

# Installation Guide for John Deere 6090

It is important that you read and understand all of the included instructions that are provided with your new clutch and torsional coupling before you attempt to install your SeaDrive product. These instructions are intended to be used only as a guide and are not a replacement for the individual equipment manuals and installation procedures.

To ensure the longevity of your PTOs components, your bonnet requires parallel misalignment of no greater than .060" and angular misalignment of no greater than 3 degrees. These units are pre-aligned during manufacture, but they require that you make sure all mounting surfaces are clean prior to installation. It is recommended to use a dial indicator to check the alignment of the crank in relation to the front ring of the housing after installation.

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## Section 1: Making Room / Moving Existing Hardware

In order to obtain the clearance needed to install the SeaDrive system, it is necessary to move existing hardware to create more space. This is done by installing a new bracket for the alternator, installing a new coolant tube, and temporarily removing the damper.

### 1-A: Remove the coolant return fitting nut

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Locate the stock coolant tube and using an open ended box wrench, or adjustable box wrench, remove the nut securing the tube to the fitting.

### 1-B: Remove the alignment & hose clamps

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Locate the alignment clamp and remove it using a socket wrench.

Loosen the hose clamp and remove the tube.

### 1-C: Transfer fitting nut to new coolant tube

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Remove the fitting nut from section 1-A and slide it onto the new stainless steel coolant tube.

### 1-D: Adjust angle of fitting by 90°

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The pipe fitting originally is set facing down, in order to install the new coolant tube you need to take an openended box wrench or adjustable box wrench and turn the fitting 90°. Adjust it so that it is facing towards the port side of the engine.

#### **1-E: Insert new coolant pipe into hose clamp**

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Insert the new coolant tube into the hose and secure the clamp.

#### **1-F: Insert new coolant pipe into coolant return fitting**

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Insert the new coolant tube into the adjusted fitting and secure it using the nut that was transferred from the original tube.

#### **1-G: Fasten alignment clamp**

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Line up the coolant tube with the alignment clamp and using a socket wrench secure the clamp.

#### **1-H: Remove belt tensioner**

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If you already have a belt installed on your engine you must first remove it before this step.

Using a socket wrench, remove the belt tensioner.

#### **1-I: Remove the alternator**

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Remove the bolts securing the alternator to the mounting bracket.

### **1-J: Remove alternator mounting bracket**

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Before completing this step, make sure you provide support for the coolant tank. For easier access you may choose to remove the tank for this process.

Remove the bolts holding on the mounting bracket and pull out the bracket entirely. (this will be replaced) Make sure to keep the gasket for re-use later.

Note: There are two bolts on the other side of the coolant return fitting that also must be removed in order to remove this bracket.

### **1-K: Remove the alternator support arm**

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Remove the alternator support arm entirely as this is no longer necessary with the new bracket.

### **1-L: Insert the new alternator bracket & old gasket**

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Slide the new alternator bracket into place and align the gasket on the back side of the bracket to the mounting holes.

### **1-M: Bolt on the new alternator bracket**

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Secure the bracket & gasket to the engine using the bolts previously removed. However, replace the bolts at 9 o'clock and 11 o'clock with the ones provided. Do not coat these with Loctite and Torque the bolts to 29.5lbs. -ft

Note: make sure to also re-install the two bolts on the other side of the coolant return fitting

### **1-N: Re-attach the alternator**

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Bolt the alternator onto the newly installed bracket.

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### **1-O: Re-attach the belt tensioner**

Now that the alternator bracket has been installed, re-install the belt tensioner.

Note: (DO NOT re-attach the pulley or belt at this time)

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## **Section 2: Installing the SeaDrive system**

The SeaDrive system has been meticulously engineered to maintain the integrity & reliability of your engine while giving you the maximum output available. It was built to withstand extreme forces far beyond what the engine can produce so that you can rest assured it will last a lifetime. Please follow these instructions as well as those laid out in the clutch & torsional coupling manuals. They are critical to ensuring the reliability of both your product and your equipment. Thank you!

### **2-A: Remove the damper**

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Temporarily remove the damper and set it aside. This is an important step because we need to create clearance to install the SeaDrive housing.

### **2-B: Remove the pulley & spacer**

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Temporarily remove the belt pulley and damper spacer to allow for clearance while installing the SeaDrive housing.

### **2-C: Clean mating surfaces**

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In order to ensure proper alignment it is imperative that the mating surfaces are clean and flat. Use a scraper or razorblade to remove build up, debris, burrs and dirt. Using a clean cloth, clean the surfaces with alcohol or acetone.

## **2-D: Bolt on housing**

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Coat each bolt with Loctite then secure the SeaDrive housing to the front of the engine block. Torque each bolt to 80lbs.-ft.

IMPORTANT: It is imperative that you install the bolts to the front of the engine before those on the sides.

## **2-E: Bolt on mounting feet**

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Bolt on your engine mounting feet through the side of the housing to the mating surface on the engine block. Torque each bolt to 200lbs.-ft.

Note: The mounting feet seen in the picture are not included and are an optional accessory. Please contact MER Equipment for more information. (Part # 33631B)

## **2-F: Attach the pulley, spacer, damper & adapter**

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Remove the paint on the damper's mounting face. (see picture). Re-attach the pulley, spacer and damper that you removed earlier.

Install the engine adapter using the supplied socket head cap screws. (see below for torque) Make sure that nothing is interfering with the adapter laying flat against the machined damper surface.

## **2-G: Torque engine adapter**

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Secure the engine adapter to the damper in a star pattern (seen in picture to the right) using 29lbs. -ft of torque. Then, also using the same star pattern, a finaltorque of 94lbs. -ft

## **2-H: Attach slide bolts**

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Lightly fasten the slide bolts to the engine adapter. (see below for final torque) Loctite is NOT required because the slide bolts are pre coated with a dry micro capsule epoxy.

## **2-I: Torque slide bolts**

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Secure the slide bolts to the engine adapter using 370lbs -ft of torque.

## **2-J: Check alignment**

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Attach a dial indicator to the front of the engine adapter and while touching the inside front ring of the housing, zero out the dial indicator. Rotate the engine crank one time around record the offset misalignment.

To calculate alignment, take the sum of the maximum negative and positive alignment and divide by two. (example: if the total indicator reading is .010" then the total offset misalignment is .005")

The total offset misalignment MUST NOT be greater than .060". If you record an offset misalignment greater than .060" you must remove the housing, check the mating surfaces for any debris, re-clean the surfaces then install and measure again.

Note: If you do not have the ability to manually turn the crank, you will need John Deere part # "JDG820"

## **2-K: Slide-on torsional coupling**

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Slide the torsional coupling onto the slide bolts that were torqued onto the engine adapter in figure 2-H

Note: The torsional coupling's machined surface must be facing the engine. (see picture for proper installation)

## **2-L: Put in torsional coupling hub**

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Take the torsional coupling hub and temporarily place it inside the torsional coupling. (free floating)

It is important that you do this BEFORE installing the clutch because there will not be clearance to install it later.

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### **2-M: Bolt the clutch on front ring of the housing.**

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Bolt the clutch to the front ring of the housing so that the electric pig tail is at the top. Then tighten the bolts to 44lbs. -ft of torque.

Note: Do NOT use loctite on this step

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### **2-N: Attach engine belt and slide on replacement belt**

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It is important to re-attach & tension the alternator belt at this time because once the hub is attached you will not be able to easily change the belt. For this reason we supply you with an additional replacement belt so that when the alternator belt needs to be replaced the process will be much easier. Simply slide on the replacement belt over the coupling and damper loosely. (secured later)

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### **2-O: Bolt on the torsional coupling hub to the clutch**

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Take the torsional coupling hub that you loosely placed inside the coupling and pull it to mate with the clutch. Line up the slots with the holes on the clutch and using bolts coated in loctite secure it into place with an open ended box wrench or adjustable box wrench.

Torque each bolt to 50lbs. -ft

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### **2-P: Apply petroleum jelly**

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Take a small amount of petroleum jelly and apply it to the base of the head cap screw used to secure the torsional coupling to the hub.

DO NOT SKIP: This lubricant prevents twisting the coupling when torquing the bolts

## **2-Q: Fasten torsional coupling to hub**

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Fasten the jelled head cap screws through the coupling and into the coupling hub. It is critical that you work your way around as you thread the bolts in to evenly compress the rubber coupling. Torque each bolt to 370lbs. -ft.

**IMPORTANT:** The coupling bolts come with a pre-applied dry thread locking compound. You cannot re-use these bolts. Never use liquid thread locker on coupling bolts as it can de-vulcanize the rubber causing the it to fail.

## **2-R: Insert limp bolts into the driveline cover**

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The two holes on the top of the driveline cover are reserved for your limp bolts. These are used to permanently engage your clutch if any issues arise during use.

## **2-S: Slide on the driveline cover**

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Take the driveline cover and slide it into place. To help with direction, the "MER" logo will always be on the starboard side of the engine.

The SD logo or your companies custom logo will always be on the port side of the engine.

## **2-T: Zip-Tie spare belt**

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There are four holes on each side of the bonnet cover. Use these to Zip-Tie the replacement belt to the cover so that it is away from moving parts and ready for use when the belt needs to be replaced.

## **2-U: Bolt on driveline cover**

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Using a flat washer and a lock washer, install the driveline cover to the housing using 3 bolts on each side of the housing.

## **2-V: Bolt the clutch on front ring of the housing.**

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Put the spare belt into the hooks on the bottom of the housing. Securely fasten the belt around these hooks with zip-ties, leaving the belt slack bundled up and secured at the bottom. Cut all of the zip-tie tails. Make sure that the belt and zip-ties are not going to interfere with any moving parts.