This manual is to be given to the end user

D.M.D.2 for FCR brake motor
Remote brake release lock off
Installation and maintenance
GENERAL WARNING

These symbols ❞ ❞ appear in this document whenever it is important to take special precautions during installation, operation, maintenance or servicing of the motors.

It is essential that electric motors are installed by experienced, qualified and authorised personnel.

In accordance with the main requirements of EC Directives, the safety of people, animals and property should be ensured when fitting the motors into machines (please refer to current standards).

Particular attention should be given to equipotential ground or earthing connections.

The following preliminary precautions must be taken before working on any stationary device:
• Mains voltage disconnected and no residual voltage present
  - Do not open when powered up in atmospheres containing explosive dust
  - Do not repair while powered up
  - Do not move when on load
  - Wait for a few minutes before opening
• Careful examination of the causes of the stoppage (blocked transmission - loss of phase - cut-out due to thermal protection - lack of lubrication, etc)
  - Replace the seals tightly to ensure watertightness

This document complements the FCR brake motor installation and maintenance manual ref. 2908.

These recommendations, instructions and descriptions refer to the D.M.D.2 option.

Failure to comply with these recommendations may lead to premature wear and tear of the motor and may invalidate the manufacturer warranty.

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1 - DESCRIPTION OF OPERATION

1.1 - Manual operation

Manual release
a. Push the Hand Brake release lever ref. 153 towards the back of the brake motor cover.
b. Hold it for as long as it takes to operate the DMD2 lever ref. 535.
c. Release the Hand Brake release lever first, then the DMD2 lever.
d. Push the Hand Brake release lever ref. 153 towards the back of the brake motor cover and allow it to return or deactivate the DMD2 the first time the brake is powered up.

1.2 - Electrical operation

Electrical release
a. Supply the brake coil with power to attract the armature ref. 11.
b. Switch on the power supply (max. 2 seconds 3 times in a row) for the electromagnet ref. 504.
c. Switch off the brake coil power supply and then that of the electromagnet ref. 504.
d. Deactivate the DMD2 the first time the brake is powered up. The micro-switch ref. 544 indicates the state of the DMD2.

1.3 - Maintenance
Check that the original adjustments are marked (wax dots) on:
- the eccentric adjuster fixing screws ref. 538
- the fixing screws for the switch contact bracket ref. 550
- the fixing screws for the electromagnet support ref. 541

2 - EXPLODED VIEWS AND PARTS LIST

<table>
<thead>
<tr>
<th>Ref.</th>
<th>Description</th>
<th>Qty</th>
</tr>
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<tbody>
<tr>
<td>008</td>
<td>Brake shield</td>
<td>1</td>
</tr>
<tr>
<td>011</td>
<td>Armature</td>
<td>1</td>
</tr>
<tr>
<td>015</td>
<td>Brake lining fan</td>
<td>1</td>
</tr>
<tr>
<td>040</td>
<td>Cover nuts</td>
<td>4</td>
</tr>
<tr>
<td>050</td>
<td>O ring seal</td>
<td>1</td>
</tr>
<tr>
<td>053</td>
<td>Hand Brake release caliper</td>
<td>1</td>
</tr>
<tr>
<td>105</td>
<td>FCR encoder support bracket</td>
<td>1</td>
</tr>
<tr>
<td>153</td>
<td>FCR lever rod</td>
<td>1</td>
</tr>
<tr>
<td>205</td>
<td>M5x10 screws</td>
<td>2</td>
</tr>
<tr>
<td>253</td>
<td>Stainless steel tension spring</td>
<td>1</td>
</tr>
<tr>
<td>353</td>
<td>Hand Brake release caliper shaft</td>
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</tr>
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<td>2</td>
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<tr>
<td>355</td>
<td>M6x45 CHC screws</td>
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</tr>
<tr>
<td>356</td>
<td>M6x20 H screw</td>
<td>1</td>
</tr>
<tr>
<td>400</td>
<td>Cover spacer</td>
<td>4</td>
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<tr>
<td>504</td>
<td>Electromagnet</td>
<td>1</td>
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<tr>
<td>535</td>
<td>Pin clamp</td>
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<tr>
<td>537</td>
<td>FCR eccentric adjuster</td>
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<tr>
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<td>M6x20 H screws</td>
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<td>539</td>
<td>Spring</td>
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<tr>
<td>541</td>
<td>M5x10 screws</td>
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<tr>
<td>544</td>
<td>DMD2 micro-switch contact bracket</td>
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</tr>
<tr>
<td>550</td>
<td>M5 nut</td>
<td>1</td>
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</tbody>
</table>
3 - DISMANTLING THE D.M.D.2
(to change the brake disk)

Tools required: cutting tool, clamp collar, combination pliers, set of shims, removable threadlocker, 8-10-13 spanners, CHC 5 male spanner, box spanners, 3 M8 screws.

All the fixing screws must be tightened up to 70% of their yield strength.

Disconnect the connector (if encoder).

Unscrew the rod from the lever ref. 153 if necessary, undo the 4 adjusting nuts ref. 040 and slide the cover back in order to remove it. In the case where encoder is installed: in order to remove the encoder assembly, cut the 3 cable ties; undo the two screws ref. 205 to remove the encoder support bracket ref. 105; move the micro-switch electromagnet cable out of the way.

3.1 - Replacing the electromagnet

Follow instructions § 3. Check it has been disconnected. Undo the connections in the terminal box; unscrew ref. 541 to release the electromagnet ref. 504; lift it to disengage it from the clamp ref. 535.

Undo the nut ref. 550 and push the contact bracket ref. 544 towards the stator.

Fit the new kit (see Section 4 Electromagnet + Adjusting the electromagnet).

For smooth manual release, play of 1.2 mm is needed between the screw head ref. 355 and the armature ref. 011.

3.2 - Replacing the brake lining fan

Follow instructions § 3 and 3.1. Then see the procedure § 4.2: "dismantling the brake motor" from FCR installation and maintenance manual reference 2908.

3.3 - Replacing the pin clamp

Follow instructions § 3 and 3.1. Remove the two screws ref. 538 with the two eccentric adjusters ref. 537 and remove the clamp ref. 535 (Fig. 2 and 3).

3.4 - Replacing the hand brake release (fig.3)

Follow instructions § 3. Remove screw ref. 356 from the spring loop, and detach spring ref. 253 from clamp ref. 053.

Undo the two screws ref. 355 and also those ref. 353 on the armature ref. 011 then remove the two shafts ref. 354.

Put aside the hand release ref. 053.

4 - REASSEMBLING THE D.M.D.2

Adjust the FCR air gap (see FCR manual ref. 6 ref. 2908 section 4.1).

Specific air gap 6 tenths.

4.1 - Hand Brake release

Replace the O ring seal ref. 050.

Place the two shoulder shafts ref. 354 on the inner side in the clamp ref. 053.

Tighten screws ref. 353 coated with removable thread-locker through the clamp ref. 053 and into the yoke.

Tighten and adjust the two screws ref. 355 coated with removable thread-locker through the armature ref. 011 in both shafts ref. 354. Leave 1.2 mm of play between the armature and the screw head.

Hook the spring ref. 253 into the clamp ref. 053, engage the screw ref. 356 coated with removable threadlocker in the other spring loop and tighten it fully into the corresponding hole on the yoke. Tighten the lever rod ref. 153 and check that the manual release works.

4.2 - Pin clamp (Fig. 2 and 3)

On the yoke, mount the clamp ref. 535 with the two eccentric adjusters ref. 537 and the two screws ref. 538 coated with removable threadlocker and loosely tightened. (Offset marker 25° towards terminal box and motor shaft extension).

Adjusting the pin clamp

Supply the brake coil with power, then supply the 24 VDC electromagnet wires ref. 1 and 2; cut the brake power supply, then cut the electromagnet power supply. THE ELECTROMAGNET MUST NOT BE SUPPLIED WITH POWER FOR MORE THAN 2 SECONDS.

Check that the fan is rotating freely. If it is still catching, re-adjust the eccentric adjusters ref. 537. Repeat the complete test procedure.

Once adjusted correctly, lock the two screws ref. 538 while holding the eccentric adjusters in position. Mark the spot with a wax dot (confirming correct adjustment).

4.3 - Electromagnet (Fig. 1)

Position the assembly ref. 504 by hooking the core into the groove of clamp ref. 535 and inserting the spring ref. 539. Push ref. 504 towards the fan and check that the core is centred in the groove of the clamp. Fix the assembly ref. 504 with the two screws ref. 541 coated with removable threadlocker. Adjust contact bracket ref. 544.

Encoder support and encoder if necessary

Mount the encoder support bracket ref. 105 on the yoke with the two screws ref. 205 coated with removable threadlocker (type Omnifit 100H for example).

Adjusting the electromagnet

Supply the brake coil with power, then the electromagnet, check that the brake has been released and cut the power supply to the coil, then the electromagnet (brake lock off).

Insert a 0.3 mm adjustment shim between the contact bracket ref. 544 and the micro-switch shim (1 kg max. force on the plunger).

Tighten nut ref. 550 coated with removable threadlocker. Place a wax dot on the point of contact.

With encoder: Mount the encoder, attach the electromagnet cable with 3 cable ties and the encoder cable with 2 of the 3 cable ties and bring them out in the stator.

Pre-tighten the 4 nuts ref. 040. Slide the cover onto the motor, push back the cable(s) during operation. Tighten the 4 nuts ref. 040.