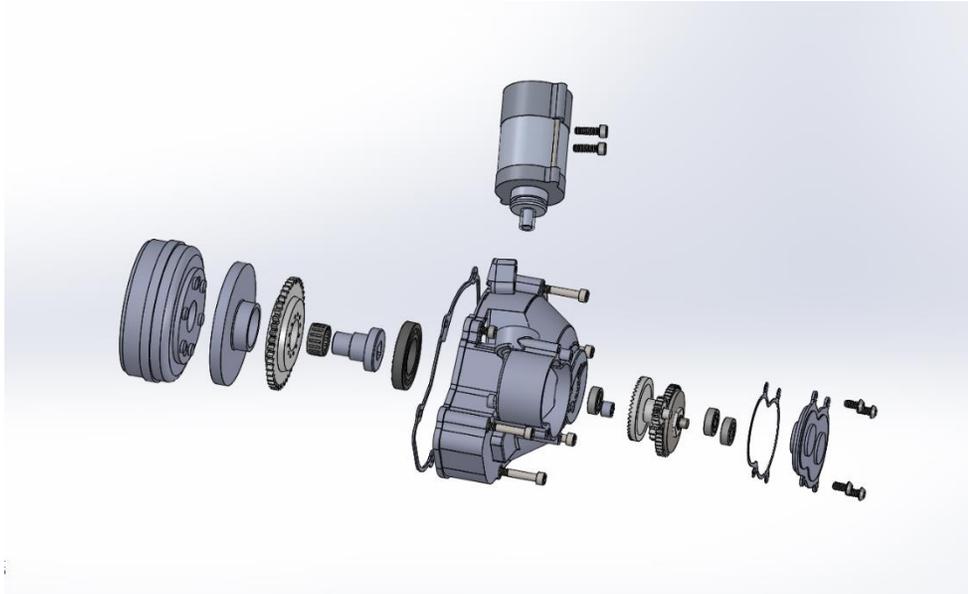




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TRX250R – ATC250R 1985-1989 Electric starter - Installation guide

List of Panthera parts in your TRX250R kit:



- 1- Aluminum Billet cover
- 2- Main ring gear / one way assembly
- 3- Crown gear
- 4- Intermediate gear
- 5- General bearings
- 6- Bolting shaft
- 7- Gaskets and Hardware
- 8- Electric motor
- 9- Battery box
- 10- Wiring harness
- 11- Relay
- 12- Starter button



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List of tools you will need:

- 1- 3/8 drive Socket ranch
- 2- Socket ranch extension
- 3- 8mm socket
- 4- 17mm socket
- 5- 5mm Allen drive bit (long tip)
- 6- 4mm Allen drive bit
- 7- 60-150 in-lb torque wrench
- 8- ½ drive 150 ft-lb torque wrench
- 9- RTV silicone

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 (Protective eyewear, 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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Original parts disassembly

[Flywheel cover removal](#)

With an 8mm socket, remove the 4 bolts holding the flywheel cover in place.

Specific preparation

[Flywheel area cleaning and sealing](#)

Properly clean the whole flywheel area of any dirt or debris. This section of the engine will now be running oil and we want it as clean as possible.

Panthera system installation

[Battery box and wiring harness installation.](#)

The battery box for the TRX250 in a drop in configuration is made to bolt to the left side of your sub frame with 3 u-bolts.

You can run the supplied wiring harness next to the rear shock/ carburetor, and alongside the chassis. The two big power cables go down towards the engine, and the push button wires towards the handle bars. Secure with zip ties

****Empty connectors:** The supplied harness is a generic harness we make for both kits with and without charging systems. The two connectors with yellow wires (one near the front of the bike and one at the battery) will not be used in this configuration.

These connections can be used to link the lighting coil of your stator to power a current rectifier/regulator and recharge your battery.



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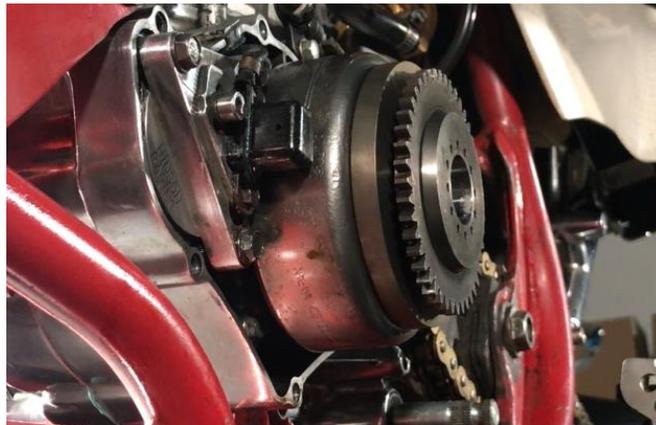
Main gear installation

Place the starter flywheel flange on the flywheel by aligning the 2 locator pins.



The flange is a tight fit, it might require some gentle tapping with a plastic or brass hammer.

Place the main ring gear on the flange by rotating it clockwise while you push it on.



Put the needle bearing in the middle and insert the bolting unit.

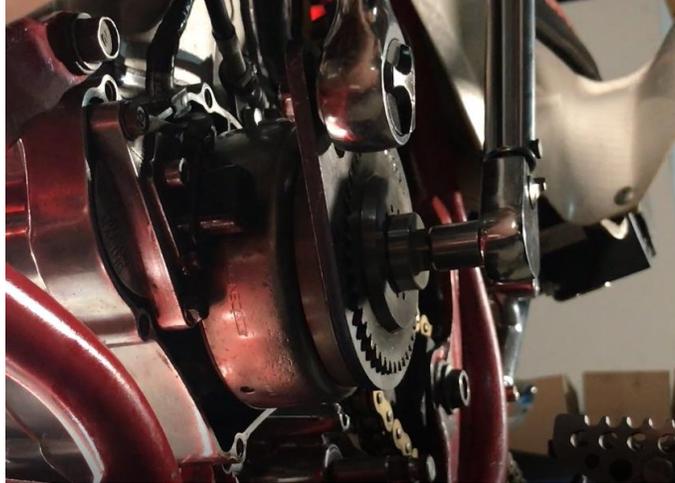




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Using the gear holding tool supplied, and a 1/2in torque wrench, torque the bolting unit to 60 ft-lb.



Make sure the main gear is still rotating freely clockwise and locking counter clockwise.

Starter housing installation

To ensure a proper seal of the starter housing, put silicone on the stator rubber boot area.

Unbolt the small gear cap of the starter housing with a 4mm allen and remove the two starter gears.

Once in place, ensure the housing central bearing is sliding on the flywheel bolting unit. Hold the cover in place and bolt it with the 5mm allen cap screw. Torque the cover housing to 90 in-lb.



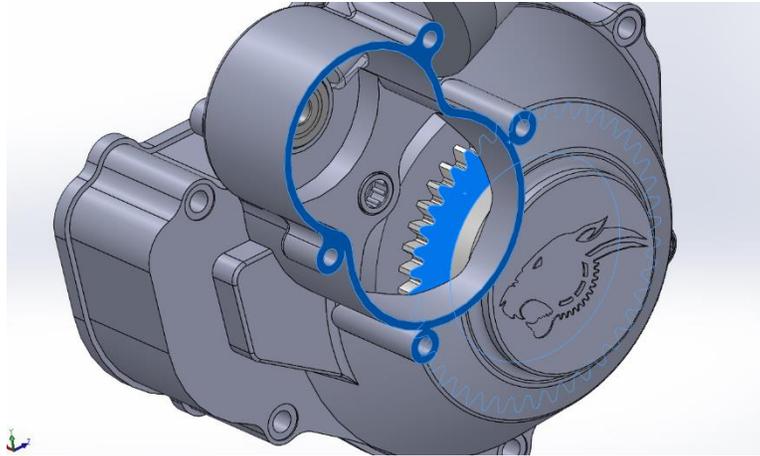
Make sure the main gear is still spinning freely clockwise after the cover is torqued in place.



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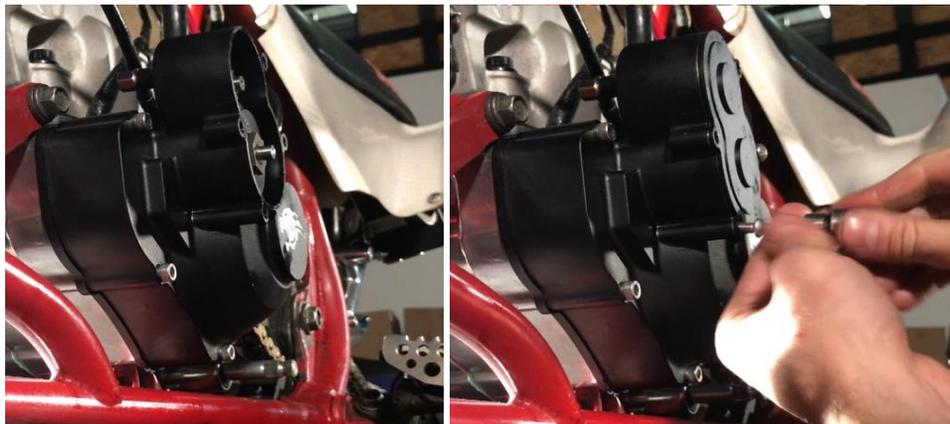
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To ensure proper installation, measure the distance of the ring gear face to the gasket surface of the small gear cap. Some cranks can be out of specifications or have been re-machined due to previous damages to crankshaft taper. If the flywheel doesn't sit at proper distance, it could prevent the gears from meshing or prevent the starter gears from spinning. Push the gear toward the engine as much as it can and measure distance (without gasket). The tolerance for the gear distance is **18.5 to 21.0mm**.



Pour 300ml of oil inside the starter housing or until it almost reaches gear opening, you need to ensure the one way inside the main gear gets proper oiling. Use ATF type F oil for better results.

Place the two small gears back, starting by the upper one. The second one will require meshing top and bottom gear at the same time. If the gear does not want to mesh in place, rotate the gear one tooth at a time till meshing is found.



Place gear cap and its gasket back on and bolt it on with the 4 button heads. Use blue Loctite and torque to 90 in-lb.



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Starter and battery connection

Secure the positive (red) wire to the motor terminal and the negative (black) wire to an electric motor mount bolt. Run the black wire under the electric motor up to the left motor bolt.

The housing is equipped with a pressure vent at the back made to run a hose to a high point, at least one foot higher than the housing. Place the hose so that its end points down and no water enters in it.

Install the battery in the battery box, making sure the + and – are properly located.

Connect the harness to the battery, always connect the positive (red) first.

Once wires placed properly, tighten the two nuts on the relay with at 10mm socket.

PRESS THE BUTTON AND GO HAVE FUN !!

User note: We often get asked if the whining sound at the engine shut off is normal. It is. When the engine comes to a stop, the compression pushes it backward of a quarter turn and that makes the electric motor spin back a few turns. The gear sound is perfectly normal.

Maintenance

It is recommended to flush the oil after the first ride to eliminate particles generated by the gears first meshing and break in. Taking cover off to remove all particles is recommended versus only using the drain plug.

On a normal basis, change the oil at the same time as transmission oil.

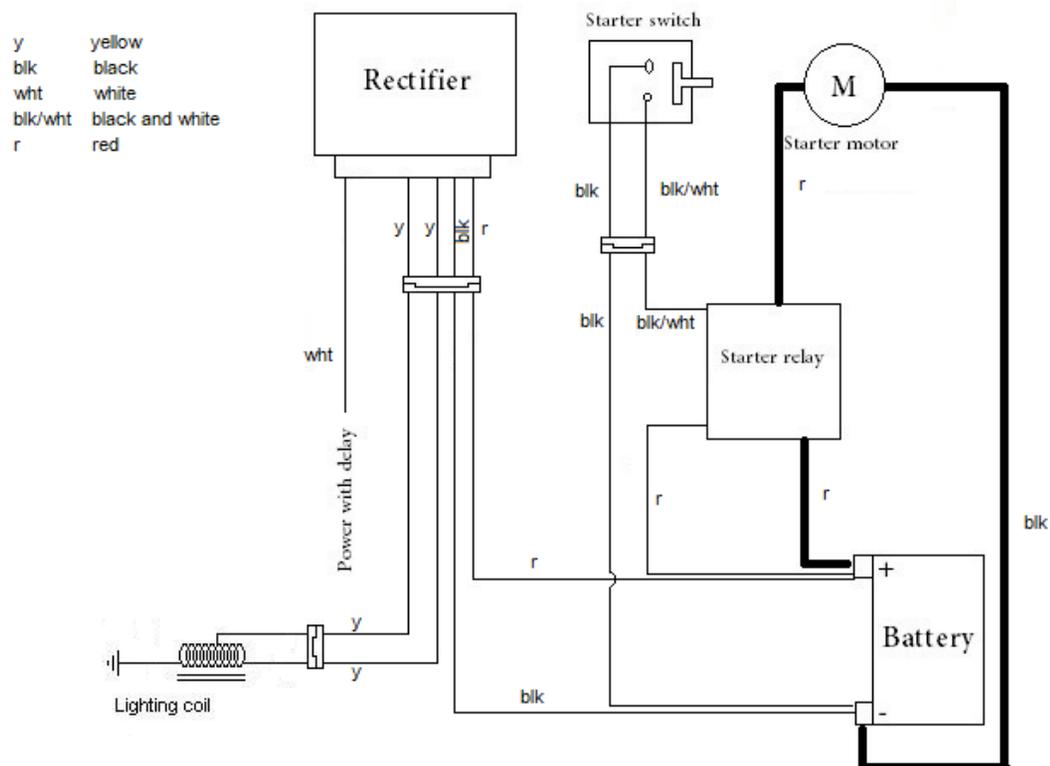


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Annexe 2 Electric starter system wiring diagram

- Lighting coil and rectifier section only applies for motorcycle with a pre-installed lighting stator





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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 info@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.