

5.0 GATE-TO-GATE HANDLING

ELEMENTS INCLUDED

- 1.0 Trailer Inspection
- 2.0 Trailer Docking Methods
- 3.0 Trailer Marshalling Yard

A. Regulatory Standards

- DOT (Department of Transportation)
- OSHA (Occupational Safety and Health Administration)

B. Mandatory Requirements

1.0 Trailer Inspection

Trailers deemed rejectable from a safety point of view (see the "AIAG Trailer Safety Inspection" video for criteria) shall not be picked up and transported to an automotive facility. To report such damage for resolution, an AIAG Trailer Safety Inspection Form (see Appendix C, AIAG Trailer Safety Inspection Form) must be properly completed and signed by the tractor operator, and presented to the appropriate originating plant authority.

After a production parts trailer has been properly positioned at the loading dock (see Section C.2) and before loading or unloading, the safe condition of the trailer shall be ensured through the inspection process described in the "AIAG Trailer Safety Inspection" video, according to local practices. Trailers meeting rejection criteria shall not be entered by a fork lift truck. To reject a trailer and/or to report any trailer damage for resolution, whether at the time of its occurrence or upon discovery of pre-existing damage, an AIAG Trailer Safety Inspection Form (see Appendix C) must be properly completed and signed by the appropriate local authority and forwarded to the carrier.

All personnel responsible for trailer safety inspections shall be properly trained in the proper procedure for conducting a trailer safety inspection and shall not accept responsibility for signing an AIAG Trailer Safety Inspection Form, unless so trained. An "AIAG Trailer Safety Inspection" video is available for such training.

2.0 Docking Methods

An "AIAG Trailer Loading and Unloading" video is available for detailed instruction on operation of the fork lift truck at the loading dock.

2.1 Trailer Restraints

All trailers that have been spotted at the dock must be properly restrained (see Module 3 – Dock Equipment, Section B.4.0 for trailer restraining requirements).

2.2 Trailer Jacks

Before servicing a trailer that is not connected to a tractor, the front end of the trailer must be supported by the appropriate capacity trailer jacks. The trailer jacks must be in contact with the bottom of the trailer. Responsibility to ensure that the trailer is properly restrained and supported prior to servicing shall be assigned on a plant-by-plant basis (see Module 3 – Dock Equipment, Section C.6.0 for trailer jacking details).

2.3 Sliding Axles

Sliding axle trailers that are delivered to automotive sites shall have the axles moved to the rear-most position by the carrier before being spotted at the dock or dropped in the marshalling yard. It shall be the responsibility of the switching tractor operator to verify that the axles have been moved to the rear-most position before spotting the trailer at the dock. If the switching tractor operator is required to move the axle, a \$25.00 charge will be assessed to the carrier for each occurrence.

2.4 Air-Ride Suspensions

Air-ride trailers that are spotted at the dock shall have the air removed from the system unless equipped with mechanical supports (Suspension Dock Support System) to minimize floor drop. Air-ride trailers that a) automatically exhaust the air when spotted, and b) are not equipped with mechanical supports to minimize floor drop should not contain loads that are closer than 24" to the lowest point of the roof line of the trailer, unless the destination dock is equipped with a truck leveler.

2.5 Capacity Matching of Lift Trucks and Highway Trailers

See Module 1 – Material Handling, Mandatory Requirements in Section B for details on limitations of lift truck weights on highway trailers.

3.0 Trailer Marshalling Yard

(CONCRETE SURFACES) All trailer marshalling yard surfaces shall be of concrete to support both wheels and landing gear of trailers, whether attached to a tractor or free-standing.

C. Best Practice Guidelines

1.0 Trailer Inspection (See Mandatory Requirements in Section B)

Also refer to "AIAG Trailer Safety Inspection" video.

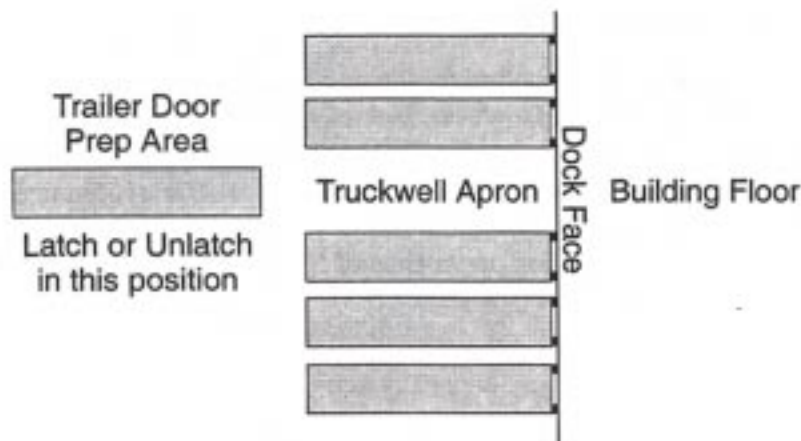
2.0 Docking Methods (See Mandatory Requirements in Section B)

Full trailers dropped in the marshalling yard should have door seals in place until just before being moved to the dock for unloading. Empty trailers in the marshalling yard should always have the rear doors closed in order to prevent trailer floor damage due to inclement weather conditions.

Trailers being moved to or from the marshalling yard should only be moved with the rear doors closed. This is so for two reasons: a) to maximize safety related to the potential for dropping loads off the rear end of the trailer, and b) open doors are subject to damage as trailers are moved in and out of their respective parking spaces in the yard.

After a full trailer to be unloaded is maneuvered into position in the truckwell apron, several feet from the final position against the dock bumpers, (i.e., with the rear of the trailer still ahead of adjacent trailers on either side but in alignment with the appropriate dock door), the seal can be broken and the trailer doors can be opened and latched. Similarly, empty trailers being moved away from the dock should be pulled forward until the rear of the trailer is ahead of the adjacent trailers, at which point the trailer doors should be closed for the remainder of the trip to the marshalling yard. These procedures ensure a minimum time and distance of trailer movement with the doors open, whether operating in a "live-load" (tractor attached) or "dropped-trailer" (tractor detached) mode (see Figure 5.1).

Figure 5.1 Trailer Door Preparation Position



Responsibility for the functions related to docking trailers is basically an issue to be determined by local practice at each plant. However, the following chart is suggested as a best practice guideline.

Figure 5.2 Docking Responsibility Guidelines

Item	Function	Responsibility
1. Trailer Restraints	Set and verify secure trailer restraint	Lift Truck Operator
2. Trailer Jacks (does not apply in Live Load scenario)	Set and verify secure trailer supports	Switching Tractor Operator
3. Sliding Axles	Move to rear-most position before docking trailer	Over-the-Road or Switching Tractor Operator
4. Air Suspension	Maintain air in Live Load scenario	Over-the-Road or Switching Tractor Operator

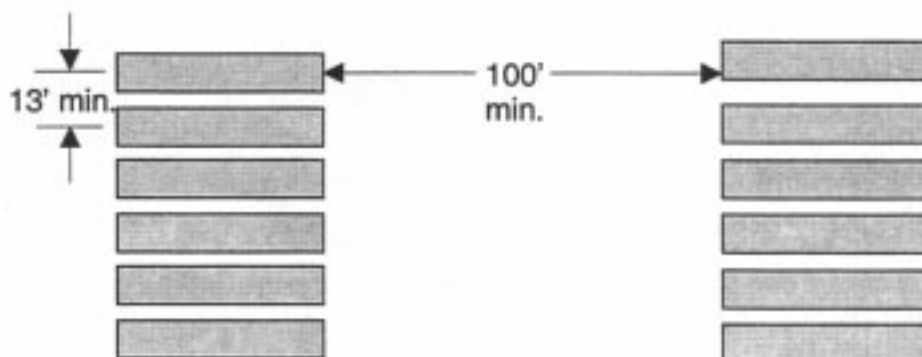
3.0 Trailer Marshalling Yard (See Mandatory Requirements in Section B)

The following are guidelines specific to design and layout of trailer marshalling yards. The specifications contained within this guideline have been devised from evaluations of marshalling yards at automotive and carrier sites. In addition, consultation with switcher and over-the-road tractor operators confirms that the information contained within this guideline will drastically reduce trailer damage incidents that occur in overcrowded and/or poorly designed marshalling yards.

3.1 Trailer Spacing - Straight-In Parking

This method of parking maximizes the number of trailers that can be parked in limited space situations. However, lack of adequate free-space distance between trailers that are parked in a marshalling yard is a major contributor to the side-wall and base-rail damage that a trailer incurs. The minimum recommended center-line to center-line spacing when laying out the yard is 13'. This dimension takes into consideration the increasing prevalence of 53' long x 102" wide trailers that are servicing automotive sites (see Figure 5.3).

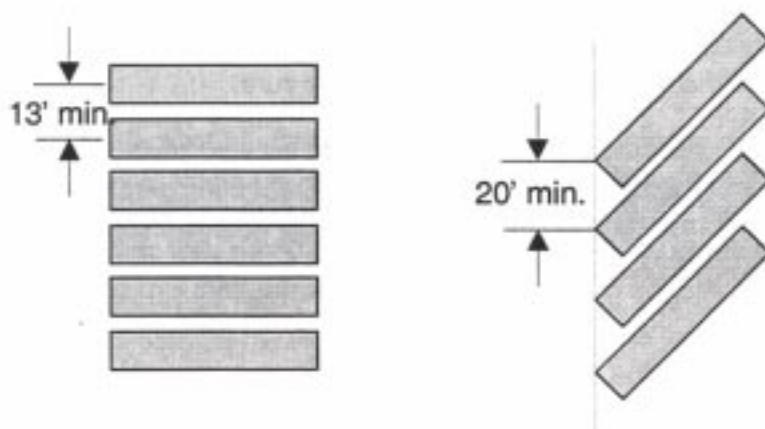
Figure 5.3 Trailer Parking Aisle Requirement



3.2 Trailer Spacing - Angled Parking

Angled parking of trailers is considered the most user-friendly method of parking trailers by switcher and over-the-road tractor operators. However, the number of trailers that can be marshalled using angled parking is drastically reduced when compared to straight-in parking. When designing an angled parking yard, the same considerations for free-space between trailers must be considered. The minimum recommended center-line to center-line spacing for angled parking marshalling yards is 20' (see Figure 5.4).

Figure 5.4 Trailer Parking Alternatives



3.3 Parking Space Identification Striping

It has been determined that the most effective method of maintaining the proper distance between trailers is to use striping a minimum of 3" wide and 50' long to identify each parking location. Tractor operators should be instructed to position the

outer-most tire of the operator side tandem set directly on the line. This method ensures proper spacing between all trailers and eliminates spacing judgment decisions associated with parking between lines.

3.4 Trailer Parking Depth Control

This issue is very important in controlling the damage that occurs when the tractor operator misjudges the distance between the trailer that is being parked and a trailer that is parked directly behind the spot being used.

There are two methods that can be employed to control proper distance between the tail ends of parked trailers.

The first is to identify the proper placement location of the landing gear. This is typically achieved by painting a line perpendicular to the parking spot identification line. This line indicates to the operator the proper positioning of the trailer landing gear.

The second method is to use parking curbs. Specifications for parking curbs are discussed in the next section.

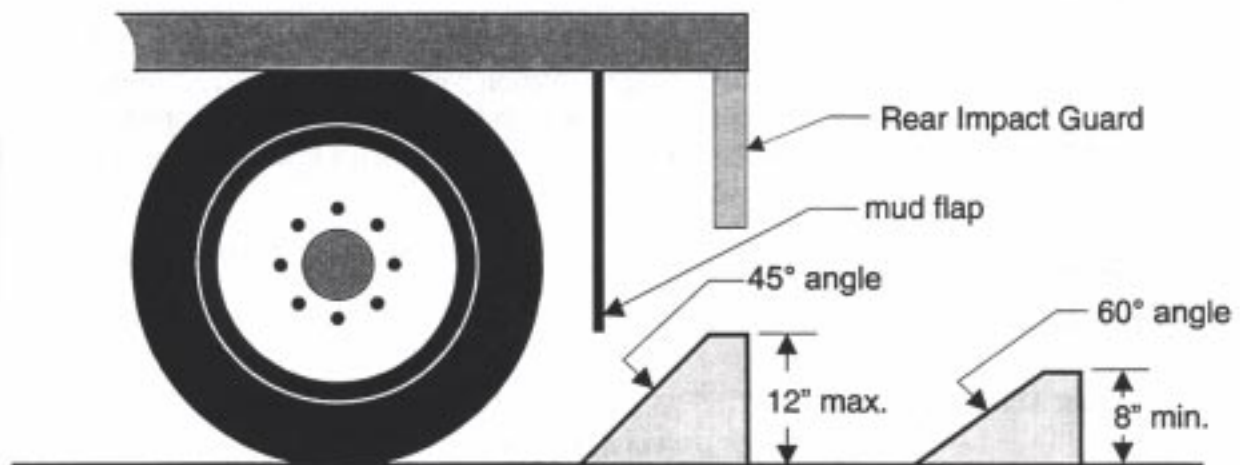
3.5 Trailer Parking Curbs

When parking curbs are used as a method to control spacing between the tail ends of trailers in the marshalling yard, the following specifications must be considered.

The parking curb should be a minimum of 8" and a maximum of 12" in overall height. The curb face which contacts the tire should be angled 45° - 60° starting from the ground and continuing to the top of the curb.

The curb must be permanently mounted to the yard surface to prevent inadvertent movement during the parking operation. Failure to comply with these specifications will result in certain damage to the trailer under-ride protection device or mud-flaps (see Figure 5.5).

Figure 5.5 Trailer Parking Curbs



3.6 Apron Length

The proper bulkhead to bulkhead spacing distance between trailers is imperative when designing the marshalling yard. Key to this dimension is considering the size of over-the-road tractors that drop trailers in the yard. The recommended minimum distance is 100'. Apron length distances shorter than this will create a situation where trailer side-wall and base-rail damage due to side-swipe is most certain to occur (see Figure 5.3).

3.7 Lighting

Marshalling yards where nighttime operations are conducted must be properly lighted. Requiring tractor operators to position trailers with inadequate or no lighting will most certainly result in trailer damage. Lighting in the yard is best when centrally located and illuminating a 360° arc. Light poles should be properly guarded to prevent collision by either the tractor or trailer.

D. Application Variables

1.0 Trailer Inspection

The focus of this document is over-the-load trailers delivering production parts. However, situations involving trailers not delivering production parts (e.g., machinery, tooling, etc.) deserve no less concern for safety than that put forth in this document. Therefore, a proper inspection of such trailers is appropriate in the event that fork lift truck operators will be driving onto the floor of the trailer.

2.0 Docking Methods

This section reserved for future considerations.

3.0 Trailer Marshalling Yard

3.1 Hydraulic Fifth Wheel Control

One of the potential causes of damage to trailers as well as dock equipment occurs when trailers are raised too high with the hydraulic fifth wheel of the switcher tractor. As the nose of the trailer is raised the rear impact guard on low-floor trailers can drop to such a low clearance height that contact with curbs, overhead door frames, the truckwell apron and/or surface-mounted truck levelers is possible.

For this reason, it is strongly recommended that the upper limit of the hydraulic fifth wheel on switcher tractors be controlled either mechanically or procedurally. It is particularly important that trailers not be raised any higher than necessary during the process of approaching or departing the loading dock itself.

3.2 Cargo Container Trailers

As a means of simplifying the handling of high-floor cargo container trailers (see Module 2 – Facilities Design), it may be possible in certain facilities to limit cargo container trailers to specific docks equipped to handle these trailers. A particular dock could be dedicated to cargo container trailers by designing the dock height at 54" or equipping the dock with a wheel riser or truck leveler (see Module 3 – Dock Equipment).

E. Other Considerations

1.0 Trailer Inspection

This section reserved for future considerations.

2.0 Trailer Docking Methods

This section reserved for future considerations.

3.0 Trailer Marshalling Yard

This section reserved for future considerations.

END OF MODULE