

INSTALLATION, MAINTENANCE & SERVICE BULLETIN

FKH BALL RACES

Installation

Prior to installation, the ball race must be greased using a lithium-complex thickened mineral oil based grease of NLGI No.2 consistency (like a Castrol LMX). This must be done whilst rotating the upper ring until a grease 'collar' appears at all bearing gaps around the entire circumference. This ensures that the grease is properly distributed throughout the bearings. Greasing should be repeated after the installation is completed.

Note: The Ball Race **must** be fitted with the seal/opening facing towards the bottom. (see following drawings)

The ball races must be mounted on the flattest and most rigid structure possible.

The total distortion of the mounting surface should not exceed 1.3mm for the 90S and 1.2mm for the KHDR/KHSR.

Example for permissible variations: 90S: 0.8mm up and 0.5mm down = 1.3mm.

Larger distortions have to be compensated for by suitable methods (machining of the contact surfaces or captive shims in the respective contact area).

It is essential that at least 50% of the mounting surfaces of the ball race flanges are attached to supported load bearing zones. These load bearing zones should be roughly equally spaced along the direction of travel and at right angles to the direction of travel. The essential factor here is to effectively support the ball race, thus assuring direct force transmission into the raceways.

NEVER weld a ball race direct to the mating plates (top or bottom).

When welding close to the ball race, ensure that the current path of the welder does not pass through the ball race (weld arcing will damage the ball race).

The ball race (turntable) must be fastened in line with the Australian Standard AS4968.2:2003 and VSB6. To transmit the horizontal forces associated with acceleration and deceleration, shear plates must be welded to the mating structures to minimize the load on the bolts in the radial direction (4 shear stoppers at approx. 45° of the centre line front and rear, left and right).

Please check with FKH for the appropriate hole pattern for a specific ball race and ball race application.

The filler plug (to insert the bearing balls) should be approximately 45° (10.30) forward to the direction of travel. Check that the mounting holes are not in line with the filler plug.

Avoid paint the connecting mounting faces (top to half-moon plates and bottom to base plate) whenever possible or keep the painting as thin as possible.

Too much paint will wear away and reduce the clamping force of the mounting bolts!

DO NOT sandblast close to the ball race.

The above conditions on installations are for "On-Hwy" vehicles. For "Off-Hwy" application additional steps may be required to keep contamination out of the ballrace.

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Maintenance and Lubrication

The period of service on the ball race will depend on the application and conditions of operation.

The torque on the bolt connections should be checked on a monthly basis.

M16 - Bolt and lock nut 170-190Nm

M20 - Bolt and lock nut 330-370Nm

The ball race must be greased at least once a month, using a lithium-complex thickened mineral oil based grease of NLGI No.2 consistency (like a Castrol LMX).

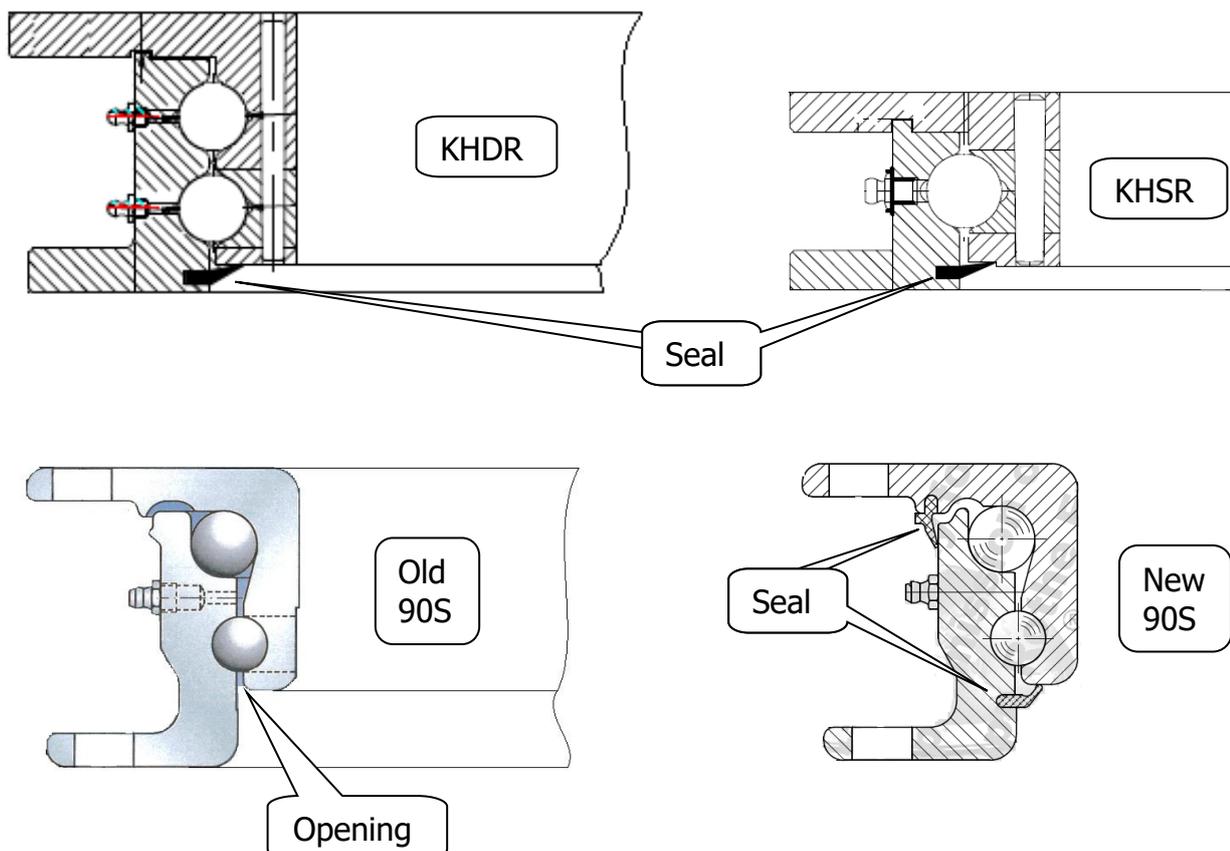
Grease should be pumped in through the grease nipples while turning the ball race at least $\pm 30^\circ$ for the grease to distribute evenly.

Note: For information on the **single point greasing systems** go to pages 3-5.

To prevent damage to raceways, do not leave ball race fixed in one position for extended periods. Unlock and rotate ball race by hand on a regular basis.

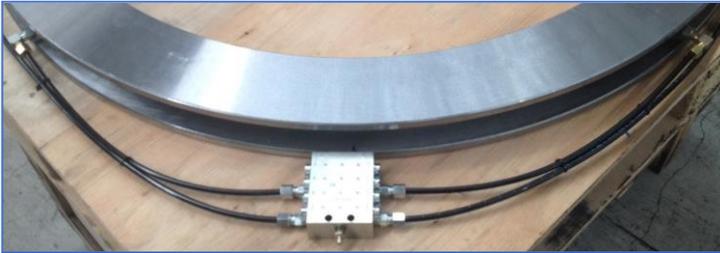
Periodically check the ball race wear for axial and radial movement.

NOTE: If the axial and/or radial movement exceeds 3mm, the ball race must be replaced.



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Single point greasing system



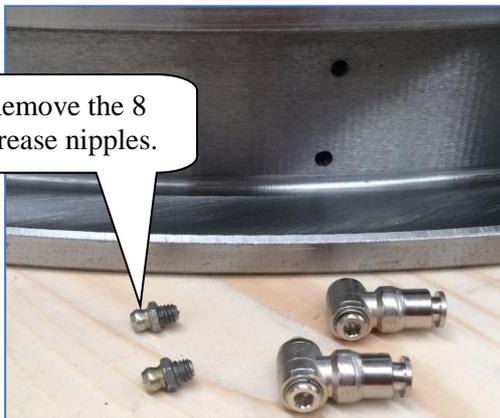
There are 3 single point greasing systems:

- GS-001 for the KHDR
- GS-002 for the KHSR.
- GS-003 for the 90S

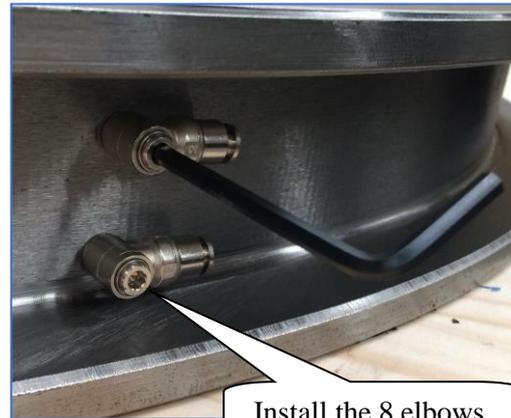
As a ball race is an “open” bearing there is no need for high pressure grease lines!

The GS-001 kit is for the KHDR

Description	Qty per kit
SKF Block Metering Device (BMD)	1
SKF check valve fittings – straight	8
Elbow – swivel	8
Nylon tube	1

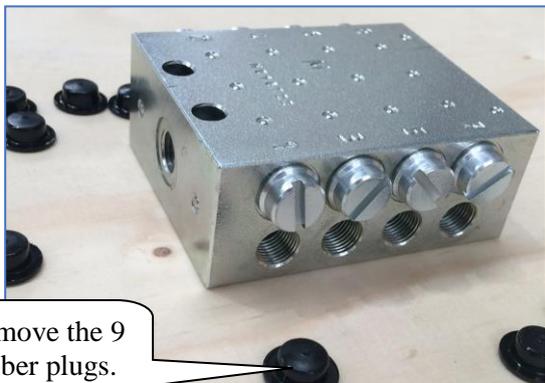


Remove the 8 grease nipples.

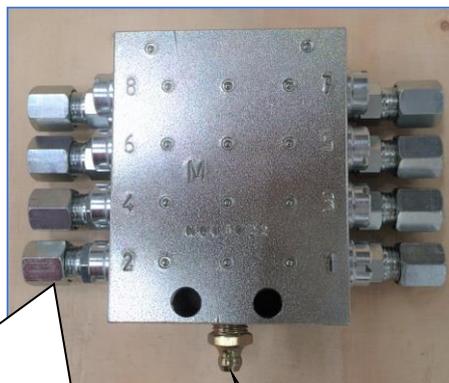


Install the 8 elbows.

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Remove the 9 rubber plugs.

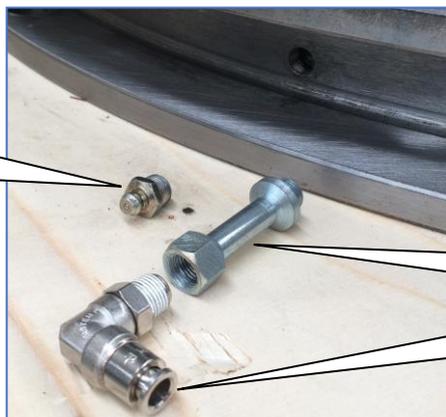


Install the main supply grease nipple.

As the check valve fittings are close together, install one at the time and connect them also to the nylon hose at the same time.

The **GS-002** kit is for the KHSR

Description	Qty per kit
SKF Block Metering Device (BMD)	1
SKF Plug	4
SKF check valve fittings – straight	4
Extension	4
Elbow – swivel	4
Nylon tube	1

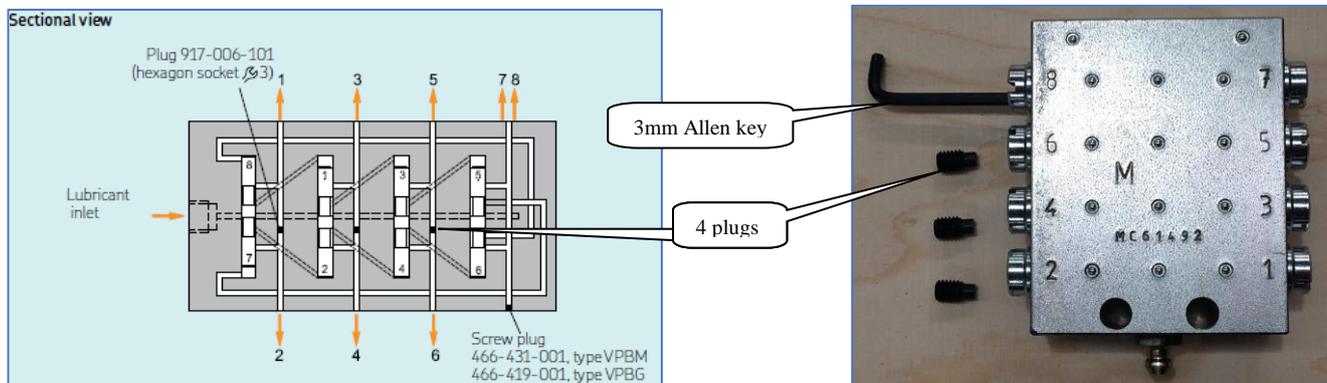


Remove the 4 grease nipples.

Install the 4 extensions and the 4 elbows.

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To convert the 8 port BMD to use only 4 ports for the KHSR, the 4 plugs need to be removed from the inside of the BMD.

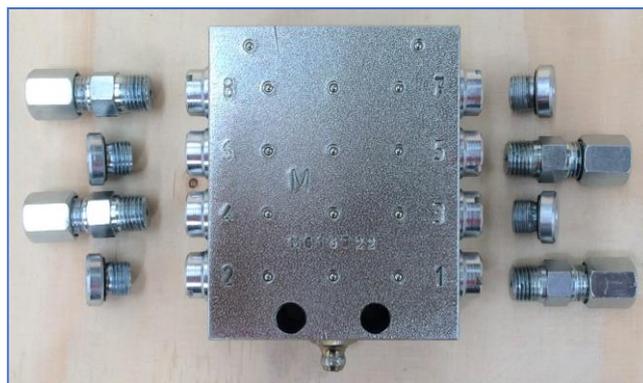


With the 4 plugs removed, there are a couple of options where to fit the check valve fittings (connection to the nylon tubing) and plug the remaining ports.

Option 1:

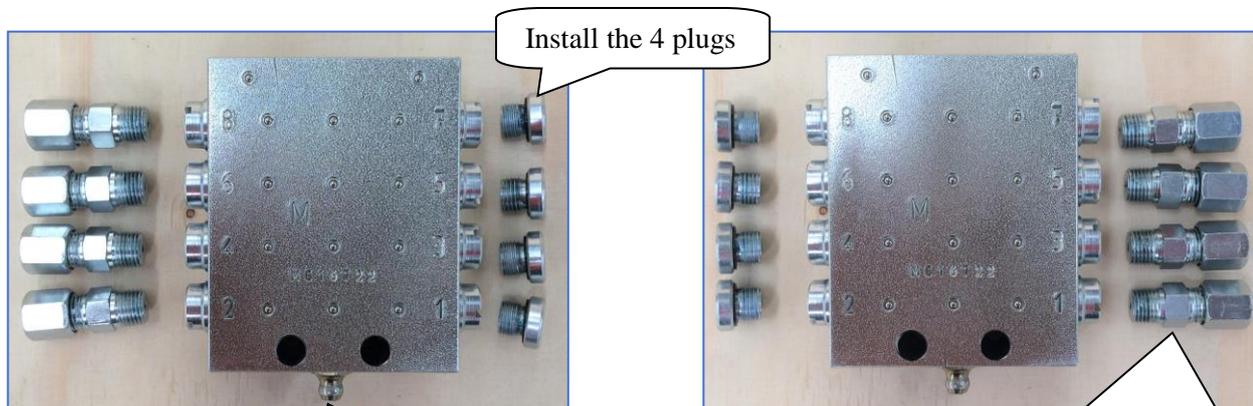
Two check valve fittings on each side and two plugs on each side.

Note: A check valve fitting **must** be opposite a plug!



Option 2: All valve fittings on the left....or..

Option 3:.....all valve fittings the right.



Install the main supply grease nipple.

As the check valve fittings are close together, install one at the time and connect them also to the nylon hose at the same time.

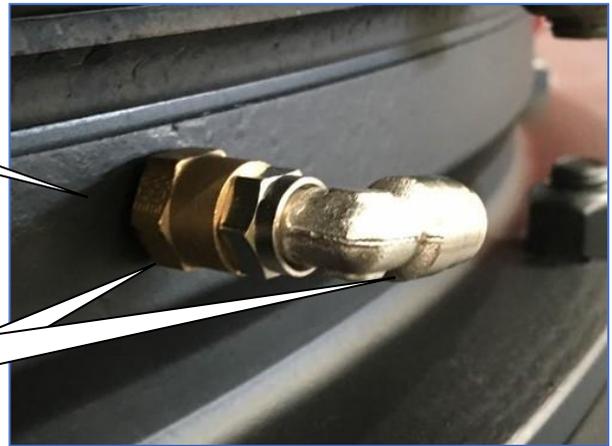
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The **GS-003** kit is for the 90S

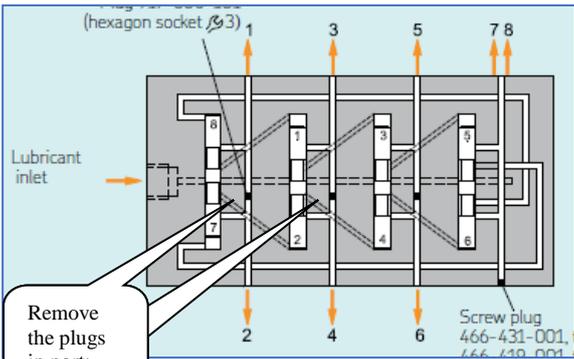
Description	Qty per kit
SKF Block Metering Device (BMD)	1
SKF check valve fittings – straight	6
SKF Plug	2
Elbow – swivel	6
Adaptor	2
Nylon tube	1



Remove the 6 grease nipples.

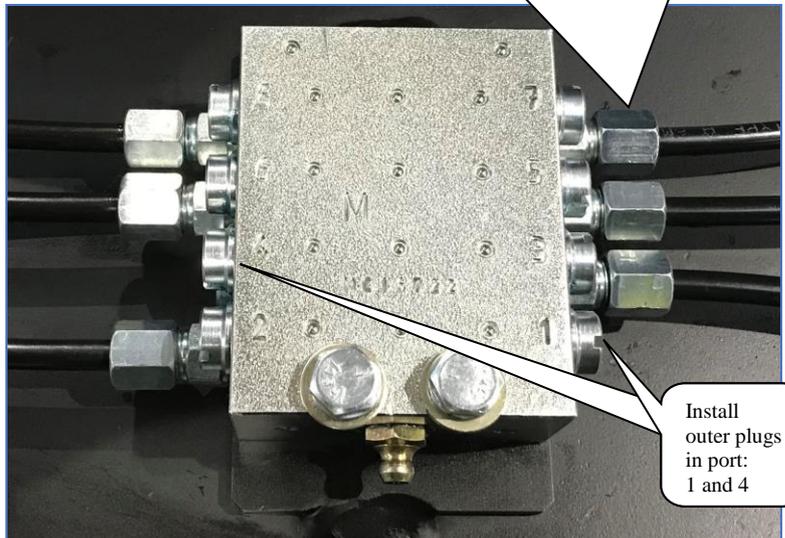


Install the 6 adaptors and the 6 elbows.



Remove the plugs in port: 2 and 4

As the check valve fittings are close together, install one at the time and connect them also to the nylon hose at the same time.



Install outer plugs in port: 1 and 4