

MC604-gb-0608

TB Series Brakes Tension Control systems



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INSTALLATION INSTRUCTIONS

A. Mounting the Magnet

Care must be taken in selecting the location for mounting the magnet. After assembly, the magnet must be concentric within .010 T.I.R. and square with the shaft within .006 T.I.R. A pilot diameter on the mounting surface is essential to hold the magnet within the required tolerances. Referring to the illustration drawing on the Dimensions and Parts Lists pages, machined pilot diameters on the magnet mounting flange are provided to aid in holding the magnet in the correct position. Once the surface has been prepared, the magnet is bolted in place with capscrews and lockwashers.

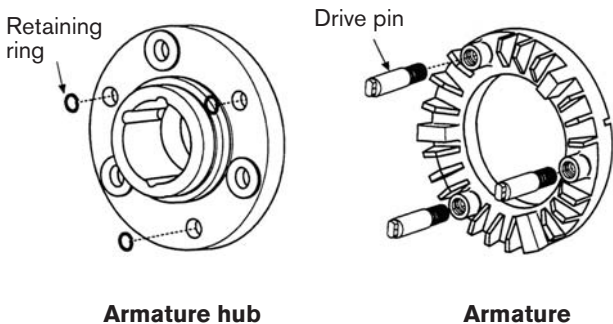
B. Mounting the Armature on the Hub

TB-170, 250, and 425

Assemble the splined armature to the hub. The finned side of the armature should be flush against the retaining ring.

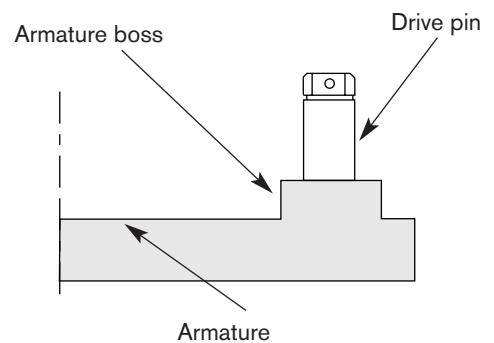
TB-500

Note: The hub is reversible. The side on which the armature is mounted will depend on the direction in which the taperlock bushing must enter.



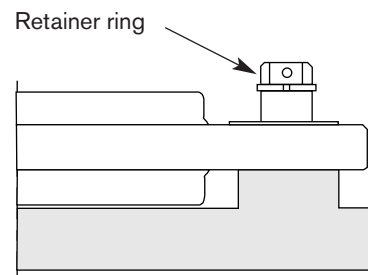
STEP 1:

Insert the drive pins into the holes of the armature and draw them up tightly against the armature bosses. (Since the threads are a class #3 fit, the pins may seem to bind) Slide the hub over the drive pins.



STEP 2:

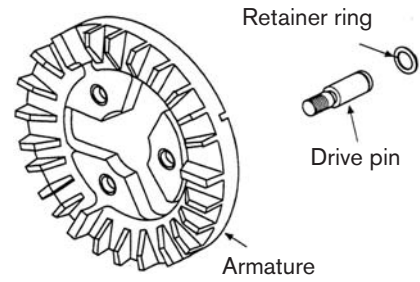
Assemble the retainer rings to the drive pins by snapping the rings into the grooves at the head of the drive pins.



Installation Instructions

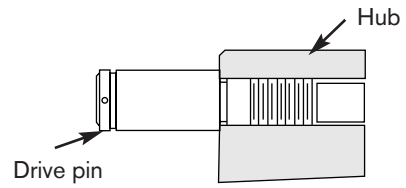
TB 825-1525

Note: The hub is reversible. The side on which the armature is mounted will depend on the direction in which the taperlock bushing must enter.



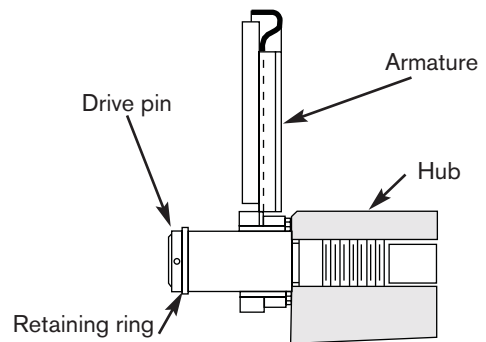
STEP 1:

Insert the drive pins into the holes of the hub and draw them up tightly until the shoulder of the pin is against the face of the hub. (Since the threads are a class #3 fit, the pins may seem to bind).



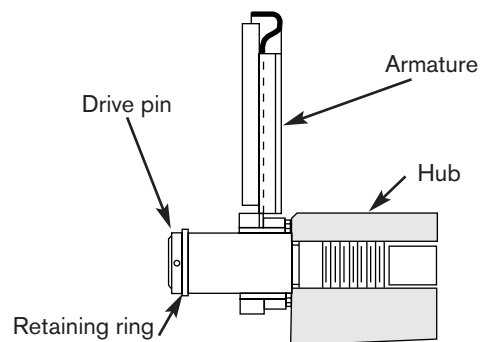
STEP 2:

Slide the armature over the pins.



STEP 3:

Assemble the retainer rings to the drive pins by snapping them into the grooves at the head of the pins.



Installation Instructions

C. Mounting the Armature and Hub Assembly

TB-170, 250, and 425

1. For size 250 and 425, insert a key into the keyway of the shaft.
2. Slide the armature assembly onto the shaft.
3. Position the assembly in accordance with the overall axial dimensions given on the dimension drawings.
4. Secure the assembly in this position by alternately tightening the two setscrews in the hub.

TB-500, 1525

D. The armature and armature hub are mounted on the shaft by a taperlock bushing. All parts must be clean and free from burrs or chips before assembly. Place the bushing into the hub and insert the key. The key is a side to side fit and should not contact the top of the keyway. Lubricate the locking setscrews, insert them into the bushing and slide the assembly onto the shaft. Tighten by drawing up on each screw alternately with a torque wrench. During the tightening process, the bushing should be tapped lightly from time to time to make certain that it seats-in properly.

COIL DATA

Size	Current draw (Amperes) at rated voltage		Resistance at at 20° C - Ohms	
	6 V coil	24 V coil	6 V coil	24 V coil
170	.861	.215	6.96	111
250	1.59	.400	3.78	60
425	1.26	.317	4.75	76
500	4.40	1.00	1.36	24
825	4.74	1.18	1.27	20
1000	4.87	1.22	1.23	20
1225	4.50	1.08	1.33	22
1525	4.13	1.21	1.45	20

MAINTENANCE

When a Warner Electric Brake is properly assembled and installed, no further servicing, lubrication or maintenance should be required throughout the life of the unit.

WEAR PATTERN: Wear grooves appear on the armature and magnet surfaces. This is a normal wear condition, and does not impair functioning of the unit. Never machine either the armature or magnet contact surfaces to remove grooves or score marks resulting from wear.

HEAT: Excessive heat and high operating temperatures are causes of rapid wear. Units, therefore, should be ventilated as efficiently as possible.

FOREIGN MATERIALS: If units are used on machinery where fine, abrasive dust, chips or grit are dispelled into the atmosphere, shielding of the brake may be necessary if maximum life is to be obtained.

Where units are used near gear boxes or transmissions requiring frequent lubrication, means should be provided to protect the friction surfaces from oil and grease to prevent serious loss of torque.

Oil and grease accidentally reaching the friction surfaces may be removed by wiping with a rag dampened with a suitable solvent. In performing this operation, do not drench the friction material.

If the friction material has been saturated with oil or grease, no amount of cleaning will be completely effective.

Once such, a unit has been placed back in service, heat will cause the oil to be boiled to the surface resulting in further torque loss.

TORQUE LOSS: If the brake loses torque, the initial check should be for input voltage to the magnet. Apply full power to the magnet and verify that the voltage applied is approximately equal to the unit's voltage rating.

Next, check the resistance of the coil. Make sure that power to the control is off and the leads are disconnected.

The coil resistance will increase with temperature, but should be approximately equal to the nominal resistance value provided in the Coil Data Chart.

A very high or infinite reading indicates an open coil and a very low reading indicates a short circuit.

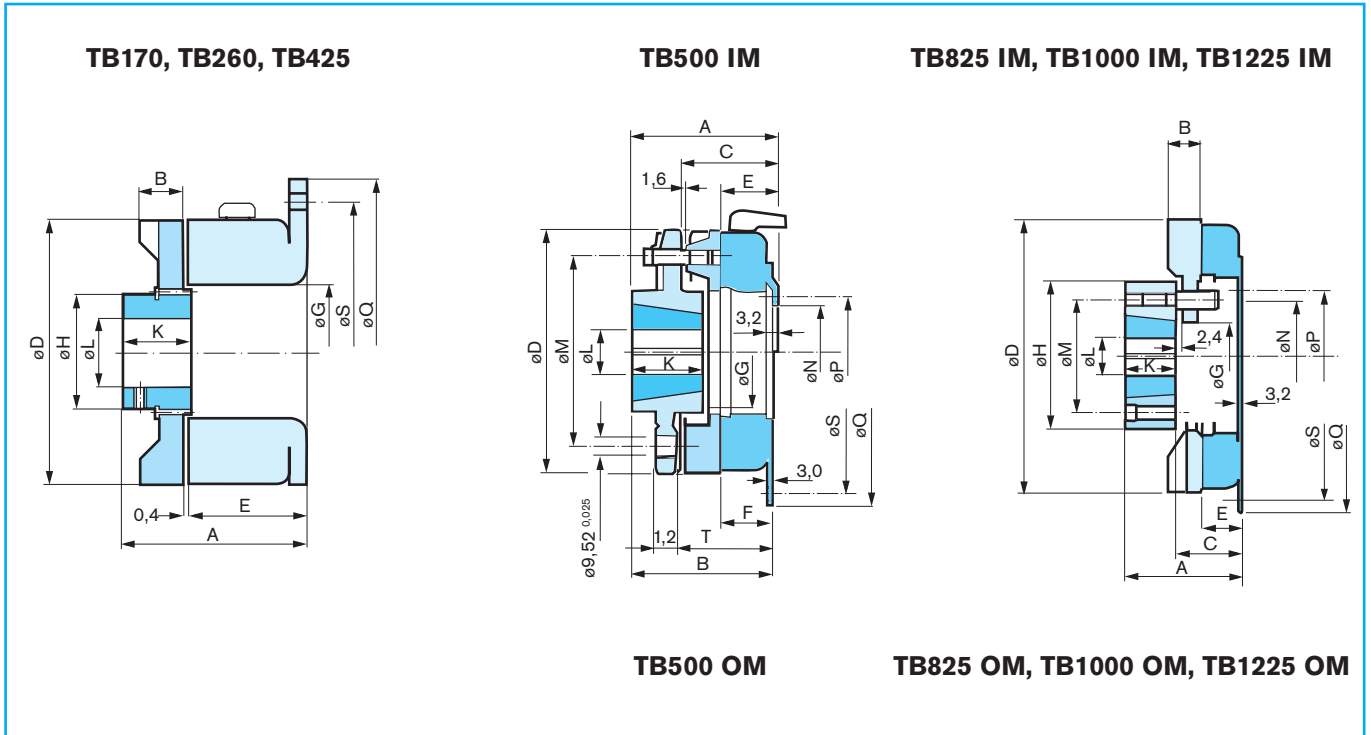
If the above checks indicate that the proper voltage and current are being supplied to the magnet, mechanical parts should be checked to assure that they are in good operating condition and properly installed.

CONTROL CONNECTIONS

When making electrical connections, refer to instructions supplied with your control. Warner Electric offers a wide variety of controls for tensioning systems.

Choose between manual controls, closed loop dancer controls, and load cell controls. For more information, ask for catalog number P-771.

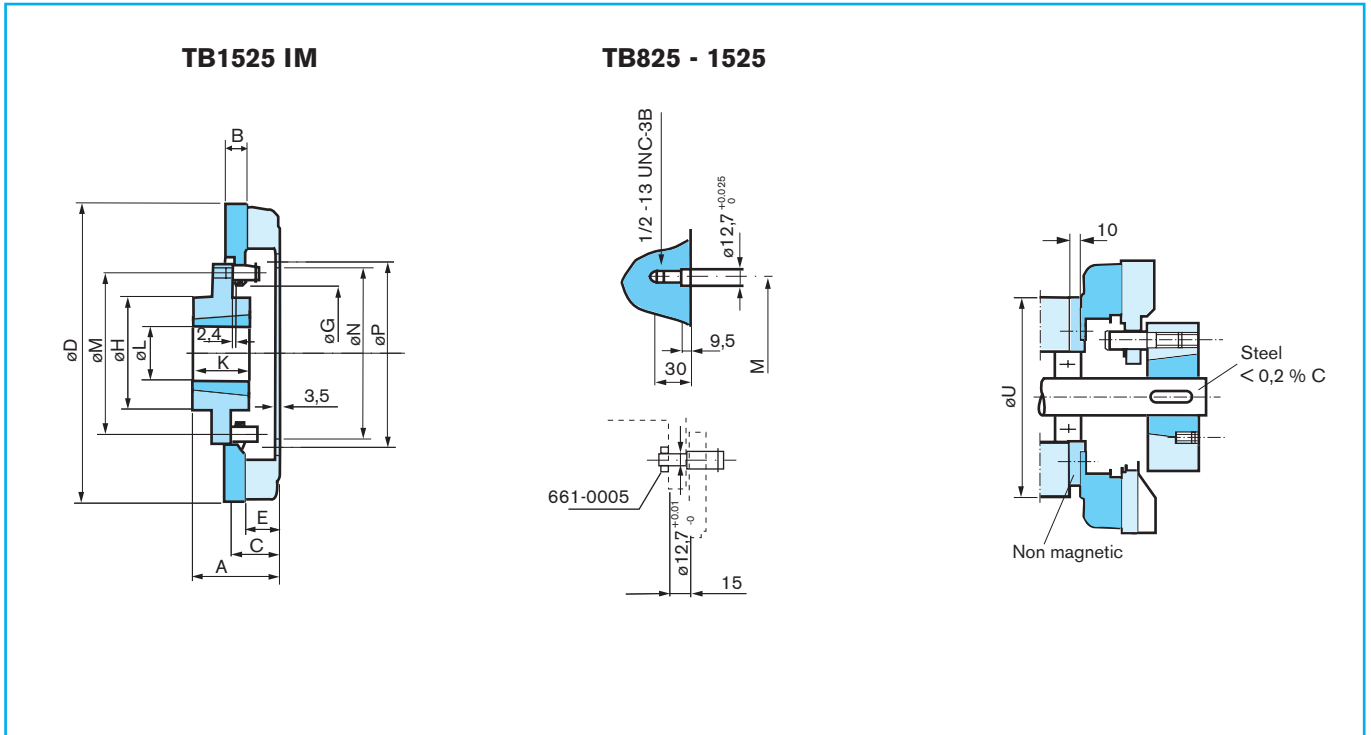
Dimensions



Size		TB170	TB260	TB425	TB500	TB825	TB1000	TB1225	TB1525
M_d	[Nm]	0,8	4	16,5	35	75	150	300	450
M_d min	[Nm]	0	0,08	0,16	0,2	0,5	1,1	2	3
n max	[rpm]	5000	5000	5000	5000	3000	2400	2000	1600
I 24V =	[A]	0,22	0,40	0,32	1,010	1,177	1,224	1,076	1,212
P Continu	[kW]	0,015	0,030	0,060	0,100	0,200	0,360	0,520	0,810
P* Alternativ	[kW]	0,022	0,045	0,100	0,180	0,360	0,650	0,950	1,580
R 20° C	[Ω]	110	60	76	23,8	20,4	19,6	22,3	19,8
t_b	[s]	0,020	0,040	0,080	0,052	0,112	0,152	0,290	0,310
Inertia	[kgm ²]	$12 \cdot 10^{-6}$	$116 \cdot 10^{-6}$	$1,4 \cdot 10^{-3}$	$1,9 \cdot 10^{-3}$	0,022	0,041	0,095	0,213
Mass	[kg]	0,180	0,650	1,800	2,3	8,2	12	21	27,5
A	[mm]	30,5	48,5	52	79	94	105	138	116
B	[mm]	7	12	14	77	30,5	30,5	30,5	30,5
C	[mm]	-	-	-	51	54	56,5	62	65
øD	[mm]	46	69	111	130	215	259	316	395
E	[mm]	20,6	32	30,5	30,5	33,5	36,5	41,5	44,5

* Alternativ duty based on 30 minutes ON and 30 minutes OFF.

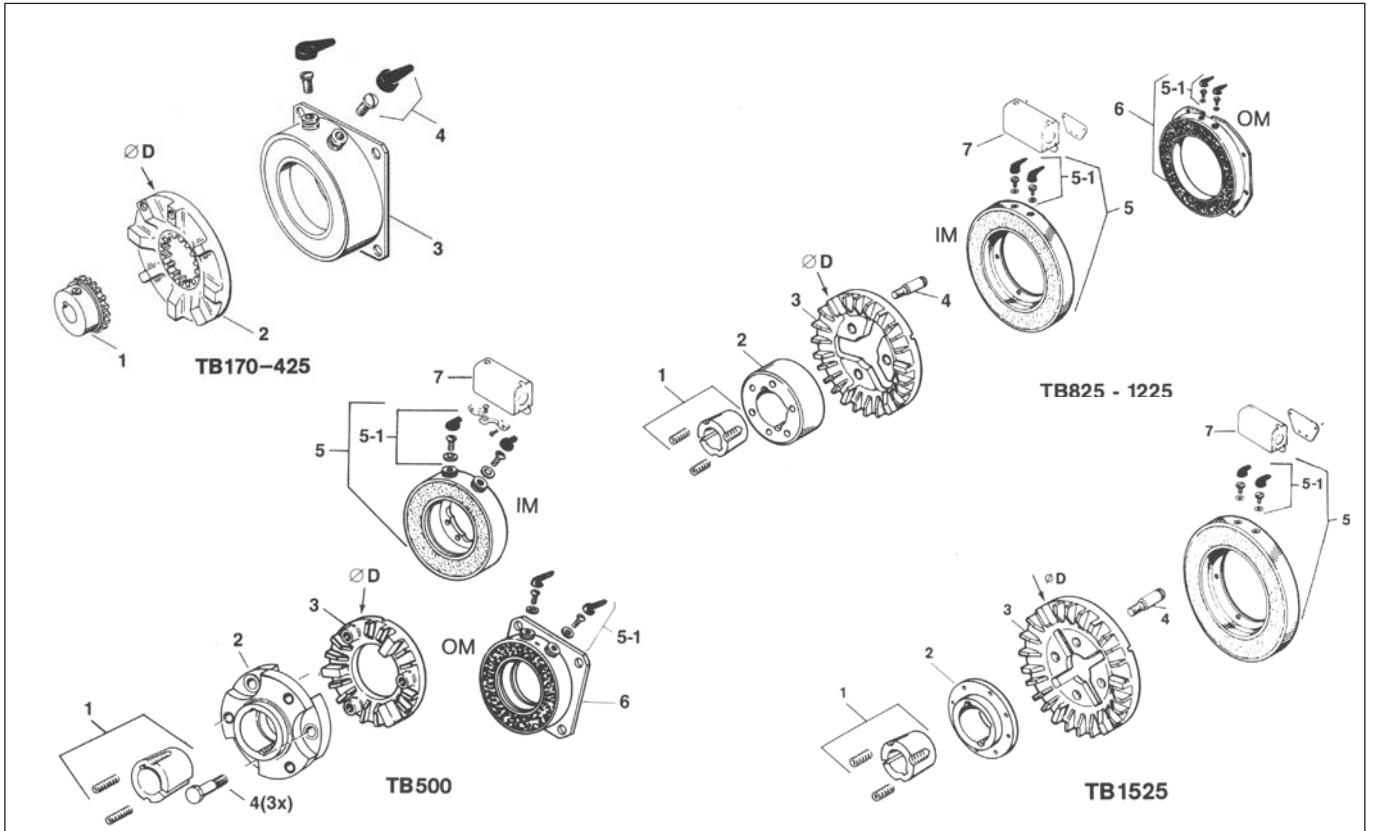
Dimensions



Size		TB170	TB260	TB425	TB500	TB825	TB1000	TB1225	TB1525
F	[mm]	-	-	-	28,5	-	-	-	-
øG	[mm]	19,5 ^{+0,05}	35	62	49	55	98	114	180
øH	[mm]	15,9	30,1	31,8	-	118	159	175	152,5
K*	[mm]	10,3	17,5	22,2	38	38	44,5	76	76
øL max	[mm]	10	20	22	32	42	60	75	75
øM ^{±0,025}	[mm]	-	-	-	98,42	90,49	133,4	149,3	215,9
					3 x 120°	3 x 120°	3 x 120°	4 x 90°	4 x 90°
øN ^{±0,05}	[mm]	-	-	-	52,40	88,93	136,55	161,95	228,60
øP (for screw)	[mm]	-	-	-	60,3	108	155,6	184,1	247,60
		-	-	-	8 x M4	6 x M8	6 x M8	6 x M8	12 x M8
øQ _{-0,05}	[mm]	61,9	88,9	142,47	165,10	247,62	-	-	-
øS (for screw)	[mm]	54	79,4	127	149,2	225,5	-	-	-
		4 x M4	4 x M4	4 x M6	4 x M10	4 x M8	-	-	-
T	[mm]	-	-	-	49	-	-	-	-
øU	[mm]	-	-	-	110	170	220	260	340

* Reverse mounting of taperlock bushing is possible

Spare parts



Part	TB170	TB260	TB425
	D = 46 mm	D = 69 mm	D = 111 mm
1 Armature hub*	B5102-541-001-38	B5103-541-001-47	B5104-541-001-31
2 Armature	K110-0096	B110-0097	B110-0098
3 Magnet 24V	K5375-631-012 R = 110 Ω, 20°C	K5365-631-016 R = 60 Ω, 20°C	K5367-631-008 R = 76 Ω, 20°C
4 Terminals	Wires	B5103-101-002	B5103-101-002

* Prebored

** Indicate bore and keyway

Part	TB500
	D = 130 mm
1 Taperlock bushing**	B180-xxxx-xxxx
2 Armature hub	K5300-541-004
3 Armature	B110-0047
4 Drive pins	K5300-101-003 3 x
5 Magnet IM 24V	B5300-631-040
5-1 Terminals	B5311-101-001
6 Magnet OM 24V	B5300-631-000-46
7 Conduit box	K5200-101-010

Part	TB825	TB1000	TB1225	TB1525
	D = 215 mm	D = 259 mm	D = 316 mm	D = 395 mm
1 Taperlock bushing**	B180-xxxx-xxxx	B180-xxxx-xxxx	B180-xxxx-xxxx	B180-xxxx-xxxx
2 Armature hub	B540-0394	B540-0313	B540-0015	B540-0314
3 Armature	B5301-111-019	B5302-111-021	B5303-111-011	B5304-111-005-04
4 Drive pins	B5301-101-001 3 x	B5301-101-001 3 x	B5301-101-001 4 x	B5301-101-001 4 x
4 Magnet IM 24V	B5311-631-000-30 R = 20 Ω, 20°C	B5312-631-000-36 R = 20 Ω, 20°C	B5313-631-000-11 R = 22 Ω, 20°C	B5314-631-000-08 R = 20 Ω, 20°C
5-1 Terminals	B5311-101-001	B5311-101-001	B5311-101-001	B5311-101-001
6 Magnet OM 24V	B5311-631-000-16	-	-	-
7 Conduit box	K5200-101-011	K5200-101-011	K5200-101-011	K5200-101-011

Service instructions for TB brakes

When a Tension Brake is correctly assembled and mounted it does not require any further maintenance. Never oil or grease friction faces. Any grooves which appear on the face of the armature or the magnet are quite normal. Never machine these faces. After wear, the poles become imbedded into the armature. Worn armatures always have to be replaced. A magnet which is not completely worn out can have the face remachined. The friction material should be flush with the iron poles.

Note that high ambient temperatures or excessive heating will increase wear. The maximum armature temperature should not exceed 90°C. If the brake is working in an area where dust collects or the atmosphere may have grease in suspension the brake should be protected to avoid foreign bodies or grease collecting on the friction face. Such a protection should not reduce ventilation round the unit. If oil or grease spots form on the friction faces they can be removed by trichlorethylene. If by accident the magnet becomes saturated with oil or grease then it must be replaced.

In order to check the coil resistance one wire should be removed from the control or the magnet. Coil resistance, see "Part numbers". If such tests show that the electrical part of a brake is working correctly then the mechanical parts should be checked. It is important that no air gap exists between the armature and the magnet when the unit is engaged.

Bedienungsanleitung für TB Abwickelbremse

Eine richtig montierte und eingebaute Abwickelbremse bedarf keiner Wartung. Reibflächen nicht ölen oder schmieren. Die Reibspuren an der Ankerplatte und an dem Magneten sind normal. Rillen und Riefen dürfen weder an der Ankerplatte noch am Magnet nachgearbeitet werden! Bei Warner Electric Einheiten arbeiten sich die Pole in die Ankerplatte ein. Abgenützte Ankerplatten sind stets zu ersetzen. Wird eine neue Ankerplatte mit einem noch nicht abgenützten Magneten eingebaut, so ist Überdrehen der Reibfläche des Magnets zulässig. Der Reibbelag sollte die Eisenpole nicht überragen.

Starke Erwärmung und hohe Umgebungstemperatur sind der Grund für schnellen Verschleiß. Zulässige Erwärmung der Ankerplatte 90°C. Arbeitet die Bremse in staubiger Umgebung oder können Späne oder Fetteilchen an die Reibfläche der Bremse gelangen, so ist eine Abschirmung vorzusehen. Diese Abschirmung darf jedoch die Eigenbelüftung der Ankerplatte nicht beeinträchtigen. Öl- und Fettsuren an der Reibfläche können mit Tetrachlor-Kohlenstoff entfernt werden. Stark verölte Magnete sind zu ersetzen.

Zur Messung des Spulenwiderstandes soll stets ein Anschlusskabel vom Steuergerät getrennt werden. Spulenwiderstände, siehe «Teilnummern». Zeigen diese Prüfungen, dass der elektrische Teil der Bremse in Ordnung ist, so sollten die mechanischen Teile geprüft werden. Wichtig ist, dass die Ankerplatte luftspaltlos an dem Magneten anliegt.

Instructions de service pour freins TB

Un frein TB correctement assemblé et monté n'exige aucun entretien. Les surfaces de friction ne doivent pas être huilées ou graissées. Les traces de friction sur l'armature et l'inducteur sont l'effet d'une usure normale pendant le rodage. Les sillons et les rainures ne doivent être retouchés ni sur l'inducteur ni sur l'armature. Dans les unités Warner Electric, les pôles épousent les irrégularités de l'armature pendant le rodage. Les armatures usées doivent toujours être remplacées. Lors de l'assemblage d'une armature neuve avec un inducteur non encore usé, un surfaçage de l'inducteur est permis. La garniture de friction ne doit pas dépasser les pôles métalliques.

Un échauffement intense et une température ambiante élevée sont des causes d'usure rapide. La température maximale de l'armature ne doit pas dépasser 90°C. Si le frein doit travailler dans un milieu poussiéreux ou si des copeaux ou des particules de graisse peuvent se déposer sur les surfaces de friction, le frein est à équiper d'un écran de protection. Cet écran de protection ne doit toutefois pas gêner l'auto-ventilation de l'armature. Des traces d'huile ou de graisse sur la surface de friction peuvent être enlevées au moyen de trichloréthylène. Les inducteurs avec des garnitures fortement enduites d'huile sont à remplacer.

Pour contrôler la résistance de la bobine un seul câble doit être enlevé du bloc régulateur ou de l'inducteur. Pour la résistance, voir «Numéro de pièces». S'il ressort de ces examens que la partie électrique du frein est en ordre, contrôler la partie mécanique. Il est important que l'armature soit en contact avec l'inducteur (entrefer nul).