

## What Kind of Skid Steer/Compact Track Loader Owner Are You?

A skid steer or compact track loader may be the most important machine in your fleet – but are you in the right machine?

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Whether as support equipment in a larger fleet or the main workhorse for an owner/operator, a skid steer and compact track loader are two of the most versatile machines a contractor can own. But what is the right loader arm and platform for each application? Contractors can follow this quick guide to set them on the right path.

<p><b>Tired Vertical</b>            More ground pressure            Ideal for working on hard/paved surfaces            Faster turns/maneuverability            Tires cost less than tracks            Greater lift height            Keeps load closer to machine            Greater reach at full height/dump            Better material handling            Slightly greater lifting capacities compared to similar radial lifts</p>	<p><b>Tired Radial</b>            More ground pressure            Ideal for working on hard/paved surfaces            Faster turns/maneuverability            Tires cost less than tracks            Better breakout, digging, prying            Greater reach throughout low and mid-range of cycle            Better overall visibility            Slightly lower purchase price due to simpler arm geometry</p>
<p><b>Tracked Vertical</b>            Less ground pressure            Working on soft/loose surfaces            Minimal disruption to grass/terrain            Stability on uneven surfaces            Greater lift height            Keeps load closer to machine            Greater reach at full height/dump            Better material handling            Slightly greater lifting capacities compared to similar radial lifts</p>	<p><b>Tracked Radial</b>            Less ground pressure            Working on soft/loose surfaces            Minimal disruption to grass/terrain            Stability on uneven surfaces            Better breakout, digging, prying            Greater reach throughout low and mid-range of cycle            Better overall visibility            Slightly lower purchase price due to simpler arm geometry</p>

### Radial vs. Vertical

*General advantages of a radial lift machine:* Radial lift machines are best served for ground-engaging applications as they feature better breakout, digging and prying forces. As the travel path is most similar to an arc, this configuration provides greater reach at mid-ranges, which makes it ideal for loading and unloading off of

smaller vehicles or platforms, such as pick-up trucks. Visibility also tends to be a bit better with radial configurations.

*General advantages of a vertical lift machine:* Vertical lift machines generally offer greater lifting heights, greater reach at full height and slightly higher lifting capacities. The arm design keeps the load closer to the cab for added stability and capacity. The arm design also allows for more stable material handling.

### **Tired vs. Tracked**

*General advantages of a tired machine (skid steer):* Tired machines – the traditional skid steer – give the operator greater traction and maneuverability on paved surfaces. Tired machines are quicker and have faster top travel speeds. Tires are also more ideal in applications where tight turning is going to be taking place. While tires will generally wear at a faster rate than tracks, tracks are more expensive to replace. Skid steers are typically less expensive than comparable compact track loaders.

*General advantages of a tracked machine (compact track loaders):* Tracked machines provide an incredibly stable platform that improves everything from grading to attachment use. The primary advantage is lower ground pressure and stable operation over uneven surfaces, as the tracks provide more contact with the ground than four independent tires.

### **Understanding the Relations Between Operating Capacity Horsepower and Torque**

What's the heaviest thing you're going to lift? Lifting is often the most taxing work that a skid steer or compact track loader will perform and its greatest measure of capacity. We recommend selecting a machine with a rated operating capacity (50 percent of tipping load) that accounts for that heaviest common lifting task – and then some. If you know the heaviest pallet you ever lift is 2,000 pounds, consider something at 2,100, 2,200 or even 2,500 pounds. If you work in hardscapes or other construction applications where you're regularly lifting pallets of pavers, retaining wall block or fieldstone, those pallets can weigh anywhere from 1,000 to more than 3,000 pounds. Don't buy yourself short.

The interaction between horsepower and rated operating capacity is also important. Greater horsepower will typically allow for faster cycle times, and make it possible for the machine to get to required pressures and flows faster – and maintain them more easily. For example, an operator may have a skid steer rated at 2,700-pounds that's 74 horsepower. If they charge into a pile and try to take a full scoop while moving forward at full speed, there may be some hydraulic stall. If a skid steer rated at 2,700-pounds with 90 horsepower performs the same task, there's going to be less lag and less stall. The false perception is that you can lift more with the greater

horsepower machine, whereas they will actually lift the same. Horsepower also helps with any kind of multi- function that is going on with the machine, such as attachment use, driving and lifting at the same time, or prying with the bucket while the ground drive is engaged at full speed.

Another important spec to monitor is torque. Greater torque gives the operator more ability to power through resistance. It also aides in multifunctional performance, and keeps the ground drive moving forward when it encounters resistance – all leading to greater, more powerful performance.

### **Selecting the Right Auxiliary Hydraulics**

A skid steer's auxiliary hydraulic system provides the hydraulic flow that drives the machine's attachments. The thing to remember is that not all attachments have the same hydraulic flow requirement.

The most common system is the **standard-flow auxiliary hydraulics** package. Although flow rates differ by manufacturer and skid steer model, the flow rate of a standard-flow system ranges from 17.5 to 24.2 gallons per minute (gpm)<sup>1</sup>. Standard-flow auxiliary hydraulics are included on all skid steers from the factory and operate on the same pressure that the machine's main hydraulics operate on, which is approximately 3,000 pounds per square inch (psi). A standard-flow system powers many of the most common hydraulic attachments on the market, such as 4-in-1 buckets, hydraulic hammers, augers, trenchers and grapples.

A **high-flow auxiliary hydraulics system** is a second option that further increases a skid steer's versatility and productivity. As with standard-flow, it operates on the same pressures (approximately 3,000 psi) the main hydraulic circuits operate on. The flow rate, however, ranges from 30.7 to 37.6 gpm. A high-flow system can be factory-installed as an option or installed later in the field. It powers production-type attachments that require a high flow rate to perform as specified. Examples include cold planers, many snow blowers, rock saws, small mulchers, and chipper/shredders.

When even more hydraulic power is required, an **enhanced high-flow auxiliary hydraulics package** is available. This high-performance option has flow rates that are similar to a skid steer with a high-flow package, yet it operates up to 4,000 psi. Examples of attachments that require an enhanced high-flow system include larger cold planers, larger mulchers used to clear brush and small trees, and a large rock saw you might find in an aggregates operation.

Also available is a **secondary auxiliary hydraulics system** for applications that require multiple hydraulic movements simultaneously. This would include the side

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<sup>1</sup> CASE models used as reference.

shift function on a cold planer or stump grinder, snow blower for direction change on the chute, or a tree spade with down riggers.

## **Mechanical Controls vs. Electro-Hydraulic Controls**

Historically, operators are most familiar with mechanical controls – and many companies still purchase skid steers with mechanical controls because their operators are familiar with the technology. Because the design is based on mechanical linkage, there is physical resistance that makes operation of those controls more labor-intensive. The more response you need, the further you need to push or pull the levers, which engages more of the upper body vs. the simple wrist action of EZ EH (electro-hydraulic) controls. At the end of the day, the operator may be more tired with mechanical linkage (although some manufacturers, such as CASE, provides servo-assisted mechanical controls to help reduce fatigue).

EZ-EH controls reduce operator fatigue compared to mechanical controls, and allow operators to fine-tune performance using nine pre-set settings and easily switch between ISO and H patterns with the simple flip of a rocker switch. CASE also offers an industry exclusive with new handles that feature additional “feel points” that respond more precisely to the operator and further improve fine operations, such as feathering. Put together, these features lead to increased productivity and reduced operator fatigue.

## **What’s the Proper Tier 4 Solution for Skid Steers and CTLs?**

While each manufacturer mixes it up a bit differently, there are two base technologies that construction equipment generally relies on to meet Tier 4 emissions standards: cooled exhaust gas recirculation (CEGR) and selective catalytic reduction (SCR). A skid steer and/or CTL is physically smaller and generally has a lower purchase price than larger equipment. As such, SCR technology is not currently equipped on skid steers, although that will change as technology advances. CEGR is currently the most common technology for this application based on overall value to the user and the machine’s operating characteristics.

There is a third option, however, when it comes to skid steers and CTLs: a catalyst-only solution. Because skid steers are commonly used by contractors with large fleets as well as rental fleets, the machines may have various operators and move around between jobsites regularly. Using the maintenance-free CEGR with catalyst-only solution for these models creates greater convenience and more efficient operation compared to CEGR with DPF, or even SCR with diesel exhaust fluid to meet emissions within this horsepower range.

There are additional features/factors that will drive the purchase of a skid steer or compact track loader, but these are the key factors that will shape the size, design and capability of a machine. The greatest piece of buying advice may be not to sell yourself short and invest in a machine that provides a little more capacity than what

you will use on a regular basis. That may seem like a sales ploy, but in reality, contractors should look to the future – selecting that capacity now can offset future rental/purchase costs to make up for the extra need. Choose wisely.

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