

# Operator Techniques & Your GET

## Pit Management Tool

Use in conjunction with:

- PEXT9050    Operator Techniques and your GET  
AEDQ0391    Reference guide to Mining Machine  
Application

This leaflet is to provide customers with an equipment operating management tool. This is in the form of tips on how to gain more productivity and value from Cat machines through optimal implement operating technique. These leaflets cover the following equipment:

LHEX	5230 - 5080 375 - 350
WTL	994 - 914 IT38 - Smaller
Dozer	D11 - D8
Ripper	D11 - D8
MG	24H - Down
WTD	854 - Down

**Large HEX**  
**5230 - 5080**  
**375 - 350**

## **Operator Techniques & Your GET**

- Practice smooth operation
  - Fast, jerky motions can result in poor digging and loading. The resultant impact can damage equipment
  - Slower movements make the machine's operation smoother and more productive
- Avoid using excessive prying force. The tips and adapters are designed to break first
- Minimize ground contact with the bucket. Make the tips do the work
- Enter the face with the tips at the proper angle
  - Curl the bucket through the material maximizing tip contact and minimizing bucket contact
  - Boom up and curl before bottoming out the bucket. Preventing contact reduces unproductive bucket shell wear
- Ensure the bucket is square to the face when loading to prevent corner loading and uneven bucket fill and GET wear
- Inspect GET daily and schedule maintenance before any damage occurs
- Inspect all weld daily, especially in the high wear areas

- Never operate a bare bucket
- Replace GET before it wears into the structural component it is protecting
- Ensure the best GET option has been selected for the application to maximize production
- In highly abrasive conditions ensure adequate wear protection

**Loaders**

**994 - 914**

**IT38 - Smaller**

**CAT**® **Ground  
Engaging Tools**

## **Operator Techniques & Your GET**

- ❑ Practice smooth operation
  - Fast, jerky motions can result in poor digging and loading. The resultant impact can damage equipment
  - Slower movements make the machine's operation smoother and more productive
  - Never charge the face. Excessive speed will damage the machine
- ❑ Maintain the bucket leveler
  - Buckets are designed to load with base edge parallel to the floor
  - Set the leveler parallel to the floor and do not override this position, it will change the operational envelope which:
    - > Changes the wear pattern
    - > Can cause unnecessary wear protection to be added
  - If the bucket is operated heel down
    - > Penetration is reduced
    - > Cycle times increase
    - > Bottom wear is increased
    - > Fuel consumption increases
    - > GET wears inefficiently
    - > Tire wear may increase

- ❑ If the bucket is operated with the nose down, it will increase penetration, however,
  - Wear is transferred to the top / inside of the bucket
  - On spade buckets tire wear can increase due to exposure to rocks on the pit floor
- ❑ Use first gear when loading
- ❑ Keep the bucket low to ground when entering the face or pile
- ❑ Minimize bucket ground contact until in the face
- ❑ Ensure the bucket is square to the face when loading to prevent:
  - Excessive corner loading and wear
  - Uneven bucket fill
  - Loading the articulation joint
  - Changing the wear pattern
- ❑ Minimize ground contact with the bucket. More contact equals unnecessary wear. Make the tips/edge do the work
- ❑ Do not curl the bucket in the pile before raising the lift arm. This will result in unnecessary bucket wear and inefficient bucket fill
- ❑ Inspect GET daily and schedule maintenance before any damage occurs
- ❑ Never operate a bare bucket
- ❑ Replace GET before it wears into the structural component it is protecting
- ❑ Ensure best GET option has been selected for the application to maximize production
- ❑ In highly abrasive conditions ensure adequate wear protection

## **Operator Techniques & Your GET**

- ❑ Practice smooth operation
  - Doze in 1st gear
  - Fast, jerky motions can result in poor digging and loading. The resultant impact can damage the machine
  - Slower movements make the machine's operation smoother and more productive
  - Never charge the face. Excessive impact will damage the machine
- ❑ Blades are designed to carry material, not to roll it
  - For initial loading, angle the blade forward for penetration.
  - As the blade fills, roll the blade back
  - Rolling the blade back will result in :
    - > The material being carried
    - > Raising the cutting edge to reduce contact with the ground and wear
  - Rolling the blade back to carry and NOT lifting the blade, will reduce GET life and wear into the bolts and nuts
- ❑ Minimize corner loading
  - Creates excessive wear on the end bit
  - Concentrates the stress on the machine in that corner

- ❑ The angle of wear on the end bit or cutting edge shows the angle of blade position
- ❑ Do not allow the GET to wear into the moldboard
- ❑ Inspect GET daily and schedule maintenance before any damage occurs. Never operate a bare blade or with excessively worn GET
- ❑ Ensure best GET option has been selected for the application to maximize production
- ❑ Ensure correct installation procedures are used
- ❑ Replace GET before it wears into the structural component it is protecting
- ❑ In highly abrasive conditions ensure adequate wear protection

## **Operator Techniques & Your GET**

- ❑ Practice smooth operation
  - Fast, jerky motions can result in poor ripping. The resultant impact can damage the machine
  - Slower movements make the machine's operation smoother and more productive
  - Never charge any difficult to rip area. Excessive speed will damage the machine or shank
  - Rip in 1st gear
- ❑ For initial penetration, rotate the shank rearward
- ❑ After initial penetration has been achieved, rotate the shank forward under the belly of the machine until the engine begins to stall then drop back slightly. This will help achieve:
  - Proper ripping depth
  - The correct ripping position
  - Maximum tip wear
  - Keep the tip sharp and maintain the rip depth
  - Using the weight of the machine to maximize production

- ❑ Ripping in the correct position with the shank rotated under the belly of the machine will also
  - Pocket the tip on the adapter
  - Prevent loading of the tip and protector pins
  - Reduce adapter nose wear
- ❑ Important things to remember:
  - **Never** turn with shank in the ground
  - **Never** back up with the shank in the ground
  - **Never** use the shank to stop the tractor
  - **Never** rip without a shank protector
- ❑ Keep the ripper box clear of the ripping area otherwise unnecessary wear will occur. This occurs when the ripping depth is too deep
- ❑ Rip down hill wherever possible to use the weight of the machine
- ❑ The tip wear will show the angle position of the shank during ripping
- ❑ Observing the shank position while ripping is a good indicator to help manage ripping position
- ❑ Inspect GET daily and schedule maintenance before any damage occurs
- ❑ Ensure best GET option has been selected for the application to maximize production
  - If the tips break regularly, use a shorter tip
- ❑ Ensure the correct installation procedures are being used
- ❑ Replace GET before it wears into the structural component it is protecting

## **Operator Techniques & Your GET**

- Practice smooth operation
  - Fast, jerky motions can result in poor ripping. The resultant impact can damage the machine
  - Slower movements make the machine's operation smoother and more productive
  - Never charge any difficult area or object. Excessive speed will damage the machine
- Speed + downward pressure = wear
  - Do not use excessive speed. Typically no more than 10 kph
  - Do not use excessive downward pressure
  - Use the accumulator to absorb shocks
- Cast angle affects productivity
- Blade angle affects cutting edge wear and productivity. Using the blade angle properly will reduce rim pull, fuel consumption and extend cutting edge life:
  - Blade forward for initial or better penetration
  - Top of moldboard just ahead of the cutting edge for most cutting applications
    - >24H = 4 inches
    - >Other = 2 inches
  - Roll the blade back to carry, spread or comb material. Roll right back to sharpen cutting edge

- >Do not cut in this position
  - >Results in excessive cutting edge wear, reduced penetration and can damage the moldboard and hardware
- Best position for cutting edge is 90 degrees to the road
- ❑ A fixed blade angle maintains constant cutting edge thickness for longer life
  - Frequent changes to blade angle wears the sharpened edge quickly and reduces life
- ❑ Use the thinnest edge possible to reduce fuel and tire consumption. Reduces horsepower required
- ❑ Effective use of rippers will reduce cutting edge wear
- ❑ Rip or cut the bottom of potholes to reestablish uniform road density which will allow the road material to bond
- ❑ Inspect GET daily and schedule maintenance before any damage occurs
- ❑ Never operate a bare moldboard or shank
- ❑ The cutting edge wear angle will show the blade position
- ❑ Replace GET before it wears into the structural component it is protecting
- ❑ Ensure the best GET option has been selected for the application to maximize production
- ❑ Ensure the correct installation procedures are being used

## **Operator Techniques & Your GET**

- Practice smooth operation
  - Fast, jerky motions can result in poor ripping. The resultant impact can damage the machine
  - Slower movements make the machine's operation smoother and more productive
  - Never charge any difficult area or object. Excessive speed will damage the machine
- Designed to operate differently to a Dozer
  - Designed to roll material
  - Back of blade to be vertical to the ground
  - Sole plate to be horizontal to the ground
  - GET is to sit flat on the ground
- The sole plate is designed to restrict penetration and recoil from the tires
- Rolling the blade back will:
  - Carry the material
  - Wear the back of the sole plate
  - Reduce GET life
  - May damage the moldboard and hardware
- Rolling the blade forward will:
  - Increase penetration
  - Wear the front of the sole plate
  - May damage the moldboard corners

- ❑ Inspect GET daily and schedule maintenance before any damage occurs
- ❑ Ensure best GET option has been selected for the application to maximize production
- ❑ Ensure the correct installation procedures are being used
- ❑ Replace GET before it wears into the structural component it is protecting
- ❑ In highly abrasive conditions ensure adequate wear protection

