MacDon

Double Windrow Attachment (DWA) for M-Series Self-Propelled Windrowers

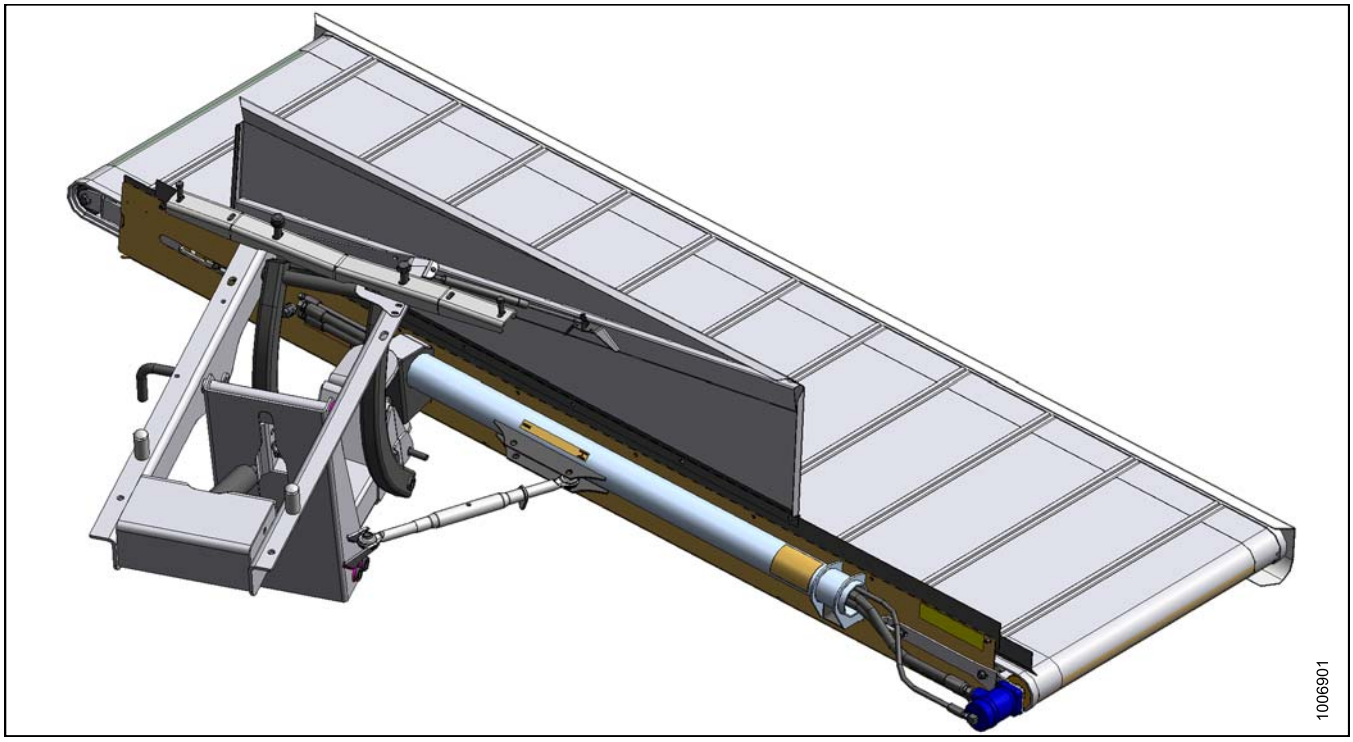
Setup, Operator, and Parts Manual

169216 Revision F

Original Instruction

The harvesting specialists.

This instruction contains the setup procedure, operator's manual, and parts catalog for the MacDon Double Windrow Attachment (DWA).



Published: September, 2014

Introduction

The Double Windrow Attachment (DWA) provides the ability to place two windrows of conditioned material close together to be picked up by a forage chopper. The DWA can be mounted on the following MacDon Self-Propelled Windrowers:

- M150
- M155
- M200
- M205

The DWA is for use with the following headers:

- A-Series Auger Headers
- D-Series Draper Headers with HC10 Hay Conditioners
- R-Series Rotary Disc Header

When the DWA system is engaged, the conditioned crop is deposited onto the side draper and placed to the side of the windrower. Raising the side delivery disengages the DWA, allowing the crop to be deposited between the windrower's wheels.

NOTE:
Depending on the windrower model year, a software update may be required for proper function of the auxiliary lift valve block provided with your DWA. Refer to MacDon Service Bulletin #SB1210 for details.

A Russian translation of this manual (MD #169330) can be ordered from MacDon, downloaded from the MacDon Dealer Portal (*https://portal.macdon.com*) (login required), or downloaded from the MacDon International website (*http://www.macdon.com/world*).

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

At MacDon, we're continuously making improvements: occasionally these improvements impact product documentation. The following list provides an account of major changes from the previous version of this document.

Summary of change	Location
Restructured the Installing the Linkage section	*3.4 Installing the Linkage, page 31*
Restructured the Installing the Hydraulics section Modified images to include the new flow control valve	*3.6 Installing the Hydraulics, page 46*
Modified images in the Installing the Electrical System section to include the new flow control valve	*3.8 Installing the Electrical System, page 53*
Restructured the Activating the Double Windrow Attachment section	*3.8.1 Activating the Double Windrower Attachment (DWA), page 55*
Restructured the Installing the Tank Overflow Hose Extension section	*3.9 Installing the Tank Overflow Hose Extension, page 57*
Added new image to the Adjusting the Deck Angle Relative to the Ground section	*4.5.2 Adjusting Deck Angle Relative to the Ground, page 67*
Restructured the Adjusting Draper Tracking section	*5.1.3 Adjusting Draper Tracking, page 75*
Restructured the Maintaining the Draper Roller section	*5.1.7 Maintaining the Draper Roller, page 79*
Updated the parts list and hydraulics schematic to include the new flow control valve and fittings	*5.3 Hydraulics Schematics, page 85* and *6.5 Hydraulics and In-Cab Electrical, page 100*
Reorganized the Decals image	*6.7 Decals, page 108*

Serial Number Location

Record the serial number of the Double Windrow Attachment (DWA) in the space provided.

DWA serial number: _____

The serial number plate is located on the deck (A).

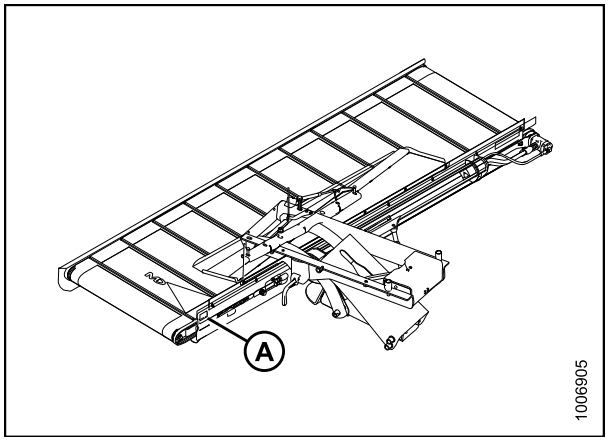


Figure 1: Serial Number Location

1 Safety

1.1 Safety Alert Symbols

This safety alert symbol indicates important safety messages in this manual and on safety signs on the .

This symbol means:

- **ATTENTION!**
- **BECOME ALERT!**
- **YOUR SAFETY IS INVOLVED!**

Carefully read and follow the safety message accompanying this symbol.

Why is safety important to you?

- Accidents disable and kill
- Accidents cost
- Accidents can be avoided

Figure 1.1: Safety Symbol

1.2 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.

1.3 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

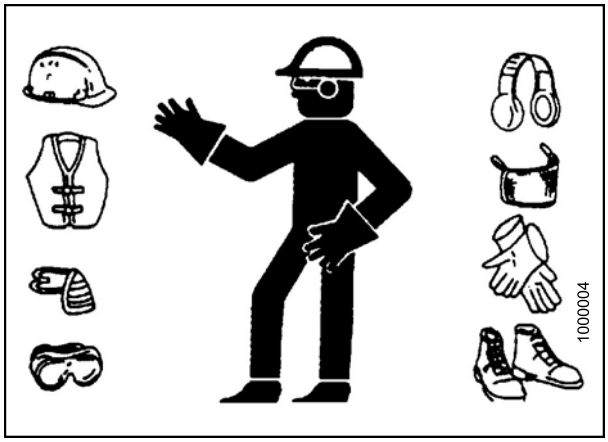


Figure 1.2: Safety Equipment

Hearing protection

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

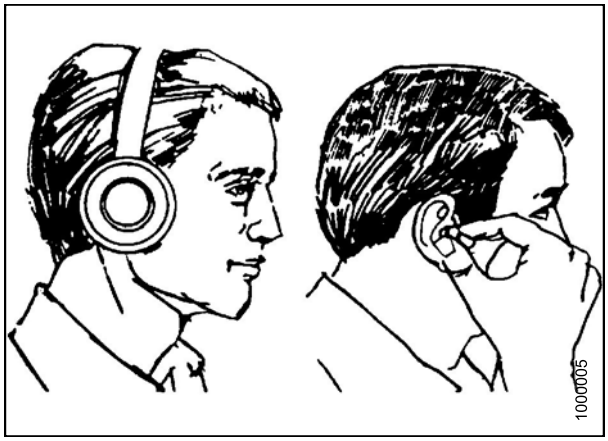


Figure 1.3: Safety Equipment

- 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.

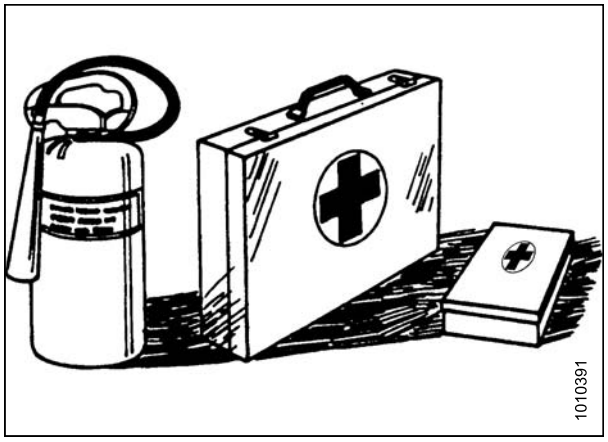


Figure 1.4: Safety Equipment

- 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 1.5: 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.

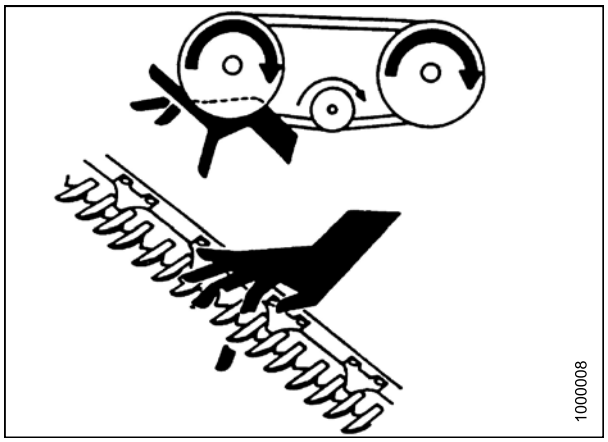


Figure 1.6: Safety Around Equipment

- 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 1.7: Safety Around Equipment

1.4 Maintenance Safety

To ensure your safety while maintaining the machine:

- Review the operator's manual and all safety items before operation and/or maintenance of the machine.
- Place all controls in Neutral, stop the engine, set the park brake, remove the ignition key, and wait for all moving parts to stop before servicing, adjusting, and/or repairing.
- Follow good shop practices:
  - Keep service areas clean and dry
  - Be sure electrical outlets and tools are properly grounded
  - Use adequate lighting for the job at hand
- Relieve pressure from hydraulic circuits before servicing and/or disconnecting the machine.
- Make sure all components are tight and that steel lines, hoses, and couplings are in good condition before applying pressure to a hydraulic system..
- Keep hands, feet, clothing, and hair away from all moving and/or rotating parts.
- Clear the area of bystanders, especially children, when carrying out any maintenance and repairs or when making any adjustments.
- Install transport lock or place safety stands under the frame before working under the .
- If more than one person is servicing the machine at the same time, be aware that rotating a driveline or other mechanically driven component by hand (for example, accessing a lube fitting) will cause drive components in other areas (belts, pulleys, and knife) to move. Stay clear of driven components at all times.
- Wear protective gear when working on the machine.
- Wear heavy gloves when working on knife components.

Figure 1.8: Safety Around Equipment

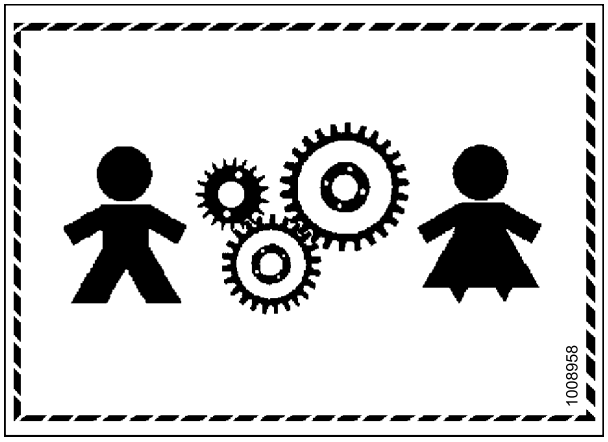


Figure 1.9: Equipment NOT Safe for Children

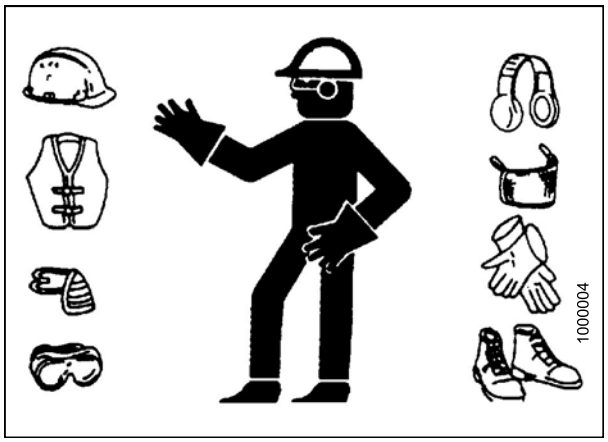


Figure 1.10: Safety Equipment

1.5 Hydraulic Safety

- Always place all hydraulic controls in Neutral before dismounting.
- Make sure that all components in the hydraulic system are kept clean and in good condition.
- Replace any worn, cut, abraded, flattened, or crimped hoses and steel lines.
- Do **NOT** attempt any makeshift repairs to the hydraulic lines, fittings, or hoses by using tapes, clamps, cements, or welding. The hydraulic system operates under extremely high pressure. Makeshift repairs will fail suddenly and create a hazardous and unsafe condition.

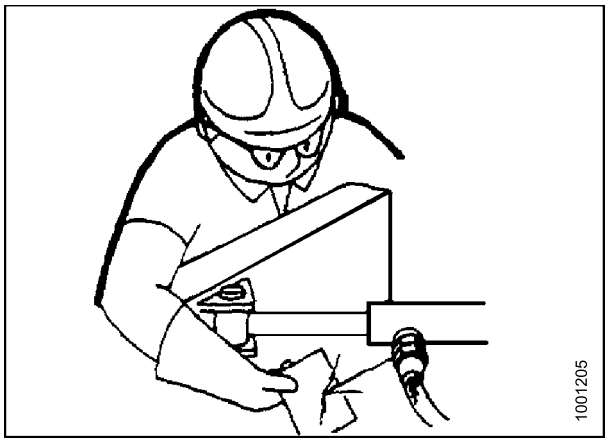


Figure 1.11: Testing for Hydraulic Leaks

- Wear proper hand and eye protection when searching for a high-pressure hydraulic leak. Use a piece of cardboard as a backstop instead of hands to isolate and identify a leak.
- If injured by a concentrated high-pressure stream of hydraulic fluid, seek medical attention immediately. Serious infection or toxic reaction can develop from hydraulic fluid piercing the skin.

Figure 1.12: Hydraulic Pressure Hazard

- Make sure all components are tight and that steel lines, hoses, and couplings are in good condition before applying pressure to a hydraulic system.

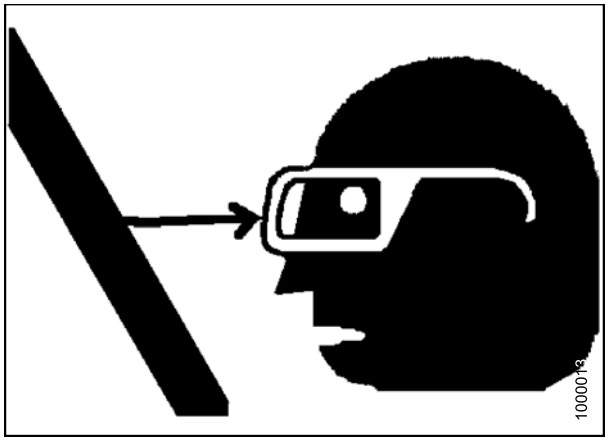


Figure 1.13: Safety Around Equipment

1.6 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.

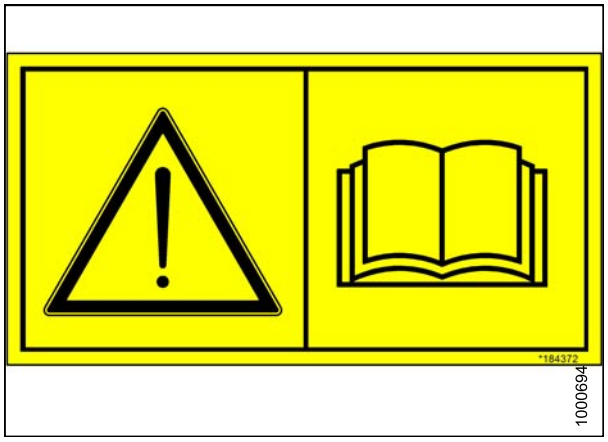


Figure 1.14: Operator's Manual Decal

1.6.1 Installing Safety Decals

To install a safety decal, follow these steps:

1. Clean and dry the installation area.
2. Decide on the exact location before you remove the decal backing paper.
3. Remove the smaller portion of the split backing paper.
4. Place the sign in position and slowly peel back the remaining paper, smoothing the sign as it is applied.
5. Prick small air pockets with a pin and smooth out.

1.7 Safety Sign Decals

MD #174683

PINCH POINT- MOVING PARTS

STAND CLEAR

Located on linkage arm (both sides)

Figure 1.15: MD #174683

MD #174474

HIGH PRESSURE HYDRAULICS

DO NOT GO NEAR LEAKS

Located on deck

- High pressure oil easily punctures skin causing serious injury, gangrene or death
- If injured, seek emergency medical help. Immediate surgery is required to remove oil
- Do not use finger or skin to check for leaks
- Lower load or relieve hydraulic pressure before loosening fittings

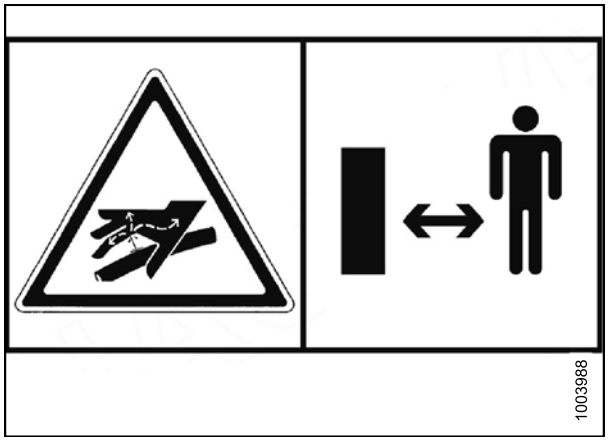


Figure 1.16: MD #174474

MD #176295

DECK LIFT LOCK

Located on deck linkage

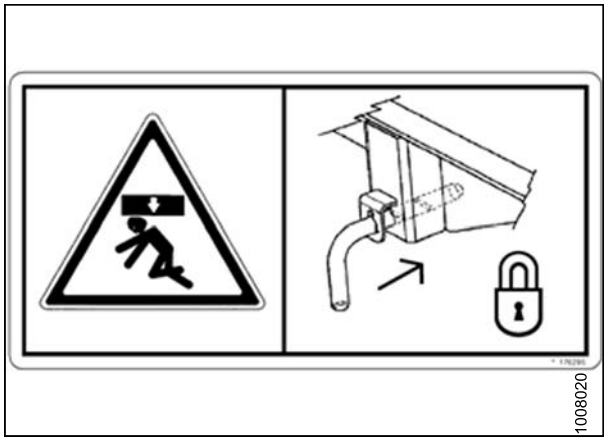


Figure 1.17: MD #176295

2 General Information

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

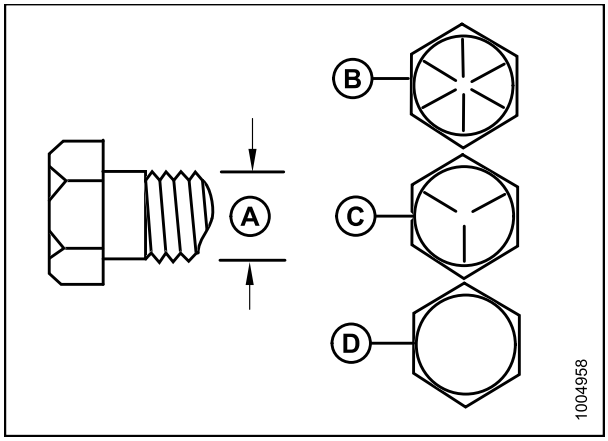


Figure 2.1: Bolt Grades

A - Nominal Size
B - SAE-8
C - SAE-5
D - SAE-2

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

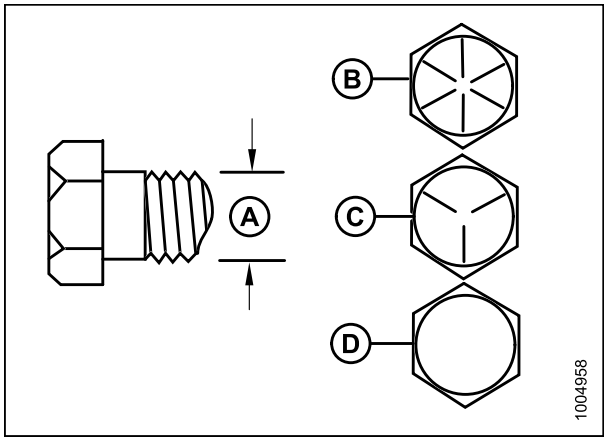


Figure 2.2: Bolt Grades

A - Nominal Size **B - SAE-8**
C - SAE-5 **D - SAE-2**

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

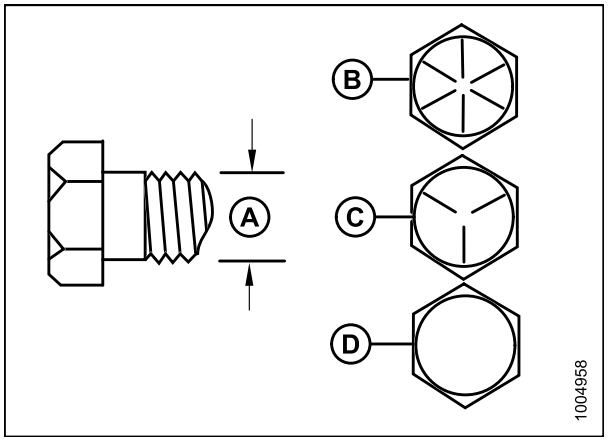


Figure 2.3: Bolt Grades

A - Nominal Size **B - SAE-8**
C - SAE-5 **D - SAE-2**

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

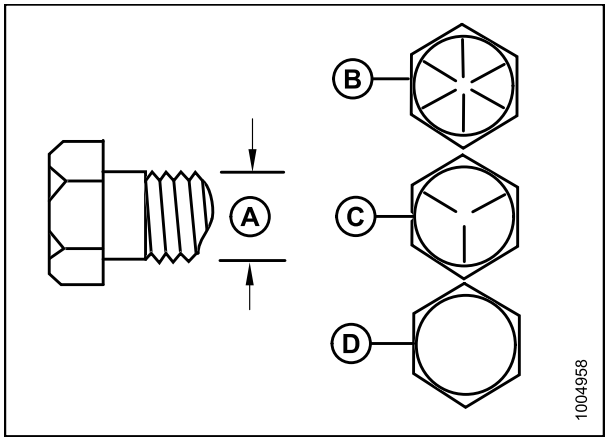


Figure 2.4: Bolt Grades

A - Nominal Size **B - SAE-8**
C - SAE-5 **D - SAE-2**

2.1.2 Metric Bolt Specifications

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

Nominal Size (A)	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

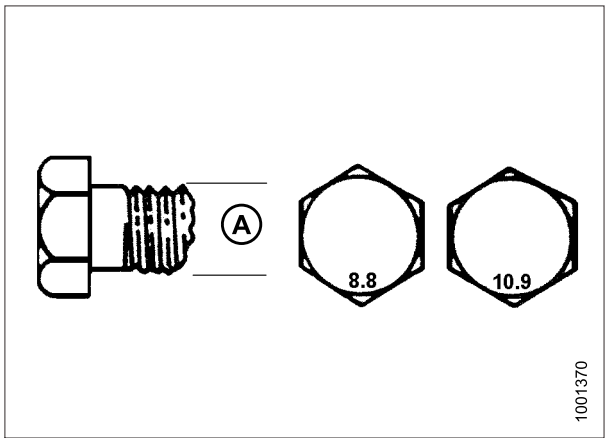


Figure 2.5: Bolt Grades

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

Nominal Size (A)	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

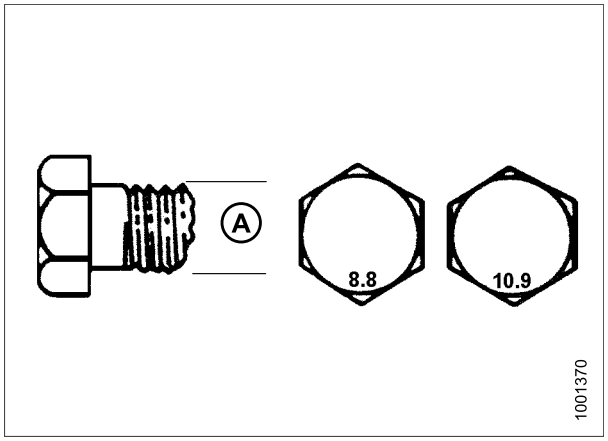


Figure 2.6: Bolt Grades

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

Nominal Size (A)	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

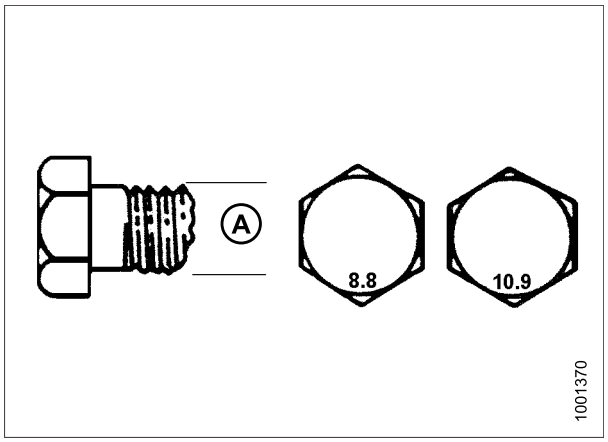


Figure 2.7: Bolt Grades

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

Nominal Size (A)	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

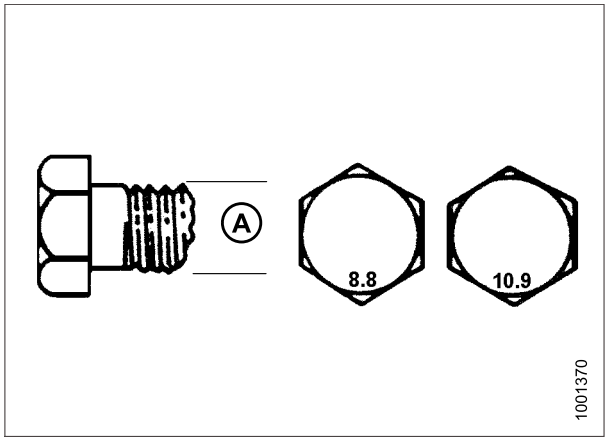


Figure 2.8: Bolt Grades

2.1.3 Metric Bolt Specifications Bolting into Cast Aluminum

Table 2.9 Metric Bolt Bolting into Cast Aluminum

Nominal Size (A)	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	–	–	–	–

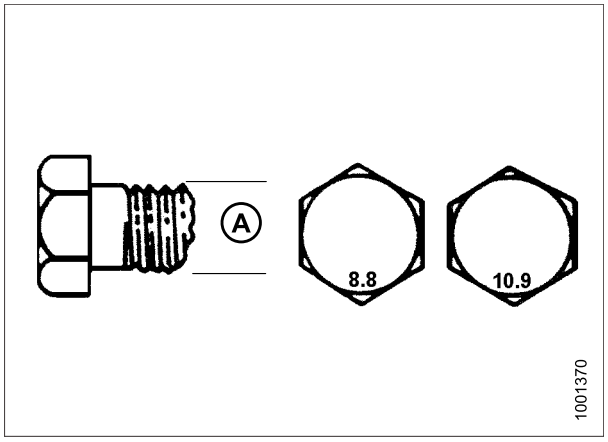


Figure 2.9: Bolt Grades

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 flats from finger tight (FFFT) or to a given torque value shown in Table *2.10 Flare-Type Hydraulic Tube Fittings, page 17*.
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.

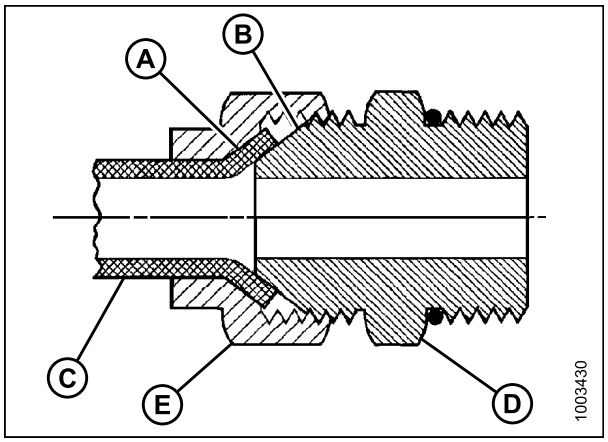


Figure 2.10: Hydraulic Fitting

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.

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, and adjust if necessary.
4. Apply hydraulic system oil to the O-ring (A).

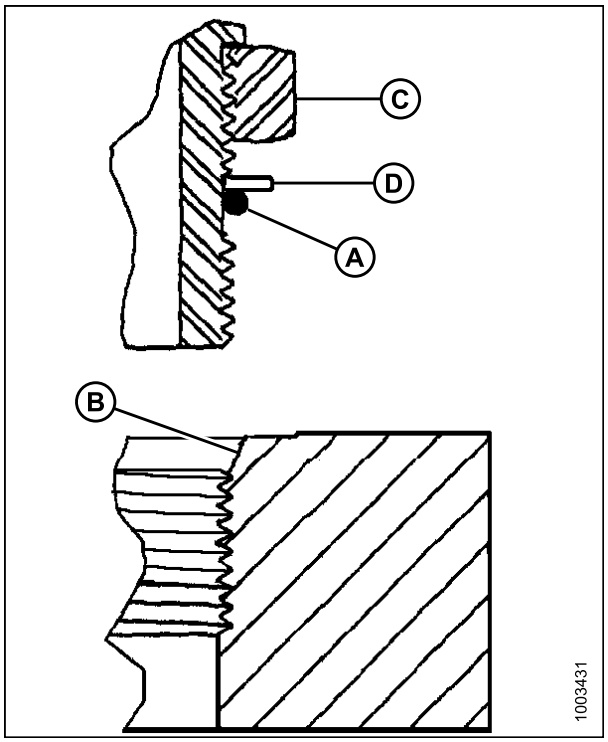


Figure 2.11: Hydraulic Fitting

5. Install fitting (B) into port until back up washer (D) and O-ring (A) contact the 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.

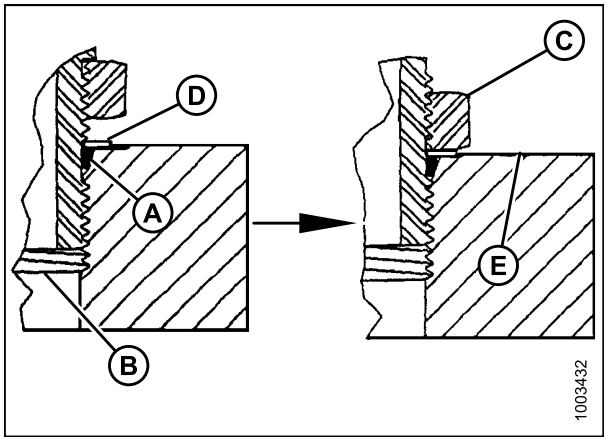


Figure 2.12: Hydraulic Fitting

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.

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, and 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) according to the values in Table *2.12 O-Ring Boss (ORB) Hydraulic Fittings (Non-Adjustable), page 20*.
6. Check the final condition of the fitting.

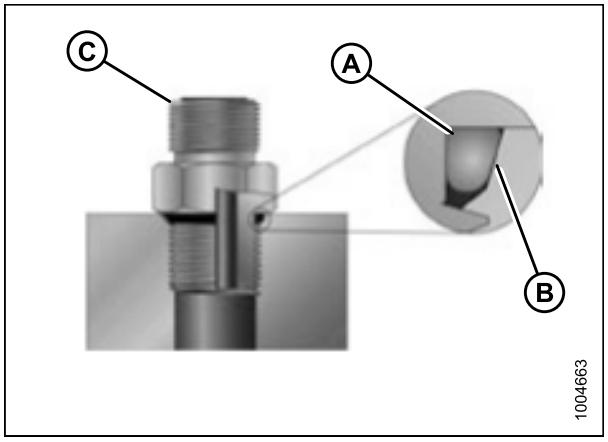


Figure 2.13: Hydraulic Fitting

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.

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 2.14: 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 fittings according to the values in Table *2.13 O-Ring Face Seal (ORFS) Hydraulic Fittings, page 22*.

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).

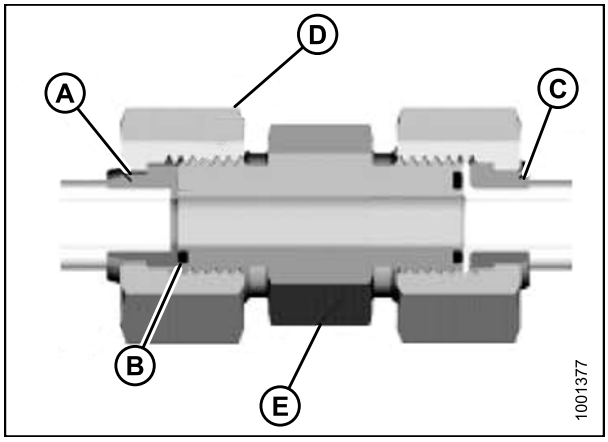


Figure 2.15: Hydraulic Fitting

6. Use three wrenches when assembling unions or two hoses together.
7. Check the final condition of the fitting.

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 Assembly/Setup Instructions

NOTE:
The Double Windrow Attachment will only fit windrower models listed in the Introduction (*Introduction, page i*).The DWA cannot be installed on the M100 or M105 Self-Propelled Windrower models.

3.1 Rework Frame for Pre-2008 Windrowers

Before installing the DWA on a windrower built before the 2008 production year, follow these instructions:

1. If holes are not present, drill four 25/32 in. (20 mm) diameter holes at the locations shown in Section *3.1: Rear-Facing Frame, page 23* and Section *3.2: Forward-Facing Frame, page 24*.

   IMPORTANT:
   Move hydraulic hoses out of the way before drilling into the frame at the rear-facing end of the windrower.

2. Ream/grind rear holes to make them square for square neck bolts.

   NOTE:
   Slots are only required if holes do not line up with Double Windrow Attachment frame.

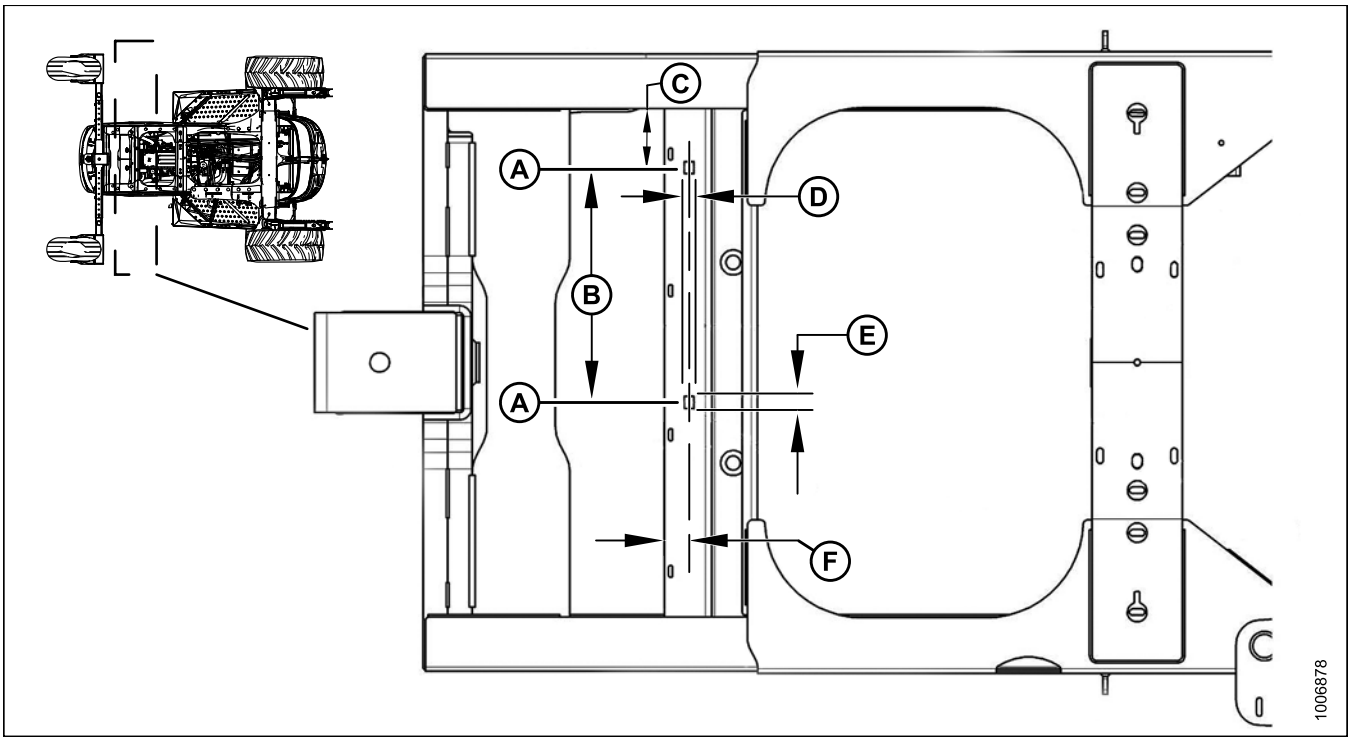


Figure 3.1: Rear-Facing Frame

A - Hole Locations Rear Frame
B - 18 7/8 in. (480 mm)
C - 4 25/32 in. (121.5 mm)
D - 25/32 in. (20 mm)
E - 1 in. (25 mm)
F - 1 31/32 in. (50 mm)

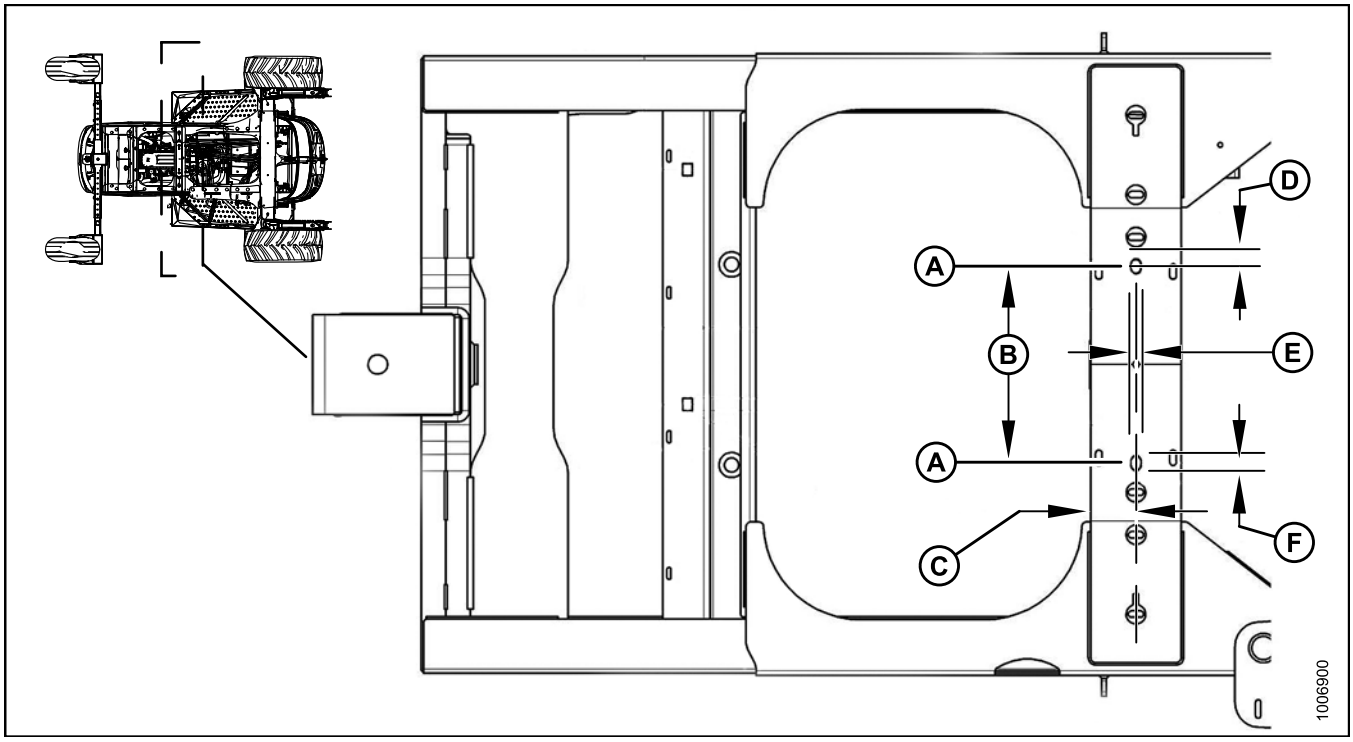


Figure 3.2: Forward-Facing Frame

A - Hole Locations Front Frame
B - 15 15/16 in. (402 mm)
C - 3 5/8 in. (92.5 mm)
D - 1 9/16 in. (40 mm)
E - 25/32 in. (20 mm)
F - 1 1/8 in. (28.5 mm)

3.2 Installing the DWA Draper Drive Manifold

To install the DWA draper drive manifold, follow these steps:

1. Move the left (cab-forward) platform (A) to the open position for access to the hydraulic valve blocks. Ensure the platform latch is engaged in open position.

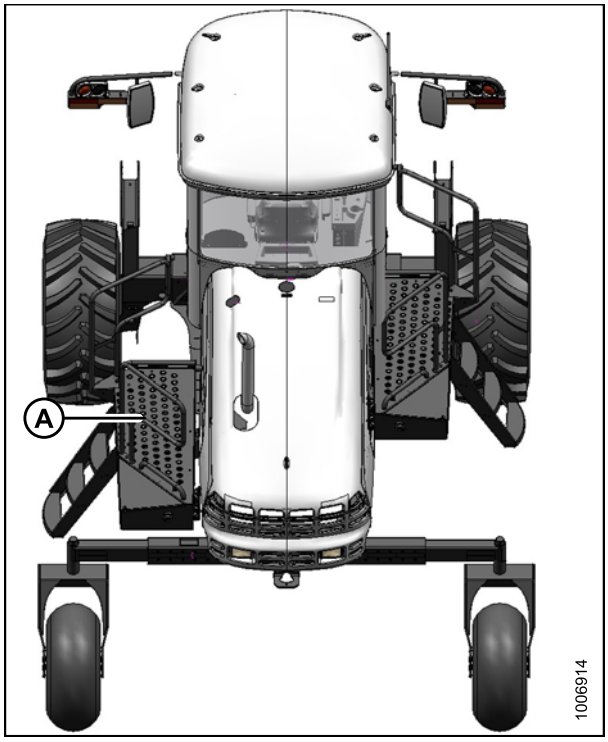


Figure 3.3: Windrower Top View

2. To prepare the DWA draper drive manifold, install the #12 ORB x #12 JIC fitting (A) in port R2 on the DWA drive manifold.

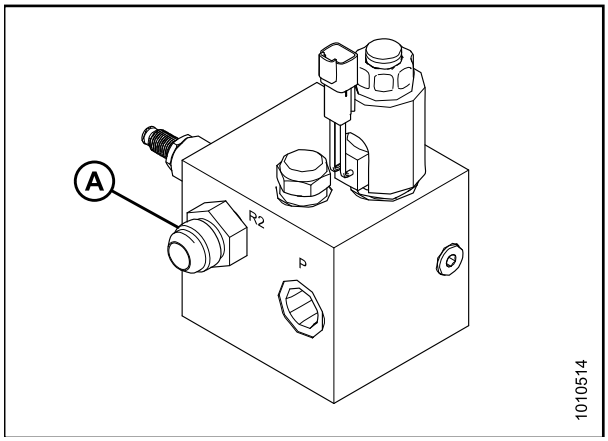


Figure 3.4: DWA Drive Manifold

3. Select the correct fitting for your windrower model.
   - For M150/M200: install the regular #10 ORB x #10 JIC fitting (A) in port P on DWA drive manifold.
   - For M155/M205: install the long #10 ORB x #10 JIC fitting (B) in port P on DWA drive manifold.

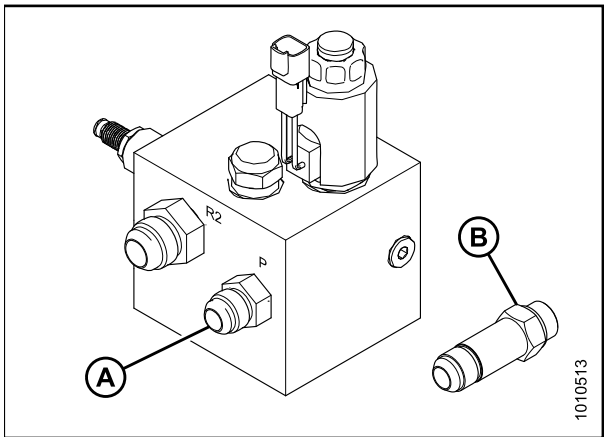


Figure 3.5: DWA Drive Manifold

4. To simplify assembly, install hose (A), supplied in kit, to the fitting in port R2 of DWA drive manifold before attaching the manifold to the frame.

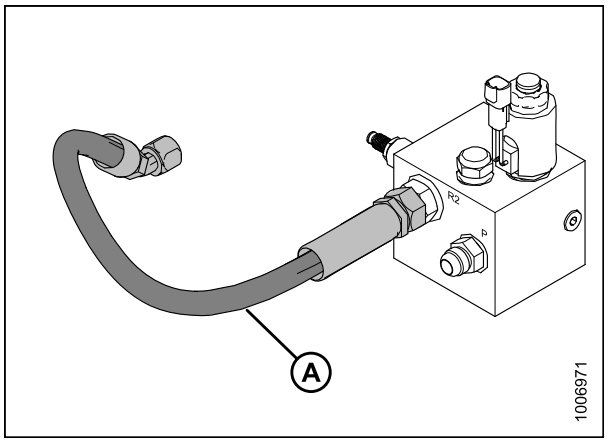


Figure 3.6: DWA Drive Manifold

5. Install the DWA drive manifold to the windrower left-hand side frame with two, 3/8 in. serrated flange head bolts (A). Route hose and fittings through side frame pointing toward the windrower engine and relief valve (B) pointing to rear of windrower.

   NOTE:
   Leave plugs in ports DWA and R1.

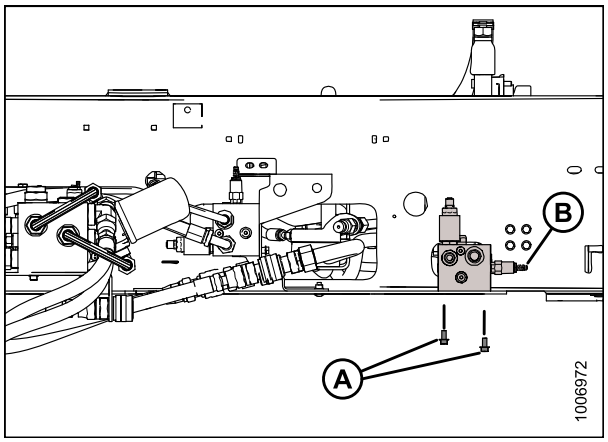


Figure 3.7: Windrower Left-Hand Side (M205 Shown)

6. Remove hose (A) from cooler bypass relief valve (B) and connect to fitting at port (P) on DWA drive manifold. The other end of hose (A) is connected to the supercharge pump (D).
7. Install the other end of hose (C) to the cooler bypass relief valve (B) where hose (A) was removed.

NOTE:
Gain access to hose (A) from under the windrower or by raising windrower hood and working from the left platform.

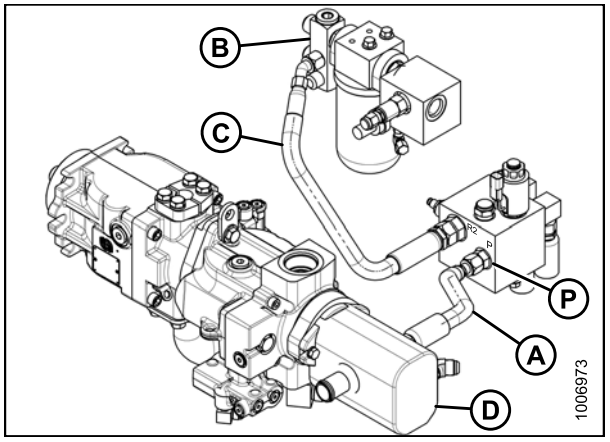


Figure 3.8: M150/M200 Configuration After Installing the DWA Drive Manifold

A - Hose
B - Bypass Relief Valve
C - Hose
D - Supercharge Pump
P- Port "P"

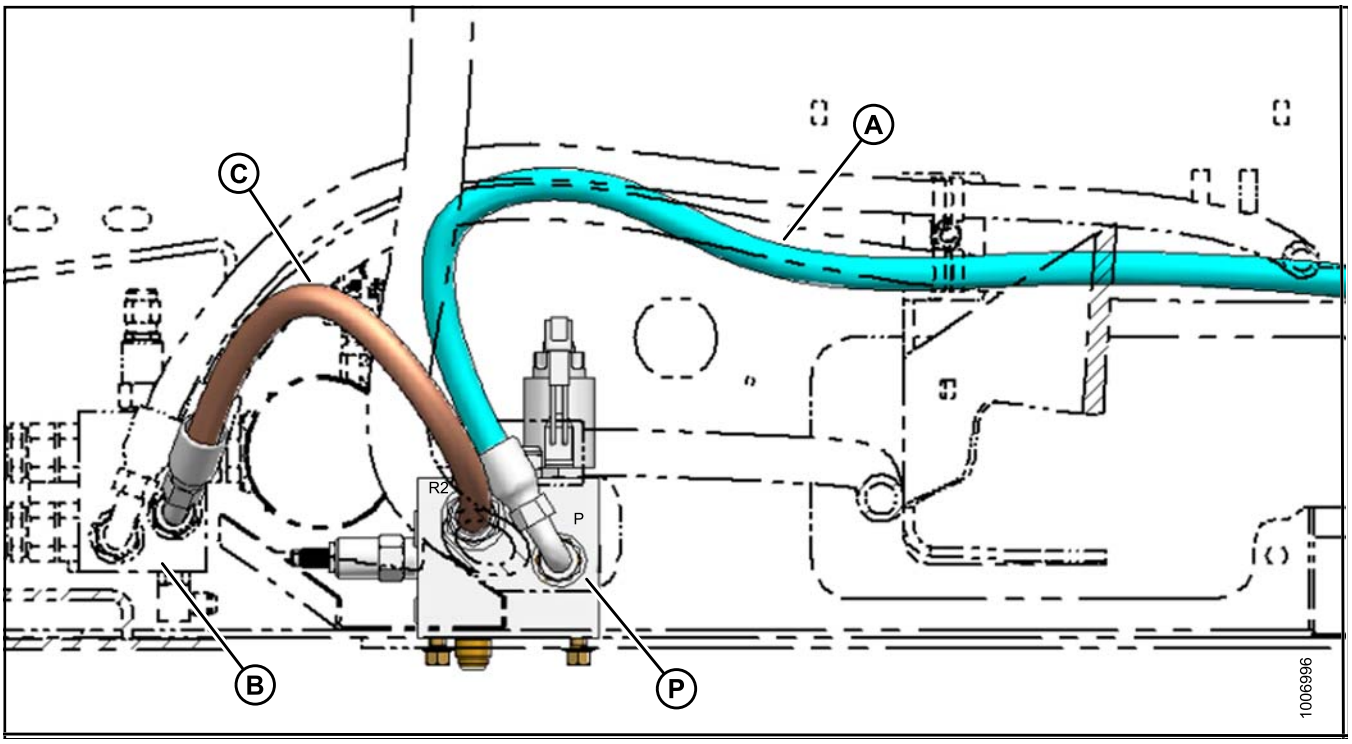


Figure 3.9: M205 Hose Configuration

A - Hose From Port (P) on DWA Drive Manifold to Pump (not visible)
B - Cooler Bypass Relief Valve
C- Hose From R2 on DWA Drive Manifold to Cooler Bypass Relief Valve
P - Port "P"

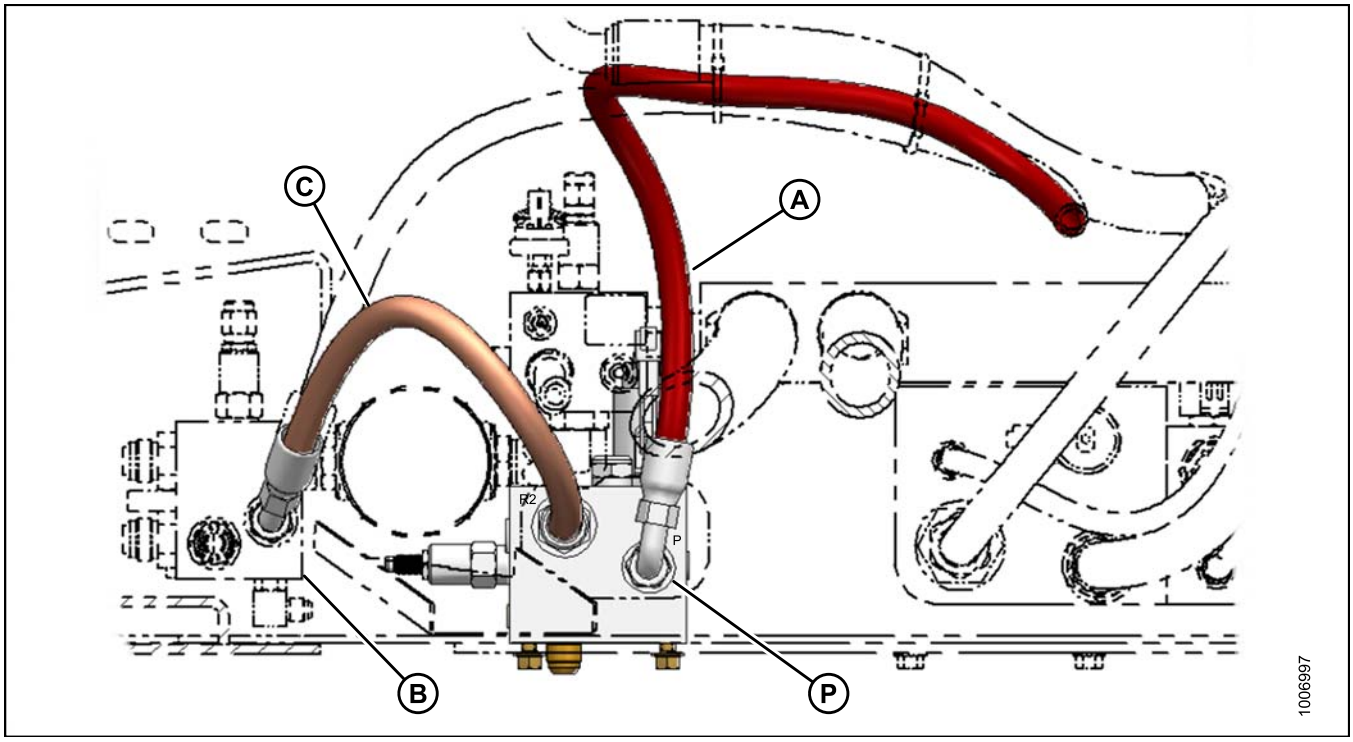


Figure 3.10: M155 Hose Configuration

A - Hose From Port (P) on DWA Drive Manifold to Pump (not visible)
B - Cooler Bypass Relief Valve
C- Hose From R2 on DWA Drive Manifold to Cooler Bypass Relief Valve
P - Port "P"

3.3 Installing the Platform Rail

To install the platform rail, proceed to the section that applies to your windrower:

- *3.3.1 Installing the Platform Rail: M155/M205 , page 29*
- *3.3.2 Installing the Platform Rail: M150/M200, page 30*

3.3.1 Installing the Platform Rail: M155/M205

To install the platform rail on the right-hand platform of a M155/M205, follow these steps:

1. Remove the right-hand stairs (C) from the platform by loosening the two top bolts (A) and removing two bottom bolts (B).
2. Lift the steps to detach the top keyhole slots from bolts (A). Retain bolts for the next step.

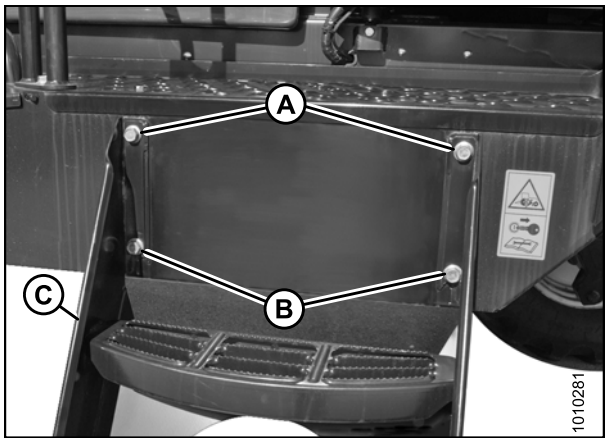


Figure 3.11: Right-Hand Stairs

3. Hang the platform rail (A) by fitting the keyhole slots in the adapter plate (B) onto the top bolts (C).
4. Install the two bottom bolts (D) and tighten all four bolts.

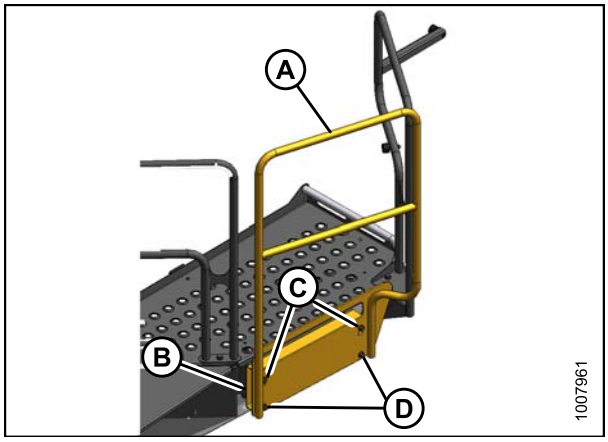


Figure 3.12: Platform Rail

3.3.2 Installing the Platform Rail: M150/M200

To install the platform rail to the right-hand platform of a M150/M200, follow these steps:

1. Remove the right-hand stairs (C) from the platform by loosening the two top bolts (A) and removing two bottom bolts (B).
2. Lift the steps to detach the top keyhole slots from bolts (A). Retain bolts for the next step.

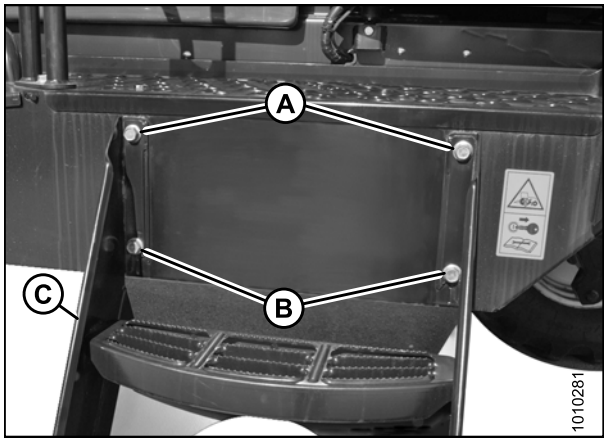


Figure 3.13: Right-Hand Stairs

3. Remove adapter plate (A) by removing four 1/2 NC x 1 in. flange bolts (B) and nuts.

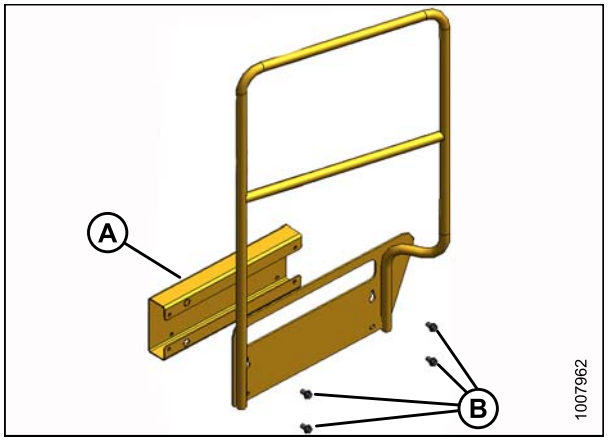


Figure 3.14: Platform Rail

4. Hang rail (A) without spacer plate by engaging keyhole slots on top bolts (B).
5. Install two bottom bolts (C) and tighten all four bolts.

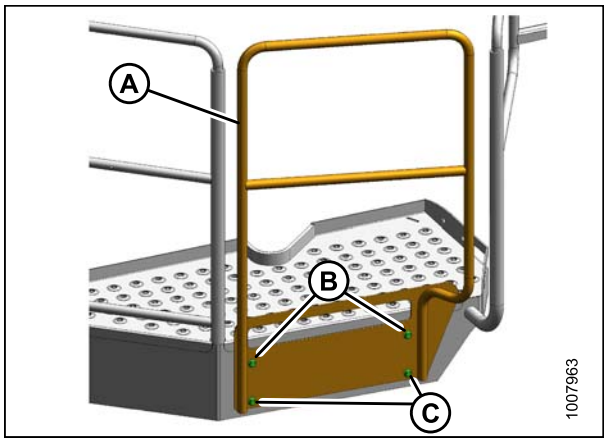


Figure 3.15: Platform Rail

3.4 Installing the Linkage

To install the linkage, proceed to the section that applies to your windrower:

- *3.4.1 Installing the Linkage: M150/M155, page 31*
- *3.4.2 Installing the Linkage: M200, page 34*
- *3.4.3 Installing the Linkage: M205, page 38*

3.4.1 Installing the Linkage: M150/M155

To install the linkage on M150 or M155 Windrowers, follow these steps:

1. Remove support (A) from the DWA linkage by removing nut (B).

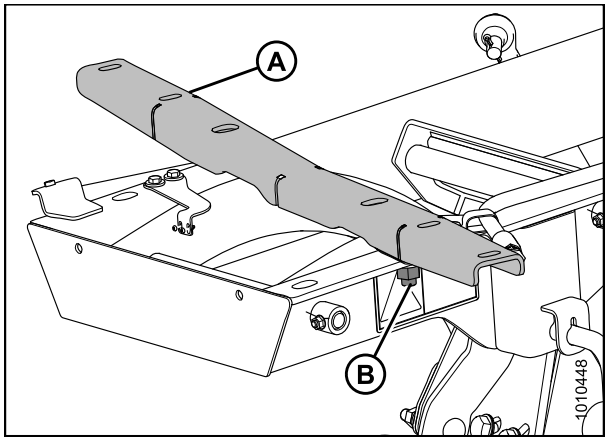


Figure 3.16: Linkage Support

2. Install two 3/4 in. x 4-1/2 in. long carriage head bolts (A) in the windrower frame member located between the engine and caster wheels.

   NOTE:
   Move the hoses located above the frame member to get the bolts in place.

Figure 3.17: Linkage Support

3. Remove the outer bolt and nut (A) from the front engine mounts (B) on the left and right sides of the engine (C). Retain nuts for reuse.

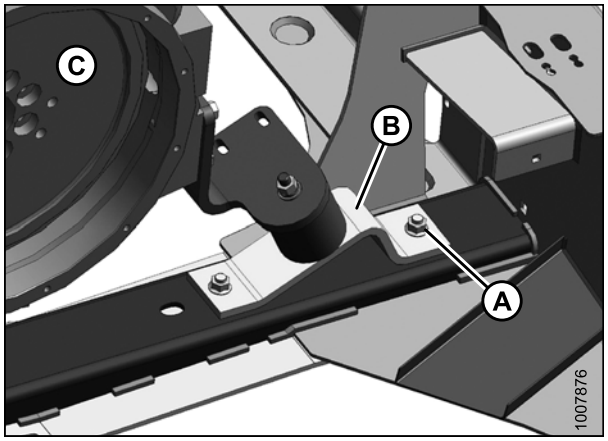


Figure 3.18: Linkage Support

4. Mount the linkage support (A) to the windrower frame with two 1/2 in. x 2-3/4 in. long hex head bolts (B) with flat washers under the bolt heads and secure with nuts (C).

   NOTE:
   These bolts replace the engine mount bolts removed in step *3., Installing the Linkage: M150/M155, page 32*.

5. From below the support, install a 3/4 in. x 3-1/2 in. long hex head bolt (D) with a flat washer under the bolt head.
6. Secure with a flat washer, a lock washer, and a nut on top side of the frame.
7. From above the support, install a 3/4 in. x 5-1/2 in. long hex head bolt (F) with a flat washer under the bolt head. Do **NOT** install nut on bolt (F).

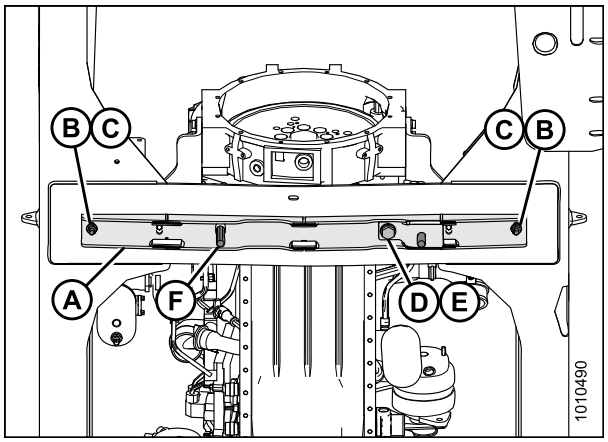


Figure 3.19: Linkage Support

8. Support linkage assembly (A) with a forklift.

   NOTE:
   Make sure the forks (B) do not lift against the cylinder fitting.

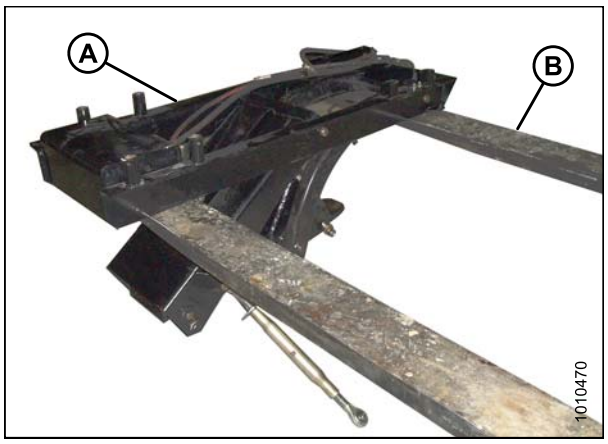


Figure 3.20: DWA Linkage

9. Align the DWA linkage with the four bolts in the windrower frame.
   - For R-Series Header: mount the linkage in the most forward position (A)
   - For A-Series or D-Series Headers: mount the linkage in the most rearward position (B)

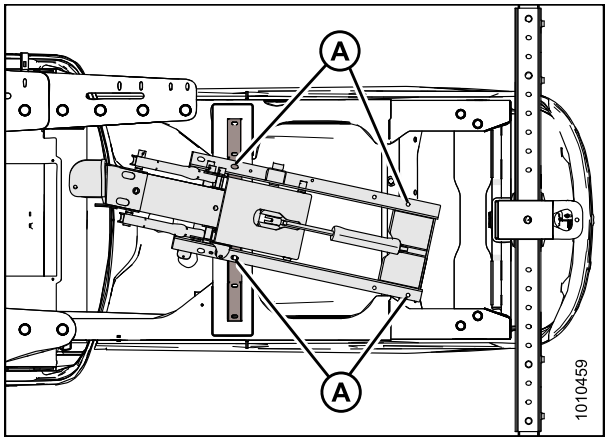


Figure 3.21: Linkage Forward

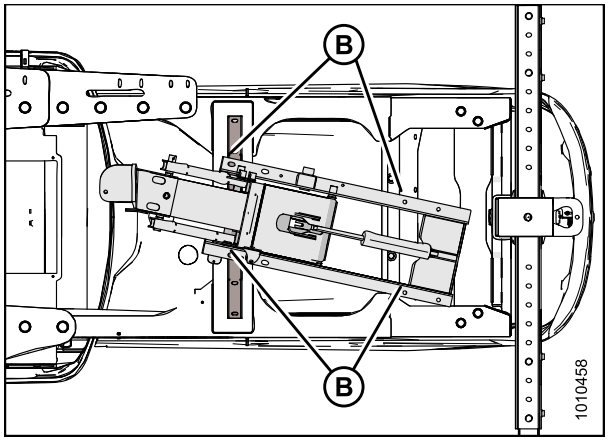


Figure 3.22: Linkage Rearward

10. Position two 1-1/2 in. OD x 1 in. ID x 2-3/4 in. long spacers (A) on the rear bolts.

    NOTE:
    Spacers are not required with the linkage in the rearward position.

11. Attach the linkage with four flat washers, lock washers, and nuts (B).

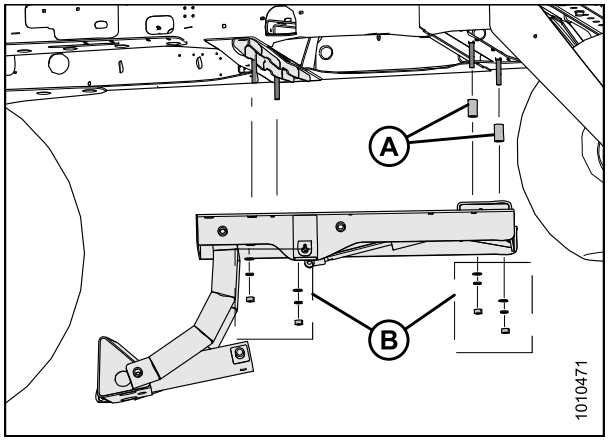


Figure 3.23: Linkage Forward

12. Lower linkage by pulling on safety pin (A) on the left-hand side of linkage.
13. If the linkage does not lower, remove plugs at the end of lift cylinder hoses (B) to remove air from hoses.

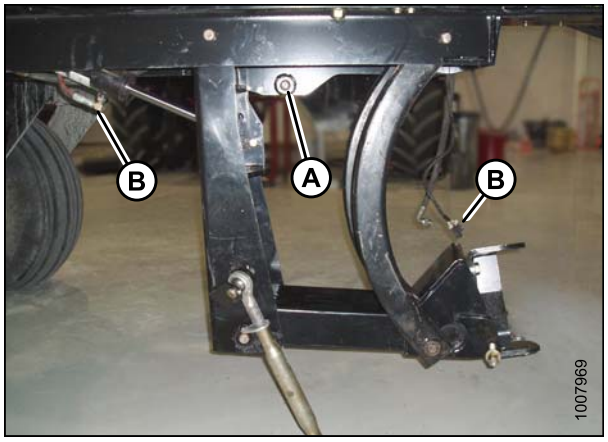


Figure 3.24: DWA Linkage

14. Secure the lift cylinder pivot (A) into the correct hole depending on header type:
    - For R-Series Header: insert pin in the upper hole (B)
    - For D-Series or A-Series Headers: insert pin in the lower hole (C)

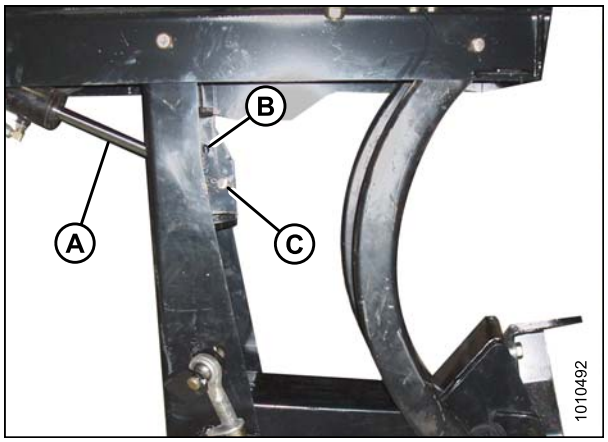


Figure 3.25: Lift Cylinder Pivot

3.4.2 Installing the Linkage: M200

To install the linkage on M200 windrowers, follow these steps:

1. Remove support (A) from the DWA linkage by removing nut (B).

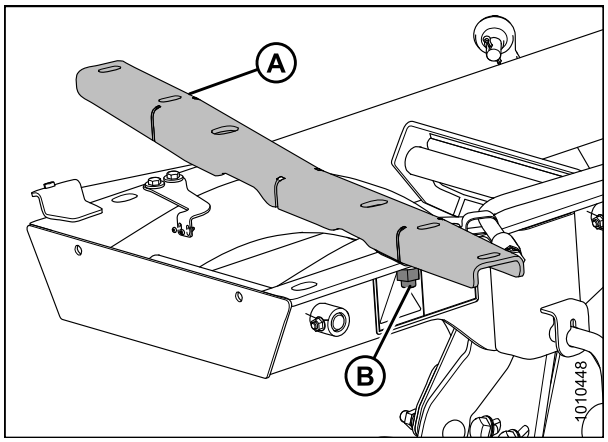


Figure 3.26: DWA Support

2. Install two 3/4 in. x 4-1/2 in. long carriage head bolts (A) in the windrower frame member located between the engine and caster wheels.

   NOTE:
   Move the hoses located above the frame member to get the bolts in place.

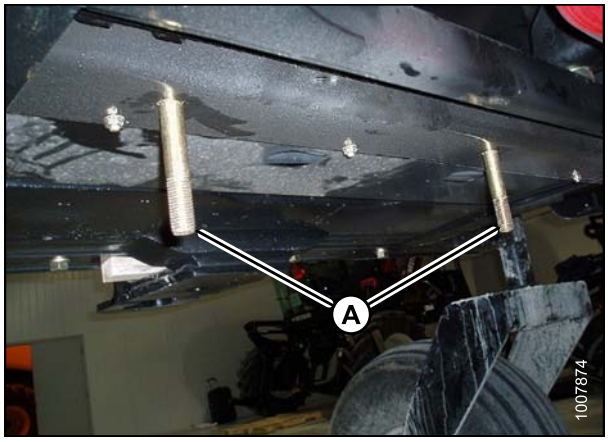


Figure 3.27: Windrower Frame Member

3. Remove four bolts (A) from the front engine mounts (two on left side and two on right side). Retain nuts for reuse.

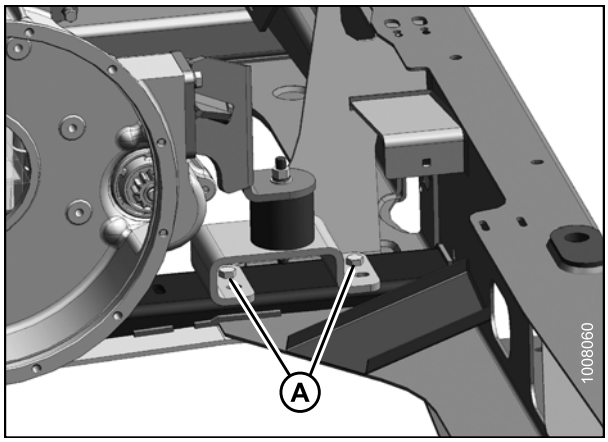


Figure 3.28: Windorower Engine Mount

4. Mount support (A) to windrower frame with four 1/2 in. x 2-3/4 in. long hex head bolts (C) with flat washers under the bolt heads and secure with nuts (B).

   NOTE:
   These bolts replace the engine mount bolts removed in Step *3., Installing the Linkage: M200, page 35*.

5. From below the support, install a 3/4 in. x 3-1/2 in. long hex head bolt (E) with flat washer (F) under the bolt head.
6. Secure with a flat washer, a lock washer, and a nut on the top side of the frame.
7. From above the support, install a 3/4 in. x 5-1/2 in. long hex head bolt (D) with flat washer under the bolt head. Do **NOT** install nut on bolt (D).

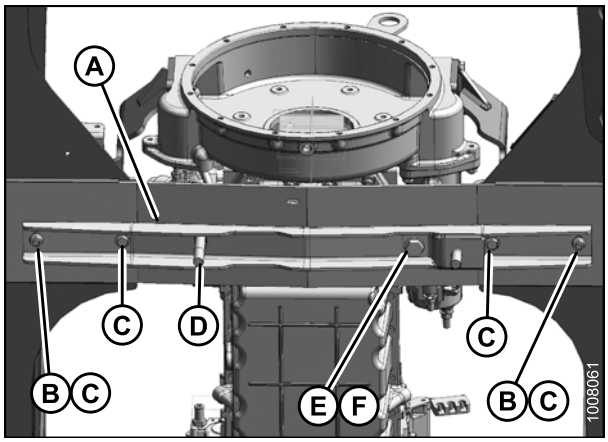


Figure 3.29: Linkage Support

8. Support linkage assembly (A) with a forklift.

   NOTE:
   Make sure the forks (B) do not lift against the cylinder fitting.

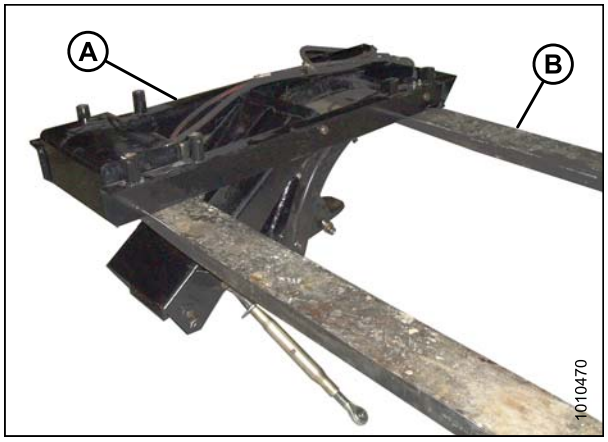


Figure 3.30: DWA Linkage

9. Align the DWA linkage with the four bolts in the windrower frame.
   - For R-Series Header: mount the linkage in the most forward position (A)
   - For A-Series or D-Series Headers: mount the linkage in the most rearward position (B)

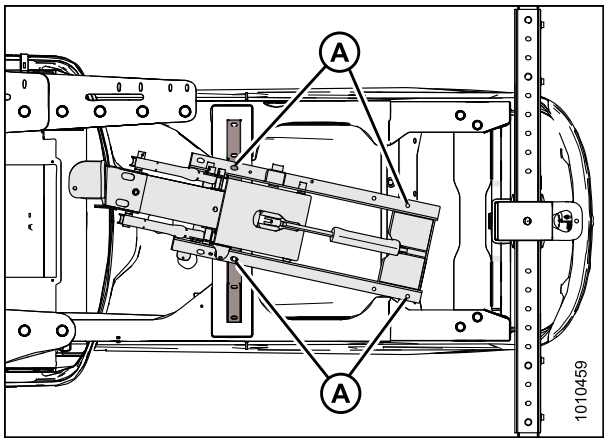


Figure 3.31: Linkage Forward

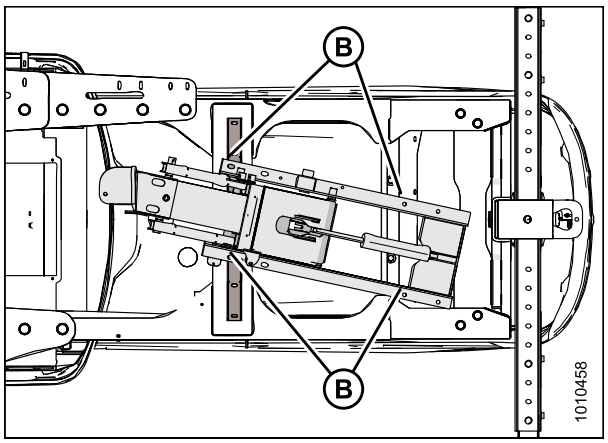


Figure 3.32: Linkage Rearward

10. Position two 1-1/2 in. OD x 1 in. ID x 2-3/4 in. long spacers (A) on the rear bolts.

    NOTE:
    Spacers are not required with the linkage in the rearward position.

11. Attach the linkage with four flat washers, lock washers, and nuts (B).

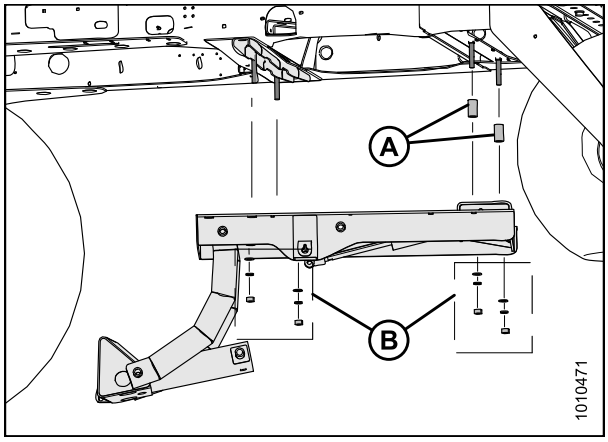


Figure 3.33: Linkage Forward

12. Lower linkage by pulling on safety pin (A) on the left-hand side of linkage.
13. If the linkage does not lower, remove plugs at the end of lift cylinder hoses (B) to remove air from hoses.

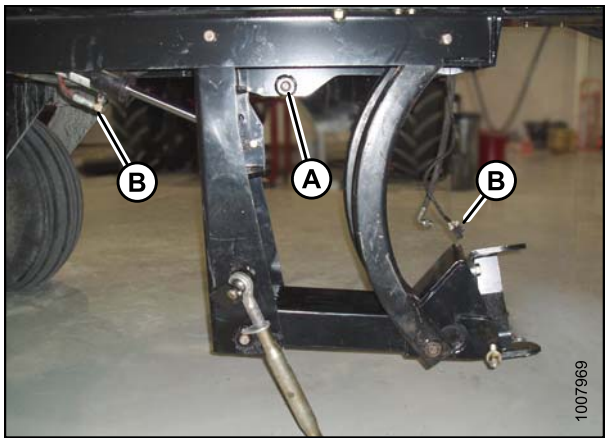


Figure 3.34: DWA Linkage

14. Secure the lift cylinder pivot (A) into the correct hole depending on header type:
    - For R-Series Header: insert pin in the upper hole (B)
    - For D-Series or A-Series Headers: insert pin in the lower hole (C)

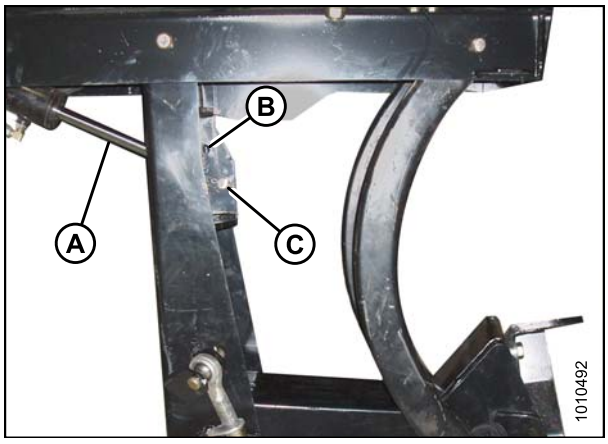


Figure 3.35: Lift Cylinder Pivot

3.4.3 Installing the Linkage: M205

To install the linkage on an M205 windrower, follow these steps:

1. Remove support (A) from the DWA linkage by removing nut (B).

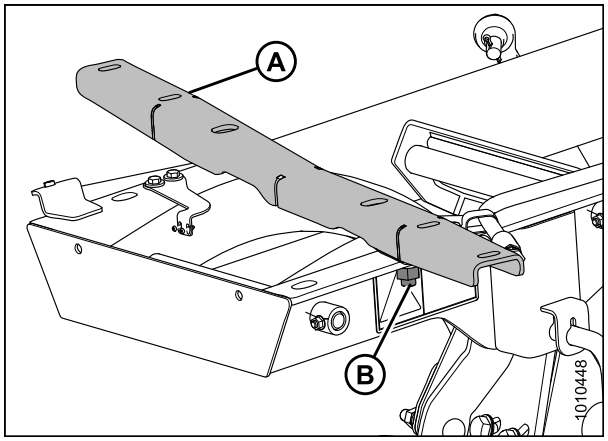


Figure 3.36: Linkage Support

2. Install two 3/4 in. x 4-1/2 in. long carriage head bolts (A) in the windrower frame member located between the engine and caster wheels.

   NOTE:
   Move the hoses located above the frame member to get the bolts in place.

Figure 3.37: Linkage Support

M205 Windrower (2010 and 2011 Production Year Only):

3. Remove the 3/4 in. x 3-1/2 in. long bolt (A) from the stabilizer link mount near the right front engine mount. Retain bolt for reuse.

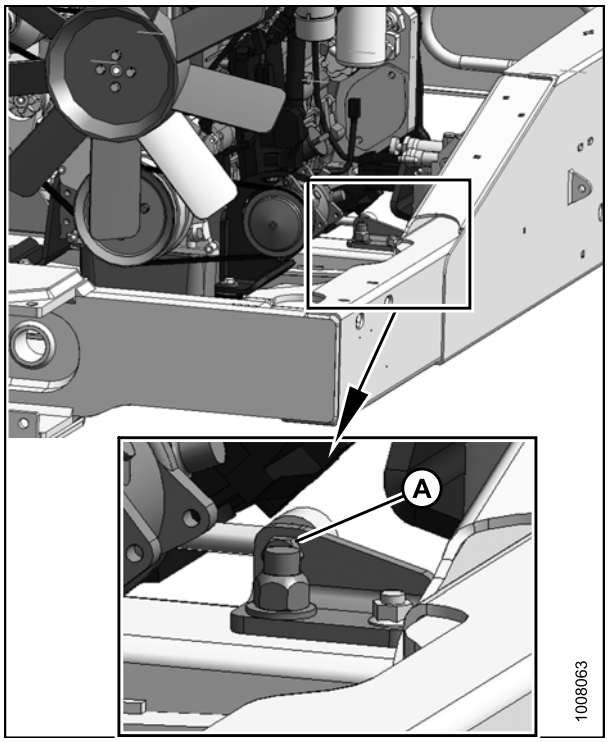


Figure 3.38: Stabilizer Link

4. Mount the linkage support (A) to the windrower frame with two 1/2 in. x 2-3/4 in. long hex head bolts (B) with flat washers under the bolt heads and secure with nuts (C).
5. From below the support, install a 3/4 in. x 3-1/2 in. long hex head bolt (D) with a flat washer under the bolt head.
6. Secure with a flat washer, a lock washer, and a nut on top side of the frame.
7. From above the support, install a 3/4 in. x 5-1/2 in. long hex head bolt (F) with flat washer under the bolt head.

   NOTE:
   This bolt replaces the 3-1/2 in. long bolt removed in Step *3., Installing the Linkage: M205, page 39*.

   Do **NOT** install nut on bolt (F).

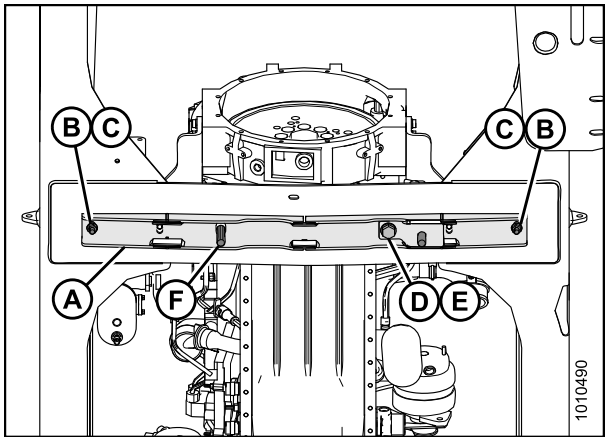


Figure 3.39: Linkage Support

8. Support linkage assembly (A) with a forklift.

   NOTE:
   Make sure the forks (B) do not lift against the cylinder fitting.

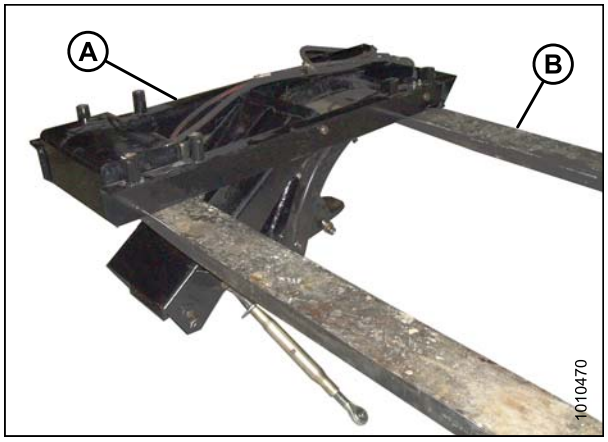


Figure 3.40: DWA Linkage

9. Align the DWA linkage with the four bolts in the windrower frame.
   - For R-Series Header: mount the linkage in the most forward position (A)
   - For A-Series or D-Series Headers: mount the linkage in the most rearward position (B)

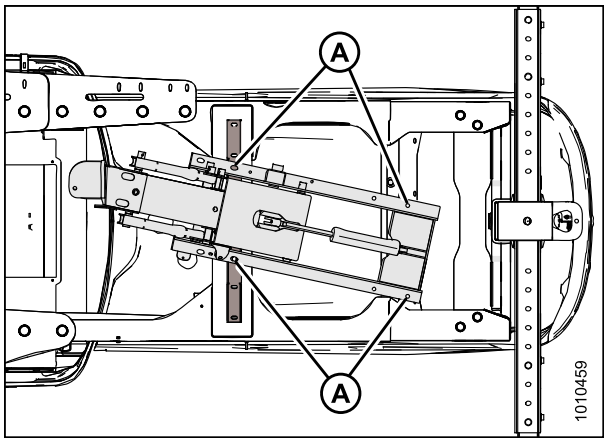


Figure 3.41: Linkage Forward

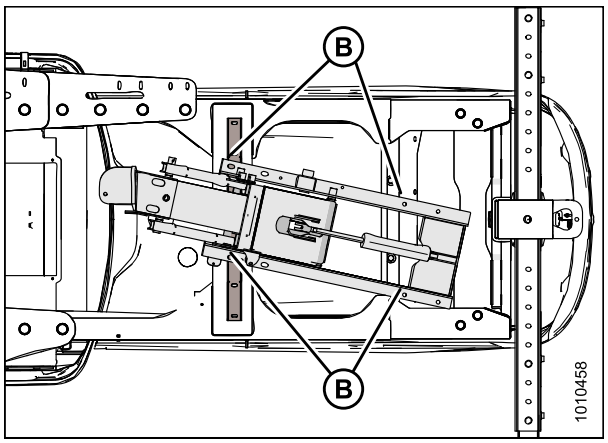


Figure 3.42: Linkage Rearward

10. Attach the linkage with four flat washers, lock washers, and nuts (A).

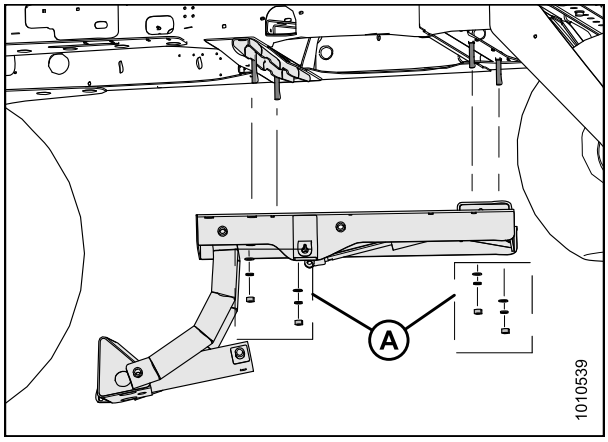


Figure 3.43: Linkage Forward

11. Lower linkage by pulling on safety pin (A) on the left-hand side of linkage.
12. If the linkage does not lower, remove plugs at the end of lift cylinder hoses (B) to remove air from hoses.

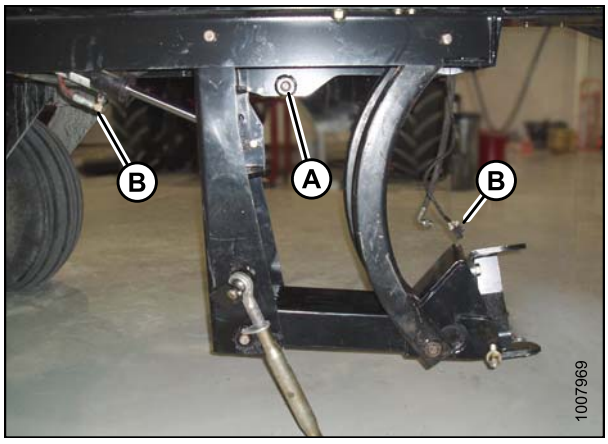


Figure 3.44: DWA Linkage

13. Secure the lift cylinder pivot (A) into the correct hole depending on header type:
    - For R-Series Header: insert pin in the upper hole (B)
    - For D-Series or A-Series Headers: insert pin in the lower hole (C)

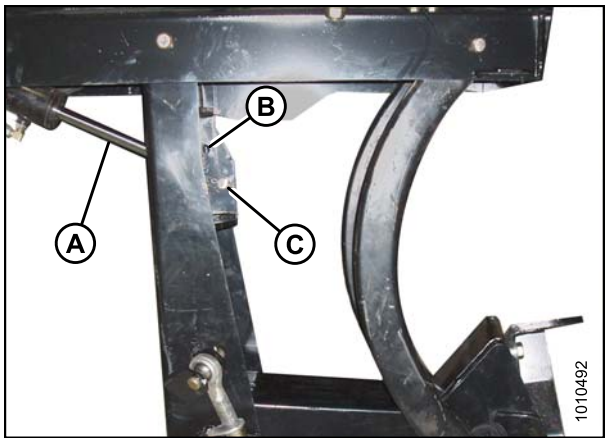


Figure 3.45: Lift Cylinder Pivot

3.5 Installing the Deck

To install the DWA deck, follow these steps:

1. Remove the shipping boards (A) by removing the transport banding (B) and discard.

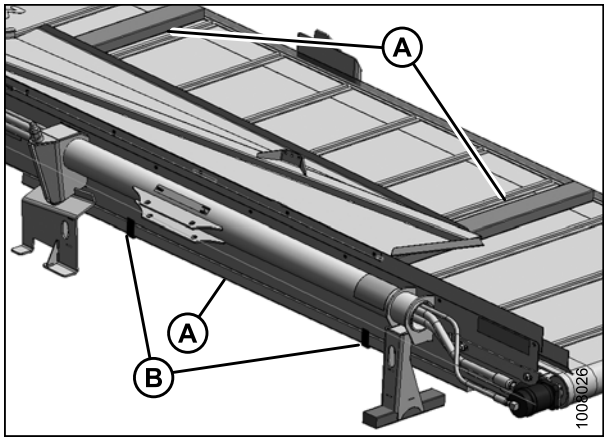


Figure 3.46: DWA Deck

2. Support the deck with a fork lift. Forks (C) should be inboard of shipping stand (A).
3. Remove the two shipping stands (A) from the front of the deck by removing nut (B).
4. Reinstall nut (B) with a washer. Washers are supplied in hydraulic kit.

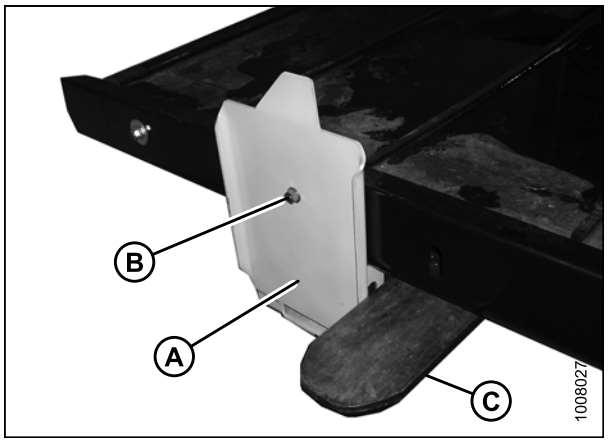


Figure 3.47: Deck Shipping Stand

5. Remove the shipping stand (A) from the rear of the deck by removing the two nuts (B) and washers (C).

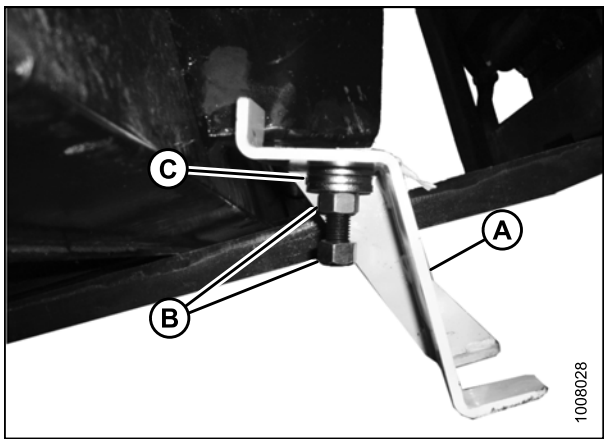


Figure 3.48: Deck Shipping Stand

6. Remove the shipping stand (A) by removing the transport wire (B).

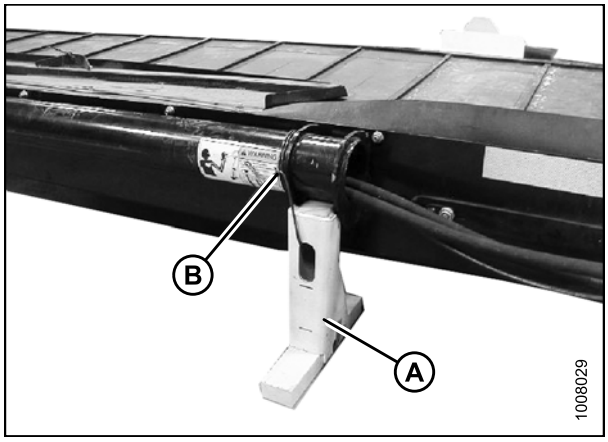


Figure 3.49: Deck Shipping Stand

The DWA deck is now ready to be assembled to the linkage underneath the windrower.

7. Position the DWA deck on the right-hand side of the windrower.
8. Support the deck with a floor jack (A) or a fork lift (B) at each end.

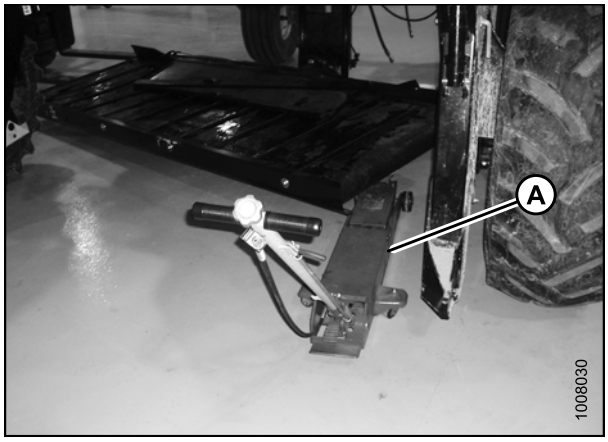


Figure 3.50: Floor Jack

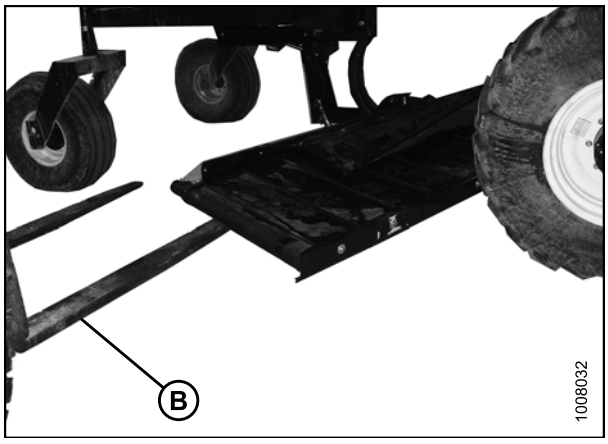


Figure 3.51: Fork Lift

9. Position the deck pivot (A) into the linkage clevis (B).

   NOTE:
   Make sure there is a loose bushing inside the deck pivot (A).

10. Align the deck pivot (A) with the holes in the clevis (B) by raising or lowering the floor jack, and insert shaft (C).
11. Install a regular hex nut (D) to the bottom of the deck pivot shaft and torque the nut to 250 ft·lbf (339 N·m).
12. Install a lock nut (E), and tighten against nut (D).

    IMPORTANT:
    Apply proper torque to nuts.

13. Add grease to grease zerk (F).
14. Attach turnbuckle (A) from linkage to deck.
    - If used with an R-Series Rotary Disc Header, use the inner pivot (B)
    - If used with an A-Series Auger or D-Series Draper Header, use the outer pivot (C)

    NOTE:
    The turnbuckle length should be approximately:
    - 21 in. (530 mm) long for a R-Series Rotary Disc Header
    - 25 in. (630 mm) long for a A-Series Auger Header or D-Series Draper Header

15. Adjust the turnbuckle length so the space (A) between the deck and the right-hand drive tire is approximately 4 in. (100 mm).

    NOTE:
    The single acting lift cylinder is pressurized with the draper drive circuit. Therefore, when the deck is set up for the R-Series Rotary Disc Headers, the windrower needs to be running for the deck to be in its most forward position. This adjustment can be fine-tuned when the hydraulics setup is complete.

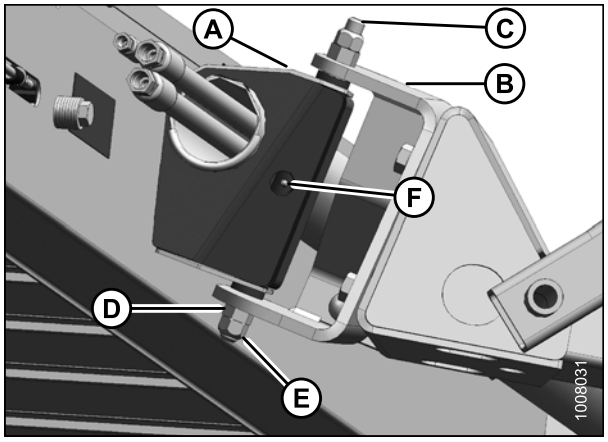


Figure 3.52: Deck Pivot

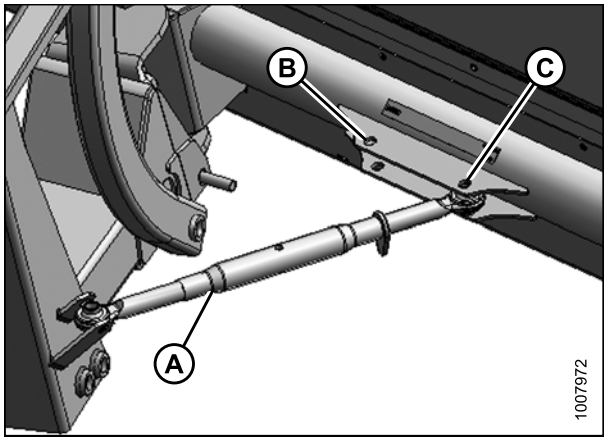


Figure 3.53: Adjustable Turnbuckle

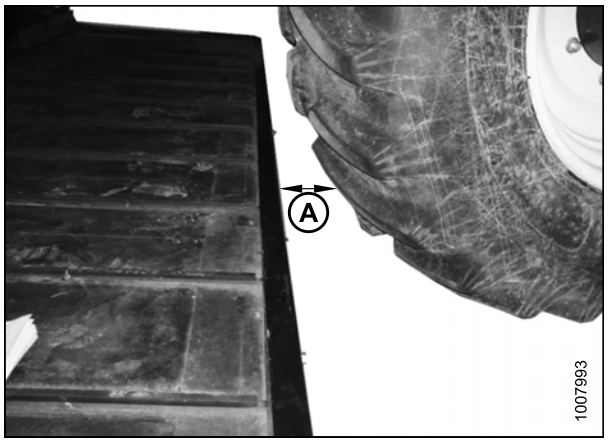


Figure 3.54: Deck and RH Drive wheel

16. Raise backsheet (A) on the deck and remove the top nuts (B) and (C).
17. Install the gas shock (D) in the center hole and secure it with nuts (B) and (C).

    IMPORTANT:
    Make sure the taper of nut (C) is facing the gas shock rod end as shown.

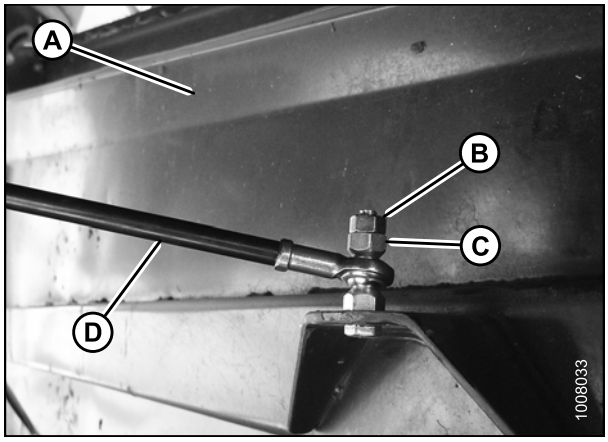


Figure 3.55: Backsheet Gas Shock

3.6 Installing the Hydraulics

To install the DWA hydraulics follow these steps:

1. Install the #10 ORB x #10 JIC elbow (A) into port “DWA” on the draper drive block.
2. Install the #12 ORB x #10 JIC elbow (B) into port “R1”.

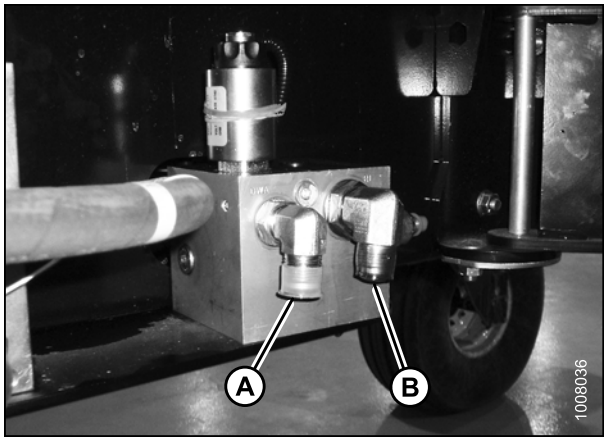


Figure 3.56: Draper Drive Block

3. Connect the #10 tee (A) to elbow (B) in the draper drive block.
4. Connect the pressure hose (C) (with blue cable tie) from the top port of the draper drive motor to elbow (D) in the draper drive block.
5. Connect the return hose (E) to tee (A).
6. Connect the 1/2 in. lift cylinder hose (F) to tee (A).

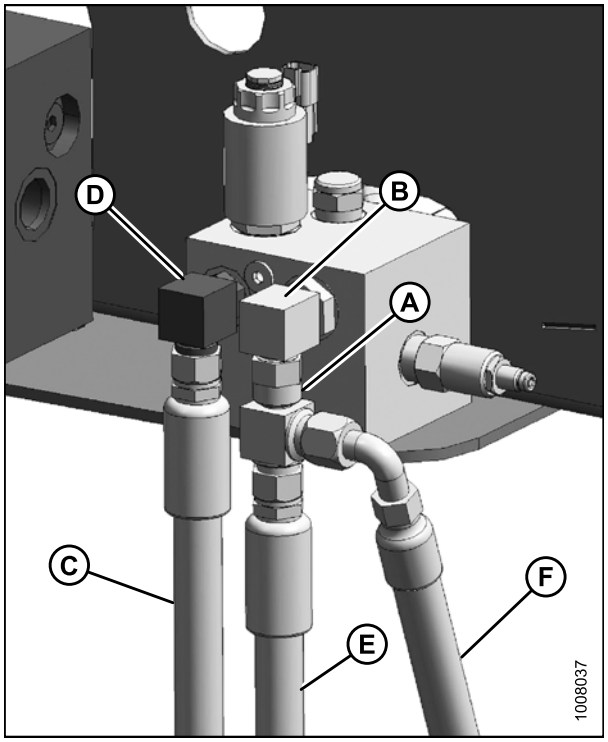


Figure 3.57: Draper Drive Block

A - #10 Tee **B - Elbow** **C - Pressure Hose**
D - Elbow **E - Return Hose** **F - Lift Cylinder Hose**

To install case drain hose (A), proceed to the section that applies to your windrower/header configuration:

- M150/M200 and A-Series, no reverser, refer to *3.6.1 Installing Case Drain Hose: M150/M200 (A-Series no Reverser), page 47*
- M150/M200 and A-Series with reverser, refer to *3.6.2 Installing Case Drain Hose: M150/M200 (A-Series with Reverser), page 48*
- M150/M200 and D-Series, no reverser, refer to *3.6.3 Installing Case Drain Hose: M150/M200 (D-Series no Reverser), page 48*
- M150/M200 and D-Series with reverser, refer to *3.6.4 Installing Case Drain Hose: M150/M200 (D-Series with Reverser), page 49*
- M150/M200 and R-Series, refer to *3.6.5 Installing Case Drain Hose: M150/M200 (R-Series Headers), page 49*
- M155/M205 all header types, refer to *3.6.6 Installing Case Drain Hose: M155/M205 (All Headers), page 50*

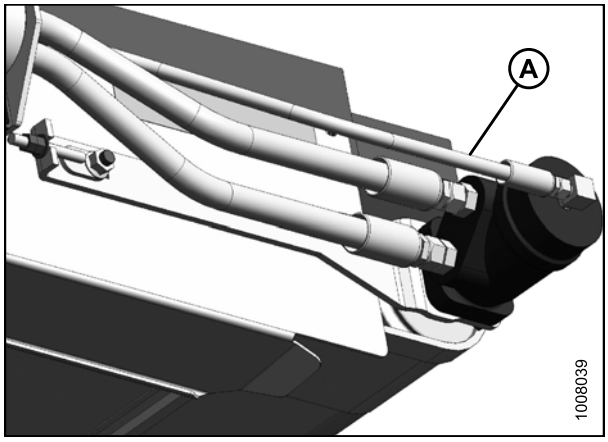


Figure 3.58: Case Drain Hose

3.6.1 Installing Case Drain Hose: M150/M200 (A-Series no Reverser)

To connect the case drain hose to the header drive block, follow these steps:

1. Connect the #12 ORB x #10 JIC elbow (B) to port “T” on the header drive block.
2. Connect the #10 JIC x #6 JIC reducer (C) to elbow (B).
3. Install the case drain hose (A) to reducer (C).

   NOTE:
   Make sure hose (A) is not rubbing against any fittings.

   Refer to *6.5 Hydraulics and In-Cab Electrical, page 100* for additional information on the hydraulic connections.
4. Proceed to *3.7 Installing the Auxiliary Valve Block, page 51*.

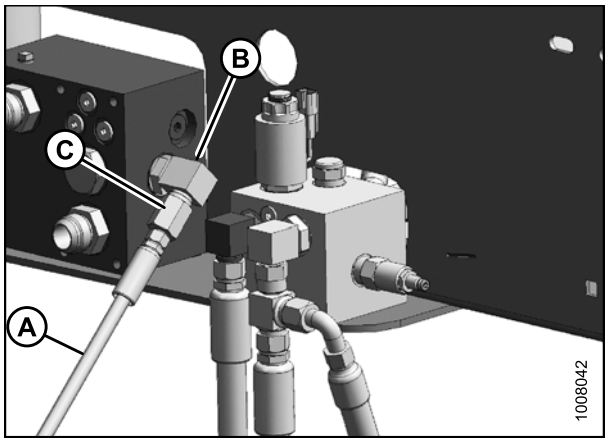


Figure 3.59: Header Drive Block

3.6.2 Installing Case Drain Hose: M150/M200 (A-Series with Reverser)

To connect the case drain hose to the header drive block, follow these steps:

1. Connect the #12 ORB x #10 JIC elbow (B) to port “T” on the header drive block.
2. Connect the #10 JIC x #10 JIC elbow (C) to elbow (B).
3. Connect the #10 JIC x #6 JIC reducer (D) to elbow (C).
4. Install the case drain hose (A) to reducer (D).

   NOTE:
   Make sure hose (A) is not rubbing against any fittings.

   Refer to *6.5 Hydraulics and In-Cab Electrical, page 100* for additional information on the hydraulic connections.
5. Proceed to *3.7 Installing the Auxiliary Valve Block, page 51*.

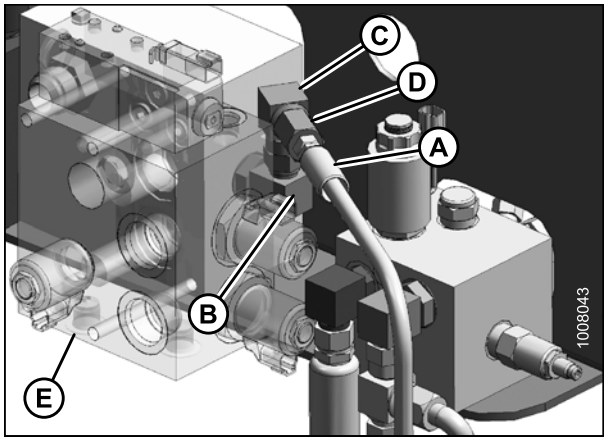


Figure 3.60: Header Drive Block

A - Case Drain Hose
B - #12 ORB x #10 JIC Elbow
C - #10 JIC x #10 JIC Elbow
D - #10 JIC x #6 JIC Reducer
E - Reverser (Hidden)

3.6.3 Installing Case Drain Hose: M150/M200 (D-Series no Reverser)

To connect the case drain hose to the header drive block, follow these steps:

1. Disconnect the reel return hose (and all the fittings in between) connected to port “T” on the header drive block.
2. Connect the #12 ORB x #10 JIC elbow (B) to port “T” on the header drive block.
3. Connect the #10 JIC tee (C) to elbow (B).
4. Connect the #10 JIC x #10 JIC elbow (D) to tee (C).
5. Connect the #10 JIC x #6 JIC reducer (E) to elbow (D).
6. Install case drain hose (A) to reducer (E).

   NOTE:
   Make sure hose (A) is not rubbing against any fittings.

   Refer to *6.5 Hydraulics and In-Cab Electrical, page 100* for additional information on the hydraulic connections.
7. Reconnect the reel return hose by installing elbow (removed earlier) to tee (C) followed by the reel return hose.
8. Proceed to *3.7 Installing the Auxiliary Valve Block, page 51*.

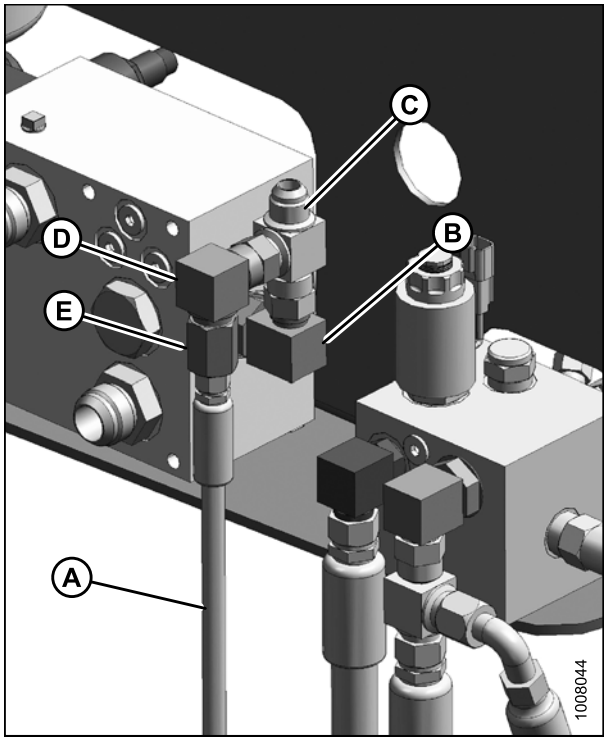


Figure 3.61: Header Drive Block

A - Case Drain Hose
B - #12 ORB x #10 JIC Elbow
C - #10 JIC Tee
D - #10 JIC x #10 JIC Elbow
E - #10 JIC x #6 JIC Reducer

3.6.4 Installing Case Drain Hose: M150/M200 (D-Series with Reverser)

To connect the case drain hose to the header drive block, follow these steps:

1. Disconnect the reel return hose connected to port “T” and all the fittings in between.
2. Connect #12 ORB x #10 JIC elbow (B) to port “T” on the header drive block.
3. Connect #10 JIC tee (D) to elbow (B).
4. Connect #10 JIC x #6 JIC reducer (C) to tee (D).
5. Connect case drain hose (A) to reducer (C).

   NOTE:
   Make sure hose (A) is not rubbing against any fittings.

   Refer to *6.5 Hydraulics and In-Cab Electrical, page 100* for additional information on the hydraulic connections.
6. Reconnect the reel return hose by first installing elbow (removed earlier) to tee (D) followed by reel return hose.
7. Proceed to *3.7 Installing the Auxiliary Valve Block, page 51*.

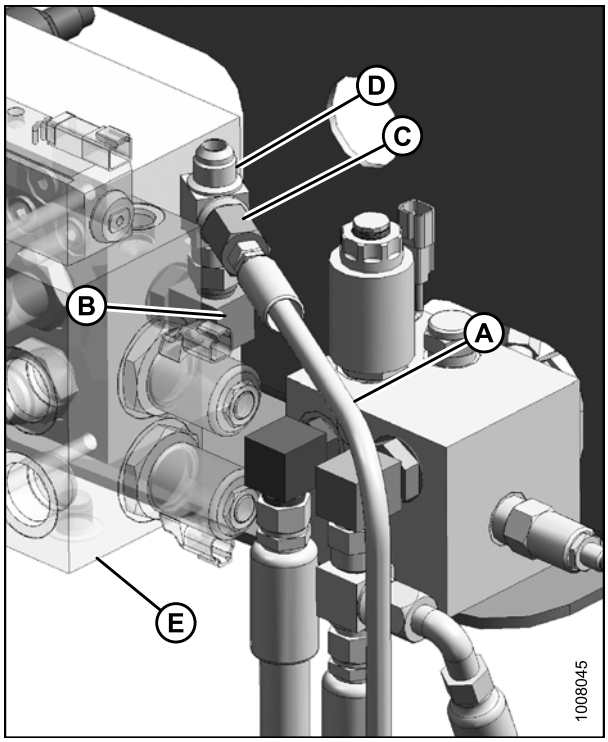


Figure 3.62: Header Drive Block

A - Case Drain Hose
B - #12 ORB x #10 JIC Elbow
C - #10 JIC x #6 JIC Reducer
D - #10 JIC Tee
E - Reverser (Hidden)

3.6.5 Installing Case Drain Hose: M150/M200 (R-Series Headers)

To connect the case drain hose to the header drive block follow these steps:

1. Connect #12 ORB x #10 JIC elbow (B) to port “T” on the header drive block.
2. Install #10 JIC x #6 JIC reducer (C) to elbow (B).
3. Install case drain hose (A) to reducer (C).

   NOTE:
   Make sure hose (A) is not rubbing against any fittings.

   Refer to *6.5 Hydraulics and In-Cab Electrical, page 100* for additional information on the hydraulic connections.
4. Proceed to *3.7 Installing the Auxiliary Valve Block, page 51*.

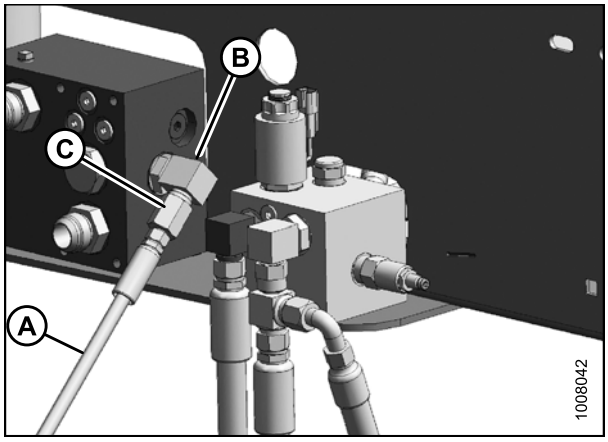


Figure 3.63: Header Drive Block

3.6.6 Installing Case Drain Hose: M155/M205 (All Headers)

To connect the case drain hose to the hydraulic reservoir, follow these steps:

1. Remove plug from the top left corner of the hydraulic reservoir and connect the #10 ORB x #6 JIC elbow (B) to the reservoir port.
2. Connect the case drain hose (A) to elbow (B).
3. Proceed to *3.7 Installing the Auxiliary Valve Block, page 51*.

   Refer to *6.5 Hydraulics and In-Cab Electrical, page 100* for additional information on the hydraulic connections.

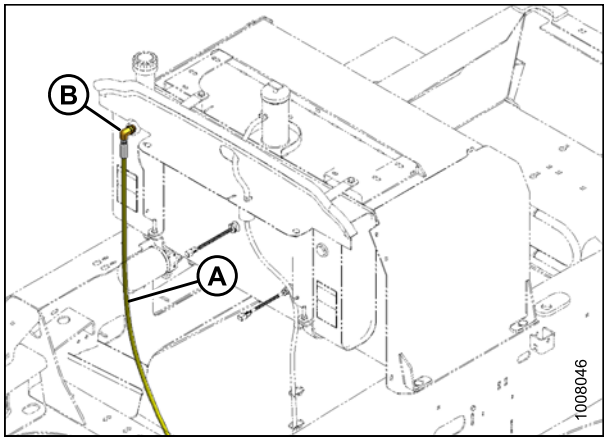


Figure 3.64: Hydraulic Reservoir

3.7 Installing the Auxiliary Valve Block

To connect the auxiliary valve block, follow these steps:

1. Remove fitting (A) and plug (B) from the lift manifold block and retain for use.

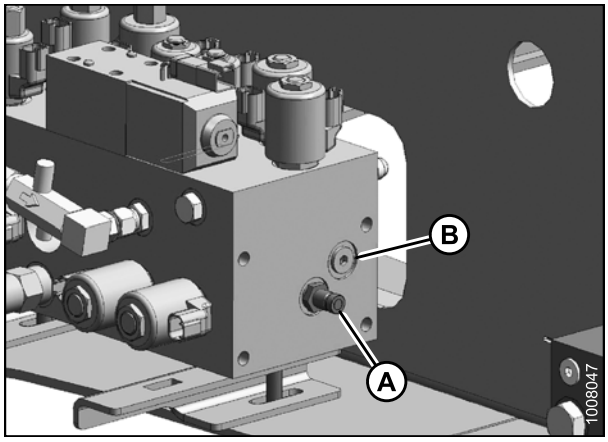


Figure 3.65: Lift Manifold Block

2. Attach the auxiliary valve block (C) to the lift manifold block.

   NOTE:
   If installing onto a windrower paired with a D60 header with reel fore-aft, the windrower will already have an auxiliary valve block. The new valve block (C) is mounted next to the existing one.

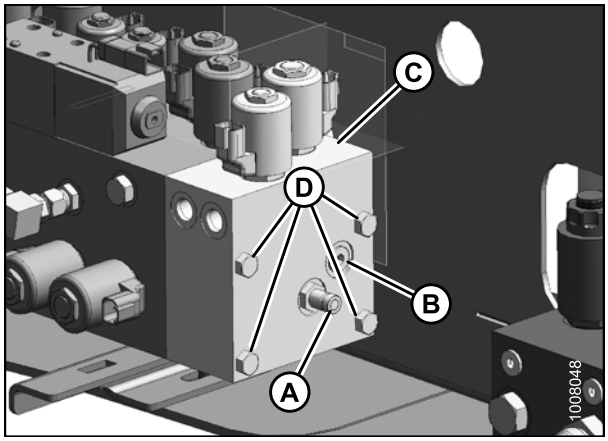


Figure 3.66: Auxiliary Valve Block

3. Apply grease to O-rings (supplied with valve block) and install them in the countersunk port holes where the plugs were removed.
4. Assemble smooth side of valve (C) to lift valve with four 3/8 in. bolts (D) provided. Use the longer bolts if there are two auxiliary valve blocks.
5. Torque bolts to 25 ft·lbf (34 N·m).
6. Replace fitting (A) and plug (B) (removed in Step *1, page 51*) into auxiliary valve block. If plug (B) is damaged on removal, an extra plug is provided in the kit.

7. Install the 90° elbow fitting (A) into port “K” on the auxiliary valve block (B).
8. Install the 9/16–18 ORB fitting (C) on the 90° elbow fitting (A).
9. Install the flow valve (D) onto the 9/16–18 ORB fitting (C).
10. Install the 3/8 in. tube 37° flare fitting (E) onto the flow valve (D).
11. Route the 1/4 in. lift cylinder hose (F) through the side of windrower frame and connect to fitting (E).
12. Route the hoses neatly by using the cable ties included in the kit. Ensure hoses are not rubbing against moving parts.
13. Install plug (G) into port “J” on the auxiliary valve block (B).

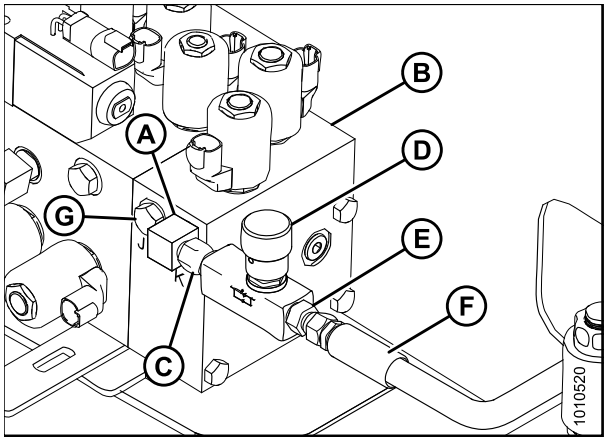


Figure 3.67: Auxiliary Valve Block

3.8 Installing the Electrical System

1. Connect the wiring harness from the DWA linkage to plug (A) on the draper drive block.
2. Connect the other plug on the DWA harness to P74 on the windrower harness, located near the valve block.

   NOTE:
   On some 2012 and earlier M205 windrowers, the P74 branch of the windrower harness will not be long enough to connect to the DWA harness. A harness extension is provided in the DWA hydraulic kit.

3. Connect plug P73 on the windrower harness to plug (B) on the lift block valve 4C.
4. Connect plug P72 on the windrower harness to plug (C) on the lift block valve 2C.
5. Inside the windrower cab, remove cover (A) from the console by removing five screws (B).

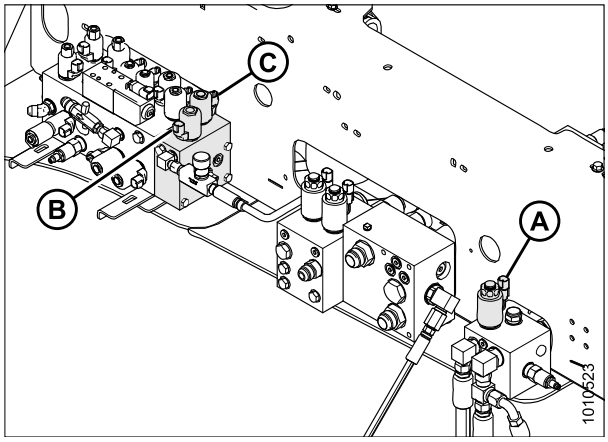


Figure 3.68: Electrical Connections (M205 Similar)

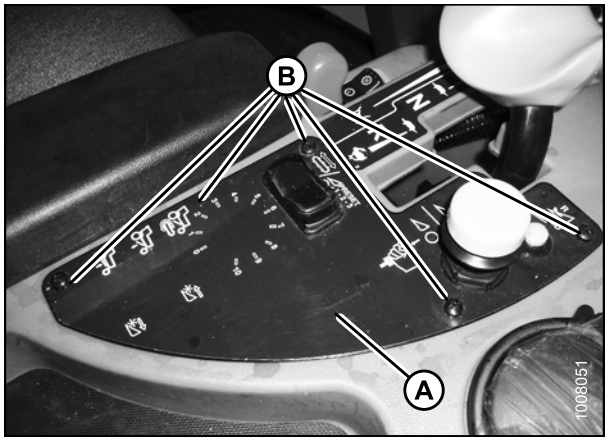


Figure 3.69: Console Control Plate

6. Cut a hole in the decal and install rotary switch (A) as shown. There is a pre-made hole in the mounting plate.

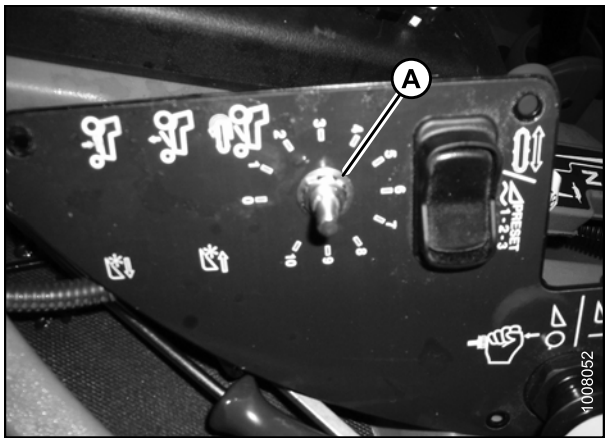


Figure 3.70: Console Control Plate

7. Remove the knockout in cover (A) for the rocker switch and file down the burrs.

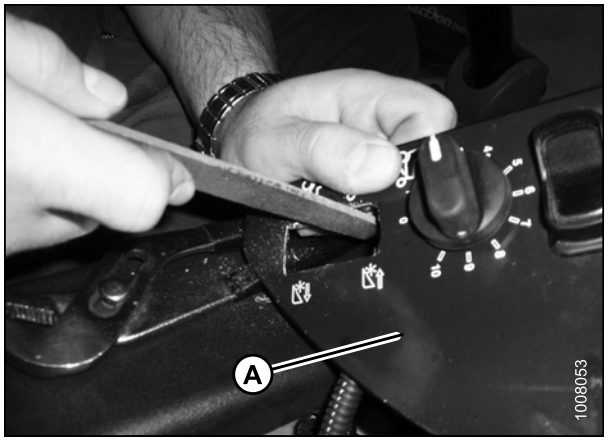


Figure 3.71: Console Control Plate

8. Install knob (A) on the rotary switch and tighten the set screw in knob with a hex key (B). (Knob may not be exactly as shown.)

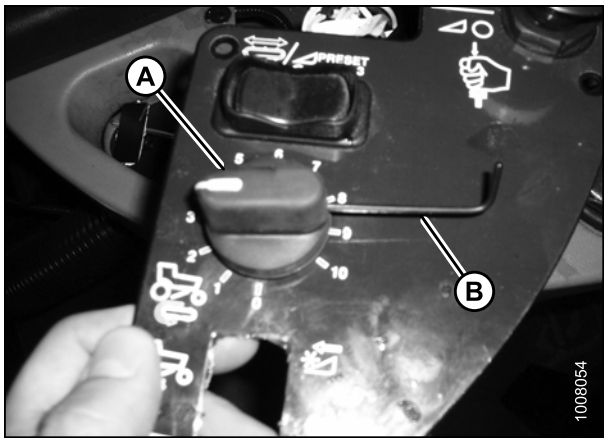


Figure 3.72: Console Control Plate

9. Install rocker switch (A) in the cover. The side with the prongs should be next to the operator's seat.

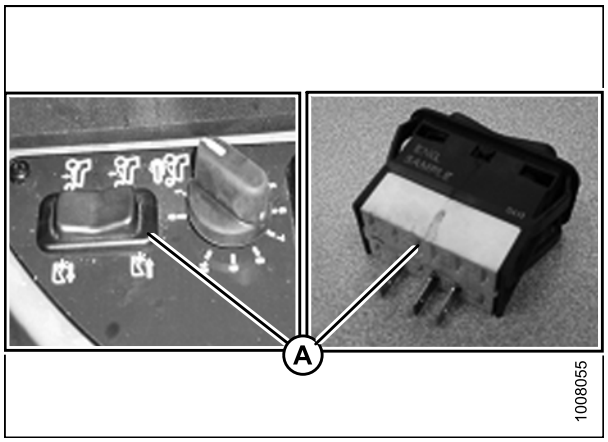


Figure 3.73: DWA Switch

10. Install the rocker switch into plug (A) and install the rotary switch into plug (B). These plugs come prewired into the windrower console.

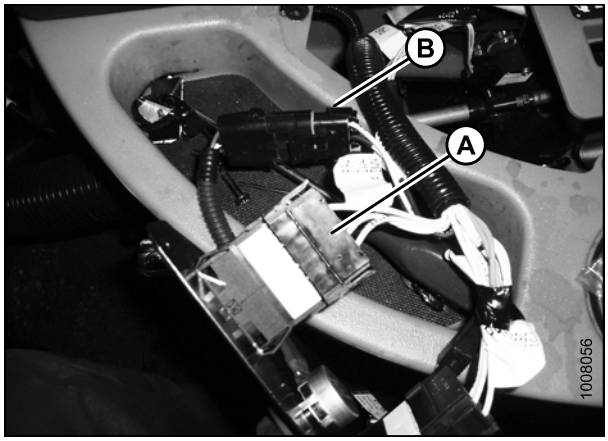


Figure 3.74: DWA Switch

11. Reinstall the cover (A) with five screws (B).

NOTE:
Refer to *3.8.1 Activating the Double Windrower Attachment (DWA), page 55* to program the cab display module for control of DWA functions.

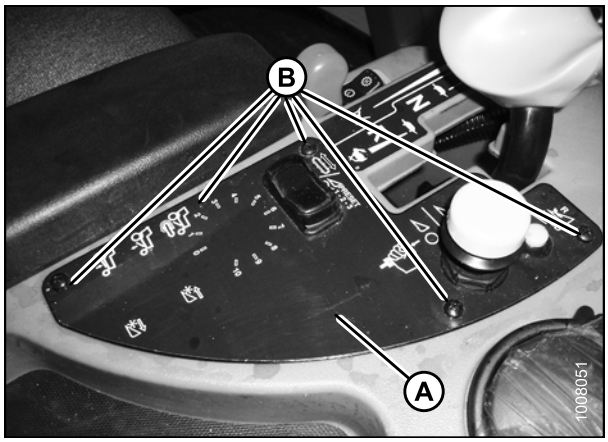


Figure 3.75: Console Control Plate

3.8.1 Activating the Double Windrower Attachment (DWA)

1. Turn ignition key to RUN, or start the engine.
2. Press PROGRAM (A) and SELECT (C) on cab display module (CDM) to enter Programming Mode.
   - WINDROWER SETUP? is displayed on the upper line.
   - NO/YES is displayed on the lower line.
3. Press right (B) arrow to select YES. Press SELECT (C).
   - SET KNIFE SPEED? is displayed on the upper line.

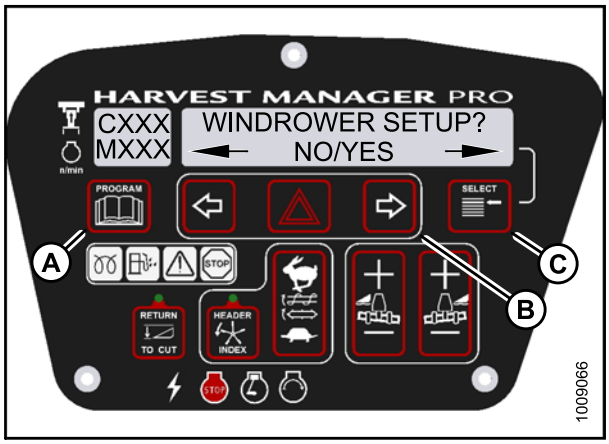


Figure 3.76: CDM Programming Buttons

4. Press SELECT (B) until DWA INSTALLED? is displayed on the upper line.
   - NO/YES is displayed on the lower line.
5. Press right (A) arrow to select YES. Press SELECT (B).
6. SWAP DWA CONTROLS? is displayed on the upper line.
   - NO/YES is displayed on the lower line.

   NOTE:
   This step swaps the DWA controls from the console switch to the ground speed lever (GSL) reel fore-aft buttons.

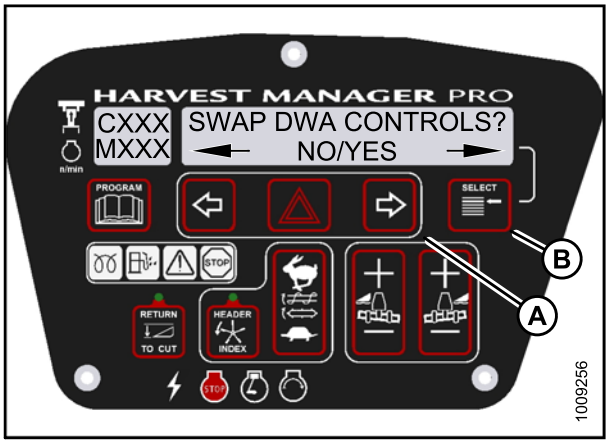


Figure 3.77: Swap DWA Controls

7. Press right (C) arrow to select YES. Press SELECT (D).
   - DWA AUTO UP/DOWN ? is displayed on the upper line.
   - NO/YES is displayed on the lower line.

   NOTE:
   If the Operator selects YES, the DWA Auto-Up function will be activated by the GSL Reel Fore-Aft button.
8. Press right (C) arrow to select YES. Press SELECT (D).
9. Press PROGRAM to exit Programming Mode or press SELECT to proceed to next WINDROWER SETUP action.

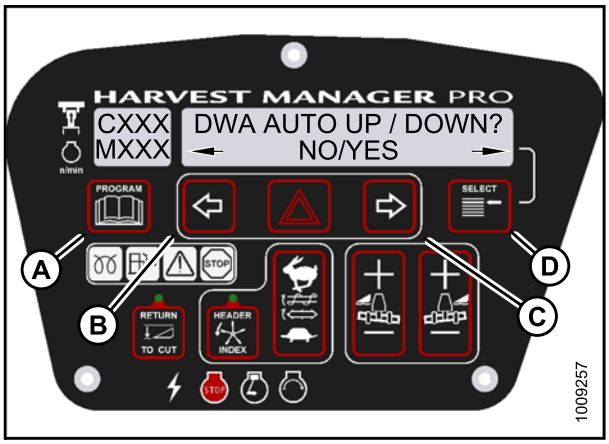


Figure 3.78: DWA Auto Up/Down

3.9 Installing the Tank Overflow Hose Extension

The extension hose prevents overflow fluid dropping onto the DWA draper deck. Instructions are model-specific.

- To install the overflow extension hose on M150/M155 models with Cummins engines, refer to *3.9.1 Installing the Tank Overflow Hose Extension: M150/M155, page 57*
- To install the overflow extension hose on M205 models with Cummins engines, refer to *3.9.2 Installing the Tank Overflow Hose Extension: M205, page 59*
- To install the overflow extension hose on M200 models with Cat engines, refer to *3.9.3 Installing the Tank Overflow Hose Extension: M200 with Cat Engine, page 60*

3.9.1 Installing the Tank Overflow Hose Extension: M150/M155

To install the tank overflow hose on a M150 or M155 Self Propelled Windrower, follow these steps:

1. Locate hydraulic hose (A) and fuel tank overflow hose (B).
2. Pull the fuel tank hose (B) out from clamp (C).
3. Using the supplied plastic tee fitting (D), join the hydraulic and fuel overflow lines:
   - Hose (B) connects to 3/8 in. tee branch with smaller gear clamp (E)
   - Hose (A) connects to 5/8 in. tee branch with larger gear clamp (F)

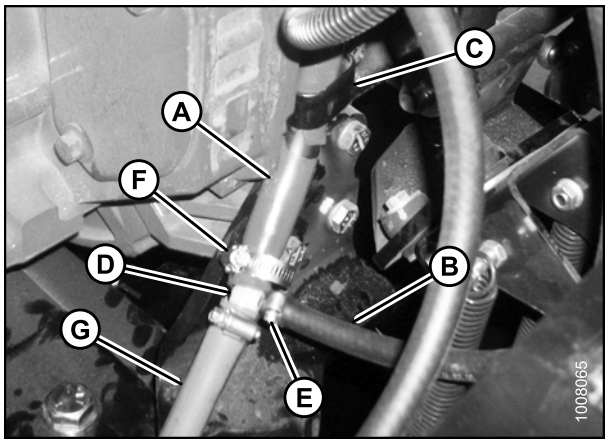


Figure 3.79: Overflow Hoses

4. Attach the extension hose to the plastic tee fitting using another larger gear clamp.
5. Route hose (A) through the slot in frame member and secure with a cable tie (B) as shown.

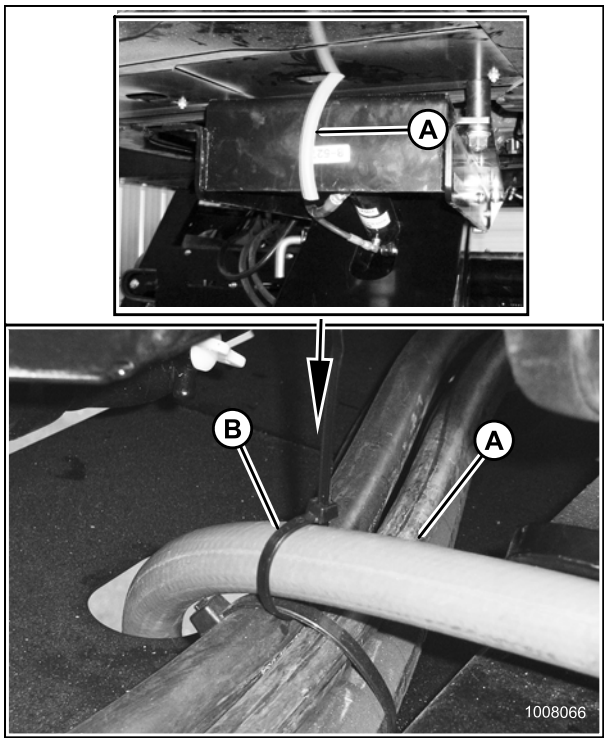


Figure 3.80: Overflow Hoses

6. Trim hose (A) to length as follows:
   - R-Series Rotary Disc Header: Leave approximately 7 in. (180 mm) free hose below windrower frame
   - A Series Auger and D-Series Draper Header: Leave approximately 14 in. (360 mm) free hose below windrower frame

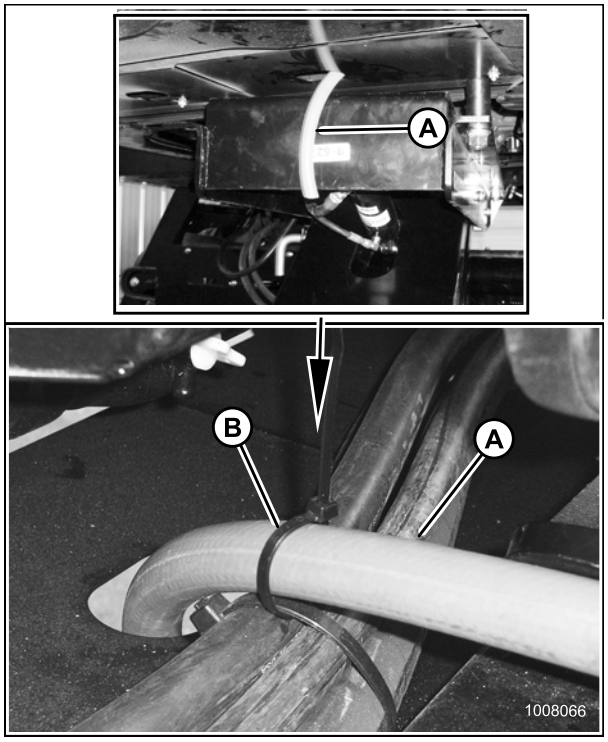


Figure 3.81: Overflow Hoses

3.9.2 Installing the Tank Overflow Hose Extension: M205

To install the tank overflow hose on a M205 Self Propelled Windrower, follow these steps:

1. Locate hydraulic hose (A) and fuel tank overflow hose (B).
2. Pull the fuel tank hose (B) out from clamp (C).
3. Using the supplied plastic tee fitting (D), join the hydraulic overflow and fuel overflow lines:
   - Hose (B) connects to 3/8 in. tee branch with smaller gear clamp (E)
   - Hose (A) connects to 5/8 in. tee branch with larger gear clamp (F)

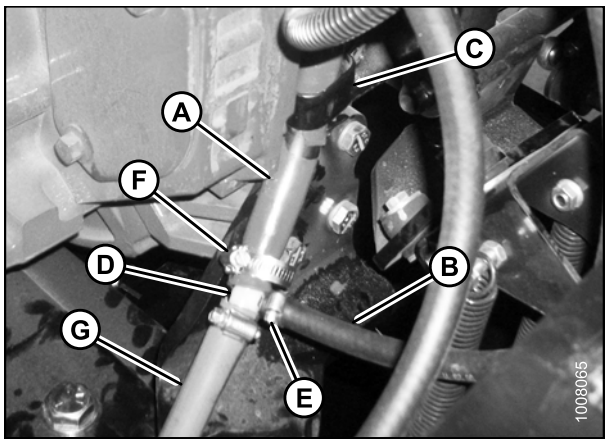


Figure 3.82: Overflow Hoses

4. Attach the extension hose to the plastic tee fitting using another larger gear clamp.
5. Route the extension hose (A) along side of the windrower frame, and secure to the existing hoses with a cable tie (B) as shown.

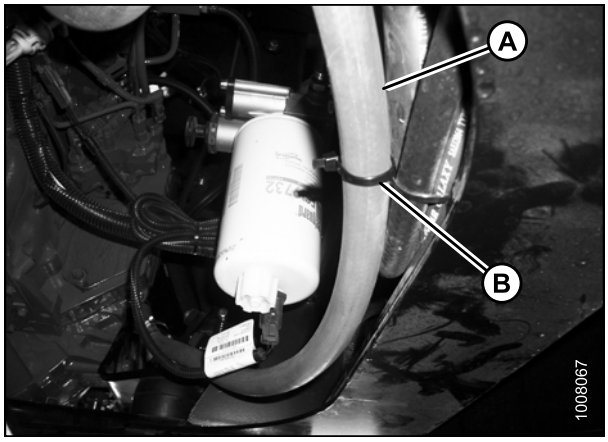


Figure 3.83: Overflow Hoses

6. Trim hose (A) to length as follows:
   - R-Series Rotary Disc Header: Leave approximately 7 in. (180 mm) free hose below windrower frame
   - A Series Auger and D-Series Draper Header: Leave approximately 14 in. (360 mm) free hose below windrower frame

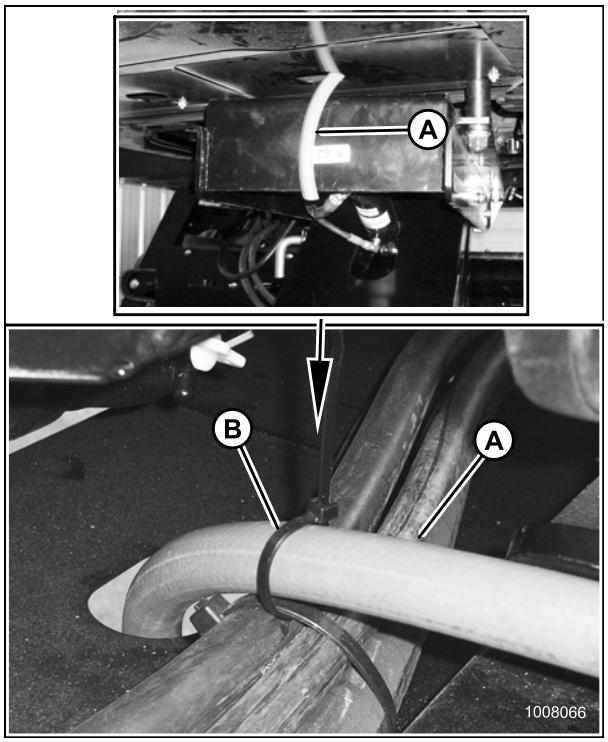


Figure 3.84: Overflow Hoses

3.9.3 Installing the Tank Overflow Hose Extension: M200 with Cat Engine

To install the tank overflow hose on a M200 Self Propelled Windrower, follow these steps:

1. Locate the hydraulic and fuel tank breather hose (A).
2. Connect the supplied extension hose (B) to the existing hose (A) using a straight plastic joiner and two hose clamps at (C) as shown.
3. Trim hose (B) to length as follows:
   - R-Series Rotary Disc Header: leave approximately 7 in. (180 mm) free hose below windrower frame
   - A Series Auger and D-Series Draper Header: leave approximately 14 in. (360 mm) free hose below windrower frame

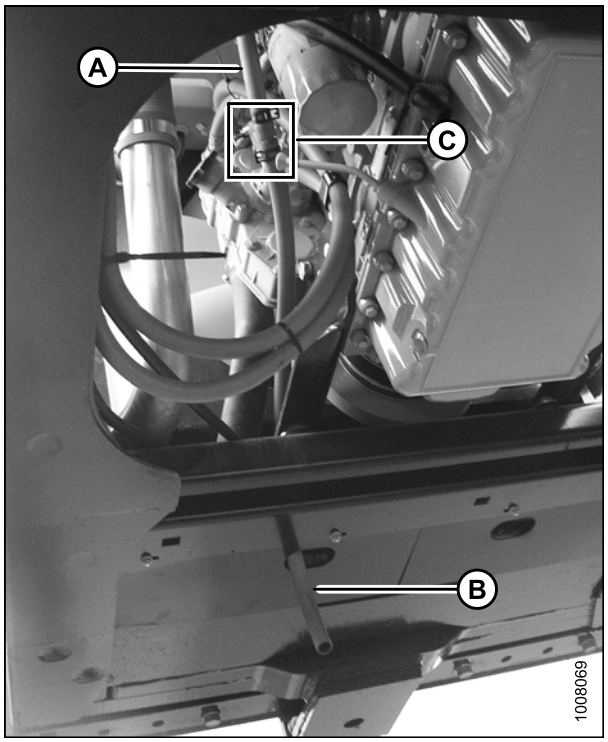


Figure 3.85: Overflow Hose

4 Operation

4.1 Operational Safety

CAUTION

To avoid bodily injury:

- **Review the safety sections of your windrower and header operator's manuals.**
- **Keep all shields in place.**
- **Engage the deck safety pin when deck is raised fully for transport, service, and storage—or before going under deck for any reason.**
- **Keep away from moving draper and rollers.**
- **Keep clear of the deck while it is being raised or lowered.**

4.2 Engaging the Deck Safety Pin

Engage the deck safety pin as follows:

1. Raise the DWA deck.
2. Rotate the pin (A) and push inward until both roll pins (B) are inside the channel.

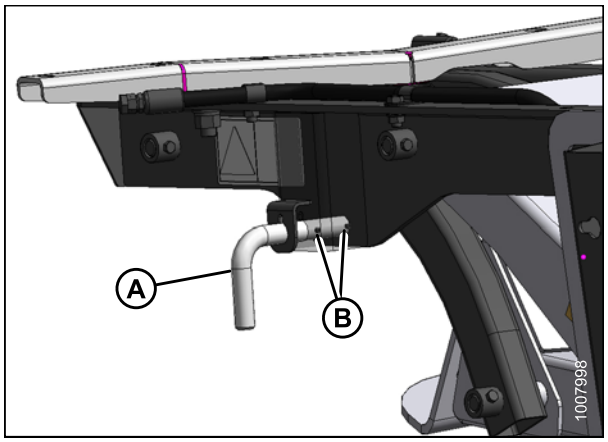


Figure 4.1: DWA Deck Safety Pin

4.3 Raising and Lowering the Deck

NOTE:
Use extra caution when raising the deck for the first time. The deck rotates as it raises and lowers, and the backsheet folds on to the deck. Make sure the deck and backsheet are not interfering with windrower parts or the forming shield.

If you have chosen “YES” to swap the DWA controls in the setup instructions, use the REEL FORE-AFT switch on the ground control lever (GSL) to RAISE and LOWER the deck:

- The deck moves forward when lowering, so switch operation will be the same as when moving the reel forward. REEL FORWARD position (A) moves DWA DOWN
- The deck moves rearward when raising so switch operation will be the same as when moving the reel rearward. REEL AFT position (B) moves DWA UP

.

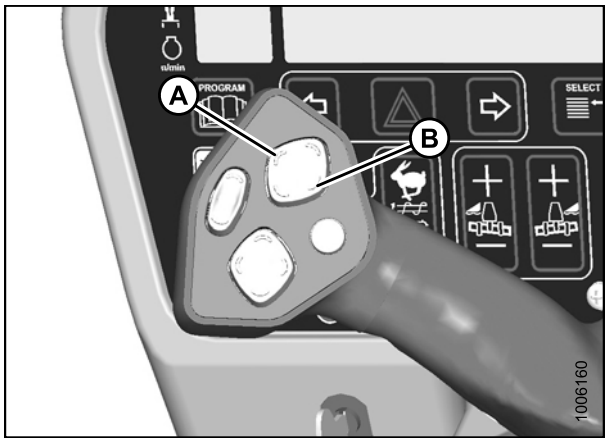


Figure 4.2: Reel Fore-Aft Switch

If you have chosen “NO” to swap the DWA controls in the setup instructions, use the console DECK LIFT CONTROLS rocker switch to move the DWA UP and DOWN.

- Press the rocker switch forward portion (B) to lower the DWA (DWA DOWN)
- Press the rocker switch rearward portion (A) to raise the DWA (DWA UP)

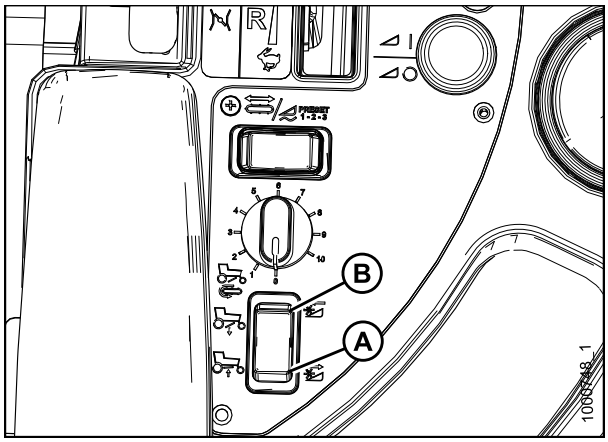


Figure 4.3: Console Rocker Switch

4.3.1 Adjusting the Draper Shut-Off Switch

To adjust the draper shut-off switch, follow these steps:

The draper shuts off automatically when the deck is raised about 2/3 of the way. If the deck does not shut off soon enough (resulting in backsheet touching draper before it shuts off), the switch at the linkage needs to be lowered:

1. Loosen screws (A) to lower the switch.
2. Tighten screws (A) when the adjustment is complete.

NOTE:
Do not over tighten the screws or the switch will not work.

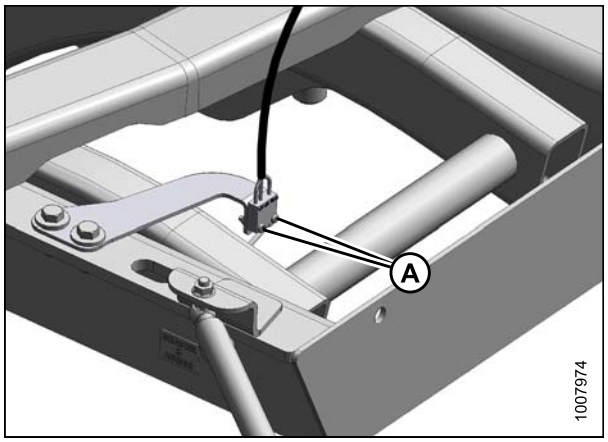


Figure 4.4: Draper Shut-Off Switch

4.4 Setting Draper Speed

To set the draper speed, turn the draper speed control knob on the console. (Knob may not be exactly as shown.)

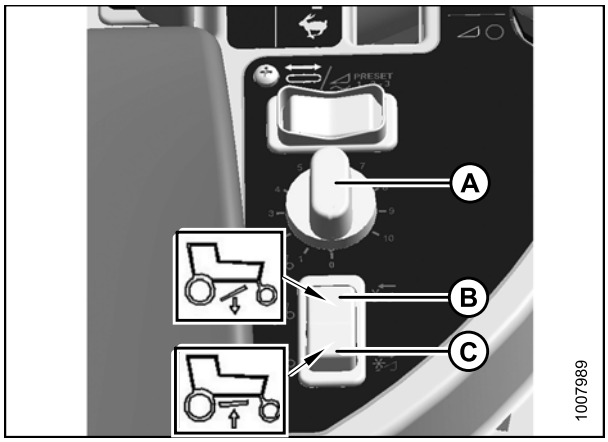


Figure 4.5: Draper Speed Knob

A - Draper Speed Knob
B - DWA Down Rocker Switch
C - DWA Up Rocker Switch

4.5 Adjusting the Deck Angle

The DWA's deck angle can be adjusted to maximize performance and prevent contact with the windrower.

To adjust the deck angle relative to the right drive tire, refer to *4.5.1 Adjusting Deck Angle Relative to the Drive Tire, page 66*.

To adjust the deck angle relative to the ground, refer to *4.5.2 Adjusting Deck Angle Relative to the Ground, page 67*.

NOTE:
If set up with an R-Series Header, the DWA deck will only be in its most forward position when the windrower is running. The lift cylinder is single acting and not pressurized when the windrower is shut off. When the windrower is running, a supply of low pressure oil moves the deck forward.

4.5.1 Adjusting Deck Angle Relative to the Drive Tire

The deck angle, relative to the right-hand drive tire, is adjustable with turnbuckle (A).

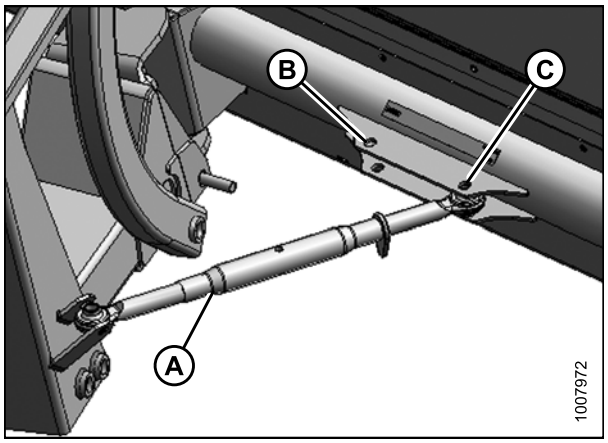


Figure 4.6: Deck Angle Turnbuckle

A - Turnbuckle **B - Use for R-Series Header**
C - Use for A-Series or D-Series Header

1. Adjust the turnbuckle length so the space (A) between the deck and the right-hand drive tire is approximately 4 in. (100 mm).

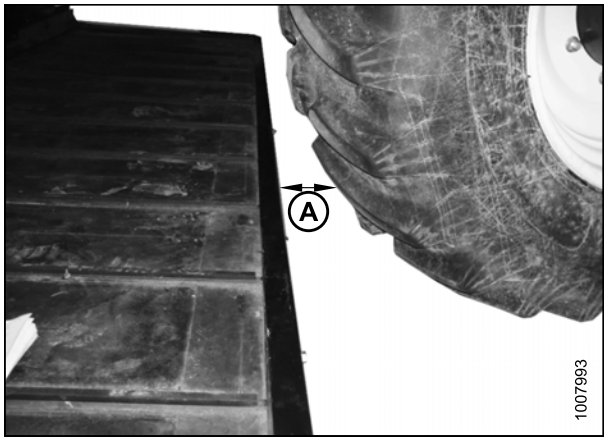


Figure 4.7: Distance from Deck to Tire

To adjust the deck angle relative to the right-hand drive tire follow these steps:

2. Loosen the locking tab (B) on the adjustable turnbuckle.
3. Rotate the center tube (A) to the desired length.

   NOTE:
   The turnbuckle length should be approximately:

   - 21 in. (530 mm) long for a R-Series Rotary Disc Header
   - 25 in. (630 mm) long for a A-Series Auger Header or D-Series Draper Header

4. Retighten the locking tab against the center tube.

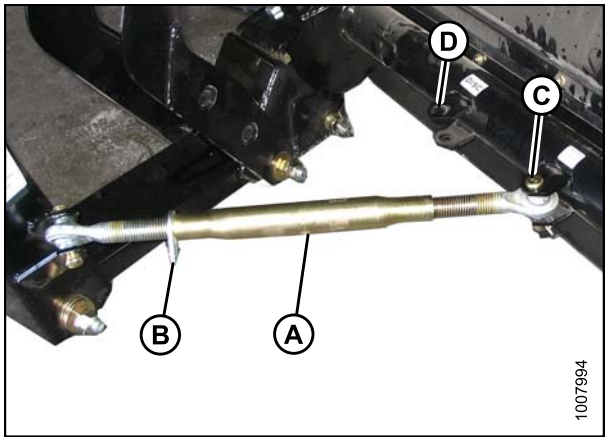


Figure 4.8: Adjust Turnbuckle

A - Center Tube **B - Locking Tab**
C - Connection Point for A-Series and D-Series Headers
D - Connection Point for R-Series Disc Header

4.5.2 Adjusting Deck Angle Relative to the Ground

The deck angle should be horizontal or at a slight incline—relative to the ground. Distance (A) should be equal to or greater than (B).

- If used with an R-Series Rotary Disc Header in lighter crop, distance (A) should be equal to (B)
- If the crop needs to be thrown farther, increase distance (A)

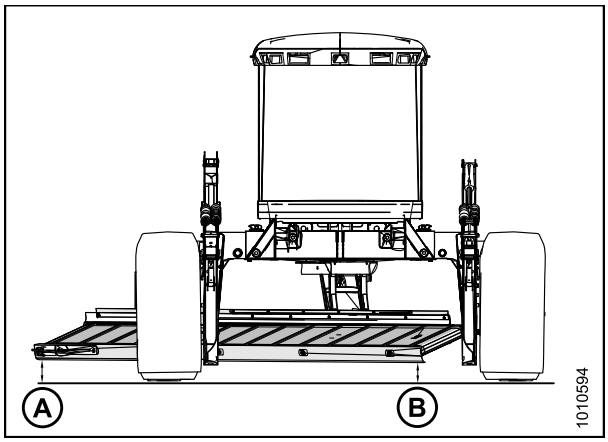


Figure 4.9: DWA Deck

To adjust deck angle:

1. Loosen the four 3/4 in. bolts (A).

   NOTE:
   The fourth bolt is hidden behind bracket (B) and not visible in this illustration.

2. Loosen the locking nut (D).
3. To increase distance between the ground and the deck tighten nut (C).
4. To decrease distance between the ground and the deck loosen nut (C).
5. After adjustment, tighten nut (D).
6. Torque the four 3/4 in. bolts (A) to 245 ft·lbf (332 N·m).

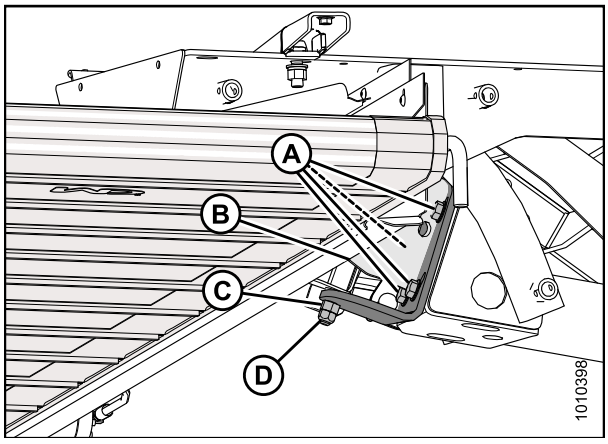


Figure 4.10: Deck Pivot

4.6 Adjusting Deck Height

The deck should never touch the ground or excessive wear could occur to some deck components.

If the deck is too low to the ground, raise it as follows:

1. Lower linkage by fully extending cylinder.
2. Move bottom pivot pin to lower position (A).

This will raise the front of the deck approximately 4 in. (100 mm).

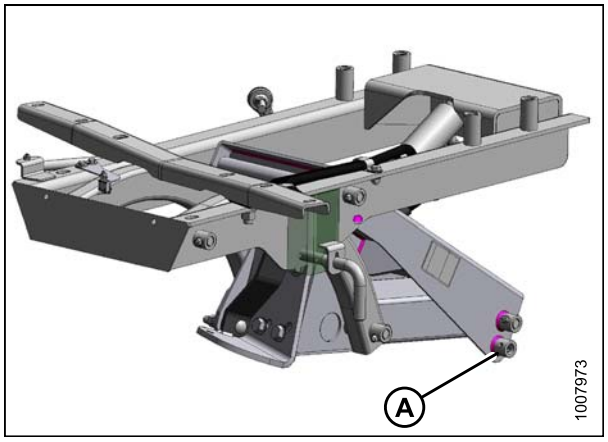


Figure 4.11: DWA Linkage

4.7 Positioning the Conditioner Forming Shield

To adjust the position of the conditioner forming shields, follow these steps:

Make sure the forming shield (B) is high enough to clear the deck when it is lowered (A).

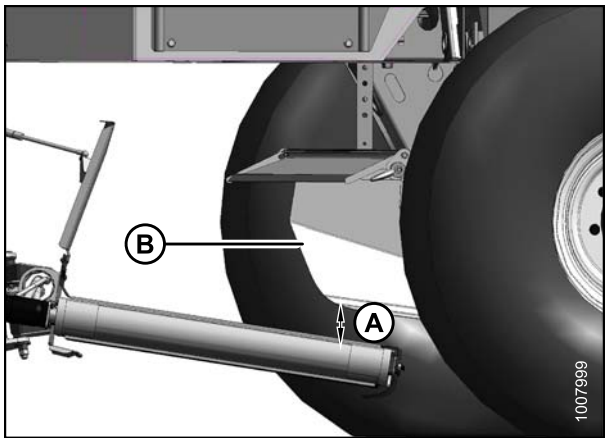


Figure 4.12: Deck Lowered

A - Distance Between Forming Shield (B) and the Deck

1. Remove the hairpin (A).
2. Adjust strap (B) to achieve the ideal position.

   NOTE:
   The forming shield should be as low as possible without interfering with deck.

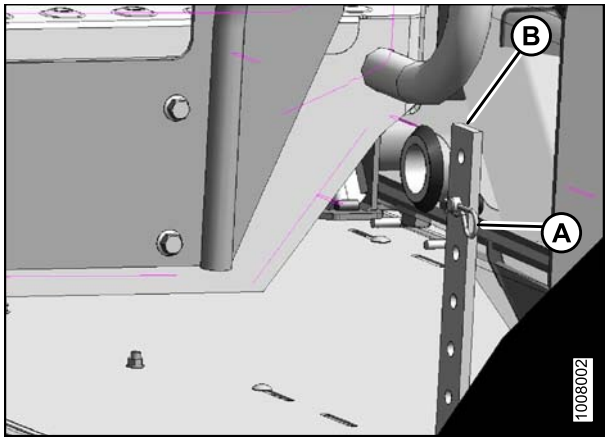


Figure 4.13: Forming Shield

3. Adjust the left-hand side deflector (B) to the widest position possible without affecting crop flow.

   NOTE:
   If center delivering, the left-hand deflector (B) can be moved inward to form a narrower windrow.

4. Adjust the right-hand side deflector to the widest position without affecting crop flow. This is where the deck is farthest from the conditioner rolls.

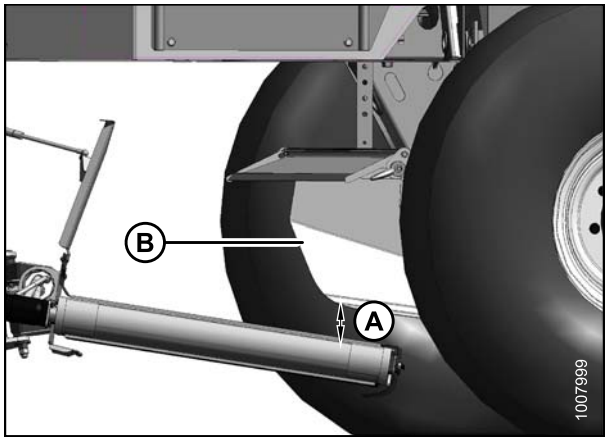


Figure 4.14: Deck Lowered

5. Adjust the rear deflector baffle (A) so crop flow (B) does not interfere with the deck when fully raised.

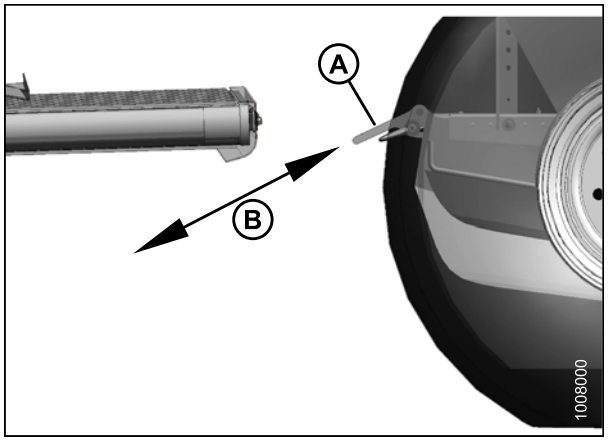


Figure 4.15: Deck Raised

The fins (B) under the forming shield can interfere with crop flow, especially with an R-Series Header in light crop. If necessary remove fins (B).

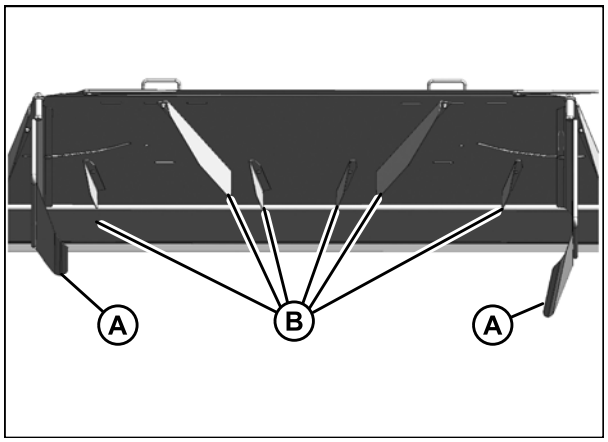


Figure 4.16: Fins Under Forming Shield

A - Side Deflector **B - Fins Under Forming Shield**

4.8 Positioning the Conditioner Rolls

The gap between the conditioner rolls needs to be small enough to properly throw the crop onto the double windrow attachment.

The gap size depends on the crop type and yield.

- A gap that is too small for a heavy crop will use excessive engine power and be hard on affected components
- A gap that is too large will not throw the crop with enough velocity to reach the side delivery deck

Refer to the conditioner roll adjustment procedure in your A-Series, R-Series, or HC10 operator's manual.

4.9 Operating Recommendations

4.9.1 Operating with 15, 16, 18, 20 Foot Headers

Refer to the following operating recommendations when using 15–20 ft headers:

- On the first pass, raise the side delivery system and deposit the crop between the wheels of the windrower.
- On the return pass, lower the side delivery system and deposit the crop beside the previously laid windrow.
- With a center-delivered crop, the position of the crop can be adjusted by using the side deflectors on the forming shields.
- With a side-delivered crop, the position of the crop can be adjusted by adjusting the draper speed (faster draper speeds will throw the crop farther).

4.9.2 Operating with 25 and 30 Ft Headers

Refer to the following operating recommendations when using the DWA with 25–30 ft. headers:

When using 25 and 30 ft. headers on light crop, the side delivery system can be used to lay windrows side by side.

NOTE:
Adjust the position of a side delivered crop by varying the draper speed.

When using 25 and 30 ft. headers on heavy crop, double windrowing may not be desired. Raise the DWA deck to lay single windrows between the windrower's wheels.

4.9.3 Operating with an R-Series Rotary Disc Header

Because the conditioner rolls on an R-Series Header are farther ahead than all other headers, delivering light crop from the conditioner rolls to the side delivery deck may require special attention.

The following three areas can affect crop flow to the deck:

1. Crop flow from the cutterbar to the rolls
   - Header cut width must be kept as full as possible on the right-hand side. Any less than 75% may have adverse effects on feeding.
   - Feed plates must be installed for appropriate crop. They are required for forage but not for alfalfa (refer to the header operator's manual).
   - Higher ground speeds will usually result in better crop flow from the conditioner rolls to the deck. Ground speed should be a minimum of 6 mph (10 km/h) for light crops.
   - Disc speed must be within the recommended range for the specific crop/yield (refer to the header operator's manual).
2. Crop flow from the conditioner rolls to the forming shield
   - The rear baffle on the R-Series Header should be in the uppermost position. However, it may need to be lowered for center windrowing.
   - Remove the fins on the rear baffle to prevent interference with the crop flow.
   - The steeper the header angle, the higher the arc of the crop trajectory will be. Header angle should be set such that the crop is projected at a maximum arc height without excessive contact with the top forming shield.
   - It may be possible to shoot crop above the forming shield with extreme header angle and rear baffle positions.
   - In rocky conditions where a DWA is necessary, a high skid shoe kit or adjustment to gauge rollers may be required to achieve correct stubble height while maintaining proper crop trajectory.
   - Header height affects the header angle. Ideally the lift linkage should be fully down at all times.
   - The roll gap should be small enough to properly grab the crop and throw it.
   - The roll speed which is mechanically tied to the disc speed can affect how fast the crop gets projected. Roll speed should be in the recommended range.
3. Forming shield settings
   - Make sure forming shield (B) is installed correctly with bracket (A).
   - Buildup of sticky crop residue on deflector sliding surfaces should be periodically removed.
   - Refer to *4.7 Positioning the Conditioner Forming Shield, page 69*.

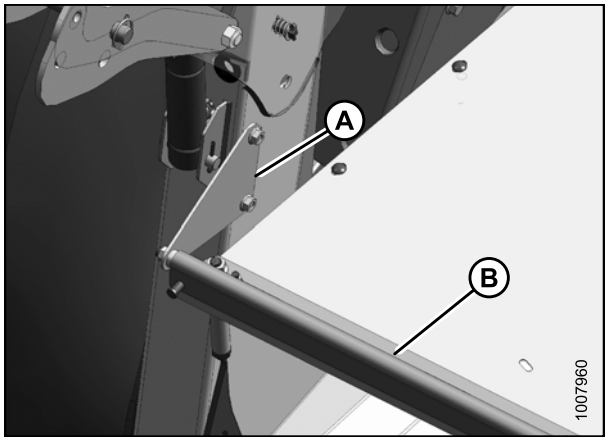


Figure 4.17: Forming Shield

5 Maintenance and Servicing

5.1 Draper Maintenance

5.1.1 Checking the Draper Tracking

Draper tracking needs to be checked when the draper is first run up otherwise damage to the draper can occur. Refer to *5.1.3 Adjusting Draper Tracking, page 75* to adjust the tracking.

5.1.2 Adjusting Draper Tension

Adjust the draper tension enough to prevent slipping and eliminate sagging.

Set draper tension as follows:

1. Check that draper guide (rubber track on underside of draper) is properly engaged in groove of drive roller, and that idler roller is between the guides.
2. Turn bolt (A) clockwise (tighten).

   NOTE:
   The white indicator bar (B) will move to the right, indicating the draper is tightening. Tighten until the white indicator sits halfway within the window.

IMPORTANT:
To avoid premature failure of the draper, draper rollers, and/or tightener components, do not operate when the white tension indicator bar is not visible.

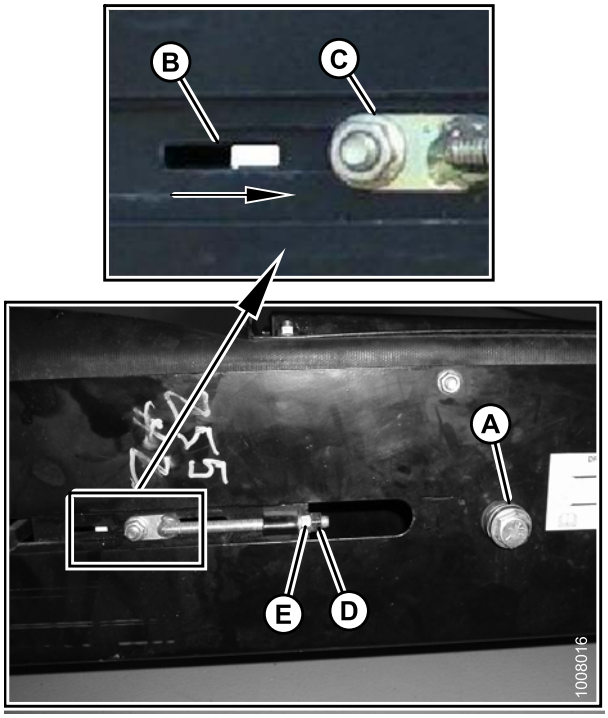


Figure 5.1: Draper Tension

5.1.3 Adjusting Draper Tracking

The draper deck has one fixed drive roller and one spring-loaded idler roller. The spring loaded idler roller is located at the same end of the deck as the draper tensioner. Both rollers can be aligned with adjuster rods to adjust draper tracking.

DANGER

To avoid bodily injury or death from unexpected start-up or fall of raised machine, stop engine, remove key and engage safety pin before going under machine for any reason.

If the draper is tracking incorrectly, use the following table to adjust the rollers:

Table 5.1 Draper Tracking Adjustments

Tracking	At Location	Adjustment	Method
Rearward	Drive roller	Move roller (C) outward	Tighten nut (A)
Forward		Move roller (C) inward	Loosen nut (A)
Rearward	Idler roller	Move roller (D) outward	Tighten nut (B)
Forward		Move roller (D) inward	Loosen nut (B)

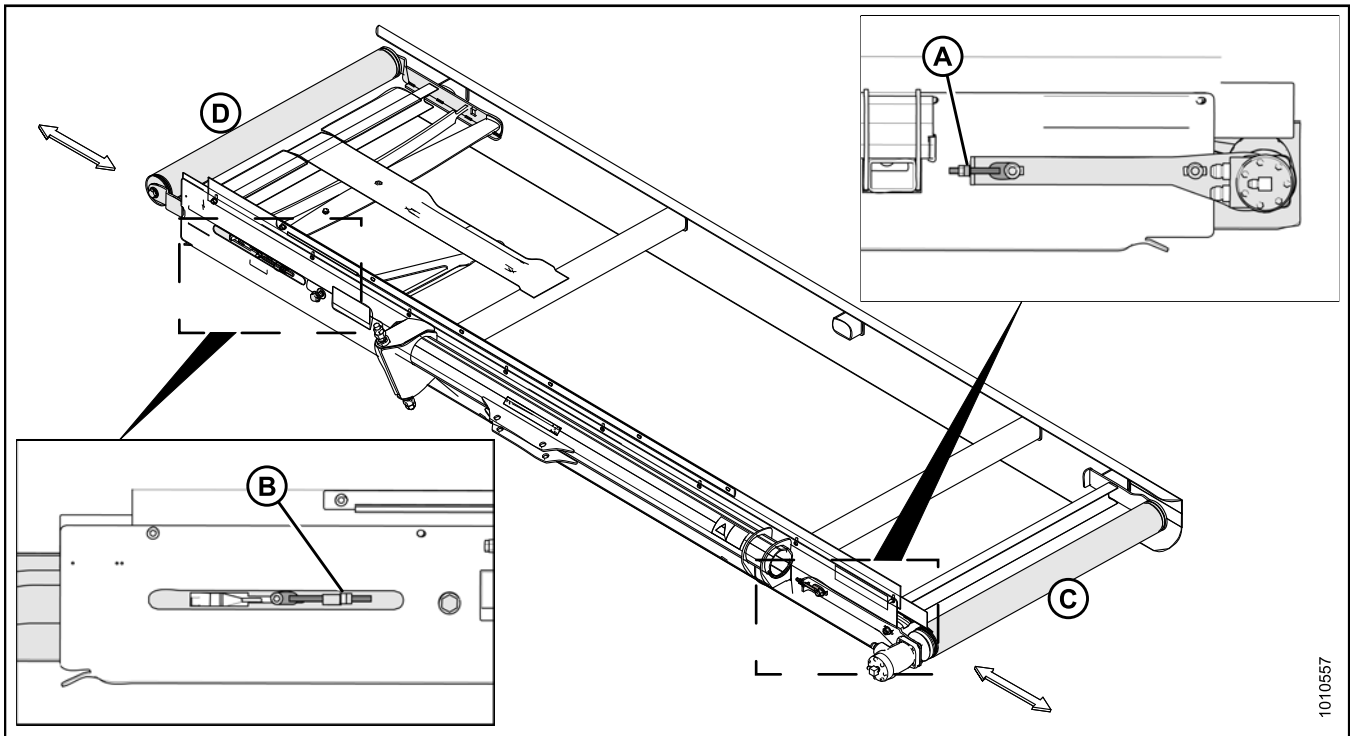


Figure 5.2: Draper Tracking

To adjust tracking on the idler roller side:

1. Loosen the two nuts (A).
2. Adjust nut (B) according to Table *5.1 Draper Tracking Adjustments, page 76* above.
3. Secure the idler roller by tightening the two nuts (A).
4. After adjusting draper tracking, readjust the draper tension. Refer to *5.1.2 Adjusting Draper Tension, page 75*.

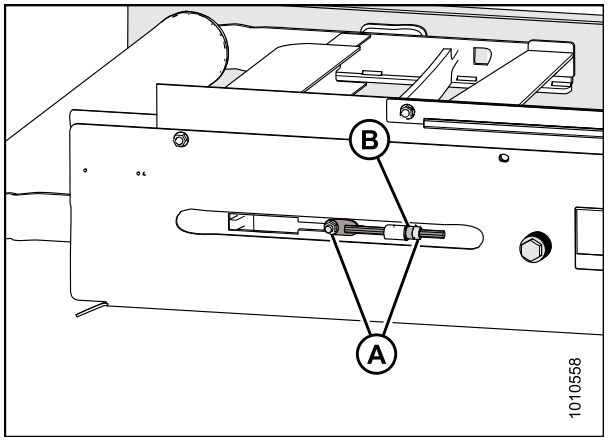


Figure 5.3: Idler Roller

To adjust tracking on the drive roller side:

1. Loosen the three locking nuts (B).
2. Adjust nut (A) according to Table *5.1 Draper Tracking Adjustments, page 76* above.
3. Tighten the three nuts (B) to secure the drive roller.
4. After adjusting draper tracking, adjust the draper tension. Refer to *5.1.2 Adjusting Draper Tension, page 75*.

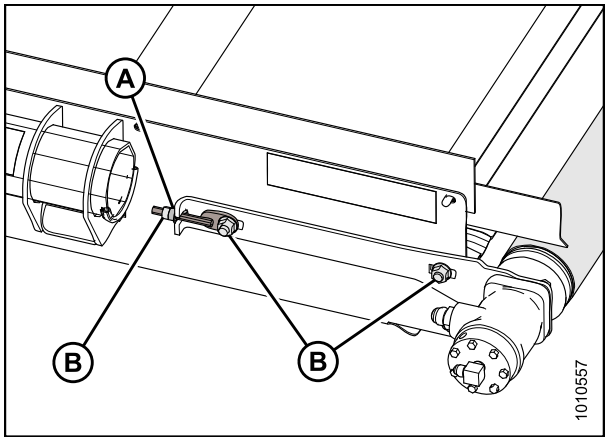


Figure 5.4: Drive Roller

5.1.4 Replacing Draper

DANGER

To avoid bodily injury or death from unexpected start-up or fall of raised machine, stop engine, remove key and engage safety pin before going under machine for any reason.

1. Raise the deck up enough to increase the space between the deck and the right-hand drive tire.
2. Remove the front skid (A) by removing four nuts (B).
3. Loosen the draper tension, and push the idler roller inward as far as possible.

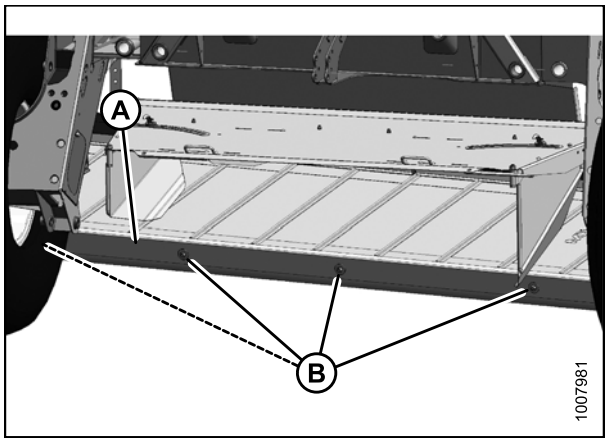


Figure 5.5: Front Skid

4. Disconnect turnbuckle (A) and allow the deck to rotate rearward to increase the space between the deck and tire.
5. Pull off the old draper and slide on the new one. The draper is bidirectional so orientation does not matter.
6. Tension the draper.
7. Reinstall turnbuckle (A) and the front skid.
8. Adjust the front skid to achieve a 1/16–1/8 in. (1.5–3.0 mm) gap to draper.
9. Run the new draper and check alignment. Adjust alignment if necessary.
10. Recheck draper tension after it has run for a few hours.

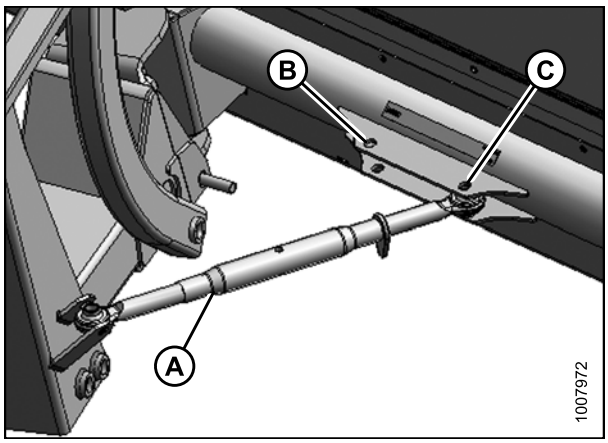


Figure 5.6: Deck Angle Turnbuckle

5.1.5 Adjusting Front Skid

To adjust the front skid (A) follow these steps:

1. Loosen four nuts (B) on the front of the skid.

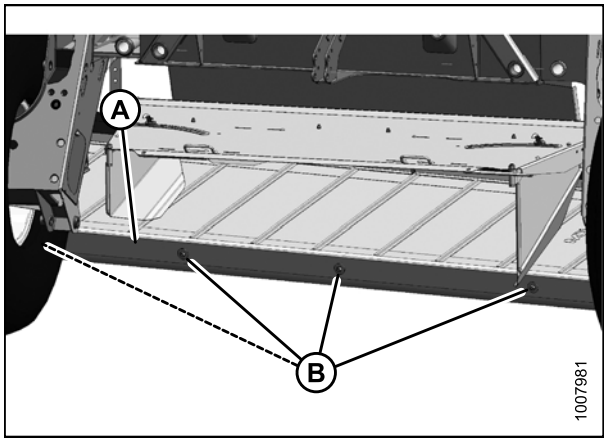


Figure 5.7: Front Skid

2. Adjust the front skid (A) so skid height (C) is 1/16–1/8 in. (1.5–3 mm) above the draper.

   NOTE:
   Improper skid height can result in draper wear or excessive crop build up.

   - Constant contact between the skid and draper will cause excessive heat and melt the draper
   - If gap is too large, crop can enter the draper

3. Tighten nuts (B).

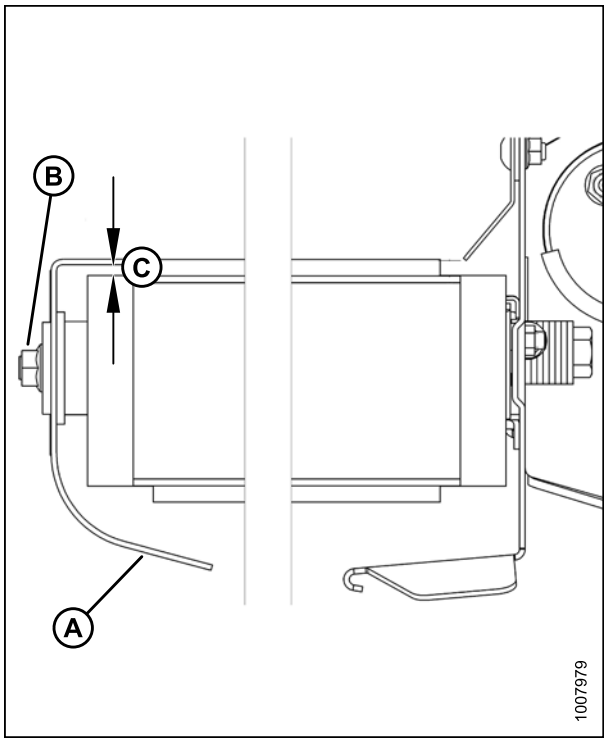


Figure 5.8: Draper Deck Cross Section

5.1.6 Adjusting Rear Deflector

The rear deflector (A) prevents crop from entering inside draper. To adjust the rear deflector, follow these steps:

1. Loosen all 8 nuts (B) along the length of the deck
2. Set the deflector height (C) to be 1/16–5/16 in. (1.5–8 mm) above the draper.
3. Tighten nuts (B).

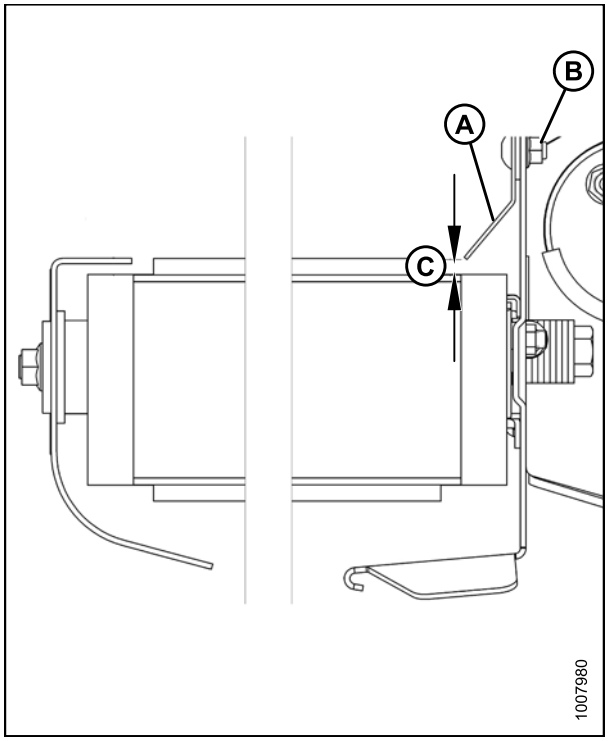


Figure 5.9: Draper Deck Cross Section

5.1.7 Maintaining the Draper Roller

The draper rollers have non-greaseable bearings. The external seal should be checked every 200 hours or more frequently in sandy conditions to obtain the maximum bearing life. Remove front skid to inspect seals.

Removing and Reinstalling the Drive Roller

DANGER

To avoid bodily injury or death from unexpected start-up or fall of raised machine, stop engine, remove key and engage safety pin before going under machine for any reason.

To remove the drive roller from the deck, follow these steps:

1. Raise deck, and engage safety pin (A).
2. Remove front skid, loosen and remove draper. Refer to *5.1.5 Adjusting Front Skid, page 78*.

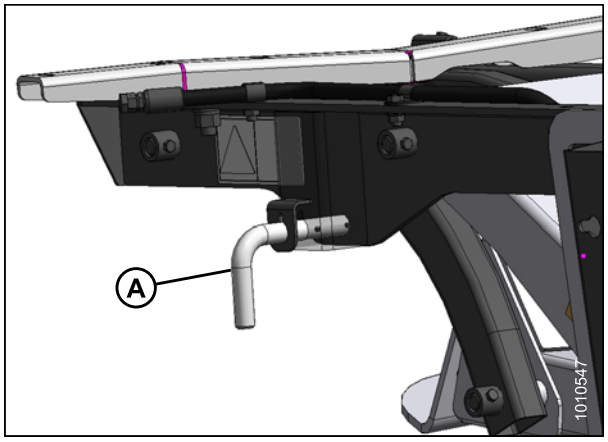


Figure 5.10: Safety Pin

3. Loosen the two jam nuts (A) and set screws (B).

   NOTE:
   The second jam nut and set screw are not visible in this illustration.

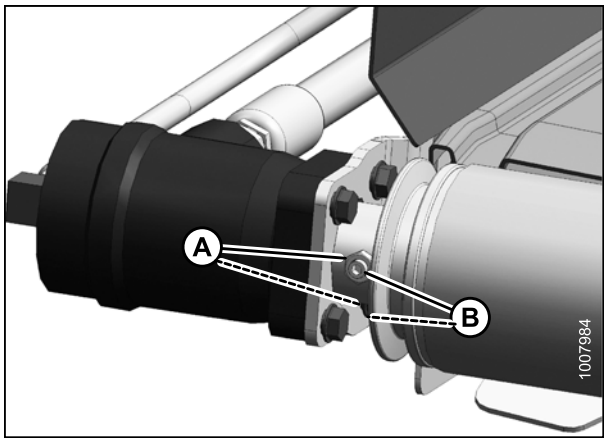


Figure 5.11: Draper Drive Roller

4. Remove the bolt and washer (B) at the front of the drive roller (A). The arm can be pulled out of the deck.

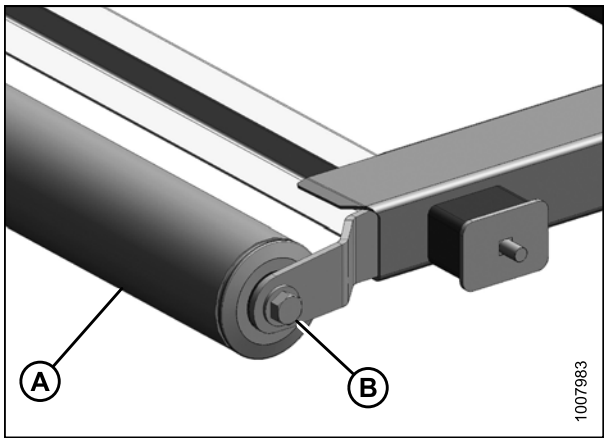


Figure 5.12: Draper Drive Roller

5. Slide the drive roller off the motor shaft.
6. If you need to repair the bearing or seal, refer to *5.1.8 Replacing Draper Roller Bearing/Seal, page 82*.

To reinstall the drive roller on the deck, follow these steps:

1. Slide the drive roller onto the motor shaft. Make sure it is fully engaged.

   NOTE:
   The drive roller should be 1-1/3 in. (33 mm) (A) from the face of the motor.

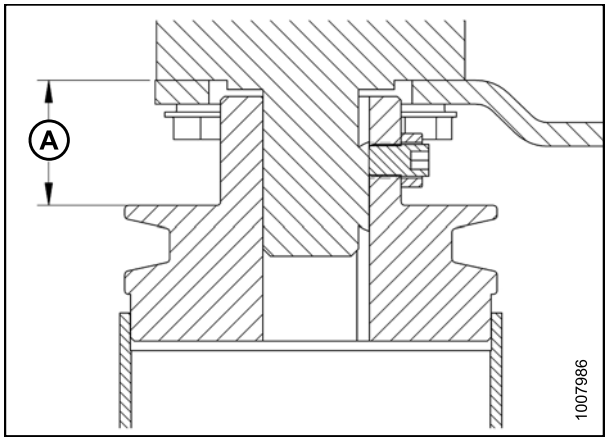


Figure 5.13: Drive Roller Cross Section

2. Install the two set screws (B) and torque to 20 ft·lbf (27 N·m).
3. Install the two jam nuts (A).

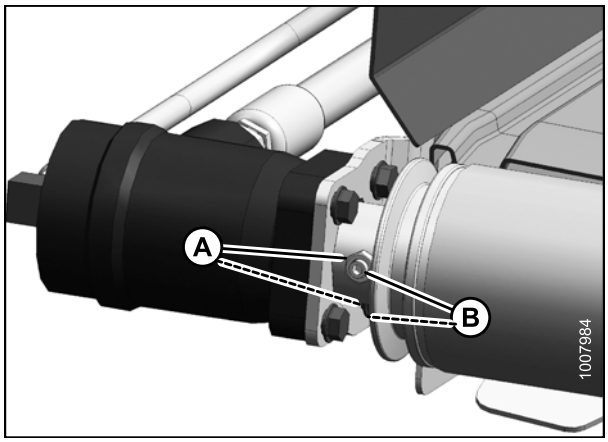


Figure 5.14: Draper Drive Roller

4. Torque bolt (B) to 70 ft·lbf (95 N·m).

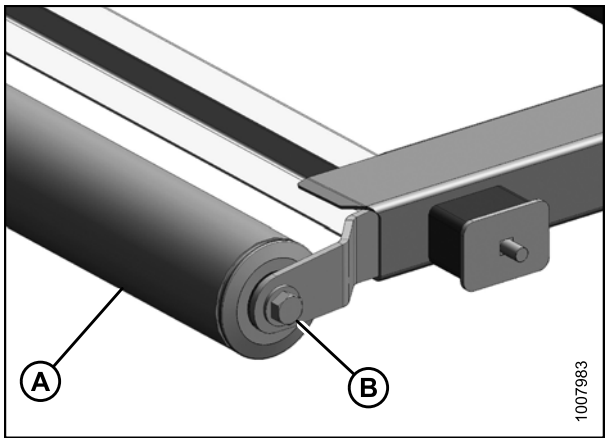


Figure 5.15: Draper Drive Roller

Removing and Reinstalling the Idler Roller

⚠ DANGER

To avoid bodily injury or death from unexpected start-up or fall of raised machine, stop engine, remove key and engage safety pin before going under machine for any reason.

To remove the idler roller (A) follow these steps:

1. Raise the deck and engage the safety pin.
2. Remove the front skid. Refer to *5.1.5 Adjusting Front Skid, page 78*.

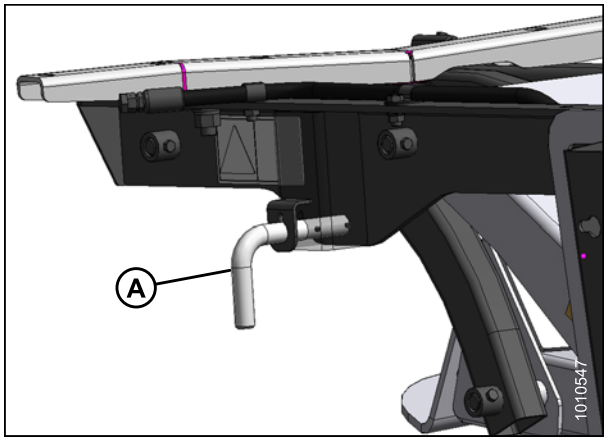


Figure 5.16: Safety Pin

3. Loosen the draper.

   NOTE:
   Draper does not need to be removed, but removal will ease roller disassembly.

4. Remove the idler roller (A) by removing bolt and washer (B) at each end of the roller.

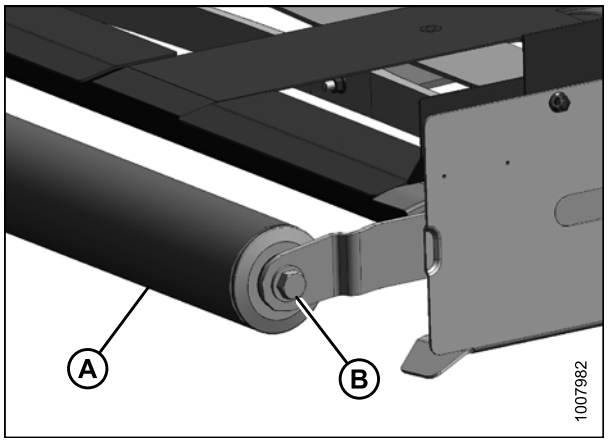


Figure 5.17: Idler Roller

To reinstall the idler roller (A), follow these steps:

1. Reattach bolt and washer (B) at each end of the roller.
2. Tighten the draper. Refer to *5.1.2 Adjusting Draper Tension, page 75*.
3. Reattach the front skid. Refer to *5.1.5 Adjusting Front Skid, page 78*.
4. Torque bolts (B) to 70 ft·lbf (95 N·m).

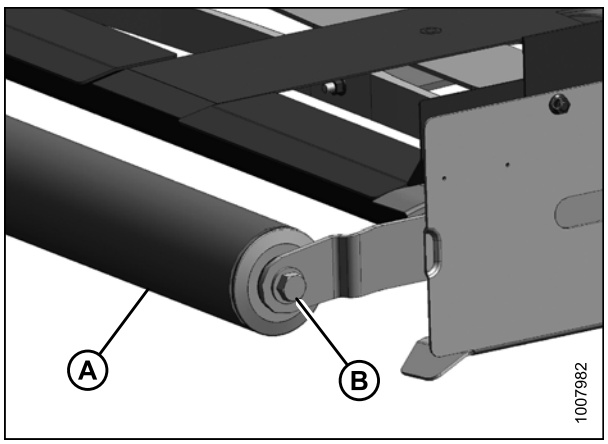


Figure 5.18: Idler Roller

5.1.8 Replacing Draper Roller Bearing/Seal

To replace the draper roller bearing and seal, follow these steps:

1. Remove the roller assembly. Refer to *5.1.7 Maintaining the Draper Roller, page 79*.

2. Remove bearing assembly (B) and seal (A) from roller tube (C) as follows:
   a. Attach a slide hammer (D) to threaded shaft.
   b. Tap out the bearing assembly.
3. Clean inside the roller tube (C) and check for wear or damage. Replace if necessary.

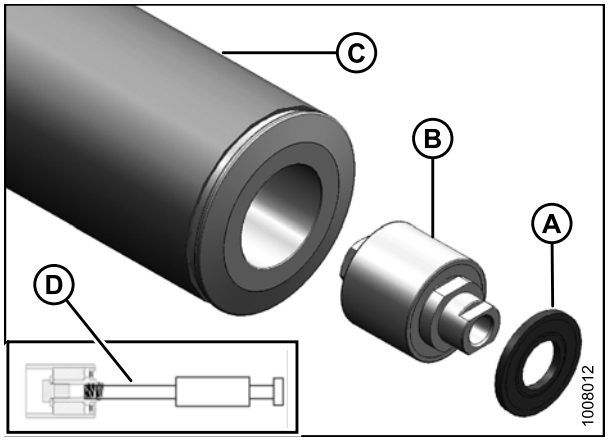


Figure 5.19: Roller Bearing

4. Install the bearing assembly (B) into roller by pushing on the outer race of bearing.

   NOTE:
   The bearing is fully positioned when the 0.55 in. (14 mm) dimension (D) is achieved.

5. Apply grease in front of the bearing.
6. Install seal (A) into roller by pushing on the outer and inner race of the seal.

   NOTE:
   The seal is fully positioned when the 0.12 in. (3 mm) dimension (C) is achieved. A flat washer (1.0 in. ID x 2.0 in. OD) works well to push against the seal.

7. Ensure the bearing and seal turn freely.
8. Reinstall roller assembly in to deck.

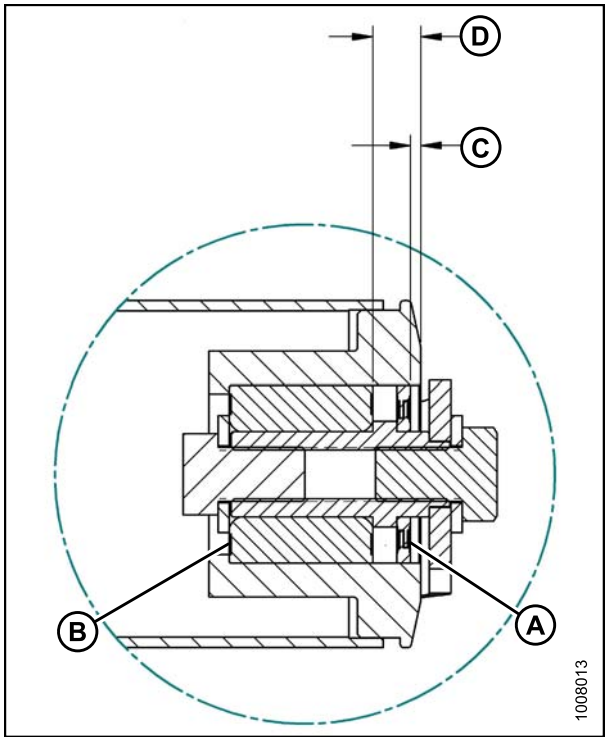


Figure 5.20: Roller Bearing Cross Section

5.2 Lubrication

Grease the following five pivot points every 250 hours and/or at the end of each season.

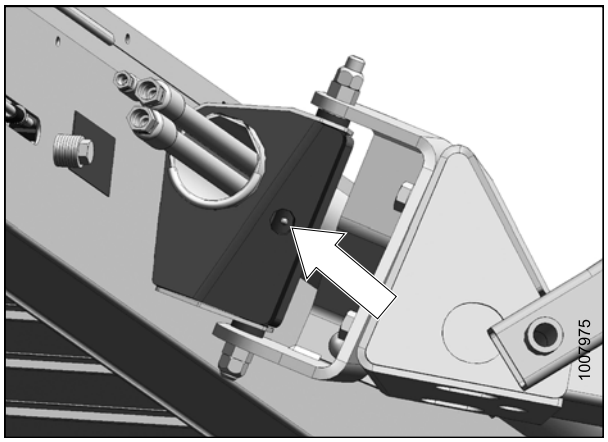


Figure 5.21: Deck Pivot

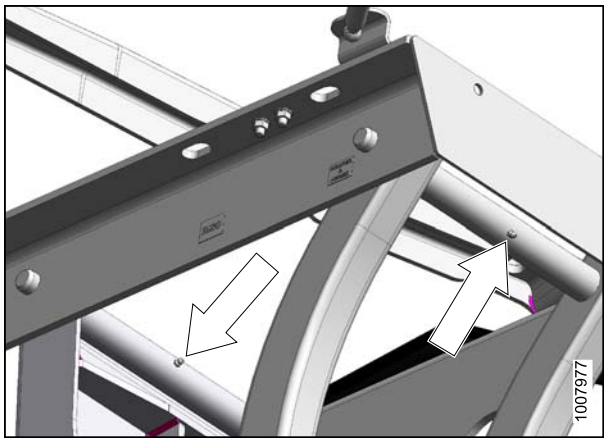


Figure 5.22: Linkage Pivot

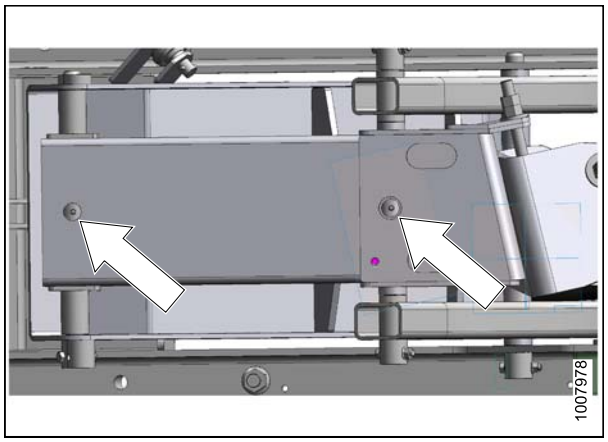


Figure 5.23: Linkage Pivot

5.3 Hydraulics Schematics

For detailed hydraulic schematics, refer to your windrower technical manual.

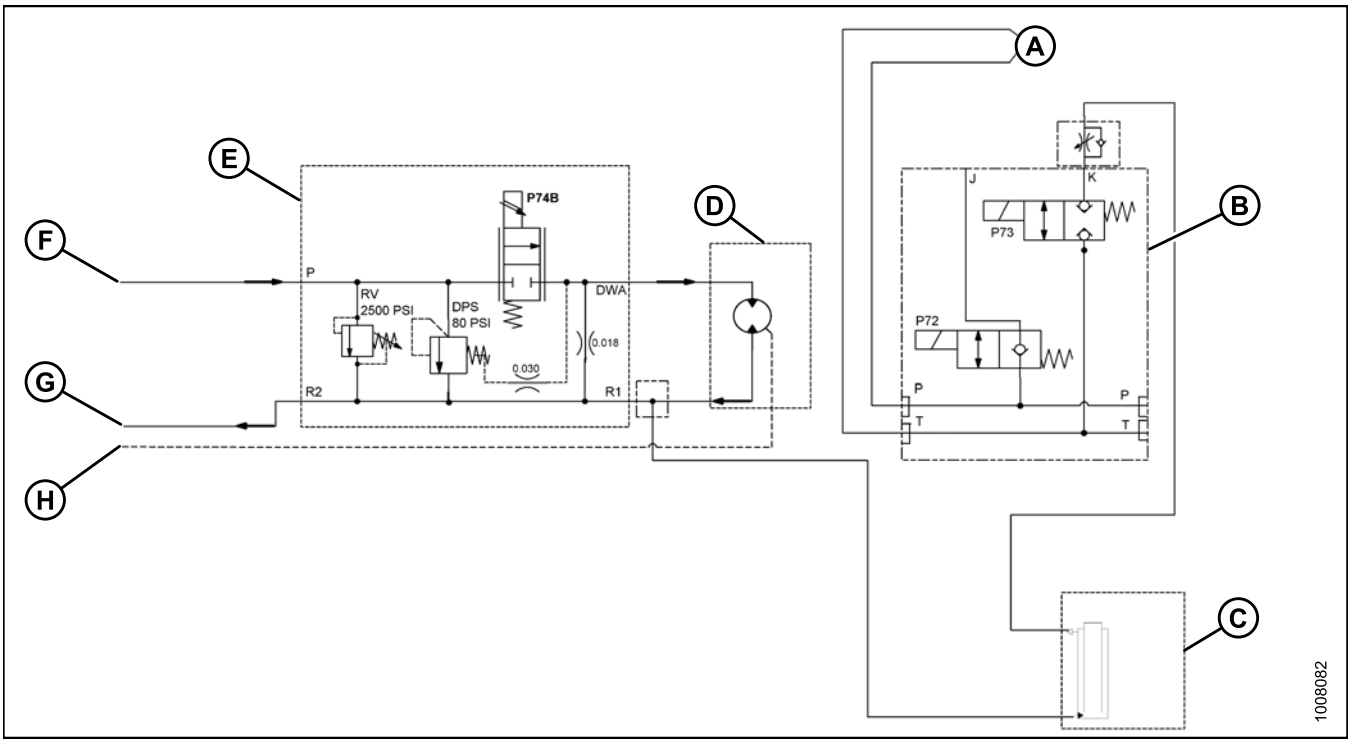


Figure 5.24: Older DWA Drive Block and Lift Block #110575

A - To Header Lift Block
B - DWA Lift Block
C - DWA Lift Cylinder
D - DWA Drive Motor
E - DWA Draper Drive
F - From Supercharge Pump
G - To Cooler Bypass Relief Valve
H - To Header Drive Block Port T

Hydraulic schematic with older DWA drive block with 2500 psi relief valve and old DWA lift block (MD #110575) with one double check valve.

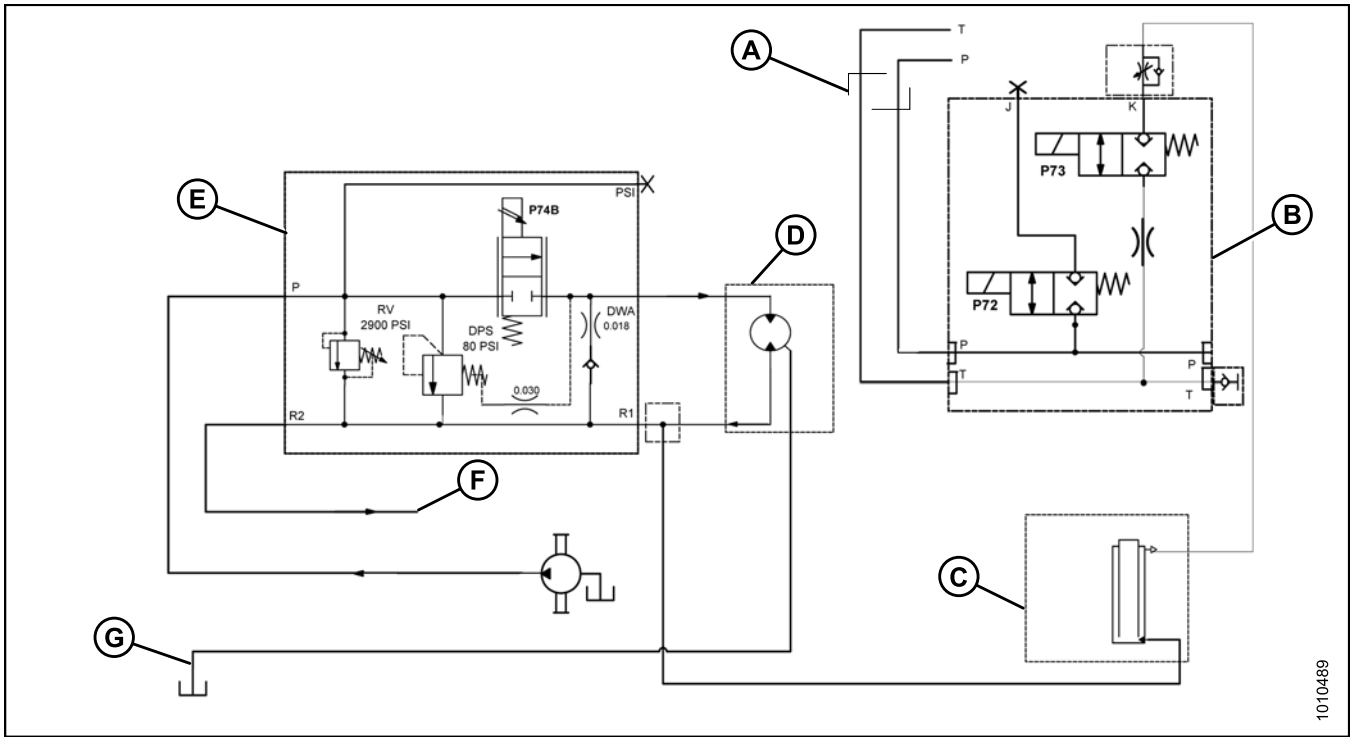


Figure 5.25: Newer DWA Drive Block and Lift Block #139974

A - To Header Lift Block [6]
B - DWA Lift Block
C - DWA Lift Cylinder
D - DWA Draper Motor
E - DWA Drive Block
F - To Manifold Cooler Bypass
G - Tank Line[7][8]

Hydraulic schematic with newer DWA drive block with 2900 psi relief valve and new DWA lift block (MD #139974) with two double check valves.

6. The auxiliary block MD #139974 is bolted directly to the main lift block, depending on windrower options. Ports T and P are direct links.
7. M150/M200 to port T on knife drive block.
8. M205/M155 direct to reservoir.

6 Repair Parts

6.1 Deck, Draper, and Rollers (Illustration 1)

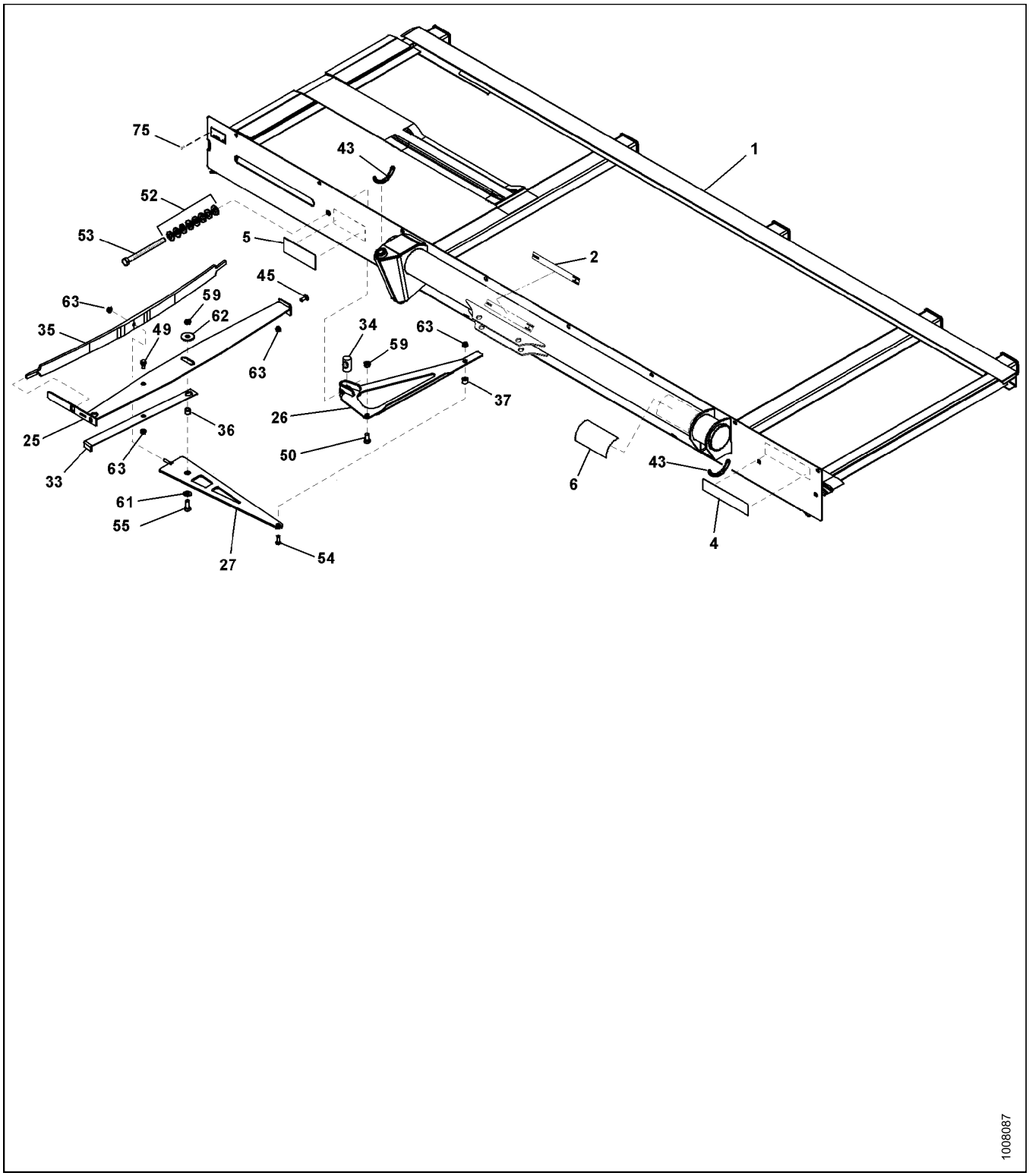


Figure 6.1: Deck, Draper, and Rollers (Illustration 1)

Ref	Part Number	Description	Qty	Serial Number
1	172730	DECK – COMPLETE WITH DECALS	1	
2	176071	DECAL – HEADER POSITION, HORIZONTAL FORMAT	1	
4	115146	REFLECTOR – AMBER	1	
5	220084	DECAL – DRAPER TENSION	1	
6	174474	DECAL – WARNING, HYDRAULIC, 2 PANEL	1	
25	120449	MEMBER – LEFT HAND STABILIZER WELDMENT	1	
26	120451	BELL CRANK WELDMENT – LEFT HAND	1	
27	120462	MEMBER – COMPRESSION WELDMENT	1	
33	145428	INDICATOR	1	
34	145361	NUT – SPECIAL	1	
35	145548	SPRING – LEAF (TENSIONER)	1	
36	132531	SPACER	1	
37	132532	SPACER	1	
43	109791	MOULDING	2	
45	19965	BOLT – RHSN, 3/8 NC x 1.0 GR 5 ZP	1	
49	172259	BOLT – SHOULDER, 3/8-16 UNC	1	
50	21575	BOLT – HEX HEAD, 1/2 NC x 1.0 GR 5 ZP	1	
52	30441	WASHER – HARDENED	8	
53	135906	BOLT – HEX HEAD, 5/8 NC x 7.5 LG TFL GR 5 ZP	1	
54	20077	BOLT – HEX HEAD, 3/8 NC x 1.0 LG GR 5 ZP	1	
55	21491	BOLT – HEX HEAD, 1/2 NC x 1.25 LG GR 5 ZP	1	
59	137727	NUT – HEX JAM, DT, 1/2-13 UNC GR 5 ZP	2	
61	18599	WASHER – SAE FLAT, 17/32 ID x 1 1/16 INCH OD ZP	1	
62	42592	WASHER – FLAT	1	
63	30228	NUT – FLANGE, DT, SMOOTH FACE, 3/8-16 UNC	4	
75	14338	RIVET – BLIND 1/8 x 1/8	2	

6.2 Deck, Draper, and Rollers (Illustration 2)

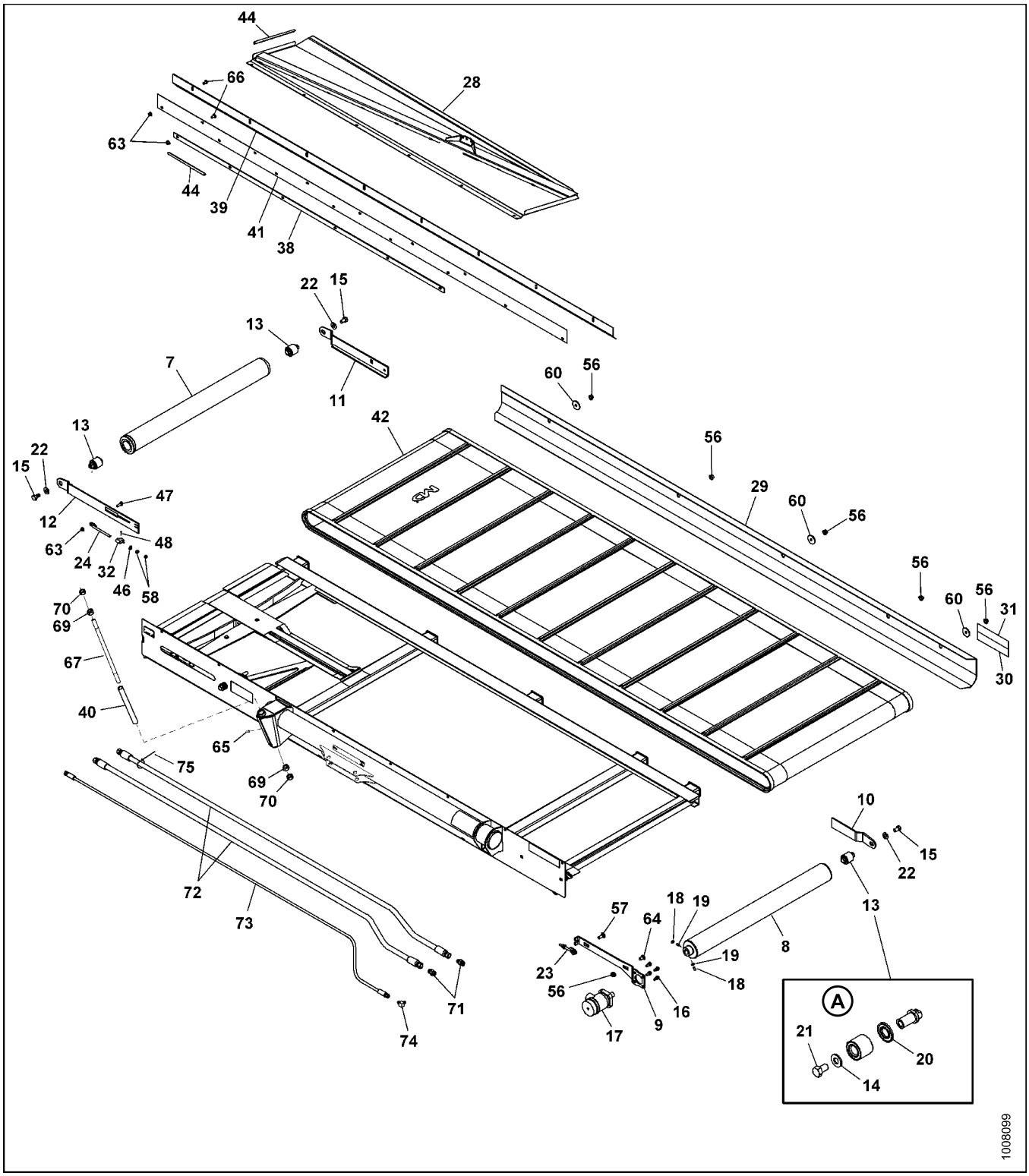


Figure 6.2: Illustration 2

A - Typical in three places

Ref	Part Number	Description	Qty	Serial Number
7	144833	ROLLER – IDLER WELDMENT	1	
8	144494	ROLLER – DRIVE WELDMENT	1	
9	144501	ARM – SUPPORT	1	
10	144499	ARM – ROLLER SUPPORT	1	
11	176000	ARM – SUPPORT WELDMENT	1	
12	144837	ARM – SUPPORT REAR	1	
13	165735	PIN ASSEMBLY – DRAPER ROLLER	3	
14	30441	WASHER – HARDENED	3	
15	145249	BOLT – HEX HEAD, 5/8 NF x 1.0 LG GR 5 ZP	3	
16	172259	BOLT – SHOULDER, 3/8-16 UNC	4	
17	144832	MOTOR – HYDRAULIC M & S 1.52 CI	1	
	132759	SEAL KIT – M & S MOTOR		
18	18709	SETSCREW – HEXHD, SKT CUP PT 3/8 NC x 5/8 LG	2	
19	18664	NUT – HEX JAM, 3/8-16 UNC GR 5 ZP	2	
20	120845	SEAL – NILOS LSTO STEEL DISK	3	
21	145249	BOLT – HEX HEAD, 5/8 NF x 1.0 LG GR 5 ZP	3	
22	30441	WASHER – HARDENED	3	
23	145593	ROD – ADJUSTER WELDMENT	1	
24	145345	ROD – ADJUSTER WELDMENT	1	
28	144602	PANEL – REAR WELDMENT	1	
29	172747	SKID – COMPLETE WITH REFLECTORS	1	
30	115145	REFLECTOR – FLUORESCENT RED-ORANGE	1	
31	115147	REFLECTOR – RED	1	
32	145357	BRACKET – IDLER ARM	1	
38	144652	BAR – STIFFENER	1	
39	144851	DEFLECTOR – SEAL	1	
40	144558	BUSHING – STEEL	1	
41	144597	SEAL – BACKSHEET	1	
42	165304	DRAPER – ENDLESS, DWA	1	
44	37687	MOULDING	2	
46	18598	WASHER – SAE FLAT, 13/32 ID x 13/16 INCH OD ZP	2	
47	19966	BOLT – RDH, SQ NECK, 3/8 NC x 1.25 LG GR 5 ZP	1	
48	18604	PIN – COTTER 3/32 DIA. x 3/4 ZP	1	

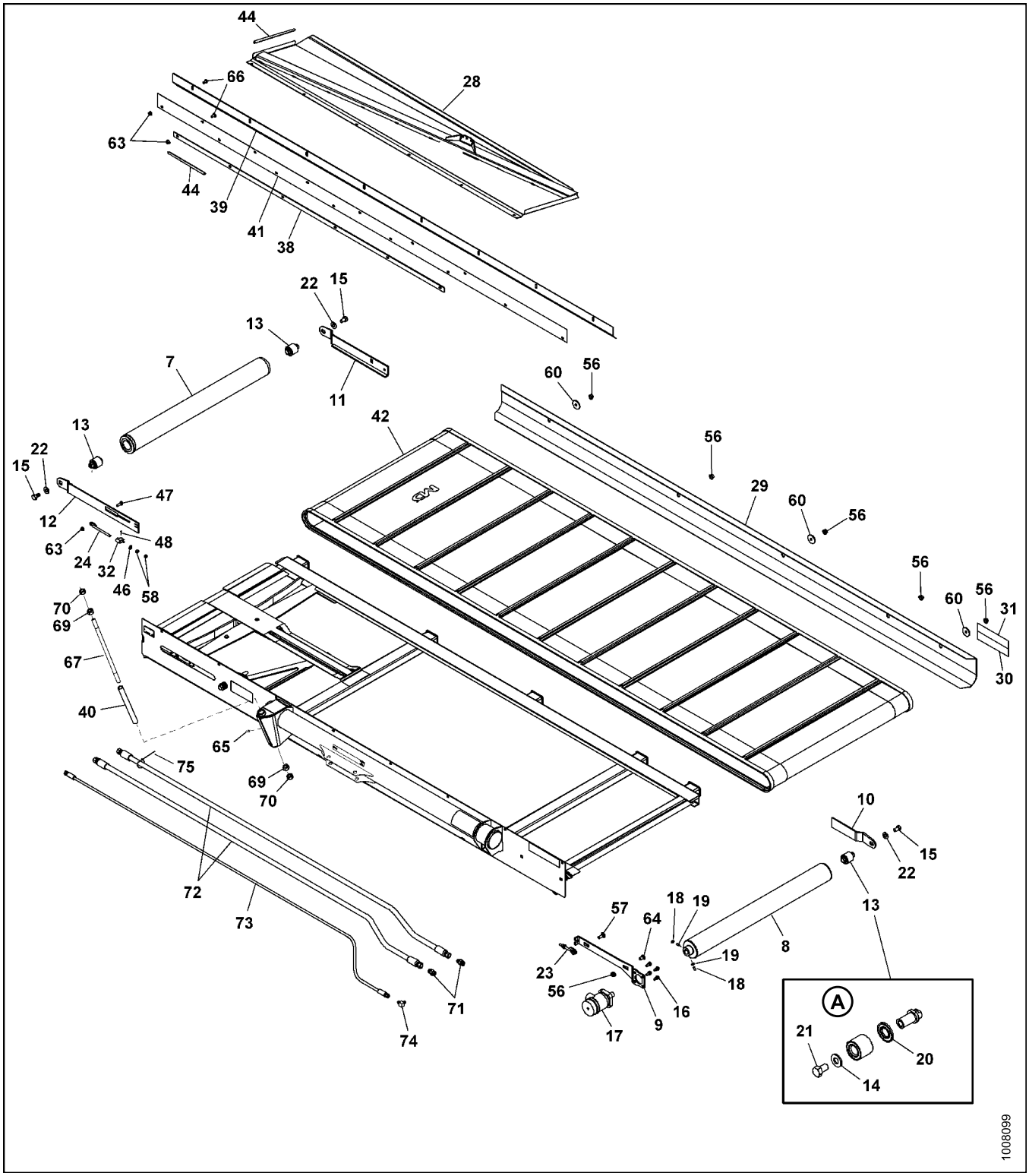


Figure 6.3: Illustration 2

A - Typical in three places

56	50186	NUT – FLG, LOCK, SMTH FACE, DT, 1/2-13 UNC – GR 5	7	
57	21471	BOLT – RHSN, 1/2 NC x 1.25 GR 5 ZP	1	
58	18590	NUT – HEX, 3/8-16 UNC GR 5 ZP	4	
60	11695	WASHER – FLAT	3	
63	30228	NUT – FLG, DT, SMOOTH FACE, 3/8-16 UNC	15	
64	21066	BOLT – RHSN, 1/2 NC x 1 GR 5 ZP	1	
65	18671	FITTING – LUBE 1/4-28 UNF	1	
66	135157	SCREW – MACHINE	14	
67	176063	SHAFT – THREADED[9]	1	
69	18593	NUT – HEX, 3/4-10 UNC GR 5 ZP	2	
70	18689	NUT – HEX, LOCK, DISTORTED THREAD, 3/4-10 UNC	2	
71	30695	FITTING – HYDRAULIC CONNECTOR	2	
72	132867	HOSE – HYDRAULIC	2	
73	176077	HOSE – HYDRAULIC	1	
74	50104	FITTING – ELBOW 90° HYDRAULIC	1	
75	135266	FASTENER – CABLE TIE, LIGHT BLUE	1	

9. Older units used a hex head bolt in this location. When replacing bolt with the new threaded shaft, also order one each of nuts, items 69 and 70 for head end.

6.3 Deck Supports and Linkage (Illustration 1)

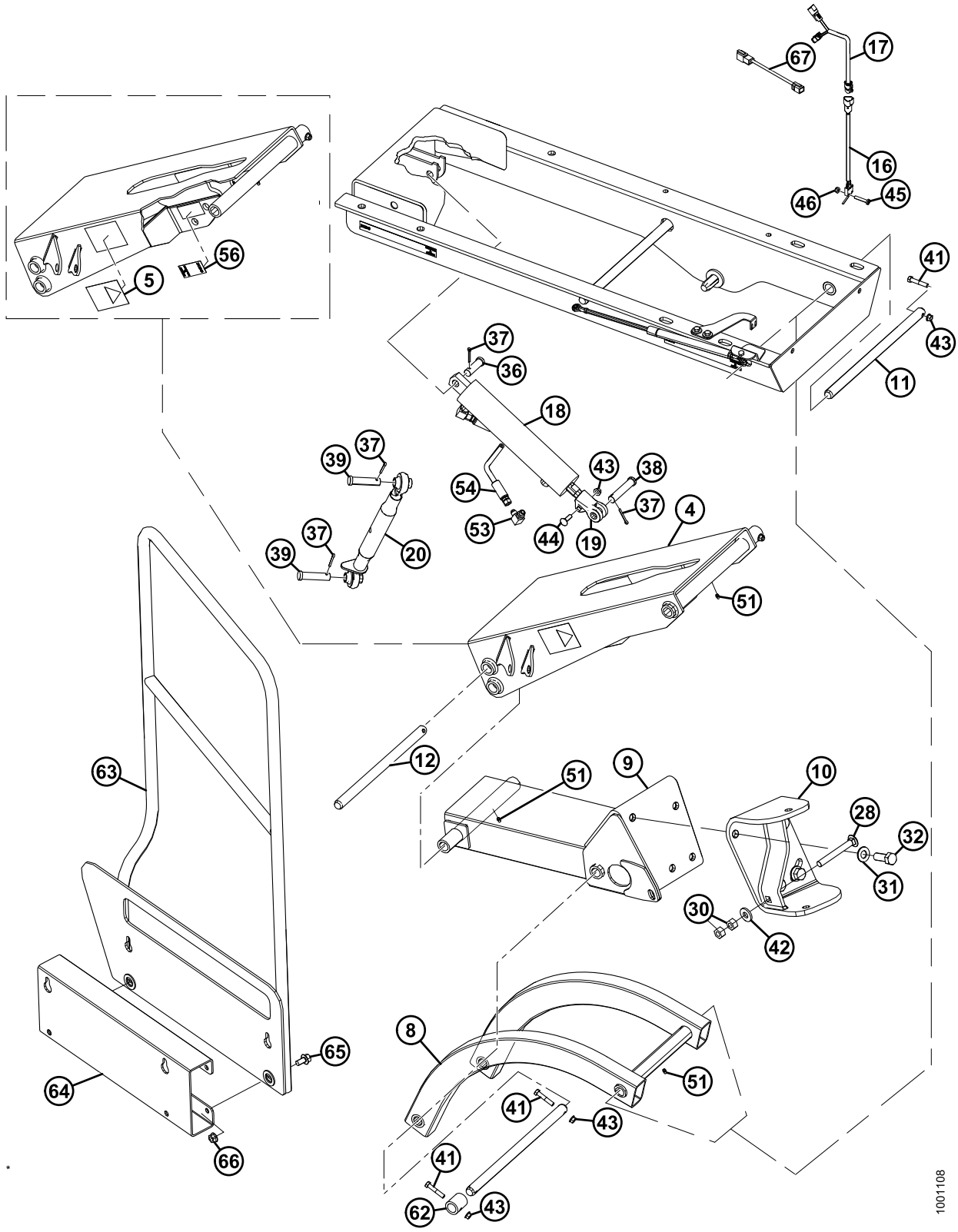


Figure 6.4: Illustration 1

Ref	Part Number	Description	Qty	Serial Number
4	172746	ARM – DECAL ASSEMBLY	1	
5	174683	DECAL – WARNING DWA LINKAGE PINCH POINT, 2 PANEL	2	
8	144592	ARM – FRONT WELDMENT	1	
9	144593	ARM – BOTTOM WELDMENT	1	
10	144594	CLEVIS – WELDMENT	1	
11	172910	SHAFT	1	
12	176018	SHAFT	1	
14	176023	SHAFT	1	
16	109699	SWITCH – SNAP ACTION	1	
17	110845	HARNESS – DWA	1	
18	144826	CYLINDER – HYDRAULIC	1	
	176031	SEAL KIT – FOR CYLINDER		
19	172664	CLEVIS	1	
20	144996	JOINT ASSEMBLY	1	
28	30816	BOLT – RHSN, 5/8 NC x 5 TFL GR 5 ZP	1	
30	18592	NUT – HEX, 5/8-11 UNC GR 5 ZP	2	
31	176009	WASHER – NORDLOCK, 3/4" SP	4	
32	30512	BOLT – HEX HEAD, 3/4 NC x 2.0 LG GR 5 ZP	4	
36	18626	PIN – CLEVIS	1	
37	18648	PIN – COTTER, 3/16 DIA. x 1.25 ZP	4	
38	20312	PIN – CLEVIS	1	
39	18627	PIN – CLEVIS	2	
41	21354	BOLT – HEX HEAD, 3/8 NC x 2.0 LG GR 5 ZP	4	
42	22072	WASHER – FLAT	1	
43	30228	NUT – FLANGE, DT, SMOOTH FACE, 3/8-16 UNC	5	
44	19966	BOLT – RHSN, 3/8 NC x 1.25 LG GR 5 ZP	1	
45	135158	SCREW – PAN HEAD, #6-32 x 3/4 LG	2	
46	135159	NUT – NYLOC	2	

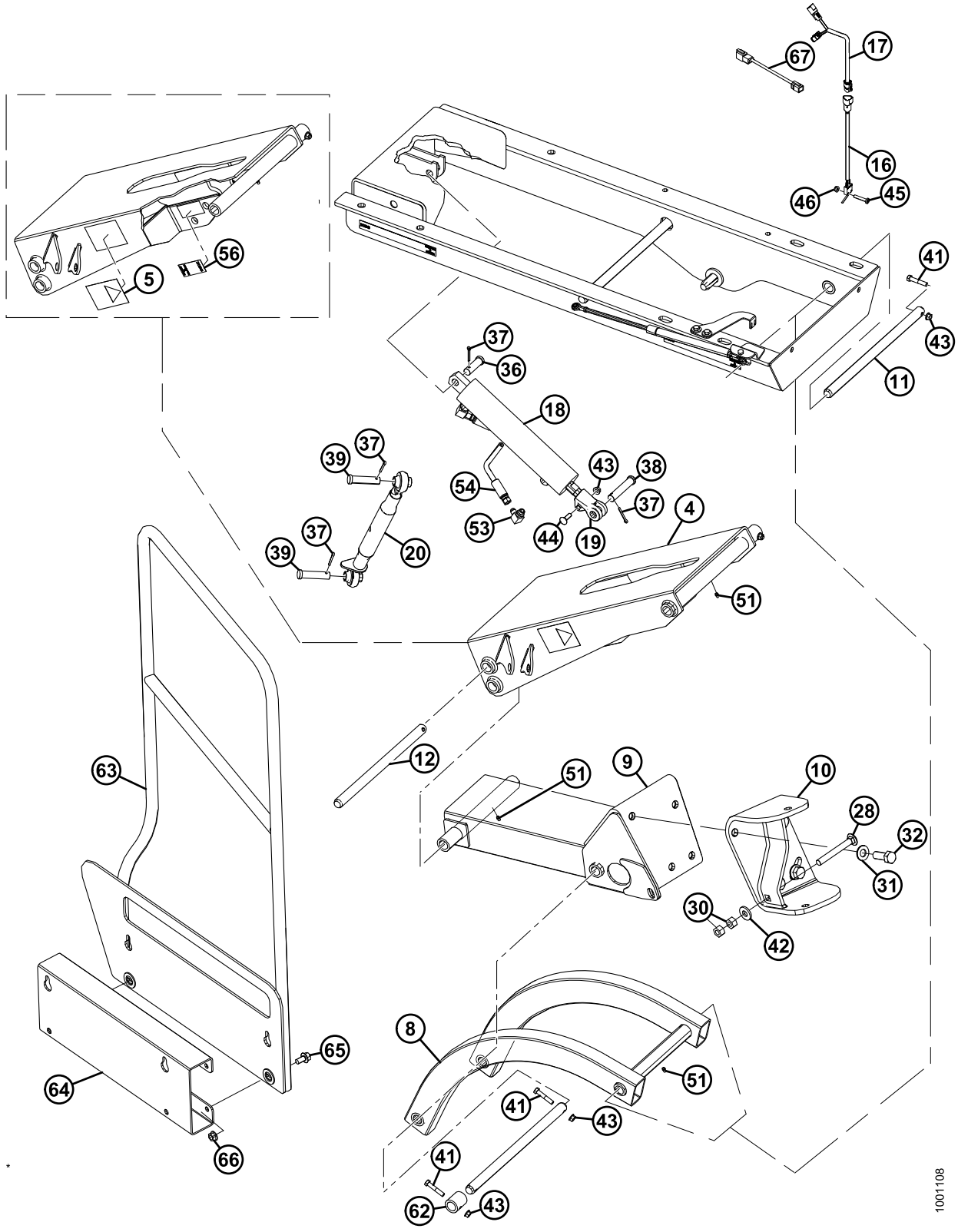


Figure 6.5: Illustration 1

51	18671	FITTING – LUBE, 1/4-28 UNF	4	
53	30282	FITTING – ELBOW 90° HYDRAULIC	1	
54	144805	HOSE – HYDRAULIC	1	
56	176072	DECAL – HEADER POSITION, VERTICAL FORMAT	1	
62	172903	TUBE	1	
63	144870	RAIL WELDMENT	1	
64	139491	PLATE – HANDRAIL ADAPTER (M155/M205 ONLY)	1	
65	21449	BOLT – HEXHD FLG (SERR. FACE) ½ NC x 1.0 GR 5 ZP		
66	50186	NUT – FLANGE LOCK, SMOOTH FACE, 0.500-13UNC GR5		
67	138744	HARNESS – M205, DWA EXTENSION (USE IF REQUIRED)	1	
	176213	KIT – DWA RAIL ADAPTER		

6.4 Deck Supports and Linkage (Illustration 2)

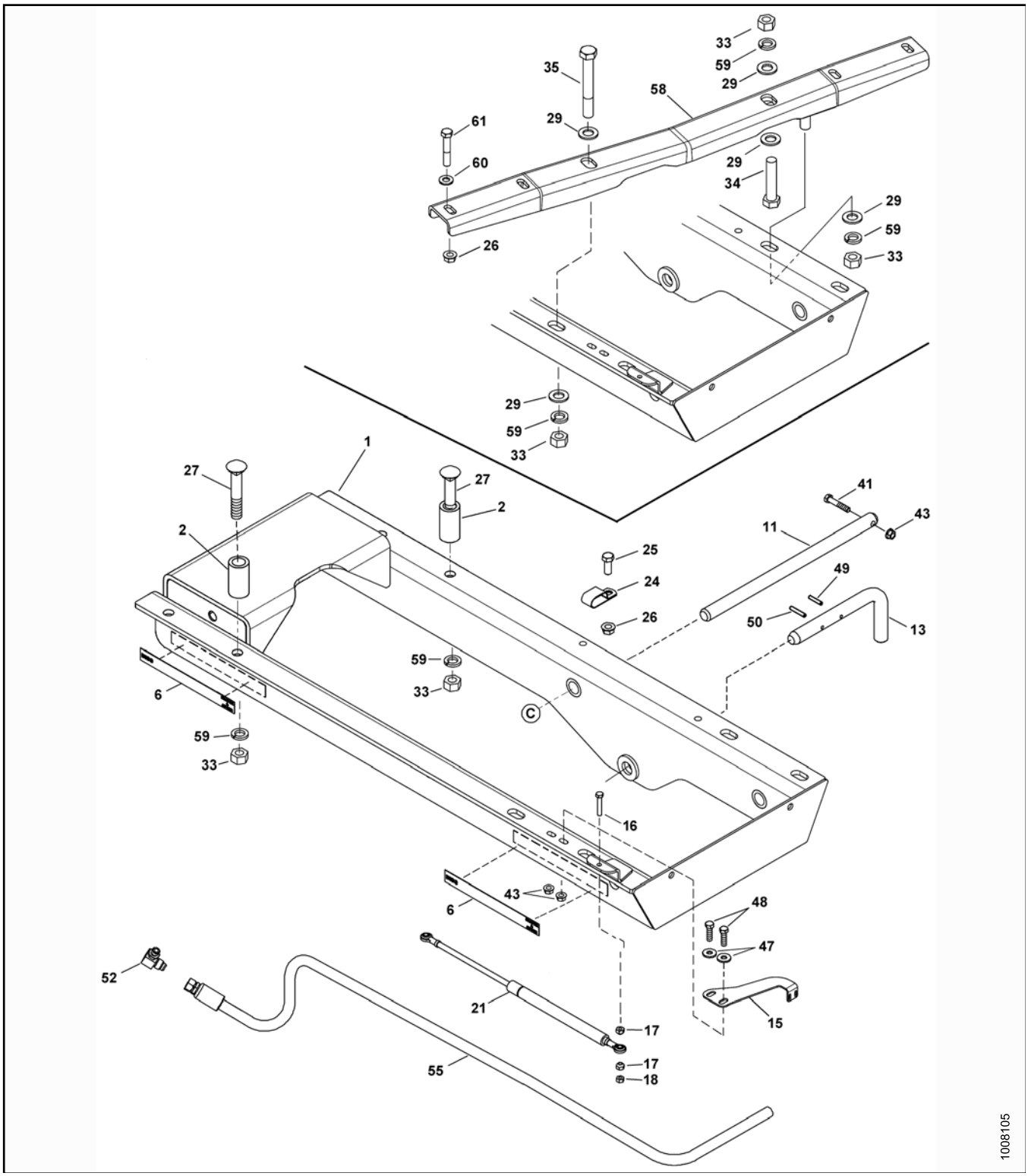


Figure 6.6: Illustration 2

Ref	Part Number	Description	Qty	Serial Number
1	144590	SUPPORT WELDMENT KIT, CONSISTS OF 176062, ITEMS 2, 15, 58 & HARDWARE.	1	
	176062	SUPPORT WELDMENT	1	
2	144587	SPACER – 1-1/2” OD x 1” ID x 2-3/4” LONG	2	
6	176071	DECAL – HEADER POSITION, HORIZONTAL FORMAT	2	
11	172910	SHAFT	1	
13	176016	PIN – L	1	
15	144853	SUPPORT	1	
16	176067	BOLT – HEXHD, 5/16 NC x 1-3/4 INCH TFL GR 5 ZP	2	
17	35689	NUT – SPECIAL (TAPER FACING ROD END)	4	
18	18589	NUT – HEX, 5/16 NC	2	
21	176066	CYLINDER – GAS SPRING	1	
24	103738	CLAMP – PVC INSULATED 13/16" TUBE SIZE	2	
25	21491	BOLT – HEX HEAD, 1/2 NC x 1.25 LG GR 5 ZP	2	
26	50186	NUT – FLG LOCK, SMTH FACE, DT, 1/2-13 UNC GR 5	6	
27	102266	BOLT – RHSSN, 3/4 NC x 4.5 LG GR 5 ZP	2	
29	18601	WASHER – SAE FLAT, 13/16 ID x 1.5 INCH OD ZP	5	
33	18593	NUT – HEX, 3/4-10 UNC GR 5 ZP	5	
34	30896	BOLT – HEX HEAD, 3/4-10 UNC x 3.50 LG	1	
35	30549	BOLT – HEX HEAD, 3/4 NC x 5.5 LG GR 5 ZP	1	
41	21354	BOLT – HEX HEAD, 3/8 NC x 2.0 LG GR 5 ZP	1	
43	30228	NUT – FLG, DT, SMOOTH FACE, 3/8-16 UNC	3	
47	20535	WASHER – FLAT	2	
48	21264	BOLT – HEX HEAD, 3/8 NC x 1.25 LG GR 5 ZP	2	
49	16266	PIN – SPRING, 1/4 DIA. x 1.25 LG	1	
50	2147	PIN – SPRING, 1/4 DIA. x 1.5 LG	1	
52	21805	FITTING – ELBOW HYDRAULIC	1	
55	144806	HOSE – HYDRAULIC	1	
58	176060	CHANNEL WELDMENT	1	
59	18640	WASHER – LOCK, 3/4	5	
60	18599	WASHER – FLAT, 17/32 INCH I.D	4	
61	21880	BOLT – HEXHD, 1/2 NC x 2.75 LONG, GR 5, ZP	4	

6.5 Hydraulics and In-Cab Electrical

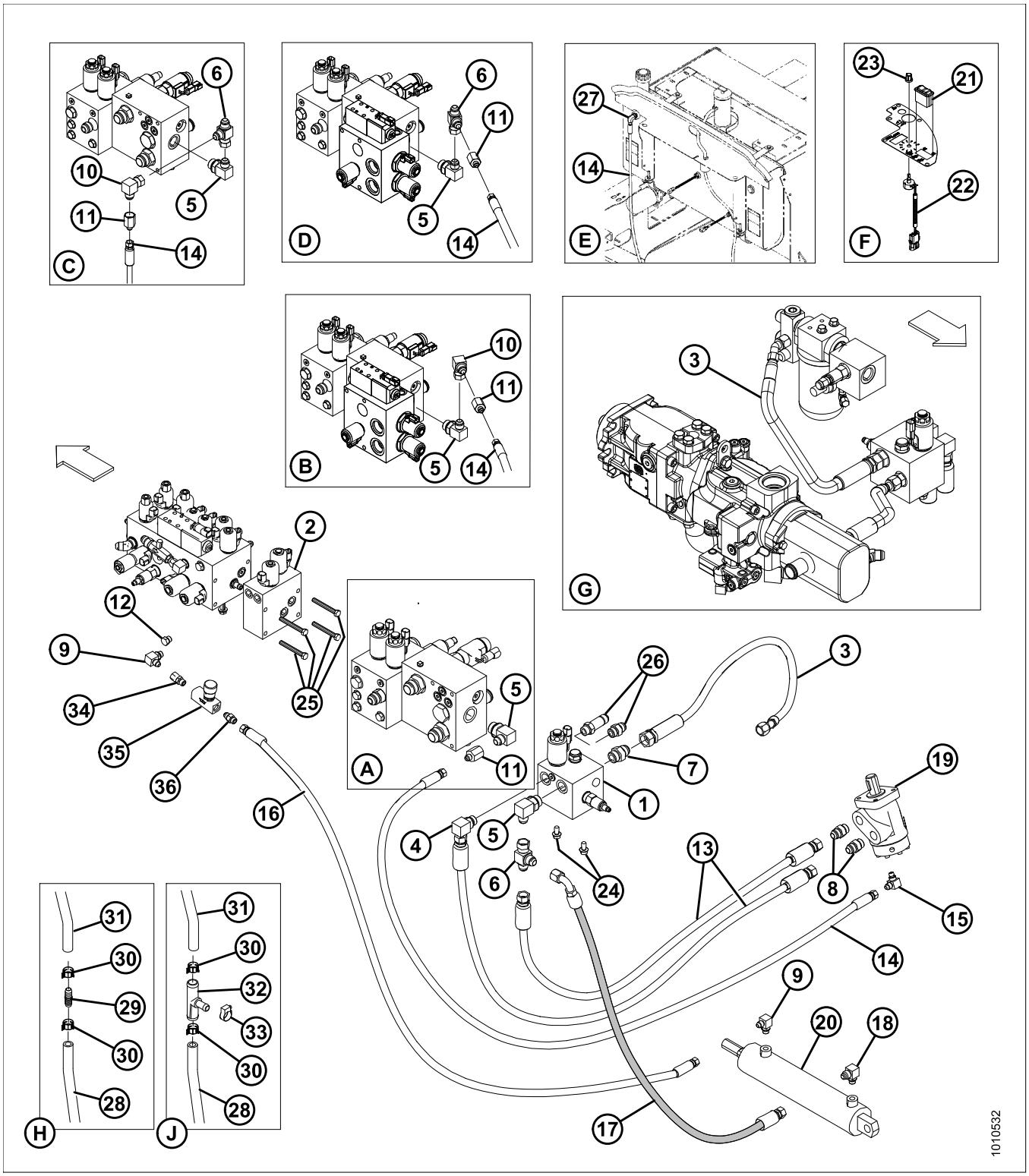


Figure 6.7: Hydraulics and In-Cab Electrical

A - M150/M200 A-Series Or R-Series: Case Drain
B - M150/M200 A-Series With Reverser: Case Drain
C - M150/M200 D-Series: Case Drain
D - M150/M200 D-Series With Reverser: Case Drain
E - M155/205: Case Drain
F - In-Cab Electrical
G - M150/M200 Shown (5-Series Similar)
H - Optional M200 Only
J - Optional M155/M155/M205

Ref	Part Number	Description	Qty	Serial Number
1	139508	MANIFOLD – DWA DRIVE, SEE NEXT PAGE FOR SERVICE PARTS	1	
2	139974	VALVE BLOCK AUX LIFT, SEE NEXT PAGE FOR SERVICE PARTS[10]	1	
3	144807	HOSE – HYDRAULIC	1	
4	21843	FITTING – ELBOW 90° HYDRAULIC	1	
5	50221	FITTING – ELBOW 90° HYDRAULIC	2	
6	50102	FITTING – HYDRAULIC TEE	2	
7	21830	FITTING – HYDRAULIC CONNECTOR	1	
8	30695	FITTING – HYDRAULIC CONNECTOR	2	
9	30282	FITTING – ELBOW 90° HYDRAULIC	2	
10	30556	FITTING – ELBOW 90° HYDRAULIC	1	
11	118084	FTG – HYDRAULIC REDUCER	1	
12	30994	PLUG – HEX CW O-RING	2	
13	132867	HOSE – HYDRAULIC	2	
14	176077	HOSE – HYDRAULIC	1	
15	50104	FITTING – ELBOW 90° HYDRAULIC	1	
16	144805	HOSE – HYDRAULIC	1	
17	144806	HOSE – HYDRAULIC	1	
18	21805	FITTING – ELBOW HYDRAULIC	1	
19	REF	MOTOR – SEE "DRAPER AND DECK"		
20	REF	CYLINDER – SEE "DECK SUPPORTS AND LINKAGE"		
21	109575	SWITCH – ROCKER, MOM-OFF-MOM	1	
22	109718	GAUGE – POTENTIOMETER	1	
23	138691	KNOB – SPEED CONTROL	1	
24	21821	BOLT – HH FLG (SERR FACE) 3/8 NC x 0.75 GR 5 ZP	2	

10. Refer to service bulletin sb #1210 regarding software update required.

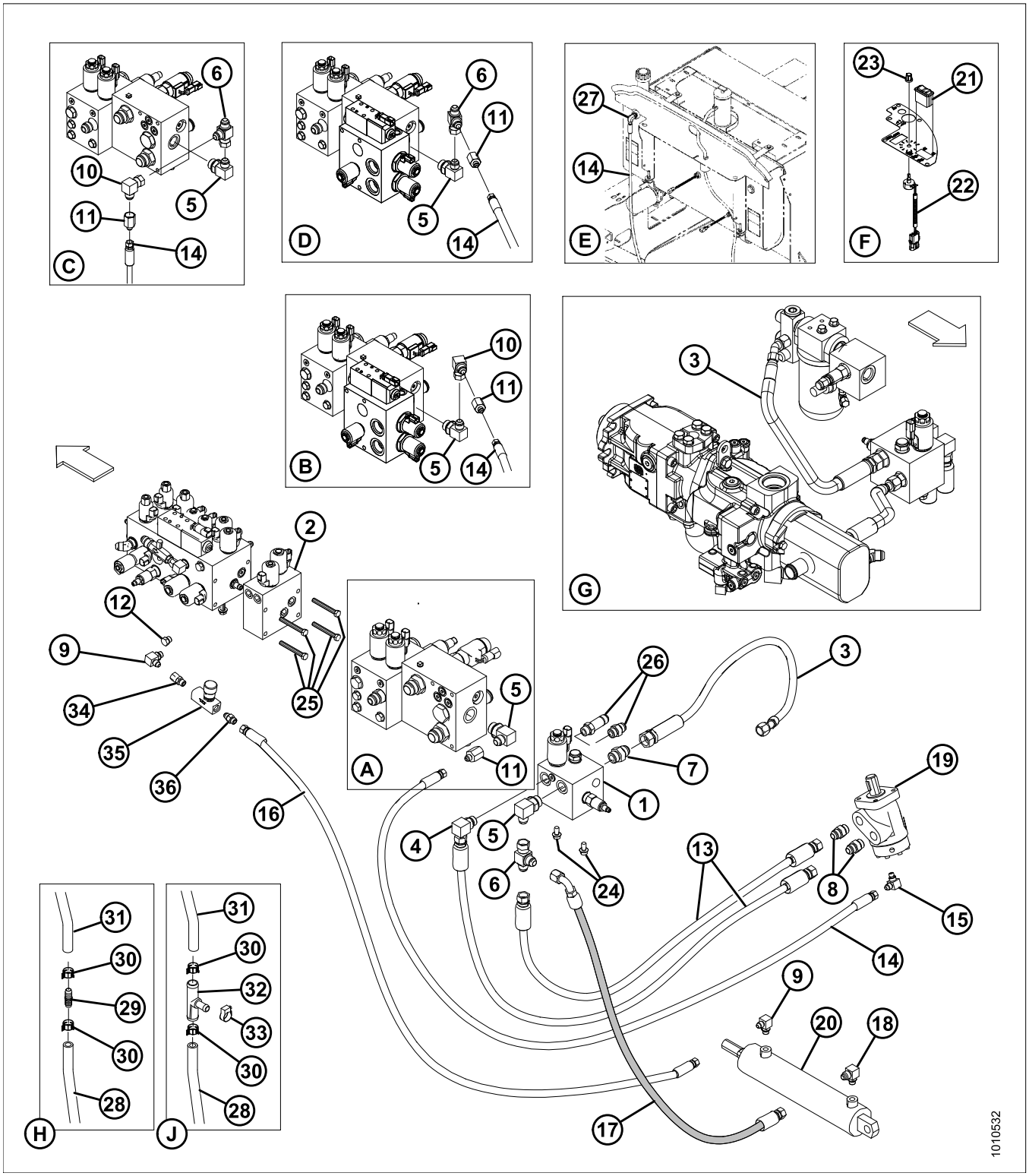


Figure 6.8: Hydraulics and In-Cab Electrical

A - M150/M200 A-Series Or R-Series: Case Drain
B - M150/M200 A-Series With Reverser: Case Drain
C - M150/M200 D-Series: Case Drain
D - M150/M200 D-Series With Reverser: Case Drain
E - M155/205: Case Drain
F - In-Cab Electrical
G - M150/M200 Shown (5-Series Similar)
H - Optional M200 Only
J - Optional M155/M155/M205

25	21568	BOLT – HH 3/8 NC x 3.0 LG – UNITS WITH 1 AUX. DRIVE BLOCK	4	
	10948	BOLT – HH 3/8 NC x 5.5 LG – UNITS WITH 2 AUX. DRIVE BLOCKS	4	
26	30695	FITTING – CONNECTOR HYDRAULIC – M150 / M200 WINDROWERS	1	
	135848	FITTING – ADAPTER, LONG – M155 / M205 WINDROWERS	1	
27	135352	FITTING – ELBOW 90° HYDRAULIC – M155 / M205 WINDROWERS	1	
28	110764	HOSE – 5/8 I.D. – EXTENSION FOR TANK BREATHER/OVERFLOW HOSE. PREVENTS OVERFLOW FLUID DROPPING ONTO DWA DRAPER DECK	1	
29	176069	FITTING – JOINTER, PLASTIC – 5/8 HEATER HOSE – M200 ONLY	1	
31	REF	HOSE – HYDRAULIC OIL TANK BREATHER/OVERFLOW		
32	134055	FITTING – PLASTIC TEE – M155/M205	1	
33	30500	CLAMP – HOSE GEAR TYPE, 6/16 RANGE	1	
34	135015	FITTING – ADAPTER – HYDRAULIC	1	
35	183211	VALVE	1	
36	015903	FITTING – CONNECTOR – HYDRAULIC	1	

6.6 Hydraulic Service Components

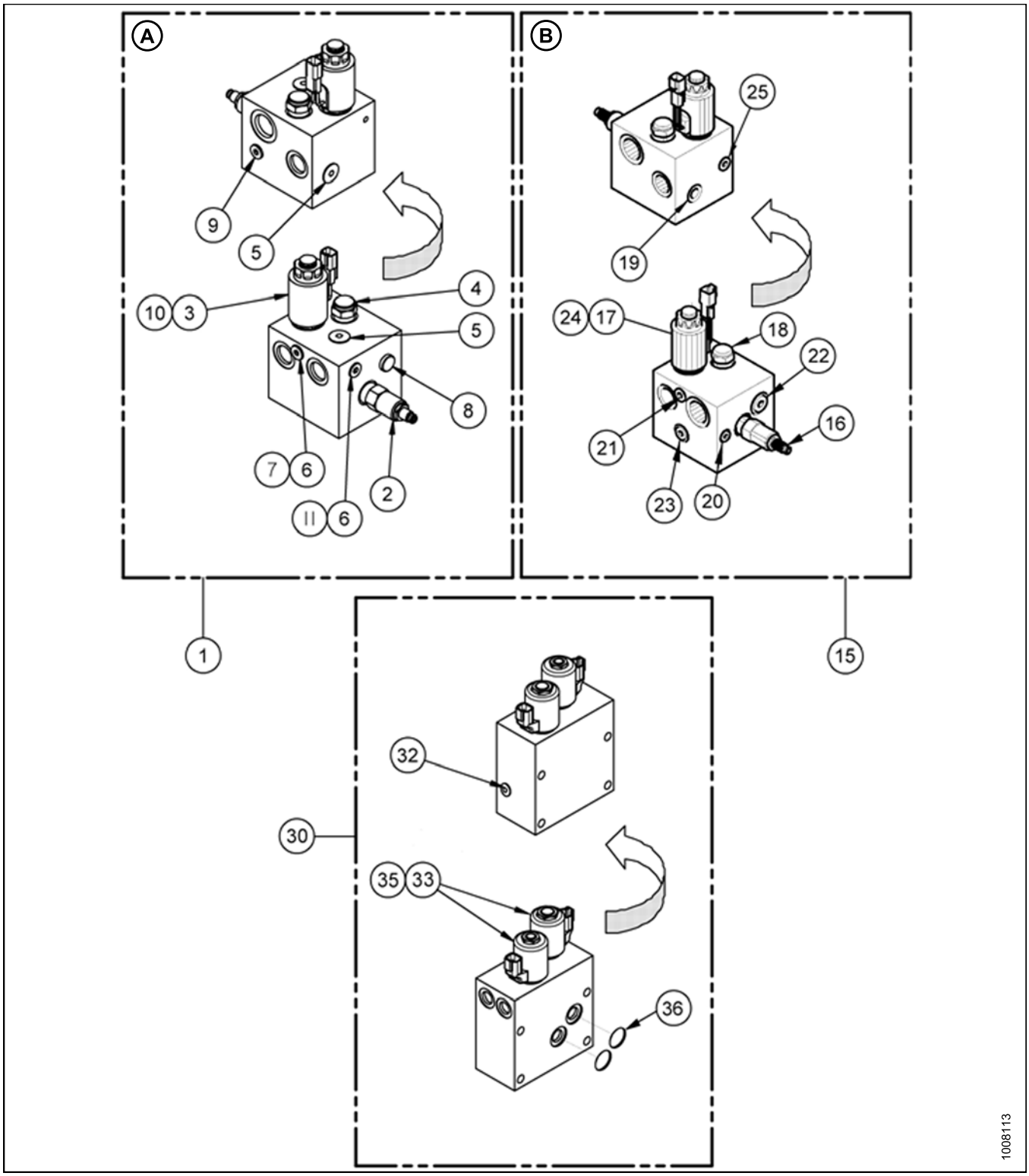


Figure 6.9: Hydraulic Service Components

A - Eaton MCD-8286, Serial No. 207009 and Below **B - Eaton 630AA00821A, Serial No. 207010 and Above**

Ref	Part Number	Description	Qty	Serial Number
1	Not Avail.	MANIFOLD – DWA DRIVE, TO REPLACE COMPLETE UNIT ORDER 139508	1	207009 AND EARLIER
	49846	SEAL KIT		
2	162285	VALVE – RELIEF	1	
3	163166	CONTROL – PROPORTIONAL FLOW	1	
4	162283	VALVE – DIFF. PRESS SENSING	1	
	162284	SEAL KIT #10 3 WAY – SHORT	1	
5	163159	FITTING – ZERO LEAK GOLD, 3/4-16	2	
6	163156	FITTING – ZERO LEAK GOLD, 9/16-18	2	
7	163168	PLUG – ORIFICE	1	
8	158174	PLUG – HEX SOCKET C/W O-RING	1	
9	163149	FITTING – ZERO LEAK GOLD, 1/2-20	1	
10	163173	COIL – ASSEMBLY	1	
	163178	SEAL KIT	1	
11	162287	PLUG – ORIFICE	1	

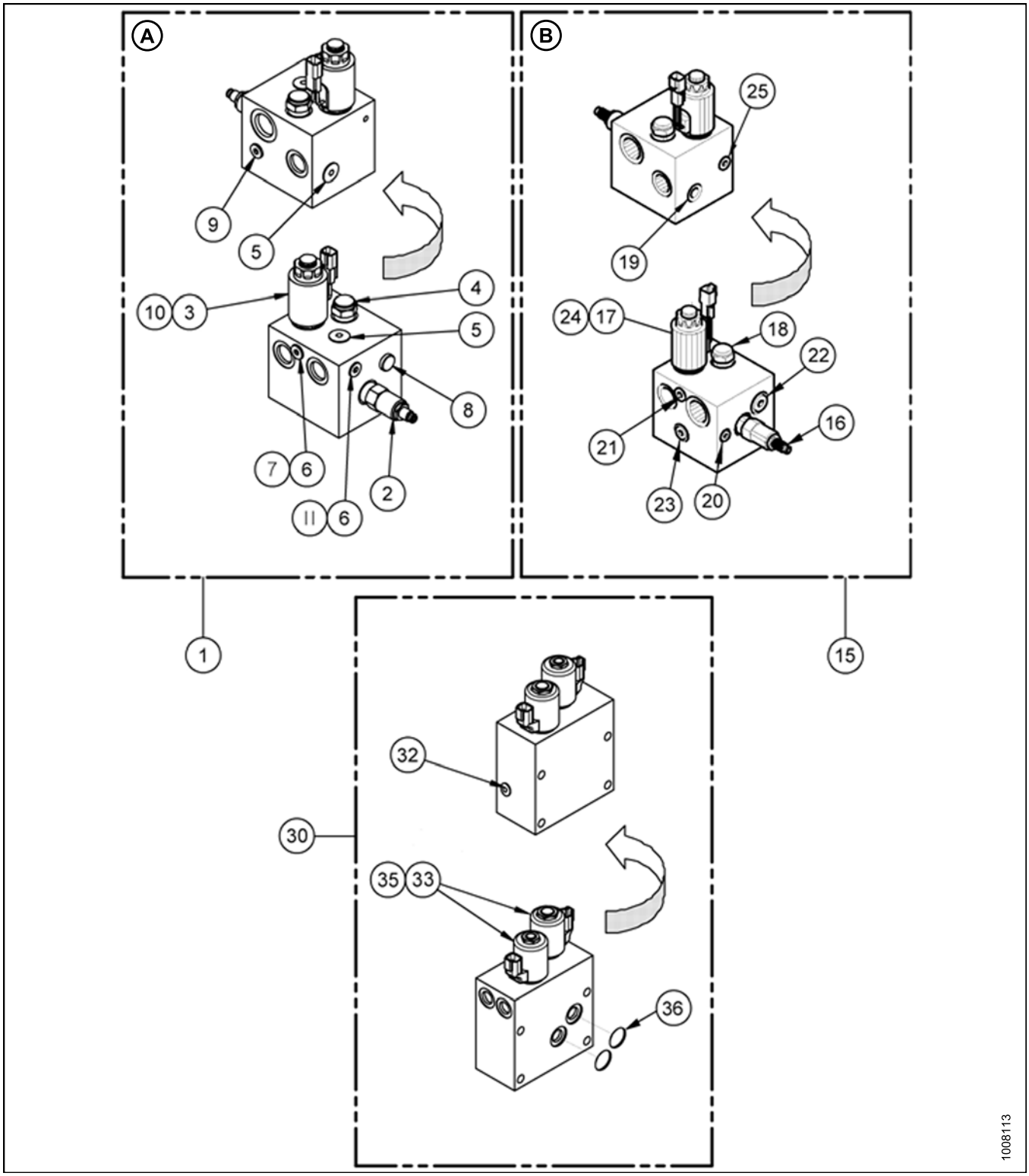


Figure 6.10: Hydraulic Service Components

A - Eaton MCD-8286, Serial No. 207009 and Below **B - Eaton 630AA00821A, Serial No. 207010 and Above**

15	139508	MANIFOLD – DWA DRIVE	1	207010 and later
	49846	SEAL KIT		
	100577	PLUG – HEX SOCKET C/W O-RING, 9/16-18		
16	139542	VALVE – RELIEF	1	
17	163166	CONTROL – PROPORTIONAL FLOW	1	
18	162283	VALVE – DIFF. PRESS. SENSING	1	
	162284	SEAL KIT #10 3 WAY - SHORT		
19	163159	FITTING – ZERO LEAK GOLD, 3/4-16	2	
20	163167	SENSE CHECK KIT	1	
21	163168	PLUG – ORIFICE	1	
22	158174	PLUG – HEX SOCKET C/W O-RING	1	
23	163149	FITTING – ZERO LEAK GOLD, 1/2-20	1	
24	163173	COIL – ASSEMBLY	1	
	163178	SEAL KIT		
25	162287	PLUG – ORIFICE	1	
30	139974	VALVE BLOCK AUX LIFT[11]	1	
32	163156	FITTING – ZERO LEAK GOLD	1	
33	163143	VALVE – SOLENOID (INCLUDES NUT 163191)	2	
	163191	NUT – SPECIAL		
	163160	SEAL KIT	2	
35	163154	COIL – TOUGH	2	
36	163184	O-RING	2	

11. Refer to service bulletin SB#1210 regarding software update required

6.7 Decals

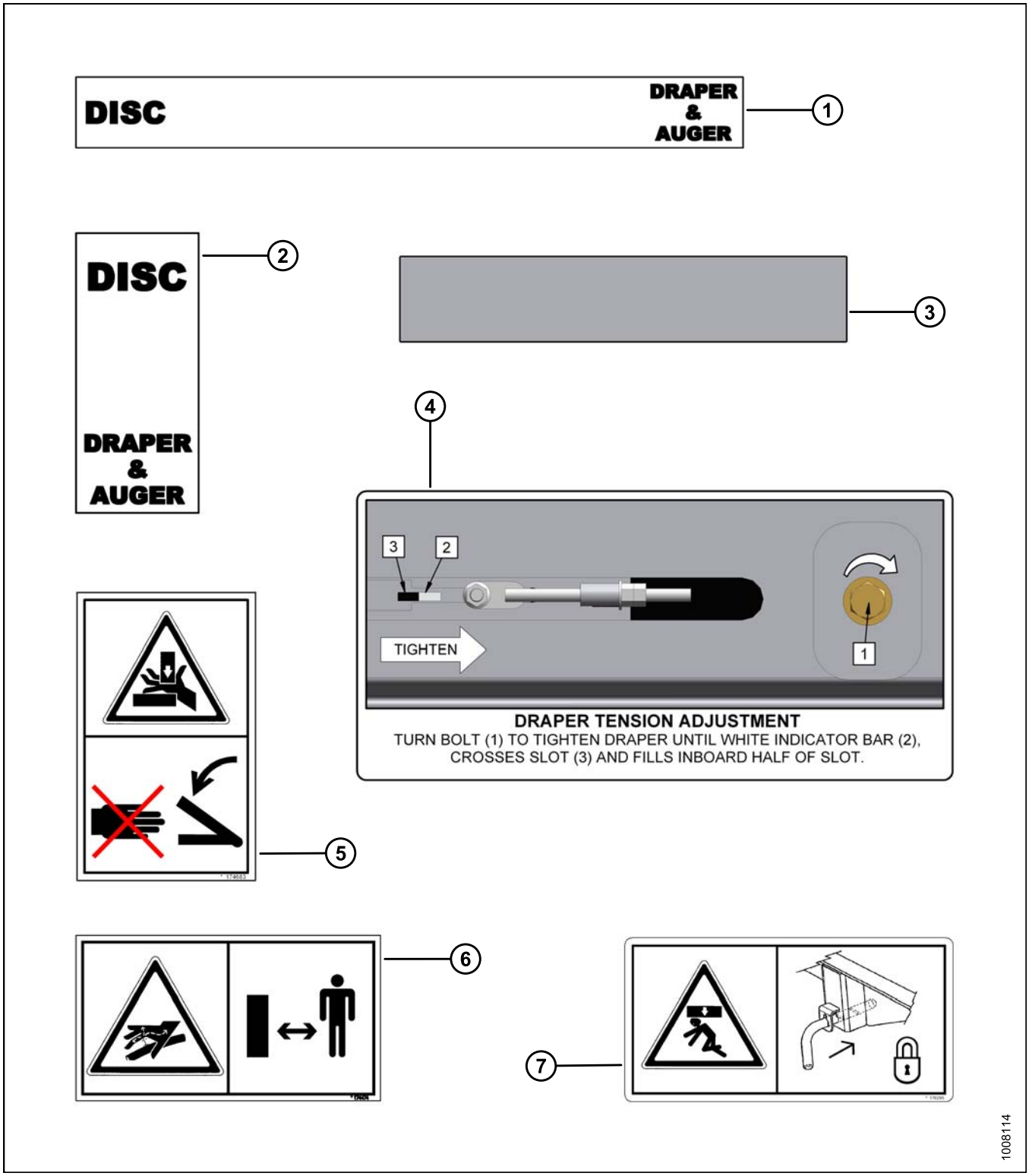


Figure 6.11: Decals

Ref	Part Number	DESCRIPTION	Qty	Serial Number
1	176071	DECAL – HEADER POSITION, HORIZONTAL FORMAT	3	
2	176072	DECAL – HEADER POSITION, VERTICAL FORMAT	1	
3	115146	REFLECTOR – AMBER	1	
	115145	REFLECTOR – FLUORESCENT RED-ORANGE	1	
	115147	REFLECTOR – RED	1	
4	220084	DECAL – DRAPER TENSION	1	
5	174683	DECAL – WARNING DWA LINKAGE PINCH POINT, 2 PANEL	2	
6	174474	DECAL – WARNING, HIGH PRESSURE HYDRAULICS, 2 PANEL	1	
7	176295	DECAL – DECK LIFT LOCK		

Index

A

C

D

E

F

H

I

L

M

O

R

S

T

MacDon Industries Ltd.
680 Moray Street
Winnipeg, Manitoba
Canada R3J 3S3
t. (204) 885-5590
f. (204) 832-7749

MacDon, Inc.
10708 N. Pomona Avenue
Kansas City, Missouri
United States 64153-1924
t. (816) 891-7313
f. (816) 891-7323

MacDon Australia Pty. Ltd.
A.C.N. 079 393 721
P.O. Box 243, Suite 3, 143 Main Street
Greensborough, Victoria, Australia 3088
t. 03 9432 9982
f. 03 9432 9972

LLC MacDon Russia Ltd.
123317 Moscow, Russia
10 Presnenskaya nab, Block C
Floor 5, Office No. 534, Regus Business Centre
t. +7 495 775 6971
f. +7 495 967 7600

CUSTOMERS
MacDon.com

DEALERS
Portal.MacDon.com

Printed in Canada