



## HOW TO FIT TRACTOR IMPLEMENT

The humble tractor is only as useful as the implements you attach to it. The ability to quickly and easily change implements makes the small acreage tractor far more versatile for the average hobby farmer. The following will show you how to make light work of changing implements.

### IMPLEMENT TYPES:

Implements can be broken into three types:

- 3 point linkage (3 PL) connections. This is the most basic kind of connection and simply enables implements to be raised and lowered. Some examples would be a carry all, grader blade, ripper or plough.
- Power take off (PTO) connections. This involves connecting to a rotating shaft on the tractor which drives implements such as a slasher, rotovators or posthole diggers. PTO driven implements are usually also attached to the 3PL.
- Hydraulic connections. This involves connecting a hydraulically driven implement to the tractor hydraulics using hoses and couplings. Some examples would be wood splitters, tipper trailers, and backhoes.

### IMPORTANT GENERAL INFORMATION:

- When connecting and disconnecting implements it is best to work on firm level ground.
- Implements are very heavy. Be careful in handling them to avoid personal injury. Dismantling implements into smaller parts can be done quickly and easily to make them easier to handle.
- Some implements can be unstable while being disconnected or after they are disconnected. Always handle them carefully to avoid them tipping over.
- Always leave the tractor in a safe state when getting off it to connect/ disconnect/adjust implements – i.e. disengage the PTO, turn the engine off and apply the hand brake.
- PTO shafts rotate very quickly and cause severe injury due to entanglement. Never allow anyone to go near an operating PTO and ensure it is always correctly guarded.
- Hydraulic systems operate under high pressure. Always turn the engine off when working with hydraulic connections.

### 3PL CONNECTIONS:

In this example we are using a grader blade but the same principals would apply to many implements. Start the tractor and reverse it towards the implement ensuring the tractor is square to the implement.

Raise or lower the height of the lower linkage arms to match the height of the implement mounting points using the tractor hydraulic 3PL control.

It may also be necessary to adjust the width between the two lower arms to accommodate the width of the implement. This is done by turning the sway chain adjusters to create more or less free play.

Slowly reverse the tractor so that the lower linkage arms fit into the implement mounting points. Attach the implement to the 3PL with mounting pins and secure with lynch pins. A pry bar can be used to fine tune the position if you have difficulty aligning the linkage arm and implements.

Next attach the top link with mounting pins and lynch pins. Some are rigid bars and some are chains. (A slasher has a chain to allow the implement to pivot up if it hits a large bump / object. This helps protect the PTO shaft from damage).

The implement will now need to be adjusted. The hydraulic system will have a lift limiter adjuster to set how high or low the implement can be raised – this is particularly important with PTO driven implements – refer below. Height adjustment can be fine tuned by turning the upright arms.

Sway chain adjusters enable you to pull the implement in tight to the two bottom linkage arms and minimize sway. The linkage should be set up with some free play (approximately 50mm) to protect against damage from side forces.

### **POWER TAKE OFF CONNECTIONS:**

Note when fitting an implement for the first time, it is essential to ensure the implement PTO shaft is a suitable length. The implement PTO shaft is telescopic to allow it to vary in length as the implement is raised and lowered. If the shaft is too short it will need to be replaced with a longer one. If the shaft is too long the can “bottom out”. This can be rectified by cutting the shaft down. Refer to the implement instruction manual for getting the shaft length right.

Most PTO driven implements are first fitted to the 3PL as described above. The implement PTO shaft is then fitted to the tractor PTO drive shaft. Start by aligning the splines between the yolk and the tractor drive shaft. Then press the quick release button to slide the yolk on. Slide the yolk fully home until the quick release button pops out. Ensure the PTO guard is in place and the safety chain is attached.

Use the high low limiter to ensure the implement can't be raised high enough for the PTO shaft to hit the implement. Conduct the check with the PTO disengaged. If a turning shaft hits the implement it can cause damage to the PTO system or personal injury.

### **HYDRAULIC CONNECTIONS:**

Many hydraulically driven implements such as a backhoe are also fitted to the 3PL.

These implements may use a more robust top link but the principal of connecting to the three points is the same. Once connected it is simply a matter of connecting the implement hydraulic hoses to the correct hydraulic connections on the tractor.