

HC10

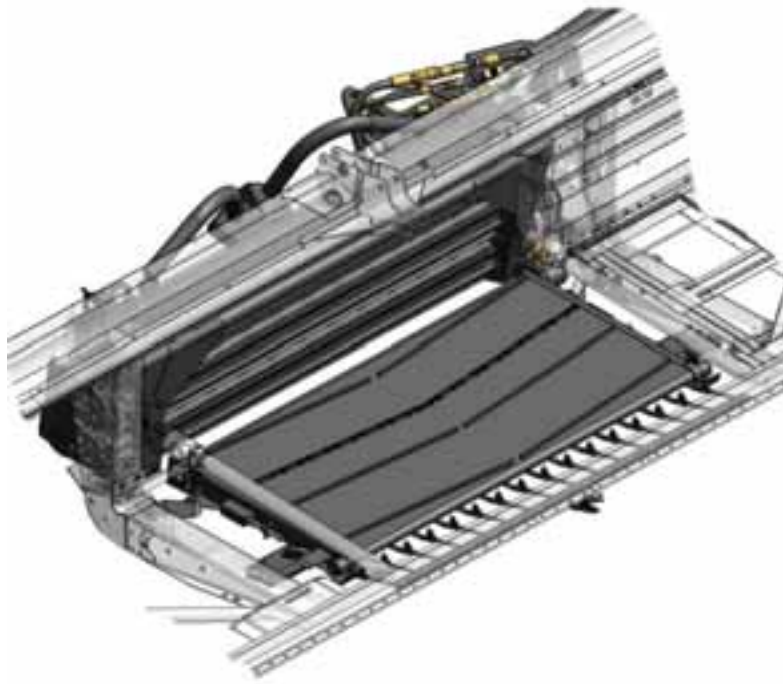
Hay Conditioner

Setup, Operation, and Parts Manual

215126 Revision A

Original Instruction

MacDon HC10 Hay Conditioner



1030791

Published October 2019.

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Introduction

This manual contains safety information, setup instructions, operating and maintenance procedures, and parts information for the MacDon HC10 Hay Conditioner.

Conditioning or crimping cut hay allows moisture release for quicker drying and earlier processing. This hay conditioner, when teamed with an M Series Self-Propelled Windrower and a timed double-knife drive D60, D65, or D1 Series Draper Header, will condition crop cut by the header, which the windrower lays into uniform, fluffy windrows.

NOTE:

The HC10 is **ONLY** compatible with D60, D65, and D1 Series Headers that are 4.6–9.1 m (15–30 ft.) in length and equipped with a timed double-knife. To avoid excessive vibration and poor performance, the HC10 Hay Conditioner should **NOT** be attached to single-knife drive headers.

When setting up the machine or making adjustments, review and follow the recommended machine settings in all relevant MacDon publications. Failure to do so may compromise machine function and machine life and may result in a hazardous situation.

The HC10 Hay Conditioner is NOT intended for use with the M205 Self-Propelled Windrower. Refer to the following table to determine if the HC10 Hay Conditioner is compatible with your windrower in your market:

Windrower (North America only)	MacDon M150, M155, M155E4, and M200 Self-Propelled Windrowers
Windrower (Export only)	MacDon M100, M105, M150, M155, and M200 Self-Propelled Windrowers

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

Use this manual as your first source of information about the machine. If you follow the instructions given in this manual, your hay conditioner will work well for many years. Use this manual in conjunction with your windrower and draper header manuals.

Use the Table of Contents and Index to guide you to specific topics. Review the Table of Contents to familiarize yourself with how the material is organized.

Keep this manual handy for frequent reference and to pass on to new Operators or Owners. Call your Dealer if you need assistance, information, or additional copies of this manual.

Warranty information

MacDon provides warranty for Customers who operate and maintain their equipment as described in this manual. A copy of the MacDon Industries Limited Warranty Policy, which explains this warranty, should have been provided to you by your Dealer. Damage resulting from any of the following conditions will void the warranty:

- Accident
- Misuse
- Abuse
- Improper maintenance or neglect
- Abnormal or extraordinary use of the machine
- Failure to use the machine, equipment, component, or part in accordance with the manufacturer's instructions

Conventions

Right and left are determined from the operator's position. The front of the header and of the hay conditioner is the side that faces the crop; the back is the side that connects to the windrower.

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).

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

Summary of Changes

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

Section	Summary of Change	Internal Use Only
Front cover	Removed “D Series” from the cover because the HC10 is compatible with specific lengths of D Series and D1 Series headers.	Tech Pubs
Inside front cover	Added copyright and disclaimer.	Tech Pubs
<i>Introduction, page i</i>	Specified which lengths of D Series and D1 Series headers are compatible with the HC10. Added NOTE: <ul style="list-style-type: none"> The HC10 is only compatible with D60, D65, and D1 Series Headers that are 4.6–9.1 m (15–30 ft.) in length and equipped with a timed double-knife. To avoid excessive vibration and poor performance, the HC10 Hay Conditioner should NOT be attached to single-knife drive headers. 	Tech Pubs
<i>Introduction, page i</i>	Changed the term from “Carrier” to “Windrower” in the table.	Tech Pubs
<i>1 Safety, page 1</i>	Added definition of IMPORTANT and NOTE.	Tech Pubs
<i>2.1 Definitions, page 9</i>	Added definition of D1 SP Series Header.	Engineering
<i>2.2 Specifications, page 11</i>	Revised the following specifications: <ul style="list-style-type: none"> Frame and Structure – Header: Now specifies a “timed only” double-knife drive. Added “D1 Series” headers. Drives – Main Conditioner: Now “80 cc (4.9 cu in.)” (no flow divider), was 51.83 cc (3.16 cu in.) hydraulic motor with 21.14 cc (1.29 cu in.) flow divider. Conditioner – Header Size: Added metric units. Conditioner – Header Size: Removed “35 ft.” header from table and associated footnote. Conditioner – Roll Speed: Removed “695–868 rpm.” Conditioner – Feed Draper Speed: Removed “393–491 fpm.” Replaced the term “Export” with “outside of North America” in the NOTE at the end of the topic. 	Engineering ECN 57949
<i>3.1 Unloading the Hay Conditioner, page 15</i> <ul style="list-style-type: none"> Step 3, page 16 	Replaced “unit” with “forks and pallet” for clarity.	Tech Pubs
<i>3.3 Installing the Rock Grate, page 18</i> <ul style="list-style-type: none"> Step 2, page 18 Step 6, page 18 	Added or revised steps to include more detailed part descriptions and/or instructions for retrieving parts.	Tech Pubs

Section	Summary of Change	Internal Use Only
• Step 7, page 18		
3.3 Installing the Rock Grate, page 18 • Step 8, page 18	Revised step to say “tighten nuts” instead of “tighten bolts.”	Tech Pubs
3.4 Installing Deck Brackets, page 19	Created introductory topic because of the introduction of adapter plate MD #159734.	ECN 58813
3.4.1 Installing Deck Brackets – D115, D120, and D125, page 19	Created a new topic for D115, D120, and D125 headers to include the introduction of adapter plate MD #159734. Added part numbers and detailed descriptions of parts to all steps where shown.	ECN 58813
3.4.2 Installing Deck Brackets – D60, D65, and D130, page 22	Created topic for D60, D65, and D130 headers to exclude the introduction of adapter plate MD #159734. Added part numbers and detailed descriptions of parts to all steps where shown.	ECN 58813
3.4.2 Installing Deck Brackets – D60, D65, and D130, page 22 • Step 9, page 23	Revised step to say “tighten nuts” instead of “tighten bolts.”	Tech Pubs
3.5 Installing the Feed Deck, page 24 • Step 1, page 24	Revised step to include instructions for retrieving parts.	Tech Pubs
3.5 Installing the Feed Deck, page 24 • Step 4, page 24 • Step 5, page 25	<ul style="list-style-type: none"> Revised steps and associated illustrations to correct the installation location of the bolt and nut. Revised step to include more detailed part descriptions and/or instructions for retrieving parts. 	Tech Pubs
3.5 Installing the Feed Deck, page 24 • Step 6, page 25	Revised step to include more detailed part descriptions and/or instructions for retrieving parts.	Tech Pubs
3.6.1 Installing Conditioner – Lifting Method, page 26	<p>Removed the following DANGER ONLY because the machine is considered to be off at this time.</p> <ul style="list-style-type: none"> To avoid bodily injury or death from unexpected start-up or fall of a raised machine, always stop engine and remove key before leaving the operator’s seat, and always engage safety props before going under the machine for any reason. 	Tech Pubs
3.6.1 Installing Conditioner – Lifting Method, page 26 • Step 7, page 27	<p>Revised step as follows:</p> <ul style="list-style-type: none"> Now includes the nut. Added detailed part descriptions and/or instructions for retrieving parts. 	Tech Pubs
3.6.1 Installing Conditioner – Lifting Method, page 26 • Step 8, page 27	<p>Revised step as follows:</p> <ul style="list-style-type: none"> Revised the illustration to correct the installation location of the bolt and nut. Added detailed part descriptions and/or instructions for retrieving parts. 	Tech Pubs

Section	Summary of Change	Internal Use Only
3.6.1 Installing Conditioner – Lifting Method, page 26 <ul style="list-style-type: none"> Step 9, page 28 	Revised the illustration to include the new conditioner drive motor and hose assembly adapter plate.	ECN 57949 ECN 58813
3.6.2 Installing Conditioner – Windrower Method, page 28 <ul style="list-style-type: none"> Step 4, page 29 	Revised step to include more detailed part descriptions and/or instructions for retrieving parts.	Tech Pubs
3.6.2 Installing Conditioner – Windrower Method, page 28 <ul style="list-style-type: none"> Step 6, page 29 to Step 13, page 30 	Revised or added steps and illustrations for positioning the lifting arms. The left lifting arm must now be removed and reinstalled due to changes in design associated with the new conditioner drive motor MD #159661.	ECN 57949
3.6.2 Installing Conditioner – Windrower Method, page 28 <ul style="list-style-type: none"> Step 14, page 30 Step 15, page 30 Step 16, page 30 Step 17, page 30 Step 22, page 31 Step 23, page 31 	Revised or added steps for safety and clarity.	Tech Pubs
3.6.2 Installing Conditioner – Windrower Method, page 28 <ul style="list-style-type: none"> Step 24, page 31 to Step 31, page 31 	Revised or added steps and illustrations for positioning the lifting arms. The left lifting arm must now be removed and reinstalled due to changes in design associated with the new conditioner drive motor MD #159661.	ECN 57949
3.6.2 Installing Conditioner – Windrower Method, page 28 <ul style="list-style-type: none"> Step 32, page 32 	<ul style="list-style-type: none"> Revised step to include more detailed part descriptions and/or instructions for retrieving parts. Revised step to include the nut. 	Tech Pubs
3.6.2 Installing Conditioner – Windrower Method, page 28 <ul style="list-style-type: none"> Step 33, page 32 	<ul style="list-style-type: none"> Revised step and associated illustration to correct the installation location of the bolt and nut. Revised step to include more detailed part descriptions and/or instructions for retrieving parts. 	Tech Pubs
3.6.2 Installing Conditioner – Windrower Method, page 28 <ul style="list-style-type: none"> Step 34, page 32 	Revised the illustration to include the new conditioner drive motor and hose assembly adapter plate.	ECN 57949 ECN 58813
3.7 Attaching Hydraulics, page 33	Added metric units to header size.	Tech Pubs
3.7.1 Attaching Hydraulics – 4.6 m (15 ft.) Headers, page 33	<ul style="list-style-type: none"> Added “D Series Shown, D1 Series Similar” to all captions. Added metric units to header size. 	Tech Pubs
3.7.1 Attaching Hydraulics – 4.6 m (15 ft.) Headers, page 33 <ul style="list-style-type: none"> Step 5, page 34 	<ul style="list-style-type: none"> Rotated picture for clarity. Revised step to include more detailed part descriptions and/or instructions for retrieving parts. 	Tech Pubs

Section	Summary of Change	Internal Use Only
<ul style="list-style-type: none"> Step 7, page 35 		
3.7.2 Attaching Hydraulics – All Headers Except 4.6 m (15 ft.), page 36	<ul style="list-style-type: none"> Added “D Series Shown, D1 Series Similar” to all captions. Added metric units to header size. Remove step: “Identify the hydraulic coupler components shown in the figure at right.” 	Tech Pubs
3.8 Assembling the Forming Shield, page 38 <ul style="list-style-type: none"> Step 1, page 38 Step 3, page 38 	Revised steps to include more detailed part descriptions and/or instructions for retrieving parts.	Tech Pubs
3.9 Installing the Forming Shield, page 41 <ul style="list-style-type: none"> Step 7, page 42 	Revised step to include more detailed part descriptions and/or instructions for retrieving parts.	Tech Pubs
3.10 Attaching to a Windrower, page 43 <ul style="list-style-type: none"> Step 2, page 43 Step 3, page 43 	<ul style="list-style-type: none"> Revised step to include more detailed part descriptions and/or instructions for retrieving parts. Revised illustration and associated steps to identify all parts involved. 	Tech Pubs
3.12 Performing Predelivery Checks, page 47	<p>Removed the following DANGER ONLY because the machine is considered to be off at this time.</p> <ul style="list-style-type: none"> To avoid bodily injury or death from unexpected start-up of the machine, always stop the engine and remove the key from the ignition before leaving the operator’s seat for any reason. 	Tech Pubs
3.12.2 Checking Roll Gap, page 48	Formatted content into steps.	Tech Pubs
3.12.3 Checking Roll Timing, page 48	<p>Removed the following DANGER and safety step ONLY because the machine is considered to be off, and the header is considered fully lowered, at this time:</p> <ul style="list-style-type: none"> To avoid bodily injury or death from unexpected start-up of the machine, always stop the engine and remove the key from the ignition before leaving the operator’s seat for any reason. 	Tech Pubs
3.12.4 Running up the Conditioner, page 49	<p>Removed the following CAUTION ONLY because this topic contains another similar CAUTION:</p> <ul style="list-style-type: none"> 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. <p>Replaced the following CAUTION with the following WARNING statement:</p> <ul style="list-style-type: none"> CAUTION: Before investigating an unusual sound or attempting to correct a problem, shut off engine, engage parking brake, and remove key. 	Tech Pubs

Section	Summary of Change	Internal Use Only
	<ul style="list-style-type: none"> WARNING: To avoid injury or death from unexpected start-up of machine, always stop the engine and remove the key from the ignition before leaving the operator's seat for any reason. 	
3.12.4 Running up the Conditioner, page 49 <ul style="list-style-type: none"> Step 1, page 49 	Added safety steps: <ul style="list-style-type: none"> Clear all bystanders from the area. 	Tech Pubs
3.12.4 Running up the Conditioner, page 49 <ul style="list-style-type: none"> Step 3, page 49 Step 4, page 49 	Changed the term "machine" to "header" in these steps for clarity.	Tech Pubs
3.12.4 Running up the Conditioner, page 49 <ul style="list-style-type: none"> Step 6, page 49 	Added safety step: <ul style="list-style-type: none"> Shut down the engine, and remove the key from the ignition. 	Tech Pubs
4.2 Operational Safety, page 52	Added "header" to the following CAUTION: <ul style="list-style-type: none"> Follow all safety and operational instructions given in your windrower and header operator's manuals. If you do not have a windrower and/or header manual, get one from your Dealer and read it thoroughly. 	Tech Pubs
4.4.1 Detaching Hay Conditioner – Windrower Method, page 54	Replaced the following CAUTION with the following WARNING statement: <ul style="list-style-type: none"> CAUTION: To prevent accidental movement of windrower, return GSL to N-DETENT, center steering wheel to lock, shut off engine, and remove key. WARNING: To avoid injury or death from unexpected start-up of machine, always stop the engine and remove the key from the ignition before leaving the operator's seat for any reason. 	Tech Pubs
4.4.1 Detaching Hay Conditioner – Windrower Method, page 54 <ul style="list-style-type: none"> Step 1, page 54 	Added safety step: <ul style="list-style-type: none"> Shut down the engine, and remove the key from the ignition. 	Tech Pubs
4.4.1 Detaching Hay Conditioner – Windrower Method, page 54 <ul style="list-style-type: none"> Step 6, page 55 	Revised the illustration to include the new conditioner drive motor and hose assembly adapter plate.	ECN 57949 ECN 58813
4.4.1 Detaching Hay Conditioner – Windrower Method, page 54 <ul style="list-style-type: none"> Step 7, page 55 	Revised step to include the nut.	Tech Pubs
4.4.1 Detaching Hay Conditioner – Windrower Method, page 54 <ul style="list-style-type: none"> Step 8, page 56 	Revised step and associated illustration to correct the installation location of the bolt and nut.	Tech Pubs

Section	Summary of Change	Internal Use Only
4.4.1 Detaching Hay Conditioner – Windrower Method, page 54 <ul style="list-style-type: none"> Step 9, page 56 to Step 16, page 56 	Revised or added steps and illustrations for positioning the lifting arms. The left lifting arm must now be removed and reinstalled due to changes in design associated with the new conditioner drive motor MD #159661.	ECN 57949
4.4.2 Detaching Hay Conditioner – Lifting Method, page 58	Replaced the following CAUTION with the following WARNING statement: <ul style="list-style-type: none"> CAUTION: To prevent accidental movement of windrower, return GSL to N-DETENT, center steering wheel to lock, shut off engine, and remove key. WARNING: To avoid injury or death from unexpected start-up of machine, always stop the engine and remove the key from the ignition before leaving the operator’s seat for any reason. 	Tech Pubs
4.4.2 Detaching Hay Conditioner – Lifting Method, page 58 <ul style="list-style-type: none"> Step 1, page 58 	Added safety step: <ul style="list-style-type: none"> Shut down the engine, and remove the key from the ignition. 	Tech Pubs
4.4.2 Detaching Hay Conditioner – Lifting Method, page 58 <ul style="list-style-type: none"> Step 6, page 59 	Revised the illustration to include the new conditioner drive motor and hose assembly adapter plate.	ECN 57949 ECN 58813
4.4.2 Detaching Hay Conditioner – Lifting Method, page 58 <ul style="list-style-type: none"> Step 7, page 60 	Revised step to include the nut.	Tech Pubs
4.4.2 Detaching Hay Conditioner – Lifting Method, page 58 <ul style="list-style-type: none"> Step 8, page 60 	Revised step and associated illustration to correct the installation location of the bolt and nut.	Tech Pubs
4.5 Detaching Feed Deck and Rock Grate, page 62 <ul style="list-style-type: none"> Step 2, page 62 Step 3, page 62 	Revised steps and associated illustrations to correct the installation location of the bolt and nut.	Tech Pubs
4.6 Break-in Period, page 65	Replaced the following CAUTION with the following WARNING statement: <ul style="list-style-type: none"> CAUTION: Before investigating an unusual sound or attempting to correct a problem, shut off engine, engage parking brake, and remove key. WARNING: To avoid injury or death from unexpected start-up of machine, always stop the engine and remove the key from the ignition before leaving the operator’s seat for any reason. 	Tech Pubs
4.9 Conditioner Operation, page 68	Revised the WARNING to specify a distance of 100 m (300 ft.): <ul style="list-style-type: none"> Keep hands and feet away from discharge opening. Keep everyone at least 100 meters (330 ft.) away from your operation. Never direct the discharge toward 	Tech Pubs

Section	Summary of Change	Internal Use Only
	anyone. Stones or other foreign objects can be ejected with force.	
4.9.4 Adjusting Conditioner Roll Tension , page 70 <ul style="list-style-type: none"> Step 2, page 70 	Added safety step: <ul style="list-style-type: none"> Engage the header safety props. 	Tech Pubs
Adjusting Forming Shield Height, page 71	Changed the following statement from a DANGER to a WARNING for consistency: <ul style="list-style-type: none"> To avoid bodily injury or death from unexpected start-up of the machine, always stop the engine and remove the key from the ignition before leaving the operator's seat for any reason. 	Tech Pubs
Adjusting Forming Shield Height, page 71 <ul style="list-style-type: none"> Step 1, page 71 	Added safety step: <ul style="list-style-type: none"> Shut down the engine, and remove the key from the ignition. 	Tech Pubs
Adjusting Side Deflectors, page 71	Changed the following statement from a DANGER to a WARNING for consistency: <ul style="list-style-type: none"> To avoid bodily injury or death from unexpected start-up of the machine, always stop the engine and remove the key from the ignition before leaving the operator's seat for any reason. 	Tech Pubs
Adjusting Side Deflectors, page 71 <ul style="list-style-type: none"> Step 1, page 71 	Added safety step: <ul style="list-style-type: none"> Shut down the engine, and remove the key from the ignition. 	Tech Pubs
Adjusting Rear Deflector (Fluffer Shield), page 72	Changed the following statement from a DANGER to a WARNING for consistency: <ul style="list-style-type: none"> To avoid bodily injury or death from unexpected start-up of the machine, always stop the engine and remove the key from the ignition before leaving the operator's seat for any reason. 	Tech Pubs
Adjusting Rear Deflector (Fluffer Shield), page 72 <ul style="list-style-type: none"> Step 1, page 72 	Added safety step: <ul style="list-style-type: none"> Shut down the engine, and remove the key from the ignition. 	Tech Pubs
Adjusting Deflector Fins, page 72	Changed the following statement from a DANGER to a WARNING for consistency: <ul style="list-style-type: none"> To avoid bodily injury or death from unexpected start-up of the machine, always stop the engine and remove the key from the ignition before leaving the operator's seat for any reason. 	Tech Pubs
Adjusting Deflector Fins, page 72 <ul style="list-style-type: none"> Step 1, page 72 	Added safety step: <ul style="list-style-type: none"> Shut down the engine, and remove the key from the ignition. 	Tech Pubs

Section	Summary of Change	Internal Use Only
5.1 Preparation for Servicing, page 75	Replaced the following CAUTION with the following DANGER: <ul style="list-style-type: none"> • CAUTION: To avoid personal injury, before servicing hay conditioner or opening header drive covers: • DANGER: To avoid bodily injury or death from unexpected start-up or fall of a raised machine, always stop engine and remove key before leaving the operator's seat, and always engage safety props before going under the machine for any reason. 	Tech Pubs
5.7.1 Adjusting Drive Belt Tension, page 81 <ul style="list-style-type: none"> • Step 1, page 81 • Step 2, page 81 	Added safety steps: <ul style="list-style-type: none"> • Shut down the engine, and remove the key from the ignition. • Engage the header safety props. 	Tech Pubs
5.7.1 Adjusting Drive Belt Tension, page 81 <ul style="list-style-type: none"> • Step 4, page 81 to Step 8, page 82 	Revised steps and associated illustrations to include new conditioner drive motor MD #159661.	ECN 57949
5.7.2 Adjusting Drive Belt Pulley Alignment, page 82 <ul style="list-style-type: none"> • Step 1, page 82 • Step 2, page 82 	Added introductory safety steps and the following DANGER: <ul style="list-style-type: none"> • To avoid bodily injury or death from unexpected start-up or fall of a raised machine, always stop engine and remove key before leaving the operator's seat, and always engage safety props before going under the machine for any reason. 	Tech Pubs
5.7.2 Adjusting Drive Belt Pulley Alignment, page 82 <ul style="list-style-type: none"> • Refer to NOTE below Step 6, page 83 	Revised NOTE and associated illustration to include new conditioner drive motor MD #159661.	ECN 57949
5.7.3 Checking and Adjusting Drive Belt Tracking, page 84 <ul style="list-style-type: none"> • Step 1, page 84 • Step 2, page 84. 	Added safety steps: <ul style="list-style-type: none"> • Shut down the engine, and remove the key from the ignition. • Engage the header safety props. 	Tech Pubs
5.7.3 Checking and Adjusting Drive Belt Tracking, page 84 <ul style="list-style-type: none"> • Step 4, page 84 to Step . 	Revised steps and associated illustrations to include new conditioner drive motor MD #159661.	ECN 57949
5.7.4 Removing Drive Belt, page 85 <ul style="list-style-type: none"> • Step 1, page 86 • Step 2, page 86 	Added safety steps. <ul style="list-style-type: none"> • Shut down the engine, and remove the key from the ignition. • Engage the header safety props. 	Tech Pubs
5.7.4 Removing Drive Belt, page 85 <ul style="list-style-type: none"> • Refer to NOTE below Step 6, page 86 	Revised NOTE and associated illustration to include new conditioner drive motor MD #159661.	ECN 57949
5.7.5 Installing Drive Belt, page 86 <ul style="list-style-type: none"> • Step 1, page 86 	Added introductory safety steps.	Tech Pubs

Section	Summary of Change	Internal Use Only
<ul style="list-style-type: none"> Step 2, page 86 	<ul style="list-style-type: none"> Shut down the engine, and remove the key from the ignition. Engage the header safety props. 	
5.7.5 Installing Drive Belt, page 86 <ul style="list-style-type: none"> Step 3, page 87 to Step 7, page 87 	Revised steps and associated illustrations to include new conditioner drive motor MD #159661.	ECN 57949
6.1 Abbreviations, page 91	Added list abbreviations used by other parts catalogues for consistency.	Tech Pubs
6.3 Lower Roll and Frame Assembly, page 94	Revised the parts list and illustration as follows: <ul style="list-style-type: none"> MD #18523 superseded all instances of MD #18524. on this parts list. 	ECN 57949
6.4 Upper Roll Assembly, page 96	Revised the parts list and illustration as follows due to changes in design: <ul style="list-style-type: none"> MD #159707 supersedes MD #130644 MD #159706 supersedes MD #130527 	ECN 56836
6.5 Cover and Supports, page 98	Revised the parts list and illustration as follows due to changes in design: <ul style="list-style-type: none"> Added MD #103562 Bolt MD #103562 is now used instead of MD #18523 at some locations. Revised illustration to distinguish between similar bolts MD #103562 and MD #18523. 	ECN 57949
6.5 Cover and Supports, page 98	Added the following part previously missing from the parts list and illustration: <ul style="list-style-type: none"> MD #14338 	Tech Pubs
6.6 Hydraulic Motor, Mounts, and Tensioner – Motor MD #159661, page 102	Added new topic, parts list and illustration to include the introduction of conditioner drive motor MD# 159661.	ECN 57949
6.7 Hydraulic Motor, Mounts, and Tensioner – Motor MD #159648, page 106	Revised topic title. Parts list and illustration only applies to HC10 equipped with old conditioner drive motor MD# 159648. Added footnote: <ul style="list-style-type: none"> If replacing the motor, upgrade the motor and associated components (sprocket, hydraulics) using kit MD #159717. 	ECN 57949
6.7 Hydraulic Motor, Mounts, and Tensioner – Motor MD #159648, page 106	Added footnote to MD# 159648: <ul style="list-style-type: none"> Service motor shaft with item 27 (MD #159692). Revised parts list and illustration to show all serviceable parts included with motor shaft kit (MD #159692). Specified that motor shaft kit (MD #159692) applies to motor (MD #159648).	Product Support
6.7 Hydraulic Motor, Mounts, and Tensioner – Motor MD #159648, page 106	Revised the description of the surface protection of the following parts:	ECN 57123

Section	Summary of Change	Internal Use Only
	<ul style="list-style-type: none"> MD #50186: Now “NUT – FLG LK DT 1/2-13 UNC GR5 AA1J” was “ NUT – FLANGE LOCK SM FACE DT 0.500-13UNC GR5” MD #30228: Now “NUT-FLG DT SM FACE 3/8-16UNC-GR5-AA1J” was “ NUT – FLANGE DT SMOOTH FACE 0.375-16UNC” 	
6.8 Belt Drive and Shield – Motor MD #159661, page 110	Added new topic, parts list and illustration to include the introduction of conditioner drive motor MD# 159661.	ECN 57949
6.9 Belt Drive and Shield – Motor MD #159648, page 112	Revised topic title. Parts list and illustration only applies to HC10 equipped with old conditioner drive motor MD# 159648.	ECN 57949
6.9 Belt Drive and Shield – Motor MD #159648, page 112	<p>Corrected the position of bushing MD# 130880 on the illustration.</p> <p>Added the following parts previously missing from the parts list and illustration:</p> <ul style="list-style-type: none"> MD #18638 MD #21880 	Tech Pubs
6.10 Hydraulic Completion Package – Motor MD #159661, page 114	Added new topic, parts list and illustration to include hydraulic parts required for the new conditioner drive motor MD# 159661	ECN 58813
6.11 Hydraulic Completion Package – Motor MD #159648, page 118	<p>Removed the following discontinued seal kits from the parts list:</p> <ul style="list-style-type: none"> MD #135481 MD #111977 	ECN 47629
6.11 Hydraulic Completion Package – Motor MD #159648, page 118	<p>Corrected the parts list and illustration as follows:</p> <ul style="list-style-type: none"> Corrected the quantity of cable tie MD #40704 to three. Moved cable ties MD #40704 and MD #40703 on the parts illustration. Corrected the quantity of cap MD #30999 to three. 	Tech Pubs
6.12 Gears and Roll Coupling Assembly – New (With Washer MD #30441), page 122	<p>Created a new topic due to changes in design:</p> <ul style="list-style-type: none"> MD #30441 (quantity of four) supersedes MD #130688 (quantity of eight). 	ECN 57069
6.13 Gears and Roll Coupling Assembly – Old (With Washer MD #130688), page 124	<p>Added footnote to washer MD #130688:</p> <ul style="list-style-type: none"> Replace each pair of washers with one new washer (MD #30441). You do NOT have to replace all four pairs of washers (MD #130688) with new washers (MD #30441) at the same time. For the installation location of new washer (MD #30441), refer to 6.12 Gears and Roll Coupling Assembly – New (With Washer MD #30441), page 122 	ECN 57069
6.15 Feed Deck and Pan, page 128	Revised the parts list as follows due to changes in design:	ECN 56836

Section	Summary of Change	Internal Use Only
	<ul style="list-style-type: none"> MD #159704 supersedes MD #133838 	
<i>6.15 Feed Deck and Pan, page 128</i>	Revised the parts list as follows due to changes in design: <ul style="list-style-type: none"> Removed MD #135481. A seal kit is no longer offered for MD #135213 	ECN 47629
<i>6.15 Feed Deck and Pan, page 128</i>	Revised the parts list as follows: <ul style="list-style-type: none"> Added “(Faster)” to the description of MD #135386”. Added a footnote regarding the Parker Hannifin coupler. Added “(Faster)” to the description of MD #111978”. Added a footnote to this part. 	ECN 58441
<i>6.15 Feed Deck and Pan, page 128</i>	Corrected the parts list as follows: <ul style="list-style-type: none"> Changed MD #135630 toMD #49671. Changed MD #135626 toMD #30669. 	Tech Pubs
<i>6.16 Mounting Brackets, page 132</i>	Revised the parts list and illustration as follows due to changes in design for D115, D120, and D125 headers equipped with a double-knife and single reel: <ul style="list-style-type: none"> Added MD #159734 Added MD #113611 Added additional MD #50225 	ECN 58813
<i>6.16 Mounting Brackets, page 132</i>	Corrected the location of one nutMD #50225. and bolt MD #18523. on the parts illustration.	Tech Pubs
<i>7.1.8 Tapered Pipe Thread Fittings, page 145</i> <ul style="list-style-type: none"> Step 4, page 145 	Added “flats from finger tight (FFFT)” to step.	Tech Pubs
<ul style="list-style-type: none"> <i>7.3.1 D1 Series Header – 4.6–9.1 m (15–30 ft.), Timed Double Knife, Single Reel, Hydraulic Deck Shift, HC10 (Motor MD #159661), and Upper Cross Auger, page 147</i> <i>7.3.2 D1 Series Header – 4.6–9.1 m (15–30 ft.), Timed Double Knife, Single Reel, Hydraulic Deck Shift, and HC10 (Motor MD #159661), page 151</i> <i>7.3.3 D1 Series Header – 9.1 m (30 ft.), Timed Double Knife, Double Reel, Hydraulic Deck Shift, HC10 (Motor MD #159661), and Upper Cross Auger, page 155</i> <i>7.3.4 D1 Series Header – 9.1 m (30 ft.), Timed Double Knife, Double Reel, Hydraulic Deck Shift, and HC10 (Motor MD #159661), page 159</i> 	Created new hydraulic schematics to replace all previous schematics and to show more header configurations compatible with the HC10 (motor MD #159661).	Tech Pubs

Section	Summary of Change	Internal Use Only
<ul style="list-style-type: none"> 7.3.5 D60/D65 Header – 4.6–9.1 m (15–30 ft.). Timed Double Knife, Single Reel, Hydraulic Deck Shift, HC10 (Motor MD #159661), and Upper Cross Auger, page 163 7.3.6 D60/D65 Header – 4.6–9.1 m (15–30 ft.), Timed Double Knife, Single Reel, Hydraulic Deck Shift, and HC10 (Motor MD #159661), page 167 7.3.7 D60/D65 Header – 9.1 m (30 ft.), Timed Double Knife, Double Reel, Hydraulic Deck Shift, HC10 (Motor MD #159661), and Upper Cross Auger, page 171 7.3.8 D60/D65 Header – 9.1 m (30 ft.), Timed Double Knife, Double Reel, Hydraulic Deck Shift, and HC10 (Motor MD #159661), page 175 		
<ul style="list-style-type: none"> 7.4.1 D1 Series Header – 4.6–9.1 m (15–30 ft.), Timed Double Knife, Single Reel, Hydraulic Deck Shift, HC10 (Motor MD #159648), and Upper Cross Auger, page 179 7.4.2 D1 Series Header – 4.6–9.1 m (15–30 ft.), Timed Double Knife, Single Reel, Hydraulic Deck Shift, and HC10 (Motor MD #159648), page 183 7.4.3 D1 Series Header – 9.1 m (30 ft.), Timed Double Knife, Double Reel, Hydraulic Deck Shift, HC10 (Motor MD #159648), and Upper Cross Auger, page 187 7.4.4 D1 Series Header – 9.1 m (30 ft.), Timed Double Knife, Double Reel, Hydraulic Deck Shift, and HC10 (Motor MD #159648), page 191 7.4.5 D60/D65 Header – 4.6–9.1 m (15–30 ft.), Timed Double Knife, Single Reel, Hydraulic Deck Shift, HC10 (Motor MD #159648), and Upper Cross Auger, page 195 7.4.6 D60/D65 Header – 4.6–9.1 m (15–30 ft.), Timed Double Knife, Single Reel, Hydraulic Deck Shift, and HC10 (Motor MD #159648), page 199 7.4.7 D60/D65 Header – 9.1 m (30 ft.), Timed Double Knife, Double Reel, 	Created new hydraulic schematics to replace all previous schematics and to show more header configurations compatible with the HC10 (motor MD #159648).	Tech Pubs

Section	Summary of Change	Internal Use Only
<p><i>Hydraulic Deck Shift, HC10 (Motor MD #159648), and Upper Cross Auger, page 203</i></p> <ul style="list-style-type: none"> • <i>7.4.8 D60/D65 Header – 9.1 m (30 ft.), Timed Double Knife, Double Reel, Hydraulic Deck Shift, and HC10 (Motor MD #159648), page 207</i> 		
Index	Added all serviceable part numbers to the index.	Tech Pubs

Serial Numbers

Record the serial number of the hay conditioner in the space below.

Hay Conditioner Serial Number: _____

Serial number plate (A) is located on the rear cover of the conditioner frame as shown below.

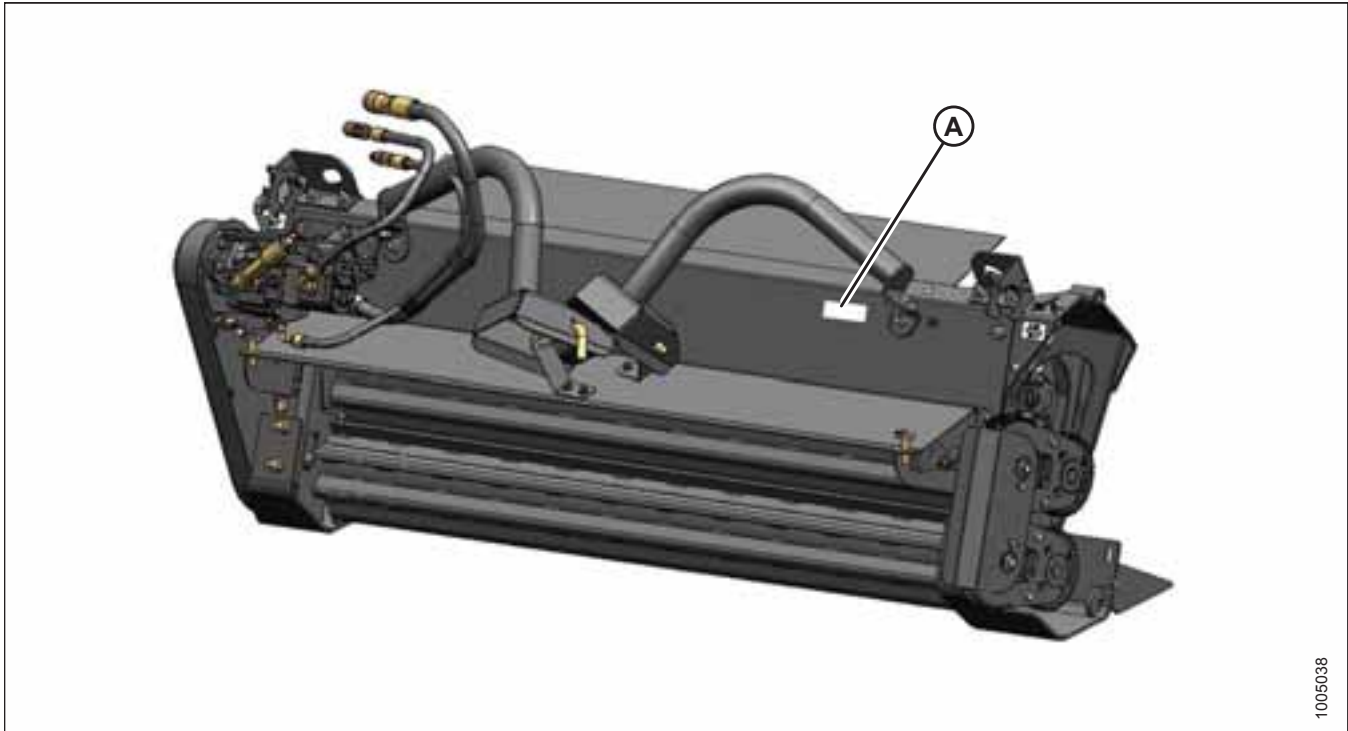


Figure 1: Serial Number Plate

TABLE OF CONTENTS

Introduction	i
Summary of Changes.....	iii
Serial Numbers.....	xvi
Chapter 1: Safety	1
1.1 Safety Alert Symbols	1
1.2 Signal Words	2
1.3 General Safety	3
1.4 Maintenance Safety	5
1.5 Hydraulic Safety	6
1.6 Safety Signs	7
1.6.1 Installing Safety Decals.....	7
Chapter 2: Product Overview	9
2.1 Definitions	9
2.2 Specifications.....	11
2.3 Component Identification	12
Chapter 3: Unloading and Assembly.....	15
3.1 Unloading the Hay Conditioner	15
3.2 Preparing the Header	17
3.3 Installing the Rock Grate	18
3.4 Installing Deck Brackets	19
3.4.1 Installing Deck Brackets – D115, D120, and D125.....	19
3.4.2 Installing Deck Brackets – D60, D65, and D130	22
3.5 Installing the Feed Deck.....	24
3.6 Installing the Conditioner.....	26
3.6.1 Installing Conditioner – Lifting Method	26
3.6.2 Installing Conditioner – Windrower Method	28
3.7 Attaching Hydraulics	33
3.7.1 Attaching Hydraulics – 4.6 m (15 ft.) Headers.....	33
3.7.2 Attaching Hydraulics – All Headers Except 4.6 m (15 ft.).....	36
3.8 Assembling the Forming Shield	38
3.9 Installing the Forming Shield.....	41
3.10 Attaching to a Windrower	43
3.11 Lubricating the Conditioner	44
3.11.1 Greasing Procedure	44
3.11.2 Lubrication Points	45
3.12 Performing Predelivery Checks.....	47
3.12.1 Checking Roll Drive Belt Tension	47
3.12.2 Checking Roll Gap.....	48
3.12.3 Checking Roll Timing.....	48

TABLE OF CONTENTS

3.12.4 Running up the Conditioner	49
3.12.5 Storing Manuals	50
Chapter 4: Operation	51
4.1 Owner/Operator Responsibilities	51
4.2 Operational Safety	52
4.2.1 Shutting down the Machine	52
4.3 Attaching Hay Conditioner to Header	53
4.4 Detaching Hay Conditioner from Header	54
4.4.1 Detaching Hay Conditioner – Windrower Method	54
4.4.2 Detaching Hay Conditioner – Lifting Method	58
4.5 Detaching Feed Deck and Rock Grate	62
4.6 Break-in Period	65
4.7 Preseason Check	66
4.8 Daily Startup Check	67
4.9 Conditioner Operation	68
4.9.1 Roll and Feed Draper Speed	68
4.9.2 Adjusting Roll Gap	68
4.9.3 Checking and Adjusting Roll Timing	69
4.9.4 Adjusting Conditioner Roll Tension	70
4.9.5 Forming Shields	70
Adjusting Forming Shield Height	71
Adjusting Side Deflectors	71
Adjusting Rear Deflector (Fluffer Shield)	72
Adjusting Deflector Fins	72
4.9.6 Unplugging the Conditioner	73
4.10 Storing the Hay Conditioner	74
Chapter 5: Maintenance	75
5.1 Preparation for Servicing	75
5.2 Recommended Safety Procedures	76
5.3 Removing and Installing Driveshields	77
5.4 Lubrication	78
5.4.1 Lubricants	78
5.4.2 Greasing Procedure	78
5.4.3 Greasing Points	78
5.5 Hydraulics	79
5.5.1 Hydraulic Hoses and Lines	79
5.5.2 Hydraulic Schematics	79
5.6 Feed Draper	80
5.6.1 Adjusting Feed Draper Tension	80
5.7 Drive Belt	81
5.7.1 Adjusting Drive Belt Tension	81

TABLE OF CONTENTS

5.7.2 Adjusting Drive Belt Pulley Alignment	82
5.7.3 Checking and Adjusting Drive Belt Tracking.....	84
5.7.4 Removing Drive Belt	85
5.7.5 Installing Drive Belt	86
5.8 Maintenance Schedule	88
5.9 Troubleshooting	89
Chapter 6: Repair Parts	91
6.1 Abbreviations	91
6.2 Serial Number Breaks.....	93
6.3 Lower Roll and Frame Assembly.....	94
6.4 Upper Roll Assembly	96
6.5 Cover and Supports	98
6.6 Hydraulic Motor, Mounts, and Tensioner – Motor MD #159661.....	102
6.7 Hydraulic Motor, Mounts, and Tensioner – Motor MD #159648.....	106
6.8 Belt Drive and Shield – Motor MD #159661.....	110
6.9 Belt Drive and Shield – Motor MD #159648.....	112
6.10 Hydraulic Completion Package – Motor MD #159661.....	114
6.11 Hydraulic Completion Package – Motor MD #159648.....	118
6.12 Gears and Roll Coupling Assembly – New (With Washer MD #30441)	122
6.13 Gears and Roll Coupling Assembly – Old (With Washer MD #130688)	124
6.14 Forming Shields.....	126
6.15 Feed Deck and Pan.....	128
6.16 Mounting Brackets.....	132
Chapter 7: Reference	135
7.1 Torque Specifications	135
7.1.1 SAE Bolt Torque Specifications	135
7.1.2 Metric Bolt Specifications	137
7.1.3 Metric Bolt Specifications Bolting into Cast Aluminum	139
7.1.4 Flare-Type Hydraulic Fittings	140
7.1.5 O-Ring Boss Hydraulic Fittings – Adjustable	141
7.1.6 O-Ring Boss Hydraulic Fittings – Non-Adjustable.....	143
7.1.7 O-Ring Face Seal Hydraulic Fittings.....	144
7.1.8 Tapered Pipe Thread Fittings.....	145
7.2 Conversion Chart.....	146
7.3 Hydraulic Schematics – Headers with HC10 Motor MD #159661	147
7.3.1 D1 Series Header – 4.6–9.1 m (15–30 ft.), Timed Double Knife, Single Reel, Hydraulic Deck Shift, HC10 (Motor MD #159661), and Upper Cross Auger.....	147
7.3.2 D1 Series Header – 4.6–9.1 m (15–30 ft.), Timed Double Knife, Single Reel, Hydraulic Deck Shift, and HC10 (Motor MD #159661).....	151

TABLE OF CONTENTS

7.3.3 D1 Series Header – 9.1 m (30 ft.), Timed Double Knife, Double Reel, Hydraulic Deck Shift, HC10 (Motor MD #159661), and Upper Cross Auger.....	155
7.3.4 D1 Series Header – 9.1 m (30 ft.), Timed Double Knife, Double Reel, Hydraulic Deck Shift, and HC10 (Motor MD #159661).....	159
7.3.5 D60/D65 Header – 4.6–9.1 m (15–30 ft.), Timed Double Knife, Single Reel, Hydraulic Deck Shift, HC10 (Motor MD #159661), and Upper Cross Auger.....	163
7.3.6 D60/D65 Header – 4.6–9.1 m (15–30 ft.), Timed Double Knife, Single Reel, Hydraulic Deck Shift, and HC10 (Motor MD #159661).....	167
7.3.7 D60/D65 Header – 9.1 m (30 ft.), Timed Double Knife, Double Reel, Hydraulic Deck Shift, HC10 (Motor MD #159661), and Upper Cross Auger.....	171
7.3.8 D60/D65 Header – 9.1 m (30 ft.), Timed Double Knife, Double Reel, Hydraulic Deck Shift, and HC10 (Motor MD #159661).....	175
7.4 Hydraulic Schematics – Headers with HC10 Motor MD #159648	179
7.4.1 D1 Series Header – 4.6–9.1 m (15–30 ft.), Timed Double Knife, Single Reel, Hydraulic Deck Shift, HC10 (Motor MD #159648), and Upper Cross Auger.....	179
7.4.2 D1 Series Header – 4.6–9.1 m (15–30 ft.), Timed Double Knife, Single Reel, Hydraulic Deck Shift, and HC10 (Motor MD #159648).....	183
7.4.3 D1 Series Header – 9.1 m (30 ft.), Timed Double Knife, Double Reel, Hydraulic Deck Shift, HC10 (Motor MD #159648), and Upper Cross Auger.....	187
7.4.4 D1 Series Header – 9.1 m (30 ft.), Timed Double Knife, Double Reel, Hydraulic Deck Shift, and HC10 (Motor MD #159648).....	191
7.4.5 D60/D65 Header – 4.6–9.1 m (15–30 ft.), Timed Double Knife, Single Reel, Hydraulic Deck Shift, HC10 (Motor MD #159648), and Upper Cross Auger.....	195
7.4.6 D60/D65 Header – 4.6–9.1 m (15–30 ft.), Timed Double Knife, Single Reel, Hydraulic Deck Shift, and HC10 (Motor MD #159648).....	199
7.4.7 D60/D65 Header – 9.1 m (30 ft.), Timed Double Knife, Double Reel, Hydraulic Deck Shift, HC10 (Motor MD #159648), and Upper Cross Auger.....	203
7.4.8 D60/D65 Header – 9.1 m (30 ft.), Timed Double Knife, Double Reel, Hydraulic Deck Shift, and HC10 (Motor MD #159648).....	207
Index.....	211
Predelivery Checklist	217

Chapter 1: Safety

1.1 Safety Alert Symbols

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

This symbol means:

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

Carefully read and follow the safety message accompanying this symbol.

Why is safety important to you?

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



Figure 1.1: Safety Symbol

1.2 Signal Words

Three signal words, **DANGER**, **WARNING**, and **CAUTION**, are used to alert you to hazardous situations. 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 information or advice.

1.3 General Safety

CAUTION

The following general farm safety precautions 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 the 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 1.2: Safety Equipment



Figure 1.3: Safety Equipment

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

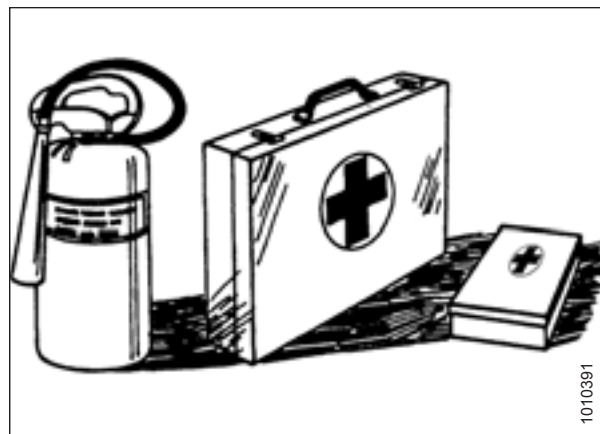


Figure 1.4: Safety Equipment

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 1.5: Safety around Equipment

- Keep hands, feet, clothing, and hair away from moving parts. **NEVER** attempt to clear obstructions or objects from a machine while the engine is running.
- Do **NOT** modify the machine. Unauthorized modifications may impair machine function and/or safety. It may also shorten the machine's life.
- To avoid 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.

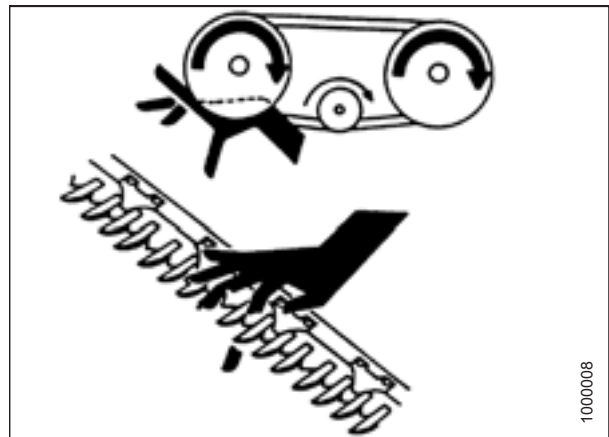


Figure 1.6: Safety around Equipment

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



Figure 1.7: Safety around Equipment

1.4 Maintenance Safety

To ensure your safety while maintaining machine:

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



Figure 1.8: Safety around Equipment



Figure 1.9: Equipment NOT Safe for Children



Figure 1.10: Safety Equipment

1.5 Hydraulic Safety

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

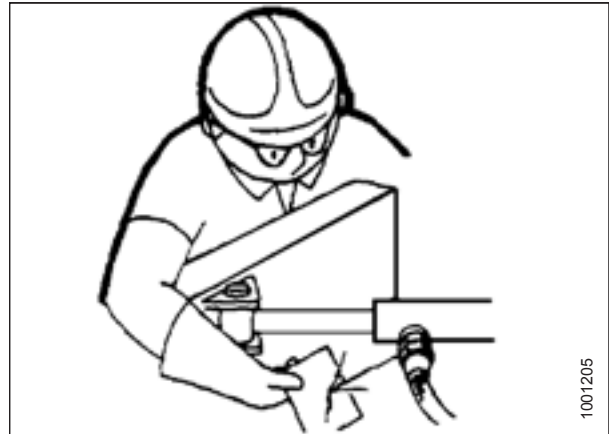


Figure 1.11: Testing for Hydraulic Leaks

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



Figure 1.12: Hydraulic Pressure Hazard

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

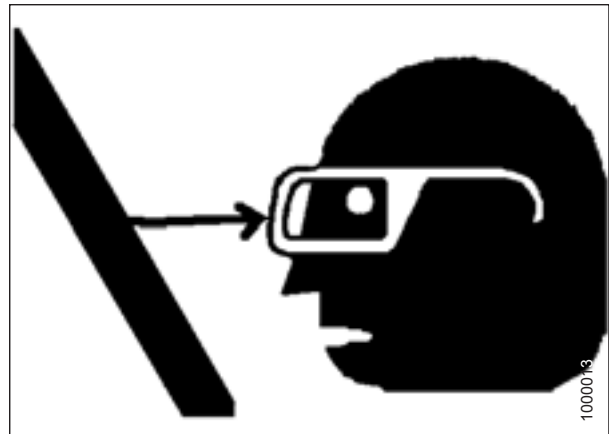


Figure 1.13: Safety around Equipment

1.6 Safety Signs

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

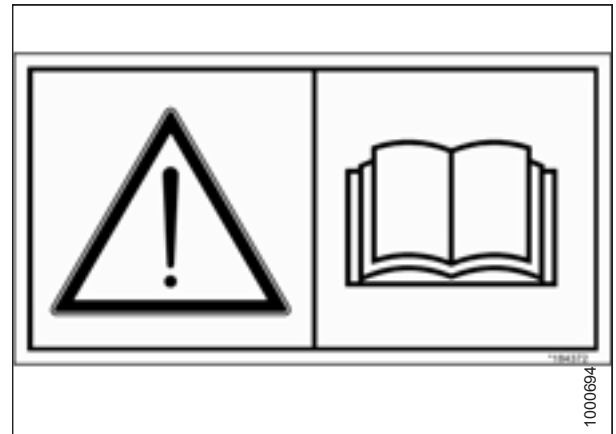


Figure 1.14: Operator's Manual Decal

1.6.1 Installing Safety Decals

1. Clean and dry the installation area.
2. Decide exactly where you are going to place the decal.
3. Remove the smaller portion of the split backing paper.
4. Place the decal in position and slowly peel back the remaining paper, smoothing the decal as it is applied.
5. Prick small air pockets with a pin and smooth out.

Chapter 2: Product Overview

2.1 Definitions

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

Term	Definition
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
Center-link	A hydraulic cylinder link between header and machine used to change header angle
CGVW	Combined gross vehicle weight
D Series Header	MacDon D50, D60, and D65 rigid draper headers
D1 SP Series Header	MacDon D115, D120, D125, D130, D135, and D140 rigid draper headers for windrowers
DK	Double knife
DKD	Double-knife drive
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
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
HDS	Hydraulic deck shift
hp	Horsepower
JIC	Joint Industrial Council: A standards body that developed standard sizing and shape for original 37° flared fitting
n/a	Not applicable
N-DETENT	The slot opposite the NEUTRAL position on the operator's console of M Series SP Windrowers
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
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)

PRODUCT OVERVIEW

Term	Definition
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
Soft joint	A joint made with use of a fastener where joining materials are compressible or experience relaxation over a period of time
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

2.2 Specifications

NOTE:

Specifications and design are subject to change without notice or obligation to revise previously sold units.

Item		Specification		
Frame and Structure				
Total Weight (estimated)		770 kg (1700 lb.)		
Carrier (North America only)		MacDon M150, M155, M155E4, and M200 Self-Propelled Windrowers		
Carrier (Export only)		MacDon M100, M105, M150, M155, and M200 Self-Propelled Windrowers		
Header		MacDon double-knife (timed only) drive D60, D65, and D1 Series Draper Headers		
Manual Storage		In windrower cab		
Drives				
Main Conditioner		80 cc (4.9 cu in.) hydraulic motor		
Feed Deck		65 cc (4.0 cu in.) hydraulic motor with 921 psi relief		
Connections		Flat-faced quick attach couplers – connect under pressure		
Normal Operating Pressure	Conditioner	17.0–20.7 MPa (2500–3000 psi)		
	Feed Deck	4.1 MPa (600 psi)		
Conditioner				
Drive		Hydraulic motor to belt-driven roll to open timing gear system		
Header Size		4.6 m (15 ft.)	6.1 m (20 ft.) and 7.6 m (25 ft.)	9.1 m (30 ft.)
Roll Speed		772–977 rpm	720–874 rpm	695–927 rpm
Feed Draper Speed		437–553 fpm	407–495 fpm	393–525 fpm
Roll Type		Intermeshing steel bars		
Roll Diameter		233 mm (9.17 in.) / 168.4 mm (6.63 in.) OD tube		
Roll Length		1830 mm (72 in.)		
Swath Width		915–2540 mm (36–102 in.)		
Forming Shields		Header-mounted tractor-supported adjustable forming shield system		

NOTE:

To avoid excessive vibration and poor performance, the HC10 Hay Conditioner should **NOT** be attached to single-knife drive headers. **The HC10 Hay Conditioner is NOT intended for use with the M205 Self-Propelled Windrower, and is for use with the M100 and M105 Self-Propelled Windrowers ONLY in markets outside of North America.**

2.3 Component Identification

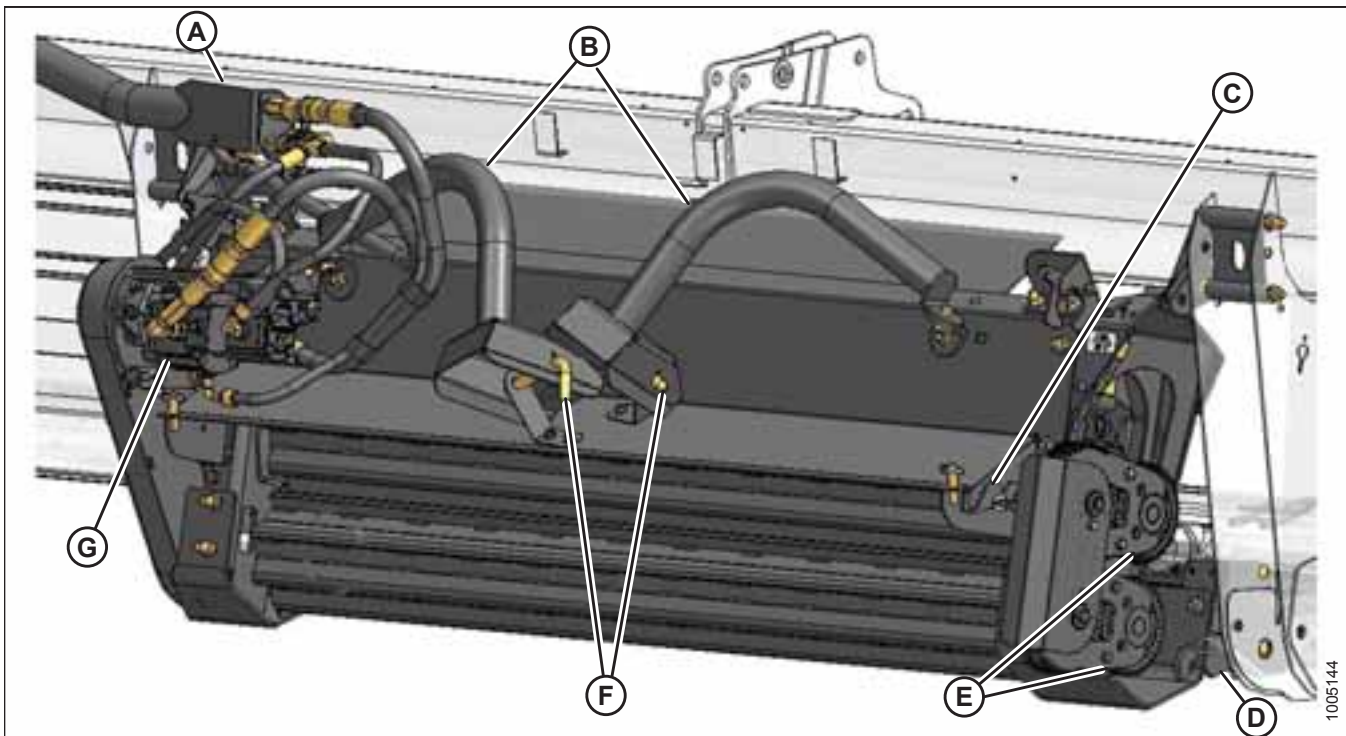


Figure 2.1: Back View of Hay Conditioner Installed in Header

A - Hydraulics to Header
E - Timing Gears

B - Lift Arms
F - L-Pins

C - Roll Timing Tool
G - Hydraulic Motor

D - Stand

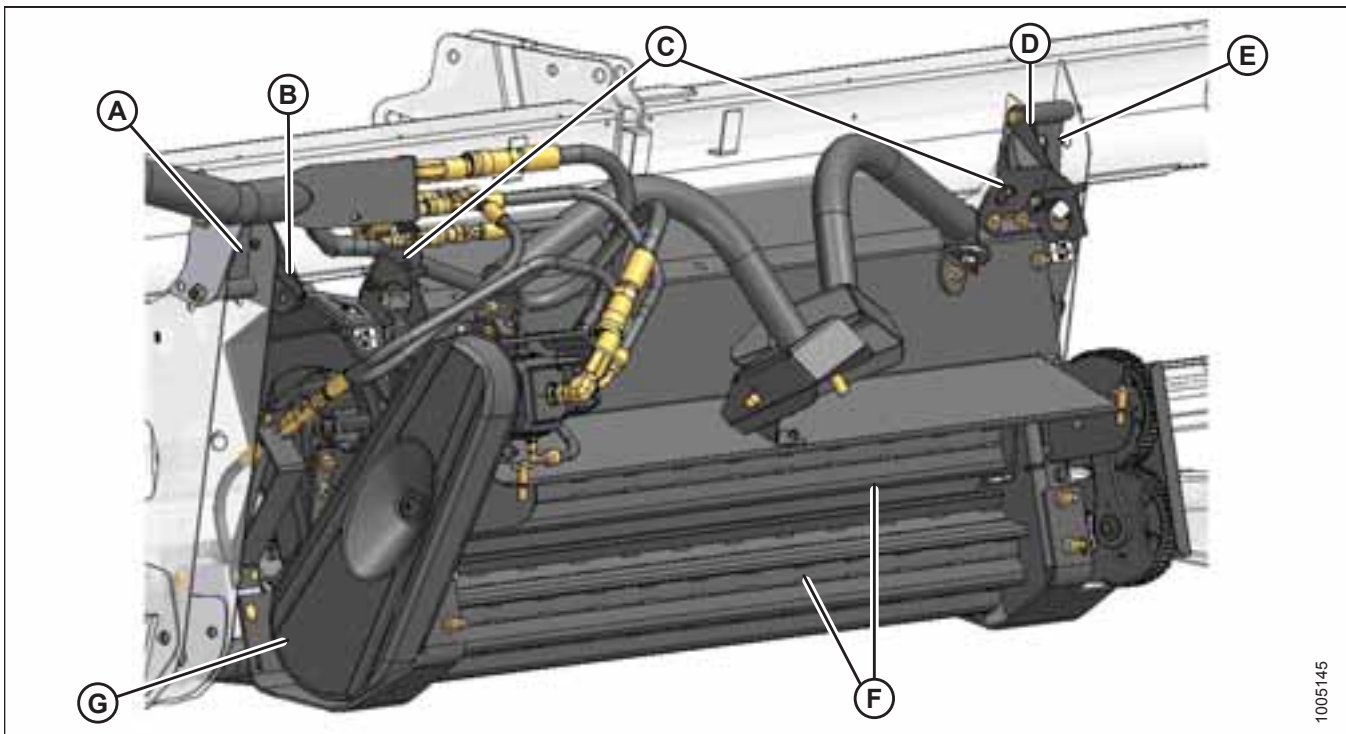


Figure 2.2: Back View of Hay Conditioner Installed in Header

A - Spacer
E - Spacer

B - Mounting Bracket
F - Rolls

C - Lifting Lugs
G - Drive Belt Shield

D - Mounting Bracket

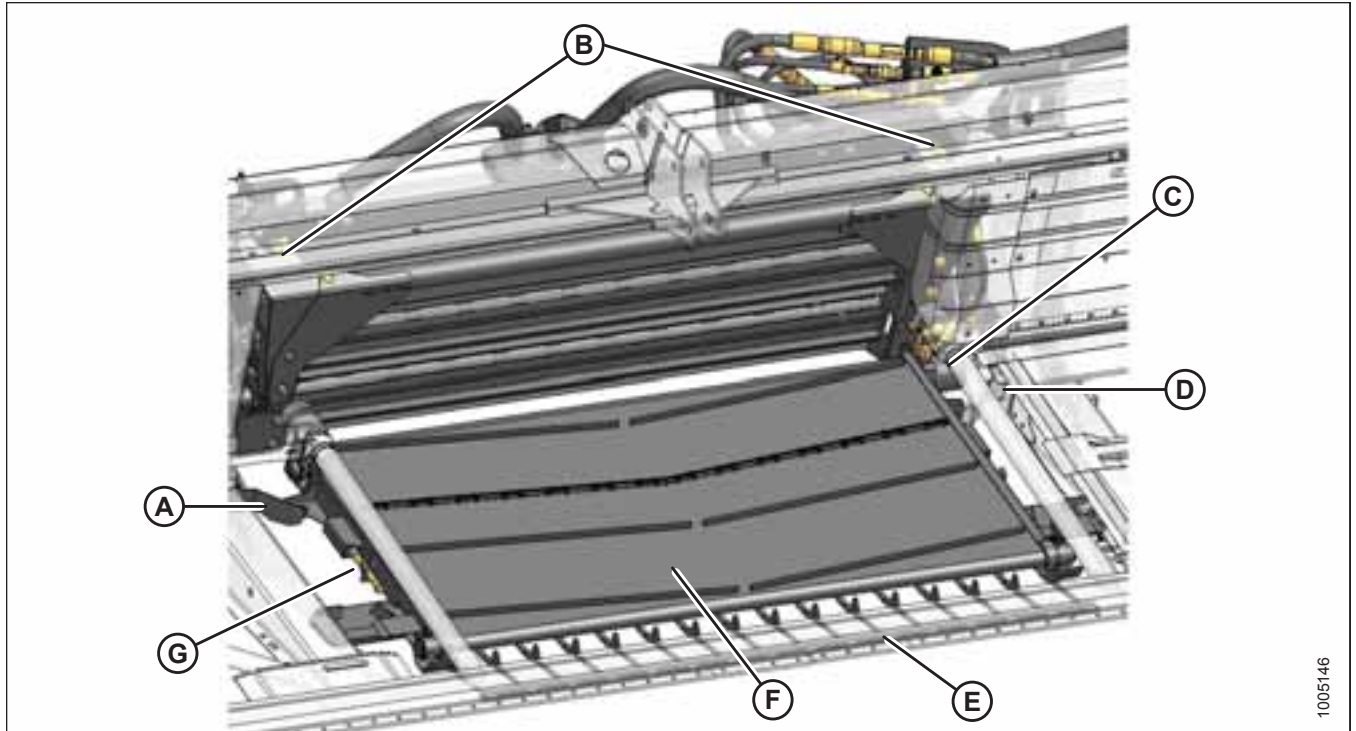


Figure 2.3: Front View of Hay Conditioner Installed in Header

A - Mounting Bracket
E - Rock Grate

B - Roll Gap Adjusters
F - Feed Deck

C - Feed Deck Motor
G - Draper Tension Adjusters (2)

D - Mounting Bracket

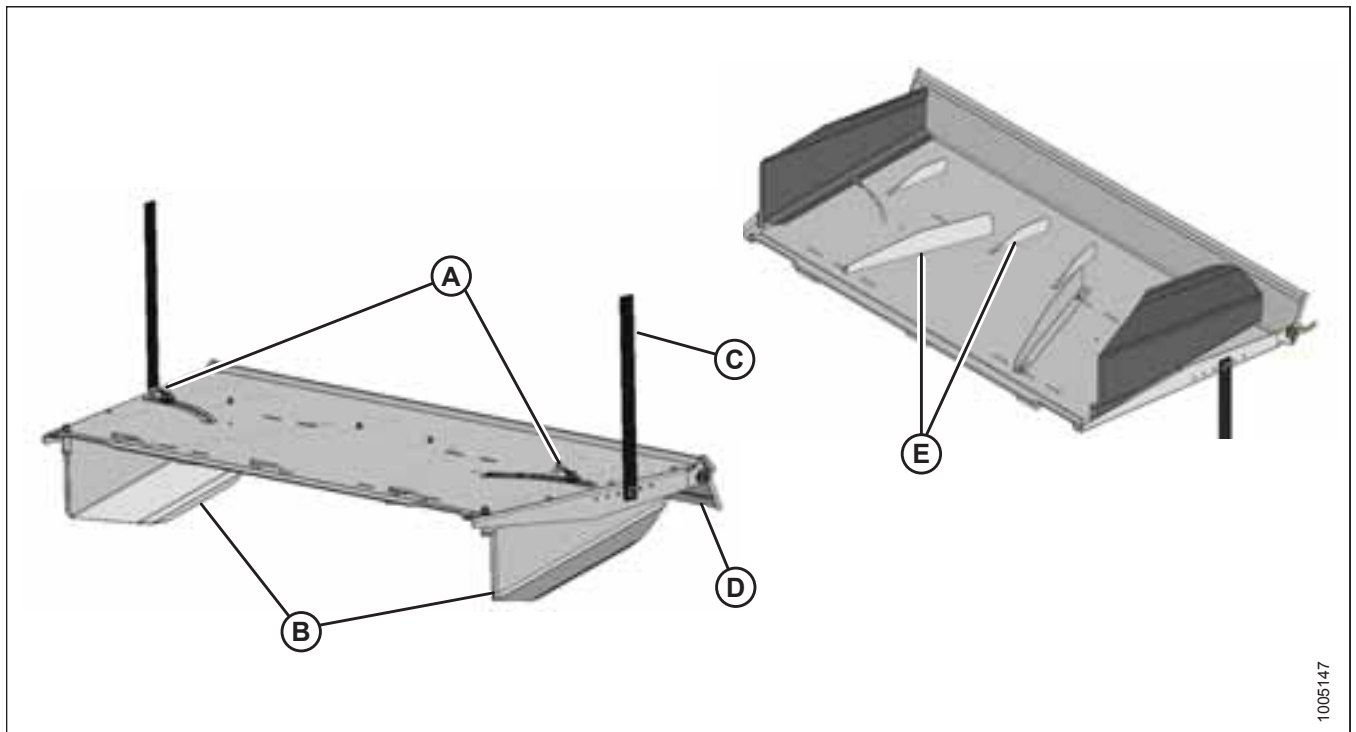


Figure 2.4: Swath Forming Shield

A - Side Deflector Adjusters
E - Deflector Fins

B - Side Deflectors

C - Height Adjust Strap

D - Fluffer Shield

Chapter 3: Unloading and Assembly

To unload and assemble an HC10 Hay Conditioner, follow each of the procedures in this chapter in order.

3.1 Unloading the Hay Conditioner

CAUTION

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

CAUTION

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

Table 3.1 Lifting Vehicle Requirements

Minimum Lifting Capacity ¹	908 kg (2000 lb.)
Minimum Fork Length	1524 mm (60 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.



Figure 3.1: Hay Conditioner Bundle (MD #B4798)

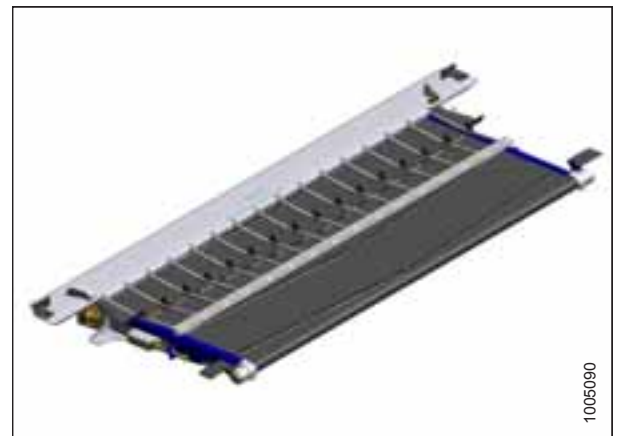


Figure 3.2: Feed Deck Bundle (MD #B4799)

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

UNLOADING AND ASSEMBLY

To unload the hay conditioner, follow these steps:

1. Remove hauler's tie down straps and chains.
2. Use forklift to lift the first of three pallets of hay conditioner components off of the trailer deck.
3. Back up until the forks and pallet clear the trailer and slowly lower to 150 mm (6 in.) from ground.
4. Take to storage or setup area.
5. Set pallet down securely on level ground.
6. Check for shipping damage and missing parts.
7. Repeat above steps for remaining pallets.

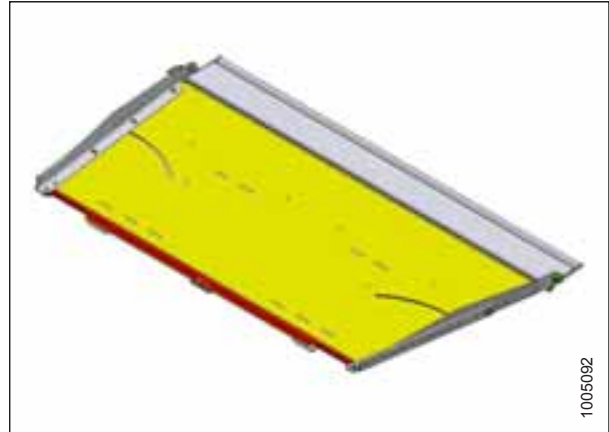


Figure 3.3: Forming Shield Bundle (MD #B4800)

3.2 Preparing the Header

To prepare the draper header for installation of the hay conditioner, follow these steps:

1. Adjust header stand (A) to mid-position.



Figure 3.4: Header Stand

2. Trim the plastic deflector along creased line (A) on back of deflector for proper fit up to conditioner.

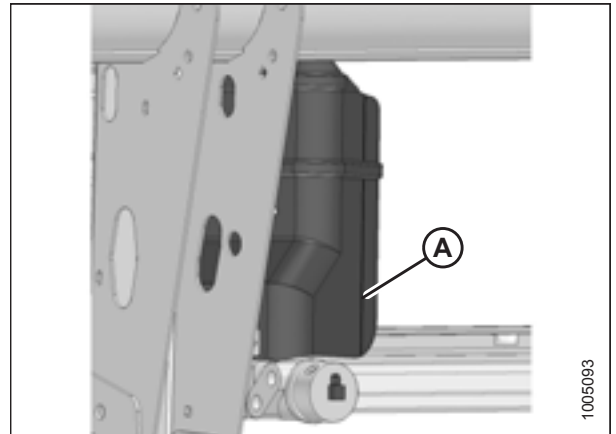


Figure 3.5: Plastic Deflector

3.3 Installing the Rock Grate

To install the rock grate, follow these steps:

1. Unpack the feed deck / rock grate bundle MD #B4799.
2. Position rock grate (A) into the header opening.
3. Lift rock grate (A) and position rear tabs (C) so they slide over the header leg flanges.
4. Position front lip (B) of rock grate (A) in front of the bottom edge of the cutterbar and slide forward so it engages the cutterbar.
5. If the header is equipped with a cutterbar wearplate, set the rock grate on top of the wearplate in front of the cutterbar, then push down and forward to seat the rock grate onto the cutterbar.
6. Retrieve two 1/2 in. flange nuts and two 1/2 x 1 1/4 in. carriage bolts from the loose parts package shipped with MD #B4799.
7. Ensure rock grate is completely pushed forward, and secure with two 1/2 x 1 1/4 in. carriage bolts installed from below and two 1/2 in. flange nuts (A).
8. Tighten both nuts (A).

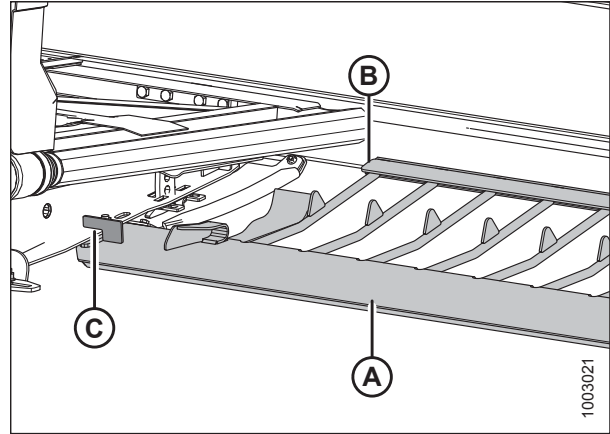


Figure 3.6: Rock Grate

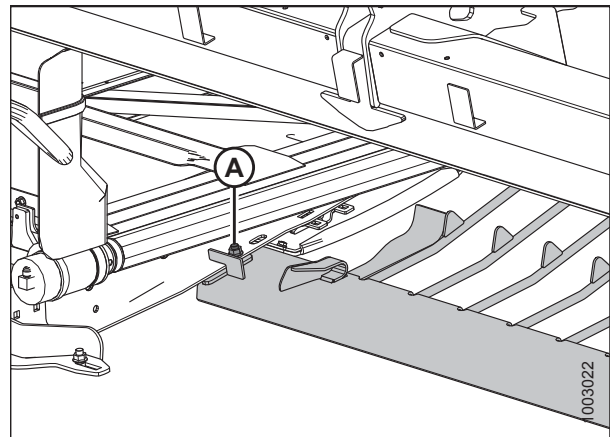


Figure 3.7: Rock Grate – Left Side

3.4 Installing Deck Brackets

Proceed to the section applicable to the type of header:

- **D115, D120, and D125:** Refer to *3.4.1 Installing Deck Brackets – D115, D120, and D125, page 19.*
- **D60, D65, and D130:** Refer to *3.4.2 Installing Deck Brackets – D60, D65, and D130, page 22.*

3.4.1 Installing Deck Brackets – D115, D120, and D125

To install the deck brackets onto the header, follow these steps:

1. Retrieve the following parts from the loose parts package shipped with MD #B4799:

- Left bracket
- Right bracket
- Two 1/2 in. flange nuts
- Two 1/2 x 1 1/4 in. carriage bolts

Install two lower brackets (A) and onto the inside of both center header legs with two 1/2 x 1 1/4 in. carriage bolts and two 1/2 in. flange nuts (B) in each bracket.

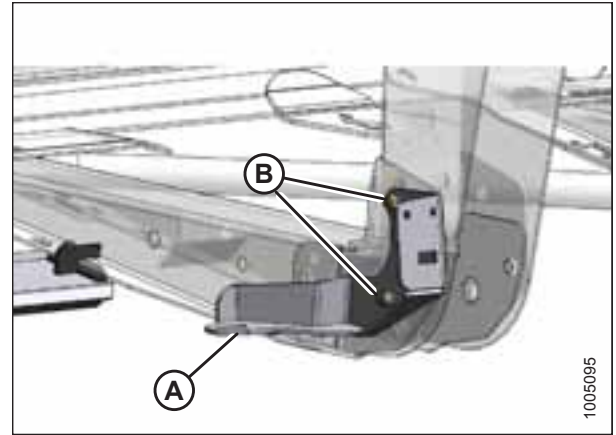


Figure 3.8: Lower Deck Bracket – Right Side

2. Retrieve the following parts from the loose parts package shipped with MD #B4799:

- Right bracket
- One spacer
- Two 5/8 in. flange nuts
- One 5/8 x 7 1/2 in. hex bolt

Install right upper bracket (A) and spacer (B) on the right center leg as shown in illustration at the right, and install one 5/8 in. flange nut (C).

NOTE:

On headers with a sheet metal hose cover, install bolts from the outboard side.

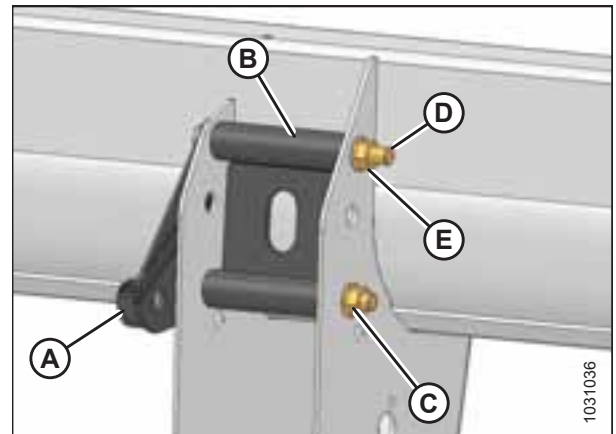


Figure 3.9: Upper Bracket – 15-Footer Header Shown

3. Install 5/8 x 7 1/2 in. hex bolt (D) through the bracket and spacer and secure with a one 5/8 in. flange nut (E).
4. Tighten both nuts (C) and (D).

UNLOADING AND ASSEMBLY

5. Retrieve the following parts from the loose parts package shipped with MD #B4799:

- Left bracket
- One spacer

Install left upper bracket (A) and spacer (B) onto the inboard side of left center leg as shown in the illustration at right.

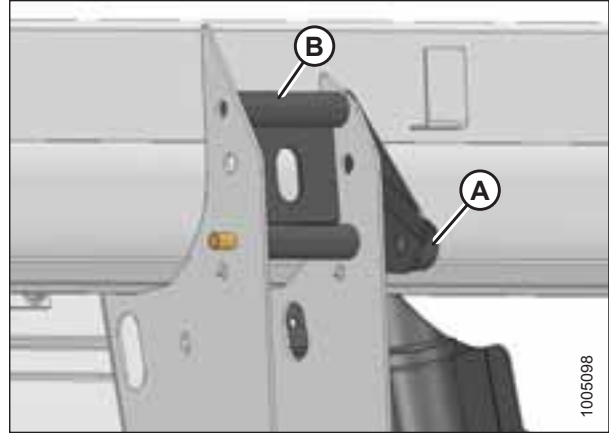


Figure 3.10: Upper Bracket – Left

6. Remove hose guide (A) located near the left center leg.

NOTE:

Remove this support from its mounting position on the sheet metal hose cover.

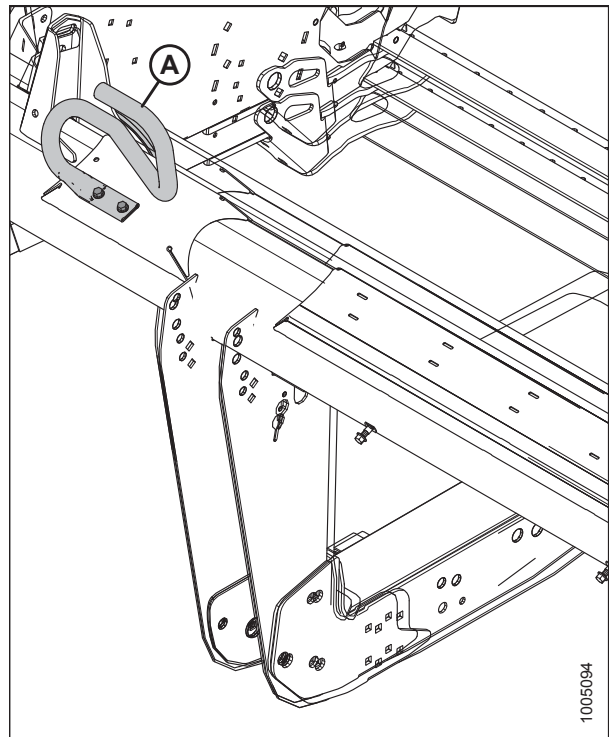


Figure 3.11: Hose Guide – D115 Header Shown

UNLOADING AND ASSEMBLY

7. Retrieve the following parts from MD #B4798:

- Hydraulic completion assembly

Retrieve the following parts from the finishing package shipped with MD #B4798:

- Adapter plate

Retrieve the following parts from the hardware bag shipped with MD #B4798:

- Two 5/8 x 1 in. bolts
- Two 5/8 in. flange nuts

Retrieve the following parts from the loose parts package shipped with MD #B4799:

- Two 5/8 in. flange nuts
- One 5/8 x 7 1/2 in. hex bolt

Attach adapter plate (A) to the left center leg.

8. Install 5/8 x 7 1/2 in. hex bolt (B) through bracket, spacer, and adapter plate (A).

NOTE:

On headers with a sheet metal hose cover, install bolts from the outboard side.

9. Secure bolts with two 5/8 in. flange nuts (C). Tighten nuts.
10. Attach hose assembly (A) to adapter plate (B) using two 5/8 x 1 in. bolts (B) and two 5/8 in. flange nuts (C).
11. Tighten nuts (C).

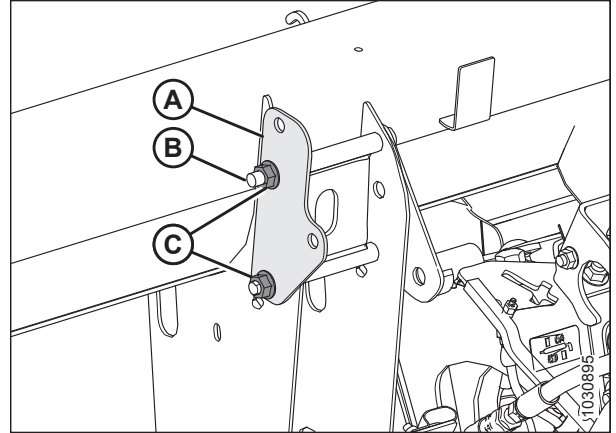


Figure 3.12: Adapter Plate

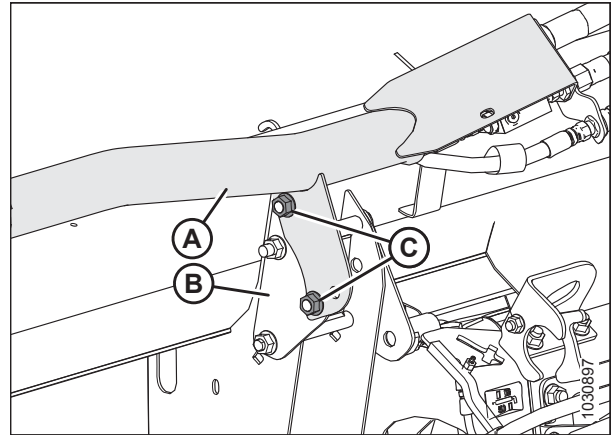


Figure 3.13: Hose Assembly

3.4.2 Installing Deck Brackets – D60, D65, and D130

To install the deck brackets onto the header, follow these steps:

1. Retrieve the following parts from the loose parts package shipped with MD #B4799:

- Left bracket
- Right bracket
- Two 1/2 in. flange nuts
- Two 1/2 x 1 1/4 in. carriage bolts

Install two lower brackets (A) and onto the inside of both center header legs with two 1/2 x 1 1/4 in. carriage bolts and two 1/2 in. flange nuts (B) in each bracket.

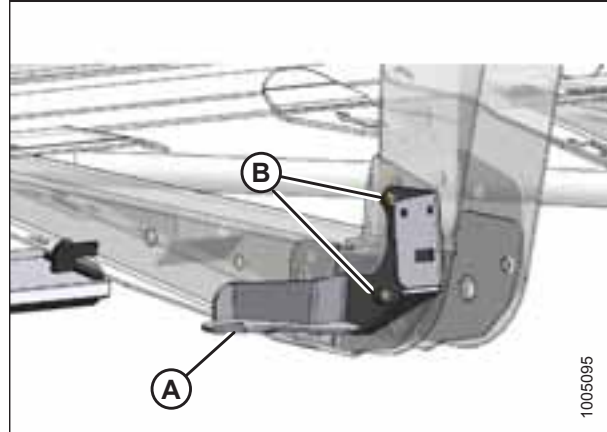


Figure 3.14: Lower Deck Brackets

2. Retrieve the following parts from the loose parts package shipped with MD #B4799:

- Right bracket
- One spacer
- Two 5/8 in. flange nuts
- One 5/8 x 7 1/2 in. hex bolt

Install right upper bracket (A) and spacer (B) on the right center leg as shown in the illustration at right, and install one 5/8 in. flange nut (C).

NOTE:

On headers with a sheet metal hose cover, install bolts from the outboard side.

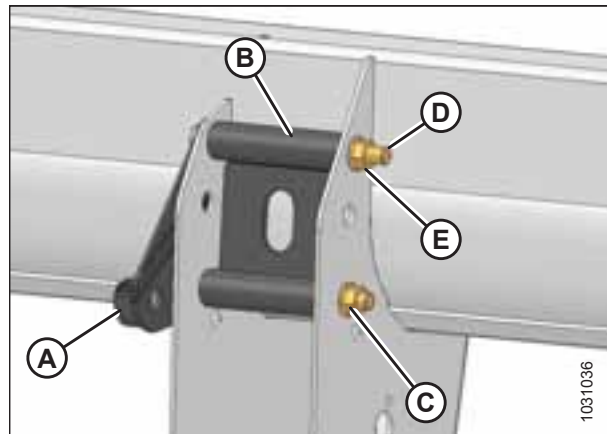


Figure 3.15: Upper Bracket – D60/D65 4.6 m (15 ft.) Header Shown

3. Install 5/8 x 7 1/2 in. hex bolt (D) through the bracket and spacer and secure with a one 5/8 in. flange nut (E).
4. Tighten both nuts (C) and (E).
5. Retrieve the following parts from the loose parts package shipped with MD #B4799:

- Left bracket
- One spacer

Install left upper bracket (A) and spacer (B) onto the inboard side of left center leg as shown in the illustration at right.

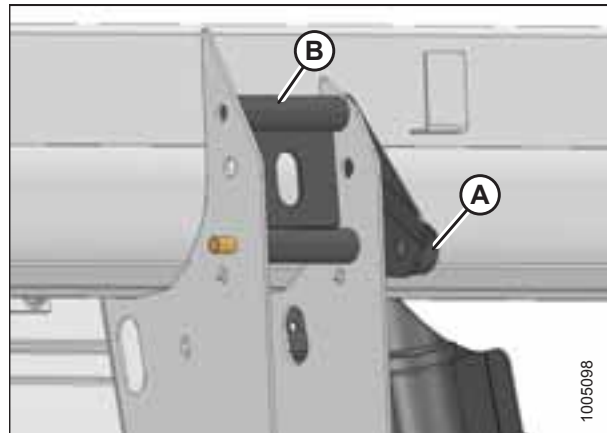


Figure 3.16: Upper Bracket – Left

UNLOADING AND ASSEMBLY

6. Remove hose guide (A) located near the left center leg.

NOTE:

For 6.1 m (20 ft.) and larger headers, remove this support from its mounting position on sheet metal hose cover.

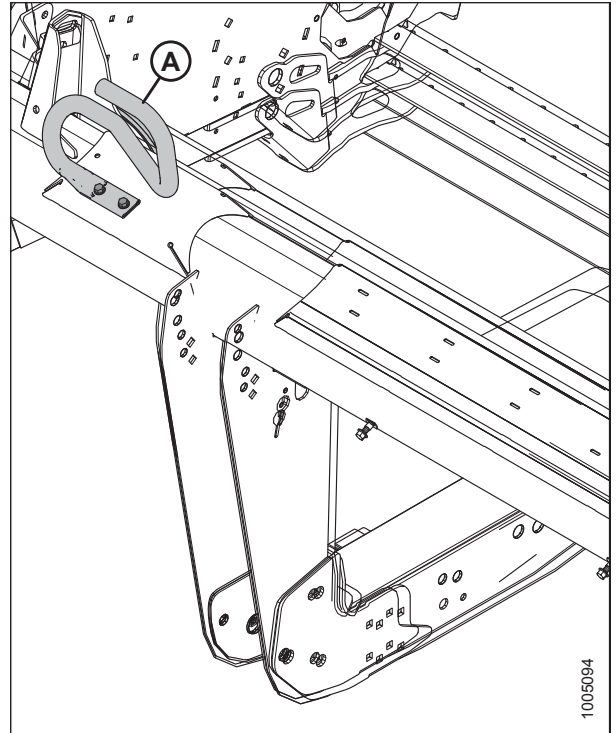


Figure 3.17: Hose Guide – D60/D65 4.6 m (15 ft.) Header Shown

7. Retrieve the following parts from MD #B4798:

- Hydraulic completion assembly

Retrieve the following parts from the loose parts package shipped with MD #B4799:

- Two 5/8 in. flange nuts
- One 5/8 x 7 1/2 in. hex bolt

Attach hose assembly (A) onto the left center leg and install 5/8 in. flange nut on lower bolt (C). Ensure correct hole is used when attaching hose assembly (use hole [D] for 4.6 m (15 ft.) D60/D65 headers).

NOTE:

On headers with a sheet metal hose cover, install bolts from the outboard side.

8. Install 5/8 x 7 1/2 in. hex bolt (B) through bracket, spacer, and hose assembly and secure with 5/8 in. flange nut.
9. Tighten both nuts.

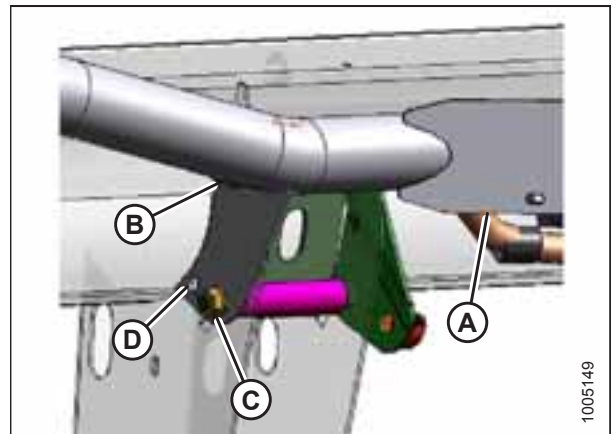


Figure 3.18: Hose Assembly – 6.1–9.1 m (20–30 ft.) Header Shown

3.5 Installing the Feed Deck

To install the feed deck, follow these steps:

1. Retrieve feed deck assembly (A) from MD #B4799. Slide feed deck (A) under the header opening from the rear. The deck drive motor faces aft.

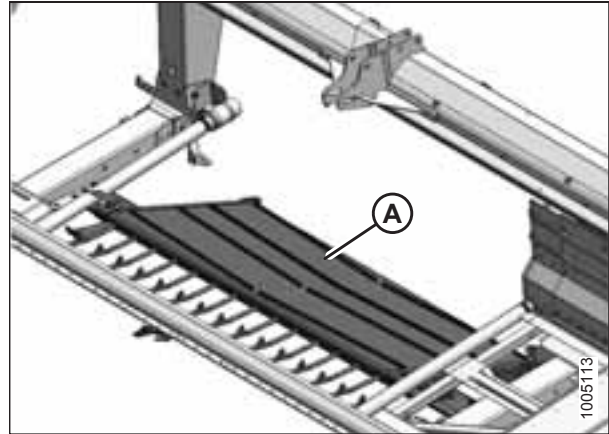


Figure 3.19: Feed Deck

2. Set the front of deck (A) onto the rock grate and slide the feed deck forward until locating pins (B) reach the pockets on the rock grate.
3. Lift the rear of the feed deck so the mounts on the deck clear the brackets on the leg, and then slide the deck forward until the mounting pins are fully positioned inside the pockets.

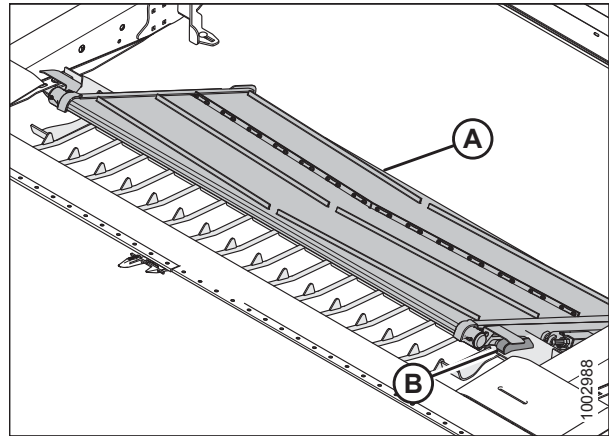


Figure 3.20: Feed Deck

4. Retrieve the following parts from the loose parts package shipped with MD #B4799:

- Two 1/2 in. flange nuts
- Two 1/2 x 1 1/4 in. carriage bolts

Install one 1/2 in. flange nut (A) and one 1/2 x 1 1/4 in. carriage bolt at the rear left mounting bracket.

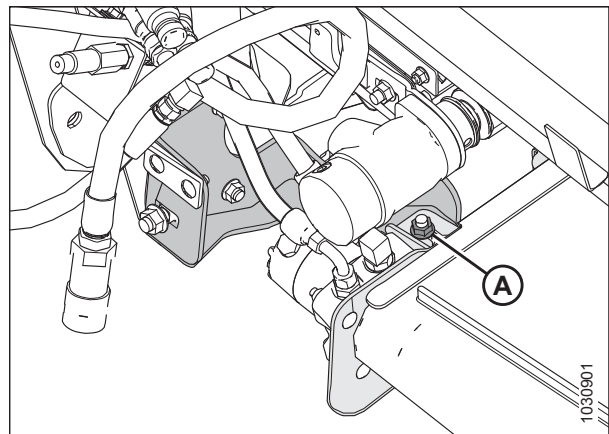


Figure 3.21: Feed Deck – Left Side

UNLOADING AND ASSEMBLY

5. Install one 1/2 in. flange nut (A) and one 1/2 x 1 1/4 in. carriage bolt at the rear right mounting bracket.

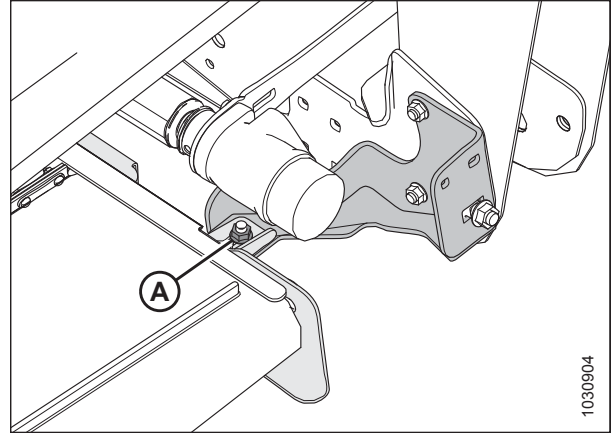


Figure 3.22: Feed Deck – Right Side

6. Attach hose bracket (A) to the mounting bracket with two 3/8 x 1.0 in. long carriage bolts (B) and two 3/8 in. flange nuts.

NOTE:

Hose bracket (A), bolts (B) and nuts are part of the feed deck assembly shipped with MD #B4799.

7. Adjust header side drapers to overlap feed deck by 65–75 mm (2-1/2–3 in.). Refer to header operator's manual for procedure.

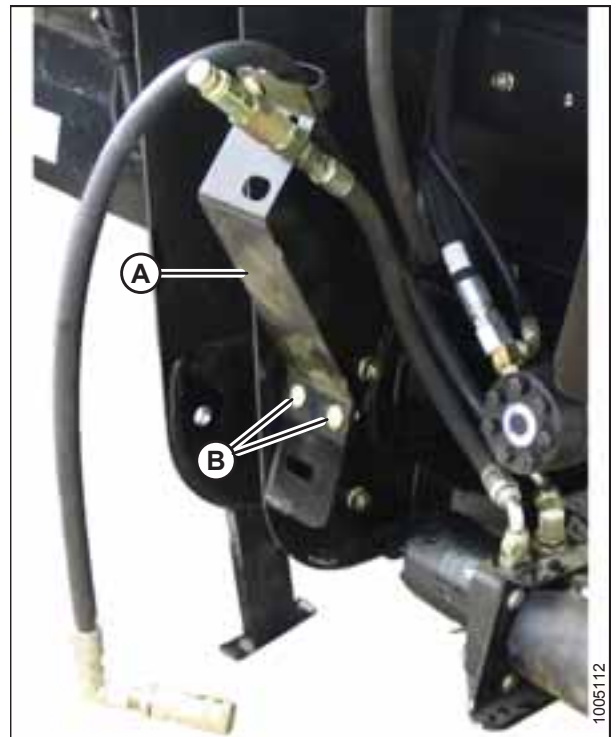


Figure 3.23: Hose Bracket

3.6 Installing the Conditioner

There are two methods for installing the conditioner. Refer to the following sections for instructions:

- The lifting method, refer to [3.6.1 Installing Conditioner – Lifting Method, page 26](#)
- The windrower method, refer to [3.6.2 Installing Conditioner – Windrower Method, page 28](#)

3.6.1 Installing Conditioner – Lifting Method

CAUTION

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

Table 3.2 Lifting Vehicle Requirements

Minimum Lifting Capacity²	908 kg (2000 lb.)
Minimum Fork Length	1524 mm (60 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.

Table 3.3 Lifting Chain Requirements

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

To install the conditioner using the lifting method, follow these steps:

1. Attach a chain to lifting brackets (A) on the conditioner and secure chain to lifting device (B).
2. Lift the conditioner to upright position.
3. Remove the shipping blocks if present.
4. Position the conditioner into the header opening from the rear.

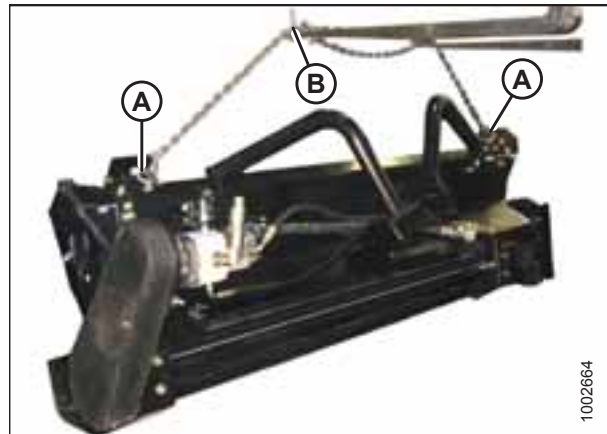


Figure 3.24: Conditioner and Lifting Brackets

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

UNLOADING AND ASSEMBLY

5. Carefully lower the conditioner between the windrower lift legs until lugs (A) on the conditioner are seated in the U-shaped brackets (B) on header.
6. Ensure the conditioner is seated properly in the brackets, and then remove the chains.

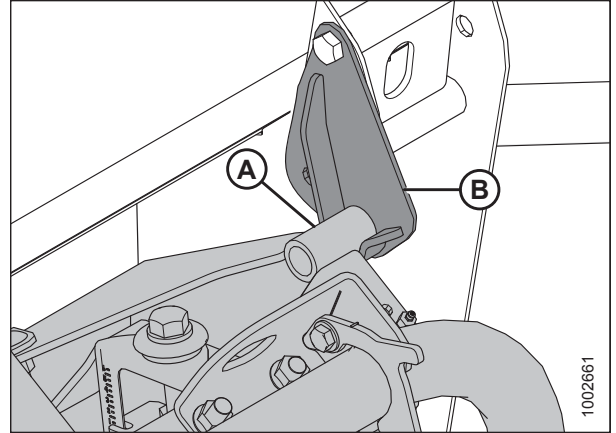


Figure 3.25: Conditioner Lug

7. Retrieve the following parts from the loose parts package shipped with MD #B4799:
 - Two 5/8 in. flange nuts
 - Two 5/8 in. x 1 1/2 in. carriage bolts

Install one 5/8 in. flange nut (A) and one 5/8 in. x 1 1/2 in. carriage bolt in the lower right attachment location.

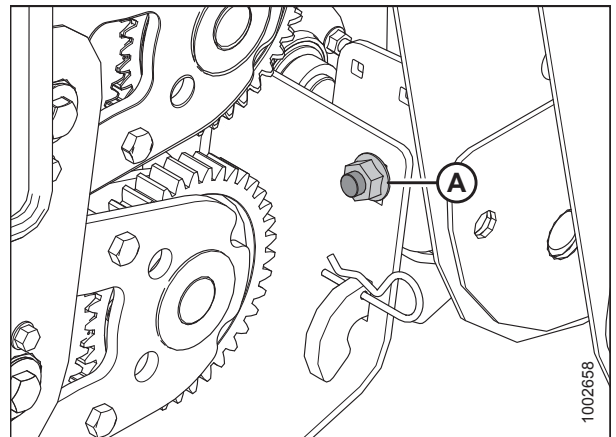


Figure 3.26: Conditioner – Right Side

8. Install one 5/8 in. flange nut (A) and one 5/8 in. x 1 1/2 in. carriage bolt in the lower left attachment location.

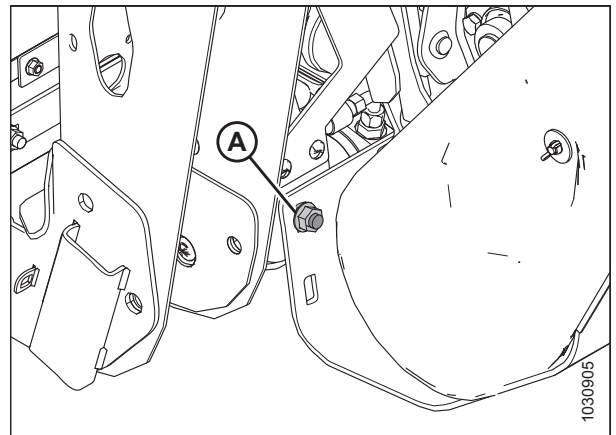


Figure 3.27: Conditioner – Left Side

UNLOADING AND ASSEMBLY

9. Connect the five HC10 hydraulic hoses to the header at the following locations:
- Hose (A) with small male quick-disconnect from motor to header
 - Hose (B) with large female quick-disconnect from motor to header
 - Hose (C) with small female quick-disconnect from deck to header
 - Hose (D) with small female quick-disconnect from motor to deck
 - Hose (E) with large female quick-disconnect from header to motor

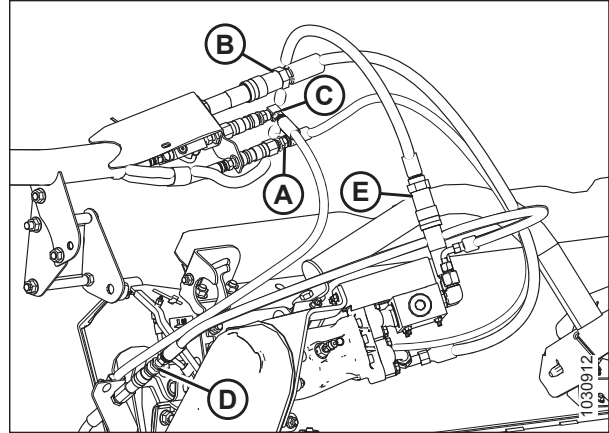


Figure 3.28: Hydraulic Hoses

A - Case Drain
B - Conditioner Motor Pressure
C - Deck Motor Return
D - Deck Motor Pressure
E - Conditioner Motor Return

3.6.2 Installing Conditioner – Windrower Method

To install the conditioner using the windrower method, follow these steps:

DANGER

To avoid bodily injury or death from unexpected start-up or fall of a raised machine, always stop engine and remove key before leaving the operator's seat, and always engage safety props before going under the machine for any reason.

1. Lower the header stand to mid-position (A).



Figure 3.29: Header Stand

UNLOADING AND ASSEMBLY

2. Attach chain (A) to lifting brackets (B) on the conditioner and secure the chain to the lifting device.
3. Lift the conditioner off the shipping pallet and set on the ground in the upright position.

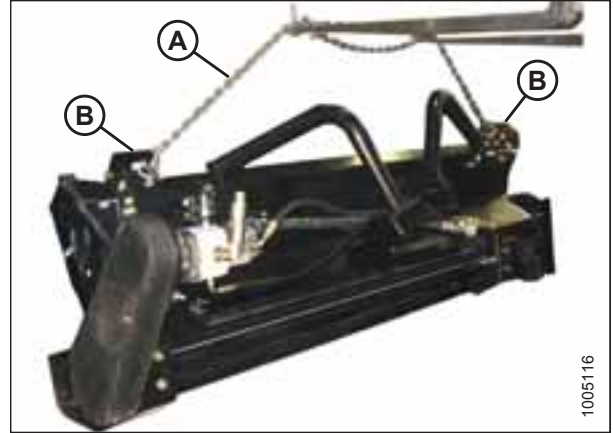


Figure 3.30: Conditioner and Lifting Brackets

4. Retrieve the following parts from the finishing package shipped with MD #B4798:
 - Support
- Retrieve the following parts from the hardware bag shipped with MD #B4798:
- Hairpin

Install support (A) in slot in base at lower right end of conditioner. Secure support with hairpin (B).

5. Remove shipping blocks if present.

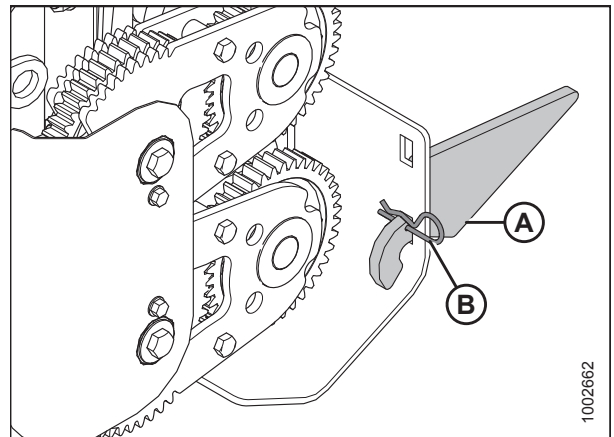


Figure 3.31: Conditioner Support

6. Remove bolt and nut (A) attaching lift arm (B) to bracket (C).
7. Loosen nut (D) enough to rotate bracket (C).
8. Remove L-pin (E) securing lift arm (B) to the conditioner.

NOTE:

Rotate pin (E) to align the key-hole slot.

9. Remove lift arm (B).

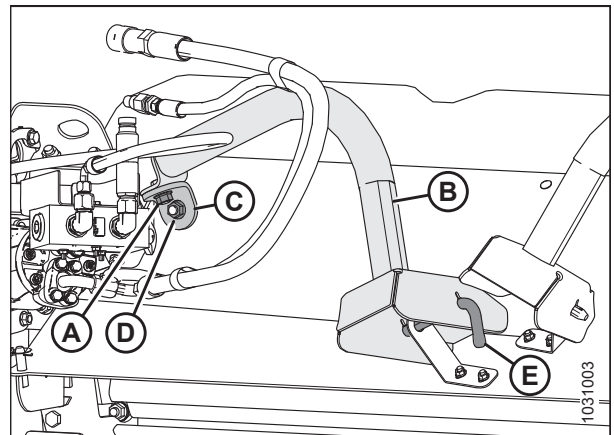


Figure 3.32: Lift Arm – Left Side

UNLOADING AND ASSEMBLY

10. Position lift arm (A) as shown and secure with latch (D).
11. Reattach lift arm (A) to bracket (B) using nut and bolt (C).
12. Tighten hardware (E) to secure bracket (B) to the conditioner. Tighten hardware (C) to secure lift arm (A) to bracket (B).
13. Repeat Step 6, page 29 to Step 12, page 30 for the other lift arm.

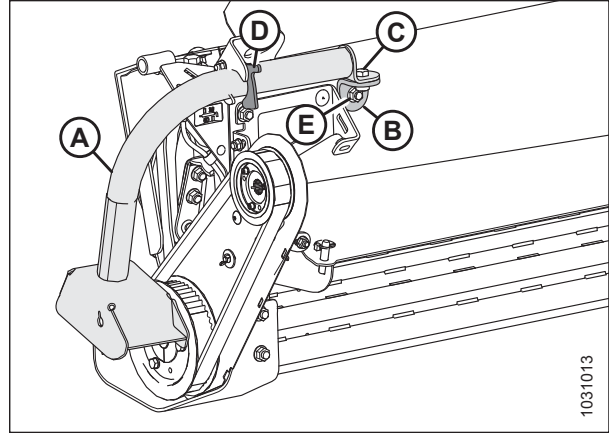


Figure 3.33: Conditioner – Left Side

14. Position the windrower arms in the lift arm pockets of the HC10.
15. Shut down the engine, and remove the key from the ignition.
16. Engage the header safety props.
17. Insert L-pins (A) for safety.



Figure 3.34: Windrower Arms

18. Remove support (A) and store with hairpin (B) in the toolbox.
19. Lift the conditioner and position it into the header opening from the rear.

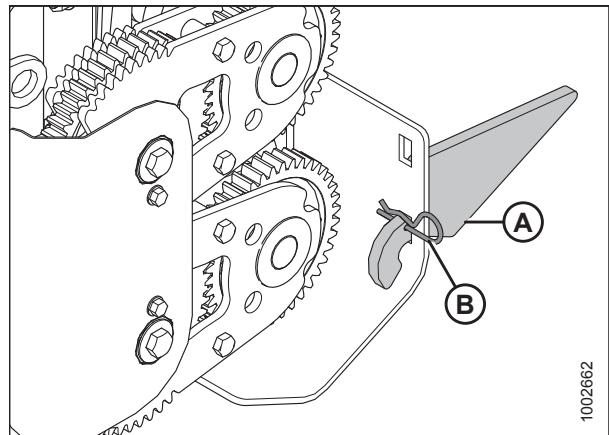


Figure 3.35: Conditioner Stand

UNLOADING AND ASSEMBLY

20. Carefully lower the windrower lift legs until lugs (A) on the conditioner are seated in the U-shaped brackets (B) on header.
21. Ensure the conditioner is seated properly in the brackets before you disconnect from the windrower.
22. Disconnect the windrower from the HC10.
23. Shut down the engine, and remove the key from the ignition.

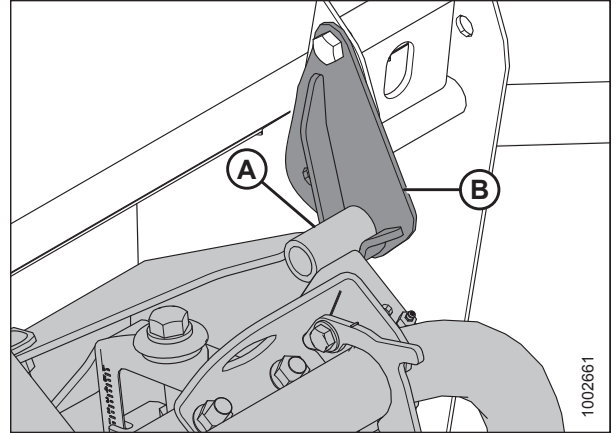


Figure 3.36: Conditioner Lug

24. Remove bolt and nut (A) attaching swing arm (B) to bracket (C).
25. Loosen bolt and nut (D) enough to rotate bracket (C).
26. Open latch (E) and remove swing arm (A).

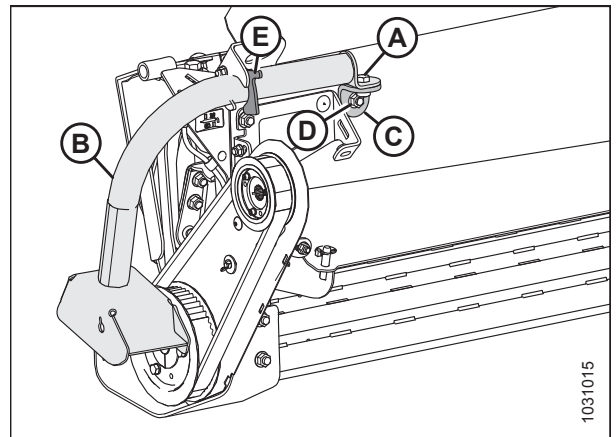


Figure 3.37: Conditioner – Left Side

27. Place lifting arm (A) into storage position as shown.
28. Reattach lift arm (A) to bracket (B) using nut and bolt (C). Leave hardware loose.
29. Secure lifting arm using L-pin (D).

NOTE:

Rotate pin (D) to align the key-hole slot.

30. Tighten hardware (E) to secure bracket (B) to the conditioner. Tighten hardware (C) to secure lift arm (A) to bracket (B).
31. Repeat Step 24, page 31 to Step 6, page 29 for the other lifting arm.

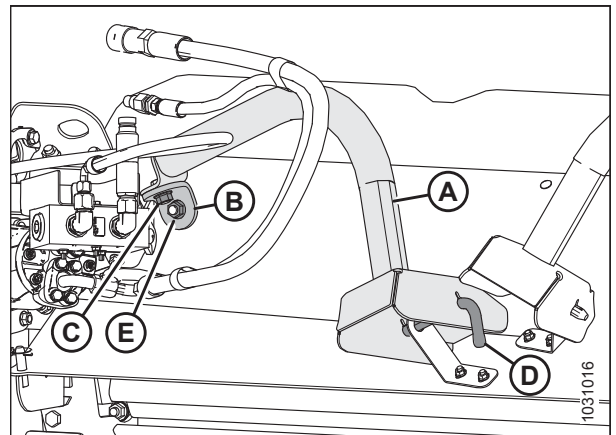


Figure 3.38: Lifting Arm – Left Side

UNLOADING AND ASSEMBLY

32. Retrieve the following parts from the loose parts package shipped with MD #B4799:

- Two 5/8 in. flange nuts
- Two 5/8 in. x 1 1/2 in. carriage bolts

Install one 5/8 in. flange nut (A) and one 5/8 in. x 1 1/2 in. carriage bolt in the lower right attachment location.

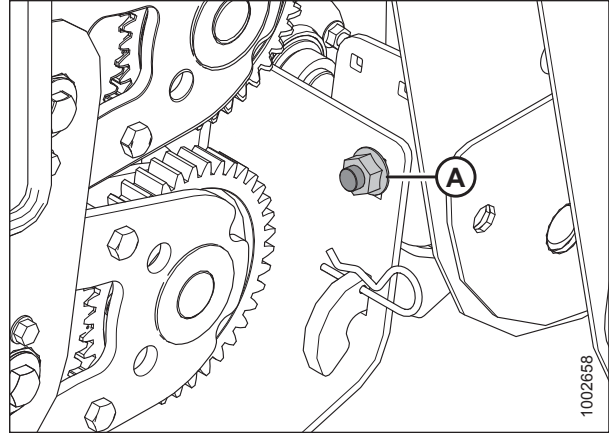


Figure 3.39: Conditioner – Right Side

33. Install one 5/8 in. flange nut (A) and one 5/8 in. x 1 1/2 in. carriage bolt in the lower left attachment location.

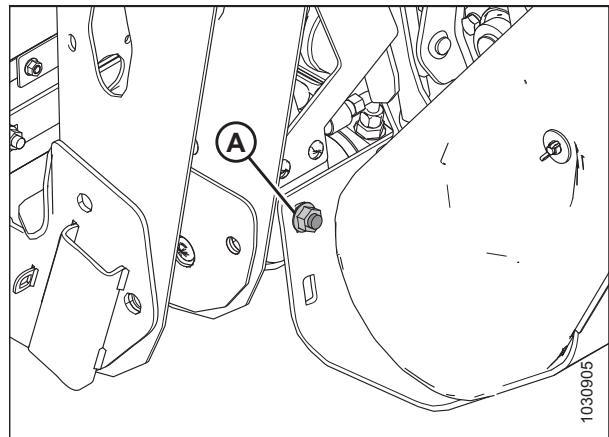


Figure 3.40: Conditioner – Left Side

34. Connect the five HC10 hydraulic hoses to the header at the following locations:

- Hose (A) with small male quick-disconnect from motor to header
- Hose (B) with large female quick-disconnect from motor to header
- Hose (C) with small female quick-disconnect from deck to header
- Hose (D) with small female quick-disconnect from motor to deck
- Hose (E) with large female quick-disconnect from header to motor

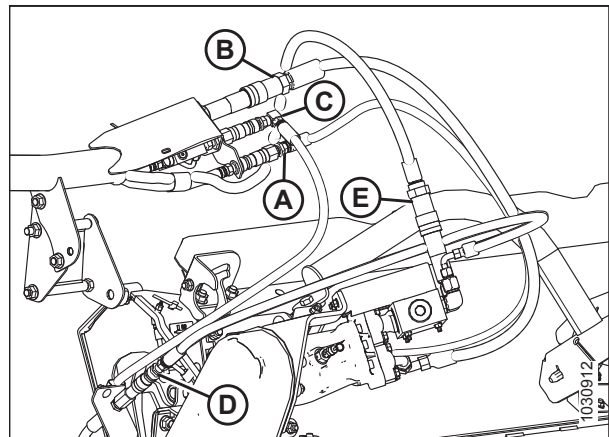


Figure 3.41: Hydraulic Hoses

A - Case Drain
B - Conditioner Motor Pressure
C - Deck Motor Return
D - Deck Motor Pressure
E - Conditioner Motor Return

3.7 Attaching Hydraulics

The procedure for attaching hydraulics is different for 4.6 m (15 ft.) draper headers.

- If attaching a 4.6 m (15 ft.) header, refer to [3.7.1 Attaching Hydraulics – 4.6 m \(15 ft.\) Headers, page 33](#).
- If attaching any other size header, refer to [3.7.2 Attaching Hydraulics – All Headers Except 4.6 m \(15 ft.\), page 36](#).

3.7.1 Attaching Hydraulics – 4.6 m (15 ft.) Headers

To attach hydraulics to a 4.6 m (15 ft.) draper header, follow these steps:

1. Disconnect return hose (A) at elbow on motor.
2. Install check valve tee (A) on elbow and reconnect return hose (B) to tee (A).
3. Connect feed draper return line (C) from the conditioner hose package onto the check valve.

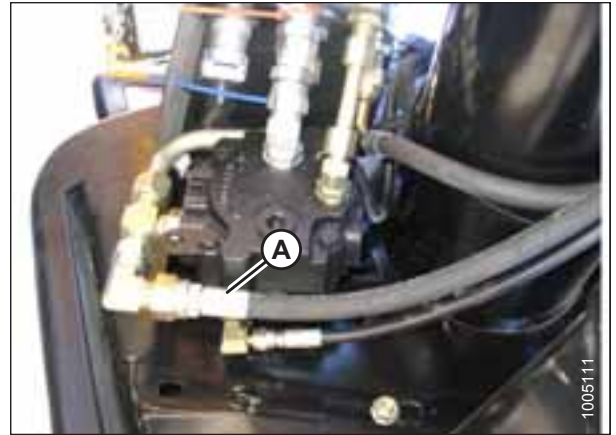


Figure 3.42: Return Hose – D Series Shown, D1 Series Similar

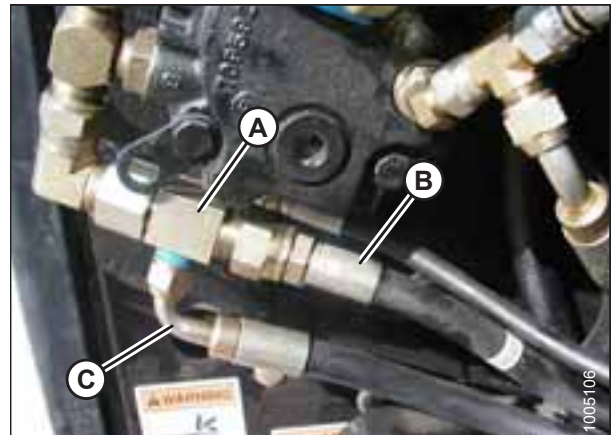


Figure 3.43: Check Valve and Hoses – D Series Shown, D1 Series Similar

UNLOADING AND ASSEMBLY

4. Remove knife drive coupler (A), draper drive coupler (B), case drain coupler (C), and its extension tube (D).

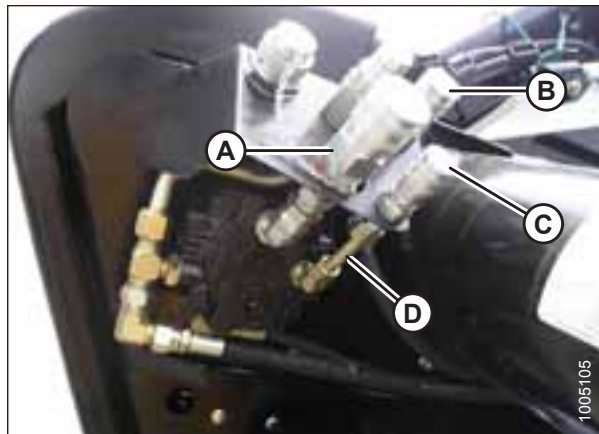


Figure 3.44: Hydraulic Couplers – D Series Shown, D1 Series Similar

5. Retrieve all parts from the hydraulics bag shipped with bundle MD #B4798:

- Coupler bracket (A)
- Female union

Position coupler bracket (A) on housing.

6. Reinstall draper drive coupler (B) in its original location and install knife drive coupler (C) onto the end of new bracket (A).

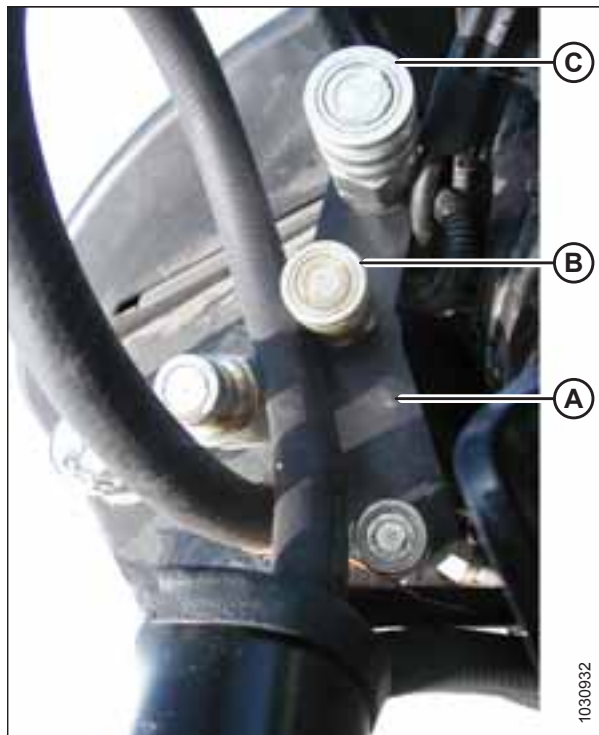


Figure 3.45: Hydraulic Couplers – D Series Shown, D1 Series Similar

UNLOADING AND ASSEMBLY

7. Install tee fitting (A) and female union (B) onto the motor case drain.
8. Reinstall case drain coupler (C).
9. Route conditioner case drain hose (D) (45° bent tube) behind the motor and connect to tee fitting (A).

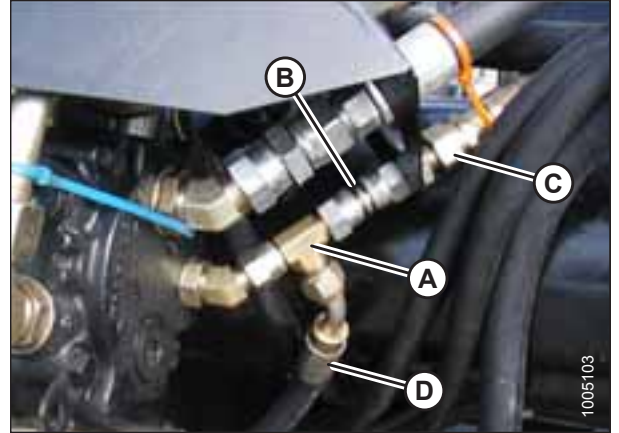


Figure 3.46: Case Drain Hydraulics – D Series Shown, D1 Series Similar

10. Route conditioner pressure hose (A) (orange cable tie) behind the motor and attach it to coupler (B).

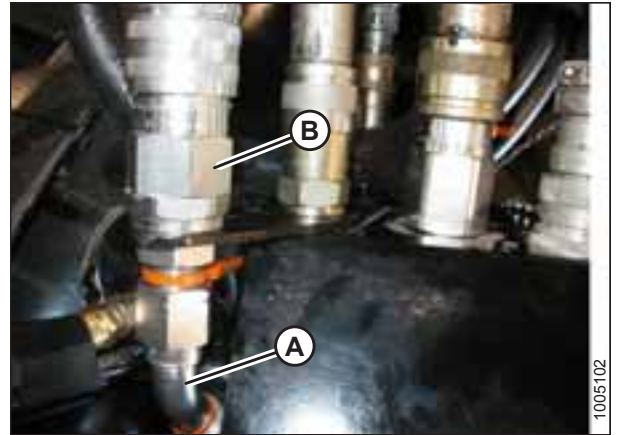


Figure 3.47: Conditioner Hydraulics – D Series Shown, D1 Series Similar

11. Loop conditioner return line (A) over top of the couplers and connect to pressure port (B) on the motor. Ensure all hoses will be clear of windrower tires.

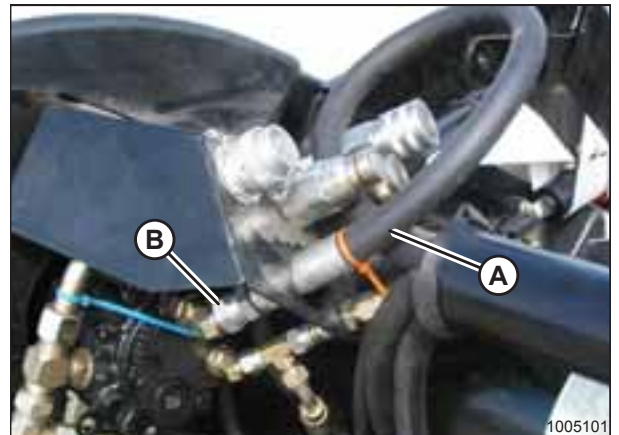


Figure 3.48: Conditioner Hydraulics – D Series Shown, D1 Series Similar

3.7.2 Attaching Hydraulics – All Headers Except 4.6 m (15 ft.)

To attach hydraulics to all headers except 4.6 m (15 ft.), follow these steps:

1. Remove hose cover (A) from left coupler mount.
2. Disconnect side draper return hose (C) at the main return tee (refer to item [E] in the figure below).

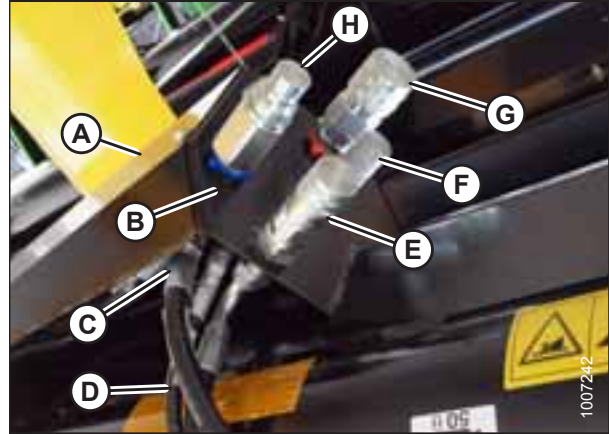


Figure 3.49: Hydraulic Coupler Components – D Series Shown, D1 Series Similar

A - Hose Cover	B - Coupler Mount
C - Side Draper Return	D - Left Draper Case Drain
E - To Side Drapers (Pressure)	F - Case Drain Coupler
G - Knife/Conditioner Pressure	H - Header Return

3. Detach knife motor case drain line (D) from the bulkhead fitting at coupler mount (A).
4. Install conditioner case tee fitting (B) and conditioner case drain line (C).
5. Remove knife drive hose (G).

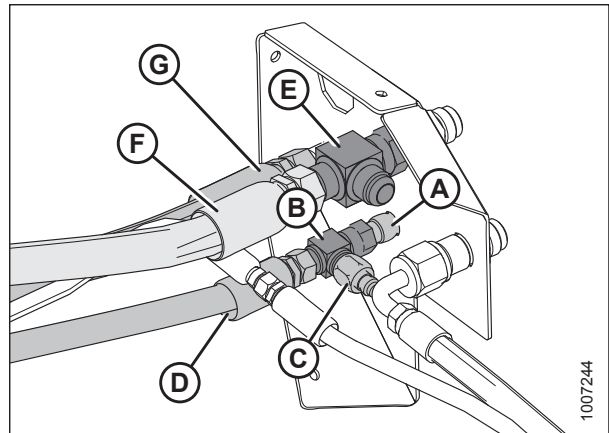


Figure 3.50: Hydraulic Coupler Components – D Series Shown, D1 Series Similar

A - Coupler Mount	B - Conditioner Case Tee
C - Conditioner Case Drain	D - Knife Motor Case Return
E - Header Return Tee	F - Knife Return
G - Knife Drive Hose	

UNLOADING AND ASSEMBLY

6. Install check valve tee (A) on main return tee (E).

NOTE:

Arrow on check valve tee fitting should face up.

7. Connect feed draper return hose (C) with the blue tie to check valve tee (A).
8. Reinstall the side draper return hose (B) that was removed in Step 2, [page 36](#), to the new check valve tee (A).
9. Connect conditioner return hose (D) with union to knife drive hose (F) removed in Step 5, [page 36](#).
10. Connect conditioner drive hose (G) with orange tie to the coupler where knife drive hose was removed in Step 5, [page 36](#).
11. Bundle the hoses with cable ties as required. Ensure hoses do **NOT** contact sharp edges.
12. Reinstall the hose cover.

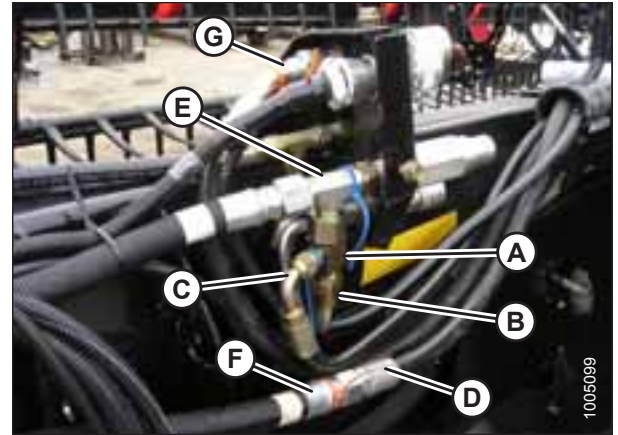


Figure 3.51: Hydraulic Coupler Components – D Series Shown, D1 Series Similar

A - Check Valve Tee	B - Side Draper Motor Return
C - Feed Draper Return	D - Conditioner Return
E - Header Return Tee	F - Knife Drive Hose
G - Conditioner Drive	

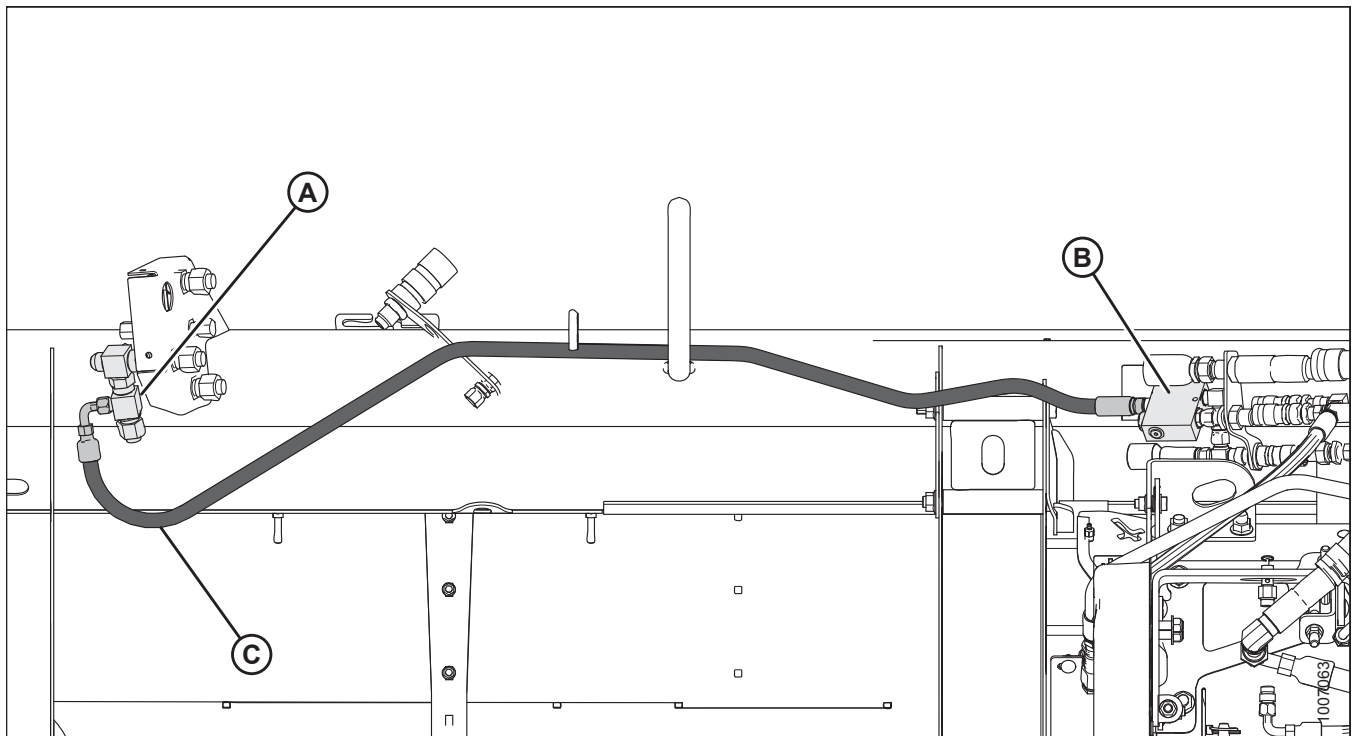


Figure 3.52: Feed Draper Return Hydraulics – Shields Removed to Expose the Feed Draper Return Hose Connection

A - Check Valve Tee	B - Pressure Reducing Valve	C - Feed Draper Return Hose
---------------------	-----------------------------	-----------------------------

3.8 Assembling the Forming Shield

To assemble forming shield, follow these steps:

1. Retrieve the following parts from MD #B4800:

- Forming shield with baffle, struts, and hardware attached

Retrieve the following parts from the deflector package shipped with MD #B4798:

- Forming shield deflectors with hardware attached

Retrieve the following parts from the finishing bag shipped with MD #B4798:

- Deflector fin (left side)
- Deflector fin (right side)
- Four smaller deflector fins

Retrieve the following parts from the hardware bag shipped with MD #B4798:

- Eight 3/8 x 3/4 in. carriage bolts
- Eight 3/8 in. flange nuts

2. Lay forming shield (A) upside down (flanges of side supports facing up) on a flat surface.

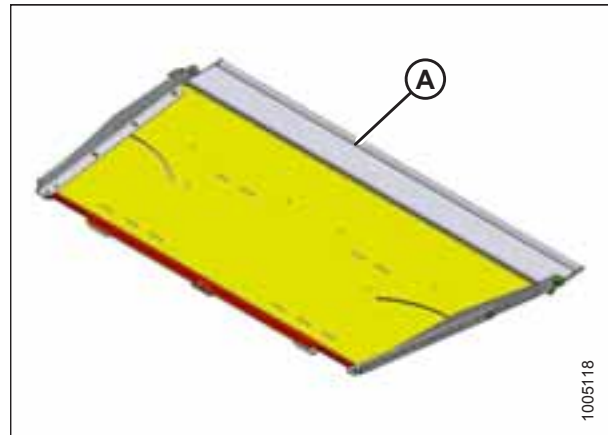


Figure 3.53: Forming Shield Cover

3. Attach short fins (A) and long fins (B) to the shield using two 3/8 x 3/4 in. carriage bolts and two 3/8 in. flange nuts per fin:

- Assemble short fins (A) to bottom of shield as shown in illustration at right using hardware provided.
- Two long fins (B) are handed (outboard and inboard sides) and should be installed with bolts on outboard side of the fin. Bolts should be installed with nuts against the fins.

NOTE:

Fins are only effective for windrows greater than 1778 mm (70 in.) or if satisfactory formation is not achieved. Store for future use if not installed.

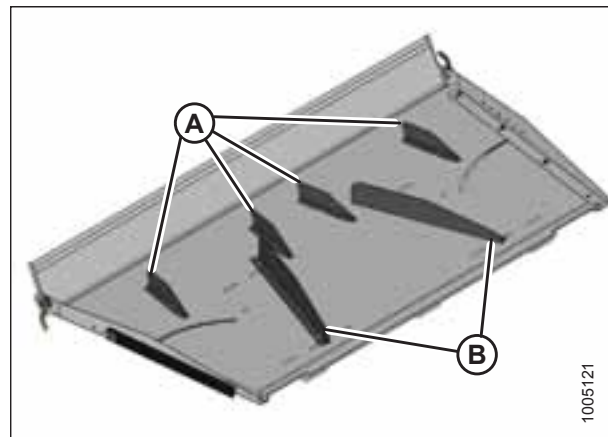


Figure 3.54: Deflector Fins

UNLOADING AND ASSEMBLY

4. Position fins approximately as shown in illustration at right, and tighten hardware.

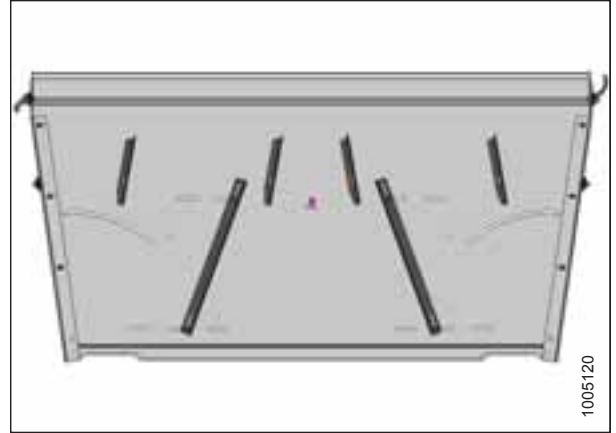


Figure 3.55: Deflector Fins

5. Remove hardware (A) from side deflectors (B).

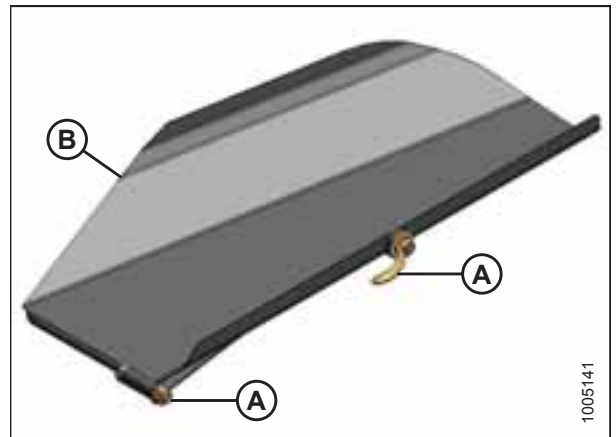


Figure 3.56: Side Deflector

6. Position deflector (A) on cover as shown in illustration at right, and install with hex bolt (B) and flange nut removed in previous step.
7. Tighten flange nut enough to hold deflector (A) in position, but still allow deflector to move.

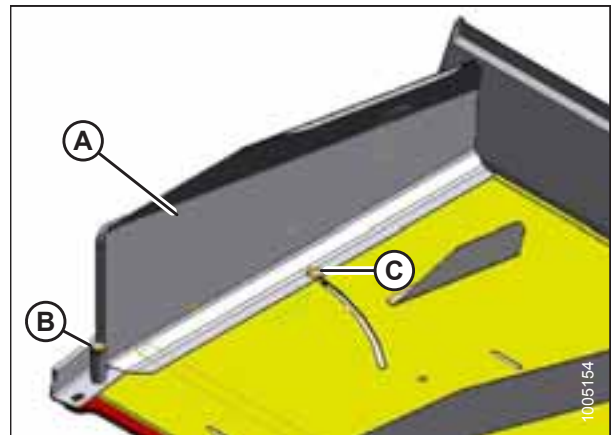


Figure 3.57: Side Deflector – Left

A - Side Deflector

B - Hex Bolt

C - Bolt (referred to in next step)

UNLOADING AND ASSEMBLY

8. Install bolt, washers, and handle nut (A) as shown in illustration at right. Rubber washer (B) must be positioned between metal washers (C).
9. Tighten handle nut (A) against cover to lock deflector in desired position.
10. Repeat for the other deflector.

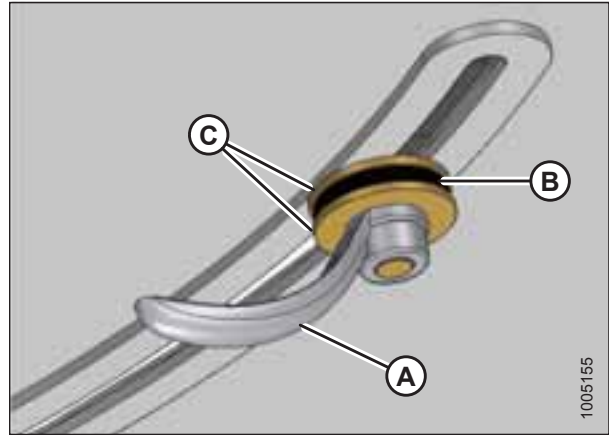


Figure 3.58: Handle – Left

11. Invert forming shield to installation position as shown in illustration at right.

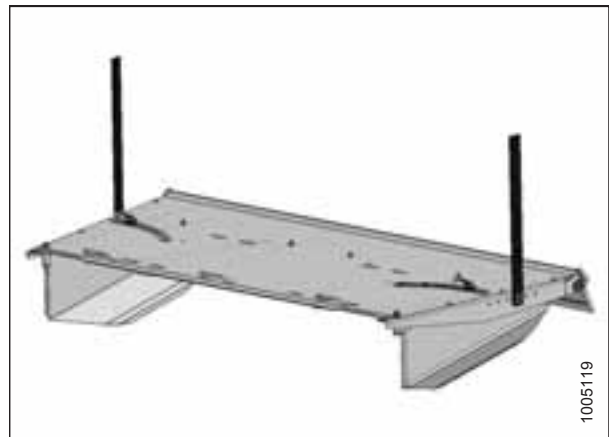


Figure 3.59: Forming Shield

3.9 Installing the Forming Shield

To install the forming shield, follow these steps:

1. Position the forward end of forming shield (A) onto two pins (B) located on the rear cover of the conditioner.

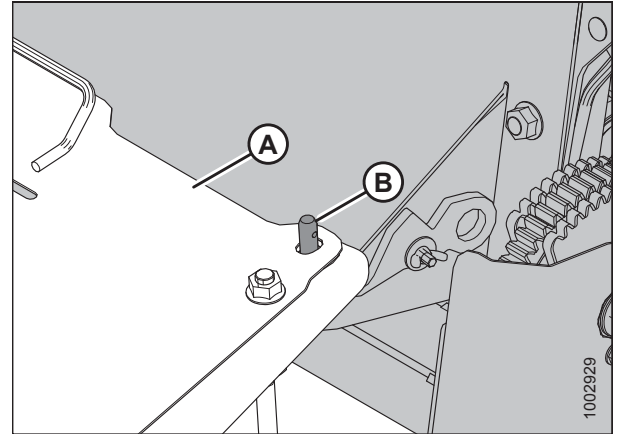


Figure 3.60: Forming Shield

2. Insert lynch pins (A) to secure forming shield to conditioner.

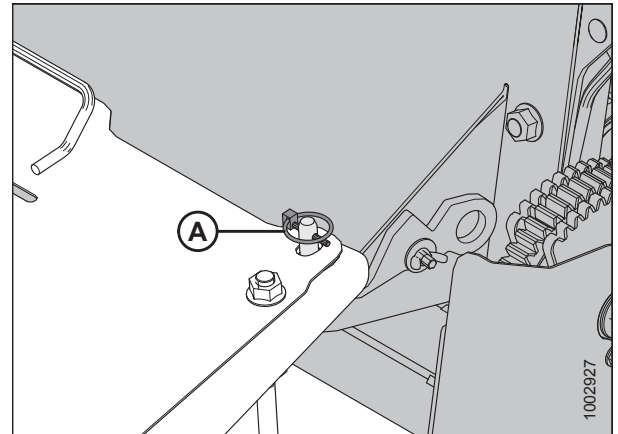


Figure 3.61: Lynch Pin

3. Set forming shield side deflectors to desired width by loosening handle (A) and moving deflector (B). Set deflectors on both sides to approximately the same position.
4. Tighten handles (A).
5. Loosen handles (C) and adjust fluffer shield (D) to middle position.
6. Tighten handles (C).

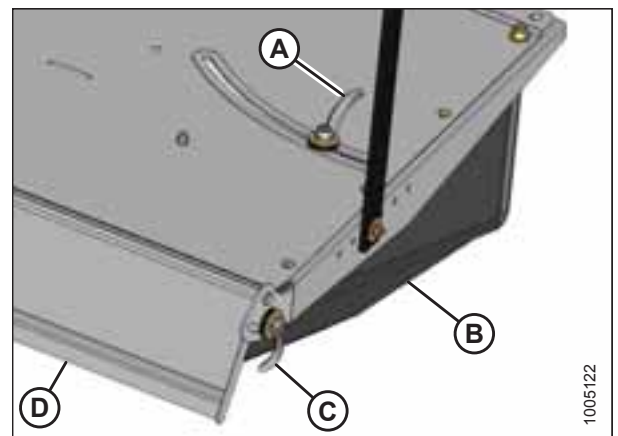


Figure 3.62: Forming Shield

UNLOADING AND ASSEMBLY

7. Retrieve the following parts from the finishing package shipped with MD #B4798:

- Shield transport support assembly with hardware attached

Install shield transport support (A) on windrower frame with two 3/8 x 1.0 in. carriage bolts and nuts (B) (supplied attached to the support).

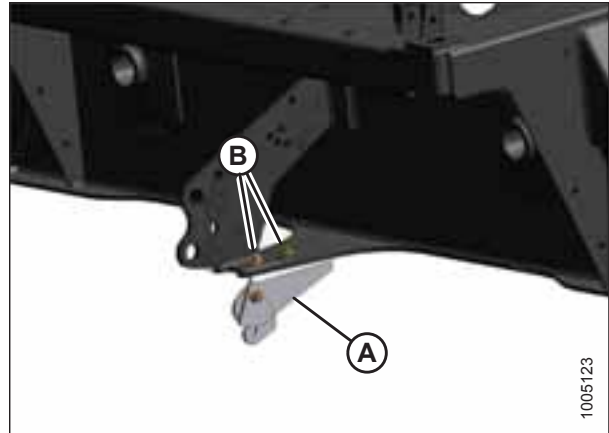


Figure 3.63: Shield Transport Support

3.10 Attaching to a Windrower

To attach a header equipped with an HC10 to a windrower, follow these steps:

1. Refer to the windrower unloading and assembly instructions or operator's manual for instructions on attaching the header to an M Series Self-Propelled Windrower.
2. Retrieve the following parts from the hardware bag shipped with MD #B4798:
 - Two $2\frac{1}{32}$ (I.D.) x $1\frac{5}{16}$ in. (O.D.) flat washers
 - Two hairpins

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

3. Secure each strap (B) with one washer (C) and hairpin (D).

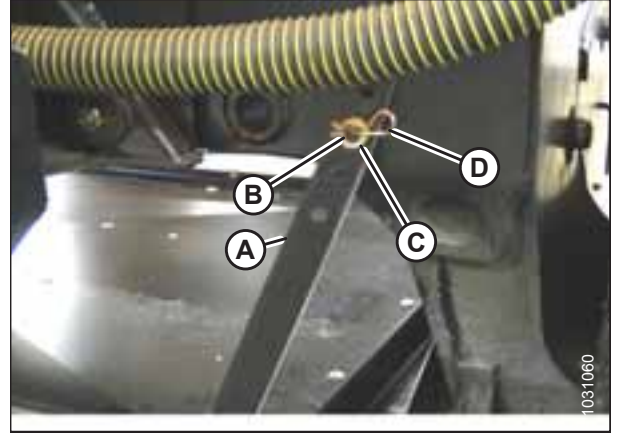


Figure 3.64: Rubber Strap

3.11 Lubricating the Conditioner

3.11.1 Greasing Procedure



CAUTION

To avoid personal injury, before servicing the header or opening drive covers, follow procedures in [5.1 Preparation for Servicing, page 75](#).

1. To avoid injecting dirt and grit, wipe grease fitting with a clean cloth before greasing. For locations of grease fittings, refer to [3.11.2 Lubrication Points, page 45](#).
2. Inject grease through fitting with grease gun until grease overflows fitting, except where noted. For detailed lubrication information, refer to [5.4 Lubrication, page 78](#).
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.

3.11.2 Lubrication Points

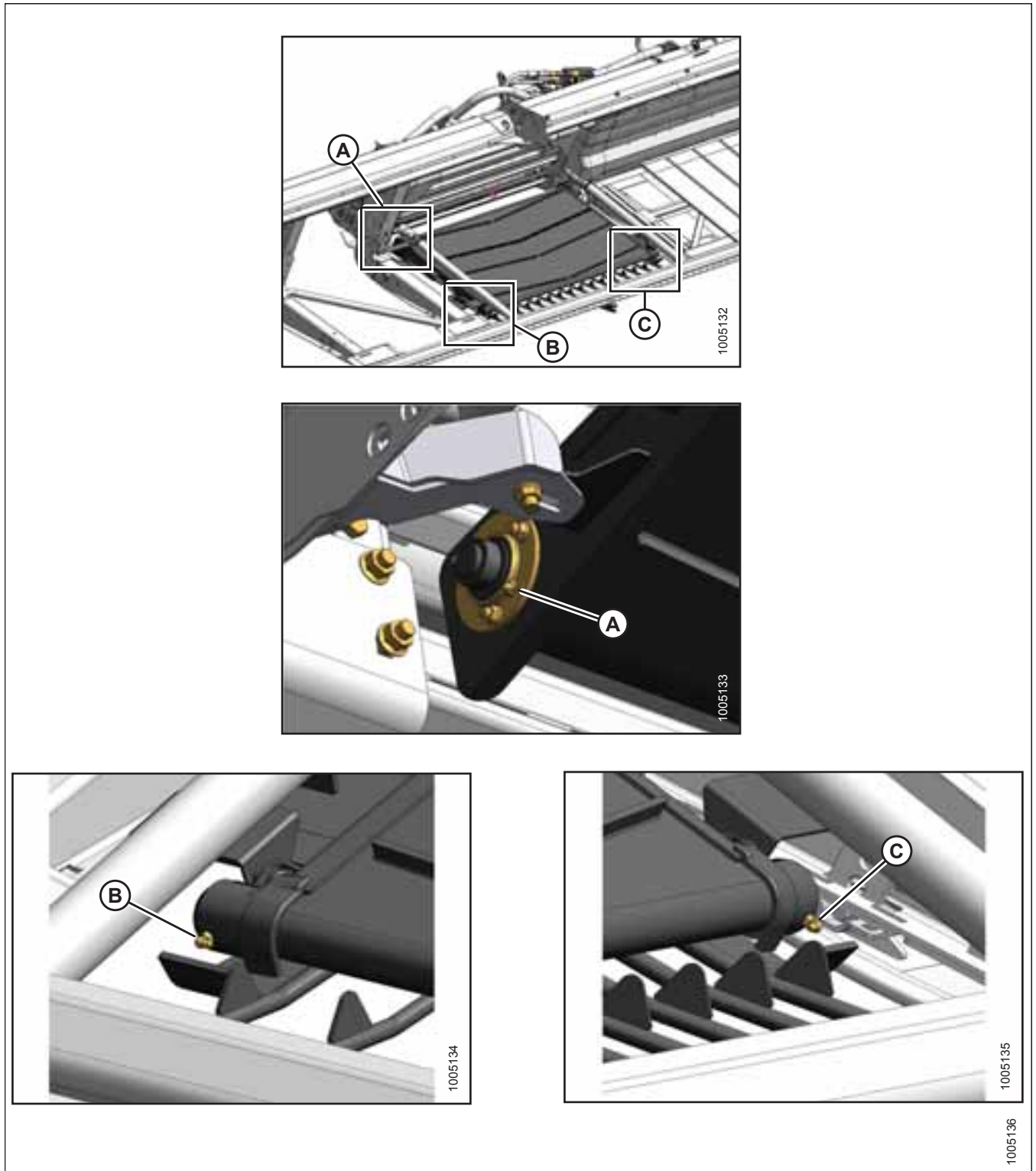


Figure 3.65: Lubrication Points

A - Drive Roller Bearing Lubrication Point

B - Idler Roller Bearing Lubrication Point

C - Idler Roller Bearing Lubrication Point

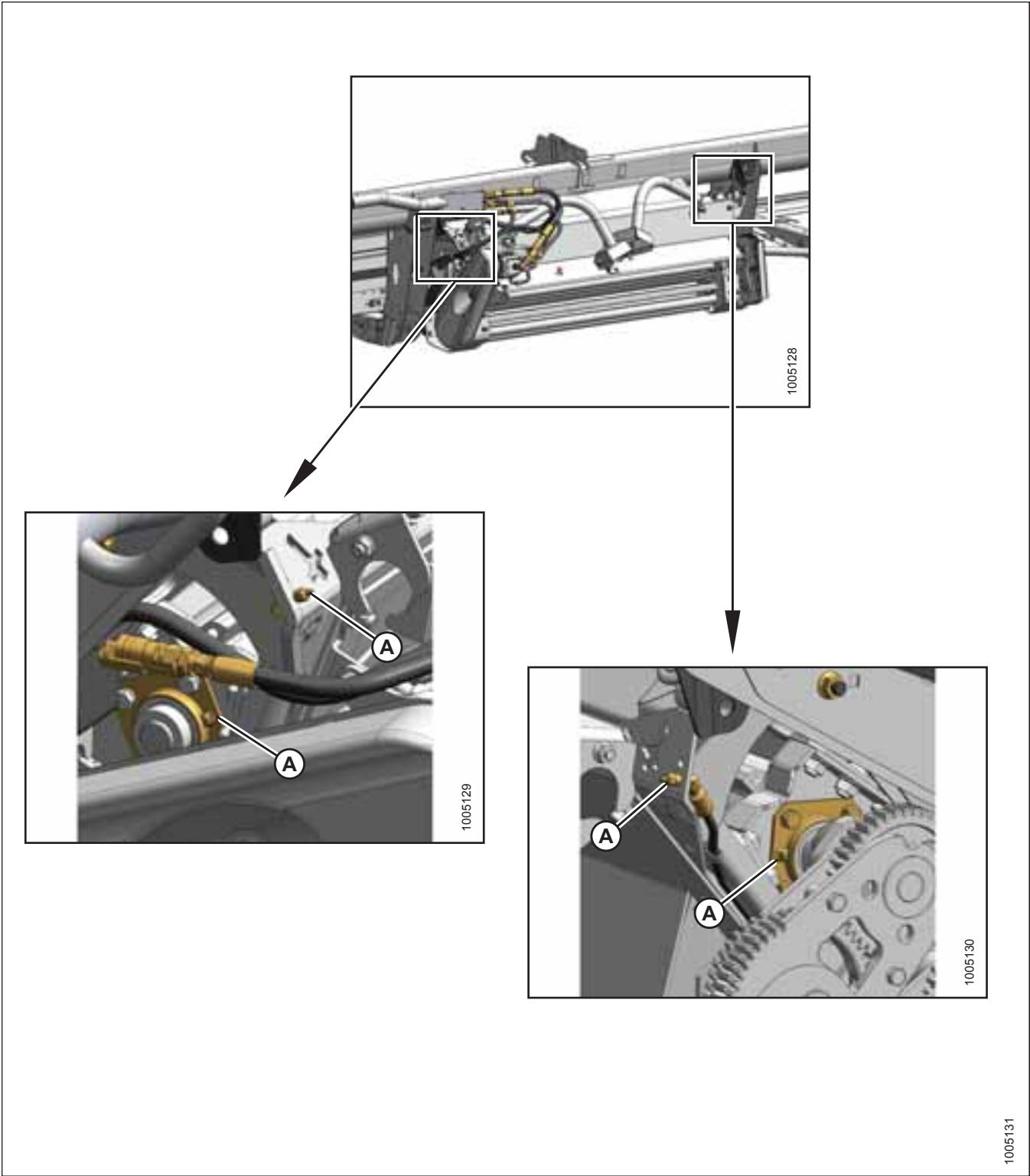


Figure 3.66: Lubrication Points
A - Roll Shaft Bearing Lubrication Points (Four Places)

3.12 Performing Predelivery Checks

Perform the final checks and adjustments as listed on the **Predelivery Checklist** (yellow sheet before the back cover – refer to [Predelivery Checklist, page 217](#)) along with the header final checks and adjustments to ensure the machine is field-ready. Refer to the following pages for detailed instructions as indicated on the checklist.

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

3.12.1 Checking Roll Drive Belt Tension

To check the roll drive belt tension, follow these steps:

1. Remove wing nut and washer (A) and remove drive cover (B).
2. Apply force to deflect belt (A). Belt (A) should deflect 7.9 mm (5/16 in.) when a force of 22–49 N (5–11 lbf) is applied at the center of the span. If belt tension requires adjusting, refer to [5.7.1 Adjusting Drive Belt Tension, page 81](#).
3. Replace cover and secure with washer and wing nut.

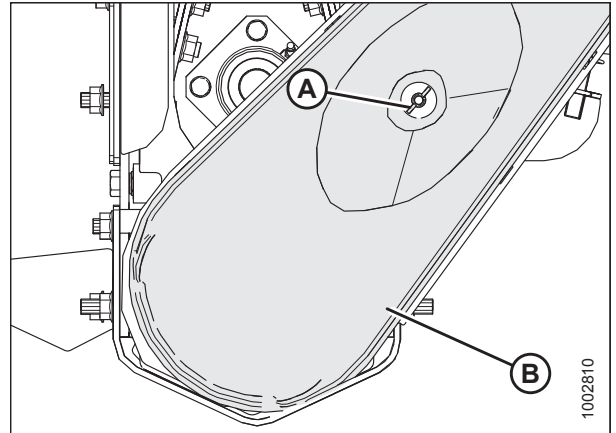


Figure 3.67: Drive Cover

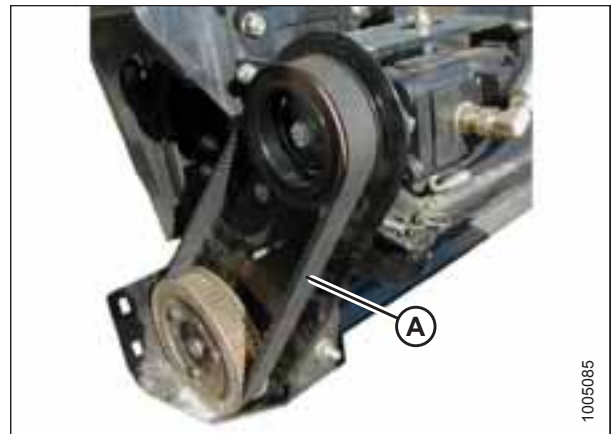


Figure 3.68: Drive Belt

3.12.2 Checking Roll Gap

1. Confirm the roll gap is set to the factory setting using either method below:
 - Refer to Figure 3.69, page 48: Confirm the roll gap (B) is 20 mm (3/4 in.).
 - Refer to Figure 3.70, page 48 Confirm the roll gap is at the 1.5 line (A).

Gauge readings should be the same at both ends of the roll

2. If roll gap requires adjusting, refer to [4.9.2 Adjusting Roll Gap, page 68](#).

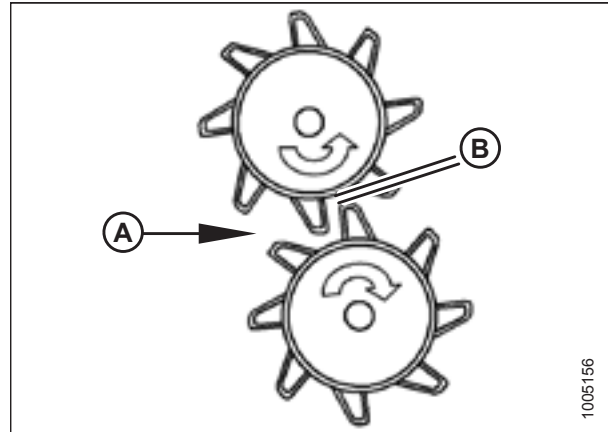


Figure 3.69: Roll Gap

A - Crop direction

B - Roll gap

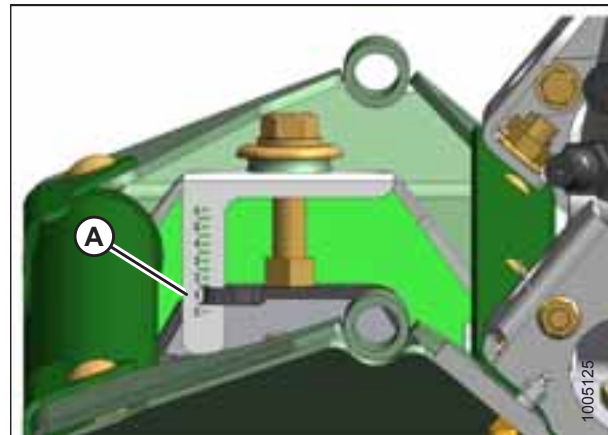


Figure 3.70: Roll Gap Gauge

3.12.3 Checking Roll Timing

To check the roll timing, follow these steps:

1. Remove wing nut and washer (A) and remove tool (B) from panel at right end of conditioner.

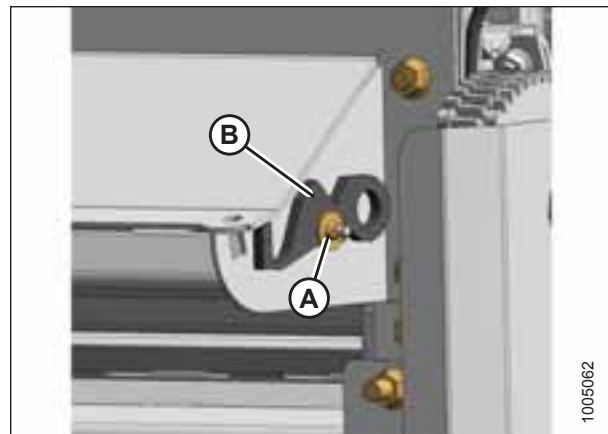


Figure 3.71: Conditioner End – Right

UNLOADING AND ASSEMBLY

2. From the rear of the conditioner, position the tool at center of rolls (A) as shown in illustration at right, and manually turn rolls to limits of tool (B). Rolls will engage the tool if timing is correct.
3. Manually turn rolls to release tool.
4. Return the tool the storage location on the right end of the conditioner. Secure it with a washer and wing nut.



WARNING

Remove the tool from the rolls and return it to the storage location before starting machine.

5. If roll timing requires adjusting, refer to [4.9.3 Checking and Adjusting Roll Timing, page 69](#).



Figure 3.72: Roll Timing Tool

A - Start Position

B - Gauge Position

3.12.4 Running up the Conditioner

To run up the conditioner, follow these steps:



CAUTION

Never start or move the machine until you are sure all bystanders have cleared the area.



WARNING

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

1. Clear all bystanders from the area.
2. Refer to the windrower unloading and assembly instructions or operator's manual for windrower operating instructions.
3. Start the windrower and run the header. Operate the conditioner slowly for 5 minutes, watching and listening FROM THE OPERATOR'S SEAT for binding or interfering parts.
4. Run the header for 15 minutes.
5. Perform the run-up check as listed on the Predelivery Checklist (yellow sheet attached to this instruction—refer to [Predelivery Checklist, page 217](#)) and the header run-up check to ensure the machine is field-ready.
6. Shut down the engine, and remove the key from the ignition.

3.12.5 Storing Manuals

Place this manual in storage case (A) in the windrower. The Predelivery Checklist (yellow sheet attached to this instruction—refer to [Predelivery Checklist, page 217](#)) should be retained by either the Dealer or the Operator.

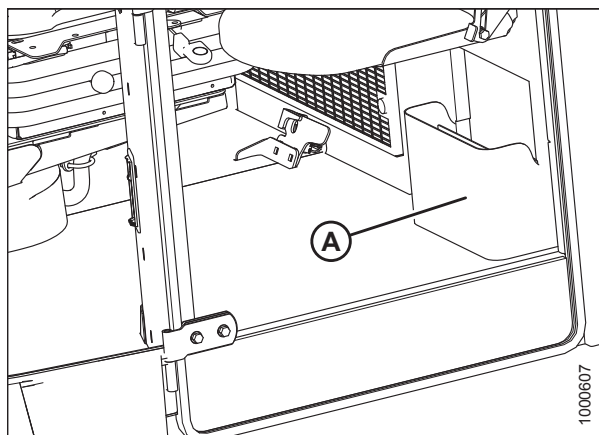


Figure 3.73: Manual Storage Case

Chapter 4: Operation

4.1 Owner/Operator Responsibilities



CAUTION

- It is your responsibility to read and understand this manual completely before operating the header. Contact your Dealer if an instruction is not clear to you.
- Follow all safety messages in the manual and on safety decals applied to the machine.
- Remember that YOU are the key to safety. Good safety practices protect you and the people around you.
- Before allowing anyone to operate the header, for however short a time or distance, make sure they have been instructed in its safe and proper use.
- Review the manual and all safety related items with all Operators annually.
- Be alert for other Operators not using recommended procedures or not following safety precautions. Immediately correct mistakes to prevent accidents.
- Do NOT modify the machine. Unauthorized modifications may impair function and/or safety and affect machine life.
- The safety information given in this manual does NOT replace safety codes, insurance needs, or laws governing your area. Be sure your machine meets the standards set by these regulations.

4.2 Operational Safety

CAUTION

Follow these safety precautions:

- Follow all safety and operational instructions given in your windrower and header operator's manuals. If you do not have a windrower and/or header manual, get one from your Dealer and read it thoroughly.
- Never start or move the machine until you are sure all bystanders have cleared the area.
- Stop the engine and remove the key before adjusting or removing plugged material from the machine.
- Check for excessive vibration and unusual noises. If there is any indication of trouble, shut down the engine and inspect the machine. Follow proper shutdown procedure. Refer to [4.2.1 Shutting down the Machine, page 52](#).
- Operate only in daylight or good artificial light.

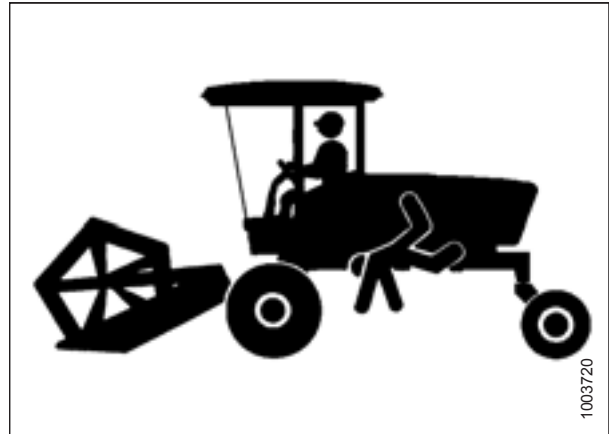


Figure 4.1: Safety around Windrower

4.2.1 Shutting down the Machine

Before inspecting the machine, follow these steps to shut it off:

1. Return GSL to N-DETENT and center steering wheel to lock.
2. Disengage header drives.
3. Shut down the engine, and remove the key from the ignition.
4. Wait for all movement to stop.
5. Dismount and engage lift cylinder safety props on windrower lift legs before inspecting raised machine.

4.3 Attaching Hay Conditioner to Header

Refer to the following sections in order for instructions on installing the HC10 Hay Conditioner and forming shield on your D Series or D1 Series draper header.

- *3.3 Installing the Rock Grate, page 18*
- *3.4.2 Installing Deck Brackets – D60, D65, and D130, page 22*
- *3.7 Attaching Hydraulics, page 33*
- *3.5 Installing the Feed Deck, page 24*
- *3.6 Installing the Conditioner, page 26*
- *3.8 Assembling the Forming Shield, page 38*
- *3.9 Installing the Forming Shield, page 41*

4.4 Detaching Hay Conditioner from Header

There are two methods for detaching the hay conditioner from the header. Refer to the following sections for instructions:

- The windrower method – refer to [4.4.1 Detaching Hay Conditioner – Windrower Method, page 54](#)
- The lifting method – refer to [4.4.2 Detaching Hay Conditioner – Lifting Method, page 58](#)

4.4.1 Detaching Hay Conditioner – Windrower Method

To detach the hay conditioner from the header using the windrower method, follow these steps:



WARNING

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

1. Shut down the engine, and remove the key from the ignition.
2. Disconnect straps (A) from the windrower frame.

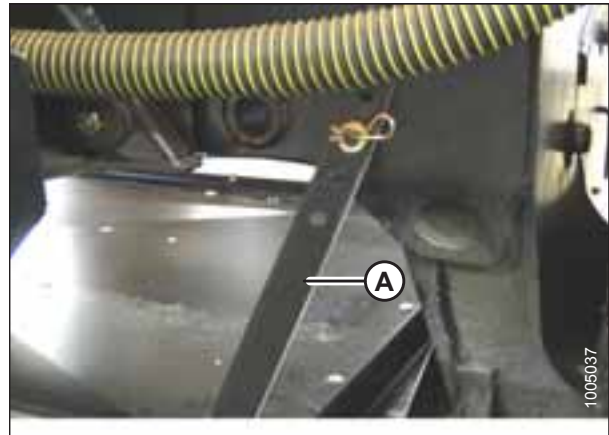


Figure 4.2: Rubber Strap

3. Lower header stand (A) to mid-position.
4. Detach the header from the windrower. Refer to the windrower operator's manual for instructions.



Figure 4.3: Header Stand

OPERATION

5. Remove two lynch pins (A) securing the forming shield to the conditioner pins and the remove shield.

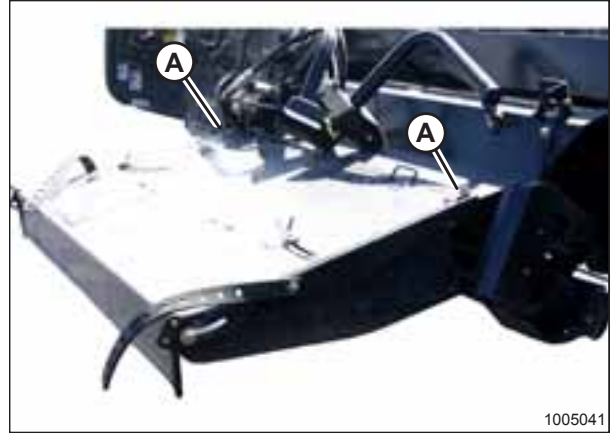


Figure 4.4: Forming Shield

6. Disconnect the five HC10 hydraulic hoses from the header at the following locations:
 - Case drain hose (A)
 - Conditioner motor pressure hose (B)
 - Deck motor return hose (C)
 - Deck motor pressure hose (D)
 - Conditioner motor return hose (E)

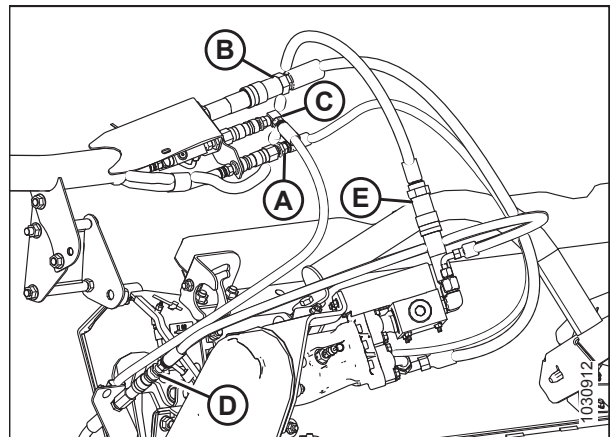


Figure 4.5: Hydraulic Hoses

A - Case Drain
B - Conditioner Motor Pressure
C - Deck Motor Return
D - Deck Motor Pressure
E - Conditioner Motor Return

7. Remove nut (A) and the carriage bolt that attach the conditioner to the lower right of the header.

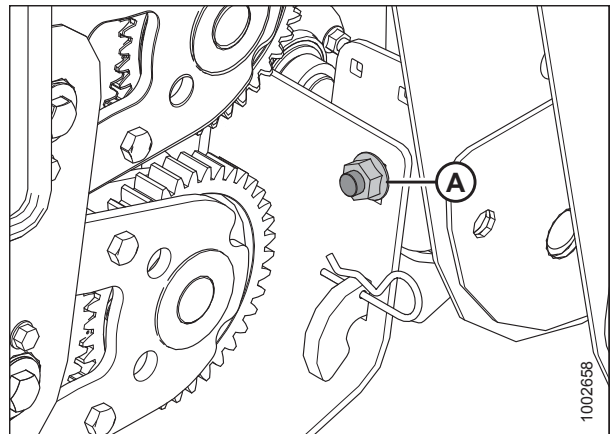


Figure 4.6: Conditioner – Right Side

OPERATION

8. Remove nut (A) and the carriage bolt that attach the conditioner to the lower left of the header.

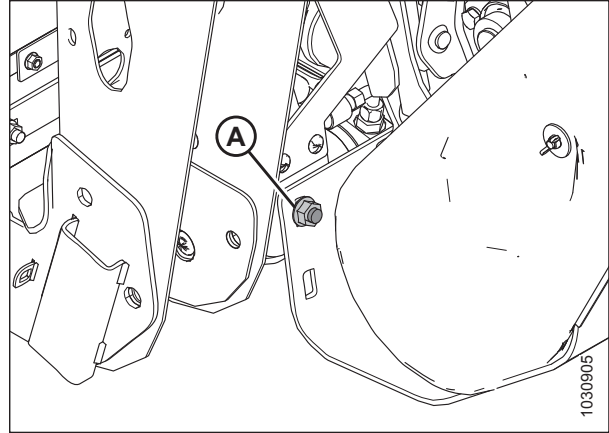


Figure 4.7: Conditioner – Left Side

9. Remove bolt and nut (A) attaching lift arm (B) to bracket (C).
10. Loosen nut (D) enough to rotate bracket (C).
11. Remove L-pin (E) securing lift arm (B) to the conditioner.

NOTE:

Rotate pin (E) to align the key-hole slot.

12. Remove lift arm (B).

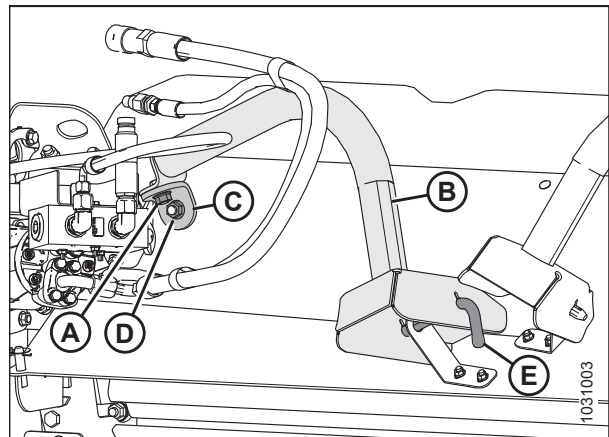


Figure 4.8: Lift Arm – Left Side

13. Position lift arm (A) as shown and secure with latch (D).
14. Reattach lift arm (A) to bracket (B) using nut and bolt (C).
15. Tighten hardware (E) to secure bracket (B) to the conditioner. Tighten hardware (C) to secure lift arm (A) to bracket (B).
16. Repeat Step 9, page 56 to Step 15, page 56 for the other lifting arm.

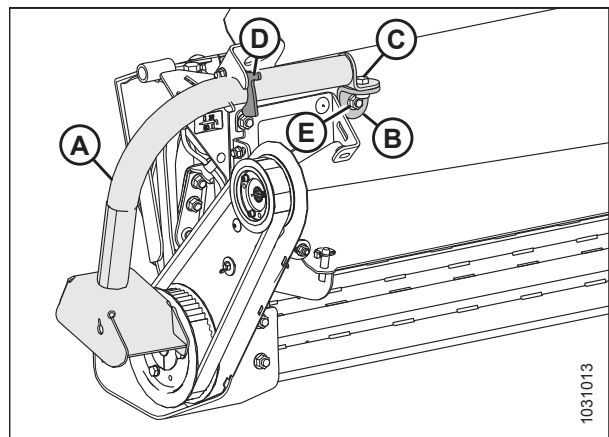


Figure 4.9: Conditioner – Left Side

OPERATION

17. Position the windrower arms in lift arm pockets (A) and insert the L-pins for safety.

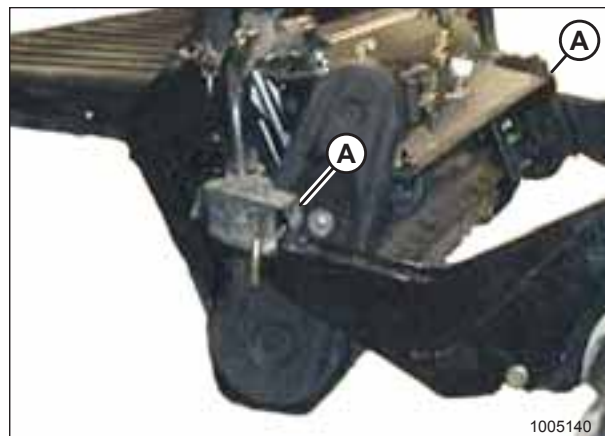


Figure 4.10: Lift Arm Pockets

18. Carefully raise the windrower lift legs until lugs (A) on conditioner clear U-shaped brackets (B) on header.
19. Slowly back the windrower away from the header.

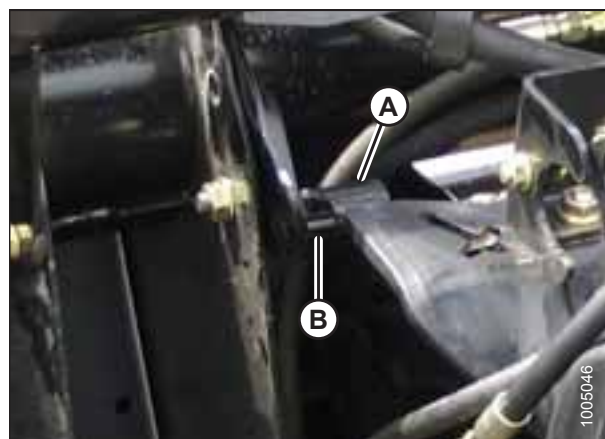


Figure 4.11: Conditioner Lug

20. Retrieve support (A) from toolbox and install in the slot at bottom of the conditioner base. Secure with hairpin (B).
21. Lower conditioner to ground.

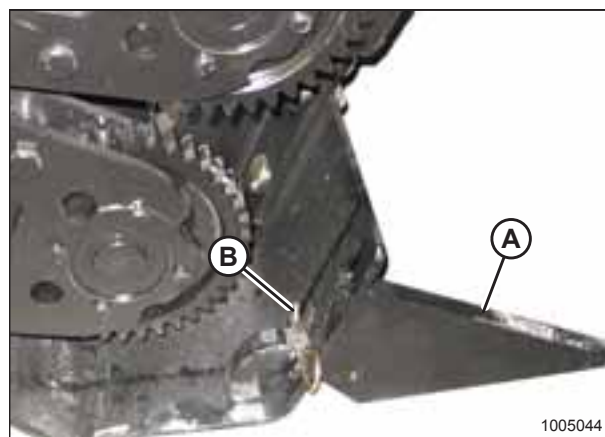


Figure 4.12: Conditioner Support

OPERATION

22. Remove L-pins (A) from lift arms and back the windrower away from the conditioner.
23. Replace the L-pins in the conditioner lift arms.

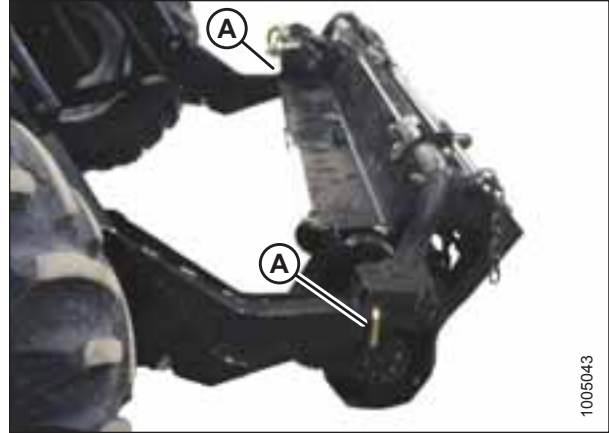


Figure 4.13: L-Pins

4.4.2 Detaching Hay Conditioner – Lifting Method

To detach the hay conditioner from the header using the lifting method, follow these steps:



WARNING

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

1. Shut down the engine, and remove the key from the ignition.
2. Disconnect straps (A) from the windrower frame.

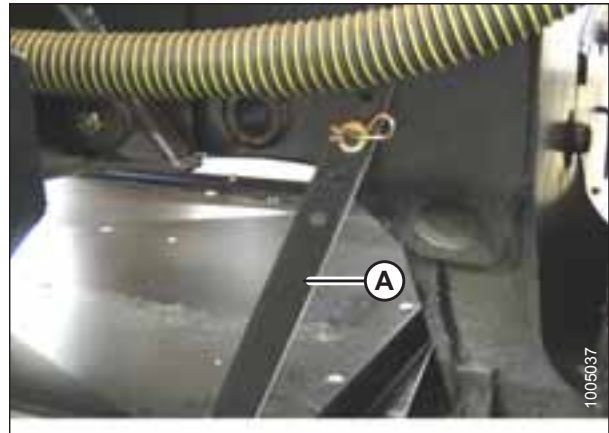


Figure 4.14: Rubber Strap

OPERATION

3. Lower header stand (A) to mid-position.
4. Detach the header from the windrower. Refer to the windrower operator's manual for instructions.



Figure 4.15: Header Stand

5. Remove two lynch pins (A) securing the forming shield to the header pins and remove the forming shield.

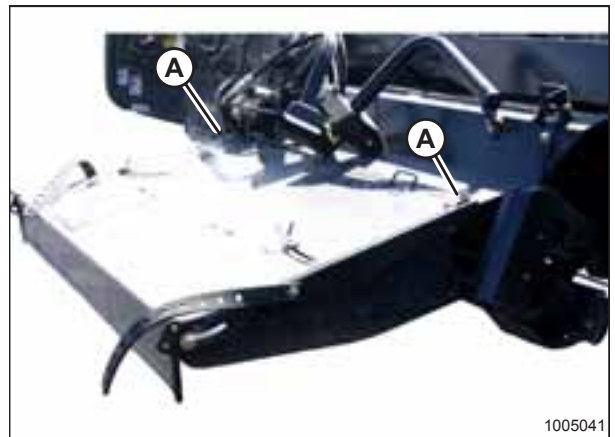


Figure 4.16: Forming Shield

6. Disconnect the five HC10 hydraulic hoses from the header at the following locations:
 - Case drain hose (A)
 - Conditioner motor pressure hose (B)
 - Deck motor return hose (C)
 - Deck motor pressure hose (D)
 - Conditioner motor return hose (E)

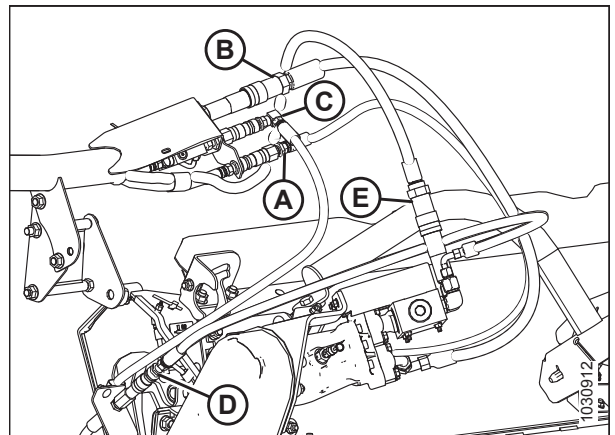


Figure 4.17: Hydraulic Hoses – Conditioner Drive Motor

A - Case Drain
B - Conditioner Motor Pressure
C - Deck Motor Return
D - Deck Motor Pressure
E - Conditioner Motor Return

OPERATION

7. Remove nut (A) and the carriage bolt that attach the conditioner to the lower right of the header.

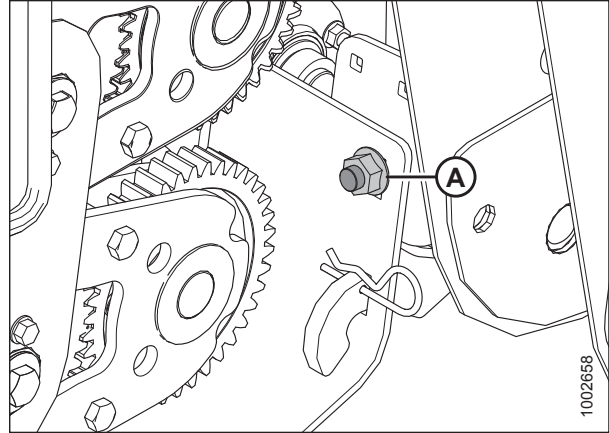


Figure 4.18: Conditioner – Right Side

8. Remove nut (A) and the carriage bolt that attach the conditioner to the lower left of the header.

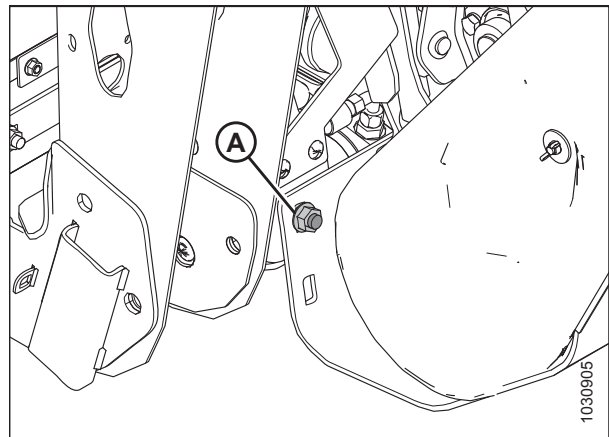


Figure 4.19: Conditioner – Left Side

9. Attach chain to lifting brackets (A) on conditioner and secure chain to lifting device (B).

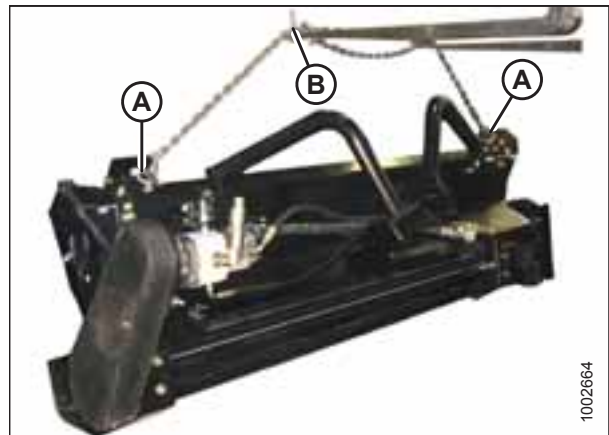


Figure 4.20: Conditioner and Lifting Brackets

OPERATION

10. Carefully raise the lifting device until lugs (A) on the conditioner clear U-shaped brackets (B) on the header.
11. Slowly back the windrower away from the header.

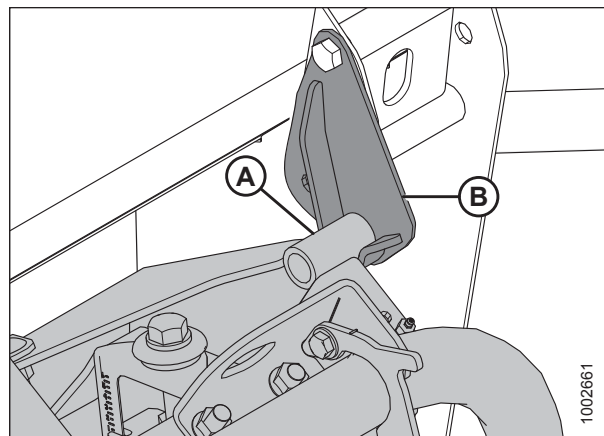


Figure 4.21: Conditioner Lug

12. Retrieve support (A) from the toolbox and install in the slot at the bottom of the conditioner base. Secure with hairpin (B).
13. Lower the conditioner to the ground.
14. Unhook the chains.

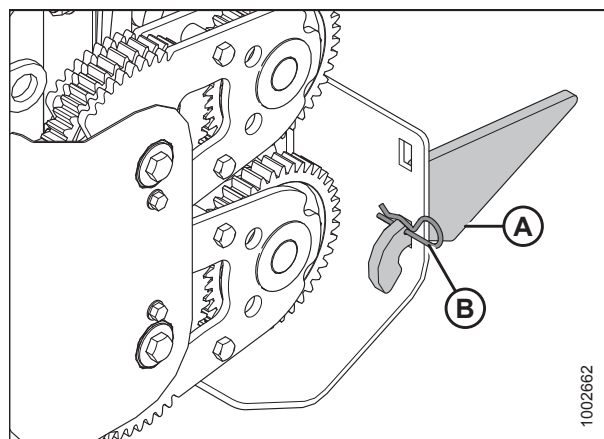


Figure 4.22: Conditioner Support

4.5 Detaching Feed Deck and Rock Grate

To detach the feed deck and rock grate from the hay conditioner, follow these steps:

1. Remove two carriage bolts (A) that attach the hose brace to the header, and lay the hoses on the deck.

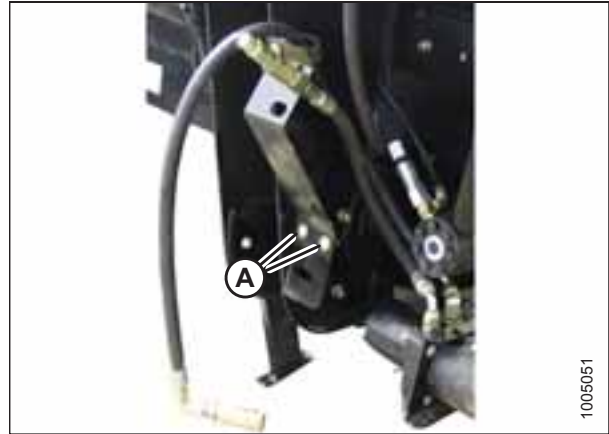


Figure 4.23: Hose Brace

2. Remove nut (A) and bolt at the rear left of the deck that secure the deck to the header.

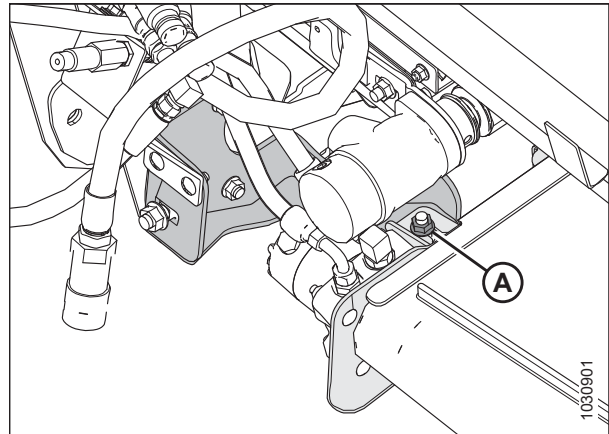


Figure 4.24: Feed Deck – Left Side

3. Remove nut (A) and bolt at the rear right of the deck that secure the deck to the header.

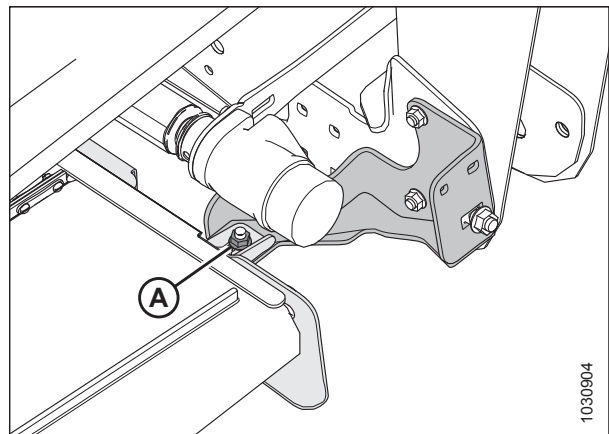


Figure 4.25: Feed Deck – Right Side

OPERATION

4. Slide deck (A) back slightly until the deck mounts clear the header brackets. Lower aft of deck to ground.
5. Continue sliding the deck back until the deck drops free of the rock grate. Move the deck to storage.

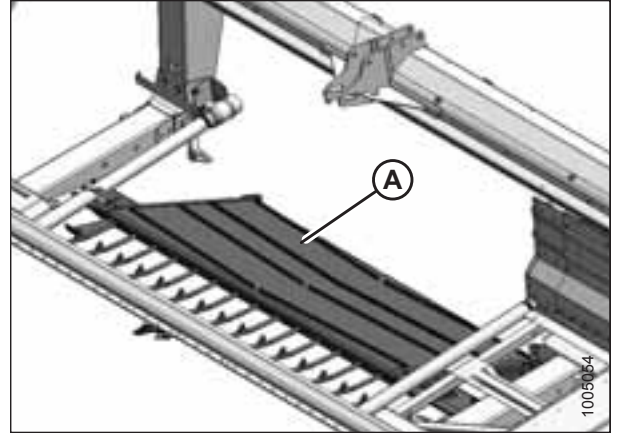


Figure 4.26: Feed Deck

6. Remove two bolts (A) attaching rock grate to header legs.

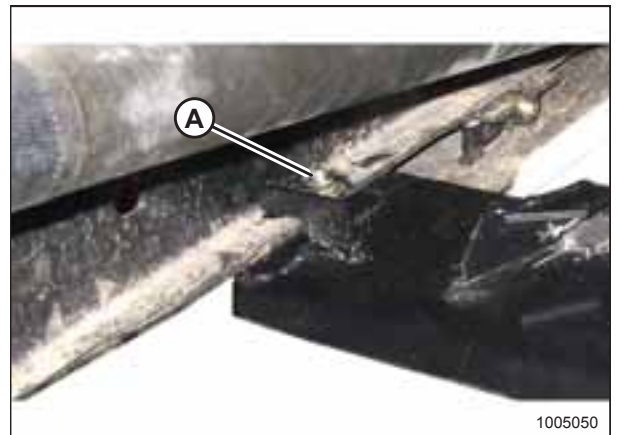


Figure 4.27: Rock Grate

7. Pull rock grate (A) off cutterbar and header legs. Move rock grate to storage.

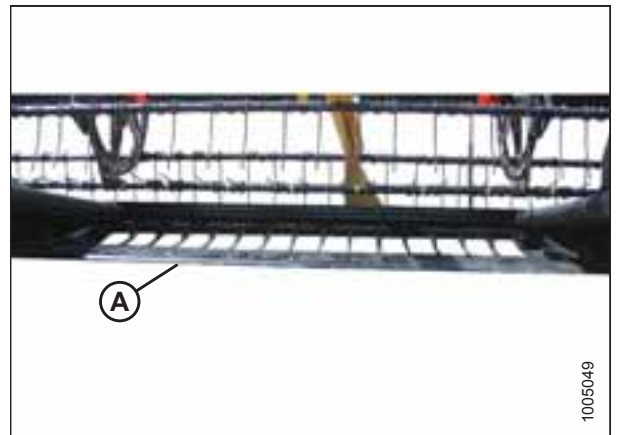


Figure 4.28: Rock Grate

OPERATION

8. If necessary, remove conditioner attachment brackets (A) and spacers (B) from the header legs and store with the feed deck.

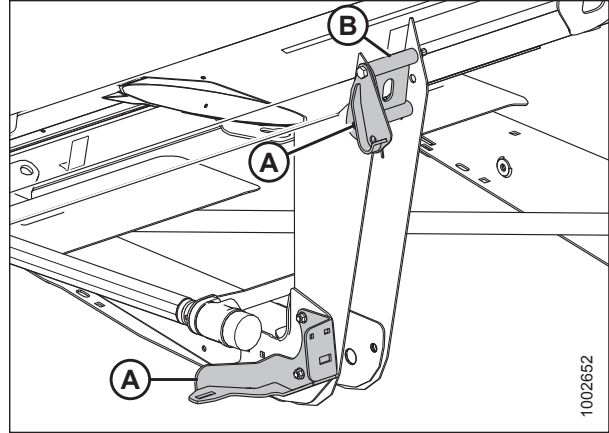


Figure 4.29: Conditioner Attachment Brackets

4.6 Break-in Period

When operating the hay conditioner for the first time, operate the conditioner slowly for 5 minutes, watching and listening FROM THE OPERATOR'S SEAT for binding or interfering parts.



WARNING

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

NOTE:

Conditioner will **NOT** operate until oil flow fills the lines.

NOTE:

Until you become familiar with the sound and feel of your new hay conditioner, be extra alert and attentive.

After first 5 hours of operation:

- Tighten any loose hardware.
- Adjust the tension of roll drive belt. For instructions, refer to [5.7.1 Adjusting Drive Belt Tension, page 81](#). Continue to check the belt tension periodically for the first 50 hours.

4.7 Preseason Check



CAUTION

- Review the operator's manual to refresh your memory on safety and operating recommendations.
- Review all safety signs and other decals on the header and note hazard areas.
- Be sure all shields and guards are properly installed and secured. Never alter or remove safety equipment.
- Be sure you understand and have practiced safe use of all controls. Know the capacity and operating characteristics of the machine.
- Check the first aid kit and fire extinguisher. Know where they are and how to use them.

Perform the following tasks at the beginning of each operating season:

- Adjust tension on drive belt. For instructions, refer to [5.7 Drive Belt, page 81](#).
- Perform all annual maintenance. For instructions, refer to [5.8 Maintenance Schedule, page 88](#).

4.8 Daily Startup Check

CAUTION

- 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.
- Wear close-fitting clothing and protective shoes with slip-resistant soles.
- Remove foreign objects from the machine and surrounding area.
- Carry with you any protective clothing and personal safety devices that **COULD** be necessary through the day. Don't take chances. You may need a hard hat, protective glasses or goggles, heavy gloves, a respirator or filter mask, or wet weather gear.
- Protect against noise. Wear a suitable hearing protection device such as earmuffs or earplugs to protect against objectionable or uncomfortable loud noises.



Figure 4.30: Protective Clothing and Personal Safety Devices

Complete the following tasks each day before start-up:

1. Check the machine for leaks or any parts that are missing, broken, or not working correctly.

NOTE:

Use proper procedure when searching for pressurized fluid leaks. Refer to [5.5 Hydraulics, page 79](#).

2. Clean all lights and reflective surfaces on the machine.
3. Perform all daily maintenance. Refer to [5.8 Maintenance Schedule, page 88](#).

4.9 Conditioner Operation

WARNING

Keep hands and feet away from discharge opening. Keep everyone at least 100 meters (330 ft.) away from your operation. Never direct the discharge toward anyone. Stones or other foreign objects can be ejected with force.

WARNING

To avoid bodily injury or death from unexpected start-up of machine, stop engine and remove key before adjusting rolls.

4.9.1 Roll and Feed Draper Speed

The roll and feed draper speeds change whenever the header knife speed is changed since the drives use the same hydraulic circuit. They cannot be independently adjusted.

4.9.2 Adjusting Roll Gap

Intermeshing steel rolls condition the crop by crimping and crushing the stem in several places. This allows moisture release for quicker drying. The degree to which the crop is conditioned as it passes through the rolls is controlled by roll gap (refer to illustration at right). The gap is factory set at 20 mm (3/4 in.) or at 1.5 line on gauge. Gauge readings should be the same at both ends of the roll.

Correct conditioning of alfalfa, clover, and other legumes is usually indicated when 90% of the stems show cracking, but no more than 5% of the leaves are damaged. Use only enough roll gap to achieve this result.

Grass type crops may require less gap for proper feeding and conditioning. A larger gap (up to 25 mm [1 in.]) may be desirable in thick-stemmed cane-type crops; however, too large a gap may cause feeding problems.

If required, you can adjust the roll gap by loosening nut (A) and turning adjuster (B). Retighten nut (A) after adjusting.

IMPORTANT:

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

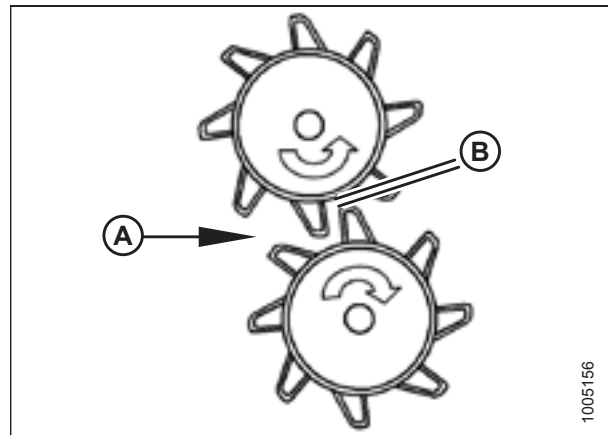


Figure 4.31: Roll Gap

A - Crop Direction

B - Roll Gap

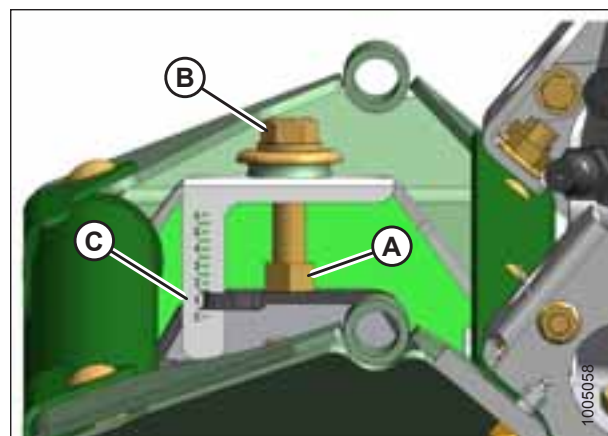


Figure 4.32: Roll Gap Gauge

4.9.3 Checking and Adjusting Roll Timing

For proper conditioning, the rolls must be properly timed and aligned; each steel bar on one roll must be centered between two bars on the other roll as shown in illustration at right. The factory setting should be suitable for most crop conditions.

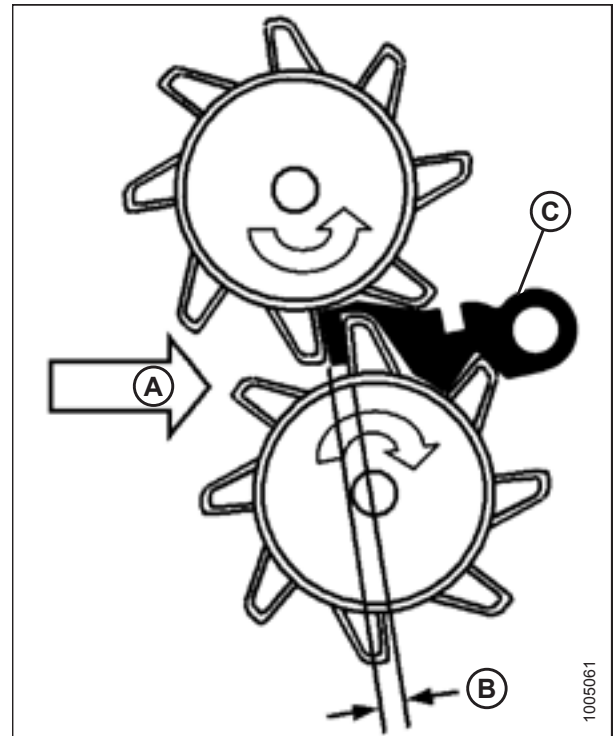


Figure 4.33: Roll Timing Tool

A - Crop Direction
C - Roll Timing Tool

B - Timing Gap

1. Check rolling before adjusting. Refer to [3.12.3 Checking Roll Timing, page 48](#).

If roll timing needs adjusting, continue to the next step.

2. Loosen four bolts (A) on one of the small timing gears.
3. Insert tool as described above and allow rolls to adjust to the tool.
4. Tighten bolts on timing gear.
5. Return the tool the storage location on the right end of the conditioner. Secure it with a washer and wing nut.

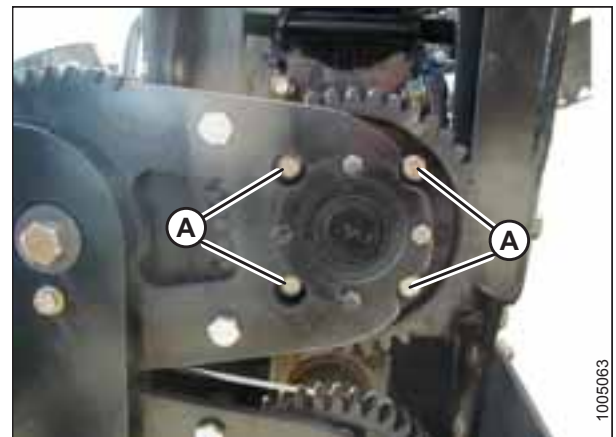


Figure 4.34: Timing Gear

4.9.4 Adjusting Conditioner Roll Tension

The conditioner roll tension is maintained by two tension springs providing adequate pressure for correct conditioning of the crop. These springs also allow the rolls to open to allow passage of small solid objects without damage to the rolls.

DANGER

To avoid bodily injury or death from unexpected start-up or fall of a raised machine, always stop engine and remove key before leaving the operator's seat, and always engage safety props before going under the machine for any reason.

To adjust the conditioner roll tension, follow these steps:

1. Shut down the engine, and remove the key from the ignition.
2. Engage the header safety props.
3. Locate adjustment nuts (B) on top of the conditioner channel.
4. Loosen jam nuts (A).
5. Turn adjusting nut (B) clockwise to increase tension, and counterclockwise to decrease tension.
6. Adjust nuts (B) on both sides equal amounts.
7. Tighten jam nuts (A).

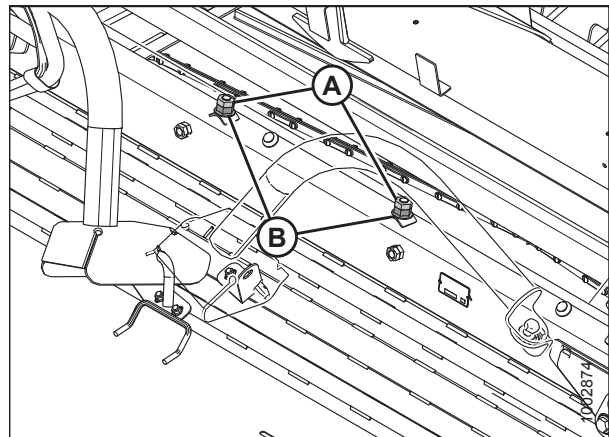


Figure 4.35: Conditioner Channel

4.9.5 Forming Shields

The position of the forming shields controls the width and placement of the windrow. The decision on forming shield position (settings between 915 and 2346 mm [36 and 92 in.]) should be based on the following factors:

- Weather conditions (rain, sun, humidity, wind)
- Type and yield of crop
- Drying time available
- Method of processing (bales, silage, green-feed)

A wider windrow will generally dry faster and more evenly, resulting in less protein loss. Fast drying is especially important in areas where the weather allows only a few days to cut and bale.

Where weather conditions permit or when drying is not critical (for example, when cutting for silage or green-feed), a narrower windrow may be preferred for ease of pick-up.

Adjusting Forming Shield Height

The height of the forming shield affects the shape and consistency of the windrow. A heavy crop will require the forming shield to be set near the highest position and a lighter crop needs the forming shield to be lower. Adjust the forming shield height as follows:

WARNING

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

1. Shut down the engine, and remove the key from the ignition.
2. Remove hairpins (A) securing straps (B) to pins on windrower frame.
3. Support aft end of forming shield. Adjust the shield height using the holes in the straps.
4. Secure straps with hairpins.

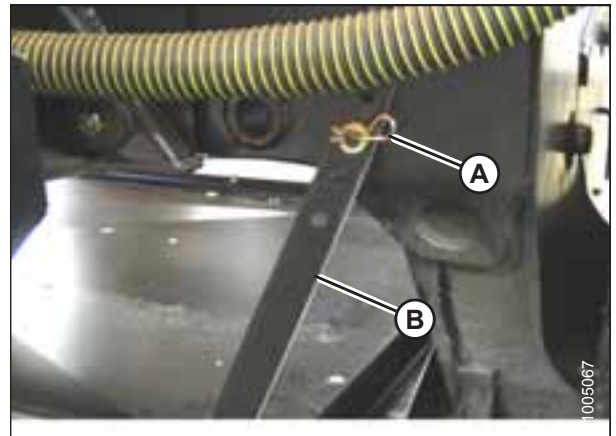


Figure 4.36: Rubber Strap

Adjusting Side Deflectors

The position of the side deflectors controls the width and placement of the windrow. To adjust the position, follow these steps:

WARNING

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

1. Shut down the engine, and remove the key from the ignition.
2. Set side deflectors (A) to the desired width by loosening handle (B) and moving deflector (A). Tighten the handle. Repeat at opposite side. Set both deflectors to approximately the same position.

IMPORTANT:

To ensure windrow placement is centered with respect to windrower wheels, adjust both side deflectors to the same position. To achieve this setting, adjuster handles must be in the same location on both sides.

3. If side deflector attachment is too tight or too loose, tighten or loosen nut (C) as required.

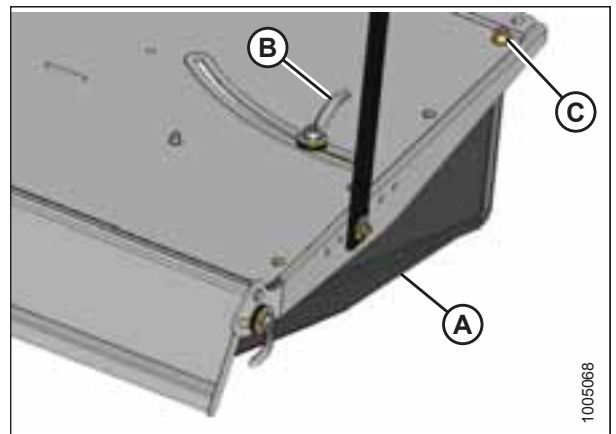


Figure 4.37: Side Deflector – Right

Adjusting Rear Deflector (Fluffer Shield)

The rear deflector slows the crop exiting the conditioner rolls, directs the flow downward, and fluffs the material. To adjust the rear deflector, follow these steps:

WARNING

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

1. Shut down the engine, and remove the key from the ignition.
2. For more crop control in light material, lower rear deflector (A) by pushing on one side of the deflector and then down on the other side. Locking bolts (B) are located at either end of the deflector and may be loosened slightly.
3. For heavier crops, raise the deflector by pulling up on one side and then on the other side.

NOTE:

For even windrow formation, be sure the deflector is not twisted.

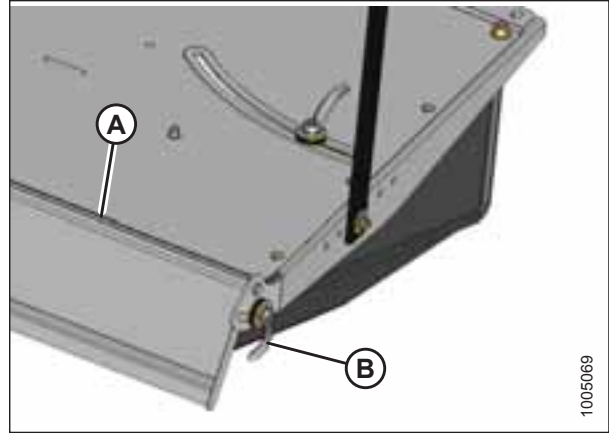


Figure 4.38: Rear Deflector

Adjusting Deflector Fins

Adjustable deflector fins help to provide different swath widths and distribution of crop across the windrow. To adjust the deflector fins, follow these steps:

WARNING

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

1. Shut down the engine, and remove the key from the ignition.
2. Angles for short fins (A) can be adjusted by loosening mounting bolt(s) and rotating as required. Long fins (B) can be adjusted using the slots in the cover.
3. Set fins approximately parallel to side deflectors for wide swath and adjust as required for even distribution of crop across full width. For narrow windrow less than 1780 mm (70 in.), remove fins.

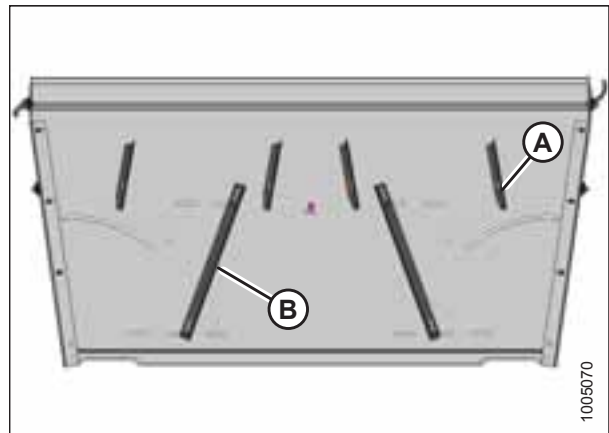


Figure 4.39: Deflector Fins

4.9.6 Unplugging the Conditioner

To unplug the conditioner, reverse the header drive. Refer to the windrower operator's manual for procedures on reversing the header drive.

4.10 Storing the Hay Conditioner

At the end of each operating season, perform the following maintenance items:



CAUTION

Never use gasoline, naphtha, or any volatile material for cleaning purposes. These materials may be toxic and/or flammable.

- Clean the conditioner thoroughly.
- Store in a dry, protected place if possible. If stored outside, always cover conditioner with a waterproof canvas or other protective material.
- Repaint all worn or chipped painted surfaces to prevent rust.
- Loosen drive belt.
- Lubricate the conditioner thoroughly, leaving excess grease on fittings to keep moisture out of bearings. Apply grease to exposed threads and sliding surfaces of components.
- Check for worn components and repair.
- Check for broken components and order replacement from your Dealer. Attention to these items right away will save time and effort at beginning of next season.
- Replace or tighten any missing or loose hardware. Refer to [2 Product Overview, page 9](#).

Chapter 5: Maintenance

5.1 Preparation for Servicing

The following instructions are provided to help you maintain your HC10 Hay Conditioner.

Contact your MacDon Dealer for detailed maintenance and service information.



DANGER

To avoid bodily injury or death from unexpected start-up or fall of a raised machine, always stop engine and remove key before leaving the operator's seat, and always engage safety props before going under the machine for any reason.

Before servicing hay conditioner or opening header drive covers:

1. Fully lower the header. If necessary to service in the raised position, always engage safety props.
2. Wait for all moving parts to stop.
3. Engage park brake.
4. Shut down the engine, and remove the key from the ignition.

5.2 Recommended Safety Procedures

Always follow these recommended safety procedures:

- Park on a level surface when possible. Block the wheels securely if the windrower is parked on an incline.
- Follow all recommendations in your header and windrower operator's manuals.
- Follow all safety sections in this manual. Refer to [1 Safety, page 1](#).

5.3 Removing and Installing Driveshields

CAUTION

- Keep all shields in place. Never alter or remove safety equipment.
 - Do NOT operate machine with shield removed.
1. To remove the driveshield, undo wing nut (B) and remove washer. Pull shield (A) off the conditioner.
 2. To install the driveshield, position shield (A) over the drive pulleys and then secure with washer and wing nut (B).

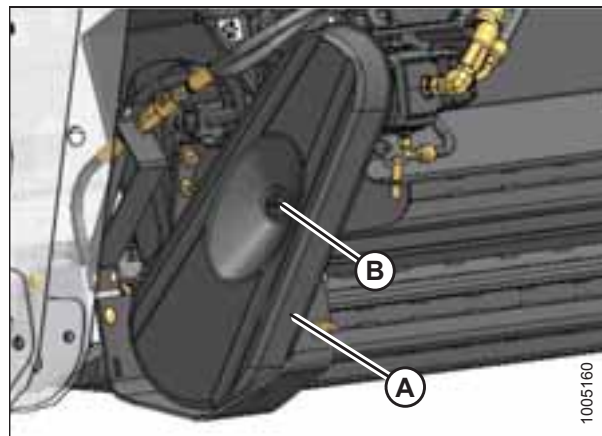


Figure 5.1: Driveshield

5.4 Lubrication

5.4.1 Lubricants

Use clean lubricants to keep your machine operating at top efficiency.

Use clean containers to handle all lubricants.

Store in an area protected from dust, moisture, and other contaminants.

Lubricant	Spec.	Description	Use
Grease	SAE Multi-Purpose	High temperature, extreme pressure (EP) 0–1% Max Molybdenum Disulphide (NLGI Grade 2) Lithium Complex Base Base Oil Viscosity of 190–250 CST @ 40°C	As required unless otherwise specified

5.4.2 Greasing Procedure



CAUTION

To avoid personal injury, before servicing the header or opening drive covers, follow procedures in [5.1 Preparation for Servicing, page 75](#).

1. To avoid injecting dirt and grit, wipe grease fitting with a clean cloth before greasing. For locations of grease fittings, refer to [3.11.2 Lubrication Points, page 45](#).
2. Inject grease through fitting with grease gun until grease overflows fitting, except where noted. For detailed lubrication information, refer to [5.4 Lubrication, page 78](#).
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.

5.4.3 Greasing Points

Greasing points that have greasing intervals of 50 hours or less are marked on the machine by decals showing a grease gun (A) and grease interval (B) in hours of operation.

Log hours of operation and use the Maintenance Checklist provided to keep a record of scheduled maintenance. Refer to [5.8 Maintenance Schedule, page 88](#).

To identify the various locations that require lubrication, refer to [3.11.2 Lubrication Points, page 45](#).

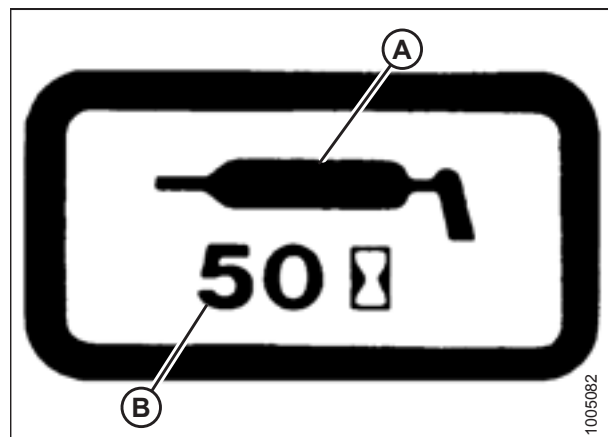


Figure 5.2: Grease Decal – 50 Hours

5.5 Hydraulics

5.5.1 Hydraulic Hoses and Lines

Check hydraulic hoses and lines daily for signs of leaks.

WARNING

- Avoid high-pressure fluids. Escaping fluid can penetrate the skin causing serious injury. Relieve pressure before disconnecting hydraulic lines. Tighten all connections before applying pressure. Keep hands and body away from pin holes and nozzles which eject fluids under high pressure.
- If ANY fluid is injected into the skin, it must be surgically removed within a few hours by a doctor familiar with this type of injury or gangrene may result.
- Use a piece of cardboard or paper to search for leaks.

IMPORTANT:

Keep hydraulic coupler tips and connectors clean. Dust, dirt, water, and foreign material are the major causes of hydraulic system damage. **DO NOT** attempt to service hydraulic system in the field. Precision fits require WHITE ROOM CARE during overhaul.



Figure 5.3: Hydraulic Pressure Hazard

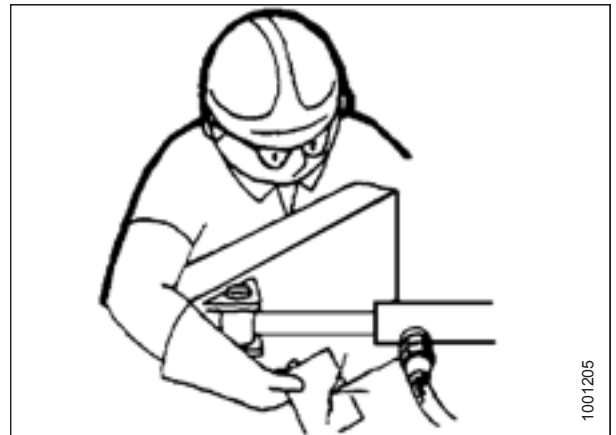


Figure 5.4: Safety Equipment

5.5.2 Hydraulic Schematics

For detailed hydraulic schematics, refer to the following:

- If the HC10 is equipped with new conditioner driver motor MD #159661: Refer to [7.3 Hydraulic Schematics – Headers with HC10 Motor MD #159661, page 147](#).
- If the HC10 is equipped with old conditioner driver motor MD #159648: Refer to [7.4 Hydraulic Schematics – Headers with HC10 Motor MD #159648, page 179](#).

5.6 Feed Draper

5.6.1 Adjusting Feed Draper Tension

Feed draper tension should be just enough to prevent slipping and keep the draper from sagging below the cutterbar. Set draper tension as follows:

DANGER

To avoid bodily injury or death from unexpected start-up or fall of raised machine, always stop engine, remove key, and engage safety props before going under header for any reason. Refer to your windrower operator's manual for instructions for use and storage of safety props.

1. Raise header fully, stop engine, and remove key. Engage safety props.
2. Check that draper guide (A) (rubber track on underside of draper) is properly engaged in groove of drive roller (B), and that idler roller (C) is inboard of the draper guide.

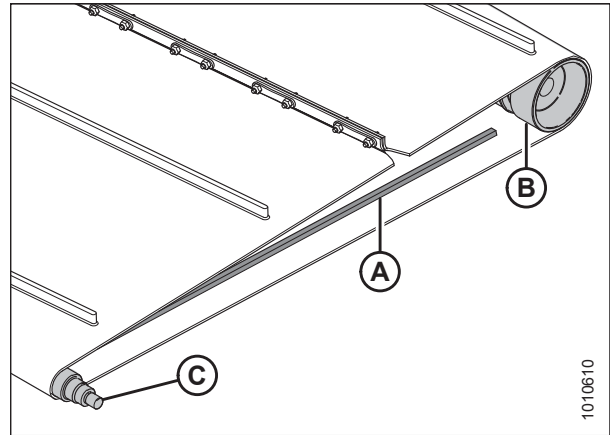


Figure 5.5: Draper Guide

3. Loosen jam nut (A).
4. Hold nut (B) with a wrench and turn bolt (C) clockwise to increase tension and counterclockwise to decrease tension.

NOTE:

Tension is correct when retainer (D) is flush with spring holder, and bolt (E) is free.

5. Tighten jam nut (A).
6. Repeat Steps 3, page 80 to 5, page 80 on the opposite side of the draper.

IMPORTANT:

Perform equal adjustments on both sides of the draper.

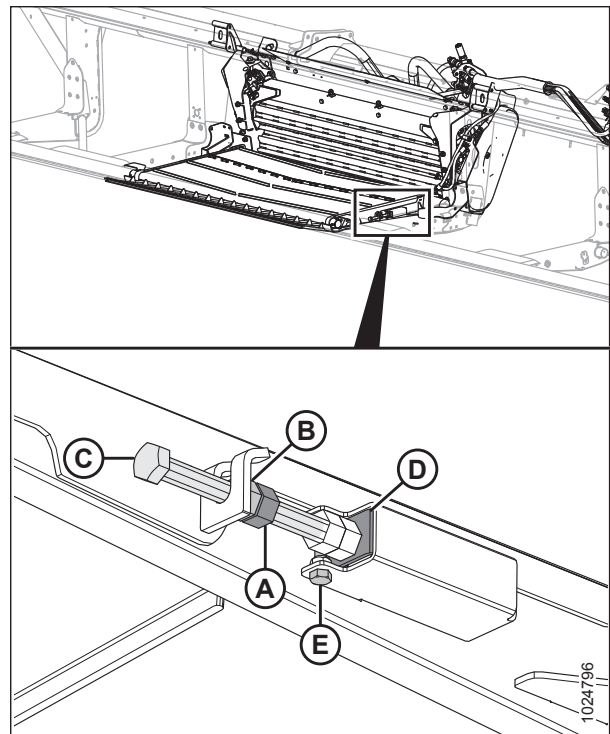


Figure 5.6: Tension Adjustment Hardware

5.7 Drive Belt

5.7.1 Adjusting Drive Belt Tension

DANGER

To avoid bodily injury or death from unexpected start-up or fall of a raised machine, always stop engine and remove key before leaving the operator's seat, and always engage safety props before going under the machine for any reason.

1. Shut down the engine, and remove the key from the ignition.
2. Engage the header safety props.
3. Remove wing nut and washer (A) and remove drive cover (B).

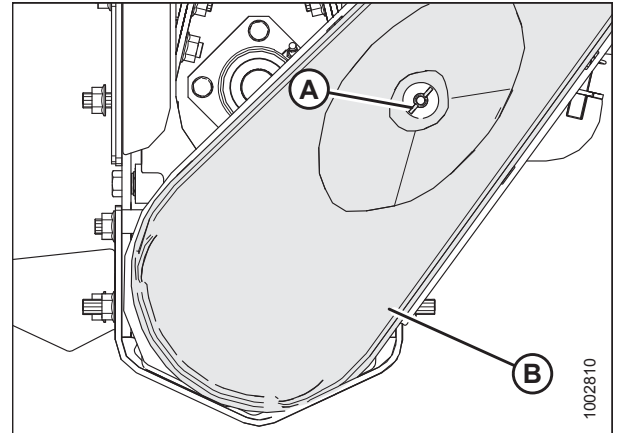


Figure 5.7: Drive Belt Cover

4. Check the drive belt tension. Belt (A) should deflect 7.9 mm (5/16 in.) when a force of 22–49 N (5–11 lbf) is applied at the center of the span.

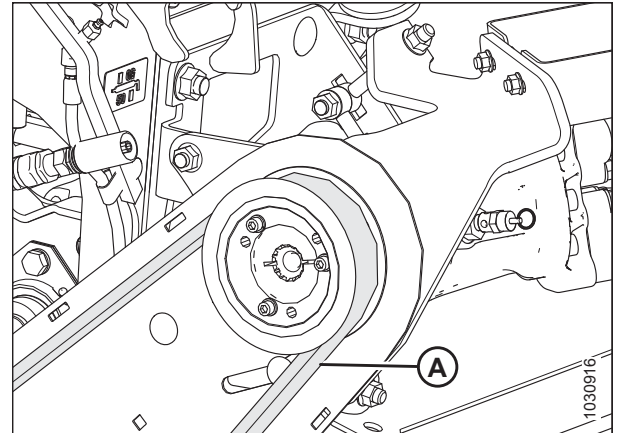


Figure 5.8: Drive Pulley – Conditioner Drive Motor

MAINTENANCE

5. Loosen three motor mount nuts (A).
6. Turn tensioning nut (B) clockwise to tighten belt and counterclockwise to loosen.
7. Tighten three motor mount nuts (A).
8. Recheck belt (C) tension.

NOTE:

If drive pulley is loose, was removed, or was replaced for any reason, tighten three bolts (D).

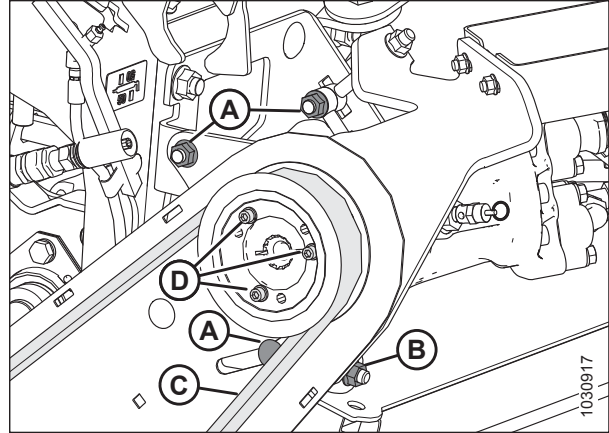


Figure 5.9: Drive Pulley – Conditioner Drive Motor

9. Replace cover (B) and secure with washer and wing nut (A).
10. Readjust tension of a new belt after a short run-in period (about 5 hours).

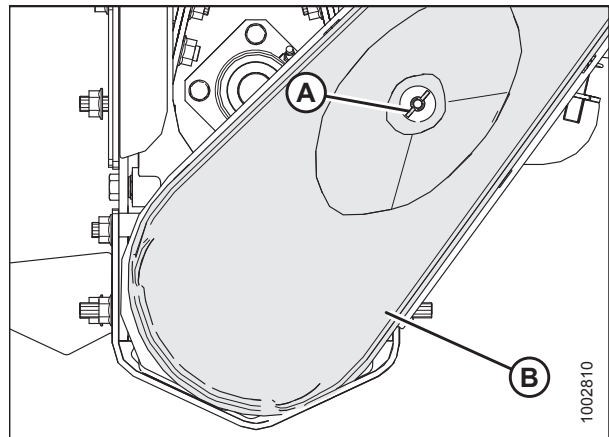


Figure 5.10: Drive Belt Cover

5.7.2 Adjusting Drive Belt Pulley Alignment

Pulleys should be aligned so that the belt tracks properly. If necessary, adjust as follows:



DANGER

To avoid bodily injury or death from unexpected start-up or fall of a raised machine, always stop engine and remove key before leaving the operator's seat, and always engage safety props before going under the machine for any reason.

1. Shut down the engine, and remove the key from the ignition.
2. Engage the header safety props.

MAINTENANCE

3. Remove wing nut (A) and washer and remove drive cover (B).

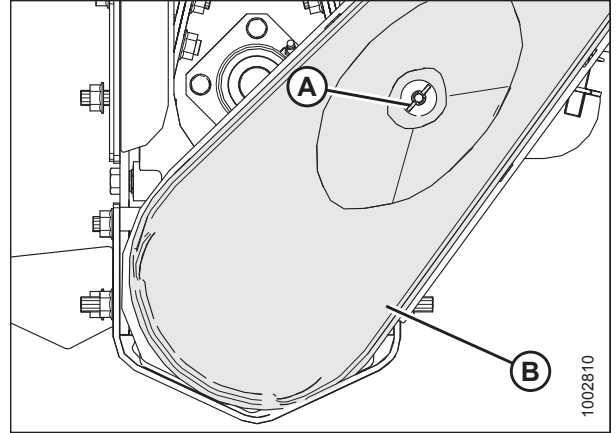


Figure 5.11: Drive Belt Cover

4. Loosen nut (A).
5. Adjust nuts (B) to align the drive pulley horizontally.
6. Adjust nuts (C) to align the drive pulley vertically.

NOTE:

If the drive pulley is loose, was removed, or replaced for any reason, tighten three bolts (D).

7. Tighten nut (A).

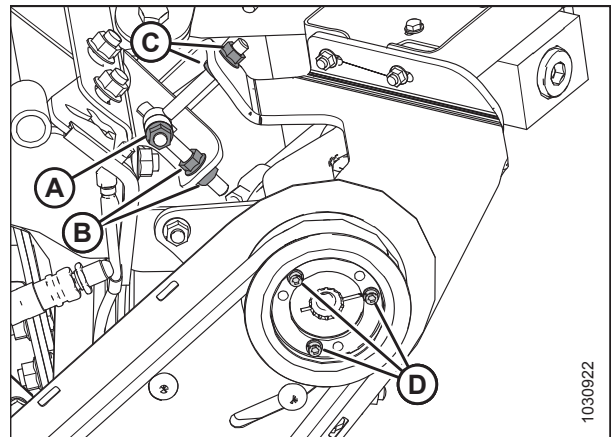


Figure 5.12: Drive Pulley – Conditioner Drive Motor

8. Replace cover (B) and secure with washer and wing nut (A).

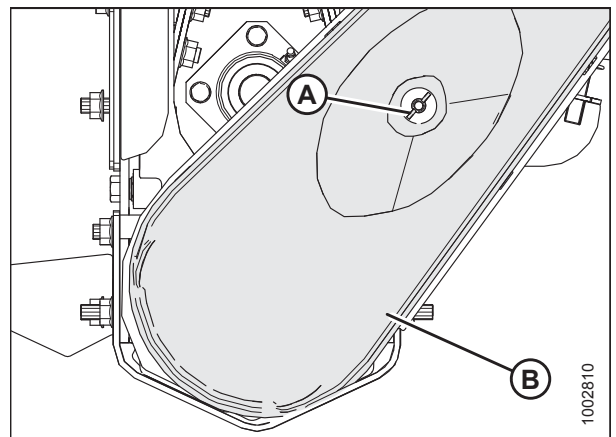


Figure 5.13: Drive Belt Cover

5.7.3 Checking and Adjusting Drive Belt Tracking

Proper tracking of the belt ensures there is no rubbing of the belt on either pulley.

DANGER

To avoid bodily injury or death from unexpected start-up or fall of a raised machine, always stop engine and remove key before leaving the operator's seat, and always engage safety props before going under the machine for any reason.

1. Shut down the engine, and remove the key from the ignition.
2. Engage the header safety props.
3. Remove wing nut (A) and washer and remove drive cover (B).

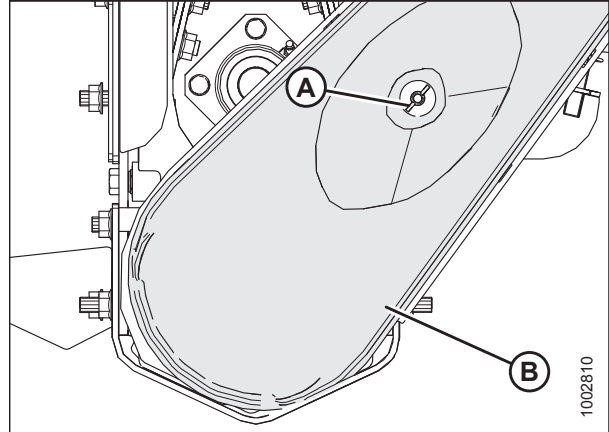


Figure 5.14: Drive Belt Cover

4. Check the belt and both pulleys (A) for evidence of belt rubbing.

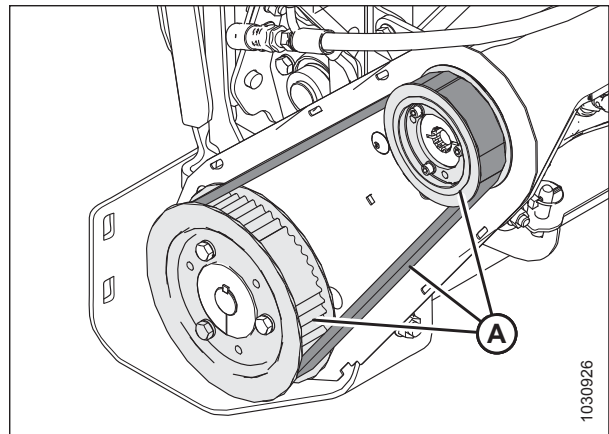


Figure 5.15: Drive Belt and Pulleys – Conditioner Drive Motor

MAINTENANCE

5. Place a straight edge (A) across the face of the driving and driven pulleys. Check that the pulleys are aligned.

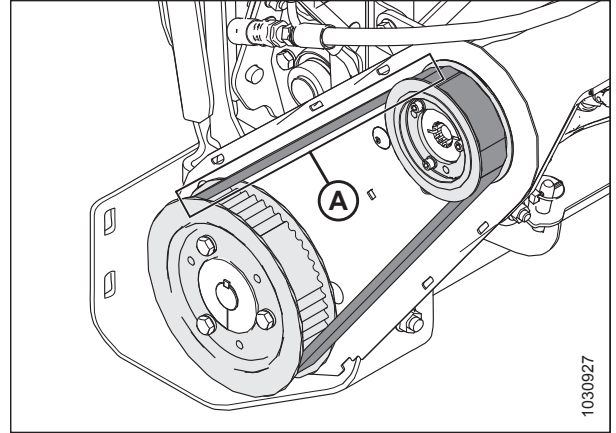


Figure 5.16: Drive Belt and Pulleys – Conditioner Drive Motor

6. Adjust the driving pulley by loosening nut (A).
7. Adjust nuts (B) to align the drive pulley horizontally. If belt is tracking to the outside of the pulley, turn jam nuts (B) clockwise.
8. Adjust nuts (C) to align the drive pulley vertically. If belt is tracking to the inside of the pulley, turn jam nuts (C) counterclockwise.

NOTE:

If drive pulley is loose, was removed, or was replaced for any reason, tighten three bolts (D).

9. Tighten nut (A).
10. Run the conditioner to verify the belt is now tracking correctly.
11. Replace cover (B) and secure with washer and wing nut (A).

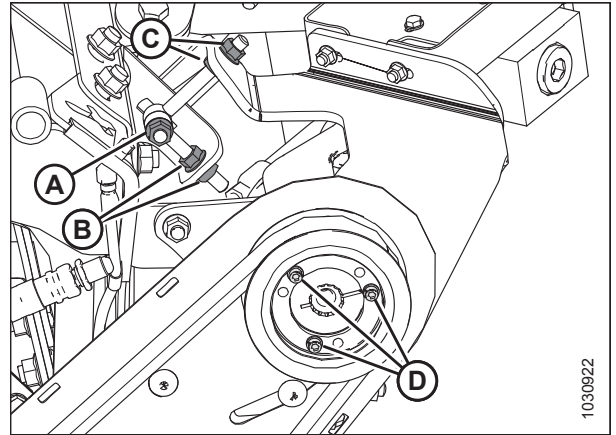


Figure 5.17: Drive Pulley – Conditioner Drive Motor

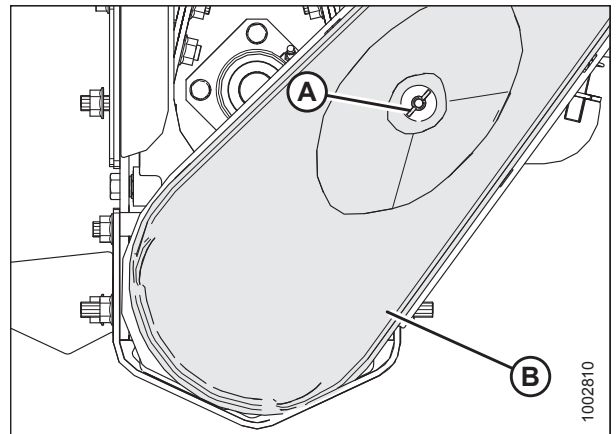


Figure 5.18: Drive Belt Cover

5.7.4 Removing Drive Belt



DANGER

To avoid bodily injury or death from unexpected start-up or fall of a raised machine, always stop engine and remove key before leaving the operator's seat, and always engage safety props before going under the machine for any reason.

MAINTENANCE

1. Shut down the engine, and remove the key from the ignition.
2. Engage the header safety props.
3. On the left side of the conditioner, remove wing nut and washer (A), and then remove drive cover (B).

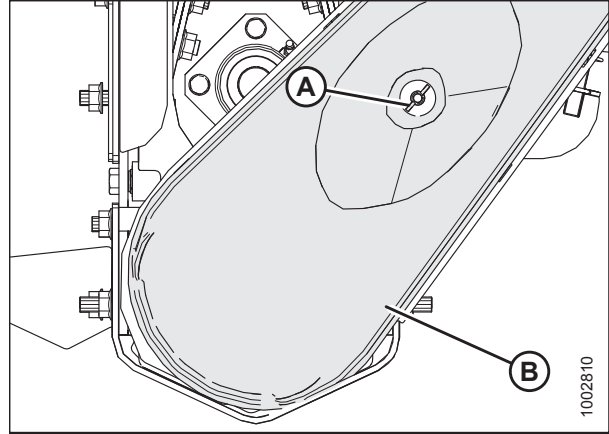


Figure 5.19: Drive Belt Cover

5. Turn tensioning nut (B) counterclockwise to loosen.
6. Remove belt (C).

NOTE:

If drive pulley is loose, was removed, or was replaced for any reason, tighten three bolts (D).

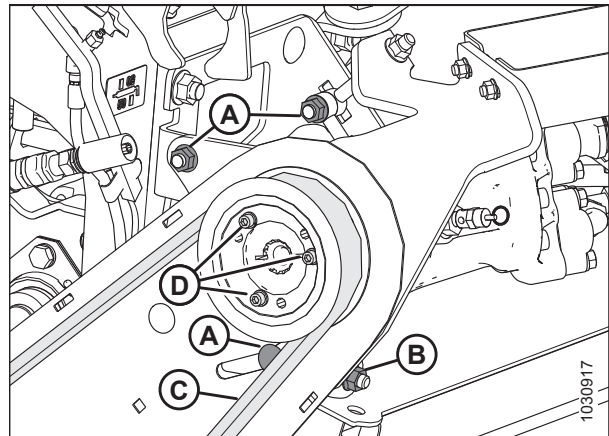


Figure 5.20: Drive Pulley – Conditioner Drive Motor

5.7.5 Installing Drive Belt



DANGER

To avoid bodily injury or death from unexpected start-up or fall of a raised machine, always stop engine and remove key before leaving the operator's seat, and always engage safety props before going under the machine for any reason.

NOTE:

Before installing a new belt, refer to [5.7.3 Checking and Adjusting Drive Belt Tracking, page 84](#) to check possible cause of failure.

1. Shut down the engine, and remove the key from the ignition.
2. Engage the header safety props.

MAINTENANCE

3. Install belt (A) onto pulleys.

NOTE:

When installing new belt, never pry belt over pulley. Be sure adjusting device is fully loosened, then tension belt.

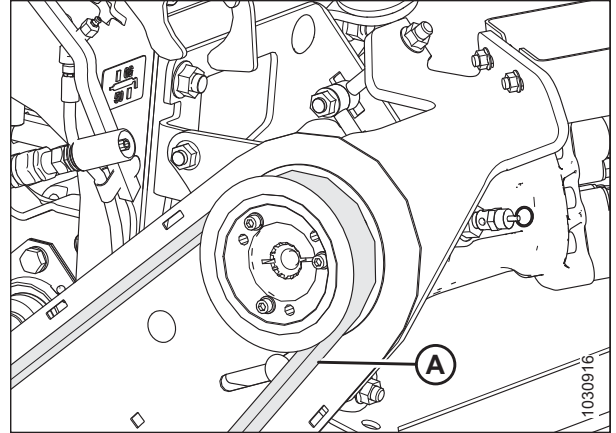


Figure 5.21: Drive Pulley – Conditioner Drive Motor

4. Loosen three motor mount nuts (A).
5. Turn tensioning nut (B) clockwise to tighten belt and counterclockwise to loosen.
6. Tighten three motor mount nuts (A).
7. Recheck belt (C) tension.

NOTE:

If drive pulley is loose, was removed, or was replaced for any reason, tighten three bolts (D).

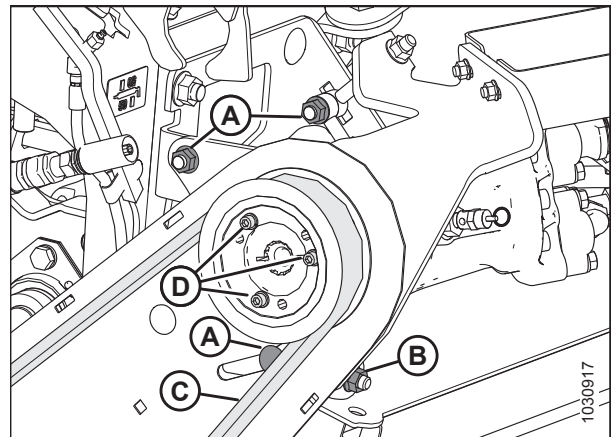


Figure 5.22: Drive Pulley – Conditioner Drive Motor

8. Replace cover (B) and secure with washer and wing nut (A).
9. Readjust tension of a new belt after a short run-in period (about 5 hours).

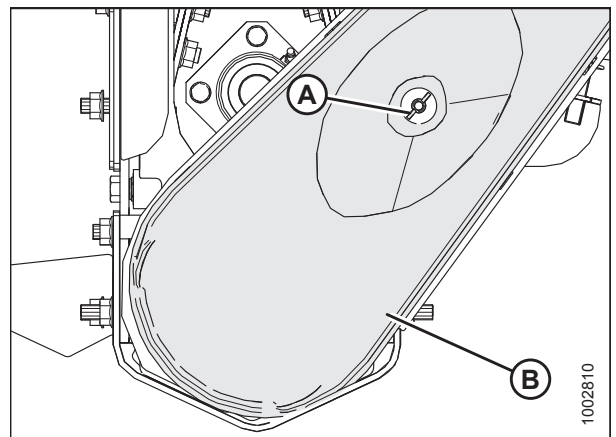


Figure 5.23: Drive Belt Cover

5.8 Maintenance Schedule

The following maintenance schedule is a listing of periodic maintenance procedures, organized by service intervals. Regular maintenance is the best insurance against early wear and untimely breakdowns. Following this schedule will increase machine life. For detailed instructions, refer to the specific headings in this manual. Use the lubricant specified in [5.4.1 Lubricants, page 78](#).

Service Intervals: The recommended service intervals are in hours of operation. Where a service interval is given in more than one time frame, e.g., "100 hours or Annually", service the machine at whichever interval is reached first.

IMPORTANT:

Recommended intervals are for average conditions. Service the machine more often if operated under adverse conditions (severe dust, extra heavy loads, etc.).



CAUTION

Carefully follow safety messages given under [5.1 Preparation for Servicing, page 75](#) and [5.2 Recommended Safety Procedures, page 76](#).

Table 5.1 Service Intervals

Interval	Service
First use	Refer to 4.6 Break-in Period, page 65 .
10 hours or daily	Check hydraulic hoses and lines.
50 hours	Grease roll shaft bearings. Grease feed deck drive and idler roller bearings.
100 hours or annually ³	Check roll drive belt tension.
End of season	Refer to 4.10 Storing the Hay Conditioner, page 74 .

Table 5.2 Maintenance Record

Action:	✓ – Check	⬮ – Lubricate
Hour Meter Reading		
Date		
Serviced By		
First Use	Refer to 4.6 Break-in Period, page 65 for checklist.	
10 Hours or Daily		
✓ Hydraulic Hoses and Lines	NOTE: A record of daily maintenance is not normally required, but is at the Owner/Operator's discretion.	
50 Hours		
⬮ Roll Shaft Bearings		
⬮ Feed Deck Roller Bearings		
100 Hours or Annually		
✓ Roll Drive Belt Tension		

- It is recommended that annual maintenance be done prior to the start of the operating season.

5.9 Troubleshooting

Problem	Solution	Section
Symptom: Hay conditioner rolls will not turn		
There is an obstruction or wad in the conditioner rolls	Turn mechanism in reverse and remove wad	4.9.6 Unplugging the Conditioner, page 73
Drive belt is broken	Replace drive belt	5.7.4 Removing Drive Belt, page 85 and 5.7.5 Installing Drive Belt, page 86
Drive belt is too loose	Tighten or replace conditioner drive belt	5.7.4 Removing Drive Belt, page 85 and 5.7.5 Installing Drive Belt, page 86
Symptom: Crop is over-conditioned		
Roll gap is too small	Increase roll gap	4.9.2 Adjusting Roll Gap, page 68
Roll timing is off	Adjust roll timing	4.9.3 Checking and Adjusting Roll Timing, page 69
Symptom: Crop is under-conditioned		
Roll gap is too large	Reduce roll gap	4.9.2 Adjusting Roll Gap, page 68
Roll timing is off	Adjust roll timing	4.9.3 Checking and Adjusting Roll Timing, page 69
Symptom: Windrow is too wide		
Forming shield side deflectors are too far apart	Position deflectors closer together	Adjusting Side Deflectors, page 71
Symptom: Windrow is too narrow		
Forming shield side deflectors are too close together	Position deflectors farther apart	Adjusting Side Deflectors, page 71
Deflector fins inside forming shield are improperly adjusted	Adjust fins	Adjusting Deflector Fins, page 72
Symptom: Windrow is uneven		
Forming shield is too low	Raise forming shield	Adjusting Forming Shield Height, page 71
Deflector fins inside forming shield are improperly adjusted	Adjust fins	Adjusting Deflector Fins, page 72
Overlap of side drapers and feed deck is inadequate	Adjust overlap	3.5 Installing the Feed Deck, page 24
Symptom: Windrow lacks shape		
Forming shield is too high	Lower forming shield	Adjusting Forming Shield Height, page 71
Deflector fins inside forming shield are improperly adjusted	Adjust fins	Adjusting Deflector Fins, page 72
Symptom: Feed draper is not tracking properly		
Feed draper tensioners are improperly adjusted	Check feed draper tension and adjust accordingly	5.6.1 Adjusting Feed Draper Tension, page 80

MAINTENANCE

Problem	Solution	Section
Symptom: Side draper is backfeeding		
Overlap of side drapers and feed deck is inadequate	Adjust overlap	<i>3.5 Installing the Feed Deck, page 24</i>

Chapter 6: Repair Parts

This chapter lists all the replacement parts that can be ordered for a MacDon HC10 Hay Conditioner.

Bold text is used to indicate updates made at the current revision level. With each new revision of the manual, previous revisions are returned to regular text.

In this manual, right and left are determined from the operator's position, facing forward with the windrower in cab-forward position. An arrow is sometimes used in illustrations to indicate cab-forward position.

6.1 Abbreviations

A/R – as required (quantity varies)	LH – left hand (determined from Operator's position, facing forward)	SP – self-propelled (windrower) header
ASSY – assembly	LK – lock	SPCL – special
BHRN – button head rib neck	MACH – machine	SPH – spherical
BV – ball valve	MD – MacDon	SPI – serrations per inch (knife sections)
CCW – counterclockwise	MFA – manual fore-aft	SR – single reel
CON – conical (spring washer)	MY – model year	STL – steel (stainless)
CSK – countersink	NC – national coarse thread	STR – standard
C/W – complete with	NF – national fine thread	STVR – Stover
CW – clockwise	NSS – not sold separately	TFL – thread full length
DBLE – double	O.D. – outside diameter	THD – thread
DK – double knife	OPT – optional	UCA – upper cross auger
DR – double reel	PO – pilot operated	UDK – untimed double knife
DT – distorted thread	PT – pull-type (mower conditioner)	UNC – unified coarse thread
FLG – flange	RC – roller chain	UNEF – unified extra fine thread
GA – gauge	REF – reference, part number called up elsewhere in catalog	UNF – unified fine thread
GR – grade	REG – regular	UNS – unified special thread series
GS – grass seed	RH – right hand (determined from Operator's position, facing forward)	VK – veritcal knife
HD – head	RHSN – round head, square neck or square neck carriage bolt	ZP – zinc plated
HDR – header	RHSSN – round head, short, square neck	
HFA – hydraulic fore-aft	RTD – rotating tine drum	
HH – hex head	SAE – Society of Automotive Engineers (part produced to comply with)	
HNBR – hydrogenated nitrile butadiene rubber	SD – side draper	
HYD – hydraulic	SER – serrated	

REPAIR PARTS

I.D. – inside diameter	SK – single knife	
IP – internal plus (torx plus)	SKT HD – socket head	
KP – knife pressure	SMTH – smooth	
KR – knife return	SMV – slow moving vehicle	
LG – long	SOCK – socket	

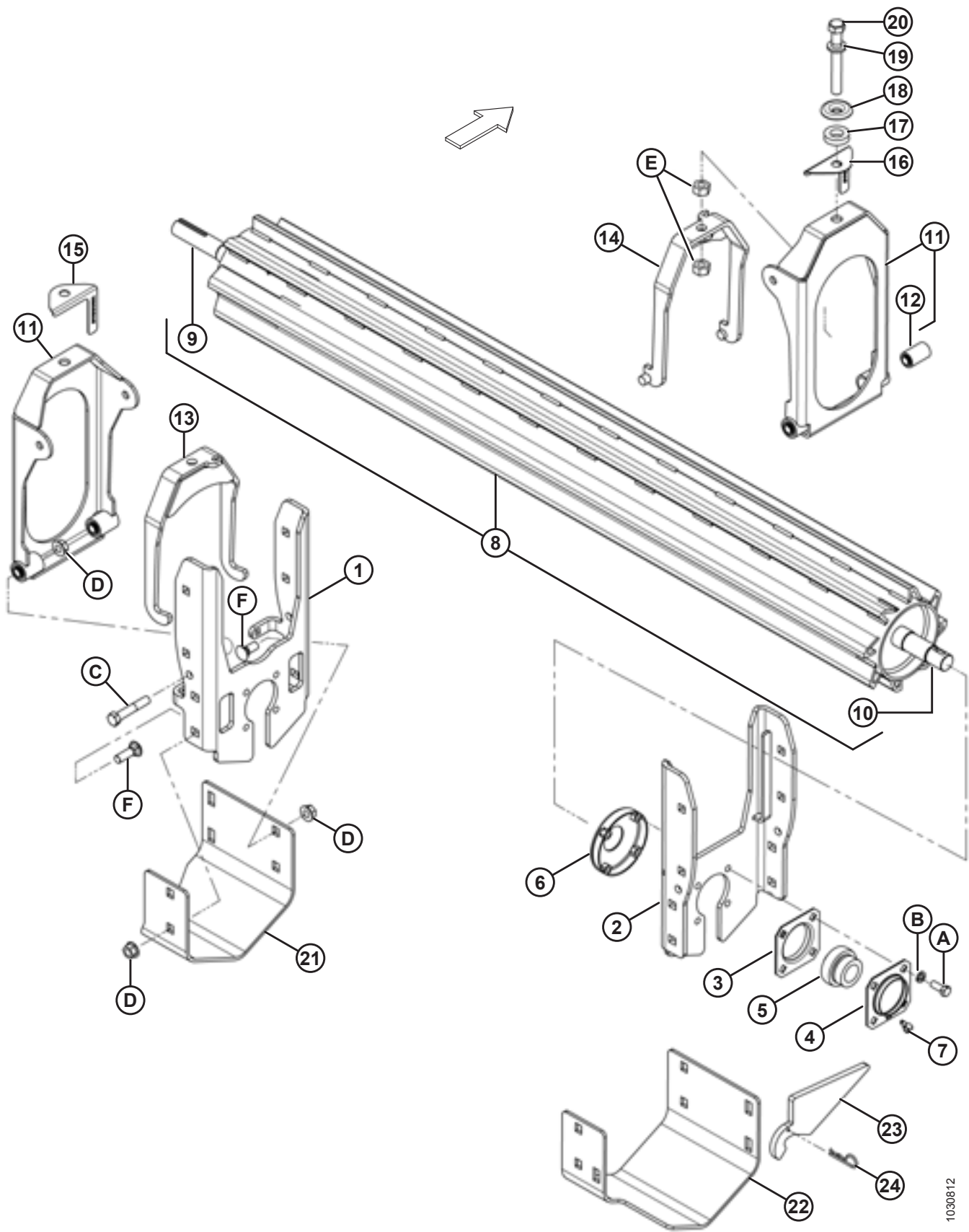
6.2 Serial Number Breaks

The side of the serial number on which the dash (–) appears determines whether the part is used "up to" or "after" the serial number given.

Example:

- –162249 Used on machines up to and including serial number 166249
- 166250– Used on machines including and after serial number 166250

6.3 Lower Roll and Frame Assembly

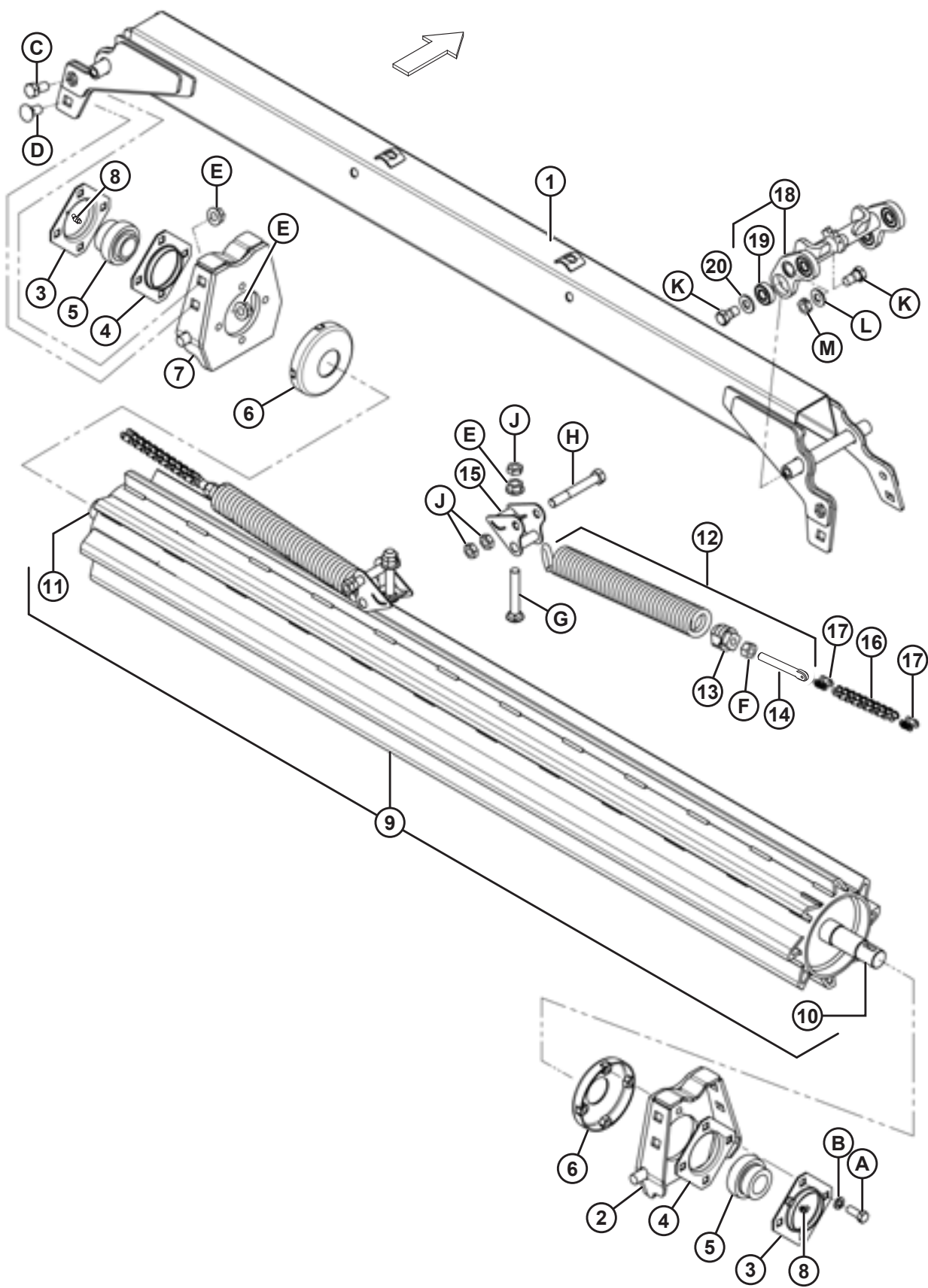


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REPAIR PARTS

Ref	Part Number	Description	Qty	Serial Number
1	159117	SUPPORT – LH	1	
2	159118	FRAME – RH LOWER WELDT	1	
3	30576	FLANGE	2	
4	50182	FLANGE	2	
5	30031	BEARING – SPH OD C/W COLLAR 1.5 IN BORE	2	
6	101173	DISC WELDT	2	
7	50187	FITTING – LUBE 90° ADAPTER	2	
8	130445	ROLL – LOWER WELDT	1	
9	130704	SHAFT SPINDLE – LH LOWER ROLL (WELDED)	1	
10	130449	SHAFT SPINDLE – RH LOWER ROLL (WELDED)	1	
11	130476	CHANNEL – PIVOT C/W BUSHINGS	2	
12	13626	BUSHING – RUBBER	4	
13	130443	BRACKET – LH ADJUSTER WELDT	1	
14	130336	BRACKET – RH ADJUSTER WELDT	1	
15	130990	GAUGE – LH ROLL OPENING	1	
16	130994	GAUGE – RH ROLL OPENING	1	
17	47124	WASHER – RUBBER	2	
18	130532	WASHER – FORMED	2	
19	21540	WASHER – HARDENED	2	
20	135405	BOLT – HEXHD (MIN THD) 3/4 NC X 6.0 LG GR 5 ZP	2	
21	159404	SKID – LH CONDITIONER	1	
22	159405	SKID – RH CONDITIONER	1	
23	159352	SUPPORT	1	
24	13125	PIN – HAIR	1	
A	21491	BOLT – HEXHD 1/2 NC X 1.25 LG GR 5 ZP		
B	18638	WASHER – REG. LOCK 1/2 IN. NOM. I.D. ZP		
C	21406	BOLT – HEXHD 5/8 NC X 3.5 GR 5 ZP		
D	50225	NUT – FLANGE DT SMOOTH FACE .625-11 UNC		
E	18593	NUT – HEX 3/4-10 UNC GR 5 ZP		
F	18523	BOLT – RHSN, 5/8 NC X 1.5 LG GR 5 ZP		

6.4 Upper Roll Assembly



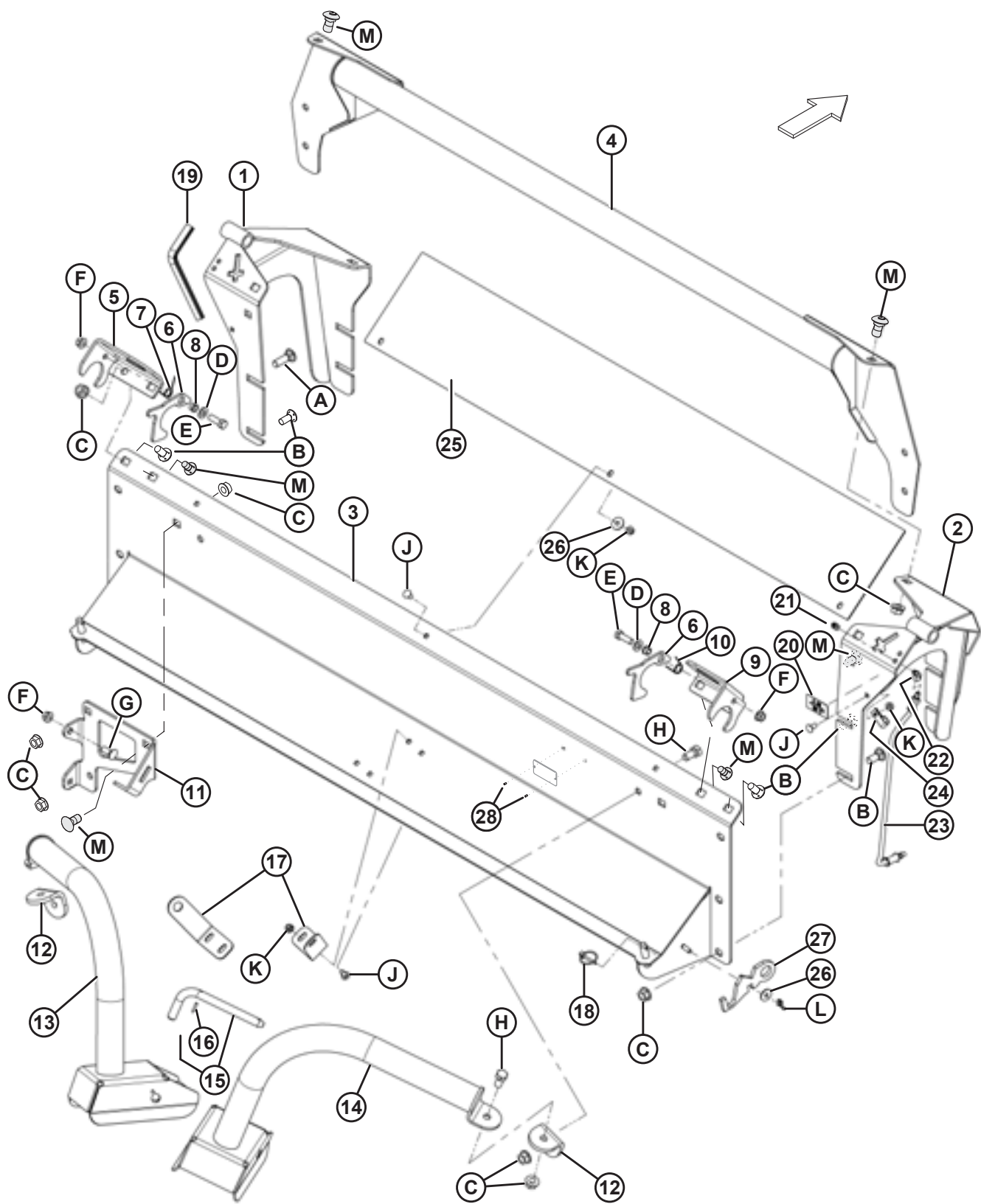
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REPAIR PARTS

Ref	Part Number	Description	Qty	Serial Number
1	130470	CHANNEL – CROSS WELDT	1	
2	130793	SUPPORT – RH WELDT	1	
3	50182	FLANGE	2	
4	30576	FLANGE	2	
5	30031	BEARING – SPH OD C/W COLLAR 1.5 IN. BORE	2	
6	101173	DISC WELDT	2	
7	130472	SUPPORT – LH WELDT	1	
8	21301	FITTING – LUBRICATION	2	
9	159187	ROLL – UPPER WELDMENT	1	
10	130449	SPINDLE – RH (WELDED)	1	
11	170332	SHAFT – STUB, LH (WELDED)	1	
12	159707	ASSEMBLY – SPRING ⁴	2	
13	NSS	INSERT – MACHINED	2	
14	159706	STUD – THREADED	2	
15	130747	LEVER WELDT	2	
16	130645	CHAIN – #50 WO CONN (9 PITCHES)	2	
17	6634	LINK – CONNECTOR #50	4	
18	130450	TOGGLE ASSEMBLY C/W BEARINGS	2	
19	50185	BEARING – BALL CYL OD 17MM BORE	8	
20	30441	WASHER – HARDENED	4	
A	21491	BOLT – HEXHD 1/2 NC X 1.25 LG GR 5 ZP		
B	18638	WASHER – REG. LOCK 1/2 IN. NOM. I.D. ZP		
C	21585	BOLT – HEXHD 5/8 NC X 1.25 LG GR 5 ZP		
D	103562	BOLT – RHSN 5/8 NC X 1.25 GR 5 ZP		
E	50225	NUT – FLG DT SMTH FACE .625-11 UNC		
F	18592	NUT – HEX 5/8-11 UNC GR 5 ZP		
G	102658	BOLT – RHSN 5/8 NC X 4 TFL GR 5 ZP		
H	21720	BOLT – HEXHD 5/8 NC X 4.5 LG GR5 ZP		
J	21941	NUT – HEX LOCK JAM (DT) 5/8-11 UNC GR 5 ZP		
K	105141	BOLT – LOCKING SHOULDER		
L	18600	WASHER – SAE FLAT, 21/32 I.D. X 1-5/16 O.D. ZP		
M	105173	NUT – HEX JAM, CENTER LOCK		

4. Includes spring and machined insert.

6.5 Cover and Supports



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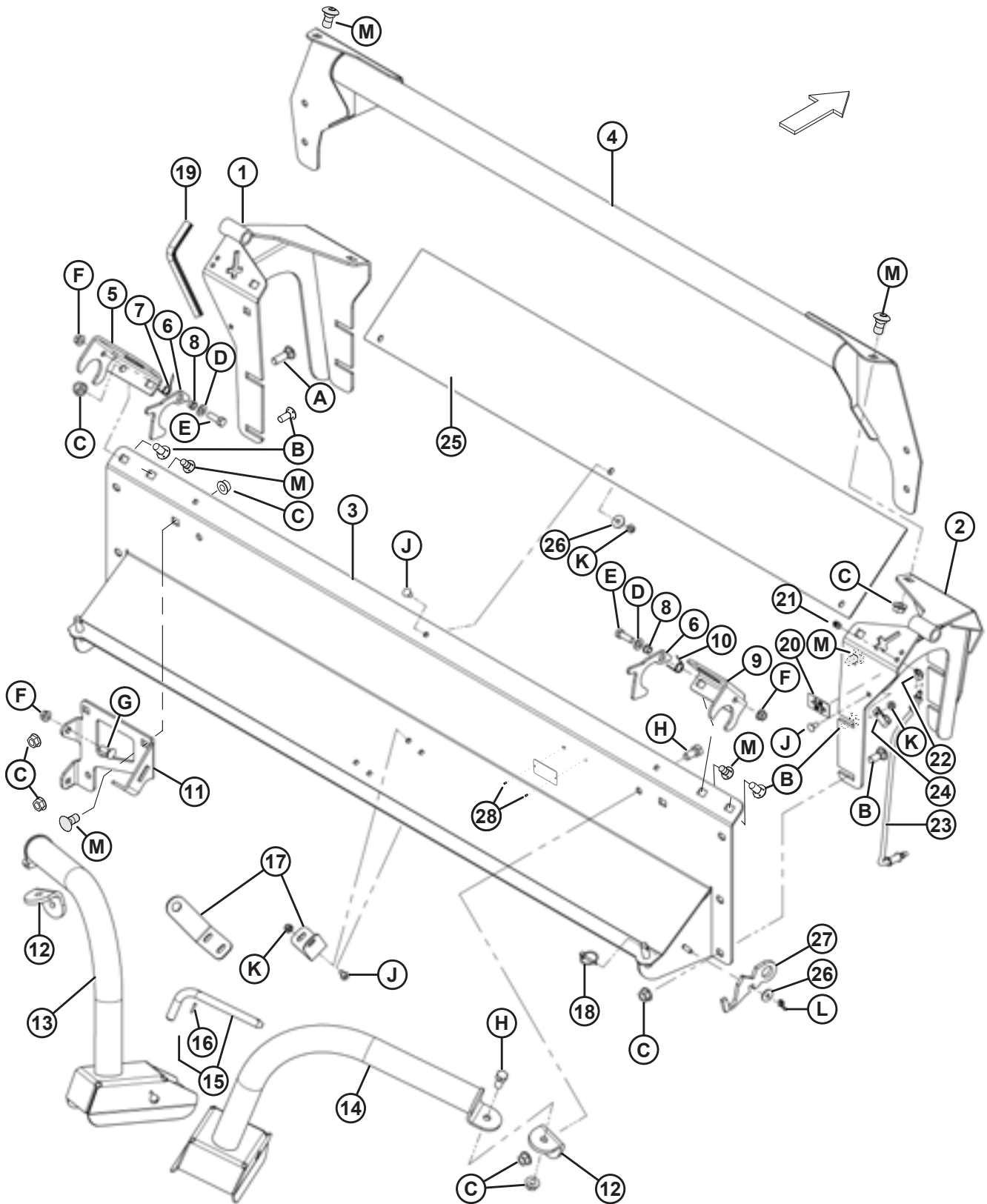
REPAIR PARTS

Ref	Part Number	Description	Qty	Serial Number
1	159231	SUPPORT WELDT – LH	1	
2	159582	SUPPORT WELDT – RH	1	
3	159200	COVER – TOP REAR WELDT	1	
4	130496	TUBE – CROSS WELDT	1	
5	159003	LATCH – WELDT, LH	1	
6	159001	LATCH	2	
7	159020	SPRING – TORSION	1	
8	159005	SPACER – 3/4 IN. O.D. X .120 WALL X 12 LONG ⁵	2	
9	159007	LATCH – WELDT, RH	1	
10	144505	SPRING – TORSION	1	
11	REF	Refer to Section <i>6.6 Hydraulic Motor, Mounts, and Tensioner – Motor MD #159661, page 102.</i>	1	
12	130858	ANGLE	2	
13	159329	SUPPORT – WELDT, LIFT ARM, LH	1	
14	159333	SUPPORT – WELDT, LIFT ARM, RH	1	
15	144415	ASSY – L-PIN ⁶	2	
16	16010	PIN – SPRING 3/16 DIA X 1.0 LG	2	
17	159002	ANGLE	2	
18	102264	PIN – LYNCH 3/16 X 1-9/16 IN.	2	
19	110737	MOULDING – FRAME (UNIGRIP)	1	
20	23165	DECAL – 50 HR LUBE	2	
21	50188	FITTING – LUBRICATION 1/8 NPT FEMALE	2	
22	115677	FITTING – ELBOW 45° HYD	2	
23	159583	HOSE – GREASE, 1/8 IN. NPT	2	
24	135232	CLAMP – DOUBLE HOSE INSULATED	2	
25	187723	COVER	1	
26	19685	WASHER – FLAT	4	
27	150572	PLATE – ROLL TIMING GAUGE	1	
28	14338	RIVET – BLIND 1/8 X .125	2	
A	18524	BOLT – RHSN 5/8 NC X 2.0 LG GR 5 ZP		
B	18523	BOLT – RHSN 5/8 NC X 1.5 GR 5 ZP		
C	50225	NUT – FLG DT SMTH FACE .625-11 UNC		
D	18599	WASHER – SAE FLAT 17/32 I.D. X 1-1/16 IN. O.D. ZP		
E	18723	BOLT – HEX HD 1/2 NC X 1.5 LG TFL GR 5 ZP		

5. Stepped.

6. Includes spring pin (MD #16010).

REPAIR PARTS

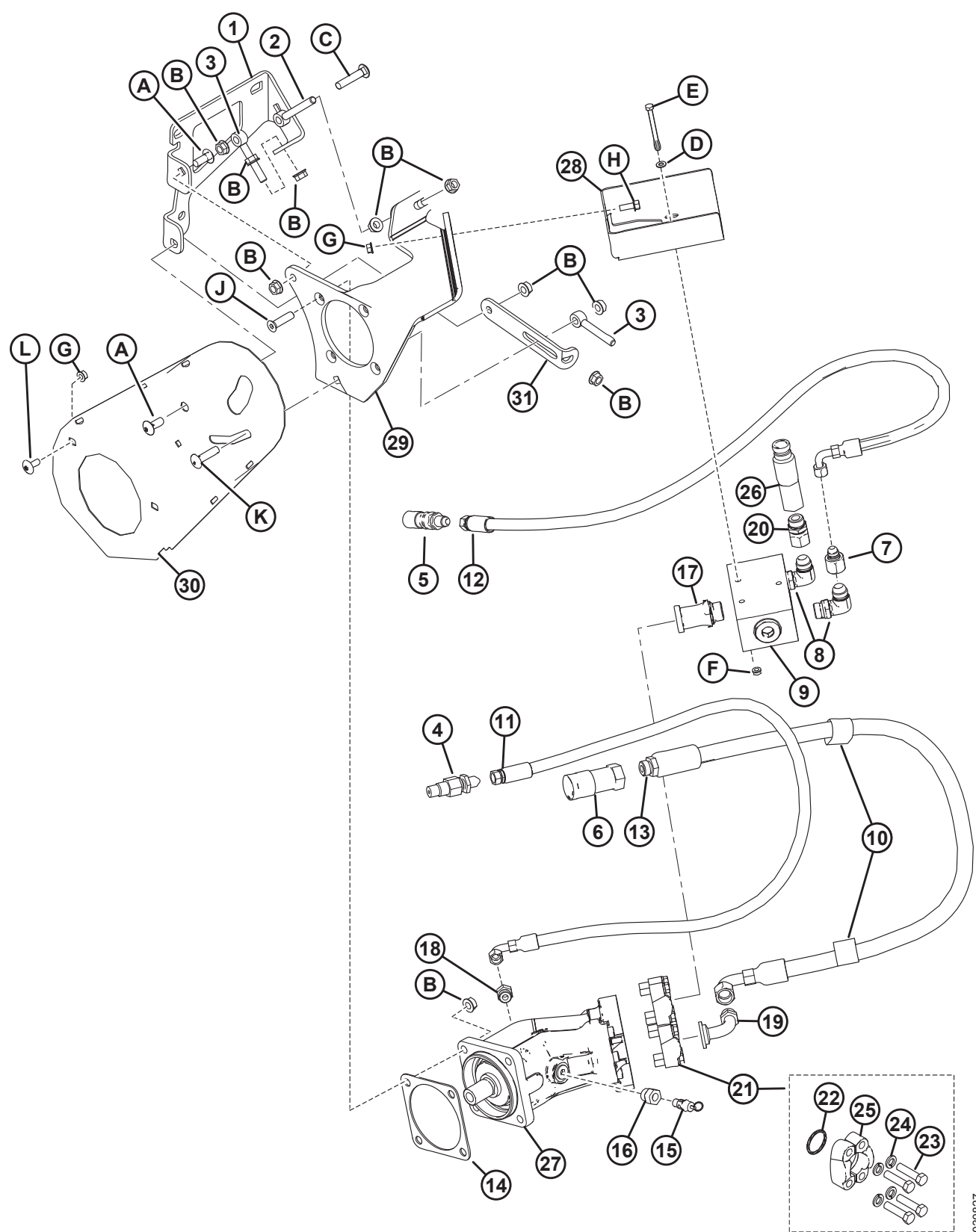


1030841

REPAIR PARTS

Ref	Part Number	Description	Qty	Serial Number
F	50186	NUT – FLG LK SMTH FACE DT .500-13 UNC GR 5		
G	21471	BOLT – RHSN 1/2 NC X 1.25 GR 5 ZP		
H	21585	BOLT – HEX HD 5/8 NC X 1.25 LG GR5 ZP		
J	21863	BOLT – RHSSN 3/8 NC X 0.75 LG GR 5 ZP		
K	30228	NUT – FLG DT SMTH FACE .375-16 UNC		
L	21289	NUT – WING TYPE A 3/8 NC ZP		
M	103562	BOLT-RHSN 5/8-11X1.25-GR5-AA1J		

6.6 Hydraulic Motor, Mounts, and Tensioner – Motor MD #159661

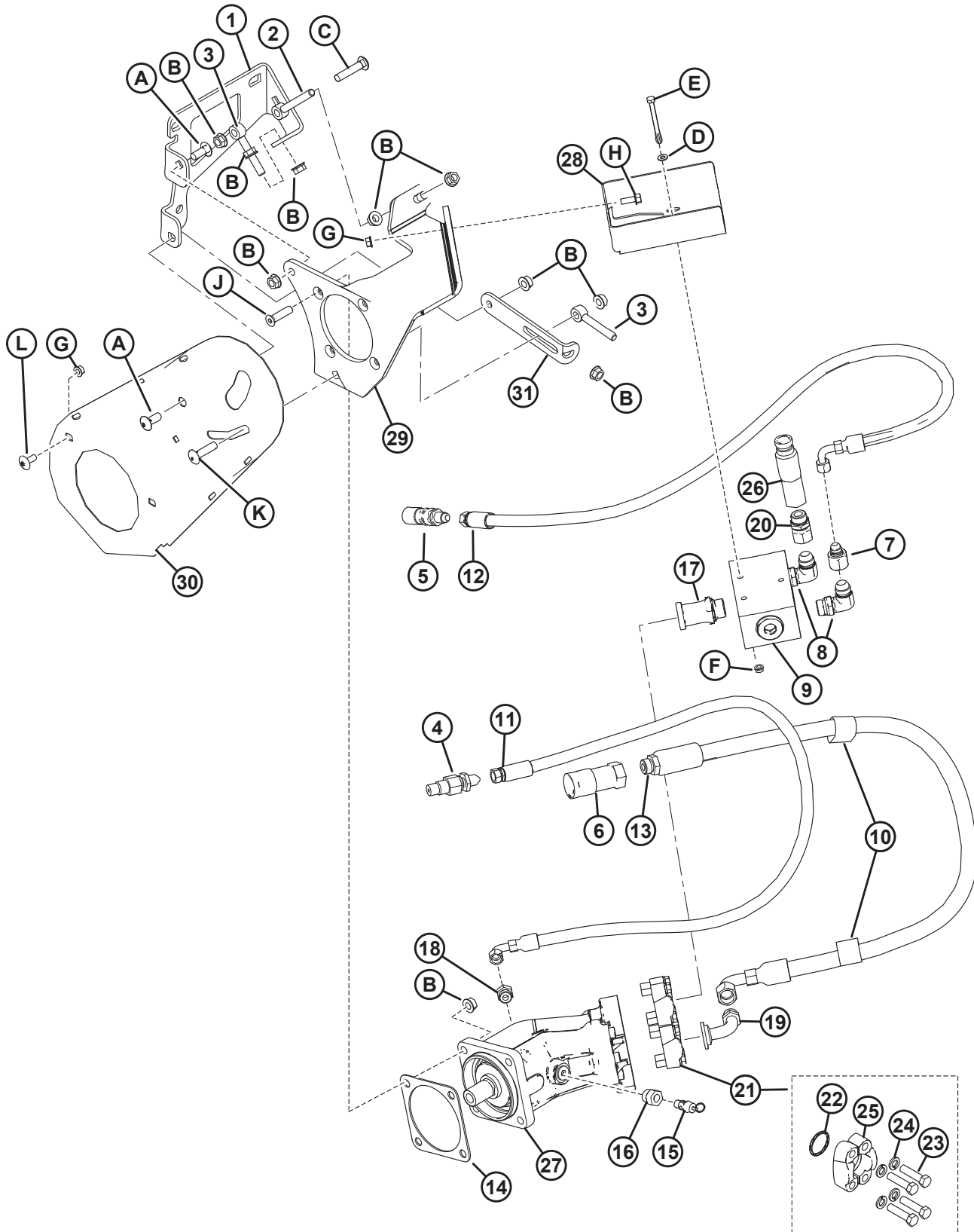


1030827

REPAIR PARTS

Ref	Part Number	Description	Qty	Serial Number
1	130757	SUPPORT – HYD MOTOR	1	
2	159452	BOLT WELDT – EYE	1	
3	130765	BOLT WELDT – EYE	1	
4	135237	COUPLER – MALE HYD. 3/8 IN. FLAT FACE BULKHEAD	1	
5	135213	COUPLING – FEMALE HYD. 3/8 FLAT FACE BULKHEAD	1	
6	135565	COUPLER – FEMALE HYD. 3/4 IN. FLAT FACE	1	
7	136952	FITTING – ADAPTER HYD REDUCER	1	
8	320092	FITTING – ELBOW 90° HYD METRIC	2	
9	159719	VALVE-FLOW DIVIDER	1	
10	135444	CINCH STRAP 6" LG	2	
11	159646	HOSE	1	
12	159028	HOSE	1	
13	159029	HOSE	1	
14	159716	SHIM – MOTOR	1	
15	159635	VALVE – RELIEF 75 PSI	1	
16	135255	FITTING – ADAPTER HYD CW O-RING	1	
17	320093	FITTING – ADAPTER HYD FLANGE	1	
18	21881	FITTING – ADAPTER HYD	1	
19	135929	FITTING – ADAPTER HYD 90° FLG	1	
20	40241	FITTING – ADAPTER HYD	1	
21	138127	KIT – SPLIT FLANGE, 1" CD 62	2	
22	112868	O-RING – 1.296 IN. ID x 0.139 IN. WALL	4	
23	252643	BOLT-HH 7/16-14 x 1.75 – GR8 – AA3L	4	
24	18652	WASHER – REG. LOCK7/16 IN. NOM. ID ZP	4	
25	194043	FLANGE – HALF SPLIT 1 INCH – CODE 62	2	
26	135314	COUPLER – MALE HYD. 3/4 IN. FLAT FACE	1	
27	159661	MOTOR – HYD	1	
28	159721	SUPPORT – VALVE MOUNT	1	
29	159665	SUPPORT – MOTOR	1	
30	159541	SHIELD WELD'T	1	
31	159634	BAR – TENSIONER	1	
A	21471	BOLT – RHSN 1/2 NC X 1.25 GR 5 ZP		
B	50186	NUT – FLG LK DT 1/2-13 UNC GR5 AA1J		
C	21489	BOLT – RHSN 1/2 NC X 2.5 LG GR 5 ZP		
D	18597	WASHER – FLAT SAE 11/32 ID X 11/16 OD AA1J		
E	30821	BOLT – HEX HD 5/16-18X3.5 GR5 – AA1J		
F	30280	NUT – FLG LK SMFC 5/16-18 UNC GR5 AA1J		

REPAIR PARTS

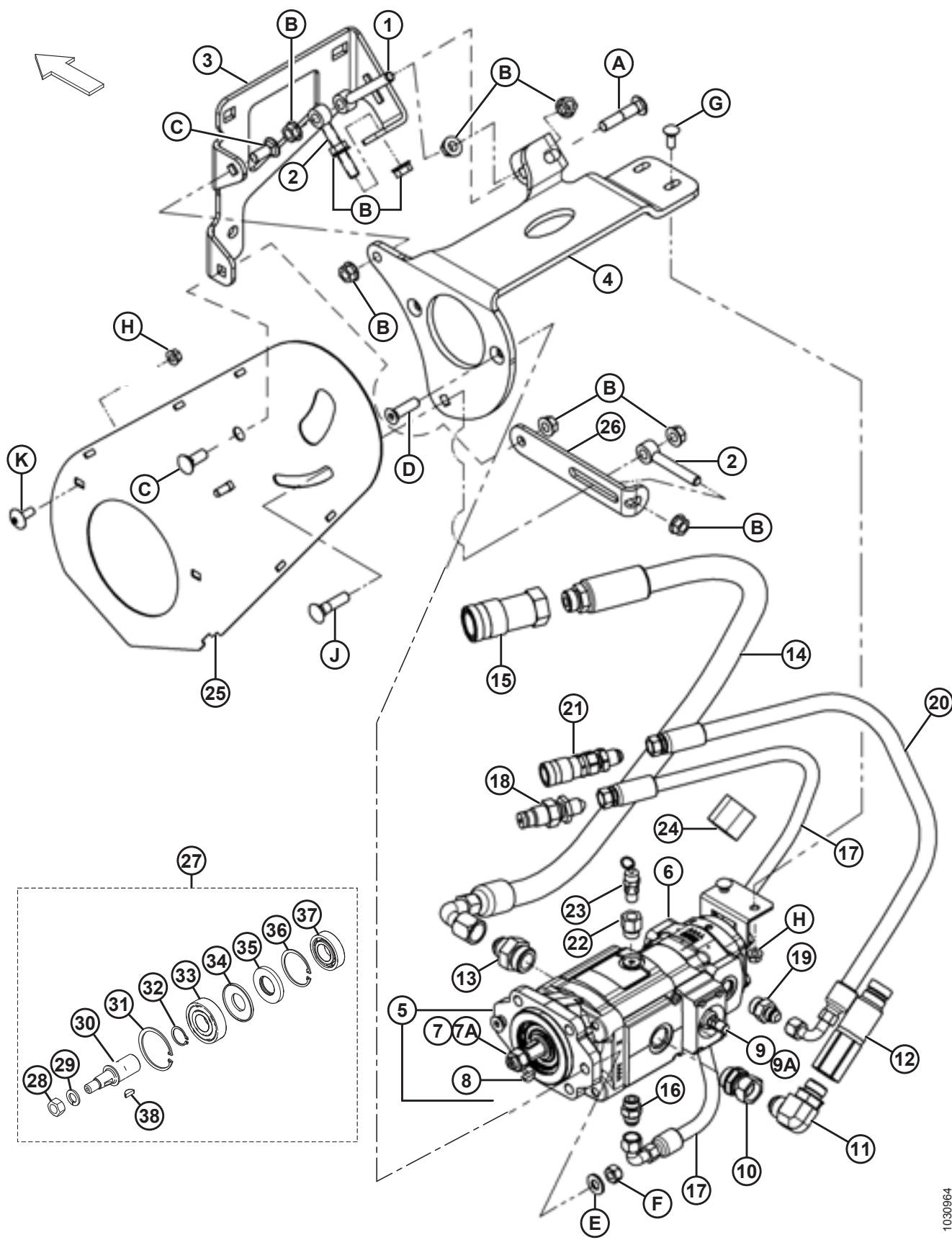


1030827

REPAIR PARTS

Ref	Part Number	Description	Qty	Serial Number
G	30228	NUT – FLG DT SM FACE 3/8-16UNC – GR5 – AA1J		
H	21975	BOLT – HEX FLG SER HD 3/8-16X1.0 GR 5 – AA1J		
J	320077	SCR – HEX SOC CSK HD 1/2X2		
K	21474	BOLT – RHSN 1/2 NC X 2.0 LG GR 5 ZP		
L	135507	SCREW – MACHINE, TRUSS HD TORX, 38NC X 1LG		

6.7 Hydraulic Motor, Mounts, and Tensioner – Motor MD #159648



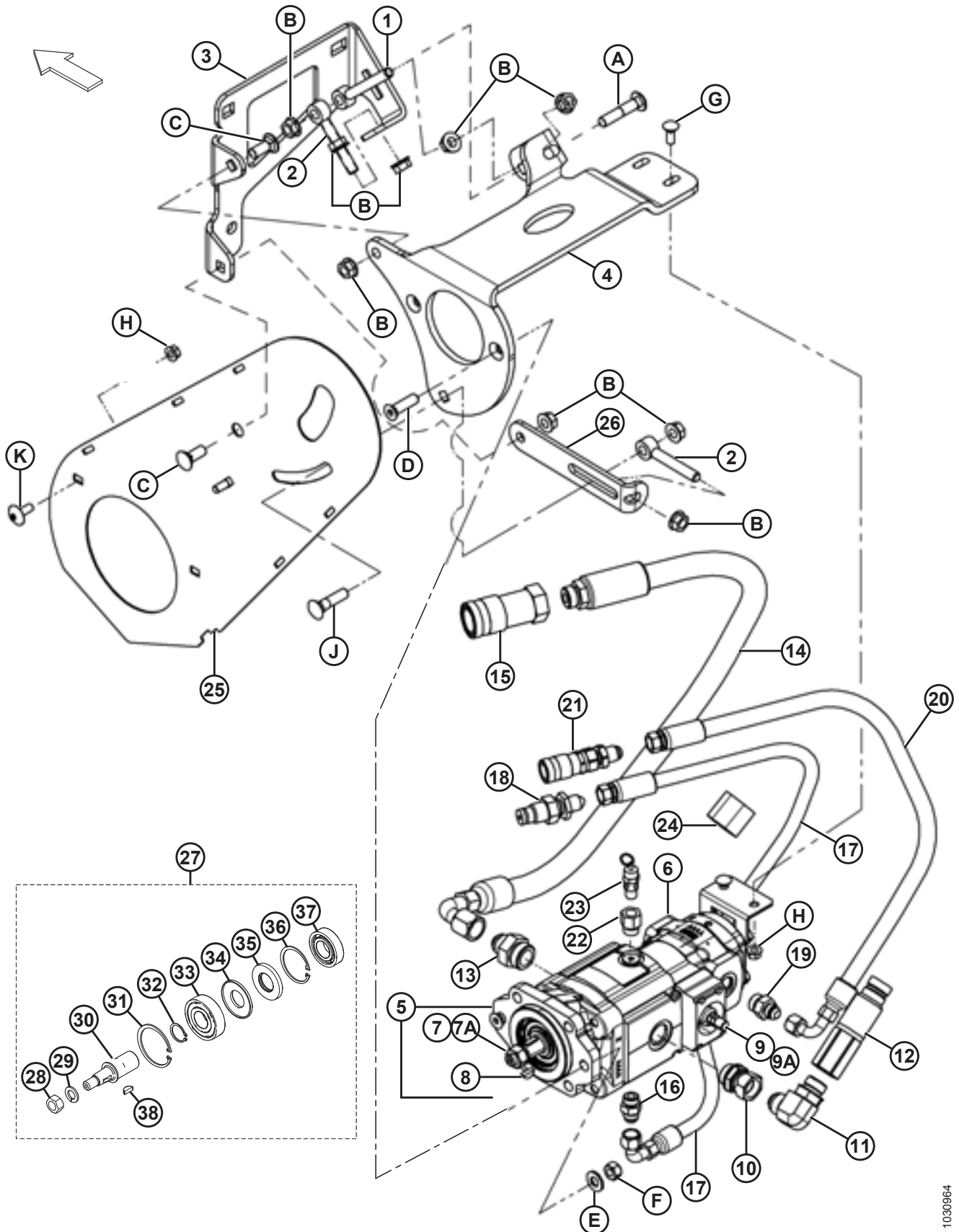
1030964

REPAIR PARTS

Ref	Part Number	Description	Qty	Serial Number
1	159452	BOLT WELDT – EYE	1	
2	130765	BOLT WELDT – EYE	2	
3	130757	SUPPORT – HYD MOTOR	1	
4	133965	SUPPORT – CASSAPA MOTOR	1	
5	159648	MOTOR – HYD FLOW DIVIDER ⁷	1	
	159631	SEAL KIT (FOR MOTOR)		
6	159645	MOTOR – HYD, GEAR (CAST IRON BODY) ⁸		
	159649	MOTOR – HYD, GEAR (ALUMINUM BODY) ⁹		
7	REF	NUT – HEX LOCK DT 5/8-18 UNF ZP	1	
7A	REF	WASHER – SAE FLAT 5/8 I.D. X 1-15/32 IN. O.D. ZP	1	
8	159535	KEY – WOODRUFF (1/4 X 3/4 NOM.)	1	
9	159632	VALVE – RELIEF	1	
9A	159633	NUT – 8MM, M8 SPECIAL	1	
10	40241	FITTING – ADAPTER HYD C/W O-RING	1	
11	30970	FITTING – ELBOW 90° HYD	1	
12	135314	COUPLER – MALE HYD 3/4 IN. FLAT FACE	1	
	135479	SEAL KIT – 3/4 MALE COUPLER		
13	135483	FITTING – ADAPTER HYD	1	
14	159029	HOSE	1	
15	135565	COUPLER – FEMALE HYD 3/4 IN. FLAT FACE	1	
16	21030	FITTING – CONNECTOR HYD, SAE 8	1	
17	159646	HOSE	1	
18	135237	COUPLER – MALE HYD 3/8 IN. FLAT FACE BULKHEAD	1	
	111978	SEAL KIT – 3/8 MALE COUPLER		
19	21881	FITTING – ADAPTER HYD	1	
20	159028	HOSE	1	
21	135213	COUPLER – FEMALE HYD 3/8 FLAT FACE BULKHEAD	1	
22	159419	FITTING – ADAPTER HYD C/W O-RING	1	
23	159635	VALVE – RELIEF	1	
24	135444	FASTENER – CINCH STRAP 6 IN. LG	2	
25	159541	SHIELD WELD'T	1	
26	159634	BAR – TENSIONER	1	
27	159692	KIT – SHAFT REPAIR (FOR MOTOR MD #159648)		

7. If replacing the motor, upgrade the motor and associated components (sprocket, hydraulics) using kit MD #159717. Includes motor (MD #159645), key (MD #159535), valve (MD #159632), and special nut (MD #159633). Service motor shaft with item 27 (MD #159692).
8. Preferred motor.
9. Use only if motor (MD #159645) is unavailable.

REPAIR PARTS

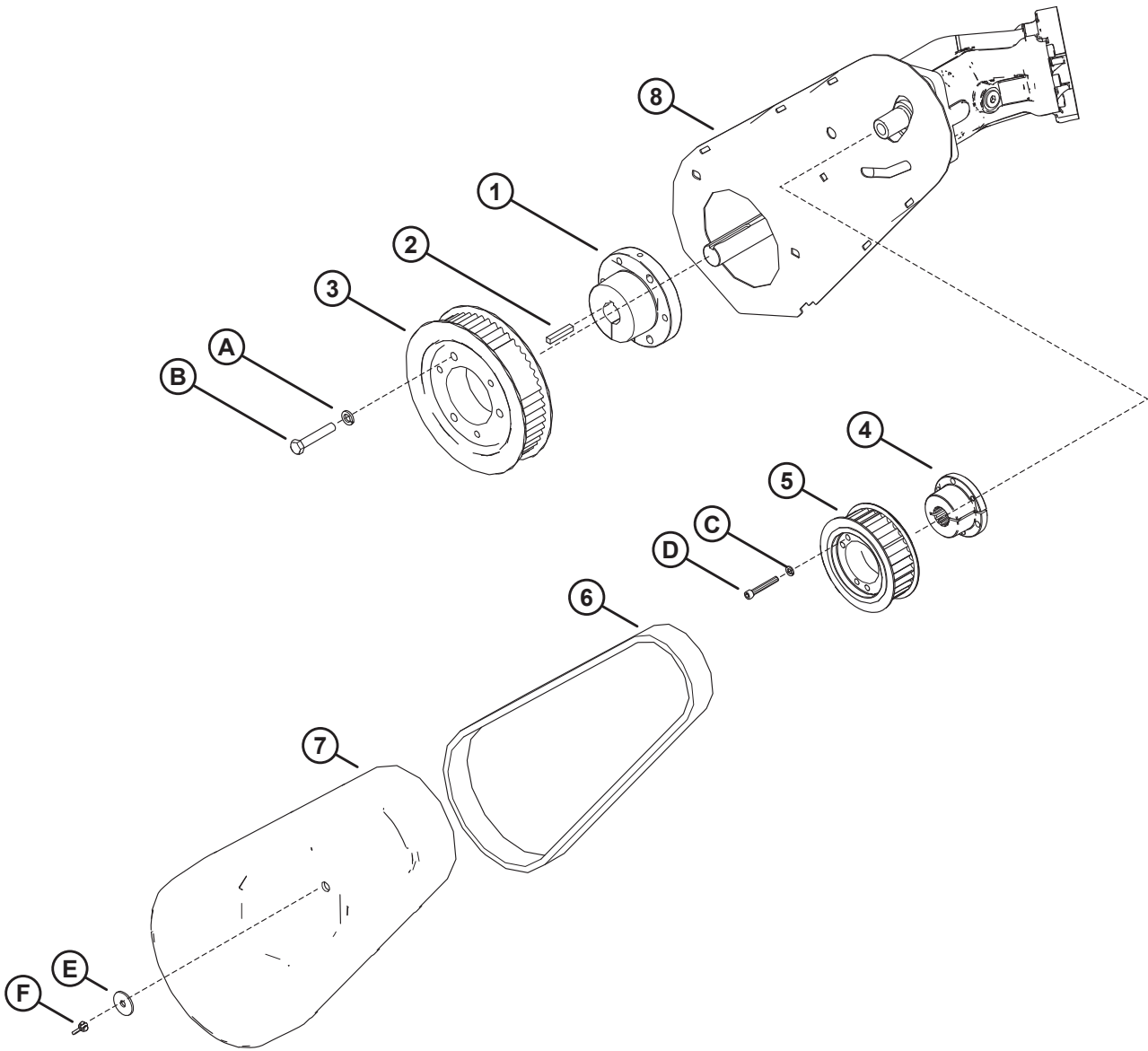


1030964

REPAIR PARTS

Ref	Part Number	Description	Qty	Serial Number
28	159681	NUT – 5/8-17 UNF-2B ANSI B.8.2.2	1	
29	159682	WASHER – B16 DIN 128 DACROMET	1	
30	159683	SUPPORT – SHAFT K 30-6-G6	1	
31	159684	RING – 30 UNI 7435-DIN 472	1	
32	159685	RING – 30 UNI 7435-DIN 471	1	
33	159686	BALL – BEARING 6306-2RS1 30X72X19	1	
34	159687	BACK-UP – WASHER BAU3 30X62X7	1	
35	159688	SHAFT – SEAL BAU3 30X62X7	1	
36	159689	RING – 62 UNI 7437-DIN 472	1	
37	159690	BALL – BEARING 6206	1	
38	159535	KEY – WOODRUFF (1/4 X 3/4 NOM.)	1	
A	21489	BOLT – RHSN 1/2 NC X 2.5 LG GR 5 ZP		
B	50186	NUT – FLG LK DT 1/2-13 UNC GR5 AA1J		
C	21471	BOLT – RHSN 1/2 NC X 1.25 GR 5 ZP		
D	137503	BOLT – CSK SOCK. 1/2 NC X 1.75 GR. 5 ZP		
E	18599	WASHER – SAE FLAT 17/32 I.D. X 1-1/16 IN. O.D. ZP		
F	18697	NUT – HEX LOCK DT .500-13 UNC		
G	19965	BOLT – RHSN 3/8 NC X 1.0 GR 5 ZP		
H	30228	NUT – FLG DT SM FACE 3/8-16UNC-GR5-AA1J		
J	21474	BOLT – RHSN 1/2 NC X 2.0 LG GR 5 ZP		
K	135507	SCREW – MACHINE, TRUSS HD TORX, 38 NC X 1 LG		

6.8 Belt Drive and Shield – Motor MD #159661

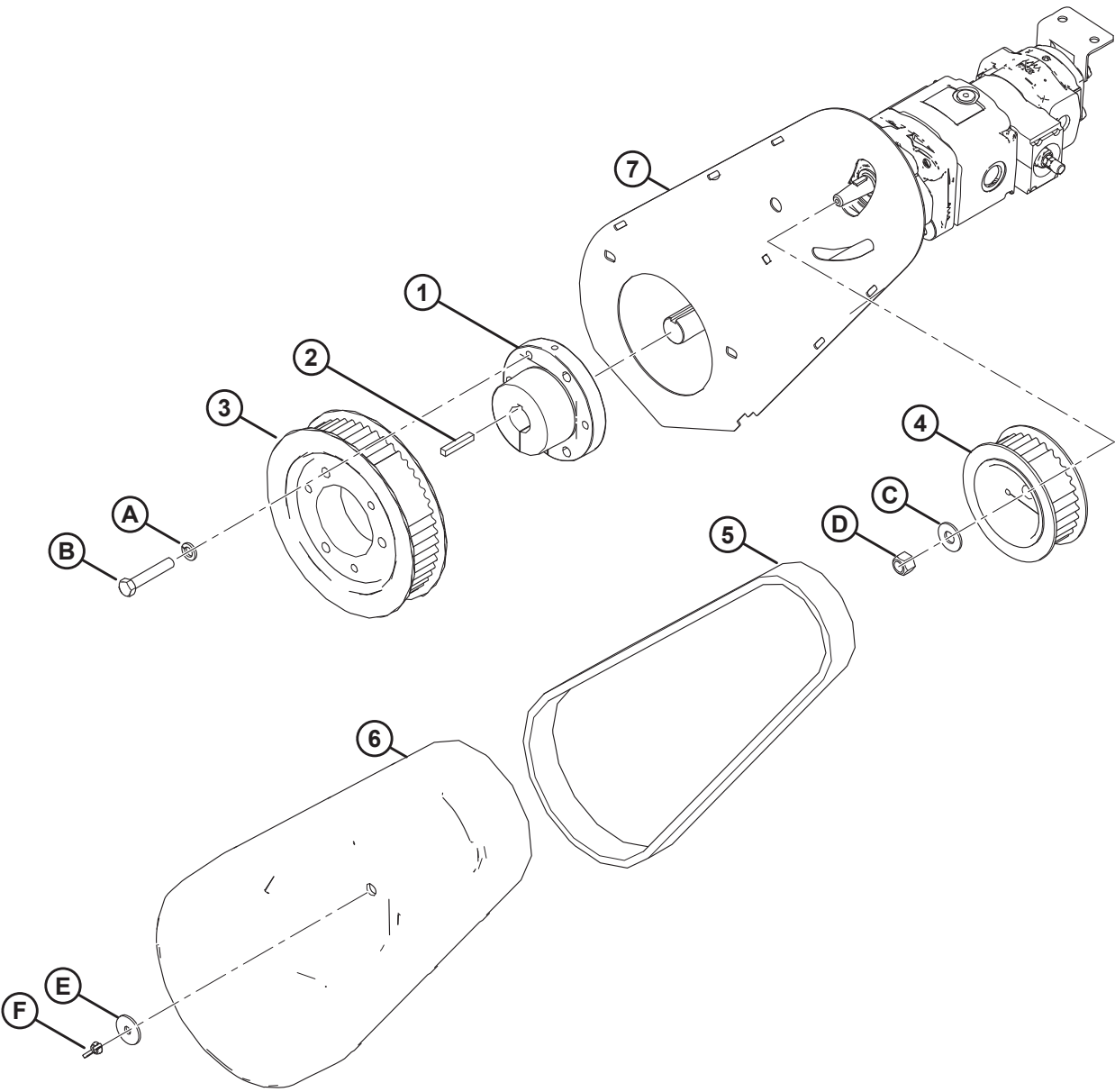


1030806

REPAIR PARTS

Ref	Part Number	Description	Qty	Serial Number
1	130880	BUSHING – SPLIT TAPER QD-E-1.375 BORE	1	
2	17194	KEY	1	
3	159215	SPROCKET – P52 14M 40	1	
4	159617	HUB – SPLINED	1	
5	159658	SPROCKET – TIMING	1	
6	130706	BELT – HTD 1610-14M-40	1	
7	159168	SHIELD – HT DRIVE	1	
8	REF	Refer to Section 6.6 Hydraulic Motor, Mounts, and Tensioner – Motor MD #159661, page 102.		
A	18638	WASHER – REG. LOCK 1/2 IN. NOM. ID AA1J		
B	21880	BOLT – HEX HD 1/2-13 X 2.75 GR5 AA1J		
C	18636	WASHER – REG. LOCK 5/16 IN. NOM. ID AA1J		
D	320078	SCR – HEX SOC HD 5/16-18 X 2 1/8		
E	14887	WASHER – FLAT		
F	21289	NUT – WING TYPE A 3/8 NC ZP		

6.9 Belt Drive and Shield – Motor MD #159648

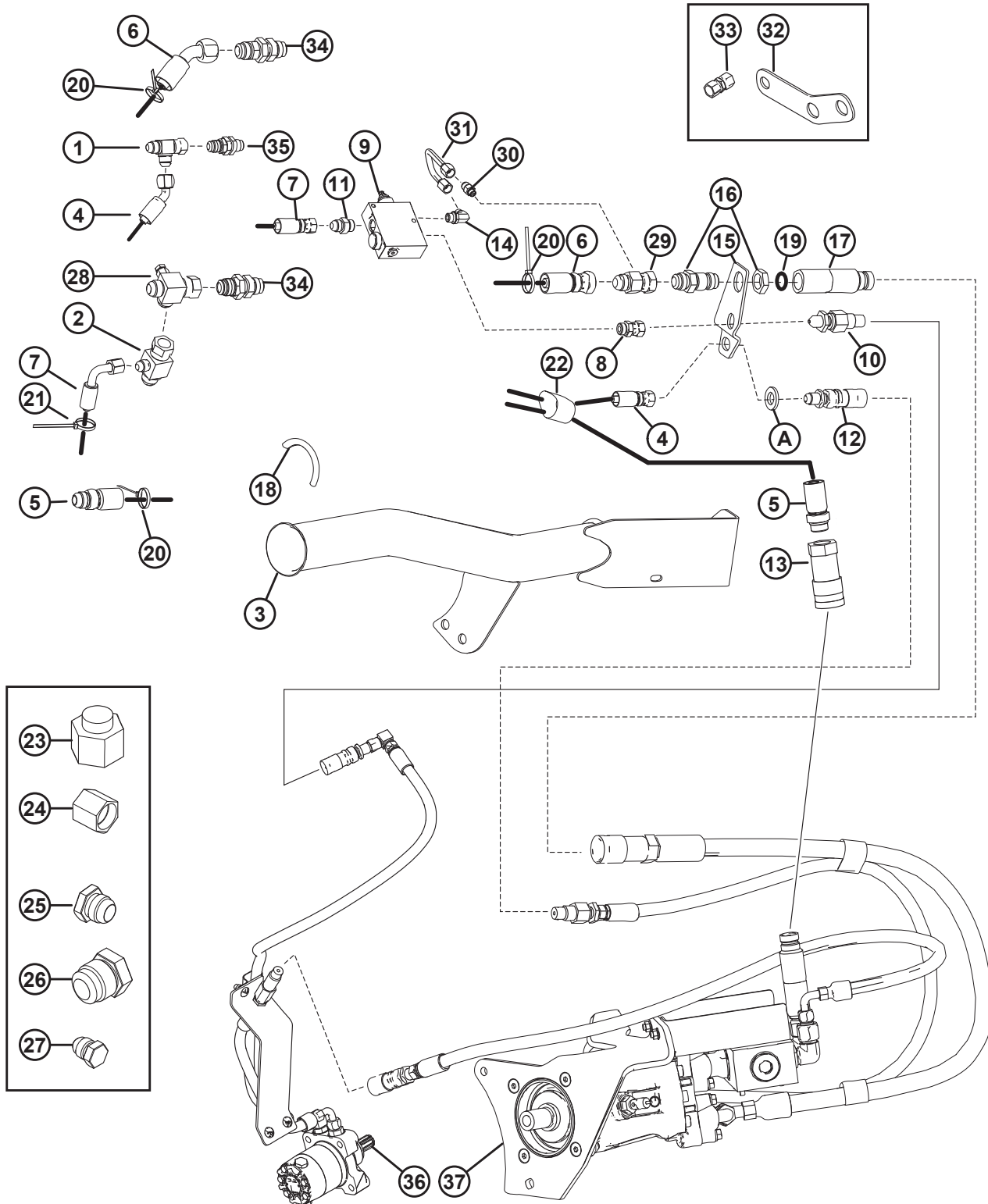


1030966

REPAIR PARTS

Ref	Part Number	Description	Qty	Serial Number
1	130880	BUSHING – SPLIT TAPER QD-E-1.375 BORE	1	
2	17194	KEY	1	
3	159215	SPROCKET – P52 14M 40	1	
4	159430	SPROCKET – P32-14M-40	1	
5	130706	BELT – HTD 1610-14M-40	1	
6	159168	SHIELD – HT DRIVE	1	
7	REF	Refer to Section <i>6.6 Hydraulic Motor, Mounts, and Tensioner – Motor MD #159661, page 102.</i>		
A	18638	WASHER – REG. LOCK 1/2 IN. NOM. ID AA1J		
B	21880	BOLT – HEX HD 1/2-13 X 2.75 GR5 AA1J		
C	1624	WASHER – SAE FLAT 5/8 I.D. X 1-15/32 IN. O.D. ZP		
D	18714	NUT – HEX LOCK DT 5/8-18 UNF ZP		
E	14887	WASHER – FLAT		
F	21289	NUT – WING TYPE A 3/8 NC ZP		

6.10 Hydraulic Completion Package – Motor MD #159661



1030868

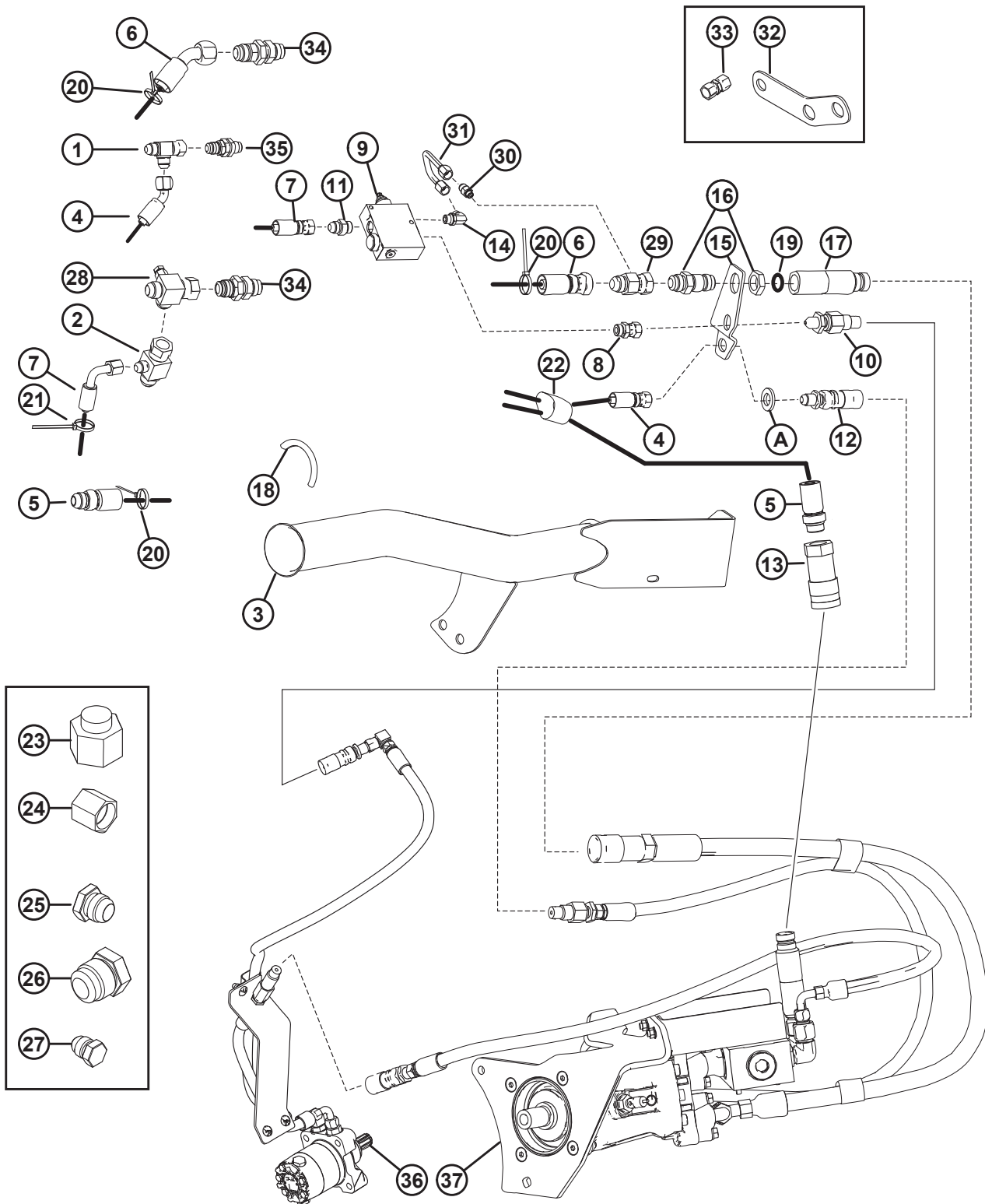
REPAIR PARTS

Ref	Part Number	Description	Qty	Serial Number
1	108268	FITTING – HYD TEE	1	
2	159038	VALVE – CHECK	1	
3	159158	HOLDER – HOSES	1	
4	159032	HOSE – HYDRAULIC, 1/2 IN. I.D.	1	
5	159030	HOSE – HYDRAULIC, 3/4 IN. I.D.	1	
6	120574	HOSE – HYDRAULIC, 3/4 IN. I.D.	1	
7	159159	HOSE – HYDRAULIC, 1/2 IN. I.D.	1	
8	135373	FITTING – ADAPTER HYD	1	
9	159417	VALVE – PRESSURE REDUCING	1	
10	135237	COUPLER – MALE HYD 3/8 IN. FLAT FACE BULKHEAD	1	
	111978	SEAL KIT – 3/8 MALE		
11	21030	FITTING – CONNECTOR HYD	1	
12	135213	COUPLING – FEMALE HYD 3/8 FLAT FACE BULKHEAD	1	
13	135565	COUPLER – FEMALE HYD 3/4 IN. FLAT FACE	1	
14	30282	FITTING – ELBOW HYD	1	
15	159421	PLATE	1	
16	135372	FTG – 3/4 IN. HYD BULKHEAD 37 DEG. FLAIR UNION	1	
17	135314	COUPLER – MALE HYD 3/4 IN. FLAT FACE	1	
	135479	SEAL KIT – 3/4 MALE		
18	109791	MOULDING	1	
19	30971	O-RING	1	
20	40704	FASTENER – CABLE TIE (ORANGE)	3	
21	40703	FASTENER – CABLE TIE (BLUE)	1	
22	135444	FASTENER – CINCH STRAP 6 IN. LG	1	
23	30999	CAP – 3/4 IN. TUBE ¹⁰	3	
24	108233	CAP – 1/2 IN. TUBE ¹⁰	1	
25	135374	PLUG – 1/2 IN TUBE ¹⁰	1	
26	103576	PLUG – 3/4 IN. TUBE ¹⁰	2	
27	50178	PLUG – 3/8 IN. TUBE ¹⁰	1	
28	135245	FITTING – HYD TEE, SPECIAL	1	
29	136973	FITTING – FEMALE UNION HYD	1	
30	136812	FITTING – ADAPTER HYD	1	
31	159733	LINE- – HYD, RELIEVING	1	
32	159358	SUPPORT – COUPLING ¹¹	1	

10. For shipping only.

11. For 4.6 m (15 ft.) header **ONLY**

REPAIR PARTS



1030868

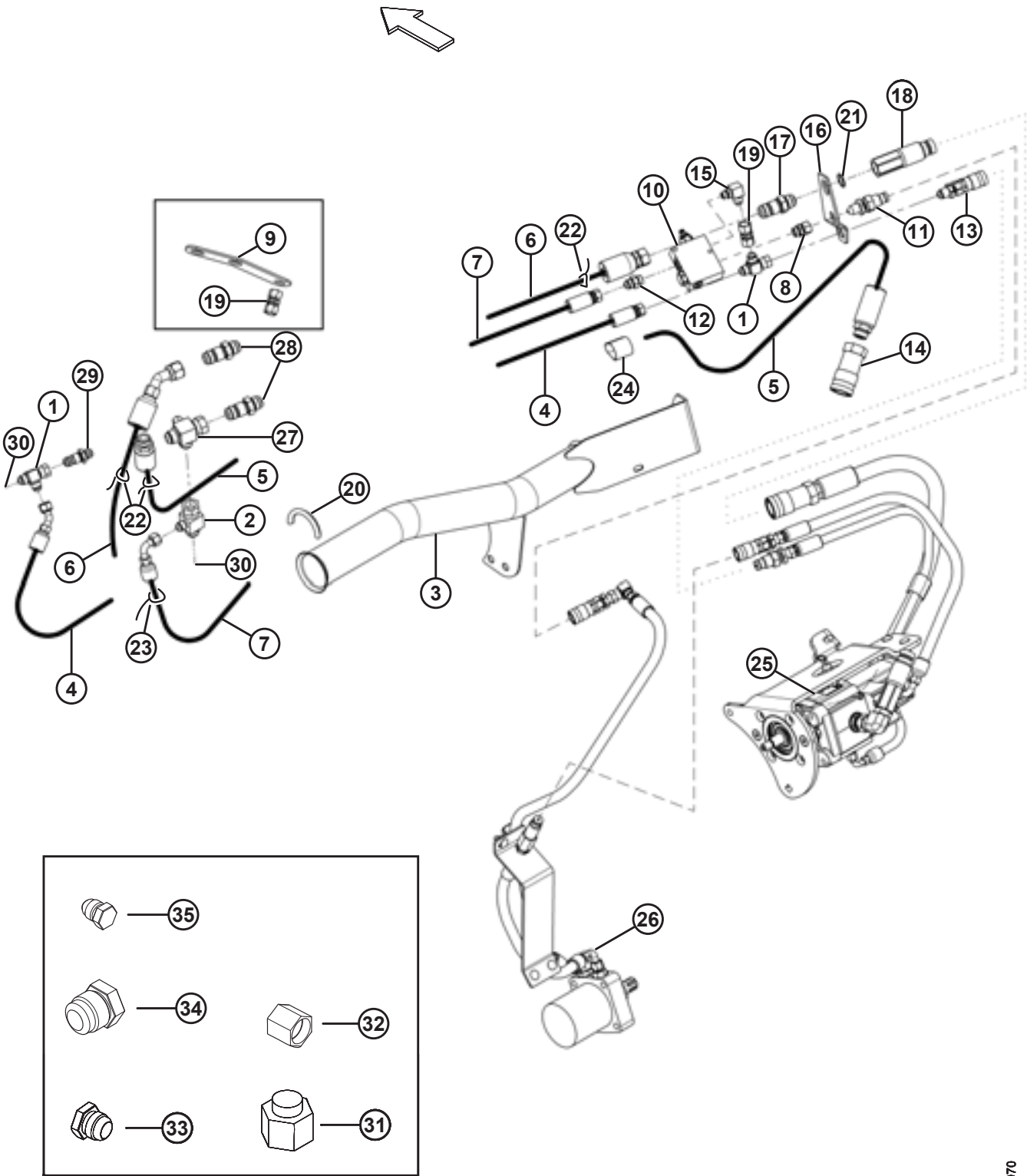
REPAIR PARTS

Ref	Part Number	Description	Qty	Serial Number
33	135540	FITTING – FEMALE UNION HYD ¹²	1	
34	REF	FITTING – 3/4 IN. HYD BULKHEAD 37 DEG. FLAIR UNION	2	
35	REF	FITTING – 1/2 IN. UNION HYDRAULIC	1	
36	REF	Refer to Section <i>6.15 Feed Deck and Pan, page 128.</i>		
37	REF	Refer to Section <i>6.6 Hydraulic Motor, Mounts, and Tensioner – Motor MD #159661, page 102.</i> ¹³		
A	21540	WASHER – HARDENED		

12. For 4.6 m (15 ft.) header **ONLY**

13. Shaft repair kit (MD #159692) can be used to service the motor shaft without needing to replace the complete assembly.

6.11 Hydraulic Completion Package – Motor MD #159648



1030970

REPAIR PARTS

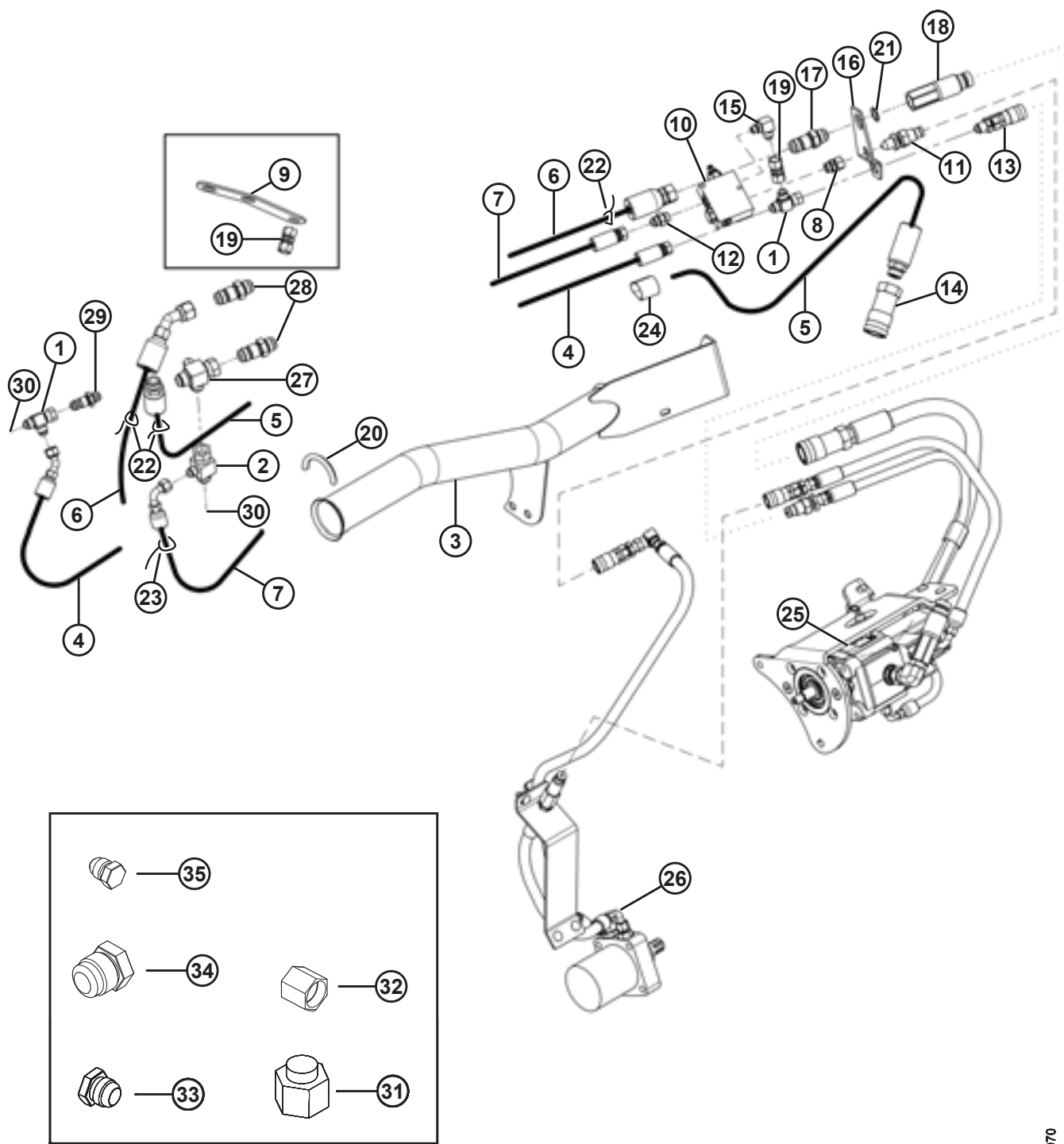
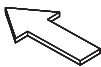
Ref	Part Number	Description	Qty	Serial Number
1	108268	FITTING – HYD TEE	2	
2	159038	VALVE – CHECK	1	
3	159158	HOLDER – HOSES	1	
4	159032	HOSE – HYDRAULIC, 1/2 IN. I.D.	1	
5	159030	HOSE – HYDRAULIC, 3/4 IN. I.D.	1	
6	120574	HOSE – HYDRAULIC, 3/4 IN. I.D.	1	
7	159159	HOSE – HYDRAULIC, 1/2 IN. I.D.	1	
8	135373	FITTING – ADAPTER HYD	1	
9	159358	SUPPORT – COUPLING ¹⁴	1	
10	159417	VALVE – PRESSURE REDUCING	1	
11	135237	COUPLER – MALE HYD 3/8 IN. FLAT FACE BULKHEAD	1	
	111978	SEAL KIT – 3/8 MALE		
12	21030	FITTING – CONNECTOR HYD	1	
13	135213	COUPLING – FEMALE HYD 3/8 FLAT FACE BULKHEAD	1	
14	135565	COUPLER – FEMALE HYD 3/4 IN. FLAT FACE	1	
15	21805	FITTING – ELBOW HYD	1	
16	159421	PLATE	1	
17	135372	FTG – 3/4 IN. HYD BULKHEAD 37 DEG. FLAIR UNION	1	
18	135314	COUPLER – MALE HYD 3/4 IN. FLAT FACE	1	
	135479	SEAL KIT – 3/4 MALE		
19	135540	FITTING – FEMALE UNION HYD ¹⁵	1	
20	109791	MOULDING	1	
21	30971	O-RING	1	
22	40704	FASTENER – CABLE TIE (ORANGE)	3	
23	40703	FASTENER – CABLE TIE (BLUE)	1	
24	135444	FASTENER – CINCH STRAP 6 IN. LG	1	
25	REF	Refer to Section 6.6 Hydraulic Motor, Mounts, and Tensioner – Motor MD #159661, page 102. ¹⁶		
26	REF	Refer to Section 6.15 Feed Deck and Pan, page 128.		
27	135245	FITTING – HYD TEE, SPECIAL	1	
28	REF	FITTING – 3/4 IN. HYD BULKHEAD 37 DEG. FLAIR UNION	2	
29	REF	FITTING – 1/2 IN. UNION HYDRAULIC	1	
30	REF	See note		

14. For 4.6 m (15 ft.) header **ONLY**

15. Quantity of two for 4.6 m (15 ft.) header.

16. Shaft repair kit (MD #159692) can be used to service the motor shaft without needing to replace the complete assembly.

REPAIR PARTS

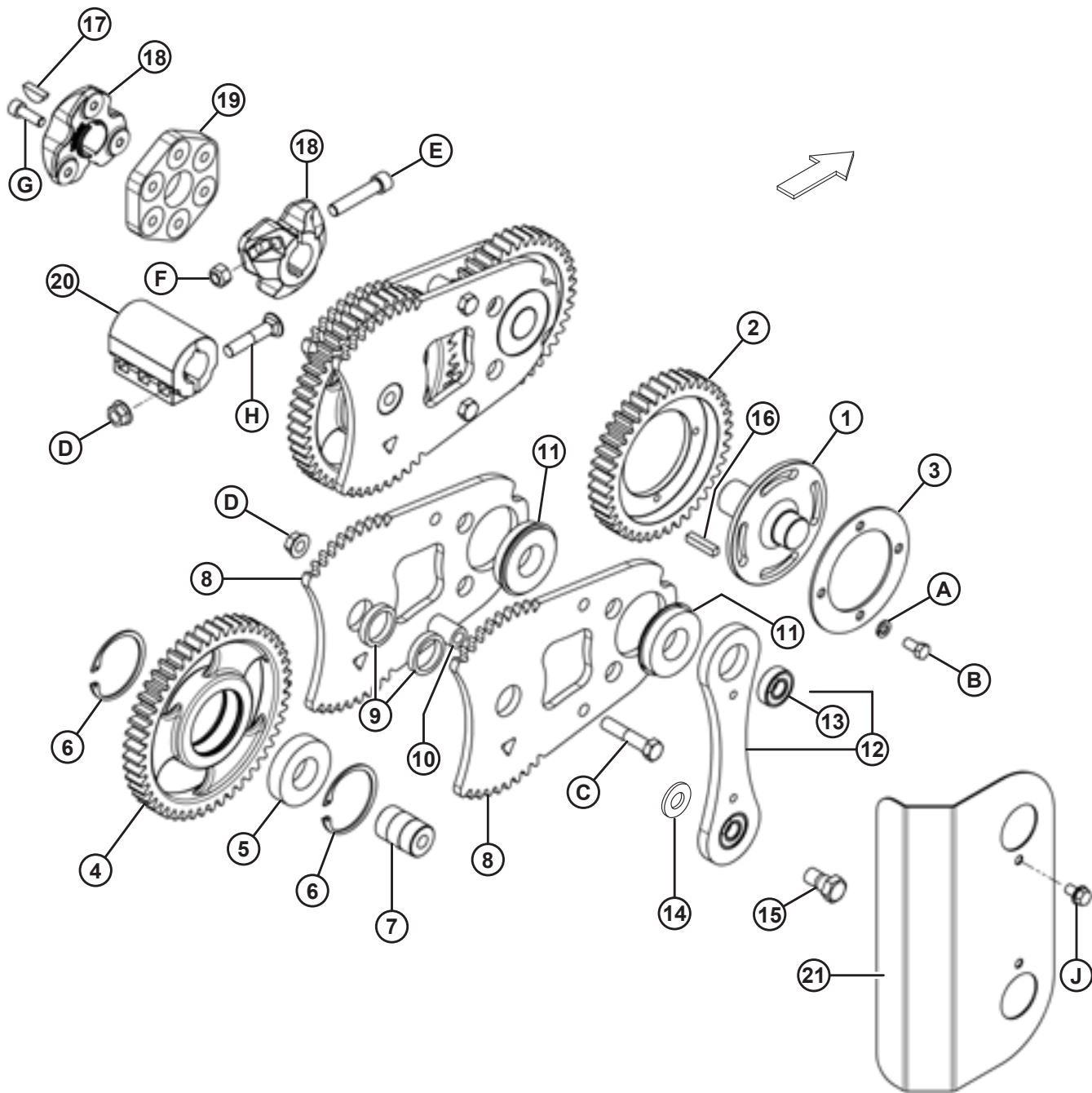


1030970

REPAIR PARTS

Ref	Part Number	Description	Qty	Serial Number
31	30999	CAP – 3/4 IN. TUBE (for shipping only)	3	
32	108233	CAP – 1/2 IN. TUBE (for shipping only)	1	
33	135374	PLUG – 1/2 IN TUBE (for shipping only)	1	
34	103576	PLUG – 3/4 IN. TUBE (for shipping only)	2	
35	50178	PLUG – 3/8 IN. TUBE (for shipping only)	1	

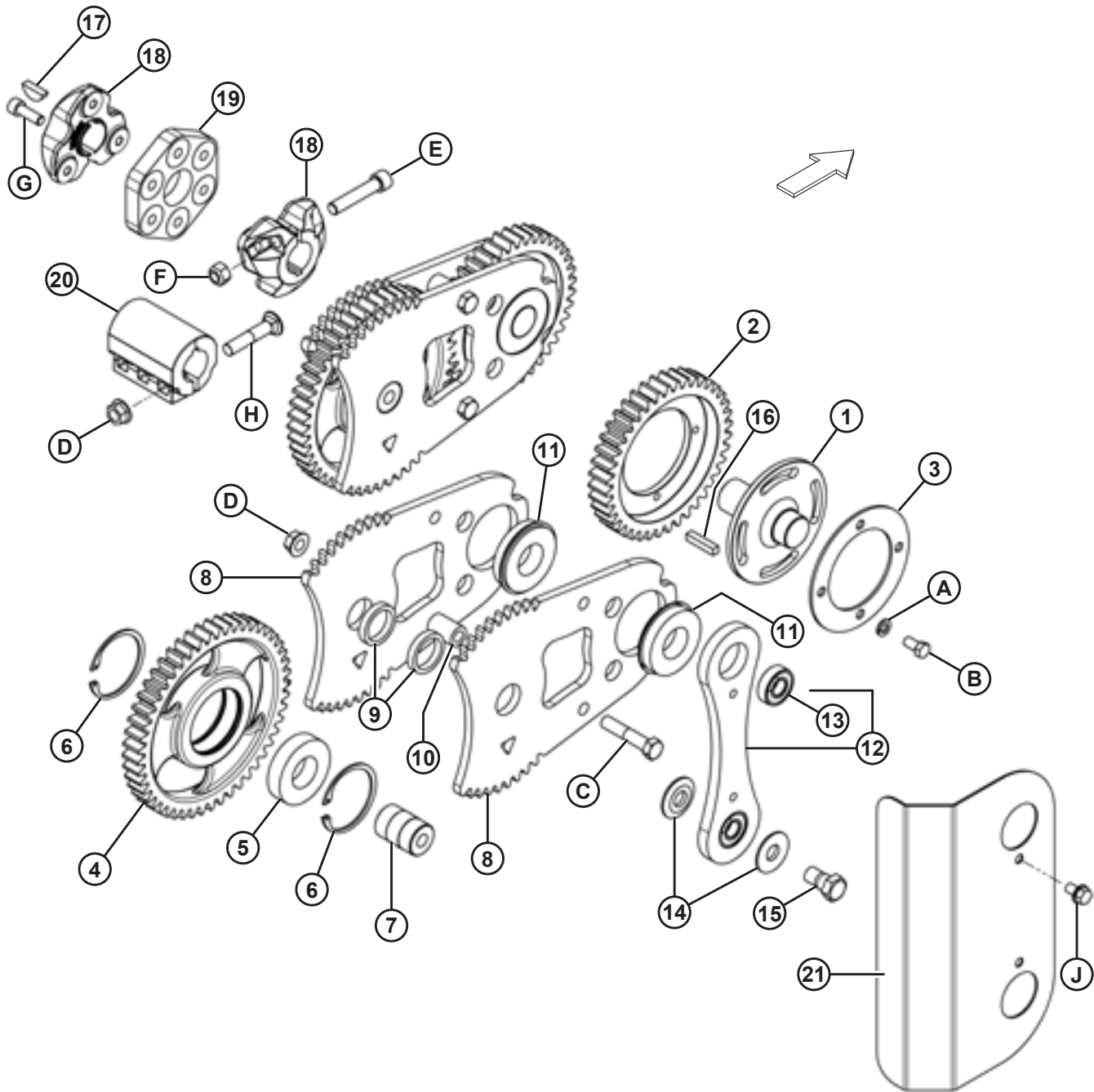
6.12 Gears and Roll Coupling Assembly – New (With Washer MD #30441)



REPAIR PARTS

Ref	Part Number	Description	Qty	Serial Number
1	159550	HUB – MACHINING	2	
2	130680	GEAR – 40T	2	
3	129932	DISK	2	
4	130677	GEAR – 49T	2	
5	159474	BEARING – BALL CYL	2	
6	38854	RING – INT RETAINING	4	
7	130687	SHAFT – IDLER	2	
8	130685	PLATE, SIDE HEAT TREATMENT	4	
9	130689	SPACER	4	
10	130694	SPACER	4	
11	159478	BEARING – BALL CYL C3 WITH SNAP RING	4	
12	130691	SUB-ASSEMBLY – LINK	2	
13	50185	BEARING – BALL CYL OD 17 MM BORE	4	
14	30441	WASHER – HARDENED ASTM F436 5/8	4	
15	105141	BOLT – LOCKING SHOULDER	4	
16	26846	KEY – HUB TO COUPLING	2	
17	11142	KEY – WOODRUFF (5/16 X 1-1/8 NOM.)	2	
18	130936	COUPLING-FLEX – MACHINING, UPPER ROLL	2	
19	130736	DISC – FLEX, UPPER ROLL	1	
20	159130	COUPLING – MACHINING, LOWER ROLL	1	
21	159218	COVER	1	
A	18637	WASHER – REG. LOCK 3/8 IN. NOM. I.D. ZP		
B	21567	BOLT – HEX HD .375-16 UNC X 0.75 LG		
C	21880	BOLT – HEX HD 1/2 NC X 2.75 LG GR 5 ZP		
D	50186	NUT – FLG LK SMTH FACE DT .500-13 UNC GR 5		
E	135403	BOLT – SKT HD 1/2 NC X 2.5 LG		
F	18697	NUT – HEX LOCK DT .500-13 UNC		
G	135401	BOLT – HEX SKT HD M10 X 1.5 X 30 LG ZP		
H	21489	BOLT – RHSN 1/2 NC X 2.5 LG GR 5 ZP		
J	101898	SCREW – HEX WASH HD THD ROLLING 3/8 NC X 5/8		

6.13 Gears and Roll Coupling Assembly – Old (With Washer MD #130688)



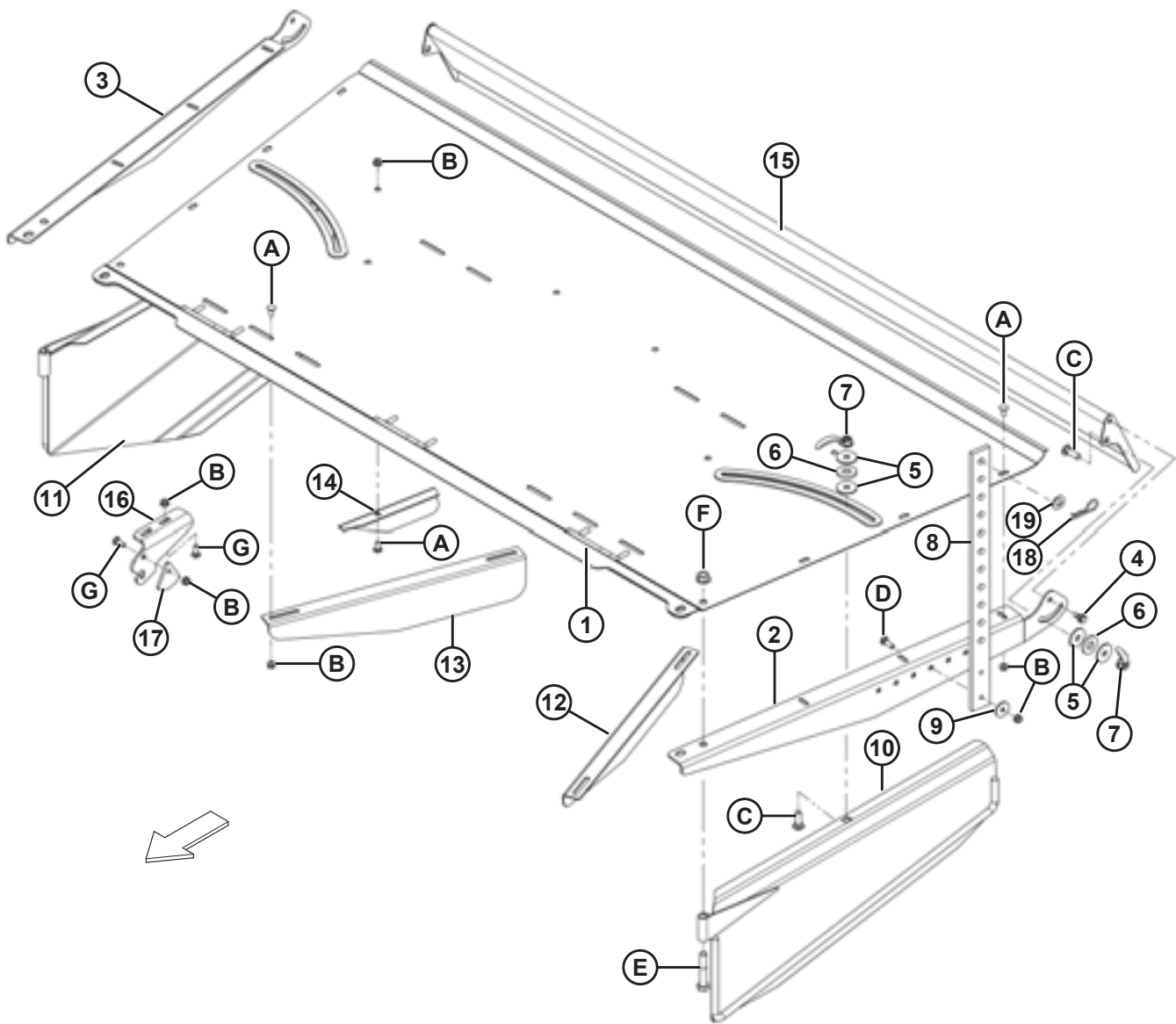
1005027

REPAIR PARTS

Ref	Part Number	Description	Qty	Serial Number
1	159550	HUB – MACHINING	2	
2	130680	GEAR – 40T	2	
3	129932	DISK	2	
4	130677	GEAR – 49T	2	
5	159474	BEARING – BALL CYL	2	
6	38854	RING – INT RETAINING	4	
7	130687	SHAFT – IDLER	2	
8	130685	PLATE, SIDE HEAT TREATMENT	4	
9	130689	SPACER	4	
10	130694	SPACER	4	
11	159478	BEARING – BALL CYL C3 WITH SNAP RING	4	
12	130691	SUB-ASSEMBLY – LINK	2	
13	50185	BEARING – BALL CYL OD 17 MM BORE	4	
14	130688	WASHER – MACHINED 11/16 I.D. X 1.75 IN. O.D. ZP – SEE FOOTNOTE¹⁷	8	
15	105141	BOLT – LOCKING SHOULDER	4	
16	26846	KEY – HUB TO COUPLING	2	
17	11142	KEY – WOODRUFF (5/16 X 1-1/8 NOM.)	2	
18	130936	COUPLING-FLEX – MACHINING, UPPER ROLL	2	
19	130736	DISC – FLEX, UPPER ROLL	1	
20	159130	COUPLING – MACHINING, LOWER ROLL	1	
21	159218	COVER	1	
A	18637	WASHER – REG. LOCK 3/8 IN. NOM. I.D. ZP		
B	21567	BOLT – HEX HD .375-16 UNC X 0.75 LG		
C	21880	BOLT – HEX HD 1/2 NC X 2.75 LG GR 5 ZP		
D	50186	NUT – FLG LK SMTH FACE DT .500-13 UNC GR 5		
E	135403	BOLT – SKT HD 1/2 NC X 2.5 LG		
F	18697	NUT – HEX LOCK DT .500-13 UNC		
G	135401	BOLT – HEX SKT HD M10 X 1.5 X 30 LG ZP		
H	21489	BOLT – RHSN 1/2 NC X 2.5 LG GR 5 ZP		
J	101898	SCREW – HEX WASH HD THD ROLLING 3/8 NC X 5/8		

17. Replace each pair of washers with **one** new washer (MD #30441). You do **NOT** have to replace all four pairs of washers (MD #130688) with new washers (MD #30441) at the same time. For the installation location of new washer (MD #30441), refer to [Gears and Roll Coupling Assembly – New \(With Washer MD #30441\)](#).

6.14 Forming Shields



1005029

REPAIR PARTS

Ref	Part Number	Description	Qty	Serial Number
1	159204	COVER WELDT	1	
2	159206	SUPPORT – STRUT, LH	1	
3	159207	SUPPORT – STRUT, RH	1	
4	135001	BOLT – SHOULDER .375-16 UNC	2	
5	42592	WASHER – FLAT	8	
6	42045	WASHER – RUBBER	4	
7	149317	HANDLE	4	
8	159294	STRAP – RUBBER	2	
9	16652	WASHER – FLAT	2	
10	159220	DEFLECTOR WELDT, LH	1	
11	130911	DEFLECTOR WELDT, RH	1	
12	130905	DEFLECTOR – FIN, LH	1	
13	130906	DEFLECTOR – FIN, RH	1	
14	130548	DEFLECTOR – FIN	4	
15	130900	BAFFLE	1	
16	159598	SUPPORT – HANGER (TRACTOR MOUNTED)	1	
17	159325	SUPPORT – KEEPER	1	
18	13125	PIN – HAIR	2	
19	18600	WASHER – FLAT, 21/32 I.D. X 1-5/16 IN. O.D. ZP	2	
A	21863	BOLT – RHSSN 3/8 NC X 0.75 LG GR 5 ZP		
B	30228	NUT – FLANGE DT SMOOTH FACE .375-16 UNC		
C	21469	BOLT – RHSN 1/2 NC X 1.5 LG GR 5 ZP		
D	19966	BOLT – RHSN 3/8 NC X 1.25 LG GR 5 ZP		
E	21406	BOLT – HEXHD 5/8 NC X 3.5 GR 5 ZP		
F	50225	NUT – FLANGE DT SMOOTH FACE .625-11 UNC		
G	19965	BOLT – RHSN 3/8 NC X 1.0 GR 5 ZP		

This exploded view diagram illustrates the components of a window blind assembly. The main frame (1) is shown at the bottom, with slats (2) attached. Various mounting and adjustment components are labeled with numbers and letters, including: 3 (roller tube), 4 (bracket), 5 (screw), 6 (nut), 7 (bracket), 8 (screw), 9 (bracket), 10 (screw), 11 (bracket), 12 (screw), 13 (bracket), 14 (screw), 15 (bracket), 16 (screw), 17 (bracket), 18 (screw), 19 (bracket), 20 (screw), 21 (bracket), 22 (screw), 23 (bracket), 24 (screw), 25 (bracket), 26 (screw), 27 (bracket), 28 (screw), 29 (bracket), 30 (screw), 31 (bracket), 32 (screw), 33 (bracket), 34 (screw), 35 (bracket), A (bracket), B (screw), C (bracket), D (screw), E (bracket), F (screw), G (bracket), H (screw), I (bracket), J (screw), K (bracket), L (screw), M (bracket), N (screw), O (bracket), P (screw), Q (bracket), R (screw), S (bracket), T (screw), U (bracket), V (screw), W (bracket), X (screw), Y (bracket), Z (screw). An arrow indicates the direction of assembly.

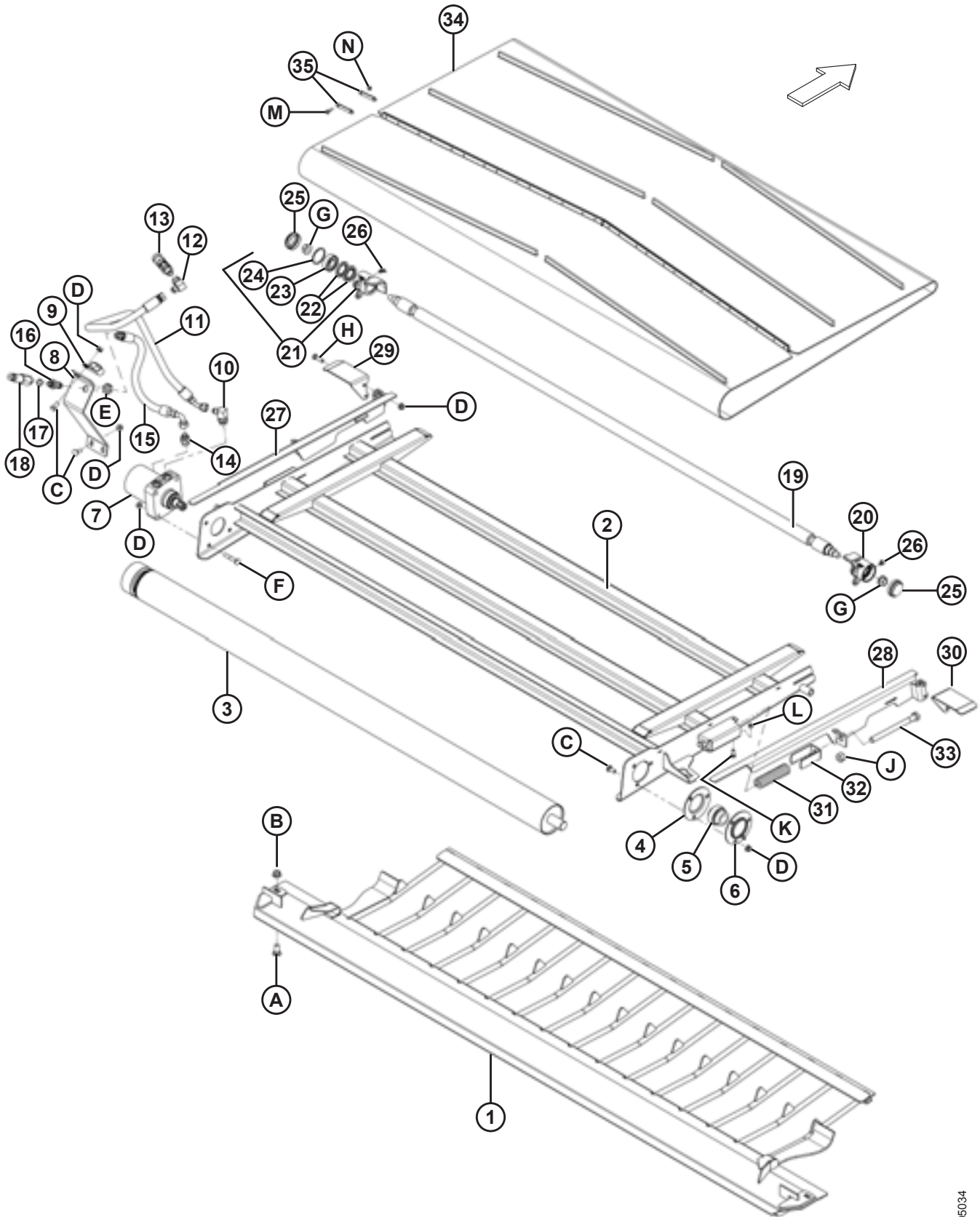
Revision A

REPAIR PARTS

Ref	Part Number	Description	Qty	Serial Number
1	159432	PAN – FINGER FEED WELDT	1	
2	159399	FRAME, FEED DECK – WELDT	1	
3	159704	ROLLER – DRIVE 4 IN., WELDT	1	
4	49306	FLANGE	1	
5	21859	BEARING – SPH O.D. EXT INNER RACE 1-3/16 BORE	1	
6	30661	FLANGE	1	
7	159197	MOTOR – HYD 4.0 CID (WITH 921 PSI RELIEF)	1	
	220672	SEAL KIT – FOR MOTOR MD #159197		
	159606	VALVE – RELIEF, 921 PSI		
8	159183	HOLDER – COUPLING	1	
9	103738	CLAMP – PVC INSULATED 13/16 IN. TUBE SIZE	1	
10	21801	FITTING – ELBOW 90° HYD	1	
11	130998	HOSE	1	
12	30314	FITTING – ELBOW 90° HYD	1	
13	135213	COUPLING – FEMALE HYD 3/8 FLAT FACE BULKHEAD	1	
14	21881	FITTING – ADAPTER HYD	1	
15	159422	HOSE	1	
16	30819	FTG – 1/2 IN. HYD UNION	1	
17	44209	O-RING	1	
18	135386	COUPLER – MALE HYD 3/8 IN. FLAT FACE (FASTER) ¹⁸	1	
	111978	SEAL KIT – FOR 3/8 MALE COUPLER (FASTER)		
19	159256	SHAFT – IDLER ROLLER	1	
20	133124	HOUSING ASSY – RH IDLER CUP	1	
21	133126	HOUSING ASSY – LH IDLER CUP	1	
22	100862	SEAL – OIL	4	
23	118185	BEARING – BALL CYL, 52MM O.D., 25MM I.D.	2	
24	118011	RING – RETAINING, INTERNAL	2	
25	133372	CAP, DUST	2	
26	21010	FTG – LUBE 90 DEG 1/4-28 TAPER THD	2	
27	159383	SUPPORT WELDT – LH	1	
28	159385	SUPPORT WELDT – RH	1	
29	159260	GUIDE – LH	1	
30	159264	GUIDE – RH	1	
31	133946	SPRING – COMPRESSION	2	
32	130246	RETAINER – SPRING	2	

18. Faster coupler (MD #135386) is interchangeable with Parker Hannifin coupler (NSS). Seal kit (MD #111978) is only intended for Faster coupler and cannot be used with Parker Hannifin coupler. Length can be used to differentiate the two couplers; Faster coupler = 101 mm and Parker Hannifin coupler = 84 mm.

REPAIR PARTS

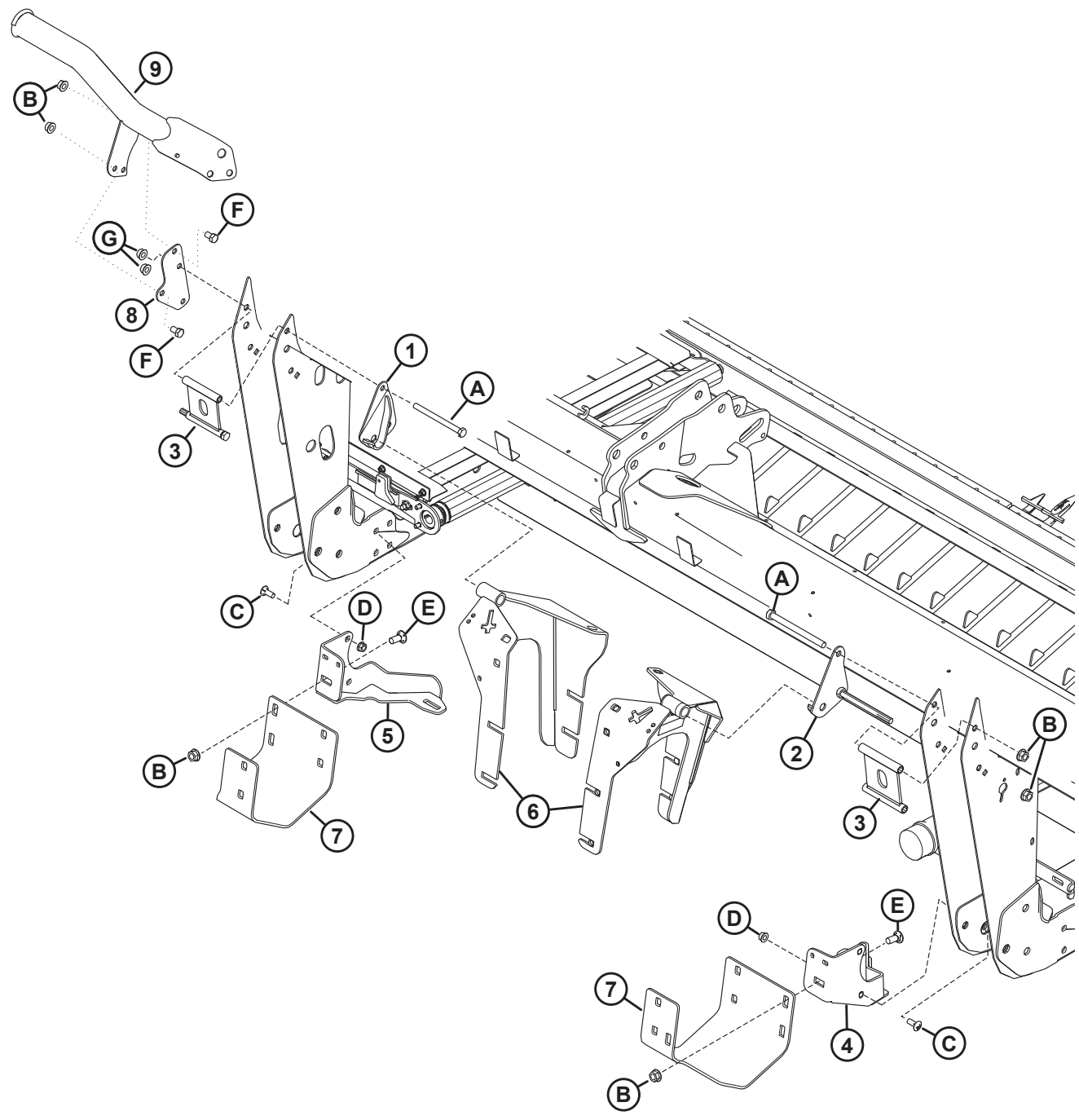


1005034

REPAIR PARTS

Ref	Part Number	Description	Qty	Serial Number
33	135906	BOLT – HH 5/8 NC X 7.5 LG TFL GR 5 ZP	2	
34	159393	DRAPER – 1850 WIDE X 2107 LONG	1	
35	130283	STRAP – DRAPER CONNECTOR	28	
A	21471	BOLT – RHSN 1/2 NC X 1.25 GR 5 ZP		
B	50186	NUT – FLG LK SMTH FACE DT .500-13 UNC GR 5		
C	19965	BOLT – RHSN 3/8 NC X 1.0 GR 5 ZP		
D	30228	NUT – FLG DT SMTH FACE 0.375-16 UNC		
E	7674	NUT – HEX JAM 3/4-16 UNF GR 5 ZP		
F	21485	BOLT – RHSN 3/8 NC X 2.25 LG GR 5 ZP		
G	50225	NUT – FLG DT SMTH FACE .625-11 UNC		
H	21264	BOLT – HEX HD 3/8 NC X 1.25 LG GR 5 ZP		
J	18592	NUT – HEX 5/8-11 UNC GR 5 ZP		
K	21558	BOLT – HEX HD 5/16 NC X 0.75 LG GR 5 ZP		
L	18690	NUT – HEX LOCK DT 5/16-18 UNC ZP		
M	49671	SCREW – BUTTON HD RIB NK; #12-24 NC X 0.920 IN. LG		
N	30669	NUT – CSK CENTER LOCK#12 – 24 NC		

6.16 Mounting Brackets



1030866

REPAIR PARTS

Ref	Part Number	Description	Qty	Serial Number
1	130802	SUPPORT – LH WELDT	1	
2	130803	SUPPORT – RH WELDT	1	
3	159700	SPACER BRACKET	2	
4	130831	SUPPORT – RH WELDT	1	
5	130817	SUPPORT – LH WELDT	1	
6	REF	Refer to Section 6.5 Cover and Supports, page 98.		
7	REF	Refer to Section 6.3 Lower Roll and Frame Assembly, page 94.		
8	159734	PLATE – ADAPTER ¹⁹	1	
9	REF	<ul style="list-style-type: none"> • HC10 equipped with conditioner drive motor MD #159661: refer to Section 6.10 Hydraulic Completion Package – Motor MD #159661, page 114 • HC10 equipped with conditioner drive motor MD #159648: refer to Section 6.11 Hydraulic Completion Package – Motor MD #159648, page 118 		
A	135906	BOLT – HH 5/8 NC X 7.5 LG TFL GR 5 ZP		
B	50225	NUT – FLG DT SMTH FACE .625-11 UNC		
C	21471	BOLT – RHSN 1/2 NC X 1.25 GR 5 ZP		
D	50186	NUT – FLG LK SMTH FACE DT .500-13 UNC GR 5		
E	18523	BOLT – RHSN 5/8 NC X 1.5 GR 5 ZP		
F	113611	BOLT – HEX HD 5/8 – 11 X 1.0 GR.5 – AA1J ²⁰		
G	50225	NUT – FLG DT SMTH FACE .625-11 UNC ²⁰		

19. Only used on D115, D120, and D125 headers equipped with a double-knife and single Reel.

20. Only used on D115, D120, and D125 headers equipped with a double knife and single reel.

Chapter 7: Reference

7.1 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).

7.1.1 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 7.1 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

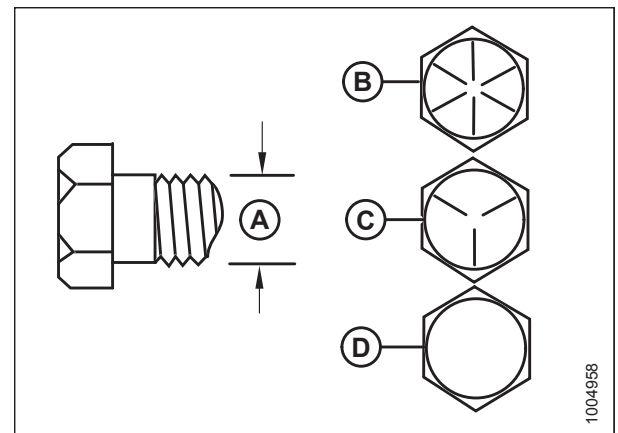


Figure 7.1: Bolt Grades

A - Nominal Size
C - SAE-5

B - SAE-8
D - SAE-2

REFERENCE

Table 7.2 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

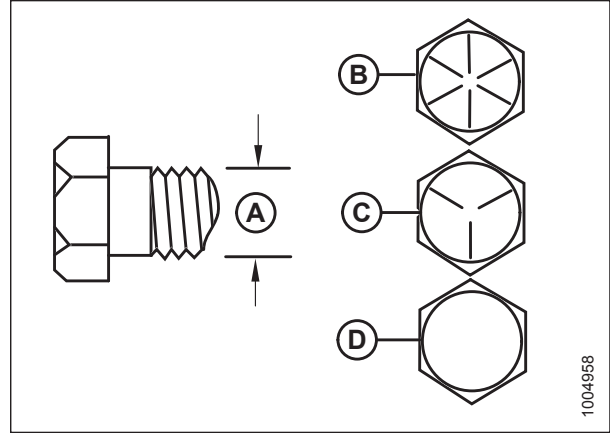


Figure 7.2: Bolt Grades

A - Nominal Size
C - SAE-5

B - SAE-8
D - SAE-2

Table 7.3 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

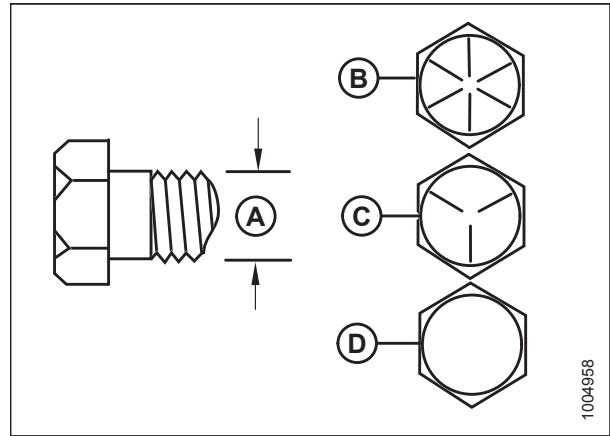


Figure 7.3: Bolt Grades

A - Nominal Size
C - SAE-5

B - SAE-8
D - SAE-2

REFERENCE

Table 7.4 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

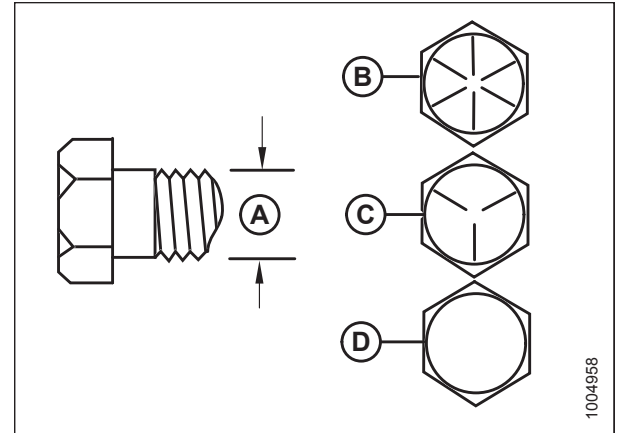


Figure 7.4: Bolt Grades

A - Nominal Size
C - SAE-5

B - SAE-8
D - SAE-2

7.1.2 Metric Bolt Specifications

Table 7.5 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

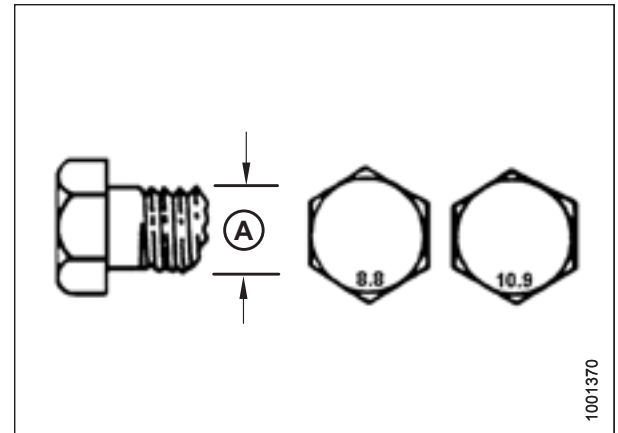


Figure 7.5: Bolt Grades

REFERENCE

Table 7.6 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

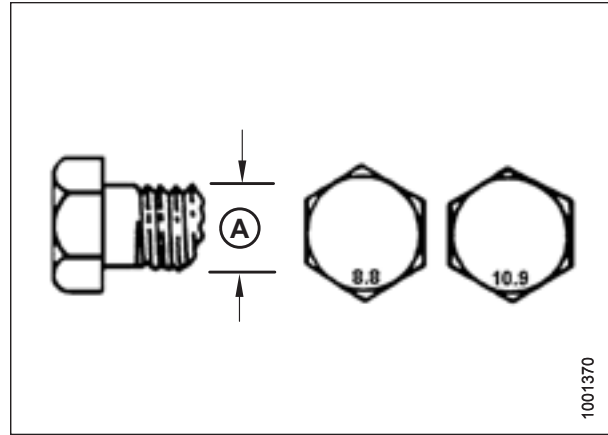


Figure 7.6: Bolt Grades

Table 7.7 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

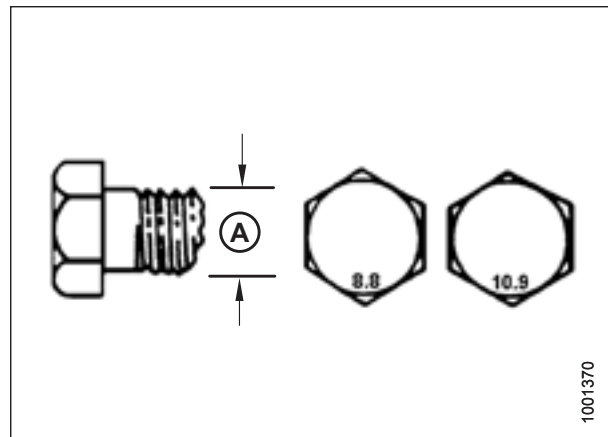


Figure 7.7: Bolt Grades

Table 7.8 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

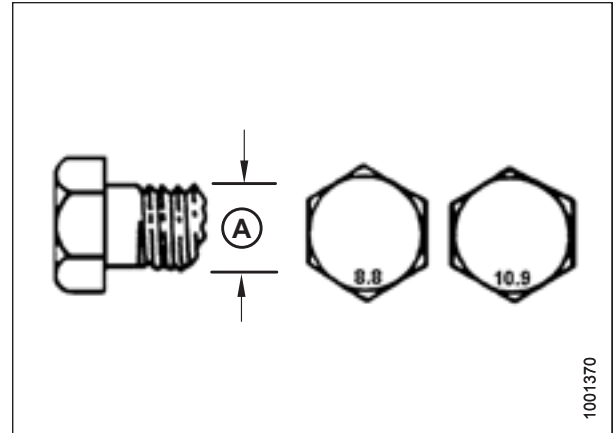


Figure 7.8: Bolt Grades

7.1.3 Metric Bolt Specifications Bolting into Cast Aluminum

Table 7.9 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	—	—	—	—

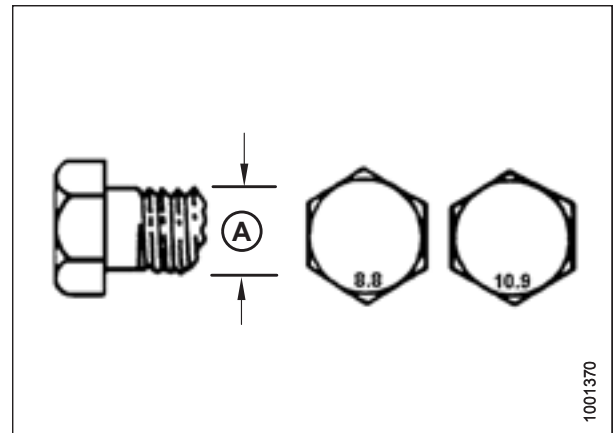


Figure 7.9: Bolt Grades

7.1.4 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 7.10, page 140.
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.

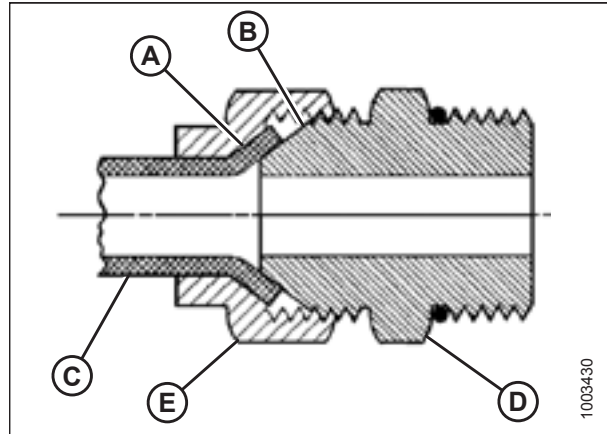


Figure 7.10: Hydraulic Fitting

Table 7.10 Flare-Type Hydraulic Tube Fittings

SAE Dash Size	Thread Size (in.)	Torque Value ²¹		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

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

7.1.5 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).

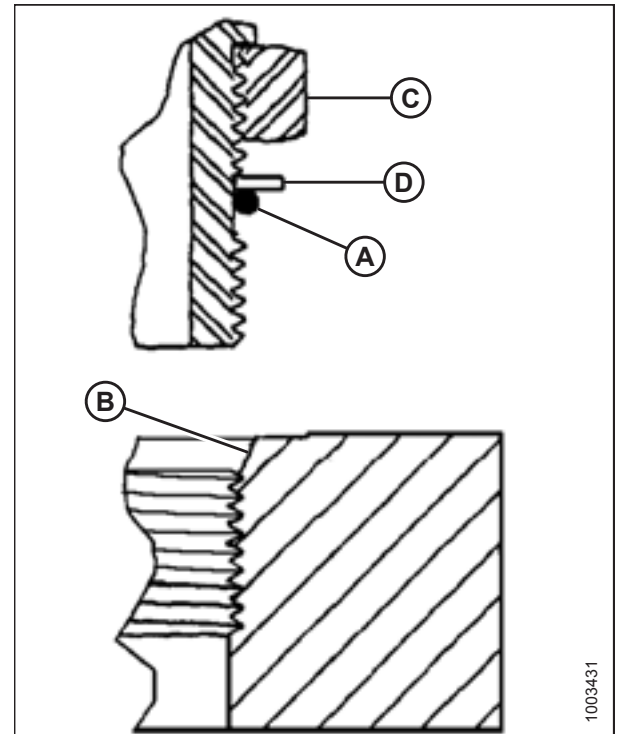


Figure 7.11: Hydraulic Fitting

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.

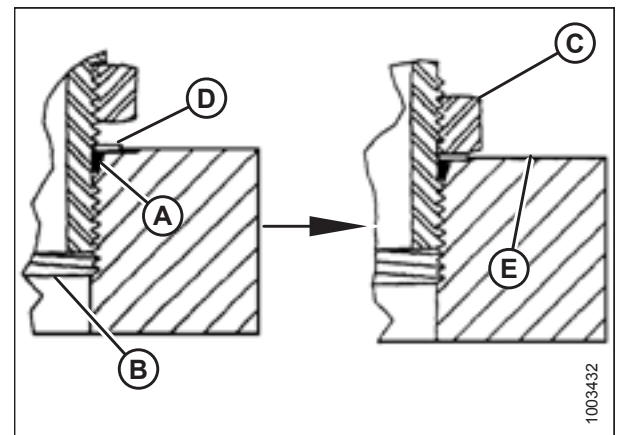


Figure 7.12: Hydraulic Fitting

REFERENCE

Table 7.11 O-Ring Boss (ORB) Hydraulic Fittings – Adjustable

SAE Dash Size	Thread Size (in.)	Torque Value ²²	
		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

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

7.1.6 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 7.12, page 143.
6. Check final condition of fitting.

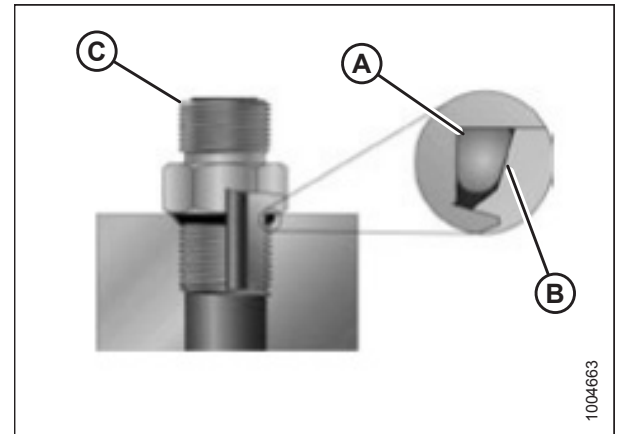


Figure 7.13: Hydraulic Fitting

Table 7.12 O-Ring Boss (ORB) Hydraulic Fittings – Non-Adjustable

SAE Dash Size	Thread Size (in.)	Torque Value ²³	
		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

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

7.1.7 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 7.14: 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 7.13, page 144.

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.

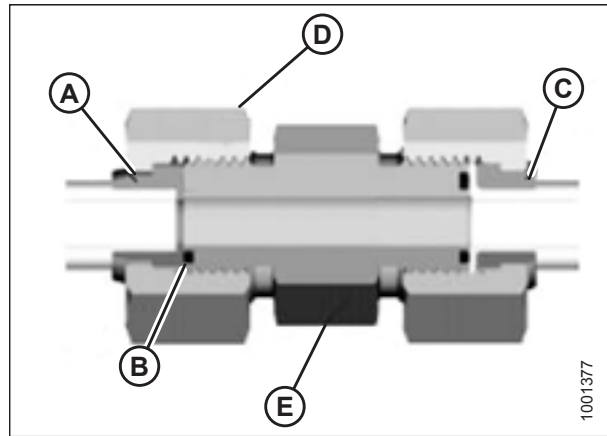


Figure 7.15: Hydraulic Fitting

Table 7.13 O-Ring Face Seal (ORFS) Hydraulic Fittings

SAE Dash Size	Thread Size (in.)	Tube O.D. (in.)	Torque Value ²⁴	
			Nm	lbf-ft
-3	Note	3/16	–	–
-4	9/16	1/4	25–28	18–21
-5	Note	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	7/8	–	–
-16	1 7/16	1	150–165	111–122

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

REFERENCE

Table 7.13 O-Ring Face Seal (ORFS) Hydraulic Fittings (continued)

SAE Dash Size	Thread Size (in.)	Tube O.D. (in.)	Torque Value ²⁵	
			Nm	lbf·ft
-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

7.1.8 Tapered Pipe Thread Fittings

Assemble pipe fittings as follows:

1. Check components to ensure that fitting and port threads are free of burrs, nicks, 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 7.14, page 145. Make sure that tube end of a shaped connector (typically 45° or 90°) 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 7.14 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

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

7.2 Conversion Chart

Table 7.15 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.

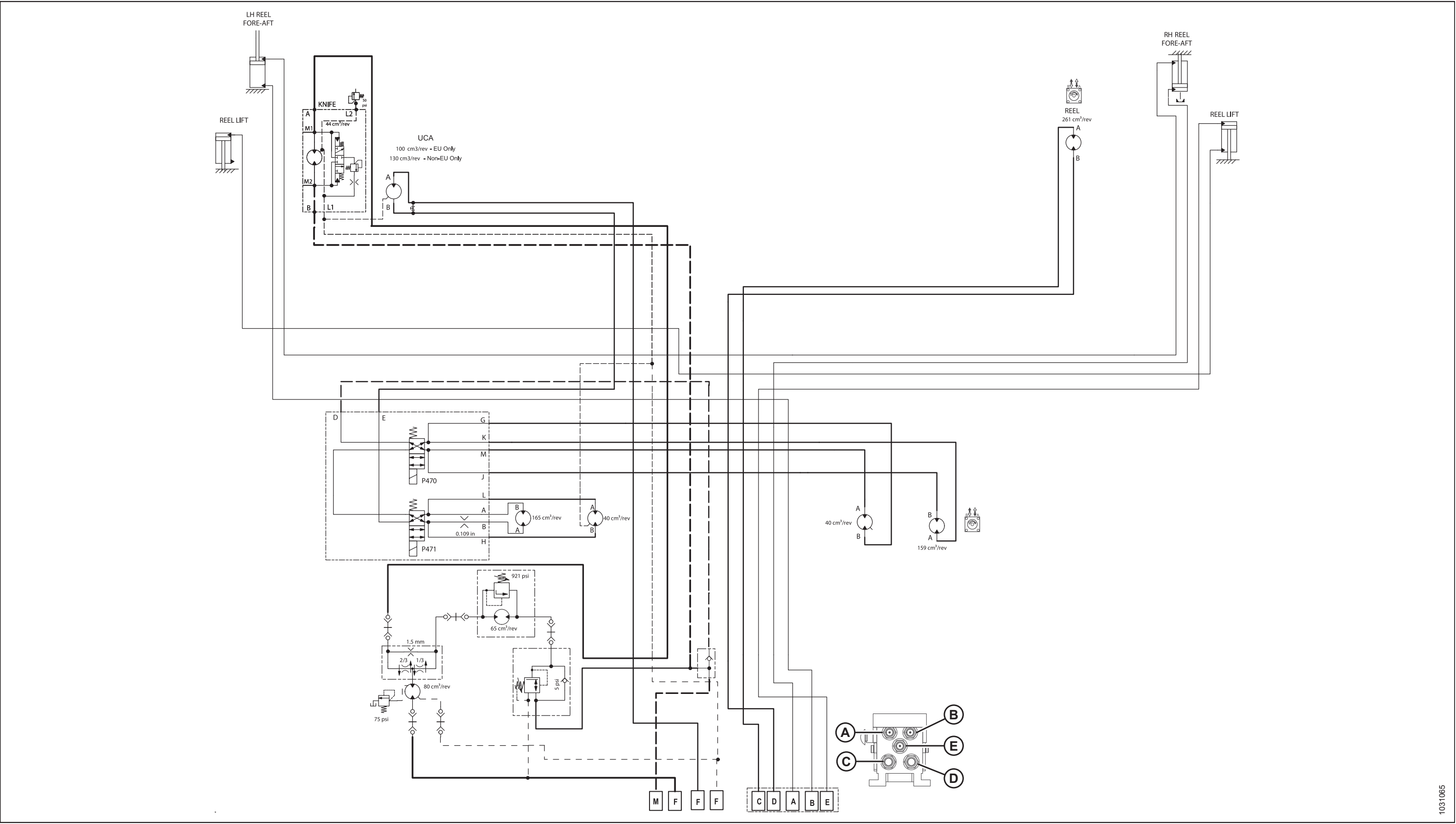
7.3 Hydraulic Schematics – Headers with HC10 Motor MD #159661

For an explanation of the acronyms used in this section, refer to [2.1 Definitions, page 9](#).

7.3.1 D1 Series Header – 4.6–9.1 m (15–30 ft.), Timed Double Knife, Single Reel, Hydraulic Deck Shift, HC10 (Motor MD #159661), and Upper Cross Auger

REFERENCE

Figure 7.16: D1 Series Header – 4.6–9.1 m (15–30 ft.), Timed Double Knife, Single Reel, Hydraulic Deck Shift, HC10 (Motor MD #159661), and Upper Cross Auger



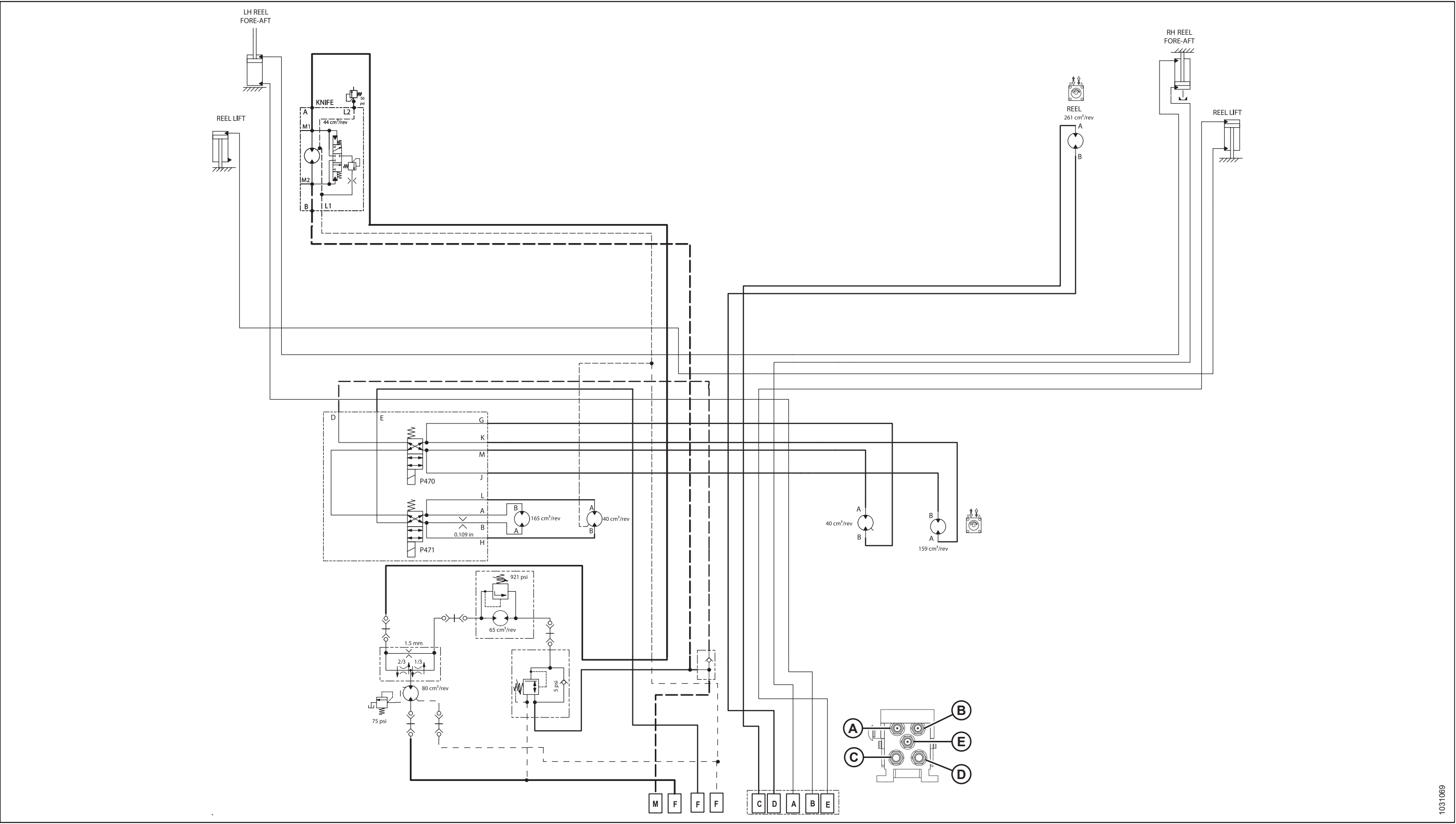
1031065

REFERENCE

7.3.2 D1 Series Header – 4.6–9.1 m (15–30 ft.), Timed Double Knife, Single Reel, Hydraulic Deck Shift, and HC10 (Motor MD #159661)

REFERENCE

Figure 7.17: D1 Series Header – 4.6–9.1 m (15–30 ft.), Timed Double Knife, Single Reel, Hydraulic Deck Shift, and HC10 (Motor MD #159661)

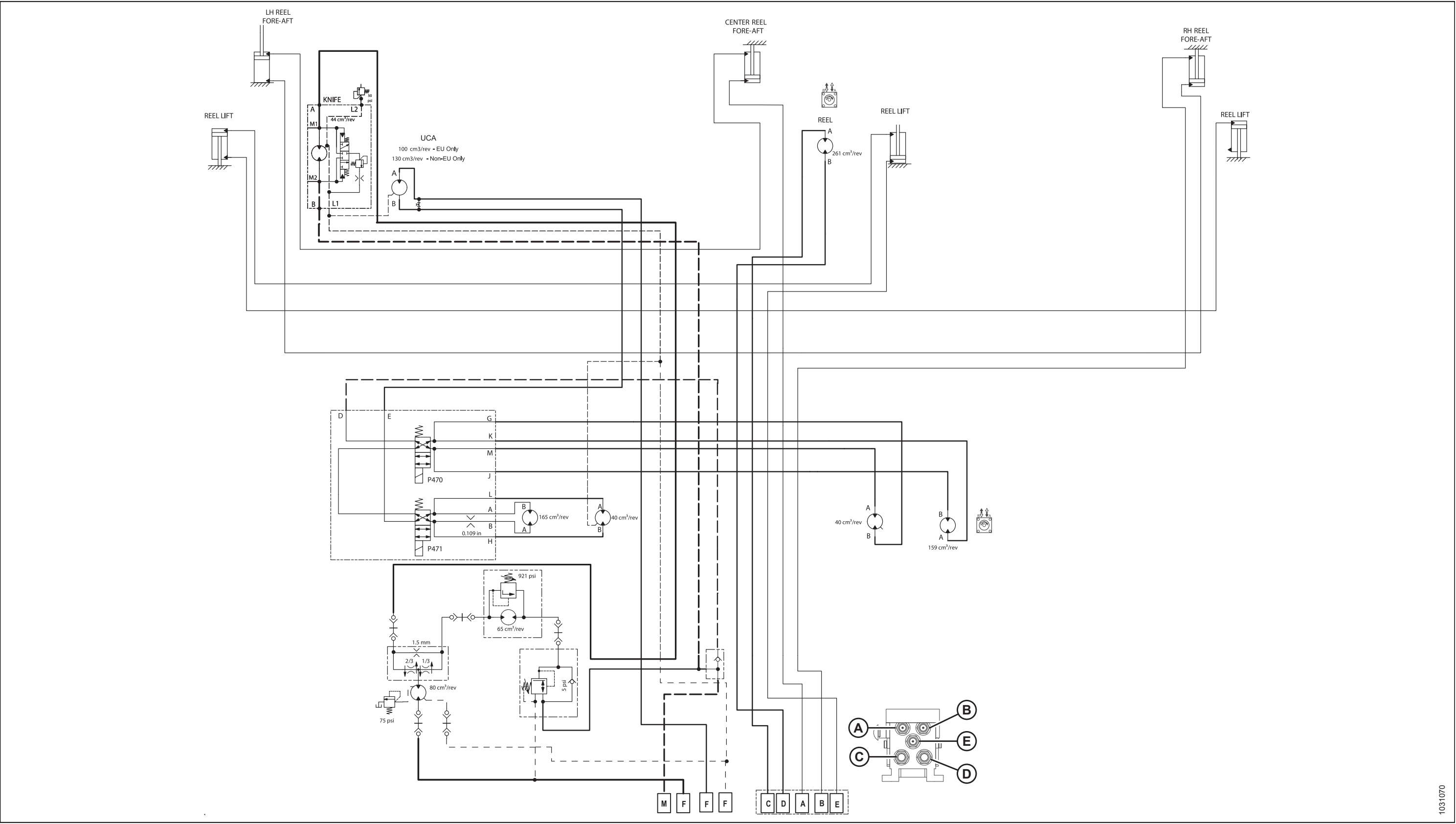


1031069

7.3.3 D1 Series Header – 9.1 m (30 ft.), Timed Double Knife, Double Reel, Hydraulic Deck Shift, HC10 (Motor MD #159661), and Upper Cross Auger

REFERENCE

Figure 7.18: D1 Series Header – 9.1 m (30 ft.), Timed Double Knife, Double Reel, Hydraulic Deck Shift, HC10 (Motor MD #159661), and Upper Cross Auger



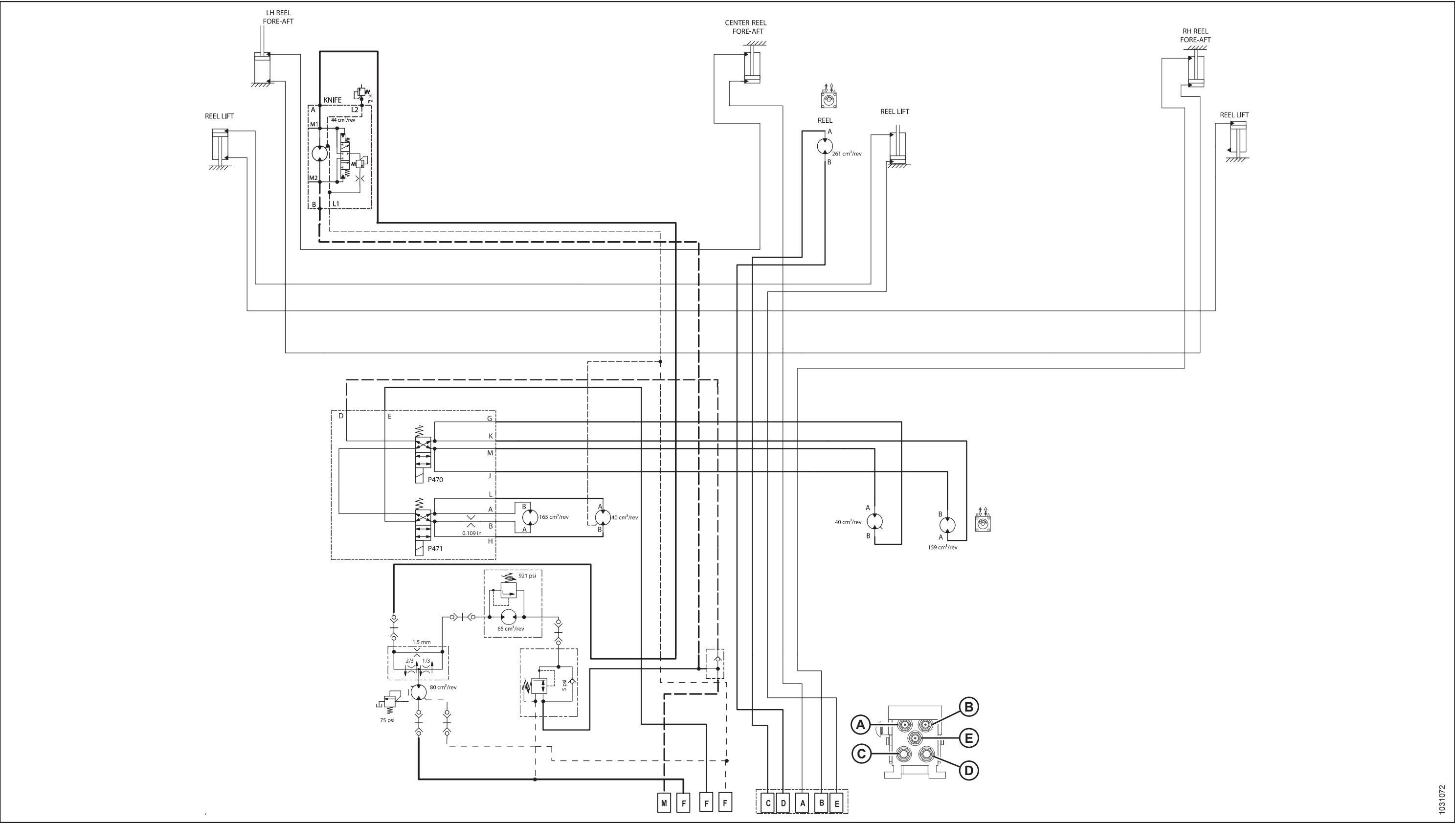
1031070

REFERENCE

7.3.4 D1 Series Header – 9.1 m (30 ft.), Timed Double Knife, Double Reel, Hydraulic Deck Shift, and HC10 (Motor MD #159661)

REFERENCE

Figure 7.19: D1 Series Header – 9.1 m (30 ft.), Timed Double Knife, Double Reel, Hydraulic Deck Shift, and HC10 (Motor MD #159661)



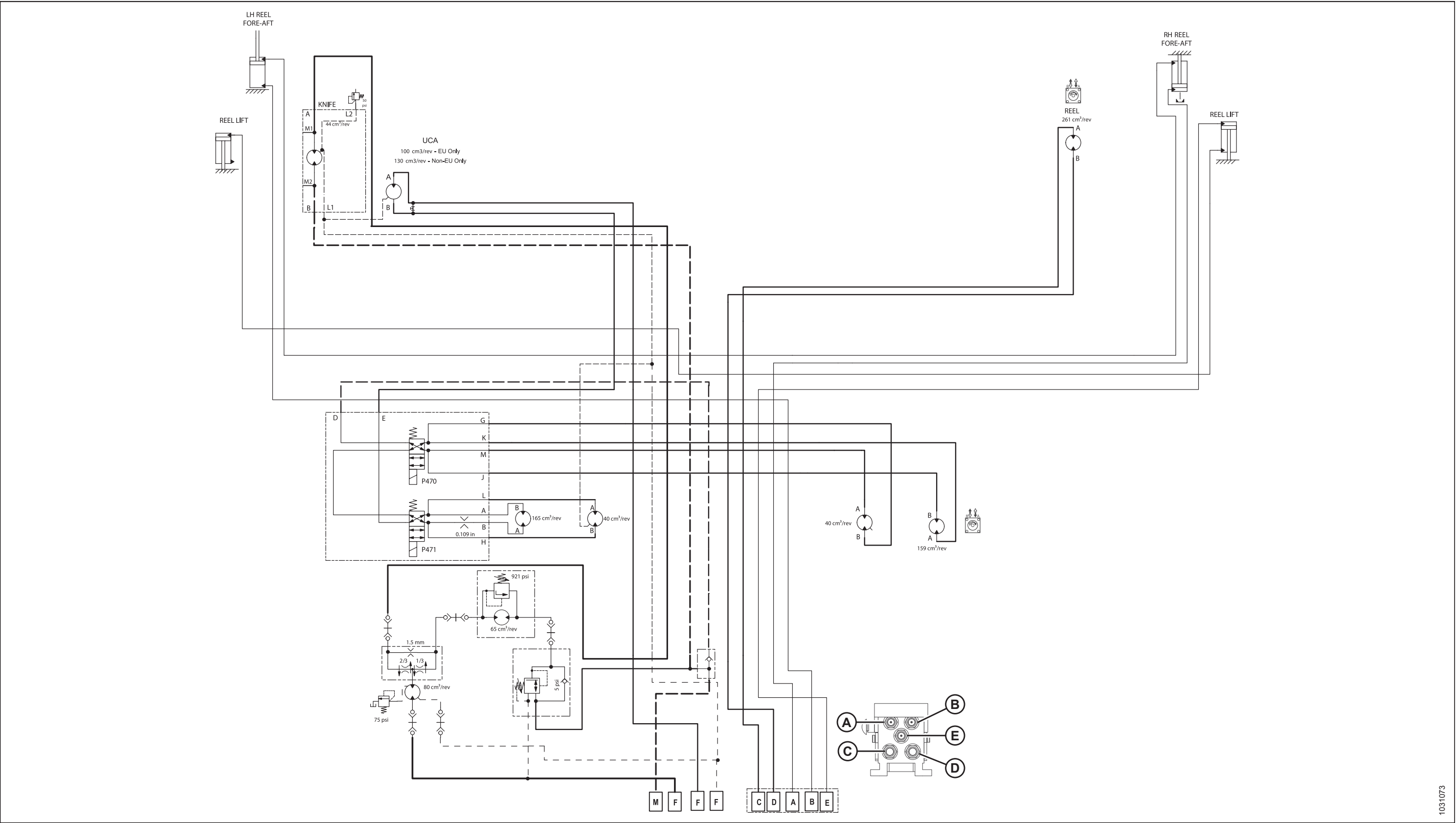
1031072

REFERENCE

7.3.5 D60/D65 Header – 4.6–9.1 m (15–30 ft.). Timed Double Knife, Single Reel, Hydraulic Deck Shift, HC10 (Motor MD #159661), and Upper Cross Auger

REFERENCE

Figure 7.20: D60/D65 Header – 4.6–9.1 m (15–30 ft.). Timed Double Knife, Single Reel, Hydraulic Deck Shift, HC10 (Motor MD #159661), and Upper Cross Auger

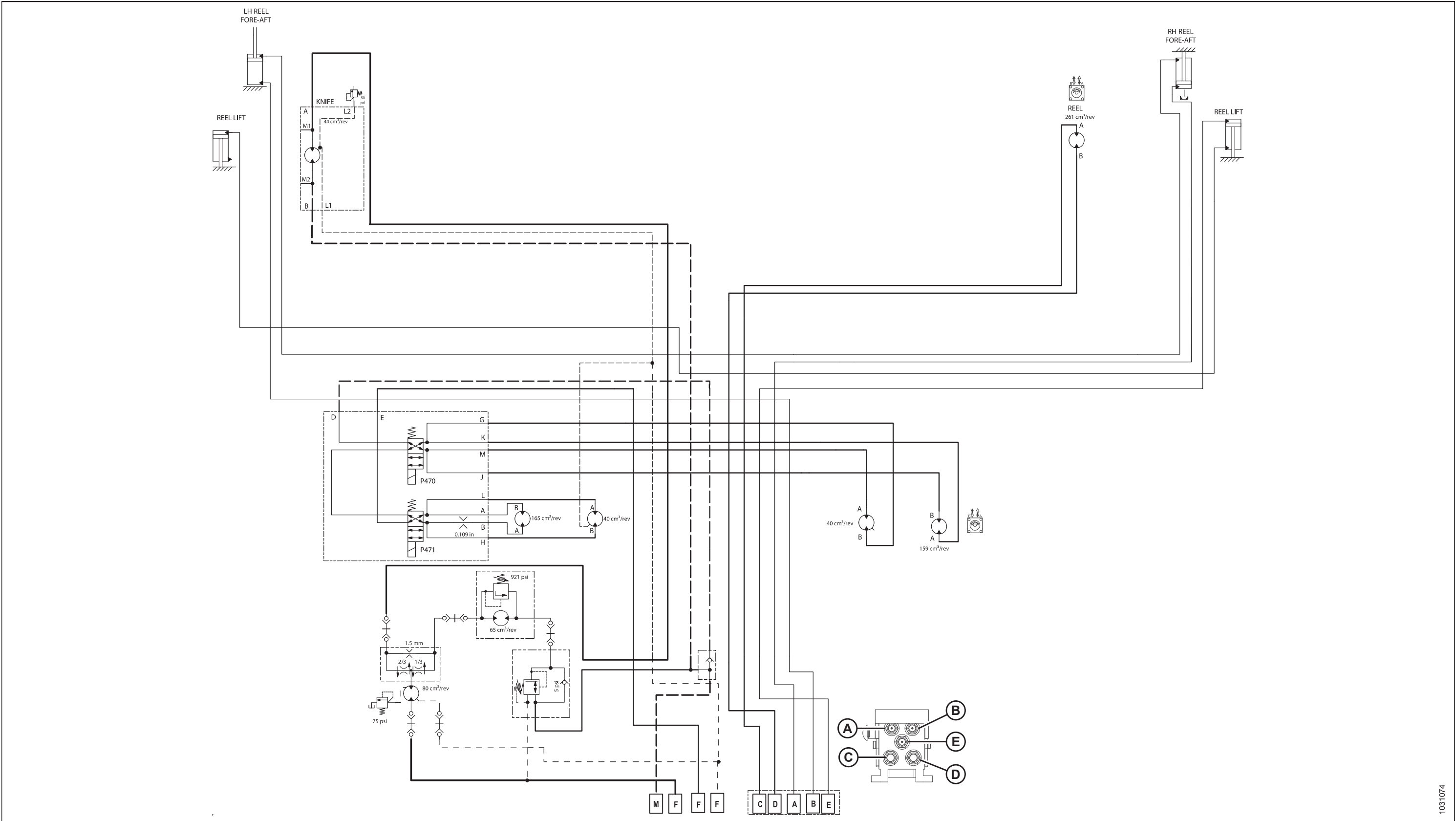


REFERENCE

7.3.6 D60/D65 Header – 4.6–9.1 m (15–30 ft.), Timed Double Knife, Single Reel, Hydraulic Deck Shift, and HC10 (Motor MD #159661)

REFERENCE

Figure 7.21: D60/D65 Header – 4.6–9.1 m (15–30 ft.), Timed Double Knife, Single Reel, Hydraulic Deck Shift, and HC10 (Motor MD #159661)

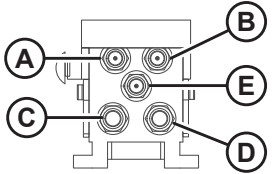


REFERENCE

7.3.7 D60/D65 Header – 9.1 m (30 ft.), Timed Double Knife, Double Reel, Hydraulic Deck Shift, HC10 (Motor MD #159661), and Upper Cross Auger

REFERENCE

Figure 7.22: D60/D65 Header – 9.1 m (30 ft.), Timed Double Knife, Double Reel, Hydraulic Deck Shift, HC10 (Motor MD #159661), and Upper Cross Auger

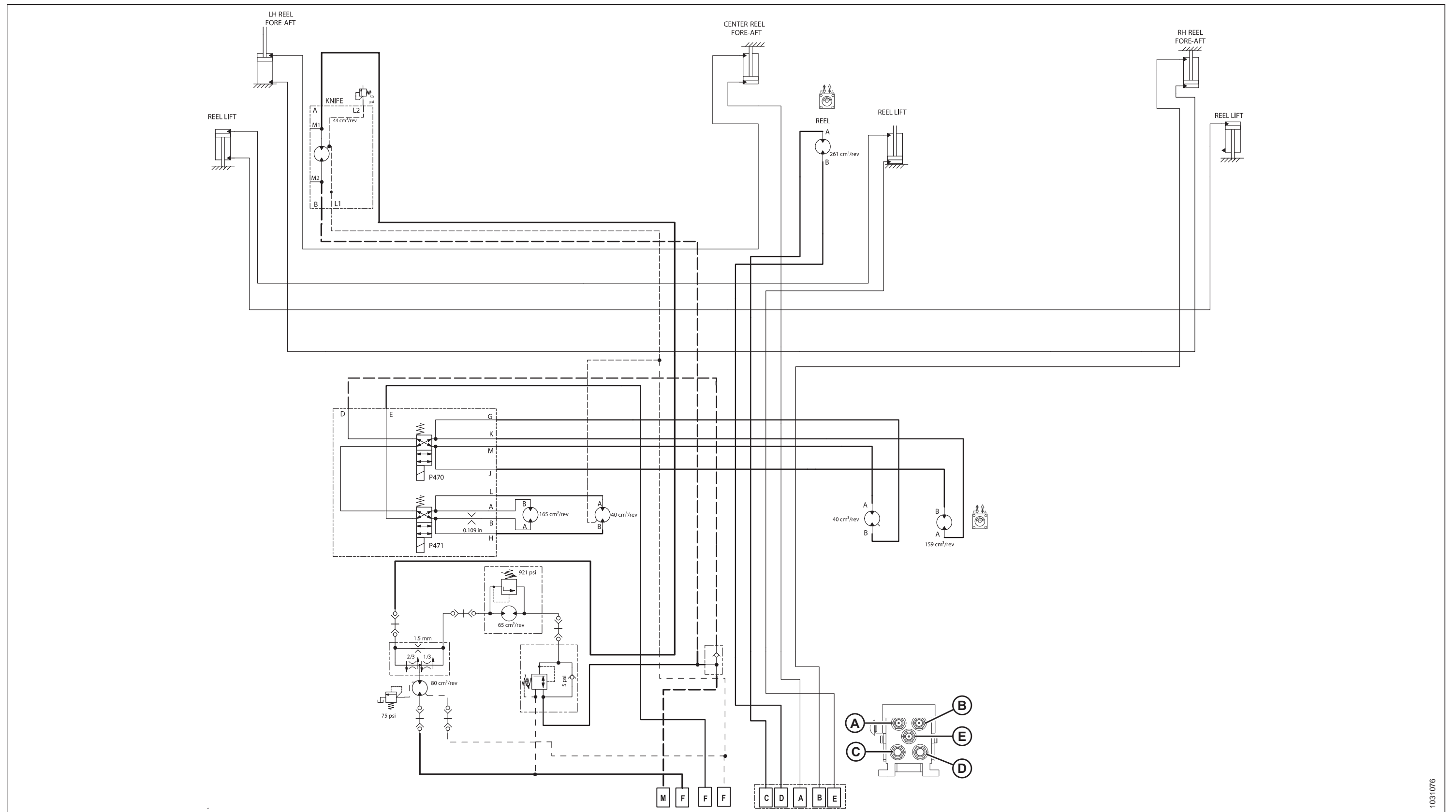


REFERENCE

7.3.8 D60/D65 Header – 9.1 m (30 ft.), Timed Double Knife, Double Reel, Hydraulic Deck Shift, and HC10 (Motor MD #159661)

REFERENCE

Figure 7.23: D60/D65 Header – 9.1 m (30 ft.), Timed Double Knife, Double Reel, Hydraulic Deck Shift, and HC10 (Motor MD #159661)



7.4 Hydraulic Schematics – Headers with HC10 Motor MD #159648

For an explanation of the acronyms used in this section, refer to [2.1 Definitions, page 9](#).

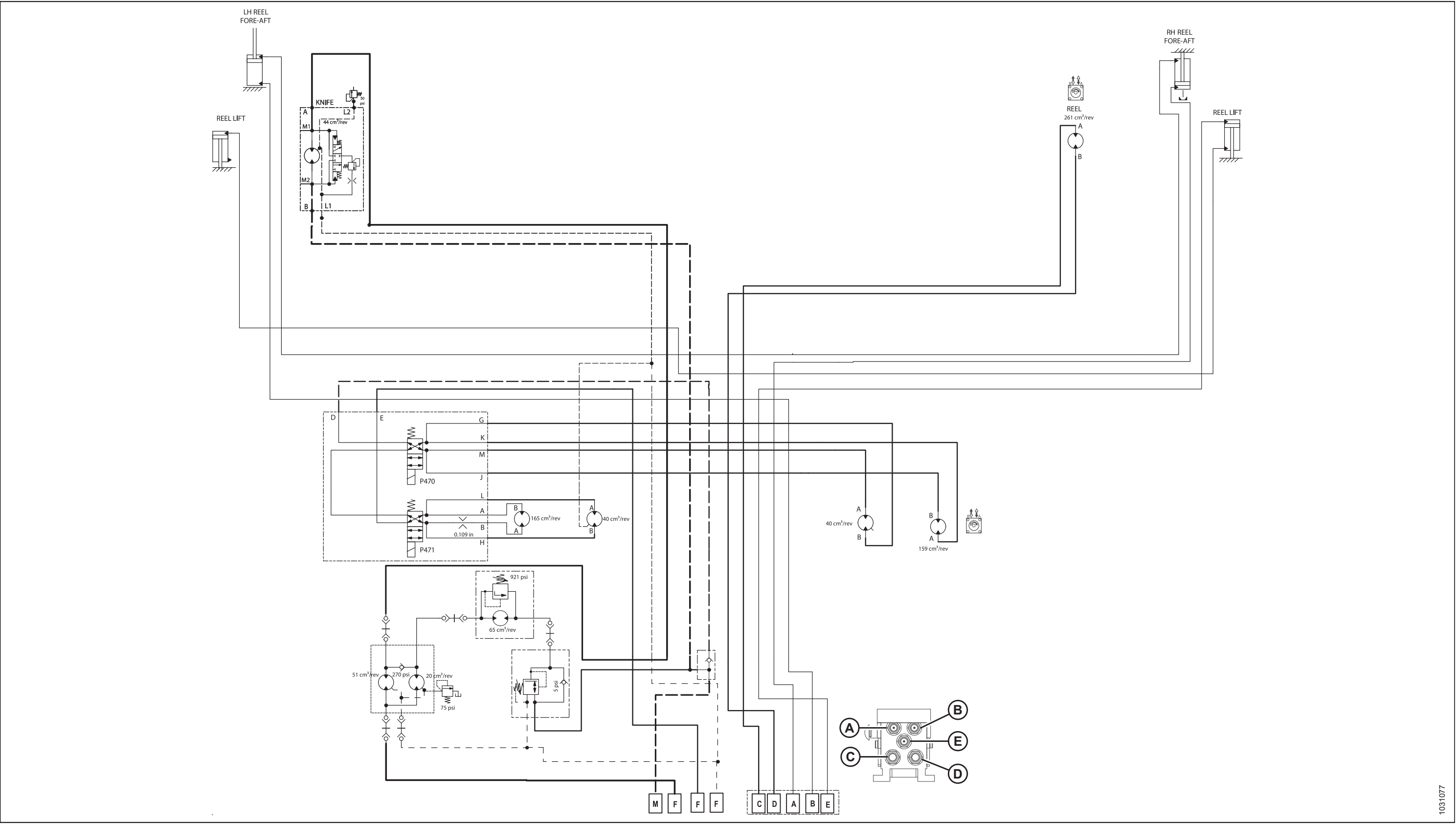
7.4.1 D1 Series Header – 4.6–9.1 m (15–30 ft.), Timed Double Knife, Single Reel, Hydraulic Deck Shift, HC10 (Motor MD #159648), and Upper Cross Auger

REFERENCE

7.4.2 D1 Series Header – 4.6–9.1 m (15–30 ft.), Timed Double Knife, Single Reel, Hydraulic Deck Shift, and HC10 (Motor MD #159648)

REFERENCE

Figure 7.25: D1 Series Header – 4.6–9.1 m (15–30 ft.), Timed Double Knife, Single Reel, Hydraulic Deck Shift, and HC10 (Motor MD #159648)



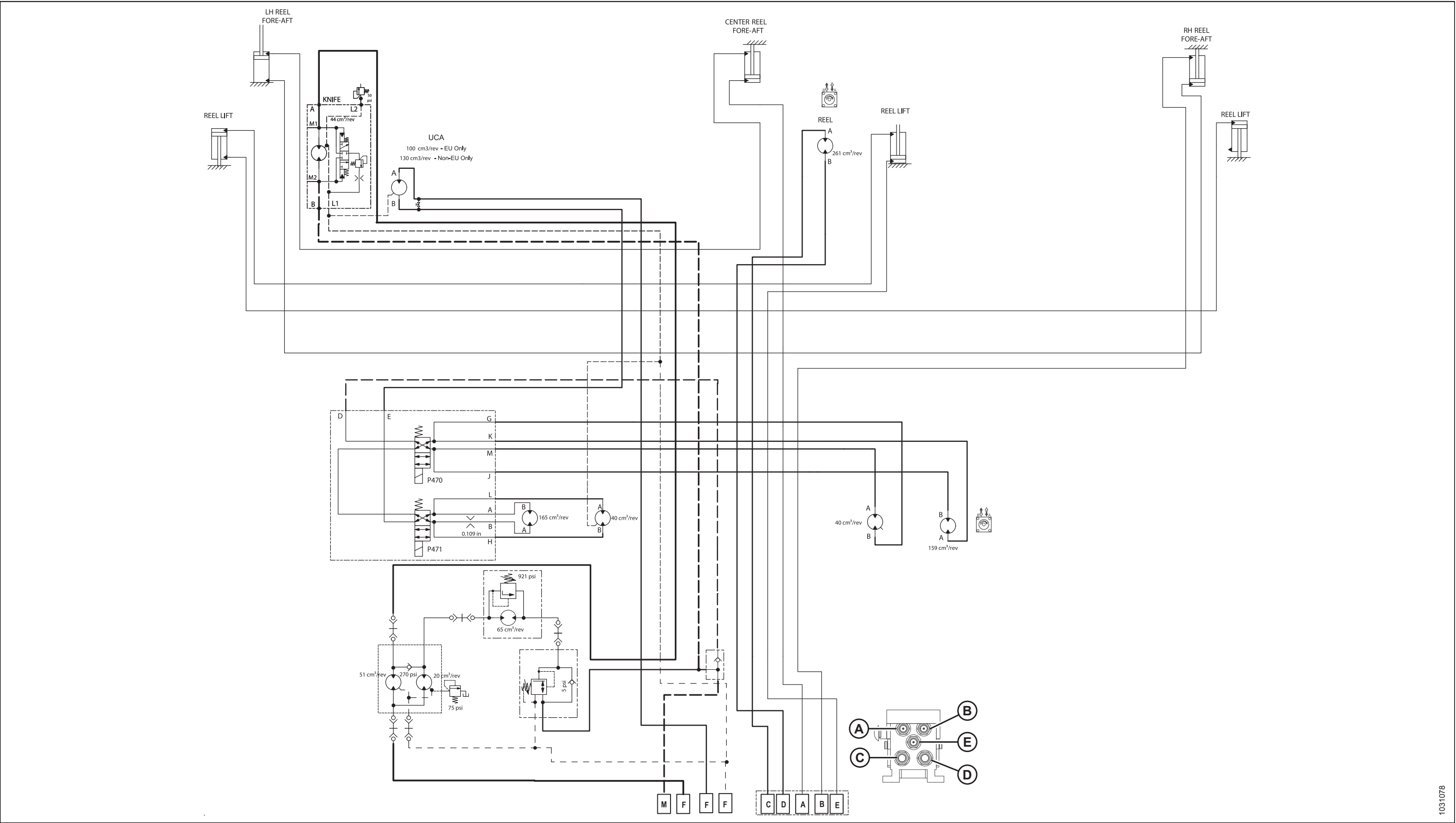
1031077

REFERENCE

7.4.3 D1 Series Header – 9.1 m (30 ft.), Timed Double Knife, Double Reel, Hydraulic Deck Shift, HC10 (Motor MD #159648), and Upper Cross Auger

REFERENCE

Figure 7.26: D1 Series Header – 9.1 m (30 ft.), Timed Double Knife, Double Reel, Hydraulic Deck Shift, HC10 (Motor MD #159648), and Upper Cross Auger



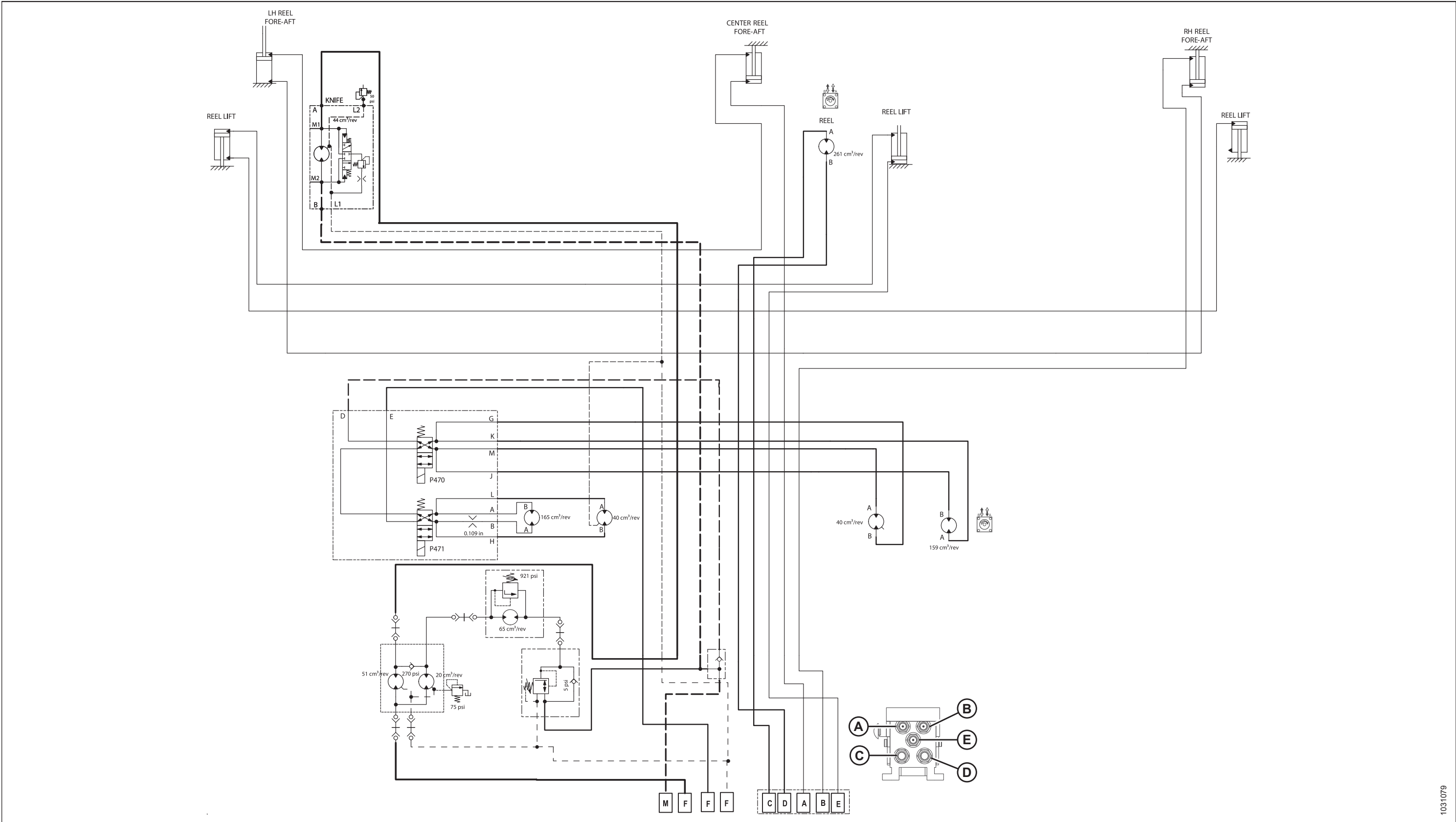
1031078

REFERENCE

7.4.4 D1 Series Header – 9.1 m (30 ft.), Timed Double Knife, Double Reel, Hydraulic Deck Shift, and HC10 (Motor MD #159648)

REFERENCE

Figure 7.27: D1 Series Header – 9.1 m (30 ft.), Timed Double Knife, Double Reel, Hydraulic Deck Shift, and HC10 (Motor MD #159648)



REFERENCE

7.4.5 D60/D65 Header – 4.6–9.1 m (15–30 ft.), Timed Double Knife, Single Reel, Hydraulic Deck Shift, HC10 (Motor MD #159648), and Upper Cross Auger

REFERENCE

Figure 7.28: D60/D65 Header – 4.6–9.1 m (15–30 ft.), Timed Double Knife, Single Reel, Hydraulic Deck Shift, HC10 (Motor MD #159648), and Upper Cross Auger

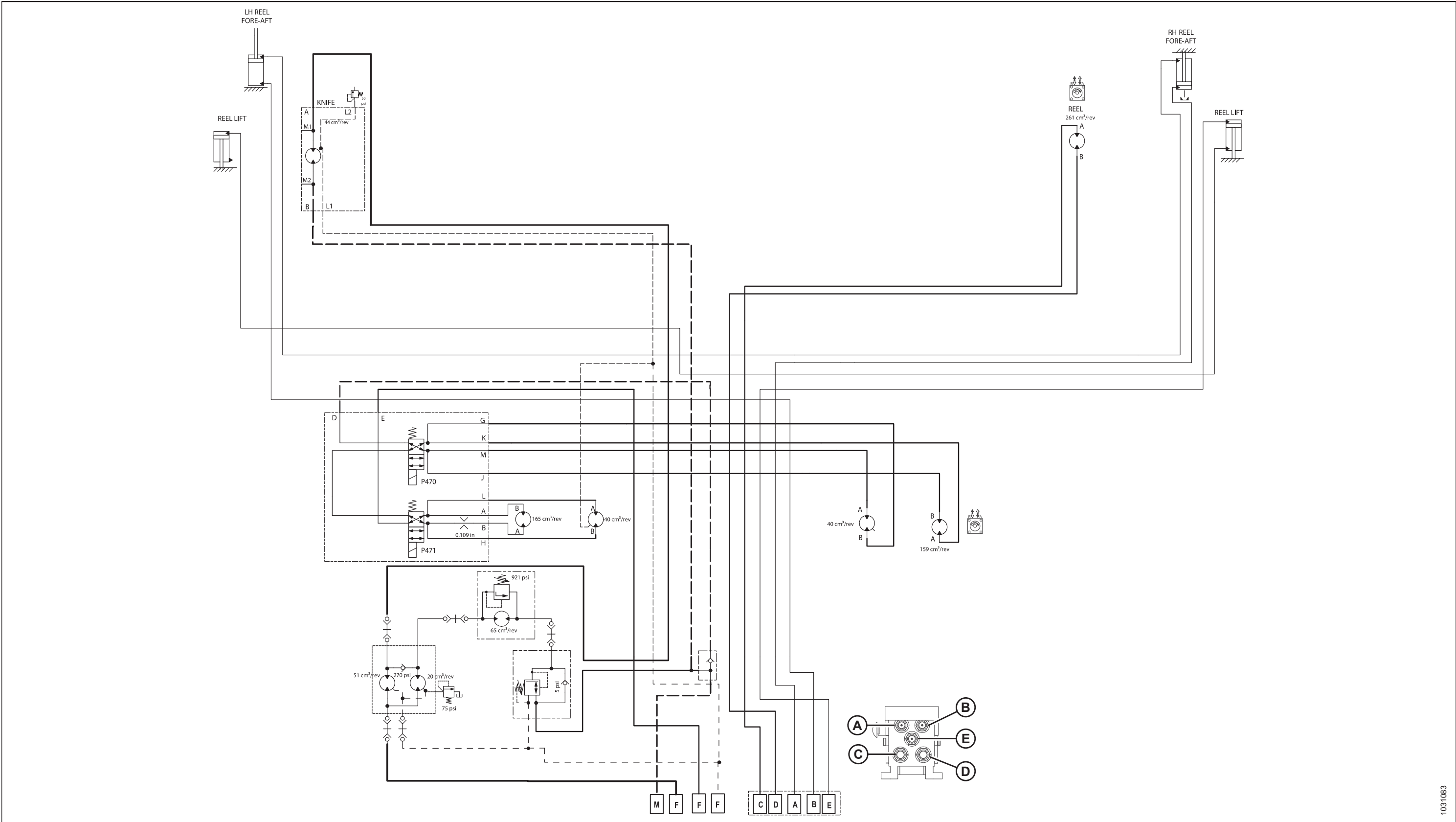


REFERENCE

7.4.6 D60/D65 Header – 4.6–9.1 m (15–30 ft.), Timed Double Knife, Single Reel, Hydraulic Deck Shift, and HC10 (Motor MD #159648)

REFERENCE

Figure 7.29: D60/D65 Header – 4.6–9.1 m (15–30 ft.), Timed Double Knife, Single Reel, Hydraulic Deck Shift, and HC10 (Motor MD #159648)

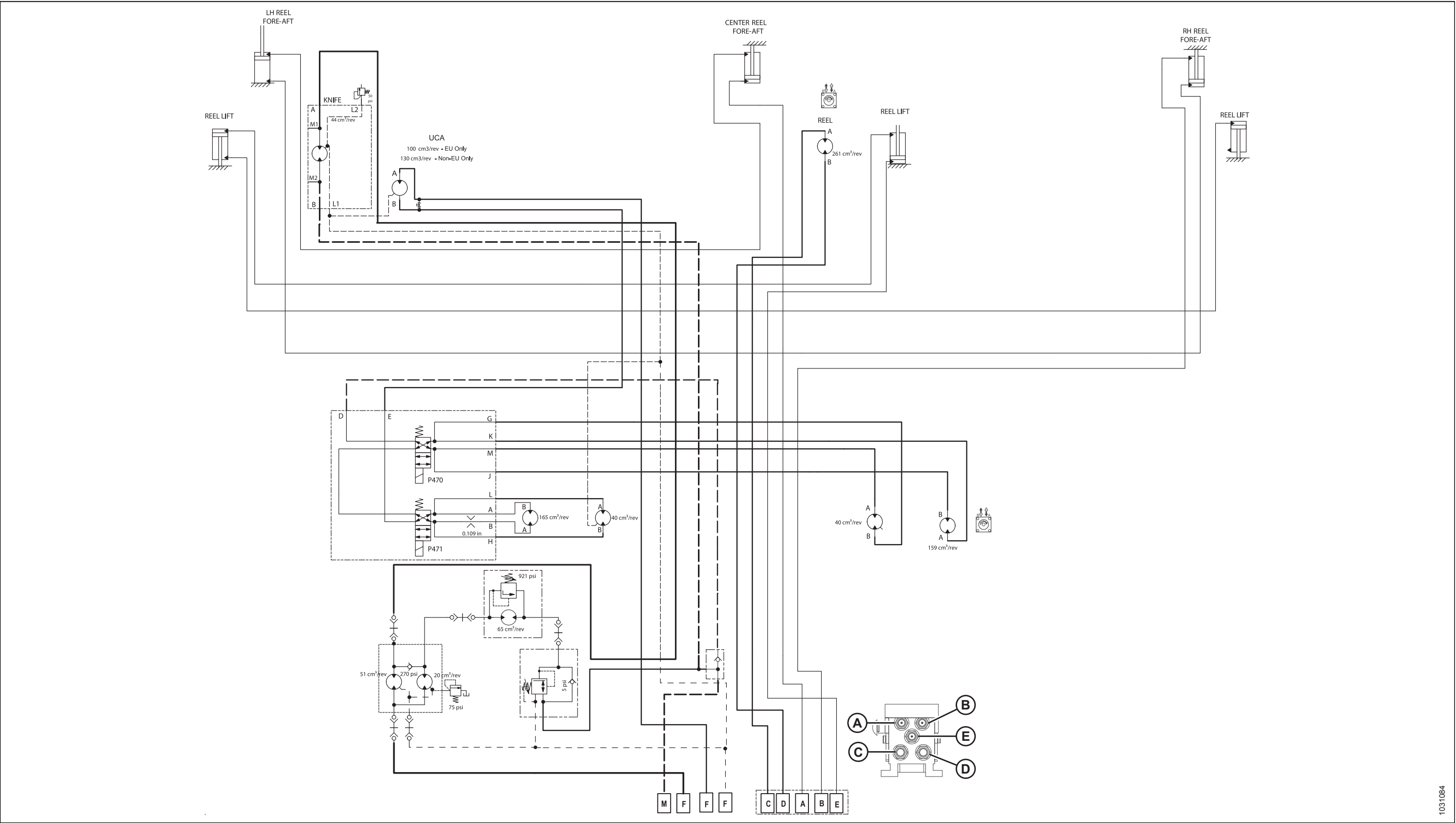


REFERENCE

7.4.7 D60/D65 Header – 9.1 m (30 ft.), Timed Double Knife, Double Reel, Hydraulic Deck Shift, HC10 (Motor MD #159648), and Upper Cross Auger

REFERENCE

Figure 7.30: D60/D65 Header – 9.1 m (30 ft.), Timed Double Knife, Double Reel, Hydraulic Deck Shift, HC10 (Motor MD #159648), and Upper Cross Auger



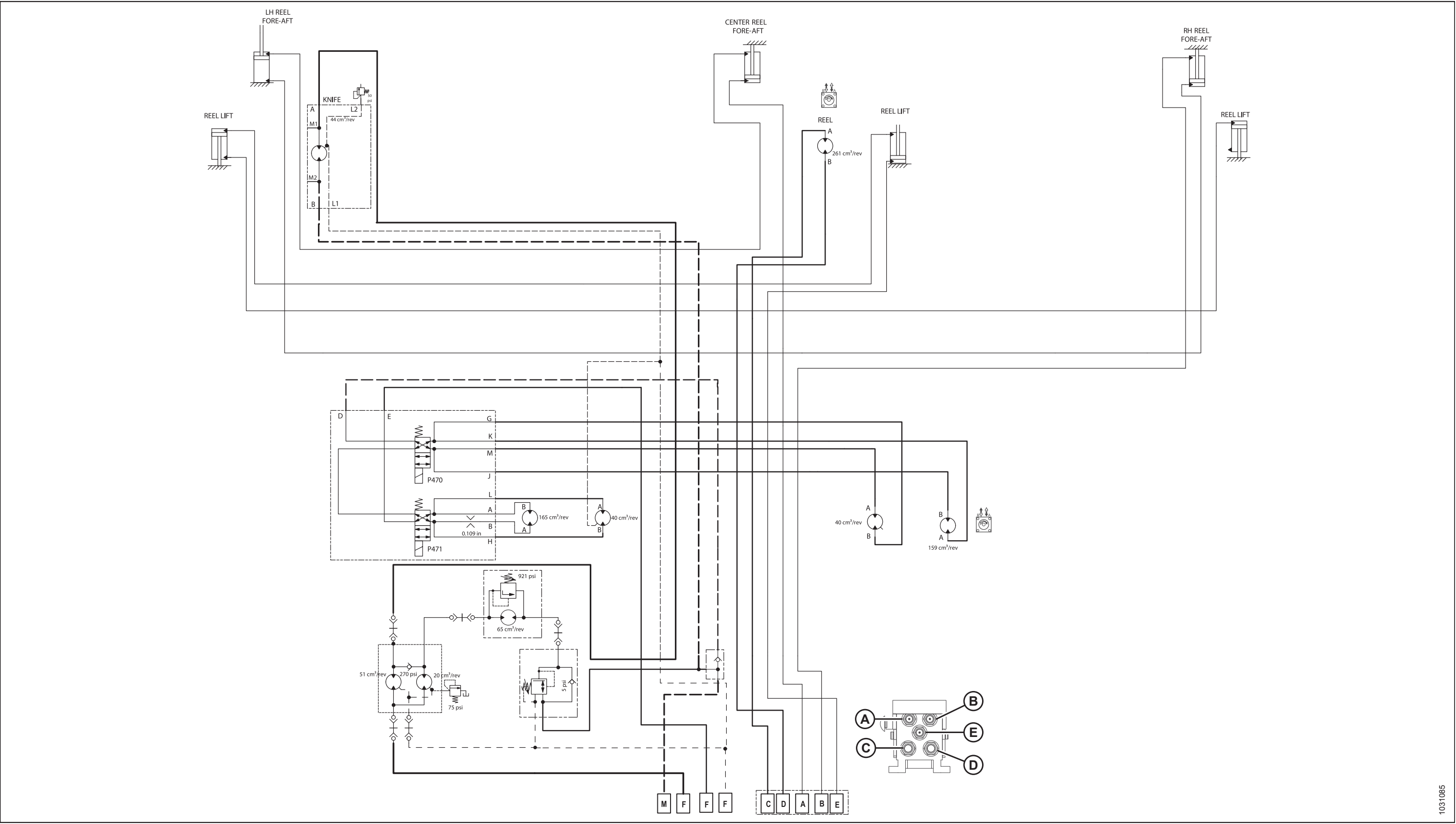
1031084

REFERENCE

7.4.8 D60/D65 Header – 9.1 m (30 ft.), Timed Double Knife, Double Reel, Hydraulic Deck Shift, and HC10 (Motor MD #159648)

REFERENCE

Figure 7.31: D60/D65 Header – 9.1 m (30 ft.), Timed Double Knife, Double Reel, Hydraulic Deck Shift, and HC10 (Motor MD #159648)



Index

1624	113	21881.....	103, 107, 129
6634	97	21941.....	97
7674	131	21975.....	105
11142.....	123, 125	23165.....	99
13125.....	95, 127	26846.....	123, 125
13626.....	95	30031.....	95, 97
14338.....	99	30228.....	101, 105, 109, 127, 131
14887.....	111, 113	30280.....	103
16010.....	99	30282.....	115
16652.....	127	30314.....	129
17194.....	111, 113	30441.....	97, 123
18523.....	95, 99, 133	30576.....	95, 97
18524.....	99	30661.....	129
18592.....	97, 131	30669.....	131
18593.....	95	30819.....	129
18597.....	103	30821.....	103
18599.....	99, 109	30970.....	107
18600.....	97, 127	30971.....	115, 119
18636.....	111	30999.....	115, 121
18637.....	123, 125	38854.....	123, 125
18638.....	95, 97, 111, 113	40241.....	103, 107
18652.....	103	40703.....	115, 119
18690.....	131	40704.....	115, 119
18697.....	109, 123, 125	42045.....	127
18714.....	113	42592.....	127
18723.....	99	44209.....	129
19685.....	99	47124.....	95
19965.....	109, 127, 131	49306.....	129
19966.....	127	49671.....	131
21010.....	129	50178.....	115, 121
21030.....	107, 115, 119	50182.....	95, 97
21264.....	131	50185.....	97, 123, 125
21289.....	101, 111, 113	50186.....	101, 103, 109, 123, 125, 131, 133
21301.....	97	50187.....	95
21406.....	95, 127	50188.....	99
21469.....	127	50225.....	95, 97, 99, 127, 131, 133
21471.....	101, 103, 109, 131, 133	100862.....	129
21474.....	105, 109	101173.....	95, 97
21485.....	131	101898.....	123, 125
21489.....	103, 109, 123, 125	102264.....	99
21491.....	95, 97	102658.....	97
21540.....	95, 117	103562.....	97, 101
21558.....	131	103576.....	115, 121
21567.....	123, 125	103738.....	129
21585.....	97, 101	105141.....	97, 123, 125
21720.....	97	105173.....	97
21801.....	129	108233.....	115, 121
21805.....	119	108268.....	115, 119
21859.....	129	109791.....	115, 119
21863.....	101, 127	110737.....	99
21880.....	111, 113, 123, 125	111978.....	107, 115, 119, 129

INDEX

112868	103	135001	127
113611	133	135213	103, 107, 115, 119, 129
115677	99	135232	99
118011	129	135237	103, 107, 115, 119
118185	129	135245	115, 119
120574	115, 119	135255	103
129932	123, 125	135314	103, 107, 115, 119
130246	129	135372	115, 119
130283	131	135373	115, 119
130336	95	135374	115, 121
130443	95	135386	129
130445	95	135401	123, 125
130449	95, 97	135403	123, 125
130450	97	135405	95
130470	97	135444	103, 107, 115, 119
130472	97	135479	107, 115, 119
130476	95	135483	107
130496	99	135507	105, 109
130532	95	135540	117, 119
130548	127	135565	103, 107, 115, 119
130645	97	135906	131, 133
130677	123, 125	135929	103
130680	123, 125	136812	115
130685	123, 125	136952	103
130687	123, 125	136973	115
130688	125	137503	109
130689	123, 125	138127	103
130691	123, 125	144415	99
130694	123, 125	144505	99
130704	95	149317	127
130706	111, 113	150572	99
130736	123, 125	159001	99
130747	97	159002	99
130757	103, 107	159003	99
130765	103, 107	159005	99
130793	97	159007	99
130802	133	159020	99
130803	133	159028	103, 107
130817	133	159029	103, 107
130831	133	159030	115, 119
130858	99	159032	115, 119
130880	111, 113	159038	115, 119
130900	127	159117	95
130905	127	159118	95
130906	127	159130	123, 125
130911	127	159158	115, 119
130936	123, 125	159159	115, 119
130990	95	159168	111, 113
130994	95	159183	129
130998	129	159187	97
133124	129	159197	129
133126	129	159200	99
133372	129	159204	127
133946	129	159206	127
133965	107	159207	127

INDEX

159215	111, 113
159218	123, 125
159220	127
159231	99
159256	129
159260	129
159264	129
159294	127
159325	127
159329	99
159333	99
159352	95
159358	115, 119
159383	129
159385	129
159393	131
159399	129
159404	95
159405	95
159417	115, 119
159419	107
159421	115, 119
159422	129
159430	113
159432	129
159452	103, 107
159474	123, 125
159478	123, 125
159535	107, 109
159541	103, 107
159550	123, 125
159582	99
159583	99
159598	127
159606	129
159617	111
159631	107
159632	107
159633	107
159634	103, 107
159635	103, 107
159645	107
159646	103, 107
159648	107
159649	107
159658	111
159661	103
159665	103
159681	109
159682	109
159683	109
159684	109
159685	109
159686	109
159687	109

159688	109
159689	109
159690	109
159692	107
159700	133
159704	129
159706	97
159707	97
159716	103
159719	103
159721	103
159733	115
159734	133
170332	97
187723	99
194043	103
220672	129
252643	103
320077	105
320078	111
320092	103
320093	103

A

API	
definition	9
assemblies	
frame	
parts	94
roll coupling	
parts	122, 124
upper roll	
parts	96
ASTM	
definition	9

B

belt drives	
parts	110, 112
bolts	
definition	9
break-in periods	65

C

center-links	
definition	9
CGVW	
definition	9
component identification diagrams	12
conditioners	
installing using lifting method	26

INDEX

installing using windrower method.....	28
operating.....	68
running up.....	49
unplugging.....	73
conversion chart	146
covers	
parts.....	98

D

daily startup checks	67
decks	
HC10 feed deck	
installing brackets	19, 22
definition of terms.....	9
deflector fins	
adjusting	72
drapers	
HC10 feed draper	
adjusting tension	80
drive belts	
adjusting pulley alignment.....	82
adjusting tension.....	81
adjusting tracking.....	84
installing.....	86
removing.....	85
tension	
predelivery check.....	47
driveshields	
installing.....	77
parts.....	110, 112
removing.....	77

F

feed decks	
detaching	62
installing.....	24
parts.....	128
feed drapers	
speed.....	68
feed pans	
parts.....	128
FFFT	
definition.....	9
finger tight	
definition.....	9
fluffer shields, <i>See</i> rear deflectors	
forming shields	
adjusting deflector fins.....	72
adjusting height	71
adjusting rear deflector.....	72
adjusting side deflectors.....	71
assembling.....	38

description.....	70
installing.....	41
parts.....	126

G

gears	
parts.....	122, 124
glossary	9
greasing points.....	45, 78
greasing procedures.....	44, 78
GVW	
definition.....	9

H

hay conditioners	
attaching to header	53
components.....	12
detaching from header using lifting method.....	58
detaching from header using windrower method.....	54
installing using lifting method.....	26
installing using windrower method.....	28
unloading	15
headers	
attaching hay conditioner	53
detaching from hay conditioner using lifting	
method	58
detaching from hay conditioner using windrower	
method	54
preparing for installation of hay conditioner	17
hex keys	
definition.....	9
hoses and lines	79
hydraulic schematics	
header	147, 179
hydraulics	79
attaching to 4.6 m (15 ft.) header	33
attaching to any header except 4.6 m (15 ft.).....	36
completion package parts.....	114, 118
fittings	
flare-type	140
O-ring boss (ORB) adjustable	141
O-ring boss (ORB) non-adjustable	143
O-ring face seal (ORFS)	144
tapered pipe thread fittings.....	145
hoses and lines	79
hydraulic safety	6
motor and mount parts.....	102, 106
schematics.....	79

L

lower rolls	
-------------	--

INDEX

parts	94
lubrication	
greasing procedure.....	44, 78
lubricants	78
lubrication points	45, 78

M

maintenance and servicing	
preparing for servicing	75
preseason	66
safety	5
manuals	50
metric bolts	
torque specifications	137
mounting brackets	
parts	132

N

NPT	
definition	9

O

operator responsibilities	51
ORB	
definition	9
owner responsibilities	51

P

predelivery checks	47
checking roll drive belt tension	47
checking roll gap	48
checking roll timing	48
running up the conditioner	49
storing manuals	50
preseason checks	66

R

rear deflectors	
adjusting	72
reference	
torque specifications	135
rock grates	
detaching	62
installing	18
RoHS	
definition	9
rolls	
gap	

adjusting	68
predelivery check.....	48
speed	68
tension	
adjusting	70
timing	
adjusting	69
checking.....	69
predelivery check.....	48
rpm	
definition	9

S

SAE	
bolt torques	135
definition	9
safety	1
daily startup check	67
general safety.....	3
hydraulic safety	6
maintenance safety	5
operational	52
safety alert symbols.....	1
safety sign decals	7
installing decals	7
signal words.....	2
schematics	79
screws	
definition	9
SDD	
definition	9
serial numbers	xvi
side deflectors	
adjusting	71
soft joints	
definition	9
specifications	
HC10 specifications	11
torque specifications	135
startup	
daily check.....	67
storage	74
supports	
parts	98

T

tensioners	
parts	102, 106
TFFT	
definition	9
torque	
definition	9

INDEX

torque angles	
definition	9
torque specifications	135
flare-type hydraulic fittings	140
metric bolt specifications	137
bolting into cast aluminum	139
O-ring boss (ORB) hydraulic fittings – adjustable	141
O-ring boss (ORB) hydraulic fittings – non-	
adjustable	143
O-ring face seal (ORFS) fittings	144
SAE bolt torque specifications	135
tapered pipe thread fittings	145
torque-tension	
definition	9
troubleshooting	89

W

washers	
definition	9
windrowers	
attaching	43
shutting down	52

Predelivery Checklist

Perform these checks and adjustments prior to delivery to your Customer. Refer to Unloading and Assembly Instructions for adjustment details. The completed checklist should be retained either by the Operator or the Dealer.



CAUTION

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

Conditioner Serial Number: _____

Table .16 HC10 Hay Conditioner Predelivery Checklist

✓	Item	Reference
	Check for shipping damage or missing parts. Be sure all shipping material is removed.	—
	Check roll drive belt tension.	3.12.1 Checking Roll Drive Belt Tension, page 47
	Check conditioner roll gap, timing, and alignment.	3.12.2 Checking Roll Gap, page 48 and 3.12.3 Checking Roll Timing, page 48
	Check rear and side forming shields evenly set to desired position.	3.9 Installing the Forming Shield, page 41
	Grease all bearings.	3.11 Lubricating the Conditioner, page 44
	Check roll intermesh hardware is securely tightened.	4.9.2 Adjusting Roll Gap, page 68
	Check hydraulic hose routing.	4.3 Attaching Hay Conditioner to Header, page 53
	Run-up procedure	3.12.4 Running up the Conditioner, page 49
	Check reverse operating mode.	Refer to windrower manual.
	Check hydraulic hose routing for clearance when raising or lowering header.	—
	Post run-up checks. Stop engine.	—
	Check for hydraulic leaks.	—
	Check belt drive for alignment and heated bearings.	5.7 Drive Belt, page 81
	Check manuals in windrower cab.	3.12.5 Storing Manuals, page 50

Date checked: _____

Checked by: _____

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Printed in Canada