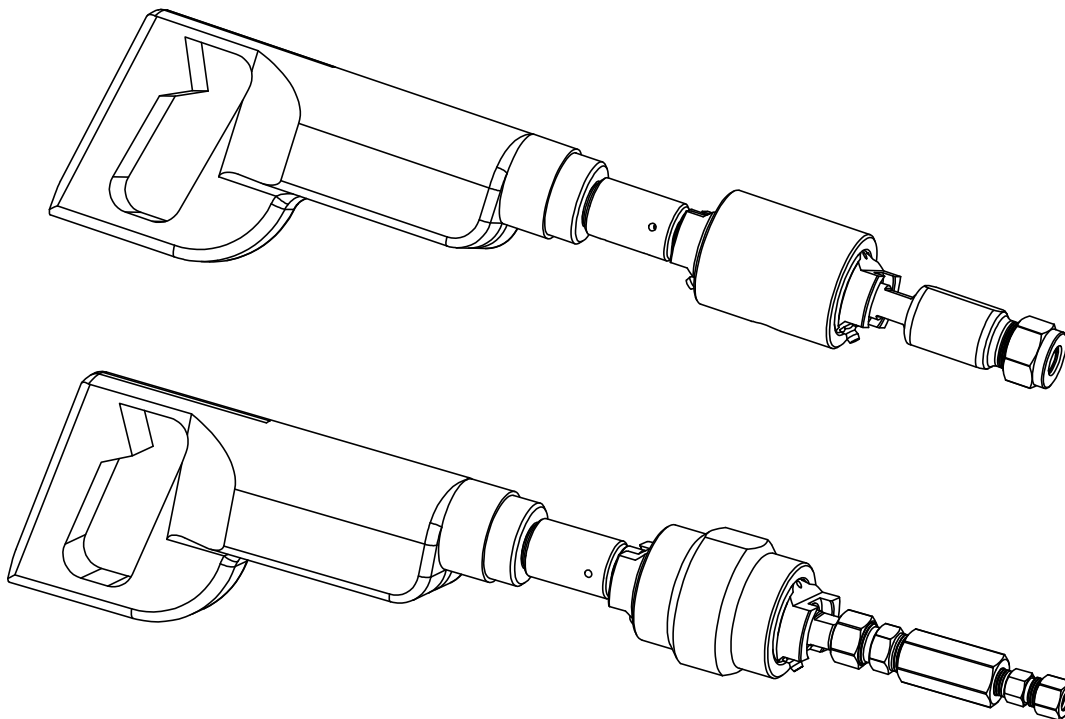


# AIR POWERED ROTARY WATERBLAST TOOL

## SA 1900 and 1909

### OPERATION AND MAINTENANCE MANUAL



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## **1.0 INTRODUCTION**

This manual was prepared to provide the operator with the basic information needed to operate and service this equipment. The operating recommendations in the manual will ensure that you receive satisfactory performance. All operating personnel responsible for the care of this equipment should be familiar with the information in this manual.

If you have any questions or problems with this equipment, please contact the distributor you obtained the product from, or the manufacturer:

### **StoneAge, Inc.**

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## **2.0 SAFETY WARNING**

Operations with high pressure water can be potentially dangerous if caution is not exercised. Please read and follow all of these instructions, in addition to the guidelines in the WJTA Recommended Practices handbook.

- 2.1 Only competent and trained persons should operate this equipment.
- 2.2 Do not exceed the maximum operating pressure specified for any component in a system.
- 2.3 This equipment should always be used with an operator controlled dump mechanism to release the high pressure water.
- 2.4 The immediate work area should be marked off to keep out untrained persons.
- 2.5 All personnel in the area should wear eye and hearing protection, as well as other protective clothing in accordance with specific conditions.
- 2.6 Inspect the equipment for visible signs of deterioration, damage, or improper assembly. Do not operate until repaired. Make sure all threaded connections are tight and leak free.
- 2.7 Check to see that all control functions work properly before going to high pressure.
- 2.8 If it is necessary to have a person work near the cleaning jets, then it is this person who should have control of the pressure dump mechanism.
- 2.9 The tool should be securely supported. Strong back thrust is created by waterjets and these forces can become unbalanced if a nozzle should become plugged.

### 3.0 DESCRIPTION

The **SA 1900/1909** is an air powered rotary tool for high pressure fluids use. It can apply the power of water jets to drilling or cleaning jobs.

The tool is designed to be used with all common waterblast pumps and compressed air systems. The unit consists of two main components: the air motor and the water swivel. The tool can be used with all standard lance rods and nozzle tips. Special cutting bits with jets are available.

### 3.1 WATER SWIVEL

The MODEL HI high pressure water swivel is constructed of hardened stainless steel. Two longwearing high pressure seals offer many hours of leak-free operation. The unit is easy to work on, no special equipment or adjustments are necessary. The swivel can handle 20/18 gpm of flow, respectively for the SA 1900/1909, with only 400 psi of pressure loss ( $C_v = 1.0/.9$  respectively) at a working pressure up to 15,000/22,000 psi, respectively. The input port for the SA 1900 is 3/8 NPT female. The input port for the SA 1909 is female Autoclave Engineering 9/16 High Pressure, with an adapter to female 9/16 Medium Pressure.

The output shaft for the SA 1900 is male 3/8 NPT thread. Adaptors for the SA 1900 are available to fit standard lance rods. The output shaft for the SA 1909 is male, Autoclave Engineering 9/16 High Pressure. Adapters for the SA 1909 are available to fit 1/4, 3/8, and 9/16 Medium Pressure lances.

<u>LANCE</u>			<u>LANCE ADAPTOR</u>	<u>COLLET</u>
SIZE	O.D.	THREAD	PART NUMBER	PART NUMBER
1/4 tubing	.250	1/4-28	SA 056 S4	GP 075-250
3/8 tubing	.375	1/8 npt	SA 056 P6-P2	GP 075-375
1/8 pipe	.405	1/8 npt	SA 056 P6-P2	GP 075-406
1/4 pipe	.540	1/4 npt	SA 056 P6-P4	GP 075-546
9/16 tubing	.562	1/4 npt	SA 056 P6-P4	GP 075-562

<u>LANCE SIZE</u>	<u>COUPLER</u>	<u>FITTING</u>	<u>COLLAR</u>
1/4	AF 073-M4M9	AF 072-M4	AF 071-M4
3/8	AF 073-M6M9	AF 072-M6	AF 071-M6
9/16	AF 073-M9M9	AF 072-M9	AF 071-M9

## 4.0 PARTS LIST

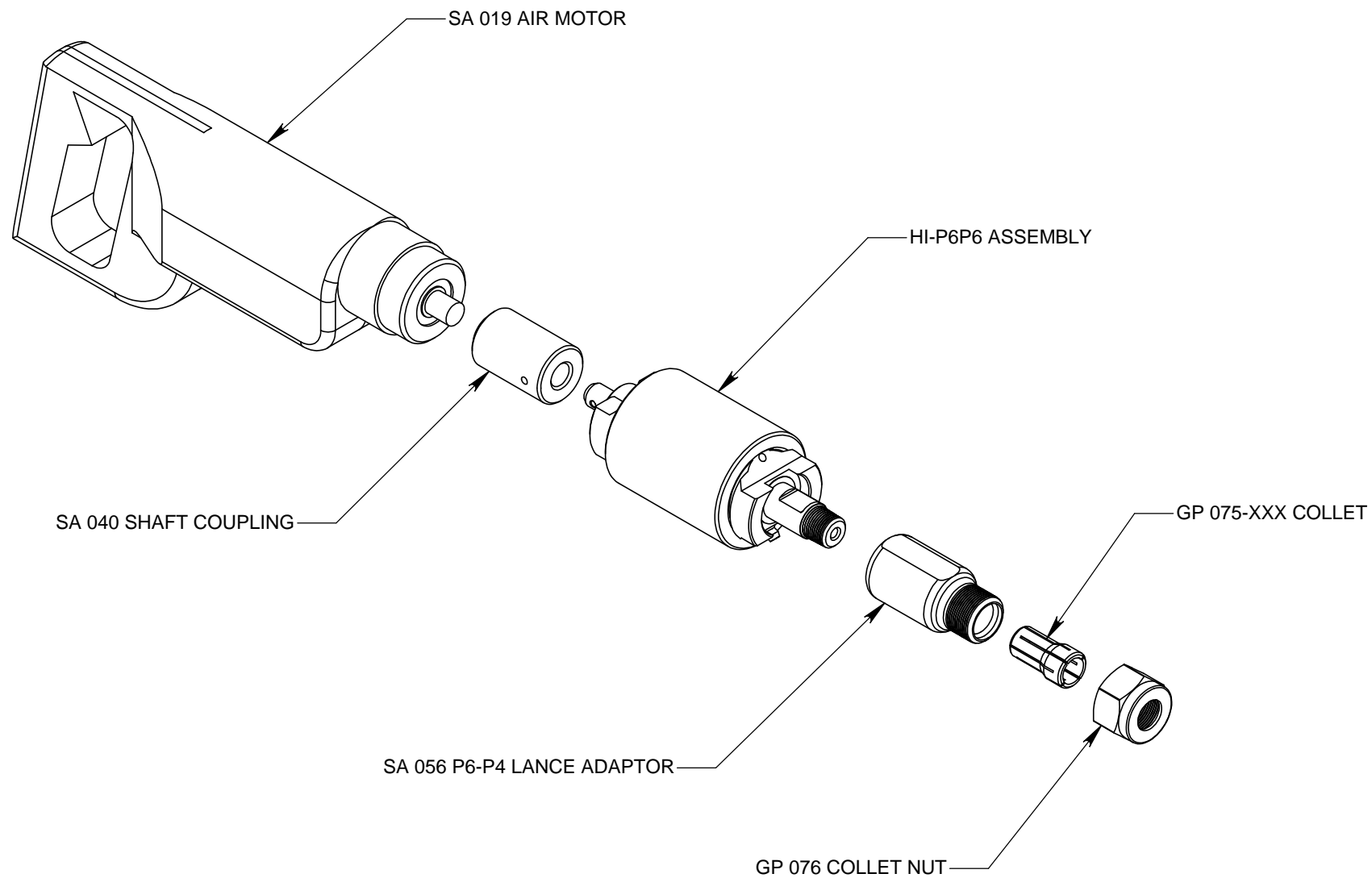
### SA 1900

<u>Part #</u>	<u>Description</u>	<u>Qty</u>
SA 019	AIR MOTOR	1
SA 040	SIOUX COUPLER	1
HI P6-P6	HI-P ASSEMBLY	1
SA 056 P6-S4	LANCE ADAPT 1/4 OD	Optional
SA 056 P6-P2	LANCE ADAPT 1/8 Pipe	1
SA 056 P6-P4	LANCE ADAPT 1/4 Pipe	Optional
GP 075-X	COLLET (X denotes size)	1
GP 076	NUT	1
HI 061	OVERHAUL KIT	Optional

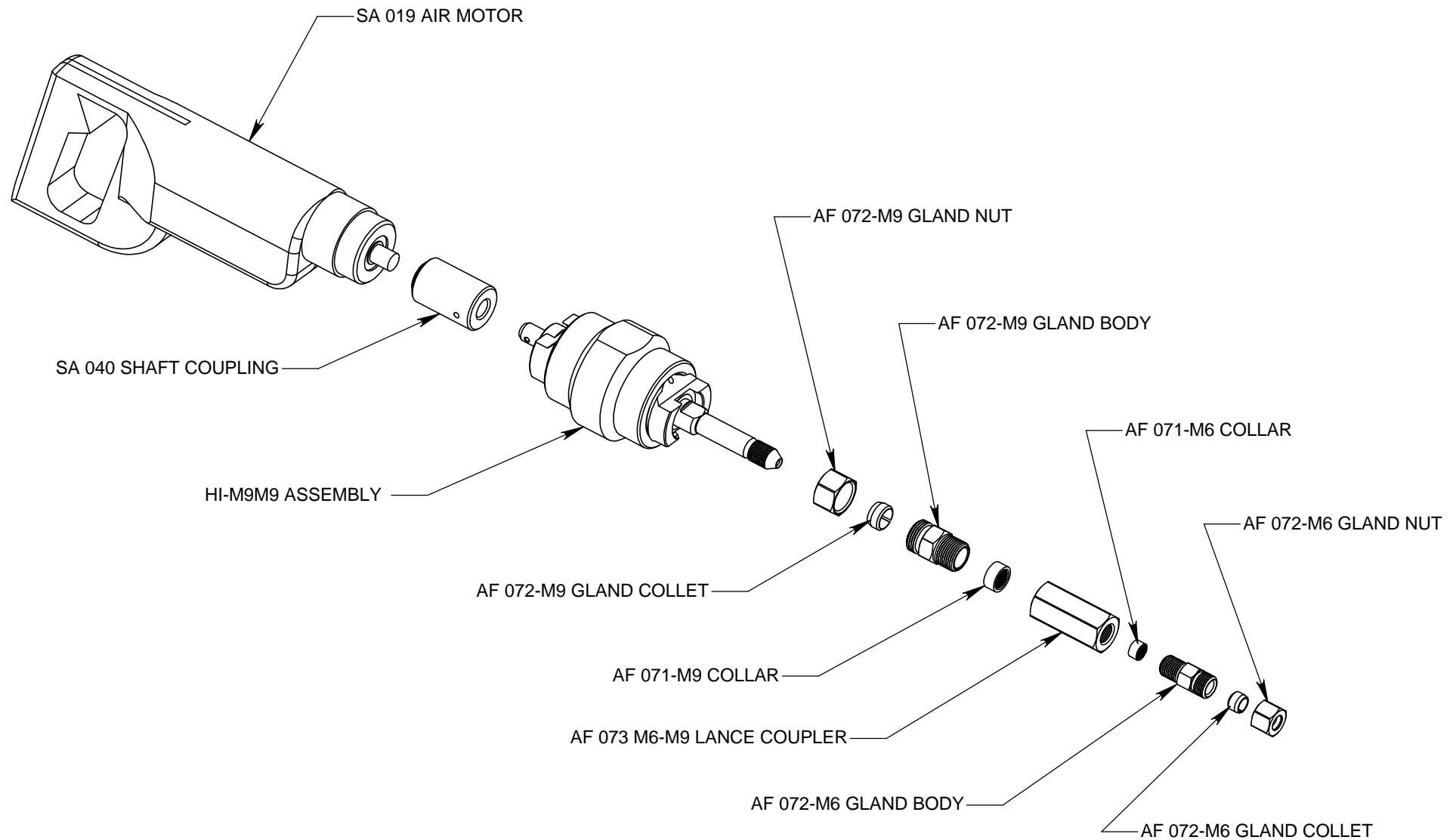
### SA 1909

<u>Part #</u>	<u>Description</u>	<u>Qty</u>
SA 019	AIR MOTOR	1
SA 040	SIOUX COUPLER	1
HI A9-A9	HI-A9 ASSEMBLY	1
AF 073-M4M9	LANCE CPLR 1/4 MP Tubing	Optional
AF 073-M6M9	LANCE CPLR 3/8 MP Tubing	1
AF 073-M9M9	LANCE CPLR 9/16 MP Tubing	Optional
AF 072-M4	ANTV GLAND 1/4 MP	Optional
AF 072-M6	ANTV GLAND 3/8 MP	1
AF 072-M9	ANTV GLAND 9/16 MP	Optional
HI 060	SERVICE KIT	1
HI 061	OVERHAUL KIT	Optional

## 5.0 SA 1900 EXPLODED ASSEMBLY DRAWING



## 5.1 SA 1909 EXPLODED ASSEMBLY DRAWING



## **6.0 MAINTENANCE**

This tool has been designed to require a minimum amount of attention by the operator. However, some guidelines should be followed to obtain top performance and a long, useful life.

This tool is capable of fairly high rpm, but it is recommended that a valve be installed in the airline to regulate the top speed. For many applications lower rpm may improve performance. It will definitely be easier on the motor and swivel.

### **6.1 AIR MOTOR**

1. The air supply should be filtered and use a line oiler to supply lubrication.
2. For added protection when preparing to store the tools, pour a few ounces of oil or diesel directly into the port and run briefly.
3. Keep the control handle clean and working properly.
4. Always blow out the airline before connecting hardware.

Repairs to the air drill are straight forward and require only standard metric wrenches. The most common problems are worn and sticking vanes. Clean all components and lubricate thoroughly before reassembling.

Refer to the appendix for more detailed information.

### **6.2 WATER SWIVEL**

1. Grease the bearings regularly. Every few hours of operation inject enough to cause some grease to push out past the retainer washer.
2. Periodically check the shaft collar and end nuts to be sure they are tight. Any looseness may cause a premature seal or bearing failure.
3. The high pressure seals may leak occasionally but heal themselves during continued use. The seals do not fail abruptly and can be used for several hours even after continuous leaking begins. As long as the leak is tolerable the swivel can be operated without fear of damaging it.
4. Keep all connections clean and flush out the supply hoses before connecting to the swivel.

Refer to the appendix for more detailed information.

## **7.0 LIMITED WARRANTY**

StoneAge, Inc. warrants to the extent herein provided the products of its own manufacture against defects in material and workmanship under normal use and service for which the products were designed for a period of six months after shipment from the factory. If such products should fail through defect in workmanship or material and specific written notice of failure is made within six months after date of shipment from factory, StoneAge, Inc. will either repair or replace any such items, F.O.B. its factory without charge. StoneAge, Inc. shall not be liable for expense incurred in repairs or alterations made outside the factory without the proper and prior authorization. StoneAge, Inc. shall have the option of requiring the return of the defective products to its factory, with transportation charges prepaid, to establish the claim. StoneAge, Inc. shall in no event be held liable for damages or delay resulting from or arising out of defective products nor for consequential damages or otherwise except for repair or replacement of items of defective material or workmanship aforesaid.

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