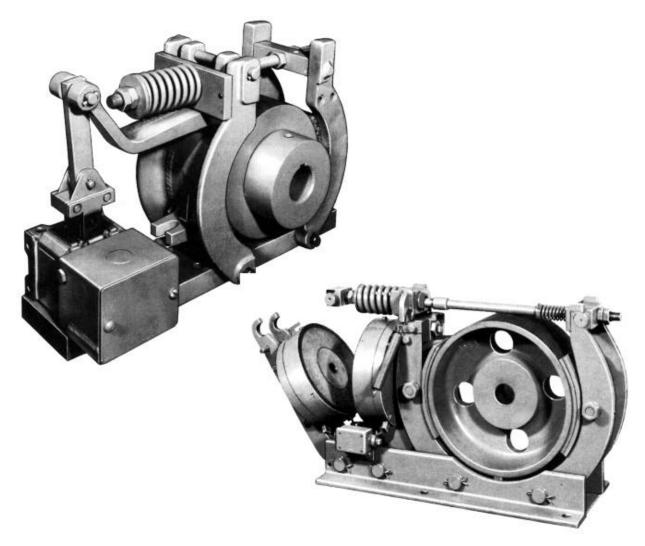


Gemco[™] Industrial Brakes Magnetic Shoe Brake Systems

Simple and Effective Spring Applied Electric Released AC and DC Brakes



Index

AC & DC MAGNETIC BRAKES

 Introduction to Magnetic Shoe Brakes 	1
• Type CB Style (AC) Brakes	
Features	2
Installation, Service, & Torque Ratings	3-4
Replacement Parts	5
Dimension Sheets & Weight	6
 Type TM Style (DC) Brakes 	
Features	7
Installation, Service, & Torque Ratings	8,9,10,11
Rectifier Information & Schematics	12-13
Shunt Brake Resistors / Forcing Resistors	14-15
Coil Data Sheet	16
TMSCH Information	17-18
Replacement Parts	19-20
Dimension Sheets & Weights	21,22,23
Brake Wheels	
CB Brake Wheels	24
TM Brake Wheels	25-26
Inspection Guide	27
 Part Number Cross-Reference Sheets 	28,29
Optional Equipment	30

INTRODUCTION

Application

Shoe brakes are used for both stopping and holding loads. Some of the most common applications include cranes, hoists, conveyors and machine tools.

Design

These magnetic shoe brakes were originally designed and built by Westinghouse and have a proven record of reliability. Consult GEMCO if a crossreference to the old Westinghouse part numbers are needed.

Brake Set (De-energized)

Operation

Magnetic shoe brakes are spring set, electrically released.

The brake is set when power is removed from the brake's coil. As a safety feature, if power is lost, the brake resets automatically.

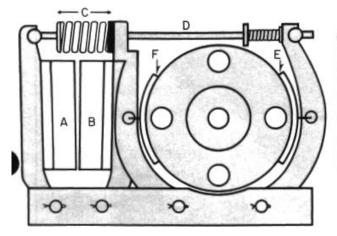
The Type TM brake's electrical mechanism consists of one or two Dc magnets, while an Ac solenoid and plunger comprise the Type CB brake's

electrical mechanism.

Both the Type TM and Type CB brakes operate similarly, although the CB brake's electrical operating mechanism is a solenoid, as opposed to the TM brake's Dc magnets. The mechanical operation is identical for both brakes.

The Type TM brake's operation is illustrated below.

Brake Released (Energized)



When the twin magnets (A and B) become de-energized, spring C simultaneously moves tie rod D to the left and magnet B to the right, forcing both brake shoes (E and F) to apply brake torque to the wheel at the same time.

Selection

Torque Rating: The normal practice is sizing a brake's torque rating is to equal or exceed the full load torque of the motor. The formula to calculate full load motor is as follows:

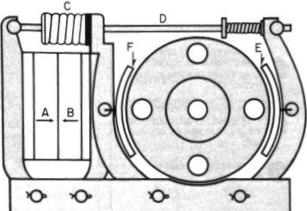
> T= <u>5250 HP</u> RPM

T = Full load motor torque in lb. ft. HP = Motor horsepower RPM = Speed of motor shaft

In some applications the brake may be subjected to unusual operating conditions against which the brake must be sized to exceed this maximum torque.

The thermal capacity of the magnetic shoe brakes are adequate foremost applications. However, some applications which require frequent stopping of high inertia loads requiring long deceleration periods may extend the thermal capacity of the linings and cause the brake to fade. Such applications should be referred to MagneTek with the WR of the connected load, RPM, and frequency of operation.

CB AC brakes are available with either continuous or intermittent time ratings. Continuous rated brakes can be used on



When the twin magnets (A and B) are energized, they pull together compressing spring C. This action simultaneously moves tie rod D to the right freeing shoe E. At the same instant, the motion of magnet B to the left frees shoe F.

all applications. The intermittent rated brakes indicate that the solenoid can be placed across the line for one hour maximum without damage. It is equivalent to 1/2 time on and 1/2 time off. Since the coil is on for shorter periods of time, the allowable torque rating is higher on the intermittent rating.

TM DC brakes are also available with two torque ratings per frame size. TM brakes with shunt coils have higher one hour ratings than continuous ratings. The TM brakes with series coils are available with either 1/2 hour or 1 hour ratings.

MAGNETIC SHOE BRAKES

CB AC BRAKES

Features:



Clean, simple, reliable design with the fewest parts of any AC brake available today.

Designed for minimum mechanical shock on the operating mechanism and thus greatly increases service life.



Rugged long life solenoid - tested in more than two million operational cycles without electrical failure.



Simple one point torque adjustment.

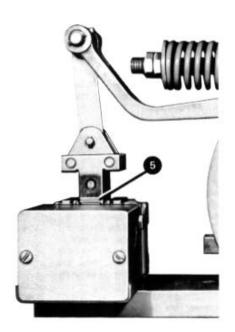
No separate hand release is required. The brake can be released by light hand pressure on the solenoid arm.

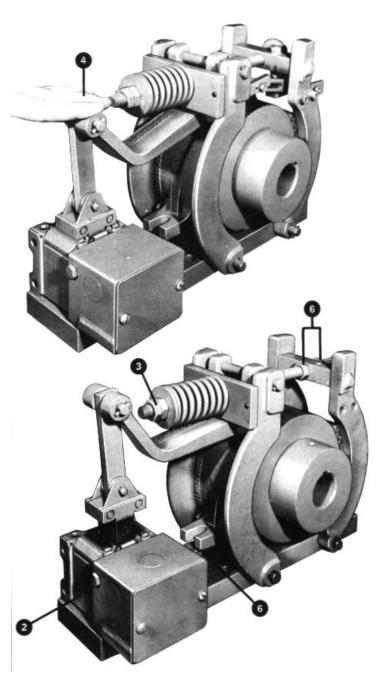
Solenoid plunger travel indicator - a mark on the plunger indicates when the brake should be adjusted for lining wear.



6

Simple two-point adjustment for lining wear.





MAGNETIC SHOE BRAKES INSTALLATION AND SERVICE INSTRUCTIONS - TYPE CB

General Description

The type CB brakes have an AC solenoid for operation. When the brake solenoid is energized, the lining will clear the wheel, and when de-energized, the linings are pressed against the wheel by means of a compression spring. These brakes are designed with power failure protection; that is, in the event of a power failure, the brake automatically spring-sets.

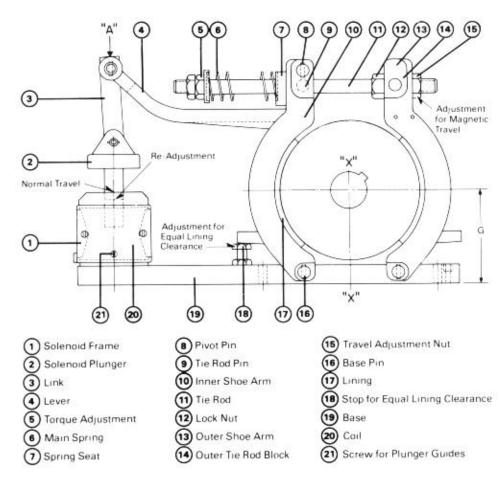


Figure 1 Operation

The power supply must be disconnected before any adjustments or servicing work is performed on the brake.

Operation (See Fig. 1)

1. When brake is de-energized, the compression spring (6) exerts pressure on the brake wheel as follows:

- a. The spring force on the inner shoe arm (10) is transmitted through the spring seat (7).
- b. The spring force on the outer shoe arm (13) is transmitted from nut (5) on the tie rod (11) to nut (15) to outer tie rod block (14), to outer shoe arm.

2. When brake is energized, pressure is removed from the brake wheel as follows:

The solenoid plunger (2) pulls into the stationary portion of solenoid (1) moving lever arm (4) down. The lever acting about pivot pin (8) forces the inner and outer shoe arms apart by moving the tie rod to the right through tie rod pin (9).

Mounting

If the brake was shipped with the wheel clamped between shoes, remove wheel from shoes by pushing down solenoid lever at point 'A'.

With wheel mounted on shaft, install brake as follows:

1. Brake must be mounted on a flat surface parallel to shaft. Distance from center line of shaft to bottom of base of brake should agree with 'G' dimension within limits of +.03, -0 inch. Center line X-X should pass midway between mounting holes within .03 inches.

Frame	'G'	Frame	'G'
CB15	3.07	CB110	4.75
CB35	3.83	CB160	6.85
CB75	4.75		

2. Release brake by pushing down solenoid lever at point 'A'. Place brake in position over mounting holes, then release solenoid lever to clamp lining on wheel. Insert shims under base if required, then bolt brake to base.

3. The brake should be mounted in the horizontal mounting position for maximum solenoid life.

Adjustment

The solenoid plunger (2) has two lines scribed around its surface. The upper line is an indication of normal travel and the lower line is for readjustment (see Table 2). For normal travel, the upper scribed line should line up with the top of the solenoid frame (1). The brake is set for normal travel at the factory; however, if the adjustment is off, then bring into adjustment by moving adjustment nut (15). Turning this nut in will decrease amount of travel and turning nut out will increase amount of travel. Nut (12) is used to lock this adjustment in place.

Adjustment in stop bolt (18) is used to obtain equal lining opening at both sides of wheel. When the brake is energized the shoe arm

MAGNETIC SHOE BRAKES INSTALLATION AND SERVICE INSTRUCTIONS - TYPE CB

linkage is pulled towards the solenoid; therefore, the adjustment bolt is required to equalize this movement between shoe arms. Turning bolt in allows more clearance at the inner shoe and backing bolt out allows more clearance at the outer shoe. Stop bolt (18) has a lock nut for maintaining its position. Either using a feeler gauge or rotating the wheel by hand can insure that there is clearance between the wheel and lining. Due to variation in the lining thickness, there may be occasions, at initial installation, when the normal travel setting will not give complete clearance between the lining and the wheel. If this should temporarily happen. increase the solenoid plunger travel beyond the normal travel line. Once the lining has worn in, reset the plunger to the normal travel line.

Torque Adjustment

Brake is adjusted at our factory for the torque rating as given on the nameplate. With brake de-energized and solenoid plunger adjusted for normal travel, the compressed length of spring should be per value in Table 1.

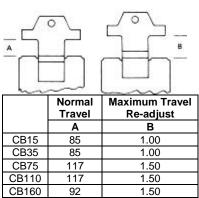
Table 1

Frame	Travel	Torque	Compressed Spring	Spring Free
			Length	Length
CB15	.85	10	2.22	2.75
CB15	.05	15	2.01	2.75
CB35	.85	25	2.88	3.50
0000	.05	35	2.69	3.50
CB75	1.17	50	4.12	5.0
0675	1.17	75	3.85	5.0
CB110	1.17	85	3.74	5.0
CBIIU	1.17	110	3.45	5.0
CB160	.92	125	3.65	5.0
CD100	.92	160	3.36	5.0

Readjustment for Lining Wear

The brake solenoid has sufficient power to operate when the solenoid plunger travel is beyond the readjust line; however, to obtain maximum brake life, the travel should be maintained within the limits scribed on the plunger (Table 2).

When lining wear results in travel beyond the readjust line, bring the travel into normal adjustment as described under Adjustment section. Table 2



CB Torque Ratings

Brake Frame	Torque	e Ft./Lbs.
Number	Continuous	Intermittent
15	10	15
35	25	35
75	50	75
110	85	110
160	125	160

CB brakes are single phase AC brakes available in the following voltages:

60Hz	50Hz
115V	110v
200V	220V
230V	380V
460V	440V
575V	550V

Relining Shoe Arms

To reline the shoe arms, relieve the spring pressure by backing off spring nut (5). Back off nut (15) and remove roll pins that retain base pins (16). Remove base pins and swing shoe arms away from wheel. The drive rivets holding the lining are easily removed with a drift.

After replacing the lining, reassemble brake and readjust per Adjustment Section. Drive rivets are reusable. Shoes with bonded linings will have to be re-bonded or drilled for rivet type linings.

Coil Connection

All CB brake coils are single phase, single voltage coils. Knockouts are

located on each side of the conduit box for attaching the conduit for the power leads. Power leads are connected to screw terminals on the coil.

Removing Coil and Plunger Guides

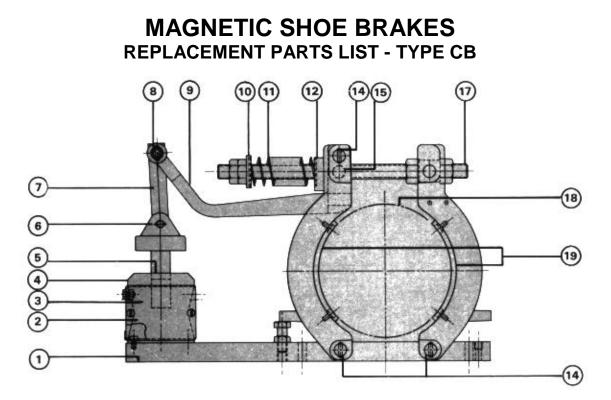
Caution

The power supply must be disconnected before removing coil.

Disconnect power leads from the coil. To remove coil and plunger guides, disconnect link (3) from solenoid plunger (2). Remove plunger from solenoid frame. The plunger guides are held in place by screw (21) located in the bottom of the solenoid frame. Remove this screw and the plunger guides can be pulled out of the solenoid frame. With the guides removed, the coil slides out of the frame.

The same coil is used for either continuous or intermittent duty. It is necessary to specify the torque rating so that the spring can be properly adjusted.

If the torque ratings of the type CB-AC brake are exceeded and only AC voltage is available, a type TM-DC brake can be supplied with a rectifier (i.e., type TMR-twin magnet rectified).



Ref. No.	Description	Style Number Frame CB 15	CB 35	CB 75	CB 110	CB 160	Quantity
1	Base	E004068	E005042	E007069	E007069	E010068	1
2	Coil 115/60	E004104	E005051	E007080	E007087	E007087	1
	230/60	E004105	E005052	E007081	E007088	E007088	1
	460/60	E004102	E005039	E007065	E007066	E007066	1
	575/60	E004106	E005053	E007082	E007089	E007089	1
	200/60	E004107	E005054	E007083	E007090	E007090	1
3	Conduit Box	E005044	E005044	E010069	E010069	E010069	1
4	Solenoid Assy.	E004109	E005055	E007079	E007091	E010103	1
5	Solenoid Guide	E005050	E005050	E007076	E007076	E007076	2
6	Pin	E004056	E005029	E007055	E007055	E010056	1
7	Link	E004062	E005035	E007061	E007062	E010062	1
8	Pin	E004055	E005028	E007054	E007054	E010055	1
9	Lever	E004059	E005032	E007058	E007058	E010059	1
10	Spring Seat	E004063	E005036	E007063	E007063	E007063	1
11	Spring	E004065	E005038	E010064	E010064	E010064	1
12	Spring Plate Assy.	E004111	E005057	E007084	E007084	E010104	1
14	Pin	E004054	E005027	E007053	E007053	E010054	3
15	Pin	E004058	E005031	E007057	E007057	E010058	1
17	Adj. Rod Assy.	E004060	E005033	E007059	E007059	E010098	1
18	Wheel	1	1	1	1	1	
23	Brake Shoe - Inner	E004113	E005048	E007074	E007074	E010106	1
23	Brake Shoe - Outer	E004114	E005047	E007073	E007073	E010107	1
⁴ 19	Lining & Pin Kit	E004101	E005049	E007078	E007078	E010108	1

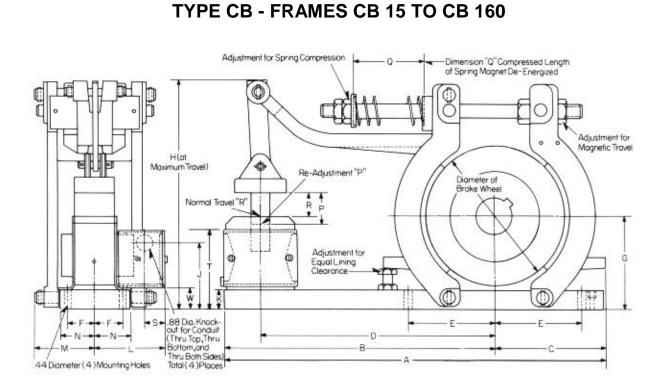
1 When ordering, give shop order number from nameplate.

2 Parts not illustrated.

3 Brake Shoe with lining.

4 Lining Kit for old style brakes with rivet type linings.

Note: As of January 1993 brake assemblies and replacement shoes have bonded linings.



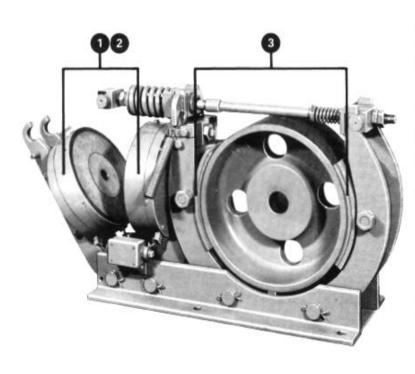
MAGNETIC SHOE BRAKES DIMENSION SHEET

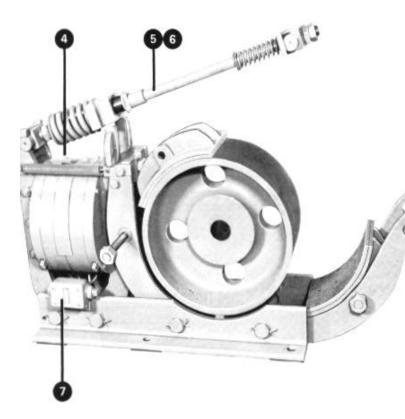
FRAME	В	rake Who	eel																		
No.		A	в	С	D	E	F	G	н	J	к	L	М	N	Ρ	R	s	т	w		
CB 15	4.50	2.75	1.625	12.00	8.25	3.75	6.62	3.00	.94	3.07	8.31	2.47	.63	3.25	2.06	1.25	1.00	.85	1.13	3.25	.66
CB 35	5.50	3.25	1.625	14.13	9.73	4.38	8.10	3.50	1.03	3.83	9.43	2.72	.88	3.25	2.45	1.50	1.00	.85	1.13	3.50	.91
CB 75	7.00	4.25	1.875	19.25	13.75	5.50	11.78	4.38	1.31	4.75	12.00	3.24	1.00	3.64	2.98	1.75	1.50	1.17	1.12	4.00	1.12
CB 110	7.00	4.25	1.875	19.25	13.75	5.50	11.78	4.38	1.31	4.75	12.00	3.24	1.00	3.64	2.98	1.75	1.50	1.17	1.12	4.00	1.12
CB 160	10.00	4.25	2.250	21.12	14.00	7.12	12.36	6.00	1.38	6.85	15.75	3.24	1.00	3.64	3.62	1.88	1.50	.92	1.12	4.00	1.12

FRAME No.	Torque Ft. Lbs.	Q	Brake Weight Lbs. (Less Wheel)	Wheel Weight Lbs.
CB 15 CB 15	10 15	2.22 2.01	20	6
CB 35 CB 35	25 35	2.88 2.69	30	10
CB 75 CB 75	50 75	4.12 3.85	60	25
CB 110 CB 110	85 110	3.74 3.52	60	25
CB 160 CB 160	125 160	3.65 3.36	78	40

MAGNETIC SHOE BRAKES

7





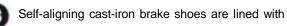
TM DC BRAKES

Shunt or Series Wound

Features:

Mechanically independent coils can be removed without releasing the brake shoes. The design of the twin-magnet system results in a real safety features: if the magnet coil should need replacement while the equipment is under load for example, while a crane is in the middle of a lift the magnetic assembly can be removed and replaced or repaired without releasing the braking action or disturbing the torque setting. In an emergency, short-time operation on a single coil is possible.

Twin-magnet coils are Epoxy-encapsulated for permanent protection against dust, water, grease, oil, chemicals and mechanical impact (except TM43 and 63 have single coil).



long-wearing molded linings secured with brass rivets. The interchangeable shoes are single-pivot mounted for positive self-alignment upon installation. Once the shoes are aligned, the pivot bolts are tightened, holding the shoes in position to prevent the shoe tips from dragging.

Shoe-travel indicator provides a positive visual check of lining wear for quick maintenance-inspection.

Over-the-wheel tie rod is a simple, rugged, easily

accessible linkage, permitting all adjustments from the top. Only two easy adjustments for shoe wear and spring tension.

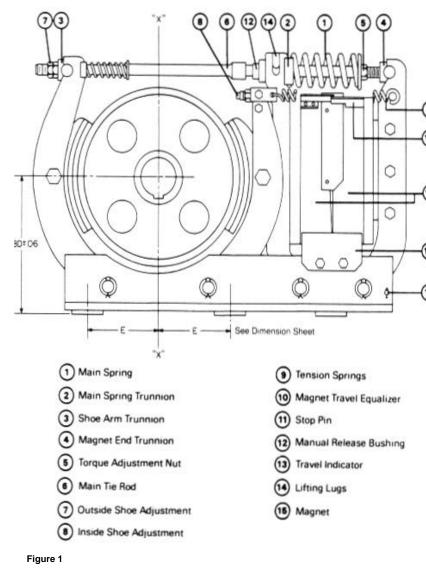
6 Unitized tie-rod-and-spring assembly facilitates

shoe replacement. The complete assembly removes as a unit, making the shoes accessible for lining replacement in one quick step. The brake can be released manually, if required.

The formation of the second se

part of the brake frame, allowing either right-hand or lefthand installation. On series coil brakes, Frame 1355 and larger, convenient accessible leads are furnished in place of the conduit box.

INSTALLATION AND SERVICE INSTRUCTIONS - TYPE TM



Series Brakes

Series Brakes carry the full load current of the motor (specify when ordering). When series wound brakes are applied to torque rating for 1 or 1/2 HR duty to correspond with motor ratings, the brake will release on 40% of full load current and remain released on 10% of full load current. When series brakes are applied on continuous duty motors and so rated, these brakes will release at 80% of full load motor current and remain released on 20% or less.

Shunt Brakes

Shunt Wound Brakes are designed for 1 or 8 hour duty. The shunt coil is designed for 64 volts for 8 hours or 80 volts for 1 hour. NOTE: TM 83 through TM 3014 Brake Assemblies are A.I.S.E. rated.

Description

The Type TM Brakes have a direct-current clapper type magnet and are designed so that when the magnet is energized, the shoes will clear the wheel and when de-energized, the shoes are pressed against the wheel by means of a compression spring. The force of the compression spring produces equal pressure of the shoes against the wheel and movement of the magnet results in equal movement of the shoes. Simple, rugged construction allows full accessibility of all parts for visual inspection or maintenance.

Operation (See Figure 1)

Compression spring (1) is contained between trunnion block (2) and nut (5) on tie rod (6) which passes through a clearance hole in trunnion blocks (2) and (3) and is threaded and pinned to block (4). The amount of spring force is adjusted by position of nut (5).

When brake is de-energized, main spring (1) exerts force on nut (5) and trunnion block (2) which, in effect, pulls trunnion (3) and the left shoe arm towards the wheel and pushes trunnion (2) and the inside armature which acts on bolt (8) and forces the inside shoe arms and shoes against the wheel. Geometry of the linkage is such that the shoe forces are exactly equal.

When brake is energized, magnet faces are pulled together by magnetic force, moving trunnion blocks (2) and (4) towards each other by the amount of magnet travel. Spring force is contained between trunnion block (2) and lock nut (5). Right magnet arm pushes outside shoe arm away from wheel and tension springs (9) cause inside shoe arms to follow movement of inside armature away from wheel.

Two adjustments are required during normal service. Nuts (7) and bolt (8) are turned clockwise to compensate for lining wear on outside and inside shoes respectively. Spring compression is adjusted for nameplate torque rating at factory. Readjustment at points (7) and (8) for lining wear will automatically bring spring compression back to initial setting.

TM Torque Ratings

Brake	Maximum Torque in Ft./Lbs.								
Frame	Series	Brake	Shunt	Brake					
Number	1/2HR	1HR	1HR	8HR					
TM 43	25	15	25	15					
TM 63	50	40	50	40					
TM 83	100	65	100	75					
TM 1035	200	130	200	150					
TM 1355	550	365	550	400					
TM 1665	1000	650	1000	750					
TM 1985	2000	1300	2000	1500					
TM 2311	4000	2600	4000	3000					
TM 3014	9000	6000	9000	6750					

MAGNETIC SHOE BRAKES

INSTALLATION AND SERVICE INSTRUCTIONS - TYPE TM

Mounting

Brake must be mounted on a flat surface parallel to shaft whose distance from center line of shaft agrees with BD dimensions for given frame within limits of +/-.06". Center line X-X should pass midway between mounting holes within .06".

Frame	BD	Frame	BD
43	4.25	1665	12.13
63	5	1985	13.25
83	7	2311	15.88
1035	8.38	3014	20.75
1355	9.88		

To remove wheel from brake as received, turn manual release bushing (12) out of trunnion block (2) to jack against collar on tie rod. Continue to turn bushing until wheel is free. If desired, the complete tie rod assembly may be lifted from brake by loosening adjustment nuts (7) until trunnion block (3) may clear half bearing in outside shoe arms. Push tie rod towards outside magnet arms until trunnion block (2) is free of its bearing and lift out complete tie rod assembly. The brake may be mounted without removing the tie rod assembly depending on personal preference. Lift wheel from brake and mount on shaft using tapered key provided if wheel has straight bore and tapered keyway. Loosen shoe bolts and make sure bolt heads will be on side away from motor to allow future shoe removal for relining. Lift brake into position on bedplate using hooks or sling under lifting lugs on inside armature. Insert hold-down bolts hand tight and align brake square with wheel. If tie rod was previously removed, reinstall using reverse technique from that described for removal. With tie rod in place, turn manual release bushing (12) back into trunnion (2) and jam tight to lock in place. Force of main spring is now holding shoes on wheel. Tighten hold-down bolts. Tighten shoe bolts.

Remove conduit box cover on shunt brakes. Bring in two power leads and connect to two bare terminals in box and tape leads. For minimum current on shunt brakes, jumper connection is made at the factory to place coils in series for cumulative magnetic flux, and leads are taped. Connection need not be disturbed except if coil is to be removed from brake. After making power connection, leave sufficient slack in coil leads outside of conduit box and replace conduit box cover.

For brake with high current series coils, one set of coil leads is brought out to each side of the brake and clamped.

Connect line to brake coil leads and securely after making the adjustment. tape to insulate. Series coils are connected at the factory so that one-half of the line current flows through each coil.

Adjustment - Frames 83 through 3014

Equalizer stop block (10) is intended to insure approximately equal movement of both shoes should the brake be mounted on a surface other than horizontal, or if undue friction should occur at one of the pivot points. Normally, when the brake is properly adjusted, and linkage is free from binding, stop block (10) has no function. Brake linkage is simple to understand and adjustments are not critical. With some practice, the average maintenance person should be able to adjust the brake completely by eye without aid of measuring instruments.

To adjust the brake, only setting of nuts (7) and bolt 8 need to be changed for the outside or inside shoe. When properly adjusted with brake deenergized, the air gap between the tops of the magnets should agree with the nameplate reading (may be observed by lifting part of rubber dust shield off magnet). Magnets should be approximately centered with stop (10). This may be done visually, or if in doubt, with a feeler gauge. Actual adjustment is accomplished as follows:

Lift one side of rubber dust shield off dowel pins, exposing top of magnets.

Loosen lock nuts at (7) and (8), and turn (7) and (8) to reduce air gap to approximately the amount given on the nameplate.

At this time, magnets should be Table 1 approximately centered about equalizer stop block (10). Replace rubber dust shield on dowel pins and tighten lock nuts at (7) and (8). Compressed length of main spring has automatically been brought back to that given point on the nameplate. When energized, brake shoes should have adequate movement to clear wheel at operating temperature without dragging.

Frames 43 and 63

These smaller frame sizes have a single coil, as opposed to the larger frames which have two. The inside shoe adjustment for lining wear is the only difference between the smaller frames and larger frames; otherwise, the adjustments are identical. When adjusting the inside shoe, loosen the shoe bolt prior to making an adjustment at bolt (8). Re-tighten shoe bolts

Readjustment for Lining Wear

For optimum operation, brakes of any manufacture should be readjusted to normal magnet travel as often as a reasonable maintenance schedule will allow. Minimum travel will result in fastest, quietest operation with the least amount of shock and bearing wear. The TM brake will operate at a long travel, and if necessary, allows considerable lining wear between adjustments. In lieu of a maintenance schedule, travel indicator brackets (13) on top of the magnet may be used as a visual guide for maximum wear allowable between adjustments. When magnet gap opening progresses to the point where ends of indicator brackets line up, as in Figure 2, it is time to readjust for lining wear (see Adjustment, below).

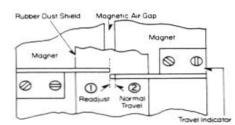


Figure 2: Magnet Travel Indicator

Torque Adjustment

Brake is adjusted at the factory for maximum torque rating for voltage as given on nameplate. With brake de-energized, and magnet air gap adjusted for normal travel, compressed length of spring should be per value in Table 1. Readjustment for lining wear will automatically return spring compression to original setting. If reduced torque is required, back off nut (5) until desired torque is obtained.

Frame	Magnet Normal Travel	Compressed Length Spring	Free Length Spring
43	.06	2.81	3.26
		2.63	
63	.06	3.38	4.0
		3.25	
83	.06	4.31	5.0
		4.25	
		4	
1035	.06	4.31	5.0
		4.25	
		4	
1355	.13	5.44	6.0
		5.38	
		5.12	
1665	.13	5.38	6.0
		5.31	
		5.13	
1985	.13	6.44	7.0
		6.31	
		6.13	
2311	.16	8.38	9.0
		8.31	
		8.13	
3014	.19	9.69	10.26
		9.63	
		9.5	

MAGNETIC SHOE BRAKES

Manual Release and Relining Shoes

Brake may be released with a wrench Shunt Coil Operation - Shunt brakes wav.

assembly. Remove shoe bolts and slide coil. shoes out around wheel. After relining shoes, reassemble shoes and tie rod Series Coil Operation - Series brakes are and readjust brake. Stow manual operated with coils connected directly in release bushing back into block (2). motor circuit. Due to high currents, coils Tighten shoe bolts.

vertically, release brake manually and may be operated on one coil for shorter remove tie rod assembly. Remove bolts time by disconnecting defective coil. holding equalizer stop block (10) in place and lean magnets back against Removing and Replacing Magnet stop pin (11). Lift out wheel. After Coils replacing wheel, move magnets back to Either or both coils may be removed and normal position, replace equalizer block, replaced without disturbing brake center approximately between magnets adjustment or removing spring load from and bolt up tight. Replace tie rod shoes. Each coil is cast directly in assembly and stow manual release magnet half with epoxy resin and is not bushing in trunnion block (2).

Coil Connection

coils integrally cast with the magnet magnet air gap. Disconnect coil leads outer ring and center core in epoxy inside conduit box and pull leads out of resin. Damaged or defective coils are box through rubber grommets for shunt not repairable and must be replaced coils or disconnect and unclamp leads with the steel parts as a unit. Coils are for series coils. Remove cotter pin from attached to the brake armatures and one end of stop pin (11) in magnet end each moves one-half of the length of the of brake base and remove stop pin. magnet air gap each time the brake Unhook tension springs (9) from pin on operates. Coil leads are of highly outside armature and swing outside flexible insulated cable. These leads are armature assembly down to rest on floor. connected to the coil terminals and Remove (4) bolts holding outer magnet with Permatex covered compound at bottom of coil and extend Allen head cap screw in counter bore in to terminal board or junction box at side face of center magnet core. Lift coil from of brake for customers connection. If brake. Large frame magnets have broken or damaged, coil leads are tapped holes at top for use with eyebolt easily replaced.

into conduit box or terminal board at compound at the coil terminals. If new side of brake and connected to two bare leads are required, scrape compound terminals. Two coil leads are already from terminal until hardware is exposed. connected at the factory for cumulative Replace lead and cover terminals with magnetic flux. This connection need not coat of compound. When changing coils, be disturbed except when removing coil transfer travel indicator to new magnet. from brake. After making connection, leave sufficient slack in leads into conduit box through rubber allow free movement of leads with board. Make connection to power leads magnet motion.

for maintenance by turning release are usually supplied with low voltage bushing (12) out of trunnion block (2) to coils for speedy action unless otherwise jack against collar on tie rod until wheel specified, and it is necessary to have a is free. To return brake to normal resistance in series with the coil. Coil operation, screw bushing (12) back into voltage and value of series resistance is block (2) and jam tight to lock out of given in on page. Coils are connected per Figure 3 with full current flowing through both coils. In case of coil failure. To remove shoes for relining, release brake may be operated on one coil for brake manually and remove tie rod shorter time by shorting out defective

are connected so that 1/2 of the motor current flows through each brake coil as To lift wheel and motor armature per Figure 4. In case of coil failure, brake

repairable except for replacement of flexible leads.

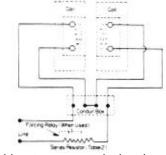
The Type TM Brake has two identical Remove rubber dust shield protecting gasket ring from outside of armature and one for lifting.

At installation, power leads are brought Leads are covered with insulating line Bolt new magnet in place and bring leads between coil and conduit box to grommets for shunt coils or to terminal per Figure 3 or 4 depending on type of

coils being used, and tape leads.

Raise outside armature back up to normal position with bearings of trunnion block (4) engaged in half bearing in outside clapper arms. Hook springs (9) in grooves of spring pin. Replace stop pin (11). Replace rubber dust shield over magnet air gap using new roll pins in magnet if required.

When installing new magnets, magnet faces may not make even contact due to standard machining tolerances. To



avoid stresses and bearing wear

Figure 3: Shunt Coil Connection resulting from such misalignment.

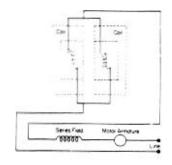


Figure 4: Series Coil Connection

MAGNETIC SHOE BRAKES INSTALLATION AND SERVICE INSTRUCTIONS - TYPE TM

energize brake to close magnet faces. Loosen bolts holding lever arms to outside armature. This will allow magnets to seat properly. Tighten bolts securely. This operation is required only when replacing either one or both coils.

Right or Left Hand Mounting

Standard mounting is right hand, as in Figure 1, when facing commutator end of motor. Brake magnet is on right side with conduit box next to motor. Shoe bolts are inserted with heads away from motor to allow removal of shoes without dismounting brake.

Left hand or opposite standard mounting with magnet on left involves insertion of shoe bolts from opposite side and interchanging of conduit box and travel equalizer plate. Left hand brake may be ordered as opposite standard from factory or converted in field.

Lubrication

Pivot points in base and lower arms are fitted with porous bronze "oilite" type bearings. A few drops of oil around these bearings occasionally will maintain their lubricated quality. All pivot pins are stainless steel. Pivot pins at top of arms ride in half bearings and are easily accessible. These pins and wear pad contacted by adjusting screw (8) (see Figure 1) should also receive a few drops of oil occasionally.

Failure to Operate

The brake may fail to release for any of the following reasons:

- Lead wire to operating coil may be disconnected.
- Voltage may be below normal.

• Brake may not be adjusted properly. Lining may be worn causing magnet air gap to open beyond point where magnet operates sluggishly or not at all. Readjust per Adjustment paragraph.

• One or both coils may be defective. Check coil resistance against Table 2.

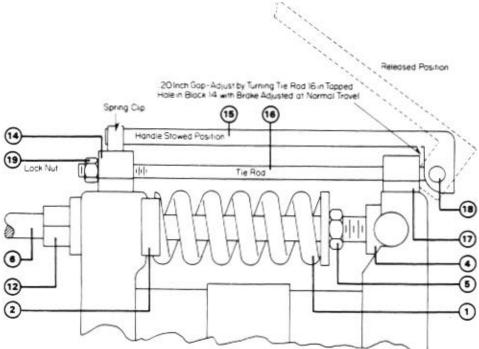


Figure 5: Hand Release for Frames 43 thru 1665 as shown. Frame 1985 and 2311 have Crank Type Hand Release.

Compensate for temperature if coil is hot. If one coil is defective, short time emergency operation is possible on one good coil.

• Coils may be improperly connected with resultant bucking instead of cumulative magnetic flux. Check wiring per Figure 3 or 4.

Brakes with Hand Release

When specified on order, a lever-type hand release is available as optional at extra cost. Figure 5 shows simple mechanism used on open brakes allowing guick release of brake torgue as for lowering a load in case of power failure. The standard hand release is non-latching and allows only the minimum amount of shoe clearance to allow the wheel to turn. When brake must be released for longer time or with more shoe clearance as for maintenance or installation, release brake with bushing item (12).

Addition of the hand release complicates brake maintenance since block (14) must be removed in order to remove main tie rod assembly from the brake. Overall dimensions of brake are also slightly increased by the hand release linkage. For enclosed brakes, hand release parts and cam action are basically the same except that cam linkage is modified to suit enclosure.

Adjustment of Hand Release - Since blocks, items (14) and (17), move apart with the magnets as brake lining wears, clearance must be allowed between block (17) and cam on handle (15) to avoid restricting normal brake operation. With brake de-energized and adjusted for normal magnet gap, clearance between items (15) and (17) should be approximately .20 inches and may be measured with feeler. Gap may be varied by removing link pin (18), loosening lock nut (19), and turning rod (16) in block (14) in 180° increments to attain proper clearance.

RECTIFIER OPERATION

DC Magnetic Shoe Brakes

Before checking voltages on the rectifier panel, fully adjust brake.

Input power to the rectifier can be 380, 480, 550 or 600 volts AC. When the rectifier is energized 220 volts DC is applied to the + and - terminals, which are connected to the brake coils. After a time factor of approximately .8 seconds, a holding voltage is applied to the brake to maintain the brake in the released position.

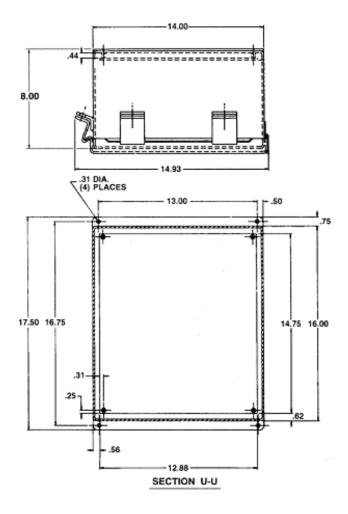
The holding voltage required to "hold in" the brake (released position) is approximately 30 volts DC.

When power to the rectifier is cut-off, the brake will de-energize quickly and the main brake spring will set the brake.

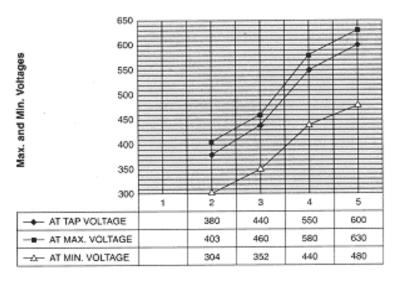
For more information on setting and holding, setting and releasing times, and general electrical information on brakes, see Shunt Brake connections or consult the factory. A wiring diagram will be furnished with each rectifier or upon request.

Two identical brake assemblies can be operated simultaneously by a single rectifier. This applies to TM43, TM63, TM83, TM1035, TM1355, TM1665 and TM1985 brake sizes.

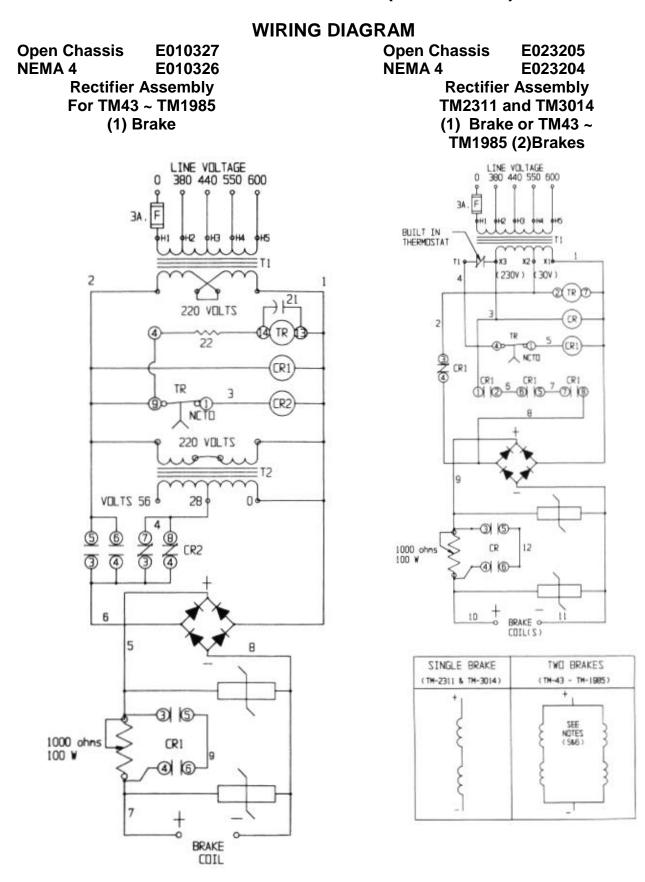
OPTIONAL N4 RECTIFIER ENCLOSURE



Acceptable AC Voltage Ranges by Tap Voltages All Voltage Ranges are 50/60 Hz



RECTIFIER OPERATION; TM BRAKE ASSEMBLY (TYPE TMR)



SHUNT BRAKE RESISTORS/ FORCING RESISTORS

SHUNT BRAKE RESISTORS

Shunt brakes are designed for one or eight hour duty and rated at 80 volts (1 hr.) or 64 volts (8 hr.). To operate the brake, it is necessary to have a resistor in series with the brake assembly. Coil voltage and value of series resistor, based on a line voltage of 250 VDC is shown in the following table. The TM brake has two identical coils except the TM43 and TM63 which have only one coil.

	Standard	Cold Coil		lts/Coil	Ohms	Line 1	Resistor Part		
Frame	Shunt Coil	Resistance			Continuous			nittent	- Number
	Style No.	OHMS/ Coil	Cont	Int	OHMS	Amp	OHMS	Amp	Number
43 ²	E004051	73	64	80	212	0.88	155	1.1	E004044
63 ²	E006026	59.4	64	80	171	1.08	125	1.35	E006024
83	E008026	31.3	32	40	177	1.0	132	1.28	E008022
1035	E010049	23.8	32	40	137	1.35	101	1.68	E010044
1355	E013026	19.1	32	40	111	1.68	81	2.1	E013022
1665	E016026	8.83	32	40	51.5	3.6	37.7	4.53	E010622
1985	E019025	8.51	32	40	49.5	3.8	36.2	4.7	E016022
2311	E023026	6.12	32	40	35.6	5.2	26.1	6.54	E023022
3014	E030024	4.5	32	40	26.2	7.12	19.1	8.9	E030022

STANDARD SHUNT COIL INFORMATION

1 For 250 VDC without discharge resistor.

2 TM 43 and TM63 frames differ from larger TM brakes. Only (1) coil is used.

FORCING SCHEME

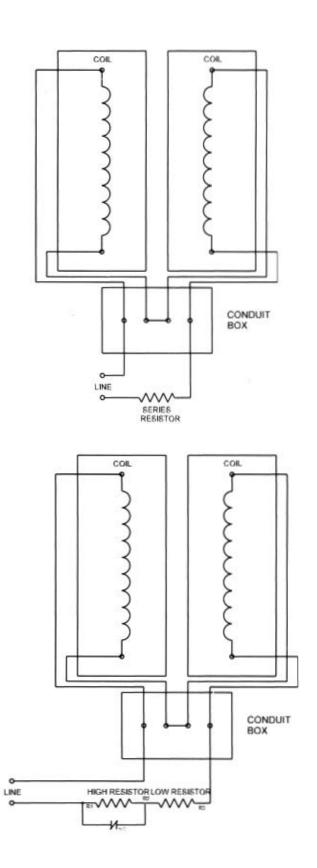
Often, it is desirable to force magnet coils with a "higher-than rated" voltage to obtain a faster response time. The following table shows typical resistors which can be used to obtain satisfactory results. The customer's control circuit must be designed so that when first energized, the high resistance section is shorted out causing a high voltage to be impressed across the brake. After a short time delay (.8 to 1 second) a relay inserts the high resistance section reducing the holding voltage to approximately 25 to 30 volts. Forcing and hold voltages are not critical. Both release and setting times are faster with a forcing scheme when compared to a standard shunt circuit.

Holding at a low voltage also allows operation at the full brake torque (1 hr. rating) at a continuous duty cycle (8 hr. rating).

	External	High Resistor	Low Resistor	Coil	Volts	Coil /	Amps
Frame	Resistor Forced Part Number	Ohms R1-R2	Ohms R2-R3	Inrush	Hold	Inrush	Hold
TM 43	E004045	720	26	185	22	2.5	.30
TM 63	E006025	585	22	182	22	3.0	.37
TM 83	E008023	625	24	182	22	2.8	.35
TM 1035	E010045	460	22	173	23	3.5	.47
TM 1355	E013023	380	13	188	23	4.7	.57
TM 1665	E016023	165	6.5	184	24	10	1.3
TM 1985	E019022	165	6.5	182	23	10	1.3
TM 2311	E023023	120	4.7	182	23	14	1.8
TM 3014	E030023	77	3.4	182	25	20	2.7

SHUNT BRAKE RESISTORS/FORCING RESISTORS

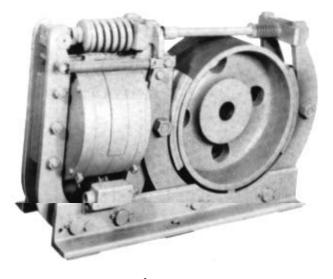
STANDARD SHUNT BRAKE



FORCING SCHEME

NOTE: Normally closed contact is to be customer supplied.

COIL DATA SHEET - TYPE TM FRAMES 43 TO 3014



Series Coil

Frame	Coil Am	peres	Resistance	Style
Size	One Hour	Half Hour	Ohms 1	Number 2
83	25	36.5	0.086	E008053
İ	20	27.5	0.143	E008054
	15.5	21.5	0.206	E008055
	10.5	12.5	0.713	E008052
	4.1	5.5	3.13	E008056
1035	38	54	0.0494	E010109
	28.5	38.5	0.099	E010110
	20	27.5	0.209	E010111
	15	21	0.343	E010112
	10	13	0.905	E010113
1355	105	144	0.0137	E013057
	63	85	0.0358	E013058
	46	63	0.0604	E013059
	36	48	0.116	E013060
	30	40	0.1551	E013061
	25	33	0.243	E013062
	13.5	18	0.73	E013063
1665	137	180	0.0099	E016055
	105	150	0.0153	E016056
	90	125	0.021	E016054
	71	98	0.0327	E016057
	63	85	0.0415	E016058
	46	63	0.0797	E016059
1985	178	245	0.0054	E019061
	137	180	0.0117	E019062
	90	123	0.022	E019063
	63	85	0.052	E019064
2311	360	475	0.0027	E023053
	265	360	0.0049	E023054
3014	890	1175	0.0004	E030029
	488	640	0.0014	E030030

1 Average

2 Two required connected in parallel

Shunt Coils

Frame	Volts p	er Coil	Resistance	Style
Size	Continuous	Intermittent	Ohms 1	Number 2
43	64	80	73	E004051 3
63	64	80	59.4	E006026 3
83	32	40	31	E008026
1035	32	40	24	E010049
1355	32	40	19	E013026
1665	32	40	8.8	E016026
1985	32	40	8.5	E019025
2311	32	40	6.1	E023026
3014	32	40	4.5	E030024

1 Average

2 Two required connected in series.

3 One required.

ORDERING INFORMATION:

- Give style number and name of part.
 Give the complete nameplate reading.
 State method of shipment desired.
- Send all orders or correspondence to nearest sales office of the company.
- Other coils available. Contact nearest sales office.

ELECTRIC/HYDRAULIC BRAKES TYPE TMSCH

The Type TMSCH Brake utilizes a DC Electric Brake (Type TMSC) with a hydraulic actuating cylinder. This brake is spring set and electrically released. When the brake is energized electrically, twin magnets compress the main spring which frees the brake wheel. The hydraulic actuator then becomes usable. Type TMSCH brakes are available in one or two brake systems with a manual control cylinder and pedal, which is typically located in the operators cab. This combination brake can be used electrically with remote control or manually via hydraulic operation.

Size	Style	*Electric	Operation	Hydraulic									
		Series	Shunt	Operation									
8"	TMSCH83	65	75	100									
10"	TMSCH1035	130	150	200									
13"	TMSCH1355	365	400	550									
16"	TMSCH1665	650	750	1000									

TMSCH BRAKE SIZE AND TORQUE RATINGS

All TMSCH systems include the necessary brake(s) and hydraulic actuator(s), fluid reservoir/bleeder, bleeder pushbutton, one control cylinder with pedal, armored hoses, tubing, fittings, and brake fluid.

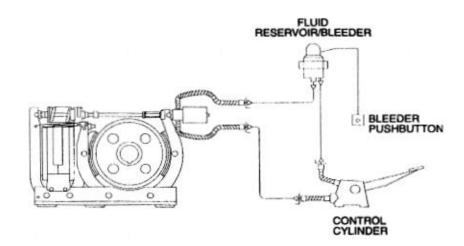
One brake systems include 100 ft. of 5/16" tubing. Two brake systems include 250 ft. of 5/16" tubing.

See page 18 for piping diagrams for the Type TMSCH one and two brake systems.

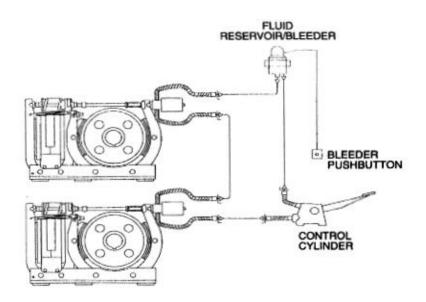
* Full AISE torque ratings could be applicable depending on application and/or possible use of a rectifier.

ELECTRIC/HYDRAULIC BRAKES TYPE TMSCH PIPING DIAGRAM

Type TMSCH one brake system

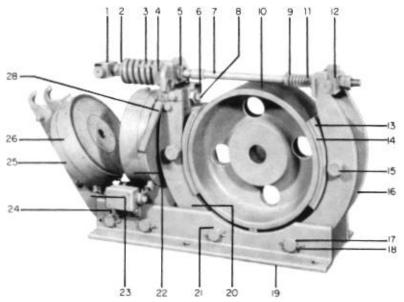


Type TMSCH two brake system



REPLACEMENT PARTS LIST - TYPE TM FRAMES 43 AND 63

DC Magnetic Shoe Brakes



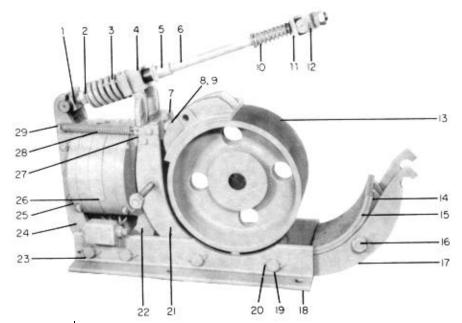
Ref.	Description of Dent	Part Numbers	No.	
No.	Description of Part	Frame 43	Frame 63	Used
1	Hinge block, magnet end	E004142	E006069	1
2	Main spring seat	E004076	E006034	1
3*	Main spring	E004079	E006037	1
4	Hinge block, inner	E004074	E006032	1
5	Release bushing	E004075	E006033	1
6	Adjusting bar	E004085	E006045	1
7	Tie rod	E004097	E006049	1
8	Adjusting screw	E004115	E006058	1
9	Wheel end spring seat	E004071	E006028	1
10	Brake wheel	(2)	(2)	
11 *	Wheel end spring	E004078	E006036	1
12	Wheel end hinge block	E004143	E006070	1
13	Brake shoe complete	E004047	E006023	2
14 * (3)	Lining & rivet kit	E004117	E006059	1
15	Brake shoe bolt	E004070	E004070	2
16	Outer brake shoe arm	E004118	E006056	1
17	Bushing	E004098	E004098	2
18	Pivot pin	E006031	E006031	3
19	Base	E004084	E006044	1
20	Inner brake shoe arm	E004119	E006060	1
21	Bushing	E004098	E004098	2
22	Inner clapper	E004088	E006042	1
23	Outer magnet arm	E004093	E006061	1
24	Bushing	E004098	E004098	2
25	Outer clapper	E004090	E006041	1
26 *	Coil and magnet	(2)	(2)	1
(1)	Dust seal for coil	E004077	E006035	1
28 *	Tension spring	E004080	E006038	2

(1) Not illustrated

(1) Not indicated
(2) When ordering, give complete nameplate reading and number stamped on part
* Recommended for stock
(3) Lining Kit for old style brakes with rivet type lining

Note: As of January 1993 brake assemblies and replacement shoes have bonded linings.

DC Magnetic Shoe Brakes



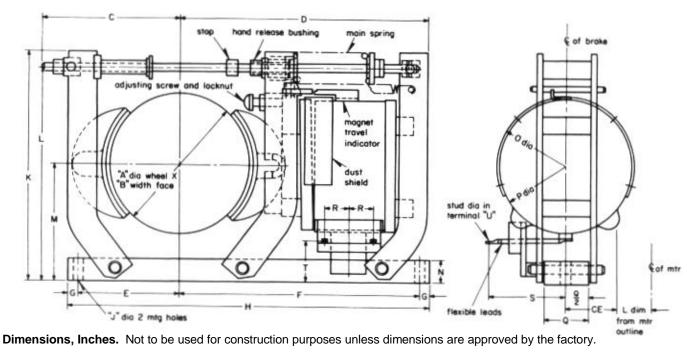
Ref.	Description of Dort	Part Numbers											
No.	Description of Part	Frame 83	Frame 1035	Frame 1355	Frame 1665	Frame 1985	Frame 2311	Frame 3014	Used				
1	Hinge block, magnet end	E008067	E008067	E013125	E016073	E019070	E023062	E030096	1				
2	Main spring seat	E008037	E010076	E013039	E016206	E019042	E023038	E030026	1				
3 *	Main spring	E008039	E010080	E013042	E016039	E019044	E023045	E030025	1				
4	Inner hinge block	E008034	E010074	E013036	E016035	E019038	E023036	E030031	1				
5	Release bushing	E010075	E010075	E013037	E013037	E019039	E019039	E030032	1				
6	Tie rod	E008049	E010086	E013052	E016200	E019057	E023047	E030033	1				
7	Adjusting screw block	E008041	E010083	E013045	E016040	E019048	E023046	E030034	1				
8	Adjusting screw	E008035	E008035	E016036	E016036	E019040	E019040	E030035	1				
+ 9	Flex locknut			NO LO	ONGER AVAIL	ABLE							
10 *	Wheel end spring	E010079	E010079	E013041	E016207	E023027	E023027	E023027	1				
11	Wheel end spring seat	E008031	E008031	E013031	E016203	E019032	E023030	E030036	1				
12	Wheel end hinge block	E008068	E008068	E016031	E016205	E019071	E023063	E030097	1				
13	Brake wheel	(2)	(2)	(2)	(2)	(2)	(2)	(2)	1				
14	Brake shoe complete	E008025	E010047	E013025	E016025	E019024	E023025	E030027	2				
15 * (3)	Lining & rivet kit	E008057	E010114	E013055	E016053	E019065	E023055	E030054	1				
16	Brake shoe bolt	E010070	E010070	E013053	E016027	E019027	E023028	E030040	2				
17	Outer brake shoe arm	E008042	E010115	E013064	E016060	E019058	E023056	E030041	1				
(1) *	Bushing	E008028	E008028	E013027	E013027	E019028	E019028	E030045	2				
18	Base	E008059	E010116	E013066	E016051	E019066	E023057	E030042	1				
19	Bushing	E008028	E008028	E013028	E013028	E019029	E019029	E030045	8				
20	Pivot pin	E010072	E010072	E013034	E016033	E019036	E023034	E030043	4				
21	Inner brake shoe arm	E008060	E010117	E013067	E016061	E019067	E023058	E030044	1				
(1) *	Bushing	E008028	E008028	E013027	E013027	E019028	E019028	E030045	2				
22	Clapper and arm	E008061	E010118	E013068	E016052	E019059	E023052	E030046	1				
(1) *	Bushing	E008027	E008027	E013027	E013027	E019028	E019028	E030045	2				
23	Stop pin	E008029	E008029	E013030	E016028	E019030	E023029	E030047	1				
24	Clapper arm	E008045	E010119	E013056	E016063	E019060	E023051	E030048	1				
25	Clapper	E008030	E010078	E013029	E016050	E019031	E023040	E030049	1				
26 *	Coil and magnet	(2)	(2)	(2)	(2)	(2)	(2)	(2)	2				
(1)	Dust seal for coil	E008038	E010077	E013040	E016038	E019043	E023039	E030050	1				
27	Spring clip	E008032	E008032	E013032	E016030	E019033	E023031	E030051	2				
28 *	Tension spring	E008040	E010085	E013044	E013044	E023044	E023044	E030052	2				
29	Tension spring pin	E010073	E010073	E013035	E016034	E019037	E023035	E030053	1				
(1) N	ot illustrated	-				Niere A.		00 kaska seesa					

When ordering, give complete nameplate reading and part number stamped on part Recommended for stock Standard hardware item (2)

+ (3) Lining Kit for old style brakes with rivet type lining Note: As of January 1993 brake assemblies and replacement shoes have bonded linings.

MAGNETIC SHOE BRAKES DIMENSION SHEET TYPE TM AND TMR - FRAMES 43 AND 63

Single Magnet Type with Rectifier Available for AC Operation



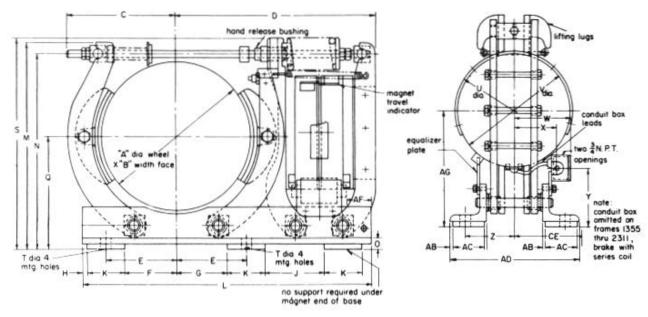
Frame No.	Wheel Dia. A	Width of Face B	С	D	Е	F	G	н	J	к	L	М	N	Dia O	Dia P
43	4 1/2	3 1/8	4 11/16	8 3/4	3 3/16	8 11/16	7/16	12 3/4	9/16	8 9/16	7 7/8	4 1/4	1	4 13/16	4 9/16
63	6	3 1/8	5 15/16	10 11/16	4 3/8	10 3/8	7/16	15 5/8	9/16	9 13/16	9 1/8	5	1	5 7/8	5 5/8
Frame No.	Q	R	S	т	Dia U	CE		nt: Lbs. thout Wh		Brake Wheel					
43	2	1/2	2 7/8	1 3/4	1/4	2 7/8		38		6					
63	2	1 1/8	3 1/8	1 3/4	1/4	3 1/2		60		10					

MAGNETIC SHOE BRAKES DIMENSION SHEET TYPE TM AND TMR - FRAMES 83 AND 3014

with Rectifier Available for AC Operation

Frames 83 to 2311 Shunt, Frames 83 and 1035 with Series Coil

Standard right hand mounting shown. Position of conduit box and equalizer plate reversed for left hand mounting.



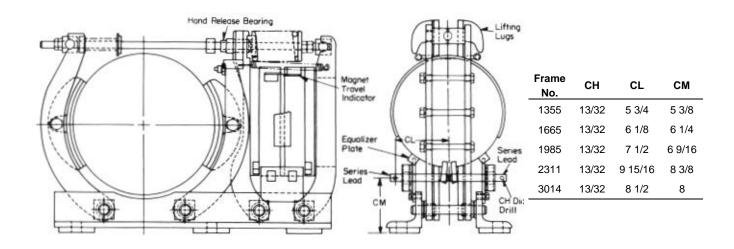
Dimensions, Inches Not to be used for construction purpose unless dimensions are approved.

Frame No.	Whee Dia. /		ith of ce B	С	D	Е	F		G	Н	J	к	L	м	Ν	0	Q
83	8	3	1/4	6 1/2	14 3/4	3 1/4	2 1	/2 2	2 1/2	1/4	7 1/2	1 1/2	18 1/4	13	12 1/8	5/8	7
1035	10	3	3/4	7 5/8	17	4	3	5	3	1/4	7 3/4	2	22 1/4	15 1/2	14 5/8	1	8 3/8
1355	13	5	3/4	9 7/8	19 7/8	5 3/4	4 1	/2 4	4 1/2	1/2	5 5/8	2 1/2	26 1/4	18 7/8	17 5/8	27/32	9 7/8
1665	16	6	3/4	11 1/2	21 1/2	7 1/2	5 1	/2 5	5 1/2	1/2	6 3/8	4	30 7/8	22 1/4	21	1 1/4	12 1/8
1985	19	8	3/4	14 1/2	26 1/2	9 1/4	6 5	/8 7	7 1/4	3/8	8 13/16	4	36 13/16	25 3/8	23 5/8	1	13 1/4
2311	23	11	1/4	17 3/4	30 1/2	11 3/4	1(C	10	1	7 5/16	3 1/2	44 13/16	30 3/8	28 3/8	1 1/4	15 7/8
3014	30	14	1/4	23 3/8	41 5/8	15	1:	2	12	1/2	9 1/2	6	60 1/8	40	37 1/2	1 1/2	20 3/4
Frame No.	S	т	U	v	w	x	v	z	AB	AC	AD	AF	AG	CE		Lbs. Brake ut Wheel	Brake Wheel
83	13 1/8	1 1/16	7 1/8	6 5/8	5 1/8	3 3/8	3	2 7/8	1/4	1 1/2	7 1/2	15/16	6 7 3/16	3 3/4		100	30
4005				o = /o			~ ~ /~										

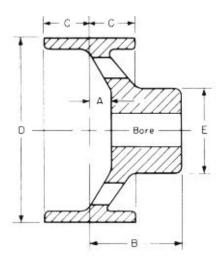
1035	15 3/4	1 1/16	9 1/8	8 5/8	5 1/8	3 3/8	3 3/8	3 1/8		2	7 1/2	2 1/2	8 11/16	3 3/4	165	40
1355	19	1 3/16	11 1/4	10 7/8	6 3/8	4 5/8	4 1/4	4 1/2	1/4	2 1/2	11 7/16	1 7/8	10 15/32	5 3/4	290	80
1665	22 3/4	1 1/16	12 3/4	12 1/4	6 1/2	4 3/4	6 1/4	5 3/8	1/4	3 1/2	13 15/16	2 9/16	12 5/8	7	490	170
1985	25 5/8	1 1/16	14 3/8	13 7/8	7 7/8	6 1/8	6 1/2	6 1/2	1/4	3	15 11/16	3 5/8	13 15/16	7 7/8	840	260
2311	30 3/8	1 5/16	16 1/4	15 3/4	9 1/4	7 1/2	7 1/16	8		3 1/2	18 1/2	4 3/4	17 1/4	9 1/4	1200	450
3014	40 1/4	1 9/16	20 1/4	19 3/4	9 3/8	7 5/8	8 3/16	9 1/2	1/2	5	22 3/4	8 1/8	23 1/2	11 3/8	2450	760

MAGNETIC SHOE BRAKES DIMENSION SHEET TYPE TM AND TMR - FRAMES 1355 TO 3014 with Rectifier Available for AC Operation

Diagram shown below depicts the dimensions of a TM style brake, frame sizes 1355 through 3014 with a **Series Coil**.



MAGNETIC SHOE BRAKES DIMENSION SHEET TYPE CB BRAKE WHEELS

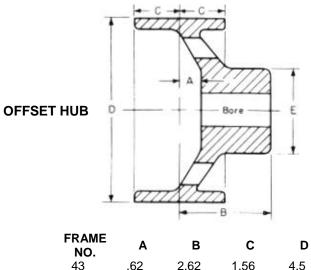


- Hub length and diameter shown are the maximum obtainable from standard casting.
- If finish bore is not specified on order, brake wheel will be supplied with a solid hub.
- Standard wheels are ASTM A 536 ductile iron 80-60-03 or 80-55-06.

FRAME NO.	Α	В	С	D	Е	* MAX. BORE	* MAX. SPEED	WK ²
CB 15	.44	2.64	1.38	4.50	2.75	1.625	9850	.11
CB 35	.00	2.62	1.62	5.50	2.75	1.625	8050	.30
CB 75	.00	3.26	2.12	7.00	3.12	1.875	6325	.97
CB 110	.00	3.26	2.12	7.00	3.12	1.875	6325	.97
CB 160	.88	4.26	2.12	10.00	3.75	2.250	4425	3.74

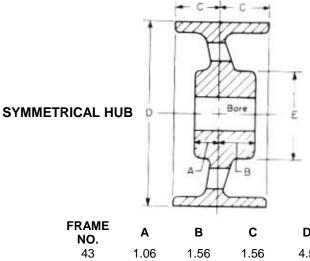
* Consult factory if you exceed bore diameter or maximum speed.

MAGNETIC SHOE BRAKES DIMENSION SHEET TYPE TM BRAKE WHEELS



- Standard wheels are ASTM A 536 ductile iron 80-60-03 or 80-55-06.
- Hub length and diameter shown are the maximum obtainable from standard casting.
- If finish bore is not specified on order, brake wheel will be supplied with a solid hub.

FRAME NO.	Α	В	С	D	Е	* MAX. BORE	* MAX. SPEED	WK ² LB. FT ²
43	.62	2.62	1.56	4.5	2.75	1.625	9850	.14
63	50	3.00	1.56	6.0	3.25	2.00	7375	.44
83	.50	4.25	1.62	8.0	3.75	2.25	5525	1.5
1035	.00	4.25	1.88	10.0	3.75	2.75	4425	3.7
1355	.88	5.38	2.88	13.0	5.75	3.75	3400	13.6
1665	1.00	6.50	3.38	16.0	7.00	4.50	2750	43.8
1985	1.50	7.50	4.37	19.0	7.00	4.625	2350	100.4
2311	1.44	8.75	5.62	23.0	8.50	5.50	1925	237.4
3014	1.50	10.75	7.12	30.0	13.00	7.50	1475	772.8



- Standard wheels are ASTM A 536 ductile iron 80-60-03 or 80-55-06.
- Hub length and diameter shown are the maximum obtainable from standard casting.
- If finish bore is not specified on order, brake wheel will be supplied with a solid hub.

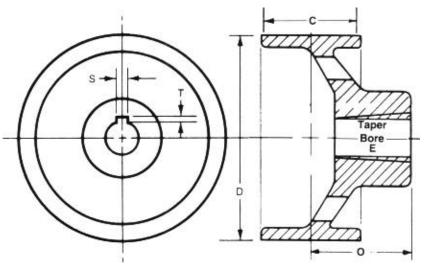
FRAME NO.	Α	В	С	D	Е	* MAX. BORE	* MAX. SPEED
43	1.06	1.56	1.56	4.5	2.38	1.38	9850
63	1.06	1.56	1.56	6.0	2.75	1.58	7375
83	1.56	2.44	1.56	8.0	3.75	2.25	5525
1035	2.06	2.44	1.88	10.0	4.38	2.88	4425
1355	2.57	3.18	2.88	13.0	5.50	3.50	3400
1665	1.75	3.62	3.62	16.0	7.00	4.50	2750
1985	1.88	4.12	4.62	19.0	8.50	4.625	2350
2311	2.38	4.62	5.62	23.0	8.50	5.50	1925

* Consult factory if you exceed bore diameter or maximum speed.

MAGNETIC SHOE BRAKES DIMENSION SHEET TYPE TM BRAKE WHEELS

FINISH BORE BRAKE WHEELS

Finish bore brake wheels are completely machined with 1 1/4 inch per foot tapered bore (plus or minus .003"), keyslot and correct hub length, suitable for current AISE mill type motors. If finish bore wheels tabulated are not suitable, order STOCK bore brake wheels.



	ELECTRIC AISE							
WHEEL	Motor	Brake	Brake Dimensions in Inches					
NUMBER	Motor Frame	Dia.	Tapered	Keyway		Е	0	С
	Fidille	D	Bore	Width S	Depth T	E	0	C
E008514	402-602-802	8"	1.75	.50	.25	3.00	4.00	3.25
E008501	603-803-604-804	0	2.00	.50	.25	3.50	4.00	3.25
E010517	402-602-802		1.75	.50	.25	3.00	4.25	3.75
E010503	603-803-604-804	10"	2.00	.50	.25	3.50	4.25	3.75
E010535	606-806		2.50	.50	.25	4.00	4.25	3.75
E013543	603-803-604-804		2.00	.50	.25	3.50	5.00	5.75
E013544	606-806		2.50	.50	.25	4.00	5.00	5.75
E013513	608-808	13"	3.00	.75	.25	4.50	5.375	5.75
E013545	610-810		3.25	.75	.25	4.50	5.375	5.75
E013520	612-812		3.625	.75	.25	5.00	5.375	5.75
E016513	606-806		2.50	.50	.25	4.00	6.50	6.75
E016526	608-808		3.00	.75	.25	4.50	6.50	6.75
E016527	610-810	16"	3.25	.75	.25	4.50	6.50	6.75
E016506	612-812		3.625	.75	.25	5.00	6.50	6.75
E016528	614-814		4.25	1.00	.375	5.00	6.50	6.75
E019521	608-808		3.00	.75	.25	4.50	7.50	8.75
E019522	610-810		3.25	.75	.25	4.50	7.50	8.75
E019511	612-812	19"	3.625	.75	.25	5.00	7.50	8.75
E019505	614-814		4.25	1.00	.375	5.00	7.50	8.75
E019523	616-816		4.625	1.25	.375	5.50	7.50	8.75
E023513	612-812		3.625	.75	.25	5.00	8.25	11.25
E023514	614-814	23"	4.25	1.00	.375	5.00	8.25	11.25
E023515	616-816	20	4.625	1.25	.375	5.50	8.25	11.25
E023516	618-818		5.00	1.25	.50	6.00	8.75	11.25

MAGNETIC SHOE BRAKES

BRAKE WHEEL INSPECTION GUIDE

Brake wheels should be inspected after every two months, 150 hours of operation, or 5,000 stops (whichever comes first), or as required by your specific application. The brake wheel, as well as the brake lining, should be replaced if any of the following conditions are observed:

1. If more than 10% of the original rim thickness has been worn away due to normal service. Measurement of brake wheel diameters, for TM offset hub brake wheels, must not indicate less than the following dimensions:

TM Frame Size	*Wheel Diameter	<u>*Rim Thickness</u>	Minimum Wheel Diameter
43	4.5	.25	4.45
63	6.0	.32	5.94
83	8.0	.38	7.92
1035	10.0	.38	9.92
1355	13.0	.38	12.92
1665	16.0	.62	15.88
1985	19.0	.62	18.88
2311	23.0	.62	22.88
3014	30.0	.75	29.85

*When in new condition.

- 2. If the brake wheel is scored more than 1/16" deep over more than 25% of the braking surface.
- 3. If the brake wheel is scored in any area more than 1/8" deep on 16" or larger brake wheels, or more than 3/32" on 4" to 13" brake wheels.
- 4. If the brake wheel is heat checked or blued over more than 50% of the brake surface. (This condition is caused by overheating; the cause of the overheating should be investigated and corrected.)
- 5. If a crack is found on the rim, web, or hub, the brake wheel should be replaced immediately.

CROSS-REFERENCE

NEW GEMCO INDUSTRIAL BRAKE PART NUMBERS TO OLD WESTINGHOUSE PART NUMBERS

DEMARY BACK-BALK EXCRATOR DEMARY EXCRATOR DEMARY EXCRATOR DEMARY EXCRATOR DEMARY EXCRATOR DEMARY EXCRATOR DEMARY DEMARY <thdemary< th=""> DEMARY DEMARY</thdemary<>	NEW PT #	OLD PT #	DESCRIPTION	NEW PT #	OLD PT #	DESCRIPTION	NEW PT #	OLD PT #	DESCRIPTION
EDSDB02 244-CBB/LT PM EXXXD22 2200BB/CB COL EXXXD11 318177160 BRNR ALT E EDSDB03 247-CBB/LT LAVER EXXXD22 2772BB/LT EXXXD22 318177160 BRNR ALT E EDSDB03 247-CBB/LT LAVER EXXXD22 2772BB/LT EXXXD22 318177160 BRNR ALT E EDSDB03 LAVER EXXXD22 2772BB/LT EXXXD22 318177160 BRNR ALT E	E004047	645C555G02	SHOE & LNG	E005050	6753A37H02	SOLENOID GD	E008029		PIN
ED0568 224709400 PN ED0588 2320804/07 COLL E00583 31877840 BFINE CLP E00588 227088001 ADL ROD E00587 227088001 S1877840 BFINE CLP E00588 227088001 ADL ROD E00597 S27088001 S1877840 BCC E00595 227088001 LPA E00597 S27088001 S1877840 BCC E00505 227088001 LPA E00597 S27088001 S1877847 SPINE CLT E00506 220178101 LPA E00507 S2858800 CUT E00502 S18877470 SPINE CLT E00502 S1887747171 SPINE CLT S18									
EDOLGS 2474705011 PM EDOLSS 230000121 COLL COLL <thcol< th=""> <thcol< th=""> COLL</thcol<></thcol<>									
ED0058 2274008471 LCVFR D00505 977887700 B004000 97787710 BLOCK PP RETAIL ED00502 227708471 LCVFR ED00503 227708471 LKVFR ED00503 97877100 BLOCK BP RETAIL BLOCK BP RETAIL									
EDMOND 327886500 S27886500 S27886500 S27886700 S18778744 ADJ, S27647 EDMOND 327886501 LINE EDMOND S18877446 ADJ, S27647 EDMOND 327886501 LINE EDMOND S18877476 S188774764 S1887747744 S188777474 S18877									
EX0002 22788247H LMK EX0002 SUBSTREAM SUBSTREAM<									
EXCADE SUTTREND EXCADE SUTTEND EXCADE SUTTEND EXCADE SUTTEND S			LINK						
EDGL656 S2BBB20H1 SPRING EDGL656 S2BBB20H1 SPRING EDGL657 S2BBB20H1 SZBB20H1 SZBB20H1 <th< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th<>									
ED05060 STOD-HTM SPCE LINK ED05061 STOD-HTM SPCAC ED05070 STOD-HTM SPCAC ED05071 SPCAC ASSASSOF11 BLOCK ED05070 STRTP-HTP SPCAC ED05071 SPCAC SPCAC ED05071 SPCAC SPCAC ED05077 STRTP-HTP SPCAC ED05071 SPCAC									
Ebbolio S1001991 DEAL EDBORD DiableDia FUNCTION ADDITION A									
EDMOTIN 27772211-08 BOLT EDMOSING 2284531003 PLATE EDMOSING 458511504 PLATE FERMUT70 STRTATION BUCCK EDMOSING SUBCRATION									
EDALPTI SIMPLEFUNCTION SPACER EDDBARD SUCCIDATE									
-ECM2/13 31878/HIM ELOCK EDM2/3 C44CC102C2 SMCE AL INC ED02007 438CC380001 LARSE ED0407/0 318677HIM ESCER 68.96 FE00203 318677HIM ED02007 438677HIM ED02007 237700HIM PN C ED02007 237700HIM PN C ED02007 237700HIM PN C ED02007 237700HIM ED02007 237700HIM ED02007 237700HIM ED02007 237700HIM ED02007 <td></td> <td></td> <td>SPRING PLATE</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>			SPRING PLATE						
ED04074 318677409 SERING FLATE ED0307 318677409 SERING FLATE ED0307 318677409 SEC23201 CLATR ARM ED04077 318677409 NELAL ED04071 318677409 NELAL ED04071 ED04077 318677409 NELAL ED04071 318677409 NELAL ED04071 ED04077 318677409 NELAL ED04071 318677409 NELAL NELAL NTO ELCOK ED04079 440414101 SPRING ED04070 44041401 ED04070 ED04070 ED04070 ED04070 ED04070 ED04070 ED04070 ED04070 ED04070 ED040700 ED04070 ED04070									
EDUATY 31867/3401 RELEASE BASIG * EDUCAT EDUATY SUBJECT CLAPPER ARM EDUATY 31867/3401 RELASE BASIG * EDUATY SUBJECT CLAPPER ARM EDUATY 31867/3401 RELASE BASIG * EDUATY SUBJECT EDUATY EDUATY 31867/3401 RELASE BASIG * EDUATY RELASE BASIG # EDUATY EDUATY 34867/3414 SERVIC EDUATY SERVIC EDUATY EDUATY 34867/3414 SERVIC EDUATY SERVIC EDUATY EDUATY 37887/3414 SERVIC									
ED04776 318278-01 SPG RETAIN * ED0803 318278405 BLOCK ED0803 448872301 MANDLE E004777 318277410 SPRING ED08033 318278406 RELASE ENKG ED08046 488872601 FVE BLAT E004787 438471413 SPRING ED00477 63872406 RELASE ENKG ED00484 488872601 FVE BLAT E004880 4384414141 SPRING ED00477 63872406 RELASE ENKG ED00484 488872601 EVE BLAT E004880 439441444 SPRING ED10477 63872400 SPRING ED10478 SPRING SPRING SPRING SPRING SPRING SPRING SPRING									
E004077 318017141 SEAL E004071 3180794101 PN E008084 460842014 MTG BLOCK E004070 43841714101 SPRING E008034 3180794103 SPRING E008047 480735401 480735401 480735401 ASSE22001 SPG E L ING E004080 4384114101 SPRING E008037 3180797403 SPG E L ING E003058 2247004110 SPRING E010354 2247004110 SPRING E010354 2247004110 SPRING E010358 2247004110 SPRING E010358 2247004110 SPRING E010358 2247004110 SPRING E010358 224700410 LVR SPRING E004059 378054411 SPRING SPRING SPRING SPRING SPRING SPRING SPRING SPRING									
E004078 4398/07116 SPRING E006072 318971400 BLCX E008085 4498724101 MTG BLCCK E004070 4490/444101 ND, BRACKET E008085 318971400 SEAL E010044 2247C08411 PN E004081 4490/444101 ND, BRACKET E008085 318971400 SEAL E010054 2247C08411 PN E004083 4398/47414 SPRING E010054 2247C08411 PN E004084 4398/47414 SPRING E010054 2247C08410 LVR									
EDADaB0 438A41141 SPRING EDADAB4 3189795169 SPG EFTAIN ED10047 6355236211 SHCE & LING EDADAB0 438A034411 SPRING ED10047 6355236211 SHCE & LING EDADAB0 450A074114 SPRING ED10058 2247C08110 PIN EDADAB0 450A077114 SPRING ED10058 2247C08110 PIN EDADAB0 450A077114 SPRING ED10058 2247C08110 PIN EDADAB0 473B354402 CALMP ED00080 4390A17110 SPRING ED10052 23778859104 LINK EDADAB0 473B354102 CLAPPER ED00041 473B35410 CLAPPER ED10052 3278851014 LINK ED00407 473B35410 LIAPPER ED10051 S01016141 S01016141 </td <td>E004078</td> <td>438A070H15</td> <td>SPRING</td> <td></td> <td>318B791H09</td> <td>BLOCK</td> <td></td> <td>469B755H09</td> <td>MTG BLOCK</td>	E004078	438A070H15	SPRING		318B791H09	BLOCK		469B755H09	MTG BLOCK
E004031 450A95H11 IN.D. BRACKET E002032 318917H03 SEAL E010054 2247C0BH10 PIN E004032 450A95H11 PATE CR E002032 438407H14 SPRING E010058 2247C0BH20 PIN E004036 4773844H22 AASE E002038 438441H65 SPRING E010059 2247C0BH20 PIN E004036 4773844H22 AASE E002038 450A95H20 PATE E010080 2247C0BH20 LEVER E004036 4773844H22 CAAPER E000041 450A95H201 CAAPER E010068 323802H30 LEVER E004036 4773842401 CAAPER E000041 477384441 BASE R E010068 85001440 SACE INF E004036 4773842401 LACKER E006044 477384441 BASE R E010076 S9021100									
E004082 450A65H01 PLATE E006036 438A707H1 SPRNG E010055 2247C0HH1 PN E004086 4738344H2 ADJ.EOR E006039 438A707H1 SPRNG E010055 2247C0H14 PN E004086 4738344H2 ADJ.EOR E006039 459A960H2 PLATE E010063 23788b1H1 LNK E004086 4738344H2 CLAMP E006044 450A97H2 PLATE E010063 33788b1H3 LLK LNK E004068 4738344H1 BASE E010068 851014H0 LNK E004068 473842H4 BASE E010078 B51014H0 BASE E010078 B51014H0 BASE E010078 B51014H0 BASE E010071 B51014H0 BASE E00408 S20104H0 BASE E00408 S20104H0 BASE E00408 S20104H0 BASE E00408 S20104H1<									
EB00803 450/857101 ADAPTOR EB008037 438/072114 SPRING ED00085 2247C08H2 PN E004884 4778544402 ACAE E000069 453/047104 SPRING E010085 2247C08H2 PN E004886 477854402 CLAMPE E000049 453/04704 ADAPTOR E010063 327898140 LNK INK E004886 4778142001 CLAPPER E000049 473834001 CLAPPER E010063 327898140 SRNG E000049 E004887 4778142001 CLAPPER E000044 473834001 CLAPPER E010069 851011600 E000049 E004490 4475840401 CLAPPER APM E000044 473840401 CLAPE E000049 E000049 E000049 E000049 E000049 E000049 E000008 B61010160 E000049 </td <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>									
E004084 473844H02 BASE E006038 433844H106 PARNO E001038 2247C08H20 PNN E004085 473854H02 CLAMP E006034 450403540 PATE E010038 2247C08H20 LEVER E004085 473854201 CLAPPER E010036 3277885H44 LSV, IVORLD E004085 473854201 CLAPPER E01006 328801444 SR01444 SR014444 SR014444 SR014444 SR01444 SR014444									
E004085 473854H02 ADLBAR E00039 450A95742 PLATE E010039 224708H04 LUK FR E004086 473854H01 CLAPPER E00042 473835401 CLAPPER E01004 329380H140 S980B1140 S980B140					438A411H06				
E004808 473834401 CLAMP E006040 4504877H22 ADAPTOR E01082 327882465 LINK E004808 473834401 CLAMP E006044 473834401 LASE E01086 327882465 LINK E004808 4738342044 BLOCK E007044 473834401 LASE E01086 951001444 SIOE LINK E004808 473842300 CLAPPER E006044 473844401 LAL E01088 951001444 SIOE LINK E004408 452542044 BLOCK E006044 473834401 LAL E01089 951001404 BLOCK E004408 S250020401 BLSINKG E006044 473834413 E01077 318878453 PINK E004102 S250020401 BLSINKG E006056 445012002 SIOE RAM E01077 318878453 PINK E004102 S250020401 SDERMACG E006056 4450470607 FYR BULT E010767 318877453 SEA FNNK E0041102 S2508024010 COL </td <td>E004085</td> <td>473B345H02</td> <td>ADJ.BAR</td> <td>E006039</td> <td>450A955H02</td> <td>PLATE</td> <td>E010059</td> <td>2247C09H04</td> <td>LEVER</td>	E004085	473B345H02	ADJ.BAR	E006039	450A955H02	PLATE	E010059	2247C09H04	LEVER
E004088 4738422041 CLAPPER E010644 4738432041 CLAPPER E010645 9208011401 SPRING E004089 4738422041 CLAPPER ARM E000642 4738434441 ALB E01058 9510118044 BXS E004089 4738422011 CLAPPER ARM E000642 4738434441 ALB E01058 9510118044 BXS E004089 525000401 BUSHNG E000649 6350140601 E01058 95101701 218787443 BLOCK E004090 525000401 BUSHNG E000649 6350140601 E010771 318778478 BLOCK E004102 3239864030 COL E000606 445012022 HANDLE E01076 318779478 BLOCK E004104 3239864030 COL E000606 445012022 HANDLE E01076 318779478 BLOCK E004104 3238864031 COL E000606 44501202 HANDLE E01076 318779478 BLOCK E004105 3238874020 COL E0					450A957H02				
E004089 4738-22104 BLOCK E00604 4738-44101 AASE E010056 8510014404 SAGE E010056 8510014404 SAGE E004039 6425-64001 CLAPPER ATMA E000040 47385-44101 ALB ARE E010056 8510019631 CONDULET BOX E004039 2520020410 BUSINIKG E000064 16072301 1607071 3188778403 PINK E004039 2520020410 SPRING E000064 645010201 HINK ART E000070 3188778403 PINK E004100 3238860401 LINIK ART E000070 641001020 LINIKG ART E010076 3188791433 REL ASE ESING E0041010 32388640402 COL E0006602 450047402 SPRING CLIP E010077 3188791433 SEAL									
E004080 4738432G1 CLAPPER E006945 473834494 CLAMP E010089 951001644 BASE E004083 645254067 TIE KOD E00697 473834494 CLAMP E010070 2770721414 BOLT E004087 635C140G9 TIE KOD E00697 473834494 CLAMP E010070 2710721414 BOLT E004090 3234062470 SPRING E006056 4607239411 NIME PLATE E010073 318673403 PIN E004100 3234062470 SPRING E006056 4607234711 BINK RTT E010074 3186734132 PRILASE BINS E004106 3280804604 COIL E006053 4586774453 SPRING CLIP E010076 3188974143 SPRING E004106 3280804604 COIL E006056 4686773626 HANDLE E010076 3188974113 SPRING E004116 3280804071 SDRING E006076 4686773626 HANDLE E010077 3188974111 SPRING E004113									
E00403 64/3C34C301 CLAPPER ARM E000467 4738354H33 CLAMP E010070 27122H14 BOLT E004067 535014601 TIE ROD E004074 473834H34 CLAMP F010707 318977H33 BLCCK E004087 532014601 TIE ROP A/TE F01077 318977H33 BLCCK E004103 3238467H0 E004070 532014601 TIE ROP A/TE E001074 318979H33 BLCCK E004101 3238664612 COL E006069 646712602 SHOL ARM E001077 318979H33 BLCCK E004103 3286864640 COL E006078 456747H33 SPRING CLIP E010077 318977H33 SPRING CLIP E004107 3286864641 COL E006084 468772607 EVELAR E010078 3188971H33 SPRING CLIP E004107 3286864641 SULM PUTE E006084 468975488 MTG BLOCK E010078 318871H33 SPRING CLIP E004117 234627411 SULM PUTE E0060768 46987548									
E000098 52D000H01 BUSING E000499 63SC104G01 TE ROD * E010071 3188787H03 BLOCK E004100 324862/H3 SPRING E004058 64SC12G01 SIADE ARM E010072 3188787H03 PIN E004100 324862/H3 SPRING E004058 64SC12G01 SIADE ARM E010076 318879H03 PIN E004100 3288804030 COIL E006061 64SC112002 SIADE ARM E010076 318879H03 SPRIRS CLP E004104 3280804030 COIL E006062 450A74H02 SPRING CLP E010078 318897H03 SPRING CLP E004106 3280804034 COIL E006065 459A77H07 FVE LoT E010078 33887H03 SPRING CLP E004111 3278987H03 SPRIRS CLP E010078 458A27H01 SPRING HO E010078 458A27H02 ND ND ND ND SPRING LP E01077 338879403 SPRING LP E01077 S24A703470 SPRING									
E004009 3280B02HG3 SPRING E006054 160P283H11 NAME PLATE E01072 3180780HG3 PIN E004101 3274887H01 LINIK KIT E006058 645C120001 Shore ARM E01073 3188779H03 BLOCK E00410 E004101 327888400 COL E006058 645C120001 Shore ARM E01077 318877H03 SFL AE TAINS E004105 328080402 COL E006063 450474H02 SFRING CLIP E01077 318897H03 SEL E004107 3280804017 COL E006063 4608752006 HANDLE E01078 33880470H13 SPRING E004107 3280804017 COL E006064 468975007 FYR BOLT E01080 4434072H11 SPRING E00708 4584754M9 MTG BLOCK E01038 438427H01 BLOCK E00117 S18989601 ADAPTOR E00177 FIN E00108 438427H01 BLOCK E00108 438427H01 BLOCK E00108 438427H01 BLOCK E00108 438	E004097	635C104G09	TIE ROD	E006047	473B354H04	CLAMP		27D7221H14	BOLT
Eboth100 3324B87H01 SPRING E00055 645C120C1 SHOE ARM E01073 318679H03 PIN E0041102 3328B804063 COIL E000669 645C12002 SHOE ARM E01075 318879H02 RELEASE BSNG E0041104 3328B80404 COIL E00669 645C12002 SHOE ARM E01076 318879H03 SPCIRETAN E0041104 3328B80404 COIL E00666 456F72066 HANNEL E01079 3188980611 CLAPER ARM E004110 3328B80404 COIL E00666 456875206 HANNEL E01079 438A70H11 SPRING CLP E004119 3378B8061 STRESCUP E01081 438A72H11 SPRING E001081 438A72H11 SPRING E004112 9610221G01 SPNO PRT LINK E006067 4468754067 FIN E01081 438A71H01 EUCCK E01081 438A71H01 EUC R E00411 357889804 BIN SR00 R03 438A71H01 EUC R E00178 438A81H03 SRNING CLP									
Eb04101 3278989G01 LINIK KIT E006059 B61C981C24 LINIK KIT E01075 3189791H33 BLCCK E004104 3380804001 COLL E006061 445C141G01 CLAPPER ARM E01075 318979H33 SPG RELASE BNG E004104 3380804017 COLL E006061 4498772403 PRING CLIP E010078 318974913 SPR NIG E004107 3380804017 COLL E006064 4698752066 FINIG CLIP E010078 4384077H13 SPRING E004111 3379897H3 SPLNC E006066 4698752067 FYE BoLT E010081 438407H14 SPRING E004111 2379897H3 SUPPORT LINK E006066 459875408 RTG BLCCK E010081 438421H14 SPRING E004111 2374624701 SUPPORT LINK E006765 2247C08H70 PIN E010385 438421H143 SPRING E004113 245427601 SHOG RAM E007055 2247C08H70 PIN E010086 45850144033 SPRING ELOCK									
E004102 3280804030 COIL E006080 645C120C12 SHOE ARM E010075 3186732H02 RELEASE BSNG E004104 3280804020 COIL E006081 430A74H22 SPRING CLP E010077 318877403 SFA E0041103 3280804020 COIL E006081 430A74H22 SPRING CLP E010077 318877403 SFA E0041103 327889701 SOLENOID E006086 468977020 FYE E0LT E01008 433A072H11 SPRING E004113 3278892001 SHOE FNR E006086 4689428113 MTG BLOCK E01008 433A217H01 BLOCK E004113 234C320700 SHOE FNR E007076 2247C08H9 PIN E01008 433A217H01 BLOCK E004114 234C32040 SHOE FNR E007076 2247C08H9 PIN E01008 433C1H43 SOLENOID E004113 188779401 SHOE ARM E007056 2247C08H9 PIN E01008 635C300408 ASE E004112 1887794									
E004104 3280B4G01 COLL E006061 645C141C01 CLAPPER ARM E010076 318B739103 SPC RETAIN E004106 3280B4G04 COL E006062 3486773403 SPRING CLIP E010078 318B738103 SPRING E004107 3280B4G04 COL E006063 3486773403 SPRING CLIP E010078 318B784013 SPRING E004111 327889001 SLPPORT LIPK E006067 4689754006 PIN E010018 438A169H02 ND, BrKT. E004113 2254C28001 SHOE, INNER E006068 468975408 PIN E010084 438A388H01 ADAPTOR E004113 2254C27601 SHOE, INNER E006068 468975408 PIN E010086 438A11403 SPRING E004117 961026103 SHOE ARM E007055 2247C08H08 PIN E010086 633C14463 TE ROD E004125 237C98H014 SPRING CLIP E007059 3278896403 AJJ, ROD S327886674 AJJ, ROD E004126 23									
Ebod1106 3280804-Gol COLL Ebo0664 448975260 FHANDLE Eb01078 318898601 CLAPPER Eb041109 3279897401 SPLAR Eb06664 4498752607 Eb01076 438A072411 SPRING Eb04111 3279897401 SPLATE Eb06666 4498752607 Eb01081 438A217410 BLOCK Eb04112 B10021601 SUPPORT LINK Eb006667 4498753408 MTG ELOCK Eb10085 438A217410 BLOCK Eb04114 224602760 SHOE NUTER Eb07053 2247008108 PIN Eb10086 63567104603 TE ROD Eb04114 6450544002 SHOE ARM E007057 2247008108 PIN Eb10086 6356704608 PLATE E004121 318878401 PIN E007053 22470208148 PIN E010086 6356704608 PLATE E004122 318878404 PIN E007053 3278886043 ADLR E007086 3278886043 ADLR E010108 3278887045 SDLENDID E									
E004107 3220804G17 COLL E00666 4408752006 HANDLE E010079 438A070H13 SPRING E004119 327989A0G1 SPURS PLATE E006666 4408750160 FVE BOLT E010081 438A769H02 IND. RRKT. E004112 254027301 SUPPORT LINK E006667 4408759H0 MTG BLOCK E010085 438A479H0 E0COK E004112 254027301 SUPPORT LINK E007053 4498709H0 MTG BLOCK E010085 438A479H3 SOPRING E004113 9610591620 LINIKG KT E007055 2247020H09 PIN E010087 635C300603 BASE E004113 645C544601 SPICA RM E007057 2247029H0 E010183 3278887403 SOLENOID 6 635C300603 BASE E004120 3188739H01 PIN E007653 3278887403 LINK E010108 3278887403 SOLENOID 6 525A27008 SOLENOID 6 525A27008 SOLENOID 6 525A27008 SOLENOID 6 525A27008 SOLENOID 7 526A228004	E004105	3280B04G02		E006062			E010077		
E004119 3279897H01 SOLENDID E000695 4688790G77 EVEN_T E01080 438A072H11 SPRING E0041112 9610021G01 SPNS, PLATE E006666 4698755H08 MTG BLOCK E010081 438A217H04 BLOCK E004113 2254C28G1 SHOE, INNER E006666 4698428H17 PIN E010081 438A43H143 SPRING E004113 2254C28G1 SHOE, INNER E006668 4498428H17 PIN E010081 438A41H43 SPRING E004114 2254C28H04 SHOE, INNER E007677 2247C08H18 PIN E010088 635C300H68 PLATE E004121 318579H01 SPRING CLIP E007058 327888603 ADJ, ROD E01008 3278887H05 SOLENDID E004122 3226453H01 SPTING CLIP E007661 3278887H3 LNC E010104 3278887H5 SOLENDID E004122 3224533H01 SPCTTE E007643 3278887H3 LNC E010104 3278887H6 SOLENDID E004123									
E004111 327880GC01 SPNG. PLATE E006066 450A576H06 PIN E010081 438A169H02 IND. BRKT. E004113 2254C28G01 SHOE, INNER E006068 469B428H13 MTG BLOCK E010084 438A38H01 ADAPTOR E004114 2254C28G01 SHOE, INTER E007053 2247C08H08 PIN E010085 438A38H01 ADAPTOR E004114 054C54G01 SHOE, INTER E007054 2247C08H08 PIN E010086 635C140C3 TE ROD E004112 643C54G01 SHOE, CLP E007058 2247C08H03 EVER E007076 675SA37H05 SOLENOID GD E004122 237698H01 SFRING CLP E007063 3279896703 LINK E010104 3279897H05 SOLENOID GD E004122 232633H01 SINTED LVR E007063 3279897H03 LINK E010106 254023004 SINK E010106 254023004 SINK E00413 32788967H0 LINK KIT E007063 3279897H03 LINK E010106 32788967H									
E004112 95102/1G01 SUPPORT LINK E006076 4698755H08 MTG BLOCK E010083 438A217H01 BLOCK E004113 2254C287G01 SHOE, UNER E0007053 2247C08H07 PIN E010086 438A38H01 SPRING E004117 961C981C23 LINIKS KTT E007055 2247C08H09 PIN E010086 635C3040G3 BASE E004113 645C544G01 SHOE ARM E007055 2247C08H09 PIN E010086 635C3040G6 PLATE E004112 3188780H01 PIN E007058 2247C08H03 LEVER E007076 6753A37H05 SOLENOID GD E004122 235709H01 ENR E007058 2279886703 LINKK E010108 327889705 SOLENOID CD E004122 235709H01 ENR E007063 327989703 LINKK E010106 237889705 SOLENOID AR E004123 238484H01 STUD E007066 328080401 COL E010107 2254C27004 SHOE. INNER E004133									
E004113 2254/28/201 SHOE, INNER E000686 498P428H13 MTO BLOCK E01084 438A8H101 ADAPTOR E004114 2564/2701 SHOE, INNER E007054 2247C08H09 PIN E010086 635C104G03 TIE ROD E004113 645C54402 SHOE ARM E007057 2247C08H09 PIN E010086 635C30060 PLATE E004125 2237C09H01 FIN E010087 635C300706 PLATE E007078 6753A7740 SOLENOD GD E004125 2237C09H01 EVER E007076 3278932H03 LINK E0110103 3279987H05 SOLENOD GD E004127 3284839H01 SIVCTFD LVR E007065 3278983H03 LINK E0110105 9511021604 SPRING SAT E004129 3284834H01 STLD E007065 3280804615 COLL E010105 924242704 LINK E004132 3284844H01 STLD E007066 3280804615 COLL E010105 327989540 LINIK KIT E									
E004117 961C691C32 LINING KIT E007054 2247C08H09 PIN E010086 635C104G03 TIE ROD E004118 645C544G02 SHOE ARM E007057 2247C08H09 PIN E010087 635C300H0 PLATE E004120 3188778H01 SPRING CLIP E007059 327988603 ADJ. ROD E010088 327988604 ADJ. ROD E010183 327888604 ADJ. ROD E010163 327888604 ADJ. ROD E010163 327889746 SOLENDID E004122 3255633404 SPRING PLATE E007062 3278884101 SPRING SEAT E010105 254C28049 SPRING PLATE E004128 2256C33404 START WHEEL E007066 3230804611 COL E010106 224C2604 SHOE, INNER E004133 328484401 STUD E007066 320804615 COL E010116 327885064 LINING KIT E004133 328485401 RTAR RE E007076 \$510802405 SHOE, INNER E010116 \$357885064 LINING KIT E004133 3									
E004118 645C544031 SHOE ARM E007055 2247C08H09 PIN E010087 635C300C05 BASE E004112 3188730H01 PIN E007058 2247C08H18 PIN E010088 635C300H06 PLATE E004121 3188730H01 SPINS CLIP E007058 2247C08H30 ADJ. ROD E010083 327886744 AJ. ROD E004125 2257C39H01 LEVER E007061 3278892H04 LINK E010103 3278897H05 SOLENOID E004122 3284839H01 SVOTTED LVR E007063 3278989H03 LNK E010106 2254C23604 SUPORT LINK E004123 328484H01 STUD E007065 3280804515 COIL E010106 2254C2764 SHOE, OUTFR E004131 328484H01 STUD E007067 9510D1403 SHOE, OUTR E010116 635C30060 SHOE, OUTR E004132 2288480H01 STUR E007076 9510D1403 SHOE, OUTR E010116 635C30060 SHAP E004132									
E004119 645C544G02 SHOE ARM E007057 2247C08H18 PIN E010088 635C300H06 PLATE E004121 3188778H01 PRINS CLIP E007059 327888603 ADJ. ROD E100088 327988604 ADJ. ROD E004126 3284633H01 SLOTTED LVR E007062 3278882H03 LINK E101013 3278980604 SPRING PLATE E004126 3284633H01 SLOTTED LVR E007064 3278983H01 SPRING SEAT E010105 95100764 S9708071 E004128 2256C33H01 START WHEEL E007066 328084011 COL E010107 2254C28604 SHOC, INTER E004133 3284854H01 RTUNER E0070766 3280804015 COL E010116 635C30601 SHOE ARM E004133 2300886H75 SPACER E007076 S75037H03 SOLENOID 635C30601 SHOE ARM E004136 4698752065 HANDLE E007076 675337H03 SOLENOID GD E010116 635C30601 SHOE ARM E004137									
E004120 318B790H01 PIN E007058 2247C09H03 LEVER E007076 6753A37H05 SOLENOID GD E004125 2257C99H01 LEVER E007061 3279892H04 LINK E010103 327989705 SOLENOID E004126 3224833H01 SLOTTED LVR E007061 3279892H04 LINK E010103 327989705 SOLENOID E004127 3224833H01 SINT WHEEL E007063 3279893H03 LNG E010105 2554C27604 SVDE, ININER E004129 3224843H01 STUD E007065 3230804315 COL E010107 2254C27604 SVDE, ININE KT E004131 3224844H01 STUD E007067 951014H03 SHOE E010114 861C891G17 LINNE KT E004132 3224843H01 RETAINER E007072 328080451 COL E010114 861C891G17 LINNE KT E004132 32246861 PLUNGER E007073 224C2703 SHOE, INTER E010116 633C300601 LINNE KT E004134 </td <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>									
E004121 318B778H01 SPRING CLIP E007059 327898603 ADJ. ROD E01098 327988604 ADJ. ROD E004126 228709H01 EVER E007062 3278982H03 LINK E010103 3279897H05 SOLENOID E004127 3284833H01 SLOTTED LVR E007062 3278982H01 SING SEAT E010104 3279897H05 SOLENOID E004128 2286033H01 START WHEEL E007064 3278983H01 SPRING SEAT E010106 225402804 SHOE, INNER E004123 328484H01 STUD E007066 3280804015 COL E010108 3279895604 LINNE KIT E004133 3284884H01 STLD E007069 951014H03 SHOE LINK E010116 635C30601 SASE E004134 290088H75 SPACER E007076 6753A37H03 SHOE, UNTER E010117 635C30601 SASE E004136 4698752605 HANDLE E007076 6753A37H03 SOLENOID GD E010117 635C308601 CLAPE R ARM									
E004126 3284B33H01 SLOTTED LVR E007062 3278B3104 SLOTTED LVR E007064 3278B3104 SPRING SLAT E010105 3570B90604 SPRINC PLATE E004128 2256C33H01 START WHEEL E007064 3278B3103 LNG. UNDRLD E010106 2254C2804 SHOE, INNER E004129 3284B4H0101 STUD E007066 3280B04611 COL E010107 2254C27604 SHOE, OUTER E004131 3284B3H011 RETAINER E007067 9510D144103 SHOE LINK E010116 635C306601 SHOE CARM E004132 230286501 PLUNGER E007073 32284623105 SPRING C E010116 635C306601 SHOE ARM E004136 4698725405 MANDE E007076 6753A37H03 SOLENOID G E101118 635C306601 CLAPR & ARM E004138 4698750606 EVE BOLT E007076 6753A37H03 SOLENOID G E101121 324843404 SLOTE D L/R E004138 4698750606 EVE BOLT E007078 3279897403 <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>									
E004127 3284.839H01 PIVOT BRKT E007063 32789.83H01 SFRING SEAT E010105 9510D21G04 SUPPORT LINK E004129 3284.840H01 STUD E007065 328080411 COL E010107 2254.22604 SHOE, OUTER E004131 3284.840H01 STUD E007066 328080411 COL E010107 2254.227604 SHOE, OUTER E004132 3284.841H01 RTLAINER E007066 9510016H03 SHOE E010116 635C30601 SHOE ARM E004132 3284.8501 PLUNGER E007073 2254.227003 SHOE, OUTER E010116 635C30601 SAGC6 ARM E004136 4989755H07 MTG BLOCK E007076 6753.37403 SOLENOID GD E010118 635C30601 CL/PR & ARM E004138 4989750G6 FY BOLT E007078 327989703 SOLENOID GD E010120 2376298404 PLVTER LP KR E004148 4989750G6 FY BOLT E007078 327989703 SOLENOID GD E010120 2384839404		2257C99H01				LINK			
E004128 2256C33H01 START WHEEL E007065 3280804611 COIL E010107 2254C28C04 SHOE, INNER E004131 3284b44H01 STUD E007066 3280804611 COIL E010107 2254C27C04 SHOE, INNER E004132 3284b44H01 STUD E007067 9510D14H03 SHOE LINK E010116 33230802H1 String Stri									
E004129 3284B40H01 STUD E007065 3280B4011 COIL E01107 2254C27G04 SHOE, OUTER E004131 3284B31H01 RETAINER E007066 3280B4015 SOLE E011018 3279B9504 LINING KIT E004133 29D088H75 SPACER E007073 3280B02H05 SPRING E010115 635C30601 SHOE ARM E004134 29D088H04 SPACER E007073 2254C2703 SHOE, OUTER E101116 635C30601 BASE E004136 469B752606 PL BOLCK E007076 6753A37H04 SOLENOID GD E101118 633C308601 CLAPPER ARM E004137 469B752606 FYE BOLT E007076 6753A37H04 SOLENOID GD E101121 3284B3H04 SLOTED LVR E004139 450A574H01 SPRINC CLIP E007078 3279B95603 LINING KIT E010121 3284B3H04 SLOTTED LVR E004140 450A574H01 SPRINC CLIP E007081 3280B40610 COIL E010123 3284B6504 PLUNG ER									
E004131 3284B44H01 STUD E007066 3280B04G15 COIL E01108 3278B95Q04 LINING KIT E004132 3284B3H01 RETAINER E007067 9510D14H03 SHOE LINK E010115 635C306G01 SHOE ARM E004133 29D0886H04 SPACER E007072 3280B2H06 SPRING E010116 635C306G01 BASE E004135 3284B65G01 PLUNGER E007074 2254C27C03 SHOE, OUTER E010118 635C317G1 CLAPPER ARM E004136 469B750C06 EYE BOLT E007076 6753A37H04 SOLENOID GD E010120 2257C99H04 ELVER E004138 469B750C06 EYE BOLT E007076 6753A37H04 SOLENOID GD E010120 2257C99H04 ELVER E004134 450A574H01 PIN E007079 3279B95003 LINING KIT E010123 3284B39H04 PIVOT BRKT E004140 450A576H01 PIN E007081 3280B04G10 COIL E010122 3284B35H03 STUD E									
E004132 3284831H01 RETAINER E007067 9510014H03 SHOE LINK E01114 6616691G17 LINING KIT E004133 320086H75 SPACER E007072 3280802H05 SPRING E01116 635C306G01 SHOE ARM E004134 29D086H04 SPACER E007073 2284227603 SHOE, OUTER E010116 635C310602 SHOE ARM E004136 4698752605 HANDLE E007076 6753A37H03 SOLENOID GD E010119 635C310801 CLAPPER ARM E004138 4698750G06 EYE BOLT E007076 6753A37H04 SOLENOID GD E010120 2287C39H04 LEVER E004139 450A574H01 SPRING CLIP E007078 3279897403 SOLENOID E010121 328483H04 SUCTTED LVR E004141 4698428H12 MTG BLOCK E007078 3278874013 SOLENOID E010123 328485604 PUNGER E004143 3279895H05 DRIVE STUD E007081 3280804610 COIL E010124 3284844103 STUD									
E004133 29D0886H7 SPACER E007069 910D16H03 BASE E010115 633C30601 SHOE ARM E004135 328486501 PLUNGER E007073 2254C27603 SHOE, OUTER E010116 633C30601 BASE E004135 328486501 PLUNGER E007074 2254C27603 SHOE, OUTER E010116 633C317601 CLP & ARM E004137 46987552605 HANDLE E007076 6753A37H03 SOLENOID GD E010120 2257C99H04 LEVER E004139 450A57H010 PRING CLIP E007076 3279895H03 SOLENOID GD E010121 3284B39H04 PLVTEV E004140 450A57H010 PRIN E00778 3279897H03 SOLENOID E010123 3284B36504 PLVNG BRKT E004145 3279895H05 DRIVE STUD E007081 3280804612 COIL E010123 3284B45043 STUD E005027 2247C08H06 PIN E007083 3280804612 COIL E010125 290086H13 SPACER E005028 <									
E004134 29D0886H04 SPACER E007072 3280802H05 SPRING E101116 633C300601 BASE E004135 328486501 PLUNGER E007074 2254C2803 SHOE, INNER E010117 63SC30602 SHOE ARM E004136 469B755006 EVE BOLT E007076 6733A37H03 SOLENOID GD E010119 633C30801 CLAPPER ARM E004138 469B752065 FVE BOLT E007076 6733A37H04 SOLENOID GD E010119 633C30801 CLAPPER ARM E004139 450A574H01 SPRING CLIP E007078 3279B97H03 SOLENOID E010122 3284B39H04 PLVTR E004141 469B428H12 MTG BLOCK E007080 3280B04610 COIL E010123 3284B65604 PLUNGER E004141 469B428H12 MTG BLOCK E007081 3280B04610 COIL E010124 3284B46103 STUD E005022 2247C08H05 PIN E007083 3280B04612 COIL E010125 2900886H13 SPACER	E004133	29D0886H75	SPACER	E007069	9510D16H03	BASE	E010115	635C306G01	SHOE ARM
E004136 469B755407 MTG BLOCK E007074 2254C28033 SHOE, INNER E01118 635C317G01 CLPR & ARM E004137 469B750G06 EYE BOLT E007076 6753A37H04 SOLENOID GD E0101120 2257C39H04 LEVER E004138 469B750G06 EYE BOLT E007076 6753A37H04 SOLENOID GD E010120 2284B39H04 SUTTED LVR E004140 450A574H01 SPRING CLIP E007079 3279B95G03 LINING KIT E010121 3284B35G04 PLINGER E004141 469B428H12 MTG BLOCK E007080 3280B04609 COIL E010123 3284B5G04 PLINGER E005027 2247C08H04 PIN E007083 3280B04619 COIL E010126 29D0886H13 SPACER E005028 2247C08H05 PIN E007083 3280B04610 COIL E010126 29D0886H13 SPACER E005031 2247C08H04 PIN E007083 3280B04613 COIL E010126 450A576002 FYE BOLT									
E004137 469B752005 HANDLE E007076 6753A37H03 SOLENOID GD E010119 635C308G01 CLAPPER ARM E004138 469B750006 EYE BOLT E007078 573A37H04 SOLENOID GD E010120 2257C99H04 LEVPER E004139 450A574H01 SPRING CLIP E007078 3279B95603 LINING KIT E010121 3284B33H04 SLOTTED LVR E004140 450A576H01 PIN E007078 3279B97H03 SOLENOID E010121 3284B36064 PIVOT BRKT E004145 3279B95H05 DRIVE STUD E007081 3280B04G10 COIL E010124 3284B44H03 STUD E005027 2247C08H04 PIN E007083 3280B04G19 COIL E010126 2900886H13 SPACER E005029 2247C08H06 PIN E007085 9510D21G03 SUPPORT LINK E010128 4698750C02 FYE BOLT E005032 2247C08H06 PIN E00708 3280B04G13 COIL E010129 450A576H02 PIN <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>									
E004138 4698750G06 EVE BOLT E007076 6753A37H04 SOLENOID GD E010120 2257C99H04 LEVER E004139 450A574H01 SPRING CLIP E007078 3279895603 LINING KIT E010121 3284B33H04 SLOTTED LVR E004140 450A576H01 PIN E007079 3279897H03 SOLENOID E010123 3284B65004 PIUVOT BRKT E004141 469B428H12 MTG BLOCK E007081 3280B04G19 COIL E010123 3284B65004 PIUNGER E005027 2247C08H04 PIN E007082 3280B04G19 COIL E010126 29D088H113 SPACER E005028 2247C08H06 PIN E007085 3279896033 SVPING PLATE E010126 4908750G202 EVE BOLT E005031 2247C08H16 PIN E007088 3280804G14 COIL E010128 450A576H02 PIN E005032 2247C08H16 PIN E007088 3280804G16 COIL E010128 450A576H02 PIN E005036									
E004139 450A574H01 SPRING CLIP E007078 3279B95G03 LINING KIT E010121 3284B33H04 SLOTTED LVR E004140 450A576H01 PIN E007079 3279B97H03 SOLENOID E010122 3284B39H04 PIVOT BRKT E004141 469B428H12 MTG BLOCK E007080 3280B04G09 COIL E010123 3284B65G04 PLUNGER E004145 3279B95H05 DRIVE STUD E007081 3280B04G10 COIL E010124 3284B44H03 STUD E005028 2247C08H06 PIN E007083 3280B04G19 COIL E010126 29D0886H12 SPACER E005029 2247C08H06 PIN E007085 9510D21G03 SUPPORT LINK E010128 469875G020 EVE DLT E005033 3279B8402 ADJ. ROD E007088 3280B04G14 COIL E013025 439C201G01 SHOR E005033 3279B8401 SPRING SEAT E007091 3280B04G20 COIL E013023 318B571H04 SUSHING E0050									
E004140 450A576H01 PIN E007079 3279B37H03 SOLENOID E010122 3284B39H04 PI/UNG BRKT E004141 469B428H12 MTG BLOCK E007080 3280B04G99 COIL E010123 3284B44H03 STUD E004145 3279B37H05 DRIVE STUD E007081 3280B04G10 COIL E010123 3284B44H03 STUD E005027 2247C08H04 PIN E007082 3280B04G19 COIL E010126 29D0886H12 SPACER E005029 2247C08H06 PIN E007083 3279B90G3 SPING PLATE E010126 29D0886H13 SPACER E005031 2247C08H06 PIN E007085 9510D21G03 SUPPORT LINK E010128 469B750G02 EYE BOLT E005032 2247C09H02 LEVER E007088 3280B04G14 COIL E013027 31D4114H12 BUSHING E005035 3279B39H02 LINK E007099 3280B04G20 COIL E013027 31D4118H06 BUSHING E005038 <td< td=""><td>E004139</td><td>450A574H01</td><td></td><td>E007078</td><td>3279B95G03</td><td>LINING KIT</td><td>E010121</td><td>3284B33H04</td><td>SLOTTED LVR</td></td<>	E004139	450A574H01		E007078	3279B95G03	LINING KIT	E010121	3284B33H04	SLOTTED LVR
E0041453279895H05DRIVE STUDE0070813280804G10COILE0101243284B44H03STUDE0050272247C08H04PINE0070823280B04G12COILE0101252900886H13SPACERE0050282247C08H06PINE0070833280B04G19COILE0101262900886H13SPACERE0050292247C08H06PINE0070843279890G03SPRING PLATEE0101274698752G02HANDLEE0050312247C08H16PINE0070873280B04G14COILE0101284690A776H02EVE BOLTE0050322247C09H02LEVERE0070873280B04G14COILE013025439C201G01SHOE & LNGE005033327988602ADJ. RODE0070883280B04G16COILE01302731D4114H12BUSHINGE0050353279894H01SPRING SEATE0070903280B04G16COILE01302731D4114H16BUSHINGE0050383280B04C102SPRINGE0071013278987H14SOLENOIDE0130293188571H04PINE0050383280B04C07COILE0071012287C99H03LEVERE0130313188777H04SPRING PLATEE0050429510D14H02SHOE LINKE007102328484H02STUD*E013033318878H04PINE0050429510D14H02SHOE LINKE007103328484H02STUD*E013033318878H04BLOCKE0050449510D22G01CONDULET BOXE007104328483H03RETAINERE0130353188	E004140	450A576H01	PIN	E007079	3279B97H03		E010122	3284B39H04	PIVOT BRKT
E0050272247C08H04PINE0070823280B04G12COILE01012529D0886H12SPACERE0050282247C08H06PINE0070833280B04G19COILE01012629D0886H13SPACERE0050292247C08H06PINE0070843279B90G03SPRING PLATEE010127469B752G02HANDLEE0050312247C08H16PINE0070859510D21G03SUPPORT LINKE010128469B750G02EYE BOLTE0050322247C09H02LEVERE0070873280B04G14COILE013025430C30161SHOE & LNGE0050353279B82H02LINKE0070893280B04G16COILE01302731D4114H12BUSHINGE0050363279B94H01SPRING SEATE0070913279B97H14SOLENOIDE01302831D4118H06BUSHINGE0050383280B04G07COILE0071013284B33H03SLOTTED LVRE01303318B57H04SPRING PLATEE0050393280B04G07COILE0071013284B65G03PLUNGERE013033318B77H04SPRING PLATEE0050429510D16H02BASEE0071033284B64H02STUD* E013033318B78H04BLOCKE0050449510D22G01CONULET BOXE0071043284B31H03RETAINERE013034318B78H04BLOCKE0050453280B04H04SPRINGE00710529D0886H05SPACERE013036318B79H04PINE0050463284B67H02SPRINGE0071063284B31H03RETAINERE013036 </td <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>									
E0050282247C08H05PINE0070833280B04G19COILE01012629D0886H13SPACERE0050292247C08H06PINE0070843279B90G03SPRING PLATEE101127469B75G02FYE BOLTE0050312247C08H16PINE007085951D021G03SUPPORT LINKE010128469B75G02FYE BOLTE0050322247C09H02LEVERE0070873280B04G13COILE010129450A576H02PINE0050333279B86G02ADJ. RODE0070883280B04G14COILE013025439C201G01SHOE & LNGE0050353279B94H01SPRING SEATE0070903280B04G16COILE01302731D4114H12BUSHINGE0050373279B95H02LINKE0070913279B97H14SOLENOIDE013029318B57H04PINE0050383280B04G07COILE0071012284B33H03SLOTTED LVRE013030318B57H04PINE0050409510D14H02SHOE LINKE0071023284B33H03SLOTTED LVRE013033318B78H04SPRING CLIPE0050429510D16H02BASEE0071033284B34H02STUD* E013033318B78H04BLOCKE0050449510D2601ONJULET BOXE0071043284B31H03RETAINERE013035318B78H04PINE0050463280B02H04SPRINGE00710529D0886H05SPACERE013035318B78H04PINE0050463280B02H04SPRINGE0071063284B31H03PIVOT BRKTE013036									
E0050292247C08H06PINE0070843279890603SPRING PLATEE0101274698752G02HANDLEE0050312247C09H02LEVERE0070859510D21G03SUPPORT LINKE0101284698750G02EYE BOLTE0050322247C09H02LEVERE0070873280804G13COILE010129450A576H02PINE0050333279886G02ADJ. RODE0070883280B04G14COILE013025439C201G01SHOE & LNGE0050353279894H01SPRING SEATE0070903280B04G16COILE01302731D4114H12BUSHINGE0050363279894H01SPRING SEATE0070903280B04G20COILE0130283128571H04BUSHINGE0050383280B04C102SPRINGE0071012257C99H03LEVERE0130303188571H04PINE0050409510D14H02SHOE LINKE0071023284864H02STUD* E0130333188778H04SPRING CLIPE0050429510D16H02BASEE007103328484H02STUD* E0130333188788H04PINE0050449510D24H04SPRINGE007104328483H103RETAINERE0130343188789H04PINE0050463280B04F02SPRINGE00710529D0886H05SPACERE013035318879H04PINE0050463280B02H04SPRINGE007106328483H103RETAINERE013036318879H04PINE0050463280B02H04SPRINGE007106328483H03RETAINERE013036<									
E005031 2247C08H16 PIN E007085 9510D21G03 SUPPORT LINK E010128 469B750G02 EYE BOLT E005032 2247C09H02 LEVER E007087 3280B04G13 COIL E010129 450A576H02 PIN E005033 3279B86G02 ADJ. ROD E007087 3280B04G14 COIL E013025 439C201G01 SHOE & LNG E005035 3279B86G02 ADJ. ROD E007089 3280B04G16 COIL E013027 31D4114H12 BUSHING E005036 3279B98H02 LINK E007090 3280B04G16 COIL E013028 31D4114H06 BUSHING E005037 3279B98H02 LNG. UNDRLD E007091 3279B97H14 SOLENOID E013030 318B571H04 PIN E005038 3280B04G07 COIL E007101 3284B33H03 SLOTTED LVR E013031 318B778H04 SPRING PLATE E005042 9510D16H02 BASE E007104 3284B31H03 RETAINER E013033 318B788H04 BLOCK E005044 <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>									
E0050322247C09H02LEVERE0070873280B04G13COILE010129450A576H02PINE0050333279B86G02ADJ. RODE0070883280B04G14COILE0130254392C1G01SHOE & LNGE0050353279B94H01SPRING SEATE0070903280B04G16COILE01302831D4114H12BUSHINGE0050363279B95H02LING. UNDRLDE0070913279B97H14SOLENOIDE0130293188560G1CLAPPERE0050373279B95H02SPRINGE0071002257C99H03LEVERE0130303188571H04PINE0050393280B04G07COILE0071013284B33H03SLOTTED LVRE0130313188777H04SPRING PLATEE0050409510D14H02SHOE LINKE0071023284B33H03SLOTTED LVRE013032318B778H04SPRING CLIPE0050429510D16H02BASEE0071033284B44H02STUD* E013033318B789H04BLOCKE0050453280B02H04SPRINGE00710529D0886H05SPACERE013035318B789H04PINE0050463284B67H02SPRINGE0071063284B31H03PI/OT BKTTE013036318B791H04BLOCKE0050463284B67H02SPRINGE0071063284B31H03PI/OT BKTTE013036318B791H04BLOCKE0050463284B67H02SPRINGE0071063284B31H03PI/OT BKTTE013036318B791H04BLOCKE0050463284B67H02SPRINGE0071063284B31H03PI/OT B	E005031	2247C08H16	PIN	E007085	9510D21G03	SUPPORT LINK	E010128	469B750G02	EYE BOLT
E005035 3279B92H02 LINK E007089 3280B04616 COIL E013027 31D4114H12 BUSHING E005036 3279B93H02 LINK E007090 3280B04620 COIL E013027 31D4114H12 BUSHING E005036 3279B93H02 LNG. UNDRLD E007091 3279B97H14 SOLENOID E013028 31D4118H06 BUSHING E005037 3279B93H02 LNG. UNDRLD E007091 3279B97H14 SOLENOID E013029 31B8571H04 PINC E005038 3280B04G07 COIL E007101 3284B33H03 SLOTTED LVR E013031 31B8778H04 SPRING PLATE E005040 9510D14H02 SHOE LINK E007103 3284B4H02 STUD * E013033 31B8778H04 SPRING CLIP E005042 9510D16H02 BASE E007104 3284B4H02 STUD * E013033 31B8788H04 BLOCK E005044 9510D22G01 CONDULET BOX E007105 29D0886H05 SPACER E013033 31B879H04 PIN E0	E005032	2247C09H02		E007087			E010129	450A576H02	
E0050363279B94H01SPRING SEATE0070903280B04G20COILE01302831D4118H06BUSHINGE0050373279B95H02LNG. UNDRLDE0070913279B97H14SOLENOIDE013029318B560G01CLAPPERE0050383280B04G07COILE0071002257C99H03LEVERE013030318B571H04PINE0050409510D14H02SHOE LINKE0071023284B33H03SLOTTED LVRE013032318B778H04SPRING PLATEE0050429510D16H02BASEE0071023284B65G03PLUNGERE013033318B778H04SPRING CLIPE0050439510D2601CONDULET BOXE0071043284B31H03RETAINERE013034318B789H04BLOCKE0050453280B02H04SPRINGE00710529D0886H05SPACERE013035318B79H04PINE0050463284B67H02SPRINGE0071063284B31H03RETAINERE013036318B79H04PINE0050463284B67H02SPRINGE0071063284B31H03PIVOT BRKTE013036318B79H04PINE0050463284B67H02SHOE UUTERE008025439C314G01SHOE & LNGE013037318B79H04BLOCKE0050472254C27G02SHOE UUTERE008025439C314G01SHOE & LNGE013037318B79H04BLOCKE0050482247C28G03SHOE INNERE00802731D4114H11BUSHINGE013039318B795H04SPG RETAIN									
E005037 3279B35H02 LNG, UNDRLD E007091 3279B37H14 SOLENOID E013029 3188560G1 CLAPPER E005038 3280B02H02 SPRING E007100 2257C99H03 LEVER E013030 3188571H04 PIN E005039 3280B04007 COL E007101 3284B33H03 SLOTTED LVR E013030 318B571H04 SPRING PLATE E005040 9510D14H02 SHOE LINK E007102 3284B64H02 STUD * E013033 318B78H04 SPRING CLIP E005042 9510D16H02 BASE E007103 3284B4H02 STUD * E013033 318B78H04 BLOCK E005044 9510D2601 CONDULET BOX E007105 29D0886H05 SPACER E013035 318B79H04 PIN E005046 3284B67H02 SPRING E007106 3284B3H03 PIVOT BRKT E013036 318B79H04 PIN E005046 3284B67H02 SPRING E007106 3284B3H03 PIVOT BRKT E013036 318B79H04 BLOCK E005046 </td <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>									
E005038 3280B02H02 SPRING E007100 2257C99H03 LEVER E013030 318B571H04 PIN E005039 3280B04G07 COIL E007101 3284B33H03 SLOTTED LVR E013030 318B571H04 SPRING PLATE E005040 9510D14H02 SHOE LINK E007102 3284B35H03 SLOTTED LVR E013032 318B778H04 SPRING PLATE E005042 9510D16H02 SASE E007103 3284B44H02 STUD *E013033 318B788H04 BLOCK E005044 9510D22G01 CONDULET BOX E007104 3284B31H03 RETAINER E013034 318B789H04 PIN E005045 3280B02H04 SPRING E007105 29D0886H05 SPACER E013035 318B79H04 PIN E005046 3284B67H02 SPRING E007106 3284B39H03 PIVOT BRKT E013036 318B79H04 PIN E005047 2254C27G02 SHOE UTTER E008025 4390C314G01 SHOE & LING SHOE & LING SHELEASE BSNG E005048									
E005039 3280B04G07 COIL E007101 3284B33H03 SLOTTED LVR E013031 318B777H04 SPRING PLATE E005040 9510D14H02 SHOE LINK E007102 3284B65G03 PLUNGER E013032 318B778H04 SPRING CLIP E005042 9510D16H02 BASE E007103 3284B64H02 STUD *E013033 318B788H04 BLOCK E005043 9510D2601 CONDULET BOX E007104 3284B31H03 RETAINER E013034 318B789H04 PIN E005045 3280802H04 SPRING E007105 29D0886H05 SPACER E013035 318B79H04 PIN E005046 3284867H02 SPRING E007106 3284B31H03 PIVOT BRKT E013036 318B791H04 BLOCK E005046 3284867H02 SPRING E007106 3284B31H03 PIVOT BRKT E013036 318B791H04 BLOCK E005047 2254C27602 SHOE OUTTER E008025 439C314G01 SHOE & LNG E013037 318B792H04 RELEASE BSNG E									
E005040 9510D14H02 SHOE LINK E007102 328486503 PLUNGER E013032 3188778H04 SPRING CLIP E005042 9510D16H02 BASE E007103 3284844H02 STUD * E013033 3188788H04 BLOCK E005042 9510D2C01 CONDULET BOX E007104 3284831H03 RETAINER E013034 318789H04 PIN E005045 3280B02H04 SPRING E007105 29D0886H05 SPACER E013035 318879H04 PIN E005046 3284867H02 SPRING E007106 3284839H03 PIVOT BRKT E013036 318879H04 PIN E005046 3284867H02 SPRING E007106 3284839H03 PIVOT BRKT E013036 318879H04 BLOCK E005047 2254C27G02 SHOE UUTER E008025 439C314G01 SHOE & LNG E013037 3188793H04 RELEASE BSNG E005048 2247C28G03 SHOE INNER E008027 31D4114H11 BUSHING E013039 3188795H04 SPG RETAIN	E005039	3280B04G07		E007101	3284B33H03	SLOTTED LVR	E013031	318B777H04	SPRING PLATE
E005044 9510D22G01 CONDULET BOX E007104 3284B31H03 RETAINER E013034 318B789H04 PIN E005045 3280B02H04 SPRING E007105 29D0886H05 SPACER E013035 318B790H04 PIN E005046 3284B67H02 SPRING E007106 3284B39H03 PIVOT BRKT E013036 318B791H04 BLOCK E005047 2254C27G02 SHOE OUTER E008025 4390 SHOE & LNG E013037 318B792H04 RELEASE BSNG E005048 2247C28G03 SHOE INNER E008027 31D4114H11 BUSHING E013039 318B795H04 SPG RETAIN	E005040	9510D14H02	SHOE LINK	E007102	3284B65G03	PLUNGER	E013032	318B778H04	SPRING CLIP
E005045 3280B02H04 SPRING E007105 29D0886H05 SPACER E013035 318B790H04 PIN E005046 3284B67H02 SPRING E007106 3284B39H03 PIVOT BRKT E013036 318B791H04 BLOCK E005047 2254C27602 SHOE OUTTER E008025 439C314G01 SHOE & LNG E013037 318B791H04 BLEASE BSNG E005048 2247C28G03 SHOE INNER E008027 31D4114H11 BUSHING E013039 318B795H04 SPG RETAIN									
E005046 3284B67H02 SPRING E007106 3284B39H03 PIVOT BRKT E013036 318B791H04 BLOCK E005047 2254C27G02 SHOE OUTER E008025 439C314G01 SHOE & LNG E013037 318B792H04 RELEASE BSNG E005048 2247C28G03 SHOE INNER E008027 31D4114H11 BUSHING E013039 318B795H04 SPG RETAIN									
E005047 2254C27G02 SHOE OUTER E008025 439C314G01 SHOE & LNG E013037 318B792H04 RELEASE BSNG E005048 2247C28G03 SHOE INNER E008027 31D4114H11 BUSHING E013039 318B795H04 SPG RETAIN									
E005048 2247C28G03 SHOE INNER E008027 31D4114H11 BUSHING E013039 318B795H04 SPG RETAIN									
E005049 3279B95G02 LINING KIT E008028 31D4118H04 BUSHING E013040 318B917H04 SEAL	E005048	2247C28G03	SHOE INNER	E008027	31D4114H11	BUSHING	E013039	318B795H04	SPG RETAIN
	E005049	3279B95G02	LINING KIT	E008028	31D4118H04	BUSHING	E013040	318B917H04	SEAL

* Obsolete - Consult factory for current part number

CROSS-REFERENCE NEW GEMCO INDUSTRIAL BRAKE PART NUMBERS TO OLD WESTINGHOUSE PART NUMBERS

NEW PT #	OLD PT #	DESCRIPTION	NEW PT #	OLD PT #	DESCRIPTION	NEW PT #	OLD PT #	DESCRIPTION
E010098	3279B86G04	ADJ. ROD	E016027	24D6387G03	BOLT	E019059	439C397G01	CLPR & ARM
E010103	3279B97H05	SOLENOID	E016028	318B571H05	PIN	E019060	439C398G03	CLAPPER ARM
E010104	3279B90G04	SPRING PLATE	E016030	318B778H05	SPRING CLIP	E019065	861C691G20	LINING KIT
E010105	9510D21G04	SUPPORT LINK	E016031	318B787H05	BLOCK	E019066	439C399G01	BASE
E010106	2254C28G04	SHOE, INNER	E016033	318B789H05	PIN	E019067	439C395G02	SHOE ARM
E010107	2254C27G04	SHOE, OUTER	E016034	318B790H05	PIN	E023025	637C316G01	SHOE & LNG
E010108	3279B95G04	LINING KIT	E016035	318B791H05	BLOCK	E023027	24D5096H1 1	SPRING
E010114	861C691G17	LINING KIT	E016036	318B793H04	ADJ. SCREW	E023028	24D6387G02	BOLT
E010115	635C306G01	SHOE ARM	E016038	318B917H05	SEAL	E023029	318B571H07	PIN
E010116	635C300G01	BASE	E016039	438A072H07	SPRING	E023030	318B777H07	SPRING PLATE
E010117	635C306G02	SHOE ARM	E016040	438A352H01	BLOCK	E023031	318B778H07	SPRING CLIP
E010118	635C317G01	CLPR & ARM	E016044	635C235H06	PLATE	* E023032	318B787H07	BLOCK
E010119	635C308G01	CLAPPER ARM	E016050	318B907G01	CLAPPER	* E023033	318B788H07	BLOCK
E010120	2257C99H04	LEVER	E016051	635C235G01	BASE	E023034	318B789H07	PIN
E010121	3284B33H04	SLOTTED LVR	E016052	635C236G01	CLPR & ARM	E023035	318B790H07	PIN
E010122	3284B39H04	PIVOT BRKT	E016053	861C691G19	LINING KIT	E023036	318B791H07	BLOCK
E010123	3284B65G04	PLUNGER	E016060	635C240G01	SHOE ARM	E023038	318B795H07	SPG RETAIN
E010124	3284B44H03	STUD	E016061	635C240G02	SHOE ARM	E023039	318B917H07	SEAL
E010125	29D0886H12	SPACER	E016062	469B750G04	EYE BOLT	E023040	319B098G01	CLAPPER
E010126	29D0886H13	SPACER	E016063	635C238G01	CLAPPER ARM	E023044	438A069H05	SPRING
E010127	469B752G02	HANDLE	E016064	469B752G04	HANDLE	E023045	438A072H03	SPRING
E010128	469B750G02	EYE BOLT	E016065	469B755H04	MTG BLOCK	E023046	438A429H01	BLOCK
E010129	450A576H02	PIN	E016066	469B428H08	MTG BLOCK	E023047	635C104G07	TIE ROD
E013025	439C201G01	SHOE & LNG	E016067	450A574H04	SPRING CLIP	E023051	637C362G01	CLAPPER ARM
E013027	31D4114H12	BUSHING	E016068	450A576H04	PIN	E023052	637C343G01	CLPR & ARM
E013028	31D4118H06	BUSHING	E016200	635C104G05	TIE ROD	E023055	861C691G21	LINING KIT
E013029	318B560G01	CLAPPER	E016203	318B777H05	SPRING PLATE	E023056	637C324G01	SHOE ARM
E013030	318B571H04	PIN	* E016204	318B788H05	BLOCK	E023057	434C392G01	BASE
E013031	318B777H04	SPRING PLATE	E016205		BLOCK	E023058	637C324G02	SHOE ARM
E013032	318B778H04	SPRING CLIP	E016206	318B795H05	SPG RETAIN	E030025	438A072H01	SPRING
* E013033	318B788H04	BLOCK	E016207		SPRING	E030026	318B795H08	SPG RETAIN
E013034	318B789H04	PIN	E019024	439C394G01	SHOE & LNG	E030027	426C041G01	SHOE & LNG
E013035	318B790H04	PIN	E019026	152442	GROMMET	* E030028	318B788H08	BLOCK
E013036	318B791H04	BLOCK	E019027	24D6387G01	BOLT	E030031	318B791H08	BLOCK
E013037	318B792H04	RELEASE BSNG	E019028	31D4114H20	BUSHING	E030032	318B792H08	RELEASE BSNG
E013039	318B795H04	SPG RETAIN	E019029	31D4118H19	BUSHING	E030033	635C104G08	TIE ROD
E013040	318B917H04	SEAL	E019030	318B571H06	PIN	E030034	450A849H01	BLOCK
E013041	438A070H09	SPRING	E019031	318B670G01	CLAPPER	E030035	318B793H08	ADJ. SCREW
E013042	438A072H09	SPRING	E019032	318B777H06	SPRING PLATE	E030036	318B777H08	SPRING PLATE
E013044	438A411H05	SPRING	E019033	318B778H06	SPRING CLIP	* E030037	318B787H08	BLOCK
E013045	438A456H01	BLOCK	* E019034	318B787H06	BLOCK	E030040	450A869G01	BOLT
E013051	439C204H07	PLATE	* E019035	318B788H06	BLOCK	E030041	641C782G01	SHOE ARM
E013052	635C104G04	TIE ROD	E019036	318B789H06	PIN	E030042	641C808G01	BASE
E013053	24D6387G04	BOLT	E019037	318B790H06	PIN	E030043	318B789H08	PIN
E013055	861C691G18	LINING KIT	E019038	318B791H06	BLOCK	E030044	641C782G02	SHOE ARM
E013056	439C203G01	CLAPPER ARM	E019039	318B792H06	RELEASE BSNG	E030045	31D4118H20	BUSHING
E013064	439C192G05	SHOE ARM	E019040	318B793H06	ADJ. SCREW	E030046	641C792G01	CLPR & ARM
E013066	439C204G01	BASE	E019042	318B795H06	SPG RETAIN	E030047	318B571H08	PIN
E013067	439C192G06	SHOE ARM	E019043	318B917G06	SEAL	E030048	641C801G01	CLAPPER ARM
E013068	489C202G01	CLPR & ARM	E019044	438A072H05	SPRING	E030049	473B166G01	CLAPPER
E013069	469B752G03	HANDLE	E019045	438A169H01	IND. BRKT.	E030050	318B917H08	SEAL
E013070	469B750G03	EYE BOLT	E019046	438A170H01	MTG. PLATE	E030051	318B778H08	SPRING CLIP
E013071	469B755H03	MTG BLOCK	E019047	438A171H03	CONDULET BOX	E030052	438A411H08	SPRING
E013072	469B428H06	MTG BLOCK	E019050	439A816G02	CONDULET CVR	E030053	318B790H08	PIN
E013073	450A574H03	SPRING CLIP	E019056	439C399H06	PLATE	E030054	861C691G22	LINING KIT
E013074	450A576H03	PIN	E019057	635C104G06	TIE ROD	E030056	438A069H06	SPRING
E016025	635C227G01	SHOE & LNG	E019058	439C395G01	SHOE ARM			

* Obsolete - Consult factory for current part number.

MAGNETIC SHOE BRAKES OPTIONAL EQUIPMENT

CB STYLE BRAKE OPTIONS:

- NEMA 3 COVER
- NEMA 4 ENCLOSURE

TM STYLE BRAKE OPTIONS:

- SERIES RESISTORS
- NEMA 3 COVER
- NEMA 4 ENCLOSURE (Seals also available)
- WHEEL COVERS
- RECTIFIER FOR AC VOLTAGE OPERATION
- LIMIT SWITCH INDICATING BRAKE ACTUATION
- HAND-RELEASE
- SELF-CENTERING FEATURE (TMSC) CONSULT FACTORY FOR SIZES
- SPECIAL PAINT, COATINGS, TAGGING, ETC.

For Current List Prices, please contact the Factory.

CONVERSIONS TABLE

	MULTIPLY	BY	ΤΟ ΟΒΤΑΙΝ
MASS	kilogram (kg)	2.205	pound (lb)
FORCE	newton (n)	0.225	pound (lb)
TORQUE	newton-metre (N*m)	0.738	pound-foot (lb.ft.)
	kilogram-metre	7.233	pound-foot (lb.ft.)
	kilogram-metre	9.807	newton-metre (N*m)
LENGTH	metre (m)	39.370	inch (in)
	centimeter (cm)	0.394	inch (in)
	millimeter (mm)	0.0394	inch (in)
POWER	horsepower (hp)	0.746	kilowatt (kw)
	horsepower (hp)	3300	foot-pound/minute (lb.ft./min)
VELOCITY	metre/second (m/s)	196.850	foot/minute (fpm)
	metre/second (m/s)	3.281	foot/second (fps)
INERTIA	moment of inertia kg*m²	23.730	moment of inertia (lb.ft ²)