

## Terminal Tractor/Yard Spotter

Used Yard Spotter Mesa - Tow tractors, sometimes call towing tractors or tow tugs, are vehicles used in transporting loads horizontally in warehouses, manufacturing plants, airports, arenas and other large facilities. They are capable of towing several trailers in a train formation. Some are designed specifically to tow large aircraft in order to position them into and out of airport terminals and hangars. All tow tractors use the concept of tractive effort to move loads. Tractive effort is the amount of traction a unit has 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 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 Heavy-duty tow tractors and load carriers are two types of tow tractors. Load Carriers Numerous businesses need to transport items of different sizes on a regular basis including manufacturing, parcel delivery services and airport baggage. Load carrier tow tractors or tow tugs are especially useful for these types of applications because they allow the single items to be gathered and stacked on the wheeled platforms, ready to be attached for tow and transport by the tow tractor. These load carrier tow tractors fall under the material handling equipment industry which includes other machines such as pallet jacks, forklifts and cranes. 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. 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 attaches to the trolley and operates similarly to how train cars are attached to a 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 trolley's back portion has a male-end steel coupling that can be used to connect a variety of trollies to a single tug. 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. The availability of many different types of trollies also allows for greater customization in transporting items. Trollies can connect together and are compatible. Since multiple trolley types can be utilized in a single train, there is flexibility. A key benefit of using a load carrier tow tractor is that operators can enjoy a clear view instead of relying on forklifts. Load carrier tow tractors transport trollies in a forward direction which decreases the safety concerns common with reverse forklift operations. This is vital for safety-sensitive places including airports and manufacturing facilities. Towing solutions are a good alternative to traditional forklifts to handle many single items. Tugs are simple to move and provide a safe transport option. A key benefit of these units is that typically, the operator doesn't need a license. No license is necessary since these units do not lift loads up from the ground like cranes, and forklifts that require licensing. There are three kinds of load carrier tow tractor units to choose from; pedestrian, stand-in and rider-seated. Pedestrian Tow Tractors Pedestrian tow tractors go by many names including electric tow tractor, electric tug, or electric tugger. These units are walk-behind models that move wheeled loads. It is compact, maneuverable and easy to use. Stand-in Tow Tractors The most common design for businesses that rely on horizontal manufacturing transport and order picking are stand-in tow tractors. Stand-in tow tractors feature a tinier footprint compared to rider-seated editions and they offer a safe driver platform. Rider-Seated Tow Tractors Rider-seated tow tractors are similar to stand-in models except they offer a seated platform for the operator. 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. These rider-seated options help to decrease driver fatigue allowing for greater efficiency. Heavy Duty Tow Tractors Aviation relies on the pushback concept for moving big passenger and cargo aircraft. Pushback refers to the process of pushing an aircraft back from an airport terminal by some means other than the aircraft's own power. This pushback process is

done by using specially designed heavy duty tow tractors called pushback tractors or pushback tugs. Pushback tugs feature a low-profile enabling them to travel under the aircraft's nose for easy attachment. Because of the added heavy weight of the aircraft, these tow tractors must be heavy enough to retain enough traction on the ground in order to move the aircraft. 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. 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. The pushback tow tractors come in two subtypes, the towbarless and the conventional.

**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. The tow bar that attaches to the tug can pivot vertically and laterally. In this manner, the tow bar acts as a large lever to rotate the nose landing gear. There are a towbar and precise tow fitting that acts as an adapter between the standard-sized tow pin and on the landing gear of the aircraft. 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 work without a towbar and scoop up the aircraft's 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. 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.