Installation, Service and Parts List
Series 56,800 for Class I & II, Division 2
Manual Adjust Brakes
Rev: A & B

Tools required for installation and servicing:
- 3/8" hex wrench
- 5/16" nut driver
- 5/16" hex wrench
- 1/4" screwdriver
- 3/16" hex wrench
- 8" adjustable wrench

Typical Nameplate

IMPORTANT
Please read these instructions carefully before
installing, operating, or servicing your Stearns
Brake. Failure to comply with these instructions
could cause injury to personnel and/or damage
to property if the brake is installed or operated
incorrectly. For definition of limited warranty/
liability, contact Rexnord Industries, LLC,
and Stearns Division, 5150 S. International Dr.,
Cudahy, WI 53110, (414) 272-1100.

Caution
1. Installation and servicing must be made
carefully in compliance with all local safety
codes including Occupational Safety and Health
Act (OSHA). All wiring and electrical
connections must comply with the National Electric Code (NEC) and local electric codes
in effect. For additional information refer to
the Underwriters Laboratory (UL) website at:
http://www.ul.com/hazloc/codes.html

2. This brake may not be suitable for use in
certain atmospheres containing explosive
gases and dusts. HazLoc inspection
authorities are responsible for verifying and
authorizing the use of suitably designed and
installed HazLoc equipment. When questions arise consult local Authority
Having Jurisdiction (AHJ).

3. To prevent an electrical hazard, disconnect
power source before working on the brake.
If power disconnect point is out of sight,
lock disconnect in the off position and tag
to prevent accidental application of power.

4. Make certain power source conforms to
the requirements specified on the brake
nameplate.

5. Be careful when touching the exterior of an
operating brake. Allow sufficient time for
brake to cool before disassembly. Surfaces
may be hot enough to be painful or cause
injury.

6. Do not operate brake with housing removed.
All moving parts should be guarded.

7. Installation and servicing should be
performed only by qualified personnel
familiar with the construction and operation
of the brake.

8. For proper performance and operation, only
genuine Stearns parts should be used for
repairs and replacements.

9. After usage, the brake interior will contain
burnt and degraded friction material dust.
This dust must be removed before servicing
or adjusting the brake.

DO NOT BLOW OFF DUST using an air
hose. It is important to avoid dispersing
dust into the air or inhaling it, as this may
be dangerous to your health.

a) Wear a filtered mask or a respirator
while removing dust from the inside of
a brake.

b) Use a vacuum cleaner or a soft brush
while removing dust from the inside of
a brake.

GENERAL DESCRIPTION
This brake series contains one or more friction
discs (4) assembled alternately between the
endplate (2) friction surface, stationary disc(s)
(3) and pressure plate (5). The stationary
discs are restrained from rotating by being
keyed into the endplate. With the brake
released, all disc pack components are free to
slide axially and the friction disc(s) to rotate.

Brake release occurs when the solenoid coil
is electrically energized, causing the solenoid
plunger to travel a specified distance and
through a lever system, overcoming the
pressure spring force. This action releases
the clamping force on the disc pack, thereby
allowing the friction disc(s) and brake hub to
rotate.

Brake sets and torque is produced when
electric current to the solenoid coil is
interrupted, thereby collapsing the solenoid
magnetic field. The solenoid plunger returns
to its original de-energized position allowing
the lever arm to move forward by virtue of the
compressed torque springs. This action
compresses the disc pack components which
applies a retarding torque to the brake hub and
ultimately restores the brake to a spring-set
static condition.

CAUTION 1: While the brake is equipped with
a manual release to allow manual shaft rotation,
the motor should not be run with the manual
release engaged, to avoid overheating the
friction disc(s).

CAUTION 2: Do not operate manual release
until brake is installed to preserve alignment of
friction disc(s) for ease of brake assembly.
**BRAKE MOUNTING (Manual Adjust)**

1. Place hub on motor shaft.

2. Position hub on shaft as shown.

3. Tighten set screws to motor shaft.

4. Remove brake housing and gasket.

5. Slide endplate over hub noting position of stabilizer springs, if used. (Refer to Friction Disc Replacement, View 4 and 4A.)

6. Mount brake endplate to motor C-face.

7. Connect coil leadwires to power supply. Refer to nameplate for voltage rating.*

   **Caution:** Keep wiring away from pinch points and moving components.

8. Replace brake housing and gasket and tighten to 12 lb-in.

---

* For vertical assembly of 20 & 25 lb-ft brakes, refer to page 5.

---

*Refer to Figure 7 (page 5) for control circuit wiring.
AIR GAP ADJUSTMENT

Series 56,800

As friction disc wear the air gap will increase. When plunger gets to the reset position, the air gap must be adjusted.

1. To increase air gap, turn both adjusting screws (10) counterclockwise.

<table>
<thead>
<tr>
<th>Disc</th>
<th>Torque</th>
<th>Min/Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.5, 3 &amp; 6</td>
<td>1.5, 3 &amp; 6</td>
<td>.38&quot; - .69&quot;</td>
</tr>
<tr>
<td>10 &amp; 15</td>
<td>10 &amp; 15</td>
<td>.45&quot; - .69&quot;</td>
</tr>
<tr>
<td>20 &amp; 25</td>
<td>20 &amp; 25</td>
<td>.50&quot; - .69&quot;</td>
</tr>
</tbody>
</table>

To remove brake housing and gasket.

2. To decrease air gap, turn both adjusting screws (10) clockwise.

Maximum gap should never exceed .69".

FRICTION DISC REPLACEMENT

Series 56,800

1. Remove brake housing and gasket.

2. Remove support plate screws and lift support from brake.

3. Remove and discard old friction disc.

4. Install new friction disc(s) and stationary disc(s) as shown.

4A. * Stabilizer springs are for use on single disc units only. Position springs opposite set screw holes.

*For brakes with vertical springs, see page 5.

5. Reposition support plate on endplate and tighten mounting screws to 55 lb-in.

6. Reposition housing and tighten nuts to 12 lb-in.
**COIL REPLACEMENT**

Series 56,800

1. **Remove brake housing.**

2. **Disconnect coil leadwires from power source.**

3. **Insert screwdriver between support plate and lever arm and pry forward.**

4. **Lift plunger/solenoid lever assembly out of coil.**

5. **Remove plunger guide.**

6. **Discard coil.**

7. **A) Insert new coil. (Lead wires in same position as old coil.) B) Insert plunger guide.**

8. **A) Reinsert plunger into coil; drop pivot pin into cradle of support plate. B) Remove screwdriver.**

9. **Reconnect coil leadwires to power source.**

10. **Reassemble housing. Tighten to 12 lb-in.**

---

**Coil Wiring**

- **Single Voltage**
  - Twist lines 1 & 3
  - Connect line voltage here
- **Dual Voltage Coil at Low Voltage**
  - Twist lines 2 & 4
  - Connect line voltage here
- **Dual Voltage Coil at High Voltage**
  - Connect line voltage here
  - Twist lines 3 & 4
  - Use wire nut
Vertical Brake Assembly

Single disc brakes (1.5, 3 & 6 lb-ft) are universal mount and do not require separator springs. Double disc brakes (10 & 15 lb-ft.) universal mount but require separator springs which are preassembled to the stationary disc. These discs are inserted spring first into the brake. Refer to figure 5A below.

Installation Procedure for 20 and 25 lb-ft brakes if mounted vertical to motor shaft (These brakes are factory assembled for horizontal operation.)

Remove support plate by loosening the three mounting screws.
Remove stationary discs and friction discs.
Using the spring kit provided with this brake, insert three springs of identical color into each stationary disc hole. Springs are inserted from the side opposite the indent mark (see Figure 5B). Stationary disc should be placed on a clean flat surface with a clearance hole to allow the tip of the spring to extend through the bottom side of the stationary disc. Using the 1/8” pin provided and a hammer, drive the hold until the large coil diameter bottoms out against the disc.

Reassemble the disc pack with the stationary discs in the proper arrangement shown in Figure 5C. Mount support plate and torque screws evenly to 55 in-lbs.

Torque Adjustment

Brake is factory set for nominal rated static torque which is maximum torque. Torque may be decreased up to 50% for increased stopping times up to 2 second stop time.
The torque on the 1-1/2 lb-ft brake may not be reduced.
Turn both adjustment nuts (11), Figure 6, equal amounts counterclockwise to decrease torque. See Table A for torque reduction permissible amounts.

General Maintenance

Warning! Any mechanism or load held in position by the brake should be secured to prevent possible injury to personnel or damage to equipment before any disassembly of the brake is attempted or before the manual release knob is operated on the brake.
Observe all cautions listed at the beginning of this manual before attempting to service brake.

TABLE A

<table>
<thead>
<tr>
<th>Nominal Static Torque (lb-ft)</th>
<th>Original Spring Height (inches)</th>
<th>Maximum Counter-clockwise Turns</th>
<th>% Torque Reduction per Turn</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-1/2</td>
<td>1.69</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>3</td>
<td>1.47</td>
<td>7</td>
<td>7%</td>
</tr>
<tr>
<td>6</td>
<td>1.47</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>1.53</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>1.53</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>1.53</td>
<td></td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>1.47</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

General Maintenance

Warning! Any mechanism or load held in position by the brake should be secured to prevent possible injury to personnel or damage to equipment before any disassembly of the brake is attempted or before the manual release knob is operated on the brake.
Observe all cautions listed at the beginning of this manual before attempting to service brake.

WARNING

The thermal protector TSW2 (21A) mounted in this brake must be wired into control circuit to limit the brake internal surface temperature.

TSW2 will open motor circuit and cause brake to engage. In extremely moist atmospheres a heater is recommended and should remain energized continually.

Rating TSW2

<table>
<thead>
<tr>
<th>TYPICAL CONNECTION DIAGRAM</th>
</tr>
</thead>
<tbody>
<tr>
<td>125 VA Hi-pot Test</td>
</tr>
<tr>
<td>Voltage 1250 Maximum</td>
</tr>
</tbody>
</table>

For information on dynamic torque and calculation of thermal capacity in use, refer to Application Engineering Section of Catalog 200 (Stearns Spring-Set Disc Brakes.)
Information required when ordering replacement parts:
- Give Part Number of parts or kits needed, Brake Model Number, and Brake Serial Number. The Brake Model and Serial Number may identify special brakes not covered by this parts list.
- When ordering hubs, specify shaft diameter (hub bore) and keyway.

### TABLE 1

**Components of Standard Brake**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Part Number</th>
<th>1.5 and 3</th>
<th>6</th>
<th>10</th>
<th>15</th>
<th>20 and 25</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Hardware Kit - side release</td>
<td>5-66-1015-00</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Not shown</td>
<td>Plug/Gasket kit - NEMA 4</td>
<td>5-63-0532-00</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Not shown</td>
<td>Plug/Gasket kit - NEMA 4 (3 disc)</td>
<td>5-63-0534-00</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>Housing - side release</td>
<td>5-07-5050-00</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>Pressure plate (universal mount)</td>
<td></td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Stationary disc kit (universal mount)</td>
<td>8-003-515-00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>5-66-8354-00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not shown</td>
<td>Vertical spring kit</td>
<td>5-63-0525-00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>Friction disc kit</td>
<td>5-66-8462-00</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>*</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Stabilizing spring (part of friction disc kit)</td>
<td></td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>Thermostat</td>
<td>9-62-8026-00</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>16</td>
<td>Hub and set screw assembly (1 disc)</td>
<td>5/8 bore</td>
<td></td>
<td></td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7/8 bore</td>
<td></td>
<td></td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1-1/8 bore</td>
<td></td>
<td></td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Hub and set screw assembly (2 &amp; 3 disc)</td>
<td>5/8 bore</td>
<td></td>
<td></td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7/8 bore</td>
<td></td>
<td></td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1-1/8 bore</td>
<td></td>
<td></td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>Endplate &amp; seal assembly</td>
<td>1 disc</td>
<td></td>
<td></td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 &amp; 3 disc</td>
<td></td>
<td></td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

*Certain multiple friction disc model numbers require a single stabilizer clip (4S) added to each friction disc. If your brake has these clips, they must be replaced when the friction disc is replaced. This clip is included as part of the friction disc kit 5-66-8462-00.
**TABLE 2**
Components of Support Plate and Coil Assembly

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>Bearing</td>
<td>8-006-501-00</td>
</tr>
<tr>
<td>8</td>
<td>Solenoid lever</td>
<td>8-008-504-01</td>
</tr>
<tr>
<td>8R</td>
<td>Retaining ring</td>
<td>9-03-0057-00</td>
</tr>
<tr>
<td>8W</td>
<td>Spacer</td>
<td>9-45-0168-00</td>
</tr>
<tr>
<td>11N</td>
<td>Torque adjustment nut</td>
<td>9-40-3928-00</td>
</tr>
<tr>
<td>10</td>
<td>Wear adjustment screw</td>
<td>9-17-8420-00</td>
</tr>
<tr>
<td>11</td>
<td>Pressure spring</td>
<td>9-70-1215-00</td>
</tr>
<tr>
<td>11S</td>
<td>Pressure spring</td>
<td>9-70-1523-00</td>
</tr>
<tr>
<td></td>
<td>Pressure spring</td>
<td>9-70-1524-00</td>
</tr>
<tr>
<td></td>
<td>Spring washer</td>
<td>9-46-0010-00</td>
</tr>
<tr>
<td>17</td>
<td>Lever arm and stop nut assembly</td>
<td>5-17-5011-00</td>
</tr>
<tr>
<td>26</td>
<td>Bearing pin</td>
<td>9-29-4826-00</td>
</tr>
<tr>
<td>29A</td>
<td>Plunger stop</td>
<td>8-094-503-00</td>
</tr>
<tr>
<td>126</td>
<td>Support plate and spring stud assembly (3 housing studs)</td>
<td>5-26-5020-00</td>
</tr>
<tr>
<td>131</td>
<td>Pivot pin</td>
<td>9-29-4836-00</td>
</tr>
<tr>
<td>142S</td>
<td>Mounting screws</td>
<td>9-25-9013-00</td>
</tr>
<tr>
<td>Z</td>
<td>No. 4 Solenoid kit</td>
<td>5-66-5047-00</td>
</tr>
</tbody>
</table>

**TABLE 3**
Contents of Kits and Assemblies

<table>
<thead>
<tr>
<th>Item</th>
<th>Kit Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Hardware kit – NEMA 4 (5-66-101X-00)</td>
</tr>
<tr>
<td></td>
<td>1 – Endplate oil seal</td>
</tr>
<tr>
<td></td>
<td>1 – Drain plug</td>
</tr>
<tr>
<td></td>
<td>3 – Housing nuts</td>
</tr>
<tr>
<td></td>
<td>3 – Housing nut seal washers</td>
</tr>
<tr>
<td></td>
<td>2 – Endplate conduit pipe plugs</td>
</tr>
<tr>
<td></td>
<td>1 – Housing-to-endplate gasket</td>
</tr>
<tr>
<td>3</td>
<td>Stationary disc kit (5-66-8354-00)</td>
</tr>
<tr>
<td></td>
<td>1 – Stationary disc</td>
</tr>
<tr>
<td>4</td>
<td>Friction disc kit (5-66-8462-00)</td>
</tr>
<tr>
<td></td>
<td>1 – Friction disc</td>
</tr>
<tr>
<td></td>
<td>2 – Stabilizing springs</td>
</tr>
<tr>
<td>16</td>
<td>Hub and screw assembly – all types, all bores (5-16-515X-00)</td>
</tr>
<tr>
<td></td>
<td>1 – Brake hub</td>
</tr>
<tr>
<td></td>
<td>2 – Set screws</td>
</tr>
<tr>
<td>Z</td>
<td>No. 4 solenoid kit (5-66-5047-00)</td>
</tr>
<tr>
<td></td>
<td>1 – Plunger</td>
</tr>
<tr>
<td></td>
<td>1 – Solenoid link</td>
</tr>
<tr>
<td></td>
<td>1 – Frame (including mounting bracket)</td>
</tr>
<tr>
<td></td>
<td>1 – Solenoid link cap screw</td>
</tr>
<tr>
<td></td>
<td>1 – Solenoid link nut</td>
</tr>
<tr>
<td></td>
<td>3 – Solenoid mounting screws</td>
</tr>
<tr>
<td>12A</td>
<td>No. 4 AC coil kit (5-66-64XX-05) and Coil / Top Plunger guide / Wire nut</td>
</tr>
</tbody>
</table>