



MTG

No limits innovation



INS.3.4.1

TWINMET Cast Lip Central Wear Cap M

Installation procedure

DISCLAIMER

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1. SAFETY

The practices described in this manual can be taken as guidelines for operating safely in many conditions and in addition to the safety standards that are current and enforceable in your area or region.

Your safety and the safety of third parties is the result of putting into practice your knowledge of the correct operational procedures.

Attention, when performing the work described in these instructions, always work safely and use the personal protection elements required to minimize or avoid injury. Always wear:



**HARD
HAT**



**SAFETY
GLASSES**



**EAR
PROTECTION**



**STEEL TOED
BOOTS**



**PROTECTION
GLOVES**

To avoid eye injury, always wear safety goggles or a protective mask when using any equipment, hammer or similar tool. When equipment is under pressure or when objects are struck, chips or other debris can be thrown out. Make sure no one gets hurt by the debris that is fired before applying pressure or hitting an object. Wear eye protection that complies with ANSI Z87.1 and OSHA standards. Also wear hearing protection and gloves.

Lifting a heavy object can cause serious or fatal injury. DO NOT exceed the maximum rated capacity of lifting and positioning devices: Stay away from the area under a suspended load.



**LIFTING
LUG**

Make sure that the chain is not damaged and that the load is always balanced.

2. WELDING

Following is a quick reference on consumables that can be used to weld MTG products. For a complete reference on welding procedures, refer to the document entitled "General welding recommendations".

WELDING UNALLOYED FILLER CONSUMABLES

PROCESS	EN CLASS	AWS CLASS
SMAW	EN ISO 2560-S E42X	E70X ACCORDING TO A5.1 OR EQUIVALENT UNDER A5.5
	EN ISO 14341-A G42X	E70C-X ACCORDING TO A5.18 OR EQUIVALENT UNDER A5.28
GMAW	EN ISO 14341-A G46X	E70S-X ACCORDING TO A5.18 OR EQUIVALENT UNDER A5.28
	EN ISO 16834-A T42X	E7XT-X ACCORDING TO A5.20 OR EQUIVALENT UNDER A5.29

WELDING AUSTENITIC STAINLESS FILLER CONSUMABLES

PROCESS	AWS CLASS
SMAW	E307-X ACCORDING TO A5.4
	ER307T-X ACCORDING TO A5.22
GMAW	ER307 ACCORDING TO A5.9
	307-X ACCORDING TO A5.22

NOTE: "X" MAY STAND FOR ONE OR SEVERAL CHARACTERS

3. IMPORTANT

Read the full document prior to start any operation since there may be some steps which may require previous verifications/operations.

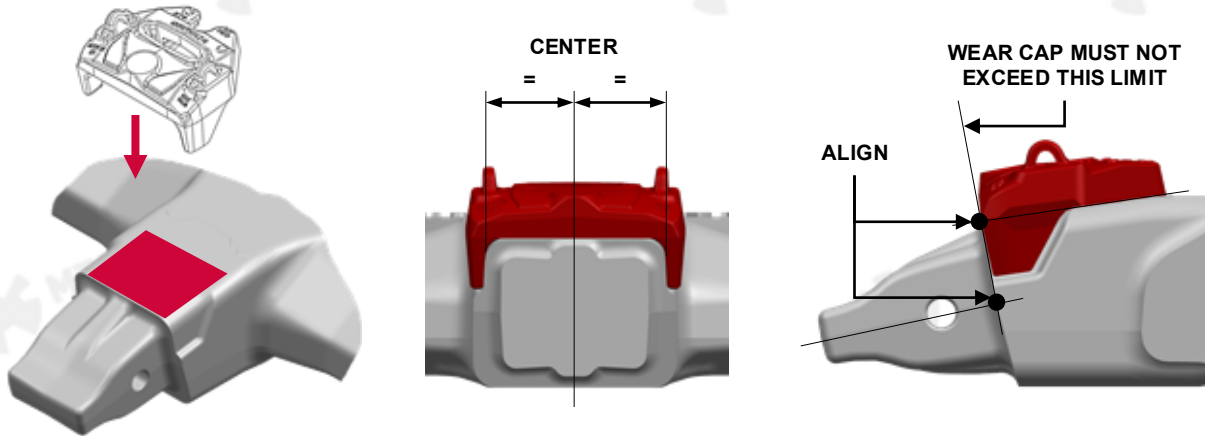


These instructions are a generic procedure for all MTG TWINMET Cast Lip Wear Caps M, regardless of size. For this reason, it is possible that the images contained in these instructions may differ from the parts to be installed in each case.

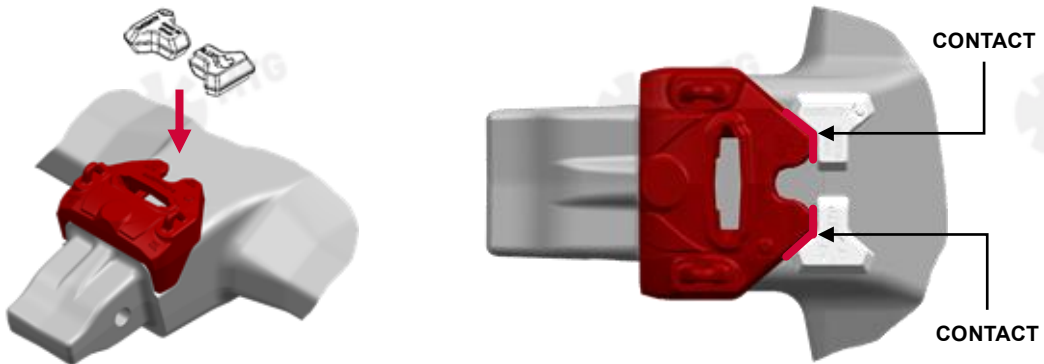
Size 1 wear caps do not require stoppers since that function is performed by the weld-on base itself. In this case, for its installation, skip section 1 of this procedure.

4. STOPPERS POSITIONING

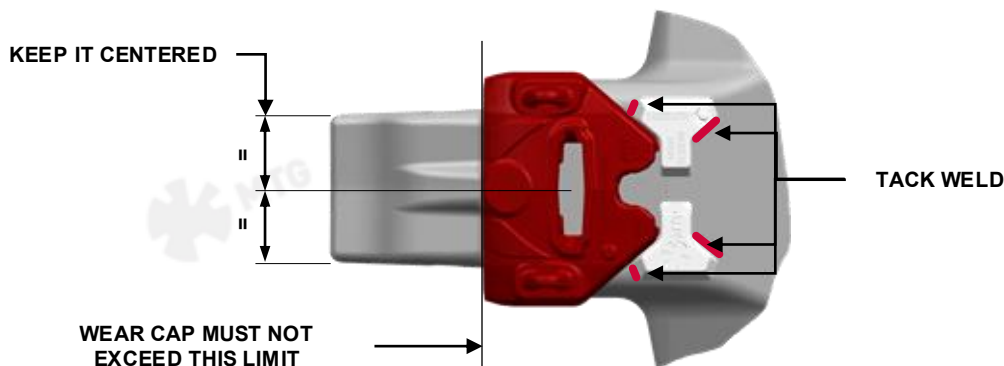
- 4.1** Place the wear cap on its station by locating it on the highlighted area. The wear cap should be as centered as possible on its location and aligned with the end of the nose as shown in the drawing. The wear cap should never exceed the indicated limit of the nose.



- 4.2** Place the stoppers at the back of the wear cap, ensuring their contact with it and with the base of the lip as shown in the image.



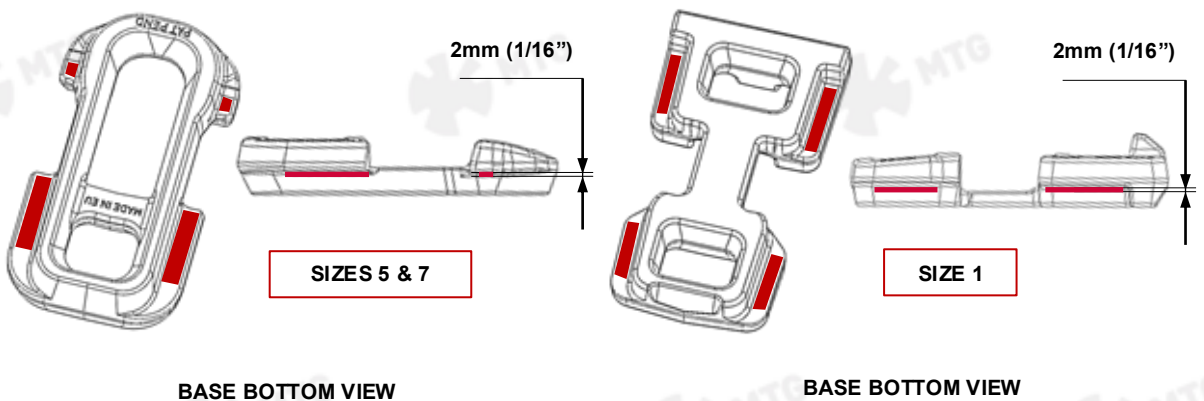
Preheat stoppers and lip to a temperature between 175°C and 200°C (347°F and 392°F) in an area of 100 mm (4") around the area to be welded and apply some tack welds to the stoppers against the lip, taking care to maintain the alignments described in point 4.1 and the contacts in point 4.2.



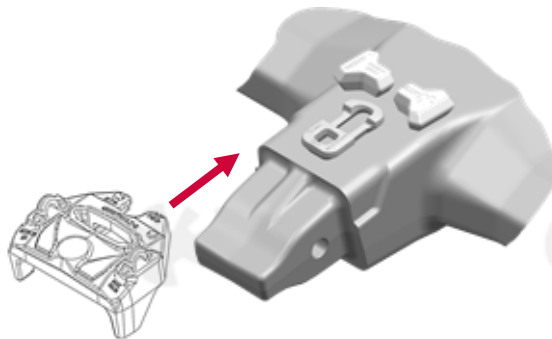
5. WELD-ON BASE POSITIONING

- 5.1** Prior to positioning the weld-on base on the lip, it is necessary to temporarily supplement its guides to ensure the correct gap in the vertical direction of the wear cap against the lip, preventing possible irregularities in the support surface of the base of the lip when mounting the wear cap.

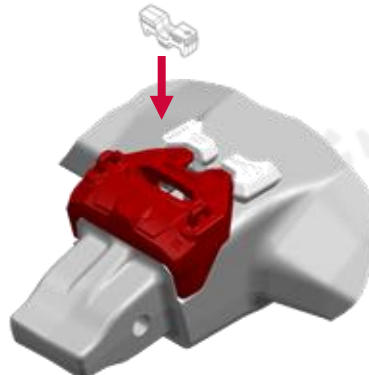
To do this, a 2mm (1/16") thick plates must be attached to the bottom of the guides by means of very light tack welding. The supplements must not protrude from the area where they will be applied. These supplement plates should be easily removed once the weld-on base has been tack welded to the lip.



- 5.2** Place the weld-on base on its lip support face and slide the wear cap until the stoppers so that the weld-on base is trapped by the wear cap guides.

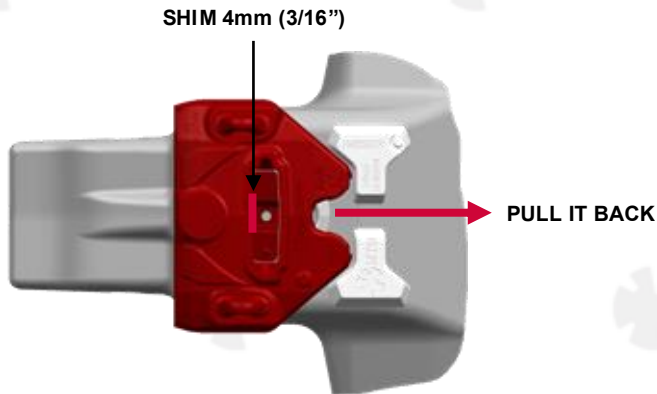


- 5.3** Insert the mechanical block into its housing between the wear cap and the weld-on base, making sure that the "FRONT" text on the block faces away from the bucket. At this time, the weld-on base can no longer move.



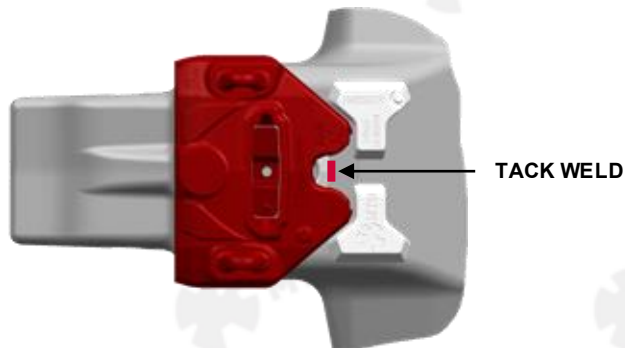
6. WELD-ON BASE AND STOPPERS POSITIONING

- 6.1** Place a 4 mm (3/16") shim at the front, between the weld-on base and the mechanical block as shown in the image. Then pull the weld-on base back using a pry bar or the like.

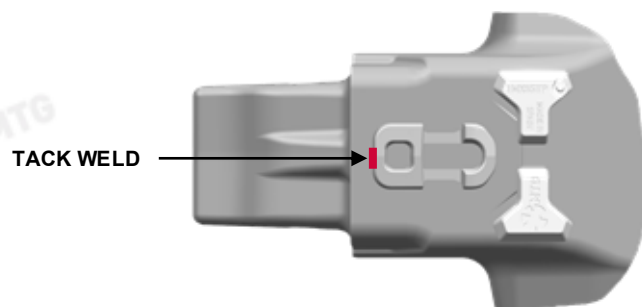


- 6.2** Tack weld the weld-on base to the lip to keep it in its correct position. Before doing so, verify that both the weld-on base and the lip are still at a temperature between 175°C and 200°C (347°F and 392°F) in an area of 100 mm (4") around the area to be welded. If necessary, reheat to the indicated temperatures.

- 6.3** Once the correct temperature has been reached, pull the base back using a pry bar or similar and while continue pulling the weld-on base, tack weld the base to the lip in the area indicated.



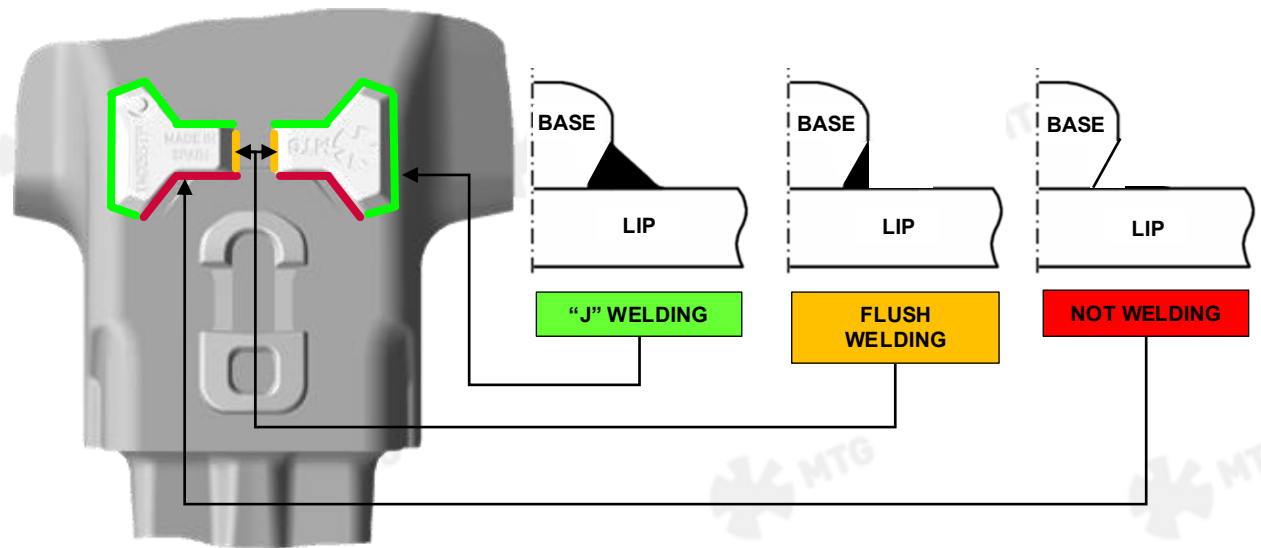
- 6.4** Remove the mechanical block and wear cap and tack weld the front of the weld-on base. After this, remove the supplement plates applied in point 5.1. At this time, the welding of the base and stoppers can be completed.



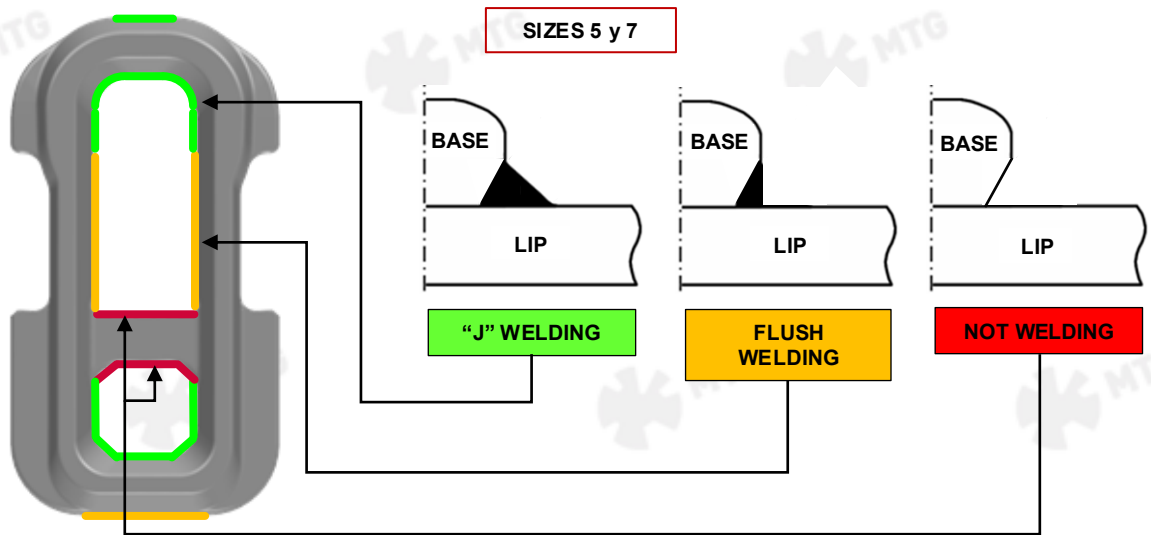
7. WELD-ON BASE AND STOPPERS WELDING

7.1 Before proceeding with the welding, verify that both the weld-on base and the lip, as well as the stoppers, are still at a temperature between 175°C and 200°C (347°F and 392°F) in an area of 100 mm (4") around the area to be welded. If necessary, reheat to the indicated temperatures.

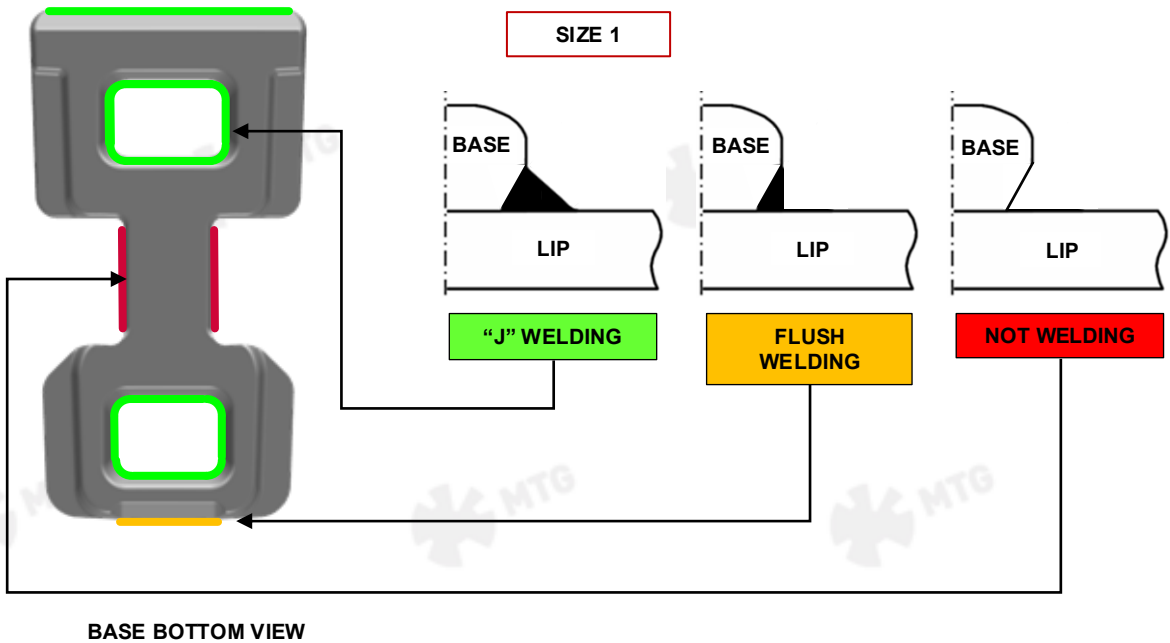
Proceed with the welding of the stoppers in the indicated areas, filling the welding chamfers according to the color code indicated in the following figure. Do not weld outside the marked areas or exceed 250°C (482°F) during the welding process.



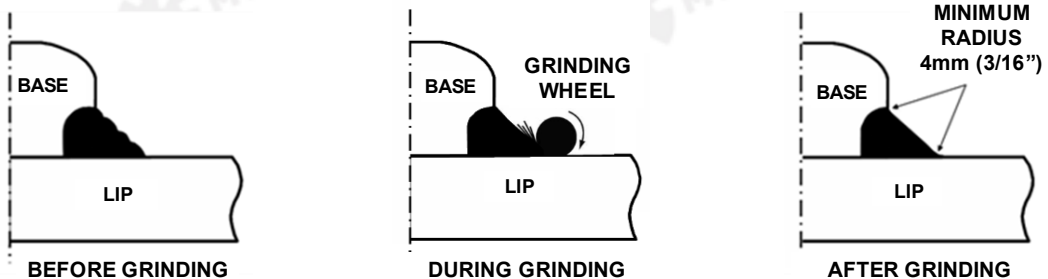
7.2 Proceed with the welding of the weld-on base in the indicated areas, filling the welding chamfers according to the color code indicated in the following figure. Do not weld outside the marked areas or exceed 250°C (482°F) during the welding process.



BASE BOTTOM VIEW



7.3 Once the welding is finished, it must be ground. Grinding shall produce a smooth surface free of roughness and unevenness associated with the weld beads. The toes of the welds shall merge smoothly with the lip and the bases with a minimum radius of 4mm - 5/32 in.



Grinding shall be done using high speed electric or pneumatic grinders with grinding wheels no larger than 50mm - 2 in. in diameter. ANGLE HEAD OR DISK GRINDERS ARE NOT ALLOWED FOR THIS WORK.

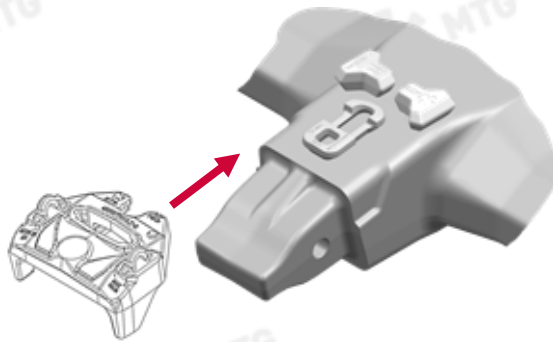
Grinding must be carried out with the outer part of the disc and not with the central part of it. The grinding direction must be perpendicular to the ends of the weld beads as shown in the figure.

Grinding the radio at the toes of the welds is facilitated using cone-shaped grinding wheels. For final grinding, the abrasive may be no coarser than 24 Grit.

- 7.4** After grinding the welds, it is also recommended to carry out a peening of the weld toes or a high-frequency mechanical impact treatment as described in the document entitled "General welding recommendations"
- 7.5** Finally, all welds should be subjected to a visual inspection and die penetrants, magnetic particles or similar, as described in the document entitled "General welding recommendations". Any weld cracks detected must be cleaned and repaired.
- 7.6** Carry out the same operation of positioning and welding the stoppers and weld-on bases of the rest of the wear cap stations.

8. INSTALLATION PROCEDURE

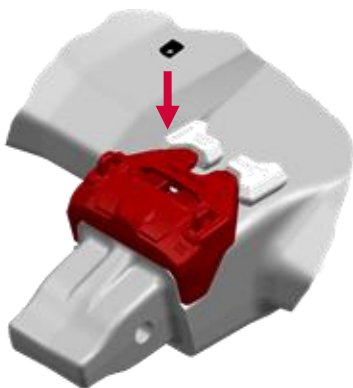
8.1 Slide the wear cap through the weld-on base until it contacts the stoppers.



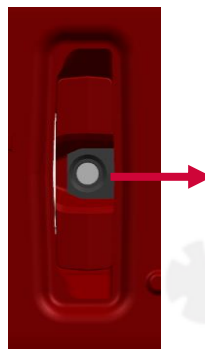
8.2 Insert the mechanical block into its housing between the wear cap and the weld-on base, making sure that the “FRONT” text on the block faces away from the bucket. At this time, the wear cap can no longer move.



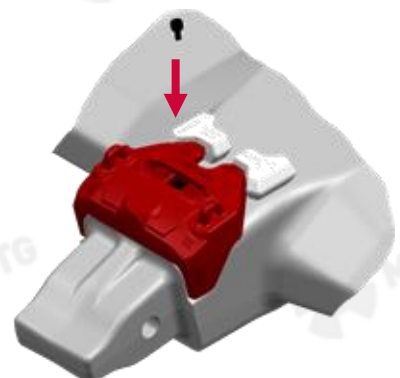
8.3 Insert the locking plate on its housing into the mechanical block and slide it towards the inside of the bucket until its hole and the one on the mechanical block are concentric. Then insert the bolt and screw it until a torque of **300±50 Nm** (221±37 lbf^t). Finally, insert the plug into the bolt's head to prevent it from dirt.



INSERT LOCKING PLATE



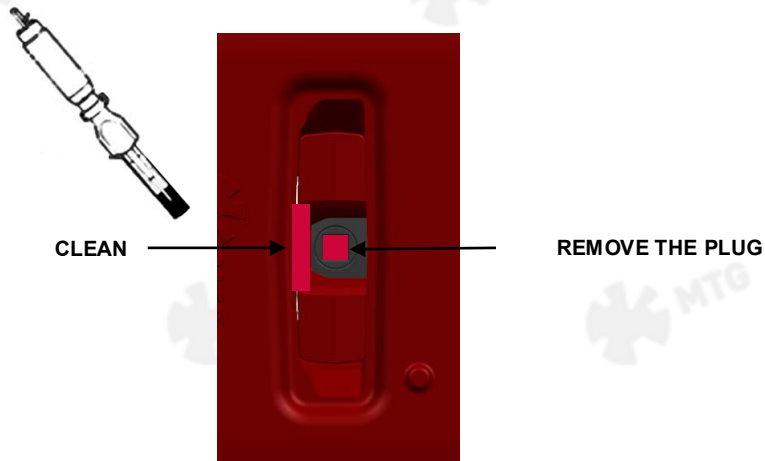
SLIDE THE PLATE



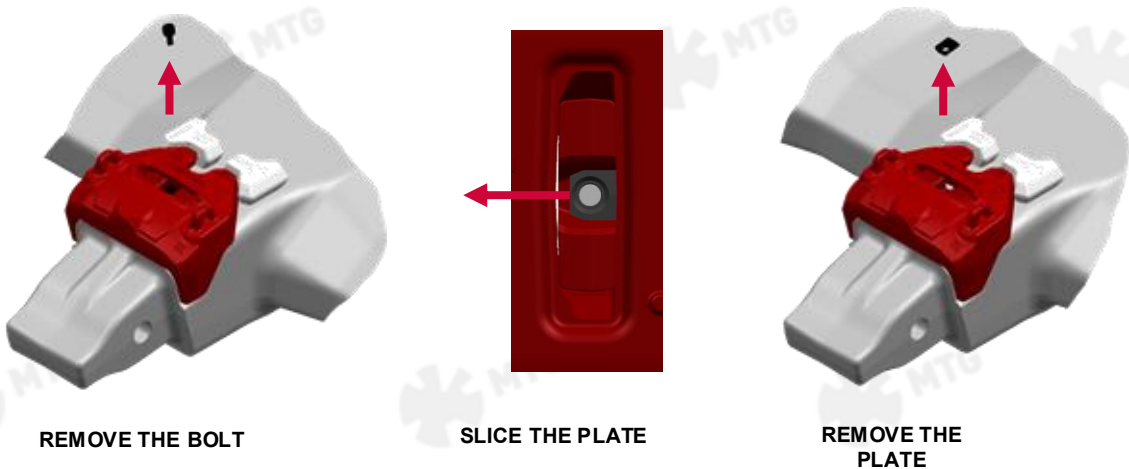
INSERT THE BOLT AND SCREW IT

9. REMOVAL PROCEDURE

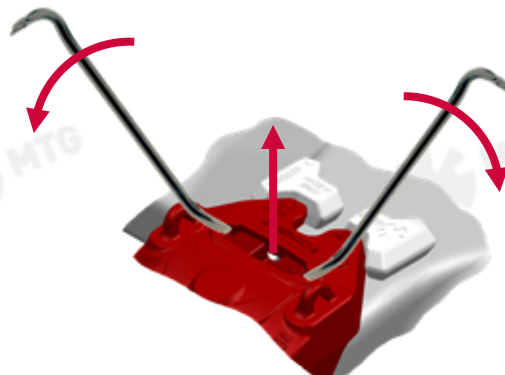
- 9.1** Clean the fines stuck behind the locking plate by means of a needle gun. Then, remove the plug from the bolt's head and unscrew the bolt until release it. An electric or pneumatic rattle gun can ease the operation.



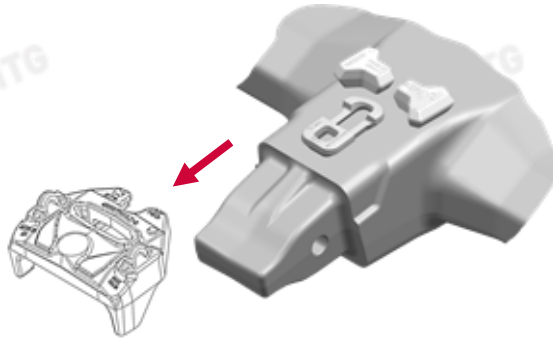
- 9.2** Remove the bolt, slide the lock plate back and remove it. Additional cleaning may be required to facilitate operation.



- 9.3** Extract the mechanical block with the help of a lever or similar. Alternating lever movement from both sides will make the operation easier.



9.4 Weld a lifting eye to the wear cap and remove it with the help of a crane.





Service Instructions

The latest welding recommendations and assembly / disassembly instructions can be found online:

www.mtgcorp.com/manuals

Please contact Technical Services in case of questions:

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