

## Terminal Tractor/Yard Spotter

Used Yard Spotter Washington - Tow tractors are a common piece of industrial equipment used in large buildings, arenas, warehouses, airports and manufacturing plants for moving loads horizontally. They go by different names including tow tugs and towing tractors. These machines can tow numerous trailers in a train or snake-like formation. Tow tractors can move aircraft into and outside of airport locations such as terminals and hangars. The tractive effort concept is how loads move from place to place. Tractive effort is the amount of traction a unit has on the ground. Heavier loads require more tractive effort compared to lighter loads. Based on this principle, the tow tractor works by lifting a part of the load it is towing while making sure the load's wheels remain on the ground. The load is partially lifted by use of the tow tractor's hydraulic mast which is specifically designed to produce downforce on the drive wheel immediately beneath it, increasing the tractive effort. The traction created by this process enables the tow tractor to pull very large and heavy loads. Types of Tow Tractors Heavy-duty tow tractors and load carriers are two types of tow tractors. Load Carriers Industries such as e-commerce, manufacturing, and airport baggage and parcel systems must regularly move many individual and varying sized items to or from a single location. Tow tugs or load carrier tow tractors are excellent for these jobs as they can maneuver single items stacked on wheeled platforms for streamlined transport. The category that load carrier tow tractor models fall into includes forklift trucks, cranes and pallet jacks. These units only transport loads at ground level and do not lift or lower items from shelving or off the ground. In order to be ready for transport, items must be secured on a wheeled platform or already on wheels to use the tow tractor. Bogies, skates and trollies are other names for wheeled platforms. The tow tractor joins to the trolley and functions similarly to a train locomotive. Usually, the tow tug has a male-end steel coupling that couples to the female-end fixed to the front of the trolley. The back of the trolley has a male-end steel coupling that can then be used to attach multiple trollies onto a single tow tug, transporting all the trollies in a train-like formation. These machines can transport a variety of items in varying conditions. Different trolley types are on the market to facilitate better transportation customization. Most trollies types are compatible with each other, meaning they can be connected together. This means several different types of trollies can be used in a single train allowing greater flexibility for operations. An additional benefit of operating with load carrier tow tractors as opposed to forklifts is the unobstructed view offered by a tow tractor, increasing the safety of work areas. Load carrier tow tractors transport trollies in a forward direction which decreases the safety concerns common with reverse forklift operations. This design is excellent for locations that have a high level of safety such as manufacturing locations and airports. Towing many items at once saves time and money compared to relying on forklifts to move single things. They are safe and easy to maneuver. A key benefit of these units is that typically, the operator doesn't need a license. Tow tractor operators do not need licenses since they don't lift loads off of the ground. There are three subtypes of load carrier tow tractors: 1. Pedestrian; 2. Stand-in; and 3. Rider-seated. Pedestrian Tow Tractors A walk-behind model that can transport wheeled loads is called a pedestrian tow tractor. These machines may go by the names of electric hand tug, electric tugger, electric tug or tow tractor. It is compact, maneuverable and easy to use. Stand-in Tow Tractors Popular for industries that conduct order picking and horizontal transport for manufacturing, the stand-in tow tractors are the best design. Stand-in tow tractors feature a tinier footprint compared to rider-seated editions and they offer a safe driver platform. Rider-Seated Tow Tractors Similar to stand-in tow tractors, rider-seated units have a seated operator platform. These models are commonly used for transporting loads over farther distances such as moving checked baggage from the airport check-in to the aircraft at the terminal. Reducing rider fatigue, the rider-seated models deliver more efficiency. Heavy Duty Tow Tractors The pushback concept is commonly used in aviation for cargo and large passenger planes. Pushback is the process of pushing an aircraft back from the terminal by means not originating from the aircraft's personal power. Heavy-duty tow tractors are known as pushback

tugs or pushback tractors complete this task. Pushback tractors are designed with a low profile design to enable them to move under the aircraft's nose in order to attach to the aircraft. Enough ground friction is required to move the weighted aircraft, so these models need to be heavy themselves. A common tractor for moving large aircraft can weigh in up to fifty-four tons. Their driver's cab has the ability to be lowered and raised for increased visibility during reversing. The pushback tow tractor and pushback tug are also employed when taxiing the aircraft is not an option. They are commonly used to move the machine into and outside of aircraft maintenance hangars. The two subtypes of pushback tow tractors include conventional tow tractors and towbarless tow tractors.

**Conventional Pushback Tow Tractors** These units use a tow bar to attach the tug to the nose landing gear on the aircraft. The tow bar is fixed laterally at the nose landing gear, but may move slightly vertically for height adjustment. The tow bar that attaches to the tug can pivot vertically and laterally. Acting like a giant lever, the tow bar can rotate the nose landing gear. Each aircraft type has a unique tow fitting so the towbar also acts as an adapter between the standard-sized tow pin on the tug and the type-specific fitting on the aircraft's landing gear. Heavy-duty towbars required for sizeable aircraft ride on their own wheels when they are disconnected from the machine. Attached to the wheels, the hydraulic jacking mechanism allows the towbar to lift to the proper height to mate with the aircraft and tug. The same mechanism is employed in reverse to raise the towbar wheels off the ground for pushback. The towbar is capable of being connected at the tractor's rear or front, depending on if the machine needs to be pulled or pushed. Depending on whether the aircraft needs to be pushed or pulled, the towbar can be attached to the front or rear of the tractor.

**Towbarless Pushback Tow Tractors** Towbarless tractors do not use a towbar; they scoop up the nose landing gear and lift it off the ground, allowing the tug to maneuver the aircraft. This offers better control and higher speeds while eliminating the requirement of having a worker stationed in the cockpit to put the brakes on. Simplicity is the main advantage of the towbarless tugs since it is not necessary to maintain a variety of towbars. Directly connecting the tug to the landing gear allows operators to have better responsiveness and control while moving the aircraft.