

MERITOR® CALIPER CORE MANUAL



INTRODUCTION

With the increased global focus on sustainability and recycling, remanufacturing is becoming more and more popular. The automotive aftermarket has a long tradition of remanufacturing major components and even remanufactured safety related items such as brake calipers are accepted, and sometimes favoured by end users. A quality remanufactured component offers OE equivalent performance while giving cost benefits as well as saving on raw materials and energy.

Remanufacturing 50,000+ brake calipers, and 1,500+ differentials per year Meritor takes its commitment to be a sustainable and green manufacturer very seriously. We estimate that our remanufacturing operations save 3,800 tons of CO2 emissions per year, as well as recycling many 1000's tons of iron and steel.

To ensure maximum benefit from our remanufacturing process, efficient core return and high core quality is vital. This document is designed to ensure that our core returns processes are understood and as easy as possible for you to work with.

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1. MERITOR CORE RETURNS POLICY



As a remanufacturer, it is vital that we receive the correct mix and quality of old core.

This enables us to maintain good product availability across our range and provide high quality product to you – when you need it. These documents are designed to explain our core policy, our core returns process and paperwork and core acceptance criteria to you. Working together efficiently on core collection benefits both your company and Meritor.

CORE POLICY TERM DEFINITIONS

- Core eligibilities are defined as cores eligible for credit resulting from purchases of surchargeable product. Core eligibilities are often referred to as “cores owed”.
- Core bank is defined as cores returned in excess of what is eligible (within a core group), resulting in a “banked” condition. Sometimes known as “over returns”.
- Exchange product is a product, which could be new or remanufactured, where core return is required.

CORE ELIGIBILITIES AND BANKS

- Core returns will be applied to the oldest eligible purchase.
- Returned cores will be valued based on the original core surcharge value in accordance with the Core Acceptance Guidelines.
- Cores must be returned within 12 months of purchase in order to be eligible to receive credit for the accepted cores. Eligibility is expired if the core is not received back in acceptable condition within 12 months.
- Core returns which exceed core eligibilities will result in the cores being banked.
 - A core bank balance can be reduced by purchasing exchange product or increased by returning more cores.
 - Core balances not used within 12 months will be eliminated from the core bank. You can see where banked core is due to be lost on your monthly core statement.
 - Core banks cannot be converted to cash credits, returned or transferred to other core groups.
 - Core bank values cannot be deducted from payments to Meritor.
- Only returned cores meeting the Meritor Core Acceptance Guidelines will be accepted.
- Core surcharge values are subject to change. Any change will be subject to 30 day advance notification.
- Shipment of cores to our Core Return Centre constitutes acceptance of the above terms.

CORE STATEMENTS AND REPORTS

All customers receive a monthly core statement during the 1st week of each calendar month. You can request an updated core statement throughout the month by contacting Customer Service on core2@meritor.com

RETURNING CORES

- Meritor will pay the freight on one shipment per month of a minimum of 10 calipers or 4 carriers, except under special circumstances that are agreed in advance of shipment.
- Customers shipping more than one return per month must ship a minimum of 25 calipers or 10 carriers per return to qualify for additional collections, except in special circumstances that are agreed in advance of shipment.
- The core collection will be organised from the primary 'Ship to Address' location of the customers. The 'Ship to Address' will be as defined in the Meritor Core Returns Portal. It is the customer responsibility to collect the cores from their subsidiaries and branches to their 'Ship to Address'.
- The packing of the returned cores should guarantee good handling condition, avoid oil contamination and, where possible, include the original packaging.
- The packaging/containers of the returned cores will not be sent back to customers.

IMPORTANT NOTE

- Customers should not include any items other than cores in these returns. Items returned not included in the Meritor core programme will not be credited and will not be sent back to customers.

CORE ACCEPTANCE GUIDELINES

- Cores should be returned to Meritor in 'off vehicle' condition and as received in exchange for a sale of a Meritor exchange or remanufactured product.
- Core returns that are obviously sourced from breakers yards, scrap yards or core brokers may be rejected.
- Based upon actual core condition, as received at Meritor, the percentages shown below will be deducted from the original core surcharge values.
- Cores with deduction will be available for inspection for a maximum of two weeks after the end of the month of return.

Calipers	% Deduction
Broken, cracked or damaged core housing	100%
Non original cores	100%
Core is not in an active core group within the Meritor product range	100%
<hr/>	
Damaged or missing casting component (carrier, bridge, endplate, pushplate)	50%
Damaged or missing key component (eccentric, op-shaft, spline, potentiometer)	50%
<hr/>	
Full core return (including all casting and key components) with no damage	0%

Refer to Section 5 – Core Quality Guidelines ►

2. MERITOR CORE STATEMENT EXPLANATION



Core Statement:	Explanation	10
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This indicates the last month of the period considered when generating the report.

This report is normally sent within the first 10 days of the following month. This example has been produced in the first 10 days of October 2013; therefore, the month of September 2013 is closed and for reference only. The full period considered is from September 2013 to August 2014 (12 months).

The report is detailed per core group.

Meritor Aftermarket Europe										Monthly Core Statement						
Period Ending: September 2013										Page 1						
Z999 EUR DISCRETE GROUP EUROS																
1234 CUSTOMER NAME																
Transactions by Period					Cores Due by Month						Total Eligible	Total Banked	Total Customer			
Date	Transaction	Core Part	/Reman	/Cust Ref	Core Qty	Sep	Oct	Nov	Dec	Jan	Feb	+				
Core Group		MCC021	CALIPER D-DUCO													
09/01/13	Beginning					0	0	0	2	0	0	1	3	0		
10/01/13	Ending					0	0	0	2	0	0	1	3	0		

◀ Monthly core statement example

The « **Beginning** » line shows the status of the Core Group the 1st day of the month
(09/01/13 ➔ 1st September 2013)

The « **Ending** » line shows the status of the Core Group the 1st day of the following month
(10/01/13 ➔ 1st October 2013)

This box shows the status of pending returns for the following months, giving the outlook for the year.

IN THIS EXAMPLE:

- **Sep:** is the last month, and therefore is closed. Any eligibility not returned during this month is lost.
- **Oct to Jan:** Core return status detailed per month: 2 cores are due before end of Dec
These 2 cores have been purchased in the period Jan-13 and not yet returned.
- **Feb + :** Core return status from February until the next 7 following months (till August)

ELIGIBLE: Outstanding cores to return to obtain a credit note.
BANKED: Cores returned in excess. If the number is positive, the surcharge will not be paid when purchasing any caliper belonging to this core group *.

IMPORTANT:
On the same line, there must always be at least a zero value between Eligible and Banked.

The example above is used for explanation purpose but also show an existing situation: for the Core Group described above, there have been neither purchases nor returns during this month, therefore “Beginning” and “Ending” lines are consecutive and identical.

IMPORTANT:
You can clearly see the risk of losing eligibility at least 4 months in advance. The current month (October) pending returns appear on the last page of the report : «Summary of cores due this month.»

SUMMARY OF CORES DUE THIS MONTH		
IMPORTANT		
Cores due current month must be in transit by the 15 th of the current month to avoid loss of return eligibility		
Core Group	Description	Due Current
MCC023	CALIPER D-LISA	5
MCC101	CALIPER DX/DXP195 DX175	2

The summary is detailed per Core Group

Core Description

Quantity of cores that must be returned during the current month. In this example October 2013

On the following pages, we'll provide you more examples of possible transactions. ➔

Example 1: Simple Purchase

SIMPLE PURCHASE LINE: identified by the positive number as shown below

Meritor Aftermarket Europe										Monthly Core Statement			
Period Ending: September 2013										Page 410			
Z999 EUR DISCRETE GROUP EUROS													
1234 CUSTOMER NAME													
Transactions by Period					Cores Due by Month					Total	Total		
Date	Transaction	Core Part /Reman /Cust Ref	Core Qty	Sep	Oct	Nov	Dec	Jan	Feb	+	Eligible	Banked	Customer
<u>Core Group</u>		MCC021	CALIPER D-DUCO & LE DUCO										
* 09/01/13	Beginning			0	0	2	6	1	0		9	0	
09/09/13	6078721	MCC021	LRG651	1					1		1	0	1234
09/30/13	6079958	MCC021	LRG650	2					2		2	0	1234
09/30/13	6079959	MCC021	LRG650	1					1		1	0	1234
10/01/13	Ending			0	0	2	6	1	4		13	0	

Date of invoicing
(9th of September
30th of September)

Invoice number

Core Part number
Meritor internal use only

Caliper Part Number

There are 12 months to return the cores, this is why this quantity appears under the „month+“

*** IMPORTANT :** Dates are in American format **month / day / year**

Example 2: Simple Return

SIMPLE RETURN LINE: identified by the negative number as shown below

Transactions by Period				Cores Due by Month						Total	Total		
Date	Transaction	Core Part /Reman /Cust Ref	Core Qty	Sep	Oct	Nov	Dec	Jan	Feb	+	Eligible	Banked	Customer
<u>Core Group</u>		MCC023	CALIPER D-LISA										
09/01/13	Beginning			0	0	1	0	2	4		7	0	
09/11/13	00011577	MCC023	3713	-2		-1		-1			-2	0	1234
				Quantity (negative)									
10/01/13	Ending			0	0	0	6	1	4		5	0	

Registration date of return (11th of September)

Registration number – Meritor internal use only

Core Part number Meritor internal use only

Core Collection ID number, generated during the request of Core Collection on www.meritor-corecollection.com

IMPORTANT:
This number is the traceability code that tracks the return of core from the beginning to the end

The deduction is made on the oldest eligibility possible, in other words the first one to expire. In this example November then January

Example 3: Combined Returns and Purchases

----- Transactions by Period -----				----- Cores Due by Month -----						Total	Total		
Date	Transaction	Core Part /Reman /Cust Ref	Core Qty	Sep	Oct	Nov	Dec	Jan	Feb	+	Eligible	Banked	Customer
<u>Core Group</u>	MCC024	CALIPER D-ELSA 1 RADIAL											
09/01/13	Beginning			0	0	1	1	4	6		12	0	
09/01/13	7033129	MCC024 MXC9308014	2						2		2	0	1234
09/01/13	7033131	MCC024 MXC9308013	2						2		2	0	1234
09/11/13	0001577	MCC024 3713	-3			-1	-1	-1			-3	0	1234
09/11/13	0001577	MCC024 3713	-2					-2			-2	0	1234
09/11/13	7033451	MCC024 LRG542	1						1		1	0	1234
10/01/13	Ending			0	0	0	0	1	11		11	0	

All the cores returned (here 5) have not been sufficient to clear all the eligibilities: there is still 1 core to return before the end of January

For each column, the bottom number (line „ending“) is the exact addition of the numbers above.

The deduction is made on the oldest eligibility possible, in other words the first one to expire. In this example, November, then December, then January

Example 4: Creation of the bank

Core returns which exceed core eligibilities, will result in a core bank in units.

There are 4 eligibilities at the beginning of the month but cores are returned in excess.

----- Transactions by Period -----					----- Cores Due by Month -----						Total		
Date	Transaction	Core Part /Reman /Cust Ref	Core Qty	Sep	Oct	Nov	Dec	Jan	Feb	+	Eligible	Banked	Customer
<u>Core Group</u>	MCC021	CALIPER SB-SN7 AXIAL											
09/01/13	Beginning			0	0	0	0	0		4	4	0	
09/09/13	0001569	MCC211	3600							-1	-1	0	1234
09/09/13	0001569	MCC211	3600							-1	-1	0	1234
09/09/13	0001569	MCC211	3600							-1	-1	0	1234
09/09/13	0001569	MCC211	3600							-1	-1	1	1234
09/09/13	0001569	MCC211	3600							-1	0	4	1234
10/01/13	Ending			0	0	0	0	0		0	0	5	

Once all the eligibilities are cleared, the quantities in excess are banked.

IMPORTANT:

The bank quantity will decrease when a caliper belonging to the same Core Group is purchased and, in such a case, a surcharge will not be charged because **a core had already been returned.**

Example 5: Use of the bank

YOUR ADVANTAGES OF BANKING CORES:

When a core group shows a bank, it means that you will not pay the surcharge for your future purchase of calipers of this group, until the bank quantity is exhausted. The bank can be increased by returning more cores.

Transactions by Period				Cores Due by Month						Total	Total		
Date	Transaction	Core Part /Reman /Cust Ref	Core Qty	Sep	Oct	Nov	Dec	Jan	Feb	+	Eligible	Banked	Customer
<u>Core Group</u>	MCC021	CALIPER C-DUCO & LE DUCO											
09/01/13	Beginning			0	0	0	0	0	0	0	0	5	
09/09/13	6078716	MCC021 LRG651	2								0	-2	1234
09/09/13	6078717	MCC021 LRG651	1								0	-1	1234
09/30/13	6079867	MCC021 LRG650	2								0	-2	1234
09/30/13	6079938	MCC021 LRG650	1							1	1	0	1234
09/30/13	6079940	MCC021 LRG650	1							1	1	0	1234
09/30/13	6079941	MCC021 LRG650	1							1	1	0	1234
09/30/13	6079942	MCC021 LRG650	1							1	1	0	1234
10/01/13	Ending			0	0	0	0	0	4	4	4	0	

Many lines appear to have the same caliper part number and therefore they look like to be identical. However, multi orders or returns must have occurred as many invoice lines were generated.

9 calipers were purchased during the month. As there are 5 in the bank, only 4 surcharges were due.

The month started with 5 in bank. Those 5 were cleared by the purchases. The remaining 4 are eligible for return.

Example 6: Loss of eligibility

----- Transactions by Period -----				----- Cores Due by Month -----						Total			
Date	Transaction	Core Part /Reman /Cust Ref	Core Qty	Sep	Oct	Nov	Dec	Jan	Feb	+	Eligible	Banked	Customer
<u>Core Group</u>	MCC023	CALIPER D-LISA											
09/01/13	Beginning			2	0	1	0	0	2		5	0	
10/01/13	Dropped			-2							-2	0	
10/01/13	Ending			0	0	1	0	0	2		3	0	

The 2 cores to return by September (now closed) are lost. This can be seen with the line "Dropped" which has been created after the very last day of the month (10/01/13 = 1st of October).

3. SCHEDULING CORE RETURNS



How To Schedule A Core Return

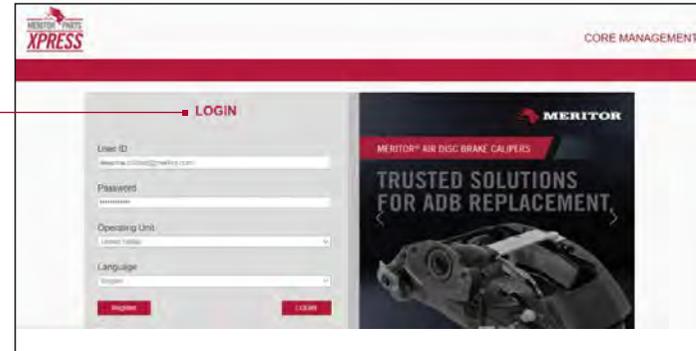
System Login	18
Core Return - Core Return Scheduling.....	18
Create New Return.....	18
Customer Reference	19
Return Lines	19
Submit Return	20
Shipping Information.....	21

Identify Meritor Core Part Number Using Product Line

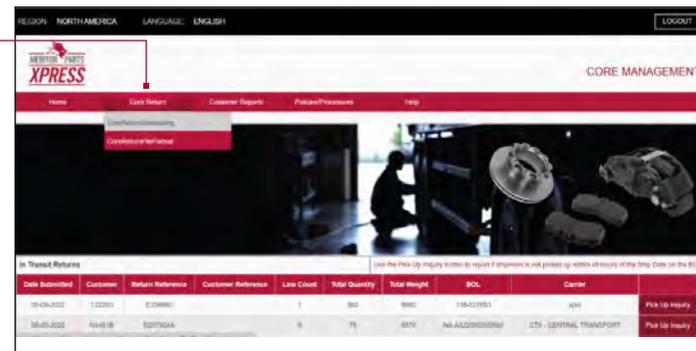
Option 1: Product Line Filter - Product Line	22
Option 2: Product Line Filter.....	22

How To Schedule A Core Return

1. Visit **MeritorCoresOnline.com** and sign into your account.

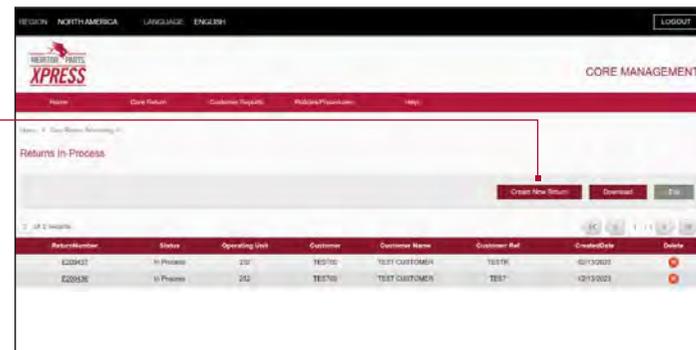


2. Hover over **Core Return** and select **Core Return Scheduling**.



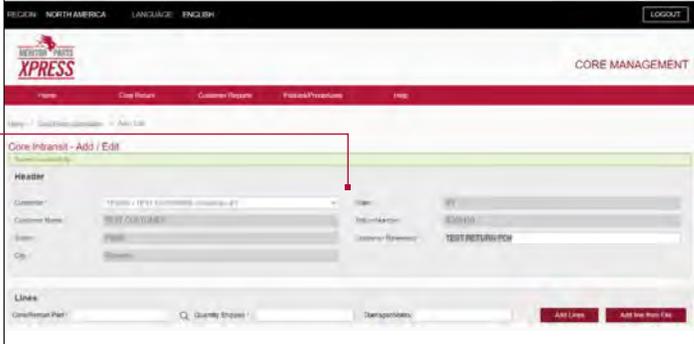
3. To start a new return, click **Create New Return**.

*If you started a return and saved it (did not submit), it will not appear on this page. Click on **Return Number** to continue work on that return.*



4. Enter information in the required fields within the **Header** section (**Customer** and **Customer Reference**).

The **Customer Reference** number entered will appear on credit notes generated by Cummins-Meritor as a result of the return. Data is automatically saved once you tab to the **Lines** section.



The screenshot shows the 'CORE MANAGEMENT' interface. The 'Header' section contains the following fields:

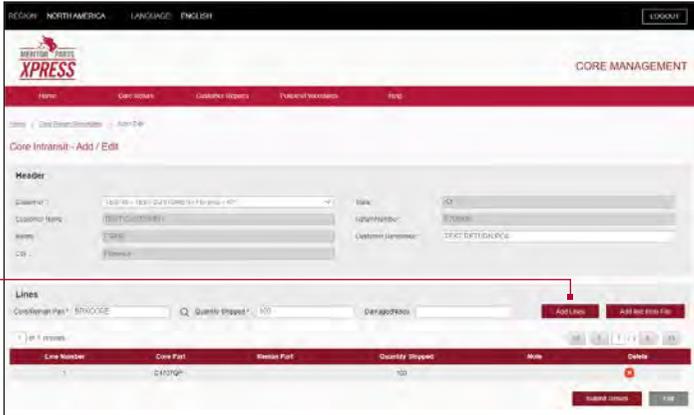
- Customer: TEST
- Customer Name: TEST
- City: TEST
- State: TEST
- Customer Reference: TESTRETURN01

The 'Lines' section is currently empty, with buttons for 'Add Line' and 'Add New Item'.

5. In the **Lines** section, enter the Cummins-Meritor core part number and quantity being returned then click **Add Line**.

Repeat these steps for each core part being returned.

For No Hassle Brake Core Returns, enter **BRKCORE** as the core part and then the total number of brake cores being returned.



The screenshot shows the 'CORE MANAGEMENT' interface with the 'Lines' section populated. The 'Add Line' button has been clicked, and a new line item is visible in the table below.

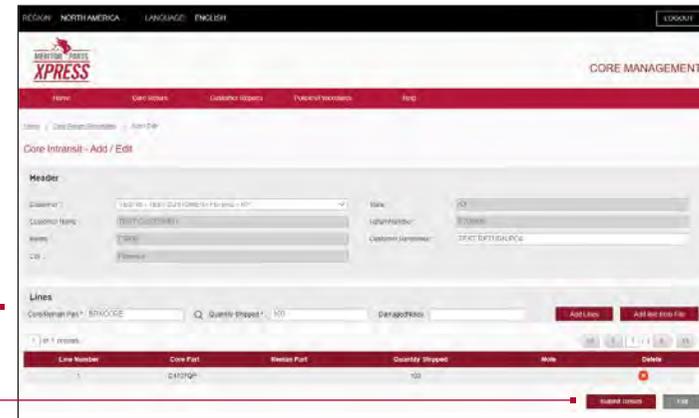
Line Number	Core Part	Return Part	Quantity Shipped	Units	Delete
1	BRKCORE		100		

6. Review all return lines to confirm accuracy.

To edit a line, you must delete the original line and re-enter the information.

7. Once complete click **Submit Return**.

If you exit at this point the return is automatically saved. The return can then be opened and completed later.

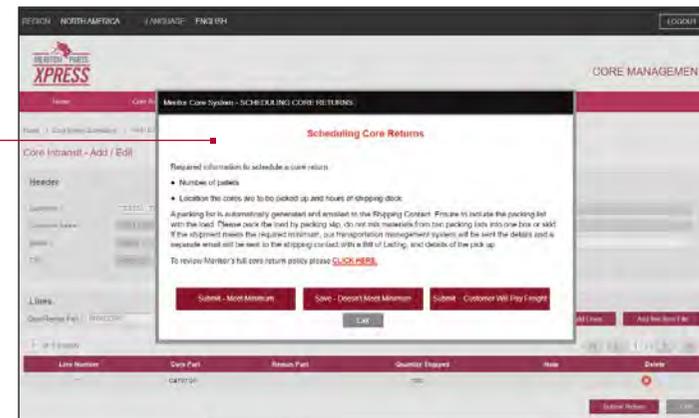


8. Upon submission of the return, a window will open that includes a link to Cummins-Meritor’s full core return policy. The return must meet the minimum requirements for Cummins-Meritor to pay freight.

If return meets the minimum select **Submit – Meets Minimum**. MCO will send you to the scheduling page.

To save the return to add more cores to it at a later date and then submit, select **Save – Doesn’t Meet Minimum**.

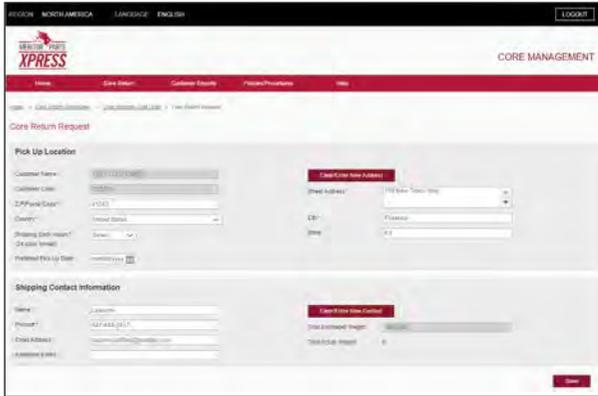
If the return does not meet the minimum and you want to arrange transportation to Cummins-Meritor at your expense, select **Submit – Customer Will Pay Freight**. A packing list will be generated and emailed to you.



- Complete all fields in the **Pick Up Location** section and hit **Save**.

*The option is available to pick up the cores at a different address. If the cores are to be picked up at an alternate location, click **Clear/Enter New Address**. Standard shipping dock hours are available in the drop down or select **Other** to enter specific hours.*

Shipping Contact Information is pre-populated based on your user ID. The email address provided will receive the Bill of Lading and Packing List to be used for the return.

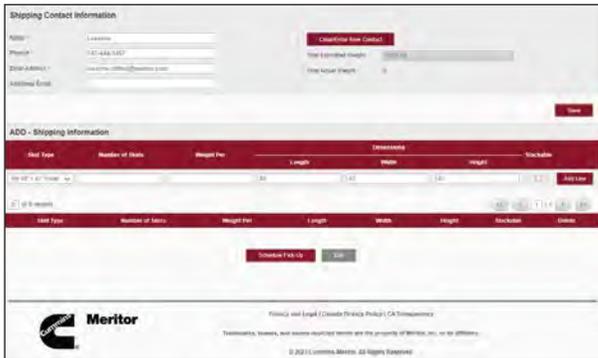


- In the **ADD – Shipping Information** section, enter the skid count.

MCO will distribute the total weight across the skids. Standard skid dimensions are pre-populated, but can be overwritten.

Click Schedule Pick Up.

Only one line is required if skid sizes are uniform. If using more than one size, please enter one line per skid size and adjust weight to approximate value per line.



Skid Type	Number of Skids	Weight Per	Length	Width	Height	Volume
48" x 48" x 48"	1	100	48	48	48	110,592

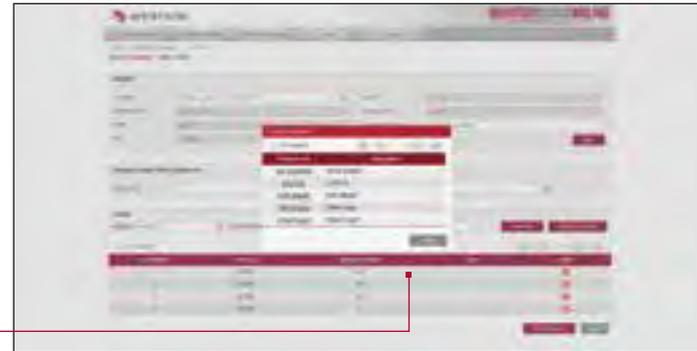
IMPORTANT: Your core return is now scheduled for pick up. The email address provided in the **Shipping Contact Information** will receive a Packing List immediately from **MeritorCoresOnline.com**. Once the return is scheduled by our transportation team, a BOL will be emailed, along with an email advising the date and time the core shipment will be picked up, as well as the freight carrier name.

Identify Meritor Core Part Number Using Product Line

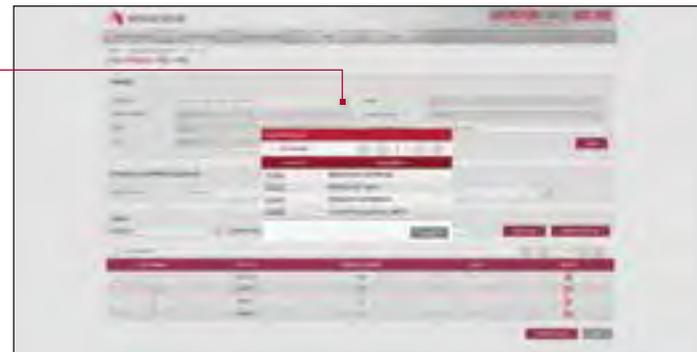
Option 1: Product Line Filter - Product Line

1. Click on the magnifying glass beside the Product Line box to view all available products in your region.

2. Select the **Product Line**. (e.g. Air Systems)



3. Click the magnifying glass by the Core Part field in the Lines section. It will return a list of only the selected product line core part numbers based on your account's purchase history.



Option 2: Product Line Filter – Core Group

1. Enter core part or use partial core part with a wildcard (*) and search using the magnifying glass.

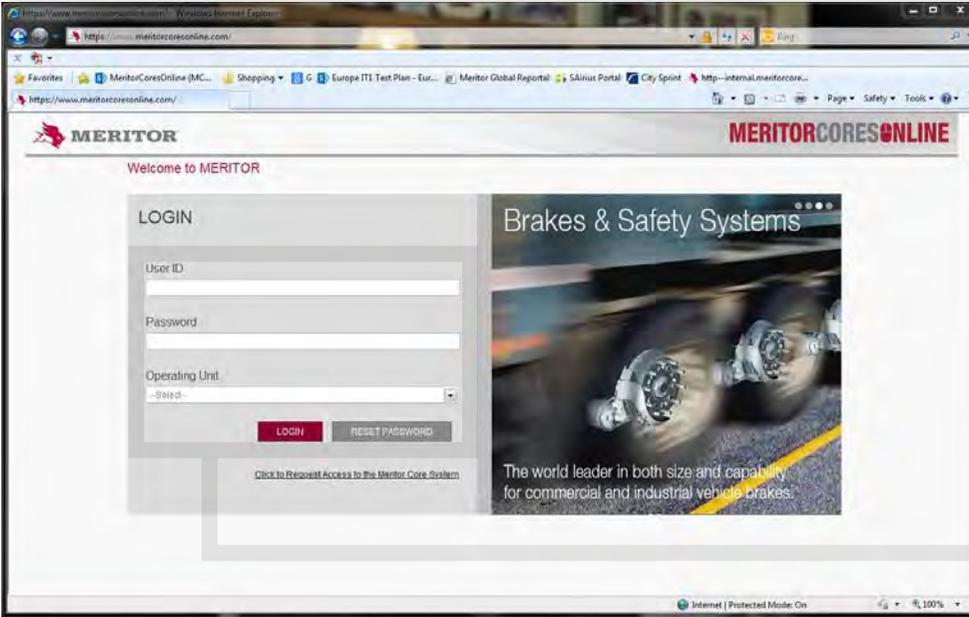
2. In the lines section click the magnifying glass beside the Core Part field and it will return a list of Core Parts that are in that Core Group.



4. MERITOR CORES ONLINE USER GUIDE

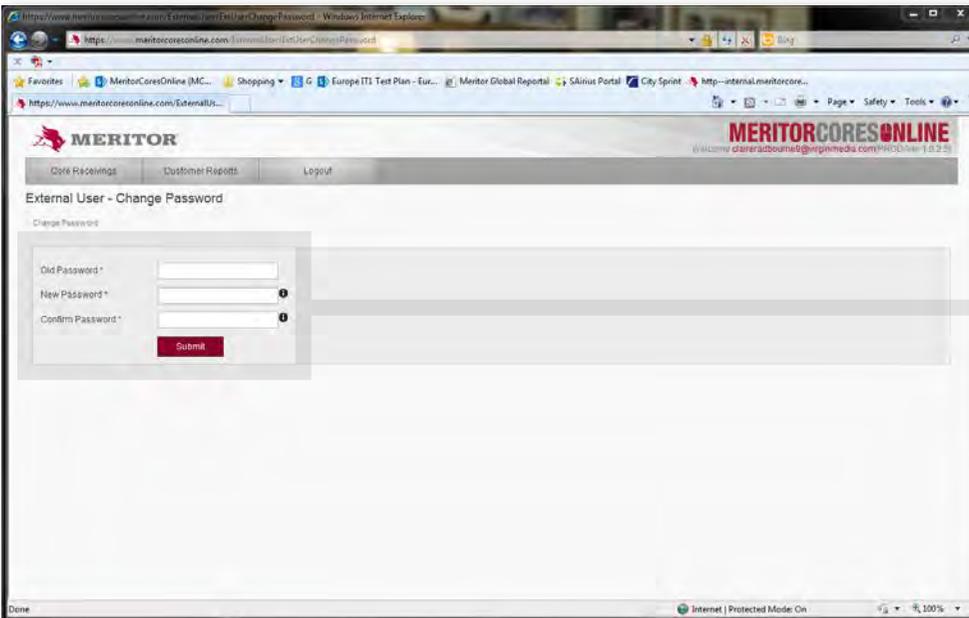


Login	24
Main Menu	25
Customer Core Statement.....	26
Live Statement	28
Core Return Report.....	29
Customer History Report	30



Enter your User ID and Password – Operating Unit will default to Europe

Click **LOGIN**



The first time you log in you will be asked to change your password

Once you have entered a new password click **SUBMIT**



After clicking on **SUBMIT** you will automatically be taken to this main menu screen



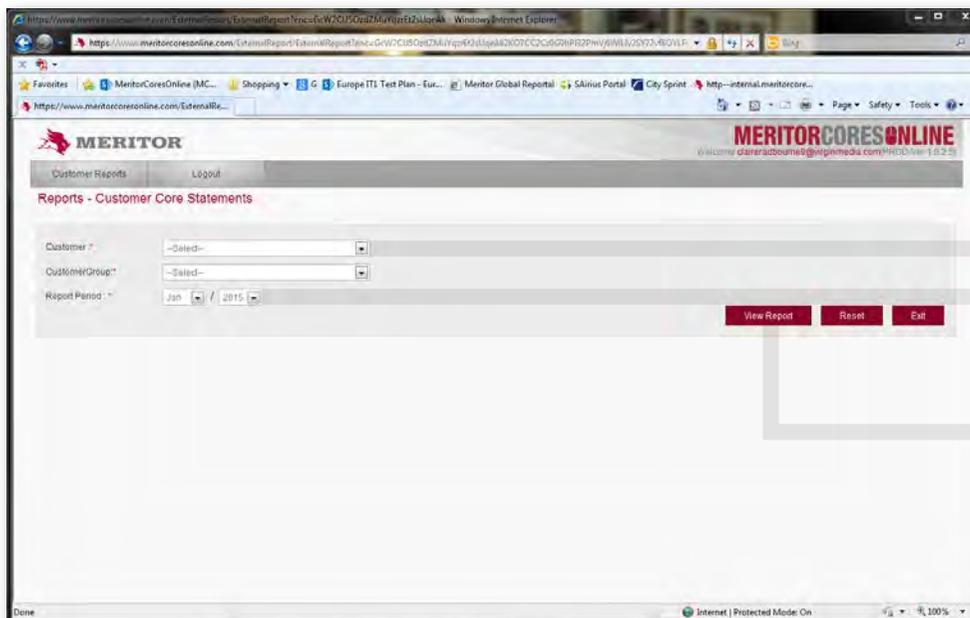
Click on Customer Reports – You will see you have a choice of 4 reports

- Customer Core Statement is the report you receive at the beginning of the month
- Live Statement shows you a more basic view of the core statement
- Core Return Report allows you to see the details of a specific core return. It shows you what has been accepted/rejected/banked
- Customer History Search shows you by date what calipers/diffs you have purchased, the value you were invoiced for the core, if you have returned the core, the credit note number, if the core was dropped and also if the core is still eligible for return



This example shows you how to run the Customer Core Statement

Click on Customer Core Statement

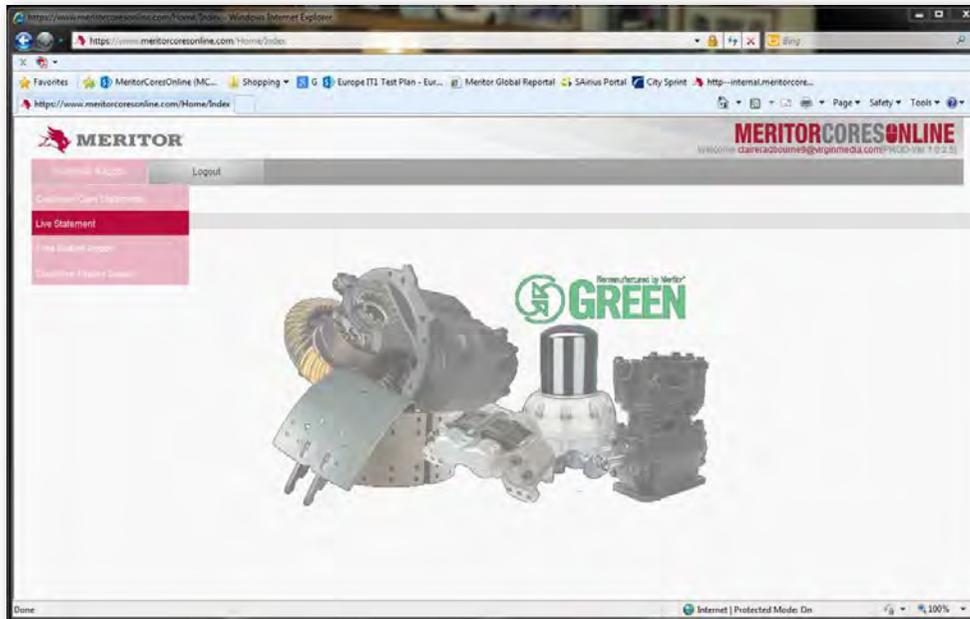


1) Click on drop down box and click on your account number

2) Choose the Report Period you want the statement for here

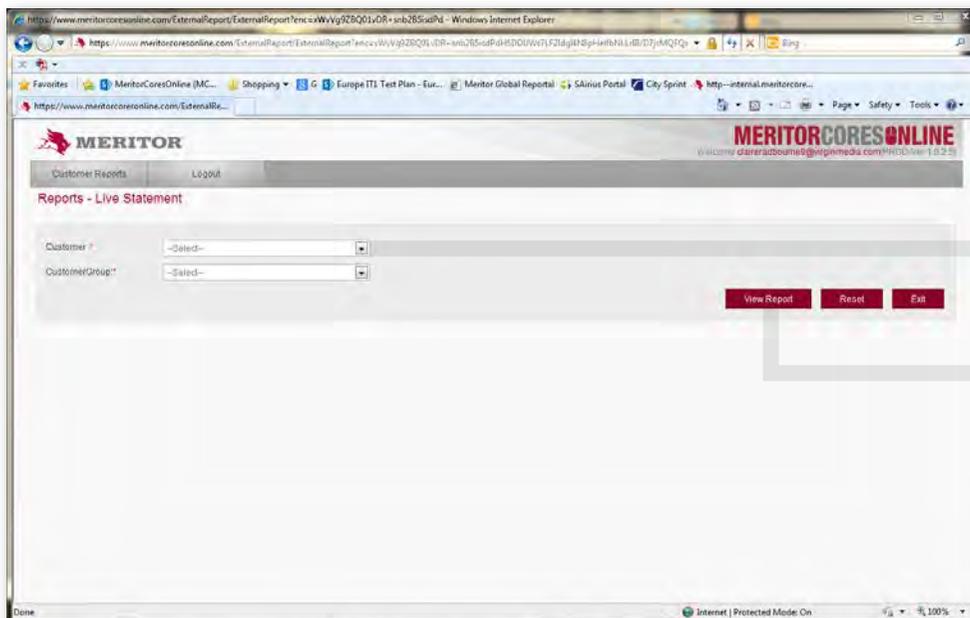
3) Click on View Request

Your report will open in a new window from which you can download your report into Excel, Word or a pdf



This example shows you how to run the Live Statement

Click on Live Statement



1) Click on drop down box and click on your account number

3) Click on View Report

Your report will open in a new window from which you can download your report into Excel, Word or a pdf in the same way as the Customer Core Statement



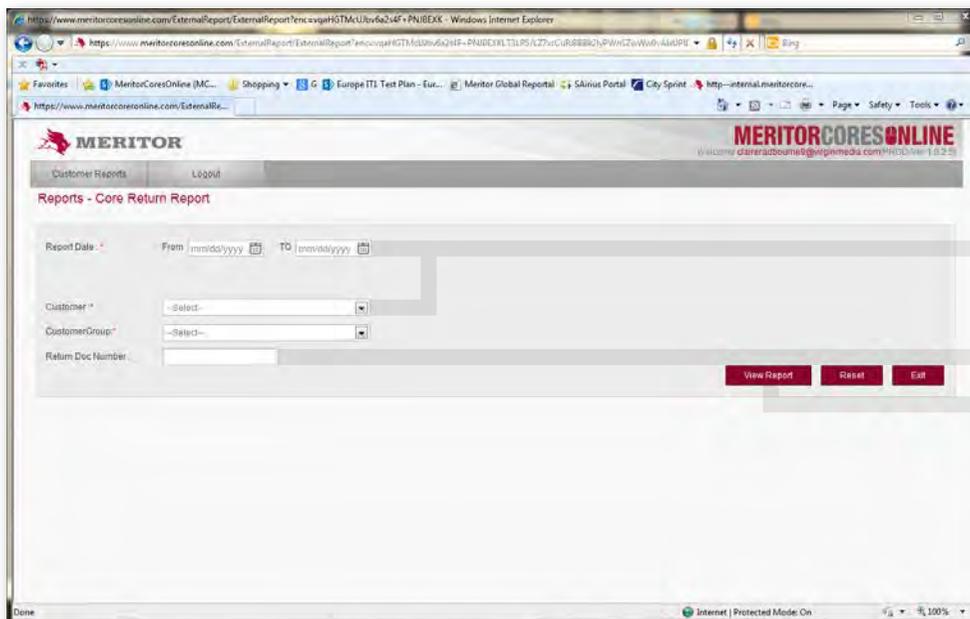
This example shows you how to run the Core Return Report

Click on Core Return Report

With this report you can run it by date or by unique Return Doc Number. The unique Return Doc Number will always start with the letter 'i'

You can obtain your Return Doc Number by doing one of the following:

- 1) Email your Request ID number to core2@meritor.com
- 2) Running a Customer History Search
- 3) The main body of the credit note



To run by date enter the date range and click on your customer number

To run by Return Doc Number you only need to enter the reference number

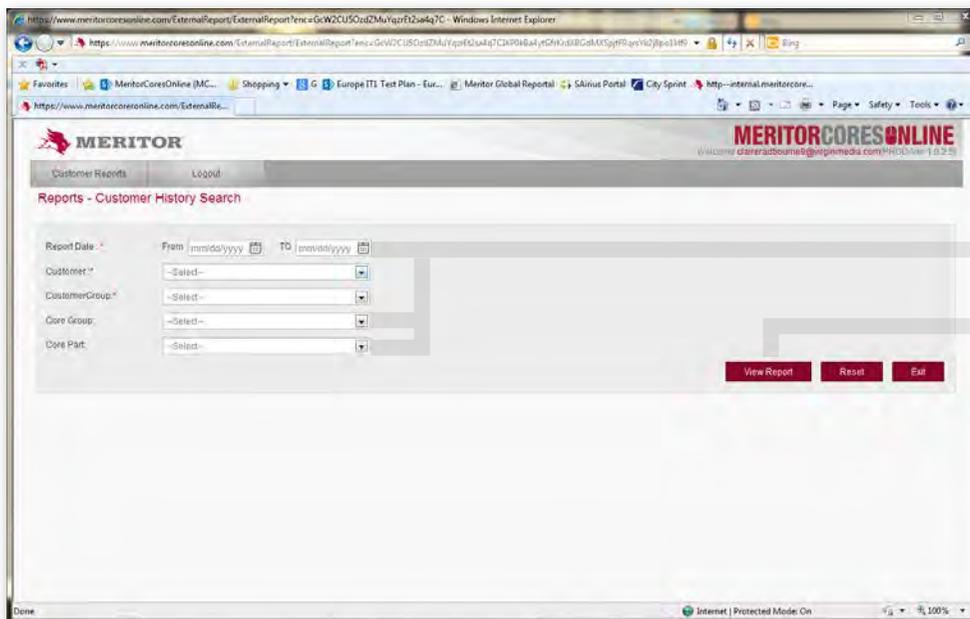
Click View Report

Your report will open in a new window from which you can download your report into Excel, Word or a pdf in the same way as the Customer Core Statement



This example shows you how to run the Customer History Report

Click on Customer History Search



This report allows you to run it by date range, core group or core part

Once you have entered your parameters click View Report

Your report will open in a new window from which you can download your report into Excel, Word or a pdf in the same way as the Customer Core Statement

5. CORE QUALITY GUIDELINES

CORE COMPONENTS:

Meritor core casting components.....	32
Knorr core casting components	33

FAIL MODES:

0% Acceptance = Meritor will credit 0% of surcharge value.

Damage to housing or non-original cores.

External surface damage	34
Breaks, cracks and other damage	40
Grinding damage	45
Modifications	51
Competitor cores.....	52

50% Acceptance = Meritor will credit 50% of surcharge value.

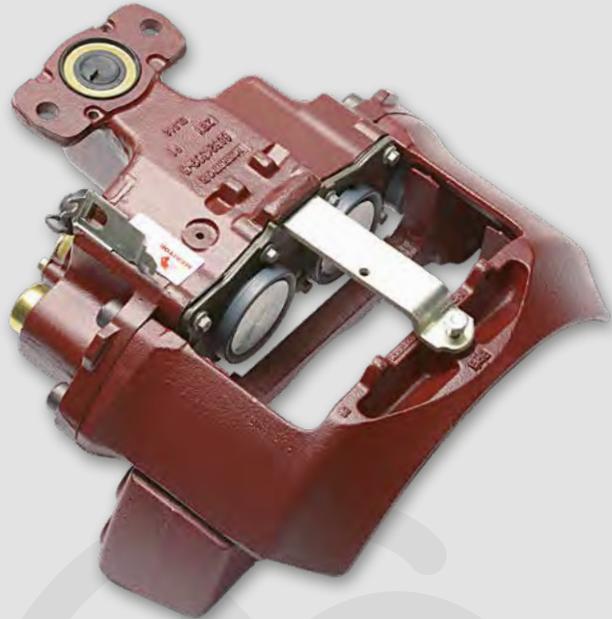
Damage to, or missing, bridge, carrier, endplate, key components.

Damage	53
Breaks and cracks	57
Miscellaneous	58

100% Acceptance = Meritor will credit 100% of surcharge value.

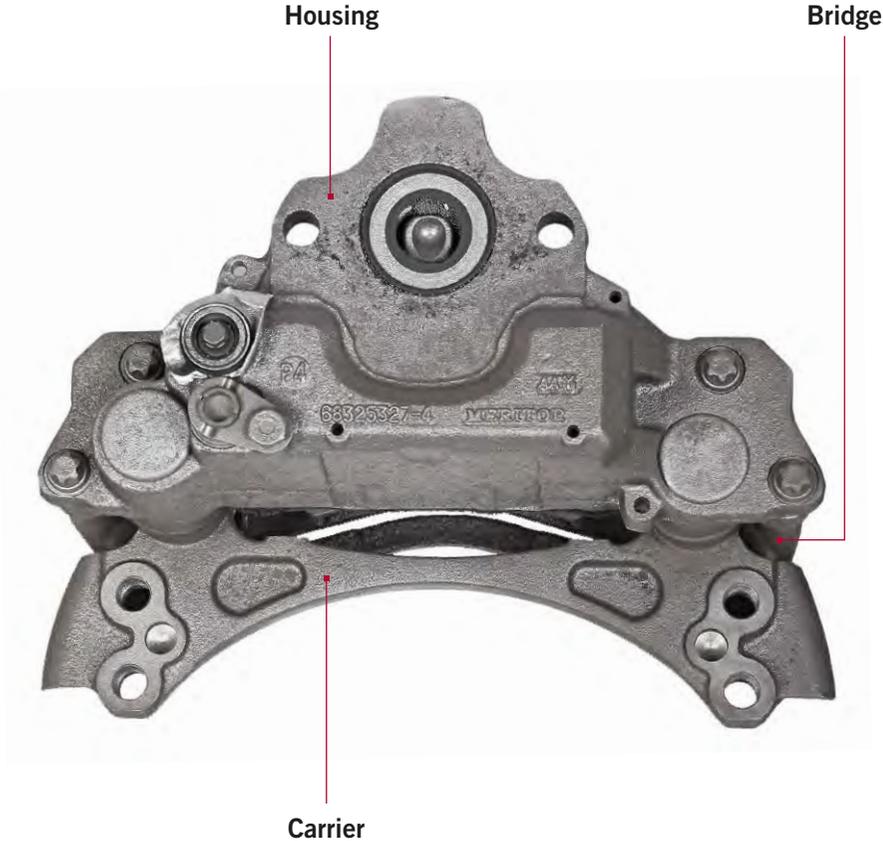
Full core return (housing, endplate, carrier, key components) with no damage.

Damage	59
--------------	----

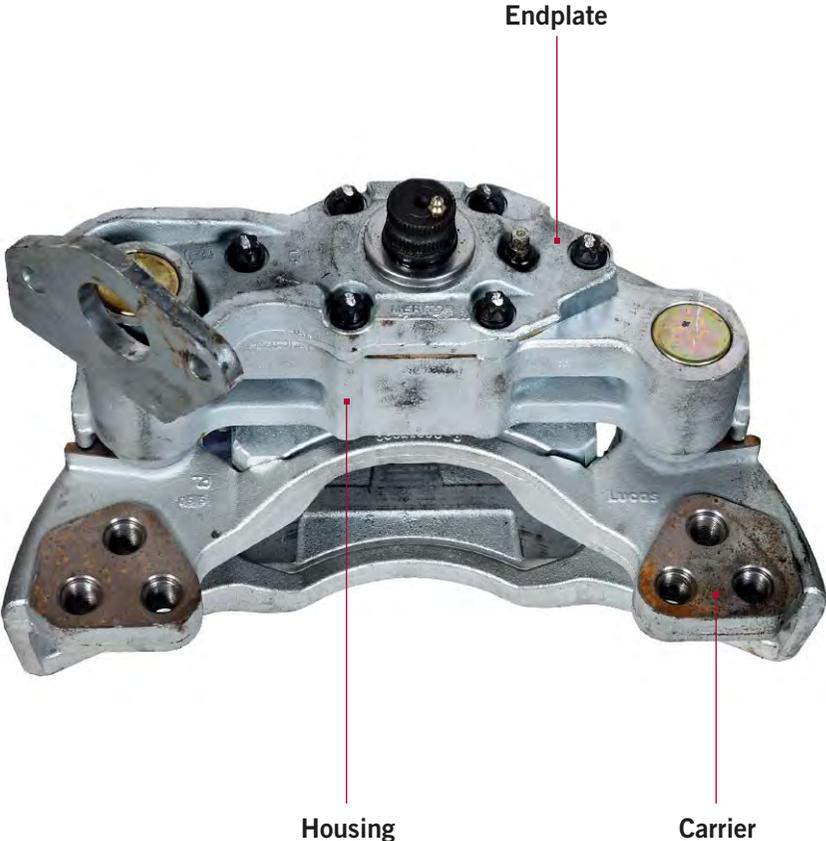


Meritor Core Casting Components:

Configuration A
(Housing, bridge, carrier)

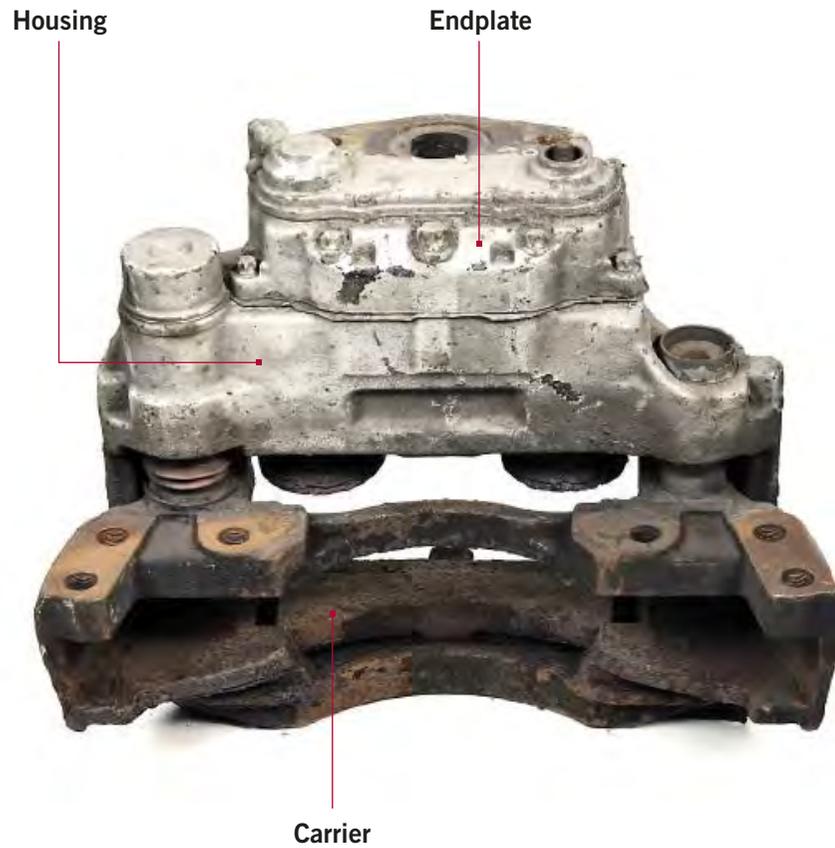


Configuration B
(Endplate, housing, carrier)

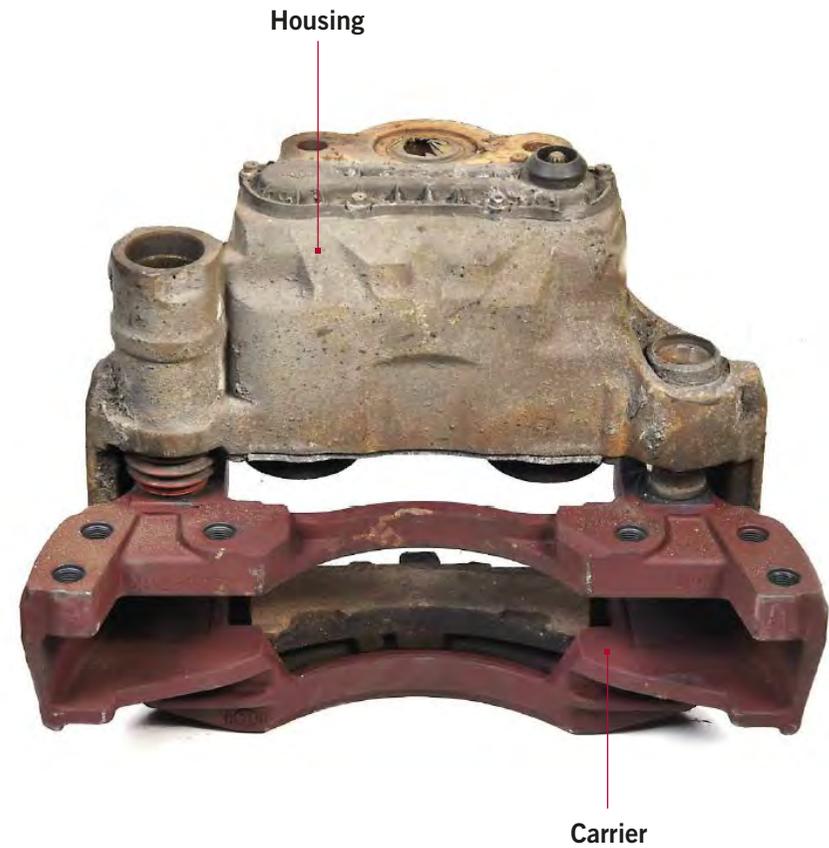


Knorr Core Casting Components:

Knorr SB variant
(Endplate, housing, carrier)



Knorr SN variant
(Housing, carrier)



Fail modes: 0% Acceptance – Meritor will not accept core with damaged housing or non-original cores.

EXTERNAL SURFACE DAMAGE TO HOUSING – EXAMPLES



External surface damage to Knorr housing



External surface damage to Knorr housing close up



External surface damage to Knorr housing close up

Fail modes: 0% Acceptance – Meritor will not accept core with damaged housing or non-original cores.

EXTERNAL SURFACE DAMAGE TO HOUSING – EXAMPLES



External damage to DUCO housing



External damage to DUCO housing close up



Surface damage to Knorr housing

Fail modes: 0% Acceptance – Meritor will not accept core with damaged housing or non-original cores.

EXTERNAL SURFACE DAMAGE TO HOUSING – EXAMPLES



External surface damage to Knorr housing



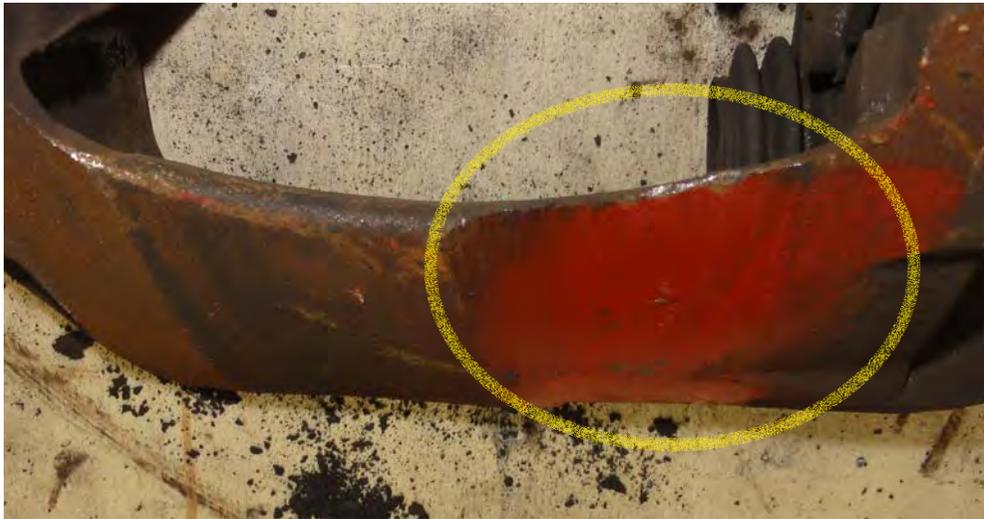
Surface damage to Knorr housing



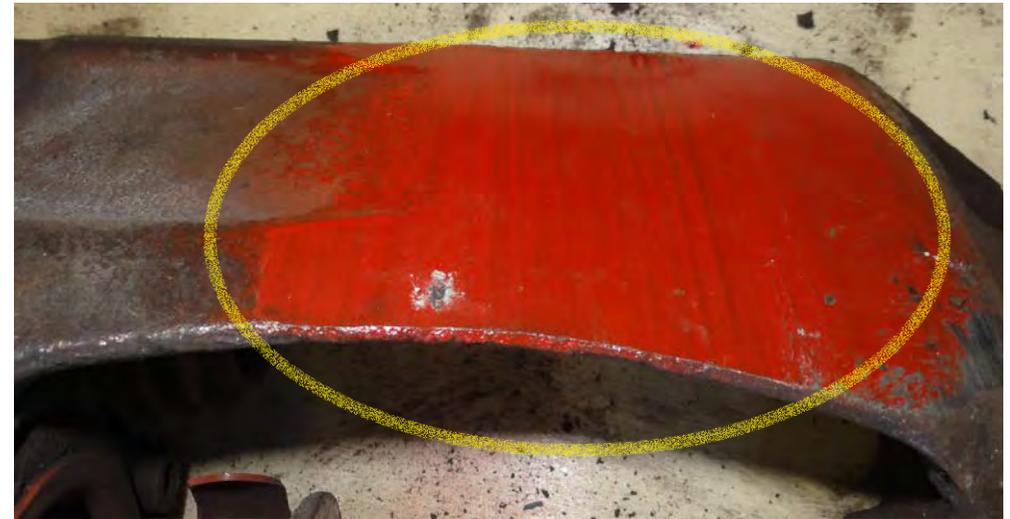
Surface damage to housing

Fail modes: 0% Acceptance – Meritor will not accept core with damaged housing or non-original cores.

EXTERNAL SURFACE DAMAGE TO HOUSING – EXAMPLES



External surface damage to Knorr housing



External surface damage to Knorr housing



Surface damage to Knorr housing



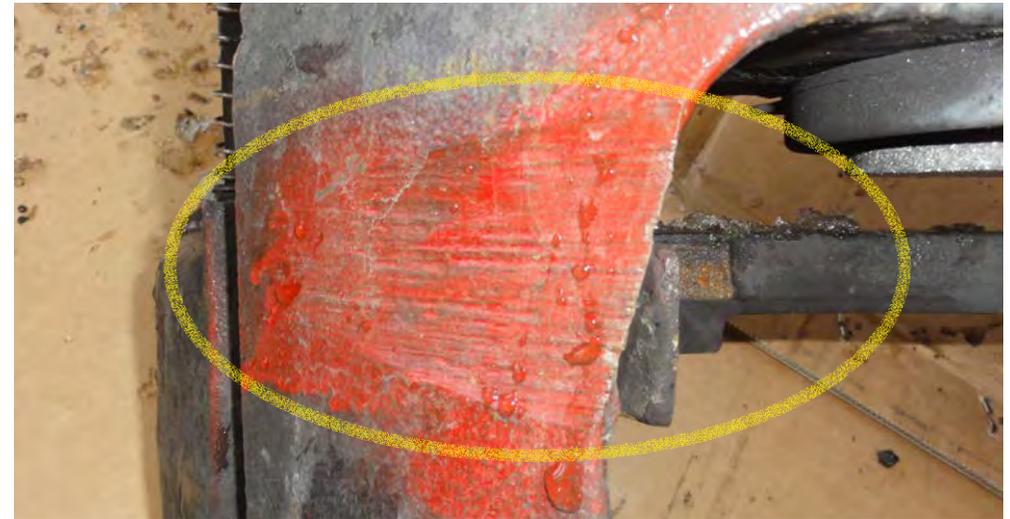
Surface damage to Knorr housing

Fail modes: 0% Acceptance – Meritor will not accept core with damaged housing or non-original cores.

EXTERNAL SURFACE DAMAGE TO HOUSING – EXAMPLES



Surface damage to housing



Surface damage to housing



Surface damage to Meritor housing



Surface damage, grinding to Knorr housing

Fail modes: 0% Acceptance – Meritor will not accept core with damaged housing or non-original cores.

EXTERNAL SURFACE DAMAGE TO HOUSING – EXAMPLES



Damage to corner face of DUCO housing



Damage to housing DX195

Fail modes: 0% Acceptance – Meritor will not accept core with damaged housing or non-original cores.

BREAKS, CRACKS AND OTHER DAMAGE TO HOUSING – EXAMPLES



Broken housing DUCO



Broken housing DUCO



Broken housing DUCO



Broken housing DUCO

Fail modes: 0% Acceptance – Meritor will not accept core with damaged housing or non-original cores.

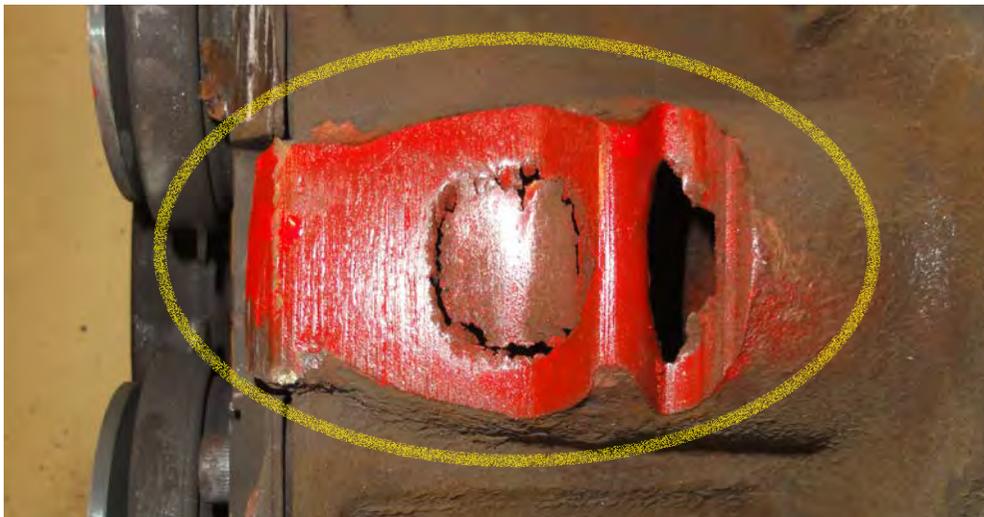
BREAKS, CRACKS AND OTHER DAMAGE TO HOUSING – EXAMPLES



Damage to ELSA225 housing



Damage to ELSA225 housing close up



Damage to ELSA225 housing close up



Cracked housing

Fail modes: 0% Acceptance – Meritor will not accept core with damaged housing or non-original cores.

BREAKS, CRACKS AND OTHER DAMAGE TO HOUSING – EXAMPLES



Housing cracked DX225



Damage to slide pin bore on housing



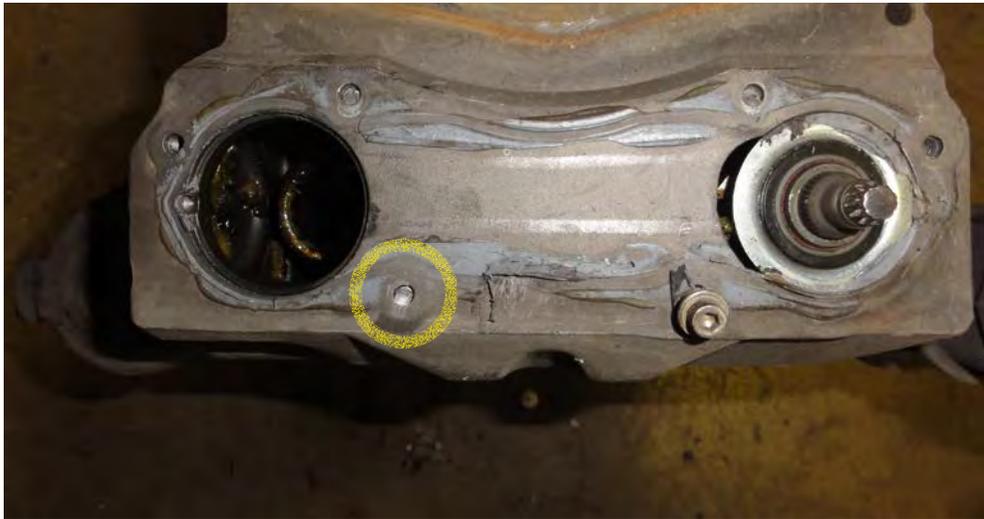
Damaged / dented housing Knorr



Housing exposed to fire damage / gas axe

Fail modes: 0% Acceptance – Meritor will not accept core with damaged housing or non-original cores.

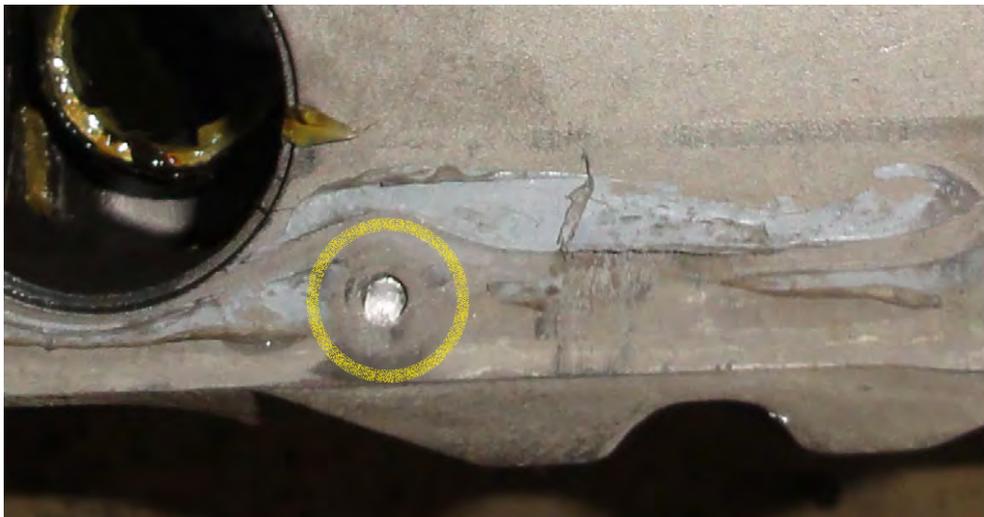
BREAKS, CRACKS AND OTHER DAMAGE TO HOUSING – EXAMPLES



Broken bolt in housing



Broken bolt in housing



Broken bolt in housing

Fail modes: 0% Acceptance – Meritor will not accept core with damaged housing or non-original cores.

BREAKS, CRACKS AND OTHER DAMAGE TO HOUSING – EXAMPLES



Damage to ELSA2 housing actuator face



Damage to housing M8 threads



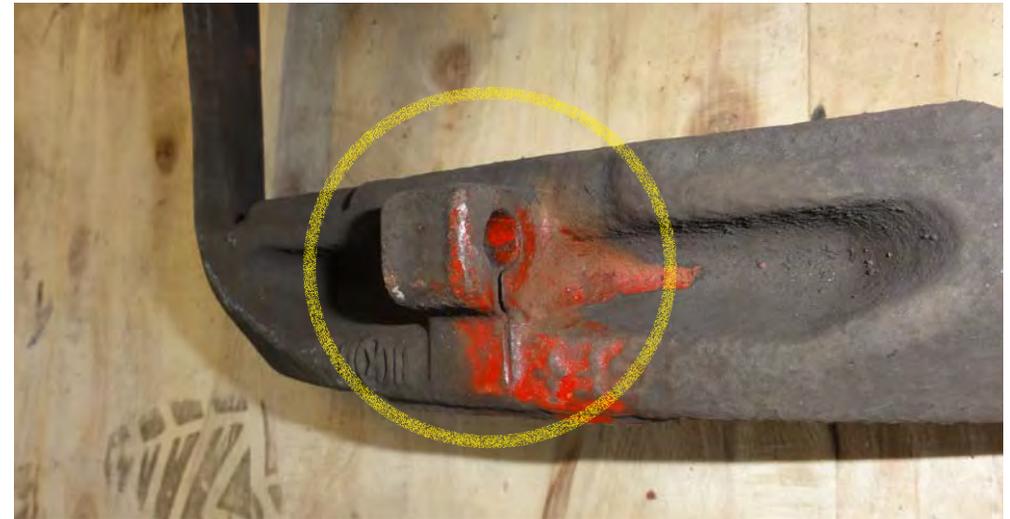
Damage to ELSA2 housing adjuster hole

Fail modes: 0% Acceptance – Meritor will not accept core with damaged housing or non-original cores.

GRINDING DAMAGE TO HOUSING – EXAMPLES



Grinding to Knorr housing



Grinding to Knorr housing



Grinding to Knorr housing close up



Grinding to Knorr housing close up



Grinding to Knorr housing close up

Fail modes: 0% Acceptance – Meritor will not accept core with damaged housing or non-original cores.

GRINDING DAMAGE TO HOUSING – EXAMPLES



Grinding to Knorr housing



Grinding to ELSA2 housing



Grinding to Knorr housing



Grinding to ELSA2 housing

Fail modes: 0% Acceptance – Meritor will not accept core with damaged housing or non-original cores.

GRINDING DAMAGE TO HOUSING – EXAMPLES



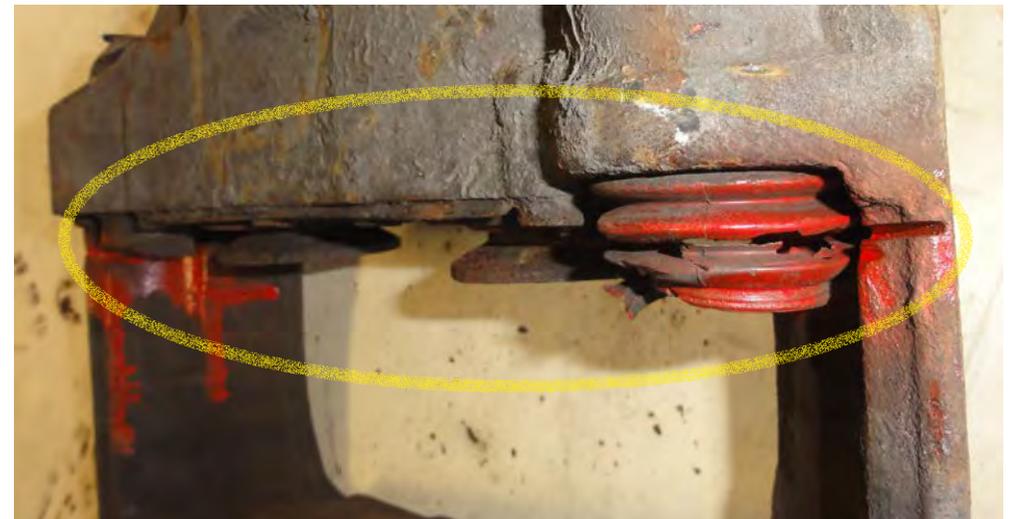
Grinding to DUCO housing



Grinding to Knorr housing



Grinding to DUCO housing



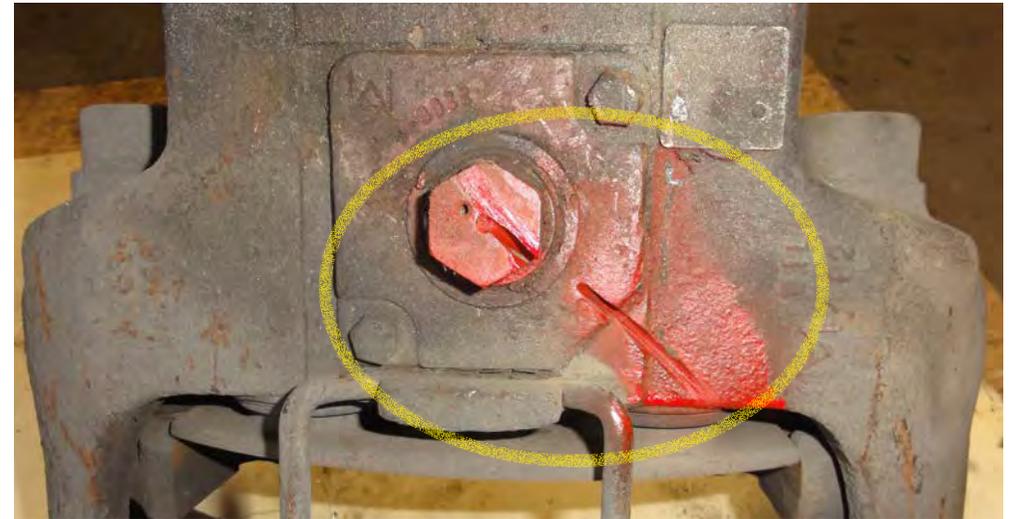
Grinding to Knorr housing

Fail modes: 0% Acceptance – Meritor will not accept core with damaged housing or non-original cores.

GRINDING DAMAGE TO HOUSING – EXAMPLES



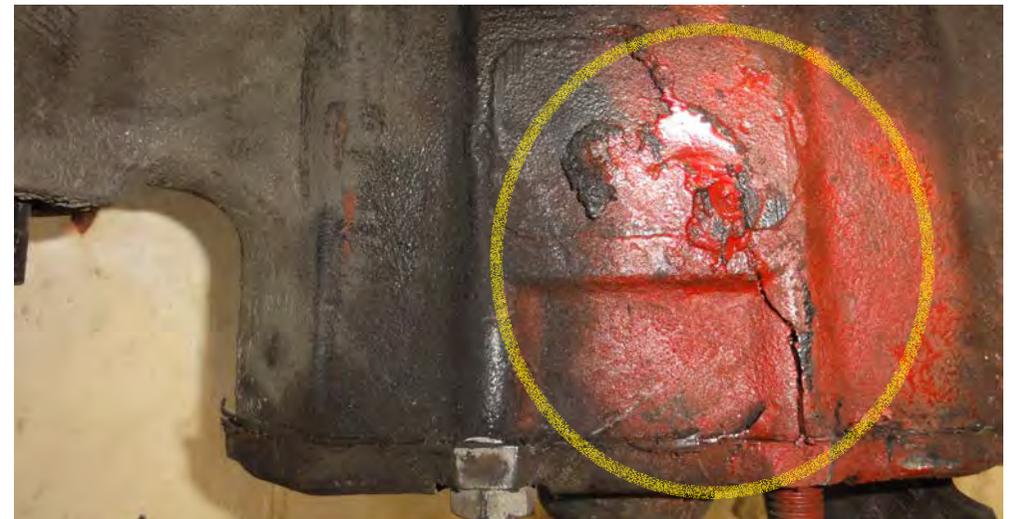
Grinding to Knorr housing



Grinding to DX195 housing



Grinding to DX195 housing



Grinding to DX195 housing and top cover

Fail modes: 0% Acceptance – Meritor will not accept core with damaged housing or non-original cores.

GRINDING DAMAGE TO HOUSING – EXAMPLES



Grinding to Knorr housing



Grinding to Knorr housing



Grinding to Knorr housing



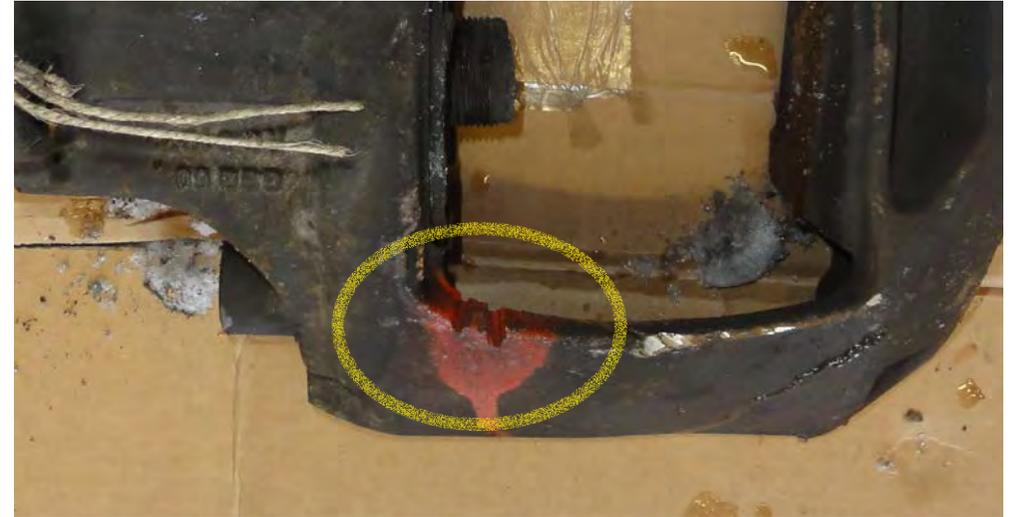
Grinding to Knorr housing

Fail modes: 0% Acceptance – Meritor will not accept core with damaged housing or non-original cores.

GRINDING DAMAGE TO HOUSING – EXAMPLES



Grinding damage to Knorr housing



Grinding to housing



Grinding to housing

Fail modes: 0% Acceptance – Meritor will not accept core with damaged housing or non-original cores.

MODIFICATIONS TO HOUSING – EXAMPLES



Grease nipple added to housing



Grinding to Knorr housing



Grease nipple added to housing

Fail modes: 0% Acceptance – Meritor will not accept non-original cores as core return.

COMPETITOR CORES – EXAMPLES



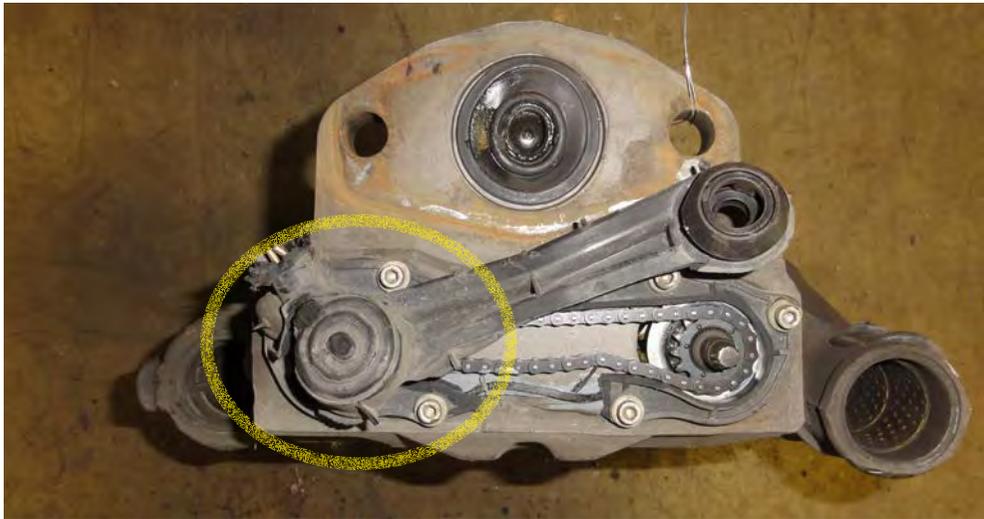
Competitor copy (none original) core returned by customers



Competitor copy (none original) core returned by customers

Fail modes: 50% Acceptance – Meritor will credit 50% of surcharge value.

DAMAGE TO, OR MISSING, BRIDGE, CARRIER, ENDPLATE OR KEY COMPONENTS – EXAMPLES



Damage to potentiometer



Damage to DUCO endplate sensor hole



Damage to DUCO endplate hole



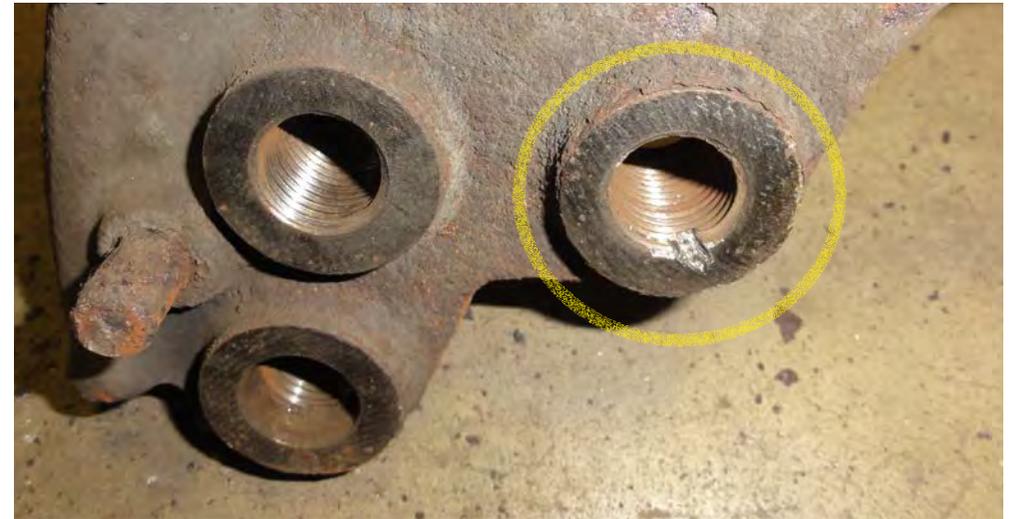
Damage to DUCO endplate sensor hole

Fail modes: 50% Acceptance – Meritor will credit 50% of surcharge value.

DAMAGE TO, OR MISSING, BRIDGE, CARRIER, ENDPLATE OR KEY COMPONENTS – EXAMPLES



Damage to endplate on shaft hole / actuator hole



Damage to carrier thread and mount



Damage to carrier slide pin ring



Damage to carrier location pin

Fail modes: 50% Acceptance – Meritor will credit 50% of surcharge value.

DAMAGE TO, OR MISSING, BRIDGE, CARRIER, ENDPLATE OR KEY COMPONENTS – EXAMPLES



Damage to bridge hole



Damage to pad retainer hole and bridge hole



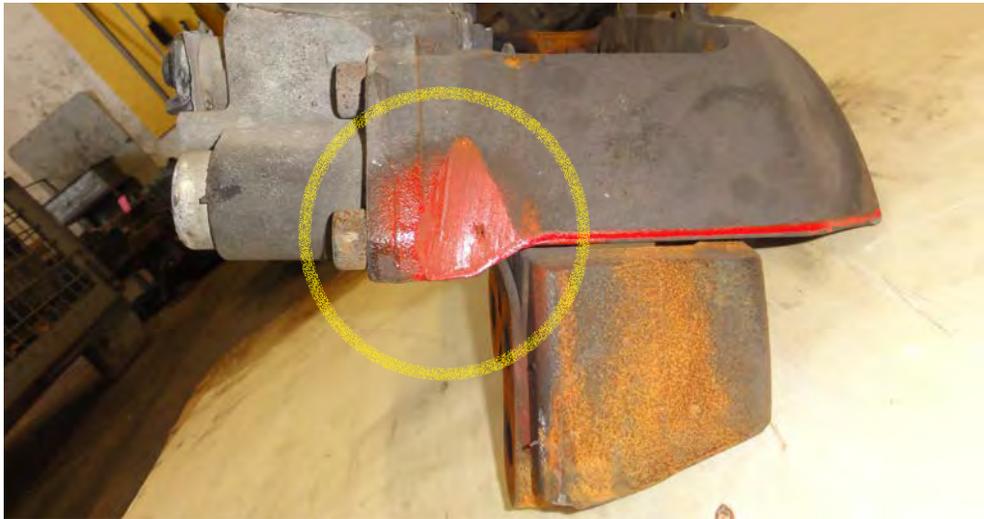
Severe damage to bridge hole



Damage to pad retainer hole and bridge hole close up

Fail modes: 50% Acceptance – Meritor will credit 50% of surcharge value.

DAMAGE TO, OR MISSING, BRIDGE, CARRIER, ENDPLATE OR KEY COMPONENTS – EXAMPLES



Damage to bridge ELSA2



Damage to bridge ELSA2



Damage to bridge ELSA2



Clear 'non operational' damage to carrier abutments

Fail modes: 50% Acceptance – Meritor will credit 50% of surcharge value.

BREAKS AND CRACKS – EXAMPLES



Cracked endplate DX225



Cracked endplate DX225

Fail modes: 50% Acceptance – Meritor will credit 50% of surcharge value.

MISCELLANEOUS – EXAMPLES



Internal components missing from housing



Push plates must be returned with core (MCC023 and MCC025)

Fail modes: 100% Acceptance – Meritor will credit 100% of surcharge value.

DAMAGE TO CASSETTE COVER ONLY – EXAMPLES



Damaged cassette cover



Damaged cassette cover

6. MERITOR CORE GROUPS PRODUCT IDENTIFICATION

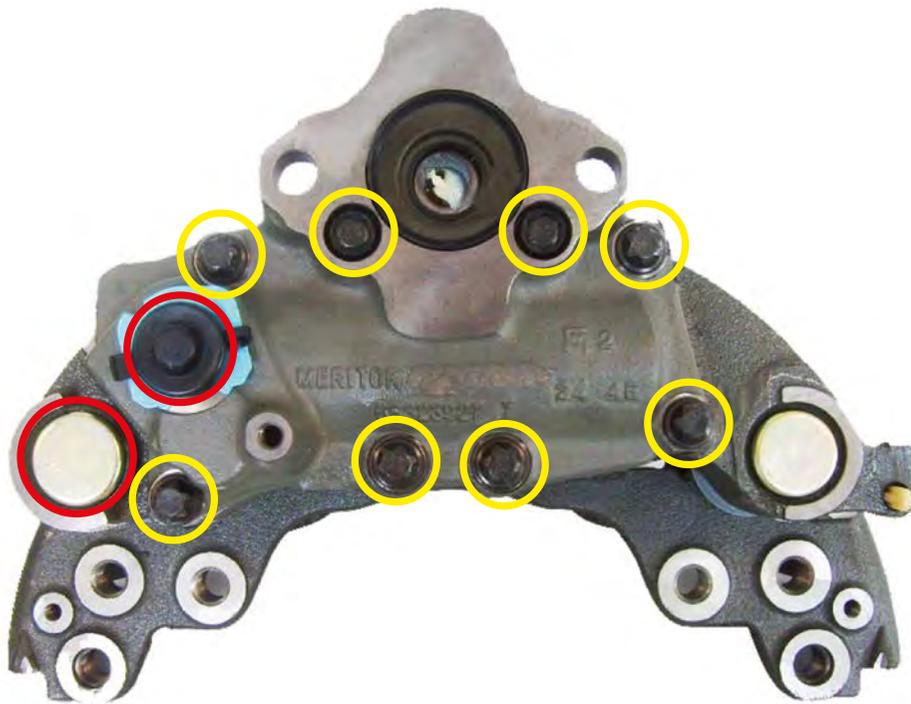


CORE GROUP	CALIPER TYPE	
MCC021	DUCO Axial Standard (D-DUCO)	62
MCC021	DUCO Axial Standard (C-DUCO + LE-DUCO)	63
MCC022	DUCO Axial Flip (D-DUCO)	64
MCC022	DUCO Radial	65
MCC023	C/D LISA.....	66
MCC024	ELSA1	67
MCC025	D3.....	68
MCC061	ELSA2	69
MCC063	ELSA195	70
MCC064	ELSA225	71
MCC065	ELSA225 WR.....	72
MCC101	DX175/195.....	73
MCC102	DX225.....	74
MCC201	Knorr SB/SN6.....	75
MCC202	Knorr SB/SN6 with carrier	76
MCC203	Knorr SK7.....	77
MCC211	Knorr SB/SN7	78
MCC212	Knorr SB/SN7 with carrier	79
MCC213	Knorr SM/SL.....	80
MCC221	Knorr SB7 Radial.....	81

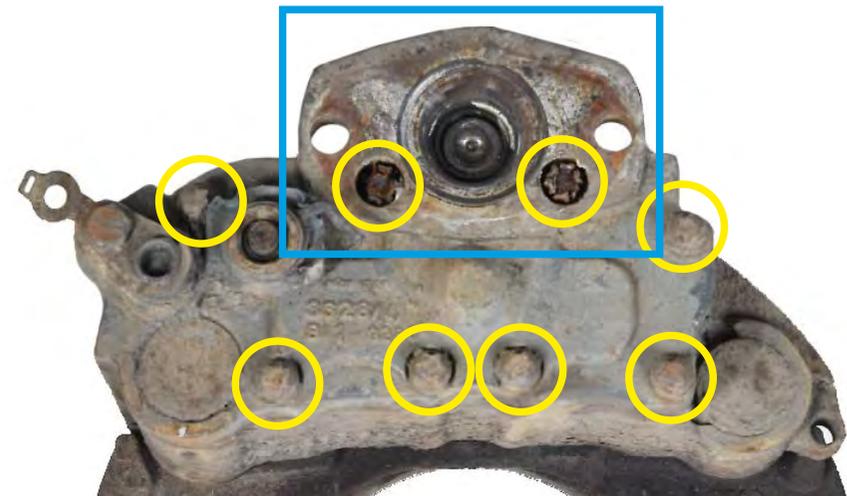
MCC021 DUCO Axial Standard (D-DUCO)

KEY FEATURES:

- D-DUCO Axial defined by 8 endplate bolts 
- B-DUCO has rectangular endplate face 
- Adjuster hole same side as large bore 



D-DUCO endplate

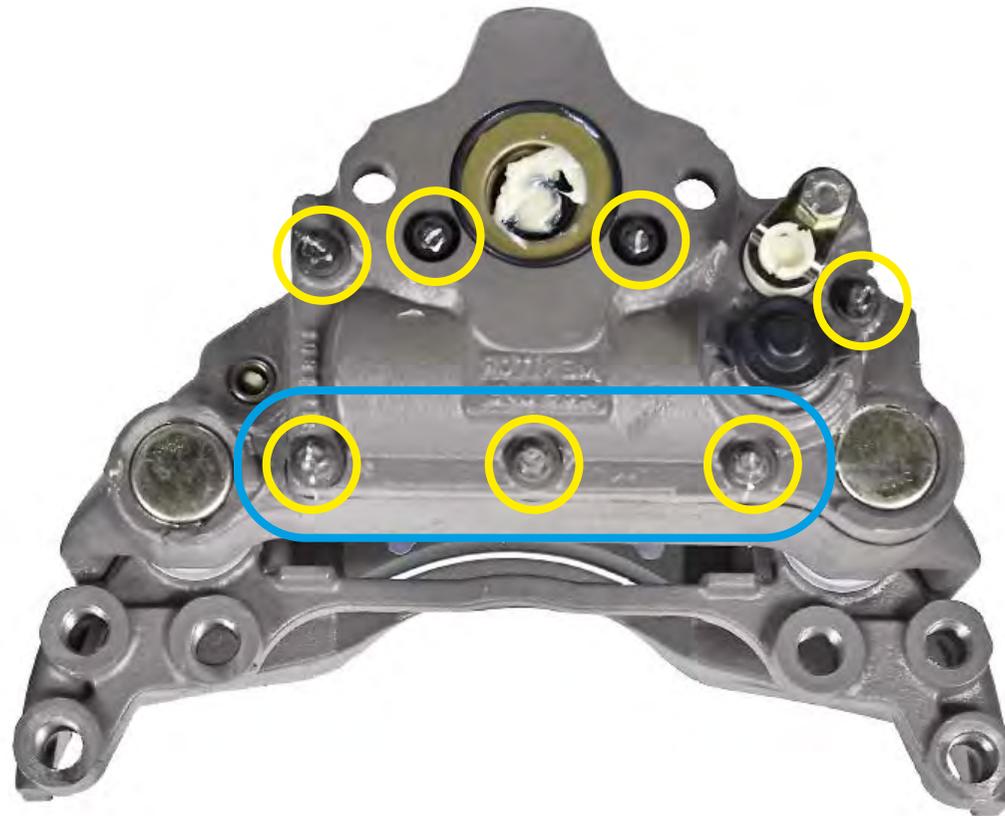


B-DUCO endplate

MCC021 DUCO Axial Standard (C-DUCO + LE-DUCO)

KEY FEATURES:

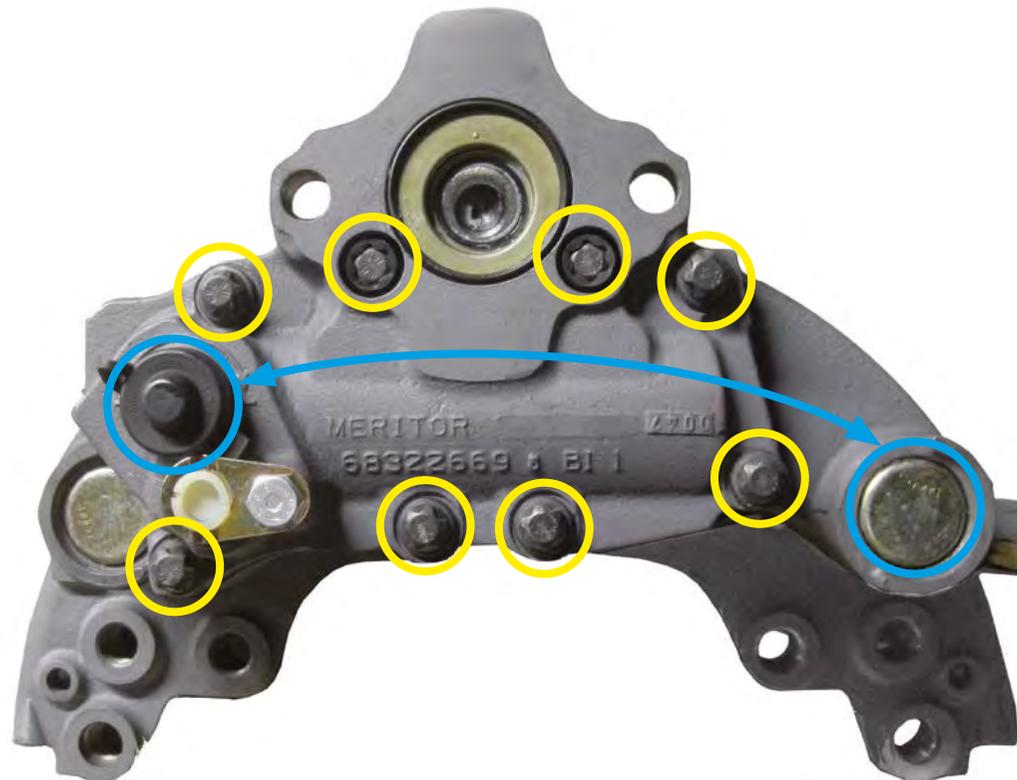
- DUCO Axial defined by 7 endplate bolts 
- 3 of 7 bolts at bottom of endplate face 



MCC022 DUCO Axial Flip (D-DUCO)

KEY FEATURES:

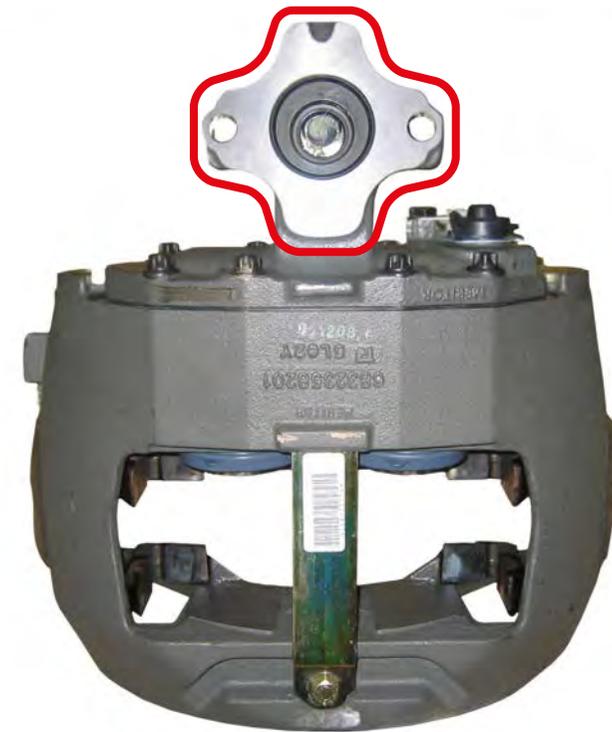
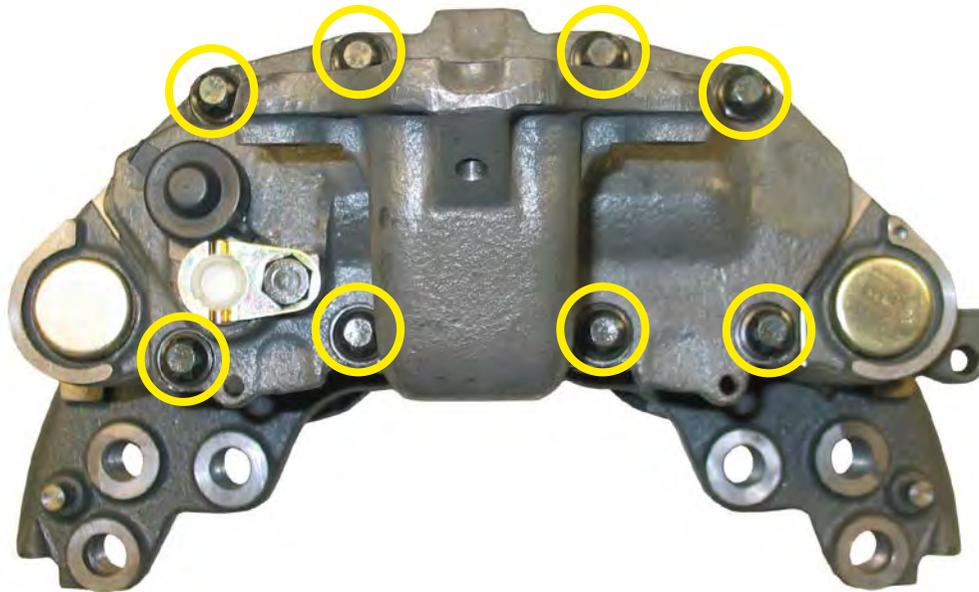
- D-DUCO Axial flip defined by 8 endplate bolts 
- Adjuster hole opposite side as large bore 



MCC022 DUCO Radial

KEY FEATURES:

- DUCO Axial defined by 8 endplate bolts 
- Radial endplate is perpendicular 



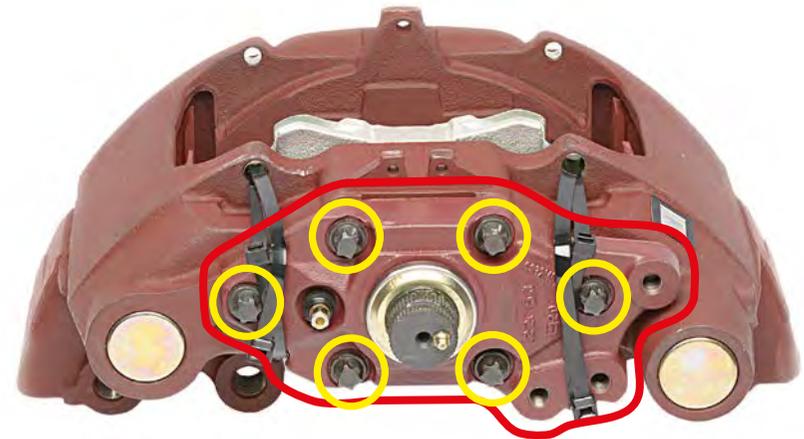
MCC023 C-LISA and D-LISA

KEY FEATURES:

- LISA family defined by 6 endplate bolts 



C/D-LISA endplate – Type 1 



C/D-LISA endplate – Type 2 

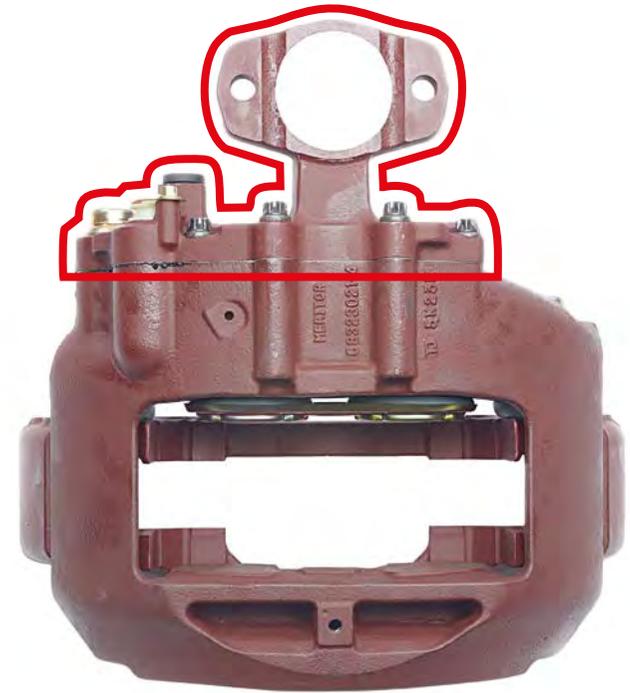
MCC024 ELSA1

KEY FEATURES:

- ELSA1 family defined by 9 endplate bolts 
- Radial housing is perpendicular 



ELSA1 Axial

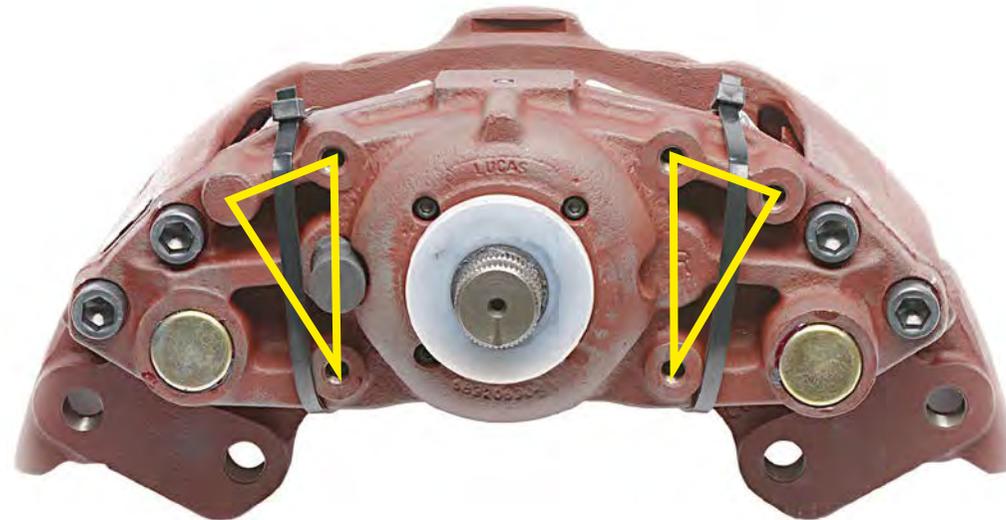


ELSA1 Radial

MCC025 D3

KEY FEATURES:

- D3 family defined by triangular machining formation on housing face 



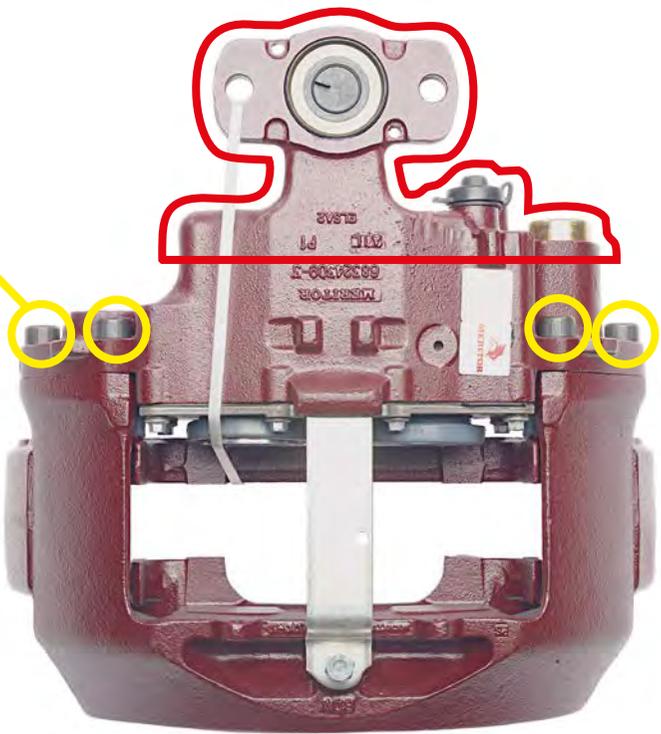
MCC061 ELSA2

KEY FEATURES:

- ELSA2 family defined by 4 socket head bridge bolts 
- Rectangular housing face 
- Radial housing is perpendicular 



ELSA2 Axial



ELSA2 Radial

MCC063 ELSA195

KEY FEATURES:

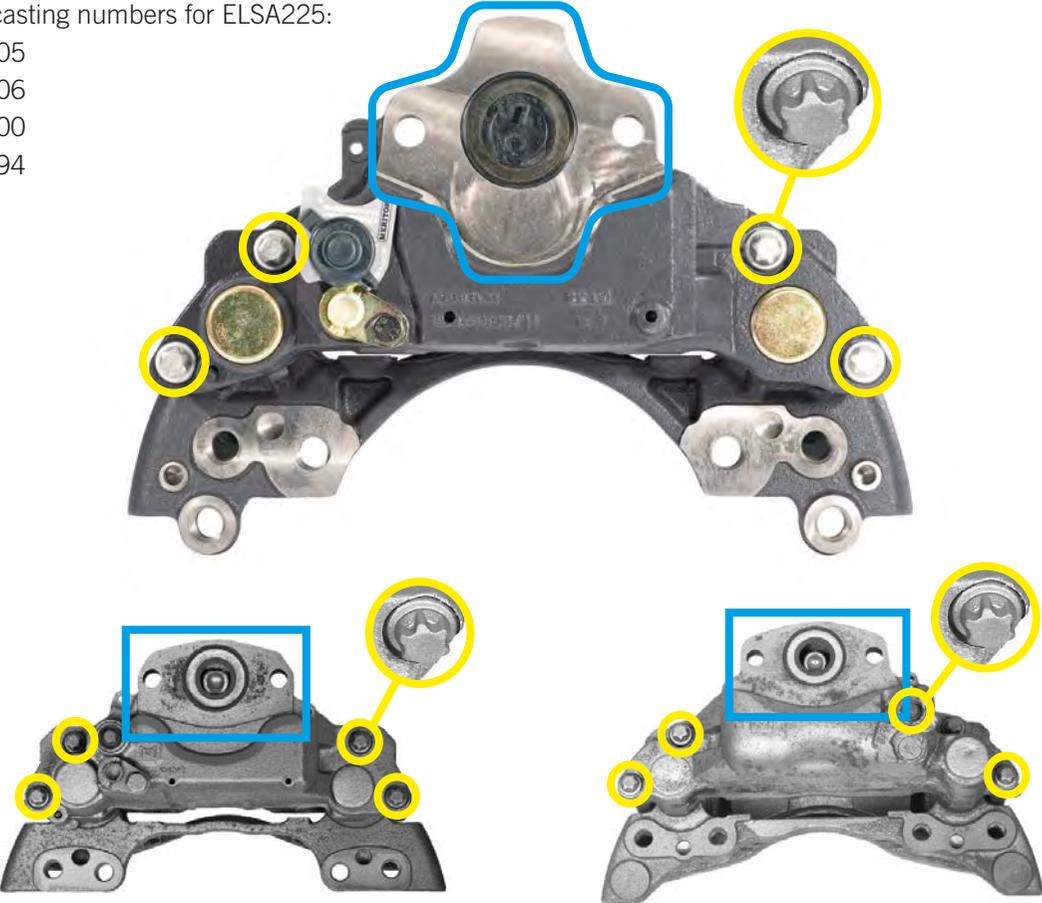
- ELSA195 family defined by 4 Torx head bridge bolts 
- Rosette housing face 
- Carrier casting numbers for ELSA195:
68324660
68325353



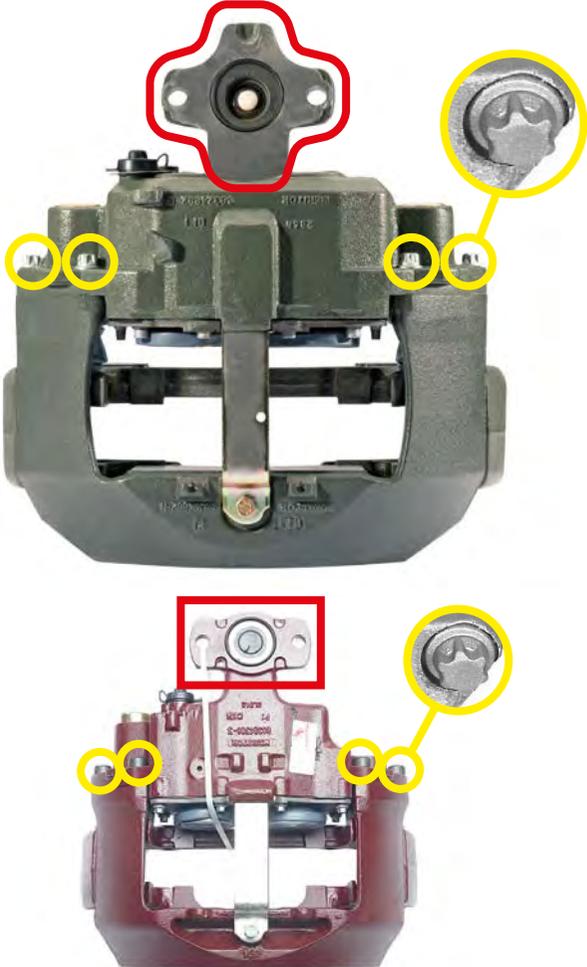
MCC064 ELSA225

KEY FEATURES:

- ELSA225 family defined by 4 Torx head bridge bolts
- Rosette housing face or rectangular housing face
- Radial housing is perpendicular
- Carrier casting numbers for ELSA225:
68325305
68325306
68324200
68325994



ELSA225 Axial Types



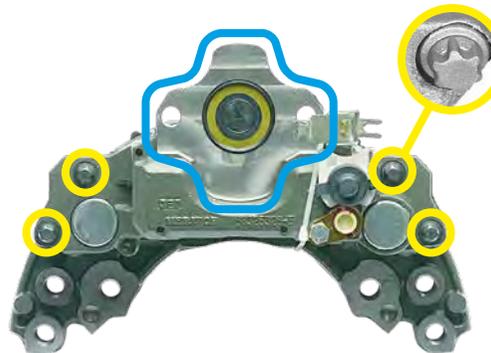
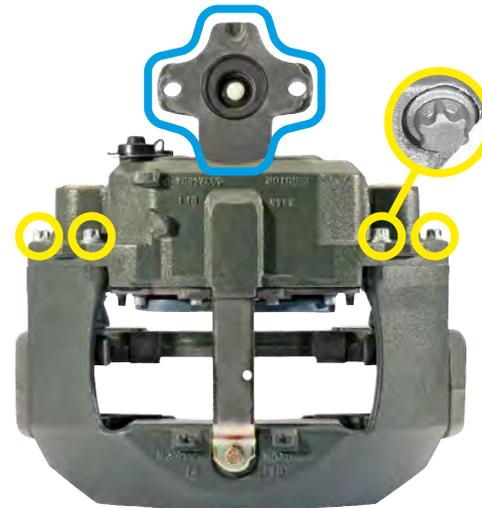
ELSA225 Radial Types

MCC065 ELSA225 WR

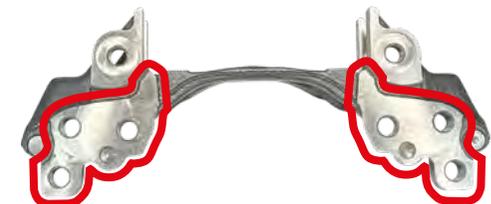
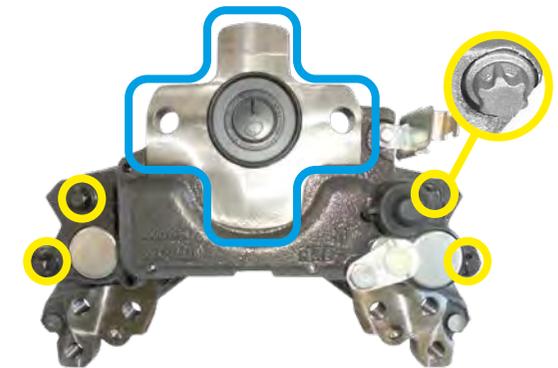
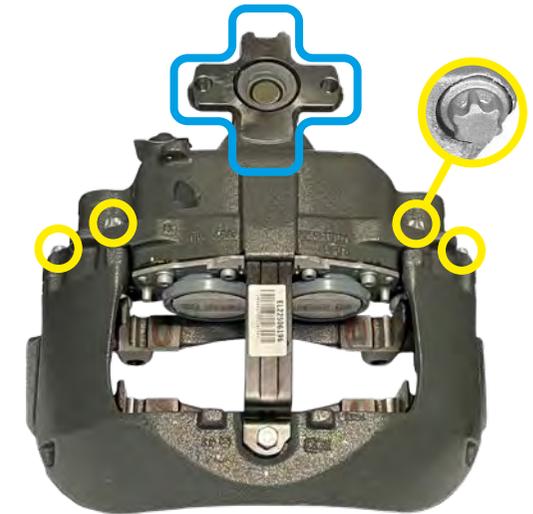
KEY FEATURES:

- ELSA225 families defined by 4 Torx head bridge bolts 
- New WR caliper defined by sharper actuator face machined profile 
- New WR calipers defined by single machined carrier face profile 

Current ELSA225



New ELSA225 WR



MCC101 DX175/195

KEY FEATURES:

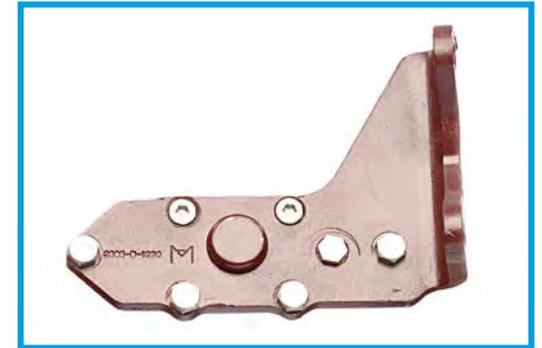
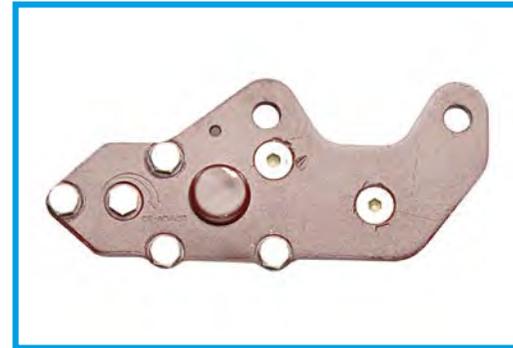
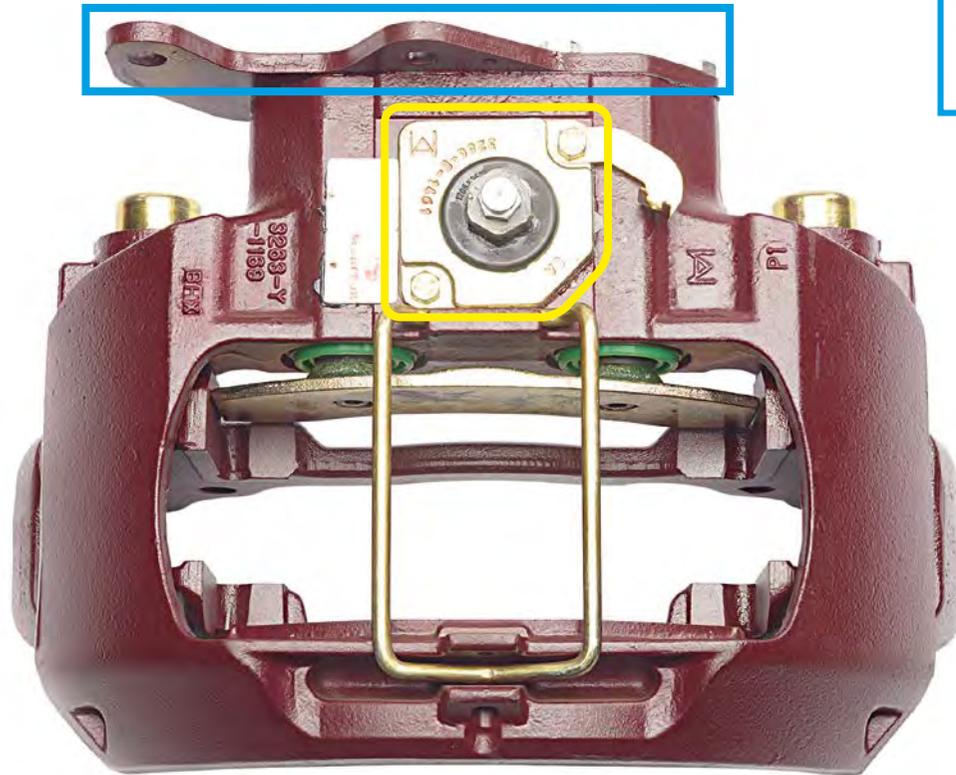
- DX175/195 family defined by top cover and op-shaft 
- DX195 end plate shown below 



MCC102 DX225

KEY FEATURES:

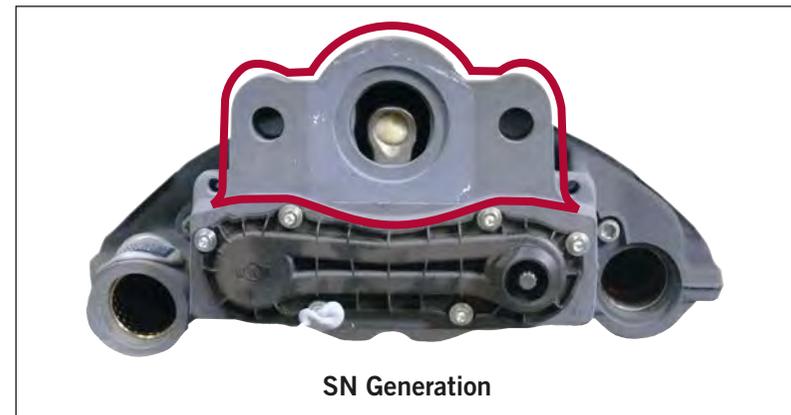
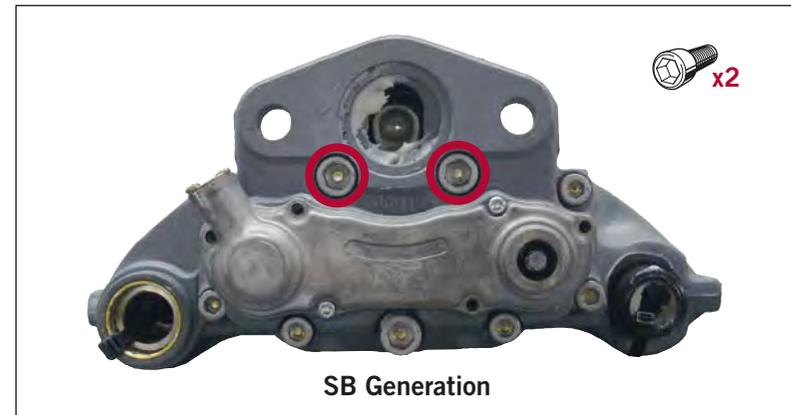
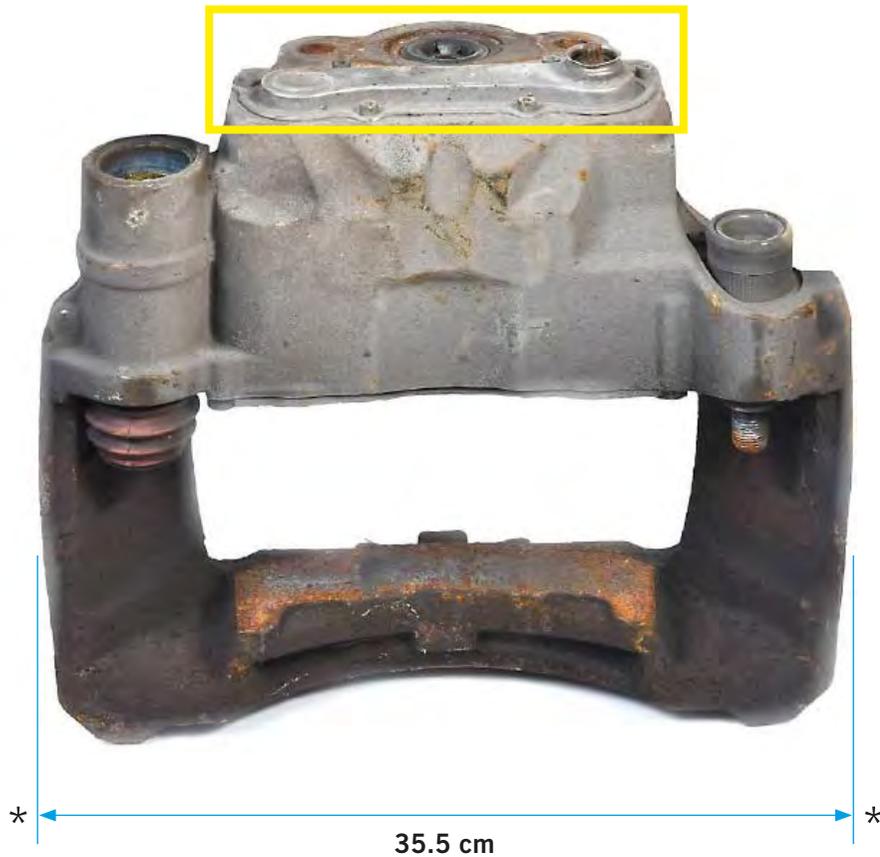
- DX225 family defined by top cover and op-shaft 
- End plate variations shown below 



MCC201 Knorr SB/SN6

KEY FEATURES:

- Knorr S6 family defined by plastic/metal cover with/without potentiometer 
- Casting measurement = 35.5 cm* 

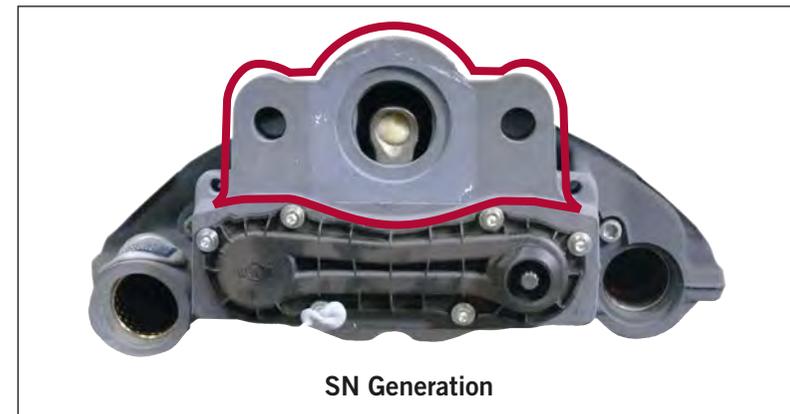
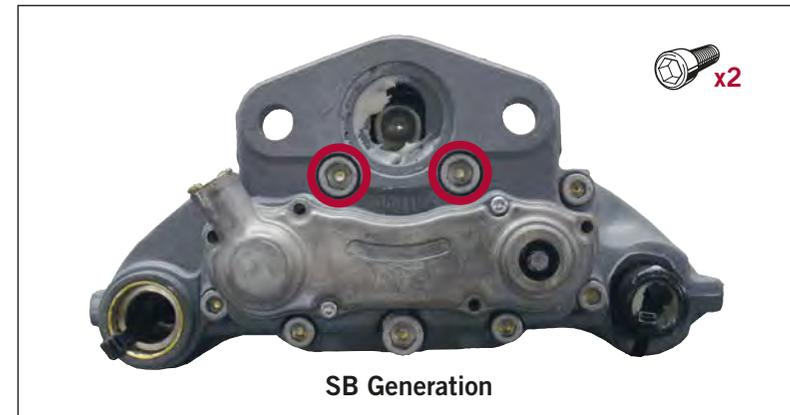


Knorr endplate/housing detail SB6/SN6

MCC202 Knorr SB/SN6 with carrier

KEY FEATURES:

- Knorr S6 family defined by plastic/metal cover with/without potentiometer 
- Casting measurement = 35.5 cm* 
- Includes a carrier 



Knorr endplate detail SB6/SN6

MCC203 Knorr SK7

KEY FEATURES:

- Knorr SK7 family defined by plastic/metal cover with/without potentiometer 
- Casting measurement = 37.5 cm* 
- With/without carrier

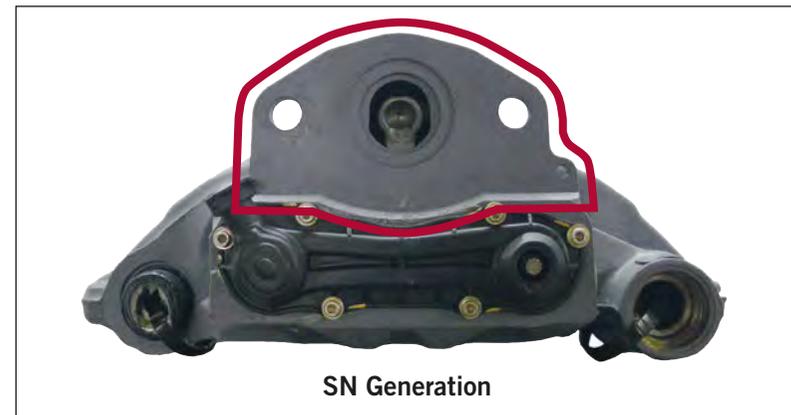
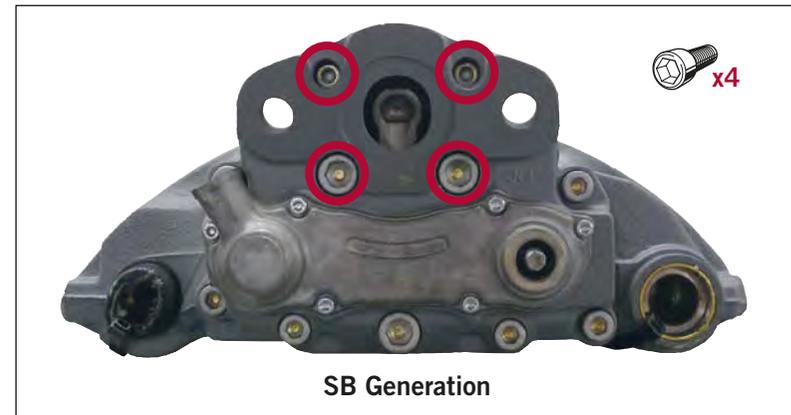
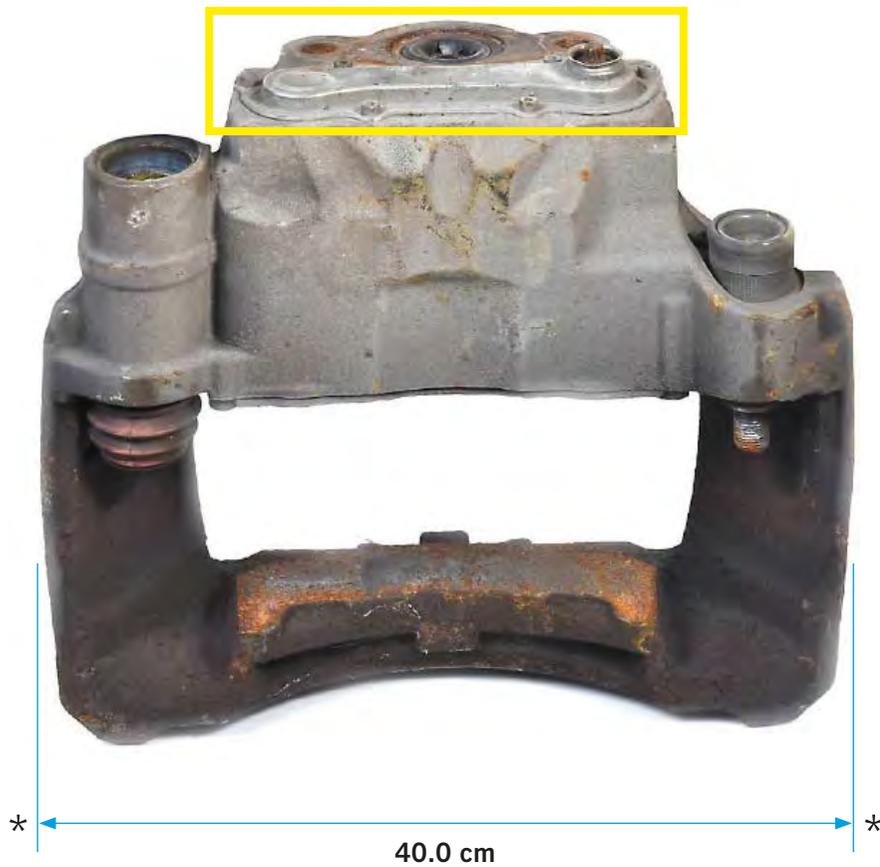


SK Generation
Knorr endplate detail SK

MCC211 Knorr SB/SN7

KEY FEATURES:

- Knorr S7 family defined by plastic/metal cover with/without potentiometer 
- Casting measurement = 40.0 cm* 

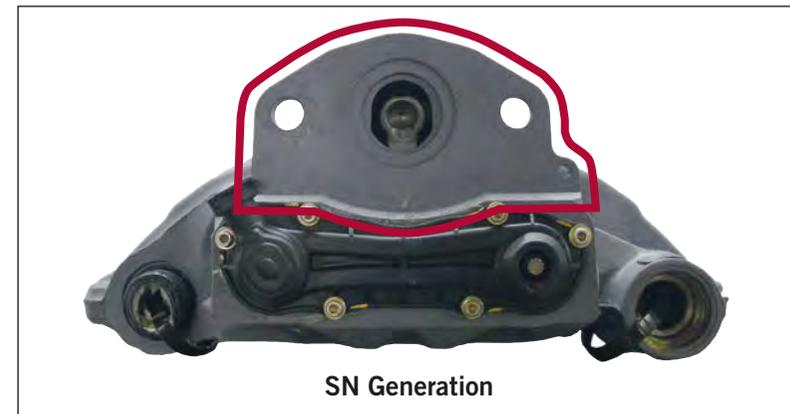
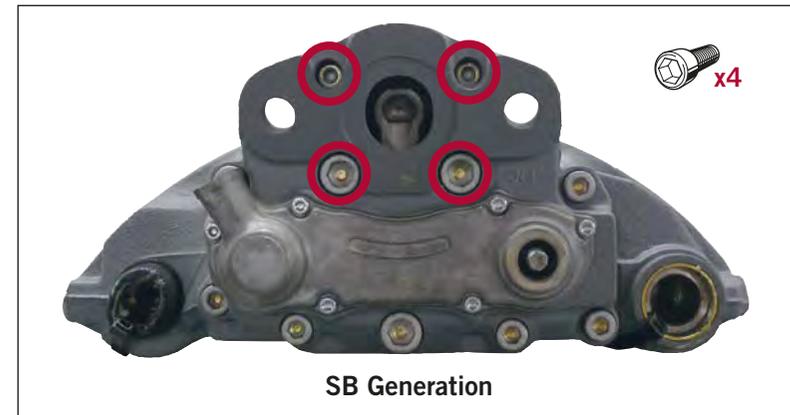


Knorr endplate detail SB7/SN7

MCC212 Knorr SB/SN7 with carrier

KEY FEATURES:

- Knorr S6 family defined by plastic/metal cover with/without potentiometer 
- Casting measurement = 40.0 cm* 
- Includes a carrier 

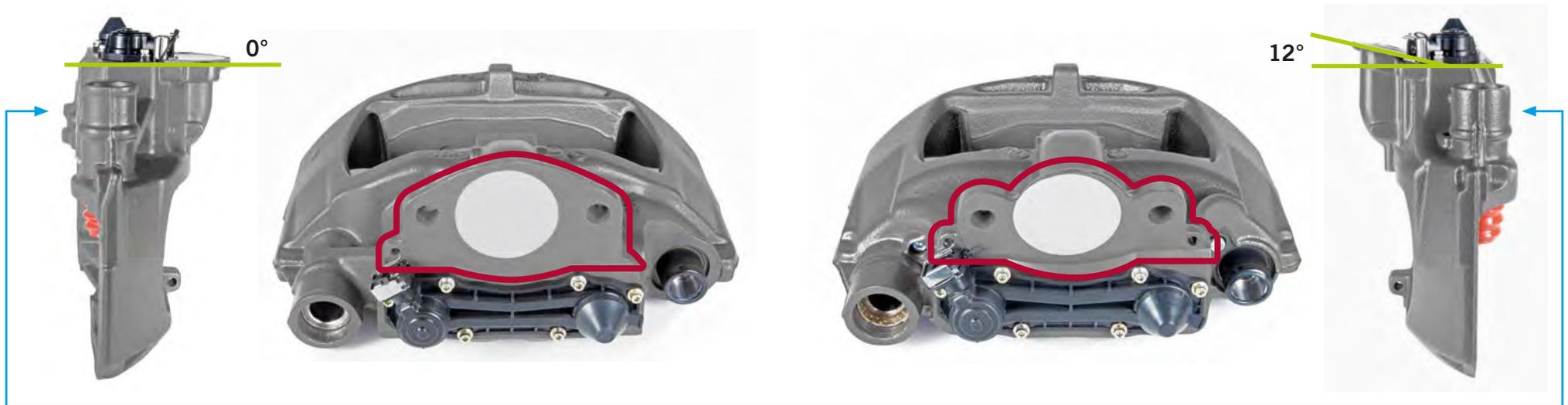


Knorr endplate detail SB7/SN7

MCC213 Knorr SM7 & SL7

KEY FEATURES:

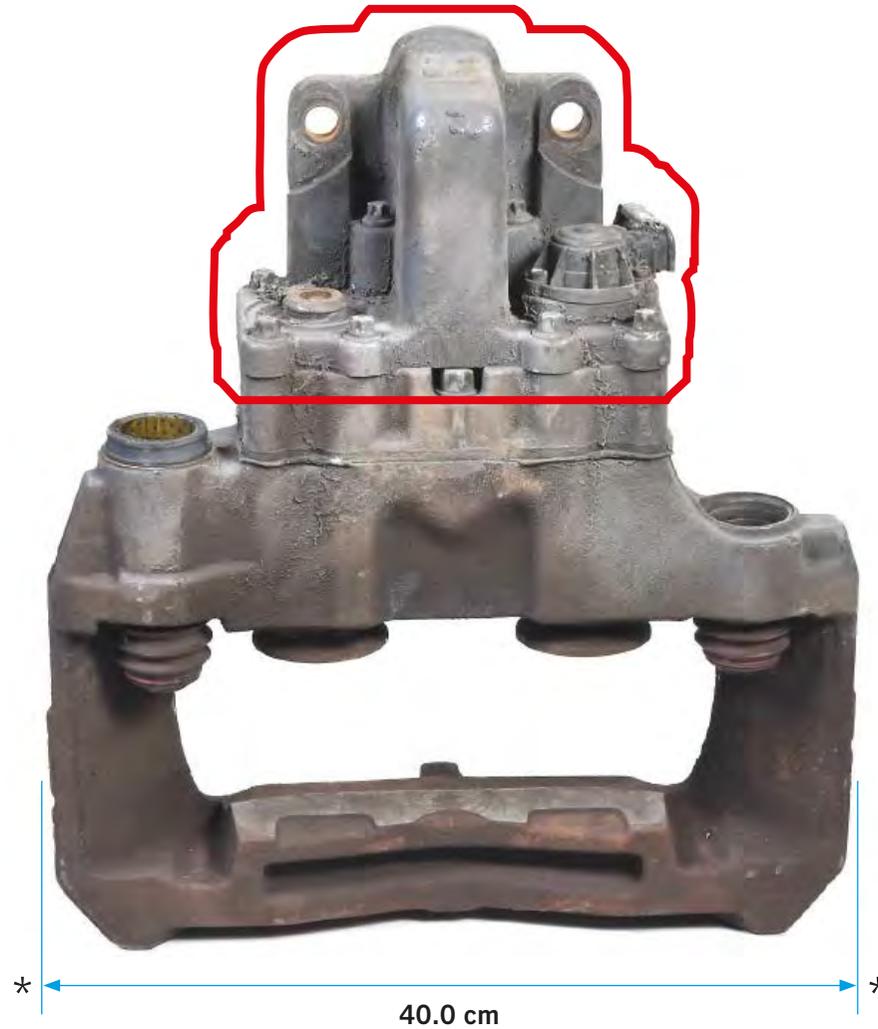
- 0 Degree or 12 degree (sloping) actuator face 
- Defined by casting numbers 30G, 31G, 30F, 31F, 32, 33, 50, 51 



MCC221 Knorr SB7 Radial

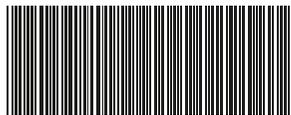
KEY FEATURES:

- Radial endplate is perpendicular 
- Casting measurement = 40.0 cm* 





A large area of the page is filled with horizontal dotted lines, providing a guide for handwriting practice. The lines are evenly spaced and extend across the width of the page.



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