SAFE WORK PROCEDURE

MEASURING SHARK™ GROUND ENGAGING TOOLS

SHARK™ GROUND ENGAGING TOOLS

1.0 INTRODUCTION

The purpose of this procedure is to outline the safe working method to follow when measuring SHARK™ Ground Engaging Tools (GET).

SHARK™ Ground Engaging Tools consist of:

- BLUE POINTER™ Series
- Half Arrow Series
- MAKO™ Series
- Weld-On & Mechanical Heel Shrouds
- Cast Profile Bars

2.0 REQUIREMENTS

RESOURCES	One trained and competent workshop personnel

PPE	Gloves
	Hearing protection
	Steel cap boots/Safety shoes
	High visibility clothing
	Safety glasses/Dust masks
	Workshop minimum PPE
	Mine site minimum PPE
	Take Five
	Sunscreen & Hat

TOOLS/EQUIPMENT	Barriers
	Isolation locks
	Cribbing blocks/Wheel chocks
	2 x 30 cm Steel Ruler

ISOLATION REQUIREMENTS	Workshop tagging & isolation procedure
	Mine site-specific tagging & isolation procedure
	Sandvik Standard Procedure for isolation, lockout and tagging (SG-10)

ENVIRONMENTAL CONTROLS	Verification of machine competency by authorised and competent person
	Workshop safe working procedures
	Mine site safe working procedures
	In case of any injury, seek first aid and report to immediate supervisor (SG-09)

REFERENCES	SG-02 Sandvik Guideline – PPE
	SG-09 Sandvik Guideline – Hazard / Incident / Concern Reporting and Investigation
	SG-10 Sandvik Guideline – Isolation, Lockout and Tagging

3.0 PRE-START MACHINE & BUCKET INFORMATION

Before measuring SHARK™ Ground Engaging Tools, document the following information:

- Date
- Machine brand and model
- Machine & bucket serial number (S/N)
- Machine & bucket asset number (internal customer codes)
- Machine hours

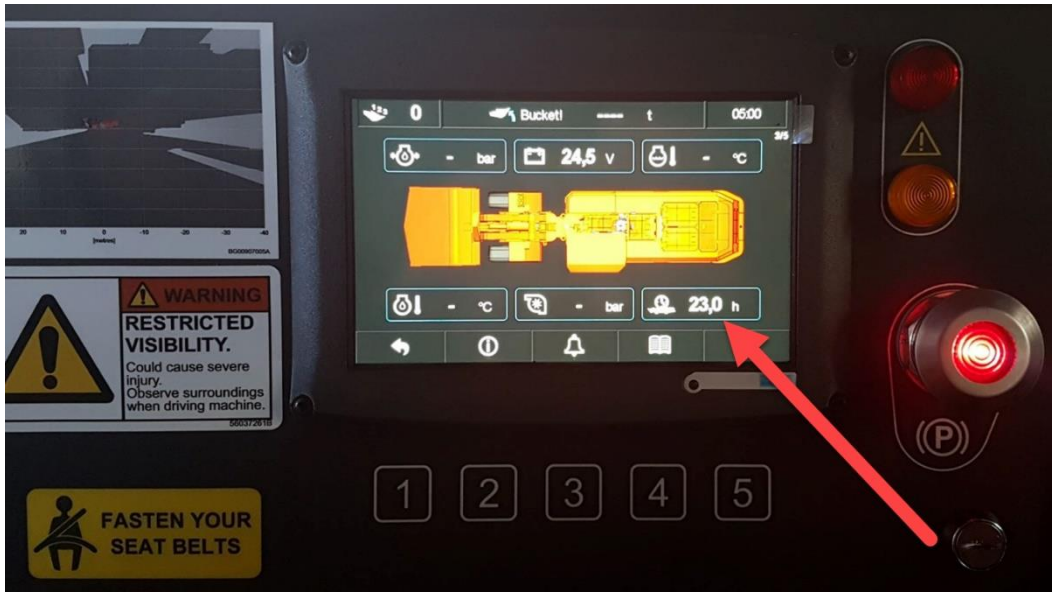


Figure 1: Documenting machine hours

4.0 MEASURING SHARK™ GROUND ENGAGING TOOLS

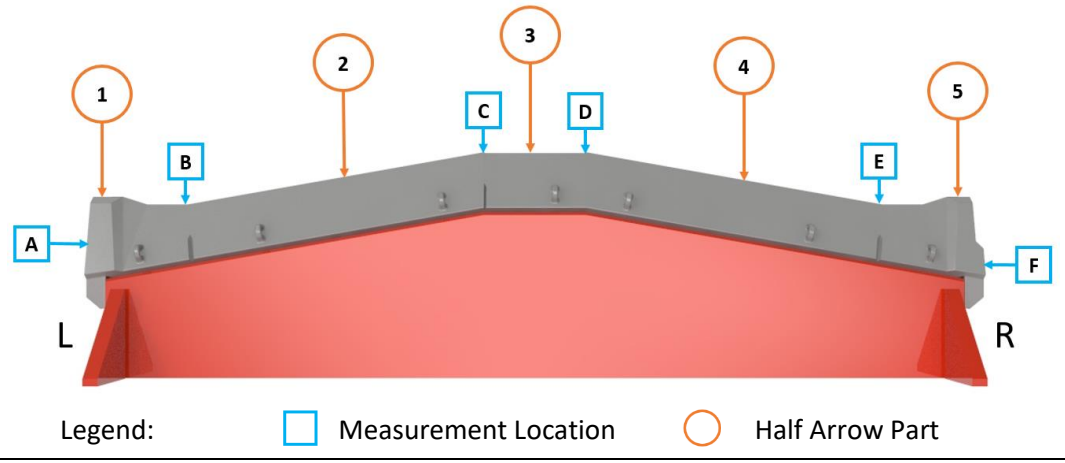
Follow activity steps **B** through to **F** to measure SHARK™ Ground Engaging Tools (GET).

ACTIVITY		HAZARD 'CAUSING WHAT'	EXISTING CONTROLS	VISUALS
A	General Activities	Wet floors cause slips, falls and injuries	Take Five Clear work area of obstacles Use caution when traversing wet terrain	 *Figure 2: Ensure bucket is clean before measuring GET*
		Dust particles in the air from cleaning results in worker inhaling dust and/or getting dirt in their eyes	Suppress dust with water sprays Ensure work area has good ventilation Wear safety glasses, dust masks & appropriate PPE	
B	Clean bucket with high pressure washer	The washer hose acting as an obstacle causing trips and falls resulting in injury	Ensure nearby personnel are at a safe distance Be aware of hose position relative to feet Wear appropriate PPE as specified in Section 2.0	
		Washer operation accelerates stones and debris	Use goggles/face shield to protect eyes and face Wear long sleeved clothing, gloves & trousers	
		Kickback from pressure hose causes injury	Maintain firm footing and grip during use Wear appropriate PPE as specified in Section 2.0	
C	Position bucket 40 cm above ground	Wheel loader/LHD collides with person/property resulting serious injury or property damage	Ensure bucket is empty Pre-start check Only authorised and competent person can operate wheel loader/LHD Use a spotter Wear appropriate PPE as specified in Section 2.0	 *Figure 3: Support stand supports bucket*
D	Support bucket	Bucket falling from supports causing pinch/crush results in serious injury or death	Take Five Do not put limbs underneath suspended load (bucket) Use rated stands or cribbing blocks/wheel chocks	
E	Isolate, lockout &tag machine	Undesired start/movement of machine/bucket results in crush leading to serious injury or death	Apply park brake Chock wheels Follow worksite lockout and isolation procedure Tag machine out of service Lockout isolator Verify effective isolation Follow SG-10 Sandvik Guideline or appropriate site Lockout & isolation procedure	 *Figure 4: Multiple support stands used to support bucket*
F	Measure the GET by following the appropriate *How to measure GET* instructions outlined in this document	Person could get fingers caught between shroud assembly causing personal injury	Take Five Wear gloves Avoid pinch points	
		Bucket falling from supports causing pinch/crush results in serious injury or death	Take Five Do not put limbs underneath suspended load (bucket) Use rated stands or cribbing blocks	

**Note: ***To obtain an accurate description of shroud wear, obtain a measurement for shroud length and thickness and record the data using SHARK™ Wear Tracking Tools.

How to measure GET: Weld-On GET

Top View: Half Arrow Lip



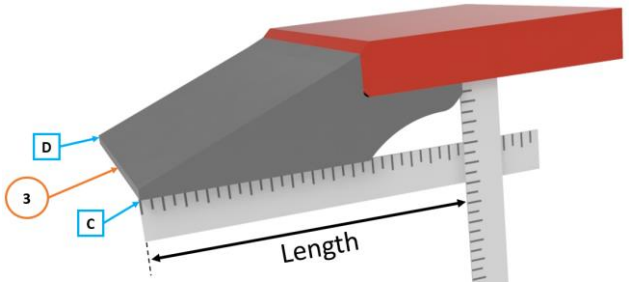
To the measure GET from the Half Arrow Series, record the LENGTH and THICKNESS measurements at locations A through to F.

Reference:

A. Outer edge of left corner piece (**1**)
B. Between left corner piece (**1**) and left wear edge (**2**)
C. Between left wear edge (**2**) and centre wear edge (**3**)
D. Between right wear edge (**3**) and centre wear edge (**3**)
E. Between right corner piece (**5**) and right wear edge (**4**)
F. Outer edge of right corner piece (**5**)

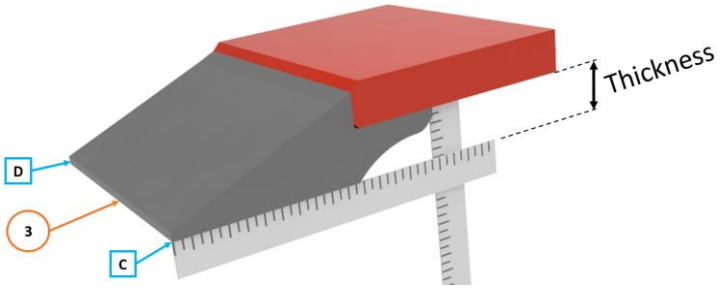
1. Left corner piece
2. Left wear edge
3. Centre wear edge
4. Right wear edge
5. Right corner piece

How to measure LENGTH



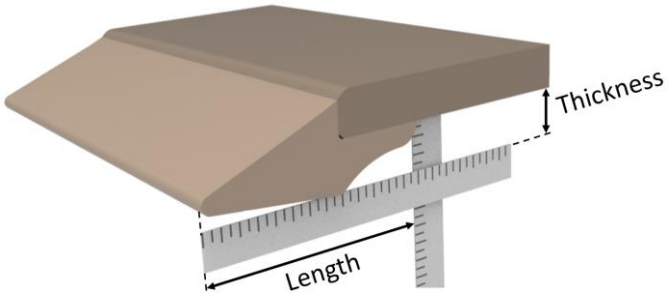
The length measurement is the length measured from the front wear edge to the rear edge of the half arrow section. The ruler should be parallel with the bottom face of the lip plate.

How to measure THICKNESS



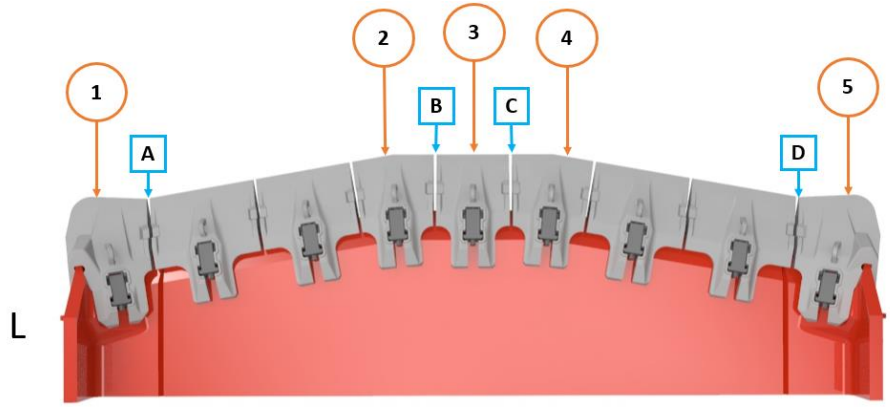
The thickness measurement is the perpendicular length measured from the bottom face of the lip plate to the bottom-most face of the Half Arrow section.

How to measure WORN EDGES



How to measure GET: Mechanically Attached GET

Top View: Mechanically Attached GET Lip



Legend: Measurement Location Mechanically Attached Part

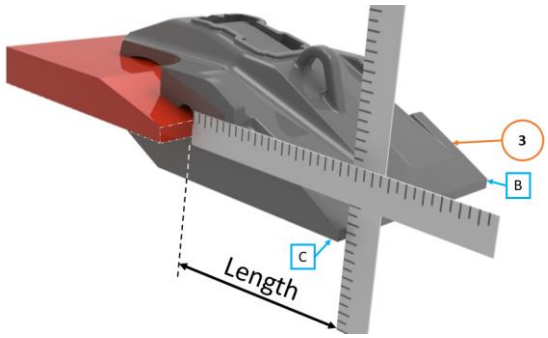
To the measure GET from any Mechanically Attached Series, record the LENGTH and THICKNESS measurements at location A through to D.

Reference:

A. Left corner shroud (**1**)
B. Between left transition shroud (**2**) & centre straight shroud (**3**)
C. Between right transition shroud (**4**) and centre straight shroud (**3**)
D. Right corner shroud (**5**)

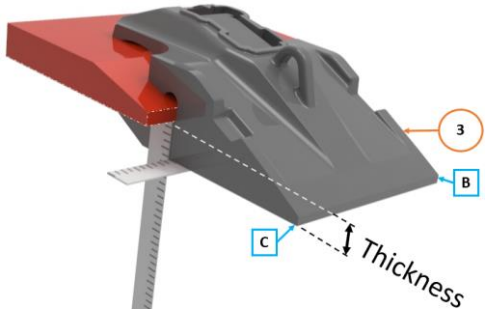
1. Left corner shroud
2. Left transition shroud
3. Centre straight shroud/s
4. Right transition shroud
5. Right corner shroud

How to measure LENGTH



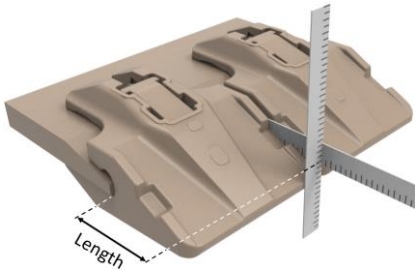
The shroud length is the perpendicular length measured from the front edge of the lip plate to the front edge of the shroud.

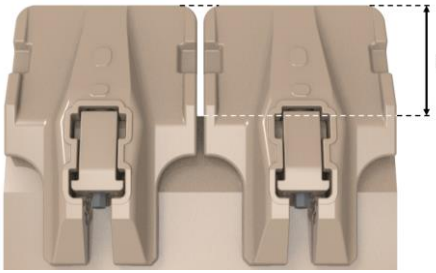
How to measure THICKNESS

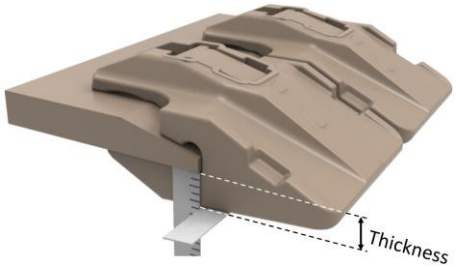


The shroud thickness is the perpendicular length measured from the bottom of the lip plate to the bottom-most face of the shroud.

How to measure WORN SHROUDS

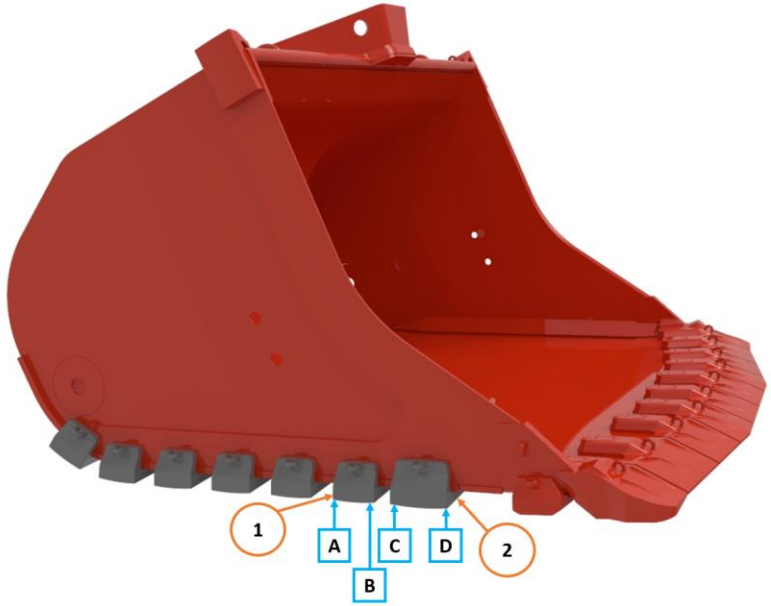






How to measure GET: Heel Shrouds (Weld-On & Mechanical)

Right Side View: Heel Shrouds Attached To Bucket



Legend: Measurement Location Heel Shroud

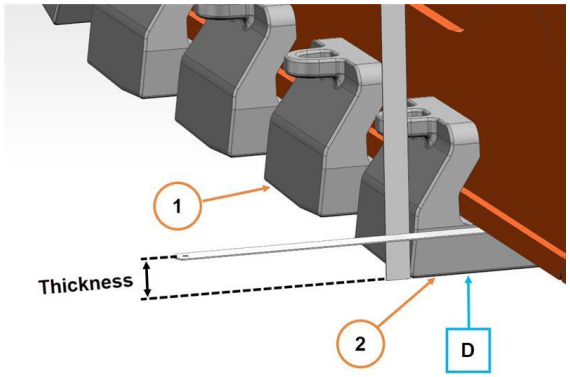
To the measure Heel Shrouds (Weld-On & Mechanical), record the WIDTH and THICKNESS measurements of both the front and rear faces of the first and second Heel Shrouds from the bucket lip as specified by locations A through to D.

Reference:

A. Rear side of second Heel Shroud (**1**) from bucket lip
B. Front side of second Heel Shroud (**1**) from bucket lip
C. Rear side of Heel Shroud (**2**) closest to bucket lip
D. Front side of Heel Shroud (**2**) closest to bucket lip

1. Heel Shroud closest to bucket lip
2. Second Heel Shroud closest to bucket lip

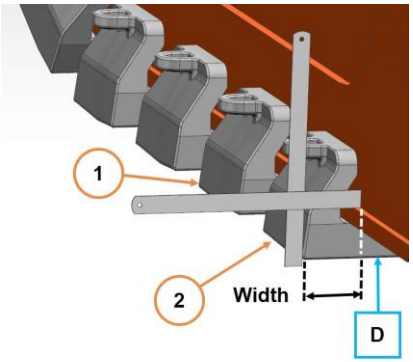
How to measure WIDTH



The Heel Shroud width is the perpendicular length measured from the side face of the bucket to the outer edge of the Shroud.

(Note: Measure the front and rear faces of the shroud)

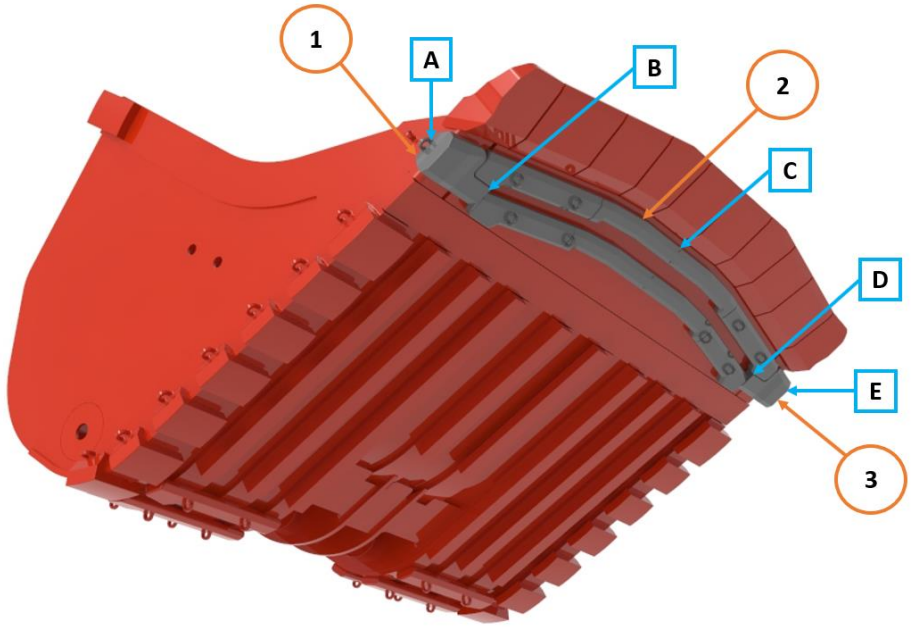
How to measure THICKNESS



The Heel Shroud thickness is the perpendicular length measured from the bottom face of the bucket to the bottom edge of the shroud.
(Note: Measure the front and rear faces of Shroud)

How to measure GET: Cast Profile Bar (CPB)

Bottom View: Bucket Showing Cast Profile Bar Sections



Legend: Measurement Location Cast Profile Bar Section

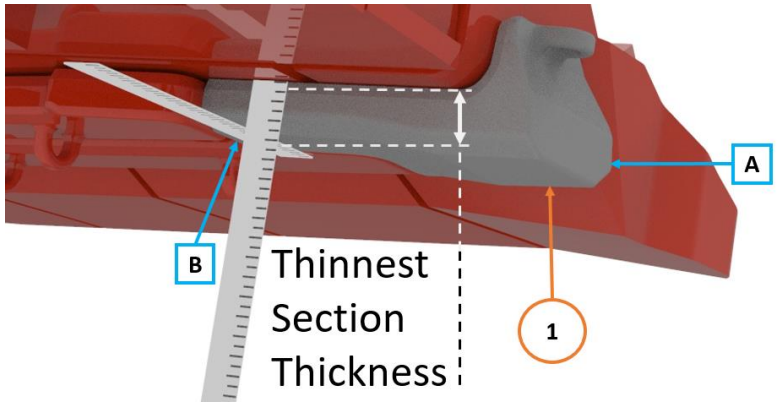
To measure the Cast Profile Bar, record the **WIDTH** and **THICKNESS** of each Heel Shroud (**1**,**3**) at their thinnest sections as indicated by location A, B, D and E. The centre CPB (**2**) **THICKNESS** should be measured at the section's thinnest section C.

Reference:

A. Outer edge of right CPB Heel Shroud (**1**)
B. Thinnest section of right CPB Heel Shroud (**1**)
C. Centre CPB section (**2**)
D. Thinnest section of left CPB Heel Shroud (**3**)
E. Outer edge of left CPB Heel Shroud (**3**)

1. Right Heel Shroud to suit CPB
2. Centre section of CPB closest to bucket lip
3. Left heel shroud to suit CPB

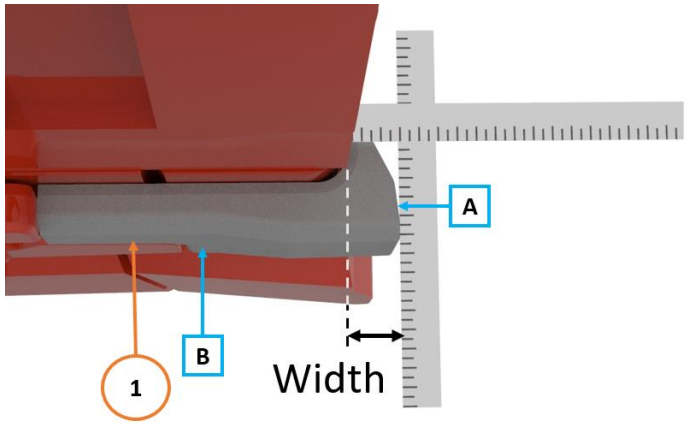
How to measure THICKNESS



The CPB is considered only as thick as it's thinnest section. The thickness of the CPB Heel Shroud (**1**,**3**) measured at its thinnest section is the perpendicular distance from the bottom face of the bucket to bottom face of the Heel Shroud.

The centre CPB section (**2**) thickness is measured at the section's thinnest part and is the perpendicular distance from the bottom face of the bucket to bottom face of the CPB section.

How to measure WIDTH



The CPB Heel Shroud width is the perpendicular length measured from the side face of the bucket to the outer edge of the Shroud and should be recorded at the shrouds thickest section.

5.0 MEASURING SHARK™ Ground Engaging Tools

REV	NOTES	PREPARED BY	CHECKED BY	APPROVED BY	DATE
0	Original Release	Rob Lauchlan	Bruce Knowles	Ilkka Hyvönen	29/08/2019
1	Update WHS measurement picture	M. Javadi	M. McCormick	M. Javadi	27/03/2025