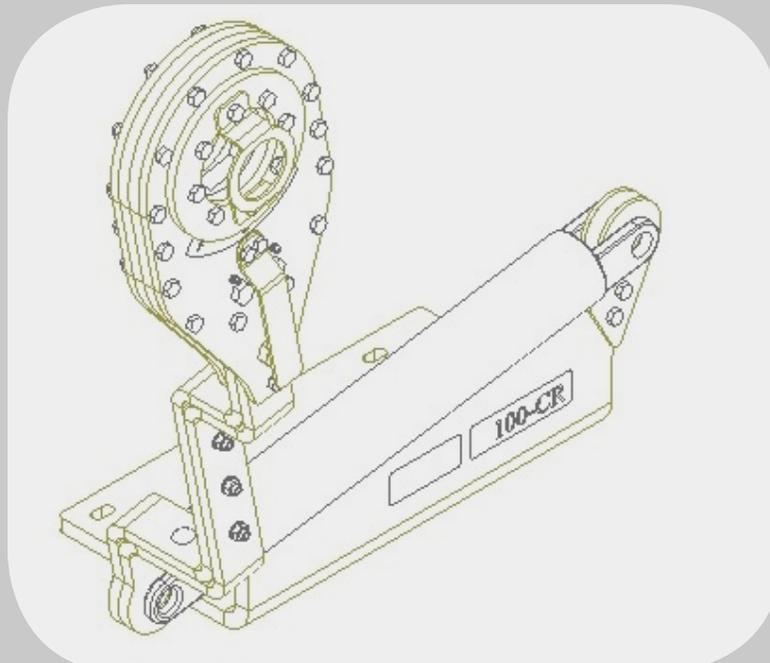


Reverser designed for New Holland CR Series Combines

## AI100-CR

INSTALLATION & OPERATOR'S MANUAL



## Limited Warranty

ARNOLD INNOVATIONS LIMITED warrants to the original buyer that new product is free from defects in materials and workmanship.

This warranty is only valid for one year after date of delivery to original buyer. ARNOLD INNOVATIONS LIMITED is liable only to repair or replace the product.

Written notice must be provided to

ARNOLD INNOVATIONS LIMITED,  
Box 299 Hamiota  
Manitoba R0M 0T0

within 5 business days after the defect has been made apparent. Pictures of the defect may be required at the request of ARNOLD INNOVATIONS LIMITED.

Warranty does not extend to subsequent buyers.

Warranty is null and void if the equipment is changed, altered or modified by any party other than ARNOLD INNOVATIONS LIMITED or installed in a manner inconsistent with this manual.

This product has been specifically designed and manufactured to be used on CX Series New Holland combine harvesters. Use of this product in any other way than stated will void this warranty.

This warranty is limited to the terms stated above. ARNOLD INNOVATIONS LIMITED disclaims all liability for incidental or consequential damages, and in no event shall ARNOLD INNOVATIONS LIMITED be liable to the original buyer more than the purchase price paid by the original buyer for the product.

The original buyer uses this product at his own risk. Failure to follow the installation and operation instructions in this manual and failure to follow the recommended safety procedures and warnings may result in injury or death. ARNOLD INNOVATIONS LIMITED shall not be held liable for damages suffered by the original buyer or any third party and arising from the use or misuse of this product or from the failure to follow the instructions in this manual.

Hydraulic components are not warranted (Including hoses)

READ THIS MANUAL IN FULL BEFORE INSTALLING OR OPERATING THIS PRODUCT

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# 1. SAFETY

## 1.1 SAFETY ALERT SYMBOL

This symbol indicates an important safety message in the Manual and safety decals on the machine.

When you see this symbol:

- PAY ATTENTION
- BE ALERT
- YOUR SAFETY IS INVOLVED

Read messages carefully and follow all messages accompanying this symbol.



Prevent ACCIDENTS that DISABLE and KILL  
**SAFETY IS IMPORTANT TO YOU**

### 1.1.1 SIGNAL WORDS



#### **DANGER**

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



#### **WARNING**

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



#### **CAUTION**

Indicates a potentially hazardous situation that, if not avoided, may result in minor to moderate injury. It is also used as a reminder of good safety practices.

### 1.1.2 SAFETY DECALS

These safety decals appear on the reverser.  
 Keep decals clean and legible at all times.  
 Replace missing and damaged decals immediately  
 Ensure replacement parts have the same decals as original parts.  
 Decals are available from your dealership or Arnold Innovations parts department.



### 1.1.3 INSTALLATION OF SAFETY DECALS

Ensure the area where the decal is to be placed is clean and free from dirt and oil.

Remove decal backing paper and apply to original location.

## 1.2 GENERAL SAFETY



### CAUTION

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

Protect yourself. Wear all the protective clothing and personal safety devices that COULD be necessary for the job at hand when assembling, operating and servicing machinery. Don't take chances.

You may need:

- Hard Hat
- Protective foot wear, protective gloves, high visibility vest safety glass, face shield, ear defenders
- Respirator or filter mask
- Provide a first aid kit for emergency use. If possible, have someone trained in first aid and CPR
- Have fire extinguishers on machinery. Make sure extinguishers are regularly maintained and be familiar in their operation.
- Keep children away from machinery at all times
- Avoid working when fatigued
- Wear close fitting clothing, keep long hair tied up. Don't wear scarves or dangling jewelry when operating machinery.



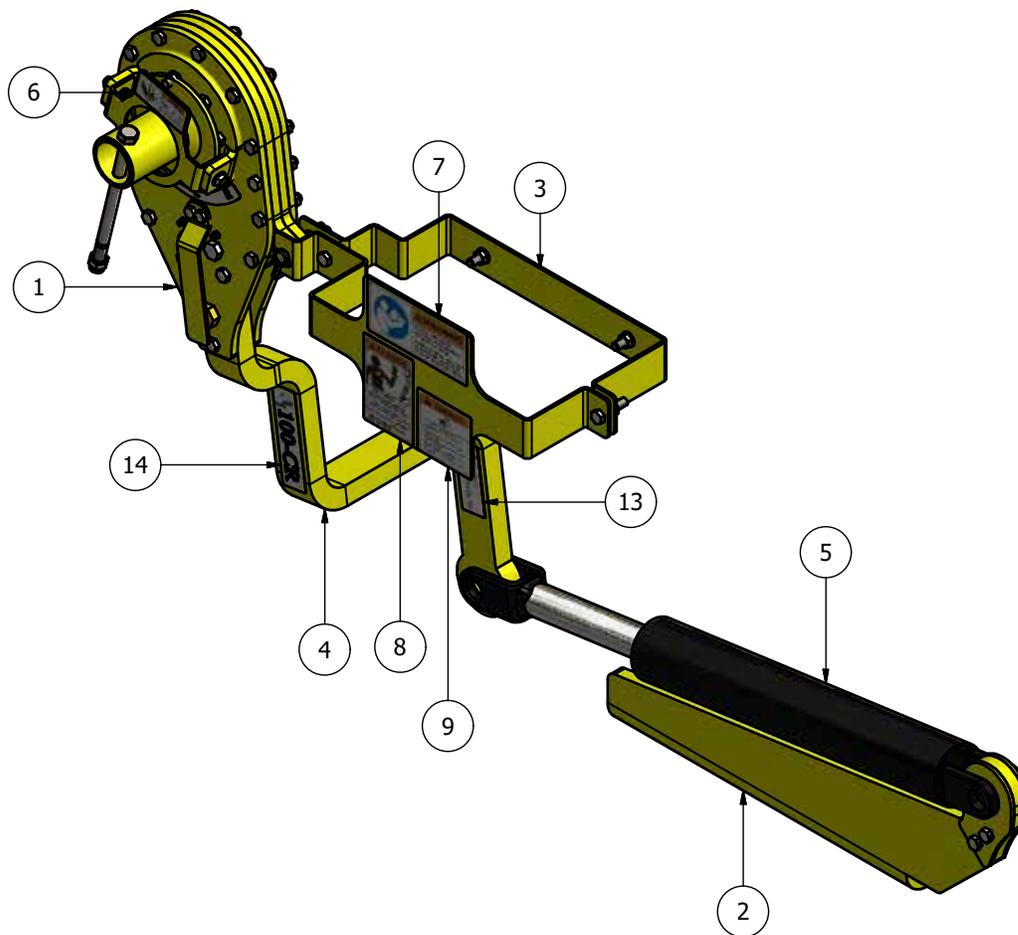
### 1.3 SAFETY PRECAUTIONS WHEN OPERATING REVERSER

- Read Operator's Manual
- Wear protective eye goggles
- Wear hard hat
- Wear protective steel toed footwear
- Keep a copy of this manual in the combine

Note: Additional copies of the manual may be ordered from Arnold Innovations.

## 2. PARTS LIST

PARTS LIST		
PART NUMBER	DESCRIPTION	ITEM
10CR001	Ratchet Head Assembly	1
10CR003	Mount Assembly	2
10CR005	Clean Grain Elevator Bracket Assembly	3
20CR002	Arm	4
30HC001	Hydraulic Cylinder 2.5" Bore 14" Stroke	5
30-00002	Sticker- Pinch Point	6
30-00003	Sticker- Read Owners Manual	7
30-00004	Sticker- High Pressure Oil	8
30-00005	Sticker- Rotating Parts	9
30-00006	Single Spool Directional Control Valve	10
30-00007	NPT 1/2" Shut Off Ball Valve	11
30-00008	Seal Kit for 30HC001 (not included service part only)	12
30-00012	Sticker- Arnold Innovations	13
30-00013	Sticker- AI100-CR	14



### 3. INSTALLATION

#### 3.1 MOUNTING BRACKET



Note: installation process is easier with two people.

Install mounting bracket as shown. Remove the factory cover, remove the three factory bolts, install the mount assembly with the provided hardware.

Adjust the plate as far as possible to the right. Note you will want to reuse the factory washers.

#### 3.2 BRACKET AND HYDRAULIC CYLINDER

Install hydraulic cylinder to the mount bracket using the cylinder pin

Install the clean grain elevator bracket around the clean grain elevator as shown



Main Bracket

Hydraulic Cylinder

#### 3.3 RATCHET HEAD AND ARM

Bolt ratchet head to arm

Install arm to hydraulic cylinder using cylinder pin

Install retaining pin

Ratchet Head

Retaining Pin

Clean Grain Elevator Bracket



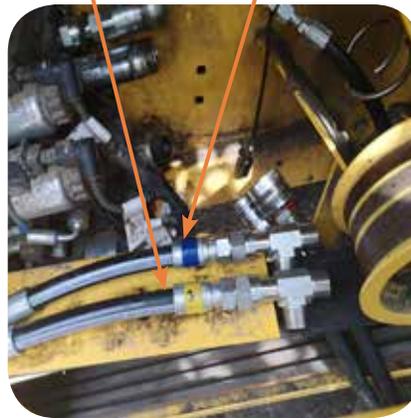
### 3.4 SPOOL AND SHUT-OFF VALVE



- Install spool valve and shut off valve with bracket supplied.
- Tap into the hydraulic system using the hydraulic tees provided

Pressure Line  
 Shut-Off Valve  
 A Line to Cylinder  
 B Line to Cylinder  
 Bracket  
 Return Line

Load sense line extension



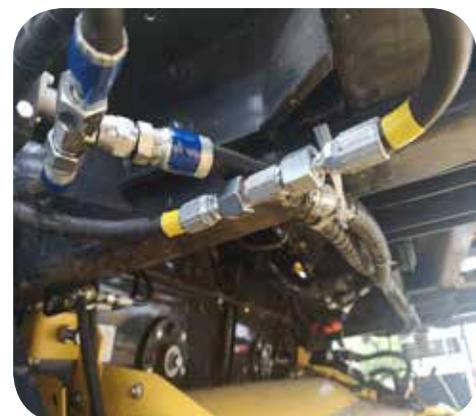
Split factory quick couplers, remove quick coupler end (screw style is the return YELLOW, push style is the pressure BLUE) install the short pipes as shown, install T fittings, re install factory lines to the through side of the T and then install the lines with the elbows to the legs of the T fittings as show.



Connect the pressure and return lines that run under the cab to the ones running to the valve.



NOTE:  
 SHOWN WITH OPTION-  
 AL DSP FOR THIS KIT  
 NO T FITTING IS  
 REQUIRED



### 3.5 COMPLETING INSTALLATION

Tie the hydraulic lines together so that they stay clear of all moving parts. Particular attention should be taken in the area close to the spool valve.

## 4. OPERATION

READ OPERATORS MANUAL BEFORE OPERATING



### WARNING

Ensure combine park brake is applied and thresher components come to a complete stop before beginning the de-slug procedure.

### 4.1 PRE-OPERATION

1. **Lower the concave fully.** Failure to do so could cause serious damage to the reverser or the combine.

#### 2. Attach Ratchet

- Open the side shield.
- Remove the retaining pin from the ratchet head.
- With the ratchet head direction lever set in reverse, lift the ratchet head and attach it to the pulley where the factory wrench goes.  
It may be necessary to turn the ratchet to align it with the pulley.
- Ensure the ratchet head retainer assembly is screwed into the end of the pulley



### CAUTION

Be careful not to pinch your fingers while aligning ratchet head. Ensure ratchet head is fully engaged onto the end of the combine pulley.

Retainer assembly

Handle used to align ratchet

Direction selection lever



## 4.2 OPERATION



### WARNING

High Pressure Fluid Hazard. Wear protective eye-ware and gloves when operating reverser.

### WARNING

Moving Parts Hazard. Keep clear of reverser while operating.

### WARNING

Pinch Point. Do not put hands between cylinder and concave.

FAILURE TO COMPLY MAY RESULT IN SERIOUS INJURY OR DEATH

### 1. Set Direction Selection Lever.

- With the direction lever in the center position the ratchet is locked. This allows a slug to be rocked on the spot which will break it up and make reversing quicker.
- With the direction lever in the reverse position the cylinder will reverse.
- With the direction lever in the forward position the cylinder will turn forward



### 2. Open the Hydraulic Shut-Off Valve.

When the reverser is attached and you are ready to operate it, open the shut-off valve. Be alert for leaks. Do not use hands or bare skin to find leaks as high pressure hydraulic leaks can penetrate skin and enter the blood stream, leading to DEATH. Wear proper eye protection.

Hydraulic shut-off valve

Spool valve lever

### 3. Operating the Reverser with Spool Valve.

When the reverser is attached and the shut-off valve is open, you are ready to operate the reverser. Stand back from the reverser by the spool valve, next to the clean grain elevator. From here it is possible to see all three thrashing component shafts turning. Keep clear while operating the reverser.

### 4. Changing the Direction of the Ratchet

- Close shut-off valve
- Set direction selection lever
- Open shut-off valve



### WARNING

Do not attempt to change the direction of the ratchet without first closing the shut-off valve.

### WARNING

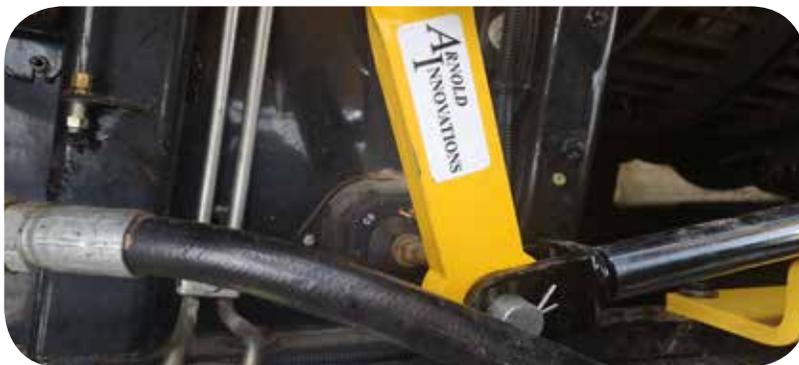
Do not pull crop from stone trap while operating reverser.

Always close shut-off valve before removing crop from stone trap area.

## 4.2 AFTER OPERATION

### 1. Retract Cylinder

When you are finished with the reverser you will need to operate the spool valve so that the reverser's actuating hydraulic cylinder is retracted to line up with a sensor on the side of the combine.



### 2. Close Shut-off Valve

Hydraulic shut-off valve (closed)

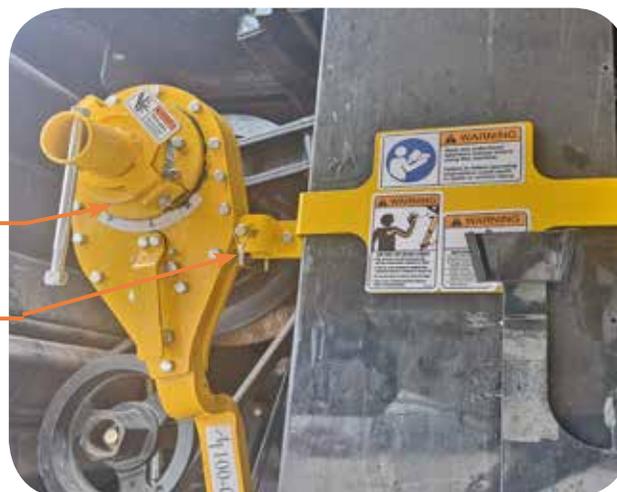


### 3. Return Reverser to Cradle

Remove the reverser from the pulley and set it back in the cradle. Reinstall the retaining pin.

Ratchet head replaced in cradle

Retaining pin reinstalled



## 5. MAINTENANCE

### 1. Ratchet Head

Grease yearly and after washing. Avoid pressure washing ratchet head directly.

### 2. Hydraulic Lines and Connections

Inspect hydraulic lines and connections for leaks and wear. Replace worn or leaking hoses before operating.

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