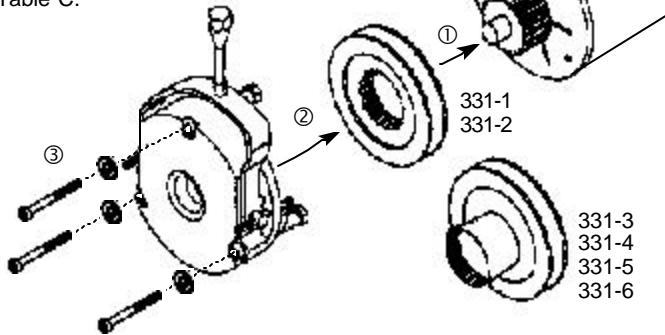




## Step 4

1. Slide carrier disc onto hub
2. Align brake assembly over carrier disc and slide into pressure plate
3. Insert mounting bolts and tighten per Table C.



**Table C - Mounting Bolt Torque**

Brake Model	Bolt Circle	Hex Wrench Size	Bolt Torque		Mounting Bolt Length	
			Metric	English	Thin Plate	Thick Plate
331-1	72	3 mm	2.7 Nm	24 in-lb	M4 x 45	M4 x 40
331-2	90	4 mm	4.5 Nm	40 in-lb	M5 x 50	M5 x 45
331-3	112	5 mm	9.3 Nm	82 in-lb	M6 x 60	M6 x 55
331-4	132	5 mm	9.3 Nm	82 in-lb	M6 x 65	M6 x 50
331-5	145	6 mm	19.1 Nm	169 in-lb	M8 x 80	M8 x 75
331-6	170	6 mm	19.1 Nm	169 in-lb	M8 x 80	M8 x 80

## II. Air Gap Setting and Wear Adjust

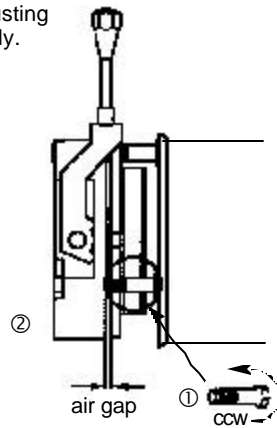
**Note 1:** Air gap is factory set and should not require any additional adjustment at start-up. When readjusting for wear refer to Table D for minimum gap settings with a burnished carrier disc.

**Note 2:** Air gap is measured at the adjusting bolt, between the armature and magbody.

**Table D - Minimum Air Gap**

Brake Model	Bolt Circle	Air Gap	
		Metric	English
331-1	72	.254-.330 mm	.010-.013"
331-2	90	.254-.330 mm	.010-.013"
331-3	112	.305-.380 mm	.012-.015"
331-4	132	.356-.432 mm	.014-.017"
331-5	145	.254-.330 mm	.013-.016"
331-6	170	.254-.330 mm	.020-.023"

Normal friction disc wear will cause air gap to increase from original setting (Table D). Air gap should be readjusted when gap reaches dimension shown in Table E.



**Table E - Maximum Air Gap**

Brake Model	Bolt Circle	Hex Wrench Size	Max Gap	
			Metric	English
331-1	72	8 mm	.48 mm	.019"
331-2	90	10 mm	.48 mm	.019"
331-3	112	11 mm	.48 mm	.019"
331-4	132	11 mm	.74 mm	.029"
331-5	145	13 mm	.78 mm	.031"
331-6	170	13 mm	.99 mm	.039"

**Table F - Disc Maximum Wear**

Brake Model	Bolt Circle	Min Thickness	
		Metric	English
331-1	72	5.59 mm	.220"
331-2	90	11.30 mm	.445"
331-3	112	5.41 mm	.213"
331-4	132	6.60 mm	.260"
331-5	145	8.89 mm	.350"
331-6	170	8.74 mm	.344"

### Wear Adjustment

1. Rotate each wear adjust screw evenly to achieve original gap (Table D).
2. Retighten mounting bolts to specifications shown in Table C. Recheck air gap per Table D.

**Note 3:** 90° ccw rotation is approximately 0.010" (.25mm) for the 72, 90, 145 and 170 size brakes. 90° ccw rotation is approximately 0.012" (.30mm) for the 112 & 132 size brakes.

**Note 4:** Brake discs should be replaced when they reach the thickness shown in Table F. Normally this will occur after 4-5 adjustments.

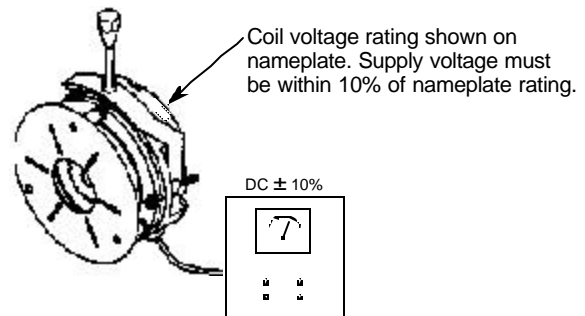
## III. Coil Wiring

**Caution:** Brake wiring should only be carried out by qualified personnel.

Stearns brake coils are wound for DC voltage input at  $\pm 10\%$  of nameplate rating. Coil resistances shown below are for reference purposes. For applications where AC voltage is being rectified refer to AC control switching shown on next page.

**Table J**

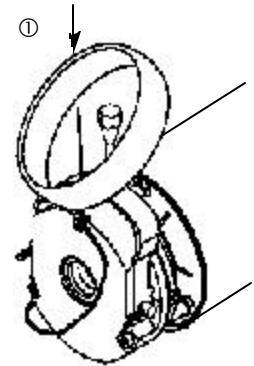
Bolt Circle	72	90	112	132	145	170
Brake Model	331-1	331-2	331-3	331-4	331-5	331-6
Voltage rating	Ohm (nominal value)					
12	5.64	4.82	—	—	—	—
24	21.8	18.7	20.7	13.3	13.0	8.6
90	320.8	277.0	308.7	200.0	124.3	129.3
103	501.2	433.3	308.7	200.0	195.0	129.3
180	1221	1059	1184	769.5	479.5	499.7
205	1904	1653	1184	769.5	751.4	499.7



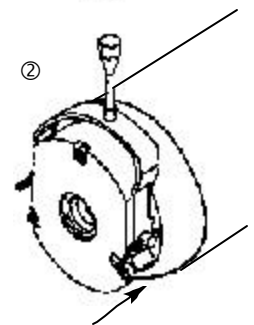
## IV. Boot Seal (Optional)

**Note:** For brake supplied with a boot seal, the seal must be placed over the lead wires and manual release before wiring the brake to the power source.

1. Position the boot seal over the manual release (if supplied) and lead wires.



2. Stretch the seal over pressure plate and magbody coil assembly. If boot seal has optional drain hole, place hole at bottom facing downward. Check to make sure that the seal is flat against the brake and covers the open area around the brake.



## Electrical Considerations

**Caution:** Electrical work should only be performed by qualified personnel.

**Note 1:** All 333 series brakes have DC wound coils designed to accept DC line voltage at  $\pm 10\%$  of nameplate rating.

**Note 2:** When using a rectifier for AC line input, use table K to determine the proper DC coil rating requirement.

Table K

Line Voltage (AC)	Rectifier Type	Recommended Coil Voltage Rating	Stearns Rectifier Part Number	Rectifier Output Voltage
100	full	90	412-0291-01K	90
110	full	103	412-0291-01K	99
115	full	103	412-0291-01K	104
127	full	103	412-0291-01K	115
208	full	180	412-0291-01K	187
220	full	205	412-0291-01K	198
230	full	205	412-0291-01K	207
240	full	205	412-0291-01K	216
220	half	103	412-0591-01K	99
230	half	103	412-0591-01K	103
240	half	103	412-0591-01K	108
380/400	half	180	412-0591-01K	171/180
415	half	180	412-0591-01K	187
460	half	205	412-0591-01K	207
575	half	260	412-0591-01K	259

### AC Switching with Standard Rectifier

Switching on the AC line is the most common method of control when the rectifier is wired through the motor windings or motor contacts. However, brake engagement can take up to 5 times longer than DC switching. Switching on the AC line is not suitable for hoist and crane applications.

### Crane and Hoist Applications

For descending loads such as cranes and hoists or high inertia loads, the motor windings can develop regenerative voltage during deceleration which can delay the engagement of the brake when switching on the AC supply.

For these type of applications it is important to switch on the DC side of the rectifier or use a Quick Set device. Stearns rectifiers have a built in suppression circuit to protect the rectifier. However, it may still be necessary to protect the switching contacts with a separate suppression device. (see Figure 1 and Figure 2).

Figure. 1

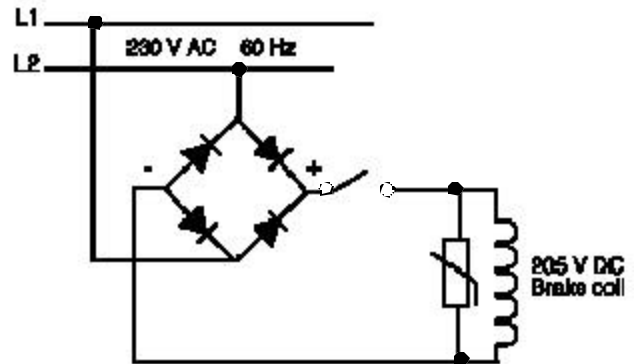
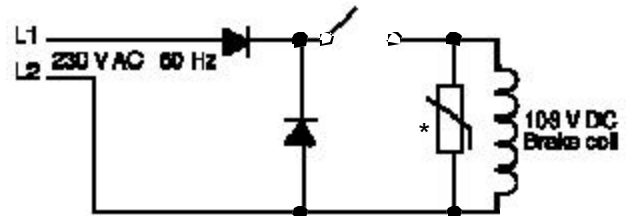
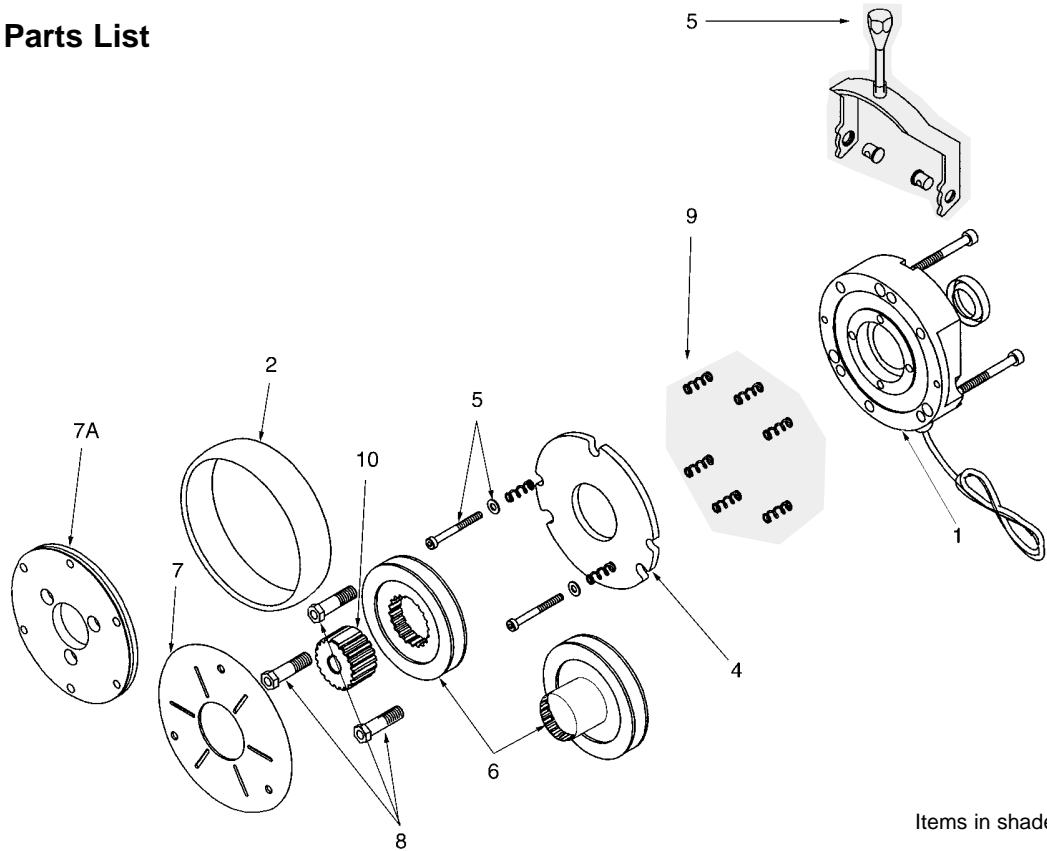


Figure. 2



\* A suppression device is required when switching on the DC side of the line and using the half wave rectifier (412-0591-01K)

# 331-X Parts List



Items in shaded areas designate a kit.

**Table L**

Item	Torque Rating Description	331-1	331-2	331-3	331-4	331-5	331-6	
1	Mag body & coil assembly (ref: Table M for voltage)	5-04-0923-00-0[ JK	5-04-0930-00-0[ JK	5-04-0941-00-0[ JK	5-04-0955-00-0[ JK	5-04-0962-00-0[ JK	5-04-0973-00-0[ JK	
2	Gasket Kit	5-77-0926-00	5-77-0933-00	5-77-0944-00	5-77-0958-00	5-77-0965-00	5-77-0976-00	
4	Armature Kit	8-405-925-0K	8-405-932-0K	8-405-943-0K	8-405-957-0K	8-405-964-0K	8-405-975-0K	
5	Manual Release Kit	8-419-925-0K	8-419-932-0K	8-419-943-0K	8-419-957-0K	8-419-964-0K	8-419-975-0K	
6	Carrier Disc Kit	5-14-0925-0K	5-14-0932-0K	5-14-0943-0K	5-14-0957-0K	5-14-0964-0K	5-14-0975-0K	
7	Pressure plate thin	8-438-925-0K	8-438-932-0K	8-438-943-0K	8-438-957-0K	8-438-964-0K	8-438-975-0K	
7A	Pressure plate thick	8-438-926-0K	8-438-933-0K	8-438-944-0K	8-438-958-0K	8-438-965-0K	8-438-976-0K	
8	Adjusting Bolt Kit	8-434-925-0K	8-434-932-0K	8-434-943-0K	8-434-957-0K	8-434-964-0K	8-434-975-0K	
9	Outer Spring Kit	9-70-0933-0K	9-70-0933-0K	9-70-0943-0K	9-70-0943-0K	9-70-0965-0K	9-70-0965-0K	
10	Hub (ref: Table N)	English Bore Metric Bore	5-16-0921-01-01[ ] 8-016-920-00-M [ ]	5-16-0931-01-01[ ] 8-016-930-00-M [ ]	5-16-0941-01-01[ ] 8-016-940-00M [ ]	5-16-0951-01-01[ ] 8-016-950-00-M [ ]	5-16-0961-01-01[ ] 8-016-960-00-M [ ]	5-16-0971-01-01[ ] 8-016-970-00-M [ ]

**Table M Coil Voltage**

Item Magbody & Coil Assembly Voltage Identifier -0[ JK	
Voltage	Insert
12 V DC	0 [C]JK
24 V DC	0 [E]JK
90 V DC	0 [J]JK
103 V DC	0 [K]JK
180 V DC	0 [L]JK
205 V DC	0 [M]JK
260 V DC	0 [T]JK

**Table N**

Bore Diameters			
English Bore	Insert [ ]	Metric Bore	Insert [ ]
3/8	V	9 mm	09
1/2	K	11 mm	11
9/16	N	12 mm	12
5/8	B	14 mm	14
3/4	C	15 mm	15
7/8	D	16 mm	16
1	L	17 mm	17
1 1/8	E	18 mm	18
1 1/4	F	20 mm	20
1 3/8	G	22 mm	22
		24 mm	24
		25 mm	25
		28 mm	28
		30 mm	30
		34 mm	34
		35 mm	35

Kit Contents	
Item	Description
1	Mag Body & Coil Assembly Adjust Plate Inner Plate Screws Adjust Plate Screws Mounting Bolts (2)
5	Release Arm Release Handle Release Pivots Release Springs Washers Assembly Screws
9	Outer Pole Springs



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