LEROY SOMER

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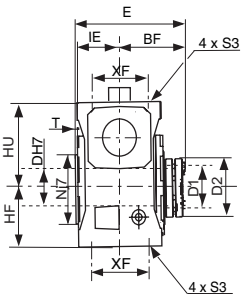
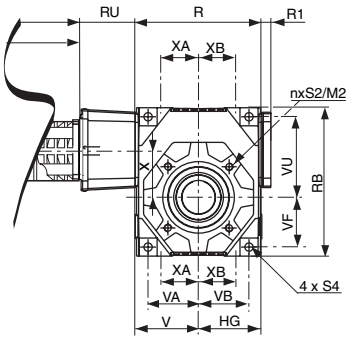
This manual is to be given to the end user





Mjd

Servo gearboxes

Installation and maintenance

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NOTE

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LEROY-SOMER gives no contractual guarantee whatsoever concerning the information published in this document and cannot be held responsible for any errors it may contain, nor for any damage resulting from ist use.

CAUTION

Throughout the manual, this symbol warms of consequences which may arise from inappropriate use of the servo gearbox Mjd since risks may lead to material or physical damage.

Despite all the care taken in the manufacture and checking of this equipment, LEROY-SOMER cannot guarantee that lubricant will not escape during the product's lifetime. If slight leaks could have serious consequences for the safety of people and property, the installer and user should take all necessary precautions to avoid such consequences.

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Many thanks for having chosen a **Mjd** servogearbox.

1 - STORAGE

Mjd servo gearboxes can be stored horizontally in a dry place at a temperature between 0° and 30°C in their original packaging (for a maximum of one year).
Thanks to its strong design, production of all components under total quality, and 100% inspection before shipment, it will prove an amazing reliability during thousands of hours, as soon as following recommendations are assumed :

2 - INSTALLATION RECOMMENDATIONS

Servo gearbox :
For the installation of Mjd servo gearbox, follow the "Recommendations" chapter in the general manual (ref. 2557).
Servo motor :
For connection of the complete drive system (with brake), follow the instructions of corresponding maintenance delivered with the goods in the parcel.

3 - LUBRICATION

For operation between -30°C and +40°C (oil bath temperature of 100°C), Mjd servo gearboxes are delivered filled, as standard, with synthetic lubricant: PAO ISO VG 220 (MOBIL GLYGOYLE 30) with:
- Exceptional anti-wear properties,
- Reduction of mechanical friction by up to 20%
- lubricant life up to 4 times higher than classical lubricants,
- A very high natural viscosity index and complete stability at shearing

3.1 - Maintenance, draining

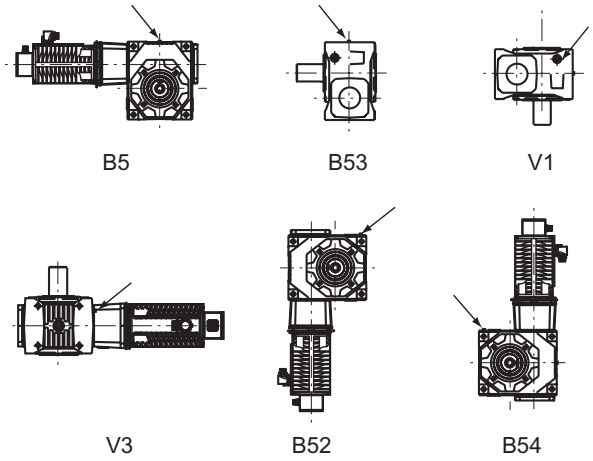
For above reasons, there is no need to proceed to any oil change.

You must use an oil of the recommended type.

POLYGLYCOL LUBRICANTS CANNOT BE MIXED WITH MINERAL OR SYNTHETIC LUBRICANTS OF A DIFFERENT TYPE.

3.2 - Plugs position

Before use, the breather plug (delivered with servo gearbox) must be mounted in the upper part, replacing the transportation plug.

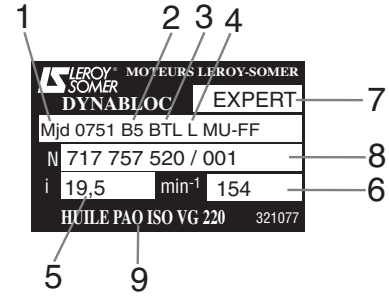


3.3 - Running-in period

During an unsettled period (up to 48 hours), mainly depending on the applied load, the servo gearbox temperature will be higher than normal (up to more 20°C), coming from an efficiency lower than indicated values to be seen in the technical catalogue ref.3764. No particular care should be taken during this period.
Progressively, efficiency will achieve its optimum value. Then, the servo gearbox housing temperature should be generally lower the 70°C (80°C in heavily loaded applications).

4 - TECHNICAL CHARACTERISTICS

Necessary information
a) from the servo gearbox nameplate :
1- servo gearbox model and size ;
2- operating position ;
3- fixing form and its position (BTL, BTR, BTH, SDL, SDR, BT, etc.) ;
4- type of output shaft (H, L, R, LR) ;
5- exact reduction ;
6- output speed (min^{-1}) ;
7- backlash : BASIC, MEDIUM or EXPERT ;
8- serial number ;
9- lubrication.



b) Where a servo motor is fitted to the servo gearbox, from the servo motor nameplate :
(for the servo motor : see the corresponding manual)
- servo motor type, example : **95UMB300CACAA**

5 - INSTRUCTIONS FOR DISMANTLING AND REBUILDING

5.1 - Dismantling

- Remove the servo geared motor from the machine.
- Remove the servo motor.
- Dismantle the servo gearbox.

5.2 - Rebuilding

- Proceed in the reverse order to dismantling.
- Engage the coupling on the servo gearbox input shaft. Position it axially taking care that the clamping length is totally used, leaving a small gap between the coupling and the servo gearbox flange face.
- Measure the length between the servo motor flange face and the coupling front face.
- Dismount the coupling of the gearbox and engage it on the motor shaft, respecting the measured length.
- Prior to mounting, and to ease dismounting, make sure the coupling hub is slightly oiled.
- Tighteen the coupling screw on motor side at the required torque as per following chart :

Tightening torque (N.m)	Coupling size
1,5	N° 2
3	N° 5
4	N° 10
8	N° 15
15	N° 30
40	N° 60
70	N° 80

- Engage the (servo motor + coupling) assembly on the servo gearbox.
- Hold the servo motor flange and servo gearbox flange together with the 4 screws.
- Tighten the coupling screw on servo gearbox side (thru the radial bore located on the servo gearbox flange) at the required torque, as per previous chart.

6 - EXPERT VERSION : SETTING OF BACKLASH

High strength gears alloys added to the lowest specific gear contact pressure (provided by the Largest contact surface, computer optimized during each production batch), should allow the **Mjd servo gearbox** to run maintenance free for several years, if used within catalogue specifications ref.3764.
If any backlash adjustment should be done, proceed as following :
- Follow dismantling instructions in section 5.1.
- Loosen the locking screw of the servo coupling on the servo gearbox side.
- Loosen 4 screws on the control module (opposite the motor), without dismounting them from the housing.
- Remove shims.
- Measure their total thickness.
- Decrease the total thickness (by removing the necessary number of shims) in order to obtain the required backlash value (see chart below).
- Remount remaining shims.
- Tighten 4 screws.
- Tighten servo coupling screw on servo gearbox side.
- Check that the torque at the servo gearbox input is constant (manually or by checking the servo motor consumption), in case of the backlash could have been set to low. **Mjd servo gearboxes EXPERT version** are delivered with a backlash equal or under 1 arcminute.

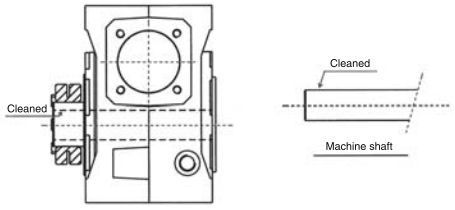
An adjustment appreciably under 1 arcminute is done under user's responsability, Mjd sizes 1251, 1601 and 2001 excepted.

Below chart indicates the amount of backlash reduction (in arcminute), for each shim removed (of the thickness indicated in column 2), function of servo gearbox size and nominal ratio Total shims thickness and backlash are strictly proportional.

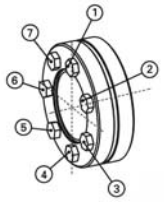
Type Mjd	Shim thick.	Ratio								
		5	7	10	15	20	30	45	60	90
Mjd 0351	0,2	0,5	0,5	0,5	0,5	0,5	1	0,9	0,9	0,3
Mjd 0451	0,3	0,4	0,6	0,6	0,6	0,6	1	0,9	0,9	0,3
Mjd 0551	0,3	0,4	0,6	0,6	0,6	0,6	0,8	0,9	0,9	0,3
Mjd 0631	0,3	0,3	0,5	0,5	0,5	0,4	0,7	0,6	0,6	0,2
Mjd 0751	0,4	0,4	0,6	0,6	0,6	0,5	0,7	0,7	0,7	0,3
Mjd 0901	0,4	0,3	0,3	0,4	0,4	0,4	0,6	0,7	0,5	0,2
Mjd 1101	0,6	0,6	0,4	0,4	0,4	0,4	0,4	0,6	0,6	0,2
Mjd 1251		Consult us								
Mjd 1601		Consult us								
Mjd 2001		Consult us								

7 - SHRINK DISC

Shrink disc is delivered ready for use. Do not dismount it.
- Remove carefully any grease from the gearbox output bore and from the machine shaft.



Do not tighten the shrink disc screws before having engaged the servo gearbox on the machine shaft.
- Engage the servo gearbox on the shaft.
- Hold the servo gearbox on the machine.
- - Tighten the shrink disc screws, in the same order (as sketch below), increasing the torque very progressively, clockwise, starting at the top right (servo gearbox B5 position).



- This must be operated as soon as the tightening torque is reached for all the screws of the shrink disc, as per below chart. **It is normal that each screw must be tightened several times until the torque is obtained.**

Shrink disc screw ø	Tightening torque (N.m)
M5	4 N.m
M6	12 N.m
M8	30 N.m
M10	59 N.m

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