

A40D and A40DX Self-Propelled Windrower Auger Header

Unloading and Assembly Instructions

214805 Revision A

Original Instruction

A40D Self-Propelled Windrower Auger Header



1009163

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Introduction

This instructional manual describes the unloading, setup, and predelivery requirements for the MacDon A40D and A40DX Self-Propelled Windrower Auger Headers, including a Grass Seed version for both models.

Refer to the Table of Contents and follow the provided procedures in the order given.

CAREFULLY READ THE INFORMATION PROVIDED IN THIS MANUAL BEFORE ATTEMPTING TO UNLOAD, ASSEMBLE, OR USE THE MACHINE.

NOTE:

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

This document is currently available in English only.

List of Revisions

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

Summary of Change	Location
Added explanation of notes (IMPORTANT, NOTE) appearing throughout the document.	1.1 Signal Words, page 1
Added instructions for discarding/retaining and installing shipping stand hardware.	3.5 Removing Shipping Stands, page 14
Updated procedure.	3.8 Installing and Adjusting Pan Extensions, page 17
Updated illustration and procedure steps.	3.9 Adjusting Transport Lights, page 19
Added reference to A40D SP Grass Seed Auger Conversion kit (MD #B6384).	3.13 Attaching A40DX Header to M1 Series Windrowers, page 45
Added content specific to A40DX GSS headers and A40DX headers with Reel Speed Control kit (MD #B6604) equipped.	3.13 Attaching A40DX Header to M1 Series Windrowers, page 45
Added reference to A40D SP Grass Seed Auger Conversion kit (MD #B6384).	3.18 Hydraulic Drive Hose Routing – M1 Series Windrowers, page 68
New topic.	3.18.1 Hydraulic Drive Hose Routing – A40DX and M1 Series Windrowers, page 68
New topic.	3.18.2 Hydraulic Drive Hose Routing (A40DX GSS and M1 Series Windrowers), page 70
Updated procedure.	5.4 Checking and Adjusting Float – M Series, page 84
Updated illustration.	5.11 Checking Lights, page 97
Removed topics for routing hydraulic hoses on pre-2019 model year headers.	—

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Chapter 1: Safety

1.1 Signal Words

Three signal words, **DANGER**, **WARNING**, and **CAUTION**, are used to alert you to hazardous situations. Two signal words, **IMPORTANT** and **NOTE**, identify non-safety related information. Signal words are 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.

IMPORTANT:

Indicates a situation that, if not avoided, could result in a malfunction or damage to the machine.

NOTE:

Provides additional nonessential information or advice.

1.2 General Safety

CAUTION

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

Protect yourself.

- When assembling, operating, and servicing machinery, wear all protective clothing and personal safety devices that could be necessary for job at hand. Do **NOT** take chances. You may need the following:
 - Hard hat
 - Protective footwear with slip-resistant soles
 - Protective glasses or goggles
 - Heavy gloves
 - Wet weather gear
 - Respirator or filter mask
- Be aware that exposure to loud noises can cause hearing impairment or loss. Wear suitable hearing protection devices such as earmuffs or earplugs to help protect against loud noises.



Figure 1.1: Safety Equipment



Figure 1.2: Safety Equipment

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

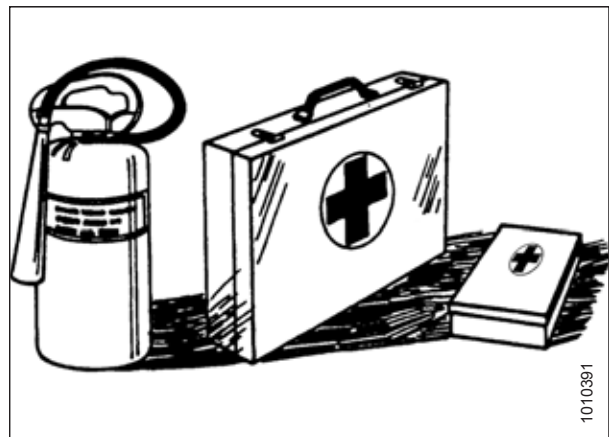


Figure 1.3: Safety Equipment

SAFETY

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



Figure 1.4: Safety around Equipment

- Keep hands, feet, clothing, and hair away from moving parts. **NEVER** attempt to clear obstructions or objects from a machine while engine is running.
- Do **NOT** modify machine. Unauthorized modifications may impair machine function and/or safety. It may also shorten machine's life.
- To avoid bodily injury or death from unexpected startup of machine, **ALWAYS** stop the engine and remove the key from the ignition before leaving the operator's seat for any reason.

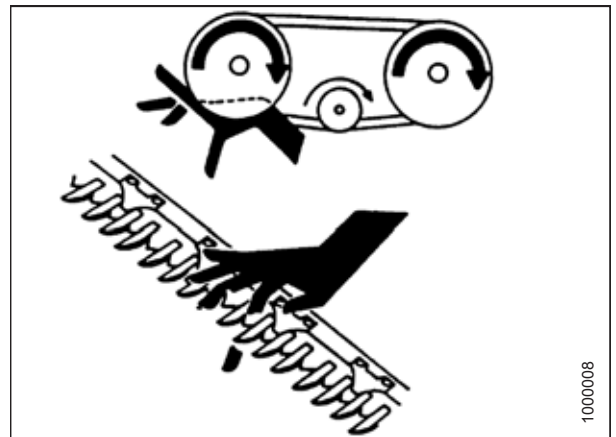


Figure 1.5: Safety around Equipment

- Keep service area 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 is a fire hazard. Do **NOT** allow oil or grease to accumulate on service platforms, ladders, or controls. Clean machines before storage.
- **NEVER** use gasoline, naphtha, or any volatile material for cleaning purposes. These materials may be toxic and/or flammable.
- When storing machinery, cover sharp or extending components to prevent injury from accidental contact.



Figure 1.6: Safety around Equipment

1.3 Safety Signs

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

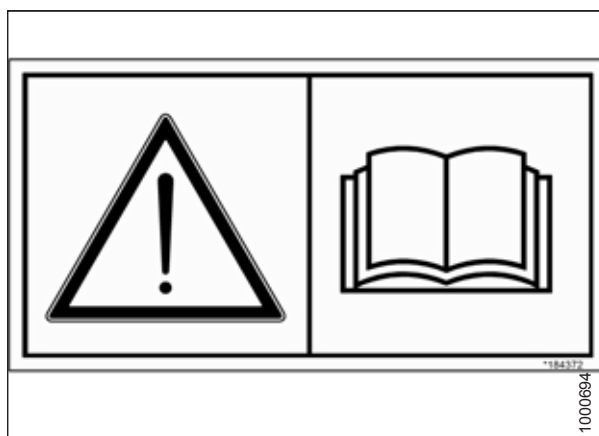


Figure 1.7: Operator's Manual Decal

Chapter 2: Unloading the Machine

Follow each procedure in this chapter in order.

2.1 Unloading the Header



CAUTION

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



CAUTION

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

Table 2.1 Lifting Vehicle

Minimum capacity ¹	8000 lb. (630 kg)
Minimum fork length	1981 mm (78 in.)

IMPORTANT:

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



WARNING

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

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

UNLOADING THE MACHINE

2.1.1 Unloading the Header from a Truck Flatbed

IMPORTANT:

Do **NOT** unload using lean bar for lifting. Chain hook slots in lean bar are only for laying the machine over into working position after it is on the ground.

NOTE:

Take care not to bend parts on backtube.

To unload the header, follow these steps:

1. Remove hauler's tie-down straps and chains.
2. With a forklift, approach the header from either its underside or topside and slide forks (A) in underneath the lifting framework as far as possible.

IMPORTANT:

When possible, approach from the underside to minimize potential for scratching the unit.

3. Raise the header off the deck.

IMPORTANT:

If there are two headers on the flatbed, take care not to contact the other machine while unloading.

4. Back up until unit clears truck flatbed and slowly lower to 150 mm (6 in.) from ground.
5. Using the forklift, take the header to a designated storage or setup area and securely set it down on the ground.
6. Repeat for the other header if required.
7. Check for shipping damage and missing parts.

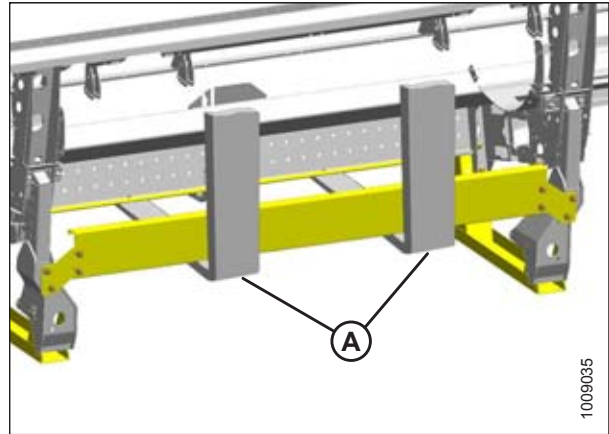


Figure 2.1: Forks in Position



Figure 2.2: Topside of Header in Shipping Configuration

Chapter 3: Assembling the Machine

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

3.1 Removing Underside Shipping Stand

CAUTION

Keep feet clear when removing final bolts.

1. Remove four bolts (A) and remove shipping stand (B).
Discard stand and hardware.

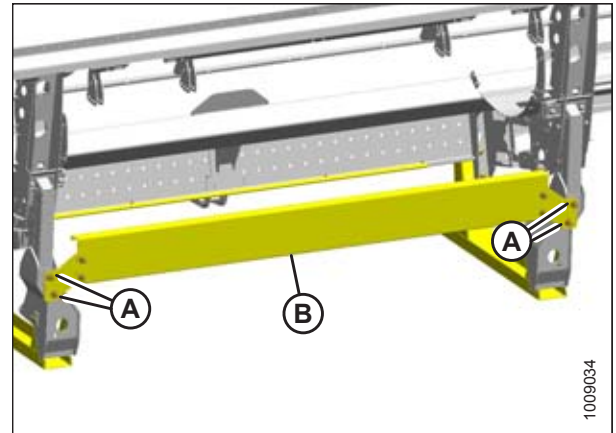


Figure 3.1: Underside Shipping Stand

3.2 Installing Skid Shoes

If the Skid Shoes kit is **NOT** supplied, proceed to [3.3 Installing Gauge Rollers, page 9](#). Otherwise, proceed as follows:

NOTE:

This kit may be installed later in the header assembly sequence, but it may be easier prior to laying the header down.

1. Unpack skid shoe bundle.
2. Remove two clevis pins (A) from each skid shoe.
3. Remove nuts, bolts, and clips (B) from skid shoe.

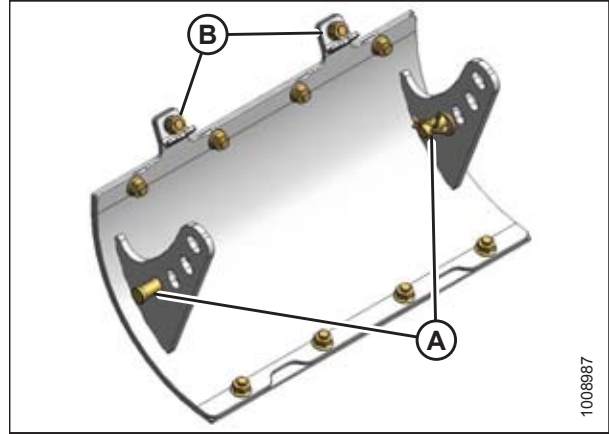


Figure 3.2: Skid Shoe Bundle

4. Position skid shoe below cutterbar and insert tabs on skid shoe into slots (A) in frame. Secure with clevis pin (B).

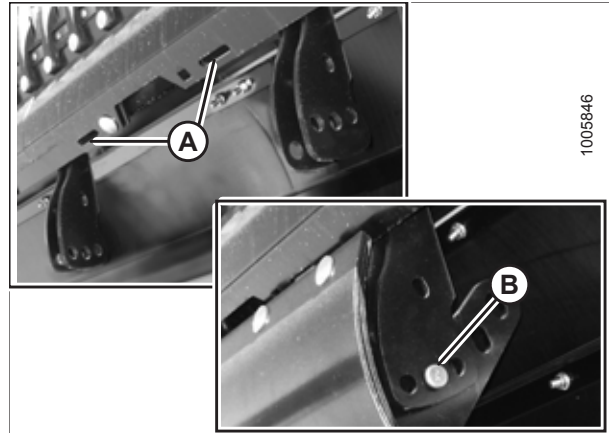


Figure 3.3: Skid Shoe Hardware

5. Attach clips (A) with bolts and nuts removed earlier in this procedure to secure skid shoe to cutterbar.

NOTE:

Use a socket and ratchet wrench to access the nuts.

6. Tighten nuts.
7. Remove clevis pin (B) and adjust skid shoe to desired height. Reinstall two clevis pins (B) and secure with lynch pins.
8. Repeat previous steps for opposite side. Set both skid shoes to the same position.

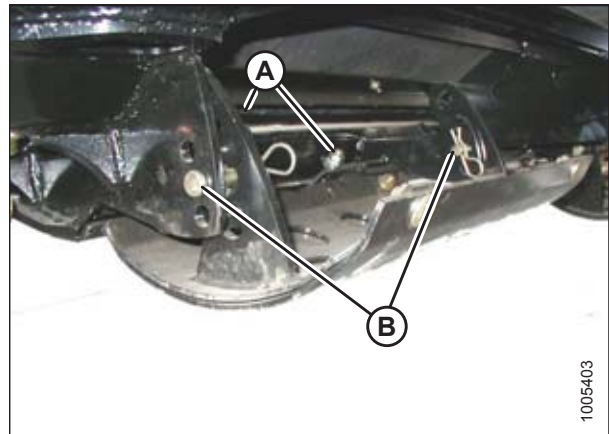


Figure 3.4: Skid Shoe Installed

3.3 Installing Gauge Rollers

If the Gauge Rollers kit is **NOT** supplied, proceed to [3.4 Lowering the Header, page 11](#). Otherwise, proceed as follows.

NOTE:

This kit may be installed later in the header assembly sequence, but it may be easier prior to laying the header down.

1. Unpack gauge roller bundle.
2. Remove two locking pins (A) from each assembly.
3. Remove nuts, bolts, and clips (B) from assembly.

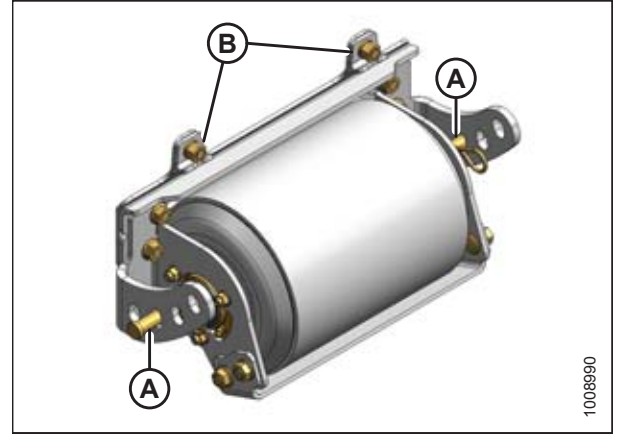


Figure 3.5: Gauge Roller in Shipping Configuration

4. Insert tabs on roller assembly into slots (A) on cutterbar at outboard mounting locations on frame.

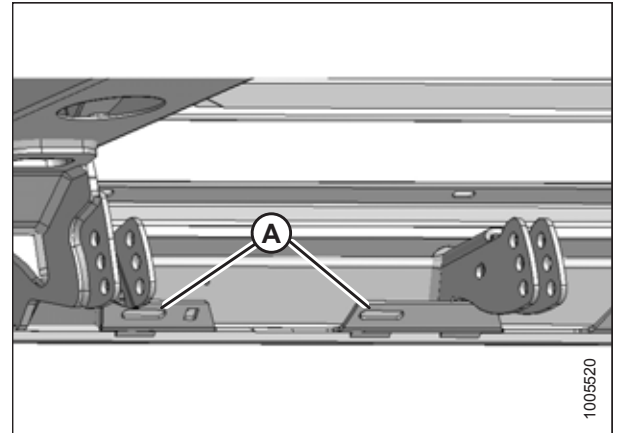


Figure 3.6: Gauge Roller Mounting Location

5. Secure to support bracket with locking pin (B) at lowest position.
6. Attach clips (A) with bolts and nuts removed earlier in this procedure to secure roller assembly to cutterbar.
7. Tighten nuts.

NOTE:

Use a socket and ratchet wrench to access the nuts.

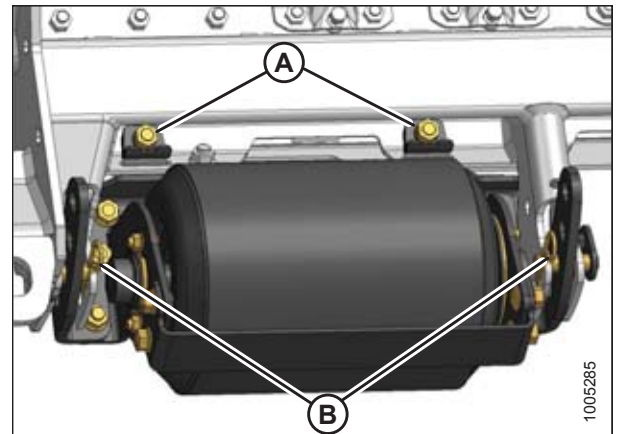


Figure 3.7: Gauge Roller

ASSEMBLING THE MACHINE

8. Remove locking pin (A) and adjust rollers to desired height. Reinstall both locking pins (A).
9. Ensure that nut (B) on each pin registers in adjacent hole in support bracket.
10. Secure pins with hairpins (C).
11. Repeat previous steps for opposite side. Set both gauge rollers to the same position.

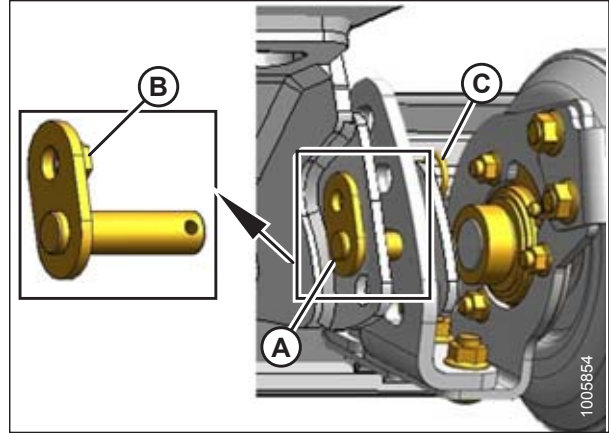


Figure 3.8: Gauge Roller and Locking Pin

3.4 Lowering the Header

To lower the header to the ground, follow these steps:

1. Attach either a spreader bar or chain to forks.

CAUTION

Ensure spreader bar or chain is secured to the forks so that it cannot slide off the forks or towards the mast as the header is lowered to the ground.

2. Drive lifting vehicle to approach header from its underside.
3. Attach chain hooks to lean bar at slots as shown.

IMPORTANT:

See table below for minimum chain specifications. Also, chain length must be sufficient to provide a minimum 1.2 m (4 ft.) vertical chain height.

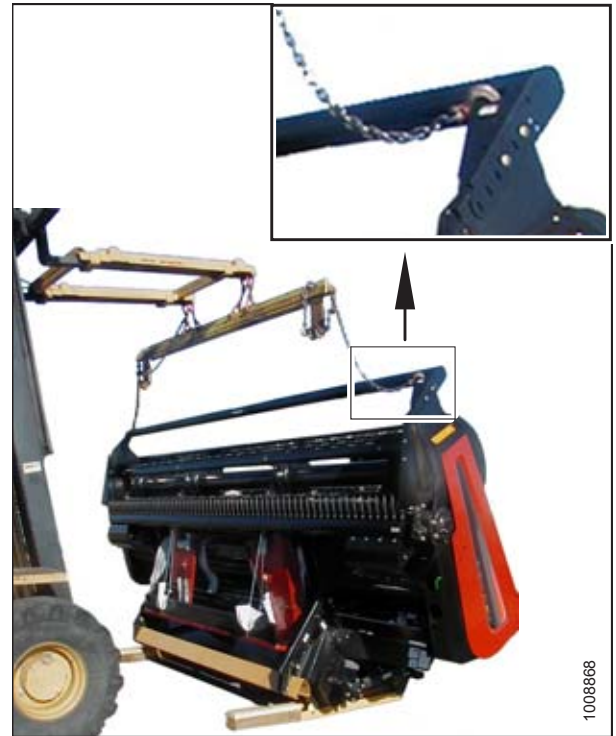


Figure 3.9: Header with Forklift

Table 3.1 Chain Specifications

Chain Type	Overhead lifting quality (1/2 in.)
Minimum Working Load	2270 kg (5000 lb.)

CAUTION

Stand clear when lowering, as machine may swing.

ASSEMBLING THE MACHINE

NOTE:

Do **NOT** lift at lean bar when unloading from trailer. This procedure is only for laying the machine over into working position.

4. Raise forks until lift chains are fully tensioned.

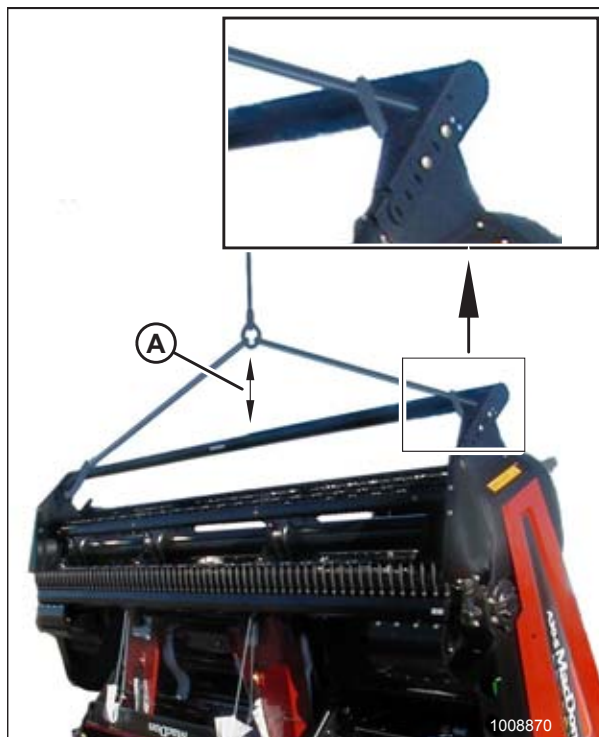


Figure 3.10: Header with Crane

A - 1.2 m (48 in.) Minimum

5. Back up **SLOWLY**, while simultaneously lowering machine, so that cutterbar skid shoes rest on blocks (A).
6. Remove chain hooks from lean bar.

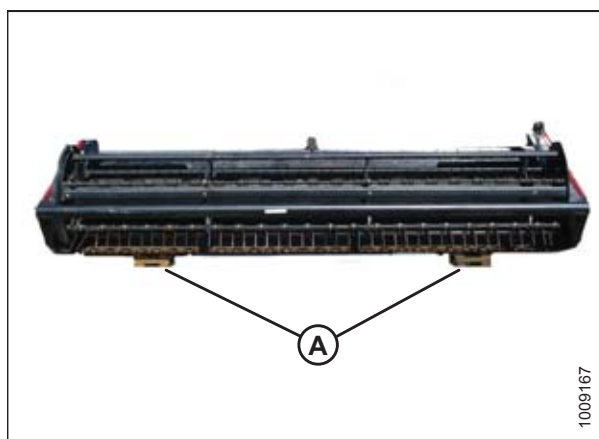


Figure 3.11: Header on Blocks

ASSEMBLING THE MACHINE

7. Attach chain to center-link anchor (A) on frame tube and raise rear of header approximately 305 mm (12 in.) off the ground.

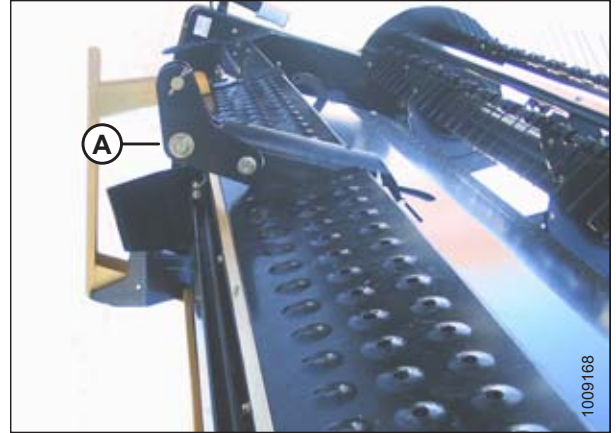


Figure 3.12: Center-Link Anchor

8. Remove lynch pin from clevis pin (A) in header stand at right side of header.
9. Hold stand (B) and remove clevis pin (A).

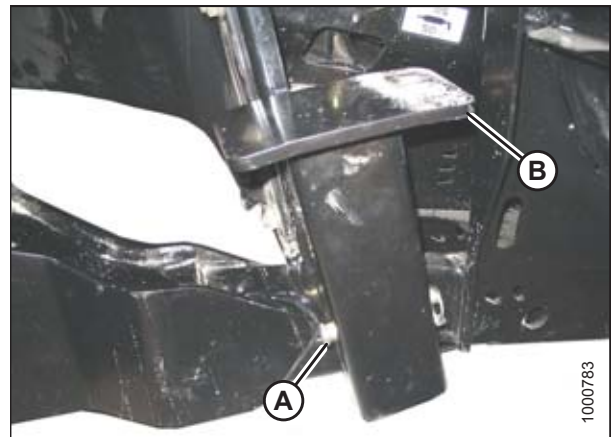


Figure 3.13: Header Stand in Shipping Position

10. Invert stand (A) and reinstall on header leg in upper hole location with clevis pin (B). Secure clevis pin (B) with lynch pin.

NOTE:

In soft conditions, use a wooden block under the stand.

11. Lower header onto stand (A).

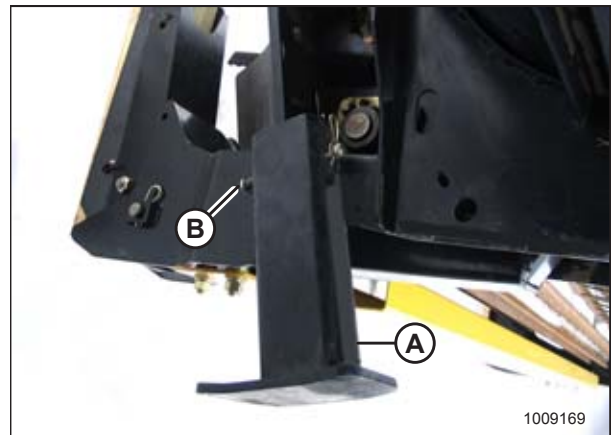


Figure 3.14: Header Stand

3.5 Removing Shipping Stands

To remove shipping stands, follow these steps:

1. Remove bolts (A) from shipping stands (B) at right and left sides of header.

NOTE:

For A40D headers only: Discard hardware (A) from right and left side shipping stands.

NOTE:

For A40DX headers only: Discard hardware (A) from right side shipping stand. Retain hardware from left side shipping stand.

2. Remove hairpin in pin (C) and hold shipping stand (B) steady.
3. Remove and retain pin (C). Remove shipping stand from header and reinstall pin (C), and secure with hairpin retained from Step 2, page 14.
4. **For A40DX headers only:** Install hardware (A) retained in Step 1, page 14 at previous location on left side of header frame, and secure hose support bracket. Torque hardware (A) to 76–183 Nm (56–135 lbf-ft).

IMPORTANT:

Ensure bolt heads face upward to avoid damaging routed hose bundle.

5. Remove four bolts (A) and remove angle (B). Discard angle and hardware.

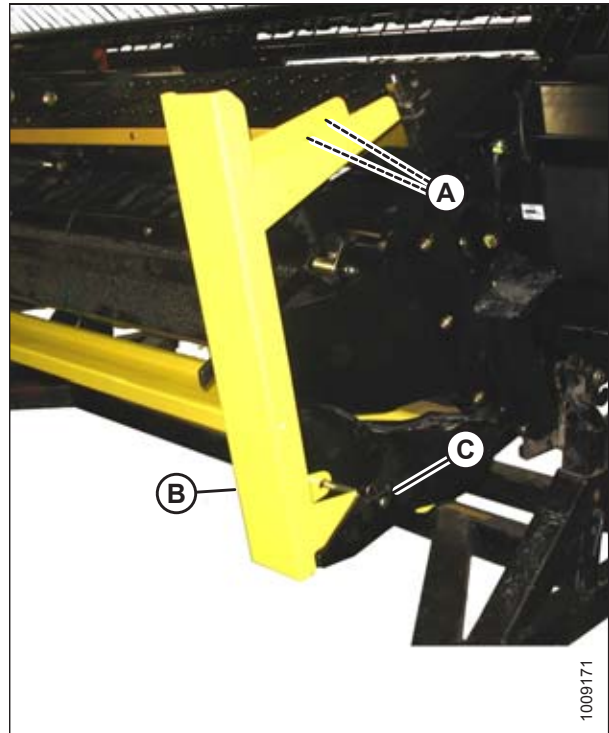


Figure 3.15: Right Side Shipping Stand — Left Side Opposite

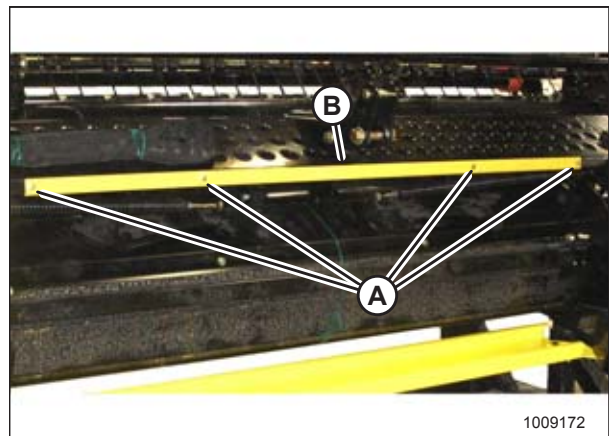


Figure 3.16: Shipping Stands

3.6 Installing Tall Crop Divider Kit

If the Tall Crop Divider kit is **NOT** supplied, proceed to [3.7 Adjusting Lean Bar, page 16](#). Otherwise, proceed as follows:

1. Unpack kit and disassemble hardware from divider.

NOTE:

If tall crop extension angles are not required, proceed to [Step 5, page 15](#).

2. Remove hardware (A) on both sides of the lean bar, and then remove the lean bar from the auger header.

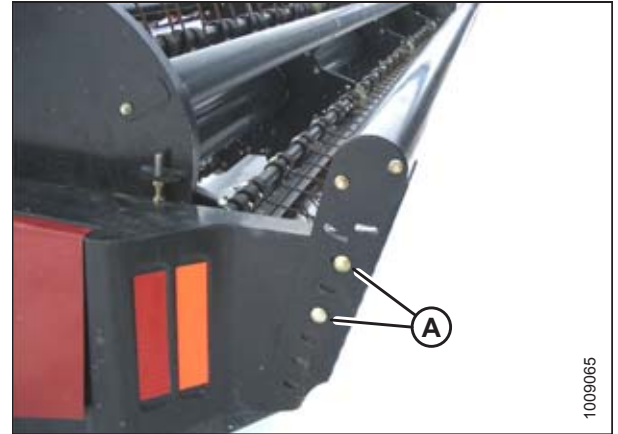


Figure 3.17: Lean Bar

3. Attach extension angles (A) to each end of lean bar (B) with four 1/2 x 1.0 in. hex bolts (C) and nuts provided.
4. Reinstall lean bar on header with existing hardware. Tighten bolts.

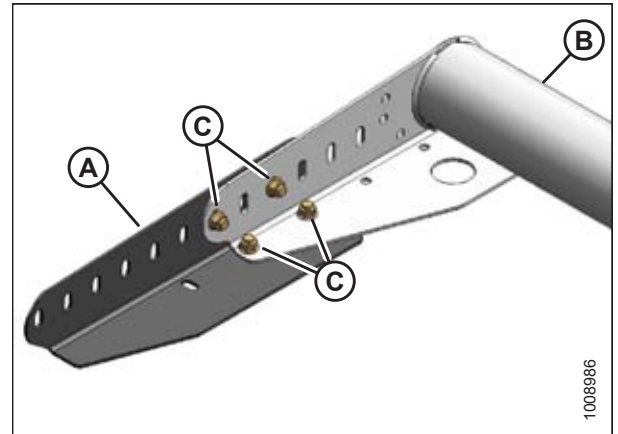


Figure 3.18: Extension Angles Attached to Ends of Lean Bar

5. Position left divider (C) at left side of lean bar and attach with U-bolt (A), two 3/8 in. nuts, and two 1/2 x 1.0 in. hex bolts (B) and nuts provided.

NOTE:

The divider may be positioned as shown or using the optional mounting hole (D).

6. Adjust to desired position and tighten hardware.
7. Repeat the previous two steps for the right side.

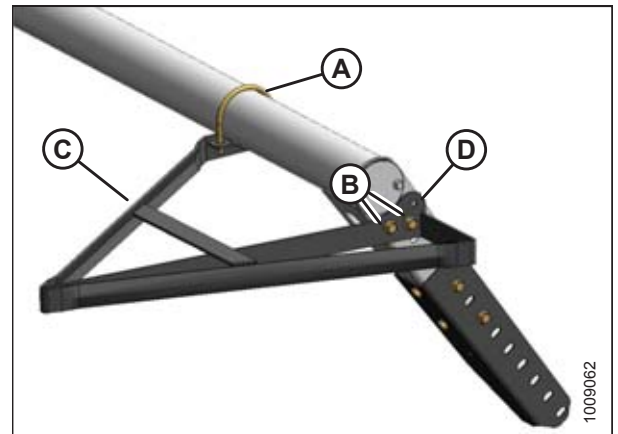


Figure 3.19: Tall Crop Divider Installed

3.7 Adjusting Lean Bar

The lean bar is fully retracted for shipping. Adjust as follows:

NOTE:

If optional tall crop divider kit is supplied, it can be installed prior to reinstalling the lean bar. Refer to [3.6 Installing Tall Crop Divider Kit, page 15](#).

1. Remove hardware (A) on both sides and install lean bar in field position. Check that field position is suitable for the crop (normally 2/3 of crop height).

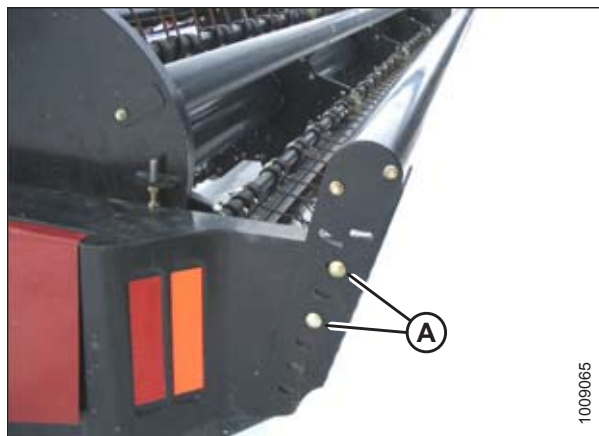


Figure 3.20: Lean Bar

3.8 Installing and Adjusting Pan Extensions

To install the pan extensions, do the following:

1. Remove deflector (A) from their shipping positions on the header and unwrap.

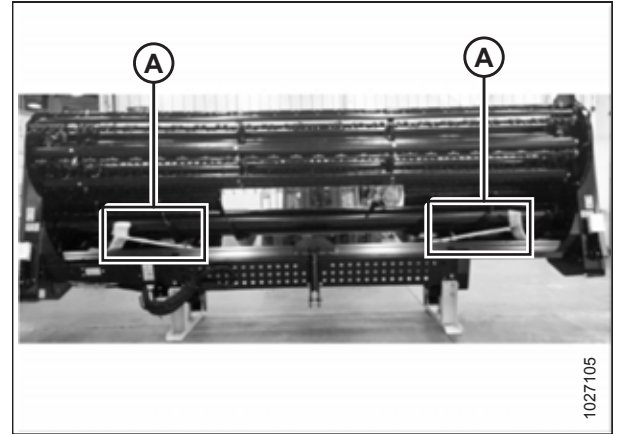


Figure 3.21: Shipping Configuration

2. Remove nut and bolt (A), nut and washers (B), and nuts (C) from the pan extension. Retain hardware.

NOTE:

Illustrations in this procedure show the left side pan extension. Instructions are similar for installing and adjusting the right side pan extension.

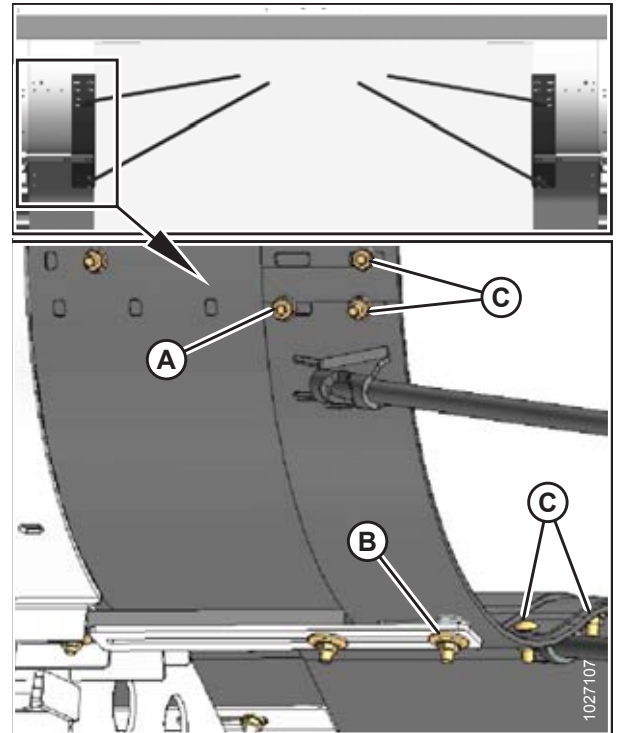


Figure 3.22: Pan Extension – Wide Setting

ASSEMBLING THE MACHINE

3. Install left side deflector (A) using nuts and bolts (B) and nut, bolt, and five washers (C) retained from the previous step. Torque all nuts to 11.5 Nm (102 lbf·in).

NOTE:

Do **NOT** install nut (D) if the pan extension's width will be adjusted.

NOTE:

Do **NOT** torque nuts if the pan extension's width will be adjusted.

4. Repeat steps for installing the pan extension on the opposite side of the header.

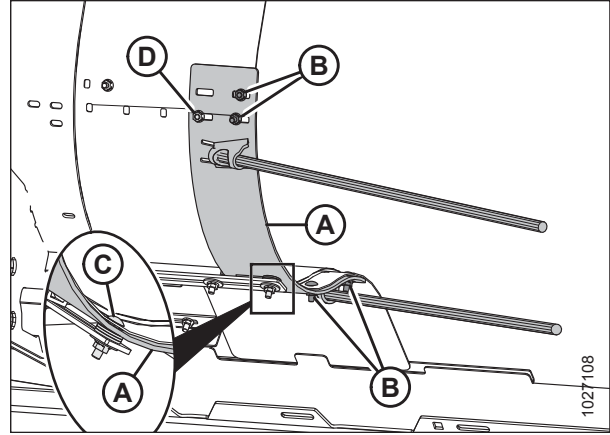


Figure 3.23: Left Side Deflector and Hardware

To adjust a pan extension's width, do the following:

1. Remove nut and bolt (A).
2. Loosen nut (B), but do **NOT** remove.
3. Slide pan extension (C) with swath forming rods inboard to the desired position, aligning holes on the pan extension and header.

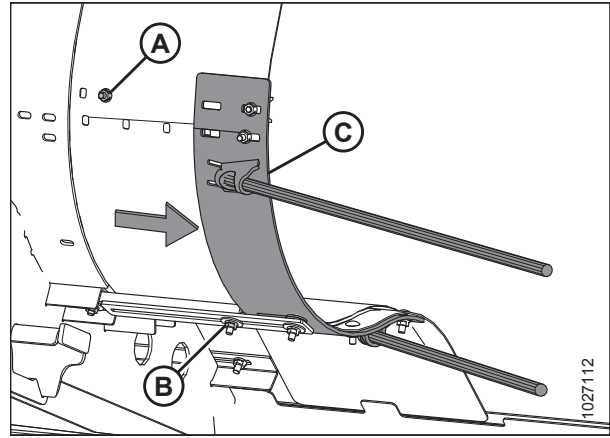


Figure 3.24: Left Side Pan Extension

4. Replace bolt and nut (A). Torque nut (A) and nut (B) to 11.5 Nm (102 lbf·in).
5. Install nut and bolt (C) and torque to 11.5 Nm (102 lbf·in).
6. Repeat for adjusting the pan extension on the right side of the header.

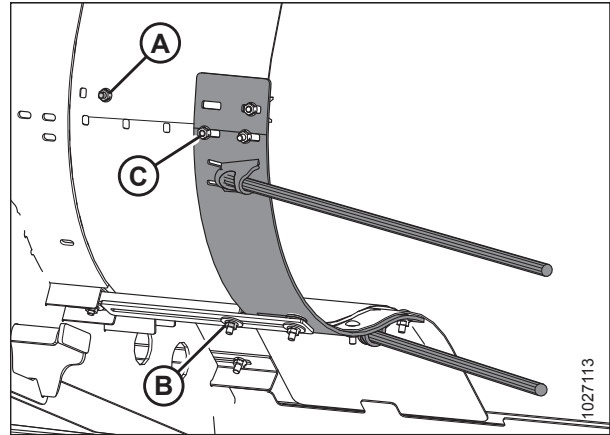


Figure 3.25: Left Side Pan Extension

3.9 Adjusting Transport Lights

1. Position amber light support (A) perpendicular to the header.
2. Check that pivot bolt (B) is tight enough to hold light support (A) in upright position, yet allows the light to pivot out of the way of obstructions.

NOTE:

Do **NOT** overtighten mounting hardware.

3. Ensure base of light housings and bolted connections on light supports provide proper electrical grounding.

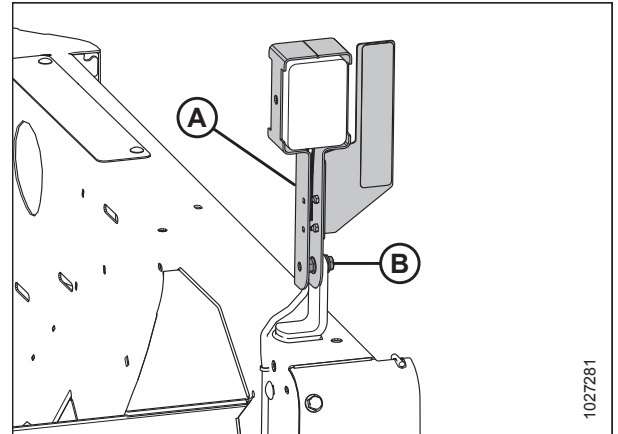


Figure 3.26: Amber Hazard Light

3.10 Assembling Forming Shield

1. Unpack and remove shipping material.
2. Remove bolts (A) from side deflectors (B).

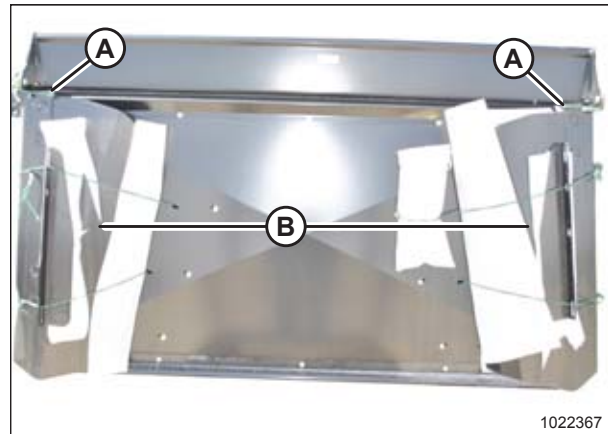


Figure 3.27: Forming Shield in Shipping Configuration

3. Install rubber strap (A) to side bracket (B) using bolt (C), washer (D), and nut (E).
4. Repeat for the other side.

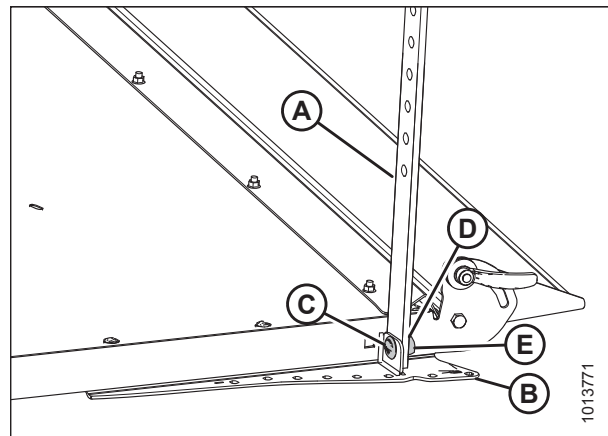


Figure 3.28: Rubber Strap

5. Lay cover (A) upside down on a flat surface.
6. Install center deflectors (B) using three bolts (C) on each side.

NOTE:

Arrange deflectors (B) so that narrow end (D) is toward the front of cover (A) and deep end (E) is toward the rear as shown in the illustration at right.

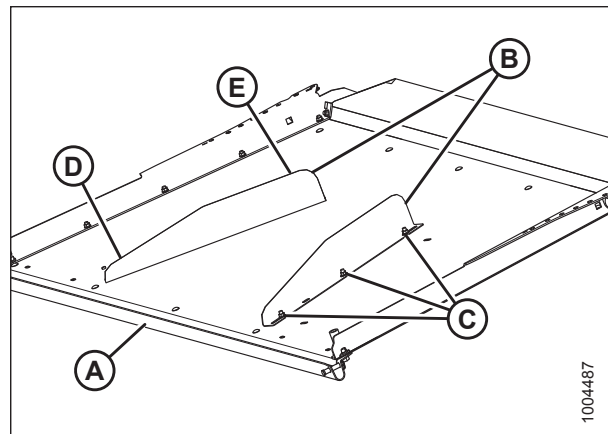


Figure 3.29: Center Deflectors

ASSEMBLING THE MACHINE

7. Assemble side deflectors (C) to cover with bolt (B), jam nut (E), washer (D), and nut (A) from previous step.
8. Tighten flange nut (A) enough to hold deflectors (C) in position, but still allow deflectors to move.
9. Tighten jam nut (E) against cover while holding bolt (B).

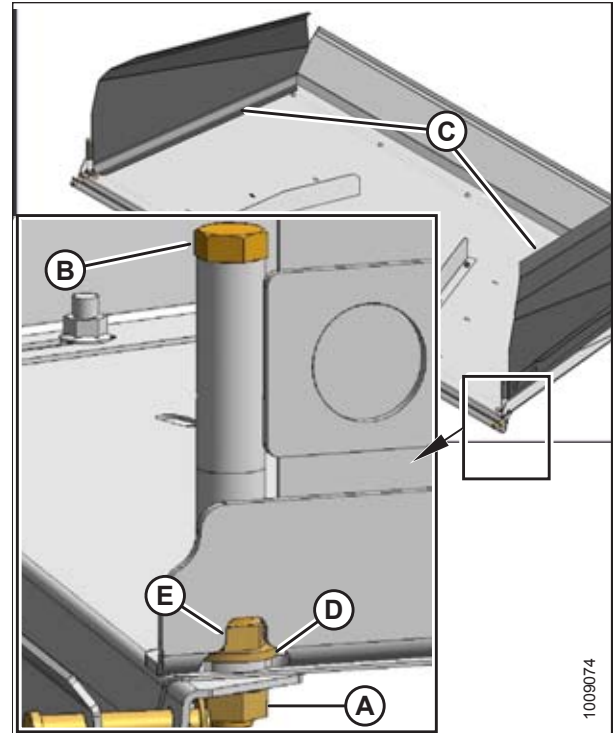


Figure 3.30: Side Deflectors

10. Remove lynch pin (A) from adjuster rod (B) and locate rod in hole in side deflector (C). Secure with lynch pin (A).
11. Repeat for other deflector.

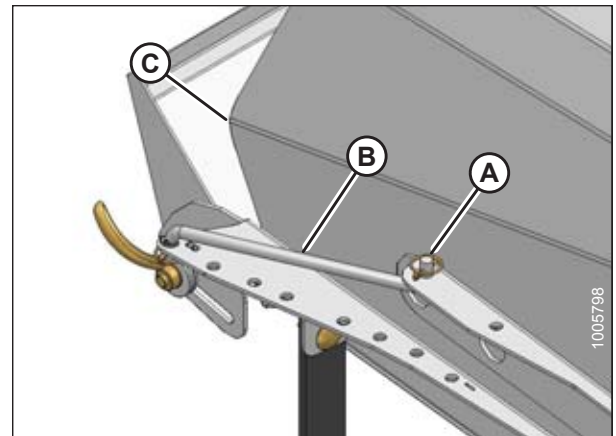


Figure 3.31: Adjuster Rod

ASSEMBLING THE MACHINE

12. Invert forming shield to installation position as shown.

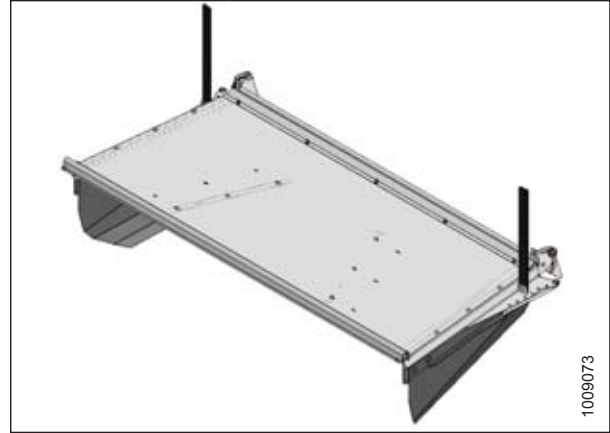


Figure 3.32: Forming Shield in Installation Position

3.11 Installing Forming Shield

NOTE:

Do **NOT** install the two triangular-shaped plates from the forming shield kit. Triangular plates are used with rotary headers.

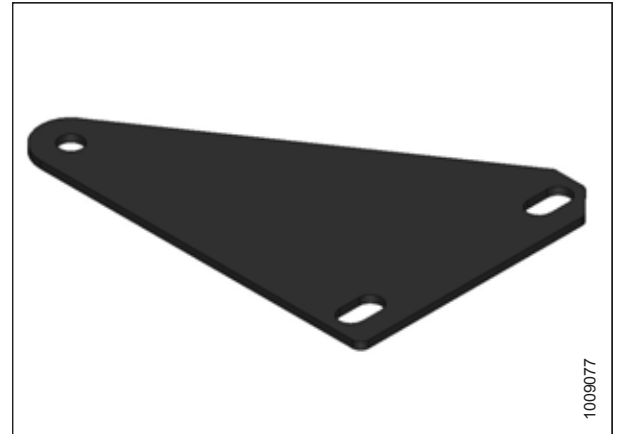


Figure 3.33: Triangular Plate

1. Install bolt (A) with spacer (B) and nut on each windrower leg in the upper hole. Hardware is supplied with forming shield kit.

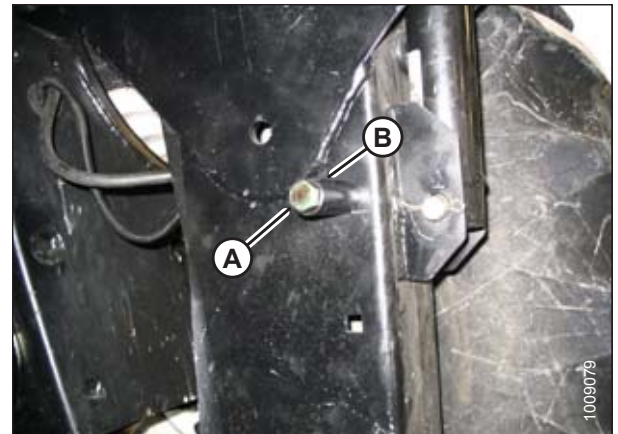


Figure 3.34: Windrower Leg

2. Remove two clevis pins (A) from forward end of forming shield.

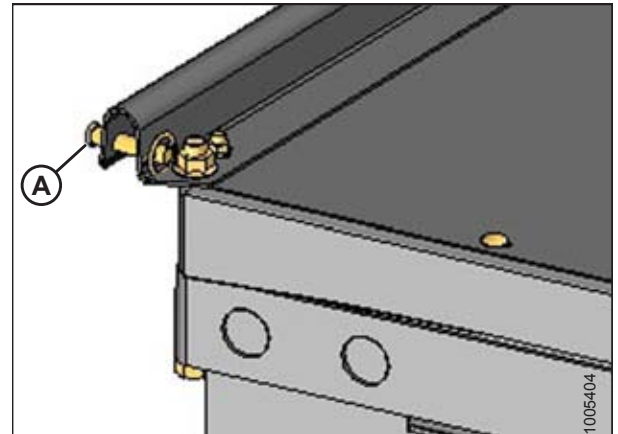


Figure 3.35: Forming Shield

ASSEMBLING THE MACHINE

3. Position forming shield (A) under windrower frame.

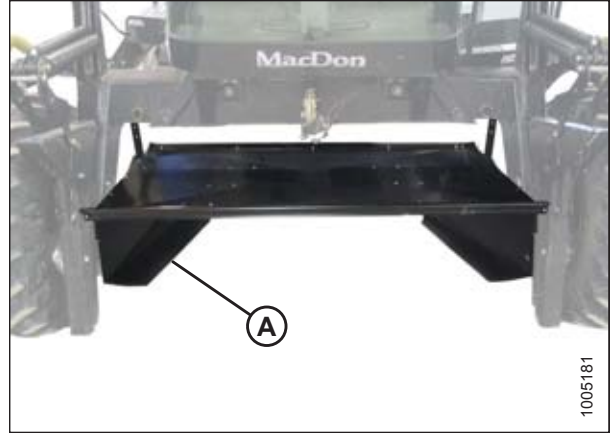


Figure 3.36: Forming Shield under Windrower

4. Position forming shield onto bolts (A) in windrower legs and secure with clevis pins (B) and hairpin.

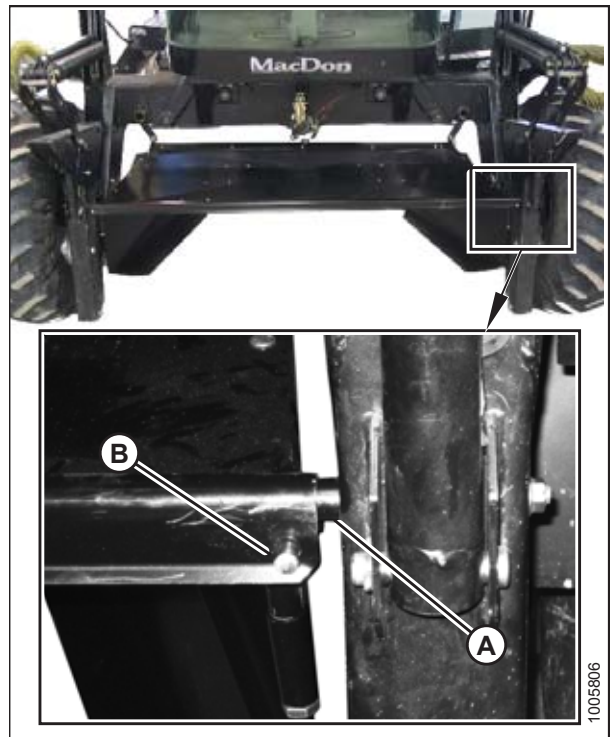


Figure 3.37: Forming Shield Attached to Windrower Legs

ASSEMBLING THE MACHINE

5. Lift aft end of the forming shield and attach straps (B) to pins (A) on the windrower frame. Install washer and hairpin to secure strap. Use the middle hole and adjust height to suit the crop.

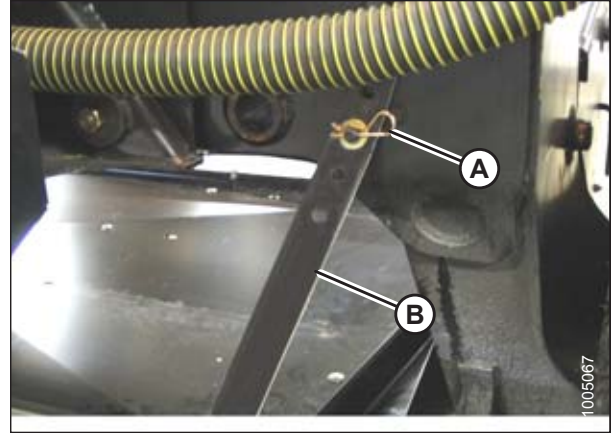


Figure 3.38: Forming Shield Attached to Windrower Frame

6. Set forming shield side deflectors to desired width by positioning adjuster bars (A). Use the same hole location on both sides.
 - Position deflectors at the narrowest setting for a narrow windrow (silage for example).
 - Position deflectors at the widest setting for a wide windrow.
7. Adjust fluffer shield (C) to middle position. Loosen handles (B) if required.

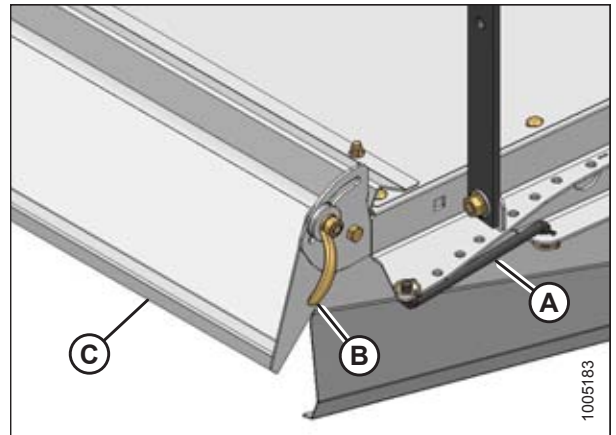


Figure 3.39: Side Deflectors and Fluffer Shield

3.12 Attaching A40D Headers to M Series SP Windrowers

Header drive hydraulic hoses and electrical harness are located on the left cab-forward side of the windrower. Refer to the following procedures for electrical and hydraulic connections:

IMPORTANT:

M150, M155, M155E4, and M200 Windrowers with M Series Reverser kit (MD #B4656) installed need to have the reverser valve hose plumbing changed if switching between a D Series Draper Header with a conditioner to an A40D Auger Header. Changing this plumbing prevents improper operation and damaging the reel drive motor.

Refer to [3.16 Routing Reverser Valve Jumper Hose – M Series, page 62](#) and (if necessary) to M Series Reverser Kit Installation Instructions (MD #169213), available from our dealer-only site (<https://portal.macdon.com>) (login required).

NOTE:

Header reel motor hose routing must be properly configured before attaching the header to a windrower. Hose routing on the header is factory-configured for M150, M155, M155E4, and M200 Self-Propelled Windrowers. Header hose routing must be reconfigured if the header is being used on M100, M105, or M205 Self-Propelled Windrowers and back again.

Refer to the following procedures:

- [3.12.1 Attaching A40D to M100 or M105, page 26](#)
- [3.12.2 Attaching A40D to M150, M155, or M155E4, page 31](#)
- [3.12.3 Attaching A40D to M200, page 36](#)
- [3.12.4 Attaching A40D to M205, page 41](#)

Refer to your windrower operator's manual for procedures to mechanically attach the auger header to the self-propelled windrower, and for modifications (if required) to the windrower hydraulic connections.

3.12.1 Attaching A40D to M100 or M105



CAUTION

To prevent accidental movement of windrower, return ground speed lever (GSL) to Park, center steering wheel to lock, shut off engine, and remove key.

M100 and M105 Self-Propelled Windrowers are factory-equipped with four header drive hoses (A) on the left side.



Figure 3.40: Header Drive Hoses

ASSEMBLING THE MACHINE

1. Disengage rubber latch (A) and open driveline shield (B).

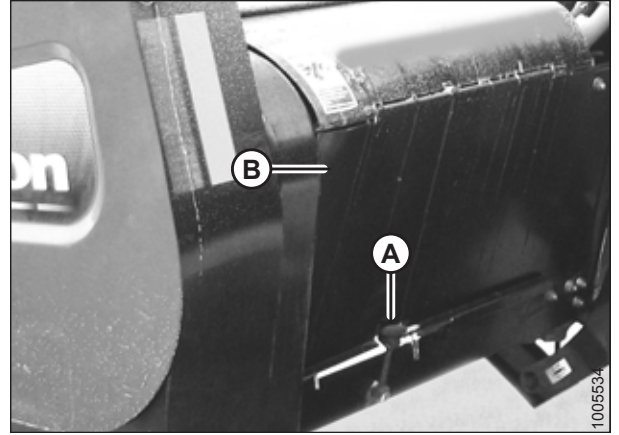


Figure 3.41: Driveline Shield

2. Remove cap (A) from the electrical connector and remove the connector from the support bracket.
3. Disengage and rotate lever (B) counterclockwise to fully up position to release the hose bundle (C).



Figure 3.42: Support Bracket and Hose Bundle

4. Move hose/electrical bundle (A) to header.
5. Route bundle (A) from windrower through support (B) and access hole (C) in header frame alongside existing hose bundle (D) from header.
6. Remove cover on header electrical receptacle (E).
7. Push connector onto receptacle and turn collar on connector to lock it in place.
8. Attach cover to mating cover on windrower wiring harness.
9. Remove caps from hydraulic couplers. Clean if necessary.

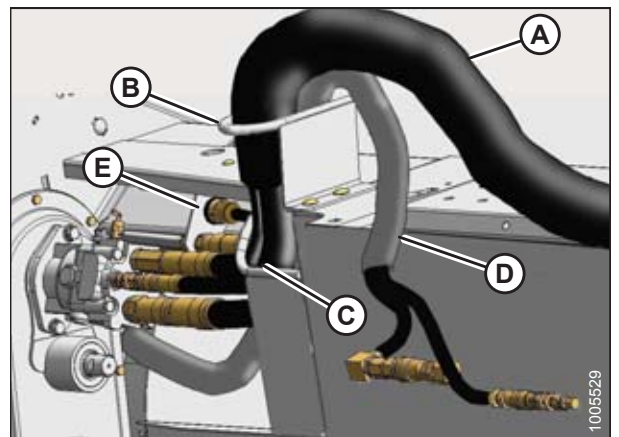


Figure 3.43: Hose and Electrical Bundle – 4.3 m and 4.9 m (14 ft. and 16 ft.) Header Shown (5.5 m [18 ft.] Header Similar)

ASSEMBLING THE MACHINE

10. Push hose connectors onto mating receptacles as shown until collars on receptacles snap into lock position.

NOTE:

Hoses attached to connectors not shown in illustrations at right.

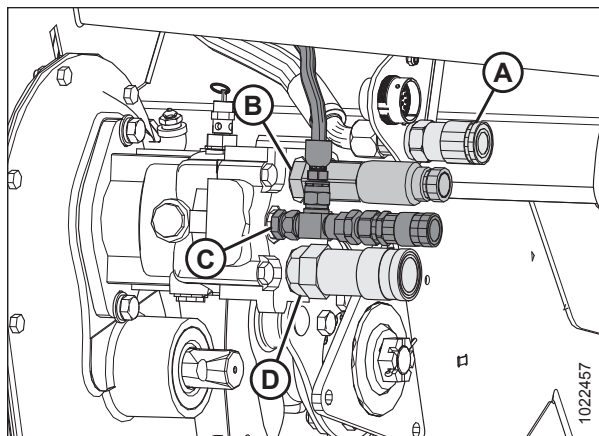


Figure 3.44: A40D Header – 4.3 m and 4.9 m (14 ft. and 16 ft.) Header Shown (5.5 m [18 ft.] Header Similar)

A - Reel Pressure
B - Knife and Conditioner Return
C - Case Drain
D - Knife and Conditioner Pressure

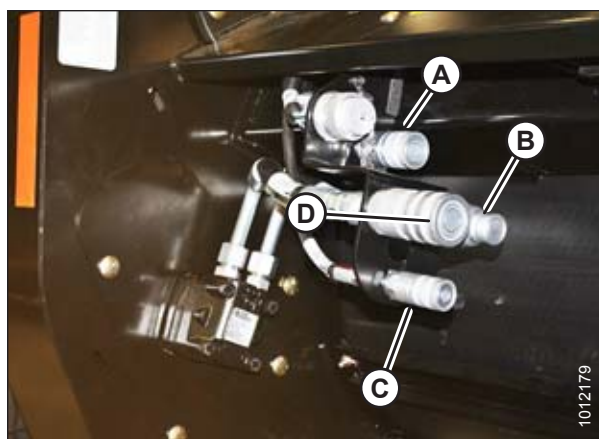


Figure 3.45: A40D Grass Seed Header Hose Connectors

A - Reel and Auger Pressure
B - Knife and Conditioner Return
C - Case Drain
D - Knife and Conditioner Pressure

ASSEMBLING THE MACHINE

11. Route auger return and reel pressure hose bundle (A) from header to windrower, and position bundle above existing hose support (C) as shown.
12. Secure with three straps (D), and lower lever (B).

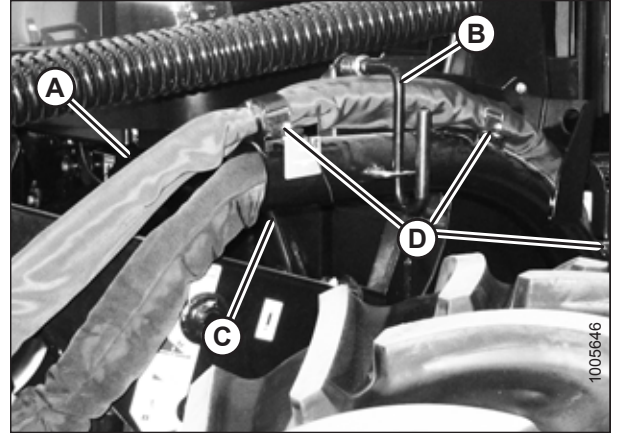


Figure 3.46: Auger Return and Reel Pressure Hose Bundle

13. If valve blocks are **NOT** configured as shown (A), refer to [3.14.1 Modifying Hydraulics – M100, M105, page 48](#).

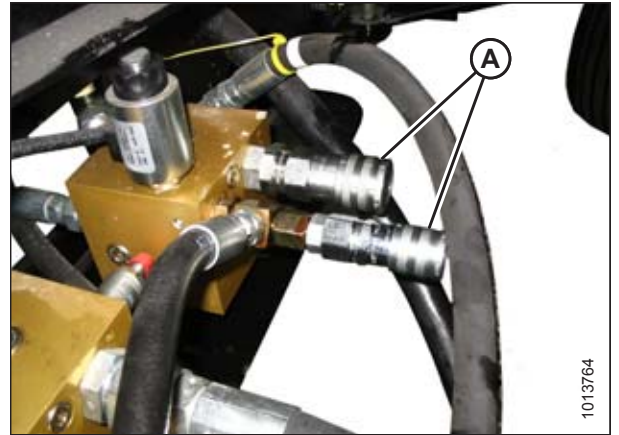


Figure 3.47: Valve Block Configuration

14. Push auger/reel pressure (A) and auger/reel return (B) hose couplers onto mating receptacles on valve block until collar on receptacle snaps into lock position.

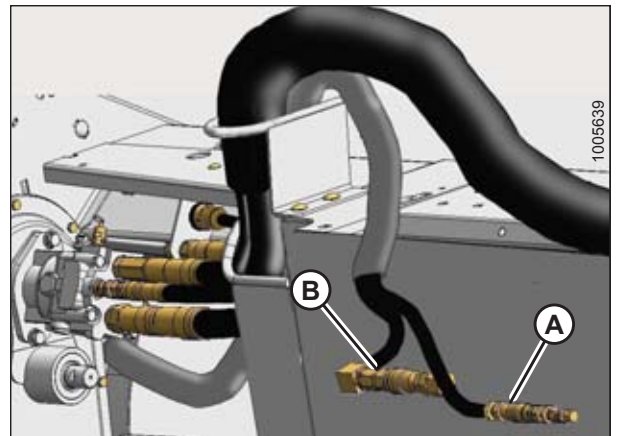


Figure 3.48: Auger/Reel Pressure and Auger/Reel Return Hose Couplers – 4.3 m and 4.9 m (14 ft. and 16 ft.) Header Shown (5.5 m [18 ft.] Header Similar)

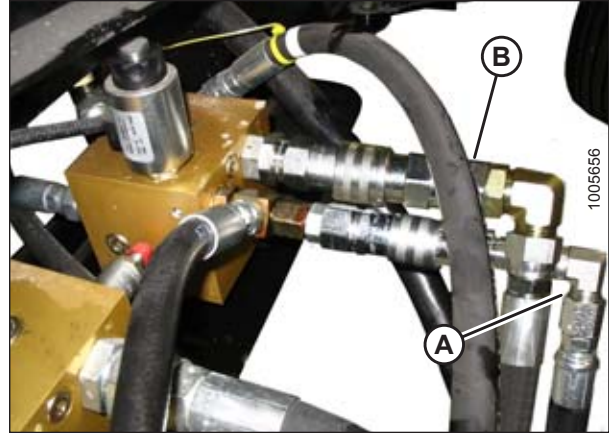


Figure 3.49: Auger/Reel Pressure and Auger/Reel Return Valve Block Receptacles

15. Check hose routing at the reel motor.

NOTE:

The hose routing depends on which windrower model the header is being attached to. The header is factory configured for M150, M155, M155E4, and M200 Windrowers.

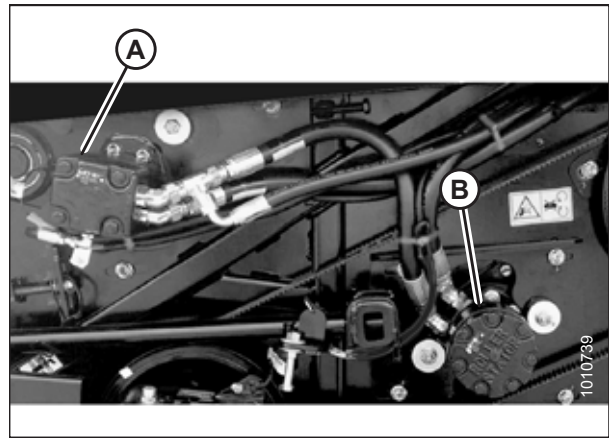


Figure 3.50: Factory Routing M150, M155, and M200

A - Reel Motor

B - Auger Motor

16. For procedure to change hose routing for M100 or M105 Windrowers, refer to [3.17.1 Hydraulic Drive Hose Routing – A40D and M Series Windrowers](#), page 63.

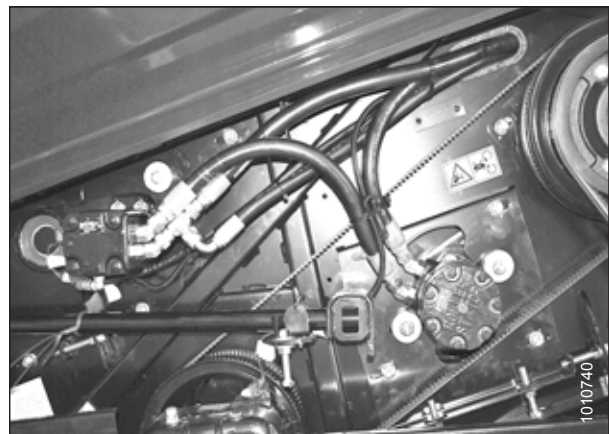


Figure 3.51: Modified Routing M100, M105, and M205

3.12.2 Attaching A40D to M150, M155, or M155E4

CAUTION

To prevent accidental movement of windrower, return ground speed lever (GSL) to Park, center steering wheel to lock, shut off engine, and remove key.

M150, M155, and M155E4 self-propelled windrowers are factory-equipped with four header drive hoses (A) on the left side.



Figure 3.52: Header Drive Hoses

1. Disengage rubber latch (A) and open driveline shield (B).

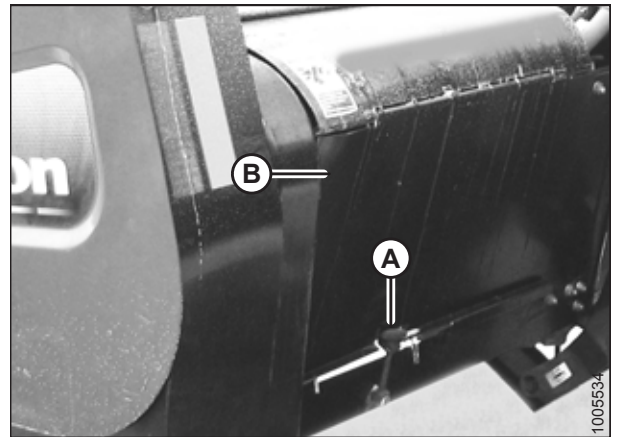


Figure 3.53: Driveline Shield

2. Remove the cap (A) from electrical connector and remove connector from support bracket.
3. Disengage and rotate lever (B) counterclockwise to fully up position to release the hose bundle (C).

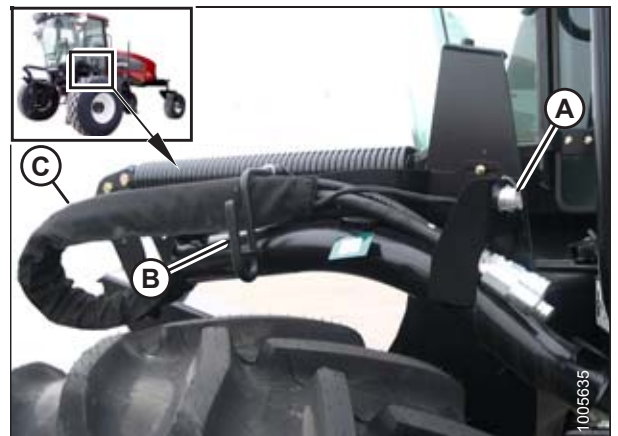


Figure 3.54: Support Bracket and Hose Bundle

ASSEMBLING THE MACHINE

4. Move hose/electrical bundle (A) to header.
5. Route bundle (A) from windrower through support (B) and access hole (C) in header frame alongside existing hose bundle (D) from header.
6. Remove cover on header electrical receptacle (E).
7. Push connector onto receptacle and turn collar on connector to lock it in place.
8. Attach cover to mating cover on windrower wiring harness.
9. Remove caps from hydraulic couplers. Clean if necessary.

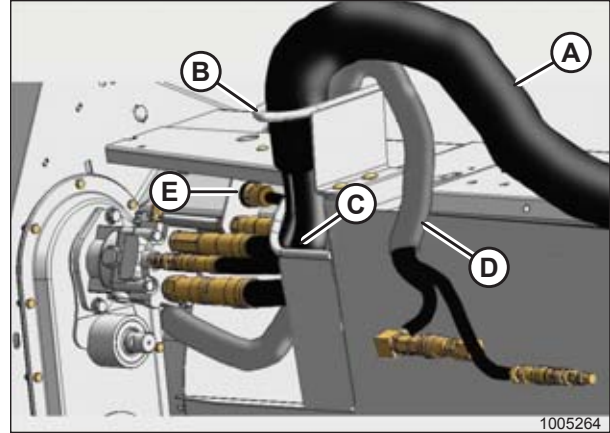


Figure 3.55: Hose and Electrical Bundle – 4.3 m and 4.9 m (14 ft. and 16 ft.) Header Shown (5.5 m [18 ft.] Header Similar)

10. Push hose connectors onto mating receptacles as shown until collars on receptacles snap into lock position.

NOTE:

Hoses attached to connectors not shown in illustrations at right.

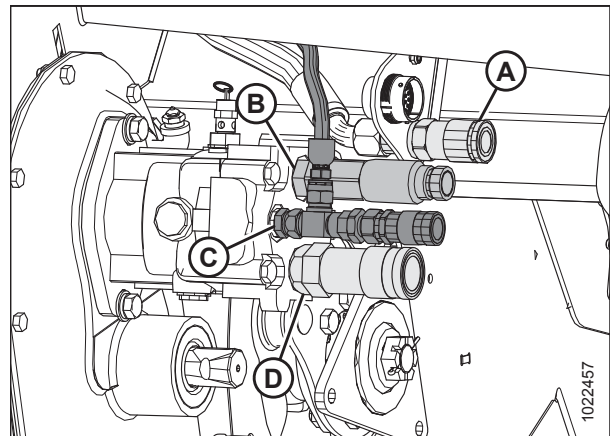


Figure 3.56: A40D Header – 4.3 m and 4.9 m (14 ft. and 16 ft.) Header Shown (5.5 m [18 ft.] Header Similar)

A - Reel Pressure
 B - Knife and Conditioner Return
 C - Case Drain
 D - Knife and Conditioner Pressure

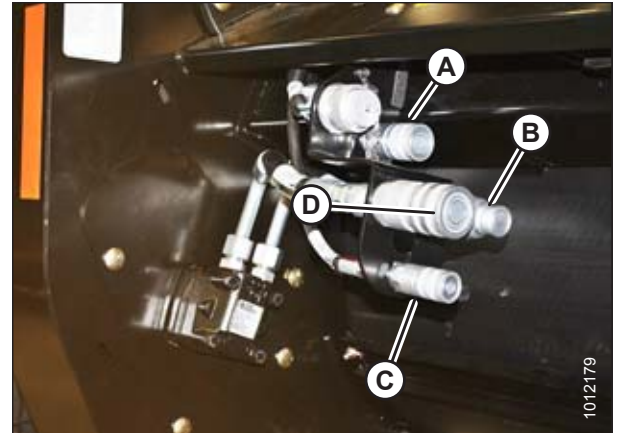


Figure 3.57: Grass Seed Header Hose Connectors

A - Reel and Auger Pressure
 B - Knife and Conditioner Return
 C - Case Drain
 D - Knife and Conditioner Pressure

11. Route auger return and reel pressure hose bundle (A) from header to windrower and position bundle above existing hose support (C) as shown.
12. Secure with three straps (D), and lower lever (B).

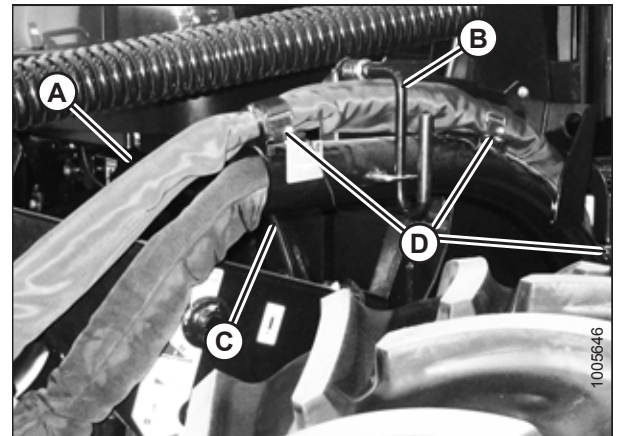


Figure 3.58: Auger Return and Reel Pressure Hose Bundle

13. If valve blocks are **NOT** configured as shown at right, refer to [3.14.2 Modifying Hydraulics – M150, M155, M155E4, page 50](#).

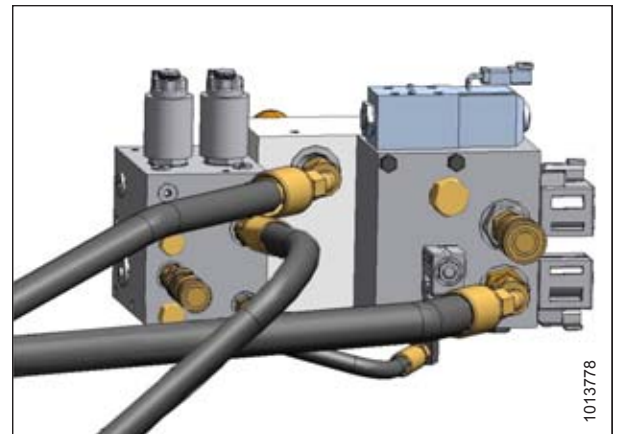


Figure 3.59: M150/M155/M155E4 with Reverser Valve

ASSEMBLING THE MACHINE

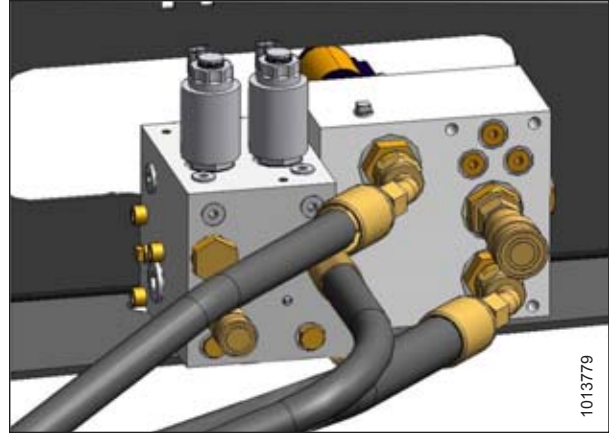


Figure 3.60: M150/M155/M155E4 without Reverser Valve

14. Locate the auger pressure (A) and auger/reel return (B) hoses.

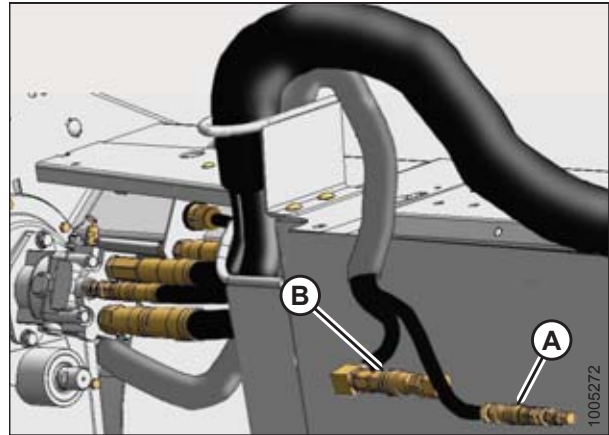


Figure 3.61: Auger Pressure and Auger/Reel Return Hose Couplers – 4.3 m and 4.9 m (14 ft. and 16 ft.) Header Shown (5.5 m [18 ft.] Header Similar)

15. Push auger pressure (A) and auger/reel return (B) hose couplers onto mating receptacles on valve block until collar on receptacle snaps into lock position.
16. Proceed to [3.16 Routing Reverser Valve Jumper Hose – M Series, page 62.](#)

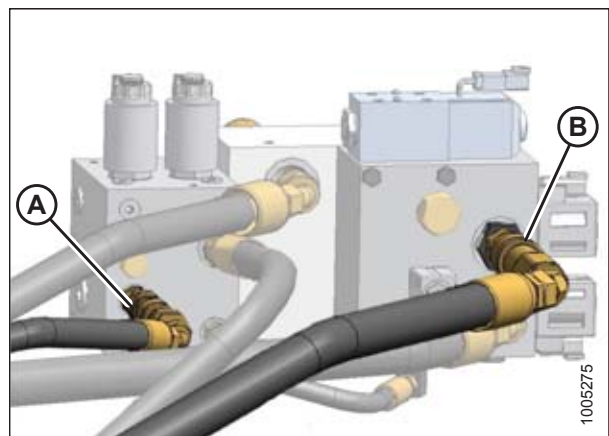


Figure 3.62: M150/M155/M155E4 with Reverser Valve

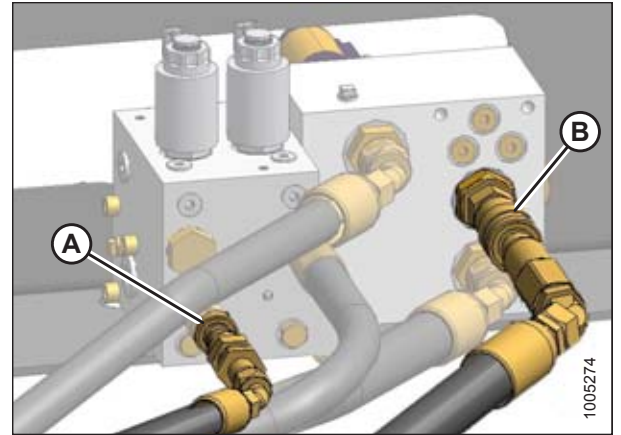


Figure 3.63: M150/M155/M155E4 without Reverser Valve

3.12.3 Attaching A40D to M200

CAUTION

To prevent accidental movement of windrower, return ground speed lever (GSL) to Park, center steering wheel to lock, shut off engine, and remove key.

The M200 Windrower requires four drive hoses (A) to run an A40D Auger Header.



Figure 3.64: Drive Hoses

If only three drive hoses are present, before following the procedure below, configure the M200 to run an A40D Auger Header by installing kit MD #B4651. The kit includes an additional hose (A), hardware, and installation instructions.

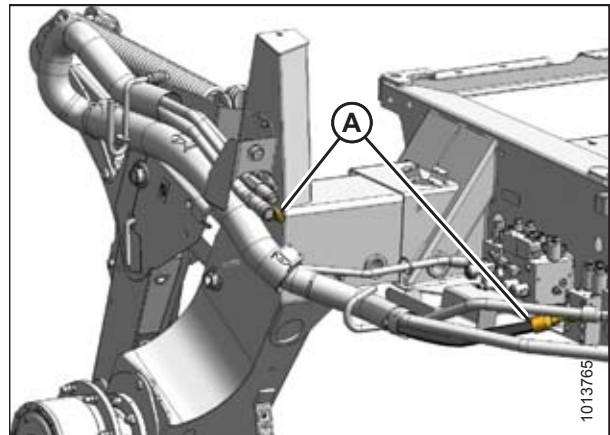


Figure 3.65: Auger Header Drive and Draper Header Reel Drive and Lift Plumbing Kit (MD #B4651)

1. Disengage rubber latch (A), and open driveline shield (B).

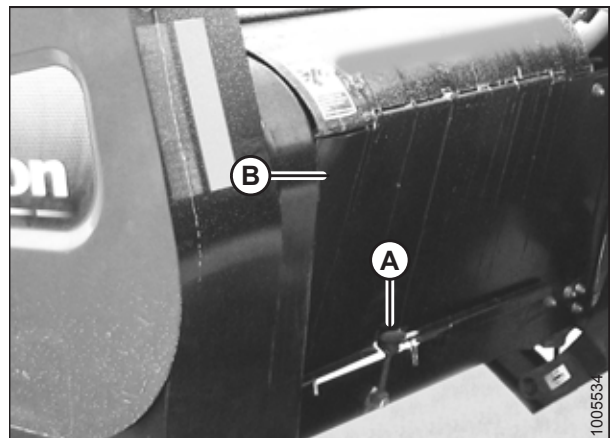


Figure 3.66: Driveline Shield

ASSEMBLING THE MACHINE

2. Remove cap (A) from electrical connector, and remove connector from support bracket.
3. Disengage and rotate lever (B) counterclockwise to fully up position to release the hose bundle (C).



Figure 3.67: Support Bracket and Hose Bundle

4. Move hose/electrical bundle (A) to header.
5. Route bundle (A) from windrower through support (B) and access hole (C) in header frame alongside existing hose bundle (D) from header.
6. Remove cover on header electrical receptacle (E).
7. Push connector onto receptacle, and turn collar on connector to lock it in place.
8. Attach cover to mating cover on windrower wiring harness.
9. Remove caps from hydraulic couplers. Clean if necessary.

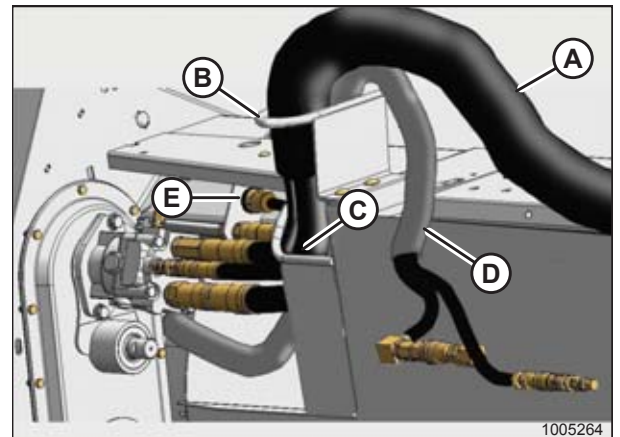


Figure 3.68: Hose and Electrical Bundle – 4.3 m and 4.9 m (14 ft. and 16 ft.) Header Shown (5.5 m [18 ft.] Header Similar)

10. Push hose connectors onto mating receptacles as shown until collars on receptacles snap into lock position.

NOTE:

Hoses attached to connectors not shown in illustrations at right.

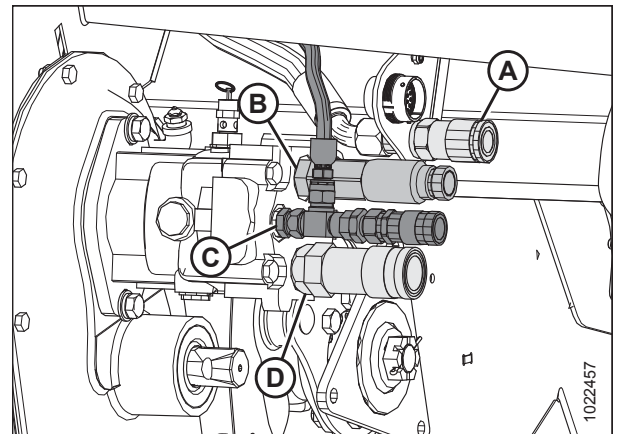


Figure 3.69: A40D Header – 4.3 m and 4.9 m (14 ft. and 16 ft.) Header Shown (5.5 m [18 ft.] Header Similar)

A - Reel Pressure
B - Knife and Conditioner Return
C - Case Drain
D - Knife and Conditioner Pressure

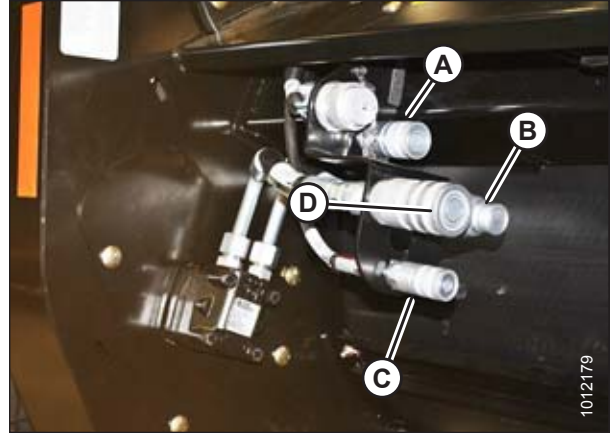


Figure 3.70: Grass Seed Header Hose Connectors

A - Reel and Auger Pressure
 B - Knife and Conditioner Return
 C - Case Drain
 D - Knife and Conditioner Pressure

11. Route auger return and reel pressure hose bundle (A) from header to windrower, and position bundle above existing hose support (C) as shown.
12. Secure with three straps (D), and lower lever (B).

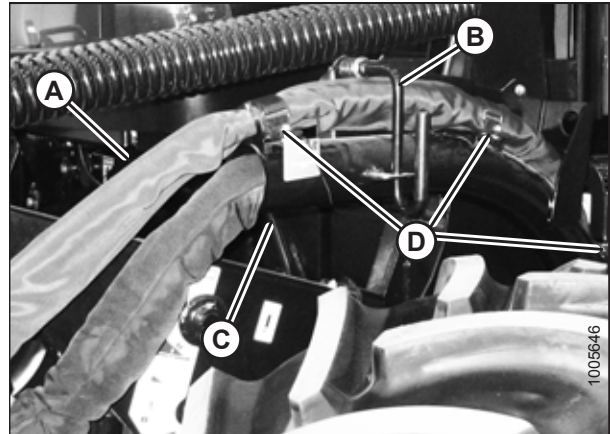


Figure 3.71: Auger Return and Reel Pressure Hose Bundle

13. If valve blocks are **NOT** configured as shown at right, refer to relevant section for your windrower:
 - [3.14.3 Modifying Hydraulics – M200 with Reverser Valve, page 52](#)
 - [3.14.4 Modifying Hydraulics – M200 without Reverser Valve, page 53](#)

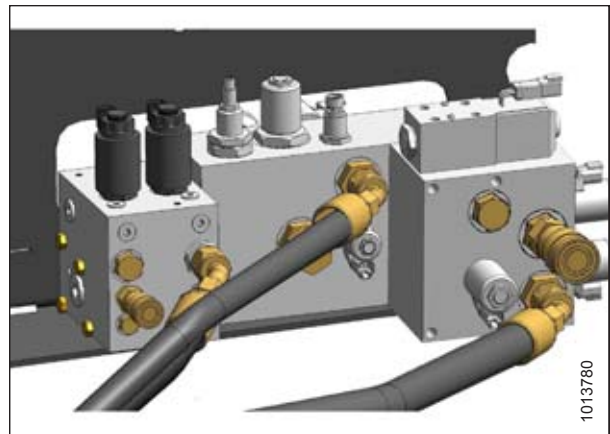


Figure 3.72: M200 with Reverser Valve

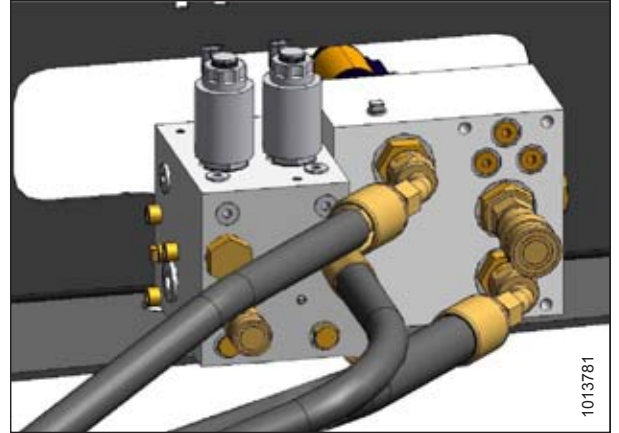


Figure 3.73: M200 without Reverser Valve

14. Locate the auger pressure (A) and auger/reel return (B) hoses.

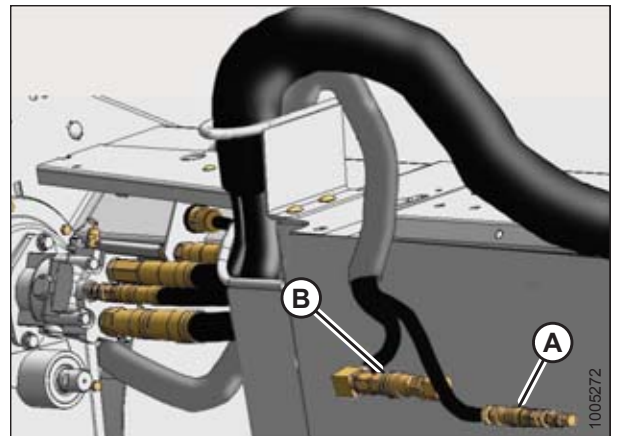


Figure 3.74: Auger Pressure and Auger/Reel Return Hose Couplers – 4.3 m and 4.9 m (14 ft. and 16 ft.) Header Shown (5.5 m [18 ft.] Header Similar)

15. Push auger pressure (A) and auger/reel return (B) hose couplers onto mating receptacles on valve block until collar on receptacle snaps into lock position.

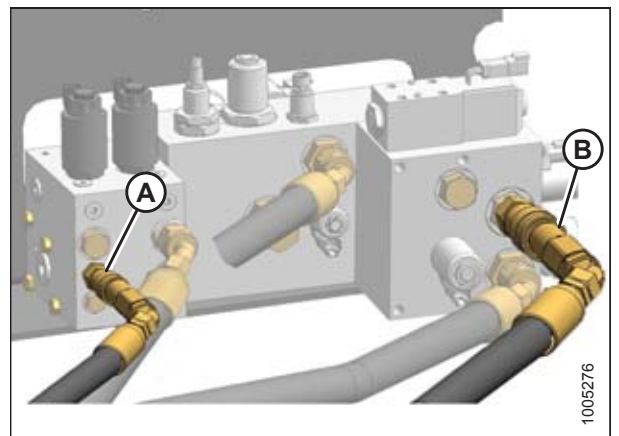


Figure 3.75: M200 with Reverser Valve

ASSEMBLING THE MACHINE

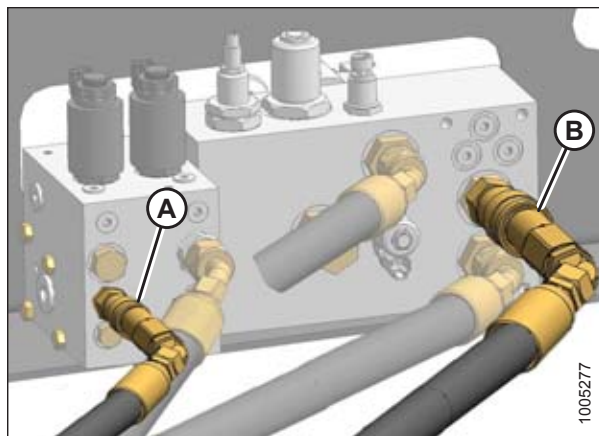


Figure 3.76: M200 without Reverser Valve

16. Proceed to [3.16 Routing Reverser Valve Jumper Hose – M Series, page 62](#).

3.12.4 Attaching A40D to M205

CAUTION

To prevent accidental movement of windrower, return ground speed lever (GSL) to Park, center steering wheel to lock, shut off engine, and remove key.

The M205 Windrower must be equipped with an auger drive basic kit and a completion kit as shown at right. If necessary, order and install the following kits shown in the table below. Instructions are supplied with the kits.

Kit Description	MacDon Part Number
Base kit	MD #B5491
Reverser kit ²	MD #B5492
Coupler	MD #B5497

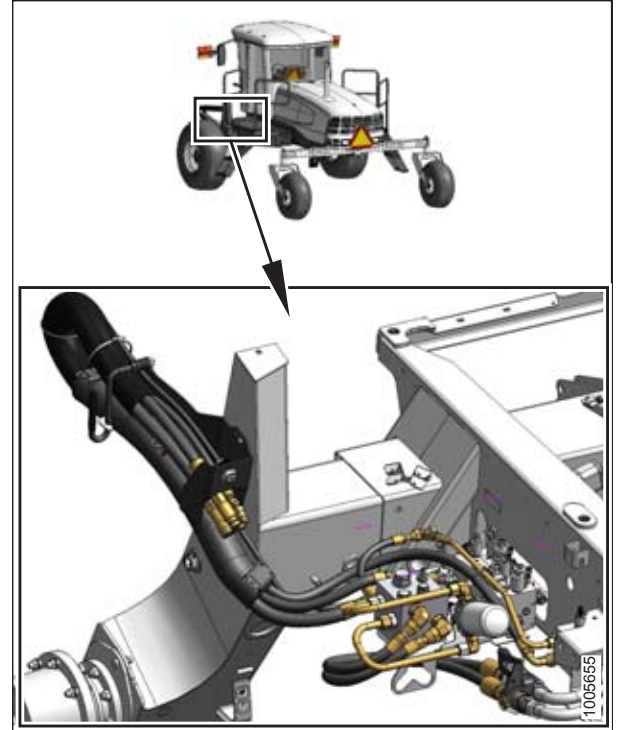


Figure 3.77: Auger Drive Basic Kit and Completion Kit Installed

1. Disengage rubber latch (A), and open driveline shield (B).

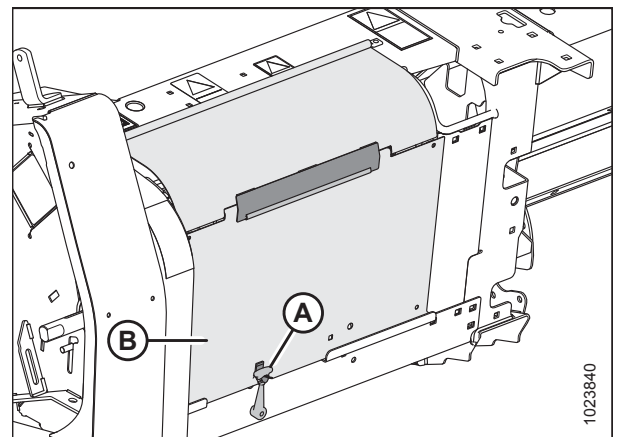


Figure 3.78: Driveline Shield

2. Reverser kit is optional and not required, although most A40D Headers have a Reverser kit (MD #B5492) ordered for the windrower. Install prior to hook-up if required.

ASSEMBLING THE MACHINE

2. Remove cap (A) from the electrical connector, and remove the connector from the support bracket.
3. Disengage and rotate lever (B) counterclockwise to fully up position to release the hose bundle (C).
4. Move hose/electrical bundle (C) to header.



Figure 3.79: Support Bracket and Hose Bundle

5. Route bundle (A) from windrower through support (B) and access hole (C) in header frame alongside existing hose bundle (D) from header.
6. Remove cover on header electrical receptacle (E).
7. Push connector onto receptacle, and turn collar on connector to lock it in place.
8. Attach cover to mating cover on windrower wiring harness.
9. Remove caps from hydraulic couplers. Clean if necessary.

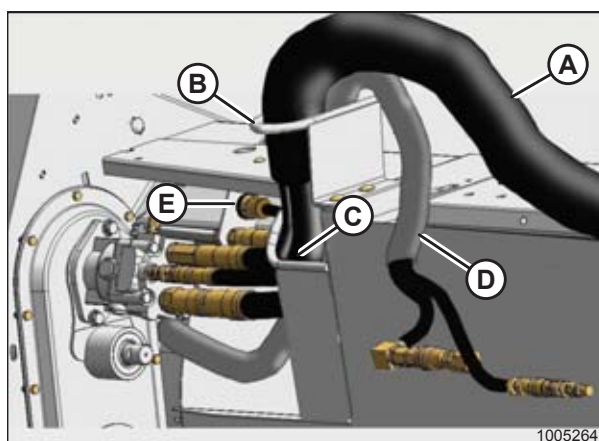


Figure 3.80: Hose and Electrical Bundle – 4.3 m and 4.9 m (14 ft. and 16 ft.) Header Shown (5.5 m [18 ft.] Header Similar)

10. Push hose connectors onto mating receptacles as shown until collars on receptacles snap into lock position.

NOTE:

Hoses attached to connectors not shown in illustrations at right.

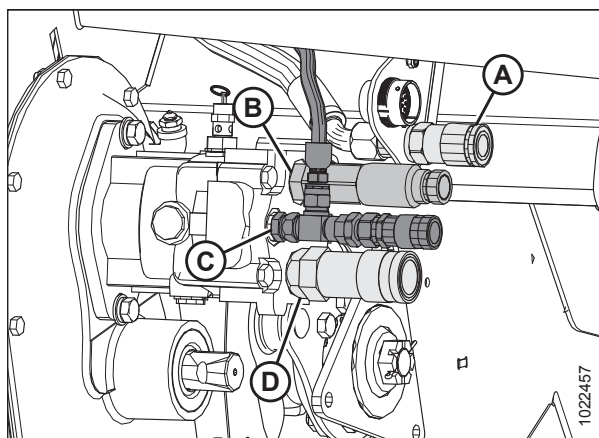


Figure 3.81: A40D Header – 4.3 m and 4.9 m (14 ft. and 16 ft.) Header Shown (5.5 m [18 ft.] Header Similar)

A - Reel Pressure
B - Knife and Conditioner Return
C - Case Drain
D - Knife and Conditioner Pressure

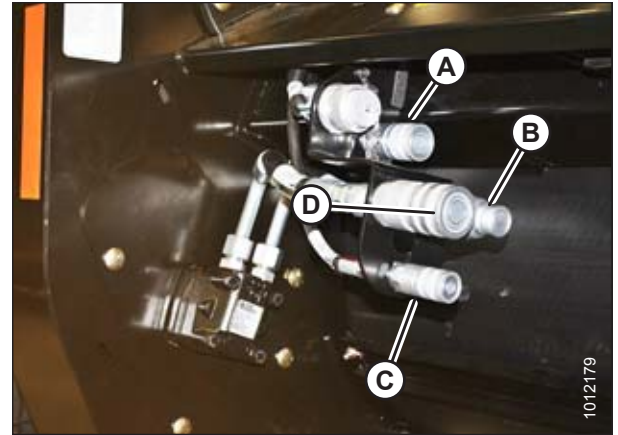


Figure 3.82: Grass Seed Header Hose Connectors

A - Reel and Auger Pressure
B - Knife and Conditioner Return
C - Case Drain
D - Knife and Conditioner Pressure

11. Route auger return and reel pressure hose bundle (A) from header to windrower, and position bundle above existing hose support (C) as shown.
12. Secure with three straps (D), and lower lever (B).

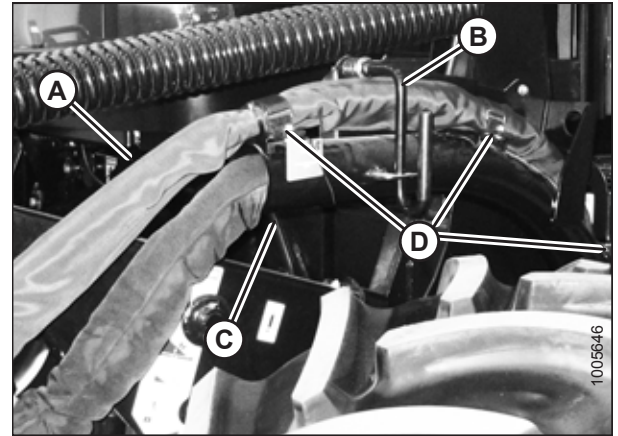


Figure 3.83: Auger Return and Reel Pressure Hose Bundle

13. Push auger/reel pressure (A) and auger/reel return (B) hose couplers onto mating receptacles on valve block until collar on receptacle snaps into lock position.

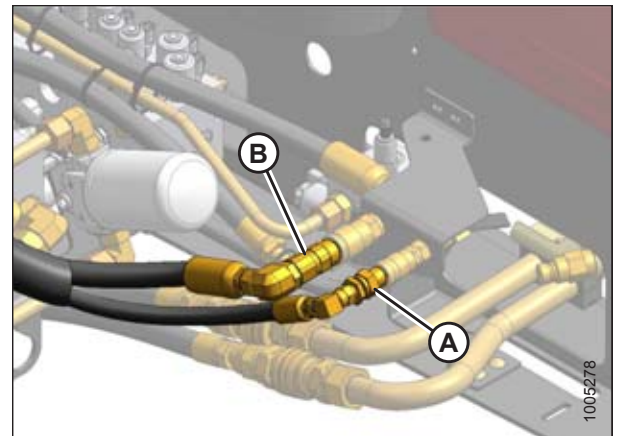


Figure 3.84: Auger/Reel Pressure and Auger/Reel Return Hose Couplers

ASSEMBLING THE MACHINE

14. Check hose routing at the reel motor.

NOTE:

The hose routing depends on which windrower model the header is being attached to. The header is factory configured for M150, M155, M155E4, and M200 Windrowers.

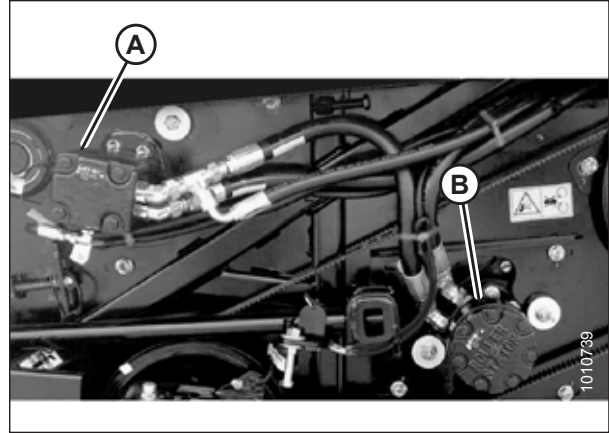


Figure 3.85: Factory Routing M150, M155, M155E4, and M200

A - Reel Motor

B - Auger Motor

15. For the procedure to change hose routing for M205 windrowers, refer to [3.17.1 Hydraulic Drive Hose Routing – A40D and M Series Windrowers](#), page 63.

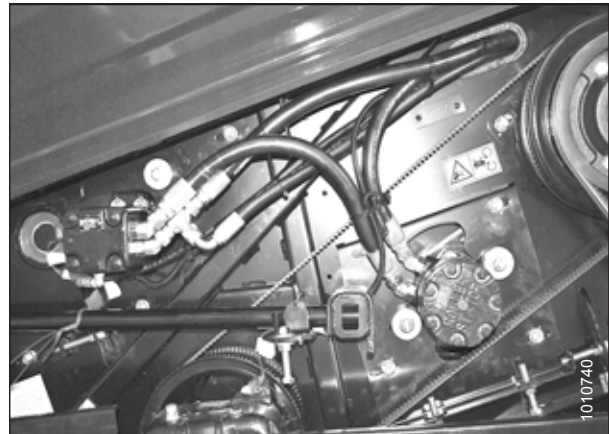


Figure 3.86: Modified Routing M100, M105, and M205

3.13 Attaching A40DX Header to M1 Series Windrowers

CAUTION

To prevent accidental movement of windrower, return ground speed lever (GSL) to Park, center steering wheel to lock, shut off engine, and remove key.

This procedure is for A Series Headers equipped with the Auger Header Compatibility kit (MD# B5998) or the A40D SP Grass Seed Auger Conversion kit (MD #B6384). Kits B5998 and B6384 include a new manifold and hose bundle required for operation with an M1 Series Windrower, and effectively convert an A40D header into an A40DX header.

Refer to your windrower operator's manual for instructions for mechanically attaching an A40DX Auger Header to an M1 Series Windrower and for modifications to the windrower hydraulic connections (if required).

Header drive hydraulic hoses and electrical harness are located on the left, cab-forward side of the windrower. To connect the hydraulic and electrical bundle from an A40DX header to an M1 Series Windrower, follow these steps:

1. Route header hose bundle through hose guide (A) on header as shown.

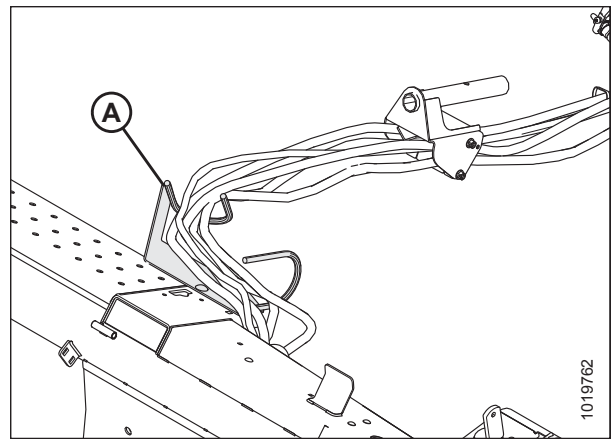


Figure 3.87: Hose Bundle

2. Insert hose support (B) into hole (A) in the windrower left leg, and route header hose bundle (C) under the windrower to the hydraulic and electrical couplers.

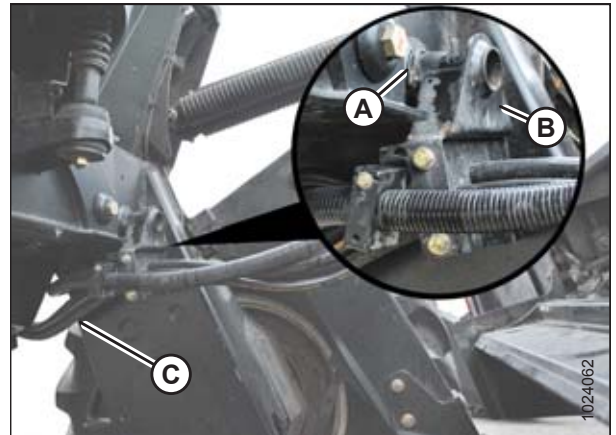


Figure 3.88: Hose Support

ASSEMBLING THE MACHINE

3. If attaching to a disc-ready windrower, ensure knife drive hose (A) is connected to coupler (B).

NOTE:

Hose (A) provides power to run the knife/conditioner.

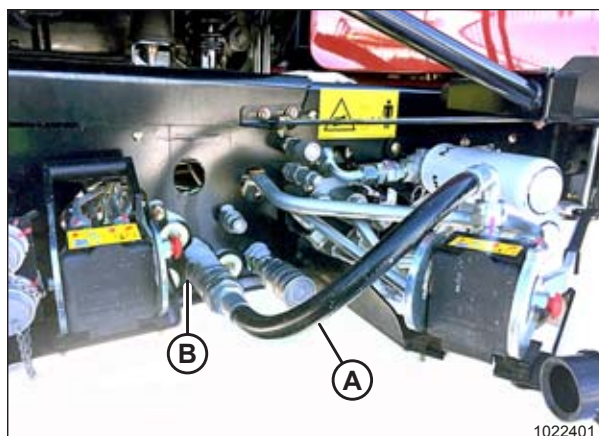


Figure 3.89: M1170/M1240 – Disc Header Configured

NOTE:

M1170 Windrowers with standard auger/draper configuration don't require the knife drive hose; only the two multicouplers (A) are used to connect the auger header.

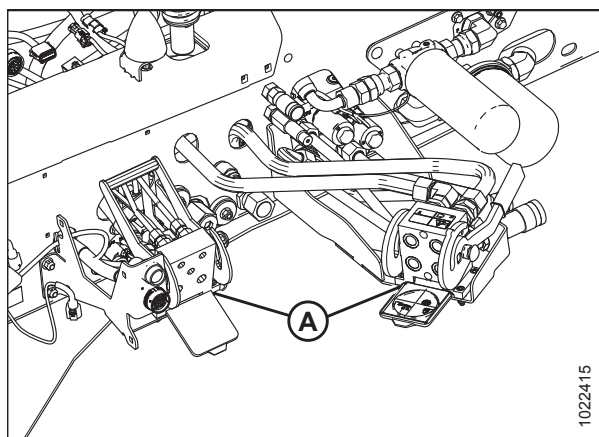


Figure 3.90: M1170 Standard Configuration – Auger/Draper Ready

4. Clean multicouplers and receptacles to prevent contamination.
5. Push button (A) on rear multicoupler receptacle and pull handle (B) away from windrower.
6. Open cover (C) and position multicoupler (D) onto receptacle. Align pins in coupler with slots in handle (B), and push handle toward windrower so that coupler is locked onto receptacle and button (A) snaps out.
7. Push button (E) on front multicoupler receptacle and pull handle (F) away from windrower.
8. Open cover (H) and position multicoupler (G) onto receptacle. Align pins in coupler with slots in handle, and push handle (F) toward windrower so that coupler is locked onto receptacle and button (E) snaps out.

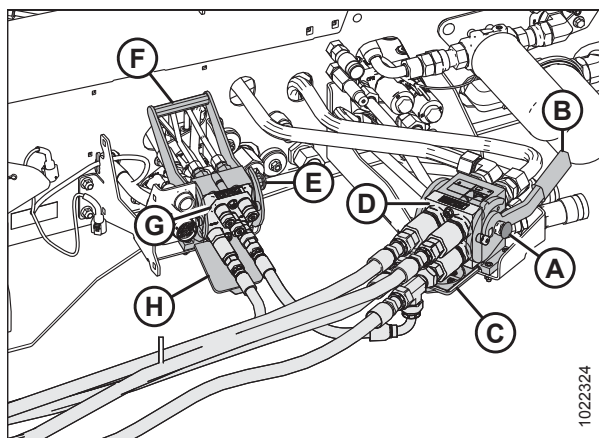


Figure 3.91: Multicouplers

ASSEMBLING THE MACHINE

9. Remove cover from receptacle (A) and connect electrical harness from header.

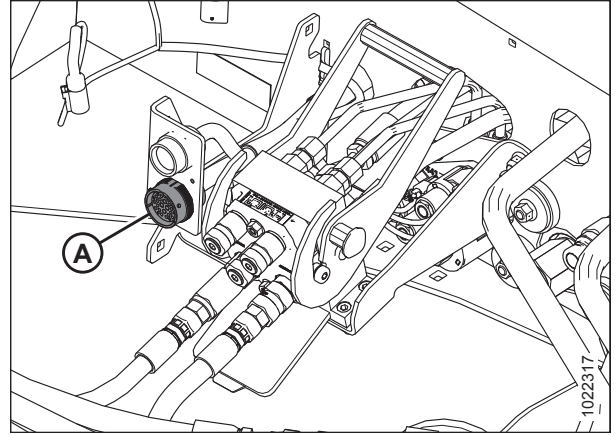


Figure 3.92: Windrower Electrical Connector

A40DX GSS headers and A40DX headers equipped with Reel Speed Control kit (MD #B6604)

A40DX GSS headers have a factory-installed reel speed kit and includes a second electrical connection required for attaching to an M1 Series windrower. The Reel Speed Control kit (MD #B6604) is an available option for an A40DX header.

Complete the following step when connecting an A40DX GSS header (or an A40DX header with MD #B6604 equipped) to an M1 Series windrower:

10. Remove cover from receptacle (A) on windrower and connect electrical harness (B) from header.

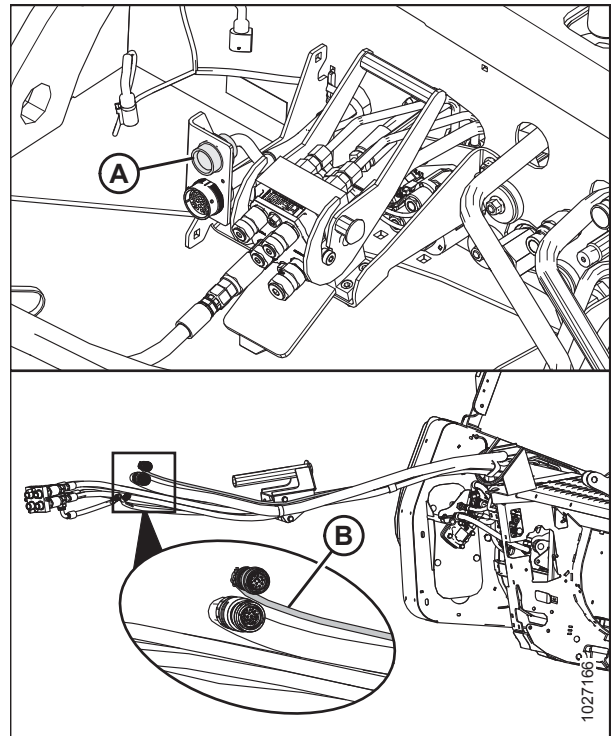


Figure 3.93: Electrical Connection

3.14 Modifying Hydraulics – A40D

The windrower hydraulics must be modified to work correctly with an A40D Auger Header. Follow the instructions in the relevant section for your windrower model:

- [3.14.1 Modifying Hydraulics – M100, M105, page 48](#)
- [3.14.2 Modifying Hydraulics – M150, M155, M155E4, page 50](#)
- [3.14.3 Modifying Hydraulics – M200 with Reverser Valve, page 52](#)
- [3.14.4 Modifying Hydraulics – M200 without Reverser Valve, page 53](#)

3.14.1 Modifying Hydraulics – M100, M105

1. Open left maintenance platform on windrower.
2. At valve (A) on the valve block, remove cap (B) from port R1 fitting and plug (C) from DWA tee fitting. Ports may not be identified.

NOTE:

Check valve (D) is required when attaching an A40D Header to an M100 or M105 SP Windrower. All M105 SP Windrowers made in 2012 and later come factory-installed with check valve (D). If required, check valve (MD #167344) can be ordered from MacDon Parts Department.

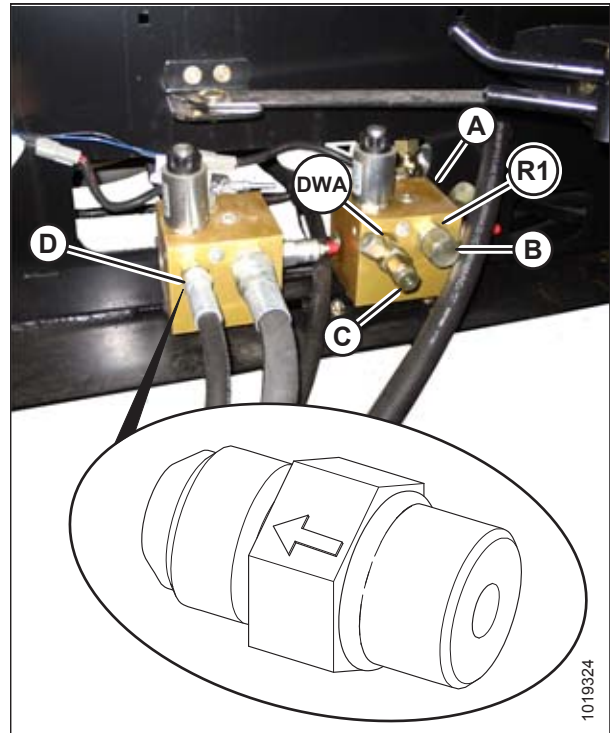


Figure 3.94: Valve Blocks in Factory Configuration

3. Remove female coupler assemblies (A) and (B) from auger return and reel pressure hose bundle (C) from header.

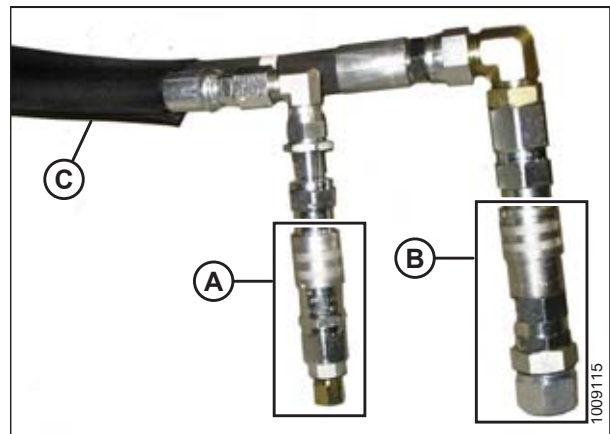


Figure 3.95: Auger Return and Reel Pressure Hose Bundle

ASSEMBLING THE MACHINE

4. Remove and discard cap (C) and adapter fitting (B) with O-ring from the large coupler (A).

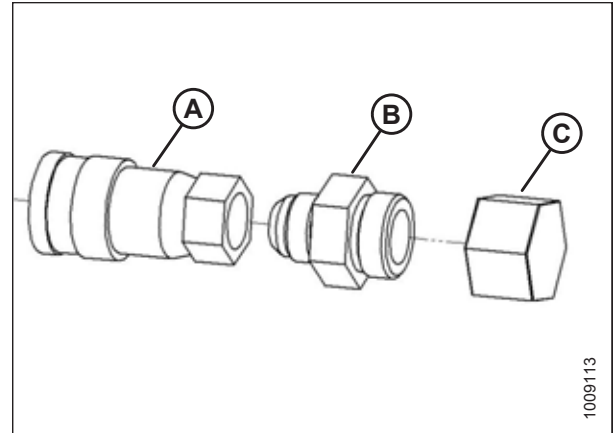


Figure 3.96: Large Coupler Assembly

5. Install large coupler (A) onto the fitting at port R1 on valve block (B).

IMPORTANT:

Make sure the O-ring is on JIC threads in port R1 to ensure a proper seal with coupler (A). If the O-ring is missing, reuse the O-ring from the discarded adapter fitting in Step 4, [page 49](#).

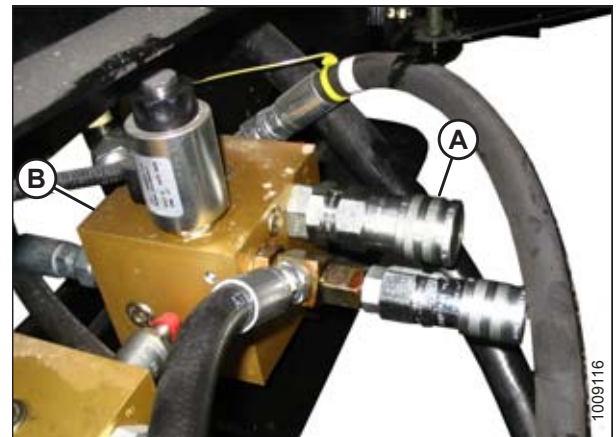


Figure 3.97: Valve Block Configured for Auger Header

6. Remove and discard cap (C) and adapter fitting (B) from small coupler assembly (A).

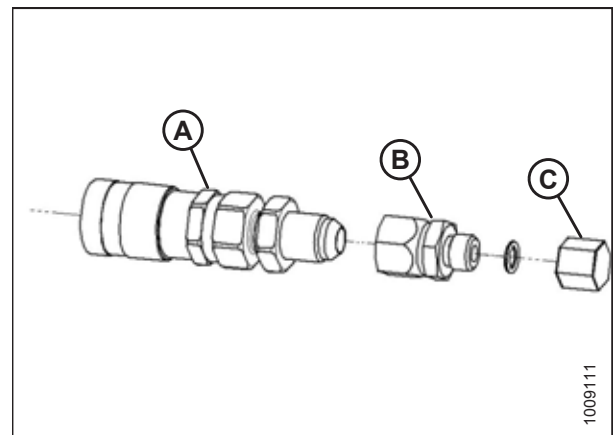


Figure 3.98: Small Coupler Assembly

ASSEMBLING THE MACHINE

7. Install small coupler subassembly (A) onto tee (B) on valve block (C).

NOTE:

Position of adjacent hoses may require slight adjustment to allow access for new hoses.

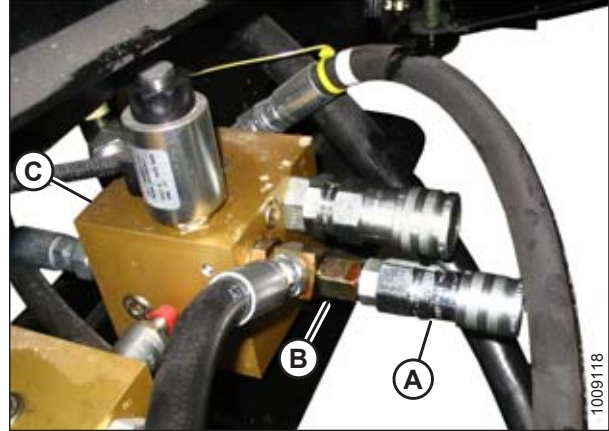


Figure 3.99: Valve Block Configured for Auger Header

3.14.2 Modifying Hydraulics – M150, M155, M155E4

1. Open left maintenance platform on windrower.
2. Remove the plugs from ports R2 on valve blocks (A) and (B). Ports may not be labelled.

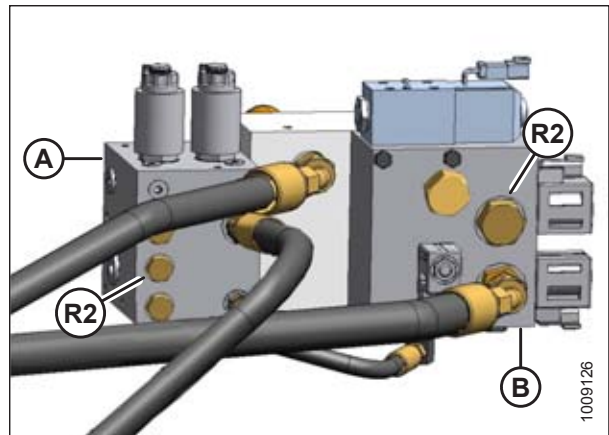


Figure 3.100: Valve Blocks

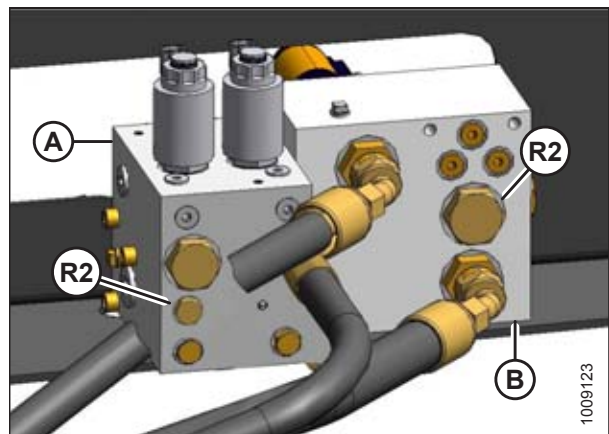


Figure 3.101: Valve Blocks without Reverser Valve in Factory Configuration

ASSEMBLING THE MACHINE

3. Remove female coupler assemblies (A) and (B) from hoses in bundle (C) from header, and remove caps.

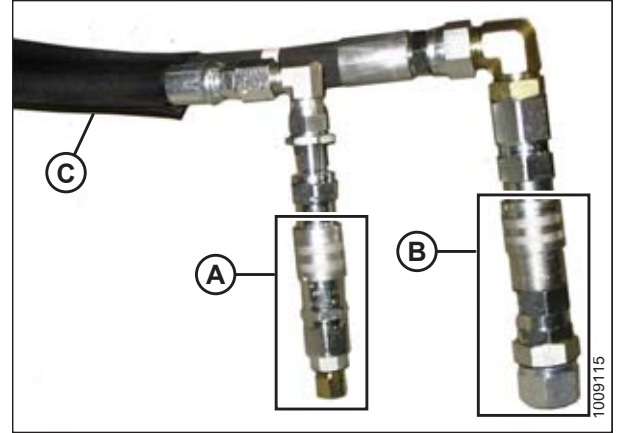


Figure 3.102: Header Hose Bundle

4. Install smaller coupler assembly (C) in port R2 on valve block (A) and the larger coupler assembly (D) in port R2 on valve block (B).
5. Proceed to [3.16 Routing Reverser Valve Jumper Hose – M Series, page 62](#).

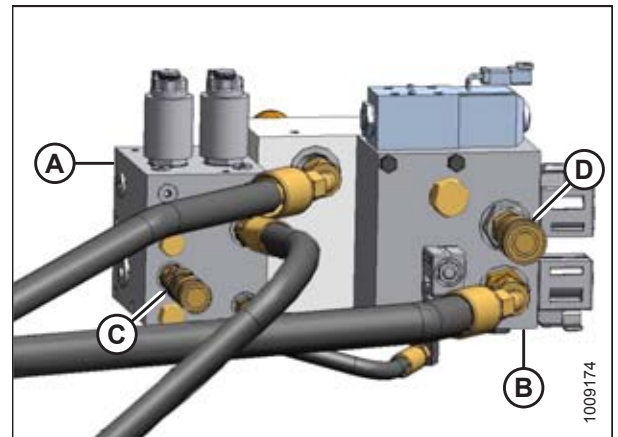


Figure 3.103: Valve Blocks with Reverser Valve Configured for Auger Header

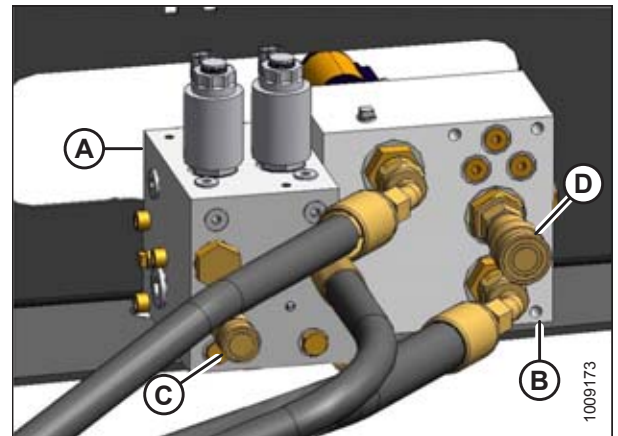


Figure 3.104: Valve Blocks without Reverser Valve Configured for Auger Header

3.14.3 Modifying Hydraulics – M200 with Reverser Valve

IMPORTANT:

For windrowers with Reverser kit (MD #B4656), to prevent draper header reel damage and improper operation, hose plumbing to reverser valve must be changed to suit the header type if switching between A40D Auger Header and draper header. Refer to kit installation instruction for proper plumbing procedures for each header type.

1. Open left maintenance platform on windrower.
2. Remove the plugs from ports R2 on valve blocks (A) and (B).

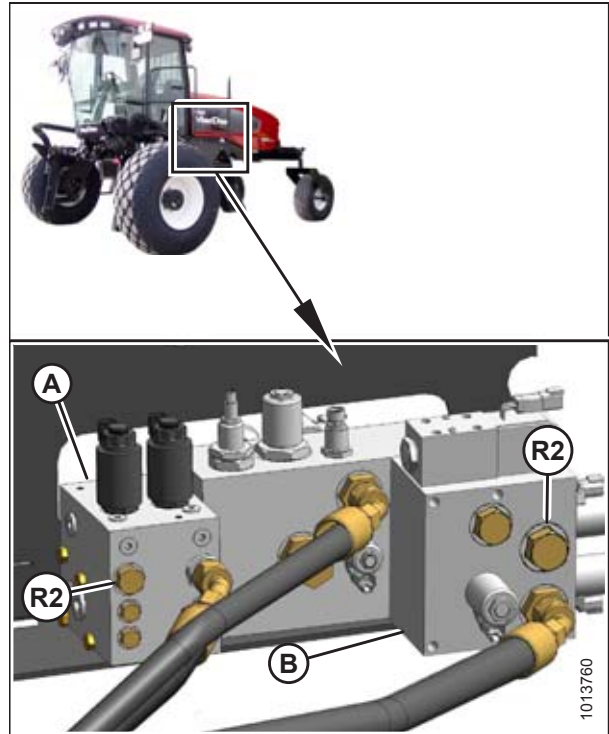


Figure 3.105: Valve Blocks with Reverser Valve in Factory Configuration

3. Remove female coupler assemblies (A) and (B) from hoses in bundle (C) from header, and remove caps.

NOTE:

To avoid contact with platform support, the reel/auger return hose uses a 45-degree fitting (MD #50098).

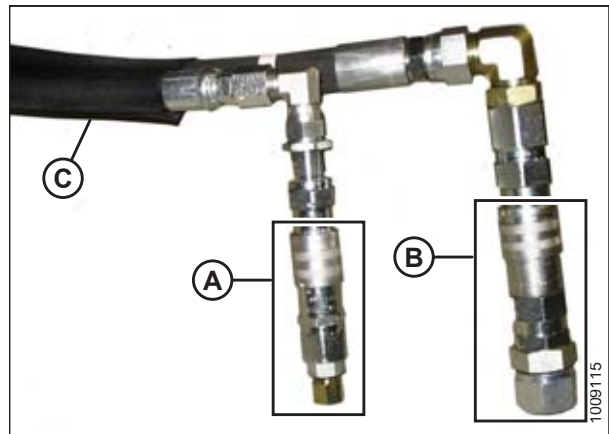


Figure 3.106: Header Hose Bundle

ASSEMBLING THE MACHINE

4. Install smaller coupler assembly (C) in port R2 on valve block (A) and the larger coupler assembly (D) in port R2 on valve block (B).

NOTE:

Position of adjacent hoses may require slight adjustment to allow access for new hoses. Align larger coupler assembly (D) with R1 hose (E).

5. Proceed to [3.16 Routing Reverser Valve Jumper Hose – M Series, page 62](#).

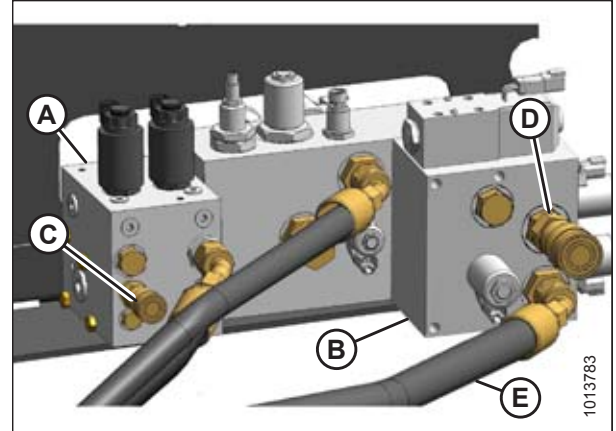


Figure 3.107: Valve Blocks with Reverser Valve Configured for Auger Header

3.14.4 Modifying Hydraulics – M200 without Reverser Valve

1. Open left maintenance platform on windrower.
2. Remove the plug from port R2 on valve block (A) and the cap from fitting in port R2 on valve block (B). Ports may not be labelled.

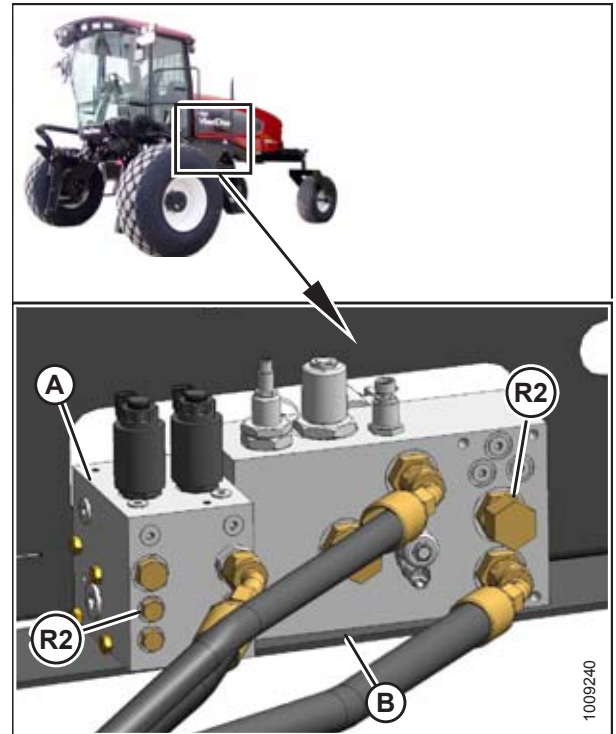


Figure 3.108: Valve Blocks without Reverser Valve in Factory Configuration

ASSEMBLING THE MACHINE

3. Remove female coupler assemblies (A) and (B) from hoses in bundle (C) from header.

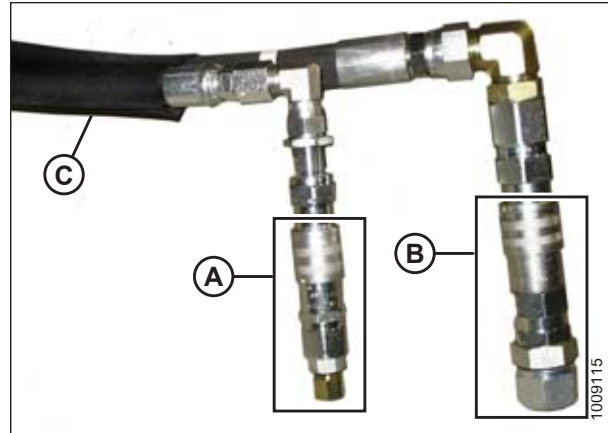


Figure 3.109: Header Hose Bundle

4. Remove and discard cap (A) and adapter fitting (B) (including O-ring) from the large coupler (C).

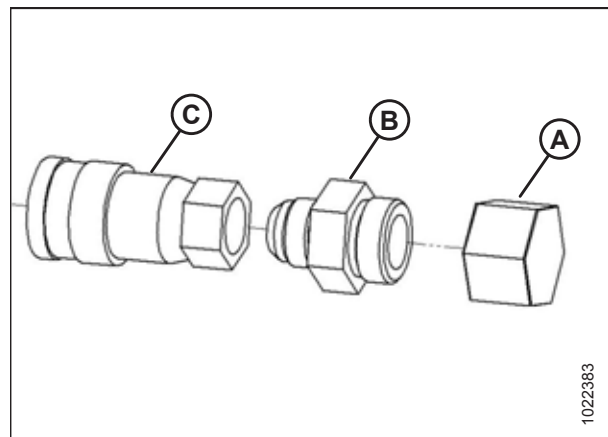


Figure 3.110: Large Coupler Assembly

5. Install larger coupler (D) onto fitting at port R2 on valve block (B).
6. Remove cap from smaller coupler assembly (C) and install assembly in port R2 on valve (A).

IMPORTANT:

Make sure O-ring is on JIC threads in port R1 to ensure a proper seal with the coupler (D). If O-ring is missing, reuse O-ring from discarded adapter fitting in Step 4, [page 54](#).

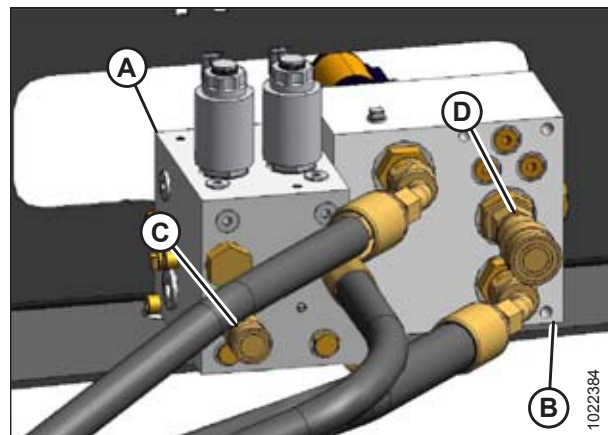


Figure 3.111: Valve Blocks without Reverser Valve Configured for Auger Header – M155 Shown, M200 Similar

3.14.5 Modifying Hydraulics – M205

The M205 hydraulics need to be modified to accept an A40D Auger Header. Kits MD #B5491, MD #B5492, and MD #B5497 should have been supplied with your header. If required, these kits can be ordered from your MacDon Dealer.

1. Install kits in accordance with the instructions that were supplied with the kits to achieve the configuration shown at right.
2. Proceed to [3.15 Attaching Hydraulics – M Series, page 56](#).

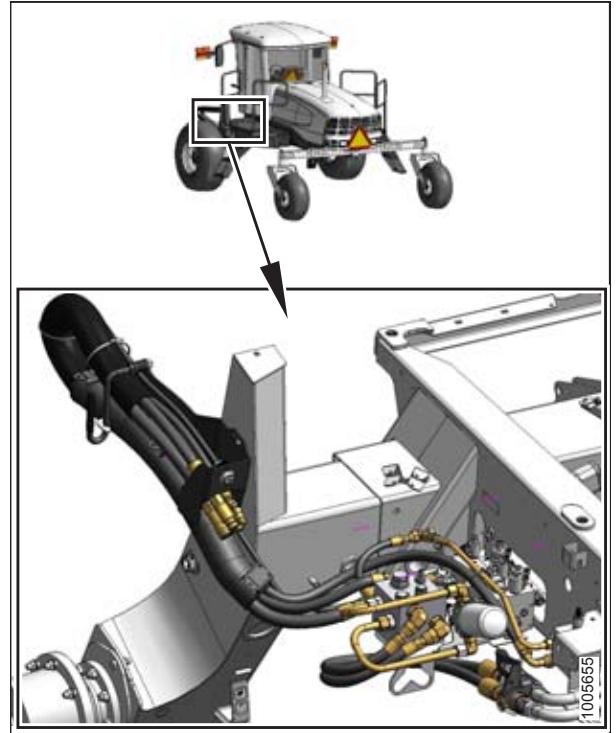


Figure 3.112: Auger Header Hydraulics

3.15 Attaching Hydraulics – M Series

WARNING

To avoid bodily injury or death from unexpected startup of machine, always stop engine and remove key from ignition before leaving operator's seat for any reason.

1. Disengage rubber latch (A) and open driveline shield (B).

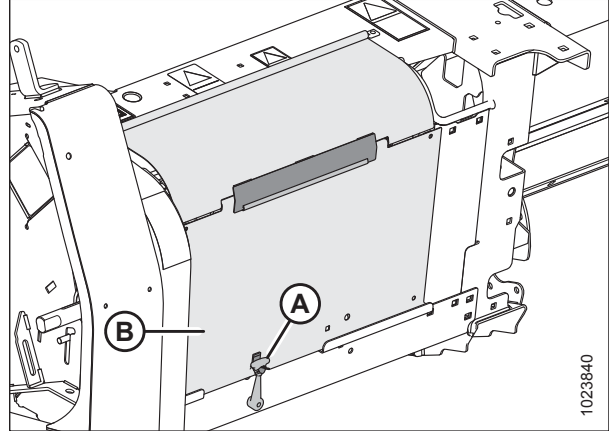


Figure 3.113: Driveline Shield

2. Remove cap (A) from the electrical connector, and remove the connector from the support bracket.
3. Disengage and rotate lever (B) counterclockwise to the fully up position to release hose bundle (C).

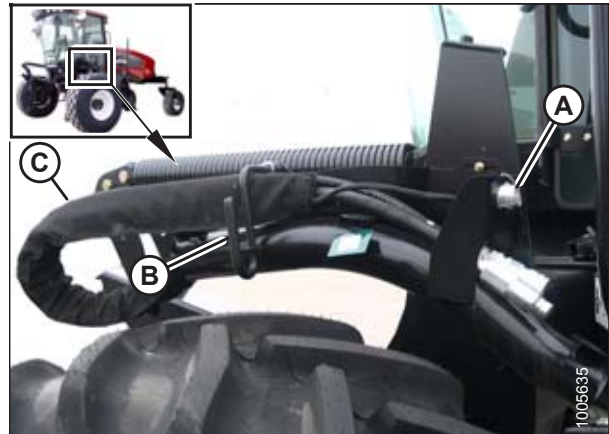


Figure 3.114: Windrower Hoses and Harness in Storage Position

4. Move hose bundle (A) to the header.
5. Rotate lever (B) clockwise, and engage it in bracket to store.

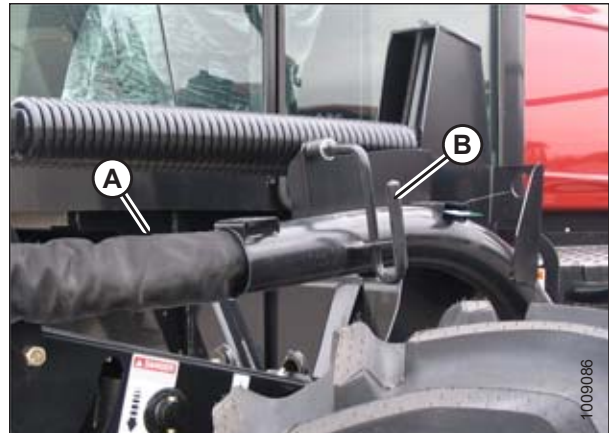


Figure 3.115: Windrower Hoses and Harness in Working Position

ASSEMBLING THE MACHINE

6. Route hoses (A) from the windrower through support (B) and access hole (C) in the header frame alongside hose bundle (D).

NOTE:

Hose bundle (D) will be attached later in the procedure.

7. Remove the cover on header electrical receptacle (E).
8. Push the connector onto the receptacle, and turn the collar on the connector to lock it in place.
9. Attach the cover to its mating cover on the windrower wiring harness.
10. Clean the hydraulic couplers to prevent damage or contamination from accumulating dirt. Remove the caps from the hydraulic couplers.
11. Connect the four hoses from the windrower to the mating receptacles on the header. Ensure the hose collar snaps into the lock position.

- Reel/auger pressure (A)
- Knife and conditioner return (B)
- Case drain (C)
- Knife and conditioner pressure (D)

- Reel/auger pressure (A)
- Knife and conditioner return (B)
- Case drain (C)
- Knife and conditioner pressure (D)

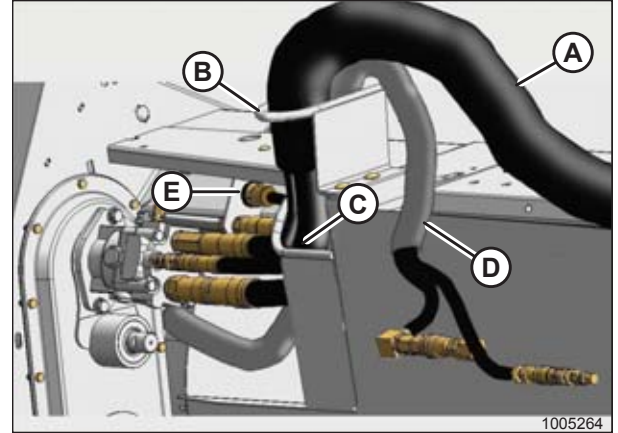


Figure 3.116: Windrower Hoses and Harness Connected to Header – 4.2 m and 4.8 m (14 ft. and 16 ft.) Header Shown (5.4 m [18 ft.] Header Similar)

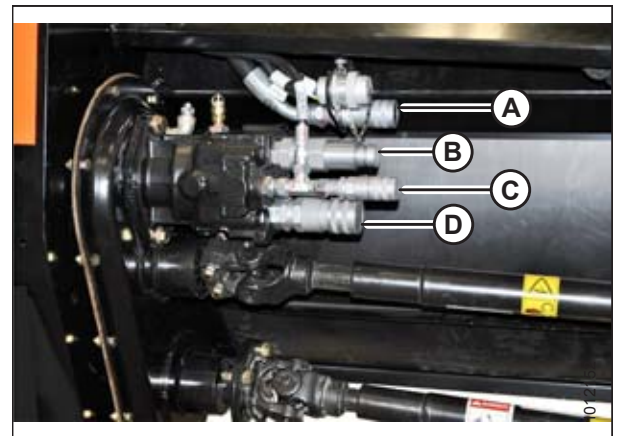


Figure 3.117: Hose Connections on Standard Header – 4.2 m and 4.8 m (14 ft. and 16 ft.) Header Shown

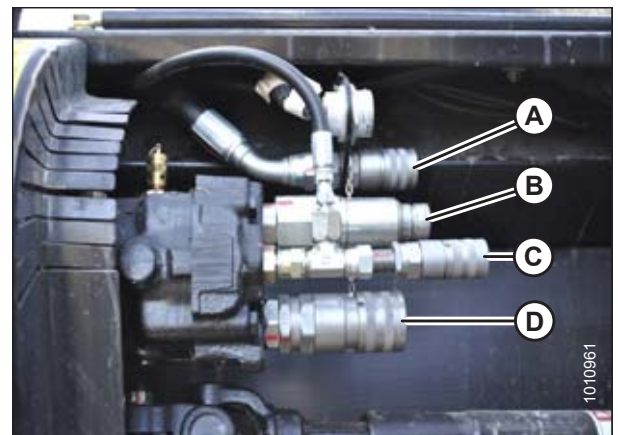


Figure 3.118: Hose Connections on Standard Header – 4.2 m and 4.8 m (14 ft. and 16 ft.) Header Shown

ASSEMBLING THE MACHINE

- Reel/auger pressure (A)
- Knife and conditioner return (B)
- Case drain (C)
- Knife and conditioner pressure (D)



Figure 3.119: Hose Connections on Standard Header – 5.4 m (18 ft.) Header Shown

- Knife return (male fitting not visible) (A)
- Auger/reel pressure (B)
- Knife pressure (female fitting at header) (C)
- Case drain (D)

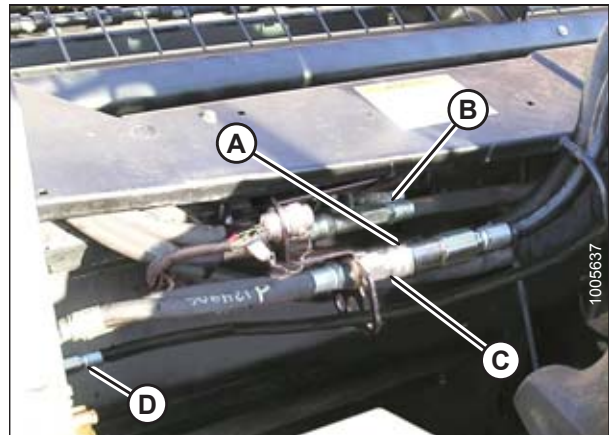


Figure 3.120: Hose Connections on Grass Seed Header

ASSEMBLING THE MACHINE

12. If not already installed, retrieve the package of three adjustable straps shipped with the header.
13. Position adjustable strap (A) through the slot and under bracket (B) on the hose support.
14. Attach the strap to the bracket with 1/2 in. carriage bolt (C) and locking nut. Install the bolt from under the bracket.
15. Repeat Step 13, page 59 through Step 14, page 59 at the two other brackets on hose support.

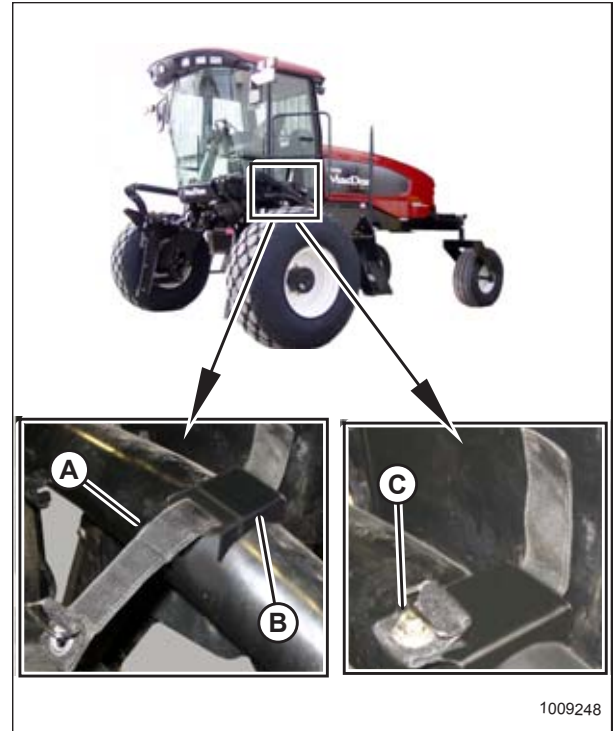


Figure 3.121: Adjustable Straps

16. Route the reel/auger return and auger pressure hose bundle (A) from the header to the windrower, and position the bundle above existing hose support (C) as shown.
17. Secure with three straps (D), and lower lever (B).

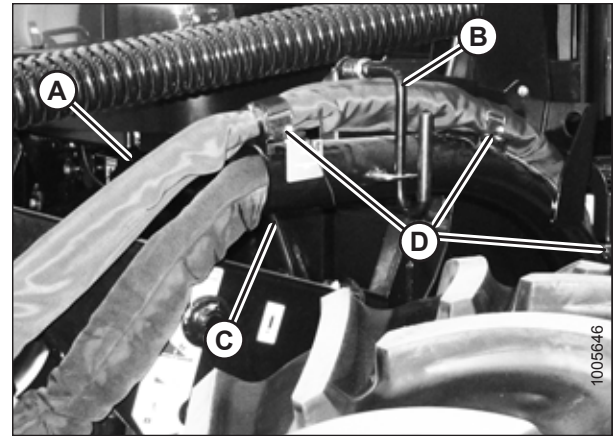


Figure 3.122: Reel/Auger Return and Auger Pressure Hose Bundle

ASSEMBLING THE MACHINE

18. Connect the auger/reel pressure and reel/auger return hoses from the header to the receptacles on the windrower valve block. Refer to the relevant illustration for your equipment.

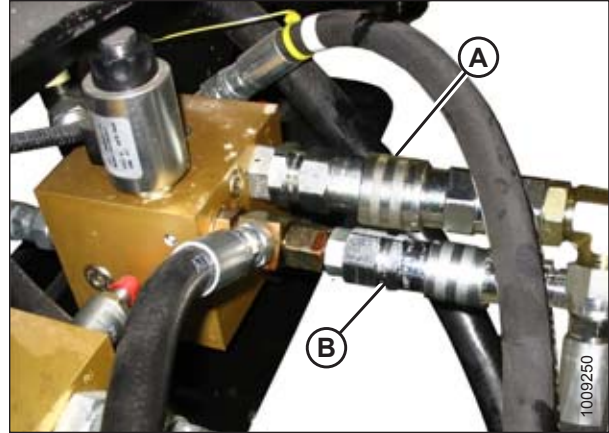


Figure 3.123: M100/M105

A - Reel/Auger Return

B - Auger/Reel Pressure

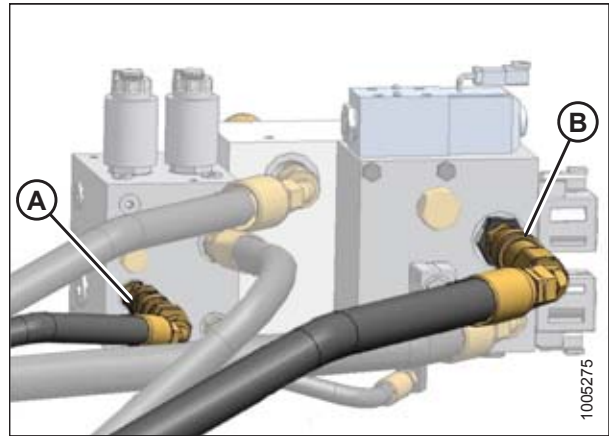


Figure 3.124: M150/M155/M155E4 with Reverser Valve

A - Auger Pressure

B - Reel/Auger Return

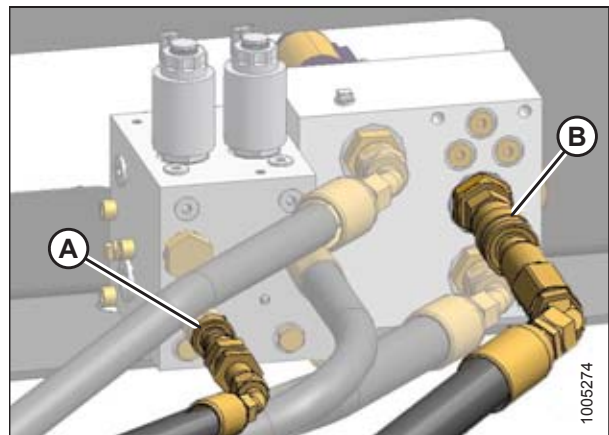


Figure 3.125: M150/M155/M155E4 without Reverser Valve

A - Auger Pressure

B - Reel/Auger Return

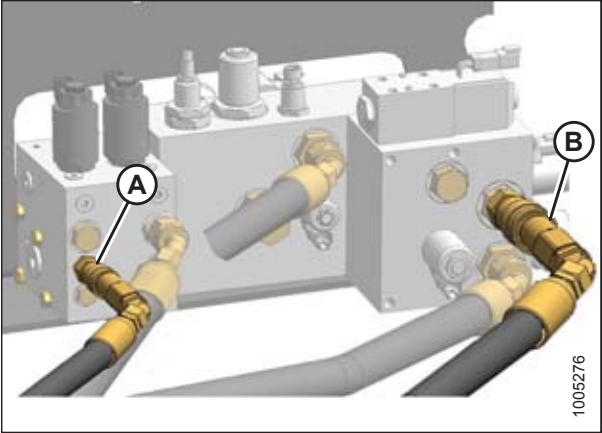


Figure 3.126: M200 with Reverser Valve
A - Auger Pressure B - Reel/Auger Return

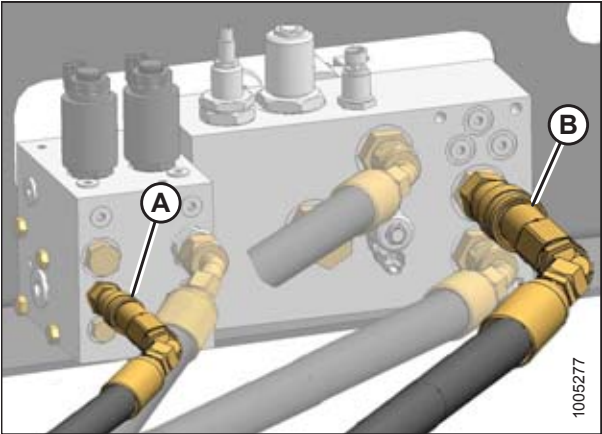


Figure 3.127: M200 without Reverser Valve
A - Auger Pressure B - Reel/Auger Return

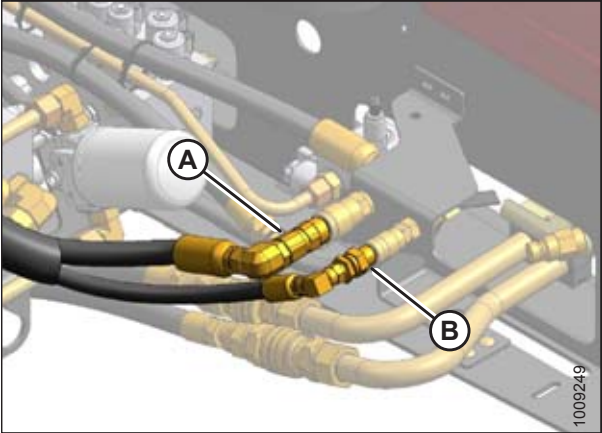


Figure 3.128: M205
A - Reel/Auger Return B - Auger/Reel Pressure

3.16 Routing Reverser Valve Jumper Hose – M Series

An optional valve block to reverse the header drive in the event of plugging may have been installed on an M150, M155, M155E4, or M200 windrower. If reverser valve block is installed, proceed as follows; otherwise, disregard this procedure.

IMPORTANT:

The jumper hose routing on the reverser valve is specific for each model of header. Do **NOT** operate the header unless hose is routed correctly.

1. Move the left windrower platform to the open position to expose the hydraulic valve blocks.
2. Route jumper hose (B) from C2 conveyor circuit (C) to port CR on reverser block (A) as shown.

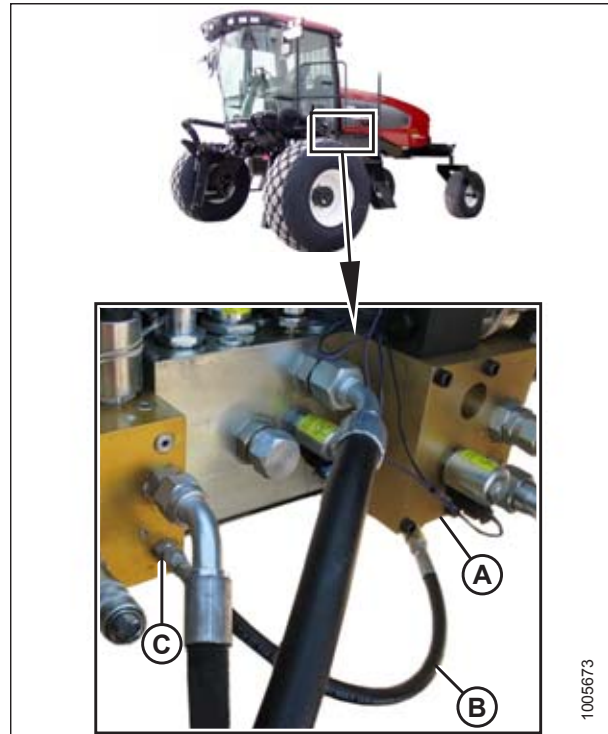


Figure 3.129: Jumper Hose Position – A40D on M200 Shown (M150, M155, and M155E4 Similar)

IMPORTANT:

For draper headers, port CR is routed to port R4 (as shown in image at right) on reverser block. Reroute jumper hose (B) when switching between draper and auger headers. This prevents draper header reel damage and improper operation, which occurs if reel runs backwards.

NOTE:

Jumper hose rerouting is unnecessary if hay conditioner is **NOT** installed on draper header. The draper header reverser function is suppressed unless hay conditioner is activated in Windrower Setup using the cab display module (CDM).

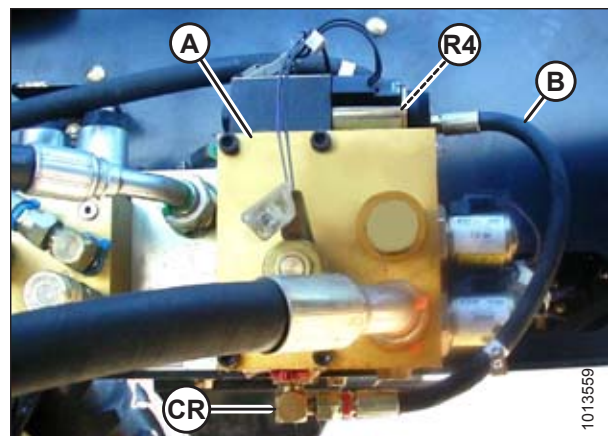


Figure 3.130: Jumper Hose Position – Draper Header on M150 Shown (M155, M155E4, and M200 Similar)

3.17 Hydraulic Drive Hose Routing – M Series Windrowers

IMPORTANT:

Only A40D and A40D GSS Headers are factory-configured for operation with M Series SP Windrowers.

IMPORTANT:

If attempting to attach an A40D Header to an M1170 or M1240 Windrower, the M1 Series Conversion kit (MD #B5998) or the A40D SP Grass Seed Auger Conversion kit (MD #B6384) must first be installed. These kits include a new manifold and hydraulic hose bundle required for operation with an M1 Series Windrower, and effectively converts an A40D header into an A40DX header.

Refer to the following topics for instructions about correctly routing hydraulic hoses on A40DX and A40DX GSS headers for M1170 and M1240 windrowers:

- [3.18.1 Hydraulic Drive Hose Routing – A40DX and M1 Series Windrowers, page 68](#)
- [3.18.2 Hydraulic Drive Hose Routing \(A40DX GSS and M1 Series Windrowers\), page 70](#)

3.17.1 Hydraulic Drive Hose Routing – A40D and M Series Windrowers

The A40D Auger Header hydraulic drive hose routing depends on the windrower model to which the header is being attached.

A40D Headers are factory-configured for M150, M155, M155E4, and M200 SP Windrowers as shown in Figure [3.135, page 65](#).

To route hoses for M100, M105, and M205 SP Windrowers, proceed as follows:

1. Press screwdriver against latch in opening (A) and lift to open header left driveshield. Shield will latch at location (B) to stay open.

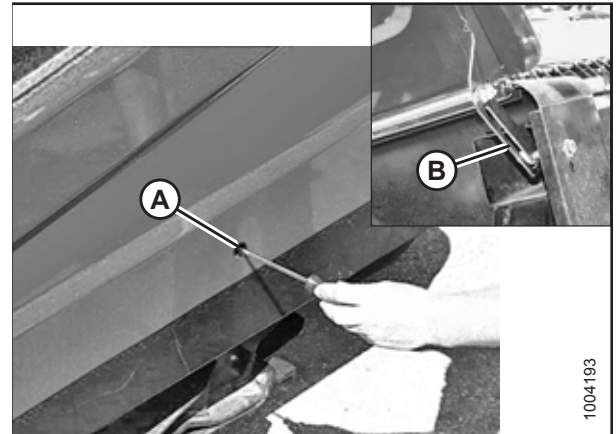


Figure 3.131: Left Driveshield

ASSEMBLING THE MACHINE

2. Disengage rubber latch (A), and open driveline shield (B).

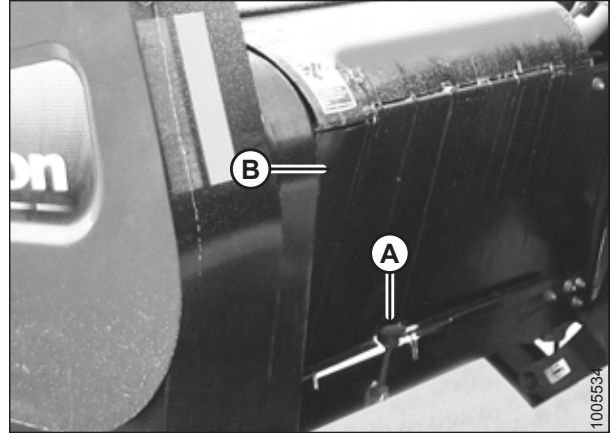


Figure 3.132: Driveline Shield

3. Loosen bulkhead nut (A) on auger and reel pressure coupler (B). This allows auger and reel pressure hose (C) to rotate freely.

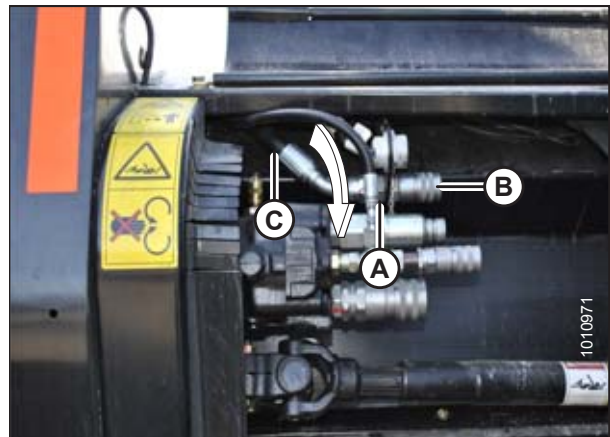


Figure 3.133: Auger and Reel Pressure Coupler and Hose – 4.3 m and 4.9 m (14 ft. and 16 ft.) Header Shown

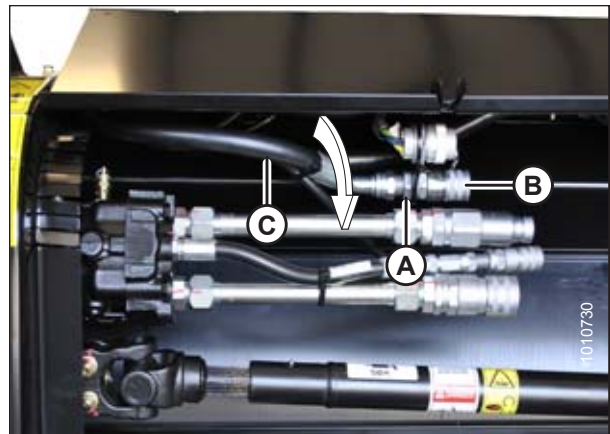


Figure 3.134: Auger and Reel Pressure Coupler and Hose – 5.5 m (18 ft.) Header Shown

Hydraulic hose connections:

4. Disconnect hoses as follows:
 - a. Disconnect hose (A) from tee (B).
 - b. Disconnect tee (B) from the reel motor upper port.
 - c. Disconnect hose (C) from the reel motor lower port.
5. Cut cable ties (D) at locations shown in illustration.

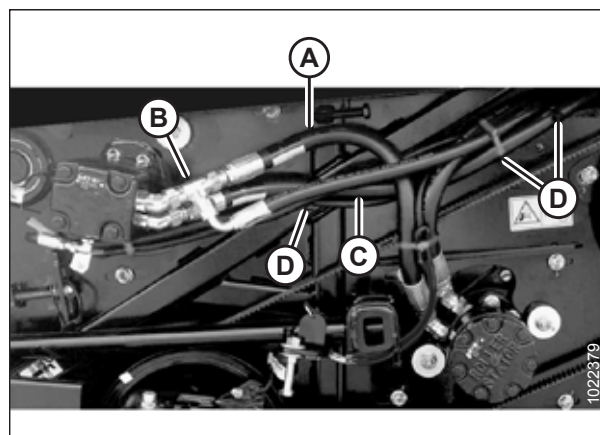


Figure 3.135: Factory Configuration – M150, M155, M155E4, and M200

6. Reconnect hoses as follows:
 - a. Reroute hose (E) behind hose (A) and (F) to hose (C) and connect tee (B) to the lower port fitting.
 - b. Reroute hose (C) above hose (E) and (F) and connect hose (C) to tee (B). Tighten hose (C).
 - c. Loosen 45-degree fittings at both ports. This allows room for wrenches when tightening tee (B) to lower port.
 - d. Connect hose (A) to upper port fitting as shown and check orientation of 45-degree fitting.

NOTE:
Ensure that hose (A) is routed in front of hose (C) and hose (E).

 - e. Confirm orientation of the upper port 45-degree fitting, back-off tee (B), and tighten the upper port fitting in position determined. Tighten hose (A).
 - f. Check orientation of the lower port 45-degree fitting and tighten.
 - g. Connect tee (B) to the lower port 45-degree fitting and tighten.

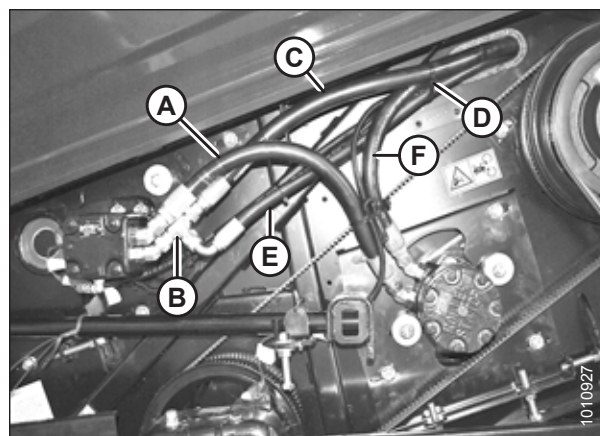


Figure 3.136: Adjusted Configuration – M100, M105, and M205

Electrical harness routing:

7. Secure electrical harness (B), motor case drain hose (C), and hose (D) together with cable ties (A), as shown.

IMPORTANT:

Ensure there is at least 25 mm (1 in.) clearance between hose bundle (E) and knife drive timing belt (F).

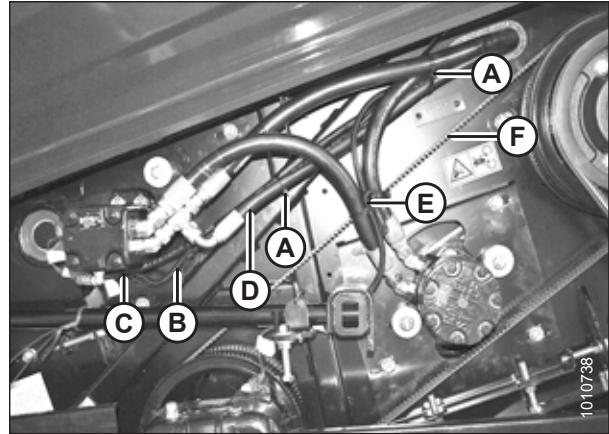


Figure 3.137: Adjusted Configuration – M100, M105, and M205

8. Rotate coupler (B) and hose (C) downward as shown until slack has been sufficiently reduced. Tighten bulkhead nut (A).

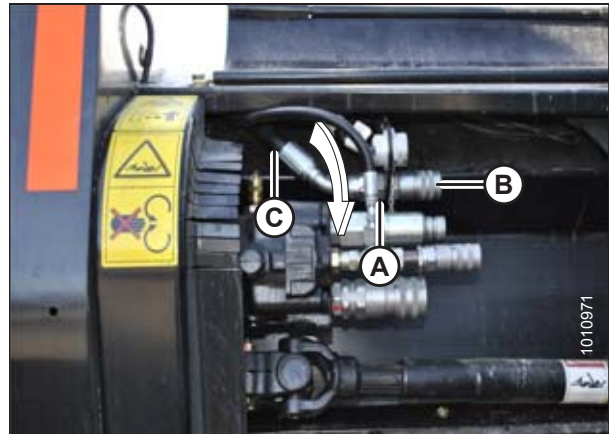


Figure 3.138: Auger and Reel Pressure Coupler and Hose – 4.3 m and 4.9 m (14 ft. and 16 ft.) Header Shown

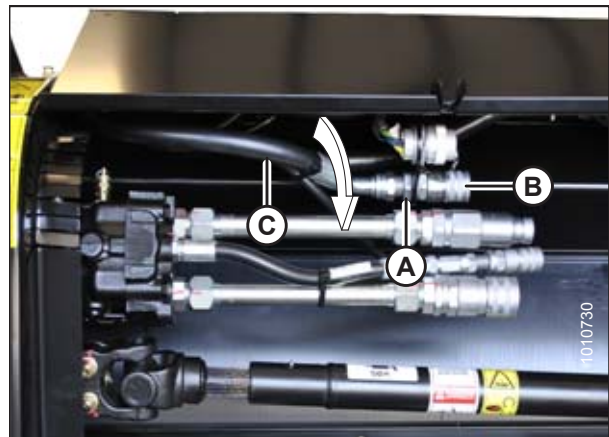


Figure 3.139: Auger and Reel Pressure Coupler and Hose – 5.5 m (18 ft.) Header Shown

ASSEMBLING THE MACHINE

9. Close driveline shield (B) and engage rubber latch (A).
10. Close driveshield before engaging header.

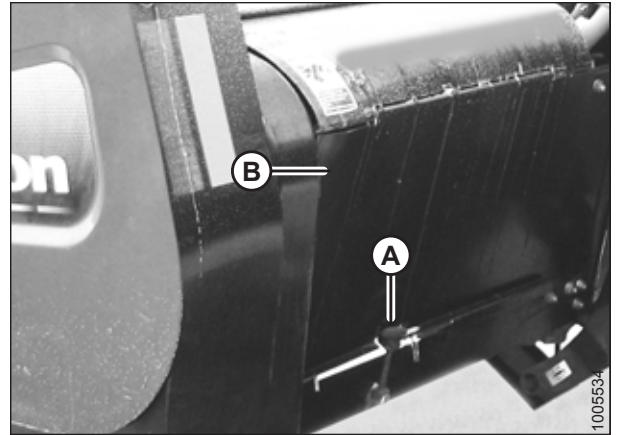


Figure 3.140: Driveline Shield

3.18 Hydraulic Drive Hose Routing – M1 Series Windrowers

IMPORTANT:

Only A40DX and A40DX GSS Headers are factory-configured for operation with M1170 and M1240 SP Windrowers.

IMPORTANT:

If attempting to attach an A40D Header to an M1170 or M1240 Windrower, the M1 Series Conversion kit (MD #B5998) or the A40D SP Grass Seed Auger Conversion kit (MD #B6384) must first be installed. These kits include a new manifold and hydraulic hose bundle required for operation with an M1 Series Windrower, and effectively converts an A40D header into an A40DX header.

Refer to the following topics for instructions about correctly routing hydraulic hoses on A40DX and A40DX GSS headers for M1170 and M1240 windrowers:

- [3.18.1 Hydraulic Drive Hose Routing – A40DX and M1 Series Windrowers, page 68](#)
- [3.18.2 Hydraulic Drive Hose Routing \(A40DX GSS and M1 Series Windrowers\), page 70](#)

3.18.1 Hydraulic Drive Hose Routing – A40DX and M1 Series Windrowers

IMPORTANT:

If attempting to attach an A40D Header to an M1170 or M1240 Windrower, the M1 Series Conversion kit (MD #B5998) must first be installed. This kit includes a new manifold and hydraulic hose bundle required for operation with an M1 Series Windrower, and effectively converts an A40D header into an A40DX header. The Reel Speed Control kit (MD B6604) is also available for ordering.

The following illustrations show the correct, factory-configured hose routing for an A40DX header used with an M1170 or M1240 SP Windrower:

NOTE:

Parts may have been removed from illustrations to improve clarity.

- Auger/reel pressure (A)
- Auger/reel return (B)
- Case drain (C)
- Reel return (D)

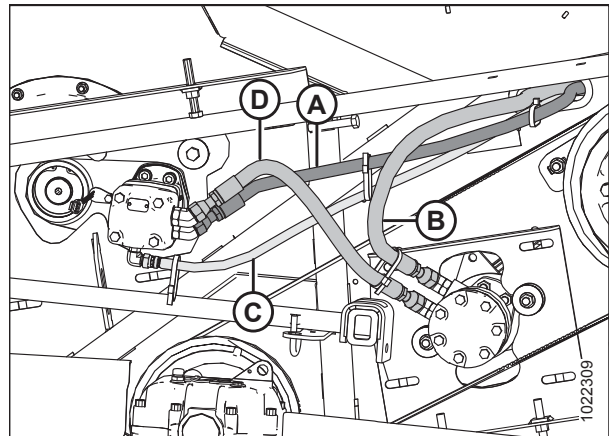


Figure 3.141: M1170/M1240 Configuration

ASSEMBLING THE MACHINE

For 4.9 m (16 ft.) header only:

- Auger/reel pressure (A) – Connects to tee on port PR2
- Auger/reel return (B) – Connects to port RET2
- Case drain (C) – Connects to tee on knife motor case drain port
- Case drain (D) – Connects to tee on knife motor case drain port and to port DRAIN OR1

NOTE:

Manifold (E) is included in the M1 Series Conversion kit (MD #B5998).

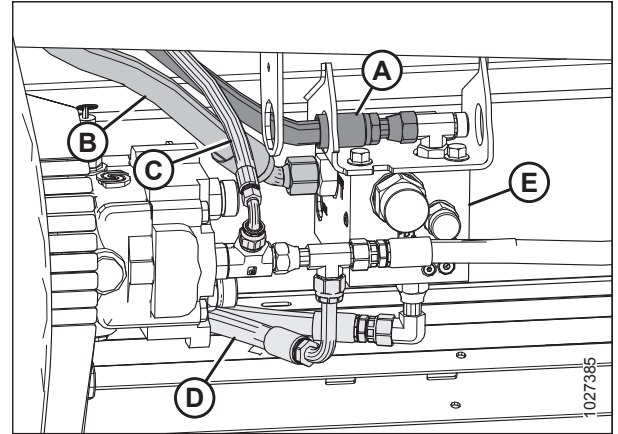


Figure 3.142: M1170/M1240 Configuration for 4.9 m (16 ft.) Header

For 4.9 m (16 ft.) headers only:

- Knife return hose (A) – Connects to tee on port (A)
- Knife pressure extension (B) – Connects to port (B)
- Case drain extension (C) – Connects to tee (D) on tee on knife motor case train port

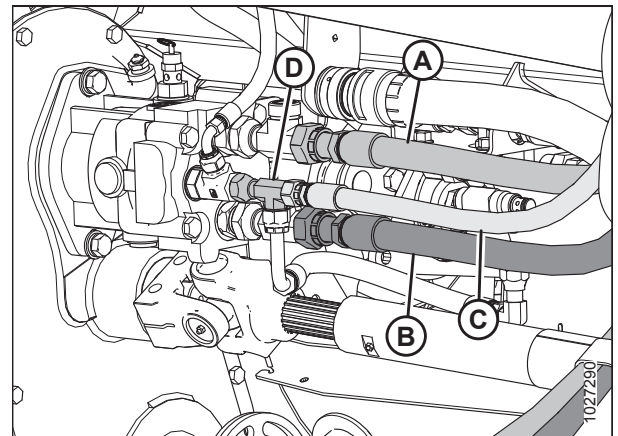


Figure 3.143: M1170/M1240 Configuration for 4.9 m (16 ft.) Header

ASSEMBLING THE MACHINE

For 5.5 m (18 ft.) headers only:

- Knife return extension (A) – Connects to tee on port A
- Knife pressure extension (B) – Connects to port B
- Case drain extension (C) – Connects to tee on knife motor case drain port

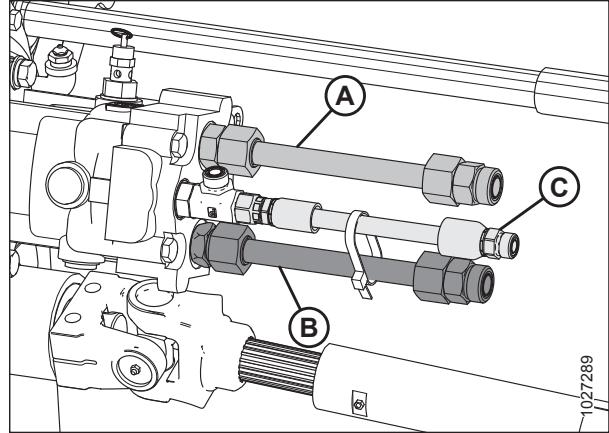


Figure 3.144: M1170/M120 Configuration with Extensions for 5.5 m (18 ft.) Header

- Hose (A) – Connects to tee on knife motor port A and to port KP on manifold
- Hose (B) – Connects to tee on knife motor port B and to knife return port OR2 on manifold

NOTE:

The illustration at right shows a 4.9 m (16 ft.) header. The extensions required on 5.5 m (18 ft.) header are **NOT** shown in the illustration.

NOTE:

The hose bundle (included in MD# B5998) required for attaching the header to the windrower is **NOT** shown in the illustration.

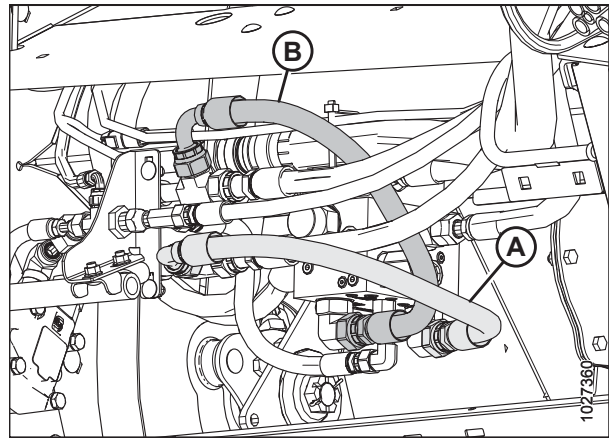


Figure 3.145: M1170/M1240 Configuration for 4.9 m (16 ft.) Header

3.18.2 Hydraulic Drive Hose Routing (A40DX GSS and M1 Series Windrowers)

IMPORTANT:

If attempting to attach an A40D GSS Header to an M1170 or M1240 Windrower, the A40D SP Grass Seed Auger Conversion kit (MD #B6384) must first be installed. This kit includes a new manifold and hydraulic hose bundle required for operation with an M1 Series Windrower, and effectively converts an A40D GSS header into an A40DX GSS header. The Reel Speed Control kit (MD B6604) is factory-installed for model year 2019 A40DX GSS headers.

The following illustrations show the correct, factory-configured hose routing for an A40DX GSS header used with an M1170 or M1240 SP Windrower:

ASSEMBLING THE MACHINE

- Reel reverse (A)
- Reel return (B)
- Reel/auger pressure (C)
- Reel/auger return (D)
- Case drain (E)

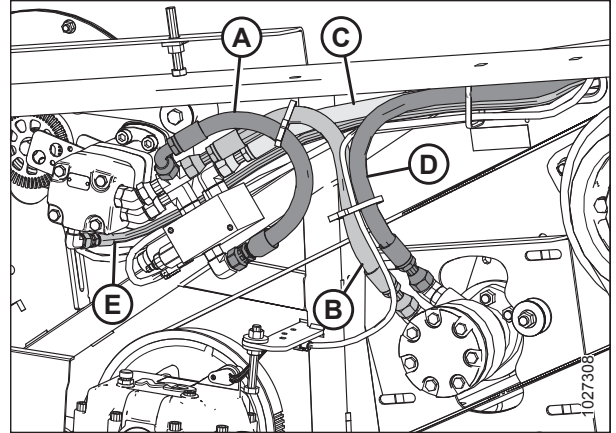


Figure 3.146: M1170/M1240 Configuration

- Reel pressure (A) – Connects to tee (B) on top of the manifold
- Auger/reel return (C) – Connects to port RET2
- Case drain (D) – Connects to tee (E) on bracket (F)

NOTE:

Some parts removed from illustration to clearly show manifold and hydraulic connections.

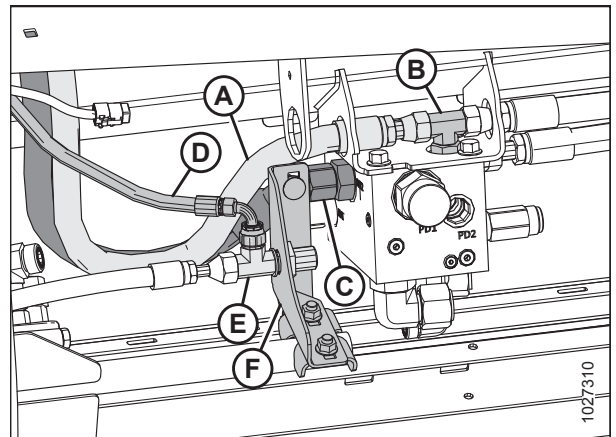


Figure 3.147: M1170/M1240 Configuration

ASSEMBLING THE MACHINE

- Hose (A) – Connects to elbow fitting (D) in knife return port OR2 on manifold
- Hose (B) – Connects to elbow fitting (E) tee on knife pressure port KP on manifold
- Hose (C) – Connects to elbow fitting (F) in drain port OR1 on manifold
- Hose (A) – Connects to tee fitting (G)
- Hose (B) – Connects to tee fitting (H)
- Hose (C) – Connects to tee fitting (J)

NOTE:

Some parts removed from illustration to clearly show manifold and hydraulic connections.

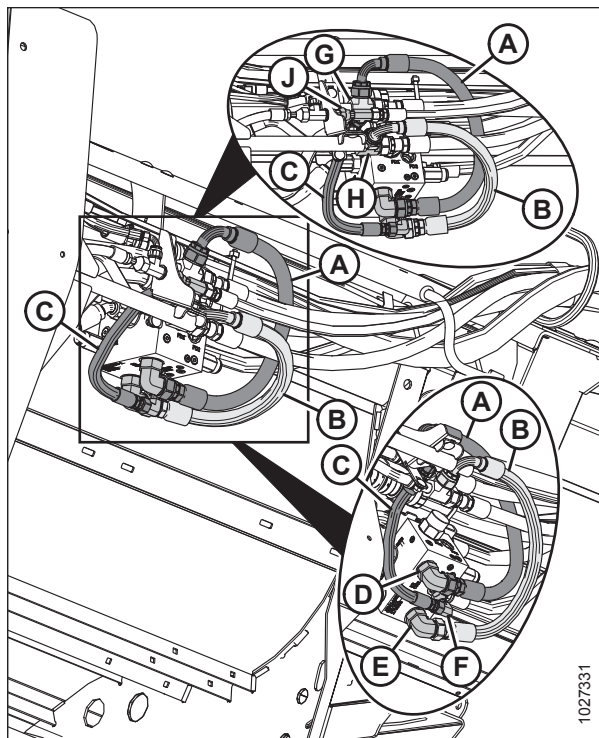


Figure 3.148: M1170/M1240 Configuration

3.19 Repositioning Knife Drive Box Breather

There is one knife drive box at each end of the auger header. The knife drive box sits at different angles when in shipping and field positions. When the position is changed, the breather has to be moved to make sure oil does not leak from the knife drive box.

1. Move breather/dipstick (A) to back port and install plug (B) in forward port at knife drive boxes.

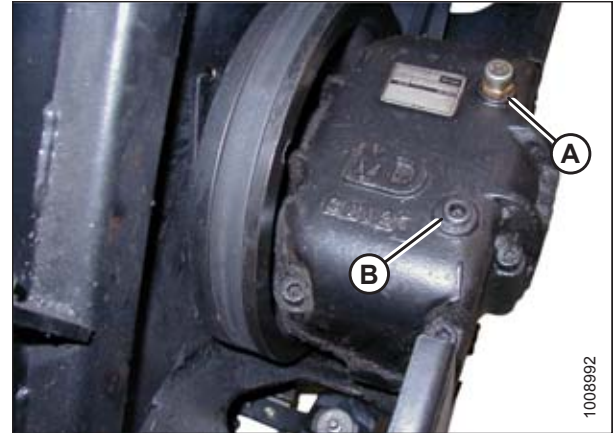


Figure 3.149: Top View of Knife Drive Box

2. With top of knife drive box horizontal, check oil level. It should be between the lower hole (A) and the end of the dipstick.
3. If required, add SAE 85W-140 lubricant.

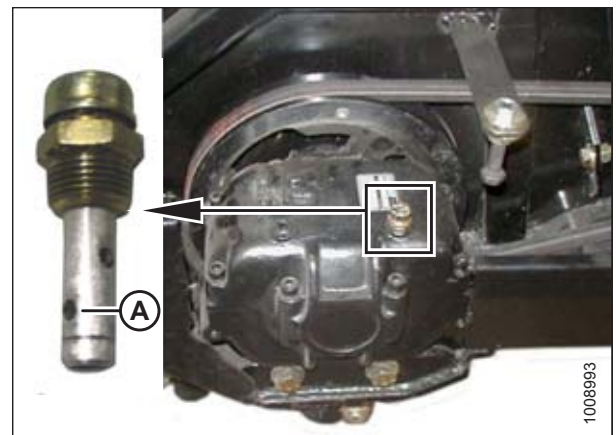


Figure 3.150: Side View of Knife Drive Box and Close-up of Dipstick

Chapter 4: Lubricating the Machine

4.1 Greasing Procedure

DANGER

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

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

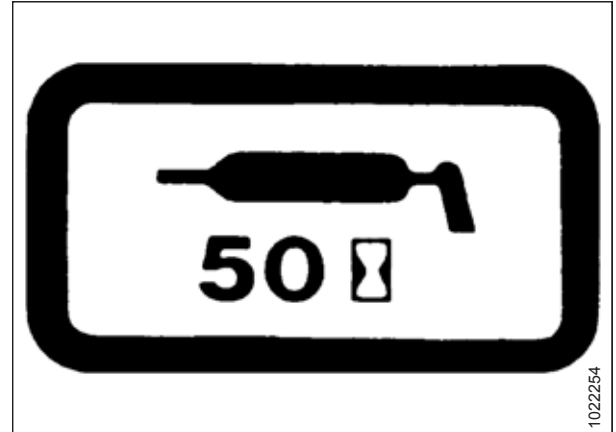


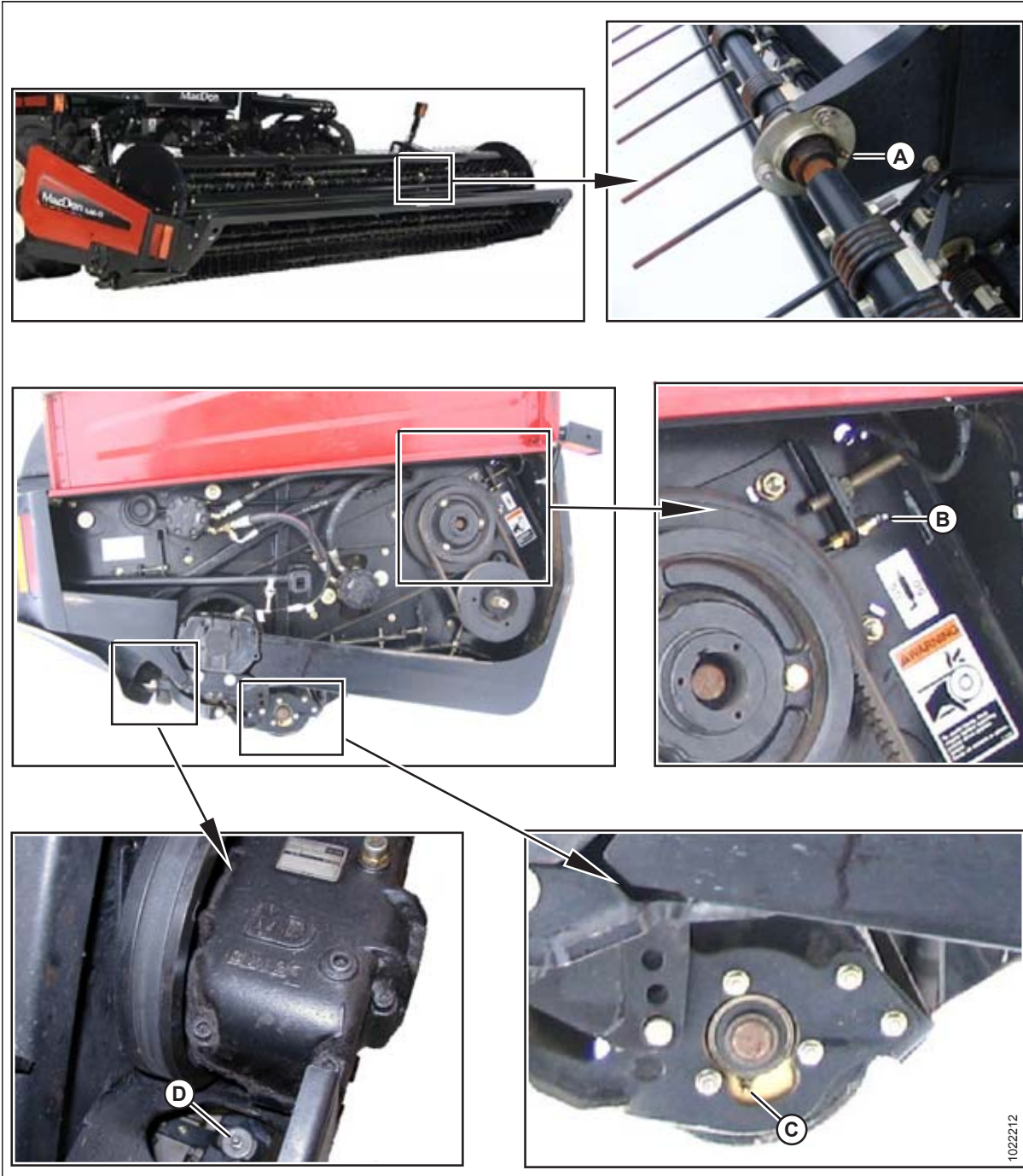
Figure 4.1: Grease Interval Decal

4.2 Lubrication Points – Left Side of Header

NOTE:

Use high temperature extreme pressure (EP2) performance with 1% max molybdenum disulphide (NLGI Grade 2) lithium base. To prevent binding and/or excessive wear caused by knife pressing on guards, do **NOT** over-grease. If more than 6 to 8 pumps of grease gun are required to fill the cavity, replace the seal in the knifehead.

Figure 4.2: Header Left Side



A - Tine Bar Bearing (4 Places – Each Tine Bar)
C - Gauge Roller Bearing (2 Places) (Both Sides if Installed)

B - Knife Drive Bearing (1 Place)
D - Knifehead Bearing (1 Place)

4.3 Lubrication Points – Right Side of Header

NOTE:

Use high temperature extreme pressure (EP2) performance with 1% max molybdenum disulphide (NLGI Grade 2) lithium base. To prevent binding and/or excessive wear caused by knife pressing on guards, do **NOT** over-grease. If more than 6 to 8 pumps of grease gun are required to fill the cavity, replace the seal in the knifehead.

Figure 4.3: Header Right Side



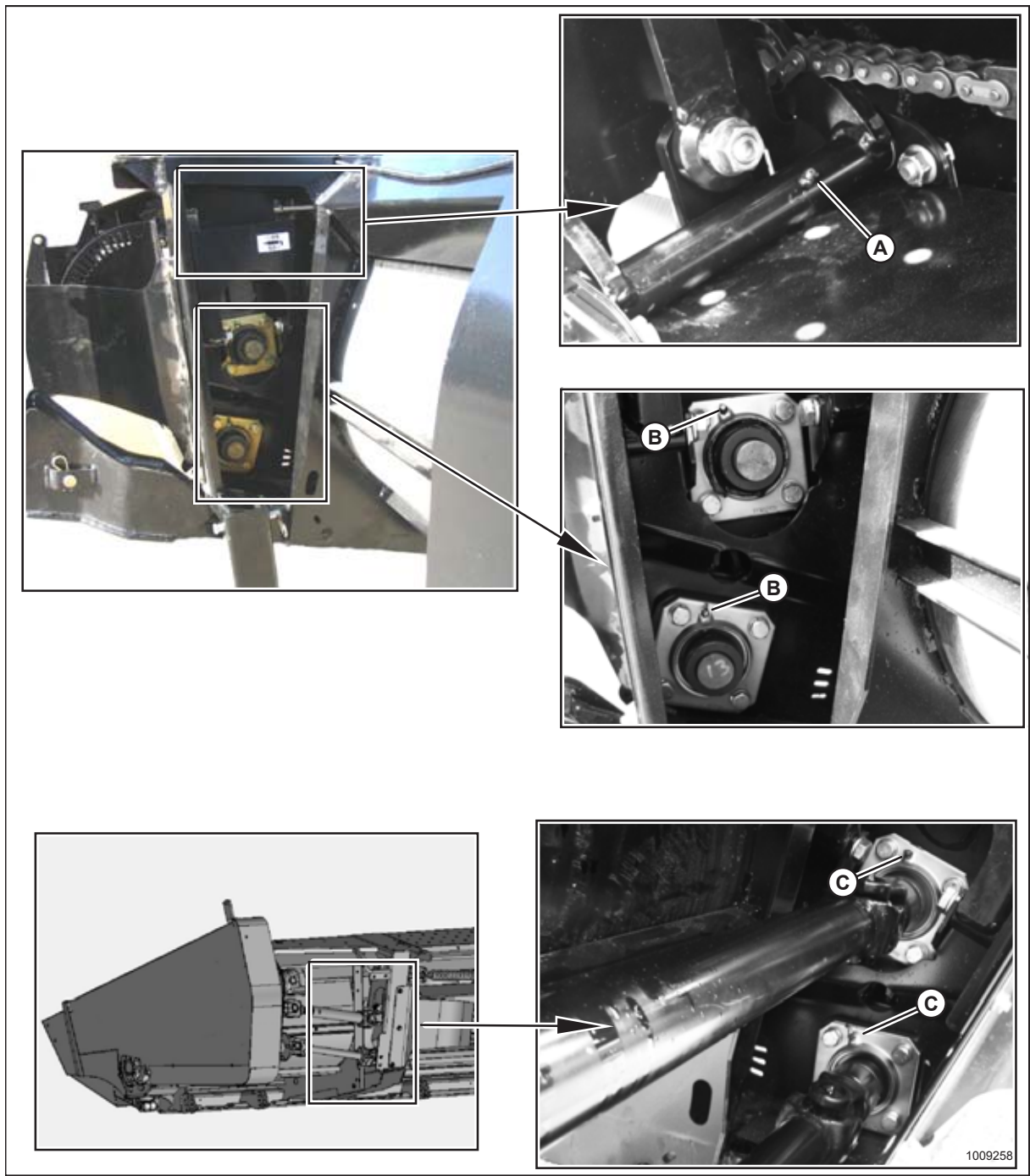
A - Knife Drive Bearing (1 Place)
C - Auger Shaft Bearing (1 Place)

B - Reel Shaft Bearing (1 Place)
D - Knifehead Bearing (1 Place)

4.4 Lubrication Points – Hay Conditioner

NOTE:
Use high temperature extreme pressure (EP2) performance with 1% max molybdenum disulphide (NLGI Grade 2) lithium base.

Figure 4.4: Hay Conditioner



A - Roll Pivot (1 Place - Both Sides)

B - Roll Shaft Bearings (2 Places)

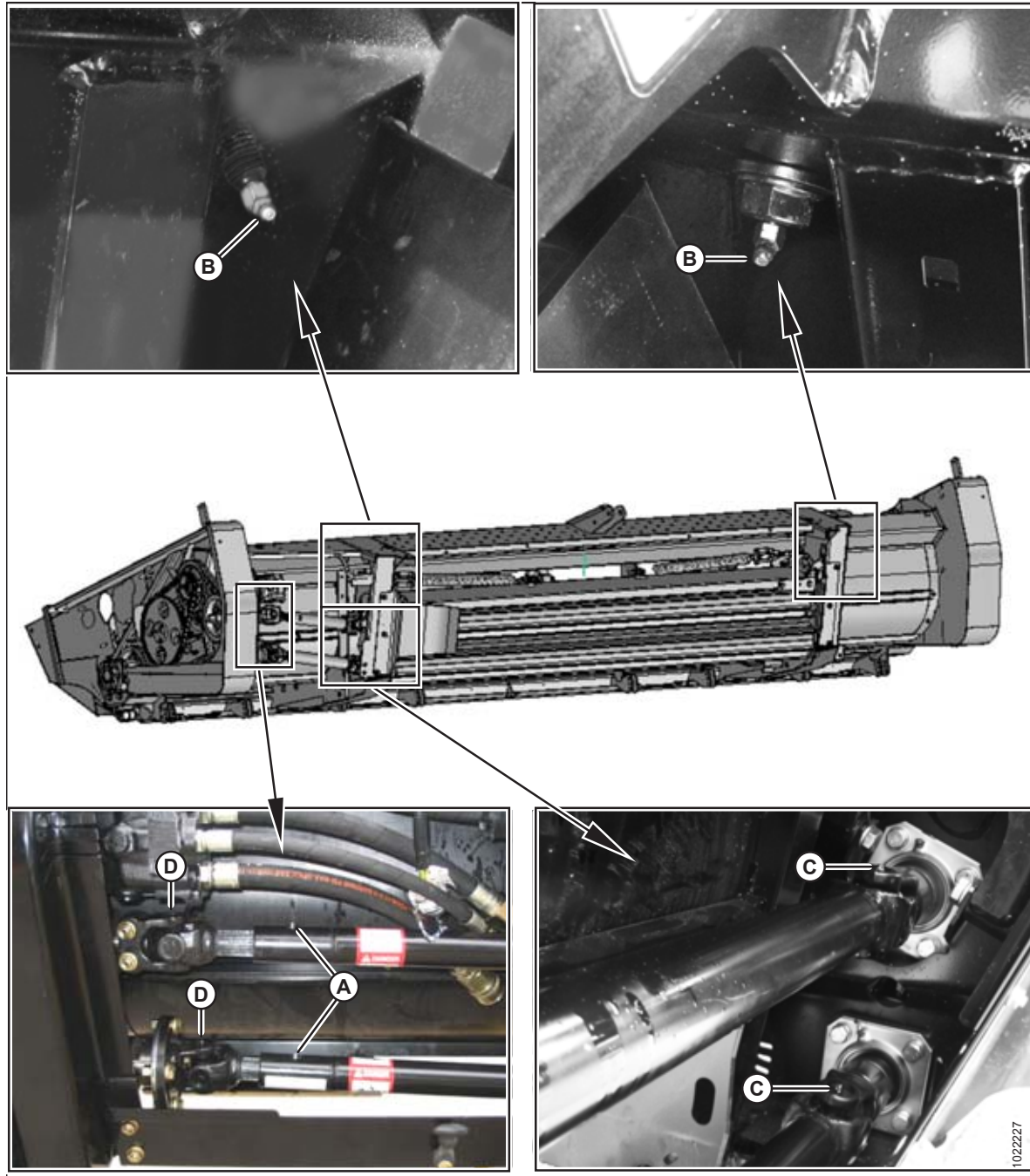
C - Roll Shaft Bearings (2 Places)

4.5 Lubrication Points – Drivelines

NOTE:

Use high temperature extreme pressure (EP2) performance with 1% max molybdenum disulphide (NLGI Grade 2) lithium base.

Figure 4.5: Drivelines



A - Driveline Shafts (2 Places)³
D - Driveline Universals (2 Places)

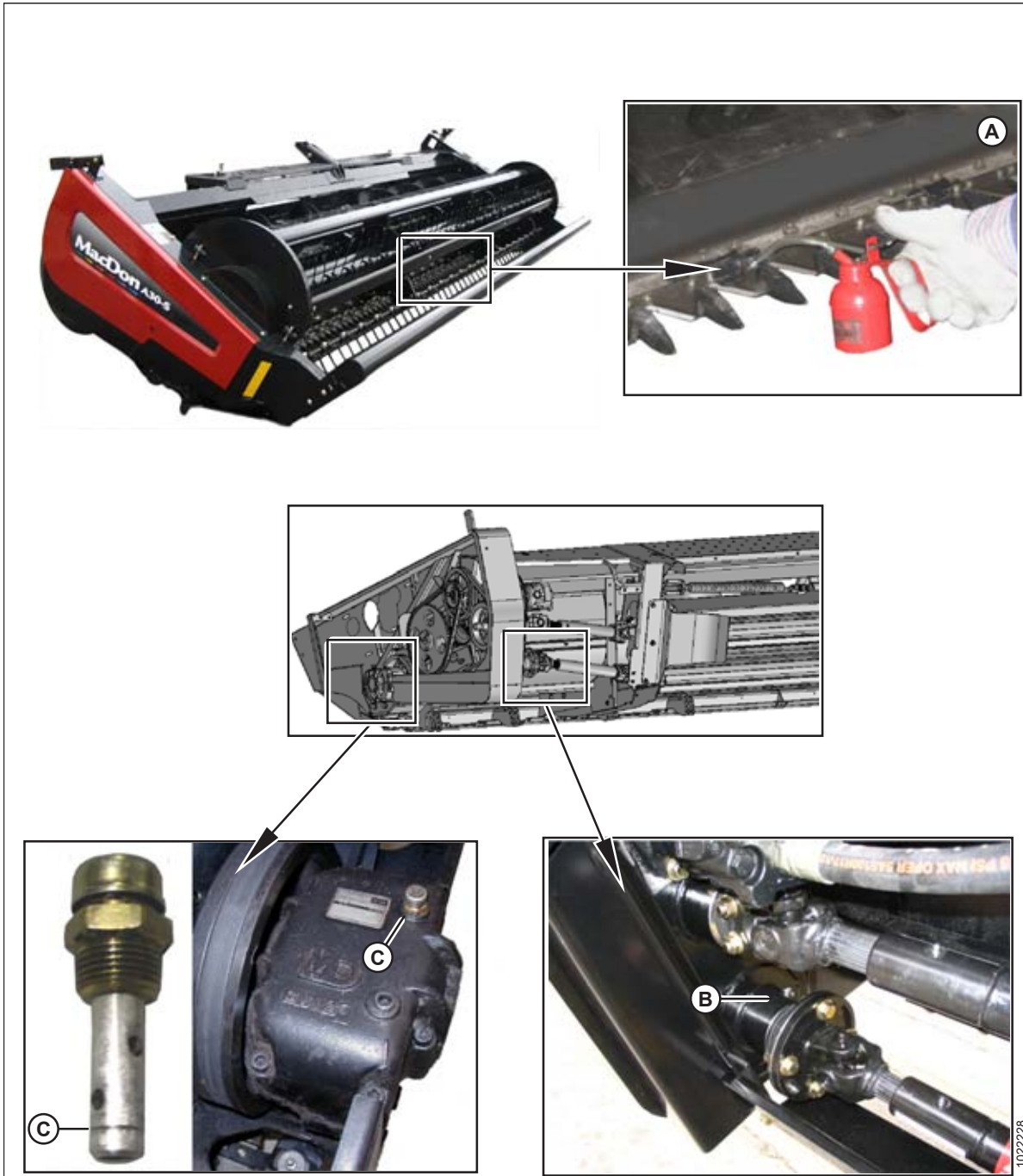
B - Cross Shafts (2 Places)

C - Driveline Universals (2 Places)

3. 10% moly grease is recommended for driveline shaft slip joints **ONLY**.

4.6 Knife and Gearbox Oil

Figure 4.6: Knife and Gearbox Oil



A - Oil Knife Daily Except in Sandy Soil (SAE 30)
 B - Check Roll Gearbox (1 Place)⁵

C - Knife Drive Box (2 Places)⁴

4. Check oil level with the header down on level ground.
5. Header should be on the ground.

Chapter 5: Performing Predelivery Checks

WARNING

To avoid bodily injury or death from unexpected startup of machine, always stop engine and remove key from ignition before leaving operator's seat for any reason.

IMPORTANT:

To avoid machine damage, check that no shipping dunnage has fallen down between auger and pans.

1. Perform final checks and adjustments as listed on the Predelivery Checklist (yellow sheet attached to back of this instruction – [Predelivery Checklist, page 121](#)) to ensure the machine is field-ready. Refer to the following pages for detailed instructions as indicated on the checklist.
2. The completed checklist should be retained either by the Operator or the Dealer.

5.1 Checking Drive Belts and Chains

1. Open shield on header right side.
2. Check knife drive timing belt (A). It should deflect 14 mm (0.55 in.) when a load of 22–30 N (5–6.5 lbf) is applied mid span.

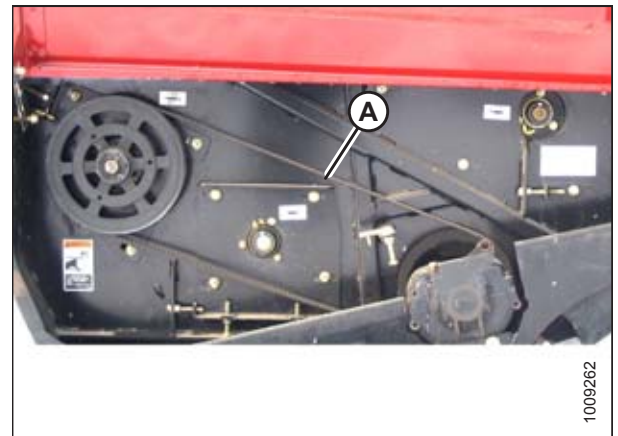


Figure 5.1: A40D Header Right Side

3. Open shield on header left side.
4. Check knife drive timing belt (A). It should deflect 14 mm (0.55 in.) when a load of 22–30 N (5–6.5 lbf) is applied mid span.
5. Check knife drive V-belts (B). They should deflect 4 mm (3/16 in.) when a load of 35–40 N (8–12 lbf) is applied to each belt mid span.
6. Close shields.

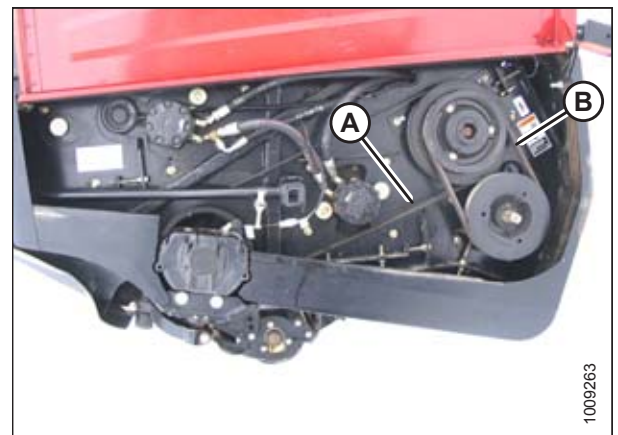


Figure 5.2: A40D Header Left Side

5.2 Checking Auger Stripper Bar Clearance

1. Check for signs of auger flighting (A) rubbing stripper bars (B) after run-up.

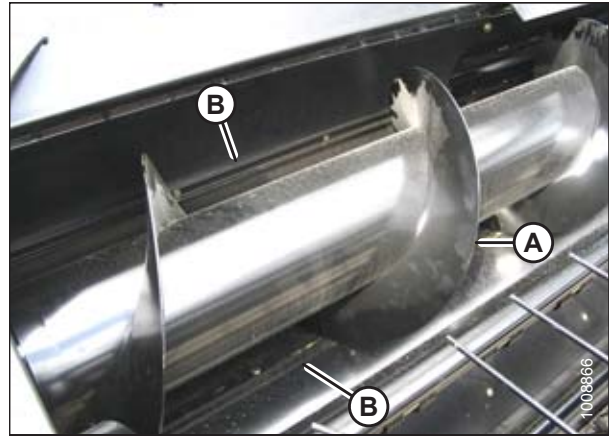


Figure 5.3: Auger

2. Check clearance between auger flighting (A) and stripper bars (B).

NOTE:

The auger flighting (A) should clear the stripper bars (B) on the auger pan by approximately 1–4 mm (1/32–5/32 in.). Shimming the stripper bars may be required.

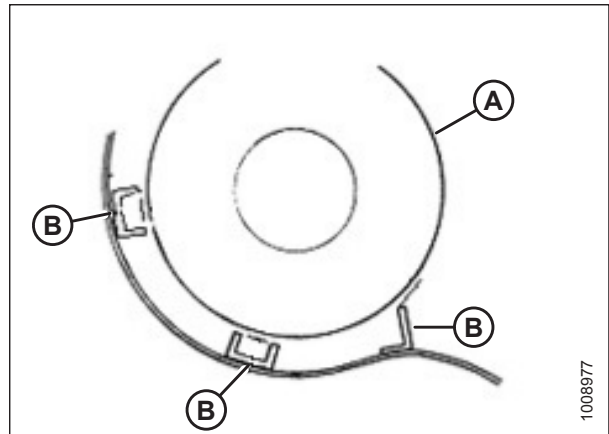


Figure 5.4: End View Diagram Showing Auger and Stripper Bars

5.3 Checking Reel Tine to Header Pan Clearance

IMPORTANT:

The dimensions provided are guidelines only. Tines may slightly contact the guards, but **NOT** the knife sections or the auger pan.

1. Rotate reel slowly by hand and check tine clearance at knife and pan. Flex tines to simulate crop-loaded position to ensure tine clearances to knife sections and auger pan are adequate for working conditions.
2. Check that reel rotates freely.

IMPORTANT:

If there are a few reel tine fingers that are touching the pan while the rest are at the correct height, trim the longer tines to match the rest. Be sure to adjust both sides of the reel. Ensure that tines do **NOT** contact the plastic header pan.

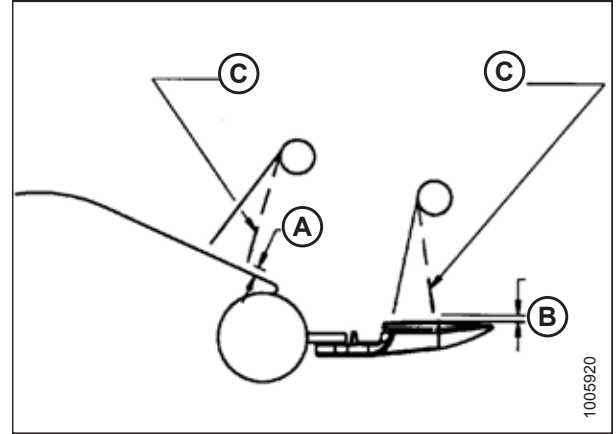


Figure 5.5: Reel Tine to Header Pan Clearance

A - 2–10 mm (0.08–0.39 in.) Clearance

B - 2 mm (0.08 in.) Minimum to Knife Section

C - Flex Tines Back When Checking Clearance

5.4 Checking and Adjusting Float – M Series

The windrower float springs are **NOT** used to level the header.

CAUTION

To prevent accidental movement of windrower, return ground speed lever (GSL) to Park, center steering wheel to lock, shut off engine, and remove key.

NOTE:

Always check the float with the header set in working position (with the header fully lowered to the ground and the header angle set to the desired cutting height per crop type and conditions).

To check and adjust the float, follow these steps:

1. Start the engine, and lower the header to the ground.
2. Using the header tilt switches on the in-cab controls, set the header center-link to the mid-range position (**5.0** on the cab display module). Refer to your windrower operator's manual for detailed instructions.
3. Lower the header fully with the lift cylinders fully retracted.
4. Set left and right float fine adjustments to mid-range position (**5.0** on the cab display module). Refer to your windrower operator's manual for detailed instructions.
5. Shut down the engine and remove the key.
6. Check float by grasping the lean bar and lifting. Lifting force should be 335–380 N (75–85 lbf) and should be approximately the same at both ends.
7. If necessary, perform the following steps to adjust the float:
 - a. Raise header fully, shut down engine, and remove key.
 - b. Turn drawbolt (A) clockwise to increase float (makes header lighter) or counterclockwise to decrease float (makes header heavier).

NOTE:

Illustration shows top of windrower wheel leg member.

- c. Recheck the float.



Figure 5.6: Drawbolt

5.5 Checking and Adjusting Float – M1 Series

Header float on M1170 and M1240 Windrowers is completely adjustable from the cab through the Harvest Performance Tracker (HPT).

The windrower float springs are **NOT** used to level the header.

5.5.1 Checking Float – M1 Series Windrower



WARNING

To avoid bodily injury or death from unexpected startup of the machine, always stop the engine and remove the key from the ignition before leaving the operator's seat for any reason.



CAUTION

Before starting the machine, check to be sure all bystanders have cleared the area.

1. Start the engine.
2. Use the HEADER TILT switches (A) on the ground speed lever (GSL) to set the center-link to the mid-range position (5.0 on the Harvest Performance Tracker [HPT]).
3. Using the HEADER DOWN switch (B), lower header fully with lift cylinders fully retracted.
4. Turn engine off, and remove the ignition key.
5. Grasp one end of the header and lift. Lifting force should be 335–380 N (75–85 lbf) and should be the same at both ends.

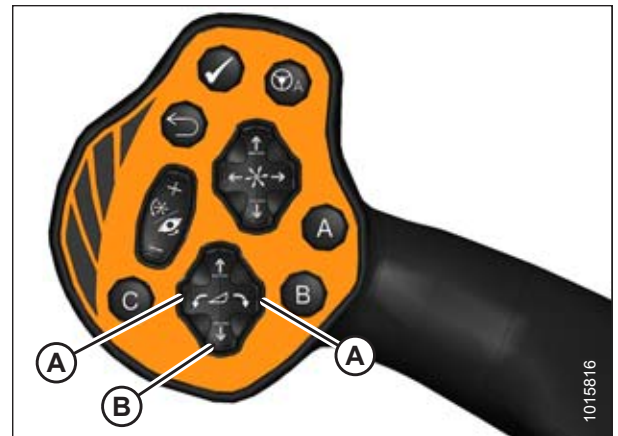


Figure 5.7: GSL

6. Restart the engine, and adjust float as required. Refer to [5.5.2 Setting the Float, page 86](#).

NOTE:

Increasing the float value on the HPT makes the header feel lighter.

5.5.2 Setting the Float

The float can be set for windrowing with the cutterbar on the ground.

The optimum float setting lets the header follow the contour of the terrain. Proceed as follows:

1. Set center-link to mid-range position (**5.0** on the Harvest Performance Tracker [HPT]). For instructions, refer to the windrower operator's manual.
2. Lower the header until the cutterbar is on the ground.

NOTE:

To minimize scooping rocks when operating at the flattest header angle, lower the header skid shoes. For instructions, refer to your header operator's manual.

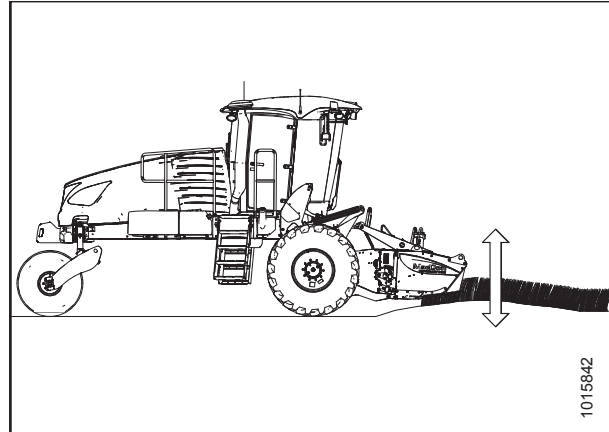


Figure 5.8: Header Float – Cutterbar on Ground

3. Press rotary scroll knob (A) on the HPT to display the QuickMenu system.
4. Rotate scroll knob (A) to highlight header float icon (B) and press scroll knob to select.



Figure 5.9: HPT Run Screen

5. Turn scroll knob (A) to highlight left (B) or right (C) float and press knob (A) to activate selection.
6. Rotate scroll knob (A) to adjust float setting and press knob when finished. Float is now set.

NOTE:

Float adjustments of **1.0** (out of 10) change the header weight at the cutterbar by approximately 91 kg (200 lb.). Adjust float in increments of **0.05** to optimize field performance.

7. Use soft key 3 (D) to remove/resume float and deck position to previous setting for the attached header.



Figure 5.10: HPT Left and Right Float Settings

5.5.3 Removing and Restoring Float

Follow these steps to remove and restore the header float settings:

1. Press rotary scroll knob (A) on Harvest Performance Tracker (HPT) to display the QuickMenu system or press F1 on the console.
2. Rotate scroll knob (A) to highlight header float icon (B) and press scroll knob to select.



Figure 5.11: HPT Run Screen

3. Press soft key 3 (A) to remove or restore the header float.

NOTE:

If the header float is active, the icon at soft key 3 will say REMOVE FLOAT; if header float has been removed, the icon will say RESTORE FLOAT.



Figure 5.12: HPT Display – Adjusting Float

5.6 Leveling the Header – M Series

Windrower linkages are factory-set to provide the proper level for the header and should not normally require adjustment.

If the header is **NOT** level, do the following steps before adjusting the levelling linkages. The float springs are **NOT** used to level the header.

WARNING

To avoid bodily injury or death from unexpected startup of machine, always stop engine and remove key from ignition before leaving operator's seat for any reason.

1. Park windrower on level ground.
2. Check windrower tire pressures.
3. Raise header fully and hold momentarily to allow lift cylinders to rephase.
4. Stop engine and remove key.
5. Place float pins (A) in locked out position.

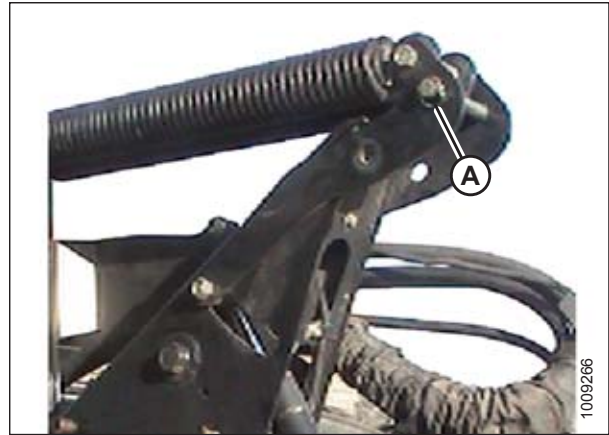


Figure 5.13: Float Pin

CAUTION

Check to be sure all bystanders have cleared the area.

6. Start engine and set header approximately 150 mm (6 in.) off ground.
7. Check that member (A) is against link (B).
8. Note high and low end of header.

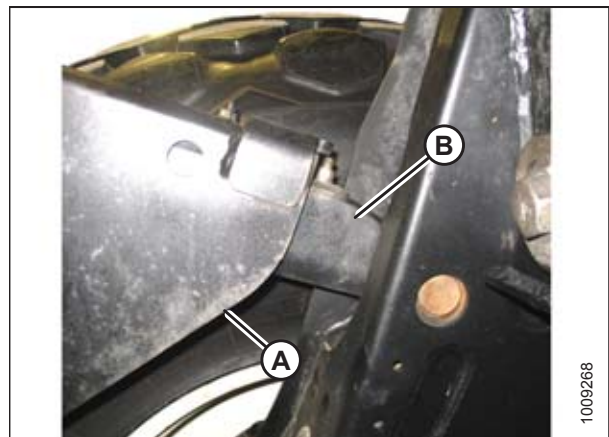


Figure 5.14: Member and Link

PERFORMING PREDELIVERY CHECKS

9. Place wooden blocks (A) under header cutterbar and legs.

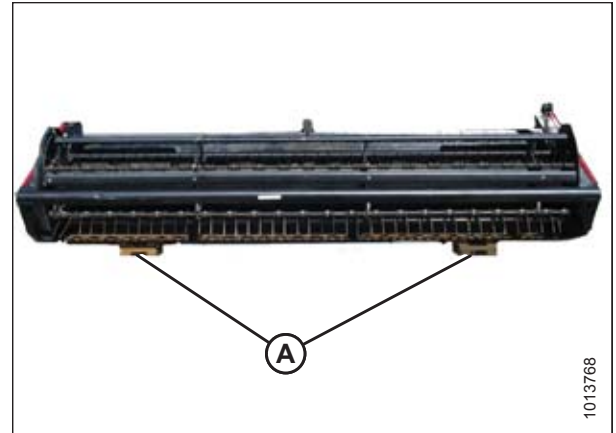


Figure 5.15: Header on Blocks

10. Lower header onto blocks so that members (A) lift off of links (B).
11. Shut down engine and remove key.

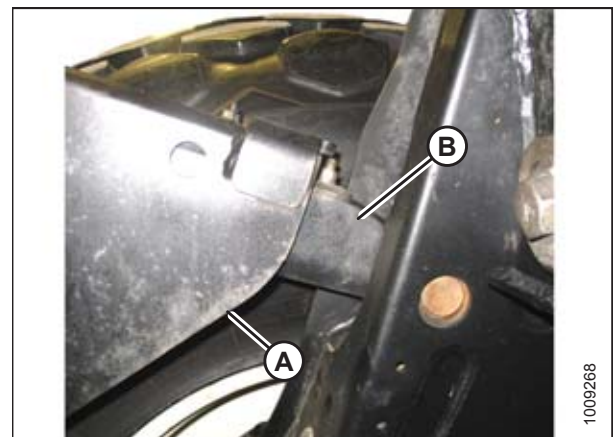


Figure 5.16: Member and Link

12. Remove nut, washer, and bolt (A) that attach shims (B) to link at the header high end.
13. Remove one or both shims (B) and reinstall the hardware (A).
14. Start engine and raise header slightly. Check level of header.
15. If additional levelling is required, install the removed shim on the opposite linkage.

NOTE:

If required, additional shims (MD #110854) can be ordered from your MacDon Dealer.

NOTE:

Float does **NOT** require adjustment after levelling header.

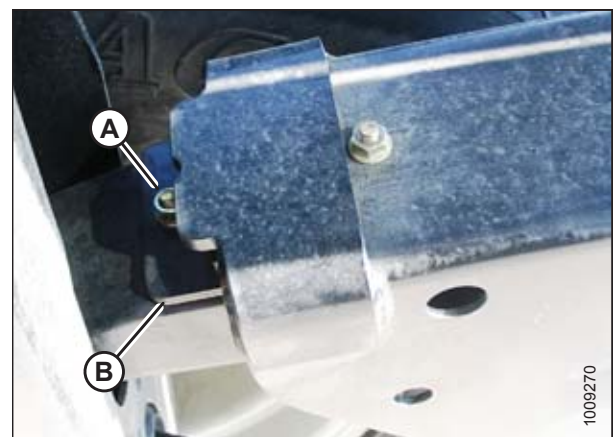


Figure 5.17: Shims

5.7 Leveling the Header – M1 Series

The windrower lift linkages are factory-set to provide the proper header level, and should not normally require adjustment. If leveling is required, follow these steps:

WARNING

To avoid bodily injury or death from unexpected startup of the machine, always stop the engine and remove the key from the ignition before leaving the operator's seat for any reason.

1. Press rotary scroll knob (A) on Harvest Performance Tracker (HPT) to display the QuickMenu system.
2. Rotate scroll knob (A) to highlight the header float symbol (B) and press scroll knob to select. The SET-UP FLOAT page displays.



Figure 5.18: HPT Display

3. Press soft key 3 (A) to remove float.



Figure 5.19: HPT Display

PERFORMING PREDELIVERY CHECKS

4. Park the windrower on level ground.
5. Press the header raise button (A) on the ground speed lever (GSL). When the header reaches maximum height, continue to hold the header raise button momentarily to allow the lift cylinders to rephase.



Figure 5.20: GSL

6. Lower the header to approximately 150 mm (6 in.) off the ground.
7. Ensure that member (A) is against link (B).
8. Stop the engine and remove the key from the ignition.
9. Measure the distance to the ground at both ends of the header to determine if the header is level.

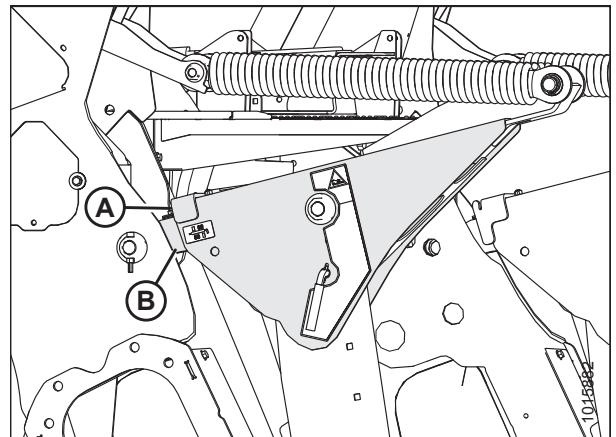


Figure 5.21: Lift Linkage



CAUTION

Check to be sure all bystanders have cleared the area.

10. If adjustment is necessary, start engine and resume float. Lower the header onto the ground until member (A) lifts away from the link (B) on both sides.
11. Turn off the engine and remove the key.

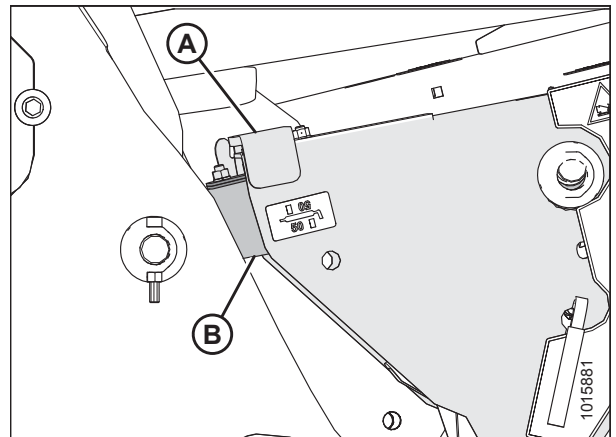


Figure 5.22: Lift Linkage

PERFORMING PREDELIVERY CHECKS

12. On the side that is higher, remove nut, washer, and bolt (A) that attaches shims (B) to the linkage.
13. Remove one or both of the shims (B) and reinstall the hardware (A).



CAUTION

Check to be sure all bystanders have cleared the area.

14. Repeat Step [5, page 91](#) to Step [9, page 91](#) to rephase the cylinders and check the header level.
15. If additional adjustment is required, repeat Step [10, page 91](#) to Step [13, page 92](#), and install one of the removed shims on the opposite linkage.
16. Reset the header float. Refer to [5.5.2 Setting the Float, page 86](#).

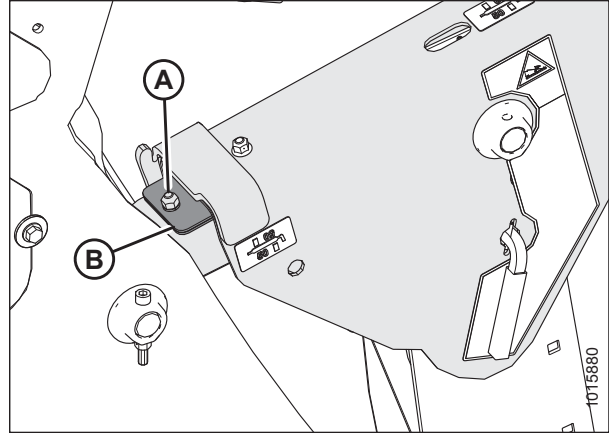


Figure 5.23: Lift Linkage Shims

5.8 Checking Conditioner Rolls

WARNING

To avoid bodily injury or death from unexpected startup of machine, always stop engine and remove key from ignition before leaving operator's seat for any reason.

1. Lower header fully, stop engine, and remove key.
2. Check that nut (A) is tight and top of nut (A) is at '2' on decal (C).
3. If required, adjust gap by loosening nut (A) and turning adjuster (B). Retighten nut (A).

NOTE:

When adjusting roll gap, be sure that the decal reading is the same on both sides of the conditioner roll to achieve consistent intermesh across the rolls.

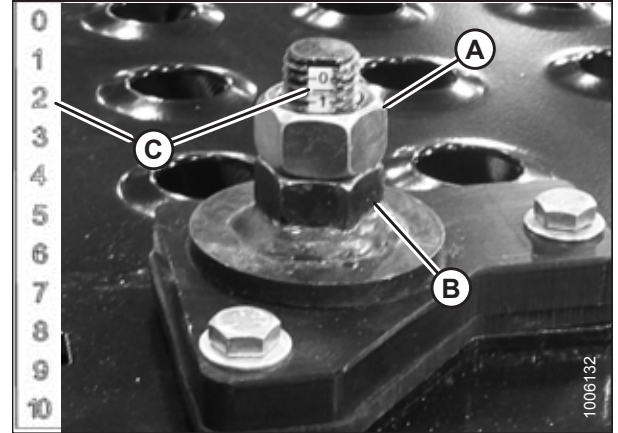


Figure 5.24: Roll Gap Adjustment Hardware

4. Loosen bolt (A) and rotate cover (B) to expose access port (C).
5. Check roll timing by examining distance 'X' at each end of the rolls (C). Each steel bar on one roll should be centered between two bars of the other roll, so that distance 'X' is 12 mm (1/2 in.).

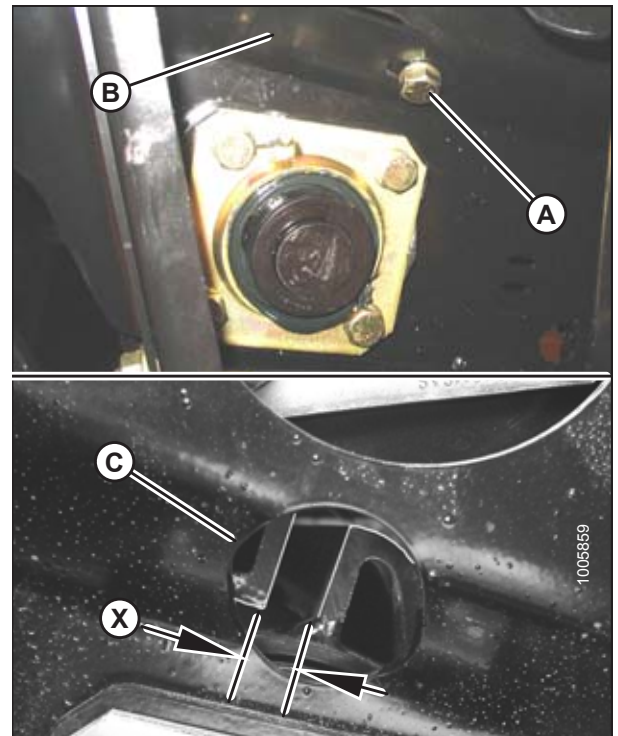


Figure 5.25: Access Port – Exposed

PERFORMING PREDELIVERY CHECKS

If required, adjust the roll timing as follows:

6. Loosen four bolts (A) in slots of yoke plate on lower roll universal shaft.
7. Turn rolls to achieve best timing.
8. When roll timing is satisfactory, tighten bolts (A) to secure the position.

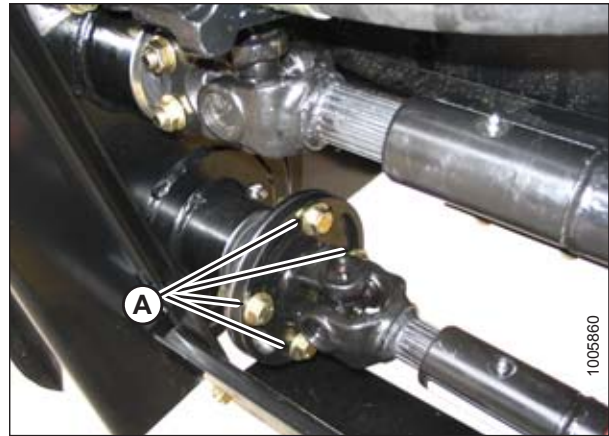


Figure 5.26: Roll Timing Adjustment Hardware

9. Reposition cover (A), and tighten bolt (B).

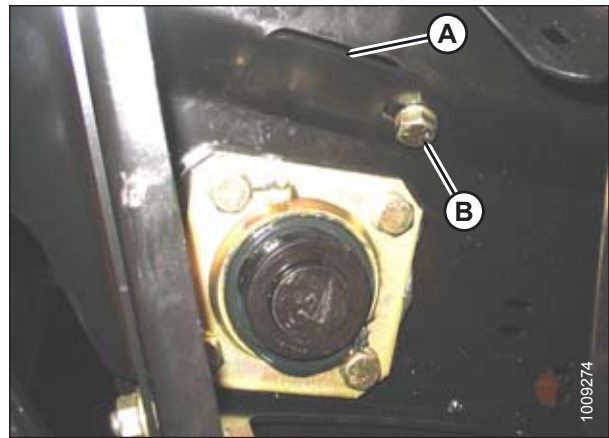


Figure 5.27: Access Port – Covered

5.9 Checking Conditioner Gearbox Oil Level

WARNING

To avoid bodily injury or death from unexpected startup of the machine, always stop the engine and remove the key from the ignition before leaving the operator's seat for any reason.

1. Lower the header fully, stop the engine, and remove the key.
2. Ensure that the gearbox is level with ground.
3. Remove check plug (A) and ensure that oil runs out. If oil does not run, fill the conditioner gearbox using SAE 85W-140.
4. Replace check plug (A).

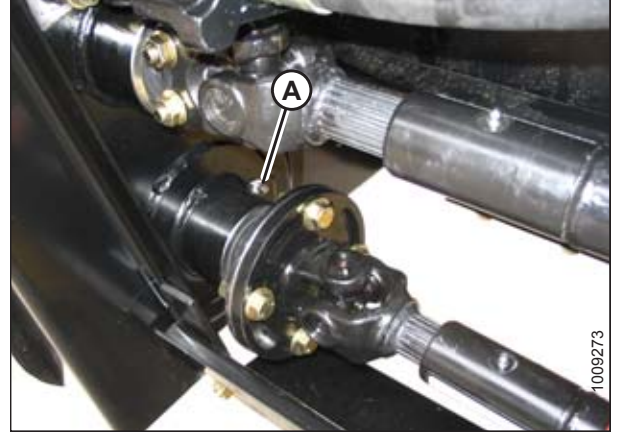


Figure 5.28: Check Plug

5.10 Checking Skid Shoes / Gauge Rollers

DANGER

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

1. Raise header and engage safety props.
2. Turn off the engine and remove the key from the ignition.
3. Check that pins (A) are installed in the same position in all skid shoes / gauge rollers.

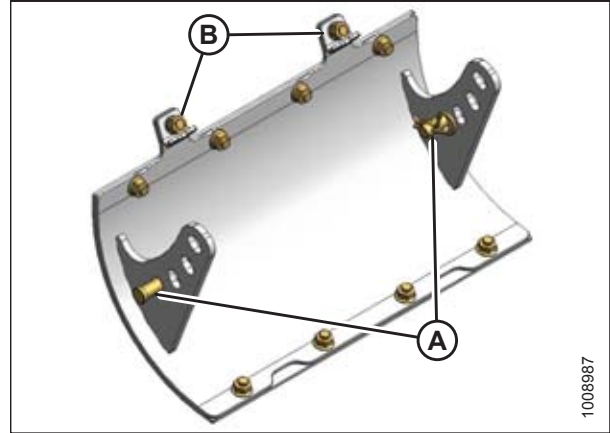


Figure 5.29: Skid Shoe

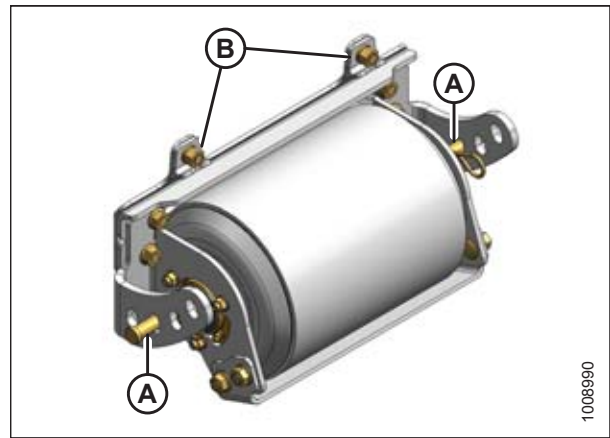


Figure 5.30: Gauge Roller

5.11 Checking Lights

Hazard lights, which are mounted on both ends of the header, are activated by switches in the windrower cab.

1. Check that pivot bolt (A) is tight enough to hold light support (B) in an upright position, but will still allow the light to pivot out of the way of obstructions.

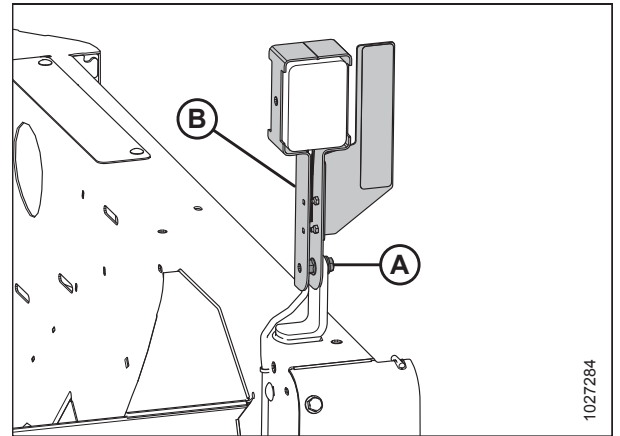


Figure 5.31: Hazard Light

5.12 Running up Header

CAUTION

- Never start or move the machine until you are sure all bystanders have cleared the area.
 - Clear the area of other persons, pets etc. Keep children away from machinery. Walk around the machine to be sure no one is under, on, or close to it.
 - Before investigating an unusual sound or attempting to correct a problem, return ground speed lever (GSL) to N-DETENT, center steering wheel to lock, shut off engine, and remove key.
1. Start windrower and operate header slowly for 5 minutes, watching and listening **FROM THE WINDROWER SEAT** for binding, interfering parts, or unusual noises.
 2. Run the machine for 15 minutes at maximum engine operating rpm and perform the run-up check as listed on the Predelivery Checklist (yellow sheet attached to this manual – [Predelivery Checklist, page 121](#)) to ensure machine is field-ready.
 3. Check knife speed in the windrower cab display module (CDM) during run-up and adjust knife speed to maximum on the CDM. Knife speed should be 1950 spm (actual speed of knife drive box pulley [A] should be 975 rpm) with the engine at maximum operating rpm.
 4. If speed is incorrect, check the header ID in the windrower CDM. The header drive pump may also require adjusting. Refer to [5.13 Checking Knife Speed, page 99](#).

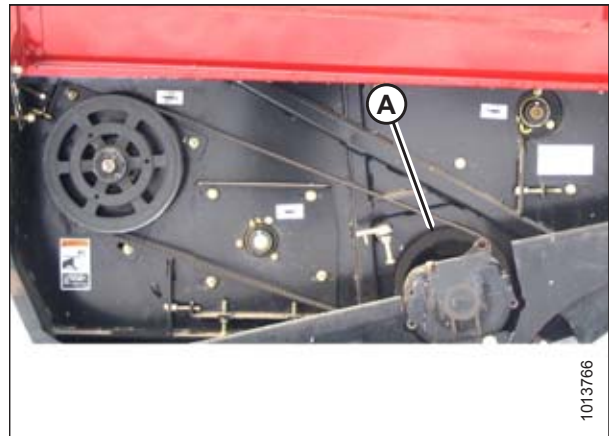


Figure 5.32: Right End of Header

5.13 Checking Knife Speed

A40D

Refer to the following sections to check the header knife speed when attaching an A40D Auger Header to an M100 or M105 Windrower.

Refer to the windrower operator's manual to check the header knife speed in the windrower cab display module (CDM) when attaching an A40D Auger Header to an M150, M155, M155E4, M200, or M205 Windrower.

A40DX

Refer to the windrower operator's manual to check the header knife speed on Harvest Performance Tracker (HPT) when attaching an A40DX Auger Header to an M1170 or M1240 Windrower.

5.13.1 Setting Knife Speed on an M100 or M105

The knife speed has been preset at the factory to the lowest rpm. Change the knife speed by making adjustments to the knife drive pump.

For optimum performance, set the knife speed within the range specified. Refer to Table 5.1, page 99.

NOTE:

When attaching an A40D Auger Header to an M100 or M105 Windrower for the first time, knife speed should be set to the **MAXIMUM** setting.

Table 5.1 A40D Auger Header Knife Speed

Header Description		Knife Speed			
Type	Size	Minimum		Maximum	
		rpm ⁶	spm ⁷	rpm ⁶	spm ⁷
Auger A40D	All	700	1400	975	1950

6. rpm = speed of knife drive box pulley (revolutions per minute)

7. spm = strokes per minute of knife (rpm x 2)

Setting Knife Speed with Expansion Module (MD #B4666)

WARNING

To avoid bodily injury or death from unexpected startup of the machine, always stop the engine and remove the key from the ignition before leaving the operator's seat for any reason.

1. Press SELECTOR button (B) on the ground speed lever (GSL) until the CDM (A) displays the knife speed in SPM (strokes per minute). This indicates that optional expansion module (MD #B4666) is installed.
2. If knife speed is **NOT** displayed, the optional expansion module is not installed. Proceed to *Setting Knife Speed without Expansion Module (MD #B4666), page 101*.
3. Compare reading to Table 5.1, page 99.



Figure 5.33: Operator Console

If required, adjust the knife speed as follows:

4. Shut down engine, and open engine hood.
5. Locate knife drive pump (A) and knife speed adjuster screw (B) under the right (cab-forward) side of the windrower.

NOTE:

The knife speed adjuster screw may have a plastic cap (B) covering it. Pull this cap off to expose the screw.

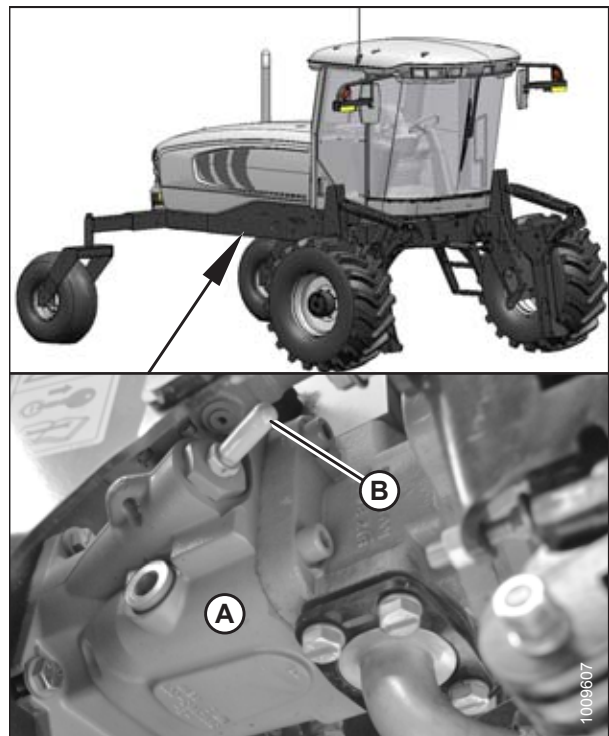


Figure 5.34: Knife Drive Pump

PERFORMING PREDELIVERY CHECKS

6. Loosen jam nut (A).
7. Turn adjuster screw (B) clockwise (screw in) to decrease knife speed, and counterclockwise (screw out) to increase the knife speed.

NOTE:

One turn of adjuster screw (B) will change the knife speed by approximately 116 strokes per minute (spm), or the knife drive box pulley speed by 58 revolutions per minute (rpm).

8. Once adjustment has been made, torque jam nut (A).
9. Close hood, start engine, and recheck knife speed.

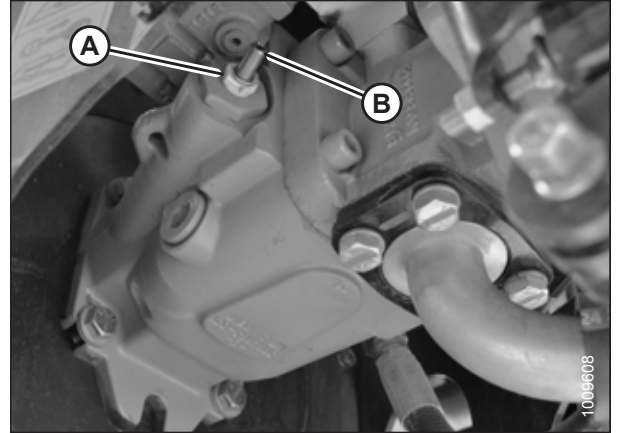


Figure 5.35: Knife Speed Adjuster Screw

Setting Knife Speed without Expansion Module (MD #B4666)

1. Check header knife drive box pulley speed with a handheld tachometer.
2. Multiply the rpm reading by two to obtain the knife speed in strokes per minute.
3. Compare reading to Table 5.1, page 99.
4. If required, adjust knife speed. Refer to Step 4, page 100 and Step 5, page 100.



Figure 5.36: Knife Drive Box on Header

5.14 Adjusting Knife and Guards

WARNING

To avoid bodily injury or death from unexpected startup of machine, always stop engine and remove key before adjusting machine.

1. Stop engine and remove key.
2. Check guards for signs of heating during run-up due to insufficient clearance between guard and knife.
3. If heating is evident, check gap between knifehead (A) and pitman arm (B). A business card should slide easily through gap. If not, adjust gap by loosening bolt and tapping knifehead (A) with a hammer. Retighten bolt.
4. Adjust guard alignment as necessary using guard straightening tool (MD #140135). Adjust guard tips upwards by positioning tool as shown and pulling up.

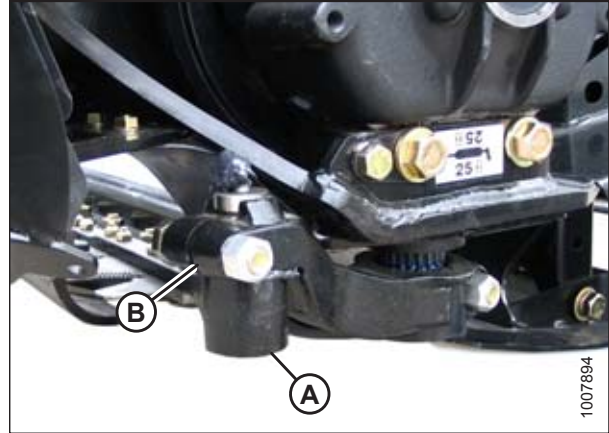


Figure 5.37: Knifehead and Pitman Arm



Figure 5.38: Guard Tips – Upward Adjustment

5. Adjust guard tips downward by positioning tool as shown and pushing down.

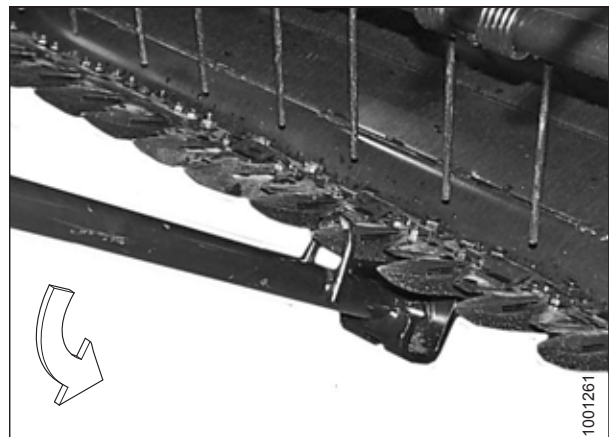


Figure 5.39: Guard Tips – Downward Adjustment

5.15 Checking Manuals

The manual case is located inside the right endshield.

1. Open the right endshield (A) and remove cable tie (B) from manual case (C).

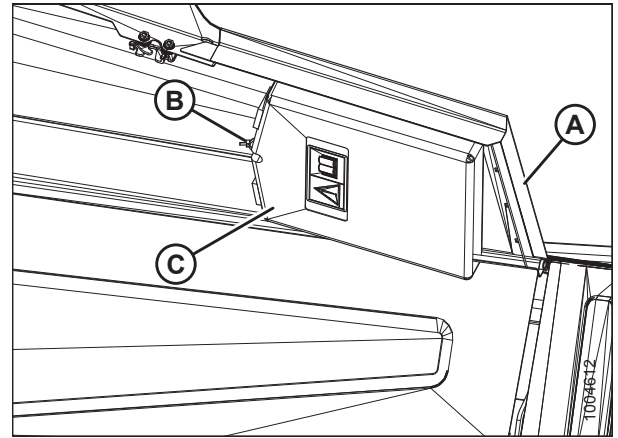


Figure 5.40: Manual Case

2. A40D/A40DX manuals are shipped with shipping documents and auger header unloading and assembly instructions.

Be sure to place the following manuals in the manual case:

- A40D/A40DX Auger Header Quick Card
- A40D/A40DX Operator's Manual
- A Series Parts Catalog

3. Replace cable tie on manual case and close endshield.



Figure 5.41: Manuals

Chapter 6: Reference

6.1 Torque Specifications

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

- Tighten all bolts to torque values specified in charts (unless otherwise noted throughout this manual).
- Replace hardware with same strength and grade of bolt.
- Use torque value tables as a guide and periodically check tightness of bolts.
- Understand torque categories for bolts and cap screws by using their identifying head markings.

Jam nuts

When applying torque to finished jam nuts, multiply the torque applied to regular nuts by $f=0.65$.

Self-tapping screws

Standard torque is to be used (**NOT** to be used on critical or structurally important joints).

6.1.1 SAE Bolt Torque Specifications

Torque values shown in following tables 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 6.1 SAE Grade 5 Bolt and Grade 5 Free Spinning Nut

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

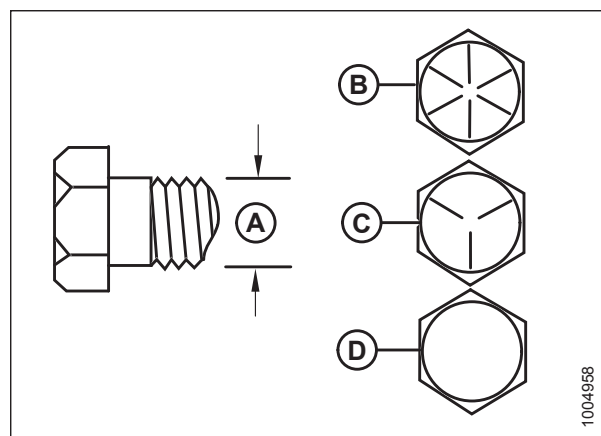


Figure 6.1: Bolt Grades

A - Nominal Size
C - SAE-5

B - SAE-8
D - SAE-2

REFERENCE

Table 6.2 SAE Grade 5 Bolt and Grade F Distorted Thread Nut

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

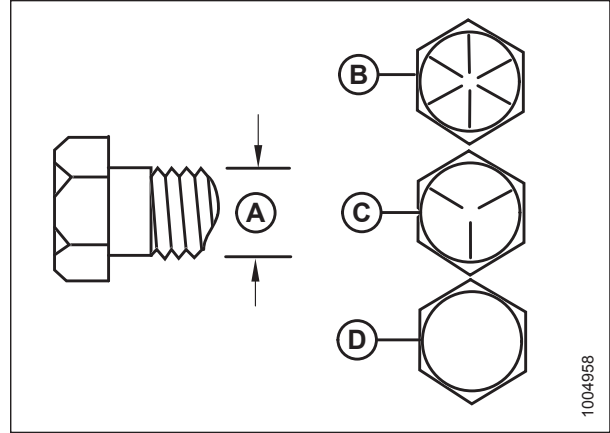


Figure 6.2: Bolt Grades

A - Nominal Size
C - SAE-5

B - SAE-8
D - SAE-2

Table 6.3 SAE Grade 8 Bolt and Grade G Distorted Thread Nut

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

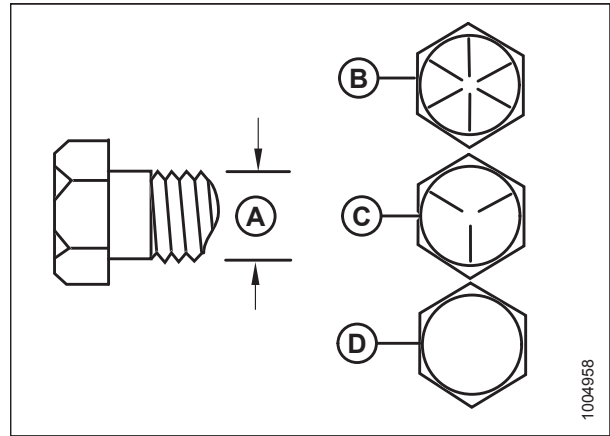


Figure 6.3: Bolt Grades

A - Nominal Size
C - SAE-5

B - SAE-8
D - SAE-2

REFERENCE

Table 6.4 SAE Grade 8 Bolt and Grade 8 Free Spinning Nut

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

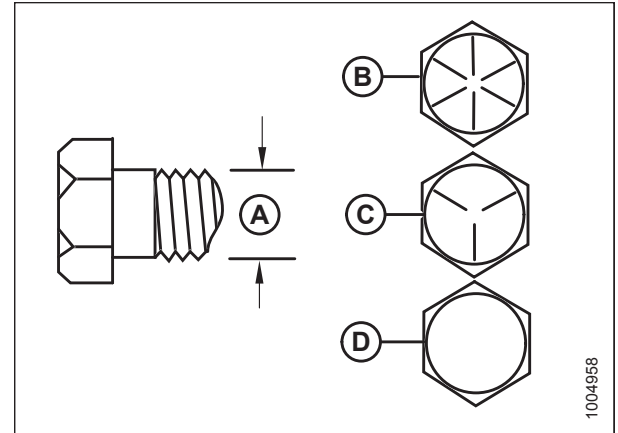


Figure 6.4: Bolt Grades

A - Nominal Size
C - SAE-5

B - SAE-8
D - SAE-2

6.1.2 Metric Bolt Specifications

Table 6.5 Metric Class 8.8 Bolts and Class 9 Free Spinning Nut

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

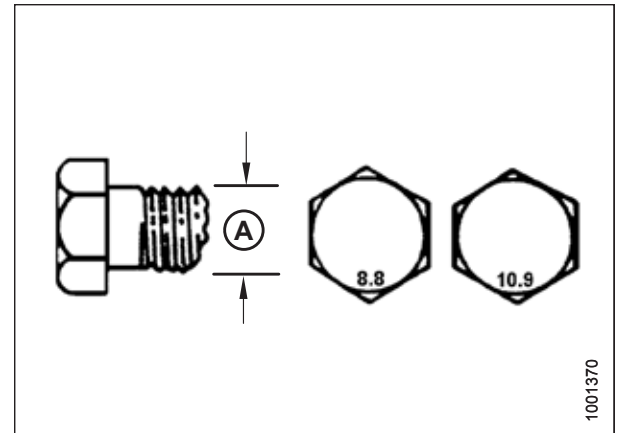


Figure 6.5: Bolt Grades

REFERENCE

Table 6.6 Metric Class 8.8 Bolts and Class 9 Distorted Thread Nut

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

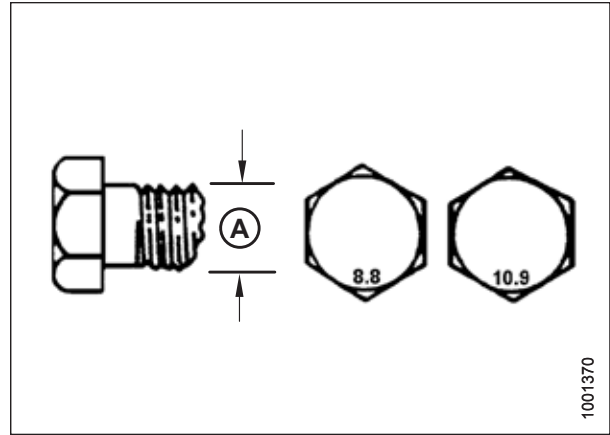


Figure 6.6: Bolt Grades

Table 6.7 Metric Class 10.9 Bolts and Class 10 Free Spinning Nut

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

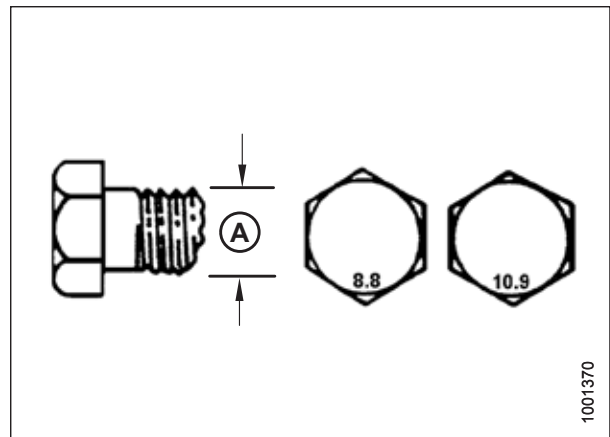


Figure 6.7: Bolt Grades

Table 6.8 Metric Class 10.9 Bolts and Class 10 Distorted Thread Nut

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

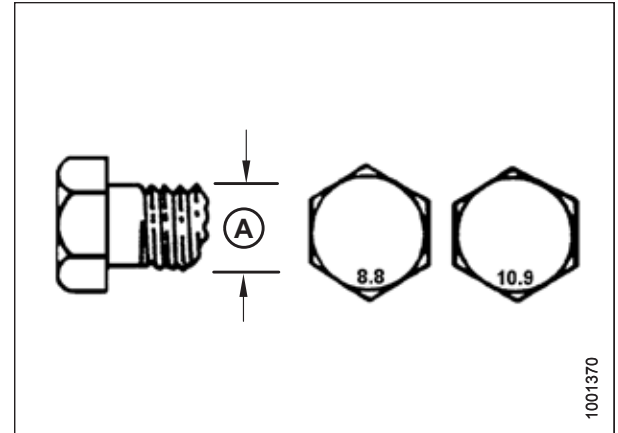


Figure 6.8: Bolt Grades

6.1.3 Metric Bolt Specifications Bolting into Cast Aluminum

Table 6.9 Metric Bolt Bolting into Cast Aluminum

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

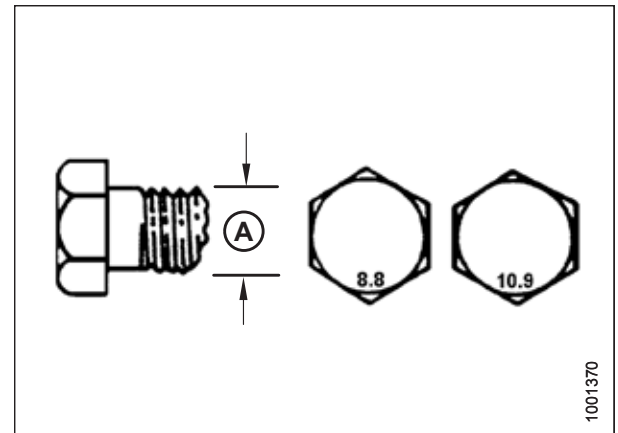


Figure 6.9: Bolt Grades

6.1.4 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 flared surfaces.
3. Torque fitting nut (E) to specified number of flats from finger tight (FFFT) or to a given torque value in Table 6.10, page 110.
4. Use two wrenches to prevent fitting (D) from rotating. Place one wrench on fitting body (D), and tighten nut (E) with other wrench to torque shown.
5. Assess final condition of connection.

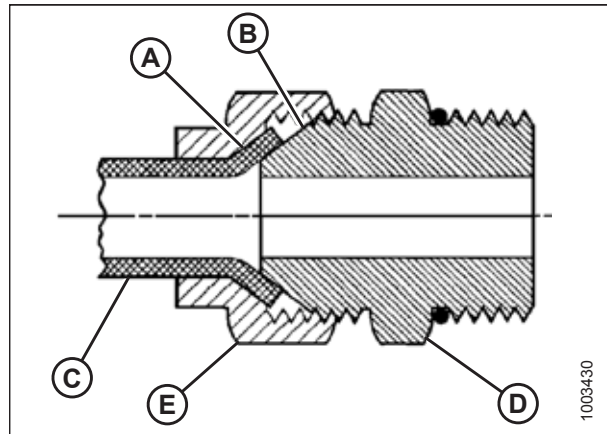


Figure 6.10: Hydraulic Fitting

Table 6.10 Flare-Type Hydraulic Tube Fittings

SAE Dash Size	Thread Size (in.)	Torque Value ⁸		Flats from Finger Tight (FFFT)	
		Nm	lbf·ft	Tube	Swivel Nut or Hose
-2	5/16–24	4–5	3–4	—	—
-3	3/8–24	7–8	5–6	—	—
-4	7/16–20	18–19	13–14	2 1/2	2
-5	1/2–20	19–21	14–15	2	2
-6	9/16–18	30–33	22–24	2	1 1/2
-8	3/4–16	57–63	42–46	2	1 1/2
-10	7/8–14	81–89	60–66	1 1/2	1 1/2
-12	1 1/16–12	113–124	83–91	1 1/2	1 1/4
-14	1 3/16–12	136–149	100–110	1 1/2	1 1/4
-16	1 5/16–12	160–176	118–130	1 1/2	1
-20	1 5/8–12	228–250	168–184	1	1
-24	1 7/8–12	264–291	195–215	1	1
-32	2 1/2–12	359–395	265–291	1	1
-40	3–12	—	—	1	1

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

6.1.5 O-Ring Boss Hydraulic Fittings – Adjustable

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

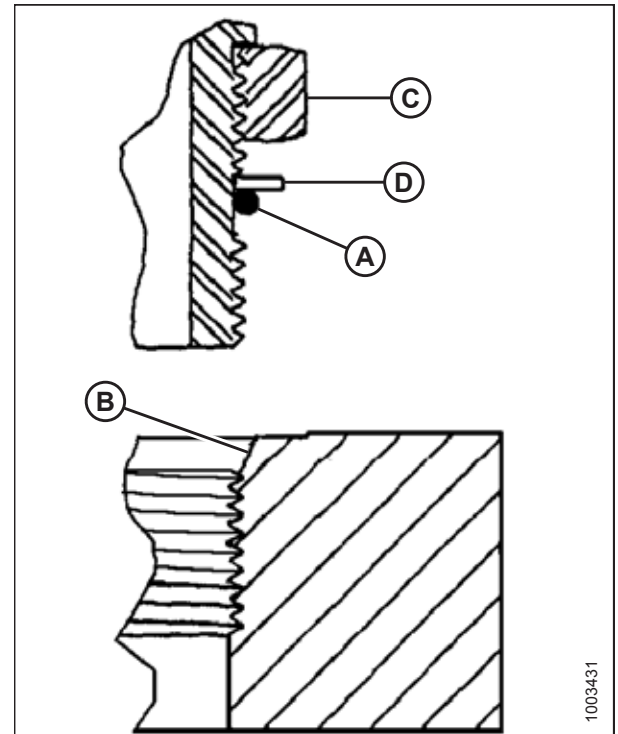


Figure 6.11: Hydraulic Fitting

5. Install fitting (B) into port until backup washer (D) and O-ring (A) contact 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 fitting (B) and other on lock nut (C).
8. Check final condition of fitting.

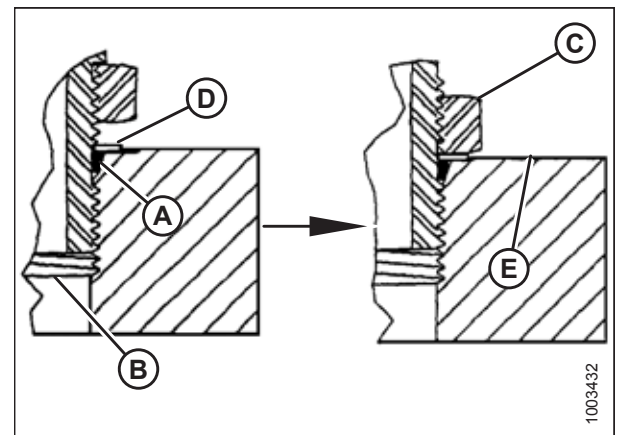


Figure 6.12: Hydraulic Fitting

REFERENCE

Table 6.11 O-Ring Boss (ORB) Hydraulic Fittings – Adjustable

SAE Dash Size	Thread Size (in.)	Torque Value ⁹	
		Nm	lbf·ft (*lbf·in)
-2	5/16-24	6-7	*53-62
-3	3/8-24	12-13	*106-115
-4	7/16-20	19-21	14-15
-5	1/2-20	21-33	15-24
-6	9/16-18	26-29	19-21
-8	3/4-16	46-50	34-37
-10	7/8-14	75-82	55-60
-12	1 1/16-12	120-132	88-97
-14	1 3/8-12	153-168	113-124
-16	1 5/16-12	176-193	130-142
-20	1 5/8-12	221-243	163-179
-24	1 7/8-12	270-298	199-220
-32	2 1/2-12	332-365	245-269

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

6.1.6 O-Ring Boss 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 threads and adjust if necessary.
3. Apply hydraulic system oil to O-ring.
4. Install fitting (C) into port until fitting is hand-tight.
5. Torque fitting (C) according to values in Table 6.12, page 113.
6. Check final condition of fitting.

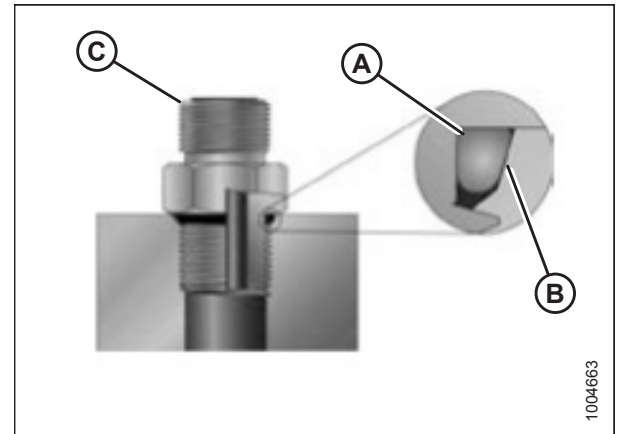


Figure 6.13: Hydraulic Fitting

Table 6.12 O-Ring Boss (ORB) Hydraulic Fittings – Non-Adjustable

SAE Dash Size	Thread Size (in.)	Torque Value ¹⁰	
		Nm	lbf·ft (*lbf·in)
-2	5/16-24	6-7	*53-62
-3	3/8-24	12-13	*106-115
-4	7/16-20	19-21	14-15
-5	1/2-20	21-33	15-24
-6	9/16-18	26-29	19-21
-8	3/4-16	46-50	34-37
-10	7/8-14	75-82	55-60
-12	1 1/16-12	120-132	88-97
-14	1 3/8-12	153-168	113-124
-16	1 5/16-12	176-193	130-142
-20	1 5/8-12	221-243	163-179
-24	1 7/8-12	270-298	199-220
-32	2 1/2-12	332-365	245-269

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

6.1.7 O-Ring Face Seal Hydraulic Fittings

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



Figure 6.14: Hydraulic Fitting

2. Apply hydraulic system oil to O-ring (B).
3. Align tube or hose assembly so that flat face of 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 values in Table 6.13, page 115.

NOTE:

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

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

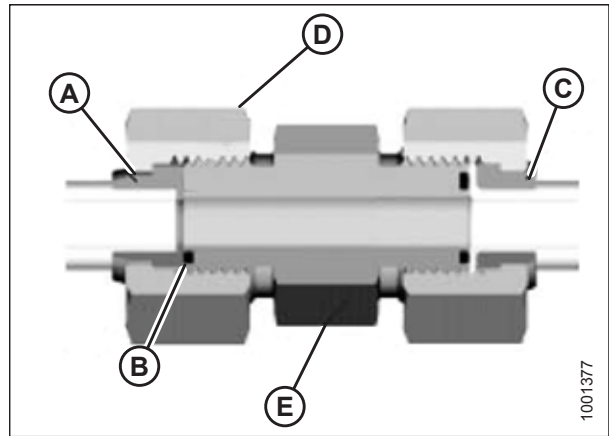


Figure 6.15: Hydraulic Fitting

REFERENCE

Table 6.13 O-Ring Face Seal (ORFS) Hydraulic Fittings

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

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

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

6.1.8 Tapered Pipe Thread Fittings

Assemble pipe fittings as follows:

1. Check components to ensure that fitting and port threads are free of burrs, nicks and scratches, or any form of contamination.
2. Apply pipe thread sealant (paste type) to external pipe threads.
3. Thread fitting into port until hand-tight.
4. Torque connector to appropriate torque angle. The turns from finger tight (TFFT) and flats from finger tight (FFFT) values are shown in Table 6.14, page 116. Make sure that tube end of a shaped connector (typically 45 degree or 90 degree) is aligned to receive incoming tube or hose assembly. Always finish alignment of fitting in tightening direction. Never back off (loosen) pipe threaded connectors to achieve alignment.
5. Clean all residue and any excess thread conditioner with appropriate cleaner.
6. Assess final condition of fitting. Pay special attention to possibility of cracks to port opening.
7. Mark final position of fitting. If a fitting leaks, disassemble fitting and check for damage.

NOTE:

Overtorque failure of fittings may not be evident until fittings are disassembled.

Table 6.14 Hydraulic Fitting Pipe Thread

Tapered Pipe Thread Size	Recommended TFFT	Recommended FFFT
1/8-27	2-3	12-18
1/4-18	2-3	12-18
3/8-18	2-3	12-18
1/2-14	2-3	12-18
3/4-14	1.5-2.5	12-18
1-11 1/2	1.5-2.5	9-15
1 1/4-11 1/2	1.5-2.5	9-15
1 1/2-11 1/2	1.5-2.5	9-15
2-11 1/2	1.5-2.5	9-15

6.2 Conversion Chart

Table 6.15 Conversion Chart

Quantity	SI Units (Metric)		Factor	US Customary Units (Standard)	
	Unit Name	Abbreviation		Unit Name	Abbreviation
Area	hectare	ha	$\times 2.4710 =$	acre	acres
Flow	liters per minute	L/min	$\times 0.2642 =$	US gallons per minute	gpm
Force	Newton	N	$\times 0.2248 =$	pound force	lbf
Length	millimeter	mm	$\times 0.0394 =$	inch	in.
Length	meter	m	$\times 3.2808 =$	foot	ft.
Power	kilowatt	kW	$\times 1.341 =$	horsepower	hp
Pressure	kilopascal	kPa	$\times 0.145 =$	pounds per square inch	psi
Pressure	megapascal	MPa	$\times 145.038 =$	pounds per square inch	psi
Pressure	bar (Non-SI)	bar	$\times 14.5038 =$	pounds per square inch	psi
Torque	Newton meter	Nm	$\times 0.7376 =$	pound feet or foot pounds	lbf-ft
Torque	Newton meter	Nm	$\times 8.8507 =$	pound inches or inch pounds	lbf-in
Temperature	degrees Celsius	°C	$(^{\circ}\text{C} \times 1.8) + 32 =$	degrees Fahrenheit	°F
Velocity	meters per minute	m/min	$\times 3.2808 =$	feet per minute	ft/min
Velocity	meters per second	m/s	$\times 3.2808 =$	feet per second	ft/s
Velocity	kilometers per hour	km/h	$\times 0.6214 =$	miles per hour	mph
Volume	liter	L	$\times 0.2642 =$	US gallon	US gal
Volume	milliliter	mL	$\times 0.0338 =$	ounce	oz.
Volume	cubic centimeter	cm ³ or cc	$\times 0.061 =$	cubic inch	in. ³
Weight	kilogram	kg	$\times 2.2046 =$	pound	lb.

6.3 Definitions

The following terms and acronyms may be used in this instruction:

Term	Definition
A Series header	MacDon A30S, A30D, A40D, A40DX, and Grass Seed auger headers
API	American Petroleum Institute
ASTM	American Society of Testing and Materials
Bolt	A headed and externally threaded fastener that is designed to be paired with a nut
Cab-forward	Windrower operation with Operator and cab facing in direction of travel
CDM	Cab display module on a windrower
Center-link	A hydraulic cylinder link between header and machine used to change header angle
CGVW	Combined gross vehicle weight
DK	Double knife
DKD	Double-knife drive
DWA	Double Windrow Attachment
ECM	Engine control module
Export header	Header configuration typical outside North America
FFFT	Flats from finger tight
Finger tight	Finger tight is a reference position where sealing surfaces or components are making contact with each other, and fitting has been tightened to a point where fitting is no longer loose
GSS	Grass Seed
GVW	Gross vehicle weight
Hard joint	A joint made with use of a fastener where joining materials are highly incompressible
Header	A machine that cuts and lays crop into a windrow and is attached to a windrower
Hex key	A tool of hexagonal cross-section used to drive bolts and screws that have a hexagonal socket in head (internal-wrenching hexagon drive); also known as an Allen key and various other synonyms
hp	Horsepower
JIC	Joint Industrial Council: A standards body that developed standard sizing and shape for original 37° flared fitting
Knife	A cutting device which uses a reciprocating cutter (also called a sickle)
n/a	Not applicable
N-DETENT	The slot opposite the NEUTRAL position of M Series SP Windrowers on operator's console
North American header	Header configuration typical in North America
NPT	National Pipe Thread: A style of fitting used for low-pressure port openings. Threads on NPT fittings are uniquely tapered for an interference fit
Nut	An internally threaded fastener that is designed to be paired with a bolt
ORB	O-ring boss: A style of fitting commonly used in port openings on manifolds, pumps, and motors

REFERENCE

Term	Definition
ORFS	O-ring face seal: A style of fitting commonly used for connecting hoses and tubes. This style of fitting is also commonly called ORS, which stands for O-ring seal
RoHS (Reduction of Hazardous Substances)	A directive by the European Union to restrict use of certain hazardous substances (such as hexavalent chromium used in some yellow zinc platings)
rpm	Revolutions per minute
SAE	Society of Automotive Engineers
Screw	A headed and externally threaded fastener that threads into preformed threads or forms its own thread into a mating part
Self-Propelled (SP) Windrower	Self-propelled machine consisting of a power unit with a header
SKD	Single-knife drive
Soft joint	A joint made with use of a fastener where joining materials are compressible or experience relaxation over a period of time
spm	Strokes per minute
Tension	Axial load placed on a bolt or screw, usually measured in Newtons (N) or pounds (lb.)
TFFT	Turns from finger tight
Timed knife drive	Synchronized motion applied at cutterbar to two separately driven knives from a single hydraulic motor
Torque	The product of a force X lever arm length, usually measured in Newton-meters (Nm) or foot-pounds (lbf-ft)
Torque angle	A tightening procedure where fitting is assembled to a precondition (finger tight) and then nut is turned farther a number of degrees to achieve its final position
Torque-tension	The relationship between assembly torque applied to a piece of hardware and axial load it induces in bolt or screw
Washer	A thin cylinder with a hole or slot located in the center that is to be used as a spacer, load distribution element, or locking mechanism
WCM	Windrower control module
Windrower	Power unit of a self-propelled header
WOT	Wide open throttle

Predelivery Checklist

Perform these checks and adjustments prior to delivery to your Customer. If adjustments are required, refer to the appropriate page number in this manual. The completed checklist should be retained by either the Operator or the Dealer.



CAUTION

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

Header Serial Number:

Table .16 A40D, A40DX Predelivery Checklist

✓	Item	Reference
	Check for shipping damage or missing parts. Be sure all shipping dunnage is removed.	—
	Check for loose hardware. Tighten to required torque if applicable.	
	Check knife drive belt tension.	5.1 Checking Drive Belts and Chains, page 81
	Check reel tine to header pan and knife clearance.	5.3 Checking Reel Tine to Header Pan Clearance, page 83
	Check auger stripper bar clearance.	5.2 Checking Auger Stripper Bar Clearance, page 82
	If mechanical link, set header angle to middle of adjustment range for first use.	—
	Check that header is level.	<ul style="list-style-type: none"> • 5.6 Leveling the Header – M Series, page 88 • 5.7 Leveling the Header – M1 Series, page 90
	Check header float: 335–380 N (75–85 lbf).	<ul style="list-style-type: none"> • 5.4 Checking and Adjusting Float – M Series, page 84 • 5.5 Checking and Adjusting Float – M1 Series, page 85
	Check lean bar is adjusted to a setting appropriate for first crop.	3.7 Adjusting Lean Bar, page 16
	Check skid shoes are evenly adjusted at a setting appropriate for first crop.	5.10 Checking Skid Shoes / Gauge Rollers, page 96
	Check knife drive box lube level and breather position.	3.19 Repositioning Knife Drive Box Breather, page 73
	Check that rear and side forming shields are evenly set to desired position.	3.10 Assembling Forming Shield, page 20
	Grease all bearings and drivelines.	4 Lubricating the Machine, page 75
	Check conditioner gear case lube level.	5.9 Checking Conditioner Gearbox Oil Level, page 95
	Check conditioner roll gap, timing, and alignment.	5.8 Checking Conditioner Rolls, page 93
	Check roll intermesh hardware is securely tightened.	5.8 Checking Conditioner Rolls, page 93

REFERENCE

RUN-UP PROCEDURE		5.12 Running up Header, page 98
	Check hydraulic hose and wiring harness routing for clearance when raising or lowering header and when retracting or extending center-link.	—
	Check knife speed.	5.13 Checking Knife Speed, page 99
	Check that amber flasher and signal lights are functional.	5.11 Checking Lights, page 97
	Check header ID on windrower CDM.	—
POST RUN-UP CHECKS. STOP ENGINE.		
	Check for hydraulic leaks.	—
	Check belt and chain drives for idler alignment and heated bearings.	5.1 Checking Drive Belts and Chains, page 81
	Check knife sections for discoloration caused by misalignment of components.	5.14 Adjusting Knife and Guards, page 102
	Check manuals in the right header endshield.	5.15 Checking Manuals, page 103

Date Checked:

Checked by:

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