

# TRACTOR 101



Not all compact tractor owners or prospective tractor owners are familiar with the many features that a tractor and front-end loader can be equipped with, and their uses. We've put together a summary of the many features that help make a compact tractor more productive, capable and safer to operate, and also included information on how each of the features and equipment types are offered as standard or enabled on all Summit Tractors.

TRACTORS, LOADERS & LOADER ATTACHMENTS	DESCRIPTION
<b>12V Receptacle</b>	A <b>12V Receptacle</b> on a tractor is a cylindrical receptacle that provides direct current (DC) at 12 volts to a device plugged into it. It is most commonly used to power mobile phones, certain types of sprayers and lighting accessories. <b>A 12v socket is standard on all Summit Tractors.</b>
<b>3-Point Hitch</b>	A <b>3-Point Hitch</b> is used for the easy attachment and release of 3-point implements and equipment. It uses the tractor's hydraulics to lift and lower equipment attached to it when in use or when being transported. <b>A category 1 3-pt. hitch is standard on all Summit Tractors.</b>
<b>3rd Function Diverter Valve</b>	A <b>3rd Function Diverter Valve</b> is a hydraulic control valve that's installed on a tractor in order to add a third additional hydraulic function to the tractor's front-end loader. It's called a 3rd Function as it's used to control an additional 3rd hydraulic cylinder, the first two cylinders enable the loader raise/lower and curl/dump functions. The 3rd function adds grab/release on a grapple, angle changes on a front blades, or open and close a 4-in-1 bucket, as examples. <b>A 3rd function diverter valve is standard on all Summit Tractors.</b>
<b>4-in-1 Bucket</b>	A <b>4-in-1 Bucket</b> , also referred to as a multi-purpose bucket, is capable of performing multiple functions. Its design allows the bottom and sides to separate from the back. With this attachment, operators are able to doze, dig, load, carry and dump material. <b>For a 4-in-1 bucket to operate fully, a 3rd function valve is required, which is standard on all Summit Tractors.</b>
<b>7-Pin Trailer Socket (Connector)</b>	As on road vehicles, <b>7-Pin Trailer Sockets</b> on tractors are designed to supply power to the trailer's taillights, turn signals, brake lights, electric trailer brakes, reverse lights, auxiliary power and ground connection. <b>A 7-pin trailer socket is standard on all Summit Tractors.</b>
<b>Angle Adjustable, Folding Armrests</b>	Unlike typical seat armrests found on compact tractors that are either rigid or can only be flipped up and down, <b>angle adjustable, folding armrests</b> enable the tractor operator to adjust the angle of the operator's arms, providing more comfort and a level alignment with the loader joystick, eliminating the need to reach forward, up or down. <b>Angle adjustable, folding armrests are standard on all Summit Tractors.</b>
<b>Backrest Extension</b>	Not to be confused with a headrest in an road vehicle, which is a safety device designed to prevent neck injuries when the vehicle is struck from the rear, a <b>backrest extension</b> on a tractor provides additional surface area to support the operator's back, helping to improve overall comfort. <b>A backrest extension is standard on all Summit Tractors.</b>
<b>Ballast</b>	In terms of compact tractors, <b>ballast</b> is weight that is added to the front or more commonly to rear of the tractor to optimize the load distribution. Why do I need it? Short answer, you need it to keep all four of your tractor's wheels on the ground while using certain implements or completing certain tasks. <b>RimGuard™ Liquid Tire Ballast is standard in the rear tires of all Summit Tractors.</b>

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<b>Bar Drawbar</b>	A <b>bar drawbar</b> is a heavy bar, made of steel, attached to the 3-pt. hitch lower arms and used as a hitch's for pulling certain tractor equipment such as a dump trailer. <b>A bar drawbar is standard on all Summit Tractors.</b>
<b>Bolt-on Hooks</b>	<b>Bolt-on hooks</b> are typically secured to a tractor's front-end loader bucket and used to provide a connection point for chains, heavy ropes or straps to take advantage of the loader lifting and tractor pulling capabilities.
<b>Bucket Level Indicator</b>	Due to the location of the loader bucket being downward and in front of the tractor with the tractor hood blocking a clear view, a <b>bucket level indicator</b> gives the operator a precise visual as to the bucket, or any loader mounted attachment's position relative to being level, right from the operator seat. <b>A bucket level indicator is standard on all Summit Tractors.</b>
<b>Cylinder Stop - Safety Application</b>	A <b>cylinder stop</b> is a steel tube tube with an open side that is placed on the loader's cylinder rod when raised to prevent the loader from slipping down while performing tractor maintenance in the area of the engine compartment. Raising the loader to full height and then securing with a cyclinder stop provides safer and easier visual and physical access to the engine compartment. <b>A cylinder stop is standard on all Summit Tractors.</b>
<b>Front Blade</b>	The <b>Front Blade</b> for Compact Tractors is used for pushing snow, sand, dirt, manure, gravel, etc. It attaches to the front-end loader's quick attach system or a tractor-mounted bracket, and becomes most effectvie when used with hydraulic controls to change the blade angle on the go, using the 3rd function to do so. <b>A 3rd function diverter valve is standard on all Summit Tractors.</b>
<b>Front-End Loader</b>	You can use a tractor's <b>front-end loader</b> for a wide variety of jobs, including scooping and moving gravel, dirt, sand, manure and the like. With the right techniques, it can also be used for digging. When equipped with a quick-attach system, the loader bucket can be easily removed and additional attachments that use the loader's lifting and curling/dumping can be attached and utilized. With a 3rd Function valve added, grabbing and releasing capabilities are added. <b>A front-end loader and 3rd function diverter valve is standard on all Summit Tractors.</b>
<b>Front Tow Hook</b>	A <b>Front Tow Hook</b> on a tractor enables the operator to use the tractor's power to pull loads while in reverse, when the load is attached to the front tow hook by chains, heavy rope or straps. <b>A front tow hook is standard on all Summit Tractors.</b>
<b>Fully Integrated Loader Joystick</b>	A loader joystick is used to control the up/down and curl/dump functions of a tractor's front end loader. Loader joysticks can be mounted on the loader itself, which requires a longer reach and the joystick position itself can inhibit mounting and dismounting the tractor from the right side of the tractor. When the joystick position is integrated with the tractor insead of the loader, it is positioned close the the operator, and the way is cleared for right side operator on/off the tractor. <b>A fully integrated joystick</b> is a joystick integrated with both the tractor and a 3rd function diverter valve to enable alternating from the dump/curl function and the additional function such as grab/release of a grapple, activated by a button on the joystick. <b>A fully integrated joystick is standard on all Summit Tractors.</b>
<b>Glow Plug</b>	A <b>glow plug</b> is a heating element that heats incoming fuel and air to encourage efficient fuel combustion in a tractor's diesel engine. The glow plug is activated by a turn of the key switch short of the engine starting position, and held for a duration that aligns with the outside air temperature; basically held longer when colder. <b>A glow plug is standard on all Summit Tractors.</b>

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<b>Goodyear R14T Tires</b>	The <b>Goodyear R14T Tire</b> from Titan is a crossover tire line designed to perform in a variety of conditions. The industry-unique hybrid of different tread styles allows owners of compact tractors to enjoy the benefits of ag, turf and industrial tire designs. That means no more having to choose between those tread designs — R-1 (ag), R-3 (turf) or R-4 (industrial) — when picking a new compact tractor, changing out tires and wheels based on the application or running chains in challenging muddy or winter conditions. With the Goodyear R14T tire, customers get the traction and cleaning features of an R-1 with the wear and ride features of an R-4, along with the lessened ground disturbance of an R-3. From hard concrete surfaces to softer soils, snow and sensitive turf, the Goodyear R14T is designed to perform in any conditions. <b>The Goodyear R14T Tires are standard on all Summit Tractors.</b>
<b>Grab Rails</b>	<b>Grab rails</b> are rigid handles mounted on a tractor to assist the operator with mounting and dismounting the tractor. <b>Grab rails located on both sides of the tractor are standard on all Summit Tractors.</b>
<b>Grapple &amp; Grapple Ready</b>	A hydraulically controlled <b>grapple</b> connects to the front-end loader arms, typically via the same quick-attach system that connects the loader bucket and other compatible loader attachments. Grapples are used to grab and carry brush, logs, downed tree limbs, rocks and any number of materials that need to be moved from one place to another. <b>A 3rd Function is usually required to apply the grabbing and releasing capabilities, and is standard on all Summit Tractors, making the tractors “Grapple Ready.”</b>
<b>Hydraulic Top Link</b>	A <b>hydraulic top link</b> replaces the a manually adjustable 3-pt hitch top link to enable easier attachment of implements, and also to change the working angle of implements using the tractor’s hydraulics, all from the operator seat. Typically, hydraulic power to enable control of the top link comes from the tractor’s rear remotes, connected via hydraulic hose and couplers to the top link’s cylinder. While a hydraulic top link is not standard on Summit Tractors, <b>the rear remotes that power this operation</b> are, so enabling a hydraulic top link capability only requires the addition of a compatible hydraulic top link.
<b>Hydrostatic Transmission</b>	A <b>hydrostatic transmission</b> is one that's powered by hydraulic fluid and allows for seamless adjustment of tractor speed without changing gears. A tractor with such a transmission can be easier to drive and control, and direction is changed by depressing one directional foot pedal or another. <b>A hydrostatic transmission with side-by-side forward and reverse foot pedals is standard on all Summit Tractors.</b>
<b>Mechanical Front Wheel Drive (MFWD)</b>	Standard four-wheel drive assumes four equally sized wheels. Tractors with different sized wheels cannot use standard four-wheel drive, as the smaller front wheels would turn faster than the rear wheels. <b>Mechanical front-wheel drive (MFWD)</b> provides four-by-four (4WD) capabilities to tractors with different-sized front and rear wheels. <b>MFWD is standard on all Summit Tractors.</b>
<b>Mid Power Takeoff (PTO)</b>	The <b>Mid-PTO</b> provides independent control and power to front- and mid-mounted implements such as mid-mowers and front-mounted snowblowers. It can be engaged independently of the rear PTO or in combination with the rear PTO. <b>A Mid-PTO with independent or combination control is standard on all Summit Tractors.</b>
<b>Projector Headlights</b>	Originally only used on luxury automobiles, <b>Projector Headlights</b> contain a headlight bulb inside of a cup with mirrors that reflect off those surfaces and have an added lens that works as a magnifying glass to increase the beam’s brightness. This lens, known as a condenser lens, increases the brightness and makes better use of it. Projector headlights also use a component called a cutoff shield so all light output goes down and out towards the field ahead, projecting a long, more focused beam. This results in illuminating greater distances than other headlight types. <b>Projector headlights are standard on all Summit Tractors.</b>

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<b>Rear Hydraulic Remotes</b>	<b>Rear hydraulic remotes</b> are auxiliary hydraulic connections that allow you to operate the hydraulic cylinders of various equipment used with tractors. They consist of quick connections located at the rear of the tractor and a control lever up by the operator. Rear remotes are used to control a range of 3-pt mounted equipment such as hydraulic top links, hydraulically controlled rear blades, implements that use cylinders to fold and raise/lower, hydraulic log splitters and many other cylinder-manipulated equipment that works tractors. <b>One set of rear hydraulic remotes is standard on every Summit Tractor.</b>
<b>Rear Power Take Off (PTO)</b>	A <b>rear power take-off (PTO)</b> on a tractor takes power from the engine and transmits it to an application such as an implement attached to the 3-pt. hitch. Most commonly, it is a splined drive shaft installed on a tractor allowing implements with mating fittings to be powered directly by the tractor's engine. Rear PTOs on compact tractors operate optimally at the PTO shaft rotation speed of 540 RPM. A rear PTO is standard on all Summit Tractors and operates at 540 RPM at the rated engine RPM speed of 2500 RPM. An indicator of optimal PTO speed is included in the tractor's dashboard tachometer so the operator knows when the PTO is operating at the correct speed.
<b>RimGuard™ Liquid Tire Ballast</b>	<b>RimGuard™ Liquid Tire Ballast</b> , commonly known as "Beet Juice" is extracted during the processing of sugar beets, and is used in tractor tires to provide an efficient, safe and effective method of ballasting a tractor. It is organic, not harmful to people, livestock or pets, non-corrosive, will not freeze above -35 degrees fahrenheit, weighs almost 11 lbs. per gallon vs. water at 8.3, and puts the weight where it is most effective, to the ground. <b>Rimguard™ Liquid Tire Ballast is standard in the rear tires of every Summit Tractor.</b>
<b>Rollover Protection Structure (ROPS) Folding Type</b>	<b>Rollover Protection Structures (ROPS)</b> are steel roll bars designed for wheel and track-type agricultural tractors to create a protective zone around the operator when a rollover occurs. The height of the ROPS from the ground can be eight feet or more, but a folding ROPS enables the height to be reduced to clear garage or shed doorways, or to temporarily clear an overhead obstruction. It is always recommended that while operating any tractor that the ROPS be in the up position and that a seat belt is worn by the operator. <b>A folding ROPS is standard on all Summit Tractors.</b>
<b>Self-Leveling Loader</b>	A loader that is <b>self-leveling</b> means that the angle of a loader attachment such as a loader bucket, pallet forks or grapple maintains the same position relative to the ground while the arms are raised or lowered. This greatly assists the operator when desiring to keep a load level, as a non-self-leveling loader requires multiple dump or curl movements to maintain the right angle to the ground as the loader is raised or lowered. This is particularly useful when using the loader bucket and pallets forks. <b>A mechanical self-leveling (MSL) loader is standard on all Summit Tractors.</b>
<b>Side-by-Side Hydrostatic Transmission Pedals</b>	<b>Side-by-Side Hydrostatic Transmission Pedals</b> are located on the right side operator station floor of a tractor with the left pedal used for forward motion and the right pedal used for reverse motion of the tractor. Side-by-side pedals are considered more ergonomically integrated with natural movements of the operator than those that require a rocker motion and use of the heel for reverse. <b>Side-by-side hydrostatic transmission pedals are standard on all Summit Tractors.</b>
<b>Side-View Mirrors</b>	<b>Side-View Mirrors</b> on a tractor enable the operator to see behind and along the sides of a tractor, of particular benefit as it adds to safe on-road transport and when backing out of an enclosed area. As the mirrors need to protrude outside the width of the tractor to be most effective, it is important that the mirrors can be easily folded forward or backward or even removed at times to prevent impacting objects such as heavy brush, trees and doorways. <b>Foldable side-view mirrors, that can be removed entirely with the mounting holes capped (caps provided) are standard on every Summit Tractor.</b>

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<b>Skid-Steer Quick Attach (SSQA)</b>	A <b>Skid-Steer Quick Attach (SSQA)</b> system on a tractor's front-end loader enables many type of loader-mounted attachments to be easily removed and installed, which substantially adds to the versatility of the tractor & loader. Common SSQA compatible loader attachments include standard buckets, 4-in-1 buckets, grapples, front blades, pallet forks and snow pushers. <b>SSQA is standard on all Summit Tractors loaders.</b>
<b>Skid-Steer Quick-Attach (SSQA) Compatible Pallet Forks</b>	<b>Skid-Steer Quick-Attach (SSQA) Pallet Forks</b> are used for moving bulky, bagged or palletized materials quickly and easily, saving time and effort. Typically, pallet forks used on tractors consist of a frame that provides support, leverage and protection of the front grill of the tractor, and detachable forks that can be adjusted from side to side to adapt to various loadwidths. The fork's frame can be attached to the loader's SSQA system if equipped. <b>A SSQA system is standard on all Summit Tractors.</b>
<b>Snow Pusher</b>	A <b>Snow Pusher</b> is typically attached to a tractor's loader using the Skid-Steer Quick Attach (SSQA) system. It is the simplest and most economical tool for snow removal; essentially a large box that captures snow as the tractor pushes it forward. It offers larger capacity than the tractor bucket and can be equipped with a steel or composite scraper on the bottom edge. <b>As all Summit Tractors are equipped with a SSQA, a snow pusher can be easily added to the equipment.</b>
<b>Stump Bucket</b>	A <b>Stump Bucket</b> attaches to a tractor loader's Skid-Steer Quick Attach (SSQA) system to dig out dirt and rocks, uproot stumps and small trees using the power of the tractor and front-end loader. The long profile and curved bottom create leverage, and are typically equipment with front teeth to aid in cutting through roots and soil. <b>As all Summit Tractors are equipped with a SSQA, a stump bucket can be easily added to the equipment.</b>
<b>Swinging Drawbar</b>	A <b>Swinging Drawbar</b> on a tractor is used to haul trailers, implements and other equipment. Unlike a rigid drawbar, a swinging drawbar enables slight side-to-side movement, which helps make turning easier. <b>A swinging drawbar is standard on all Summit Tractors.</b>
<b>Work Lights</b>	<b>Work Lights</b> on a tractor provide supplemental illumination of the working area. They cast broader light in areas that a tractor's headlights cannot reach, and can be adjusted directionally. <b>A rear work light is standard on all Summit Tractors.</b>

