Easy Petrol Post Driver Ergonomic Assessment

MODEL: CHPD78-1

The tool is used to knock posts of various materials into the ground. The tool is used outdoors on a variety of surfaces, including inclined surfaces. It is operated using a worker operated throttle with varying speeds. On release of the throttle trigger the machine stops striking.

Handles

The left handle is made from a rubber which gives a non-slip surface to grip using the left hand. It is presumed the operator is wearing abrasion resistant gloves; however even without gloves the handle is suitable for the operation.
The right handle is a moulded piece designed to match the shape of the operator hand. The handle incorporates the throttle trigger and on-off switch which determines where the handle is held.

Access to the controls is unobstructed and minimises awkward body postures.

Weight

Weight; Dry	15.3 kg
Weight; Wet	16.0kg

Weight can increase to 17.5kg with certain adapter attachments.

Consumables

There are three consumable products used by the EPPD; fuel, grease and oil. All refill sections are easily accessible on the outside of the machine.
The sections which require periodic servicing are accessible using standard sized Allen Keys. They are positioned on the outside of the machine in a position suitable for working on seated bench.

Lifting on & off posts

Correct manual handling techniques need to be followed when the operator is lifting the machine onto and off the post, before and after the post has been driven into the ground.
If the posts to be driven are longer than the reach of the operator, Handle Extensions are available which will remove this limitation.

External Load whilst Driving

The operator must exert a downward force of approximately 5-10kg to 'pull-down' the machine. This is mandatory to ensure the internal hammering mechanism is engaged in the correct operating position and to reduce unexpected movement whilst driving.
The position of the operator's hands and arms is changing from above shoulder height, to below shoulder height as the post drives into the ground. It is not a static operation.

Operator position / stance

The operator will use the machine on a variety of outdoor surfaces; grass, mud, bracken, inclined surfaces etc. The operator is to wear sturdy boots with an aggressive tread to give the best traction outdoors. The operator should maintain a stable standing position and keep body weight balanced whilst using the machine.

Temperature

During the post driving operation the temperature of the handles and body facing side of the machine does not change. The temperature of the engine exhaust gets hot enough to burn and should not be touched during or after the operation of the machine. When holding the machine with the operation handles or the top 'carrying handle' this is not possible.

Shock Reaction

The percussion from this tool is not a single event, it is a vibration. Therefore, in that sense there is no shock reaction.

Hand Arm Vibration

Normal use of the Easy Petrol Post Driver exposes the operator to vibration. Vibrations from handheld machines are transmitted into the hands via the handles. The spring dampened handles are designed to dampen a large part of the initial vibrations.
The declared vibration level is **9.24 m/s²** for a 100mm ø post. This gives EAV (Exposure Action Value) exposure time of knocking posts in of 35 minutes. A post can take anything from 10 seconds to 40 seconds to knock into the ground, the number of posts a man can knock into the ground per 24 hours is calculated using the formula below.

Calculation used:

$$\frac{Number\ of\ minutes\ tool\ usage\ x\ 60\ seconds}{Number\ of\ seconds\ to\ knock\ post\ in} = Number\ of\ posts\ per\ man\ per\ 24\ hrs$$

Noise

Noise emitted from the tool whilst working can reach 100dB from a wooden post, and 110dB from a metal post, which can harm the operator and others nearby. Hearing protection must be worn to reduce the noise level to 80dB attenuation. It is important to note that the noise emitting from the operation when driving a stake into the ground could be higher than the above figures if posts made from another material are driven in, and should assessed accordingly.