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Ref: S.O. 436090

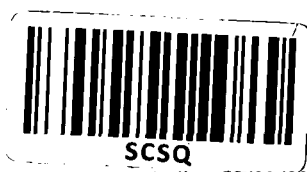
BRISBANE CITY COUNCIL

Contract R38/96/97

**Logan City Trunk Main
Oxley to Sunnybank Hills
Trunk Section**

**Maintenance Manual for F627
Butterfly Type Valve**

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Active 29/01/2014

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Title Page

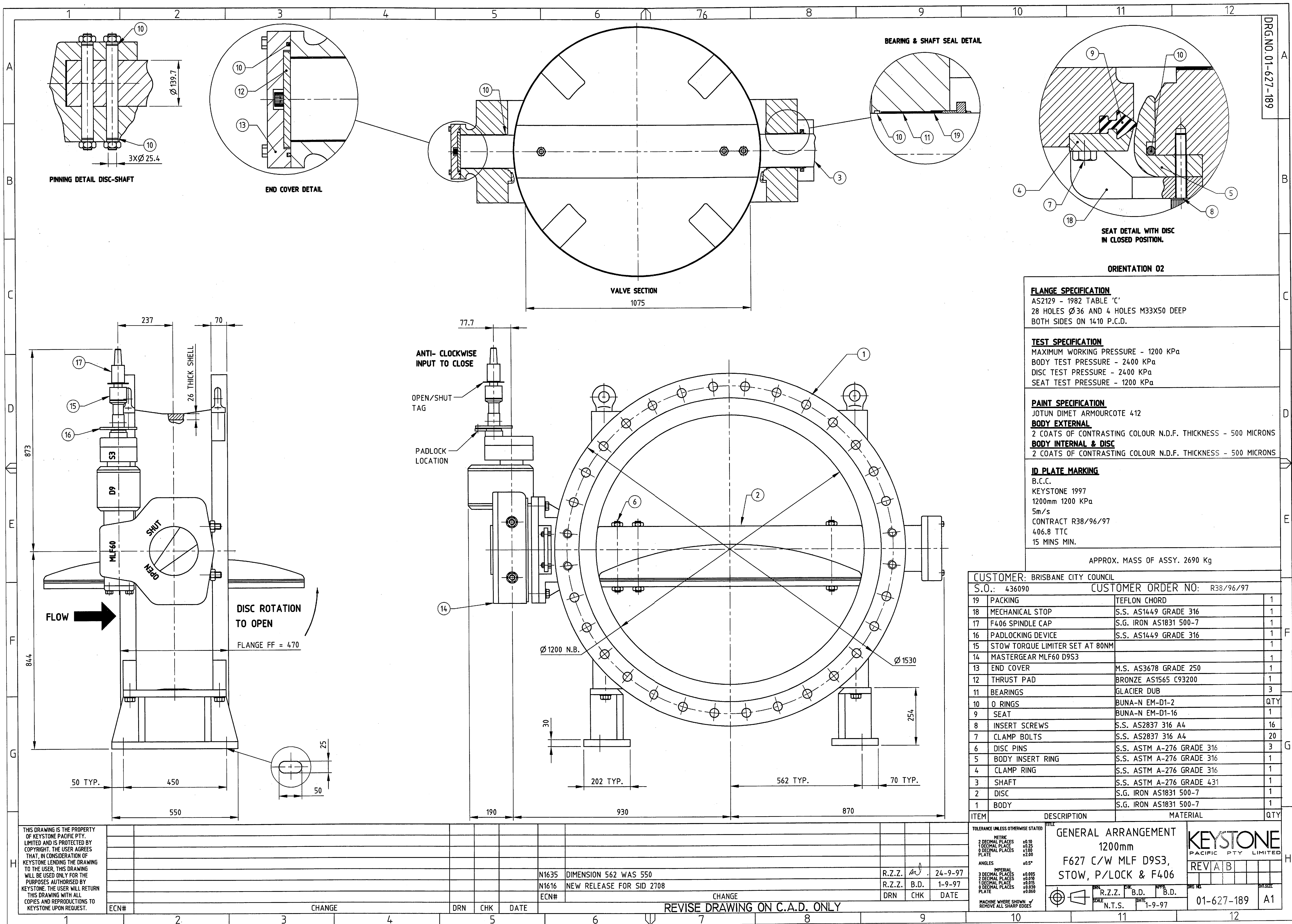
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Revisions

PAGE	REV.	DATE	SIGN

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1 DESCRIPTION OF EQUIPMENT

The Keystone F627 is a heavy pattern double flanged valve with replaceable seal on disc.

It is designed for municipal water storage and distribution systems.

The F627 can accommodate liquid flow velocities of 6~7 m/s for normal flows and brief periodic emergency flows of 9m/s.

The valve comprises a resilient located on the periphery of the disc. This seal is retained via a segmented stainless steel ring. The ring is retained stainless steel capscrews.

The resilient seal seats against a stainless steel body insert which utilises an additional sealing O ring between itself and the valve body to ensure no secondary leak path exists.

The disc cast from spheroidal graphite iron rotates on a shaft of 431 stainless steel. The shaft is supported at the trunnion areas by glacier bearings.

An e.n.p. coated stainless steel thrust washer is provided in the lower trunnion area to centralise and support the disc against axial movement.

Upper shaft sealing is achieved via an adjustable packing gland. Graphite packing is preloaded via a gland ring of zinc coated mild steel.

The valve is available in pressure range up to PN25 and sizes 450NB ~ 1800NB.

Top plates are generally made to order to allow economy of actuation selection.

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The valve is repairable.

Standard paint finish is solventless epoxy paint suitable for use with potable water and as described by GPC-C-29/7F.

The valve is close coupled to a Mastergear® MLF60D12 quarter turn worm and quadrant gearbox. A spurgear is fitted to further reduce input effort.

Adjustable end of travel stops are provided in the gearbox.

Clockwise rotation of the spindle key will provide closing action.

Approx 407 turns are required for 90° operation.

A Stow® torque limiting device is fitted to the input shaft of the gearbox. This device is adjustable between 0 and 113Nm. The torque limiter has been factory set to approx. 80Nm. Should a force greater than this be provided to the spindle the two halves of the device will slip preventing overtorque to the assembly.

To facilitate padlocking in any position the input shaft has been fitted with a perforated disc which aligns with a tab on the spurbox body.

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2 Installation

CAUTION: Only persons competent by virtue of their training and experience should be utilised for installation and commissioning of these valves and actuators.

Installation procedure

Suitably qualified personnel are required for crantage and installation. Confirm by best practice correct slinging points. Utilise lifting eyebolts to hoist equipment into close proximity.

With assembly in close proximity, confirm Valve disc is aligned inside the valve bore and will not interfere with pipe flange.

Confirm flange gaskets are new and in good condition and flange bolts are suitable.

Move valve assembly in location and commence installation of adjoining flange and dismantling joint.

CAUTION: Valve is not to be used as support for adjoining pipe work and no more than the equivalent length of 1 pipe diameter should be held unsupported by the valve.

Loosely fit all bolts/studs nuts and washer. Commencing at valve trunnion area and with blind tapped holes if applicable, tighten each bolt and in sequence the diametrically opposed bolt.

CAUTION: At all times visually confirm bolts/studs are running true. Do not continue to tighten a fastener that has seized or is out of square. This is most important if pneumatic 'rattle' guns are used for installation.

After completing bolt tightening sequence manually actuate valve through one open and close cycle and check for smooth operation.

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Precommissioning Test Procedure

Visually inspect valve bore for any foreign matter or damage.

Visually inspect actuator for damage.

No other precommissioning is required. Valve and actuator can be immediately put into service.

Record and report any problem.

3 Maintenance

Preventative Maintenance

No preventative is required however, we recommend the following visual inspection, where possible:

- a) Check fasteners and mounting brackets
- b) Painted surfaces, repair as required

Corrective Maintenance

NOTE: Following information refers to the A4 drawing of the F627 at end of text.
Special orders and materials may vary the specification.

NOTE: In general * Avoid mineral greases and solvents. Use only silicon grease and oil.
* For the purposes of safety it is assumed the valve is removed from the pipeline and firmly supported in floor stands or workbench.
*Instructions refer to drawing at end of text.

SHAFT SEALS UPPER

Packing (teflon cord) is preloaded behind gland follower and ring on top shaft.

Removed gearbox or actuator (not shown) by loosening studs (20)

Loosen and remove capscrews (9) and adaptor plate (26)

Gland follower and gland packing are visible. Remove gland follower. Packing cord may be 'picked' out using a sharp tool such as a scribe. Replace as required.

Re-assemble in reverse logical order

SHAFT SEALS LOWER & THRUST WASHER

'O' ring seals (12) and (10), back up washer (13) and thrust washer (11) are located behind end cover (14).

Loosen and remove hex bolt (15) and end cover (14)

Thrust washer (11) is provided in two pieces and may fall free

'O' ring (12) is located in groove in end cover (14). 'O' ring (10) is located above bearing (8) and behind back up washer (13)

Replace 'O' ring; thrust washer; back up ring, as required.
Clean grooves, apply a light smear of silicone grease for ease of assembly.

Reassemble in reverse logical order.

BODY INSERT

The operator stands on the upstream side of the disc with the clamp ring (4), setscrews (5), capscrews (24) and body insert (23) facing him.

If not already evident, use a punch to install assembly marks to clamp ring (4) and body insert (23) to a non seating surface. These parts must be re-installed in same location.

Remove capscrews (24) and body insert (23). Body insert (23) is 'close' fit. Care should be taken in removal. Later models have blind tapped hole with grub screw to act as 'jacking screw'

'O' Ring (25) is located on body insert (23). Remove 'O' ring material (25) and replace, if necessary.

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Clean and degrease body groove. Apply anti corrosive primer such as DULUX Zincode 304 to body area behind body insert (23) making sure no brush strokes are evident.

Re-assemble in reverse logical order

CLAMP RING

Proceed as for Body Insert (above)

Seal (3) is retained between clamp ring (4) and disc (2).

Support clamp ring (4) and remove setscrew (5).

Clamp ring (4) may be lifted free

Remove seal (3), inspect and clean bed grooves in disc (2) and clamp ring (4).

Fit new seal (3) use a light smear of silicone grease to ease assembly

DISC, SHAFTS AND BEARINGS

Proceed as for body insert and clamp ring.

Disc (2) is pinned to shaft (7) & (6) by pins (17).

Pins (17) are considered consumable items but may be successfully removed. Pin (17) has tapped hole to fit eyebolt and pulling device. (17). Fit pulling device and remove pins **Note:** If not easily removed it may be necessary to drill out pins

Disc (2) has provision for lifting eyebolts. Locate visually and confirm thread size. Usually M12 / M16 / M20. Secure lifting device to disc and support disc weight.

Some versions have tapped hole in shafts (6) & (7) to fit pulling device. If not evident an eyebolt must be fitted by welding.

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Fit pulling device and remove shafts from disc. Disc can now be lifted free. **Caution:** Do not allow disc to 'swing' and knock against valve bore.

Bearings (8) can be inspected inside upper and lower shaft bores. Check for damage and replace if necessary.

Reassemble in reverse logical order.

MASTERGEAR MLF60D12

The gearbox utilised for this installation is grease filled for life and requires no maintenance.

The manufacturers recommendations in regard to setting up have been carried out by Keystone.

STOW TORQUE LIMITER

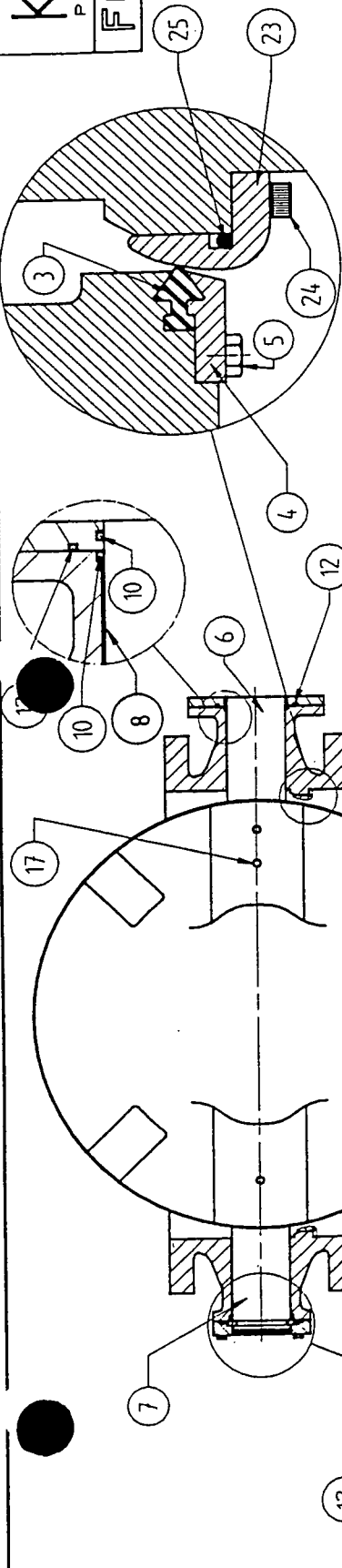
Drawing at end of text.

The Stow torque limiter has been factory set. Should it be necessary to adjust the setting simply tighten or loosen the capscrews (9).

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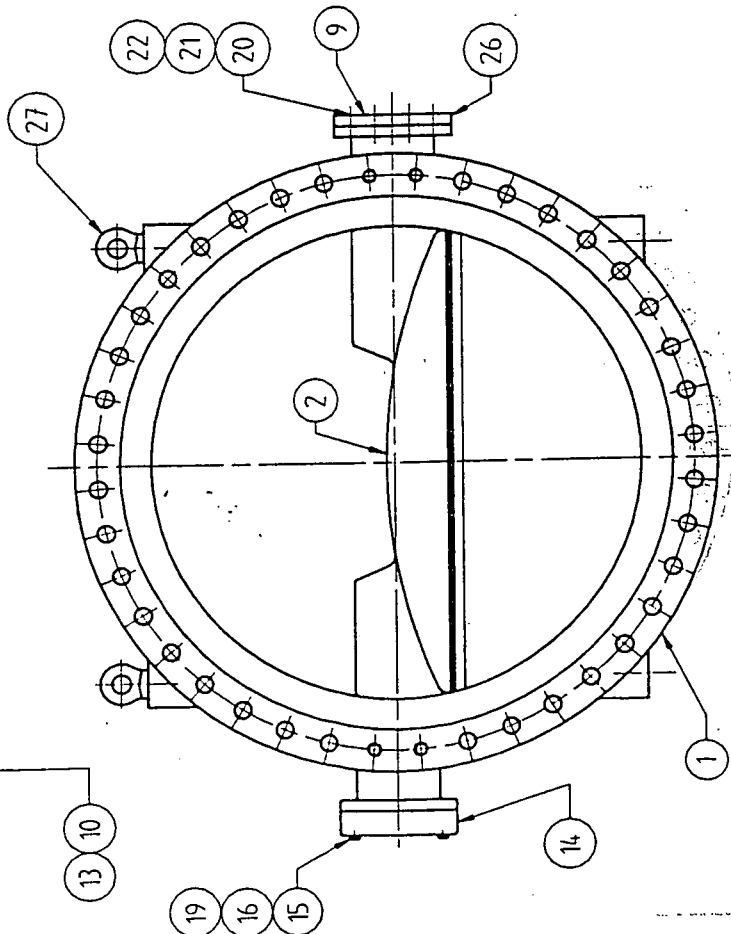
PACIFIC PTY LIMITED

F627 VALVE



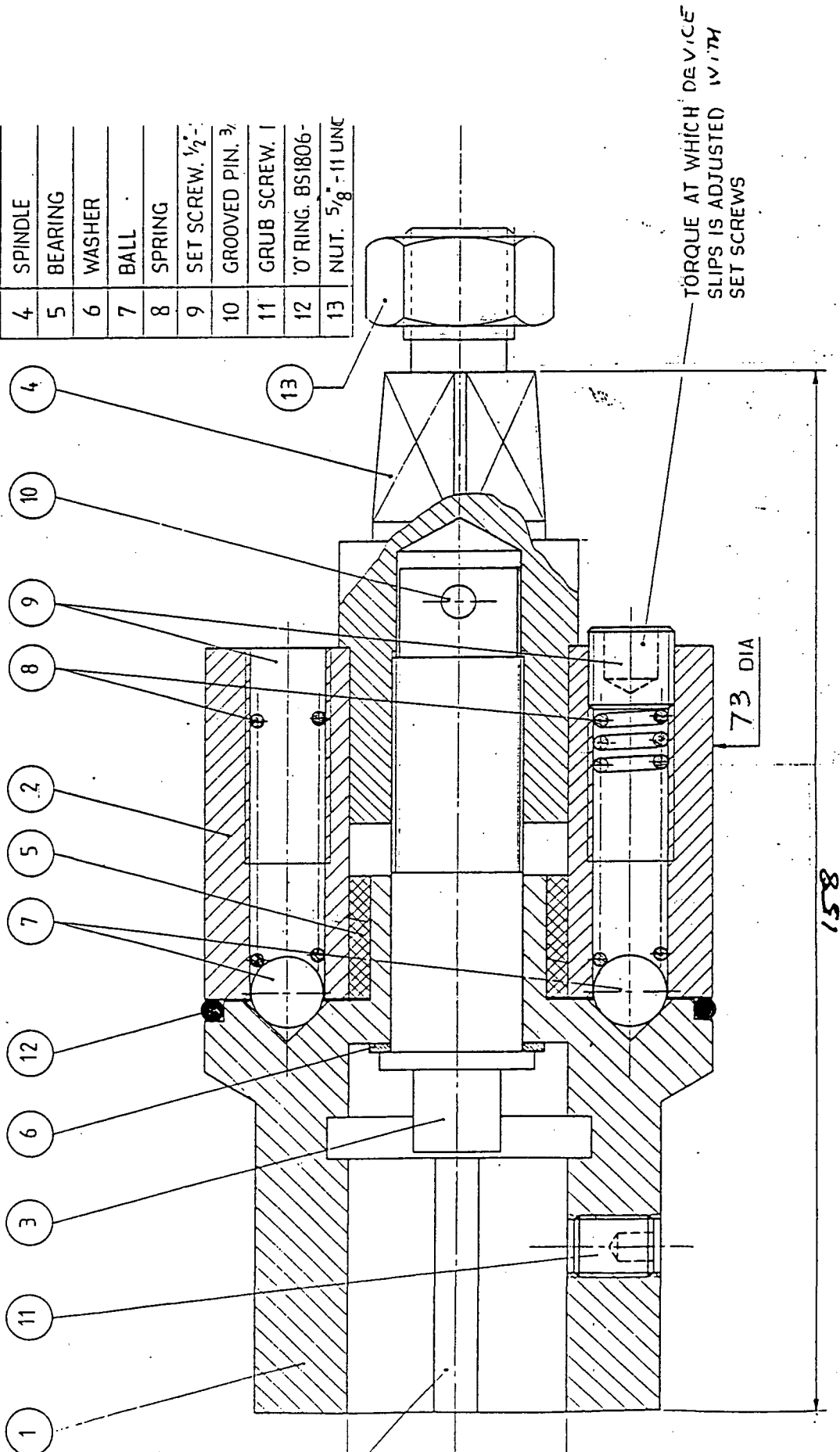
ITEM NO.	DESCRIPTION	MATERIAL	QTY.
27	EYE BOLT	E.G.	4
26	ADAPTOR PLATE	STEEL	1
25	BODY INSERT O RING	NITRILE	1
24	SOCKET HEAD CAPSCREW	316 S/S	VAR
23	BODY INSERT	321, 316 S/S	1
22	HEX NUT	304 S/S	VAR
21	WASHER SPRING	304 S/S	VAR
20	STUD	304 S/S	VAR
19	HEX NUT	STEEL EG	4
18	KEY - PARALLEL	KEY STEEL	1
17	TAPER PIN	316 S/S	3
16	WASHER SPRING	STEEL EG	4
15	HEX HEAD BOLT	STEEL EG	4
14	END COVER	STEEL	1
13	BACK UP WASHER	NYLON	1
12	O RING	NITRILE	2
11	THRUST PAD	304 S/S ENP	1
10	O RING	NITRILE	4
9	CAPSCREW	STEEL EG	4
8	BEARING - GLACIER	PTFE, LEAD IMP BRONZE STEEL BACKED	4
7	SHAFT - LOWER	316 S/S, 431 S/S	1
6	SHAFT - UPPER	316 S/S, 431 S/S	1
5	HEX HEAD SETSCREW	316 S/S	VAR
4	CLAMP RING	321, 316 S/S	1
3	SEAL	NITRILE	1
2	DISC	S.G. IRON AS1831 500 - 7	1
1	BODY	S.G. IRON AS1831 500 - 7	1

NB: MATERIALS MAY VARY TO THOSE LISTED



HOUSING ADAPTER

2	HOUSING
3	INTERNAL SCREW
4	SPINDLE
5	BEARING
6	WASHER
7	BALL
8	SPRING
9	SET SCREW. $\frac{1}{2}$ "
10	GROOVED PIN. $\frac{3}{4}$ "
11	GRUB SCREW. 1"
12	O'RING. BS1806-
13	NUT. $\frac{5}{8}$ " - 11 UNC



THIS LIMITED HAS A VARIABLE TORQUE RANGE 0-113 Nm