



**Fitting instructions for:
Early Bay & Crossover
Vehicles**

**Important document!
Please read these instructions before fitting!**

Safety first:

Before you start any work on your steering system, carefully read and ensure you understand **all** of the instructions. Ensure all tools and equipment are working correctly before use and wear the relevant safety equipment and PPE during the installation process at all times.

Tools and equipment required:

P.P.E. (Personal Protective Equipment)

A good trolley jack

Axle stands

Drill with 8mm metal drill bit

4 and 6mm allen keys

8, 10, 13 and 17mm spanners

Ratchet with 10, 13, and 27mm sockets

Torque wrench

Side cutters

A selection of screwdrivers

Pipe cutter/Hacksaw

Tape Measure/Rule

WD-40 or similar (optional)

Touch up paint (optional)

Getting started:

Firstly, boil the kettle! Sit down and **read through the instructions first!** Allow yourself plenty of time to finish the install - **don't rush!**

Installation normally takes an experienced VW mechanic (with the use of a ramp) around 4 hours. If you are working on axle stands and you have limited experience, then expect it to take longer and give yourself a clear 6 to 8 hours.

At the rear of these instructions, you will find a set of diagrams which will make components easier to identify. Within the instructions, these components will be coloured **blue**. Throughout the fitting, you will often be asked to view certain "item" numbers. These numbers will be highlighted in **red**. An expanded view of these items and their respective numbers is also attached.

Stripping:

1. Jack up the vehicle so that you can comfortably work with your arms stretched out. Ensure you use axle stands.
2. Check all of the steering and suspension system for wear and defects and ensure all components are well greased. Any problems with suspension can affect the Litesteer system's performance.
3. Disconnect the negative battery terminal.
4. Move the driver's seat as far back as possible and fit a protective cover.
5. Gently prise off the horn button (**item 39**) with a small flat screw driver (be sure not to prise the metal ring - just the black button).
6. Remove the horn wire from its terminal.
7. Remove the steering wheel nut (**item 38**) with a 27mm socket and remove wheel.
8. Remove coil spring (**item 37**) and top bearing collet (**item 11**)
9. Measure 185mm from the top of the steering column tube, mark the tube and (using a pipe cutter or hacksaw) cut the tube. Then, you can lift the top of the tube off of the assembly (there is no need to remove the indicator switch and ignition housing). Remove any sharp edges and clean out any swarf from the cut.

Note: Ensure key is in ignition and steering lock is off, or the assembly will not come off. Take care not to disturb the wiring.

10. Remove the 4 large screws (**item 31**) from under the ignition housing and remove the housing.
11. Remove the lower coupling cover (**item 23**) bolts/screws (**item 25**) and retain for later.
12. Remove the horn wire from its terminal at the bottom of the column (under the coupling cover).
13. Remove the M8 (13mm head) bolt and nut (**items 5 & 6**) that holds the coupling flange (**item 1**) to the steering box input shaft (There is no need to remove the coupling from the shaft or flange).

Tip: Now is a great time to check the oil level in the steering box! Top up if required (using EP80/90 gearbox oil).

14. You may now remove the original column/shaft assembly.
15. The **control unit** must be mounted to the bracket under the dash using the 8mm bolts, nuts and washers provided. (You will find an attached image of the complete **control unit**/bracket assembly position at the back of these instructions.)

Fitting:

1. You are now ready to install the Litesteer unit. Remove the nut, bolt and washers from the universal joint (U.J.) located at the bottom of the unit and turn the u.j. in the unit until the open end of the u.j. lines up with the relief in the steering box shaft. Once in position, gently lower the unit onto the steering box shaft.
2. Insert the original, cut, top tube into the top of the Litesteer unit, leaving 50mm of the top spline shaft protruding out of the top tube (you may have to gently tap the top tube down until required amount is visible). There are two different diameter steering columns on an early bay. If the top tube seems loose in the unit then insert the sleeve provided between the top tube and unit to take up the slack. Don't fully tighten the clamp on the unit until the wheel, indicator switch and ignition housing are all in place and the steering lock works correctly.
3. Refit the ignition housing and 4 screws.
4. Under the car, place the 17mm M10 bolt, with washer, through the universal joint, ensuring the bolt fits across the flat groove on the steering box shaft. If required, the u.j. shaft length can be adjusted by gently pulling it out of the lower housing, as the shaft has a sliding spline. Tighten the nut/bolt to 45 lbs.
5. Using an 8mm drill bit, drill out (or remove) the original captive nuts that held the old steering column floor plate in position. (item 23)
6. Using the two m8 bolts supplied, temporarily fix the unit to the floor in the 2 larger, slotted holes on the floor plate at 9 and 3 o'clock. Place the steering wheel on the top spline and turn the steering lock to lock to check for clearance. If the shaft is rubbing inside the lower housing, then loosen the screws and reposition until the shaft clears. Turn the steering - lock to lock again - to ensure you still have a smooth and silent operation.
7. Refit the switches, bearing collet (item 11) and spring (item 37).
8. Temporarily refit the steering wheel and nut (don't fully tighten as it may be necessary to centre after road test).

Note: Be sure to check the gap between the switch housing and wheel and also check the indicator self-cancel mechanism works before you road test!

Wiring:

1. The Litesteer wiring loom follows the original wiring through a hole in the bulkhead. Remove the kick panel from behind the foot pedals and remove the washer bottle for easier access. Remove any putty from the hole in the bulkhead, then run the loom (**main power wire** first) through to the underneath of the vehicle. Fit the male **horn wire** to the original female horn wire under the car at the base of the steering column and then route the rest of the loom up and over the front beam and down the chassis to the engine bay. Be sure to keep the loom away from any sharp edges or protrusions.
2. Route the **main power** wire through the engine bay grommet in the bulkhead that the original loom passes through, then connect the **main power** wire terminal to one end of the **50 amp fuse** box. Next, fit the short **fly lead** to the other end of the **50 amp fuse** box (if not already connected). You may then fit the other end of the **fly lead** to the main positive power wire/terminal on the battery. Secure the fuse box to a solid mounting point using cable ties.
3. At the front of the van, connect the wire from the **motor** (blue) and **torque sensor** connector (black) to the right-side of the **control unit**.
4. Then fit the large blue and white connectors from the loom to the left side of the **control unit**
5. Fit the **horn contact** male wire to the **horn contact** female on the **top tube** of the kit. (just above the motor)
6. Fit the **earth wire** to the **grounding point** on the unit between the two M8 nuts (positioned next to the motor).
7. The **ignition live** wire (with the **7.5A inline fuse**) is the Ignition feed. This is fitted to the back of the headlamp switch or another ignition supply (normally a black wire with a yellow tracer on the headlamp switch). Ensure you test for a live 'ignition only' signal before fitting). Remove the correct wire from the terminal on the switch and fit the Litesteer **ignition live** terminal using the piggyback.
8. Fit the **GPS speed sensor** to the top of the ignition housing using the 3M double-sided, adhesive tape supplied. (Be sure to clean the surround with a solvent-based cleaner/alcohol wipe to ensure secure adhesion)
9. The **GPS speed sensor** has a small LED light located at the side of its plug. On initial start-up, the LED will flash **orange** 3 times. After this, the LED signals are as follows:
 - **Red** – No GPS fix (searching)
 - **Green** - GPS Fix acquired
 - **Green (flashing)** – GPS fix acquired and vehicle moving
10. You can now tidy the rest of the wiring with cable ties, starting from the rear of the vehicle and finishing at the front (Any surplus wiring can be lost around the dash front panel area, rather than under the vehicle).

Note: Ensure the loom does not interfere with the clutch pedal!

11. Once you are happy with everything under the vehicle jack it up and remove the axle stands. Re-fit the negative battery terminal and start the engine. The control unit will make a click sound on startup which is an indication that the unit is operational (You will also hear the unit click a few seconds after you have switched the vehicle off).

Finally

Now, carry out a spanner check, including **every** nut, bolt and screw that you have come in contact with. We can't stress the importance of this step strongly enough! This is a safety critical process and it is the responsibility of the fitter to ensure it is fitted correctly.

Check electrical equipment; lights, wipers, etc, just in case you have disturbed any wiring. Take the vehicle for a test drive. During the test drive, note the position of the steering wheel whilst the vehicle is driving in a straight line, as you may need to centre the wheel. Once the wheel has been re-aligned, torque the steering wheel nut to 26lbs and re-fit the **horn wire** and horn button (**item 39**).

Note: Please remember that just because you can turn the steering very easily, you should avoid static/dry steering as it damages tires!

Enjoy!

Thank you for purchasing one of our Litesteer systems!

If you have any feedback or questions regarding this product, please don't hesitate to call, e-mail us or visit our Facebook page!

Finally, if you love the product as much as we think you will, please spread the word by fitting the Litesteer sticker (enclosed with your kit) to your rear window!

Many thanks again from,

The Litesteer Team!

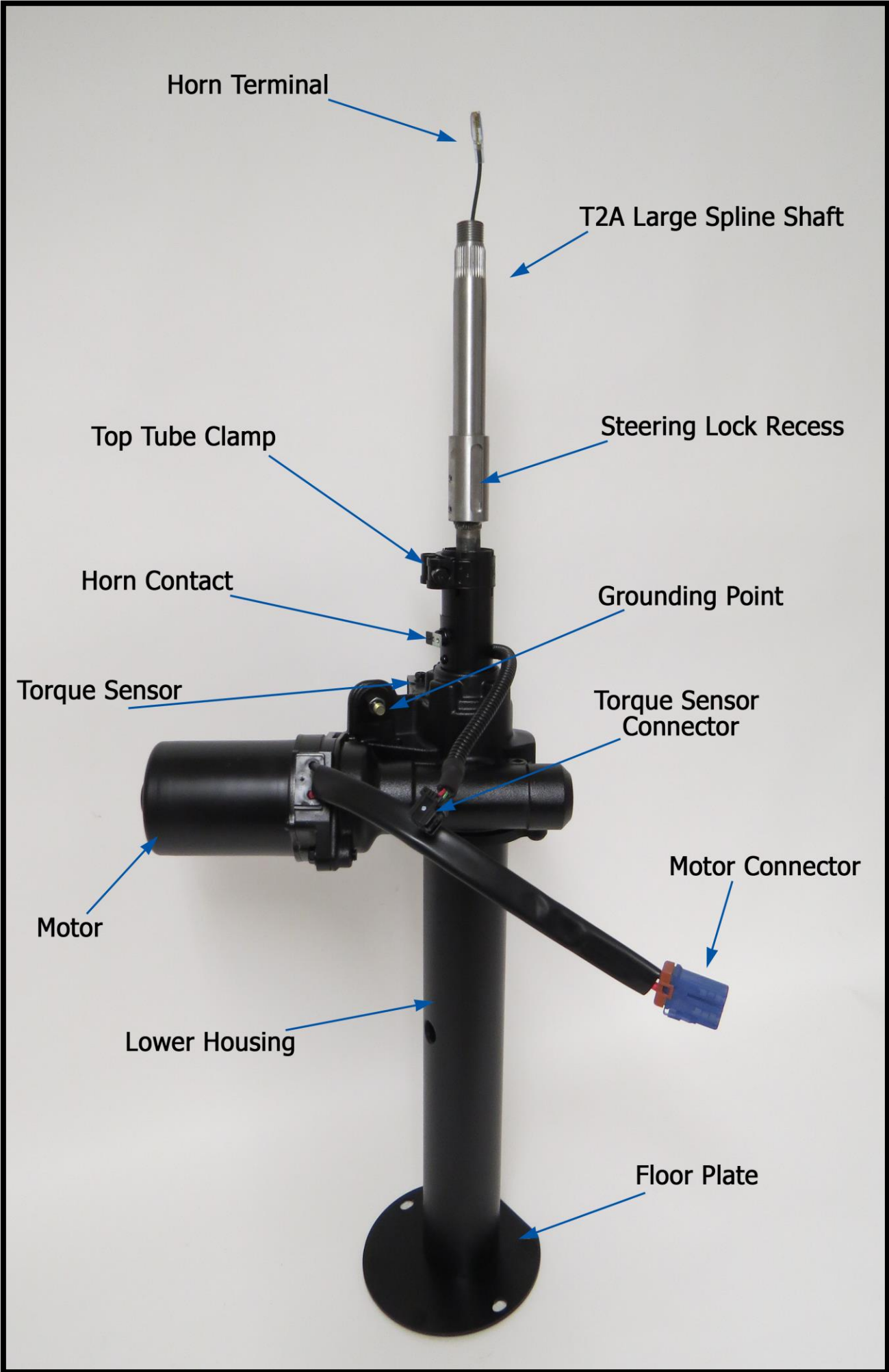


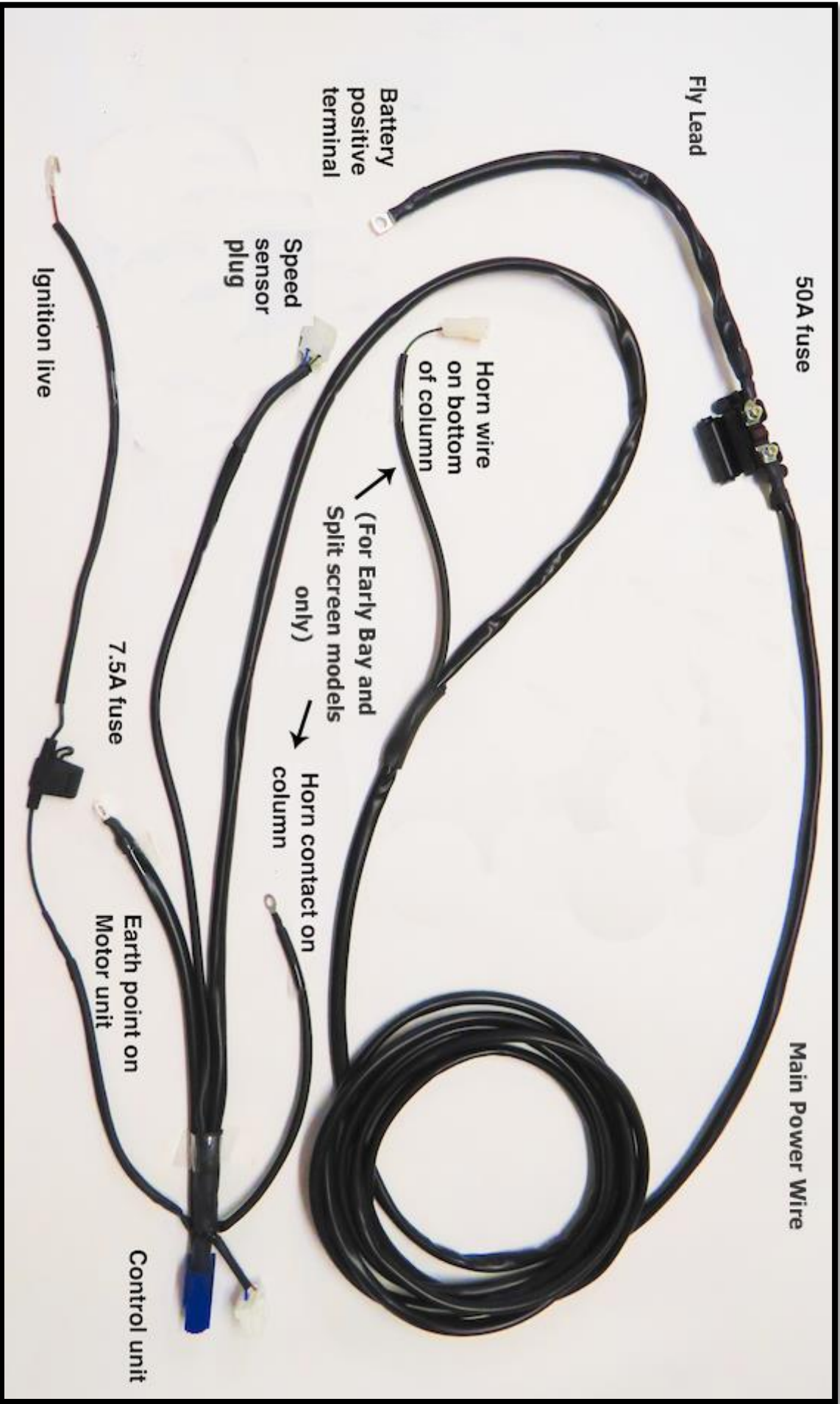
www.litesteer.com

Telephone: 01435 883301

(From overseas: +44(0)1435 883301)

E-mail: sales@litesteer.com





50A fuse

Fly Lead

Main Power Wire

Battery positive terminal

Horn wire on bottom of column of column

(For Early Bay and Split screen models only)

Horn contact on column

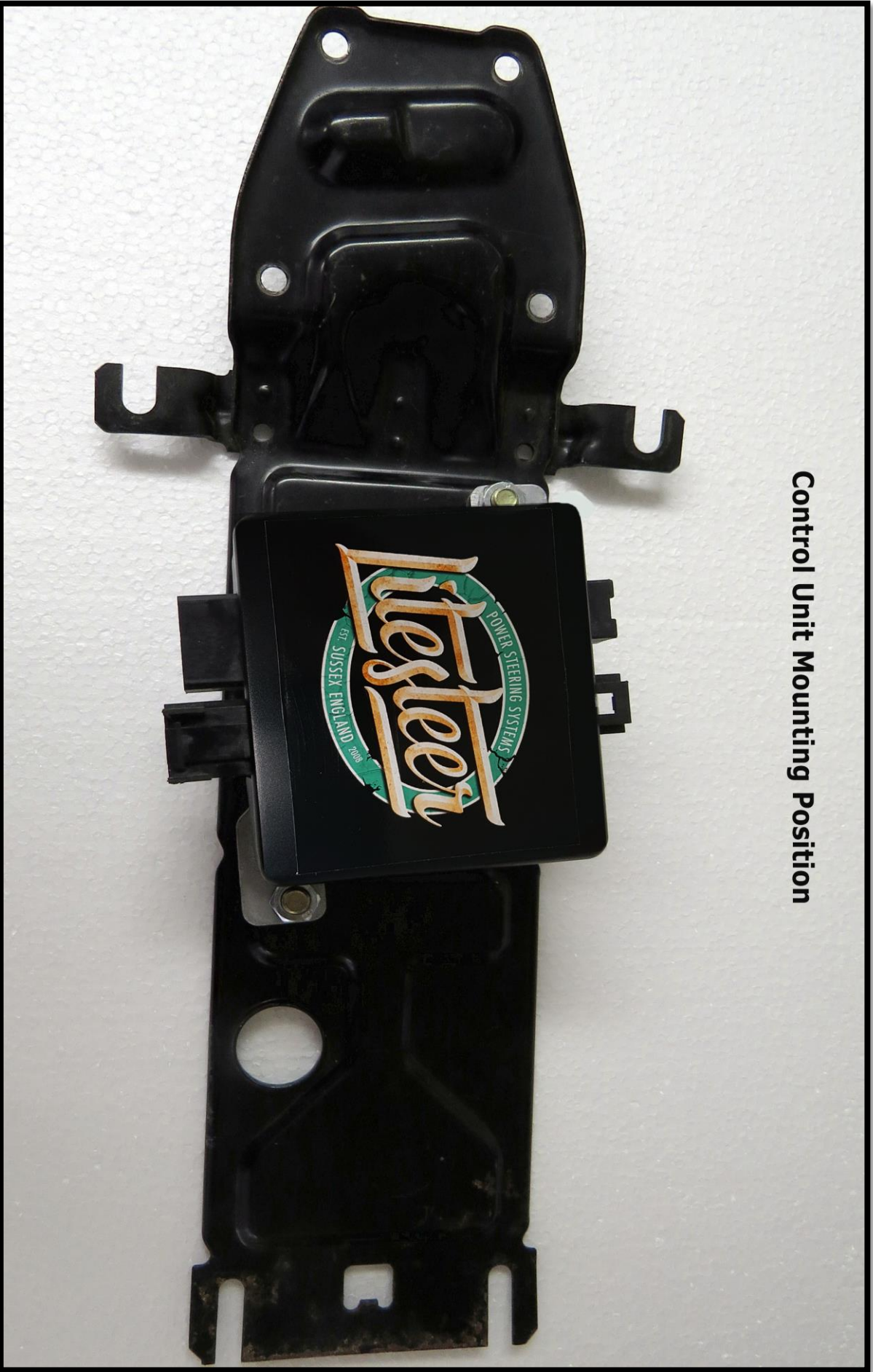
Speed sensor plug

7.5A fuse

Ignition live

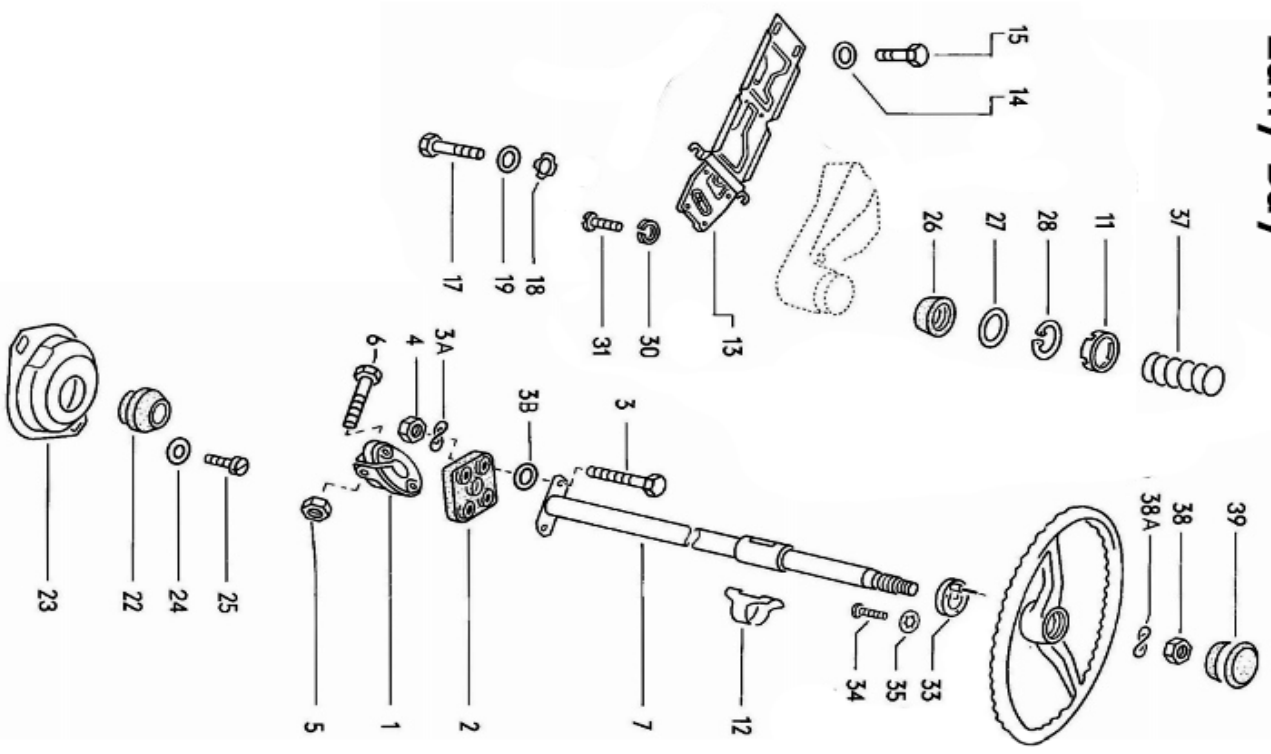
Earth point on Motor unit

Control unit



Control Unit Mounting Position

Early Bay



Legend

- | | |
|---------------------------|------------------------------|
| 1. Coupling Flange | 22. Plastic Grommet |
| 2. Coupling | 23. Coupling Cover |
| 3. Coupling Bolt | 24. Coupling Washer |
| 3A. Coupling Crush Washer | 25. Coupling Screw |
| 3B. Coupling Washer | 26. Bearing |
| 4. Coupling Nut | 27. Washer |
| 5. M8 Flange Nut | 28. 'C' Clip |
| 6. Flange Bolt | 30. M6 Crush Washer |
| 7. Inner Steering Shaft | 31. M6 Screw |
| 11. Bearing Collet | 33. Indicator Cancel |
| 12. Isolator | 34. Cancel Bolt |
| 13. Bracket | 35. Cancel Anti-Shake Washer |
| 14. Bracket Washer | 37. Spring |
| 15. Bracket Bolt | 38. Wheel Nut |
| 17. M8 Bolt | 38A. Wheel Crush Washer |
| 18. M8 Anti-shake Washer | 39. Horn Button |
| 19. M8 Washer | |