

Terminal Tractor/Yard Spotter

Used Yard Spotter Hawaii - Tow tractors, also called tow tugs or towing tractors are popular for moving loads horizontally in airports, arenas, warehouses, manufacturing plants and other large buildings. Tow tractors are responsible for moving multiple trailers in a train. Tow tractors can move aircraft into and outside of airport locations such as terminals and hangars. Tractive effort is how these machines transport loads. Tractive effort refers to the total amount of traction a vehicle deploys on the ground. The heavier the load is, the more tractive effort is needed. 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 Two types of towing tractors include heavy-duty tow tractors and load carriers.

Load Carriers Many industries including airport baggage divisions, manufacturing, parcel transportation and e-commerce rely on moving items of various sizes to and from different locations. Tow tugs and load carriers easily transport single items that have been deposited on wheeled platforms and move them with ease. Load carrier tow tractor models are categorized in the material handling equipment that covers cranes, forklifts and pallet jacks. These units only transport loads at ground level and do not lift or lower items from shelving or off the ground. This means that the load has already been on wheels or placed on a wheeled platform before transport. Wheeled platforms are called skates, trollies and bogies. The tow tractor joins to the trolley and functions similarly to a train locomotive. Typically, the tow tug features a steel coupling male-end that attaches to a female-end on the trolley's front. 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. Tow tractors are capable of moving many machines in a variety of conditions. Trolley types differ to provide customization options. Many trollies can be connected since they are compatible with one another. Since multiple trolley types can be utilized in a single train, there is flexibility. Load carrier tow tractors deliver a clear view for the operator which can be better than relying on forklifts. Further, load carrier tow tractors tow their trollies behind them in a forward-only direction which decreases the safety concerns created by forklifts operating in reverse. These safety considerations are of special importance in busy areas such as manufacturing floors and airports. It is more economical to tow multiple items when possible with a tug than using a forklift truck to transport single items. They are safe and easy to maneuver. One benefit of these tow tugs is that an operator usually does not require a license. Tow tractor operators do not need licenses since they don't lift loads off of the ground. There are three kinds of load carrier tow tractor units to choose from; pedestrian, stand-in and 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. These compact machines are simple to use and can maneuver easily.

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. These rider-seated options help to decrease driver fatigue allowing for greater efficiency.

Heavy Duty Tow Tractors The pushback concept is commonly used in aviation for cargo and large passenger planes. Pushback refers to the process of pushing an aircraft back from an airport terminal by some means other than the aircraft's own power. Pushback is achieved by employing pushback tugs or pushback tractors. 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. Since the aircraft weight is heavy, these units need to be heavy in order to retain adequate ground friction to move the aircraft. A typical tractor for large aircraft weighs up to 54 tons. They usually have a driver's cab that can be raised and lowered to increase visibility when reversing. While the vehicle is referred to as a pushback tug or pushback tow tractor, it is also used to tow aircraft in areas where taxiing the aircraft is not practical or safe, such as moving large aircraft in and out of maintenance hangars. There are two subtypes of pushback tow tractors: 1. Conventional; and 2. Towbarless.

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 laterally fixed at the nose landing gear; however, it is possible to make height adjustments with slight vertical movements. At the end that attaches to the tug, the tow bar may pivot freely laterally and vertically. The tow bar functions as a sizeable lever to facilitate nose landing gear rotation. 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 towbars have their own wheels for big aircraft and can ride on these wheels when disconnected from planes. The hydraulic jacking mechanism is attached to the wheels, allowing the towbar to lift to the correct height in order to mate with the tug and the aircraft. The same means are used in reverse during the pushback process to raise the towbar wheels from the ground. 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 work without a towbar and scoop up the aircrafts' nose landing gear to lift it off of the ground instead. 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.