

Automated Steering Hydraulic Installation Kit

P/N: ED-MAC

Fits MacDon Swather Models:

MacDon/Westward

9000/9200/9220/9250/9300

9350/9352/9352i/9352c

Prairie Star

4900/4920/4930/4940/4950

4952/4952i/4952c

Premier

2900/2920/2930/2940/2950

2952/2952i/2952c

Harvest Pro

8140/8150/8152/8152i/8152c



Overview






A series of equipment-specific kits have been developed to work with your automated steering hydraulics and the MacDon Swather (models listed above). This manual provides necessary components and step by step instructions for installation and configuration. Please read all directions carefully before installing your kit.

Machine Preparation

Before installation of the automated steering kit, park your machine on a clean and level floor, with adequate clearance to work on all sides of your machine.

Kit Contents

Unpack the installation kit and identify the required parts as shown below..

REF	PART NUMBER	QTY	DESCRIPTION	PHOTOGRAPH
A	760-0014-000	1	Assy, Hyd. Valve Block - PC without PO eDrive.	
Bag #1 of 5 includes B				
B	760-2056-000	4	Adapter, Hyd. - #6 Male JIC x #6 Male ORB	
C	640-0022-000	1	Bracket Hyd. Block Mnt - CNH MXM_TM	
Bag #2 of 5 includes D & E				
D	676-1035-000	2	Nut, NyLock - 3/8NC ZP	
	675-2007-000	2	Bolt, 3/8NC x 3/4 Gr5	
E	675-2005-000	2	Bolt - 3/8NC x 3-1/4" Gr5, ZP	
	676-1035-000	2	Nut NyLock - 3/8NC ZP	
	678-1054-000	2	Washer, Narrow Flat - 3/8" ZP	
Bag #3 of 5 includes G, H, I & J				
F	760-0015-000	1	Cyl. Hyd. 7 x 5_16 x 1	
G	760-2102-000	2	Adapter Hyd. - 1/8 - 27 x #4mJIC	
H	680-1055-000	2	SPCR - 0.438" ID, 0.875" OD, 1/4" LNG, ZP	

REF	PART NUMBER	QTY	DESCRIPTION	PHOTOGRAPH
I	678-1053-000	2	Washer, Flat - 1/4" ZP	
	675-0087-000	2	3/32 x 3/4 ZP Cotter Pin	
J	760-0016-000	1	Cyl, Rod End Swivel	
Bag #4 of 5 includes O				
K	640-0059-000	1	Brkt, Hammer Strap - MAC	
L	640-0060-000	1	Brkt, Hyd Cyl Mnt Ram - MAC	
M	640-0061-000	1	Brkt, Hyd Cyl Mny Rod - MAC	
N	640--0062-000	1	Brkt, Hyd Cyl Mnt 1_Rod - MAC	
O	675-2009-000	2	Bolt, 5/16NC x 1-1/4 Gr5 ZP	
	676-1036-000	2	Nut, Lock - 5/16NC ZP	
Bag #5 of 5 includes P, Q, & R				
P	760-2006-000	1	Adapter, Hyd. Run Tee - #10 JIC	
Q	760-2054-000	1	Adapter, Hyd. Run Tee - #6 JIC	
R	760-2101-000	1	Adapter, Hyd. - #10fJIC x #6 JIC	

REF	PART NUMBER	QTY	DESCRIPTION	PHOTOGRAPH
S	760-1278-000	1	Steering Hose, HYD - 1/4" x 48", #4fJIC x #6fJIC	
T	760-1279-000	1	Steering Hose, HYD - 1/4" x 55", #4fJIC x #6fJIC	
U	760-1095-000	1	Pressure Hose, Hyd - 3/8" x 111", #6fJIC x #6fJIC90	
V	760-1280-000	1	Tank Hose, HYD-3/8" x 105", #6fJIC90 x #6fJIC	
W	051-0143-000	1	Cable, E-Drive Interface - 15ft.	
	710-0062-000	1	Universal Push Button Switch Kit	Not Shown
	677-2001-000	20	Tie Strap, 11" Heavy Duty	Not Shown

WARNINGS



ATTENTION:

Read this entire installation guide **before** beginning the installation. Failure to comply with warnings in the guide can result in personal injury or damage to equipment, and will void all warranties.



WARNING:

High-pressure fluid hazard. Hydraulic oil may be hot and under high pressure. To prevent serious injury or death: Relieve system pressure and allow to cool before repairing or disconnecting. Wear proper hand and eye protection when searching for leaks, using wood or cardboard instead of your hands. Keep all hydraulic components in good repair.



WARNING:

Pinch point hazard. To prevent serious injury or death, avoid unsafe practices while manually operating hydraulic steering circuit. Keep others away and stay clear of mechanical steering linkages.

IMPORTANT:

Prevent hydraulic system contamination. It is essential to thoroughly clean hydraulic system fittings and hose connections prior to disconnecting or removing. Use a spray cleaner such as “Brake Clean” to prevent hydraulic system contamination. Note that o-ring used on ORB and ORFF type fittings may be damaged by solvent cleaners such as “Brake Clean”. If a fitting is to be cleaned internally, the o-ring should first be removed and cleaned with a fiberless cloth.

INSTALLATION

1. Prepare Automated Steering Block:

- a. Make Sure the Automated Steering Block (A) is clean and dust free.
- b. Install adapter fitting (B) in the A, B, P and T ports of the Automated Steering Block. (Figure 1)

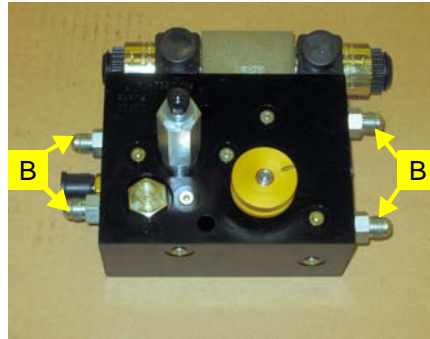


Figure 1: Prepared Automated Steering Block

2. Mount Automated Steering Block:

- a. The Automated Steering Block will be mounted on the left front frame under the cab. Using the bracket (C) as a template, drill two **7/16"** holes in the support as indicated in Figure 2b. (Figure 2a, 2b)

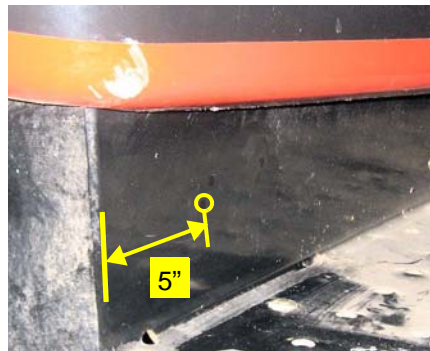


Figure 2a: Mounting Location

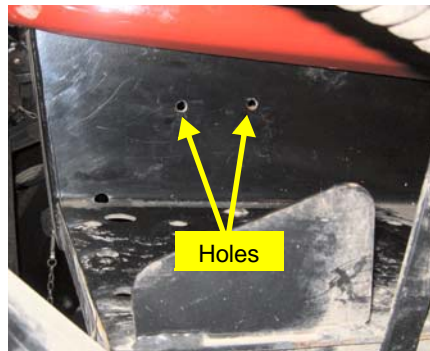


Figure 2b: Holes Drilled

- b. Mount the Bracket (C) as shown using the hardware (D). (Figure 2c).
- c. Using the provided mounting hardware in group (E), attach the Automated Steering Block, as prepared in step 1, to the mounting bracket (C).

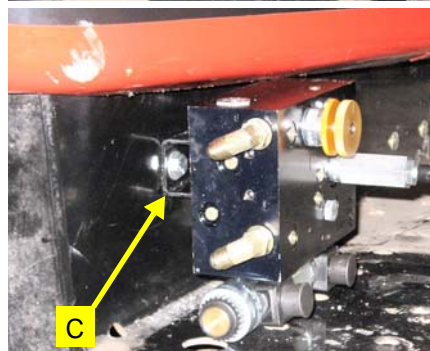


Figure 2c: Mounted Automated Steering Block

3. Install Pressure and Tank Fittings:

- a. The Automated Steering Block will connect pressure and tank to the hydraulic valve located inside the frame, behind the right drive wheel. (Figure 3a)
- b. Pressure will be received from the front left line on the hydraulic valve. Install the run-tee adapter fitting (**P**) between the rubber hose and hydraulic valve. (Figure 3b)
- c. Install the reducer fitting (**R**) to the branch on the run-tee fitting (**P**). (Figure 3b)
- d. Tank will be relieved to the bottom port on the hydraulic valve. Install run-tee Fitting (**Q**) between the rubber hose and the hydraulic valve. (Figure 3b)

NOTE:

Leave the run-tee fitting loose to allow for alignment, when attaching hoses. Plastic caps placed on the open ends of the fittings will prevent excessive leakage prior to hose installation.

4. Install Pressure and Tank Hoses:

- a. Connect the pressure hose (**U**) from the **P** port of the hydraulic control block to the adapter fitting (**R**) installed on the swather hydraulic valve. (Figure 4a and 4b)
- b. Connect the tank hose (**V**) from the **T** port on the Automated Steering Block to run-tee fitting (**Q**) on the swather hydraulic valve. (Figure 4a and 4b)

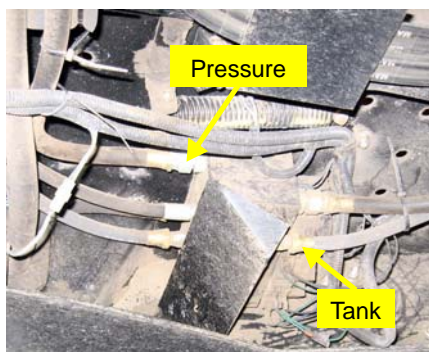


Figure 3a: Pressure and Tank Location

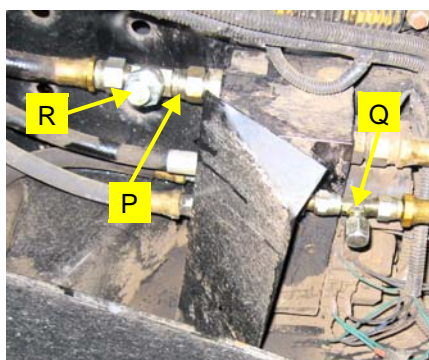


Figure 3b: Installed pressure tank fittings

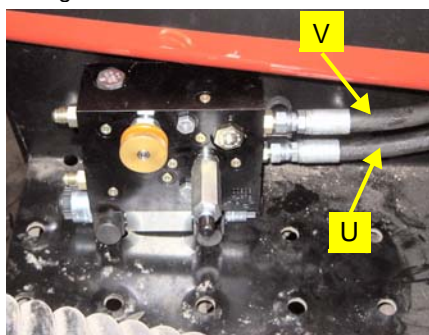


Figure 4a: Installed pressure and tank hoses at block.

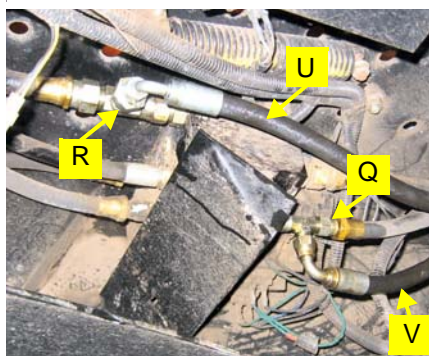


Figure 4b: Installed pressure and tank hose at hydraulic valve.

- c. Route the pressure and tank hoses from the automated steering block between the cab and frame, then along the center brace. (Figure 4c)

NOTE:

All hoses should be routed with other tractor plumbing, free from entanglement and secured with heavy tie straps (provided).

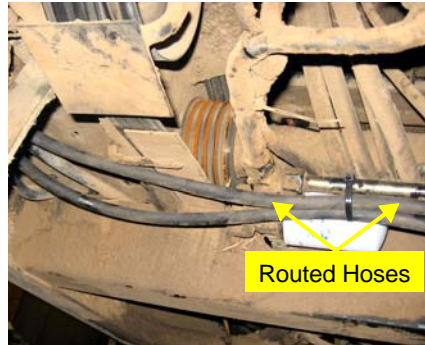


Figure 4c: Routed pressure and tank hoses

5. Install Steering Cylinder Brackets:

- a. Locate the steering control linkage under the cab. The head end of the cylinder will mount to the steering pivot arm and the rod end of the cylinder will mount on the bolt connecting the left control arm to the hydro arm. (Figure 5a)
- b. Mount the cylinder head bracket (L) to the steering pivot arm, using the provided hardware (O) with the hammer strap (K). (Figure 5b)
- c. Remove the outside lock nut from the bolt connecting the hydro arm to the left control arm. Attach the cylinder rod end bracket (M) or (N) between the two nuts. The shorter bracket (N) will be used on the following model; MacDon and Westward 9250, 9350, 9352, 9352i, 9352c, Prairie Star 4940, 4950, 4952. Harvest Pro: 8140, 8150, 8152i, 8152c.

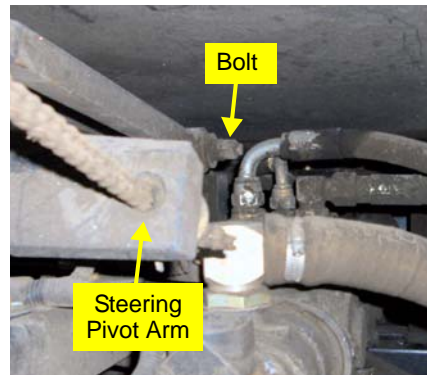


Figure 5a: Steering Bracket location

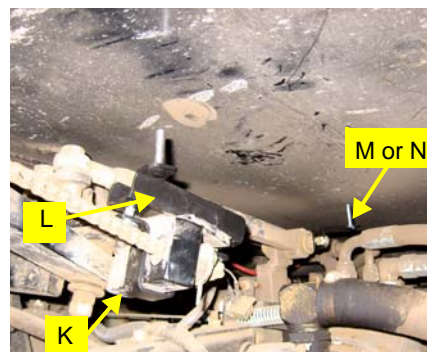


Figure 5b: Cylinder mounts

6. Install Steering Cylinder:

- a. Install adapter fitting (G) into the two ports located on the hydraulic cylinder (F). (Figure 6a) Use teflon thread sealant on the NPT ends of the adapter fittings (G) prior to installing in the hydraulic cylinder. No other hydraulic connections in this installation require teflon sealant.
- b. Install the cylinder rod end swivel (J) to the rod end of the cylinder. (Figure 6a)

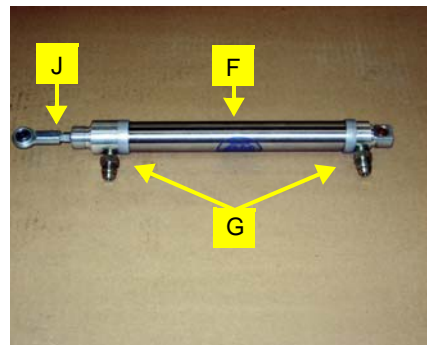


Figure 6a: Assembly steering cylinder

- c. Slide spacer (**H**) over the head and rod mounting pin of brackets (**L**) and (**M**) or (**N**). (Figure 6b)
- d. Attach the prepared steering cylinder from step 6a to the head and rod brackets as shown in Figure 6b. Using the provided hardware (**I**) to secure the cylinder. (Figure 6b)

NOTE:

Check the clearance of the rod bracket (**M**) or (**N**) by moving the cab hydrostat lever to the far forward position and rotate the steering wheel left and right. Then move the hydrostat lever back and rotate the steering wheel left and right. Make any necessary adjustments to the rod bracket (**M**) or (**N**) for clearance.

7. Install Steering Output Hoses:

- a. Connect the two steering lines (**S**) and (**T**) from the Automated Steering Block to the steering cylinder. The longer hose (**T**) will connect to the rod end of the steering cylinder (**F**). The shorter hose (**S**) will connect to the head end of the steering cylinder (**F**). Route the hoses from the automated steering block over the frame and connect to the steering cylinder. (Figure 7a, 7b)

NOTE:

All hoses should be routed with other tractor plumbing free from entanglement and secured with heavy tie straps (provided).

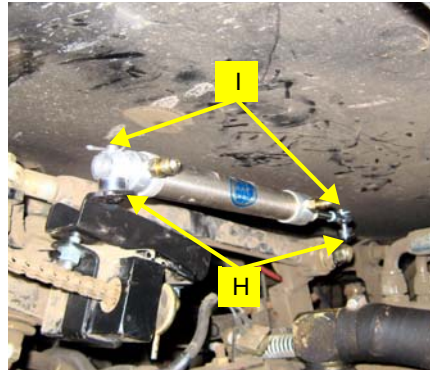


Figure 6b: Attached steering cylinder

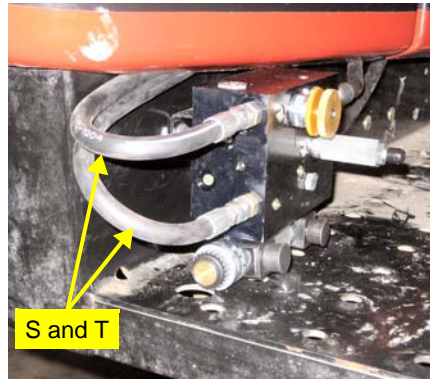


Figure 7a: Installed steering hoses

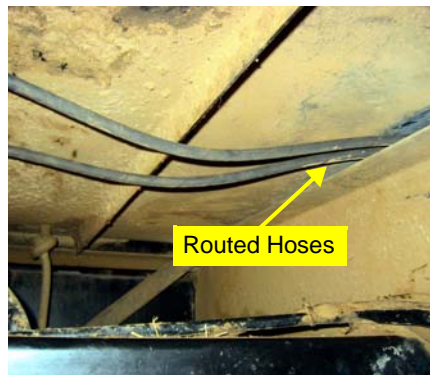


Figure 7b: Routed steering lines

8. Install the Valve Control Cable:

- a. Route the valve control cable (W) from the automated steering block, under the cab and through the access hole on the right rear corner of the cab. (Figure 8a, 8b, 8c, and 8d)



Figure 8a: Valve cable installed at block.



Figure 8c: Valve cable installed

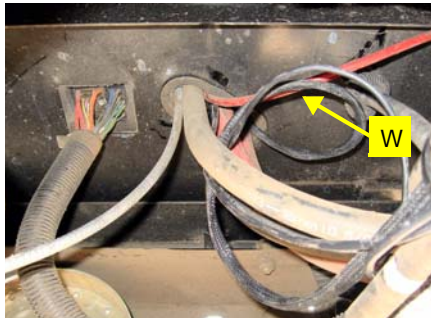


Figure 8b: Valve cable



Figure 8d: Valve cable routed in access hole

9. Verify Operation and Set Automated Steering Control Rate

- a. Clean up the installation area around the machine and make certain that it is safe to operate.
- b. Start the machine and check the automated steering connections for any leaks



WARNING:

Pinch point hazard.
To prevent serious injury or death, avoid unsafe practices while

manually operating hydraulic steering circuit. Keep others away and stay clear of mechanical steering linkages.

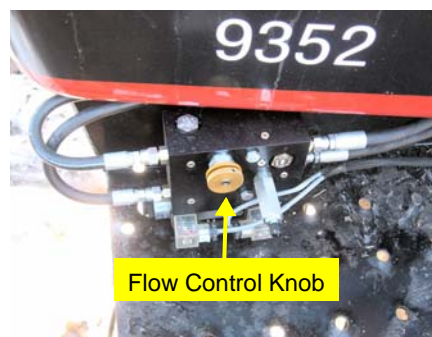


Figure 9: Automated Steering flow control knob and manual override button

- c. Rotate the steering wheel from one extreme to the other and back.
- d. Adjust the automated steering oil flow control knob to a starting position of **3/4** turns from completely closed. To adjust the knob - turn clockwise to reduce flow or turn counter-clockwise to increase flow.
- e. In an open, area confirm that the machine steers left and right using the steer test in the guidance controller menu.
- f. Operate the swather on a straight line using automated steering and turn the steering wheel by hand in one direction to familiarize yourself with the feel of the manual steering reaction while automated steering is engaged.

10. Complete Automated Steering Electronic Installation and Setup:

- a. Refer to the owner's manual supplied with your automated steering system to complete the electronic installation and setup.

