

# Series 56,000; 56,100; 56,200; 56,300; 56,400; 56,500; 56,600; 56,700; and 56,900

## Mounting Face: NEMA 56C, 143TC and 145TC

### Engineering Specifications

Maximum Solenoid Cycle Rate: ① Thermal Capacity: ②  
 AC 36 cycles/min DC Horizontal 9 hp-sec/min (112 watts)  
 10 cycles/min Vertical 6.5 hp-sec/min (80 watts)

- ① Maximum solenoid cycle rate is based on ambient temperature of 72°F (22°C) with 50% duty cycle. Does not relate to brake cycle rate (see Thermal Capacity).
- ② Thermal capacity rating is based on ambient temperature of 72°F (22°C), stop time of one second or less, with no heat absorbed from motor. Refer to Selection Procedure Section.

Brake set and release times in milliseconds, when brake and motor are switched separately (for T1/T2 definitions, see page 101):

Static Torque lb-ft	Coil Size	Coil Strength	T1	T2
1.5 - 25	4	3	25	14

### Series 56,000; 56,100; 56,300; 56,500; and 56,700

Nominal Static Torque lb-ft (Nm)	Number of Friction Discs	Coil Size AC	Coil Strength	Inertia (WK <sup>2</sup> )
				lb-ft <sup>2</sup> (kgm <sup>2</sup> x 10 <sup>-4</sup> )
1.5-3 (2-4)	1	4	3	.008 (3.36)
6 (8)	1	4	3	.008 (3.36)
10 (14)	2	4	3	.014 (5.88)
15 (20)	2	4	3	.014 (5.88)
20 (27)	3	4	3	.020 (8.40)
25 (34)	3	4	3	.020 (8.40)

### Series 56,200; 56,400; 56,600; and 56,900

Nominal Static Torque lb-ft (Nm)	No. of Friction discs	Coil Size AC	Coil Strength	Inertia (WK <sup>2</sup> )
				lb-ft <sup>2</sup> (kgm <sup>2</sup> x 10 <sup>-4</sup> )
3-6 (4-8)	2	4	3	.014 (5.88)
10 (14)	2	4	3	.014 (5.88)
15 (20)	2	4	3	.014 (5.88)
20 (27)	3	4	3	.020 (8.40)
25 (34)	3	4	3	.020 (8.40)

### Current Ratings (amperes)

Solenoid Coil Size*	Coil Strength	AC Current	Voltage: 60 Hz					Voltage: 50 Hz			
			115	200	230	400	460	575	110	220	380
4	3	Inrush Holding	4.6 .4	2.5 .2	2.3 .2	1.2 .1	1.0 .1	.9 .08	4.1 .4	2.0 .2	1.3 .1

### Ordering and Identification Information

The following example and tables provide information for selecting the appropriate three-letter suffix when ordering a Stearns Brake.

Example of a complete part number:

1-056-034-00-BFF — Lead wire position  
 Series — (internal and external, left and right) standard  
 Torque — 230 Vac  
 Enclosure — 5/8 bore and 3/16 x 3/32 keyway

### Hub Selection

Character	Bore (in.)	Keyway** (in. x in.)
A*	5/8	1/8 x 1/16
B	5/8	3/16 x 3/32
C	3/4	3/16 x 3/32
D	7/8	3/16 x 3/32
E	1-1/8	1/4 x 1/8
F*	1-1/4	1/4 x 1/8
K	1/2	1/8 x 1/16
L*	1	1/4 x 1/8
N*	9/16	1/8 x 1/16
O*	11/16	3/16 x 3/32
P*	1-1/16	1/4 x 1/8
R*	13/16	3/16 x 3/32
S*	15/16	1/4 x 1/8
Z	.460	pilot bore

Minimum bore is .500. Maximum allowable bore is 1.25 (maximum shaft length not to exceed end of hub). For through-shaft applications, .875 is maximum

\*These bores are non-standard.

\*\*Keyseats made to ANSI B17.1 Standard.

### Motor Frame Adapters: Series 56,000 through 56,600

**WARNING!** Before selecting an adapter to mount a brake on a larger motor frame, the torque and thermal capacity required by the application should be determined as shown in the "Selection Procedure" section. A larger motor may indicate a requirement for greater thermal capacity than the brake is designed for. The brake selection must be matched to the motor and application requirements, before use of an adapter is considered.

To Adapt to NEMA Frame Size	AK Dim.	Reg. No.	Brake Enclosure ①	Brake Torque	Adapter Stock Number	Additional Shaft Length Required
	in. (mm)					in. (mm)
182TC 184TC 213TC 215TC 254TC 256TC	8.50 (215.90)	-9	IP 23	1.5-15	5-55-5041-00	.94 (23.81)
	8.50 (215.90)	-9	IP 56	1.5-6	5-55-5041-00	.94 (23.81)
	8.50 (215.90)	-9	IP 23	20 & 25	5-55-5043-00	.94 (23.81)
	8.50 (215.90)	-9	IP 56	10-25	5-55-5043-00	.94 (23.81)

① 56,300 Series have UL Type 1 enclosure. For adapter dimensions, see Technical Data.

### Standard AC Voltage Ratings

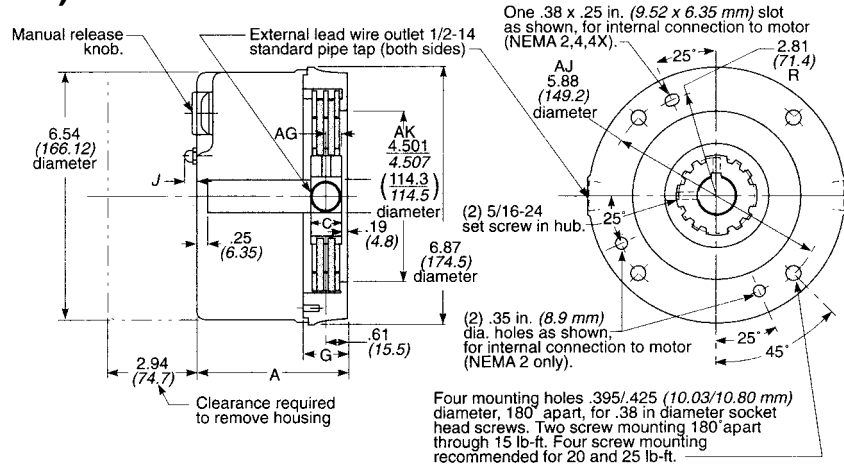
Voltage Character	Coil Type	Wiring Configuration #1		Wiring Configuration #2			
		@60Hz	@50Hz	@60Hz	@50Hz		
B	1	115	96	N/A			
D		132	110				
E		200	167				
F		230	192				
H		264	220				
L		456	380				
N	575	479	N/A				
O	2	264			220	132	110
P		230			192	115	96
Q		460			383	230	192
R		400			333	200	167

Modifications are available - see SAB Modification Section.

See page 9 for nominal coil voltage operating range.

Dimensional Drawings are on the pages following.

**Series 56,000 (1-056-0XX-00) &  
Series 56,000-80 (1-056-0XX-80)**  
Mounting Face: NEMA 56C,  
143TC and 145TC  
4.5" AK, 5.88" AJ



Dimensions for estimating only.  
For installation purposes request certified prints.

**Enclosure:** Lightweight Steel Housing, Aluminum Endplate

**IP Rating:** IP 23, 56

**Enclosure Type:** UL Type 1, UL Type 4x

**Mounting:** Fanguard mounted brakes requiring IP 56 protection may require additional sealing measures beyond seals provided with the brake. Refer to Installation & Service Instruction sheets.

**Installation and Service:** P/N 8-078-905-60

**Parts List:** P/N 8-078-906-00

**Modifications:** Pages 54-63

**Series 56,000**

Nominal Static Torque lb-ft (Nm)	IP Rating	Enclosure Type	Basic Model Number
			AC
1.5 (2)	IP 23	UL Type 1	1-056-001-00
	IP 56	UL Type 1	1-056-002-00
	IP 56	UL Type 4x	1-056-004-00
3 (4)	IP 23	UL Type 1	1-056-011-00
	IP 56	UL Type 1	1-056-012-00
	IP 56	UL Type 4x	1-056-014-00
6 (8)	IP 23	UL Type 1	1-056-021-00
	IP 56	UL Type 1	1-056-022-00
	IP 56	UL Type 4x	1-056-024-00
10 (14)	IP 23	UL Type 1	1-056-031-00
	IP 56	UL Type 1	1-056-032-00
	IP 56	UL Type 4x	1-056-034-00
15 (20)	IP 23	UL Type 1	1-056-041-00
	IP 56	UL Type 1	1-056-042-00
	IP 56	UL Type 4x	1-056-044-00
20 (27)	IP 23	UL Type 1	1-056-051-00
	IP 56	UL Type 1	1-056-052-00
	IP 56	UL Type 4x	1-056-054-00
25 (34)	IP 23	UL Type 1	1-056-061-00
	IP 56	UL Type 1	1-056-062-00
	IP 56	UL Type 4x	1-056-064-00

**IP 23 Dimensions**

Nominal Static Torque lb-ft (Nm)	Dimensions in Inches (Dimensions in Millimeters)					Wt lbs (Kg)
	A	AG	C Hub Width	G	J	
1.5 (2)	4.06 (103.1)	.52 (13.2)	.81 (20.6)	1.23 (31.2)	.31 (7.9)	8 (3.6)
3 (4)						8 (3.6)
6 (8)						8 (3.6)
10 (14)						8 (3.6)
15 (20)						8 (3.6)
20 (27)	4.50 (114.3)	.52 (13.2)	1.18 (30.0)	1.66 (42.2)	.31 (7.9)	9 (4.0)
25 (34)						9 (4.0)

**IP 56 Dimensions**

Nominal Static Torque lb-ft (Nm)	Dimensions in Inches (Dimensions in Millimeters)					Wt lbs (Kg)
	A	AG	C Hub Width	G	J	
1.5 (2)	4.06 (103.1)	.47 (11.9)	.81 (20.6)	1.21 (30.7)	.37 (9.4)	8 (3.6)
3 (4)						8 (3.6)
6 (8)						8 (3.6)
10 (14)	4.51 (114.6)	.59 (15.0)	1.18 (30.0)	1.66 (42.2)	.37 (9.4)	9 (4.0)
15 (20)						9 (4.0)
20 (27)						9 (4.0)
25 (34)						9 (4.0)

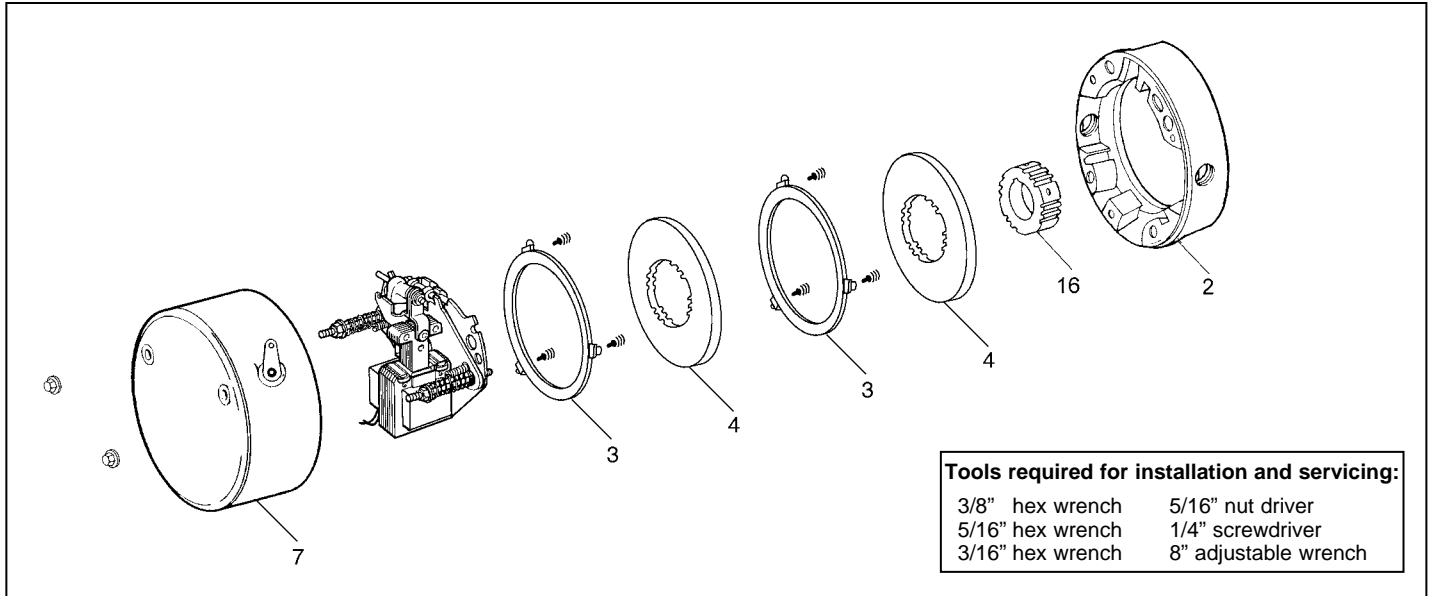
**Series 56,000-80\***

Nominal Static Torque lb-ft (Nm)	IP Rating	Enclosure Type	Basic Model Number
			AC
1.5 (2)	IP 56	UL Type 1	1-056-002-80*
3 (4)	IP 56	UL Type 1	1-056-012-80*
6 (8)	IP 56	UL Type 1	1-056-022-80*
10 (14)	IP 56	UL Type 1	1-056-032-80*
15 (20)	IP 56	UL Type 1	1-056-042-80*
20 (27)	IP 56	UL Type 1	1-056-052-80*
25 (34)	IP 56	UL Type 1	1-056-062-80*

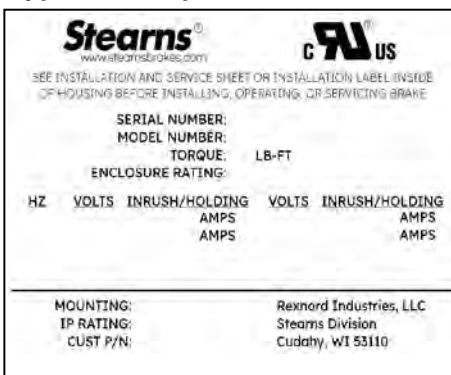
\* 56,000-80 Series includes a C-face gasket only, no hub seal.

## Parts List for 1-056-200 Series (rev. C) Manual Adjust Brakes

For Installation and Service Instructions refer to sheet part number 8-078-905-60. Instructions and parts list also available at [www.stearnsbrakes.com](http://www.stearnsbrakes.com).



### 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, Stearns Division, 5150 S. International Dr., Cudahy, WI 53110, (414) 272-1100.

### Caution

1. Installation and servicing must be made 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.

2. Do not operate the brake in atmospheres containing explosive gases or dusts.
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.

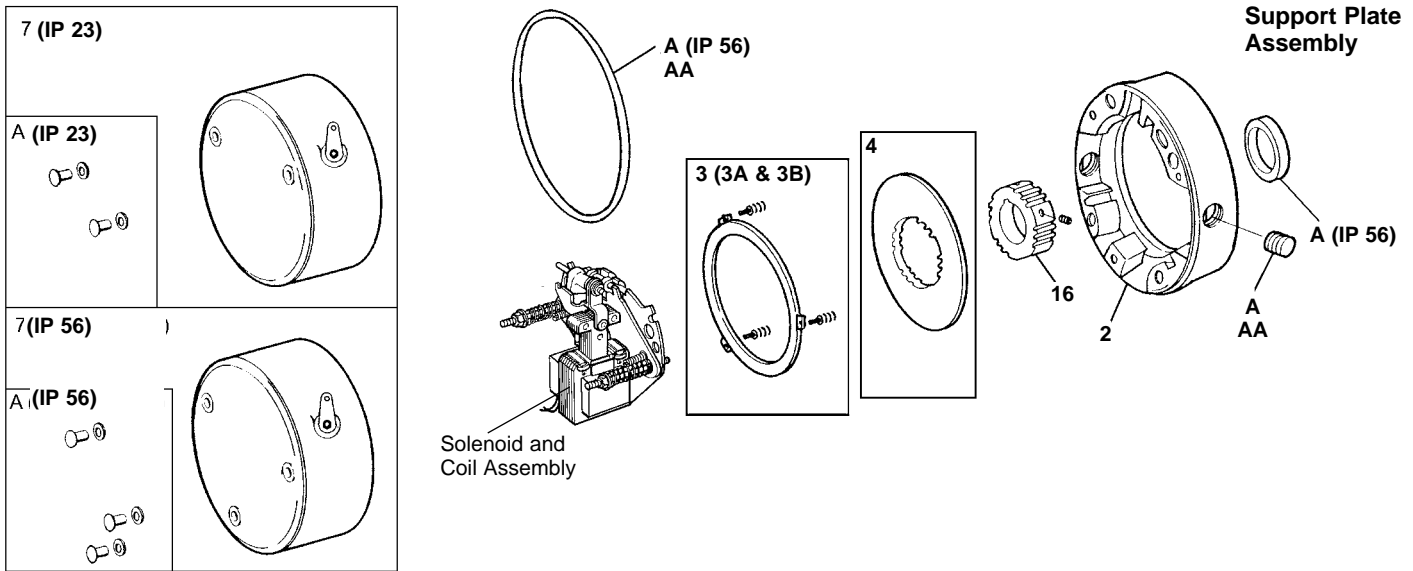
- a) Wear a filtered mask or a respirator while removing dust from the inside of a brake.
- b) Use a vacuum cleaner or a soft brush to remove dust from the brake. When brushing, avoid causing the dust to become airborne. Collect the dust in a container, such as a bag, which can be sealed off.

**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.

- Enclosure Type is specified as follows:

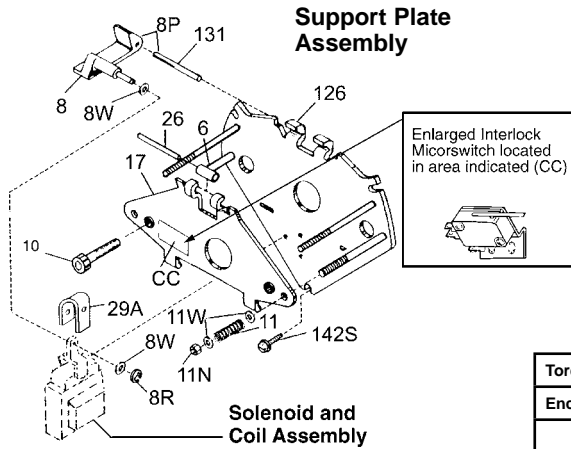
UL Type 1, IP 23 (formerly referred to as standard)  
 UL Type 1, IP 56 (formerly referred to as DTWP dust-tight waterproof)  
 UL Type 4X, IP 56 (formerly referred to as BISSC washdown)



**TABLE 1**  
 Components of Standard AC Brake

Item	Description	Part Number ↓	Torque (lb-ft)			3			6			10			15			20 and 25									
			1	1	4X	1	1	4X	1	1	4X	1	1	4X	1	1	4X	1	1	4X							
A	Hardware kit - UL Type 1, IP 23 (all revisions) Hardware kit - UL Type 1, IP 56 (revision C) Hardware kit - UL Type 4X, IP 56 (revision C)	5-66-1014-00 5-66-1019-00 5-66-1020-00	1			1			1			1			1			1			1			1			
AA	Plug/Gasket kit **Close couple	— UL Type 1, IP 56 — UL Type 4X, IP 56 — UL Type 1, IP 56, 3 disc — UL Type 4X, IP 56, 3 disc	5-63-0532-00 5-63-0533-00 5-63-0534-00 5-63-0537-00		1			1			1			1			1						1			1	
7	Housing & release knob kit — UL Type 1, IP 23 Housing & release knob kit — UL Type 1, IP 56 Housing & release knob kit — UL Type 4X, IP 56	5-07-5040-00 5-07-5041-00 5-07-5043-00	1			1			1			1			1			1			1			1			1
3	Stationary disc kit (1 disc universal, 3 disc horizontal)	5-66-8354-00																					3	3	3		
3A	Stationary disc kit (2 disc universal)	5-66-8355-00	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3B	Stationary disc kit (3 disc universal)	5-66-8356-00																									
Not Shown	Vertical spring kit (3 disc)	5-63-0525-00																					1	1	1		
4	Friction disc kit	5-66-8462-00	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3		
DP	Disc pack kit — 2 disc Disc pack kit — 3 disc	5-66-8602-00 5-66-8603-00	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
16	Hub and set screw assembly	5/8 bore 7/8 bore 1-1/8 bore	5-16-5153-00-01B 5-16-5153-00-01D 5-16-5153-00-01E	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2	Endplate Seal assembly Seal Assembly	2 & 3 disc (UL Type 1, IP 23) 2 & 3 disc (UL Type 1, IP 56) 2 & 3 disc (UL Type 4X, IP 56)	8-002-582-01-30F 5-02-5044-00 5-02-5046-00	1			1			1			1			1			1			1			1		1

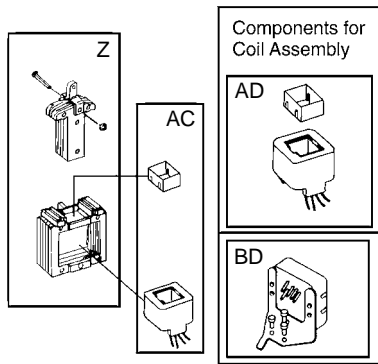
\*\* Close coupled brakes are identified by an 8 in the 8th digit. Example: 1-056-XXX-8X.



**TABLE 2**  
Components of Support Plate and Coil Assembly

			Torque (lb-ft)		3		6		10		15		20		25	
			Enclosure Type		1	4X	1	4X	1	4X	1	4X	1	4X	1	4X
			Support Plate Assy. (Items 6 through 131 and Z)→		5-42-5601-00-44	5-42-5601-00-34	5-42-5605-00-44	5-42-5605-00-34	5-42-5607-00-44	5-42-5607-00-34	5-42-5609-00-44	5-42-5609-00-34	5-42-5611-00-44	5-42-5611-00-34	5-42-5611-00-44	5-42-5611-00-34
Item	Description	Part Number↓														
6	Bearing	8-006-501-00	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8	Solenoid lever	8-008-504-01			1	1	1	1	1	1	1	1	1	1	1	1
8P	Solenoid lever & pin assembly	8-008-507-00	1	1												
8R	Retaining ring	9-03-0057-00	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8W	Spacer	9-45-0168-00	2	2	2	2	2	2	2	2	2	2	2	2	2	2
11N	Torque adjustment nut	9-40-3928-00	2	2	2	2	2	2	2	2	2	2	2	2	2	2
10	Wear adjustment screw	9-17-8420-00	2	2	2	2	2	2	2	2	2	2	2	2	2	2
11	Pressure spring	9-70-1215-00	2	2												
	Pressure spring	9-70-1523-00			2	2	2	2								
	Pressure spring	9-70-1524-00														
11W	Spring washer	9-46-0010-00			4	4	4	4	4	4	4	4	4	4	4	4
17	Lever arm and stop nut assy.	5-17-5011-00	1	1	1	1	1	1	1	1	1	1	1	1	1	1
26	Bearing pin	9-29-4826-00	1	1	1	1	1	1	1	1	1	1	1	1	1	1
29A	Plunger stop	8-094-503-00	1	1	1	1	1	1	1	1	1	1	1	1	1	1
126	Support plate and spring stud assembly (2 housing studs)	5-26-5019-00	1		1				1		1				1	
	Support plate and spring stud assembly (3 housing studs)	5-26-5020-00		1		1			1			1				1
131	Pivot pin	9-29-4836-00			1	1	1	1	1	1	1	1	1	1	1	1
142S	Mounting screws	9-25-9013-00	3	3	3	3	3	3	3	3	3	3	3	3	3	3
<b>AC Brakes</b>																
Z	No. 4 solenoid kit	5-96-5047-01		1		1		1		1		1		1		1
AC	Size 4 Strength 3 coil kit 60 Hz	115/230 Vac	5-96-6479-59		1		1		1		1		1		1	
		230/460 Vac	5-96-6479-70		1		1		1		1		1		1	
		115 Vac	5-96-6479-52		1		1		1		1		1		1	
		230 Vac	5-96-6479-58		1		1		1		1		1		1	
		460 Vac	5-96-6479-68		1		1		1		1		1		1	
		575 Vac	5-96-6479-74		1		1		1		1		1		1	
CC	Brake release interlock switch (opt)	5-57-5526-00		1		1		1		1		1		1		1

## Solenoid and Coil Assembly



**Table 3**  
Contents of Kits and Assemblies

Item	Kit Description
A	Hardware kit - UL Type 1, IP 23 (5-66-1014-00) 2 - Housing acorn nuts 2 - Conduit plugs
	Hardware kit - UL Type 1, IP 56 (5-66-1019-00) Hardware kit - UL Type 4X, IP 56 (5-66-1-20-00) 3 - Housing nuts 3 - Housing nut gaskets 1 - Endplate oil seal 2 - Endplate hole plugs 1 - Housing to endplate gasket or o-ring 2 - Endplate conduit pipe plugs
3	Stationary disc kit (5-66-8354-00) 1 - Stationary disc
3A	Stationary disc kit (5-66-8355-00) 2 - Stationary discs with springs
3B	Stationary disc kit (5-66-8356-00) 3 - Stationary discs with springs
4	Friction disc kit (5-66-8462-00) 1 - Friction disc
DP	Disc pack kit (5-66-860X-00) 2 or 3 - Friction disc(s) 2 or 3 - Stationary disc(s) 6 or 9 - Stationary disc separator springs
16	Hub and screw assembly - all types, all bores (5-16-5153-00-01*) 1 - Brake hub 2 - Set screws
Z	No. 4 solenoid kit (5-66-5047-00) (5-96-5047-01) 1 - Plunger 1 - Solenoid link 1 - Frame (including mounting bracket) 1 - Solenoid link cap screw 1 - Solenoid link nut 3 - Solenoid mounting screws
AC AD	No. 4 AC coil kit (5-96-6479-XX) and Coil / Top Plunger guide / Wire nut
CC	Brake release interlock switch (5-57-5526-00) 1 - Microswitch 1 - Mounting bracket 2 - Bracket mounting screws 2 - Switch mounting screws 2 - Lock washers 2 - Nuts 2 - Leadwire assembly

## Optional Modification Kits

		Torque (lb-ft)	3 & 6	10 & 15	20 & 25
		Brake Model Number →			
Catalog Mod Number	Description	Part Number ↓	1-056-21X 1-056-22X	1-056-23X 1-056-24X	1-056-25X 1-056-26X
M4	Brass stationary disc	8-003-513-02	2	2	2
M13	Space heater 115 Vac 230 Vac	5-27-2004-00	1	1	1
		5-27-2005-00	1	1	1
M17	Terminal strip	5-63-0524-00	1	1	1
M21	Vertical spring kit (2-disc) (3 disc)	5-63-0539-00	1	1	
		5-63-0525-00			1

Rexnord Industries, LLC  
Stearns Division  
5150 S. International Drive  
Cudahy, Wisconsin 53110  
(414) 272-1100 Fax: (414) 277-4364  
www.stearnsbrakes.com

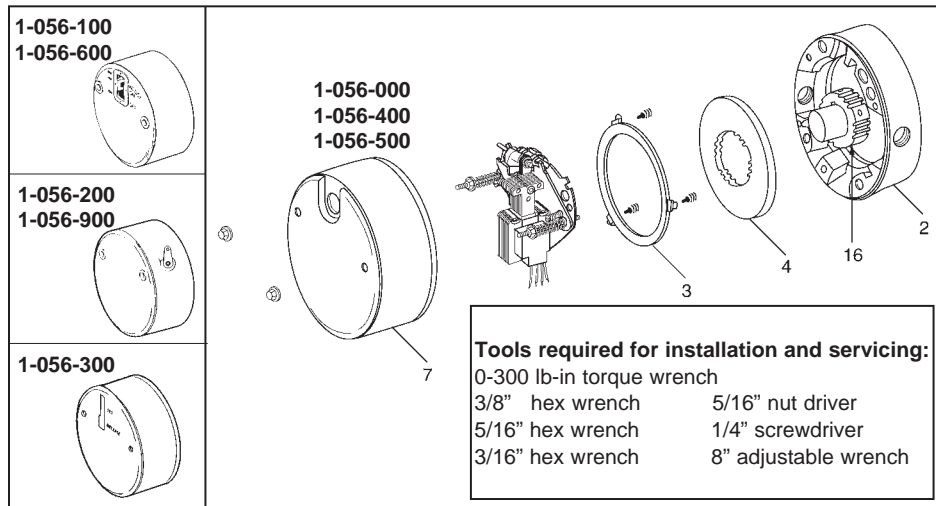
## Installation and Service Instructions for 1-056-X00\* Series (all revisions) Manual Adjust Brakes

\* This sheet includes Series 1-056,000; 1-056,100; 1-056,200; 1-056,300; 1-056,400; 1-056,500; 1-056,600 and 1-056,900. For other series consult factory

For replacement parts refer to sheets:

Series	Sheet Part No.
1-056-000	8-078-906-00
1-056-100	8-078-906-01
1-056-200	8-078-906-02
1-056-300	8-078-906-03
1-056-400	8-078-906-04
1-056-500	8-078-906-05
1-056-600	8-078-906-06
1-056-900	8-078-906-09

Also available at [www.stearnsbrakes.com](http://www.stearnsbrakes.com)



**Tools required for installation and servicing:**  
0-300 lb-in torque wrench  
3/8" hex wrench      5/16" nut driver  
5/16" hex wrench      1/4" screwdriver  
3/16" hex wrench      8" adjustable wrench

- 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 to remove dust from the brake. When brushing, avoid causing the dust to become airborne. Collect the dust in a container, such as a bag, which can be sealed off.
10. Caution! 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 over-heating the friction disc(s).

### General Description

These series of brakes are spring-set, electrically released. They contain one or more rotating friction discs (4) driven by a hub (16) mounted on the motor or other shaft.

**Note:** Fan-guard mounted brakes requiring IP 56 protection may require additional sealing measures beyond seals provided with this brake. Pressurized sprays aimed at the fan and brake hub surfaces can result in fluid migration along the motor shaft and keyway, and into the brake. The use of an appropriate sealant such as RTV or a forsheda seal is advised.

### Operating Principle

These series contain one or more friction discs (4) assembled alternately between the endplate (2) friction surface, stationary disc(s) (3) and pressure plate (also called stationary disc) (3). The stationary disc(s) 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.

### Typical Nameplate



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, Stearns Division, 5150 S. International Dr., Cudahy, WI 53110, (414) 272-1100.

### Caution

1. Installation and servicing must be made 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.
2. Use of this brake in atmospheres containing explosive gases and dusts must be in accordance with NEC article 501. This brake is not 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.

## BRAKE MOUNTING (Manual Adjust) 1-056-X00

**1** Place hub on motor shaft.

**2** Position hub on shaft as shown.

**3** Tighten set screws to motor shaft.

**4** Remove brake housing.

Housings vary by series number. See page 1.

**5** Slide endplate over hub noting position of stabilizer clips, if used. (Refer to Friction Disc Replacement, view 3 and 3A.) Tighten mounting screws.

\*Brakes under 20 lb-ft torque rating, with IP-23 rating only require two 3/8-16 mounting bolts.  
- Do not use lock-washers with mounting bolts  
- For vertical assembly of 20 & 25 lb-ft brakes, refer to page 3

**6** AC coils are 50/60 Hz, single phase rated. Power supply to coil must not have current or frequency limiting output that is less than the coil requirement.

- Connect leadwires to power source. Verify voltage rating\* per nametag on coil.
- Keep wiring away from pinch points and moving

connect line voltage here

Single Voltage

twist lines 1 & 3 connect line voltage here

twist lines 2 & 4

Dual Voltage Coil at Low Voltage

connect line voltage here

twist lines 3 & 4 and use wire nut

**7** Replace brake housing and tighten to torque specified below:

Brake series		Torque
1-056-000	1-056-300	8-10 lb-in
1-056-400	1-056-500	
1-056-100	1-056-200	12-14 lb-in
1-056-600	1-056-900	

## FRICTION DISC REPLACEMENT SERIES 1-056-X00

**1** Remove support plate screws and lift support from brake

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

Note: Stabilizer clips should never be located over the set screws of the hub.

Single disc brakes always use two stabilizer clips, locate at 90° from each other.

Double disc brakes typically will not require stabilizer clips, however there are some special modifications that will use them.

Rev A & B may have these clips may have these clips located 1 per disc, and should never be positioned in line with each other.

Rev C will have only one clip, used on the inner-most disc. No clip will be used on the outer-most disc.

Three disc brakes will never use stabilizer clips on friction discs

**2** Remove and discard old friction disc.

**4** Reposition support plate on endplate and tighten mounting screws to 55-58 lb-in.

**Note:** Friction discs can wear to 1/2 their original thickness, or .093"

## AIR GAP ADJUSTMENT 1-056-X00

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

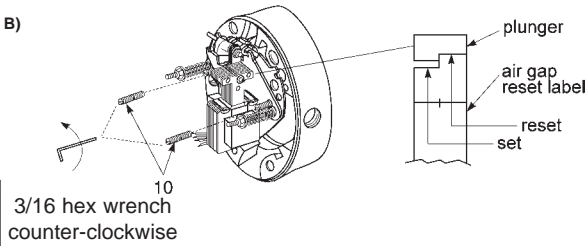
- 1** To increase air gap, turn both adjusting screws (10) counterclockwise. Use 3/16 hex wrench, or flat screwdriver on older models.

### 56,X00 Series Air Gap (REV A & B)

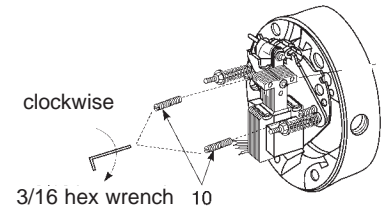
Disc	Torque	Min/Max
1	1.5, 3 & 6	.38" - .69"
2	10 & 15	.45" - .69"
3	20 & 25	.50" - .69"

### 56,X00 Series Air Gap (REV C)

Disc	Torque	Min/Max
2	3, 6, 10 & 15	.45" - .69"
3	20 & 25	.50" - .69"



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

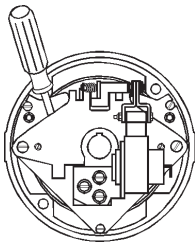


Maximum gap should not exceed .69"

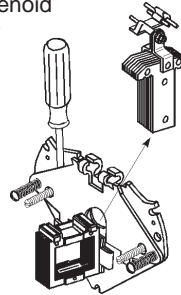
## COIL REPLACEMENT SERIES 1-056-X00

Remove housing and disconnect power and wiring to coil.

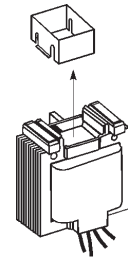
- 1** Insert screwdriver between support plate and lever arm and pry forward.



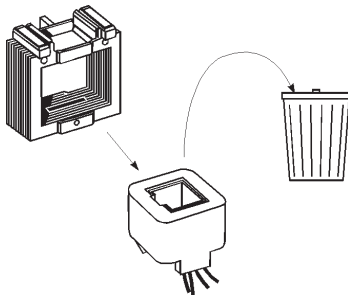
- 2** Lift plunger/solenoid lever assembly out of coil.



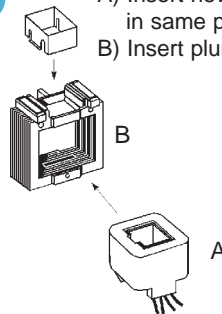
- 3** Remove plunger guide.



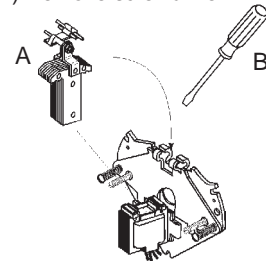
- 4** Discard coil.



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



- 6** A) Re-insert plunger into coil; drop pivot pin into cradle of support plate.  
B) Remove screwdriver.



Reconnect coil and replace housing per installation instructions, page 2.

## VERTICAL SPRING ASSEMBLY 1-056-X00

### Vertical Brake Assembly

Single disc brakes are universal mount and do not require separator springs. Double disc brakes are 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.

#### 2 Friction Disc

Vertical Above  
Vertical Below

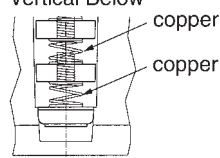


Figure 5A

**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 plate. Using the 1/8" pin provided and a hammer, drive the spring 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 55-58 lb-in.

#### 20, 25 lb-ft Horizontal

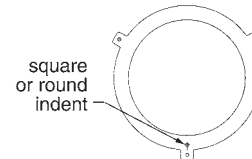


Figure 5B

#### 3 Friction Disc

Vertical Above

Vertical Below

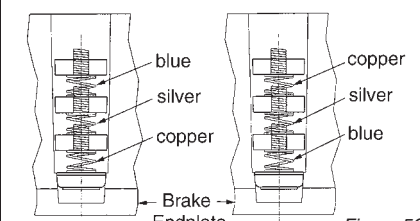


Figure 5C

# TORQUE ADJUSTMENT

## 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 spring adjustment screws (11), Figure 6, equal amounts counterclockwise to decrease torque. See Table A for torque reduction permissible amounts.

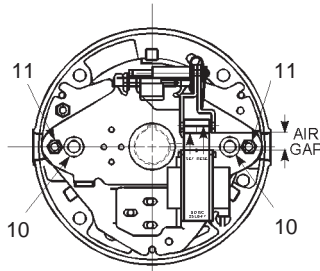


Figure 6

TABLE A

Nominal Static Torque (lb-ft)	Original Spring Height (inches)	Maximum Counter-clockwise Turns	% Torque Reduction per Turn
1-1/2	1.56"	-	-
3	1.50"	7	7%
6	1.47"		
10	1.53"		
15	1.53"		
20	1.53"		
25	1.47"		

# TROUBLESHOOTING

## COIL FAILURE

SUPPLY VOLTAGE CAUSE	SUPPLY VOLTAGE CORRECTION
Line voltage >110% of coil rating	Reduce voltage or replace with proper rated coil
AC input on a DC coil	Replace rectifier or replace with proper rated coil.
Excessive voltage drop during inrush time	Increase current rating of power supply.
WIRING CAUSE	WIRING CORRECTION
Leadwires interfering with plunger pull-in	Reroute wiring away from plunger and other moving components.
Excessive voltage drop during inrush time	Increase leadwires size from power supply
Coil leadwire shorted to ground	Replace coil or leadwire and protect with wire sleeving
SOLENOID ASSEMBLY CAUSE	SOLENOID ASSEMBLY CORRECTION
Plunger not seating flush against solenoid frame	Loosen solenoid mounting screws and reposition frame to allow full face contact
Plunger cocked in coil preventing pull-in	Realign solenoid frame
Excessive solenoid/plunger wear at mating surface	Replace solenoid assembly
Broken shading coils	Replace solenoid assembly
WORN PARTS CAUSE	WORN PARTS CORRECTION
Excessive wear of solenoid link arm and/or shoulder bolt	Replace link arm and link bolt; also inspect plunger thru-hole for elongation
Plunger guides worn down and interfering with plunger movement	Replace guides
APPLICATION CAUSE	APPLICATION CORRECTION
Machinery cycle rate is exceeding brake rating	Reduce brake cycle rate or use alternate control method
High ambient temperature (>110%) and thermal load exceeding coil insulation rating	Use Class H rated coil and /or find alternate method of cooling brake
Brake coil wired with windings of an Inverter motor or other voltage/current limiting device	Wire coil to dedicated power source with instantaneous coil rated voltage
MISCELLANEOUS CAUSE	MISCELLANEOUS CORRECTION
Wrong or over tightened torque	Replace with proper spring or refer to Installation section for proper spring height
Excessive air gap	Reset, refer to Installation Section 4

## EXCESSIVE WEAR / OVERHEATING

AIR GAP CAUSE	AIR GAP CORRECTION
Low solenoid air gap	Reset air gap (refer to Air Gap Adjustment)
Disc pack dragging	Inspect endplate, hub and discs for dirt, burrs, wiring and other sources of interference preventing disc "float"
CYCLE RATE CAUSE	CYCLE RATE CORRECTION
Brake "jogging" exceeding coil cycle rate	Reduce cycle rate or consider alternate control method
Thermal capacity is being exceeded	Reduce cycle rate, use alternate control method or increase brake size
ALIGNMENT CAUSE	ALIGNMENT CORRECTION
Broke endplate not concentric to motor C-Face	Motor register must be within .004" on concentricity.
Motor shaft runout is excessive	Must be within .002"; runout; consult motor manufacturer
Brake is being operated on a incline greater than 15° above or below horizontal	Vertical separator springs must be used to prevent discs from becoming cocked
WORN PARTS CAUSE	WORN PARTS CORRECTION
Friction disc excessively worn (disc can wear to 1/2 original thickness or .093")	Replace friction discs.
Endplate, stationary disc or pressure plate warped	Replace warped or worn component
Linkages and/or pivot pins worn	Replace all worn components
Motor shaft endfloat excessive	Endfloat must not exceed .020"; consult motor manufacturer
HUB CAUSE	HUB CORRECTION
Burr on hub interfering with disc "float"	File off burr
Set screw backed out and interfering with disc	Retighten set screw; use Loctite® 242 to help secure
MISCELLANEOUS	MISCELLANEOUS
Solenoid plunger not pulling completely	Check line voltage (±10% of nameplate rating) or replace worn solenoid assembly
Wiring is restricting disc pack movement	Reroute wiring
Excessive stop time (2 seconds or greater)	Increase brake size/torque or use alternate control method
High Ambient temperature (in excess of 110°F)	Reduce cycle rate or use alternate method of cooling