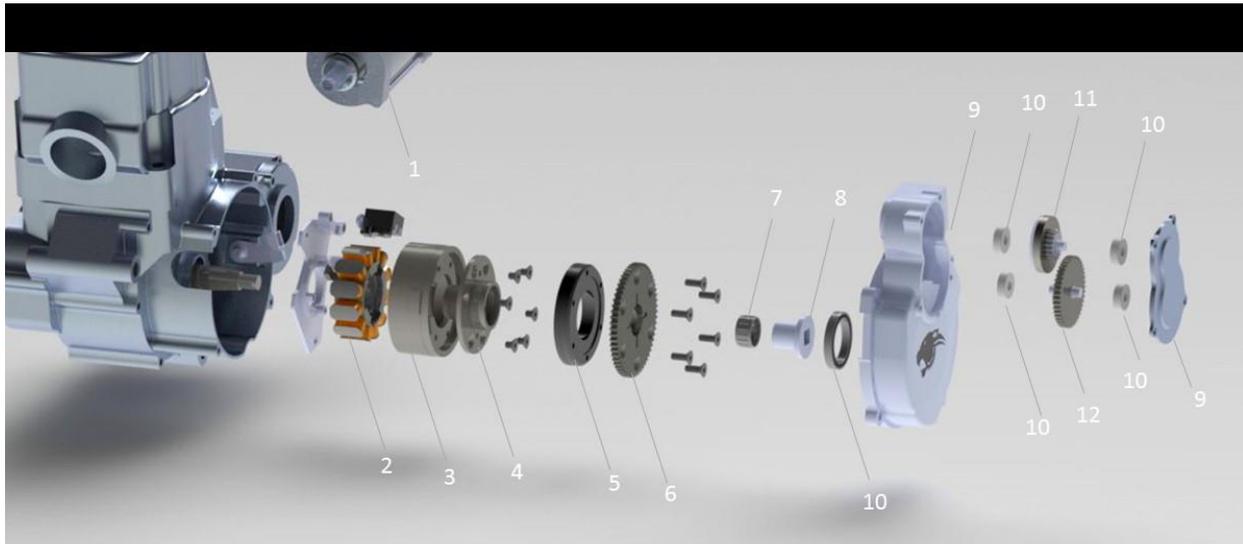




PANTHERA MOTORSPORTS

PANTHERA CR500 E-START Installation guide

List of Panthera parts you need



1. PANTHERA STARTER	2. CRF 450X 110W STATOR	3. CRF450X BACKWARD ADAPTED FLYWHEEL	4. HIGH STRENGTH FLYWHEEL ADAPTER	5. ONE WAY CLUTCH	6. MAIN STARTER GEAR
7. NEEDLE BEARING	8. BOLTING NUT AND BEARING HOLDER	9. PANTHERA STARTER COVER AND CAP	10. SEALED BALL BEARING	11. CROWN STARTER GEAR	12. INTERMEDIATE GEAR



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- 1- Panthera starter electric motor
- 2- CRF450x 110W Stator
- 3- CRF450x backward adapted flywheel
- 4- High strength flywheel adapter
- 5- One way clutch
- 6- Main starter gear
- 7- Needle bearing
- 8- Bolting nut and bearing holder
- 9- Panthera starter cover and cap
- 10- Sealed ball bearing
- 11- Crown starter gear
- 12- Intermediate gear
- 13- Sprocket guard and motor mounting
- 14- Starter relay

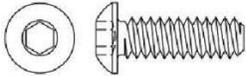


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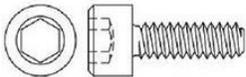
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Hardwares

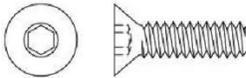
Bottom socket head cap screw



Socket head cap screw



Flat socket head cap screw





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Installation

CRF450x Stator

The starter unit will require to run oil in the flywheel compartment. To do so, you will have to block the CR500 flywheel vent hole. Use silicone or any other sealing compound that has oil sealing capability.

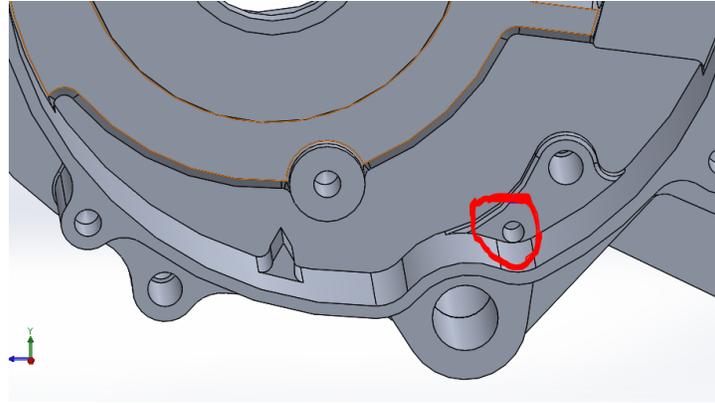


Figure 1 Vent sealing

As you receive your unit, the new CRF450X stator will be already bolted, loctited and troque to its backplate.

Bolt the new stator unit to the cases with two button heap cap screw. The stator plate as angle goes from +3 to -3 deg, zero being in the middle position.



Figure 2 Stator installation



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Place the rubber boot into its proper location in the case opening. Place the cable back to ensure they won't touch the flywheel. Zip tie the pick up cable and the stator cable together and place them as deep as possible.

Once the cables and boot are at the proper location, **fill the opening of the rubber boot with silicone** to seal the boot.

Flywheel

Align the flywheel with the key way and slide it in place. You will have to fight the magnets to place it straight and all the way down.

Once you will have the flywheel bolted, spin the flywheel (and motor) by hand to make sure you don't feel any rubbing between the flywheel and the stator. This can happen if the stator back plate is not properly sitting, or sometime with after market stators that happen to be thicker.

One way clutch and ring gear

If you have taken off the one way clutch and ring gear from the flywheel, you can easily put it back on by pushing it on the flywheel with a clockwise rotation.

Bolting the flywheel

Bolt the flywheel in place with the specially designed element. You will simply need a 1/2in extension on your torque wrench or even use the torque wrench itself. Use the gear holder tool supplied to prevent the engine from turning.

!! Do not forget the needle bearing before putting the bolting unit !!

!!! The flywheel has to be torque at **70 ft-lb. Not doing so will have the key way sheared by the starter!!!**



Figure 3 Flywheel torquing



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The flywheel trigger bump will tend to touch the rubber boot. You will have to shave the rubber slightly with a blade.



Figure 4 Rubber boot shaving

Sprocket guard

The billet sprocket guard supplied with the kit is necessary as it holds the electric motor in place.

Bolt the guard in place with the supplied socket cap screw, or any other M6x1.0 bolts you like.

The sprocket guard is designed to receive up to a 15 teeth sprocket.

Starter cover

To install the cover, remove the two small gears from behind the gears cap. Leaving the gears will make it hard to put the cover on and align the gear at the same time, you will risk damaging the gears.

Do not forget to put the gasket on the cover.

Align the starter cover so that the flywheel bolting unit slides in the bearing inside the cover. This bearing ensure that the main ring gear is at the exact right distance to the secondary gear.

Bolt the cover in place with standard honda flywheel cover bolts or any other M6x1.0 bolt you like.

!!! Before putting the gears back in, putt 300ml of gear oil in the cover.

But back the gears in place, top gear first.

Then put back the gear cap in place with its gasket, and torque back all the bolts to 84 in-lb.

Starter motor

Slide the starter motor in gently. Put grease on the o-ring to ensure not damaging it. Putting grease on the starter shaft will also help for the first dry start. Finding the gear alignment might require to rotate the motor a couple degrees. Bolt the motor to the sprocket guard.



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!!! IMPORTANT !!!

First start up should always be done by foot, with the gears out of the unit. Firing a new ignition system should always be tried without e-start first. Wrong wiring can end up with backfiring and risk damaging the starter gears.

Electrical connection

For wiring, see the wiring diagram at the end of the document.

Connector are supplied for you to match the new stator connectors.

Battery

The recommended battery is a lithium battery of at least 4.5 Ah and 250 cranking amp.

For those who will run the unit in very cold environment, a lead battery with a 250 cranking amp capacity will work.

Starter relay

The starter relay included in the kit can be place anywhere on the bike. It is best to place it near the battery and make the power cable from the battery to the relay to the electric motor the shortest possible the limit the resistance.

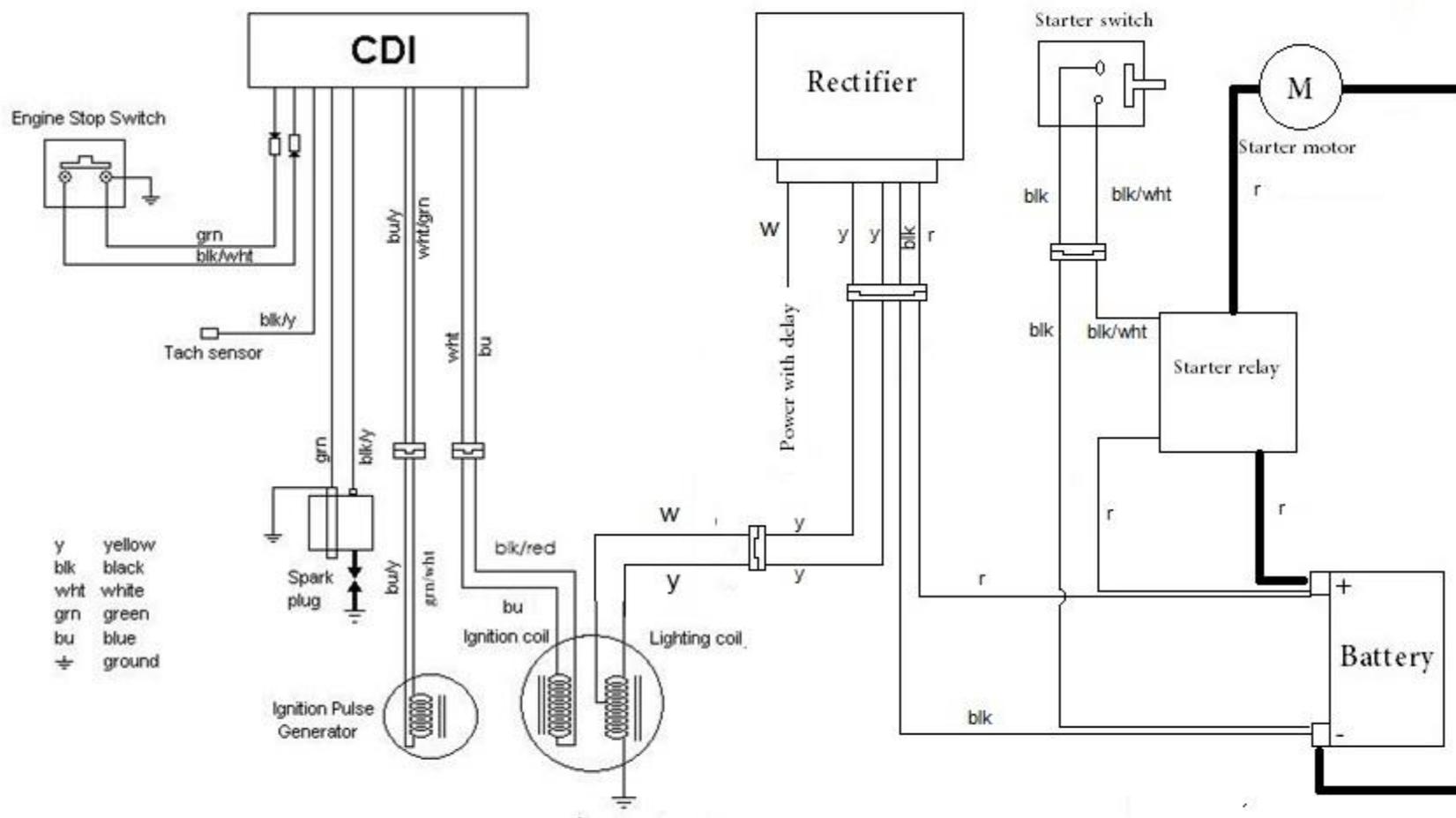


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Wiring diagram

CR500 WITH PANTHERA ELECTRIC STARTER KIT





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Security concerns

Engine assembly must always be accomplished by a qualified mechanic.

Use the proper tools for every operation and always wear the proper personal protective equipment (glass, gloves, etc.)

The parts sold by Panthera Motorsports are often machined parts and are at risk of having sharp edges. Always handle with care.



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Returns and Exchanges

General:

All returns must be postmarked no later than 10 days from the original customer shipment date. Returns and exchanges must be in new condition and must include all instructions and original packing material. Customer pays all return shipping charges. Include a copy of your packing list and authorization number with all returns.

Original shipping and handling charges are not refundable. Returns must be preauthorized by us and are subject to a 20% re-stocking fee. These amounts will be deducted from the original amount billed and the remaining balance will be credited to the original credit card or paypal account.

Incorrect Item:

If you received an incorrect item, we must be notified within 10 days of receipt of the shipment so that no extra charges will be incurred. We will replace incorrect items and pay the additional shipping charge. No returns of items will be accepted beyond 21 days of the original shipment date.

Return Shipping Instructions:

Return via prepaid mail only. Insure shipment for full value of purchase. Use original packaging. We are not responsible for packages lost during return shipping.

Return/Exchange Instructions:

Enclose a copy of your packing list along with detailed return/exchange instructions.

All returns require prior authorization by e-mailing us at sebastien.m@pantheramotorsports.com . All return shipping charges will be the responsibility of the customer. No returns on items under \$30.00 will be approved. Items must be returned within 90 days of the original order date in the original packaging with the labels intact.



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Warranty Items:

All merchandise manufactured by Panthera Motorsports has a warranty against manufacturing defects for a period of one (1) year from the date of original shipping. Warranty is limited to the repair or replacement of defective products. There is no warranty for normal wear and tear, any type of crash. Panthera Motorsports reserves the right to repair, replace or issue a Panthera credit for defective product at its discretion. Credits are valid for a period of one (1) year from issuance. No credit will be issued for labor or other costs incurred beyond the value of the original product. Product returned as a warranty after having been used, if found to be defective, is not valued at the full purchase price. A depreciated value will be estimated for used product. Warranty excludes product that has been modified or where the product was improperly installed, abnormally used or misused. This limited warranty is in lieu of all other guarantees or warranties implied or expressed. This includes, without limitation, any warranties or merchantability and fitment for a particular purpose. We make no warranty as to products distributed by Panthera Motorsports, expressed or implied. We will, however, pass on all warranties made by the manufacturer, who has sole responsibility for performing such warranties. A return authorization number must be issued by Panthera Motorsports before product is returned. Returns must be sent back to Panthera Motorsports freight prepaid. Proof of purchase, such as a copy of the original invoice, must accompany all warranty claims. Warranties will be honored to the direct purchaser only.