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Marsdezyn **Tree-Rex** PORTABLE FIREWOOD SPLITTER **OUR SAFETY STRATEGY - AND YOURS**

Designed-In Hazard Reduction

- To eliminate avoidable crush hazards on the downstroke, the carriage is tapered, so that the only hand-crush hazard is immediately adjacent to the blade.
- Upstroke crush hazards are minimised by spacing the ram 60mm out from the carriage face and designing wedge carriage details to avoid hand-crush points against the ram when retracted.
- The valve package and hydraulic hoses are located remote from the wedge so that if it is rising with a log jammed on it, the log does not create a crush hazard against these. This is true only for logs up to a theoretical diameter of 800mm. A log this size would weigh around 200Kg and pose a hazard just loading it onto the table! It therefore is an unlikely scenario, and is in any event prohibited in the Safe Operating Instructions.

"Operator-Classes" - A Safety Management Strategy

Marsden Engineering recognises that Dedicated Professional Operators require a fast operation to make their business economically viable, but that this is not suited to use by other persons with less skill and experience. Hence, three "Classes" of machine are offered, as follows:

Professional Class:

For trained operators only, either with prior experience, or supervised while gaining experience. This machine is NOT for sharing around, and must stay under the direct control of the owner. It is optimised for its maximum speed potential, being approximately 80mm/second down and 125mm/second up (unloaded); and with optional automatic upstroke return using a detent valve. It is operated by one lever valve and the trained operator will keep the other hand well clear of the action. If the wood segment being cut requires steadying then the operator will use the implement WS-JIG-06 provided, to keep the hand safely clear of the hazard.

Casual Class - Shared Use:

For use by a controlled pool of responsible persons, such as a cooperative group of farmers or small firewood processors. The owner/controller grants use only to persons with suitable experience and/or training.

Auto-return is not fitted (the interlock valve precludes this).

Speed is reduced passively (throttled) to a small extent by the use of smaller hoses.

An interlock valve ensures both hands are occupied working both valves in order to achieve full speed and splitting power. When only the Main Valve is operated, most of the oil flow and pressure

is bled away from the ram, so that only a slow creep at around 3% force is available, e.g. when fine tuning alignment and initial engagement of logs. Note this is still sufficient force to cause injury (70-130Kg) and should only be used in conjunction with the hand implement WS-JIG-06 to keep hands clear—but it is much more forgiving of misalignment or handling error than full force and speed.

Casual "Hire" Class

For use when there is little control over the training and experience of users, such as public hire. Auto-return is not allowed.

Speed is further reduced by throttling the flow through an undersized valve (the interlock valve). The interlock is "solid" and completely freezes the action so there is no creep. Hence "hands-off" operation is enforced at all times.

All Machines - Safety Management

The purchaser is responsible for choosing an appropriate Class of machine and managing it as described above; an operator's Safe Operation Sheet (laminated) will be provided with the machine together with its manual and pdf files of these. The purchaser should ideally read and sign a copy of the Safe Operation Sheet, to be archived by ME along with the machine specification. Should the machine be on-sold, the seller is responsible to ensure the new buyer has this information and understands the machine's Class and necessary control of its use.

The safety 2-hand interlock valve is worked by lifting its lever up, to prevent cheating by hanging a weight on the lever. Nothing is foolproof however, e.g. even a shrouded pushbutton control can be beaten by a pebble and sticky tape. Policing is important.

The owner is responsible to inform users of the hazards and police any dangerous behaviour. It is particularly **important that the operator work ALONE**, in a clear workspace. An assistant attempting to handle logs into the wedge or on the table, is especially vulnerable; and even being in close proximity could unintentionally jostle or trip the operator, leading to a mishap.

Use of safety goggles or a face shield is important, not just for the hazard of sap squirting from logs, but also because the hydraulics are located at head height, where a sudden leak from a burst hose or loosened fitting could squirt very hot oil into the eyes—the oil itself is unlikely to cause damage, but the hot high pressure jet could cause facial injury and/or permanent blindness.

Modifying the machine invalidates its warrantee, and ME will no longer accept responsibility for its safe operation—this responsibility passes entirely to the person who executed the modification. If it is desired later to change the machine Class, or add features, ME can do the necessary alterations and issue new documents in the same way as for a new machine; this work is typically inexpensive.

Reproducing the safety material e.g. printing extra copies, is encouraged by ME, but it must not be altered in any way or applied to different machines—hence ME reserves the copyright.

DIY Machines

If a machine is supplied "DIY" e.g. as an incomplete fabrication, or a "Flat-Pack" for a buyer/s to build their own machine, ME can take no responsibility at all for the safety or performance of the completed machine. The buyer takes full responsibility for this. ME will allocate a serial number and supply a draft generic partial machine manual and typical draft Safe Operation Sheet for the anticipated finished product; but the buyer must create and print suitable final material. ME should be referenced in this material as the supplier of parts only (e.g. for future replacement of wearing items such as carriage sliders), and must not be cited or implied as the machine manufacturer.