DIRECT DRIVE - ELECTRIC START KIT

SUITABLE FOR ALL PRE MK3 KICK-START
750, 850, 920 & 1000CC NORTON COMMANDO
From 1969 - Engine Number 131257 Onwards

ASSEMBLY INSTRUCTIONS

KIT LIST

060398ELEC	BAND - CHAINCASE SEALING - RUBBER - NORVIL E START -	1
063300BIG	BATTERY - 12V - MK3 ELECTRIC START - YTX20 - SEALED FOR LIFE * UK ONLY *	1
062557ELEC	BATTERY TRAY - FITS BATTERY ALONG BIKE - NORVIL E-START	1
61907	BEARING - OUTRIGGER - ELECTRIC START - SEALED FOR LIFE	1
069218ESTART	BELT DRIVE KIT - COMMANDO - WITH CLUTCH - NORVIL E-START	1
067969	BOLT - 3/8" - UNF X 1" - CALIPER - MOUNTING	2
067846ELEC	BOLT - ALLEN SCREW - HOLDS STARTER MOTOR - STAINLESS	2
067918SS	BOLT - CENTRE HEAD - THE SHORT ONE IN THE MIDDLE - STAINLESS	2
062653ELEC	BOLT - GEARBOX TOP - NORVIL ELECTRIC START -	1
000360	BOOT - TO FIT OUR THICKER STARTER LEADS - TOO BIG FOR STD	4
NORVILSUPPORT	BRACKET - & PILLARS X 2 - NORVIL – ELECTRIC START ONLY	1
900269	BULLET - BRASS - TO CRIMP OR SOLDER	1
060374ELEC	CHAINCASE - INNER - PRE MK3 - NORVIL ELECTRIC START ONLY	1
900288	CONNECTOR - RUBBER - SINGLE - FEMALE CONNECTOR - 1 EACH END	1
064700A	COTTER SET - LATE ENGINE CRADLE – WITH NUTS/WASHERS ETC	1
066972ELEC	CRADLE - REAR ENGINE & GEARBOX MOUNTING - NORVIL E-START	1
065911	LEAD - STARTER - NEGATIVE - SOLENOID TO STARTER - THICKER	1
065909	LEAD - STARTER - POSITIVE - RED - THICKER - NO BOOTS	1
063123SS	NUT - 5/16" UNF - NYLOC - SLIM TYPE - STAINLESS STEEL	3
140303	NUT - 3/8" - UNF – PLATED	2
064730	NUT - GEARBOX MOUNTING - FOR TOP BOLT - HEXAGON MK3	1
NORVILOUT	OUTRIGGER PLATE - NORVIL E-START - 1 PIECE - NORVIL LOGO	1
062567	PAD - PETROL TANK MOUNTING - THICK-ALSO FITS DOM BATTERY BOX	2
093838	PIPE - OIL - 3/8" BORE - SMOOTH - PER FOOT - CODAN	2
060895	SHIM - CLUTCH - 0.48" - TO ALIGN PRIMARY CHAIN	1
NORVILSPACE	SPACER - NORVIL E-START - STEPPED SPACER - OUTRIGGER	1
060453	SPINDLE - SWINGING ARM - LONG - 750 & EARLY 850 - 7" LONG	1
HDSTR02-14C	STARTER MOTOR - NORVIL ELECTRIC START - CHROME	1
NORVILBUTTON	SWITCH - STARTER - BUTTON - NORVIL ESTART - UNIVERSAL	1
008021SS	WASHER - 3/8" - PLAIN - STAINLESS STEEL	2
602322	WASHER - 3/8" - PLAIN - THIN – PLATED	4
000013	WASHER - 9/16" - GEARBOX TOP MOUNTING BOLT - MK3	1
016213SS	WASHER - CYLINDER HEAD BOLT - 3/8" - THICK - LARGE DIAMETER	2
064147SS	WASHER - CYLINDER HEAD - 3/8" - EXTRA THICK FITS BASE	2
067697	WASHER - THRUST - FITS OUTSIDE ROCKER	1

A battery is included with UK purchases only.

A battery is not included with overseas purchases – we recommend using a 20amp/hour battery.

IMPORTANT NOTES

PLEASE READ THROUGH THE WHOLE INSTRUCTIONS PRIOR TO COMMENCING

Our electric start kit is both powerful and discreet. We believe that by removing the need for a sprag and then delivering power directly to drive the engine via our clutch basket gear, it is the most efficient and strongest solution that will elongate the usefulness of any pre mk3, kick-start Norton Commando for many years to come. A perfect solution to save your knees or for you to ride a bike that you can no longer kick over! With this being said, there are a few things for you to note:-

You cannot use bronze sintered clutch plates with this kit. If your bike has bronze sintered clutch plates then you will have to replace them, please see optional extras for options.

The installation of this kit prevents the use of the standard Commando air filter due to space restrictions, a variety of alternative slimmer solutions are available as optional extras.

By design, the gearbox is non-adjustable once this kit is fitted as the gearbox is fixed in place.

The primary ratio of the supplied kit is 70-33-896. This ratio cannot be changed.

You bike needs to start consistently well using its original configuration prior to fitment. This kit only removes the need to kick-start your bike, it does not solve issues created by other parts of the starting configuration e.g. faulty carbs, bad ignition timing, poor air filtration, petrol tank/fuel issues etc.

We recommend the use of concentric carbs, but this is not essential if your current carb solution is working well.

We recommend the use of a hydraulic workbench and ratchet straps for ease of installation, but this kit can be installed without one. At a minimum you will need to be able to stabilise the bike once the engine cradle and centre stand are removed, if you do not have a hydraulic workbench then we recommend a mini hydraulic lifting support and ratchet straps at a minimum.

The fitment of our starter motor equipment should take approximately 3 hours, plus the time taken to strip and reassemble the other parts that were removed to allow access. We recommend a total time of 10-12hours for the whole job to be completed by one engineer or 6-8 hours by one engineer with some help.

The removal of the engine cradle offers an excellent opportunity to renew or replace the rear isolastics, please see additional extras.

The starter motor may be supplied in either silver or black depending on our current batch of starters.

MINIMUM TOOL REQUIREMENT

060999 - Clutch compressor tool
061015 - Clutch basket centre nut tightening tool
074000 - Silicon/RTV sealant
SPANSET6 - Spanner set
SOCSET7 - Socket Set
General screwdriver set
Superglue
Workshop manual for your model

PRIOR TO FITMENT

In order to fit our electric start kit you need to remove the following from your bike - please refer to your workshop manual.

- drain oil tank (be sure to label the feed & return oil pipes on both ends with different coloured electrical tape to ensure correct reattachment)
- battery – disconnect and then remove
- tank
- seat
- footrests
- exhausts
- final drive chain
- rear wheel
- air filter
- carbs
- gearbox
- primary drive
- battery carrier
- swinging arm
- main stand
- rear isolastic
- oil filter housing
- engine cradle

You only need to move the oil tank, there is no need to remove the oil tank entirely, but it needs to be moved slightly to allow for the fitment of the new battery carrier.

There is no need to remove the engine.

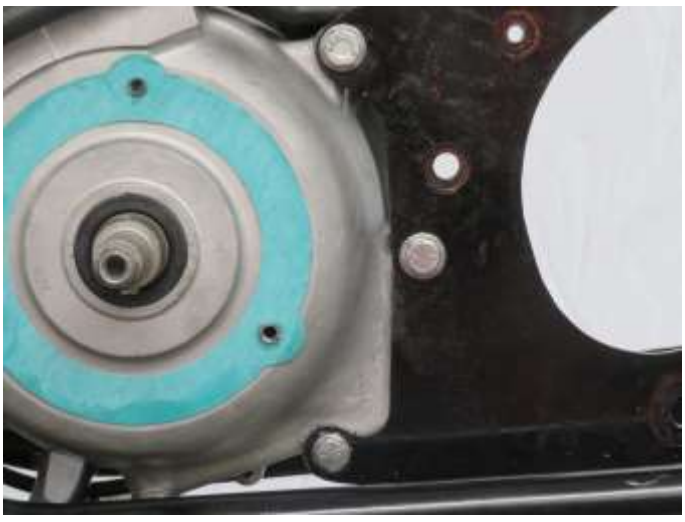
Once the required items have been removed please proceed to the fitting instructions for our electric start kit.

FITMENT INSTRUCTIONS

Your bike needs to be stripped similar to this before you carry on.

Take the new engine cradle and fit your centre stand, oil filter housing, swinging arm and rear isolastics to it, (this is easier to do before the engine cradle is installed). We have supplied to you a new swinging arm spindle and cotters as this is a far superior set up to support the swinging arm than the standard swinging arm spindle. This point presents a perfect opportunity to renew your rear isolastics too if desired (see optional extras).

Ensure that the swinging arm is left loosely attached to the new cradle and loosely attach the new cradle to the bike with your three engine/cradle mounting bolts. For easy of assembly, insert the top bolt first, then the bottom bolt, (using a screw driver or drift to locate the position), finish with the middle bolt which should slide straight in. Fully tighten the top bolt to 30ft/lb. Leave the middle and bottom bolts loosely attached.



Refit oil filter to oil tank return pipe.

Loosely fit the gearbox & support bracket, (if you had previously tightened the middle & bottom engine/cradle bolts you MUST loosen them now before continuing in order to fit the gearbox easily & without causing damage). Before securing & tightening the gearbox, install the new longer oil feed pipe that we supplied, (which you will need to divert around, there is more room to do this before everything is tightened into place).

Tighten middle engine/cradle bolt to 30ft/lb.
Tighten bottom engine/cradle bolt to 20ft/lb.

Ensure that the gearbox is tightened up solid, (there is no adjustment slot on the cradle by design, you must not add one).

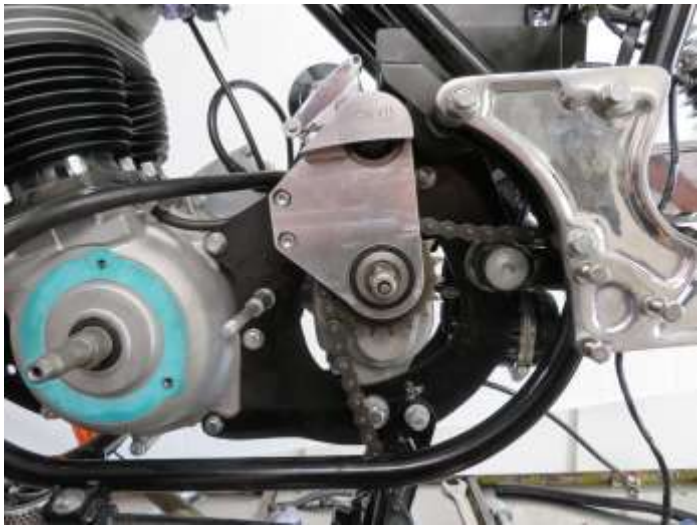
Install the new battery carrier that is supplied with the kit. This is required to house the bigger battery that is supplied with the UK kits (overseas customers need to purchase a 20amp hour battery in their domestic country). The new battery box is designed to be a snug fit. Do not use a battery that is lower than 20amp hour as this is what is required to turn the engine over quickly enough to start.

Reattach any oil tank bolts that were removed.

Reattach the shocks to the swinging arm, (the bottom fixing bolts are always a bit fiddly to attach).

Reinstall chain to gearbox sprocket and then loosely install the starter motor that is supplied using 2 bolts, 2 nuts and 6 washers. Use 2 washers to front mounting bolt due to the starter motor shoulder. Do not tighten the starter motor yet, (the outrigger plate needs to be fitted before tightening).

Install the bearing into the outrigger plate. Insert the outrigger plate onto the gearbox mainshaft.

Fit the top hat bush gently with a nylon mallet/block.

Install the 2 outrigger support spacers between the outrigger and engine cradle using 2 allen bolts and spacers provided

Reinstall your bikes gearbox output shaft spacer.

Ensure the starter motor is tightened fully.

Install your existing clutch centre into the new clutch basket that has been supplied.

Next we you are going to install the new inner primary cover and clutch basket. Please read the following paragraph through before commencing on this stage.

The new inner primary cover and clutch basket need to be installed onto the bike at the same time. The clutch basket needs to be slotted into the cut-out in the inner primary cover as the cover and basket are gently pushed on together. You cannot install the cover and then the basket as you will not be able to get the basket drive gear into the correct position inside the cut-out if the inner primary cover is installed first. Hold the primary cover approximately 10mm away from the bike, insert the basket gear into the cut-out, slide the primary and clutch basket on together and gently press into place.

Reinstall your 3 bolts and 3 tab washers to hold the inner primary cover to the crankcase. Re-tap the long end of the tab washer into place with a mallet, bend back the short tab onto the bolts then apply silicone.

Tighten up the inner chaincase spacer to the engine plate. Install your tab washers to the clutch centre. Gently bend the tabs over and use your clutch centre tool to tighten the clutch centre bolt.

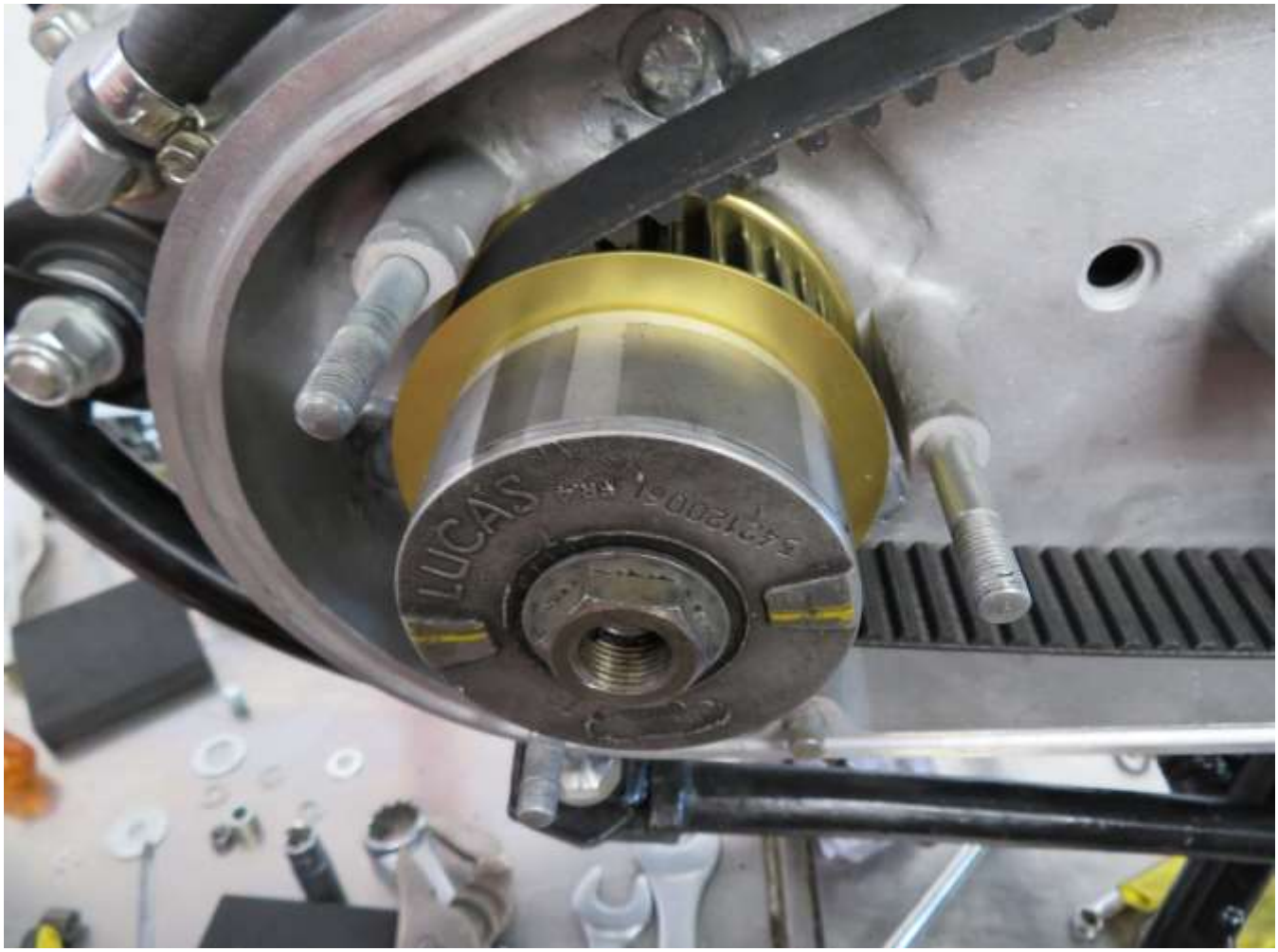
Slide on the front pulley that has been supplied.

Slide on the supplied belt, (the slack has been pre-set to allow for expansion).

Insert the gold plate that has been supplied.

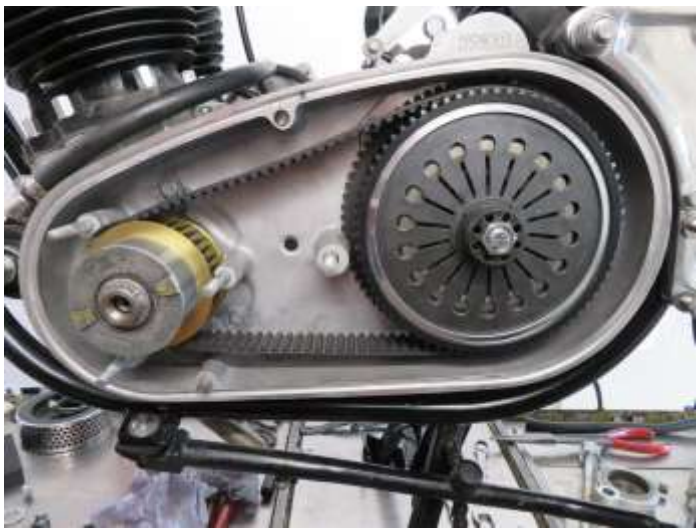
Insert the woodruff key from your bike.

Insert your alternator rotor and secure with your alternator rotor nut.



Install your bikes clutch plates. Please note, this kit will not work with bronze sintered clutch plates, if you have bronze sintered clutch plates you will have to change them. If you were happy with the way that your clutch worked before then simply reuse your current plates. If your plates have been contaminated with oil then it is best to replace them and purchase a clutch pushrod oil seal to stop recontamination, (see options below).

Install your clutch pressure plate and circlip using your clutch compressor tool.



Install your alternator stator. Check the gap between the alternator stator and alternator rotor all the way around. The gap should be a minimum of 8 thou and a maximum of 20 thou.

IMPORTANT - Secure the alternator stator charging wire to the stator post with a cable tie as shown.

Insert your clutch pushrod adjuster.

Reinsert your clutch cable into the operating arm in the gearbox, (yes, it can be fiddly to do).

Adjust your clutch as per your workshop manual.

Install the new primary cover seal that has been supplied using 10-12 equally spaced dabs or superglue. Press into place – do not stretch it.


We have supplied a starter button for you to use if required, alternatively use your bikes current start button. This is an example of where we mounted the starter button, you may choose to install yours somewhere else.

You may need to drill your new battery carrier to provide a fixing for your read mudguard depending on type used. Rear mudguards should always have multiple fixing points to reduce vibration.

We have supplied 2 foam pads to wedge the new battery in place, alternatively you can use your existing straps if they are suitable.


Rebuild your bike as per your bikes workshop manual.

When starting your bike you will need to prime the carbs and use the appropriate amount of choke that you have been used to using for starting your bike. Turn on the ignition, press your starter button, give it a few revs and you are sorted.

Please note, our starter system uses a decent amount of power for the initial startup, so whilst the bike can be started and stopped a number of times before significant battery drain occurs we do recommend you use of the starter as you would on any modern bike, to start your bike and go for a ride which recharges the battery.

I think you will agree that this kit represents the best solution that there is to the problem of electrically starting a pre-mk3 Norton Commando.

OPTIONAL EXTRAS

066126 - Rear Isolastic Centre Rubber – Vernier

932066 Air Filter Shiny Short
Single & Twin Carb

930066 Air Filter
Mat Metal Short Single & Twin Carb

066131 - Rear Isolastic Conversion Kit – Vernier

928066 Air Filter Black Short
Single & Twin Carb

068833 Clutch pushrod rod seal

066131A - Rear Isolastic Conversion Full Kit – Vernier

90622 Air Filter Cone Shaped Single Carb

069136 Air Filter Velocity Stacks Single & Twin Carb

061339
Fibre clutch plate

060749
Fibre clutch plate

060746
Steel clutch plate

033030S Air Filter – Thinner type designed for the new electric start – For Single Carb

033030D Air Filter – Thinner type designed for the new electric start – For Twin Carb

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