

CAT G.E.T. SOLUTIONS FOR HYDRAULIC MINING SHOVELS

100-1,000 TON



CL-1 FOR HYDRAULIC MINING SHOVELS

400 to 1,000 Ton

MAXIMUM PRODUCTIVITY THE MOMENT YOU HIT THE GROUND.

Caterpillar offers two styles of G.E.T. systems for CL-1. A performance system focused on increasing productivity, rates of penetration, and bucket fill. The other being an extended wear life system focused on maintaining the benefits of the performance system, but for use in hard rock applications and high abrasion areas.

HIGH PERFORMANCE

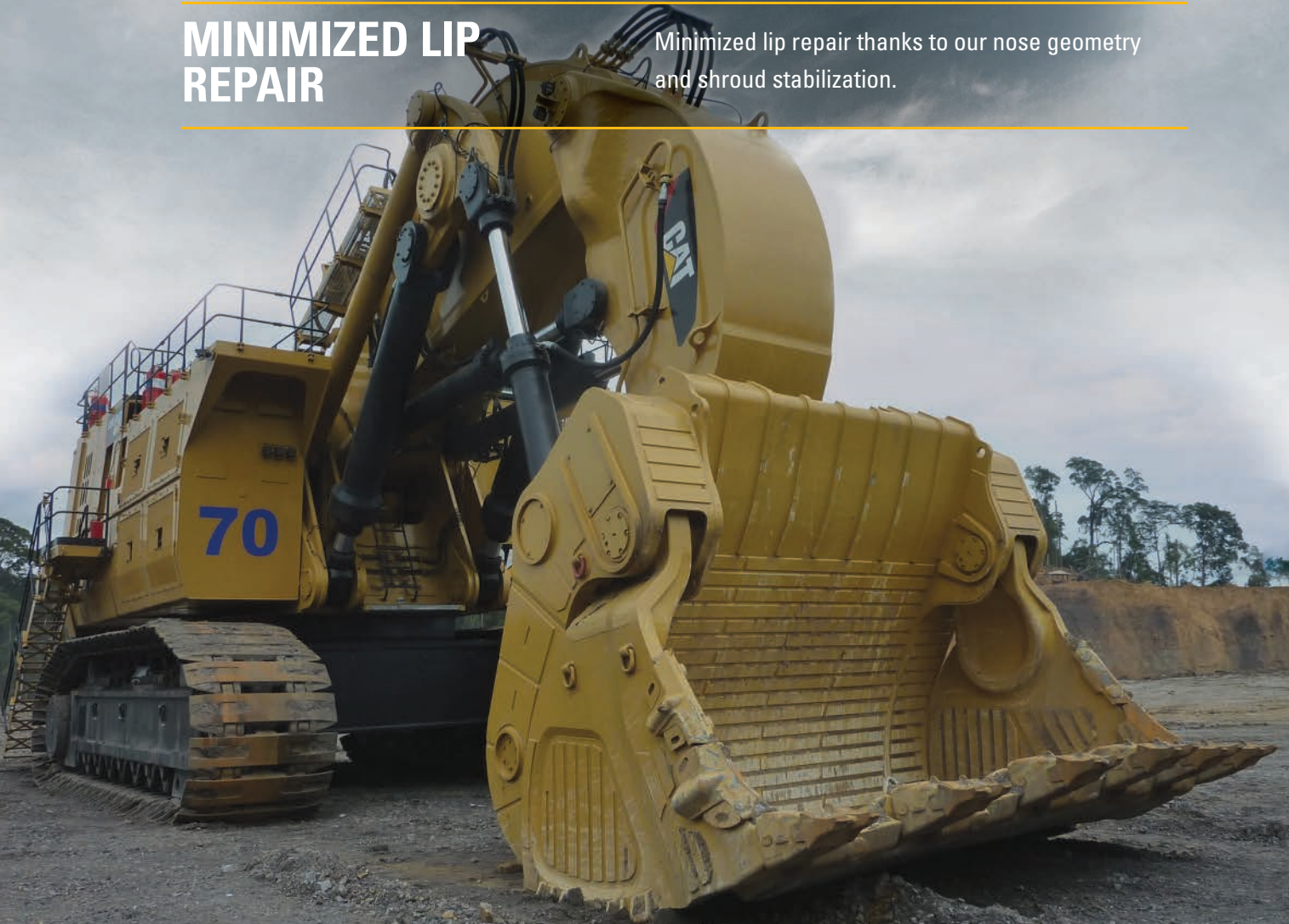
High performance, high productivity and quick change out times.

MAXIMUM LIP PROTECTION

Maximum lip protection, due to the tapered shroud design.

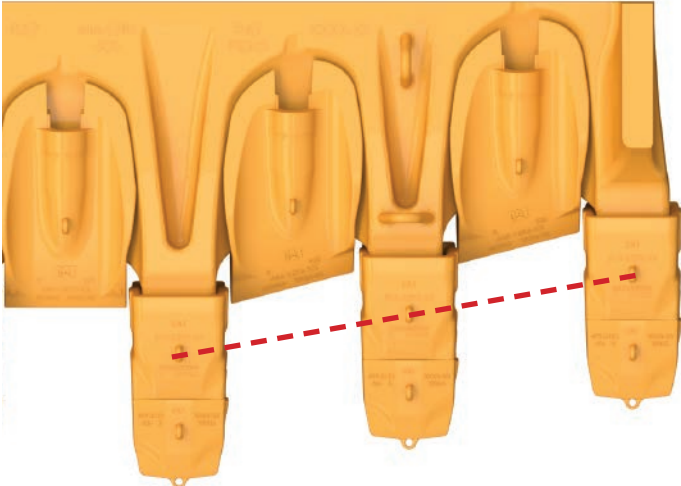
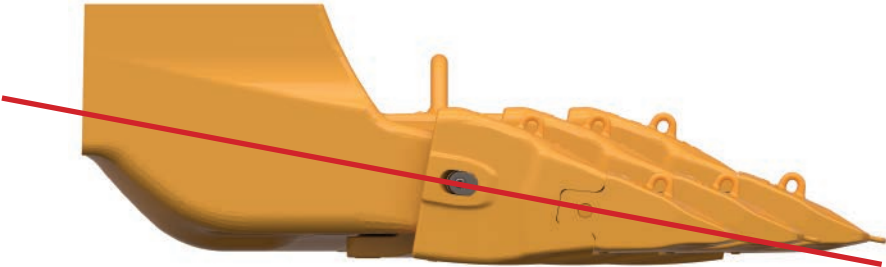
MINIMIZED LIP REPAIR

Minimized lip repair thanks to our nose geometry and shroud stabilization.



CL-1 LIP AND SYSTEM DESIGN

CL-1 cast lips are designed for use with CL-1 G.E.T systems. It is designed to be highly productive with a lowest cost per ton target. CL-1 lips are light weight which result in faster cycle times, improved RSL, and higher capacity bucket.



- » Less energy required to penetrate and fill the bucket
- » Stronger lip resulting in less flex
- » Less maintenance of cast lip due to positive retention
- » Optimized Spade Angle Shrouds reduce normal material forces on the shroud faces
- » Contoured shroud is recessed into the lip
- » 4300, 5100, 5600 mm widths
- » 5 nose sizes to match application

CL-1 COUPLERS

All CL-1 couplers secure to the CL-1 nose base with a hammerless retainer that pulls the coupler tight. Coupler pocket has dual load bearing surfaces to minimize nose stress and wear.

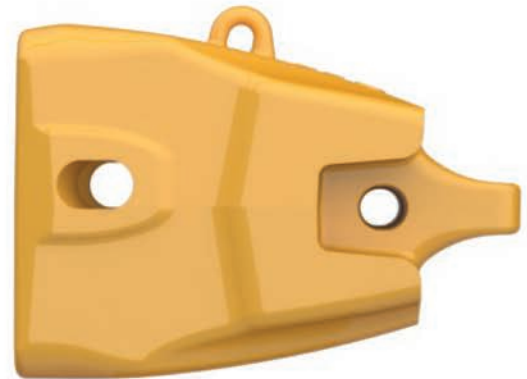
PERFORMANCE COUPLER

- » Minimize nose wear - Coupler pocket evenly distributes load on nose base to reduce stress.
- » Durable tip life - Concave fit tooth and coupler transfers load into larger components.

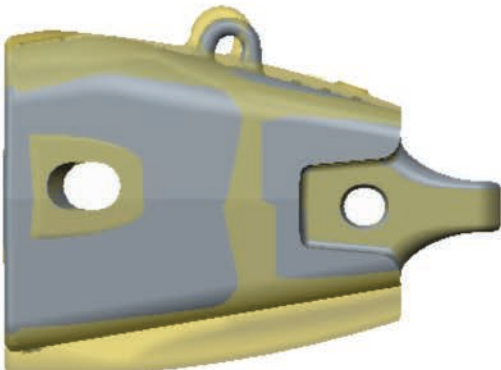


EXTENDED WEAR LIFE COUPLER

- » Decreases maintenance time
 - Increase in wear material reduces number of times for change outs
- » Maintain Penetration and Material Flow
 - Material added to top of coupler to create a uniform profile
- » Decreases wear on retention
 - Added material around retention system



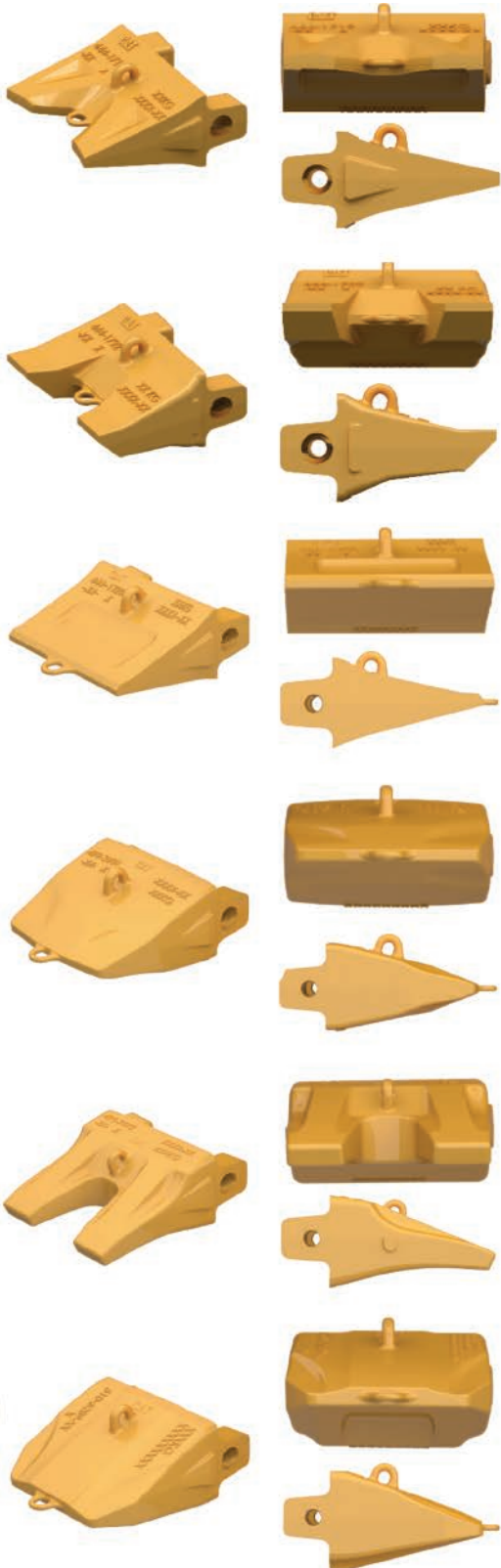
Overlay comparison of EWL to Intermediate Coupler



- » Weight of the coupler has
- » increased which translate to additional wear material
- » **On Avg. by 23%**

CL-1 TIP OPTIONS

The CL-1 tip design improves penetration, resulting in more efficient bucket fill. The retainer lock is built into each tip, simplifying installation. Our hammerless pull ring retention (PRR) secures the tip with the retainer lock. One turn with a common square drive will unlock the tip. Tip stabilizer legs contact coupler before pin to deflect operating load.



PENETRATION

The penetration tip provides excellent penetration for moderate impact and abrasion applications.

ABRASION

Typically used in high abrasion applications where aggressive penetration is needed. This tip has 8% more wear material than the CL-P tip.

PANEL

The panel tip provides good all around penetration and abrasion resistance in standard applications.

PERFORMANCE

The precision tip provides excellent productivity, it works best in moderate impact and abrasion applications.

HEAVY DUTY PENETRATION

The HD penetration tip provides the highest level of penetration in high impact and abrasion applications.

EXTENDED WEAR LIFE

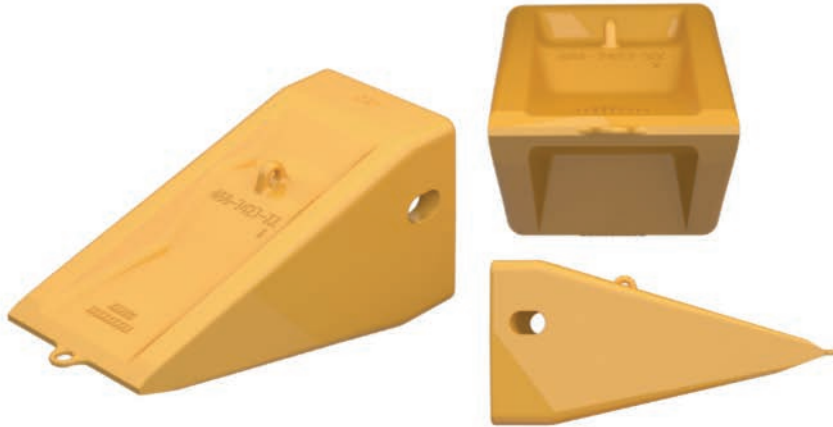
The EWL tip provides the same excellent productivity as the precision tip but is for use in hard rock and extremely abrasive mining applications.

CL-1 BOX POINT TIPS

Cat box point tips are designed to act as both a tip and coupler for your CL-1 lip. The box point tips require fewer change outs compared to traditional tips; therefore, reducing the maintenance cost of your G.E.T.

PANEL BOX POINT

The panel box point tip provides good overall penetration and abrasion resistance in moderate impact and abrasion applications.



PENETRATION BOX TIP

The penetration tip provides excellent penetration for moderate impact and abrasion applications.



The Pull Ring draws the tapered pin into the retainer until it locks into pin channel. Spiral pin head pulls pin out of pin indentation. Dust plug shortens clean out time.



Integrated retainer lock



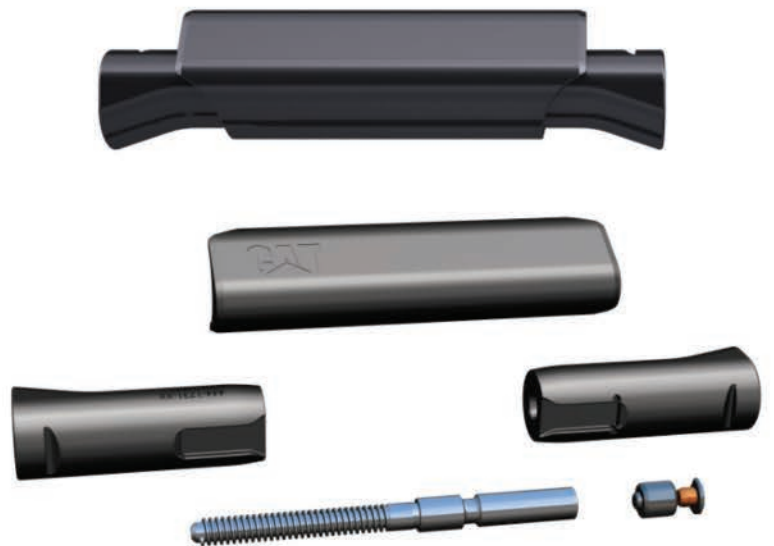
COUPLER RETENTION SYSTEM

- » Safety Focus— Hammerless Retention
- » Minimize nose wear—Balanced Positive uptake
- » No Special Tooling—Square Hex Drive

CL-1 couple retention can serviced as one assembly or a service kit.

Retainer pulls coupler onto nose base and inward, reducing side movement.

Retainer locking cap reduces primary torque screw movement during operation. Dust plug reduces cleanout time during service.



INSTALLATION & REMOVAL

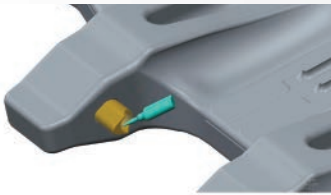
COUPLER INSTALLATION

Follow these six simple steps for fast, safe and easy installation and removal:

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



- 1** Insert retainer body into nose base hole, lubricate.



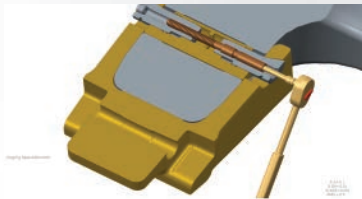
- 2** Slide coupler onto nose base.



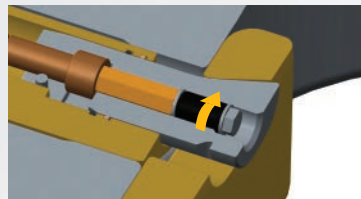
- 3** Insert retainer ends into body, lubricate.



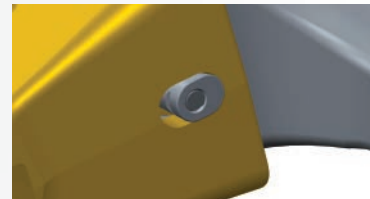
- 4** Tighten the captured bolt to specified torque.



- 5** Insert locking plug, hand tighten, plus quarter turn.



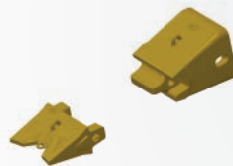
- 6** Insert dust plug.



TIP INSTALLATION

Follow these four simple steps for fast, safe and easy installation and removal:

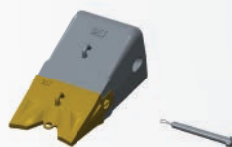
- 1** Ensure tip pocket and coupler nose are clean of fines and slide the tip onto the coupler nose.



- 2** If not previously installed, install a dust plug into square drive of tip retaining pin and screw the rope pull into tail end of pin and tighten.



- 3** Insert tip retaining pin into the tip and coupler assembly, rotating the pin clockwise until pin shoulders butt up to cast shoulders.



- 4** Insert a suitable pry bar through loop of rope pull and lever across to lock tip retaining pin into place.



CL-1 CAST LIP PROTECTION

The tapered shroud design provides maximum lip protection, reducing lip wear. Shroud retention inserts into shroud body and is secured to the lip with a dual locking system, ensuring your lip protection stays tight during service.

- » **Maximized Performance**—Low profile delivers penetration and optimized material placement reduces unnecessary steel cost and weight.



EXTENDED WEAR LIFE SHROUD

- » Increase in leg thickness around shroud's edge
On Avg. by 47mm
- » Increase in surface area
On Avg. by 41%
- » Increase in weight
On Avg. by 25.5%



Overlay of comparison of EWL to Performance Shrouds



SHROUD RETENTION SYSTEM:

- » Safety focus—hammerless retention.
- » Minimize lip wear—primary retention reduces movement and deflector retention keeps shroud tight, reducing periodic maintenance.
- » No special tooling—square hex drive.

CL-1 WING PROTECTION

Wing shrouds secure to the wings with a hammerless bolt retainer that inserts into the shroud body and pulls the shroud tight to the wing.

MAXIMIZE PROTECTION

Low profile delivers penetration, and optimized material placement reduces unnecessary steel cost and weight.

IMPROVE SAFETY

Hammerless retention reduces the chance of injury.

REDUCE TOOLING

No special tooling required—only a square hex drive.



INSTALLATION & REMOVAL

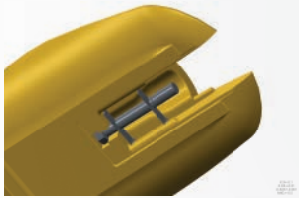
CL-1 CAST LIP & WING PROTECTION INSTALLATION

Follow these four simple steps for fast, safe and easy installation and removal:

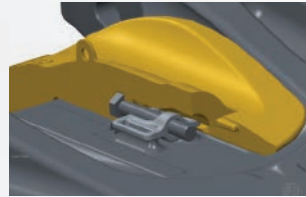
Scan the QR Code to the right to watch the installation video.



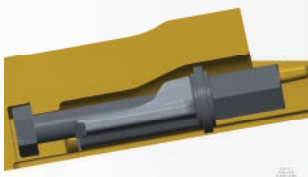
- 1** Insert retaining bolt into shroud and secure into position with retainer clip.



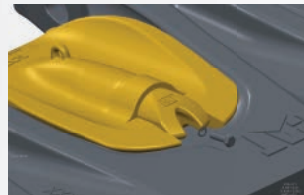
- 2** Align shroud with mounting boss weldment. Ensure retaining bolt aligns with the boss groove.



- 3** Install the belleville washer, thick washer, belleville washer, then cone nut onto the retaining bolt as shown.



- 4** If installing end cap, align end cap and insert end cap bolt with schnorr washer and tension.



WING SHROUD INSTALLATION

Follow these four simple steps for fast, safe and easy installation and removal:

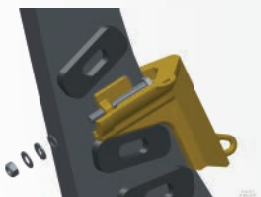
- 1** Insert retainer bolt into shroud and secure into position with retainer clip.



- 2** Align lower wing shroud with mounting boss. Ensure retaining bolt aligns with mounting boss groove. Repeat for upper wing shroud.



- 3** Install the belleville washer, thick washer, belleville washer, then cone nut onto the retaining bolt.



- 4** Tighten.



X-3 SYSTEM FOR HYDRAULIC MINING SHOVELS 400 to 1,000 Ton

The X-3 class of G.E.T. readily fits onto existing nose base systems for 500-ton hydraulic mining shovels. Side pin and vertical (wedge and spool) couplers work with a full selection of tip styles and lip protection. The robust design can be easily enhanced with Cat Laminated Wear Products to extend the life in high-abrasion applications.

SIMPLIFY INSTALLATION

Retainer is built into the tip.

SPEED UP CHANGE-OUT

Lock or unlock with just one turn.

ENHANCE JOBSITE SAFETY

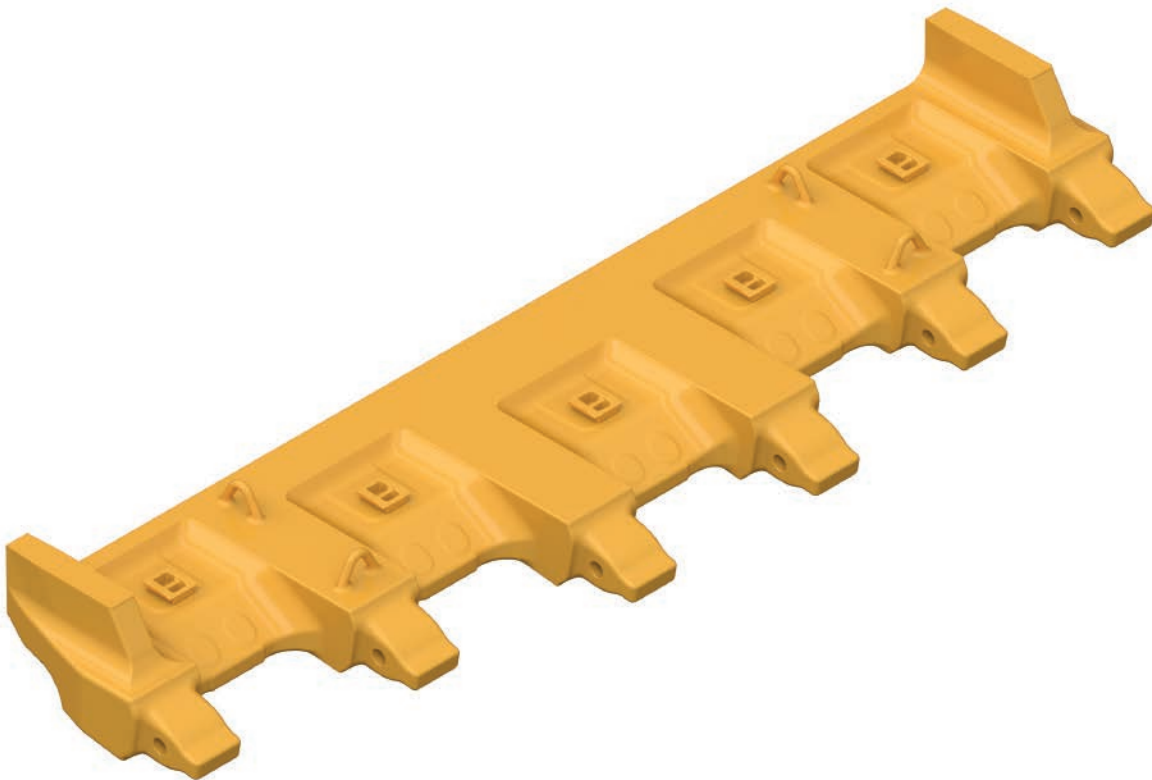
No special tools are required
to service this hammerless system.



CAT RELOAD™ CAST LIPS

Reload cast lips are designed for use with X-3 G.E.T system with a Cat C130 nose base. It is a “classic design” focused on reliability and lowest cost per hour.

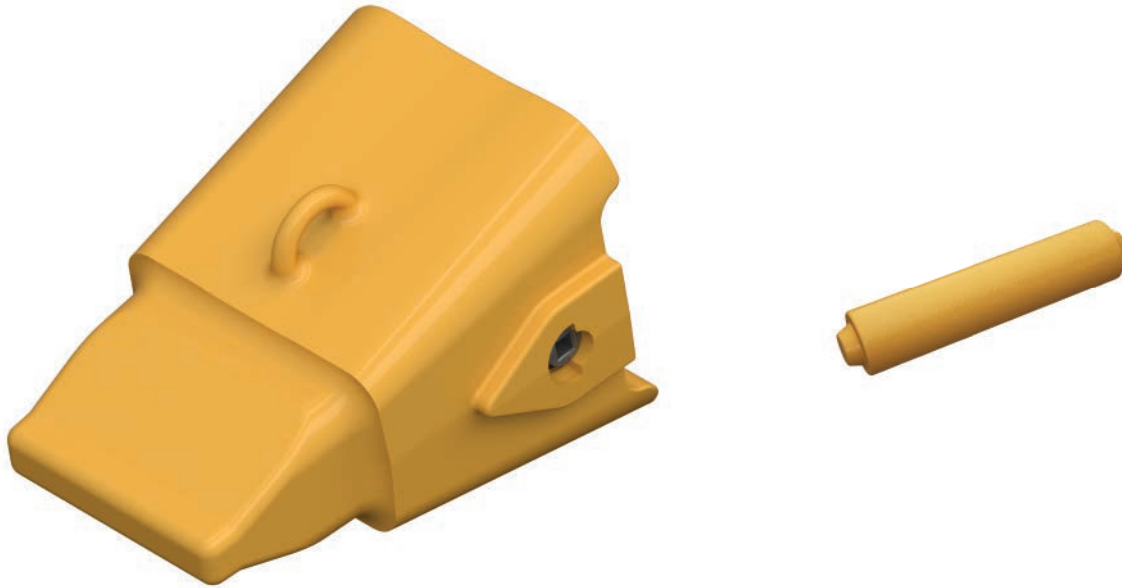
- » 100% CapSure retention—simple, fast, safe, reliable
- » Machined fit surfaces—Optimized fit control between G.E.T. and new lips
- » Cat C130 specific nose base—not compatible with aftermarket adapters
- » 4300 mm and 5100 mm widths available



***Aftermarket only—cannot be sold on new machines**

X-3 COUPLER OPTIONS

Intermediate couplers pin onto the existing nose base. The side pin design, featuring CapSure retention, enables fast hammerless removal of the coupler and tip. These three-piece systems minimize wear of more expensive components, helping to provide a low cost per ton. No additional pins are required to secure the tip to the coupler.



Side Pin Coupler & Pin



Wedge & Spool Coupler & Pin

X-3 TIP OPTIONS

CapSure retention is built into each tip, eliminating the need to inventory and assemble separate retainers. One turn with a common square drive will lock or unlock the tip. Your Cat dealer can help you choose the tip that offers the right balance of penetration and wear life for your application.



CENTERLINE

This general purpose Centerline tip provides excellent penetration in impact and abrasion applications.



CENTERLINE ABRASION

This Abrasion Centerline tip is ideal for moderate impact and high-abrasion applications. It's 12 percent longer than the Centerline tip.



TWIN SPIKE

For easy penetration in moderate impact, high-abrasion applications, this Long Split tip has 40 percent less leading-edge material compared to the Centerline tip.



BELOW CENTERLINE

This general-purpose Below Centerline tip for moderate abrasion, high-impact applications is angled down 15 degrees to optimize penetration. The paneled bit also aids penetration and self-sharpening.



HEAVY DUTY BELOW CENTERLINE

This Heavy Duty Below Centerline tip for extreme top abrasion and high-impact environments is most common in dragline applications. Angled down 15 degrees to optimize penetration, it's 17 percent longer and features 70 percent more wear material than the Below Centerline tip.



HEAVY DUTY

This combination of Split and Long Below Centerline tips is typically used in low-impact and extreme abrasion applications where aggressive penetration is needed. It's angled down nine degrees and has 85 percent more wear material than the Below Centerline tip.

ENGINEERED TO ORDER (ETO) OPTIONS AVAILABLE

Custom offerings are available from your Cat dealer for your application.

X-3 CAST LIP & WING PROTECTION

Shrouds are easily secured to the edge with our retention boss. CapSure retention is built into each shroud eliminating the hammer and need to inventory and assemble separate retainers. One turn with a common square drive will lock or unlock the shroud.



Lip Shroud & Retention Boss



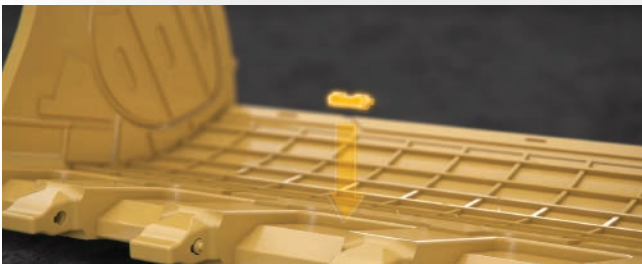
Two-piece wing shrouds offer flexible protection. Change the worn protector by driving out the pin.

LIP SHROUD INSTALLATION

Follow these three simple steps for fast, safe and easy installation and removal:

1

Install retention boss (welded).



2

Slide shroud over lip and boss.



3

Rotate CapSure retainer 180°.



INSTALLATION & REMOVAL

X-3 COUPLER INSTALLATION

Follow these three simple steps for fast, safe and easy installation and removal:

- 1** Insert pin into nose base hole.



- 2** Slide coupler onto nose base.



- 3** Rotate CapSure retainer 180° into locked position.



TIP INSTALLATION

Follow these two simple steps for fast, safe and easy installation and removal:

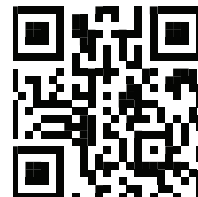
- 1** Slide tip onto coupler.



- 2** Rotate CapSure retainer 180° into locked position.



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



X-2 SYSTEM FOR HYDRAULIC MINING SHOVELS 100 to 400 Ton

The X-2 class adapters are welded to our fabricated base edges that provide industry-leading durability. Hammerless shrouds protect the base edge, while conventional pins secure the wing shrouds. Six tip shapes are available to help you be productive in any application. All hammerless components feature CapSure retention that is serviced with a simple square drive.

SIMPLIFY INSTALLATION

Retainer is built into the tip.

SPEED UP CHANGE-OUT

Lock or unlock with just one turn.

ENHANCE JOBSITE SAFETY

No special tools are required to service this hammerless system.



FABRICATED EDGES

Caterpillar provides a complete line of base edge assemblies for Cat buckets. For mixed fleet buckets your Cat dealer can perform a bucket inspection and Provide a custom Cat G.E.T. layout.



MODEL	SIZE CLASS	ADAPTERS AVAILABLE
6015B	C70	100mm
6018	C70	100mm
6020B	C85	100mm
6030	C85	120mm
6018 FS	C85	120mm
6030 FS	C95	140mm
6040	C95	140mm

Contact: GET_Layouts@cat.com

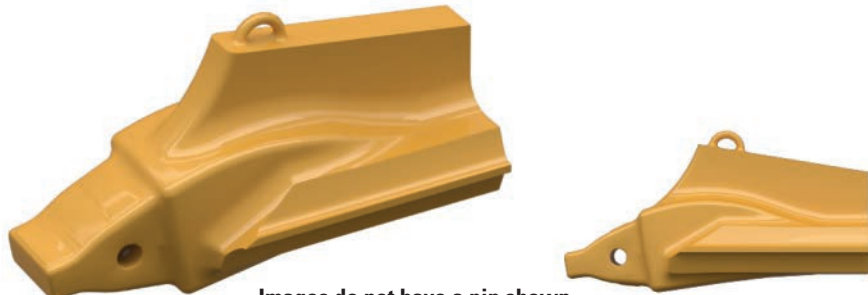
- To request bucket inspection forms
- To submit request for Cat GET base edge assemblies

X-2 ADAPTERS

The side pin design supports CapSure retention for fast, hammerless removal of the tip. The replaceable pin ensures a secure fit each and every time. Straddle leg adapters reduce corner stress and the time associated with adapter and sidebar maintenance.



Center Adapter



Images do not have a pin shown

Cast Corners



Images do not have a pin shown

Corner Adapter—Straddle Leg

X-2 TIP OPTIONS

CapSure retention is built into each tip, eliminating the need to inventory and assemble separate retainers. One turn with a common square drive will lock or unlock the tip. Your Cat dealer can help you choose the tip that offers the right balance of penetration and wear life for your application.



GENERAL PURPOSE

X2-GP tips are symmetrical and the baseline for other tip styles.



ABRASION

X2-A tips are for high-abrasion applications and feature approximately **62 percent more wear material** than the X2-P tip.



PENETRATION

X2-P tips are ideal for densely compacted material. They feature a leading-edge profile that is **50 percent sharper** than the X2-GP style.



IMPACT

X2-I tips are **25 percent stronger** than the X2-GP to withstand high-impact applications.



HD PENETRATION

The HD penetration tip provides the highest level of penetration in high impact and abrasion applications.



SHARP

The sharp tip provides the highest level of penetration in low to moderate impact and abrasion applications.

ENGINEERED TO ORDER (ETO) OPTIONS AVAILABLE

Custom offerings are available from your Cat dealer for your application.

X-2 LIP & WING PROTECTION

Shrouds are easily secured to the edge with our retention boss. CapSure retention is built into each shroud, eliminating the hammer and need to inventory and assemble separate retainers. One turn with a common square drive will lock or unlock the shroud.



Insert retainer requires no welding, making shroud replacement safe and easy.



Change the worn protector by driving out the pin.

TIP INSTALLATION

Follow these three simple steps for fast, safe and easy installation and removal:

- 1** Insert pin into nose base hole.



- 2** Slide tip onto nose base.



- 3** Rotate CapSure retainer 180° into locked position.



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



LIP SHROUD INSTALLATION

Follow these three simple steps for fast, safe and easy installation and removal:

- 1** Insert retention boss.



- 2** Slide lip shroud onto lip.



- 3** Rotate CapSure retainer 180° into locked position.



WING SHROUD INSTALLATION

Follow these three simple steps for fast, safe and easy installation and removal:

- 1** Insert washers through lip pin holes.



- 2** Install wing shroud on lip.



- 3** Insert pins to secure wing shroud in place.



BASE EDGE END PROTECTION (BEEP)

PROTECT YOUR CORNERS—WITHOUT CUTTING THEM.

Beeps are an important part of the base edge system. Without beeps, the ends of the plate lip can wear quickly, causing damage to the base edge and washing away adapter welds. This can cause issues with corner adapter reliability and replacement.

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.



SHROUD DEFLECTORS

Can have a critical role in protecting the lip shroud retention system from overload. Shroud deflectors should be used and maintained to ensure reliability of lip shrouds.



Shroud Deflectors

WELD-ON HEEL SHROUDS

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 Bn in hardness. Straight or curved shrouds come in three sizes, offering up to two inches of corner protection.





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