

World Leader in Modular Torque Limiters

Brunel Corporation

Maintenance Instructions
Safety Element Torque Limiters
JSE1-0253F



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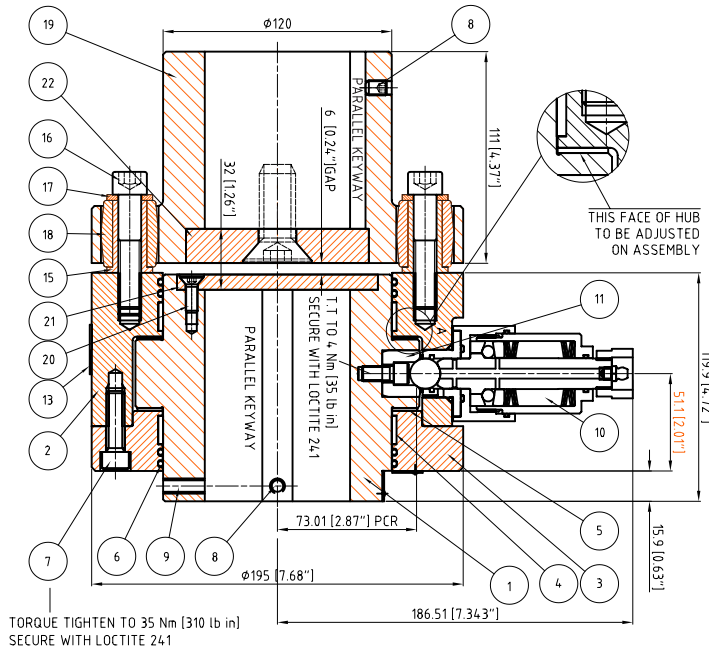


Figure 1

Part No.	Description	Qty.
1	Detent Pocket Hub	1
2	Element Carrier	1
3	Endplate	1
4	Stripe Bearing	2
5	Thrust Pad	2
6	"O" Ring Nitrile	4
7	Capscrew 3/8" UNF x 1.25" LG	6
8	Grubscrew 5/16" UNF 1/2" LG	2
9	Grubscrew 5/16" UNF 3/4" LG	1
10	SES Module Ext. Adj. (Brunel)	3
11	Blind Hole Fixing SE10	3
12	Label (Pointer Alignment)	2
13	Label (Nameplate)	1
14	Drive Screws	6
15	Buffer Brush	6
16	Capscrew M12 x 60 SKT HD ST. ST Wedglock	6
17	Washer M12 Plain	6
18	Buffer	6
19	Eflex Hub	1
20	Setscrew 1/4" -28 UNF x 3/4" Long	3
21	Retaining Plate	1
22	Retaining Plate - Eflex	1

All Bolts, Screws & Washers in Stainless Steel

1. PROIR TO INSTALLATION

Check shaft extensions & installation area where Torque Limiter is to be mounted to make sure there is sufficient space available for resetting after disengagement.

2. MOUNTING TORQUE LIMITER ON SHAFT

- Make sure bores & keyways are clean and free of burrs, and that set screws are in place.
- Mount Eflex Hub (1-19) onto gearbox output shaft and mark setscrew locations on shaft. Remove Eflex hub and dimple shaft with drill to allow set screws to lock hub in vertical location on shaft (debur after drilling)
- Slide torque limiter and Eflex hubs onto shafts and lock with set screws. Make sure that shafts are aligned and that there is a 6mm (.24") gap between clutch detent pocket hub (1-1) and Eflex Hub (1-19).

3. TORQUE ADJUSTMENT & INTIAL STARTUP

- These torque limiters were preset at the factory, no further adjustment is required at this time. If it is desired to adjust the torque at a later date, proceed as follows.
- To adjust torque at the job site: Loosen Set Screw (1-20) on the safety element housing and adjust the torque by turning the safety element Housing Nut (2-7) with a 1 1/8" wrench. The torque is increased by turning the nut clockwise

4. CHECKING RELEASE TORQUE SETTING

Release torque can be checked with a load cell test set up or by applying torque with dummy shaft and key - by locking one side to ground and using a torque wrench.

5. RESETTING

On overload, the safety element ball is displaced and the Module Carrier (1-2) disengages from the Detent Pocket hub (1-1), allowing the Module Carrier to rotate freely. With the drive at rest (the power off) and the overload cleared, align the twoset arrows on the Detent Pocket Hub and Module Carrier by joggng the drive motor. After aligning the match marks strike the safety element plunger with a soft mallet and the plunger will move back into the safety element 1/4 inch signifying that the unit is engaged and the drive can be restarted.

6. GENERAL MAINTENACE

- Grease 2-3 pumps from a grease gun into Grease Fitting (2-13) every 6 months. Recommended grease is Mobilith SHC PM Series.
- Safety elements should be stripped, inspected and re-assembled at least once every 3 years, more frequently where frequent tripping occurs.

7. TROUBLE SHOOTING

- Continual releasing, further adjustment making no difference.
 - Detent Pocket (2-10) worn. Remove Safety Element (1-10), extract Detent Pocket (use extraction screw), & Rotate Detent 90° & reinstall. If badly worn replace with new detent pocket.
 - Additional torque capacity is required. (Consult Brunel Corporation)

- b. Unable to screw Housing Nut (2-7) in any further.
 - 1) Loosen Set Screw (2-17) and make sure that the threads on the Housing Nut and Housing are not damaged, if so clean & file burrs until usable or replace defective parts.
 - 2) You have reached maximum torque capacity.
- c. Unable to reset.
 - Reset arrows not aligned. Check reference marks on Module Carrier Hub (1-1) and Detent Pocket Plate (1-3). 8.

SAFETY ELEMENT - METHOD OF ASSEMBLY

- a. Clean all components and coat all working surfaces with a suitable anti-seize compound.
- b. Grease & install "O" ring (2-14) into groove in Housing (2-11)
- c. Grease inside surfaces of the Housing and install Outer Thrust Race (2-2).
- d. Install "O" Ring (2-20) into Housing Nut (2-7).
- e. Install 16 springs (2-5) oriented as shown in cross section, and fully greased.
- f. Grease and install the Inner Thrust Race (2-4).
- g. Install the Plunger (2-1) through the inner thrust race, springs & the end of the Housing Nut (2-7) ensuring that the "O" Ring is not damaged by the Plunger threads.
- h. Install 11 - 1/4" Balls (2-3), apply grease to hold balls in place.
- i. Screw in the Housing Nut (2-7) into the Housing until there is contact with the springs.
- j. Insert the Locking Pellet (2-18) and Set Screw (2-17) into the side of the Housing to facilitate locking the Housing Nut. (Refer to #3 for Torque Adjustment)
- k. Grease and insert the "O" Ring (2-21) into groove in housing (2-11).
- l. Slide "O" ring (2-21) over Bushing (2-8). Grease and insert the "O" Ring (2-19) into the Bushing (2-8), insert the Detent Ball (2-9) after thoroughly greasing the Bushing ID. Grease the Plunger (2-1) and install the Bushing.
- m. Loctite Shroud (2-12) to the end of Plunger (2-1) using Loctite #270. Grease for rebuilding Safety Elements: Mobilith SHC PM Series.

9) METHOD OF PRELOADING EACH SAFETY ELEMENT

(Only required if changing Safety Elements from originals supplied)

- a. If replacing original Safety Elements, remove quantity 4, 1/4"-28 x 1 5/8" SHCS (2-6) and remove the Safety Element (1-10) including Bushing (2-8) Shims (2-16) and Ball (2-9). Replace Detent Pocket (if worn), this may require extracting the Detent using a 3/8"-16 bolt, insert new Detent Pocket and loctite in place with 5/16"-24 x 5/8" socket head cap screw.
- b. Place the Detent Ball (2-9) on top of the Detent Pocket, then insert the Bushing (2-8), less Bushing "O" Rings (2-21), into the hole until the flange of the Bushing bottoms.
- c. Insert the assembled Safety Element through the bushing until the Plunger comes in contact with the ball.

Notes:

- 1) Safety Element must be in the engaged position
 - 2) Housing Nut (2-7) must be turned past "0" to give some spring compression
 - 3) "O" Rings (2-21) are to be left out while measuring for shims.
 - 4) Shims must not be in place when measuring for shims.
- d. With a suitable height gage or feeler gage, measure the resultant gap between the inner face of the Housing (2-11) and the Module Carrier (1-2). Deduct .003 - .008" from the measurement (Preload required) and select a suitable sized laminated Shim Pack (2-16) to accommodate this gap. Place the Shim Pack onto the Module Carrier Hub, grease and insert the Bushing, with "O" rings (2-21) in place and secure the Safety Element with the 4 socket head cap screws.

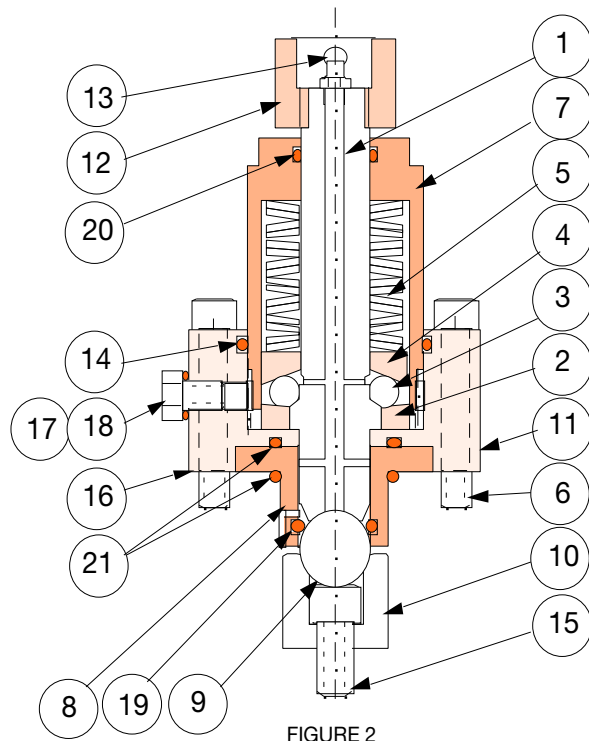
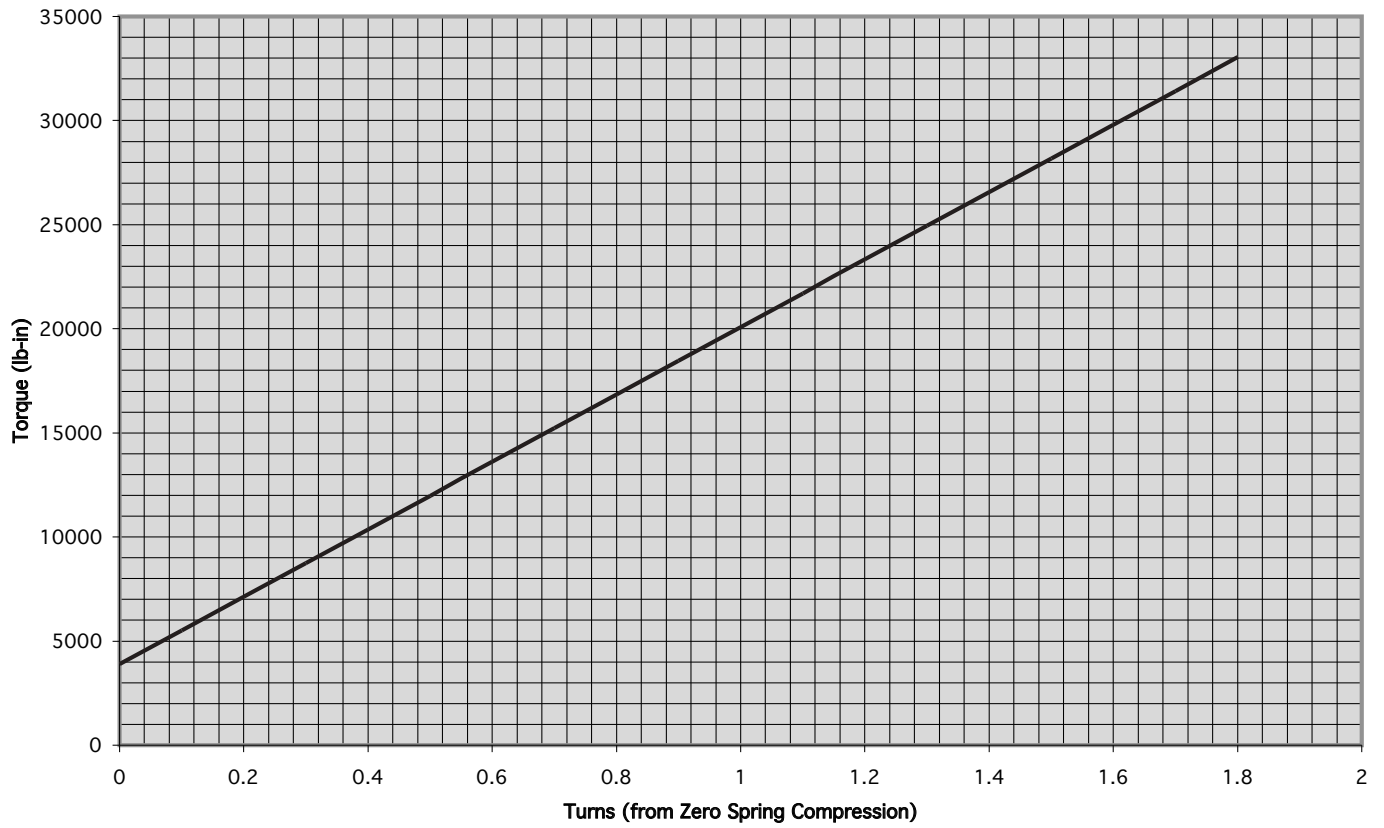


FIGURE 2
SECTIONED VIEW OF JSE1-0015
Externally Adjustable

Item	Part No.	Description	Qty.
1	JSE1 0015-1	Plunger	1
2	JSE1 0015-2	Outer thrust race	1
3	JSE1 0014-3	Ball - 1/4"	11
4	JSE1 0015-4	Inner thrust race	1
5	JSE1 0015-5	Disc spring	16
6	JSE1 0015-6	1/4"-28 X 1 3/4" S.H.C.S.	4
7	JSE1 0015-7	Housing nut	1
8	JSE1 0015-8	Bushing	1
9	JSE1 0014-9	Detent ball - 5/8"	1
10	JSE1 0015-10	Detent pocket	1
11	JSE1 0015-11	Housing	1
12	JSE1 0015-12	Shroud	1
13	JSE1 0014-13	Grease fitting	1
14	JSE1 0015-14	"O" Ring (Housing/Housing Nut)	1
15	JSE1 0015-15	5/16"-24 x 5/8" S.H.C.S.	1
16	JSE1 0015-16	Shim Pack	1
17	JSE1 0015-17	Hex Head Set Screw	1
18	JSE1 0014-18	Locking Pellet	1
19	JSE1 0014-19	"O" Ring (Bushing)	1
20	JSE1 0015-20	"O" Ring (Housing Nut)	1
21	JSE1 0015-21	"O" Ring (Bushing/Housing)	2

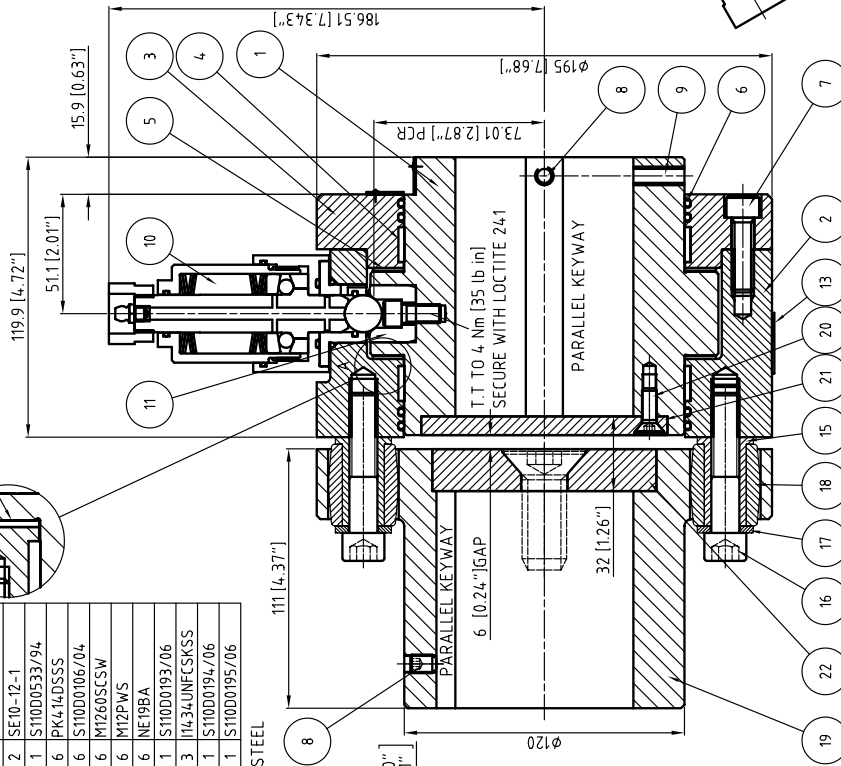
JSE1-0253F Torque Adjustment Graph



DO NOT SCALE IF IN DOUBT ASK

MAXIMUM BREAK-OUT TORQUE = 3733Nm [33040 lbin]
 MAXIMUM PRESET TORQUE = 80% OF MAX = 2986Nm [26428 lb in]
 MINIMUM PRESET TORQUE = 483Nm [4275 lb in]
 PRESET BREAK-OUT TORQUE = REFER TO ORDER.

THIS FACE OF HUB
 TO BE ADJUSTED
 ON ASSEMBLY



TORQUE TIGHTEN TO 35 Nm [310 lb in]
 SECURE WITH LOCTITE 241

TORQUE TIGHTEN TO 10Nm [88 lb in]
 SECURE WITH LOCTITE 241

ASSEMBLY
 ON ASSEMBLY THE BEARING JOURNAL ϕ OF ITEM 1,
 MATING FACES OF ITEMS 1, 2, 3, 5 TOGETHER WITH GRUBSCREWS
 ITEMS 8 & 9 AND HOUSING NUT THREADS TO BE GIVEN A
 COATING OF KLUBER STABURAGS NBU 12.
 BEFORE COMMISSIONING - PACK ALL SAFETY ELEMENT
 VOIDS WITH KLUBER STABURAGS NBU 12.

REV	DATE	DESCRIPTION
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UNLESS OTHERWISE STATED
 ALL DIMENSIONS IN MILLIMETRES
 ALL MACHINED UNFINISHED DIMENSIONS \pm 0.25mm (0.010")
 ALL DIMENSIONS TO BE GIVEN TO DA DIM (A) WITHIN \pm 0.05mm (0.002") TIR
 ALL SURFACES MACHINED 3.2 (125Z) MAX
 ISO FINISHING REMOVE SHARP EDGES TO 0.075mm FIT
 B.S. SPEC'S APPLY WITH LATEST ISSUE



ENGR	JULIEN BARTH	DESCRIPTION
APPRO	1:1	SE10 SAFETY ELEMENT
SCALE	1:1	STAINLESS STEEL UNIT
DATE		
REV		
DRG No		06-S110NA0190-B



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