

CEBMAG® TYPE BACKSTOP Models CEBMAG-400M

Service & Installation Instructions

P-1346-12-MC-A4
BOLETIM CEBMAG-400M



▲WARNING Failure to follow these instructions may result in product damage, equipment damage, and serious or fatal injury to personnel.

Installation, Lubrication, and Maintenance

General

It is important that the following recommendations for installation, lubrication and maintenance are used as the basis for proper care of CEBMAG backstop units. Improper care can cause failure of the CEBMAG backstop to brake the reversal speed of the kiln, thus permitting runaway and danger of centrifugal explosion to equipment.

As soon as the unit has been received, examine it carefully for damage in transit and report any breakage discovered to the transit company at once.

All tags and bulletins attached to the unit should be carefully read before placing the unit in operation and then filed for future reference.

▲CAUTION Care must be taken not to place the unit in operation until it has been filled with oil. See "Starting".

The various component parts referred to in this bulletin may be readily identified on CEBMAG Diagram and Parts List.

Electrical Grounding

Tapped holes are provided for electrical grounding of the unit. Contact Marland for the optional electrical grounding kit.

Storage

CEBMAG units have been coated internally with a preservative oil to protect the internal working parts from corrosion during shipment and a pre-operation period of not more than one week after arrival at the site before the unit is placed in regular operation. It is not necessary to flush out the preservative oil from the CEBMAG housing, as this oil will be diluted by introduction of the regular oil supply.

The shaft ends and couplings have also been coated with a preservative oil. Do not wash this protective coating from shaft ends or couplings.

If the unit is to be stored for a period of time, immediately fill with the proper quantity and grade of oil as shown on the nameplate attached on the top of the Worm Gear Housing (Part No. 17). To fill, remove the 1/2" square head pipe plug on the top of the housing and pour the quantity specified into the opening.

Replace plug. To keep the unit airtight, do not install static oil level gauge or breather-filter. At least once every tow weeks, pull the manual brake-release handle (Part No. 24) to "OFF" position, and rotate cam shaft (Part No. 11) in both directions. Then push handle in to "ON" position when storing.

If the unit is to be immediately installed and operated upon its arrival at the site, proceed with the installation as per the instructions that follow.

Foundations

Care should be taken in the selection of flexible foundations such as light steel or timber structures as they may product damaging effects.

A rigid foundation such as a reinforced concrete bed or substantial steel structure is recommended. The top of the foundation should be flat to prevent housing distortion.

If the CEBMAG unit is to be mounted on a concrete foundation, a steel base plate containing the foot mounting bolts should first be anchored to the foundation.

Installation

Lifting eyes are provided on the top of the backstop housing. These are to be used when moving, lifting and lowering the CEBMAG unit into position.

▲CAUTION CEBMAG units should never be handled by placing slings or chains around the shaft extension or around the brake housings.

A. Direction of Rotation

▲CAUTION The CEBMAG must be installed for desired freewheeling rotation to avoid damage due to over-speeding in the forward or reverse direction.

The manual brake release handle (Part No. 24) must be in the engaged (ON) position before checking the freewheeling rotation. The CEBMAG Backstop shaft will freewheel in one direction and hold in the opposite direction. The desired freewheeling direction of rotation should be checked as outlined in paragraphs (a) and (b).

The CEBMAG backstop is provided with double shaft extension (Part No. 11).

- (a) If both ends of the shaft are to be connected into the drive system, then the direction of freewheeling rotation must be determined by looking at the CEBMAG backstop from the emergency drive position.
- (b) If only one end of the shaft is to be connected into the drive system, then the direction of freewheeling rotation must be determined by looking at the CEBMAG backstop from the unused shaft position.

▲CAUTION Be sure the free rotation of the cam shaft is in the desired direction.

B. Drain Valve & Static Oil Gauge

Insert drain valve and static oil level sight gauge before CEBMAG unit is lowered into position. Drain valve (Part No. 37) and static oil level sight gauge (Part No. 36) may be located on the same or opposite sides of the housing. Use the pipe plug that was removed from the housing as safety plug in end of the drain valve.

C. Alignment

We recommend that the coupling hubs and sleeves for the CEBMAG unit be sent to our factory for mounting. Accurate alignment of the CEBMAG unit shaft with the shafts of the connected equipment is most important, and should be done in accordance with the coupling manufacturer's instructions. Misalignment may develop unnecessary overloads and stresses in shafts and bearings, and can be responsible for future of the equipment. If Marland Clutch has furnished the couplings, see Coupling Data Sheet enclosed with this bulletin.

CEBMAG backstop unit shaft ends should be connected to the auxiliary equipment shafts through suitable sizes of double-engagement, self-aligning,

gear-type flexible couplings. Do not use couplings of pin, flexible spring, or single-engagement types without the approval of Marland Clutch.

Never use heavy blows on CEBMAG unit cam shaft when aligning, mounting hubs, fitting keys, etc. Evidence of damage caused by disregard of these instructions is readily traceable, and Marland Clutch will not be held responsible for the failure of the affected part or parts.

After the CEBMAG has been lowered in place, it is desirable to use metal shims to obtain proper alignment of the CEBMAG unit cam shaft with the shafts of the auxiliary equipment. Locate housing axially to provide proper shaft gaps per coupling manufacturer or as shown on the certified drawing. Use shims under feet of housing, preferable U-shaped, to fit around mounting bolt evenly.

Failure to properly shim the CEBMAG unit housing feet may cause the housing to distort when the mounting bolts are tightened.

If the transverse axis of the CEBMAG is mounted on an incline, the longitudinal axis must be placed in a horizontal position and checked with a spirit level. If the horizontal axis of the CEBMAG is mounted on an incline, then the transverse axis must be placed in a horizontal position and checked with a spirit level.

It is important that the alignment of the CEBMAG unit cam shaft with the shafts of the auxiliary equipment be rechecked after the final tightening of the mounting bolts, and before the coupling sleeves are bolted together.

After the installation has been properly aligned, dowel the CEBMAG unit in place by using two dowels, locating them on the same side of the housing. Doweling will preserve the original alignment and proper shaft relationship should it become necessary to remove and reinstall the CEBMAG unit, thus providing every possible precaution against wrong reassembly.

D. Electromagnetic Brake

The CEBMAG unit is equipped with an electromagnetic brake (Part No. 22). This brake is spring set, electrically released. Electrical connections to the brake solenoid are to be made at the half-inch tapped hole on the side of the brake housing (Part No. 23).

Before placing in operation, be sure the manual brake-release handle (Part No. 24) is pushed into the brake "ON" position. The electric brake may be controlled from a single push-button at a control station. See the certified drawing for the AC or DC power supply required for releasing and holding the the electromagnetic brake.

▲CAUTION To prevent shock loading, rollback of the kiln must be completed before the electromagnetic brake is reengaged either electrically or manually.

Refer to the Stearns Electric Corp. sheets enclosed with this bulletin for instructions on installation and maintenance of the electromagnetic brake.

E. Emergency Manual Brake Release

The external manual brake-release handle (Part No. 24) is provided for release of the electromagnetic brake only in the event of a complete power failure. Pulling the handle out to the brake "OFF" position will release the brake and allow the kiln to reverse. A padlock arrangement is available to permit only authorized personnel access to the manual release.

Do not run the CEBMAG unit with electromagnetic brake in the manual release position. The manual release is intended for use only for emergency movement of the kiln, not as a substitute for full electrical release. The electromagnetic brake is not fully released when operated manually.

F. Centrifugal Brake

The centrifugal brake (Part No. 18) is to control the reversal speed of the kiln when the electromagnetic brake is released by electric control, or by the emergency manual release.

Do not remove the brake drum (Part No. 19) when the kiln is loaded and subject to reverse rotation. Without the brake drum, uncontrolled kiln rollback can occur and cause dangerous reverse over-speeding of the main or emergency drive elements.

Refer to the Hilliar Corp. Instruction Sheets enclosed with this bulletin for instructions on installation and maintenance of the centrifugal brake.

Starting

A. Fill with Oil

CEBMAG BACKSTOP UNITS ARE SHIPPED WITHOUT OIL.

Before placing in operation, the unit must be filled with oil of the grade specified on the nameplate, to the level indicated on the static oil level sight gauge (Part No. 36). The approximate quantity of oil for filling to the static oil level is shown on the certified drawing and nameplate.

▲CAUTION Oil containing high lubricity or EP additives must not be used in CEBMAG units. Never use grease for internal lubrication of the backstop. The use of improper lubricants could cause a malfunction resulting in equipment damage.

DEXRON III Automatic Transmission Fluid is recommended for year-around lubrication in Marland CEBMAG backstops. However, in excessively warm weather applications, S.A.E. #30 Motor Oil is also satisfactory.

▲CAUTION In either case mentioned above, the pour point of the lubricating oil must be well below the lowest expected ambient temperature. Contact your oil supplier.

To fill the unit with oil, thoroughly clean around the 1/2" square pipe plug (Part No. 35) to prevent foreign material from entering the housing. Remove the 1/2" square head pipe plug. Fill unit with oil through this opening, allowing sufficient time for the oil to seek its natural static level in the housing as indicated by the static oil level sight gauge. Insert the breather-filter (Part No. 34), using the elbow fittings that are furnished, in place of the square head pipe plug.

B. Lubricate Coupling

Lubricate couplings, mounted on the CEBMAG unit cam shaft ends in accordance with the coupling manufacturer's instructions. If Marland Clutch has furnished the couplings, see Coupling Data Sheet enclosed with this bulletin.

C. Initial Start-up

During the initial starting operation, check to determine if there is any evidence of localized heating; if the lubricant appears satisfactory; and whether there is any vibration present due to loose foundation bolts or misalignment of shafts. If any correction is necessary, it should be made before placing the CEBMAG unit into permanent operation.

Lubrication Maintenance

A. Oil Level

The CEBMAG unit is furnished with an oil level gauge to be located at the bottom, on the side of the housing, which indicates the STATIC oil level only. When the oil level is below the indicated level, sufficient oil should be added to bring the level up. To add oil: thoroughly clean around the oil fill plug (on top of the housing) to prevent foreign particles from entering the unit, remove the oil fill plug and breather filter, add oil, and reinstall oil fill plug and breather filter.

Improper maintenance methods are often responsible for dirt and foreign matter getting into the oil and subsequently into CEBMAG unit. Keep oil supply and containers, pumps, or funnels used for filling, clean and free from contamination.

B. Sampling of Oil

To obtain long, trouble-free service from your CEBMAG unit, it is necessary that the lubricating oil within the housing be clean and free from sludge at all times. To be assured of this, make frequent inspections of the condition of the oil by sampling a sufficient quantity through the sampling or drain valve.

Visual observation of the static oil level gage will provide a further check on oil purity.

The frequency with which the CEBMAG unit lubricating oil is sampled or replaced is an important consideration and can only be determined by individual experience. However, it is considered desirable to sample the lubricant several times at weekly intervals after the unit has been placed in operation. The results of such samplings will dictate the frequency for future samplings, but in any event should not exceed one month intervals.

Whenever sampling of the oil indicates contamination by moisture or foreign matter, such impurities may be withdrawn from the housing through the drain valve. The amount withdrawn should be immediately replaced with fresh specified oil. No. 6.A., "OIL LEVEL."

C. To Completely Change Oil

▲CAUTION If due to sever contamination, it becomes necessary to completely change the oil in the unit, observe the following recommendations for flushing and cleaning. However, it is recommended that the oil in the CEBMAG unit be completely changed and the housing flushed clean at least once a year.

- 1) The CEBMAG unit must not be in operation.
- 2) Remove oil fill plug with breather-filter.
- 3) Remove safety plug from drain valve.
- 4) Open drain valve and empty oil into a 10 or 12 quart container.
- 5) Slowly pour clean, fresh oil of the type specified on the nameplate from a quart, 2-quart, or a 1-gallon can through a funnel into fill hole on top of the housing. Continue to add new oil until clean oil flows into the drain container.
- 6) When flushing is completed, be sure to shut off drain valve and insert and tighten safety plug in valve. Replace plug and breather filter in fill hole on top of housing.

D. Breather-filter

The breather-filter should be cleaned at regular intervals. The frequency of such servicing depends upon the condition of the filter element when examined and cleaned after a short period of operation.

E. Couplings

Follow coupling manufacturer's recommendations regarding lubrication and maintenance of the couplings.

Maintenance Of Friction Type Brakes

▲CAUTION Inspection, maintenance, and servicing of the brakes can only be done when the kiln is stopped at a normal rest position without an unbalanced load condition present. Inspection should be done at each shutdown period, with a maximum of 3 month intervals.

A. Electromagnetic Brake

Refer to Stearns Electric Corp. sheets enclosed with this bulletin for instructions on installation and maintenance of the electromagnetic brake.

▲CAUTION The friction discs should be replaced when they have been worn to a thickness of 1/8 inch or less.

Be sure to push hand lever in, to brake "ON" position after inspection.

B. Centrifugal Brake

Refer to Hilliard Corp. Sheet enclosed with this bulletin for instructions on installation and maintenance of the centrifugal brake.

▲CAUTION The brake shoes should be replaced when the thickness of friction material remaining on the lining is 1/16 inch or less (bonded lining) or 3/32 inch or less (riveted lining). Keep the inside of the Centrifugal Brake Drum (Part No. 19) free from oil, corrosion, and loose particles.

▲CAUTION The brake drum should be replaced when the contact surface is worn 1/64 inch or more. Make certain that the fasteners holding the brake housing to the adapter ring are tight on reassembly.

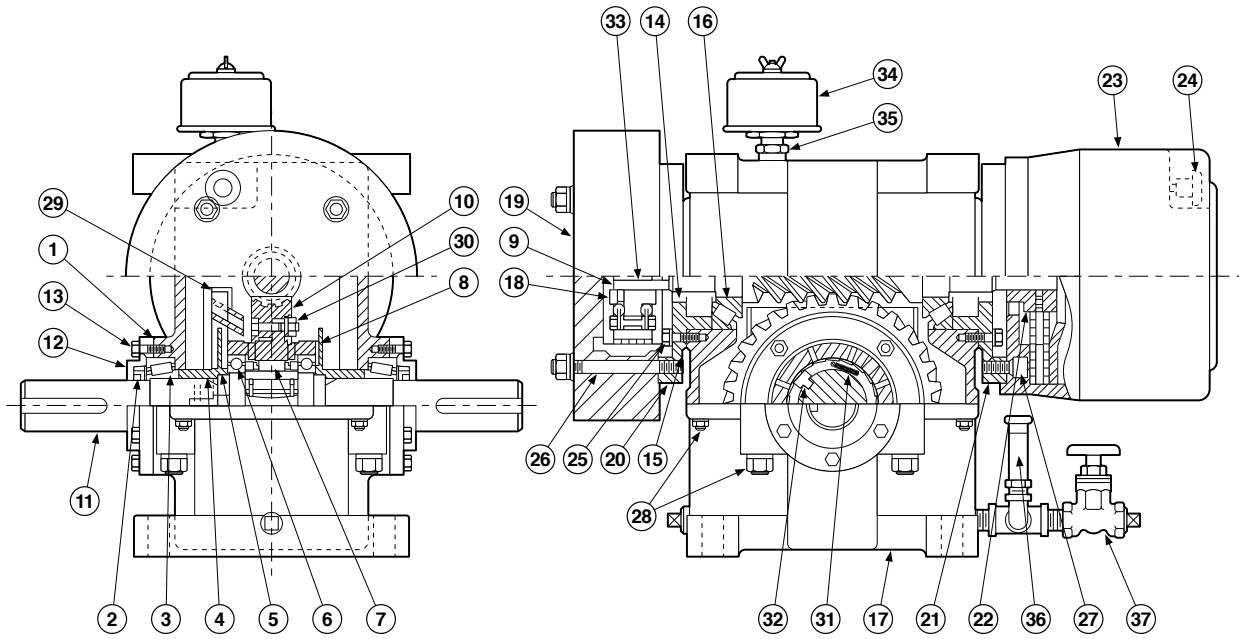
Service

It is the responsibility of the user to be sure the CEBMAG unit is in safe operating condition at all times. This may include returning the unit to Marland Clutch for periodic inspection, if necessary.

Individual experience and usage of this unit can only determine the actual frequency of lubrication and maintenance needed for safe operation.

Field disassembly and repair of clutch elements within the worm Gear Housing (Part No. 17) is not recommended. Should problems occur, contact Marland Clutch directly.

▲CAUTION Rotating equipment is potentially dangerous and could cause injury or damage if not properly protected. Follow applicable codes and regulations.



| Part # | Description | Part # | Description | Part # | Description |
|--------|-----------------------------|--------|------------------------------------|--------|-----------------------------------|
| 1 | Bearing Shims | 14 | Worm Shaft Oil Seal | 27 | Screws for 22 |
| 2 | Oil Seal | 15 | Worm Shaft Bearing Shims | 28 | Screws, lockwashers & Nuts for 17 |
| 3 | Tapered Roller Bearing | 16 | Worm Shaft Bearing | 29 | Oil Deflector |
| 4 | Spacer | 17 | Worm Gear Housing | 30 | Screws, Lockwashers & Nuts for 8 |
| 5 | Oil Slinger | 18 | Centrifugal Brake Hub Ass. | 31 | Clutch Spring |
| 6 | Ball Bearing | 19 | Centrifugal Brake Drum | 32 | Clutch Stop Lug |
| 7 | Clutch Roller Assembly | 20 | Centrifugal Brake Adapter Ring | 33 | Worm Shaft Keys |
| 8 | Outer Race | 21 | Electromagnetic Brake Adaptor Ring | 34 | Breather-Filter |
| 9 | Worm Shaft | 22 | Electromagnetic Brake Assembly | 35 | Oil Fill Plug |
| 10 | Worm Gear | 23 | Electromagnetic Brake Housing | 36 | Static Oil Level Gauge |
| 11 | Cam Shaft | 24 | Manual Brake Release Handle | 37 | Drain Valve & Fittings |
| 12 | Shaft Seal Cover | 25 | Screws & Lockwashers for 20 & 21 | | |
| 13 | Screws & Lockwashers for 12 | 26 | Studs, Lockwashers & Nuts for 19 | | |

Warranty

Marland Clutch warrants that it will repair or replace (whichever it deems advisable) any product manufactured and sold by it which proves to be defective in material or workmanship within a period of three (3) years from date of shipment. This warranty extends only to the original purchaser and is not transferable or assignable without Marland Clutch's prior consent.

This warranty covers normal use and does not cover damage or defect which results from alteration, accident, neglect, or improper installation, operation, or maintenance.

Marland Clutch's obligation under this warranty is limited to the repair or replacement of the defective product and in no event shall Marland Clutch be liable for consequential, indirect or incidental damages of any kind incurred by reasons of manufacture, sale or use of any defective product. Marland Clutch either assumes nor authorizes any other person to give any other warranty or to assume any other obligation or liability on its behalf.



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