

## Proper Lubrication Of Walk-Behind Tractors

All walk-behind tractors use some form of lubricant inside the transmission (gearbox) case, to lubricate the gears, bearings and shafts inside. This oil need to be checked periodically to make sure it is full to the proper level, and also it should be changed occasionally.

The filler plug/dipstick is located on top of the transmission, in between the handlebar mount and the engine, and slightly off-center from the centerline of the tractor. It is a black plastic cap, and it just pulls up out of the transmission (it is sealed by an O-ring). **NOTE: when checking the transmission oil level of an OLDER BCS machine, a common problem is that the dipstick has been in place for so long, the O-ring is “stuck” and the dipstick does not want to pull out...so, when you put some force to it, what happens is that the vent-cap of the dipstick pops off, leaving you looking at the top stem of the dipstick, and you will find some plastic mesh stuff inside it (this is the vent element). YOUR DIPSTICK IS NOT BROKEN! Put the vent-cap back on (you may have to smack it pretty hard to get it to pop back on), and use a couple flat-blade screwdrivers to stick in at the BOTTOM of the dipstick (between the black plastic lower lip and the actual tranny housing)—one on each side— and twist the screwdrivers simultaneously to pry the dipstick up out of the tranny housing.**

Check the oil with the tractor LEVEL (NOTE: when a tiller is attached to the tractor, the transmission is NOT level...it leans toward the tiller. LEVEL means that the plane of the tractor transmission should be level.) and keep oil level between the upper & lower marks on the dipstick. (a little extra oil usually does not hurt)

**OIL TYPE:** For ALL walk-behind tractors with manual clutches (that is, for all machines that **do not** have the BCS PowerSafe hydraulic clutch), the proper oil is a **Gear Oil**.

There are many different weights of Gear oil: **75w90, 80w90, 85w140**, etc. etc. The weight is actually not so important (any of the weights mentioned will work)...what IS important is whether the oil is approved for use WITH BRONZE GEARS (also called Yellow Metal gears). This is because the final wheel drive gear (on the axle itself) in all walk-behind tractors is a bronze worm gear. Most gear oils these days are safe for bronze/yellow metal gears, but a few gear oils still contain sulfur, which can damage yellow metals such as bronze. **So, whether purchasing a synthetic or non-synthetic gear oil for your tractor, check the oil specifications to make sure it is safe for “yellow metal” gears.** BCS and Grillo recommend an 80W90, GL-5 (EP) gear oil. Synthetic oils usually cover a broader weight-range (such as 75W90 or 75W140), which is fine, and the synthetic oils will last longer, provide better high-temperature protection, as well as having the benefit of not thickening up as much in cold weather.

The gear oil in the walk-behind tractor transmissions should be changed initially after about 20 or 25 hours of use (this would be the “break-in” oil), and then changed once every couple years (or every 200 hours of use, whichever comes first) thereafter (although, if you use synthetic gear oil, you could extend those changes to 8 to 10 years/1000 hours). Capacity of the transmission is anywhere from 1 to 2 quarts, depending on the tractor model.

**BCS PowerSafe Hydraulic clutches:** This type of clutching system, introduced in the USA by BCS in 2012, requires a different type of oil in the tractor transmission: Universal

Tractor/Transmission/Hydraulic oil. This is the type of oil that runs in any large equipment where a hydraulic system and a gearbox operate in the same oil reservoir (such as skid-steer loaders, bulldozers, many modern tractors, etc.). This oil can be obtained from any auto parts store or farm supply store. Change intervals on this type of transmission are: 25 to 30 hours for the initial “break-in” oil, and every 100 hours (or once yearly, whichever comes first) thereafter.

There is also an OIL FILTER located near the bottom/rear of the engine (this is NOT an engine oil filter; it is for the transmission oil!) which needs to be changed with every oil change. Contact Earth Tools to obtain oil filters: 502-484-3988. ([Click this link](#) to view the BCS service bulletin regarding PowerSafe oil changes) The BCS PowerSafe tractors take between 2.4 and 2.75 quarts of transmission oil.

**OTHER TRACTOR LUBRICATION POINTS:** The rule of thumb for any equipment is: “If it moves, lubricate it!!”...meaning that anywhere that two parts rub together, there is friction and the potential for wear, and friction / wear is reduced when lubrication is present. This applies to control levers, handlebar pivot / rotation points, cables, etc. So if you want your investment in a walk-behind tractor to last as long as possible, KEEP IT LUBED UP! (Obviously, there are practical limits...you don’t want so much lube slopped on there that the tractor becomes a dust magnet...most of the external pivot points can be just lubed once or twice per year with a product like Fluid Film, Tri-Flow, or some other high-quality lubricant that contains a long-lasting dry lubricating compound such as Lanolin, Teflon, Silicone or Graphite.)

**Here is a link to a video we made regarding control cable lubrication: Cable Lube Video**

Questions? Call Earth Tools at 502-484-3988 or e-mail [service.earthtools@gmail.com](mailto:service.earthtools@gmail.com)