ATOE-2670: ROUGH TERRAIN FORKLIFT OPERATION

Cuyahoga Community College

Viewing: ATOE-2670 : Rough Terrain Forklift Operation

Academic Term:
Spring 2019

Subject Code
ATOE - Appd Ind Tech-Operating Engin.

Course Number:
2670

Title:
Rough Terrain Forklift Operation

Catalog Description:
In-depth focus on OSHA regulations regarding industrial trucks, specifically OSHA 1910.178. Also includes characteristics of forklifts, identification of components of a truck and their functions, safety operations and safety equipment used on forklifts.

Credit Hour(s):
2

Lecture Hour(s):
2

Lab Hour(s):
0

Requisites

Prerequisite and Corequisite
ATOE-1100 Operating Engineering Concepts, and ATOE-1650 Graders and Plans; or departmental approval.

Outcomes

Course Outcome(s):
N/A

Objective(s):
1. 1. Discuss OSHA regulations on the training of operators and relating to safe industrial truck operations.
2. 2. Safely operate a forklift.
3. 3. Explain the components, weight, stability and speed characteristics of forklifts.
4. 4. Demonstrate how to safely handle forklift fuels and batteries.
5. 5. Perform the required daily inspections and maintenance on the forklift.

Methods of Evaluation:
1. Quizzes
2. Exams
3. Classroom participation

Course Content Outline:
1. Training
   a. The operator
      i. attitude
      ii. rules
      iii. your training and authorization
      iv. safe/unsafe practices
      v. maneuvering skills
      vi. communication

b. The forklift
    i. truck components
        1. counterweight
        2. overhead guard
        3. operator restraint system
        4. steering axle and wheels
        5. drive axle and wheels
        6. tires
        7. upright (mast)
        8. lift cylinders
        9. tilt cylinders
        10. carriage
    ii. attachments
        1. forks (lifting attachments)
        2. load backrest extension
    iii. operating controls
        1. key switch
        2. gauges
        3. lift and tilt levers
        4. directional lever
        5. service and inching brakes
        6. parking brake
        7. accelerator pedal
        8. horn
        9. auxiliary/attachment controls
    iv. leverage/teeter-totter principle
    v. center of gravity
    vi. momentum
    vii. stability area
    viii. the effect of center of gravity and momentum on stability
    ix. forward tipping
    x. side tipping
    xi. backward tipping
    xii. forklift types
        1. straight-mast
        2. extended-reach
        3. convertible forklift/crane machines
    xiii. attachments
    xiv. steering
    xv. articulated steering
    xvi. one-person
    xvii. no riders
    xviii. load capacities
    xix. machine clearance
    xx. controls
        1. engine controls
        2. clutch
        3. transmission control
        4. brakes
        5. hydraulic controls
        6. steering controls
        7. attachment
    xxi. operating the machine
    xxii. before starting the machine
    xxiii. starting the machine
    xxiv. after-check-out during operation
    xxv. hydraulic system during operation
    xxvi. stopping the forklift

1. parking
2. misuse
3. driving on road or highways
4. towing operations

c. The conditions
   i. obstructed vision
   ii. wet and uneven ground
   iii. changes in lighting
   iv. door load capacities
   v. overhead conditions
   vi. vehicles or people in your path
   vii. blind corners
   viii. unloading at a dock
   ix. cold weather considerations

d. Loading
   i. load capacity
   ii. the landing point load limit
   iii. lifting the load for transport
   iv. transporting the load
   v. preparing to place the load
   vi. placing the load
   vii. stockpiling
   viii. placing a load with a convertible forklift crane

2. Forklift power sources: characteristics and safe handling
   a. Safety through inspection and maintenance
      i. Inspection
      ii. visual inspection
      iii. operational inspection before using with a load
      iv. warning devices
      v. hydraulic system
      vi. engine
      vii. inspection of power train
      viii. electrical system inspection
         1. disconnecting battery
         2. reconnecting
      ix. removing old battery
      x. cables
      xi. installation
      xii. jump start an engine
      xiii. tire inspection
      xiv. changing tires
      xv. maintenance
      xvi. special note
      xvii. safe refueling practices
   b. Gasoline and diesel forklifts
      i. basic characteristics of gasoline
         1. flammable
         2. colorless raw
         3. distinctive gasoline odor
      ii. basic characteristics of diesel
         1. flammable
         2. colorless raw gasoline
         3. slight gasoline odor
      iii. LPG safety
      iv. Leaks
      v. LPG tank installation
      vi. battery power and forklifts

3. Battery handling safety factors

4. ASME/ANSI standards
    a. Scope
    b. Purpose
    c. Interpretation
    d. General safety practices
    e. Operating safety rules and practices
    f. Maintenance and rebuild practices

Resources

Clemmens, J. P. *Production Efficiency Study on Rubber-Tired Scrapers.* Arlington. U.S.D.O.T. Federal Highway Administration Region 15 Demonstration Projects Division, 1977.

Ringwald, Richard C. *Means Heavy Construction Handbook: A Practical Guide to Estimating And Accounting Methods, Operations/ Equipment Requirements, Hazardous Site Evaluation.* Kingston, R.S. Means Co., 1993.

Nunnally, S. W. *Managing Construction Equipment.* Englewood Cliffs, NJ: Prentice-Hall, 1997.

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