



# ***Forklift Handling & Maintenance***

***Also refer to the DURA-BASE Installation & Handling Manual***

**DURA-BASE<sup>®</sup>**  
ADVANCED-COMPOSITE MAT SYSTEM

# ***Introduction***

The purpose of this section of the manual is to illustrate the best practice methods of handling the mats during the installation, transport, stacking, and take up operations from a safety, maintenance, and operational standpoint. As you will see, the instructional portion of the training program is only to give you a future reference for what will become a long and ever evolving learning process. You will find, through years of repetition, there will be new techniques you will learn as you expand upon your experience. This training program will only give you the tools to start you on your learning curve.

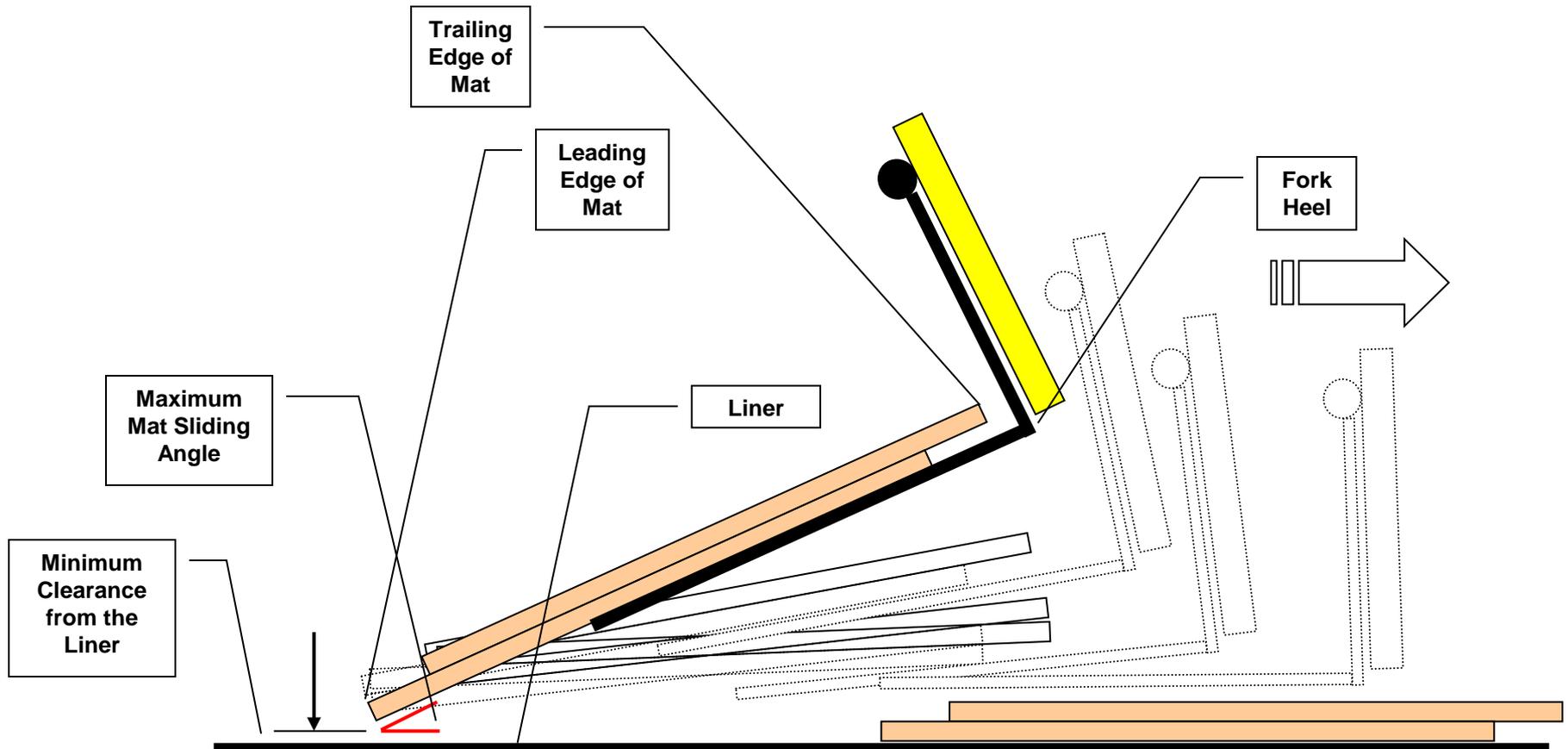
We will study three basic parts during the training program- safety, equipment maintenance, and equipment operating.

**Safety** will cover not only the safety of yourself, but also the safety of the people that are around your during the time you are operating the equipment.

**Equipment Maintenance** will involve the steps you will need to take to insure the equipment you are operating stays in mechanically sound condition.

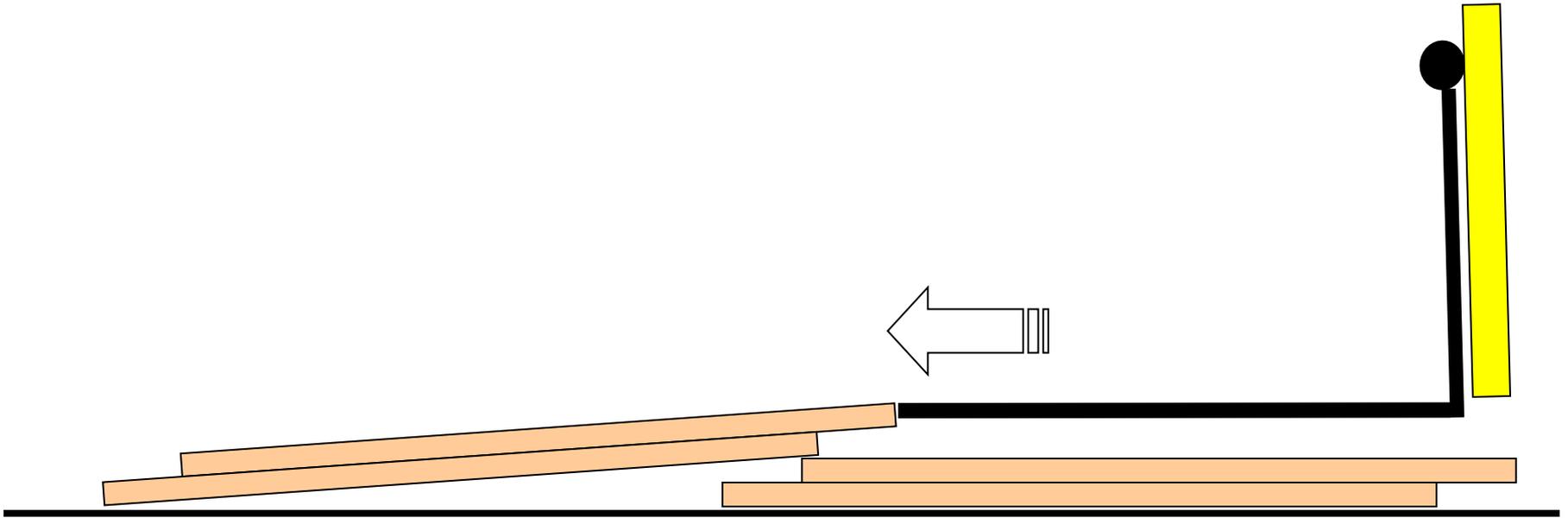
**Equipment Operation** is the portion of the training that will teach you the best practice methods of handling the mats. The Dura-Base Mat is the lifeline of Newpark Mats and Integrated Services and it will be up to you to ensure each mat is kept in a condition we would be proud to rent again and again.

## Mat Installation-



During the installation, care should be taken to insure the maximum mat tipping angle is not exceeded as to allow the mat to slide off of the end of the forks. Re-position the mat away from the fork heel to allow the mat to extend further beyond the fork tops than during mat transport position, creating less fork surface area friction. Place the leading edge of the mat in a position that will permit the trailing edge of the mat, once lowered, to properly connect into the corresponding mat's lip saddle. Move the forklift backwards while lowering the mass and curling the forks, constantly maintaining the minimum clearance between the liner and the forks.

## ***Mat Installation-***

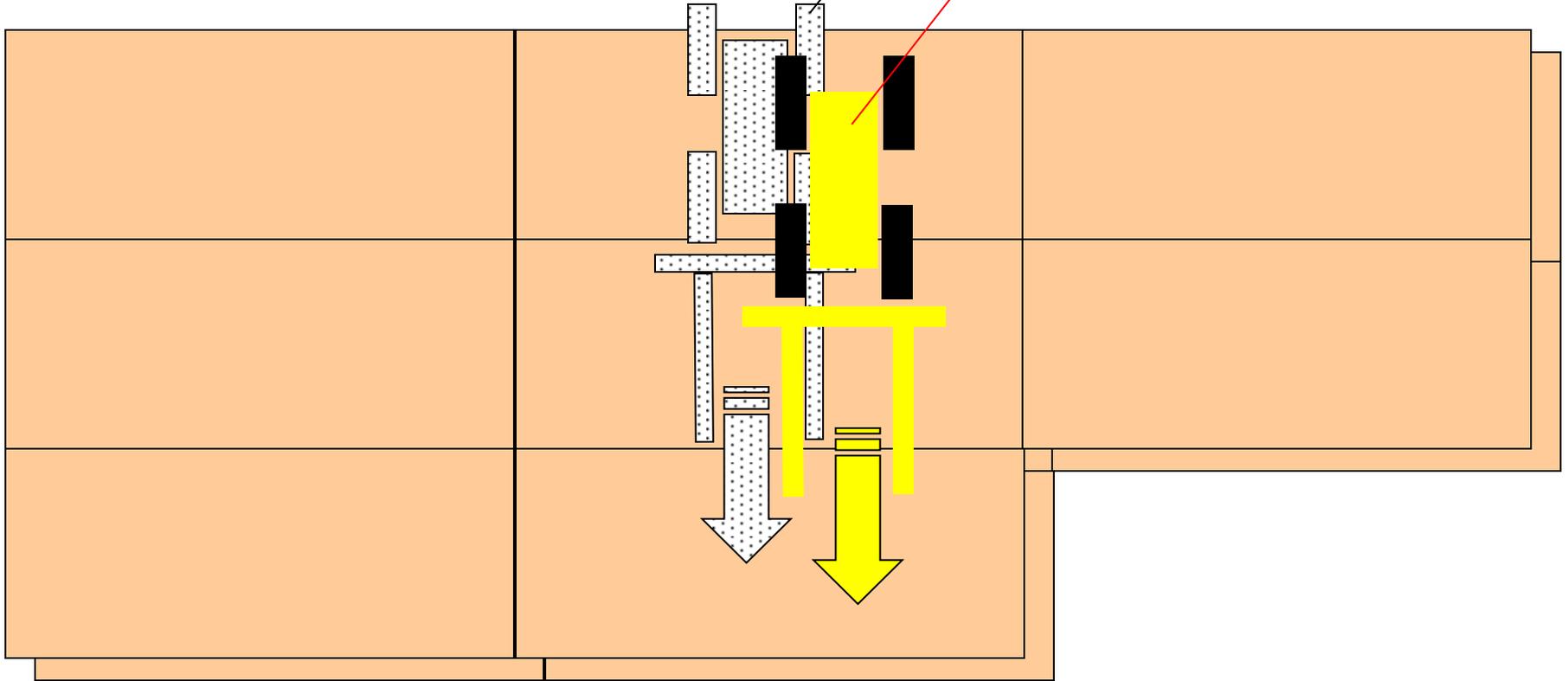


In the event the two mats do not saddle into place, the operator will re-position the forks as to horizontally slide the mat into place from the trailing edge of the mat.

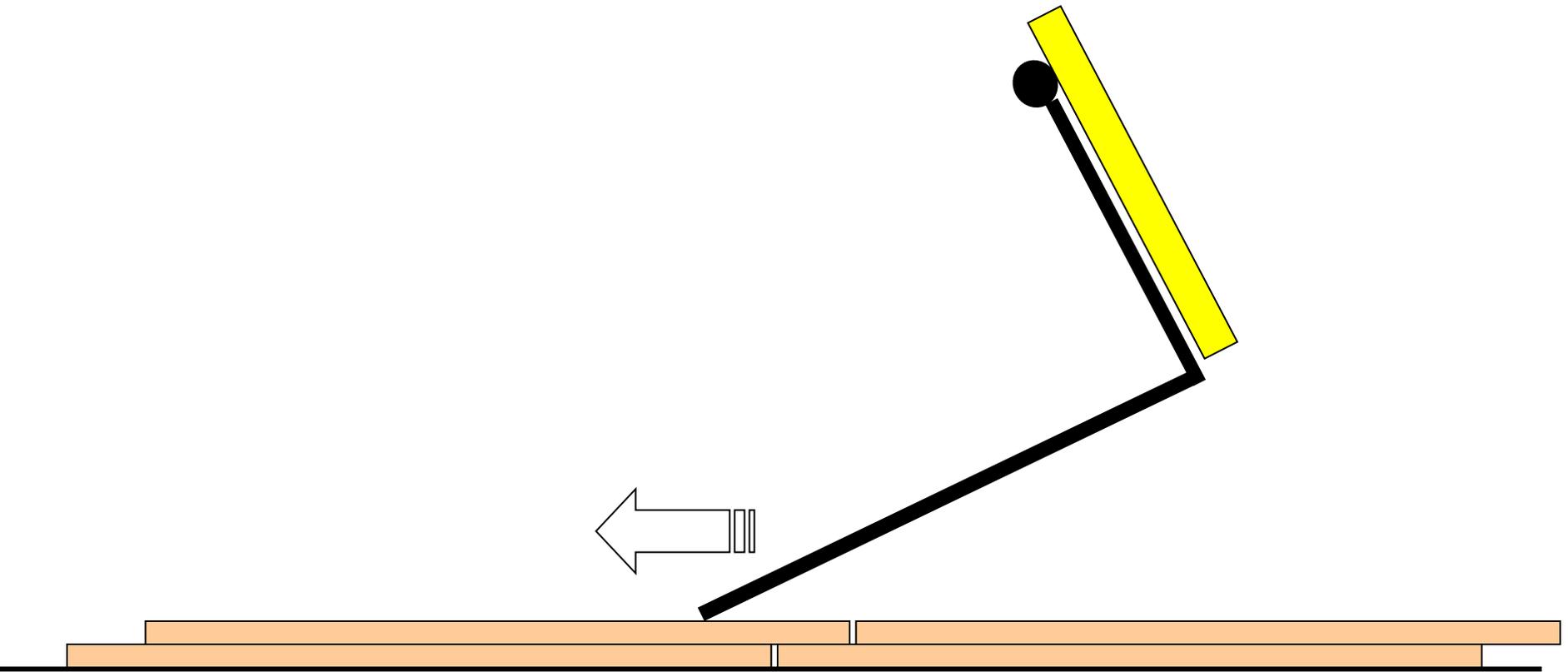
# Mat Take Up-

#2. Lift the Mat From the Raised Lip and Slide the Forks Underneath the Mat

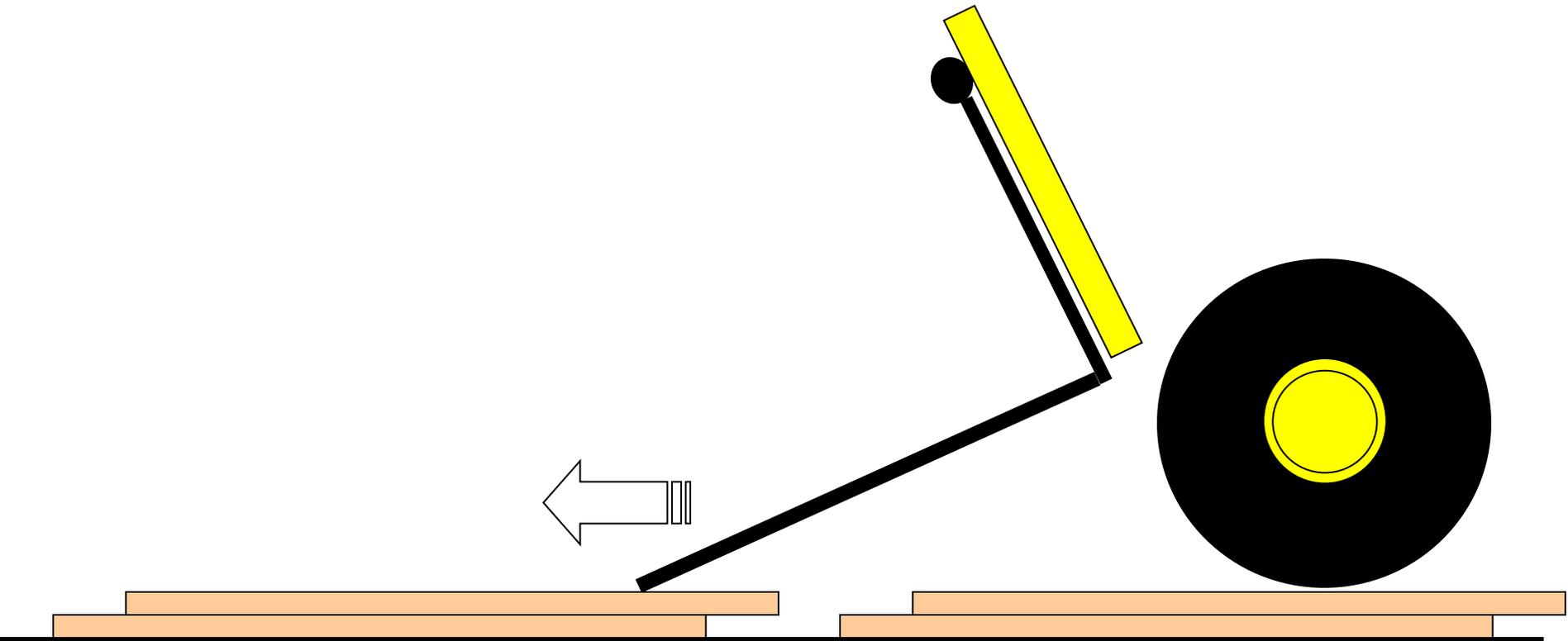
#1. Slide Mat Forward



## ***Mat Take Up Step 1.***

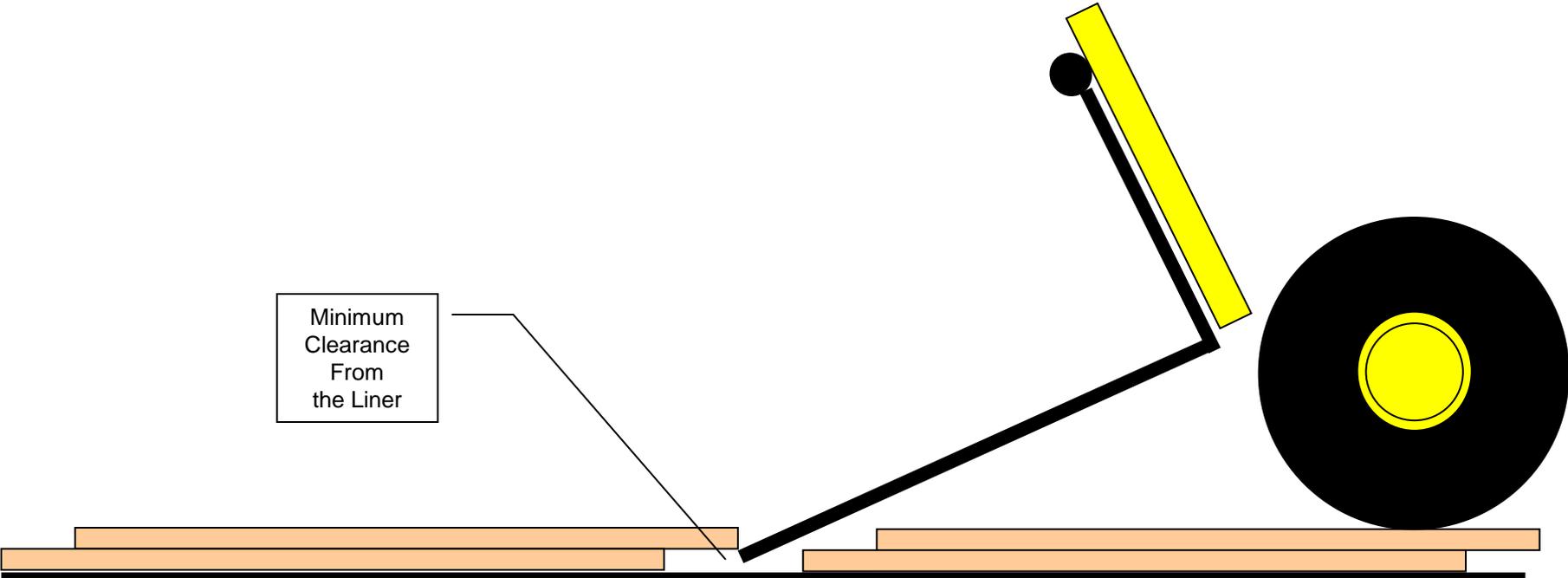


With a minimum amount of downward pressure on the forms, slide the intended mat of removal away from the mat located underneath the forklift. The Operator should check the tips of the forklift forks on a daily basis to insure they are not too sharp to be dangerous to the mat or personnel.



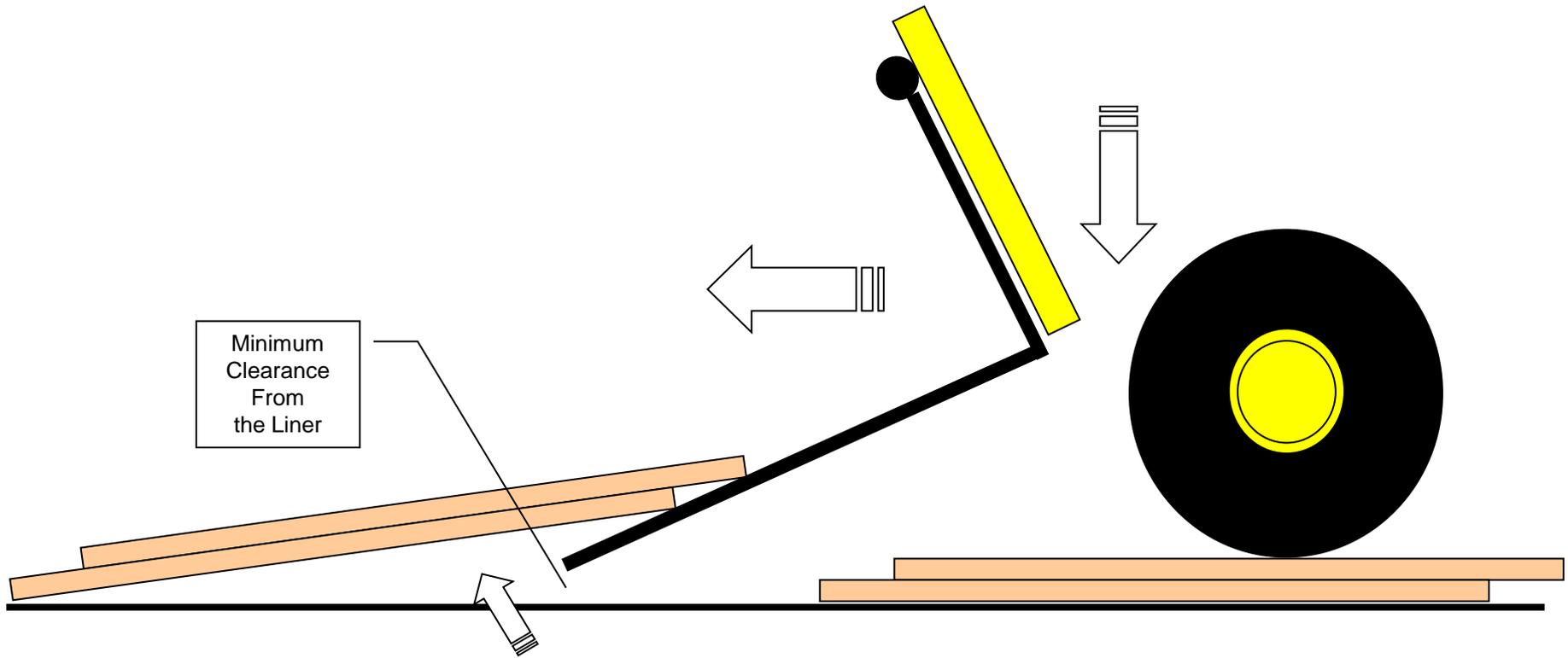
Care should be taken in moving the intended mat of removal the proper distance away from the previous mat. Moving the intended mat of removal too far could prevent the operator from being able to retrieve the intended mat of removal while remaining on top of the previous mats, thus taking the chance of damaging the liner with the forklift tire.

**Mat Take Up Step 2.**

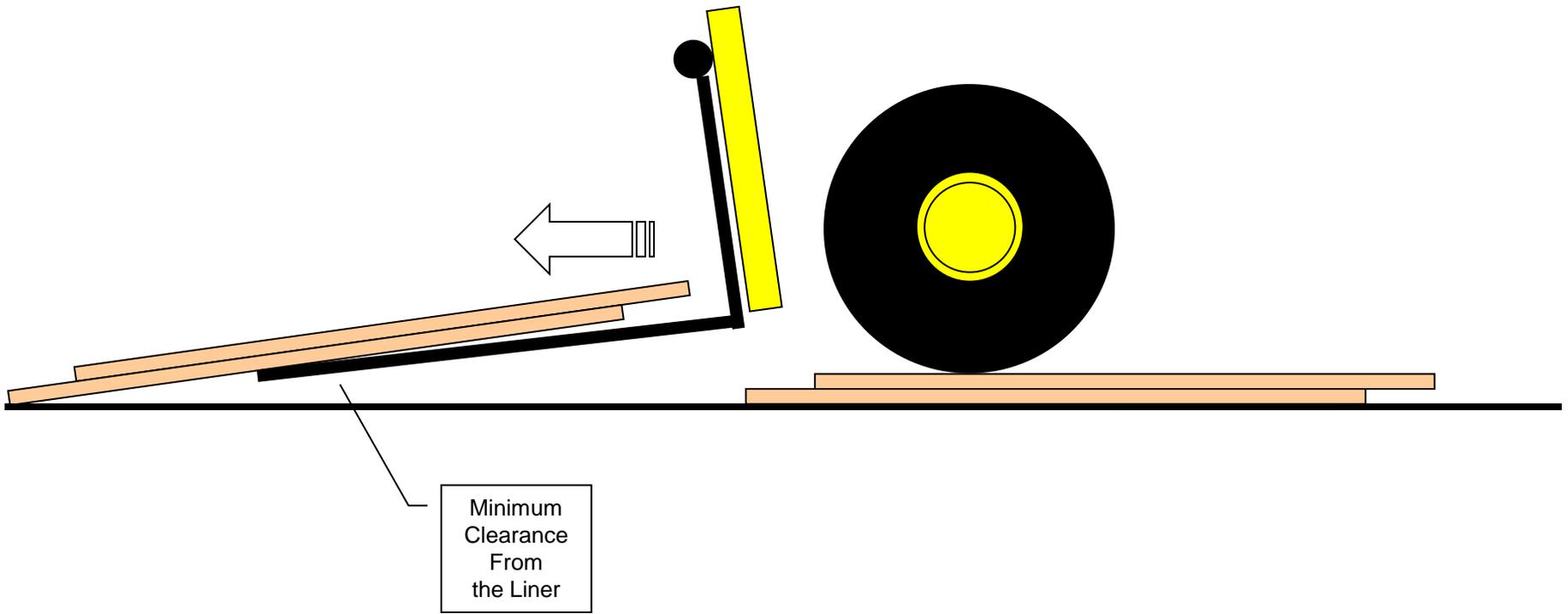


Re-position the fork tips under the lip of the intended mat of removal and lift the fork tips. Maintain the minimum amount of clearance from the liner as to not damage the liner.

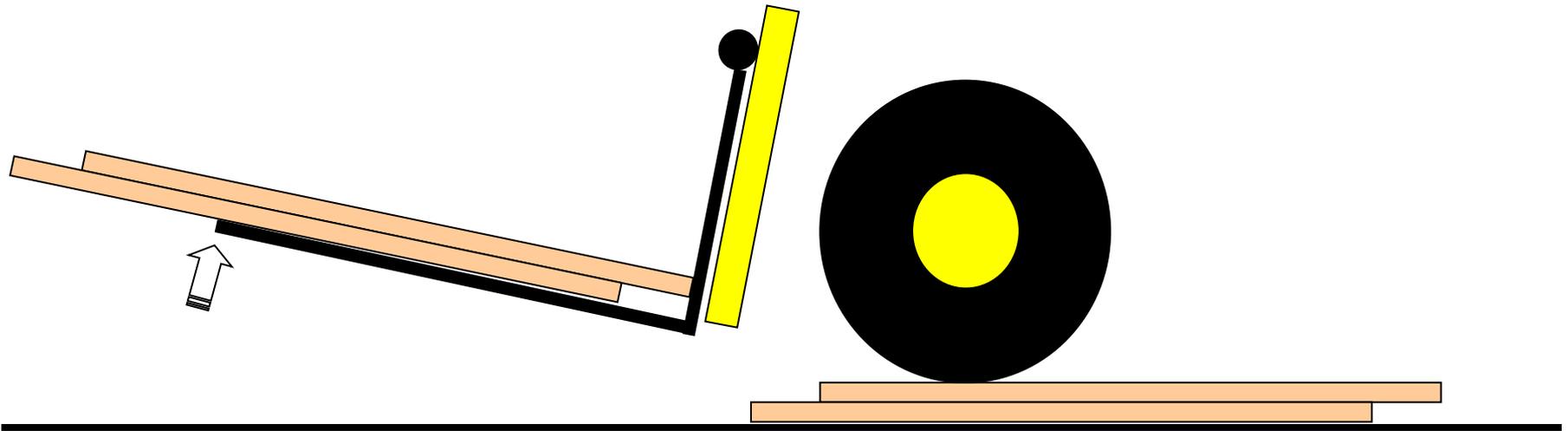
## Mat Take Up Step 3.



Move the forklift forward while lowering the mass and raising the fork tips. Maintain the minimum amount of clearance from the liner as to not damage the liner.

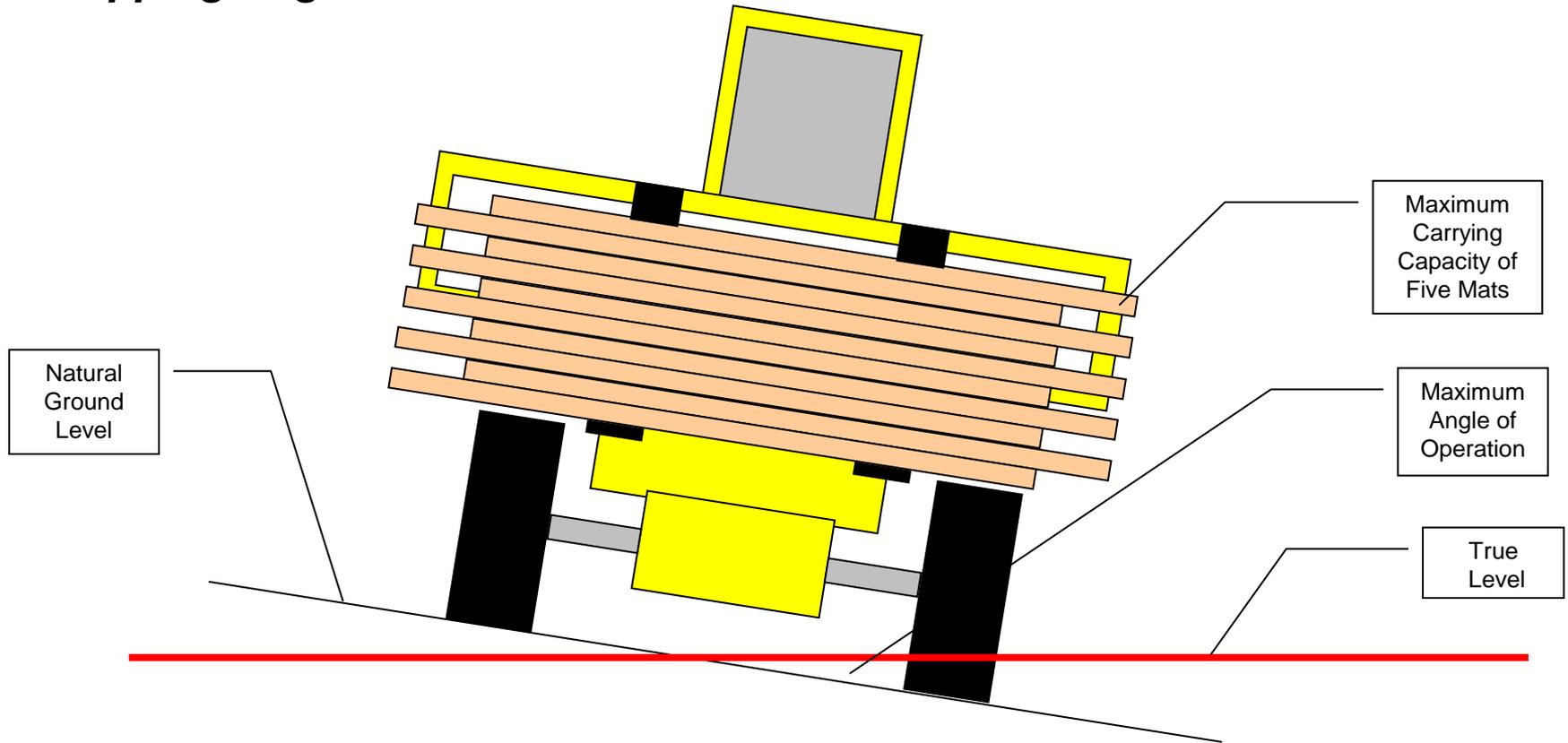


## *Mat Take Up Step 4.*



Lift and transport the retrieved mat with the forks in full curl positions and a low proximity to the ground.

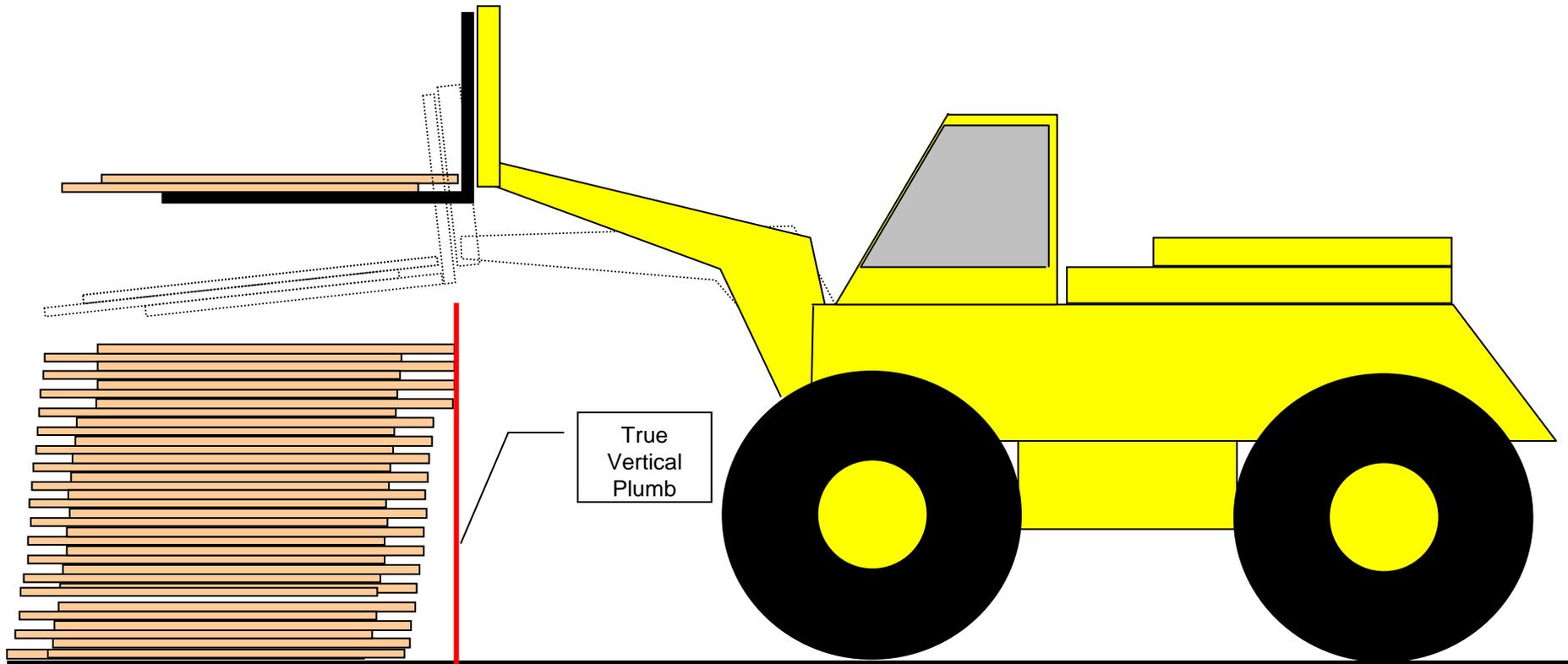
## Tipping Angle



The mats will slide due to the angle of operation sooner than the forklift will tip. The carrying capacity of the forklift will be limited to **five** Dura-Base Mats. The forklift surely has the ability to carry more mats, however, the terrain will dictate the true carrying capacity. The higher the mats are stacked onto the forks, the sliding effect of the mats is increased substantially.

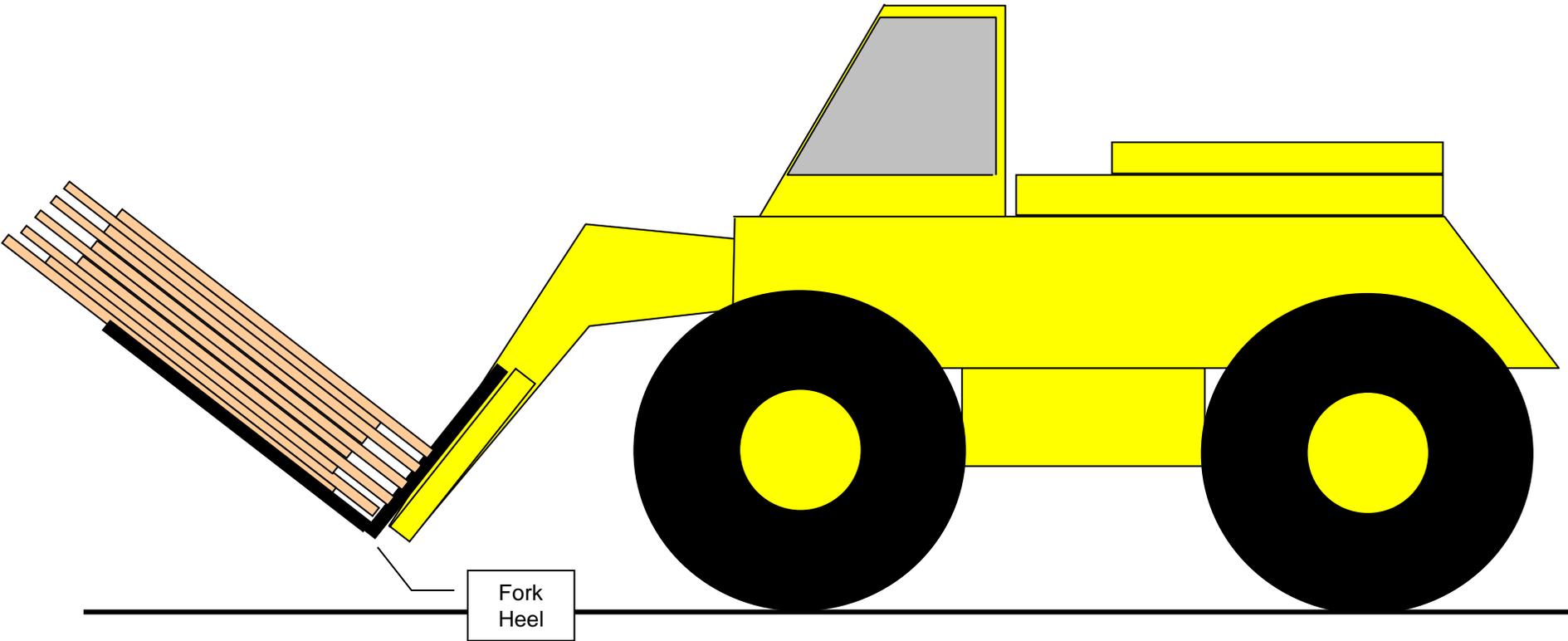
The mat sliding danger is a factor anytime the mats are taken out of the true level position, whether the mats are being installed or transported. Given that, the mats should be transported with a minimum amount of distance from the ground and with the maximum amount of upward fork curl. If sliding occurs, the mats will have a shorter distance to fall from the forks to the ground. The equipment ground speed should also be a major consideration when transporting the mats. The sliding effect becomes more prevalent when the combination of increased equipment ground speed and shorter stopping distances are required.

## Stacking Mats-



Special care should be taken in stacking the mats, whether the mats are stacked on the ground or onto a truck. The operator should check the ground conditions to insure of it's level as well as the stability of the ground leading to the stack area. During the time the carried mats are elevated, the forklift is at it's most vulnerable condition for tipping. If the ground conditions are unstable and allow a tire to sink, the forklift is more likely to tip when the mats are elevated. The mats should be stacked in the most vertical plumb condition as possible. When multiple stacks of mats are installed, the "leaning" effect exacerbates with each additional stack. In the event mats are loaded onto a truck, the same care should be taken, allowing the mats to be properly secured and permitted transport within the width limits allowed by law. When stacking the mats, the same basic procedure should be followed as is illustrated in the mat installation process.

## ***Mat Transport-***



While transporting a stack of mats, the forklift mass should be positioned as low as possible to maintain the lowest center of gravity. The forks should be in full curl position so the mat sliding tendency will be toward the heel of the forks, preventing the mats from sliding off the ends of the forks. The ground speed should be adjusted to the terrain conditions to prevent the mats from tipping from side to side.

## ***Equipment Maintenance-***

To insure the equipment is properly serviced, NMIS operators will lubricate the joints at the beginning of each operator's use of a given piece of equipment. Since the equipment is utilized by multiple operators during a given period, this practice will insure an operator has the opportunity to inspect the equipment prior to operation; checking for leaks, cracks, wear, etc. Checking all fluid levels of all reservoirs is an additional minimum requirement of daily service to the equipment. For the most part, the equipment is operate in dusty conditions, therefore air filters elements should be checked and blown out on a daily basis. It may become necessary for the operator to carry a spare air filter element, rotating the spare with a previously cleaned element. Fueling the equipment will be performed at the end of each operation period to prevent the collection of condensation in the fuel tank. Checking the tire air pressure before operation is not only a maintenance issue, but a safety issue as well. Low tire pressure on one side of the equipment can cause tipping on ground that would ordinarily be a safe traveling route. Upon starting the equipment is a good time to view all the instrumentation to assure all segments of the equipment are performing properly. The operator should be alert to any warnings or abnormal instrument readings, as described in the Manufacture's Operation Manual. It is important to know the equipment's capabilities, however it is just as important to know the equipment's limitations. Therefore, it is important each operator read the Manufacture's Operating Manual to be assured of the equipments abilities as well as a tool for general maintenance intervals.

# Newpark Mats & Integrated Services, LLC

## Wheel Loader: Daily Inspection

Location: \_\_\_\_\_

Date: \_\_\_\_\_

Operator Completing Inspection: \_\_\_\_\_

If a warning tag (Lockout/Tagout) is attached to the start switch or to the controls, DO NOT start the engine or move any controls. Prior to all inspections, ensure that the parking brake is engaged.

### Walk-Around before Start-Up

Y N

- 1. Before beginning inspection, are all safety procedures followed (forks lowered to floor, personal protective equipment worn, etc.)?
- 2. Are hoses on the entire machine in good condition (no leaks, damaged or missing hoses)?
- 3. Are there no loose or broken parts?
- 4. Is wiring in good condition?
- 5. Are lifting arms lubricated properly?
- 6. Are engine oil and coolant levels adequate?
- 7. Is the oil level in the hydraulic tank adequate?
- 8. Is the air cleaner in good shape?
- 9. Are belts in good condition?
- 10. Is the battery in good condition (check for connections and corrosion)?
- 11. Are tires inflated properly and in good shape?
- 12. Are headlights and reflectors in good condition?
- 13. Are windshield wipers working properly?
- 14. Is there adequate washer solution?
- 15. Are hydraulic hoses routed properly with no leaks?

### In-Cab before Start-Up

Y N

- 16. Are windows clean inside and out and in good shape (no broken or cracked glass)?
- 17. Is the cab clean (get rid of any debris)?
- 18. Is the seat mechanism adjusted properly?
- 19. Are seat belts in good condition?
- 20. Is your seat belt fastened?
- 21. Is the parking brake applied and the gear select in neutral?
- 22. Are working hydraulic control levers in neutral?
- 23. Are all mirrors adjusted and in good condition?

Y N

- 24. Are all gauges and signals working and are warning and other control lamps functioning properly (check during engine warm-up)?

### In-Cab Inspection after Start-Up

- 25. Are headlights and windshield wipers working properly?
- 26. Are the signal horn and back-up alarms working properly?
- 27. Are all controls working, including steering?
- 28. Is the lift and tilt system working properly?

Operator Signature: \_\_\_\_\_

# Job Safety Analysis

Date:

New  
 Revised #: \_\_\_\_\_  
 Date of Revision:

PPE Discussed?  
 Stop Work Authority Discussed?  
 Incident Free Operation Discussed?

Summary of job:

Laying Mats

Location:

Environmental Hazards:

Animals  Insects  Temperature  
 Rain/Wet  Dry/Dusty  \_\_\_\_\_

Equipment/Tools Required:

Forklift  Dozer  Rubber tire  
 Track hoe  \_\_\_\_\_

PPE Required:  Hardhat  Glasses

Hearing Protection  Gloves  
 Steel Toe Boots

Additional PPE:  Chaps  Face Shields

Harness  \_\_\_\_\_  
 \_\_\_\_\_  \_\_\_\_\_

Weather Conditions:

Sequence of Job Steps/Tasks

Potential Accidents, Hazards  
and/or Environmental Impacts

Recommendations to Eliminate  
Hazards

Person Responsible  
for Task

Conduct Tailgate Safety Meeting

To be discussed in TSM

Communicate to all

All Present at meeting

Check Equipment on site

Leaks, Burnt Lights, Low Tires, Etc.

Preventative Maintenance, Daily Checks

Operator:

Check Tools

Leaks, Broken or Missing Parts, Etc.

Check daily, get fixed as needed

Roll fabric out

Trips, Falls, Sprains, Muscle Pulls

Work Slowly & Cautiously, Communicate

Remove strapping from mats on truck

Pinch points, tool slipping

Communicate, release energy slowly

Truck Driver:

Unload Mats from Truck

Mats Falling, Backing

Communicate, Back Slowly

Operator:

Stacking Mats on Location

Stack too high, falling

Stack on level ground, limit stack height

Operator:

Laying Mats

Mat slipping off forks, pinch points

Work slowly, communicate

Operator:

Cutting Mats to size with chainsaw

Cuts, scraps, pinch points, flying wood

Chaps, Hearing Protection, Communicate

**Employee Signatures: ALL EMPLOYEES PRESENT MUST SIGN BEFORE ANY WORK IS STARTED**

Comments:



Authored by: Rabalais, C.