

# GOIZPER

## MOUNTING & MAINTENANCE INSTRUCTIONS

### PNEUMATIC CLUTCH-BRAKE

#### SERIE 58



PLEASE READ THIS MANUAL VERY CAREFULLY BEFORE  
SETTING UP THE CLUTCH-BRAKE UNIT

#### GOIZPER S. COOP.

Antigua, 4  
20577 Antzuola (Guipúzcoa)  
SPAIN

✉ 211 – 20570 Bergara

☎ + 34 943 78 60 00

Fax: + 34 943 78 70 95

e-mail: [goizper@goizper.com](mailto:goizper@goizper.com)

<http://www.goizper.com>

FOR DRAWINGS, SPECIFICATIONS AND QUESTIONS REGARDING A GOIZPER PRODUCT, PLEASE CONTACT US:  
Toll-Free: 1-800-813-0844 | Phone: 1-941-358-9447 | Fax: 1-941-358-9647 | Web: [www.goizperusa.com](http://www.goizperusa.com) | Email: [sales@goizperusa.com](mailto:sales@goizperusa.com)



Torque Technologies, the exclusive U.S. stocking agency of GOIZPER Clutches, Brakes and Clutch-Brakes provides expert, computerized application engineering and retrofit services to customers across the USA.

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## 1. GENERAL ASPECTS

### 1.1 Application

- This kind of pneumatically actuated combined clutch-brake is mainly used in mechanical presses and other applications where it is necessary to transmit torque and accelerate important masses, and when the characteristics match together with the ones required in the 5.2 paragraph of the EN 692 norm, fulfilling its requirement.
- This clutch-brake is designed for its dry performance.
- Due to the high potential technical loads involved, it is very important to calculate the application depending on parameters such as inertia to accelerate and decelerate, speed, frequency of operation, torques, working pressure and ambient temperature. Therefore it is very important to fulfil the conditions that the clutch-brake has been calculated for.
- GOIZPER S. COOP is not responsible for the eventual personal or material damage that may arise from the unforeseen use of the clutch-brake nor for the modifications introduced in the unit without express authorisation or the non fulfilment of the indications subject of this manual.
- Besides the indications of this manual, safety regulations must be satisfied according to the working areas.

### 1.2 Who is this manual addressed to?

This manual should be read and understood before the installation and set up of the clutch-brake by:

- Qualified personnel responsible for the machine
- Qualified personnel responsible for the mounting of the machine
- Qualified personnel responsible for maintenance

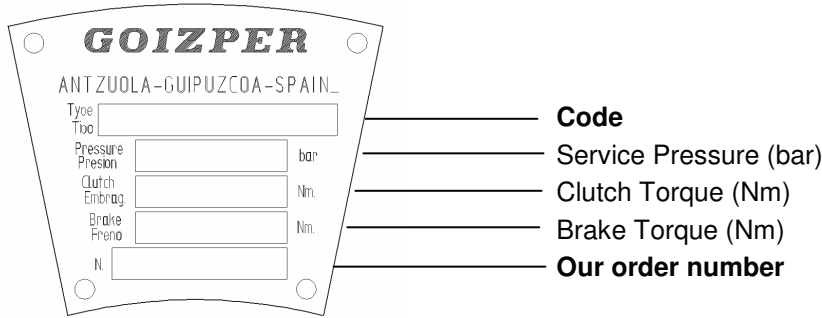
It is important that this manual is at the disposal of the a/r personnel.

*If there is any doubt, please contact Goizper S. Coop.*

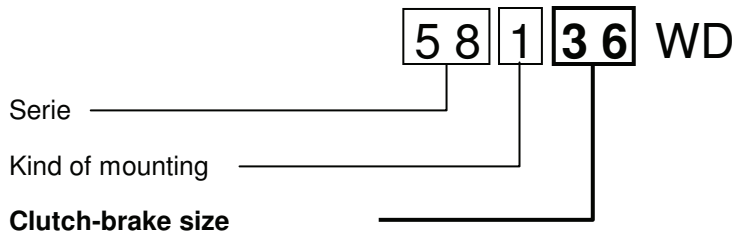


### 1.3 Identification of the unit

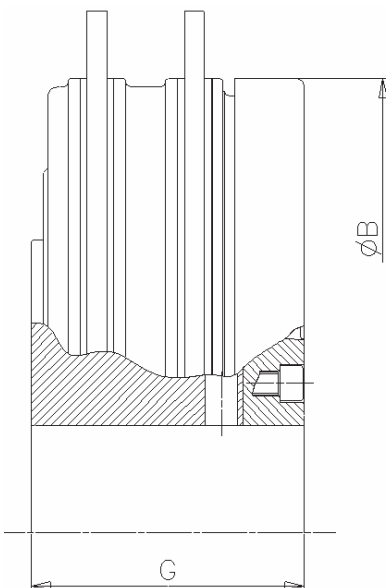
- The clutch-brakes are provided with an identification plate, where all the necessary data regarding the unit is indicated (except for sizes 23 and 50 that have this information marked on the outside).



- For the correct application of the information in this manual, it is necessary to identify the size of the unit that is defined with the 4th and 5<sup>th</sup> digit of the code:



- We can also identify the size of the clutch-brake from its dimensions (Fig 1):



**ØB:** Outer diameter of the clutch-brake (mm)

**G:** Width of the clutch-brake (mm)

	Size									
	23	10	50	18	36	55	75	76	77	78
ØB	188	236	305	380	466	543	593	675	755	830
G	66	75	92	112	140	160	175	195	220	240

Fig. 1

## 2. GENERAL FEATURES

The clutch-brake consists of mainly 3 parts:

- a) Clutch disc with bonded linings (E), driven by the flywheel and moves axially.
- b) Brake disc with linings (F), connected to the machine frame, and can move axially.
- c) Clutch/brake assembly is connected to the shaft. The clutch plate (2) and brake plate are fixed by screws (9) and connected to the shaft. The brake ring (4) and the piston (3) are also fixed by screws (12) and can move axially.

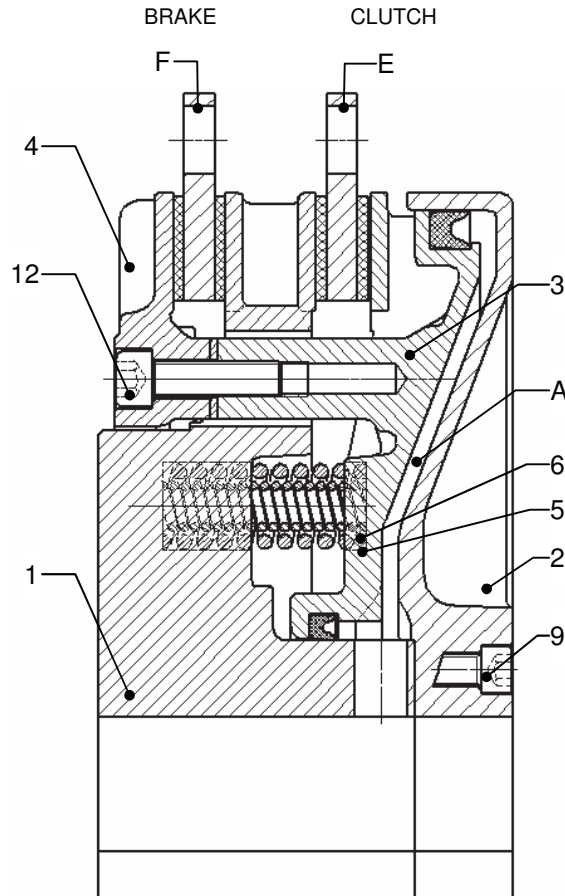


Fig. 2

- Clutch engagement: Compressed air enters chamber (A) causing piston(3)+brake ring(4) assembly to release from brake disc (F) and engage clutch disc (E) against centre brake plate (1). Flywheel rotation is transmitted to the clutch-brake and shaft.
- Brake engagement: Compressed air exhausts from chamber (A), brake springs (5 and 6) act against piston (3) + brake ring (4) assembly, disengaging the clutch disc (E). Assembly (3) + (4) engages brake disc (F) with brake plate (1). Clutch/brake and shaft are brought to rest.
- Friction pads are for dry operation and therefore it is important to avoid humidity and keep the friction surfaces free from oil and grease.
- Due to the high thermal energy generated, the clutch-brake should be installed in a ventilated surrounding.



The normal service pressure is 5.5 bar, and maximum should be 6 bar.  
**Clutch-side elements could be broken at higher pressure**

### 3. ASSEMBLY OF THE CLUTCH-BRAKE IN THE MACHINE



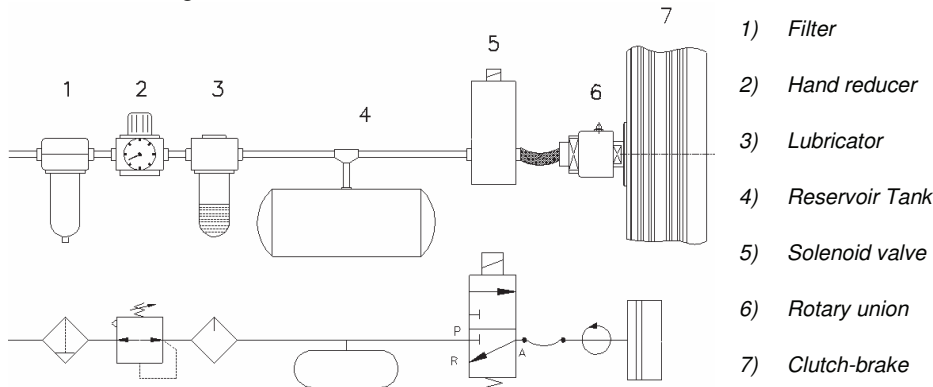
The assembly/disassembly of the clutch-brake should be carried out by qualified personnel, taking into consideration the security procedures.

#### 3.1 Unpacking the unit

- The clutch-brake has some threaded holes making it easier to take the clutch-brake out from the box (**Unit 4.4.1 Point 2**).
- When cleaning the unit take into account that friction surfaces should be free from oil and grease.

#### 3.2 Air supply

Air feeding scheme:



**Fig. 3**

- The air supply should be dry, filtered and lubricated (1 or 2 drops of oil by m<sup>3</sup> of air) and properly connected.
- The rotary seal should be mounted concentric with regard to the clutch-brake and without air leakage. It should be connected to the installation with a flexible hose/pipe, in order to avoid tension.
- It is important to connect the solenoid valve as near as possible to the clutch-brake in order to avoid a delay in the response time.
- Elements of the pneumatic installation should be sized according to the needs of the clutch-brake, to avoid a delay in the response time.
- During operation, service pressure should not go below 90% from the nominal pressure. For high operating frequencies, a reservoir tank, correctly sized, should be used ( $V_{DC}$ ).

$$V_{DC} = 4 \cdot p \cdot V$$

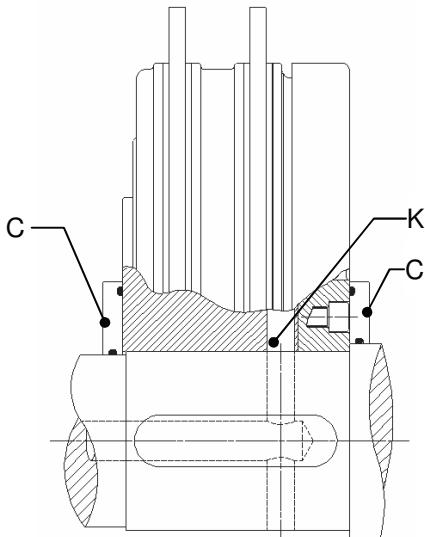
$V_{DC}$  : Volume of the reservoir tank (litres)

$p$  : Nominal working pressure (bar)

$V$  : Volume of the chamber with maximum wear + vol. tubes to the electrovalve (litres)

### 3.3 Assembly of the clutch-brake to the shaft

#### 3.3.1 With keyway

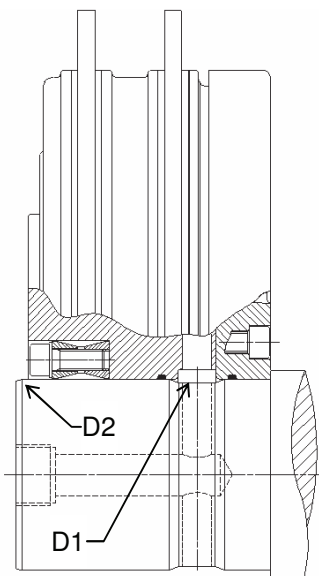


Mounting the unit to the shaft should be carried out with two keyways at 180°. Clutch-brake has two air inlets (K) at 180° and at 90° from the keyways (Fig. 4).

- In order to avoid air leakage the customer will mount the discs (C) to the clutch-brake with a lateral o-ring and another o-ring in the shaft (these o-rings are not supplied by us).

Fig. 4

#### 3.3.2 With locking ring



Clutch-brake has two air inlets at 180° and an air distribution channel between two o-rings (Fig. 5) (supply of the o-rings and locking ring under request).

- Avoid rough edges to protect the o-rings, by machining the shaft diameter at the air inlet (D1).
- Prepare a chamfer on the end of the shaft (D2) to avoid damaging the o-rings during assembly.
- Tighten the bolts of the locking ring to the correct torque, by using a dinamometric key. **It is very important to keep the tightening torque indicated by GOIZPER S. COOP.**

**An excess in the tightening can result negatively on the resistance of the clutch/brake and an insufficient tightening could carry out a slide within the shaft.**



Fig. 5

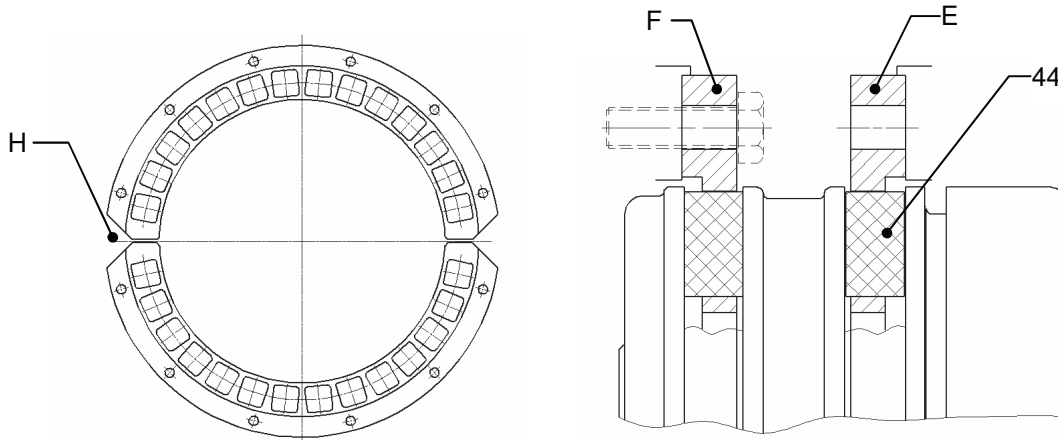
- For the assembly of the ring please follow up the instruction of the manufacturer. The usual process is the following:
  1. Clean the contact surfaces and cover with a light oil cover (do not use any oil that might contain molybdenum disulfure).
  2. Tighten opposite and uniformly the bolts 2-3 times until the indicated tightening torque indicated by GOIZPER S. COOP is reached.
  3. Tighten all the bolts to the torque indicated by GOIZPER S. COP., and according to the instructions indicated by the locking ring manufacturer.

### 3.4 Assembly of the clutch and brake discs.

There are many assembly possibilities depending on the type of clutch and brake disc.

#### 3.4.1 Fixed disc with friction blocks

Each disc is fixed by 12 bolts (**Minimum quality 10.9**) at 30° among each one. The blocks slide in their holes.



**Fig. 6**

Assembly (Fig. 6):

1. Take out the two clutch side discs (E).
2. Mount the clutch-brake on the shaft and in its correct position.
3. **Hold temporarily the 2 brake discs (F) to avoid them falling**
4. Introduce air to engage the clutch discs.
5. The brake bores and the cover bores must match. Tighten the bolts at the indicated torque and apply LOCTITE (270 or similar).

Size		23	50	10	18	36	55	75	76	77	78
Bolt	10.9	M5	M6	M8	M10	M14	M14	M16	M20	M24	M24
Tightening torque	Nm	8.5	14	35	69	190	190	295	580	1000	1000

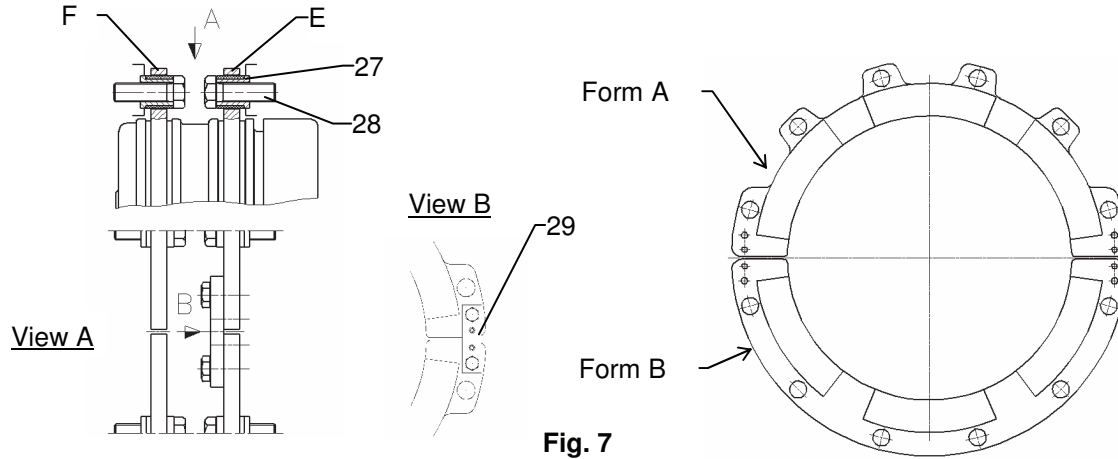
**Table 1**

6. Release the air to engage the brake discs.
7. Mount the clutch disc with their blocks (44).
8. Turn the flywheel so that its threaded mounting holes match the clutch disc holes allowing a gap (H) between the discs. Tighten the bolts to the torque indicated in Table 1. Use LOCTITE (270 or similar).
9. Proceed accordingly with the second disc.



**3.4.2 Sliding disc over 12 fixed bushes**

Each friction disc slides over 12 equally spaced bushes. Place in line with the frame or flywheel and fixed by bolts.



**Fig. 7**

Assembly (Fig. 7):

1. When the friction discs are supplied as per Form B, disassemble and take out the clutch-side discs (when form A, it is not necessary to do so).
2. Assemble the clutch-brake to the shaft and fix into its correct position.
3. **Hold temporarily the brake side discs(F) to avoid them falling.**
4. Introduce air to engage the clutch discs.
5. Match the brake disc mounting holes with the holes in the fixed frame. Tighten the bushes (27) and the bolts (28) at the torque indicated in Table 2 by using LOCTITE (270 or similar).

Size		23	50	10	18	36	55	75	76	77	78
Bolt	8.8	M5	M6	M8	M10	M14	M14	M16	M20	M24	M24
Tightening torque	Nm	6	10	25	49	135	135	210	410	710	710

**Table 2**

6. Release the air to engage the brake discs.
7. If the clutch discs have become loose mount them again with the adjusting plates (29), with their corresponding bolts and pins and apply LOCTITE(270 or similar).



**The clutch discs have to match each other using adjusting plates that are supplied with pins and bolts.** If they are not mounted in this way, they will not slide due to centrifugal forces.

8. Turn the flywheel so that its´ threaded mounting holes match the clutch disc holes. Tighten the bushes and bolts to the torques indicated in Table 2. Use LOCTITE (270 or similar).
9. **Check that the discs slide axially freely**



### 3.4.3 Sliding disc with 2 anchor pins

Both half-discs match each other by two lugs (short or long), provided with bushes that slide on pins fixed in the machine frame or the flywheel.

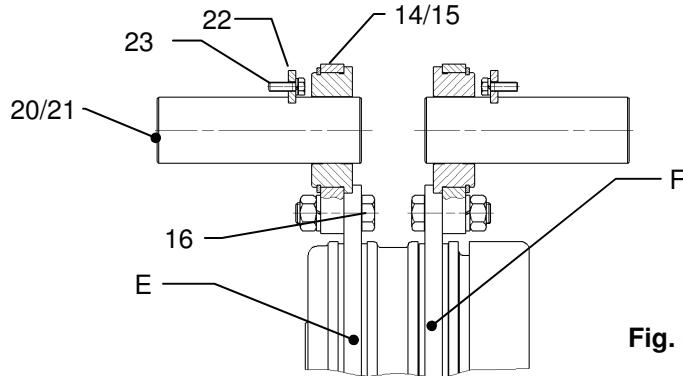


Fig. 8

Assembly (Fig. 8):

1. Mount the pins in the machine (it is recommended H7/k6), fixed them by the adjusting plate (22) and tighten the bolts (23) by using LOCTITE (270 or similar).

One of the pins has 2 parallel flats allowing radial compensation. In the assembly, these flats have to be completely parallel to the clutch-brake radius from the centre of the pin.

2. Disassemble the lugs from the discs and take out the clutch side discs.
3. Put the bushes (14/15) on the corresponding pins (20/21).
4. Mount the clutch-brake on the shaft and fix it in its correct position.
5. **Hold temporarily the brake discs (F) to avoid them falling.**
6. Introduce air to engage the clutch discs.
7. Fix the brake discs to the lugs with the pins, bolts (16) and nuts with elastic washer supplied. Tighten the bolts to their tightening torque Table 3 using LOCTITE (270 or similar). The bolts must be mounted with their head on the inside, but the lugs must be mounted from the outside of the discs.

Size	23	50	10	18	36	55	75	76	77	78
Tightening torque(*) Nm	6	10	25	49	86	135	210	210	410	710

(\*) Quality of the bolt 8.8

**Table 3**

8. Release the air, leaving the unit in brake operation.
9. Repeat point 7 with the clutch side discs (E).
10. **Check that the discs slide axially without effort**

**Remarks: If it is possible, assemble the unit without disassembling the lugs from the discs but do not forget to tighten the bolts (16) to their recommended tightening torque as per Table 3 and by applying LOCTITE (270 or similar).**

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### 3.4.4 Combined assembly

- A clutch brake can be delivered by combining the described mountings.
- For its assembly, the instructions in each paragraph should be followed.

**When sliding discs are concerned, please check that after the assembly the discs slide axially freely**

### 3.5 Set up

- Stop the machine, disconnect and connect the air a few times, and check that the piston (3) – brake ring (4) (Fig. 2) moves correctly.
- Once the mobile elements of the machine (turn of the wheel, movement of the carriage etc.) are properly adjusted and mounted, set up the clutch-brake.
- When the discs or the friction parts of the clutch-brake are new, the nominal transmissible torque can be reduced considerably. The nominal torque is reached after an appropriate working period (3 ÷ 4 hours to 20 ÷ 30 hours depending on conditions), taking into account that the maximum cycling frequency indicated for the clutch-brake should not be exceeded.



## 4. MAINTENANCE



- The assembly/disassembly operations and the necessary adjustments should be carried out by qualified personnel taking the necessary security measurements.
- Ensure that the machine has stopped and cannot be started.
- In the event of similar machines or presses, be sure that the flywheel is at BDC (Bottom Dead Center) secured with chocks . In any case, please follow the instructions of the manufacturer of the machine.

Precautionary measures should be used as a complement to the security prescriptions and advice included in:

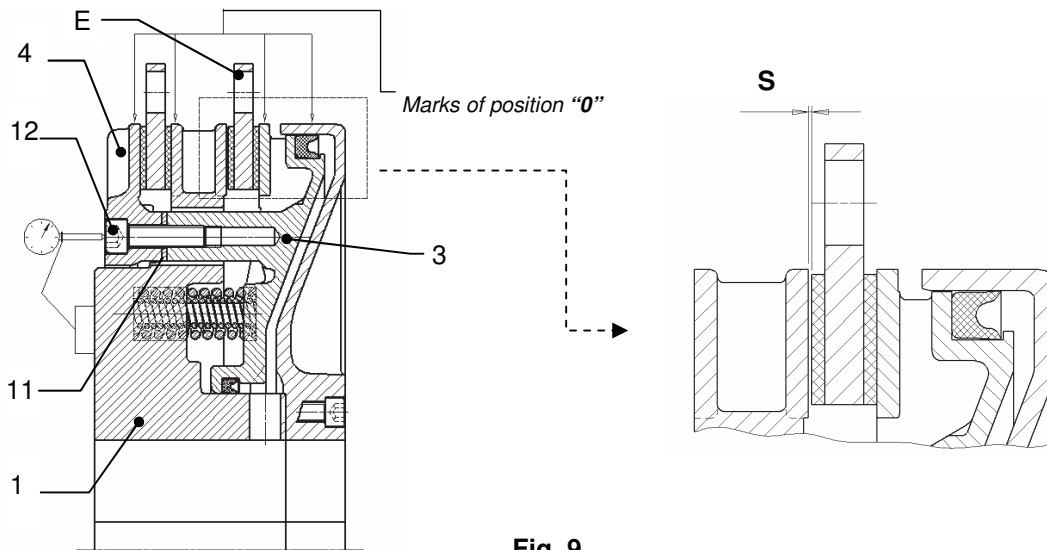
- ⇒ Health and Safety regulations and factory and section norms.
- ⇒ Laws and national regulations.

### 4.1 Periodical checks

- Check the wear of the friction elements, measuring periodically the piston travel (**see Chapter 4.2 for measuring the wear**). The replacement of the friction discs has to be done with parts supplied by the original manufacturer and following the given instructions (**Chapter 4.3**).
- When changing the friction discs, please check that the clutch-brake fixing hole/pins are in good conditions.
- Revise the situation of the rest of components of the clutch-brake (bolts, etc.).
- Check that during operation, the temperature of the clutch-brake metal parts does not exceed 110°C.
- Control the correct performance of the air supply avoiding leaks and providing an appropriate pressure and lubrication (1 or 2 drops of oil each air m<sup>3</sup>).
- If there is an unusual variation of the braking or clutching time, or any other anomaly, stop the machine immediately and request technical assistance.
- Make the necessary revisions as per the manufacturer of the machine, considering the clutch-brake as a part of the machine. A complete revision of the clutch-brake should be done every 3 million cycles or every 2 years. Clean in particular the friction surfaces, brake springs, seals, bolts and others, and if necessary replace them with original spares from the manufacturer (see **Chapter 4.4** for assembly/disassembly of the clutch-brake).

## 4.2 Control and adjusting of the wear

- Check for wear at 3 points at 120° and with the unit in braking position:
  - Measure the **S gap** (Fig. 9) existing between the brake side cover (1) and the clutch disc (E), when the clutch disc is moved against the piston (3).
  - Or, measure the travel of the piston (3)-brake ring (4) assembly (Fig. 9).



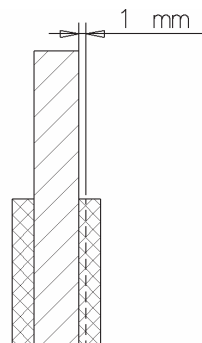
**Fig. 9**

- The discs or pads should be changed when wear **S** has reached the maximum admissible values indicated in Table 4.

Size		23	50	10	18	36	55	75	76	77	78
New S	mm	0.5	0.5	0.5	0.5	0.5	1	1	1	1.5	1.5
Max. S	mm	4	4.9	5	6.8	8.9	9.7	9.9	11.4	14	16.2

**Table 4**

The discs should also be replaced when, without reaching these maximum wear values, the thickness of the friction on each of the sides of the clutch or brake discs is **1 mm or less** (Fig. 10).



**Fig. 10**

This change should be done with the material of the original supplier and as per instruction written in **Chapter 4.3**.

- The increase in wear causes bigger braking angles and longer braking times. In order to avoid this effect, it is possible to adjust the wear, by removing or decreasing the thickness of the compensation washers (11) (Table 5).

Size		23	50	10	18	36	55	75	76	77	78
Thickness of the new washer	mm	1.5	1.5	2	2	2.5	3	3	3.5	4	4

**Table 5**

- In order to make the adjustment for wear, stop the machine after taking the security measures indicated in the beginning of **Chapter 4**, proceed as follows:
  1. Introduce air to engage the clutch discs.
  2. Loosen the bolts (12) of the brake discs.
  3. Take out the brake discs (4) and remove the compensation washers (11).
  4. Replace the brake in the same position, in order to avoid unbalancing and match the marks **“0” in position**. Tighten the bolts (12) in a cross pattern, apply tightening torque, as per Table 6. Use LOCTITE (270 or similar).

Size		23	50	10	18	36	55	75	76	77	78
Bolt	12.9	M5	M6	M8	M10	M12	M14	M16	M18	M20	M24
Tightening torque	Nm	8.5	14	35	69	120	190	295	405	580	1000

**Table 6: Brake bolts (12)**

5. Check that the S air gap is not less than indicated **new S in table 4**.



Having removed the compensation washers, take into account that the maximum wear admissible before replacing the half discs or pads decreases, and new values are indicated in Table 7 as **S max without washer**:

Size		23	50	10	18	36	55	75	76	77	78
Max S without washer	mm	2.5	3.4	3	4.8	6.4	6.7	6.9	7.9	10	12.2

**Table 7**

**Remarks:** When replacing the clutch and brake discs with new ones, **DO NOT FORGET TO REPLACE THE COMPENSATION WASHERS.**



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### 4.3 Disassembly and assembly of the clutch and brake discs

This chapter describes the disassembly and assembly of the clutch and brake discs for their replacement. Chapter 3.4 explains in more detail the assembly process.

#### 4.3.1 Disassembly

- Disassemble the clutch discs and then the brake discs.

##### Clutch side discs:

- Release the air and engage the brake discs.
- Assembly with blocks:** Loosen the bolts and take out the clutch disc
- Assembly with 12 bushings:** Loosen the 12 bolts and the adjusting plates of the clutch-side discs. Take out the bolts and bushings by removing to the centre of the clutch brake and take out the clutch-side discs.
- Assembly with 2 pins:** Remove the bolts connecting the lugs to the clutch discs. Then, take out towards the clutch side.

##### Brake side discs:

- Introduce the air to engage the clutch discs.
- Take out the brake discs following the procedure indicated for clutch-side discs.

#### 4.3.2 Assembly

- Proceed in the reverse way, assemble first the clutch side discs and then the brake side discs.
- Do not forget to tighten the bolts to the appropriate torque, using LOCTITE and assemble all the pieces correctly (**Chapter 3.4**).

**Please check that after assembly the discs slide axially without any effort.**

## 4.4 Disassembly and assembly of the clutch-brake

### 4.4.1 Disassembly

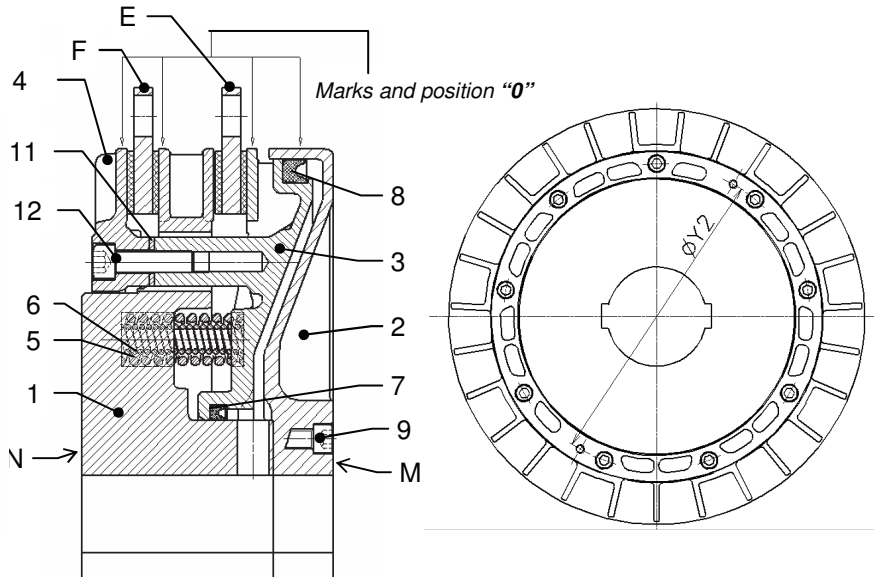


Fig. 11

1. Disassemble the brake (F) and clutch (E) discs (Fig. 11) as explained in **Chapter 4.3**.
2. Remove the clutch-brake from the shaft, by using the 2 threaded extraction holes at 180° (Table 8).

Size		23	50	10	18	36	55	75	76	77	78
Bore		M5	M6	M8	M10	M12	M12	M16	M16	M16	M18
$\phi Y1$	mm	60	79	99	118	153	176	194	221	246	270
$\phi Y2$	mm	139	174	222	271	336	400	442	505	556	608

Table 8

3. Put the clutch-brake on face M (Fig. 11) of the brake side cover (2).
4. Loosen all the bolts (12) and take out the braking ring (4) and washers (11).
5. Turn the clutch-brake and mount it in face N of the brake side cover (1).
6. Loosen the bolts (9) in cross patten. This way both covers will separate and the springs will gradually loose their expansion force.



**Take into account that due to the compression of the springs there is a powerful expansion force.**

7. The rest of the pieces of the clutch-brake can be dismantled now.



#### 4.4.2 Assembly

1. Before mounting, clean the pieces, especially the ones in contact areas, such as sealing faces.
2. Put the brake side cover (1) on face N (Fig. 11).
3. Distribute the springs uniformly (5 and 6) in brake side cover.
4. Put molybdenum disulphide grease (MOLYKOTE BR2Plus or similar) in the brake side cover part where the seal has to be placed.
5. Put the seals (7 and 8) correctly in the piston (3).
6. Mount the piston (3) with the brake side cover (1) matching the marks in position "0".
7. Put molybdenum disulphide grease (MOLYKOTE BR2Plus or similar) in the clutch side cover part where the seal has to be placed.
8. Apply loctite (510 or similar) in the union surface of the brake side cover (1), ensuring an airtight seal.
9. Put the clutch side cover (2) on the brake side cover (1) and piston (3) and match their slots with the air inlet bores and marks position "0".
10. Fix with pins and tighten bolts in a cross pattern (9) to their corresponding torque as per table 9. Use LOCTITE (270 or similar).

Size		23	50	10	18	36	55	75	76	77	78
Bolts	12.9	M5	M6	M8	M10	M12	M12	M14	M16	M18	M20
Tightening torque	Nm	8.5	14	35	69	120	120	190	295	405	580

**Table 9: Clutch side cover bolts (9)**

11. Turn the clutch-brake and lean on side M on the clutch side cover (2).
12. Insert the adjusting washers (11).
13. Mount the brake ring (4) matching the marks position "0" and centre diametrically in order to avoid unbalance. Tighten the bolts (12) to their corresponding torque table 10, and fix with LOCTITE (270 or similar).

Size		23	50	10	18	36	55	75	76	77	78
Bolt	12.9	M5	M6	M8	M10	M12	M14	M16	M18	M20	M24
Tightening torque	Nm	8.5	14	35	69	120	190	295	405	580	1000

**Table 10: Brake ring bolts (12)**

**5. SPARE PARTS**

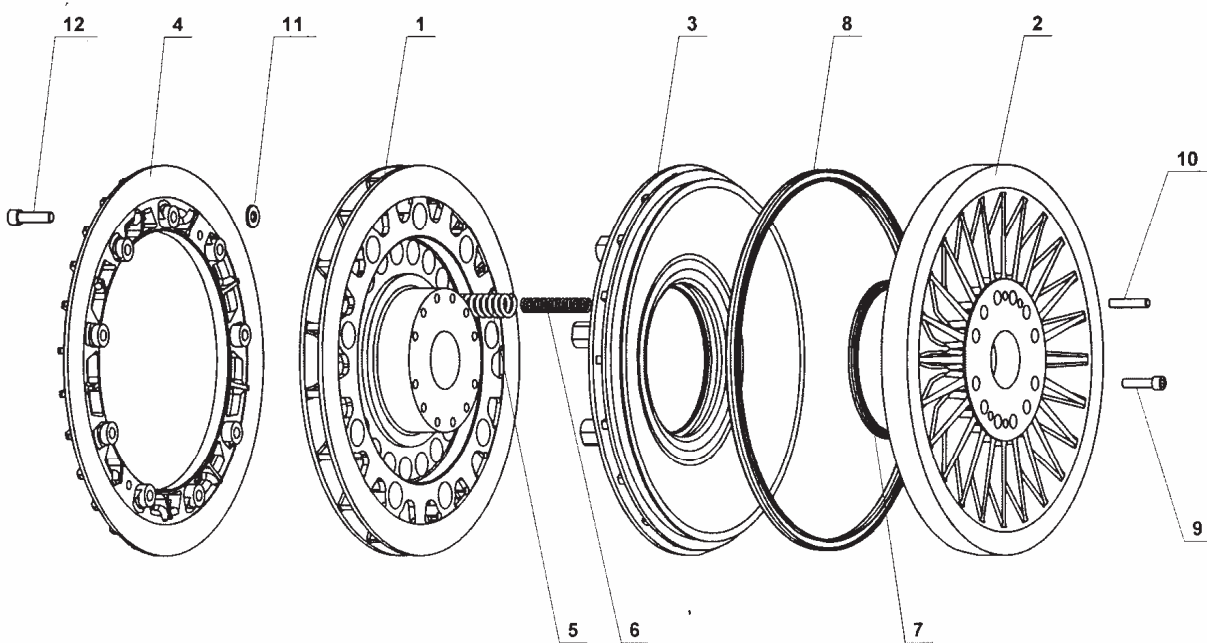
Replace the pieces with the materials supplied by the original manufacturer only. In order to ask for the spare parts, please follow the instructions listed below:

- Indicate the code and manufacturing number of the clutch-brake unit, indicated in the plate (sizes 23 and 50 have these data stamped in the unit) (**Chapter 1.3**).
- Identify the spare part as per the following figures and tables.

**Serie: 5.8 – Main pieces**

N.	Denomination
1	Brake side cover
2	Clutch side cover
3	Piston
4	Brake ring
5	Outer spring
6	Inner spring
7	Interior seal
8	Outer seal
9	DIN 912 - 12.9 bolt
10	DIN 7979 pin
11	Adjusting washer
12	DIN 912 - 12.9 bolt

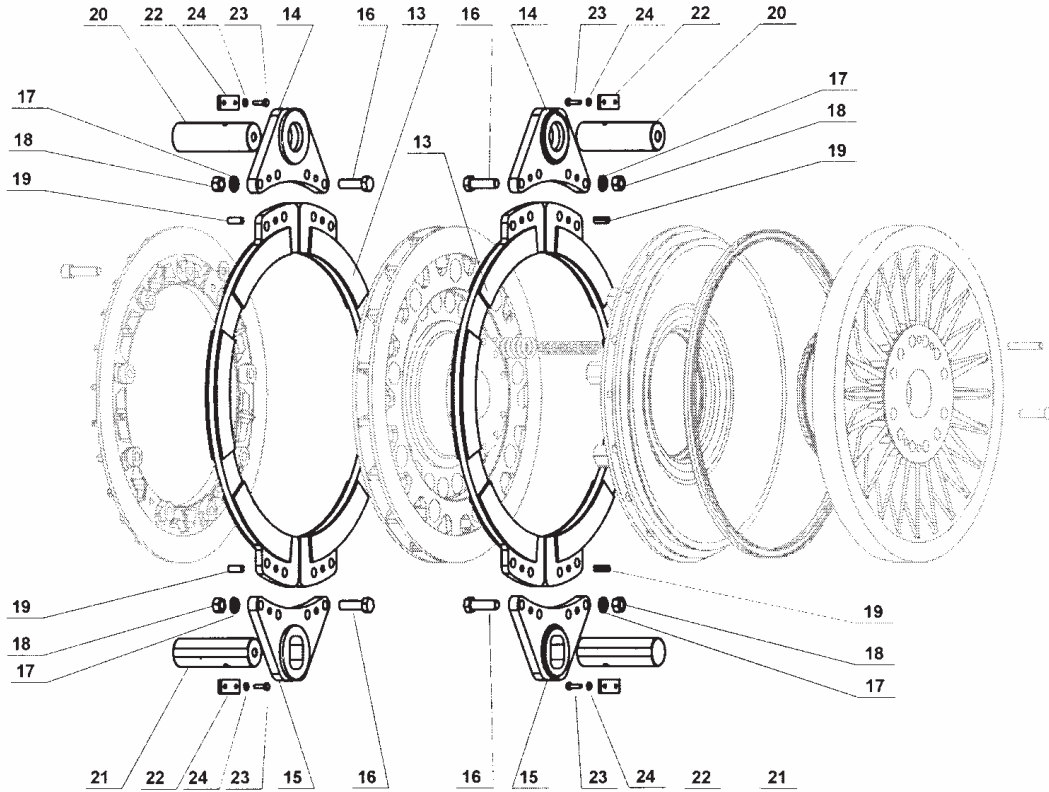
Perishable material



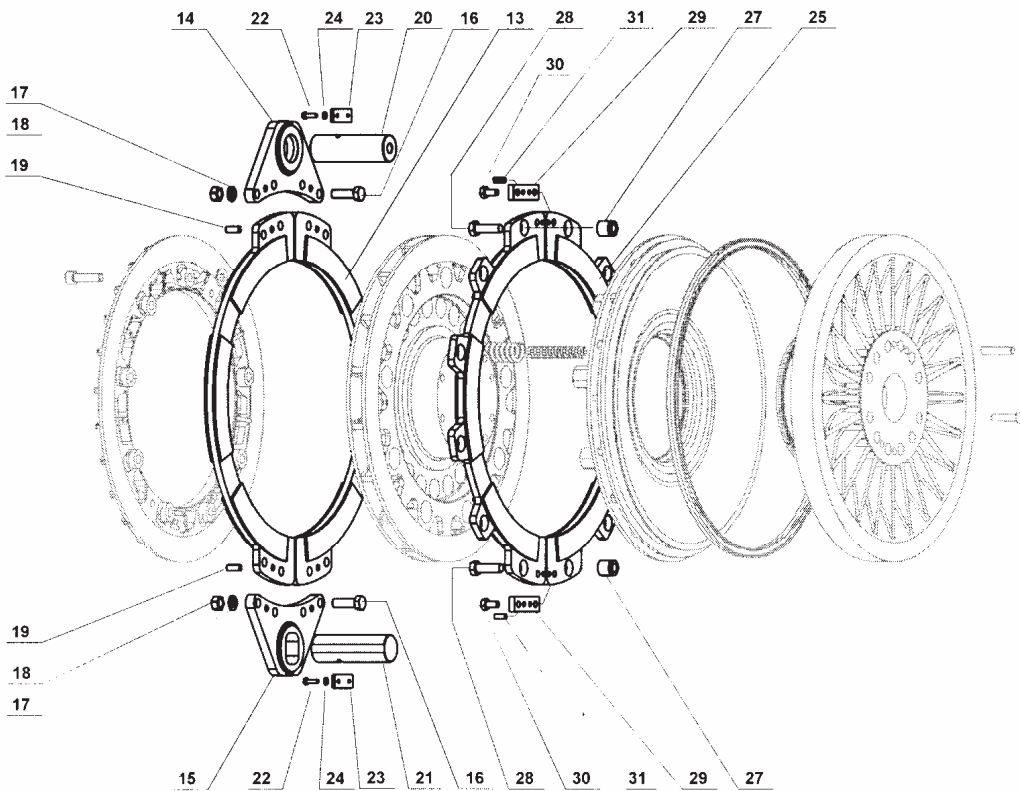
N.	Description	Serie					
		581_WD	582_WD	584_WD	585_WD	585_WA	586_WD
13	Disc	●	●	●			●
14	Short bush holder	●	●	●			
15	Compensating short bush holder	●	●	●			
16	DIN 933 – 8.8 Bolt	●	●	●			
17	Spring washer A DIN 127	●	●	●			
18	Nut DIN 934 – 8	●	●	●			
19	Spring dowel pin DIN 1481	●	●	●			
20	Bush	●	●	●			
21	Compensating bush	●	●	●			
22	Plate	●	●	●			
23	DIN 933 – 8.8 Bolt	●	●	●			
24	Spring washer A DIN 127	●	●	●			
25	Disc		●		●		●
26	Brake side disc (sizes 23 and 78)				●		
27	Bushing		●		●		●
28	DIN 933 / 931 – 8.8 Bolt		●		●		●
29	Adjusting plate		●		●		●
30	DIN 933 – 8.8 Bolt		●		●		●
31	Spring dowel pin DIN 1481		●		●		●
32	Long bush holder			●			●
33	Compensating long bush holder			●			●
34	DIN 933 – 8.8 bolt			●			●
35	Spring washer A DIN 127			●			●
36	Nut DIN 934 - 8			●			●
37	Elastic pin DIN 1481			●			●
38	Bush			●			●
39	Compensating bush			●			●
40	Adjusting plate			●			●
41	DIN 933 – 8.8 bolt			●			●
42	Spring washers A DIN 127			●			●
43	Disc					●	
44	Friction block					●	

Fungible material

Serie: 5.81 \_\_ WD



Serie: 5.82 \_\_ WD

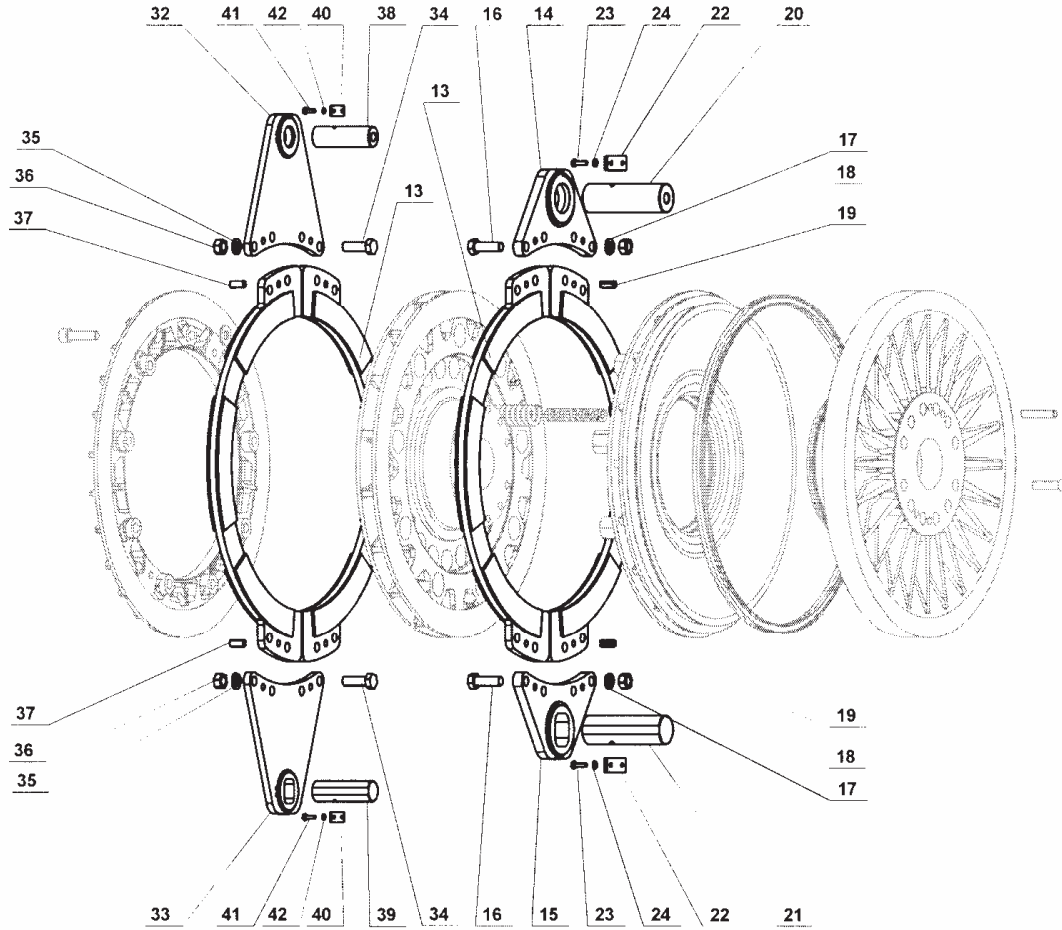


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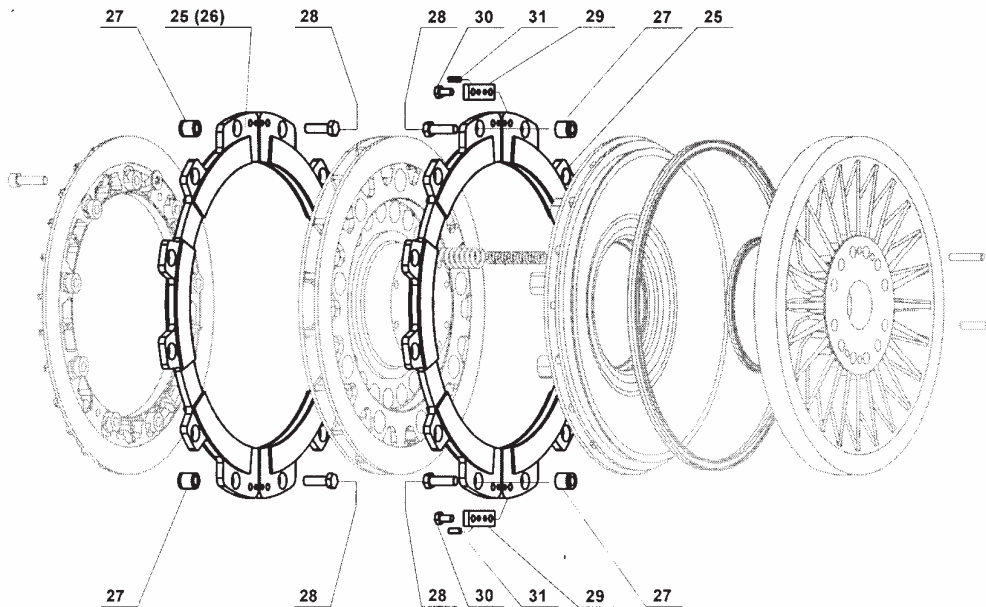


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Serie: 5.84 \_\_ WD



Serie: 5.85 \_\_ WD

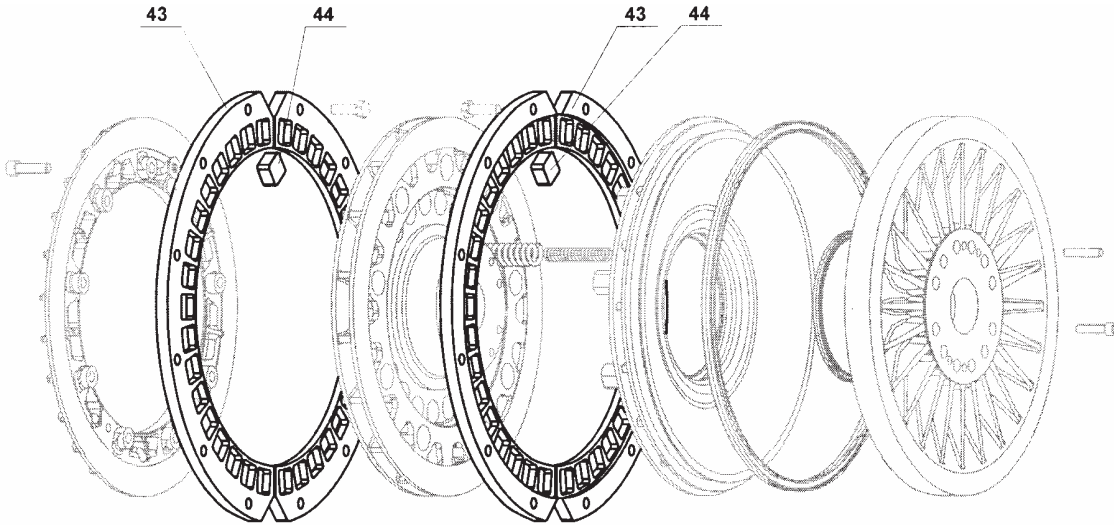


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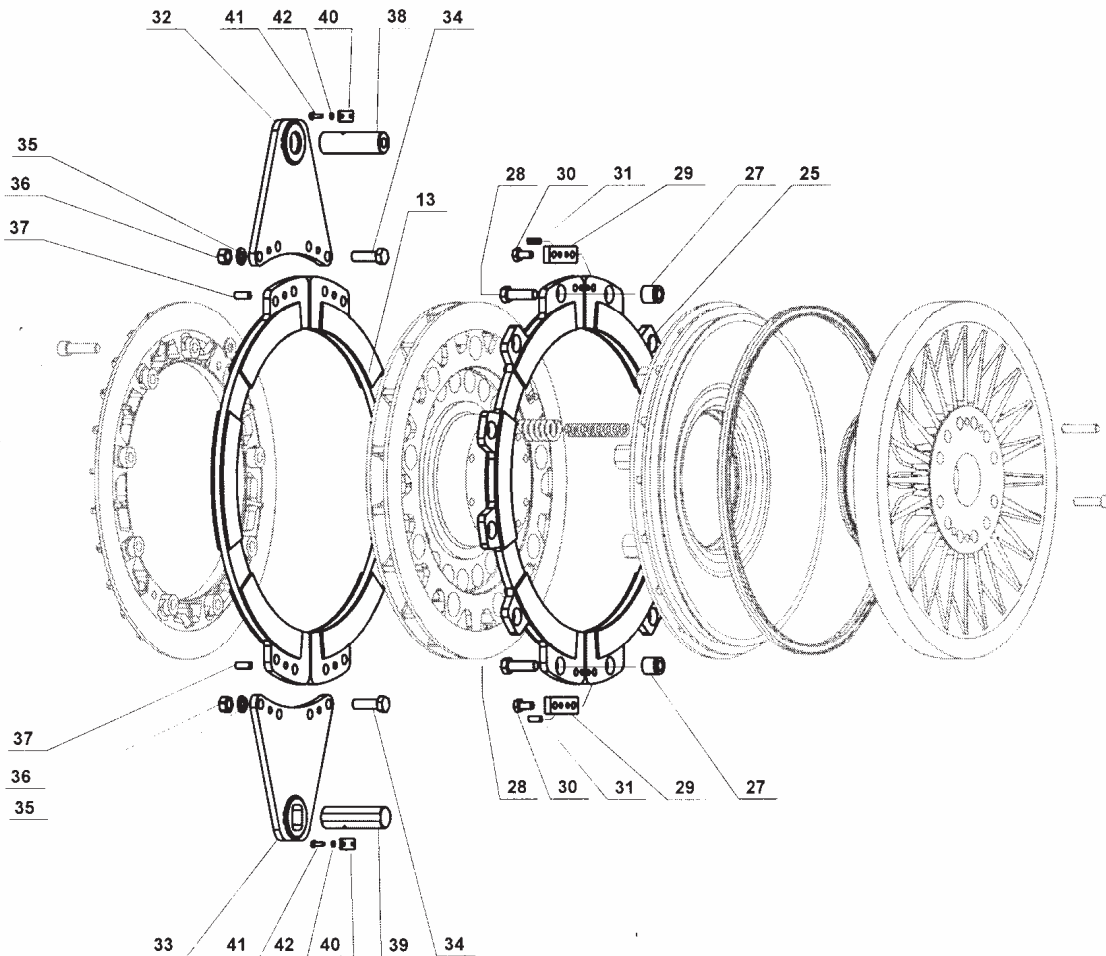


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Serie: 5.85 \_\_ WA



Serie: 5.86 \_\_ WD



**6. REPAIRS: CAUSES AND SOLUTIONS**

In the following table we indicate the most common problems. If any other problem occurs, please contact the technical assistance service.

■ PROBLEM	■ CAUSE	■ SOLUTION	
The clutch torque is insufficient	The clutch disc does not slide axially.	Check the sliding of the disc on the bushes/pins Check the position of the bushes /pins	
	Worn friction elements (discs/pads)	Change clutch discs/blocks	
	Oil or grease in friction elements	Eliminate oil or grease and avoid humid ambience	
	Low or lack of air pressure	Check the air pressure	
		Check if there is air leak from the clutch-brake seals	
		Check the pneumatic installation (valves, etc.)	
New friction materials. Friction elements not bedded in	Running in (Chapter 3.5)		
Increase of the braking angle	The brake disc does not slide axially	Check the sliding of the disc on the bushes/pins Check the position of the bushes /pins	
		Worn friction elements (discs/pads)	Change clutch discs/blocks
	Oil or grease in friction elements	Eliminate oil or grease and avoid humid ambience	
	New friction materials. Friction elements not bedded in	Running in (Chapter 3.5)	
	Fast or unequal wear of the friction material	High temperature of the friction surface	Check that the <b>S</b> air gap is equal or bigger than the <b>S new</b> indicated in chapter 4.2 Try to have good ventilation surrounding (avoid solid guards) Do not exceed the calculated parameters (speed, inertia, and operations)
The clutch or brake disc does not slide axially.			Check the sliding of the disc in the bushes/pins Check the position of the bushes /pins

