


Description and Operation

Seat belts are life saving devices and therefore should be checked and tested with care at regular intervals.

Seat belts and stalks that have been utilised in an accident should always be replaced irrespective of their visual appearance or apparent condition.

A newly developed buckle tensioner is fitted as standard on the front seats of all models.

In the event of front impact, a spring mass sensor releases the potential energy of a pretensioned coil spring via a system of levers. Within approximately 8 ms. of the coil spring being released, the seat buckle is pulled downward.

 **WARNING:** The seat belt pretensioner mechanism must always be disarmed during any seat or seat belt service operation using the plastic clips available from Parts Operations. This is to avoid the possibility of personal injury and accidental damage.

The buckle tensioner is already pretensioned when fitted since it features an anti-sensor facility (AS) whose operating cable is connected to the seat adjusting mechanism during installation in the vehicle. The buckle tensioner is secured during production and transport by a transport retainer.

The buckle tensioner is secured by means of a threaded pin and nut to the seat. Radial movement of the buckle tensioner is prevented by a lug which engages in the seat rail. Deactivation of the sensor by pulling the operating cable prevents the buckle tensioner triggering during transport, installation or seat adjustment.

The driver's front seat belt buckle incorporates a microswitch to detect seat belt usage. A warning lamp in the instrument panel is illuminated when the ignition is on, and the seat belt not engaged.

Seat Belt Testing

Poor Retraction

If a belt does not retract correctly, check that the anchor covers and trim bezels are correctly fitted and not rubbing against the webbing. Where necessary, check that the webbing is not rubbing at one end of the retractor cover slot and, if so, correct by loosening the fixing bolt, aligning the retractor to centralise the webbing and retighten the bolt.

Scorpio models are fitted with two front and two rear inertia reel belts. These belts are 'dual sensitive' which means that they have:

- A Vehicle Motion Sensor, which locks under braking, cornering, on steep hills and in adverse camber conditions,
- A Webbing Sensor, which locks when the webbing is quickly extracted.

Both systems should be fully operational and can be checked by the tests below:

Vehicle Motion Sensor Test

Either of the following two procedures may be used to check correct operation of the Vehicle Motion Sensor. Both methods require two people but note that people of larger than normal build should not be asked to conduct these tests. This is to avoid the possibility of a fully unrolled seat belt webbing being mistaken for a correctly locked seat belt reel.

Test Method 1 (Braking)

- Select for this test a quiet/private stretch of road. Ensure that the road is clear and that full visibility is maintained at all times.
- Both driver and passenger should adopt a normal, comfortable seating position. Both occupants should wear seat belts and the belt webbing must be properly adjusted, with no slack.
- proceed at a speed of approximately 10 Km/h (6 mph). Do not exceed 10 Km/h (6 mph) for this test.
- Apply the foot brake sharply to stop the vehicle. If the vehicle motion sensitive lock mechanism is operating correctly, the belt webbing will lock and restrain the wearer.

NOTE: It is important that during this test, the wearer allows the belt to provide the restraint, the wearer should not attempt to anticipate the sudden deceleration and the driver should not brace himself against the steering wheel. However, both the driver and the passenger should prepare themselves for the possibility that the seat belt will not lock. The passenger should hold his hands in front of him, just clear of the facia panel or front seat back, depending on which belt is being tested.

- Conduct the test twice in each front and rear passenger seat position.
- Any seat belt reel assembly which does not restrain the wearer during this test must be renewed.

Test Method 2 (Turning circle)

This method requires a flat open area of private road, sufficient for the vehicle to be driven in a continuous circle on full steering lock.

- The driver should wear the seat belt provided and the belt webbing must be properly adjusted, with no slack.
- The passenger should occupy a rear seat with the seat belt properly adjusted.
- Start the engine and, with the steering on full right-hand lock, drive the vehicle in a continuous circle at 16 Km/h (10 mph). Do not exceed 16 Km/h (10 mph) for this test.
- When the speed is stable, the passenger should attempt to slowly extract the webbing from each inertia seat belt reel in turn. If the vehicle sensitive lock mechanism is operating correctly, it will not be possible to extract the webbing.
- Any seat belt reel assembly from which it is possible to extract the webbing during this test must be renewed.

Webbing Sensor Test

With the vehicle stationary and on level ground, take firm hold of the webbing (on the tongue side of the upper anchorage) and pull out quickly. The retractor should lock within 0,25 metre, preventing further webbing payout. Any seat belt assembly from which it is possible to extract further webbing must be replaced.

Service Renewal of Seat Belts

It is possible that seat belt assemblies fitted in service may have been damaged during handling or fitment to the vehicle. The damage is contained within the inner workings of the retractor and is, therefore, not visible. However, the damage usually causes the retractor to stick or jam. The damage can only occur before fitting is completed and is usually in one of the following ways:

- The webbing is allowed to retract onto the spindle until it jams the locking mechanism in a way that cannot occur when the belt is installed in the car. The webbing prevents the correct locking action and if the webbing is snatched or jerked out of the retractor, the loads are not taken on the high strength locking mechanism and damage can occur.
- The webbing is snatch loaded by attempted fast extraction or manual testing with the seat belt held in the hand. This can result in decelerations which are much higher than those occurring in accident situations and there is a risk of damage to the mechanism.

When handling seat belt assemblies, adopt the following procedures:



WARNING: If the following procedures are not successful, reject the seat belt assembly. Do not try to jerk or snatch the webbing out of the retractor as this may cause damage.

- If the webbing retracts and will not extract under low webbing tension, fit the retractor to its mounting in the car, which will set it at its correct angle, and the webbing should extract easily.
- If it does not, feed 5 - 10 mm more webbing onto the spindle (rotate the spindle using finger pressure if necessary) and the webbing should then extract.