

## Terminal Tractor/Yard Spotter

Used Yard Spotter Torrance - 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. 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. 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 hydraulic mast on the tow tractor is responsible for lifting the load. It produces downforce on the drive wheel underneath to increase the tractive effort. The traction created by this process enables the tow tractor to pull very large and heavy loads.

**Types of Tow Tractors** There are two basic types of tow tractors: 1. Load carriers; and 2. Heavy-duty 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 and load carriers easily transport single items that have been deposited on wheeled platforms and move them with ease. The category that load carrier tow tractor models fall into includes forklift trucks, cranes and pallet jacks. Load carrier tow tugs transport loads at ground level only, rather than lifting or lowering off the ground or from shelving or other hard to reach areas. In order to be ready for transport, items must be secured on a wheeled platform or already on wheels to use the tow tractor. The wheeled platforms are called bogies, trollies or skates. The tow tug is attached to the trolley similar to train cars being attached to a locomotive. Generally, the steel coupling on the tow tug's male-end joins to the front trolley's female-end. 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 with a train of trollies enable a wider range in the type of items that can be transported and in the types of conditions they can be transported. Trolley types differ to provide customization options. Most trollies types are compatible with each other, meaning they can be connected together. Different kinds of trollies can be maneuvered in a single train, creating flexible transport options. Load carrier tow tractors deliver a clear view for the operator which can be better than relying on forklifts. Additionally, load carrier tow tractors move their units in a forward-only way and this drastically decreases safety concerns associated with forklifts traveling in reverse. 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. The operator doesn't require a license, which is another benefit compared to forklifts. 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 pedestrian tow tractor, also referred to as an electric tug, electric tugger, electric hand tug or tow tractor, is a walk-behind machine designed for easy movement of wheeled loads. These compact machines are simple to use and can maneuver easily.

**Stand-in Tow Tractors** Stand-in tow tractors are the most popular design for industries that involve order picking and horizontal transport in manufacturing. These units deliver a secure driver platform and deliver a smaller footprint compared to the rider-seated models.

**Rider-Seated Tow Tractors** Similar to stand-in tow tractors, rider-seated units have a seated operator platform. Rider-seated models are used for moving loads longer distances. They are popular for airport luggage transport to move checked baggage from the check-in counter to the aircraft parked at the terminal. Rider fatigue is decreased with sit-down units for more efficiency and productivity.

**Heavy Duty Tow Tractors** Aviation relies on the pushback concept for moving big passenger and cargo aircraft. 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 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. 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. 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. Laterally attached to the nose landing gear, the tow tractor can make certain slight vertical height adjustments if needed. The tow bar is able to pivot vertically and laterally at the end that connects to the tug. In this manner, the tow bar acts as a large lever to rotate the nose landing gear. Every aircraft has a special tow fitting and the towbar functions as an adapter between the fitting on the landing gear and the standard-sized tow pin. Heavy-duty towbars required for sizeable aircraft ride on their own wheels when they are disconnected from the machine. 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 can be connected at the front or the rear of the tractor, depending on whether the aircraft will be pushed or pulled.

**Towbarless Pushback Tow Tractors** Towbarless tractors, as their name suggests, don't rely on a towbar. Instead, these machines scoop up the nose landing gear to lift it off of the ground so the tug can move the plane. This offers better control and higher speeds while eliminating the requirement of having a worker stationed in the cockpit to put the brakes on. As there is no need to maintain numerous towbars, simplicity is the main advantage of this unit. Greater control and responsiveness while moving the aircraft is achieved with this direct connection of the tug to the landing gear.