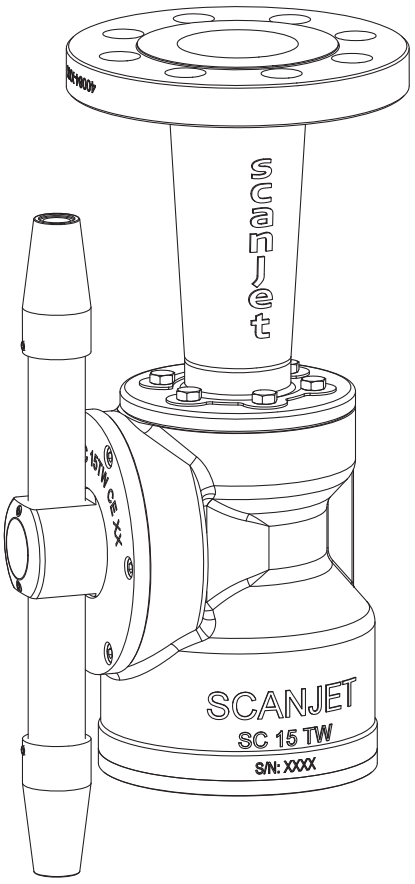
STORM HALVORSEN

KOMPONENTER TIL INDUSTRIEN

Instruction Manual

SC 15TW-GL

Stainless Steel



#SC 15TW-SS-GL 10

This Manual Applies for the Following Products:

Type	Date
SC 15TW-GL - Stainless Steel	2014-06-10
SC 15TW-GL - Rubber Bumper	2014-06-10

Spare Parts Department

Contact Information

Read “10. How to Order Spare Parts”

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This manual is intended to assist in the handling and operation of the Scanjet SC 15TW-GL Tank Cleaning System. Continuous product improvement is the policy of Scanjet Marine AB and we reserve the right to alter the specifications at any time without prior notice.

Contents

1. Introduction

SCANJET SC 15TW-GL is a tank cleaning machine specially developed for cleaning of cargo, slop and mud tanks on board drilling rigs, supply boats, chemical carriers, product carriers and other applicable tanks. The size, construction and cleaning requirements of these tanks are design criteria, which have been evaluated prior to installation. The SC 15TW-GL could be used as a fixed installed machine as well as portable.

The cleaning procedure is started by opening the valve for cleaning media. The water flow will pass through a turbine inside the machine, out through the nozzles that rotate and create a crisscross cleaning pattern inside the tank. When the cleaning procedure is finalized the valves are to be closed.

SC 15TW-GL is per standard delivered with two or four nozzles, and nozzle sizes between Ø6 mm and Ø10 mm.

This manual has been prepared as a guide to facilitate for persons who will be operating and maintaining the tank cleaning machine. The key to long machine life will always be carefully planned maintenance. If this is executed properly, the Scanjet SC 15TW-GL will keep servicing you for years.

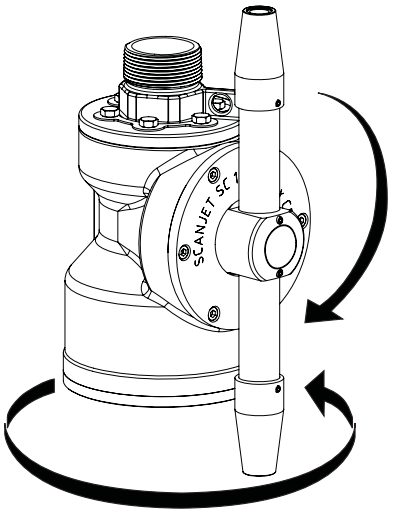
2. Safety Instructions

- If the machine is used in potentially explosive atmospheres then tapes or joint sealing compounds, which are electrical insulators, must **not** be used on threads or joints, unless an electrical connection is otherwise established to ensure an effective grounding. In addition, connection pipe work must be electrically conductive and grounded to the tank structure. The resistance between the nozzle and the tank structure should not exceed 20 000 Ohm. This is important in order to avoid any build up of static electricity in the machine. For further information see CENELEC R044-001 Safety of Machinery, guidance and recommendations for the avoidance of hazards due to static electricity.
- When the equipment is operating in potentially explosive atmospheres, measures have to be taken to verify that the tank is inert at all times during cleaning operation. This is to avoid sparks and possible explosions since fluids moving at high velocities through air causes electrostatic build up in the media. As an extra precaution the cleaning media could be made conductive.
- The machine should be installed in accordance with national regulations for safety and other relevant regulations and standards.
- Precautions should be made to prevent starting of the tank cleaning operation, while personnel are inside the tank or otherwise can be hit by jets from the nozzle.
- In EU-countries the complete system has to comply with EU-machine directive and should be CE-marked. In North America consult Underwriters Laboratory for any specific regulatory needs relative to the entire CIP (Clean In Place) System.
- Earmuffs should always be used when operating the machine.
- Be careful not to drop the tank cleaning machine/equipment when lifting and carrying. Dropping the machine could cause serious injuries. Never stand underneath the machine during mounting or operation.
- The equipment may only be used for tank cleaning operations as described in this manual.
- The equipment has not been assessed as a safety related device as referred to in directive 94/9EC Annex II, clause 1.5

Always follow these instructions before taking SC 15TW-GL into service!

3. General Description

The Scanjet SC 15TW-GL is a media driven and lubricated tank cleaning machine. The gearbox is oil-lubricated and sealed off from the cleaning media with a mechanical rotary sealing.



Functional Principle

When cleaning media enters the machine it first passes through a turbine driving a worm gearbox, then enters a nozzle housing leading it out through the nozzles. The turbines rotation drives the worm gearbox making the machine rotate around its own axle as well as forcing the nozzle housing is to rotate clockwise.

A combined motion of the machine body and nozzle housing creates a criss-cross cleaning pattern inside the tank. After 11 ¾ rotations, a first course pattern has been created inside the tank as shown on fig 1. This process is repeated 4 times, each time indexed from the other until a full cleaning pattern is created inside the tank walls as per fig 2. When this is finalized, after 47 rotations of the machine or 49 rotations of the nozzle housing, the first cycle will be repeated.

Cleaning of tanks is a process depending on a number of factors; soilage, distance between nozzles and tank walls, cleaning agent, temperature and more. All of these factors need to be considered before a proper cleaning can be accomplished.

The rotation speed of the machine is depending on flow rate through the machine. Higher flow rate makes the turbine spin faster and because of this the machine is equipped with different turbines according to nozzle size and intended operating parameters.

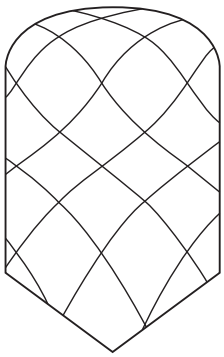
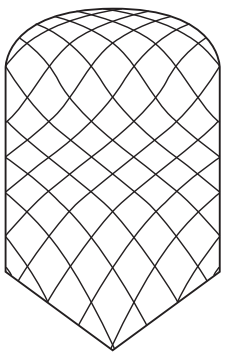


Fig 1. After one cycle



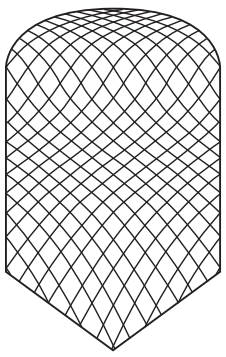


Fig 2. Full pattern

4. Technical Data

4.1. Specifications

Weight : 9,6 kg (21,2 lb)

Operating pressure range : 4-12 bar (60-180 psi)

Nominal pressure range : 6-10 bar (85-145 psi)

Max pressure : 14 bar (200 psi)

Max operating temperature : 95°C (200°F)

Max ambient temperature : 140°C (284°F)

Rotation speed : 2-4 rpm (see page 17)

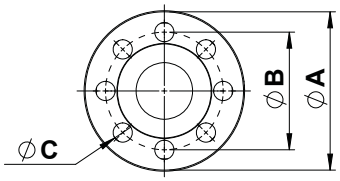
Materials : AISI316L, SS5204, SS5465, PEEK, PTFE, Ceramic, Viton (acc. to order)

Gearbox Oil : Shell Omala S4 WE 150 (Changed name from, Shell Tivela S 150) **Do not mix oil of different qualities!**

Adapter types

Portable Installation : 1½" BSPP[1], 1½" NPT[2]

Fixed Installation : 1½" BSPP[1], 1½" NPT[2], Flange adapter according to specification below

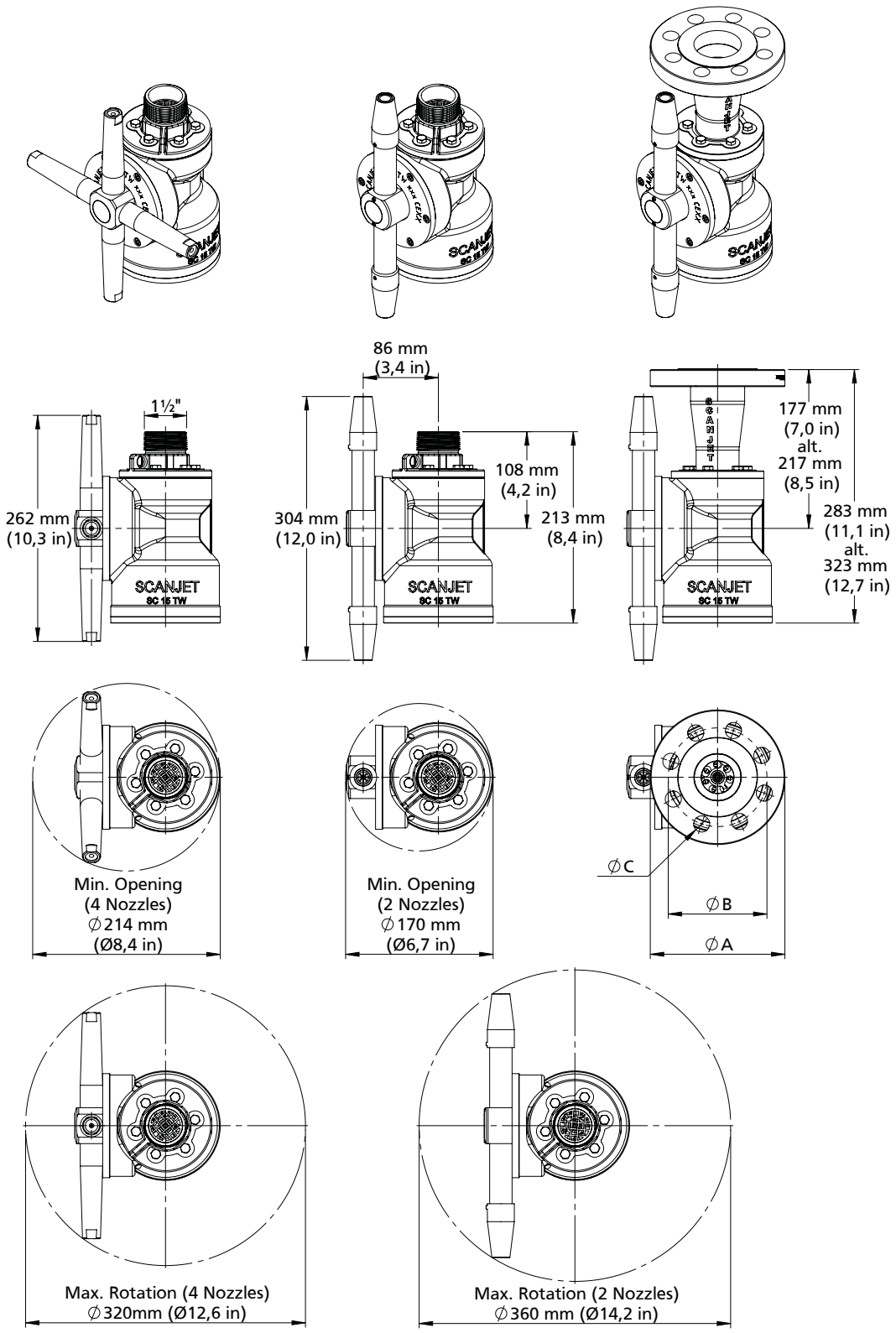


Adapter

Flange type	Adapter Part No.	ØA	ØB	ØC
PN16 DN40	41085-4-525	Ø150	Ø110	Ø18x4
JIS 10K 50	41085-4-625	Ø155	Ø120	Ø19x4
JIS 10/16K 40	41085-4-644	Ø140	Ø105	Ø19x4
JIS 16K 50	41085-4-645	Ø155	Ø120	Ø19x8
ANSI 2" 150lb	41085-4-705	Ø152.4	Ø120.6	Ø19x4

1 British Standard Pipe Thread Parallel

4.2. Dimensions



5. Performance Data

Performance data: The table below shows the flow and effective jet length (radius) for each combination of inlet pressure and nozzle diameter. Other nozzles and maximum jet lengths are available upon request.

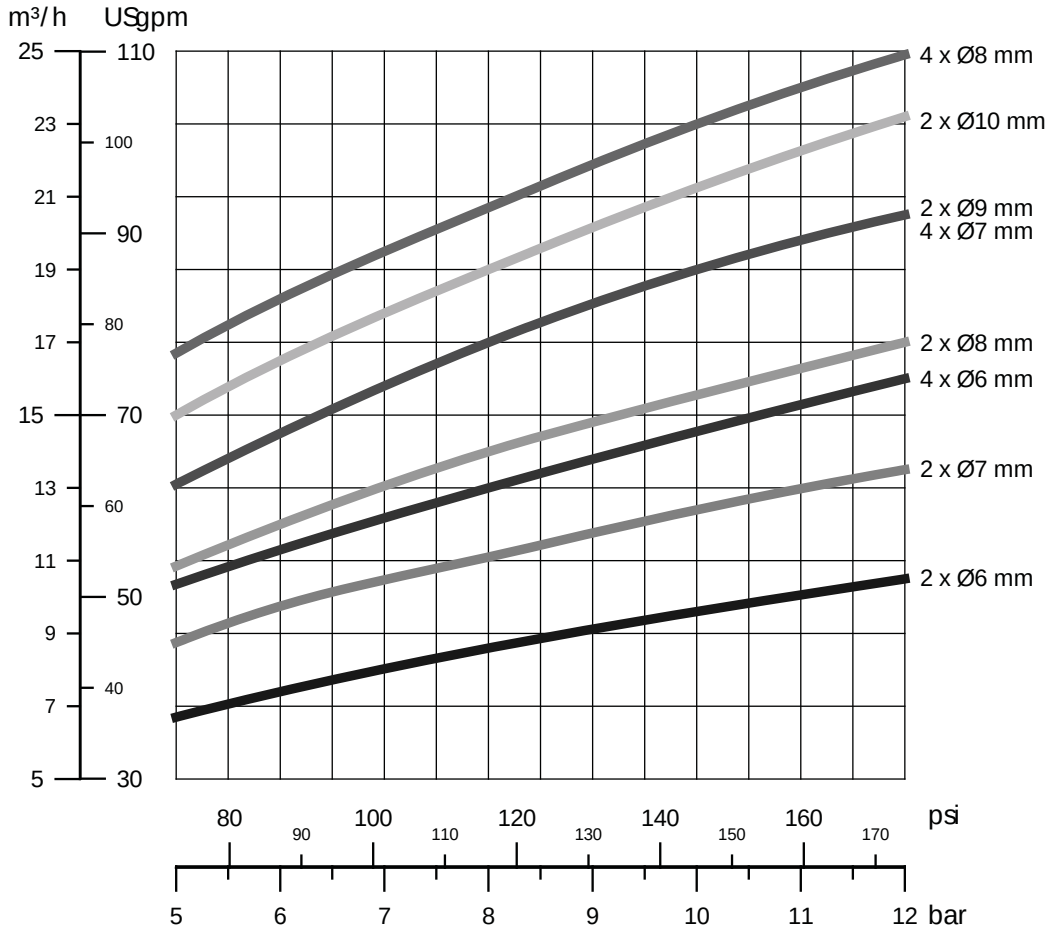
SC 15TW-GL - Jet Length Data

	Supply pressure MPa (Bar)				
	0,5 (5)	**0,6 (6)**	**0,8 (8)**	**1,0 (10)**	**1,2 (12)**
Nozzle size	Jet length [m]	Jet length [m]	Jet length [m]	Jet length [m]	Jet length [m]
2 x Ø6mm	7	8	10	11	12
2 x Ø7mm	9	10	12	13	14
2 x Ø8mm	10,5	12	13	14	15
2 x Ø9mm	11	12	13	14	16
2 x Ø10mm	11	12	13	14	16
4 x Ø6mm	5	5,5	6	7	7,5
4 x Ø7mm	5	5,5	6	6,5	7
4 x Ø8mm	5,5	6	6,5	7,5	8

SC 15TW-GL - Flow Data

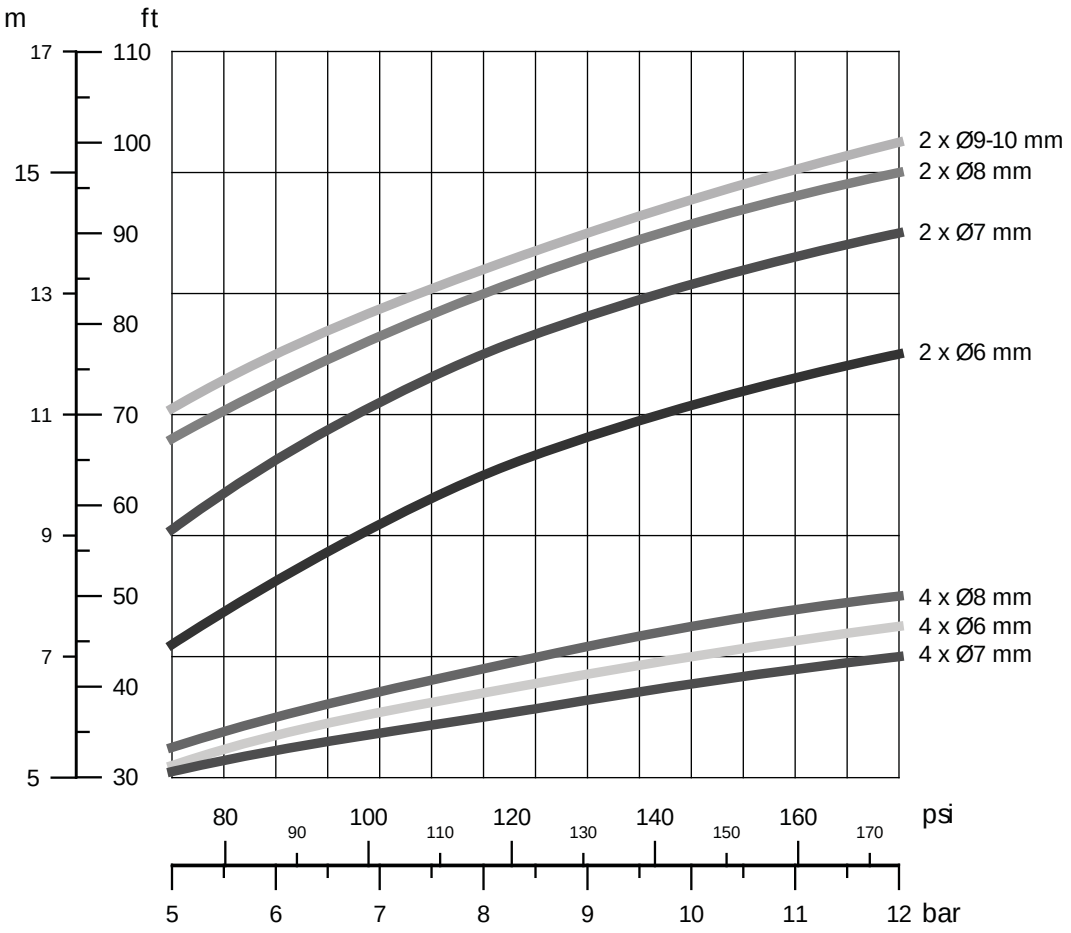
	Supply pressure MPa (Bar)				
	0,5 (5)	**0,6 (6)**	**0,8 (8)**	**1,0 (10)**	**1,2 (12)**
Nozzle size	Flow [m³/h]	Flow [m³/h]	Flow [m³/h]	Flow [m³/h]	Flow [m³/h]
2 x Ø6mm	6,7	7,5	8,5	9,5	10,5
2 x Ø7mm	8,75	10	11	12,5	13,5
2 x Ø8mm	10,85	12	14	15,5	17
2 x Ø9mm	13,1	14,5	17	19	20,5
2 x Ø10mm	15	16,5	19	21	23,5
4 x Ø6mm	10,35	11,3	13	14,6	16
4 x Ø7mm	13,1	14,5	17	19	20,5
4 x Ø8mm	16,7	18,2	20,7	23	24,9

Flow



Inlet pressure has been measured at the machine inlet. In order to achieve the performance indicated in these curves, the pressure drop in supply lines must be taken into consideration.

Jet Length


m
ft
17
15
13
11
9
7
5
110
100
90
80
70
60
50
40
30
2 x Ø9-10 mm
2 x Ø8 mm
2 x Ø7 mm
2 x Ø6 mm
4 x Ø8 mm
4 x Ø6 mm
4 x Ø7 mm
80
90
100
110
120
130
140
150
160
170
psi
5
6
7
8
9
10
11
12
bar

6. Installation Instructions

General Installation Instructions: The Scanjet SC 15TW-GL cleaning machine should be installed in **vertical**, upright position.

Filtration: It is recommended to install a filter, with openings of 2-3 mm, in the supply line in order to avoid large particles lodging inside the machine. The portable SC 15TW-GL is fitted with strainers at the inlet. Before connecting the machine to the system, all supply lines and valves should be flushed to remove foreign matter.

Cleaning Media: Only media compatible with the materials listed in the reference list of parts for your model should be used, see "4. Technical Data" on page 7.

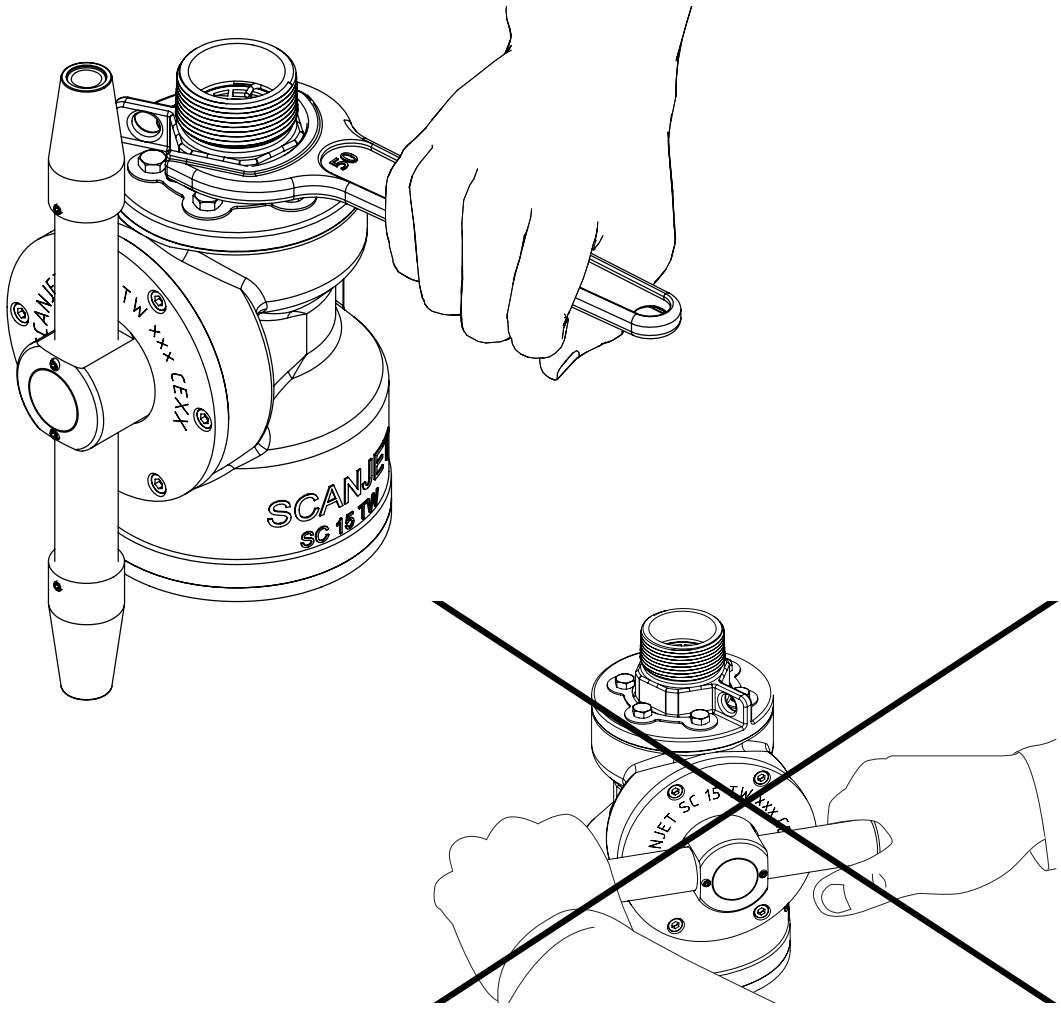
After Use Cleaning: Depending on the type of cleaning that has been performed and the type of cleaning media used, a procedure for after use flushing of the cleaning system should be developed for your application. In general, a fresh water flush is recommended after each cleaning.

Pressure: Hydraulic shocks may damage the system. In order to avoid shocks increase pressure gradually from 0 to maximum operating pressure over 5-7 seconds. Do not exceed 14 Bar (200 PSI) inlet pressure! Higher pressure in combination with higher flow rates will increase consumption of wear parts and could result in major leakage.

WARNING! *If the machine is **used in potentially explosive atmospheres** then tapes or joint sealing compounds, which are electrical insulators, must not be used on threads or joints, unless an electrical connection is otherwise established to ensure an effective grounding. In addition, connection pipe work must be electrically conductive and grounded to the tank structure. This is important in order to avoid any build up of static electricity in the machine.*

6.1. Connecting to supply line and starting up

Never attach the Scanjet SC 15TW-GL by grabbing the nozzles, that could damage the gears inside the machine. Always use proper tools and turn on the threaded connection as shown in the picture below.



When threading the inlet connection of machine to the cleaning media connection, we recommend that Teflon tape or another appropriate anti-seizing compound is used to avoid metal galling. Galling is when threads clamp together and cannot easily be loosened.

Starting up

The machine will automatically start when there is a supply of cleaning media connected and flowing. The gearbox is oil-lubricated and sealed of from the cleaning media, with a mechanical rotary sealing. Other parts in the machine are self-lubricated by means of the cleaning media.

6.2. Calculation of Cleaning Time

Calculation of cleaning time for a full cycle

The cleaning time depends of the following:

Rotation speed of the main housing

A (rev./min.)

Number of rotations for full pattern

47 (turns)

Cleaning time

D (minutes)

Cleaning time $\mathbf{D = \frac{47}{A}}$ **(min)**

Example 1: The main body rotates with 2,5 turns per minute (checked with a wristwatch when looking at the machine). How long time does it take to create a first cleaning pattern in the tank?

A = 2,5 rev/min

A first pattern is created **after 1 cycle!**

Cleaning time $\mathbf{D = \frac{47/2.5}{4} = 4.7}$ **minutes**

Note that after an additional 4 x 4.7 = 18.8 minutes a full cleaning pattern will be created.

Example 2: Calculation of cleaning time for getting out a certain amount of cleaning media (prewash).

- The total flow **Q** (m^3/h) through the nozzles at the specific pressure used is taken from the table in "5. Performance Data" on page 9. The total flow in the tank is then calculated by adding the flow from all machines used at the same time in the tank.

- Needed amount of washing media **R** (m^3) calculated as per Prewash Regulations or other.

- The time **T** the machine must be in operation is then calculated as:

$$\mathbf{T = \frac{Rx60}{Q}\ (min)}$$

Example 3:

- Prewash rules gives that 6 m^3 of cleaning media should be used.

- We have a tank with two (2) machines, each with 2 x Ø10 mm nozzles, and will operate the tank cleaning machine at 12 bar pressure.

- How long time should we operate the machine?

Solution

Machine data at page 9 shows that at 12 bar and 10 mm nozzles will give a flow of 23,5 m^3/h per machine. Total flow will then be calculated adding both machines giving a total flow in the tank of 47 m^3/h.

$$\mathbf{Needed\ time\ T = \frac{6x60}{47} \sim 7.6\ min}$$

6.3. Cleaning Procedures for Cleaning of Mud Tanks

Let the following information serve as guidance and basic principles while adjusting it depending on size, shape of the tank, the internal structure of the tank as well as type of cargo residuals and deposit.

The cleaning operation should start soon after the tank is emptied, residuals will then not have the time to harden on tank surface or machinery. The standard drive unit is delivered with four programs giving a very flexible cleaning operation.

Basic Cleaning Procedure[1]

1. 5 minutes cleaning with fresh, hot water 65°C (149°F) mixed with 3-10% cleaning chemical (Scanjet Rig Cleaner)
2. The chemical should work on the tank surface for 8-10 minutes without any flushing
3. Empty the tank (into slop/settling tank)
4. 5 minutes cleaning with hot, fresh water. The discharge pump continuously removes the slop to settling/slop tank

After this procedure the tank is usually clean. If not, most of the residuals have been removed and it is time for recycling the water (if the system is designed for that).

Recycling

1. Fill the tank with 100-200 litres of water mixed with 3-10% cleaning chemical. For adding cleaning chemical let both chemical and water pump run for a short period (about one minute depending on pump capacities), then turn off chemical pump.
2. Recycle the water for as long as needed
3. Empty the tank (into settling/slop tank)
4. 5 minuters cleaning with hot, fresh water. The discharge pump continuously removes the slop to settling/slop tank.

Heating the water and use of cleaning chemical are not always needed, but using one of these options or a combination will always reduce tank cleaning time- and water consumption.

For protection of the SC 15TW-GL and the complete system, a duplex strainer (1 mm) should be installed before inlet.

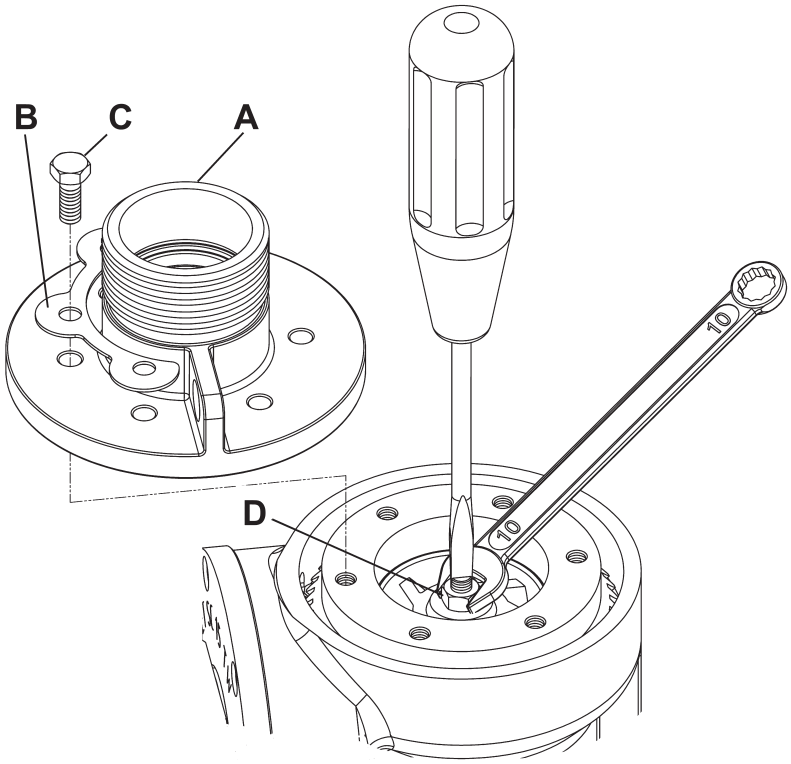
1 Please note that these are only recommendations and Scanjet does not take responsibility for getting the tanks clean.

6.4. Speed Adjustment

The rotating speed of the machine can be adjusted by changing the position of the conical turbine on its shaft. The speed will increase when lowering the turbine and vice versa.

To change the speed, please proceed as follows:

1. Remove the inlet flange (A) by unlocking the locking plate (B) and undoing the bolts (C).
2. Loosen the contra nut (D) with key no 10 and a flat screwdriver.
3. Turn the turbine to desired position and lock the contra nut.
4. The correct speed should be between 2-4 rpm, ideal is 2,5-3 rpm. **Maximum rotation speed of the machine is 4 rpm due to design criteria.** Be careful not to screw the turbine too far down in the cone, this may cause the machine to unexpectedly stop because the turbine is touching the cone.



Basic settings for turbine

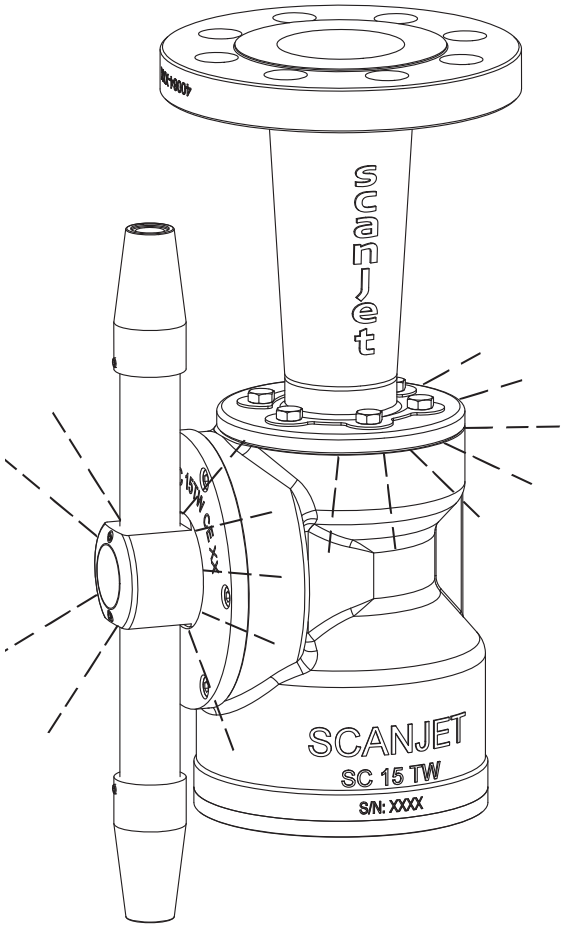
Set the upper edge of the turbine in level with the upper edge of the turbine cone. Then hold the turbine shaft fixed, as shown above, while **turning the turbine ½ a revolution down** and locking the contra nut.

7. Operation

7.1. During Operation

If leakage is detected the seals inside the machine have to be changed.

NOTE! *The leakage at the nozzle housing and between the adapter and cover is normal and necessary to flush the bearings. During cold water rinsing the leakage is considerably higher then during hot water rinsing.*



8. Maintenance

8.1. Preventive Maintenance

In order to keep your Scanjet tank cleaning machine servicing you as an efficient tool in your tank cleaning operations, it is essential to care for maintenance. Following a simple maintenance program will keep your tank cleaning machine in good condition and the machine will maintain its high performance.

Good maintenance is careful and regular attention!

The following recommended preventive maintenance program is based on tank cleaning machines working in average conditions. However, a cleaning machine, that has a rough and dirty job to do, will need more frequent attention than one working in ideal conditions. It is recommended that the maintenance program is adjusted to suit such a situation.

Only use proper tools when servicing the machine; see chapter "18. Tool Kit" for Scanjet standard tool kit. Never use excessive force or hammer components together or apart. Always follow all assembly/disassembly steps in the order described in this manual. Never assemble components without previous cleaning; this is especially important on all mating surfaces.

Change of bearings, rotary sealing (pos. 45) and gearbox oil is recommended every 150 working hours.

NOTE! *Timely replacement of seals prevents leakage of gearbox oil and is therefore important to avoid contamination.*

Change of gears is recommended every 500 working hours.

When re-tightening the screws/bolts use Loctite 243. For use of (any other) Loctite, read "8.5. Reassembly" on page 26.

Using any other than Scanjet original parts will invalidate the warranty.

8.2. Service Kits

Tank cleaning machines are installed and operated in extremely rough conditions. In order to ensure continued safe operation of the Scanjet tank cleaning machines it is advised to follow given service instructions.

Scanjet has identified components which should been checked at regular intervals and replaced if necessary, because of wear or damage. This is important in order to avoid unplanned stops or breakdowns and to assure safe, smooth and trouble free operation of the tank cleaning. The components that may be subject to wear and need of replacement have been included in service kits, naturally optimized for each specific model and type of Scanjet tank cleaning machine.

Service intervals are described on the following page.

Service kits are rapidly available and easy to order, as well as being more economical compared to ordering parts separately.

The service kits are specified at page 40 and forward.

Scanjet part no.	Description
KIT 15TW-S-GL-150	**Wear kit for 150 hours service**
KIT 15TW-S-GL-500	**Wear kit for 500 hours service**
T 15	**Scanjet basic tool kit including all necessary tools to service the machine**

8.3. Service intervals

Every 150 working hours

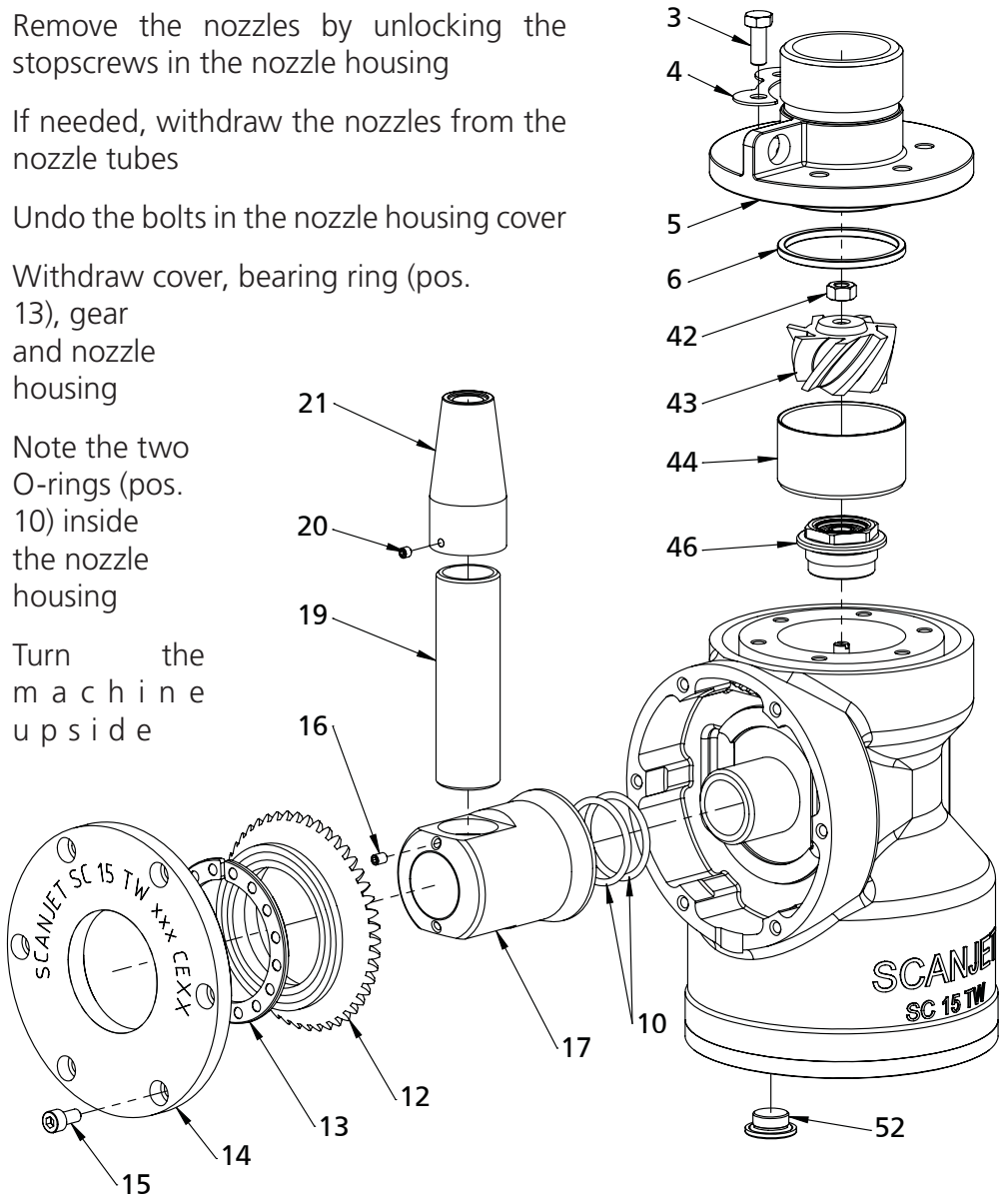
1. Order the service kit for 150-hours service "KIT 15TW-S-GL-150".
2. Thoroughly flush the machine prior to disassembly and ensure that no particles remain in the machine.
3. Disassemble the machine as described on the following pages. For 150-hours service it is not required to disassembly the gearbox unless needed, though a change of gearbox oil is recommended.
4. Upon complete disassembly of the machine, all parts should be thoroughly washed and/or degreased in the appropriate manner, then inspected accordingly.
5. Inspect seals, bushings and gears for wear; locate position numbers from "11. Exploded Drawing View - SC 15TW-GL" on page 31 and part numbers from "12. Spare Part List - SC 15TW-GL" on page 32. Replace if unduly worn.
6. Reassemble the machine. A service card is included with this manual; see page 44. This should be filled in each time service is performed on the tank cleaning machine, so that a proper maintenance record/history is kept.

Every 500 working hours

7. Order the service kit for 500-hours service "KIT 15TW-S-GL-500".
8. Do the same inspection as for 150-hours but with a complete disassembly of the machine, including the gearbox.
9. Replace the parts in the service kit. Check all parts for wear, replace if necessary.

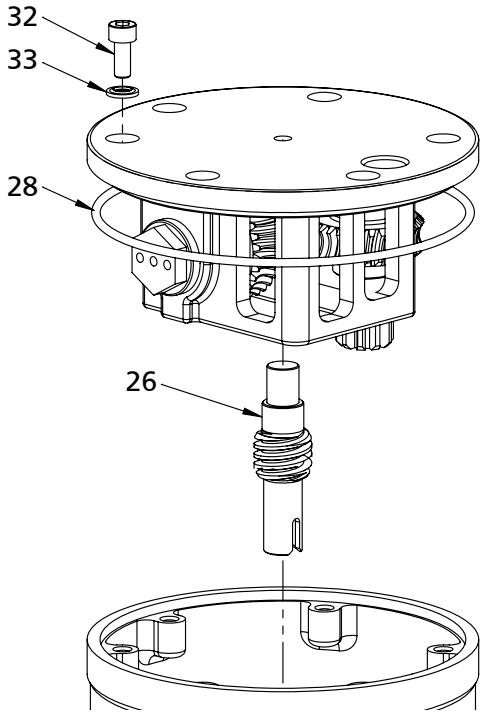
8.4. Disassembly

1. Open the plug (pos. 52) in the bottom of the machine and drain the gearbox from oil
2. Use a sharp tool, e.g. a flat screwdriver, to unlock the locking plates (pos. 4) on the connection
3. Undo the bolts (pos. 3) and remove the connection
4. Loosen the contra nut (pos. 42) with help of box wrench no. 10 and a flat screwdriver (carefully not to damage the turbine shaft)
5. Unscrew the turbine and turbine cone
6. Remove the nozzles by unlocking the stopscrews in the nozzle housing
7. If needed, withdraw the nozzles from the nozzle tubes
8. Undo the bolts in the nozzle housing cover
9. Withdraw cover, bearing ring (pos. 13), gear and nozzle housing
10. Note the two O-rings (pos. 10) inside the nozzle housing
11. Turn the machine upside

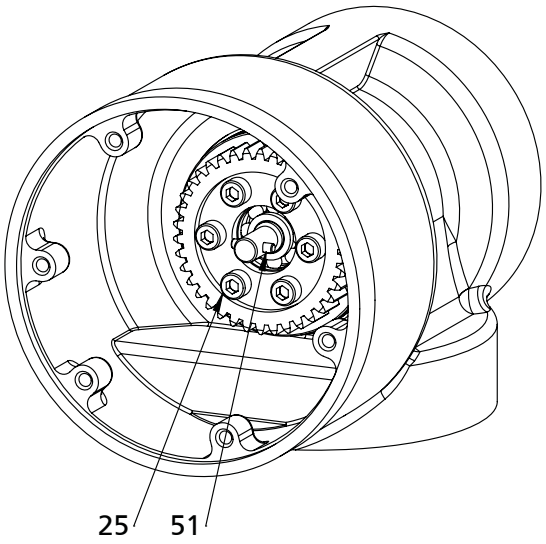


down

12. Undo the bolts (pos. 32) in the bottom plate to remove the gearbox
13. Pull out the lower turbine shaft



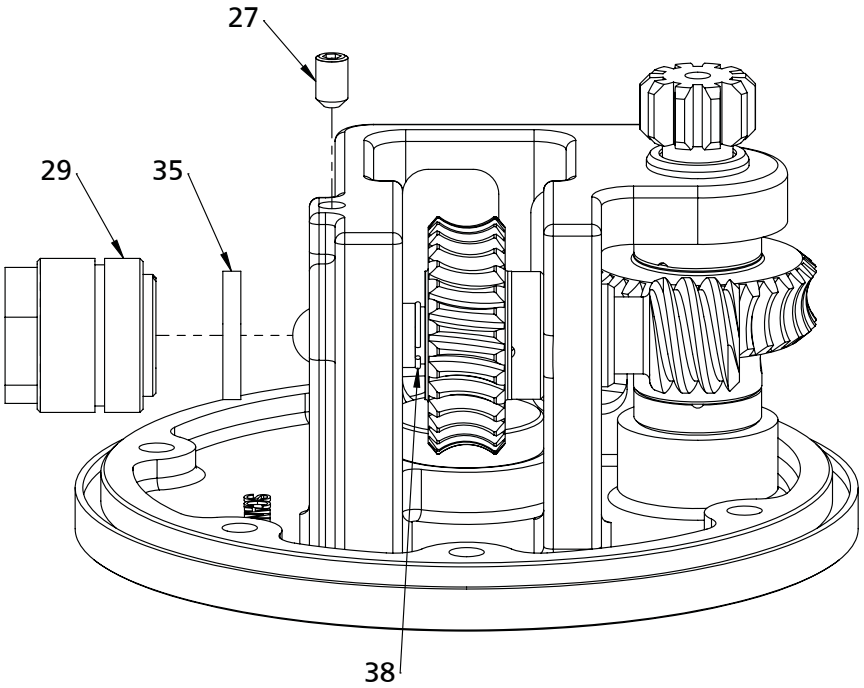
14. Withdraw the cylindrical pin (pos. 51) located in the upper turbine shaft
15. Undo the bolts (pos. 25) in the gear, which is also fixed in the stator



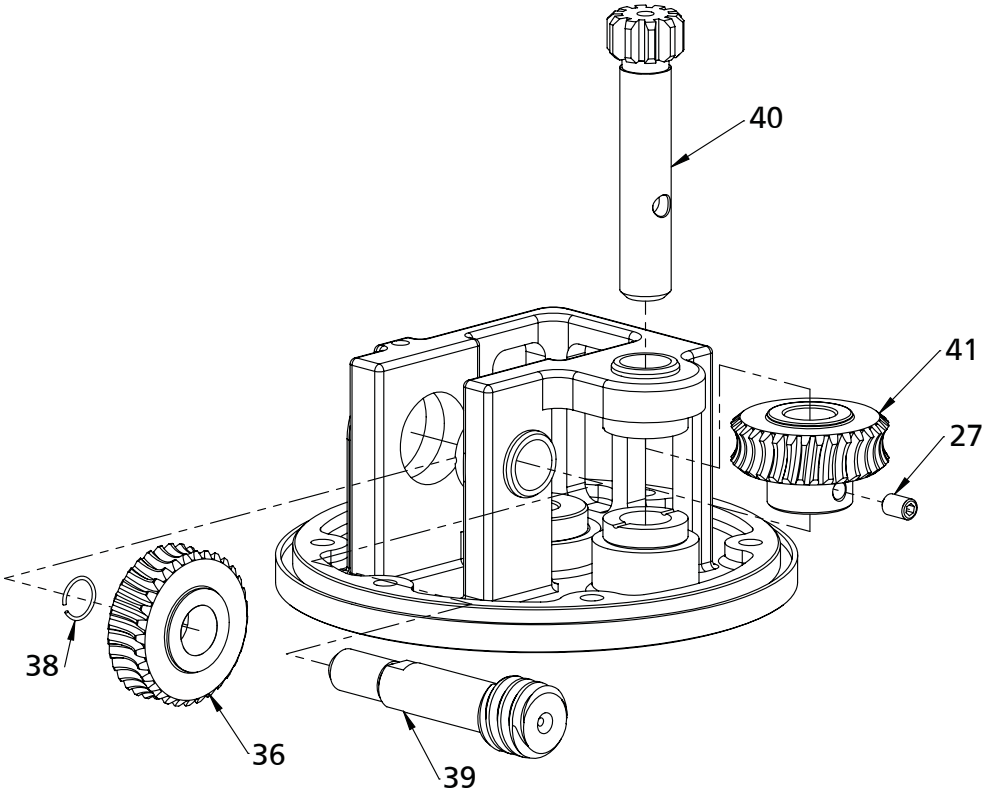
16. Remove the gear, bearings and the stator assembly (including the upper turbine shaft and ball bearings)
17. If needed, press out the two ball bearings in the stator by **gently** pressing on the turbine shaft. Be careful with the turbine shaft!
18. Check all O-rings bearings and ball bearings for wear and change if needed.

Gearbox

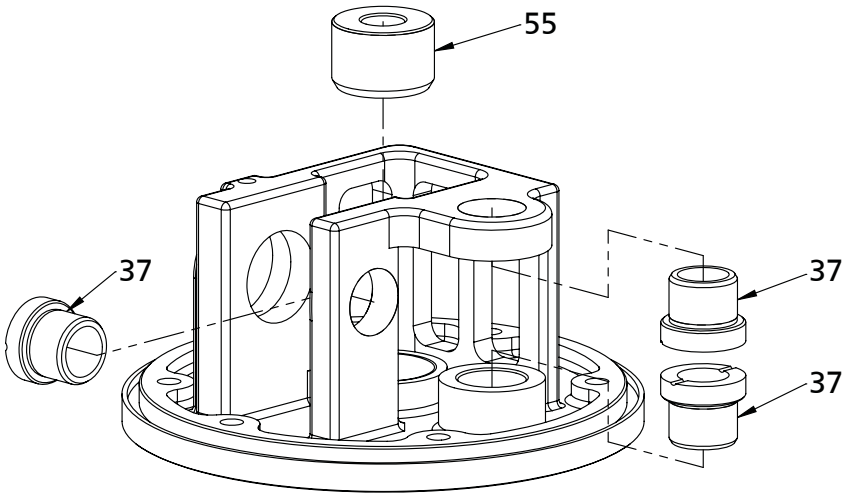
19. Undo the stopscrew, the sleeve assembly and remove the washer
20. Remove the retaining ring (pos. 38) that is placed on the gear shaft next to the gear. This could be a bit difficult; a suggestion is to use two narrow screwdrivers.



21. Pull out the horizontal gear shaft and gear, be careful not to damage the gear teeth
22. Undo the stopscrew to pull up the vertical gear shaft and remove the gear



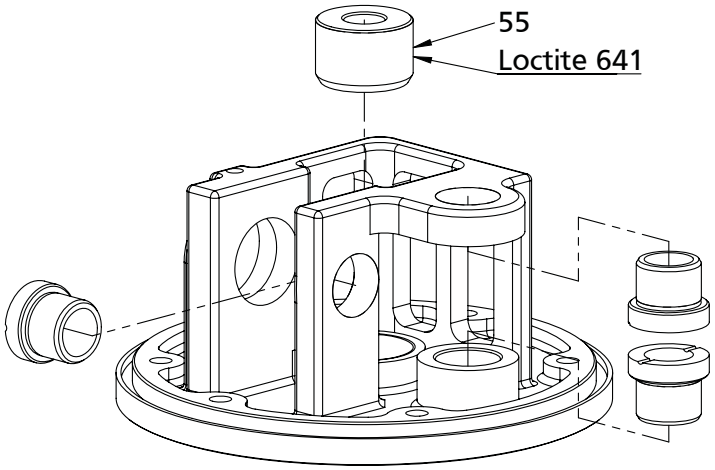
23. If needed, change the bearings (pos. 37, 55) by carefully pressing them out.



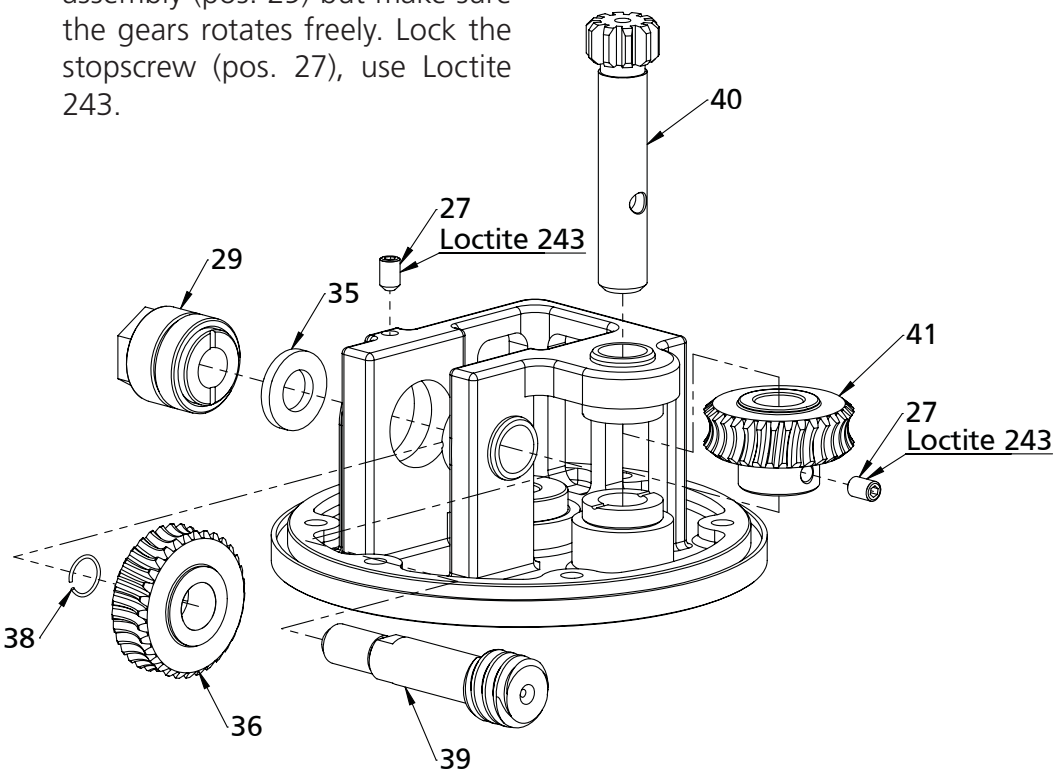
8.5. Reassembly

Gearbox

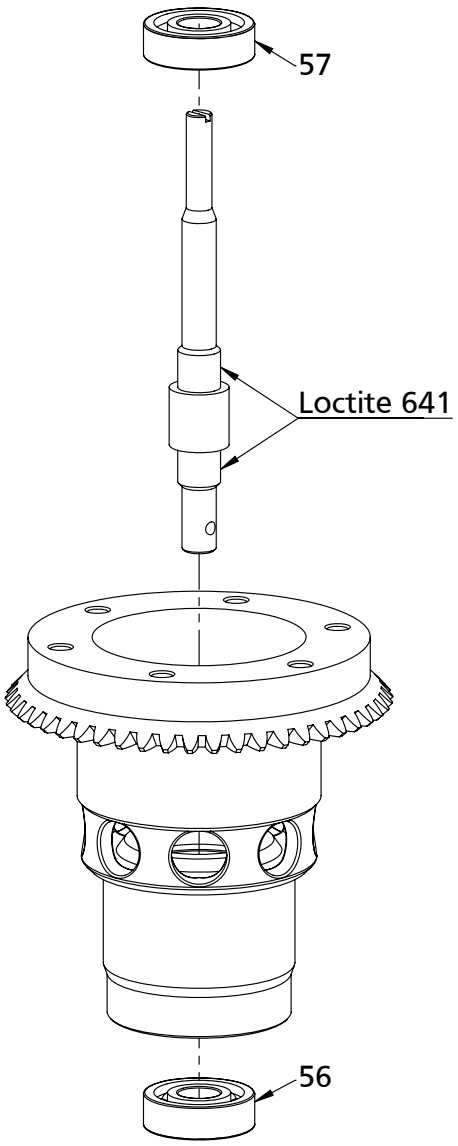
1. Start by putting together the gearbox, if the bearings have been changed carefully press them into places. Use Loctite 641 on bearing (pos. 55).

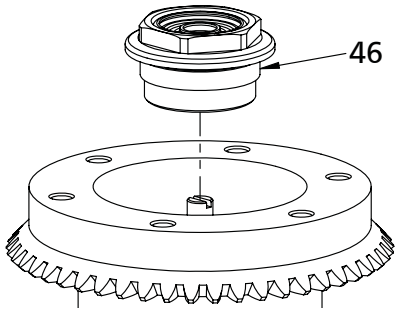


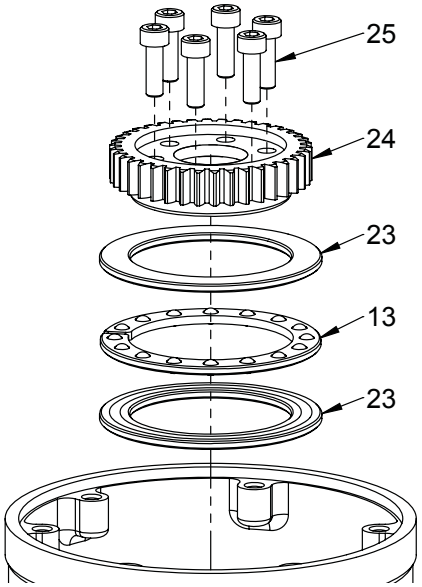
2. Be careful not to damage the gear teeth while mounting the gear and gear shafts. First assemble the vertical gear and gear shaft. Turn the gear and gear shaft to make the holes concentric. This enable the stopscrew to lock it properly, use Loctite 243.
3. Assemble the horizontal gear shaft, place the gear upon it and lock with the retaining ring (pos. 38)
4. Assemble the washer and sleeve assembly (pos. 29) but make sure the gears rotates freely. Lock the stopscrew (pos. 27), use Loctite 243.



5. If the ball bearings in the stator has been withdrawn, start with applying Loctite 641 on the surfaces for the upper turbine shaft and the ball bearings
6. Assemble the ball bearing pos. **56** (part no. 107404, without seals) into the stator
7. Mount the ball bearing pos. **57** (part no. 41203, shield on one side) with the shield facing upwards, on the turbine shaft
8. Be careful with the turbine shaft when mounting into the stator
9. Mount the threaded sleeve assembly into the stator

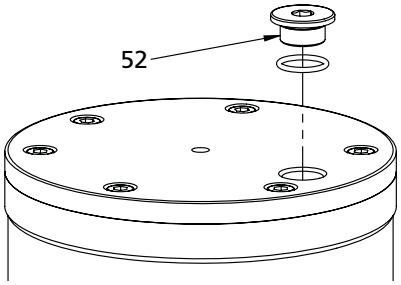






10. Insert the stator assembly, turn the machine upside down and place the bearings, gear and bolts, as shown on the picture, into the main housing. Tighten the bolts diagonally, use Loctite 243.
11. Mount the cylindrical pin (pos. 51) into the upper turbine shaft
12. Assemble the lower turbine shaft, gearbox, O-ring (pos. 28), washers and bolts in housing. Tighten the bolts (pos. 32) diagonally, use Loctite 243.

13. Refill the gearbox with 0,45 litre "Shell Omala S4 WE 150" (changed name from "Shell Tivela S150"). **Do not mix oil of different qualities!** Mount the plug with the o-ring (pos. 52).



14. Mount the nozzle housing, the gear, bearing and cover on the main housing. Tighten the bolts (pos. 15) diagonally, use Loctite 243.
15. Mount the nozzles and lock them with the stopscrews. Use the Loctite 577 on all the threads on the nozzles and nozzle tubes, and Loctite 243 on the stopscrews.
16. Insert the turbine cone and turbine. It is important to get the right speed on the turbine, check "6.4. Speed Adjustment" on page 17. Lock the turbine position with the contra nut.
17. Place the flow guide/spacing ring (pos. 6a/6b, according to order) and the connection upon the housing. Fasten the locking plates and bolts, use Loctite 243. Bend up the corners of the locking plate to lock the bolts.
18. Test run the machine to check that everything is working as it should.

9. Trouble Shooting Guide

Symptom: Tank cleaning machine will not clean

1. No or insufficient liquid flow.
    a. Check fluid supply to ensure that pressure and flow as per the operating curves are being observed. For this to be properly accomplished, you should install a pressure gauge as close to the machine inlet as possible, not further from the tank cleaning machine than 4,5 m or 15 feet.
2. Tank cleaning machine inlet is blocked.
    a. Check inlet of machine; position 5; and ensure that no debris or particles is present. Remember that it was advised earlier in this manual (page 12) to employ a filter in the supply line.
3. Tank cleaning nozzles are blocked.
    a. Remove and dismantle the nozzles, position 19 and 21, and check for any foreign matter. If present, remove and then reassemble nozzles.

Symptom: Tank cleaning machine will not rotate

4. Bevel gears are blocked.
    a. If foreign matter has entered the machine and passed through the body, it may have lodged itself in the bevel gears; position 12 and 49. To check these areas refer to "8.4. Disassembly" on page 22. Take care to review the gearing and ensure that there is no damage that could prevent operation.
5. Worn parts; replacements required.
    a. After items 1-4 above have been checked; it may be necessary to replace parts due to normal wear associated with your type of operation (or possible damage). One of the best ways to determine the need to replace parts is a visual inspection of the primary wear parts as indicated on the list at "16. Service Kit Contents" on page 40.

Symptom: Tank cleaning machine runs with wrong speed

6. Check that the pressure and flow is correct.
7. Try changing the rotation speed by adjusting turbine as described on page 17.

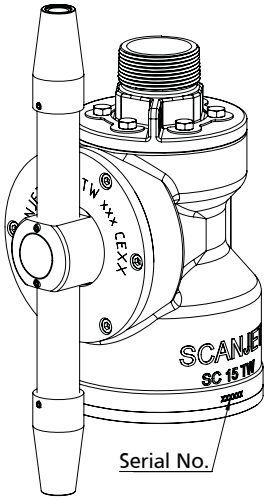
10. How to Order Spare Parts

To order spare parts please contact our "Spare Parts Department" at spares@scanjet.se or see contact information on page 2.

Using any other than Scanjet original parts will invalidate the warranty.

Scanjet has prepared Service kit due to regular maintenance, see "16. Service Kit Contents" on page 40 for further information.

Please note that each machine is marked at the housing as showed on fig below. When ordering spare parts the following data must be referred to for securing a correct and rapid delivery.



Company name: *Name*

Invoice address: *Customer name and address*

Contact person: *Customer responsible person*

Your order no:

Contact person: *Customer contact person*

Mode of delivery: *By mail, courier etc***.**

Shipping address:

Shipping mark: *Marking of delivery*

Equipment model: *SC 15TW-GL, and nozzle size*

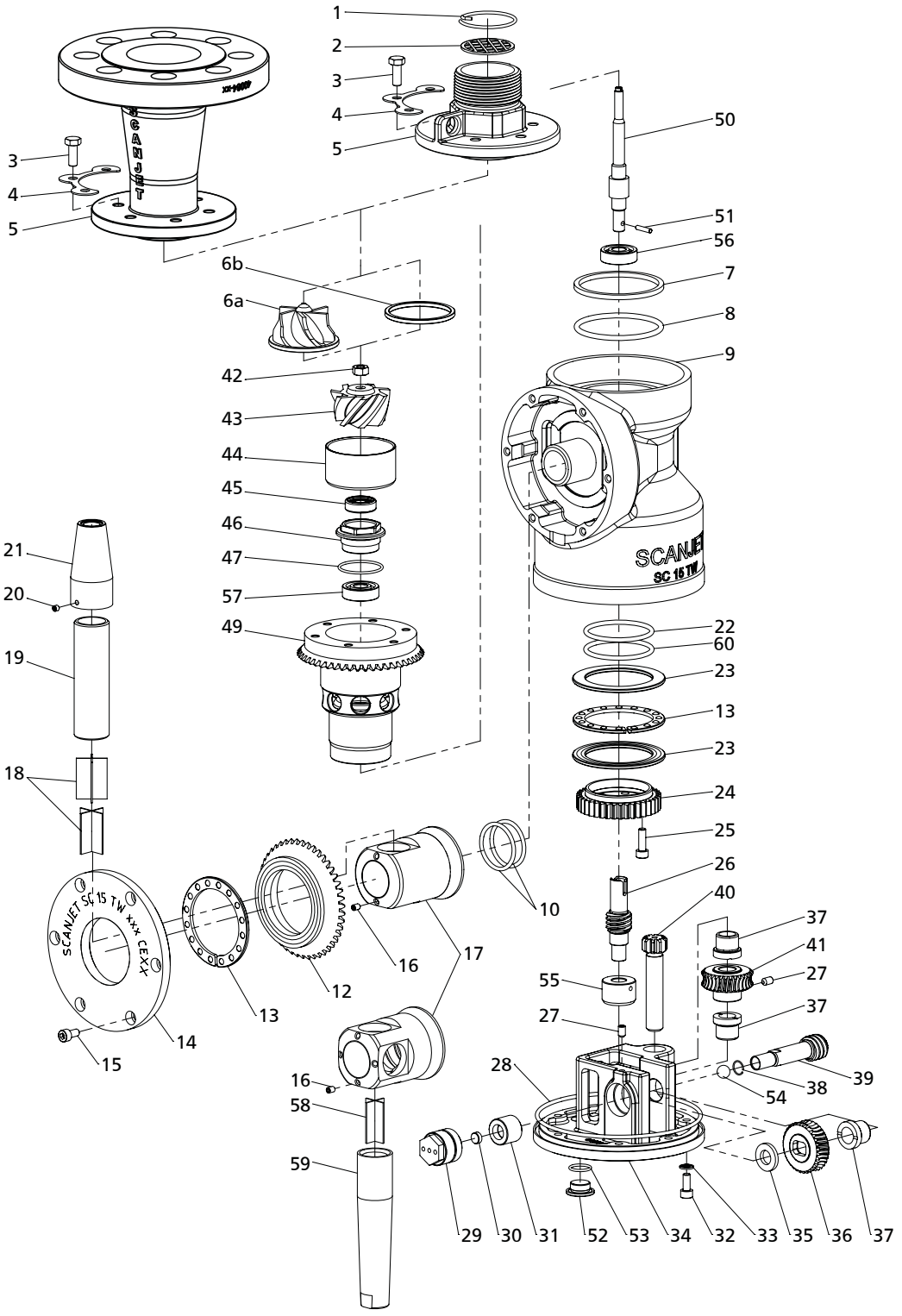
Serial no: *Serial numbers of machines*

Spare Part List:

Pos.	Part No.	Qty.	Description
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....

11. Exploded Drawing View - *SC 15TW-GL*

List dated 2014-06-10



12. Spare Part List - *SC 15TW-GL*

List dated 2014-06-10

NOTE! *Spare parts number may be changed without prior notice. Final spare parts numbers will be issued for "ship set manual".*

Depending on nozzle size there is some parts that differ. See chapter "15. Basic Settings" on page 37 for information about your specific settings.

Spare Part List - SC 15TW-GL

Pos.	Part No.	Qty.	Description
1	41038	1	Retaining Ring
2	70068	1	Strainer
3	104443	6	Bolt
4	41043	2	Locking Plate
5	41007-1	1	Adapter 1½" BSP (parallel) **Acc. to order**
	41007-2	1	Adapter 1½" NPT (tapered) **Acc. to order**
	41085-4-xxx	1	Connection Adapter **Optional** See page 7
6a	41227	1	Flow Guide (see basic settings)
6b	41226	1	Spacer Ring (see basic settings)
7	110471	1	O-ring
8	110440	1	O-ring
9	41055	1	Housing
10	110415	2	O-ring
12	41048	1	Gear
13	41030-2	2	Ball Bearing
14	41056	1	Cover
15	104725	6	Bolt
16	105089	2	Bolt
17	41309-2S	1	Nozzle Housing 2N (see basic settings)
	41309-4S	(1)	Nozzle Housing 4N (see basic settings)
18	50158	4 (8)	Flow Guides (see basic settings)
19	50156-xxx-S	2 (4)	Nozzle Tube (see basic settings)
20	105087	2 (4)	Screw (see basic settings)
21	50155-xx	2 (4)	Nozzle "xx" is nozzle size (see basic settings)
22	120262	1	O-ring
23	41025	2	Bearing Ring

Spare Part List - SC 15TW-GL

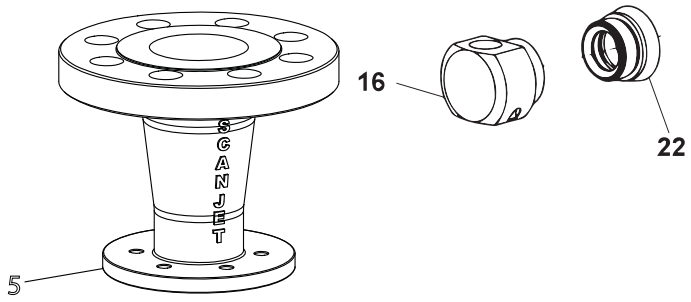
Pos.	Part No.	Qty.	Description
24	41217	1	Gear
25	104728	6	Bolt
26	41256	1	Turbine Shaft Lower
27	105096	2	Bolt
28	120403	1	O-ring
29	40099	1	Sleeve Assembly **Including pos. 30, 31**
30		1	Bearing **Included in pos. 29**
31		1	Bearing **Included in pos. 29**
32	104726	6	Bolt
33	120397	6	Washer
34	41204	1	Bottom Plate
35	41034	1	Washer
36	41071	1	Gear
37	41026-2	3	Bearing
38	120319	1	Ring
39	41046	1	Gear Assembly **Including pos. 54**
40	41016	1	Gear Shaft
41	41072	1	Gear
42	105924	1	Nut
43	41232-xx	1	Turbine T1 (see basic settings)
	41242-xx	1	Turbine T2 (see basic settings)
44	41018-xx	1	Turbine Cone (see basic settings)
45	120525	1	Rotary Sealing
46	41274	1	Sleeve Assembly **Including pos. 45, 47**
47	109221	1	O-ring
49	41247	1	Stator
50	41275	1	Turbine Shaft Upper
51	104205	1	Cylindrical Pin
52	41219	1	Plug Assembly **Including pos. 53**
53	109211	1	O-ring
54		1	Precision Ball **Included in pos. 39**
55	41223	1	Bearing
56	107404	1	Ball Bearing (without seals)
57	41203	1	Ball Bearing (with one shield)

Spare Part List - SC 15TW-GL

Pos.	Part No.	Qty.	Description
58	70071	4	Flow Guide (see basic settings)
59	41037-xx	4	Nozzle "xx" is nozzle size (see basic settings)
60	108779	1	O-ring

13. Spare Parts - *SC 15TW-GL Old Versions*

List dated 2014-06-10



Spare Part List SC 15TW-GL - Old versions

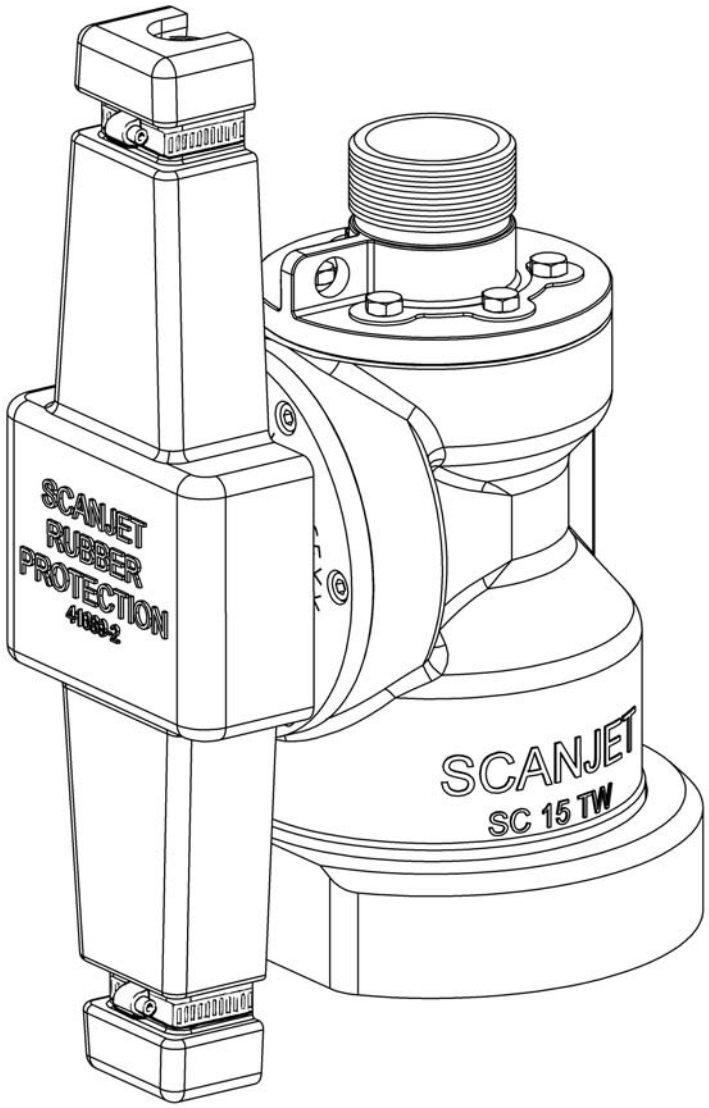
Pos.	Part No.	Qty.	Description	Replaced by:
5	41085-xxx	1	Connection Adapter **Optional**	41085-4-xxx (Pos. 5)
11	41051	1	Sleeve	(Pos. 17)
17	41009-x	1	Nozzle Housing	

14. Optional Accessories

Scanjet is able to supply some optional accessories for the machine with 2 nozzles that might be included in your delivery; these can also be ordered afterwards.

Rubber Bumper

This is a system to protect the tank wall and deck coating from damage if the machine is hanging from a rubber hose in rough sea. It also protects against sparks when handling and operating the machine. It consists of two rubber protections that cover the nozzle and the bottom of the machine.

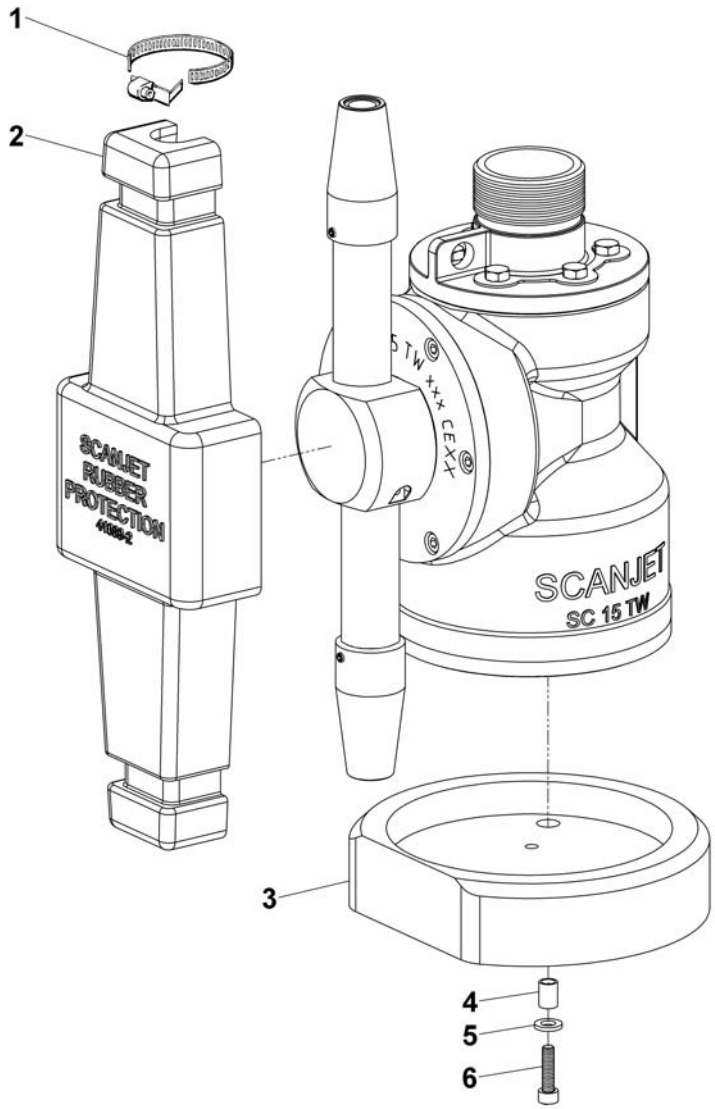


SC 15TW-GL

Rubber Protection

Exploded drawing view for optional Rubber bumper

This kit can be ordered as part no. "RB 15 N"



Spare Part List - RB 15 N

Pos.	Part No.	Qty.	Description
1	40071	2	Hose clamp
2	41089-2	1	Rubber protection
3	41084	1	Rubber bumper bottom
4	41082	3	Pipe
5	106105	3	Washer
6	120426	3	Bolt

15. Basic Settings

This lists serves as guidance for ordering spare parts depending on the number and size of the nozzles on the machine. This list may be changed without prior notice.

15.1. SC 15TW-GL - 2 nozzles

Nozzle size 2 x Ø6 mm

Pos.	Part No.	Qty.	Description
6a	41227	1	Flow Guide
16	105089	2	Bolt
17	41309-2S	1	Nozzzle Housing 2N
18	50158	4	Flow Guide
19	50156-085-S	2	Nozzle Tube
20	105087	2	Bolt
21	50155-06	2	Nozzle Ø6 mm
43	41242-38	1	Turbine T2 Ø38
44	41018-38	1	Turbine Cone Ø38

Nozzle size 2 x Ø7 mm

Pos.	Part No.	Qty.	Description
6a	41227	1	Flow Guide
16	105089	2	Bolt
17	41309-2S	1	Nozzzle Housing 2N
18	50158	4	Flow Guide
19	50156-085-S	2	Nozzle Tube
20	105087	2	Bolt
21	50155-07	2	Nozzle Ø7 mm
43	41232-35	1	Turbine T1 Ø35
44	41018-38	1	Turbine Cone Ø38

15.1. SC 15TW-GL - 2 nozzles

Nozzle size 2 x Ø8 mm

Pos.	Part No.	Qty.	Description
6b	41226	1	Spacer Ring
16	105089	2	Bolt
17	41309-2S	1	Nozzzle Housing 2N
18	50158	4	Flow Guide
19	50156-085-S	2	Nozzle Tube
20	105087	2	Bolt
21	50155-08	2	Nozzle Ø8 mm
43	41242-38	1	Turbine T2 Ø38
44	41018-38	1	Turbine Cone Ø38

Nozzle size 2 x Ø10 mm

Pos.	Part No.	Qty.	Description
6b	41226	1	Spacer Ring
16	105089	2	Bolt
17	41309-2S	1	Nozzzle Housing 2N
18	50158	4	Flow Guide
19	50156-085-S	2	Nozzle Tube
20	105087	2	Bolt
21	50155-10	2	Nozzle Ø10 mm
43	41242-35	1	Turbine T2 Ø35
44	41018-38	1	Turbine Cone Ø38

15.2. SC 15TW-GL - 4 nozzles

Nozzle size 4 x Ø8 mm

Pos.	Part No.	Qty.	Description
6b	41226	1	Spacer Ring
16	105089	4	Bolt
17	41309-4S	1	Nozzle Housing
43	41242-35	1	Turbine T2 Ø35
44	41018-38	1	Turbine Cone Ø38
58	70071	4	Flow Guide
59	41037-08	4	Nozzle Ø8 mm

16. Service Kit Contents

Service kits are rapidly available and easy to order, as well as being more economical compared to ordering of parts individually. This list is a guide when ordering service kits, containing the spare parts included in each kit. This list may be changed without prior notice.

KIT 15TW-S-GL150

Service Kit 150-hours

Pos.	Part No.	Qty.	Description
3	104443	6	Bolt
4	41043	2	Locking Plate
7	110471	1	O-ring
8	110440	1	O-ring
10	110415	2	O-ring
15	104725	6	Bolt
22	120262	1	O-ring
28	120403	1	O-ring
32	104726	6	Bolt
33	120397	6	Washer
53	109211	1	O-ring
60	108779	1	O-ring
	250069	1	Shell Omala S4 WE 150 0,5 litre

KIT 15TW-S-GL500

Service Kit 500-hours

Pos.	Part No.	Qty.	Description
3	104443	3	Bolt
4	41043	2	Locking Plate
7	110471	1	O-ring
8	110440	1	O-ring
10	110415	2	O-ring
13	41030-2	2	Ball Bearing
15	104725	3	Bolt
22	120262	1	O-ring
26	41256	1	Turbine Shaft Lower
29	40099	1	Sleeve

33	120397	6	Washer
36	41071	1	Gear
37	41026-2	3	Bearing
38	120319	1	Ring
39	41046	1	Gear Shaft (Including pos. 54)
41	41072	1	Gear
46	41274	1	Sleeve Assembly with Sealing (Including pos. 45, 47)
50	41275	1	Turbine Shaft Upper
51	104205	1	Cylindrical Pin
52	41219	1	Plug Assembly (Including pos. 53)
56	107404	1	Ball Bearing
57	41203	1	Ball Bearing
60	108779	1	O-ring
	250069	1	Shell Omala S4 WE 150 0,5 litre

17. Spare Part Kit

Spare part kit SC 15TW-GL

This spare part kit can also be ordered as Scanjet part no. S 15TW-GL

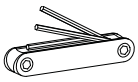
Pos.	Part No.	Qty.	Description	Material
3	104443	3	Bolt	SS
7	110471	1	O-ring	PTFE
8	110440	1	O-ring	PTFE
10	110415	1	O-ring	PTFE
13	41030-2	1	Ball Bearing	PTFE/SS
15	104725	3	Bolt	SS
22	120262	1	O-ring	Viton
33	120397	6	Washer	SS/Rubber
37	41026-2	3	Bearing	Bronze
60	108779	1	O-ring	Nitrile

18. Tool Kit

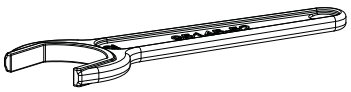
For normal maintenance and operation the following tools are included in Scanjet tool kit:

This tool kit can also be ordered as Scanjet part no. T 15

Pos.	Part no.	Qty.	Description
1	12030	1	Box wrench 10 mm
2	12044	1	Box wrench 17 mm
3	12046	1	Box wrench 19 mm
4	12060	1	Set of Allen Keys



A machine ordered for portable installation is always equipped with a spanner for mounting the machine on the supply line when delivered, see “6.1. Connecting to supply line and starting up” on page 13. The spanner can be ordered as Scanjet part no. 95145-50



19. Service Card

Model Number of Machine: _____ Serial No.: _____

Nozzle Diameter: _____ mm Number of Nozzles: _____

Date	No. of working hours	Maintenance Actions/Exchanged Parts	Sign
	0	Machine put into operation	

Date	No. of working hours	Maintenance Actions/Exchanged Parts	Sign

scanjet marine

DECLARATION OF CONFORMITY

According to ATEX 95 equipment directive 94/9/EC , And 2006/42/EC

We, Scanjet Marine AB
Törnedalsgatan 1
SE-275 21 Sjöbo
SWEDEN
Telephone: +46 416 513 100
Telefax: +46 416 511 656

certify and declare under our sole responsibility that the following equipment(s):

Commercial name:	**SC 15TW-SS-GL**
Function:	Fixed or portable turbine driven nozzle tank cleaning machine
Model Name:	SC 15TW-SS-GL
Type:	Media (fluid) driven machine
Designation:	Rotating spray nozzle machine
Serial No:	2011 01-xxxxxx

Is (are) in conformity with the requirements of:

CE ***2006/42/EC***

ATEX ***94/9/EC article 8 ,Section 1 (b) (II)***

Thomas Jinbäck
Quality Director
Scanjet Marine AB

Location: Sjöbo,Sweden

Date: 2011-08-20
yy-mm-dd

Document number: SMAB-SC 15TW-SS-GL-P01 Rev.0

- World's Leading Producer of Tank Cleaning Equipment

Scanjet designs and produces portable and stationary tank cleaning equipment to match any marine, offshore or industrial demand for an efficient and environmentally friendly installation.

Using the most modern and efficient tank cleaning technology ensures that our clients will receive a Scanjet tank cleaning machine with maximum performance and quality to last for many years.

Our business mission is to continuously co-operate directly with our clients offering economical solutions and high quality range of products to assist our clients.

Contact details for all countries are continuously updated on our website. Please visit www.scanjet.se for more information