Protect expensive machine components. Reduce your operating costs. And get the most out of your machine’s performance.

The most important part of any machine is its work tool. Buckets or blades, tips or edges, rippers or side cutters—no matter the size, work tools and G.E.T. are the main reason the machine exists. Ground engaging tools have a direct effect on the machine’s ability to produce. Improper selection affects not only your productivity, but your fuel consumption, maintenance costs and possibly the longevity of your equipment.

Caterpillar offers “off-the-shelf” and custom G.E.T. systems that maximize machine productivity, and your Cat® dealer can help you establish an effective management program that minimizes preventable problems—working to reduce your operating and maintenance costs.

Use this catalog to learn more about what’s available for your equipment, then work with your Cat dealer’s G.E.T. specialist or PSSR to select the components built for your industry and jobsite conditions. We’ll make sure you get the rugged durability, solid protection and lowest cost-per-ton production system you need.

**MADE FOR YOUR APPLICATION.**

**Protect expensive machine components. Reduce your operating costs. And get the most out of your machine’s performance.**

Caterpillar offers “off-the-shelf” and custom G.E.T. systems that maximize machine productivity, and your Cat® dealer can help you establish an effective management program that minimizes preventable problems—working to reduce your operating and maintenance costs.

**BUILT FOR IT.**

**Dozers**
- Cutting Edge & Blade Protection .......... 7
- Ripper System .................................. 13

**Motor Graders**
- Cutting Edges .................................... 25
- End Bit System ................................... 37
- Ripper-Scarifier System .................. 39

**Hydraulic Excavators**
- Tip & Adapter Systems .................... 47
- Base Edge Systems ......................... 61
- Side & Edge Protection ...................... 65
- Rip & Load System ......................... 75

**Wear Parts & A.R.M** ......................... 77

Part number reference can be found in Appendix (PEB30079)
ELECTRIC ROPE SHOVEL (ERS)
No other manufacturer in the world has more experience moving material than Caterpillar. We invented the dozer over 100 years ago—and we’ve been the market leader ever since. There are more Cat Dozers at work in the world than any other brand.

Dozers work in dozens of different industries, applications, climates and environments and can be customized for specific jobs—just like the G.E.T. that protects their blade or ripper system. For parts availability to expert support and service, Cat customers can count on one reliable source—Caterpillar and Cat dealers.
**SYSTEM OVERVIEW**

Dozers move ground at mines, construction sites, residential developments and hundreds of other places. A dozer’s main work tools are a blade and a ripper. The universal blade is curved, wide and tall so that it can carry material. Other blades are flat or shorter, but they all do a similar job: leveling the ground. The ripper loosens the rocky or compact earth, which makes dozing or loading easier.

Both the blade and ripper have to balance ground penetration with wear life. Excessive worktool or G.E.T. wear material can make the machine less effective. Cat dozer cutting edges and end bits are designed as a balanced system to move more material over a longer period with less downtime—which translates into a lower cost per hour for you. Select from dozens of ripping system configurations, or have your Cat dealer help you choose the best option for your application.

---

**SAFER, SIMPLER INSTALLATION**

Threaded holes allow easier handling of edges at first install or during rotation to wear opposite edge.

**MINIMAL THROW AWAY**

Multiple edge sections allow you to rotate or replace only the worn areas.

**IMPROVED PRODUCTIVITY**

Broad offerings allow you to have both end bit penetration and long cutting edge life, resulting in less maintenance.

---

**CUTTING EDGES & END BITS**

**BALANCED EDGE SYSTEMS FOR EVERY APPLICATION.**

Matching your cutting edge wear rates with your end bit selection is easy with our broad portfolio of options. You achieve a balanced system, which helps reduce both maintenance intervals and operating costs, leading to more productivity.

Cat end bits and cutting edges can be custom ordered with Cat Abrasion Resistant Material (A.R.M.), which is recommended for applications where sand, gravel or other abrasive materials severely diminish wear life. Hard tungsten carbide particles are bonded to critical wear areas, providing up to five times greater wear life than similar end bits and cutting edges without A.R.M. See your Cat dealer for details.
CUTTING EDGE & END BIT OPTIONS

We have G.E.T. for your blade, no matter the application or environment. As machines grow larger, their jobs become tougher, and so does Cat G.E.T. Maximum wear life and breakage resistance is possible with our steel alloy that can endure 2x the heat and pressure of traditional blade steel products. Consult your local Cat dealer to help determine the best cutting edge system for your application to give you the lowest cost per hour.

FINISH DOZING (LEVEL CUT)
- Recommended for finish and semi-finish dozing
- Matches cutting edge’s depth of cut
- Low-impact, low-abrasion materials only

UTILITY
- Lower initial price
- Flat plate design for applications where face wear is a continuing problem
- Acceptable in impact and high abrasion

GENERAL PURPOSE
- Baseline for other end bits (factory fit)
- Sharpened, forward-protruding profile for excellent penetration

EXTENDED WEAR LIFE (EWL)
- 25% more usable wear material than General Purpose end bits
- Prolonged life and excellent penetration in abrasive conditions

EXTREME EXTENDED WEAR LIFE (EEWL) - D10 & D11 ONLY
- 60% more wear material than EWL end bits on D11 (25% on D10)
- The mounting surface is machined for optimum flatness to provide improved bolt retention

A COUPLE MINUTES CAN SAVE YOU HOURS.

Ensuring a long life for your blade and the G.E.T. that protects it involves three simple steps. Clean surfaces, new hardware and proper installation technique are shared as tips and tricks below. Always follow the specific instructions for your machine. Your local Cat dealer is only a phone call away if you need assistance.

1) Clean and Pristine
- Surfaces, bolts and nut threads must be clean to ensure maximum clamping force
- When installing, use new hardware as old bolts may have suffered metal fatigue

2) Center Out
- Cutting edge bolts are installed from the center outward—do not install from both ends toward the center
- End bit bolts are installed first from the center outward, then from the center inward

3) Torque, Bang, Torque
- Tighten all bolts to the required torque
- Wearing safety goggles, seat bolt heads in the countersinks with a heavy hammer
- Tighten the bolts again to required torque
BLADE PROTECTION

PUSH BACK ON COSTLY REPAIRS.

Protect your blades from impact and aggressive wear with the line of Cat blade protection for dozers. All Cat blade products are manufactured to the factory contour, making fit and installation fast and efficient.

REDUCE BLADE DAMAGE

Push plates distribute the high forces created when pushing scrapers.

EXTEND BLADE SERVICE LIFE

Wear plates extend the service life of the blade “skin” in highly abrasive conditions.

SIMPLIFY INSTALLATION

Cat wear bars are 450 BHN and beveled to accept weld bead—a fast way to add strength and protection.

BLADE MAINTENANCE & REPAIR

INVEST IN YOUR FUTURE.

Only a Cat cutting edge support will guarantee dimensional accuracy like the factory originals. Cutting edges and end bits are fastened to your cutting edge support. This bolted connection requires a perfectly flat and smooth surface the full length of the blade to ensure your G.E.T. stays secure. When millimeters matter, count on Cat quality and your Cat dealer’s capabilities.

WEAR BARS

WEAR PLATES

PUSH PLATES
SIDEBAR PROTECTOR
Dozers need sidebar protection, too. Large dozers, like large loaders, work in high-impact and extreme abrasion. Increase carrying capacity and simplify your blade maintenance with hammerless protection. Simply weld in the protector adapter once and save hours each time you replace the sidebar protection.

LOW MAINTENANCE
Protects the blade edge and extends sidebar reach to reduce maintenance cost and increase capacity.

HAMMERLESS
Fast, easy removal and installation. Reduces risk of injury.

RIPPER SYSTEMS
CAUSE A DISTURBANCE, GAIN PRODUCTIVITY.
Selecting the proper ripping tools can make the difference between just being able to rip a material and being able to reach optimum efficiency and maximum production (lowest cost/yd³). Production ripping (>20% of operation) usually requires a single shank ripper, as do very hard or tightly compacted materials. The more varied the job conditions, the greater the need for the multishank ripper. The multishank is especially useful in pre-ripping for scrapers or other loading tools.

LOWER OPERATING COSTS
Hammerless design allows pin re-use on J style adapters.

HAMMERLESS DESIGN
Fast, easy removal and installation. Reduces risk of injury.

For more information on ripper systems, please reference The Handbook of Ripping (AEDK0752).
RIPPER SYSTEM AVAILABILITY

Tooth penetration can be the key to ripping success. That’s why we offer a variety of tip styles and profiles. Our alloy steel tips withstand higher operating temperatures and are also self-sharpening. Shank protection helps you cut the material and extend your maintenance intervals. The products below are readily available, or you can consult your Cat dealer for custom options.

<table>
<thead>
<tr>
<th>TIP OPTIONS</th>
<th>R350</th>
<th>R450</th>
<th>R500</th>
<th>R550</th>
</tr>
</thead>
<tbody>
<tr>
<td>Centerline - Short</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Centerline - Intermediate A.R.M.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Centerline - Long</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Centerline - Sharp Limestone</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Centerline - Sharp A.R.M.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Penetration - Short</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Penetration - Intermediate A.R.M.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Penetration - Long</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Penetration - Sharp</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SHANK PROTECTOR

<table>
<thead>
<tr>
<th></th>
<th>R350</th>
<th>R450</th>
<th>R500</th>
<th>R550</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protector - Long (110mm Shank)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protector - Std (110mm Shank)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protector - Long (100mm Shank)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Multi pc Sharp &amp; Guard (100mm Shank)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protector - Std (100mm Shank)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protector - Long (90mm Shank)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protector - Std 1 pin (80mm Shank)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protector - Std 2 pin (80mm Shank)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protector - Long (80mm Shank)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protector - Sharp (75mm Shank)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protector - Std (75mm Shank)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protector - Long (75mm Shank)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protector - Sharp (73mm Shank)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

HAMMERLESS RIPPER TIPS CAPSURE RETENTION

Always use the longest tip without excessive breakage. Centerline tips have equal wear material on both sides and can be reversed, which can extend the life and help maintain sharpness. Cat penetration ripper tips have an aggressive angle to break through even the hardest surfaces and dig into the ground more effectively. Both hammerless options feature a topside deflector, which creates a smooth transition with the Shank protector.

SHORT CENTERLINE
• Used in extreme impact conditions
• Sacrifices some wear material

INTERMEDIATE CENTERLINE
• Used for moderate impact and abrasion conditions
• 33% longer than Short Centerline

INTERMEDIATE PENETRATION
• Used for moderate impact and abrasion conditions

LONG PENETRATION
• Designed for low-impact, highly abrasive conditions where breakage is not a problem
• 20% longer than Intermediate Penetration
J SERIES TIP OPTIONS

Always use the longest tip without excessive breakage. Centerline tips have equal wear material on both sides and can be reversed, which can extend the life and help maintain sharpness. Cat penetration ripper tips have an aggressive angle to break through even the hardest surfaces and dig into the ground more effectively.

SHORT CENTERLINE
- Used in extreme impact conditions
- Sacrifices some wear material

INTERMEDIATE CENTERLINE
- Used for moderate impact and abrasion conditions
- 17% more wear material than Short Centerline

LONG CENTERLINE
- Used in low impact, high abrasion where breakage is not a problem
- 30% more wear material than Intermediate Centerline

SHARP CENTERLINE A.R.M.
- Intermediate Centerline tip, which is tapered to a pick-like point on the end
- A.R.M. strip on one side enhances sharpening action
- Offers best penetration and 13% more wear material than the Short Centerline

SHARP LIMESTONE
- Used in limestone or caliche applications
- Chisel point penetrates in hard-to-penetrate materials
- 16% more wear material than Short Centerline and 10mm shorter than Intermediate Centerline tip

SHORT PENETRATION
- Used in extreme impact conditions
- Sacrifices some wear material

INTERMEDIATE PENETRATION
- 17% more wear material and 50mm longer than Short Penetration
- Used for moderate impact and abrasion conditions

LONG PENETRATION
- Used in low impact, high abrasion where breakage is not a problem
- 4% more wear material and 47mm longer than Intermediate

SHARP PENETRATION
- Intermediate Penetration length tip
- Factory sharpened to ensure maximum penetration

INSTALLATION & REMOVAL

Hammerless removal and installation is possible with your current side pin Shank/adapter system. CapSure™ retention is built into each tip, so you only need to insert a pin to experience faster, safer, and easier tip change out.

Insert pin into adapter hole.
Insert washer into adapter hole.
Slide the tip onto adapter.
Turn retainer 180° to lock/unlock.

Removal and installation animation is available at www.youtube.com/watch?v=UW6_jpqa_eA or by scanning the QR code to the right.
RIPPER SHANK PROTECTOR
WANT BETTER PRODUCTIVITY WITH LESS COST? WE’VE GOT YOU COVERED.
Shank protectors cut through material with sharp edges, lowering the ripping effort.
Minimize the wear, and required maintenance, on the more expensive shank body when
you guard it with a protector. Never rip without Cat G.E.T. Our hammerless options offer
fast, easy removal and installation without specialty tools.

SHARPENED PROFILE
Cuts through tough and compact materials causing lower ripping resistance and horsepower loss.

EXTENDED PROTECTORS
60% more coverage.

FULL LENGTH
Triangle-shaped guard-bar integrates with sharp lower protector for maximum ripping protection.

INSTALLATION & REMOVAL
The J Series Tooth and Adapter system uses the standard pin and retainer system. The Tooth Pin Remover tool is available to make removal easier.

1 Place the tool on the tip and align the extractor with the pin.
2 Strike the tool with a hammer until the pin is removed.

Single shank machine
RIPPER SHANK PROTECTOR OPTIONS

Four different protection options align with the tractor’s ripping system and the most common applications.

<table>
<thead>
<tr>
<th>GENERAL PURPOSE</th>
<th>PIN ON</th>
<th>HAMMERLESS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline protector R350 and R450 only</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SHARP</th>
<th>PIN ON</th>
<th>HAMMERLESS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Penetrates compact material better than standard design</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hammerless option has 40% more wear material than side pin version</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>EXTENDED PROTECTOR</th>
<th>PIN ON</th>
<th>HAMMERLESS</th>
</tr>
</thead>
<tbody>
<tr>
<td>60% more shank protection than Sharp</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>INTEGRATED SHARP</th>
<th>PIN ON</th>
</tr>
</thead>
<tbody>
<tr>
<td>Works with triangle-shaped bar to provide complete shank protection</td>
<td></td>
</tr>
</tbody>
</table>

INSTALLATION & REMOVAL

Hammerless retention made simple. The CapSure™ locking system allows for safer and easier removal/installation in four steps.

1. Insert pins and washer into shank hole.
2. Place shank protector over lower pin.
3. Position retainer over upper pin.
4. Turn retainer 180° to lock/unlock.

Removal and installation animation is available at www.youtube.com/watch?v=UW6_jqa_eA or by scanning the QR code to the right.

Scan the QR code to watch the installation video.
We offer hundreds of cutting edge options available on the shelf, plus the ability to customize through our Made as Order (MAO) program. Unique offerings like the Cat GraderBits™ system meet the toughest application needs and are complemented by multiple End Bit options. Trust your Cat dealer to offer you solutions that focus on total machine productivity.
CHOOSING AN EDGE

Edge selection is critical for enhancing production and keeping cost to a minimum. Application affects the cutting edge shape, metallurgy and style. Impact, penetration and abrasion define your application environment. An edge has to penetrate the material and not break during operation. Edge life then becomes a matter of metallurgy and thickness.

WHAT IS YOUR APPLICATION?

DEVELOPING A ROAD OR PERFORMING HEAVY MAINTENANCE
• A flat edge is best suited for this application. A better penetrating option is a flat serrated edge. A flat edge has limited ability to carry material forward.

GRADING HARD-PACKED GRAVEL, FROZEN EARTH AND ICE
• A serrated edge penetrates better than a continuous edge because it exerts more down pressure. A curved serrated edge penetrates better than a flat serrated edge with a forward mold board.

RECONDITIONING OR FINISH GRADING AN EXISTING ROAD SURFACE
• Curved edges penetrate the roadway while carrying existing material forward to leave a smooth flat surface. A better penetrating option is a curved serrated edge. A serrated edge will not leave as clean a roadway surface as a continuous edge.
THROUGH-HARDENED CUTTING EDGES

Most Cat edges are through-hardened steel, which offers high-impact resistance. High-carbon edges have good surface hardness and perform well in high-abrasion, low-impact applications such as finish work. High-carbon edges will not withstand the impact level of a through-hardened edge.

For the most severe impact conditions, they can be installed over a 6” (152 mm) edge for improved resistance to tooth breakage.

FLAT
- Heavy road maintenance and pioneering
- Maximum strength and available wear material
- Best option for abrasion and impact resistance

FLAT SERRATED
- Better penetration than a continuous edge (greater down pressure per inch of edge contact)
- Designed to penetrate packed gravel, frozen earth and ice
- For severe impact conditions, install over a 6” (152 mm) edge to reduce tooth breakage

CURVED
- Provides superior penetration and rolling action necessary for fine grading and finish work
- Finishing tolerances less than 1/4” (6 mm)—the best value may be in selecting a narrow and thin cutting edge

CURVED SERRATED
- A curved serrated edge penetrates better than a straight serrated edge with a forward mold board

EDGE WIDTH EQUALS WEAR MATERIAL
- An 8” (203 mm) edge provides twice the wear material as a 6” (152 mm) edge at about 35% more cost
- Hardware cost and R&I downtime are reduced by 50%

TUNGSTEN CARBIDE TILE CUTTING EDGES

Cat Tungsten Carbide Cutting Edges combine through-hardened steel with the wear resistance of tungsten carbide. When used in high-abrasion, low-impact applications, they can provide up to 20 times the life of a standard through-hardened edge. Fewer edge changes means less downtime and lower hardware costs.

TUNGSTEN CARBIDE EDGES
- Tungsten carbide edges have a continuous row of trapezoid-shaped carbide “tiles.” This patented shape forms a leading / cutting edge
- Carbide tile bottom must be flat to the ground. 20° maximum tilt
- Max 5 mph/8kph
- Do not use on roads with large embedded rocks

FLAT EDGES
- Maximum strength and available wear material
- Longest wearing edge available in high abrasion and low impact

CURVED EDGES
- Curved-edge design improves penetration and rolling action
- Trapezoid-shaped tungsten carbide tile on leading edge stays sharp as it wears
- Shorter edge sections speed rotation and reduce “throw-away” due to edge crowning

SERRATED EDGES
- Better penetration than a continuous edge (greater down pressure per in² of edge contact)
- No cast angle restrictions
TUNGSTEN CARBIDE INSERT CUTTING EDGES

Cat carbide insert edges offer long wear life in higher speed applications like state/county road snow removal. The tungsten carbide is brazed into a milled groove in the center of the edge. The design offers impact resistance and minimizes edge “crowning” in applications that require a level grading operation.

GRADERBIT SYSTEM

SMOOTH OUT THE TOUGHEST ROADWAYS IN A SINGLE PASS.

The Cat GraderBit edge system outperforms steel blades in high-production road reconditioning applications. Individual cutting bits are faced with tungsten carbide to form a serrated edge to penetrate and lift material to the surface immediately. As a result, most road maintenance jobs can be accomplished in a single pass.

MORE PRODUCTION, LESS WASTE

Cuts through tough and compact materials causing lower ripping resistance and horsepower loss.

CUSTOMIZABLE

Create edge patterns that deliver optimum performance.

LONGER LIFE

Up to 10x more wear life than a 10” edge.
INSTALLATION & REMOVAL

Operators can install the entire system in about an hour and field-replace individual bits in minutes without removing the moldboard. Varying bit widths allow you to create both serrated and continuous edge configurations. GraderBits do not require daily inspection like rotating bit systems.

1. Bit insertion into adapter board.

2. GraderBits are held in place with a snap ring.

3. Adapter boards bolt up to the moldboard like standard edges.

4. Keep bits perpendicular to the road surface. The cast angle is not to exceed 10°, penetration depth 1 1/2” Max, Max 6 mph/10kph.

GRADERBIT SYSTEM

GraderBit adapter board options are 3’ (914mm) and 4’ (1219mm) sections. Two hole-spacing patterns are available to control aggregate flow. Standard boards are used for most roadways, and the mining board hold pattern is 50% wider to accommodate large aggregate in mine environments.

STANDARD BITS
- Baseline Bit - 30mm wide
- Moderate penetration
- Standard Board Bit Gap: 32mm
- Mining Board Bit Gap: 48mm

PENETRATION BITS
- Narrower than standard bit - 23 mm wide
- Wider gap allows larger aggregate to flow through
- Standard Board Bit Gap: 40mm
- Mining Board Bit Gap: 55mm

SHARP BITS
- 50% narrower than the standard bit - 15.5 mm wide
- Allows larger aggregate to flow through
- Standard Board Bit Gap: 45mm
- Mining Board Bit Gap: 62mm

WIDE BITS
- Can configure as a continuous edge
- Twice as wide as the standard bit (60 mm)
- Standard Board Bit Gap: 3mm
- Mining Board Bit Gap: 18mm

MIX AND MATCH
- Mix and match bits to control the size of the aggregate left behind
- Use wide bits on the end of the moldboard to prevent excessive wear
MINING BIT SYSTEM

The Mining Bit System works like the GraderBit system, but is upgraded to withstand the extreme applications faced by large motor graders (16M and 24M).

**DOUBLE CARBIDE, NO RESTRICTIONS**

Protects the face and bottom of the bit, eliminating vast angle restrictions.

**INTEGRATED DESIGN**

Bit profile helps maintain proper grading angle.

---

ROTATING BIT SYSTEM

The rotating bit system outperforms steel blades in high-production road reconditioning applications. Individual cutting bits have tungsten carbide tips and form a serrated edge to penetrate and lift material to the surface immediately. As a result, most road maintenance jobs can be accomplished in a single pass.

**MORE PRODUCTION, LESS WASTE**

Material is brought to the surface for reuse, reducing the expense of spreading new gravel.

**NO RESTRICTIONS**

No cast angle restriction.

**EASY INSTALL & MAINTENANCE**

Bits changed individually with no special tools.
ROTATING BIT SYSTEM

Rotating Scarifier Bits are self-sharpening for more uniform wear and long life. Cutting height is maintained as cutting tools may be rotated from position to position. Carbide bits can last as long as 5-10 sets of conventional grader blades.

Rotating Scarifier Bits are made for applications such as dirt and gravel reclamation, oil road reclamation, and snow and ice removal.

1" SHANK
- Smooth design

3/8" SHANK
- Engineered with flat sides that aid in bit rotation

ADAPTER BOARDS
- Either 3/8" or 1/2" bolt hole punch
- 3’ (914mm) – 21 bits
- 4’ (1219mm) – 28 bits
- Standard Board uses 7/8” bit
- Heavy Duty board uses 1” bit

OPERATING TIPS
- 20° Board Angle
- Moldboard may vibrate and bits may not turn if angle is not correct

INSTALLATION & REMOVAL

Improve safety and simplify edge change-out. Cat cutting edges allow you to use a threaded bolt and link to remove and install sections. Even worn edges can be removed, because the threads are located in the back half of the hole.

1. Drilled and tapped holes.
2. Attach approved lifting device.
3. Lift.

ROTATING BIT SYSTEM

Rotating Scarifier Bits are self-sharpening for more uniform wear and long life. Cutting height is maintained as cutting tools may be rotated from position to position. Carbide bits can last as long as 5-10 sets of conventional grader blades.

Rotating Scarifier Bits are made for applications such as dirt and gravel reclamation, oil road reclamation, and snow and ice removal.

1" SHANK
- Smooth design

3/8" SHANK
- Engineered with flat sides that aid in bit rotation

ADAPTER BOARDS
- Either 3/8" or 1/2" bolt hole punch
- 3’ (914mm) – 21 bits
- 4’ (1219mm) – 28 bits
- Standard Board uses 7/8” bit
- Heavy Duty board uses 1” bit

OPERATING TIPS
- 20° Board Angle
- Moldboard may vibrate and bits may not turn if angle is not correct

INSTALLATION & REMOVAL

Improve safety and simplify edge change-out. Cat cutting edges allow you to use a threaded bolt and link to remove and install sections. Even worn edges can be removed, because the threads are located in the back half of the hole.

1. Drilled and tapped holes.
2. Attach approved lifting device.
3. Lift.
OPERATING TECHNIQUES FOR REDUCED COST.
Through better management of the interface between machine and materials, operators can maximize productivity, lower machine operating costs and reduce cab vibration, improving operator comfort.

END BIT SYSTEM
PUT AN END TO MOLDBOARD WEAR.
Made of through-hardened DH-2 steel for added strength and service life, Cat end bits protect moldboard edges from wear.

MOLDBOARD POSITION
- Start with moldboard 2” (4” for 24H) ahead of the edge
- Grade with cutting edge 90° to the road
- Maintain fixed angle to ensure constant edge thickness
- Laid back reduces penetration and can wear moldboard
- Frequent angle changes will shorten the edge life

SPEED AND EXCESSIVE DOWN PRESSURE
- Use accumulator to absorb shocks
- < 6mph/8kph speed
- Excess speed can cause edge slivering

Need penetration? Choose a thinner edge, a serrated edge or the Cat GraderBits System for the most compacted materials.

CROWNING
- Occurs when the cutting edge conforms to the material being graded
- A narrow and thin edge reduces the “throw away” material
- Extreme crowning may require a bit system

STANDARDIZE YOUR HARDWARE
- Moldboard bushings reduce ¾” holes to 5/8”
- Simplify inventory and lower cost
END BIT SYSTEM

Maximize moldboard life and lower repair costs. Use Cat end bits, overlays, repair plates and hardware to protect and repair your moldboards and working edges.

Table:

<table>
<thead>
<tr>
<th>BIT TYPE</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>MOLDBOARD END BITS</td>
<td>• Recommended for all applications</td>
</tr>
<tr>
<td></td>
<td>• Made of through-hardened DH-2 steel for added strength and service life</td>
</tr>
<tr>
<td>OVERLAY END BITS</td>
<td>• Fit over existing end bit</td>
</tr>
<tr>
<td></td>
<td>• Recommended for applications such as ditching</td>
</tr>
<tr>
<td></td>
<td>• Add strength and limit corner wear</td>
</tr>
<tr>
<td></td>
<td>• When worn on one side, overlay end bits can be rotated for a second wear life</td>
</tr>
<tr>
<td>MOLDBOARD REPAIR PLATES</td>
<td>• Extend moldboard life with Cat Moldboard Repair Plates</td>
</tr>
<tr>
<td></td>
<td>• Routine monitoring and timely edge replacement can prevent damage</td>
</tr>
<tr>
<td></td>
<td>• When repair is needed, repair plates provide a way to extend moldboard life</td>
</tr>
<tr>
<td>HARDWARE</td>
<td>• When replacing ground engaging tools, always use Cat hardware regardless of the application</td>
</tr>
<tr>
<td></td>
<td>• Cat Grade 8 hardware is performance-matched to Cat G.E.T. in both strength and durability</td>
</tr>
</tbody>
</table>

RIPPER-SCARIFIER SYSTEM

GET MORE OUT OF YOUR GRADER.

Scarifier and ripper systems on motor graders can be used to improve road surfaces by lifting material from compacted and worn areas or by removing the “crowning” that causes excessive wear on cutting edges.

Table:

<table>
<thead>
<tr>
<th>Benefit</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENHANCE PRODUCTION</td>
<td>Loosen material to reduce grading time and fill voids while saving on edge wear.</td>
</tr>
<tr>
<td>EXTEND VERSATILITY</td>
<td>Reduce need for dozer ripping or cutting bit systems.</td>
</tr>
</tbody>
</table>
RIPPER-SCARIFIER COMPONENTS

Scarifiers can be mounted before the blade (V-Block design) or behind the machine (Straight Block design). Rear-mounted ripper-scarifiers are more versatile than forward-mounted configurations. Rip or scarify by changing shank position.

**V-BLOCK**
- Loosen compacted surfaces, rocky subgrades and frozen ground
- Fit ahead of the blade (mid mount)
- Holds up to 11 shanks and scarifies up to 46” (1168 mm) wide

**STRAIGHT BLOCK**
- Low-impact applications and shallow scarifying
- Higher allowable speed (up to 3rd gear) in shallow
- Holds up to 17 shanks and scarifies up to 72” (1828 mm) wide
- May be used as a mid-mount scarifier

**SCARIFIER TIPS**
- We offer three types of scarifier tips for surface reconditioning.
  - Tip has a tapered design that secures it to the shank.
  - Through-hardened tips for general purpose scarifying
  - Heavy-Duty for deep penetration and extended distances
  - A.R.M. for high abrasion/low impact extends tip life 3 to 5 times over through-hardened

**SCARIFIER SHANKS**
- Through-hardened and tempered to resist wear, bending and breakage
- Front or rear notch for V-Block or Straight Block
- Standard or extended lengths

RIPPER SYSTEMS

Caterpillar offers two options for the R350 ripper tip size class for 16M and 24M motor graders. Due to the extreme nature of maintaining haul roads, scarifiers are not offered on 16M and 24M.

**CENTERLINE** tips have equal wear material on both sides and can be reversed, which can extend the life and help maintain sharpness.

**PENETRATION** ripper tips have an aggressive angle to break through even the hardest surfaces and dig into the ground more effectively.

**PENETRATION - SHARP** tips are an intermediate length. They come factory sharpened to ensure maximum penetration.
INSTALLATION & REMOVAL

The J Series Tooth and Adapter system uses the standard pin and retainer system. The Tooth Pin Remover tool is available to make removal easier.

1. Place the tool on the tip and align the extractor with the pin.

2. Strike the tool with a hammer until the pin is removed.
Cat Hydraulic Excavators are the most versatile machines on the jobsite, working in applications ranging from small landscaping projects to large surface extraction mines—and everywhere in between. Together, Cat buckets and G.E.T. make up the only bucket system designed and developed to optimize hydraulic excavator performance and your productivity. Rely on your Cat dealer for expert support and service for your specific application.
SYSTEM OVERVIEW

Hydraulic excavators are extremely versatile machines used for a variety of purposes, from grading to mass excavation to demolition work. A hydraulic excavator’s main work tool is a bucket, but these machines can also be equipped with hydraulic couplers to pick up a variety of tools.

Balancing your desired productivity/penetration with the wear life of your system is critical. Excessive wear material can reduce productivity and increase fuel burn. Cat hydraulic excavator buckets and G.E.T. are designed as a balanced system to increase life while minimizing drag.

TIP SELECTION GUIDE

Even though bucket tips come in many shapes and sizes, you don’t have to be an expert to choose the right ones. Use the chart below to determine if the material you’re digging in is high, medium or low impact and abrasion—then find the balance you need among these three factors:

1. STRENGTH
   - The ability to withstand digging and penetrating shocks and high breakout forces
2. PENETRATION
   - The ability to penetrate tough material when it’s tightly compacted, rocky or frozen
3. WEAR LIFE
   - The ability to withstand wearing, scouring and abrasive action of the material being handled

<table>
<thead>
<tr>
<th>IMPACT (material size)</th>
<th>ABRASION (tip life)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMALL HEX (311-319)</td>
<td>&gt; 1,000 hours</td>
</tr>
<tr>
<td>MEDIUM HEX (320-329)</td>
<td>250 - 1,000 hours</td>
</tr>
<tr>
<td>LARGE HEX (336-390)</td>
<td>&lt; 250 hours</td>
</tr>
</tbody>
</table>

- LOW: 0 - 1” | 0 - 25 mm 0 - 6” | 0 - 150 mm
- MEDIUM: 1 - 3” | 25 - 75 mm 3 - 8” | 75 - 200 mm 6 - 12” | 150 - 300 mm
- HIGH: 3” | 75 mm+ 8” | 200 mm+ 12” | 300 mm+
K SERIES TIP & ADAPTER SYSTEM

MAXIMUM PRODUCTIVITY MEETS HAMMERLESS RETENTION.
Looking for a vertical retention tip and adapter system that stays sharper, changes easier and holds tighter? Choose the K Series system’s twist-on design and vertical retainer, which together provide reliable retention and easy installation and removal.

**IMPROVE YOUR PRODUCTIVITY**
Low-profile shape provides optimal sharpness, penetration and digging ability throughout the tip life.

**EXTEND LIFE**
More wear material can effectively be used before the tips are changed, adding 10-15% more usable life.

**INCREASE DURABILITY**
The tip and adapter fit together precisely to reduce tip movement and adapter wear.

**STAY SAFE & REDUCE MAINTENANCE COSTS**
One-piece vertical retainer allows for hammerless installation and removal, with only standard, low-force tools needed.

**SIMPLIFY INSTALLATION**
Rails on both sides of the adapter and a twist-on design hold the tip in place, allowing for quicker installation.
K SERIES DRIVE-THROUGH TIP & ADAPTER SYSTEM

INSTALLATION & REMOVAL
It's safe and easy—just use a standard pry tool and follow this three-step hammerless process:

1 INSERT RETAINER
2 HAMMER RETAINER
3 SECURE RETAINER

Scan the QR code to the right to watch the installation video.

K SERIES HAMMERLESS TIP & ADAPTER SYSTEM

INSTALLATION & REMOVAL
It's safe and easy—just use a standard pry tool and follow this three-step hammerless process:

1 INSERT RETAINER
2 PRESS DOWN RETAINER
3 REMOVE RETAINER

Scan the QR code to the right to watch the installation video.

Lower-profile tip
Twist-on design
No hole in adapter
Drive-through retainer

Twist-on design
Standard Hammerless Retainer
No hole in adapter
Retainer - Bolt Drive

* Additional offering offered only for the extreme packing and slag applications.
K SERIES TIP OPTIONS

Below are the tip shapes best suited for the wide range of jobsite conditions performed by hydraulic excavators. We also offer additional K Series tips more commonly used with wheel loaders. Your Cat dealer can help you choose the one that offers the right balance of penetration and wear life for your application.

**EXTRA DUTY**
- **Extra Duty** and **Extra Duty Abrasion Resistant Material (A.R.M.)** tips include approximately 60% more wear material in the tip body. The A.R.M. wears around the profile to increase penetration.

**GENERAL DUTY**
- **General Duty** tips are symmetrical and the baseline for other tip styles. All wear comparisons are to the General Purpose tip unless otherwise noted.

**WIDE**
- **Wide** tips are used to maintain smooth trench floors and in low-abrasion, easy-to-penetrate material.

**PENETRATION PLUS**
- **Penetration Plus** tips feature 25% more wear material and a leading edge with 25% less cross-sectional area. They self-sharpen as they wear.

**PENETRATION**
- **Penetration** tips are ideal for densely compacted materials. They feature a leading edge with 60% less cross-sectional area—allowing for maximum penetration—and a single center rib that self-sharpen as it wears. These tips are available with A.R.M.*

**SPIKE**
- **Spike** tips are used to achieve maximum penetration. They are typically used in cohesive material and stay sharp during the life of the tip.

**DOUBLE SPIKE**
- **Double Spike** tips are used the corner positions with the spike tips for hard-to-penetrate, fracturable materials.

**K SERIES ADAPTER OPTIONS**

All K Series adapters feature rails on both sides of the nose for a twist-on design that stays in place during installation.

**MACHINE COMPATIBILITY**

<table>
<thead>
<tr>
<th>EXCAVATOR</th>
<th>LINKAGE</th>
<th>SIZE CLASS</th>
</tr>
</thead>
<tbody>
<tr>
<td>315</td>
<td>N/A</td>
<td>K80, K90</td>
</tr>
<tr>
<td>318</td>
<td>N/A</td>
<td>K80, K90</td>
</tr>
<tr>
<td>320</td>
<td>Reach</td>
<td>K80, K90</td>
</tr>
<tr>
<td>324</td>
<td>Mass Excavation</td>
<td>K100, K110</td>
</tr>
<tr>
<td>329</td>
<td>Reach</td>
<td>K100, K110</td>
</tr>
<tr>
<td>336</td>
<td>Mass Excavation</td>
<td>K110, K130</td>
</tr>
<tr>
<td>349</td>
<td>Reach</td>
<td>K110, K130</td>
</tr>
<tr>
<td>374</td>
<td>Mass Excavation</td>
<td>K130</td>
</tr>
<tr>
<td>390</td>
<td>Reach</td>
<td>K150</td>
</tr>
</tbody>
</table>

*Abrasion Resistant Material (A.R.M.) is a welding process that bonds very hard tungsten carbide particles to Cat G.E.T. to create a protective shield over the component. Typically, the A.R.M. process doubles wear life—and can last even longer in some applications.
J SERIES TIP & ADAPTER SYSTEM

SIDE-PIN SECURITY WHEN YOUR APPLICATION DEMANDS IT.
Great performance and proven reliability over time—that’s what you get with this classic horizontal retention system, a staple in the construction and mining industries.

BOOST YOUR VERSATILITY
Industry-standard side-pinned design performs across a variety of applications.

ENHANCE YOUR RELIABILITY
Weld-on adapters offer excellent retention.

IMPROVE SAFETY & MAINTENANCE TIME
Ability to retrofit means you can use the hammerless CapSure™ system.
J SERIES TIP & ADAPTER SYSTEM

Below are the tip shapes best suited for the wide range of jobsite conditions performed by hydraulic excavators. We also offer additional J Series tips more commonly used with wheel loaders. Your Cat dealer can help you choose the one that offers the right balance of penetration and wear life for your application.

- **Abrasion Resistant Material (A.R.M.)** is a welding process that bonds very hard tungsten carbide particles to Cat G.E.T. to create a protective shield over the component. Typically, the A.R.M. process doubles wear life—and can last even longer in some applications.

### J SERIES TIP OPTIONS

**HEAVY DUTY LONG**
- Heavy Duty Long and Heavy Duty Abrasion Resistant Material (A.R.M.)* tips include approximately 60% more wear material in the tip body. The A.R.M. wears around the profile to increase penetration.

**LONG (GENERAL DUTY)**
- Long tips are symmetrical and the baseline for other tip styles. All wear comparisons are to the Long tip unless otherwise noted.

**WIDE**
- Wide tips are used to maintain smooth trench floors and in low-abrasion, easy-to-penetrate material.

**PENETRATION PLUS**
- Penetration Plus tips feature 30% more wear material and 25% less cross-sectional area. They self-sharpen as they wear.

**PENETRATION**
- Penetration and Penetration A.R.M.* tips are ideal for densely compacted materials. They feature a leading edge with approximately 50% less cross-sectional area and a single center rib for strength—allowing for maximum penetration.

**SPIKE**
- Spike tips are used to achieve maximum penetration. They are typically used in cohesive material and stay sharp during the life of the tip.

**SPIKE CORNER**
- Spike Corner tips can be used in the corner position with sharp center tips.

**DOUBLE SPIKE**
- Double Spike tips are used the corner positions with the spike tips for hard-to-penetrate, fracturable materials.

**ABRASION IMPACT**

- Long tips are symmetrical and the baseline for other tip styles. All wear comparisons are to the Long tip unless otherwise noted.

- Heavy Duty Long and Heavy Duty Abrasion Resistant Material (A.R.M.)* tips include approximately 60% more wear material in the tip body. The A.R.M. wears around the profile to increase penetration.

- Penetration Plus tips feature 30% more wear material and 25% less cross-sectional area. They self-sharpen as they wear.

- Penetration and Penetration A.R.M.* tips are ideal for densely compacted materials. They feature a leading edge with approximately 50% less cross-sectional area and a single center rib for strength—allowing for maximum penetration.

- Spike tips are used to achieve maximum penetration. They are typically used in cohesive material and stay sharp during the life of the tip.

- Spike Corner tips can be used in the corner position with sharp center tips.

- Double Spike tips are used the corner positions with the spike tips for hard-to-penetrate, fracturable materials.

*Abrasion Resistant Material (A.R.M.) is a welding process that bonds very hard tungsten carbide particles to Cat G.E.T. to create a protective shield over the component. Typically, the A.R.M. process doubles wear life—and can last even longer in some applications.

**INSTALLATION & REMOVAL**

Simply use the standard pin and retainer system—and make removal even easier with our Tip Pin Remover tool.*

1. Place the tool on the tip and align the extractor with the pin.
2. Strike the tool with a hammer until the pin is removed.
3. Place the tool over the tip (A), locate the pin in the hole of the holder (B) and strike the tool (C).
Side-pin retrofit design used on J-style adapters means the pin is reusable.

A ¾-inch retainer lock requires no special tools and allows for hammerless installation and removal.

Positive stop is cast into the tip to prevent over-rotation—just turn 180 degrees to lock or unlock.

Tip and retainer are one system, so there’s no special assembly or extra pieces.

---

**HAMMERLESS TIP & ADAPTER SYSTEM**

**FEATURING CAPSURE RETENTION**

LOSE THE HAMMER, NOT THE FLEXIBILITY.
Simplify bucket tip replacement with hammerless CapSure retention. These tips are matched to side-pin adapters, allowing the flexibility to use our conventional pin retention if your application demands it.

LOWER OPERATING COSTS
Side-pin retrofit design on J-style adapters means the pin is reusable.

ENHANCE JOBSITE SAFETY & MAINTENANCE TIME
A ¾-inch retainer lock requires no special tools and allows for hammerless installation and removal.

CHANGE OUT TIPS QUICKLY & EASILY
Positive stop is cast into the tip to prevent over-rotation—just turn 180 degrees to lock or unlock.

SPEED UP YOUR INSTALLATION TIME
Tip and retainer are one system, so there’s no special assembly or extra pieces.

---

**J SERIES MACHINE COMPATIBILITY**

<table>
<thead>
<tr>
<th>EXCAVATOR</th>
<th>LINKAGE</th>
<th>SIZE CLASS</th>
</tr>
</thead>
<tbody>
<tr>
<td>312</td>
<td>N/A</td>
<td>J250, J300</td>
</tr>
<tr>
<td>315</td>
<td>N/A</td>
<td>J250, J350</td>
</tr>
<tr>
<td>318</td>
<td>N/A</td>
<td>J300, J350</td>
</tr>
<tr>
<td>320</td>
<td>Reach</td>
<td>J300, J350, J400</td>
</tr>
<tr>
<td>324</td>
<td>Reach</td>
<td>J400, J460</td>
</tr>
<tr>
<td>325</td>
<td>Reach</td>
<td>J400, J460</td>
</tr>
<tr>
<td>326</td>
<td>Reach</td>
<td>J400, J550</td>
</tr>
<tr>
<td>340</td>
<td>Reach</td>
<td>J550</td>
</tr>
<tr>
<td>374</td>
<td>Reach</td>
<td>J700</td>
</tr>
<tr>
<td>390</td>
<td>Reach</td>
<td>J800</td>
</tr>
<tr>
<td>320</td>
<td>Mass Excavation</td>
<td>J250, J300</td>
</tr>
<tr>
<td>324</td>
<td>Mass Excavation</td>
<td>J400, J460</td>
</tr>
<tr>
<td>325</td>
<td>Mass Excavation</td>
<td>J400, J460</td>
</tr>
<tr>
<td>326</td>
<td>Mass Excavation</td>
<td>J400, J550</td>
</tr>
<tr>
<td>340</td>
<td>Mass Excavation</td>
<td>J550</td>
</tr>
<tr>
<td>374</td>
<td>Mass Excavation</td>
<td>J700</td>
</tr>
<tr>
<td>390</td>
<td>Mass Excavation</td>
<td>J800</td>
</tr>
</tbody>
</table>
HAMMERLESS TIP & ADAPTER SYSTEM
FEATURING CAPSURE RETENTION

INSTALLATION & REMOVAL
It’s fast, easy and safe with the CapSure locking system—just follow these four simple steps:

1. Insert pin and washer into the adapter hole.
2. Slide the tip onto the adapter.
3. Tighten 180° into the locked position with a 3/4" ratchet.
4. Remove by loosening 180° to the unlocked position.

CAPSURE TIP OPTIONS
We offer four CapSure tip options designed for a range of jobsite conditions. Your Cat dealer can help you choose the one that offers the right balance of penetration and wear life for your application.

HEAVY DUTY ABRASION

- Heavy Duty Abrasion tips are ideal for high-abrasion applications like sand, gravel and shot rock. They have the maximum amount of wear material—approximately 145% more—and the tip base features 35% more surface area than Heavy Penetration tips.

HEAVY PENETRATION

- Heavy Penetration tips are ideal for high-impact, hard-to-penetrate materials. They feature approximately 120% more material in the high wear area as well as a sharp spade design with 70% less cross-sectional area on the leading edge than Heavy Duty Abrasion tips.

HEAVY DUTY

- Heavy Duty tips are the baseline for other tips. All wear comparisons are to the Heavy Duty tip unless otherwise noted.

PENETRATION PLUS

- Penetration Plus tips feature 30% more wear material and 25% less cross-sectional area. They self-sharpen as they wear.

MACHINE COMPATIBILITY

<table>
<thead>
<tr>
<th>EXCAVATOR</th>
<th>LINKAGE</th>
<th>SIZE CLASS</th>
</tr>
</thead>
<tbody>
<tr>
<td>336</td>
<td>Reach</td>
<td>N/A</td>
</tr>
<tr>
<td>349</td>
<td>Reach</td>
<td>J550 (Retrofit)</td>
</tr>
<tr>
<td>374</td>
<td>Reach</td>
<td>J600 (Retrofit)</td>
</tr>
<tr>
<td>390</td>
<td>Reach</td>
<td>J700 (Retrofit)</td>
</tr>
<tr>
<td></td>
<td>Mass Excavation</td>
<td>J550 (Retrofit)</td>
</tr>
<tr>
<td></td>
<td>Mass Excavation</td>
<td>J600 (Retrofit)</td>
</tr>
<tr>
<td></td>
<td>Mass Excavation</td>
<td>J700 (Retrofit)</td>
</tr>
<tr>
<td></td>
<td>Mass Excavation</td>
<td>J800 (Retrofit)</td>
</tr>
</tbody>
</table>

Scan the QR code to the right to watch the installation video.
BASE EDGE SYSTEMS

FASTEST INSTALLATION TIMES IN THE INDUSTRY.

Cat base edge systems go through a series of carefully controlled manufacturing processes to deliver maximum strength, durability and long life. They come completely welded and assembled, dramatically shortening your installation and replacement time.

A consistent heat-treat process maximizes strength and resists abrasion. Shot blasting removes impurities that can cause inclusions on a weld, and controlled cooling reduces the chance of stress points.

INCREASE DURABILITY

SAVE INSTALLATION & REPLACEMENT TIME

OPTIMIZE MACHINE PERFORMANCE

Butterbead is applied to the back side of the base edge and the top strap of the corner adapter, so you can weld the edge onto the bucket without preheating.

Base edges are designed by Caterpillar engineers for optimal performance on specific machines.
DURABLE PROTECTION COMBINED WITH SHORTER INSTALLATION TIMES.

The protection you need, with no preheating required—that’s what you get with butterbead weld prep. This technique, which involves applying a layer of weld to a heat-treated, higher hardness part, makes it possible to weld a base edge to a bucket without preheating the hardened part. Choose from two shapes (straight and spade) on cutting edges thicker than 50mm and three levels of build to get the right protection for your application.

SPEED UP YOUR INSTALLATION TIME

Weld prep eliminates the need for preheating, shortening edge installation time by 30-50%.

GET MORE DURABILITY

Base edges have the proper butterbead weld because it is applied in the factory.
BASE EDGE END PROTECTION (BEEP)

PROTECT YOUR CORNERS—WITHOUT CUTTING THEM.
Reduce base edge end wear and subsequent corner adapter weld erosion with our BEEP design. It makes adapter replacement on the edge much easier when it’s time to rebuild the base edge assembly. BEEP’s are available in a wide array of thicknesses and angles to fit 336-390 hydraulic excavators.

BOOST YOUR UPTIME
Through-hardened Rc ~45 (Br ~3.0) weldable steel is easily installed in the shop or the field.

EXTEND LIFE
Extended base edge end protects adapter corner welds.

SPEED UP INSTALLATION
Height and bevel are matched to the base edge, so there’s no additional fabrication.

SIDE & EDGE PROTECTION

MAINTAIN YOUR PERFORMANCE EDGE.
Protect your bucket’s structural integrity with sidebar protectors and shear blocks or increase penetration and performance with side cutters.

» Sidebar Protectors
» Side Cutters
» Half Arrows
» Segments
» Top Covers
SIDEBAR PROTECTORS

Protect your bucket’s structural integrity with sidebars and shear blocks.

**INCREASE YOUR UPTIME**

Shear block protects the pin from extreme loads and breakage, helping ensure sidebar protector retention.

**CUT YOUR MAINTENANCE COSTS**

Sidebar protector protects the bucket edge.

SIDECUTTERS

Improve your bucket’s performance while protecting your sidebars.

**GENERAL PURPOSE SIDECUTTER**

» Effective in moderate-impact conditions.
» Suitable for most soil conditions.
» Provides a strong, wear-resistant surface to help protect bucket sides.
» Extends bucket side width to match the teeth bite.

**HEAVY DUTY SIDECUTTER**

» For tough digging conditions.
» More wear material.
» Covers more of the sidebar for enhanced protection of the bucket.
» Scalloped profile improves bucket penetration and machine performance.

**STRIKEOFF SIDECUTTER**

» Half arrow shape to provide better penetration than bare bucket.
» Protects the lower bucket sides and corners.
» For use in moderate-to-light conditions.
» Can be stacked for more protection.
BOLT-ON HALF ARROWS, TOP COVERS & BOLT-ON CUTTING EDGES

Protect your investment in buckets and base edges with these flexible components. Half arrows allow for a smooth transition of material over the base edge to protect the leading edge. Top covers complement the half arrows to protect the base edge fully. And segments are ideal for moving re-handled materials with medium impact and medium abrasion.

SIMPLIFY MAINTENANCE

Individual pieces that protect the edge can be changed independently.

ENHANCE DURABILITY

Half arrows cover the leading edge for smooth material transition.

BOOST YOUR UPTIME

Top cover reduces wear on weld joints.

BUCKET SELECTION GUIDE

We offer four standard bucket durability categories suitable for any application. Each category is based on the bucket’s intended durability when used in the recommended application and material.

GENERAL DUTY

- For digging in low-impact, lower abrasion materials such as dirt, loam and mixed compositions of dirt and fine gravel. Example: Digging conditions in which General Duty tip life exceeds 800 hours.

HEAVY DUTY

- For a wide range of impact and abrasion conditions including mixed dirt, clay and rock. Example: Digging conditions where Penetration Plus tip life ranges from 400 to 800 hours.
- HD buckets are a good “center line” choice, or starting point, when application conditions are not well known.
CHOOSING THE RIGHT DURABILITY.

Choosing the wrong bucket can easily reduce production, and increase operating costs by 10–20% or more. It can also cause unnecessary wear and fatigue for both machine and bucket.

Contact your local Cat dealer for more detailed information on choosing the right excavator, bucket and work tool attachment combinations to meet your application needs.

SEVERE DUTY

» For higher abrasion conditions such as well-shot granite and caliche. Example: Digging conditions where tip life ranges from 200 to 400 hours with Penetration Plus tips.

EXTREME DUTY

» For very high-abrasion conditions including high quartzite granite. Example: Digging conditions where tip life is less than or equal to 200 hours with Extra Duty tips.

Typical 336-340 bucket

Typical 374-390 bucket

Typical 336-340 bucket

Typical 374-390 bucket
ADDITIONAL BUCKET STYLES
Several different bucket styles are available—each with a special purpose:

**DITCH CLEANING**
These buckets are designed for cleaning ditches, sloping, grading and other finish work. Their shallow depth and compact size make working in confined areas easier. Drainage holes allow liquid to empty so material dumps more easily. Ditch Cleaning Buckets are available for 311–336 excavators.
Tilt Buckets feature a full 45° of tilt in each direction, powered by two double-acting cylinders. Tilt Buckets are available for 311–329 excavators.

**CENTER-LOCK™ PIN GRABBER PERFORMANCE**
This bucket is designed with a patented recessed pin to provide maximum digging performance while keeping the versatility and convenience of a coupler. Tip radius is reduced and allows up to 10% improvement in breakout force when compared to a conventional pin-on bucket and coupler combination.
Center-Lock Pin Grabber Performance Buckets are available for 315–349 excavators, in General Purpose and Severe Duty durability.

**POWER**
Power Buckets are for use in abrasive applications where breakout force and cycle times are critical—and for use in materials such as tightly compacted mixed dirt and rock. (Not recommended for clay.) Breakout force is maximized due to decreased tip radius and increased pin spread. Machine cycle times in most material are improved over a standard bucket in a similar application.
Heavy Duty Power Buckets are available for 320–336 excavators.

**WIDE TIP**
Wide Tip Buckets are intended to perform best in low-impact materials such as dirt and loam where leaving a smoother floor and minimal spillage is necessary. The bucket is engineered to be used exclusively with Cat Wide Tips. Corner adapters face straight forward to create a smooth edge.
General Duty Wide Tip Buckets are available in widths from 24” to 78” for 311–349 excavators.

**HIGH CAPACITY**
High Capacity Buckets are designed and built for use in high-production truck-loading applications. With proper application and set up, these buckets will move more material in a minimal amount of passes — maximizing production.
High Capacity Buckets are available for 336–390 excavators, in General Duty durability.

CAT DEALER & BUCKET MANAGEMENT
CHOOSING CAT G.E.T. IS EASY.
Highly visual product line catalogs showcase the portfolio of products, while dealer capabilities influence the purchasing decision—sales, service, repair and technical support. Trust your Cat dealer to:

**MAXIMIZE PRODUCTIVITY**
Buckets and G.E.T. products are designed to meet your application requirements, rather than simply fit onto your machine.

**IMPROVE PERFORMANCE**
Get the most out of your bucket and G.E.T. with expert advice that helps you lower costs and reduce unscheduled maintenance.

**SIMPLIFY MAINTENANCE**
Tailored G.E.T. systems simplify your maintenance. We develop solutions that fit your expectations, including custom products.

**IMPROVE PERFORMANCE**
Bucket inspection programs help you monitor how your G.E.T. system is wearing so you can adapt to changes in application and operation.
HYDRAULIC EXCAVATORS

IMPROVE YOUR PRODUCTIVITY
Increase productivity by adding efficiency and flexibility to your operation.

EXTEND LIFE
A through-hardened hammerless wear tip and shank protector extends wear life.

INCREASE DURABILITY
Upsized, hammerless adapters and tips accommodate higher loads and abrasion, while edge segments and top covers protect your base edge.

HEX RIP AND LOAD
Using rippers mounted on large HEX is a cost-effective alternative to blasting in quarries and site development. In site development, rippers on smaller excavators and backhoe loaders can readily deal with asphalt, caliche and frozen ground.
RIPPER-TO-BUCKET CHANGES ARE MADE HYDRAULICALLY IN LESS THAN 35 SECONDS. This gives the operator complete flexibility to continually adjust ripping, sorting, and loading work.

**SIMPLE CHANGES**

Pull material down and change bucket quickly and easily.

**BLAST FREE**

Ripper allows you to work without blasting in areas with unstable land or sound regulations.
MECHANICALLY ATTACHED WEAR PLATE SYSTEM (MAWPS)

Safeguard wear areas with this hammerless system—available for a wide variety of applications.

INCREASE YOUR UPTIME
Two minute change-out—no hammer required.

LOWER YOUR INVENTORY COSTS
Flexible, versatile system welds to flat and curved surfaces.

SIMPLIFY INSPECTIONS
Wear indicator holes allow for quick and easy inspections, reducing maintenance time.

EXTEND WEAR LIFE
You can install the system perpendicular to material flow, then rotate it for more wear material.

RETENTION WITHOUT THE RISK.
Retention components are located within the base plate, where they’re shielded from wear and load—eliminating the risk of wear plates falling off.

Safeguard wear areas with this hammerless system—available for a wide variety of applications.

MAWPS VERSUS STEEL PLATES
When you choose MAWPS instead of steel wear plates, you can see cost savings as high as 44%, thanks to significantly lower labor and replacement costs.

CHOOSE THE LOWEST-COST WEAR PROTECTION PER HOUR.

TOTAL ANNUAL COSTS WITH STEEL PLATES

<table>
<thead>
<tr>
<th></th>
<th>PARTS</th>
<th>LABOR</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Install</td>
<td>$4,000</td>
<td>$1,200</td>
<td>$5,200</td>
</tr>
<tr>
<td>Replace</td>
<td>$8,000</td>
<td>$2,400</td>
<td>$10,400</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>$15,600 or $7.80/hour</td>
</tr>
</tbody>
</table>

TOTAL ANNUAL COSTS WITH MAWPS

<table>
<thead>
<tr>
<th></th>
<th>PARTS</th>
<th>LABOR</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Install</td>
<td>$4,000</td>
<td>$600</td>
<td>$4,600</td>
</tr>
<tr>
<td>Replace</td>
<td>$4,000</td>
<td>$83</td>
<td>$4,083</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>$8,683 or $4.34/hour</td>
</tr>
</tbody>
</table>

Solid MAWPS

Skeletal MAWPS

INCREASE YOUR UPTIME

LOWER YOUR INVENTORY COSTS

SIMPLIFY INSPECTIONS

EXTEND WEAR LIFE

RETENTION WITHOUT THE RISK.
Retention components are located within the base plate, where they’re shielded from wear and load—eliminating the risk of wear plates falling off.
**SOLID MAWPS**

**EASY INSTALLATION & REMOVAL**

Save time and money with MAWPS’ two-minute installation and removal.

1. Weld the adapter perpendicular to material flow for maximum wear material (or parallel to flow with the Cat logo on top for maximum coverage).

2. Position the wear plate over the base plate and slide the wear plate onto the base plate.

3. Install one end of the compression retainer with the plug and pry it into place with an 8mm-wide small pry bar.

4. Clean, use pry bar to remove the compression retainer, and slide the wear plate off the base plate.

Reduce maintenance hours with MAWPS’ easy-to-use wear indicator holes. Just look, then rotate or replace.

**DESIGN SOLUTIONS FOR YOUR BUCKET.**

With solid MAWPS, you can enhance protection while keeping machine weight to a minimum. Choose a layout designed by Caterpillar engineers for your specific machine or application to maximize your productivity. Cat dealers can access the global library of MAWPS layouts.

**SIZE**

- 50 Series: 5230, 994
- 40 Series: 993, 5130, R2900
- 30 Series (available with A.R.M.): 992, 993, 5300, 374-390
- 20 Series (available with A.R.M.): R1700, R1600
- 10 Series (available with A.R.M.): 990 and down
- Trucks: 972 and down
- 365 and down
- R1300
- 320-349
- R1200

**MACHINE**

- 5230, 994
- 993, 5130, R2900
- 992, 993, 5300, 374-390
- R1700, R1600
- 990 and down
- 365 and down
- Trucks
- 972 and down
- 320-349
- R1300

Scan the QR code to the right to watch the installation video.
**SKELETAL MAWPS**

**STAY COVERED ACROSS YOUR PASS MATCH.**

Quick and easy to install, skeletal MAWPS protect the rear portion of truck bodies to help you maximize uptime. A through-hardened DH-2 wear plate slides onto a weld-on base plate and is held in place with a patented compression retainer, trapping materials from any direction.

**TRAP MORE MATERIAL**

The skeletal wear plate traps material in and between plates, allowing for material-on-material wear instead of wear on steel body liner products.

**EXTEND WEAR LIFE**

Because the compression retainer is positioned low in the base plate, more of the wear plate can be worn away before you need to replace it.

**SIMPLIFY REMOVAL & INSTALLATION**

You can typically replace worn wear plates in two minutes or less without hammering or welding.

**INCREASE YOUR FLEXIBILITY**

Available in standard and heavy-duty sizes, skeletal MAWPS can be customized to fit virtually any truck body configuration—flat floor or dual slope.

**TOTAL WEAR PROTECTION**

**INCREASED PRODUCTIVITY. FOR EVERY ENVIRONMENT. FOR EVERY APPLICATION.**

Get the best available protection for every product on your site, from wheel loaders to cable shovels, with our Total Wear Protection line.

**Chocky Bars**, available in four shapes, feature a V-groove design that can be bent around a radius. They can be separated or modified in length. The inset of the Cat logo allows for the trapping of fine material in each section, extending the life of the wear material itself. Chocky bars come in four sizes.

**Wear Buttons**, designed for applications that optimize the round profile, trap material to provide material-on-material wear. **Wear buttons are available in four sizes.**

**Roll Bars** protect the leading edge of dozers, loaders, mining shovels and other equipment, providing maximum wear protection while minimizing drag. **Roll bars are available in three sizes.**

**Bolt Protectors** help prevent hardware wear on cutting edges, top plates, sidebar protectors and more by allowing material to pack. They also allow for easier removal when replacing G.E.T.

**Wear Blocks** feature a zigzag inset design that allows for material-on-material wear. They prevent channel wear common in parallel grooves, delivering extended life in extreme operations.
WELD-ON HEEL SHROUDS & HALF ARROW EDGES

WELD-ON HEEL SHROUDS
Weld-on heel shrouds protect the bottom and side of the bucket, concentrating extra wear material in the corner where it’s needed most, and are ~400 Brn in hardness. Straight or curved shrouds come in three sizes, offering up to two inches of corner protection.

WELD-ON HALF ARROW EDGES
Weld-on half arrow edges can be used to customize a bucket with sidebar protection, as side cutters to improve penetration or as segments between teeth to reduce scalloping.
ABRASION RESISTANT MATERIAL (A.R.M.)

Cat Abrasion Resistant Material is a coating made of extremely hard tungsten carbide particles that forms a protective shield over key wear surfaces. Cat G.E.T. with A.R.M. is ideal for high-abrasion, low-to-moderate impact applications—such as working in sand, gravel and other abrasive materials that can severely diminish G.E.T. wear life.

**EXTEND YOUR WEAR LIFE**

Tungsten carbide offers three to five times the life of through-hardened G.E.T.

**LOWER YOUR COST PER HOUR**

Self-sharpening wear pattern means fewer change-outs in the right applications.

**HARDNESS COMPARISON**

<table>
<thead>
<tr>
<th>MOHS HARDNESS</th>
<th>ROCKWELL “C” HARDNESS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diamond</td>
<td>10</td>
</tr>
<tr>
<td>Corundum</td>
<td>9</td>
</tr>
<tr>
<td>Topaz</td>
<td>8</td>
</tr>
<tr>
<td>Quartz</td>
<td>7</td>
</tr>
<tr>
<td>Orthoclase</td>
<td>6</td>
</tr>
<tr>
<td>Apatite</td>
<td>5</td>
</tr>
<tr>
<td>Fluorite</td>
<td>4</td>
</tr>
<tr>
<td>Calcite</td>
<td>3</td>
</tr>
<tr>
<td>Gypsum</td>
<td>2</td>
</tr>
<tr>
<td>Talc</td>
<td>1</td>
</tr>
</tbody>
</table>

Tungsten Carbide

Steel Cutting Tools

Most G.E.T & U/C Components

Mild Steels

Copper

**EXAMPLE PARTS WITH A.R.M. APPLIED**

Two-Strap K Series Adapter  J Series Penetration Tip  K Series Heavy Duty Tip

NOTE: Products available with the A.R.M. option feature this symbol.