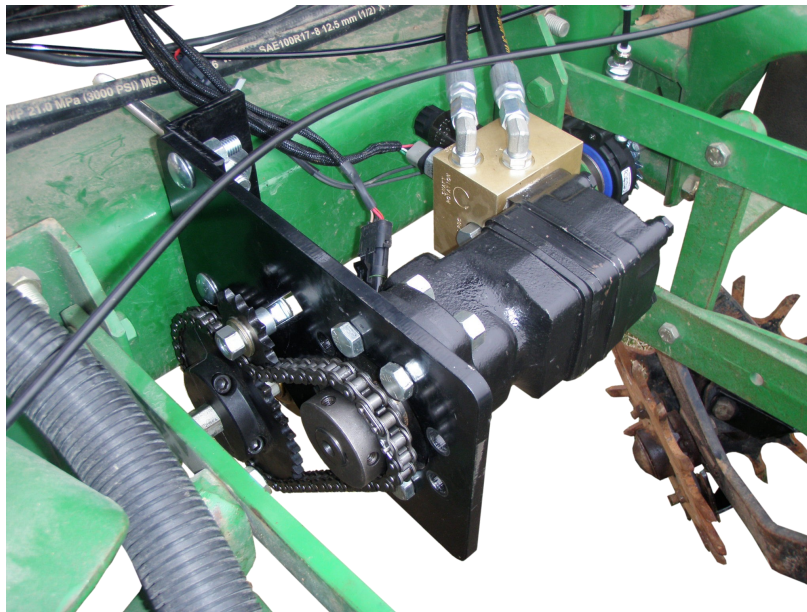
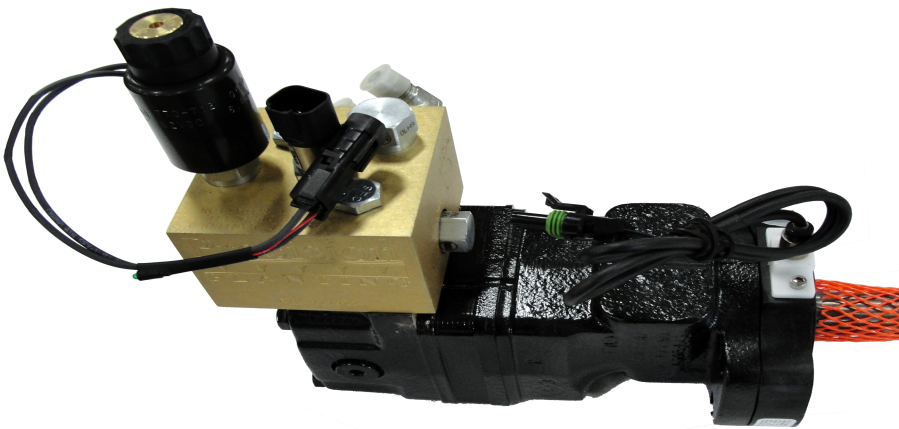


Installation Instructions

Hydraulic Drive Motor Kit 727105



Precision[®]
P L A N T I N G

QTY	PART NUMBER	PART NAME	DESCRIPTION
2	13105	Bolt	3/8" X 1" GRD5 Bolt ZN
4	13212	Bolt	1/2" X 2.25" GRD5 Bolt ZN
3	21560	Bolt (Round Head)	1/2" X 1.75" Carriage Bolt
1	33817	Washer	1/2" SAE Flat GRD8 YLWZN
2	36306	Hex Nut	3/8" Hex Nut ZN
7	36310	Hex Nut	1/2" Hex Nut ZN
2	37272	Lock Nut	5/8" GRDC TopLock Nut
1	727009	Motor Assembly	Hydraulic Motor w/ Manifold & Pressure Sensor
1	727010	Sprocket	18T40
1	727012	Spacer	Idler Sprocket Spacer
1	727013	Sprocket Assembly	36T40 Split Sprocket w/ Allen Screws
1	727015	Bracket	Base Mount
1	727016	Bracket	Arm Mount
1	727017	Sprocket	Idler Sprocket 14T40
1	727018	Roller Chain	# 40 Roller Chain
1	727030	Bearing Assembly	Hex Shaft Guide Bearing
1	727031	U-Bolt	for 7" X 7" Bar
1	727032	U-Bolt	for 7" X 5" Bar
1	727111	Harness	15' Hydraulic Motor Harness

Recommended tools (not provided):

Open end wrenches: 9/16", 3/4", 15/16"

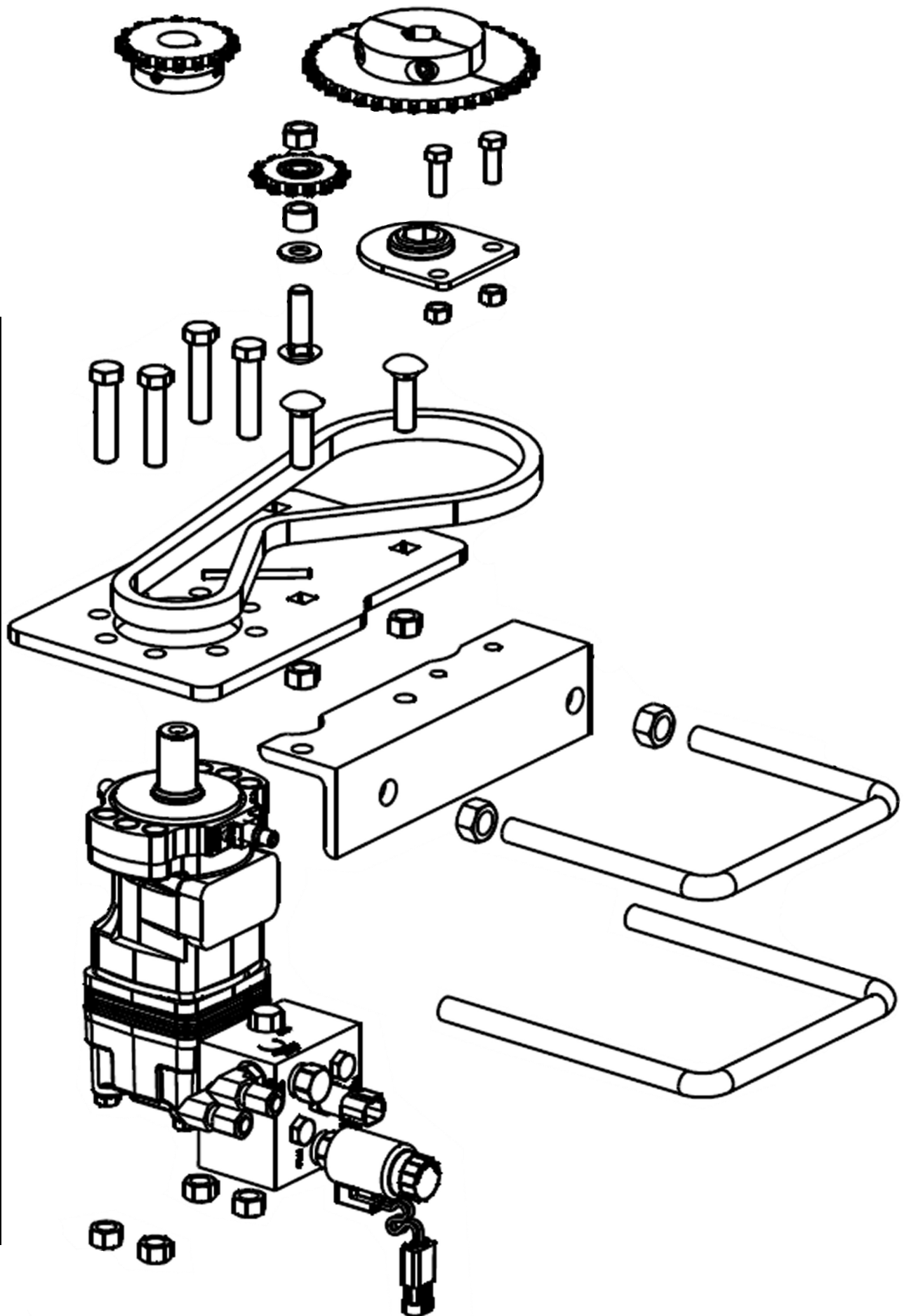
- or suitable crescent wrench (s)

Sockets (Deep well recommended): 9/16", 3/4", 15/16"

Allen Wrench: 3/16"

Level

Hydraulic Drive Motor Assembly Exploded View



**Please refer to the RowFlow Owner's Manual for Safety Instructions
prior to installing your Hydraulic Drive.**



Read Before Beginning Installation!

Selecting a mounting location:

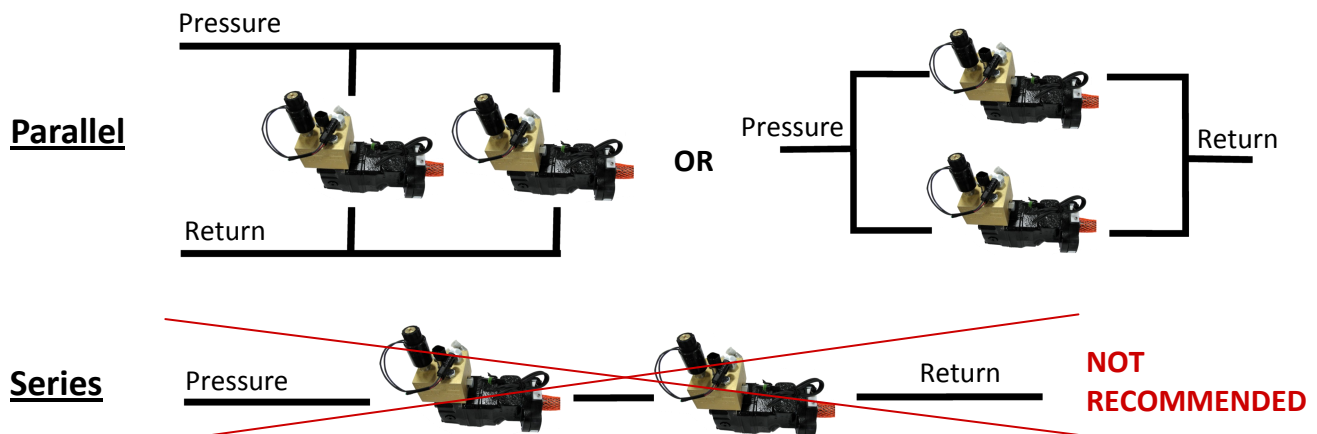
The primary concern is to find a secure, stable location within the guidelines below. This may mean modification to fit your individual situation. **Use your own best judgment** in order to place the drive in the most suitable location.

- ◆ If possible, replace or utilize existing ground drive locations
- ◆ Hydraulic drives can run up to 16 rows
- ◆ Center hydraulic drive within rows controlled (as much as possible)
- ◆ Number of rows driven in any direction (left or right) of the hydraulic drive:
 - 7/8" hex shaft = ≤10 rows
 - 9/16" hex shaft = ≤7 rows
- ◆ If using an electric 1/2-width disconnect, attempt mounting the hydraulic drive to maintain functionality of the disconnect

Hydraulics:

- ◆ Precision Planting, Inc drives are recommended for **Closed Center Circuits** only.
Refer to your Tractor manufacturer's manual to find information on your hydraulic system
- ◆ Plumb the system in **Parallel, NOT in Series** (see images below)
- ◆ It is preferred to have a dedicated SCV or circuit for the hydraulic drives
- ◆ 'Power Beyond' systems work well for this system
- ◆ Route the return line back to the Hydraulic Circuit, SCV or to the sump - this may be driven by the requirements of the tractor, refer to OEM guidelines
- ◆ Hydraulic Hose & Fittings: SAE 100R2 - Dual Steel Braid, high pressure line
size the diameter according to flow requirements
JIC -6 fittings to connect to hydraulic motor
- ◆ Flow requirements: 4gpm per motor (may vary ±1gpm with planting speed and population)
- ◆ Pressure requirements: >2250psi preferred
<2250psi less than 12 driven rows is recommended

Connecting Hydraulic Lines:



1. Mounting the Hydraulic Motor Base Mount.

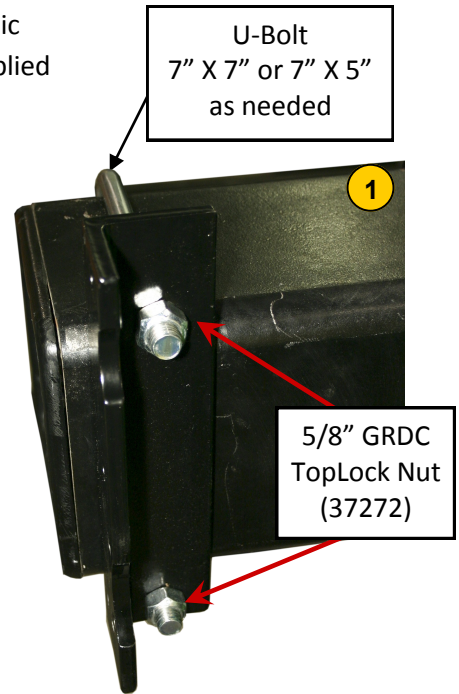
Once a satisfactory mounting location has been chosen, fix the Hydraulic Motor Base Mount (727015) to the planter frame using one of the supplied U-Bolts and the two 5/8" GRDC TopLock Nuts (37272).

Both the 7" X 7" (727031) and the 7" X 5" (727032) U-bolts are supplied in all kits in order to provide a variety of mounting options and locations.

This face towards planter frame.



Hex shaft location

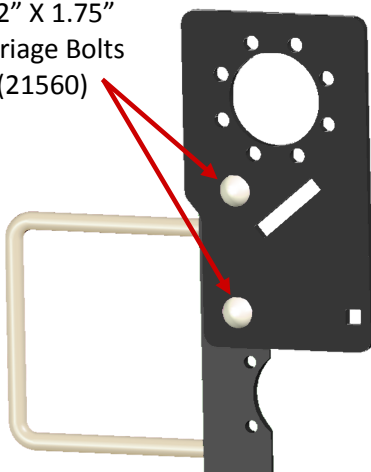


Use the Level to vertically align the Hydraulic Motor Base Mount (727015). This bracket will be the base for all other components.

2. Mounting the Hydraulic Motor Arm Mount.

The Hydraulic Motor Arm Mount bracket (727016) will be the next bracket installed. This bracket may be installed in two different directions; vertically or horizontally from the Base Mount. Use this option to accommodate clearance issues. Fix the Arm Mount to the Base Mount using two - 1/2" X 1.75" Carriage Bolt (21560) and two - 1/2" Hex Nuts (36310 - not shown in images).

1/2" X 1.75"
Carriage Bolts
(21560)

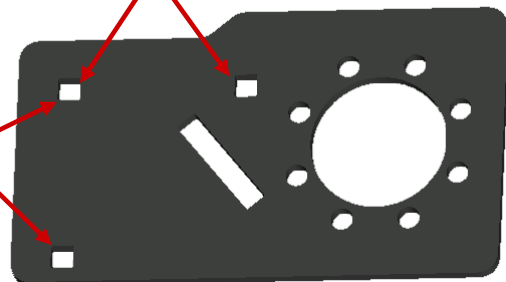


Shown mounted Vertically

Mounting holes for
vertical positioning

2

Mounting
holes for
horizontal
positioning



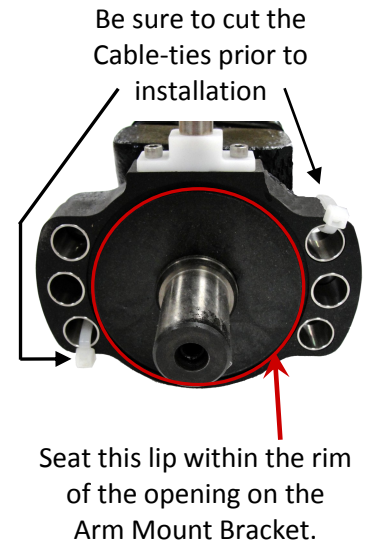
Bracket Position when mounted
Horizontally

3. Mounting the Motor.

Cable-tied to the front face of the hydraulic motor is the output shaft Speed Sensor. Cut these ties prior to installation.

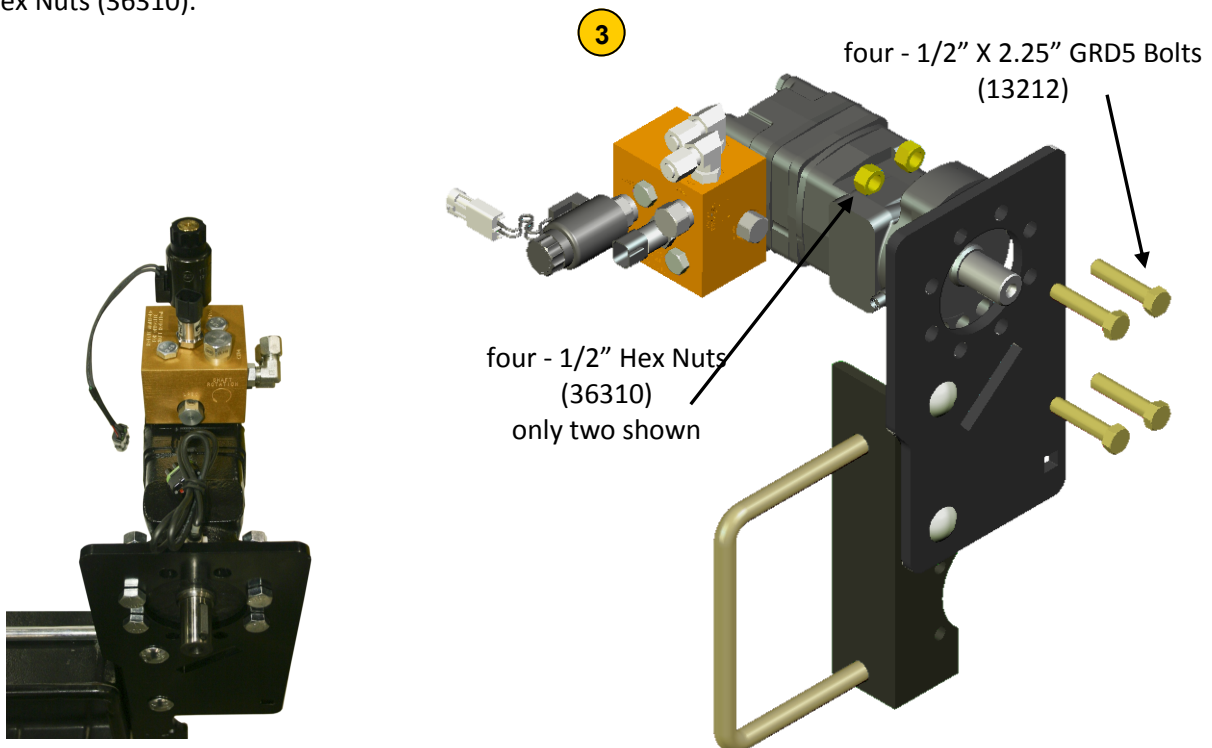
Note that there are six mounting holes on the housing of the Speed Sensor and four on the housing of the motor itself—all four of these should be utilized.

When placed against the Arm Mount, the face of the Speed Sensor has a small lip that will seat within the round opening on the Arm Mount.



The hydraulic motor can be rotated and mounted with the manifold in any direction to accommodate clearance issues. This can be done whether the Arm Mount bracket is installed horizontal or vertical. There are eight holes on the Arm Mount to accept multiple mounting positions of the hydraulic motor.

Fix the motor to the Arm Mount bracket using four - 1/2" X 2.25" GRD5 Bolts (13212) and four - 1/2" Hex Nuts (36310).



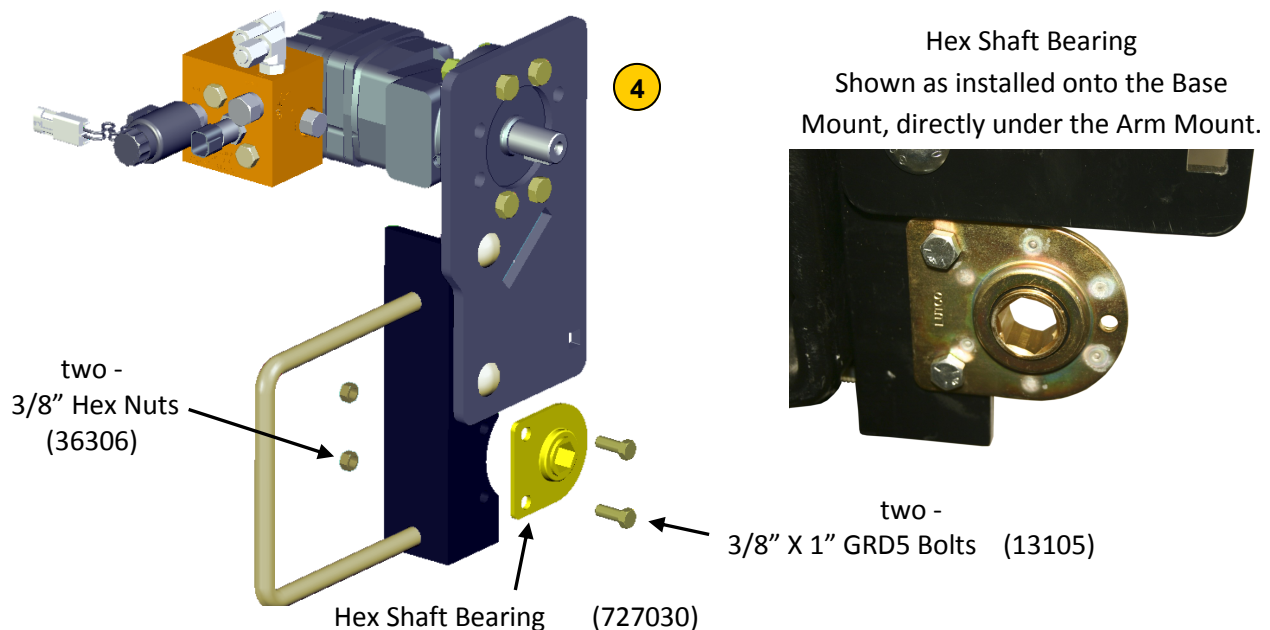
Shown mounted with manifold upright, with Arm Mount in the Vertical position.

4. Installing the Hex Shaft Bearing.

A Hex Shaft Bearing (727030) is included within the kit and is required for proper performance of the system. The purpose of the bearing is to stiffen and stabilize the hex shaft from flexing or twisting as torque is applied from the Hydraulic Drive. **A hex shaft bearing is required to be within 3 inches, left or right, of the final placement of the 36 Tooth 40 Roller Chain (36T40) Split Sprocket (Driven).** If the mounting location currently has an existing bearing that fits these requirements, the addition of a second bearing is **not** necessary. If a bearing is not present, it will be necessary to remove or back the hex shaft out of position in order to place the Hex Shaft Bearing.

Secure the Hex Shaft Bearing to the Base Mount bracket using the supplied hardware; two - 3/8" X 1" GRD5 bolt (13105) and two - 3/8" Hex Nuts (36306).

Once the Hex Shaft Bearing is in place, route the hex shaft through the Hex Shaft Bearing and return it to its original position.

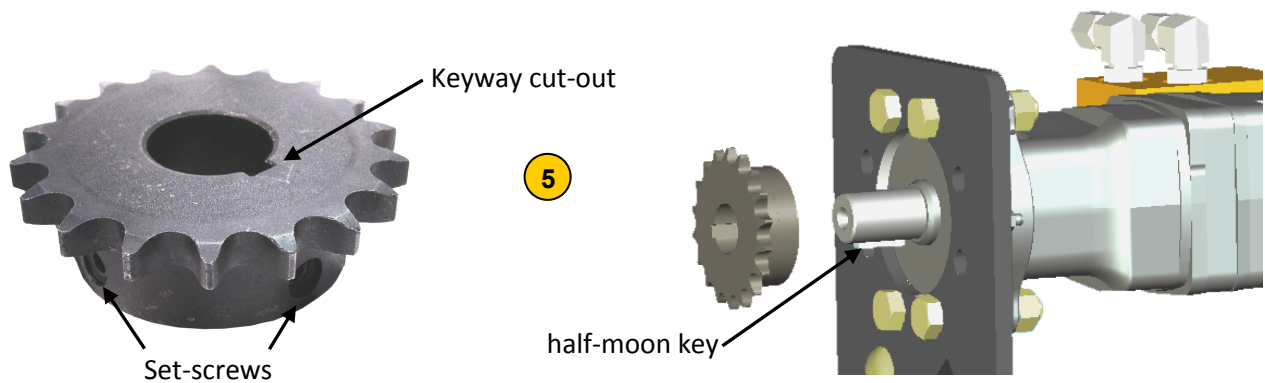


5. Installing the Drive Sprocket

The Drive Sprocket for the Hydraulic Drive is an 18 Tooth 40 Roller Chain sprocket with a keyway cut-out and dual set-screws. Align the keyway cut-out with the half-moon key on the drive shaft of the hydraulic motor and slide the sprocket onto the shaft. At this time, **DO NOT** tighten the sprocket onto the shaft. Keep the sprocket loose until the chain has been installed and aligned.

Note: the drive sprocket has two set-screws in the collar of the sprocket; one aligned over the keyway cut-out and the second 90° around the collar from the keyway. Once the chain is aligned, **tighten the set-screw onto the hex shaft first**, then tighten the set-screw onto the keyway. The set-screw to the side secures the sprocket to the drive shaft against movement along the length of the drive shaft. The set-screw above the key-way secures the sprocket and half-moon key to the drive shaft. It is the half-moon key that withstands the rotational forces.

See images on following page.



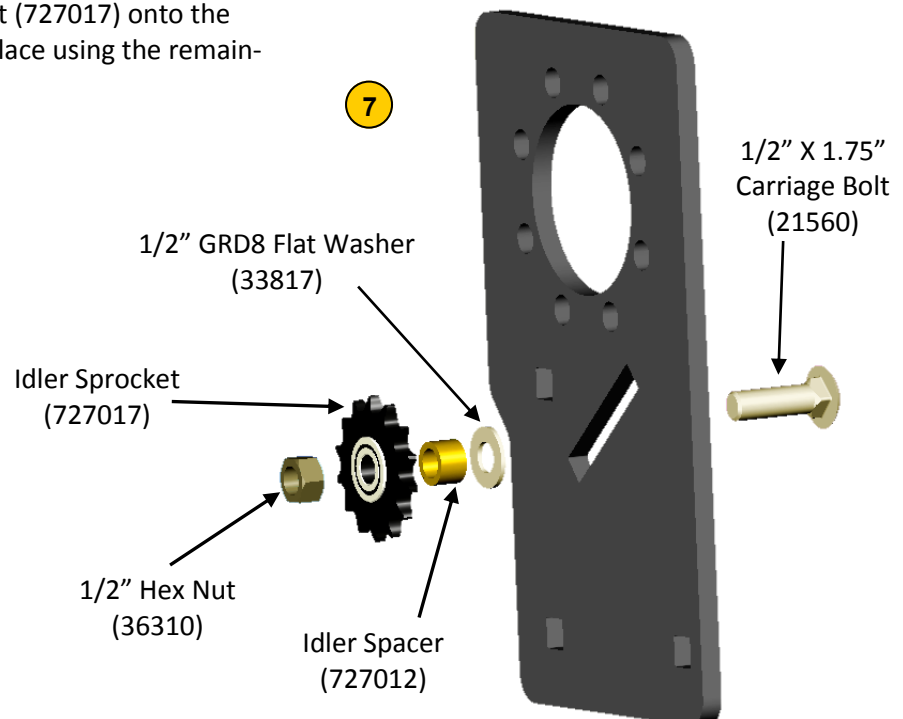
6. Installing the Driven Sprocket

The Driven Sprocket for the Hydraulic Drive is a 36 Tooth 40 Roller Chain (36T40) split sprocket with two 3/8" X 1.75" socket head screws (3/16" Allen wrench). Begin by disassembling the split sprocket into its two halves. Next position the halves over the hex shaft with the facing upright and the collar facing away from the rest of the assembly, this will facilitate the remainder of the installation. Connect and finger tighten the two halves of the sprocket using the screws removed earlier.



7. Installing the Idler Sprocket

The Idler Sprocket is a 14 Tooth 40 Roller Chain (14T40) sprocket on a sealed bearing. To install the bearing place the remaining 1/2" X 1.75" Carriage Bolt (21560) through the Arm Mount. Next place the 1/2" GRD8 Flat Washer (33817), the Idler Spacer (727012), and the Idler Sprocket (727017) onto the carriage bolt. Secure these in place using the remaining 1/2" Hex Nut (36310)

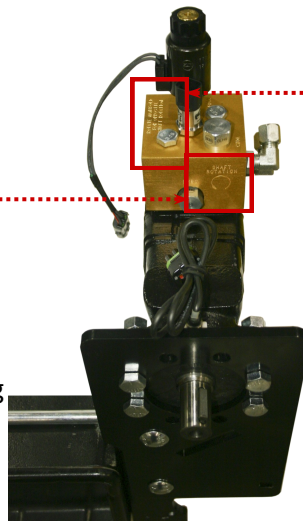


8. Output Shaft Rotation direction & Routing the Chain

Before routing the chain you will need to understand the hydraulic motor's shaft rotation in relation to the spinning of the meters.



There are instructions stamped into the manifold on the motor indicating the direction of rotation, when viewed as in the center image.

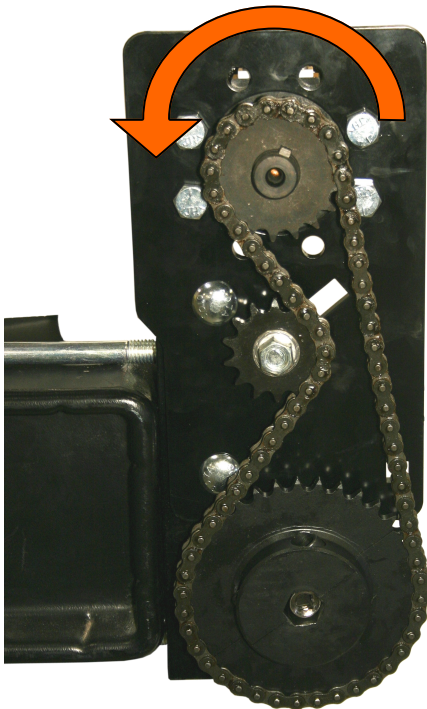


If the opposite rotation is required, remove the two - 10MM X 75MM GRD8.8 bolts from the top of the manifold to release the manifold. Once free, rotate the manifold 180° and fasten in place.

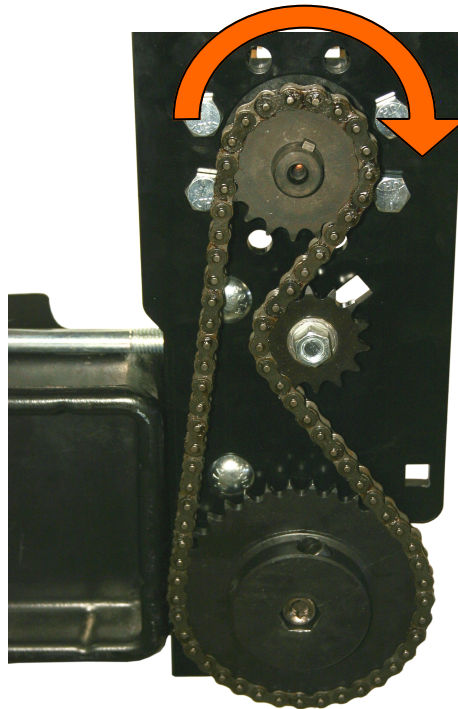
Torque the 10MM bolts to 30LB-FT.

8

Chain Routing for Standard—Counter-Clockwise Rotation



Chain Routing for Reversed—Clockwise Rotation



Once the chain has been routed, fasten the two ends of the chain together using the supplied Master Link.

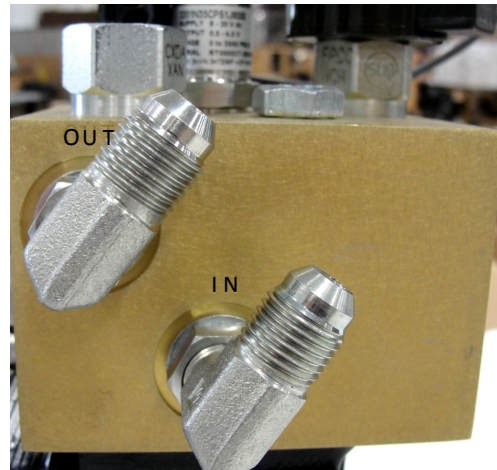


Next, vertically align the chain and secure both the Driver and Driven sprockets in place by tightening all four set screws.

Force the Idler Sprocket into the chain to remove the slack (as shown above, either image) and secure in place by firmly tightening the 1/2" hex nut.

Connect the hydraulic lines (not provided) to the manifold.

Return
(stamped 'OUT' on manifold)

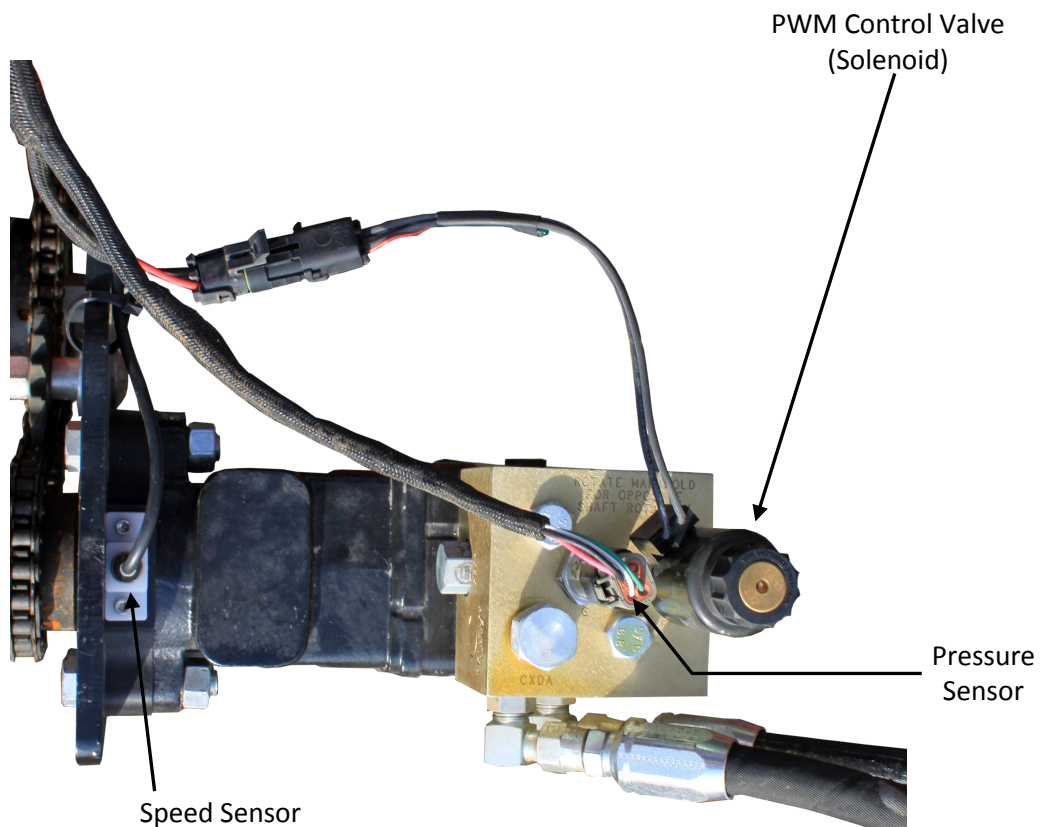


Inlet
(stamped 'IN' on manifold)

Complete the installation by connecting the hydraulic drive to the base harness via the Hydraulic Motor Harness. This harness will connect to three locations on the drive: the Pressure Sensor, the Speed Sensor, and the Valve Solenoid.

For planters with a single drive motor, link to the Base Harness via the connector marked #1.

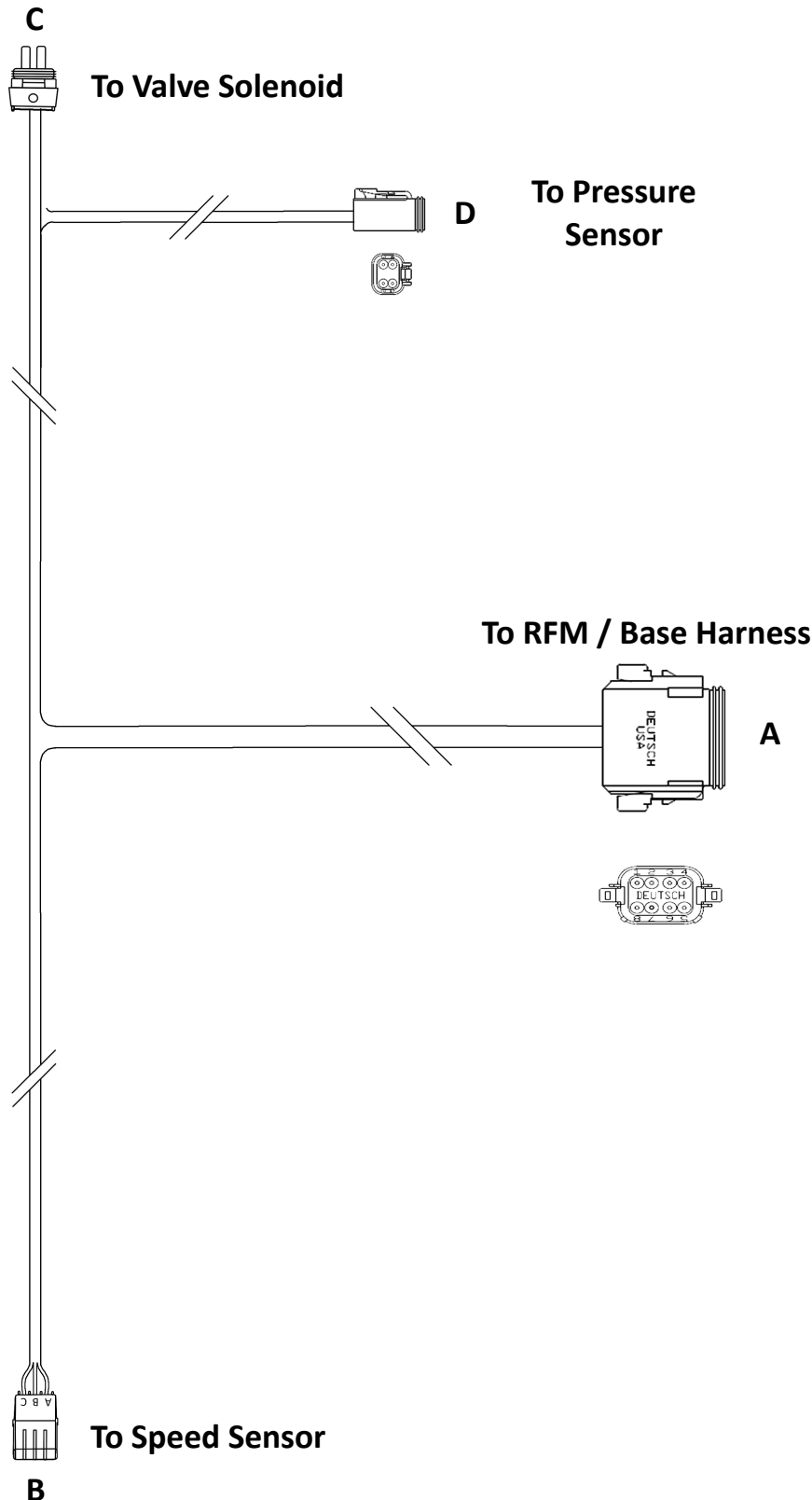
When using multiple drives, it is advised to connect the left-most drive (when standing behind the planter facing forward) to the #1 connector; connect subsequent drives in order moving right across the planter.



Hydraulic Drive Motor Harness

Use the image and tables provided below for further details on installing the harness and troubleshooting purposes.

Part #
727111



A - Deutsch 8pin Plug		
From	Description	To
A1	Sensor Power +12V	BA, D2
A2	Valve Power +12V	CA
A3	Speed Sensor, Signal	BC
A4	Spensor Ground	BB, D1
A5	Pressure Signal	D4
A6	Temperature Signal	D3
A7	Valve Ground	CB
A8	Not Used, Plug	--

B - WeatherPack 3pin Receptacle		
From	Description	To
BA	Speed Sensor Power	A1, D2
BB	Speed Sensor Ground	A4, D1
BC	Speed Sensor Signal	A3

C - WeatherPack 2pin Receptacle		
From	Description	To
CA	Valve Power +12V	A2
CB	Valve Ground	A7

B - Weather Pack 3pin Receptacle		
From	Description	To
D1	Pressure Sensor Ground	A4, BB
D2	Pressure Sensor Power	A1, BA
D3	Temperature Signal	A6
D4	Pressure Signal	A5