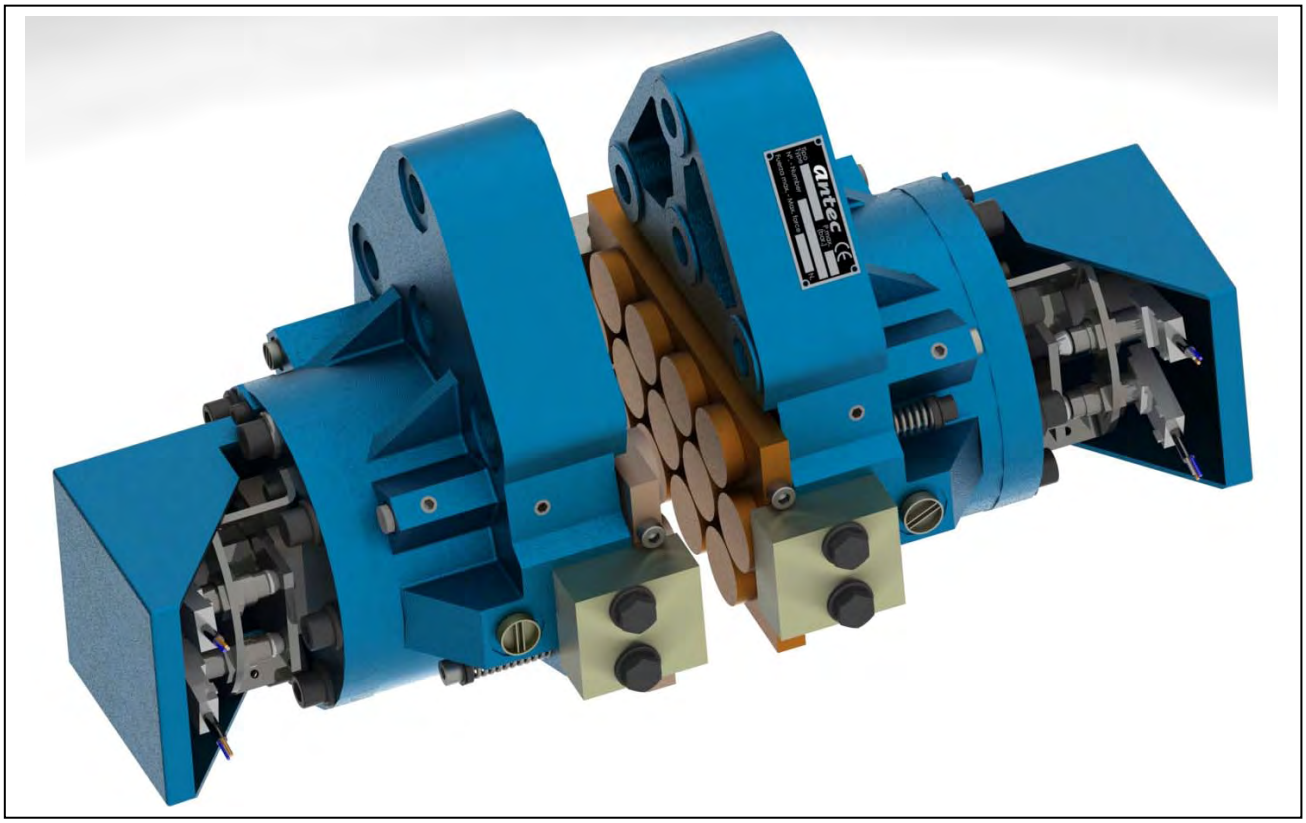
HYDRAULIC CALLIPER TYPE NHCD-900
Instructions for assembly, adjustment and maintenance



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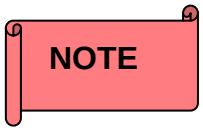
1. INTRODUCTION

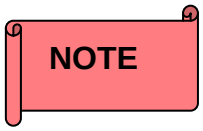
1.1. WHO IS THE TARGET AUDIENCE?

This manual has been written to aid with the installation, start-up, operation and maintenance of the brake. It is designed to help workers who are going to handle the brake, and technicians. It should therefore be made available to **everyone** who is going to work with these brakes and it must be ensured that the instructions given are followed.

This manual is intended to clarify any constructive doubts and the basic functions of the brake. We are sure that it will be an extremely useful information and reference tool for operators and technicians.



In the event of any problems or if you have any questions regarding the brake, please do not hesitate to contact the ANTEC After-Sales Service, specifying the brake model and the ANTEC order number, data that can be found on the label that each unit has.



Due to ongoing improvements to our brake designs, your brake may differ slightly from the one described in this manual. Antec reserves the right to make any changes deemed necessary.

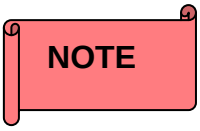
1.2. SAFETY INSTRUCTIONS

Various symbols appear throughout this manual, which highlight the importance of the section in question. They are usually related to safety, and therefore require special attention.

Warning: This symbol will be included at points or in paragraphs that need special attention. It usually refers to an operation in which special care must be taken.

Danger of death: This symbol will be included at points or in paragraphs that need special attention. It usually refers to an operation that might involve a death hazard.

High temperatures: This symbol will be included at points or in paragraphs that need special attention. It usually refers to an operation that might involve danger of high temperatures.



This symbol will be used to highlight an important comment or piece of information.

A number of general safety rules must be followed when handling ANTEC brakes:

1 - All workers and technicians must wear appropriate gear when handling the brake (safety clothes, boots, helmet, goggles, etc.).

2 - Always keep warning signs (if any) in good condition and respect them. During repairs or maintenance, place a card to inform other workers that an ANTEC brake is being repaired in that machine, and that the power supply has been disconnected, if applicable.

3 - Find out the exact specifications of the liquids used to ensure health and safety.

4 - Make sure electrical apparatus (if any) is properly earthed to prevent electric shocks.

5 - Respect the limits established for each brake element and for the brake itself.

6 - Before switching on any machine fitted with ANTEC brakes, ensure that the brake is fully applied and tightened with the necessary torque.

7 - ANTEC does not accept responsibility for the use and maintenance of tools that the customer uses to assemble and handle the brakes.

Failure to comply with this point could cause irreversible damages to ANTEC brakes and workers handling them.
These damages could result in the worker's death.

1.3. GENERAL ASPECTS

The use of ANTEC brakes for unplanned operations or the negligent use there of could seriously damage them or severely injure people standing nearby.

NHCD-900 brakes are negative-action brakes, which means that they brake using springs when there is no hydraulic pressure.

These callipers consist of two half-callipers mounted in a symmetrical position with respect to the disc centre line. The symmetry of both half-callipers may become broken in some cases.

The brake's clamping force depends directly on the force exerted by the springs.

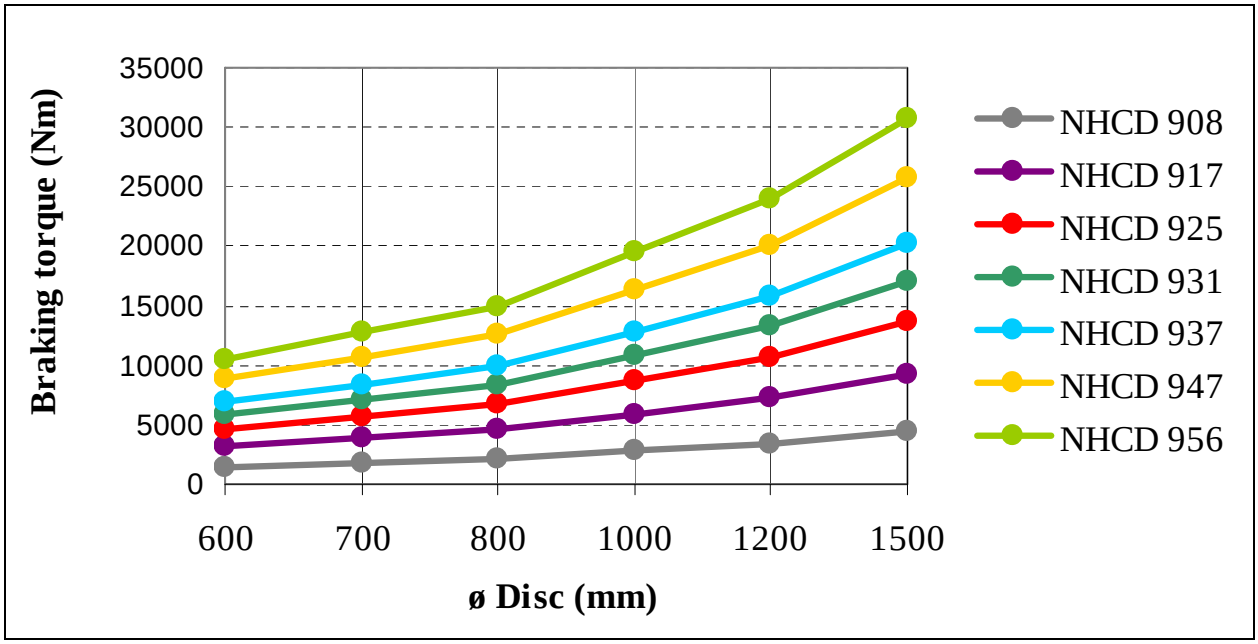
The brake opening force depends directly on the hydraulic pressure. The maximum pressure to open the brake is 21 Mpa, while the minimum varies depending on the spring strength. The minimum pressure to open the brake is shown in the following table, along with other relevant information.

CALLIPER		NHCD 908	NHCD 917	NHCD 925	NHCD 931	NHCD 937	NHCD 947	NHCD 956
Clamping force	N	8000	17000	25000	31000	37000	47000	55000
Releasing pressure	Mpa	3	6	9	11	12	17	18
Maximum pressure	Mpa	21						
Release stroke	mm	1 each side						
Oil volume	cm^3	47 each side						
Pad surface	cm^2	280 each side						
Friction coefficient (μ)	-	0.4						
Braking Force (μ=0.4) (Bf)	N	6400	13600	20000	24800	29600	37600	44000
Approximate total weight	Kg	80						

The brake torque of a NHCD-900 brake depends directly on the braking force described in the above table (for each brake) and the outer diameter of the disc on which the brake acts.

CALCULATING THE BRAKE TORQUE

$$T_{(BRAKE.TORQUE)}(Nm) = \frac{n_{(NUMBER.OF.BRAKES)} \cdot Bf_{(BRAKING.FORCE)}(N) \cdot (\phi_{(DISC.DIAMETER)}(mm) - 130)}{2000}$$



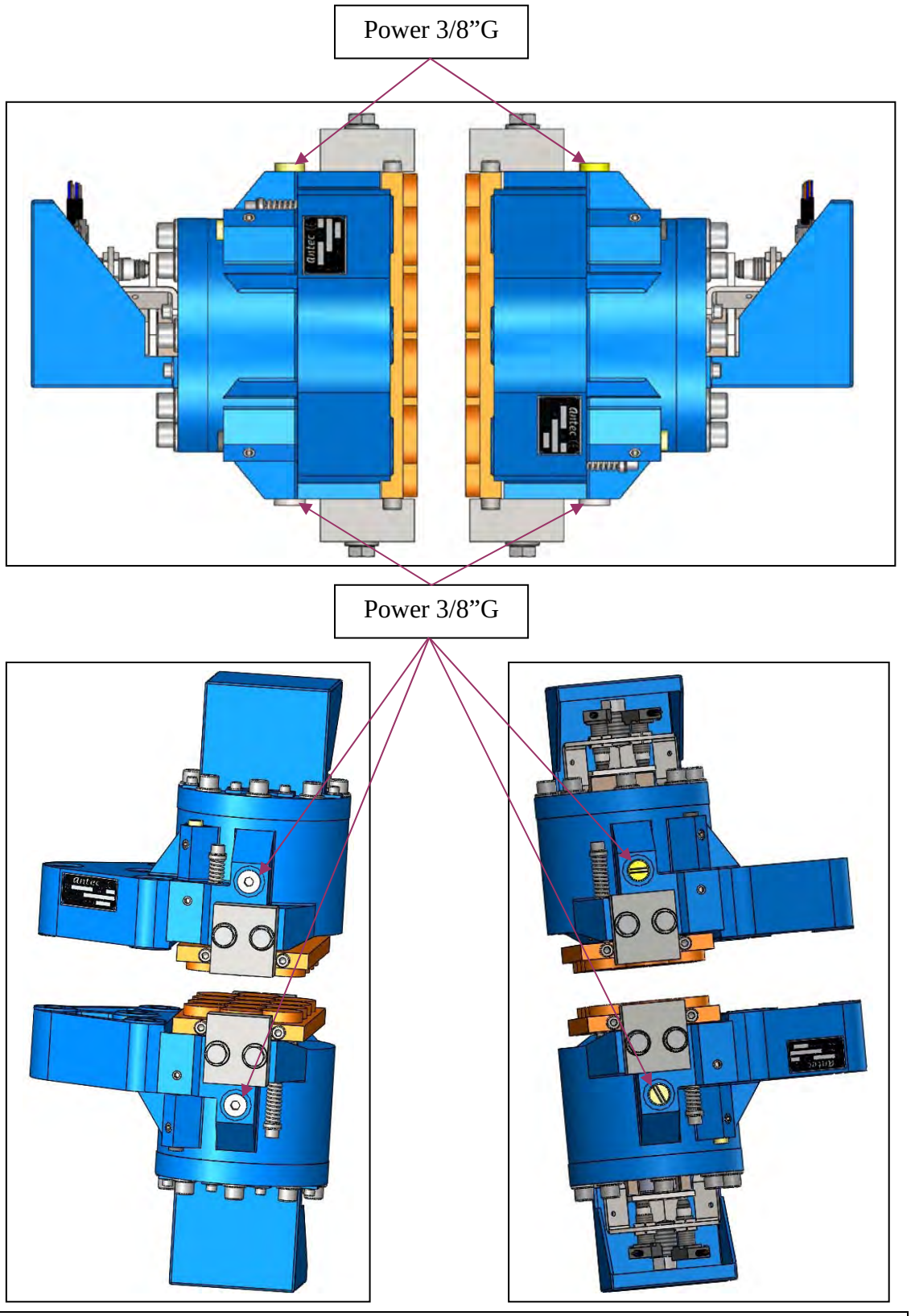
Each half-calliper has two 3/8”G threaded connections for the hydraulic power. The bottom 3/8”G connection should be used, leaving the top one free to fit an air bleed device or should the oil need to flow through the half-calliper.

A plastic plug is fitted to the connection that will be used to install the hydraulic power.

A steel plug is fitted to the connection that will not be used to install the hydraulic power.

IMPORTANT Never apply a greater pressure through the hydraulic pressure connection than the one specified on the characteristic plate.

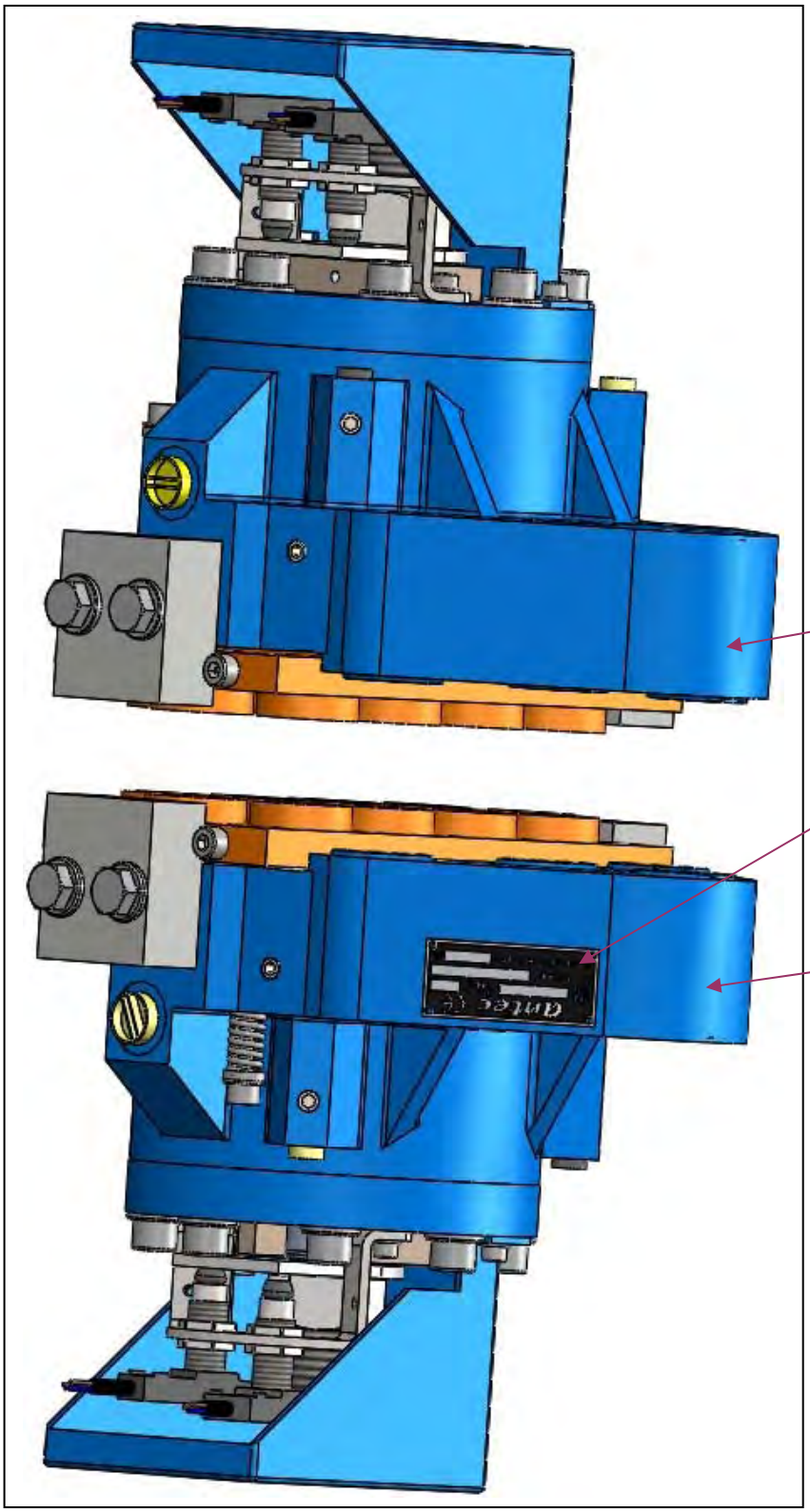
(Maximum pressure for NHCD-900 = 21 Mpa).


Power 3/8”G
Power 3/8”G

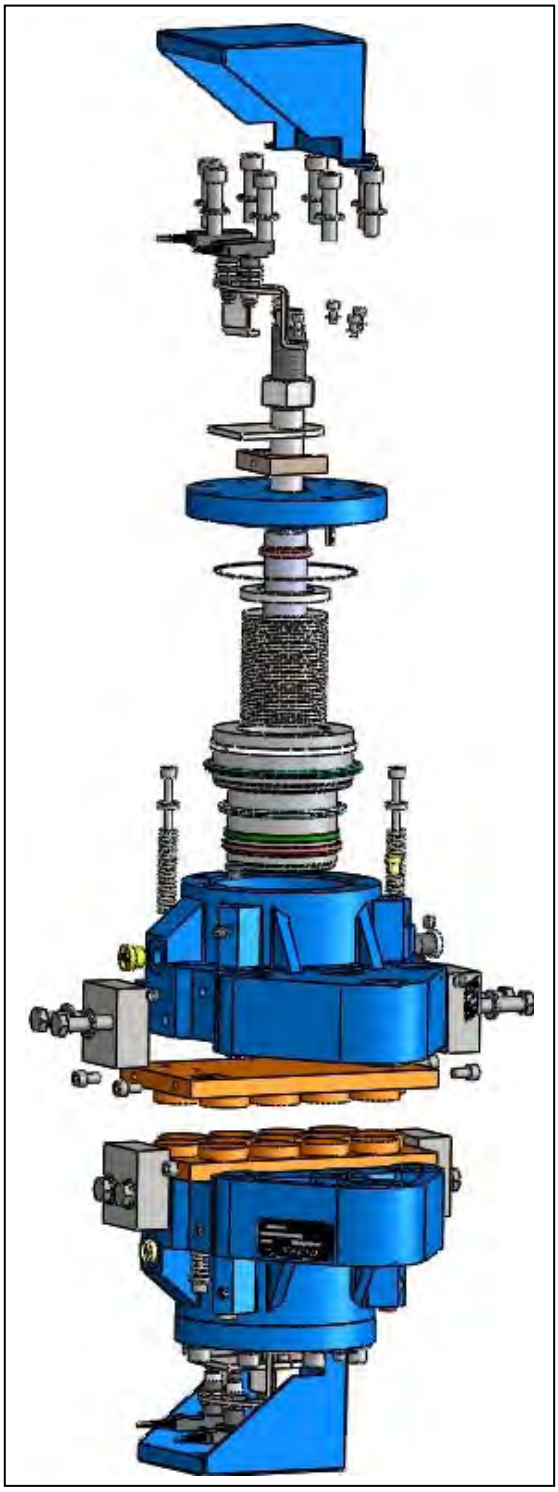
NHCD-900 brakes comprise the parts listed below:

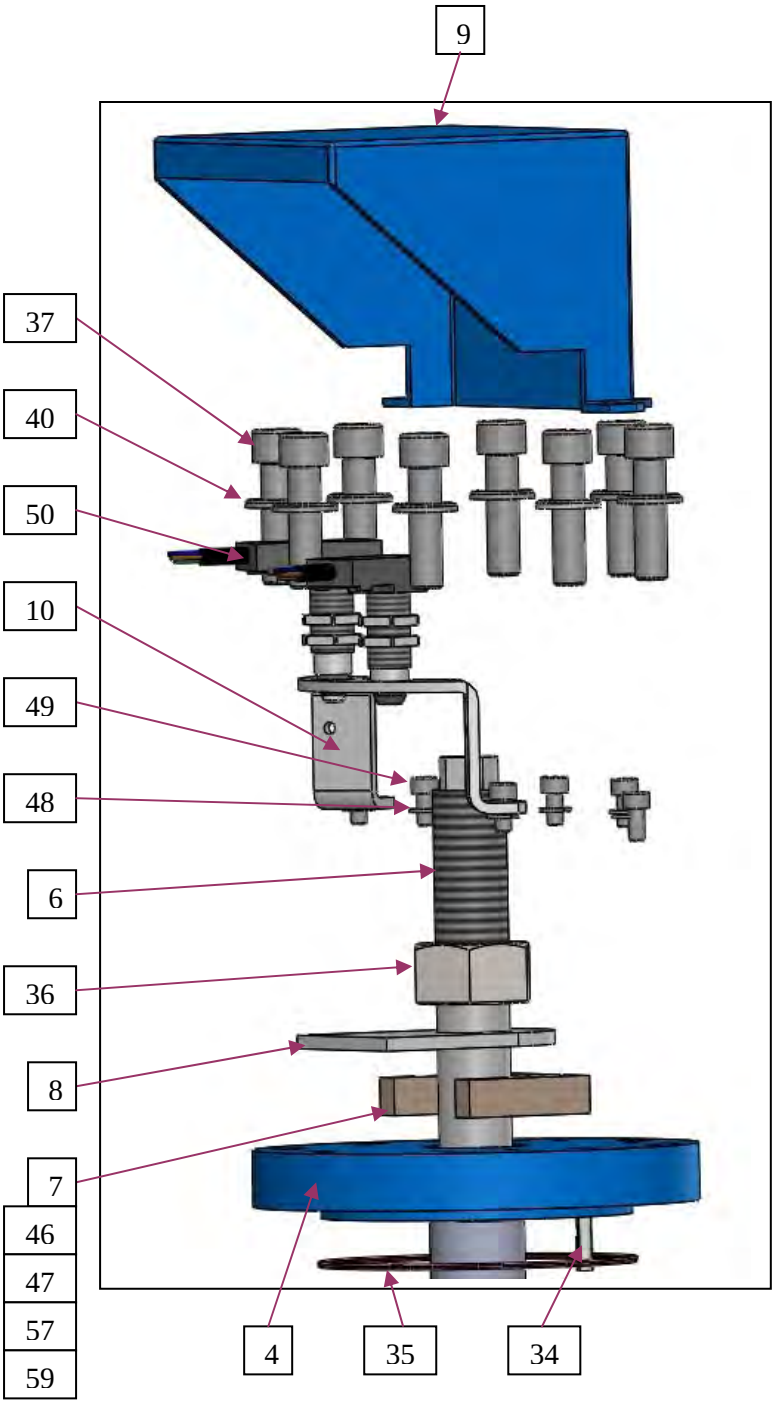
BRAKE PARTS		
Number	**Name**	**Quantity**
1	BODY	2
3	PISTON	2
4	COVER	2
5	SPACER	2
6	ADJUSTMENT SCREW	2
7	LOCK STOP	2
8	ACTUATOR	2
9	COVER	2
10	SUPPORT	2
11	SPRING	2
12	SUPPLEMENT	2
17	END STOP	4
18	CHARACTERISTICS PLATE	2
19	LINING	2
21	SPRING	4
23	SEAL	2
24	SEAL	2
25	SCRAPER	2
26	SCRAPER	2
27	GUIDE RING	2
28	GUIDE RING	2
29	3/8”G PLASTIC PLUG	2
33	1/8”G PLASTIC PLUG	2
34	PIN ISO 8740 6x24	2
35	O´RING	2
36	NUT ISO 8673 - M27x2	2
37	SCREW ISO 4762 - M12x45 8.8	16
39	SCREW DIN 7964 - M8x100 KE-K 8.8	4
40	WASHER DIN 6916 - M12	24
42	SCREW ISO 4762 - M8x14 - 12.9	8
43	HEXAGONAL SCREW ISO 4014 - M12x50 - 10.9	8
46	WASHER ISO 7090 - M4	6
47	SHOT CHAIN	2
48	SPRING WASHER DIN 128 – M6 – A4	12
49	SCREW ISO 4762 - M6x16 - A4-70	12
50	SENSOR	4
54	SOCKET SET SCREW ISO 4026 - M10x8	8
57	SCREW ISO 1207 - M4x10 - 5.8	4
58	METAL PLUG WITH WASHER 3/8"G	2
59	NUT ISO 4032 - M4 - 8	2
61	WASHER ASSEMBLY DIN 6319	4
66	1/8”G THREAD PLUG WITH JOINT	2

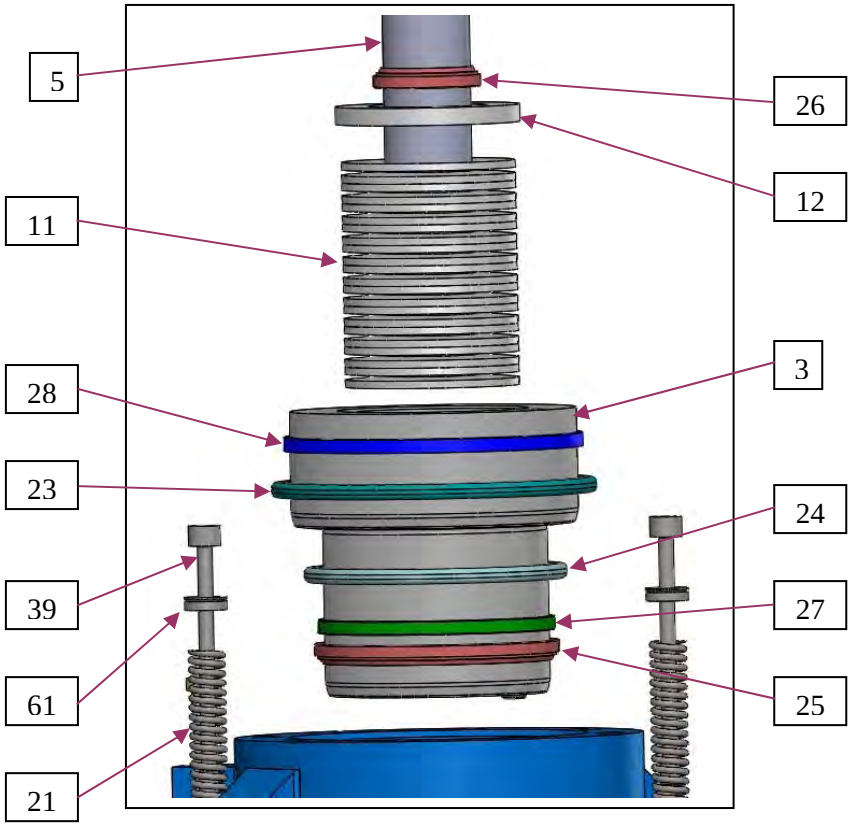
ASSEMBLY



ASSEMBLY EXPLOSION



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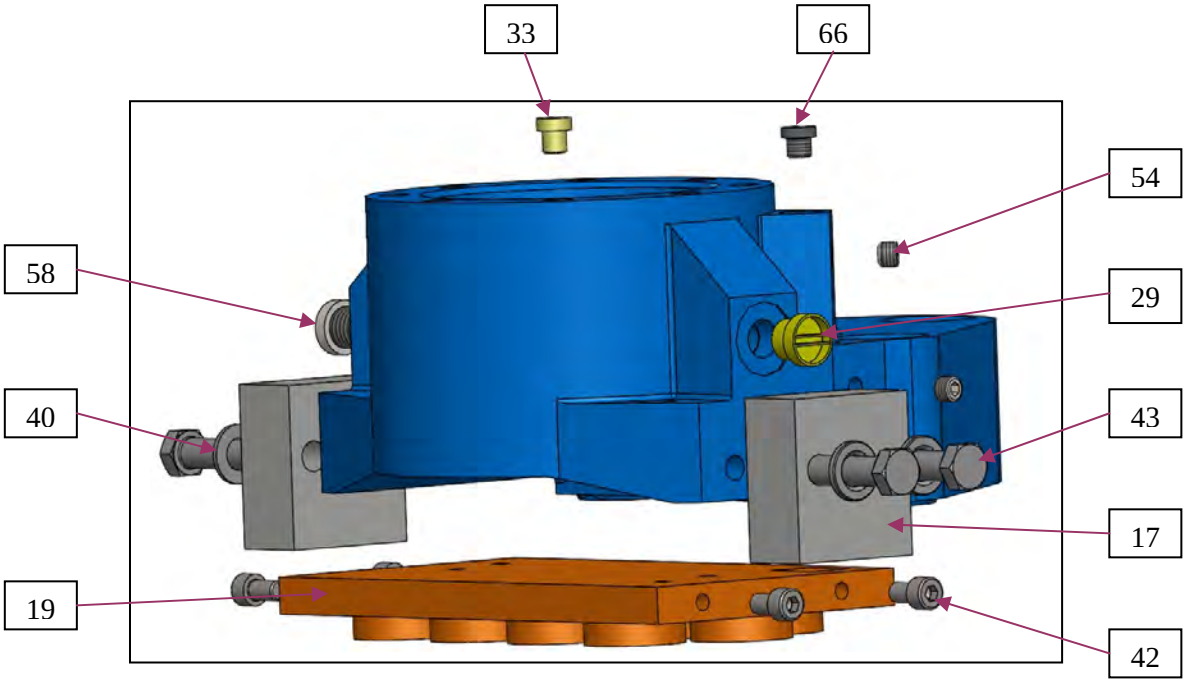
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ANTEC can provide, according to customer specifications, different options that can be used for NHCD-900 brakes. These options are:

- Contact of opening indicator. (CSA).
- Brake shoe lining wear sensor (DD).
- Hydraulic unit.
- Tubes to connect hydraulic unit to brake.
- Brake anchoring screws.
- Brake anchoring bracket.

NOTE

Any other option not mentioned above can be studied by the Antec Sales Department to meet any client need.

2. BRAKE DELIVERY AND ASSEMBLY

2.1. BRAKE DELIVERY.

When the brakes leave the factory, they are always packaged to ensure maximum safety during transportation.

NHCD-900 callipers are supplied loose. They are secured to a bracket, which the user must prepare beforehand. If supplied with a bracket or hydraulic unit, this is supplied in a different package.

NHCD-900 callipers are supplied without pressure, with the springs completely slackened.

ANTEC certifies that NHCD-900 brakes have been tested in the company's test bench at its facilities using the right oil.

The inside brake parts are lubricated so that the brake will not suffer corrosion while being transported to the customer's facilities and during the assembly process.

NOTE

This film of oil that prevents the inside brake parts from corrosion during transportation and assembly only lasts for a certain amount of time.

All of the brake's hydraulic power inlets are plugged during transportation.

2.2. DISC AND SURFACE FOR ASSEMBLY

Before starting the assembly process, check that the disc is clean and dry. Any residue, whether grease, oil or particles due to disc corrosion could prevent the brake and lining from working properly.

NOTE

When worker cleans the disc, you can use oil or diesel the first time, but after that (and this is very important) the disc must be cleaned using a solvent. Take care when using solvents. Dry the disc afterwards.

During transportation and storage, residue may build up in the brakes on surfaces in contact with brackets in the future and on the areas between the linings and the disc. We therefore recommend cleaning them thoroughly.

NOTE

The brakes have been designed in accordance with the customer's specifications. Therefore, possible disc and bracket machining defects have not been taken into account. ANTEC thinks it is worth mentioning that possible flaws regarding parallelism and flatness in the brake's disc and securing bracket could reduce the contact surface area between the lining and disc. Contact between both surfaces will be restored fully after several braking actions.

2.3. ASSEMBLY PROCEDURE

To assemble the brakes, proceed as follows:

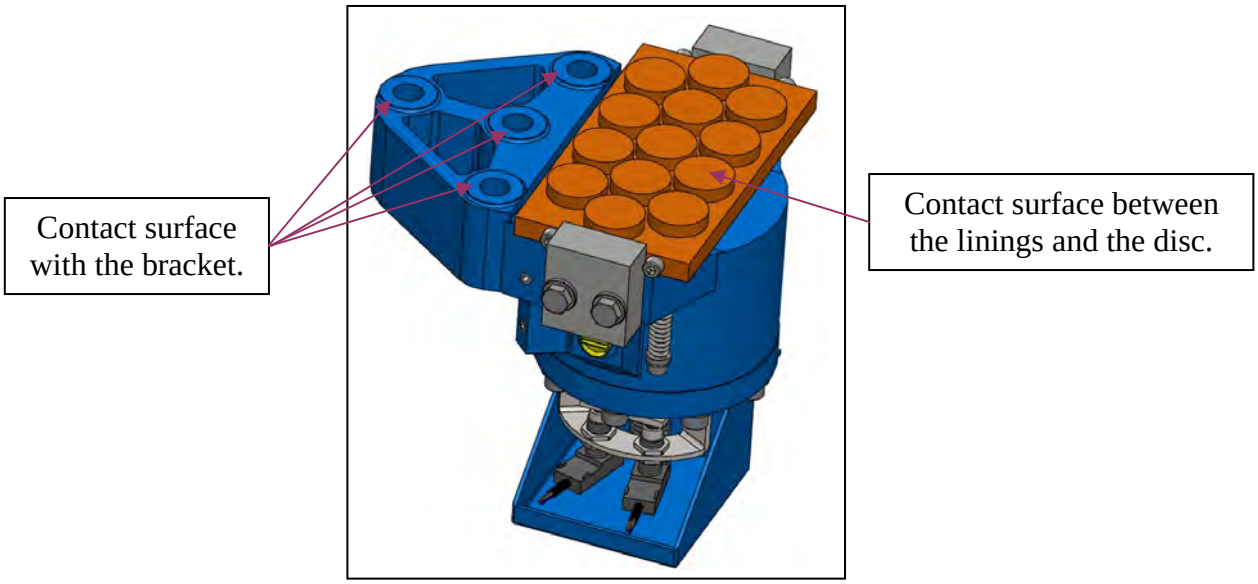
2.3.1 - Clean the disc in which you are going to install the NHCD-900 brake. Any particles could damage the brake and prevent it from working properly. See the first note on disc cleaning in point 2.2.

2.3.2 - Remove the brake from its packaging (do not remove plugs 29, 33, 58 and 66).

2.3.3 - Clean the contact surface between the brake and the bracket and between the linings and the disc. Once the brakes have been unpacked and transported to the installation point they could become dirty, which is why both surfaces need to be cleaned.

NOTE

IMPORTANT Do not use liquid to clean these two surfaces. Clean them using a dry paper towel or cloth.



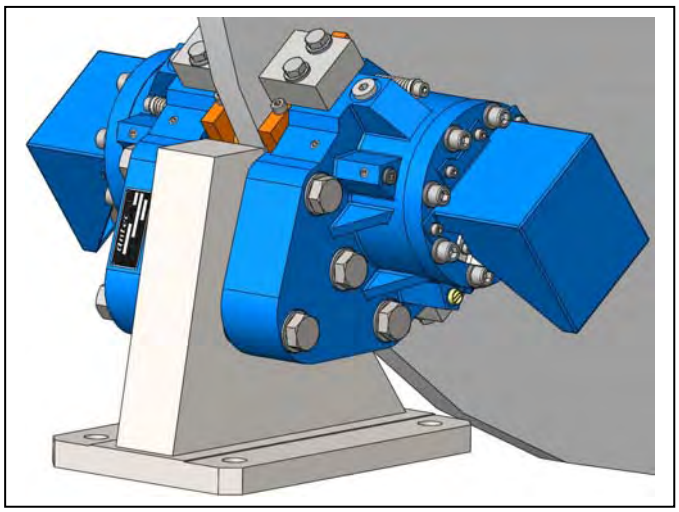
2.3.4 - If the brake is supplied with the necessary bracket, secure the brake using the anchoring screws.

2.3.5 - Fit the screws, washers and nuts. Secure the NHCD-900 brake to the bracket by applying the necessary torque to tighten the screws and nuts. **ANTEC recommends 10.9 screws lubricated with MoS_2.**

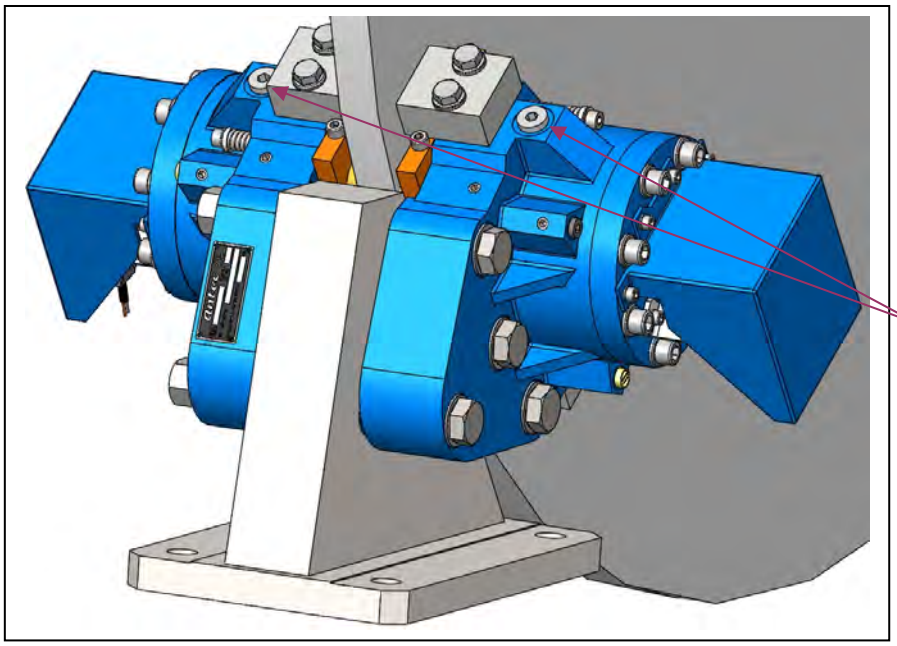
NOTE

The screws, washers and nuts are not supplied with the brakes if they are not requested.

RECOMMENDED TORQUE FOR M20 SCREWS 10.9 (Nm)	
Lubricated with MoS_2	Not lubricated
427	578



2.3.6 - Fit the hydraulic power and drainage connections. Each half-calliper has two 3/8”G threaded connections for the hydraulic power. Remove the plugs from the 3/8”G inlets to which the hydraulic power tube is going to be connected. The bottom connection should be used, leaving the top one free to fit an air bleed device, and if there is none, leave the steel plug fitted.



Bottom 3/8”G power inlet. Opposite inlet to the one shown in the photo.

2.3.7 - After fitting the hydraulic connections, apply 2 Mpa pressure to the brake to bleed the air inside it. This air bleeding must be performed through the 3/8”G inlet without hydraulic power. If a Minimess test point cannot be fitted, the air can be bled from the brake through the top power connection, by unscrewing the steel plug until oil leaks out. This means there is no air in the brake and the plug can be screwed back in place.

Important: Never apply more than 2 Mpa of pressure to the brake during the brake bleeding procedure because this could place the worker in danger.

2.3.8 - Once air has been purged from the brake, adjust the brake. Adjust the brake in accordance with point 4 of the instructions.

3. BRAKE MAINTENANCE

NHCD-900 brake maintenance will consist of regularly checking the following points:

3.1 - Lining wear. When the lining thickness drops below 2 mm at the lowest point, it needs to be replaced. If the brake comes with a wear sensor, replace the linings when the sensor warning comes on. See points 4.2 (adjusting sensors) and point 5 (replacing linings).

3.2 - Adjust the brake whenever it appears to have lost braking force. If the brake comes with a wear sensor, adjust the brake when the sensor warning comes on.
See point 4.1 (adjusting the calliper opening).

3.3 - Check the torque in the screws fastening the brake to any bracket.

3.4 - Check there is no leak in the hydraulic connections.

4. ADJUSTING THE BRAKE

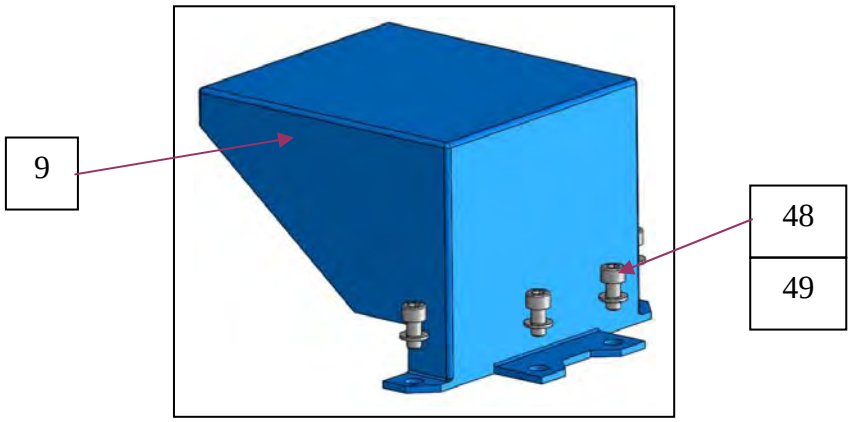
The brake has 2 adjustment points:

4.1 - Adjusting the calliper opening.

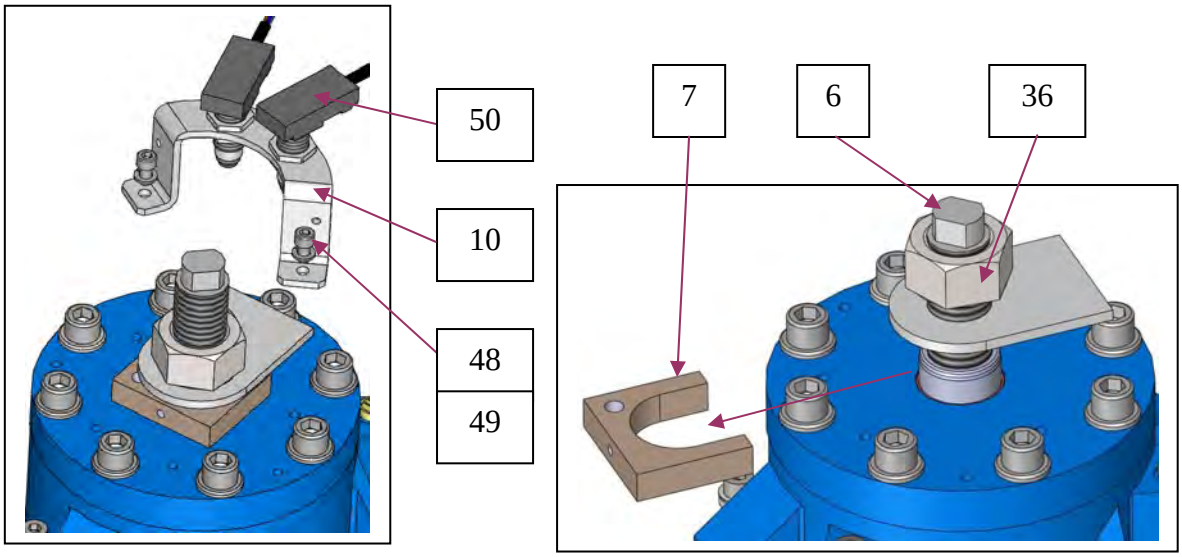
The procedure to adjust the calliper opening will be explained for one of the semi-callipers (the procedure is the same for the other one).

4.1.1 - Supply the semi-calliper with the necessary hydraulic pressure for each brake, as specified in the table attached in point 1.3 of the instructions. The pressure is used to open the brake as far as it will go.

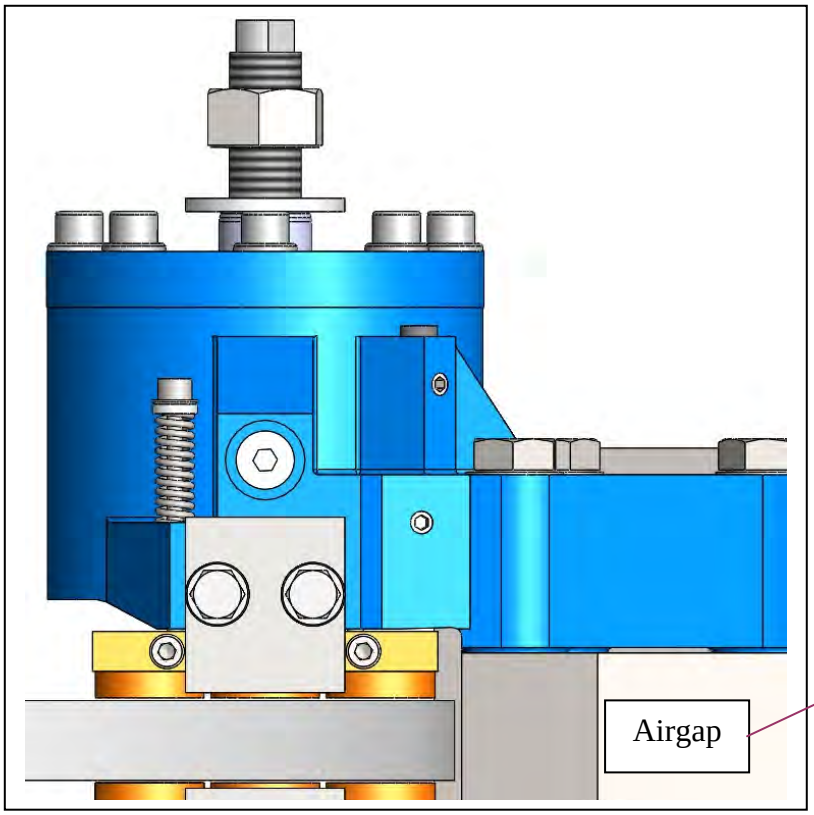
4.1.2 - Remove the cover (mark 9) with its screws and washers (mark 48-49).

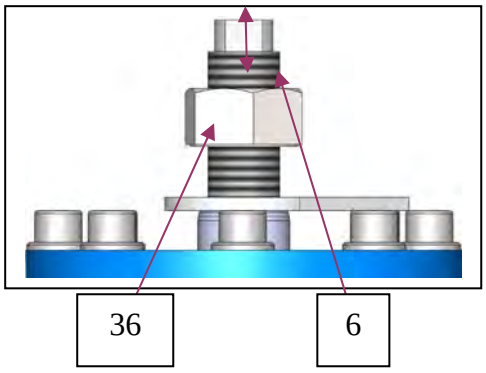


4.1.3 - Remove the support (mark 10) with its screws and washers (mark 48-49) and sensors (50). Loosen the nut (mark 36) to release the adjustment screw (mark 6). Remove the lock stop (7).



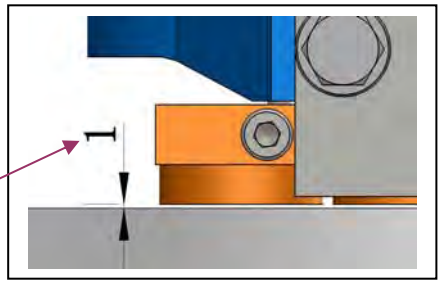
4.1.4 - Screw or unscrew the adjustment screw (mark 6) until the distance between the lining and disc is 1 mm. This is called the airgap. The 1 mm must be measured with a gauge.





NOTE

The 1 mm must be measured with a gauge.



4.1.5 - Once this opening has been adjusted, lock the adjustment screw (mark 6) in place using the nut (mark 36).

4.1.6 - The brake must be adjusted WHENEVER the brake is installed, the lining wears 1 mm or the linings are changed.

4.1.7 - At this point, due to the action from the springs and after removing the hydraulic power, the brake will have the braking force specified in the table in point 1.3.

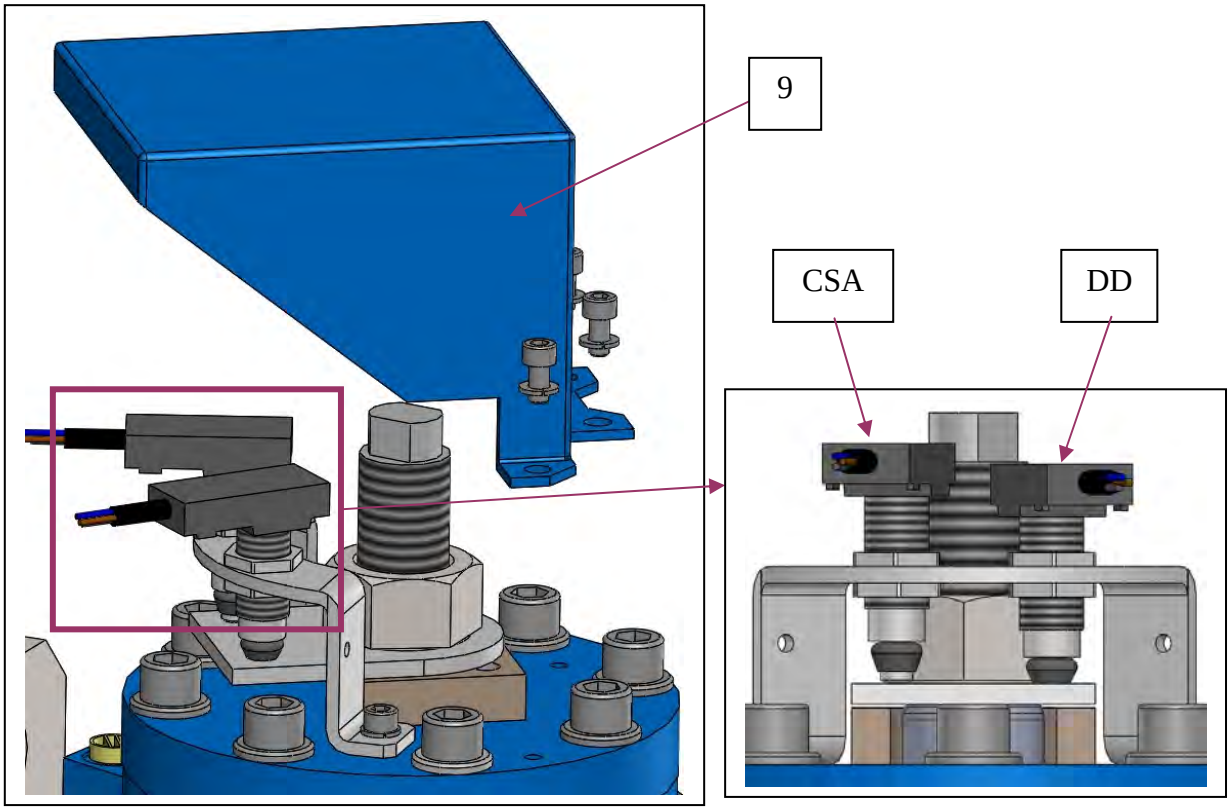
NOTE

The airgap must be the same on both sides of the disc. Otherwise abnormal stress might be exerted on the disc and on the bracket.

The greater the opening (>1 mm) the less the braking force and spring life.

4.2. Adjusting sensors.

In the case of an ANTEC brake with lining wear sensors (DD) and an opening signal contact (CSA) they must be fitted on the plug as described in the following illustration. The sensors are protected by a cover (mark 9).



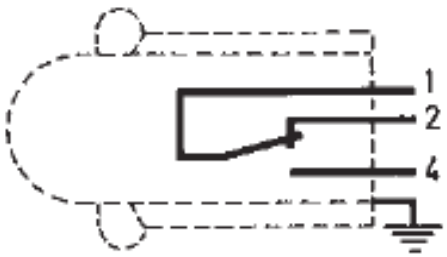
The two brake sensors fulfil the following functions:

4.2.1 - Lining wear sensor (DD): This sensor detects when the lining has worn by 1 mm.

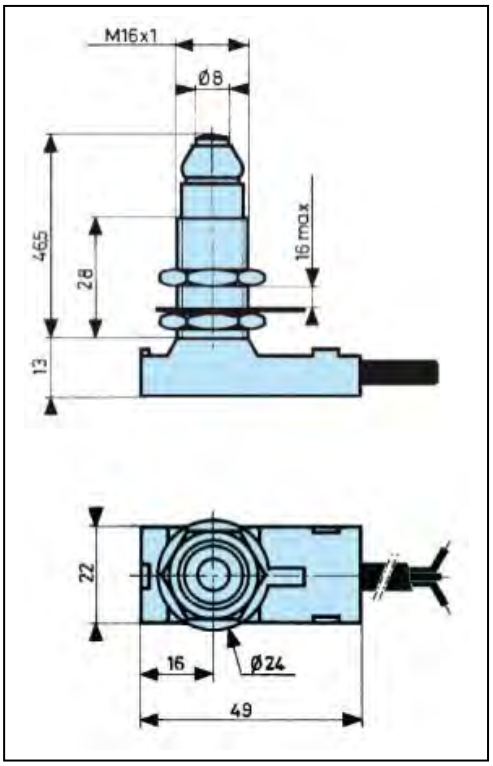
Technical information is provided to give you a better understanding on how to adjust the lining wear sensor.

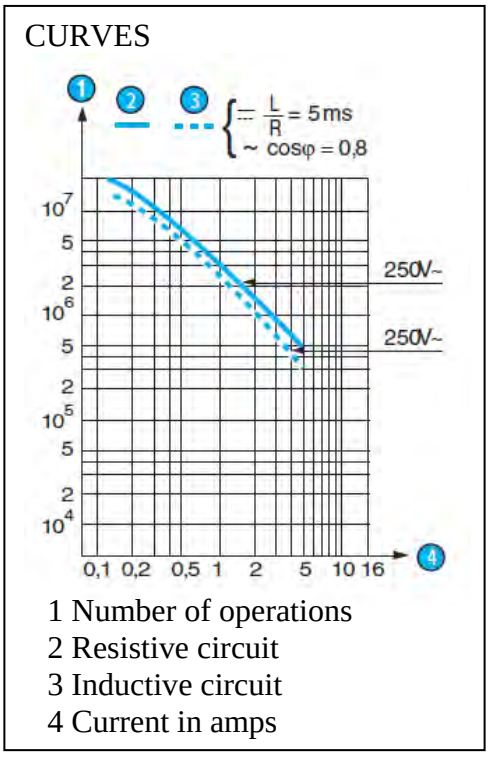
Conformity to standards	
Protection	IP 56 - IP 66 depending on type
Version	Single-pole
Function	3-terminal single break two-way contact element (form C: changeover)
Electrical characteristics	
Assigned operating current (Ie)	5 A / 250 V
Thermal current Ith (A)	12
Connections	
Cable	PVC (A05 - VV - F), length 0.50 m 3 conductors cross-section 0.75 mm^2 Sheathed ext. Ø: 7.6 mm
Electrical protection	Earthing terminal for version 83 731 and 83 732
Approvals	CSA

Minimum operating force (N)	
Minimum total travel force (N)	35
Differential travel (mm)	2
Minimum operating travel (mm)	0,2
Maximum total travel (mm)	6
Mechanical life (millions of operations) mini.	10^6
Operating temperature (°C)	-5 →+70
Protection °C	IP66
Weight (g)	110



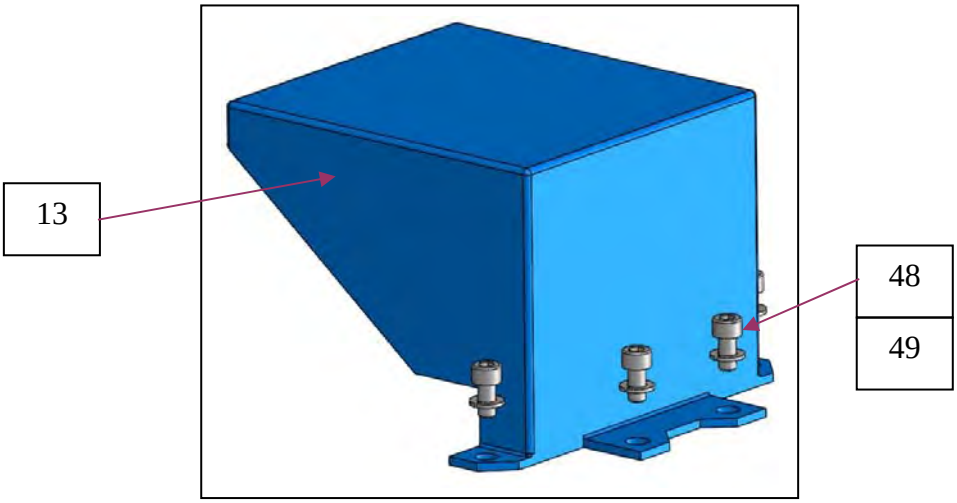
1 Black (common)
2 Brown (NC)
4 Grey (NO)





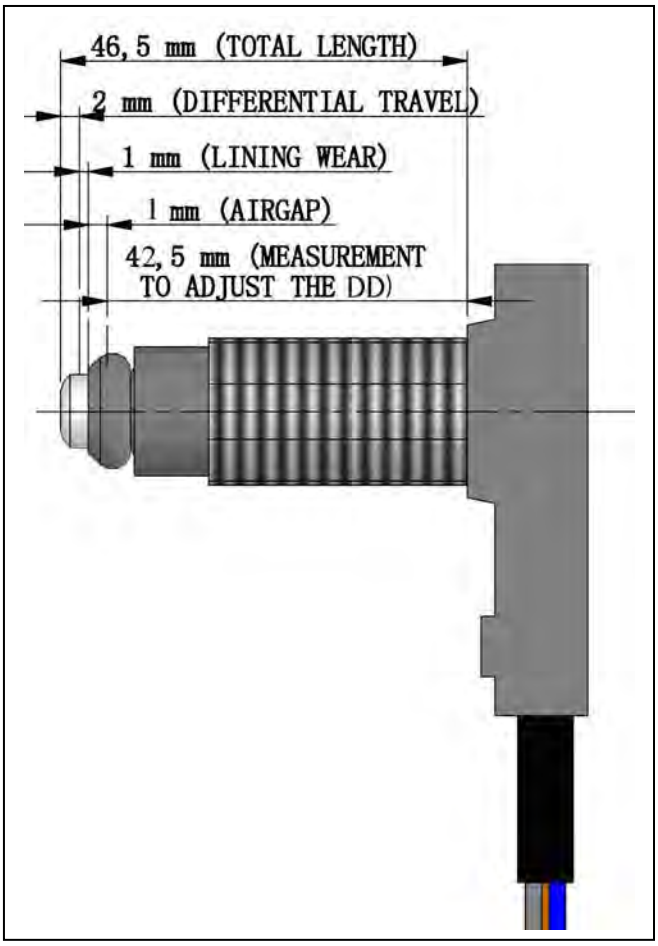
How is the lining wear sensor adjusted?

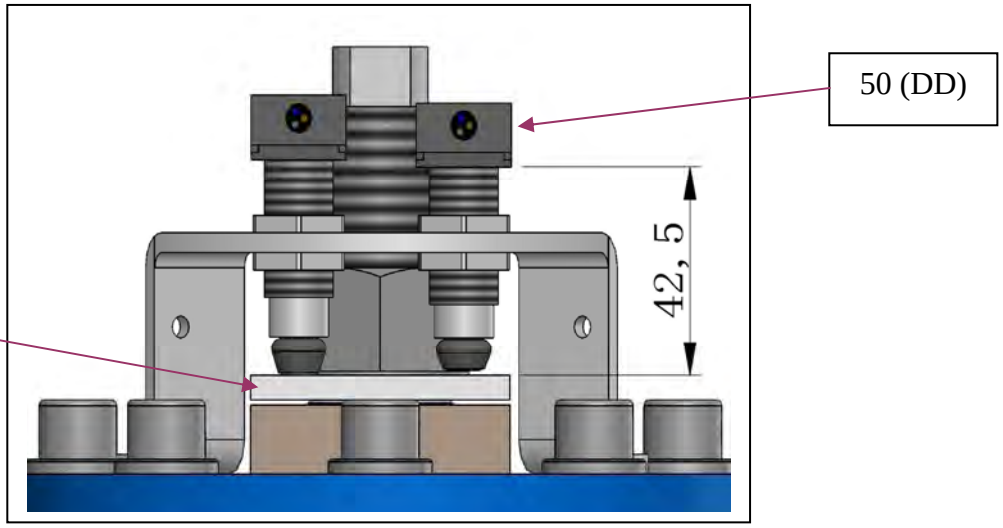
Remove the cover (mark 9) with its screws and washers (mark 48-49).



The sensor (mark 50) continually detects the actuator (mark 8), which is moved together with the piston (mark 3) mentioned above, with both the brake open and closed.

By applying the opening pressure for each brake, specified in the table in point 1.3 of the instructions, adjust the lining wear sensor (DD) to the measurement given in the following illustration (42.5 mm between sensor head and actuator mark 8).





When the sensor emits a signal, this means the following might have happened:

- The lining has worn down by 1 mm.
- The lining has worn down completely.
- Depending on how the sensor outlet cable is connected (NC or NO), it could indicate a problem with the connections.

NOTE

Important:
When the wear sensor emits a signal, either of the following decisions must be taken:

1-If the lining has not worn down completely, adjust the brake in accordance with point 4.1. of the instructions.

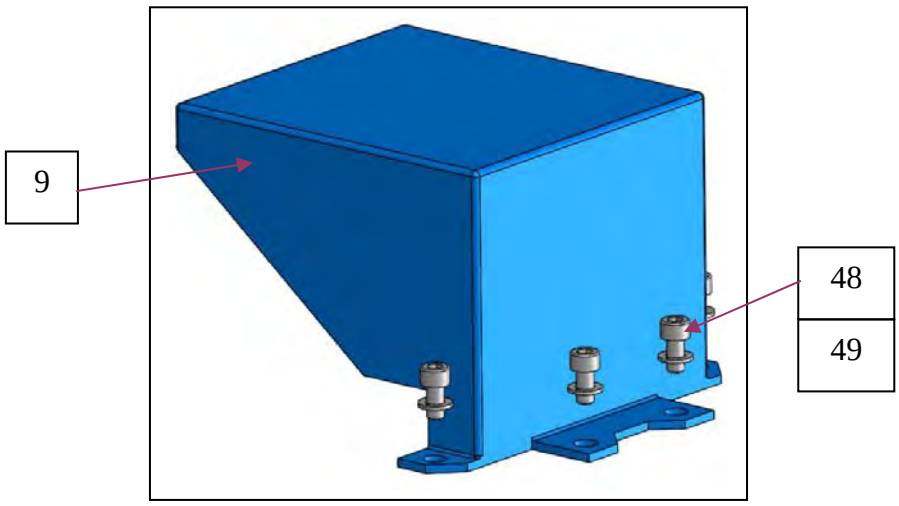
2-If the lining has worn down completely, replace the lining in accordance with point 5 of the instructions.

4.2.2 - Opening sensor contact (CSA): This sensor indicates the moment at which the brake is open (with pressure). When the sensor does not detect the brake is closed (no pressure).

The sensor is the same as the one used to detect wear with the same technical characteristics.

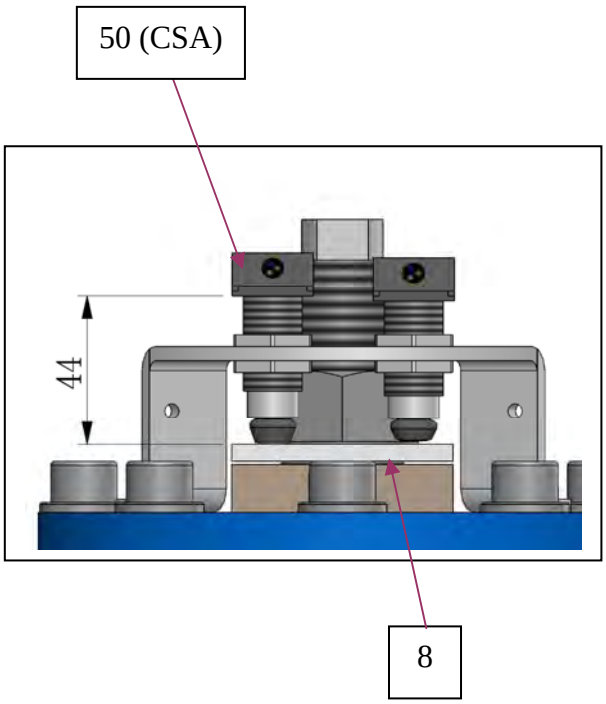
How is the opening sensor adjusted?

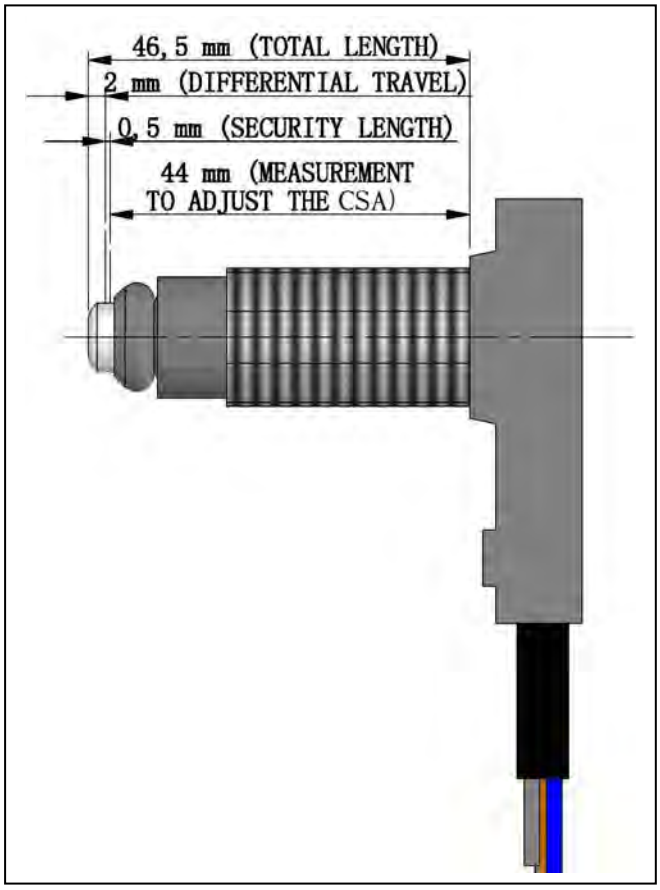
Remove the cover (mark 9) with its screws and washers (mark 48-49).



The sensor (mark 50) continually detects the actuator (mark 8), which is moved together with the piston (mark 3) mentioned above, with both the brake open and closed.

By applying the opening pressure for each brake, specified in the table in point 1.3 of the instructions, adjust the opening signal contact (CSA) to the measurement given in the following illustration (44 mm between sensor head and actuator mark 8).





When the sensor emits a signal, this means the following might have happened:

- The brake is open; consequently oil has been inserted through the hydraulic power inlet at the pressure specified in the table in point 1.3 of the instructions.
- Depending on how the sensor outlet cable is connected (NC or NO), it could indicate a problem with the connections.

Once the calliper opening has been adjusted and the sensors, if any, adjusted, it is time to switch the brake on. At this point the following note must be considered.

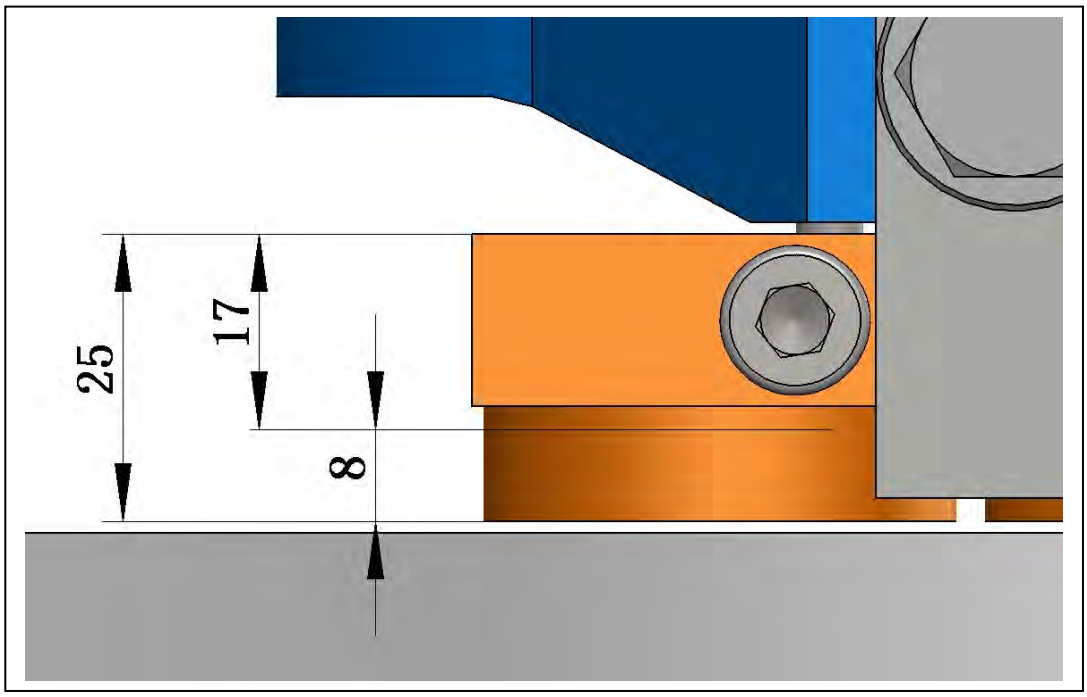
NOTE

After completing points 2.3 and 4 of the instruction, do not forget to bleed the air inside the brake to avoid malfunctioning.

5. REPLACEMENT OF THE LININGS

The linings (mark 19) are formed by a steel plate and friction material. Their total thickness is 25 mm per lining.

When the total lining thickness has reduced to 17 mm at any point, in other words, it has worn down by 8 mm, it must be replaced.



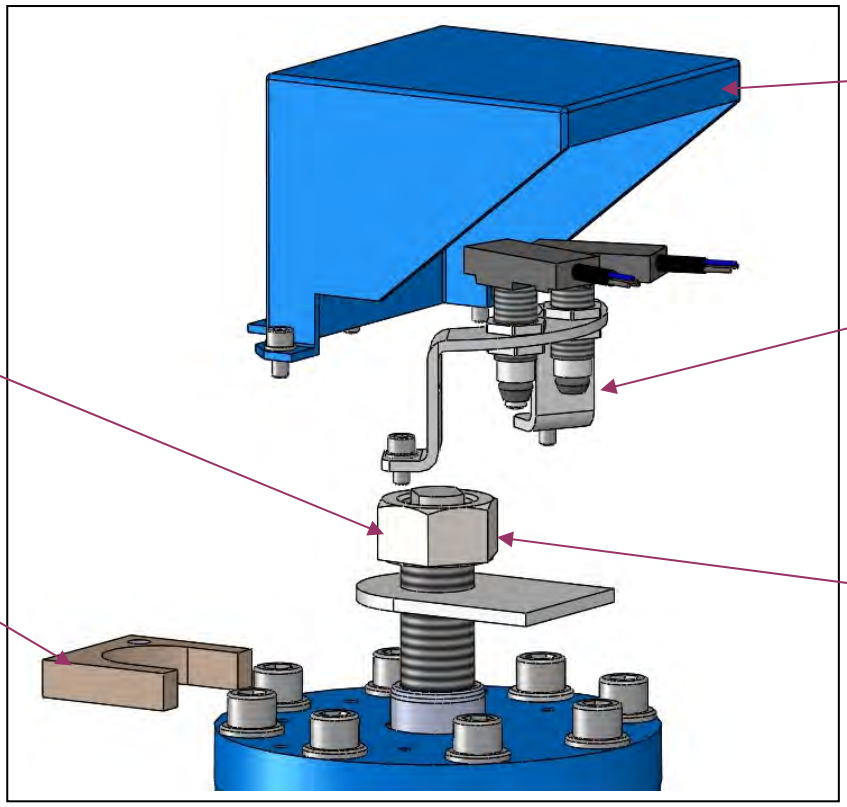
NOTE

Antec recommends always replacing both brake linings regardless of whether one or both linings have worn down.

The procedure to replace the linings is as follows:

5.1 - Power the brake at the pressure specified for each brake in the table in point 1.3 of the instructions.

5.2 - Maintaining the hydraulic pressure, remove the cover (mark 9) with its screws and washers (mark 48-49) and the support (mark 10) with the sensors (mark 50). Next loosen the nut (mark 36) and next place the lock stop (mark 7). Once the lock stop is placed, tight the nut (mark 36) blocking the brake. In this moment, the pressure can be removed.

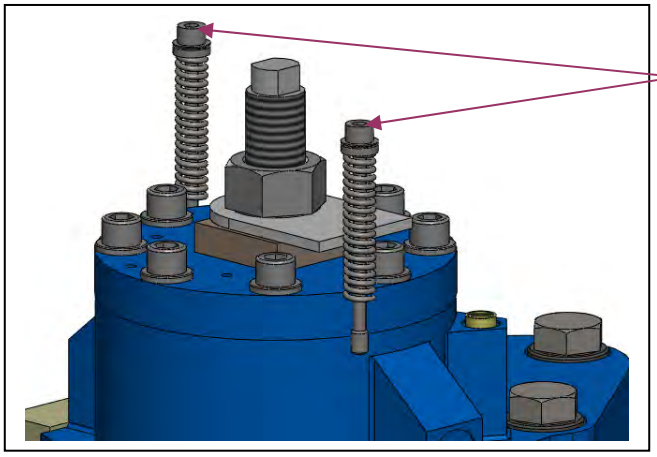


NOTE

Once the lock stop (mark 7) is placed and before tightening the nut (mark 36), it is important to unscrew the adjustment screw (mark 6) enough in order to leave space to assembly the new lining (mark 19).

Ensure that the lock stop specified in point 5.2 is well placed, before removing the hydraulic pressure.

5.3 - Remove the retraction bolts (mark 21-39-69) of the lining to be changed. Be careful to avoid the loss of the retraction springs.



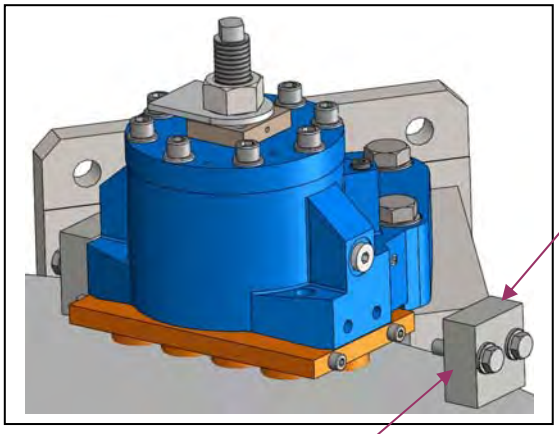
21
39
69

The procedure for replacing the linings with retraction screws is a dangerous procedure for the person in charge of it, Therefore ANTEC warns about this danger and advices to the customer of the importance of creating a specific prevention of risk protocol for this point.

5.4 - Both, the upper lining and the lower lining can be replaced following the same instructions. Both can be removed laterally or through the centre of the brake (if there is space)

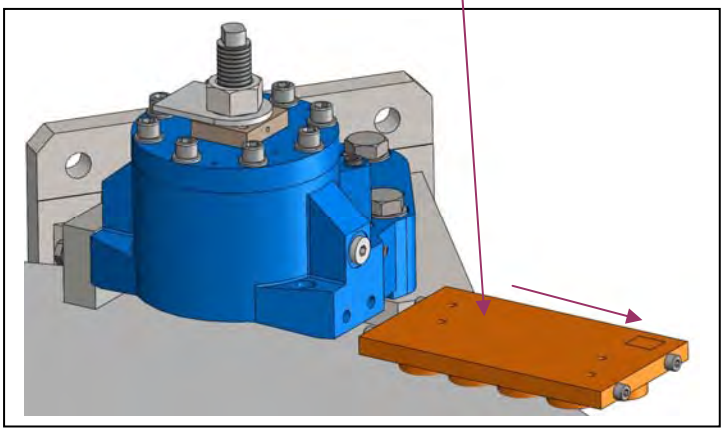
LATERALLY LINING REMOVEMENT.

Remove one of the end stop (17) with its screws and washers (40-43). Remove laterally the old lining (19).



End stop (17)

Old lining (19)

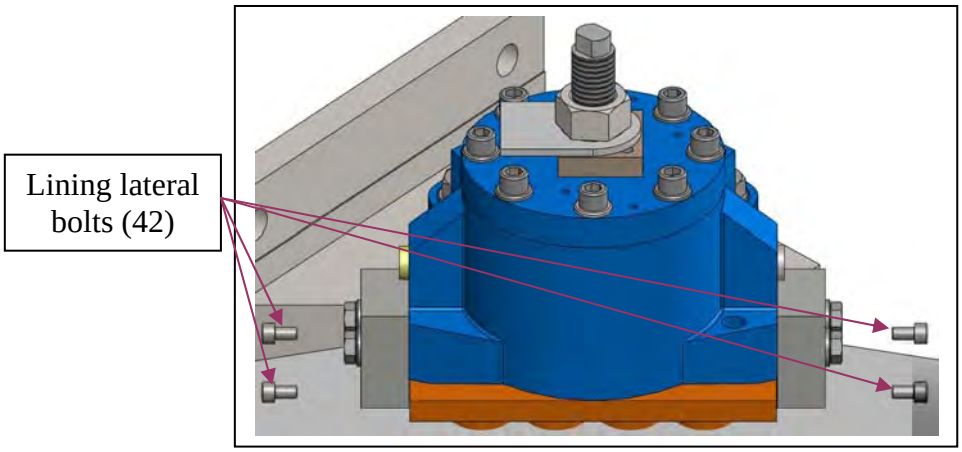


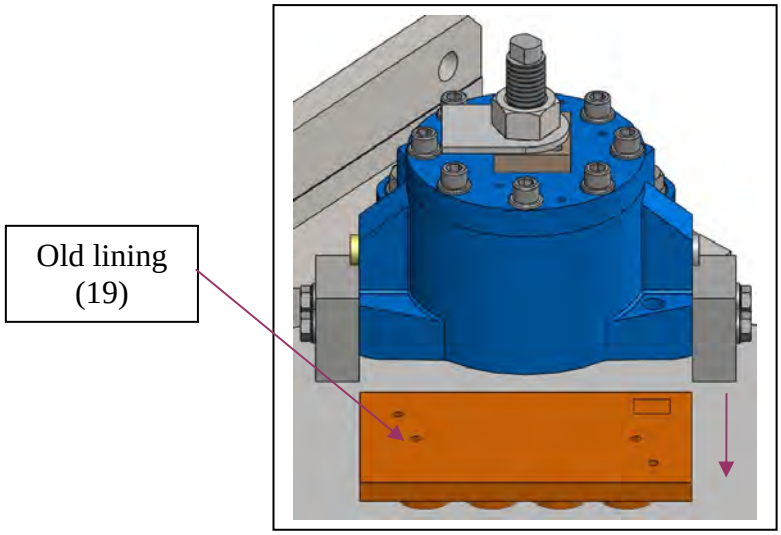
40	43

RECOMMENDED TORQUE FOR M12 SCREWS 10.9 (Nm)	
Lubricated with MoS_2	Not lubricated
87	120

LINING REMOVEMENT THROUGH THE CENTER OF THE BRAKE.

Unscrew the lining lateral bolts (42) in order to remove the old lining (19) through the centre of the brake.





5.5 - Fit the new lining.

5.6 - Perform the procedure in reverse order, starting from point 5.3 and including this one.

5.7 - Proceed as described in point 4 of the instructions (adjusting the brake).

NOTE

A new installed lining requires a break-in period to achieve the correct lining properties. This period cannot be reduced due to the number of different influential factors.

6. REPLACEMENT OF THE SPRINGS

The procedure for replacing the spring package is a dangerous procedure for the person in charge of it, Therefore ANTEC warns about this danger and advices to the customer of the importance of creating a specific prevention of risk protocol for this point

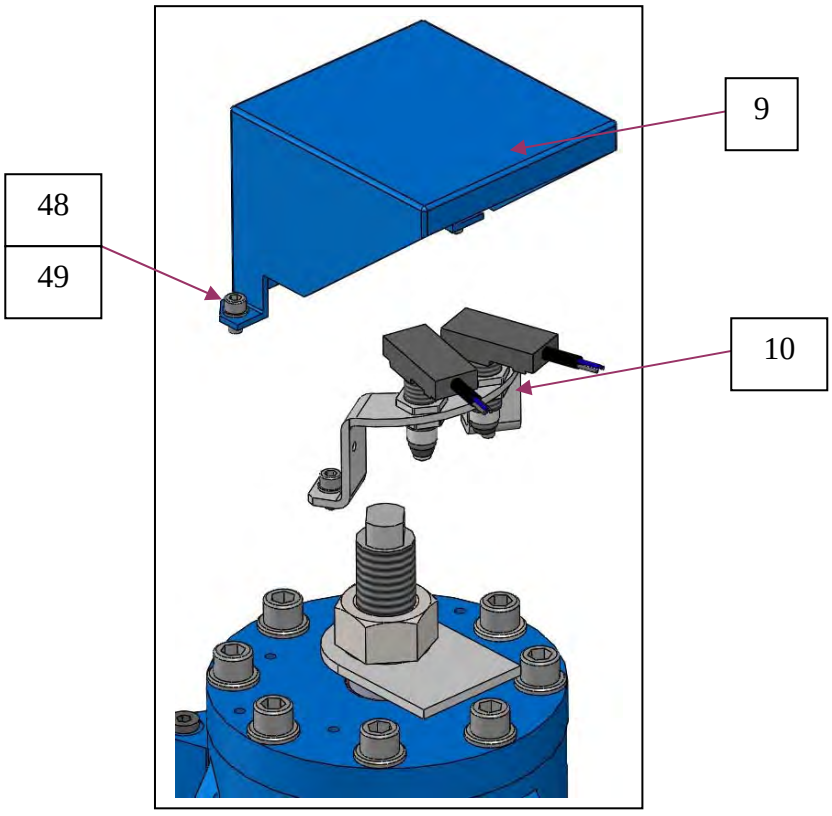
To replace springs, proceed as follows (the procedure is the same for the other semi-calliper):

NOTE

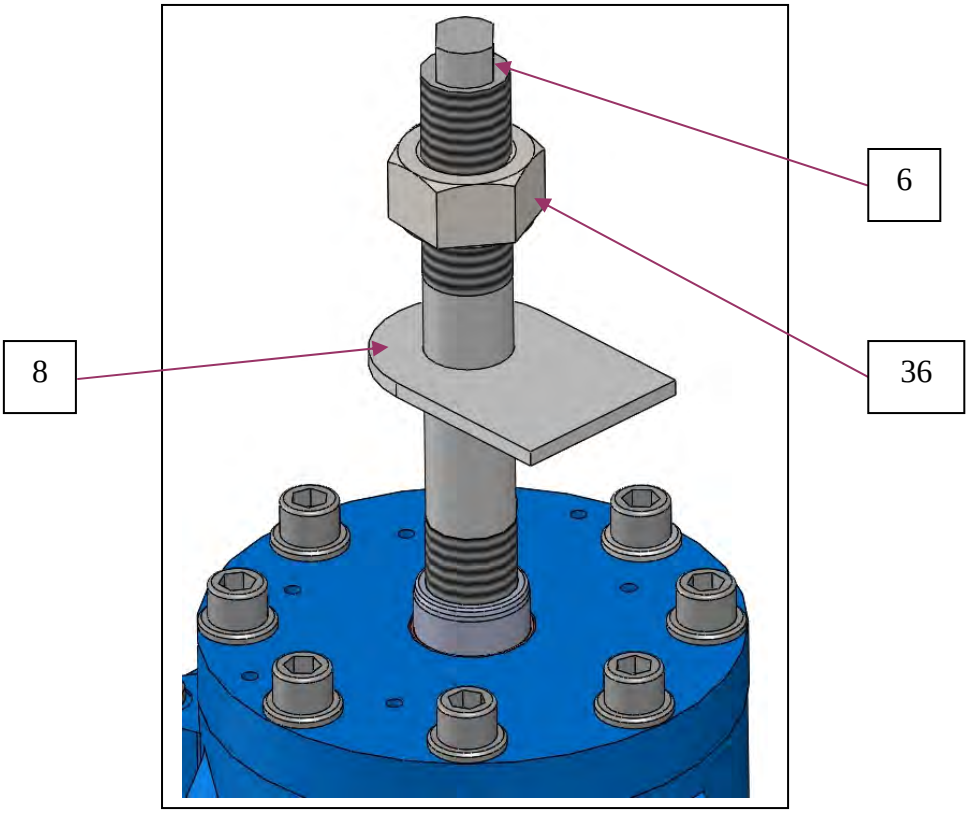
To replace springs, the semi-calliper does not need to be removed from its bracket.

6.1 - Power the brake at the pressure specified for each brake in the table in point 1.3 of the instructions.

6.2 - Maintaining the hydraulic pressure, remove the cover (mark 9) with its screws and washers (mark 48-49). After that, remove the support (mark 10) with the sensors (mark 50).



6.3 - Remove the nut (mark 36), the actuator (mark 8), and the adjustment screw (6), so that once the pressure is removed the springs are freed without exerting any stress.



6.4 - The spring lock is still compressed, which means that if the cover (mark 4) is removed now the springs would exert stress that might be dangerous.

NOTE

It is recommended to dismantle the lining (mark 19) in order to fully decompress the block of springs.

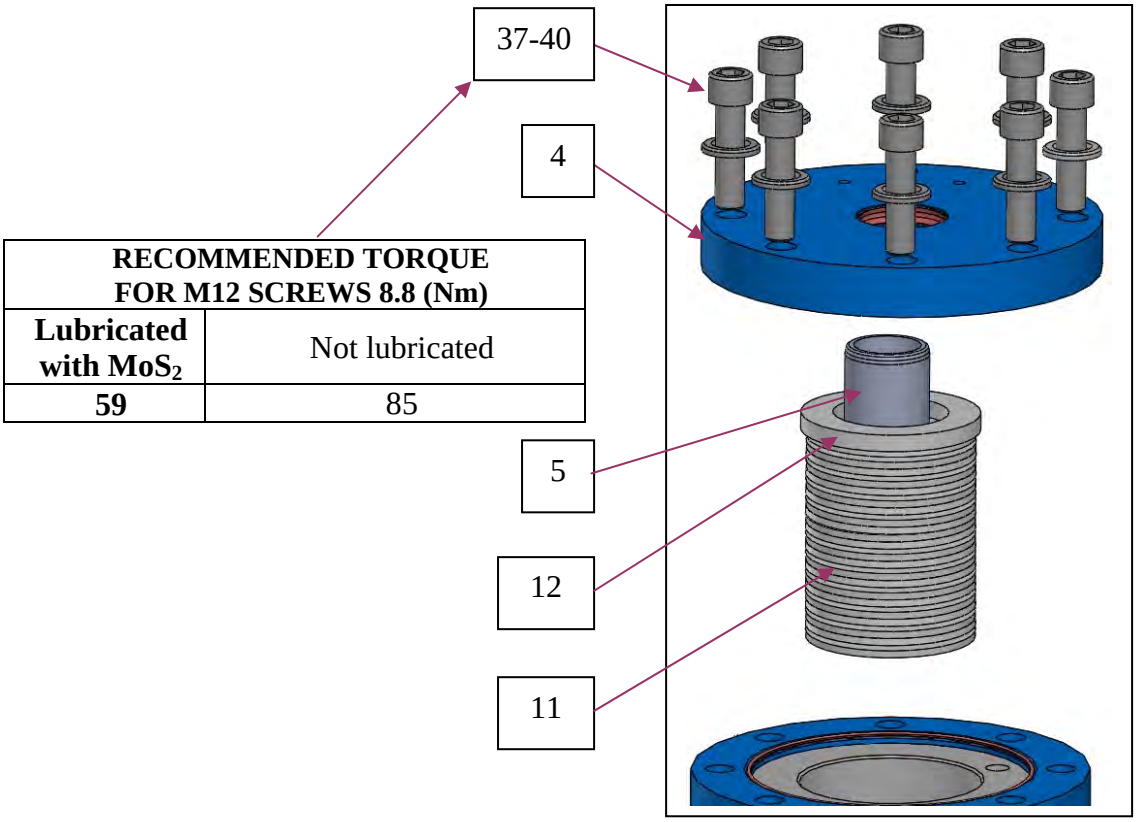
6.5 - Keeping the brake powered, remove the lining (mark 19) following the guidelines given in points 5.3 and 5.4 of these instructions.

6.6 - Remove the pressure.

Failure to comply with this point could cause irreversible damages to ANTEC brakes and workers handling them.

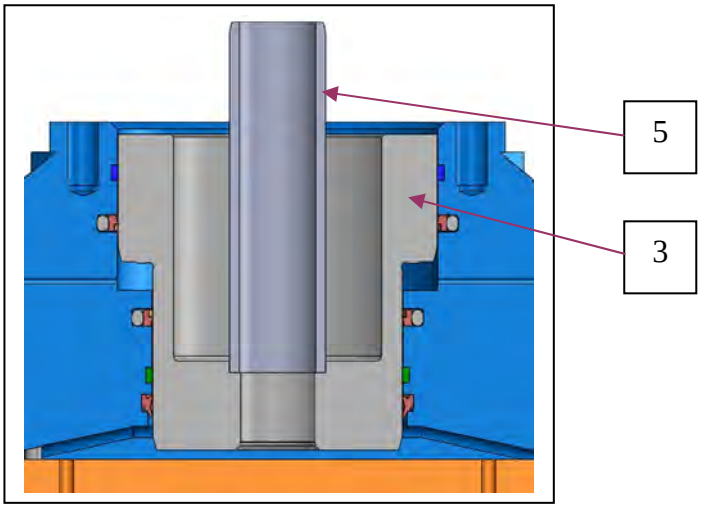
6.7 - Without any hydraulic pressure, loosen the 8 screws with their washers (mark 37-40), which fasten the cover (mark 4) of the brake.

Next, remove the cover (mark 4), the spacer (mark 5) and the supplement (mark 12), if any. Finally, remove the set of springs (mark 11).

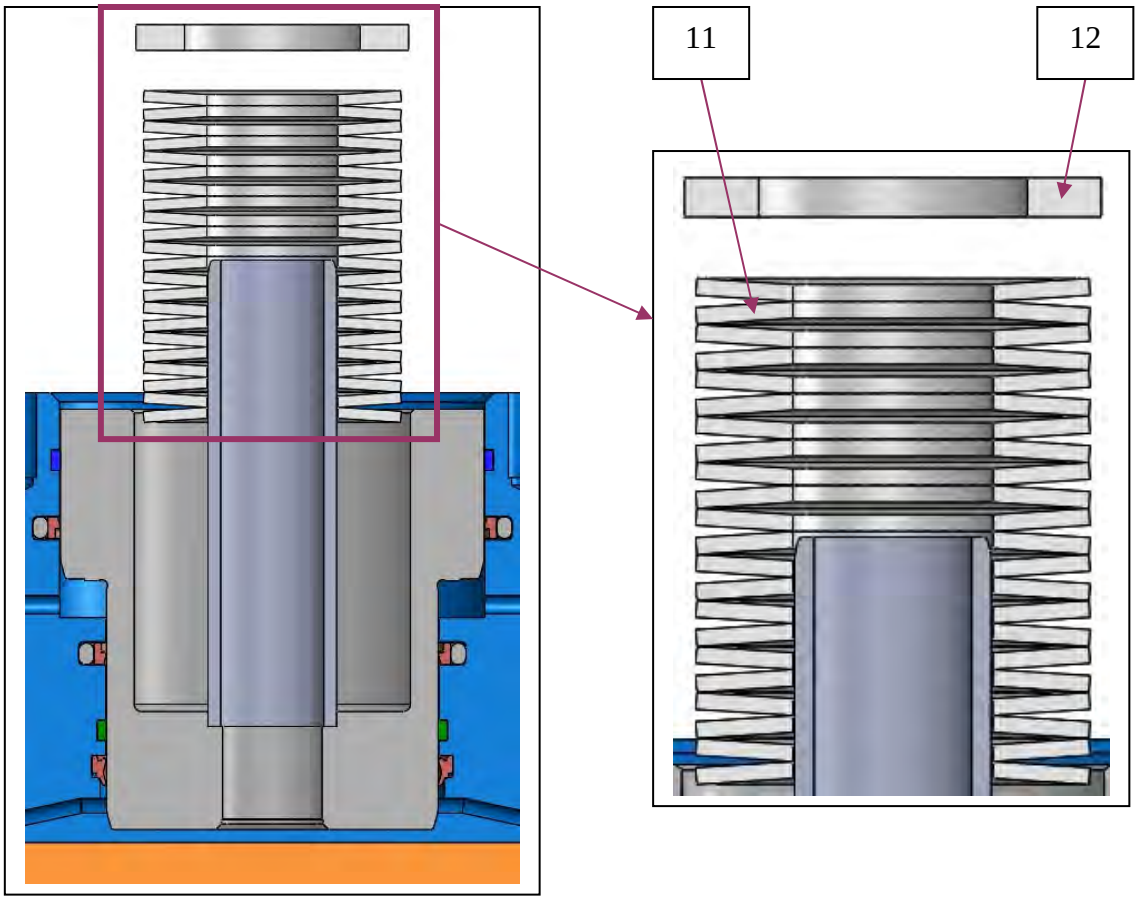


RECOMMENDED TORQUE FOR M12 SCREWS 8.8 (Nm)	
Lubricated with MoS_2	Not lubricated
59	85

6.8 - Fit the spacer (mark 5) into its place taking care to fit it into its lodging of the piston (mark 3).



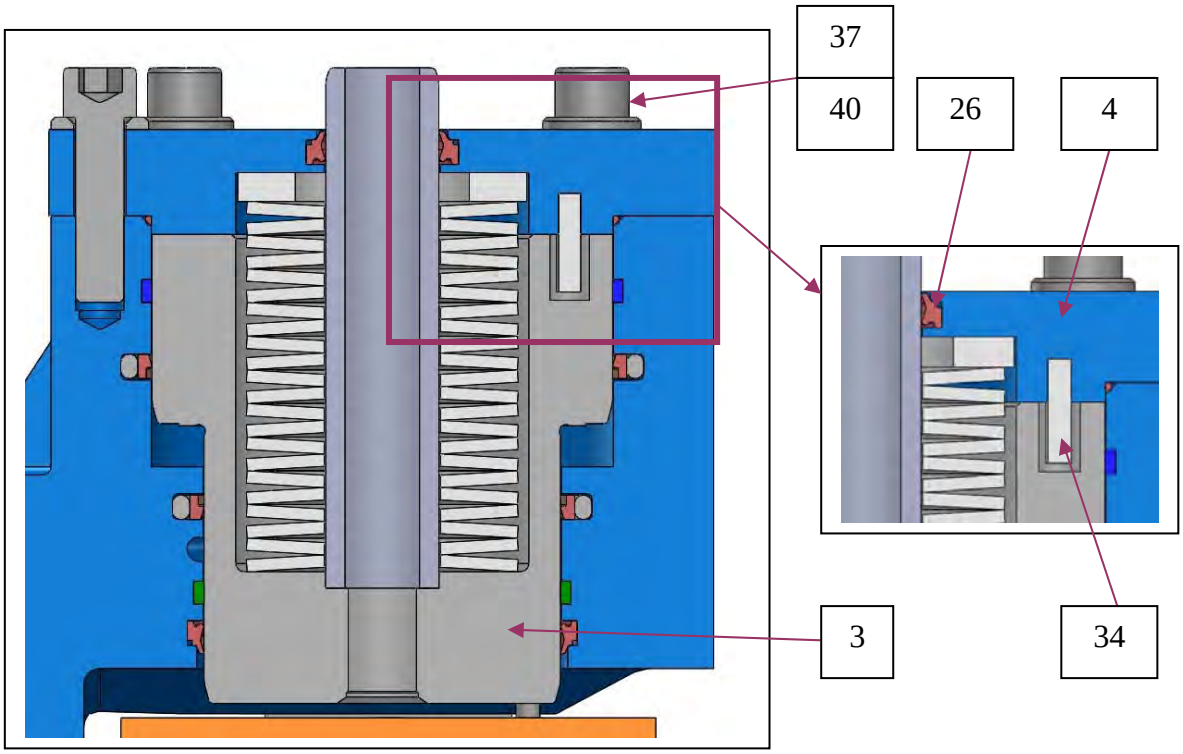
6.9 - Install the new set of springs (mark 11), lubricating it abundantly with green lubricant (e.g. Sopral supergras 792/2 or equivalent). Particular attention must be paid to assemble the springs in the correct position. Please refer to the set of springs in the assembly drawing, specific to each brake model. Also assemble the supplement (mark 12), if any.



6.10 - Mount the cover (mark 4), in which we must have replaced the scraper (mark 26) with a new one. When mounting the cover take into account that the pin (mark 34) must be lodged in the housing of the piston (mark 3). Tighten the cover fastening bolts (mark 37-40) with the corresponding tightening torque (see point 6.7 of these instructions).

NOTE

ANTEC recommends replacing the O-ring (mark 35) every time you change the springs.



6.11 - Perform the procedure in reverse order, starting from point 6.6 and including this one.

6.12 - Proceed as described in point 4 of the instructions (adjusting the brake).

7. REPLACEMENT OF THE SEALS

NOTE

The seals must be changed in the cleanest possible environment to avoid contaminating the parts inside calliper with abrasive particles.

The parts and seals must be handled as carefully as possible to avoid superficial damages that could cause oil leaks.

Check that the surface of the parts is in good condition before fitting new seals.

Once the seals have worn down or leaks appear in the brake, they need to be replaced.

The seal kit for NHCD-900 brakes consists of:

NUMBER	NAME	QUANTITY
23	*SEAL*	*2*
24	*SEAL*	*2*
25	*SCRAPER*	*2*
26	*SCRAPER*	*2*
27	*GUIDE RING*	*2*
28	*GUIDE RING*	*2*
35	*O´RING*	*2*

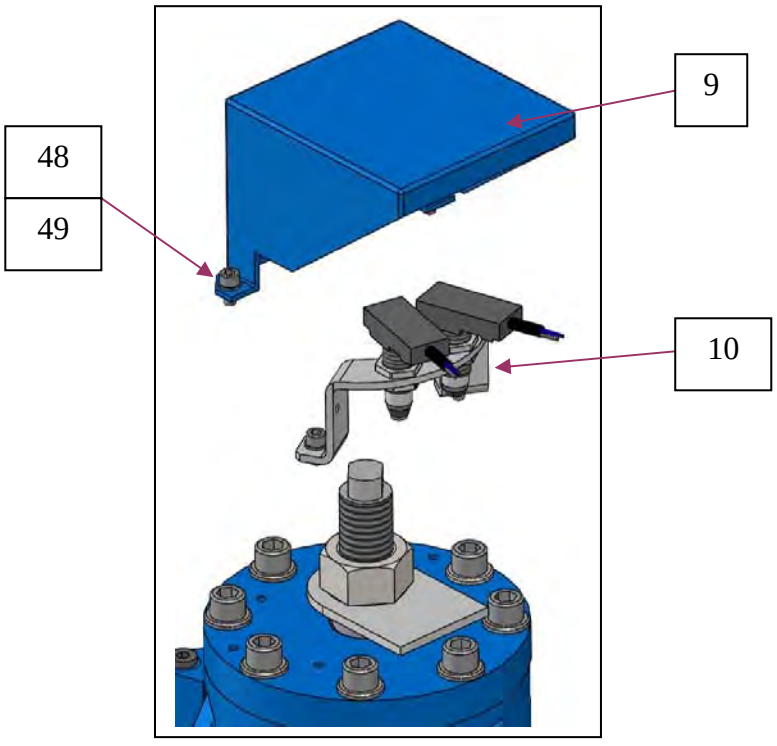
NOTE

Antec recommends ALWAYS replacing the entire brake seal kit if there are any problems with any of the components.

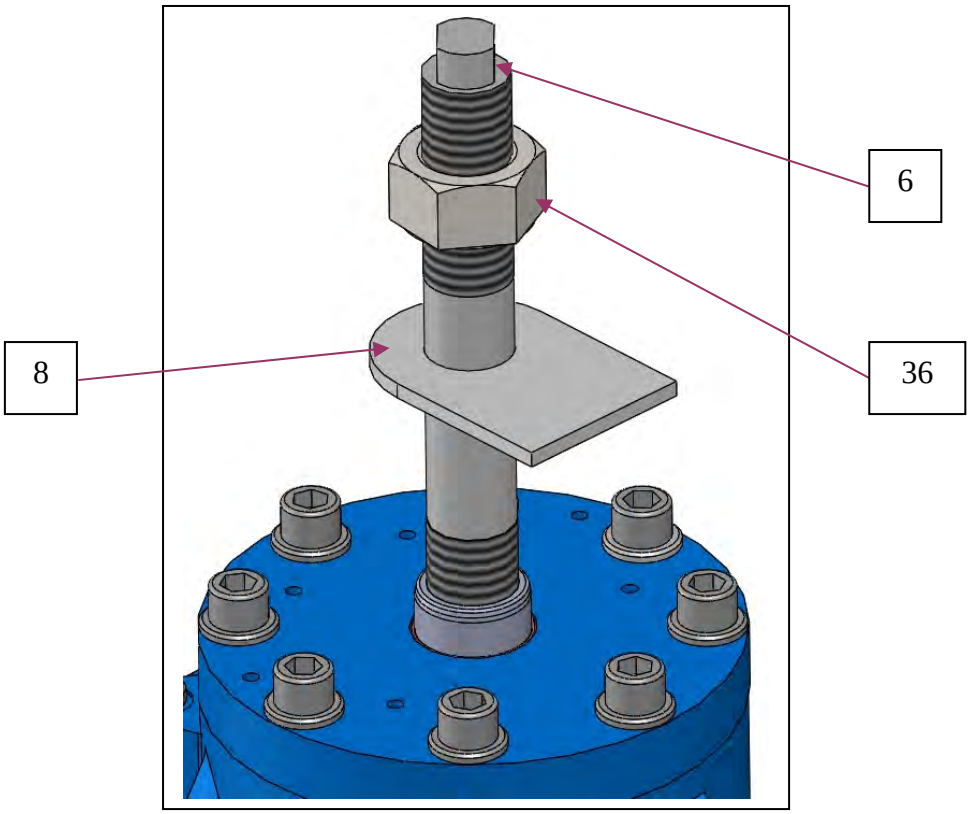
To replace the seal kit components proceed as follows (the procedure is the same for the other semi-calliper):

7.1 - Power the brake at the pressure specified for each brake in the table in point 1.3 of the instructions.

7.2 - Maintaining the hydraulic pressure, remove the cover (mark 9) with its screws and washers (mark 48-49). After that, remove the support (mark 10) with the sensors (mark 50).



7.3 - Remove the nut (mark 36), the actuator (mark 8), and the adjustment screw (6), so that once the pressure is removed the springs are freed without exerting any stress.



7.4 - The spring lock is still compressed, which means that if the cover (mark 4) is removed now the springs would exert stress that might be dangerous.

NOTE

It is recommended to dismantle the lining (mark 19) in order to fully decompress the block of springs.

7.5 - Keeping the brake powered, remove the lining (mark 19) following the guidelines given in points 5.3 and 5.4 of these instructions.

7.6 - Remove the pressure.

Failure to comply with this point could cause irreversible damages to ANTEC brakes and workers handling them.

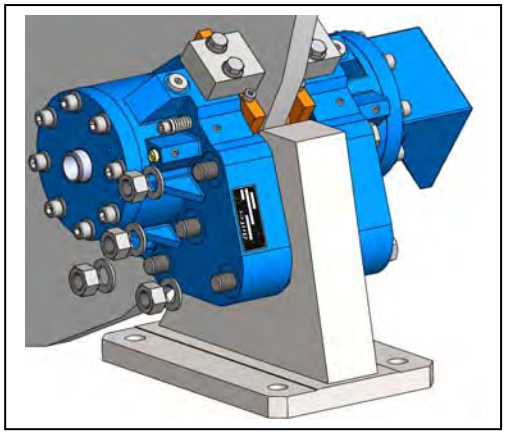
7.7 - Remove the hydraulic power connections.

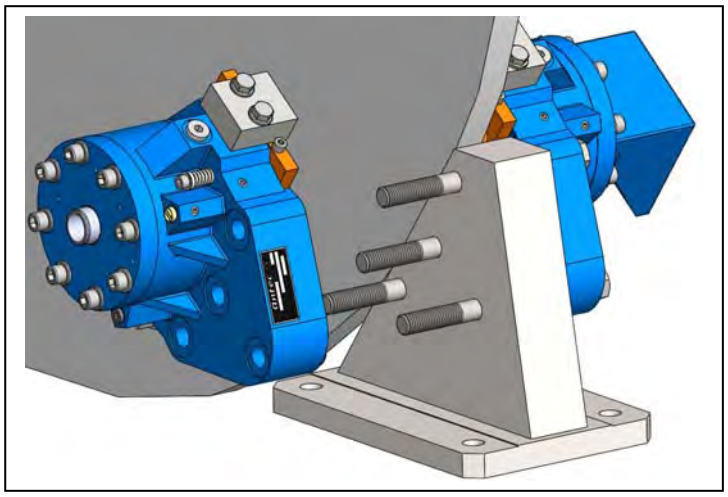
NOTE

It is not necessary to remove the hydraulic connection, but this will make handling the half-calliper easier for the worker.

7.8 - Remove the semi-calliper from its bracket and put it in a suitable place to handle it.

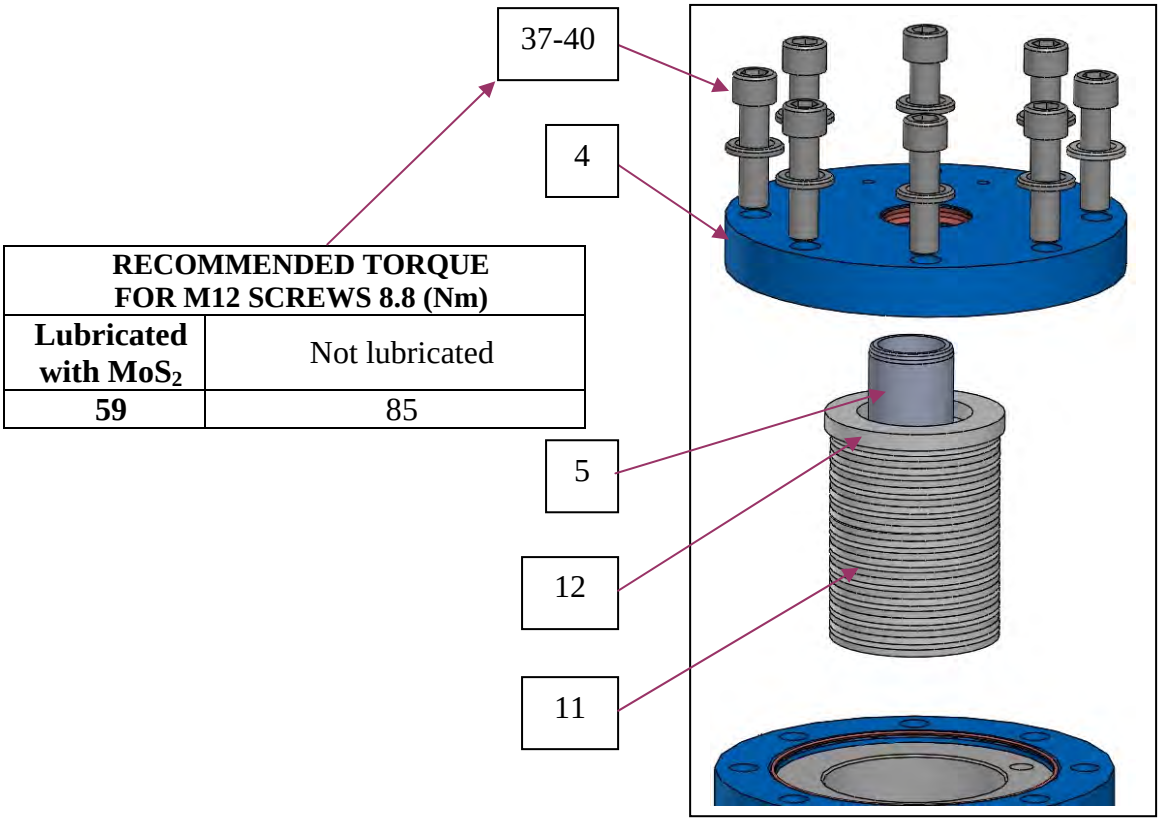
The brake handling process is hazardous for the operator, for which reason ANTEC warns of the danger and advises the client to establish a specific risk prevention protocol for this point.





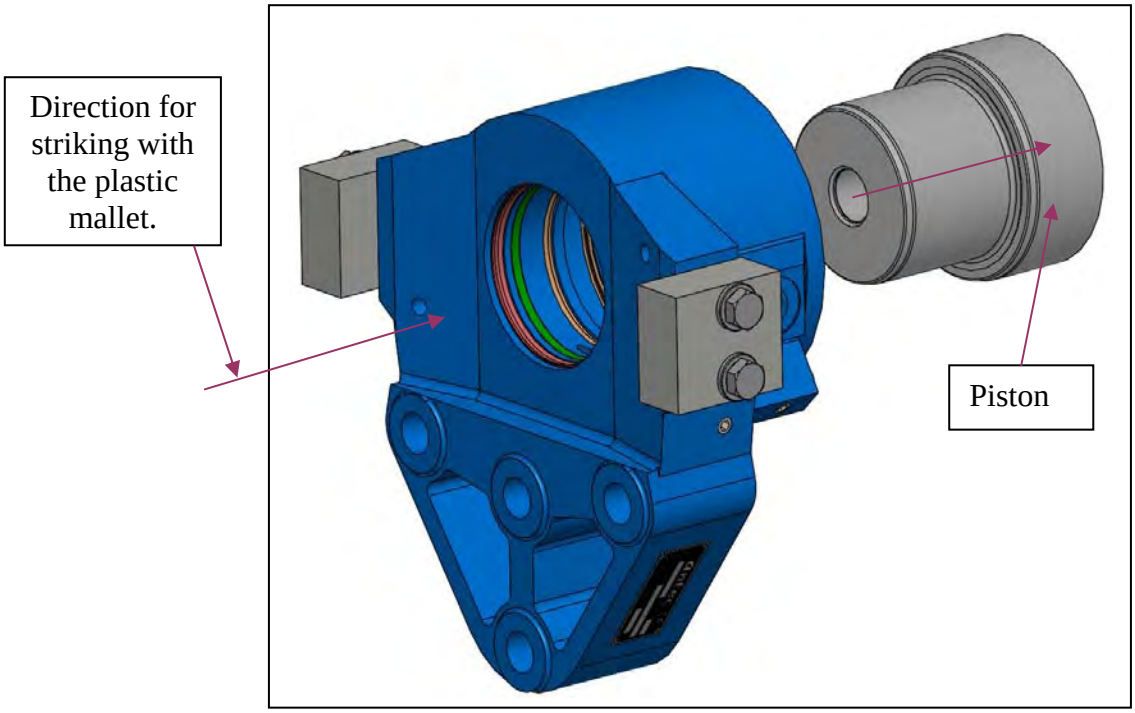
7.9 - Without any hydraulic pressure, loosen the 8 screws with their washers (mark 37-40), which fasten the cover (mark 4) of the brake.

Next remove the cover (mark 4), the spacer (mark 5) and the supplement (mark 12), if any. Finally, remove the set of springs (mark 11).



RECOMMENDED TORQUE FOR M12 SCREWS 8.8 (Nm)	
Lubricated with MoS_2	Not lubricated
59	85

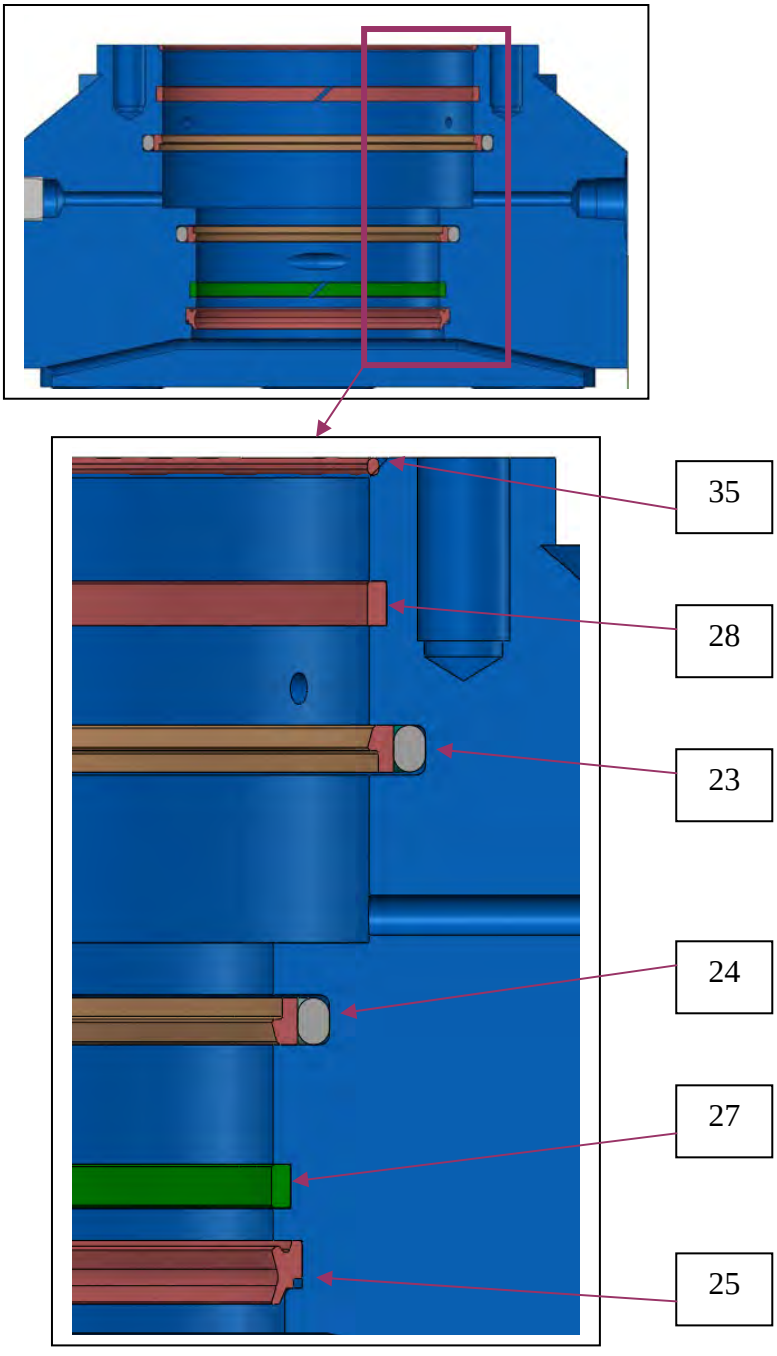
7.10 - Remove the piston (mark 3) by striking with a plastic mallet in the direction shown in the diagram



7.11 - Remove the damaged seals from their housings in the body (mark 1).

7.12 - Clean the housings and the body (mark 1) thoroughly to remove any residue from the damaged seals.

7.13 - Position the new seals, taking care to position them properly, as shown in the diagram.



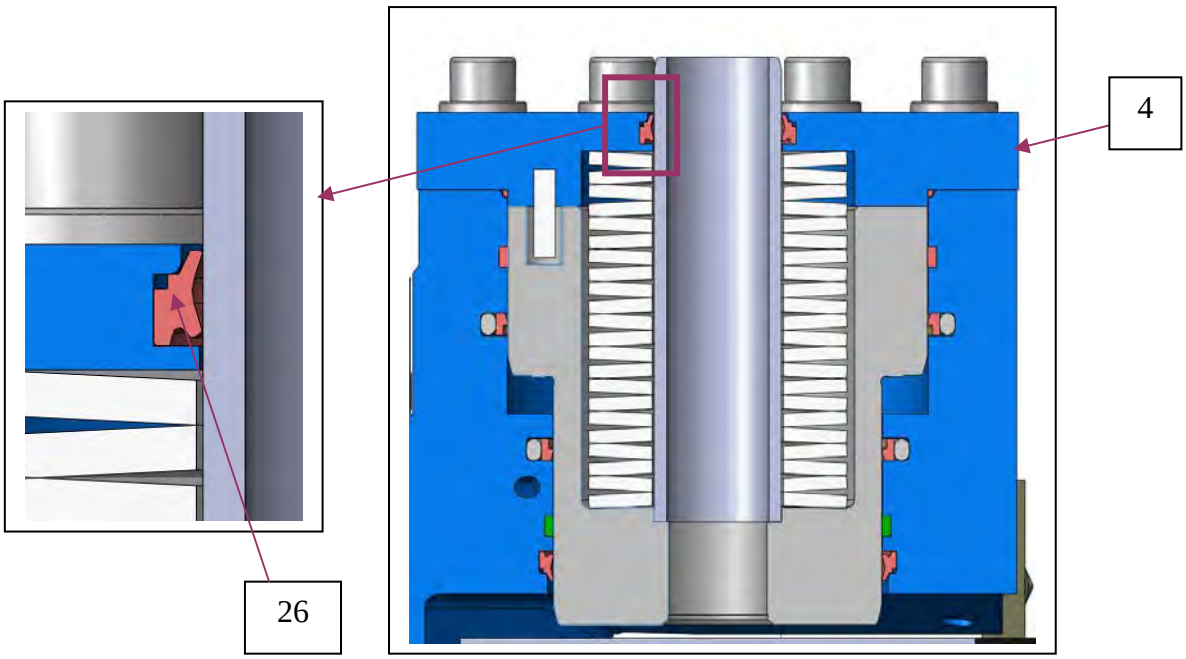
7.14 - Before refitting the piston (mark 3) thoroughly inspect it and ensure that it is suitable to be mounted again. A piston in poor condition could lead to leaks in the brake.

7.15 - Before mounting the piston, apply a little oil to its side surface.

7.16 - Perform the procedure in reverse order, starting from point 7.10 and including this one.

NOTE

Replace the scraper (mark 26), which is mounted in cover (mark 4).



7.17 - Follow the instructions in point 2 (brake assembly procedure) and point 4 (adjusting the brake).

8. SPARE PARTS

ANTEC recommends keeping a number of spare parts on hand for any necessary repairs or when certain components come to the end of their service life. ANTEC recommends the following spare parts for these brakes:

Number	Name	Quantity
19	*LINING PLATE*	2
23	*SEAL*	2
24	*SEAL*	2
25	*SCRAPER*	2
26	*SCRAPER*	2
27	*GUIDE RING*	2
28	*GUIDE RING*	2
35	*O´RING*	2

NOTE

If you have any questions regarding brake spare parts, please contact the ANTEC After Sales Service, specifying the brake model and serial number.

9. ONGOING IMPROVEMENT PLAN

As part of the ongoing improvement process, ANTEC S.A. welcomes any customer suggestions or requests, which can be sent to the Sales Department at **sales@antecsa.com.**

ANTEC S.A. wishes to express its gratitude for the trust that you have placed in our product and we would like to invite you to visit our Internet webpage to get to know our wide range of products.

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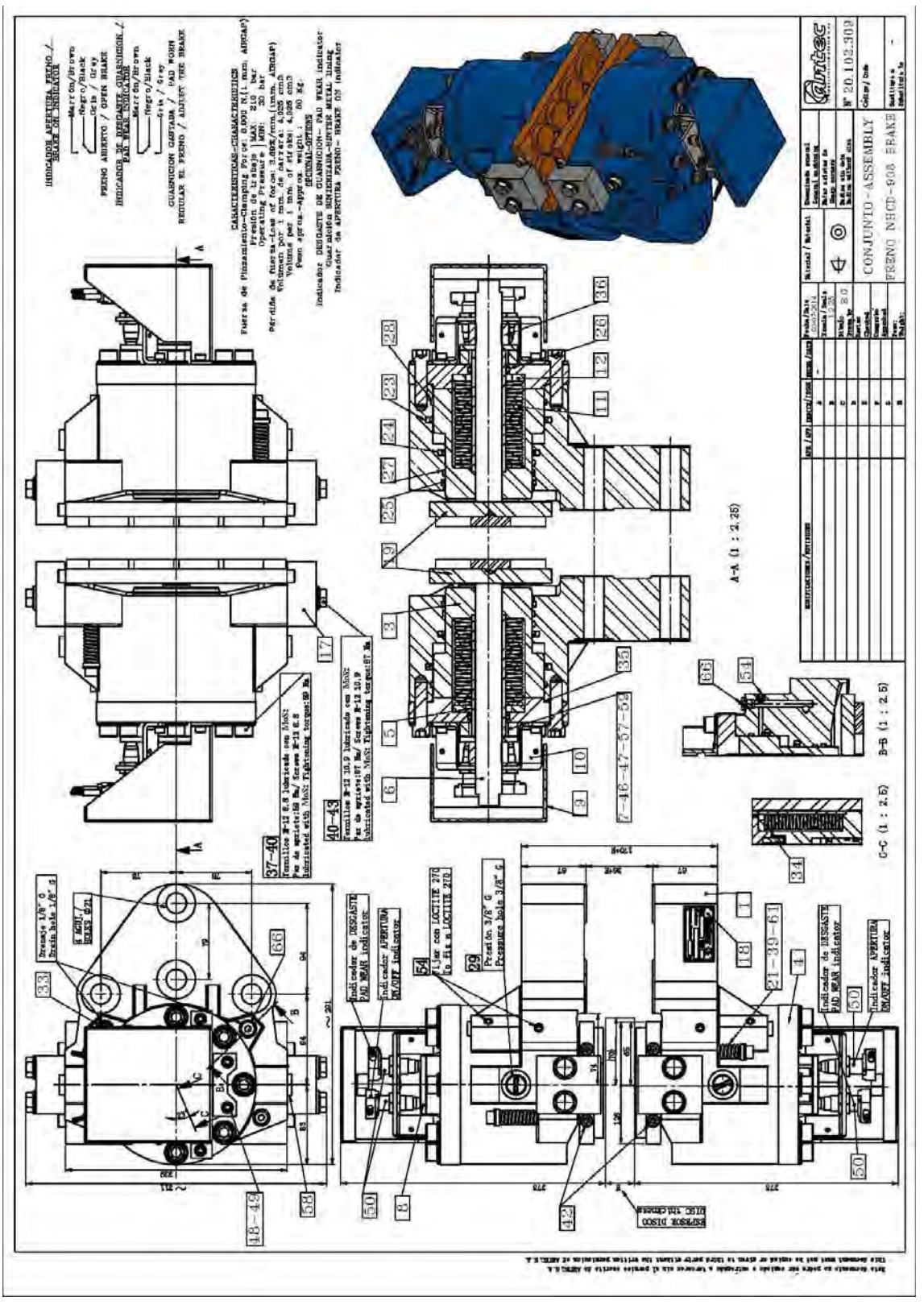
10. ATTACHMENT I. ASSEMBLY DRAWING

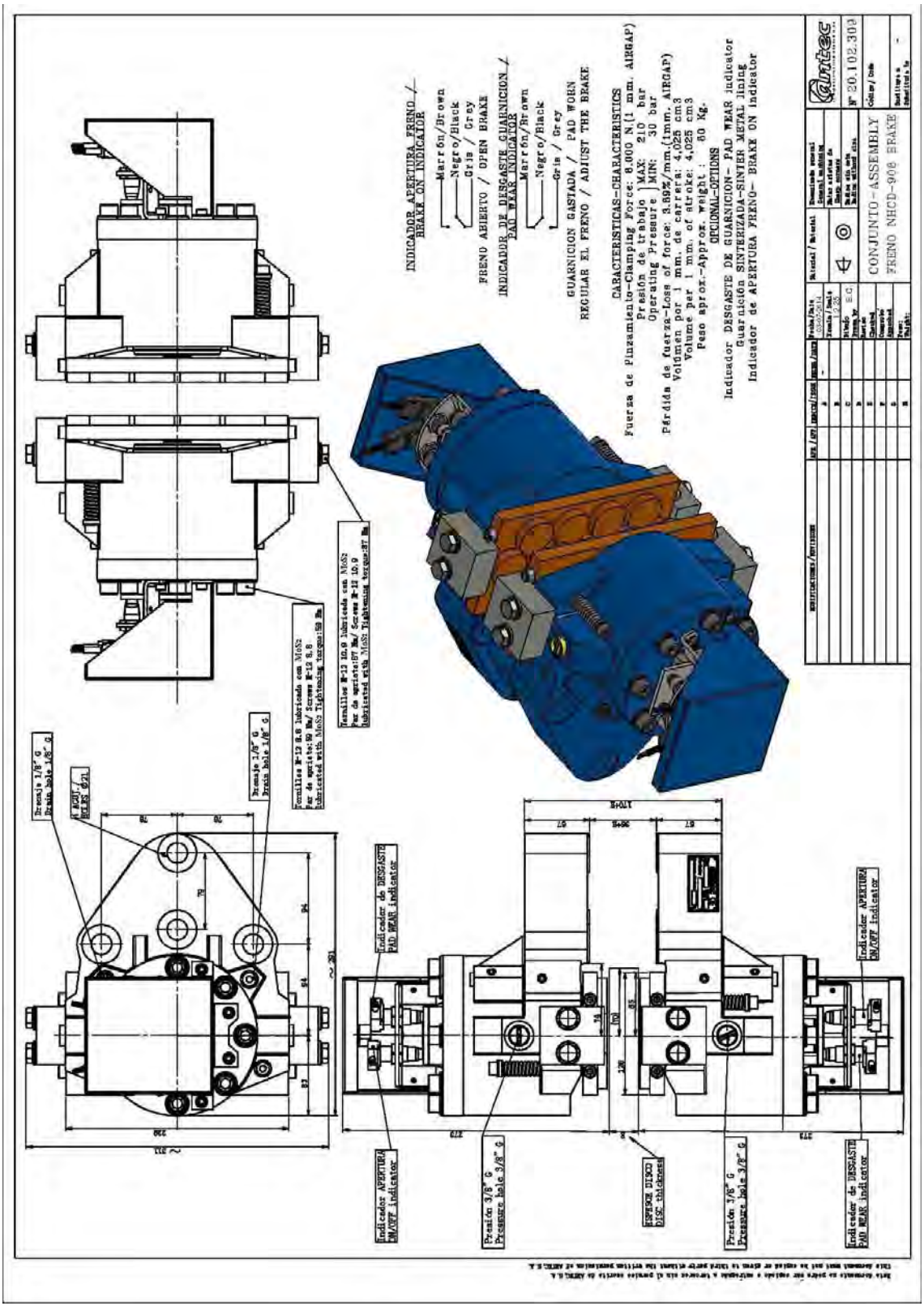
NOTE

ANTEC will only make changes to these instructions due to amendments to the assembly drawing when these amendments are significant.

The assembly drawing provided in the instructions is for guidance purposes only and to help the worker to understand these instruction.

The customer will receive the drawing relating to their order with the documentation that the ANTEC Quality Department provides.


CONJUNTO-ASSEMBLY
FRENO NHCD-900 BRAKE
A-A (1 : 2.25)
B-B (1 : 2.5)
C-C (1 : 2.5)


INDICADOR APERTURA FRENO / BRAKE ON INDICATOR
Marrón/Brown
Negro/Black
Gris / Grey
FRENO ABIERTO / OPEN BRAKE
INDICADOR DE DESGASTE GUARNICION / PAD WEAR INDICATOR
Marrón/Brown
Negro/Black
Gris / Grey
GUARNICION GASTADA / PAD WORN
REGULAR EL FRENO / ADJUST THE BRAKE
CARACTERISTICAS-CHARACTERISTICS
Fuerza de Pinzamiento-Clamping Force: 8.000 N.(1 mm. AIRGAP)
Presión de trabajo)MAX: 210 bar
Operating Pressure)MIN: 30 bar
Pérdida de fuerza-Loss of force: 3,89%/mm.(1mm. AIRGAP)
Voldmen por 1 mm. de carrera: 4,025 cm3
Volume per 1 mm. of stroke: 4,025 cm3
Peso aprox.-Approx. weight : 80 Kg.
OPCIONAL-OPTIONS
Indicador DESGASTE DE GUARNICION- PAD WEAR indicator
Guarnición SINTERIZADA-SINTER METAL lining
Indicador de APERTURA FRENO- BRAKE ON indicator
CONJUNTO-ASSEMBLY
FRENO NHCD-900 BRAKE
Nº 20.102.303
Presión 3/8" G
Pressure hole 3/8" G
Indicador APERTURA ON/OFF indicator
Indicador de DESGASTE PAD WEAR indicator
ESPESOR DISCO DISC thickness