



**Clearwater Fire & Rescue Department**

**Training Bureau**

# **Tractor & Tiller Operations**

## **Objectives**

- 1. The student shall have a thorough working knowledge of the concept of the tractor drawn apparatus**



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# **Objectives**

- 2. The student shall successfully navigate the vehicle through a competency course**
- 3. The student shall successfully navigate a predetermined road course**



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# Introduction

- **Been around for over 100 years**
- **Has enabled fire departments to navigate tight streets**





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# Concept

- The word “tiller” comes from the lever used to steer a sailboat





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# **Tractor & Tiller Operators**

- **The Tractor and Tiller Operator positions will be interchangeable**
- **Reduces confusion as to who is qualified to do what**
  - **Makes better drivers since each understands the others responsibilities**
    - **Referred to as T/O**



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# Duties of the T/O

- **Forward Driving**
  - **Turning**
  - **Backing**
  - **Positioning**





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# Shared Responsibility

- T/O must work together as a team
- Communications is key
- Avoid the “I got my end through” mentality
- Both T/O’s will share equal responsibility if involved in a accident





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# **Communications**

- **Both T/O's shall utilize the headset's**
- **Use buzzer signals as well**
- **1=Stop immediately**
- **2=Go**
- **3= Back up**
- **Signal prior to any directional change**





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# **Tractor Operator**

- **Similar to driving a straight truck**
- **Must work with Tiller Operator to achieve objective**



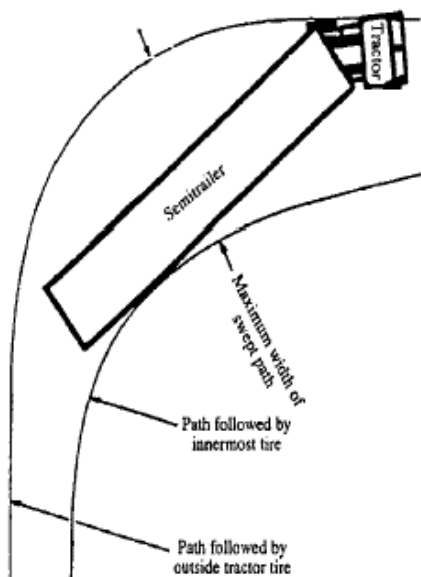


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# Tractor Operator

FIGURE 4:



- Typical tractor trailers and straight trucks cannot negotiate very tight turns
- The tiller allows us to make turns not otherwise possible



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# **Tiller Operator**

- Normal position is to keep tiller wheels parallel with the trailer
- Referred to as “In line” position





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# **Tiller Operator**

- **Must turn the tiller wheels when the tractor turns**
- **Initially it may mean turning in the opposite direction to clear the corner or obstacle**
- **Return trailer to an in line position**





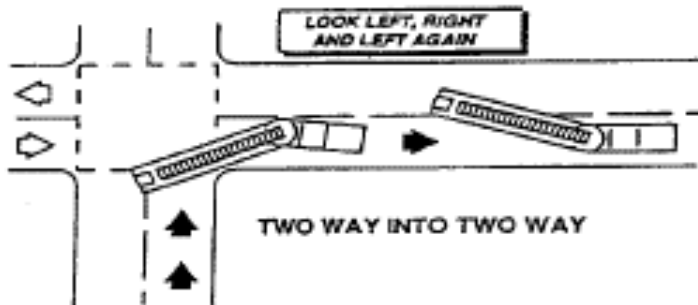
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# Over Steering

- Do not over compensate
- Begin to straighten trailer half way through turn
- Avoid “whipping”, the inertia created is difficult to recover from

FIGURE 1:







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# Over Steering

- Use the “In Line Gauge”
- Avoid counting turns of the wheel



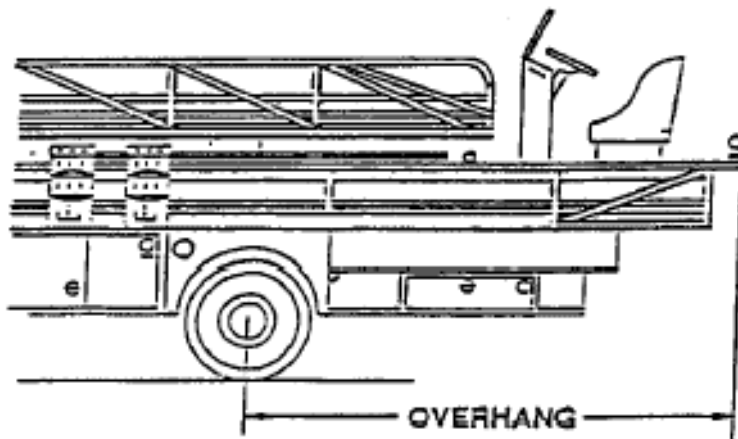


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# Overhang

FIGURE 2:



- Be aware of the trailer overhang
- Distance from the center of the rear wheels to the end of the trailer



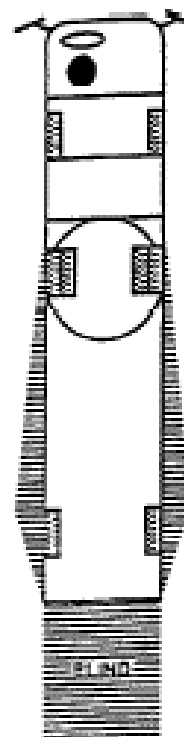
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# Blind Spots

- Blind spots are inherent to the Tiller position
  1. Next to the tiller wheels
  2. Forward of the tiller wheels
  3. Directly behind the tiller seat
- Cornering lights on side to assist

FIGURE 3:







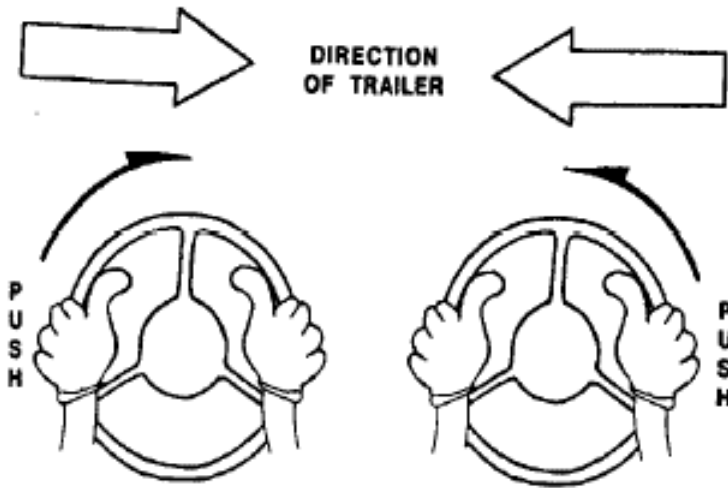
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# Tillering Forward

- Hand positions at 3 and 9 o'clock
- Palms down, thumbs in
- Feed the wheel from side to side through your hands
- Do not steer hand over hand

FIGURE 5:





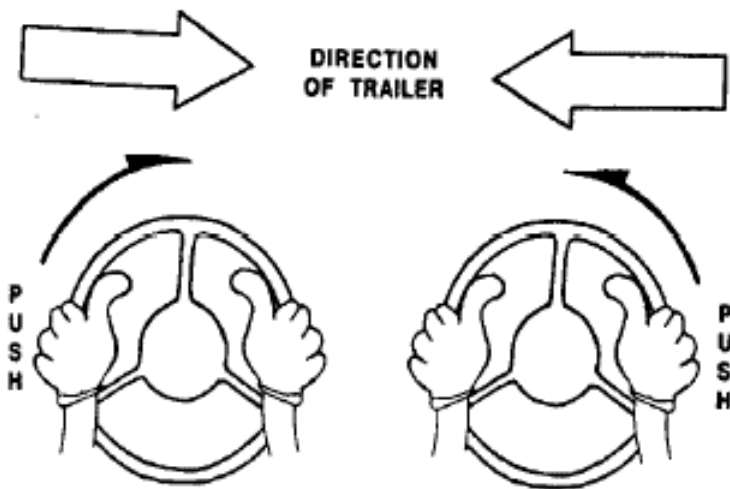
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# Tillering Forward

- Thumbs point in the direction the rear of trailer will go, or
  - Turn wheel in direction you want rear of trailer to go
- Initially this may be opposite from the way the cab is turning

FIGURE 5:





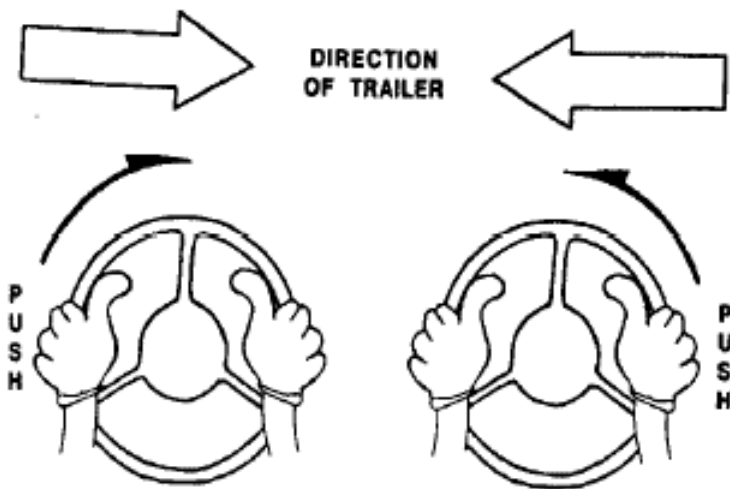
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# Tillering Forward

- First steer away from the turn or obstacle
- Once the trailer has cleared, smoothly return the trailer to an in line position

FIGURE 5:





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# **Tillering Forward**

- **Tiller person should anticipate what the tractor driver will do**
- **Keep looking ahead of the truck**
- **Know your streets**





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# **Intersections**

- **When turning the Tiller Operator should begin turning about the same time the front wheels enter the intersection**





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# **Backing the Tractor**

- **Tractor operator controls the backing direction and speed**
- **Tractor pushes the trailer in reverse**
- **Avoid “Jackknifing”**
- **Communicate with the Tiller Operator**
  - **Headset & ? Beeps**
- **Spotters still required**

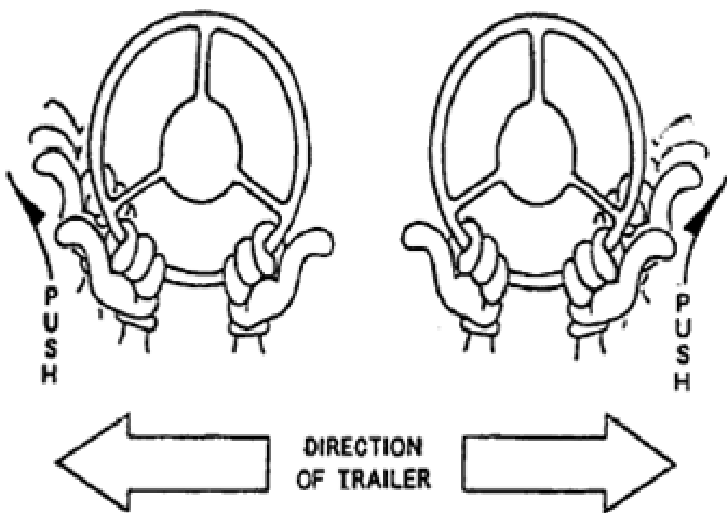


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# Backing the Trailer

FIGURE 6:



- Tiller persons changes hand positions to 5 & 7 o'clock
- Signals tractor when ready to come back (?)
- Turn wheel or thumb in desired direction
  - Steers trailer
- Always check final wheel position



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# **Safety's**

- **Horn signal**
- **Jackknife alarm**
- **Tiller person not seated indicator light**







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# **In Summary**

- **Both T/O's must work together as a team and communicate**
  - **Both T/O's are responsible for checking, driving, and operating the vehicle**