ZERO-MAX

Torq-Tender®

TT1X, TT2, TT2X, TT3, TT3TAN,TT3X, TT4X

Torq-Tender Assembly, Disassembly, Spring Change, and Torque Adjustments

Tools Required

- Channellock 12" tongue and groove pliers
- Retaining ring pliers set
- SAE hex key allen wrench set
- Bench vise

- All Torq-Tender models and types within a model consist of two separate assemblies. The drive shaft assemblies (internal portion) and the housing assembly (outer portion). In all Torq-Tenders these two assemblies must be separated to gain access to the trip-release springs.

Disassembly

- **Standard Models (C, B, JF, J, S)**
  Remove internal retaining ring (item 10), slide shaft assembly (items 5 to 16) out of housing (item 1).

- **Models with Actuating Pin Assembly (CP, BP, JFP, JP, SP)**
  Grip the outer stem of the pin (item 20). Pull out radially until the pin is fully extended. Slide small retaining ring (item 23) down stem to hold pin out. Remove internal retaining ring (item 10). Slide shaft assembly (item 5 to 16) out of housing (item 1).

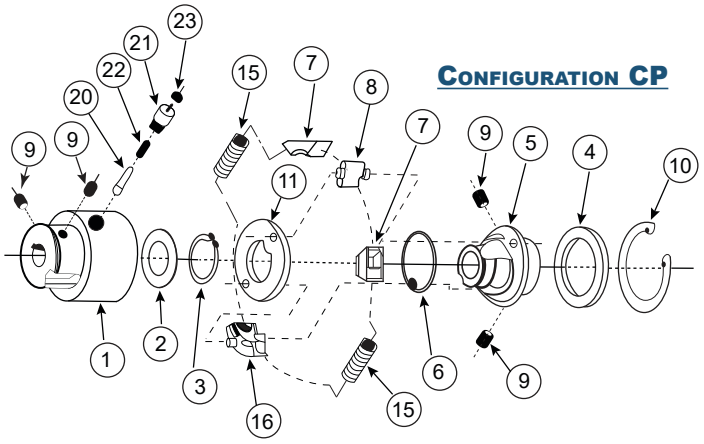
- **Models with Actuating Disc Assembly (CD, BD, JFD, JD, SD)**
  Loosen 3 or 4 (depending on the model) 10-24 set screws located around outer diameter of actuating disc case. Force disc assembly away from actuating pins (item 20) far enough to gain access to pins. Pull pins out radially to their full extension and slide retaining rings (item 23) down the stem to hold pins out. Remove internal retaining ring (item 10) and slide shaft assembly (items 5 to 16) from housing (item 1).

Reassembly for all Models

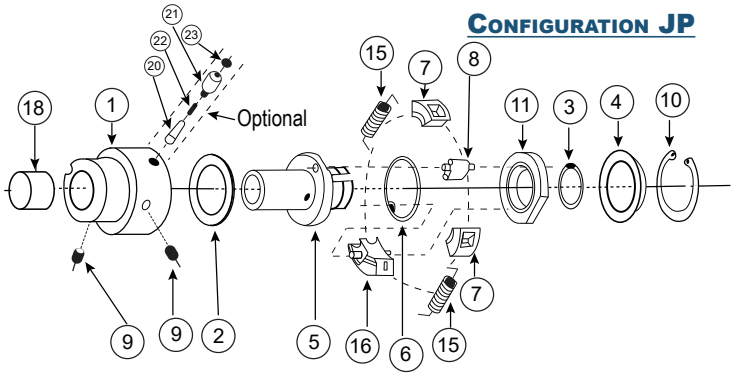
- To reduce wear and extend unit life, the drive shaft assembly (item 5 to 16) should be properly lubricated with No. 2 Lubriplate or equivalent. Slide drive shaft assembly into housing (be sure brass thrust washer (item 2) is in place inside the housing). Replace line up washer or cover (item 4) and retaining ring (item 10).

- ***If optional actuating pin or actuating disc is used, refer to Disassembly Instructions for actuating pin or actuating disc above and reverse the procedure.***

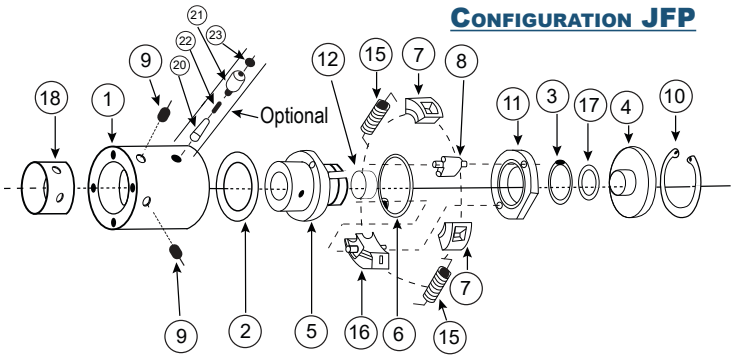
Configuration CP



Configuration JP



Configuration JFP



Item No.	Description	Item No.	Description
1	Housing	9	Set screw
2	Thrust washer	10	Retaining ring
3	Retaining ring	11	Race ring
4	Cover	12	Shaft oilite
5	Drive shaft	15	Compression spring
6	Returning spring	16	Spring stop
7	Spring slide	18	Oilite (housing)
8	Drive key		
Item No.	**Optional**	**Item No.**	**Optional**
20	Actuating pin shaft	22	Actuating pin spring
21	Actuating pin housing	23	Actuating pin retaining ring

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Torque Adjustments for all Models

CAUTION: Springs under tension. Wear proper safety gear.

- Place the drive shaft assembly in a vise with the drive key (item 8) down. Using a narrow jawed channel lock pliers or similar tool, place the lower plier jaw into the cavity of spring slide (item 7).
- Place upper jaw between the spring coils at the upper part of the spring (item 15). Compress the spring far enough to remove it from the upper cavity of the spring stop (item 16).
- Reverse this procedure to install new torque spring and apply grease to springs after installation.
- Repeat procedure on the other side.

NOTE: In some cases (such as higher torque values) a more complete disassembly may be required. **This requires special care.** In such cases, remove the retaining ring (item 10) from the drive shaft assembly, wrap a rag around the entire spring area of the assembly for protection, and while holding the race ring (item 11) firmly tap on the shaft end nearest the race ring using a plastic head hammer until the race ring disengages from the shaft assembly. At this point the springs will no longer be under compression and full disassembly is possible. Contact factory with questions.

Trip-Release Springs and Their Equivalent Dynamic Torque

Spring Color Code	TT1X		TT2		TT2X		TT3		TT3TAN		TT3X		TT4X	
	Inch Pounds	NM	Inch Pounds	NM	Inch Pounds	NM	Inch Pounds	NM	Inch Pounds	NM	Inch Pounds	NM	Inch Pounds	NM
Garden Green							18	2.0						
Gray					18	2.0	24	2.7						
Slicker Yellow					24	2.7								
Purple					28		36	4.1						
Copper			4	0.5			40	4.5						
Light Blue	3	0.3	8	0.9	40	4.5	50	5.6						
Gold	5	0.6			50	5.6	60	6.8						
Red	8	0.9	12	1.4	60	6.8	80	9.0						
Brown	10	1.1	18	2.0	90	10.2	100	11.3			300	33.9	750	84.7
Silver/Aluminum	12	1.4	25	2.8	100	11.3	120	13.6	240	27.1	400	45.2	1000	113.0
Black	15	1.7	30	3.4	120	13.6	150	16.9	300	33.9	500	56.5	1250	141.2
Almond	20	2.3	40	4.5	135	15.3	180	20.3	360	40.7	650	73.4	1500	169.5
Orange	25	2.8	50	5.6	150	16.9	220	24.9	440	49.7	750	84.7	1750	197.7
Med. Green	30	3.4	60	6.8	180	20.3	250	28.2	500	56.5	850	96.0	2000	226.0
Yellow	40	4.5	85	9.6	200	22.6	300	33.9	600	67.8	1000	113.0	2250	254.2
Blue	50	5.6	100	11.3	250	28.2	350	39.5	700	79.1	1150	129.9	2500	282.5
No Color	60	6.8	125	14.1	300	33.9	420	47.5	840	94.9	1300	146.9	2750	310.7
White			140	15.8	350	39.5	500	56.1	1000	113.0	1500	169.5	3000	339.0

Caution: Springs cannot be interchanged between Torq-Tenders with different model numbers, however they can be within the same size model types.

BECAUSE OF INERTIA AND/OR ENERGY IN POWER TRANSFER EQUIPMENT, TORQUE LIMITERS WILL NOT PROTECT AGAINST PERSONAL INJURY.

Caution: WEAR SAFETY GLASSES WHEN CHANGING SPRINGS.

If Torq-Tender disengages prematurely or if nuisance tripping is occurring, consider:

- **Adding an optional actuating pin or actuating disc, which can interface with a customer supplied limit switch which can be wired to shut-down the motor**
- **Soft-start the motor**
- **Increment to a larger torque setting by changing springs—see Spring Changing Instructions**
- **Torq-Tender must be manually rotated or jogged into a full reset before starting equipment**

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