

## **Proper Clutch Engagement & Use on BCS Walk-Behind Tractors equipped with PowerSafe hydro-mechanical clutches:**

**First off:** The operator interface for the RED Safety lever (on the TOP of the LH handlebar) and the black Clutch lever (on the BOTTOM of the LH handlebar) is sort of “counter-intuitive”, because the operator has to PULL UP the black lever on the bottom BEFORE pressing down the red lever on the top. IF YOU ATTEMPT TO PUSH DOWN THE RED LEVER **FIRST**, YOU WILL DAMAGE THE CONTROL CABLE, which may then have to be re-adjusted or replaced. (This interface on the PowerSafe tractors between the red and black levers is exactly the opposite of what is on the BCS machines with “standard” clutches on them...so it can be confusing, particularly if you have operated a BCS with standard clutch in the past!)

Before shifting your walk-behind tractor into a wheel-speed, engaging the PTO (implement drive), or shifting between forward and reverse, the clutch handle (on bottom of left-hand handlebar grip) must first be squeezed all the way, to disengage engine power from the machine during shifting (the same way you would on any standard-transmission tractor, car, motorcycle, or truck when shifting gears).

Sometimes, when shifting gears OR trying to engage the PTO, you may find that the shift lever does not want to engage fully. This is because the gears in the transmission are not aligned properly. To get the gearshift or PTO lever to engage fully, put firm pressure (NOT shoving or jerking...just firm pressure) on whichever lever you are having difficulty with, and release the clutch lever *very slowly*, and as soon as the gears begin to rotate, the pressure you have on the gears will pop the gear into place as soon as it aligns. (The technical term for this type of operation is “Feathering” the clutch). On the PowerSafe tractors, this operation can be a bit challenging until you get used to it, because there is not much “feathering” range in the movement of the clutch lever...if you let the clutch lever out a wee bit too much/too fast during this operation, you will “grind” the gears. Just take your time, and you will get used to it.

**Here are some tips when engaging heavy-load implements which need to operate at FULL engine throttle (such as Flail mowers, larger Brush & Finish [lawn] mowers, Chipper/shredders, etc.):**

---Have the engine at 1/3 to 1/2 throttle (rather than full throttle) during let-out of the clutch, then, after the clutch handle is fully released, accelerate the engine to maximum throttle.

---During initial start-up of the implement (that is, whenever the implement is at a dead stop), DO NOT have the implement "under load" (that is, a rotary mower should not be starting up while in high grass...the mower needs to come up to speed, and THEN encounter the high grass/weeds/etc.) If you are starting the mower up from a dead stop in the middle of a field of tall material and there is no “mowed” place to “get started” in, you can always push down on the handlebars to lift the mower off the ground during the first few seconds of the mower getting up to speed.

---You can even do a "double-clutch"...that is, let the clutch out pretty quickly, and let the engine pull waaaay down for a second (nearly stalling it), while it starts getting the implement up to speed, then squeeze the clutch handle in for a second or two and let the engine "recover"...the implement is still spinning, so when you release the clutch a second time, the engine hardly bogs at all. It's the INITIAL start (from a dead stop) on high-RPM implements that is the hardest on the clutch. (This trick works best for implements with HEAVY rotating “flywheels” that have to come up to speed...BIO-90, 100 & 150 chippers, 32” brush mowers)

When mowing, and maneuvering the tractor between forward and reverse (or when shifting between wheel speeds) the same care does not have to be taken as above, as long as the mower blades are still rotating somewhat. If they are, you can pretty much drop the clutch handle instantly in between shifting, and leave the engine at full throttle.

The PowerSafe clutch also requires regular transmission oil & filter changes. Consult the other materials that came with your tractor (Owners manual, service information).

After reading the above thoroughly, if you have further questions, please contact us.