

Wrap Spring Clutches & Brakes CB & Super CB Series

Service Manual

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SM592-gb-02/08



 **Warner**[®]
Electric

An Altra Industrial Motion Company

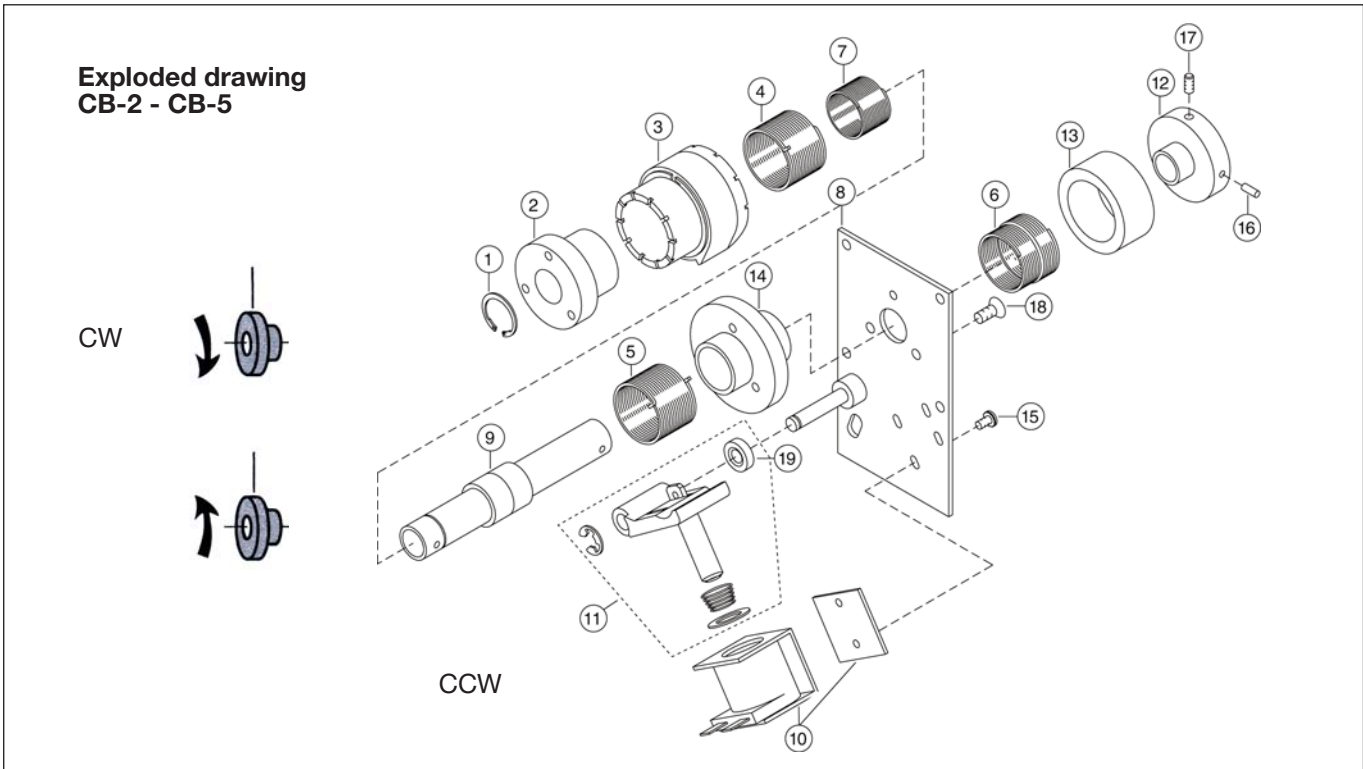
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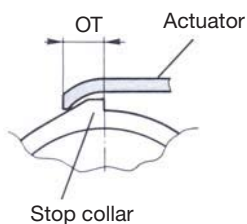


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Overtravel **OT**

CB-2: 2,3 - 4,8 mm
 CB-4: 4,8 - 7,8 mm
 CB-5: 3,8 - 6,3 mm



1	Circlip	10	Coil assembly
2	Input hub	11	Actuator assembly
3	Control collar	12	Anti-backup hub
4	Clutch spring	13	Dust cover
5	Brake spring	14	Brake hub
6	Anti-backup spring	15	Screw
7	Anti-overrun spring	16	Spring pin
8	Mounting plate	17	Set screw
9	Shaft assembly	18	Screw

1 Assembly instructions CB-2 - CB-5

CB-Products are shipped as complete and pre-set units. Disassembly and assembly is only needed if modifications or repair work is required.

The exploded drawing shows a CB-5 unit. The principle also applies to the CB-2 and CB-4 units.

1.1 **DISASSEMBLY**

1. Brake engaged, input hub (2) freely rotatable, remove circlip (1).
2. Remove input hub (2) by rotating in the drive direction (remove anti-overrun spring (7), if present).
3. Remove control collar (3), by extracting towards the control tang of clutch spring (4).
4. Remove springs (clutch and brake).
5. If necessary remove anti-backup spring (6), (13), (16). To remove the spring pin (16), special tools are required.

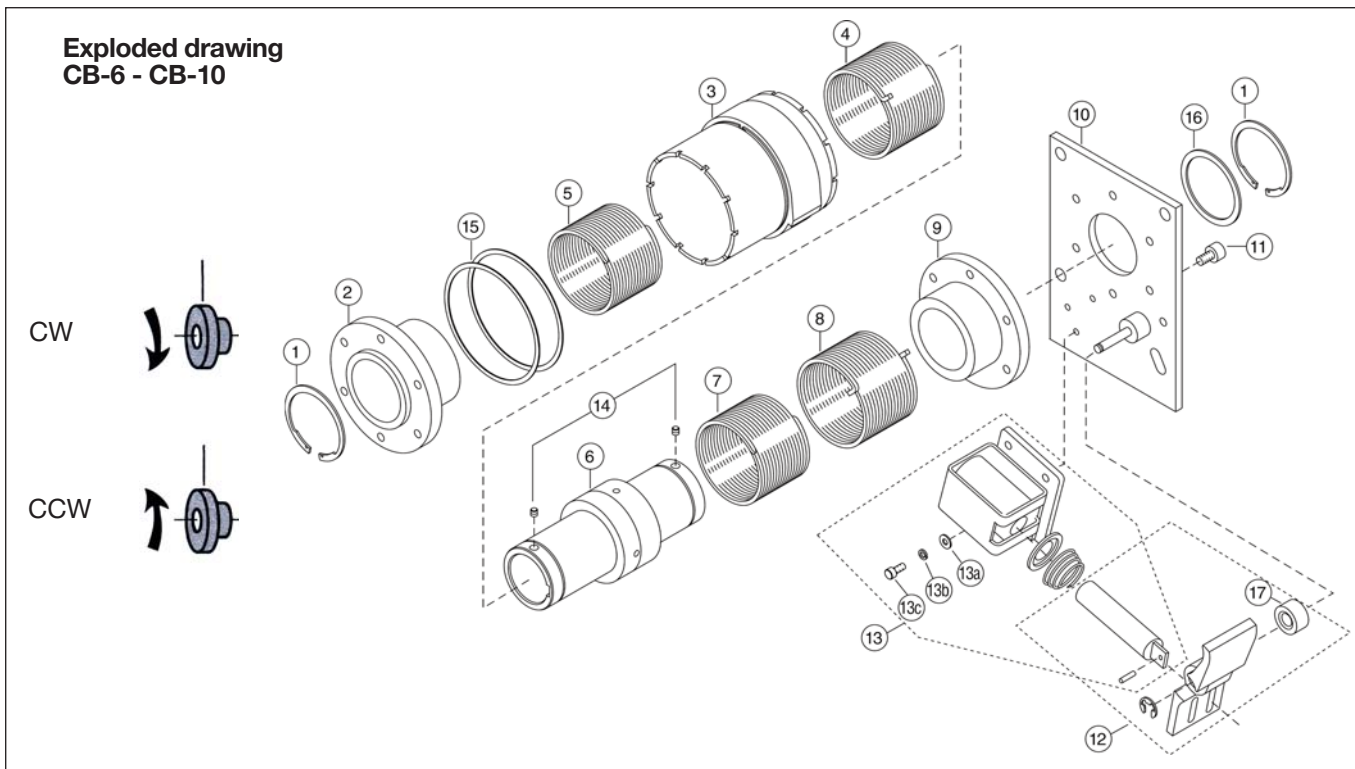
1.2 **REMOVAL OF ANTI-OVERRUN SPRING (7)**

All CB units are normally equipped with an anti-overrun spring (7). If the anti-overrun is not required, e.g. the input hub (2) must be able to rotate in both directions, execute the following :

1. Mark the spring tang location on control collar (3).
2. Fully wrap down the brake spring (output in stop position).
3. Remove circlip (1) and input hub (2).
4. Remove the anti-overrun spring (7).
5. Assemble the input hub (2) with circlip (1).
6. Check the overtravel specification (OT).

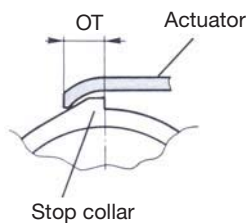
1.3 **ASSEMBLY**

1. Assemble anti-backup spring (6), dust cover (13) and anti-backup hub (12) (if required).
2. Assemble brake spring (5) and clutch spring (4) on sleeve (9) (output tangs - clutch, brake - in the sleeve).
3. Assemble control collar (3) over clutch spring (4), by extending control tang of the clutch spring by using long nose pliers (put pliers into collar (3) first).
4. The control tang of the brake spring (5) is located in one of the nine slots of the control collar. The control tang of the clutch spring (4) - slightly precharged -lies in one of the ten slots.
5. Rotate output into STOP position. Assemble input hub (2) (not secured).
6. Differential setting of clutch/brake (overtravel OT). Actuator is in contact with stop of control collar (3) Rotate output into STOP position. Pull backwards input hub (2), remove control tang of clutch spring (4) out of slot of control collar. Open clutch spring (4), to obtain distance OT. Push spring and input hub (2) back again. Lift actuator, the control collar (3) should overtravel distance OT. If OT is not reached. put control tang of brake spring(5) in another of the nine slots and repeat procedure until OT is reached.
7. Assemble circlip (1) at input hub (2).
8. If anti-overrun is required : rotate output into STOP position. Remove circlip (1) and input hub (2). Screw carefully anti-overrun spring (7) into output hub. Assemble input hub (2) by rotating in the drive direction. Assemble circlip (1).
9. Check actuator setting (11).



Overtravel OT

CB-6: 4,8 - 9,4 mm
 CB-7: 9,4 - 12,7 mm
 CB-8: 9,4 - 12,7 mm
 CB-10: 15,7 - 19,0 mm



1	Circlip	11	Screw
2	Input hub	12	Actuator assembly
3	Control collar	13	Solenoid assembly
4	Clutch spring	13a	Washer
5	Anti-override spring	13b	Lockwasher
6	Shaft assembly	13c	Cap screw
7	Anti-backup spring	14	Cap screw
8	Brake spring	15	Lockwasher
9	Brake hub	16	Set screw
10	Mounting plate	17	Spacer

2 Assembly instructions CB-6 - CB-10

CB-Products are shipped as complete and pre-set units. Disassembly and assembly is only needed if modifications or repair work is required.

The exploded drawing shows a CB-8 unit. The principle also applies to the CB-6 and CB-10 units.

2.1 DISASSEMBLY

1. Brake engaged, input hub (2) freely rotatable, remove circlip (1).
2. Remove input hub (2) by rotating in the drive direction (remove anti-overrun spring (5), if present).
3. Control collar (3), released (actuator not in contact with STOP). Remove circlip (1) at mounting plate (10).
4. Remove output sleeve (6) by rotating in the drive direction.
5. Remove anti-backup spring (7). DO NOT disassemble brake hub (9).
6. Remove control collar (3) by extracting towards the control tang of the brake spring (8).
7. Remove springs (clutch and brake).

2.2 REMOVAL OF ANTI-OVERRUN SPRING (5)

All CB units are normally equipped with an anti-overrun spring (5). If the anti-overrun is not required, e.g. the input hub (2) must be able to rotate in both directions. execute the following :

1. Mark the spring tang location on control collar (3).
2. Fully wrap down the brake spring (output in stop position).
3. Remove circlip (1) and input hub (2).
4. Remove the anti-overrun spring (5).
5. Assemble the input hub (2) with circlip (1).
6. Check the overtravel specification (OT).

2.3 ASSEMBLY

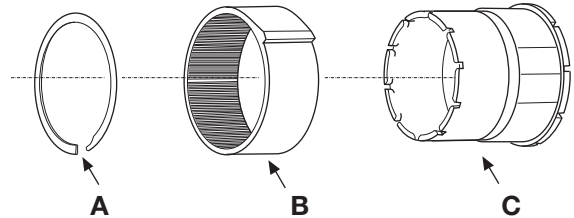
1. Assemble brake spring (8), and clutch spring (4) on sleeve (6) (output tangs - clutch, brake - in the sleeve).
2. Assemble control collar (3) over brake spring (8), by extending control tang of the brake spring by using long nose pliers (put pliers into collar (3) first).
3. The control tang of the brake spring (8) is located in one of the nine slots of the control collar. The control tang of the clutch spring (4) - slightly precharged -lies in one of the ten slots.
4. Assemble anti-backup spring (7) into output hub.
5. Assemble preassembled sleeve (6) into mounting plate (10) with brake hub (9) by rotating in the drive direction and assemble circlip (1) at mounting plate (10).
6. Rotate output into STOP position. Assemble input hub (2) (not secured).
7. Differential setting of clutch/brake (overtravel OT). Actuator is in contact with stop of control collar (3) Rotate output into STOP position. Pull backwards input hub (2), remove control tang of clutch spring (4) out of slot of control collar. Open clutch spring (4), to obtain distance OT. Push spring and input hub (2) back again. Lift actuator, the control collar (3) should overtravel distance OT. If OT is not reached, put control tang of brake spring (8) in another of the nine slots and repeat procedure until OT is reached.

8. Assemble circlip (1) at input hub (2).
9. If anti-overflow is required : rotate output into STOP position. Remove circlip (1) and input hub (2). Screw carefully anti-overflow spring (5) into output hub. Assemble input hub (2) by rotating in the direction of operation. Assemble circlip (1).
10. Check actuator setting (12)

3 SERVICE INFORMATION

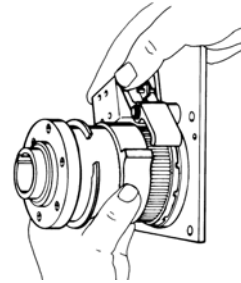
3.1 ADJUSTMENT OF THE CONTROL COLLAR

1. Work retaining ring (A) out of groove and slide forward on sleeve (C).
2. Slide stop collar (B) off splines, rotate to desired stop position and slide back on splines. The actuator pawl will have to be held clear during this operation.
3. Slide retaining ring back (A) into groove.



Note : make sure brake is locked up before proceeding to ensure proper stop position.

Smallest adjustable angle:
 CB-2 : 2,8° CB-6 : 1,8° CB-10 : 1,5°
 CB-4 : 2,4° CB-7 : 1,6°
 CB-5 : 1,8° CB-8 : 1,6°



3.2 ACTUATOR SETTING

1. Loosen the solenoid adapter plate such that the solenoid can be easily repositioned
2. If the clutch is equipped with an actuator limit stop, loosen it and move it out of the way.
3. Energize the solenoid.
4. Align the cam face and actuator tip as shown in Figure 1.
5. Push the collar as indicated by the arrow in Figure 1 to take up the free collar play.
6. Check to ensure that the plunger is properly seated.
7. Using a shim between the actuator tip and cam face, set the collar actuator clearance between 0,25 and 0,76 mm by repositioning the solenoid assembly.
8. Tighten the solenoid adapter plate screws.
9. De-energize the solenoid and repeat steps 2 through 5 if necessary.
10. If equipped with an actuator limit stop, re-energize the coil and set the limit stop as follows:
DC Coils :
 Set the limit stop so it just contacts the actuator.
AC Coils :
 Set the actuator-limit stop clearance of 0,12 and 0,50 mm at the closest point.

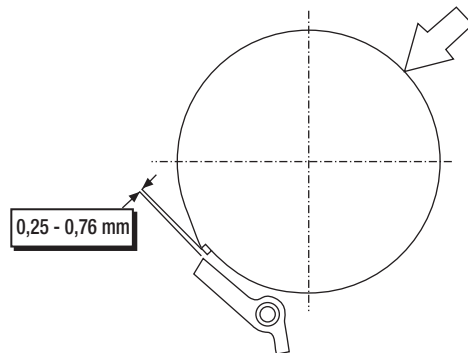


Figure 1

4 **LUBRICATION**

All standard clutches and clutch brakes are manufactured from sintered metal components, which have been impregnated with bearing infusion oil for permanent lubrication. In cases where there is severe duty or the environment is such that oil may “wickout” or foreign materials have got into the unit, the unit may be re-oiled or flushed out with minimal or no disassembly by using Shell Bearing infusion Oil 33.

If disassembly of the unit is necessary, follow the detailed disassembly instructions to the point needed, flush and wipe parts in the oil to be used for re-lubrication. **DO NOT USE SOLVENT** to clean sintered metal parts. To get more cleaning action from the oil, it may be heated while cleaning the components. Parts must be brought back to ambient temperature by submerging in cool oil.

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