

**EML  
HARLEY REVERSE  
GEAR**

**MOUNTING INSTRUCTIONS**

**Touring 2023 and up with Gear Positioning Sensor**



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## 1. The kit

Reverse gear kit.



## 2. Strip the bike



Remove the right foot-rest, side-cases, fairings and the exhaust.

Remove gear-position sensor cover.

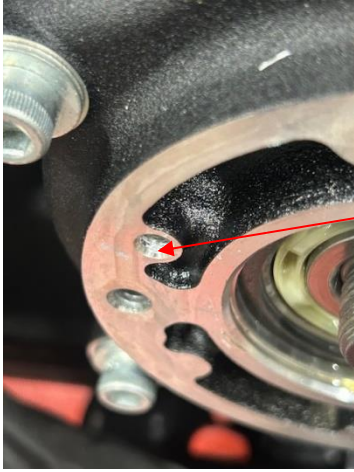


Remove gear-position sensor.

Remove the clutch cover, pushrod oil-slinger and the gear axle nuts.



Remove this bolt



Remove the left centering-pin

### 3. Mount reverse-gear gears and housing.

Prepare the small 14Theet gear with the special tool, pin`s and bolts, delivered with the kit.  
Clean the thread, with degreaser, and put some Loctite strong into the thread of the small gear.



Clean the screw-thread with degreaser and put a little Loctite strong on it. Not too much, otherwise it can run into the bearing when tightening the gear.

Put the earplug into the gearshift hole off the clutch puss-rod.



Tighten the sprocket up to 85 Nm (62 ft-lb).



Pull out the centering-pins.



Make sure there is no Loctite / threadlock leaking into the bearing.



Use masking tape to mask the gearbox. So no steel shivers can come into the gearbox!



Use the cutter delivered from the kit.

Mill the two holes shown in the pictures. Be convinced that the mill hits the bottom of the predrilled holes in the gear. The tip of the mill should be 18.5mm deep into the gear. Use cutting fluid!!!!

**WHEN YOU HAVE DRILLED THE HOLES, YOU CAN NOT TAKE THE GEAR OFF ANYMORE !!!!!!!!!!!**



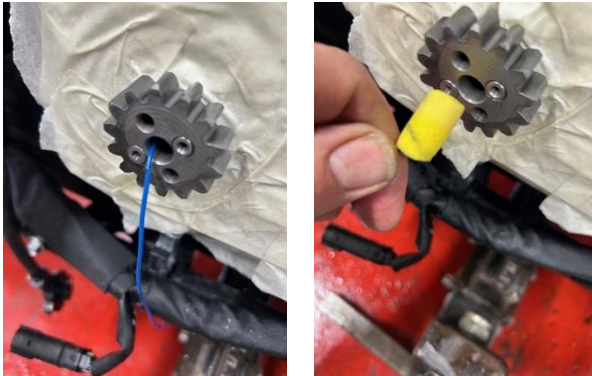
Remove the 2 M6 bolts and the special tool, and clean all the holes with degreaser.



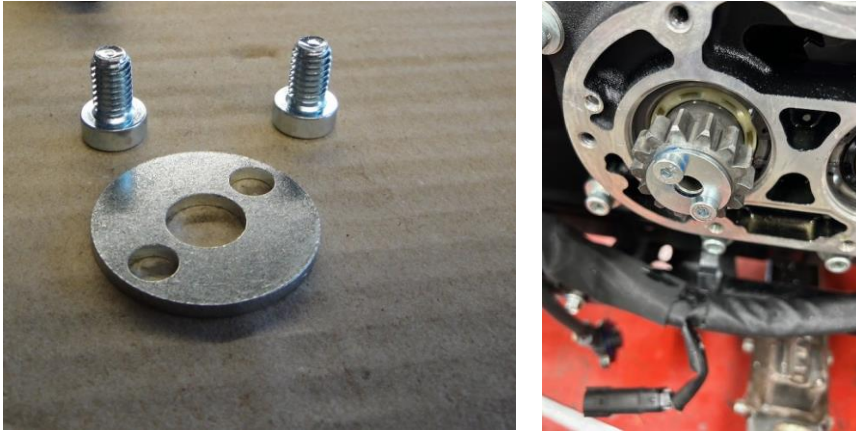
Mount the pins (shown in the picture) with some strong Loctite. Use the bolt provided to mount the pins in the holes.



A small hammer might be use to fit the pins into the hole.



Remove the ear-plug and clean the holes with degreaser.



Screw the m6x10 Alan-screw, with some medium strong Loctite / threadlock with the locking-plate on the gear.

Tighten the bolt 10Nm (7.4 ft-lb)



Clean the screw-thread of the gear with degreaser and put a little Loctite strong on it.

Clean the screw-thread off the gearbox axle with degreaser and put a little Loctite strong on it. Not too much, otherwise it can run into the bearing when tighten the gear.

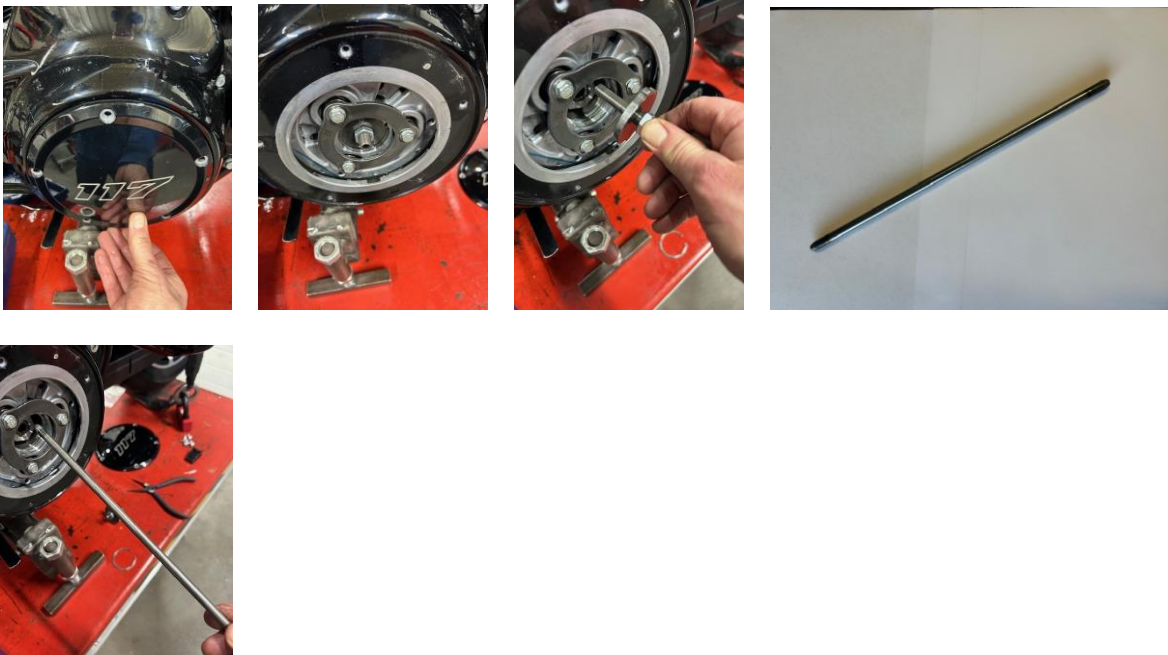


Tighten the sprocket up to 85 Nm (62 ft-lb) with the special tool.

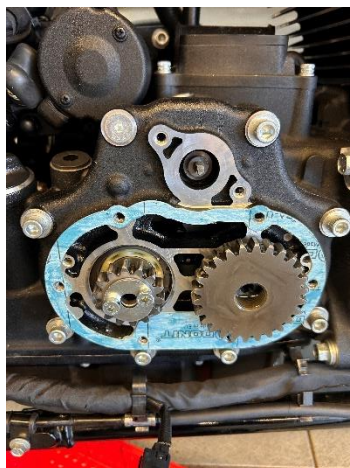
Screw the button-socket head screw 5/16x1.1/2unc bolt into the gearbox position showed on the picture. Tighten the bolt up to 25 Nm (62 ft-lb)



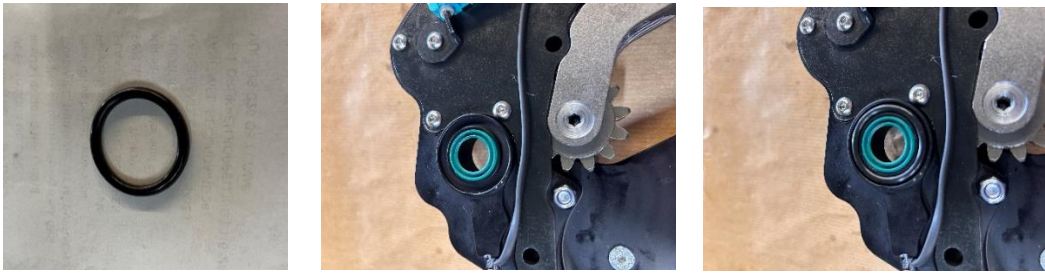
Remove the clutch-cover, and take out the clutch push-rod and replace it with the one delivered with the kit. Leave the clutch-cover off for adjusting the clutch later.



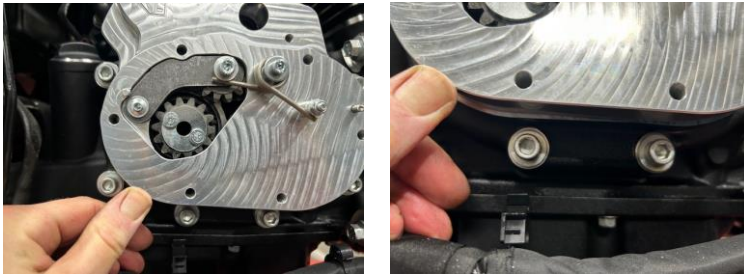
Take the 2 gaskets from the kit and put some multi-purpose grease on it. Stick one of them on the gear housing.



Take the o-ring  $\varnothing 22 \times 3$  NBR from the kit and put some multi-purpose grease on it and slip it into the seat of the reverse-housing.



Mount the gear housing. When sliding it over the gears, keep the left side a little higher (about 2-4mm) so that the gear goes under the levers of the reverse. When it touches the gearbox housing, and the right centering pin is in position, turn it anti-clockwise into position.



Mount the cover with the clutch mechanism on the reverse-housing with the Hexagon cylinder-head screw  $1/4 \times 2.1/4$  UNC and the  $1/4$  washer. Use a little loctite medium. Tighten the bolt up to 16 Nm (12 ft-lb)

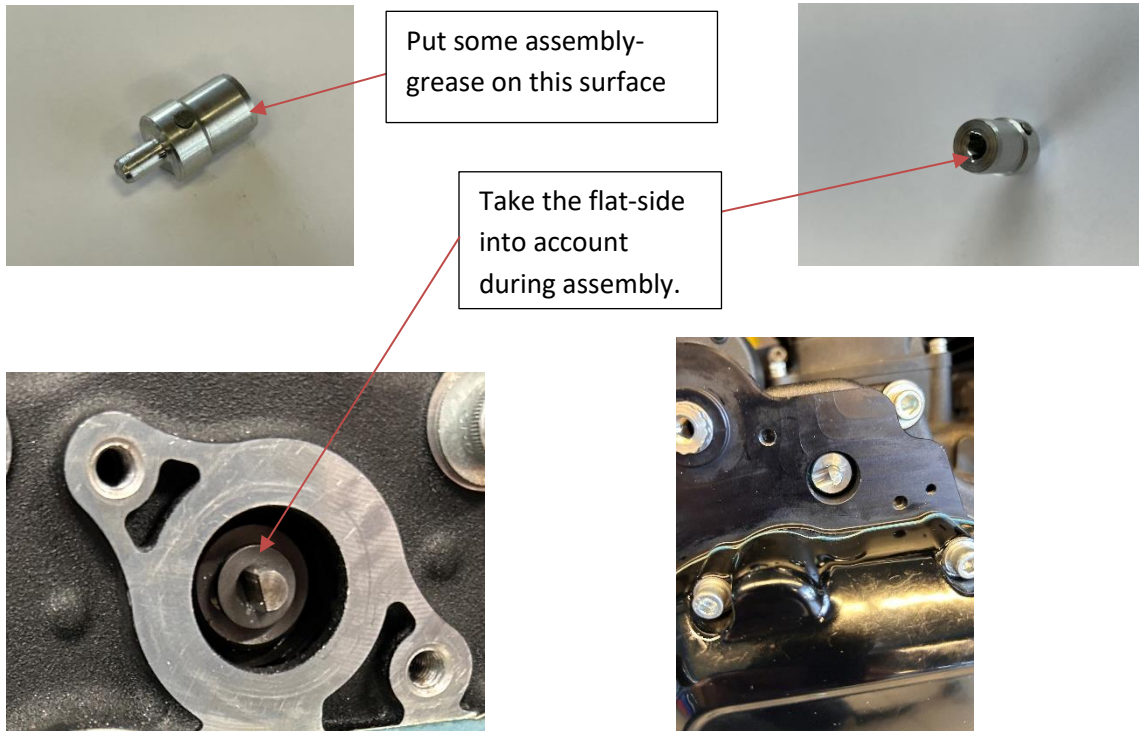


Check, with the lever, of the reverse will engage



If not, loosen the cover-screws one turn and try again. If this works, tighten the screws of the cover and try again. If it will not engage, contact your reseller.  
Adjust the clutch according Harley-Davidson specs.

Mount the Gearshift-extension shaft.



Put in the gearshift sensor. Take the flat-side into account during assembly

Mount the gearshift-position sensor with the cover on the reverse-housing, using the Hexagon-cylinder head screw M6x16 and the M6 Washers. Use some Loctite medium. Tighten 10Nm (7.4 ft-lb).



Mount the exhaust support, (plate 1 and 2) with the hexagon-cylinder head screw M8x30 and Nyloc-nut M8 with the washer M8. Put the spacer (3) between them. Screw the Hex-bolt 5/16x5/8 with some Loctite medium with the exhaust support on the exhaust-position on the engine.

Align plate nr. 1 vertical ( $\pm 3$  degrees) and tighten the bolt. Tighten the bolt up to 30 Nm (22 ft-lb)

Mount the exhaust pipes and screw the Hexagon-cylinder head with screw M8x16 with the M8 washer.

Position the exhaust pipes with the exhaust-clamp that it is a nice fit en there are not to many tension on it.

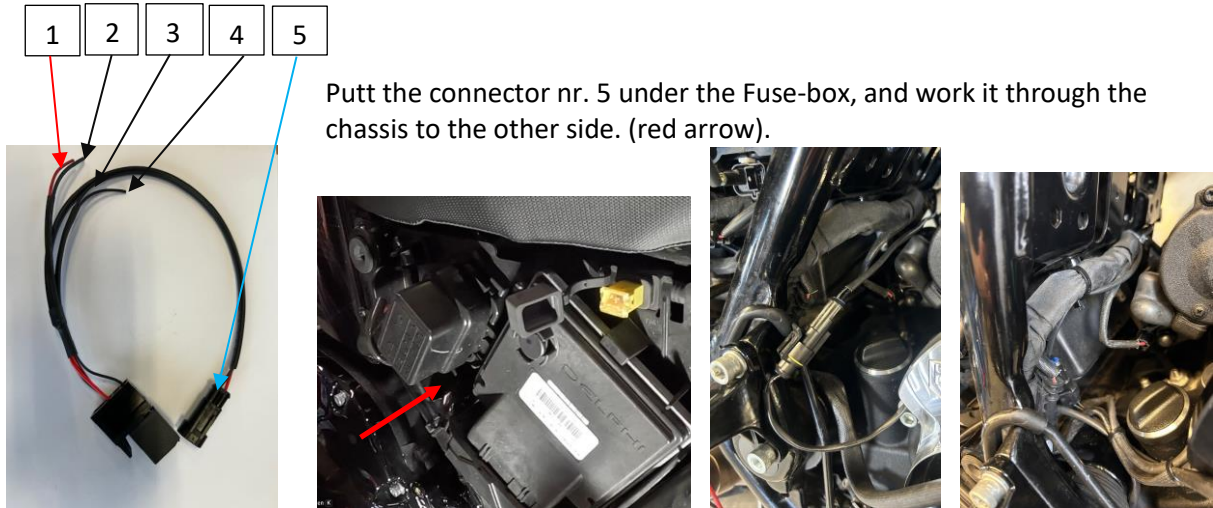
Tighten the hexagon-cylinder head screw m8x16 and the M8x30 with the Nyloc-nut. Tighten the bolt up to 23 Nm (17 ft-lb)



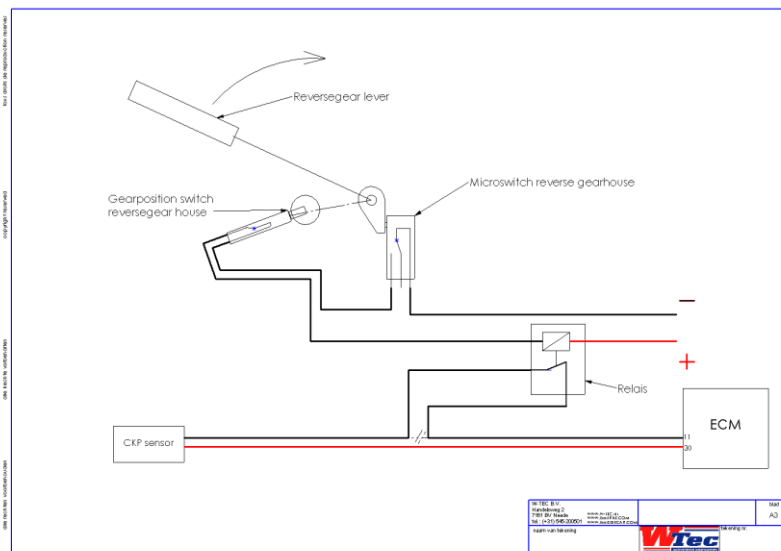
Use loctite  
/threadlock  
medium



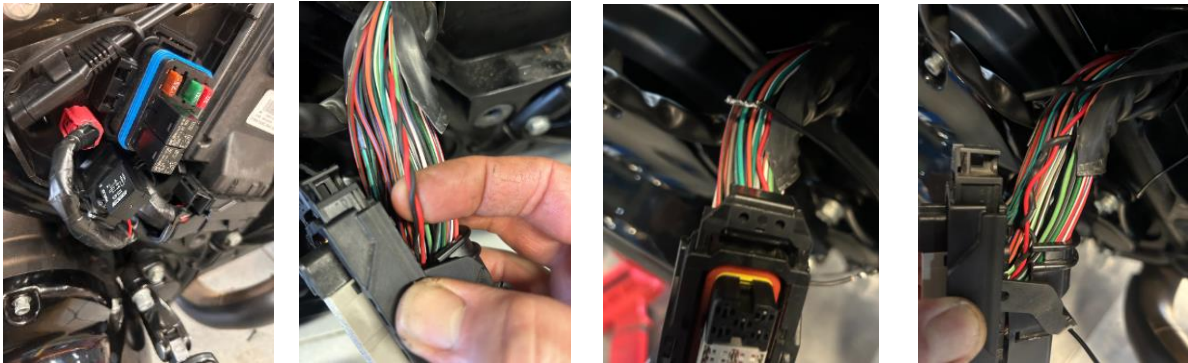
## 4. Connect the electrical wiring



Wiring diagram.



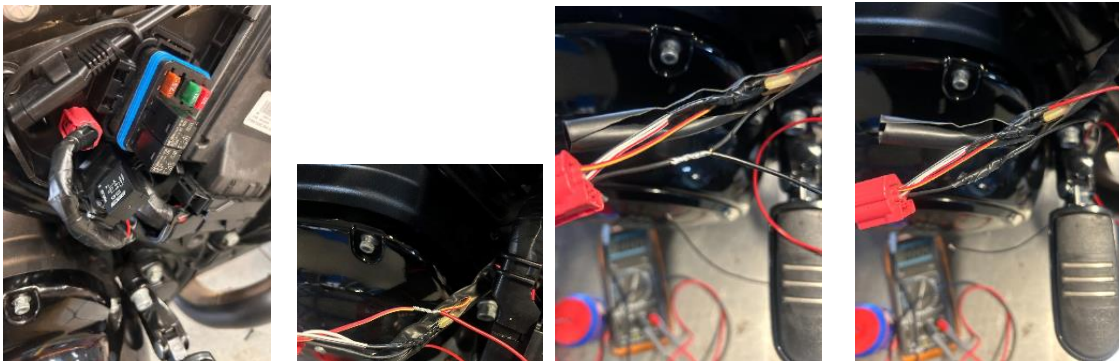
Take the connector off the ECM, and look for the red and black twisted wire.



Cut the black wire, and connect the black wire's 3 and 4 to both ends. It doesn't matter which one is one which.

Take the cable of the DLC connector. Connect the red wire from the reverse-cable loom to the red/yellow wire of the DLC connector wire.

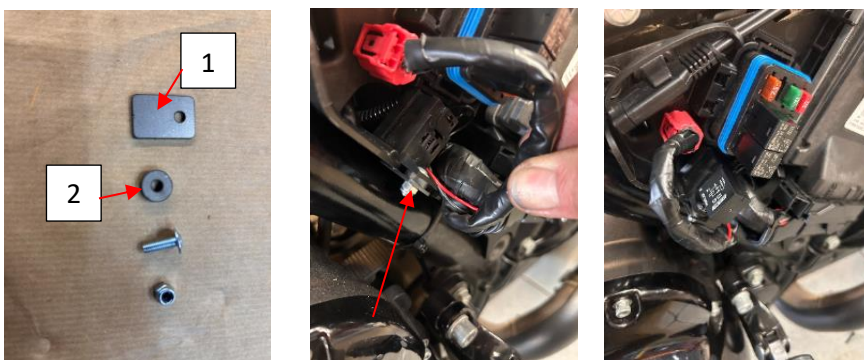
Connect the black wire from the reverse-cable loom, and connect it to the black wire of the DLC-wire.



Take out the relays from the relais-holder.

Take plate 1 and spacer 2 with the button headscrew M4x12 and the Nyloc-nut M4 and screw them with the relais-holder onto the side of the plastic relais box from the Harley-davidson.

Place the relais into the holder



## 5. Finish rebuilding the bike

Check the level of the gearbox oil.

Remount the exhaust and all the fairings.  
Remount the footrest.



## 6. Test the reverse safety system.

- Sit on bike.
- Start engine.
- **Pull the clutch and hold!**
- Shift the gearbox in first gear
- **Keep the clutch in and hold!**
- Pull the reverse lever carefully
- The engine should stall!

## 7. Test driving reverse carefully

- Sit on bike.
- Start engine
- Side stand in
- **Pull the clutch and hold!**  
Shift to first gear.  
Shift to Neutral and hold the clutch
- Pull the reverse lever carefully
- Release the clutch slightly until the bike starts moving. Let the clutch just touch a little. The bike should drive backwards!  
**NEVER LET THE CLUTCH GO COMPLETELY. THE SPEED WILL GET TO MUCH TO CONTROL THE BIKE!!!!!!**
- If OK. the reverse gear is functioning as it should, and can be used.

## 8. User instructions

### NL: **Belangrijk !** Instructie voor bestuurder:

Bij het inschakelen en tijdens het ingeschakeld hebben van de achteruit versnelling, moet de versnelling van de motorfiets **altijd** in neutraal staan !

**Nooit** de koppeling volledig loslaten bij het achteruit manoeuvreren. Dan gaat het voertuig te snel. Koppeling alleen iets aan laten lopen en het voertuig zachtjes laten kruipen!

Altijd bijde voeten aan de grond houden tijdens achteruit kruipen.

W-Tec BV kan niet aansprakelijk gesteld worden voor schade aan motorfiets of personen, die veroorzaakt kan worden door montage of het gebruiken van de achteruitversnelling !

### DE: **Wichtig !** Anweisung für den Fahrer:

Beim Einschalten und bei eingeschaltetem Rückwärtsgang, muss das Motorgetriebe **immer** im Leerlauf sein!

**Niemals** der Kupplungshebel völlig lose lassen beim Rückwärts manövrieren. Nur der Kupplung etwas anlaufen lassen und das Fahrzeug langsam fahren lassen. Sonst ist der rückwärts Geschwindigkeit vom Fahrzeug zu hoch.

Immer beide Füsse am dem Boden halten beim Rückwärtsfahren.

W-Tec BV kann nicht für etwaige Schäden am Motorrad oder an Personen, die durch die Montage oder dass Benutzen des Rückwärtsganges entstehen können, haftbar gemacht werden.

### ENG: **Attention !** Instructions for the driver:

Before switching into reverse gear and during having the reverse switched in, **always** make sure that the engine gearbox is in neutral.

**Never** release the clutch completely while manoeuvring backwards. Let the clutch just touch a little and let the vehicle creep slowly backwards. Otherwise the reverse speed of the vehicle is too high!

Always keep both feet on the ground when driving backwards slowly.

W-Tec BV can not held responsible for damages on the Motorcycle or persons that which are caused by the installation or by using the reverse gear!

Schrijffouten voorbehouden

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