

This TBT should be read in conjunction with EXP-1000 HD Volvo - Battery analyser 88890075 user handbook, available to view or download on Volvo IMPACT

Because of the possibility of personal injury, always use extreme caution when working with batteries. Follow all manufacturer's instructions and safety recommendations.

## Hazards

### **Chemical:**

Corrosive chemicals can permanently damage the eyes and produce serious chemical burns to the skin. These chemicals can also seriously damage the environment.

### **Explosion:**

A source of ignition – for example, a flame, a spark, a cigarette or any hot object, electrical equipment or a mobile phone – may cause mixtures of gases to ignite and explode. The explosion is often so violent that it shatters the battery and produces a highly dangerous shower of fragments and corrosive chemicals.

### **Electrical:**

Batteries contain a lot of stored energy. Under certain circumstances this energy may be released very quickly and unexpectedly. This can happen when the terminals are short-circuited, for example with an uninsulated metal spanner or screwdriver.

If it explodes, the resulting shower of molten metal can cause serious burns and ignite any explosive gases present around the battery. The sparks can give out enough ultra-violet (UV) light to damage the eyes.

### **Manual handling:**

When removing batteries on all B9 and B7 RLE Volvos ensure once the bolt has been released, the batteries on the slide mount are extracted by holding on to the bottom of the unit only and pulling. When reinserting the battery unit, that at no time should the hands or fingers be underneath or on the side of the battery box. Place hands on top of the battery box and push until back in its original position.

## BATTERY TESTING

### Inspect the battery

Before testing, visually inspect for:

- ☒ Cracked, buckled or leaking case – *replace battery*
- ☒ Corroded, loose or damaged cables/connections – *repair/replace as required*
- ☒ Corrosion on battery terminals or dirt/acid on case top – *clean*
- ☒ Corroded or loose battery tray and/or fixings – *tighten/replace as necessary*

### Battery Test Results

Decision	Recommended Action
READY TO USE	Return the battery to service
GOOD-RECHARGE	Fully charge the battery & return to service
CHARGE & RETEST	Fully charge the battery & retest. <b>Failure to fully charge before retesting may cause false readings.</b> If a CHARGE & RETEST appears again after battery is fully charged, replace the battery
REPLACE ADVISED	Replace battery & retest. A REPLACE BATTERY result may also mean a poor connection between the battery cables and battery. After disconnecting the battery cables, retest battery using the out-of-vehicle test before replacing it
BAD CELL-REPLACE	Replace the battery & retest
FROZEN BATTERY	Thaw battery and retest. Do NOT charge the battery

**THE BATTERIES MUST BE BALANCED** – They must have equal CCA values (Cold Cranking Amps) and SOH (State-Of-Health). The CCA is stated on the battery label.

**DO NOT** pair and old battery with a new one. Their respective capabilities will change differently over time. This will lead to different states of charge and batteries will get damaged.

## **Battery Pairing Test Results**

<b>Decision</b>	<b>Recommended Action</b>
BATTERY PAIR IN BALANCE	The batteries are working correctly and are balanced
BATTERY PAIR OUT OF BALANCE: CHARGE BATTERY	The batteries are not balanced with each other and should not be used together. Charging is required
REPLACE BATTERY	Before replacing the battery perform a system test to analyse the complete system

## **GENERAL BATTERY SAFETY**

### ***Remember Do...***

- Wear gloves and suitable eye protection, a visor, when working on batteries.
- Fit temporary plastic covers over the positive battery terminals at all times when not on a vehicle or charging.
- Keep sources of ignition – such as flames, sparks, electrical equipment, hot objects and mobile phones – well away from batteries that are being charged, have recently been charged, or are being moved.
- Use suitable single-ended tools with insulated handles (where applicable.)
- Charge batteries in a dedicated, well-ventilated area.
- Share the load with a workmate when lifting batteries – they can be very heavy.
- Check there are no tools, cables or other clutter you could trip on.

### ***And don't...***

- Work with batteries unless you have been properly trained.
- Accept batteries into the stores that do not have plastic covers over the positive terminals
- Smoke near them
- Wear a watch, ring, chain, bracelet or any other metal item which could bridge across the terminals.
- Overcharge the battery – stop charging as soon as it is fully charged.



## TBT 52 – Battery Safety



I have received information on the correct procedures for working with batteries in the workplace.

I understand that I must familiarise myself with the contents of **EXP-1000 HD Volvo - Battery analyser 88890075 user handbook** before using the equipment.

If I am unsure of any aspect of the inspection or maintenance of bus batteries I will seek advice from a supervisor.

I realise it is my responsibility to ensure I wear the correct PPE when working with batteries and I will report any faulty or damaged PPE or equipment.

**By signing this acknowledgement you are confirming that you attended the toolbox talk and understand and agree with the content.**

**Employee to complete in block capitals**

NAME: ..... NUMBER: .....

GARAGE: ..... JOB TITLE: .....

SIGN: ..... DATE: .....

**COPY TO FILE**