

turborex

pneumatic brake

TX 240 | TX 240 HD

TS 240 | TS 240 HD



operating instructions



 **renova**
WE NEVER LOSE CONTROL

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This product complies with Directive 2006/42/EC on machinery

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introduction

This manual is intended for installers and users of the product and provides descriptions and explanations of the Turborex brake in its standard version (TX) model 240 and in its High Dissipation series (TX/HD), as well as in its Selematic versions (TS–TS/HD), and of all parts and/or options that may be supplied by Renova.

It includes:

- Instructions for unpacking our TX – TX/HD – TS – TS/HD 240 brakes
- Instructions for assembly and storage of our brakes and related maintenance
- Electrical/pneumatic connections for our brakes
- Instructions for replacing brake components and various kits
- Installation instructions for the various optional accessories that Renova may supply for our Turborex brakes
- *Dimensions and technical data of our brakes*

Since both the product and Renova itself are continuously evolving in order to improve the quality and performance of our products, Renova reserves the right to update the manuals without any obligation to update products already marketed and/or any previous manuals.

warnings

READ CAREFULLY THE INSTRUCTIONS AND WARNINGS CONTAINED IN THIS MANUAL AND KEEP THEM FOR FUTURE REFERENCE FOR THE ENTIRE SERVICE LIFE OF THE PRODUCT. THIS MANUAL CONTAINS IMPORTANT OPERATING AND SAFETY INSTRUCTIONS FOR THE INSTALLATION, USE AND MAINTENANCE OF THE PRODUCT.

WE STRONGLY RECOMMEND THAT THE DEVICE BE ASSEMBLED AND INSPECTED BY QUALIFIED TECHNICAL PERSONNEL IN ORDER TO AVOID ANY RISK OF DAMAGE TO PERSONS OR TO THE PRODUCT ITSELF.

IN THE EVENT OF PRODUCT FAILURE, THE OPERATOR MUST BE FAMILIAR WITH THIS MANUAL AND THE INFORMATION CONTAINED HEREIN AND MUST KNOW HOW TO AVOID ANY RISK AND/OR HAZARD PRIOR TO INTERVENTION BY OUR SPECIALIZED TECHNICIAN.

assistance

Renova is present worldwide through its agents and distributors.

To contact Renova service, please write to the following address:

support@renova-srl.com

description

Turborex TX – TX/HD – TS – TS/HD 240 brakes, manufactured entirely by Renova in its own facility, are primarily designed for use in the field of unwinding tension control, an application that requires excellent heat dissipation and high sensitivity in core tension control. As the reel diameter changes, a continuous adjustment of braking parameters is required in order to ensure production quality.

A brake has therefore been developed with exceptional cooling capacity to guarantee constant performance during operation, minimal wear of friction components, and consequently an almost zero emission of fine dust, thereby protecting the health of personnel operating near the machine. Maintenance costs are therefore very low over the years.

Special attention has also been paid to brake flexibility in order to provide performance adaptable to various processing configurations. There are numerous possibilities for customizing the brake by varying the number of actuating pistons, their size, the number of discs, the pad material, and the adoption of the Selematic system to enhance sensitivity at low torque levels.



THIS COMPONENT IS DESIGNED TO BE INCORPORATED INTO A MACHINE AND CANNOT OPERATE INDEPENDENTLY.

IT IS FORBIDDEN TO USE IT IF ITS APPLICATION ON THE MACHINE DOES NOT COMPLY WITH CURRENT REGULATIONS.

operating principle

The brake is actuated by a series of pneumatic actuators (cylinder + piston), evenly mounted on the cover; the number may vary from 2 to 6 depending on torque requirements. These actuators (hereafter referred to simply as pistons) can be connected either all together or in groups (2 + 4) (2 + 2) in order to vary the torque according to the type of application: tension-control braking and emergency braking, braking for paper reels with different basis weights or coil dimensions, etc. The maximum operating pressure is 6 bar. The pistons compress the pressure plate, which also serves as a wear indicator, and this in turn presses a series of steel discs—sliding on splines—against friction pads mounted on supports that move along 4 guides. A set of springs separates the discs when pressure is absent, eliminating residual torque that could interfere with reel positioning or other operations.

The TS version (Turborex Selematic) is the most “flexible” version compared to the standard Turborex. Structurally identical, the only difference in this brake lies in the springs. While the standard Turborex uses 16 identical springs (12 for the HD version), the Selematic springs are designed with different stiffness and resistance characteristics, from the stiffest located between the first disc and the cover plate, to the softest positioned near the last disc. This results in a wider range of use compared to the standard Turborex, enabling adaptation to non-continuous workload variations.

The Turborex Selematic is therefore recommended for specific applications where work conditions, pressure, etc. vary frequently, while for continuous and uniform operation we recommend the standard Turborex.

The heat generated by the braking action is dissipated by two peripheral fans, one blowing and the other extracting, which force air through the disc pack, cooling the surfaces and maintaining constant operating temperatures.

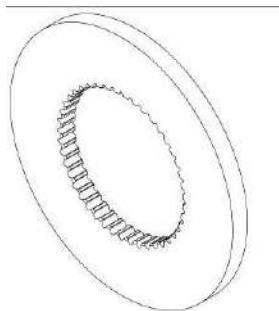


The maximum operating pressure for our TX – TX/HD – TS – TS/HD brakes is 6 bar. Renova strongly advises against using a higher pressure in order to prevent failures and malfunctions that may be harmful to the machine and/or to the operator. We also remind you that improper use of the brake is not covered under our warranty conditions.

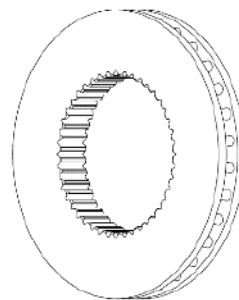
High Dissipation series version

The High Dissipation series (abbreviated HD) has now become the Renova standard. The operation of these brakes is identical to the standard version, but they differ, as indicated by the name itself, because they offer high heat dissipation thanks to the innovative design of our self-ventilating central discs.

These discs, featuring a different profile from the standard ones, ensure greater heat dissipation, making the brake more efficient and higher performing.



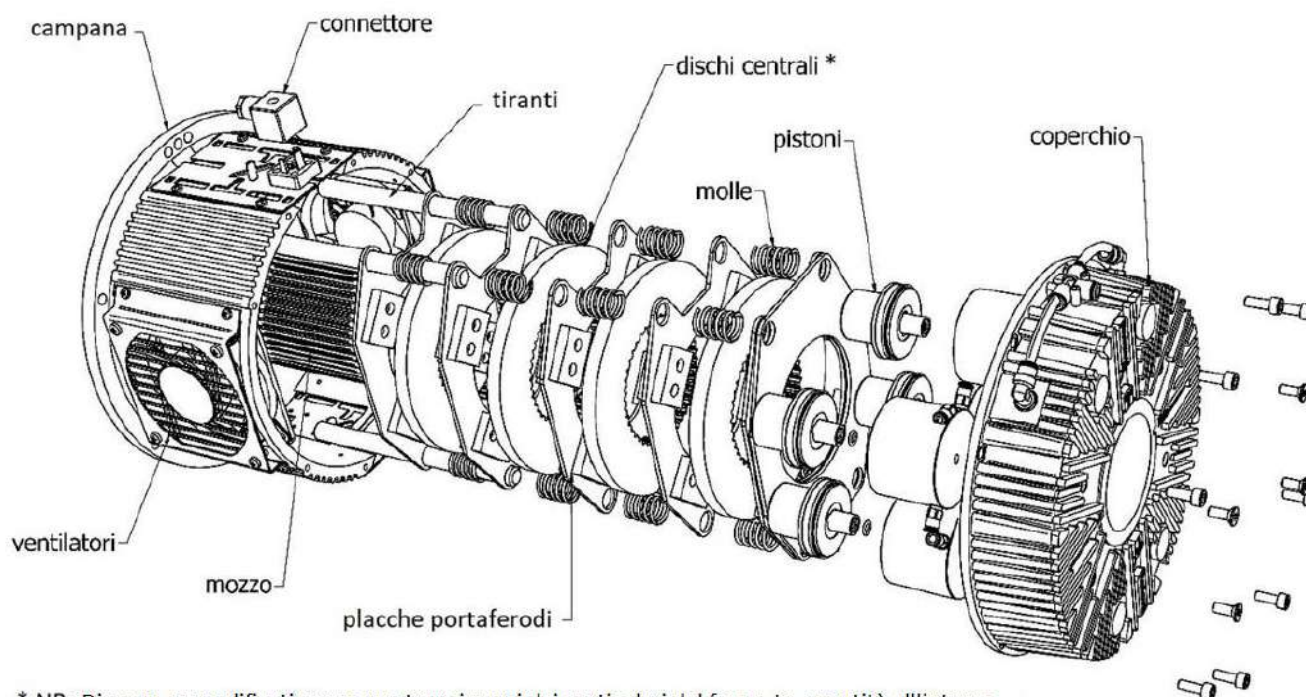
TX Standard disc



TX/HD Self-ventilating disc

This innovative design also allows the use of one fewer disc compared to the standard brake version, making the brake itself lighter and more efficient.

brake component identification

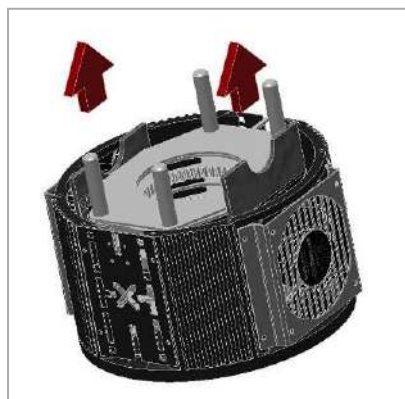


* NB: Disegno esemplificativo per mostrare i nomi dei particolari del freno. Le quantità all'interno cambieranno in base alla tipologia di freno richiesta

disassembly, inspection and storage

Check that the packaging has not been damaged during transport.

Verify that the parts listed below are included in the package and correspond to the brake ordered, whose code is indicated on the label affixed to the brake housing.



Remove the transport protection from the fans.

Also remove the protection from the sensors on models equipped with a tachometer, taking care not to damage the sensor cable.





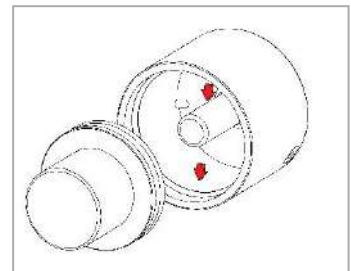
WARNING:

Failure to comply with this requirement will compromise brake ventilation, and the resulting overheating may damage various components such as friction pads, central discs, and electrical cables.



Renova guarantees detailed dimensional and quality control of all parts that make up our TX – TX/HD brake. In addition, we ensure full inspection of any electrical components included in the selected brake configuration, 100% tested by our technicians during the brake assembly phase.

If the brake is stored in a warehouse, keep it in its original packaging. Despite the galvanic protection on the metal parts, very humid or aggressive environments may over time damage the surfaces of the hub, central discs and sliding guides, and may cause the friction pads to swell.



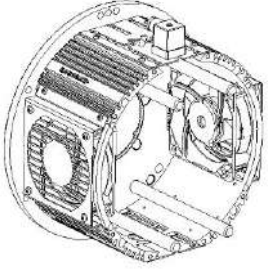
If the brake is stored in a warehouse for a long period, the thin layer of grease that lubricates piston movement may dry out.

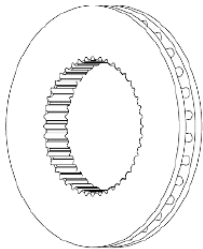
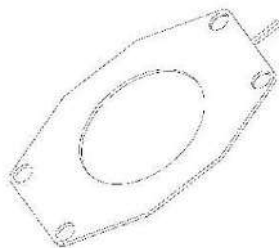
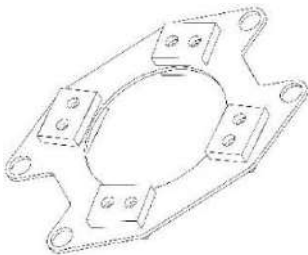
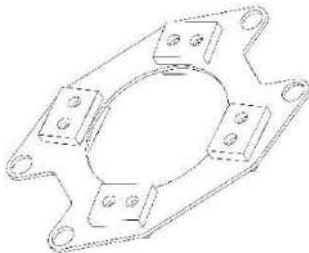
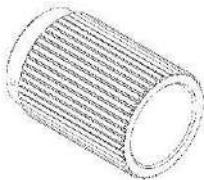
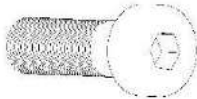
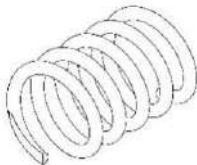
It is recommended to re-lubricate the internal surfaces of the cylinder and the central guide with a very thin layer of silicone-based lubricating grease, water-repellent and anti-adhesive, specifically formulated for metal-rubber contact.

Be careful not to use excessive quantities of grease, as any grease reaching the friction pads could compromise their performance.

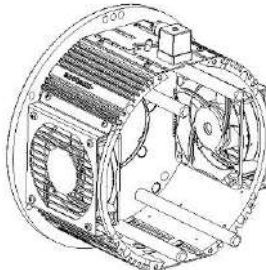
package content

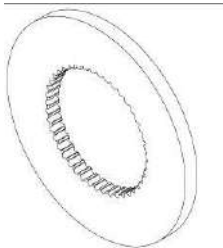
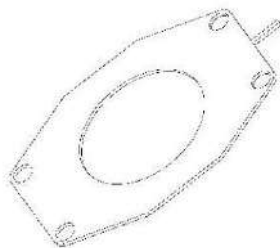
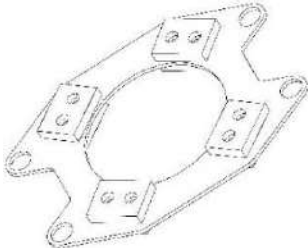
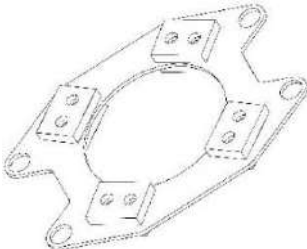
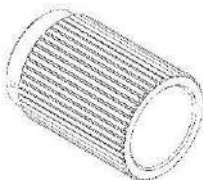
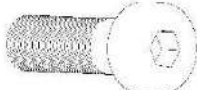
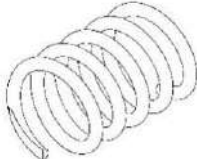
- Turborex HD version (no optional)

240 cover with pistons assembled and connected	1		240 body with 4 guides and two housings with fans assembled and connected to the connector	1	
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HD-design central discs, model 240	3		Pressure plate, model 240	1	
Double friction pad holders, model 240	2		Single friction pad holders, model 240	2	
Hub (if purchased by the customer) model 240	1		Allen screw M6	8	
Springs, model 240 Spring wire $\varnothing$ identical for the standard TX version. Spring wire $\varnothing$ different for the Selematic version.	12				

- Turborex Standard version

240 cover with pistons assembled and connected	1		240 body with 4 guides and two housings with fans assembled and connected to the connector	1	
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Central discs, design 240	4		Pressure disc, model 240	1	
Double friction pad plates, model 240	3		Single friction pad plates, model 240	2	
Hub (if purchased by the customer) model 240	1		Allen screw M6	8	
Springs, model 240 Spring wire $\varnothing$ identical in the standard TX version. Spring wire $\varnothing$ different in the Selematic version.	16				

assembly procedure

Mounting of the hub onto the machine side frame

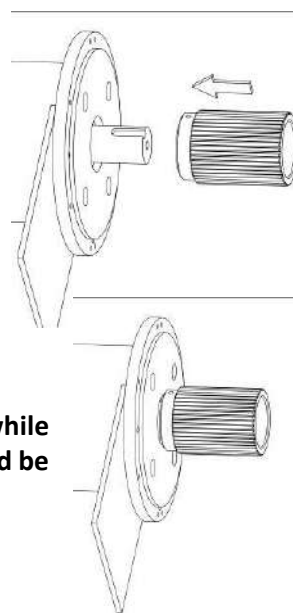
Check that the mounting dimensions on the frame and on the shaft correspond to those of the brake.

- Check that there is no grease or oil coming from faulty shaft bearing seals.
- Mount the hub up to the contact surface of the brake body.
- Axially lock the hub using a grub screw, a threaded locknut, a circlip, or a screw/washer on the shaft end.



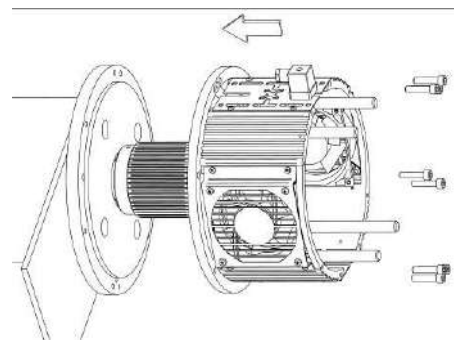
WARNING:

An improperly secured hub may slide on the shaft and, while rotating, damage the pistons, causing fragments to break off and be thrown outward.

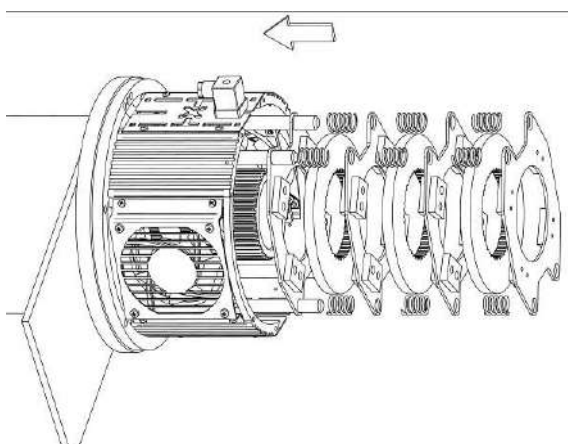
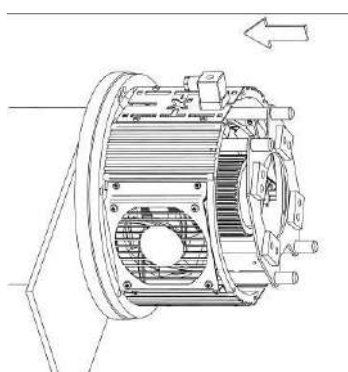


Brake assembly

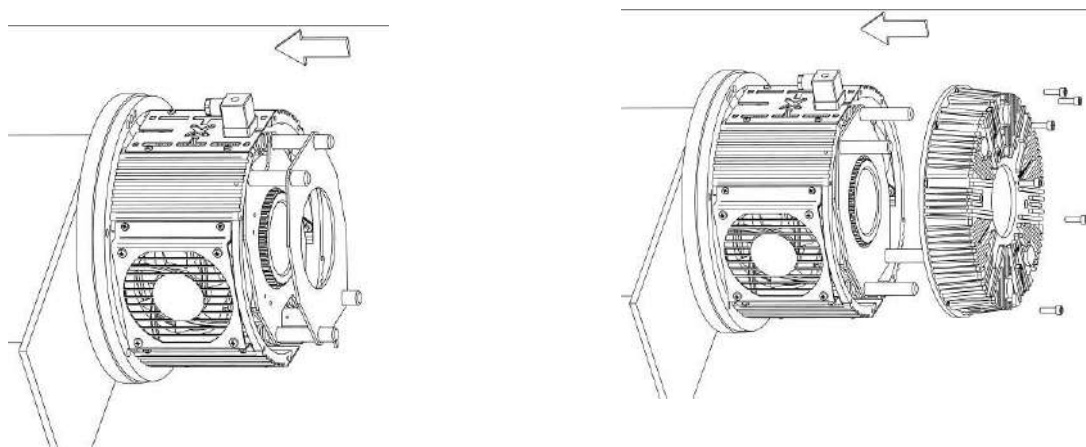
- Open the brake by unscrewing the 8 screws on the cover and remove the discs and springs.
- Install the brake body, centering it on its seat and positioning the fans preferably horizontally to prevent them from drawing in dirt from the floor.
- Secure it firmly with screws using a tightening torque suitable for aluminum alloys (M8 > 15 Nm, M10 > 20 Nm).



- Insert the first single friction pad plate onto the guides with the pads facing the operator.
- Install the first set of 4 springs on the guides, then the central disc, then the double friction pad plate.
- Continue by installing the remaining springs, central discs, and friction pad plates in sequence, then mount the final single friction pad plate with the pads facing inward toward the brake

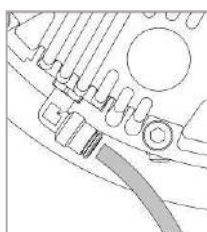


- Install the pressure disc.
- Press the disc pack to check that it moves freely with elastic movement.
- Install the cover, aligning the holes with the guides and close it with light pressure.
Then tighten the 8 screws that secure it to the brake body with a tightening torque suitable for aluminum alloy (~6 Nm).

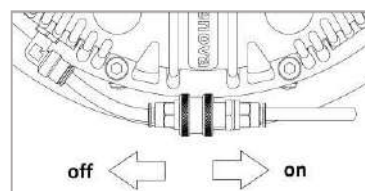


Once all the steps listed above have been completed, the mechanical assembly is finished, and the pneumatic and electrical connections must be carried out to make the brake operational.

pneumatic connection procedure

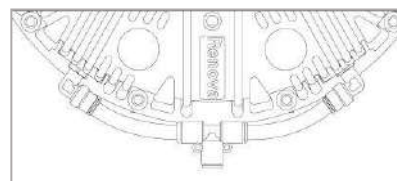


- Connect the air supply hose to the fitting or fittings located on the brake cover. Depending on the number of pistons installed on the brake and the connection system, there may be multiple inlets that separately supply groups of pistons.

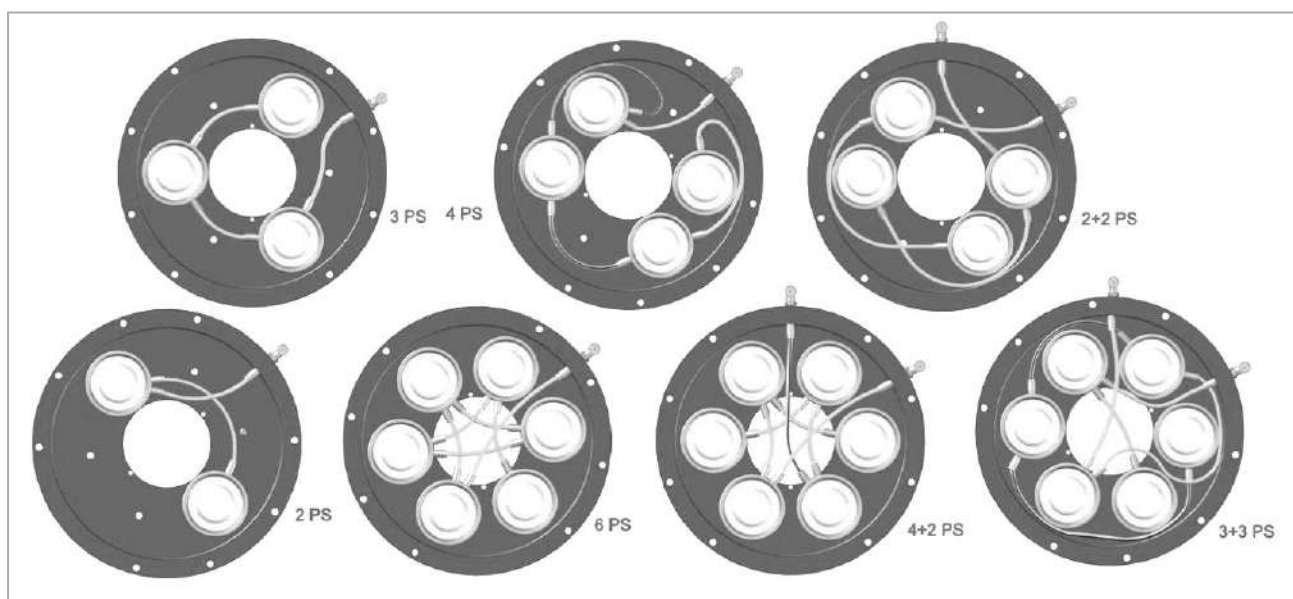


position.

- If another differentiated supply system is present, such as two solenoid valves supplying piston groups, set it to the open position.
- Bring the brake to maximum pressure (6 bar) and check that there are no pressure drops or hissing sounds indicating air leaks.
- If the brake is connected to control systems using electro-pneumatic transducers or proportional valves, etc., controlled by PLC or computer, verify that at "0" signal there is 0 bar pressure and that the internal discs are completely free to rotate.
- The maximum recommended pressure is 6 bar.



Possible piston configurations in the cover:



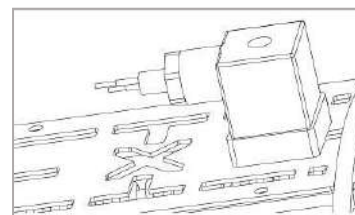
electrical connection procedure

- Connect the power supply wires for the fans and the tachometer (if present) to the connector located on the side housing of the brake, ensuring correct polarity.

The electronic board controlling the fans requires this condition.

The same attention applies to the wiring of the tachometer sensor in models equipped with it; in addition to the power supply contacts, there is also a pulse signal that will be processed by the PLC

- Several types of dual-polarity or multipolar connectors are used, depending on the brake configuration or customer specifications.



three-pole connector code CNTH100P3

Three-pole connector EN17530-803

Cable diameter 2.5 mm

Maximum rated voltage 300 V AC

Maximum current 16 A

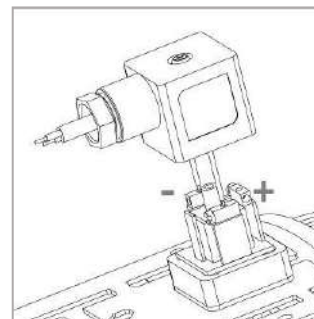
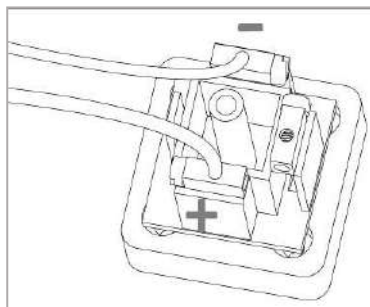
Insulation C-VDE

Protection rating IP65

Screw connection

Used for fan connection

- Connect the positive pole to the terminal located 90° clockwise from neutral
- Connect the negative pole to the opposite terminal



Box/mammut code CNTH100F0

Multipolar connector
Cable diameter 2.5 mm
Maximum rated voltage 380 V AC
Maximum current 2 A
Screw connection
Protection rating IP54

Used for connecting fans, the tachometer sensor (in some applications also dual), and any additional sensors such as the temperature sensor.

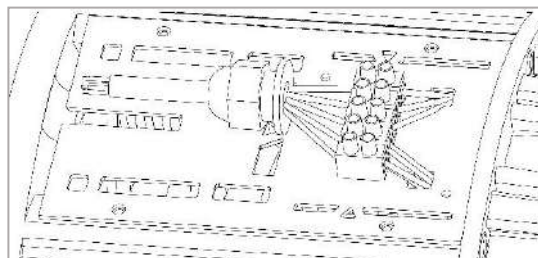
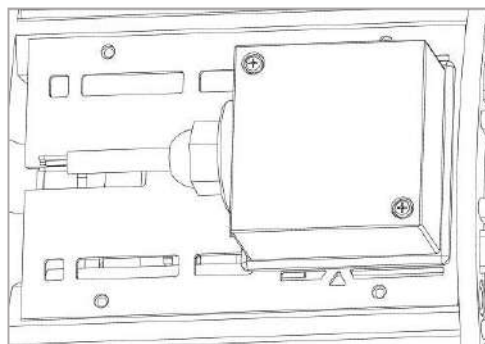
Diagram 1 shows the input connections from the fans and the tachometer; and the output connections to the multipolar cable wires.

Diagram 2 shows the input connections from the fans and from two tachometer sensors; and the output connections to the multipolar cable wires.

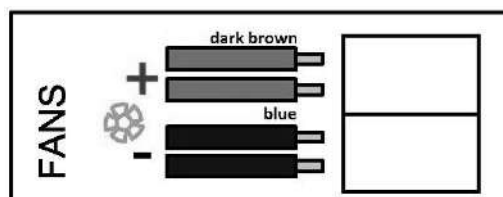
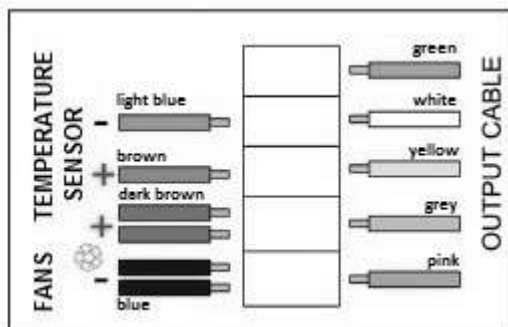
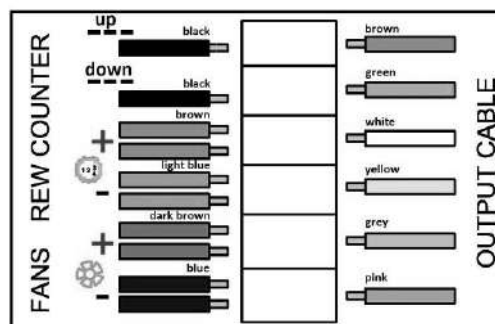
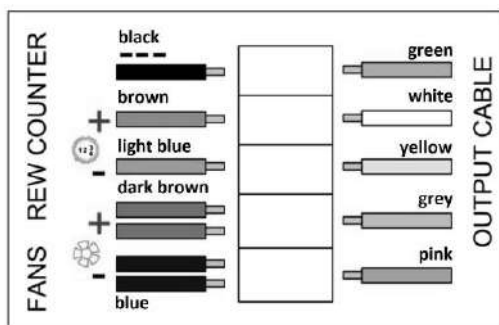
Diagram 3 shows the input connections from the fans and from the temperature sensor; and the output connections to the multipolar cable wires.

Diagram 4 shows the connections for the fans only.

The advantage of this type of connector is that, in the event of a fault and subsequent replacement of the fans or tachometer sensor, there are no soldered contacts, which are more difficult to perform and may result in cold solder joints.

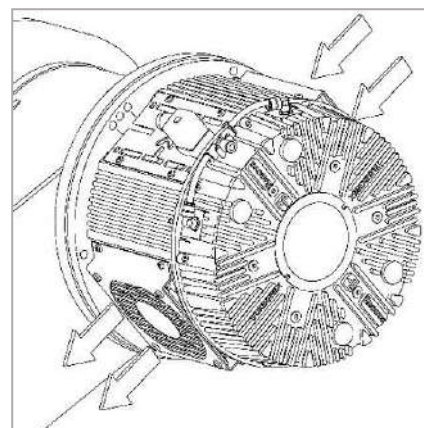


electrical connection diagrams



fans

- After completing the various connections, power up the fans.
The standard fan supply voltage is 24 VDC.



Type	Voltage	Power	Sound level	Renova code
Standard	24 V CC	65 W	57 dB(A)	VT14050024

Fan dimensions: 140 mm x 140mm x 50mm.

- Check that the fans are operating correctly, with one extracting and the opposite one blowing

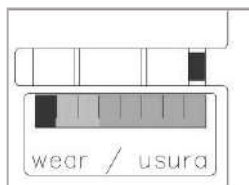
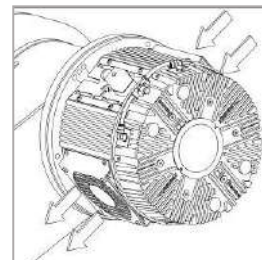
Once all mechanical, pneumatic and electrical steps have been completed, the brake is ready for use.

Maintenance instructions

Our TX – TX/HD brakes require periodic maintenance because they contain components subject to wear. In order to avoid problems with the brake and prevent operational malfunction, below you will find the inspections to be performed on our brakes and the replacement procedures should any components need to be changed.

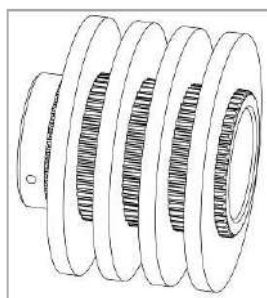
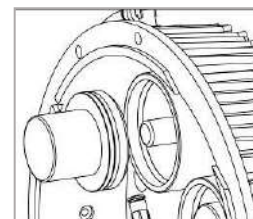
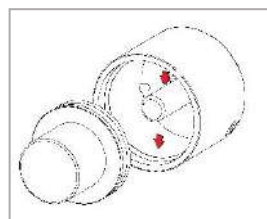
maintenance

- Check at system start-up, or at least daily, that both the extraction fan and the blowing fan are operating correctly. Operating the brake without sufficient ventilation can lead to excessive overheating, causing severe damage to friction pads, fans and other components.



- Check the wear indicator located on the side housing every month. If the indicator is positioned in the yellow zone, check the condition of the friction pads and, if some are more worn than others, swap their positions. If the indicator is positioned in the red zone, the pads must be replaced.

- Every 3 months, check that the pistons are not clogged with dust or dirt. Clean the sliding surface with compressed air. Check that the pistons move freely. If not, apply a thin layer of silicone-based lubricating grease, water-repellent and anti-adhesive, specifically formulated for metal-to-rubber contact, to the internal surfaces of the cylinder and the guide. Also check the condition of the lip seals; if necessary, replace them.



- Every 3 months, check that there are no dirt deposits between the splines of the hub and the discs that could hinder their free movement. If necessary, clean them with a wire-bristle brush.



WARNING:

Always disconnect the power supply to the fans before working on the brake. Moving fan blades can be hazardous to the operator's fingers

replacement kit (replacement procedure)

replacement of friction pad plates

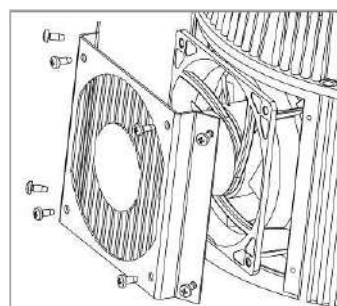
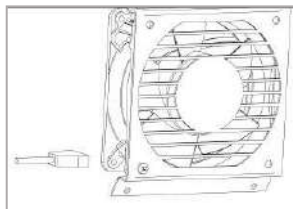
- Disconnect the power supply to the fans, as moving blades can be hazardous to the operator's fingers.
- Disconnect the pneumatic supply.
- Open the brake and remove the old friction pad plates.
- Check that the 4 friction pad plates do not show damage that could hinder the sliding of the friction disc holders. If necessary, replace the guides.
- Install the new plates on the brake following the assembly instructions previously described (see pp. 10/11)

replacement of central discs

- Disconnect the power supply to the fans, as moving blades can be hazardous to the operator's fingers.
- Disconnect the air supply.
- Open the brake and remove the old central discs.
- Check that the hub splines do not show damage that could hinder the free sliding of the discs. If necessary, replace the hub. If dirt is present, clean it with a wire brush.
- Reassemble the brake with the new friction pad plates according to the assembly instructions previously described (see pp. 10/11).

replacement of fans

- Disconnect the power supply to the fans; moving blades can be hazardous to the operator's fingers.
- Disconnect the pneumatic supply.
- Remove the housing of the fan to be replaced and then remove the fan, **noting the mounting orientation** that determines whether it functions as intake or exhaust.



- Disconnect the flying connector located on the fan side.
- Install the new fan onto the housing and connect it to the flying connector.

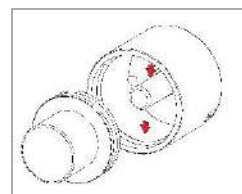
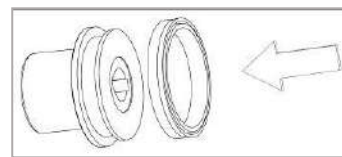
- *Secure the housing to the brake body using the screws.*
- Power the fan and check correct operation.

Note: In some fan versions, no flying connector is present to disconnect the wiring. In this case, when removing the fan, pull the cable out up to the electrical connector and then insert the cable of the new fan. It is then necessary to reconnect the wire to the connector and lock it securely.

replacement of pistons

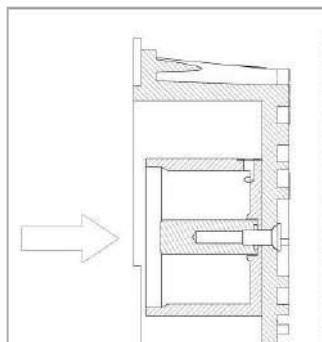
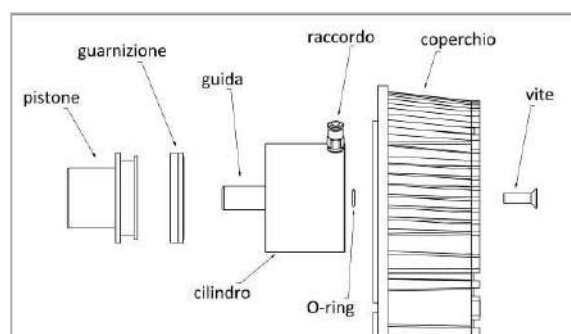
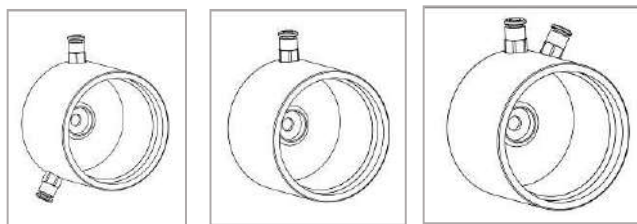
Replacement of the piston lip seal.

- Remove the piston from the cylinder; if it is stuck, apply very low pressure to the brake until the piston comes out of its seat.
- Remove the damaged seal and replace it, taking care not to cut it on the edge of the groove.
- Check that the inner surface of the cylinder is smooth and free from marks or scoring.
- Apply a thin layer of **silicone-based lubricating grease, water-repellent and anti-adhesive, specifically formulated for metal-to-rubber contact**, to the internal surfaces of the cylinder and the guide.
- Reposition the piston in its seat.
- Check piston sealing at maximum pressure.

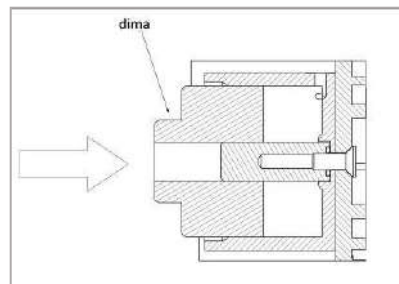


Replacement of cylinder and piston

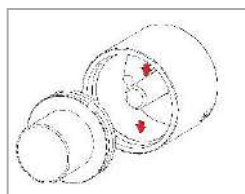
- Disconnect the air hose from the connector(s). Depending on the position inside the cover, there may be three types of cylinders.
- Unscrew the corresponding screw on the brake cover and remove the piston.



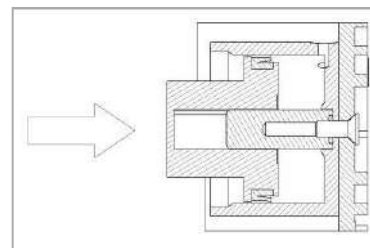
- Insert the new cylinder, the O-ring, and the piston guide, and screw in the screw without tightening it fully.
- Insert the centering jig (available as an optional accessory) to align the piston guide and tighten the screw on the cover.
- Apply a thin layer of **silicone-based lubricating grease, water-repellent and anti-adhesive, specifically formulated for metal-to-rubber contact**, to the internal surfaces of the cylinder and the guide.



- Insert the piston into the cylinder, taking care not to damage the seal on the internal edge of the cylinder.
- Connect the air tubes to the connectors.
- Check piston sealing at 6 bar pressure.



If present, verify the piston configuration on the label located on the cover.



accessories

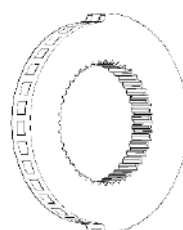
Our TX – TX/HD brakes may include, upon customer request, certain accessories that are not supplied in the standard versions.

RPM speed sensor

One of the most widely used and requested accessories not included in our standard configuration is the tachometer with its corresponding speed sensor. These brakes are supplied in the same configuration as the standard brakes, except that one central disc (the last one in the assembly sequence) is replaced with a central disc specifically manufactured with one or more notches for the speed sensor. As with the standard versions, these discs are also available in the High Dissipation series version.

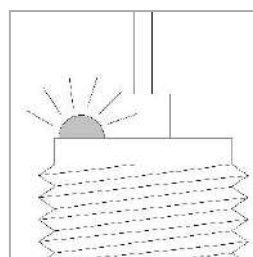
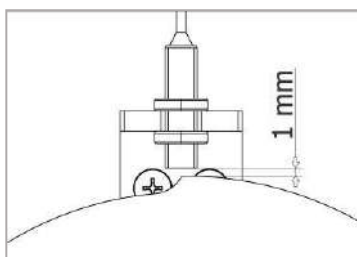


Standard notched disc for speed sensor



HD notched disc for speed sensor

- Position the sensor at a distance of approximately one millimeter from the central disc, shaped with notches whose number and shape depend on the type of PLC control.
- Then power the sensor and, while rotating the notched central disc, check that the indicator LED located on its upper end flashes.

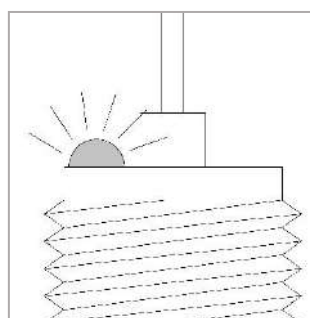
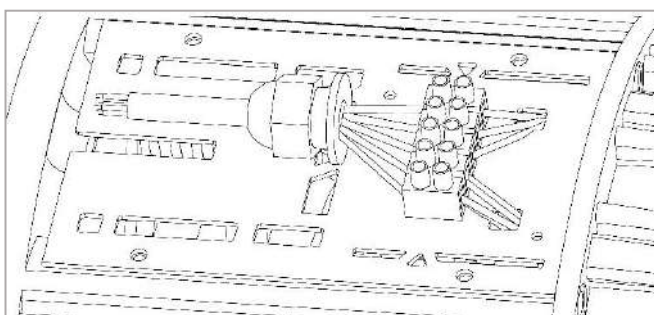
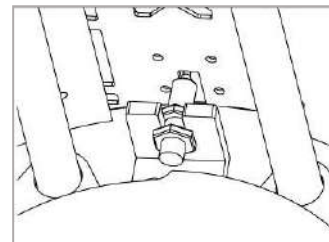


Below is the list of our available speed sensors. By default, Renova supplies its brakes with a tachometer featuring a PNP normally open (NO) connection, but upon request, PNP normally closed (NC) versions are also available, as well as NPN versions in both normally closed and normally open configurations

Type	Voltage	Current	Sensing distance	Connection	Renova code
Standard	10 - 30 V CC	<200 mA	1,5mm	PNP (NO)	CG00000000
On request	10 - 30 V CC	<200 mA	1,5mm	NPN (NO)	CG00000NPN
On request	10 - 30 V CC	<200 mA	1,5mm	PNP (NC)	CG00000000-NC
On request	10 - 30 V CC	<200 mA	1,5mm	NPN (NC)	CG00000NPN-NC

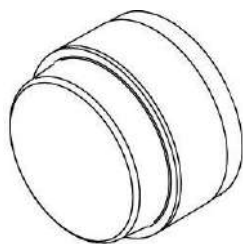
replacement of the speed sensor

- Disconnect the power supply to the fans; moving blades can be hazardous to the operator's fingers.
- Disconnect the pneumatic supply.
- Disconnect the sensor from the connector.
- Remove the sensor by unscrewing the nut that secures it to the bracket
- Pull it out of the cable eyelets and the thermal protection sleeve.
- Install the new sensor on the bracket and adjust the distance from the cam-shaped central disc to approximately 1 mm.
- Insert the cable through the eyelets and the thermal protection sleeve.
- Connect the 3 wires to the connector terminals according to the previously shown wiring diagram (see p. 13).
- Power up the tachometer and verify correct operation by rotating the cam-shaped central disc and observing the LED indicator on the sensor head.

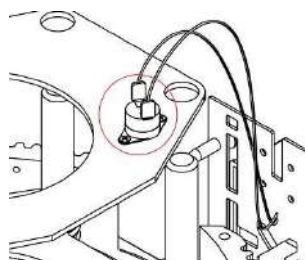


temperature sensor – warning lamp kit (KT000000000)

Another optional accessory supplied by Renova is the kit that includes a temperature sensor and a warning lamp. Thanks to this option, it is possible to monitor the brake temperature to ensure it does not rise above the threshold, and if it does, a visual warning will be activated by the lamp.



Warning lamp

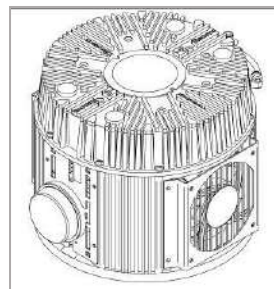
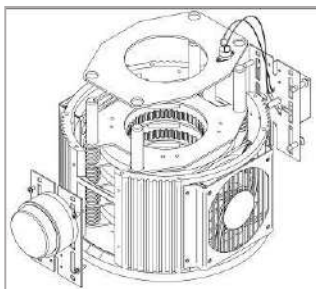
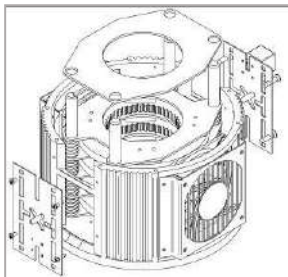


Temperature sensor

installation

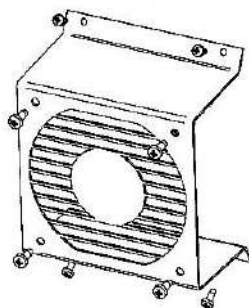
- Disconnect the power supply to the fans; moving blades can be hazardous to the operator's fingers.
- Disconnect the pneumatic supply.
- Remove the cover and the pressure disc.
- Dismantle the two side housings, taking care—if a 3-pole connector is present—to cut the fan power wires close to the connector.
- *Install the new kit and replace the pressure disc with the bimetal thermostat facing the cover.*

- Reassemble the brake.
- Power the fans and check correct operation.



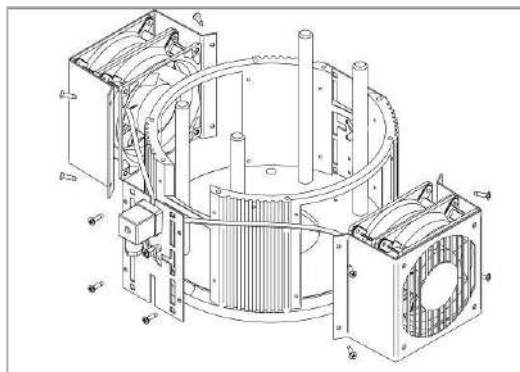
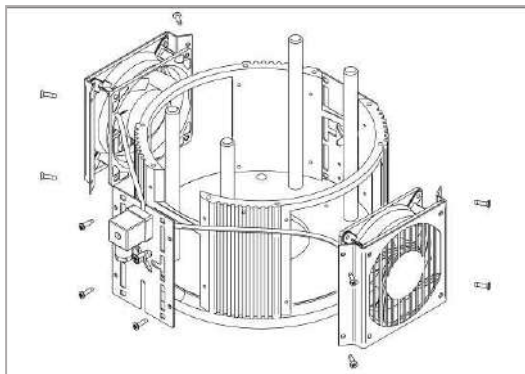
4-fan brake kit

For applications requiring greater heat dissipation, it is possible to upgrade from a 2-fan brake to a 4-fan brake through the use of a special housing that allows two fans to be mounted one above the other.



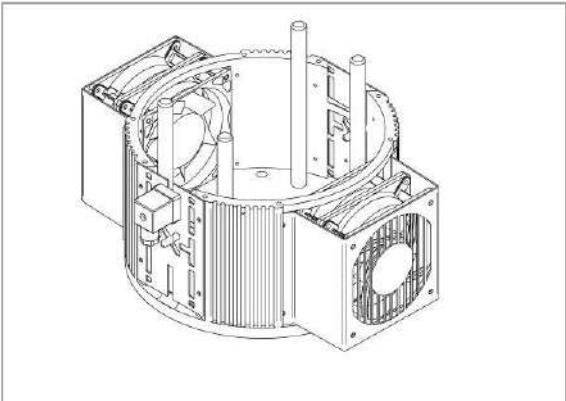
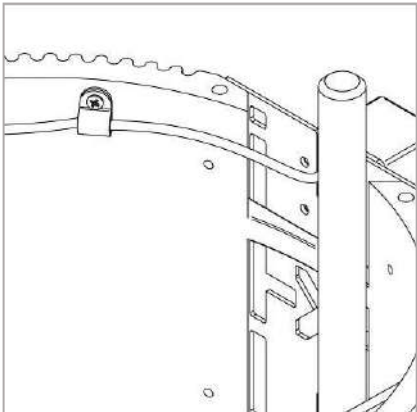
Fan kit installation

- Disconnect the power supply to the fans; moving blades can be hazardous to the operator's fingers.
- Disconnect the pneumatic supply.
- Disconnect the flying connector located on the fan side.
- Remove the cover and all internal brake components.
- Disassemble the fan housings and the housing where the electrical connector is located.
- Install the new kit.



- Insert the fan electrical wiring into the designated cable clamps.

- Secure the fan housings and the electrical connector housing to the brake body using the screws
- Reassemble the brake.
- Power the fans and check correct operation.



Upgrade kit from TX to TX/HD

For customers who already own one of our standard versions, Renova also supplies, upon request, upgrade kits that allow the brake to be converted to the High Dissipation version without the need to purchase a new brake. The upgrade kit consists of the following parts in the version without optional accessories

Central discs, model 240 (Brake without RPM)	3		Springs, model 240	12	
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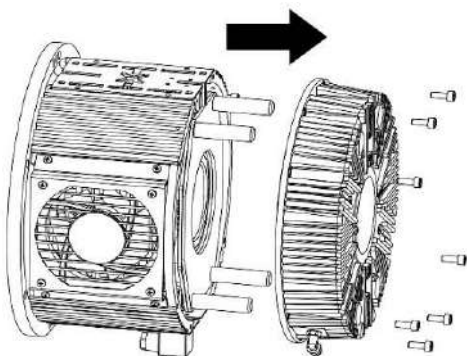
From the following parts in the version equipped with the RPM speed sensor:

Central discs, model 240 (Brake with RPM)	2		Springs, model 240	12	
RPM sensor reading disc, model 240	1		RPM sensor support bracket and related bracket mounting screws	1	

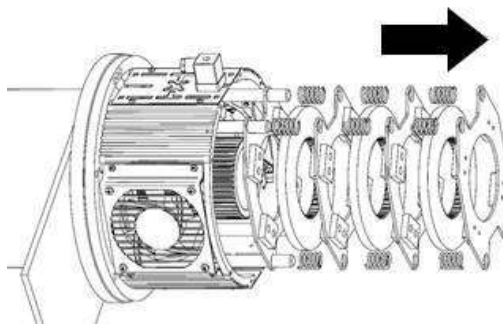
Kit assembly

Before proceeding, ensure that the fans are not electrically powered.

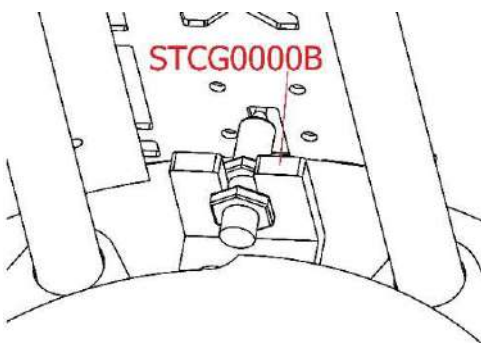
1. Remove the brake cover by unscrewing the 8 screws.



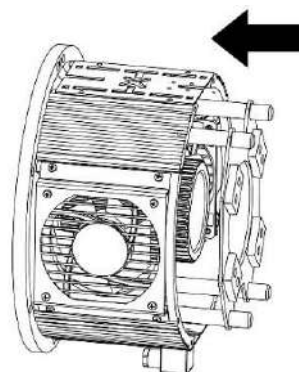
2. Remove the brake pad and disc layers in sequence. For brakes without RPM, skip to step 4



3. Remove the RPM sensor support bracket and replace it with the supplied bracket. Do not tighten the RPM sensor position on the new bracket yet.

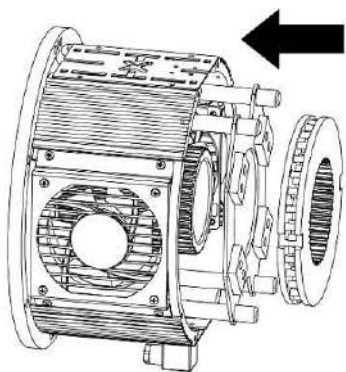


4. Insert the single friction pad holder onto the cylindrical guides. Take care not to damage the RPM sensor if present.

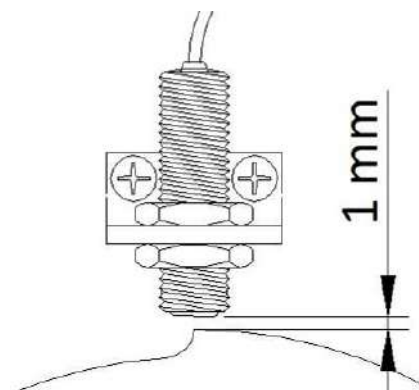


5. Insert the cam disc or the notched disc for RPM versions, taking care not to damage the sensor. For versions without RPM, insert a standard disc and skip to step 7.

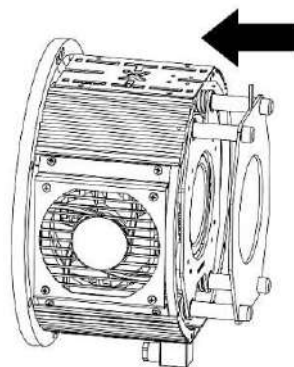
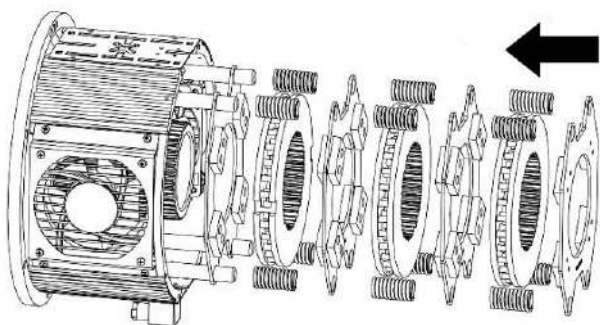
6. Lock the RPM sensor position at 1 mm from the outermost track of the disc. For more details, refer to the section of this manual dedicated to the RPM sensor.



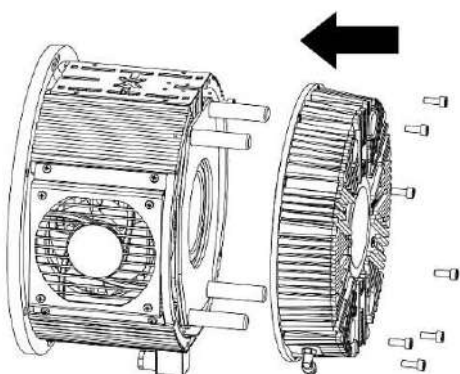
7. Reassemble the remaining discs, springs and friction pad holders in sequence as shown in image number 7.
 Note: when upgrading from TX180 to TXHD180, one double friction pad holder will remain unused.



8. Finally, insert the plate with the brake wear indicator.

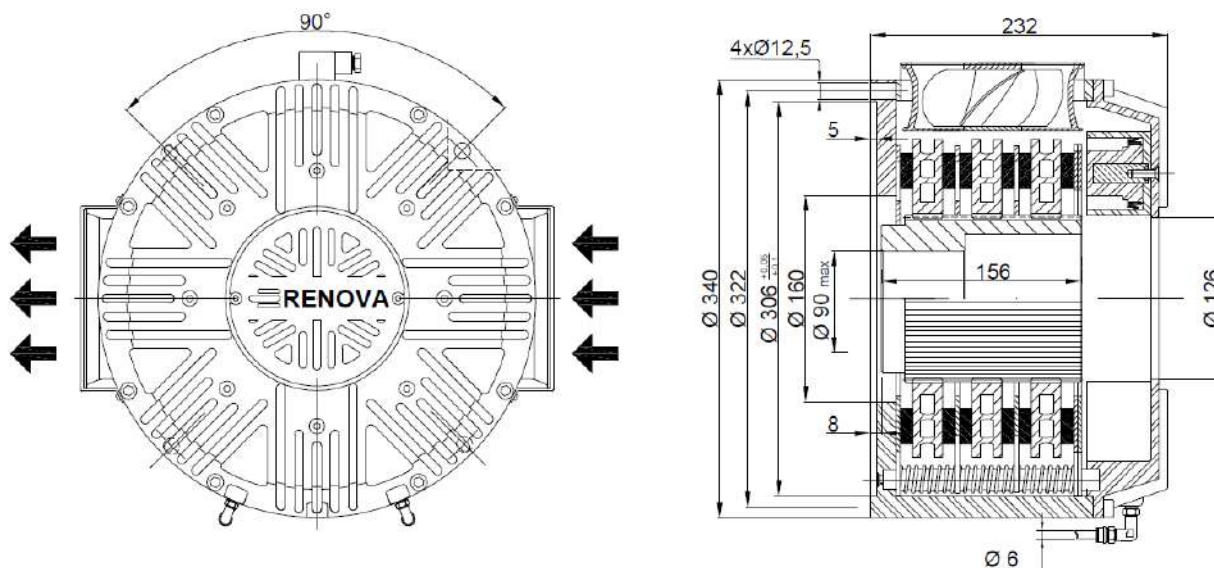


9. Install the brake cover and tighten the 8 screws removed in step 1



dimensions

- R flange (Ø340mm) → general dimensional drawings, also valid for standard versions



technical data

Performance:

Torque	Dependent on the cover configuration. For more technical information, refer to the brake drawing, which provides more detailed and specific data for the selected brake model
Speed	max 2500 rpm
Dissipatable heat	9 kW – 12 kW
Maximum pressure	6 bar

Materials

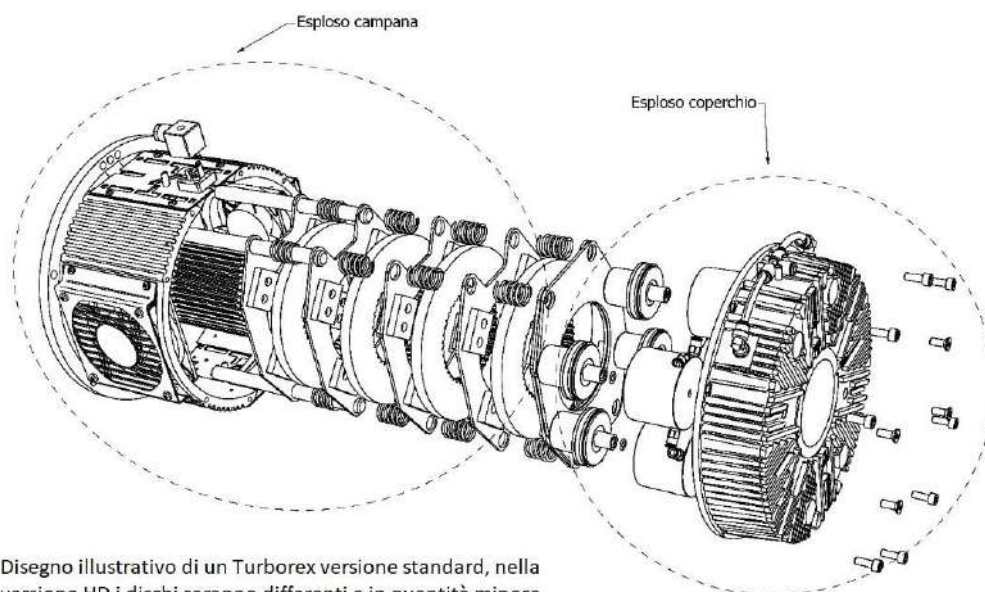
Brake body and cover	Aluminum alloy
Central discs	High-carbon steel
Friction pads	Compound for continuous high-temperature slipping
Pistons	Aluminum alloy
Piston seals	Viton
Hub	Steel with induction-hardened teeth

Weights

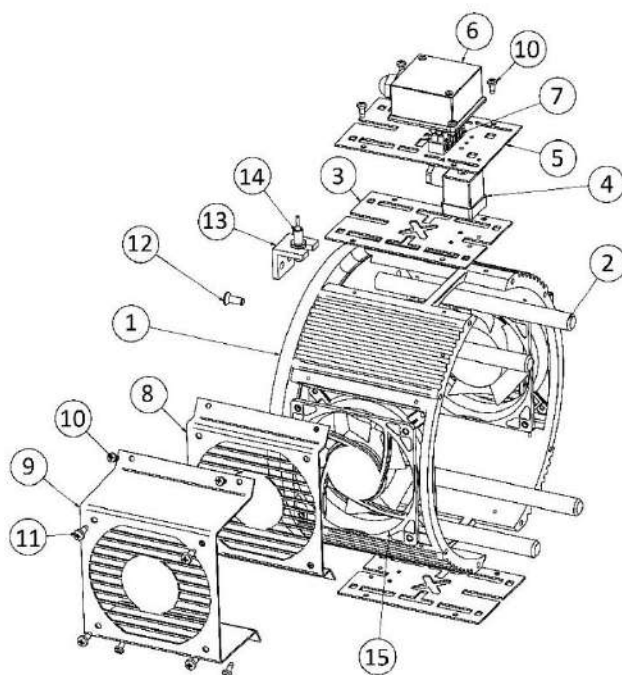
Brake weight (without hub)	Approximately 31 kg*
Hub weight	Approximately 10 kg*
Central disc weight	5,9 Kg
Central disc J	0,0288 kgm ²

* The exact weight will depend on the requested configuration.

spare parts



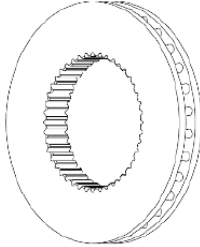
exploded view — housing



POSITION	CODE	DESCRIPTION
1	CPTX240000	TX240 housing with R flange (external flange diameter 340 mm)
2	GUTX240000	TX240 tie rod
3	CATS1804D3P	Side housing for 3-pole connector
4	CNTH100P3	3-pole connector
5	CATS1804DFO	Side housing for multipolar connector
6	CNTH100FO	Terminal cover
7	MAMMUT2RPM	Terminal block
8	CVTX240000	Standard fan housing, model 240

9	CVTX240004V	Double fan housing, model 240
10	VITBM4012A	Domed head screw for housing
11	VITBM5016A	Domed head screw for fans
12	VITSM60200	Countersunk head screw for tie rods
13	STCG000000	Bracket for proximity speed sensor
14	STCG0000B	Bracket for proximity speed sensor – TXHD
	CG00000000	Proximity speed sensor PNP – Normally open
	CG00000NPN	Proximity speed sensor NPN – Normally open
	CG00000000-NC	Proximity speed sensor PNP – Normally closed
	CG00000NPN-NC	Proximity speed sensor NPN – Normally closed
15	VT14050024	Fan 120×120×38 – 24 V DC – 0.46 A – 11 W

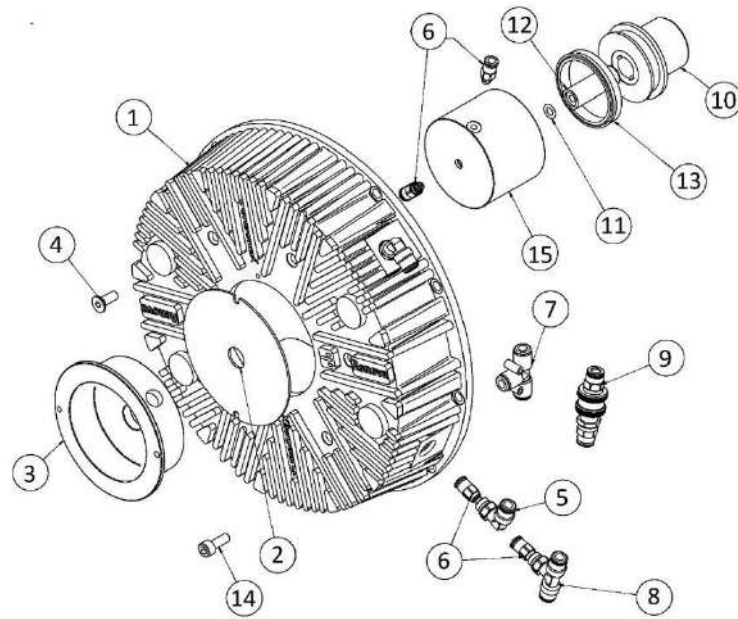
DISCS

<i>HD-design central discs, model 240</i> Code: TXP0030	3		Standard version central disc, model 240 Code: DCTX240000	1	
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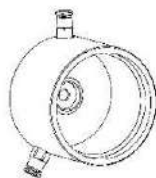
Standard version RPM sensor discs

	DCTX2400FS	Cam-profile disc, model 240
	DCTX240001	TX240 disc with 1 notch
	DCTX240004	TX240 disc with 2 notches
	DCTX240008	TX240 disc with 4 notches

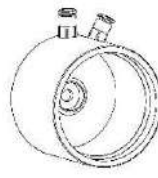
Cover exploded view



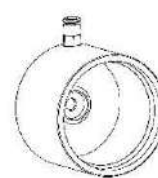
POSITION	CODE	DESCRIPTION
1	COTX240000	Cover, model 240
2	TPTX240000	TX240 plug
3	SFTX180018	Photocell support
4	VITSM60200	Countersunk head screw for cylinder M6
5	I40-0046	Elbow fitting for 6 mm tube
6	RAM505ARM5	Fitting for 5 mm tube – M5
7	TU108PLA	T-fitting for 6 mm tube
8	TU108G06AR	1/8" T-fitting for 6 mm tube
9	00TXDIS610-G1/8	Selector with G1/8" thread
10	PSTX180050	Piston Ø 50 mm
	PSTX180040	Piston Ø 40 mm
11	ORTX180	Cylinder O-ring
12	GPTX180000	Piston guide
13	DEM055045V	Lip seal for piston Ø 50 mm
	DEM040045V	Lip seal for piston Ø 40 mm
14	VITCM60300	M6 screw for cover
15	CLTX180L50	Cylinder Ø 50 mm with two opposite holes
	CLTX180F50	Cylinder Ø 50 mm with two paired holes
	CLTX180M50	Cylinder Ø 50 mm with one hole
	CLTX180L40	Cylinder Ø 40 mm with two opposite holes
	CLTX180F40	Cylinder Ø 40 mm with two paired holes
	CLTX180M40	Cylinder Ø 40 mm with one hole



2 opposite holes

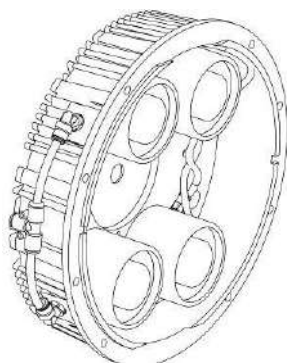


2 paired holes



single hole

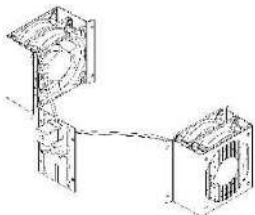
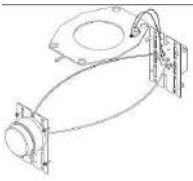
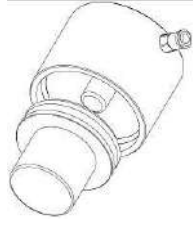
Assembled covers (spare part codes)



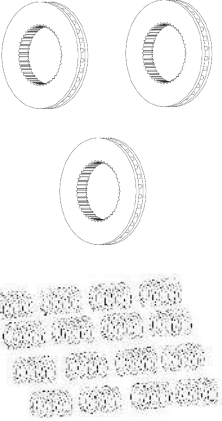
TXA0037	Assembled cover Turborex 240 - 2 ps 50
TXA0038	Assembled cover Turborex 240 - 3 ps 50
TXA0039	Assembled cover Turborex 240 - 2 ps 50 + 2 ps 50
TXA0040	Assembled cover Turborex 240 - 4 ps 50 + 4 ps 50
TXA0041	Assembled cover Turborex 240 - 4 ps 50 + 2 ps 50
TXA0042	Assembled cover Turborex 240 - 2 ps 50 + 2 ps 50 + 2 ps 50
TXA0043	Assembled cover Turborex 240 - 2 ps 50 + 2 ps 50 + 4 ps 50
TXA0044	Assembled cover Turborex 240 - 2 ps 50 + 2 ps 50 + 2 ps 50 + 2 ps 50
TXA0045	Assembled cover Turborex 240 - 2 ps 40 + 2 ps 40
TXA0046	Assembled cover Turborex 240 - 3 ps 40 + 3 ps 40
TXA0047	Assembled cover Turborex 240 - 3 ps 30 + 3 ps 40
TXA0072	Assembled cover Turborex 240 - 3 ps 50 + 3 ps 50

Spare parts kit for standard Turborex

Illustration	Code	Description
	Pads kit	
	KPTX240000	consisting of: – 3 double friction pad holder discs – 2 single friction pad holder discs
	KPTX240HD	consisting of: – 2 double friction pad holder discs – 2 single friction pad holder discs
	Disc kit	
	KDTX240 <i>Disc kit consisting of 4 central discs</i>	
	Kit molle	
	KMTX240F20	16 springs, wire 2,0mm
	KMTX240F25	16 springs, wire 2,5mm
	KMTX240F30	16 springs, wire 3,0mm
	KMTX240F35	16 springs, wire 3,5mm

	Pre-wired fan kit consisting of fan housing and 3-pole connector		
	KVTX2400H4	Kit with 2 standard fans 24 V CC 65 W	STANDARD
	KVTX2404H4	Kit with 4 standard fans 24 V CC 65 W	
	Lamp kit consisting of: - Alarm lamp - Double side housing - Multipolar connector - Pressure disc with 100°C N/O bimetal thermostat		
	thermostat KT000000000	Lamp and bimetal thermostat kit for overheating alarm above 100°C	
	Complete pneumatic actuator kit including cylinder, piston, seal, guide, O-ring, fittings and screw		
	KPSTX180F50	Piston Ø 50 mm with two paired fittings	
	KPSTX180L50	Piston Ø 50 mm with two opposite fittings	
	KPSTX180M50	Piston Ø 50 mm with one fitting	
	KPSTX180F40	Piston Ø 40 mm with two paired fittings	
	KPSTX180L40	Piston Ø 40 mm with two opposite fittings	
	KPSTX180M40	Piston Ø 40 mm with one fitting	
			

Spare parts and replacement kits for Turborex High Dissipation series

Illustration	Code	Description
	KTXHD0012	TXHD240 upgrade kit – 3 self-ventilating discs
	KTXHD0009	TXHD240 upgrade kit – 3 self-ventilating discs – 12 springs Ø 2.2 mm

warranty

Renova Srl guarantees this device against any defects in materials and workmanship for a period of 12 months from the date of delivery of the brake.

If, during the warranty period, the device shows any malfunction or defect, please contact the company's representative in your country or, if none is available, contact Renova Srl directly.

The warranty covers spare parts and labour, while shipping costs for delivery or return of the device are excluded.

The warranty becomes void in the following cases:

- Improper use of the product
- Incorrect installation
- Lack of maintenance
- Modifications or interventions carried out using non-original components or by personnel not authorized by Renova Srl
- Partial or total non-compliance with the instructions
- Exceptional events

Once the warranty period has expired, technical support will be provided by the service network, which will carry out repairs according to the applicable rates.

ISOENCertifications s.r.l.



DICHIARAZIONE DI CONFORMITA' **DECLARATION OF CONFORMITY**

Dichiariamo che l'esame è stato effettuato secondo i sotto citati requisiti che il sottoscritto soggetto recepisce
*We declare that the examination has been carried out according with the following requirements
to which the undersigned is subject transposing*

RENOVA S.r.l.

Via Pompeo Mariani, 16

I - 20128 MILANO (MI)

**DICHIARA CHE
/ DECLARE THAT**

**il prodotto/
the product**

TURBOREX BRAKE

Modello / Model

TX180

**Anno di fabbricazione /
Production year**

2012

**E' CONFORME
/ FULFILLS**

**alle seguenti Direttive Europee:
/ the requirements of the Directive:**

Direttiva 2006/42/CE relativa alle Macchine

directive 2006/42/EC "Machinery directive"

Milano,

Data di Emissione del Certificato: 25/09/2012



L'amministratore unico
Ing. Sergio Müller

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NOTES

Manual revision index

Rev. no.	Revision date	Description of changes made



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