

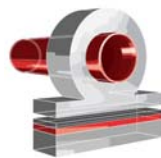
Hydraulic Shock- and Sway
Suppressors Fig. 200A / 201A

TECHNICAL DESCRIPTION

incorporating

INSTALLATION and

OPERATING/MAINTENANCE INSTRUCTIONS



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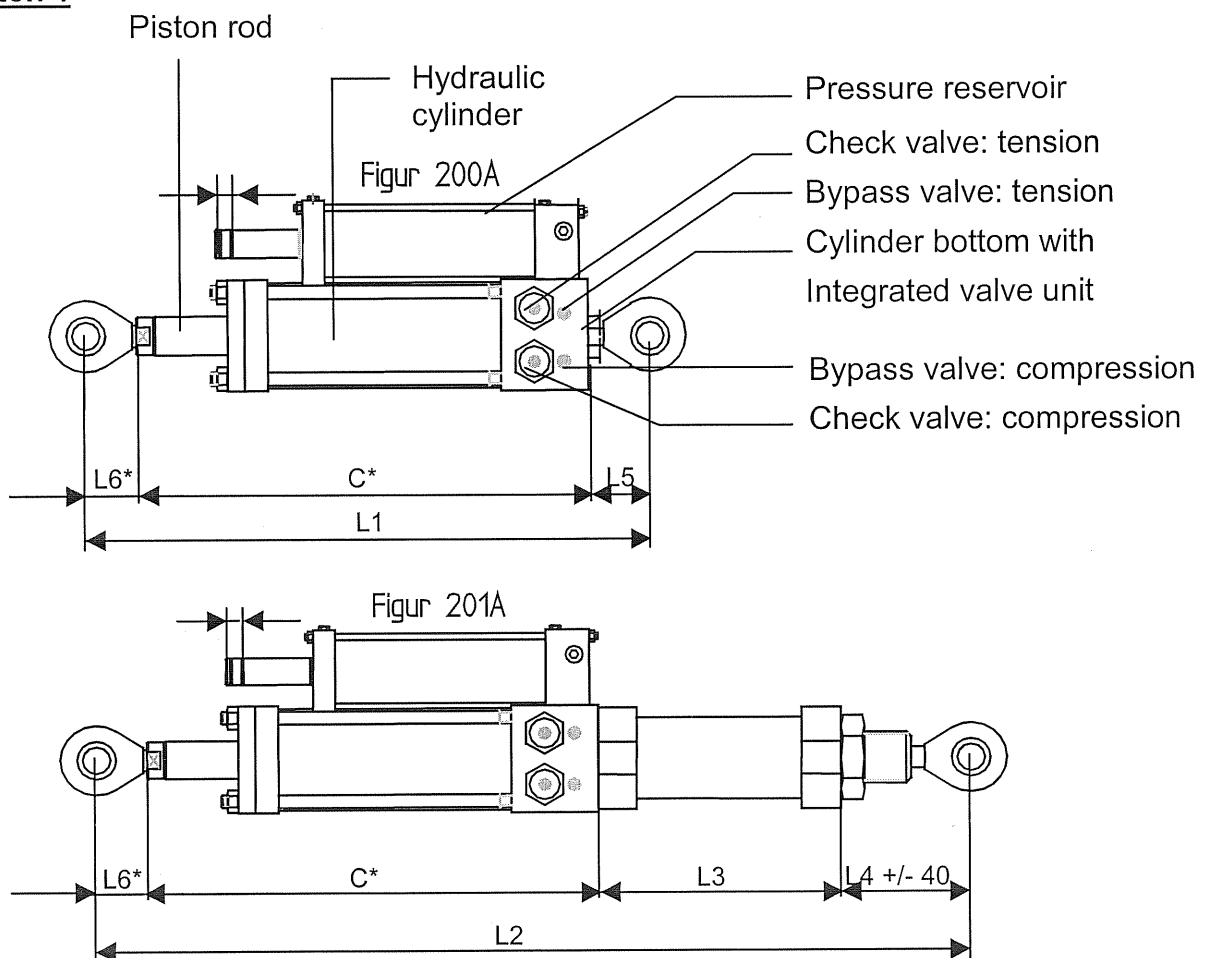
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Installation Instructions for Hydraulic Shock and Sway Suppressor Fig. 200/201A

1. Description (see sketch 1)

Sketch 1



* $L6 + C =$ Adjustment dimension of the piston rod

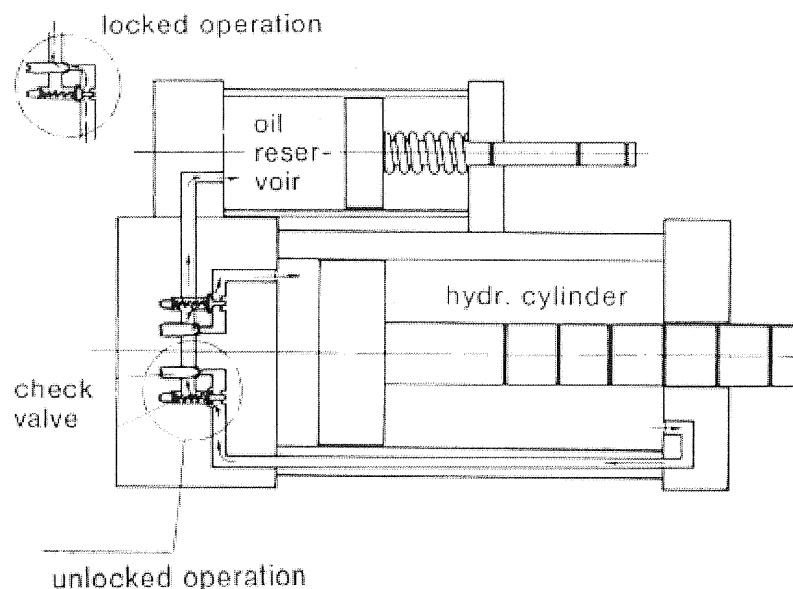
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The **PSS International** Hydraulic Shock and Sway Suppressor is used to prevent damages due to earthquake, flow pulsation, pipe rupture or safety valve blow-off.

The unit consists of a cylinder that can be loaded in tension and compression direction, a patented **PSS International** valve in the cylinder bottom and a pressure reservoir. The pressurised reservoir contains a fluid reserve for the event of a fluid loss over a longer period of time. Above all it serves as fluid reservoir for the different fluid volume in the cylinder caused by the piston rod volume. By means of the installed coil spring, the fluid volume in the reservoir is always pressure loaded at the piston circular ring (see sketch 2).

Sketch 2



Due to the pressurised reservoir the Hydraulic Shock- and Sway Suppressor can be installed in any position.

At dynamic loading which moves the piston faster than the locking velocity adjusted by **PSS International**, the check valve locks and the snubber can carry the loads. The task of the overflow valve or bypass valve is to enable a bleed rate of the piston.

The capability of a Shock- and Sway Suppressor to allow a bleed rate at emergency condition is **very important for the safe function of a snubber**.

The adjustment of the valves requires special test stands which can measure the loads and the velocities.

Do not adjust the valves at the site. Any adjustment is allowed to be performed by PSS International personnel only.

2. Installation

Caution: Please ensure that the place of installation and the tools are clean.

Please check that the Shock- and Sway Suppressor has not been damaged during transport (e.g. oil leakage control etc.).

Prior to the installation, the specified piston setting (dimension C + L6 in the design list, see attachm. 1) must be checked. The dimension C + L6 (cylinder bottom up to the rod eye centre of the piston rod) is shown in sketch I). If the existing dimension does not correspond with the requested dimension, the piston rod has to be moved to the required dimension.

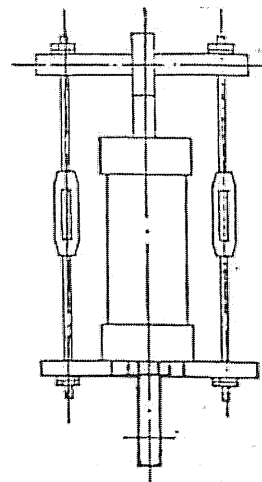
Because of the expansion of the hydraulic oil at different ambient temperatures, the piston rod should be adjusted at the installation place of the Shock- and Sway Suppressor.

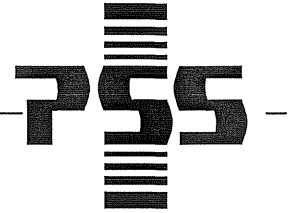
Caution: The **PSS International** Hydraulic Shock and Sway Suppressors immediately **responds to slow movements**. Should it be necessary to move the piston rod of the snubber prior to the installation, it must be extracted or compressed slowly and steadily. If the piston rod is moved by hand, please turn the rod in order to avoid friction during the slow extraction or compression. Should the snubber block, please release and repeat the a. m. activities. Please do not try to move the piston rod by means of a cable winch, because this will block the Shock- and Sway Suppressor.

Screws (sketch 3) or a hydraulic device can be used to extract or compress the piston rod. Please consider that the velocity must be lower than 2,5 mm/s for cylinder sizes up to 6".

For Fig. 201 A (adjustable extension piece) please install a rear bracket holder and / or clamp suitable for the unit. Install the piston rod end by use of the respective piston bolt.

Sketch 3





Adjust the extension piece in a manner that it reaches the other attachment and lock it with a lock nut. If more advantageous, the distance from bolt to bolt can be measured previously and the extension piece can be adjusted accordingly.

The adjustability of the extension piece (see sketch I) is ± 40 mm.

Please ensure that all normal operations of the equipment are possible **without using the last 10 mm reserve at each end.**

If the snubber has the specified installation length, the installation position can be selected without any restriction.

Any turning of the bolts of the hydraulic cylinder and of the reservoir is not allowed. This could **impair the function of the Hydraulic Shock- and Sway Suppressor.**

3. Maintenance

The maintenance conditions can be very different, depending on the environment in which the Shock and Sway Suppressor is operating. Influences by dust or mud, by weather conditions or strong vibrations can necessitate a maintenance in shorter time intervals.

When a snubber is installed in a closed room in a relatively clean atmosphere at an oscillation frequency that is not higher than 5 Hz or greater than 3 mm in the peak to peak amplitude the following maintenance measure should be taken.

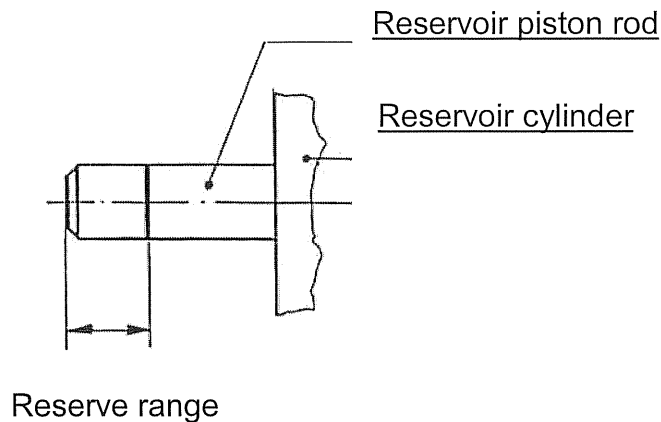
Yearly:

1. Clean the rod and examine it with regard to damages; a scraped and corrosive rod can damage the seals and result in leakiness. Check the Shock and Sway Suppressor for leakage.

Smaller leakages in the hydraulic system, except the cylinder, can often be removed by tightening the nuts that are compressing the seals. The cylinder track rods are not allowed to be adjusted. In case of damages or extreme leakages please inform the **PSS International** customer service.

2. Check the fluid level in the pressure reservoir of the snubber (see sketch 4).

Sketch 4



(see Data next page)

In case that the oil must be refilled in the reservoir or - depending on the extent of the leakage - the snubber must be repaired in the factory of **PSS International**.

In general the refilling of the reservoir at the site is allowed, however by qualified PSS International personnel only.

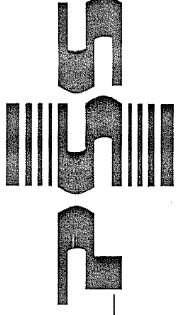
The valuation of leakages at the site should be performed in the presence of **PSS International personnel**.

Example: At outdoor use, at heavy contamination by dust or at strong vibrations please take the following steps:

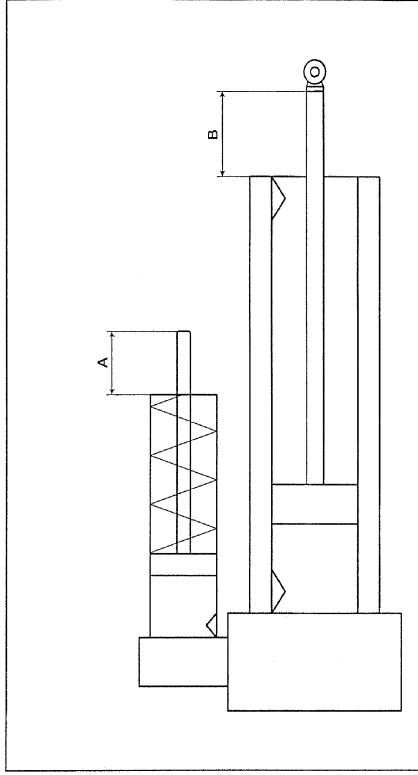
Maintenance according to point "A" at least every 6 months.

General information for the replacement of seals

We recommend to change the complete seal kit of the Hydraulic Shock- and Sway Suppressor **every 10 years** as a minimum because of the natural aging of the used seal materials.



Estimation of the oil level for Snubbers Fig 200A 4" x 5" Stroke (Reservoir III)



1. Step: Measurement of the piston rod position cylinder (B)

2. Step: Measurement of the piston rod position reservoir (A)

3. Step: Check if the position of the piston rod reservoir is between max. and min.

If min. is under-run → Refill up to max.

Size [inch]	Stroke [mm]	0	10	20	30	40	50	60	70	80	90	100	110	120	127	Stroke Cylinder
4"	max.	51,0	48,0	44,9	41,9	38,3	35,8	32,7	29,7	26,6	23,6	20,5	17,5	14,4	12,3	Reservoir piston rod max.
	min.	47	44	41	38	35	32	29	26	23	20	17	14	11	9	Reservoir piston rod min.

In general the refilling of the reservoir at the site is allowed, however by qualified PSS International personnel only.