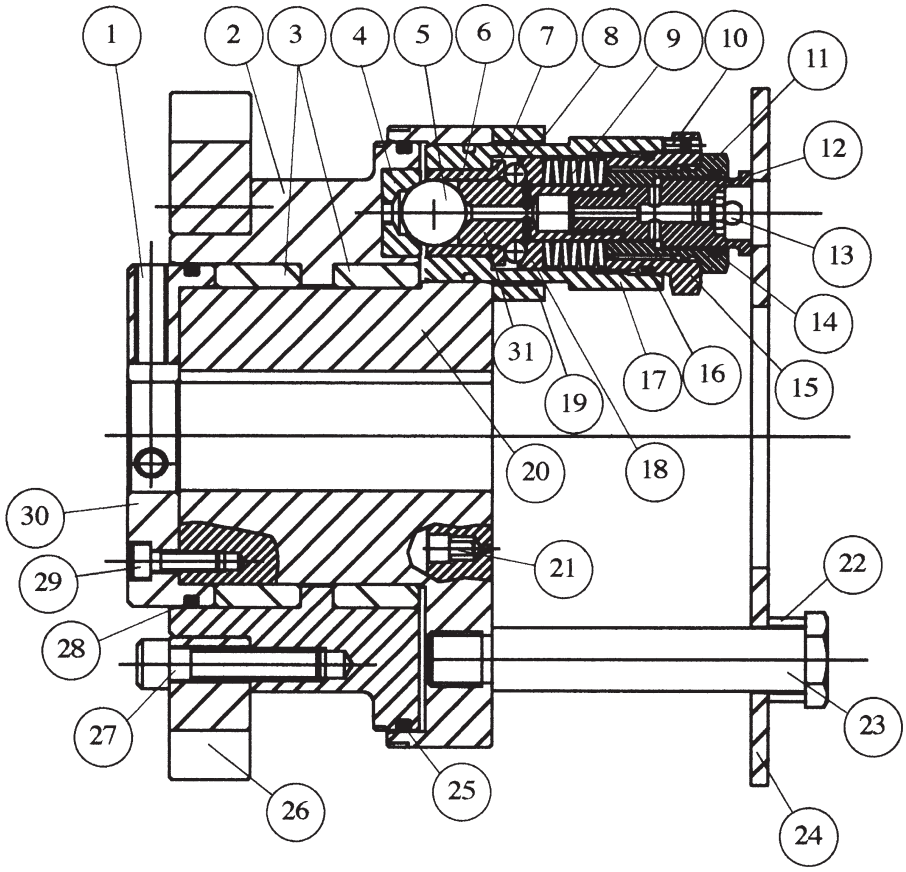
AUTOGARD WT SERIES TORQUE LIMITER INSTALLATION AND MAINTENANCE

BALLOON SECTION VIEW AND PARTS LIST



Item #	Qty.	Description
1	2	SHSS 5/16" X 1/2" lg.
2	1	Adaptor
3	2	Plain Bearing
4	1*	Seat Bushing
5	1*	Drive Ball (.75" dia.)
6	1*	Bushing
7	1*	Hat Washer
8	11*	Thrust Balls (.25" dia.)
9	7*	Disc Spring
10	3*	SHCS Cone Pt.
11	1*	Disengage Sleeve
12	1*	Reset Pin
13	1*	Grease Fitting
14	1*	O-Ring (Diseng. ID)
15	1*	Adjustor
16	1*	O-Ring (Adjustor OD)

Item #	Qty.	Description
17	1*	Module Body
18	1*	Cone Washer
19	1*	Body Flange
20	1	Hub
21	1	Grease Vent
22	2	Stainless Wave Spring
23	2	SP/Spring Pillar
24	1	Sensor Plate
25	1	Quad Seal Ring (lg.)
26	1	Sprocket (by customer)
27	8	SHCS (by customer)
28	1	Quad Seal Ring (sml.)
29	6	SHCS .25" x .75" lg.
30	1	Thrust Plate
31	1*	Plunger

* Denotes qty per module assy.

1. GENERAL DESCRIPTION

The Autogard WT Modular Series is a mechanical torque limiter incorporating the proven ball detent principle. The basic unit is comprised of two separate coupling halves. A hardened seat is installed into one half of coupling and a ball module is installed into the other in such a manner that torque is transmitted by shear between the drive ball and seat. (Fig. A). As in standard torque limiters, this produces an end thrust on the plunger/drive ball assembly in proportion to the applied torque. This force is resisted by a ring of smaller thrust balls trapped between flat and conical washers loaded by disc springs. When the axial force reaches a level greater than the reaction through the spring mechanism the smaller thrust balls are forced up the slope on the plunger allowing the drive ball to disengage from the seat (Fig. B). The smaller thrust balls are then sitting on the larger diameter of the plunger and all forces are balanced internally allowing the torque limiter to run free and unloaded (Fig. C). Resetting is accomplished by simply aligning the ball modules with their seats and tapping the reset pin with a soft hammer.

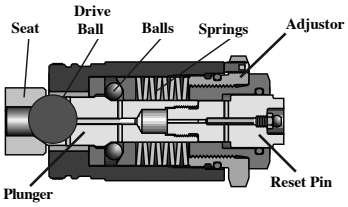


Figure A (Engaged)

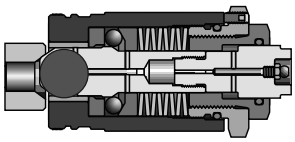


Figure B (Disengaging)

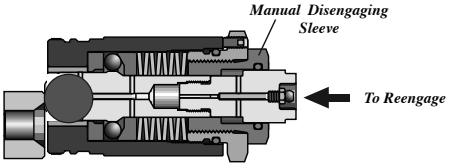


Figure C (Disengaged)

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2. MOUNTING TORQUE LIMITER ON SHAFT

With the torque limiter completely assembled, carefully engage hub on shaft. The standard clearance-fit bore in the hub permits the unit to be pushed in place onto the shaft.

The torque limiter may be moved axially on the shaft to obtain proper alignment of the sprocket or jaw clutch with the chain. The recommended minimum shaft engagement is 1.5 times the shaft diameter. Once installed, tighten the hub setscrews fully.

3. INITIAL START UP

Obtain the initial torque setting by one of the following methods:

3.1. **Torque Limiter set at factory:**

The setting as furnished will be within +/- 10% of the torque value specified on the order.

If an increased torque setting is desired, loosen the 3 setscrews (10) on the adjustor (15) and rotate it to the desired setting. Retighten adjustor setscrews (10) against the module body (17).

3.2. **Setting by trial adjustments:**

If the torque limiter disengages before normal operating load level is reached, progressively tighten the adjustor until the drive starts and operate under normal load without tripping. (This should be done in quarter turn increments).

Starting torque is usually the highest torque that the torque limiter must transmit, but occasionally the torque limiter must be set to accommodate higher peak operating conditions.

After the desired torque setting is obtained, secure adjustor with setscrews against the module body.

3.3. **Setting with use of a torque graph:**

Autogard can furnish a graph which can be used to approximate the dimensional gap required to achieve a given torque. Consult factory.

4. RESETTING PROCEDURE

4.1. Shut down the drive.

4.2. Investigate and remove the cause of overload or jam.

4.3. Reset the torque limiter by aligning the two halves (2,20) of the coupling in order to position the drive ball (5) over its mating seat (4) and strike the reset pin (12) with a soft hammer. This will cause the plunger (31) to move forward, allowing both the drive (5) and thrust balls (8) to be returned to their original positions. The modules can be manually disengaged by rotating the manual disengage sleeve (11) in a clockwise direction until it contacts the internal stop. ***NOTE:*** *The manual disengage sleeve should always be returned to its original position before resetting the unit, otherwise the module will be damaged and the unit will not transmit the desired torque.*

5. MAINTENANCE

To insure corrosion and weather protection all external components are 316 Stainless Steel.

A grease fitting (13) is located in the end of the reset pin (12). Grease applied at this fitting will flow through the center of the plunger (31) and penetrate all internal components, including the seat (4). The frequency of lubrication will depend upon the operating environment and number of trips but once per month should be adequate in most applications. Sprocket wear, tightness of torque limiter on its shaft, tightness of sprocket, etc., should also be inspected at this time. Use a good grade lubricant of specification MIL-G-3545-13 or equivalent.

For unusual conditions such as high ambient temperatures, high vibration or dirty environment special maintenance practices may be required.

6. DISASSEMBLY PROCEDURE

6.1. Remove Autogard from the shaft.

6.2. Remove sprocket (26) or jaw clutch.

6.3. Ensure unit is reset (see Resetting Procedures).

6.4. Remove the Pillars (23), wave springs (22) and sensor plate (24).

6.5. Measure and record the gap between the adjustor (15) and the module body (17).

6.6. Loosen the 4 body flange (19) bolts and remove the module assembly from the hub (20).

6.7. With the grease fitting end up, loosen the adjustor setscrews (10) and remove the adjustor (15), springs (9), cone washer (18), thrust balls (8), flat washer (7) and the drive ball (5).

6.8. Remove the thrust plate (30) and slide the hub (20) from the adaptor (2).

6.9. Clean all parts thoroughly, and inspect all parts carefully.

7. REASSEMBLY PROCEDURE (EXISTING MODULE)

7.1. Apply a liberal coating of lubricant to ball seat and bearing surfaces. Cover all internal surfaces with grease to prevent corrosion.

7.2. Slide the hub (20) into the adaptor (2) and install the thrust plate (30).

7.3. Assemble the module by installing the drive ball (5), flat washer (7), plunger (31), thrust balls (8), cone washer (18), springs (9) and adjustor (15).

7.4. Reinstall the module assembly into the hub (2) and tighten the body flange (19) bolts.

7.5. Tighten adjustor (15) to the position recorded earlier (Step 5, Disassembly Procedures) and secure with setscrews (10).

7.6. Supply a liberal amount of grease into the fitting (13).

7.7. Mount torque limiter on shaft (per Mounting Torque Limiter paragraph).

8. REASSEMBLY PROCEDURE (NEW MODULE)

8.1. Apply a liberal coating of lubricant to ball seat and bearing surfaces. Cover all internal surfaces with grease to prevent corrosion.

8.2. Slide the hub (20) into the adaptor (2) and install the thrust plate (30).

8.3. Assemble the module by installing the drive ball (5), flat washer (7), plunger (31), thrust balls (8), cone washer (18), springs (9) and adjustor (15).

8.4. Reinstall the module assembly into the hub (2) and loosely tighten the body flange (19) bolts. The bolts should be just tight enough to hold flange (19) against hub (2). With the flange cross-bolt loose, rotate the module body (17) until the drive ball (5) fully contacts the mating seat bushing (4). After contact is made, rotate the module body (17) an additional ¼ turn to preload the module assembly. Tighten the cross-bolt and the flange bolts.

8.5. Tighten adjustor (15) to the position recorded earlier (Step 5, Disassembly Procedures) and secure with setscrews (10).

8.6. Supply a liberal amount of grease into the fitting (13).

8.7. Mount torque limiter on shaft (per Mounting Torque Limiter paragraph).

NOTE: *If, after the drive has been in operation for some time, and the torque limiter suddenly starts disengaging for no apparent reason; visually check the drive train or driven machine for such things as unusual wear, bad bearings, damaged sprockets, misalignment, changes in machine duty cycle, etc.*

A visual inspection of the Autogard may then be necessary. Follow disassembly procedures to verify proper operation of the torque limiter. Reassemble and follow Initial Start Up procedures.

For additional information, please consult the factory by calling 866-REXNORD.

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