

|  | Document Name | Date | Rev. | Page | Bulletin |
|---|--|--------|------|--------|----------|
| | HW FLANGE MOUNT MACHINE DISC BRAKE TESTING & QUALIFICATION | 3/1/17 | A | 1 of 4 | 1177 |

#93 DISC BRAKE TESTING & QUALIFICATION

MAYR CORP. ROBA-STOP® #100 BRAKE

Read and understand ALL of the following Brake Instructions before starting the procedure!!

**SAFE ELEVATOR OPERATION DEPENDS ON PROPER BRAKE OPERATION DURING
INSTALLATION, AS WELL AS THROUGHOUT THE LIFE OF THE ELEVATOR.**

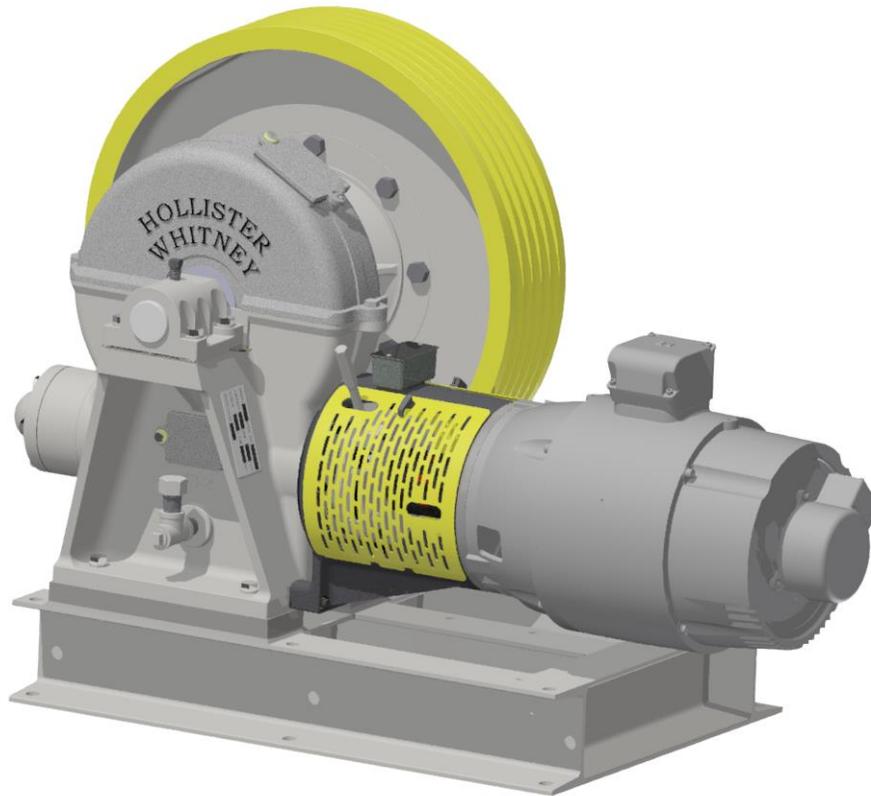


Figure 1

***ALL PERSONS INVOLVED WITH TESTING OR INSPECTING ELEVATOR EQUIPMENT
ARE CAUTIONED TO BE AWARE OF THE MANY POTENTIAL HAZARDS THAT EXIST
IN THE TESTING AND INSPECTION OF ELEVATOR EQUIPMENT.***



***BEFORE PERFORMING ANY TESTING, INSPECTION, OR MAINTENANCE CHECKS
ON EQUIPMENT OR SYSTEMS, TAKE ALL THE NECESSARY SAFETY PRECAUTIONS
TO PREVENT ANY UNINTENDED MOVEMENT DURING THE TESTING, INSPECTION,
OR MAINTENANCE PERIOD THAT MAY RESULT IN INJURY OR DEATH!***

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|---|--|-------------|-------------|-------------|-----------------|
|  | Document Name | Date | Rev. | Page | Bulletin |
| | HW FLANGE MOUNT MACHINE DISC BRAKE TESTING & QUALIFICATION | 3/1/17 | A | 2 of 4 | 1177 |

I. Introduction

Thank You for choosing a Hollister-Whitney Flange Mount Geared Traction Machine!

Hollister-Whitney has partnered with Mayr Corporation to provide a single circuit shaft mounted, virtually maintenance free, long lasting and extremely quiet, floating disc brake on the Hollister-Whitney Flange Mount Geared Traction Machine.

- The Hollister-Whitney Shaft Mounted “Pancake” style disc brake with floating disc (rotor):
 - Unaffected by end play
 - Adjustment free
 - Virtually maintenance free
 - Quiet operation
 - Built in brake switch
 - Onboard manual brake release with removable handle
- Electrical Information:

| Machine Model | Brake Model | Brake Style | Constant Line Voltage (VDC) | Pick Voltage | Pick Current (Amps) | Hold Voltage | Coil Resistance (Ohms) | Supplied |
|---------------|-----------------|--------------------|-----------------------------|----------------------------|---------------------|---------------|------------------------|----------|
| #44F | #93 (Mayr #100) | Shaft Mounted Disc | 115 | 104 Vdc (t = 0.7s) (226 W) | 2.17 | 52 Vdc (56 W) | 48 ± 5% | Standard |

II. Basic Service

General

To keep equipment functioning efficiently, good maintenance practices must be established, observed and maintained. Systematic inspections of the equipment should be scheduled and records kept of these inspections. Monitoring these records will indicate any sign of a potential issue.

Each installation has its own special conditions, so it is not possible for Hollister-Whitney to outline an overall plan for periodic maintenance. Hollister-Whitney would recommend, at a minimum, yearly inspections, but installation conditions may warrant a more frequent schedule. The maintenance contractor will need to make the final determination. Following are some tips to aid in setting up your maintenance plan:

Cleaning

Dirt, dust, excess lubrication, and moisture are the greatest enemies of electrical equipment and of maintenance teams in general. Dirt and dust layers on a machine can prevent heat dissipation, which can lead to overheating and eventual insulation breakdown. Many types of dust in an elevator machine room are electrically conductive and can also lead to insulation failure. Dust and dirt can draw moisture to unpainted surfaces causing oxidation that can cause brake faults. Excess lubrication can draw dust and dirt as well.

Dust and dirt can be removed from surfaces with a dry, lint-free cloth, or with suction. With suction, however, care must be taken to not build up or discharge static electricity while cleaning. Dry, compressed air (at less than 50psi) may also be used to remove dirt and dust, however, this needs to be

|  | Document Name | Date | Rev. | Page | Bulletin |
|---|--|--------|------|--------|----------|
| | HW FLANGE MOUNT MACHINE DISC BRAKE TESTING & QUALIFICATION | 3/1/17 | A | 3 of 4 | 1177 |

closely monitored as the compressed air will re-suspend the dust and dirt in the machine room atmosphere.

Use only Isopropyl Alcohol (IPA) for brake cleaning. **DO NOT use Commercial Brake Cleaning products** to clean the brakes as these products may affect the rotor pad (friction lining) materials. Never spray liquids of any kind directly on Hollister-Whitney equipment. Apply IPA to a clean, lint-free cloth prior to wiping the brake clean.

Wear Items

The Brake Linings on the Rotor are typically the only items that will exhibit any wear. Consult the next section of this manual for brake inspection procedures. In general, brake linings may be monitored using feeler gages to check the brake for maximum air gap. If the air gap is greater than 0.0315 inch, replace brake rotor.

III. Brake Inspection – Observe all appropriate Safety Precautions prior to Inspecting Brakes

The HW flange mount machine disc brake is practically maintenance-free. The friction lining on the rotor is robust and wear-resistant. This ensures a particularly long service life. However, the friction lining is subject to operational wear particularly on frequent EMERGENCY STOP braking actions. Therefore, the following inspections should be carried out at regular intervals:

- a. Inspection of air gaps "a" (min. 3x per year). See Figure 2.
 - To inspect the wear condition of the rotor (Item 5), measure the air gap "a" between the Armature (Item 4) and the Coil Carrier Assembly (Item 3).
 - Minimum "a" = 0.0197 ± 0.0028" (0.5 ± 0.07mm)
 - Maximum "a" = 0.0315" (0.8mm)
 - The rotor must be replaced when the maximum air gap has been reached.

Parts Identification

- 1.1 Hub Assembly
- 2 O-ring
- 3 Coil Carrier Assembly
- 4 Armature
- 5 Rotor
- 8.1 Hex Bolt
- 8.2 Washer
- 14 Thrust Spring
- 15 Shoulder screw

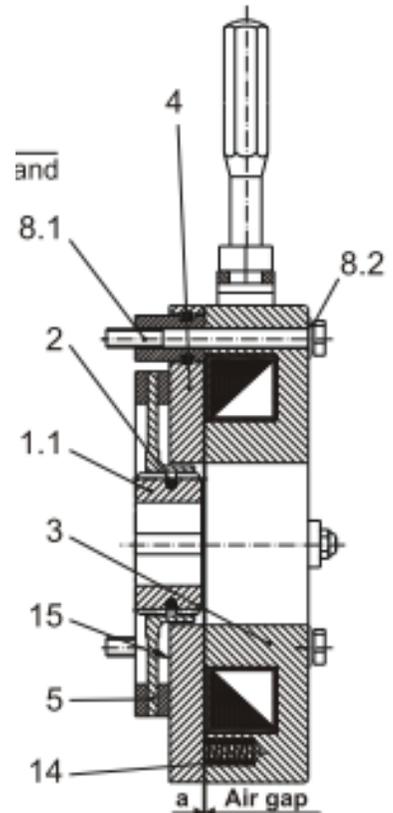


Figure 2

- b. Braking torque/retardation inspection (min. 1 x per year) should be conducted as outlined in ASME A17.1-xxxx/CSA B44-xx Sections 2.24.8.2.2 and 2.24.8.3

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|---|--|-------------|-------------|-------------|-----------------|
|  | Document Name | Date | Rev. | Page | Bulletin |
| | HW FLANGE MOUNT MACHINE DISC BRAKE TESTING & QUALIFICATION | 3/1/17 | A | 4 of 4 | 1177 |

IV. Brake Qualification (min. 1x per 5 years) – Observe all appropriate Safety Precautions prior to Testing Brakes

ASME A17.1/CSA B44 Code requires that the Driving Machine Brake for elevators permitted to carry passengers must be tested with 125% of the rated load. Accordingly, Brake Qualification/Acceptance Testing is conducted much like Category 5 periodic testing:

- Provide a temporary covering as necessary for the car floor to prevent damage.
- Place 125% of the rated load in the car at an upper landing.
- Load should be centered on each quarter of the car symmetrically with relation to center lines. To prevent damage that can occur as a result of exceeding design loading, Do Not load the car in increments exceeding 25% of the rated load.
- Run the car to the lowest landing by normal operating means.
- Verify that the driving machine safely lowers stops, and holds the car with this overload. The driving machine brake, on its own, shall hold the car with this overload. Note:
 - The elevator while being tested at this overload is not required to attain rated load performance under overload conditions,
 - The elevator while being tested at this overload is not required to raise this load, and
 - The elevator while being tested at this overload is not required to stop level within normal limits.
- It is recommended that the mainline switch be opened to confirm the brake is truly holding the load.
- Observing all appropriate Safety Precautions restore power to the elevator and remove test weights from the car.
- From the lowest landing, allow the empty car to accelerate so that the Driving Machine Brake is activated by the Governor Overspeed Switch.
- Verify that only the Driving Machine Brake is activated and that the deceleration provided by the brake does not exceed 32.2 feet/second² (9.8 meters/second²).
- Record all testing results in accordance with the local inspecting authority.

When all testing is complete, observe all appropriate Safety Precautions for returning the car to service.

| Notes and Observations | Date | Initials |
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The latest documentation can be found at: <http://www.hollisterwhitney.com/#tech-support>