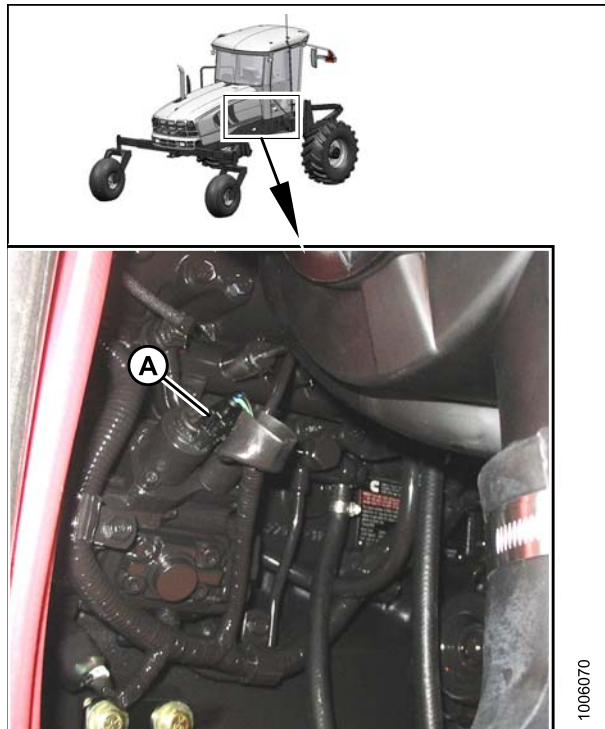


Figure 6.125: Fuel Pump Location

ASSEMBLING THE WINDROWER

- Open circuit breaker/fuse box (A) and remove engine control module (ECM) ignition fuse (5A) (B).

CAUTION

Check to be sure all bystanders have cleared the area.

- To prime the system, crank engine with starter for 15 seconds.
- Reconnect electrical connection at fuel pump and at brake engage solenoid.
- Reinstall ECM ignition fuse and close fuse box.
- Close engine compartment hood.

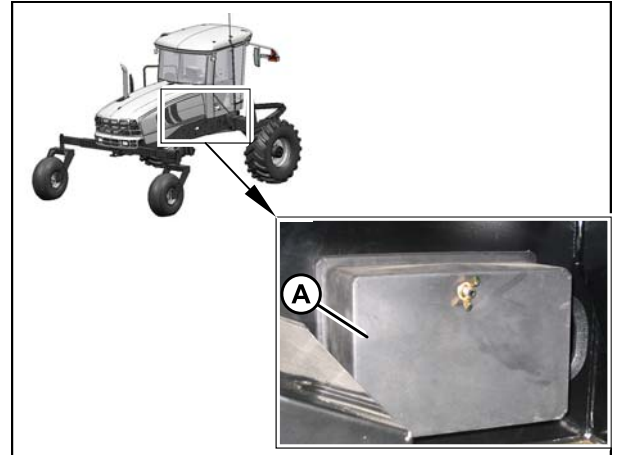


Figure 6.126: Fuse Box

- Check hydraulic oil level in reservoir. If necessary, add SAE15W-40 oil.



Figure 6.127: Engine Hood

ASSEMBLING THE WINDROWER



Figure 6.128: Dipstick

6.15 Starting Engine

1. Check fuel level and if required, add sufficient fuel for a 15 minute run.
2. **M155 and M205:** Lock (A) should be engaged at cab-forward or engine-forward position.



Figure 6.129: M155/M205 Operator Console

3. Move ground speed lever (GSL) (A) into N-DETENT.
4. Turn steering wheel until it locks.
5. Push HEADER DRIVE switch (B) to OFF.

CAUTION

Check to be sure all bystanders have cleared the area.



Figure 6.130: M155/M205 Operator Console



Figure 6.131: M105 Operator Console

ASSEMBLING THE WINDROWER

6. **Normal Start (All Engines):** engine temperature above 60°F (16°C).

- a. Set throttle to START position (A)—fully back.
- b. Sound horn (C) three times.

NOTE: For M155 and M205, horn is located on the headliner.

- c. Turn ignition key (B) to RUN position. Single loud tone sounds, engine warning lights illuminate, and the cab display module (CDM) displays “HEADER DISENGAGED” and “IN PARK”.

WARNING

If starter engages with steering wheel unlocked, ground speed lever out of NEUTRAL, or header clutch engaged, **DO NOT START ENGINE**. Refer to technical manual.

- d. Turn ignition key (B) to START position until engine starts and then release key. Tone ceases and warning lights go out.

IMPORTANT:

- Do **NOT** operate starter for longer than 15 seconds at a time.
- If engine does **NOT** start, wait at least two minutes before trying again.
- After the third 15 second crank attempt, allow starter motor to cool for 10 minutes before further cranking attempts.
- If engine still does **NOT** start, refer to Table 6.1 [Troubleshooting, page 99](#).



Figure 6.132: M155/M205 Operator Console

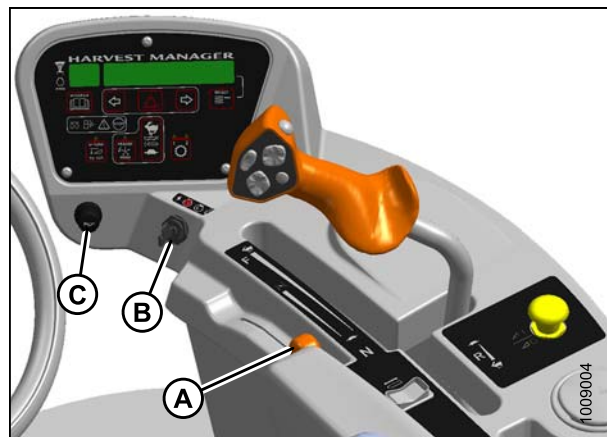


Figure 6.133: M105 Operator Console

ASSEMBLING THE WINDROWER

7. **Cold Start:** engine temperature below 40°F (5°C).

NOTE: Engines are not equipped with cold start assist system.

Follow Step [6, page 98](#).

Engine will cycle through a period where it appears to labour until engine warms up.

NOTE: Throttle is nonresponsive during this time as engine is in WARM UP mode. This mode will last from 30 seconds to 3 minutes depending on temperature. After engine has stabilized and is idling normally, throttle becomes active.

IMPORTANT:

Do **NOT** operate engine above 1500 rpm, until engine temperature gauge is above 100°F (40°C).

Table 6.1 Troubleshooting

Problem	Solution
Controls not in NEUTRAL	Move GSL to NEUTRAL. Move steering wheel to locked position. Disengage header clutch.
Operator's station not locked	Adjust position of operator's station. Ensure lock is engaged.
Neutral interlock misadjusted	Refer to the windrower technical manual.
No fuel to engine	Fill empty fuel tank. Replace clogged filter.
Old fuel in tank	Drain tank. Refill with fresh fuel.
Water, dirt, or air in fuel system	Drain, flush, fill, and prime system.
Improper type of fuel	Use proper fuel for operating conditions.
Crankcase oil too heavy	Use recommended oil.
Low battery output	Have battery tested. Check battery electrolyte level.
Poor battery connection	Clean and tighten loose connections.
Faulty starter	Refer to the technical manual.
Wiring shorted, circuit breaker open	Check continuity of wiring and breaker (manual reset).
Faulty injectors	Refer to the technical manual.

6.16 Checking Traction Drive

CAUTION

Check to be sure all bystanders have cleared the area.

1. With engine running, move ground speed lever (GSL) (A) out of N-DETENT and slowly move GSL forward. Drive wheels should be rotating in the forward direction and at the same speed.
2. Turn steering wheel and observe motion of drive wheels. They should rotate at different speeds, with the slower rotating wheel on the same side of the machine that the steering wheel was turned toward.
3. Repeat above for opposite direction.
4. Move GSL back into reverse. Drive wheels should be rotating in the reverse direction and at the same speed.
5. Move GSL back into N-DETENT and shut down engine.



Figure 6.134: M155/M205 Operator Console



Figure 6.135: M105 Operator Console

6.17 Removing Windrower from Stand

The procedure for removing the windrower from the support stand differs depending on whether you are using a factory-built stand or a field-constructed stand. Refer to [6.17.1 Removing Windrower from Factory Stand, page 101](#) or [6.17.2 Removing Windrower from Field Stand, page 102](#)

6.17.1 Removing Windrower from Factory Stand

1. Move valve handle (A) up to raise windrower slightly and take load off lift locks.

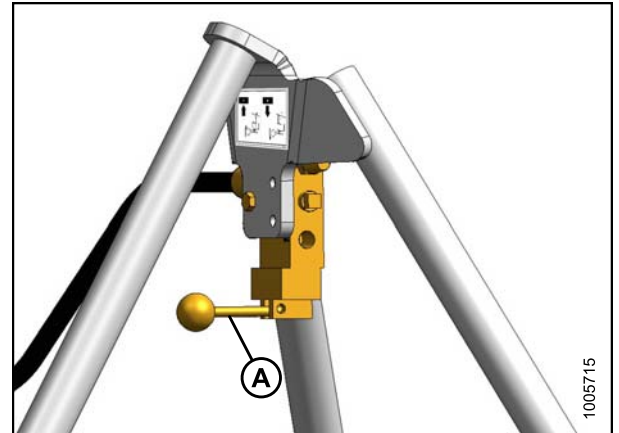


Figure 6.136: Air Control Valve Tripod

2. Release lift lock mechanism (three places) and turn turner to keep lock in released position.
3. Move valve handle down to slowly release pressure to air bag system and lower windrower to ground.

CAUTION

Ensure all three lifts have fully retracted and are clear of windrower frame before driving windrower ahead.

4. Start engine and drive machine straight ahead, leaving shipping support channels supported on rear support stand.

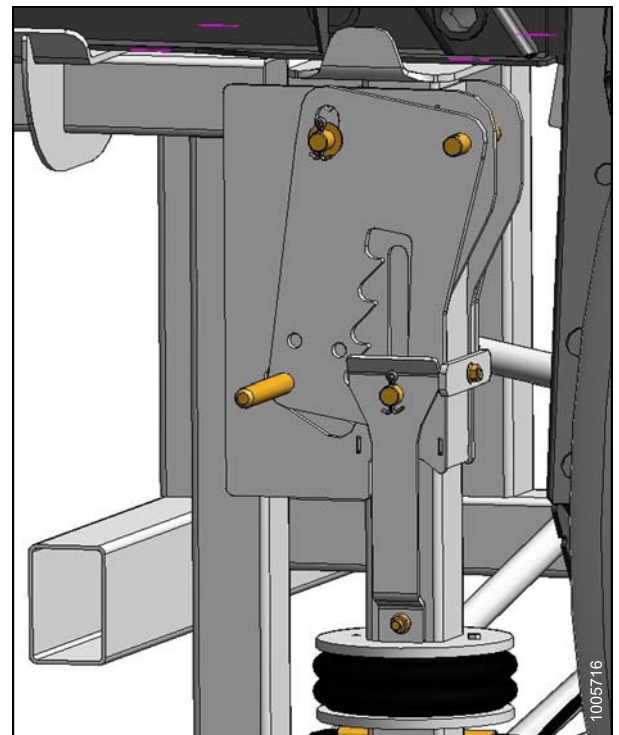


Figure 6.137: Lift System

6.17.2 Removing Windrower from Field Stand

1. Position a jack under the jack point of each drive wheel leg and another under the rear hitch.
2. Raise jacks to take weight off stands and remove stands.
3. Slowly lower windrower to ground and remove jacks.

6.18 Installing AM/FM Radio

Provision has been made for installation of an AM/FM radio. The mounting is designed to fit a DIN E style radio with a depth of 'X' = 161 mm and having a 5 mm threaded stud (A) centered on the rear for support.

Provision has been made for adjustments, should the radio fall outside these parameters.

NOTE: M105 configuration is slightly different from what is shown here, but the installation procedure is the same.

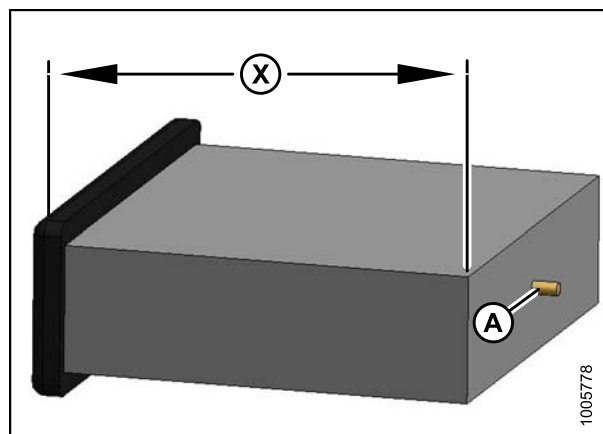


Figure 6.138: Mounting Dimension

1. Ensure the ignition is turned to the OFF position.
2. Remove radio panel by removing four screws (A).

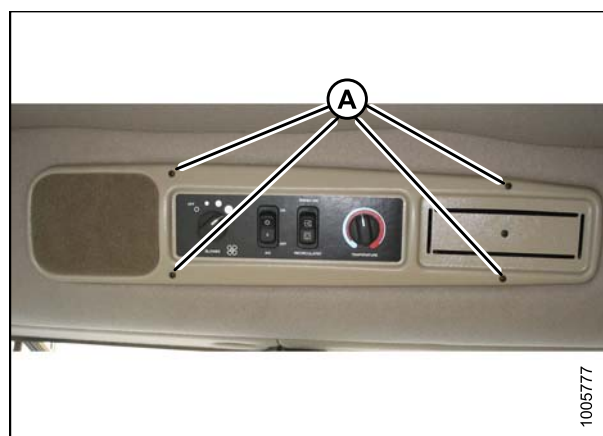


Figure 6.139: Radio Panel

3. Remove screw and nuts (A) and (C) to remove support (B) from panel. Retain metric nut (C) and lock washer.

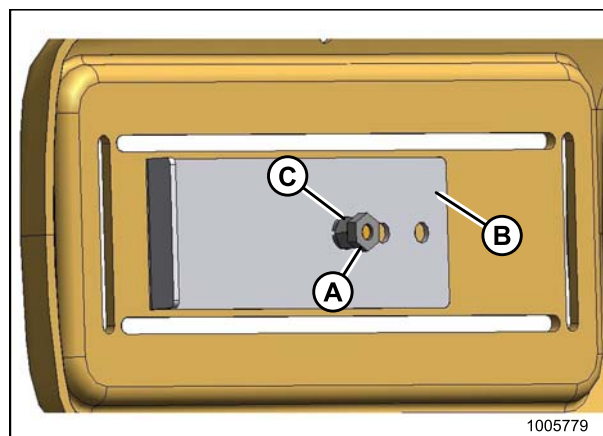


Figure 6.140: Panel Support

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4. Remove the cutout by cutting the tabs (A) in the panel. Remove sharp edges on panel.

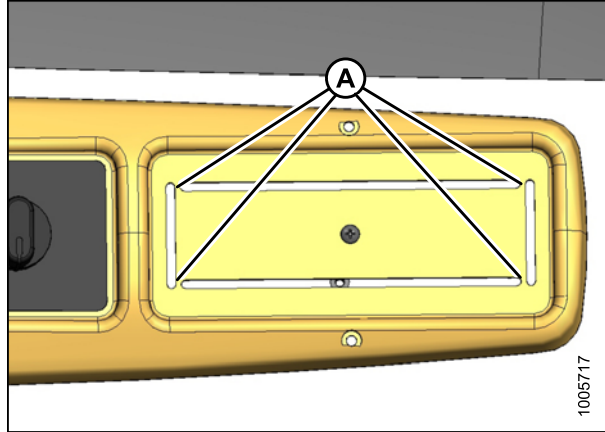


Figure 6.141: Panel

5. Position receptacle (A) (supplied with radio) in opening and secure by bending tabs (B) on receptacle against panel.

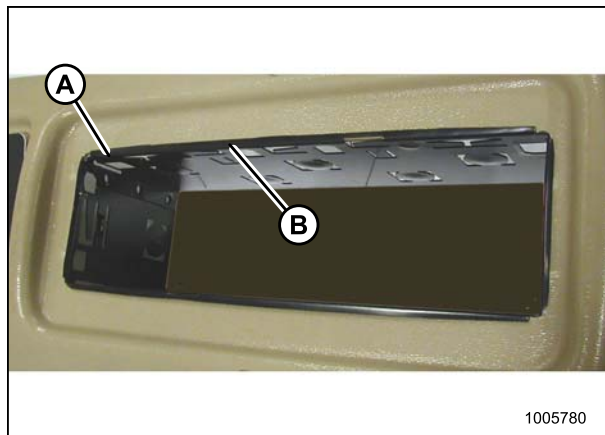


Figure 6.142: Radio Receptacle

6. Insert radio into receptacle and attach radio bezel. Ensure radio locks into position and faceplate (A) is against the panel.



Figure 6.143: Radio Installed

ASSEMBLING THE WINDROWER

7. A six-pin connector for the radio is included in the wiring harness. In order to mate properly with this connector, the radio must have a six-pin connector (Packard #2977042) and have a terminal arrangement as shown at right.
8. Attach two additional wires in the wiring harness to the radio:
 - a. **Circuit 503:** Red with 1/4 in. female blade terminal. This is a live wire provided for powering a radio clock/memory, if these exist on your radio.
 - b. **Circuit 315:** Black ground wire attaches to radio body.
9. Plug cable from antenna into radio.

NOTE: An approved radio package is available from Radio Engineering Industries (REI) of Omaha, Nebraska.

10. Attach stud (supplied with radio) to center rear of radio.
11. Attach support (B) to stud on back of radio chassis, with lock washer and metric nut (A) that was supplied with the support. Support can be attached to chassis in multiple locations to allow for proper mounting of radio.
12. Reinstall radio panel with original screws.

13. Adjust bracket (A) if necessary by loosening nuts (B) to allow radio to slide into opening and securely capture support (C).
14. Retrieve antenna from inside cab and remove protective cover from base end.

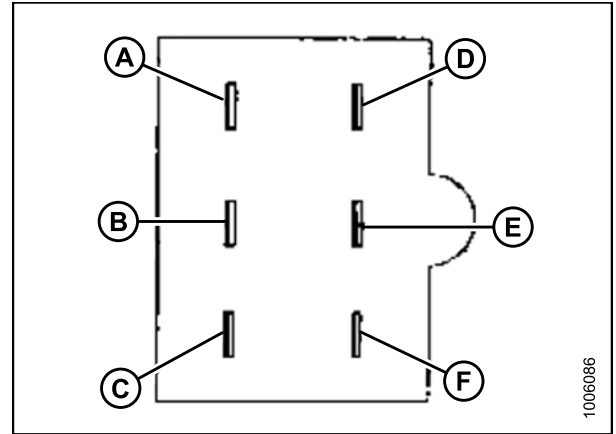


Figure 6.144: Six-Pin Connector

A - Left Speaker Power +	B - Left Speaker Ground -
C - Radio Ground -	D - Radio Power + (Live When Ignition is On)
E - Right Speaker Power +	F - Right Speaker Ground -

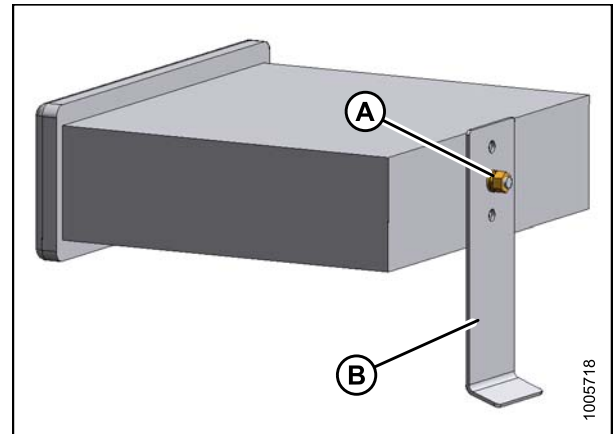


Figure 6.145: Radio and Support

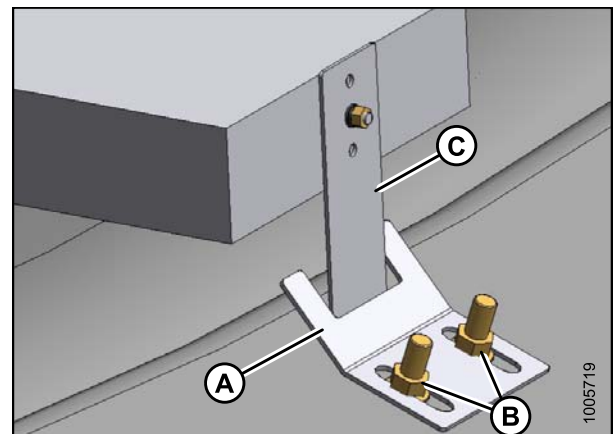


Figure 6.146: Radio and Support

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15. Remove protective cover (A) from antenna mount on cab roof and thread antenna onto base until hand tight.

NOTE: Store protective cover in cab to protect antenna mount if antenna needs to be removed.

16. Turn ignition key to ACC, switch radio ON, and check operation in accordance with instructions supplied with the radio.

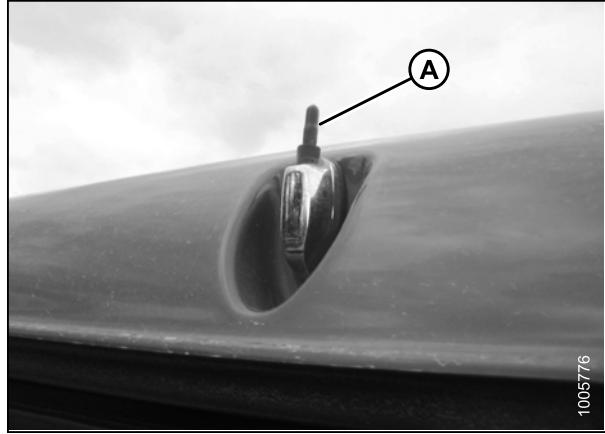


Figure 6.147: Antenna Mount on Cab Roof

6.19 Installing Beacons

1. Retrieve the two beacons from shipment.
2. Remove hardware and rubber base from one of the beacons as shown.



Figure 6.148: Beacon Light

3. Feed connectors from harness through center hole in rubber base and place base on beacon bracket—making sure mounting holes in rubber base line-up with holes in bracket.



Figure 6.149: Beacon Rubber Base on Mounting Bracket

4. Connect orange wire (A) from harness to the red wire (B) in beacon. Connect the black harness wire (C) to the ground terminal in the beacon.

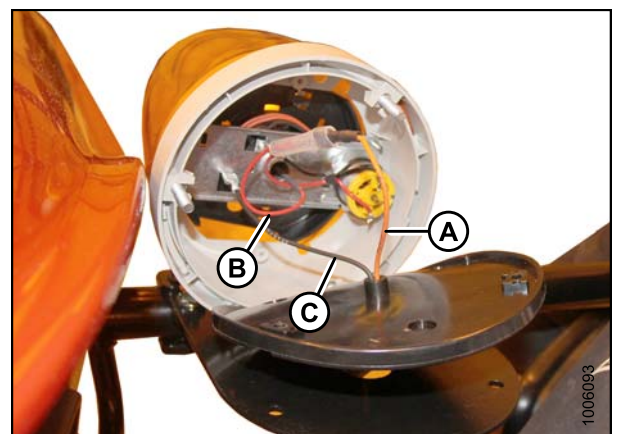


Figure 6.150: Beacon Light—Wire Routing

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5. Fit beacon onto base making sure beacon is oriented as shown, with the point on lens facing forward (cab-forward).



Figure 6.151: Beacon Light

6. Mount beacon to base with lock washers and nuts (A) supplied with beacon.
7. Similarly install other beacon on opposite side of cab roof.



Figure 6.152: Beacon Light

6.20 Installing Slow Moving Vehicle (SMV) Sign

1. Install SMV sign (A) (shipped in cab) on windrower in accordance with instructions supplied with the sign. SMV signs must be visible when travelling on the road.

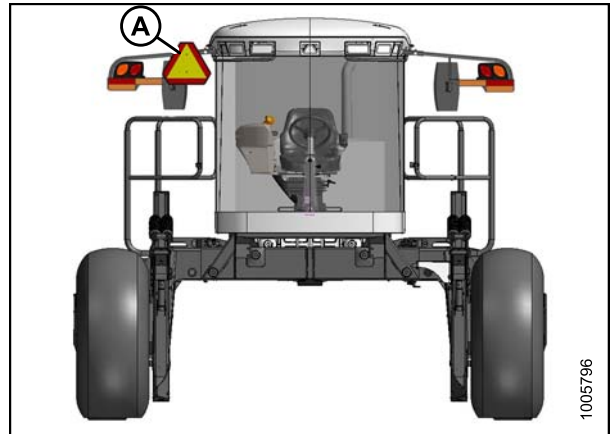


Figure 6.153: Engine-Forward

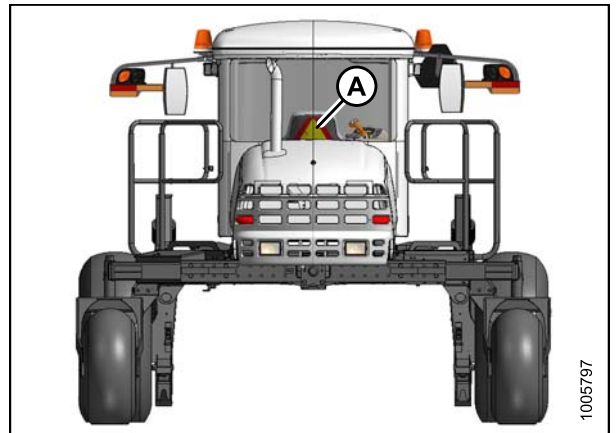


Figure 6.154: Cab-Forward

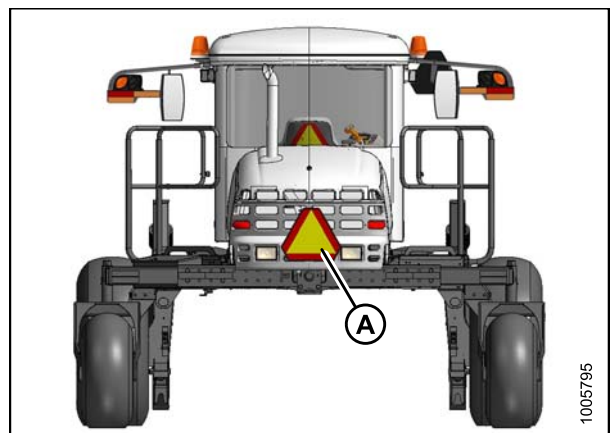


Figure 6.155: Alternate Location (Cab-Forward)

6.21 Attaching Header Boots

Header boots are required to attach a D-Series Draper Header to the windrower.

CAUTION

To prevent damage to the lift system when lowering header lift linkages without a header or weight box attached to windrower, ensure that float engagement pin is installed in storage location (B) and NOT installed at hole location (A).

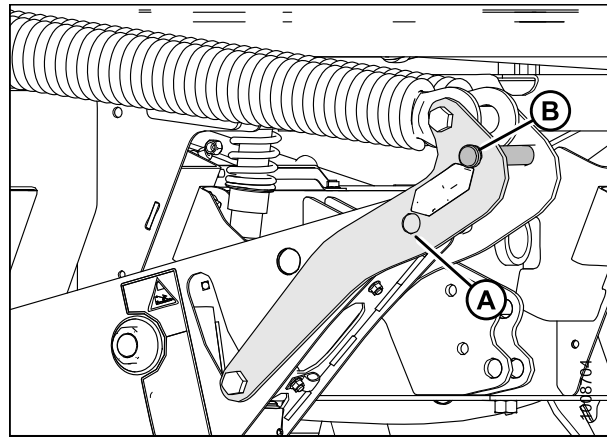


Figure 6.156: Header Lift

If **NOT** installed, attach draper header boots (supplied with header) to windrower lift linkage as follows:

1. Remove pin (B) from boot (A).
2. Position boot (B) on lift linkage (A) and reinstall pin (C). Pin may be installed from either side of boot.
3. Secure pin (C) with hairpin (D).
4. Repeat for opposite side.

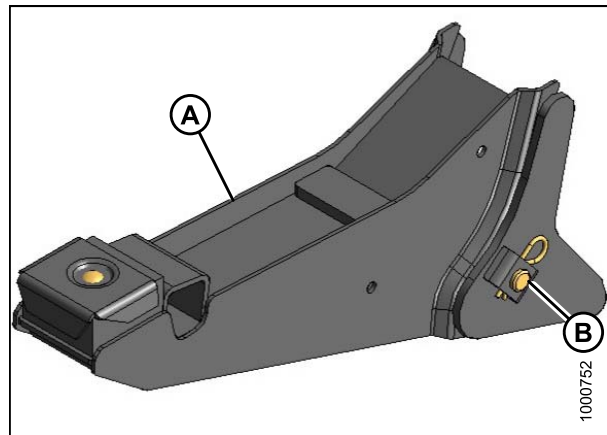


Figure 6.157: Header Boot

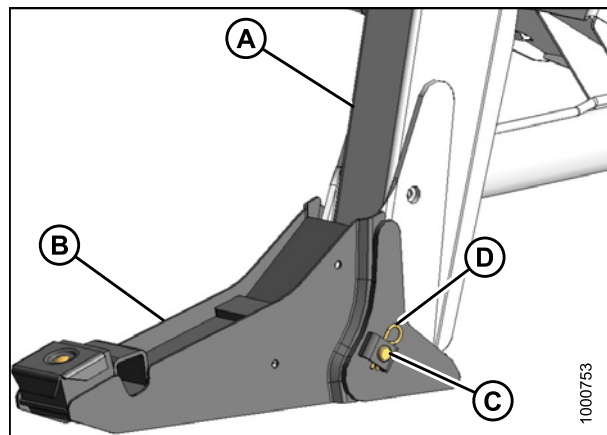


Figure 6.158: Header Boot

6.22 Attaching Headers

6.22.1 Attaching a D-Series Header

The D-Series headers can be attached to an M105, M155, or M205 Self-propelled Windrower. For attachment procedure, refer to the specific windrower model.

M105 Self-Propelled Windrower

To run a D-Series draper header, the M105 Self-propelled Windrower needs to be equipped with reel drive, reel lift, and reel fore-aft hydraulics.

Windrowers equipped with D-Series hydraulics have four header drive hoses on the left-hand side, and up to five reel drive hoses on the right-hand side.

If necessary, obtain the following kits from your MacDon Dealer, and install them in accordance with instructions supplied with the kits.

Kit Description	Kit Number
Base Draper Drive kit	B5577

Refer to the procedure that is appropriate for the center-link installed on the windrower:

- [Attaching a D-Series Header: Hydraulic Center-Link without Self-Alignment, page 118](#)
- [Attaching a D-Series Header: Mechanical Center-Link, page 124](#)

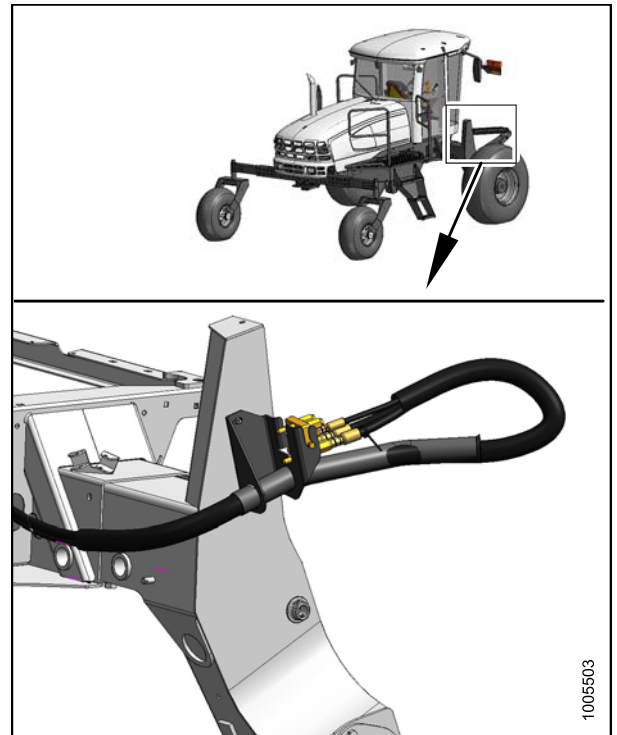


Figure 6.159: M105 Draper Header Reel Hydraulics

ASSEMBLING THE WINDROWER

M155 Self-Propelled Windrower

To operate a D-Series draper header, The M155 Self-propelled Windrower must be fitted with a Base Draper Drive kit and if an HC10 Hay Conditioner is installed, a Reverser kit.

If necessary, obtain the following kits from your MacDon Dealer and install them in accordance with the instructions supplied with the kits.

Kit Description	Kit Number
Base Draper Drive kit	B5577
Reverser kit ⁸	B4656

Refer to the procedure that is appropriate for the center-link installed on the windrower:

- [Attaching a D-Series Header: Hydraulic Center-Link with Optional Self-Alignment, page 113](#)
- [Attaching a D-Series Header: Hydraulic Center-Link without Self-Alignment, page 118](#)
- [Attaching a D-Series Header: Mechanical Center-Link, page 124](#)

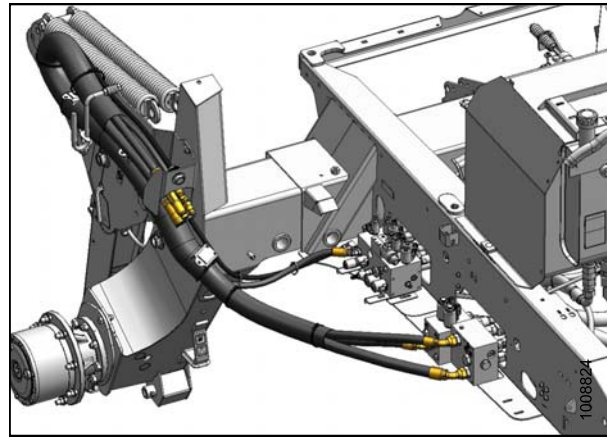


Figure 6.160: M155 Draper Header Hydraulics

8. Required for HC10 Hay Conditioner operation.

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M205 Self-Propelled Windrower

To operate a D-Series header, the M205 Self-propelled Windrower must be equipped with a Draper Driver Basic kit and a Completion kit as shown.

Windrowers equipped with D-Series hydraulics have four header drive hoses on the left-hand side and up to five reel drive hoses on the right-hand side.

If necessary, obtain the following kits from your MacDon Dealer and install them in accordance with the instructions supplied with the kits.

Kit Description	Kit Number
Base Draper/Auger Drive kit	B5491
Draper Header Reel Drive Completion kit	B5496
Hydraulic Couplers kit	B5497

To attach a D-Series header to an M205, refer to [Attaching a D-Series Header: Hydraulic Center-Link with Optional Self-Alignment, page 113](#) or [Attaching a D-Series Header: Hydraulic Center-Link without Self-Alignment, page 118](#).

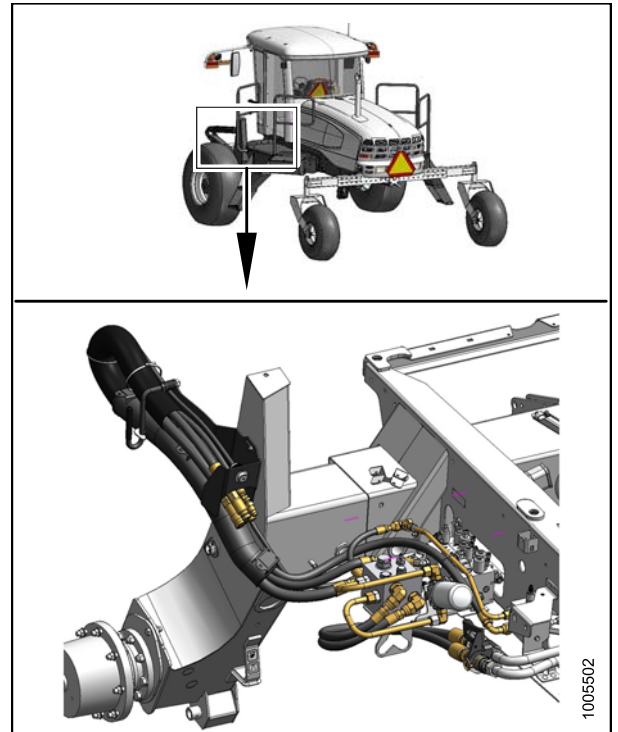


Figure 6.161: M205 Draper Header Drive Hydraulics

Attaching a D-Series Header: Hydraulic Center-Link with Optional Self-Alignment

NOTE: This topic assumes that draper header boots have already been attached to the windrower lift linkage. If that is not the case, refer to [6.21 Attaching Header Boots, page 110](#).

To attach a D-Series header to an M155 or M205 Self-propelled Windrower equipped with a hydraulic center-link and optional self-alignment, follow these steps:

DANGER

Stop engine and remove key from ignition before leaving operator's seat for any reason. A child or even a pet could engage an idling machine.

1. Remove the hairpin (A) from pins (B) and remove the pins from the header legs.

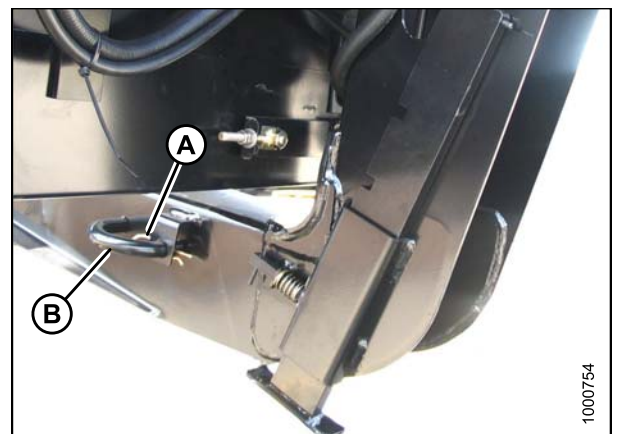


Figure 6.162: Header Leg

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CAUTION

Check to be sure all bystanders have cleared the area.

IMPORTANT:

Remove protective cover from exhaust stack prior to starting engine.

2. Start engine and activate HEADER DOWN button (A) on the ground speed lever (GSL) to fully retract header lift cylinders.

3. If necessary, activate the REEL UP switch (A) on the GSL to raise the center-link, so that the hook is above the attachment pin on the header.

IMPORTANT:

If the center-link is too low, it may contact the header as the windrower approaches the header for hookup.

4. Slowly drive the windrower forward so the boots (A) enter the header legs (B). Continue to drive slowly forward until lift linkages contact the support plates in the header legs and the header nudges forward.
5. Ensure that lift linkages are properly engaged in header legs, contacting the support plates.

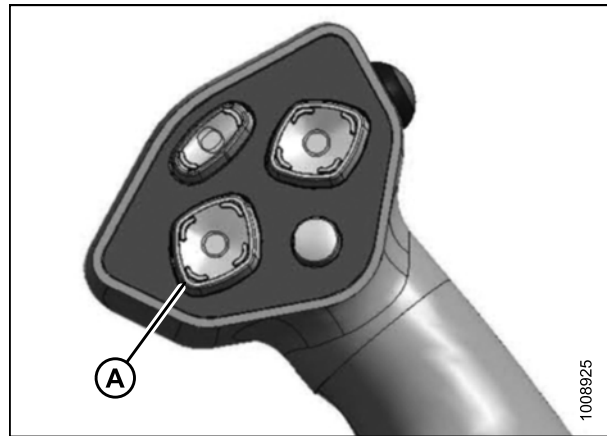


Figure 6.163: GSL

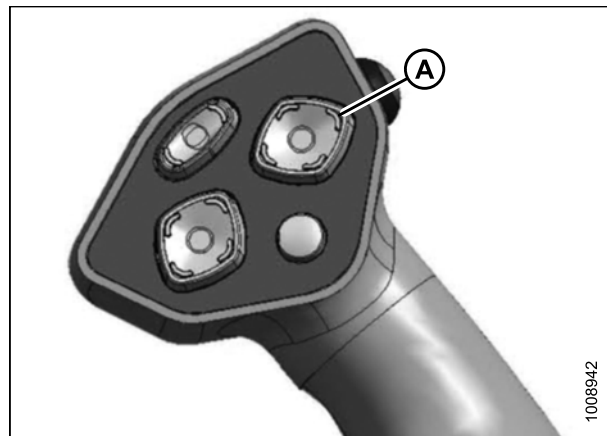


Figure 6.164: GSL

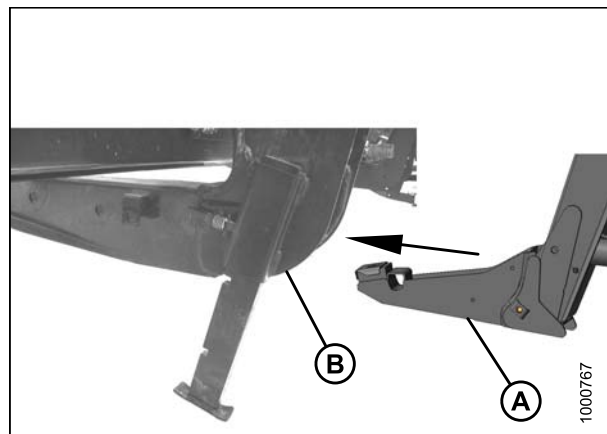


Figure 6.165: Header Leg and Boot

ASSEMBLING THE WINDROWER

6. Use the following GSL functions to position the center-link hook above the header attachment pin:
 - Reel up (A) to raise the center-link
 - Reel down (B) to lower the center-link
 - Header tilt up (C) to retract the center-link
 - Header tilt down (D) to extend the center-link

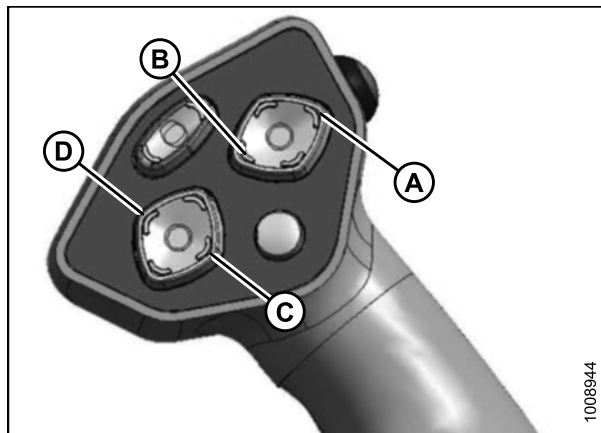


Figure 6.166: GSL

7. Adjust position of the center-link cylinder (A) with the REEL UP and REEL DOWN switches, and HEADER TILT switches on the GSL to position the hook above the header attachment pin.

IMPORTANT:

Hook release must be down to enable self-locking mechanism. If the release is open (up), manually push it down after hook engages header pin.

8. Lower center-link (A) onto the header with REEL DOWN switch until it locks into position (hook release [B] is down).
9. Check that center-link is locked onto header by pressing the REEL UP switch on the GSL.

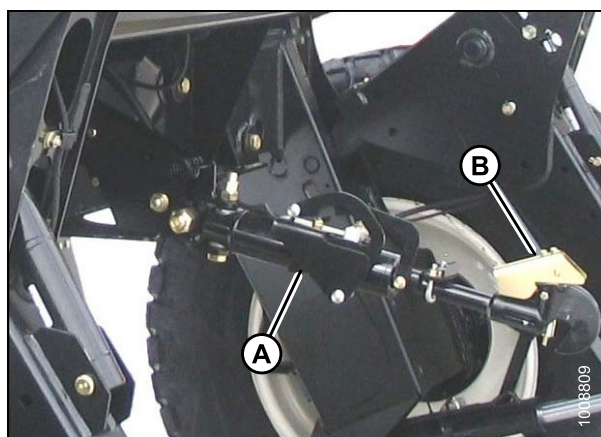


Figure 6.167: Hydraulic Center-Link

CAUTION

Check to be sure all bystanders have cleared the area.

10. Press the HEADER UP switch (A) to raise header to maximum height.

NOTE: If one end of the header does **NOT** raise fully, rephase the lift cylinders as follows:

- a. Press and hold the HEADER UP switch until both cylinders stop moving.
- b. Continue to hold the switch for 3–4 seconds. Cylinders are now phased.



Figure 6.168: GSL

ASSEMBLING THE WINDROWER

11. Engage safety props on both lift cylinders as follows:
 - a. Stop engine and remove key from ignition.
 - b. Pull lever (A) and rotate toward header to release and lower the safety prop (B) onto cylinder.
 - c. Repeat for the opposite lift cylinder.

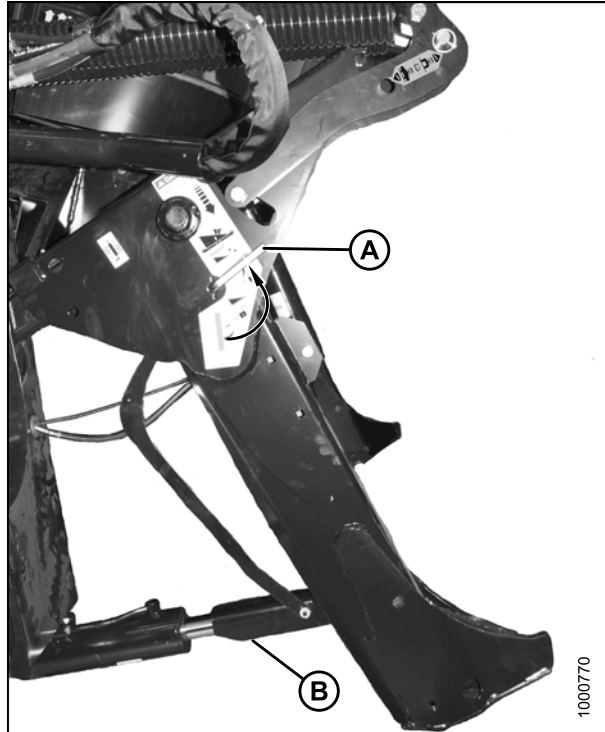


Figure 6.169: Cylinder Stop

12. Install pin (B) through the header leg, (engaging U-bracket in lift linkage) on both sides and secure with a hairpin (A).
13. Raise header stand (D) to storage position by pulling spring pin (C) and lifting stand into uppermost position. Release spring pin (C).

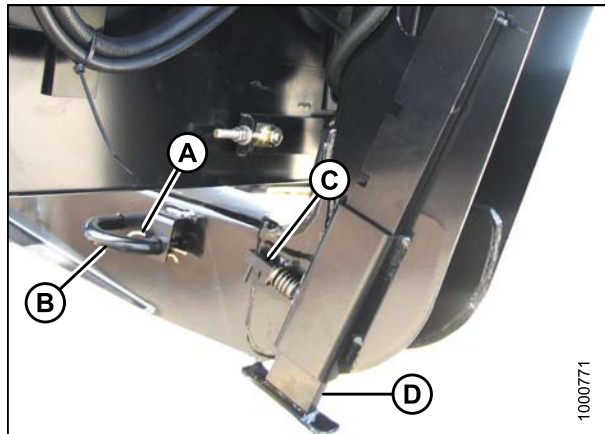


Figure 6.170: Header Leg

ASSEMBLING THE WINDROWER

14. Remove clevis pin from storage position (B) in linkage and insert in hole (A) to engage float springs. Secure with hairpin.

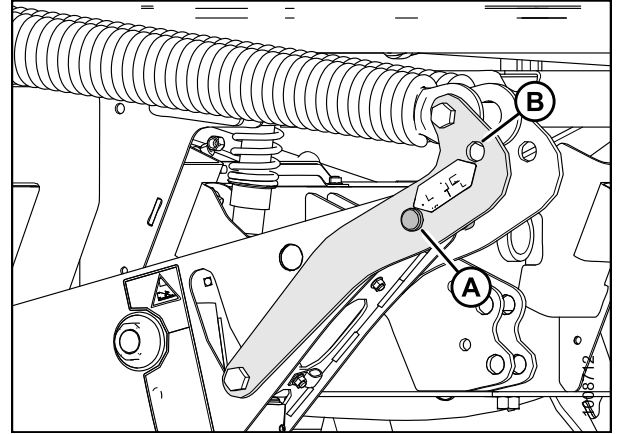


Figure 6.171: Header Lift Linkage

15. Disengage safety prop by turning lever (A) downward to release and lower stop until lever locks into vertical position.
16. Repeat for opposite lift safety prop.

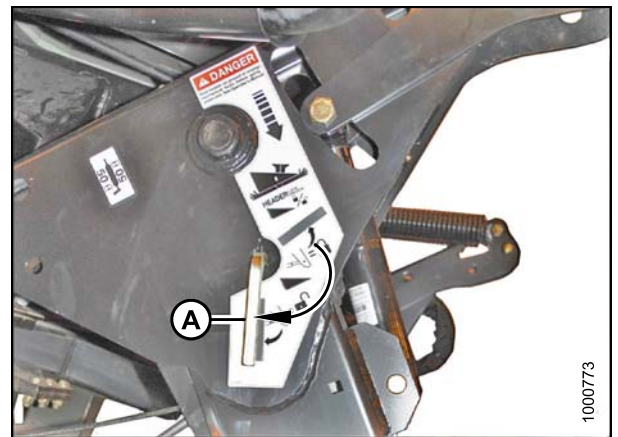


Figure 6.172: Cylinder Stop

CAUTION

Check to be sure all bystanders have cleared the area.

17. Start engine and activate HEADER DOWN switch on GSL to lower header fully.
18. Stop engine and remove key.

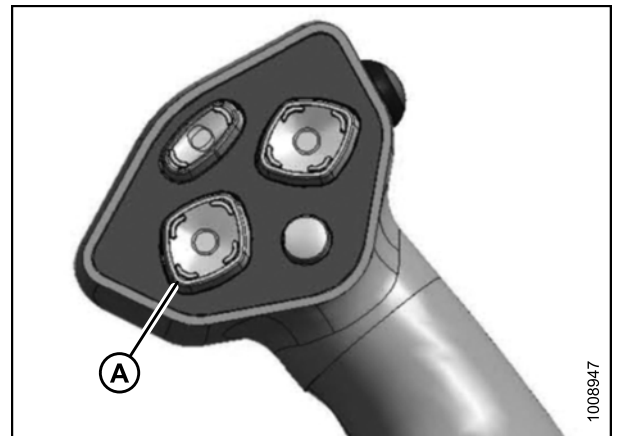


Figure 6.173: GSL

ASSEMBLING THE WINDROWER

19. Connect header drive hoses (A) and electrical harness (B) to header. Refer to the draper header operator's manual.

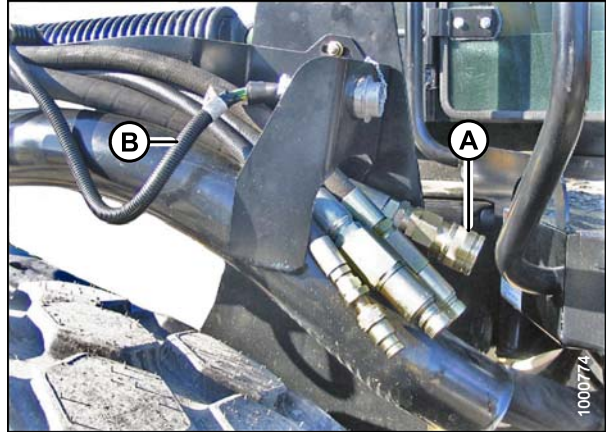


Figure 6.174: Header Drive Hoses and Harness

20. Connect reel hydraulics (A) at right-hand side of windrower. Refer to the draper header operator's manual.
21. Start engine—raise and lower the header and the reel a few times to remove trapped air.

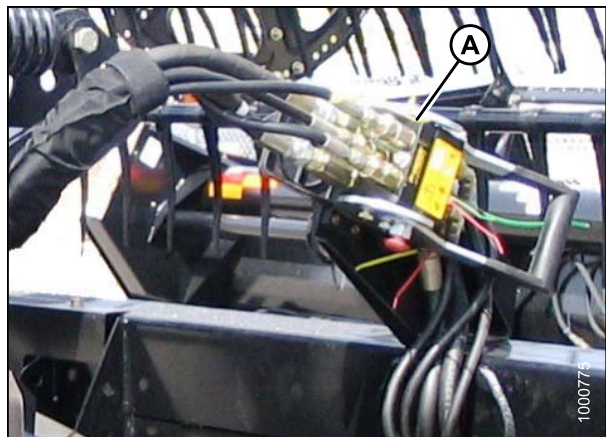


Figure 6.175: Reel Hydraulics

Attaching a D-Series Header: Hydraulic Center-Link without Self-Alignment

NOTE: This topic assumes that draper header boots have already been attached to the windrower lift linkage. If that is not the case, refer to [6.21 Attaching Header Boots, page 110](#).

To attach a D-Series header to an M105, M155 or M205 Self-propelled Windrower equipped with a hydraulic center-link without the self-alignment kit, follow these steps:

⚠ DANGER

Stop engine and remove key from ignition before leaving operator's seat for any reason. A child or even a pet could engage an idling machine.

ASSEMBLING THE WINDROWER

1. Remove the hairpin (A) from pin (B) and remove the pins from both header legs.

CAUTION

Check to be sure all bystanders have cleared the area.

IMPORTANT:

Remove protective cover from exhaust stack prior to starting engine.

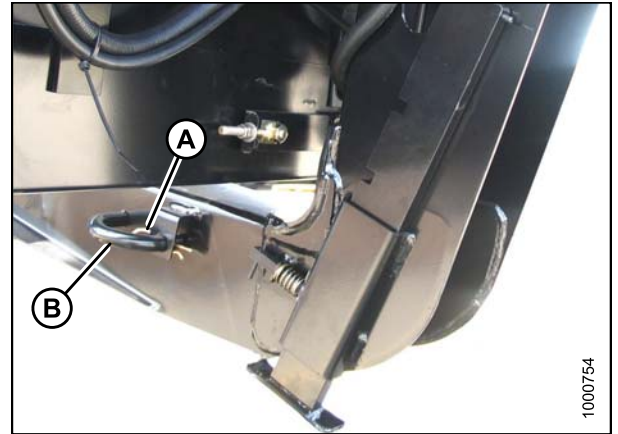


Figure 6.176: Header Leg

2. Start engine and activate HEADER DOWN button (A) on the ground speed lever (GSL) to fully retract header lift cylinders.

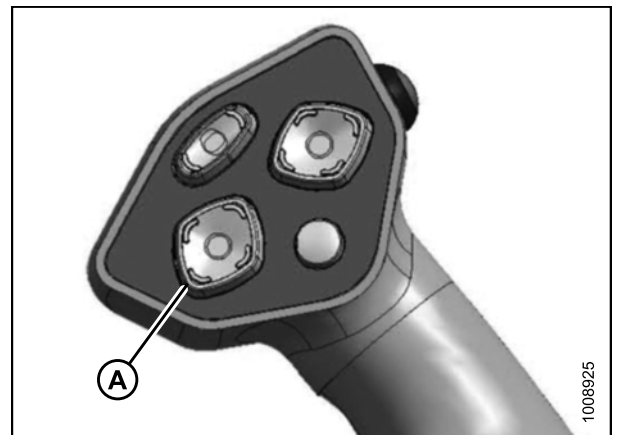


Figure 6.177: GSL

3. If necessary, relocate the pin (A) at the frame linkage as required to raise the center-link (B) so that the hook (B) is above the attachment pin on the header.

IMPORTANT:

If the center-link is too low, it may contact the header as the windrower approaches the header for hookup.

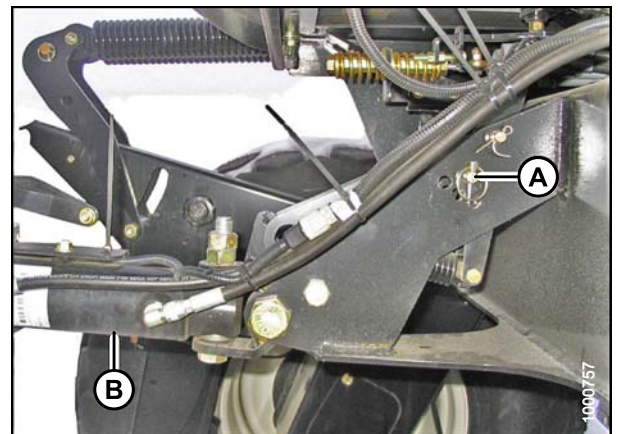


Figure 6.178: Hydraulic Center-Link without Self-Alignment Kit

ASSEMBLING THE WINDROWER

4. Slowly drive the windrower forward so the boots (A) enter the header legs (B). Continue to drive slowly forward until lift linkages contact the support plates in the header legs and the header nudges forward.
5. Ensure that lift linkages are properly engaged in header legs, contacting the support plates.

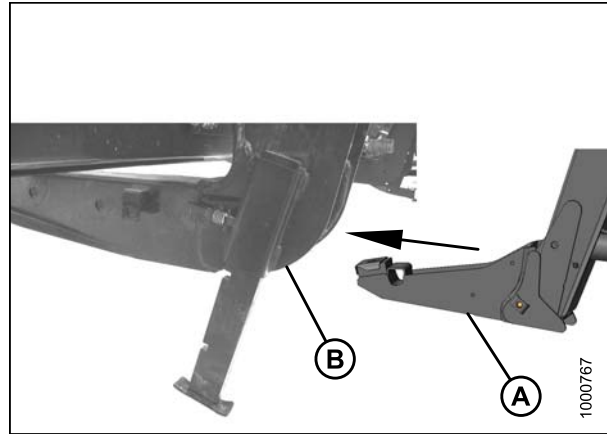


Figure 6.179: Header Leg and Boot

6. Activate HEADER TILT cylinder switches on ground speed lever (GSL) to extend or retract center-link cylinder so that the hook lines up with the header attachment pin.
7. Stop engine and remove key from ignition.

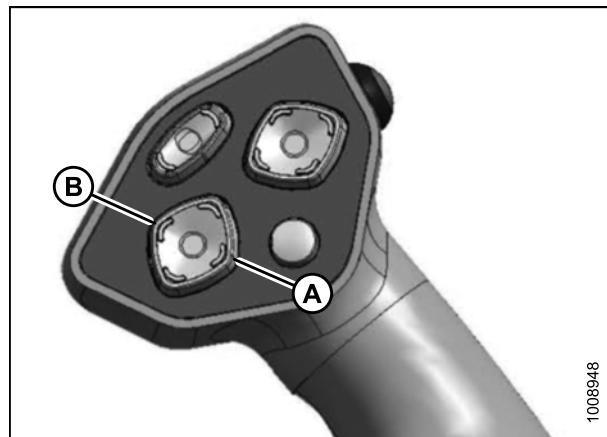


Figure 6.180: GSL

A - Header Tilt Up

B - Header Tilt Down

8. Push down on rod end of link cylinder (B), until hook engages pin on header and is locked.

IMPORTANT:

Hook release must be down to enable self-locking mechanism. If the release is open (up), manually push it down after hook engages header pin.

9. Check that center-link (A) is locked onto header by pulling upward on rod end (B) of cylinder.

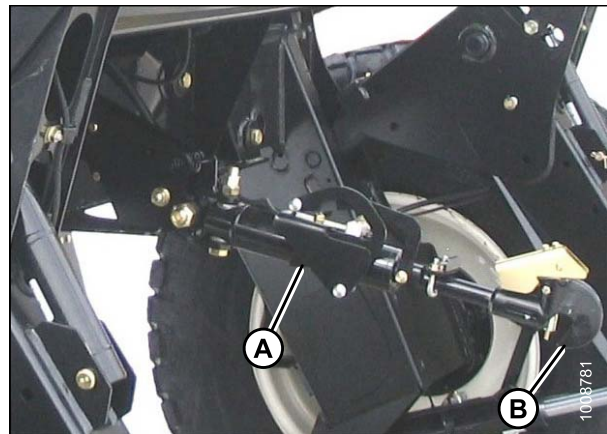


Figure 6.181: Hydraulic Center-Link

ASSEMBLING THE WINDROWER

CAUTION

Check to be sure all bystanders have cleared the area.

10. Start engine and press the HEADER UP switch (A) to raise header to maximum height.

NOTE: If one end of the header does **NOT** raise fully, rephase the cylinders as follows:

- a. Press and hold the HEADER UP switch until both cylinders stop moving.
- b. Continue to hold the switch for 3–4 seconds. Cylinders are now phased.

11. Engage safety props on both lift cylinders as follows:

- a. Stop engine and remove key from ignition.
- b. Pull lever (A) and rotate toward header to release and lower the cylinder stop (B) onto cylinder.
- c. Repeat for the opposite lift cylinder.

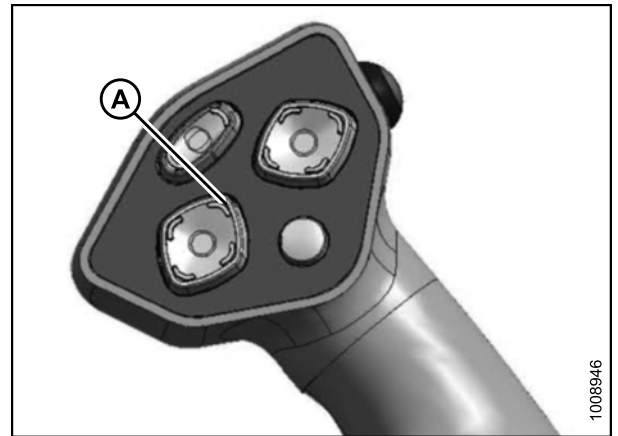


Figure 6.182: GSL

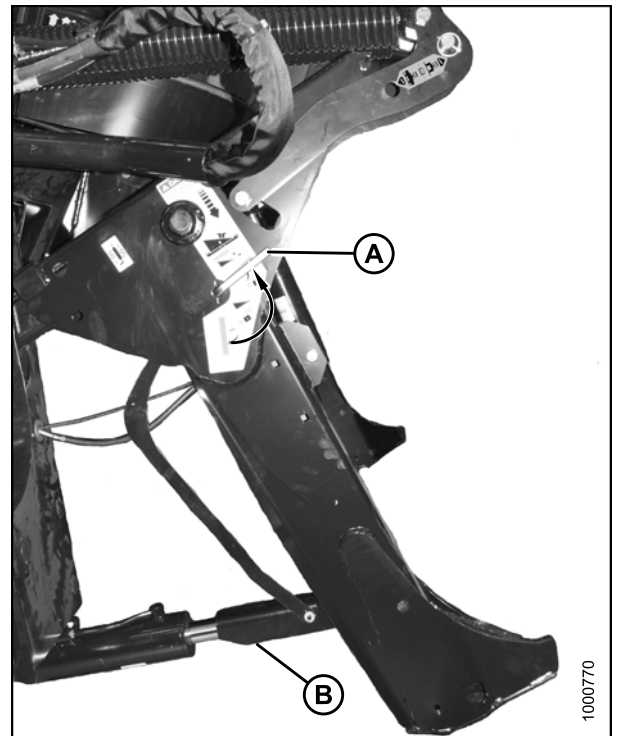


Figure 6.183: Cylinder Stop

ASSEMBLING THE WINDROWER

12. Install the pin (B) through header leg, (engaging U-bracket in lift linkage) on both sides and secure with hairpin (A).
13. Raise header stand (D) to storage position by pulling spring pin (C) and lifting stand into uppermost position. Release spring pin (C).

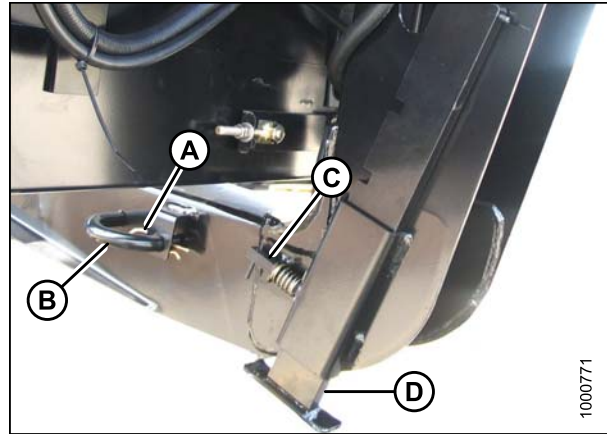


Figure 6.184: Header Leg

14. Remove clevis pin from storage position (B) in linkage and insert in hole (A) to engage float springs. Secure with hairpin.

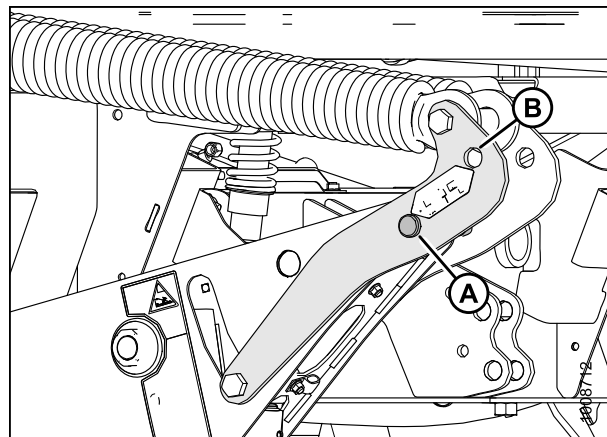


Figure 6.185: Header Lift Linkage

15. Disengage safety prop by turning lever (A) downward to release and lower stop until lever locks into vertical position.
16. Repeat for opposite safety prop.

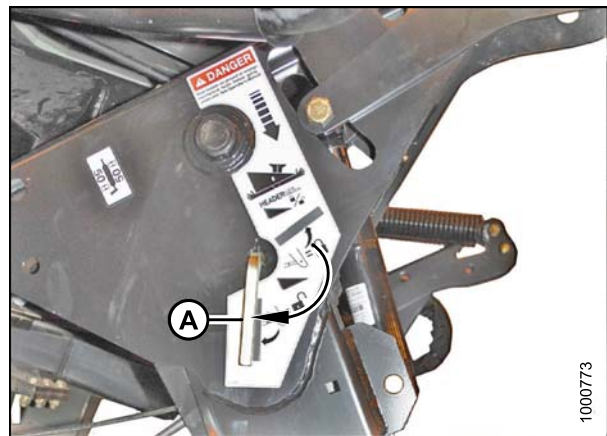


Figure 6.186: Cylinder Stop

ASSEMBLING THE WINDROWER

CAUTION

Check to be sure all bystanders have cleared the area.

17. Start engine and activate HEADER DOWN switch (A) on GSL to lower header fully.
18. Stop engine and remove key.

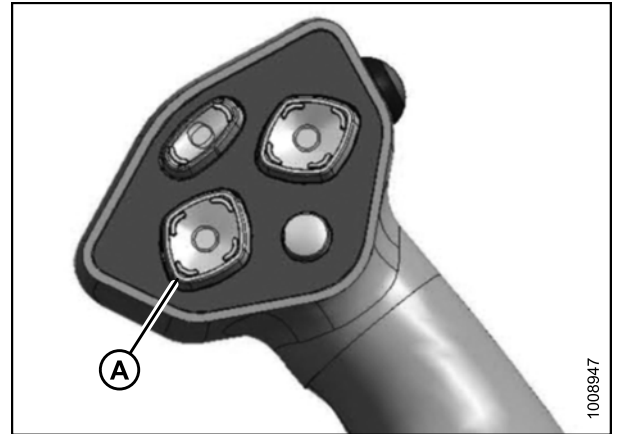


Figure 6.187: GSL

19. Connect header drive hoses (A) and electrical harness (B) to header. Refer to the draper header operator's manual.

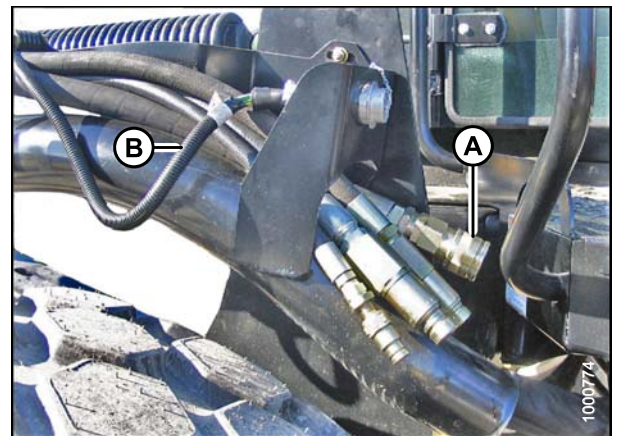


Figure 6.188: Header Drive Hoses and Harness

20. Connect reel hydraulics (A) at right-hand side of windrower. Refer to the draper header operator's manual.
21. Start engine—raise and lower the header and the reel a few times to remove trapped air.

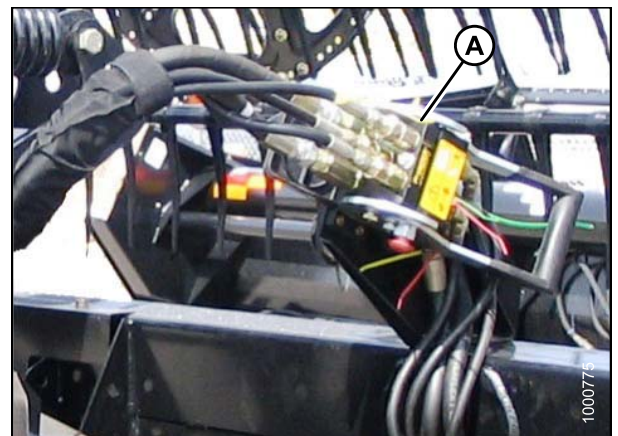


Figure 6.189: Reel Hydraulics

ASSEMBLING THE WINDROWER

Attaching a D-Series Header: Mechanical Center-Link

NOTE: This topic assumes that draper header boots have already been attached to the windrower lift linkage. If that is not the case, refer to [6.21 Attaching Header Boots, page 110](#).

To attach a D-Series header to an M105 or M155 Self-propelled Windrower equipped with a mechanical center-link, follow these steps:

DANGER

Stop engine and remove key from ignition before leaving operator's seat for any reason. A child or even a pet could engage an idling machine.

1. Remove the hairpin (A) from pins (B) and remove the pins from header legs.



Figure 6.190: Header Leg

ASSEMBLING THE WINDROWER

CAUTION

Check to be sure all bystanders have cleared the area.

IMPORTANT:

Remove protective cover from exhaust stack prior to starting engine.

2. Start engine and activate HEADER DOWN button (A) on the ground speed lever (GSL) to fully retract header lift cylinders.

IMPORTANT:

If the center-link is too low, it may contact the header as the windrower approaches the header for hookup.

3. Slowly drive the windrower forward so the boots (A) enter the header legs (B). Continue to drive slowly forward until lift linkages contact the support plates in the header legs and the header nudges forward.
4. Ensure that lift linkages are properly engaged in header legs, contacting the support plates.

5. Stop engine and remove key from ignition.
6. Loosen nut (A) and rotate barrel (B) to adjust length so that the link lines-up with header bracket.
7. Install clevis pin (C) and secure with cotter pin (D).
8. Adjust link to required length for proper header angle by rotating barrel (B). Tighten nut (A) against barrel. A slight tap with a hammer is sufficient.



Figure 6.191: GSL

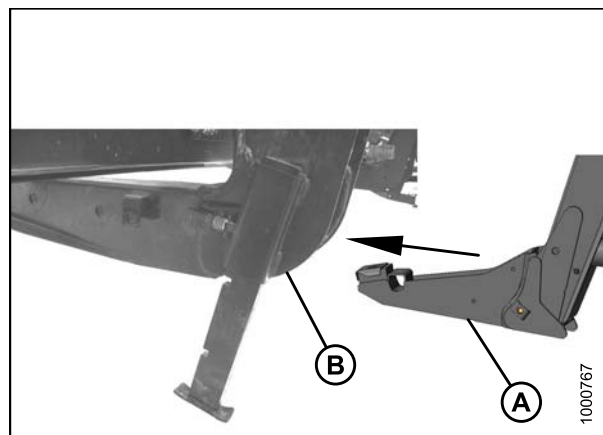


Figure 6.192: Header Leg and Boot

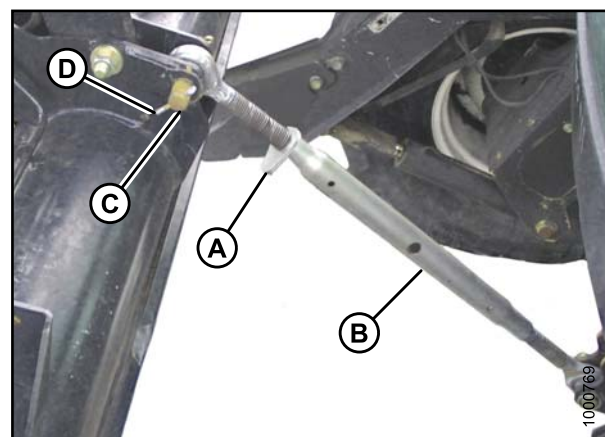


Figure 6.193: Mechanical Center-Link

ASSEMBLING THE WINDROWER

CAUTION

Check to be sure all bystanders have cleared the area.

9. Press the HEADER UP switch (A) to raise header to maximum height.

NOTE: If one end of the header does **NOT** raise fully, rephase the cylinders as follows:

- a. Press and hold the HEADER UP switch until both cylinders stop moving.
- b. Continue to hold the switch for 3–4 seconds. Cylinders are now phased.

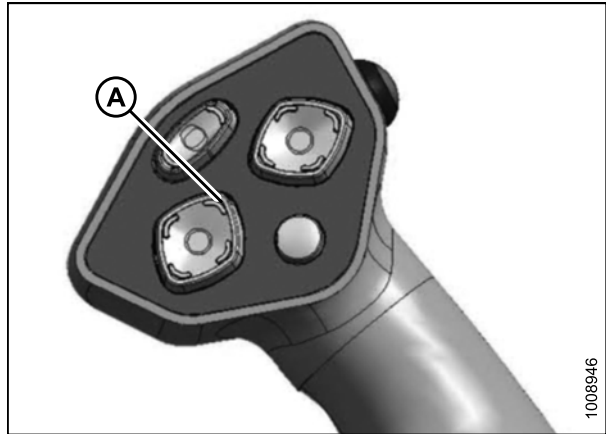


Figure 6.194: GSL

10. Engage safety props on both lift cylinders as follows:
 - a. Stop engine and remove key from ignition.
 - b. Pull lever (A) and rotate toward header to release and lower the safety prop (B) onto cylinder.
 - c. Repeat for the opposite lift cylinder.

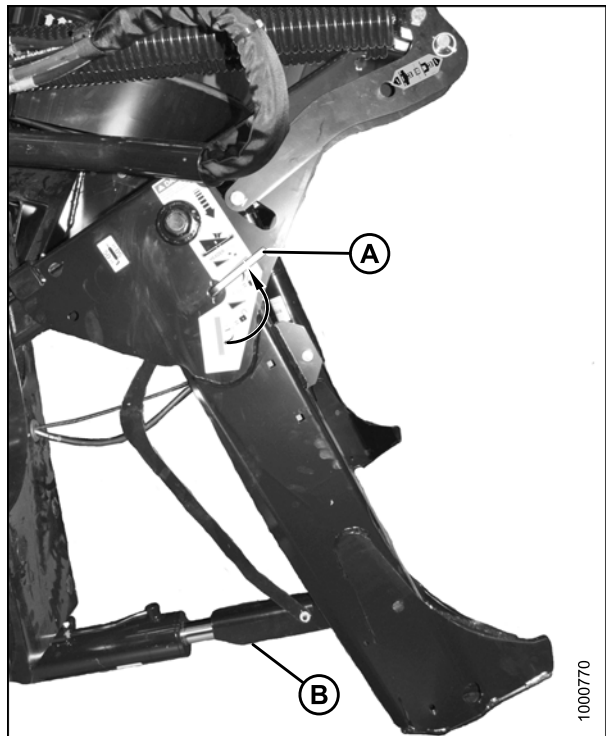


Figure 6.195: Cylinder Stop

ASSEMBLING THE WINDROWER

11. Install pin (B) through header leg, (engaging U-bracket in lift linkage) on both sides and secure with a hairpin (A).
12. Raise header stand (D) to storage position by pulling spring pin (C) and lifting stand into uppermost position. Release spring pin (C).

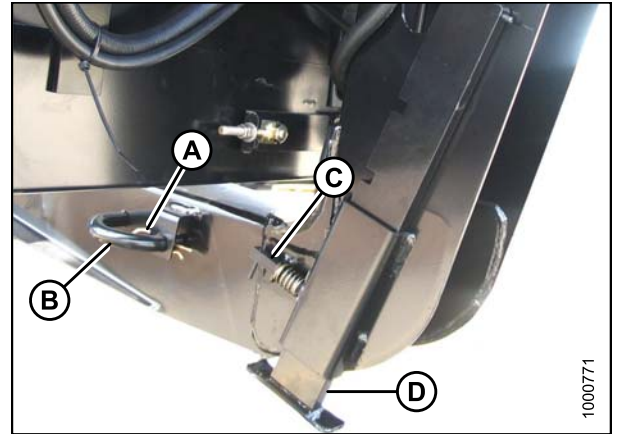


Figure 6.196: Header Leg

13. Remove clevis pin from storage position (B) in linkage and insert in hole (A) to engage float springs. Secure with hairpin.

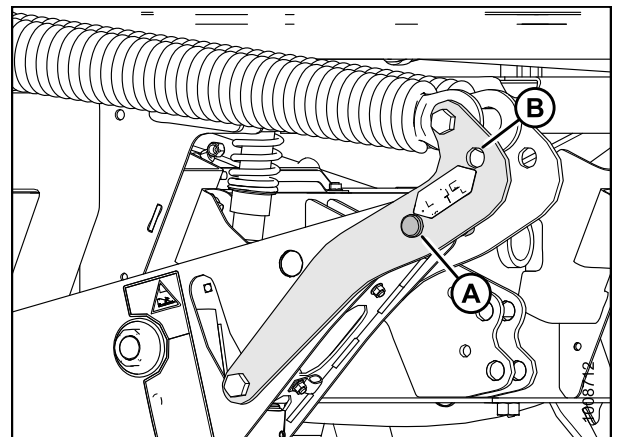


Figure 6.197: Header Lift Linkage

14. Disengage safety prop by turning lever (A) downward to release and lower stop until lever locks into vertical position.
15. Repeat for opposite safety prop.

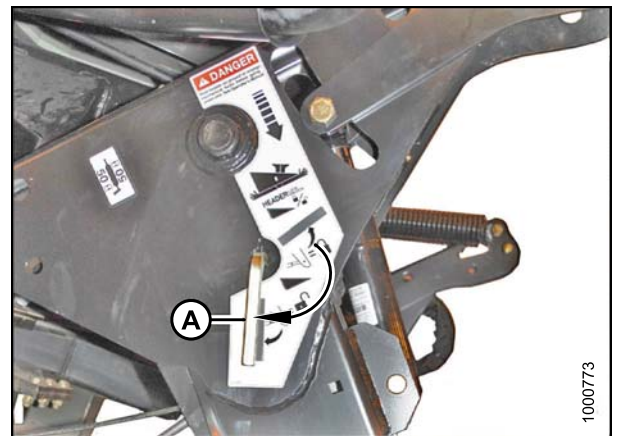


Figure 6.198: Cylinder Stop

ASSEMBLING THE WINDROWER

CAUTION

Check to be sure all bystanders have cleared the area.

16. Start engine and activate HEADER DOWN switch on GSL (A) to lower header fully.
17. Stop engine and remove key.

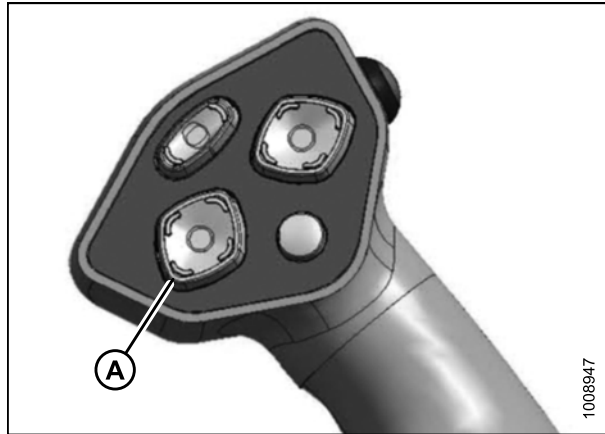


Figure 6.199: GSL

18. Connect header drive hoses (A) and electrical harness (B) to header. Refer to the draper header operator's manual.

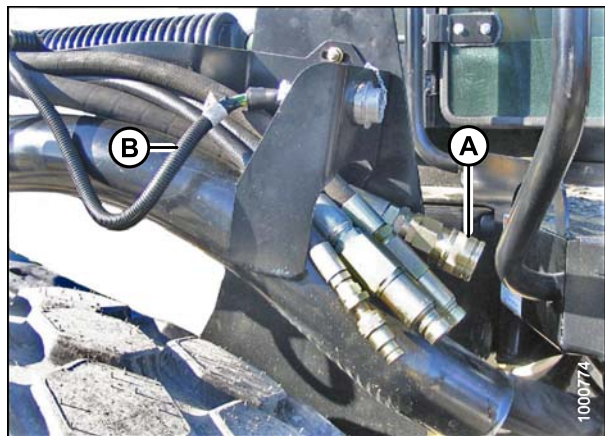


Figure 6.200: Header Drive Hoses and Harness

19. Connect reel hydraulics (A) at right-hand side of windrower. Refer to the draper header operator's manual.
20. Start engine—raise and lower the header and the reel a few times to remove trapped air.

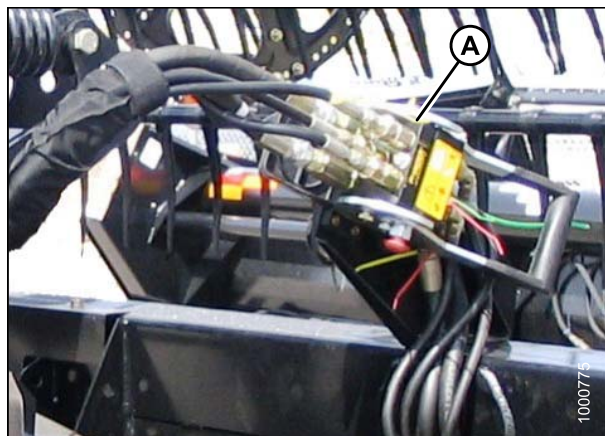


Figure 6.201: Reel Hydraulics

6.22.2 Attaching an A-Series Header

The A-Series header can be attached to an M105, M155, or M205 Self-propelled Windrower. For attachment procedure, refer to the specific windrower model.

M105 Self-Propelled Windrower

The M105 Self-propelled Windrower is factory-equipped to run an A-Series Auger Header.

Windrowers equipped with A-Series hydraulics have four header drive hoses on the left-hand side.

The attachment procedure varies depending on the type of center-link installed on the windrower. Refer to the appropriate instruction based on the type of link installed on your windrower:

- [Attaching an A-Series Header: Hydraulic Center-Link without Self-Alignment, page 136](#)
- [Attaching an A-Series Header: Mechanical Center-Link, page 141](#)



Figure 6.202: M105 A40-D Auger Header

M155 Self-Propelled Windrower

The M155 Self-propelled Windrower is factory-equipped to run an A-Series Auger Header.

Windrowers equipped with A-Series hydraulics have four header drive hoses on the left-hand side.

The attachment procedure varies depending on the type of center-link installed on the windrower. Refer to the appropriate instruction based on the type of link installed on your windrower:

- [Attaching an A-Series Header: Hydraulic Center-Link with Optional Self-Alignment, page 130](#)
- [Attaching an A-Series Header: Hydraulic Center-Link without Self-Alignment, page 136](#)
- [Attaching an A-Series Header: Mechanical Center-Link, page 141](#)



Figure 6.203: M155 A40-D Auger Header

ASSEMBLING THE WINDROWER

M205 Self-Propelled Windrower

To operate an A-Series Auger Header, the M205 Self-propelled Windrower must be equipped with an Auger Drive Basic kit and a Completion kit as shown.

Windrowers equipped with A-Series hydraulics have four header drive hoses on the left-hand side.

If necessary, obtain the following kits from your MacDon Dealer, and install them in accordance with the instructions supplied with the kits.

Kit Description	Kit Number
Base Draper/Auger Drive kit	B5491
Draper Conditioner/Auger Header Reverser Completion kit	B5492
Hydraulic Coupler kit	B5497

To attach an A-Series header to an M205, refer to [Attaching an A-Series Header: Hydraulic Center-Link with Optional Self-Alignment, page 130](#) or [Attaching an A-Series Header: Hydraulic Center-Link without Self-Alignment, page 136](#).

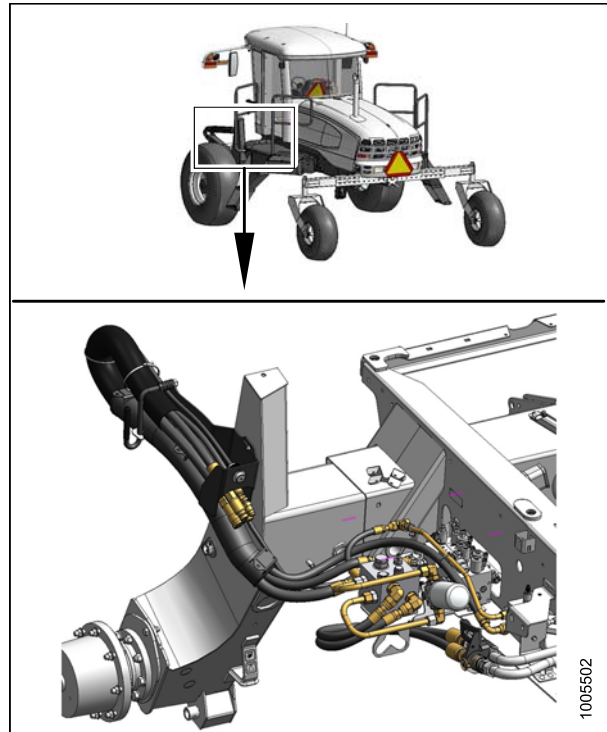


Figure 6.204: M205 Auger Header Drive Hydraulics

Attaching an A-Series Header: Hydraulic Center-Link with Optional Self-Alignment

To attach an A-Series header to an M155 or M205 Self-propelled Windrower equipped with a hydraulic center-link and optional self-alignment, follow these steps:

⚠ DANGER

Stop engine and remove key from ignition before leaving operator's seat for any reason. A child or even a pet could engage an idling machine.

1. Remove hairpin (A) from pin (B) and remove pin from left and right header boots (C) on header.

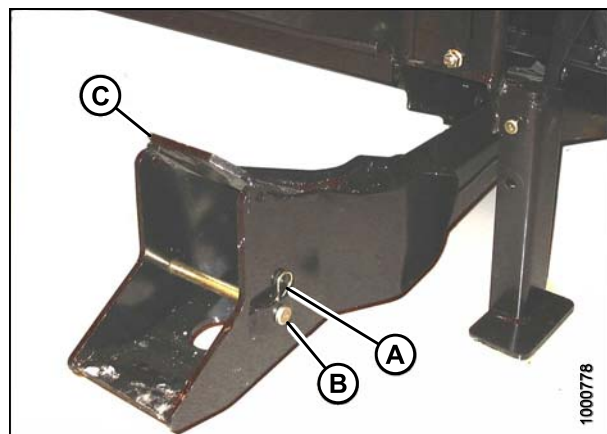


Figure 6.205: Header Boot

ASSEMBLING THE WINDROWER

CAUTION

To prevent damage to the lift system when lowering header lift linkages without a header or weight box attached to windrower, ensure that float engagement pin is installed in storage location (B) and NOT installed at hole location (A).

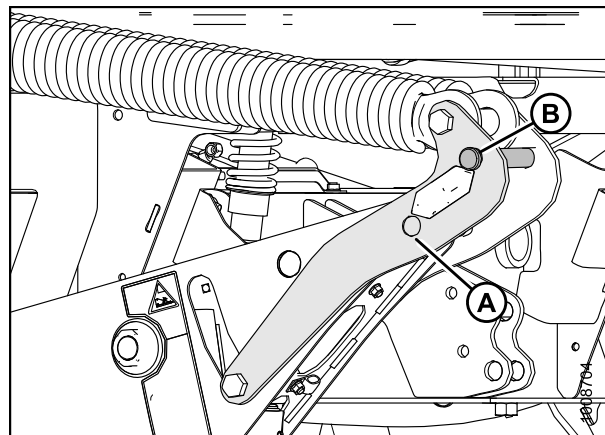


Figure 6.206: Header Lift Linkage

CAUTION

Check to be sure all bystanders have cleared the area.

IMPORTANT:

Remove protective cover from exhaust stack prior to starting engine.

2. Start the engine and activate HEADER DOWN button (A) on the ground speed lever (GSL) to fully retract header lift cylinders.

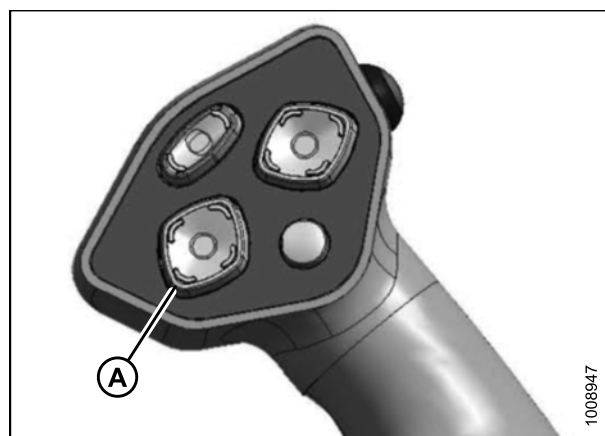


Figure 6.207: GSL

3. If necessary, activate the REEL UP switch (A) on the GSL to raise the center-link, so that the hook is above the attachment pin on the header..

IMPORTANT:

If the center-link is too low, it may contact the header as the windrower approaches the header for hookup.



Figure 6.208: GSL

ASSEMBLING THE WINDROWER

- Slowly drive the windrower forward so the feet (A) on the windrower enter the boots (B) on the header. Continue to drive slowly forward until the feet engage the boots and the header nudges forward.

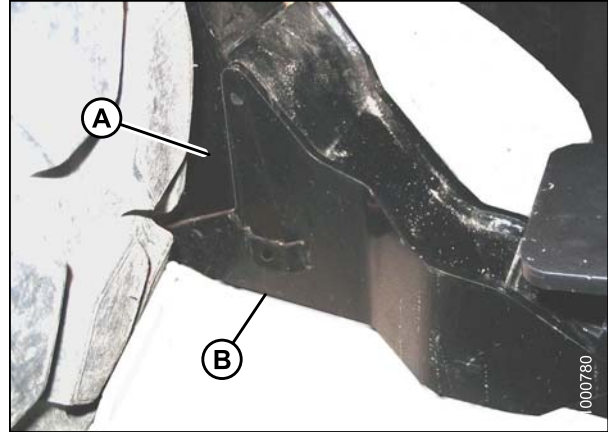


Figure 6.209: Header Boot

- Use the following GSL functions to position the center-link hook above the header attachment pin:
 - Reel up (A) to raise the center-link
 - Reel down (B) to lower the center-link
 - Header tilt up (C) to retract the center-link
 - Header tilt down (D) to extend the center-link

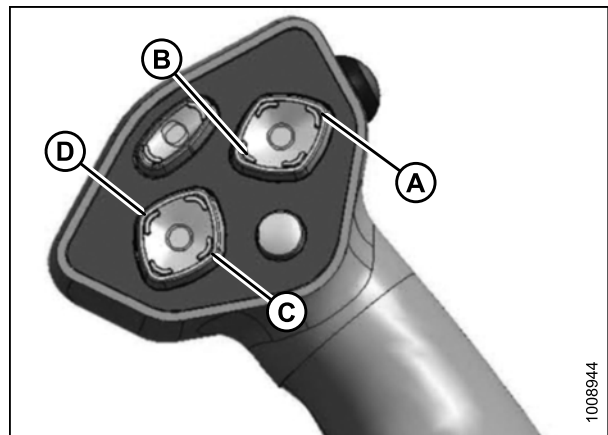


Figure 6.210: GSL

- Adjust position of the center-link cylinder (A) with the REEL UP and REEL DOWN switches. Position the hook above the header attachment pin using the HEADER TILT switches on the GSL.

IMPORTANT:

Hook release must be down to enable self-locking mechanism. If the release is open (up), manually push it down after hook engages header pin.

- Lower center-link (A) onto the header with REEL DOWN switch until it locks into position (hook release [B] is down).
- Check that center-link is locked onto header by pressing the REEL UP switch on the GSL.

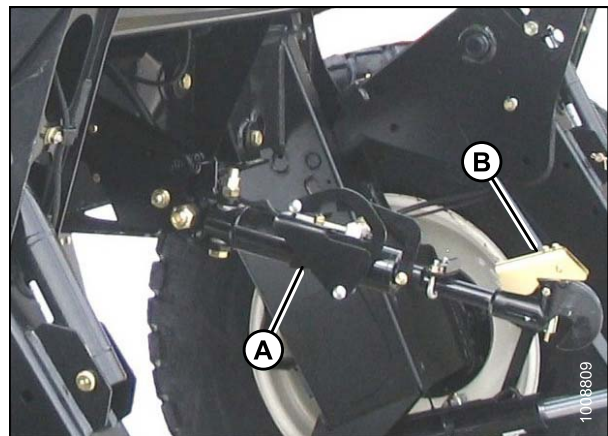


Figure 6.211: Hydraulic Center-Link

ASSEMBLING THE WINDROWER

9. Start engine and press HEADER UP switch (A) to raise header to maximum height.

NOTE: If one end of the header does NOT raise fully, the lift cylinders require re-phasing. If re-phasing is needed, proceed as follows:

- a. Press and hold the HEADER UP switch until both cylinders stop moving.
- b. Continue to hold the switch for 3–4 seconds. Cylinders are now phased.

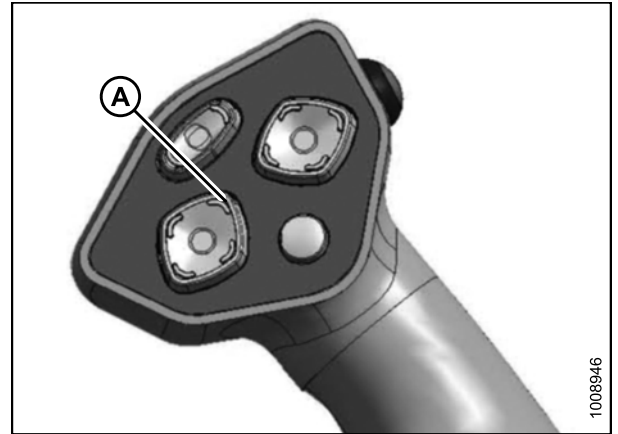


Figure 6.212: GSL

10. Safety props are located on both of the windrower's header lift cylinders. Engage safety props on both lift cylinders as follows:

- a. Stop engine and remove key from ignition.
- b. Pull lever (A) and rotate toward header to release and lower the safety prop (B) onto cylinder.
- c. Repeat for the opposite lift cylinder.

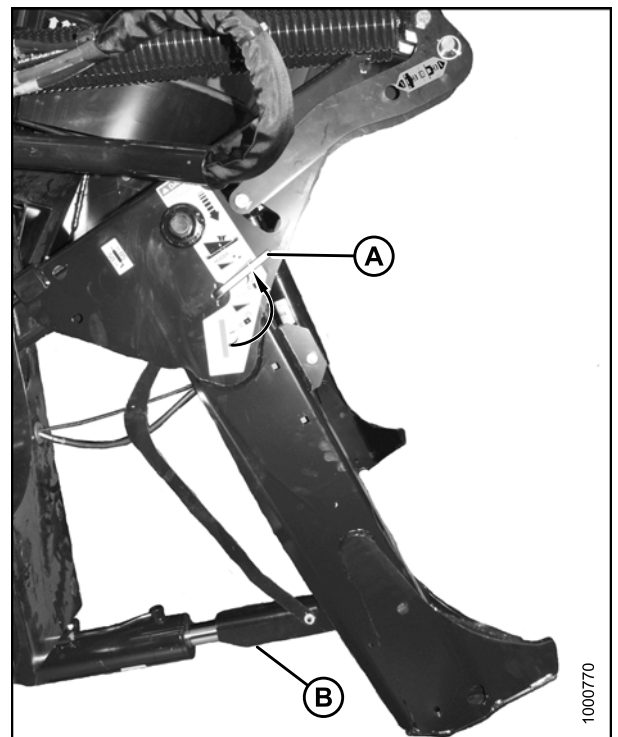


Figure 6.213: Safety Prop

ASSEMBLING THE WINDROWER

11. Install clevis pin (A) through each boot and foot, and secure with hairpin. Do this to both sides.

IMPORTANT:

Ensure clevis pin (A) is fully inserted and hairpin is installed behind bracket.

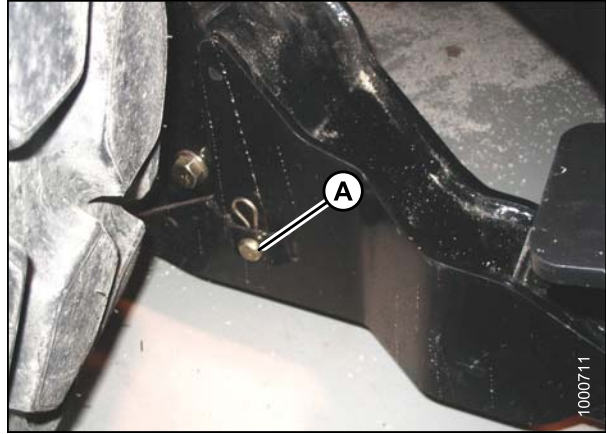


Figure 6.214: Header Boot

12. Remove lynch pin from clevis pin (A) in stand (B).
13. Hold stand (B) and remove pin (A).
14. Position stand to storage position by inverting stand and relocating on bracket as shown. Reinsert clevis pin (A) and secure with lynch pin.

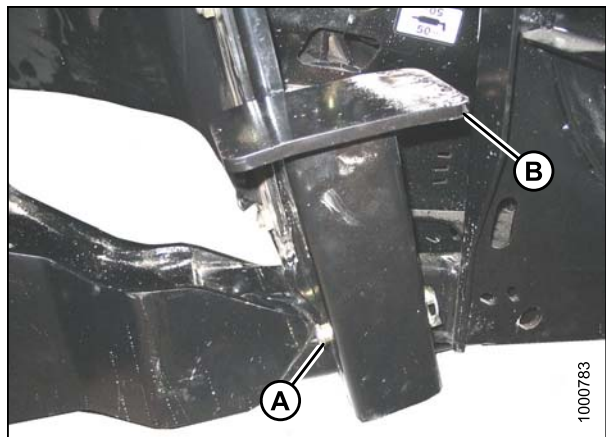


Figure 6.215: Header Stand

15. Remove clevis pin from storage position (B) in linkage, and insert in hole (A) to engage float springs. Secure with hairpin.

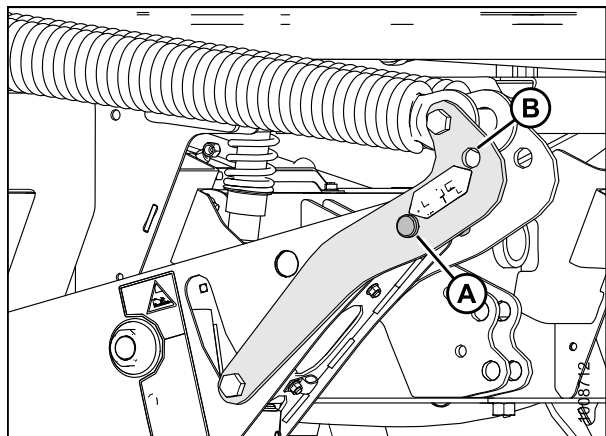


Figure 6.216: Header Lift Linkage

ASSEMBLING THE WINDROWER

16. Disengage safety prop by turning lever (A) downward to release and lower safety prop until lever locks into vertical position.
17. Repeat for opposite safety prop.

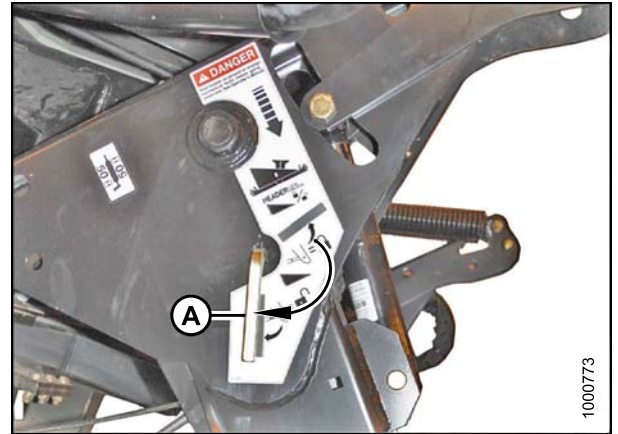


Figure 6.217: Safety Prop

CAUTION

Check to be sure all bystanders have cleared the area.

18. Start engine and activate HEADER DOWN switch (A) on GSL to lower header fully. Stop engine and remove key.

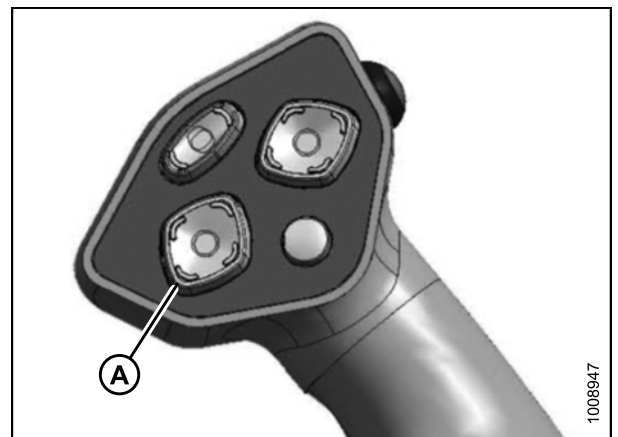


Figure 6.218: GSL

19. Connect header drive hoses (A) and electrical harness (B) to header. Refer to the auger header operator's manual.

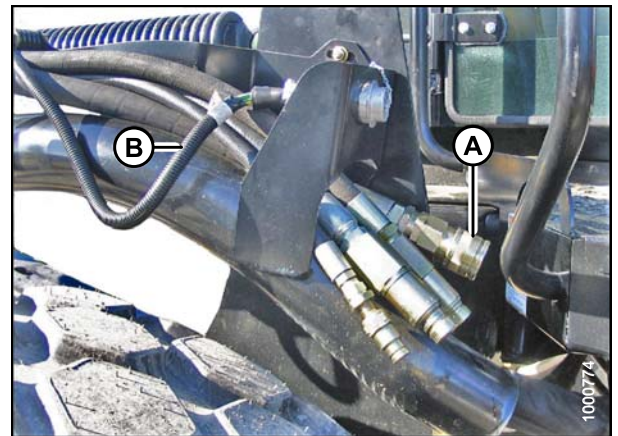


Figure 6.219: Header Drive Hoses and Harness

ASSEMBLING THE WINDROWER

Attaching an A-Series Header: Hydraulic Center-Link without Self-Alignment

To attach an A-Series header to an M105, M155, or M205 Self-propelled Windrower equipped with a hydraulic center-link without the self-alignment kit, follow these steps:

DANGER

Stop engine and remove key from ignition before leaving operator's seat for any reason. A child or even a pet could engage an idling machine.

1. Remove hairpin (A) from clevis pin (B) and remove the clevis pin from left and right header boots (C) on header.

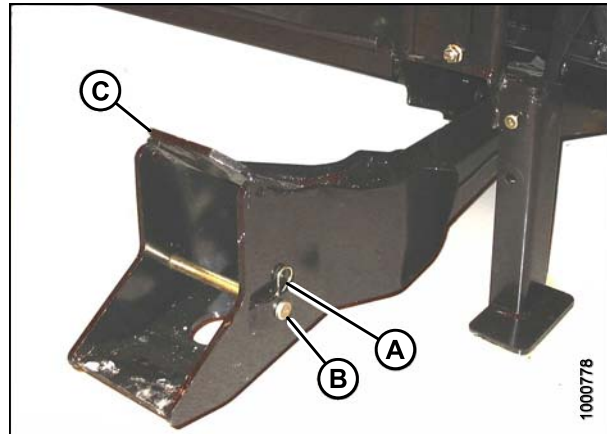


Figure 6.220: Header Boot

CAUTION

To prevent damage to the lift system when lowering header lift linkages without a header or weight box attached to windrower, ensure that float engagement pin is installed in storage location (B) and NOT installed at hole location (A).

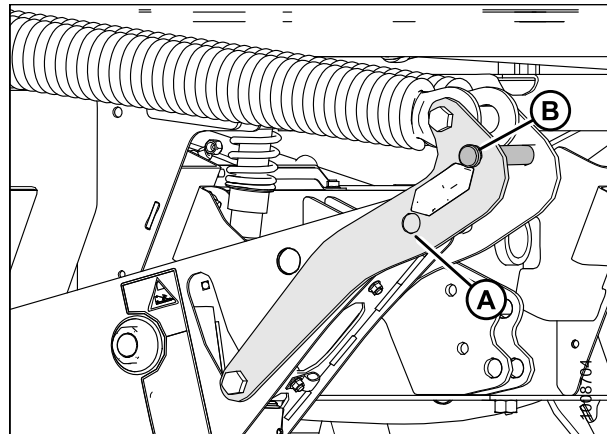


Figure 6.221: Header Lift Linkage

ASSEMBLING THE WINDROWER

CAUTION

Check to be sure all bystanders have cleared the area.

IMPORTANT:

Remove protective cover from exhaust stack prior to starting engine.

2. Start the engine and activate HEADER DOWN button (A) on the ground speed lever (GSL) to fully retract header lift cylinders.

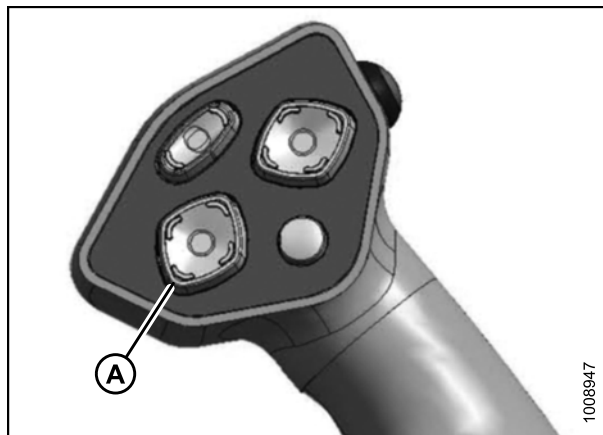


Figure 6.222: GSL

3. If necessary, relocate pin (A) at the frame linkage as required to raise the center-link (B) so that the hook is above the attachment pin on the header..

IMPORTANT:

If the center-link is too low, it may contact the header as the windrower approaches the header for hookup.

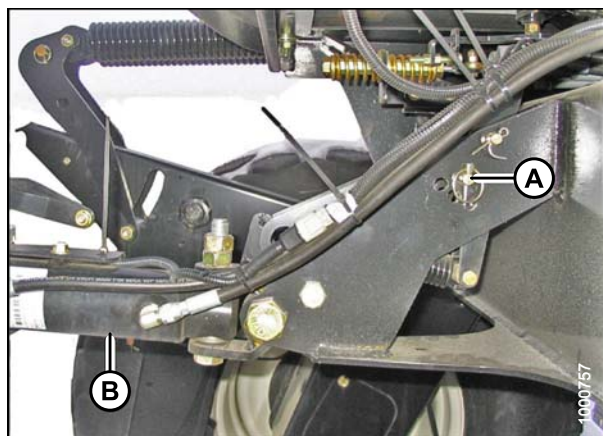


Figure 6.223: Hydraulic Center-Link without Self-Alignment Kit

4. Slowly drive the windrower forward so the feet (A) on the windrower enter the boots (B) on the header. Continue to drive slowly forward until the feet engage the boots and the header nudges forward.

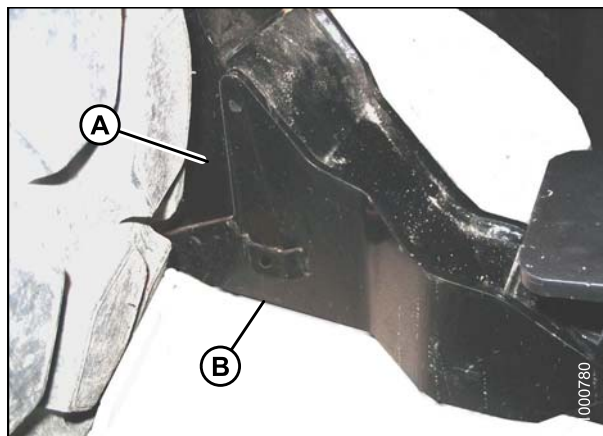


Figure 6.224: Header Boot

ASSEMBLING THE WINDROWER

5. Activate HEADER TILT cylinder switches on ground speed lever (GSL) to extend or retract center-link cylinder so that the hook lines up with the header attachment pin.
6. Stop engine and remove key from ignition.

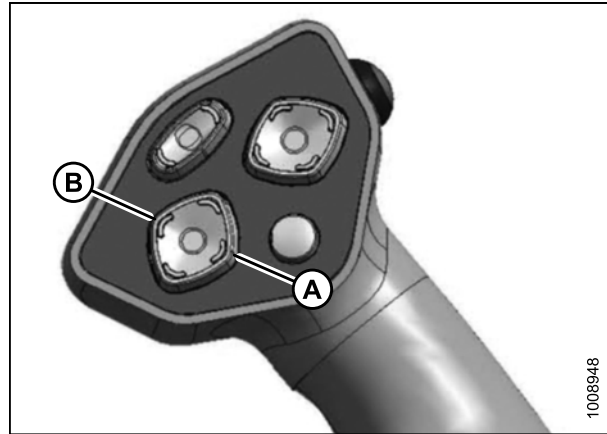


Figure 6.225: GSL

A - Header Tilt Up

B - Header Tilt Down

7. Push down on rod end of link cylinder (B), until hook engages pin on header and is locked.

IMPORTANT:

Hook release must be down to enable self-locking mechanism. If the release is open (up), manually push it down after hook engages header pin.

8. Check that center-link (A) is locked onto header by pulling upward on rod end (B) of cylinder.

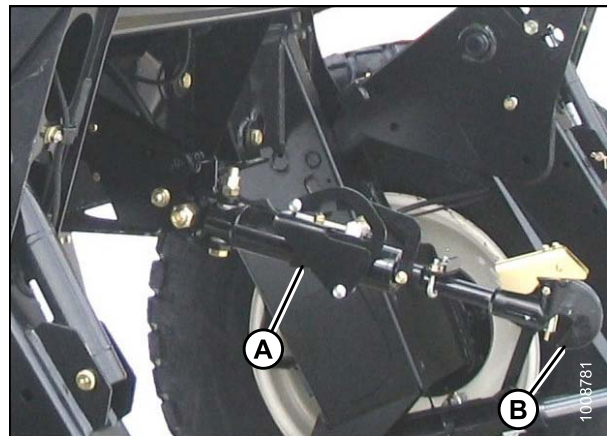


Figure 6.226: Hydraulic Center-Link

CAUTION

Check to be sure all bystanders have cleared the area.

9. Start engine and press the HEADER UP switch (A) to raise header to maximum height.

NOTE: If one end of the header does **NOT** raise fully, the lift cylinders require rephasing. If rephasing is needed, proceed as follows:

- a. Press and hold the HEADER UP switch until both cylinders stop moving.
- b. Continue to hold the switch for 3–4 seconds. Cylinders are now phased.



Figure 6.227: GSL

ASSEMBLING THE WINDROWER

10. Engage safety props on both lift cylinders as follows:
 - a. Stop engine and remove key from ignition.
 - b. Pull lever (A) and rotate toward header to release and lower the safety prop (B) onto cylinder.
 - c. Repeat for the opposite lift cylinder.

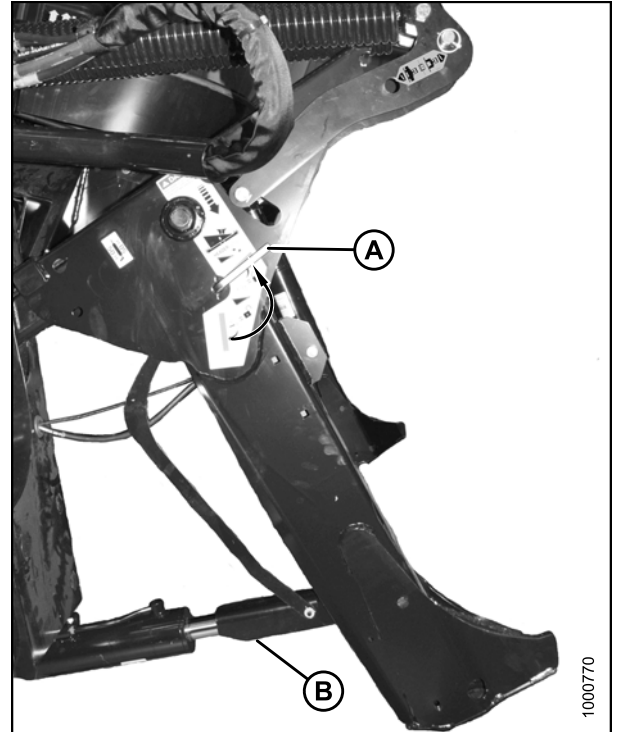


Figure 6.228: Cylinder Stop

11. Install clevis pin (A) through each boot and foot, and secure with hairpin. Do this to both sides.

IMPORTANT:

Ensure clevis pin (A) is fully inserted and hairpin is installed behind bracket.

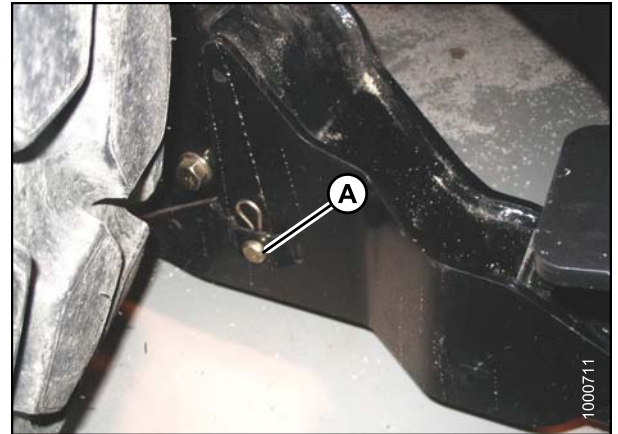


Figure 6.229: Header Boot

ASSEMBLING THE WINDROWER

12. Remove lynch pin from clevis pin (A) in stand (B).
13. Hold stand (B) and remove pin (A).
14. Position stand to storage position by inverting stand and relocating on bracket as shown. Reinsert clevis pin (A) and secure with lynch pin.

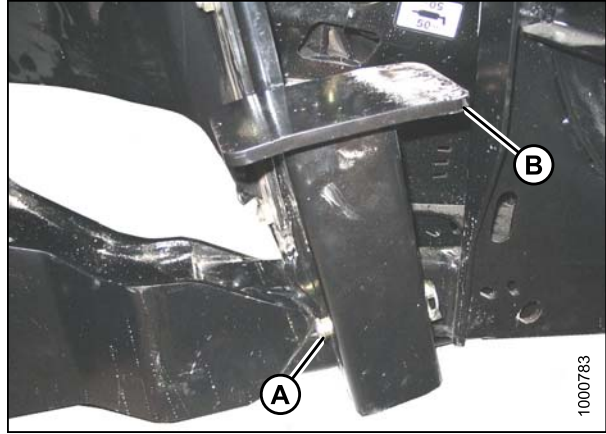


Figure 6.230: Header Stand

15. Remove clevis pin from storage position (B) in linkage, and insert in hole (A) to engage float springs. Secure with hairpin.

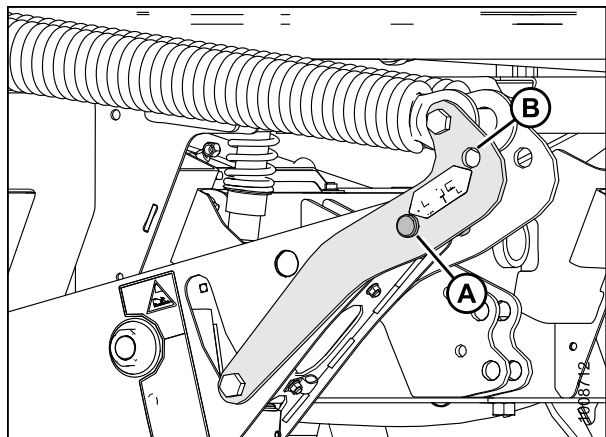


Figure 6.231: Header Lift Linkage

16. Disengage safety prop by turning lever (A) downward to release and lower safety prop until lever locks into vertical position.
17. Repeat for opposite safety prop.

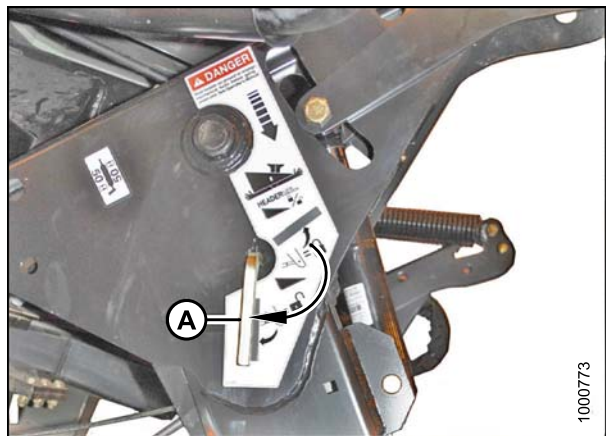


Figure 6.232: Safety Prop

ASSEMBLING THE WINDROWER

CAUTION

Check to be sure all bystanders have cleared the area.

18. Start engine and activate HEADER DOWN switch (A) on GSL to lower header fully. Stop engine and remove key.

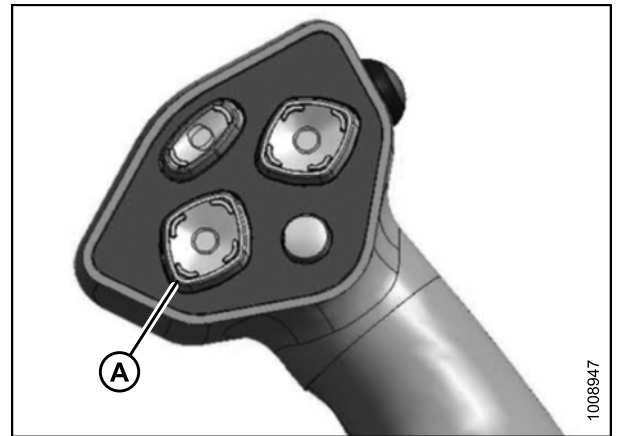


Figure 6.233: GSL

19. Connect header drive hoses (A) and electrical harness (B) to header. Refer to the auger header operator's manual.

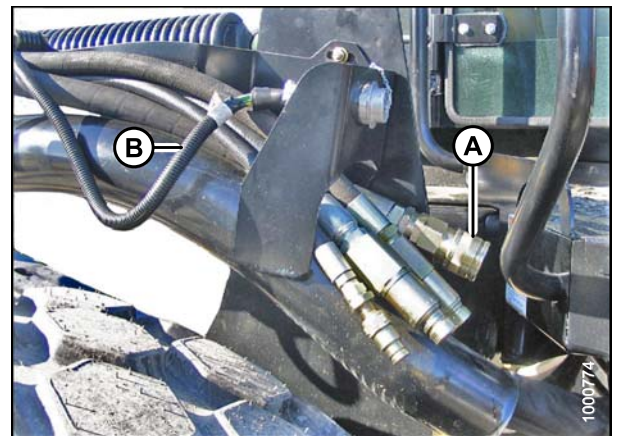


Figure 6.234: Header Drive Hoses and Harness

Attaching an A-Series Header: Mechanical Center-Link

To attach an A-Series header to an M105 or M155 Self-propelled Windrower equipped with a mechanical center-link, follow these steps:

DANGER

Stop engine and remove key from ignition before leaving operator's seat for any reason. A child or even a pet could engage an idling machine.

ASSEMBLING THE WINDROWER

1. Remove hairpin (A) from clevis pin (B) and remove pin from left and right header boots (C) on header.

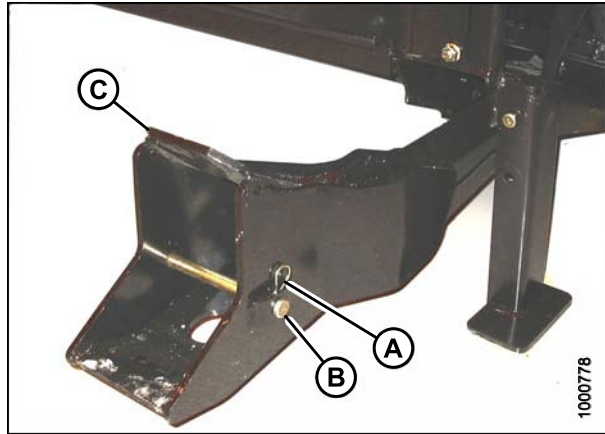


Figure 6.235: Header Boot

CAUTION

To prevent damage to the lift system when lowering header lift linkages without a header or weight box attached to windrower, ensure that float engagement pin is installed in storage location (B) and NOT installed at hole location (A).

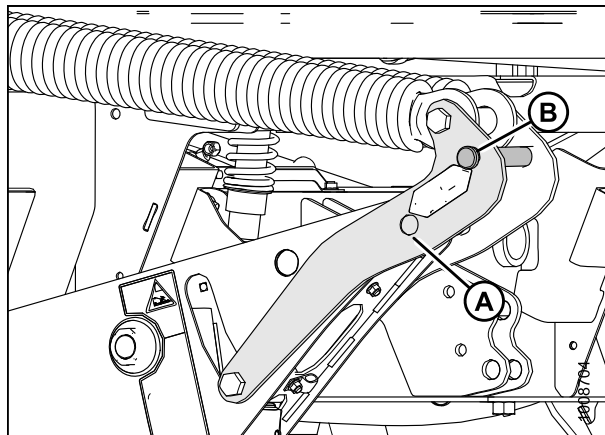


Figure 6.236: Header Lift Linkage

CAUTION

Check to be sure all bystanders have cleared the area.

IMPORTANT:

Remove protective cover from exhaust stack prior to starting engine.

2. Start the engine and activate HEADER DOWN button (A) on the ground speed lever (GSL) to fully retract header lift cylinders.

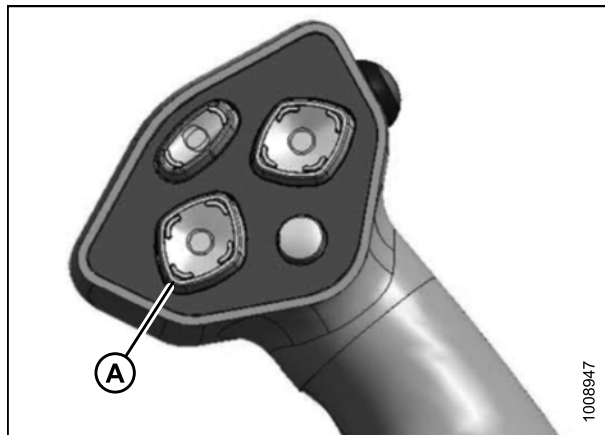


Figure 6.237: GSL

ASSEMBLING THE WINDROWER

3. Slowly drive the windrower forward so the feet (A) on the windrower enter the boots (B) on the header. Continue to drive slowly forward until the feet engage the boots and the header nudges forward.

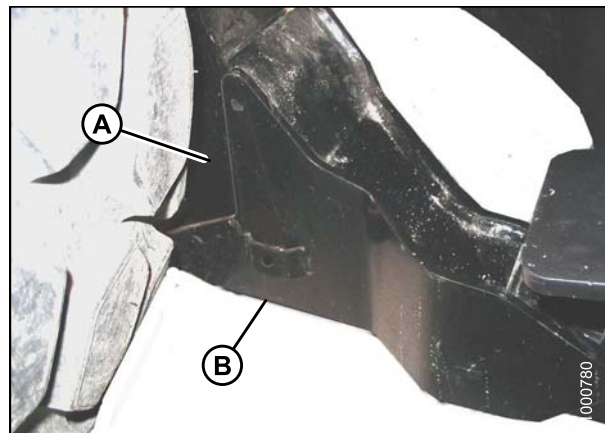


Figure 6.238: Header Boot

4. Stop engine and remove key from ignition.
5. Loosen nut (A) and rotate barrel (B) to adjust length so that the link lines-up with header bracket.
6. Install clevis pin (C) and secure with cotter pin (D).
7. Adjust link to required length for proper header angle by rotating barrel (B). Tighten nut (A) against barrel. A slight tap with a hammer is sufficient.

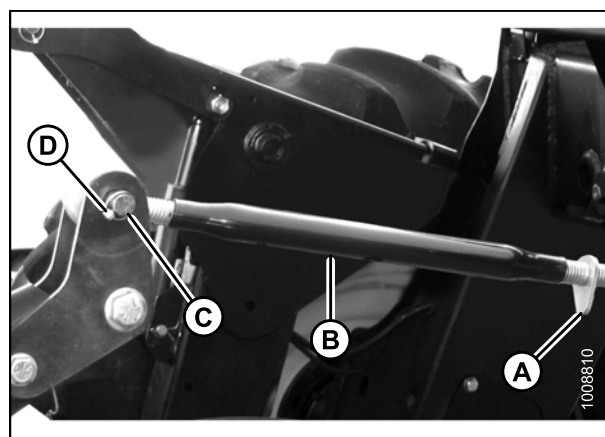


Figure 6.239: Mechanical Center-Link

CAUTION

Check to be sure all bystanders have cleared the area.

8. Start engine and press the HEADER UP switch (A) to raise header to maximum height.

NOTE: If one end of the header does **NOT** raise fully, the lift cylinders require rephasing. If rephasing is needed, proceed as follows:

- a. Press and hold the HEADER UP switch until both cylinders stop moving.
- b. Continue to hold the switch for 3–4 seconds. Cylinders are now phased.



Figure 6.240: GSL

ASSEMBLING THE WINDROWER

9. Engage safety props on both lift cylinders as follows:
 - a. Stop engine and remove key from ignition.
 - b. Pull lever (A) and rotate toward header to release and lower the safety prop (B) onto cylinder.
 - c. Repeat for the opposite lift cylinder.

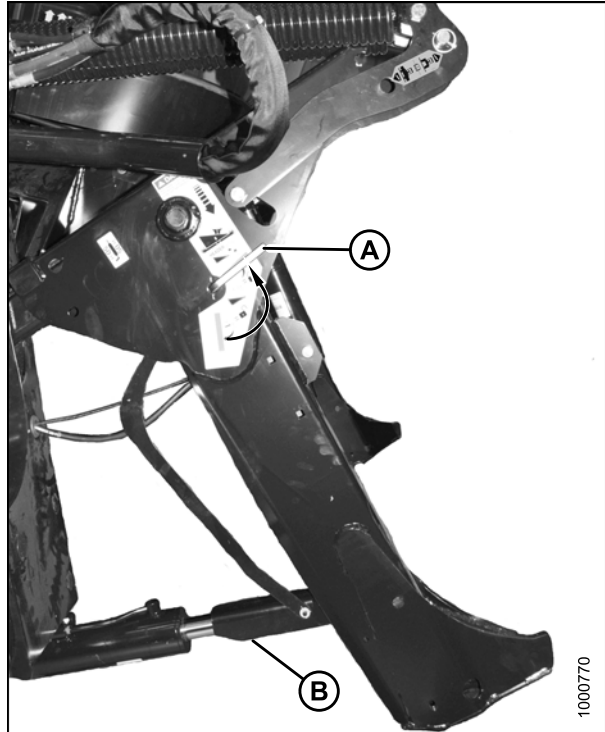


Figure 6.241: Cylinder Stop

10. Install clevis pin (A) through each boot and foot, and secure with hairpin. Do this to both sides.

IMPORTANT:

Ensure clevis pin (A) is fully inserted and hairpin is installed behind bracket.

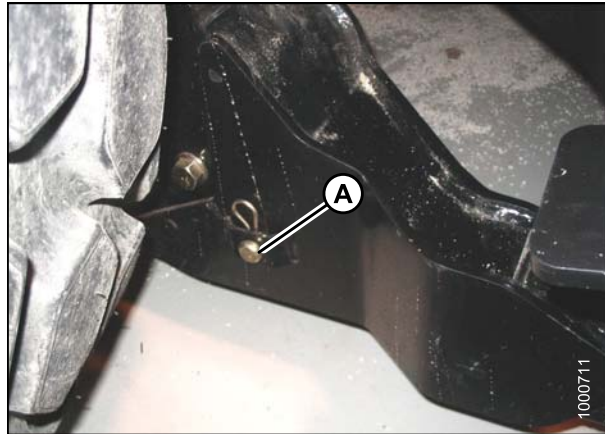


Figure 6.242: Header Boot

ASSEMBLING THE WINDROWER

11. Remove lynch pin from clevis pin (A) in stand (B).
12. Hold stand (B) and remove pin (A).
13. Position stand to storage position by inverting stand and relocating on bracket as shown. Reinsert clevis pin (A) and secure with lynch pin.

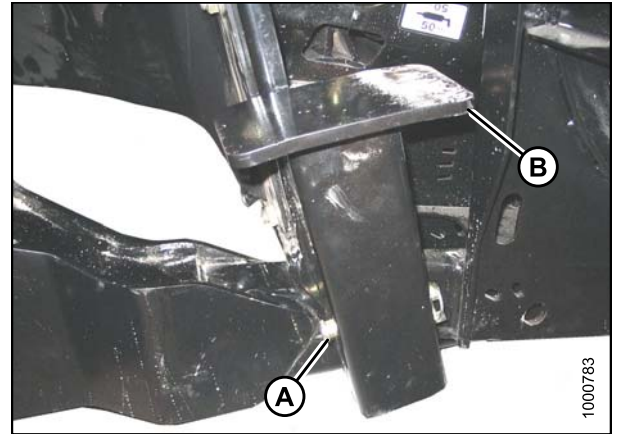


Figure 6.243: Header Stand

14. Remove clevis pin from storage position (B) in linkage, and insert in hole (A) to engage float springs. Secure with hairpin.

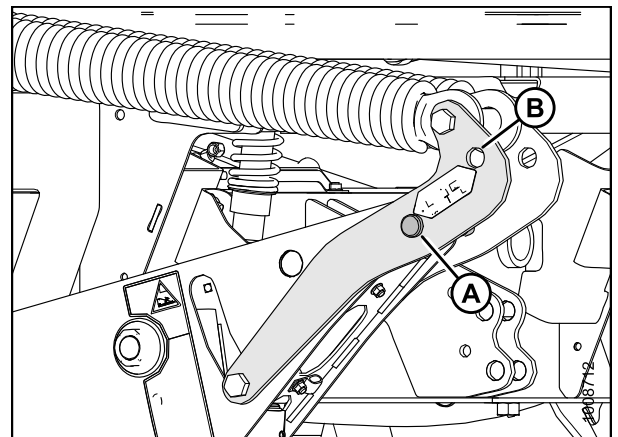


Figure 6.244: Header Lift Linkage

15. Disengage safety prop by turning lever (A) downward to release and lower safety prop until lever locks into vertical position.
16. Repeat for opposite safety prop.

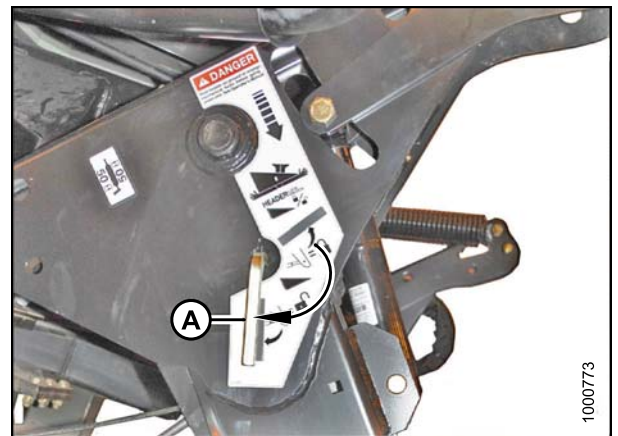


Figure 6.245: Safety Prop

ASSEMBLING THE WINDROWER

CAUTION

Check to be sure all bystanders have cleared the area.

17. Start engine and activate HEADER DOWN switch (A) on GSL to lower header fully. Stop engine and remove key.

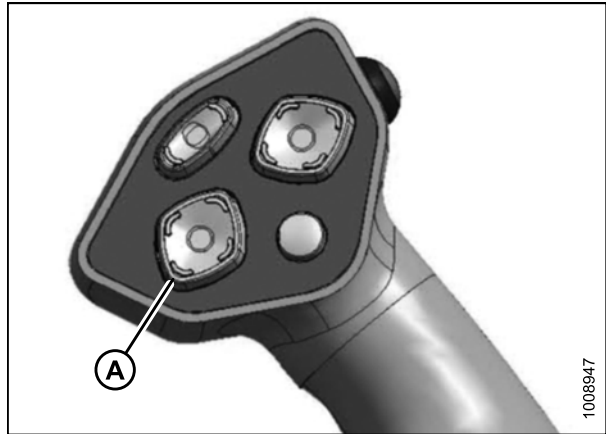


Figure 6.246: GSL

18. Connect header drive hoses (A) and electrical harness (B) to header. Refer to the auger header operator's manual.

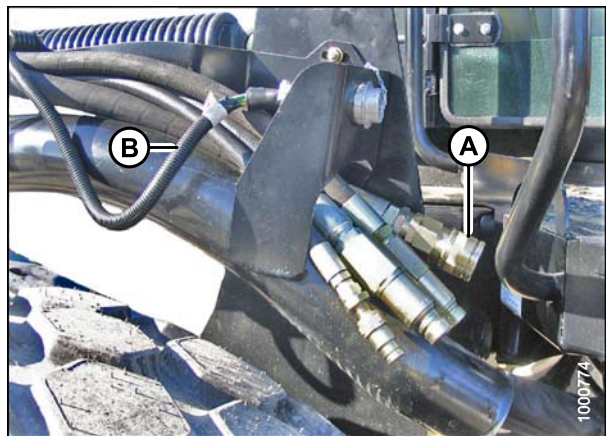


Figure 6.247: Header Drive Hoses and Harness

6.22.3 Attaching an R-Series Header

The R-Series header can be attached to an M155 or M205 Self-propelled Windrower. The M105 Self-Propelled Windrower can **NOT** operate an R-Series header.

M155 Self-Propelled Windrower

The M155 Self-propelled windrower can operate **ONLY** 13-foot R80 and R85 Rotary Disc Headers. These headers are shipped without the motor and hoses installed, and the installation of a separate motor and hose bundle is necessary. A Hydraulic Valve kit is also needed to operate the header.

If necessary, obtain the following kits from your MacDon Dealer and install them in accordance with the instructions supplied with the kits.

Kit Description	Kit Number
Hydraulic Drive kit	B5510
Hydraulic Valve kit	B4657

Refer to the procedure that is appropriate for the center-link installed on the windrower:

- [Attaching an R-Series Header: Hydraulic Center-Link with Optional Self-Alignment, page 148](#)
- [Attaching an R-Series Header: Hydraulic Center-Link without Self-Alignment, page 153](#)
- [Attaching an R-Series Header: Mechanical Center-Link, page 159](#)

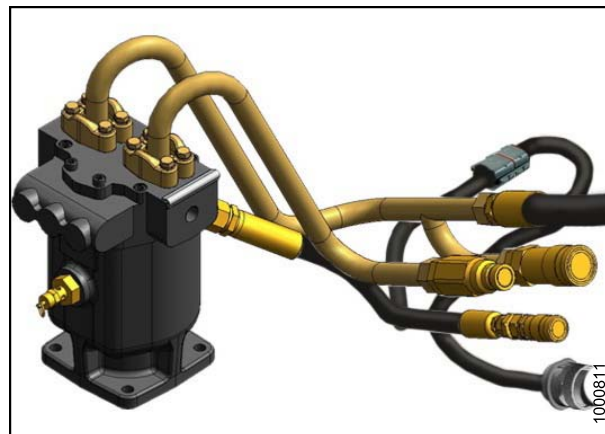


Figure 6.248: M155 Hydraulic Drive Kit (MD #B5510)

ASSEMBLING THE WINDROWER

M205 Self-Propelled Windrower

The M205 Self-propelled Windrower is factory equipped with hydraulics and connections to run the R-Series Rotary Disc headers.

The R85 16-foot header is factory equipped with the hydraulic connections for attachment to the windrower.

The R85 13-foot header and the R80 13- and 16-foot headers are shipped without the motor and hoses installed and the installation of a separate motor and hose bundle is necessary.

If required, obtain Hydraulic Drive kit (MD #B5456) from your MacDon Dealer and install it in accordance with the instructions supplied with the kit.

Refer to the procedure that is appropriate for the center-link installed on the windrower:

- [Attaching an R-Series Header: Hydraulic Center-Link with Optional Self-Alignment, page 148](#)
- [Attaching an R-Series Header: Hydraulic Center-Link without Self-Alignment, page 153](#)

Attaching an R-Series Header: Hydraulic Center-Link with Optional Self-Alignment

To attach an R-Series header to an M155 or M205 Self-propelled Windrower equipped with a hydraulic center-link and optional self-alignment, follow these steps:

DANGER

Stop engine and remove key from ignition before leaving operator's seat for any reason. A child or even a pet could engage an idling machine.

1. Remove hairpin (B) from clevis pin (A) and remove pin from on left and right header boots (C) on header.

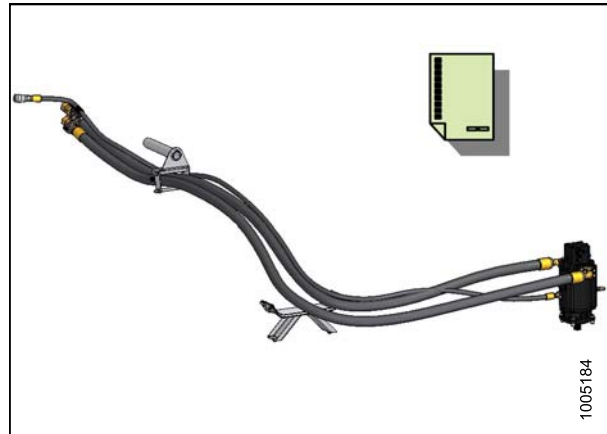


Figure 6.249: M205 Hydraulic Drive Kit (MD #B5456)

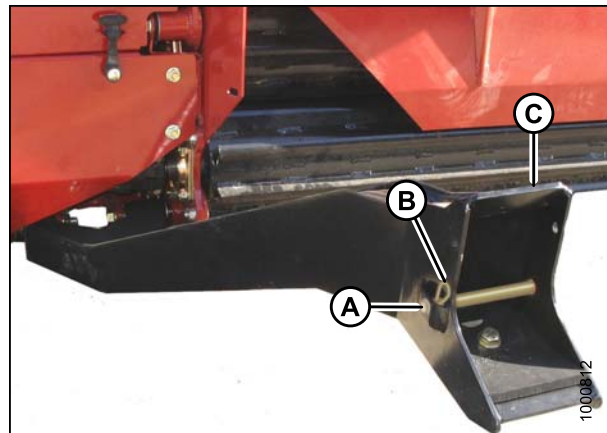


Figure 6.250: Header Boot

ASSEMBLING THE WINDROWER

CAUTION

To prevent damage to the lift system when lowering header lift linkages without a header or weight box attached to windrower, ensure that float engagement pin is installed in storage location (B) and NOT installed at hole location (A).

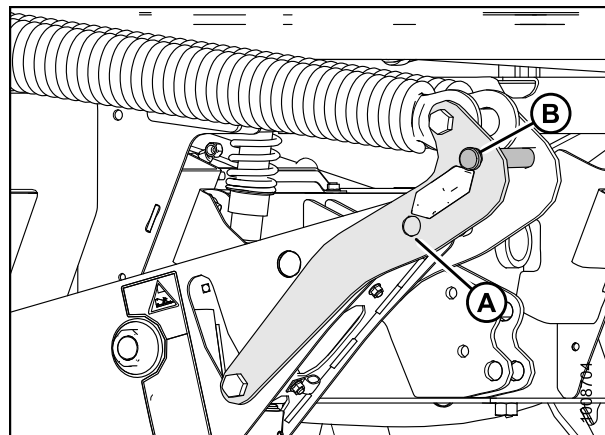


Figure 6.251: Header Lift Linkage

CAUTION

Check to be sure all bystanders have cleared the area.

IMPORTANT:

Remove protective cover from exhaust stack prior to starting engine.

2. Start the engine and activate HEADER DOWN button (A) on the ground speed lever (GSL) to fully retract header lift cylinders.

IMPORTANT:

If the center-link is too low, it may contact the header as the windrower approaches the header for hookup.

3. If necessary, activate the REEL UP switch (A) on the GSL to raise the center-link so that the hook is above the attachment pin on the header.

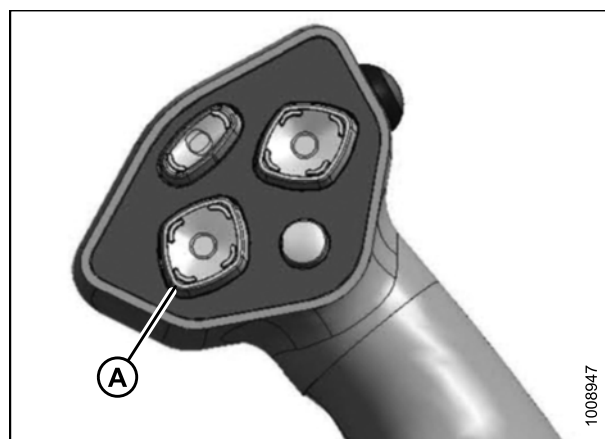


Figure 6.252: GSL

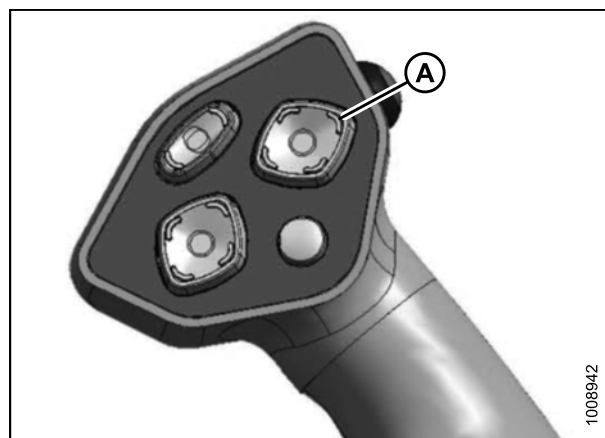


Figure 6.253: GSL

ASSEMBLING THE WINDROWER

- Slowly drive windrower forward so that feet (A) on windrower enter boots (B) on the header. Continue to drive slowly forward until feet engage the boots and header nudges forward.

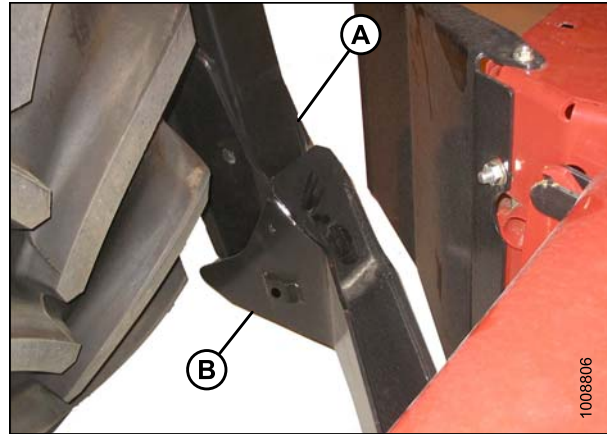


Figure 6.254: Header Boot

- Use the following GSL functions to position the center-link hook above the header attachment pin:
 - Reel up (A) to raise the center-link
 - Reel down (B) to lower the center-link
 - Header tilt up (C) to retract the center-link
 - Header tilt down (D) to extend the center-link

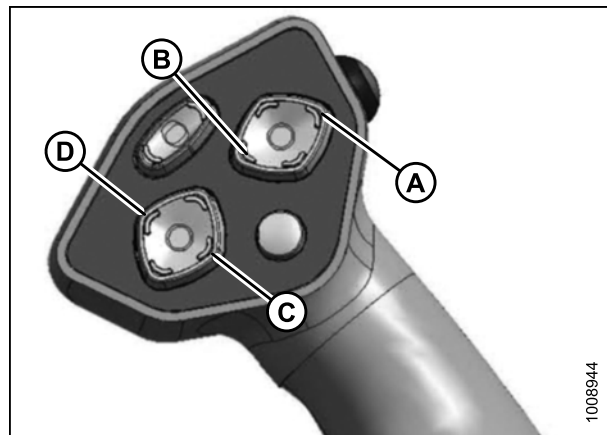


Figure 6.255: GSL

- Adjust position of the center-link cylinder (E) with the REEL UP and REEL DOWN switches. Position the hook above the header attachment pin using HEADER TILT switches on the GSL.
- Lower center-link (A) onto the header with REEL DOWN switch until it locks into position (hook release [B] is down).
- Check that center-link is locked onto header by pressing the REEL UP switch on the GSL.

IMPORTANT:

Hook release (B) must be down to enable self-locking mechanism. If the release is open (up), manually push it down after hook engages header pin.

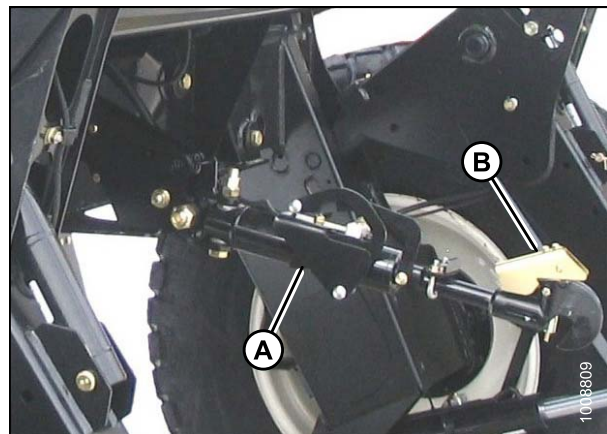


Figure 6.256: Hydraulic Center-Link

ASSEMBLING THE WINDROWER

9. Start engine and press HEADER UP switch (A) to raise header to maximum height.

NOTE: If one end of the header does NOT raise fully, the lift cylinders require re-phasing. If re-phasing is needed, proceed as follows:

- a. Press and hold the HEADER UP switch until both cylinders stop moving.
- b. Continue to hold the switch for 3–4 seconds. Cylinders are now phased.

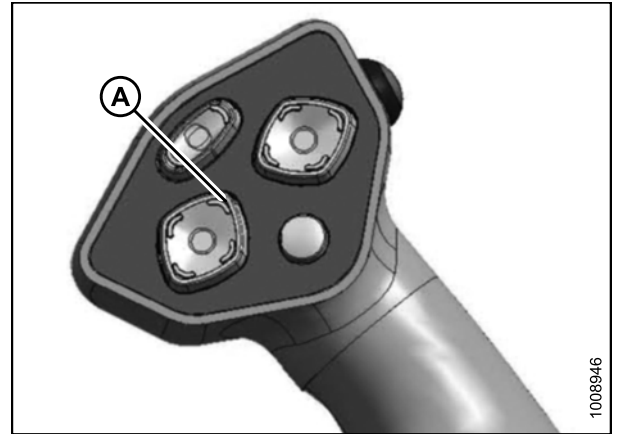


Figure 6.257: GSL

10. Safety props are located on both of the windrower's header lift cylinders. Engage safety props on both lift cylinders as follows:

- a. Stop engine and remove key from ignition.
- b. Pull lever (A) and rotate toward header to release and lower the safety prop (B) onto cylinder.
- c. Repeat for the opposite lift cylinder.

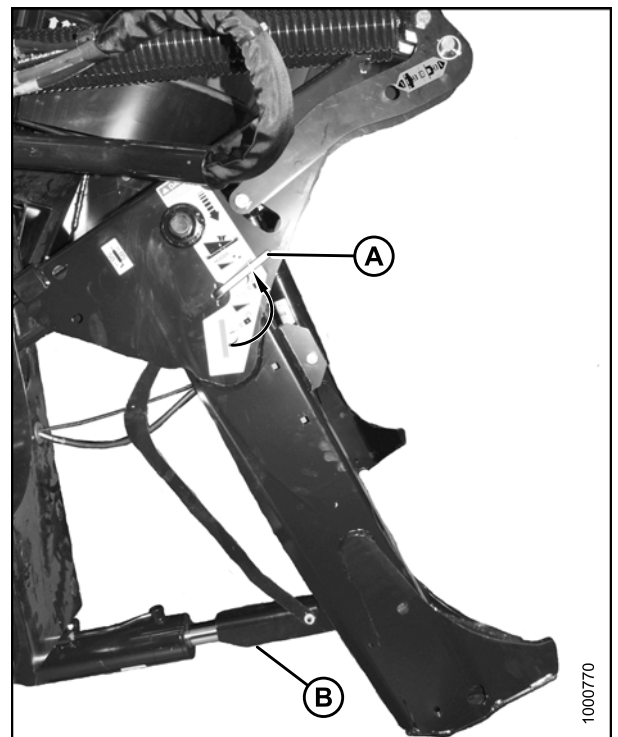


Figure 6.258: Safety Prop

ASSEMBLING THE WINDROWER

11. Install clevis pin (A) through each boot and foot, and secure with hairpin (B). Do this to both sides.

IMPORTANT:

Ensure clevis pin (A) is fully inserted and hairpin is installed behind bracket.

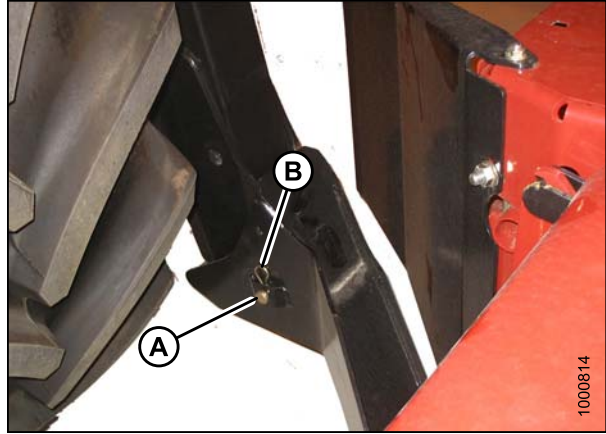


Figure 6.259: Header Boot

12. Remove clevis pin from storage position (B) in linkage, and insert in hole (A) to engage float springs. Secure with hairpin.

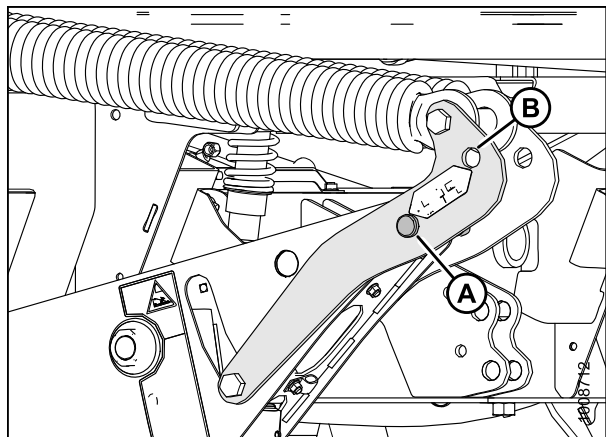


Figure 6.260: Header Lift Linkage

13. Disengage safety prop by turning lever (A) downward to release and lower safety prop until lever locks into vertical position.
14. Repeat for opposite safety prop.

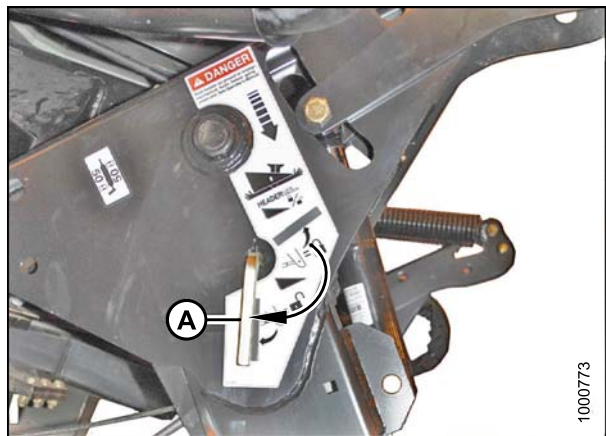


Figure 6.261: Safety Prop

ASSEMBLING THE WINDROWER

CAUTION

Check to be sure all bystanders have cleared the area.

15. Start engine and activate HEADER DOWN switch (A) on GSL to lower header fully. Stop engine and remove key.

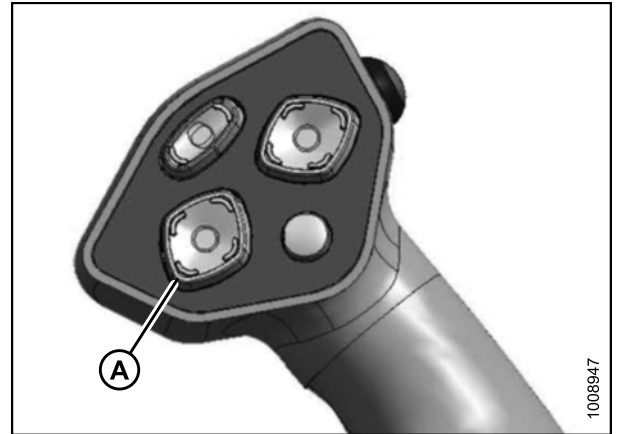


Figure 6.262: GSL

16. Connect header drive hoses (A) and electrical harness (B) to header. Refer to the rotary disc header operator's manual.

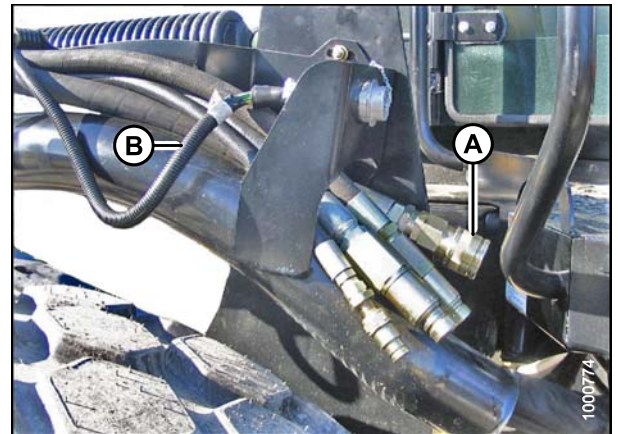


Figure 6.263: Header Drive Hoses and Harness

Attaching an R-Series Header: Hydraulic Center-Link without Self-Alignment

To attach an R-Series header to an M155 or M205 Self-propelled Windrower equipped with a non-self-aligning hydraulic center-link, follow these steps:

DANGER

Stop engine and remove key from ignition before leaving operator's seat for any reason. A child or even a pet could engage an idling machine.

ASSEMBLING THE WINDROWER

1. Remove hairpin (B) from clevis pin (A) and remove pin from left and right header boots (C) on header.

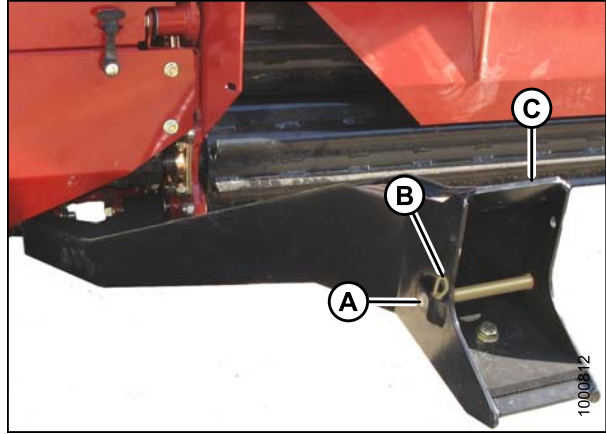


Figure 6.264: Header Boot

CAUTION

To prevent damage to the lift system when lowering header lift linkages without a header or weight box attached to windrower, ensure that float engagement pin is installed in storage location (B) and NOT installed at hole location (A).

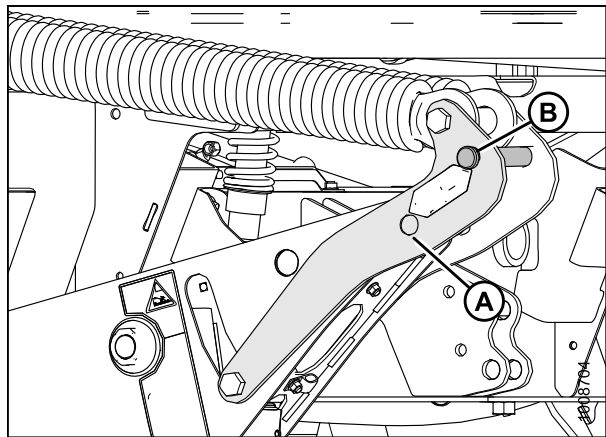


Figure 6.265: Header Lift Linkage

ASSEMBLING THE WINDROWER

CAUTION

Check to be sure all bystanders have cleared the area.

IMPORTANT:

Remove protective cover from exhaust stack prior to starting engine.

2. Start the engine and activate HEADER DOWN button (A) on the ground speed lever (GSL) to fully retract header lift cylinders.

IMPORTANT:

If the center-link is too low, it may contact the header as the windrower approaches the header for hookup.

3. If necessary, relocate the clevis pin (A) at the frame linkage as required to raise the center-link (B), so that the hook is above the attachment pin on the header.

4. Slowly drive windrower forward so that feet (A) on windrower enter boots (B) on the header. Continue to drive slowly forward until feet engage the boots and header nudges forward.

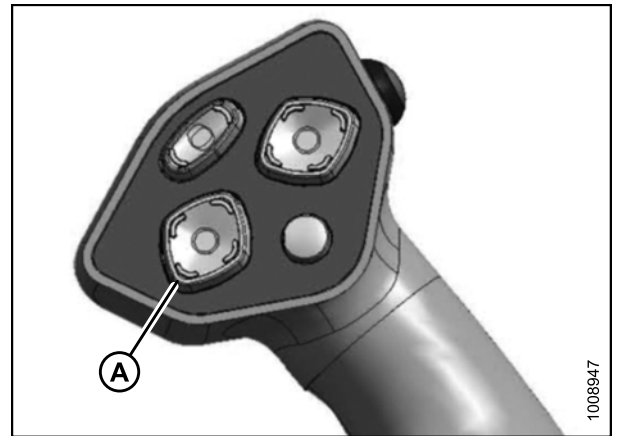


Figure 6.266: GSL

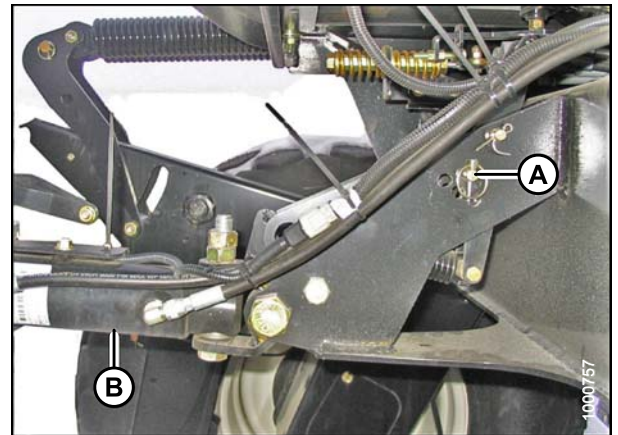


Figure 6.267: Hydraulic Center-Link without Self-Alignment

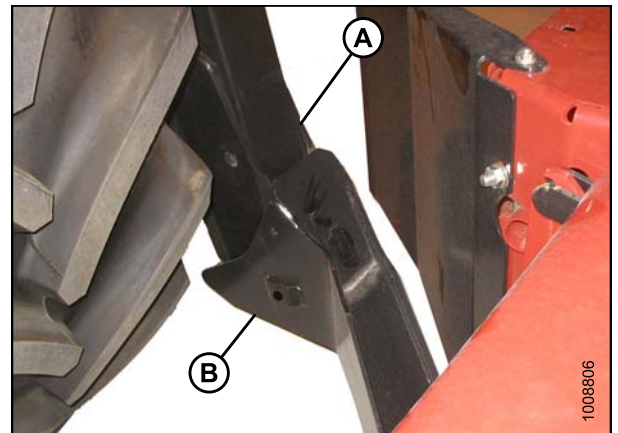


Figure 6.268: Header Boots

ASSEMBLING THE WINDROWER

5. Activate HEADER TILT cylinder switches on ground speed lever (GSL) to extend or retract center-link cylinder so that the hook lines up with the header attachment pin.
6. Stop engine and remove key from ignition.

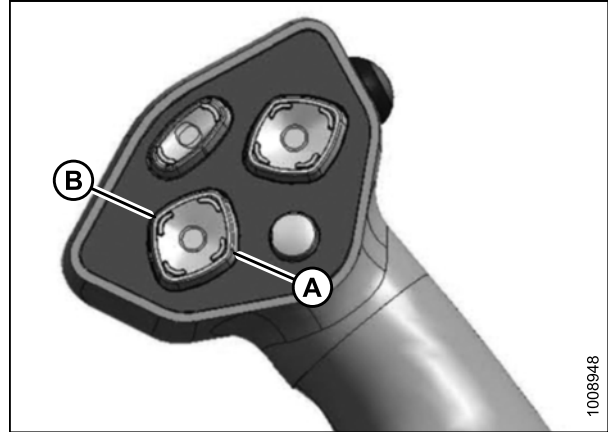


Figure 6.269: GSL

7. Push down on rod end of link cylinder (B), until hook engages pin on header and is locked.

IMPORTANT:

Hook release must be down to enable self-locking mechanism. If the release is open (up), manually push it down after hook engages header pin.

8. Check that center-link (A) is locked onto header by pulling upward on rod end (B) of cylinder.

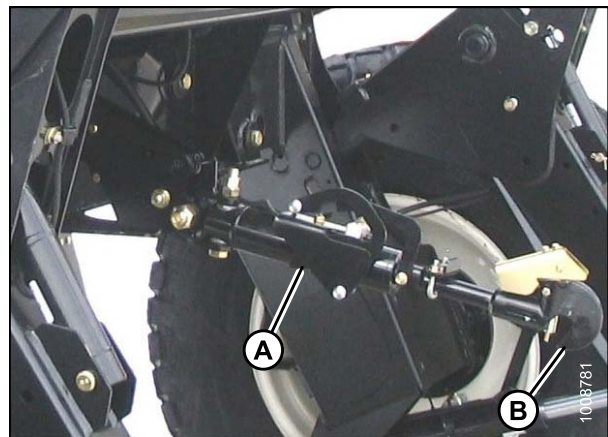


Figure 6.270: Hydraulic Center-Link

9. Start engine and press HEADER UP switch (A) to raise header to maximum height.

NOTE: If one end of the header does NOT raise fully, the lift cylinders require re-phasing. If re-phasing is needed, proceed as follows:

- a. Press and hold the HEADER UP switch until both cylinders stop moving.
- b. Continue to hold the switch for 3–4 seconds. Cylinders are now phased.



Figure 6.271: GSL

ASSEMBLING THE WINDROWER

10. Safety props are located on both of the windrower's header lift cylinders. Engage safety props on both lift cylinders as follows:
 - a. Stop engine and remove key from ignition.
 - b. Pull lever (A) and rotate toward header to release and lower the safety prop (B) onto cylinder.
 - c. Repeat for the opposite lift cylinder.

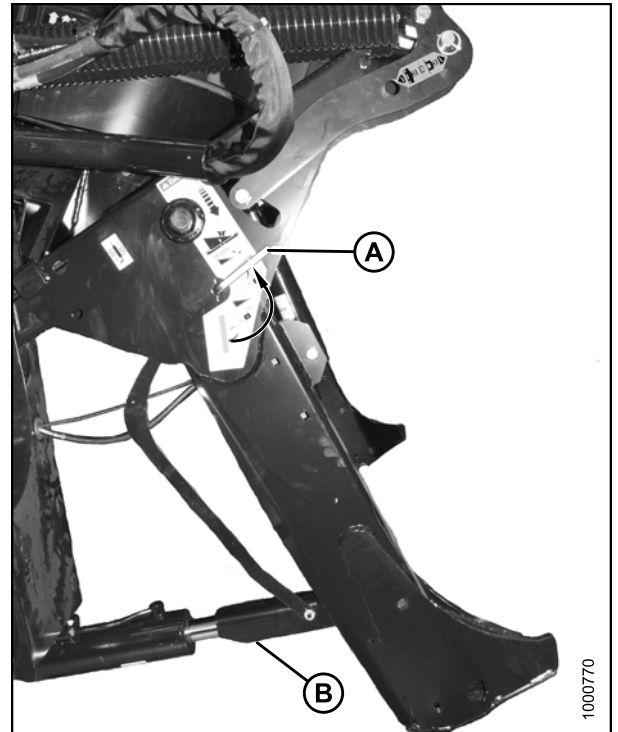


Figure 6.272: Safety Prop

11. Install clevis pin (A) through each boot and foot, and secure with hairpin (B). Do this to both sides.

IMPORTANT:

Ensure clevis pin (A) is fully inserted and hairpin is installed behind bracket.

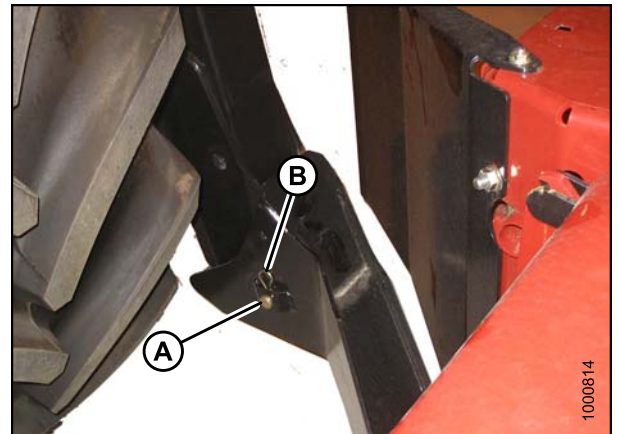


Figure 6.273: Header Boot

ASSEMBLING THE WINDROWER

12. Remove clevis pin from storage position (B) in linkage, and insert in hole (A) to engage float springs. Secure with hairpin.

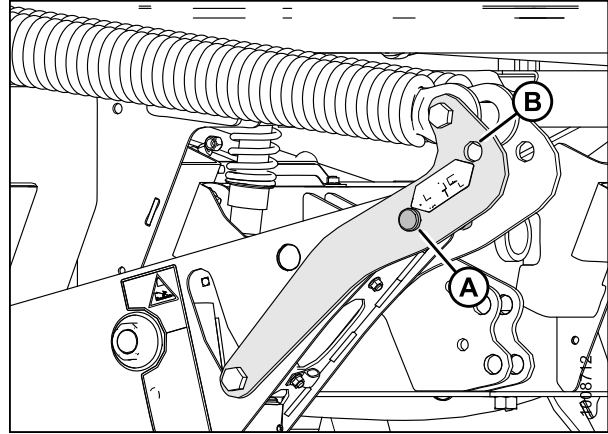


Figure 6.274: Header Lift Linkage

13. Disengage safety prop by turning lever (A) downward to release and lower safety prop until lever locks into vertical position.
14. Repeat for opposite safety prop.

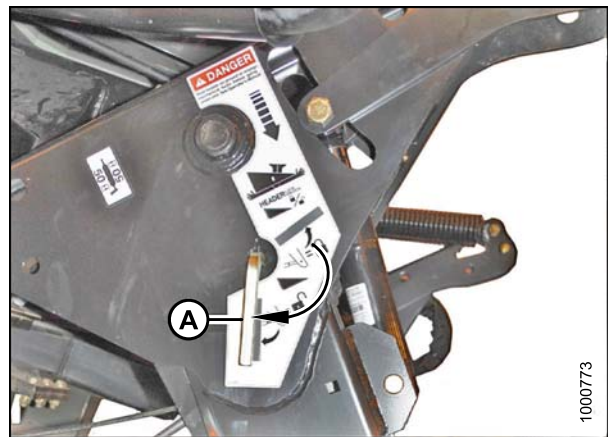


Figure 6.275: Safety Prop

CAUTION

Check to be sure all bystanders have cleared the area.

15. Start engine and activate HEADER DOWN switch (A) on GSL to lower header fully. Stop engine and remove key.

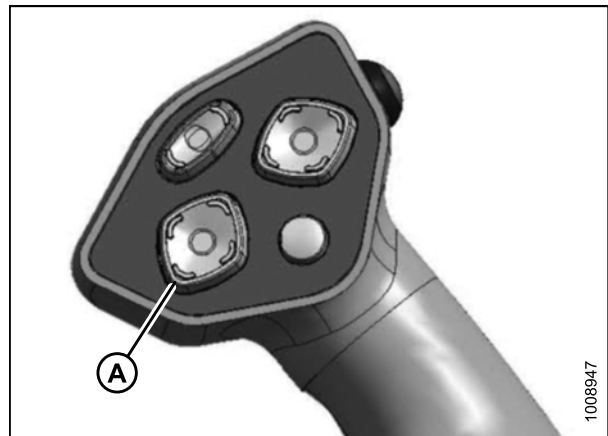


Figure 6.276: GSL

ASSEMBLING THE WINDROWER

16. Connect header drive hoses (A) and electrical harness (B) to header. Refer to the rotary disc header operator's manual.

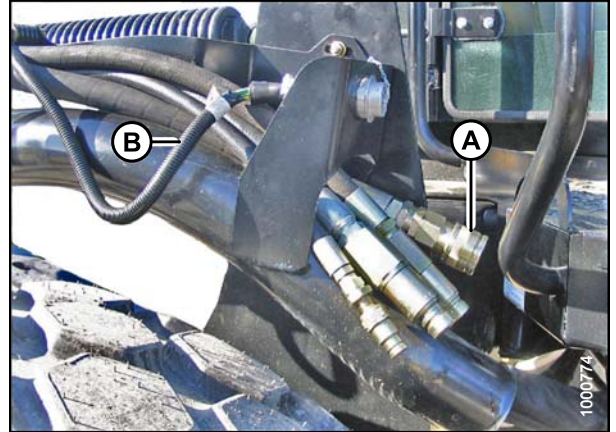


Figure 6.277: Header Drive Hoses and Harness

Attaching an R-Series Header: Mechanical Center-Link

To attach an R-Series header to an M155 Self-propelled Windrower with the mechanical center-link option, follow these steps:

DANGER

Stop engine and remove key from ignition before leaving operator's seat for any reason. A child or even a pet could engage an idling machine.

1. Remove hairpin (B) from clevis pin (A) and remove pin from on left and right header boots (C) on header.

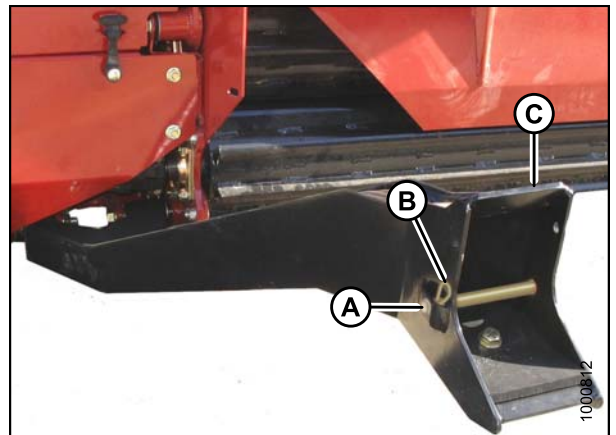


Figure 6.278: Header Boot

ASSEMBLING THE WINDROWER

CAUTION

To prevent damage to the lift system when lowering header lift linkages without a header or weight box attached to windrower, ensure that float engagement pin is installed in storage location (B) and NOT installed at hole location (A).

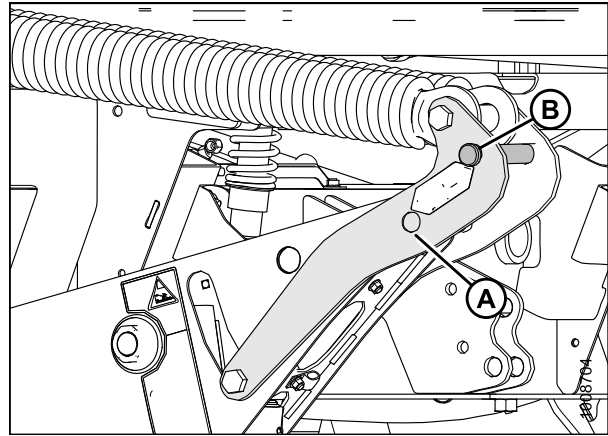


Figure 6.279: Header Lift Linkage

CAUTION

Check to be sure all bystanders have cleared the area.

IMPORTANT:

Remove protective cover from exhaust stack prior to starting engine.

2. Start the engine and activate HEADER DOWN button (A) on the ground speed lever (GSL) to fully retract header lift cylinders.
3. Slowly drive windrower forward so that feet (A) on windrower enter boots (B) on the header. Continue to drive slowly forward until feet engage the boots and header nudges forward.

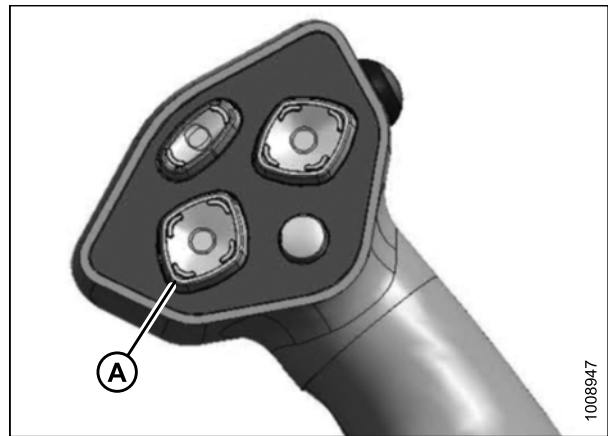


Figure 6.280: GSL

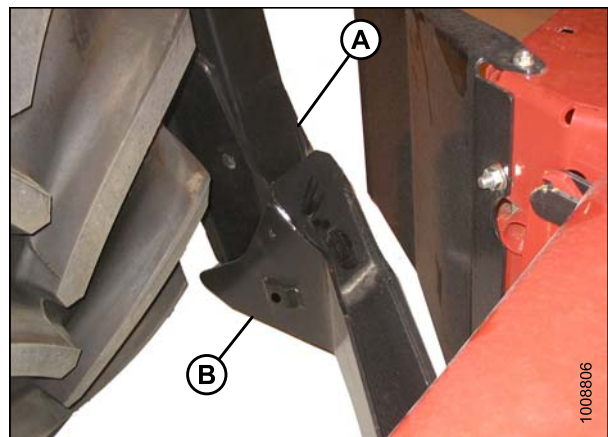


Figure 6.281: Header Boot

ASSEMBLING THE WINDROWER

4. Stop engine and remove the key.
5. Loosen nut (A) and rotate barrel (B) to adjust length so that the link lines up with header bracket.
6. Install pin (C) and secure with cotter pin (D).
7. Adjust link to required length for proper header angle by rotating barrel (B). Tighten nut (A) against barrel. A slight tap with a hammer is sufficient.

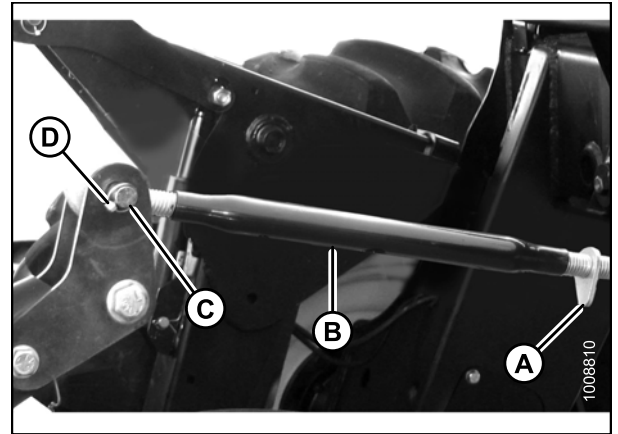


Figure 6.282: Mechanical Center-Link

8. Start engine and press HEADER UP switch (A) to raise header to maximum height.

NOTE: If one end of the header does NOT raise fully, the lift cylinders require re-phasing. If re-phasing is needed, proceed as follows:

- a. Press and hold the HEADER UP switch until both cylinders stop moving.
- b. Continue to hold the switch for 3–4 seconds. Cylinders are now phased.

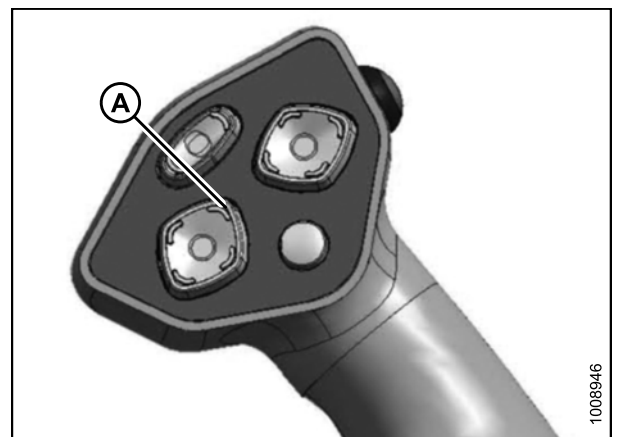


Figure 6.283: GSL

ASSEMBLING THE WINDROWER

9. Safety props are located on both of the windrower's header lift cylinders. Engage safety props on both lift cylinders as follows:
 - a. Stop engine and remove key from ignition.
 - b. Pull lever (A) and rotate toward header to release and lower the safety prop (B) onto cylinder.
 - c. Repeat for the opposite lift cylinder.

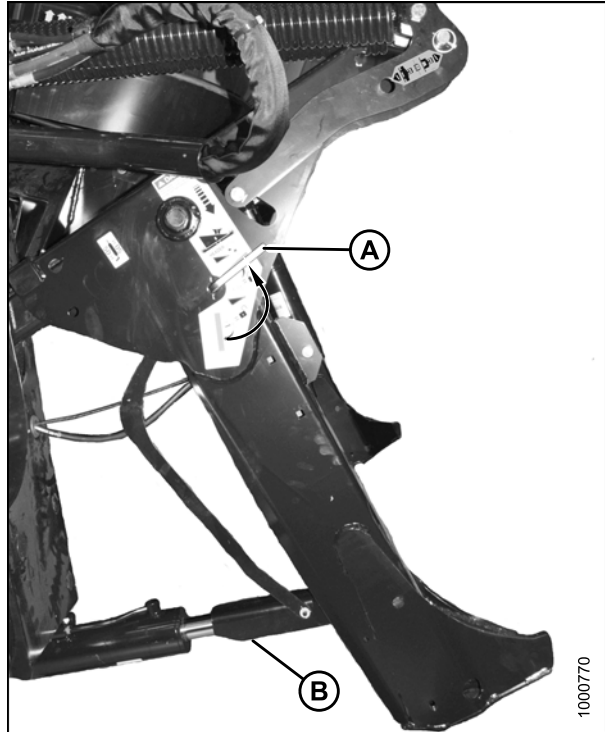


Figure 6.284: Safety Prop

10. Install clevis pin (A) through each boot and foot, and secure with hairpin (B). Do this to both sides.

IMPORTANT:

Ensure clevis pin (A) is fully inserted and hairpin is installed behind bracket.

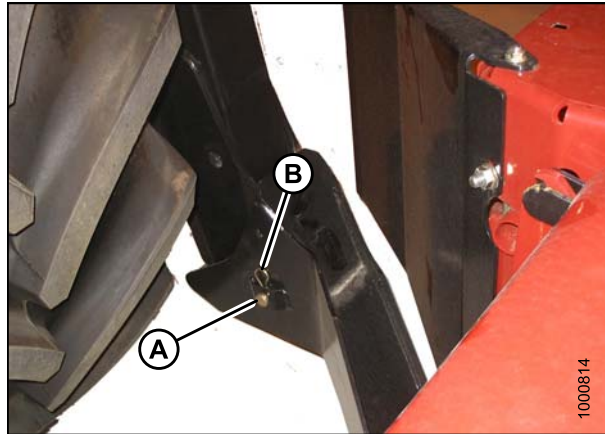


Figure 6.285: Header Boot

ASSEMBLING THE WINDROWER

11. Remove clevis pin from storage position (B) in linkage, and insert in hole (A) to engage float springs. Secure with hairpin.

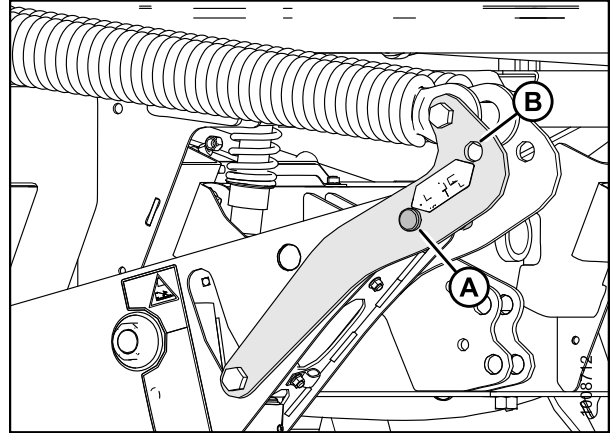


Figure 6.286: Header Lift Linkage

12. Disengage safety prop by turning lever (A) downward to release and lower safety prop until lever locks into vertical position.
13. Repeat for opposite safety prop.

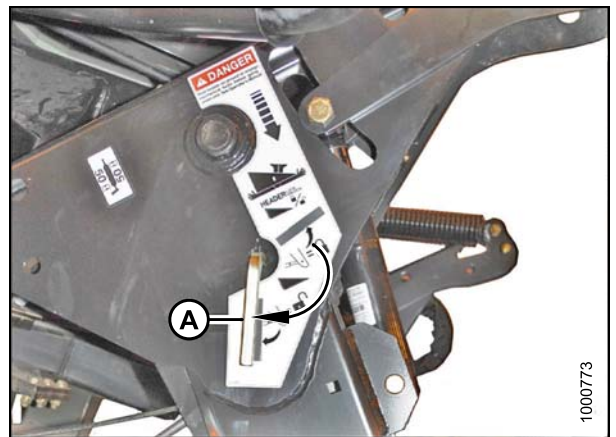


Figure 6.287: Safety Prop

CAUTION

Check to be sure all bystanders have cleared the area.

14. Start engine and activate HEADER DOWN switch (A) on GSL to lower header fully. Stop engine and remove key.

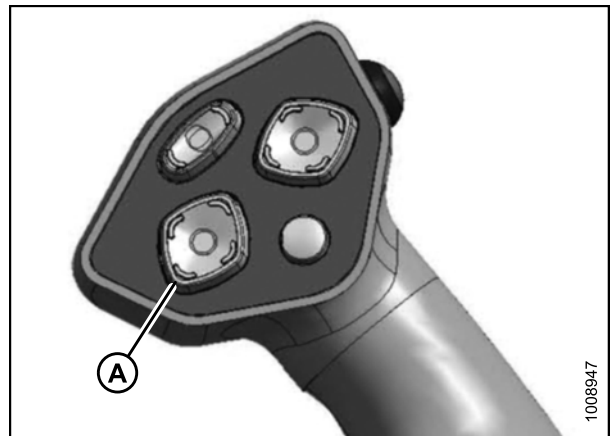


Figure 6.288: GSL

ASSEMBLING THE WINDROWER

15. Connect header drive hoses (A) and electrical harness (B) to header. Refer to the rotary disc header operator's manual.

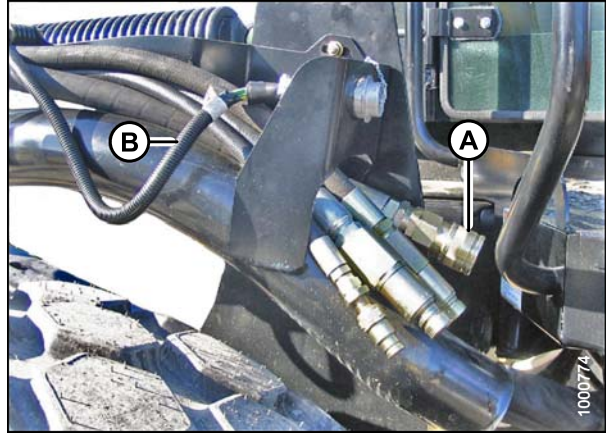


Figure 6.289: Header Drive Hoses and Harness

6.23 Lubricating the Windrower

Table 6.2 Recommended Lubricant

Spec.	Description	Use
SAE Multi-Purpose	High temperature, extreme pressure (EP2) performance with 1% max molybdenum disulphide (NLGI Grade 2) lithium base	As required unless otherwise specified.

6.23.1 Lubrication Procedure

DANGER

Stop engine and remove key from ignition before leaving operator's seat for any reason. A child or even a pet could engage an idling machine.

1. Wipe grease fitting with a clean cloth before greasing, to avoid injecting dirt and grit.
2. Inject grease through fitting with grease gun until grease overflows fitting, except where noted.
3. Leave excess grease on fitting to keep out dirt.
4. Replace any loose or broken fittings immediately.
5. If fitting will **NOT** take grease, remove and clean thoroughly. Also clean lubricant passageway. Replace fitting, if necessary.

6.23.2 Lubrication Points

Refer to the following illustrations to identify various locations that require lubrication.

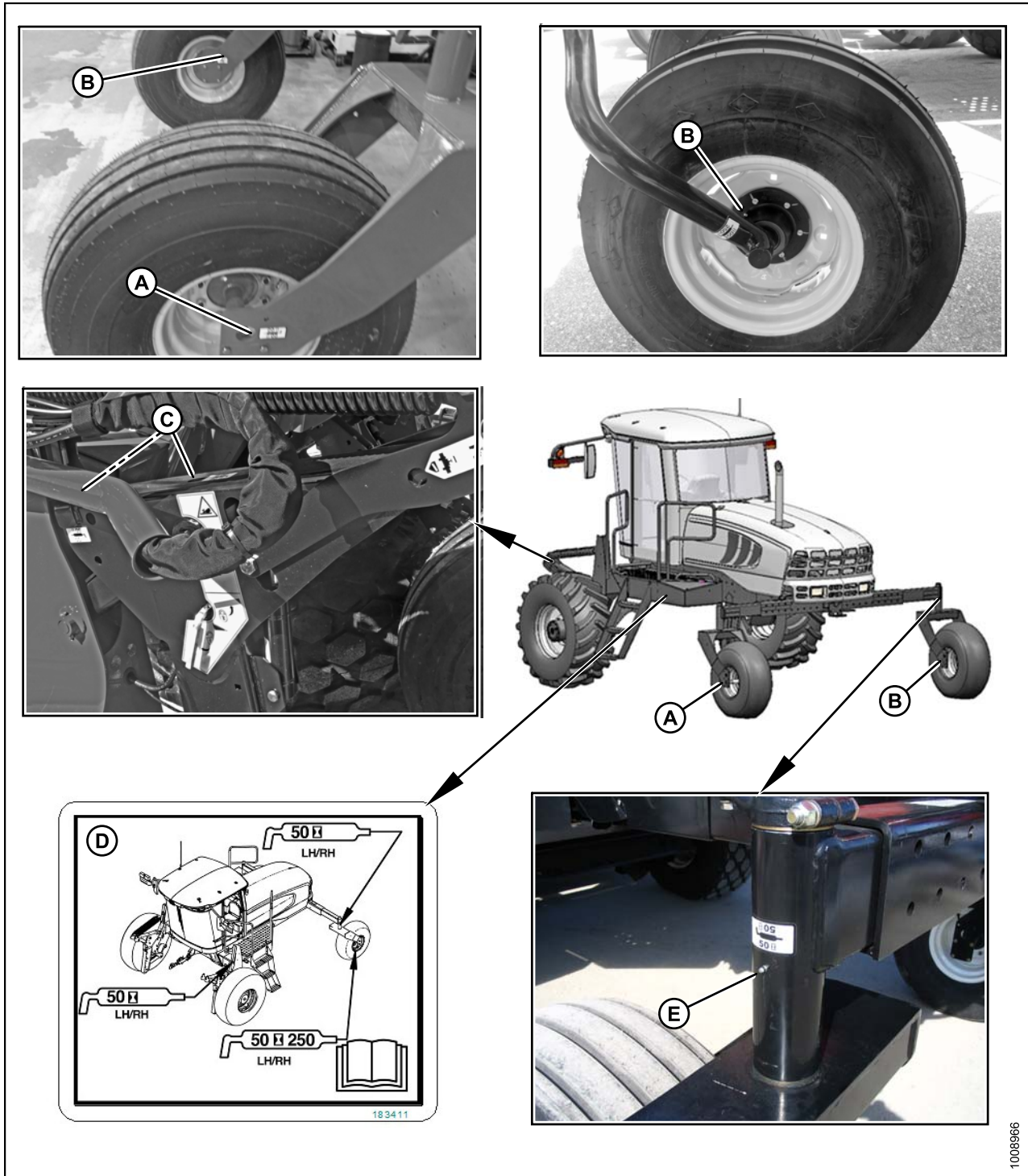


Figure 6.290: Lubrication Points

- A - Forked Caster Wheel Bearing (2 Places) (Outer—Both Wheels)
- C - Top Link (2 Places) (Both Sides)
- D - Lubrication Decal (MD #183411)

- B - Forked/Formed Caster Wheel Bearing (2 Places) (Inner—Both Wheels) (50 Hrs/250 Hrs)
- E - Caster Pivot (Both Sides)

6.24 Cab Display Module (CDM) Programming



Figure 6.291: M105 CDM

A - Side Display
D - Menu Item Scroll Forward

B - Main Display
E - Menu Item Scroll Backward

C - Select Switch
F - Program Switch

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ASSEMBLING THE WINDROWER



Figure 6.292: M155/M205 CDM

A - Side Display

D - Menu Item Scroll Forward

B - Main Display

E - Menu Item Scroll Backward

C - Select Switch

F - Program Switch

A – SIDE DISPLAY displays software revision status.

- Upper Line – C### (CDM)
- Lower Line – M### (WCM)

B – MAIN DISPLAY displays menu item and selection.

- Upper Line – Menu Item
- Lower Line – Selection

C – SELECT SWITCH places monitor into Program Mode with PROGRAM switch. Press to accept menu item and advance to next item.

D – MENU ITEM SCROLL FORWARD displays value under menu item.

- Push to scroll forward
- Hold down for fast scroll⁹

E – MENU ITEM SCROLL BACKWARD displays value under menu item.

- Push to scroll backward
- Hold down for fast scroll⁹

F – PROGRAM SWITCH places monitor into program mode. Press while pressing SELECT switch.

9. Fast scroll applies only when changing KNIFE SPEED, OVERLOAD PRESSURE, and TIRE SIZE.

ASSEMBLING THE WINDROWER

NOTE: Contact your MacDon Dealer for information regarding software updates to the electronic modules. Your Dealer will have the necessary interface tools and access to the latest software upgrades.

IMPORTANT:

Header must be attached to the windrower so that the CDM can detect the type of header (Header ID) and adjust the programming mode accordingly.

Proceed as follows to program the CDM:

NOTE: Pressing PROGRAM at any time will cancel the programming mode/menus and return back to the main operating displays. For detailed programming menu selection, refer to

- [6.24.1 M205 Detailed Programming Menu Flow Chart, page 170](#)
- [6.24.2 M155 Detailed Programming Menu Flow Chart, page 174](#)
- [6.24.3 M105 Detailed Programming Menu Flow Chart, page 179](#)

1. Turn ignition key to RUN or start the engine.
2. On CDM, press PROGRAM and SELECT to enter programming mode.
3. Press SELECT. WINDROWER SETUP? with header width displayed on upper line.
4. Press left or right arrow to change value on lower line.
5. Press SELECT to advance to the next L1 item and press arrow keys to change values.
6. Set the following functions:

NOTE: The following can be set by the Dealer provided that the header is installed and other information needed is available.

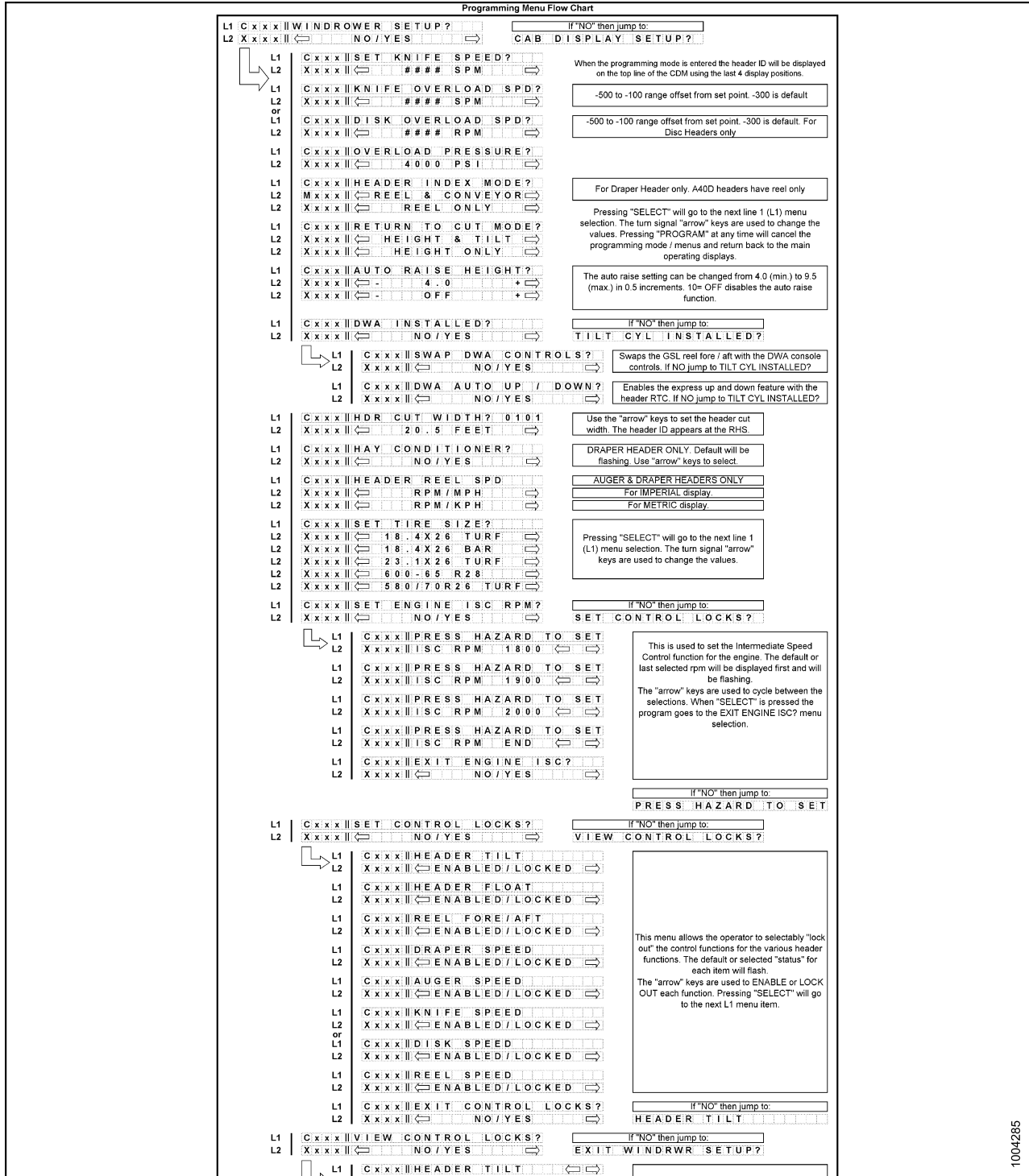
- DWA INSTALLED? (M155 and M205 only)
- TILT CYL INSTALLED?
- DISC BLK INSTALLED?
- HDR CUT WIDT?
- HAY CONDITIONER?
- SET TIRE SIZE?

7. Press PROGRAM to exit programming mode when finished entering values.

ASSEMBLING THE WINDROWER

6.24.1 M205 Detailed Programming Menu Flow Chart

The programming menu flow chart is current for cab display module (CDM) software 315 and windrower control module (WCM) software V109.



ASSEMBLING THE WINDROWER

L2	X x x x 5 7 5 . 1 HRS ENABLED	
L2	X x x x 6 4 8 . 6 HRS LOCKED	
L1	C x x x HEADER FLOAT	← →
L2	X x x x 5 7 5 . 1 HRS ENABLED	
L2	X x x x 6 4 8 . 6 HRS LOCKED	
L1	C x x x REEL FORE / AFT	← →
L2	X x x x 5 7 5 . 1 HRS ENABLED	
L2	X x x x 6 4 8 . 6 HRS LOCKED	
L1	C x x x DRAPER SPEED	← →
L2	X x x x 5 7 5 . 1 HRS ENABLED	
L2	X x x x 6 4 8 . 6 HRS LOCKED	
L1	C x x x AUGER SPEED	← →
L2	X x x x 5 7 5 . 1 HRS ENABLED	
L2	X x x x 6 4 8 . 6 HRS LOCKED	
L1	C x x x KNIFE SPEED	← →
L2	X x x x 5 7 5 . 1 HRS ENABLED	
L2	X x x x 6 4 8 . 6 HRS LOCKED	
L1	C x x x DISK SPEED	← →
L2	X x x x 5 7 5 . 1 HRS ENABLED	
L2	X x x x 6 4 8 . 6 HRS LOCKED	
L1	C x x x REEL SPEED	← →
L2	X x x x 5 7 5 . 1 HRS ENABLED	
L2	X x x x 6 4 8 . 6 HRS LOCKED	
L1	C x x x EXIT VIEW LOCKOUTS?	
L2	X x x x NO / YES	← →

If "NO" then jump to:
HEADER TILT ← →

L1 C x x x || EXIT WINDROW SETUP? If "NO" then jump to:
L2 X x x x || NO / YES SET KNIFE SPEED?

or DISCOVERLOAD SPD? Disc Header Only

L1	C x x x x CAB DISPLAY SETUP?		If "NO" then jump to:	
L2	X x x x x NO / YES	← →	CALIBRATE SENSORS?	Only if Engine is running!
L1	C x x x x DISPLAY LANGUAGE?			Use the "arrow" keys to change the default language. Pressing "SELECT" goes to the next L1 menu selection.
L2	X x x x x ENGLISH	← →		
L2	X x x x x ESPANOL	← →		
L1	C x x x x DISPLAY UNITS?			The "arrow" keys are used to select between IMPERIAL or METRIC. The default value will be displayed first.
L2	X x x x x IMPERIAL	← →		
L2	X x x x x METRIC	← →		
L1	C x x x x CDM BUZZER VOLUME			The "arrow" keys are used to change the CDM buzzer volume, CDM backlighting or the CDM contrast, with the bar graph indicating the relative level for each item. When "SELECT" is pressed the program goes to the EXIT DISPLAY SETUP? menu selection.
L2	X x x x x	← →		
L1	C x x x x CDM BACKLIGHTING			
L2	X x x x x	← →		
L1	C x x x x CDM CONTRAST			
L2	X x x x x	← →		
L1	C x x x x EXIT DISPLAY SETUP?		If "NO" then jump to:	
L2	X x x x x NO / YES	← →	DIAGNOSTIC MODE?	If engine off then jump to diagnostic mode?

L1 C x x x x || CALIBRATE SENSORS? If "NO" then jump to:
L2 X x x x x || NO / YES DIAGNOSTIC MODE?

L1 C x x x || TO CALIBRATE SELECT

L2 X x x x || HEADER HEIGHT

L2 X x x x || HEADER TILT

L2 X x x x || HEADER FLOAT

L2 X x x x || STOP & EXIT

L1 C x x x || HEIGHT SENSOR CAL

L2 X x x x || RAISE HDR TO START

L1 C x x x || CALIBRATING HEIGHT

L2 X x x x || RAISE HEADER HOLD

L2 X x x x || HEADER RAISE DONE

L1 C x x x || HEIGHT SENSOR CAL

L2 X x x x || PRESS LOWER HEADER

L1 C x x x || CALIBRATING HEIGHT

L2 X x x x || LOWER HEADER HOLD

L2 X x x x || HT SENSOR COMPLETE

L1 C x x x || TO CALIBRATE SELECT

L2 X x x x || HEADER HEIGHT

L2 X x x x || HEADER TILT

L2 X x x x || HEADER FLOAT

L2 X x x x || STOP & EXIT

L1 C x x x || HDR TILT SENSOR CAL

L2 X x x x || EXTEND TLT TO START

L1 C x x x || CALIBRATING TILT

L2 X x x x || EXTEND TILT HOLD

L2 X x x x || EXTEND TILT DONE

L1 C x x x || HDR TILT SENSOR CAL

L2 X x x x || PRESS RETRACT TILT

L1 C x x x || CALIBRATING TILT

L2 X x x x || RETRACT TILT HOLD

L2 X x x x || HDR TILT COMPLETE

L1 C x x x || TO CALIBRATE SELECT

L2 X x x x || HEADER HEIGHT

ASSEMBLING THE WINDROWER

L2	X x x x <input type="checkbox"/> HEADER TILT <input type="checkbox"/>	switches to cycle through the choices. Pressing SELECT will take the operator to the calibration menu for that particular sensor.
L2	X x x x <input type="checkbox"/> HEADER FLOAT <input type="checkbox"/>	
L2	X x x x <input type="checkbox"/> STOP & EXIT <input type="checkbox"/>	
L1	C x x x CALIBRATING FLOAT	The display will indicate the sensor being calibrated. The operator will be prompted to press the float (+) and HOLD will flash until the system has completed reading in the signal with the header float fully extended. HOLD will change to DONE (with buzze
L2	X x x x PRESS FLT+ TO START	
L1	C x x x CALIBRATING FLOAT	
L2	X x x x FLOAT (+) HOLD	
L2	X x x x FLOAT (+) DONE	When the header float (+) is done, the CDM will prompt the user to press the header float (-). COMPLETE (with buzzer) will flash on the screen for 2 seconds when the calibration is finished.
L1	C x x x FLOAT SENSOR CAL	
L2	X x x x PRESS FLOAT (-)	
L1	C x x x CALIBRATING FLOAT	
L2	X x x x FLOAT (-) HOLD	Select any of the sensors by using the turn signal switches to cycle through the choices. Pressing SELECT will take the operator to the calibration menu for that particular sensor. NO is the default for EXIT CAL?. If "NO" then jump to:
L2	X x x x HDR FLOAT COMPLETE	
L2	C x x x TO CALIBRATE SELECT	
L2	X x x x <input type="checkbox"/> HEADER HEIGHT <input type="checkbox"/>	
L2	X x x x <input type="checkbox"/> HEADER TILT <input type="checkbox"/>	TO CALIBRATE SELECT
L2	X x x x <input type="checkbox"/> HEADER FLOAT <input type="checkbox"/>	
L1	X x x x EXIT CAL? <input type="checkbox"/> NO/YES <input type="checkbox"/>	
L2	X x x x EXIT CAL? <input type="checkbox"/> NO/YES <input type="checkbox"/>	
L1	C x x x DIAGNOSTIC MODE? <input type="checkbox"/>	If "NO" then jump to:
L2	X x x x <input type="checkbox"/> NO/YES <input type="checkbox"/>	EXIT SETUP?
L1	C x x x VIEW ERROR CODES? <input type="checkbox"/>	If "NO" then jump to:
L2	X x x x <input type="checkbox"/> NO/YES <input type="checkbox"/>	ENTER SENSOR SETUP?
L1	C x x x VIEW WINDRWR CODES?	If "NO" then jump to:
L2	X x x x <input type="checkbox"/> NO/YES <input type="checkbox"/>	VIEW ENGINE CODES?
L1	1 1234.5 HRS 123	The last 10 distinct error codes are stored along with the code #, Exxx, engine hours and number of occurrences. The "arrow" keys are used to cycle between codes.
L2	E 47 SENSOR VOLTS LOW	
L1	2 1230.5 HRS 123	
L2	E 71 LOW HYDRAULIC OIL	If "NO" then jump to the first error code logged.
L1	C x x x EXIT WINDRWR CODES?	
L2	X x x x <input type="checkbox"/> NO/YES <input type="checkbox"/>	If "NO" then jump to:
L1	C x x x VIEW ENGINE CODES?	
L2	X x x x <input type="checkbox"/> NO/YES <input type="checkbox"/>	EXIT ERROR CODES?
L1	1 PREVIOUS ENG. CODES	The last 10 distinct error codes are stored.
L2	## ## S ## F ## C	
L1	C x x x EXIT ENGINE CODES?	If "NO" then jump to the first engine error code logged.
L2	X x x x <input type="checkbox"/> NO/YES <input type="checkbox"/>	
L1	C x x x EXIT ERROR CODES?	If "NO" then jump to:
L2	X x x x <input type="checkbox"/> NO/YES <input type="checkbox"/>	
L1	C x x x ENTER SENSOR SETUP?	If "NO" then jump to:
L2	X x x x <input type="checkbox"/> NO/YES <input type="checkbox"/>	READ SENSOR INPUTS?
L1	C x x x KNIFE SPEED SENSOR	The operator can select each sensor and selectively enable or disable the sensor. This can be used to disable a failed sensor to eliminate false or erratic display readings.
L2	X x x x <input type="checkbox"/> ENABLE / <input type="checkbox"/> DISABLE	
L1	C x x x HEADER HT SENSOR	
L2	X x x x <input type="checkbox"/> ENABLE / <input type="checkbox"/> DISABLE	
L1	C x x x HEADER TILT SENSOR	When "SELECT" is pressed the program goes to the EXIT SENSOR SETUP? menu selection.
L2	X x x x <input type="checkbox"/> ENABLE / <input type="checkbox"/> DISABLE	
L1	C x x x HEADER FLOAT SENSOR	
L2	X x x x <input type="checkbox"/> ENABLE / <input type="checkbox"/> DISABLE	
L1	C x x x OVERLOAD PRESSURE	NOTE: The oil temp. readout applies to units with the Sensata oil temp. sensor.
L2	X x x x <input type="checkbox"/> ENABLE / <input type="checkbox"/> DISABLE	
L1	C x x x HYD OIL TEMP SENSOR	
L2	X x x x <input type="checkbox"/> ENABLE / <input type="checkbox"/> DISABLE	
L1	C x x x EXIT SENSOR SETUP?	If "NO" then jump to:
L2	X x x x <input type="checkbox"/> NO/YES <input type="checkbox"/>	
L1	C x x x READ SENSOR INPUTS?	If "NO" then jump to:
L2	M x x x <input type="checkbox"/> NO/YES <input type="checkbox"/>	ACTIVATE FUNCTIONS?
L1	C x x x SENSOR INPUT	For diagnostic purposes each sensors input signal can be read. This helps in determining how each sensor is operating and if the proper output voltages are being received by the control system.
L2	X x x x HDR HEIGHT 3.59 V	
L1	C x x x SENSOR INPUT	
L2	X x x x HDR ANGLE 1.84 V	
L1	C x x x SENSOR INPUT	When "SELECT" is pressed the program goes to the EXIT READ SENSORS? menu selection.
L2	X x x x 2.45 V FLOAT 2.84 V	
L1	C x x x SENSOR INPUT	
L2	X x x x KNIFE SPEED 123 HZ	
L1	C x x x SENSOR INPUT	If "NO" then jump to:
L2	X x x x WHEEL SPEED 123 HZ	
L1	C x x x SENSOR INPUT	
L2	X x x x HYD OIL TEMP 1.00 V	
L1	C x x x EXIT READ SENSORS?	SENSOR INPUT
L2	X x x x <input type="checkbox"/> NO/YES <input type="checkbox"/>	
L1	C x x x SENSOR INPUT	If a sensor has been disabled "SENSOR" will be flashing in the area where the input reading would have been.
L2	X x x x HDR HEIGHT SENSOR	
L1	C x x x SENSOR INPUT	If a sensor has been disabled "SENSOR" will be
L2	X x x x HDR ANGLE SENSOR	
L1	C x x x SENSOR INPUT	

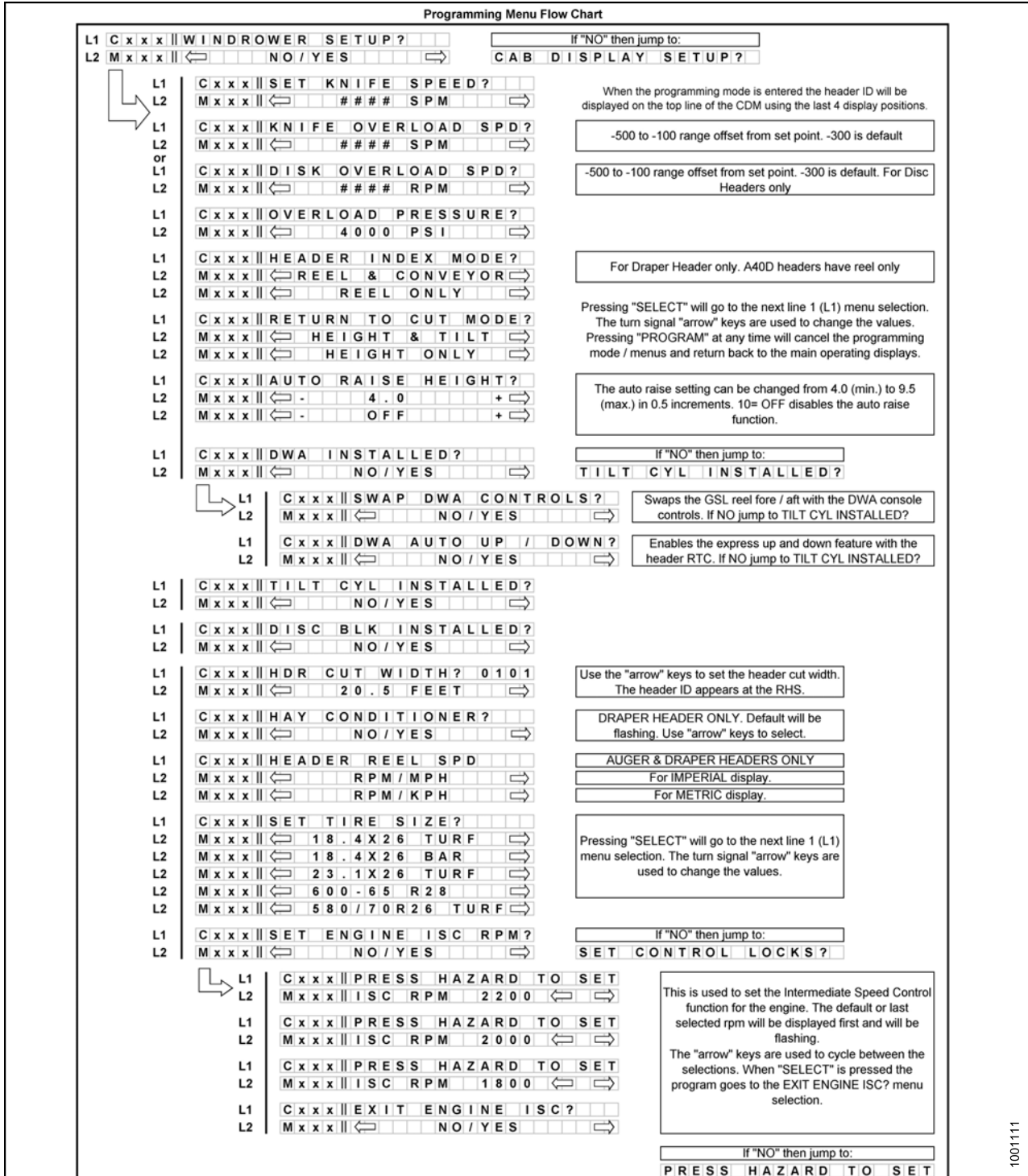
ASSEMBLING THE WINDROWER

	L2 X x x x 2 . 4 5 V F L O A T S E N S O R L1 C x x x S E N S O R I N P U T ← → L2 X x x x K N I F E S P E E D S E N S O R L1 C x x x S E N S O R I N P U T ← → L2 X x x x R E E L S P E E D S E N S O R L1 C x x x S E N S O R I N P U T ← → L2 X x x x H Y D O I L T E M P S E N S O R	flashing in the area where the input reading would have been. If a sensor has been disabled "SENSOR" will be flashing in the area where the input reading would have been. NOTE: The oil temp. readout applies to the M205 model with the Sensata oil temp. sensor.
	L1 C x x x A C T I V A T E F U N C T I O N S ? If "NO" then jump to: L2 X x x x ← N O / Y E S → F O R C E H E A D E R T Y P E ?	
	L1 C x x x A C T I V A T E H E A D E R H T L2 X x x x ← D O W N / U P → L1 C x x x A C T I V A T E R E E L H T L2 X x x x ← D O W N / U P → L1 C x x x A C T I V A T E H D R T I L T L2 X x x x ← I N / O U T → L1 C x x x K N I F E D R V S P D X X X X L2 X x x x D 0 P 0 ← - > + → L1 C x x x D R A P E R D R V S P D X X X X L2 X x x x D 0 P 0 ← - > + → L1 C x x x R E E L D R V S P D X X X X L2 X x x x D 0 P 0 ← - > + → L1 C x x x D I S C D R V S P D X X X X L2 X x x x D 0 P 0 ← - > + → L1 C x x x A C T I V A T E D W A D R V L2 X x x x D 0 P 0 ← - > + → L1 C x x x A C T I V A T E R E E L F / A L2 X x x x ← F O R E / A F T → L1 C x x x A C T I V A T E H Y D P U R G E ? L2 X x x x ← N O / Y E S → L1 C x x x T O A C T I V A T E P U R G E L2 X x x x P R E S S A N D H O L D → L1 C x x x P U R G E C Y C L E S T A R T E D L2 X x x x P R E S S A N D H O L D → L1 C x x x P U R G E C Y C L E E N D E D L2 X x x x L1 C x x x P U R G E C Y C L E E N D E D L2 X x x x ← N O E X I T Y E S → L1 C x x x E X I T F U N C T I O N M E N U ? L2 X x x x ← N O / Y E S →	For diagnostic purposes each header function can be activated by using the "arrow" keys on the CDM. When "SELECT" is pressed the program will go to the next function that can be activated. If a disk header is detected then the nomenclature should read: DISC DRIVE instead of KNIFE DRIVE. PWM OPERATION: If the HAZARD switch is pressed instead of the TURN SIGNAL switch the GSL will operate the PWM valve (HAZARD sw must be held) and the PWM value will reset to zero when released. For Disc Header only The DWA menu selection should only be available if the DWA INSTALLED? is set to YES. For Disc Header only ACTIVATE HYD PURGE - This is to allow the operator to purge the air from a new or changed pump system. Pressing and holding the right hand "arrow" button activates a predetermined timed purge cycle. Releasing pressure on the switch or a completed cycle (timed out) will jump to the PURGE CYCLE ENDED menu selection.
	L1 C x x x F O R C E H E A D E R T Y P E ? "NO" then jump to: L2 X x x x ← N O / Y E S → E X I T D I A G N O S T I C ?	
	L1 C x x x S E L E C T H E A D E R T Y P E L2 X x x x ← D I S K H E A D E R → L2 X x x x ← S K A U G E R → L2 X x x x ← D K A U G E R → L2 X x x x ← G R A S S S E E D → L2 X x x x ← 2 0 F T S K D R A P E R → L2 X x x x ← 2 5 F T S K D R A P E R → L2 X x x x ← 3 0 F T S K D R A P E R → L2 X x x x ← 3 5 F T S K D R A P E R → L2 X x x x ← 1 5 F T D K D R A P E R → L2 X x x x ← 2 0 F T D K D R A P E R → L2 X x x x ← 2 5 F T D K D R A P E R → L2 X x x x ← 3 0 F T D K D R A P E R → L2 X x x x ← 3 5 F T D K D R A P E R → L2 X x x x ← 4 0 F T D K D R A P E R → L1 C x x x E X I T F O R C E H E A D E R ? L2 X x x x ← N O / Y E S → L1 C x x x E X I T D I A G N O S T I C ? L2 X x x x ← N O / Y E S → L1 C x x x E X I T S E T U P ? L2 X x x x ← N O / Y E S → If "YES" then jump to: O P E R A T I N G S C R E E N S	This allows the operator to select or "force" a header ID configuration if a "NO HEADER" ID is being read by the control system. The header type will revert back to "NO HEADER" every time the ignition is cycled. When "SELECT" is pressed the program goes to the EXIT HEADER TYPE? menu selection. If "NO" then jump to: S E L E C T H E A D E R T Y P E If "NO" then jump to: V I E W E R R O R C O D E S ? If "NO" then jump to: W I N D R O W E R S E T U P ?

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6.24.2 M155 Detailed Programming Menu Flow Chart

The programming menu flow chart is current for cab display module (CDM) software 315 and windrower control module (WCM) software 214.



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L1 | C x x x | SET CONTROL LOCKS? | If "NO" then jump to: _____
 L2 | M x x x | ← NO / YES → | VIEW CONTROL LOCKS?

↙ L1 | C x x x | HEADER TILT _____
 L2 | M x x x | ← ENABLED / LOCKED →

L1 | C x x x | HEADER FLOAT _____
 L2 | M x x x | ← ENABLED / LOCKED →

L1 | C x x x | REEL FORE / AFT _____
 L2 | M x x x | ← ENABLED / LOCKED →

L1 | C x x x | DRAPER SPEED _____
 L2 | M x x x | ← ENABLED / LOCKED →

L1 | C x x x | AUGER SPEED _____
 L2 | M x x x | ← ENABLED / LOCKED →

L1 | C x x x | KNIFE SPEED _____
 L2 | M x x x | ← ENABLED / LOCKED →

or
 L1 | C x x x | DISK SPEED _____
 L2 | M x x x | ← ENABLED / LOCKED →

L1 | C x x x | REEL SPEED _____
 L2 | M x x x | ← ENABLED / LOCKED →

L1 | C x x x | EXIT CONTROL LOCKS?
 L2 | M x x x | ← NO / YES →

This menu allows the operator to selectively "lock out" the control functions for the various header functions. The default or selected "status" for each item will flash.
 The "arrow" keys are used to ENABLE or LOCK OUT each function. Pressing "SELECT" will go to the next L1 menu item.

_____ If "NO" then jump to:
 HEADER TILT _____

L1 | C x x x | VIEW CONTROL LOCKS? | If "NO" then jump to: _____
 L2 | M x x x | ← NO / YES → | EXIT WINDRWR SETUP?

↙ L1 | C x x x | HEADER TILT _____
 L2 | M x x x | 5 7 5 . 1 HRS ENABLED
 L2 | M x x x | 6 4 8 . 6 HRS LOCKED

L1 | C x x x | HEADER FLOAT _____
 L2 | M x x x | 5 7 5 . 1 HRS ENABLED
 L2 | M x x x | 6 4 8 . 6 HRS LOCKED

L1 | C x x x | REEL FORE / AFT _____
 L2 | M x x x | 5 7 5 . 1 HRS ENABLED
 L2 | M x x x | 6 4 8 . 6 HRS LOCKED

L1 | C x x x | DRAPER SPEED _____
 L2 | M x x x | 5 7 5 . 1 HRS ENABLED
 L2 | M x x x | 6 4 8 . 6 HRS LOCKED

L1 | C x x x | AUGER SPEED _____
 L2 | M x x x | 5 7 5 . 1 HRS ENABLED
 L2 | M x x x | 6 4 8 . 6 HRS LOCKED

L1 | C x x x | KNIFE SPEED _____
 L2 | M x x x | 5 7 5 . 1 HRS ENABLED
 L2 | M x x x | 6 4 8 . 6 HRS LOCKED

L1 | C x x x | DISK SPEED _____
 L2 | M x x x | 5 7 5 . 1 HRS ENABLED
 L2 | M x x x | 6 4 8 . 6 HRS LOCKED

L1 | C x x x | REEL SPEED _____
 L2 | M x x x | 5 7 5 . 1 HRS ENABLED
 L2 | M x x x | 6 4 8 . 6 HRS LOCKED

L1 | C x x x | EXIT VIEW LOCKOUTS?
 L2 | M x x x | ← NO / YES →

When the control lock outs are viewed the lower display line (L2) will show the engine hours and either ENABLED or LOCKED to indicate the present status along with the engine hours at which time the function was either ENABLED or LOCKED.

Using the "arrow" keys allows the operator to select the various functions. Pressing "SELECT" will go to the EXIT VIEW LOCKOUTS? menu selection.

_____ If "NO" then jump to:
 HEADER TILT _____

L1 | C x x x | EXIT WINDRWR SETUP? | If "NO" then jump to: _____
 L2 | M x x x | ← NO / YES → | SET KNIFE SPEED? _____

or | D I S C O V E R L O A D S P D ? _____

Disc Header Only

ASSEMBLING THE WINDROWER

L1 C x x x CAB DISPLAY SETUP? If "NO" then jump to: CALIBRATE SENSORS? L2 M x x x <input type="checkbox"/> NO / YES <input type="checkbox"/> YES	Only if Engine is running! L1 C x x x DISPLAY LANGUAGE? Use the "arrow" keys to change the default language. Pressing "SELECT" goes to the next L1 menu selection. L2 M x x x <input type="checkbox"/> ENGLISH <input type="checkbox"/> L2 M x x x <input type="checkbox"/> ESPANOL <input type="checkbox"/> L1 C x x x DISPLAY UNITS? The "arrow" keys are used to select between IMPERIAL or METRIC. The default value will be displayed first. L2 M x x x <input type="checkbox"/> IMPERIAL <input type="checkbox"/> L2 M x x x <input type="checkbox"/> METRIC <input type="checkbox"/> L1 C x x x CDM BUZZER VOLUME The "arrow" keys are used to change the CDM buzzer volume, CDM backlighting or the CDM contrast, with the bar graph indicating the relative level for each item. When "SELECT" is pressed the program goes to the EXIT DISPLAY SETUP? menu selection. L2 M x x x <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> L1 C x x x CDM BACKLIGHTING L2 M x x x <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> L1 C x x x CDM CONTRAST L2 M x x x <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> L1 C x x x EXIT DISPLAY SETUP? If "NO" then jump to: DISPLAY LANGUAGE? L2 M x x x <input type="checkbox"/> NO / YES <input type="checkbox"/> YES	
L1 C x x x CALIBRATE SENSORS? If "NO" then jump to: DIAGNOSTIC MODE? L2 M x x x <input type="checkbox"/> NO / YES <input type="checkbox"/> YES	If engine off then jump to diagnostic mode? L1 C x x x TO CALIBRATE SELECT The operator can select any of the three items requiring calibration (or exit the CAL menu) by using the turn signal switches to cycle through the choices. Pressing SELECT will take the operator to the calibration menu for that particular sensor. L2 M x x x <input type="checkbox"/> HEADER HEIGHT <input type="checkbox"/> L2 M x x x <input type="checkbox"/> HEADER TILT <input type="checkbox"/> L2 M x x x <input type="checkbox"/> HEADER FLOAT <input type="checkbox"/> L2 M x x x <input type="checkbox"/> STOP & EXIT <input type="checkbox"/> L1 C x x x HEIGHT SENSOR CAL L2 M x x x RAISE HDR TO START L1 C x x x CALIBRATING HEIGHT L2 M x x x RAISE HEADER HOLD L2 M x x x HEADER RAISE DONE L1 C x x x HEIGHT SENSOR CAL L2 M x x x PRESS LOWER HEADER L1 C x x x CALIBRATING HEIGHT L2 M x x x LOWER HEADER HOLD L2 M x x x HT SENSOR COMPLETE L1 C x x x TO CALIBRATE SELECT The operator can select any of the three items requiring calibration (or exit the CAL menu) by using the turn signal switches to cycle through the choices. Pressing SELECT will take the operator to the calibration menu for that particular sensor. L2 M x x x <input type="checkbox"/> HEADER HEIGHT <input type="checkbox"/> L2 M x x x <input type="checkbox"/> HEADER TILT <input type="checkbox"/> L2 M x x x <input type="checkbox"/> HEADER FLOAT <input type="checkbox"/> L2 M x x x <input type="checkbox"/> STOP & EXIT <input type="checkbox"/> L1 C x x x HDR TILT SENSOR CAL L2 M x x x EXTEND TLT TO START L1 C x x x CALIBRATING TILT L2 M x x x EXTEND TILT HOLD L2 M x x x EXTEND TILT DONE L1 C x x x HDR TILT SENSOR CAL L2 M x x x PRESS RETRACT TILT L1 C x x x CALIBRATING TILT L2 M x x x RETRACT TILT HOLD L2 M x x x HDR TILT COMPLETE L1 C x x x TO CALIBRATE SELECT The display will indicate the sensor being calibrated. The operator will be prompted to raise the header and HOLD will flash until the system has completed reading in the signal with the header fully raised. HOLD will change to DONE (with buzzer). L2 M x x x <input type="checkbox"/> HEADER HEIGHT <input type="checkbox"/> L2 M x x x <input type="checkbox"/> HEADER TILT <input type="checkbox"/> L2 M x x x <input type="checkbox"/> HEADER FLOAT <input type="checkbox"/> L2 M x x x <input type="checkbox"/> STOP & EXIT <input type="checkbox"/> L1 C x x x CALIBRATING FLOAT L2 M x x x PRESS FLT+ TO START L1 C x x x CALIBRATING FLOAT L2 M x x x FLOAT (+) HOLD L2 M x x x FLOAT (+) DONE L1 C x x x CALIBRATING FLOAT L2 M x x x FLOAT (-) HOLD L2 M x x x HDR FLOAT COMPLETE L1 C x x x TO CALIBRATE SELECT When the header raise is done, the CDM will prompt the user to lower the header. COMPLETE (with buzzer) will flash on the screen for 2 seconds when the calibration is finished. L2 M x x x <input type="checkbox"/> HEADER HEIGHT <input type="checkbox"/> L2 M x x x <input type="checkbox"/> HEADER TILT <input type="checkbox"/> L2 M x x x <input type="checkbox"/> HEADER FLOAT <input type="checkbox"/> L2 M x x x <input type="checkbox"/> STOP & EXIT <input type="checkbox"/> L1 C x x x CALIBRATING FLOAT L2 M x x x PRESS FLT+ TO START L1 C x x x CALIBRATING FLOAT L2 M x x x FLOAT (+) HOLD L2 M x x x FLOAT (+) DONE L1 C x x x CALIBRATING FLOAT L2 M x x x FLOAT (-) HOLD L2 M x x x HDR FLOAT COMPLETE L1 C x x x TO CALIBRATE SELECT When the header tilt extend is done, the CDM will prompt the user to press the header tilt retract. COMPLETE (with buzzer) will flash on the screen for 2 seconds when the calibration is finished. L2 M x x x <input type="checkbox"/> HEADER HEIGHT <input type="checkbox"/> L2 M x x x <input type="checkbox"/> HEADER TILT <input type="checkbox"/> L2 M x x x <input type="checkbox"/> HEADER FLOAT <input type="checkbox"/> L2 M x x x <input type="checkbox"/> STOP & EXIT <input type="checkbox"/> L1 C x x x CALIBRATING FLOAT L2 M x x x PRESS FLT+ TO START L1 C x x x CALIBRATING FLOAT L2 M x x x FLOAT (+) HOLD L2 M x x x FLOAT (+) DONE L1 C x x x CALIBRATING FLOAT L2 M x x x FLOAT (-) HOLD L2 M x x x HDR FLOAT COMPLETE L1 C x x x TO CALIBRATE SELECT The operator can select any of the three items requiring calibration (or exit the CAL menu) by using the turn signal switches to cycle through the choices. Pressing SELECT will take the operator to the calibration menu for that particular sensor. NO is the default for EXIT CAL?. If "NO" then jump to: TO CALIBRATE SELECT L2 M x x x <input type="checkbox"/> HEADER HEIGHT <input type="checkbox"/> L2 M x x x <input type="checkbox"/> HEADER TILT <input type="checkbox"/> L2 M x x x <input type="checkbox"/> HEADER FLOAT <input type="checkbox"/> L2 M x x x EXIT CAL? <input type="checkbox"/> NO / YES <input type="checkbox"/> YES	If "NO" then jump to: DISPLAY LANGUAGE? If engine off then jump to diagnostic mode? If "NO" then jump to: DIAGNOSTIC MODE? If "NO" then jump to: TO CALIBRATE SELECT
L1 C x x x DIAGNOSTIC MODE? If "NO" then jump to: EXIT SETUP? L2 M x x x <input type="checkbox"/> NO / YES <input type="checkbox"/> YES	EXIT SETUP?	

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L1	C x x x VIEW ERROR CODES ?		If "NO" then jump to:
L2	M x x x NO / YES	ENTER SENSOR SETUP ?	
L1	C x x x VIEW WINDRWR CODES ?		If "NO" then jump to:
L2	M x x x NO / YES	VIEW ENGINE CODES ?	
L1	1 1 2 3 4 . 5 HRS 1 2 3		The last 10 distinct error codes are stored along with the code #, Exxx, engine hours and number of occurrences. The "arrow" keys are used to cycle between codes.
L2	E 4 7 SENSOR VOLTS LOW		
L1	2 1 2 3 0 . 5 HRS 1 2 3		If "NO" then jump to the first error code logged.
L2	E 7 1 LOW HYDRAULIC OIL		
L1	C x x x EXIT WINDRWR CODES ?		If "NO" then jump to:
L2	M x x x NO / YES	EXIT ERROR CODES ?	
L1	C x x x VIEW ENGINE CODES ?		If "NO" then jump to:
L2	M x x x NO / YES	EXIT ERROR CODES ?	
L1	1 PREVIOUS ENG. CODES		The last 10 distinct error codes are stored.
L2	# # # # S # # F # # C		
L1	C x x x EXIT ENGINE CODES ?		If "NO" then jump to the first engine error code logged.
L2	M x x x NO / YES		
L1	C x x x EXIT ERROR CODES ?		If "NO" then jump to:
L2	M x x x NO / YES	VIEW WINDRWR CODES ?	
L1	C x x x ENTER SENSOR SETUP ?		If "NO" then jump to:
L2	M x x x NO / YES	READ SENSOR INPUTS ?	
L1	C x x x KNIFE SPEED SENSOR		The operator can select each sensor and selectively enable or disable the sensor. This can be used to disable a failed sensor to eliminate false or erratic display readings.
L2	M x x x ENABLE / DISABLE		
L1	C x x x HEADER HT SENSOR		When "SELECT" is pressed the program goes to the EXIT SENSOR SETUP? menu selection.
L2	M x x x ENABLE / DISABLE		
L1	C x x x HEADER TILT SENSOR		NOTE: The oil temp. readout applies to units with the Sensata oil temp. sensor.
L2	M x x x ENABLE / DISABLE		
L1	C x x x HEADER FLOAT SENSOR		If "NO" then jump to:
L2	M x x x ENABLE / DISABLE	KNIFE SPEED SENSOR	
L1	C x x x OVERLOAD PRESSURE		
L2	M x x x ENABLE / DISABLE		
L1	C x x x HYD OIL TEMP SENSOR		
L2	M x x x ENABLE / DISABLE		
L1	C x x x EXIT SENSOR SETUP ?		If "NO" then jump to:
L2	M x x x NO / YES	KNIFE SPEED SENSOR	
L1	C x x x READ SENSOR INPUTS ?		If "NO" then jump to:
L2	M x x x NO / YES	ACTIVATE FUNCTIONS ?	
L1	C x x x SENSOR INPUT		For diagnostic purposes each sensors input signal can be read. This helps in determining how each sensor is operating and if the proper output voltages are being received by the control system.
L2	M x x x HDR HEIGHT 3 . 5 9 V		
L1	C x x x SENSOR INPUT		When "SELECT" is pressed the program goes to the EXIT READ SENSORS? menu selection.
L2	M x x x HDR ANGLE 1 . 8 4 V		
L1	C x x x SENSOR INPUT		If "NO" then jump to:
L2	M x x x 2 . 4 5 V FLOAT 2 . 8 4 V		
L1	C x x x SENSOR INPUT		If a sensor has been disabled "SENSOR" will be flashing in the area where the input reading would have been.
L2	M x x x KNIFE SPEED 1 2 3 HZ		
L1	C x x x SENSOR INPUT		If a sensor has been disabled "SENSOR" will be flashing in the area where the input reading would have been.
L2	M x x x WHEEL SPEED 1 2 3 HZ		
L1	C x x x SENSOR INPUT		If a sensor has been disabled "SENSOR" will be flashing in the area where the input reading would have been.
L2	M x x x HYD OIL TEMP 1 . 0 0 V		
L1	C x x x EXIT READ SENSORS ?		NOTE: The oil temp. readout applies to the M205 model with the Sensata oil temp. sensor.
L2	M x x x NO / YES	SENSOR INPUT HDR HEIGHT 3 . 5 9 V	
L1	C x x x SENSOR INPUT		
L2	M x x x HDR HEIGHT SENSOR		
L1	C x x x SENSOR INPUT		
L2	M x x x HDR ANGLE SENSOR		
L1	C x x x SENSOR INPUT		
L2	M x x x 2 . 4 5 V FLOAT SENSOR		
L1	C x x x SENSOR INPUT		
L2	M x x x KNIFE SPEED SENSOR		
L1	C x x x SENSOR INPUT		
L2	M x x x REEL SPEED SENSOR		
L1	C x x x SENSOR INPUT		
L2	M x x x HYD OIL TEMP SENSOR		

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L1	C x x x	ACTIVATE FUNCTIONS?	If "NO" then jump to:
L2	M x x x	← NO / YES →	FORCE HEADER TYPE?
L1	C x x x	ACTIVATE HEADER HT	For diagnostic purposes each header function can be activated by using the "arrow" keys on the CDM. When "SELECT" is pressed the program will go to the next function that can be activated.
L2	M x x x	← DOWN / UP →	
L1	C x x x	ACTIVATE REEL HT	If a disk header is detected then the nomenclature should read: DISC DRIVE instead of KNIFE DRIVE.
L2	M x x x	← DOWN / UP →	
L1	C x x x	ACTIVATE HDR TILT	PWM OPERATION: If the HAZARD switch is pressed instead of the TURN SIGNAL switch the GSL will operate the PWM valve (HAZARD sw must be held) and the PWM value will reset to zero when released.
L2	M x x x	← IN / OUT →	
L1	C x x x	KNIFE DRV SPD XXXX	For Disc Header only
L2	M x x x	D 0 P 0 ← - Δ + →	
L1	C x x x	DRAPER DRV SPD XXXX	The DWA menu selection should only be available if the DWA INSTALLED? is set to YES.
L2	M x x x	D 0 P 0 ← - Δ + →	
L1	C x x x	REEL DRV SPD XXXX	For Disc Header only
L2	M x x x	D 0 P 0 ← - Δ + →	
L1	C x x x	DISC DRV SPD XXXX	ACTIVATE HYD PURGE - This is to allow the operator to purge the air from a new or changed pump system.
L2	M x x x	D 0 P 0 ← - Δ + →	
L1	C x x x	ACTIVATE DWA DRV	Pressing and holding the right hand "arrow" button activates a predetermined timed purge cycle. Releasing pressure on the switch or a completed cycle (timed out) will jump to the PURGE CYCLE ENDED menu selection.
L2	M x x x	D 0 P 0 ← - Δ + →	
L1	C x x x	ACTIVATE REEL F/A	If "NO" then jump to:
L2	M x x x	← FORE / AFT →	
L1	C x x x	ACTIVATE HYD PURGE?	If "NO" then jump to:
L2	M x x x	← NO / YES →	
L1	C x x x	TO ACTIVATE PURGE	TO ACTIVATE PURGE
L2	M x x x	← PRESS AND HOLD →	
L1	C x x x	PURGE CYCLE STARTED	If "NO" then jump to:
L2	M x x x	← PRESS AND HOLD →	
L1	C x x x	PURGE CYCLE ENDED	ACTIVATE HEADER HT
L2	M x x x	← NO / YES →	
L1	C x x x	PURGE CYCLE ENDED	EXIT DIAGNOSTIC?
L2	M x x x	← NO / YES →	
L1	C x x x	EXIT FUNCTION MENU?	If "NO" then jump to:
L2	M x x x	← NO / YES →	
L1	C x x x	FORCE HEADER TYPE? "NO" then jump to:	This allows the operator to select or "force" a header ID configuration if a "NO HEADER" ID is being read by the control system. The header type will revert back to "NO HEADER" every time the ignition is cycled. When "SELECT" is pressed the program goes to the EXIT HEADER TYPE? menu selection.
L2	M x x x	← NO / YES →	
L1	C x x x	SELECT HEADER TYPE	If "NO" then jump to:
L2	M x x x	← DISK HEADER →	
L2	M x x x	← SK AUGER →	If "NO" then jump to:
L2	M x x x	← DK AUGER →	
L2	M x x x	← GRASS SEED →	VIEW ERROR CODES?
L2	M x x x	← 20 FT SK DRAPER →	
L2	M x x x	← 25 FT SK DRAPER →	If "NO" then jump to:
L2	M x x x	← 30 FT SK DRAPER →	
L2	M x x x	← 35 FT SK DRAPER →	WINDROWER SETUP?
L2	M x x x	← 15 FT DK DRAPER →	
L2	M x x x	← 20 FT DK DRAPER →	If "YES" then jump to:
L2	M x x x	← 25 FT DK DRAPER →	
L2	M x x x	← 30 FT DK DRAPER →	OPERATING SCREENS
L2	M x x x	← 35 FT DK DRAPER →	
L2	M x x x	← 40 FT DK DRAPER →	
L1	C x x x	EXIT FORCE HEADER?	
L2	M x x x	← NO / YES →	
L1	C x x x	EXIT DIAGNOSTIC?	
L2	M x x x	← NO / YES →	
L1	C x x x	EXIT SETUP?	
L2	M x x x	← NO / YES →	

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6.24.3 M105 Detailed Programming Menu Flow Chart

The programming menu flow chart is current for cab display module (CDM) software C107 and windrower control module (WCM) software M102.



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L1	C x x x	SET CONTROL LOCKS ?	If "NO" then jump to:																																																																	
L2	M x x x	← NO / YES →	VIEW CONTROL LOCKS ?																																																																	
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L2	M x x x	6 4 8 . 6 HRS LOCKED	L1	C x x x	AUGER SPEED	Using the "arrow" keys allows the operator to select the various functions. Pressing "SELECT" will go to the EXIT VIEW LOCKOUTS? menu selection.	L2	M x x x	5 7 5 . 1 HRS ENABLED	L2	M x x x	6 4 8 . 6 HRS LOCKED	If any of the HDR ANGLE / KNIFE SPEED or REEL SPEED sensors are not "installed" (no expansion module or A30 Auger header selected, they should be suppressed.	L1	C x x x	REEL SPEED	L2	M x x x	5 7 5 . 1 HRS ENABLED	L2	M x x x	6 4 8 . 6 HRS LOCKED	L1	C x x x	REEL FORE / AFT	L2	M x x x	5 7 5 . 1 HRS ENABLED	L2	M x x x	6 4 8 . 6 HRS LOCKED	L1	C x x x	HEADER TILT	L2	M x x x	5 7 5 . 1 HRS ENABLED	L2	M x x x	6 4 8 . 6 HRS LOCKED	L1	C x x x	EXIT VIEW LOCKOUTS ?	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L1	C x x x	EXIT WINDRWR SETUP ?	If "NO" then jump to:																																																																	
L2	M x x x	← NO / YES →	SELECT HEADER TYPE ?																																																																	

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L1	C x x x		C A B	DIS	PLAY	S E T U P ?										
L2	M x x x		←			NO / YES				→						
<div style="border: 1px solid black; padding: 2px;">If "NO" then jump to: C A L I B R A T E S E N S O R S ? NOTE: CALIBRATE SENSORS option is only available when engine is running during selection, otherwise system jumps to DIAGNOSTIC MODE</div>																
	<div style="border: 1px solid black; padding: 2px;">Use the "arrow" keys to change the default language. Pressing "SELECT" goes to the next L1 menu selection.</div>															
L1	C x x x			DIS	PLAY	L A N G U A G E ?										
L2	M x x x		←			E N G L I S H				→						
L2	M x x x		←			E S P A N O L				→						
L2	M x x x		←			R U S S I A N				→						
<div style="border: 1px solid black; padding: 2px;">NOTE: North America have English and Spanish options; Overseas have English and Russian options.</div>																
L1	C x x x			DIS	PLAY	U N I T S ?										
L2	M x x x		←			I M P E R I A L				→						
L2	M x x x		←			M E T R I C				→						
<div style="border: 1px solid black; padding: 2px;">The "arrow" keys are used to select between IMPERIAL or METRIC. The default value will be displayed first.</div>																
L1	C x x x			B U Z Z E R	V O L U M E											
L2	M x x x		←			<table border="1" style="display: inline-table;"><tr><td>▬</td><td>▬</td><td>▬</td><td>▬</td><td>▬</td><td>▬</td></tr></table>	▬	▬	▬	▬	▬	▬				→
▬	▬	▬	▬	▬	▬											
<div style="border: 1px solid black; padding: 2px;">The "arrow" keys are used to change the CDM buzzer volume, CDM backlighting or the CDM contrast, with the bar graph indicating the relative level for each item. When "SELECT" is pressed the program goes to the EXIT DISPLAY SETUP? menu selection.</div>																
L1	C x x x			B A C K L I G H T I N G												
L2	M x x x		←			<table border="1" style="display: inline-table;"><tr><td>▬</td><td>▬</td><td>▬</td><td>▬</td><td>▬</td><td>▬</td></tr></table>	▬	▬	▬	▬	▬	▬				→
▬	▬	▬	▬	▬	▬											
L1	C x x x			D I S P L A Y	C O N T R A S T											
L2	M x x x		←			<table border="1" style="display: inline-table;"><tr><td>▬</td><td>▬</td><td>▬</td><td>▬</td><td>▬</td><td>▬</td></tr></table>	▬	▬	▬	▬	▬	▬				→
▬	▬	▬	▬	▬	▬											
L1	C x x x			E X I T	D I S P L A Y	S E T U P ?										
L2	M x x x		←			NO / YES				→						
<div style="border: 1px solid black; padding: 2px;">If "NO" then jump to: D I S P L A Y L A N G U A G E ? NOTE: If "yes" is selected and engine is not running, system will jump to DIAGNOSTIC MODE</div>																
L1	C x x x			C A L I B R A T E	S E N S O R S ?											
L2	M x x x		←			NO / YES				→						
<div style="border: 1px solid black; padding: 2px;">If "NO" then jump to: D I A G N O S T I C M O D E ? NOTE: CALIBRATE SENSORS option is only available with engine running</div>																
	<div style="border: 1px solid black; padding: 2px;">The operator can select any of the two items requiring calibration or to STOP & EXIT the menu.</div>															
	<div style="border: 1px solid black; padding: 2px;">When a function is activated, the display will indicate the function being calibrated. HOLD will flash until the system has completed reading in the signal with the header fully raised.</div>															
	<div style="border: 1px solid black; padding: 2px;">DONE will flash and prompt the operator to COMPLETE the sensor calibration by lowering the header.</div>															
	<div style="border: 1px solid black; padding: 2px;">When sensor is displayed, press "select" to enter calibration sequence and follow prompts on display</div>															
L1	C x x x			T O	C A L I B R A T E	S E L E C T										
L2	M x x x		←			H E A D E R	H E I G H T			→						
L2	M x x x		←			H E A D E R	T I L T			→						
L2	M x x x		←			S T O P	&	E X I T		→						
L1	C x x x			H E I G H T	S E N S O R	C A L										
L2	M x x x			R A I S E	H D R	T O	S T A R T									
L1	C x x x			C A L I B R A T I N G	H E I G H T											
L2	M x x x			R A I S E	H E A D E R	H O L D										
L2	M x x x			R A I S E	H E A D E R	D O N E										
L1	C x x x			H E I G H T	S E N S O R	C A L										
L2	M x x x			P R E S S	L O W E R	H E A D E R										
L1	M x x x			C A L I B R A T I N G	H E I G H T											
L2	M x x x			L O W E R	H E A D E R	H O L D										
L2	M x x x			H T	S E N S O R	C O M P L E T E										
L1	C x x x			T O	C A L I B R A T E	S E L E C T										
L2	M x x x		←			H E A D E R	H E I G H T			→						
L1	C x x x			T O	C A L I B R A T E	S E L E C T										
L2	M x x x		←			H E A D E R	H E I G H T			→						
L2	M x x x		←			H E A D E R	T I L T			→						
L1	M x x x			H D R	T I L T	S E N S O R	C A L									
L2	M x x x			E X T E N D	T L T	T O	S T A R T									
L1	C x x x			C A L I B R A T I N G	T I L T											
L2	M x x x			E X T E N D	T I L T	H O L D										
L2	M x x x			E X T E N D	T I L T	D O N E										
L1	M x x x			H D R	T I L T	S E N S O R	C A L									
L2	M x x x			P R E S S	R E T R A C T	T I L T										
L1	C x x x			C A L I B R A T I N G	T I L T											
L2	M x x x			R E T R A C T	T I L T	H O L D										
L2	M x x x			H D R	T I L T	C O M P L E T E										
L1	C x x x			T O	C A L I B R A T E	S E L E C T										
L2	M x x x		←			H E A D E R	T I L T			→						
L2	M x x x		←			S T O P	&	E X I T		→						
L1	C x x x			E X I T	C A L I B R A T I O N ?											
L2	M x x x		←			NO / YES				→						
<div style="border: 1px solid black; padding: 2px;">If "NO" then jump to: T O C A L I B R A T E S E L E C T NOTE: If "yes" is selected, then system jumps to DIAGNOSTIC MODE</div>																

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ASSEMBLING THE WINDROWER

	L1 C x x x D I A G N O S T I C M O D E ? L2 M x x x ← N O / Y E S → W I N D R O W E R S E T U P ?	If "NO" then jump to:
	L1 C x x x V I E W E R R O R C O D E S ? L2 M x x x ← N O / Y E S → E N T E R S E N S O R S E T U P ?	If "NO" then jump to:
SAMPLE CODES	L1 C x x x V I E W W I N D R W R C O D E S ? L2 M x x x ← N O / Y E S → E X I T E R R O R C O D E S ?	If "NO" then jump to:
	L1 1 1 2 3 4 . 5 H R S 1 2 3 L2 E 4 7 S E N S O R V O L T S L O W	The last 10 distinct error codes are stored along with the code #, Exxx, engine hours and number of occurrences. The "arrow" keys are used to cycle between codes.
	L1 2 1 2 3 4 . 5 H R S 1 2 3 L2 E 7 1 L O W H Y D R A U L I C O I L	
	L1 C x x x E X I T W I N D R W R C O D E S ? L2 M x x x ← N O / Y E S →	If "NO" then scrolls to: Initial error code displayed See Sample Codes
	L1 C x x x E X I T E R R O R C O D E S ? L2 M x x x ← N O / Y E S → V I E W W I N D R W R C O D E S ?	If "NO" then jump to:
	L1 C x x x E N T E R S E N S O R S E T U P ? L2 M x x x ← N O / Y E S → R E A D S E N S O R I N P U T S ?	If "NO" then jump to:
	L1 C x x x H E A D E R H T S E N S O R L2 M x x x ← E N A B L E / D I S A B L E → L1 C x x x H E A D E R T I L T S E N S O R L2 M x x x ← E N A B L E / D I S A B L E → L1 C x x x K N I F E S P E E D S E N S O R L2 M x x x ← E N A B L E / D I S A B L E → L1 C x x x R E E L S P E E D S E N S O R L2 M x x x ← E N A B L E / D I S A B L E → L1 C x x x E X I T S E N S O R S E T U P ? L2 M x x x ← N O / Y E S →	The operator can select each sensor and selectively enable or disable the sensor in the event of a sensor malfunction. If no expansion module or an A30 auger header is selected, the corresponding menu items should be suppressed. When "SELECT" is pressed the program goes to the EXIT SENSOR SETUP? selection.
	L1 C x x x E X I T S E N S O R S E T U P ? L2 M x x x ← N O / Y E S → H E A D E R H T S E N S O R	If "NO" then jump to:
		Or to the first sensor "installed"
	L1 C x x x R E A D S E N S O R I N P U T S ? L2 M x x x ← N O / Y E S → A C T I V A T E F U N C T I O N S ?	If "NO" then jump to:
	L1 C x x x S E N S O R I N P U T L2 M x x x H D R H E I G H T 3 . 5 9 V L1 C x x x S E N S O R I N P U T L2 M x x x H E A D E R A N G L E 1 . 8 4 V L1 C x x x S E N S O R I N P U T L2 M x x x K N I F E S P E E D 1 2 3 H Z L1 C x x x S E N S O R I N P U T L2 M x x x R E E L S P E E D 1 2 3 H Z L1 C x x x S E N S O R I N P U T L2 M x x x W H E E L S P E E D 1 2 3 H Z	For diagnostic purposes each sensors input signal can be read. If no expansion module or an A30 auger header is selected, the corresponding menu items should be suppressed. When "SELECT" is pressed the program goes to the EXIT READ SENSORS? menu selection. Adds a selection to be able to read in the wheel speed frequency. NOTE: If a sensor has been disabled "SENSOR" will be flashing in the area where the input reading would have been.
	L1 C x x x S E N S O R I N P U T L2 M x x x H D R H E I G H T S E N S O R L1 C x x x S E N S O R I N P U T L2 M x x x H E A D E R A N G L E S E N S O R L1 C x x x S E N S O R I N P U T L2 M x x x K N I F E S P E E D S E N S O R L1 C x x x S E N S O R I N P U T L2 M x x x R E E L S P E E D S E N S O R L1 C x x x E X I T R E A D S E N S O R S ? L2 M x x x ← N O / Y E S →	If "NO" then jump to:
		S E N S O R I N P U T H D R H E I G H T 3 . 5 9 V

ASSEMBLING THE WINDROWER

L1	C x x x ACTIVATE FUNCTIONS ?	If "NO" then jump to:	
L2	M x x x <input type="button" value="←"/> NO / YES <input type="button" value="→"/>	EXIT DIAGNOSTIC ?	
	<div style="display: flex; align-items: center;"> <div style="margin-right: 5px;"> <input type="button" value="↙"/> <input type="button" value="↘"/> </div> <div style="border: 1px solid black; padding: 2px;"> L1 C x x x ACTIVATE FUNCTIONS ? L2 M x x x HEADER <input type="button" value="←"/> DOWN / UP <input type="button" value="→"/> </div> </div>	<p>For diagnostic purposes each header function can be activated by using the "arrow" keys on the CDM. When "SELECT" is pressed the program will go to the next function that can be activated.</p>	
	<div style="display: flex; align-items: center;"> <div style="margin-right: 5px;"> L1 C x x x ACTIVATE FUNCTIONS ? L2 M x x x REEL <input type="button" value="←"/> DOWN / UP <input type="button" value="→"/> </div> </div>		
	<div style="display: flex; align-items: center;"> <div style="margin-right: 5px;"> L1 C x x x ACTIVATE FUNCTIONS ? L2 M x x x HDR TILT <input type="button" value="←"/> IN / OUT <input type="button" value="→"/> </div> </div>	<p>If the HEADER TILT cylinder or the REEL FORE / AFT valve is not installed under the TRACTOR SETUP menu then the ACTIVATE FUNCTIONS menu selection for these items should be suppressed.</p>	
	<div style="display: flex; align-items: center;"> <div style="margin-right: 5px;"> L1 C x x x ACTIVATE FUNCTIONS ? L2 M x x x KNIFE DRIVE ON <input type="button" value="→"/> </div> </div>		
	<div style="display: flex; align-items: center;"> <div style="margin-right: 5px;"> L1 C x x x ACTIVATE FUNCTIONS ? L2 M x x x DRAPER / AUGER ON <input type="button" value="→"/> </div> </div>	<p>For DRAPER / AUGER ON and REEL DRIVE ON (A40 and Draper Headers Only). REEL DRIVE ON and DRAPER / AUGER ON are suppressed for A30 Only.</p>	
	<div style="display: flex; align-items: center;"> <div style="margin-right: 5px;"> L1 C x x x ACTIVATE FUNCTIONS ? L2 M x x x REEL DRIVE ON <input type="button" value="→"/> </div> </div>		
	<div style="display: flex; align-items: center;"> <div style="margin-right: 5px;"> L1 C x x x ACTIVATE FUNCTIONS ? L2 M x x x REEL <input type="button" value="←"/> AFT / FORE <input type="button" value="→"/> </div> </div>		
	<div style="display: flex; align-items: center;"> <div style="margin-right: 5px;"> L1 C x x x ACTIVATE HYD PURGE ? L2 M x x x <input type="button" value="←"/> NO / YES <input type="button" value="→"/> </div> </div>	If "NO" then jump to:	EXIT FUNCTION MENU ?
	<div style="display: flex; align-items: center;"> <div style="margin-right: 5px;"> L1 C x x x TO ACTIVATE PURGE L2 M x x x PRESS AND HOLD <input type="button" value="→"/> </div> </div>	<p>ACTIVATE HYD PURGE - This is to allow the operator to purge the air from a new or changed pump system.</p>	
	<div style="display: flex; align-items: center;"> <div style="margin-right: 5px;"> L1 C x x x PURGE CYCLE STARTED L2 M x x x PRESS AND HOLD <input type="button" value="→"/> </div> </div>	<p>Pressing and holding the right hand "arrow" button activates a predetermined timed purge cycle. Releasing pressure on the switch or a completed cycle (timed out) will jump to the PURGE CYCLE ENDED menu selection.</p>	
	<div style="display: flex; align-items: center;"> <div style="margin-right: 5px;"> L1 C x x x PURGE CYCLE ENDED L2 M x x x </div> </div>	If "NO" then jump to:	TO ACTIVATE PURGE
	<div style="display: flex; align-items: center;"> <div style="margin-right: 5px;"> L1 C x x x EXIT FUNCTION MENU ? L2 M x x x <input type="button" value="←"/> NO / YES <input type="button" value="→"/> </div> </div>	If "NO" then jump to:	HEADER <input type="button" value="←"/> DOWN / UP <input type="button" value="→"/>
	<div style="display: flex; align-items: center;"> <div style="margin-right: 5px;"> L1 C x x x EXIT DIAGNOSTIC ? L2 M x x x <input type="button" value="←"/> NO / YES <input type="button" value="→"/> </div> </div>	If "NO" then jump to:	VIEW ERROR CODES ?
L1	C x x x EXIT SETUP ?	If "NO" then jump to:	WINDROWER SETUP ?
L2	M x x x <input type="button" value="←"/> NO / YES <input type="button" value="→"/>	If "YES", exit to RUN screens	

6.25 Performing Hydraulic Purge

The purge cycle allows for low flow and pressure staging of the pumps when running up a new windrower with all the lines and filters empty. This has been performed at the factory, but is recommended that it be repeated when the windrower has been disassembled for shipping and then reassembled. The header must be attached to the windrower.

CAUTION

Check to be sure all bystanders have cleared the area.

1. Start the engine. Refer to [6.15 Starting Engine, page 97](#).
2. Ensure the M105 and M155 Windrower cab display module (CDM) is programmed for either the A-Series auger header or the D-Series draper header. Program the M205 Windrower CDM for the R-Series rotary header.

IMPORTANT:

Do **NOT** engage the header drive.

3. Simultaneously press the PROGRAM (A) and SELECT (B) buttons to bring up the WINDROWER SETUP screen.

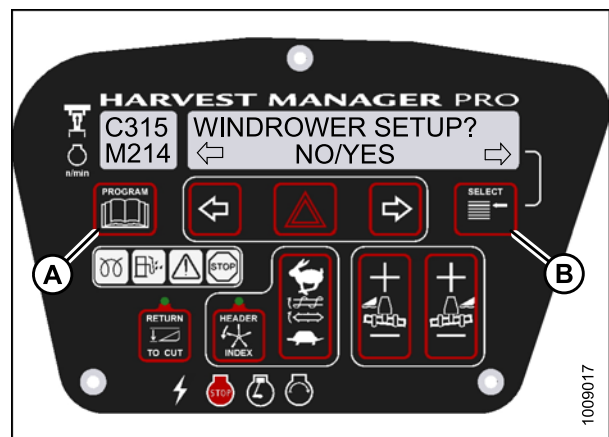


Figure 6.293: M155/M205 Cab Display Module (CDM)



Figure 6.294: M105 Cab Display Module (CDM)

ASSEMBLING THE WINDROWER

4. Push the SELECT (A) button several times until the DIAGNOSTIC MODE screen is displayed.

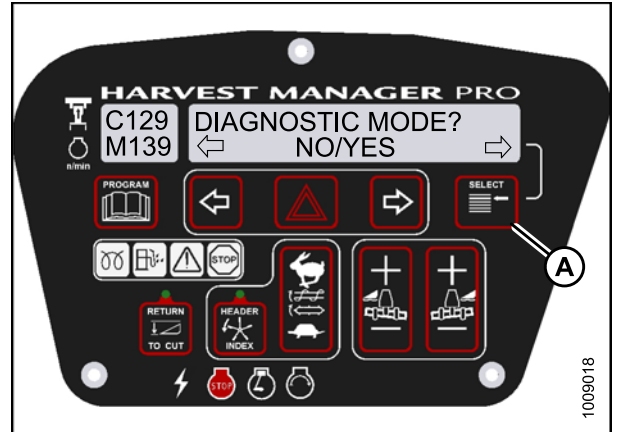


Figure 6.295: M155/M205 CDM



Figure 6.296: M105 Cab Display Module (CDM)

5. Highlight YES with the ARROW (A) buttons and then press the SELECT (B) button.
6. Press SELECT (B) until the ACTIVATE FUNCTIONS screen appears.
7. Highlight YES with the ARROW (A) buttons and press SELECT (B).

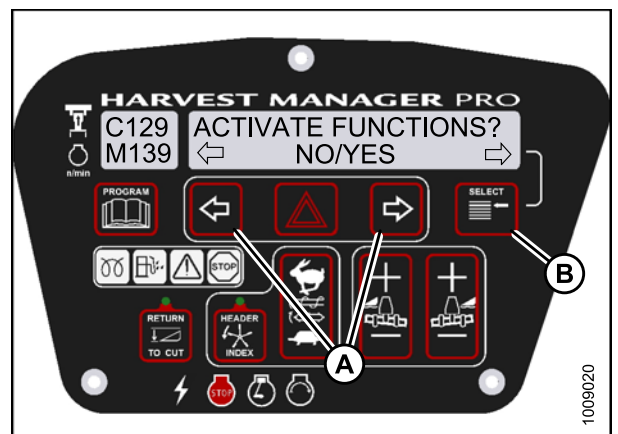


Figure 6.297: M155/M205 CDM

ASSEMBLING THE WINDROWER



Figure 6.298: M105 Cab Display Module (CDM)

8. Press SELECT (A) until ACTIVATE HYD PURGE is displayed.
9. Highlight YES with the ARROW (B) buttons and press SELECT (A). The TO ACTIVATE PURGE PRESS AND HOLD message appears.

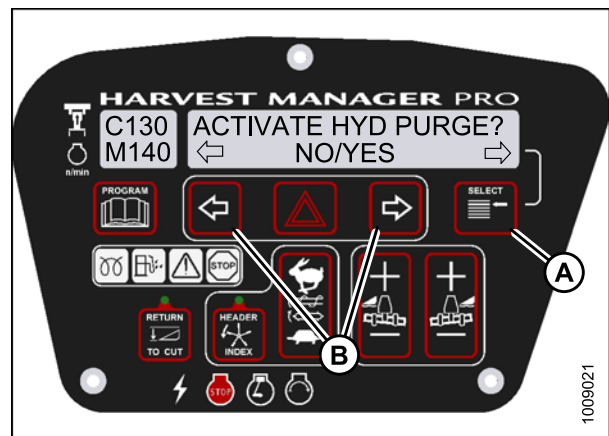


Figure 6.299: M155/M205 CDM



Figure 6.300: M105 Cab Display Module (CDM)

ASSEMBLING THE WINDROWER

- Press and hold the RIGHT ARROW (A) button to activate and run the purge cycle until the purge is complete (approximately 1 minute). Release the ARROW (A) button at any time to stop the cycle.



Figure 6.301: M155/M205 CDM



Figure 6.302: M105 Cab Display Module (CDM)

- Message PURGE CYCLE ENDED appears when cycle is complete. Release the ARROW (A) button.
- Press PROGRAM (B) button to return to operating screens.

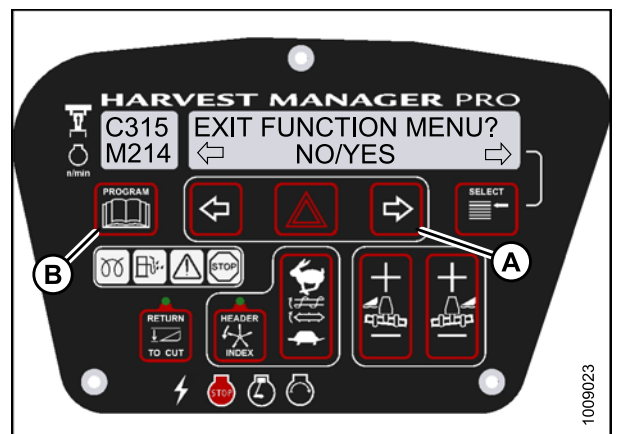


Figure 6.303: M155/M205 CDM

ASSEMBLING THE WINDROWER



Figure 6.304: M105 Cab Display Module (CDM)

7 Performing Predelivery Checks

Perform the final checks and adjustments as listed on the Predelivery Checklist (yellow sheet attached to back of instruction), to ensure the machine is field-ready. Refer to the following pages for detailed instructions as indicated on the Checklist.

The completed Checklist should be retained either by the Operator or the Dealer.

NOTE: The majority of checks and adjustments are performed during the assembly procedures. The following additional inspections should be performed after assembly is complete.

7.1 Recording Serial Numbers

1. Record windrower and engine serial numbers on the Checklist.



Figure 7.1: M105 Serial Number Location

A - Serial Number Plate



Figure 7.2: M155/M205 Serial Number Location

A - Serial Number Plate

PERFORMING PREDELIVERY CHECKS



Figure 7.3: Engine Serial Number Location

A - Serial Number Plate

7.2 Checking Wheel Drive Lubricant Level

Check the wheel drive lubricant level every 200 hours or annually.

NOTE: The windrower should be on level ground when checking lubricant level.

1. Position windrower so that plugs (A) and (B) are horizontally aligned with the center (C) of the hub.
2. Remove plug (A) or (B). The lubricant should be visible through the port or running out slightly.
3. Reinstall plugs and tighten.

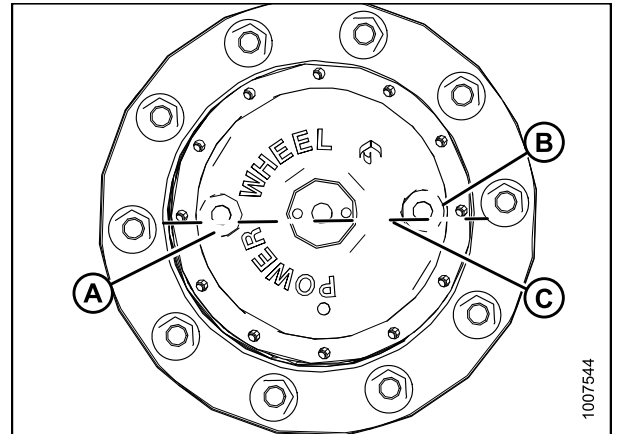


Figure 7.4: Wheel Drive Assembly

7.3 Tire Pressures and Ballast Requirements

7.3.1 Checking Tire Pressures

Measure tire pressure with a gauge:

- Bar: 32 psi (221 kPa)
- Turf: 20 psi (138 kPa)
- Caster: 10 psi (69 kPa)

7.3.2 Checking Tire Ballast

Fluid ballasting of rear caster tires is recommended to provide adequate machine stability when using large headers on the windrower.

Also, the stability of machine varies with different attachments, windrower options, terrain and operator's driving technique.

Ballast capability per tire is at a maximum fill of 75% or when fluid is level with valve stem when the stem is positioned at the "12 o'clock" position.

Fluid can be added to any level up to maximum fill and always add an equal amount of fluid on both sides.

Tire Size	Fluid per Tire at 75% Fill U.S. Gal. (liters)	Total Weight of BOTH Tires lb (kg) ¹⁰
7.5 x 16	10 (38)	200 (91)
10 x 16	18 (69)	380 (170)
16.5 x 16.1	41 (158)	830 (377)

10. Weights are given for typical calcium chloride and water mixtures. Weight is reduced by 20% if only water is used (for areas that do not require anti-freeze protection).

PERFORMING PREDELIVERY CHECKS

Table 7.1 M105 Windrower

Header Description		Rec. Tire Size	Recommended Ballast			
			Level Ground		Hills	
Type	Size		Per Tire	Both Tires	Per Tire	Both Tires
			U.S. Gal. (liters)	lb (kg) ¹¹	U.S. Gal. (liters)	lb (kg) ¹¹
A-Series, all options	All	7.5 x 16 10 x 16 16.5 x 16.1	0			
D-Series	25 FT and down		0		10 (38)	200 (91)
	30 FT SR or DR without conditioner 35 FT SR		Level ground: 10 x 16 16.5 x 16.1	18 (69)	380 (170)	30 (115)
	30 FT DR with steel fingers and conditioner 35 FT DR (5- or 6-bat)	Hills: 16.5 x 16.1				

11. If only water is used, increase volume of water by 20% (up to maximum allowable fill per tire) to compensate.

PERFORMING PREDELIVERY CHECKS

Table 7.2 M155 and M205 Windrower

Header Description		Rec. Tire Size	Recommended Ballast				
			Level Ground		Hills		
Type	Size		Per Tire	Both Tires	Per Tire	Both Tires	
			U.S. Gal. (liters)	lb (kg) ¹²	U.S. Gal. (liters)	lb (kg) ¹¹	
A-Series, all options	All	7.5 x 16 10 x 16 16.5 x 16.1	0				
D-Series	25 FT and down		Level ground: 10 x 16 16.5 x 16.1 Hills: 16.5 x 16.1	18 (69)	380 (170)	30 (115)	630 (288)
	30 FT SR or DR without conditioner 35 FT SR			30 (115)	630 (288)	41 (158)	830 (377)
	30 FT DR with steel fingers and conditioner 35 FT DR (5- or 6-bat)			16.5 x 16.1			
	40 FT	16.5 x 16.1					
R-Series, all options	13 FT	7.5 x 16 10 x 16 16.5 x 16.1	0				

12. If only water is used, increase volume of water by 20% (up to maximum allowable fill per tire) to compensate.

7.4 Checking Engine Air Intake

1. Check that air cleaner cap is firmly attached and that latches (A) and clamps (B) are secure.

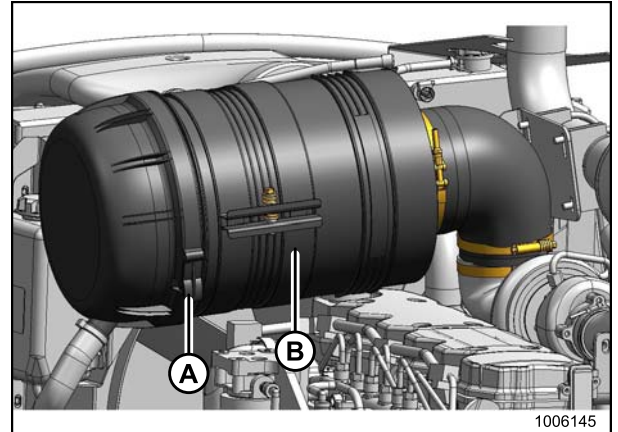


Figure 7.5: M205 Air Intake System

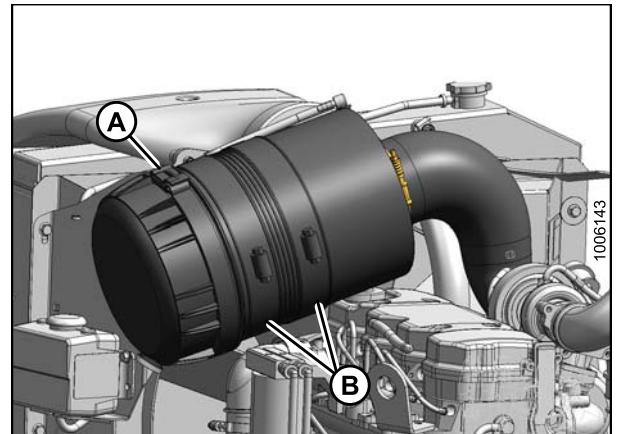


Figure 7.6: M105/M155 Air Intake System

PERFORMING PREDELIVERY CHECKS

2. **M105 and M155 only:** Check constant torque spring clamp (A) at back of air cleaner. Hold 0.018 in. (0.46 mm) gauge between middle coils, and tighten clamp until gauge is snug. Remove gauge.

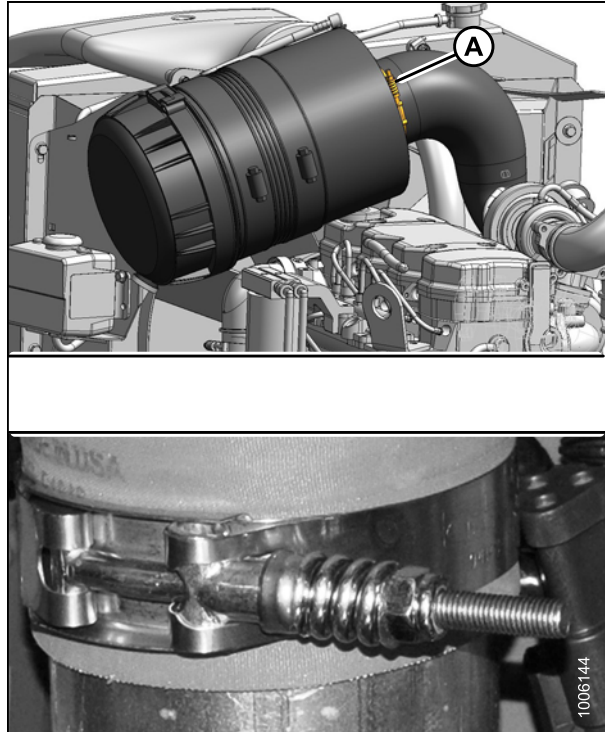


Figure 7.7: Air Intake System

3. **M205 only:** Check constant torque clamps (A) on charge air cooling duct connection at turbocharger inlet. Constant torque type clamps (A) should be tightened to achieve gap as shown.

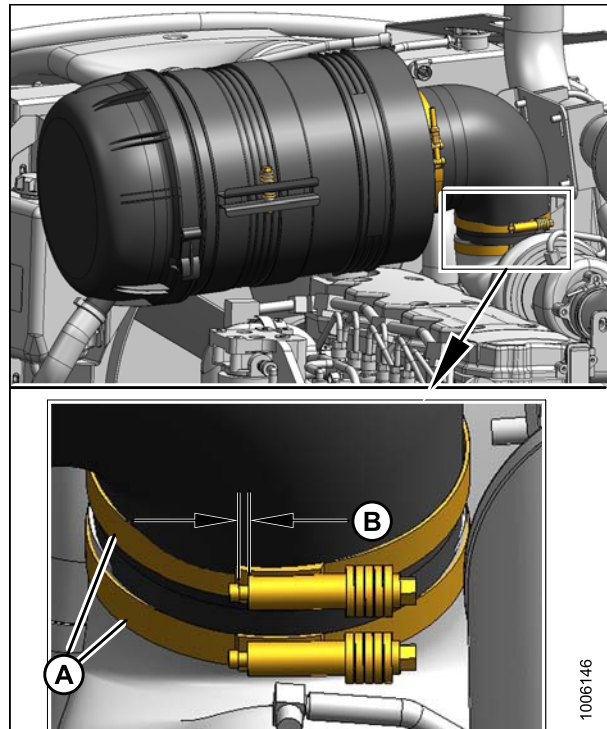


Figure 7.8: Air Intake System

A - Constant Torque Clamps

B - 0.157 +/- 0.02 in. (4 +/- 0.5 mm) Gap

PERFORMING PREDELIVERY CHECKS

4. Check constant torque clamps (A) on charge air cooling duct connections at turbocharger outlet and engine air intake. Hold 0.018 in. (0.46 mm) gauge between middle coils of clamp and tighten clamp until gauge is snug. Remove gauge.

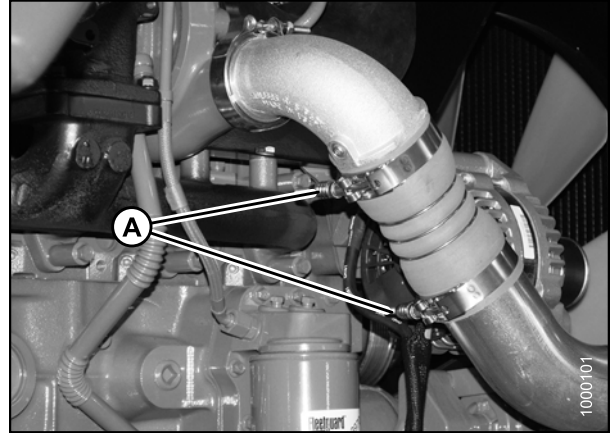


Figure 7.9: Air Intake System

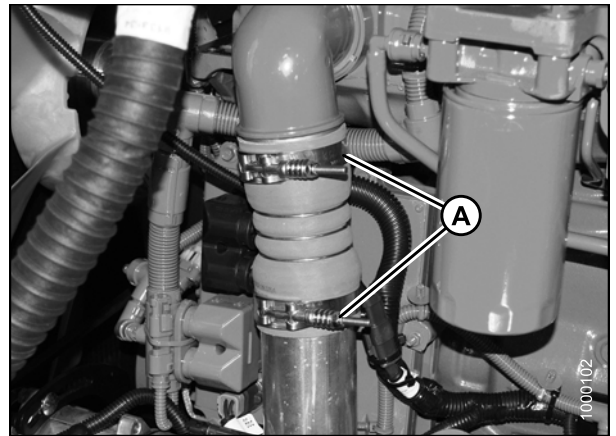


Figure 7.10: Air Intake System

7.5 Checking Hydraulic Oil

Follow these steps to check the hydraulic oil:

1. **For M105:** Turn filler cap (A) counterclockwise to loosen bung and remove dipstick.
2. **For M205, M155:** Turn filler cap (A) counterclockwise to unlock cap and remove dipstick.



Figure 7.11: M105 Engine Hood

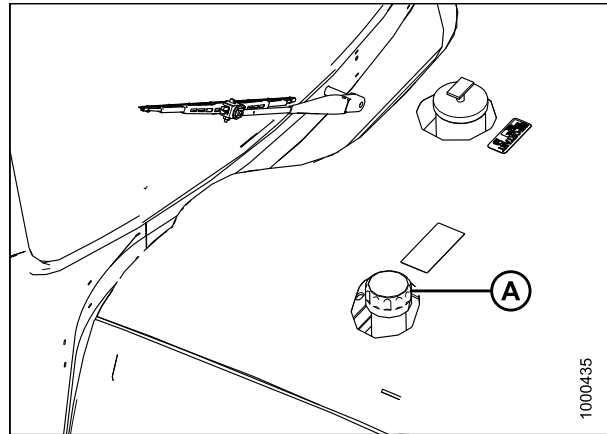


Figure 7.12: Engine Hood

3. Check that level is between LOW and FULL marks.
4. Reinstall dipstick and filler cap, and turn clockwise to tighten/lock.

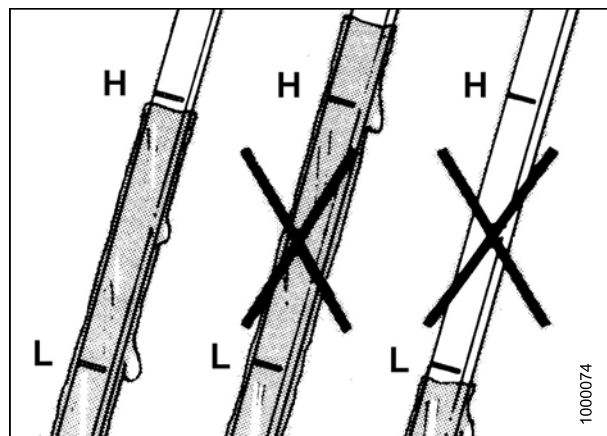


Figure 7.13: Checking Hydraulic Oil

7.6 Checking Fuel Separator

1. Place a container under the filter drain (A).
2. Turn drain valve by hand 1-1/2 to 2 turns counterclockwise, until draining occurs.
3. Drain the filter sump of water and sediment, until clear fuel is visible. Clean as necessary.
4. Turn the valve clockwise to close the drain (A).
5. Safely dispose of fluid in container.

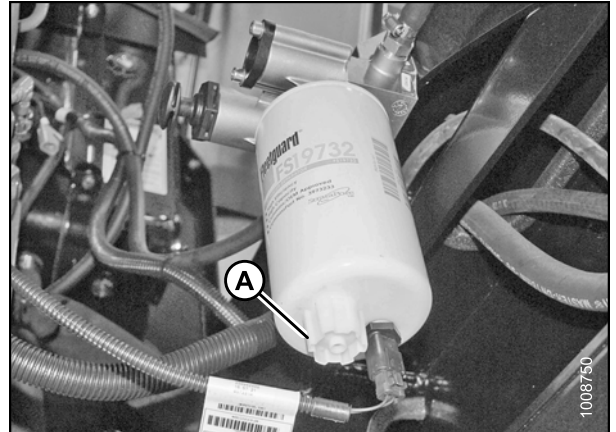


Figure 7.14: Fuel Filter

7.7 Checking Engine Coolant

1. Check the coolant level in the coolant recovery tank (A). Tank should be at least one-half full.
2. Check coolant concentration in the radiator. Coolant shall be rated for temperatures of -30°F (-34°C).

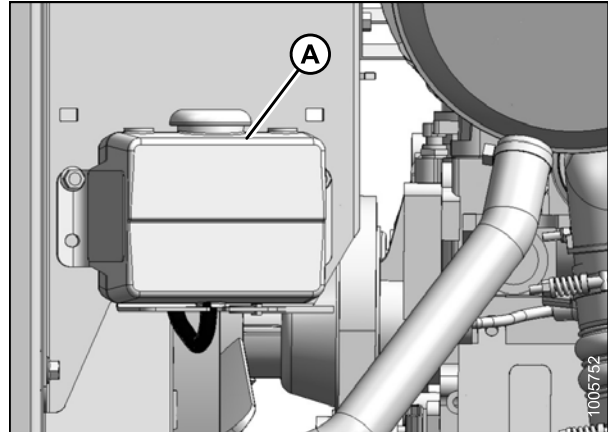


Figure 7.15: M105 Coolant Recovery Tank

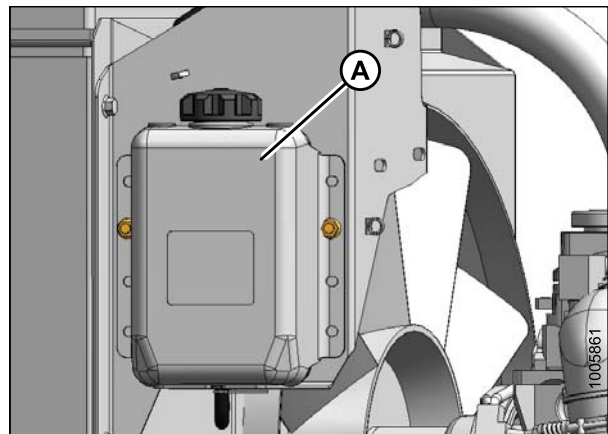


Figure 7.16: M155/M205 Coolant Recovery Tank

7.8 Checking Gearbox Lubricant Level on an M155/M205

1. Remove plug (A). The lubricant should be visible through the hole or slightly running out.
2. Replace plug and tighten.

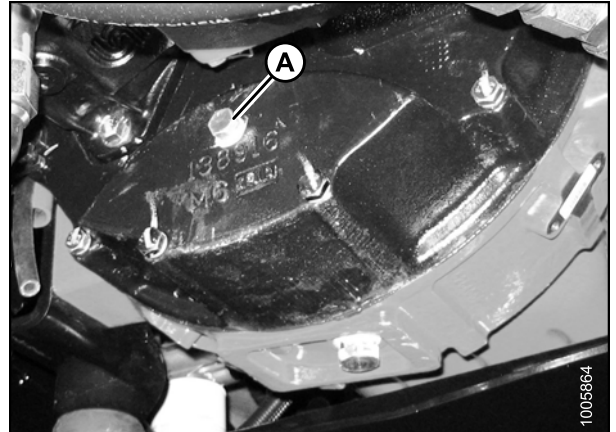


Figure 7.17: M155/M205 Gearbox

7.9 Checking Air Conditioning (A/C) Compressor Belt

Tension on A/C compressor belt (A) should be such that a force of 8–12 lbf (35–55 N) deflects the belt $\frac{3}{16}$ in. (5 mm) at mid-span.



Figure 7.18: A/C Compressor Belt

7.10 Checking Safety System

Ensure battery main disconnect switch is switched to POWER ON position. Refer to [7.11 Operational Checks, page 205](#).

A properly functioning system should operate as follows:

- The starter should engage **ONLY** when the ground speed lever (GSL) is in N-DETENT, the steering wheel is locked in the CENTER position, and the HEADER DRIVE switch is in the OFF position.
- Under the above conditions, the brake should engage and the machine should not move after engine start-up.
- The steering wheel should **NOT** lock with the engine running and the GSL out of the N-DETENT.
- The machine should **NOT** move with the engine running and with the steering wheel still centered, when the GSL is pulled straight out of N-DETENT (not in forward or reverse).

If the system does not function as described above, refer to the technical manual.

CAUTION

Check to be sure all bystanders have cleared the area.

To check that the safety system is operating properly, follow these steps:

1. With the engine shut down and the HEADER DRIVE switch engaged, try to start the engine. The cab display module (CDM) should display "HEADER ENGAGED" on the upper line and "DISENGAGE HEADER" on the lower line.

If the engine turns over, the system requires adjustment. Refer to the technical manual for adjustment procedures.

2. With the engine shut down, do the following:
 - a. Open engine compartment hood.
 - b. Pry the steering interlock away from pintle arms (A) by inserting a wedge or pry bar between one of the interlock channels (B) and pintle arm.
 - c. Insert a wood block approximately 3/4 in. (19 mm) thick, between the other channel and pintle arm, so that the interlock channel is clear of the pintle arm.
 - d. Turn the steering wheel off center and move the GSL in N-DETENT.
 - e. Try to start the engine. The CDM should flash "CENTER STEERING", accompanied by a short beep with each flash and the engine should not turn over.
If the engine turns over, the system requires adjustment. Refer to the technical manual for adjustment procedures.
 - f. Remove key.
 - g. Remove wood block previously inserted and close hood.

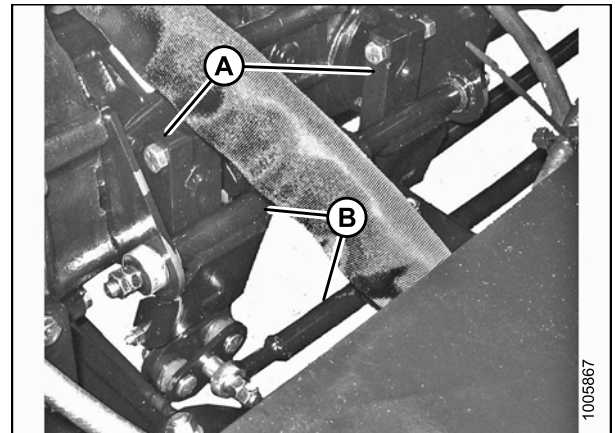


Figure 7.19: Pintle Arms

PERFORMING PREDELIVERY CHECKS

3. With the engine shut down, steering wheel centered, and the GSL in NEUTRAL but not in N-DETENT, try to start the engine. The CDM should flash "CENTER STEERING" on the upper line and "PLACE GSL INTO N" on the lower line accompanied by a short beep with each flash and the engine should not turn over. If the engine turns over, the system requires adjustment. Refer to the technical manual for adjustment procedures.
4. **M155 and M205 ONLY:** With the engine shut down, steering wheel centered, GSL in N-DETENT, and operator's station not locked, try to start the engine. Engine should crank but not start. The CDM should display "SEAT BASE NOT LOCKED". If engine starts, the system requires adjustment. Refer to the technical manual.

7.11 Operational Checks

M205, M155: A battery main disconnect switch (A) is located on the right-hand (cab-forward) frame rail, behind the maintenance platform, and can be accessed by moving the platform.

Ensure switch is switched to POWER ON position.

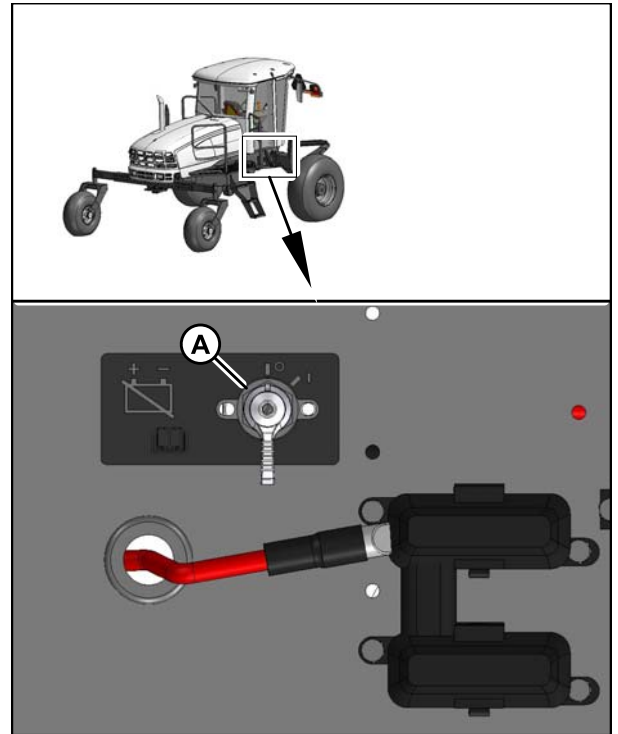


Figure 7.20: M155/M205 Battery Switch

M105: A battery main disconnect switch (A) is located on the left-hand frame rail on the battery tray, and can be accessed by raising the engine compartment hood.

Ensure switch is switched to POWER ON position.

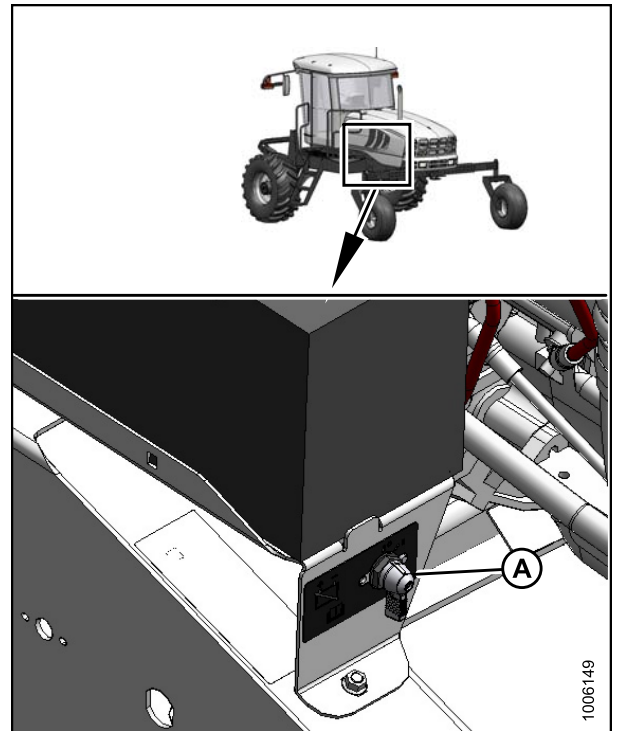


Figure 7.21: M105 Battery Switch

PERFORMING PREDELIVERY CHECKS

7.11.1 Checking Engine Warning Lights

1. Turn ignition key (A) to RUN position. A single loud tone beeps and the engine warning lights (B) illuminate.
2. Turn ignition key (A) to OFF position.



Figure 7.22: M155/M205 Cab Display Module (CDM)



Figure 7.23: M105 Cab Display Module (CDM)

7.11.2 Checking Engine Startup

1. Start the engine. For instructions, refer to [6.15 Starting Engine, page 97](#).
The brakes should engage and the machine should not move after engine start-up.
2. Ensure the steering wheel is centered. Move ground speed lever (GSL) (A) straight out of N-DETTENT (neither forward nor reverse). The machine should not move.
3. With the GSL out of N-DETTENT, check that the steering wheel is free to move.
4. If the machine does not function as described above, the system requires adjustment. Refer to the technical manual.



Figure 7.24: M155/M205 Operator Console

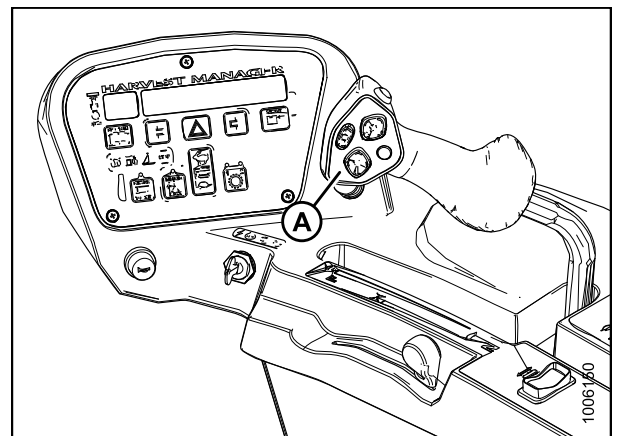


Figure 7.25: M105 Operator Console

PERFORMING PREDELIVERY CHECKS

7.11.3 Checking Engine Speed

Check engine speed on cab display module (CDM) (A).

	Idle	Maximum rpm (No Load)
M105		2270–2330
M155	1100	2320–2350
M205		2250–2340



Figure 7.26: M105 CDM



Figure 7.27: M155/M205 CDM

7.11.4 Checking Gauges and Cab Display Module (CDM) Display

1. **M205 and M155 only:** Check that engine temperature gauge (A) and fuel gauge (B) are working.



Figure 7.28: M155 and M205 Temperature and Fuel Gauges

PERFORMING PREDELIVERY CHECKS

- Check that CDM display (A) is working by pushing SELECT (B) on the CDM or the SELECT button (C) on the ground speed lever (GSL).

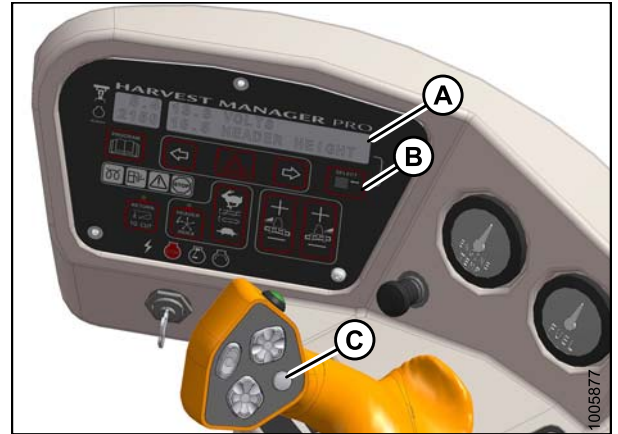


Figure 7.29: M155 and M205 CDM



Figure 7.30: M105CDM

7.11.5 Checking Electrical System

Push the SELECT button on the ground speed lever (GSL) or the SELECT switch on the cab display module (CDM) to display VOLTS. The display indicates the condition of the battery and alternator. Refer to following table.

Ignition	Engine	Reading	Indicated Condition
ON	Running	13.8–15.0	Normal
		>16.0 (see note)	Regulator out of adjustment
		<12.5 (see note)	Alternator not working OR Regulator out of adjustment
	Shut down	12.0	Battery normal

NOTE: Display flashes voltage reading with single loud tone. Repeats every 30 minutes until condition is fixed.

7.11.6 Checking Operator's Presence System

1. With the windrower engine running, place the ground speed lever (GSL) (A) in NEUTRAL and turn the steering wheel until it locks.

CAUTION

Check to be sure all bystanders have cleared the area.

2. With everyone clear of the machine, engage HEADER DRIVE switch (B).
3. After header drives are running, stand up out of the seat. In approximately 5 seconds the header should shut off. If not, the Operator Presence System requires adjustment. Refer to the technical manual.

NOTE: To restart the header, move the HEADER DRIVE switch (B) to the OFF position and back to the ON position again.

4. **M155, M205 ONLY:** With the engine running, position the GSL (A) in NEUTRAL and in N-DETENT:
 - a. Swivel the operator's station, but do **NOT** lock into position.
 - b. Move GSL out of N-DETENT. The engine should shutdown and the lower display will flash "LOCK SEAT BASE → CENTER STEERING WHEEL → NOT IN NEUTRAL".
 - c. Swivel and lock the operator's station and the display should return to normal.
 - d. If the engine does not shut down, the seat position switches require adjustment. Refer to the technical manual.

5. With the windrower moving at **LESS THAN** 5 mph (8 km/h), stand up out of the seat. The CDM will flash "NO OPERATOR" on the upper line and "ENGINE SHUTDOWN 5...4...3...2...1...0" on the lower line accompanied by a steady tone. At "0", the engine shuts down.

If the engine does not shut down, the Operator Presence System requires adjustment. Refer to the technical manual.

6. With the windrower moving at **MORE THAN** 5 mph (8 km/h), stand up out of the seat. The CDM beeps once and displays "NO OPERATOR" on the lower line. If not, the Operator Presence System requires adjustment. Refer to the technical manual.



Figure 7.31: M155/M205 Operator Console

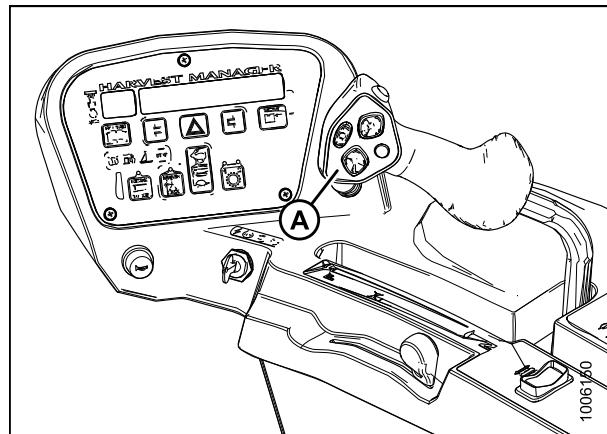


Figure 7.32: M105 Operator Console

7.11.7 Checking Exterior Lights

The procedure for checking the exterior lights differs depending on the windrower model. Refer to [Checking Exterior Lights on an M155/M205, page 211](#) or [Checking Exterior Lights on an M105, page 215](#).

Checking Exterior Lights on an M155/M205

1. Ensure operator's seat is in cab-forward mode.
2. Switch FIELD lights (A) ON and check that all lights are functioning as shown at right.



Figure 7.33: Exterior Light Switches

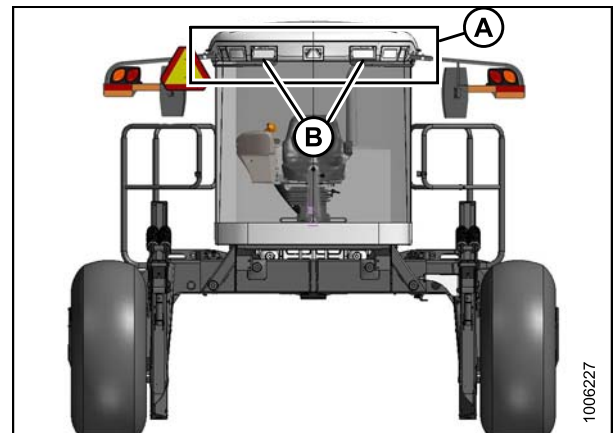


Figure 7.34: Front: Cab-Forward Mode

A - Field Lights

B - High/Low Road Lights
(Optional)

PERFORMING PREDELIVERY CHECKS

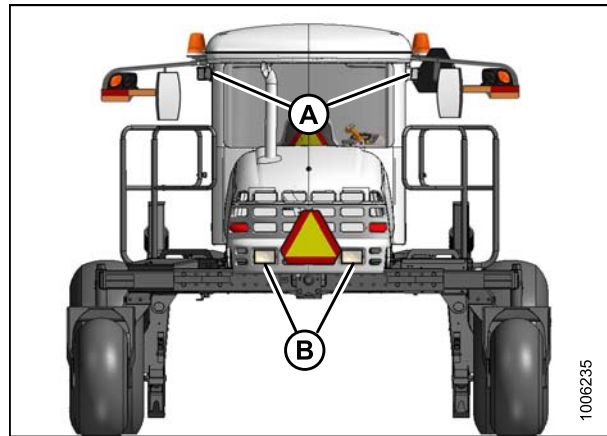


Figure 7.35: Rear: Cab-Forward Mode

A - Field Lights

B - Swath Lights—High/Low

3. Switch ROAD lights (B) ON and check that all lights are functioning as shown at right.
4. Activate HIGH/LOW switch (A).
5. Activate turn signals and hazard warning lights with switches on cab display module (CDM).
6. Turn lights OFF.



Figure 7.36: Exterior Light Switches

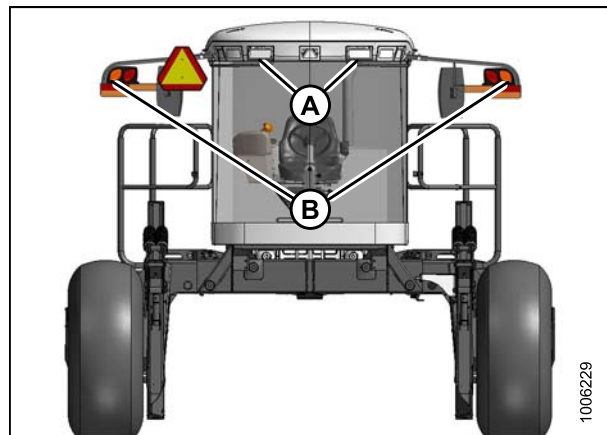


Figure 7.37: Front: Cab-Forward Mode

A - High/Low Road Lights

B - Turn Signals, Hazard Warning Lights—Amber

PERFORMING PREDELIVERY CHECKS

7. Rotate operator's seat to engine-forward mode.
8. Switch ROAD lights (B) ON and check that all lights are functioning as shown at right.
9. Activate HIGH/LOW (A) switch and check lights.
10. Activate turn signals and hazard warning lights with switches on CDM and then check lights.

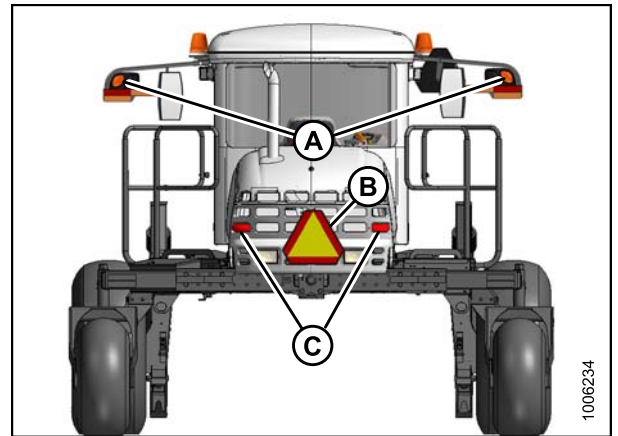


Figure 7.38: Rear: Cab-Forward Mode

A - Turn Signals, Hazard Warning Lights—Amber
B - SMV Sign
C - Tail Lights—Red (If Installed)



Figure 7.39: Exterior Light Switches

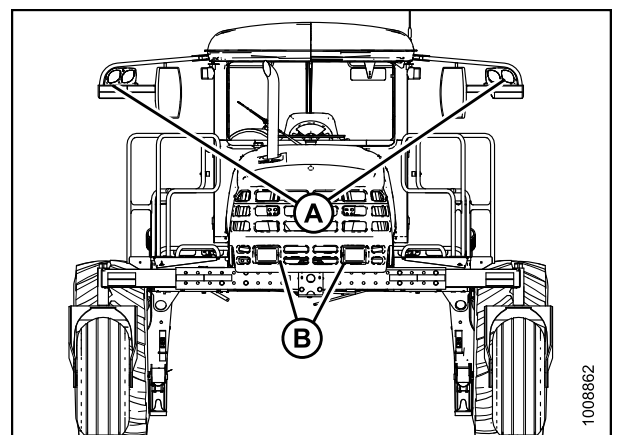


Figure 7.40: Front: Engine-Forward Mode

A - Turn Signals, Hazard Warning Lights—Amber
B - High/Low Road Lights

PERFORMING PREDELIVERY CHECKS

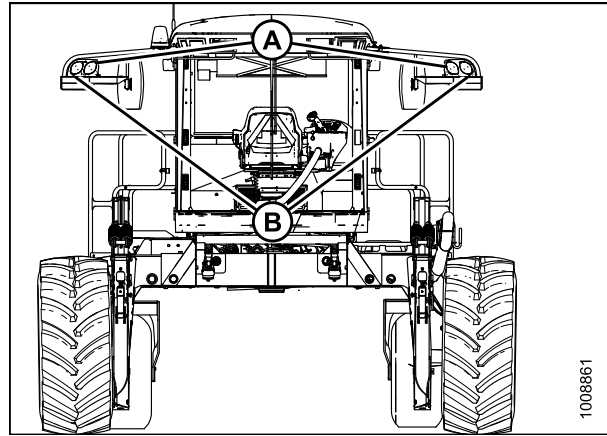


Figure 7.41: Rear: Engine-Forward Mode

A - Tail/Brake Lights—Red

B - Turn Signals, Hazard Warning Lights—Amber

11. Switch beacons (A) ON and check that they are working properly.



Figure 7.42: Exterior Light Switches

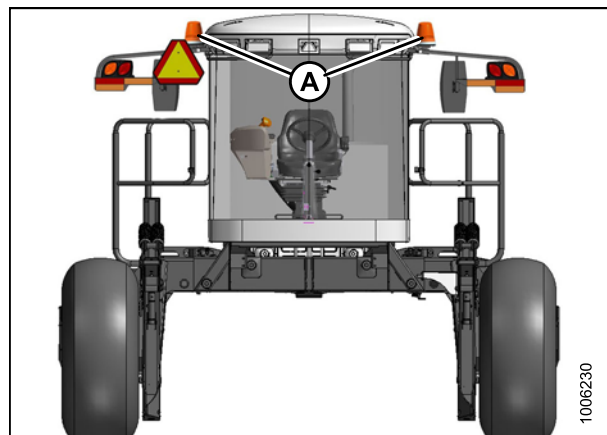


Figure 7.43: Rear: Engine-Forward Mode

A - Beacon Lights—Amber

PERFORMING PREDELIVERY CHECKS

Checking Exterior Lights on an M105

1. Switch FIELD lights (A) ON and check that all lights shown are functioning as shown at right.



Figure 7.44: Exterior Light Switches

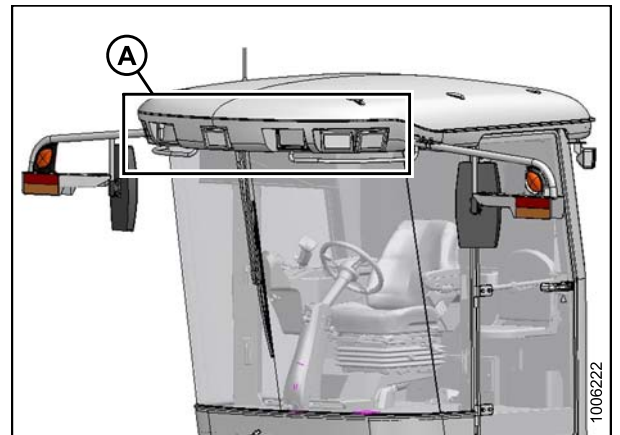


Figure 7.45: Front: Cab-Forward Mode

A - Field Lights

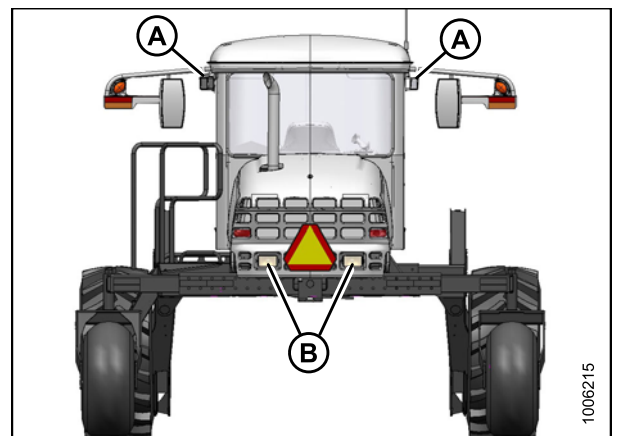


Figure 7.46: Rear: Cab-Forward Mode

A - Field Lights

B - Swath Lights

PERFORMING PREDELIVERY CHECKS

2. Activate HIGH/LOW switch (A).
3. Switch ROAD lights (B) ON and check that all lights shown are functioning as shown at right.
4. Activate HIGH/LOW switch (A).
5. Activate turn signals and hazard warning lights with switches on the Cab display module (CDM).



Figure 7.47: Exterior Light Switches

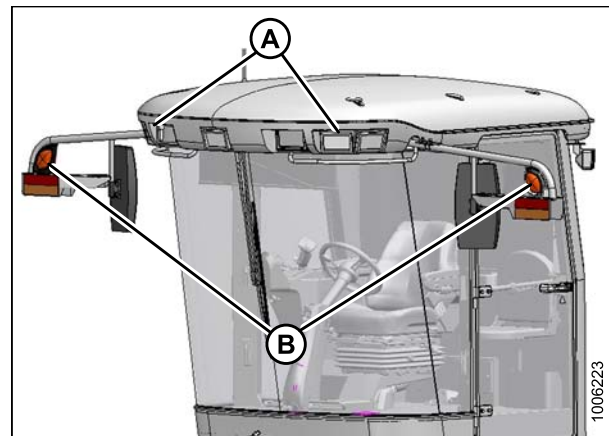


Figure 7.48: Front: Cab-Forward Mode

A - High/Low Lights

B - Turn Signals/Hazard Warning Lights—Amber

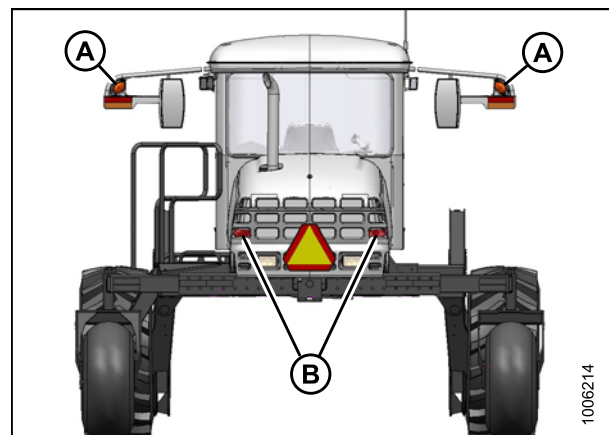


Figure 7.49: Rear: Cab-Forward Mode

A - Turn Signals/Hazard Warning Lights—Amber

B - Tail Lights—Red

PERFORMING PREDELIVERY CHECKS

- Switch beacons (A) ON and check that they are working properly.



Figure 7.50: Exterior Light Switches



Figure 7.51: Front: Cab-Forward Mode

A - Beacon Lights—Amber

PERFORMING PREDELIVERY CHECKS

7.11.8 Checking Horn

1. Push HORN button (A) and listen for horn.

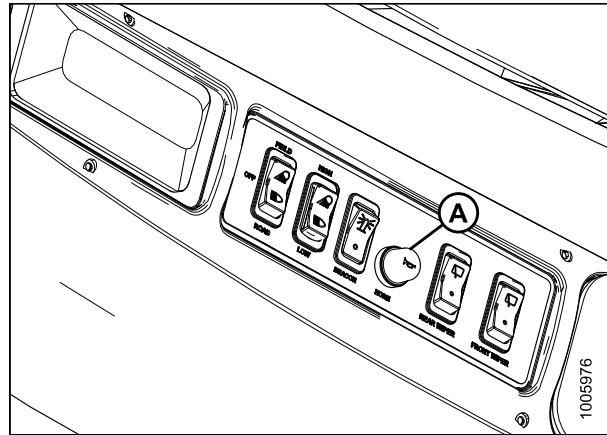


Figure 7.52: M155/M205 Horn Location

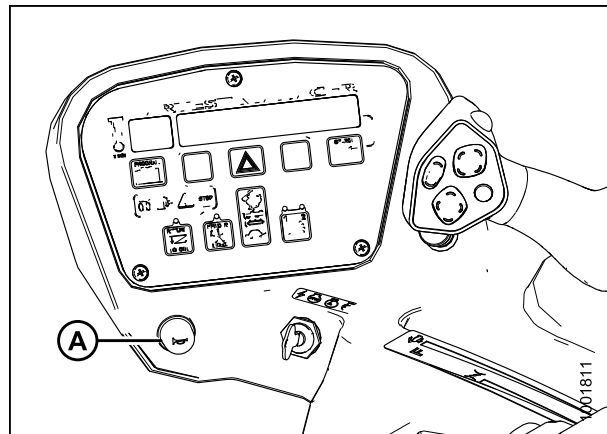


Figure 7.53: M105 Horn Location

7.11.9 Checking Interior Lights

1. Switch lights ON and OFF with switches on each light. Interior lights only work with ROAD or FIELD light switch ON.

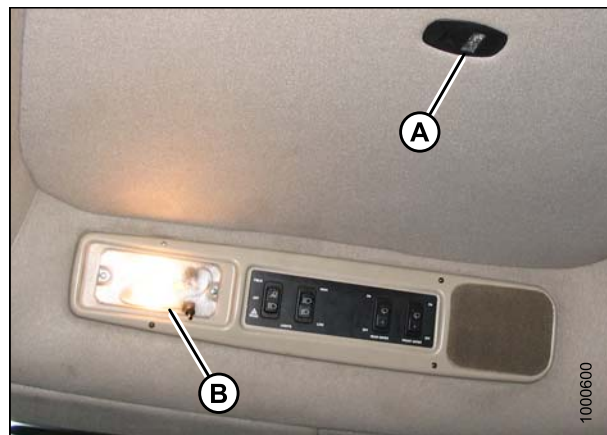


Figure 7.54: Interior Lights and Switches

A - Ambient Light in Roof Liner B - Interior Light

PERFORMING PREDELIVERY CHECKS

2. **M155 and M205 only:** Check gauge lights.



Figure 7.55: Engine Temperature and Fuel Gauges

A - Engine Temperature Gauge B - Fuel Gauge

7.11.10 Checking Air Conditioning (A/C) and Heater



Figure 7.56: M155/M205 A/C controls

A - Blower Switch

B - Air Conditioning Switch

C - Outside Air Switch

D - Temperature Control

- **Blower switch** – Controls blower speed. Switch settings are OFF, LO, MEDIUM, and HI.
- **Air conditioning switch** – Controls A/C system. When set to ON, A/C operates with blower switch on. When set to OFF, the A/C system does not operate.
- **Outside air switch** – Controls air source. When set to FRESH AIR, starts booster fan and filtered outside air is drawn into the cab. When set to RECIRCULATE, stops booster fan and air inside cab is recirculated.

PERFORMING PREDELIVERY CHECKS

- **Temperature control** – Controls cab temperature. To increase temperature, turn knob clockwise. To decrease temperature, turn knob counterclockwise.



Figure 7.57: M105 A/C Controls

A - Temperature Control

B - Blower Switch

C - Air Conditioning Switch

- **Temperature control** – Controls cab temperature. To increase temperature, turn knob clockwise. To decrease temperature, turn knob counterclockwise.
- **Blower switch** – Controls blower speed. Switch settings are OFF, LO, MEDIUM, and HI.
- **Air conditioning switch** – Controls A/C system. When set to ON, A/C operates with blower switch on. When set to OFF, the A/C system does not operate.

IMPORTANT:

To distribute the oil throughout the A/C system, perform the following steps whenever the machine is first started after storage for more than one week:

1. With the engine running, turn BLOWER switch to the first position, turn TEMPERATURE CONTROL switch to maximum heating and A/C control to OFF.
2. Click A/C switch from the OFF to the ON position for one second, then back to OFF for 5 to 10 seconds. Repeat this step ten times.

PERFORMING PREDELIVERY CHECKS

7.12 Manuals

The following manuals are stored in the manual storage case (A) behind the operator's seat:



Figure 7.58: M105 Manual Storage Case

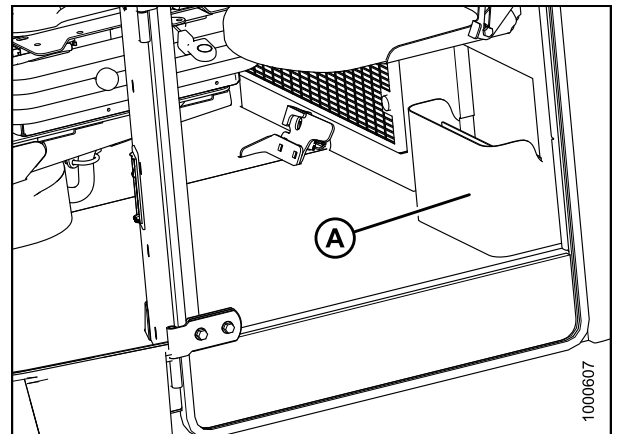


Figure 7.59: M155/M205 Manual Storage Case

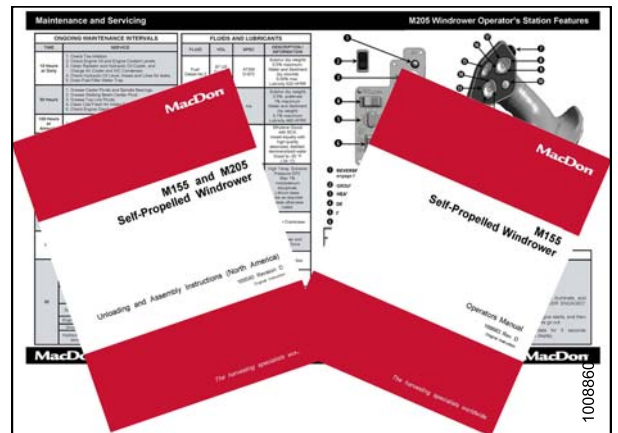


Figure 7.60: Manuals and Quick Card

PERFORMING PREDELIVERY CHECKS

Model	Language	Macdon Part Number			
		Operator's Manuals	Parts Catalogs	Quick Cards	Engine Manuals
M105	English	169890	169891	169892	166240 (English only)
	Russian	169553	169619	n/a	
M155	English	169883	169884	169882	
	Russian	169546	169616	n/a	
M205	English	169887	169888	169889	
	Russian	169482	n/a	n/a	

7.13 Final Steps

1. Once all predelivery checks are complete, remove plastic coverings from cab display module (CDM) and seats.
2. Locate Trimble Display Mount kit and Label (GPS completion kit) that is in a bag in cab. If not yet for installation, place kit in toolbox for safekeeping.
3. AFTER machine is delivered to end user, remove decal (MD #166705) from windshield.

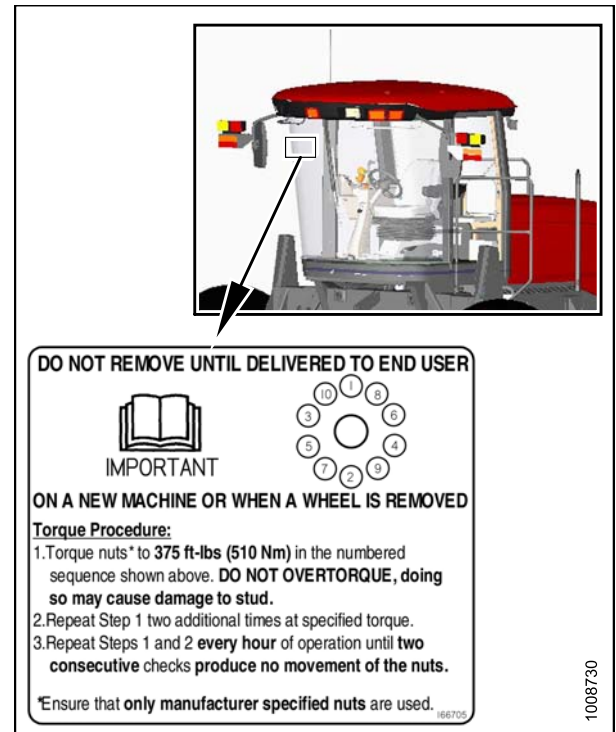


Figure 7.61: Windshield Decal (MD #166705)

Predelivery Checklist

Perform these checks and adjustments prior to delivery to your Customer. The completed checklist should be retained by either the Operator or the Dealer.

CAUTION

Carefully follow the instructions given. Be alert for safety related messages that bring your attention to hazards and unsafe practices.

Windrower Serial Number:

Engine Serial Number:

Table 1 M-Series Self-Propelled Windrower Predelivery Checklist—Export

✓	Item	Reference
	Check for shipping damage or missing parts. Be sure all shipping dunnage is removed.	—
	Check for loose hardware. Tighten to required torque.	2 Recommended Torques, page 5
	Check tire air pressures and adjust as required.	7.3.1 Checking Tire Pressures, page 192
	Check final drive hub lubricant level.	7.2 Checking Wheel Drive Lubricant Level, page 191
	Check engine coolant level and strength at reserve tank.	7.7 Checking Engine Coolant, page 200
	Check air cleaner and clamps.	7.4 Checking Engine Air Intake, page 195
	Check hydraulic oil level and check for leaks along lines.	7.5 Checking Hydraulic Oil, page 198
	Check fuel separator for water and foreign material. Drain and clean as necessary. Add fuel.	7.6 Checking Fuel Separator, page 199
	Check gear box lubricant level (M155 and M205).	7.8 Checking Gearbox Lubricant Level on an M155/M205, page 201
	Check tension of air conditioning compressor belt.	7.9 Checking Air Conditioning (A/C) Compressor Belt, page 202
	Check that machine is completely lubricated.	6.23 Lubricating the Windrower, page 165
	Check Neutral interlock system.	7.10 Checking Safety System, page 203
	Check engine oil pressure indicator light at cab display module (CDM).	7.11.1 Checking Engine Warning Lights, page 206
	START ENGINE AND RUN TO OPERATING TEMPERATURE.	7.11.2 Checking Engine Startup, page 207
	Check CDM for operation.	7.11.4 Checking Gauges and Cab Display Module (CDM) Display, page 208
	Check Operator's Presence System.	7.11.6 Checking Operator's Presence System, page 210
	Check alternator charge rate on CDM.	7.11.5 Checking Electrical System, page 209
	Check fuel gauge/indicator for operation.	7.11.4 Checking Gauges and Cab Display Module (CDM) Display, page 208

PREDELIVERY CHECKLIST

✓	Item	Reference
	Check that air conditioning is functioning properly.	7.11.10 Checking Air Conditioning (A/C) and Heater, page 219
	Check that heater is functioning properly.	7.11.10 Checking Air Conditioning (A/C) and Heater, page 219
	Check instrument console gauge lights (M155 and M205).	7.11.4 Checking Gauges and Cab Display Module (CDM) Display, page 208
	Check maximum (no load) engine speed at CDM.	7.11.3 Checking Engine Speed, page 208
	Check that exterior lights are functioning properly.	7.11.7 Checking Exterior Lights, page 211
	Check that interior lights are functioning properly.	7.11.9 Checking Interior Lights, page 218
	Complete the header's Predelivery Checklist.	—
	Check that manuals are with the windrower.	7.12 Manuals, page 221
	Check that plastic coverings from cab interior have been removed.	7.13 Final Steps, page 223

Date Checked:

Checked by:

MacDon Industries Ltd.

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