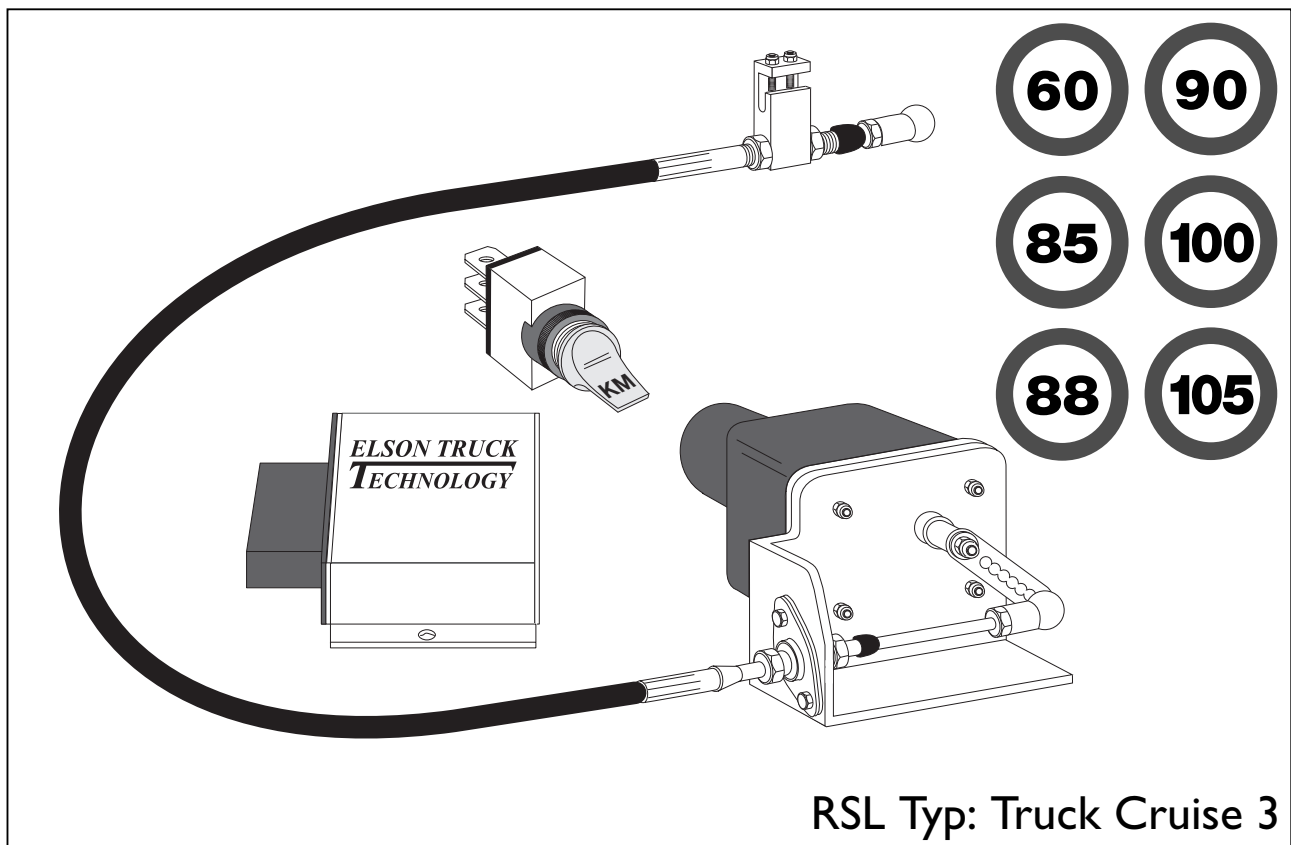


ELSON TRUCK TECHNOLOGY

ELECTRONIC ROAD SPEED LIMITER WITH SPEED SELECTOR SWITCH

Installation manual
bowden cable system 2.071.00
2.072.00



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Fitting an Elson Truck Cruise means:

Fuel savings by reduction of maximum speed

Reductions of wear, tear en maintenance cost

Safety improvement

Reduction of insurence cost

Low spare parts stock

Maintenance free system

Excellent driveability

General descriptions

Bowden cable system 2.071.00 and 2.072.00

The Elson Truck Cruise roadspeed limiter is for installation in trucks and busses. Technical data of regulator and actuator conform with the European homologation.

Technical Specifications

Actuator

Temperature limits:	working temperature	-40 °C to + 140 °C
	storage temperature	-40 °C to + 90 °C
Gear box reduction		732 : 1
Max. torque		15 NM
Supply voltage		10 to 32 VDC
Permitted voltage		10 to 32 VDC
Mechanical movement		20 - 50 mm
Current		1,0 A
Full stroke time		< 2 seconds
Vibration and shock resistance in accordance to:		EEG 92/24
Life time (full strokes)		> 800.000
Climatic resistance		93% ± 3%

Electronic Module

Temperature limits:	working temperature	-30 °C to + 90 °C
	storage temperature	-40 °C to + 90 °C
Supply voltage		10 to 32 VDC
Current		1,0 A
Reverse polarity protection		
Outputs shortproof		
Test- and calibration plug		
Sealing by cover to tachograph standard		

Working principle

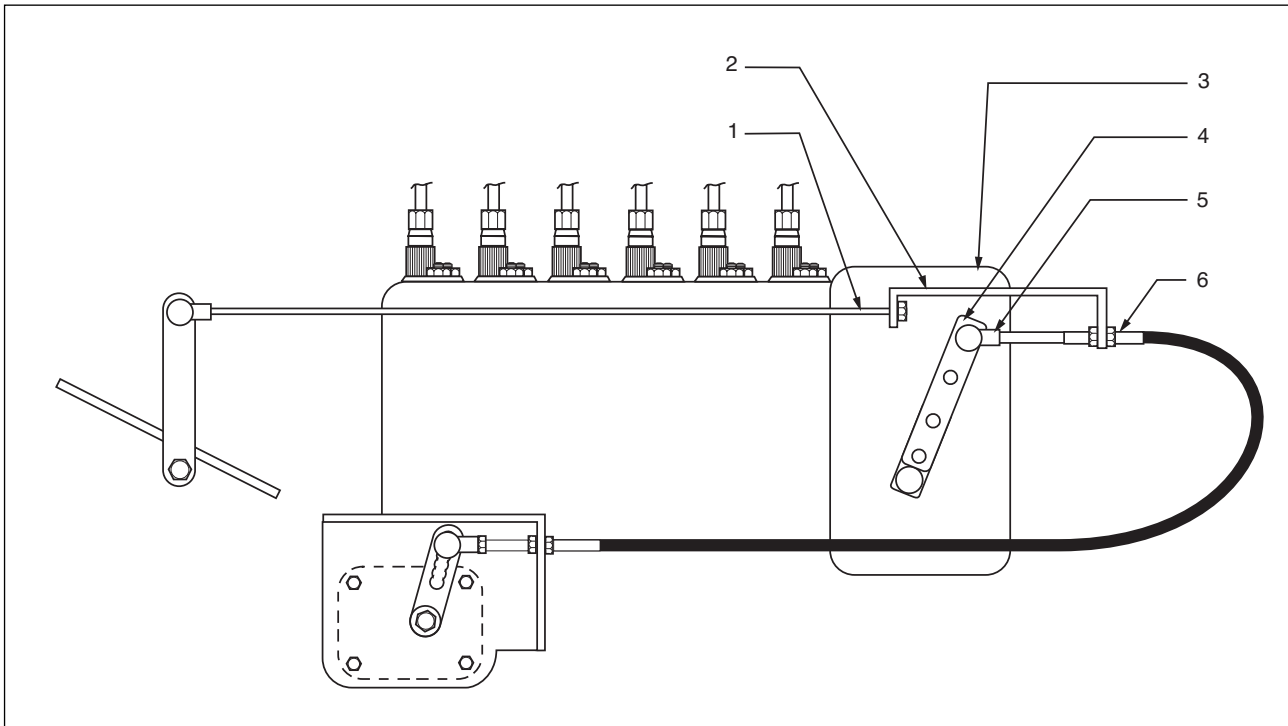


fig. 1

The ELSON TRUCK CRUISE road speed limiter (fig.1) moves the fuel injection pump lever back independently of the position of the accelerator whenever the top speed is reached.

Below the adjusted top speed full engine power is available.

The original rod (1) or bowdencable must be taken off from the fuel injection pump lever and be mounted at the bridge (2) the inner cable with its ball joint must be connected at the lever (4). The actuator now can reduce or expand (push or pull action) the total length of the accelerator rod whenever adjusted top speed is reached.

Mounting instruction

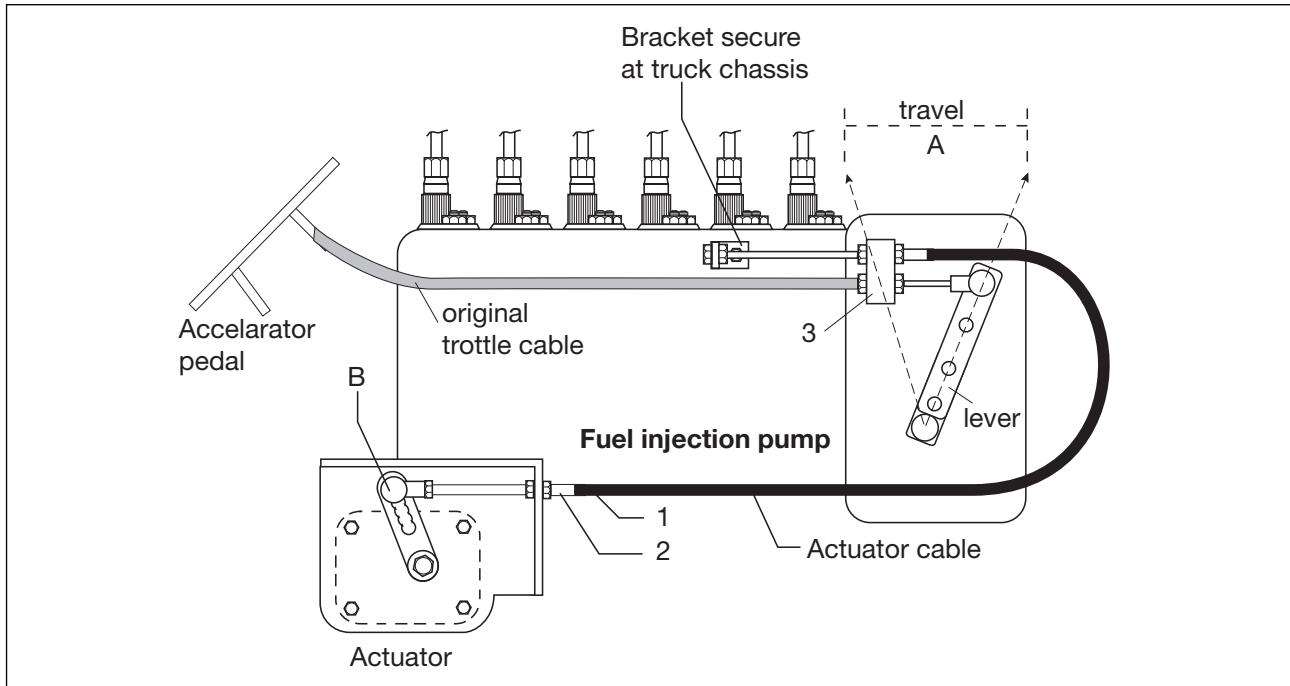


fig. 2

1. Mount the actuator at the recommended or best position at the chassis.
2. Mount bowden cable at the actuator (1) (actuator cable).
3. Mount balljoint at the inner cable (2).
4. Measure travel of the pump lever (20 - 50 mm).
5. Mount balljoint at the actuator lever (B)(holes: 20-50 mm).
6. Take off the original accelerator linkage from the pump lever.
7. Mount the accelerator linkage at clampblock (3).
8. Let run the actuator to limited position by voltage of the battery.
9. Mount bowden cable (1) at clamp block (3) and inner cable with the balljoint at the fuel injection pump lever (the pump lever must be in idling position).
10. Check by means of battery power at full action of the accelerator and actuator in fully restricted position idling position of the pump lever is possible.

If not: use another hole of the actuator lever to get shorter or longer travel of the inner cable.

Mounting instruction

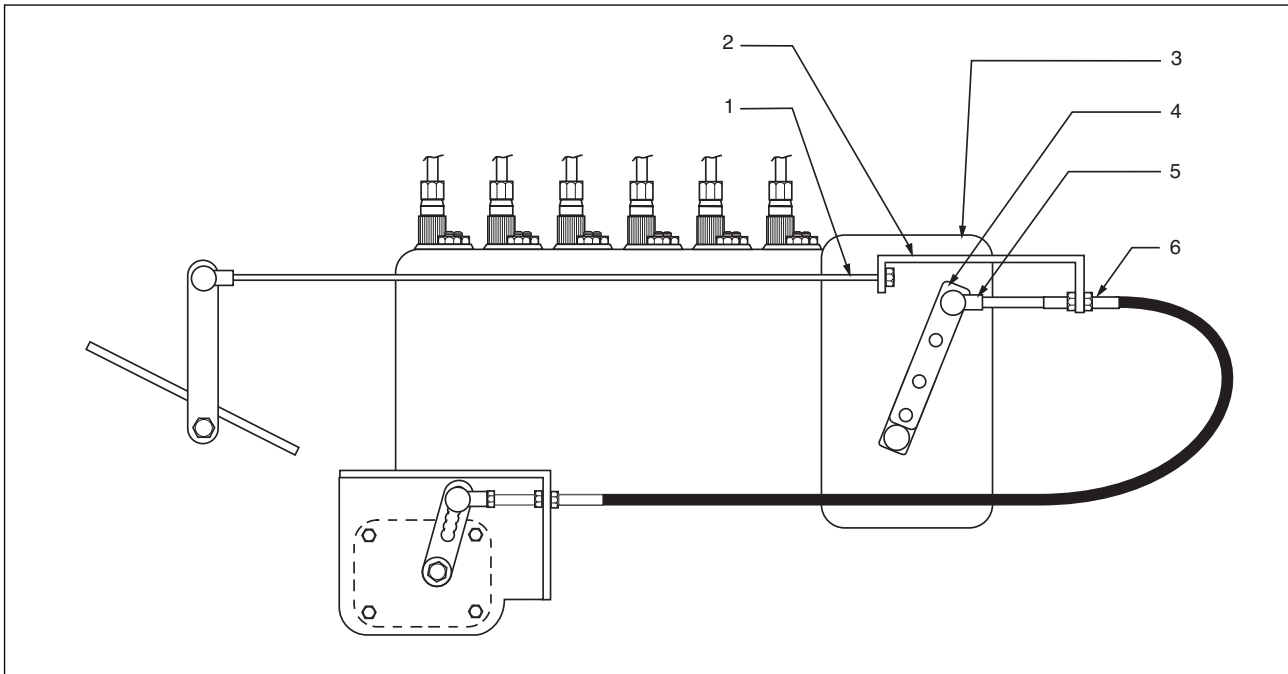


fig. 3

1. Mount the actuator at the recommended or best position at the chassis.
2. Mount bowden cable at the actuator.
3. Mount balljoint at the inner cable.
4. Measure travel of the pumplever (20 - 50 mm).
5. Mount balljoint at the actuator lever (holes: 20-50 mm).
6. Take off the original accelerator linkage from the pumplever.
7. Mount the accelerator linkage at bridge (2).
8. Let run the actuator to limited position by voltage of the battery.
9. Mount bowden cable (6) at the bridge (2) and inner cable with the balljoint at the fuelinjectionpump lever (the pump lever must be in idling position).
10. Check by means of battery power at full action of the accelerator and actuator in fully restricted position idling position of the pumplever is possible.

If not: use another hole of the actuator lever to get shorter or longer travel of the inner cable.

Mounting instruction

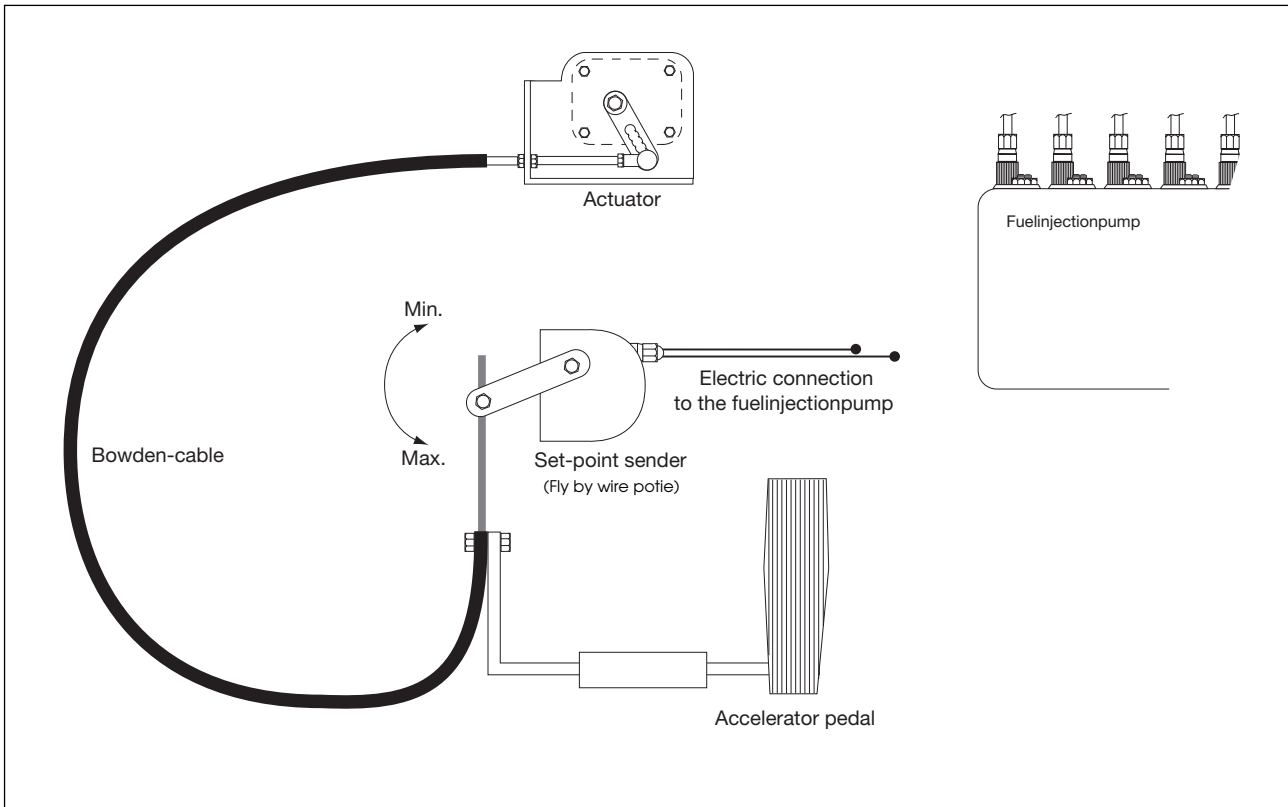
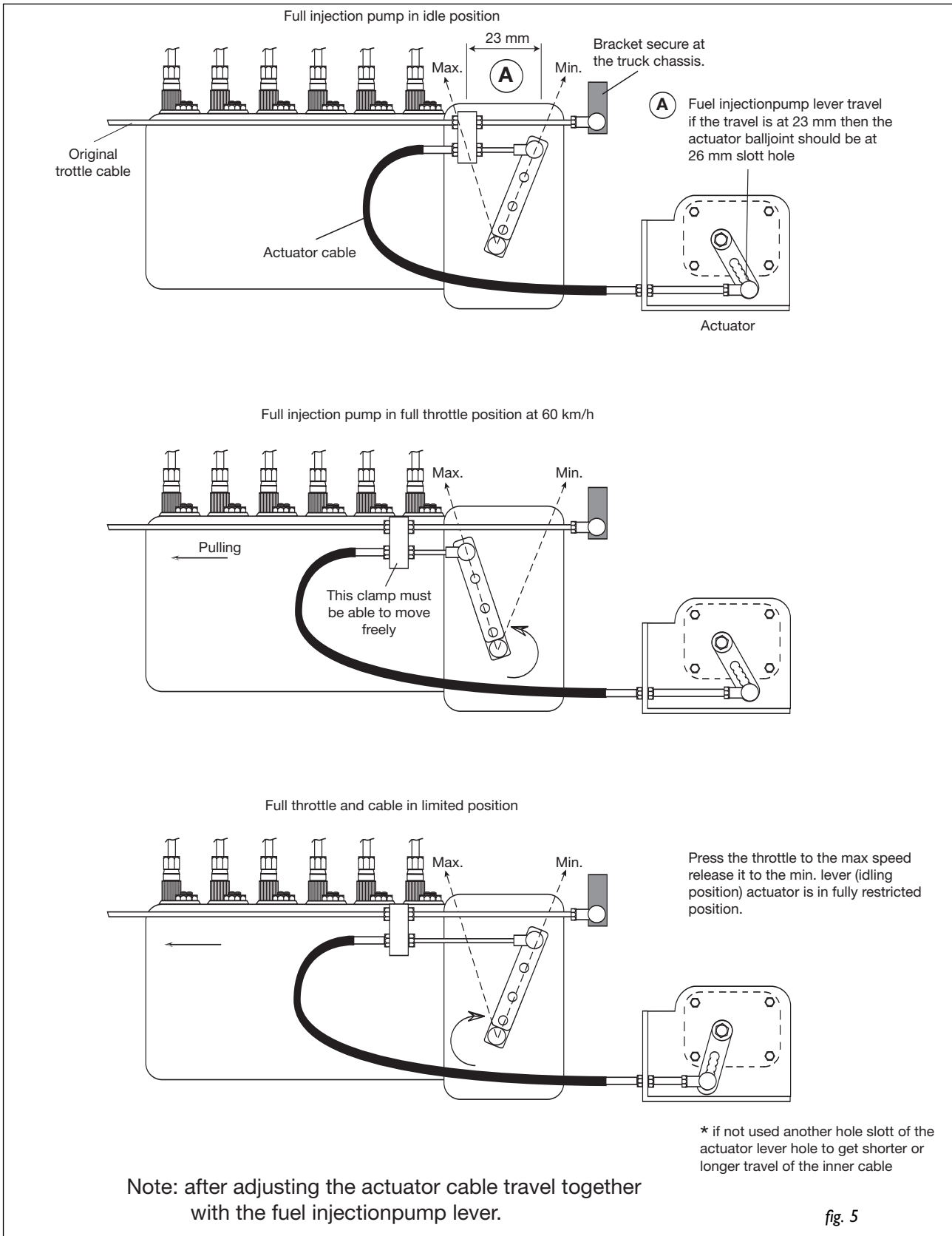


fig. 4

Fore Fly By Wire System mounting of the system between accelerator pedal and picked up setpoint sender (potie)

System operate



System operate

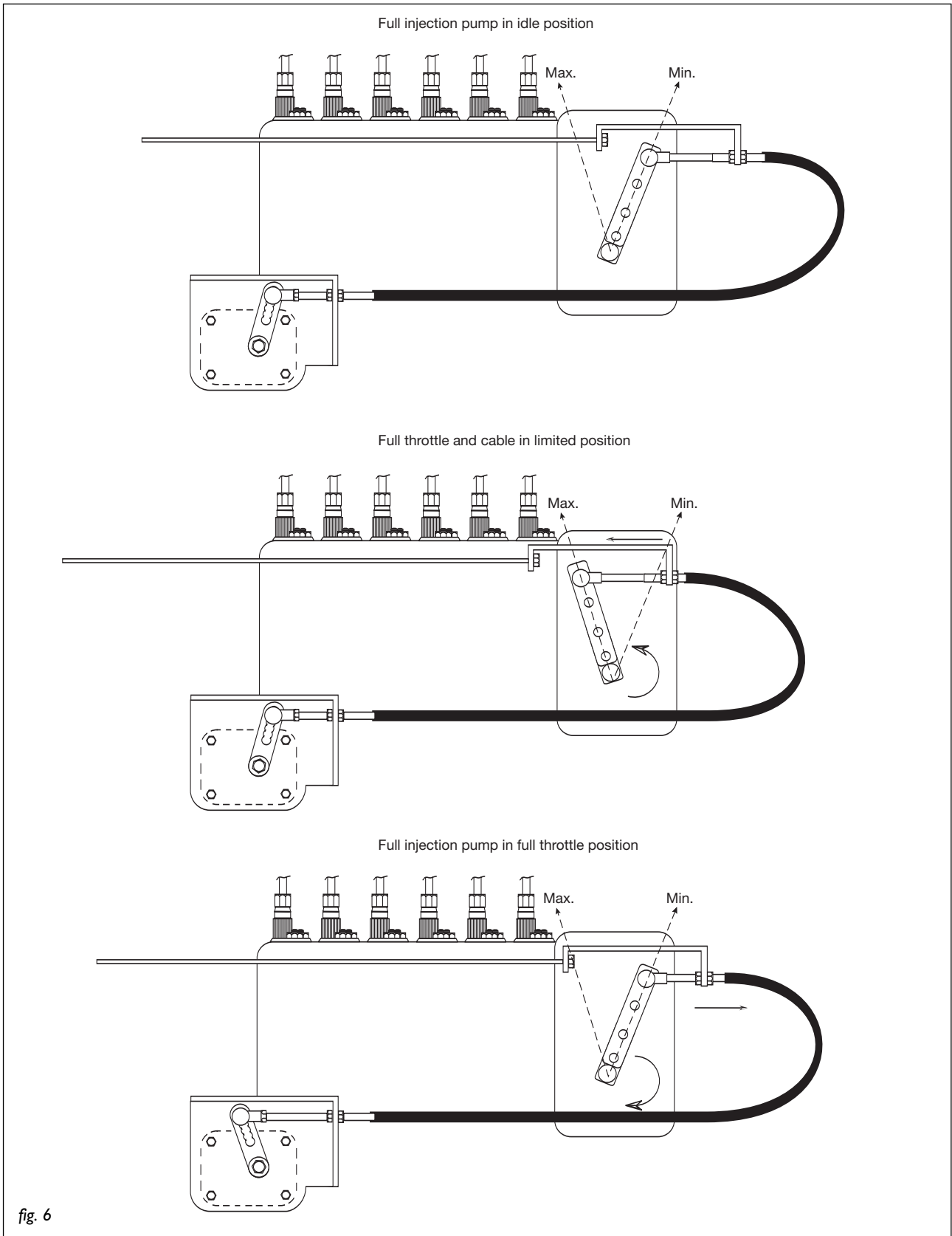


fig. 6

Mounting instruction

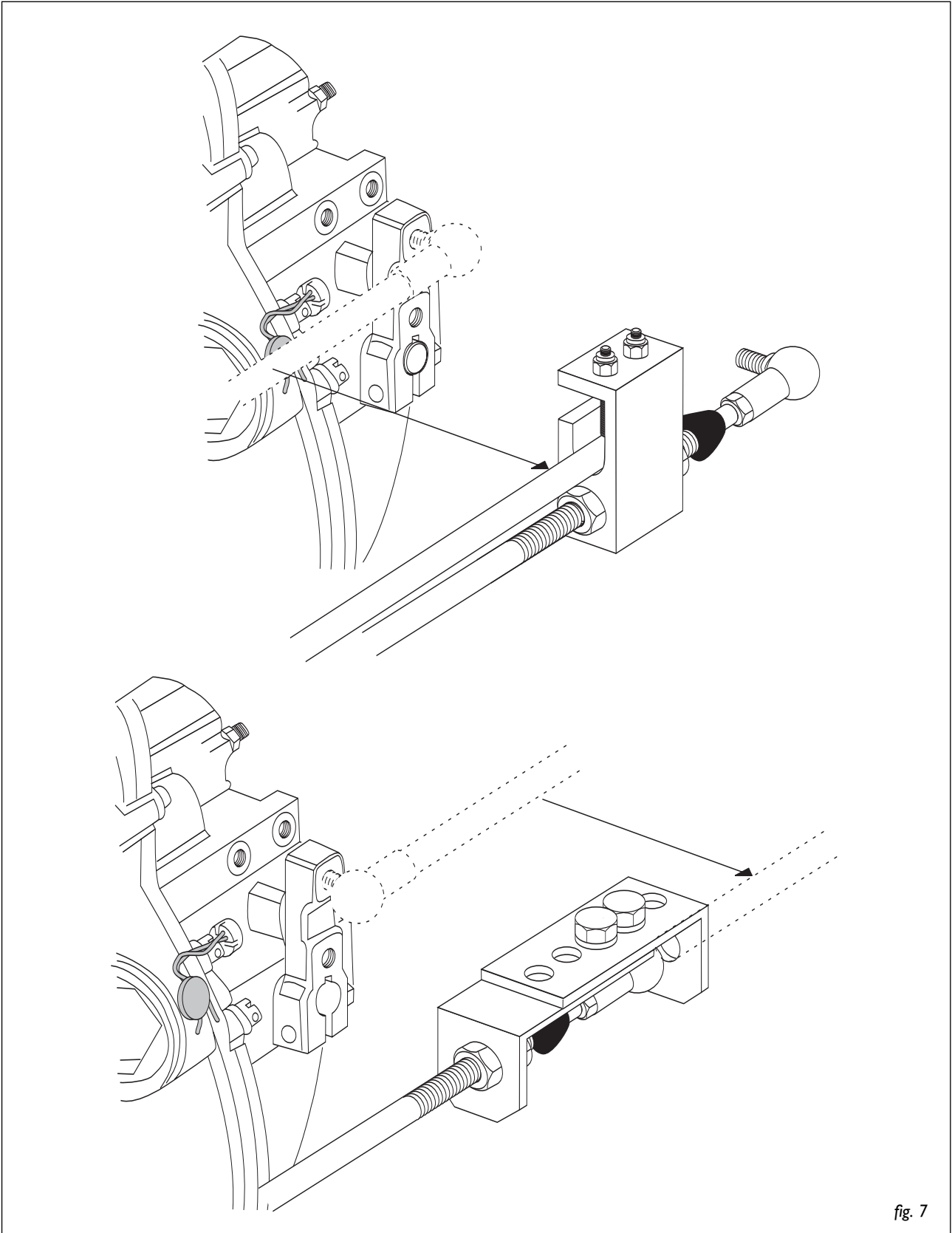


fig. 7

Installation note

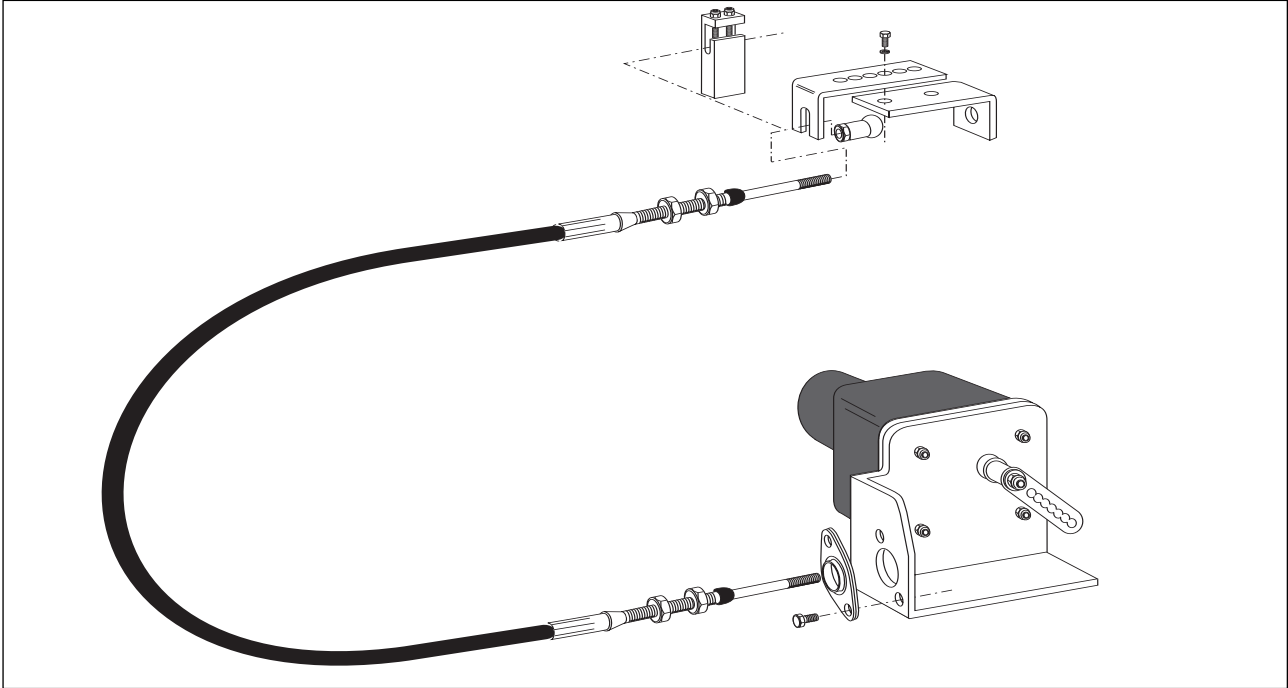


fig. 8

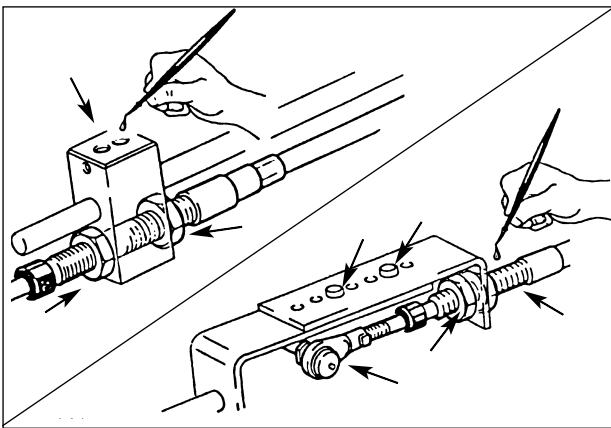


fig. 9

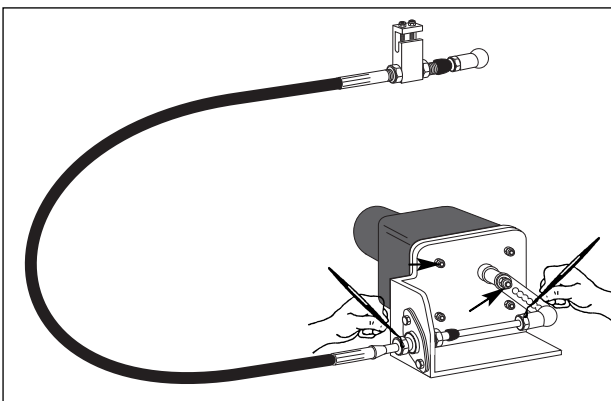


fig. 10

Measurements against manipulation

Caution!!!

All nuts and balljoints must be sealed with Yellow sealing paint. (see fig. 9 and 10)

Installation note

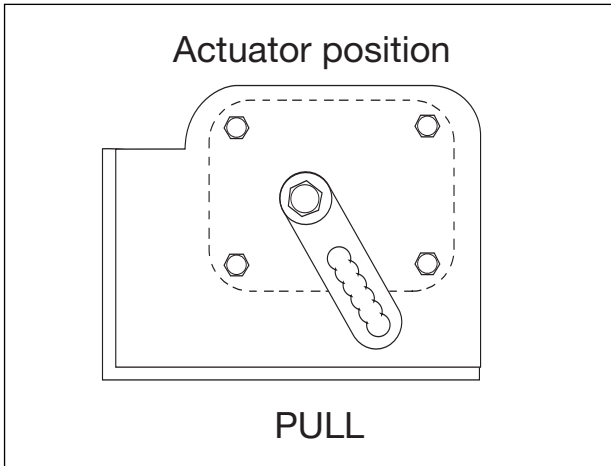


fig. 11

Actuator lever positions

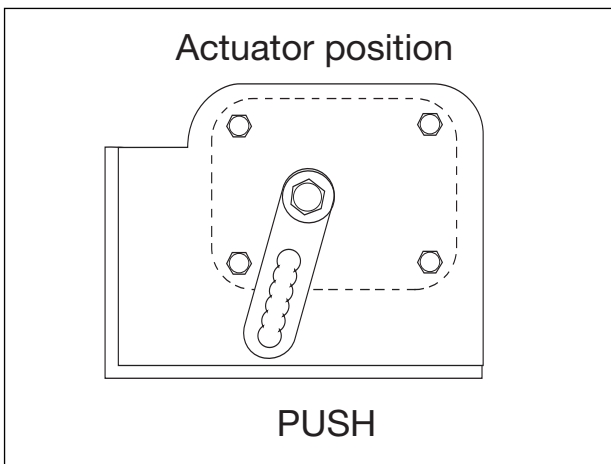


fig. 12

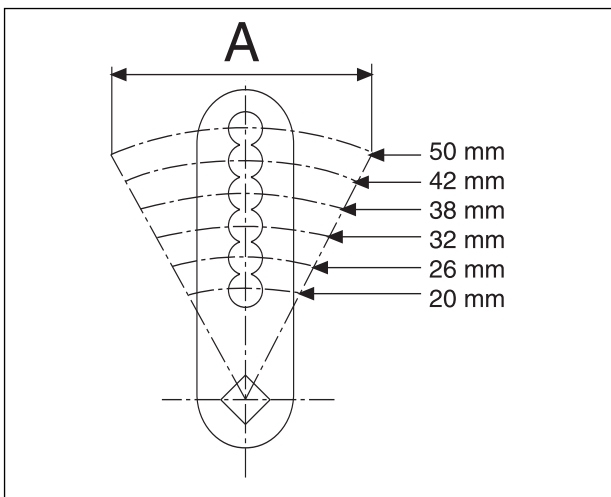


fig. 13

Actuator lever with slotted holes

Installation note

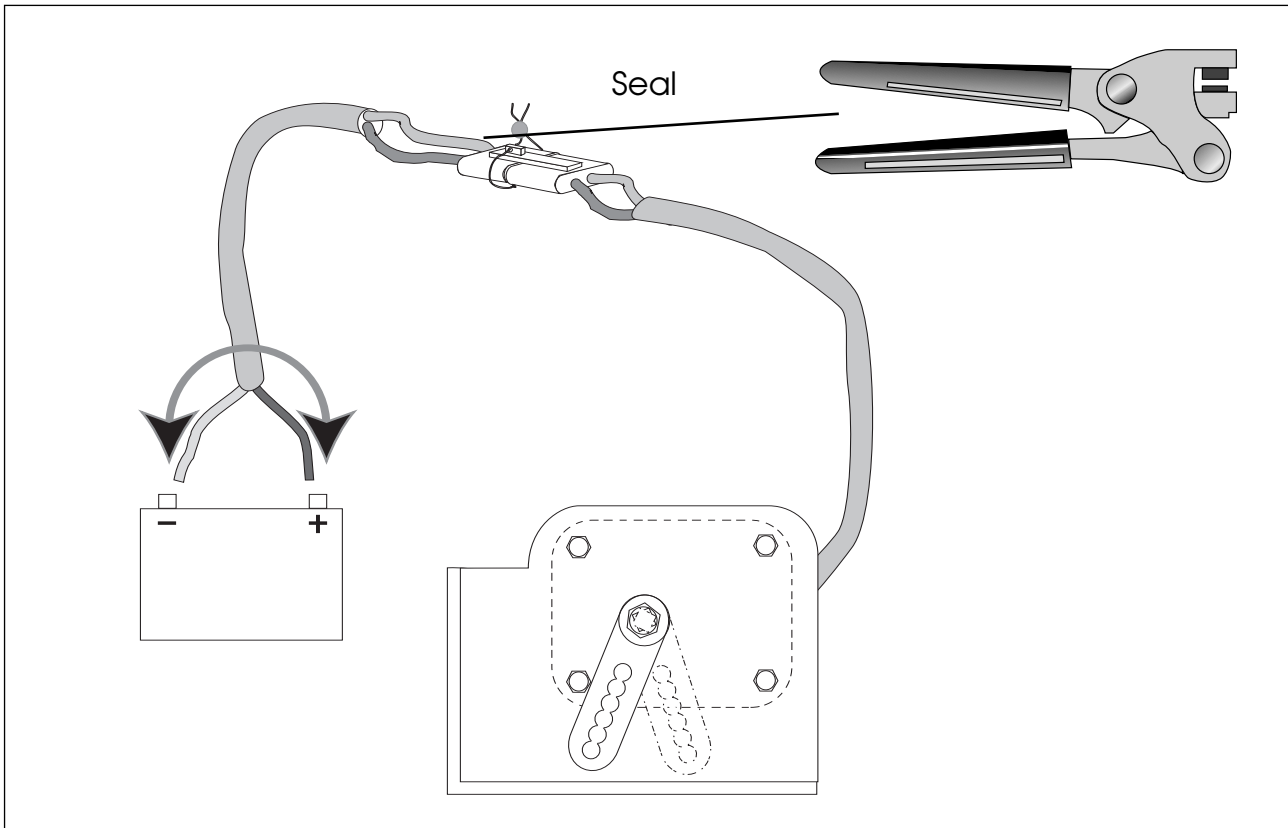


fig. 14

By changing the electrical plus and minus you are able to change the position of the actuator lever.
(and visa versa)

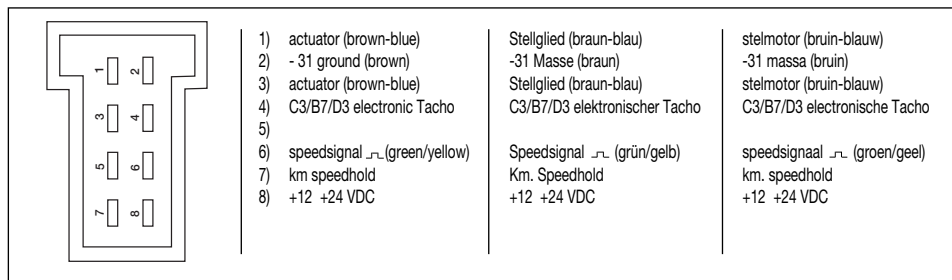


fig. 15

Installation electronic control module

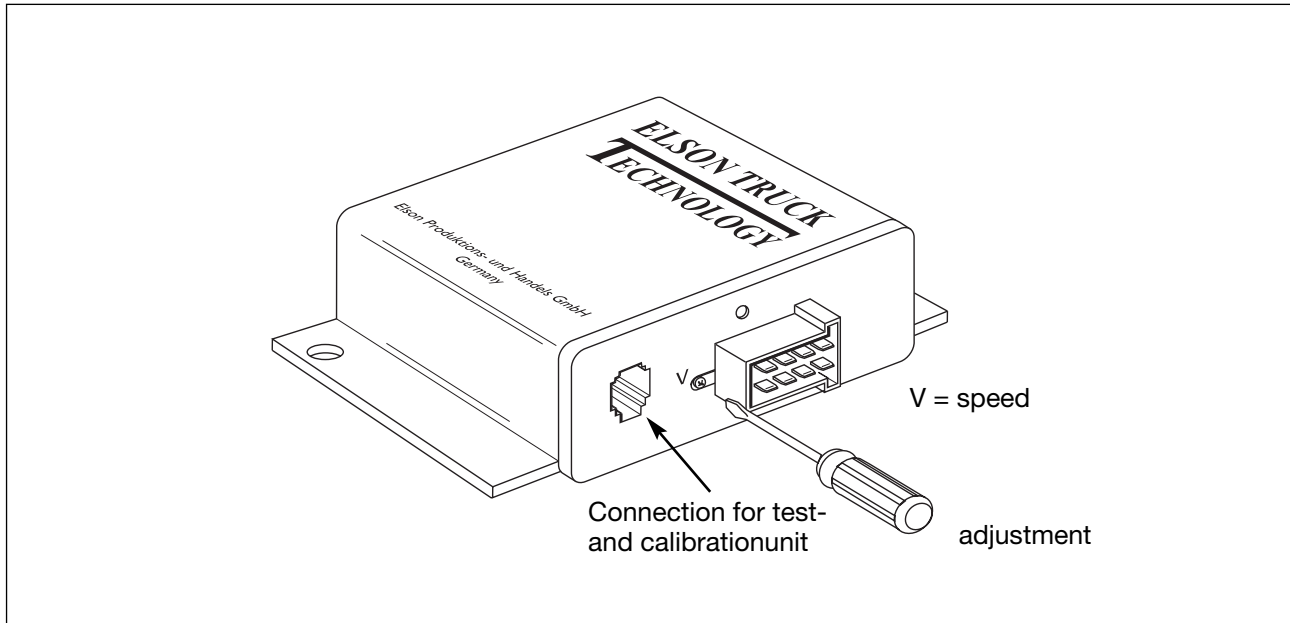


fig. 16

Mount the module in an appropriate shielded place, i.e. a place which will not be exposed to any hot air flow caused by the heating system or the air-conditioning avoid exposure to sun rays, heat and humidity.

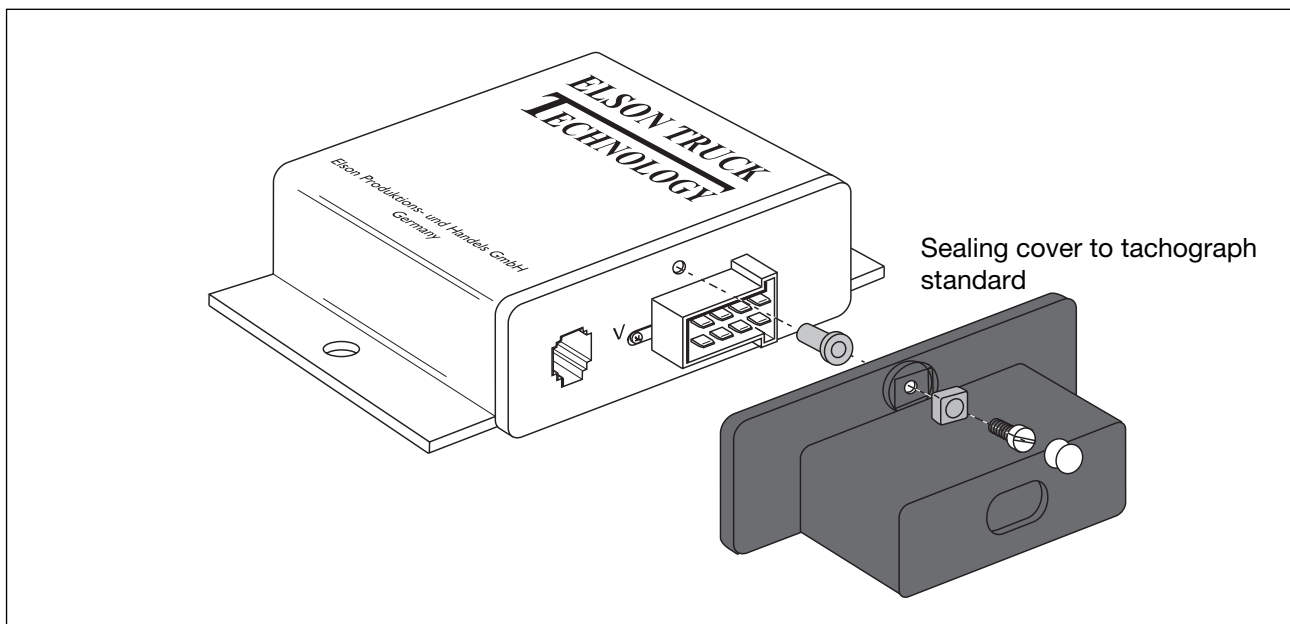


fig. 17

System layout with tachograph

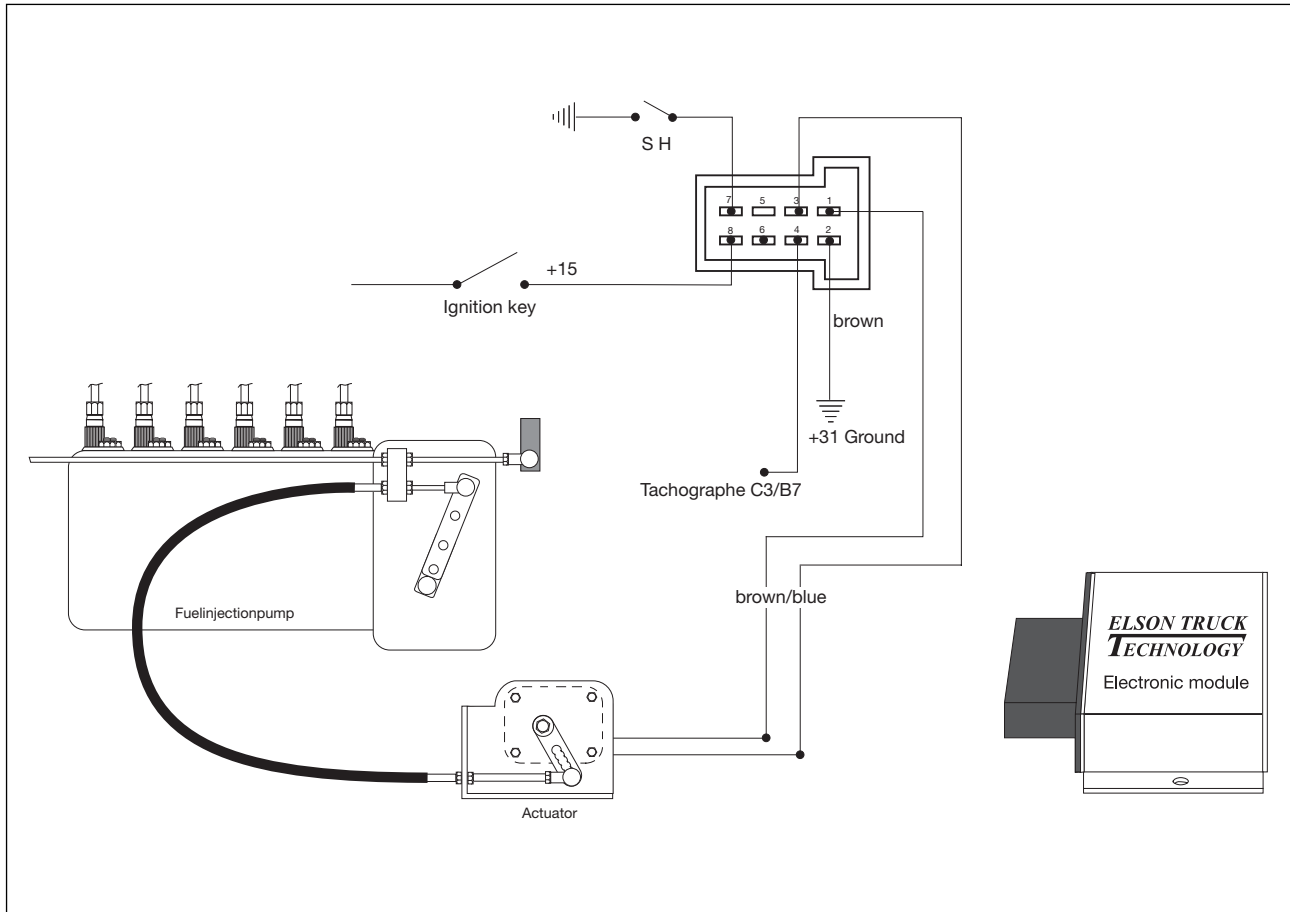


fig. 20

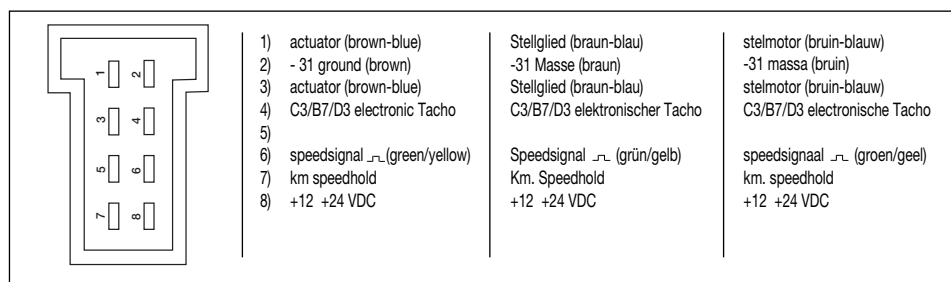


fig. 21

Electronic tachograph

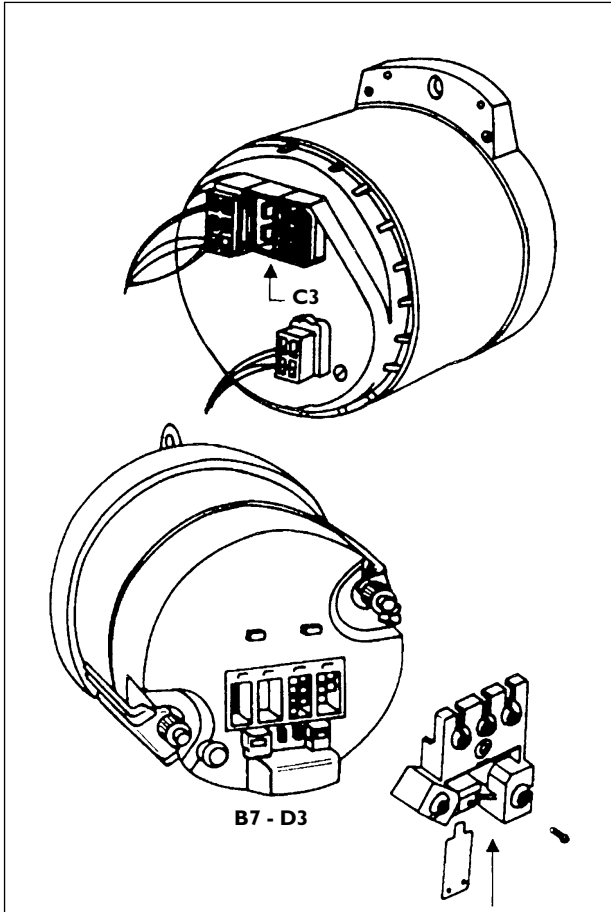


fig. 22

Most vehicles are equipped with an electronic tachograph. These are divided into two types:

Type **I314** is equipped with 4 sockets: A, B, C and km/h. If the tachograph is equipped with engine rpm registration a fifth socket is present and marked accordingly.

These connector terminals have the following outlets:

- A2 +battery (30)
- A4 +power via ignition switch (15)
- A6 - earth (31)
- C3 outlet speed impulse

Type **I318** is equipped with 4 sockets: A, B, C and D.

These connector terminals have the following outlets:

- A1 +battery (30)
- A3 +power via ignition switch (15)
- A6 - earth (31)
- B7 outlet speed impulse

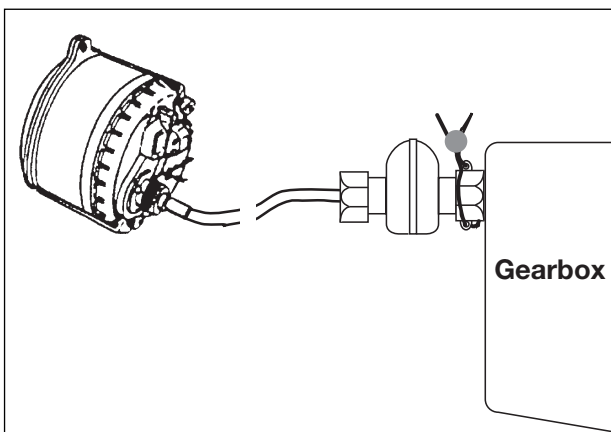


fig. 23

Speedsensor

Speedsensor must always be mounted near the gearbox

In fig. 23 mounting of the speedsensor with sealing.

Test procedure for electronic module with tachograph

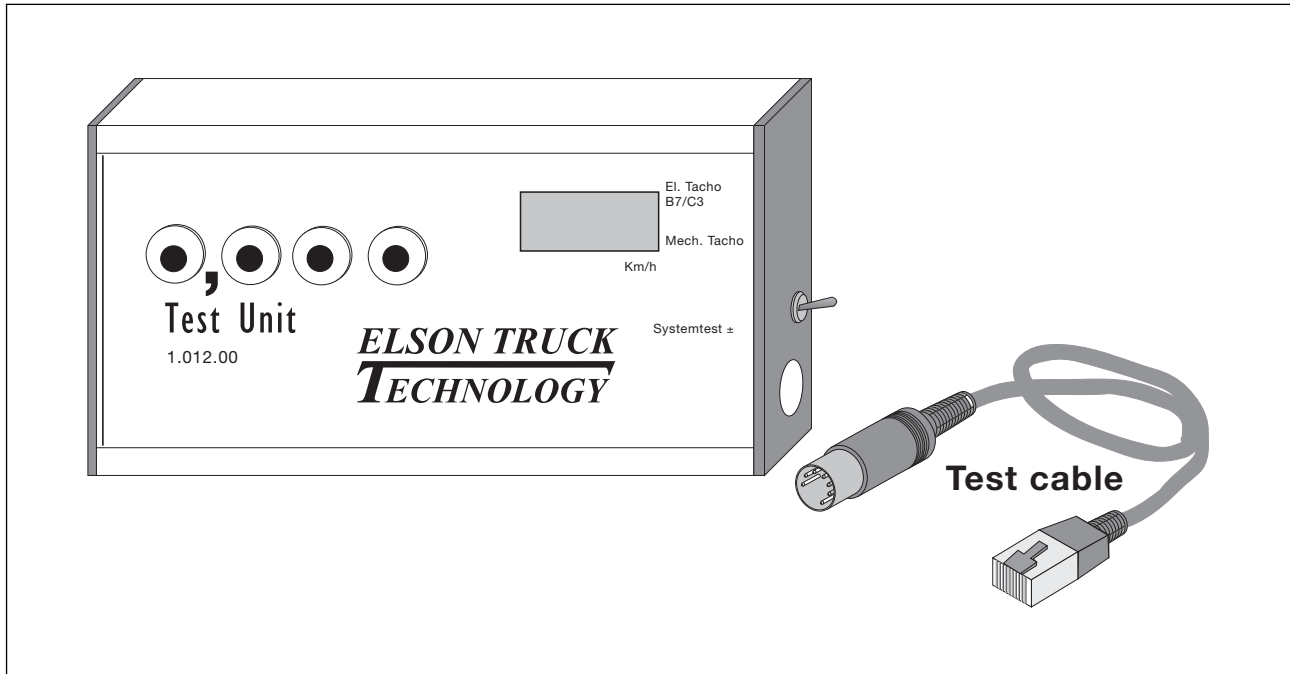


fig. 24

- A) Set tester switch to B7, C3 (W factor circuit is now bypassed)
- B) Ensure ignition switch is off, insert DIN plug in to socket of control module and tester
- C) Switch on ignition allow at least 40 seconds for stabilisation of tester reading
- D) Read liquid crystal display to determine speed setting reading is accurate to within 0,3 km/h
- E) If adjustment is required, slowly turn potentiometer V on the module until desired speed is displayed again allow for stabilisation of reading
- F) Move system test switch to - position and hold, maximum system speed ± 150 km/h will be displayed in this mode the actuator lever will move to one end of his travel (FULLY LIMITED)
- G) Move system test switch to - position and hold this will move the displayed reading to ± 15 km/h and the actuator lever travels to its opposite position (UN LIMITED)
- H) Complete system test by checking if there are pulses from the tachograph

Test procedure for electronic module with Speedsensor

The testunit is with K=1 calibrate.

This mean's 1000 x 8 pulses = 8000 pulses = 60 km/h

With speedsensor when K factor = 0,623 means $0,623 \times 60 \text{ km/h} = 37,38 \text{ km/h}$ on the testunit to adjust **or** when electronic speedometer have 4800 puls means $\frac{4800}{8} \times K = 600$ speedajustment $0,6 \times 60 \text{ km/h} = 36 \text{ km/h}$ to adjust on tester.

After testing check if there are pulses from the speedsensor by moving the truck.

Speedlimiter system sealing pliers

Where it is necessary to seal sections of the system with sealing wire I.041.00 and lead seal I.040.00, we recommend the use of sealing pliers with approximately inserts as illustrated.

These pliers and inserts can be purchased from HYDROCAR ASIA PTE LTD

NOTE:

Distributors who are a Department of Transport Approved Tachograph Centre may not use their marked sealing pliers.

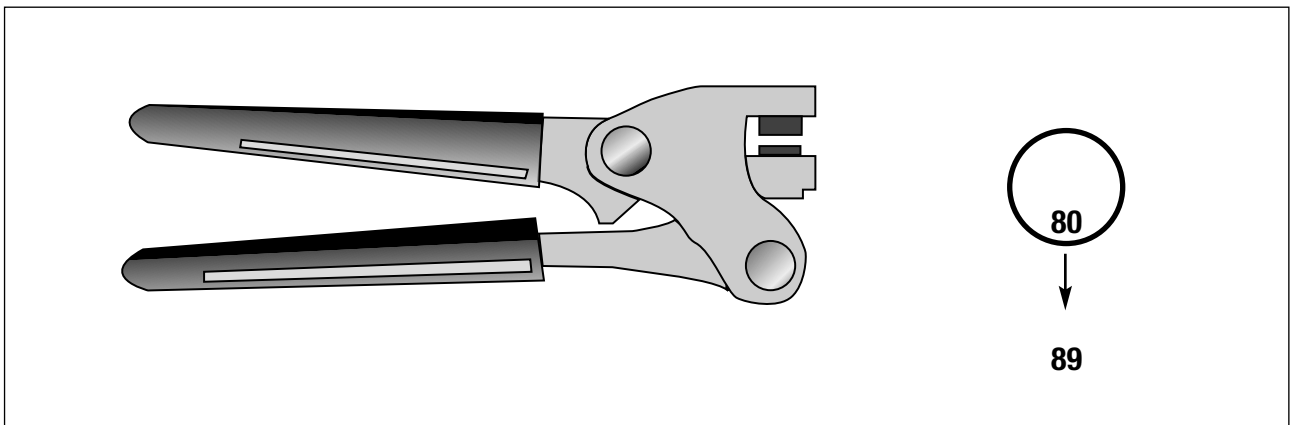


fig. 25

Installation plaque

Upon completion of each speed limiter installation, the vehicle must be equipped with a plaque which is in a conspicuous and readily accessible position within the driving compartment and which shows clearly and indelibly:

- A) The words "Speed Limiter Fitted"
- B) The set speed in MPH to which the limiter is calibrated
- C) The name or trademark of the limiter calibrator/sealer

This plaque is a legal requirement on all coaches and commercial vehicles covered by legislation. The plaque must be completed and fitted by the installing engineer.

THIS DATA PLATE MUST BE PERMANENTLY FIXED TO A WINDOW IN A CONSPICUOUS AND READILY ACCESSIBLE POSITION WITHIN THE DRIVING COMPARTMENT.

fig. 26

SPEED LIMITER FITTED

Vehicle Reg. No.: _____ Tyre size: _____

Type of speed limiter: _____ Seal No.: _____

Set speed _____ km/h

Frequentie of speed pulse: _____

Date of calibration & sealing: _____

Name of workshop: _____

Calibrator/Sealer: _____

**ELSON TRUCK
TECHNOLOGY** *Distributed by*

The self adhesive plaque for the window or windscreen fitment will be supplied in all S.L.M. kits.

Speed limiter sealing record

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SPEED LIMITER SEALING RECORD

Job No. _____ Date _____

Vehicle Operator _____ Vehicle Make _____

_____ Model _____

Address _____ Vehicle Reg. _____

_____ Chassis No. _____

_____ Tyre Size _____

Speed Limiter Type _____

Name of Sealer _____ Speed Limiter Serial No.:

Address of Sealer _____ Actuator _____

Electronic _____

_____ "W"/"K" Factor _____ imp/Km*
rev/Km

Set Speed _____ mph

Brief description of work completed _____

Authorised Sealers Signature _____

Authorised Sealers Number _____

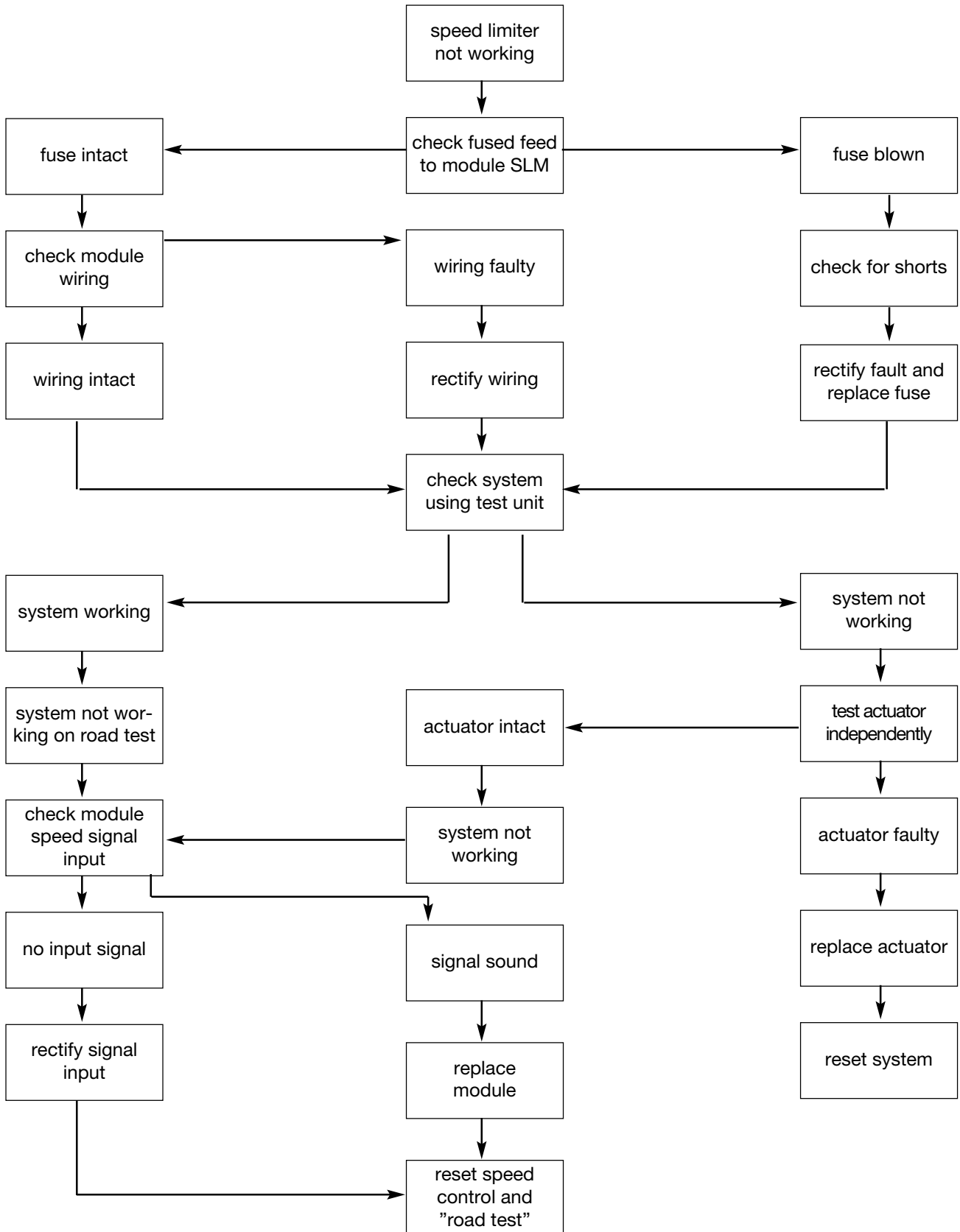
NOTE: THIS RECORDS SHALL BE KEPT FOR A MINIMUM OF TEN YEARS

*Delete as necessary

Customer - white copy

File - yellow copy

GUIDE TO FIND FAULTS Elson Truck Cruise



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