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GENERAL INFORMATION

A.1 Manual use

End users

- *Installer*
- *User*
- *Maintenance operator*

Maintenance

READ THIS MANUAL THOROUGHLY, as proper functioning and good efficiency of mechanical organs depends mostly on constant and correct routine maintenance ensuring product integrity and expected life duration. In case of any damages or anomalies, quick intervention of specialized personnel can avoid future impairment and lengthen the working life.

Repair

The disassembly/assembly procedures have been outlined for a total product overhauling. They have also been described in sequence through photographs with relevant explanation for specific interventions, thus obtaining a complete and safe guide for each and every phase of an operation.

Moreover, the attentive product inspection leads to a correct repair work estimation that could merely require dismounting only few components, and thus operating partially on the group.

A.2 Information property

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No part of this manual may be reproduced, in any form or by any means, without prior written permission of SCAM spa. Only the customer, whom the manual, together with the product, has been issued to, is allowed to use this document, and only in order to use, maintain and repair the unit.

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A.3 Agreements and definitions

Agreements

Illustrations like pictures, drawings and components of this manual are NOT in scale, because of limited space and editing limits, therefore they are NOT reliable to obtain values about size or weight.

Illustrations are supposed to point out the correct methods to working on the machine and its components therefore they could not display exactly the same elements.

Definitions

Left side: it is the left side of the unit considering the vehicle running conditions.

Right side: it is the right side of the unit considering the vehicle running conditions.

Measurements

This manual indicates all measurements in International System (SI). Use the following conversion table to convert Imperial Measure.

Conversion table

S.I.		GB/USA SYSTEM	
1	(mm)	0.03937	(in)
10	(mm)	0.3937	(in)
25.4	(mm)	1	(in)
6.4516	(cm ²)	1	(sq. in)
1	(m ²)	1550	(sq. in)
16.378	(cm ³)	1	(cu. in)
0.473	(dm ³)	1	(U.S. pint)
1	(l)	61.02	(cu. in)
1	(l)	0.2642	(U.S. gal)
1.772	(g)	1	(oz)
0.4536	(kg)	1	(lb)
0.00070308	(kg/mm ²)	1	(lb/sq. in)
1	(bar)	14.51	(psi)
1	(kg.m)	7.246	(lb.ft)
1(daN)= 10 (N)=	1,02 (kg.f)	2.24	(lb.f)

A.4 Recommendations for repair operations

Before starting any disassembly and assembly operations, read carefully the following recommendations.

Before performing any operation it is advisable to carry out unit cleaning accurately by removing oil/grease encrustations and accumulation.

All disassembled mechanical parts must be cleaned accurately with suitable products to avoid possible damage. Parts should be replaced if damaged, worn out, cracked, seized, etc. as they could affect proper working.

Rotating parts (bearings, gears, shafts) and that of hardware/fasteners (O-Ring, oil seals) should be examined carefully, as they are subject to major stress, wearing and ageing.

We highly advise to replace tightening parts during every teardown or repair.

In case of replacement of one part of the gear set, this operation requires the replacement of the other part too.

Use appropriate spare parts, nuts and bolts to avoid any other problems. Never apply used self-locking nuts. Moreover, use metric tools for metric nuts and bolts and Imperial tools for the others.

Some repairs are destructive for some axle components. Carefully reading and thorough understanding of these instructions will avoid damage to other components unnecessarily

Shafts seals

Respect the following recommendations during shaft seal assembly:

- *Clean shaft very carefully and ensure that the part in contact with the shaft seal is not damaged, cut or out of roundness.*
- *Assemble the seals so that the lip is fitted towards the oil side.*
- *Lubricate seal lips (use oil) and fill 3/4 of seal cavity with grease.*
- *Use appropriate drifts. Do not use a hammer directly on the seals.*
- *Do not damage the seals while assembling the shaft.*

O-rings

Lubricate adequately before inserting them at the right place and avoid o-ring rolling while inserting the shaft.

Bearings

It's advisable to heat up bearings to 80°C - 90°C before assembling them onto their respective shafts or to cool them (dry ice) before inserting them into corresponding bore.

Always use suitable extractors to remove the bearings. Before reassembling the bearings, clean, check and lubricate them.

Sealing

Use sealing as advised by specifications. Ensure that parts to be sealed are clean, dry and completely grease free.

Oil drain

Before disassembly, oil should be drained out.

Warning: *disposal of used oil must be done according to laws.*

Cleaning

Wash all moving parts (gears, bearings, etc.) accurately with diesel fuel or kerosene.

Avoid gasoline and watery alkaline solutions. Do not wash with steam or hot water, as it will be very difficult to eliminate surface humidity.

Dry all parts with a rag or air jet to avoid scratching from abrasive residuals.

All surfaces should be covered with lubricant so as to protect it from future oxidation.

Checks

Examine accurately all bearings, external rings which may be still stuck in their position and pivot pins on which rolls rotate. Replace those which are worn out or damaged.

Gears should not be spoiled and teething should not be excessively worn out. Teeth smoothing should not be deteriorated.

Check all grooves: assure that they are not worn out or damaged.

Replace spoiled parts with original spare parts. Replace seals on rotating shafts, before reassembly.

Ends of flanges and tools

Be careful when hammering tool or flange ends, in order to avoid jeopardizing functionality and integrity of either the tools or the components on which you are operating.

Reassembly methods

In order to reassemble the groups, an appropriate stands (fixtures) must be used.

In order to position the transfer gear box, to disassemble and reassemble the groups, to support the gear housing, a lifting system is needed.

To make disassembling and assembling operations easier, use group assembly drawings (Spare Parts Catalogue).