SSD

SERIES OPERATION AND

MAINTENANCE MANUAL

This manual CONTAINS IMPORTANT WARNINGS,
CAUTIONS and OTHER INSTRUCTIONS.
Read and understand the instruction manual
Carefully, before use and retain it for reference.

OPERATION AND MAINTENANCE MANUAL
FOR ROARK TOOLS SSD MODEL SQUARE DRIVE HYDRAULIC TORQUE WRENCHES

NOTICE

Roark Tools SSD Series Square Drive Hydraulic Torque Wrenches are designed for installing and removing threaded fasteners requiring precise high torque during bolt makeup and maximum torque during bolt breakout.

Roark Tools Inc. is not responsible for customer modification of tools for applications on which Roark Tools Inc. was not consulted. Any warranty claims or liabilities claims against Roark Tools/Dekksem become invalid in the following situations: a) If any unauthorized parts or accessories are used with any Roark Tool Products. b) If any Roark Tools/Dekksem equipment is obtained, purchased, rented, used or serviced from an unauthorized Roark Tools/Dekksem distributor, representative or reseller. c) Not following the Roark Tools SSD manuals guidelines and procedures. *Please contact Roark Tools Directly to verify certifications.

WARNING

IMPORTANT SAFETY INFORMATION ENCLOSED. READ THIS MANUAL BEFORE OPERATING TOOL.

IT IS THE RESPONSIBILITY OF THE EMPLOYER OR DISTRIBUTOR TO PLACE THE INFORMATION IN THIS MANUAL INTO THE HANDS OF THE OPERATOR.

FAILURE TO OBSERVE THE FOLLOWING WARNINGS COULD RESULT IN INJURY.

PLACING TOOL IN SERVICE

- Always operate, inspect and maintain this tool in accordance with American National Standards Safety Code for Hydraulic Rams and Jacks (ANSI B30.1)
- This tool will function using an air or electric powered hydraulic pump. Adhere to the pump safety requirements and follow instructions when connecting the pump to the tool.
- Use only equipment rated for the same pressure and torque.
- Use only a hydraulic pump capable of generating 10,000 psig (681 bar) maximum pressure with this tool.
- Use only twin line hydraulic hose rated for 10,000 psi (681 bar) pressure with this tool.
- Do not interchange the male and female swivel inlets on the tool or the connections on one end of the hose. Reversing the inlets will reverse the power stroke cycle and may damage the tool.
- Do not use damaged, frayed or deteriorated hoses and fittings. Make certain there are no cracks, splits or leaks in the hoses.

Use the quick connect system to attach the hoses to the tool and pump. Make certain the spring-loaded retaining rings are fully engaged to prevent the connectors from disengaging under pressure.

- When connecting hoses that have not been preloaded with hydraulic oil, make certain the pump reservoir is not drained of oil during start-up.
- Do not remove any labels. Replace any damaged label.

USING THE TOOL

- Do not handle pressurized hoses. Escaping oil under pressure can penetrate the skin, causing serious injury. If oil is injected under the skin, see a doctor immediately.
- Never pressurize uncoupled couplers. Only use hydraulic equipment in a coupled system.
- Always wear eye protection when operating or performing maintenance on this tool.
- Always wear head and hand protection and protective clothing when operating this tool.

NOTICE

The use of other than genuine Roark Tools replacement parts may result in safety hazards, decreased tool performance, and increased maintenance, and may invalidate all warranties.

Roark Tools requires all tools, hoses and pumps to be inspected after every use by the end user for any signs of damage or worn items.

Roark Tools also requires all tools to be factory inspected every 6 months by an authorized Roark Tools Representative or Repair Center.

Repairs should be made only by authorized personnel. Consult your nearest Roark Tools Authorized Service center. Refer All Communications to the Nearest Roark Tools Office or Distributor.

WARNING

FAILURE TO OBSERVE THE FOLLOWING WARNING COULD RESULT IN INJURY

USING THE TOOL

*Keep hands, loose clothing and long hair away from the reaction arm and working area during operation. Do not attempt to support the tool with your hands during operation. Tools must be used with the supplied handle on the SSD-3, SSD-5, SSD7, SSD-11, SSD-20, SSD-27, SSD-50, SSD-60.
*This tool will exert a strong reaction force. Use proper mechanical support and correct reaction arm positioning to control these forces. Do not position the reaction arm so that it tilts the tool off the axis of the bolt and never use the swivel inlets as a reaction stop.
*Avoid sharp bends and kinks that will cause severe back-up pressure in hoses and lead to premier hose failure.
*Use accessories recommended by Roark Tools.
*Use only impact sockets and accessories. Do not use hand (chrome) sockets or accessories.
*Use only sockets and accessories that correctly fit the bolt or nut and function without tilting the tool off the axis of the bolt.
*This tool is not designed for working in explosive atmospheres
*This tool is not insulated against electric shock. When using this tool with a pump having an electrical power source or circuits, follow the pump instructions for proper grounding.
* Use only impact sockets and accessories that are appropriately rated for the output of the tool.
*Always use retaining pin and ring to engage the socket to the square drive.
*Inspect sockets for signs of over use before utilizing with tool.
*Do not use overly worn impact sockets and accessories.

Always wear eye protection when operating or performing maitntance on this tool	Always wear ear protection when operating this tool	Operating at 10,000 Psi (681 bar) maximum pressure
The Torque Rection Arm must be positioned against a positive stop . Do not use the Arm as a dead handel . Take all precautions to make certain the operator's hand cannot be pinched between the arm and solid objects.		All ways Turn off the Pump and disconnect the power before installing. Removing , or adjusting any accessory on this tool , or before performing any maintenance on this tool.
Keep body stance balanced ad firm Do not overreached when operating this tool.	Do not carry the tools by the hose	Do not use damaged, frayed or deteriorated hydraulic hoses and fittings.

Calibration

Roark Tools requires tools to be calibrated every 6 months.
Calibration however may depend on each individual user's requirements.

PLACING THE TOOL IN SERVICE

LUBRICATION

Marine Moly Grease

Lubrication frequency is dependent on factors known only to the user, critical lubrication is imperative every 20-40 hours of continous duty cycling. The amount of contaminants in the work area is one factor. Tools used in a clean room environment will obviously require less service than a tool used out-doors and dropped in loose dirt or sand. Marine Moly Grease is formulated not to wash out of the tool in areas where lubrication is critical.

Whenever lubrication is required, lubricate as follows:

1. Remove the Drive Plate, Ratchet, Segment Pawl and Drive Sleeves

2. After drying the components, wipe a film of Marine Moly Grease onto the wear surface of both Drive

Sleeves and the ends of the Ratchet.

3. Spread a light film of Marine Moly Grease onto the inner face and both sides of the Drive Plate. **Do not** pack the teeth of the Segment Pawl or Ratchet with lube. It can prevent the teeth from engaging properly.

4. Place a daub of Marine Moly Grease in the piston rod recess of the Drive Plate before linking the Piston Rod to the Drive Plate at assembly.

CRITICAL LUBRICATION

It is imperative to lubricate the piston rod recess of the Drive Plate to Piston Rod contact area every 20-40 hours of continuous duty cycling.

Whenever lubrication is required,

Lubricate as follows:

1. Remove Shroud Screws, Shroud, and Roll Pin.

2. Pry the Drive Plate assembly forward from the Piston Rod to expose the recessed contact area in the Drive Plate.

3. With a rag, wipe clean the area and apply a sizeable amount of Marine Moly Grease.

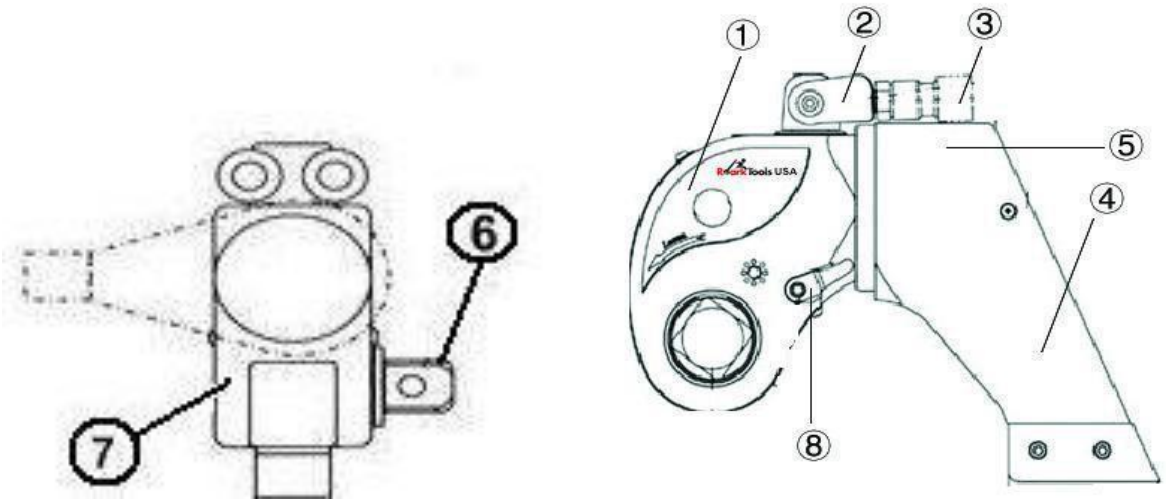
4. Reassemble as instructed in the maintenance section.

OPERATING DIRECTIONS FOR USE

SSD PART DESCRIPTION

The material of SSD Hydraulic Torque Wrenches are Aluminium-Titanium alloy and super high strength alloy steel for increased strength, intensity and durability of the tool. High repeatability, a precise design is with accuracy ±3%.

SSD Square Drive Torque Wrenches:



ITEM	NAME
①	BODY
②	320^0 ×175^0 SWIVELJOINT
③	QUICK COUPLING
④	FIXING HOOK
⑤	360^0 SWIVEL REACTIONARM
⑥	SQUARE DRIVE
⑦	DRIVE RETAINER
⑧	QUICK RELEASE ARM

SSD TOOL OPERATION
CONNECTING THE TOOL

The wrench and power pump are connected by a 700 BAR operating pressure, twin-line hose assembly. Each end of the hose will have one male and one female connector.

Assure proper interconnection between pump and wrench.

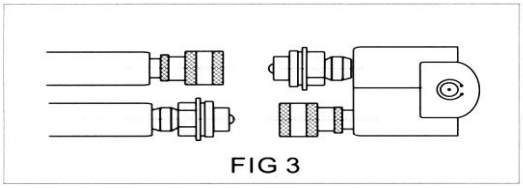
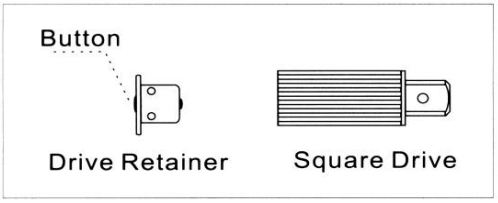


FIG 3

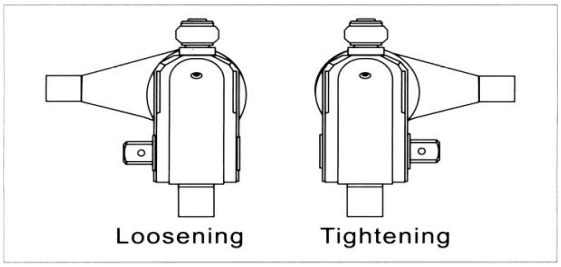
Insure the connectors are fully engaged and screwed snugly and completely together.

SSD DRIVE DIRECTION CHANGE

To remove the square, disengage the drive retainer assembly by depressing the center round button and gently pulling on the square end of the square drive. The square drive will slide easily out.



To insert the drive in the tool, place the drive in the desired direction, engage drive and bushing splines, then twist drive and bushing until ratchet spline can be engaged. Push drive through ratchet. Depress drive retainer button, engage retainer with drive and release button to lock.



Right is tight.
Left is loose.

SETTING THE REACTION ARM

All Roark Hydraulic Torque wrenches are equipped with a reaction arm. These reaction arms are employed to absorb and counteract forces created as the unit operates. The reaction arm should extend in the same direction of the square drive; however, slight adjustments may be made to suit your particular application. The function of a reaction:

Device is to hold the tool in position against the forces generated to tighten or loosen bolts or nuts. Hydraulic wrenches generate tremendous force. The reaction arm can be positioned in numerous places within a 360^0 circle. However, for the arm to be correctly positioned, it must be set within a 90^0 quadrant of that circle. That quadrant is the area located between the protruding square drive and the bottom of the housing away

from the swivel inlets. It will always be toward the lower half of the housing and on one side of the housing when tightening and the other side when loosening.

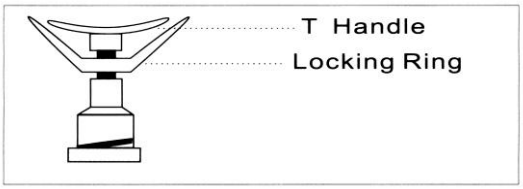
SETTING THE SQUARE DRIVE FOR ROTATION

The position of the square drive when looking toward the shroud will determine if the tool is set to tighten or loosen the nut. When the square drive extends to the left when looking at the shroud with the inlets away from you, the tool is set to loosen the nut. When the square drive extends to the right, the tool is set to tighten the nut. To change the direction of rotation for SSD series wrenches simply push the square drive into the housing until the drive projects out the opposite side of the tool.

SETTING THE TORQUE

After determining the desired torque, use the torque calibration charts to determine the pressure that is necessary to achieve that torque.

1. Connect the tool to the power supply and turn the pump on, with the tools placed on the ground.
2. Depress the advance remote control button causing the pressure to be shown on the gauge.
3. Adjust the pressure by first loosening the nut that locks the pressure adjustment handle and then rotate the handle clockwise to increase the pressure and counter clockwise to decrease the pressure. When decreasing pressure, always lower the pressure below the desired point and then bring the pressure gauge back up to the desired pressure.
4. When the desired pressure is reached, retighten the lock nut and cycle the tool again to confirm that the desired pressure setting has been obtained.



OPERATING THE WRENCH

1. Place the square Drive in the socket, insert the socket retainer ring and pin, and place the socket to the nut. Make certain the square drive and socket are the correct size for the nut and that the socket fully engages the nut.

2. Position the reaction arm against an adjacent nut, flange or solid system component.

Make certain that there is clearance for the hoses and swivel couplings. Do not allow the tool to react against the hoses, or swivel couplings. When reacting directly off the tool body with reaction arm removed. Do not react off the exposed end plug spigot.

3. After having turned the pump on and presetting the pressure for the correct torque, depress the remote control advance button to advance the piston assembly.

4. When the wrench is started, the reaction surface of the wrench or reaction arm will move against the contact point and the nut will begin to turn. Once the piston reaches the end of its stroke depress the remote control return button to retract the piston.

5. Continue this cycling operation of advance and retract until the nut is no longer turning and the pump gauge reaches the preset pressure. The piston rod will retract when the retract button is pressed and under normal conditions, an audible “click” will be heard as the tool resets itself.

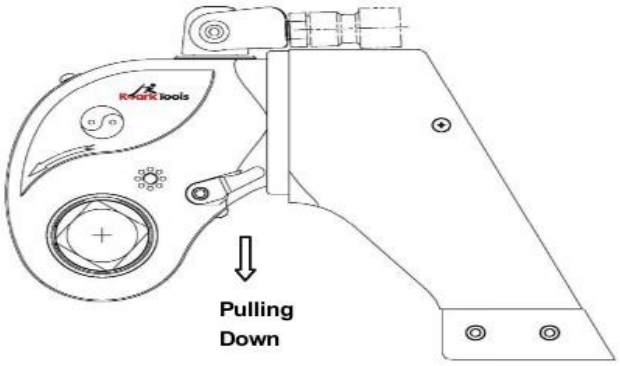
6. Continue to cycle the tool until it “stalls” and the preset psi/torque has been attained.

7. Once the nut stops rotating, cycle the tool one last time to achieve total torque

CAUTION

During the operation, if the tool locks on to the nut, press advance button on remote and build pressure-continue

to press down on remote while pushing down on the reaction pawl-release remote while continuing to push down on reaction pawl, then the tool will the released from the nut.

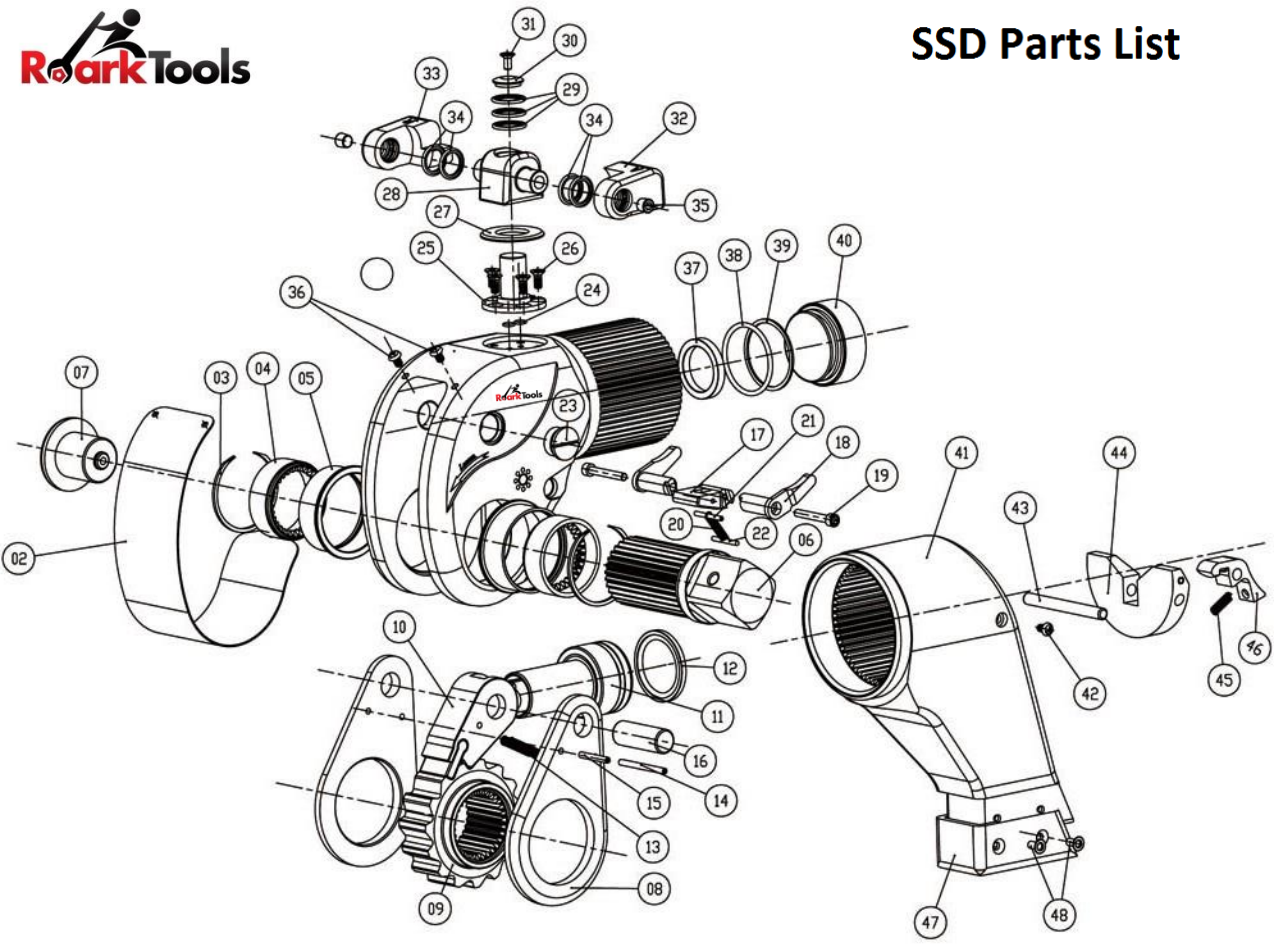


Troubleshooting Guide		
Trouble	**Probable Cause**	**Solution**
Piston will not advance or retract	Couplers are not securely attached to the tool or pump	Check the Coupler connections and make certain that they are connected.
	Coupler is defective	Replace any defective Coupler.
	Defective remote control switch	Replace the switch and/or control pendent
	Dirt in the direction-control valve of the pump unit	Disassemble the pump and clean the direction-control valve.
Piston will not retract	Hose connections reversed	Make certain the advance on the pump is connected to the advance on the tool and retract on the pump is connected to the retract on the tool.
	Retract hose not connected	Connect the retract hose securely
	Retract pin broken	Replace the broken pin and/or spring
Cylinder will not build up pressure	Piston Seal and/or End Plug Seal leaking	Replace any defective O-rings
	Coupler is defective	Replace any defective Coupler
Square Drive will not turn	Grease or dirt build up in the teeth of the Ratchet and Segment Pawl	Disassemble the Ratchet and clean the grease or dirt out of the teeth
	Worn or broken teeth on Ratchet an/or Segment Pawl	Replace any worn or damaged parts
Tool tightens immediately when Turned on	Hose connections are reversed	Depress the advance button to release the tool; shut the pump off in the advance position and reverse the hose connection
Pump will not build up pressure	Defective relief valve	Inspect, adjust or replace the relief valve
	Air supply too low or air hose too small	Make certain the air supply and hose size comply with the pump manual recommendations.
	Electric power source is too low	Make certain the amperage, voltage and any extension cord size comply with the pump manual requirements
	Defective Gauge	Replace the Gauge
	Low oil level	Check and fill the pump reservoir
	Clogged filter	Inspect, clean and/or replace the pump filter
Pressure reading erratic	Defective Gauge	Replace the Gauge

NOTICE

SAVE AND KEEP THESE INSTRUCTIONS WITH THE TOOL AT ALL TIMES. DO NOT DESTROY.

SSD Parts List



Item	SSD Parts
1	Body
2	Shroud
3	Bush sleeve Circlip
4	Drive sleeve spline
5	Bush sleeve
6	Square drive
7	Square Drive retainer
8	Drive Plate Universal
9	Ratchet spline
10	Drive Pawl Assembly
11	Piston Assembly
12	Seal kit for piston
13	Drive pawl spring
14	Drive plate link pin
15	Pin for drive pawl spring
16	Drive pin
17	Reaction pawl
18	Button lever
19	Screw for button lever
20	Spring for reaction pawl
21	Reaction pawl pin
22	Pin for reaction pawl spring
23	Screw for body
24	O-ring for swivel joint base
25	Swivel joint base
26	Swivel joint base Screw
27	Gasket kit
28	Swivel joint
29	Seal kit for swivel joint
30	Cover for swivel joint
31	Cover screw
32	"A" swivel joint coupler
33	"R" swivel joint coupler
34	Seal kit for swivel joint coupler
35	Screw for coupler
36	Shroud Screw
37	U-ring for cylinder
38	End cap O ring
39	End cap retaining ring
40	End cap
41	Reaction arm
42	Reaction arm fixer screw
43	Pin for reaction arm fixer
44	Reaction arm fixer
45	Compressed spring
46	Reaction arm fixer retainer
47	Reaction arm cover
48	Reaction arm cover screw

SSD WARNING AND CAUTION

WARNING

To avoid personal injury and equipment damages, be sure that every hydraulic component is rated for 10,000PSI (700kg/cm^2) Operating Pressure.

WARNING

Try to minimum the danger of overload: Using hydraulic gauge to indicate the working pressure. Hydraulic gauge is a window to show what happened in the hydraulic system.

WARNING

To replace the worn components with the Roark Tools's new components as soon as possible.

CAUTION

Do not subject the components to potential hazard such as fire, sharp surfaces, extreme heat or cold, or heave impact.

CAUTION

Never attempt to grasp a leaking pressurized hose with your hands. The force of escaping hydraulic fluid could cause serious injury.

Do not let the hose kink, twist, curl or bend so tightly that oil flow within the hose is blocked or reduced.

Do not use the hose to move attached equipment. Stress can damage the hose, causing personal injury.

WARNING

To avoid personal injuries and equipment damages, do not remove the shroud of the wrench.

Do not modify any component of the wrench. Do not change the relief valve which is inside the swivel couplings.

CAUTION

The incorrect system connection will cause failure and danger. Before connection, make sure the swivel couplings being clean. After application, the swivel couplings must be put on the dust caps.

CAUTION

Do not use worn socket and square drive.

CAUTION

Please use the socket of good performance. The quality should be according with the standard of ISO-2725 or ISO-1174 or DIN3129 or DIN3121 or ASME-B107.2/1995.