FEEDSTORM™

THE BETTER ADJUSTABLE UPPER CROSS AUGER

MIDWEST DURUS AND CROPHAWK

PRIMARY SALES AUSTRALIA

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Published August 2025,

by Primary Sales Australia Pty. Ltd.

Last Revised: 31/07/2025

The instructions contained in this operator's manual are strictly for the MIDWEST DURUS AND CROPHAWK FeedStorm.

SERIAL NUMBER: _____

DATE OF MANUFACTURE: _____

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SAFETY WARNING

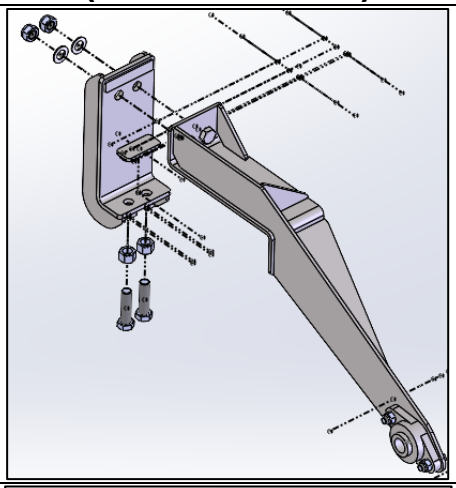
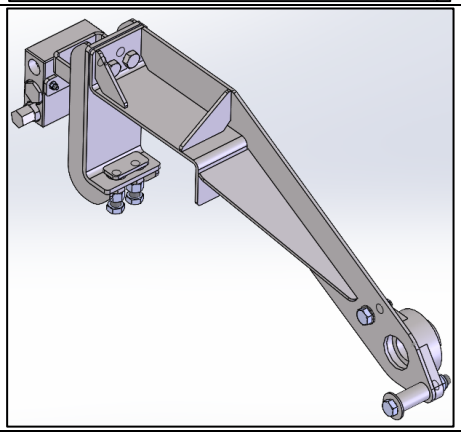
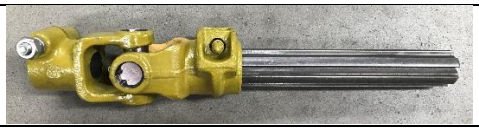
The installation and operation instructions contained in this manual must be complied with at ALL times.

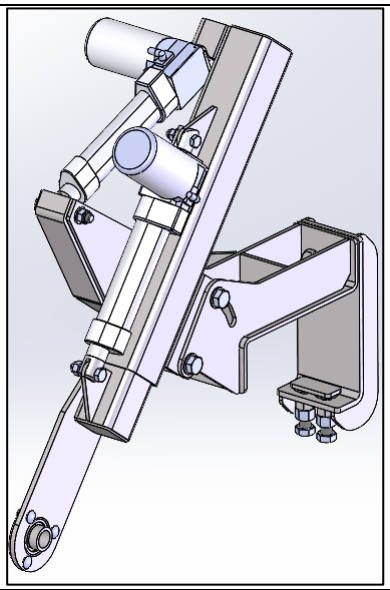
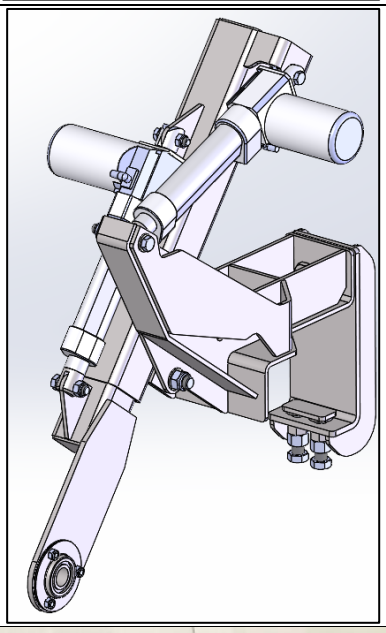
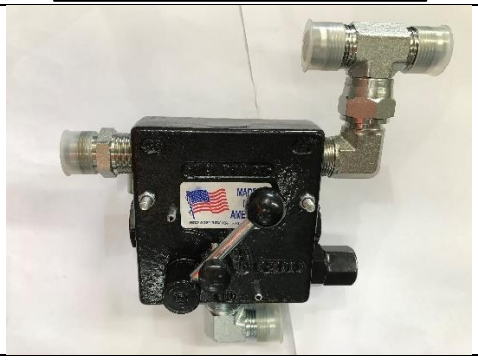
Failure to comply with these instructions may result in compromised machinery operation, possibly causing ineffective operation and machinery damage.

Failure to comply with these instructions may result in compromised personal safety and the safety of others, possibly causing injury or death.

Primary Sales Australia Pty. Ltd. **is not liable for any damages caused due to incorrect installation or operation.**

FEEDSTORM KIT CONTENTS

REF. NO.	DESCRIPTION	QTY.	REFERENCE IMAGE (NOT TO SCALE)
1A	**Bracket Assembly Left Hand Side**	1	
2A	**Bracket Assembly Right Hand Side**	1	
3	**Auger Barrel Left Hand Side**	1	
4	**Hydraulic Motor Subassembly**	1	
5	**Auger Barrel Centre & Centre Paddle Kit**	1	
6	**Auger Barrel Right Hand Side**	1	
7	**Universal Joint Assembly**	2	

8	**Adjustable Actuator Arm Assembly Left Hand Side**		1	
9	**Adjustable Actuator Arm Assembly Right Hand Side**		1	
10A	**Hydraulic Assembly**	Flow Controller Subassembly	1	

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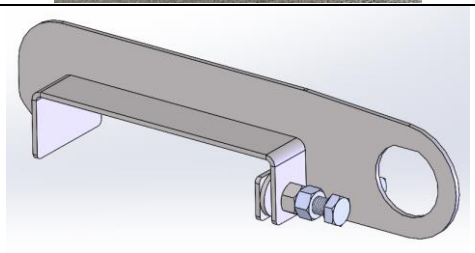
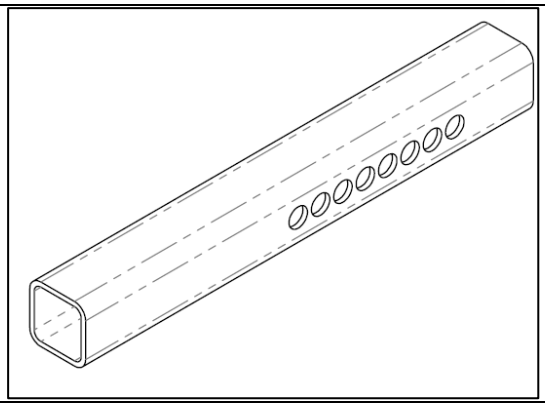
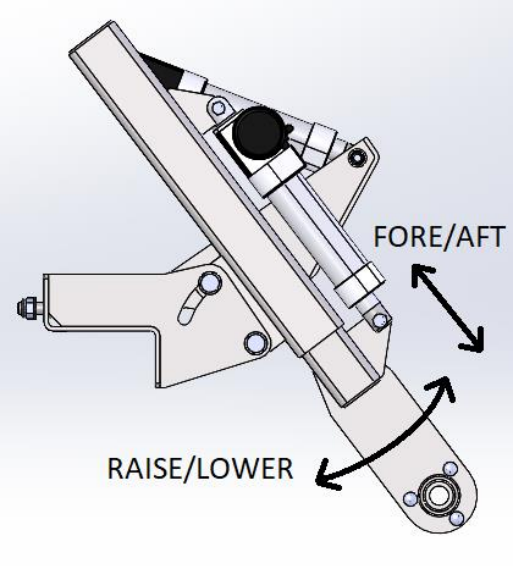
10B		Hydraulic Hoses (4 hoses)	1	
10C		Loose Fittings Pack	1	Image not available
11A	**Electrical Assembly**	Actuators	4	
11B		Electrical Harness, Long and Short	1	
11C		Voltage Converter & Controller Subassembly	1	

11D		Remote Controller Subassembly	1	
11E		Actuator Reset Tool	1	
11F		Actuator Safety Stops	2	
11G		Electrical Harness Plug Mount	1	
12		Reel Travel Limiters	Center	

Actuation Terminology

The terminology for the actuators used in this manual is as shown below. This is meant to match the normal terminology for the reel but note that it doesn't necessarily match the direction of movement of the auger as this is dependent on the angle of the bracket.



INSTALLATION

MECHANICAL FITMENT

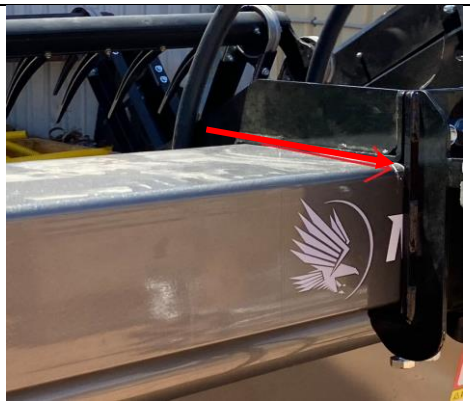
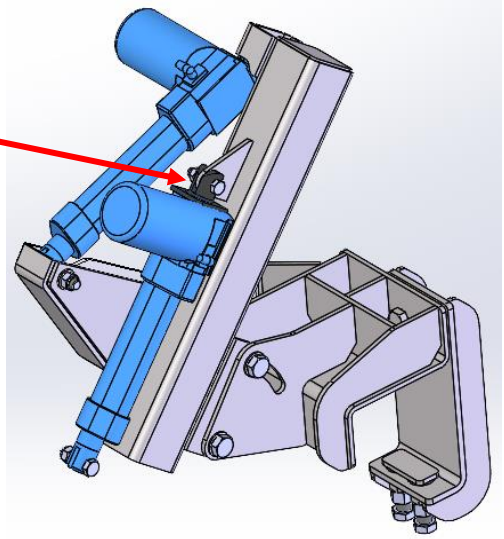
These instructions refer to the diagram attached titled *Mechanical Fitment Diagram*, use for reference upon installation.

Refer to the attached drawing UCA-MW-45 as support to the detailed instructions for further information.

⚠ Note:

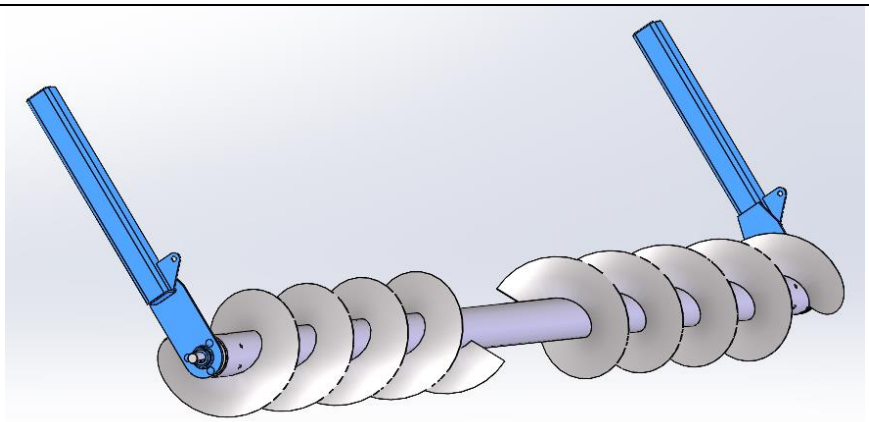
- **Installation process is minimum a two-person task.**
- **Ensure the header front is detached from the header and resting on a flat stable surface for accessibility and safety during installation.**
- **Place boards over draper belt in locations requiring access for installation, to protect the belts from damage and provide a stable surface.**

MOUNT BRACKETRY

STEP	INSTRUCTION	REFERENCE IMAGE
1	Mark locations on the header front for the 4 mount brackets as per the drawing UCA-MW-45. Check that there are no obstructions to mounting. Loosely clamp the 2 center brackets in position.	
2	Attach the actuators to the bracket! **Black painted clevis here** IMPORTANT The actuators with black painted clevis must be mounted in the Fore/Aft position as shown to avoid creeping down during operation. These have a reversed brake.	

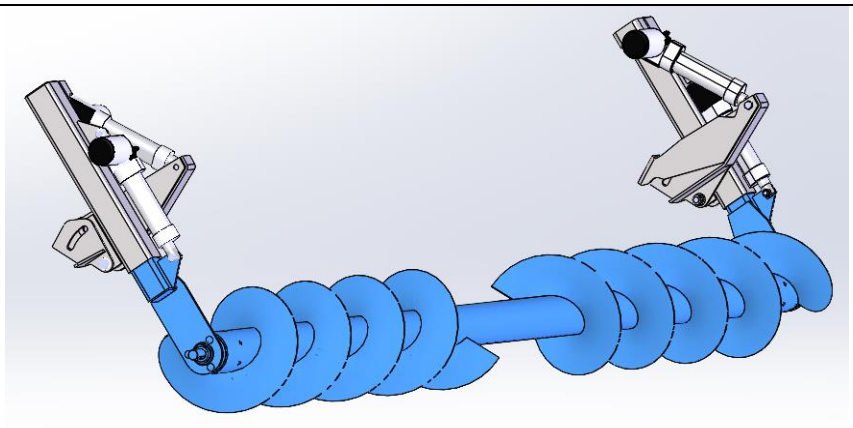
AUGER BARREL ASSEMBLY

3



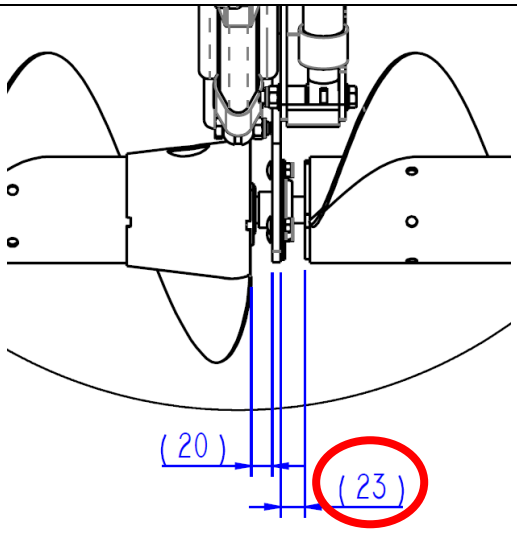
Attach the inner telescoping arms of the center bracket assemblies Parts (8 & 9) onto the Center barrel (Part 5).
Ensure the auger flighting is the correct orientation, to feed inwards and downwards from the front orientation, towards the center barrel of the header front when in operation.
Leave the bearing locking collars loose for now and also the bearing flanges to allow the bearings to self-align.

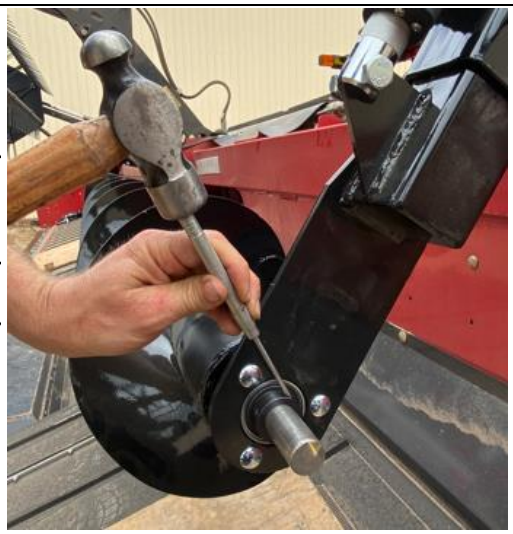
4



Lift the assembly above into the center bracket assemblies on the header front and fasten to the 'fore and aft' actuators to hold in place. Tighten the bearing flange bolts. Centralize the barrel between the two sides then lock the eccentric bearing collars tight using a punch tangentially striking the collar and then tighten the grub screws.

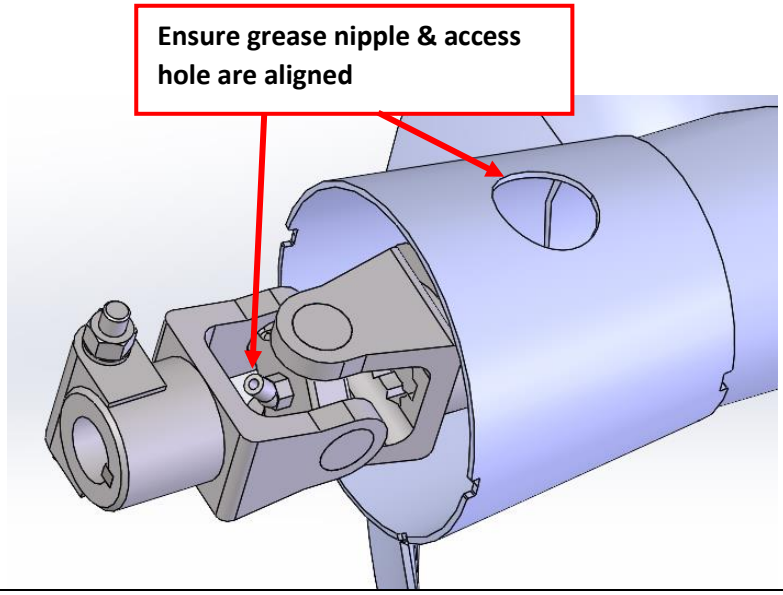
5



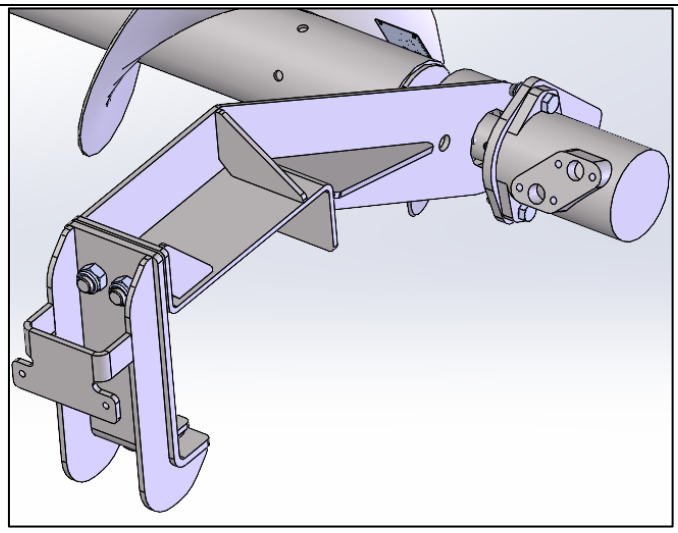


Centralize the barrel between the two sides to achieve close to the 23mm gap as shown above on both sides. Then tighten the bracket clamp bolts and the actuator bolts. Then lock the eccentric bearing collars tight using a punch tangentially striking the collar and then tighten the bearing grub screws.

6 Insert a universal joint assembly into the inside facing end of the RH (drive side) auger barrel. This is the one with the larger boss on the end.
For longevity of the adjustable fitment, coat the spline with an anti-seize product prior to inserting.
Alternatively the universal joint can be attached to the center shaft first but it can be difficult to align the splines while holding the weight of the barrel.

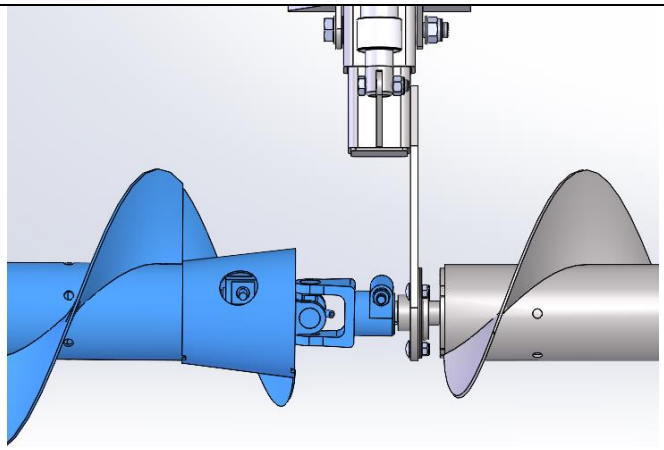


7



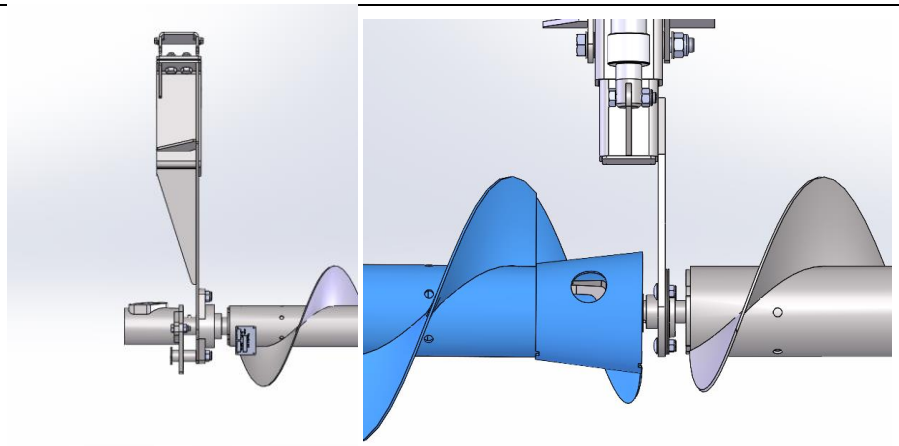
With the RH auger barrel on the ground, attach the drive end mount bracket onto the RH barrel end (ensure the eccentric locking collar is loosely attached to the bearing). Insert the hydramotor shaft into the end of the RH barrel end. Leave locking collars & grub screws loose at this stage.

8



Attach the RH barrel assembly with the uni-joint yoke onto the center barrel end shaft lining up the key. Tighten the yoke clamp bolt and the grub screw. At this stage the drive end of the barrel may need to stay back to give room.

9



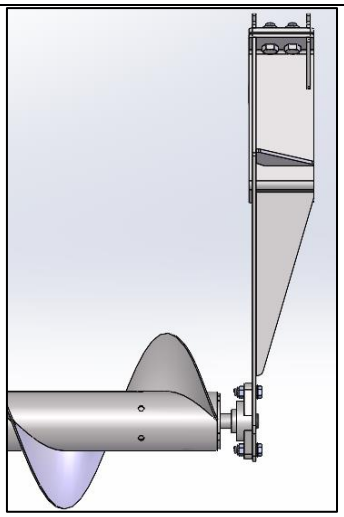
Move push the RH barrel over fully onto the spline and bolt the drive end bracket onto the machine. Tighten the bracket clamp bolts ensuring around 20mm clearance between the

uni-joint shroud and the bracket allowing for swivel. Also ensure the hydramotor grub screws are accessible.

10 Tighten all nuts and bolts.

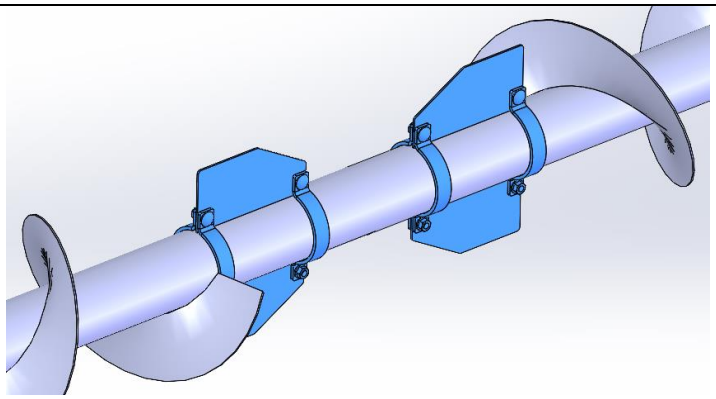
Tighten the bearing locking collar and the hydramotor grub screws.

11



Perform the same steps 6-10 on the LH barrel.

12 Install the clamp-on paddles on the center barrel. Ensure the bolt heads are facing the direction of rotation to reduce catching.



HYDRAULIC FITMENT

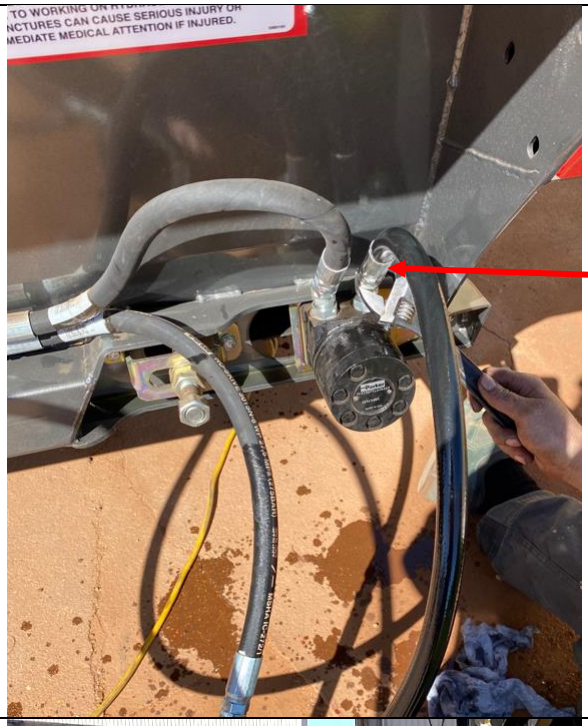
Refer to the attached drawing UCA-H04 as support to the detailed instructions for further information.

STEP	INSTRUCTION	REFERENCE IMAGE
1	If the existing Midwest upper cross auger hydraulics is on the machine this will need to be removed.	

Remove the caps on Feedstorm hydraulic motor and connect the hoses as per drawing.

Hoses Connected with Nipples in between.

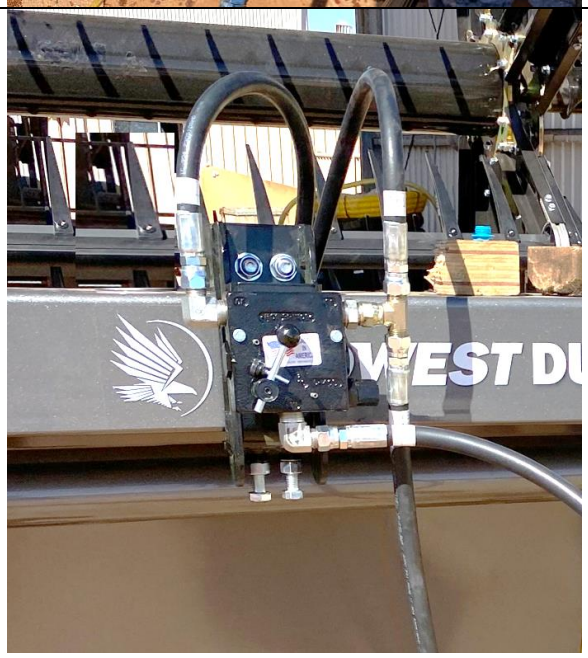
Ensure Hydraulic lines are clear.



Disconnect this hose from the draper motor.

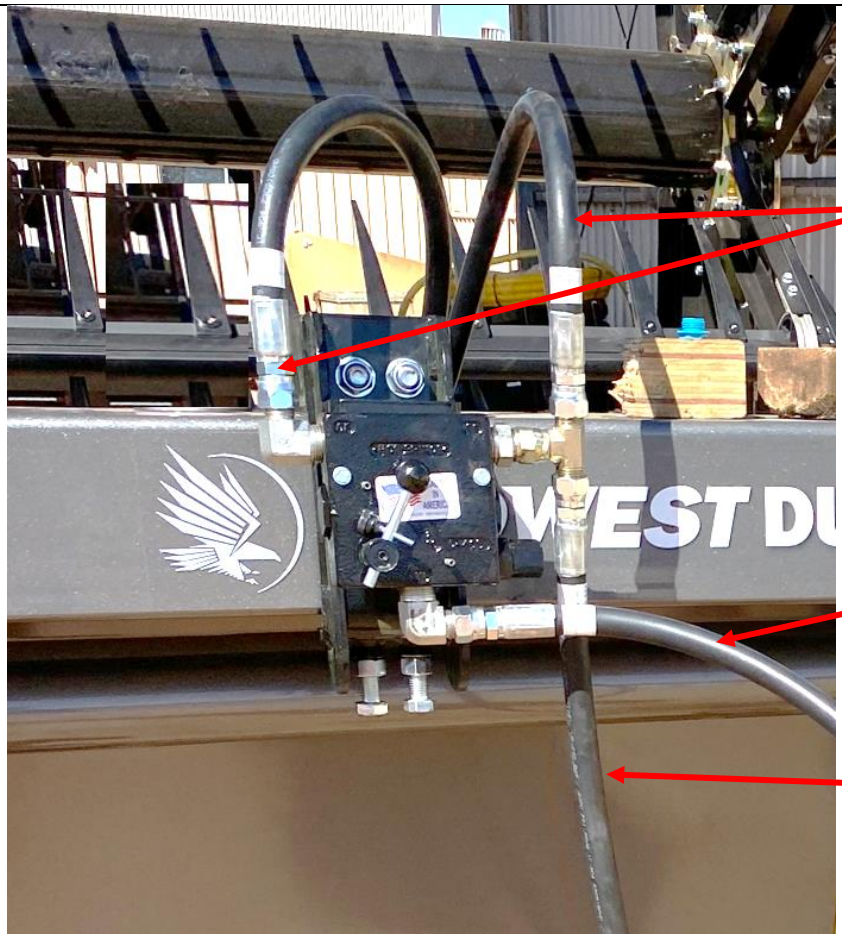
And connect the line from flow controller to it, as per drawing.

2



Mount the flow controller onto the Feedstorm RH End mount bracket

3



Connect the hydraulics as shown above and in the attached drawing UCA-H04

4

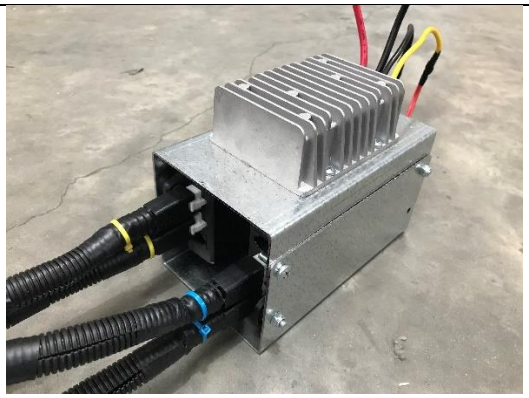
Secure the hydraulic hoses with cable ties to the optimum places to hook with. So that it will not be loose, lingering to ground or a medium to collect the chaffs.

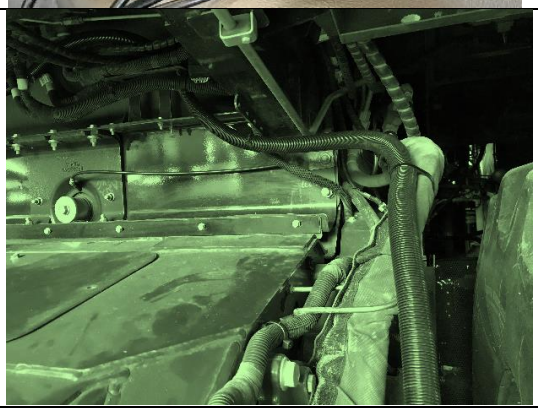
5	Once connected run the hydraulic system to check that there are no leaks, and that the auger runs in the correct direction.

ELECTRICAL FITMENT

Refer to the attached drawing UCA-E04 as support to the detailed instructions for further information.

STEP	INSTRUCTION	REFERENCE IMAGE
1	Connect the shorter portion of Electrical Wiring Harness, 11B to the four Actuators, 11A. The slightly shorter (by approx. 100mm) cables plug into the “RAISE AND LOWER” Actuators. The longer cables plug into the “FORE AND AFT” Actuators. Connections are colour coded with cable ties.	
2	Fix the Remote Controller Subassembly, Part 11D, to a preferred location in the header cabin. Choose an accessible location to the operator whilst driving.	
3	Fix in a suitable location and hardwire the Voltage Converter, Part 11C, to the header power source. Ensure the power source provides 40 Amps at 12 Volts, to the converter.	

4	For permanent fitment, bring the electrical harness into the cab in the desired manner. Sheath the 4 Molex plugs if feeding through a narrow cavity, to protect from possible catchment and damage. Plug the longer portion of the Electrical Wiring Harness, Part 11B, into the Voltage Converter Box, Part 11C. Connections are colour coded with cable ties. Take the other ends to the header and front connection point.	
5	Fasten the Harness Plug Mount, Part 11F, to the header front adapter near the other electrical & hydraulic connection points. Fasten the barrel plug (header front portion of the harness) to the mount. Plug the longer portion of Harness into the shorter portion at the header and header front connection point.	

6	Plug the outlet cables of the Remote Controller, Part 11D, into the Voltage Converter, Part 11C, inlet ports. Connections are colour-coded with cable ties.	
7	Fasten electrical harness to the header in locations clear of moving parts and potential catchment points, using cable ties, to prevent wear and damage to the harness. Excess harness length, roll up and fasten in an appropriate location. Ensure no portions of the harness are under tension or sagging in any locations.	

ADDITIONAL FITMENT NOTES

Once completed the installation of the FeedStorm Kit, trial the actuators with caution, using the Remote controller unit from the cabin. Ensure the range achievable is at the optimum intended.

Check all clearances paying particular attention to the reel fingers, the reel mount bracket and feed drum fingers and adjust the actuator limits to suit.

Fitting the Reel Travel Limiter

Fit the supplied reel travel limiters to give optimum range of travel of the Feedstorm auger. A limiter should be fitted to the center reel arm. The side arms will not require a limiter.

Move the reels to the minimum desired working fore/aft position.

First. Install the limiter at the appropriate position setting and clamp the bolts up tight.

Ensure reel limiter installed at the center of the reel arm.

SETTING ACTUATOR LIMITS

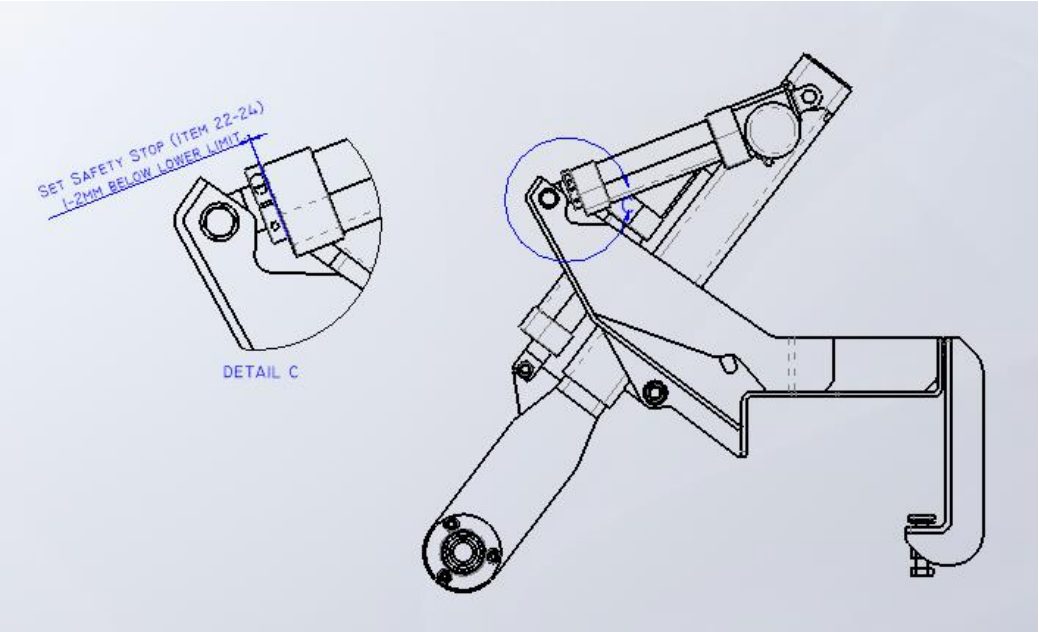
10 Once completely assembled, complete the *Reset Procedure* for the actuators, using the remote controller, 11D. Ensure all actuators are completely retracted with no errors once the procedure is complete.

Set the limits required in the following steps, using the *Inner and Outer Limits Procedure.*
The "FORE AND AFT" actuators operate in a linear motion, extending and retracting the auger barrel from the header front.
The "RAISE AND LOWER" actuators operate in a pivoting motion, lifting and lowering the auger barrel relative to the header front.

To extend the actuators, press and hold the UP Arrow button.
To retract the actuators, press and hold the DOWN Arrow button.

11 Set the OUTER limit of the "FORE AND AFT" actuators just before maximum extension at setting 5.8".
To prevent an error occurring at maximum extension during operation.

12 Set the OUTER limit of the "RAISE AND LOWER" actuators just before the end of the curved slot in the bracketry is reached at approximately 3.5" setting. Removing the bolt from the slot will assist in visually determining this limit.
To prevent unnecessary loading on the actuator, possibly causing an error during operation.

13	Set the Inner limit of the “FORE AND AFT” actuators just before contacting other components of the header front such as the reel arm. Ensure to provide 10mm clearance from other componentry minimum.
14	Set the inner limit of the “RAISE AND LOWER” actuators ONLY if required, due to contacting other header front componentry, which may be identified as causing an overload error or clause with other objects like the feed drum. Install safety stops on both actuators 1 to 2 mm below the low limit, as seen below. When doing the reset procedure, it will set the new lowest point (0) 
15	The limits of the actuators are now set and ready to use. To save preferred positions within the limits set, follow the *Saved Positions Procedure.*

OPERATION

ACTUATOR PROCEDURES

Reset Procedure

Reset the actuators upon initial use and in the Midwest of an error.

1. Press and hold the DOWN Arrow button on the Remote Control until the LED display flashes "RST".
2. Release the DOWN Arrow button for 1 second and press and hold the DOWN Arrow button once more until the actuators retract completely then slightly extend before coming to a stop, displaying “0.01”. This signals the end of the reset procedure. Release the DOWN Arrow button and your system is now ready to use.

Inner and Outer Limits Procedure

The limits of the actuators must be set prior to use, to prevent default errors caused due to maximum actuator extension, and the auger barrel clashing with other components of the header front whilst in operation.

Outer Limit:

1. Move the actuator to the required extension length.
2. Press the “M” button.
3. Press the UP Arrow button.
4. Press and hold the “M” button until “999” shows.

Inner Limit:

1. Move the actuator to the required extension length.
2. Press the “M” button.
3. Press the DOWN Arrow button.
4. Press and hold the “M” button until “000” shows.

If unable to successfully set either or both limits, complete the “Reset Inner and Outer Limits to default” procedure detailed below, then attempt to set the limits again.

Reset Inner and Outer Limits to default:

1. Press the “M” button.
2. Wait one second.
3. Press and hold the “M” button until it displays “555”.

Saved Positions Procedure

Saved positions are an optional feature, providing the ability to program the actuators to preferred configurations, to maximise effectiveness during harvest.

1. Move the actuators to the desired location.
2. Press the “M” button followed by a numbered button of choice.
3. The LED display will flash an “S”, followed by the number selected. This indicates the position has been saved.

To use a saved position during operation, press any of the numbered buttons and the actuators will begin to move to the saved position.

PRIOR TO START UP

1. Ensure to grease all four lubrication points if required via the grease nipples, using high temperature resistant grease.
    - The Bearing of Parts 1A and 2A; two grease points.
    - The Universal Joints, Part 7; two grease points.
2. Familiarise the operator with the actuators, including the operation and reset procedures and the troubleshooting instructions, prior to harvesting.

AUGER BARREL RPM

- The recommended rotational speed of the auger barrels is to be operating in sync with the draper belt speed. Note: the linear speed of both the draper belt and the auger screw should be approximately the same, adjust the flow controller to increase or decrease the auger RPM as required.
- If the auger begins to vibrate noticeably when operating at high RPM, excess of 300 RPM, reduce the operating RPM until this effect subsides.

POWER SUPPLY

The FeedStorm unit requires a 12VDC power source. The voltage converter, a part of 11C subassembly, requires an input voltage of 12VDC with a maximum input current of 40A, and outputs 24VDC with a maximum output current of 20A. This converter offers protection against overheating and overcurrent.

MAINTENANCE

- The recommendation is to complete a routine check of the FeedStorm at regular intervals, after initial installation at the cautious discretion of the operator. The recommendation hereafter is to complete a routine check every day / 12 hours of operation.
    - **A routine check includes:**
        1. Inspect FeedStorm bracketry. Ensure no stressed components. Ensure all components are appropriately fastened.
        2. Inspect all FeedStorm electrical cables and hydraulic hoses, for their condition and fastening. Ensure no abrasive wear is occurring and the lines are fastened at regular intervals.

- Grease all four lubrication points as required via the grease nipples, using high temperature resistant grease.
    - The Bearing of Parts 1A and 2A; two grease points.
    - The Universal Joints, Part 7; two grease points.
- Grease the Universal Joints', Part 7, splines annually.

STORAGE

- When the header front is not in use, fully retract the actuators so minimal shaft length is exposed to the surrounding environment. This will assist optimum function and longevity of the actuators.

- Storage of the header front in a protected location from the elements is recommended for the preservation of the FeedStorm.

- If the header front cannot be stored as recommended and is exposed to wet weather for a duration of time outside of harvest season, such as in a dealership's yard throughout winter, remove the electrical components from the front. If the actuators are to be left on the front, ensure they are fully sealed at electrical joins and are further protected with waterproof coverings.

- **DO NOT** clean the electrical components with a liquid composition. The electrical components are water resistant, not waterproof. Recommend using compressed air as an alternative to clean the electrical components.

TROUBLESHOOTING

Remote Control Error Code

Actuators do not work, after completing the Reset Procedure, an error code appears on the remote-control LED display.

Error Codes E01 to E04: Actuator Overload Error

1. Ensure no excessive weight is on the FeedStorm actuators, friction on the actuator brackets, or force required by the actuators to overcome an unforeseen obstacle or a mechanical clash point.
2. Repeat the *Reset Procedure*.

Error Codes E07 to E10: Actuator Sensor Error

1. Disconnect and reconnect all cables.
2. Check for inadequate connections and power supply.
3. Repeat the *Reset Procedure*.
4. If actuator/s do not retract, manually retract using the Actuator Reset Tool, 11E. Plug into the connection of the problematic actuator and connect the wires directly to a 12-volt power supply to fully retract. The alternative direction of power will extend the actuators.
5. Repeat the *Reset Procedure*.

Error Code H01: System Overheat Protection

1. Ensure no excessive weight is on the FeedStorm actuators or friction on the actuator brackets. Mitigate unnecessary continuous adjustment of the actuators.
2. Allow the electrical system 16 minutes to cool down before continuing to use.

Actuators Do Not Extend/Retract

When attempting to engage the actuators using the remote, the columns do not adjust.

1. Ensure all connections are supplying power to the actuators.
2. Ensure enough current is supplied to the actuators from the power source. A power source at minimum of 25A at 12VDC is required to operate the FeedStorm actuators simultaneously (when retracting and raising).
3. Increase the amperage of the power source as required.

Actuator Pair Out of Sync and Not Completely Retracting

An error code does not appear, but the actuators are as stated.

1. Reset the actuators manually using the Actuator Reset Tool, 11E.
2. Plug into the connection of the problematic actuator and connect directly to a 12-volt power supply to fully retract. The alternative direction of power will extend the actuators.
3. Repeat the *Reset Procedure*.

REFERENCE DOCUMENTS

Drawings Attached:

- **FeedStorm Midwest Assembly & Fitment Drawing: UCA-MW-45**
- **FeedStorm Midwest Hydraulics Diagram Drawing: UCA-H04**
- **FeedStorm Midwest Electrical Wiring Diagram Drawing: UCA-E04**