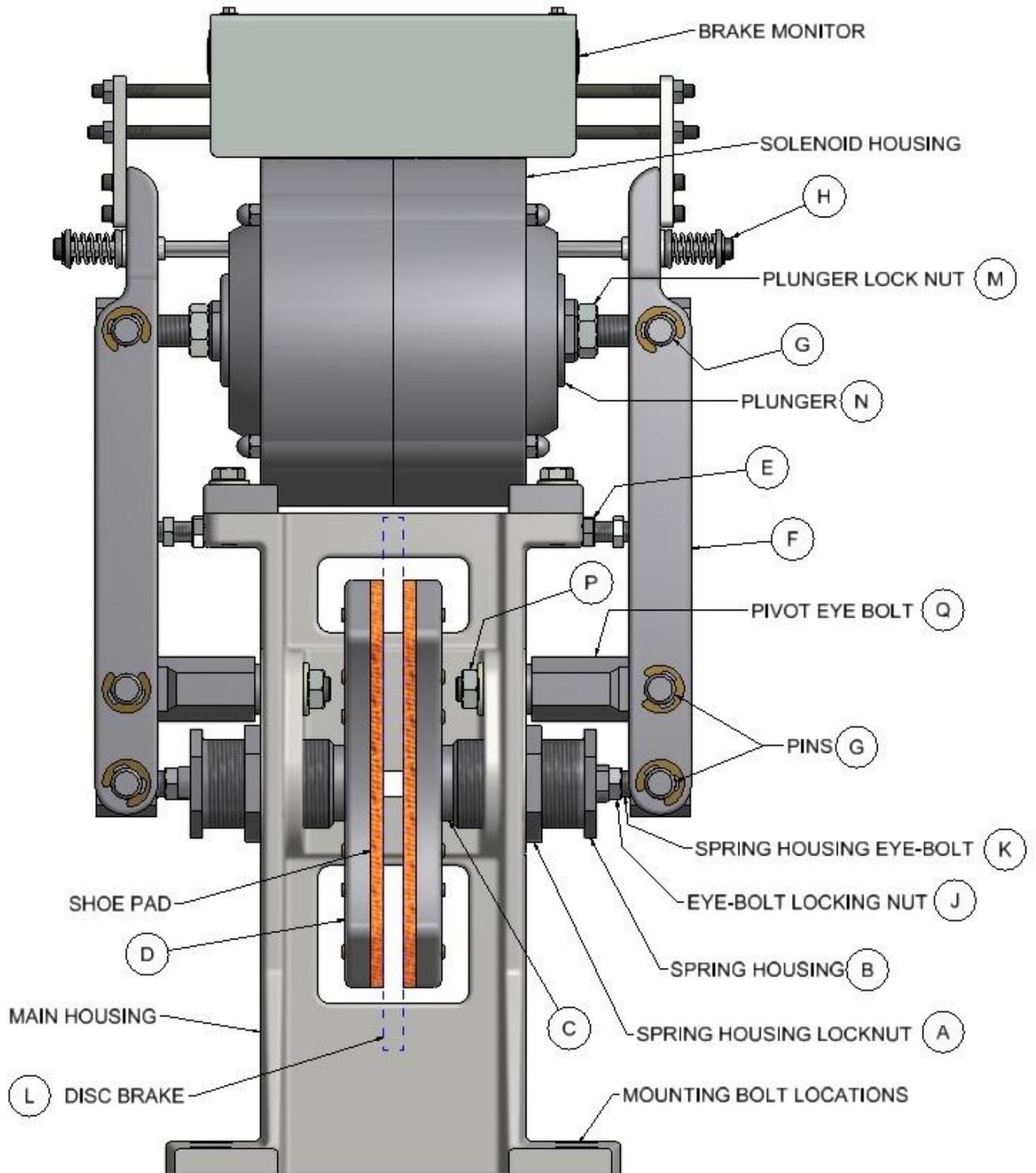


# #102 & #112 DISC BRAKE ADJUSTMENTS

## #102-092 BRAKE MONITOR



# HOLLISTER-WHITNEY DISC BRAKE WITH BRAKE MONITOR ADJUSTMENT PROCEDURE



**HOLLISTER-WHITNEY**  
**DISC BRAKE WITH MONITOR SWITCH**  
**ADJUSTMENTS**

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

The installation crew, mechanic, adjuster, and maintenance personnel should be thoroughly familiar with the proper installation, adjustment, operation, and maintenance of the HOLLISTER-WHITNEY Disc Brake.

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

The Brake MUST be adjusted to meet all local, city, state and national codes.

The A17 and B44 Codes require the Brake to stop and hold a downward moving car loaded at 125% of capacity. It follows that when properly counterbalanced, the Brake will also stop an empty car moving upward.

Initial Brake Tension (Spring Pressure) is factory set. During installation, run elevator to assure proper Brake operation, arm alignment, and shoe clearance. Brake tension will eventually be set to stop and hold 125% load on a downward traveling car. This same tension should also stop a fully loaded downward moving car in approximately the same distance as the slow-down. This setting will help prevent the car sliding into the overhead or the pit during an emergency stop.

For Safety when setting the Brake, be sure the car is out of service. When adjusting for final brake tension, adjust spring pressure with loaded car at the bottom floor. When checking the stopping power of the Brake, keep car near bottom floor.

Object of brake adjustments:

- 1.) Spring pressure strong enough to stop car under all loading conditions.
- 2.) Spring pressure equal so both shoes pick up and drop at the same time.
- 3.) Brake arms parallel and straight up.
- 4.) Shoes parallel to disc with proper and equal air gap on both sides, before and after setting of centering screws.
- 5.) Proper setting of centering screws for quiet operation with minimal air gap in plungers.
- 6.) Proper coil voltage to always energize the Brake, even when the coil heats up. Coil may lose 30% of power when hot.
- 7.) Proper adjustment of monitor switch to indicate proper Brake Operation.

NOTE: ALL INITIAL ADJUSTMENTS SHOULD BE DONE WITH EMPTY CAR IN OVERHEAD AND THE COUNTERWEIGHT LANDED

ADJUSTMENTS:

1.) SPRING ADJUSTMENT:

With Brake applied (Coil de-energized), adjust spring pressure by loosening Lock Nut (A) and screwing Spring Housing (B) into Brake Housing. Note clearance (C), between Brake Shoe (D) and Spring Housing must be equal on both sides and enough for Brake Shoe to pick up when coil is energized. Initially, adjust clearance (C) to 7/32" and tighten Lock Nut (A).

*(Note: This may not be the final setting for 125% load. When finally set at 125% load, the spring pressure may be less than above. Check to see that Brake stops 100% load at approximately the slow-down rate.)*

2.) CENTERING SCREW INITIAL ADJUSTMENT:

With Brake applied, adjust Centering Screws (E) until they are 1/4" away from the Brake Housing.

3.) BRAKE ARM ADJUSTMENT:

With Brake applied, check that Brake Arms (F) are vertically parallel or angled slightly in toward the Solenoid Housing. If adjustment is necessary remove Snap Rings and Pins (G) [3 per side] and Shoulder Screws (H). Arms (F) can now be lifted out of the way. Loosen Lock Nut (J) and Shoe Eye-bolt (K) for proper alignment. When aligned, grease Pins, re-assemble Pins, and re-tighten Lock Nut (J).

4.) BRAKE COIL VOLTAGE ADJUSTMENT:

To set the Brake Coil voltage, momentarily energize the Brake. Set the Brake Coil voltage per the following:

	<u>230V Coil</u>	<u>115V Coil</u>
If voltage is constant:	230V	115V
If dual voltage:	250V Pick Up 150V Hold	125V Pick Up 75V Hold

PICK UP voltage should be applied long enough to ensure Solenoid Plungers are touching before dropping to the HOLD voltage. On controls that require a voltage calibration, be sure to adjust calibration.

***Please note: Coil may lose 30% of power when hot!***

5.) BRAKE SHOE GAP ADJUSTMENT:

With Brake energized, set an initial gap between the Shoes (D) and the Disc (L) of 0.015". With Brake applied (Coil de-energized), loosen Lock Nut (M) and adjust Solenoid Plungers (N) so that an equal amount of each Plunger shows on each side of the Solenoid Housing. Energize Brake, check the 0.015" gap, re-adjust as necessary.

NOTES:

- a.) Moving the Plungers out produces a larger gap between the Shoes and Disc when the Brake Coil is energized.

- b.) If a Shoe is not parallel to the Disc when the Coil is energized, de-energize the Coil, loosen Lock Nut (P) on Pivot Bolt (Q) and re-tighten. Energize Coil to check again. If still not parallel, it may be necessary to loosen the Lock Nut and tap Pivot Bolt up or down to affect the parallel gap.
- c.) If one shoe picks up slower than the other, loosen the Spring on that side while tightening the Spring on the other side an equal amount.
- d.) When installing a NEW Brake on an EXISTING MACHINE, it may be necessary to shim the Brake Housing to achieve Shoe-to-Disc parallelism if Shoes are parallel with each other but not with the Disc.

6.) CENTERING SCREW FINAL ADJUSTMENT:

With Coil energized, adjust each Centering Screw (E) to just touch Brake Housing. With Coil de-energized, adjust each Centering Screw in slightly, adjusting them for a Shoe-to-Disc gap of 0.012", and tighten Lock Nut. This will produce a quieter Brake.

*NOTE: Plungers will now have a slight air gap, but this will not affect Brake Pick Up.*

- 7.) SEE BRAKE MONITOR SWITCH ADJUSTMENTS.
- 8.) Run elevator as much as possible to assure proper operation.
- 9.) **CAUTION:** Before releasing car to the public, re-check that Brake is operating properly and will stop 125% load. If Brake Tension is ever changed, re-adjust Items 5.), 6.), and 7.) above.

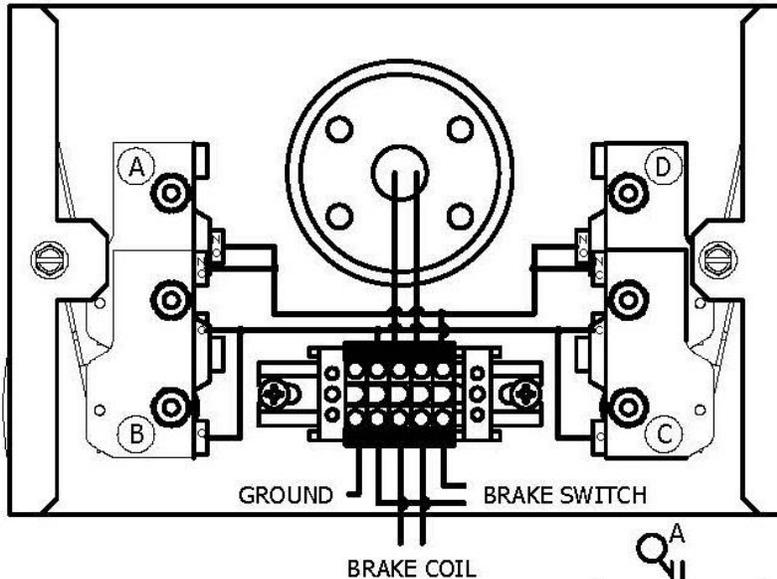
## BRAKE MONITOR SCHEMATIC AND WORKING PROCEDURE:

**WARNING:** IN ORDER TO DETECT A BRAKE FAILURE, THIS BRAKE MONITOR SWITCH MUST BE PROPERLY ADJUSTED & FULLY OPERATIONAL PRIOR TO BEING PLACED INTO SERVICE.

**IMPORTANT: READ ENTIRE INSTRUCTIONS BEFORE ATTEMPTING ADJUSTMENT!!!**

**▲WARNING**

**SHOCK WARNING: ACTIVE ELECTRIC CIRCUITS!!**



### **BRAKE MONITOR PARALLEL CIRCUIT ASSEMBLY 102-092**

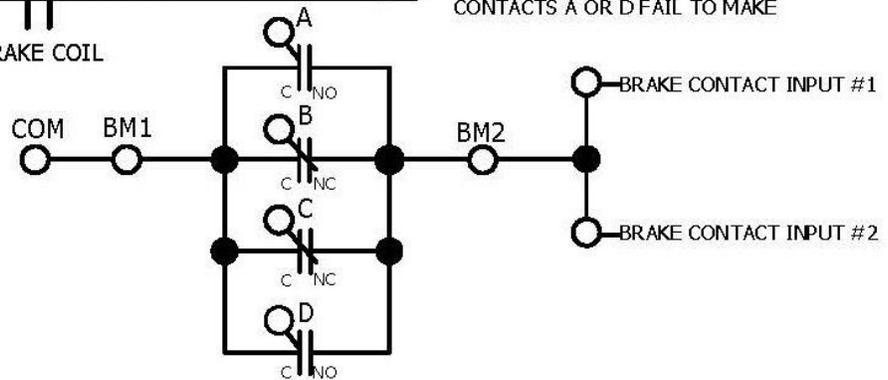
NORMAL BRAKE DE-ENERGIZED  
ALL CONTACTS ARE OPEN  
CIRCUIT OPEN BETWEEN BM1 & BM2

NORMAL BRAKE ENERGIZED  
CONTACTS A & D MADE  
CLOSED CIRCUIT BETWEEN BM1 & BM2

BRAKE FAILS TO DROP  
CONTACTS A OR D FAIL TO OPEN

EXCESSIVE BRAKE PAD WEAR OR EXCESSIVE  
THRUST BEARING END PLAY  
CONTACTS B OR C OR BOTH CLOSE

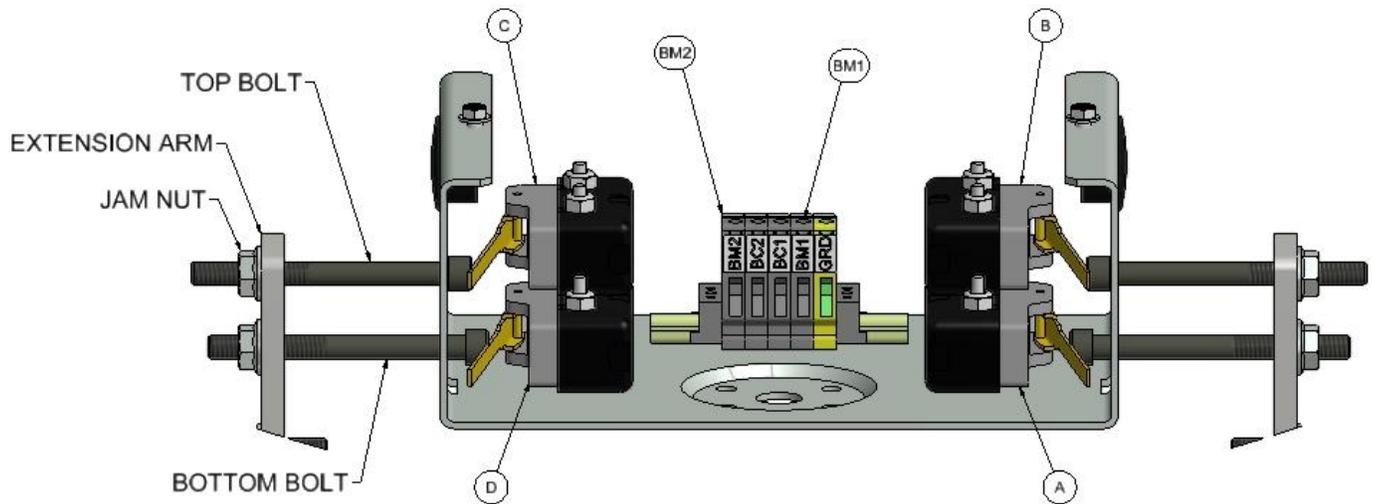
BRAKE FAILS TO LIFT  
CONTACTS A OR D FAIL TO MAKE



## BRAKE MONITOR ADJUSTMENT:

1. Adjust top bolt "in" until you hear micro switch "click".
2. Rotate top bolt "in" 1 full revolution then tighten jamb nut against extension arm.
3. Adjust bottom bolt "in" until you hear micro switch "click".
4. Rotate bottom bolt "out" until you hear micro switch "click"
5. Rotate bottom bolt "out" 1 full revolution then tighten jamb nut against extension arm.
6. Repeat steps 1 thru 5 on opposite side of monitor.
7. Cycle Brake – check for micro switch activation and circuits are performing as designed.
8. Run machine and check adjustment when machine is at operating temperature.
9. Fine tuning may be needed per bolt until proper adjustment is obtained.

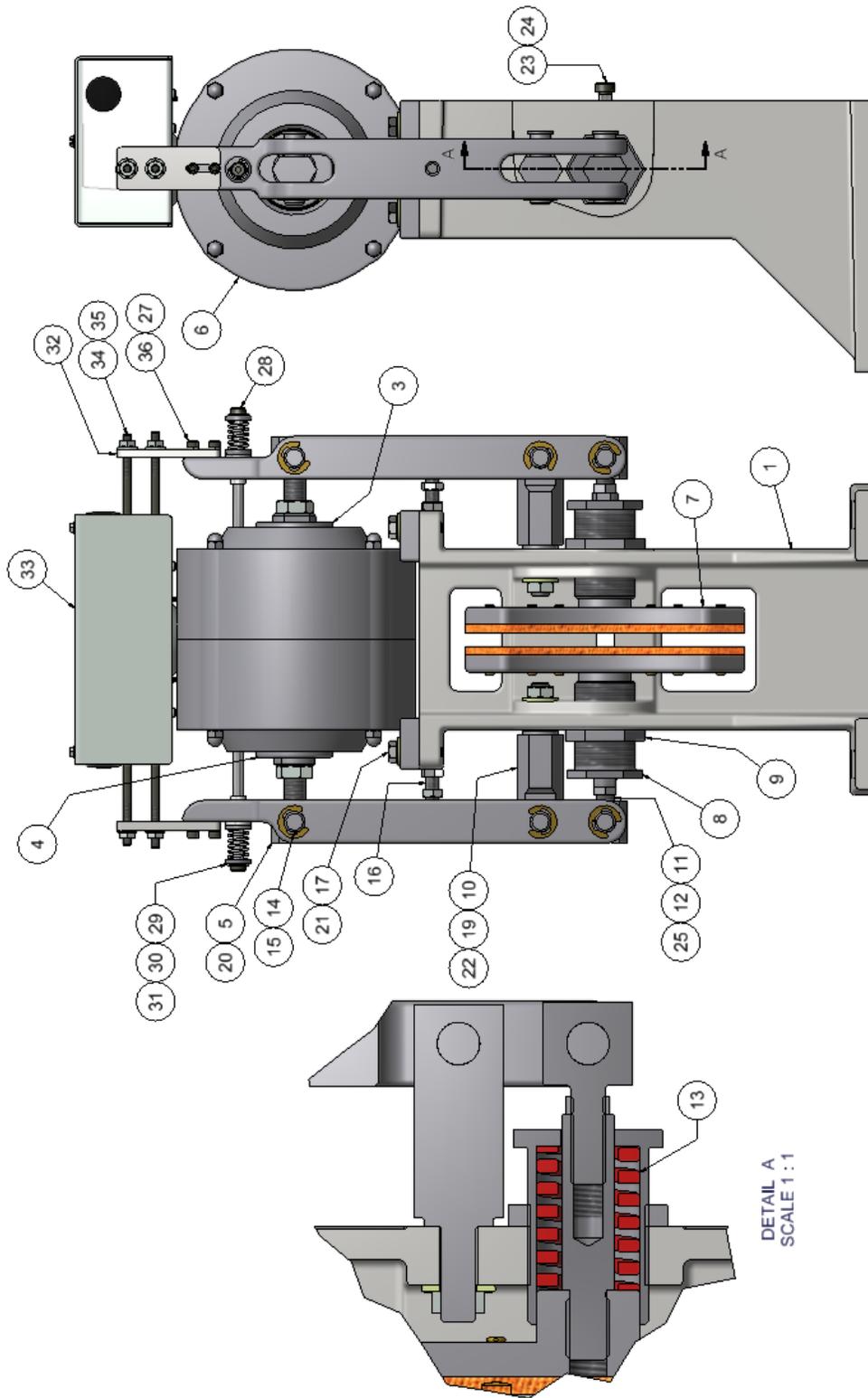
## BOLT ADJUSTMENT DIRECTIONS



NOTE: BRAKES MUST BE INSPECTED DURING NORMAL ELEVATOR MAINTENANCE. IF LININGS INDICATE WEAR, THEN SPRINGS, GAPS AND MONITOR SWITCH MUST BE RE-ADJUSTED ACCORDINGLY.

FOR EXAMPLE: IF LININGS WEAR 1/32", TURNING THE SPRING HOUSING EYEBOLT OUT ONE-HALF (1/2) TURN AND TIGHTENING THE SPRING HOUSING IN ONE-THIRD (1/3) TURN WILL COMPENSATE. PLUNGERS AND THE BRAKE MONITOR WILL NEED TO BE SLIGHTLY RE-ADJUSTED.

ANY ADJUSTMENT MADE TO THE BRAKE MIGHT AFFECT BRAKE MONITOR ADJUSTMENT.



Coils for #102 & #112 Disc Brake

- 1) Coil - Constant 230 VDC, 1.24 A, 190 OHM or Step Down 250 V Pick, 150 V Hold
- 2) Coil - Constant 115 VDC, 2.24 A, 46.45 OHM or Step Down 125 V Pick, 75 V Hold

PARTS LIST - DISC BRAKE				
NO.	DESCRIPTION	QTY.	102 BRAKE (12" DISC)	112 BRAKE (14" DISC)
			44& 54 MACHINE	64 MACHINE
1	DISC BRAKE HOUSING	1	102-001	112-001
2	LEVER	2	102-076	102-076
3	PLUNGER	1	102-006	102-006
4	PLUNGER w/RING	1	102-007	102-007
5	PLUNGER EYEBOLT	2	102-064	102-064
6	SOLENOID HOUSING ASSEMBLY - 230V	1	102-028	102-028
	SOLENOID HOUSING ASSEMBLY - 115V		102-025-1	102-025-1
6A	230 VOLT COIL	1	102-073	102-073
6B	115 VOLT COIL		102-074	102-074
7	DISC BRAKE SHOE ASSEMBLY	2	102-029	102-029
8	SPRING HOUSING	2	102-049	102-049
9	SPRING HOUSING NUT	2	102-050	102-050
10	HOUSING PIVOT EYEBOLT	2	102-065	102-065
11	SPRING HOUSING EYEBOLT	2	102-059	102-059
13	SPRING - (15 HP & BELOW)	2	102-070	102-070
	SPRING - (20 HP & ABOVE)		102-071	102-071
14	PIN - 0.625" DIA.	6	90-013	90-013
15	E-CLIP, 5133-62	6	90-032	90-032
16	SQUARE HEAD SET SCREW	2	3/8-16 X 1.75	3/8-16 X 1.75
17	HEX HEAD CAP SCREW	4	3/8-16 X 1.25	3/8-16 X 1.25
18	JAM NUT	2	3/8-16 UNC	3/8-16 UNC
19	JAM NUT	2	1/2-13 UNC	1/2-13 UNC
20	JAM NUT	2	5/8-11 UNC	5/8-11 UNC
21	WASHER - HARDENED	4	3/8" WASHER	3/8" WASHER
22	WASHER - HARDENED	2	1/2" WASHER	1/2" WASHER
23	SHOULDER BOLT	2	102-066	102-066
24	BRONZE BUSHING (REF. #AA-502-1)	2	102-067	102-067
25	JAM NUT - SPECIAL	2	102-072	102-072
27	STANDARD WASHER	4	#10	#10
28	SHOULDER BOLT	2	90-025	90-025
29	CUP WASHER	4	205-020	205-020
30	INSULATING BUSHING	2	90-025	90-025
31	TENSION SPEING	2	400-078	400-078
32	EXTENSION - BRAKE ARM 102 &112	2	102-093	102-093
33	BRAKE MONITOR ASSEMBLY	1	102-092	102-092
34	SOCKET HEAD CAP SCREW	4	1/4-20 X 2.75	1/4-20 X 2.75
35	NUT - LOCKING "WHIZ NUT"	4	1/4-20	1/4-20
36	SOCKET HEAD CAP SCREW	4	#10-24 X 0.75	#10-24 X 0.75

